



AGENDA

REGULAR MEETING

* * *

CLAYTON CITY COUNCIL

* * *

TUESDAY, April 4, 2023

6:30 P.M.

***** NOTICE *****

*Members of the public will be able to participate either in-person at
Hoyer Hall, Clayton Community Library
6125 Clayton Road, Clayton, CA 94517
or
remotely via Zoom.*

Mayor: Jeff Wan
Vice Mayor: Jim Diaz

Council Members
Peter Cloven
Holly Tillman
Kim Trupiano

- A complete packet of information containing staff reports and exhibits related to each public item is available for public review in City Hall located at 6000 Heritage Trail and on the City's website at www.claytonca.gov
- Agendas are posted at: 1) City Hall, 6000 Heritage Trail; 2) Library, 6125 Clayton Road; 3) Ohm's Bulletin Board, 1028 Diablo Street, Clayton; and 4) City Website at www.claytonca.gov
- Any writings or documents provided to a majority of the City Council after distribution of the Agenda Packet and regarding any public item on this Agenda will be made available for public inspection in the City Clerk's office located at 6000 Heritage Trail during normal business hours and is available for review on the City's website at www.claytonca.gov
- If you have a physical impairment that requires special accommodation to participate, please call the City Clerk's office at least 72 hours in advance of the meeting at (925) 673-7300.

Instructions for Virtual City Council Meeting – April 4

Tonight's meeting will be available to the public both in-person and remotely via Zoom. As a courtesy, and technology permitting, members of the public may continue to provide live remote oral comment via the Zoom video conferencing platform. However, the City cannot guarantee that the public's access to teleconferencing technology will be uninterrupted, and technical difficulties may occur from time to time.

To follow or participate in the meeting:

1. **Videoconference:** to follow the meeting on-line, click here to register:

https://us02web.zoom.us/webinar/register/WN_06q0GcosRnmvy4dNOutGlw

After clicking on the URL, please take a few seconds to submit your first and last name, and e-mail address then click "Register", which will approve your registration and a new URL to join the meeting will appear.

Phone-in: Once registered, you will receive an e-mail with instructions to join the meeting telephonically, and then dial Telephone: 877 853 5257 (Toll Free)

2. using the *Webinar ID* and *Password* found in the e-mail.

E-mail Public Comments: If preferred, please e-mail public comments to the City Clerk, Ms. Calderon at janetc@claytonca.gov by 5 PM on the day of the City Council meeting. All E-mail Public Comments will be forwarded to the entire City Council.

For those who choose to attend the meeting via videoconferencing or telephone shall have 3 minutes for public comments.

Location:

Videoconferencing Meeting (this meeting via teleconferencing is open to the public)

To join this virtual meeting on-line click here:

https://us02web.zoom.us/webinar/register/WN_06q0GcosRnmvy4dNOutGlw

To join on telephone, you must register in the URL above, which sends an e-mail to your inbox, and then dial (877) 853-5257 using the *Webinar ID* and *Password* found in the e-mail.

*** CITY COUNCIL ***

April 4, 2023

1. **CALL TO ORDER AND ROLL CALL** – Mayor Wan.

2. **CLOSED SESSION**

(a) Public Employment (Gov. Code 54957)
Title: City Manager

Conference with Labor Negotiators (Gov. Code 54957.6)
Agency designated representatives: Mayor Wan and Councilmember Tillman
Unrepresented employee: City Manager

- Short Recess -

* * * * *

7:00 P.M.

3. **RECALL TO ORDER AND ROLL CALL** – Mayor Wan.

4. **PLEDGE OF ALLEGIANCE** – led by Mayor Wan.

5. **PUBLIC COMMENT ON NON - AGENDA ITEMS**

Members of the public may address the City Council on items within the Council's jurisdiction (which are not on the agenda) at this time. To assure an orderly meeting and an equal opportunity for everyone, each speaker is limited to 3 minutes, enforced at the Mayor's discretion. In accordance with State Law, no action may take place on any item not appearing on the posted agenda. The Council may respond to statements made or questions asked or may at its discretion request Staff to report back at a future meeting concerning the matter.

Public comment and input on Public Hearing, Action Items and other Agenda Items will be allowed when each item is considered by the City Council.

6. **CONSENT CALENDAR**

Consent Calendar items are typically routine in nature and are considered for approval by one single motion of the City Council. Members of the Council, Audience, or Staff wishing an item removed from the Consent Calendar for purpose of public comment, question, discussion or alternative action may request so through the Mayor.

(a) Approve the minutes of the City Council's special meeting of March 13, 2023 and City Council's regular meeting of March 28, 2023. (City Clerk) ([View here](#))

- (b) Approve the Financial Demands and Obligations of the City. (Finance) ([View here](#))
- (c) Adoption of an Ordinance to Amend Clayton Municipal Code Chapter 17.47, Sections 17.04.083 and 17.44.030, and Schedule 17.37.030A Pertaining to Accessory Dwelling Units and Junior Accessory Dwelling Units (ZOA-02-2022), and Finding that Such Amendment is Exempt from CEQA Pursuant to Public Resources Code Section 21080.17. (Community Development Director) ([View here](#))
- (d) Adoption of a Revised Investment Policy. (Finance Director) ([View here](#))
- (e) National Opioid Litigation and Authorization to Participate in Additional Settlement Agreements Arising from the Litigation. (City Attorney) ([View here](#))

7. RECOGNITIONS AND PRESENTATIONS

- (a) Information Only – No Action Requested.
 - Autism Acceptance Month
 - Arab-American Heritage Month
 - Earth Day (April 22)
 - Armenian Genocide Remembrance Day (April 24)

8. REPORTS

- (a) City Manager/Staff

9. PUBLIC HEARINGS

- (a) Adopt a Resolution Authorizing the City to Amend the Installation Agreement with Climatec to Initiate Phase 2 of the Comprehensive Infrastructure Renewal and General Fund Savings Program and Find the Amendment to be Exempt from the California Environmental Quality Act. (Interim City Manager) ([View here](#))

10. ACTION ITEMS

- (a) The Fiscal Year 2022-23 Mid-Year Budget Update. (Finance Director) ([View here](#))

- (b) Approve Funding Appropriation of American Rescue Plan Act (ARPA) Funds for Energy Cost Savings, Efficiency Measures and Asset Replacement.
(Finance Director) ([View here](#))
- (c) Annual Consideration of Canceling Any Regular City Council Meetings During the Summer of 2023. (Interim City Manager) ([View here](#))

11. **COUNCIL ITEMS** – limited to Council requests and directives for future meetings.

12. **COUNCIL REPORTS**

- (a) City Council - Reports from Council liaisons to Regional Committees, Commissions and Boards.

13. **ADJOURNMENT**

The next regularly scheduled meeting of the City Council will be April 18, 2023.

#

**MINUTES
OF THE
SPECIAL MEETING
CLAYTON CITY COUNCIL
MONDAY, March 13, 2023**

1. **CALL TO ORDER THE CITY COUNCIL** – The meeting was called to order at 3:32 p.m. by Mayor Wan held via a hybrid meeting format live in-person and Zoom videoconference and broadcast from Hoyer Hall, Clayton Community Library, 6125 Clayton Road, Clayton, California. Councilmembers present: Mayor Wan, Vice Mayor Diaz, and Councilmembers Cloven Tillman, and Trupiano. Councilmembers absent: None. Staff present: Interim City Manager Ron Bernal, Strategic Planning, Economic Dev. & Municipal Management Rick Otto from MRG Consultants, City Attorney Mala Subramanian, Maintenance Supervisor Jim Warburton, Police Chief Rich McEachin, Community Development Director Dana Ayers, Finance Director Angeline Loeffler, Finance Consultant Nitish Sharma, City Engineer Larry Thesis, and City Clerk Janet Calderon.

Report out from Closed Session from City Council special meeting of March 11, 2023:
Mayor Wan reported “No Reportable Action”.

2. **PUBLIC COMMENT ON NON - AGENDA ITEMS**

James Killoran expressed concern regarding permit fee increases and suggested a limited police fund parcel tax.

Scott Denslow would not support new taxes.

Terri Denslow requested a change of the negotiators of the Clayton Business and Community Association contract be the Mayor and City Manager, as they are not Clayton Business and Community Association members.

Keith Haydon requested the negotiators of the Clayton Business and Community Association contact the original negotiators for input on the original fee structure.

Mayor Wan closed public comment.

3. **CONSENT CALENDAR**

It was moved by Councilmember Cloven, seconded by Councilmember Tillman, to approve the Consent Calendar item 4(a), as submitted. (Passed 5-0).

- (a) Adopted Resolution No. 13-2023 Extending the Proclamation of the Director of Emergency Services of the City of Clayton Declaring a Local Emergency Due to Adverse Weather Conditions Beginning December 31, 2022. (Interim City Manager)

4. **ACTION ITEM**

- (a) Review, discuss and establish Council - Manager Goals and Objectives for Fiscal Year 2023/24. (Interim City Manager)

Interim City Manager Ron Bernal presented the report and introduced Rick Otto, MRG Consulting to present its findings on the Organizational Assessment.

Rick Otto, MRG Consulting presented a PowerPoint presentation with an overview of the findings.

Following questions and comments by the City Council, Mayor Wan opened the public comment.

James Killoran suggested a \$200.00 parcel tax to add an additional three employees to staff.

Terri Denslow was not surprised by the results of the organizational assessment and requested the City Council take this seriously.

Scott Denslow suggested everyone listen to the results, analyze the report and move forward.

Keith Haydon suggested the results be shared with the community.

Frank Gavidia requested the City Council find a way to work together as the city is currently divided.

Ed Miller expressed support of the city joining Recycle Smart JPA and regionalism of working with other municipalities.

Mayor Wan closed public comment.

The City Council provided the following objectives:

- Revenue Generating Ideas
- Updated Fee Schedule
- Apex IT Update
- Address Financial Challenges
- Landscape Maintenance District Vote
- Address Finances to Fund Staff
- Financial Stability
- Staff Resources
- Geological Hazard Abatement District Resources
- Overview of On-Call Contracts
- Council Relationship
- Initiative to Fund Public Safety
- Cannabis Initiative
- Update General Plan

Interim City Manager Ron Bernal suggested scheduling another meeting to discuss next steps on City Council Goals.

5. **ADJOURNMENT**— on call by Mayor Wan, the City Council adjourned its meeting at 5:51 p.m.

#

Respectfully submitted,

Janet Calderon, City Clerk

APPROVED BY THE CLAYTON CITY COUNCIL

Jeff Wan, Mayor

#

**MINUTES
OF THE
REGULAR MEETING
CLAYTON CITY COUNCIL**

TUESDAY, March 21, 2023

1. **CALL TO ORDER THE CITY COUNCIL** – The meeting was called to order at 7:02 p.m. by Mayor Wan held via a hybrid meeting format live in-person and Zoom videoconference and broadcast from Hoyer Hall, Clayton Community Library, 6125 Clayton Road, Clayton, California. Councilmembers present: Mayor Wan, Vice Mayor Diaz, and Councilmembers Cloven and Trupiano. Councilmembers absent: None. Staff present: Interim City Manager Ron Bernal, City Attorney Mala Subramanian, Community Development Director Dana Ayers, City Engineer Larry Theis, and City Clerk Janet Calderon.

2. **PLEDGE OF ALLEGIANCE** – led by Mayor Wan.

3. **PUBLIC COMMENT ON NON - AGENDA ITEMS**

James Killoran provided feedback on the suggestion of a potential Cannabis Dispensary in Clayton and requested the City Council disclose any Conflicts of Interest regarding this item.

Gary Barton expressed his disappointment regarding the Clayton Business and Community Association master agreement

Carl Wolfe assured the Art and Wine Festival is still taking place on April 29 and April 30 in downtown Clayton and will be negotiating a fee structure with the City in the future.

Rosy Straka expressed her dissatisfaction with the City not caring about its citizens concerns.

Frank Gavidia expressed his concern of accusations made about former Councilmember Joe Medrano.

Scott Denslow provided a brief summary of the organizational assessment, and highlighted City accomplishments in 2021-2022.

Terri Denslow noted a conflict of interest exists for City Council, suggested terminating all master agreements, and provided a brief summary of the organizational assessment.

Roy Correa indicated normal business practice is to negotiate contracts as needed.

Lisa Browlett submitted comments to the City Clerk to be entered into the record. "Based on MRG Consultants' analysis of the City of Clayton's staffing, compared to neighboring cities, it clearly shows Clayton is understaffed. My question is, did the MRG Consultants also provide an analysis on whether the understaffed City of Clayton employees are getting their lunch/ meal breaks?"

Mayor Wan closed public comment.

4. CONSENT CALENDAR

Mayor Wan pulled item 4(d) for separate discussion.

Vice Mayor Diaz pulled item 4(f) for separate discussion.

Mayor Wan opened public comment.

Glenn Miller expressed his concerns regarding item 4(d) in watching the fund for this item, maintenance is not being performed, however the fund balance is zero.

Mayor Wan closed public comment.

It was moved by Councilmember Cloven, seconded by Councilmember Trupiano, to approve the Consent Calendar items 4(a) – 4(c) and 4(e), as submitted. (Passed 5-0).

- (a) Approved the minutes of the City Council's regular meeting of March 7, 2023. (City Clerk)
- (b) Approved the Financial Demands and Obligations of the City. (Finance)
- (c) Adopted Resolution No. 14-2023 Acceptance of the 2022 General Plan Implementation and Housing Element Annual Progress Report. (Community Development Director)
- (e) Adopted Resolution No. 15-2023 of the City Council of the City of Clayton Amending a Professional Services Agreement with GovInvest for Financial Consulting Services in the Amount of \$49,900 for a Total Not-To-Exceed Amount of \$115,775. (Finance Director)

Item 4(d) pulled for a separate discussion

- (d) Adopted Resolution No. 16-2023 Establishing 2023/2024 Equivalent Ruoff Unit (ERU) Assessment Rate for Federal and State Mandated National Pollution Discharge Elimination System (NPDES) Program (Storm Water Pollution Prevention). (City Engineer)

Mayor Wan requested City Engineer Larry Theis to provide a brief presentation on this item.

5. RECOGNITIONS AND PRESENTATIONS

- (a) Certificates of Recognition to public school students for exemplifying the "Do the Right Thing" character trait of "Self-Discipline" during the months of January and February 2023. (Councilmember Cloven)

Councilmember Cloven and Mt. Diablo Elementary School Principal Katie Sanchez presented certificates to Luca Carone and Maliyah Hill.

Councilmember Cloven and Diablo View Middle School Principal Peter Fong presented certificates to Ethan Ruff and Kenley Kick.

Item 4(f) pulled for a separate discussion

- (f) Request to purchase 2016 Zero electric police motorcycle. (Police Chief)

Vice Mayor Diaz requested a future item providing a traffic enforcement plan.

It was moved by Councilmember Cloven, seconded by Councilmember Trupiano, to approve the Consent Calendar items 4(d) and 4(f), as submitted. (Passed 5-0).

6. REPORTS

- (a) Interim City Manager Ron Bernal indicated "No Report".

7. PUBLIC HEARINGS

- (a) Adopt a Resolution Approving Endeavor Hall Clayton Non-Profit Rental Fees.
(Interim City Manager)

Interim City Manager Ron Bernal presented the report.

Following questions and comments by the City Council, Mayor Wan opened the public comment.

Janet Easton expressed concern on additional work for staff for Clayton non-profit rentals, insurance requirements and suggested the Kitchen could potential be a separate rental. She also inquired on who receives the fees for rental of the Mount Diablo Elementary School Field and Parking Lot.

Glenn Miller would like to continue Clayton resident and non-Clayton resident rates.

Pat Middendorf clarified Endeavor Hall rental rates does not include set-up or clean-up, and non-profits do not provide a deposit for Endeavor Hall rentals

Carl Wolfe is hopeful the City Council will vote in favor of this item.

Mayor Wan closed public comment.

It was moved by Mayor Wan, seconded by Councilmember Tillman, to Adopt Resolution No. 17-2023 Amending Endeavor Hall Non-Profit Rental Fees and Updating the City Master Fee Schedule for City User Benefit, Regulatory and Rental Fees, as amended. (Passed; 5-0 No)

- (b) Introduce and Waive First Reading of an Ordinance to Amend Clayton Municipal Code Chapter 17.47, Sections 17.04.083 and 17.44.030, and Schedule

17.37.030A Pertaining to Accessory Dwelling Units and Junior Accessory Dwelling Units (ZOA-02-2022), and Finding that Such Amendment is Exempt from CEQA Pursuant to Public Resources Code Section 21080.17.
(Community Development Director)

Community Development Director Dana Ayers presented the report.

Following questions by the City Council, Mayor Wan opened the public comment; no comments were offered.

**It was moved by Councilmember Cloven, seconded by Mayor Wan, to Waive First Reading and Introduce an Ordinance Amending Clayton Municipal Code Chapter 17.47, Sections 17.04.083 and 17.44.030, and Schedule 17.37.030A Pertaining to Accessory Dwelling Units and Junior Accessory Dwelling Units (ZOA-02-2022), and Finding that Such Amendment is Exempt from CEQA Pursuant to Public Resources Code Section 21080.17.
(Passed; 5-0)**

8. ACTION ITEMS

- (a) Adopt a Resolution Authorizing the City to Apply for Energy Efficiency Loan from the California Energy Commission to Implement Energy Efficiency Measures, if Approved and Finding that the Activities funded by the Loan are Categorically Exempt from CEQA pursuant to Class 1 (14 CCR § 15301) and Class 3 (14 CCR §15303) Categorical Exemptions of the State CEQA Guidelines. (Interim City Manager)

Interim City Manager Ron Bernal presented the report.

Following questions and comments by the City Council, Mayor Wan opened the public comment.

Mayor Wan closed public comment.

It was moved by Mayor Wan, seconded by Councilmember Cloven, to Adopt Resolution No. 18-2023 Authorizing the City to Apply for Energy Efficiency Loan from California Energy Commission to Implement Energy Efficiency Measures, if Approved. (Passed; 5-0)

9. COUNCIL ITEMS

Councilmember Trupiano requested a future agenda item to include a policy on posting community events on the city's website and requested the Mount Diablo Interpretive Association to provide the City Council a presentation at its April 18 meeting.

Vice Mayor Diaz requested a future agenda item to include establishment of an ad-hoc committee for the purpose of Public Safety Services District funding source for the Police Department.

Councilmember Cloven requested a future agenda item to include the addition of a future item to the City Council Agenda discussed in public prior to being placed on the agenda.

Councilmember Tillman requested a future agenda item to include consideration of a play structure at Stranahan park and consideration of use fees for other entities such as sports teams.

9. COUNCIL REPORTS

- (a) City Council - Reports from Council liaisons to Regional Committees, Commissions and Boards.

Councilmember Cloven attended the Transportation Partnership and Cooperation for Central Contra Costa (TRANSPAC) meeting, spoke with constituents, and announced the upcoming Clayton Cleans Up event taking place April 22.

Councilmember Tillman attended the Network of Care Crab Feed, attended the Clayton City Council Goal Setting session, was a guest speaker at the Clayton Valley Woman's Club, participated in the City Manager Interviews, and attended the Cal Cities Community Services Policy Committee meeting.

Councilmember Trupiano attended the Transportation Partnership and Cooperation for Central Contra Costa (TRANSPAC) meeting, attended the Energy Services and infrastructure renewal ad-hoc committee meeting, attended the Clayton City Council Special meeting of March 11, attended the Clayton City Council Goal Setting session, and attended the Clayton Community Library Foundation meeting.

Vice Mayor Diaz attended the Clayton Historical Society Bob Hoyer Birthday celebration, attended the Morgan Territory Association meeting, attended the Clayton City Council Special meeting on March 11, attended the Clayton City Council Goal Setting session, attended the Clayton Business and Community Association ad-hoc committee meeting, attended the County Connection meeting, and attended the Clayton City Council special meeting March 21.

Mayor Wan attended several Clayton City Council meetings, attended the Clayton Business and Community ad-hoc committee meeting, and a meeting with Climatec.

- 11. RECESS THE CITY COUNCIL MEETING – Mayor Wan**
(until after the conclusion of the Oakhurst Geological Hazard Abatement District meeting)

(9:14 pm) Mayor Wan recessed the City Council meeting.

- 12. RECONVENE THE CITY COUNCIL MEETING – Mayor Wan**

(11:25 pm) Mayor Wan reconvened the City Council meeting.

- 13. CLOSED SESSION**

(11:26 pm) Mayor Wan announced City Council Closed Session.

- (a) Conference with Real Property Negotiators
(Gov. Code section 54956.8)

Property: 278 Stranahan Circle, Clayton, Ca 94517

Agency Negotiators: Ron Bernal, Interim City Manager and Dana Ayers, Community Development Director

Negotiating Party: Bonny Slatkin
Under Negotiation: Price and terms of payment

Report out from Closed Session:
(11:41 pm) Mayor Wan reported "No Reportable Action".

14. **ADJOURNMENT** - on call by Mayor Wan, the City Council adjourned its meeting at 11:41 p.m.

#

Respectfully submitted,

Janet Calderon, City Clerk

APPROVED BY THE CLAYTON CITY COUNCIL

Jeff Wan, Mayor



STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: JENNIFER GIANTVALLEY, ACCOUNTING TECHNICIAN
ANGELINE LOEFFLER, FINANCE DIRECTOR

DATE: 4/4/23

SUBJECT: FINANCIAL DEMANDS AND OBLIGATIONS OF THE CITY

RECOMMENDATION:

It is recommended the City Council, by minute action, approve the financial demands and obligations of the City for the purchase of services and goods in the ordinary course of operations.

Attached Report	Purpose	Amount
Obligations	Accounts Payable	\$ 156,173.55
Payroll Reconciliation Summary	Payroll, Taxes	\$ 96,535.87
	Total Required	\$ 252,709.42

Attachments:

1. Obligation report for 4/4/23 (2 pages)
2. Payroll Reconciliation Summary report PPE 3/19/23 (2 pages)

City of Clayton
Obligations for 4/4/23

Vendor name	Invoice date	Invoice number	Invoice description	Amount	Payment method
American Fidelity Assurance Company	03/31/2023	D565099	Supplemental Insurance March 2023	\$566.84	Bank draft
AT&T	03/07/2023	4244457704	Hoyer Hall Internet	\$187.60	Check
AT&T (CalNet3)	03/22/2023	19697383	Phones 2/22/23-3/21/23	\$1,240.16	Check
Samuel Awad	03/24/2023	CCP	CCP partial refund	\$86.00	Check
Axon Enterprise, Inc	03/15/2023	INUS144385	Basic to Pro Conversion	\$312.52	Check
CalPERS Health	03/14/2023	1715835	Medical April 2023	\$33,181.26	Bank draft
CalPERS Retirement	03/19/2023	031923	Retirement PPE 3/19/23	\$18,414.91	Bank draft
CCWD	03/02/2023	030223	Water 1/7/23-3/2/23	\$17,089.58	Check
City of Antioch	03/10/2023	AR168610	PD Vehicle repairs March 2023	\$1,927.26	Check
Comcast Business	03/05/2023	030523	Internet 3/10/23-4/9/23	\$237.52	Check
Contra Costa County - Office of the Sheriff	03/08/2023	CLPD-422	Blood withdrawals Q2 FY23	\$115.50	Check
Contra Costa County - Office of the Sheriff	03/02/2023	Training	Training - Radar/Lidar	\$319.00	Check
Contra Costa Topsoil	01/10/2023	164714	Sand	\$815.63	Check
Contra Costa Topsoil	01/09/2023	164725	Sand	\$815.63	Check
CR Fireline, Inc	01/05/2023	122909	Emergency call - Fire alarm panel	\$575.00	Check
Globalstar LLC	03/16/2023	47708895	Sat phone 3/16/23-4/15/23	\$136.95	Check
GovInvest, Inc	03/07/2023	2023-4404	Finance Consulting hours January & February 2023	\$25,200.00	Check
Hammons Supply Company	03/16/2023	122394	Janitorial supplies March 2023	\$146.92	Check
Hammons Supply Company	03/16/2023	122393	Janitorial supplies March 2023	\$453.73	Check
J&R Floor Services	04/01/2023	Three2023	Janitorial svcs March 2023	\$4,988.00	Check
J&R Floor Services	02/10/2023	Miwok/Ahwanee	Repair sidewalks	\$2,250.00	Check
JJR Enterprises for Caltronics Business Systems	03/17/2023	3727549	Copier usage 2/18/23-3/17/23	\$175.94	Check
LarryLogic Productions	03/22/2023	2100	City council meeting production 3/21/23	\$680.00	Check
LSA Associates Inc	03/10/2023	187307	Consultant svcs February 2023	\$606.25	Check
LSA Associates Inc	01/17/2023	186501	Consultant svcs December 2022	\$6,291.25	Check
Mission Square Retirement	03/19/2023	031923	457 Plan contributions PPE 3/19/23	\$225.00	Bank draft
Moore Iacofano Golstman, Inc	03/23/2023	80026	Housing Element svcs February 2023	\$993.75	Check
MPA	03/17/2023	INV003081	EAP Q3 FY2023	\$303.42	Check
MPA	03/14/2023	INV003040	Unmet Liability Deductible December 2022	\$5,000.00	Check
Nationwide	03/19/2023	031923	457 Plan contribution PPE 3/19/23	\$750.00	Bank draft
NBS Govt. Finance Group	03/22/2023	202303-1610	Delinquency mgmt	\$188.60	Check
NBS Govt. Finance Group	03/20/2023	202303-1415	CFD Admin Q4 FY 23	\$5,294.44	Check
Nor Cal EVI	03/23/2023	2016Zero	2016 Zero Motorcycle	\$7,500.00	Check
Office of the Sheriff - Field Operations	03/15/2023	23-19	Rendition, Kentucky - 23-90075	\$485.00	Check
Pacific Telemanagement Svc	03/23/2023	2103921	Courtyard pay phone April 2023	\$70.00	Check
PG&E	03/23/2023	2572177359-3 032323	Energy (Gas) 2/21/23-3/21/23	\$419.39	Check
Pond M Solutions	03/01/2023	7377	Fountain maintenance March 2023	\$650.00	Check
Precision Civil Engineering (PCE)	03/15/2023	27875	21-359 Pre-approved ADU Plans	\$7,393.75	Check
Precision Civil Engineering (PCE)	03/15/2023	27867	21-359 ADU Ordinance	\$237.50	Check
Professional Convergence Solutions, Inc	03/20/2023	PCS0320232	Fix time on phones to Daylight Savings Time/Clear voicemail	\$120.00	Check
RoadSafe Traffic Systems, Inc	03/14/2023	168081	Sandbags	\$1,141.40	Check
RoadSafe Traffic Systems, Inc	03/10/2023	167985	Barricades and sandbags	\$397.59	Check
Stericycle, Inc	03/18/2023	8003559519	Deliver SIT container console	\$88.98	Check
Swenson's Mobile Fleet Repair	03/15/2023	I006245	PW vehicle repair 2007 F450	\$2,845.68	Check
The Pioneer	03/23/2023	2021489	Concerts in The Grove flyers 2023	\$480.00	Check
Brittney Torres	03/24/2023	CCP	Partial refund CCP rental	\$120.00	Check
Ushma Vora	03/24/2023	CCP	Partial refund CCP rental	\$54.00	Check

City of Clayton
Obligations for 4/4/23

Waraner Brothers Tree Service	03/24/2023	16355	Tree work Mitchell Canyon	\$1,800.00	Check
Alexis White	03/13/2023	EH	Partial refund of fees and deposit refund EH	\$932.00	Check
Workers.com	03/24/2023	135781	Seasonal workers week end 3/19/23	\$1,869.60	Check
				<u>\$156,173.55</u>	

Payroll Summary

City of Clayton

Check Date: 03/24/2023

Process: 2023032401

Pay Period: 03/06/2023 to 03/19/2023

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Payroll Totals

Payroll Checks	Check Type	Count	Net Check	Dir Dep Amount	Net Amount	
	Regular	27	0.00	75,197.28	75,197.28	
	Totals	27	0.00	75,197.28	75,197.28	→ 75,197.28

Payroll Checks	Check Type	Agency Type	Count	Net Check	Dir Dep Amount	Net Amount	
	Agency	EFSDU	1	0.00	358.15	358.15	
	Agency	Regular	1	0.00	663.50	663.50	
	Totals		2	0.00	1,021.65	1,021.65	→ 1,021.65

	Total Net Payroll Liability			0.00	76,218.93	76,218.93	→ 76,218.93
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Tax Liability

CA and Related Taxes	Tax Id	Rate	Frequency	Wage	Cap Wages	EE Amount	ER Amount	
CA SDI - Employee	EXEMPT		Semi-Weekly	103,919.41	103,919.41			
California SITW			Semi-Weekly	102,944.41	102,944.41	4,809.51		
Totals						4,809.51	0.00	→ 4,809.51

CASUI and Related Taxes	Tax Id	Rate	Frequency	Wage	Cap Wages	EE Amount	ER Amount	
CA Edu & Training		0.001000	Quarterly	103,919.41	3,696.77		3.70	
California SUI		0.020000	Quarterly	103,919.41	3,696.77		73.94	
Totals						0.00	77.64	→ 77.64

FITW and Related Taxes	Tax Id	Rate	Frequency	Wage	Cap Wages	EE Amount	ER Amount	
Federal Income Tax			Semi-Weekly	102,944.41	102,944.41	12,416.12		
Medicare			Semi-Weekly	103,919.41	103,919.41	1,506.84		
Medicare - Employer			Semi-Weekly	103,919.41	103,919.41		1,506.83	
Totals						13,922.96	1,506.83	→ 15,429.79

	Total Tax Liability					18,732.47	1,584.47	→ 20,316.94
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	Total Payroll Liability					96,535.87		→ 96,535.87
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Transfers

Type	Date	Source Account	Amount	
Dir Dep	3/23/2023		75,197.28	
Tax	3/23/2023		20,316.94	
Trust Agency	3/23/2023		1,021.65	
Totals Transfers			96,535.87	→ 96,535.87



Paylocity Corporation
(888) 873-8205

User: JGiantvalley

Run on 3/20/2023 at 6:38 PM

Payroll Summary

City of Clayton

Check Date: 03/24/2023

Process: 2023032401

Pay Period: 03/06/2023 to 03/19/2023

Page 2 of 2

Tax Deposits

Required Tax Deposits	Tax	Due On	Amount
(Deposit made by Service Bureau)	California SITW	3/29/2023	4,809.51
(Deposit made by Service Bureau)	Federal Income Tax	3/29/2023	15,429.79
(Deposit made by Service Bureau)	California SUI	5/1/2023	77.64
Total Tax Deposits			20,316.94



AGENDA REPORT

TO: HONORABLE MAYOR AND COUNCIL MEMBERS

FROM: Dana Ayers, AICP, Community Development Director

DATE: April 4, 2023

SUBJECT: Adoption of an Ordinance to Amend Clayton Municipal Code Chapter 17.47, Sections 17.04.083 and 17.44.030, and Schedule 17.37.030A Pertaining to Accessory Dwelling Units and Junior Accessory Dwelling Units (ZOA-02-2022), and Finding that Such Amendment is Exempt from CEQA Pursuant to Public Resources Code Section 21080.17.

RECOMMENDATION

Staff recommends that the City Council adopt the attached Ordinance amending Clayton Municipal Code (CMC) chapter 17.47 to comply with state law, and making other revisions to CMC Title 17 as necessary to ensure internal consistency of the municipal code in light of the amendments to CMC chapter 17.47.

BACKGROUND

On March 21, 2023, the City Council conducted a public hearing on a proposed amendment to Clayton Municipal Code pertaining to accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs). The ordinance was drafted to incorporate the required provisions of state law, including establishment of a ministerial (i.e., without discretionary review or a hearing) process for permitting of JADUs and certain ADUs. Following the public hearing, the Council voted 5 to 0 to introduce and waive further reading of the ordinance as drafted.

DISCUSSION

After introducing an ordinance, the City Council must approve the action by adopting the ordinance by a majority vote at the next meeting. The ordinance becomes effective 30 days after the date of its adoption.

FISCAL IMPACT

Adoption of the Ordinance amending the CMC would not have direct fiscal impacts to the City. Property owners intending to construct an ADU and/or JADU on their property would pay permit fees to cover staff costs for review of plans and permitting for their projects.

ATTACHMENT

Ordinance

ORDINANCE NO. -2023

**AN ORDINANCE AMENDING CLAYTON MUNICIPAL CODE CHAPTER 17.47,
SECTIONS 17.04.083 AND 17.44.030, AND SCHEDULE 17.37.030A PERTAINING
TO ACCESSORY DWELLING UNITS (ZOA-02-2022),
AND FINDING THAT SUCH AMENDMENTS ARE EXEMPT FROM THE CALIFORNIA
ENVIRONMENTAL QUALITY ACT PURSUANT TO PUBLIC RESOURCES CODE
SECTION 21080.17**

**THE CITY COUNCIL
City of Clayton, California**

The City Council of the City of Clayton DOES ORDAIN as follows:

Section 1. Recitals

- A. California state law governing construction of accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs) is contained in Government Code section 65852.2 and Government Code section 65852.22, which were most recently amended on September 28, 2022, by Senate Bill 897 and Assembly Bill 2221.
- B. Clayton Municipal Code (CMC) chapter 17.47, "Second Dwelling Units," was most recently amended in 2004 by adoption of Ordinance No. 373 and does not incorporate all of the provisions of Government Code sections 65852.2 and 65852.22.
- C. Government Code sections 65852.2 and 65852.22 establish allowances and provisions for construction of ADUs and JADUs for any California jurisdiction that does not have its own local ordinance that complies with state law.
- D. Government Code sections 65852.2 and 65852.22 also authorize cities and counties to adopt local ordinances with more refined standards that fall within the parameters of state law, or with more relaxed standards than those that are prescribed in state law.
- E. On March 22, 2021, the City Council established a set of goals for the City Council and staff to aim to accomplish in 2021/2022, and Land Use and Housing Goal 2 was to amend Clayton's ADU ordinance to establish local ADU and JADU permitting procedures and regulations in compliance with state law.
- F. CMC chapter 2.12 establishes a Planning Commission for the City of Clayton, and Government Code sections 65854 and 65855 require the Planning Commission to conduct a public hearing prior to making a recommendation to the legislative body (City Council) on a proposed amendment to the Zoning Ordinance (CMC Title 17).

- G. On February 28, 2023, the Clayton Planning Commission held a duly-noticed public hearing on the City-initiated Zoning Ordinance Amendment Application ZOA-02-2022 pertaining to the establishment of local permitting procedures and regulations for the construction of ADUs and JADUs in Clayton, and at that public hearing, the Commission received and considered spoken and written testimony and evidence on the matter prior to adopting Resolution No. 03-2023 recommending City Council adoption of the proposed amendments.
- H. In accordance with Government Code section and 65090, on or prior to March 10, 2023, notice of the Clayton City Council public hearing to consider the amendment to the City's adopted zoning regulations pertaining to ADUs and JADUs was published in the East Bay Times; was posted to the notice boards at Clayton City Hall and Clayton Community Library, and to Ohm's board in the Clayton Town Center; and was mailed electronically to interested parties who had requested such notice.
- I. On March 21, 2023, the Clayton City Council held a duly-noticed public hearing on the City-initiated Zoning Ordinance Amendment Application ZOA-02-2022 pertaining to the establishment of local permitting procedures and regulations for the construction of ADUs and JADUs in Clayton, and at that public hearing, received and considered spoken and written testimony and evidence on the matter.

Section 2. Findings

Based on the information in the Community Development Department files on this project, incorporated here by reference and available for review at City Hall, 6000 Heritage Trail in Clayton, the City Council finds that:

- A. The foregoing recitals are true and correct and are incorporated herein by reference.
- B. The proposed Zoning Ordinance Amendment is consistent with the General Plan, and specifically, Land Use Goals 2, 4 and 10; and Housing Element Policy Goal 2 and Policy 2.3. Together, these goals and policies encourage diversity in housing types and tenures, support appropriate development controls through zoning regulation, and encourage construction of accessory dwelling units. The proposed amendment would facilitate construction of smaller, more affordable and rentable ADUs and JADUs in addition to the predominant single-family residential housing type in Clayton. The proposed amendment would establish zoning regulations and standards governing size, floor area ratio, setbacks, off-street parking requirements, and architectural compatibility of ADUs to ensure that ADUs retain the visual character of the Clayton community while complying with the provisions and limitations specified in state law. The proposed amendment would implement Housing Element Program D1 by providing property owners and city staff with a clear path toward permitting of ADUs and JADUs that is in compliance with state

law. In addition to the foregoing, the proposed Zoning Ordinance Amendment is consistent with the General Plan as a matter of law pursuant to Government Code section 65852.2(a)(1)(C).

- C. The proposed Zoning Ordinance Amendment would serve the public necessity, convenience and general welfare. The proposed ordinance simplifies and presents the extensive and detailed provisions of state law in a more approachable format for residents and city staff, starting with classification of ADUs as Type 1, Type 2 or Site Plan Review projects. This more approachable organization of the statutory regulations of state law adds better clarity to the city's regulations, reducing questions and potential areas of confusion for residents interested in building ADUs/JADUs and their designers, and creating a clearer and more efficient path for city staff to process ADU and JADU permit requests. The proposed ordinance also offers additional flexibility to local property owners, expanding on the provisions in state law to allow for ADUs not otherwise conforming with statute subject to Site Plan Review permit approval, and not carrying forward a requirement for owner-occupancy of a property with Type 2 or Site Plan Review ADUs. ADUs in themselves offer opportunities for smaller and more affordable units that accommodate existing residents to age in place, and provide opportunities for new residents and newly-independent people to live in affordably-priced rental housing in the city. By providing rental income or opportunities to house extended family, ADUs can also reduce mortgage costs and eliminate the expenses of long-term care residential care, resulting in more affordable housing and cost savings for existing residential property owners, as well.
- D. Other revisions to CMC Title 17 are necessary to ensure consistency of these municipal code titles with the amended text of the ADU/JADU zoning regulations.
- E. This recommended amendment to Clayton Municipal Code is statutorily exempt from the California Environmental Quality Act (Public Resources Code section 21000 *et seq.*), pursuant to Public Resources Code section 21080.17, Application of Division to Ordinances Implementing Law Relating to Construction of Dwelling Units and Second Units.

Section 3. Zoning Ordinance Amendment

Based on the findings and the authority set forth above, the City Council hereby amends Title 17 (Zoning) of the Clayton Municipal Code, as follows:

- A. **Deletion of Clayton Municipal Code Section 17.04.083.** That Clayton Municipal Code section 17.04.083 be hereby amended and restated as shown in underline/strike-through to read as follows:

“17.04.083 Dwelling Unit, Accessory or Second.

‘Accessory dwelling unit’ or ‘~~S~~second dwelling unit’ are synonymous and shall refer to

~~an Accessory Dwelling Unit as defined in section 17.47.020A. mean an attached or detached dwelling unit, which provides complete independent living facilities for one or more persons including, but not limited to the permanent provisions for living, sleeping, eating, cooking and sanitation. A second dwelling unit also includes an efficiency unit and manufactured home, as defined in California Health and Safety Code §§ 17958.1 and 18007, respectively."~~

- B. Amendment of the Off-Street Parking Space Requirements in Schedule 17.37.030A.** That the parking requirements for the residential use classification, "Second Dwelling Unit," in Clayton Municipal Code schedule 17.37.030A be hereby amended and restated as shown in underline/strike-through to read as follows:

"Use Classification	Required Off-Street Parking Spaces
Second <u>Accessory Dwelling Unit</u>	See section 17.47.020.B <u>17.47.060.G</u> "

- C. Amendment to Clayton Municipal Code Section 17.44.030.** That Clayton Municipal Code section 17.44.030 be hereby amended and restated as shown in underline/strike-through to read as follows:

"17.44.030 Exemptions.

Any new development meeting one of the following characteristics shall be exempt from a Site Plan Review Permit. Such exempt development may directly apply for a building permit which is administratively reviewed by staff.

- A. Construction not meeting one of the criteria listed above;
- B. Construction receiving specific design authorization pursuant to an approved:
 - 1. Development Plan Permit;
 - 2. Vesting Tentative Map;
 - 3. Development Agreement.
- C. ~~Second~~ Type 1 and Type 2 accessory dwelling units and junior accessory dwelling units administratively ministerially approved in accordance with Chapter 17.47; provided, that Type 2 accessory dwelling units shall also require an ADU Permit in accordance with the requirements of Chapter 17.47."

- D. Amendment to Clayton Municipal Code Chapter 17.47.** That Clayton Municipal Code chapter 17.47 be repealed and replaced in its entirety to read as shown in the attached Exhibit A.

Section 4. Severability.

If any section, subsection, sentence, clause, or phrase of this Ordinance, or the application thereof to any person or circumstances, is held to be unconstitutional or to be otherwise invalid by any court competent jurisdiction, such invalidity shall not affect other

provisions or clauses of this Ordinance or application thereof which can be implemented without the invalid provisions, clause, or application, and to this end such provisions and clauses of the Ordinance are declared to be severable.

Section 5. Effective Date and Publication.

This Ordinance shall become effective 30 days from and after its passage. Within 15 days after the passage of the Ordinance, the City Clerk shall cause the Ordinance, with the names of those City Council members voting for and against it, to be posted in three public places heretofore designated by resolution by the City Council for the posting of ordinances and public notices. Further, the City Clerk is directed to cause the amendments adopted in Section 3 of this Ordinance to be entered into the City of Clayton Municipal Code.

The foregoing Ordinance was introduced at a regular public meeting of the City Council of the City of Clayton held on March 21, 2023.

Passed, adopted and ordered posted by the City Council of the City of Clayton at a regular public meeting thereof held on _____, 2023, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

THE CITY COUNCIL OF CLAYTON, CA

Jeff Wan, Mayor

ATTEST:

Janet Calderon, City Clerk

APPROVED AS TO FORM:

APPROVED BY ADMINISTRATION:

Malathy Subramanian, City Attorney

Ron Bernal, Interim City Manager

I hereby certify that the foregoing Ordinance was duly adopted, passed, and ordered posted at a regular meeting of the City Council held on _____, 2023.

Janet Calderon, City Clerk

Exhibit A

Chapter 17.47 Accessory Dwelling Units

17.47.005 - Purpose.

The purpose of this chapter is to allow, regulate and establish procedures for permitting of accessory dwelling units (ADUs) and junior accessory dwelling units (JADUs) in compliance with California Government Code sections 65852.2 and 65852.22.

17.47.010 - Effect of Conforming.

An ADU or JADU that conforms to the standards in this chapter will not be:

- A. Deemed to be inconsistent with the city's general plan and zoning designation for the lot on which the ADU or JADU is located.
- B. Deemed to exceed the allowable density for the lot on which the ADU or JADU is located.
- C. Considered in the application of any local ordinance, policy, or program to limit residential growth.
- D. Required to correct a nonconforming zoning condition, as defined in subsection G of section 17.47.020. This does not prevent the City from enforcing compliance with applicable building standards in accordance with Health and Safety Code section 17980.12.

17.47.020 - Definitions.

As used in this chapter, terms are defined as follows:

- A. "Accessory dwelling unit" or "ADU" means an attached or a detached residential dwelling unit that provides complete independent living facilities for one or more persons and is located on a lot with a proposed or existing primary residence. An accessory dwelling unit also includes the following:
 - 1. An efficiency unit, as defined by section 17958.1 of the California Health and Safety Code; and
 - 2. A manufactured home, as defined by section 18007 of the California Health and Safety Code.
- B. "Accessory structure" means a structure that is accessory and incidental to a dwelling located on the same lot.
- C. "Complete independent living facilities" means permanent provisions for living, sleeping, eating, cooking, and sanitation on the same parcel as the single-family or multifamily dwelling is or will be situated.

- D. "Efficiency kitchen" means a kitchen that includes all of the following:
1. A cooking facility with appliances.
 2. A food preparation counter and storage cabinets that are of a reasonable size in relation to the size of the JADU.
- E. "Junior accessory dwelling unit" or "JADU" means a residential unit that satisfies all of the following:
1. It is no more than 500 square feet in size.
 2. It is contained entirely within an existing or proposed single-family structure. An enclosed use within the residence, such as an attached garage, is considered to be a part of and contained within the single-family structure.
 3. It includes its own separate sanitation facilities or shares sanitation facilities with the existing or proposed single-family structure.
 4. If the unit does not include its own separate bathroom, then it contains an interior entrance to the main living area of the existing or proposed single-family structure in addition to an exterior entrance that is separate from the main entrance to the primary dwelling.
 5. It includes an efficiency kitchen, as defined in subsection D above.
- F. "Living area" means the interior habitable area of a dwelling unit, including basements and attics, but does not include a garage or any accessory structure.
- G. "Nonconforming zoning condition" means a physical improvement on a property that does not conform with current zoning standards.
- H. "Passageway" means a pathway that is unobstructed clear to the sky and extends from a street to one entrance of the ADU or JADU.
- I. "Proposed dwelling" means a dwelling that is the subject of a permit application and that meets the requirements for permitting.
- J. "Public transit" means a location, including, but not limited to, a bus stop or train station, where the public may access buses, trains, subways, and other forms of transportation that charge set fares, run on fixed routes, and are available to the public.

- K. “Tandem parking” means that two or more automobiles are parked on a driveway or in any other location on a lot, lined up behind one another.

17.47.030 – Permits Required.

The following permitting requirements apply to ADUs and JADUs under this chapter:

- A. Type 1 ADU - Building Permit Only. If an ADU or JADU complies with each of the general requirements in section 17.47.050, it is allowed with only a building permit in the following scenarios:
1. Converted on Single-family Lot. One ADU as described in this subsection A.1 and one JADU on a lot with a proposed or existing single-family dwelling on it, where the ADU or JADU:
 - a. Is either: within the space of a proposed single-family dwelling; within the existing space of an existing single-family dwelling; or, in the case of an ADU only, within the existing space of an accessory structure, plus up to 150 additional square feet if the expansion is limited to accommodating ingress and egress; and
 - b. Has exterior access that is independent of that for the single-family dwelling; and
 - c. Has side and rear setbacks sufficient for fire and safety, as dictated by applicable building and fire codes; and
 - d. The JADU complies with the requirements of California Government Code section 65852.22.
 2. Limited Detached on Single-family Lot: One detached, new-construction ADU on a lot with a proposed or existing single-family dwelling (in addition to any JADU that might otherwise be established on the lot under subsection A.1 above), if the detached ADU satisfies each of the following limitations:
 - a. The side- and rear-yard setbacks are at least 4 feet.
 - b. The total floor area is 800 square feet or smaller.
 - c. The peak height above grade does not exceed the applicable height limit in subsection B of section 17.47.050.
 3. Converted on Multifamily Lot: One or more ADUs within portions of existing multifamily dwelling structures that are not used as livable space, including but not limited to storage rooms, boiler rooms, passageways, attics, basements, or garages, if each converted ADU complies with state

building standards for dwellings. Under this subsection A.3, at least one converted ADU is allowed within an existing multifamily dwelling, up to a quantity equal to 25 percent of the existing multifamily dwelling units.

4. Limited Detached on Multifamily Lot: No more than two detached ADUs on a lot that has an existing or proposed multifamily dwelling if each detached ADU satisfies both of the following limitations:
 - a. The side- and rear-yard setbacks are at least 4 feet. If the existing multifamily dwelling has a rear or side yard setback of less than 4 feet, then the Director shall not require any modification to the multifamily dwelling as a condition of approving the ADU.
 - b. The peak height above grade does not exceed the applicable height limit provided in subsection B of section 17.47.050.
- B. Type 2 ADU - Administrative ADU Permit Required. An ADU that does not qualify as a Type 1 ADU (as set forth in subsection A above) may be constructed with Director approval of a building permit and an ADU Permit in compliance with the standards set forth in sections 17.47.050 and 17.47.060. An application for an ADU Permit shall be submitted on a form prescribed by the Community Development Department and be accompanied by any ADU Permit application processing fee established by City Council resolution.

17.47.040 – Process and Timing.

- A. Applications for Type 1 and Type 2 ADUs (under subsections A and B of section 17.47.030, respectively) will be considered and approved ministerially, without discretionary review or a hearing.
- B. The Director must approve or deny an application to create an ADU or JADU within 60 days from the date that the City receives a completed application. If the Director has not approved or denied the completed application within 60 days, the application is deemed approved unless either of the following occurs:
 1. The applicant requests a delay, in which case the 60-day time period is tolled for the period of the requested delay; or
 2. When an application to create an ADU or JADU is submitted with a permit application to create a new single-family or multifamily dwelling on the lot, the Director may delay acting on the permit application for the ADU or JADU until the Director approves or denies the permit application to create the new single-family or multifamily dwelling, but the application to create the ADU or JADU will still be considered ministerially without discretionary review or a hearing.

- C. If the Director denies an application to create an ADU or JADU, the Director must provide the applicant with a full set of comments that include, among other things, a list of all the defective or deficient items and a description of how the application may be remedied by the applicant. The Director must provide the applicant with the notice of the denial and the corresponding comments within the 60-day time period established by subsection B above.
- D. A demolition permit for a detached garage that is to be replaced with an ADU is reviewed with the application for the ADU and issued at the same time.

17.47.050 – General ADU and JADU Requirements.

The following requirements apply to all Type 1 and Type 2 ADUs and JADUs that are approved under section 17.47.030:

A. Zoning.

- 1. A Type 1 ADU or JADU subject only to a building permit under subsection A of section 17.47.030 may be created on a lot in a residential or mixed-use district.
- 2. A Type 2 ADU or JADU subject to an ADU permit under subsection B of section 17.47.030 may be created on a lot that is zoned to allow single-family dwelling residential use or multifamily dwelling residential use.

B. Height.

- 1. Except as otherwise provided by subsections B.2 and B.3 below, a detached ADU created on a lot with an existing or proposed single-family or multifamily dwelling unit may not exceed 16 feet in height.
- 2. A detached ADU may be up to 18 feet in height if it is created on a lot with an existing or proposed single-family or multifamily dwelling unit that is located within one-half mile walking distance of a major transit stop or a high quality transit corridor, as those terms are defined in section 21155 of the Public Resources Code, and the ADU may be to 2 additional feet in height (for a maximum of 20 feet) if necessary to accommodate a roof pitch on the ADU that is aligned with the roof pitch of the primary dwelling unit.
- 3. A detached ADU created on a lot with an existing or proposed multifamily dwelling that has more than one story above grade may not exceed 18 feet in height.
- 4. An ADU that is attached to the primary dwelling may not exceed 25 feet in height or the height limitation imposed by the underlying zone that applies to the primary dwelling, whichever is lower. Notwithstanding the

foregoing, ADUs subject to this subsection B.4 may not exceed two stories.

5. For purposes of this subsection B, height is measured above existing legal grade to the peak of the structure.

C. Fire Sprinklers.

1. Fire sprinklers are required in an ADU if sprinklers are required in the primary residence.
2. The construction of an ADU does not trigger the requirement for fire sprinklers to be installed in the existing primary dwelling.

D. Rental Term. No Type 1 ADU or JADU may be rented for a term that is shorter than 30 days.

E. No Separate Conveyance. An ADU or JADU may be rented, but, except as otherwise provided in Government Code Section 65852.26, no ADU or JADU may be sold or otherwise conveyed separately from the lot and the primary dwelling (in the case of a single-family lot) or from the lot and all of the dwellings (in the case of a multifamily lot).

F. Septic System. If the ADU or JADU will connect to an onsite wastewater treatment system, the owner must include with the application a percolation test completed within the last five years or, if the percolation test has been recertified, within the last 10 years.

G. Owner Occupancy.

1. Owner occupancy is not required on a property on which an ADU has been created.
2. As required by state law, properties on which a JADU has been created are subject to an owner-occupancy requirement. A natural person with legal or equitable title to the property must reside on the property, in either the primary dwelling or JADU, as the person's legal domicile and permanent residence. However, the owner-occupancy requirement in this subsection G.2 does not apply if the property is entirely owned by another governmental agency, land trust, or housing organization.

H. Deed Restriction. Prior to final inspection for occupancy of an ADU or JADU, a deed restriction must be recorded against the title of the property in the County Recorder's office and a copy filed with the Director. The deed restriction must run with the land and bind all future owners. The form of the deed restriction will be provided by the Director and must provide that:

1. Except as otherwise provided in Government Code Section 65852.26, the ADU or JADU may not be sold separately from the primary dwelling.
 2. The ADU or JADU is restricted to the approved size and to other attributes allowed by this section.
 3. The deed restriction runs with the land and may be enforced against future property owners.
 4. The deed restriction may be removed if the owner eliminates the ADU or JADU, as evidenced by, for example, removal of the kitchen facilities. To remove the deed restriction, an owner may make a written request of the Director, providing evidence that the ADU or JADU has in fact been eliminated. The Director may then determine whether the evidence supports the claim that the ADU or JADU has been eliminated. Appeal may be taken from the Director's determination consistent with other provisions of this Code. If the ADU or JADU is not entirely physically removed, but is only eliminated by virtue of having a necessary component of an ADU or JADU removed, the remaining structure and improvements must otherwise comply with applicable provisions of this Code.
 5. The deed restriction is enforceable by the Director for the benefit of the City. Failure of the property owner to comply with the deed restriction may result in legal action against the property owner, and the City is authorized to obtain any remedy available to it at law or equity, including, but not limited to, obtaining an injunction enjoining the use of the ADU or JADU in violation of the recorded restrictions or abatement of the illegal unit.
- I. Income Reporting. In order to facilitate the City's obligation to identify adequate sites for housing in accordance with Government Code sections 65583.1 and 65852.2, with the building permit application, the applicant must provide the City with an estimate of the projected annualized rent that will be charged for the ADU or JADU. Notwithstanding the foregoing, the requirements of this subsection shall only apply to properties for which the ADU or JADU is being built to satisfy affordable inclusionary housing requirements of a development or is subject to an affordable housing agreement between the City and the property owner.
- J. Building & Safety.
1. Compliance with building code. Subject to subsection J.2 below, all ADUs and JADUs must comply with all local building code requirements.
 2. No change of occupancy. Construction of an ADU does not constitute a Group R occupancy change under the local building code, as described in

section 310 of the California Building Code, unless the building official or code enforcement officer makes a written finding based on substantial evidence in the record that the construction of the ADU could have a specific, adverse impact on public health and safety. Nothing in this subsection J.2 prevents the city from changing the occupancy code of a space that was uninhabitable space or that was only permitted for nonresidential use and was subsequently converted for residential use in accordance with this section.

17.47.060 - Development Standards. The following requirements apply only to Type 2 ADUs that require an ADU permit under subsection B of section 17.47.030.

A. Maximum Size.

1. The maximum size of a detached or attached ADU subject to this section is 1,200 square feet.
2. An attached ADU that is created on a lot with an existing primary dwelling is further limited to 50 percent of the floor area of the existing primary dwelling.
3. Application of other development standards in this section 17.47.060, such as FAR or lot coverage, might further limit the size of the ADU, but no application of the percent-based size limit in subsection A.2 above or of an FAR, lot coverage limit, minimum front yard setback or open-space requirement may require the ADU to be less than 800 square feet.

B. Floor Area Ratio (FAR). Subject to subsection A.3 above, no ADU subject to this section may cause the floor area ratio of all residential and accessory structures on a lot to exceed the maximum FAR as specified according to the following schedule:

Net Parcel Area (square feet)	Maximum FAR
Up to 7,000	0.55
7,001 to 8,000	0.53
8,001 to 9,000	0.51
9,001 to 10,000	0.49
10,001 to 11,000	0.47
11,001 to 12,000	0.45
12,001 to 13,000	0.43
13,001 to 14,000	0.41
14,001 to 15,000	0.39
15,001 to 16,000	0.37
Over 16,000	0.35

C. Setbacks.

1. An ADU that is subject to this section must conform to the following minimum front-yard setbacks, subject to subsection A.3 above:
 - a. R-10, R-12, R-15 and All Multiple Family Residential Districts: 20 feet
 - b. R-20 District: 25 feet
 - c. R-40 and R-40-H Districts: 40 feet
2. An ADU that is subject to this section must conform to minimum 4-foot side- and rear-yard setbacks.
3. No setback is required for an ADU that is subject to this section if the ADU is constructed in the same location and to the same dimensions as an existing structure.

D. Lot Coverage. Subject to subsection A.3 above, no ADU subject to this section may cause the total lot coverage of the lot to exceed either:

- a. 50 percent on a lot with an area less than 15,000 square feet; or
- b. 35 percent on a lot with an area of 15,000 or more square feet.

E. Minimum Open Space. No ADU subject to this section may cause the total percentage of open space of the lot to fall below 35 percent, subject to subsection A.3.

F. Passageway. No passageway, as defined by subsection H of section 17.47.020, is required for an ADU.

G. Parking.

1. Generally. One off-street parking space is required for each ADU. The parking space may be provided in setback areas or as tandem parking, as defined by subsection K of section 17.47.020 above.
2. Exceptions. No parking under subsection G.1 above is required in the following situations:
 - a. The ADU is located within one-half mile walking distance of public transit, as defined in subsection J of section 17.47.020 above.

- b. The ADU is located within an architecturally and historically significant historic district.
 - c. The ADU is part of the proposed or existing primary residence or an accessory structure under subsection A of section 17.47.040.
 - d. When on-street parking permits are required but not offered to the occupant of the ADU.
 - e. When there is an established car share vehicle stop located within one block of the ADU.
 - f. For an ADU constructed as an efficiency unit as defined by section 17958.1 of the California Health and Safety Code.
 - g. When the permit application to create an ADU is submitted with an application to create a new single-family or new multifamily dwelling on the same lot; provided, that the ADU or the lot satisfies any other criteria listed in subsections a through f, above.
3. No Replacement. When a garage, carport, or covered parking structure is demolished in conjunction with the construction of an ADU or converted to an ADU, those off-street parking spaces within the garage, carport, or covered parking structure are not required to be replaced.

H. Architectural Requirements.

- 1. The materials and colors of the exterior walls, roof, and windows and doors must match the appearance and architectural design elements of those of the primary dwelling.
- 2. The roof slope must match that of the dominant roof slope of the primary dwelling. The dominant roof slope is the slope shared by the largest portion of the roof.
- 3. The exterior lighting must be limited to down-lights or as otherwise required by the building or fire code.
- 4. The ADU must have an independent exterior entrance, apart from that of the primary dwelling.
- 5. The interior horizontal dimensions of an ADU must be at least 10 feet wide in every direction, with a minimum interior wall height of 7 feet.

6. Windows and doors of the ADU may not have a direct line of sight to an adjoining residential property. Fencing, landscaping, or privacy glass may be used to provide screening and prevent a direct line of sight.
 7. All windows and doors in an ADU that are less than 30 feet from a property line that is not a public right-of-way line must either be (for windows) clerestory with the bottom of the glass at least 6 feet above the finished floor, or (for windows and for doors) utilize frosted or obscure glass.
- I. Landscape Requirements. Evergreen landscape screening must be planted and maintained between the ADU and the side and rear lot lines of the property, as follows:
1. At least one 15-gallon size tree shall be planted for every 15 linear feet of exterior wall, or at least one 15-gallon size shrub shall be planted for every 10 linear feet of exterior wall.
 2. Plant specimens must be capable of reaching a height of at least 6 feet tall at maturity.
 3. Notwithstanding the foregoing, a solid fence of at least 6 feet in height may be installed in lieu of landscaping where the distance between the ADU and property line is less than 5 feet.
 4. All landscaping must be low water use and drought-tolerant.
- J. Historical Protections. An ADU that is on or within 300 feet of real property that is listed in the California Register of Historic Resources must do both of the following:
1. Comply with the objective ministerial standards for Preservation, Rehabilitation, Restoration, or Reconstruction in the Secretary of the Interior's Standards for the Treatment of Historic Properties, as applicable.
 2. Be located so as to not be visible from any public right-of-way.

17.47.070 - Fees.

The following requirements apply to all ADUs that are approved under section 17.47.030 of this chapter.

A. Impact Fees.

1. No impact fee is required for an ADU that is less than 750 square feet in size. For purposes of this subsection A, "impact fee" means a "fee" under the Mitigation Fee Act (Gov. Code § 66000(b)) and a fee under the

Quimby Act (Gov. Code § 66477). “Impact fee” here does not include any connection fee or capacity charge for water or sewer service.

2. Any impact fee that is required for an ADU that is 750 square feet or larger in size must be charged proportionately in relation to the square footage of the primary dwelling unit. (E.g., the floor area of the ADU, divided by the floor area of the primary dwelling, times the typical fee amount charged for a new dwelling.)

B. Utility Fees.

1. If an ADU is constructed with a new single-family home, a separate utility connection directly between the ADU and the utility, and payment of the normal connection fee and capacity charge for a new dwelling are required.
2. Except as described in subsection B.1 above, converted ADUs on a single-family lot that are created under subsection A.1 of section 17.47.030 are not required to have a new or separate utility connection directly between the ADU and the utility. Nor is a connection fee or capacity charge required.
3. Except as described in subsection B.1, all ADUs that are not covered by subsection B.2 require a new, separate utility connection directly between the ADU and the utility.
 - a. The connection is subject to a connection fee or capacity charge that is proportionate to the burden created by the ADU based on either the floor area or the number of drainage-fixtures units (DFU) values, as defined by the Uniform Plumbing Code, upon the water or sewer system.
 - b. The portion of the fee or charge that is charged by the City may not exceed the reasonable cost of providing this service.

17.47.080 – Nonconforming Zoning Code Conditions, Building Code Violations, and Unpermitted Structures

- A. Generally. The Director will not deny an application to construct an ADU or JADU due to a nonconforming zoning condition, building code violation or unpermitted structure on the lot that does not present a threat to the public health and safety and that is not affected by the construction of the ADU or JADU.
- B. Unpermitted ADUs constructed before 2018.

1. Permit to Legalize. As required by state law, the Director may not deny a permit to legalize an existing but unpermitted ADU that was constructed before January 1, 2018, if denial is based on either of the following grounds:
 - a. The ADU violates applicable building standards; or
 - b. The ADU does not comply with the state ADU law (Government Code section 65852.2) or this ADU ordinance (chapter 17.47).
2. Exceptions.
 - a. Notwithstanding subsection B.1 above, the Director may deny a permit to legalize an existing but unpermitted ADU that was constructed before January 1, 2018, if the Director makes a finding that correcting a violation is necessary to protect the health and safety of the public or of the occupants of the structure.
 - b. Subsection B.1 above does not apply to a building that is deemed to be substandard in accordance with California Health and Safety Code section 17920.3.

17.47.090 - Nonconforming ADUs and Discretionary Approval.

Any proposed ADU or JADU that does not conform to the objective standards set forth in sections 17.47.005 through 17.47.080 of this chapter may be allowed by the City with a Site Plan Review Permit, in accordance with chapter 17.44 of this title.



STAFF REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

**FROM: ANGELINE LOEFFLER, FINANCE DIRECTOR
NITISH SHARMA, FINANCE CONSULTANT**

DATE: APRIL 4, 2023

SUBJECT: ADOPTION OF A REVISED INVESTMENT POLICY

RECOMMENDATION

Staff recommends that the City Council adopt the Updated City of Clayton Investment Policy dated April 4, 2023.

BACKGROUND

On December 5, 2022, Mr. Sharma, Interim Finance Director at the time, presented a draft updated Investment Policy along with the current 2018 Investment Policy (Attachment 1) to the Budget and Audit Committee for review and feedback. The Committee members had extensive discussion and had different thoughts on the investment types and how much of the portfolio it represents. On February 27, 2023, the staff presented both current and updated version of investment policy again in order to gain further direction from the Budget and Audit Committee members and received additional comments and feedback. The Committee members provided their comments and feedback at this meeting.

DISCUSSION

Staff has taken comments and direction received from the Budget and Audit Committee members and updated the Investment Policy (Attachment 3) combining areas from both versions of Investment Policies; 2018 Investment Policy (Attachment 1) and December 2022 draft updated Investment Policy.

Highlights of the final draft Investment Policy April 4, 2023 include the following updates:

- Section IV – Assignment and Duties are updated by adding clarification on each assigned capacity's duties and responsibilities.
- Section VI, Investment Objectives: contents are restored to the original Investment Policy (Attachment 1) to reflect that investment terms are not to exceed five (5) years and the weighted average maturity of funds to three (3) years.

- subsection A-2, Market or Interest Rate Risk: add “...*the weighted average maturities shall be based on the market conditions or requirements of the cash being invested.*”
- Section VII – Authorized Investments
 - Removed from the original Investment Policy (attachment 1) – “*Mortgage pass-through security, collateralized mortgage obligation, mortgage backed or other pay-through bond, or U.S. Corporate bond of maximum of five (5) years maturity...*” has been removed.
 - Updated Investment Policy dated March 2023 (attachment 3) the specific threshold and terms of what as City can invest.
- Section XIII – Reporting Requirements: the periodical review requirement.
 - Add additional elements to the reporting requirement H through L.
- Section XVI – Policy Review: City Manager, along with City Treasurer and the City Council has been added to review the Investment Policy annually.

The language changes are underlined in the Investment Policy dated April 4 2023 (Attachment 2).

ATTACHMENTS

Attachment 1: 2018 Investment Policy

Attachment 2: Updated Investment Policy April 4, 2023

INVESTMENT POLICY

CITY OF CLAYTON, CALIFORNIA

I. POLICY

It is the policy of the City of Clayton [and the Redevelopment Agency of the City of Clayton] {together, referred to as the "City"} to meet the short and long-term cash flow demands of the City in a manner which will provide for the safety of principal monies with sufficient liquidity, while providing a reasonable investment return. The purpose of this Investment Policy is to identify and outline various methods and procedures for the prudent and systematic investment of public funds.

II. SCOPE

This Investment Policy applies to all investment activities and financial assets of the City {hereinafter, the "Funds"}. The following Funds are covered by this Investment Policy and are accounted for in the City's Comprehensive Annual Financial Report:

- (A) General Fund
- (B) Special Revenue Fund
- (C) Debt Service Fund
- (D) Capital Project Funds
- (E) Enterprise Funds
- (F) Internal Services Funds
- (G) Trust and Agency Funds
- (H) Any new funds created by the City Council.

Bond proceeds shall be invested in accordance with the requirements and restrictions outlined in the bond documents. Bond proceeds are not considered part of the Funds nor subject to this Investment Policy.

III. DELEGATION OF AUTHORITY

The City Treasurer is expressly authorized to invest the City's Funds, pursuant to California Government Code Sections 53600, 16429.1 and 53684 et seq. The City Treasurer will meet with, and obtain the approval of, the City Manager prior to investment of the Funds. Investments made routinely by the Finance Manager are restricted to the State Pool [Local Agency Investment Fund, LAIF], California Asset Management Program (CAMP), or to securities maturing within six (6) months. Prior to investing in securities, the Finance Manager will consider the cash flow requirements of the City and may invest in securities maturing over six (6) months if directed by the City Treasurer or the City Manager in writing or verbally, if confirmed in writing within thirty (30) days.

IV. ASSIGNMENTS AND DUTIES

- A. **City Council.** The City Council is elected by the registered voters of Clayton. The Council establishes policies for the City and approves the expenditure of City Funds.
- B. **City Manager.** The City Manager is appointed by the City Council and implements policies established by the City Council. The City Manager is responsible for all City departments and is also the Chief Fiscal Officer and is responsible for general management of all investments of Funds.
- C. **City Treasurer.** The City Treasurer is appointed by the City Council and serves at the will and pleasure of the Council. Pursuant to the California Government Code, the City Treasurer is primarily responsible for the proper and prudent investment of Funds, and periodically reviews, makes recommendations regarding, and approves the investments of Funds and investment policies.
- D. **Finance Manager.** The Finance Manager is appointed by the City Manager and is responsible for the daily supervision of all financial transactions of the City, including but not limited to the administration, monitoring, reporting and the restricted placement of Fund investments.

Together, the City Treasurer, City Manager and the Finance Manager function and operate as a check-and-balance system for the prudent and proper investment of all Funds.

V. PRUDENCE

Investments shall be made pursuant to the “Prudent Investor” standard, mandated by California Government Code Section 53600.3, which states:

“When investing, reinvesting, purchasing, acquiring, exchanging, selling, and managing public funds, a trustee shall act with care, skill, prudence, and diligence under the circumstances then prevailing, that a prudent person acting in a like capacity and familiarity with those matters would use in the conduct of funds of a like character and with like aims, to safeguard the principal and maintain the liquidity needs of the City. Within the limitations of this section and considering individual investments as part of an overall strategy, a trustee is authorized to acquire investments as authorized by law.”

The “Prudent Investor” standard shall be applied in the context of managing the Funds. The City Treasurer and each investment employee, acting within the intent and scope of this Investment Policy and other written procedures and exercising due diligence, shall

be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely manner and appropriate action is taken to control adverse developments.

VI. INVESTMENT OBJECTIVES

The objective of the investment portfolio is to meet the short and long-term cash flow demands of the City. To achieve this objective, the portfolio will be structured to provide Safety of Principal, Liquidity and Return on Investments.

A. Safety of Principal.

Safety of the City's investments is the primary objective. Investments of the Funds shall be undertaken in a manner that seeks to ensure that capital losses are minimized, whether from institution default, broker-dealer default, or erosion of the market value of securities. The City shall seek to preserve principal by mitigating two types of risk, in order of importance:

1. Credit Risk. Credit risk, defined as the risk of loss due to failure of an issuer of a security, shall be mitigated by purchasing Treasuries or high-grade securities. All investments beyond Treasury securities will be diversified so that the failure of any one issuer would not unduly harm the City's cash flow. Credit risk shall also be mitigated by pre-qualifying financial institutions, broker-dealers, intermediaries and advisors with which the City does business.
2. Market or Interest Rate Risk. Interest rate risk is the risk the market value of securities in the portfolio will fall due to changes in general interest rates. Interest rate risk may be mitigated by structuring Funds so that securities mature to meet cash requirements for ongoing operations, thereby avoiding the need to sell securities on the open market prior to maturity, and by investing operating funds primarily in shorter-term securities. The cash flow is updated on a daily basis and will be considered prior to investment of securities in order to limit the need to sell investments for liquidity purposes.

Long-term securities shall not be purchased for the sole purpose of short-term speculation. Securities shall not be sold prior to maturity with the following exceptions: 1). A declining credit security would be sold early to minimize loss of principal; 2). A security swap would improve the quality, yield, or target duration in the portfolio; or 3). Liquidity needs of the portfolio require the security be sold.

The weighted average maturity of the Funds is limited to three (3) years or less. Purchases of investments will be restricted to securities with a final stated maturity not to exceed five (5) years.

B. Liquidity.

Liquidity is the second most important objective of City investments. The Funds shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated. This is accomplished by structuring the portfolio so that securities mature concurrent with cash needs to meet anticipated demands (static liquidity). Since all possible cash demands cannot be anticipated, the Funds will maintain a liquidity buffer and invest primarily in securities with active secondary or resale markets (dynamic liquidity).

C. Return on Investments.

Return on investment should be considered and maximized after the basic objectives of safety and liquidity have been met. The Funds shall be designed to attain a return on investments through budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. The core of investments is limited to relatively low risk securities in anticipation of earning a fair return relative to the risk being assumed.

VII. AUTHORIZED INVESTMENTS

The investments set forth in this section are authorized investments pursuant to Section 53601 of the California Government Code and are herewith authorized investments for City Funds:

- A. The State of California Investment Pool, known as the Local Agency Investment Fund (LAIF);
- B. Passbook savings accounts, demand deposits;
- C. Certificate of Deposit placed with insured banks, savings and loans, or credit unions up to a maximum of \$250,000 per insured depository institution for each account ownership category;
- D. Bonds issued by the City, including bonds payable solely out of, controlled, or operated by the City or by an agency or authority of the City;
- E. United States Treasury notes, bonds bills or certificates of indebtedness, or those for which the faith and credit of the United States are pledged for the payment of principal and interest;

- F. Registered state warrants or treasury notes or bonds of the State of California, including bonds payable solely out of the revenues from a revenue-producing property owned, controlled, or operated by the state or by a department, board, agency or authority of the state; and/or
- G. Mortgage pass-through security, collateralized mortgage obligation, mortgage-backed or other pay-through bond, or U. S. corporate bond of a maximum of five (5) years maturity. Securities eligible for investment under this subdivision shall be issued by an issuer having an "A" or higher rating for the issuers debt, as provided by a nationally recognized rating service and rated in a rating category of "AA" or its equivalent or better by a nationally recognized rating service.

Purchase of securities authorized by this subdivision may not exceed twenty percent (20%) of the City's surplus money that may be invested pursuant to this Section.

- H. Federal Agency or United States government-sponsored enterprise obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises. There are no limits on the dollar amount or percentage that the City may invest in government-sponsored enterprises.
- I. Shares of beneficial interest issued by a joint powers authority organized pursuant to Section 6509.7 that invests in the securities and obligations authorized in subdivisions (a) to (q), inclusive, and including but not limited to CAMP. Each share shall represent an equal proportional interest in the underlying pool of securities owned by the joint powers authority. To be eligible under this section, the joint powers authority issued the shares shall have retained an investment adviser that meets all of the following criteria:
 - 1. The adviser is registered or exempt from registration with the Securities and Exchange Commission.
 - 2. The adviser has not less than five years of experience investing in the securities and obligations authorized in subdivisions (a) to (q), inclusive.
 - 3. The adviser has assets under management in excess of five hundred million dollars (\$500,000,000).

For all other recommended investment of Funds by the City Treasurer and the City Manager, the City Council shall adopt the individual authorized instrument by resolution at a regular public meeting thereof.

VIII. PROHIBITED INVESTMENTS AND TRANSACTIONS

- A. The City shall not invest any Funds in inverse floaters, range notes, or interest-only strips that are derived from a pool of mortgages or reverse purchase agreements.
- B. The City shall not purchase or sell securities on margin.
- C. The City shall not invest any Funds in any security that could result in zero interest accrual if held to maturity date.

IX. ALLOCATION OF INTEREST EARNINGS

When a single investment is made from a single Fund, interest on that investment is to be credited to that source Fund. When an investment represents multiple Funds, the interest shall be distributed based on the proportionate share of each Fund included in the aggregate investment.

When investments result in interest paid for a period greater than one (1) month, the interest shall be distributed proportionately based on the average of the monthly beginning balances of each involved Fund.

X. DIVERSIFICATION

The investment portfolio will be diversified to avoid incurring unreasonable and avoidable risks regarding specific security types or individual financial institutions. In a diversified portfolio it is recognized that occasional measured losses are inevitable, and must be considered within the context of the overall portfolio's investment return, provided that adequate diversification has been implemented.

XI. PUBLIC TRUST

All participants in the investment process shall act as custodians of the public trust. Investment officials shall recognize the investment portfolio is subject to public review, scrutiny and evaluation. The overall program shall be designed and managed with a degree of professionalism that is worthy of the highest ideals of the public trust.

XII. ETHICS AND CONFLICTS OF INTEREST

The City Treasurer and other employees or elected officials involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program or which could impair their ability to make impartial investment decisions. The City Treasurer and investment employees and elected

officials shall disclose any material interests in financial institutions with which they conduct business. They shall further disclose any personal financial/investment positions that could be related to the performance of the investment portfolio and shall refrain from undertaking personal investment transactions with the same individual with whom business is conducted on behalf of their entity.

During the course of the year, if there is an event subject to disclosure that could impair the ability of the City Treasurer or investment employees to make impartial decisions, the City Council shall be notified in writing within ten (10) days of the event.

XIII. REPORTING REQUIREMENTS

The Finance Manager shall submit a quarterly investment report to the City Council. This report will include the following elements:

- A. Type of each investment.
- B. Financial institution.
- C. Date of Maturity.
- D. Amount of deposit or cost of security.
- E. Current market value of securities.
- F. Rate of Interest
- G. Weighted average maturity of the investments.

XIV. INTERNAL CONTROLS

The City Manager shall ensure the development of a system of internal investment controls and a segregation of duties and responsibilities of investment functions in order to assure an adequate system of internal control over the investment function. This segregation of duties will take into account the authorized staffing levels of the City. Internal control procedures shall address wire controls, separation of duties, delivery of securities to a third party for custodial safekeeping, and written procedures for placing investment transactions.

XV. GENERAL FUND RESERVE CONTINGENCY

The City Manager shall set aside Funds designated as *General Fund Reserve Contingency (GFRC)* to protect the City from unexpected financial expenses and to absorb the impact of deficiencies in cash flow not anticipated at the time the fiscal year budget was adopted.

The General Fund Reserves of the City shall include \$250,000.00 (two hundred fifty thousand dollars) designated as *GFRC – Emergency Component*. Further, the City will make every effort to maintain a *GFRC*, cash flow component, in an amount not less than fifty percent (50%) of the adopted annual General Fund budget. The amounts of

the *GFRCs* will be reviewed annually prior to adoption of the General Fund budget. City Council approval shall be required for any expenditure that would decrease the amount of the *GFRC* below the level established at the time of budget adoption.

XVI. POLICY REVIEW

The Investment Policy shall be reviewed at least annually by the City Treasurer and the City Council to ensure its consistency with the overall objectives of preservation of principal, liquidity, and return on investments, along with its relevance to current law, financial and economic trends, and meets the needs of the City.

* * * * *

Established: 30 July 2002

City Council adopted revisions: 21 April 2015
03 August 2010
05 May 2005
06 August 2002
21 April 2015
20 November 2018



City of Clayton

Investment Policy

April 4, 2023

INVESTMENT POLICY

CITY OF CLAYTON, CALIFORNIA

I. POLICY

It is the policy of the City of Clayton [and the Redevelopment Agency of the City of Clayton] {together, referred to as the "City"} to meet the short and long-term cash flow demands of the City in a manner which will provide for the safety of principal monies with sufficient liquidity, while providing a reasonable investment return. The purpose of this Investment Policy is to identify and outline various methods and procedures for the prudent and systematic investment of public funds.

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Bond proceeds shall be invested in accordance with the requirements and restrictions outlined in the bond documents. Bond proceeds are not considered part of the Funds nor subject to this Investment Policy.

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- C. **City Treasurer.** The City Treasurer is appointed by the City Council and serves at the will and pleasure of the Council. The City Treasurer is designed to provide an ongoing internal review to prevent the potential for converting assets or concealing transactions. Pursuant to the California Government Code, the City Treasurer is primarily responsible for the proper and prudent investment of Funds, and periodically reviews, makes recommendations regarding, and approves the investments of Funds and investment policies.
- D. **Finance Director.** The Finance Director is appointed by the City Manager and is responsible for managing the City Funds, acting in accordance within written procedures and the intent and scope of this Investment Policy and exercising due diligence, shall be relieved of personal liability for an individual security's credit risk or market price changes, provided that deviations from expectations are reported in a timely manner and appropriate action is taken to control adverse developments.

Together, the City Treasurer, City Manager and the Finance Director function and operate as a check-and-balance system for the prudent and proper investment of all Funds.

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this Investment Policy and other written procedures and exercising due diligence, shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely manner and appropriate action is taken to control adverse developments.

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1. Credit Risk. Credit risk, defined as the risk of loss due to failure of an issuer of a security, shall be mitigated by purchasing Treasuries or high-grade securities. All investments beyond Treasury securities will be diversified so that the failure of any one issuer would not unduly harm the City's cash flow. Credit risk shall also be mitigated by pre-qualifying financial institutions, broker-dealers, intermediaries and advisors with which the City does business.
2. Market or Interest Rate Risk. Interest rate risk is the risk the market value of securities in the portfolio will fall due to changes in general interest rates. Interest rate risk may be mitigated by structuring Funds so that securities mature to meet cash requirements for ongoing operations, thereby avoiding the need to sell securities on the open market prior to maturity, and by investing operating funds primarily in shorter-term securities. The cash flow is updated on a daily basis and will be considered prior to investment of securities in order to limit the need to sell investments for liquidity purposes.

Long-term securities shall not be purchased for the sole purpose of short-term speculation. Securities shall not be sold prior to maturity with the following exceptions: 1). A declining credit security would be sold early to minimize loss of principal; 2). A security swap would improve the quality, yield, or target duration in the portfolio; or 3). Liquidity needs of the portfolio require the security be sold.

The weighted average maturity of the Funds is limited to three (3) years or less. Purchases of investments will be restricted to securities with a final stated maturity not to exceed five (5) years. The weighted average maturities shall be based on the market conditions or requirements of the cash being invested.

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Liquidity is the second most important objective of City investments. The Funds shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated. This is accomplished by structuring the portfolio so that securities mature concurrent with cash needs to meet anticipated demands (static liquidity). Since all possible cash demands cannot be anticipated, the Funds will maintain a liquidity buffer and invest primarily in securities with active secondary or resale markets (dynamic liquidity).

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Return on investment should be considered and maximized after the basic objectives of safety and liquidity have been met. The Funds shall be designed to attain a return on investments through budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. The core of investments is limited to relatively low risk securities in anticipation of earning a fair return relative to the risk being assumed.

VII. AUTHORIZED INVESTMENTS

The investments set forth in this section are authorized investments pursuant to Section 53601 of the California Government Code and are herewith authorized investments for City Funds:

LOCAL AGENCY INVESTMENT FUND: The State of California Investment Pool, known as the Local Agency Investment Fund (LAIF) As authorized in Government Code Section 16429.1, local agencies may invest in the Local Agency Investment Fund (LAIF), a pooled investment money market fund established by the State of California, and overseen by the State Treasurer, which allows local agencies to pool their investment resources. Principal may be withdrawn on a one-day notice. Interest earned is paid quarterly. The fees charged are limited to one-quarter of one percent of the earnings of the fund. Current policies of LAIF set minimum and maximum amounts of monies that may be invested as well as maximum numbers of transactions that are allowed per month. The City may invest up to the maximum amount permitted by LAIF. The LAIF is in trust in the custody of the State Treasurer. The City's right to withdraw its deposited monies from LAIF is not contingent upon the State's ability to adopt a State Budget by July 1st of each new fiscal year.

NON-NEGOTIABLE CERTIFICATE OF DEPOSIT (CD). As authorized in Government Code Section 53601.8, local agencies may invest in Certificates of Deposit. These instruments must comply with Government Code Sections 16500 or 16600. This is a receipt for funds deposited in a Bank or Savings and Loan Association for a specified period at a specified rate of interest. The first \$250,000 of a CD is insured by the FDIC; as such, the City Manager may waive collateral requirements for CD investments up to this amount. Investments in CD's in excess of \$250,000 must be collateralized by Treasury Department Securities, which must be at least 110% of the face value of the CD's

in excess of the first \$250,000, or by first mortgage loans, which must be at least 150% of the face value of the CD balance in excess of the first \$250,000. No more than 20% of the portfolio may be invested in certificates of deposit. The City shall invest in CD's that matures in two years and no more than five years.

All institutions must: (1) have a minimum of \$100 million in assets; (2) have a demonstrated history of positive earnings; and, (3) must carry a minimum 3.5% equity ratio and hold that ratio for at least one year prior to the City's investment. All institutions must be located within the State of California. For collateralized or negotiable certificates of deposit, the institution must have a minimum \$1 billion in assets, in addition to meeting the above criteria.

NEGOTIABLE CERTIFICATE OF DEPOSIT (NCD). Allowable certificates of deposits must be issued by a nationally or state-chartered bank or a state or federal association, a state or federal credit union, or by a federally licensed or state licensed branch of a foreign bank. The amount of the NCD insured up to the FDIC limit does not require any credit ratings. Any amount above the FDIC insured limit must be issued by institutions which have short-term debt obligations rated "A-1" or its equivalent or better by at least one NRSRO; or long-term obligations rated in a rating category of "A" or its equivalent or better by at least one NRSRO. The maturity period for this investment vehicle may not exceed five years unless approved by the Council. No more than 30% of the total portfolio may be invested in these securities. No more than 5% of the portfolio may be invested in any single issuer.

MUNICIPAL BONDS OF THE STATE OF CALIFORNIA OR LOCAL AGENCIES:

As authorized in Government Code Section 53601(e), local agencies may invest in Bonds of the State of California and any local government in the State of California, which are rated in the "A" category or better by one NRSRO at the time of investment. In no event shall this classification of investment exceed 30% of the value of the portfolio. No more than 5% of the portfolio may be invested in any single issuer.

U.S. TREASURY NOTES, U.S. TREASURY BILLS , U.S. GOVERNMENT AGENCY

ISSUES AND GOVERNMENT SPONSORED ENTERPRISES: United States Treasury notes, bonds bills or certificates of indebtedness, or those for which the faith and credit of the United States are pledged for the payment of principal and interest. There are no limits

U.S. GOVERNMENT AGENCY ISSUES AND GOVERNMENT SPONSORED

ENTERPRISES: Federal Agency or United States government-sponsored enterprise obligations, participations, or other instruments, including those issued by or fully guaranteed as to principal and interest by federal agencies or United States government-sponsored enterprises. There are no limits on the dollar amount or percentage that the City may invest in government-sponsored enterprises. On the dollar amount or percentage that the City may invest in U.S. Treasury Bills.;

MUTUAL FUNDS and MONEY MARKET MUTUAL FUNDS. Mutual Funds are referred to in California Government Code Section 53601(l), as "shares of beneficial interest issued by diversified management companies." Mutual Funds and Money Market Mutual Funds that are registered with the Securities and Exchange Commission under the Investment Company Act of 1940 are authorized investments for funds subject to the following provisions:

- **MUTUAL FUNDS** that invest in the securities and obligations as authorized under California Government Code Section 53601(a) to (k) and (m) to (q) inclusive and that meet either of the following criteria:
- Attained the highest ranking or the highest letter and numerical rating provided by not less than two (2) Nationally Recognized Statistical Rating Organizations

- (NRSROs); or
- Have retained an investment advisor registered or exempt from registration with the Securities and Exchange Commission with not less than five years' experience investing in the securities and obligations authorized by California Government Code Section 53601 and with assets under management in excess of \$500 million.
- No more than 10% of the total portfolio may be invested in Mutual Funds.
- No more than 5% of the total portfolio may be invested in any one issuer.
- **MONEY MARKET MUTUAL FUNDS** registered with the Securities and Exchange Commission under the Investment Company Act of 1940 and issued by diversified management companies and meet either of the following criteria:
 - Have attained the highest ranking or the highest letter and numerical rating provided by not less than two (2) NRSROs; or
 - Have retained an investment advisor registered or exempt from registration with the Securities and Exchange Commission with not less than five years' experience managing money market mutual funds with assets under management in excess of \$500 million.
 - No more than 10% of the total portfolio may be invested in Money Market Mutual Funds.
 - No more than 5% of the total portfolio may be invested in any one issuer.

GOVERNMENT INVESTMENT POOLS: Shares of beneficial interest issued by a joint powers authority organized pursuant to Section 6509.7 that invests in the securities and obligations authorized in subdivisions (a) to (q), inclusive, and including but not limited to California Asset Management Program (CAMP). Each share shall represent an equal proportional interest in the underlying pool of securities owned by the joint powers authority. To be eligible under this section, the joint powers authority issued the shares shall have retained an investment adviser that meets all of the following criteria:

- The adviser is registered or exempt from registration with the Securities and Exchange Commission.
- The adviser has not less than five years of experience investing in the securities and obligations authorized in subdivisions (a) to (q), inclusive.
- The adviser has assets under management in excess of five hundred million dollars (\$500,000,000).

For all other recommended investment of Funds by the City Finance Director and the City Manager, the City Council shall adopt the individual authorized instrument by resolution at a regular public meeting thereof.

VIII. PROHIBITED INVESTMENTS AND TRANSACTIONS

- A. The City shall not invest any Funds in inverse floaters, range notes, or interest-only strips that are derived from a pool of mortgages or reverse purchase agreements.
- B. The City shall not purchase or sell securities on margin.
- C. The City shall not invest any Funds in any security that could result in zero interest accrual if held to maturity date.

IX. ALLOCATION OF INTEREST EARNINGS

When a single investment is made from a single Fund, interest on that investment is to be credited to that source Fund. When an investment represents multiple Funds, the interest shall be distributed based on the proportionate share of each Fund included in the aggregate investment.

When investments result in interest paid for a period greater than one (1) month, the interest shall be distributed proportionately based on the average of the monthly beginning balances of each involved Fund.

X. DIVERSIFICATION

The investment portfolio will be diversified to avoid incurring unreasonable and avoidable risks regarding specific security types or individual financial institutions. In a diversified portfolio it is recognized that occasional measured losses are inevitable, and must be considered within the context of the overall portfolio's investment return, provided that adequate diversification has been implemented.

XI. PUBLIC TRUST

All participants in the investment process shall act as custodians of the public trust. Investment officials shall recognize the investment portfolio is subject to public review, scrutiny and evaluation. The overall program shall be designed and managed with a degree of professionalism that is worthy of the highest ideals of the public trust.

XII. ETHICS AND CONFLICTS OF INTEREST

The City Treasurer and other employees or elected officials involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program or which could impair their ability to make impartial investment decisions. The City Treasurer and investment employees and elected

officials shall disclose any material interests in financial institutions with which they conduct business. They shall further disclose any personal financial/investment positions that could be related to the performance of the investment portfolio and shall refrain from undertaking personal investment transactions with the same individual with whom business is conducted on behalf of their entity.

During the course of the year, if there is an event subject to disclosure that could impair the ability of the City Treasurer or investment employees to make impartial decisions, the City Council shall be notified in writing within ten (10) days of the event.

XIII. REPORTING REQUIREMENTS

The Finance Director shall submit a quarterly investment report to the City Council. This report will include the following elements:

- A. Type of each investment.
- B. Financial institution.
- C. Date of Maturity.
- D. Amount of deposit or cost of security.
- E. Current market value of securities.
- F. Rate of Interest
- G. Weighted average maturity of the investments.
- H. Discussion of the current economic climate
- I. Statement that the portfolio is in compliance with this Investment Policy or the manner in which the portfolio is not in compliance.
- J. Statement of the City's ability to meet anticipated expenditure requirements for the next six months, or an explanation as to why sufficient money may not be available
- K. Quarterly review of the investment portfolio with the Finance Director, City Manager and City Treasurer (if available).
- L. Quarterly meeting with the Finance and Budget Committee with the City staff and the City's broker/dealer.

XIV. INTERNAL CONTROLS

The City Manager shall ensure the development of a system of internal investment controls and a segregation of duties and responsibilities of investment functions in order to assure an adequate system of internal control over the investment function. This segregation of duties will take into account the authorized staffing levels of the City. Internal control procedures shall address wire controls, separation of duties, delivery of securities to a third party for custodial safekeeping, and written procedures for placing investment transactions.

XV. GENERAL FUND RESERVE CONTINGENCY

The City Manager shall set aside Funds designated as *General Fund Reserve Contingency (GFRC)* to protect the City from unexpected financial expenses and to

absorb the impact of deficiencies in cash flow not anticipated at the time the fiscal year budget was adopted.

The General Fund Reserves of the City shall include \$250,000.00 (two hundred fifty thousand dollars) designated as *GFRC – Emergency Component*. Further, the City will make every effort to maintain a *GFRC*, cash flow component, in an amount not less than fifty percent (50%) of the adopted annual General Fund budget. The amounts the *GFRCs* will be reviewed annually prior to adoption of the General Fund budget. City Council approval shall be required for any expenditure that would decrease the amount of the *GFRC* below the level established at the time of budget adoption.

XVI. POLICY REVIEW

The Investment Policy shall be reviewed at least quarterly by the City Manager and City Treasurer and the City Council to ensure its consistency with the overall objectives of preservation of principal, liquidity, and return on investments, along with its relevance to current law, financial and economic trends, and meets the needs of the City.

* * * * *

Established: 30 July 2002

City Council adopted revisions: 21 April 2015
03 August 2010
05 May 2005
06 August 2002
21 April 2015
20 November 2018
04 April 2023



AGENDA REPORT

TO: HONORABLE MAYOR AND COUNCIL MEMBERS

FROM: MALA SUBRAMANIAN, CITY ATTORNEY

DATE: APRIL 4, 2023

SUBJECT: National Opioid Litigation and Authorization to Participate in Additional Settlement Agreements Arising from the Litigation

RECOMMENDATION

Authorize the City Attorney to take all necessary steps and execute appropriate documents to participate in the Additional Settlement Agreements with the Additional Distributors and any future Settlement Agreements with new Distributors, agree to the State Subdivision Agreements, and allow direct payment to be made to the County.

BACKGROUND

On December 7, 2021, the City Council authorized joining settlement agreements related to national opioid litigation, specifically two nationwide Settlements Agreements¹ (Settlements) to resolve opioid litigation against the three largest pharmaceutical distributors, McKesson, Cardinal Health and Amerisource Bergen (Distributors) and one manufacturer, Janssen Pharmaceuticals, Inc. and its parent company Johnson & Johnson (collectively, Janssen). California has joined both Settlements and expects to receive up to 9.92% of the national settlement funds.

The California State-Subdivision Agreements² provide the framework for how funds from the Settlements may be distributed, allocated, and spent in California. The amount that California receives will depend on how many states and eligible cities and counties join the Settlements. California may receive up to \$1.8 billion from the Distributors Settlement to be paid over 18 years and \$423 million from the Janssen Settlement to be paid over 9 years. The funds are

¹ Distributors Settlement Agreement and Janssen Settlement Agreement - <https://oag.ca.gov/opioids>

² California State Subdivision Agreement – Distributors and Janssen - <https://oag.ca.gov/opioids>

divided in three funds: (1) the state fund 15%; (2) CA Subdivision Fund 15%; and (3) CA Abatement Accounts fund 70%.

Now, there are 5 additional distributors, Teva, Allergan, Walgreens, Walmart, and CVS (Additional Distributors) and the opportunity to participate in additional nationwide settlement agreements³ (Additional Settlement Agreements) for the Additional Distributors role in the opioid epidemic.

California and its cities and counties stand to receive up to \$1.8 billion for substance use prevention, harm reduction, treatment, and recovery. This is in addition to the up to \$2.2 billion California is expected to receive from the Distributors and the Janssen settlements. Payment timeframes vary by settlement and can last up to 15 years. The more cities and counties that join, the more the defendants will pay California and participating cities and counties.

California may receive up to \$1.8 billion from the Additional Distributors Settlement to be paid over 15 years. The funds are divided in three funds: (1) the state fund 15%; (2) CA Subdivision Fund 15%; and (3) CA Abatement Accounts fund 70%.

DISCUSSION

Each city and county within California with a population greater than 10,000 is eligible to receive funds and must decide whether to participate in the Additional Settlement Agreements. The more subdivisions that participate, the greater the amount of funds that will flow to California and participating subdivisions.

If the City joins the Additional Settlement Agreements, it can expected to receive its abatement percentage share, which is .002% of the CA Abatement Accounts Fund per Appendix 1 to the Proposed California State – Subdivision Agreements. We understand that this may equate to a total of approximately \$24,200 for the City. This percentage is based on nationally available federal data on opioid use disorder, overdose deaths, and opioid shipments into California.

If the City opts in to the Additional Settlement Agreements, it must release its claims against the opioid distributors and manufacturers that are participating in the Additional Settlement Agreements. The City will then receive the amount noted above, which will be paid to the County over the next 5 years - 15 years depending on the Settlement, unless the City chooses direct payment. The City may decide to elect direct payment at any time. If the City receives direct payment it is obligated to report on the use of the funds, which must be used primarily for opioid abatement. The deadline to join the Settlements is April 18, 2023.

If the City does not opt in to the Additional Settlement Agreements, the City's share will go to the State, but the total amount the State receives may be reduced since it is based on

³ Additional Distributor Settlement Agreements and State Subdivision Agreements - <https://oag.ca.gov/opioids>

participating cities and counties. By not opting in, the City preserves the ability to litigate against the opioid distributors and manufacturers.



AGENDA REPORT

TO: HONORABLE MAYOR AND COUNCIL MEMBERS

FROM: Ron Bernal, Interim City Manager

DATE: April 4, 2023

SUBJECT: Adopt a Resolution Authorizing the City to Amend the Installation Agreement with Climatec to Initiate Phase 2 of the Comprehensive Infrastructure Renewal and General Fund Savings Program, and Find the Amendment to be Exempt from the California Environmental Quality Act

RECOMMENDATION

It is recommended that the Council conduct a Public Hearing and adopt a resolution to amend the Installation Agreement with Climatec to initiate Phase 2, approve the implementation of the Comprehensive Infrastructure Renewal and General Fund Savings Program, and find the amendment to the Agreement to be exempt from the California Environmental Quality Act.

BACKGROUND

The City of Clayton has deeper infrastructure needs and sustainability goals than the current budget can accommodate. These infrastructure needs include heating, ventilation and air conditioning (HVAC) units over 25 years old; old lighting systems throughout its public buildings and facilities; inefficient & non-standardized City-owned streetlight systems; and continuous irrigation system line breaks and issues. In addition, PG&E is increasing utility rates by double-digits in the next three years, and the California Public Utilities Commission (CPUC) approved the detrimental modifications to Net-Energy-Metering (NEM 2.0) Guidelines set to take effect on April 15, 2023. Currently, the City spends over \$675,000 annually on utility expenses alone.

DISCUSSION

On October 18, 2022, the City approved the execution of an Energy Services Contract with Climatec, LLC, regarding a Comprehensive Infrastructure Renewal & General Fund Savings Program to help fund and address aging infrastructure, reduce financial liabilities of utility expenditures and promote sustainability. Since approval of the contract, Climatec has

completed Phase 1 of the contract which included an infrastructure assessment, development of a scope of work and funding sources for key project objectives. Specifically, Climatec conducted site walks, developed a utility baseline, conducted preliminary design and engineering for the selected scope, and conducted multiple collaborative meetings with City staff and members of the City Council's Energy Services & Infrastructure Renewal Ad Hoc Committee. In those discussions, the City's potential funding paths were reviewed to support the implementation of the infrastructure improvements that the City has selected to include in their program. The comprehensive program was developed to incorporate the following scope elements:

- Solar Photovoltaic (PV) System within the Maintenance Building parking lot to shade City and Police vehicles and provide electrical offset of all adjacent City-owned sites including the Maintenance Building, City Hall, and the Clayton Community Library. With the Solar PV System, the complex is projected to be Net Zero Energy.
- New light-emitting diode (LED) lights on City-owned streetlights to improve light levels, reduce ongoing third-party contractor costs, reduce energy consumption and provide standardization of lighting color.
- New LED interior, exterior, and park lighting for improved light levels, reduction of ongoing operational expenditures, and reduced energy consumption.
- New High-Efficiency HVAC systems at Endeavor Hall, the Library and the Maintenance Building.
- Building Automation System modernizations at the Library, City Hall, and Maintenance Building to improve comfort, reduce ongoing third-party contractor costs, reduce energy consumption and improve staff efficiency.
- Electric Vehicle (EV) charging stations at the Library to promote City sustainability.
- New Irrigation Control System at Clayton Community Park & Stranahan Park, as well as master valve / flow meters installations at Clayton Community Park, to prevent unnecessary water loss upon pipe breaks. The systems will also improve staff efficiency and reduce water consumption.

The fixed turnkey cost of the program is \$2,049,083 and includes all project development, county permitting, design, engineering, and implementation costs. Total savings are projected to be \$4,735,375 over the life of the new equipment.

On March 21, 2023, the City Council authorized staff and Climatec to submit an application to the California Energy Commission (CEC) for a 1% energy efficiency loan of up to \$2 Million through the first-come, first-serve ECAA (Energy Conservation Assistance Act) program. Shortly after receiving Council authorization, Climatec and staff submitted the required documentation to the CEC for review of the application in the amount of \$1,902,113. This path would require \$146,970 from City funds, pending CEC approval of the final loan amount. As a back-up option, the City has also requested proposals from third party financiers and lenders for the program. The City has the ability to select the lender with

the most favorable terms and enter into a rate lock (without financial risk) while the CEC completes its review of the application and hearing for loan approval. Additional City funds may be needed for this option, depending on lender requirements.

Lastly, Climatec will assist the City with acquiring financial incentives from the Federal Government Inflation Reduction Act's (IRA) Direct Pay program for the Solar PV System. Further direction is forthcoming from the Federal Government; however, the financial incentive could be between 6% and 60% of the City's initial qualified investment. A conservative estimate of the IRA potential would be 25%-30%, equating to approximately \$215,000. The IRA funding would be a refund to the City post-implementation of the Solar PV System. Since this funding is not guaranteed, these potential savings have not been calculated into the total project lifecycle cost savings.

In summary, key program benefits include:

- Providing the City's first Net Zero Energy buildings;
- Providing environmental benefits and greenhouse gas emission reductions; and
- Grandfathering the City within the existing, financially beneficial Solar PV Net Energy Metering (NEM 2.0) program through PG&E for City Hall, the Library, and the Maintenance Building.

Once funding has been identified and secured, the project implementation phase would begin. Project completion is estimated to take 24 months.

FISCAL IMPACTS

The total infrastructure improvement cost is \$2,049,083. The total lifecycle savings is \$4,735,375. Depending on how the City Council chooses to fund the project, the net savings to the General Fund for years 1 through 5 will range from approximately \$230,000 to \$916,000 for this five-year period. Also, depending on lending institution approvals, project financing may come via a 1% CEC ECAA revolving fund loan, municipal third-party financing, and/or the City's American Rescue Plan Act (ARPA) or Reserve funds.

ATTACHMENTS

Attachment 1: Resolution including Exhibit A
Attachment 2: Installation Agreement
Attachment 3: Amendment 1 to Installation Agreement
Attachment 4: Energy Audit Report for CEC ECAA Loan
Attachment 5: City of Clayton/Climatec PowerPoint Presentation
Attachment 6: Public Hearing Notice March 21, 2023

RESOLUTION NO. ____-2023

RESOLUTION APPROVING AN AMENDMENT TO THE ENERGY SERVICES AGREEMENT WITH CLIMATEC LLC TO IMPLEMENT CERTAIN ENERGY CONSERVATION MEASURES UNDER CALIFORNIA GOVERNMENT CODE SECTION 4217.10 ET SEQ., AUTHORIZE THE CITY MANAGER TO EXECUTE THE AMENDMENT, ADOPT FINDINGS IN ACCORDANCE WITH CALIFORNIA GOVERNMENT CODE SECTION 4217.12, AND FIND IT EXEMPT FROM CEQA

**THE CITY COUNCIL
City of Clayton, California**

WHEREAS, it is the policy of the State of California and the intent of the State Legislature to promote all feasible means of energy conservation and all feasible uses of alternative energy supply sources.

WHEREAS, California Government Code Section 4217.10 *et seq.* authorizes a public agency to utilize any procurement process to contract for energy services if its governing body determines, at a regularly scheduled public hearing, public notice of which is given at least two weeks in advance, that the anticipated cost to the agency for the energy services project will be less than the anticipated marginal cost to the agency of electrical energy that would have been consumed by the agency in the absence of the energy services contract.

WHEREAS, the City of Clayton ("City") desires to reduce the steadily rising costs of meeting the energy needs at its facilities.

WHEREAS, the City entered into an energy services agreement and related contract documents ("Energy Services Agreement") with Climatec, LLC ("Contractor"), pursuant to which Contractor agreed to perform a comprehensive energy analysis ("Phase 1") and implement certain renewable energy generation and energy management systems ("Phase 2") (collectively, "Project").

WHEREAS, under Phase 1 of the Project, Contractor provided the City with an energy savings assessment showing the benefits of implementing certain energy conservation and alternative energy supply measures through the installation of the Project ("Analysis").

WHEREAS, the Analysis includes data showing that the anticipated cost to the City for the Project will be less than the anticipated cost to the City of electrical or other energy that would have been consumed by the City in the absence of the Project and is attached hereto Exhibit "A".

WHEREAS, Phase 2 of the Project will involve Contractor designing, constructing and installing the energy conservation and alternative energy supply measures identified in the Analysis and agreed to by the City as part of Phase 1 of the Project.

WHEREAS, the City negotiated an amendment with Contractor to incorporate the Phase 2 scope of work into the Energy Services Agreement (the "Amendment").

WHEREAS, a notice of public hearing scheduled for April 4, 2023, was published on March 21, 2023 as required by California Government Code §4217.12.

WHEREAS, pursuant to Government Code section 4217.12 and, based on, among other things, the Amendment and the Analysis, the anticipated cost to the City for energy or conservation services provided by the Project under the Amendment, will be less than the anticipated marginal cost to the City of energy that would have been consumed in the absence of the Project.

WHEREAS, the Project is hereby found to be exempt from the requirements of CEQA on multiple grounds, each of which is independently sufficient to exempt the whole of the Project from CEQA, including:

The Project is exempt from CEQA under a Class 1 categorical exemption (14 C.C.R. § 15301) because it involves the minor alteration of existing facilities with improvements that would lead to negligible or no expansion of use beyond the use existing at this time. In all, the Project would result in net environmental benefits by reducing traditional electrical energy consumption of the City. Therefore, the Project would be exempt under a Class 1 exemption.

The Project is also exempt from CEQA under CEQA section 15303 (new construction or conversion of small structures) and CEQA section 15061 (common sense exemption) because the Project involves installation of energy efficient fixtures and improvements at City owned facilities that will benefit the environment by creating more energy efficient facilities.

The Project is also exempt from CEQA because it involves the construction of minor structures accessory to existing facilities. 14 C.C.R. § 15311. As explained above, the Project involves installation of energy efficient fixtures and improvements at City owned facilities.

None of the exceptions to the categorical exemptions apply. 14 C.C.R. § 15300.2. Specifically, the Project is not located in a particularly sensitive environment. The improvements will be installed on existing structures in developed areas. The cumulative impact of successive projects of this same type in the same place over time would not be significant because the facilities are limited in size. As explained above, the Project involves installation of energy efficient fixtures and improvements at City owned facilities. These types of improvements are not unusual. Moreover, the building impacted by the Project is not located within an officially designated state scenic highway. Thus, the Project would not have an impact in this regard. Similarly, the proposed improvements

are not located on sites designated pursuant to Government Code section 65962.5. Finally, the Project does not involve any improvements, modifications, or other changes to a historical resource. Therefore, none of the circumstances outlined in Title 14, California Code of Regulations, section 15300.2 apply.

NOW THEREFORE, BE IT RESOLVED, the City Council of Clayton does determine the foregoing recitals are true and correct and hereby authorizes the City Manager to proceed with Phase 2 of the Project and enter into in the Amendment in the amount of \$2,049,083, which may be changed from time to time by adopted resolution of the City Council.

PASSED, APPROVED and ADOPTED by the City Council of Clayton, California at a regular public meeting thereof held on the ____ day of _____, 2023 by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

THE CITY COUNCIL OF CLAYTON, CA

Jeff Wan, Mayor

ATTEST:

Janet Calderon, City Clerk

EXHIBIT “A”

[INSERT COPY OF ANALYSIS]

CITY OF CLAYTON

PROGRAM SUMMARY

EXHIBIT A

4/4/2023

SCOPE OF WORK SUMMARY

- New LED Street Lighting (City Owned Street Lights) Citywide
- New Interior LED Lighting at 6 Sites
- New Exterior LED Lighting at 5 Sites
- New Exterior Building/ Pathway LED Lighting at Grove Park
- New Occupancy Sensors at 2 Sites
- Smart, Weather-Based Irrigation Control System at 2 Sites
- New Master Valve/ Flow Meter at Clayton Community Park
- Perform Water Utility/ Rate Study Citywide
- New High Efficiency HVAC Unit at 2 Sites
- New High Efficiency Furnace at City Maintenance Facility
- New High Efficiency Fan Coil Unit at Library
- New JCI BAS at 2 Sites
- Software Modification, Reprogram, and Training at BAS City Hall
- Solar PV Parking Shade Structure
- New Level III Electric Vehicle (EV) Charging Stations at Library

FINANCIAL SUMMARY

Total Infrastructure Improvements	\$ 2,049,083
Lifecycle Savings	\$ 4,735,375

INSTALLATION AGREEMENT FOR

The City of Clayton, CA

TERMS AND CONDITIONS

ATTACHMENTS

Attachment "A" – Scope of Work*

A-1 - Non-Solar Scope

A-2 – Solar Scope

Attachment "B" - Lighting Summary*

Attachment "C" – Mechanical Replacement Inventory*

Attachment "D" - Technical Appendix*

Attachment "E" – General Conditions

Attachment "F" – Project Schedule*

Attachment "G" – Project Owner Requirements*

***Note:** Attachment content to be determined and added following completion of Phase 1 and City approval to commence with Phase 2.

INSTALLATION AGREEMENT

This Installation Agreement ("Contract" or "Agreement") entered into as of October 19, 2022 ("Effective Date") is made by and between:

City of Clayton
("Owner") with its principal place of business at
6000 Heritage Trail, Clayton, CA 94517
and

Climatec LLC
("Contractor" or "Climatec LLC")
With its principal place of business at
2150 Towne Centre Place, Suite 200,
Anaheim, CA 92805

RECITALS

WHEREAS, Government Code sections 4217.10, *et seq.*, authorize the Owner, as a public agency, to enter into an energy services agreement wherein Climatec LLC provides conservation services to the Owner from an energy conservation facility on terms that its governing body determines are in the best interest of the Owner;

WHEREAS, pursuant to Government Code section 4217.11(d), "conservation services" include electrical, thermal, or other energy savings resulting from conservation measures, which shall be treated as a supply of such energy;

WHEREAS, through this Contract, the Owner intends to contract for project development ("Phase 1") and implementation, including engineering, system design, fabrication and installation, of renewable energy generation and energy management systems ("Phase 2") that will result in energy savings to the Owner and which shall be a supply of energy to the Owner (collectively, the "Project") at various sites owned or controlled by Owner (the "Project Sites" or "Sites", and each individually a "Site"), consistent with the terms of Government Code section 4217.10, *et seq.*;

WHEREAS, under Phase 1, the Contractor shall perform project development by undertaking a comprehensive energy analysis and present the Owner with a detailed comprehensive energy analysis report ("CEA Report") and recommended energy plan to implement certain energy conservation measures and services ("ECMs") under Phase 2 of the Project. The CEA Report will identify potential energy generation and operational savings opportunities at the Project Sites and estimated program costs to implement the recommended ECMs and present an overall potential energy cost and consumption savings of implementing the ECMs under Phase 2 of the Project. The CEA Report will include data showing that the anticipated cost to the Owner for the recommended ECMs will be less than the anticipated cost to the Owner of electrical or other energy that would have been consumed by the Owner in the absence of the Project;

WHEREAS, upon satisfactory completion of Phase 1 by Contractor, the Owner's governing body may elect to hold a hearing at a regularly scheduled public meeting after having provided two weeks advance notice of such hearing, and make all findings required by Government Code section 4217.12 for the Owner to proceed with Phase 2 under this Agreement;

WHEREAS, contingent upon satisfactory completion of Phase 1 by Contractor, presentation of the CEA Report and recommended ECMs to the Owner's governing body for review and ratification and completion of all applicable requirements under the California Environmental Quality Act (excluding any pre-existing deficiencies), the Contractor shall engineer, design, and construct the ECMs pursuant to this Agreement, including all Attachments and other Contract Documents (as that term is defined in the Definitions), which Contract Documents are incorporated into the Agreement by this reference, under Phase 2;

NOW, THEREFORE, in consideration of the covenants hereinafter contained in this Agreement, Owner and

Climatec LLC agree as follows:

GENERAL TERMS AND CONDITIONS

Definitions

"Agreement" has the meaning set forth in the recitals and shall include the cover page and all Attachments hereto. The Agreement represents the entire and integrated contract between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Agreement shall not be construed to create any kind of contractual relationship other than between the Owner and Contractor.

"Applicable Law" shall mean, with respect to any governmental authority, any constitutional provision, law, statute, rule, regulation, ordinance, treaty, order, decree, judgment, decision, certificate, injunction, registration, license, permit, authorization, guideline, governmental approval, act, code, ruling, proclamation, resolution, declaration, requirement or interpretive or advisory opinion or letter of such governmental authority, as construed from time to time by any governmental authority, in each case, applicable to the Work, the Site, the Project, the parties or any other matter in question (as applicable).

"Assessment" shall mean all feasibility and configuration assessments conducted by the Contractor to fulfill its obligations under this Agreement.

"Comprehensive Energy Analysis Report or "CEA Report" shall be the report providing for an assessment of energy generation and operational savings opportunities and curtailable load capabilities developed during Phase 1 of the Project. The CEA Report shall identify an energy plan to implement certain ECMs.

"Critical Supply Shortage" shall mean an unusual shortage in materials that is (a) supported by documented proof that Contractor made every effort to obtain such materials from all available sources; (b) such shortage is due to the fact that such materials are not physically available from single or multiple sources or could have been obtained only at exorbitant prices entirely inconsistent with current and standard rates taking into account the quantities involved and the usual industry practices in obtaining such quantities; and (c) such shortages and the difficulties in obtaining alternate sources of materials could not have been known or anticipated by Contractor at the time it submitted its bid or entered the Contract. Market fluctuations in prices of materials, whether or not resulting from a Force Majeure Event, does not constitute a Critical Supply Shortage.

"Drawings" The Drawings are graphic and pictorial portions of the Contract Documents prepared for the Project and approved changes thereto, wherever located and whenever issued, showing the design, location, and scope of the Work, generally including plans, elevations, sections; details, schedules, and diagrams as drawn by Contractor or its Subcontractor or consultants.

"Contract Documents" shall mean this Agreement and all Drawings, Specifications, surveys, plans, models, reports and designs, addenda thereto (whether or not attached due to their size), the Governmental Approvals, Engineering Documents, Payment Bond, Performance Bond, required insurance certificates, additional insured endorsement and declarations page, list of accepted Subcontractors and Consultants, Non-collusion Declaration, and other documents referred to in the Agreement, and written modifications issued after execution of the Agreement.

"Energy Conservation Measures" or ECMs" shall mean those renewable energy generation and energy efficiency improvements identified in the CEA Report.

"Engineering Documents" shall mean all documents including Drawings, diagrams, plans, Equipment Documentation, Equipment Warranties, shop drawings, Assessments, addenda, reports calculations, performance models and other models, designs schedules, and other documents prepared or furnished by Contractor pursuant to this Agreement in respect of the design, engineering and construction of the System.

"Environmental Law" means all laws related to health, safety, the protection of the environment or regulation or prohibition of the environmental pollution or contamination, including laws relating to land use, emission and pollution, discharges into or pollution of water, and Hazardous Materials.

"Equipment" shall mean (a) all materials, supplies, apparatus, machinery, equipment, parts, tools, components, instruments, appliances, spare parts and appurtenances thereto that are required, by the terms of this Agreement, the Contract Documents, and all Legal Requirements to complete the Work and to be incorporated into the Project, and (b) all materials, supplies, apparatus, machinery, equipment, parts, tools, components, instruments, appliances, spare parts and appurtenances thereto described in, required by, reasonably inferable from by the terms of the Agreement, the Contract Documents and all Legal Requirements.

"Equipment Documentation" shall mean copies or originals of (i) all operating specifications, warranties and other similar information obtained by Contractor from equipment vendors or Subcontractors or prepared by Contractor or Subcontractors as part of the Work, (ii) a complete inventory list of all Equipment comprising the System, and (iii) all documentation and identification information with respect to all Equipment comprising part of the Project, including reference or serial numbers for all photovoltaic panels, inverters and other equipment listed in the Scope of Work.

"Equipment Warranties" shall mean the product warranty from any supplier for the Equipment incorporated into the Project.

"Estimated Annual Energy Production" shall mean Contractor's estimated number of kWh that the Project shall produce in the first year following the Final Completion Date based on performance modeling using industry standard tools and assumptions. The Estimated Annual Energy Production shall not be determined until satisfactory completion of Phase 1 of the Project and shall thereafter be added by written amendment to this Agreement.

"Force Majeure Event" shall mean an event that materially affects a party's performance and is one or more of the following: (1) Acts of God or other natural disasters occurring at the Site; (2) terrorism or other acts of a public enemy; (3) orders of governmental authorities (including, without limitation, unreasonable and unforeseeable delay in the issuance of permits or approvals by governmental authorities that are required for the Work); (4) pandemics, epidemics or quarantine restrictions; (5) strikes and other organized labor action occurring at the Site and the effects thereof on the Work, only to the extent such strikes and other organized labor action are beyond the control of Contractor and its Subcontractors, of every tier, and to the extent the effects thereof cannot be avoided by use of replacement workers; and (6) a Critical Supply Shortage. For purposes of this section, "orders of governmental authorities," includes ordinances, emergency proclamations and orders, rules to protect the public health, welfare and safety, and other actions of the City in its capacity as a municipal authority. Notwithstanding the foregoing to the contrary, Force Majeure Events shall not include any of the following:

- (a) mechanical or equipment failures (except to the extent any failure is itself caused by a Force Majeure Event);
- (b) any condition of the Site for which the affected party is responsible under this Agreement, other than (1) the discovery of pre-existing Hazardous Materials at the Site so long as the condition was unknown and should not reasonably have been known as of the Effective Date and (2) any Hazardous Materials released at the Site other than by the Contractor, any Subcontractor or Persons acting on behalf of the Contractor; and
- (c) increases in the cost of performance of a party's obligations under this Agreement (except to the extent any such increase is itself caused by a Force Majeure Event).

Notwithstanding the foregoing, each of (x) economic hardship of either party or (y) increases in the cost of performance of a party's obligations, shall not constitute Force Majeure Events under this Agreement.

"Governmental Approval" shall mean each and every national, autonomic, regional and local license, approval, authorization, certification, registration, exemption, filing, recording, permit or other approval with or of any governmental authority, including each and every construction or operating permit and any agreement, consent or approval from or with any other person that is required by any Applicable Law or that is otherwise necessary for the performance of the Work.

Hazardous Material" shall mean oil or petroleum and petroleum products, asbestos and any asbestos containing materials, radon, polychlorinated biphenyls ("PCBs"), urea formaldehyde insulation, lead paints and coatings, and all of those chemicals, substances, materials, controlled substances, objects, conditions and waste or combinations thereof which are now or become in the future listed, defined or regulated in any manner by any federal, state or Applicable Law.

"Incentives" shall mean subsidies, rebates, credits, reductions, allowances or other financial incentives which the Contractor shall apply for on behalf of the Owner. The Incentives shall not be determined until satisfactory completion of Phase 1 of the Project and shall thereafter be added by written amendment to this Agreement.

"Industry Standards" shall mean those standards of care and diligence practiced or approved by reasonably prudent contractors of the energy services industry in engineering, designing, constructing, installing and operating energy efficiency and/or renewable energy generation projects with equipment similar to the Project in the United States and in accordance with good engineering and design practices, sound construction procedures, Governmental Approvals, the Contract Documents and other standards established for such Work. Industry Standards are not intended to be limited to optimum practice, methods, equipment specifications or acts to the exclusion of all others, but rather to be a spectrum of reasonable and prudent practices and methods generally accepted within the energy services industry to accomplish the desired results and must take into consideration the conditions specific to any given facility, including to the extent such conditions would require a person to (a) perform its duties in good faith and as a reasonably prudent operator, (b) perform its duties in compliance with the Contract Documents, (c) exercise such care, skill and diligence as a reasonably prudent business company of established reputation engaged in the energy services business would exercise in the conduct of its business and for the advancement or protection of its own interests, (d) perform the duties in accordance with applicable energy efficiency and/or renewable energy generation project standards, (e) use sufficient and properly trained and skilled personnel, and (f) use parts and supplies that meet the specifications set forth in the Contract Documents, in all cases with respect to (a) through (f) herein, taking into account all of the costs, expenses and benefits of operation of the System.

"Legal Requirement" means the requirement of any Applicable Law, including any Environmental Law or any Governmental Approval.

"Phase 1" shall mean the project development phase of the Project, which shall include development of a CEA Report and recommended energy plan to implement certain ECMs under Phase 2 of the Project.

"Phase 2" shall mean the implementation phase of the Project, under which the Contractor shall engineer, design, and construct the ECMs.

"Project" shall mean project development (Phase 1) and engineering, design, and total construction of the System and completion of the Work (Phase 2) performed in accordance with the Contract Documents.

"Project Development Fee" shall mean the fee for successful performance of Phase 1 of the Project.

"Project Owner Requirements" shall mean the specific requirements of the Work required by the Owner and that includes the Site procedures and other elements set forth in Attachment "G", as may be altered from time to time, with agreement from the Contractor, by the Owner as a ministerial matter. The Project Owner Requirements shall be subject to amendment following satisfactory completion of Phase 1 of the Project and approval of Phase 2 by the Owner.

"Safety Plan" shall mean a plan prepared by Contractor that includes the elements required by Owner and otherwise includes all matters relating to safety as required by Applicable Law and the Contract Documents. The Safety Plan shall not be completed until satisfactory completion of Phase 1 of the Project and shall thereafter be added by written amendment to this Agreement.

"Site" or **"Sites"** shall have the meaning set forth in the third recital. The Site or Sites shall not be determined until satisfactory completion of Phase 1 of the Project and shall thereafter be added by written amendment to this Agreement.

"System" shall mean the comprehensive energy management system, including all energy efficiency and renewable energy generation components of the ECMs, to be installed by Contractor in order to provide a fully integrated and operational Project, at each Site as applicable, in accordance with the Contract Documents and as more specifically described in the Scope of Work.

"Work" shall mean (a) complete engineering and design of the System including as-built drawings (b) the procurement, installation, construction and erection, commissioning, start-up and testing, and all other services, including all labor, materials' storage, services, demolition, Site preparation, equipping, verification, training, manuals and other things and actions in connection therewith, as necessary for the Contractor to fulfill all of its obligations pursuant to this Agreement, the Contract Documents, any Change Orders; and the requirements of the Utility and the Interconnection Agreement, the Governmental

Approvals, and any other Legal Requirement, (c) the provision of Equipment (d) transportation and storage of the Equipment; and (e) all of the foregoing that Contractor performs through any Subcontractor or consultant.

1. **Project Phases and Notice to Proceed** The date of commencement of the Work is the date established in the Notice to Proceed to Phase 1 delivered by the Owner. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for which the Contractor is responsible. The Work on the Project shall be performed in accordance with the following phases (Phase 2 more fully set forth in the Scope of Work, Attachment A):

Phase 1 - Project Development Phase - Upon Owner's issuance of a written Notice to Proceed to Phase 1, Contractor shall commence the work necessary to develop and issue a CEA Report and recommended energy plan to implement certain ECMs under Phase 2 of the Project. The CEA Report will identify potential renewable energy generation and operational savings opportunities at the Project Sites and estimated program costs to implement the recommended ECMs and present an overall potential energy cost and consumption savings of implementing the ECMs under Phase 2 of the Project. In the event Contractor fails to provide a CEA Report demonstrating that the anticipated cost to the Owner of the Project under the Agreement will be less than the anticipated marginal cost to the Owner of thermal, electrical, or other energy that would have been consumed by the Owner in the absence of the Project in accordance with Government Code section 4217.10 et seq., the Owner may terminate this Agreement without further obligation and shall not be liable for any of Contractor's costs including the Project Development Fee. No work shall be performed until Owner's issuance of the Notice to Proceed to Phase 1.

Phase 2 - Design and Implementation Phase - Upon Owner's issuance of a written Notice to Proceed to Phase 2, Contractor, if needed, shall prepare 60% Engineering Documents, and any inspections required by the date specified for each Site in the Project Schedule. Contractor shall deliver required 60% Engineering Documents to Owner for review and approval, which approval shall not be unreasonably withheld. Owner shall diligently review and respond to each submission by Contractor by the date specified in the Project Schedule. Contractor shall incorporate Owner's comments and requested changes unless Contractor can demonstrate that such requested changes would materially impact the Contract Price, the Project Schedule, or any other material requirement of the Contract Documents in which case Contractor shall submit a Change Order in accordance with Section 6 of the General Conditions. Upon resolution of the provision hereinabove set forth, Contractor shall complete and submit any required 90% Engineering Documents by the date specified in the Project Schedule. The Engineering Documents, upon written approval of the 90% Engineering Documents by Owner and any other approval required by any governmental authority, shall constitute 100% Engineering Documents and serve as the basis for construction. For those ECM's selected in Phase 1 that do not require design or drawings, the Contractor may proceed with implementation immediately after receipt of the Notice to Proceed to Phase 2. No work on Phase 2 shall be performed until Owner's issuance of the Notice to Proceed to Phase 2.

2. SCOPE OF WORK.

The Contractor agrees to furnish all project development, engineering, system designs, supervision, labor, equipment and materials, tools, communications, implements, appliances and transportation, to procure all governmental approvals (unknown and reasonably unforeseeable conditions requiring Contractor to obtain special approvals or permits may be subject to change order), to facilitate completion and execution of any Incentive related documents, the Interconnection Agreement and all related applications, to coordinate with Utility for any and all requirements to allow the Project to be placed in operation, to erect, install, start-up, test and commission the Project, to perform all obligations set forth in the Contract Documents, to perform related activities for the successful completion of the Work and the delivery of the Project in compliance with the Contract Documents and to perform all the Work in a good and workmanlike manner, free from any and all liens and claims from mechanics, material suppliers, Subcontractors, artisans, machinists, teamsters, freight carriers, and laborers required for the Project as defined by the Contract Documents, all in strict compliance with the objectives, descriptions and specifications of Owner, the Contract Documents, Industry Standards, Legal Requirements and quality control and inspections relating thereto and so that the Project (i) meets or exceeds all requirements of Legal Requirements and the Project is installed in accordance with manufacturer's specifications or by methods otherwise approved by the manufacturer; (ii) complies with all requirements of the Utility and the Interconnection Agreement; (iii) meets or exceeds the warranties and guarantees set forth in the Contract Documents; (iv) is safe and adequate for the purpose and conditions specified in the Scope Of Work; (v) its free from defects in materials and workmanship; (vi) is

comprised of equipment which is new (unless otherwise mutually agreed) and of the agreed quality when installed, designed and manufactured and of a grade in accordance with generally accepted national standards for the design, manufacture and quality of such equipment; and (viii) meets or exceeds all requirements for any applicable federal, state or other rebates and Incentives. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and coordinating all portions of the Work under the Agreement, unless Contract Documents give other specific instructions concerning these matters.

Contractor is not responsible for any equipment, systems, controls, comfort problems, balancing, duct cleaning, existing deficient conditions, etc. not specifically included in the Scope of Work in the Contract Documents. All construction and associated cleanup shall be performed and scheduled so as to minimize any disruption with any ongoing Owner activities. Contractor requires all existing underground conduits between buildings to be clear of obstruction, of sufficient size to accommodate new wire and cable, and easily accessible. The Owner is responsible for Ethernet drops at each location for energy management system communication.

The Scope of Work is more fully and specifically defined in Attachment A thru Attachment E hereto. The Phase 1 portion of the Scope of Work shall be as set forth in the "Work" definition for Phase 1. The Phase 2 portion of the Scope of Work shall not be determined until satisfactory completion of Phase 1 of the Project and shall thereafter be added to Attachment A thru Attachment E by written amendment to this Agreement. Once this Contract is executed by the Owner and Climatec LLC, neither party may revise the Contract in any way except by mutual agreement in accordance the Contract Documents. This Agreement is based upon the use of straight time labor only unless stated otherwise in this Agreement. Owner agrees to provide Climatec LLC with required field utilities (electricity, toilets, drinking water, etc.), if available, without charge. Climatec LLC agrees to keep the jobsite clean of debris arising out of its own operations including its Subcontractors. Unless specifically noted in the Scope of Work or services undertaken by Climatec LLC under this Agreement, Climatec LLC's obligations under this Agreement expressly exclude any work or service of any nature associated or connected with the abatement, clean up, control, removal or disposal of environment Hazardous Material discovered in or on the Project Site. Any language or provision of the Agreement elsewhere contained which may authorize or empower the Owner to change, modify or alter the Scope of Work or services to be performed by Climatec LLC shall not operate to compel Climatec LLC to perform any work relating to Hazardous Material without Climatec LLC's express written consent.

3. **CONSTRUCTION AGREEMENT.** It is understood and agreed by Owner and Contractor that the terms of this Agreement, including all Attachments, may be subject to amendment, replacement or deletion in their entirety based upon the Phase 2 portion of the Scope of Work approved by Owner. Owner and Contractor agree to negotiate and amend this Agreement in good faith to amend, replace or delete the terms herein as necessary to accommodate the Phase 2 portion of the Scope of Work approved by Owner. Owner and Contractor agree that the terms of this Agreement exclusively applicable to Phase 2 shall not be operative until Owner and Contractor execute a written amendment to this Agreement following satisfactory completion of Phase 1 of the Project, as determined by the Owner in good faith. It is further understood and agreed by Owner and Contractor that this Agreement may be amended by mutual agreement to incorporate and comply with any applicable funding requirements that may become known to the Parties following completion of Phase 1 of the Project. Nothing herein shall be interpreted to create any obligation for Owner to proceed with Phase 2 of the Project.
4. **SOLAR INSTALLATION.** The scope excludes correction of any existing or previous violations of laws, codes or utility requirements and errors and omissions of the Owner or other contractors not communicated to Climatec LLC. Owner will issue, at Contractor's expense, all discretionary permits (permits requiring the discretion of the Owner) required in time to execute the work within the agreed upon schedule. Climatec LLC will provide all non-discretionary, ministerial (permits not requiring thought and discretion of the issuer) permits required for the provision of the solar installation. Customer agrees to promptly execute and return provided Preliminary Interconnection Documentation (initial or preliminary paperwork or documentation required by the utility for interconnection of the System to be executed by the System Owner), Preliminary Rebate Documentation (documentation comprising the initial or preliminary paperwork required by the administrator of the rebate or the rebate to be reserved) (if applicable), and Site Owner Consent Documentation (agreement from the site owner to install system on the real property identified in the proposal) (if applicable). Scope by Contractor will include commercially reasonable efforts to promptly obtain the PTO (Permission to Operate) from Owner's utility. The monitoring equipment provider (to be identified by Contractor in Phase 1 of the Project) will provide monitoring hosting services for the first five (5) years of operation. Owner warrants that they hold title to the Project Sites and

agree to the solar installation on that Site.

Terms applicable to the solar scope are as follows:

- a. **Interconnection Agreement** – means an agreement between the Owner and a particular utility involved for interconnection of the solar output to the electrical grid.
- b. **Interconnection Equipment** – all equipment (including wiring and conduit and metering for net metering) on the Owner side of the main service meter to enable proper interconnection of the solar system to the grid.

(4.1) Design – Climatec LLC shall prepare the Engineering Documents (prepared by properly licensed and qualified individuals). The Engineering Documents shall be submitted to Owner for approval. Owner shall provide approvals within five (5) business days from receipt.

(4.2) Unforeseen Site Conditions – Within 10 days of discovery, Climatec LLC will notify Owner in writing of (a) subsurface or latent physical conditions at the site differing materially from those described in the Contract Documents.

5. PRICING; INVOICING & PAYMENTS.

Phase 1 Payments.

Project Development Fee A fee of \$0 (the “Project Development Fee”) will be invoiced upon Contractor’s completion of all work required in the Phase 1 should the Owner fail to proceed to Phase 2 when the CEA Report demonstrates a viable project, as described in Section 1 of this Agreement. In the event Contractor successfully completes all work required in Phase 1 and Owner elects to proceed with Phase 2 of the Project, the Project Development Fee shall be waived. In the event Contractor fails to complete all work required in Phase 1, the Project Development Fee shall be waived.

Phase 2 Payments. Notwithstanding anything to the contrary, Owner shall not be obligated to pay any amounts hereunder for Phase 2 of the Project until Owner, in its sole and absolute discretion, agrees to implement certain ECMs identified under Phase 1 of the Project and makes all required findings under Government Code section 4217.10 *et seq.*

Contract Price. If the CEA Report demonstrates a viable project, as described in Section 1 of this Agreement, the Contractor will provide a price proposal for the Phase 2 portion of the Scope of Work approved by Owner, including a schedule of values with a complete breakdown of costs. Owner and Contractor agree to negotiate in good faith to achieve a mutually acceptable price to proceed with the Phase 2 portion of the Scope of Work approved by Owner. Owner and Contractor agree that these terms are exclusively applicable to Phase 2 shall not be operative until Owner and Contractor execute a written amendment to this Agreement following satisfactory completion of Phase 1 of the Project, as determined by the Owner in good faith. If Owner elects to proceed to Phase 2 and is satisfied with Contractor’s price proposal, then Owner shall issue a formal contract amendment establishing the Scope of Work for Phase 2 and the contract price (“Contract Price” or “Contract Sum”) Except as otherwise provided in this Agreement, the Contractor shall assume the risk of all costs in excess of the Contract Price in the performance of the Work and to provide a fully completed and successfully operational Project and System, complete in every detail according to the provisions of the Contract Documents and shall not be entitled to additional payments because of such excess costs. Should the Contractor believe that it is entitled to additional compensation, whether money or time, it must request such compensation pursuant to the General Conditions. Nothing herein shall be interpreted to create any obligation for Owner to proceed with Phase 2 of the Project.

Payment shall be made in accordance with the General Conditions.

The Owner shall either retain an amount equal to 5% of each Progress Payment, or, in lieu of said retention, offer to enter into an Escrow Agreement for Security Deposits in Lieu of Retention (“Escrow Agreement”) with Climatec LLC, as set forth in California Public Contract Code section 22300.

6. **INDEPENDENT CONTRACT.** It is agreed between Owner and Climatec LLC that Climatec LLC shall perform the Work as an independent contractor. Climatec LLC may use Subcontractors to perform work hereunder, provided Climatec LLC shall fully pay said Subcontractors and in all instances remain fully responsible for (a) the proper completion of the Project and (b) supervising such Subcontractor's work and for the quality of the work they produce.
7. **MATERIALS.** All materials shall be new, in compliance with all Applicable Laws and codes, and shall be covered by a manufacturer's warranty, if appropriate. Unavailable materials will be addressed as a force majeure event as described in the General Conditions.
8. **COMPLETION.** The work specified in Phase 1 and Phase 2 shall be considered completed upon approval by the Owner in accordance with the Contract Documents, provided that the Owner's approval shall not be unreasonably withheld.

Time is of the essence in this Agreement, and, subject to the terms of the Contract Documents, the date for final completion of Phase 1 shall be 14 weeks from receipt of Notice to Proceed. Phase 1 shall not be subject to liquidated damages.

The nature of the work for Phase 2 is that it consists of multiple Sites, as noted in Attachment "A" (Scope of Work). Once Work on a Site is deemed by Climatec LLC to be complete (that is available for beneficial use by the Owner with the Scope of Work for that Site complete and functioning as required (lacking only minor punch list items), Owner will provide a Letter of Acceptance and Substantial Completion (as defined in the General Conditions) for that Site to Climatec LLC ("Site Substantial Completion"). Final completion will occur once the entire Scope of Work, including punch list items, is complete for all Sites and the Project, and Owner issues a Letter of Acceptance and Completion for the Project ("Final Completion").

The date for Final Completion ("Project Completion Date") and dates for the Substantial completion of each Site ("Site Substantial Completion Date") shall be as set forth in the Final Project Schedule which will be determined during the initial project meeting after contract execution and determination of the final Phase 2 scope of work. Failure to reach the Project Completion Date and Substantial Completion Dates in the manner provided for by the Contract Documents shall subject Contractor to liquidated damages.

The actual occurrence of damages and the actual amount of the damages which the Owner would suffer if the Work were not completed within the Project Completion Date or Site Completion Dates are dependent upon many circumstances and conditions which could prevail in various combinations and it is impracticable and extremely difficult to fix the actual damages. Damages that the Owner would suffer in the event of delay include, but are not limited to, loss of the use of the Project and each individual Site, and the energy savings afforded by the Project and each individual Site, disruption of activities, costs of administration, supervision and the loss suffered by the public.

Accordingly, the parties agree that the following dollar figures shall be the amount of damages which the Owner shall directly incur upon failure of Climatec LLC to achieve Final Completion or Site Completion: Five Hundred dollars (\$ 500.00), for each calendar day by which the Final Completion is delayed beyond the Project Completion Date (the "Project LD Rate") and Five Hundred dollars (\$500.00), for each calendar day by which a Site Substantial Completion is delayed beyond the Site Substantial Completion Date (the "Site LD Rate"). For the avoidance of doubt, if Climatec LLC fails to bring the work to Substantial completion at a Site within the applicable Site Substantial Completion Date, Owner may assess liquidated damages cumulatively, taking into account all Sites at which Work has not reached Substantial completion within the Final Project Schedule dates for that site.

Liquidated Damages may be also be assessed for failure to have the project finally complete by the date of Final Completion in the Final Project Schedule as timely certified by the Owner.

Should circumstances, events, or actions by the Owner or other entity outside of Contractor's control significantly impede the progress of the work, Contractor may request an adjustment to the Project Completion Date or Site Completion Date (collectively, the "Contract Time") in accordance with the General Conditions.

If Climatec LLC becomes liable under this Section, the Owner, in addition to all other remedies provided by law, shall have the right to withhold any and all retained percentages of payments, and to collect the interest thereon, which would otherwise be or become due Climatec LLC until the liability of Climatec LLC under this Section has been finally determined. If the retained percentage is not sufficient to discharge all liabilities of Climatec LLC incurred under this Section, Climatec LLC and its sureties shall continue to remain liable to Climatec LLC for such liabilities until all such liabilities are satisfied in full. If Owner accepts any Work or makes any payment under this Agreement after a default by reason of delays, the payment or payments shall in no respect constitute a waiver or modification of any provisions of the Contract Documents regarding time of completion and liquidated damages.

Amendments to Schedule Terms. It is understood and agreed by Owner and Contractor that the scheduling terms under this Section may be subject to amendment, replacement or deletion in their entirety based upon the Phase 2 portion of the Scope of Work approved by Owner. Owner and Contractor agree to negotiate and amend this Section in good faith to amend, replace or delete the terms herein as necessary to accommodate the Phase 2 portion of the Scope of Work approved by Owner. Owner and Contractor agree that the terms of this Section exclusively applicable to Phase 2 shall not be operative until Owner and Contractor execute a written amendment to this Agreement following satisfactory completion of Phase 1 of the Project, as determined by the Owner in good faith. Nothing herein shall be interpreted to create any obligation for Owner to proceed with Phase 2 of the Project

9. **LIABILITY.** With the exception of third-party claims, neither party shall be liable for any special, indirect, or consequential damages arising in any manner from the equipment, material, or systems furnished or the work performed pursuant to this agreement in excess of insurance coverage limits.
10. **CONFLICTS.** To the extent that any conflict exists between this Contract and the General Conditions (Attachment E), the General Conditions shall govern.
11. **REBATES, UTILITY INCENTIVES, AND GRANTS** This Contract has been priced "net" of all anticipated utility rebates and incentives that are earned through the course of this Project. Therefore, 100% of these rebates and incentives will be the property of Climatec LLC or their designee. The paperwork, inspections and verification required to collect these monies are the sole responsibility of Climatec LLC. The Owner agrees to assist Climatec LLC where required by the jurisdiction in the form of data required for the application and authorizing signatures. In the event the Owner incurs expenses related to the processing of the applications, Climatec LLC shall reimburse these direct costs.
12. **TAX CREDITS, TAX DEDUCTIONS AND 179d QUALIFYING CREDITS** Unless otherwise stated in the Contract, any and all eligible tax credits or incentives that can be earned through the course of this Project from State, Local or Federal agencies for energy efficient design are 100% the property of Climatec LLC or their designee. The paperwork, inspections and verification required to collect these credits are the sole responsibility of Climatec LLC. The Owner agrees to assist Climatec LLC where required by the jurisdiction in the form of data required for the application and authorizing signatures and/or transfers. In the event the Owner incurs expenses related to the processing of the applications, Climatec LLC shall reimburse these direct costs.
13. **COMPLIANCE WITH LAWS.** Climatec LLC shall comply with all applicable federal, state, and local laws and regulations. All licenses and permits required for the prosecution of the Work shall be obtained and paid for by Climatec LLC.
14. **CLIMATEC LLC'S LICENSE AND DIR REGISTRATION.** In order to perform the work required by this Agreement, Climatec LLC shall possess a valid, active General Building Contractor License (B) issued by the State of California, which shall remain valid and active throughout the Project. In addition, Climatec LLC must be registered with DIR as a public works contractor, which shall remain valid and active throughout the Project.
15. **WAGE RATES.** Pursuant to the provisions of Article 2, commencing with Section 1770 of the Labor Code, Owner has ascertained the general prevailing rate of per diem wages in the locality in which this public work is to be performed for each craft, classification, or type of worker needed to execute this Agreement. The general rates of per diem wages are available at Owner's office. In the event that the listed or posted rates are in error, Climatec

LLC is responsible to pay those rates determined by the Director of Industrial Relations to be applicable, and Owner shall not be responsible for any damages arising from the error.

16. **PAYROLL RECORDS.** It is the responsibility of Climatec LLC to comply with the provisions of Labor Code Section 1776 dealing with the maintenance and inspection of employee payroll records.
17. **PREVAILING WAGE.** The Project is subject to prevailing wage monitoring and enforcement by the Department of Industrial Relations (DIR). Climatec LLC and all subcontractors will be subject to the requirements of Subchapter 4.5 of Chapter 8 of Title 8 of the California Code of Regulations. Climatec LLC and all subcontractors will be required to furnish electronic certified payroll records to the DIR on a frequency not less than monthly using the DIR's eCPR system at http://www.dir.ca.gov/Public-Works/eCPR_System-iForm.html. Climatec LLC shall comply with all requirements of the Labor Code and attendant regulations pertaining to prevailing wage monitoring and compliance as required by the DIR, including, but not limited to, posting job site notices prescribed by Title 8 CCR § 16451(d). Climatec LLC shall permit Owner, the DIR or their designee to interview Climatec LLC's employees concerning compliance with prevailing wage, apprenticeship, and related matters, whether or not during work hours, and shall require each subcontractor to provide Owner, the DIR or their designee with such access to its employees.
18. **APPRENTICES.** If applicable, Climatec LLC shall comply with the requirements of Labor Code Section 1777.5 dealing with the employment of apprentices.
19. **DISPUTES.** Disputes shall be settled pursuant to the claim procedures in the General Conditions.
20. **CHANGE ORDER (Mid-Performance Amendments).** Climatec LLC and the Owner recognize that changes to the Contract will be in accordance with Article 6 Changes in Work in the General Conditions.
21. **INSURANCE.** Climatec LLC will maintain comprehensive liability and other insurance in amounts not less than those set forth in Article 10 Insurance and Bonds in the General Conditions.
22. **INDEMNITY.** To the fullest extent permitted by law, Climatec LLC shall immediately defend (with counsel mutually acceptable to both parties) of the Owner's choosing), indemnify and hold harmless the Owner, its officials, officers, agents, employees, and representatives, and each of them from and against:
 - a. Any and all claims, demands, causes of action, costs, expenses, injuries, losses or liabilities, in law or in equity, of every kind or nature whatsoever (except as noted in item 9), but not limited to, injury to or death, including wrongful death, of any person, and damages to or destruction of property of any person, arising out of, related to, or in any manner directly or indirectly connected with the Work or this Contract, including claims made by subcontractors for nonpayment, including without limitation the payment of all attorney's fees and other related costs and expenses, however caused, regardless of whether the allegations are false, fraudulent, or groundless, and regardless of any negligence of the Owner or its officers, employees, or authorized volunteers (including passive negligence), except the sole negligence or willful misconduct or active negligence of the Owner or its officials, officers, employees, or authorized volunteers
 - b. Climatec LLC's defense and indemnity obligation herein includes, but is not limited to damages, fines, penalties, attorney's fees and costs arising from claims under the Americans with Disabilities Act (ADA) or other federal or state disability access or discrimination laws arising from Climatec LLC's Work during the course of construction of the improvements or after the Work is complete, as the result of defects or negligence in Climatec LLC's construction of the improvements.
 - c. Any and all actions, proceedings, damages, costs, expenses, fines, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Climatec LLC.
 - d. Any and all losses, expenses, damages (including damages to the Work itself), reasonable attorney's fees, and other costs, including all reasonable costs of defense which any of them may incur with respect to the failure, neglect, or refusal of Climatec LLC to faithfully perform the Work and all of Climatec LLC's obligations under the Agreement. Such costs, expenses, and damages shall include all reasonable costs, including attorney's fees, incurred by the indemnified parties in any lawsuit to which they are a party.

- e. Contractor will indemnify, hold harmless, release and defend Owner from and against any and all claims, demands, causes of action, suits, proceedings, reasonable costs or expenses, liability, judgments, awards, decrees, settlements, or reasonable losses arising from an allegation, charge, assertion or accusation that Contractor and/or Owner has violated California Government Code Section 1090 or any other conflict-of-interest law in the procurement, execution or performance of this Agreement so long as the violation is not a result of an action, unknown by Climatec LLC, by an Owner employee. This indemnification obligation will continue to bind Contractor after the termination or expiration of this Agreement.

Climatec LLC shall immediately defend, at Climatec LLC's own cost, expense and risk, with counsel mutually acceptable to both parties any and all such aforesaid suits, actions or other legal proceedings of every kind (except as noted in item 9) that may be brought or instituted against the Owner, its officials, officers, agents, employees and representatives. Climatec LLC shall pay and satisfy any judgment, award or decree that may be rendered against the Owner, its officials, officers, employees, agents, employees and representatives, in any such suit, action or other legal proceeding. Climatec LLC shall reimburse the Owner, its officials, officers, agents, employees and representatives for any and all reasonable legal expenses and costs incurred by each of them in connection therewith or in enforcing the indemnity herein provided. The only limitations on this provision shall be those imposed by Civil Code section 2782.

- 23. **OCCUPATIONAL SAFETY AND HEALTH.** The Parties hereto agree to notify each other immediately upon becoming aware of any alleged violation of, the Occupational Safety and Health Act (OSHA) relating in any way to the Project or Project site.
- 24. **ENTIRE AGREEMENT.** This Agreement, upon execution, shall constitute the entire agreement between the parties and supersedes any prior representations or understandings.
- 25. **CHANGES.** No change or modification of any of the terms and conditions stated herein shall be binding upon either Party unless accepted by both Parties in writing.
- 26. **SEVERABILITY.** If one or more of the provisions of this Agreement are held to be unenforceable under laws, such provision(s) shall be excluded from these terms and conditions and the remaining terms and conditions shall be interpreted as if such provision were so excluded and shall be enforced in accordance to their terms and conditions.
- 27. **COUNTERPARTS.** This Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same instrument. A signature on a copy of this Agreement received by either party by facsimile or portable document format (PDF) is binding upon the other party as an original. The parties shall treat a photocopy of such facsimile as a duplicate original.
- 28. **ASSIGNMENT.** Climatec LLC retains the right to assign its rights and obligations of this Agreement with written consent of Owner.
- 29. **ACKNOWLEDGMENT.** Both Climatec LLC and the Owner acknowledge having read this Agreement and all contract documents incorporated herein and have executed this Agreement on the date written above.

30. **APPROVAL.** Each party represents that the person that has executed this Agreement on its behalf is authorized to do so.

IN WITNESS WHEREOF, the parties have caused their duly authorized officers to execute this Agreement effective as of the date first above written.

City of Clayton

Signature

Rena J. Schwartz

Print Name

City Manager

Title

10/19/2022

Date

Climatec LLC

Signature

Steve Siverson

Print Name

President – Climatec Energy Services

Title

10-19-22

Date

Attachment “A”

Phase 1 Work

Phase 1 Work is defined on page 6 of this Agreement -

Item 1, Phase 1 Project Development Phase

Phase 2 Work

Project Wide Note: All work in the scope of this project will be performed in compliance with California's Title 24 Building and Energy Codes.

Attachment “B”

Lighting Summary

To be added by written amendment to this Agreement.

Attachment “C”

Mechanical Replacement Inventory

To be added by written amendment to this Agreement.

Attachment “D”
Technical Appendix – Phase 2

To be added by written amendment to this Agreement.

Attachment E General Conditions

GENERAL CONDITIONS

ARTICLE 1

GENERAL CONDITIONS

1.1 BASIC DEFINITIONS

1.1.1 The Specifications. The Specifications are that portion of the Contract Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services.

1.1.2 The Project Manual. The Project Manual is the volume usually assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Agreement, Conditions of the Agreement, and Specifications.

1.1.3 Punch Lists. Punch List means a list of minor items on the Project that remains for Contractor to complete or correct.

1.2 EXECUTION, CORRELATION, AND INTENT. The Contract Documents are complementary and are intended to include all items required for the proper execution and completion of the Work. Any item of work mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be provided by Contractor as if shown or mentioned in both. Each and every provision of law required by law to be inserted in this Agreement shall be deemed to be inserted herein, and the Agreement shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon application of either party the Agreement shall be amended in writing to make such insertion or correction.

1.3 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS. The Drawings, Specifications, and other documents prepared on behalf of the Owner are instruments of the services of the Contractor and its consultants and are the property of the Owner. The Contractor may retain one contract record set.

1.4 ORDER OF PRECEDENCE. This Agreement and the contract documents referenced and incorporated herein are intended to be complementary, fully cooperative and to agree. However, to the extent that the terms and conditions of any of the Project contract documents conflict, the Contractor shall notify the Owner in writing and the following shall be the order of precedence as between the documents, with the first document taking the highest priority, provided, however, that the order of precedence shall not be so rigidly interpreted as to affect an absurd or costly result:

- i) Amendments to this Agreement
- ii) This Agreement, including all Attachments
- iii) Amendments/Written Changes signed by both parties to Criteria/Scope of Work
- iv) Criteria/Scope of Work
- v) Request for Proposals and all RFP Addenda issued prior to proposal and award dated TBD.
- vi) Contractor's Proposal dated N/A .

1.4.1 General Order of Precedence

i) Special Conditions shall take precedence over General Conditions. In the event of conflict between Technical Specifications and the General Conditions, the General Conditions shall take precedence. In the event of a conflict between the Technical Specifications and the drawings, the higher quality, higher price, and the most stringent requirements shall be deemed to apply and shall govern as to materials, workmanship, and installation procedures.

ii) Work not particularly shown or specified shall be the same as similar parts that are shown or specified.

iii) Standards, Rules and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications and within limits specified.

iv) With regard to drawings: a) Figures govern over scaled dimensions; b) Larger details govern over general drawings; c) Addenda/change order drawings govern over contract drawings; d) Contract drawings govern over standard drawings

ARTICLE 2

OWNER

2.1 DEFINITION. The term "Owner" means the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Owner" means the Owner or the Owner's authorized representative.

2.2 EXISTING UTILITY LINES; SITE SURVEY; CONTRACTOR RELIANCE. Notwithstanding Government Code section 4215, and to the fullest extent allowed by law, Contractor shall be responsible to remove, relocate, and protect (reasonably discoverable at the time of site inspection) utilities located on each Project Site at the time of commencement of construction under the Agreement with respect to any such utility facilities that Owner has not identified, whether or not set forth in the Drawings and Specifications. Contractor may be assessed liquidated damages in accordance the Contract Documents for delay in completion of the Project caused by Contractor's failure to timely remove or relocate such utility facilities. This Subsection shall not be construed to preclude assessment against Contractor for any other delays in completion of the work on the Project. Contractor shall be solely responsible to timely notify all public and private utilities serving the affected Project Site before commencing work on the Project Site. Contractor shall notify and receive clearance from any cooperative agency, such as Underground Service Alert, in accordance with Government Code section 4216, et seq. Contractor shall promptly provide a copy of all such notifications to Owner or its designated representative.

When required by the scope of the Project, the Contractor shall furnish, at its expense, a legal description or a land survey of any or all Project Sites, giving, as applicable, grades and lines of streets, alleys, pavements, adjoining property, rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries, and contours of the site. Additionally, all surveys to determine locations of construction, grading, and site work shall be provided by the Contractor. Contractor shall provide copies of any and all legal descriptions and surveys conducted on the Project Sites to Owner.

When required by the scope of the Project, Contractor will furnish, at its expense, the services of geotechnical engineers or consultants when reasonably required or as required by local or State codes. Such services with reports and appropriate professional recommendations shall include test boring, test pits, soil bearing values, percolation tests, air and water pollution tests, and ground corrosion and resistivity tests, including necessary operations for determining subsoil, air, and water conditions.

Any test borings and soils reports for the Project that have previously been made have been made for the Owner to indicate the subsurface materials that might be encountered at particular locations on the Project. The Owner has made these documents available to the Contractor and the Contractor has studied the results of such test borings and information that it has as to the subsurface conditions and Site geology as set forth in the test borings and soils reports. The Owner does not assume any responsibility whatsoever with respect to the sufficiency or accuracy of the borings made, or of the logs of the test borings, or of other investigations, or of the soils reports furnished pursuant hereto, or of the interpretations to be made beyond the location or depth of the borings. There is no warranty or guarantee, either express or implied that the conditions indicated by such investigations, borings, logs, soil reports or other information are representative of those existing throughout the site of the Project, or any part thereof, or that unforeseen developments may not occur. At the Owner's request, the Contractor shall make available to the Owner the results of any Site investigation, test borings, analyses, studies or other tests conducted by or in the possession of the Contractor of any of its agents. Nothing herein contained shall be deemed a waiver by the Contractor to pursue any available legal right or remedy it may have at any time against any third party who may have prepared any report and/or test relied upon by the Contractor.

Unless specifically stated in writing by Owners, the Contractor may not rely upon the accuracy of any utility services or site survey information that the Owner may provide.

2.3 OWNER'S RIGHT TO STOP THE WORK. If the Contractor fails to correct Work, which is not in accordance with the requirements of the Contract Documents as required by Section 11.2, or persistently fails to carry out Work in accordance with the Contract Documents, the Owner, by written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the Work or any portion thereof, until the cause for such order has been eliminated.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK. If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails (within a seven-day period after receipt of written notice or the time period expressly stated in the written notice from the Owner) to commence and continue correction of such default or neglect with diligence and promptness, the Owner may correct such deficiencies by whatever reasonable method the Owner may deem expedient without prejudice to other remedies the Owner may have, and may withhold for the cost of such correction.

ARTICLE 3

THE CONTRACTOR

3.1 DEFINITION. The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representatives. To the extent that any portion of the Work is provided with the Contractor's own forces, any reference to Subcontractors shall be equally applicable

to the Contractor. If any of the Work is performed by contractors retained directly by the Owner, Contractor shall be responsible for the coordination and sequencing of the Work of those other contractors so as to avoid any impact on the Final Project Schedule (Attachment "F").

3.2 SUPERVISION AND CONSTRUCTION PROCEDURES.

3.2.1 Contractor. The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures, and coordinating all portions of the Work under the Agreement, unless Contract Documents give other specific instructions concerning these matters.

3.2.2 Contractor Responsibility. The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors, material and equipment suppliers, and their agents, employees, invitees, and other persons performing portions of the Work under direct or indirect contract with the Contractor or any of its Subcontractors.

3.2.3 Obligations not Changed. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents by activities or duties of the Inspector of Record, or by tests, inspections, or approvals (with the exception of Interconnection Permits) required or performed by persons other than the Contractor so long as those tests, inspections or approvals that are required by the owner and performed by an owner directed entity do not require an unreasonable length of time.

3.2.4 Contractor Responsibility for Readiness for Work. The Contractor shall be responsible for inspection of Work already performed under the Contract Documents to determine that such portions are in proper condition to receive subsequent work.

3.3 SUPERINTENDENT. The Contractor shall provide a competent superintendent and assistants as necessary, all of whom shall be reasonably proficient in speaking, reading and writing English, and, who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. The Contractor and each Subcontractor shall: furnish a competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and keep an adequate force of skilled workers on the job to complete the Work in accordance with all requirements of the Contract Documents. Owner shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Contractor, Subcontractor, material or equipment supplier, etc., for cause.

3.4 LABOR AND MATERIALS. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, , transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

3.5 WARRANTY. The Contractor warrants to the Owner that material and equipment furnished under

the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents, per Section 11.2.

3.6 TAXES. Contractor will pay all applicable Federal, State, and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Contract Documents. Owner is exempt from Federal Excise Tax, and a Certificate of Exemption shall be provided upon request.

3.7 PERMITS, FEES AND NOTICES. The Contractor shall secure and pay for all ministerial permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and are legally required by any authority having jurisdiction over the Project.

3.8 ALLOWANCES. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities against whom the Contractor makes reasonable and timely objection.

3.9 CONTRACTOR'S PROJECT SCHEDULES. Contractor shall provide the Preliminary Project Schedule and the Final Project Schedule, and updates and revisions thereto in electronic format as well as hard copy. The schedules provided by Contractor shall not exceed time limits current under the Contract Documents and shall comply with all of the scheduling as required in the Specifications. Failure of the Contractor to provide proper schedules as required by this Section may, at the sole discretion of Owner, constitute either grounds to withhold, in whole or in part, progress payments to the Contractor, or a breach of contract allowing Owner to terminate the Agreement between Owner and Contractor.

3.9.1 Preliminary Project Schedule. Unless specifically stated otherwise in other Contract Documents, a preliminary Project schedule shall be prepared by Contractor in accordance with and attached hereto as additional pages to Attachment "F". Owner shall not be bound by the Preliminary Project Schedule and shall not be responsible for any defects or mistakes in the Preliminary Project Schedule. Contractor is solely responsible for the accuracy, utility and reasonableness of the Preliminary Project Schedule and all subsequent updates or modifications thereto.

3.9.2 Final Project Schedule. Unless specifically stated otherwise in other Contract Documents, Contractor shall prepare and submit a final Project schedule, in accordance with and attached hereto as additional pages to Attachment "F" ("Final Project Schedule"), to Owner within 30 days of the Phase 2 Notice to Proceed. The term Final Project Schedule, as used in this Agreement and other Contract Documents, shall include any revisions thereto that the Parties agree upon in writing, which agreed-upon revisions shall be set forth in a revised Final Project Schedule. Any Final Project Schedule shall replace the Preliminary Project Schedule and all prior Final Project Schedules.

3.9.3 Compliance with Project Timeline. No schedule shall exceed time limits current under the Contract Documents and shall comply with all of the scheduling as required by the Contract Documents and any scheduling requirements provided by Owner to Contractor, and agreed to by the Contractor, at the beginning of the Project. The schedule shall be in the form of a tabulation, chart, or graph and shall be in sufficient detail to show the chronological relationship of all activities of the Project including, but not limited to, estimated starting and completion dates of various activities, (including early and late dates

and reasonable float for each activity), procurement of materials, the critical path, and scheduling of equipment. Float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or imposed dates shall be apportioned according to the benefit of the Project.

3.9.4 Updated Project Schedules. Contractor shall submit an updated schedule on a monthly basis that includes an accurate as-built schedule and the current as-planned schedule in conformance with the above standards. Contractor shall submit its daily logs for the month with the updated schedule. Float is not for the exclusive use or benefit of either Party but it is a jointly owned expiring Project resource available to both Parties as needed to meet schedule milestones. If any change in Contractor's method of operations will change the Final Project Schedule, Contractor shall submit to Owner a revised Final Project Schedule within seven days of the change.

3.9.5 Recovery Plan. If Contractor's actual progress falls behind the scheduled progress, within seven days of a request by Owner, Contractor shall prepare and submit a recovery plan. The recovery plan must include a revised schedule that would recover the lost time and still complete the work on the Project by the Final Project Completion Date. The recovery plan shall also list any additional compensation that Contractor believes it should receive if Owner chooses to order Contractor to implement the recovery plan. If Owner directs Contractor to implement the recovery plan, then Contractor shall do so.

3.9.6 Failure to Meet Final Project Schedule. In addition to any remedies that Owner may have, Contractor's failure to provide proper project schedules (with the exception of Interconnection Permits as noted in the contract documents) as required by this Section may, at Owner's sole discretion: (a) constitute grounds to withhold, in whole or in part, progress payments to Contractor, or (b) constitute a breach of the Agreement entitling Owner to actual damages, in addition to any other remedies provided under the Agreement, including, in Owner's discretion, termination of the Agreement pursuant to the terms hereof.

3.10 DOCUMENTS AND SAMPLES AT THE SITE. The Contractor shall maintain at the Site for the Owner one applicable copy of Titles 19 and 24 and record copy of the Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals.

3.11 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

3.11.1 Shop Drawings. The term "shop drawings" as used herein means drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, suppliers, or distributors illustrating some portion of the Work. Drawings will be provided where required to assure proper fit and assembly. The majority of the work, except for Solar PV, will be replacement of existing equipment only.

3.11.2 Samples. The term "samples" as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality. All Work shall be in accordance with the approved samples.

3.11.3 Contractor's Responsibility. Contractor shall obtain and shall submit to Owner all required shop drawings and samples in accordance with the Final Project Schedule as required in the Specifications with such promptness as to cause no delay in its own Work or in that of any other contractor. Review by Owner

shall not relieve the Contractor or any Subcontractor from its responsibility in preparing and submitting proper shop drawings, product data, and samples in accordance with the Contract Documents. Any submission, which in Owner's opinion is incomplete, contains numerous errors, or has been checked only superficially by Contractor, will be returned un-reviewed by the Owner for resubmission by the Contractor. Contractor shall not commence any portion of the Work requiring a shop drawing or sample submission until the Owner has approved the submission.

3.11.4 Extent of Review. In reviewing shop drawings, the Owner will not verify dimensions and field conditions. The Owner will review and approve shop drawings, product data, and samples for aesthetics and for conformance with the design concept of the Work and the information given in the Contract Documents. The Owner's review shall not relieve the Contractor from responsibility for any deviations from the requirements of the Contract Documents unless the Owner has given specific written approval. Contractor and Subcontractors shall be solely responsible for determining any quantities, whether or not shown on the shop drawings.

3.11.5 Substitution. Unless the Specifications state that no substitution is permitted, whenever in the Contract Documents any specific brand or trade name is specified such specification shall be deemed to be followed by the words "or equal." The Owner may consider an untimely substitution request if the product specified is no longer commercially available.

3.12 CLEANING UP. The Contractor shall keep the Site and surrounding area free from accumulation of waste material or rubbish caused by operations under the Agreement. The Site shall be maintained in a safe, neat, and orderly condition. If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so, without prior notice to the Contractor and the cost thereof shall be invoiced to the Contractor and withheld from progress payments and/or retention. Upon completion of the Project, Contractor and Subcontractor shall dismantle temporary structures, if any, and remove from the Site all construction and installation equipment, fences, scaffolding, surplus materials, rubbish, and supplies belonging to Contractor or Subcontractor.

3.13 ACCESS TO WORK. The Contractor shall provide the Owner, the Owner's designees, and the Inspector, access to the Work in preparation and progress wherever located.

3.14 ROYALTIES AND PATENTS. The Contractor shall pay all royalties and license fees incurred by Contractor in performing the Work of this Agreement. The Contractor shall defend suits or claims of infringement of patent rights and shall hold the Owner harmless and indemnify them from loss on account thereof.

3.15 INDEMNIFICATION. The Contractor's obligations to indemnify the Owner are set forth in the Agreement.

3.16 RESERVED.

3.17 LABOR REQUIREMENTS

3.17.1 Prevailing Wages. Pursuant to the provisions of Section 1770 *et seq.* of the Labor Code of the State of California, which are hereby incorporated by reference and made a part hereof, the Director of Industrial Relations has determined the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which the work is to be performed, for each

craft, classification or type of worker needed to execute this Agreement. Per Diem wages shall be deemed to include employer payments for health and welfare, pension, vacation, apprenticeship or other training programs, and similar purposes. Copies of the rates are on file at the Owner's principal office. The rate of prevailing wage for any craft, classification or type of workmanship to be employed on this Project is the rate established by the applicable collective bargaining agreement which rate so provided is hereby adopted by reference and shall be effective for the life of this Agreement or until the Director of the Department of Industrial Relations determines that another rate be adopted. It shall be mandatory upon the Contractor and on any subcontractor to pay not less than the said specified rates to all workers employed in the execution of this Agreement.

The Contractor and any subcontractor under the Contractor as a penalty to the Owner shall forfeit not more than Two Hundred Dollars (\$200.00) for each calendar day or portion thereof for each worker paid less than the stipulated prevailing rates for such work or craft in which such worker is employed. The difference between such stipulated prevailing wage rates and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the stipulated prevailing wage rate shall be paid to each worker by the Contractor.

The Contractor and each Subcontractor shall keep or cause to be kept an accurate record for work on this Project showing the names, addresses, social security numbers, work classification, straight time and overtime hours worked and occupations of all laborers, workers and mechanics employed by them in connection with the performance of this Agreement or any subcontract thereunder, and showing also the actual per diem wage paid to each of such workers, which records shall be open at all reasonable hours to inspection by the Owner, its officers and agents and to the representatives of the Division of Labor Law Enforcement of the State Department of Industrial Relations.

This Project is subject to compliance monitoring and enforcement by the Department of Industrial Relations in accordance with the provisions of Sections 1725.5, 1771.1, 1771.3, 1771.4, 1771.5, and 1771.7 of the Labor Code. This requirement applies regardless of whether the Project will use State funds. Pursuant to Labor Code section 1771.1, a contractor or subcontractor shall not be qualified to bid on, be listed in a proposal (subject to the requirements of Section 4104 of the Public Contract Code), or engage in the performance of any contract for public work, as defined by Division 2, Part 7, Chapter 1 (§§1720 et seq.) of the Labor Code, unless currently registered and qualified to perform public work pursuant to Section 1725.5 of the Labor Code. The Contractor shall keep records of such registration by subcontractors of all tiers and shall provide such documentation to Owner upon request. Contractor shall post all required job site notices pursuant to the Labor Code and related regulations. Contractor shall submit records, including those specified in Labor Code section 1776, to the Labor Commissioner as required by Sections 1771.4(a)(3), 1771.4(c)(2), and 1776 of the Labor Code. Owner may withhold \$100 for each calendar day after ten days from Contractor's receipt of a request to produce payroll records (as described in Labor Code §1776(a)) that Contractor fails to produce such records.

3.17.2 Working Hours. In accordance with the provisions of Sections 1810 to 1815, inclusive, of the Labor Code of the State of California, which are hereby incorporated and made a part hereof, the time of service of any worker employed by the Contractor or a Subcontractor doing or contracting to do any part of the Work contemplated by this Agreement is limited and restricted to 8 hours during any one calendar day and 40 hours during any one calendar week, provided, that work may be performed by such employee in excess of said 8 hours per day or 40 hours per week provided that compensation for all hours worked in excess of 8 hours per day, and 40 hours per week, is paid at a rate not less than 1½ times the basic rate of pay. The Contractor and every Subcontractor shall keep an accurate record showing the name of and the actual hours worked each calendar day and each calendar week by each worker employed by them in connection with the Work. The Contractor and every Subcontractor shall keep the records open at all reasonable hours to inspection by representatives of the Owner and the Division of Labor Law

Enforcement. The Contractor shall as a penalty to the Owner forfeit \$25.00 for each worker employed in the execution of this Agreement by the Contractor or by any subcontractor for each calendar day during which such worker is required or permitted to work more than 8 hours in any one calendar day, and 40 hours in any one calendar week, except as herein provided.

3.17.3 Apprentices. The Contractor agrees to comply with Chapter 1, Part 7, Division 2, Sections 1777.5 and 1777.6 of the California Labor Code, which are hereby incorporated and made a part hereof. These sections require that contractors and subcontractors employ apprentices in apprenticeable occupations in a ratio of not less than 1 hour of apprentice's work for each 5 hours of work performed by a journeyman (unless an exemption is granted in accordance with Section 1777.5) and that contractors and subcontractors shall not discriminate among otherwise qualified employees as indentured apprentices on any public works solely on the ground of sex, race, religious creed, national origin, ancestry or color. Only apprentices as defined in Labor Code Section 3077, who are in training under apprenticeship standards and who have signed written apprentice agreements, will be employed on public works in apprenticeable occupations. The responsibility for compliance with these provisions is fixed with the Contractor for all apprenticeable occupations.

ARTICLE 4

ADMINISTRATION OF THE AGREEMENT

4.1 Reserved.

4.2 ADMINISTRATION OF THE AGREEMENT.

4.2.1 **Owner and Representatives.** The Owner may provide administration of the Agreement as described in the Contract Documents and may designate one or several agents, representatives, or consultants to provide administration.

4.2.2 **Limitations of Construction Responsibility.** The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Owner or Owner's agents (as long as those activities or duties have been discussed and factored into the final schedule), representatives and consultants, or by tests, inspections, or approvals (except for Interconnection Permits provided by the electric utility) required or performed by persons other than the Contractor.

4.2.3 **Communications Facilitating Agreement Administration.** Except as otherwise provided in the Contract Documents or when direct communications are warranted by special circumstances, the Owner and the Contractor shall communicate through the Owner's selected representative.

4.2.4 **Rejection of Work.** In addition to the rights, duties, and obligations of the Inspector under this Article, the Owner's selected representative may recommend to the Owner that the Owner reject Work which does not conform to the Contract Documents.

4.3 **INSPECTOR OF RECORD and OWNER'S PROJECT ENGINEER.** One or more project inspectors employed by the Owner will be assigned to the Work in accordance with the requirements of Title 24 of the California Code of Regulations. In addition, the Owner may hire the services of an Owner's Project Engineer. These two (2) parties shall work to assist the Owner with quality control and shall both be provided the access and consideration described herein. Both of these entities shall be allowed to inspect and report as described herein. Except for rights dictated by Title 24 as solely residing with the Inspector of Record, all places where "Inspector" is mentioned shall also consider the Owner's Project Engineer.

The Inspector(s) duties will, at minimum, be as specifically defined in Title 24. All Work shall be under the observation of or with the knowledge of the Inspector. The Inspector shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector such information as may be necessary to keep the Inspector fully informed regarding progress and manner of work and character of materials. Such observations shall not, in any way, relieve the Contractor from responsibility for full compliance with all terms and conditions of the Agreement, or be construed to lessen to any degree the Contractor's responsibility for providing efficient and capable superintendence. The Inspector is not authorized to make changes in the drawings or specifications. The Inspector shall have the authority to reject work that does not comply with the provisions of the Contract Documents. In addition, the Inspector may stop any Work which poses a probable risk of harm to persons or property. Any costs or expenses of inspection or testing incurred not located in a contiguous county to the Project Site on which the inspection or testing is required shall be paid for by Owner, and Owner shall then invoice to Contractor

and Contractor shall make payment thereof within 30 days after Contractor receives the invoice; if Contractor fails to do so, Owner shall have the right to withhold the amount from any payment due or to be due to Contractor under the Agreement. No work shall be performed by the Contractor solely upon the instructions or comments by the Inspector of Record. The Inspector of Record has no authority to interpret the Contract Documents or order extra work and any extra work performed without the written instruction of the Owner shall be at Contractor's sole cost and expense and there will be no delay damages incurred by Owner for such work.

4.4 RESPONSIBILITY FOR ADDITIONAL CHARGES INCURRED BY THE OWNER FOR PROFESSIONAL SERVICES. If at any time prior to the completion of the requirements under the Contract Documents, through no fault of its own, the Owner is required to provide or secure additional professional services for any reason by any act or omission of the Contractor, the Contractor shall be invoiced by the Owner for any actual costs incurred for any such additional services, which costs may, among other remedies, be withheld from the progress payments and/or retention.

4.5 CLAIMS.

4.5.1 General. A Claim is a demand or assertion by Contractor seeking, as a matter of right, adjustment, or interpretation of Agreement terms, payment of money, extension of time, or other relief with respect to the terms of the Agreement. Claims must be made by written notice. The responsibility to substantiate Claims shall rest with the Contractor. Contractor may only submit a Claim after having complied with the requirements in Article 6, as applicable, for the same matters. All public works claims between the Contractor and the Owner shall be resolved pursuant to the procedures set forth in Public Contract Code section 9204 consistent with the specific provisions set forth below.

Claims shall be submitted to the Owner and the Owner's designated representative. A timely decision by the Owner shall be provided. Claims must be made by written notice prior to the final progress payment. An additional Claim made after the initial Claim has been implemented by Change Order will not be considered. The failure of the Contractor to make a Claim within the specified time shall constitute an express waiver of any right to assert such Claim, whether affirmatively or defensively. Despite submission or rejection of a Claim, the Contractor shall proceed diligently with performance of the Agreement, and the Owner shall continue to make any undisputed payments in accordance with the Agreement. When any excavation or trenching extends greater than four feet below the surface, Public Contract Code section 7104 shall control.

The Contractor shall make a certification at the time of submission of a Claim. Contractor understands and agrees that any Claim submitted without this certification does not meet the terms of the Contract Documents, that Owner, or Owner's representatives, may reject the Claim on that basis and that unless Contractor properly and timely files the Claim with the certification, Contractor cannot further pursue the Claim in any forum. A condition precedent will not have been satisfied.

4.5.2 Claims for Concealed or Unknown Conditions

4.5.2.1 Trenches or Excavations Less Than Four Feet Below the Surface. If Contractor encounters conditions at the Site which are subsurface or otherwise concealed physical conditions, which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent

in construction activities of the character provided for in the Contract Documents, then notice by the Contractor shall be given to the Owner promptly before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Owner will promptly investigate such conditions, and if they differ materially and cause an increase or decrease in the Contractor's cost of, time required for, or performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum, Contract Time, or both. If the Owner determines that the conditions at the Site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Agreement is justified, the Owner shall so notify the Contractor in writing, stating the reasons. In the event a dispute arises between the Owner and the Contractor regarding whether the conditions materially differ, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the Work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract Documents, but shall proceed with all the work to be performed under the Contract Documents. The Contractor shall retain any and all rights provided either by contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

4.5.2.2 Trenches or Excavations Greater Than Four Feet Below the Surface. Pursuant to Public Contract Code section 7104, when any excavation or trenching extends greater than four feet below the surface:

4.5.2.2.1 The Contractor shall promptly, and before the following conditions are disturbed, notify the public entity, in writing, of any:

4.5.2.2.1.1 Material that the Contractor believes may be material that is hazardous waste, as defined in Section 25117 of the Health and Safety Code, which is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law.

4.5.2.2.1.2 Subsurface or latent physical conditions at the site differing from those indicated by information about the site made available to bidders prior to the deadline for submitting bids.

4.5.2.2.1.3 Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract.

4.5.2.2.2 The public entity shall promptly investigate the conditions, and if it finds that the conditions do materially so differ, or do involve hazardous waste, and cause a decrease or increase in the Contractor's cost of, or the time required for, performance of any part of the work shall issue a change order under the procedures described in the Contract.

4.5.2.2.3 In the event that a dispute arises between the public entity and the Contractor whether the conditions materially differ, or involve hazardous waste, or cause a decrease or increase in the Contractor's cost of, or time required for, performance of any part of the work, the Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all work to be performed under the Contract. The Contractor shall retain any and all rights provided either by Contract or by law which pertain to the resolution of disputes and protests between the contracting parties.

4.5.3 Statutory Claim Procedures In addition to any other requirements set forth in the Agreement, all Claims shall be filed in accordance with the statutory claim resolution procedures set forth in Public Contract Code sections 9204 and 20104 *et seq.*, the implementation of which is set forth in this Section. The failure to timely submit a notice of delay or notice of change, or to timely request a change in price or

time, or to timely provide any other notice or request required herein shall constitute a waiver of the right to further pursue the claim under the Agreement or at law.

4.5.3.1 Intent Effective January 1, 1991, Section 20104 et seq., of the California Public Contract Code prescribes a process utilizing informal conferences, non-binding judicial supervised mediation, and judicial arbitration to resolve disputes on construction claims of \$375,000 or less. Effective January 1, 2017, Section 9204 of the Public Contract Code prescribes a process for negotiation and mediation to resolve disputes on construction claims. The intent of this Section is to implement Sections 20104 et seq. and Section 9204 of the California Public Contract Code. This Section shall be construed to be consistent with said statutes.

4.5.3.2 Supporting Documentation The Contractor shall submit all claims in the following format:

4.5.3.2.1 Summary of claim merit and price, reference Contract Document provisions pursuant to which the claim is made

4.5.3.2.2 List of documents relating to claim:

- (1) Specifications
- (2) Drawings
- (3) Clarifications (Requests for Information)
- (4) Schedules
- (5) Other

4.5.3.2.3 Chronology of events and correspondence

4.5.3.2.4 Analysis of claim merit

4.5.3.2.5 Analysis of claim cost

4.5.3.2.6 Time impact analysis in CPM format

4.5.3.3 Owner's Response Upon receipt of a claim pursuant to this Section, Owner shall conduct a reasonable review of the claim and, within a period not to exceed 45 Days, shall provide the Contractor a written statement identifying what portion of the claim is disputed and what portion is undisputed. Any payment due on an undisputed portion of the claim will be processed and made within 60 Days after the Owner issues its written statement.

4.5.3.3.1 If the Owner needs approval from its governing body to provide the Contractor a written statement identifying the disputed portion and the undisputed portion of the claim, and the Owner's governing body does not meet within the 45 Days or within the mutually agreed to extension of time following receipt of a claim sent by registered mail or certified mail, return receipt requested, the Owner shall have up to three Days following the next duly publicly noticed meeting of the Owner's governing body after the 45-Day period, or extension, expires to provide the Contractor a written statement identifying the disputed portion and the undisputed portion.

4.5.3.3.2 Within 30 Days of receipt of a claim, the Owner may request in writing additional documentation supporting the claim or relating to defenses or claims the Owner may have against the

Contractor. If additional information is thereafter required, it shall be requested and provided pursuant to this subdivision, upon mutual agreement of Owner and the Contractor. The Owner's written response to the claim, as further documented, shall be submitted to the Contractor within 30 Days (if the claim is less than \$15,000, within 15 Days) after receipt of the further documentation, or within a period of time no greater than that taken by the Contractor in producing the additional information or requested documentation, whichever is greater.

4.5.3.4 Meet and Confer If the Contractor disputes the Owner's written response, or the Owner fails to respond within the time prescribed, the Contractor may so notify the Owner, in writing, either within 15 Days of receipt of the Owner's response or within 15 Days of the Owner's failure to respond within the time prescribed, respectively, and demand in writing an informal conference to meet and confer for settlement of the issues in dispute. Upon receipt of a demand, the Owner shall schedule a meet and confer conference within 30 Days for settlement of the dispute.

4.5.3.5 Mediation Within 10 business Days following the conclusion of the meet and confer conference, if the claim or any portion of the claim remains in dispute, the Owner shall provide the Contractor a written statement identifying the portion of the claim that remains in dispute and the portion that is undisputed. Any payment due on an undisputed portion of the claim shall be processed and made within 60 Days after the Owner issues its written statement. Any disputed portion of the claim, as identified by the Contractor in writing, shall be submitted to nonbinding mediation, with the Owner and the Contractor sharing the associated costs equally. The Owner and Contractor shall mutually agree to a mediator within 10 business Days after the disputed portion of the claim has been identified in writing, unless the parties agree to select a mediator at a later time.

4.5.3.5.1 If the parties cannot agree upon a mediator, each party shall select a mediator and those mediators shall select a qualified neutral third party to mediate with regard to the disputed portion of the claim. Each party shall bear the fees and costs charged by its respective mediator in connection with the selection of the neutral mediator.

4.5.3.5.2 For purposes of this section, mediation includes any nonbinding process, including, but not limited to, neutral evaluation or a dispute review board, in which an independent third party or board assists the parties in dispute resolution through negotiation or by issuance of an evaluation. Any mediation utilized shall conform to the timeframes in this section.

4.5.3.5.3 Unless otherwise agreed to by the Owner and the Contractor in writing, the mediation conducted pursuant to this section shall excuse any further obligation under Public Contract Code Section 20104.4 to mediate after litigation has been commenced.

4.5.3.5.4 The mediation shall be held no earlier than the date the Contractor completes the Work or the date that the Contractor last performs Work, whichever is earlier. All unresolved claims shall be considered jointly in a single mediation, unless a new unrelated claim arises after mediation is completed.

4.5.3.6 Procedures After Mediation If following the mediation, the claim or any portion remains in dispute, the Contractor must file a claim pursuant to Chapter 1 (commencing with Section 900) and Chapter 2 (commencing with Section 910) of Part 3 of Division 3.6 of Title 1 of the Government Code prior to initiating litigation. For purposes of those provisions, the running of the period of time within which a claim must be filed shall be tolled from the time the Contractor submits his or her written claim pursuant

to subdivision (a) until the time the claim is denied, including any period of time utilized by the meet and confer conference.

4.5.3.7 Civil Actions The following procedures are established for all civil actions filed to resolve claims of \$375,000 or less:

4.5.3.7.1 Within 60 Days, but no earlier than 30 Days, following the filing or responsive pleadings, the court shall submit the matter to non-binding mediation unless waived by mutual stipulation of both parties or unless mediation was held prior to commencement of the action in accordance with Public Contract Code section 9204 and the terms of this Agreement. The mediation process shall provide for the selection within 15 Days by both parties of a disinterested third person as mediator, shall be commenced within 30 Days of the submittal, and shall be concluded within 15 Days from the commencement of the mediation unless a time requirement is extended upon a good cause showing to the court.

4.5.3.7.2 If the matter remains in dispute, the case shall be submitted to judicial arbitration pursuant to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, notwithstanding Section 1114.11 of that code. The Civil Discovery Act of 1986 (Article 3 (commencing with Section 2016) of Chapter 3 of Title 3 of Part 4 of the Code of Civil Procedure) shall apply to any proceeding brought under this subdivision consistent with the rules pertaining to judicial arbitration. In addition to Chapter 2.5 (commencing with Section 1141.10) of Title 3 of Part 3 of the Code of Civil Procedure, (A) arbitrators shall, when possible, be experienced in construction law, and (B) any party appealing an arbitration award who does not obtain a more favorable judgment shall, in addition to payment of costs and fees under that chapter, also pay the attorney's fees on appeal of the other party.

4.5.3.8 Government Code Claims In addition to any and all Agreement requirements pertaining to notices of and requests for compensation or payment for extra Work, disputed Work, construction claims and/or changed conditions, the Contractor must comply with the claim procedures set forth in Government Code Sections 900, et seq. prior to filing any lawsuit against the Owner. Such Government Code claims and any subsequent lawsuit based upon the Government Code claims shall be limited to those matters that remain unresolved after all procedures pertaining to extra Work, disputed Work, construction claims, and/or changed conditions have been followed by Contractor. If no such Government Code claim is submitted, or if the prerequisite contractual requirements are not satisfied, no action against the Owner may be filed. **A Government Code claim must be filed no earlier than the date the Work is completed or the date the Contractor last performs Work on the Project, whichever occurs first. A Government Code claim shall be inclusive of all unresolved claims unless a new unrelated claim arises after the Government Code claim is submitted.**

4.5.3.9 Non-Waiver The Owner's failure to respond to a claim from the Contractor within the time periods described in this Section or to otherwise meet the time requirements of this Section shall result in the claim being deemed rejected in its entirety.

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS.

5.1.1 Subcontractor. A Subcontractor is a person or entity that has a contract with the Contractor to perform a portion of the Work at the Site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor. To the extent that the term Trade Contractor is utilized in the Contract Documents, it shall have the same meaning as the term "Subcontractor."

5.1.2 Sub-Subcontractor. A Sub-subcontractor is a person or entity that has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK. Subcontractors shall be selected by Contractor pursuant to the Agreement. Subcontractor substitution shall be handled in accordance with the Agreement. Any substitutions of Subcontractors shall not result in any increase in the Contract Sum or the granting of any extension of time for the completion of the Project.

5.3 SUBCONTRACTUAL RELATIONS. By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all obligations and responsibilities, which the Contractor, by the Contract Documents, assumes toward the Owner with the exception of insurance coverage values.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS. Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

5.4.1 Assignment is effective only after termination of the Contract with the Contractor by the Owner for cause pursuant to Article 14 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor in writing; and

5.4.2 Assignment is subject to the prior rights of the surety, if any, obligated under any bond relating to the Contract.

ARTICLE 6

CHANGES IN THE WORK

6.1 CHANGES.

6.1.1 No Changes Without Authorization. The Owner reserves the right to make such alterations, deviations, additions to, or deletions from the plans and specifications, as may be deemed by the Owner to be necessary or advisable for the proper completion or construction of the Work contemplated, and the right to require Contractor to perform such work. Such changes must be also approved by the Contractor after evaluation of the change against projected energy savings. Changes may require adjustment of the energy savings guarantee. There shall be no change whatsoever in the drawings, specifications, or in the Work without an executed Change Order, Construction Change Directive, or order by the Owner for a minor change in the Work as herein provided. Owner shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the same shall have been authorized by and the cost thereof approved in writing by Change Order or executed Construction Change Directive. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted in writing in the Change Order.

6.1.2 Owner's Authority. The Owner will have authority to order minor changes in the Work not involving any adjustment in the Contract Sum, an extension of the Contract Time, or a change which is inconsistent with the intent of the Contract Documents. Minor changes will require evaluation of the effects, if any, on projected energy savings by the Contractor and potential modification to the associated savings guarantee. Such changes shall be effected by written Change Order and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

6.2 CHANGE ORDERS ("CO"). A CO is a written instrument prepared by the Owner and the Contractor stating their agreement upon all of the following: (A) A change in the Work; (B) the amount of the adjustment in the Contract Sum, if any; and (C) the extent of the adjustment in the Contract Time, if any.

6.3 CONSTRUCTION CHANGE DIRECTIVES ("CCD"). A CCD is a written order prepared by the Owner, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by CCD, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. A CCD shall be used in the absence of agreement on the terms of a CO. A CCD must be evaluated by the Contractor for any impact on energy savings and subsequent modification of the associated savings guarantee.

6.4 SUPPLEMENTAL INSTRUCTION ("SI"). A SI is a written instrument prepared by the Owner and submitted to the Contractor. The SI can order changes in the work that does not affect the Contract Sum and/or Time. A SI can be made in an RFI response by issuing a formal SI document or by written letter from the Owner. An SI must be evaluated by the Contractor for any impact on energy savings and subsequent modification of the associated savings guarantee.

6.5 REQUEST FOR INFORMATION ("RFI"). An RFI is a written request prepared by the Contractor asking the Owner to provide additional information above and beyond that which is available in the

Contract Documents and all reference standards, regarding the Contractor and fulfilling the Contract coordination requirements for which Contractor is obligated to perform. The RFI shall reference all the applicable Contract Documents including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. The Contractor shall make suggestions and/or interpretations of the issue raised by the RFI. An RFI cannot modify the Contract Cost, Contract Time, or the Contract Documents. Prior to issuing an RFI the Contractor, Subcontractor, material suppliers and the like shall thoroughly review the Contract Documents and refer to all reference standards for the information sought. The Owner and Contractor agree that an adequate time period for the Owner to respond to an RFI is generally fourteen (14) calendar days after the Owner's receipt of an RFI, unless the Owner and Contractor agree otherwise in writing. However, in all cases, the Owner shall take such time, whether more or less than 14 days, as is necessary in the Owner and the Owner's representative's professional judgment to permit adequate review and evaluation of the RFI. The Contractor shall be invoiced by the Owner for any costs incurred for professional services, which shall be withheld from progress payments and/or retention, if an RFI requests an interpretation or decision of a matter where the information sought is equally available to the party making such request. The Contractor shall make efforts to coordinate the work in a timely fashion, so as to alleviate priority RFI's. If the RFI is considered a priority, the Contractor shall state the word "Priority" on the document, and the Contractor shall provide weekly RFI Priority Schedules. The Contractor shall issue and maintain weekly RFI Priority Schedules.

The RFI Priority Schedule shall include a listing of pending requests, including the most current request, and rank the RFI's in order of priority. The Owner shall endeavor to respect the Contractor's requested order of priorities and requested response dates. The Owner's response to the RFI shall be considered a Supplemental Instruction ("SI") in which the Contract Sum and/or Time is not altered. If the RFI response alters the Contract Sum and/or Time, a Construction Change Directive (CCD) may be issued for the changed condition(s). Should the Contractor determine the response to the RFI creates changes in the Contract Sum and/or Time, the Contractor shall submit a change order request (COR) to the Owner for review, along with a Time Extension Request (if required).

6.6 REQUEST FOR PROPOSAL REGARDING CHANGE ("RFP - Change"). An RFP - Change is a written request prepared by the Owner asking the Contractor to submit to the Owner an estimate of the effect of a proposed change on the Contract Sum and the Contract Time. An RFP - Change shall contain adequate information, including any necessary drawings and specifications, to enable Contractor to provide the cost breakdowns required by Section 6.8. The Contractor shall not be entitled to any Additional Compensation for preparing a response to an RFP - Change, whether ultimately accepted or not.

6.7 CHANGE ORDER REQUEST ("COR"). A COR is a written request prepared by the Contractor asking the Owner to incorporate a proposed change called for in an RFP - Change or a notice of claim into a CO. A COR shall include breakdowns to validate any change in Contract Sum due to proposed change or claim. A COR shall also include any additional time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Final Project Schedule as defined in Section 3.9 and the Specifications.

6.8 COST OF CHANGE ORDERS.

6.8.1 Scope. Within ten (10) days or such lesser period of time as may be required by Owner after a request is made for a change that impacts the Contract Sum or the Contract Time, the Contractor shall provide to the Owner in writing an estimate of the effect of the proposed CO upon the Contract Sum and

the actual cost of construction, which shall include a complete itemized cost breakdown of all labor and material showing actual quantities, hours, unit prices, wage rates, required for the change, and the effect upon the Contract Time of such CO. Changes may be made by Owner by an appropriate written CO, or, at the Owner's option, such changes shall be implemented immediately upon the Contractor's receipt of an appropriate written CCD.

6.8.2 Determination of Cost. The amount of the increase or decrease in the Contract Sum resulting from a CO, if any, shall be determined in one or more of the following ways as applicable to a specific situation: (A) Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation; (B) unit prices stated in the Contractor's original bid, the Contract Documents, or subsequently agreed upon between the Owner and the Contractor; (C) cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or (D) by cost of material and labor and percentage of overhead and profit. Contractor and Subcontractors may increase their own work by 10% for overhead, bond costs, and insurance premiums and 5% profit. Contractor may increase a Subcontractor's total costs by 10% for overhead, bond costs, insurance premiums and profit. It is expressly understood that the value of such extra work or changes, as determined by any of the aforementioned methods, expressly includes any and all of Contractor's costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Any costs or expenses not included are deemed waived. For purposes of determining the cost, if any, of any change, addition, or omission to the Project, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials and equipment shall accrue and be credited to Contractor, and Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omissions in the Project as provided herein.

6.8.3 Accounting Records. With respect to portions of the Work performed by COs and CCDs on a time-and-materials, unit-cost, or similar basis, the Contractor shall keep and maintain cost-accounting records satisfactory to the Owner, which shall be available to the Owner on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents.

6.8.4 Notice Required. If the Contractor desires an increase in the Contract Sum, or any extension in the Contract Time for completion, it shall give the Owner written notice thereof within ten (10) days after the occurrence of the event giving rise to the claim, together with detailed estimates of the impact on the Contract Sum and/or the Contract Time. This notice shall be given by the Contractor before proceeding to execute the Work, except in an emergency endangering life or property, in which case the Contractor shall proceed in accordance with Section 9.4 hereof. No notice shall be considered unless made in accordance with this Subsection; however, the mere presentation of such claim shall not establish the validity of the cause giving rise to such claim, or of the extension of the Contract Time, and/or the increase in the Contract Sum. Contractor shall proceed to execute the Work even though the adjustment has not been agreed upon. Any change in the Contract Sum or extension of the Contract Time resulting from such claim shall be authorized by a CO.

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6.8.5 Format for Proposed Change Order. The Parties shall use the following format, as applicable, to communicate proposed additions and deductions to the Contract.

SUBCONTRACTOR WORK (list each if more than one)		ADDITIVE	DEDUCTIVE
1	SUBCONTRACTOR LABOR TOTAL ¹	\$ _____	\$ _____
2	SUBCONTRACTOR MATERIAL TOTAL ¹ ,	\$ _____	\$ _____
3	SUBCONTRACTOR EQUIPMENT TOTAL ¹ ,	\$ _____	\$ _____
4	SUBTOTAL #1 (LINES 1, 2 & 3)	\$ _____	\$ _____
5	SUBCONTRACTOR'S OVERHEAD AND PROFIT FOR SUBTOTAL #1 (LINE 4) ²	\$ _____	\$ _____
6	SUBTOTAL #2 (LINES 4 & 5)	\$ _____	\$ _____

CONTRACTOR'S WORK		ADDITIVE	DEDUCTIVE
7	CONTRACTOR LABOR TOTAL ¹ ,	\$ _____	\$ _____
8	CONTRACTOR MATERIAL TOTAL ¹ ,	\$ _____	\$ _____
9	CONTRACTOR EQUIPMENT TOTAL ¹ ,	\$ _____	\$ _____
10	SUBTOTAL #3 (LINES 7, 8 & 9)	\$ _____	\$ _____
11	CONTRACTOR'S OVERHEAD AND PROFIT FOR SUBTOTAL #3 (LINE 10) ⁵	\$ _____	\$ _____
13	SUBTOTAL #4 (LINES 10, 11& 12)	\$ _____	\$ _____

14	SUM OF SUBTOTALS #2 & #4	\$ _____	\$ _____
15	Contractor Markup of Subcontractor ⁶		

16 NET TOTAL FOR C.O.R. ⁴ \$ _____

- 1: Attach itemized list(s) indicating hours, rates, material quantity, material costs, unit costs, and taxes.
- 2: This item shall not exceed 15% of line 4 and must be supported by detailed breakdown justification of overhead costs, including insurance and fee associated with the change.
- 3: Contractor's bond costs shall not exceed 1% of the Net Total (line 16).
- 4: Includes all direct and indirect costs, including but not limited to, acceleration, cumulative effect of the change(s), expediting the work, etc.
- 5: This item shall not exceed 15% of line 10 and must be supported by detailed breakdown justification of overhead costs, including insurance and fee associated with the change.
- 6: This item shall not exceed 10% of line 6 and must be supported by detailed breakdown justification of overhead costs, including insurance and fee associated with the change.

ARTICLE 7

TIME

7.1 DEFINITIONS.

7.1.1 Contract Time. Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

7.1.2 Days. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

7.2 NOTICES TO PROCEED. The date of commencement of the Work is the date established in the Notice to Proceed. The date shall not be postponed by the failure to act of the Contractor or of persons or entities for which the Contractor is responsible. The Work on the Project shall be performed in accordance with the following phases:

7.2.2 Governmental Approval Contractor shall seek all such approvals of the Design Documents and the Project as may be required by any governmental entity having jurisdiction over the Project. Contractor shall exercise all reasonable diligence to ensure that all necessary permits and approvals are received by the date stated in Attachment F for Permit Approval. Owner shall not unreasonably withhold its consent to any modifications to the Design Documents that may be requested by any governmental or quasi-governmental agency with jurisdiction over the Project or the work on the Project, excepting any changes that materially affect the tilt, azimuth or number of photovoltaic modules, or other aspects of the original design that may affect the Contract Sum or the Estimated Annual Energy Production or Price and Performance Ratios, or that materially affect the sitting of the Project and its impact on Owner's operations. See Subsection 2.1.3 for additional requirements.

7.2.3 Construction Kickoff Meeting. At least 15 working days prior to work on site, Contractor shall facilitate, or cooperate with Owner in its efforts to facilitate, a kick-off meeting with Owner and any of its representatives and Contractor, and any other relevant (this Agreement) entered into by the parties. After securing all necessary permits, Contractor shall commence the construction of the Project in accordance with the final Design Documents and all other Contract Documents. The Construction Phase requires, in part, the Inspector of Record's written notice of substantial completion and submission of a written request to schedule the Utility Permission to Operate inspection.

7.2.4 Commissioning. During the construction of the work on the Project and before the Final Project Completion Date, Contractor shall conduct all commissioning tests. Contractor shall provide notice to Owner of any scheduled test(s) of installed equipment, and Owner or its designees shall have the right to be present at any or all such tests conducted by Contractor, any Subcontractor, or manufacturers of the equipment. Contractor shall be responsible for correcting or adjusting all deficiencies in the equipment operations that Contractor provided and installed that may be observed during equipment commissioning procedures.

7.2.5 Project Completion and Closeout. Owner shall acknowledge final inspection and completion of the Project by executing a Letter of Acceptance and Completion in accordance with the Contract Documents and applicable laws.

7.3 HOURS OF WORK.

7.3.1 Sufficient Forces. Contractors and Subcontractors shall furnish sufficient forces to ensure the prosecution of the Work in accordance with the Final Project Schedule.

7.3.2 Performance During Working Hours. Work shall be performed during regular working hours except that in the event of an emergency or when required to complete the Work in accordance with job progress, work may be performed outside of regular working hours with the advance written consent of the Owner.

7.3.3 Labor Code Application. As provided in Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, eight (8) hours of labor shall constitute a legal day's work. The time of service of any worker employed at any time by the Contractor or by any Subcontractor on any subcontract under this Contract, upon the work or upon any part of the work contemplated by this Contract, is limited and restricted to eight (8) hours during any one calendar day and forty (40) hours during any one calendar week, except as hereinafter provided. Notwithstanding the provision hereinabove set forth, work performed by employees of Contractors in excess of eight (8) hours per day and forty (40) hours during any one week shall be permitted upon this public work with compensation provided for all hours worked in excess of eight (8) hours per day at not less than one and one-half (1-1/2) times the basic rate of pay.

Contractor or subcontractor shall pay to the Owner a penalty of Twenty-five Dollars (\$25.00) for each worker employed in the execution of this Contract by the Contractor, or by any Subcontractor, for each calendar day during which such worker is required or permitted to work more than eight (8) hours in any calendar day and forty (40) hours in any one (1) calendar week, in violation of the provisions of Article 3 (commencing at § 1810), Chapter 1, Part 7, Division 2 of the Labor Code, unless compensation for the workers so employed by Contractor is not less than one and one-half (1-1/2) times the basic rate of pay for all hours worked in excess of eight (8) hours per day.

7.4 PROGRESS AND COMPLETION. Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor shall not knowingly, except by agreement or instruction of the Owner, in writing, commence operations on the Site or elsewhere prior to the effective date of insurance required by Article 10 to be furnished by the Contractor. The date of commencement of the Work shall not be changed by the effective date of such insurance. The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time.

7.5 EXTENSIONS OF TIME - LIQUIDATED DAMAGES.

7.5.1 Excusable Delay. The Contractor shall not be charged for liquidated damages, as set forth in the Agreement, because of any delays in completion of the Work due to acts of the Owner or anyone employed by it, Force Majeure Events, or delays of subcontractors due to such causes (collectively "Excusable Delay"). Contractor has the burden of proving that any delay is excusable. If Owner delays the Project for greater than ninety (90) days, Contractor may seek to recover through the change order process reasonable and documented cost inflation on un-billed materials that are yet to be purchased.

7.5.2 Notice by Contractor Required. The Contractor shall within ten (10) calendar days of beginning of any such delay (unless Owner grants in writing a further period of time to file such notice prior to the

date of final payment under the Contract) notify the Owner in writing of causes of delay. Owner will then ascertain the facts and extent of the delay and grant an extension of time for completing the Work when, in its judgment, the findings of fact justify such an extension. The Owner's findings of fact thereon shall be final and conclusive on the parties. Extensions of time shall apply only to that portion of the Work affected by the delay and shall not apply to other portions of the Work not so affected. The sole remedy of Contractor for extensions of time under Subsection 7.5.1 shall be an extension of the Contract Time at no cost to the Owner.

7.5.3 Conditions for Extension of Time. If the Contractor is delayed at any time in progress of the Work on the critical path by an Excusable Delay or by other causes which the Owner determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine. Claims relating to time extensions shall be made in accordance with applicable provisions of Article 6.

7.5.4 Early Completion. Regardless of the cause therefore, the Contractor may not maintain any Claim or cause of action against the Owner for damages incurred as a result of its failure or inability to complete its work on the Project in a shorter period than established in the Contract Documents.

7.5.5 Liquidated Damages. Failure to complete the Project within the time and in the manner provided for by the Contract Documents shall subject the Contractor to liquidated damages, as described in the Agreement.

7.6 GOVERNMENT APPROVALS. Neither party shall be liable for any delays nor damages related to the time required to obtain government approvals, provided request for approvals are made in a timely manner.

7.7 DELAYS DUE TO PROJECT SITE ACTIVITIES. Owner shall not be liable for any damages or compensation to Contractor resulting from, arising out of, or related to any delays caused by scheduled activities at Project Sites. Contractor shall request and Owner shall provide a calendar of scheduled activities. Owner and Contractor shall work collaboratively to facilitate special events. Contractor shall integrate these activities into the critical path of the Project Schedule. Owner shall be reasonable in their requests, and Contractor shall reasonably accommodate.

If any part of Contractor's work depends for proper execution or results upon work of any other contractor, the Contractor shall inspect and promptly report to Owner in writing any defects in such work that render it unsuitable for such proper execution and results. Contractor will be held liable for damages to Owner for that work which it failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute its acceptance of other Contractor's work as fit and proper for reception of its work, except as to defects which may develop in other Contractors' work after execution of Contractor's work.

To ensure proper execution of its subsequent work, Contractor shall measure and inspect work already in place and shall at once report to the Owner in writing any discrepancy between executed work and Contract Documents.

It is the obligation of Contractor to ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by Owner in prosecution of the Project to the end that Contractor may perform its Contract in the light of such other contracts, if any.

Nothing herein contained shall be interpreted as granting to Contractor exclusive occupancy of the Project. Contractor shall not cause any unnecessary hindrance or delay to any other contractor working on the Project. If simultaneous execution of any contract for the Project is likely to cause interference with performance of some other contract or contracts, Owner shall decide which contractor shall cease work temporarily and which contractor shall continue or whether work can be coordinated so that contractors may proceed simultaneously. If Owner directs Contractor to cease Work temporarily due to the work of another contractor, Contractor shall be entitled to a change order upon documentation of actual, reasonable costs, but such costs shall not include overhead, profit or general conditions for the period of time during which Work has ceased.

If the Project is split into phases and/or separate contracts, then Contractor has made allowances for any delays or damages which may arise from coordination with contractors for other phases or contracts. If any delays should arise from a contractor working on a different phase or contract, Contractor's sole remedy for damages, including delay damages, shall be against the contractor who caused such damage and not the Owner. Contractor shall provide access to contractors for other phases or contracts as necessary to prevent delays and damages to contractors working on other phases or contracts.

ARTICLE 8

PAYMENTS AND COMPLETION

8.1 CONTRACT SUM. The Contract Sum is stated in the Agreement, or as amended and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

8.2 COST BREAKDOWN. On forms approved by the Owner within ten (10) days of the mailing, emailing or delivery of the Notice to Proceed, the Contractor shall furnish a schedule of values and a list of all subcontractors and suppliers. The Owner shall review all submissions received in a timely manner. All submissions must be approved by the Owner before becoming the basis of any payment.

8.3 APPLICATIONS FOR PAYMENT. Contractor shall submit to the Owner an itemized Application for Payment for Work completed in accordance with the Payment Schedule in Subsection 8.6.1. As the Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work at no additional cost or advance payment from Owner, to assure that there will be no delays, payment by the Owner for stored material shall be made only in unusual circumstances where the Owner specifically approves the payment in writing. The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. Because Contractor must order, obtain, and store materials and equipment sufficiently in advance of its work at no additional cost or advance payment from Owner to assure that there will be no delays on the Project, Owner shall pay for stored materials only in unusual circumstances where Owner specifically approves such payment in writing. If payments are to be made for materials and equipment that are not incorporated in the Work on the Project but delivered and suitably stored at a Project Site or at some other location agreed upon in writing by Owner, the payments shall be conditioned upon submission by Contractor, Subcontractor, or vendor of bills of sale and such other documents satisfactory to Owner to establish Owner's title to such materials or equipment free of all liens and encumbrances, and otherwise protect Owner's interest, including, without limitation, provision of applicable insurance and transportation to the Project Site. All

stored items shall be inventoried, specified by identification numbers (if applicable), released to Owner by the sureties and Subcontractors, and, if stored off the Project Site, stored only in a bonded warehouse.

8.4 REVIEW OF PROGRESS PAYMENT. The Owner will, within seven (7) days after receipt of the Contractor's Application for Payment, either approve such payment or notify the Contractor in writing of the Owner's reasons for withholding approval in whole or in part. The review of the Contractor's Application for Payment by the Owner is based on the Owner's observations at the Site and the data comprising the Application for Payment whether the Work has progressed to the point indicated and whether, to the best of the Owner's knowledge, information, and belief, the quality of the Work is in accordance with the Contract Documents.

8.5 DECISIONS TO WITHHOLD PAYMENT. The Owner may decide to withhold payment in whole, or in part, to the extent reasonably necessary to protect the Owner. In addition, the Owner may withhold payment, in whole, or in part, to such extent as may be necessary to protect the Owner from loss because of any acts or omissions by Contractor, including but not necessarily limited to the following:

8.5.1 Failure to provide requested supporting documents;

8.5.2 Defective work not timely remedied;

8.5.3 Stop Payment Notices. If any Stop Payment Notice or other lien is filed on the Project for labor, materials, supplies, equipment or any other thing of value claimed to have been furnished to or incorporated into the work on the Project, or for other alleged contribution thereto, the Owner shall retain from payments otherwise due the Contractor, in addition to other amounts properly withheld under this Section or under other provisions of the Contract, an amount equal to 125 percent (125%) of the amount claimed under such Stop Payment Notice; provided, however, that the Owner may release such funds upon receipt of evidence satisfactory to the Owner to the effect that the Contractor has resolved such claim, by settlement, Stop Payment Notice Release Bond or otherwise. All other provisions of state law with respect to Stop Payment Notices shall also apply;

8.5.4 Liquidated damages assessed against the Contractor and not promptly paid;

8.5.5 Commercially reasonable doubt, after consultation with the Contractor, that the work on the Project can be completed for the unpaid balance of any Price or within the Completion Date;

8.5.6 Damage to the Owner, another contractor, or subcontractor, including any sums expended by or on behalf of the Owner in performing any of the Contractor's obligations under the Contract which the Contractor has failed to perform or has performed inadequately;

8.5.7 Unsatisfactory prosecution of the work by the Contractor;

8.5.8 Failure to store and properly secure materials;

8.5.9 Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract, including, without limitation, monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed change orders, and verified reports;

8.5.10 Failure of the Contractor to maintain record drawings;

8.5.11 Erroneous estimates by the Contractor of the value of the work on the Project performed, or other false statements in an Application for Payment;

8.5.12 Unauthorized deviations from the Contract Documents;

8.5.13 Failure of the Contractor to prosecute the work on the Project in a timely manner in compliance with established progress schedules and completion dates; or

8.5.14 Forfeiture of funds pursuant to California Labor Code Section 1727. The Owner shall retain and transfer those funds pursuant to California Labor Code Section 1730.

Subject to the withholding provisions of this Section of the Contract Documents, the Owner will pay the Contractor the amounts set forth below in Section 8.6.

Neither the Owner nor the Owner's Representative will have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law. No payments or approvals/processing of Applications for Payment made by the Owner will constitute acceptance of Defective Work.

8.6 PROGRESS PAYMENTS.

8.6.1 **Payment Schedule.** Progress payments shall be made in accordance with Public Contract Code section 20104.50. Owner shall pay the Contract Sum to Contractor on a per Project Site basis in accordance with the standard AIA procedures for progress payments.

8.6.2 **Payments and Information to Subcontractors.** No later than 7 days after Contractor receives payment from Owner, pursuant to Business and Professions Code section 7108.5, Contractor shall pay to each Subcontractor, out of the amount paid to Contractor on account of such Subcontractor's portion of the work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to Contractor on account of such Subcontractor's portion of the work. Contractor shall, by appropriate subcontract with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner. Owner has no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law. Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by Contractor, and action taken thereon by Owner, on account of portions of the work done by such Subcontractor.

8.6.3 **Waivers and Releases.** Within 15 days after receipt of each progress payment and the Final Payment, Contractor shall provide (and shall cause its suppliers and Subcontractors, and their subcontractors to provide) to Owner an unconditional lien waiver and release (related to progress payment or Final Payment as applicable) in a form substantially similar to the forms attached hereto as Attachment N.

8.7 **COMPLETION OF THE WORK.** Upon receipt of the Contractor's request for final inspection, the Owner will make an inspection to determine whether the Work, or designated portion thereof, is complete. If the Owner's inspection discloses any item which is not completed in accordance with the requirements of the Contract Documents, the Contractor shall, before Owner's issuance of the Letter of Acceptance and Completion, diligently complete or correct such item. The absence of the Interconnection

Permit issued by the electric utility shall not delay final completion of the reminder of the project.

8.8 PARTIAL OCCUPANCY OR USE. Owner may occupy or use any completed or partially completed portion of the Work at any stage without accepting that work and without waiving rights to claim damages as to that work. The Owner and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents.

8.9 LETTER OF ACCEPTANCE AND COMPLETION, AND FINAL PAYMENT. If the Owner's representatives find the Work fully performed under the Contract Documents, they shall so notify Contractor, who shall then submit to the Owner its final application for progress payment. After the Owner's representatives find the Work fully performed the Owner may record a Notice of Completion with the County Recorder in accordance with Civil Code section 9204 and shall issue a Letter of Acceptance and Completion. Contractor shall, upon receipt of final progress payment from Owner, pay the amounts due Subcontractors. Owner shall pay the retainage pursuant to Public Contract Code section 7107. Any application for final progress payment shall be accompanied by the same details required for regular progress payments. Acceptance of final progress payment shall constitute a waiver of Claims except for those previously identified in writing and identified by that payee as unsettled at the time of final payment.

8.10 SUBSTITUTION OF SECURITIES. In accordance with section 22300 of the Public Contract Code, the Owner will permit the substitution of securities for any monies withheld by the Owner to ensure performance under the Contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the Owner, or with a state or federally chartered bank as the escrow agent, who shall then pay such monies to the Contractor. Upon completion of the Contract, the securities shall be returned to the Contractor. Securities eligible for investment under this section shall include those listed in Government Code section 16430, bank or savings and loan certificates of deposit, interest-bearing, demand-deposit accounts, standby letters of credit, or any other security mutually agreed to by the Contractor and the Owner. The Contractor shall be the beneficial Owner of any securities substituted for monies withheld and shall receive any interest thereon. Any escrow agreement used shall be substantially similar to the form set forth in Public Contract Code section 22300.

ARTICLE 9

PROTECTION OF PERSONS AND PROPERTY

9.1 SAFETY PRECAUTIONS AND PROGRAMS. The Contractor shall have responsibility for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. Subcontractors have the responsibility for participating in, and enforcing, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors. Subcontractors shall promptly report in writing and by phone to the Contractor all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or off the Site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. The Contractor will provide and maintain at the Site first-aid supplies for minor injuries.

9.2 SAFETY OF PERSONS AND PROPERTY. The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury, or loss to: (A) Employees on the Work and other persons who may be affected thereby; (B) the Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and (C) other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction. The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent Sites and utilities.

When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the Owner any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the Owner and local fire authorities.

9.3 PROTECTION OF WORK AND PROPERTY. The Contractor and Subcontractors shall continuously protect the Work, the Owner's property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the Owner.

The Contractor and the Subcontractors shall use only those ingress and egress routes designated by the Owner, observe the boundaries of the Site designated by the Owner, park only in those areas designated by the Owner, which areas may be on or off the Site, and comply with any parking control program established by the Owner such as furnishing license plate information and placing identifying stickers on vehicles.

9.4 **EMERGENCIES.** In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 7. The Contractor shall promptly report in writing to the Owner all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details, and statements of any witnesses. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported immediately by telephone or messenger to the Owner.

9.5 **HAZARDOUS MATERIALS.** In the event the Contractor encounters or suspects the presence on the Site material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous by section 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the Owner in writing, whether or not such material was generated by the Contractor or the Owner.

ARTICLE 10

INSURANCE AND BONDS

10.1. CONTRACTOR'S LIABILITY INSURANCE

10.1.1 Required Coverage At all times commencing no later than commencement of the Work and to remain in effect for the entire term of this Agreement including any extensions of time, Contractor shall, at its expense, obtain and maintain, and shall cause its Subcontractors to obtain and maintain, with insurers of recognized responsibility authorized to do business in the California as admitted carriers having a rating not lower than "A" as rated by A.M. Best Company, Inc. or other independent rating companies, the following insurance which shall include the minimum coverages and limits set forth below:

10.1.1.1 *Commercial General Liability Insurance* Commercial general liability insurance on an "occurrence" basis arising out of claims for bodily injury (including death) and property damage, as will protect the Contractor, which may arise out of or result from the Contractor's operations under the Agreement and for which the Contractor legally liable, whether such operations are by the Contractor, by a Subcontractor, or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable. Such insurance shall protect the Contractor and Owner against loss from liability imposed for damages (1) on account of bodily or personal injuries, including death, disease and sickness, accidentally suffered or alleged to have been suffered by any person or persons that may be caused directly or indirectly by the performance of this Agreement, and (2) on account of injury to or destruction of property, including the resultant loss of use of the Project or other Owner facilities or equipment, resulting from acts of commission or omission by the Contractor, or otherwise resulting directly or indirectly from the Contractor's operations in the performance of this Agreement. This insurance shall be subject to the approval of Owner, and Owner's approval shall not be unreasonably withheld and shall be in amounts not less than Two Million Dollars (\$2,000,000) general aggregate, Two Million Dollars (\$2,000,000) personal and advertising injury aggregate, with a per occurrence limit of One Million Dollars (\$1,000,000) (total limits required may be satisfied with an excess or umbrella policy). The comprehensive or commercial general liability policy shall also include a severability of interest clause and cross liability if the policy has multiple insureds. The aggregate limit shall apply on a "per project" basis.

The policy shall stipulate that the insurance afforded the additional insureds shall apply as primary insurance and that any other insurance carried by Owner or other Persons identified in this Agreement will be excess only and will not contribute with this insurance;

10.1.1.2 Automobile Liability. Automobile liability insurance, for Contractor's liability arising out of claims for bodily injury and property damage covering all owned (if any), non-owned, leased, hired or borrowed automobiles of Contractor, including loading and unloading, with a minimum limit of not less than One Million Dollars (\$1,000,000) per accident for combined bodily injury and property damage and containing appropriate no-fault insurance provisions or other endorsements in accordance with Applicable Law;

10.1.1.3 Worker's Compensation Insurance All engineers, experts, Consultants and Subcontractors the Contractor intends to employ shall have taken out workers' compensation insurance with an insurance carrier satisfactory to the Owner for all persons whom they may employ in carrying out the work contemplated under this Agreement in accordance with the Workers' Compensation Laws of the State of California. If the Contractor employs any engineer, expert, Consultant or Subcontractor which it did not intend to employ prior to commencement of services, it must furnish such proof of workers' compensation insurance to the Owner immediately upon employment. If the Contractor is self-insured, the Contractor shall furnish a Certificate of Permission to Self-Insure and a Certificate of Self-Insurance satisfactory to the Owner.

10.1.1.4 Employer's Liability Insurance All engineers, experts, Consultants and Subcontractors the Contractor intends to employ shall have taken out employer's liability insurance with an insurance carrier reasonably satisfactory to the Owner. During the course of Contractor's services, if Contractor ever intends to employ additional or different Engineers, experts, Consultants or Subcontractors, before so employing them Contractor shall furnish such reasonably satisfactory proof of insurance to the Owner. If the Contractor is self-insured, the Contractor shall furnish a Certificate of Permission to Self-Insure and a Certificate of Self-Insurance reasonably satisfactory to the Owner.

10.1.1.5 Errors and Omissions Insurance Errors and omissions insurance on a claims made basis with limits of at least One Million Dollars (\$1,000,000) with a deductible or self-insured retention in an amount not to exceed the sum of One Hundred Thousand Dollars (\$100,000), and Contractor will maintain such coverage for a period of five (5) years following the Final Completion Date.

10.1.1.6 Other Insurance Contractor shall provide all other insurance required to be maintained under Applicable Laws, ordinances, rules, and regulations. Such insurance shall be subject to the approval of Owner, and Owner's approval shall not be unreasonably withheld.

10.1.2 Consultants If not covered by Contractor's coverage, each of Contractor's Consultants shall carry coverage and limits proportionate to each such Consultant's scope of work, and Contractor shall include such provisions in its contracts with them. If any policy carried by any of the Consultants offers 50% or less of the limits required of the Contractor hereunder for an analogous policy, the Contractor shall notify the Owner of the proposed coverage to be carried by such Consultant, and the Owner shall have the right in its reasonable discretion to approve or reject the proposed coverage in each such case.

10.1.3 Occupancy Owner may partially or fully occupy and/or use the Project before acceptance of the entire Project by the Owner. All of Contractor's required insurance must allow such occupancy and/or use without prior consent from insurer.

10.1.4 Additional Insured; Primary and Non-Contributory; Waiver of Subrogation The Contractor shall name the Owner and the Owner's designated representative as additional insureds on Contractor's

commercial general liability (using ISO CG 20 10 and CG 20 37 or exact equivalents), automobile liability, and excess/umbrella policies. The additional insured endorsement(s) included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insureds have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The amount of the insurer's liability shall not be reduced by the existence of such other insurance. The coverage provided the additional insureds on Contractor's commercial general liability, automobile liability, and excess/umbrella policies shall apply on a primary and non-contributory basis. The Contractor's commercial general liability, automobile liability, excess/umbrella, and workers' compensation/employer's liability policies shall be endorsed to include a waiver of subrogation in favor of Owner and the Owner's designated representatives. Any excess/umbrella policies provided by Contractor shall include a follow form endorsement or schedule of underlying coverage showing that such policies sit in excess of and shall follow the form of the underlying policies set forth herein, which Contractor intends the excess/umbrella policy to supplement.

10.1.5 Proof of Carriage of Insurance The Contractor shall not commence Work nor shall it allow any Subcontractor or Consultant to commence Work under this Agreement until all required insurance certificates, additional insured endorsements and declarations pages have been obtained for the period covered by this Agreement and delivered in duplicate to the Owner for approval, and such approval shall not be unreasonably withheld.

10.1.6 Notice of Cancellation or Non-Renewal The Contractor shall provide or shall obligate its insurance carriers or brokers/representatives to provide for thirty (30) Days written notice to the Owner of cancellation.

10.1.7 Project Schedule Changes At the time of making application for any extension of time pursuant to the Contract Documents, Contractor shall submit evidence that insurance policies will be in effect during the requested additional period of time.

10.1.8 Compliance If the Contractor fails to maintain such insurance or fails to cure any defects in coverage required herein within five (5) Days of receiving written notice of the defect(s), the Owner may, but shall not be required to, take out such insurance to cover any damages accrued for which the Owner might be held liable on account of the Contractor's failure to pay such damages, and deduct and retain the amount of the premiums from any sums due the Contractor under this Agreement.

10.1.9 No Limitation of Liability; Subcontractors and Consultant Obligations Nothing contained in this Agreement shall be construed as limiting, in any way, the extent to which the Contractor may be held responsible for the payment of damages resulting from the Contractor's operations. Each of Contractor's Consultants and Subcontractors shall comply with all insurance obligations under this Section, and Contractor shall include such provisions in its contracts with them

10.2 PERFORMANCE AND PAYMENT BONDS. Unless otherwise specified in the Contract Documents, prior to commencing Phase 2, the Contractor shall apply for and furnish Owner separate payment (Attachment E1) and performance (Attachment E2) bonds on the form attached hereto as Attachments F1 and F2 for the Work which shall cover 100% faithful performance of and payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. Only bonds executed by admitted Surety insurers as defined in Code of Civil Procedure section 995.120 shall be accepted. The surety insurers must, unless otherwise agreed to by Owner in writing, at the time of issuance of the bonds, have a rating not lower than "A" as rated by A.M. Best Company, Inc. or other independent rating companies. Owner reserves the right to approve or reject the surety insurers selected by Contractor and to require Contractor to obtain bonds from surety insurers satisfactory to the Owner.

ARTICLE 11

UNCOVERING AND CORRECTION OF WORK

11.1 UNCOVERING OF WORK. If a portion of the Work is covered contrary to the Inspector's request, the Owner's request, or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Inspector or the Owner, be uncovered for the Inspector's or the Owner's observation and be replaced at the Contractor's expense without change in the Contract Sum or Time.

11.2 CORRECTION OF WORK; WORKMANSHIP WARRANTY.

11.2.1 Warranty and System Warranty Period. Contractor warrants and guarantees to Owner that, for the duration of the period commencing on the acceptance by the Owner's governing body of the Work (see Section 8.9) or a designated portion thereof, or by terms of an applicable special warranty required by the Contract Documents, and continuing thereafter for one (1) year ("System Warranty Period"), all work on the Project will be substantially free from defects in design, workmanship, materials and equipment, and shall be in accordance with the requirements of the Contract Documents. These warranties do not extend to any equipment which has been repaired by others without the approval of Contractor, abused, altered (without the approval of Contractor), or misused by the City or which has not been properly and reasonably maintained by the City. Work on the Project not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective by Owner. Owner shall provide written notice of any warranty item to Contractor before expiration of the System Warranty Period, and if written notice is provided within the System Warranty Period, Contractor's obligation to correct the warranty item to conform to the requirements of the Contract Documents will continue until the correction is made and completed. Contractor shall ensure that no act or omission of Contractor limits or voids any existing warranty on existing Owner equipment or system and shall take reasonable steps to ensure any such existing warranties are preserved in full. Manufacturer warranties which may extend beyond the Contractor warranty, will be transferred to the Owner at project completion.

11.2.2 Notice and Corrective Work.

11.2.2.1 During the System Warranty Period, if any of the work on the Project is found to be not in accordance with the Contract Documents or otherwise defective, Owner shall provide Contractor with written notice thereof.

11.2.2.2. With two business days of Contractor's receipt of Owner's notice, Contractor shall provide Owner with a written response, acknowledging receipt of the notice and providing Owner with an action plan to remedy the defect or stating the grounds for denial of the warranty work request. Within two business days of Owner's receipt of Contractor's written response, Owner shall provide Contractor with any objections or responses thereto. If the Parties are unable to agree regarding Owner's warranty work request or a plan of action for the corrective work, the Parties shall proceed in accordance with their dispute resolution options under the Contract Documents and at law. The System Warranty Period shall be extended with respect to Contractor's corrective work performed pursuant to this provision by one year, starting on the date that the corrective work is completed in accordance with the plan of action and approved by Owner.



11.2.2.3 Unless the Parties agree in writing otherwise, Contractor shall perform and complete all corrective work stated in the plan of action no later than 10 days following the date of the plan of action. An expiration of the System Warranty Period during the performance of the correct work shall not release Contractor from its obligation to correct the work so long as Owner provided written notice of the warranty work within the System Warranty Period.

11.2.2.4 These corrective requirements on Contractor shall apply regardless of whether the nonconforming work was observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the costs and expenses for professional services borne by Owner's made necessary thereby.

11.2.2.5 The Contractor shall remove from the Project Sites portions of the Work which are not in accordance with the requirements of the Contract Documents and are not corrected by the Contractor or accepted by the Owner. If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 2.4. The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or separate contractors, whether completed or partially completed, caused by the Contractor's correction or removal of the nonconforming Work. Nothing in this Section shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents.

11.3 MANUFACTURER WARRANTIES. Contractor shall, for the protection of Owner, use commercially reasonable efforts to obtain from all vendors and Subcontractors from which Contractor procures machinery, equipment or materials or services, warranties and guarantees with respect to such machinery, equipment, materials or services, which shall be made available to Owner to the full extent of the terms thereof. At all times during performance of work under the Contract Documents Contractor shall perform the work in a manner consistent with all such warranties and shall not perform any actions that may violate or void such warranties. .

ARTICLE 12

MISCELLANEOUS PROVISIONS

12.1 GOVERNING LAW. The Agreement shall be governed by the law of the place where the Project is located. Venue shall be where the Project is located.

12.2 SUCCESSORS AND ASSIGNS. The Owner and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Agreement shall assign the Agreement as a whole or in part without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Agreement.

12.3 RIGHTS AND REMEDIES; NO WAIVER. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties,

obligations, rights, and remedies otherwise imposed or available by law. No action or failure to act by the Inspector or the Owner shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

12.4 TESTS AND INSPECTIONS. Tests, inspections, and approvals of portions of the Work required by the Contract Documents will comply with Title 24, and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction.

12.4.1 Independent Testing Laboratory. When required by the scope of the Project, Owner will select an independent testing laboratory to conduct all required tests and inspections, and, except as specifically provided otherwise in the Contract Documents, pay for all associated costs. Selection of the materials required to be tested shall be made by the laboratory or Owner and not by Contractor.

12.4.2 Advance Notice to Inspector. Contractor shall notify the Owner and Inspector a sufficient time but no shorter than two (2) working days in advance of its readiness for required observation or inspection so that the Owner and Inspector may arrange for same. Contractor shall notify the Owner and Inspector a sufficient time in advance of the manufacture of material to be supplied under the Contract Documents that must, by terms of the Contract Documents, be tested in order that the Owner and Inspector may arrange for the testing of the material at the source of supply.

12.4.3 Testing Off-Site. Any material shipped by Contractor from the source of supply, prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from the Inspector that such testing and inspection will not be required, shall not be incorporated in the Project.

12.4.4 Additional Testing or Inspection, and Costs Related Thereto.

12.4.4.1 If the Inspector, Owner, or public authority having jurisdiction over the Project determines that any portion of the work on the Project require additional testing, inspection, or approval, the Inspector will, upon Owner's written authorization, arrange for such additional testing, inspection, or approval. Owner shall bear such costs except in paragraph 12.4.4.2, below.

12.4.4.2 If the testing or inspection of work on the Project reveal that the work does not comply with the Contract Documents, Contractor shall bear all costs arising from such failure, including those of re-testing, re-inspection, approval, or re-approval, including, but not limited to, compensation for services and expenses of the Inspector, testing laboratory, and any other professionals or entities retained by Owner. Any such costs shall be paid for by Owner, and Owner shall then invoice to Contractor and Contractor shall make payment thereof within 30 days after Contractor receives the invoice; if Contractor fails to do so, Owner shall have the right to withhold the amount from any payment due or to be due to Contractor under the Agreement.

12.4.5 Costs for Premature Test. If Contractor requests any test or inspection for any portion of the Project and that portion is not ready for the inspection, Owner shall have the right to invoice Contractor for all costs and expenses relating to the testing or inspection, including, but not limited to, compensation for services and expenses of the Inspector, testing laboratory, and any other professionals or entities retained by Owner. Any such costs shall be paid for by Owner, and Owner shall then invoice to Contractor and Contractor shall make payment thereof within 30 days after Contractor receives the invoice; if

Contractor fails to do so, Owner shall have the right to withhold the amount from any payment due or to be due to Contractor under the Contract.

12.4.6 Tests and Inspections Not to Delay Work. Tests and inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the work on the Project.

12.5 TRENCH EXCAVATION. Pursuant to Labor Code section 6705, if the Contract Sum exceeds \$25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, submit to the Owner or a registered civil or structural engineer employed by the Owner a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the Owner or any of its employees.

12.6 DEBARMENT. Pursuant to Public Contract Code section 6109, no contractor or subcontractor may perform work on a public works project if ineligible to perform work on the project pursuant to sections 1777.1 or 1777.7 of the Labor Code.

12.7 ASSIGNMENT OF ANTITRUST CLAIMS. Pursuant to Government Code section 4552, in entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the Owner all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act, (15 U.S.C. § 15) or under the Cartwright Act (Chapter 2 [commencing with § 16700] of Part 2 of Division 7 of the Bus. & Prof. Code), arising from the purchase of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties.

12.8 AUDIT. Contractor's Agreement books, records, and files shall be subject to audit and examination under Government Code section 8546.7 and any amendments thereto.

12.9 STORM WATER DISCHARGE COMPLIANCE. As applicable, the Contractor shall be required to comply with the State Water Resources Control Board (State Water Board) National Pollutant Discharge Elimination System ("NPDES"), General Permit No. CAS000004 as it may be amended. Contractor shall comply with the lawful requirements of the Owner and all applicable municipalities and local agencies regarding trash and discharges to separate storm drain systems or watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs. Contractor shall fully familiarize itself with the Permit. Failure to comply with the Permit is a violation of federal and state law. Contractor hereby agrees to indemnify and hold harmless the Owner, its officials, officers, agents, employees and authorized volunteers from and against any and all Notices of Violation ("NOV"), claims, demands, losses or liabilities of any kind or nature which the Owner, its officials, officers, agents, employees and authorized volunteers may sustain or incur for Contractor's noncompliance with the Permit, except for liability resulting from the sole established negligence or willful misconduct of the Owner, its officials, officers, agents, employees or authorized volunteers.

ARTICLE 13

TERMINATION OR SUSPENSION OF THE AGREEMENT

13.1 TERMINATION BY THE OWNER FOR CAUSE. The Owner may terminate the Agreement if the Contractor: (A) refuses or fails to supply enough properly skilled workers or proper materials; (B) fails to make payment to Subcontractors for materials or labor in accordance with Public Contract Code section 10262 or Business and Professions Code section 7108.5, as applicable; (C) disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction; or (D) otherwise is in substantial breach of a provision of the Contract Documents.

When any of the above reasons exist, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, written notice of seven (7) days, terminate the Contract and may, subject to any prior rights of the surety, (A) take possession of the site and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor; (B) accept assignment of subcontracts, and (C) complete the Work by whatever reasonable method the Owner may deem expedient.

If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This payment obligation shall survive completion of the Agreement.

13.2 SUSPENSION OR TERMINATION BY THE OWNER FOR CONVENIENCE. The Owner may, without cause, order the Contractor in writing to suspend, delay, or interrupt the Work in whole or in part for such period of time as the Owner may determine. An adjustment shall be made for increases in the cost of performance of the Contract, including profit on the increased cost of performance caused by suspension, delay, or interruption. No adjustment shall be made to the extent (A) that performance is, was, or would have been so suspended, delayed, or interrupted by another cause for which the Contractor is responsible; or (B) that an equitable adjustment is made or denied under another provision of this Agreement. Adjustments made in the cost of performance may have a mutually agreed fixed or percentage fee.

The Owner may, at any time, terminate the Agreement for the Owner's convenience and without cause upon ten (10) days written notice. Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall (1) cease operations as directed by the Owner in the notice; (2) take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and (3) except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders. In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work performed prior to the date of effective date of termination.

13.3 TERMINATION BY CONTRACTOR. Contractor may not terminate for convenience. Contractor may only terminate for cause if the Work is stopped by others for a period of one hundred eighty (180) consecutive days through no act or fault of the Contractor, a Subcontractor of any tier, their agents or employees, or any other persons performing portions of the Work for whom the Contractor is contractually responsible, and the Work was stopped by others for one of the following reasons: (A)

Issuance of an order of a court or other public authority having jurisdiction which requires Owner to stop all Work; or (B) an act of government, such as a declaration of national emergency, making material unavailable which requires Owner to stop all Work. If such grounds exist, the Contractor may serve written notice of such belief on Owner and demand a meet-and-confer conference to negotiate a resolution in good faith within twenty (20) days of receipt of such notice. If such conference does not lead to resolution and Contractor believes the grounds for termination still exist, Contractor may terminate the contract and recover from the Owner payment for Work executed and for reasonable verified costs with respect to materials, equipment, tools, construction equipment, and machinery, including reasonable overhead, profit, and damages for the Work executed, but excluding overhead (field and home office) and profit for (i) Work not performed and (ii) the period of time that the Work was stopped.

13.4 NOT A WAIVER

Any suspension or termination by Owner for convenience or cause under this Article 13 shall not act as a waiver of any claims by Owner against Contractor or others for damages based on breach of contract, negligence or other grounds.

13.5 EARLY TERMINATION

Notwithstanding any provision herein to the contrary, if for any fiscal year of this Contract the governing body of the Owner fails to appropriate or allocate funds for future periodic payments under the Contract after exercising reasonable efforts to do so, the Owner may upon thirty (30) days' notice, order work on the Project to cease. The Owner will remain obligated to pay for the work already performed but shall not be obligated to pay the balance remaining unpaid beyond the fiscal period for which funds have been appropriated or allocated and for which the work has not been done.

**ATTACHMENT E1
TO ENERGY SERVICES AGREEMENT**

PAYMENT BOND

PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS that

WHEREAS, the _____ (hereinafter designated as the "Owner"), by action taken or a resolution passed _____, 20____ has awarded to _____ hereinafter designated as the "Principal," a contract for the work described as follows: _____ (the "Project"); and

WHEREAS, said Principal is required to furnish a bond in connection with said contract; providing that if said Principal or any of its Subcontractors shall fail to pay for any materials, provisions, provender, equipment, or other supplies used in, upon, for or about the performance of the work contracted to be done, or for any work or labor done thereon of any kind, or for amounts due under the Unemployment Insurance Code or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department from the wages of employees of said Principal and its Subcontractors with respect to such work or labor the Surety on this bond will pay for the same to the extent hereinafter set forth.

NOW THEREFORE, we, the Principal and _____ as Surety, are held and firmly bound unto the Owner in the penal sum of _____ Dollars (\$_____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, his or its subcontractors, heirs, executors, administrators, successors or assigns, shall fail to pay any of the persons named in Section 9100 of the Civil Code, fail to pay for any materials, provisions or other supplies, used in, upon, for or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or amounts due under the Unemployment Insurance Code with respect to work or labor performed under the contract, or for any amounts required to be deducted, withheld, and paid over to the Employment Development Department or Franchise Tax Board from the wages of employees of the contractor and his subcontractors pursuant to Section 18663 of the Revenue and Taxation Code, with respect to such work and labor the Surety or Sureties will pay for the same, in an amount not exceeding the sum herein above specified, and also, in case suit is brought upon this bond, all litigation expenses incurred by the Owner in such suit, including reasonable attorneys' fees, court costs, expert witness fees and investigation expenses.

This bond shall inure to the benefit of any of the persons named in Section 9100 of the Civil Code so as to give a right of action to such persons or their assigns in any suit brought upon this bond.

It is further stipulated and agreed that the Surety on this bond shall not be exonerated or released from the obligation of this bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described, or pertaining or relating to the furnishing of labor, materials, or equipment therefore, nor by any change or modification of any terms of payment or extension of the time for any payment pertaining or relating to any scheme or work of improvement herein above described, nor by any rescission or attempted rescission or attempted rescission of the contract, agreement or bond, nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond, nor by any fraud practiced by any person other than the claimant seeking to recover on the bond and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given, and under no circumstances shall Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the owner or Owner and original contractor or on the part of any obligee named in such bond, but the sole conditions of recovery shall be that claimant is a person described in Section 9100 of the Civil

Code, and has not been paid the full amount of his claim and that Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF, two (2) identical counterparts of this instrument, each of which shall for all purposes be deemed unoriginal thereof, have been duly executed by the Principal and Surety above named, on the ____ day of _____ 20____ the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative pursuant to authority of its governing body.

(Corporate Seal of Principal,
if corporation)

Principal (Property Name of Contractor)

By _____
(Signature of Contractor)

(Seal of Surety)

Surety

By _____
Attorney in Fact

(Attached Attorney-In-Fact
Certificate and Required
Acknowledgements)

*Note: Appropriate Notarial Acknowledgments of Execution by Contractor and surety and a power of Attorney
MUST BE ATTACHED

**ATTACHMENT E2
TO ENERGY SERVICES AGREEMENT**

PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL PERSONS BY THESE PRESENTS:

THAT WHEREAS, _____ (hereinafter referred to as "Owner") has awarded to _____, (hereinafter referred to as the "Contractor") _____ an agreement for _____ (hereinafter referred to as the "Project").

WHEREAS, the work to be performed by the Contractor is more particularly set forth in the Contract Documents for the Project dated _____, (hereinafter referred to as "Contract Documents"), the terms and conditions of which are expressly incorporated herein by reference; and

WHEREAS, the Contractor is required by said Contract Documents to perform the terms thereof and to furnish a bond for the faithful performance of said Contract Documents.

NOW, THEREFORE, we, _____, the undersigned Contractor and _____ as Surety, a corporation organized and duly authorized to transact business under the laws of the State of California, are held and firmly bound unto the Owner in the sum of _____ DOLLARS, (\$ _____), said sum being not less than one hundred percent (100%) of the total amount of the Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that, if the Contractor, his or its heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the Contract Documents and any alteration thereof made as therein provided, on its part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all obligations including the one-year guarantee of all materials and workmanship; and shall indemnify and save harmless the Owner, its officers and agents, as stipulated in said Contract Documents, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

As a condition precedent to the satisfactory completion of the Contract Documents, unless otherwise provided for in the Contract Documents, the above performance obligation shall hold good for a period of one (1) year after the acceptance of the work by Owner, during which time if Contractor shall fail to make full, complete, and satisfactory repair and replacements and totally protect the Owner from loss or damage resulting from or caused by defective materials or faulty workmanship the above obligation in penal sum thereof shall remain in full force and effect. However, anything in this paragraph to the contrary notwithstanding, the obligations of Surety hereunder shall continue so long as any obligation of Contractor remains under the Contract or at law. Nothing herein shall limit the Owner's rights or the Contractor or Surety's obligations under the Contract, law or equity, including, but not limited to, California Code of Civil Procedure section 337.15.

As a part of the obligation secured hereby and in addition to the face amount specified therefore, there shall be included costs and reasonable expenses and fees including reasonable attorney's fees, incurred by Owner in enforcing such obligation.

Whenever Contractor shall be, and is declared by the Owner to be, in default under the Contract Documents, the Surety shall remedy the default pursuant to the Contract Documents, or shall promptly, at the Owner's option:

- (1) Take over and complete the Project in accordance with all terms and conditions in the Contract Documents; or
- (2) Obtain a bid or bids for completing the Project in accordance with all terms and conditions in the Contract Documents and upon determination by Surety of the lowest responsive and responsible bidder, arrange for a Contract between such bidder, the Surety and the Owner, and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the Owner under the Contract and any modification thereto, less any amount previously paid by the Owner to the Contractor and any other set offs pursuant to the Contract Documents.
- (3) Permit the Owner to complete the Project in any manner consistent with California law and make available as work progresses sufficient funds to pay the cost of completion of the Project, less the balance of the contract price, including other costs and damages for which Surety may be liable. The term "balance of the contract price" as used in this paragraph shall mean the total amount payable to Contractor by the Owner under the Contract and any modification thereto, less any amount previously paid by the Owner to the Contractor and any other set offs pursuant to the Contract Documents.

Surety expressly agrees that the Owner may reject any contractor or subcontractor which may be proposed by Surety in fulfillment of its obligations in the event of default by the Contractor.

Surety shall not utilize Contractor in completing the Project nor shall Surety accept a bid from Contractor for completion of the Project if the Owner, when declaring the Contractor in default, notifies Surety of the Owner's objection to Contractor's further participation in the completion of the Project.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project to be performed thereunder shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Contract Documents or to the Project.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20__.

CONTRACTOR/PRINCIPAL

Name

By _____

SURETY:

By: _____
Attorney-In-Fact

The rate of premium on this bond is _____ per thousand. The total amount of premium charges, \$_____.
(The above must be filled in by corporate attorney.)

THIS IS A REQUIRED FORM

Any claims under this bond may be addressed to:

(Name and Address of Surety) _____

(Name and Address of Agent or Representative for service of process in California, if different from above) _____

(Telephone number of Surety and Agent or Representative for service of process in California) _____



City of

**ATTACHMENT E3
TO ENERGY SERVICES AGREEMENT**

SUBCONTRACTOR LISTING FORM

In compliance with the Subletting and Subcontracting Fair Practices Act of the Public Contract Code of the State of California, the contractor shall set forth below: (a) the name and the location of the place of business, (b) the DIR registration number and (c) the contractor's license class and number, and (d) the portion of the work which will be done by each subcontractor who will perform work or labor or render service to the Contractor in or about the construction of the work in an amount in excess of one-half of one percent (1/2%) of the Contractor's Total Price. Contractor shall be required to complete and provide this form to the Owner at least 15 working days prior to start of on-site work. Where subcontractors are not yet selected, "TBD" will be denoted under name. Upon selection, the information required will be provided to the Owner.

If no subcontractor is specified, for a portion of the work, or if more than one subcontractor is specified for the same portion of Work, to be performed under the Contract in excess of one-half of one percent (1/2%) of the Contractor's Total Price, then the Contractor shall be deemed to have agreed that it is fully qualified to perform that Work, and that it shall perform that portion itself.

Portion of Work	Subcontractor	Location of Business	License Class and Number	DIR Registration Number
	TO BE COMPLETED PRIOR TO COMMENCEMENT OF WORK AT THE SITES			

Signature _____

Name and Title _____

Dated _____

ATTACHMENT "F"

Project Schedule

Phase 1:

Fourteen (14) weeks from Notice to Proceed.

Phase 2:

To be added by written amendment to this Agreement executed by Owner and Contractor.

ATTACHMENT "G"

Project Owner Requirements

The Project Owner Requirements identified herein may be altered by Owner from time to time by mutual agreement between the parties. Contractor shall not unreasonably withhold its approval to alter the Project Owner Requirements.

Phase 1:

Heating and Cooling study on all facilities

City Irrigation systems and water conservation measures

All sustainability options for all city facilities

Phase 2:

To be added by written amendment to this Agreement executed by Owner and Contractor.

END



Amendment 1
to
Installation Agreement
between
The City of Clayton and Climatec LLC

This Amendment No. 1 to the Installation Agreement is between The City of Clayton ("City") and Climatec LLC ("Contractor") dated October 19, 2022 ("Agreement") is made effective as of April 4, 2023 ("Effective Date").

Recitals

A. As described in more detail in the Agreement, the Project included Phase 1 and Phase 2 to complete the Project. Contractor completed Phase 1 by developing the CEA Report and recommending certain ECMs under Phase 2 of the Project.

B. Pursuant to Government Code section 4217.12 and, based on, among other things, the CEA Report, the anticipated cost to the City for energy or conservation services provided by the Project under the Amendment No. 1, will be less than the anticipated marginal cost to the City of energy that would have been consumed in the absence of the Project.

Now, in consideration of the foregoing and of their respective rights and obligations pursuant to the amended Agreement, the parties hereby agree as follows:

Terms

1. This Amendment No. 1 is contingent on the City's securing funding for the Project in the amount of the Contract Price. The Contract Price will remain firm for 120 days after April 4, 2023. Failure to receive funding and providing Contractor a Notice to Proceed with the project within that timeframe may result in cancellation or renegotiation of the Agreement by Contractor.
2. Contractor shall proceed with Phase 2 upon receipt of City's Notice to Proceed to Phase 2.
3. The Phase 2 Scope of Work is described in the attached "Scope of Work" attachments. The following attachments are hereby added and incorporated into the Agreement:
 - a. Attachment "A" Phase 2 Work
 - b. Attachment "B" Lighting Summary – Phase 2
 - c. Attachment "C" Mechanical Replacement Inventory – Phase 2
 - d. Attachment "D" Solar Installation – Phase 2
 - e. Attachment "E" Technical Appendix
4. The Contract Price for the Phase 2 Work is Two Million Forty-Nine Thousand Eighty-Three and 00/100 Dollars (\$2,049,083.00).
5. As required by the Agreement, both parties will meet after the Notice to Proceed to agree on a final project schedule for Phase 2.
6. This Amendment No. 1 shall affect only the items specifically set forth herein and all other terms and conditions of the Agreement shall remain unchanged and in full force and effect.

7. All initially-capitalized terms used but not otherwise defined herein shall have the meanings ascribed to such terms in the Contract Documents.

Agreed to by:

The City of Clayton

Climatec LLC

By: _____
Signature

By: _____
Signature

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

Attachment “A”
Phase 2 Work

City Hall

Controls

- * Retrocommission existing Johnson Controls Building Automation System (BAS) for central plant equipment consisting of (1) Air Handling Unit (AHU), (1) air-cooled condensing unit, (20) Variable Air Volume (VAV) terminal boxes, (1) Boiler and (1) Hot Water Pump (HWP).

The Scope of Work includes:

- Upgrade to latest version of software.
- Installation of new virtual server and router to integrate all controls into one front-end.
- Verify control components wired to each controller, including disconnecting wire to confirm failures are reporting correctly.
- Verify operation of all phases for each piece of HVAC equipment connected to the BAS in heating, cooling and/or economizer modes.
- Verify valve and/or damper actuators are operating correctly according to the control signals.
- Reprogram equipment occupied/unoccupied schedules and set points according to facility occupied hours.
- Provide system start-up and report indicating system deficiencies.
- Provide BAS training to City personnel.

The Scope of Work excludes:

- Any repair or replacement of existing control system components.
- Any upgrades or improvements to the existing network.

Lighting

- * Retrofit existing interior linear fluorescent, compact fluorescent (CF), incandescent, and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted CF, High Intensity Discharge (HID), and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Maintenance Shop

Controls

- * Provide and install new Johnson Controls BAS to control one (1) HVAC unit.

The Scope of Work includes:

- Disconnection and removal of the existing thermostat.
- Installation of new global controller, new field controller, and wall mounted thermostat.
- Installation of new control wiring as necessary.
- Integration into City Hall BAS through virtual server and router.

- Engineering, programming, commissioning, documentation, graphics, and start-up.
- Provide BAS training to City personnel.

The Scope of Work excludes:

- Any upgrades or improvements to the existing network.

Lighting

- * Retrofit existing interior linear fluorescent lighting systems and HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Mechanical

- * Replace one (1) heating-only furnace with new high efficiency furnace of similar size and capacity. Please refer to the HVAC Replacement Inventory in Attachment C for equipment size and location.

The Scope of Work includes:

- Removal and proper disposal of existing unit per EPA guidelines.
- Installation of one (1) new furnace.
- Necessary duct modifications as required for reconnection to new unit.
- Disconnection/reconnection of the existing electrical wiring to include new electrical disconnect.
- Disconnection/ reconnection of existing natural gas line.
- Connection to the new Johnson Controls BAS.
- Start-up/testing of the new units.

The Scope of Work excludes:

- Repairs/modifications to correct undisclosed existing electrical or structural deficiencies or code compliance.

Renewables

- * Provide and install a new carport structure solar photovoltaic (PV) system. Installation will include necessary parts and labor, engineering, and equipment to connect the new PV system to the existing electric meter at the Library. Installation to include electrical power outlets on PV structure columns and tree/shrubbery removal. Please refer to Attachment D for additional detail on scope, locations, system sizing, and point(s) of interconnection.

Clayton Community Library

Controls

- * Install new Johnson Controls Building Automation System (BAS) to control central plant mechanical equipment consisting of (1) air-cooled chiller, (1) CHWP, (1) Boiler, (1) HWP, (3) AHUs, (9) VAVs, and (1) Heat Pump.

The Scope of Work includes:

- Disconnection and removal of the existing thermostat.
- Installation of new network router, global controller, new field controllers, Variable Air Volume (VAV) box controls, zone sensors, and wall mounted thermostat.
- Installation of new control wiring as necessary.
- Integration into City Hall BAS virtual server and router.
- Engineering, programming, commissioning, documentation, graphics, and start-up.
- Verify control components wired to each controller, including disconnecting wire to confirm failures are reporting correctly.
- Verify operation of all phases for each piece of HVAC equipment connected to the BAS in heating, cooling and/or economizer modes.
- Verify valve and/or damper actuators are operating correctly according to the control signals.
- Reprogram equipment occupied/unoccupied schedules and set points according to facility occupied hours.
- Provide system start-up and report indicating system deficiencies.
- Provide BAS training to City personnel.

The Scope of Work excludes:

- Any upgrades or improvements to the existing network.

Lighting

- * Retrofit existing interior linear fluorescent, CF, incandescent, and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted linear fluorescent, CF, and HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Mechanical

- * Replace one (1) Air Handling Unit (AHU) with a new high efficiency AHU of similar size and capacity. Please refer to the HVAC Replacement Inventory in Attachment C for equipment size and location.

The Scope of Work includes:

- Removal and proper disposal of existing AHU.
- Installation of one (1) new AHU.

- Necessary duct modifications as required for reconnection to new unit.
- Disconnection/reconnection of the existing electric, to include new electrical disconnect.
- Disconnection/ reconnection of existing chilled water piping to new AHU.
- Disconnection/reconnection of existing condensate drain lines.
- Connection to Johnson Controls BAS.
- Start-up/testing of the new units.

The Scope of Work excludes:

- Repairs/modifications to correct undisclosed existing electrical or structural deficiencies or code compliance.

- * Replace one (1) packaged rooftop heat pump unit with a new high efficiency packaged heat pump unit of similar size and capacity. Please refer to the HVAC Replacement Inventory in Attachment C for equipment size and location.

The Scope of Work includes:

- Removal and proper disposal of existing unit per EPA guidelines, to include containment/disposal of refrigerant.
- Installation of one (1) new packaged electric heat pump unit.
- Necessary duct modifications as required for reconnection to new units.
- Necessary curb and/or curb adapter modifications.
- Disconnection/reconnection of the existing electric, to include new electrical disconnect.
- Installation of new electrical disconnects.
- Disconnection/reconnection of existing condensate drain lines.
- Connection to Johnson Controls BAS.
- Start-up/testing of the new units.

The Scope of Work excludes:

- Repairs/modifications to correct undisclosed existing electrical or structural deficiencies or code compliance.

EV Charging

- * Provide and install one (1) Level 3, dual-port EV Charging stations to provide charging capability to electrical vehicles. Final location of charging station to be determined upon final engineering and ADA review.

The Scope of Work includes:

- Installation of one (1) EV charging stations.
- Provide and install concrete foundation and stand to mount EV charger.
- Provide and install concrete and asphalt patch where required.
- Provide and install conduit and wire from existing distribution board to EV charging location.
- Provide and install new breakers in existing electrical panel to feed new EV chargers.
- Provide ADA striping where required.
- Provide and install bollards where required.
- Start-up/testing of the new unit.

- Five (5) years of Open Charge Point Protocol (OCPP) charging management software.

The Scope of Work excludes:

- Undisclosed electrical and structural upgrades/modifications.

Endeavor Hall

Lighting

- * Retrofit existing interior linear fluorescent and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building mounted CF lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Mechanical

- * Replacement of two (2) split system HVAC units with new high efficiency units of similar size and capacity. Please refer to the HVAC Replacement Inventory in Attachment C for equipment size and location.

The Scope of Work includes:

- Removal and proper disposal of existing unit per EPA guidelines, to include containment/disposal of refrigerant.
- Installation of two (2) new air handling units.
- Installation of two (2) ground mounted heat pump units.
- Installation of two (2) cube mixing boxes to bring in outside air.
- Necessary supply - return duct modifications as required for reconnection to new unit.
- Disconnection/ reconnection of existing outside air ductwork. Modify as required to connect to outside air louver and mixing box.
- Disconnection/reconnection of the existing electric, to include new electrical disconnect.
- Disconnection/ reconnection of existing refrigerant line sets to include flushing and pressure test.
- Disconnection/reconnection of existing condensate drain lines.
- Connection to existing HVAC controls.
- Start-up/testing of the new unit.

The Scope of Work excludes:

- Repairs/modifications to correct undisclosed existing electrical or structural deficiencies or code compliance.

Clayton Community Park

Lighting

- * Retrofit existing interior linear fluorescent lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Irrigation

- * Retrofit existing irrigation controllers with new smart irrigation controllers. Existing stations on each of the seven (7) controllers will be consolidated into two (2) controllers (1 for upper fields/ 1 for lower fields). Scope includes installation of two (2) master valves and two (2) flow sensors to detect pressure fluctuation in water line in the event of pipe leak and will automatically close the master valve to prevent water loss. City staff will be able to access the controllers remotely via cellular network to make program changes to water scheduling, run times, and seasonal adjustments. Controllers will utilize City's existing cellular network; cellular coverage has been included for a period of five years.

Grove Park

Lighting

- * Retrofit existing interior linear fluorescent lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

Stranahan Park

Irrigation

- * Retrofit existing irrigation controller with new smart irrigation controllers. City staff will be able to access the controllers remotely via cellular network to make program changes to water scheduling, run times, and seasonal adjustments. Controller will utilize City's existing cellular network; cellular coverage has been included for a period of five years.

City-Wide

Outdoor Lighting/ Street Lighting

- * Retrofit existing exterior pole mounted HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Room by Room in Attachment B for detailed information on lighting scope, quantities, and locations.

The Scope of Work includes:

- 5-year equipment warranty for City-owned pole mounted streetlights.
- Initiate the tariff change (HPS to LED within LS-2 rate tariff) for retrofitted streetlights.
- Assistance with City-owned GIS integration of street lighting.

Irrigation

- * Perform comprehensive water study for irrigation efficiency.

The Scope of Work includes:

- Utility bill and rate structure analysis, including coordination with Contra Costa Water District to identify accurate meter locations and understand how water is being use for each of the City's water service accounts.
- Irrigation use modeling to compare the site's water demand compared to actual water usage.
- Field survey to inspect visual line leaks, spray / rotorhead conditions, collect system controller information including station programing, watering time, frequency, and seasonal adjustments.
- Provide the City with water study findings and recommendations.

The Scope of Work excludes:

- Any repairs or improvements to existing water infrastructure or installation of measures outlined within the water study report.

Permitting

- * Permitting fees from the County of Contra Costa have been included for applicable measures including HVAC upgrades, EV charging and Solar PV system.

Attachment “B”
Lighting Summary – Phase 2

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

City Hall - 6000 Heritage Trail, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Building/Area: CH Main Bldg				
1st Floor				
Rf#-1 Rm - entry lobby area	LED 1L pm china hat, LED ?W A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2
Rf#-2 Rm - Conf Room	LED 1L pm china hat, LED ?W A19, n/a	3	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	3
Rf#-3 Rm - Kitchen	LED 1L pm china hat, LED ?W A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2
Rf#-4 Rm - Stairwell Lobby area	LED 1L pm china hat, LED ?W A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2
Rf#-5 Rm - Stairwell Lobby area	Inc. 1L track, Inc. 65w P38, n/a	4	RL091/s/R30 - (1) LED 8w R30 screw in lamp, 4000K	4
Rf#-6 Rm - hallway to left side	CF 2L rec can, CFP-26w, CF ballast	4	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	4
Rf#-7 Rm - Mechincal Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-8 Rm - Electrical Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-9 Rm - Exercise Room (now storage)	1x4x 2L rec trf, F32T8 32w, electronic ballast	10	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	10
Rf#-10 Rm - RR in above	1x4x 2L wm vanity, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-11 Rm - ? Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-12 Rm - ? Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-13 Rm - janitor room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-14 Rm - Equip Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-15 Rm - storage room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-16 Rm - back stairwell to 2nd Floor	1x4x 2L sm wp, F32T8 32w, electronic ballast	3	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	3
Rf#-17 Rm - Ext-Pole Mnt (parking Lot)	HPS 1L post top (acorn), HPS 150w, HID Ballast	8	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	8
Rf#-18 Rm - Ext-Wall Mnt (entry wall)	CF 1L wm step light, CFP-18w, CF ballast	7	RL0111/h - (1) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	7
Rf#-19 Rm - B RR (exterior Entry)	(est) 1x4xx 2L sm wp, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

City Hall - 6000 Heritage Trail, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Rf#-20 Rm - G RR (Exterior Entry)	(est) 1x4x 2L sm wp, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-21 Rm - Ext-Wall Mnt (entry wall)	LED 1L wm goose neck china hat, LED ?w A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2
2nd Floor				
Rf#-22 Rm - Police Dept Reception Desk	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	4	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-23 Rm - Sgt Office	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	2	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	2
Rf#-24 Rm - Police Chief Office	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	2	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	2
Rf#-25 Rm - short hall	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	4	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-26 Rm - break room	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	2	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service C1	2
Rf#-27 Rm - back open area	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	4	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-28 Rm - hall to back exit	CF 2L rec can, CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-29 Rm - Radio Room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	1
Rf#-30 Rm - ? Room in above	1x4x 2L sm detention wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-31 Rm - RR in above	1x4x 2L sm detention wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-32 Rm - ? Room to left of hall to exit	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	1
Rf#-33 Rm - evidence room	(est) 1x4x 2L sm wp, F32T8 32w, electronic ballast	6	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	6
Rf#-34 Rm - M RR	1x4x 2L wm vanity, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-35 Rm - M RR	1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-36 Rm - M RR	CF 2L sm dome, CFP-26w, CF ballast	1	RL0111/o - (1) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	1
Rf#-37 Rm - W RR	1x4x 2L wm vanity, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-38 Rm - W RR	1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-39 Rm - W RR	CF 2L sm dome, CFP-26w, CF ballast	1	RL0111/o - (1) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	1

W* = wall switch sensor; C* = ceiling sensor; E* = existing sensor,
L* Dimming Control, oemB = fixture mounted bi-level control

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

City Hall - 6000 Heritage Trail, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Rf#-40 Rm - Conf Room (out in lobby with stairs)	1x4x 3L pm ind/di, F32T8 32w, electronic ballast	2	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	2
Rf#-41 Rm - Ext-Bldg Mnt (wall)	LED 1L wm jelly jar, LED ?W A19, n/a	1	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	1

3rd Floor

Rf#-42 Rm - Main lobby (stairwell landing)	LED 1L pm china hat, LED ?W A19, n/a	10	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	10
Rf#-43 Rm - Main lobby (stairwell landing)	LED 1L wm jelly jar, LED ?W A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2
Rf#-44 Rm - Reception Counter	CF 2L rec can 8", CFP-26w, CF ballast	5	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	5
Rf#-45 Rm - Main Open area (btwn Finance and Clerk)	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	12	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service C1	12
Rf#-46 Rm - City Clerk Office	CF 2L rec can 8", CFP-26w, CF ballast	1	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit a	1
Rf#-47 Rm - City Clerk Office	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	4
Rf#-48 Rm - Elevator	DND (do not do, left as is), n/a, n/a		DND - DND: (do not do, fixtures left as is)	0
Rf#-49 Rm - Community Dev Office	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit a	2
Rf#-50 Rm - Community Dev Office	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	2
Rf#-51 Rm - Assit to CM	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit a	2
Rf#-52 Rm - Assit to CM	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	2
Rf#-53 Rm - City Manager	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit a	2
Rf#-54 Rm - City Manager	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	4
Rf#-55 Rm - Conf Room	Inc. 1L rec can, Inc. 50w MR16, n/a	3	RL091/s/mr16 - (1) LED 7.5w MR16 lamp, 4000K WS	3
Rf#-56 Rm - Conf Room	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	4
Rf#-57 Rm - Mayors Office	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit a	2
Rf#-58 Rm - Mayors Office	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	3	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service WS	3
Rf#-59 Rm - Hallway to exit	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2

W* = wall switch sensor; C* = ceiling sensor; E* = existing sensor,
L* Dimming Control, oemB = fixture mounted bi-level control

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

City Hall - 6000 Heritage Trail, Clayton CA 94517

PRE-RETROFIT				POST RETROFIT	
Location		Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Rf#-60	Rm - M RR	1x4x 2L wm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-61	Rm - W RR	1x4x 2L wm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-62	Rm - kitchen	CF 2L rec can 8", CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-63	Rm - kitchen	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-64	Rm - Copy Room	CF 2L rec can 8", CFP-26w, CF ballast	1	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	1
Rf#-65	Rm - Copy Room	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-66	Rm - Finance	CF 2L rec can 8", CFP-26w, CF ballast	1	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	1
Rf#-67	Rm - Finance	1x4x 2L wm fxt (some 3'), F32T8 32w, electronic ballast	3	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	3
Rf#-68	Rm - Ext-Bldg Mnt (wall)	LED 1L wm jelly jar, LED ?W A19, n/a	2	RL091/s - (1) LED 8.5w A19 screw in lamp, 4000K	2

Building/Area: M&O Main Bldg

1st Floor

Rf#-69 Rm - Entry Office	1x4x 2L pm ind hood, F32T8 32w, electronic ballast	6	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	6
Rf#-70 Rm - Restroom	1x4x 2L rec trf, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-71 Rm - Office/Storage	1x4x 2L rec trf, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-72 Rm - kitchen	1x4x 2L rec trf, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-73 Rm - Garage Bays 1-3	HPS 1L pm low bay, HPS 250w, HID Ballast	10	NL100/hb/s - New LED area interior high bay, 75,000-Hr L70 rated life, lens, wire guard, 100w, onboard dimming OCC sensor (FSC)	10
Rf#-74 Rm - Garage Bays 1-3	1x4x 2L wm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-75 Rm - Riser Room	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-76 Rm - Garage Bay 4	HPS 1L pm low bay, HPS 250w, HID Ballast	2	NL100/hb/s - New LED area interior high bay, 75,000-Hr L70 rated life, lens, wire guard, 100w, onboard dimming OCC sensor (FSC)	2
Rf#-77 Rm - Garage Bay 5	HPS 1L pm low bay, HPS 250w, HID Ballast	2	NL100/hb/s - New LED area interior high bay, 75,000-Hr L70 rated life, lens, wire guard, 100w, onboard dimming OCC sensor (FSC)	2
Rf#-78 Rm - Garage Bay 6	HPS 1L pm low bay, HPS 250w, HID Ballast	2	NL100/hb/s - New LED area interior high bay, 75,000-Hr L70 rated life, lens, wire guard, 100w, onboard dimming OCC sensor (FSC)	2

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

City Hall - 6000 Heritage Trail, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT		
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty	
Rf#-79 Rm - Ext-Bldg Mnt (wall)	HPS 1L wm wp FT, HPS 100w, HID Ballast	4	NL028/wp/ft - New LED wall pack (FT), 50,000-Hr L70 rated life, 28w (MAX)	4	
Rf#-80 Rm - Ext-Bldg Mnt (wall)	LED 1L wm wall pack FT, LED ?w, LED driver	1	DND - DND: (do not do, fixtures left as is)	1	
Rf#-81 Rm - Ext-Pole Mnt (parking lot)	HPS 1L wm wp FT (on pole), HPS 150w, HID Ballast	1	NL028/wp/ft - New LED wall pack (FT), 50,000-Hr L70 rated life, 28w (MAX)	1	
Rf#-82 Rm - Ext-Pole Mnt (parking lot)	LED 1L wm wp FT (on pole), LED ?w, LED driver	1	DND - DND: (do not do, fixtures left as is)	1	
Qty for City Hall :		216		216	

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

Clayton Community Park - 7411 Marsh Creek Rd, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty

Building/Area: Park

1st Floor

Rf#-7 Rm - Ext-Pole Mnt (lower parking)	LED 1L area light (pc) -[Lsb], LED ?w, LED driver	11	DND - DND: (do not do, fixtures left as is)	11
Rf#-8 Rm - Ext-Pole Mnt (Regency drive)	LED 1L area light (pc) -[sb], LED ?w CC, n/a	7	DND - DND: (do not do, fixtures left as is)	7
Rf#-9 Rm - Ext-Pole Mnt (upper parking)	LED 1L area light (pc) -[sb], LED ?w CC, n/a	4	DND - DND: (do not do, fixtures left as is)	4
Rf#-10 Rm - Ext-Pole Mnt (walkways)	LED 1L area light (pc) -[sb], LED ?w CC, n/a	1	DND - DND: (do not do, fixtures left as is)	1
Rf#-11 Rm - Ext-Pole Mnt (walkway to School)	LED 1L area light (pc) -[sb], LED ?w CC, n/a	7	DND - DND: (do not do, fixtures left as is)	7

Building/Area: RR Building #1

1st Floor

Rf#-1 Rm - B RR	LED 2L wm oval dome, LED ?w pin based, n/a	2	DND - DND: (do not do, fixtures left as is)	2
Rf#-2 Rm - G RR	LED 2L wm oval dome, LED ?w pin based, n/a	2	DND - DND: (do not do, fixtures left as is)	2
Rf#-3 Rm - Storage/roll up door	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-4 Rm - storage, electrical/ chase	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-5 Rm - Ext-Bldg Mnt (wall)	LED 1L wm wall pack FT, LED ?w, LED driver	4	DND - DND: (do not do, fixtures left as is)	4
Rf#-6 Rm - Ext-Bldg Mnt (wall)	LED 2L wm oval dome, LED ?w pin based, n/a	2	DND - DND: (do not do, fixtures left as is)	2

Building/Area: RR Building #2

1st Floor

Rf#-12 Rm - B RR	LED 2L wm oval dome, LED ?w pin based, n/a	2	DND - DND: (do not do, fixtures left as is)	2
Rf#-13 Rm - G RR	LED 2L wm oval dome, LED ?w pin based, n/a	2	DND - DND: (do not do, fixtures left as is)	2
Rf#-14 Rm - Storage/roll up door	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-15 Rm - storage, electrical/ chase	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-16 Rm - Ext-Bldg Mnt (wall)	LED 2L wm oval dome, LED ?w pin based, n/a	8	DND - DND: (do not do, fixtures left as is)	8

Qty for Clayton Community Park :

64

64

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Endeavor Hall - 6008 Center St, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty

Building/Area: Main Building

1st Floor

Rf#-1 Rm - Main Meeting Room	LED 2L wm sconce, LED ?wA19, n/a	8	RL092/s - (2) LED 8.5w A19 screw in lamp, 4000K	8
Rf#-2 Rm - Main Meeting Room	LED 8L pm half dome, LED ?wA19, n/a	3	RL098/s - (8) LED 8.5w A19 screw in lamp, 4000K	3
Rf#-3 Rm - Stage (theatrical lighting)	DND (do not do, left as is), n/a, n/a		DND - DND: (do not do, fixtures left as is)	0
Rf#-4 Rm - Stage	1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-5 Rm - stage storage room	1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-6 Rm - kitchen	(est) 1x4x 2L sm box, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-7 Rm - kitchen food storage	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-8 Rm - B RR	LED 2L wm sconce, LED ?wA19, n/a	2	RL092/s - (2) LED 8.5w A19 screw in lamp, 4000K	2
Rf#-9 Rm - hot water heater room	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-10 Rm - G RR	LED 2L wm sconce, LED ?wA19, n/a	2	DND - DND: (do not do, fixtures left as is)	2
Rf#-11 Rm - Storage (ext entry back side)	(est) 1x4x 2L sm wp, F32T8 32w, electronic ballast	2	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2
Rf#-12 Rm - Ext-Bldg Mnt (eaves)	CF 2L rec can, CFP-26w, CF ballast	8	RL012/ckit/6 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life	8
Rf#-13 Rm - Ext-Bldg Mnt (wall (by back storage)	LED 1L wm goose neck china hat, LED ?w A19, n/a	1	DND - DND: (do not do, fixtures left as is)	1
Rf#-14 Rm - Ext-Wall mnt (pergola)	LED 1L wm spot, LED ?w Mr16, n/a	2	DND - DND: (do not do, fixtures left as is)	2

Qty for Endeavor Hall :

38

38

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Library - 6125 Clayton Rd, Clayton CA 94517

PRE-RETROFIT				POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code	Description (Ltg Control in RED)	Qty
Building/Area: Main Building					
1st Floor					
Rf#-1 Rm - Entry Lobby	CF 2L rec can (wall wash), CFP-26w, CF ballast	8	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	8
Rf#-2 Rm - Entry Lobby	1x4x 3L wm sconce, F32T8 32w, electronic ballast	3	RLT843dw -	(3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	3
Rf#-3 Rm - hall to left towards Hoyer	CF 2L rec can , CFP-32w, CF ballast	2	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-4 Rm - hall to left towards Hoyer	CF 1L wm sconce, CFP-42w, CF ballast	1	RL0111/h -	(1) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	1
Rf#-5 Rm - B RR	1x4x 1L wm narrow wrap, LED ?w, LED driver	2	DND -	DND: (do not do, fixtures left as is)	2
Rf#-6 Rm - B RR	CF 2L rec can , CFP-32w, CF ballast	2	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-7 Rm - B RR	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw -	(2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-8 Rm - G RR	1x4x 1L wm narrow wrap, LED ?w, LED driver	2	DND -	DND: (do not do, fixtures left as is)	2
Rf#-9 Rm - G RR	CF 2L rec can , CFP-32w, CF ballast	2	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-10 Rm - G RR	1x4x 2L sm wp, F32T8 32w, electronic ballast	1	RLT842dw -	(2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-11 Rm - Break Room	2x4x 2L rec trf, F32T8 32w, electronic ballast	1	RL033/tkit -	(1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	1
Rf#-12 Rm - Hoyer (Meeting Room)	CF 2L rec can , CFP-32w, CF ballast	1	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	1
Rf#-13 Rm - Hoyer (Meeting Room)	1x4x 4L pm indirect, F32T8 32w, electronic ballast	12	RLT844dw -	(4) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	12
Rf#-14 Rm - storage in above	1x4x 2L sm strip, F32T8 32w, electronic ballast	3	RLT842dw -	(2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	3
Rf#-15 Rm - Library office	2x4x 3L rec trf, F32T8 32w, electronic ballast	2	RL033/tkit -	(1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	2
Rf#-16 Rm - Side Staff Entry Lobby	2x4x 3L rec trf, F32T8 32w, electronic ballast	1	RL033/tkit -	(1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	1
Rf#-17 Rm - Side Staff Entry Lobby	CF 2L rec can , CFP-32w, CF ballast	2	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-18 Rm - break room	CF 2L rec can , CFP-32w, CF ballast	4	RL012/ckit/8 -	(1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	4
Rf#-19 Rm - break room	1x4x 2L pm fxt, F32T8 32w, electronic ballast	2	RLT842dw -	(2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	2

City of Clayton - Lighting Detail Report

(sorted by building, floor, area)

Library - 6125 Clayton Rd, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Rf#-20 Rm - B RR	1x4x 2L wm vanity, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-21 Rm - short hall to bullpen	2x4x 3L rec trf, F32T8 32w, electronic ballast	2	RL033/tkit - (1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	2
Rf#-22 Rm - G RR	1x4x 2L wm vanity, F32T8 32w, electronic ballast	1	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	1
Rf#-23 Rm - G RR	CF 2L rec can, CFP-32w, CF ballast	1	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	1
Rf#-24 Rm - Library back area bullpen	2x4x 3L rec trf, F32T8 32w, electronic ballast	10	RL033/tkit - (1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	10
Rf#-25 Rm - Library Reception Desk	1x4x 3L pm indirect, F32T8 32w, electronic ballast	8	RLT843dw - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	8
Rf#-26 Rm - Library Reception Desk	CF 2L rec can, CFP-32w, CF ballast	4	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	4
Rf#-27 Rm - Library (Browsing Area)	2x4x 3L rec trf, F32T8 32w, electronic ballast	13	RL033/tkit - (1) LED 33w 2x4 rec trf kit w/volumetric lens 70,000-Hr L70 rated life (ALE)	13
Rf#-28 Rm - Library (Browsing Area)	LED 1L rec can, LED 7w MR16, n/a	3	RL091/s/mr16 - (1) LED 7.5w MR16 lamp, 4000K	3
Rf#-29 Rm - Library (Browsing Area)	Inc. 1L rec can, Inc. 50w MR16, n/a	5	RL091/s/mr16 - (1) LED 7.5w MR16 lamp, 4000K	5
Rf#-30 Rm - Library (adults, ref, & Children area)	1x4x 3L wm scone (@20'), F32T8 32w, electronic ballast	36	RLT843dwh - (3) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	36
Rf#-31 Rm - Library (adults, ref, & Children area)	CF 2L wm scone (@10'), CFP-42w, CF ballast	22	RL0112/o - (2) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	22
Rf#-32 Rm - Library (adults, ref, & Children area)	1x3x 1L wp (book stacks), F25T8 25w, electronic ballast	60	RLT831dw - (1) 3' LED T8 lamp 12w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	60
Rf#-33 Rm - Library (adults, ref, & Children area)	1x4x 1L wp (book stacks), F32T8 32w, electronic ballast	54	RLT841dw - (1) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	54
Rf#-34 Rm - Library (adults, ref, & Children area)	1x5x 1L table fixture, F58T8 58w, electronic ballast	9	RLT841bar - (1) 4' LED T8 lamp 12w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	9
Rf#-35 Rm - Library (adults, ref, & Children area)	1x3x1L task light (under counter), F25T8 25w, electronic ballast	12	RLT831dw - (1) 3' LED T8 lamp 12w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	12
Rf#-36 Rm - Story Time Entry Area	CF 2L rec can, CFP-26w, CF ballast	3	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	3
Rf#-37 Rm - Story Time Entry Area	1x4x 2L wm scone, F32T8 32w, electronic ballast	8	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	8
Rf#-38 Rm - Story Time Entry Area	CF 2L rec can, CFP-26w, CF ballast	2	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	2
Rf#-39 Rm - Space bwn Story Time and Group Study)	CF 2L rec can, CFP-26w, CF ballast	8	RL012/ckit/8 - (1) LED 6" rec can kit, 4000K, 12w, 120/277, 50,000-Hr L70 rated life (1) 8" trim kit	8

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Library - 6125 Clayton Rd, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Rf#-40 Rm - Group Study Area	1x4x 2L wm sconce, F32T8 32w, electronic ballast	4	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	4
Rf#-41 Rm - Ext-Bldg Mnt (wall)	CF 2L wm dome (12"+), CFP-26w, CF ballast	15	RL0112/h - (2) LED 4 pin lamp, direct wire, 120/277v, 11w, 50,000-Hr L70 rated life, horizontal	15
Rf#-42 Rm - Ext-Grnd Mnt (bollards)	HPS 1L ground mount bollard, HPS 50w, HID Ballast	3	RL0161/s/md - (1) LED 16w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, medium base	3
Rf#-43 Rm - Ext-Pole Mnt (parking Lot)	HPS 1L post top (acorn), HPS 150w, HID Ballast	12	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	12
Rf#-44 Rm - Ext-Pole Mnt (parking Lot) Franklin	HPS 1L post top (acorn), HPS 150w, HID Ballast	4	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	4
Rf#-45 Rm - Ext-Tunnel Mnt (walkway)	1x4x 1L (custom lens fxt), F32T8 32w, electronic ballast	7	RLT841dw - (1) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	7
Qty for Library :		359		359

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Outdoor Lights B-1 -

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code	Description (Ltg Control in RED)

Building/Area: All

1st Floor

Rf#-1 Rm - Ext-Pole Mnt (Oak, Main Street)	HPS 1L Post Top Acorn, HPS 150w, HID Ballast	17	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	17
Rf#-2 Rm - Ext-Pole Mnt (Oak, Main Street)	LED 1L Post Top Acorn, LED 34w, n/a	12	DND - DND: (do not do, fixtures left as is)	12
Rf#-3 Rm - Ext-Pole Mnt (Oak, Main Street)	MH 1L flood, slip, (flag pole), MH 175w, HID Ballast	2	NL035/fld - New LED flood, slip fitter mount, 50,000-Hr L70 rated life, 35w (MAX)	2
Rf#-4 Rm - Ext-Pole Mnt (Center, High, Diablo, morris street)	HPS 1L Post Top Acorn, HPS 150w, n/a	17	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	17
Rf#-5 Rm - Ext-Pole Mnt (Center, High, Diablo, morris street)	LED 1L Post Top Acorn, LED 34w, HID Ballast	6	DND - DND: (do not do, fixtures left as is)	6

Qty for Outdoor Lights B-1 :

54

54

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Street Lights LS-1 -

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty

Building/Area: All

1st Floor

Rf#-1 Rm - All Ext Space	DND (do not do, left as is), n/a, n/a		DND - DND: (do not do, fixtures left as is)	0
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Qty for Street Lights LS-1 :

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Street Lights LS-2 -

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty
Building/Area: Various Exterior Streets				
1st Floor				
Rf#-1 Rm - Ext-Pole Mnt (Street lights)	HPS 1L post top lanterns or acorn, HPS 70w, HID Ballast	62	RL0241/s/mg - (1) LED 24w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	62
Rf#-2 Rm - Ext-Pole Mnt (Street lights)	HPS 1L post top lanterns or acorn, HPS 100w, HID Ballast	4	RL0241/s/mg - (1) LED 24w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	4
Rf#-3 Rm - Ext-Pole Mnt (Street lights)	HPS 1L post top lanterns or acorn, HPS 150w, HID Ballast	364	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	364
Rf#-4 Rm - Ext-Pole Mnt (Street lights)	HPS 1L post top lanterns or acorn, HPS 200w, HID Ballast	2	RL0541/s/mg - (1) LED 54w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	2
Rf#-5 Rm - Ext-Pole Mnt (Street lights)	HPS 1L post top lanterns or acorn, HPS 250w, HID Ballast	4	RL0541/s/mg - (1) LED 54w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	4
Rf#-6 Rm - Ext-Pole Mnt (Street lights)	LED 1L post top lanterns or acorn (City), LED ?w, n/a	171	DND - DND: (do not do, fixtures left as is)	171
Qty for Street Lights LS-2 :		607		607

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

Street Lights TC-1 -

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty

Building/Area: All

1st Floor

Rf#-1 Rm - All Ext Space	DND (do not do, left as is), n/a, n/a		DND - DND: (do not do, fixtures left as is)	0
--------------------------	---------------------------------------	--	---	---

Qty for Street Lights TC-1 :

City of Clayton - Lighting Detail Report
(sorted by building, floor, area)

The Grove Park - 6100 Main St, Clayton CA 94517

PRE-RETROFIT			POST RETROFIT	
Location	Existing Fixture Description	Qty	Retrofit Code Description (Ltg Control in RED)	Qty

Building/Area: Park

1st Floor

Rf#-4 Rm - storage, electrical/ chase	(est) 1x4x 2L sm strip, F32T8 32w, electronic ballast	3	RLT842dw - (2) 4' LED T8 lamp 10.5w, Type B, direct wire, 50,000-Hr L70 rated life, remove existing ballast from service	3
Rf#-5 Rm - Ext-Grnd Mnt (bollards)	HPS 1L ground mount bollard, HPS 50w, HID Ballast	8	RL0161/s/md - (1) LED 16w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, medium base	8
Rf#-6 Rm - Ext-Pole Mnt (walkways)	HPS 1L post top (acorn), HPS 150w, HID Ballast	13	RL0341/s/mg - (1) LED 34w corn cob style screw in lamp, 120/277, 50,000-Hr rated life, 4000K, mogul base	13

Building/Area: RR Building

1st Floor

Rf#-1 Rm - Ext-Bldg Mnt (wall)	HPS 1L wm vandal, HPS 70w, HID Ballast	1	NL015/wp - New LED wall pack full, 50,000-Hr L70 rated life, 15w, built in 120/277v photo cell (SYL)	1
Rf#-2 Rm - W RR	HPS 1L wm vandal, HPS 70w, HID Ballast	1	NL015/wp - New LED wall pack full, 50,000-Hr L70 rated life, 15w, built in 120/277v photo cell (SYL)	1
Rf#-3 Rm - M RR	HPS 1L wm vandal, HPS 70w, HID Ballast	1	NL015/wp - New LED wall pack full, 50,000-Hr L70 rated life, 15w, built in 120/277v photo cell (SYL)	1

Qty for The Grove Park :

27

27

Attachment “C”
Mechanical Replacement Inventory – Phase 2

Replacement Inventory - Mechanical Inventory

ID#	Building	Room	Equipment	Quantity	Total Replacement Qty				Total Tonnage of Replacement Existing Equipment				13.5	Photo Its	Additional Notes
					Manuf.	Model No.	Serial No.	Capacity / Size	Year	Years Old (Estimated from 2023)	Electrical	Discharge (Down/Side)			
1	Eneavor Hall	M&W Restrooms/ Kitchen	Split Sys Heat Pump	1	Carrier	38YRA048310	4100E0945	4	2000	23	208/230-1-60		Y	JW 628	
2	Eneavor Hall	Main Hall	Condensing Unit	1	Carrier	38BRC048350	4000E0718	4	2000	23	208/230-1-60		Y	JW 615	Two Condensing Units Tied to Reznor
3	Eneavor Hall	Main Hall	Condensing Unit	1	Carrier	38BRC048350	3300E03683	4	2000	23	208/230-1-60		Y	JW 622	Two Condensing Units Tied to Reznor
4	Eneavor Hall	Main Hall	Furnace	1	Reznor	CAUA-200		200 MBH	2000	23	208/230-1-60		Y	JW 636	3100 CFM - 200 MBH Input / 160 MBH Output - 80% eff
5															
6															
7															
8															
9	Maintenance Shop	Office	Horizontal Furnace	1	Ruud	RGPS-07NANMER	GH5D302F510900617	75 kBtu	2009	14	115-1-60	Side	Y	JW 0065	80% eff - 75 kBtu Input/ 60 kBtu Output
10															
11															
12	Library	Library	FCU-3	1	Trane	HDT-21A		317 MBH	1994	29			Y	JW 4255	7.5 HP motor on VFD (Installed 2013)
13															
14	Library	Story Room	Packaged Heat Pump	1	Trane	WCC 018F		1.5	2004	19		Side	Y	JW 946	
15															
16															
17															
18															
19															
20															

Replacement Units: 5

Attachment “D”
Solar Installation – Phase 2

SYSTEM LOCATION AND DESCRIPTION:

City of Clayton	
1. Site Location	<i>Maintenance/Library</i>
2. Point of Interconnection	<i>Meter #1009541068</i>
3. System Size	<i>138.8 kW</i>
5. PV Modules	<i>Maxeon Max 3 485 or equal</i>
6. Inverters	<i>Solertia PVI 50kW or equal</i>
7. System	<i>Carport Structures 12' Clear Height</i>

The information presented in the table above is subject to adjustment depending on final design and siting. Siting locations are dependent on final survey results for underground utilities and easements.

1. *Permits and Regulatory Fees*

Utility and fire and electrical permits for the solar are included. This includes plan review fees for the site.

Contractor includes durations of 16 weeks for procuring permit and regulatory approvals. Contractor will not be responsible for construction delays caused by permit and approval requirements from local jurisdictions or regulatory review bodies. Any delays in procuring permits will entitle Contractor a time extension change order to the Agreement as a day for day extension to our plan for obtaining required permits and/or approvals, as defined above or in the Project schedule.

2. *Utility Requirements*

This solar scope assumes all utility-owned electrical equipment serving the sites electrical distribution system has adequate capacity to handle the photovoltaic system output. No utility required electrical equipment upgrade or replacement is included, including design and coordination thereof.

Any costs associated with unforeseen utility interconnection requirements, including but not limited to utility-owned equipment upgrades or additions, relay protection equipment external to the inverters, system impact studies, or telemetry requirements and interconnection studies are not included.

3. *Facility Equipment*

The existing electric panels are assumed to have provisions to accept cable connections on the

primary side of the main service breaker, or adequate space and capacity for a new breaker. Panel or bus bar reconfiguration and/or City distribution equipment re-listing certification is not included.

The solar scope excludes short-circuit coordination study for this project. Contractor will provide overcurrent settings that will be coordinated with City overcurrent settings.

The solar scope assumes current switchboards / panelboards meet all code requirements.

Solar system includes all standard interconnection related equipment on the City side of the meter, including panel circuit breakers, utility and/or visible utility lockable disconnect switches, solar metering, conduit, and wiring. Additional protection or upgrades required by the utilities above that provided by the certified inverters is not included.

4. *Shading*

The solar scope is based on existing visual conditions on site. Removal of trees or other obstructions to install the solar arrays and system components is included. Trees and/or other obstructions subsequently identified for removal or trimming by the City must be removed or trimmed or performance expectations/guarantees will require adjustment.

5. *Commissioning*

The solar scope assumes commissioning requirements for the solar scope only.

6. *Monitoring*

Solar monitoring will be accomplished via cell card. Energy Management System integration or similar control or SCADA system integrations to the new photovoltaic array(s) is excluded. All other communication and low voltage infrastructure is excluded.

7. *Site Embedding Conditions Assumed*

A normal embed depth of 11 feet is assumed. If additional width, embed depth or spread footing is needed due to soil conditions, additional costs will be the responsibility of the client.

8. *Storage*

City shall provide Contractor with an area for storage space located near the site for storage of materials, tools and equipment, and other purposes.

9. *Exclusions*

ADA

The solar scope excludes modification requirements for accessibility upgrades and accessibility design around the photovoltaic shade structure/parking canopy structures. Assumes that current parking lot layout has been reviewed and approved by Authority Having Jurisdiction (AHJ). If the architect of record recommends addition of new accessible parking stalls under the solar canopies, changed path of travel and/or new canopies over existing accessible stalls, design and construction costs will be addressed via change order.

Irrigation

Irrigation reconfiguration if necessary to complete any foundation construction is not included.

Fire

Fire hydrant flow tests are not included.

Detailed Layout



Attachment “E” Technical Appendix



EVDC-60 (NA) 2nd generation Specifications

Accelerating mass adoption of electric vehicles by
delivering sustainable fast charging solutions that can be
deployed anywhere

EVDC-60 (NA) 2nd generation

60kW DC Fast Charger

FEATURES

- True simultaneous charging - charge two cars at the same time
- Future-proof design with 1000 V max output
- Driver friendly with a 10" LCD touchscreen and simple to use interface
- CHAdeMO and CCS1 or dual CCS1 charging cables
- Ethernet, 4G and Wi-Fi network connectivity
- OCPP 1.6 and ISO 15118 compliant
- Start modes include plug-n-play, RFID card, OCPP and optional POS
- IP54 rated enclosure ideal for a wide range of locations and conditions



SPECIFICATIONS		SPECIFICATIONS CONT..	
Connectors	CHAdeMO + CCS1 or CCS1 + CCS1	POS (Credit Card Reader)	Optional (enabling card payments)
Output Power	60 kW (can charge two cars at 30 kW simultaneously)	LCD Display	10 inch touchscreen
Output Voltage	300 - 1000 V	Protection	Over / under voltage protection, overload protection, short circuit protection, over / under temperature protection, surge protection, communication failure
Output Max Current	125 A (0 - 125 A variable range)	IP rating	IP54
Supply Input	480 Vac	Emergency Stop Button	Yes
Supply Frequency	60 Hz	Cooling Method	Forced air cooling
Grounding Detection	30 mA	Operating Temperature	-4°F (-20°C) to 122°F (50°C)
Efficiency	≥96% (50%-100% load)	Operating Humidity	5%-95% without condensation
Power Factor	≥0.99	Dimensions (W x D x H)	37.4 x 19.3 x 65.0 (950 x 490 x 1650) inch (mm)
Harmonic Current	<5%	Weight	~265 kg (585 lbs)
Ripple Voltage	1%	Certification	CE, IEC 61851, ISO 15118
Network Connectivity	Ethernet / 4G / Wi-Fi	MTBF	100,000 hours
Communication Protocol	OCPP 1.6	Warranty	2 years as standard
Charging Cable Length	5 m (16.4 ft)		
Start-up Mode	Automatic charging / RFID card / OCPP		



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SYLVANIA Luminaires

UltraLED™ Mini Wallpack

Application

The UltraLED Mini Wallpack luminaires are environmentally preferable LED alternatives to traditional HID luminaires, offering up to 70% in energy savings. Ideal in place of traditional luminaires, or as new installations, the Mini wall pack series is offered in several wattages/lumen packages for illuminating building exteriors, outdoor corridors, walkways, and stairwells.

Benefits and Features

- CCT Selectable (3000K, 4000K, or 5000K) enabled through switch located inside fixture
- IP65 rated body with aluminum backplate and polycarbonate lens offers easy mounting, reducing installation and maintenance costs
- High color rendering and DLC Premium listing ensure energy efficiency and provide uniform and even lighting
- Photosensor included provides additional energy savings
- Up to 130 LPW
- Selectable CCT of 3000, 4000, or 5000K
- CRI >80
- Offered in 15 and 30 watts
- Non-cutoff distribution
- Energy savings up to 70%

Electrical

- 120-277V_{AC}
- Power Factor >90%
- THD <20%
- 0-10V dimmable

Rated Life

- 150,000 hours (L₇₀)

Warranty

- 5-year

Ambient Operating Range

- -40°F to +104°F (-40°C to +40°C)

Item #

Type

Project

Notes

Date



Wattage Comparison

Traditional Source	Traditional System Wattage	LED System Wattage	Energy Savings
23W CFL	23	15	35%
35W HPS	45	15	67%
42W CFL	46	15	67%
100W Incandescent	100	30	68%
150W Incandescent	150	30	70%

Certifications and Listings

- cULus
- RoHS
- FCC
- DLC Premium
- IP65

Installation

- Luminaire mounts to recessed outlet box or can be surface mounted



Ordering Guide

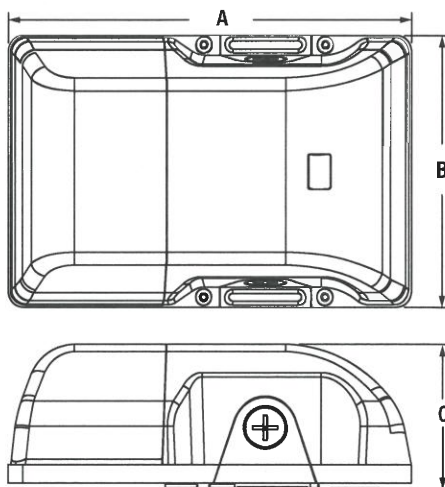
MWALPAKN	1A	/	XXX	UNV	D	SC2	/	BZ	/	P
Product Name	Generation		Wattage	Voltage	Dimming	Color Temp		Color/Finish		Options
MWALPAKN =	1A = Generation 1A		015 = 15 Watts	UNV = 120-277V	D = 0-10V Dimming	SC2 = selectable CCT of 3000, 4000 or 5000K		BZ = Bronze		Blank = no option P = Photocell
Non-cutoff Mini Wallpack			030 = 30 Watts							

Ordering Information

Item Number	Ordering Abbreviation	Power (W)	Input Voltage (V)	Dimming	CRI	Color Temp	Total Fixture Lumens	LPW	Options	DLC
62173	MWLPAKN1A/015UNVDSC2/BZ/P	15	120-277	0-10V	>80	3000, 4000 or 5000K	1950	130	Photocontrol	Prm
62175	MWLPAKN1A/030UNVDSC2/BZ/P	30	120-277	0-10V	>80	3000, 4000 or 5000K	3900	130	Photocontrol	Prm

Physical Information

Lamp Description	(A) Length in (mm)	(B) Width in (mm)	(C) Height in (mm)
MWALPAKN1A	8.6 (218.4)	5.8 (147.3)	3.1 (78.7)



LEDVANCE LLC
200 Ballardvale Street
Wilmington, MA 01887 USA
Phone 1-800-LIGHTBULB (1-800-544-4828)
www.sylvania.com

SYLVANIA and LEDVANCE are registered trademarks.
All other trademarks are those of their respective owners.
Licensee of product trademark SYLVANIA in general lighting.
Specifications subject to change without notice.

[/sylvania](https://twitter.com/sylvania) [/sylvania](https://facebook.com/sylvania)

Name: _____
Email: _____
Phone: _____





PROJECT NAME: _____

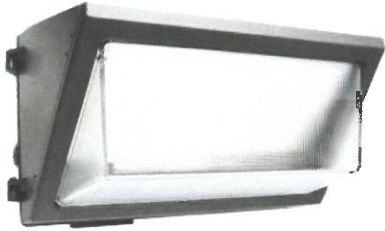
CAT. #: _____

NOTES: _____

FIXTURE SCHEDULE: _____

WallMax Open Face Wall Packs

WPOP Series



Fixture with Wire Guard



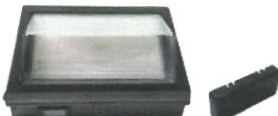
Fixture with Visor



Fixture with Wire Guard & Visor



Sensor Window



Cover included



CCT Switch



Wattage Switch

Product Description:

The new generation of WallMax Open Face LED Wall Packs provides flexibility for distributors and contractors with field-selectable CCTs, wattages (55W and 120W models) and field-installable controls. The housing has been enlarged to cover HID fixture footprints and accommodate battery backup in all sizes. The Wall Packs feature a controls-ready receptacle compatible with c-Max controls. The simple plug-and-play sensor receptacle enables c-Max control nodes to be added at the time of installation, or in the future, as well as allowing for future control upgrades without changing the fixture. The receptacle is located at the bottom of the fixture and looks through a window, which minimizes the impact on the fixture aesthetics. A cover is included to hide the window when controls are not used.

Features:

- CCT selectable between 3000K, 4000K or 5000K
- Controls Ready - simple plug and play Sensor Receptacle/Socket enables installation of c-Max control nodes without changing the fixture
- Sealed housing - control nodes are mounted internally without impacting the fixture sealing or aesthetics
- High Voltage Option: 277-480V
- Battery Backup Options - 0°C and -20°C
- Avi-On Network Controls Option available
- CRI: ≥80

Construction:

- Rugged die cast housing with corrosion resistant polyester powder paint finish
- Impact resistant borosilicate glass
- Covers old HID footprints (14" and 18")
- 4 x 1/2" conduit holes, one on each side for surface conduit applications



Check out our product video at:

<https://www.youtube.com/watch?v=G56j61b5PSM>

MaxLite Makes It!

Don't see what you need? Additional wattages and specifications available upon request - contact your MaxLite rep!

Ordering Structure

FAMILY	WATTAGE (NOMINAL)	VOLTAGE	-	CCT	COLOR	CONTROLS OPTIONS	EM OPTIONS
WPOP= WallMax Open Face Wall Pack	28= 28W 40= 40W 55= 55W 80= 80W 120= 120W	U= Universal 120-277V H= High Voltage 277-480V	-	CS= 3/4/5K WCS'= 3/4/5K, Wattage Selectable	B= Dark Bronze <i>Contact MaxLife for additional finishes</i>	AV= Avi-On Network Controls CR= Controls Ready Port	BLANK= None EM0= Battery Backup 0°C (120V or 277V only) EM2= Battery Backup -20°C (120V or 277V only)

Ordering Notes:

1. Available in 55W (28/40/55) and 120W (80/100/120) in Universal Voltage 120-277V
Bi-level dimming only works on highest wattage setting
* Based on CCT Selected and color mixing, all LEDs may not be activated.

Stocked Items

STOCKED ITEMS	ORDER CODE	DLC ID #	STOCKED ITEMS	ORDER CODE	DLC ID #
WPOP28U-CSBCR	104898	PLBJPNHX	WPOP80U-CSBCR	104901	PGJ4N743
WPOP40U-CSBCR	104899	PET2F3DX	WPOP120U-CSBCR	104902	PO7X4VS2
WPOP55U-CSBCR	104900	P4LZGCHW	WPOP120U-WCSBCR	105519	PH19YKZV
WPOP55U-WCSBCR	105518	PRFGPVAN			

Control Ready Rectangle Node Installation Video:



<https://www.youtube.com/watch?v=ePkLDp65mr8&feature=youtu.be>



10-year standard warranty with labor allowance* (further details available at www.maxlite.com/warranties)

*Warranty Limitations: Product must be rated for the application per the Product Data Sheet (PDS); operated ≤16 hrs/day; in ambient of -29°F to 104°F. *Up to \$25/unit; labor allowances of up to \$500/unit available for purchase – contact MaxLite representative for details.

Phone: 1-800-555-5629

Fax: 973-244-7333

Web: www.maxlite.comE-mail: info@maxlite.com

PLM# 594

Rev: 06/28/22



WallMax Open Face Wall Packs

WPOP Series

Specifications	WPOP28	WPOP40	WPOP55	WPOP80	WPOP120
Nominal Wattage (W)	28	40	55	80	120
Output (lm)	≥ 3,300	≥ 4,700	≥ 6,400	≥ 9,600	≥ 14,000
Efficacy (lm/W)	min 120	min 120	min 120	min 120	min 120
CCT	Selectable between 3000K, 4000K or 5000K				
CRI	>80				
Dimming	0-10V and High-end trim				
Power Factor	>0.90				
Input Voltage	120-277V, 277-480V option				
Battery Backup	120V or 277V only, 800-900 lumens, 1 fc minimum in 10' x 10' grid at 10-11' mounting height, 0°C 16W, -20°C 14W				
Surge Protection	6kV integral to the driver, 20kA available as an option				
Housing	Die Cast Aluminum with polyester powder coat paint finish				
Lens	Borosilicate Glass				
Listings	DLC Premium, cULus, FCC, TAA Available (contact Maxlite)				
Environment	Wet locations and IP65				
Warranty	10-year standard warranty*				

Accessories (Sold Separately)

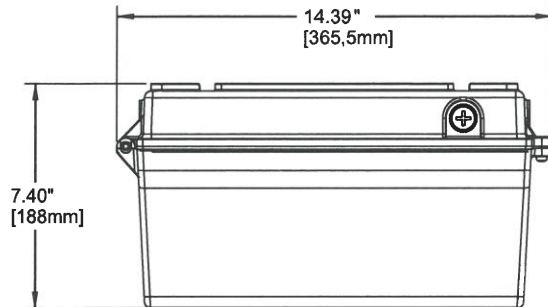
MODEL #	ORDER CODE	DESCRIPTION	IMAGE
WPOP-SVISOR-B	106160	VISOR SMALL HOUSING (28-55W), BRONZE	
WPOP-LVISOR-B	106161	VISOR LARGE HOUSING (80-120W), BRONZE	
WPOP-SWG	106162	WIRE GUARD SMALL HOUSING 28-55W	
WPOP-LWG	106163	WIRE GUARD LARGE HOUSING 80-120W	
CN-RTPCT	105568	C-MAX PHOTOCELL NODE RECTANGULAR	
CN-RTMST	105564	C-MAX RECTANGULAR MOTION SENSOR/PC, REQUIRES REMOTE CONTROL TO PROGRAM	
NN-RTW	105892	NETWORK NODE RECTANGULAR, WHITE	
CN-REMOTE	105567	C-MAX REMOTE CONTROL, AT LEAST ONE REQUIRED PER PROJECT TO PROGRAM MOTION SENSOR	

WallMax Open Face Wall Packs

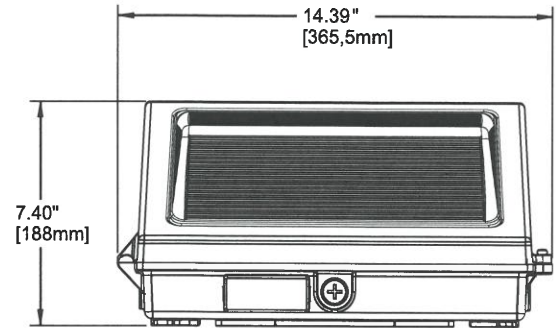
WPOP Series

Dimensions

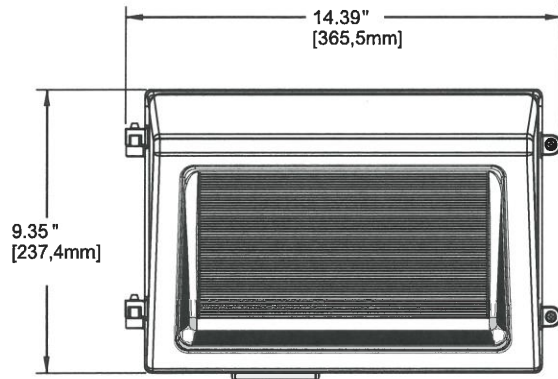
28-55W



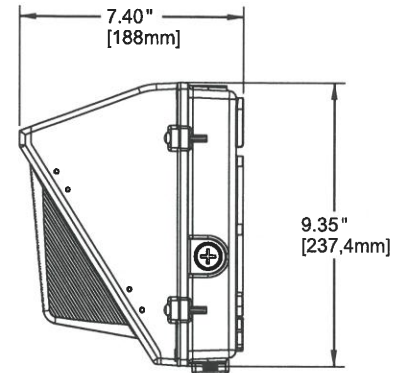
Top View



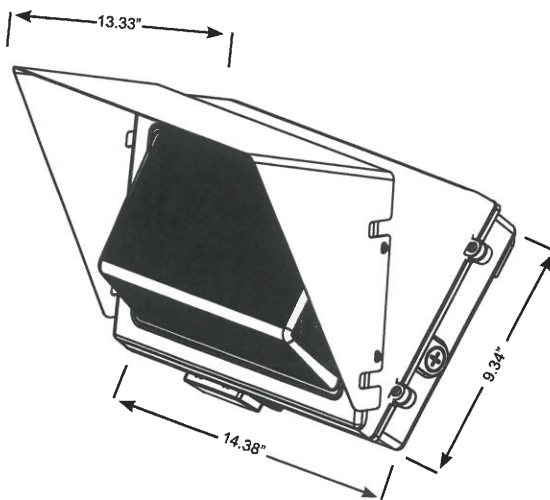
Bottom View



Front View



Side View



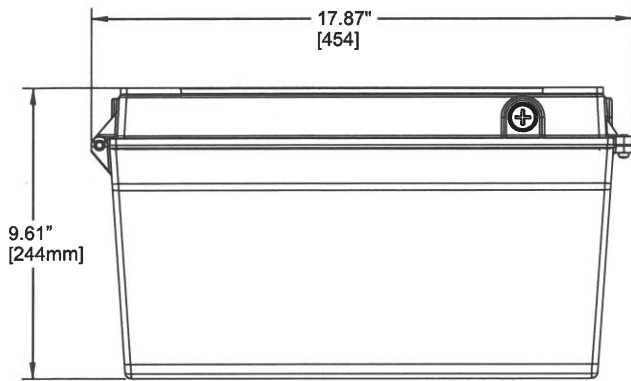
Visor

WallMax Open Face Wall Packs

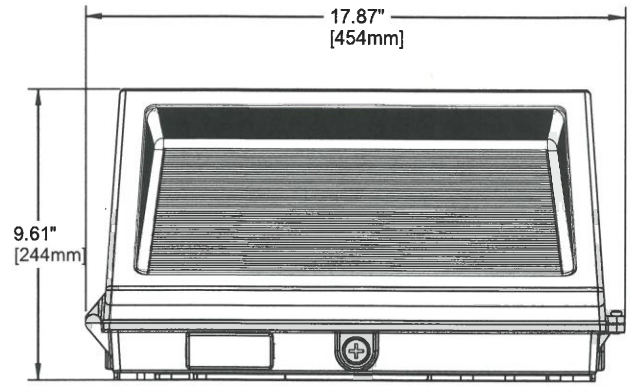
WPOP Series

Dimensions

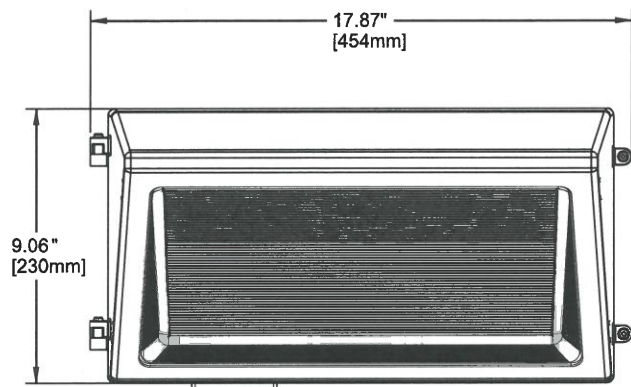
80-120W



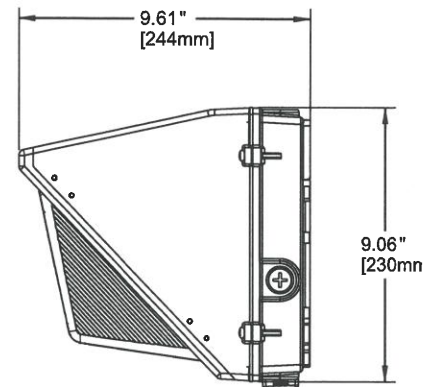
Top View



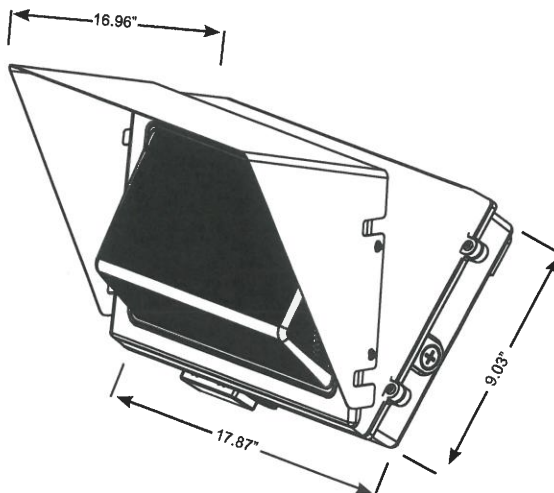
Bottom View



Front View



Side View



Visor

WallMax Open Face Wall Packs

WPOP Series

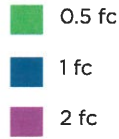
ISOFOOTCANDLE:

Each gridline represents one mounting height.

For mounting heights other than noted multiply FC by the below factor.

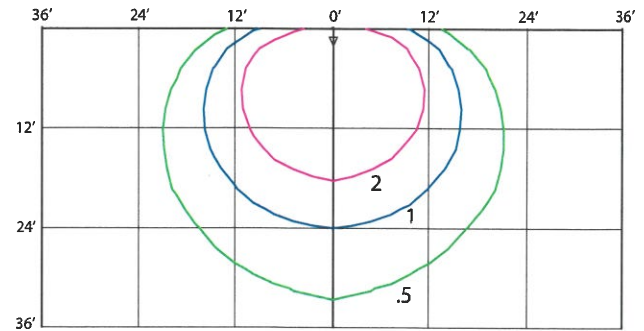
$$\text{Factor} = \frac{(\text{Chart's Mtg Height})^2}{(\text{Actual Mtg Height})^2}$$

LEGEND



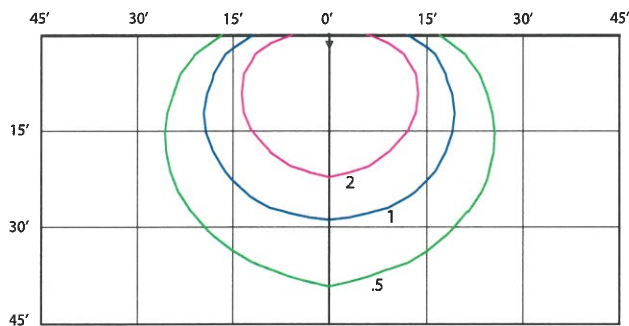
Layouts based on 3000K. Results are 3-5% more for 4000/5000K. Consult IES file for more precise calculations.

WPOP28



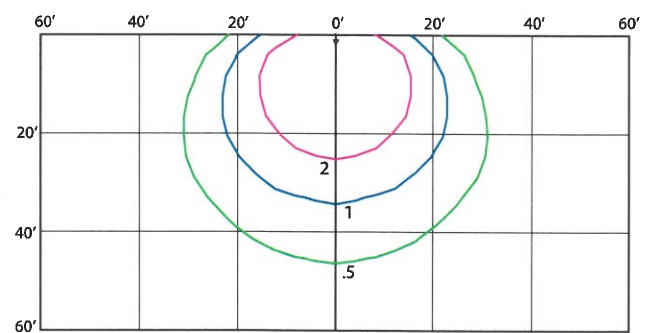
28W
12' MOUNTING HEIGHT

WPOP40



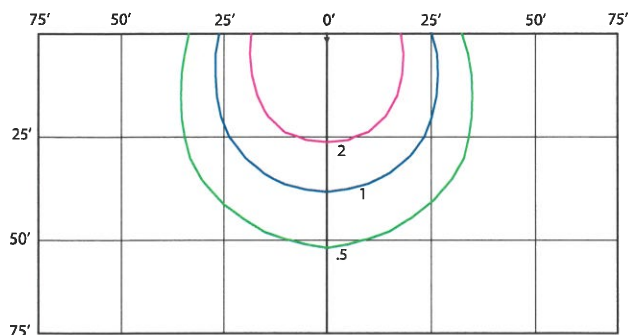
40W
15' MOUNTING HEIGHT

WPOP55



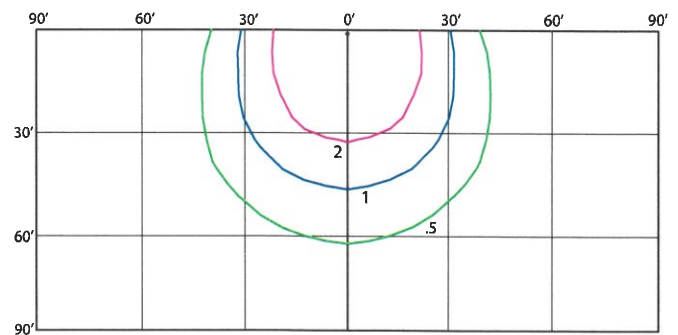
55W
20' MOUNTING HEIGHT

WPOP80



80W
25' MOUNTING HEIGHT

WPOP120



120W
30' MOUNTING HEIGHT



XFIT

FLOOD LIGHT FIXTURES

KT-FLED35-R1A-UNV-8CSB-VDIM

COMPACT 35W GENERAL-PURPOSE LED FLOOD LIGHT

DESCRIPTION

Compact 35W General-Purpose LED Flood Light | 120–277V
Input |
3000–5000K | Bronze Housing | Multiple Mounting Options

APPLICATION

Building Mount or Ground Mount for outdoor illumination
(landscapes, display signage, loading docks,
building façades, pathways, parking areas, and
other general site lighting requirements)



5 YEAR
WARRANTY



PRODUCT FEATURES

- Uniform, wide flood design (NEMA 7h x 7w distribution pattern)
- Heavy-duty, die cast aluminum housing featuring built-in glare visor and tempered glass lens
- Powered by Keystone 0–10V dimming LED drivers
- Keystone Color Select Technology: Adjustable CCT (3000K, 4000K, or 5000K)
- Built-in dusk-to-dawn photocell behind translucent 3/4" threaded plug with anti-yellowing agent
- Heavy-duty 1/2" knuckle mount with 90° adjustment and yoke mount options included
- Ambient operating temperature: –30°C/–22°F to 45°C/113°F
- UL listed for wet locations, IP65
- 0–10V dimming, 10% min
- Power Factor: >0.95
- THD: <20%
- LED chip lifetime: L70 >100,000 hrs @ 25°C/77°F ambient fixture temp
- Meets FCC Part 15, Part B, Class A standards for conducted and radiated emissions
- 18" input cable, pre-stripped
- Fixture impact rating IK07

ELECTRICAL SPECIFICATIONS

Catalog Number	Wattage	Lumens	Dimming	CCT*	Efficacy	CRI	Housing Color	Mounting	Input Voltage	Rated Life	Legacy Equivalent
KT-FLED35-R1A-UNV-8CSB-VDIM	35W	4480 lm	0–10V	3000K	128 lm/W	>80	Bronze	Universal: 1/2" Knuckle or yoke	120–277V	50,000 hrs	150–175W MH
		5075 lm		4000K	145 lm/W						
		4900 lm		5000K	140 lm/W						

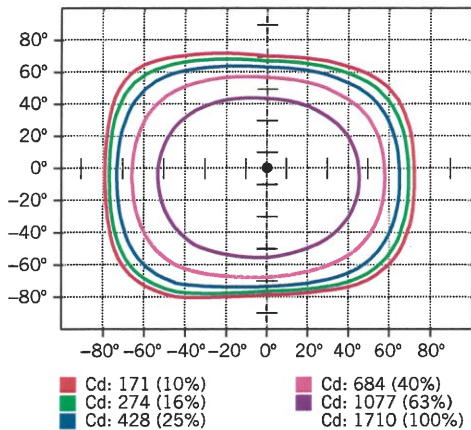
* Color Uniformity: CCT (Correlated Color Temperature) range as per guidelines outlined in ANSI C78.377-2017

KT-FLED35-R1A-UNV-8CSB-VDIM

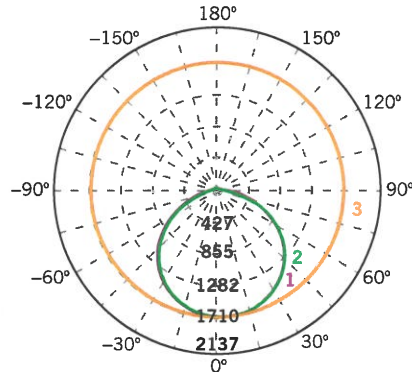
COMPACT 35W GENERAL-PURPOSE LED FLOOD LIGHT

PHOTOMETRIC SPECIFICATIONS

ISOCANDELA PLOT



LUMINOUS INTENSITY DISTRIBUTION



Average diffuse angle (50%): 114.3°

1 Violet C0-C180

2 Green C90-C270

3 Orange G3

Unit: cd

FLUX DISTRIBUTION

Zone	Lumens	% Luminaire
Forward Light	2,527 lm	53.2%
0°-30°	675 lm	14.2%
30°-60°	1,366 lm	28.8%
60°-80°	471 lm	9.9%
80°-90°	15 lm	0.3%
Back Light	2,181 lm	46.0%
0°-30°	656 lm	13.8%
30°-60°	1,223 lm	25.8%
60°-80°	297 lm	6.3%
80°-90°	5 lm	0.1%
Up Light	39 lm	0.8%
90°-100°	2 lm	0.0%
100°-180°	36 lm	0.8%

BUG* Rating

Asymmetrical Luminaire Types

Type I, II, III, IV B2 U2 G1

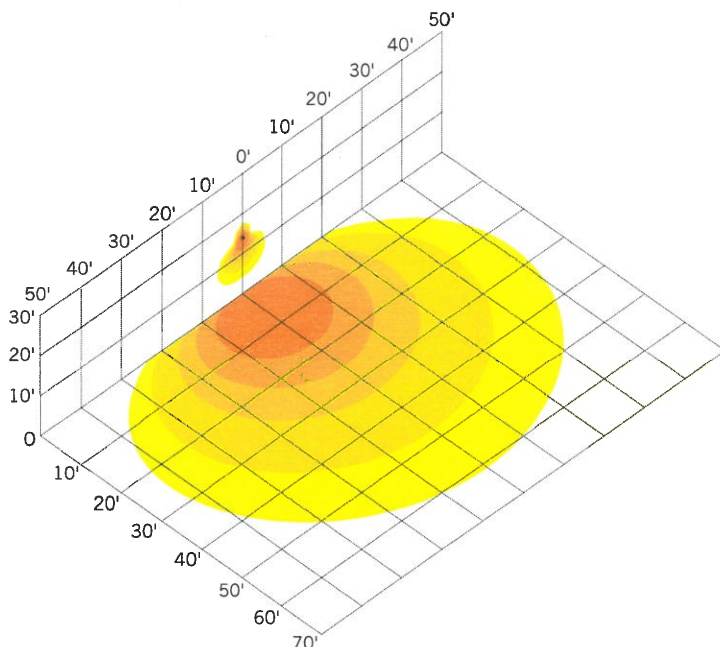
Quadrilateral Symmetrical Luminaire Types

Type V, Area Light B2 U2 G1

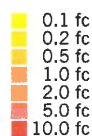
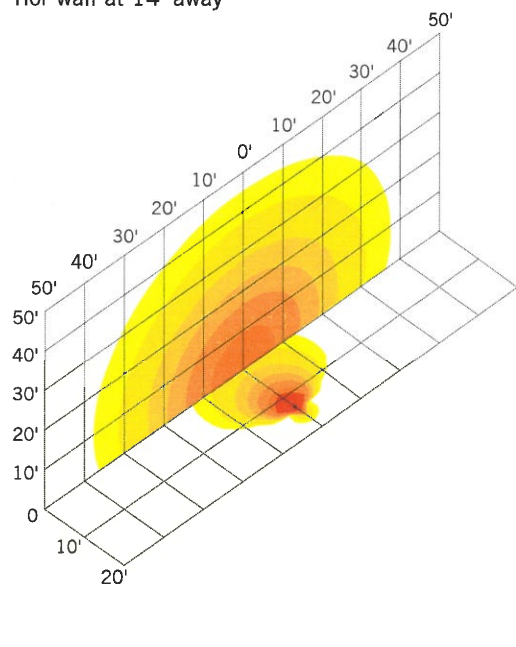
* Backlight, Uplight, Glare

LIGHT DISTRIBUTION PATTERNS (Isometric view from above)

Building exterior mounted at
15', 30° below horizontal



Ground mounted at 6" above ground,
10° above horizontal, shining towards building exterior wall at 14' away

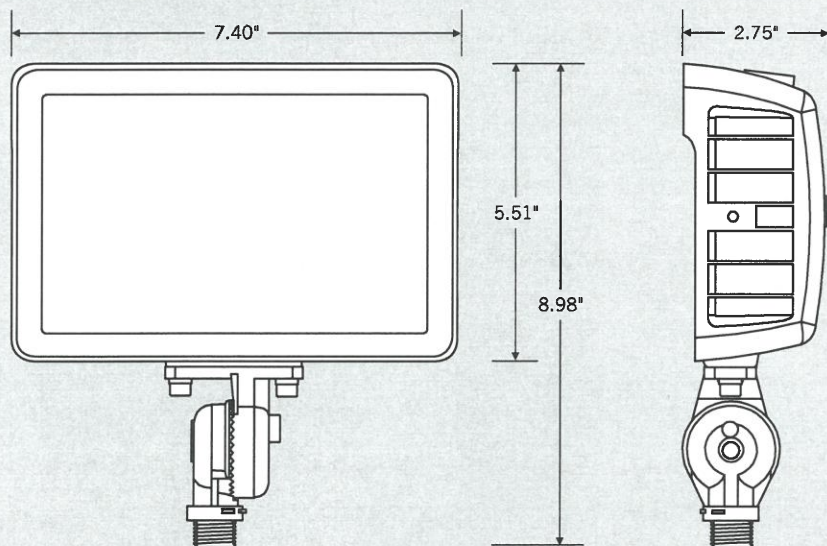


KT-FLED35-R1A-UNV-8CSB-VDIM

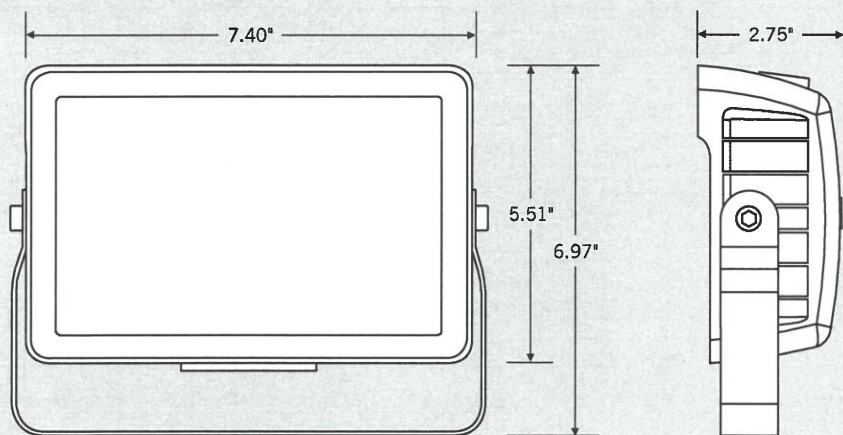
COMPACT 35W GENERAL-PURPOSE LED FLOOD LIGHT

PHYSICAL SPECIFICATIONS

KNUCKLE MOUNT



YOKE MOUNT





XFIT

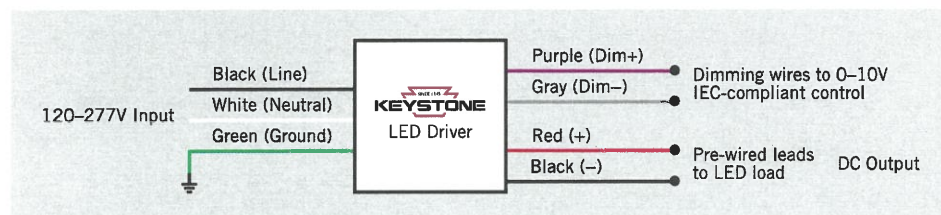
FLOOD LIGHT FIXTURES

KT-FLED35-R1A-UNV-8CSB-VDIM

COMPACT 35W GENERAL-PURPOSE LED FLOOD LIGHT

GENERAL SETUP INSTRUCTIONS

GENERAL WIRING DIAGRAM



Caution: Before installing, make certain that AC power to the fixture is off.

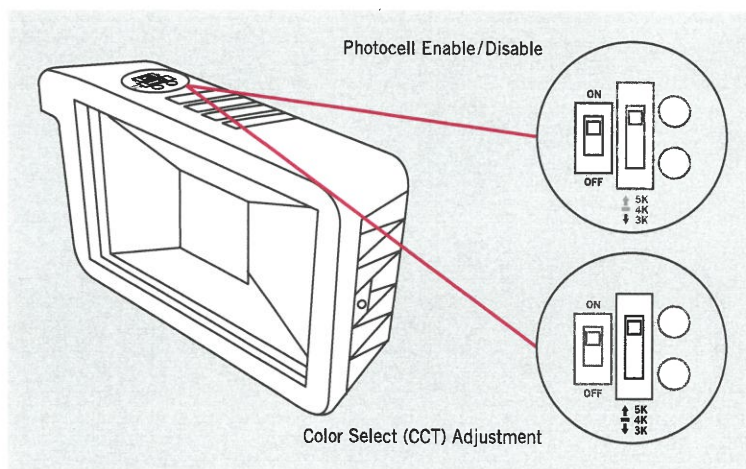
Caution: The electrical rating of this product is 120-277V. Installer must confirm that there is 120-277V at the fixture before installation.

PHOTOCELL ENABLE/DISABLE

This fixture is equipped with a dusk-to-dawn photocell behind the translucent knock-out (KO) cover. Adjust the dip switch to enable (ON) or disable (OFF) the photocell function (see illustrations to the right). Fixture comes preset with photocell enabled unless otherwise noted.

COLOR SELECT (CCT) ADJUSTMENT

This fixture is equipped with Color Select technology. There is an adjustable dip switch behind the translucent knock-out (KO) cover to change CCT between 5000K, 4000K, and 3000K (see illustrations to the right). Fixture comes preset at 5000K unless otherwise noted.



ACCESSORIES (SOLD SEPARATELY)

Catalog Number	Description
KT-FLED-SM-1-KIT	Flood Light Wall Mount Kit
KT-FLED-RC-4-W	4" Round Flood Light Junction Box Cover, White
KT-FLED-RC-4	4" Round Flood Light Junction Box Cover, Bronze


XFIT
**FLOOD LIGHT
FIXTURES**

KT-FLED35-R1A-UNV-8CSB-VDIM

COMPACT 35W GENERAL-PURPOSE LED FLOOD LIGHT

ORDERING INFORMATION

CATALOG NUMBER	PACK QTY.	EASY CODE	UPC
KT-FLED35-R1A-UNV-8CSB-VDIM	1	DND-10	843654128962

CATALOG NUMBER BREAKDOWN

KT-FLED35-R1A-UNV-8CSB-VDIM

1	2	3	4	5	6	7	8	9	10	11	12	13														
1 Keystone Technologies	2 Fixture Type	3 LED Lamp	4 Max Wattage	5 Shape	6 Style	7 Distribution	8 Mounting	9 CRI	10 Color	11 Color Select Designation	12 Dimming	13 Housing Color														
	<table><tr><td>F</td><td>Flood</td></tr><tr><td>WP</td><td>Wallpack</td></tr></table>	F	Flood	WP	Wallpack			<table><tr><td>R</td><td>Rectangular</td></tr><tr><td>C</td><td>Circular</td></tr></table>	R	Rectangular	C	Circular	<table><tr><td>1</td><td>Non-Cutoff</td></tr><tr><td>2</td><td>Full-Cutoff</td></tr></table>	1	Non-Cutoff	2	Full-Cutoff									
F	Flood																									
WP	Wallpack																									
R	Rectangular																									
C	Circular																									
1	Non-Cutoff																									
2	Full-Cutoff																									
						<table><tr><td>A</td><td>Wide (7 × 7)</td></tr><tr><td>B</td><td>Narrow</td></tr><tr><td>C</td><td>Very Narrow</td></tr></table>	A	Wide (7 × 7)	B	Narrow	C	Very Narrow	<table><tr><td>UNV</td><td>Universal</td></tr></table>	UNV	Universal	<table><tr><td>8</td><td>>80</td></tr><tr><td>9</td><td>>90</td></tr></table>	8	>80	9	>90						
A	Wide (7 × 7)																									
B	Narrow																									
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UNV	Universal																									
8	>80																									
9	>90																									
									<table><tr><td>40</td><td>4000K</td></tr><tr><td>50</td><td>5000K</td></tr><tr><td>CS</td><td>Color Select</td></tr></table>	40	4000K	50	5000K	CS	Color Select	<table><tr><td>A</td><td>3500K, 4000K, 5000K</td></tr><tr><td>B</td><td>3000K, 4000K, 5000K</td></tr><tr><td>C</td><td>3000K, 3500K, 4000K, 5000K</td></tr><tr><td>D</td><td>TBD</td></tr></table>	A	3500K, 4000K, 5000K	B	3000K, 4000K, 5000K	C	3000K, 3500K, 4000K, 5000K	D	TBD		
40	4000K																									
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CS	Color Select																									
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B	3000K, 4000K, 5000K																									
C	3000K, 3500K, 4000K, 5000K																									
D	TBD																									
											<table><tr><td>VDIM</td><td>0–10V</td></tr></table>	VDIM	0–10V	<table><tr><td></td><td>Bronze</td></tr><tr><td>B</td><td>Black</td></tr><tr><td>W</td><td>White</td></tr></table>		Bronze	B	Black	W	White						
VDIM	0–10V																									
	Bronze																									
B	Black																									
W	White																									



Project	
Notes	
Type	Date
Cat. No.	

SCB G3™ Series

Slim-Profile Circular LED High Bay

DESCRIPTION

The Aleo SCB G3™ Series Slim-Profile Circular High Bay delivers industry-leading performance with a durable, heavy-duty construction. Superior performance, ultra high-efficacy and premium quality provides a robust solution for high ceiling applications, especially warehouse spaces. Delivering high output, quality light and low energy consumption can improve warehouse safety and productivity, lower maintenance cost, and reducing operating costs.

APPLICATIONS

Provides high output illumination for various commercial industrial applications with high ceilings: warehouse, manufacturing, gymnasiums, cold-storage, wash-down areas



SCB Series

13L	100W
19L	150W
25L	200W
30L	240W

Specification Features

Construction

Rugged, die-cast housing with advanced thermal management system ensures reliability and durability. Weather-proof, gasketed driver compartment protects electronics against environmental elements. IP65, wet location.

Optical System

Diffuser lens reduces glare and improves occupant working conditions while maintaining high efficiency emission.

Certification

UL Listed. Wet location rated. ETL Sanitation Listed, conforms to NSF 2 standard

Warranty

7-year Limited Warranty. See warranty documentation for more information.

Electrical

Luminaire utilizes high-efficacy LED packages maintained at cool temperatures for long life, high efficacy. Reliable driver features continuous dimming. Universal voltage (120-277V) for convenient installation. Comes equipped standard with 10' white STOW cord.

Installation / Mounting

Single point mount for hook, pendant, or stem mounting

Controls / Dimming

Continuous dimming (1-10V) comes standard. Suitable for use with dimmers, sensors, daylight harvesting and other control strategies to achieve deeper energy-savings and code compliance.

Rated Life 75,000 hours
Limited Warranty 7-years
Efficacy Up to 143 LPW
Continuous Dimming



Ordering Information

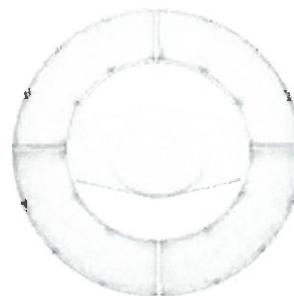
Example: SCB-19L/50K G3 ECO

SCB	19L	50	[Blank]	[Blank]	Options
Series	Nominal Lumen Package	Color Temp	Input Voltage	Dimming	Controls
SCB	13L 13,000 lm (100W)	50K 5000K	Blank	Blank	OSDL/IR AleoBlue Occ Sensor w/ Daylight
Slim Circular	19L 19,000 lm (150W)		120V-277V	1-10V	OSDL/BT AleoBlue Wireless Bluetooth Occupancy Sensor
High Bay	25L 25,000 lm (200W)			Continuous Dimming	OSDL/BTEZ-B SimpBlue Occupancy Sensor
	30L 30,000 lm (240W)				Accessories
					EM BBU See Page 3 for details

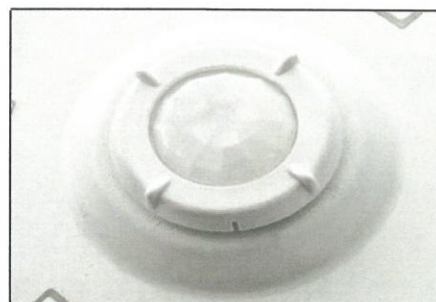
Specifications and Dimensions subject to change without notice.

Performance Summary

Input Voltage	120V-277V
Input Frequency	50/60 Hz
Rated Wattage	See Performance Table
Delivered Lumens	See Performance Table
Efficacy	143 LPW (typ.)
CRI	80
Available CCT ¹	5000K
Color Consistency ²	5-step MacAdam Ellipse
Rated Life	75,000 hours
L70 ³	> 72,000 hours or > 45,000
Power Factor	> 0.9
THD	< 20%
Dimming	1-10V Continuous (10-100%)
Operating Temp.	-40°C to 50°C



Multi-level Occupancy Sensor
PIR Occupancy Sensor with Daylight function
Code-compliance



Performance Data

Catalog No.	Wattage (W)	5000K	
		Delivered Lumens (lm)	Efficacy (lm/W)
SCB-13L/50K G3 ECO	97.48	14,096	144.6
SCB-19L/50K G3 ECO	146.8	20,513	139.73
SCB-25L/50K G3 ECO	198.7	28,580	143.8
SCB-30L/50K G3 ECO	234.8	33,684	143.46

DLC QPL Data

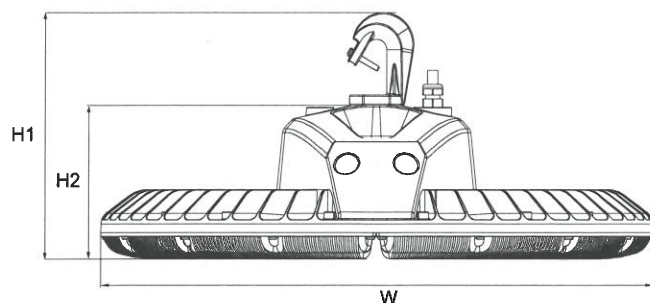
QPL Model No.	Product ID	Technical Req.	Classification	Primary Use
SCB-13L/40K G3 ECO	PLS1EEGTMENG	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-13L/50K G3 ECO	PL0D2RITQPJA	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-13L/57K G3 ECO	PLWPTNUTP8S1	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-19L/40K G3 ECO	PL518CB1SWZ9	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-19L/50K G3 ECO	PLDMWIS8UVT4	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-19L/57K G3 ECO	PLTSHN1GEDHS	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-25L/40K G3 ECO	PLXGA371B4WC	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-25L/50K G3 ECO	PLS2R61BS4BK	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-25L/57K G3 ECO	PLZDHYDSA82L	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-30L/40K G3 ECO	PLQX3W6VL29J	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-30L/50K G3 ECO	PLUKTZOTQ1CH	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings
SCB-30L/57K G3 ECO	PLI1CJLUBP5E	5	Premium	High-Bay Luminaires for Commercial and Industrial Buildings

NOTES:

- ¹ Quick ship: 5000K. Other CCTs may require a lead time or be special order
- ² Typical color consistency. May vary or be changed.
- ³ L70 hours calculated based on LED package manufacturer LM80 report and ISTMT report of LED in luminaire. Stated values are for select catalog numbers. Contact manufacturer for detailed information

Specifications and Dimensions subject to change without notice.

Product Dimensions

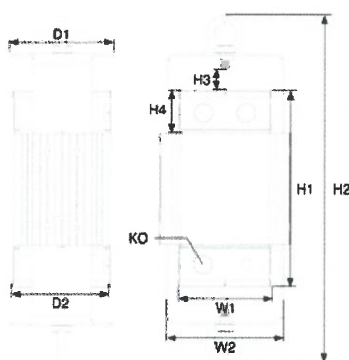


Product	Height (H1)	Height 2 (H2)	Width (W)
SCB-13L G3 ECO	6.97" (177mm)	4.16" (105mm)	12.6" (320mm)
SCB-19L G3 ECO	6.97" (177mm)	4.16" (105mm)	12.6" (320mm)
SCB-25L G3 ECO	7.32" (185mm)	4.52" (114mm)	14.17" (360mm)
SCB-30L G3 ECO	7.47" (189mm)	4.66" (118mm)	17.52" (445mm)

Emergency Battery Backup

Item No.: EM-UFO-V200-UNV-H-FI-30

For Field Install UFO EM LED Driver, 30W max., 120V-277V input, min. 90 min, dual J-Box with eyebolts



Enclosure (in. ±1)	EM Driver (in.)
Width (W1)	4.21"
Width (W2)	6.10"
Height (H1)	8.54"
Height (H2)	15.94"
Height (H3)	0.98"
Depth (D1)	4.69"
J-Box Size	
Width (W1)	4.21"
Height (H4)	1.55"
Depth (D2)	4.69"
Knock Out (KO)	1/2 Trade Size (0.85")



Control Pre-Commissioning

Example: SCB-19L/50K G3 ECO-OSDL/IR

L2	10H	30M	10M	3L
Lens / Coverage	High Level	Low Level	Time Delay	Cut-Off
L2 8' height (60' dia.)	10H 100%	1L 10%	30S 30 sec.	#M 1-59 min.
L3 20' height (40' dia.)	9H 90%	2L 20%	#M 1-30 min.	#H 1-5 hrs.
L7 40' height (100' dia.)	8H 80%	3L 30%	# = enter no. of minutes from 1 to 30 min.	0 Disabled
	7H 70%	4L 40%		# = enter no. of minutes or hours
	6H 60%	5L 50%		
	5H 50%	6L 60%		
		7L 70%		

High Level When the sensor detects motion the dimming control output ramps up to the selected HIGH light level.**Low Level** After the sensor stops detecting motion and the time delay expires the dimming control output fades down to the selected LOW light level.**Time Delay** The selected time period that must elapse after the last time the sensor detects motion for the electric lights to fade to LOW mode**Cut-Off** The time period that must elapse after the lights fade to LOW mode and the sensor detects no motion for the electric lights to turn OFF.**Ramp Up** Time period for light level to increase from LOW to HIGH.**Fade Down** Time period for light level to decrease from HIGH to LOW.

Specifications and Dimensions subject to change without notice.



KT-LED82P-H-8xx-D

2-PIN LED LAMP



DESCRIPTION

8W 2-Pin LED Lamp | 2700K, 3000K, 3500K, 4000K, 5000K | ≥ 83 CRI

LAMP TYPE: Compact

BULB TYPE: 2-Pin LED

BASE TYPE: G24d

WATTAGE: 8W

COLOR TEMPERATURE: 2700K, 3000K, 3500K, 4000K, 5000K

COLOR RENDERING INDEX (CRI): ≥ 83

WARRANTY: 5 Years



PRODUCT FEATURES

- Replaces 26W/32W/42W G24d & G24q CFL Lamps
- 50,000+ Hour Lifetime
- Approximately 50% More Energy Efficient than Traditional CFL Lamps
- Environmentally Friendly: No Mercury Used
- Instant Startup
- Frosted Lens Eliminates Pixelation
- Integral Driver, Eliminates the Need for External Driver or Ballast
- UL Recognized and UL Classified
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- Up to 5x Longer Life than Traditional CFL Lamps
- Horizontal Orientation

OPERATING SPECIFICATIONS

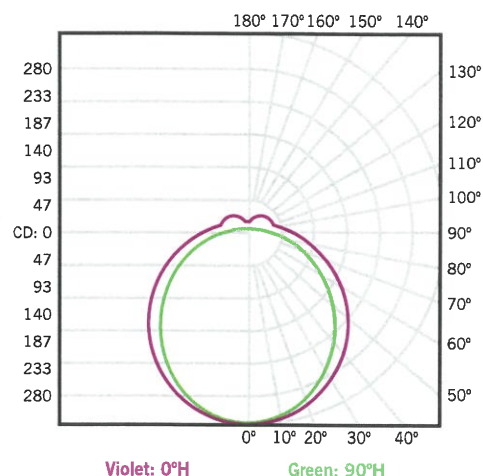
ELECTRICAL CHARACTERISTICS

Input Voltage	Lamp Wattage	Power Factor	System Wattage
120-277V	8W	>0.9	8W

PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	2700K	3000K	3500K	4000K	5000K
Luminous Flux	900 lm	900 lm	900 lm	950 lm	950 lm
Color Rendering Index (CRI)	≥ 83	≥ 83	≥ 83	≥ 83	≥ 83
Bare Lamp Efficacy	113 lm/W	113 lm/W	113 lm/W	119 lm/W	119 lm/W
Beam Angle	>120°	>120°	>120°	>120°	>120°

POLAR CANDELA DISTRIBUTION



RATED LIFE

L70 (Hours)	50,000
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KT-LED82P-H-8xx-D

2-PIN LED LAMP

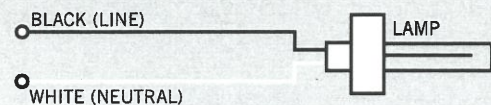
WIRING

BYPASS MAGNETIC BALLAST WITH 1 LAMP

BEFORE

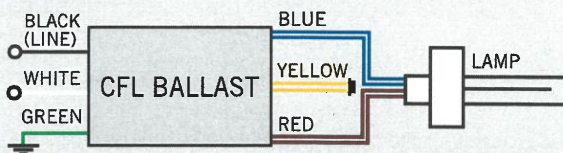


AFTER

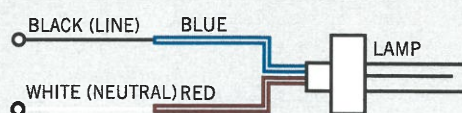


BYPASS ELECTRONIC BALLAST WITH 1 LAMP

BEFORE

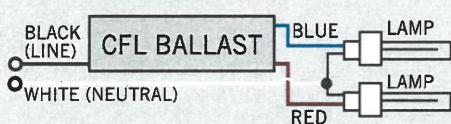


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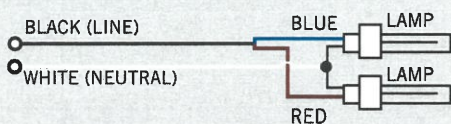


BYPASS MAGNETIC BALLAST WITH 2 LAMPS

BEFORE

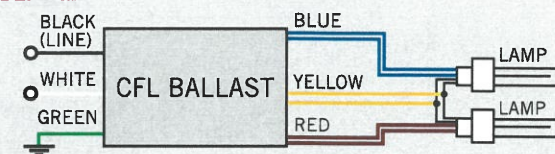


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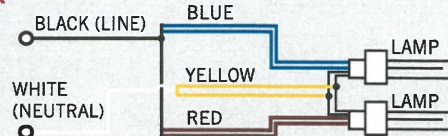


BYPASS ELECTRONIC BALLAST WITH 2 LAMPS

BEFORE

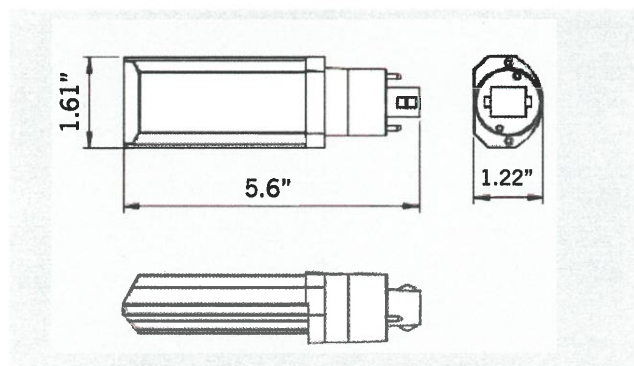


AFTER



PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS





KT-LED82P-H-8xx-D

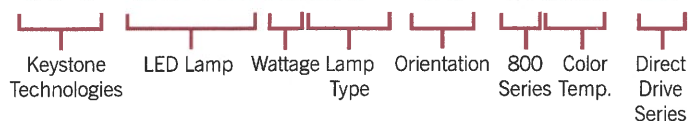
2-PIN LED LAMP

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED82P-H-8xx-D-DP	Distributor Pack	50	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED82P-H-8xx-D



SYLVANIA Luminaires

UltraLED™ RT Downlight Dual Selectable

Application

The SYLVANIA UltraLED RT Downlight Dual Selectable luminaires are offered in 4", 6", 8" and 10" sizes and provide high performing light optimized for both new construction and retrofit applications where pin-based compact fluorescent lamps have previously been used. Installation is done quickly and easily in most standard frames. The CCT and lumen selectable switches on the base of the fixture allow for customizable light color temperature and adjustable lumen output, offering up to 41% energy savings when compared to traditional technologies. The luminaires are emergency battery back-up ready.

Benefits and Features

- Spinning aluminum construction
- CCT selectable light enabled through the switch located on the base of the product (4 light colors in the same product)
- Lumen selectable enabled through the switch located on the base of the product (3 lumen levels in the same product)
- ENERGY STAR® listed to maximize rebate opportunities
- Emergency Battery Backup Ready (field installable)
- Wet Rated
- Trim extenders available as accessories
- Up to 91 LPW
- CRI >90
- Uniform, glare free illumination
- Energy savings up to 41%

Electrical

- 120-277V_{AC}/120-347V_{AC}
- Power Factor >0.9
- THD <20%
- 0-10V dimmable

Rated Life

- 50,000 hours (L₇₀)

Warranty

- 5-year
- NLB Trusted Warranty Program

Item #

Type

Project

Notes

Date



Wattage Comparison

Traditional Source	Traditional System Wattage	LED System Wattage	Energy Savings
Fluorescent	8/11/14W	7/8/9W	Up to 36%
Fluorescent	8/14/15W	7/9/11W	Up to 26%
Fluorescent	15/23/27W	14/18/24W	Up to 22%
Fluorescent	2x17/2x19/2x23W	25/29/35W	Up to 24%
Fluorescent	2x23/2x24/2x27W	32/37/43W	Up to 23%
Fluorescent	8/11/14W	7/9/12W	Up to 14%
Fluorescent	15/23/27W	10/18/23W	Up to 15%
Fluorescent	27/2x17/2x23W	20/28/34W	Up to 26%
Fluorescent	2x15/2x23/2x27W	12/16/22W	Up to 41%

Operating Temperature

- -4°F to +104°F (-20°C to +40°C)

Certifications and Listings

- cETLus
- RoHS
- FCC
- ENERGY STAR
- T24

Installation

Installation performed as a stand-alone kit (without frame) is recommended for hard ceiling. Installation of a recessed incandescent frame is recommended for tiled ceiling application for proper support of the retrofit kit.



LEDLUM117R5 7-22



Ordering Guide

RT	XX	SXXXX	XXX	D	9	XX	5A
Product Name	Size	Selectable lumens	Voltage	Dimming	CRI	Color Temp	Generation
RT = LED	4 = 4"	700 = 500/600/700lm	UNV = 120-277V	D = 1-10V	9 = >90	27 = 2700K	5A = Downlight
Downlight	6 = 6"	900 = 500/700/900lm	UNH = 120-347V	dimmbale		SC8 = Selectable	Generation
	8 = 8"	1000 = 600/800/1000lm				3000, 3500, 4000, 5000K or	
	10 = 10"	2000 = 900/1600/2000lm				2700, 3000, 3500, 4000K	
		2000 = 1100/1500/2000lm					
		3000 = 1850/2500/3000lm					
		3300 = 3400/2800/3300lm					
		4000 = 3000/3500/4000lm					

Ordering Information

Item Number	Ordering Abbreviation	Power (W)	Base Type	Traditional Replacement (W)	Input Voltage (V)	Average Life (hrs)	CCT	Typical Lumens (lm)	CRI	Power Factor	Bulb Finish	IC Rated	Case Qty	ENERGY STAR®	T24
65686	RT4S700UNVD9275A	7/8/9	Hardwire	8/11/14	120-277	50,000	2700K	500/600/700	>90	>90	Frosted	Yes	4	Yes	Yes
65687	RT4S700UNVD9SC85A	7/8/9	Hardwire	8/11/14	120-277	50,000	3000/3500/4000/5000K	500/600/700	>90	>90	Frosted	Yes	4	Yes	Yes
65688	RT6S900UNVD9275A	7/9/11	Hardwire	8/14/15	120-277	50,000	2700K	500/700/900	>90	>90	Frosted	Yes	4	Yes	Yes
65689	RT6S900UNVD9SC85A	7/9/11	Hardwire	8/14/15	120-277	50,000	3000/3500/4000/5000K	500/700/900	>90	>90	Frosted	Yes	4	Yes	Yes
65690	RT6S2000UNVD9SC85A	14/18/24	Hardwire	15/23/27	120-277	50,000	3000/3500/4000/5000K	1100/1500/2000	>90	>90	Frosted	No	4	Yes	Yes
65709	RT8S2000UNVD9SC85A	12/16/22	Hardwire	2x15/2x23/2x27	120-277	50,000	3000/3500/4000/5000K	1000/1500/2000	>90	>90	Frosted	No	4	Yes	Yes
65691	RT8S3300UNVD9SC85A	25/29/35	Hardwire	2x17/2x19/2x23	120-277	50,000	3000/3500/4000/5000K	2400/2800/3300	>90	>90	Frosted	No	4	Yes	Yes
65692	RT10S4000UNVD9SC85A	32/37/43	Hardwire	2x23/2x24/2x27	120-277	50,000	3000/3500/4000/5000K	3000/3500/4000	>90	>90	Frosted	No	4	Yes	Yes
65693	RT4S1000UNH9SC85A	7/9/12	Hardwire	8/11/14	120-347	50,000	2700/3000/3500/4000K	600/800/1000	>90	>90	Frosted	Yes	4	Yes	Yes
65694	RT6S2000UNH9SC85A	10/18/23	Hardwire	15/23/27	120-347	50,000	2700/3000/3500/4000K	900/1600/2000	>90	>90	Frosted	No	4	Yes	Yes
65695	RT8S3000UNH9SC85A	20/28/34	Hardwire	27/2x17/2x23	120-347	50,000	2700/3000/3500/4000K	1850/2500/3000	>90	>90	Frosted	No	4	Yes	Yes

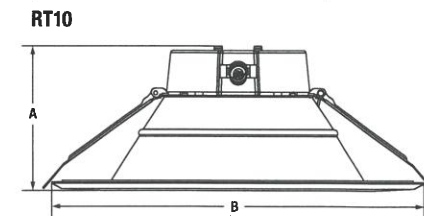
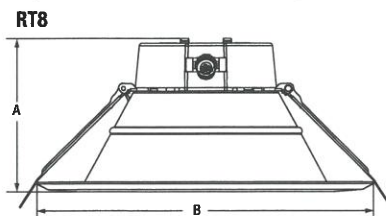
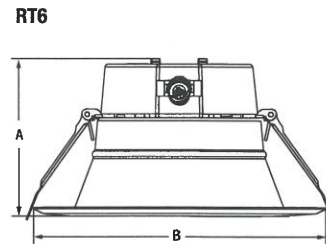
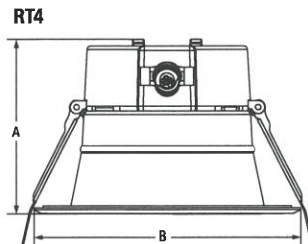
Energy Savings

Basic Product Description	LED Life (hrs)	LED Lumens	Similar Incandescent (hrs)	Incandescent Lumens	Watts Saved	Energy Savings*	LED Life vs Incandescent
RT4S700UNVD9275A	50,000	500/600/700	2000	450/620/730	Up to 5	Up to 36%	25x
RT4S700UNVD9SC85A	50,000	500/600/700	2000	450/620/730	Up to 5	Up to 36%	25x
RT6S900UNVD9275A	50,000	500/700/900	2000	450/650/800	Up to 5	Up to 26%	25x
RT6S900UNVD9SC85A	50,000	500/700/900	2000	450/650/800	Up to 5	Up to 26%	25x
RT6S2000UNVD9SC85A	50,000	1100/1500/2000	2000	1000/1450/1900	Up to 5	Up to 22%	25x
RT8S3300UNVD9SC85A	50,000	2400/2800/3300	2000	2200/2900/3500	Up to 11	Up to 24%	25x
RT10S4000UNVD9SC85A	50,000	3000/3500/4000	2000	3800/3600/3900	Up to 11	Up to 23%	25x
RT4S1000UNH9SC85A	50,000	600/800/1000	2000	450/620/730	Up to 2	Up to 14%	25x
RT6S2000UNH9SC85A	50,000	900/1600/2000	2000	1000/1450/1900	Up to 5	Up to 15%	25x
RT8S3000UNH9SC85A	50,000	1850/2500/3000	2000	1900/2400/3100	Up to 12	Up to 26%	25x

*Energy savings over life of lamp calculated at \$0.11/kWh

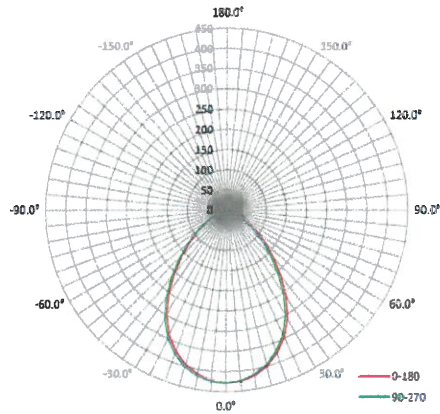
Physical Information

Product Description	(A) Height (in)	(B) Diameter (in)
RT4S	3.65"	5.51"
RT6S	3.98"	7.36"
RT8S	4.35"	9.45"
RT10S	4.37"	11.26"

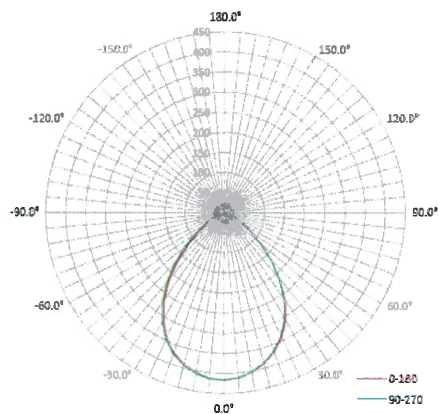


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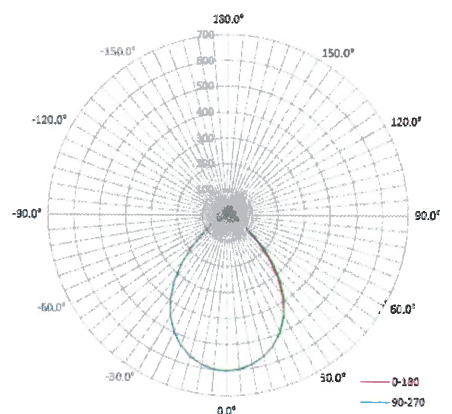
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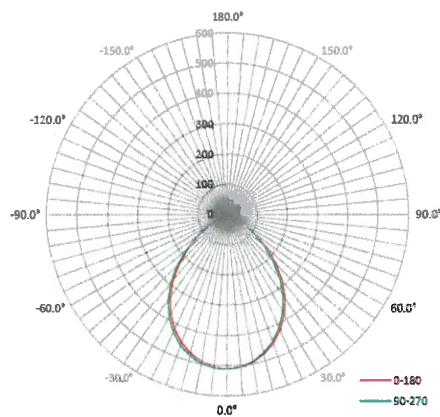
RT4S700UNVD9275A



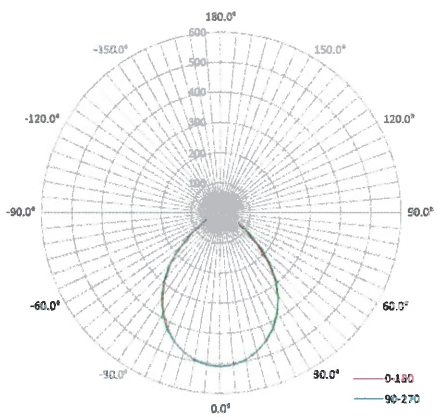
RT4S1000UNH9SC85A



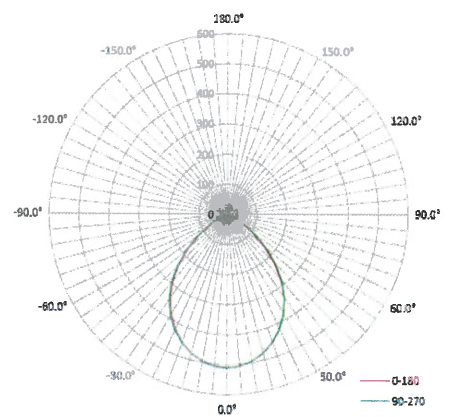
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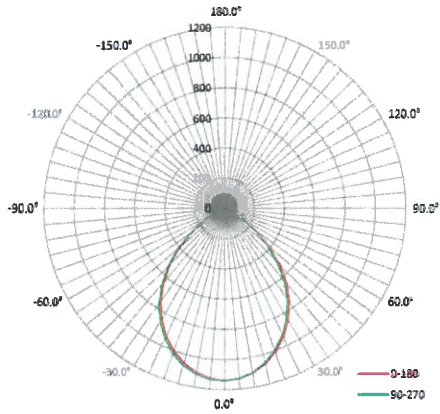
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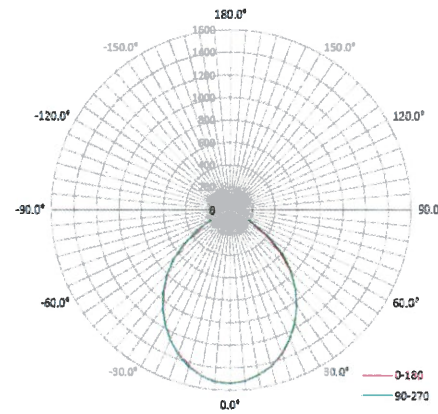
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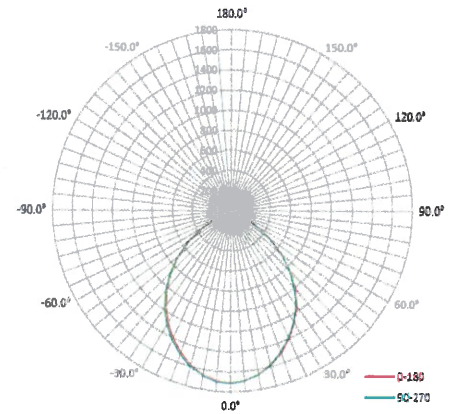
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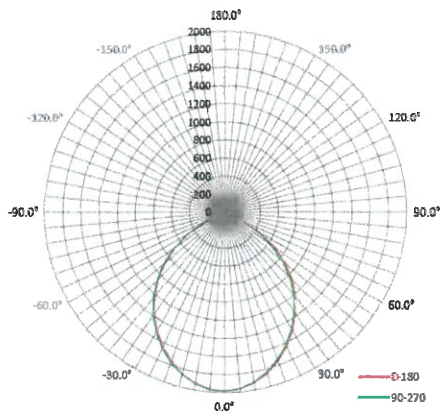
RT8S3000UNH9SC85A



RT8S3300UNVD9SC85A



RT10S4000UNVD9SC85A



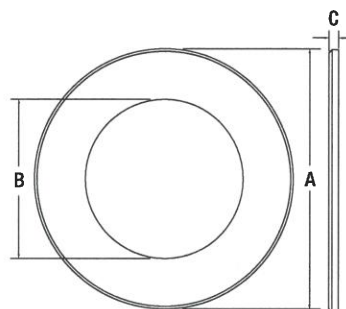
Accessories

Item Number	Ordering Abbreviation	Item Description
Trim Rings		
65710	RT4TRIM5ADKBZ	4" Bronze Trim Ring
65711	RT4TRIM5ASN	4" Satin Trim Ring
65712	RT4TRIM5ABLK	4" Black Trim Ring
65713	RT6TRIM5ADKBZ	6" Bronze Trim Ring
65714	RT6TRIM5ASN	6" Satin Trim Ring
65715	RT6TRIM5ABLK	6" Black Trim Ring
65716	RT8TRIM5ADKBZ	8" Bronze Trim Ring
65717	RT8TRIM5ASN	8" Satin Trim Ring
65718	RT8TRIM5ABLK	8" Black Trim Ring
65719	RT10TRIM5ADKBZ	10" Bronze Trim Ring
65720	RT10TRIM5ASN	10" Satin Trim Ring
65721	RT10TRIM5ABLK	10" Black Trim Ring
Trim Ring Extenders		
65683	RT68TRIMEXT5A	Trim extender for 8" cans
65684	RT810TRIMEXT5A	Trim extender for 10" cans
65685	RT812TRIMEXT5A	Trim extender for 12" cans
62366	RT1012TRIMEXT5A	Trim extender for 10" and 12" cans
RT5/6 Rough In Frame		
71708	LED/RT6HO/FRAME	6" recessed rough-in frame
RT8 Rough In Frame		
71709	LED/RT8/FRAME	8" recessed rough-in frame



Trim Ring Extender Dimensions

Product Description	(A) Outer Diameter in (mm)	(B) Inner Diameter in (mm)	(C) Thickness in (mm)
65683	9.44 (240.00)	5.44 (138.73)	0.375 (9.50)
65684	11.44 (290.80)	7.125 (180.75)	0.438 (10.50)
65685	13.44 (341.60)	7.125 (180.75)	0.438 (10.80)
62366	13.44 (341.60)	8.125 (205.83)	0.438 (10.80)



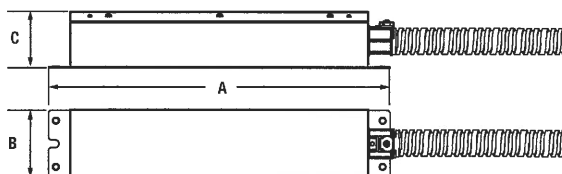
Emergency Battery Back-Up Accessories

For the EMBB application you must use the field-installable emergency back-up components listed below (sold separately).

Emergency Battery Back-Up Specs

NAED	Description	Input Voltage	Frequency	Input Current	Watt Hours	Max Mounting Height	Ambient Temp	Charging Time	Rating	Warranty
62367	EMBB2A8WUNVDC	100-277V _{AC}	50/60Hz	120mA Max	33.6Wh	21.6ft	0-50°C	24 hours	Damp	5 years
62368	EMBB2A8WUNHDC	100-347V _{AC}	50/60Hz	120mA Max	33.6Wh	21.6ft	0-50°C	24 hours	Damp	5 years

Description	(A) Length in (mm)	(B) Width in (mm)	(C) Height in (mm)
EMBB	12.9 (330)	2.6 (67)	2.2 (55)

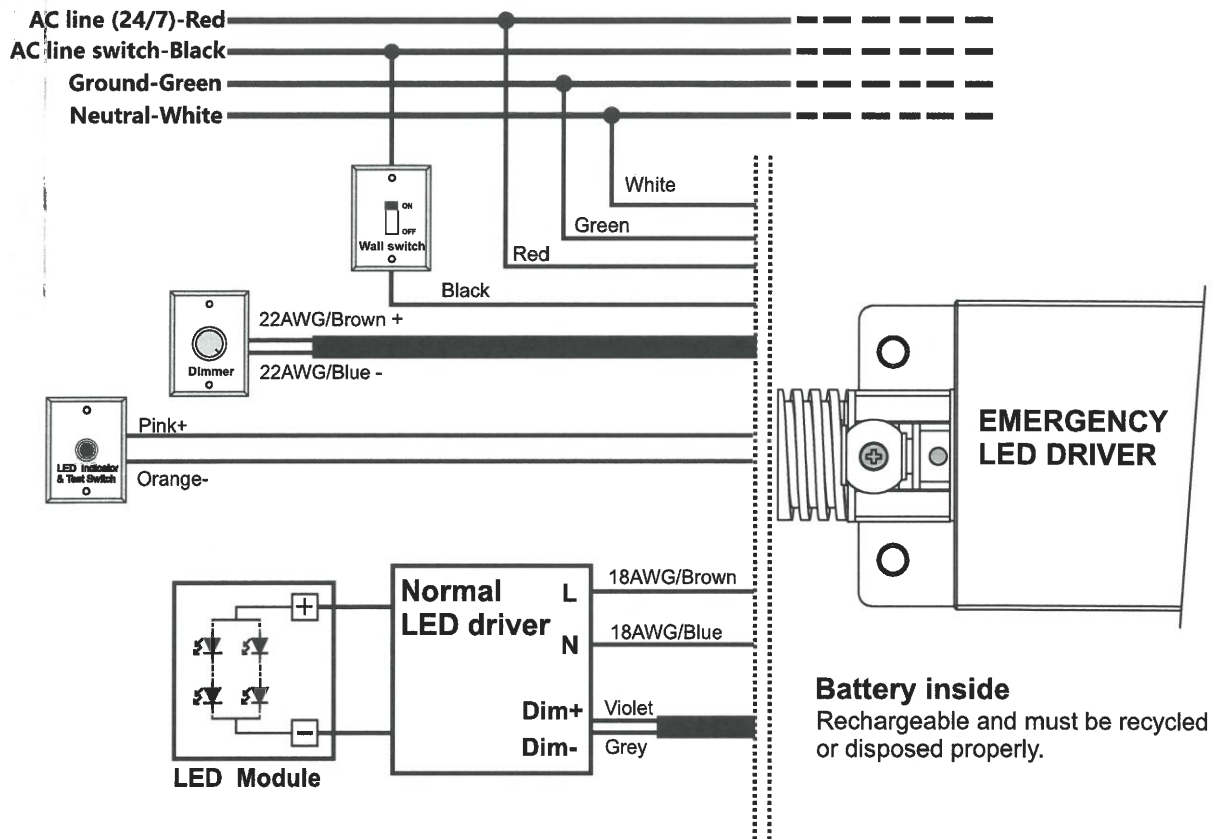


Compatibility Table

RT NAED	RT	NAED	EMBB Multi-listing	EMBB Wattage (W)*	EM Lumens (lm)*
65686	RT4S700UNVD9275A	62367/62368	EMBB2A8WUNVDC/ EMBB2A8WUNHDC	8	700
65687	RT4S700UNVD9SC85A			8	700
65688	RT6S900UNVD9275A			11	900
65689	RT6S900UNVD9SC85A			11	900
65690	RT6S2000UNVD9SC85A			13	1400
65691	RT8S3300UNVD9SC85A			13	1550
65692	RT10S4000UNVD9SC85A			13	1600
65693	RT4S1000UNH9SC85A	62368	EMBB2A8WUNHDC	8	700
65694/65709	RT6S2000UNX9SC85A			13	1400
65695	RT8S3000UNH9SC85A			13	1550

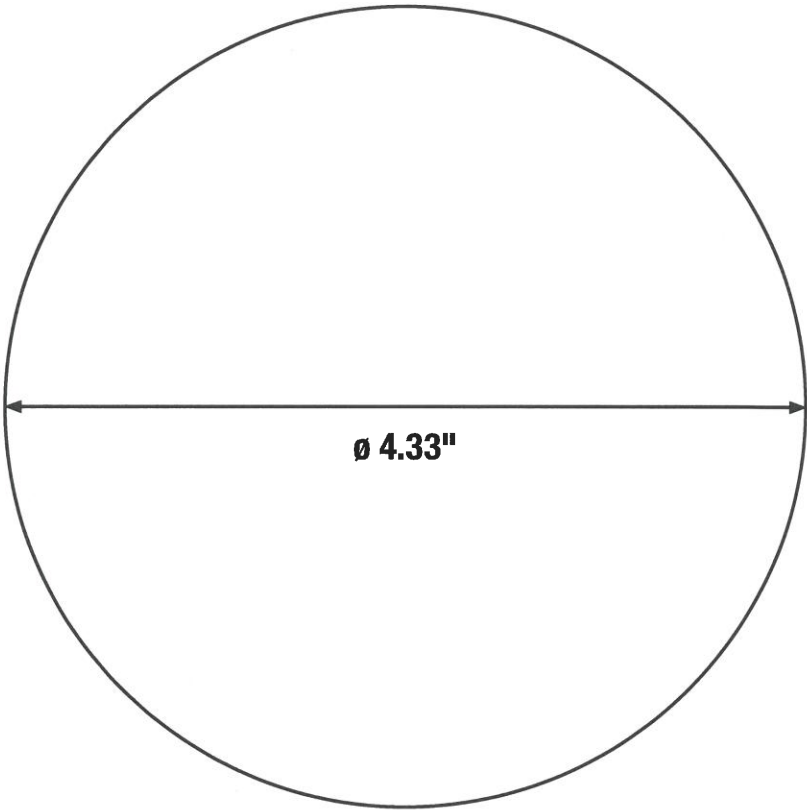
*At the highest lumen level

EMBB Wiring Diagram



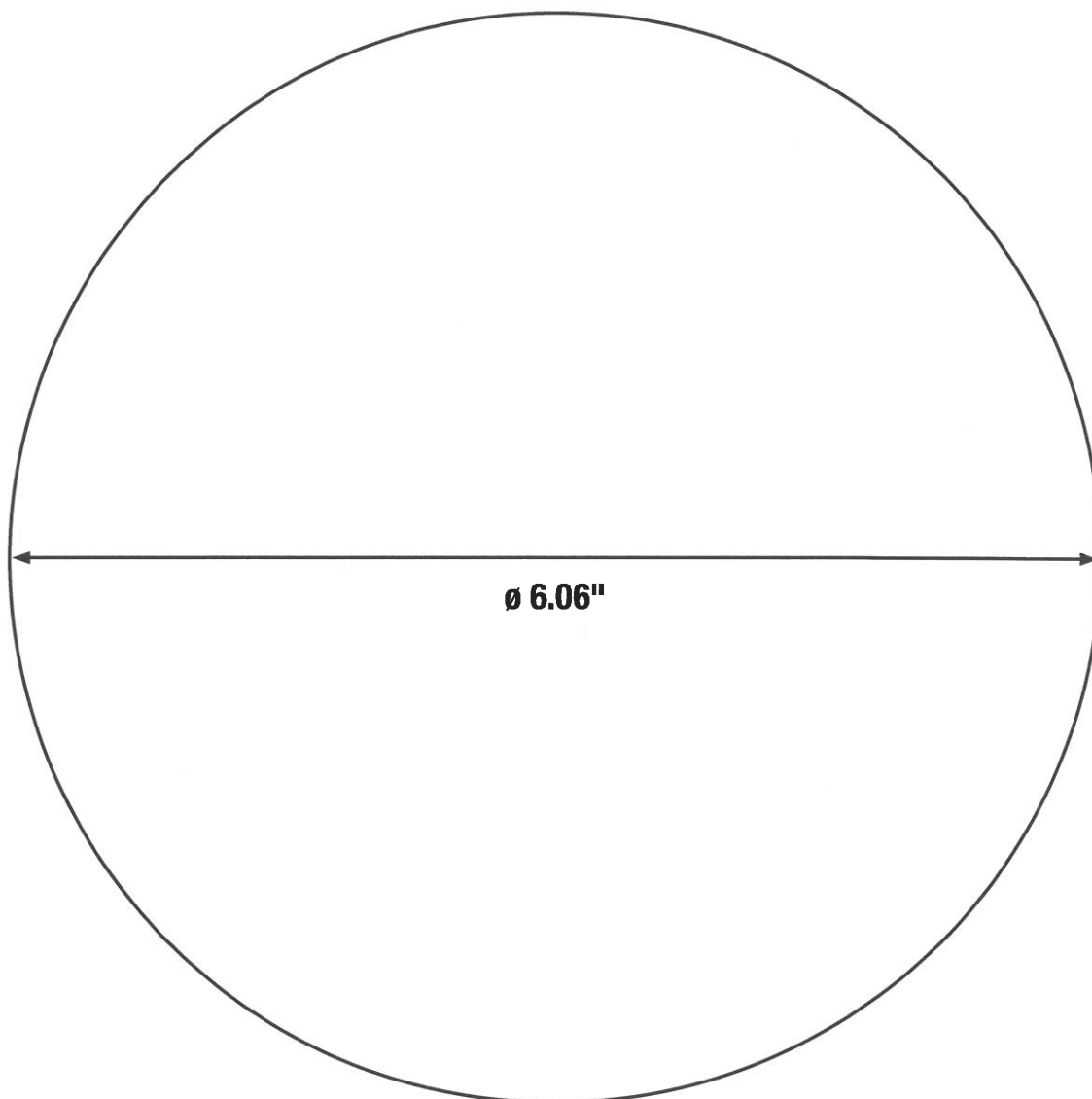
Hole Cut Templates

RT4 Hole Cut Template



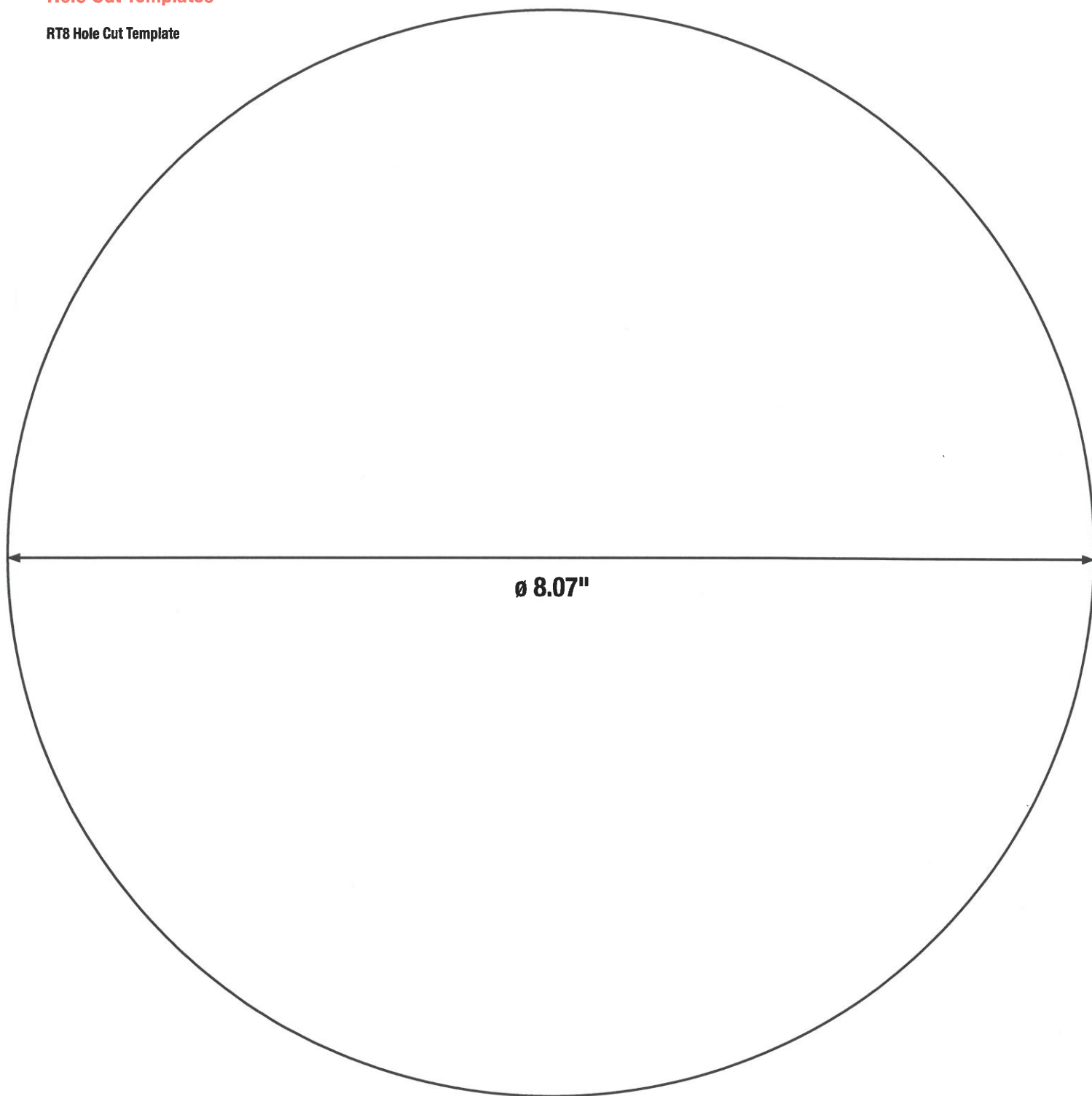
Hole Cut Templates

RT6 Hole Cut Template



Hole Cut Templates

RT8 Hole Cut Template



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Wilmington, MA 01887 USA
Phone 1-800-LIGHTBULB (1-800-544-4828)
www.ledvanceUS.com

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Specifications subject to change without notice.



Name: _____
Email: _____
Phone: _____

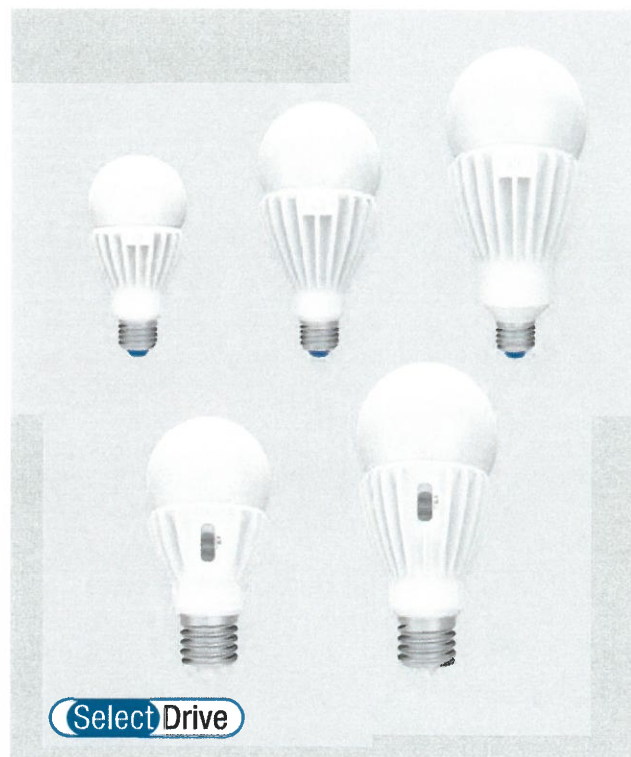


Project Name:	Type:
Part Number:	Date:

COMPACT HID REPLACEMENT BULB

FEATURES

- Integral driver suitable for 120-277V
- Integral thermal sensor reduces power to the lamp in the event ambient temperature exceeds specified limitations
- E26 versions are smooth dimming with existing installations*
- EX39 versions are step-dimming using SelectDrive technology
- A21 replaces up to 125W Inc.
- A23 replaces up to 200W Inc.
- PS30 replaces up to 100-175W HID, E26 version replaces up to 300W Inc.
- Suitable for damp locations and totally enclosed fixtures**
- Lamp ambient temperature: -4°F to 140°F (-20°C to 60°C)
- Fixture operating temperature: -4°F to 113°F (-20°C to 45°C)
- Rated lifetime (L70): 50,000hrs
- 5 year limited warranty***
- Supplied with safety cable to provide secondary support for A23 and PS30
- 4kV integral surge protector
- For installation in Post Top, Area light, or other fixtures exposed to high surge conditions, the use of our 10KV surge protector 97718-10SURGE/277V is recommended.



011821

ETL CLASSIFIED



FOCUS FEATURE

EX39 version has integrated side switch for step-dimming



H
M
L

3 Level power output

Power select switch allows power to be tailored to application requirements and can be adjusted from high to low.



	CCT	Wattage	Lumen	LPW
34HID/8xx/277V/EX39/SD	3000K	40%-13.6W	1,800	132
		60%-20.4W	2,700	132
		100%-34W	4,500	132
	4000K	40%-13.6W	2,000	147
		60%-20.4W	3,000	147
		100%-34W	5,000	147
	5000K	40%-13.6W	2,000	147
		60%-20.4W	3,000	147
		100%-34W	5,000	147

	CCT	Wattage	Lumen	LPW
24HID/8xx/277V/EX39/SD	3000K	40%-9W	1,250	139
		60%-14W	1,850	132
		100%-24W	3,100	129
	3500K	40%-9W	1,250	139
		60%-14W	1,850	132
		100%-24W	3,100	129
	4000K	40%-9W	1,300	144
		60%-14W	1,900	136
		100%-24W	3,200	133
	5000K	40%-9W	1,300	144
		60%-14W	1,900	136
		100%-24W	3,200	133

Where xxx means 824-965 which indicates CRI and color temperature



GREENCREATIVE

COMPACT HID REPLACEMENT BULB

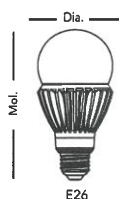
SPECIFICATIONS

Product	Model	Equiv.	Input Voltage	Wattage	Lumens	CCT	CRI	Efficacy (LPW)	Beam Angle	Dim.*	Power Factor	THD	Fixture Rating	DLC / ES
36165	17A21/830/277V/DIM	125W Inc.	120-277V	17	2,000	3000K	82	118	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36166	17A21/835/277V/DIM	125W Inc.	120-277V	17	2,000	3500K	82	118	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36167	17A21/840/277V/DIM	125W Inc.	120-277V	17	2,100	4000K	82	124	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36168	17A21/850/277V/DIM	125W Inc.	120-277V	17	2,100	5000K	82	124	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36169	24HID/830/277V/E26/DIM	200W Inc.	120-277V	24	3,100	3000K	82	129	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36214	24HID/835/277V/E26/DIM	200W Inc.	120-277V	24	3,100	3500K	82	129	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36170	24HID/840/277V/E26/DIM	200W Inc.	120-277V	24	3,200	4000K	82	133	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36171	24HID/850/277V/E26/DIM	200W Inc.	120-277V	24	3,200	5000K	82	133	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36158	24HID/830/277V/EX39/SD	70-100W HID	120-277V	24	3,100	3000K	82	139	230°	No	0.9	<20%	Enclosed	√ / N.A.
36159	24HID/835/277V/EX39/SD	70-100W HID	120-277V	24	3,100	3500K	82	139	230°	No	0.9	<20%	Enclosed	√ / N.A.
36160	24HID/840/277V/EX39/SD	70-100W HID	120-277V	24	3,200	4000K	82	144	230°	No	0.9	<20%	Enclosed	√ / N.A.
36161	24HID/850/277V/EX39/SD	70-100W HID	120-277V	24	3,200	5000K	82	144	230°	No	0.9	<20%	Enclosed	√ / N.A.
36173	34HID/840/277V/E26/DIM	300W Inc.	120-277V	34	5,000	4000K	82	147	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36174	34HID/850/277V/E26/DIM	300W Inc.	120-277V	34	5,000	5000K	82	147	230°	Yes	0.9	<20%	Enclosed	N.A. / √
36163	34HID/840/277V/EX39/SD	100-175W HID	120-277V	34	5,000	4000K	82	147	230°	No	0.9	<20%	Enclosed	√ / N.A.
36164	34HID/850/277V/EX39/SD	100-175W HID	120-277V	34	5,000	5000K	82	147	230°	No	0.9	<20%	Enclosed	√ / N.A.

*This lamp is available for dimming with 120V line voltage only and might not be compatible with all dimmers. Please visit www.greencreative.com for compatibility information.

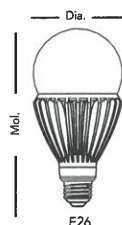
***Please visit www.greencreative.com for Limited Warranty terms.

DIMENSION & WEIGHT

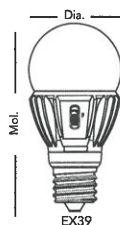


E26

Model	Base	Mol.	Dia.	Weight
17A21/xxx/277V/DIM	E26	5-1/4"	2-5/8"	2-5/8"

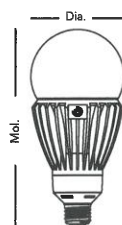


E26

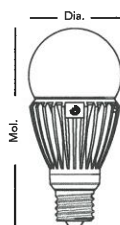


EX39

Model	Base	Mol.	Dia.	Weight
24HID/xxx/277V/E26/DIM	E26	6-5/8"	3-5/16"	0.82 lb
24HID/xxx/277V/EX39/SD	EX39	6-11/16"	3-5/16"	0.87 lb



E26



EX39

Model	Base	Mol.	Dia.	Weight
34HID/xxx/277V/E26/DIM	E26	8-1/8"	3-3/4"	1.42 lb
34HID/xxx/277V/EX39/SD	EX39	8-1/8"	3-3/4"	1.49 lb

Where xxx means 824-965 which indicates CRI and color temperature



GREENCREATIVE


COMPACT HID REPLACEMENT BULB


ORDERING INFORMATION



Model Number	Master Carton			Shipping Carton		
	Case Qty	Case Dimensions (LxWxH)	Case Weight	Case Qty	Case Dimensions (LxWxH)	Case Weight
17A21/xxx/277V/DIM	6PCS	8-15/16" x 6-1/4" x 6-1/2"	3.5 lb	24PCS	12-7/8" x 9-5/16" x 13-3/4"	15 lb
24HID/xxx/277V/E26/DIM	6PCS	11-1/4" x 7-9/16" x 7-13/16"	6.4 lb	24PCS	15-1/2" x 11-9/16" x 8-7/16"	13.4 lb
24HID/xxx/277V/EX39/SD	6PCS	11-1/8" x 7-1/2" x 7-7/8"	7.5lb	24PCS	15-1/2" x 11-3/4" x 8-7/16"	15.2lb
34HID/xxx/277V/E26/DIM	N.A.	N.A.	N.A.	12PCS	16-9/16" x 12-3/8" x 9-9/16"	21.2 lb
34HID/xxx/277V/EX39/SD	N.A.	N.A.	N.A.	12PCS	16-9/16" x 12-3/8" x 9-9/16"	22.1 lb

Where xxx means 824-965 which indicates CRI and color temperature

**MINIMUM COMPARTMENT DIMENSIONS (FOR ENCLOSED FIXTURES)

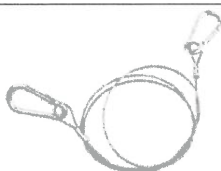
<div>Low bay installation</div> <div></div>	Model Number		24HID/xxx/277V/EX39/SD	34HID/xxx/277V/EX39/SD
	Lamp Compartment Dimensions	Diameter Height	6"	8"
			8-1/2"	11"
	Maximum Lamps in Luminaire		1	1

<div>Post top installation</div> 	Model Number		24HID/xxx/277V/EX39/SD	34HID/xxx/277V/EX39/SD
	Lamp Compartment Dimensions	Diameter Height	3-9/16"	8"
			7-7/8"	11"
	Maximum Lamps in Luminaire		1	1

		Model Number	17A21/xxx/277V/DIM	24HID/xxx/277V/E26/DIM	34HID/xxx/277V/E26/DIM
Low bay installation		Lamp Compartment Dimensions	Diameter	6"	8"
	Height		8-1/2"	11"	
Post top installation			Diameter	3-9/16"	8"
	Height		7-7/8"	11"	
Maximum Lamps in Luminaire			1	1	1

**Installing lamp in a fixture that does not have the minimum compartment dimensions will void the warranty and could cause product failures.

SUPPLIED ACCESSORY

Description	Picture	Dimensions
Safety Cable		22-13/16"

COMPACT HID REPLACEMENT BULB

OPTIONAL ACCESSORY ORDERING INFORMATION

Product	Model	Description	Picture	Dimensions
97718	10SURGE/277V	10 kV Surge Protector (For use in outdoor and other applications subject to high surge conditions)		
16325	E26 EXTENDER	E26 Lamp Extender Adds 1-5/16" to Lamp Height		
35050	E39 EXTENDER	EX39 Lamp Extender Adds 1-11/16" to Lamp Height		

CERTIFICATION INFORMATION

Product	Model	DLC ID#	ES ID#
36158	24HID/830/277V/EX39/SD	PLEQ5F7K	N.A.
36159	24HID/835/277V/EX39/SD	PW8VV6BP	N.A.
36160	24HID/840/277V/EX39/SD	PRDUFT1V	N.A.
36161	24HID/850/277V/EX39/SD	PLEQ5F7K	N.A.
36162	34HID/830/277V/EX39/SD	PSE1QG12	N.A.
36163	34HID/840/277V/EX39/SD	P7TYZ0PO	N.A.
36164	34HID/850/277V/EX39/SD	PYW8K0EW	N.A.
36165	17A21/830/277V/DIM	N.A.	2390212
36166	17A21/835/277V/DIM	N.A.	2390213
36167	17A21/840/277V/DIM	N.A.	2390214
36168	17A21/850/277V/DIM	N.A.	2390215
36169	24HID/830/277V/E26/DIM	N.A.	2390216
36214	24HID/835/277V/E26/DIM	N.A.	2390217
36170	24HID/840/277V/E26/DIM	N.A.	2390218
36171	24HID/850/277V/E26/DIM	N.A.	2390219
36173	34HID/840/277V/E26/DIM	N.A.	2390221
36174	34HID/850/277V/E26/DIM	N.A.	2390222

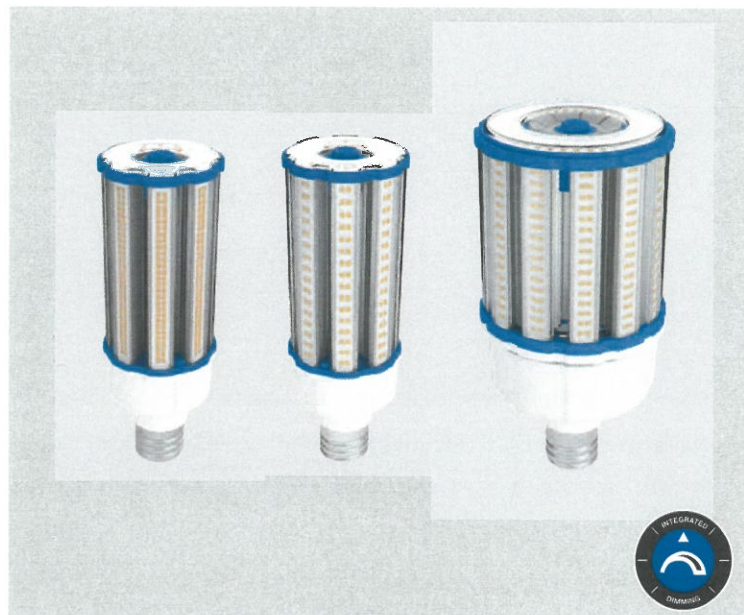
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Project Name:	Type:
Part Number:	Date:

HID POST TOP LAMP

FEATURES

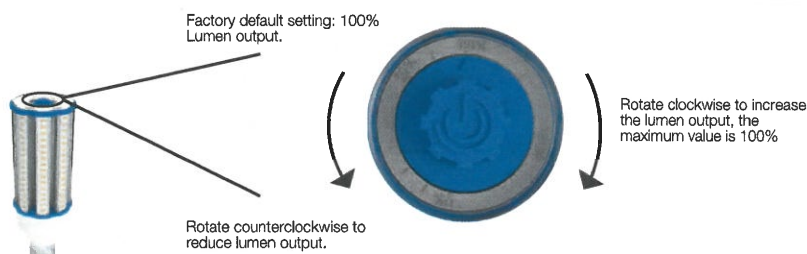
- Integral driver suitable for 120-277V
- Replaces 175W / 250W / 400W HID
- Fully omnidirectional 320° beam angle
- Field adjustable lumen output using integral rotary control
- Suitable for use in totally enclosed fixtures*
- Suitable for damp locations
- Integral thermal sensor reduces power to the lamp in the event ambient temperature exceeds specified limitations
- Lamp ambient temperature: -4°F to 122°F (-20°C to 50°C)
Fixture operating temperature: -13°F to 113°F (-25°C to 45°C)
- Rated lifetime (L70): 50,000hrs
- 5 year limited warranty**
- Integral 6kV surge protector
- Supplied with safety cable to provide secondary support



070622

FOCUS FEATURE

Integral dimming control allows light output to be tailored to application requirements and can be adjusted from 0-100% with no additional wiring or controls needed.



Model	CCT	Step Wattage	Lumen	LPW
54HID/8xx/277V/EX39/RC	4000K 5000K	60%-32.4W	4,620	143
		80%-43.2W	6,160	143
		100%-54W	7,700	143
63HID/8xx/277V/EX39/RC	4000K 5000K	60%-37.8W	5,700	151
		80%-50.4W	7,600	151
		100%-63W	9,500	151
100HID/8xx/277V/EX39/RC	4000K 5000K	60%-60W	8,700	145
		80%-80W	11,600	145
		100%-100W	14,500	145

Where xx means color temperature

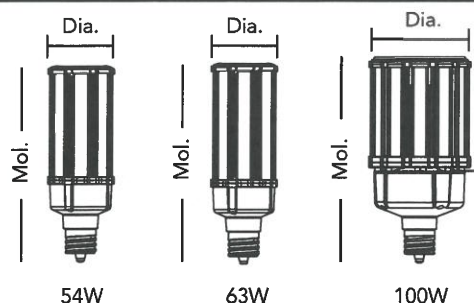
SPECIFICATIONS

Product	Model	Equiv. (HID)	Input Voltage	Wattage	Lumens (lm)	CCT	CRI	Efficacy (LPW)	Beam Angle	Power Factor	THD	Fixture Rating	DLC
35887	54HID/840/277V/EX39/RC	175-250W	120-277V	54	7,700	4000K	82	143	320°	0.9	<20%	Enclosed	✓
35888	54HID/850/277V/EX39/RC	175-250W	120-277V	54	7,700	5000K	82	143	320°	0.9	<20%	Enclosed	✓
35889	63HID/840/277V/EX39/RC	175-250W	120-277V	63	9,500	4000K	82	150	320°	0.9	<20%	Enclosed	✓
35890	63HID/850/277V/EX39/RC	175-250W	120-277V	63	9,500	5000K	82	150	320°	0.9	<20%	Enclosed	✓
35891	100HID/840/277V/EX39/RC	250-400W	120-277V	100	14,500	4000K	82	145	320°	0.9	<20%	Enclosed	✓
35892	100HID/850/277V/EX39/RC	250-400W	120-277V	100	14,500	5000K	82	145	320°	0.9	<20%	Enclosed	✓

** Please visit www.greencreative.com for Limited Warranty terms.

HID POST TOP LAMP

DIMENSION & WEIGHT



Model	Base	Mol.	Dia.	Weight
54HID/xxx/277V/EX39/RC	EX39	9-15/16"	3-5/16"	1.58 lb
63HID/xxx/277V/EX39/RC	EX39	10-1/4"	3-5/16"	1.60 lb
100HID/xxx/277V/EX39/RC	EX39	10-7/16"	5-1/8"	3.15 lb

Where xxx means 824-965 which indicates CRI and color temperature

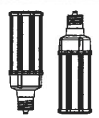

ORDERING INFORMATION

Product Series	Shipping Carton		
	Case Qty	Case Dimensions (LxWxH)	Case Weight
HID 54W EX39 Lamps	12PCS	15-1/8" x 11-13/16" x 12-1/4"	23.57 lb
HID 63W EX39 Lamps	12PCS	15-1/8" x 11-13/16" x 12-5/8"	23.96 lb
HID 100W EX39 Lamps	6PCS	16-9/16" x 11-7/16" x 12-5/8"	24.67 lb

CERTIFICATION INFORMATION


Product	Model No.	General Application	DLC ID#
35887	54HID/840/277V/EX39/RC	Mid Output	PLGL1N8K4MK4
35888	54HID/850/277V/EX39/RC	Mid Output	PL60SLIB9P17
35889	63HID/840/277V/EX39/RC	Mid Output	PL7TXNCOG0ZN
35890	63HID/850/277V/EX39/RC	Mid Output	PLB5KMAWS9IR
35891	100HID/840/277V/EX39/RC	High-Bay	PL8KQXEK9GHB
35891	100HID/840/277V/EX39/RC	High Output	PL3PDO4NZ12D
35892	100HID/850/277V/EX39/RC	High-Bay	PL0ETEJXIH6J
35892	100HID/850/277V/EX39/RC	High Output	PLMX54A77AUD

*MINIMUM COMPARTMENT DIMENSIONS (FOR ENCLOSED FIXTURES)


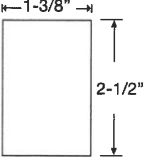

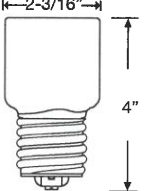
Vertical Installation	Model	Length	Width	Height
	54HID/xxx/277V/EX39/RC	9-1/16"	9-1/16"	26-1/2"
	63HID/xxx/277V/EX39/RC	10-1/4"	10-1/4"	27-1/4"
	100HID/xxx/277V/EX39/RC	10-1/4"	10-1/4"	27-1/4"
Horizontal Installation	Model	Length	Width	Height
	54HID/xxx/277V/EX39/RC	16-15/16"	9-1/16"	11-1/16"
	63HID/xxx/277V/EX39/RC	16-15/16"	9-1/16"	11-1/16"
	100HID/xxx/277V/EX39/RC	16-15/16"	9-1/16"	11-1/16"

*Installing lamp in a fixture that does not have the minimum compartment dimensions will void the warranty and could cause product failures.

SUPPLIED ACCESSORY

Description	Picture	Length
Safety Cable		11-7/8"

HID POST TOP LAMP

OPTIONAL ACCESSORY ORDERING INFORMATION				
Product	Model	Description	Picture	Dimensions
97718	10SURGE/277V	10KV Surge Protector Recommended for use in Area light retrofits and other applications subject to high surge conditions.		
35050	E39 EXTENDER	EX39 Lamp Extender Adds 1-11/16\" data-bbox="558 290 688 360"/>		

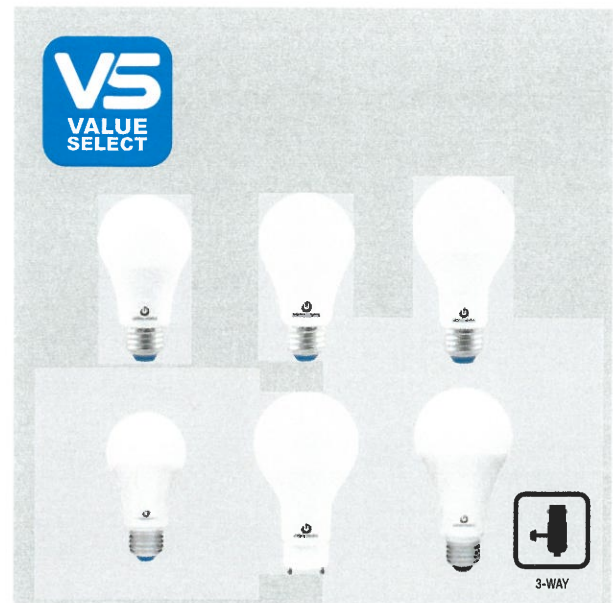
Note: All rights reserved. All sizes and specifications are subject to change at any time without notice.

Project Name:	Type:
Part Number:	Date:

Value Select A Lamp Family

FEATURES

- Suitable to replace 40W, 60W, 75W, 100W Incandescent
- Comfortable diffused light
- Smooth dimming with most forward and reverse phase dimmers*
- Available in 2700K, 3000K, 3500K, 4000K and 5000K color temperatures
- Suitable for use in totally enclosed fixtures**
- Suitable for use in damp locations
- Fixture operating temperature: -4°F to 95°F (-20°C to 35°C)
- Lamp ambient temperature: -4°F to 113°F (-20°C to 45°C)
- Rated Lifetime (L70): 25,000hrs for 9W and 15W series, 15,000hrs for 9.5W, 13W and 15W 3WAY series
- 3WAY lamp emits Warm White light in 3 defined lumen outputs
- 3 year limited warranty***



092921

SPECIFICATIONS

Product	Model	Equiv.	Wattage (W)	CCT	Lumens	Efficacy (LPW)	Input Voltage	Beam Angle	CRI	Dim.*	Power Factor	Base	Fixture Rating	ES
36548	9A19DIM/827/R	60W	9	2700K	800	89	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36549	9A19DIM/830/R	60W	9	3000K	820	91	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36559	9A19DIM/835/R	60W	9	3500K	840	93	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36550	9A19DIM/840/R	60W	9	4000K	860	96	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36551	9A19DIM/850/R	60W	9	5000K	860	96	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36544	9.5A19DIM/827	60W	9.5	2700K	800	84	120V	230°	82	Yes	0.7	E26	OPEN	✓
36545	9.5A19DIM/830	60W	9.5	3000K	820	86	120V	230°	82	Yes	0.7	E26	OPEN	✓
36546	9.5A19DIM/840	60W	9.5	4000K	860	91	120V	230°	82	Yes	0.7	E26	OPEN	✓
36547	9.5A19DIM/850	60W	9.5	5000K	860	91	120V	230°	82	Yes	0.7	E26	OPEN	✓
36615	13A19DIM/827	75W	13	2700K	1,100	85	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36616	13A19DIM/830	75W	13	3000K	1,150	88	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36617	13A19DIM/840	75W	13	4000K	1,200	92	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36618	13A19DIM/850	75W	13	5000K	1,200	92	120V	230°	82	Yes	0.7	E26	Enclosed	✓
36671	15A19DIM/827	100W	15	2700K	1,600	107	120V	230°	82	Yes	0.7	E26	Enclosed	-
36674	15A19DIM/850	100W	15	5000K	1,700	113	120V	230°	82	Yes	0.7	E26	Enclosed	-
98150	15A21DIM/827/GU24	100W	15	2700K	1,600	107	120V	240°	82	Yes	0.9	GU24	Enclosed	✓
36746	15A21/827/3WAY	40W	6	2700K	450	75	120V	230°	82	No	0.7	E26d	Non-Enclosed	✓
		60W	9		800	89								
		100W	15		1,600	107								

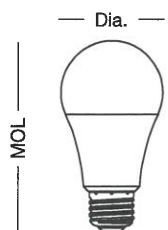
* This lamp might not be compatible with all dimmers. Please visit www.greencreative.com for compatibility information.

** 9.5W not for use in totally enclosed luminaires or recessed luminaires, 15W 3WAY not for use in totally enclosed fixtures, all other lamps are suitable for use in totally enclosed fixtures.

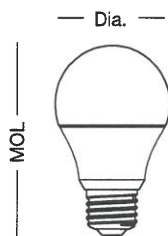
*** Please visit www.greencreative.com for Limited Warranty terms.

Value Select A Lamp Family

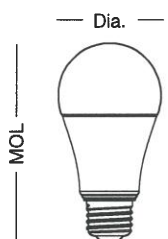
DIMENSIONS & WEIGHT



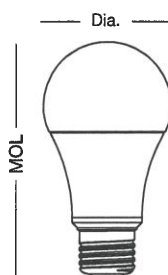
Model	Base	MOL	Dia.	Weight
9A19DIM/xxx/R	E26	4-3/8"	2-3/8"	0.067lb



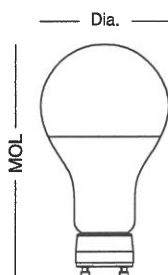
Model	Base	MOL	Dia.	Weight
9.5A19DIM/827	E26	3-15/16"	2-3/8"	0.071lb



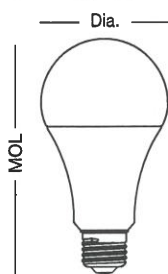
Model	Base	MOL	Dia.	Weight
13A19DIM/xxx	E26	4-9/16"	2-3/8"	0.104lb



Model	Base	MOL	Dia.	Weight
15A19DIM/xxx	E26	4-7/16"	2-3/8"	0.15lb



Model	Base	MOL	Dia.	Weight
15A21/xxx/GU24	GU24	5-1/2"	3"	0.26lb



Model	Base	MOL	Dia.	Weight
15A21/xxx/3WAY	E26d	5-7/16"	2-15/16"	0.2lb



GREENCREATIVE

Value Select A Lamp Family

MINIMUM COMPARTMENT DIMENSIONS (FOR ENCLOSED FIXTURES)****

Model	Diameter	Height
9A19DIM/xxx/R	6"	8"
13A19DIM/xxx		
15A19DIM/xxx		
15A21DIM/xxx/GU24		

**** Installing lamp in a fixture that does not have the minimum compartment dimensions will void the warranty and could cause product failures.

Where xxx means 824-965 which indicates CRI and color temperature

ORDERING INFORMATION

Model	Master Carton			Shipping Carton		
	Case Qty	Case Dimensions (L x W x H)	Case Weight	Case Qty	Case Dimensions (L x W x H)	Case Weight
9A19DIM/xxx/R	N.A.	N.A.	N.A.	72PCS	15-9/16" x 15-9/16" x 10-5/8"	11.38 lb
9.5A19DIM/xxx	N.A.	N.A.	N.A.	50PCS	12-3/16" x 12-3/16" x 8-7/8"	5.91 lb
13A19DIM/xxx	N.A.	N.A.	N.A.	50PCS	12-3/16" x 12-3/16" x 9-7/8"	7.78 lb
15A19DIM/xxx	6PCS	7-11/16"x5-1/8"x5-1/8"	1.32 lb	24PCS	16"x11"x6-1/8"	5.95 lb
15A21DIM/xxx/GU24	6PCS	9-5/8"x 6-5/8" x 6-3/8"	2.36 lb	24PCS	19-7/16" x 13-3/8" x 7-3/16"	10.58 lb
15A21/xxx/3WAY	6PCS	9-3/4" x 6-5/8" x 6-3/8"	1.76 lb	24PCS	19-5/8" x 13-3/8" x 7-1/4"	8.38 lb

Where xxx means 824-965 which indicates CRI and color temperature

CERTIFICATION INFORMATION

Product	Model	ES ID#
36544	9A19DIM/827/R	2384714
36545	9A19DIM/830/R	2384715
36546	9A19DIM/840/R	2384717
36547	9A19DIM/850/R	2384718
36544	9.5A19DIM/827	2388097
36545	9.5A19DIM/830	2388091
36546	9.5A19DIM/840	2388096
36547	9.5A19DIM/850	2388098
36615	13A19DIM/827	2388092
36616	13A19DIM/830	2388095
36617	13A19DIM/840	2388093
36618	13A19DIM/850	2388094
36746	15A21/827/3WAY	2390564

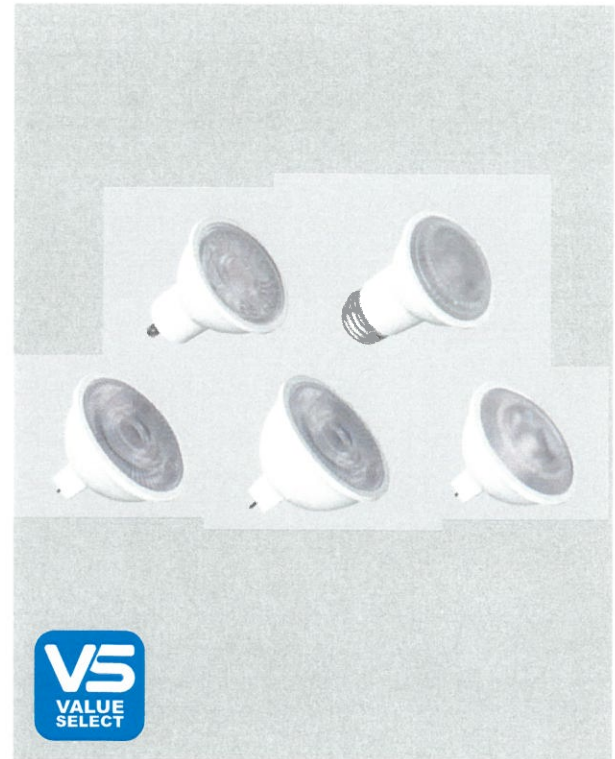
Note: All rights reserved. All sizes and specifications are subject to change at any time without notice.

Project Name:	Type:
Part Number:	Date:

VALUE SELECT MR FAMILY

FEATURES

- Suitable to replace 35W, 50W, 60W Halogen MR16 lamps
- Compatible with most low-voltage electronic transformers
- 35W and 50W models are dimmable with most electronic low voltage dimming controls*
- Compact size 1:1 halogen form factor
- Narrow flood and flood beam angles
- Suitable for use in totally enclosed fixtures
- Suitable for use in damp location
- Fixture operating temperature: -4°F to 95°F (-20°C to 35°C)
- Lamp ambient temperature: -4°F to 113°F (-20°C to 45°C)
- Rated Lifetime (L70): 25,000hrs
- 3 year limited warranty**



SPECIFICATIONS

Product	Model	Equiv.	Wattage (W)	CCT	Lumens (lm)	Efficacy (LPW)	Input Voltage	Beam Angle	CBCP (cd)	CRI	Dim.*	Power Factor	Base	Fixture Rating	ES / JA8 / T20
36200	6.5MR16DIM/827NF25/35W	35W	6.5	2700K	460	71	12V	NF 25°	1,610	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
36201	6.5MR16DIM/830NF25/35W	35W	6.5	3000K	460	71	12V	NF 25°	1,610	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
36202	6.5MR16DIM/827FL35/35W	35W	6.5	2700K	460	71	12V	FL 35°	910	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
36203	6.5MR16DIM/830FL35/35W	35W	6.5	3000K	460	71	12V	FL 35°	910	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
36204	6.5MR16DIM/927NF25	50W	6.5	2700K	500	77	12V	NF 25°	2,350	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36205	6.5MR16DIM/930NF25	50W	6.5	3000K	520	80	12V	NF 25°	2,400	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36206	6.5MR16DIM/940NF25	50W	6.5	4000K	540	83	12V	NF 25°	2,450	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36207	6.5MR16DIM/927FL35	50W	6.5	2700K	500	77	12V	FL 35°	1,350	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36208	6.5MR16DIM/930FL35	50W	6.5	3000K	520	80	12V	FL 35°	1,400	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36209	6.5MR16DIM/940FL35	50W	6.5	4000K	540	83	12V	FL 35°	1,450	92	Yes	0.9	GU5.3	Enclosed	✓ / ✓ / ✓
36210	6GU10DIM/827FL40	50W	6	2700K	550	92	120V	FL 40°	700	82	Yes	0.7	GU10	Enclosed	✓ / N.A. / N.A.
36211	6GU10DIM/830FL40	50W	6	3000K	570	95	120V	FL 40°	750	82	Yes	0.7	GU10	Enclosed	✓ / N.A. / N.A.
36212	6PAR16DIM/827FL35/RC	60W	6	2700K	550	92	120V	FL 35°	1,000	82	Yes	0.7	E26	Enclosed	✓ / N.A. / N.A.
36213	6PAR16DIM/830FL35/RC	60W	6	3000K	570	95	120V	FL 35°	1,050	82	Yes	0.7	E26	Enclosed	✓ / N.A. / N.A.
57984	6MR16DIM/827FL35/R	50W	6	2700K	480	80	12V	FL 35°	1,350	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
57985	6MR16DIM/830FL35/R	50W	6	3000K	500	83	12V	FL 35°	1,400	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
57986	6MR16DIM/840FL35/R	50W	6	4000K	520	86	12V	FL 35°	1,450	82	Yes	0.9	GU5.3	Enclosed	✓ / N.A. / N.A.
57991	6PAR16DIM/830FL35/R	60W	6	3000K	500	83	120V	FL 35°	1,050	82	Yes	0.9	E26	Enclosed	✓ / N.A. / N.A.

* This lamp might not be compatible with all dimmers and low-voltage transformers. Please visit www.greencreative.com for compatibility information.

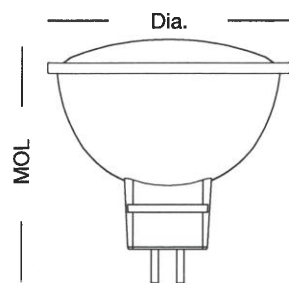
** Please visit www.greencreative.com for Limited Warranty terms.



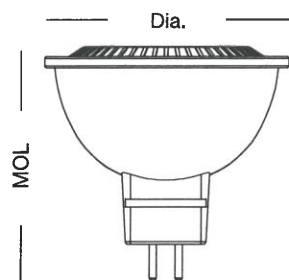
GREENCREATIVE

VALUE SELECT MR FAMILY

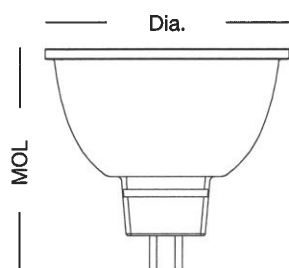
DIMENSIONS & WEIGHT



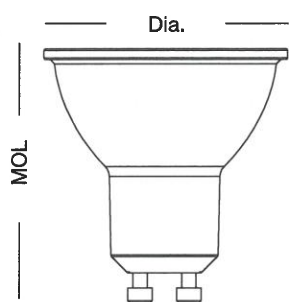
Model	Base	Dia.	MOL	Weight
6.5MR16DIM/827NF25/35W	GU5.3	1-15/16"	2"	0.1lb
6.5MR16DIM/830NF25/35W				



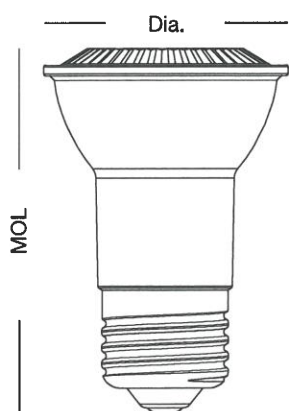
Model	Base	Dia.	MOL	Weight
6.5MR16DIM/827FL35/35W	GU5.3	1-15/16"	1-15/16"	0.09lb
6.5MR16DIM/830FL35/35W				



Model	Base	Dia.	MOL	Weight
6.5MR16DIM/927NF25	GU5.3	1-15/16"	1-13/16"	0.1lb
6.5MR16DIM/930NF25				
6.5MR16DIM/940NF25				
6.5MR16DIM/927FL35				
6.5MR16DIM/930FL35				
6.5MR16DIM/940FL35				



Model	Base	Dia.	MOL	Weight
6GU10DIM/827FL40	GU10	1-15/16"	2-1/16"	0.08lb
6GU10DIM/830FL40				



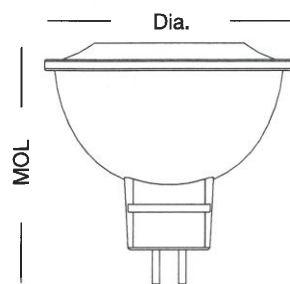
Model	Base	Dia.	MOL	Weight
6PAR16DIM/827FL35/RC	E26	1-15/16"	2-15/16"	0.09lb
6PAR16DIM/830FL35/RC				



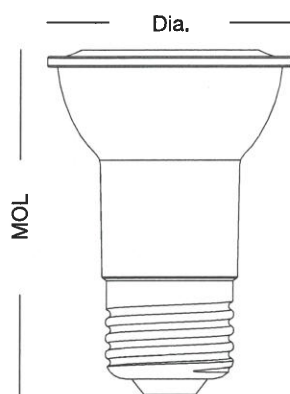
GREENCREATIVE

VALUE SELECT MR FAMILY

DIMENSIONS & WEIGHT



Model	Base	Dia.	MOL	Weight
6MR16DIM/827FL35/R	GU5.3	1-15/16"	1-15/16"	0.1lb
6MR16DIM/830FL35/R				
6MR16DIM/840FL36/R				



Model	Base	Dia.	MOL	Weight
6PAR16DIM/830FL35/R	E26	1-15/16"	2-13/16"	0.1lb

ORDERING INFORMATION

Model	Master Carton			Shipping Carton		
	Case Qty	Case Dimensions (LxWxH)	Case Weight	Case Qty	Case Dimensions (LxWxH)	Case Weight
6.5MR16DIM/xxxxxxx/35W	12PCS	8-7/8" x 6-11/16" x 2-3/4"	1.59 lb	48PCS	13-3/4" x 9-3/8" x 6-1/2"	6.98 lb
6.5MR16DIM/xxxxxxx	12PCS	8-7/8" x 6-11/16" x 2-3/4"	1.59 lb	48PCS	13-3/4" x 9-3/8" x 6-1/2"	6.98 lb
6GU10DIM/xxxxxxx	12PCS	8-7/8" x 6-11/16" x 2-15/16"	1.4 lb	48PCS	13-3/4" x 9-3/8" x 6-13/16"	6.21 lb
6PAR16DIM/xxxxxxx/RC	12PCS	8-7/8" x 6-11/16" x 3-11/16"	1.6 lb	48PCS	13-3/4" x 9-3/8" x 8-1/4"	7.1 lb
6MR16DIM/xxxxxxx/R	12PCS	8-7/8" x 6-11/16" x 2-3/4"	1.62 lb	48PCS	13-3/4" x 9-3/8" x 6-1/2"	7.12 lb
6PAR16DIM/xxxxxxx/R	12PCS	8-3/8" x 6-11/16" x 3-11/16"	1.9 lb	48PCS	13-7/8" x 9-1/4" x 4-3/4"	8.32 lb

Where xxx means 824-965 which indicates CRI and color temperature

Where yyyy means beam angle

CERTIFICATION INFORMATION

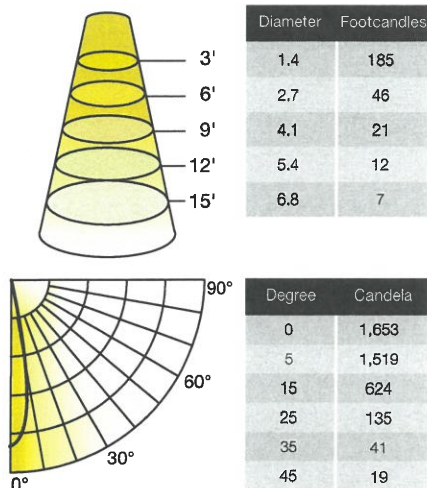
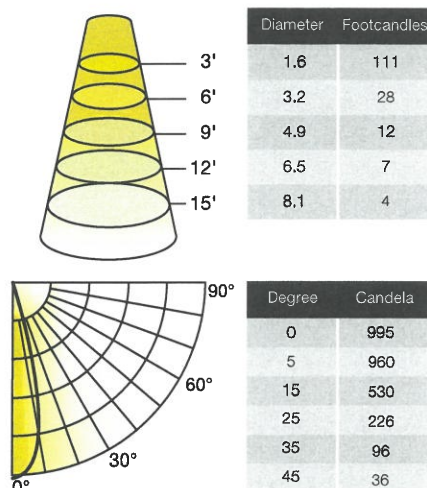
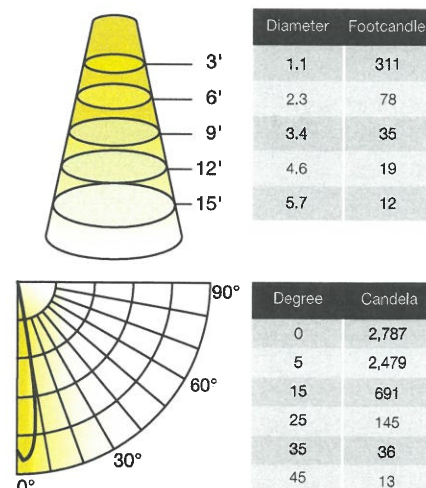
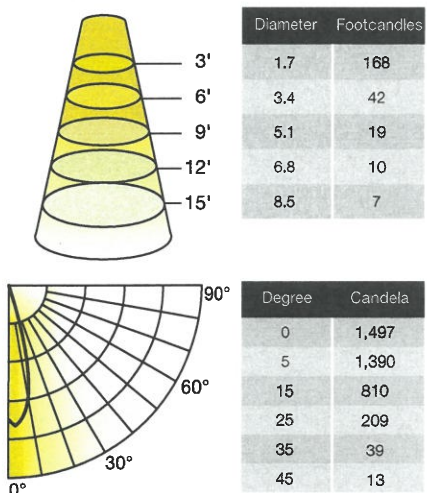
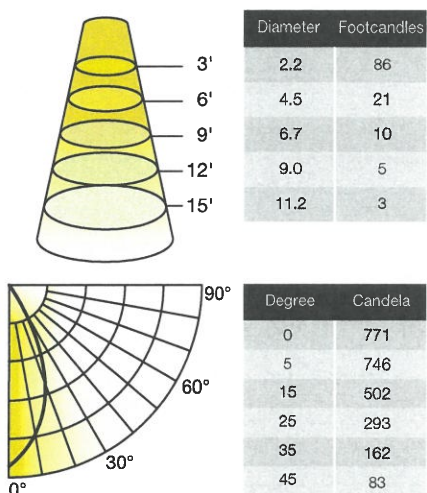
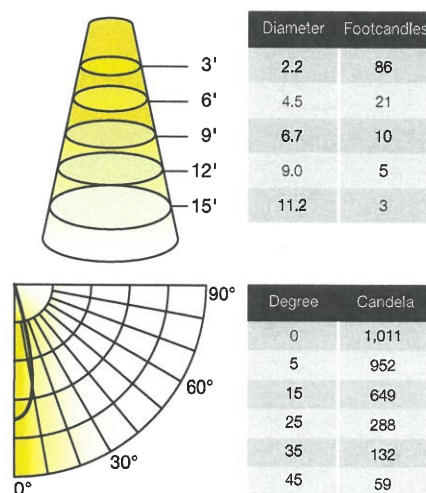
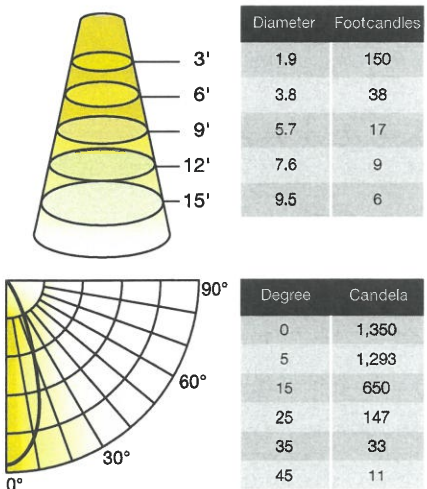
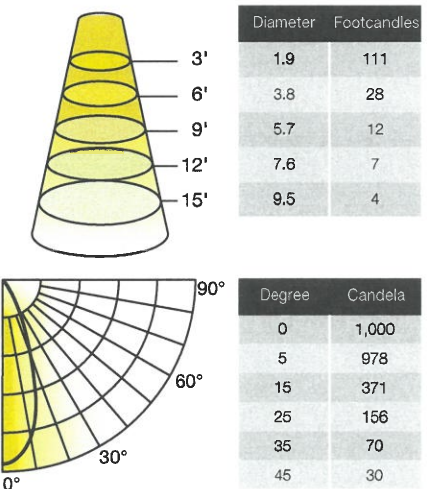
Product	Model	ES ID#	Product	Model	ES ID#
36200	6.5MR16DIM/827NF25/35W	2388773	36209	6.5MR16DIM/940FL35	2387981
36201	6.5MR16DIM/830NF25/35W	2388774	36210	6GU10DIM/827FL40	2388068
36202	6.5MR16DIM/827FL35/35W	2388775	36211	6GU10DIM/830FL40	2388069
36203	6.5MR16DIM/830FL35/35W	2388776	36212	6PAR16DIM/827FL35/RC	2388065
36204	6.5MR16DIM/927NF25	2387976	36213	6PAR16DIM/830FL35/RC	2388067
36205	6.5MR16DIM/930NF25	2387978	57984	6MR16DIM/827FL35/R	2334431
36206	6.5MR16DIM/940NF25	2387980	57985	6MR16DIM/830FL35/R	2334430
36207	6.5MR16DIM/927FL35	2387977	57986	6MR16DIM/840FL35/R	2334429
36208	6.5MR16DIM/930FL35	2387979	57991	6PAR16DIM/830FL35/R	2334661



GREENCREATIVE

VALUE SELECT MR FAMILY

ILLUMINANCE & CANDELA DISTRIBUTION

6.5MR16DIM/827NF25/35W**6.5MR16DIM/827FL35/35W****6.5MR16DIM/927NF25****6.5MR16DIM/927FL35****6GU10DIM/827FL40****6PAR16DIM/827FL35/RC****6MR16DIM/827FL35/R****6PAR16DIM/827/FL35/R**

For other CCT use the following multiplier: 3000K 1.02, 4000K 1.04.

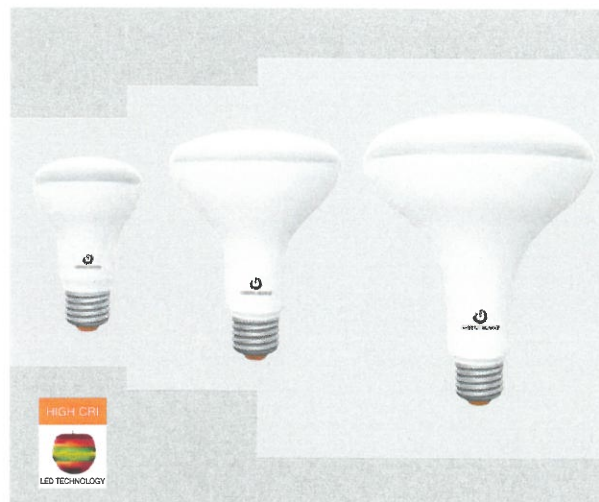
Note: All rights reserved. All sizes and specifications are subject to change at any time without notice.

Project Name:	Type:
Part Number:	Date:

HIGH CRI BR LAMP Family

FEATURES

- Suitable to replace 45W, 65W, 75W and 85W incandescent lamps
- Smooth dimming with most forward and reverse phase dimmers*
- CRI 93 produces rich and vibrant colors
- Suitable for use in totally enclosed fixtures
- Shatter resistant
- Suitable for use in damp locations
- Fixture operating temperature: -4°F to 95°F (-20°C to 35°C)
- Lamp ambient temperature: -4°F to 113°F (-20°C to 45°C)
- Rated Lifetime (L70): 25,000hrs
- 3 year limited warranty**



111021



SPECIFICATIONS

Product	Model	CCT	Lumens	Wattage (W)	Efficacy (LPW)	Power Factor	Input Voltage	Equiv.	CRI	Dim.*	Beam Angle	Fixture Rating	ES / T20
36688	7R20DIM/927	2700K	590	7	84	0.7	120V	45W	93	Yes	120°	Enclosed	✓/✓
36689	7R20DIM/930	3000K	590	7	84	0.7	120V	45W	93	Yes	120°	Enclosed	✓/✓
36690	7R20DIM/940	4000K	590	7	84	0.7	120V	45W	93	Yes	120°	Enclosed	✓/✓
36692	9BR30DIM/930	3000K	770	9	86	0.7	120V	65W	93	Yes	120°	Enclosed	✓/✓
36693	9BR30DIM/940	4000K	770	9	86	0.7	120V	65W	93	Yes	120°	Enclosed	✓/✓
36694	11BR30DIM/927	2700K	920	11	84	0.7	120V	65W	93	Yes	120°	Enclosed	✓/✓
36695	11BR30DIM/930	3000K	920	11	84	0.7	120V	65W	93	Yes	120°	Enclosed	✓/✓
36696	11BR30DIM/940	4000K	920	11	84	0.7	120V	65W	93	Yes	120°	Enclosed	✓/✓
36697	11BR40DIM/927	2700K	950	11	86	0.7	120V	75W	93	Yes	120°	Enclosed	✓/✓
36698	11BR40DIM/930	3000K	950	11	86	0.7	120V	75W	93	Yes	120°	Enclosed	✓/✓
36699	11BR40DIM/940	4000K	950	11	86	0.7	120V	75W	93	Yes	120°	Enclosed	✓/✓
36700	13BR40DIM/927	2700K	1,100	13	85	0.7	120V	85W	93	Yes	120°	Enclosed	✓/✓
36701	13BR40DIM/930	3000K	1,100	13	85	0.7	120V	85W	93	Yes	120°	Enclosed	✓/✓
36702	13BR40DIM/940	4000K	1,100	13	85	0.7	120V	85W	93	Yes	120°	Enclosed	✓/✓

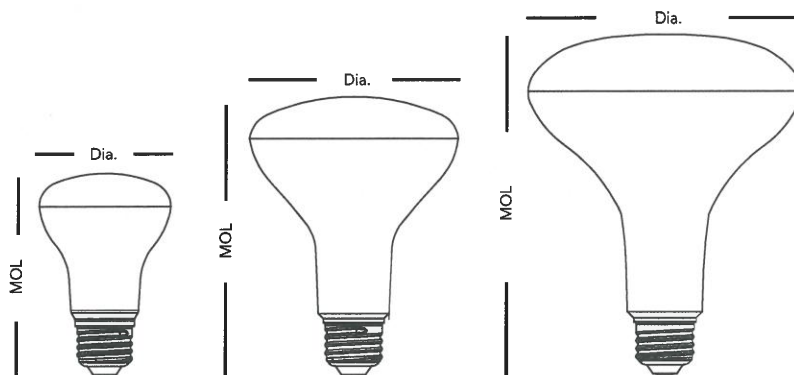
* This lamp might not be compatible with all dimmers. Please visit www.greencreative.com for compatibility information.

** Please visit www.greencreative.com for Limited Warranty terms

Project Name:	Type:
Part Number:	Date:

HIGH CRI BR LAMP Family

DIMENSION & WEIGHT



Model	Base	MOL	Dia.	Weight
7R20DIM/xxx	E26	3-7/8"	2-1/2"	0.11 lb
9BR30DIM/xxx	E26	5"	3-3/4"	0.16 lb
11BR30DIM/xxx	E26	5"	3-3/4"	0.16 lb
11BR40DIM/xxx	E26	6-1/8"	4-7/8"	0.33 lb
13BR40DIM/xxx	E26	6-1/8"	4-7/8"	0.34 lb

ORDERING INFORMATION

Model	Shipping Carton		
	Case Qty	Case Dimensions (LxWxH)	Case Weight
7R20DIM/xxx	72 PCS	15-15/16" x 15-15/16" x 9-5/8"	14.37 lb
9BR30DIM/xxx	48 PCS	24-7/16" x 16-9/16" x 12-5/16"	12.35 lb
11BR30DIM/xxx	48 PCS	24-7/16" x 16-9/16" x 12-5/16"	12.35 lb
11BR40DIM/xxx	24 PCS	21-7/8" x 16-1/8" x 15-3/4"	11.86 lb
13BR40DIM/xxx	24 PCS	21-7/8" x 16-1/8" x 15-3/4"	12.13 lb

Where xxx means 824-965 which indicates CRI and color temperature

CERTIFICATION INFORMATION

Product	Model	ES ID#
36688	7R20DIM/927	2386744
36689	7R20DIM/930	2386745
36690	7R20DIM/940	2386746
36691	9BR30DIM/927	2388060
36692	9BR30DIM/930	2388061
36693	9BR30DIM/940	2388062
36694	11BR30DIM/927	2386735
36695	11BR30DIM/930	2386736
36696	11BR30DIM/940	2386737
36697	11BR40DIM/927	2386738
36698	11BR40DIM/930	2386739
36699	11BR40DIM/940	2386740
36700	13BR40DIM/927	2386741
36701	13BR40DIM/930	2386742
36702	13BR40DIM/940	2386743

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KT-LED12T8-36GC-840-DX2

T8 LED LAMP

DESCRIPTION

12W T8 LED | 4000K | >83 CRI | High Efficiency | Single or Double-ended Wiring



LAMP TYPE: Linear

BULB TYPE: T8 LED

BASE TYPE: G13 (Medium Bi-Pin)

WATTAGE: 12W

COLOR TEMPERATURE: 4000K

COLOR RENDERING INDEX (CRI): >83

WARRANTY: 5 Years



PRODUCT FEATURES

- Replacement for Conventional Fluorescent Lamp
- Single or Double-Ended Wiring
- 50,000+ Hour Lifetime
- Approximately 40% More Energy Efficient than Standard F32T8 Lamps
- Environmentally Friendly: No Mercury Used
- Instant Startup
- Frosted Lens Eliminates Pixelation
- UL Classified
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- Integral Driver (Isolated), Eliminates the Need for External Driver or Ballast
- 110+ Lumens per Watt
- Improved Lamp Durability with Shatterproof Coated Glass
- ETL Sanitation Listed NSF/ANSI Standard 2 - Food Equipment

OPERATING SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Input Voltage	Power Consumption	Power Factor	Input Current
120-277Vac	12W	>0.9	0.10A @ 120V 0.04A @ 277V

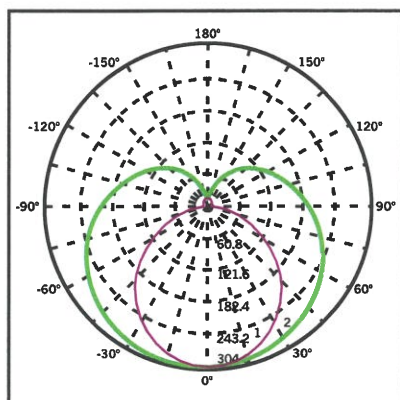
RATED LIFE

L70 (Hours)	50,000
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PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	4000K
Luminous Flux	1400 lm
Color Rendering Index (CRI)	>83
Efficacy	117 lm/W
Beam Angle	240°
Visible Light Area	325°

POLAR CANDELA DISTRIBUTION



Maximum Candela = 1248.55
Located at Horizontal Angle = 0,
Vertical Angle 0

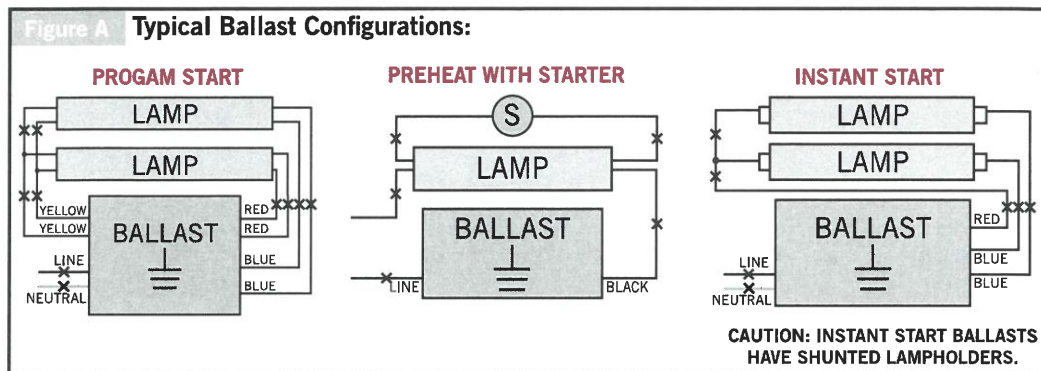
1. Violet Vertical Plane through Horizontal Angles (90-270)
2. Green Vertical Plane through Horizontal Angles (0-180)

KT-LED12T8-36GC-840-DX2

T8 LED LAMP

SINGLE-ENDED WIRING DIAGRAM

1. Cut all existing connections to ballast as shown below and remove ballast. See Figure A for typical ballast configurations. **Note: Single-ended wiring requires non-shunted lampholders.**



Typical Non-Shunted Lampholder



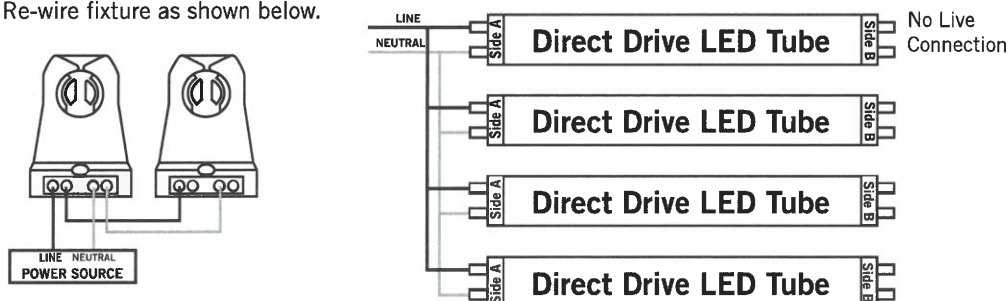
Connect wires directly to these terminals

CAUTION: For Single-ended wiring use only non-shunted lampholders.

For Single-ended wiring, do not install product in a fixture with shunted lampholders (found in all fixtures using instant start ballasts). If the current lampholders are shunted, remove them and replace them with non-shunted lampholders. Make new connections directly to terminals as indicated above.

Keystone can provide any style replacement lampholders. Call us at 800-464-2680.

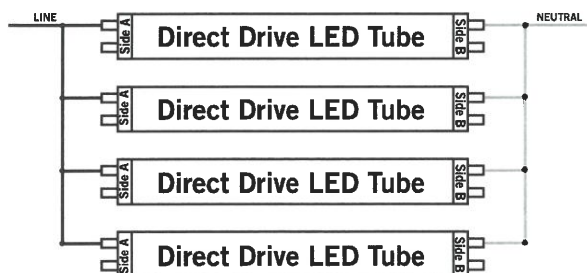
2. Re-wire fixture as shown below.



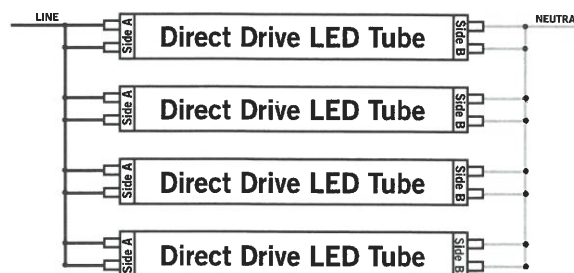
DOUBLE-ENDED WIRING DIAGRAM

1. Cut all existing connections to ballast as shown below and remove ballast. See Figure A above for typical ballast configurations.
2. Re-wire fixture as shown below. For Double-ended wiring, use either shunted or nonshunted lampholders.
Note: There should not be any exposed wires at the end of installation.

Shunted Lampholders



Nonshunted Lampholders



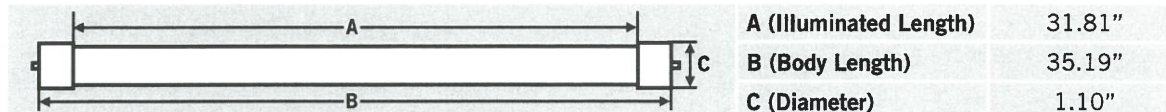


KT-LED12T8-36GC-840-DX2

T8 LED LAMP

PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS



NOMINAL LENGTH: 36" BASE TYPE: G13 (Medium Bi-Pin)

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED12T8-36GC-840-DX2-CP	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

KT-LED12T8-36GC-840-DX2-CP

1 2 3 4 5 6 7 8 9 10

- 1 Keystone Technologies
- 2 LED Lamp
- 3 Wattage
- 4 Lamp Type
- 5 Nominal Length (Inches)
- 6 Glass Coated
- 7 800 Series
- 8 Color Temperature
- 9 Single- or Double-Ended Wiring
- 10 Packaging Style



DIRECT DRIVE DX2

SINGLE OR DOUBLE ENDED LINE VOLTAGE LED TUBES

KT-LED10.5T8-48G-840-DX2

T8 LED LAMP

DESCRIPTION

10.5W T8 LED | 4000K | >83 CRI | High Efficiency | Single or Double-ended Wiring



LAMP TYPE: Linear

BULB TYPE: T8 LED

BASE TYPE: G13 (Medium Bi-Pin)

WATTAGE: 10.5W

COLOR TEMPERATURE: 4000K

COLOR RENDERING INDEX (CRI): >83

WARRANTY: 5 Years



PRODUCT FEATURES

- Replacement for Conventional Fluorescent Lamp
- Single or Double-Ended Wiring
- 50,000+ Hour Lifetime
- Approximately 40% More Energy Efficient than Standard F32T8 Lamps
- Environmentally Friendly: No Mercury Used
- Instant Startup
- DLC Listed
- Frosted Lens Eliminates Pixelation
- UL Classified
- Operating Temperature: -20°C/-4°F to 45°C/113°F
- Integral Driver (Isolated), Eliminates the Need for External Driver or Ballast
- 110+ Lumens per Watt

OPERATING SPECIFICATIONS

ELECTRICAL CHARACTERISTICS

Input Voltage	Power Consumption	Power Factor	Input Current
120-277Vac	~10.5W	>0.9	0.09A @ 120V 0.04A @ 277V

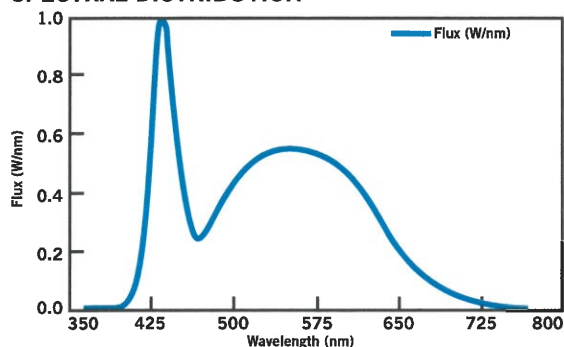
PHOTOMETRIC CHARACTERISTICS

Color Temperature (CCT)	4000K
Luminous Flux	1700 lm
Color Rendering Index (CRI)	>83
Efficacy	162 lm/W
Beam Angle	240°
Visible Light Area	325°

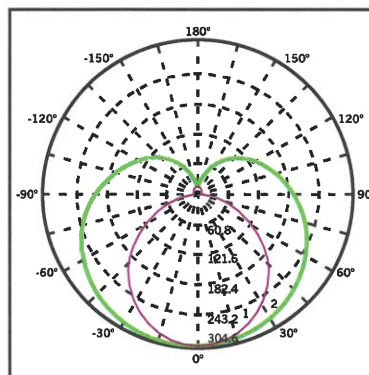
RATED LIFE

L70 (Hours)	50,000
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SPECTRAL DISTRIBUTION



POLAR CANDELA DISTRIBUTION



Maximum Candela = 1248.55
Located at Horizontal Angle = 0,
Vertical Angle 0

1. Violet Vertical Plane through Horizontal Angles (90-270)
2. Green Vertical Plane through Horizontal Angles (0-180)



DIRECT DRIVE DX2

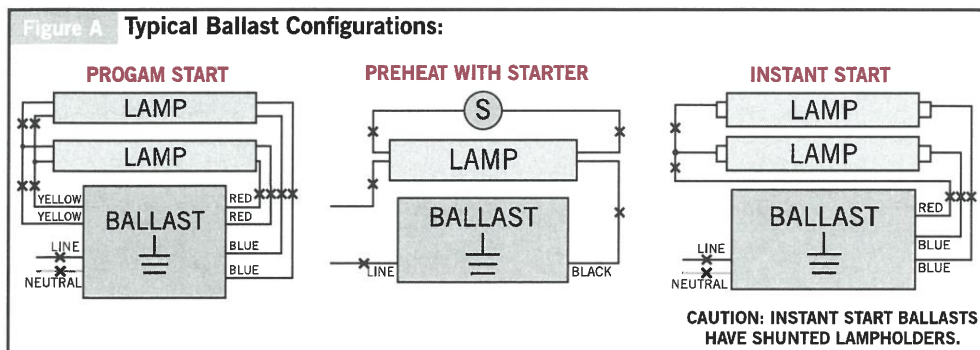
SINGLE OR DOUBLE ENDED LINE VOLTAGE LED TUBES

KT-LED10.5T8-48G-840-DX2

T8 LED LAMP

SINGLE-ENDED WIRING DIAGRAM

1. Cut all existing connections to ballast as shown below and remove ballast. See Figure A for typical ballast configurations. **Note: Single-ended wiring requires non-shunted lampholders.**



Typical Non-Shunted Lampholder



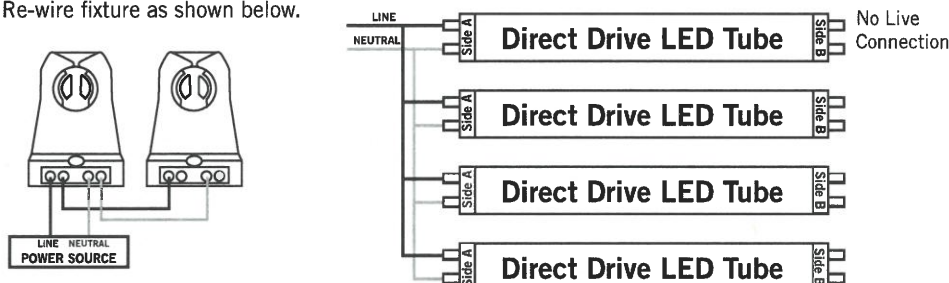
Connect wires directly to these terminals

CAUTION: For Single-ended wiring use only non-shunted lampholders.

For Single-ended wiring, do not install product in a fixture with shunted lampholders (found in all fixtures using instant start ballasts). If the current lampholders are shunted, remove them and replace them with non-shunted lampholders. Make new connections directly to terminals as indicated above.

Keystone can provide any style replacement lampholders. Call us at 800-464-2680.

2. Re-wire fixture as shown below.

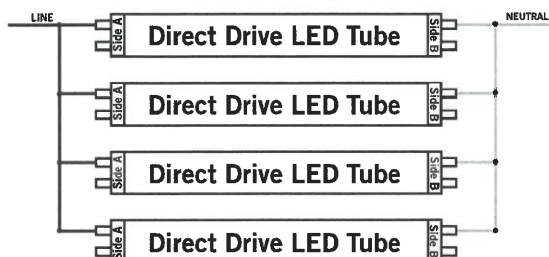


DOUBLE-ENDED WIRING DIAGRAM

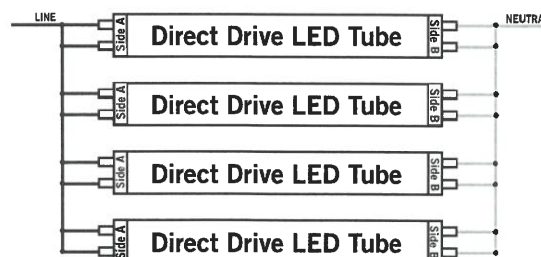
1. Cut all existing connections to ballast as shown below and remove ballast. See Figure A above for typical ballast configurations.
2. Re-wire fixture as shown below. For Double-ended wiring, use either shunted or nonshunted lampholders.

Note: There should not be any exposed wires at the end of installation.

Shunted Lampholders



Nonshunted Lampholders





DIRECT DRIVE DX2
SINGLE OR DOUBLE ENDED LINE VOLTAGE LED TUBES

KT-LED10.5T8-48G-840-DX2

T8 LED LAMP

PHYSICAL CHARACTERISTICS

LAMP DIMENSIONS

	A (Illuminated Length)	42.63"
	B (Body Length)	47.15"
	C (Diameter)	1.10"

NOMINAL LENGTH: 48" **BASE TYPE:** G13 (Medium Bi-Pin)

ORDERING INFORMATION

ORDER CODE	PACKAGING STYLE	PACK QTY.	ITEM STATUS
KT-LED10.5T8-48G-840-DX2-CP	Carton Pack (Egg Crate Packaging)	25	Quick Ship

CATALOG NUMBER BREAKDOWN

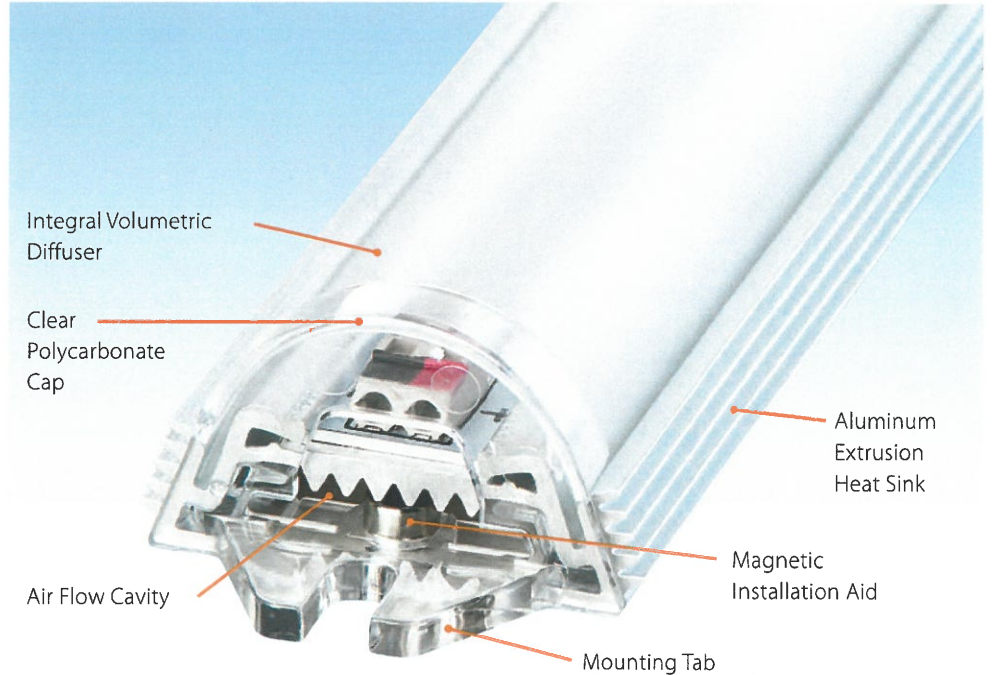
KT-LED10.5T8-48G-840-DX2-CP

Keystone Technologies	LED Lamp	Wattage	Lamp Type	Nominal Length (Inches)	Glass	800 Series	Color Temp.	Single or Double-Ended Wiring	Packaging Style
-----------------------	----------	---------	-----------	-------------------------	-------	------------	-------------	-------------------------------	-----------------



LED UNIVERSAL RETROFIT SYSTEM (URS) PATENT 10,054,296

Linmore LED Labs Universal Retrofit System (URS) is the ultimate retrofit system for a variety of linear fluorescent light fixtures. Each URS is comprised of a patent pending aluminum extrusion, a high-efficacy set of LEDs, and an external dimmable driver. The URS is offered in two nominal lengths, 2' & 4', to retrofit the most popular installed housing. When the objective is to extend the useful life of installed fixtures while upgrading to LED with a robust, complete retrofit system with components that exceed those found in LED Tubes, Linmore's URS is the clear choice.



HIGHLIGHTS

- Efficacy up to 152 Lumens/Watt Delivered
- 0-10 Volt Multi-Channel Dimming External Driver
- Aluminum Heat Sink/Extrusion
- Integral Volumetric Diffuser
- Clear Polycarbonate End Caps
- No Glass
- 240 Degree Light Distribution
- Warranty: 20 Years Light Bar / 10 Years Driver
- No Mercury
- No UV Light
- Maximum output 6204 lumens (44 watts) on a single 4' bar

RELIABILITY ASSURANCE TESTING

- Every URS is vibrated at variable frequencies for 5 minutes
- Every URS & Driver is operated for a 36 hour break in period
- Every URS & Driver is cycled on/off every minute for 36 hours

APPLICATIONS

- Troffers
- Strips
- Case Lighting
- Indirect Lighting
- Vapor Tights
- Low Bays

DLC LISTED CONFIGURATIONS

2' URS Kits

2 Bar Kits: 18, 22, 26 Watts

3 Bar Kits: 22, 26 Watts

4' URS Kits

1 Bar Kits: 15, 18, 22, 26, 36 Watts

2 Bar Kits: 22, 26, 36, 44, 60, 72 Watts

3 Bar Kits: 44 Watts

LED UNIVERSAL RETROFIT SYSTEM (URS) PATENT 10,054,296

Efficacy:

- Only top tier performance diodes for ultra-high Lumens/Watt
- Lowest Watts per Foot Candles Available

Thermal Dissipation:

- The heat sink extrusion is made of 6063 T5 Aluminum with substantial fins & surface area for superior heat dissipation
- Patent pending Air Flow Cavity under LED PCB allows dissipated heat to leave the URS area
- Interior PCB Board is made of aluminum core and mechanically bonded to the aluminum extrusion heat sink

Lens:

- Integral Volumetric Diffuser eliminates glare and evenly distributes light
- Integral Volumetric Diffuser transmits 94% of generated lumens
- Suitable for most food processing applications
- The beam angle is 240 degrees for a wide distribution of light
- Glass Free

Specifications

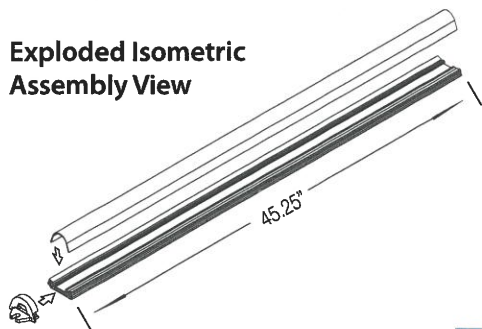
Suitability	T5 or T8 Linear Fluor Fixtures
Warranty	20 Years Light Bar / 10 Years Driver
Expected Life	L90 >102,000 hours
Driver	External, 0-10 Volt Dimmable.
System Input Wattage (driver dependent)	9-88 Watts
Length	21.25", 45.25" (including cap tab)
Efficacy (3500K)	131-152 Lumens/Watt (+/- 10%)
Voltage	100-277 Volts AC
Beam Angle	240
Integral Volumetric Diffuser	Frosted, 94% Transmission Rate
Color Rendering Index (CRI)	82
Color Temperature	3500K, 4100K or 5000K
Extrusion Material	6063 T5 Aluminum
Operating Temperature	-40F - 140F
Power Factor	0.99
Certifications	UL1598, FCC CFR 47, Part 15, ROHS, CUL (Canada)
Design Lights Consortium	Yes

Model	Length	Number of Bars	Kelvin	Wattage	Lumens
LL-URS1-	2NA	1	3500K (35K)	9	1368
	4NA	2	4100K (41K)	12	1824
		3	5000K (50K)	15	2280
		4		18	2736
				22	3344
				26	3848
				30	4440
				36	5220
				44	6204
				60	8400
				72	10080
				88	12320

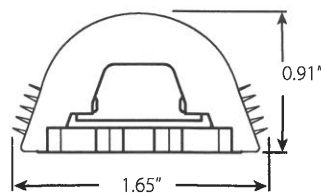
Example

LL-URS - 4NA-4-50K-26

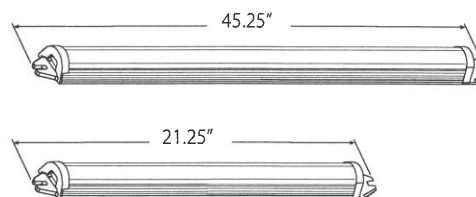
Exploded Isometric Assembly View



Front View



Choices in Length



Specifications are Subject to Change.



Multi-Technology Ceiling Occupancy Sensor with Isolated Relay



BASIC OPERATION

Occupancy sensors have two tasks: 1) Keeping the lights ON while the room is occupied, and 2) Saving energy by keeping the lights OFF while the room is unoccupied.

Leviton's OSCxx-RMW sensors combine the benefits of both PIR and U/S technologies for unrivaled performance and reliability. Additionally, the sensor is designed with an isolated relay contact; which enables the sensor to interface with other systems (example: BAS, HVAC or any dry-contact capable device or system).

APPLICATIONS

- Cafeterias
- Computer rooms
- Day care centers
- Workspaces
- Restrooms
- Offices with cubicles
- Classrooms
- Conference rooms
- Stairwells
- Executive, open, and private offices

FEATURES

- Multi-Technology: By using both PIR and U/S signals, the sensor minimizes false triggering for high reliability.
- Isolated Relay: Supports HVAC or other Class 2 low voltage signals
- Supports both 24VAC/VDC power supplies
- Wide Coverage: Units from 500 to 2000 sq. ft. available.
- Self-Adjusting: Internal microprocessor continually analyzes, evaluates and adjusts the sensitivity and time delay. Performance is kept at a maximum and user complaints are eliminated.

- Custom white color matched for most common day-light harvesting architecture
- Uses OSPxx Series Power Pack: Uses Class 2, 24 volt wiring, three wire connection (low voltage). Multiple sensors can control single or multiple power packs.
- Additional mid-range lens assembly included for applications with mounting heights between 12'-20'
- Fast, Simple Installation: Easy ceiling mount, twist-lock sensor attachment for 360° rotation and flexibility.
- Small Motion Sensitivity: The ultrasonic technology provides excellent small motion sensitivity.
- Timer Setting Feature: Automatic - 30sec - 30min. Test mode - 4sec with auto exit programming.
- Non-Volatile Memory: Learned and adjusted settings saved in protected memory are not lost during power outages.
- Walk-Through: Provides increased energy savings by decreasing the time delay to 2.5min when someone momentarily walks through the monitored space.
- Ultrasonic (U/S) Components: One or two U/S transducers and one or two narrow bandwidth receivers each 16mm in diameter. Frequency -- Crystal controlled to $\pm 0.005\%$.
- Device: Rugged, high-impact, injection molded plastic, white. Color coded leads 7" (17.78 cm).

OSCxx-RMW

Leviton Mfg. Co., Inc. Lighting & Energy Solutions

201 N. Service Rd. Melville, NY 11747-3138 Tech Line: 1-800-824-3005 Fax: 1-800-832-9538 www.leviton.com/les

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PRODUCT DATA

HOW THE OSCxx-R AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in an 4 sec. test mode.	An installer accidentally leaves the sensor in the 4 sec. timer test mode and the lights may go off or on every 4 sec.	The sensor automatically resets the timer to the preset time delay after 15 minutes of test mode
False-On - The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting then the delayed off time setting is automatically reduced.
False-Off - The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless at a desk and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed off time setting is increased.

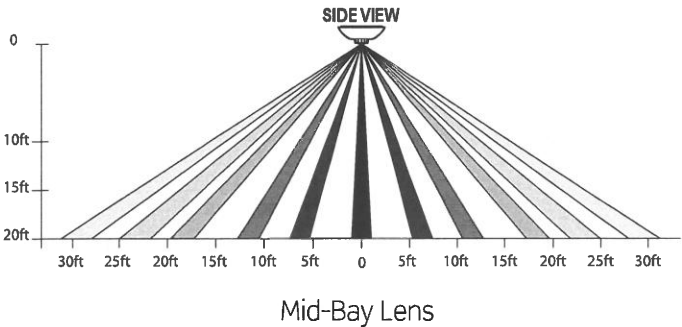
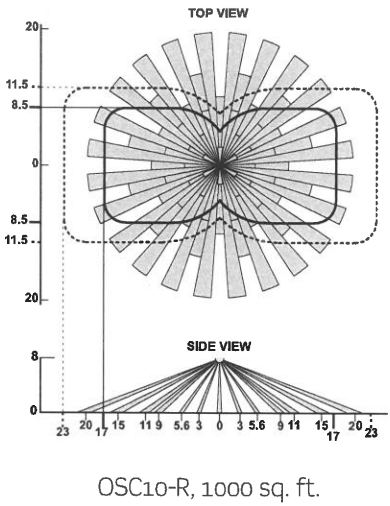
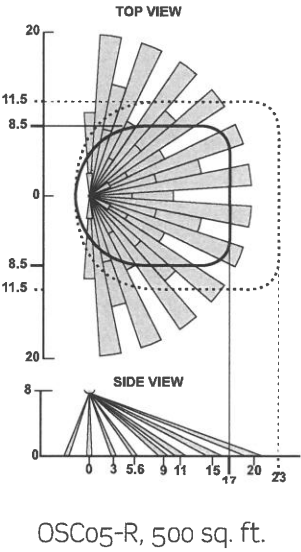
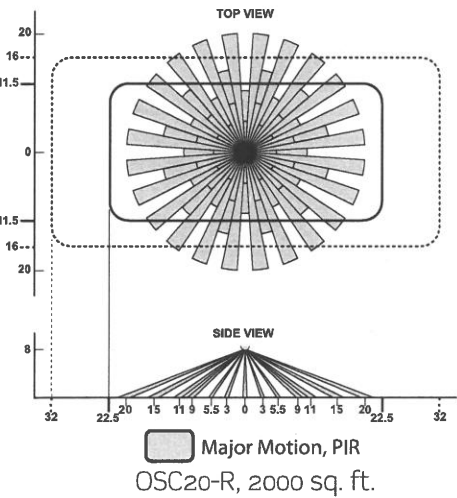
DIP SWITCH SETTINGS

SWITCH	BANK A	SWITCH FUNCTIONS	SWITCH SETTINGS
		OFF	ON
A1	Single/Multi-tech	Multi-Tech	Single Tech
A2	PIR/Ultrasonic	PIR**	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
	BANK B		
B1	Override to On	Auto Mode	Lights forced On
B2	Override to Off	Auto Mode	Lights forced Off
B3	Test Mode	OFF'ON'OFF	Enter/Exit Test Mode
B4	LED Disable	LEDs Enabled	LEDs Disabled

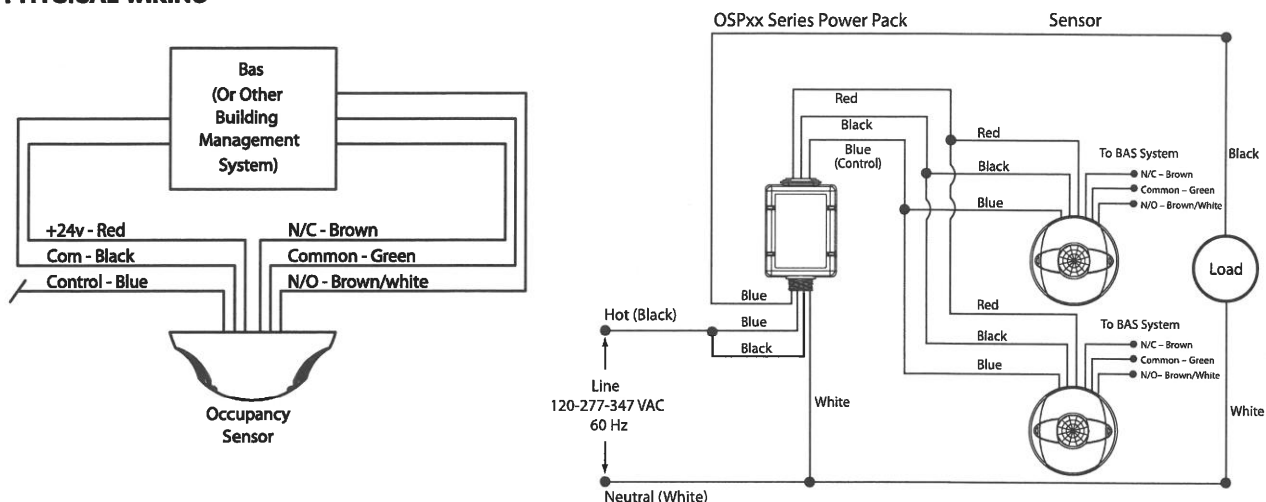
*Bold items are factory defaults

**This setting is only used if the Single Technology Option (Switch A1) is selected

FIELD-OF-VIEW



PHYSICAL WIRING



SPECIFICATIONS

ELECTRICAL	
Power Requirements	15-28 VAC/VDC from OSPxx Power Pack or other Class 2 power supplies
Isolated Relay	1A @ 30VAC/VDC
Power Consumption	DC: OSC05: 25mA, OSC10: 30mA, OSC20: 30mA AC: OSC05: 45mA, OSC10: 50mA, OSC20: 50mA
Output	24 VDC active high logic control signal with short circuit protection
CONTROLS	
Ultrasonic Frequency	OSC05/OSC10: 40kHz OSC20: 32kHz
Ultrasonic Sensitivity	0-100%; green knob (factory setting: 50%)
Infrared Sensitivity	0-100%; red knob; (factory setting: 75%)
Time Delay	30sec-30min; black knob (factory setting: 10min)
INDICATORS	
Green LED	U/S motion technology
Red LED	Infrared motion technology
ENVIRONMENTAL	
Operating Temperature Range	32°F to 104°F (0°C to 40°C)
Relative Humidity	0% to 95% non-condensing, for indoor use only
OTHER	
Mounting Height	Low-range lens (default) 8-12 feet Mid-range lens 12-20 feet
Dimensions	4.2" W x 1.57" D
Listings	CUL/US Certified, meets ASHRAE Standard 90.1 and CEC Title 24 requirements
Warranty	Limited Five-Year Warranty
ORDERING INFORMATION	
CAT NO.	DESCRIPTION
OSC05-RMW	Multi-Technology Ceiling Sensor, 500 sq. feet of coverage
OSC10-RMW	Multi-Technology Ceiling Sensor, 1000 sq. feet of coverage
OSC20-RMW	Multi-Technology Ceiling Sensor, 2000 sq feet of coverage

NAFTA compliant and Made in USA models available

Leviton Mfg. Co., Inc. Lighting Management Systems

20497 SW Teton Avenue, Portland, OR 97062 1-800-736-6682 Tech Line: 1-800-959-6004 Fax: 503-404-5594 www.leviton.com/lms
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PRODUCT DATA

OSCxx-RMW

Leviton Manufacturing Co., Inc. Lighting & Energy Solutions

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G-8579/E11-cb

Multi-Technology Wall/Corner Occupancy Sensor with Isolated Relay



BASIC OPERATION

Occupancy sensors have two tasks: 1) Keeping the lights ON while the room is occupied, and 2) Saving energy by keeping the lights OFF while the room is unoccupied.

Passive infrared (PIR) is an excellent and precise technology for initially turning the lights ON, but lacks sensitivity for minor motion at distances. Ultrasonic (U/S) technology provides maximum sensitivity with continuous reflective high frequency waves. This is optimal for keeping the lights ON.

Leviton's OSW12-RMW sensor combines the benefits of both PIR and U/S technologies for unrivaled performance and reliability. Additionally, the sensor is designed with an isolated relay contact, enabling the sensor to interface with other systems (example: BAS, HVAC or any dry-contact capable device or system).

APPLICATIONS

- Cafeterias
- Conference rooms
- Day care centers
- Offices with cubicles
- Executive, private and open offices
- Classrooms
- Computer rooms
- Workspaces
- Partitioned restrooms

FEATURES

- Multi-Technology: By using both PIR and U/S signals, the sensor minimizes false triggering for high reliability.
- Isolated Relay: Supports HVAC or other Class 2 low voltage signals.

- Supports both 24V AC/DC power supplies.
- Flexible Base Mounting: Supplied twist-and-lock base mount permits fast alignment. Supplied cover hides mounting hardware and wires. Can be used with raceways for hard surface installations. Adjustable canopy for wall or ceiling mount.
- Wide Coverage: Over 1200 sq. ft. of coverage.
- Fast, Simple Installation: A single mounting post and color coded wires make installation easy.
- Self-Adjusting: Internal microprocessor continually analyzes, evaluates and adjusts sensitivity and time delay settings. Performance is kept at a maximum and user complaints are eliminated.
- Non-Volatile Memory: Learned and adjusted settings saved in protected memory are not lost during power outages.
- Timer Setting Feature: Automatic - 30sec - 30min. Test mode - 4sec with auto exit programming.
- Walk-Through: Provides increased energy savings by decreasing the time delay to 2.5min when someone momentarily walks through the monitored space.
- Custom white color matched for most common daylight harvesting architecture.
- Uses OSPxx Series Power Pack: Uses Class 2, 24 volt wiring, three wire connection (low voltage). Multiple sensors can control single or multiple power packs.
- High Motion Sensitivity: The large lens area and multi-element lens design give excellent range and sensitivity.
- Infrared Sensing: High sensitivity 9.8 micron detector dual element.
- Device: High-impact housing and injection molded plastic. Color coded wire leads are 6" long (16.24 cm).
- Lens: 110° aperture, lens opening 2.2" x 1.47", 36 elements (72 zones) small motion range 31 ft, large motion 68 ft.

HOW THE OSW12-RMW AUTOMATICALLY ADAPTS

Condition	Example	Adaptive Reaction
Timer Left In Test Mode - The sensor remains in a 4 sec. test mode.	An installer accidentally leaves the sensor in the 4 sec. timer test mode and the lights may go off or on every 4 sec.	The sensor automatically resets the timer to 10 min after 15 min of test mode.
False-On - The sensor incorrectly turns the lights on.	The sensor detects movement in the corridor or hallway and the room lights turn on.	After an initial movement is sensed, if another movement is not sensed within the timer setting, then the delayed on time setting is automatically reduced by 25%. Minimum time delay of 5 minutes.
False-Off - The sensor incorrectly turns the lights off.	The sensor does not detect movement because an occupant sits virtually motionless and the lights turn off.	If motion is sensed within a short period after the lights go off, then the current delayed on-time setting is increased by 50%. Maximum time delay is 30 minutes.

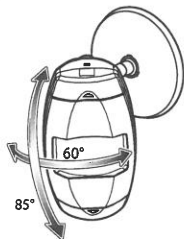
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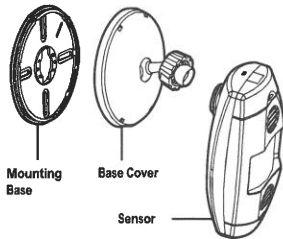
PRODUCT DATA



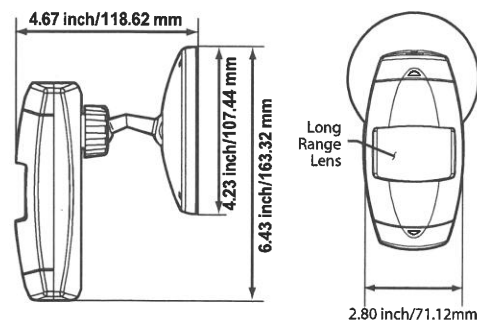
ADJUSTMENT RANGE



MOUNTING BRACKET



DIMENSIONS



DIP SWITCH SETTINGS			
SWITCH	BANK A	SWITCH FUNCTIONS	SWITCH SETTINGS
A1	Single/Multi Tech	Multi-Tech	Single Tech
A2	PIR/Ultrasonic	PIR**	Ultrasonic
A3	Manual Mode	Auto Adapting Enabled	Auto Adapting Disabled
A4	Walk-Thru Disable	Walk-Thru Enabled	Walk-Thru Disabled
	BANK B		
B1	Override to On	Auto Mode	Lights forced On
B2	Override to Off	Auto Mode	Lights forced Off
B3	Test Mode	OFF/ON/OFF	Enter/Exit Test Mode
B4	LED Disable	LEDs Enabled	LEDs Disabled

NOTE: Bold switch functions and switch settings indicate factory defaults

**This setting is only used if the Single Technology option (Switch A1) is selected

SPECIFICATIONS

ELECTRICAL	
Power Requirements	15-28 VAC/VDC from OSPxx Power Pack or other Class 2 power supplies
Isolated Relay	1A @ 30VAC/VDC
Power Consumption	24mA DC, 45mA AC
Output	24 VDC active high logic control signal with short circuit protection
CONTROLS	
Ultrasonic (U/S) Sensitivity	0 to 100%: red knob (factory setting: 75%)
Infrared Sensitivity	0 to 100%: green knob (factory setting: 50%)
Time Delay	30sec-30min; black knob (Factory setting: 10min)
INDICATORS	
Red LED	Infrared motion technology
Green LED	Ultrasonic (U/S) motion technology
ENVIRONMENTAL	
Operating Temperature Range	32°F to 104°F (0°C to 40°C)
Relative Humidity	0% to 95% non-condensing, for indoor use only
OTHER	
Mounting Height	8-10 feet
Listings	CUL/US Certified, meets ASHRAE Standard 90.1 and CEC Title 24 requirements
Warranty	Limited Five-Year Warranty

ORDERING INFORMATION

CAT NO.	DESCRIPTION
OSW12-RMW	Multi-Technology Wall/Corner Occupancy Sensor

NAFTA compliant and Made in USA models available with Isolated Relay

Leviton Manufacturing Co., Inc. Lighting & Energy Solutions

201 N. Service Rd. Melville, NY 11747-3138 Tech Line: 1-800-824-3005 Fax: 1-800-832-9538 www.leviton.com/les

Leviton Manufacturing of Canada, Ltd.

165 Hymus Boulevard, Pointe Claire, Quebec H9R 1E9 • Telephone: 1-800-469-7890 • FAX: 1-800-563-1853

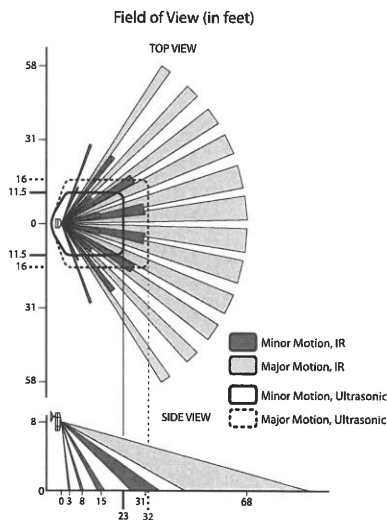
Leviton S. de R.L. de C.V.

Lago Tana 43, Mexico DF, Mexico CP 11290 • Tel. (+52) 55-5082-1040 • FAX: (+52) 5386-1797 • www.leviton.com.mx

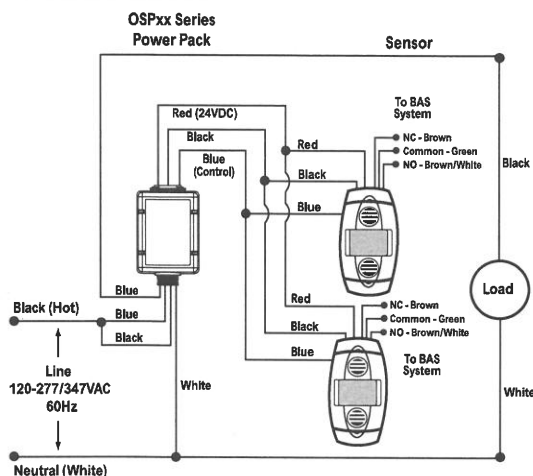
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FIELD-OF-VIEW



PHYSICAL WIRING



PRODUCT SPECIFICATIONS / INFO

LEVITON



Color: White



ODS10-IAW

UPC Code: 07847750884

Country of Origin: United States - **Eligible for ARRA funded projects*



**Disclaimer*

Description

Product Line: ODS10, Technology: Passive Infrared, Mounting: Wall Switch, Device Type: Occupancy Sensor, Coverage (Sq.Ft.): 2100 Sq. Ft., Pattern: 180°, Color: White, Warranty: 5-Year Limited, Domestic Content: Made in USA

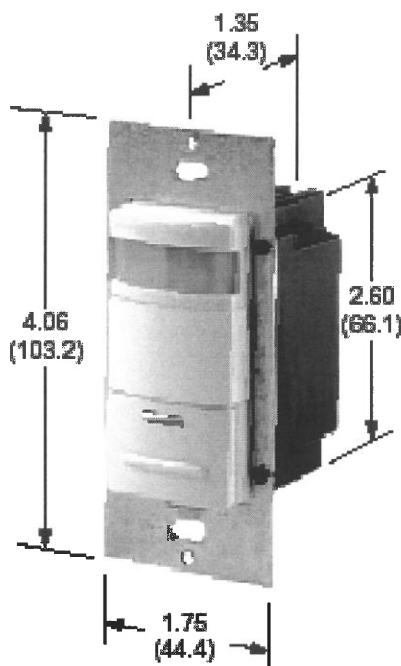
Product Features

Product Line: ODS10
Technology: Passive Infrared
Switch Type: Single-Pole
Mounting: Wall Switch
Device Type: Occupancy Sensor
Grade: Commercial
Coverage (Sq.Ft.): 2100 Sq. Ft.
Pattern: 180°
Mounting Height (Ft.): 4 Ft.
Adjustment: Manual
Time Delay: 30s-30m
Voltage: 120/277 Volt AC 60Hz
Load Rating: 800W@120V INC 1200VA@120V
2700VA@277V FL
Motor: 1/4 HP @ 120V
Power Pack: External Power Pack Not Required
Consumption (mA): N/A
Photocell: Internal
HVAC Relay: N/A
Operating Temperature: 0°C to 50°C
Storage Temperature Range: -10°C to 85°C
Relative Humidity: 20% to 90% non-condensing
Neutral Wire Connection: Not Required
Color: White
LED Color: Red
Wallplate: Order Separately
Standards and Certifications: UL/cUL
Code Compliance: California Title 24
Domestic Content: Made in USA
Size: 4.06" H x 1.75" W x 1.85" D (103.2mm x 44.4mm x 47.2mm)
Warranty: 5-Year Limited

Features and Benefits

- Exclusive dual PIR design provides unmatched range and small motion detection.

- Low-profile design eliminates obtrusive “scanning-device” look. Elegant Decora styling complements any interior; uses Decora wallplates and coordinates with Leviton’s popular line of Decora wiring devices.
- 180° field-of-view provides approximately 2100 square feet of coverage suitable for small offices, conference rooms, class rooms, lounges and a variety of commercial areas.
- Convenient push-button provides manual ON/OFF light switching at any time.
- Segmented Fresnel lens provides optimum sensitivity and performance. Designed with an extensive “small motion” area where even slight body movements will be detected.
- Horizontal field of view may be adjusted between 180° and 32° of arc by using integral blinders located on either side of the lens.
- Optional manual adjustment for delayed-OFF time settings of 30 seconds (for walking test), 10 minutes, 20 minutes and 30 minutes. Allows customized adjustments to maximize energy savings.
- Adjustable Ambient Light Override ranges from approximately 2 foot-candles (2 lux) to 500+ foot-candles (500+ lux) to prevent lights from turning ON automatically during periods of ample natural light, increasing energy savings.
- Manual-ON/Automatic-OFF mode for installations where manual ON switching is required but automatic OFF switching is still desired for energy savings.
- LED indicator light flashes when sensor detects motion to verify detection is active.
- One unit can be used for either 120V or 277V lighting. Compatible with both electronic and magnetic ballasts.
- Relay switches at the zero crossing point of the AC power curve to ensure maximum contact life and compatibility with electronic ballasts.
- Fits in standard wallbox and replaces single-pole wall switch. Gangable with other units.
- UL Listed and CSA Certified, complies with California Title 24 Energy Code and FCC regulations.
- Limited Five-Year Warranty.



SPECIFICATION SUBMITTAL

JOB NAME: <input type="text"/>	CATALOG NUMBERS: <input type="text"/>	
JOB NUMBER: <input type="text"/>	<input type="text"/>	<input type="text"/>

Leviton Manufacturing Co., Inc.

201 North Service Road, Melville, NY 11747

Telephone: 1-800-323-8920 · FAX: 1-800-832-9538 · Tech Line (8:30AM-7:30PM E.S.T. Monday-Friday): 1-800-824-3005

Leviton Manufacturing of Canada, Ltd.

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FAX: 1-800-824-3005 · www.leviton.com/canada

Leviton S. de R.L. de C.V.

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www.leviton.com.mx

Visit our Website at: www.leviton.com

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If you would like to know where your local Leviton office is located please go to:

www.leviton.com/international/contacts/

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Vive PowPak Dimming Module with 0–10 V_{ac} Control

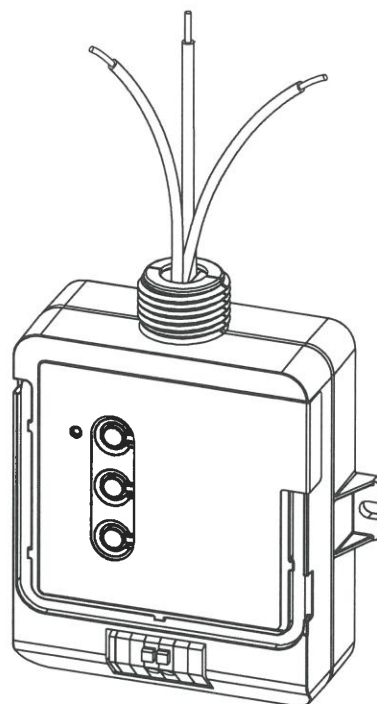
The PowPak Dimming Module with 0–10 V_{ac} Control is a radio frequency (RF) control that operates 0–10 V_{ac} controlled fluorescent ballasts or LED drivers based on input from Pico remote controls and Radio Powr Savr sensors. The Dimming Module with 0–10 V_{ac} Control is ideal for small areas (e.g., classrooms, conference rooms, private offices). Communication with RF input devices (e.g., Pico remote controls, Radio Powr Savr sensors) is accomplished by using Lutron Clear Connect RF Technology.

These products are also compatible with the Vive hub which enables a simple setup process using a standard web browser on any Wi-Fi enabled phone, tablet or computer. It also enables control and monitoring of all Vive devices. The Vive hub can be added at any time. System reprogramming will be required. For a complete list of features supported with the Vive hub, see specification submittal 369902.

Note for Replacement: RMJS/URMJS - the "S" model can replace the non-"S" model.

Features

- Controls up to 60 mA of 0–10 V_{ac} controlled fixtures together
- Switches up to 8 A total
- 0–10 V_{ac} control link automatically sources or sinks to the third party fixtures
- Configurable high- and low-end trim
- Various operating voltages available; refer to model number chart below for details on voltage requirements
- Receives wireless inputs from up to 10 Pico remote controls, 10 Radio Powr Savr occupancy/vacancy sensors, and 1 Radio Powr Savr daylight sensor
- Utilizes Lutron Clear Connect RF Technology; refer to model number chart below for frequency band data
- Mounts to a US-style junction box through a standard-size knockout



Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Models

Model Number	Region	Operating Voltage	Frequency Band
RMJS-8T-DV-B	U.S.A., Canada, Mexico	120/277 V~	431.0–437.0 MHz
URMJS-8T-DV-B	U.S.A. (BAA Compliant)	120/277 V~	431.0–437.0 MHz

NOTE: Contact Lutron for frequency band compatibility for your geographic region if it is not indicated above.

Job Name: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	Model Numbers: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
Job Number: <div style="border: 1px solid black; height: 20px; width: 100%;"></div>		

Specifications

Regulatory Approvals

RMJS- and URMJS- models

- UL Listed
- FCC approved. Complies with the limits for a Class B device, pursuant to Part 15 of the FCC rules
- Complies with requirements for use in other spaces used for environmental air (plenums) per NEC 2014 300.22(C)(3)
- Listed in accordance to CAN/ULC S102.2-2010 with a Flame Spread Rating of 0 and a Smoke Developed Classification of 40, with a minimum spacing of 6 ft (1.83 m) off center
- cUL and IC (Canada) (RMJS- only)
- COFETEL (Mexico) (RMJS- only)
- NOM (Mexico) (RMJS- only)

Power

- Operating voltage
 - **RMJS- and URMJS- models:** 120/277 V~ 50/60 Hz

Output Ratings

- Switch rating of 8 A. Rated for resistive or capacitive loads as defined by IEC/EN 60669-2-1
- 0–10 V== control link for 60 mA maximum output, source or sink automatically configures

Other Power Specifications

- Standby power:
 - 240–277 V~ 610 mW
 - 120 V~ 550 mW
- BTU/hour when fully loaded: 9
- Works with all ballasts and drivers that provide a current source that is compliant to IEC 60629 Annex E.2, and whose inrush current does not exceed NEMA410 standards for electronic ballast/driver

System Communication

- Operates using Clear Connect RF Technology for reliable wireless communication; refer to model number chart on page 1 for frequency band details
- RF range is 30 ft (9 m)
- Wireless sensors and controls must be located within 60 ft (18 m) line of sight, or 30 ft (9 m), through walls, of the associated control module. The 60 ft (18 m) range is not reduced by a ceiling tile obstruction.

Environment

- Ambient operating temperature: 32 °F to 104 °F (0 °C to 40 °C)
- 0% to 90% humidity, non-condensing
- For indoor use only
- All drivers and ballasts used with Vive wireless controls must comply with the limits for a Class A device pursuant to Part 15 of the FCC Rules

0–10 V== Control Link

- Communicates with up to 60 mA of fixtures
- Control link is IEC SELV/NEC Class 2
- 0–10 V== control can be installed using NEC Class 1 or Class 2 wiring methods. Alternately, it can be wired to basic or double-insulated devices
- Terminals accept one 18 AWG to 16 AWG (0.75 mm² to 1.5 mm²) solid wire
- Always consult local wiring codes
- Compatible with ANSI E1.3 2001 (R2006), IEC 60929 Annex E

Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Specifications *(continued)*

Default Operation

- Associated wireless input devices control all connected fixtures together
- Occupancy Sensors:
 - Occupied: 100%; Unoccupied: 0% (OFF)
- Pico Remote Controls:
 - On: 100%; Favorite Level: 50%; Off: 0% (OFF)
- Daylight Sensor: Decreases electric light in response to additional available daylight

Key Design Features

- LED status indicator shows load status and provides programming feedback
- Configurable high-end and low-end trim
- Power failure memory: If power is interrupted, connected loads will return to the previous level prior to interruption
- 0–10 V_{DC} control mis-wire protection up to 30 V_{AC}

Advanced Configurations

Pico Remote Controls

- Up to 10 Pico remote controls
- Favorite levels can be set for each Pico remote control

Radio Powr Savr Daylight Sensor

- The Radio Powr Savr daylight sensor will affect all connected ballast and LED drivers equally
- For multiple rows of daylighting, a separate PowPak Dimming Module with 0–10 V_{DC} must be used for each daylighting row

Minimum Light Level Setting (optional)

- Certain applications, such as hallways, may require that the lights never turn off. For these areas, select the minimum light level option and the load will lower to programed low-end level. Default operation lowers to OFF.

High- and Low-End Trim

- High-end and low-end trim affect all connected fixtures equally, and can be configured from the PowPak Dimming Module.
- Adjustable low-end trim (0%–45%). Trimmable low-end can ensure a stable light level. Some fixtures will flicker or drop out if trimmed too low.
- The maximum light output of connected fixtures can be decreased down to 55% for energy savings in over-lit spaces.

Note: The perceived light output of low-end trim may vary between fixture manufacturers and model numbers. For best results, do not mix different ballasts or drivers on the same 0–10 V_{DC} circuit.

Radio Powr Savr Occupancy Sensors

- Radio Powr Savr occupancy and vacancy sensors control all connected ballasts or drivers.
- Pico remote controls can be used to adjust the Occupied levels of fixtures that they control from 1% to 100% (of output signal) or can make them unaffected by Occupancy events.
- Vacancy events (area becomes unoccupied) turn all ballasts and driver models off or to minimum light level.

Job Name:	Model Numbers:		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>	<input type="text"/>

System Diagram (RMJS- and URMJS- models)



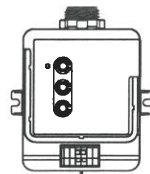
Pico Remote Control (up to 10)



Radio Powr Savr Occupancy Sensor (up to 10)



Radio Powr Savr Daylight Sensor (up to 1)

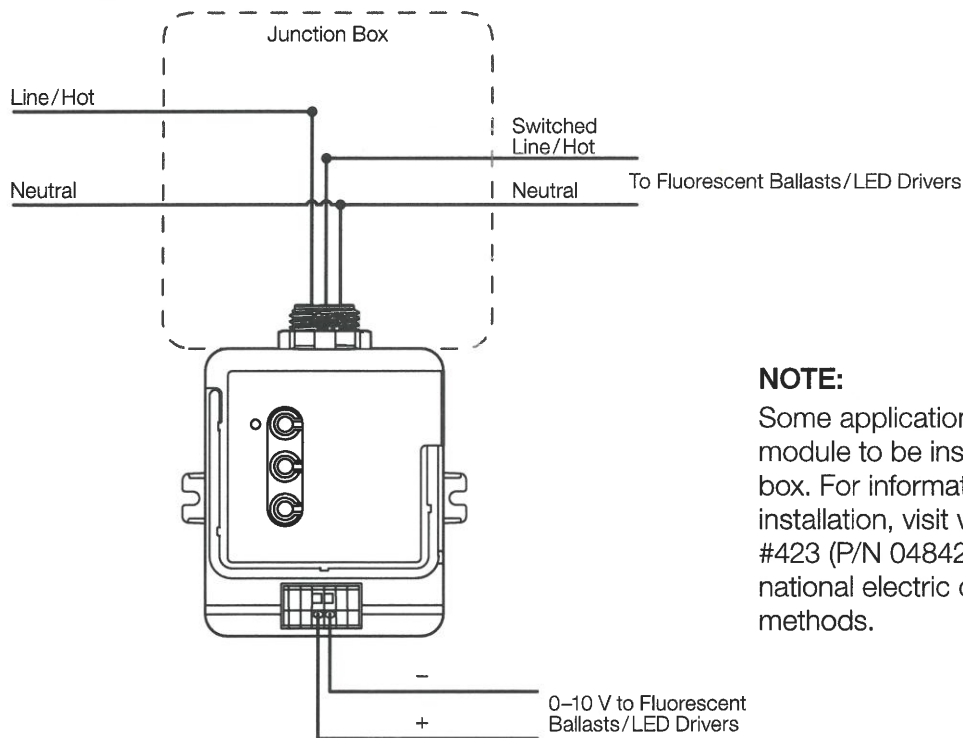
0–10 V_{DC} control

To fixtures (60 mA max)

Fluorescent Ballasts

LED Drivers

Wiring Schematic (RMJS- and URMJS- models)



NOTE:

Some applications (in the U.S.A.) require the PowPak module to be installed inside an additional junction box. For information about how to perform this installation, visit www.lutron.com, Application Note #423 (P/N 048423). Please consult all local and national electric codes for proper installation methods.

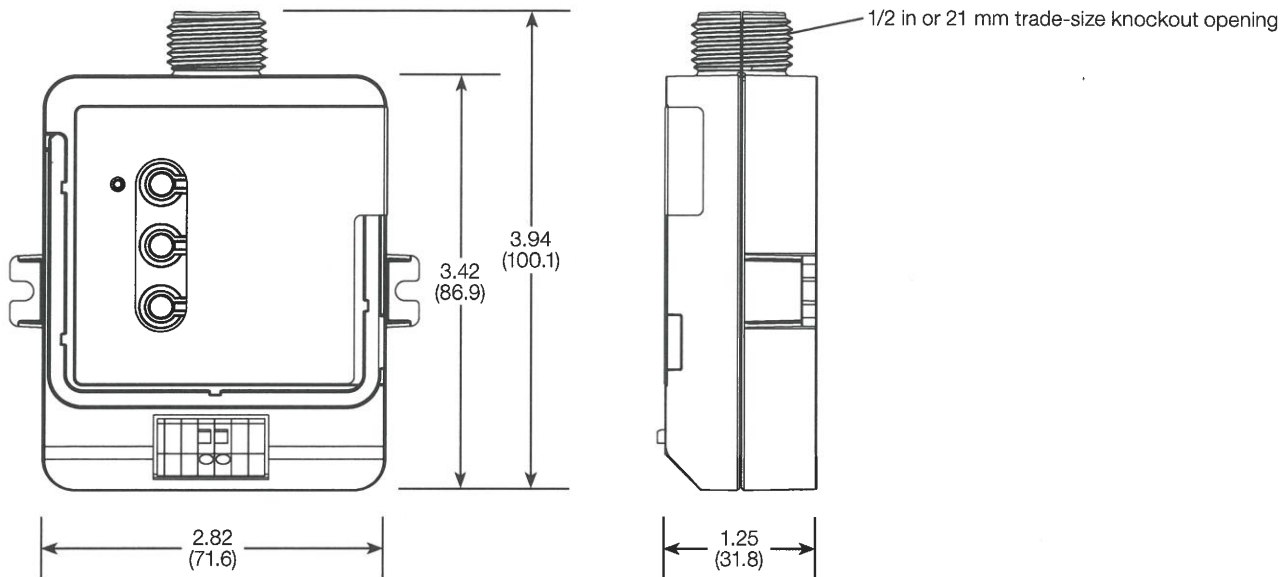
Job Name:

Model Numbers:

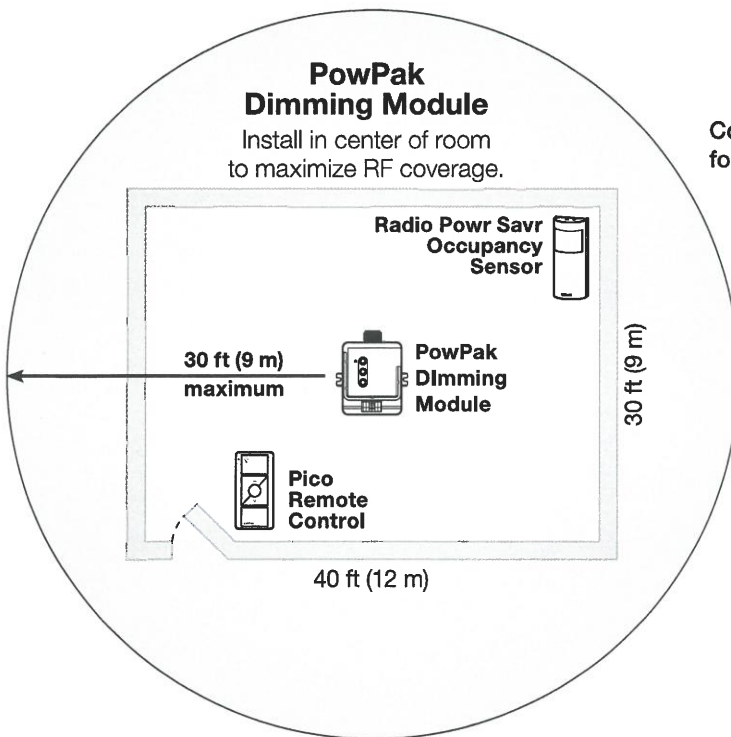
Job Number:

Dimensions

Dimensions are shown as: in (mm)



Range Diagram



Contact Lutron first for applications using foil-backed or metallic ceiling tiles.

NOTE: Wireless sensors and controls must be located within 60 ft (18 m) line of sight, or 30 ft (9 m), through walls, of the associated control module. The 60 ft (18 m) range is not reduced by a ceiling tile obstruction.

Lutron, Lutron, PowPak, Clear Connect, and Pico are trademarks of Lutron Electronics Co., Inc. registered in the U.S. and other countries
Radio Powr Savr and Vive are trademarks of Lutron Electronics Co., Inc.

Job Name:	Model Numbers:		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>	<input type="text"/>

Wireless Wall-Mount Sensor

Lutron® wall-mounted occupancy and vacancy sensors are wireless, battery-powered, passive infrared (PIR) sensors that automatically control lights via RF communication to compatible dimming or switching devices. These sensors detect the heat from people moving within an area to determine when the space is occupied. The sensors then wirelessly transmit the appropriate commands to the associated dimming or switching devices to turn the lights on or off automatically. They combine both convenience and exceptional energy savings along with ease of installation.

Features

- Wireless occupancy/vacancy sensor has 2 settings available: Auto-On/Auto-Off, and Manual-On/Auto-Off
- Vacancy model meets CA Title 24 requirements
- Passive infrared motion detection with exclusive Lutron® XCT™ Technology for fine motion detection
- 180° field of view model:
 - Minor motion = 1500 ft² (139.4 m²)
 - Major motion = 3000 ft² (278.7 m²)
- 90° field of view model:
 - Minor motion = 1225 ft² (113.8 m²)
 - Major motion = 2500 ft² (232.3 m²)
- Hallway model with long, narrow field of view:
 - Major motion = coverage of up to 150 ft (45.7 m)
- Simple and intuitive adjustments available for Timeout, Activity, and Auto-On settings
- Accessible test buttons make setup easy
- Lens illuminates during test mode to verify ideal locations
- Multiple sensors can be added for extended coverage; refer to product specification submittal of receiving device to determine system limits
- 10-year battery life design
- RoHS compliant

Compatible RF Devices

- For use with Lutron® products only
- Communicates to various wireless Lutron® Clear Connect® systems*

* Contact Lutron Customer Service at www.lutron.com for frequency/channel code compatibility with your particular geographic region, and for integrating with other Lutron® lighting and shading products.



Models Available

- LRF- - LB-P-WH
 - Coverage Type
 - Sensor Type
 - Frequency/Channel Code

Example:

LRF2-VHLB-P-WH

(434 MHz White Hallway Vacancy Sensor)

Frequency/Channel Code

2 = 431.0 – 437.0 MHz (US, Canada, Mexico, Brazil)*

3 = 868.125 – 869.850 MHz (Europe and UAE)

4 = 868.125 – 868.475 MHz (China and Singapore)

5 = 865.5 – 866.5 MHz (India)

7 = 433.0 – 433.7 MHz (Hong Kong)

Sensor Type

O = Occupancy/Vacancy (Auto-On/Auto-Off)

V = Vacancy (Manual-On/Auto-Off)**

Coverage Type

H = Hallway

K = 90° Corner-Mount

W = 180° Wall-Mount

* BAA compliant models available for LRF2 configurations. Add a "U" prefix to your chosen model number. Example: **ULRF2-OWLB-P**

** Vacancy sensor type for LRF2 models only

Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Specifications

Regulatory

- Lutron Quality Systems Registered to ISO 9001:2008

Regulatory Approvals

LRF2-

- cULus listed
- FCC certified
- IC certified
- COFETEL certified
- ANATEL certified
- SUTEL certified
- Meets CA (U.S.A.) Energy Commission Title 24 requirements

LRF3-

- CE marked (European Union)
- TRA type approved (United Arab Emirates)
- CITC type approved (Saudi Arabia)

LRF4-

- SRRC type approved (Mainland China)
- iDA registered (Singapore)

LRF5-

- WPC type approved (India) [expected Q1 2014]

Power/Performance

- Operating voltage: 3 V_{DC}
- Operating current: 14 μ A nominal
- Requires one CR 123 lithium battery
- 10-year battery-life design
- Non-volatile memory (saved changes are stored during power loss)

Environment

- Temperature: 32 °F to 104 °F (0 °C to 40 °C)
- For indoor use only

RF Range

- Distance between local load controls and sensor should not exceed 60 ft (18 m) line-of-sight or 30 ft (9 m) through walls.

Sensor Coverage Test

- Dedicated test button
- Lens illuminates orange in response to motion during test mode

Wireless Communication Test

- Dedicated test button
- Turn associated loads on and off

Timeout Options

- 1 minute*
- 5 minutes
- 15 minutes (default setting)
- 30 minutes

Auto-On Options (Occupancy Versions Only)

- **Enabled:** Sensor turns lights ON and OFF automatically (default setting)
- **Disabled**:** Lights must be turned ON manually from dimming or switching device. Sensor turns lights OFF automatically

Sensitivity Options

- **Low Activity:** $\frac{1}{2}$ (default setting)
- **Medium Activity:** $\frac{1}{4}$
- **High Activity:** $\frac{1}{8}$

* Intended for use in high-activity, briefly-occupied areas only

** There is a 15-second grace period that begins when the lights are automatically turned off, during which the lights will automatically turn back on in response to motion. This grace period is provided as a safety and convenience feature in the event the lights turn off while the room is still occupied, so that the user does not need to manually turn the lights back on. After 15 seconds, the grace period expires and the lights must be manually turned on.

Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Installation Overview

Sensor Placement

- The mounting height of the sensor should be between 6 ft and 8 ft (1.6 m and 2.4 m).
- For smaller rooms less than 12 ft × 12 ft (3.7 m × 3.7 m), detection may be improved by mounting the sensor at 6 ft (1.8 m) from the floor.
- The ability to detect motion requires that the sensor have line-of-sight of all room occupants. The sensor must have an unobstructed view of the room. **DO NOT** mount behind or near tall cabinets, shelves, hanging fixtures, etc. The sensor cannot detect occupants through glass objects such as patio- or shower doors.
- Hot objects and moving air currents can affect the performance of the sensor. To ensure proper operation, the sensor should be mounted at least 4 ft (1.2 m) away from light bulbs and HVAC vents.
- The performance of the sensor depends on a temperature differential between the ambient room temperature and that of room occupants. Warmer rooms may reduce the sensor's ability to detect occupants.
- Distance between local load controls and sensor should not exceed 60 ft (18 m) line-of-sight or 30 ft (9 m) through walls.

Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Mounting

- 180° and hallway sensors mount directly to wall with mounting bracket (included). See Figure A.
- 90° sensors mount directly in corner or on wall offset away from corner with mounting bracket (included). See Figure B.
- Temporary mounting is recommended to test sensor coverage and wireless communication before permanently installing the sensor.
 - Temporary mounting: A 3M™ Command™ adhesive strip is provided for temporarily mounting and testing the sensor. This strip is designed for easy, damage-free removal and is not reusable.
 - Permanent mounting: Mounting bracket, screws, and anchors are provided to mount sensor.
- The Flexible Mounting Armature, LRF-ARM-WH (purchased separately), allows sensors to be mounted at greater heights on a ceiling, wall, or other flat surface.
 - The ball-and-clamp design expands the coverage area for Lutron® standard wall-, corner-, or hall-mount sensors. See Figure C.
 - Common mounting areas: warehouse aisles, loading docks, long hallways.

Figure A. 180° Wall-Mount Sensor and Hallway Sensor

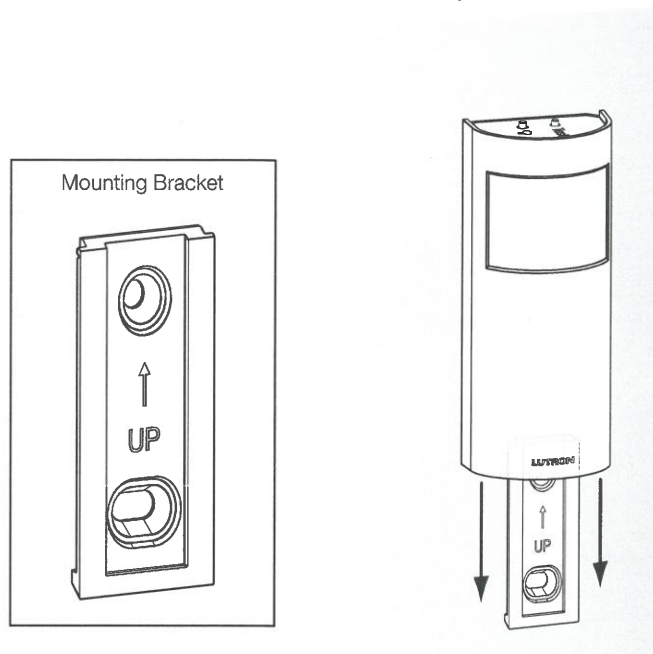


Figure B. 90° Corner-Mount Sensor

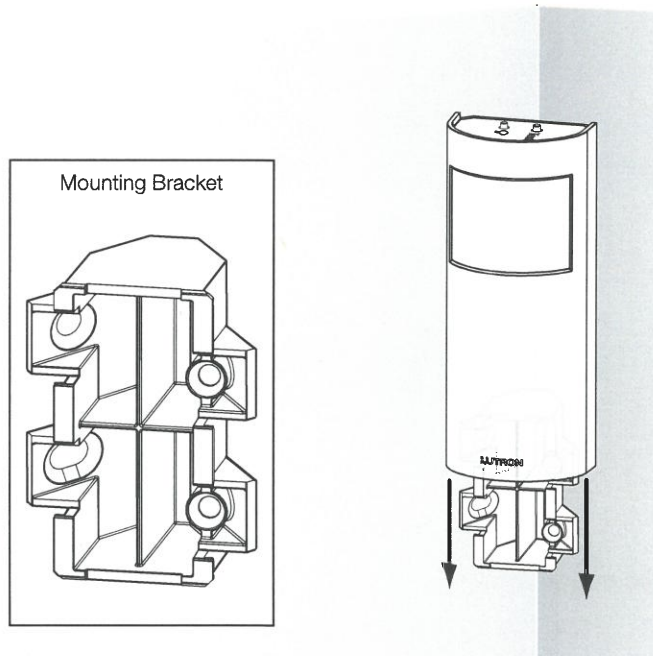
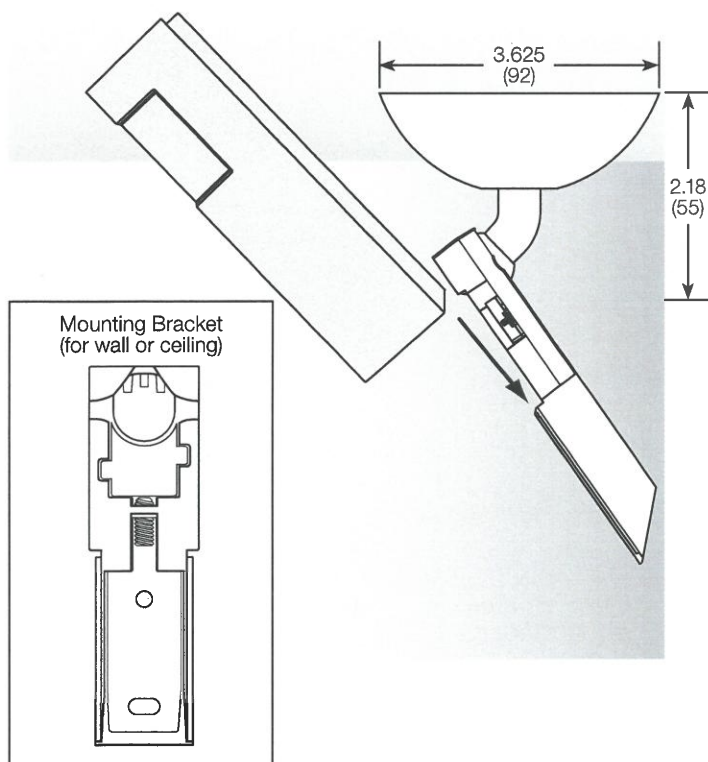


Figure C. Flexible Mounting Armature

Measurements are: in (mm)



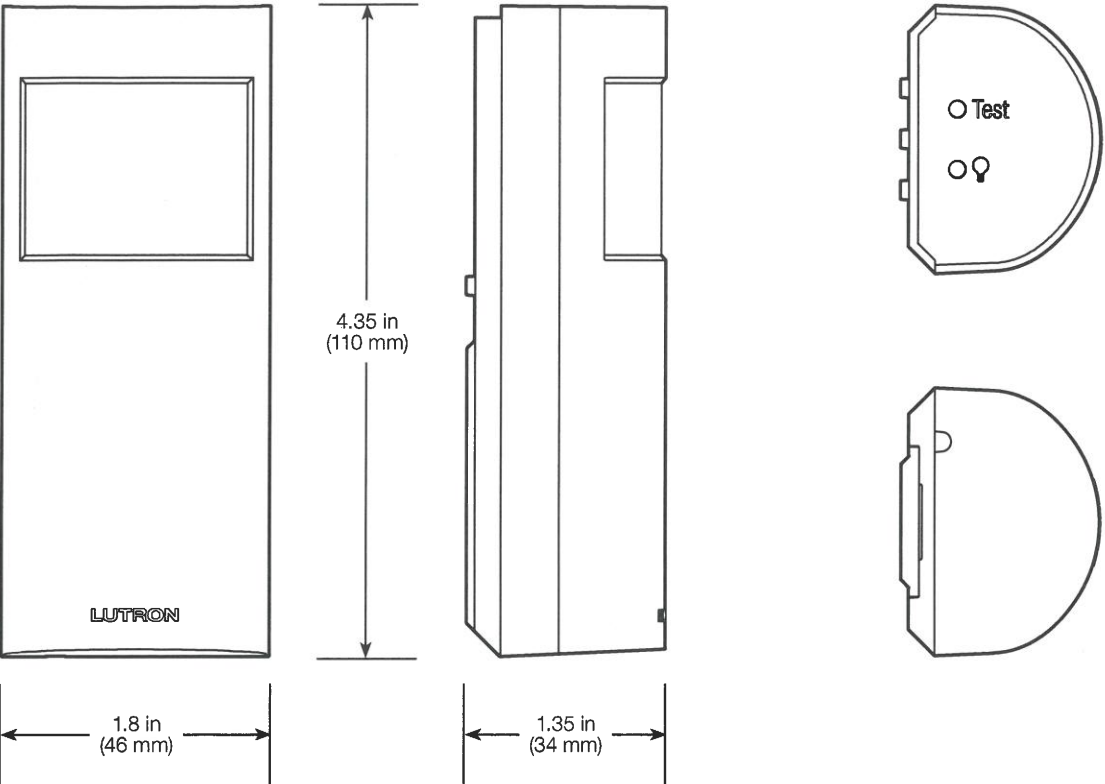
3M and Command are trademarks of 3M Company.

Job Name:

Model Numbers:

Job Number:

Dimensions

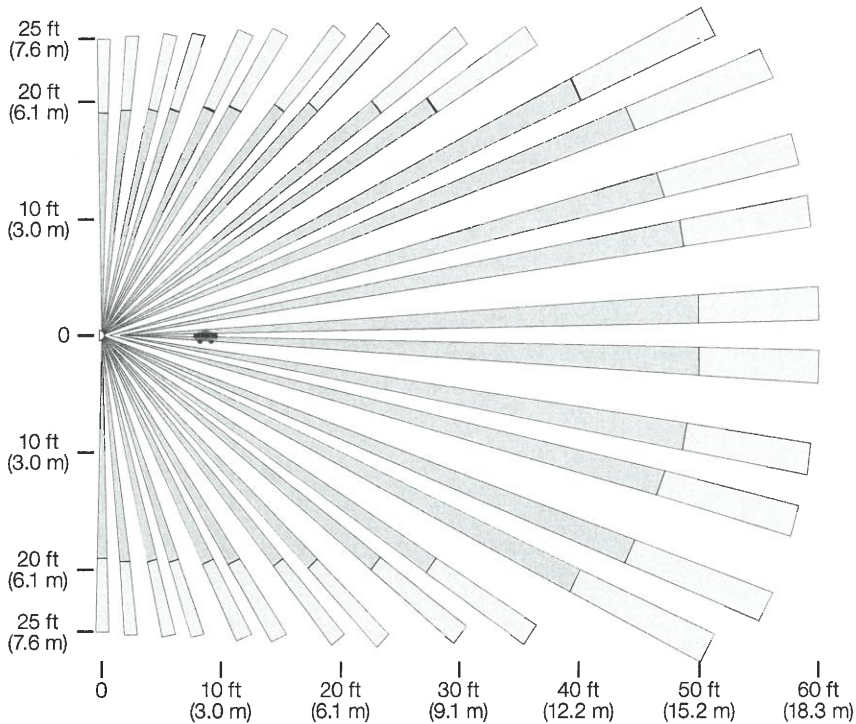


Coverage Diagrams

180° Wall-Mount Sensors

Models: LRFX-OWLB-P-WH and LRFX-VWLB-P-WH

Horizontal Beam Diagram

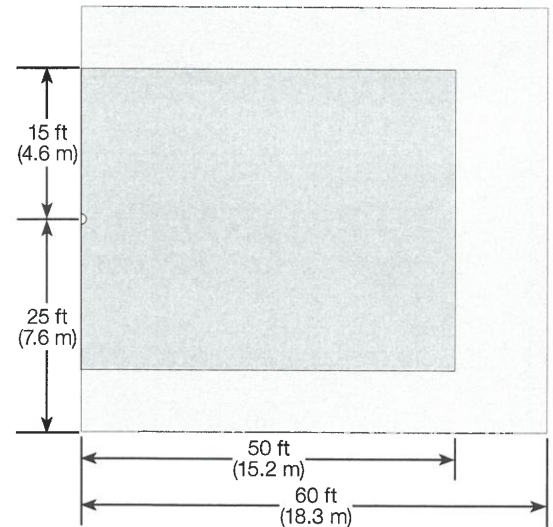


Tested Coverage Area

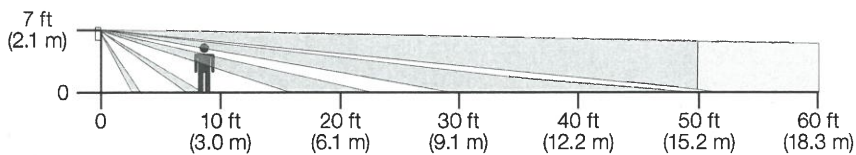
Major motion coverage: 3000 ft² (278.7 m²)

Minor motion coverage: 1500 ft² (139.4 m²)

Compliant to NEMA WD7 test grid (shown below)



Vertical Beam Diagram*



* Sensor mounting shown at 7 ft (2.1 m). Mounting height should be between 6 ft and 8 ft (1.6 m and 2.4 m).

Job Name:

Model Numbers:

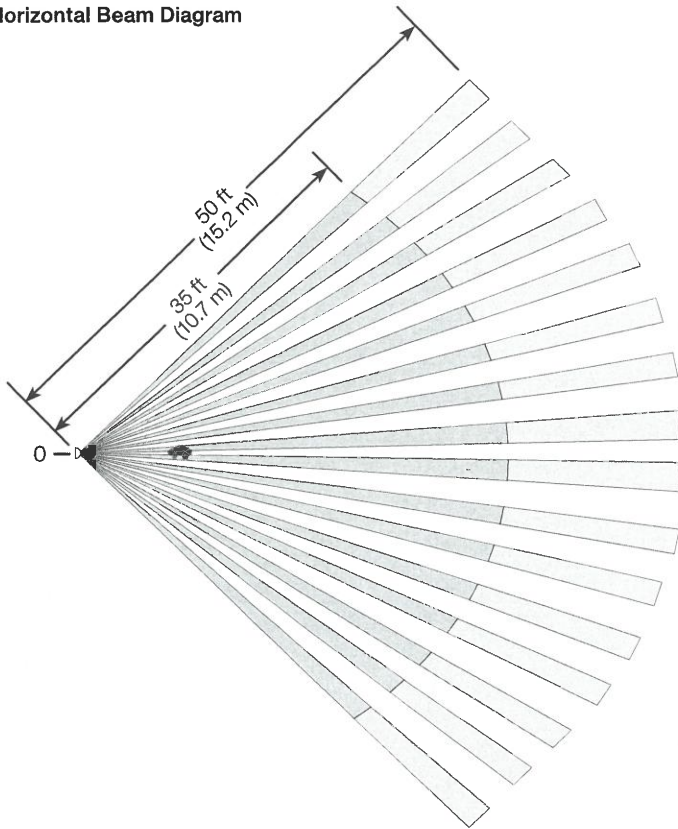
Job Number:

Coverage Diagrams

90° Corner-Mount Sensors

Models: LRFX-OKLB-P-WH and LRFX-VKLB-P-WH

Horizontal Beam Diagram

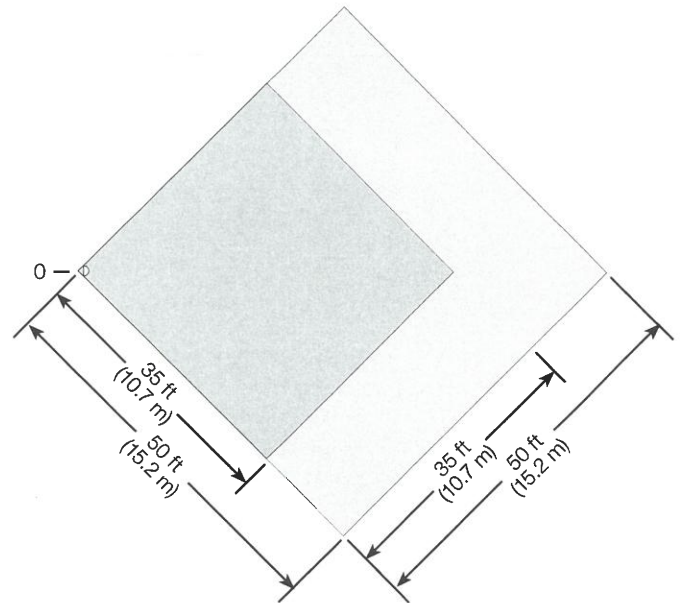


Tested Coverage Area

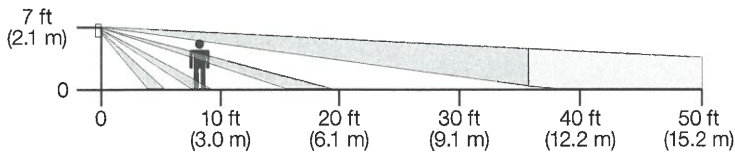
Major motion coverage: 2500 ft² (232.3 m²)

Minor motion coverage: 1225 ft² (113.8 m²)

Compliant to NEMA WD7 test grid (shown below)



Vertical Beam Diagram*



* Sensor mounting shown at 7 ft (2.1 m). Mounting height should be between 6 ft and 8 ft (1.6 m and 2.4 m).

Job Name:

Model Numbers:

Job Number:

Coverage Diagrams

Hallway Sensors

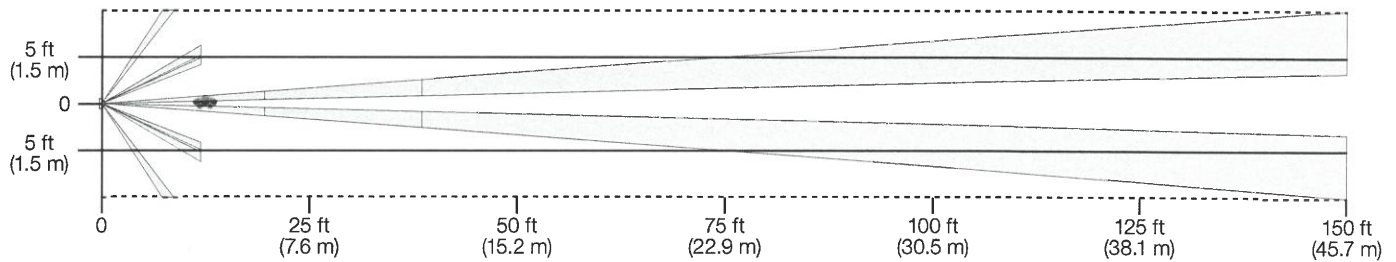
Models: LRFX-OHLB-P-WH and LRFX-VHLB-P-WH

- Designed to mount at the end of a hallway with a clear view down the length of a hall.
- Detection at longer distances is best when motion occurs at right angles to the sensor.
- Multiple sensors can be used to extend coverage.

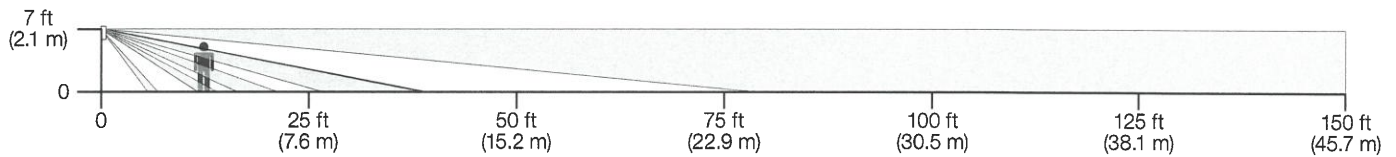
Maximum Recommended Hallway Length

Hall Width	Hall Length
6 ft (1.8 m) or less	50 ft (15.2 m)
8 ft (2.4 m) or less	100 ft (30.5 m)
10 ft (3.0 m) or more	150 ft (45.7 m)

Top View



Side View*



* Sensor mounting shown at 7 ft (2.1 m). Mounting height should be between 6 ft and 8 ft (1.6 m and 2.4 m) and centered within hallway.

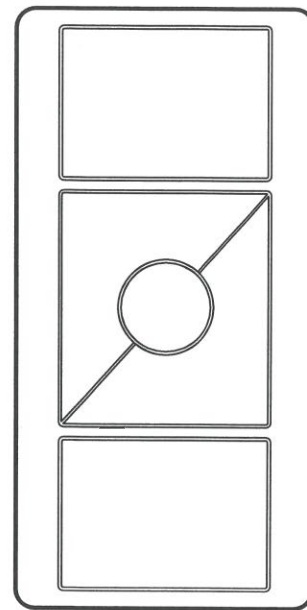
Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Pico® Wireless Control and Mounting Accessories (for North, Central, and South America)

The Pico® wireless control is a flexible and easy to use device that allows the user to control Lutron® wireless load control devices from anywhere in the space. This battery operated control requires no external power or communication wiring.

Features

- Provides control for the following:
 - Maestro Wireless® controls
 - PowPak™ Modules
 - Sivoia® QS wireless systems
 - Energi Savr Node™ and Quantum® systems, through the use of a QS sensor module (QSM)
 - GRAFIK Eye® QS wireless systems
 - RadioRA® 2 systems
 - HomeWorks® QS wireless systems
- Control available in a variety of button marking options.
- Easy reconfiguration for use as:
 - Handheld remote
 - Wall mount control (with or without faceplate; faceplate adapter kit sold separately)
 - Car visor control (car visor clip sold separately)
 - A table top control (table top pedestal sold separately).
- Battery powered Pico® wireless control requires no wiring.
- 10 year battery life (one CR2032 battery included).
- Can provide control to blinds, curtains or lighting devices within a 30 ft (9 m) range.



Pico® wireless control

Job Name: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	Model Numbers: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>
Job Number: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>

Specifications

Regulatory

- Lutron® Quality Systems registered to ISO 9001:2008.
- FCC Certified (U.S.A.)
- IC Certified (Canada)
- COFETEL Certified (Mexico)
- SUTEL Certified (Costa Rica)

Power

- Operating Voltage 3 V_{DC}
- (1) CR2032 Battery (included)

System Communication and Capacity

- Pico® wireless controls communicate using Radio Frequency (RF) at 431 - 437 MHz.
- Thousands of system addresses prevent interference between systems.
- Pico® wireless controls can be assigned to control blinds, curtains or lighting devices that are within a 30 ft (9 m) range.
- Can be configured as a scene or zone control in GRAFIK Eye® QS wireless applications.

Mounting Considerations

- Mounting of any RF devices on or in close proximity to a metal surface will drastically reduce the effective range of radio signal transmission or reception.
- All RF devices must be mounted on non-conductive materials to ensure proper performance.
- Coming soon! If you wish to mount your Pico® wireless control to a metal surface, the "Metal Mounter" will be required in order to maintain proper RF performance. Please contact Lutron® Customer Service for availability at 1.888.LUTRON1 (1.888.588.7661).

Environment

- Ambient operating temperature:
32 °F to 140 °F (0 °C to 60 °C)
- Maximum 90% non-condensing relative humidity
- Indoor use only

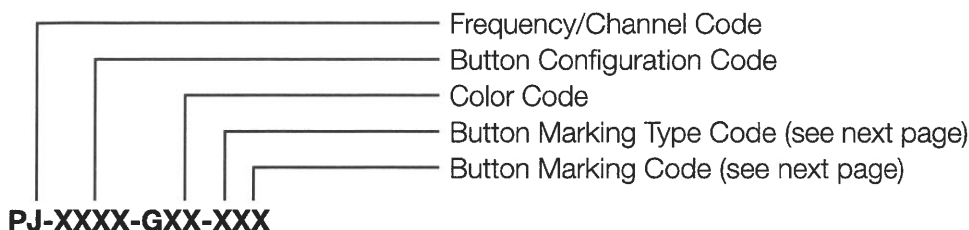
Warranty

- 1 Year Limited Warranty
For additional Warranty information, please visit
http://www.lutron.com/TechnicalDocumentLibrary/369-119_Wallbox_Warranty.pdf

Job Name: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	Model Numbers: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>
Job Number: <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>

Model Number

For order quantities of 96 pieces or greater of the same model number, bulk packaging may be available. Mounting hardware is not available with bulk packaging. Please contact Lutron® Customer Service for availability at 1.888.LUTRON1 (1.888.588.7661).



Frequency/Channel Codes:

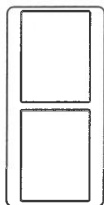
Code

J — 431.0 - 437.0 MHz

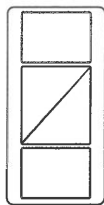
Contact Lutron's Customer Service at www.lutron.com for frequency/channel code compatibility with your particular geographic region, and for integrating with other Lutron® lighting and shading products.

Button Configuration Codes:

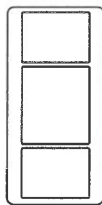
<u>Button Configuration</u>	<u>Code</u>
2 Button	2B
2 Button with Raise/Lower	2BRL
3 Button	3B
3 Button with Raise/Lower	3BRL



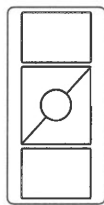
2 Button
(2B)



2 Button with
Raise/Lower
(2BRL)



3 Button
(3B)



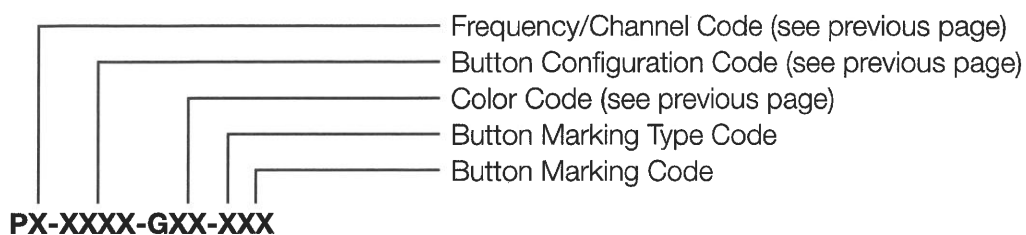
3 Button with
Raise/Lower
(3BRL)

Color Codes:

<u>Gloss Color</u>	<u>Code</u>
White	WH
Black	BL
Ivory	IV
Light Almond	LA
White/Gray	WG (Top and Raise buttons are White; Preset, Lower, and Bottom buttons are Gray)

Continued on next page...

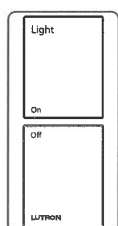
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Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Model Number (continued)**Button Marking Type Codes:**

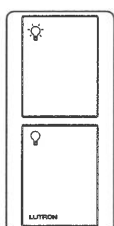
<u>Button Marking Type Options</u>	<u>Code</u>
Text	T
Icons	I

Button Marking Codes:

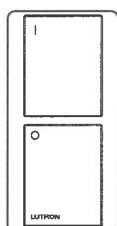
<u>Button Marking Options</u>	<u>Code</u>	<u>Button Marking Options</u>	<u>Code</u>
Light	01	Drapery	08
Shade	02	Blackout	09
Shade 1	05	Sheer	10
Shade 2	06	Blind	13
Screen	07	Power	14

2 Button

Light (text)
(01)



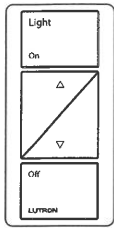
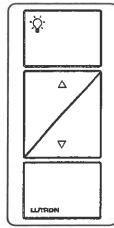
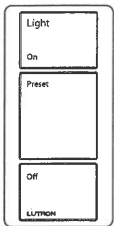
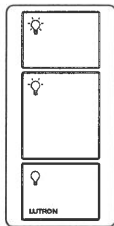
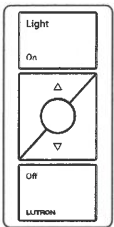
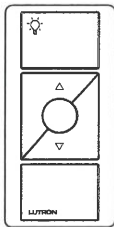
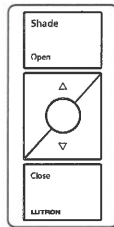
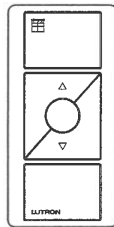
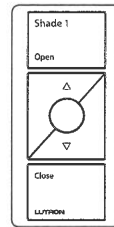
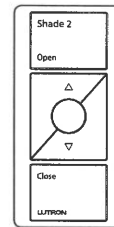
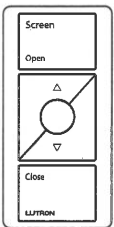
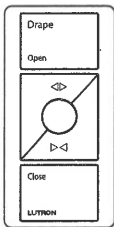
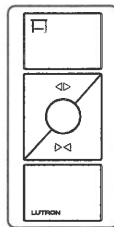
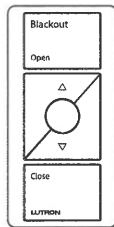
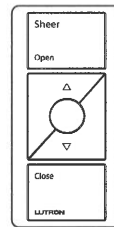
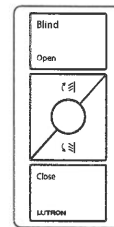
Light (icons)
(01)



Power (icons)
(14)

Continued on next page...

Job Name: <input type="text"/>	Model Numbers: <input type="text"/>	
Job Number: <input type="text"/>	<input type="text"/>	<input type="text"/>

Button Marking Codes: (continued)**2 Button with Raise/Lower**Light (text)
(01)Light (icons)
(01)**3 Button**Light (text)
(01)Light (icons)
(01)**3 Button with Raise/Lower**Light (text)
(01)Light (icons)
(01)Shade (text)
(02)Shade (icons)
(02)Shade 1 (text)
(05)Shade 2 (text)
(06)Screen (text)
(07)Drapery (text)
(08)Drapery (icons)
(08)Blackout (text)
(09)Sheer (text)
(10)Blind (text)
(13)

Job Name:

Job Number:

Model Numbers:

Operation

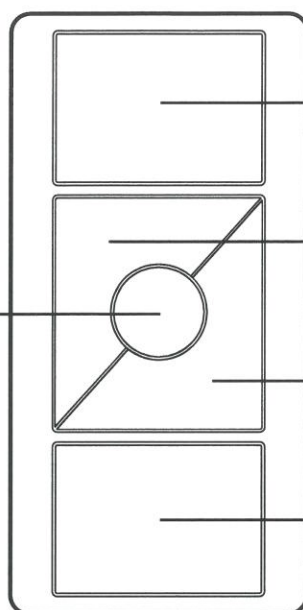
Preset Button
(3B & 3BRL models only)

Tap once:

Devices go to preset levels/positions. Activates scene 16 when used in scene mode with GRAFIK Eye® QS wireless applications.

Press and hold:

To save new preset level or position, press and hold for 6 seconds.



Top Button

Lights brighten to full intensity and shades/draperies go to open limit. Activates scene 1 when used in scene mode with GRAFIK Eye® QS wireless applications.

Raise Button (2BRL & 3BRL models only)

Lights increase in intensity and shades/draperies move towards open limit.

Lower Button (2BRL & 3BRL models only)

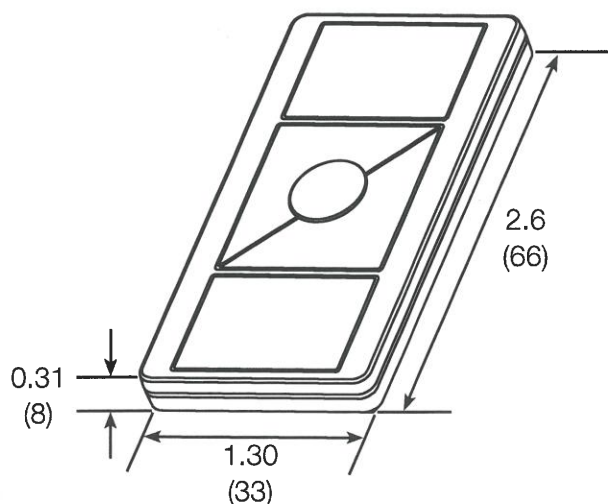
Lights decrease in intensity and shades/draperies move towards close limit.

Bottom Button

Lights dim to off and shades/draperies go to close limit. Activates "OFF" scene when used in scene mode with GRAFIK Eye® QS wireless applications.

Dimensions

Measurements shown as: in
(mm)



Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Pico® Pedestal Model Number

Pedestals sold separately. Available in gloss finish only.

L-PEDX-XX



Capacity	Capacity Code
Single	1
Double	2
Triple	3
Quadruple	4

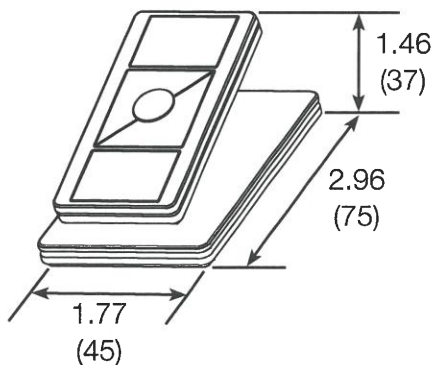
Gloss Color	Color Code
White	WH
Black	BL

Dimensions

Measurements shown as: ⁱⁿ
(mm)

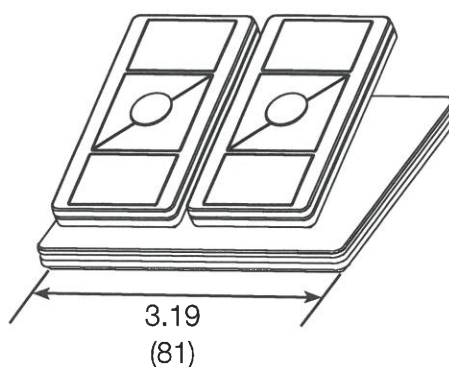
Single Pedestal

Pedestals sold separately.



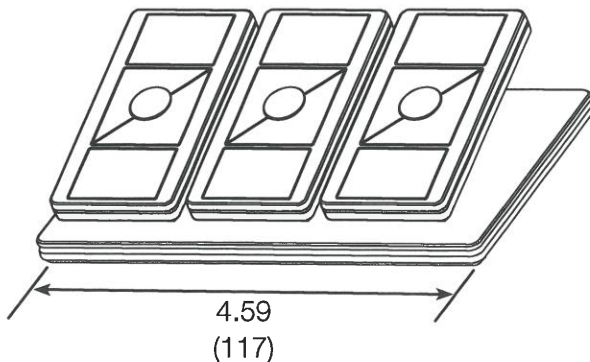
Double Pedestal

Pedestals sold separately.



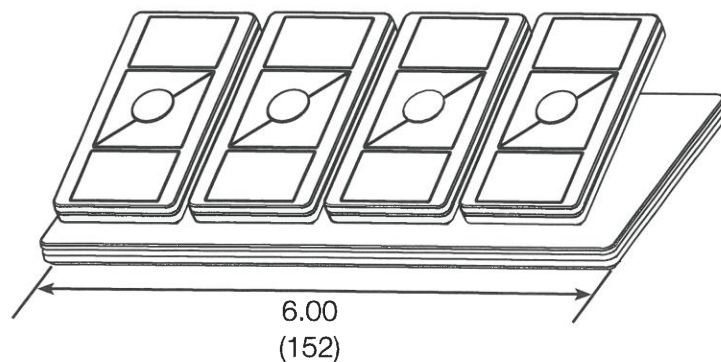
Triple Pedestal

Pedestals sold separately.



Quadruple Pedestal

Pedestals sold separately.

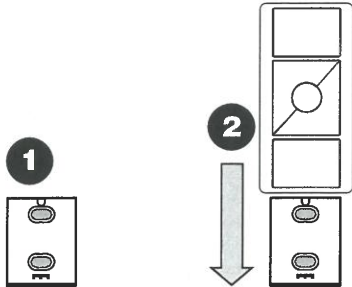


Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>

Mounting Options

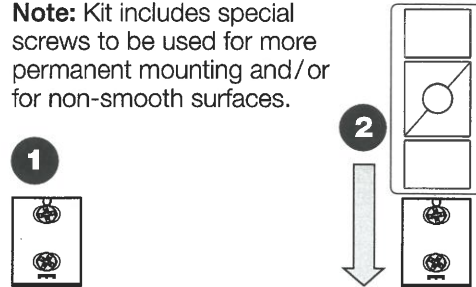
Stand Alone Mounting

Adhesive Mount (included with Pico®)



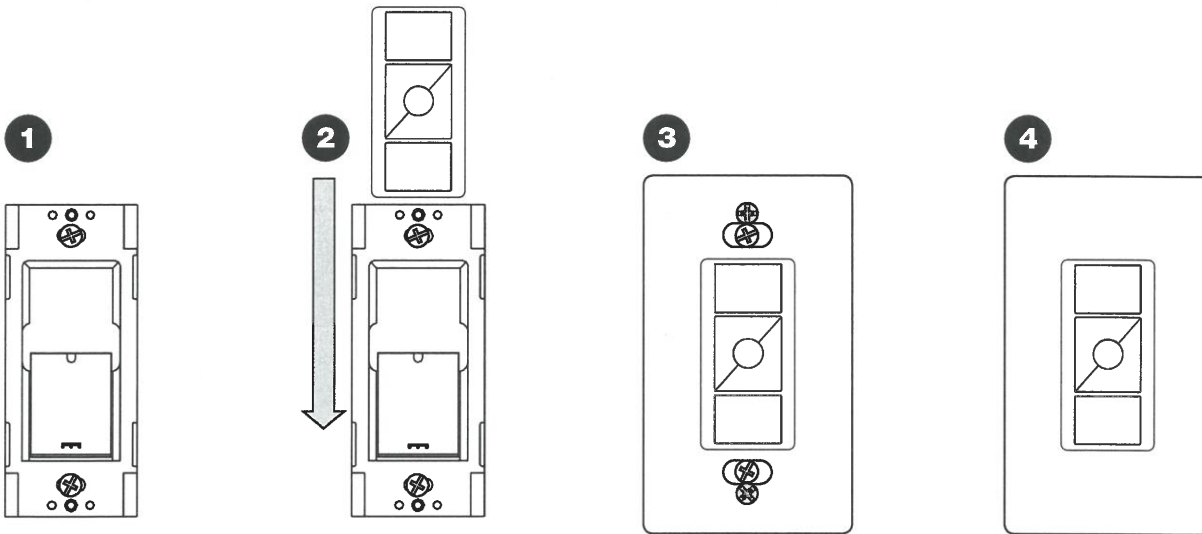
Screw Mount (sold separately)
Model PICO-SM-KIT

Note: Kit includes special screws to be used for more permanent mounting and/or for non-smooth surfaces.



Wallplate Adapter

Model PICO-FP-ADAPT (sold separately)



*Wallplate adapter / wallplate sold separately

Continued on next page...

LUTRON SPECIFICATION SUBMITTAL

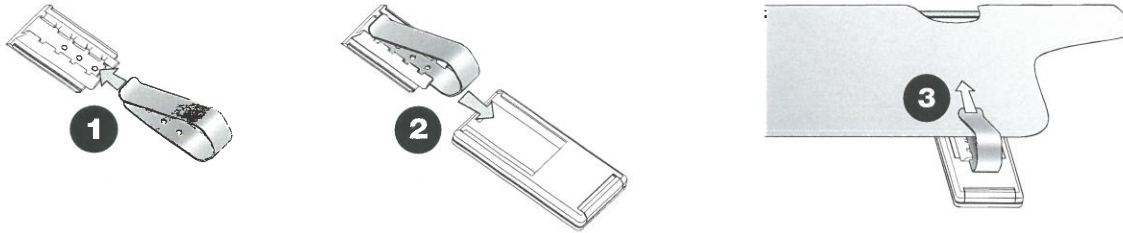
Page: 8

Job Name:	Model Numbers:	
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Job Number:	<input type="text"/>	<input type="text"/>

Mounting Options (continued)

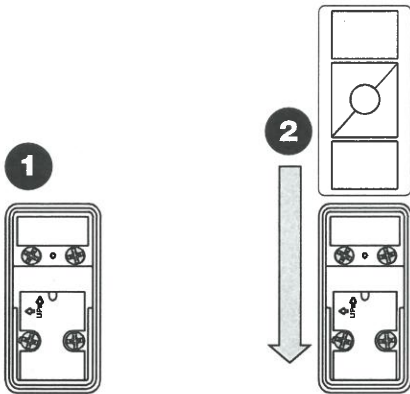
Car Visor

Model PICO-CARVISOR-CL (sold separately)



Mounting to Metal Surfaces

Coming Soon (sold separately)



Job Name:	Model Numbers:	
<input type="text"/>	<input type="text"/>	<input type="text"/>
Job Number:	<input type="text"/>	<input type="text"/>



FSP-211 Digital High/Low Passive Infrared Fixture Integrated Outdoor Sensor

Fully adjustable high and low dimmed light levels

Designed for LED fixtures; rated for extreme temperatures and up to 200,000 on/off cycles

Hold off setpoint with automatic calibration option for convenience and added energy savings



Adjustable via handheld wireless configuration tool

IP66 rated with choice of lenses for wet and outdoor locations, and mounting heights from 8' to 40'

Adjustable time delay and cut off delay



PROJECT
LOCATION/TYPE

Product Overview

Description

The FSP-211 mounts in an outdoor lighting fixture and provides multi-level control based on motion. The sensor also includes a photocell to measure the ambient light level. It controls 0-10 VDC LED drivers or dimming ballasts, as well as non-dimming ballasts and, with an FSP-Lx Lens, is rated for wet and cold locations. All control parameters are adjustable via a wireless configuration tool capable of storing and transmitting sensor profiles.

Operation

The sensor ramps lighting On to the selected High mode level when motion is first detected and the ambient light level is below the hold off setpoint. After the sensor stops detecting movement and the time delay elapses, lights fade to the Low mode level. If there is no motion during the subsequent cut off time delay, the lights will turn Off. If the sensor detects motion before the lights turn Off, it ramps the light level back to High, unless the daylight contribution is sufficient to hold lighting at Low.

Features

- Provides line voltage On/Off switching and 0-10 VDC dimming control
- Works with ballasts or LED drivers
- High and low modes fully adjustable from 0 to 10V
- Time delay from 5 to 30 minutes
- Optional cut off delay
- Adjustable ramp up and fade down times

Wireless Handheld Configuration Tool

Initial setup and subsequent sensor adjustments are made using a handheld configuration tool (FSIR-100). This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cut off and more. The FSIR-100 is also used to initiate automatic calibration of the FSP-211 ambient light level setpoint. The setpoint is used to hold the controlled lighting off or at low level when there is sufficient daylight. The wireless tool stores up to five sensor parameter profiles to speed configuration of multiple sensors.

Applications

The slim, low-profile FSP-211 is designed for installation inside the bottom of a light fixture body. When fully assembled and installed in an IP66-rated fixture, the sensor and FSP-Lx lenses are IP66 outdoor rated. The sensor is ideal for areas such as parking facilities, gas stations, pedestrian pathways and warehouses. A choice of four lenses ensures complete coverage for mounting heights up to 40'.

- Optional daylighting setpoint features automatic calibration, or permits manual adjustment
- Configuration tool stores five sensor profiles for quick setup and adjustment of multiple sensors
- Polycarbonate construction; flame retardant, UV resistant, impact resistant, recyclable
- UL244A and UL508; IP66 rated (when fully assembled and installed) for use in wet locations

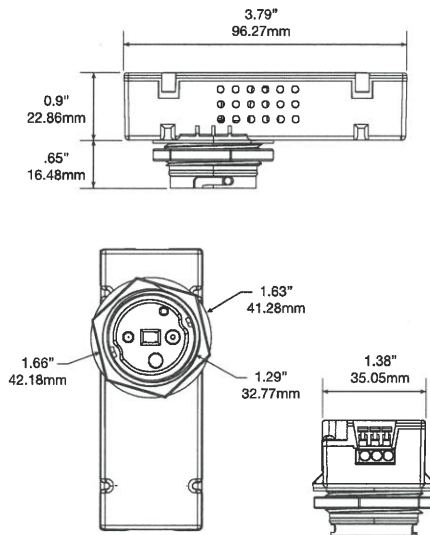


Specifications

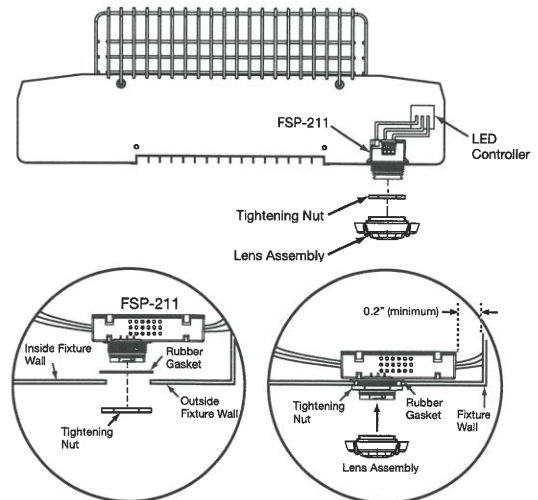
- 120/277 VAC, 50/60Hz
 - Load @120 VAC 0-800W ballast or incandescent
 - Load @277 VAC 0-1200W ballast
- 230 VAC, 50Hz; Load 0-300W ballast
- Relay life rating: 200,000 cycles (120/277 VAC); 50,000 cycles (230 VAC)
- High mode: 0-10 V; default 10 V
- Low mode: Off, 0-9.8 V; default 1 V
- Time delay: 30 sec., 5-30 min.; default 5 min.
- Cut off delay: none, 1-60 min. 1-5 hrs.; default 1 hr.
- Sensitivity: none, low, med, max; default max
- Setpoint: none, 1-250 fc, auto; default 4 fc
- Ramp up time: none, 1-60 sec.; default none
- Fade down time: none, 1-60 sec.; default none
- Operating temperature: -40-167°F [-40-75°C]
- Operating Humidity: 20-90%
- Weight: 2.8 oz (80 grams)
- IP66, CE compliant
- TUV, UL and cUL listed
- Five year warranty

Dimensions & Mounting

Sensor Dimensions



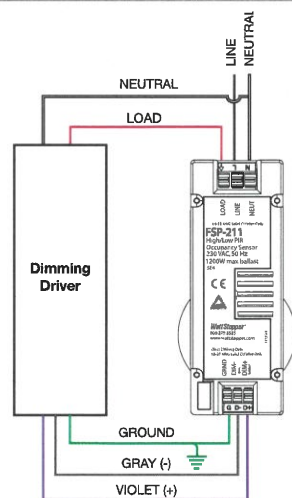
Sensor Mounting



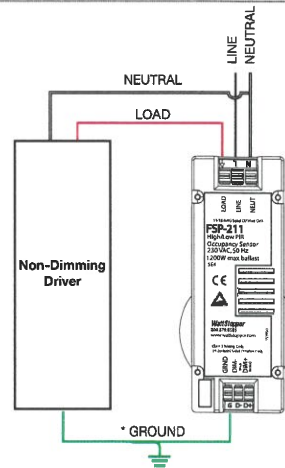
The FSP-211 accommodates fixture wall thickness up to 0.125" (3.18mm).

Wiring

Dimming Wiring Diagram



Non-Dimming Wiring Diagram



*The FSP-211 must be properly grounded.

Ordering Information

Catalog No.	Color	Description	Input Voltage
<input type="checkbox"/> FSP-211	White	Fixture mount, passive infrared motion sensor	120/277V, 50/60Hz or 230V, 50Hz
<input type="checkbox"/> FSIR-100	Black	Remote handheld configuration tool	(3) 1.5V AAA alkaline batteries

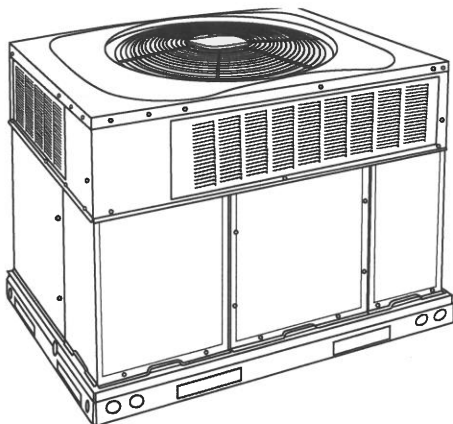
50VT-K

Comfort™ 13.4 SEER2 Single-Packaged Heat Pump System with Puron® (R-410A) Refrigerant
Single Phase 2-5 Nominal Tons (Sizes 24-60)
Three Phase 3-5 Nominal Tons (Sizes 36-60)



Turn to the experts

Product Data



A09033

Fig. 1 – Unit 50VT-K

Single-Packaged Products with Energy-Saving Features and Puron® refrigerant.

- 13.4 SEER2
- 11.05 EER2
- 6.7 HSPF2
- ECM Motor-Standard
- Louvers-Standard
- Cabinet air leakage of 2.0% or less at 5 in. W.C. when tested in accordance with ASHRAE standard 193. (Low leak FIOP models only.)

Features/Benefits

One-piece Heat Pump unit with optional electric heater, low installation cost, dependable performance and easy maintenance.

Puron Environmentally Sound Refrigerant is Carrier's unique refrigerant designed to be environmentally balanced. Puron is an HFC refrigerant which does not contain chlorine that can harm the ozone layer. Puron refrigerant is in service in millions of systems, proving highly reliable and is non-ozone depleting.

Easy Installation

Factory-assembled package is a compact, fully self-contained, heat pump unit that is prewired, pre-piped, and pre-charged for minimum installation expense. These units are available in a variety of standard capacity ranges with voltage options to meet residential and light commercial requirements. Units are lightweight and install easily on a rooftop or at ground level. The high tech composite base eliminates rust problems associated with ground level applications.

Durable, dependable components

Scroll Compressors are designed for high efficiency. Each compressor is hermetically sealed against contamination to help promote longer life and dependable operation. Each compressor also has vibration isolation to provide quieter operation. All compressors have internal high pressure and overcurrent protection.

ECM Motor is standard on all models. Direct-drive, PSC (Permanent Split Capacitor) condenser-fan motors are designed to help reduce energy consumption and provide for cooling operation down to 40°F (4.4°C) outdoor temperature. Low ambient kit is available as a field installed accessory.

Innovative Unit Base Design

On the inside a high-tech composite material will not rust and incorporates a sloped drain pan which improves drainage and helps inhibit mold, algae and bacterial growth. On the outside metal base rails provide added stability as well as easier handling and rigging.

Thermostat Controls designed to work as a system with Carrier's small packaged product.

Refrigerant system is designed to provide dependability. Liquid filter driers are used to promote clean, unrestricted operation. Each unit leaves the factory with a full refrigerant charge. Refrigerant service connections make checking operating pressures easier.

High and Low Pressure Switches provide added reliability for the compressor.

Indoor and Outdoor coils are computer-designed for optimum heat transfer and efficiency. The indoor coil is aluminum indoor coil and is located inside the unit for protection against damage. The outdoor coil is internally mounted on the top tier of the unit.

Low sound ratings ensure a quiet indoor and outdoor environment with sound ratings as low as 69.9 dBA.

Easy to service cabinets provide easy 3 panel accessibility to serviceable components during maintenance and installation. The base with integrated drain pan provides easy ground level installation with mounting pad. A nesting feature ensures a positive basepan to roof curb seal when the unit is roof mounted. A convenient 3/4-in. wide perimeter flange makes frame mounting on a rooftop easy.

Convertible duct configuration

Unit is designed for use in either downflow or horizontal applications. Each unit is converted from horizontal to downflow with the two standard duct covers. Downflow operation is easily provided in the field to allow vertical ductwork connections. The basepan utilizes seals on the bottom openings to ensure a positive seal in the vertical airflow mode.

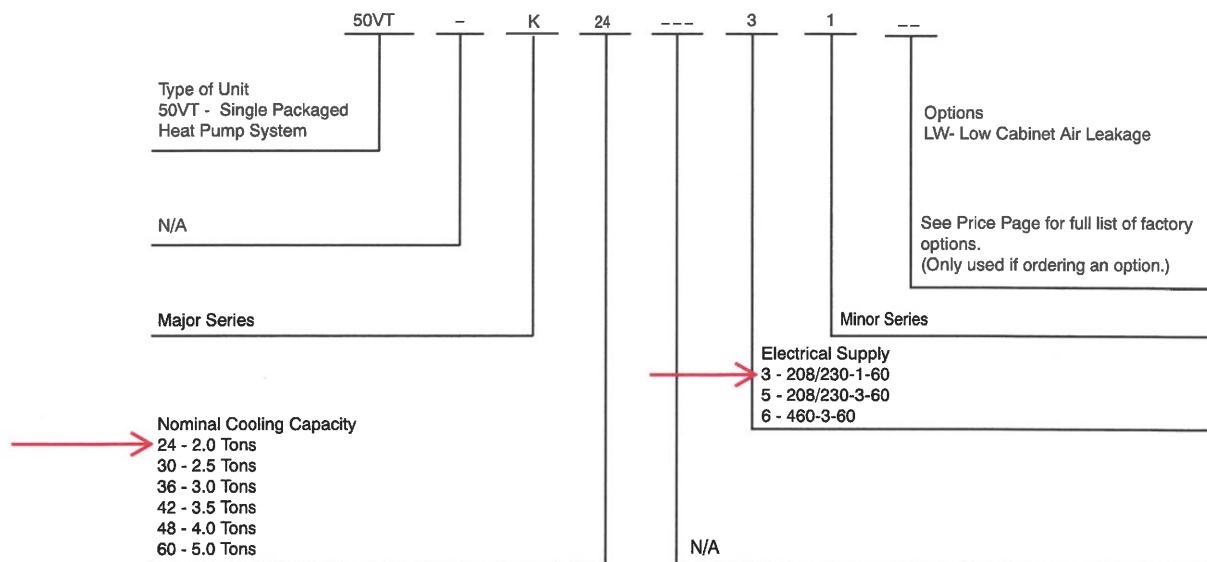
Cabinets are constructed of heavyduty, phosphated, zinc-coated prepainted steel capable of withstanding 500 hours in salt spray. Interior surfaces of the evaporator and electric heater compartments are insulated with cleanable semi-rigid insulation board, which keeps the conditioned air from being affected by the outdoor ambient temperature and provides improved indoor air quality. (Conforms to American Society of Heating, Refrigeration and Air Conditioning Engineers No. 62P.) The sloped drain pan minimizes standing water in the drain. An external drain is provided.

Short-Cycling protection for the compressor is incorporated into our defrost control board ensuring a five minute delay (+/-2 minutes) before restarting compressor after shutdown for any reason.

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Features/Benefits	1	Typical Piping and Wiring	20
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Model Number Nomenclature



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



AHRI* Capacities

Cooling Capacities and Efficiencies

UNIT	NOMINAL TONS	STANDARD CFM	COOLING CAPACITY	EER2	SEER2
24	2	750	22000	11.05	13.4
30	2.5	950	29400	11.05	13.4
36	3	1150	33400	11.05	13.4
42	3.5	1350	40000	11.05	13.4
48	4	1600	47000	11.05	13.4
60	5	1750	55000	11.05	13.4

Heat Pump Heating Capacities and Efficiencies

UNIT	HEATING CAPACITY (BTUH) @ 47°F (8.3°C)	COP @ 47°F (8.3°C)	HEATING CAPACITY (BTUH) @ 17°F (-8.3°C)	COP @ 17°F (-8.3°C)	HSPF2
24	24000	3.7	12500	2.20	6.7
30	30000	3.6	17700	2.30	6.7
36	35000	3.8	18400	2.30	6.7
42	40000	3.7	22400	2.30	6.7
48	46000	3.7	25000	2.30	6.7
60	57000	3.5	32200	2.42	6.7

LEGEND

dB-Sound Levels (decibels)

db—Dry Bulb

SEER2—Seasonal Energy Efficiency Ratio

wb—Wet Bulb

COP—Coefficient of Performance

HSPF2-Heating Season Performance Factor

* Air Conditioning, Heating & Refrigeration Institute.

**At "A" conditions-80°F (26.7°C) indoor db/67°F (19.4°C) indoor wb & 95°F (35°C) outdoor db.

†Rated in accordance with U.S. Government DOE Department of Energy) test procedures and/or AHRI Standards 210/240.

Notes:

1. Ratings are net values, reflecting the effects of circulating fan heat.

Ratings are based on:

Cooling Standard: 80°F (26.7°C) db, 67°F (19.4°C) wb indoor entering-air temperature and 95°F (35°C) db outdoor entering-air temperature.

2. Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

A-Weighted Sound Power Level (dBA)

UNIT SIZE	STANDARD RATING (dBA)	TYPICAL OCTAVE BAND SPECTRUM (dBA without tone adjustment)						
		125	250	500	1000	2000	4000	8000
24	69.9	59.0	56.6	57.9	60.9	55.3	51.7	44.0
30	73.1	55.9	57.0	63.1	63.7	59.7	54.2	48.8
36	72.0	52.2	56.7	62.7	62.6	60.0	55.3	49.3
42	73.7	54.5	61.3	63.5	63.5	60.5	58.2	53.3
48	74.0	56.9	59.3	63.9	64.5	61.7	55.4	47.4
60	74.7	60.0	61.6	63.8	63.5	62.0	59.3	50.3

NOTE: Tested in compliance with AHRI 270 but not listed with AHRI.

Physical Data

	24	30	36	42	48	60
Unit Size	2	2.5	3	3.5	4	5
Shipping Weight* (lb)	343	376	420	440	440	510
(kg)	155.6	170.6	190.6	199.6	199.6	231.4
Compressor Quantity	1					
Type	Scroll					
Refrigerant	R-410A					
Refrigerant Quantity (lb)	7.25	11.5	10.4	10.5	10.0	13.25
Quantity (kg)	3.3	5.2	4.7	4.8	4.5	6.0
Refrigerant Metering Device	Indoor TXV, Outdoor Dual Accuraters				Indoor Accurater, Outdoor Dual Accuraters	Indoor TXV, Outdoor Dual Accuraters
Orifice ID (in)	N/A				0.080 (1)	N/A
(mm)					2.03 (1)	
Orifice OD (in)	0.032 (2)	0.035 (2)	0.040 (2)	0.046 (2)	0.046 (2)	0.046 (2)
(mm)	0.81 (2)	0.89 (2)	1.02 (2)	1.17 (2)	1.17 (2)	1.17 (2)
Outdoor Coil						
Rows...Fins/in,	1...21	2...21	1...21	1...21	2...21	2...21
face area (sq. ft.)	18.8	18.8	23.3	23.3	13.6	17.5
Outdoor Fan						
Nominal Airflow (cfm)	3000	3500	3500	3500	3500	3500
Diameter (in.)	24	24	26	26	26	26
Diameter (mm)	610	610	660	660	660	660
Motor hp (rpm)	1/10 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)	1/5 (810)
Indoor Coil						
Rows...Fins/in,	3...15	3...17	3...17	3...17	3...17	3...17
face area (sq. ft.)	3.7	3.7	4.7	4.7	5.6	5.6
Indoor Blower						
Nominal Airflow (cfm)	750	950	1150	1350	1600	1750
Size (in.)	10 x 10	10 x 10	11 x 10	11 x 10	11 x 10	11 x 10
Size (mm)	254 x 254	254 x 254	279 x 254	279 x 254	279 x 254	279 x 254
Motor hp (rpm)	1/2	1/2	1/2	3/4	1	1
High Pressure Switch (psig)	650 +/- 15					
Cutout	420 +/- 25					
Reset (Auto)						
Loss-of-Charge/Low Pressure Switch (psig)	20 +/- 5					
Cutout	45 +/- 10					
Reset (Auto)						
Return Air Filters disposable†	2 each 20x12x1 in. 508x305x25 mm		1 each 24x14x1 in. 610x356x25 mm 24x16x1 in. 610x406x25 mm		1 each 24x16x1 in. 610x406x25 mm 24x18x1 in. 610x457x25 mm	

*. For 460 volt units, add 14 lb (6.4 kg) to the weight.

†. Required filter sizes shown are based on the larger of the AHRI (Air Conditioning Heating and Refrigeration Institute) rated cooling airflow or the heating airflow velocity of 300-350 ft/minute for throwaway type or 450 ft/minute for high-capacity type. Air filter pressure drop for non-standard filters must not exceed 0.08 IN. W.C.
If using accessory filter rack refer to the filter rack installation instructions for correct filter size and quantity.

ACCESSORIES

PART NUMBER	DESCRIPTION	USED WITH	
CPRFCURB011B00 ⁺	Roof Curb, 14-in. High	24 - 60	
CPRFCURB013B00		36 - 60	
CPADCURB001A00 ⁺	Adapter curb	24 - 30	
CPADCURB002A00 ⁺		36 - 60	
CPGSKTKIT001A00	Gasket Kit for existing roof curb with new base rail unit	All	
CPECOMZR007B00	Economizer - Vertical, gear driven w/Filter Rack and 1-in. filter	24 - 30	
CPECOMZR008A00		36 - 42	
CPECOMZR009A00		48 - 60	
CPECOMZR010A00		24 - 30	
CPECOMZR011A00	Economizer - Horizontal w/Filter Rack and 1-in filter.	36 - 42	
CPECOMZR012A00		48 - 60	
AXB078ENT	Outdoor Enthalpy Control	ALL	
CPMANDPR007A00	Manual Outside Air Damper - External w/Filter Rack and 1-in. filters	24 - 30	
CPMANDPR008A00		36 - 42	
CPMANDPR009A00		48 - 60	
CPFILTRK007A00	Internal Filter Rack (includes 1-in. filters)	24 - 30	
CPFILTRK008A00		36 - 42	
CPFILTRK009A00		48 - 60	
CPLOWAMB001A00	Low Ambient Control	ALL	
CPDUCFLG002A00	Square to Round (1 set of 2, used with horizontal duct flanges only)	24 - 48	
CPHSTART002A00	Compressor Start Assist Kit (single phase only)	ALL	
CPCRKHTR008A00	240V Crankcase Heater Single Phase	24 - 36	
CPCRKHTR004A00		42 - 60	
NRTIMEGD001A00	Five Minute Compressor Delay	ALL	
HN65KJ016	Relay Pilot Duty	ALL	
CPFLUEDS001A00	Flue Discharge Deflector Assembly	ALL	
ELECTRIC HEATERS (208/230 — SINGLE PHASE — 60 Hz)			
	Nominal Capacity (kW)	Fuses	
CPHEATER052B0 [‡]	5.0	-	24 - 36
CPHEATER064B0 [‡]	5.0	4	ALL
CPHEATER070B0 [‡]	7.2	4	ALL
CPHEATER050B0 [‡]	10.0	4	ALL
CPHEATER066B0 [‡]	15.0	6	36 - 60
CPHEATER133B0 [‡]	15.0	4	30
CPHEATER054B0 [‡]	20.0	6	42 - 60
ELECTRIC HEATERS (208/230 — THREE PHASE — 60 Hz)			
CPHEATER055B0 [‡]	5.0	-	36 - 60
CPHEATER056B0 [‡]	10.0	-	36 - 42
CPHEATER068B0 [‡]	10.0	6	36 - 60
CPHEATER058B0 [‡]	20.0	6	36 - 60
CPHEATER059B0 [‡]	20.0	6	42 - 60
ELECTRIC HEATERS (460 THREE PHASE — 60 Hz)			
CPHEATER061B0 [‡]	5.0	-	36 - 60
CPHEATER062B0 [‡]	15.0	-	36 - 60
CPHEATER063B0 [‡]	20.0	-	42 - 60

*. CPRFCURB011B00 can be used with 42-60 size units with some overhang.

†. Can also be used when replacing other manufacturer's older generation units that contain a composite base without a metal base rail.

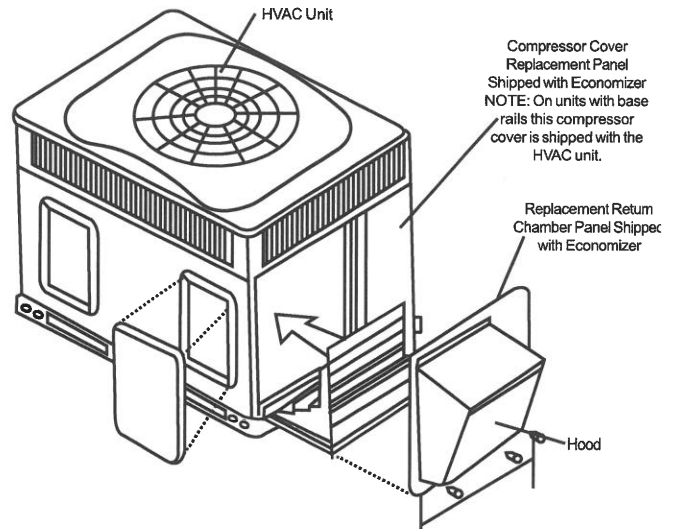
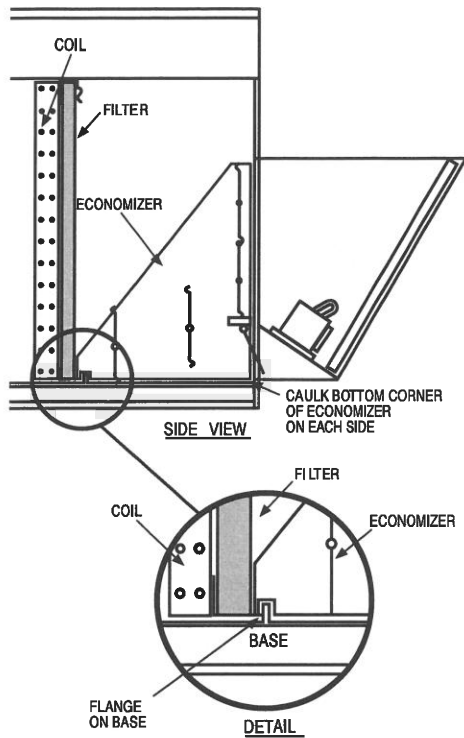
‡. Denotes digit can be 0, 1 or 2.

Note: If installing an accessory heater, the thermostat must have capability to energize "G" (fan) on a call for "W" (electric heat). TSTAT0406 and TSTAT0408 contain this feature.

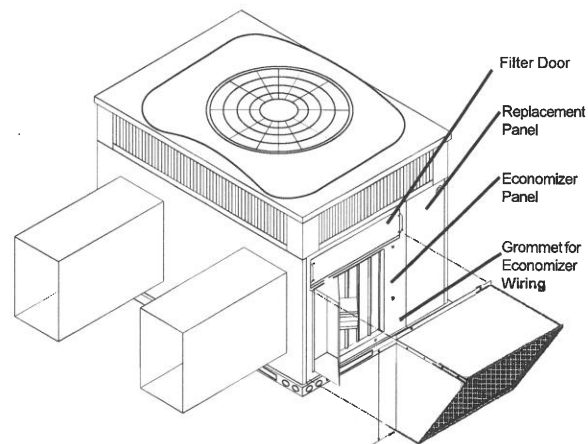
Minimum Airflow for Reliable Electric Heater Operation (CFM)

SIZE	24	30	36	42	48	60
AIRFLOW (CFM)	800	1025	1250	1400	1710	1800

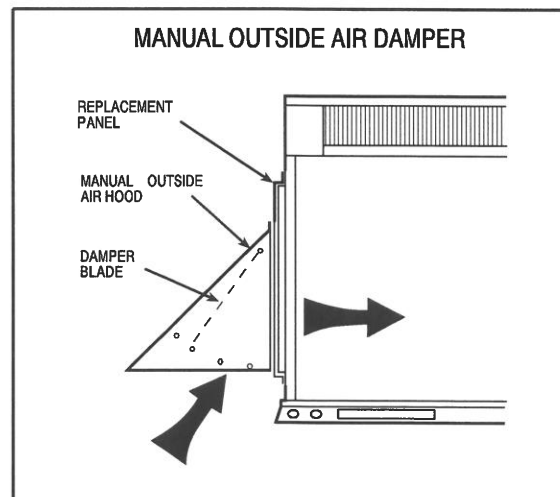
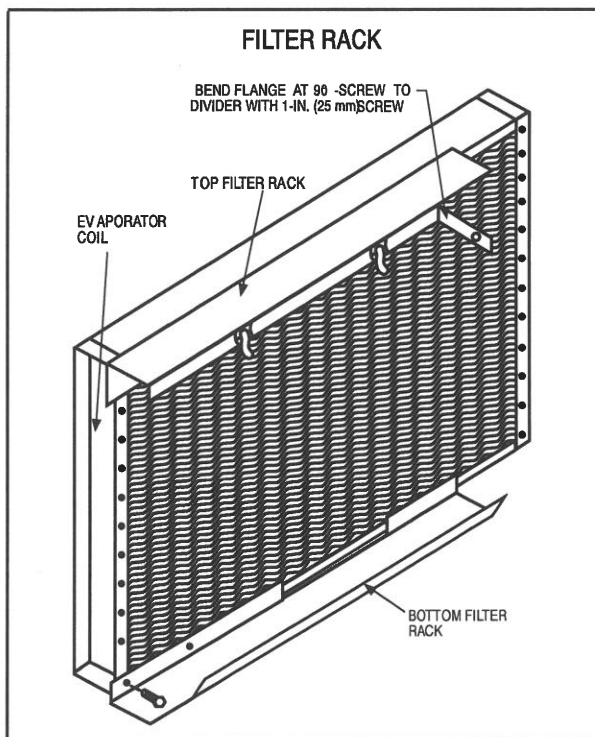
ECONOMIZER



Vertical Economizer



Horizontal Economizer

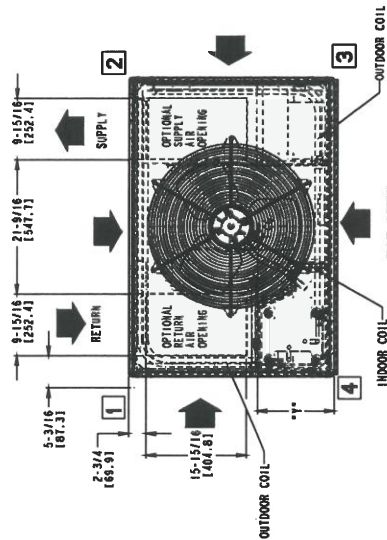


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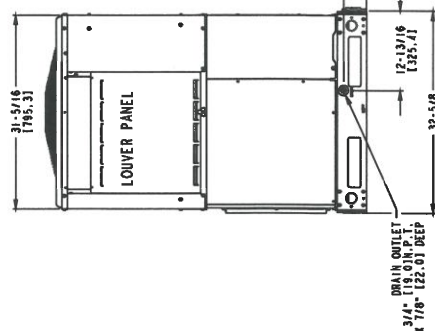
Unit Dimensions - 24-30

COOLING CAPACITY	UNIT WT.		UNIT HEIGHT IN/MM		CENTER OF GRAVITY IN/MM	
	LB	KG	IN	MM	IN	MM
24	332	149.6	51-3/4	1315	20-1/2	520.7
30	385	173.8	51-3/4	1315	20-1/2	520.7

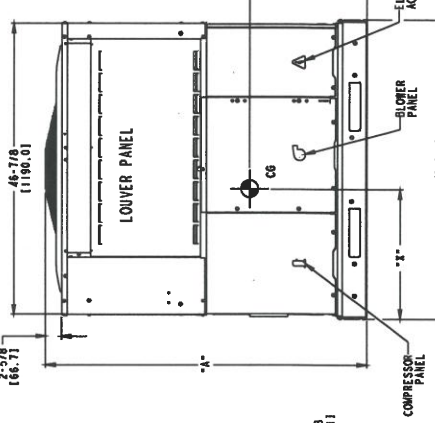
UNIT	CORNER HEIGHT LEVING			
	"1"	"2"	"3"	"4"
24	81.8	38.5	74.8	34.6
30	83.3	42.3	82.1	37.3



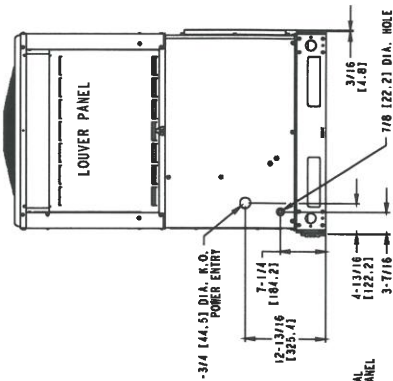
TOP VIEW



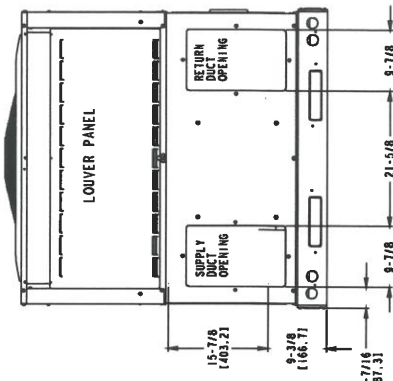
LEFT SIDE VIEW



FRONT VIEW



RIGHT SIDE VIEW



REAR VIEW

SD5770-4	A
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REQUIRED CLEARANCES TO COMBUSTIBLE UNIT

TOP OF UNIT..... 14 (355.6)
 DUCT SIDE OF UNIT..... 14 (355.6)
 SIDE OPPOSITE DUCTS..... 14 (355.6)
 SIDE OPPOSITE DUCTS..... 14 (355.6)
 ELECTRICAL PANEL..... 36 (914.4)

NEC REQUIRED CLEARANCES

BETWEEN UNITS, POWER ENTRY SIDE..... 42 (1066.8)
 UNIT AND UNGROUND SURFACES, POWER ENTRY SIDE..... 36 (914.4)
 UNIT AND UNGROUND SURFACES, POWER ENTRY SIDE..... 36 (914.4)
 GROUND SURFACES, POWER ENTRY SIDE..... 42 (1066.8)

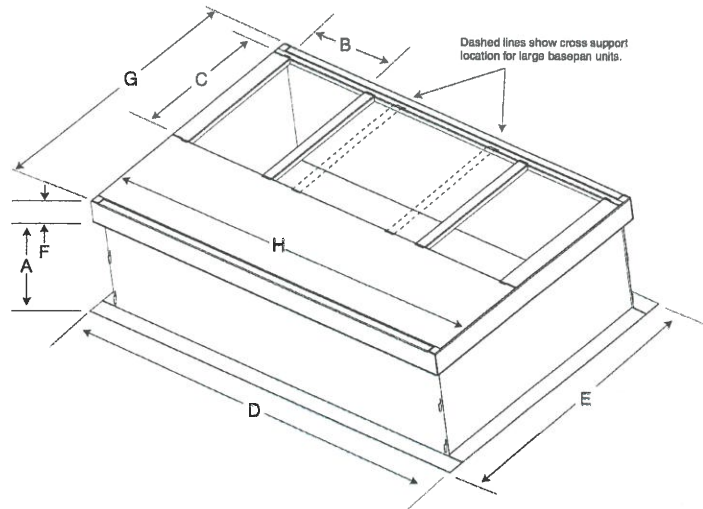
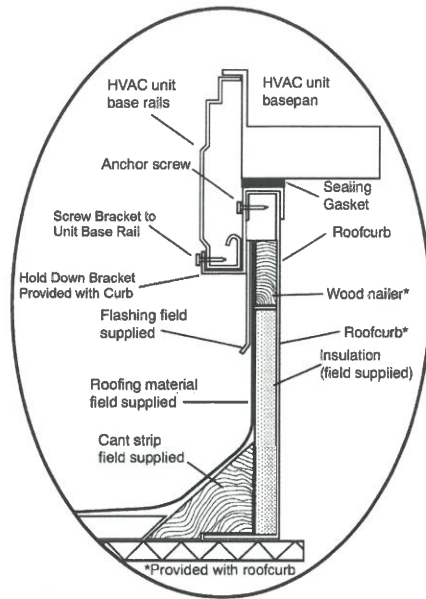
REQUIRED CLEARANCES FOR OPERATION AND SERVICE

EXAMP. COIL ACCESS SIDE..... 36 (914.4)
 POWER ENTRY SIDE..... 42 (1066.8)
 UNIT EXCEPT FOR NEC REQUIREMENTS..... 48 (1219.2)
 SIDE OPPOSITE DUCTS..... 36 (914.4)
 DUCT PANEL..... 12 (304.8)

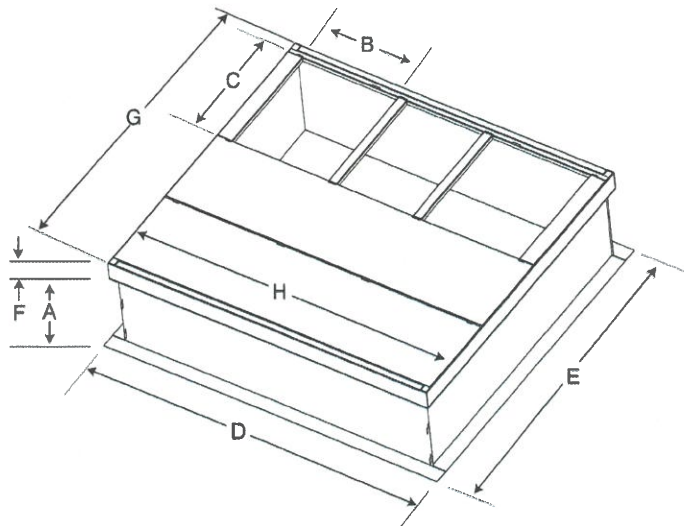
MINIMUM DISTANCES: IF UNIT IS PLACED LESS THAN 12 (304.8) FROM WALL SYSTEM, THEN SYSTEM PERFORMANCE MAY BE COMPROMISED.

DIMENSIONS IN 11 ARE IN MILLIMETERS

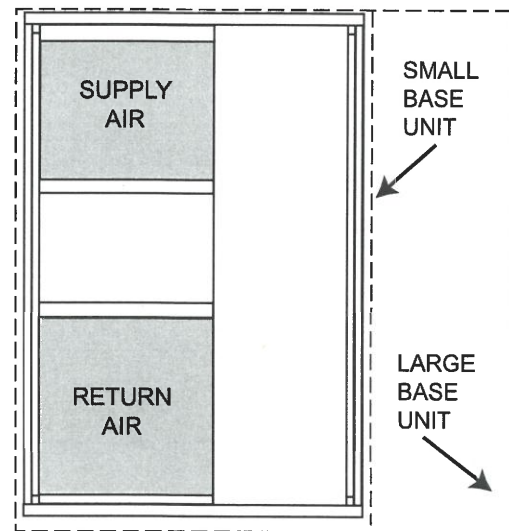
Roof Curb Accessory Dimensions



SMALL/COMMON CURB



LARGE CURB



UNIT PLACEMENT ON
COMMON CURB

SMALL OR LARGE BASE UNIT

A180216

UNIT SIZE	CATALOG NUMBER	A IN. (mm)	B (small/common base) IN. (mm)*	B (large base) IN. (mm)*	C IN. (mm)	D IN. (mm)	E IN. (mm)	F IN. (mm)	G IN. (mm)	H IN. (mm)
Small or Large	CPRFCURB011B00	14 (356)	10 (254)	14 (356)	16 (406)	47.8 (1214)	32.4 (822)	2.7 (69)	30.6 (778)	46.1 (1170)
Large	CPRFCURB013B00	14 (356)	14 (356)				43.9 (1116)			

*. Part Number CPRFCURB011B00 can be used on both small and large basepan units. The cross supports must be located based on whether the unit is a small basepan or a large basepan.

NOTES:

1. Roof curb must be set up for unit being installed.
2. Seal strip must be applied, as required, to unit being installed.
3. Roof curb is made of 16-gauge steel.
4. Attach ductwork to curb (flanges of duct rest on curb).
5. Insulated panels: 1-in. (25 mm) thick fiberglass 1 lb. density.

Selection Procedure (with example)

Determine cooling and heating requirements at design conditions:

Given:

Required Cooling Capacity (TC).....	29,000Btuh
Sensible Heat Capacity (SHC).....	21,000 Btuh
Required Heating Capacity	42,000 Btuh
Condenser Entering Air Temperature	95°F (35°C)
Indoor-Air Temperature	80°F (27°C) edb 67°F (19°C) ewb
Evaporator Air Quantity.....	1000 CFM
External Static Pressure	0.300 IN. W.C.
Electrical Characteristics	208-1-60

Select unit based on required cooling capacity.

Enter Net Cooling Capacities table at condenser entering temperature of 95°F (35°C). Unit 30 at 950 CFM and 67°F (19°C) ewb (entering wet bulb) will provide a total capacity of 29,400 Btuh and a SHC of 26,950 Btuh. Calculate SHC correction, if required, using Note 4 under Cooling Capacities tables.

Select heating capacity of unit to provide design condition requirement.

In the Heating Capacities and Efficiencies table, note that the 30 size unit will deliver 30,000 BTUH at the AHRI high temp rating point. To achieve 42,000 BTUH, accessory electric heat will be required. Use the Balance Point Worksheet to plot the load line with the unit capacity. The difference between the load line and unit capacity at the design heating temperature is the amount of electric heat that will be required.

Determine fan speed and power requirements at design conditions.

Before entering the air delivery tables, calculate the total static pressure required. From the given example, the Wet Coil Pressure Drop Table, and the Filter Pressure Drop Table:

External Static Pressure	0.300 IN. W.C.
Filter	0.070 IN. W.C.
Wet Coil Pressure Drop	<u>0.060 IN. W.C.</u>
Total Static Pressure	0.43 IN. W.C.

Enter the table for Dry Coil Air Delivery- At 0.43 IN. W.C. ESP (external static pressure) and MED-HIGH speed the motor delivers between 1037 CFM and 987 cfm. Interpolation estimates 1022 CFM at .43 IN. W.C. MED-HIGH delivers CFM needed.

Select unit that corresponds to power source available.

The Electrical Data Table shows that the unit is designed to operate at 208/230-1-60.

Performance Data
24 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F																	
CFM	EWB	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens	
700	57 (13.9)	22.81	22.81	1.56	22.02	22.02	1.71	20.98	20.98	1.90	19.74	19.74	2.14	18.67	18.67	2.35	17.53	17.53	2.62
	62 (16.7)	23.70	22.09	1.56	22.63	21.55	1.71	21.58	20.39	1.90	20.29	18.82	2.14	19.18	17.40	2.35	18.01	15.91	2.62
	63* (17.2)	24.17	17.82	1.56	23.08	17.24	1.71	21.80	16.66	1.90	20.25	15.99	2.14	18.94	15.32	2.35	17.42	14.82	2.62
	67 (19.4)	25.99	18.57	1.57	24.82	17.96	1.73	23.41	17.35	1.92	21.77	16.66	2.14	20.37	15.96	2.35	18.73	15.44	2.62
750	72 (22.2)	28.33	14.85	1.59	27.05	14.19	1.75	25.59	13.65	1.94	23.73	12.99	2.16	22.20	12.29	2.37	20.42	11.74	2.65
	57 (13.9)	22.42	22.42	1.57	21.65	21.16	1.73	20.62	19.86	1.92	19.41	18.33	2.15	18.35	16.95	2.37	17.23	15.49	2.64
	62 (16.7)	22.67	21.52	1.57	21.65	20.99	1.73	20.65	19.86	1.92	19.41	18.33	2.15	18.35	16.95	2.37	17.23	15.49	2.64
	63* (17.2)	22.92	17.36	1.57	21.88	16.79	1.73	20.67	16.22	1.92	19.20	15.58	2.15	17.96	14.93	2.37	16.52	14.44	2.64
900	67 (19.4)	24.64	18.08	1.59	23.53	17.49	1.75	22.20	16.90	1.94	20.65	16.22	2.15	19.31	15.55	2.37	17.76	15.04	2.64
	72 (22.2)	26.86	14.47	1.61	25.65	13.82	1.76	24.26	13.30	1.96	22.50	12.65	2.17	21.05	11.97	2.39	19.36	11.43	2.66
	57 (13.9)	24.76	24.76	1.62	23.90	23.90	1.78	22.77	22.64	1.97	21.43	20.90	2.20	20.26	19.32	2.41	19.02	17.66	2.69
	62 (16.7)	25.03	24.79	1.62	23.90	23.90	1.78	22.79	22.64	1.97	21.43	20.90	2.20	20.26	19.32	2.41	19.02	17.66	2.69
72 (22.2)	63* (17.2)	25.30	19.79	1.62	24.16	19.14	1.78	22.82	18.50	1.97	21.20	17.76	2.20	19.83	17.02	2.41	18.23	16.46	2.69
	67 (19.4)	27.20	20.61	1.64	25.98	19.94	1.79	24.51	19.27	1.99	22.79	18.50	2.20	21.32	17.72	2.41	19.61	17.15	2.69
		29.65	16.49	1.65	28.32	15.75	1.81	26.79	15.16	2.01	24.84	14.43	2.22	23.24	13.65	2.44	21.37	13.03	2.71

* At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

24 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURE																								
		-10°F (-23.3°C)			0°F (-17.8°C)			10°F (-12.2°C)			20°F (-6.7°C)			30°F (-1.1°C)			40°F (4.4°C)			50°F (8.3°C)			60°F (15.6°C)			
		Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	Capacity (Mbtuh)		Total Sys kW	
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		
EDB	CFM	700	8.0	7.4	1.50	10.7	9.8	1.55	13.5	12.5	1.60	16.0	14.5	1.66	18.8	16.5	1.72	22.0	22.0	1.81	25.4	25.4	1.90	28.5	28.5	2.03
			750	8.1	7.5	1.47	10.8	9.9	1.51	13.7	12.6	1.57	16.2	14.7	1.62	19.0	16.6	1.68	22.2	22.2	1.76	25.6	25.6	1.85	28.8	28.8
		900	8.3	7.6	1.55	11.0	10.1	1.59	13.8	12.7	1.65	16.4	14.8	1.69	19.1	16.8	1.75	22.3	22.3	1.83	25.9	25.9	1.91	29.0	29.0	2.03
			700	7.8	7.2	1.56	10.4	9.6	1.61	13.2	12.1	1.67	15.6	14.1	1.73	18.3	16.0	1.79	21.4	21.4	1.88	24.7	24.7	1.99	27.8	27.8
		750	7.9	7.3	1.53	10.5	9.7	1.58	13.3	12.3	1.63	15.8	14.3	1.69	18.5	16.2	1.75	21.6	21.6	1.83	25.0	25.0	1.93	28.1	28.1	2.05
			900	8.1	7.4	1.61	10.7	9.8	1.65	13.5	12.4	1.71	15.9	14.4	1.76	18.6	16.3	1.82	21.8	21.7	1.90	25.2	25.2	1.99	28.2	28.2
		700	7.7	7.1	1.63	10.2	9.4	1.68	12.9	11.9	1.74	15.3	13.8	1.80	18.1	15.9	1.87	21.2	21.2	1.96	24.5	24.5	2.07	27.5	27.5	2.20
			750	7.8	7.1	1.59	10.3	9.5	1.64	13.1	12.0	1.70	15.5	14.0	1.75	18.3	16.0	1.82	21.4	21.4	1.90	24.7	24.7	2.01	27.8	27.8
		900	7.9	7.3	1.67	10.5	9.6	1.71	13.2	12.2	1.77	15.6	14.1	1.82	18.5	16.2	1.88	21.5	21.5	1.97	25.0	25.0	2.06	28.0	28.0	2.18

Performance Data
30 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F											
		75 (23.9)			85 (29.4)			95 (35)			105 (40.6)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW
CFM	EWB	Total	Sens		Total	Sens		Total	Sens		Total	Sens	
875	57 (13.9)	29.81	29.81	2.11	28.78	28.78	2.32	27.42	27.42	2.58	25.80	25.80	2.90
	62 (16.7)	30.97	27.74	2.11	29.58	27.05	2.32	28.21	25.59	2.58	26.51	23.63	2.90
	63* (17.2)	31.59	22.38	2.11	30.16	21.64	2.32	28.49	20.91	2.58	26.47	20.08	2.90
	67 (19.4)	33.97	23.31	2.13	32.44	22.55	2.34	30.60	21.78	2.61	28.46	20.91	2.90
950	72 (22.2)	37.02	18.65	2.15	35.35	17.81	2.37	33.44	17.14	2.63	31.02	16.31	2.92
	57 (13.9)	29.70	28.53	2.14	28.67	26.93	2.34	27.31	25.26	2.60	25.70	23.32	2.92
	62 (16.7)	30.02	27.38	2.14	28.67	26.70	2.34	27.34	25.26	2.60	25.70	23.32	2.92
	63* (17.2)	30.35	22.08	2.14	28.98	21.36	2.34	27.37	20.64	2.60	25.43	19.81	2.92
1125	67 (19.4)	32.63	23.01	2.16	31.16	22.25	2.37	29.40	21.50	2.63	27.34	20.64	2.92
	72 (22.2)	35.57	18.40	2.18	33.97	17.58	2.39	32.13	16.92	2.66	29.80	16.10	2.95
	57 (13.9)	32.35	32.09	2.19	31.24	30.29	2.40	29.76	28.42	2.66	28.00	26.24	2.98
	62 (16.7)	32.71	31.12	2.19	31.24	30.04	2.40	29.79	28.42	2.66	28.00	26.24	2.98
1125	63* (17.2)	33.07	24.85	2.19	31.58	24.03	2.40	29.82	23.22	2.66	27.70	22.29	2.98
	67 (19.4)	35.55	25.88	2.21	33.95	25.03	2.42	32.03	24.19	2.69	29.79	23.22	2.98
	72 (22.2)	38.75	20.70	2.23	37.01	19.78	2.45	35.01	19.04	2.71	32.47	18.11	3.00

* At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

30 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES°F (°C)											
		-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)		
		Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
EDB °F (°C)	CFM	Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65°F (18.3°C)	875	10.1	9.3	1.91	13.4	12.3	1.97	16.9	15.6	2.05	20.0	18.1	2.12
	950	10.2	9.4	1.89	13.5	12.4	1.94	17.1	15.7	2.01	20.2	18.3	2.08
	1125	10.4	9.5	1.97	13.7	12.6	2.03	17.3	15.9	2.10	20.4	18.5	2.16
70°F (21.1°C)	875	9.8	9.0	2.00	13.0	12.0	2.06	16.5	15.2	2.14	19.5	17.7	2.21
	950	9.9	9.1	1.96	13.1	12.1	2.03	16.7	15.3	2.10	19.7	17.8	2.17
	1125	10.1	9.3	2.05	13.3	12.3	2.11	16.8	15.5	2.18	19.9	18.0	2.24
75°F (23.9°C)	875	9.6	8.8	2.08	12.7	11.7	2.15	16.1	14.9	2.23	19.1	17.3	2.30
	950	9.7	8.9	2.04	12.9	11.8	2.11	16.3	15.0	2.18	19.3	17.5	2.25
	1125	9.9	9.1	2.12	13.1	12.0	2.18	16.5	15.2	2.25	19.5	17.7	2.32

Performance Data
36 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
1050	57 (13.9)	33.58	33.58	2.41	32.42	32.42	2.65	30.88	30.88	2.95	29.06	29.06	3.31	27.47	27.47	3.64	25.79	25.79	4.06
	62 (16.7)	34.88	33.38	2.41	33.31	32.56	2.65	31.76	30.80	2.95	29.86	28.44	3.31	28.23	26.29	3.64	26.50	24.03	4.06
	63* (17.2)	35.57	26.93	2.41	33.97	26.05	2.65	32.08	25.16	2.95	29.80	24.16	3.31	27.88	23.15	3.64	25.64	22.40	4.06
	67 (19.4)	38.25	28.05	2.44	36.53	27.13	2.68	34.46	26.21	2.98	32.05	25.16	3.31	29.98	24.12	3.64	27.57	23.33	4.06
1150	72 (22.2)	41.69	22.44	2.46	39.82	21.43	2.70	37.66	20.63	3.01	34.93	19.63	3.34	32.68	18.57	3.68	30.05	17.73	4.10
	57 (13.9)	33.74	33.74	2.44	32.57	32.57	2.68	31.03	30.67	2.98	29.20	28.31	3.34	27.61	26.17	3.67	25.92	23.93	4.09
	62 (16.7)	34.11	33.23	2.44	32.57	32.42	2.68	31.06	30.67	2.98	29.20	28.31	3.34	27.61	26.17	3.67	25.92	23.93	4.09
	63* (17.2)	34.48	26.81	2.44	32.93	25.93	2.68	31.10	25.06	2.98	28.89	24.05	3.34	27.02	23.05	3.67	24.85	22.30	4.09
1350	67 (19.4)	37.07	27.93	2.47	35.40	27.01	2.71	33.40	26.10	3.01	31.06	25.06	3.34	29.06	24.01	3.67	26.72	23.23	4.09
	72 (22.2)	40.41	22.34	2.49	38.59	21.34	2.74	36.51	20.54	3.04	33.86	19.54	3.37	31.67	18.49	3.71	29.12	17.65	4.13
	57 (13.9)	36.44	36.44	2.51	35.18	35.18	2.75	33.51	33.51	3.04	31.53	31.53	3.41	29.81	29.19	3.74	27.99	26.68	4.16
	62 (16.7)	36.84	36.84	2.51	35.18	35.18	2.75	33.55	33.55	3.04	31.53	31.53	3.41	29.81	29.19	3.74	27.99	26.68	4.16
	63* (17.2)	37.24	29.90	2.51	35.56	28.92	2.75	33.58	27.94	3.04	31.20	26.83	3.41	29.19	25.71	3.74	26.84	24.87	4.16
	67 (19.4)	40.04	31.14	2.53	38.24	30.13	2.77	36.07	29.11	3.07	33.55	27.94	3.41	31.38	26.78	3.74	28.86	25.91	4.16
	72 (22.2)	43.64	24.92	2.56	41.68	23.80	2.80	39.43	22.91	3.10	36.57	21.80	3.44	34.21	20.62	3.77	31.45	19.69	4.20

* At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

36 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																							
EDB °F (°C)	CFM	-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW			
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	Total
65°F (18.3°C)	1050	11.7	10.8	2.10	15.6	14.3	2.16	19.7	18.2	2.25	23.4	21.2	2.32	27.4	24.0	2.41	32.0	32.0	2.53	37.0	37.0	2.67	41.6	41.6	2.85
	1150	11.9	10.9	2.09	15.7	14.5	2.15	19.9	18.4	2.23	23.6	21.4	2.30	27.7	24.2	2.38	32.4	32.4	2.50	37.4	37.4	2.63	42.1	42.1	2.80
	1350	12.1	11.1	2.19	16.0	14.7	2.25	20.2	18.6	2.33	23.8	21.6	2.39	27.9	24.4	2.47	32.6	32.5	2.58	37.8	37.8	2.71	42.3	42.3	2.87
70°F (21.1°C)	1050	11.4	10.5	2.19	15.2	14.0	2.26	19.2	17.7	2.35	22.8	20.6	2.43	26.7	23.4	2.52	31.2	31.2	2.64	36.0	36.0	2.79	40.5	40.5	2.98
	1150	11.6	10.6	2.17	15.3	14.1	2.24	19.4	17.9	2.32	23.0	20.8	2.40	27.0	23.6	2.48	31.5	31.5	2.60	36.4	36.4	2.74	41.0	41.0	2.92
75°F (23.9°C)	1350	11.8	10.8	2.27	15.5	14.3	2.34	19.6	18.1	2.41	23.2	21.0	2.49	27.2	23.8	2.57	31.7	31.7	2.68	36.8	36.8	2.81	41.2	41.2	2.98
	1050	11.2	10.3	2.28	14.9	13.7	2.35	18.8	17.3	2.44	22.3	20.2	2.53	26.4	23.1	2.62	30.9	30.9	2.75	35.7	35.7	2.91	40.1	40.1	3.10
	1150	11.3	10.4	2.26	15.0	13.8	2.33	19.0	17.5	2.41	22.5	20.4	2.49	26.7	23.4	2.58	31.2	31.2	2.71	36.0	36.0	2.85	40.5	40.5	3.03
	1350	11.5	10.6	2.35	15.2	14.0	2.42	19.3	17.7	2.50	22.8	20.6	2.58	26.9	23.6	2.66	31.4	31.4	2.78	36.4	36.4	2.92	40.8	40.8	3.09

Performance Data
42 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES °F (°C)																	
CFM	EWB °F (°C)	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
1225	57 (13.9)	39.96	39.96	2.86	38.58	38.58	3.14	36.75	36.75	3.49	34.59	34.59	3.92	32.70	32.70	4.32	30.70	30.70	4.82
	62 (16.7)	41.51	38.26	2.86	39.64	37.31	3.14	37.81	35.30	3.49	35.54	32.59	3.92	33.60	30.13	4.32	31.55	27.54	4.82
	63* (17.2)	42.34	30.86	2.86	40.43	29.85	3.14	38.18	28.84	3.49	35.47	27.69	3.92	33.19	26.54	4.32	30.52	25.67	4.82
	67 (19.4)	45.53	32.15	2.89	43.48	31.10	3.17	41.01	30.04	3.53	38.14	28.84	3.92	35.68	27.64	4.32	32.81	26.74	4.82
	72 (22.2)	49.62	25.72	2.92	47.39	24.57	3.21	44.83	23.64	3.57	41.58	22.50	3.96	38.89	21.28	4.36	36.76	20.32	4.86
1350	57 (13.9)	40.40	39.94	2.90	39.01	37.70	3.18	37.16	35.37	3.53	34.97	32.65	3.96	33.06	30.18	4.36	31.04	27.59	4.86
	62 (16.7)	40.85	38.33	2.90	39.01	37.38	3.18	37.20	35.37	3.53	34.97	32.65	3.96	33.06	30.18	4.36	31.04	27.59	4.86
	63* (17.2)	41.29	30.92	2.90	39.43	29.91	3.18	37.24	28.90	3.53	34.60	27.74	3.96	32.36	26.58	4.36	29.76	25.72	4.86
	67 (19.4)	44.40	32.21	2.93	42.40	31.15	3.21	40.00	30.10	3.57	37.20	28.90	3.96	34.80	27.69	4.36	32.00	26.79	4.86
	72 (22.2)	48.40	25.77	2.96	46.22	24.61	3.25	43.72	23.69	3.61	40.55	22.54	4.00	37.93	21.32	4.40	34.88	20.36	4.90
1575	57 (13.9)	43.37	43.37	2.97	41.87	41.78	3.25	39.89	39.20	3.61	37.53	36.19	4.03	35.48	33.45	4.43	33.32	30.58	4.93
	62 (16.7)	43.84	42.93	2.97	41.87	41.43	3.25	39.93	39.20	3.61	37.53	36.19	4.03	35.48	33.45	4.43	33.32	30.58	4.93
	63* (17.2)	44.32	34.27	2.97	42.32	33.15	3.25	39.97	32.03	3.61	37.13	30.75	4.03	34.74	29.46	4.43	31.94	28.50	4.93
	67 (19.4)	47.66	35.70	3.00	45.51	34.53	3.29	42.93	33.36	3.64	39.93	32.03	4.03	37.35	30.69	4.43	34.35	29.69	4.93
	72 (22.2)	51.95	28.56	3.03	49.61	27.28	3.32	46.93	26.25	3.68	43.52	24.98	4.07	40.71	23.63	4.47	37.44	22.57	4.98

* At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority [TVA] rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

42 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																							
EDB °F (°C)	CFM	-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW	Capacity MBtuh		Total Sys KW
		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ		Total	Integ	
65°F (18.3°C)	1225	13.4	12.3	2.45	2.53	22.6	20.8	2.63	26.7	24.2	2.72	31.3	27.4	2.82	36.6	36.6	2.96	42.3	42.3	3.13	47.6	47.6	3.34		
	1350	13.6	12.5	2.45	2.53	22.8	21.0	2.62	27.0	24.4	2.70	31.6	27.7	2.80	37.0	37.0	2.93	42.7	42.7	3.09	48.1	48.1	3.29		
	1575	13.8	12.7	2.56	2.63	23.0	21.2	2.72	27.2	24.6	2.80	31.9	27.9	2.89	37.2	37.2	3.02	43.2	43.2	3.17	48.3	48.3	3.36		
70°F (21.1°C)	1225	13.1	12.0	2.56	2.64	22.0	20.2	2.75	26.0	23.5	2.84	30.5	26.7	2.95	35.6	35.6	3.09	41.2	41.2	3.27	46.3	46.3	3.48		
	1350	13.2	12.1	2.55	2.63	22.2	20.4	2.73	26.3	23.8	2.81	30.8	27.0	2.92	36.0	36.0	3.06	41.6	41.6	3.22	46.8	46.8	3.42		
	1575	13.4	12.4	2.66	2.73	22.4	20.7	2.82	26.5	24.0	2.91	31.0	27.2	3.00	36.2	36.2	3.14	42.0	42.0	3.29	47.0	47.0	3.49		
75°F (23.9°C)	1225	12.8	11.8	2.67	2.76	21.5	19.8	2.86	25.5	23.1	2.96	30.2	26.4	3.07	35.3	35.3	3.22	40.8	40.8	3.40	45.9	45.9	3.63		
	1350	12.9	11.9	2.65	2.74	21.8	20.0	2.84	25.8	23.3	2.93	30.5	26.7	3.03	35.6	35.6	3.18	41.2	41.2	3.35	46.3	46.3	3.56		
	1575	13.2	12.1	2.75	2.83	22.0	20.2	2.93	26.0	23.5	3.01	30.7	26.9	3.11	35.9	35.9	3.25	41.6	41.6	3.41	46.6	46.6	3.62		

Performance Data
48 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F																	
CFM	EWB	75 (23.9)			85 (29.4)			95 (35)			105 (40.6)			115 (46.1)			125 (51.7)		
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Total	Sens	
		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens				
1400	57 (13.9)	45.28	45.28	3.26	43.71	43.71	3.58	41.64	41.64	3.99	39.19	39.19	4.48	37.05	37.05	4.93	34.79	34.79	5.50
	62 (16.7)	47.04	44.61	3.26	44.92	43.51	3.58	42.84	41.17	3.99	40.27	38.01	4.48	38.07	35.13	4.93	35.74	32.12	5.50
	63* (17.2)	47.97	35.99	3.26	45.81	34.81	3.58	43.26	33.63	3.99	40.19	32.29	4.48	37.60	30.94	4.93	34.57	29.93	5.50
	67 (19.4)	51.58	37.49	3.29	49.26	36.26	3.62	46.47	35.04	4.03	43.22	33.63	4.48	40.43	32.23	4.93	37.18	31.18	5.50
1600	72 (22.2)	56.23	29.99	3.32	53.69	28.65	3.65	50.79	27.57	4.07	47.11	26.23	4.52	44.07	24.82	4.98	40.52	23.70	5.55
	57 (13.9)	47.47	47.47	3.32	45.83	45.59	3.64	43.66	42.77	4.05	41.09	39.49	4.54	38.85	36.50	4.99	36.47	33.37	5.56
	62 (16.7)	48.00	46.35	3.32	45.83	45.21	3.64	43.71	42.77	4.05	41.09	39.49	4.54	38.85	36.50	4.99	36.47	33.37	5.56
	63* (17.2)	48.52	37.39	3.32	46.33	36.17	3.64	43.76	34.94	4.05	40.65	33.55	4.54	38.03	32.15	4.99	34.97	31.10	5.56
1800	67 (19.4)	52.17	38.95	3.35	49.82	37.67	3.68	47.00	36.40	4.09	43.71	34.94	4.54	40.89	33.49	4.99	37.60	32.40	5.56
	72 (22.2)	56.87	31.16	3.39	54.30	29.76	3.72	51.37	28.65	4.13	47.64	27.26	4.59	44.57	25.79	5.04	40.98	24.62	5.62
	57 (13.9)	49.14	49.14	3.38	47.44	47.44	3.71	45.19	45.19	4.11	42.53	42.20	4.60	40.21	39.01	5.05	37.75	35.66	5.63
	62 (16.7)	49.68	49.68	3.38	47.44	47.44	3.71	45.24	45.24	4.11	42.53	42.20	4.60	40.21	39.01	5.05	37.75	35.66	5.63
1800	63* (17.2)	50.22	39.96	3.38	47.95	38.65	3.71	45.29	37.35	4.11	42.07	35.85	4.60	39.36	34.36	5.05	36.19	33.24	5.63
	67 (19.4)	54.00	41.63	3.42	51.56	40.26	3.75	48.65	38.90	4.15	45.24	37.35	4.60	42.32	35.79	5.05	38.92	34.62	5.63
	72 (22.2)	58.86	33.30	3.45	56.20	31.81	3.78	53.17	30.62	4.19	49.31	29.13	4.65	46.13	27.56	5.10	42.42	26.31	5.68

* At 75°F (23.9 °C) entering dry bulb—Tennessee Valley Authority (TVA) rating conditions; all others at 80°F (26.7 °C) entering dry bulb. See Legend and Notes.

48 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F (°C)																							
EDB	CFM	-10 (-23.3)			0 (-17.8)			10 (-12.2)			20 (-6.7)			30 (-1.1)			40 (4.4)			50 (10)			60 (15.6)		
		Capacity		Total Sys KW	Capacity		Total Sys KW	Capacity		Total Sys KW	Capacity		Total Sys KW	Capacity		Total Sys KW	Capacity		Total Sys KW	Capacity		Total Sys KW			
		Total	MBtuh		Total	MBtuh		Total	MBtuh		Total	MBtuh		Total	MBtuh		Total	MBtuh		Total	MBtuh		Total	MBtuh	
65°F (18.3°C)	1400	15.4	14.2	2.75	20.5	18.8	2.84	25.9	23.9	2.95	30.7	27.8	3.06	36.0	31.5	3.18	42.1	42.1	3.34	48.6	48.6	3.53	54.7	54.7	3.77
	1600	15.6	14.3	2.81	20.7	19.0	2.90	26.2	24.1	3.01	31.0	28.1	3.10	36.4	31.9	3.21	42.5	42.5	3.37	49.1	49.1	3.55	55.3	55.3	3.77
	1800	15.8	14.5	2.88	20.9	19.2	2.96	26.4	24.3	3.06	31.3	28.3	3.16	36.6	32.1	3.26	42.7	42.7	3.41	49.6	49.6	3.58	55.5	55.5	3.79
70°F (21.1°C)	1400	15.0	13.8	2.87	19.9	18.3	2.97	25.3	23.2	3.09	29.9	27.1	3.19	35.0	30.7	3.32	41.0	41.0	3.49	47.3	47.3	3.68	53.3	53.3	3.94
	1600	15.2	14.0	2.93	20.1	18.5	3.02	25.5	23.5	3.13	30.2	27.4	3.23	35.4	31.0	3.35	41.4	41.4	3.51	47.8	47.8	3.69	53.8	53.8	3.93
	1800	15.4	14.2	2.99	20.4	18.7	3.08	25.7	23.7	3.18	30.4	27.5	3.28	35.6	31.2	3.39	41.6	41.6	3.54	48.3	48.3	3.72	54.0	54.0	3.94
75°F (23.9°C)	1400	14.7	13.5	3.00	19.5	18.0	3.10	24.8	22.8	3.22	29.3	26.5	3.33	34.7	30.4	3.46	40.6	40.6	3.64	46.9	46.9	3.84	52.7	52.7	4.10
	1600	14.9	13.7	3.05	19.7	18.2	3.14	25.0	23.0	3.26	29.6	26.8	3.36	35.1	30.7	3.48	41.0	41.0	3.65	47.4	47.4	3.84	53.3	53.3	4.09
	1800	15.1	13.9	3.10	20.0	18.4	3.19	25.2	23.2	3.30	29.8	27.0	3.40	35.3	30.9	3.52	41.2	41.2	3.67	47.9	47.9	3.86	53.5	53.5	4.09

60 Cooling Extended Performance Table

EVAPORATOR AIR		CONDENSER ENTERING AIR TEMPERATURES deg F																							
		75				85				95				105				115				125			
		Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW	Capacity MBtuh		Total System KW			
					Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens		Total	Sens				
CFM	EWB	57	52.32	52.32	3.95	50.51	50.51	4.34	48.12	48.12	4.82	45.28	45.28	5.41	42.81	42.81	5.95	40.19	40.19	38.73	6.64				
1600	62	54.43	49.87	3.95	51.98	48.65	4.34	49.57	46.02	4.82	46.60	42.49	5.41	44.05	37.14	5.95	41.36	33.89	6.64						
	63	55.54	40.23	3.95	53.04	38.92	4.34	50.09	37.60	4.82	46.54	36.10	5.41	43.53	32.71	5.95	40.03	31.59	6.64						
	67	59.72	41.91	3.99	57.03	40.54	4.38	53.81	39.17	4.87	50.04	37.60	5.41	46.81	34.08	5.95	43.04	32.90	6.64						
	72	65.10	33.53	4.03	61.01	32.03	4.42	55.35	30.83	4.92	54.54	29.33	5.47	51.02	26.24	6.01	46.92	25.00	6.71						
	57	55.56	54.13	3.99	53.64	51.10	4.38	51.10	47.94	4.87	48.08	44.26	5.46	45.46	38.69	6.00	42.68	35.30	6.69						
1750	62	56.17	51.95	3.99	53.64	50.67	4.38	51.15	47.94	4.87	48.08	44.26	5.46	45.46	38.69	6.00	42.68	35.30	6.69						
	63	56.78	41.91	3.99	54.22	40.54	4.38	51.21	39.17	4.87	47.57	37.60	5.46	44.50	34.08	6.00	40.92	32.90	6.69						
	67	61.05	43.66	4.03	58.30	42.23	4.43	55.00	40.80	4.92	51.15	39.17	5.46	47.85	35.50	6.00	44.00	34.27	6.69						
	72	66.54	34.92	4.07	63.55	33.36	4.47	60.12	32.11	4.97	55.75	30.55	5.52	52.16	27.33	6.06	47.96	26.05	6.76						
	57	58.41	58.41	4.07	56.39	55.48	4.46	53.72	52.05	4.95	50.55	48.05	5.54	47.80	42.01	6.08	44.87	38.33	6.77						
2000	62	59.05	57.00	4.07	56.39	55.02	4.46	53.78	52.05	4.95	50.55	48.05	5.54	47.80	42.01	6.08	44.87	38.33	6.77						
	63	59.70	45.50	4.07	57.01	44.01	4.46	53.84	42.53	4.95	50.02	40.82	5.54	46.79	37.00	6.08	43.02	35.72	6.77						
	67	64.19	47.40	4.11	61.30	45.85	4.51	57.83	44.30	5.00	53.78	42.53	5.54	50.31	38.54	6.08	46.26	37.21	6.77						
	72	69.97	37.92	4.15	66.82	36.22	4.55	63.21	34.86	5.05	58.62	33.17	5.60	54.84	29.67	6.14	50.43	28.28	6.84						

60 Heating Extended Performance Table -10-60°F (-23.3-15.6°C)

[illegible]

Performance Data (Continued)

- LEGEND
- BF — Bypass Factor
 - edb — Entering Dry-Bulb
 - Ewb — Entering Wet-Bulb
 - kW — Total Unit Power Input
 - SHC — Sensible Heat Capacity (1000 Btuh)
 - TC — Total Capacity (1000 Btuh) (net)
 - rh — Relative Humidity
- COOLING NOTES:
1. Ratings are net; they account for the effects of the evaporator-fan motor power and heat.
 2. Direct interpolation is permissible. Do not extrapolate.
 3. The following formulas may be used:

$$t_{ldb} = t_{edb} - \frac{\text{Sensible capacity (Btuh)}}{1.10 \times \text{CFM}}$$

$$t_{lwb} = \text{Wet-bulb temperature corresponding to enthalpy air leaving evaporator coil } (t_{lwb})$$

$$h_{lwb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{(4.5 \times \text{CFM})}$$

Where: h_{ewb} = Enthalpy of air entering evaporator coil

4. The SHC is based on 80°F (26.6°C) edb temperature of air entering evaporator coil. Below 80°F (26.6°C) edb, subtract (corr factor x CFM) from SHC. Above 80°F (26.6°C) edb, add (corr factor x CFM) to SHC.
Correction Factor = $1.10 \times (1 + \text{BF}) \times (\text{edb} - 80)$.
5. Integrated capacity is maximum (instantaneous) capacity less the effect of frost on the outdoor coil and the heat required to defrost it.

Multiplication Factors

HEATER VOLT RATING	VOLTAGE DISTRIBUTION	MULTIPLICATION FACTOR
240	200	0.69
	208	0.75
	230	0.92
	240	1.00
480	460	0.92

Dry Coil Air Delivery* - Horizontal and Downflow Discharge Sizes 24-60

Unit Size	Motor Speed	Tap	ESP (in. W.C.)										
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
24	Low	Blue	CFM	723	563	308	---	---	---	---	---	---	---
			BHP	0.09	0.07	0.06	---	---	---	---	---	---	---
	Med-Low	Pink	CFM	829	766	696	606	538	470	406	341	283	220
			BHP	0.11	0.12	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16
	Medium**	Red	CFM	1065	1016	966	914	857	783	716	667	617	566
			BHP	0.19	0.20	0.20	0.21	0.22	0.23	0.23	0.24	0.24	0.25
	Med-High	Orange	CFM	1097	1048	999	949	893	833	751	701	651	603
			BHP	0.21	0.21	0.22	0.22	0.23	0.24	0.25	0.25	0.26	0.26
	High	Black	CFM	1215	1173	1129	1085	1038	989	936	854	803	760
			BHP	0.26	0.27	0.28	0.28	0.29	0.30	0.31	0.32	0.32	0.33
30	Low	Blue	CFM	643	552	455	348	225	---	---	---	---	---
			BHP	0.09	0.10	0.11	0.11	0.11	---	---	---	---	---
	Med-Low	Pink	CFM	817	744	673	597	516	431	325	190	---	---
			BHP	0.14	0.15	0.15	0.16	0.17	0.17	0.18	0.18	---	---
	Medium	Red	CFM	1159	1104	1045	990	937	878	821	759	693	618
			BHP	0.31	0.32	0.33	0.33	0.34	0.35	0.36	0.37	0.37	0.38
	Med-High**	Orange	CFM	1201	1147	1095	1037	987	934	877	818	755	671
			BHP	0.34	0.35	0.36	0.37	0.37	0.38	0.39	0.40	0.41	0.40
	High	Black	CFM	1291	1236	1181	1131	1080	1033	978	909	792	661
			BHP	0.41	0.42	0.43	0.43	0.44	0.45	0.46	0.45	0.43	0.40
36	Low	Blue	CFM	1069	1006	955	896	847	800	755	700	649	598
			BHP	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.24
	Med-Low	Pink	CFM	1154	1100	1045	997	936	886	847	804	749	699
			BHP	0.19	0.20	0.21	0.23	0.24	0.24	0.25	0.26	0.27	0.28
	Medium	Red	CFM	1295	1247	1199	1152	1104	1050	997	955	918	875
			BHP	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.33	0.34
	Med-High**	Orange	CFM	1421	1374	1328	1283	1236	1188	1137	1089	1042	1011
			BHP	0.32	0.33	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.41
	High	Black	CFM	1505	1464	1423	1380	1336	1292	1242	1199	1145	1096
			BHP	0.38	0.39	0.40	0.42	0.43	0.43	0.44	0.45	0.46	0.47
42	Low	Blue	CFM	956	899	843	786	729	676	621	558	504	435
			BHP	0.13	0.13	0.14	0.15	0.16	0.16	0.17	0.18	0.18	0.19
	Med-Low	Pink	CFM	1201	1153	1107	1060	1012	965	917	871	828	782
			BHP	0.21	0.22	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29
	Medium	Red	CFM	1443	1402	1361	1322	1284	1243	1204	1164	1124	1084
			BHP	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.42
	Med-High**	Orange	CFM	1529	1491	1451	1411	1376	1338	1300	1261	1223	1185
			BHP	0.37	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47
	High	Black	CFM	1604	1565	1529	1490	1455	1421	1385	1348	1310	1274
			BHP	0.42	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52
48	Low	Blue	CFM	641	551	462	385	289	216	163	115	---	---
			BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
	Med-Low	Pink	CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
			BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
	Medium**	Red	CFM	1771	1735	1699	1664	1627	1592	1557	1522	1486	1450
			BHP	0.51	0.52	0.53	0.55	0.56	0.57	0.58	0.59	0.61	0.62
	Med-High	Orange	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
			BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
	High	Black	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
			BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71
60	Low	Blue	CFM	641	551	462	385	289	216	163	115	---	---
			BHP	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	---	---
	Med-Low	Pink	CFM	1437	1395	1351	1307	1265	1221	1176	1132	1084	1039
			BHP	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38
	Medium**	Red	CFM	1914	1881	1848	1814	1780	1748	1716	1681	1619	1512
			BHP	0.62	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.71	0.66
	Med-High	Orange	CFM	1928	1897	1862	1830	1796	1764	1732	1698	1620	1512
			BHP	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.71	0.66
	High	Black	CFM	2212	2167	2124	2061	1976	1892	1794	1699	1567	1438
			BHP	0.97	0.99	1.00	0.97	0.95	0.91	0.86	0.82	0.77	0.71

Shaded areas indicate speed/static combinations that are not permitted for dehumidification speed.

* Air delivery values are without air filter and are for dry coil (See Wet Coil Pressure Drop Table).

** Factory-shipped cooling speed

NOTE: Deduct field-supplied air filter pressure drop and wet coil pressure drop to obtain external static pressure available for ducting.

Filter Pressure Drop Table (IN. W.C.)

Filter Size in. (mm)	Cooling Tons	Standard CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0, 2.5	0.03	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	-	-	-	-	-	-	-	-
1200-1800CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5	-	-	-	-	0.04	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.12	-	-
1500-2200CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	3.0, 4.0, 5.0	-	-	-	-	-	-	-	-	-	0.04	0.06	0.08	0.10	0.11	0.13	0.14	0.15

Wet Coil Pressure Drop (IN. W.C.)

Unit Size	Standard CFM (SCFM)																
	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
24	0.03	0.04	0.04	0.05	0.06												
30				0.05	0.06	0.07	0.08	0.11									
36				0.06	0.06	0.09	0.10	0.11	0.14								
42					0.05	0.05	0.06	0.07	0.08	0.09	0.09	0.11					
48							0.04	0.06	0.09	0.10	0.10	0.11	0.12	0.13	0.14		
60										0.06	0.07	0.01	0.08	0.09	0.10	0.12	0.13

Economizer with 1-in. Filter Pressure Drop (IN. W.C.)

Filter Size in. (mm)	Cooling Tons	Standard CFM (SCFM)																
		600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200
600-1400 CFM 12x20x1+12x20x1 (305x508x25+305x508x25)	2.0, 2.5	-	-	0.08	0.09	0.10	0.11	0.11	0.13	0.14	-	-	-	-	-	-	-	-
1200-1800CFM 16x24x1+14x24x1 (406x610x25+356x610x25)	3.5	-	-	-	-	-	0.09	0.09	0.10	0.12	0.13	0.15	0.17	0.17	0.19	0.21	-	-
1500-2200CFM 16x24x1+18x24x1 (406x610x25+457x610x25)	3.0, 4.0, 5.0	-	-	-	-	-	-	-	-	-	0.15	0.17	0.18	0.20	0.21	0.22	0.23	0.23

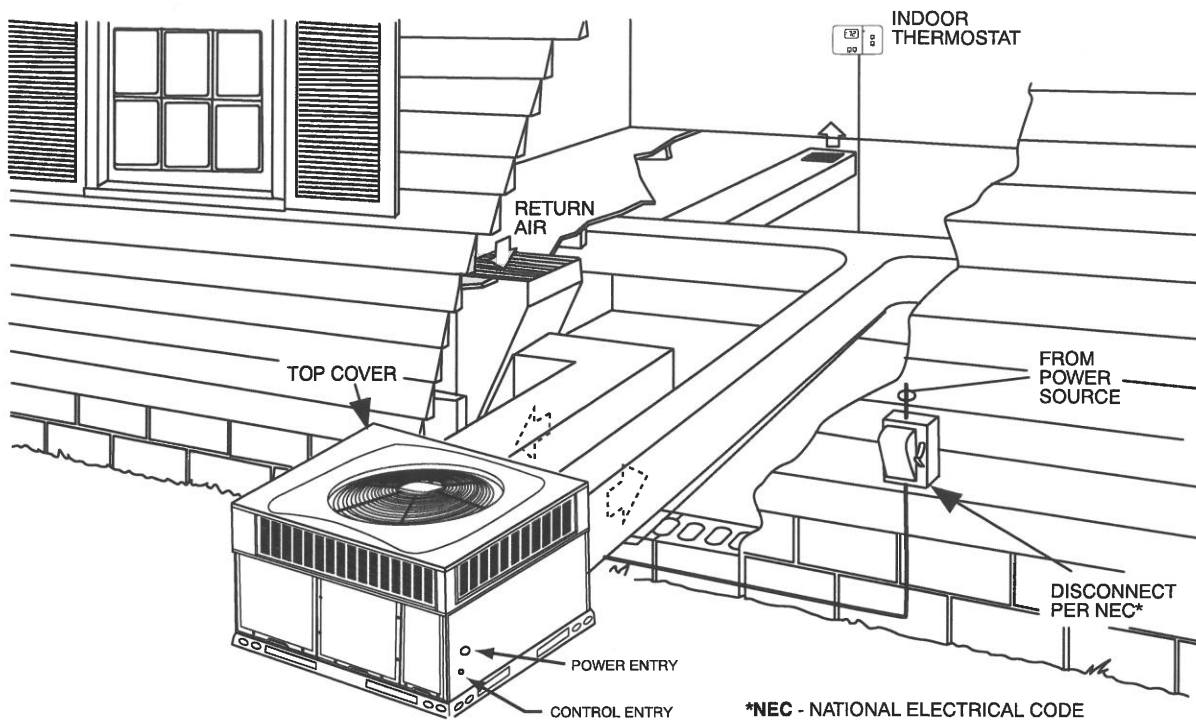
Electric Heat Pressure Drop Table (IN. W.C.)**Small Cabinet: 24-30**

STATIC	STANDARD CFM (SCFM)											
	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
5kw	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07
7.5 kw	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.07	0.08	0.09
10 kw	0.00	0.00	0.00	0.00	0.00	0.02	0.04	0.06	0.07	0.09	0.10	0.11
15 kw	0.00	0.00	0.00	0.02	0.04	0.06	0.08	0.10	0.12	0.14	0.16	0.18
20 kw	0.00	0.00	0.02	0.04	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19

Electric Heat Pressure Drop Table (IN. W.C.)**Large Cabinet 36-60**

STATIC	STANDARD CFM (SCFM)														
	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500
5kw	0.00	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12
7.5 kw	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
10 kw	0.00	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13
15 kw	0.00	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15
20 kw	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16

Typical Piping and Wiring



A09238

Application Data

Condensate trap — A 2-in. (51 mm) condensate trap must be field supplied.

Ductwork — Secure downflow discharge ductwork to roof curb. For horizontal discharge applications, attach ductwork to unit with flanges.

To convert a unit to downflow discharge — Units are equipped with factory-installed inserts in the downflow openings. Removal of the inserts is similar to removing an electrical knock-out. Units installed in horizontal discharge orientation do not require duct covers.

Maximum cooling airflow — To minimize the possibility of condensate blow-off from the evaporator, airflow through the units should not exceed 450 CFM per ton.

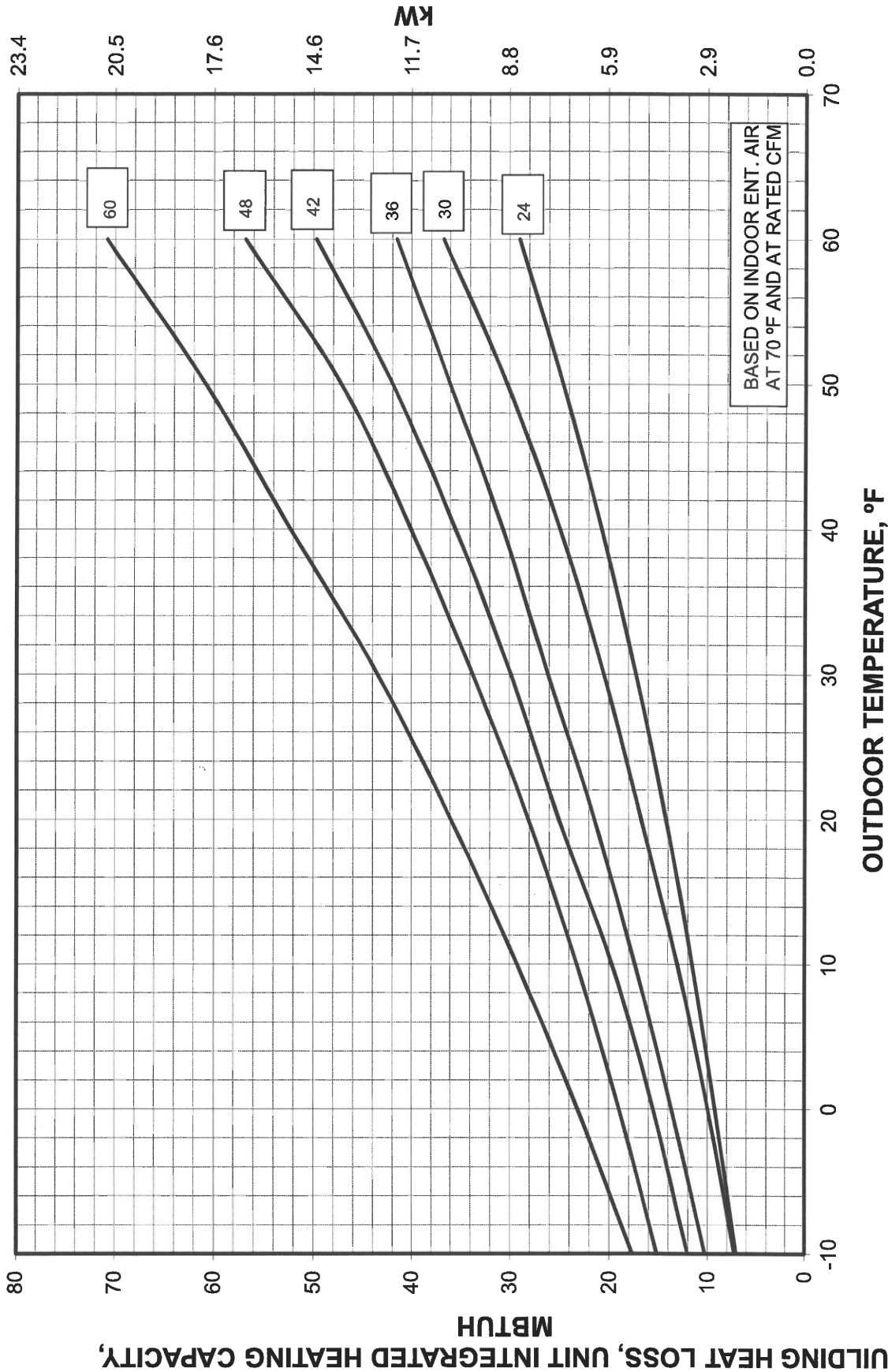
Minimum cooling airflow — Minimum cooling airflow is 350 CFM per ton in cooling mode. Airflow can be lower in certain modes when humidity removal is an issue however, low airflow could result in indoor coil freezing and/or refrigerant floodback.

Minimum ambient cooling operation temperature — All standard units have a minimum ambient cooling operating temperature of 40°F (4.4°C). With accessory low ambient temperature kit, units can operate at temperatures down to 0°F (17.8°C).

Maximum operating outdoor air temperature for cooling is 125°F (51.7°C).

Balance Point Worksheet

BALANCE POINT WORKSHEET



Electrical Data

MODEL	NOMINAL V-PH-HZ	VOLTAGE RANGE		COMPRESSOR		OFM	IFM	NOMINAL ELECTRIC HEAT	POWER SUPPLY		
		MIN	MAX	RLA	LRA	FLA	FLA	KW	FLA	MCA	MOCP
24	208/230-1-60	197	253	11.1	59.5	0.7	3.5	-/-	-/-	18.1	25
								3.8/5	18.1/20.8	40.7/44.1	45/45
								5.4/7.2	25.9/30	50.5/55.6	60/60
								7.5/10	36.1/41.7	63.2/70.2	70/80
								-/-	-/-	21.6	30
30	208/230-1-60	197	253	13.2	72.2	1.2	3.9	3.8/5	18.1/20.8	44.2/47.6	45/50
								5.4/7.2	25.9/30	54/59.1	60/60
								7.5/10	36.1/41.7	66.7/73.7	70/80
								11.3/15	54.2/62.5	89.4/99.7	90/100
								-/-	-/-	25	40
36	208/230-1-60	197	253	16	91.9	1.2	3.8	3.8/5	18.1/20.8	47.6/51	50/60
								5.4/7.2	25.9/30	57.4/62.5	60/70
								7.5/10	36.1/41.7	70.1/77.1	80/80
								11.3/15	54.2/62.5	92.8/103.1	100/110
								-/-	-/-	18.6	25
	208/230-3-60	197	253	10.9	97.5	1.2	3.8	3.8/5	10.4/12	31.6/33.6	35/35
								5.4/7.2	20.8/24.1	44.6/48.8	45/50
								11.3/15	31.2/36.1	57.6/63.8	60/70
								-	-	8.5	15
								10	12	23.5	25
	460-3-60	414	506	5.4	43.4	0.53	1.2	15	18	31	35
								-/-	-/-	30.2	45
								3.8/5	18.1/20.8	52.8/56.2	60/60
								5.4/7.2	25.9/30	62.5/67.7	70/70
								7.5/10	36.1/41.7	75.3/82.3	80/90
42	208/230-1-60	197	253	18.6	110	1.1	5.8	11.3/15	54.2/62.5	97.9/108.3	100/110
								15/20	72.2/83.3	120.4/134.3	125/150
								-/-	-/-	22.9	35
								3.8/5	10.4/12	35.9/37.9	40/40
								5.4/7.2	20.8/24.1	48.9/53	50/60
	208/230-3-60	197	253	12.8	120	1.1	5.8	11.3/15	31.2/36.1	61.9/68	70/70
								15/20	41.4/47.9	74.7/82.8	80/90
								-	-	10.2	15
								10	12	25.2	30
								15	18	32.7	35
	460-3-60	414	506	6.4	55.1	0.53	1.7	20	24.1	40.4	45
								-/-	-/-	32.7	50
								3.8/5	18.1/20.8	55.4/58.7	60/60
								5.4/7.2	25.9/30	65.1/70.2	70/80
								7.5/10	36.1/41.7	77.9/84.9	80/90
48	208/230-1-60	197	253	19.7	130	1.2	6.9	11.3/15	54.2/62.5	100.5/110.9	110/125
								15/20	72.2/83.3	123/136.9	125/150
								-/-	-/-	25.2	35
								3.8/5	10.4/12	38.2/40.2	40/45
								5.4/7.2	20.8/24.1	51.2/55.4	60/60
	208/230-3-60	197	253	13.7	83.1	1.2	6.9	11.3/15	31.2/36.1	64.2/70.4	70/80
								15/20	41.4/47.9	77/85.1	80/90
								-	-	10.6	15
								10	12	25.6	30
								15	18	33.1	35
	460-3-60	414	506	6.2	41	0.53	2.3	20	24.1	40.7	45
								-/-	-/-	42.6	60
								3.8/5	18.1/20.8	65.3/68.6	70/70
								5.4/7.2	25.9/30	75/80.1	80/90
								7.5/10	36.1/41.7	87.8/94.8	90/100
60	208/230-1-60	197	253	27.7	124.5	1.1	6.9	11.3/15	54.2/62.5	110.4/120.8	125/125
								15/20	72.2/83.3	132.9/146.8	150/150
								-/-	-/-	24.5	35
								3.8/5	10.4/12	37.5/39.5	40/40
								5.4/7.2	20.8/24.1	50.5/54.6	60/60
	208/230-3-60	197	253	13.2	93	1.1	6.9	11.3/15	31.2/36.1	63.5/69.6	70/70
								15/20	41.4/47.9	76.3/84.4	80/90
								-	-	10.7	15
								10	12	25.7	30
								15	18	33.2	35
	460-3-60	414	506	6.3	55	0.53	2.3	20	24.1	40.8	45

See Legend and Notes.

LEGEND

FLA - Full Load Amps
 IFM - Indoor Fan Motor
 LRA - Locked Rotor Amps
 MCA - Minimum Circuit Amps
 MOCP - Maximum Over Current Protection
 OFM - Outdoor Fan Motor
 RLA - Rated Load Amps

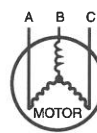
NOTES:

1. In compliance with NEC (National Electrical Code) requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be Power Supply fuse or circuit breaker.
2. Minimum wire size is based on 60 C copper wire. If other than 60 C wire is used, or if length exceeds wire length in table, determine size from NEC.
3. Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance

% Voltage imbalance

$$= 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

EXAMPLE: Supply voltage is 230-3-60.



AB = 228 v

BC = 231 v

AC = 227 v

$$\text{Average Voltage} = \frac{228 + 231 + 227}{3}$$

$$= \frac{686}{3}$$

$$= 229$$

Determine maximum deviation from average voltage.

$$(AB) 229 - 228 = 1 \text{ v}$$

$$(BC) 231 - 229 = 2 \text{ v}$$

$$(AC) 229 - 227 = 2 \text{ v}$$

Maximum deviation is 2 v.

Determine percent of voltage imbalance

$$\% \text{ Voltage Imbalance} = 100 \times \frac{2}{229}$$

$$= 0.8\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

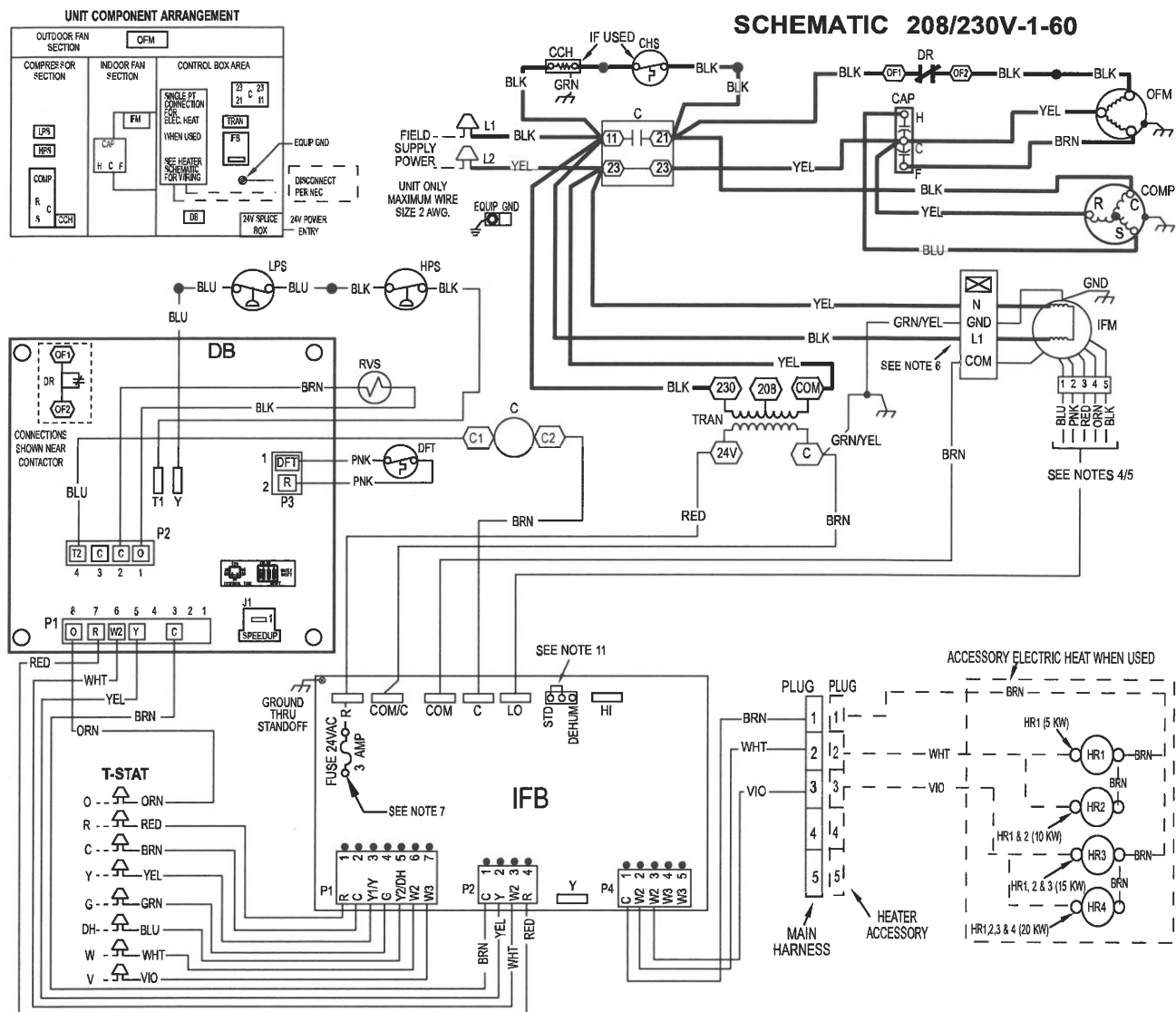
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Typical Connection Wiring Schematic - 208/230-1-60

CONNECTION WIRING DIAGRAM

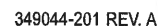
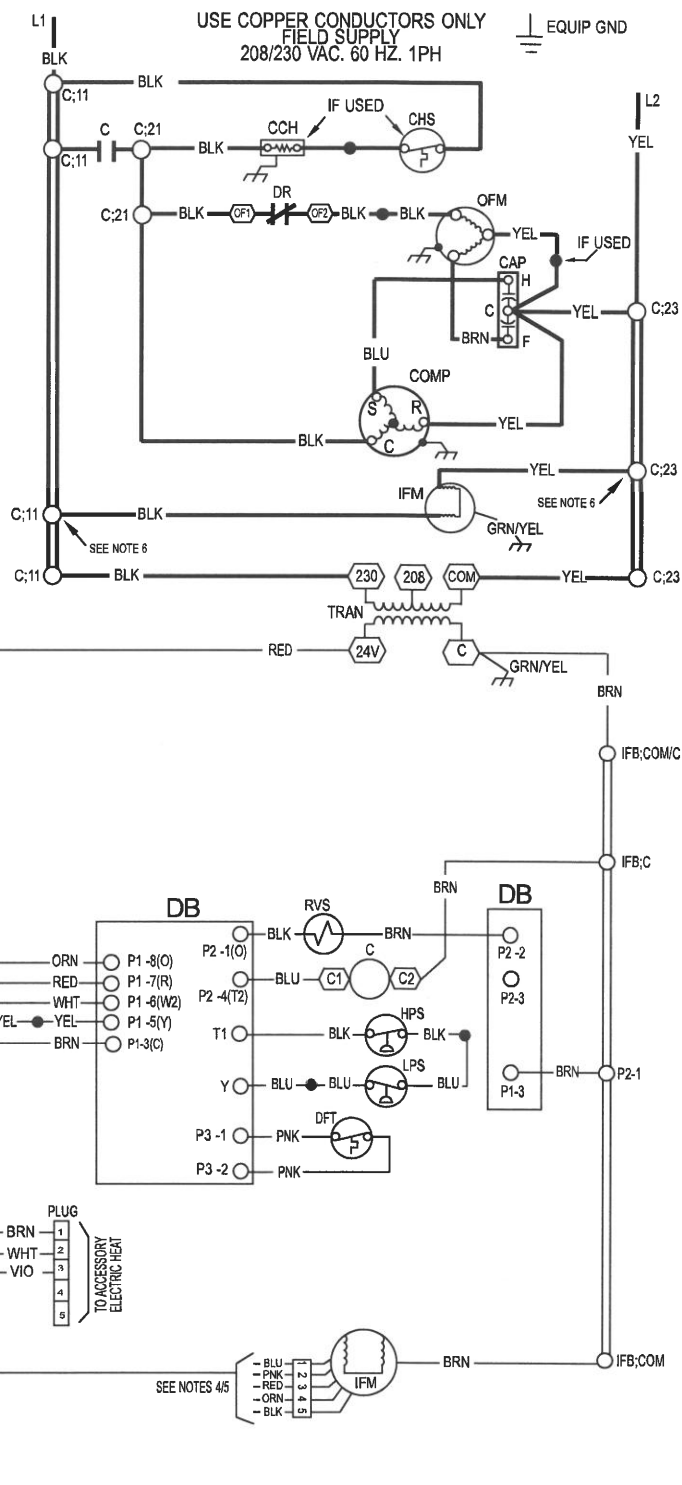
DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING

SCHEMATIC 208/230V-1-60



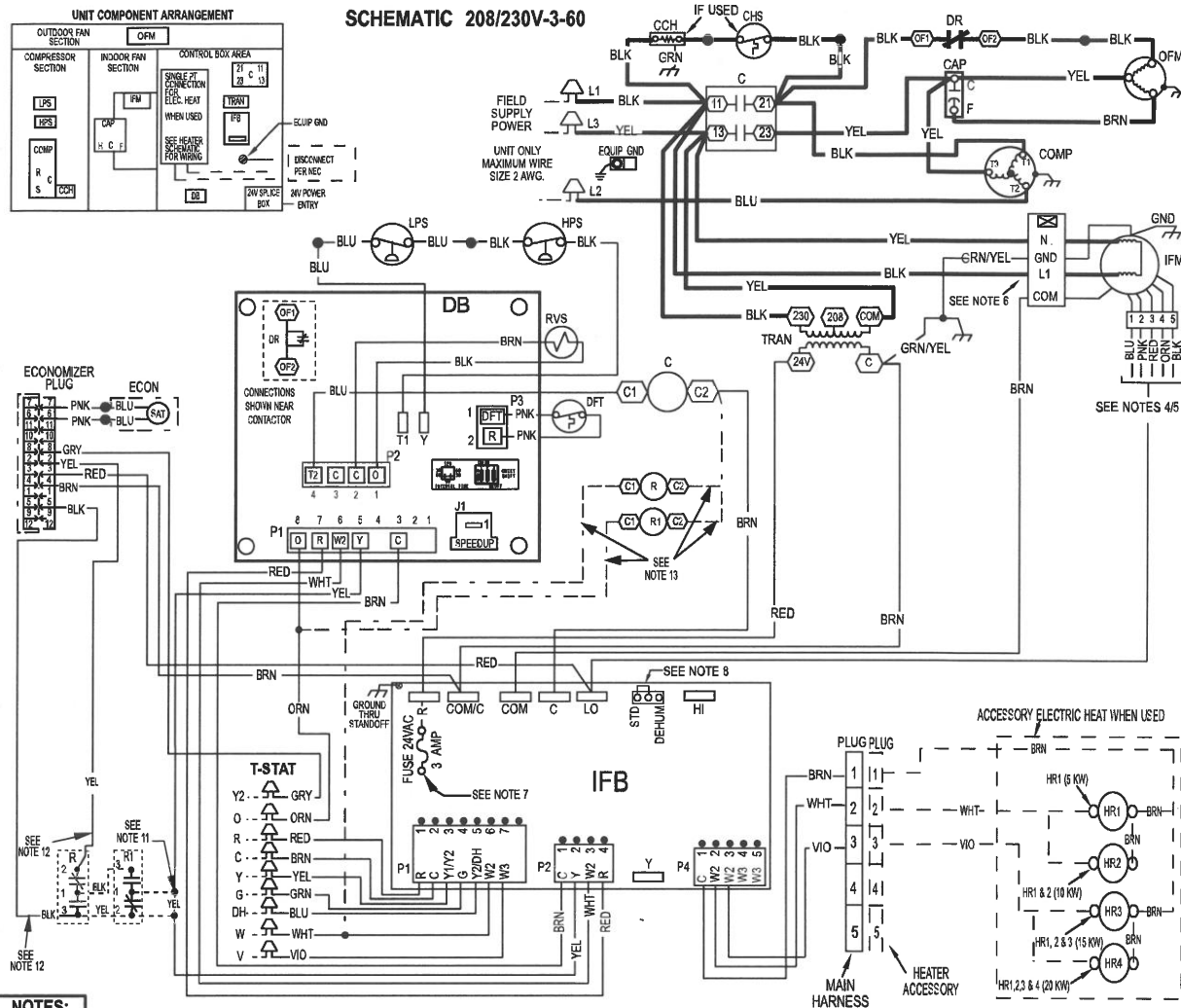
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DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING



Typical Connection Wiring Schematic - 208/230-3-60

CONNECTION WIRING DIAGRAM DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING SCHEMATIC 208/230V-3-60



NOTES:

1. IF ANY OF THE ORIGINAL WIRES FURNISHED ARE REPLACED IT MUST BE REPLACED WITH THE SAME OR ITS EQUIVALENT.
2. SEE PRE SALE LITERATURE FOR THERMOSTATS.
3. USE 75 DEGREES C COPPER CONDUCTORS FOR FIELD INSTALLATION.
4. REFER TO INSTALLATION INSTRUCTIONS FOR CORRECT SPEED SELECTION FOR IFM.
5. RELOCATION OF SPEED TAPS MAY BE REQUIRED WHEN USING FIELD INSTALLED ELECTRIC HEATERS. CONSULT INSTALLATION INSTRUCTIONS TO DETERMINE CORRECT SPEED TAP SETTING.
6. "DO NOT DISCONNECT PLUG UNDER LOAD".
7. THIS FUSE IS MANUFACTURED BY LITTLE FUSE, PIN 287003.
8. DEHUM FEATURE CANNOT BE USED WHEN ECONOMIZER IS INSTALLED. UNIT FACTORY - SHIPPED IN STD MODE.
9. N.E.C. CLASS 2, 24V.
10. CCH NOT USED ON ALL UNITS.
11. REMOVE YELLOW SPLICE WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED AND CONNECT TO RELAY R1 AS SHOWN.
12. WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED CONNECT THE YELLOW AND BLACK WIRES TO RELAY "R" AS SHOWN. RELAY KIT REQUIRED WITH ECONOMIZER AND HEAT PUMP / DUAL FUEL UNITS.
13. WHEN ECONOMIZER AND ECONOMIZER RELAYS ARE USED, INSTALL WIRES AS SHOWN ONTO THE COILS OF RELAY R AND RELAY R1.

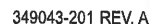
LEGEND

△ FIELD SPLICE	C CONTACTOR	HR HEATER RELAY
○ TERMINAL (MARKED)	CAP CAPACITOR	IFB INDOOR FAN BOARD
● TERMINAL (UNMARKED)	CCH CRANK CASE HEATER	IFM INDOOR FAN MOTOR
• SPLICE	COMP COMPRESSOR MOTOR	LPS LOW PRESSURE SWITCH
○ SPLICE (MARKED)	DB DEFROST BOARD	OFM OUTDOOR FAN MOTOR
— FACTORY LO VOLTAGE	DH DEHUMIDIFICATION MODE	RVS REVERSING VALVE
— FIELD CONTROL WIRING	DFT DEFROST TEMPERATURE SWITCH	STD STANDARD MODE
— FIELD POWER WIRING	DEHUM DEHUMIDIFICATION MODE	TRAN TRANSFORMER
--- ACCESSORY OR OPTIONAL WIRING	DR DEFROST RELAY (SEE DB)	T-STAT THERMOSTAT
— FACTORY HI VOLTAGE	ECON ECONOMIZER	
	EQUIP EQUIPMENT	
	GND GROUND	
	HPS HIGH PRESSURE SWITCH	



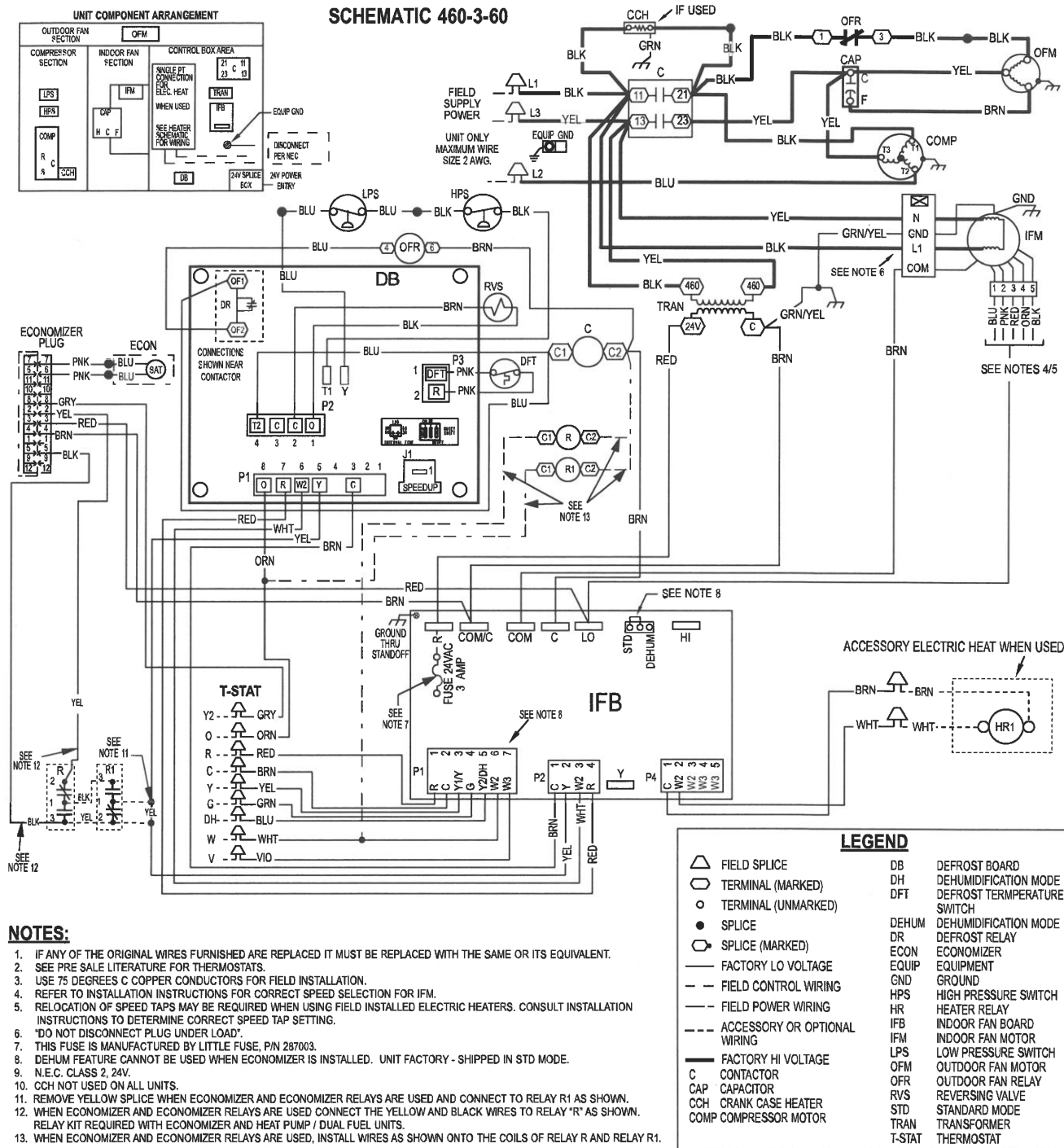
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DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING



Typical Connection Wiring Schematic - 460-3-60

CONNECTION WIRING DIAGRAM DANGER: ELECTRICAL SHOCK HAZARD DISCONNECT POWER BEFORE SERVICING SCHEMATIC 460-3-60



Controls

Operating Sequence

When power is supplied to unit, the transformer (TRAN) is energized.

On units with crankcase heater, heater is also energized.

Cooling — With the thermostat in the cooling position, the thermostat makes circuit R-O. This energizes the reversing valve solenoid (RVS) and places the unit in standby condition for cooling.

As the space temperature rises, the thermostat closes circuit R-Y. A circuit is made to contactor (C), starting the compressor (COMP) and outdoor-fan motor (OFM). Circuit R-G is made at the same time and starts the indoor-fan motor (IFM).

When the thermostat is satisfied, contacts open, deenergizing C. The COMP and OFM stop, and the IFM stops after the preselected time delay.

Heating — On a call for heat, thermostat makes circuits R-Y and R-G.

A circuit is made to C, starting COMP and OFM. Circuit R-G also is completed, energizing IFR and starting IFM after the selected time delay.

Should room temperature continue to fall, circuit R-W is made through second-stage thermostat. If optional electric heat package is used, a relay is energized, bringing on first bank of supplemental electric heat. When thermostat is satisfied, contacts open, deenergizing contactor and relay; motors and heaters deenergize.

Demand Defrost Mode— The defrost mode is factory set to an initial 60-minute time interval. It may also be adjusted to an initial interval of 30, 90, or 120 minutes. During operation, the control optimizes current defrost time based on the previous defrost interval and previous defrost period. If the previous defrost period is less than 2 minutes for two consecutive defrost cycles the control will lengthen the defrost interval by 15 minutes, up to a maximum of 120 minutes or 30 minutes greater than the original setpoint, whichever comes first. If the previous defrost period is more than 5 minutes for two consecutive defrost cycles the control will shorten the defrost interval by 15 minutes, down to a minimum of 30 minutes or 30 minutes from the original setpoint, whichever is first. After the defrost condition is satisfied, or after a maximum of 10 minutes in defrost mode, the unit will resume normal heating operation.

Guide Specifications

Packaged Heat Pump System

HVAC Guide Specifications

Size Range: 2 to 5 Tons, Nominal Cooling

Part 1 } General

SYSTEM DESCRIPTION

Outdoor, packaged, air-to-air heat pump unit utilizing a hermetic scroll compressor for cooling duty and optional electric heating. Unit shall discharge supply air vertically or horizontally as shown on contract drawings. Outdoor fan/coil section shall have a draw-thru design with vertical discharge for minimum sound levels.

QUALITY ASSURANCE

- Unit shall be rated in accordance with AHRI Standards 210/240 and 270.
- Unit shall be designed in accordance with UL Standard 1995.
- Unit shall be manufactured in a facility registered to ISO 9001 manufacturing quality standard.
- Unit shall be UL listed and c-UL certified as a total package for safety requirements.
- Roof curb shall be designed to conform to NRCA Standards.
- Insulation and adhesives shall meet NFPA 90A requirements for flame spread and smoke generation.
- Cabinet insulation shall meet ASHRAE Standard 62P.

DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled per manufacturer's recommendations.

Part 2 } Products

EQUIPMENT

General:

Factory-assembled, single-piece, heat pump unit. Contained within the enclosure shall be all factory wiring, piping, controls, refrigerant charge (R-410A), and special features required prior to field start-up.

Unit Cabinet:

- Unit cabinet shall be constructed of phosphated, zinc-coated, pre-painted steel capable of withstanding 500 hours of salt spray.
- Normal service shall be through 3 removable cabinet panels.
- The unit shall be constructed on a rust proof unit base that has an externally trapped, integrated sloped drain.
- Indoor fan compartment top surface shall be insulated with a minimum 1/2-in. (13 mm) thick, flexible fiberglass insulation, coated on the air side and retained by adhesive and mechanical means. The indoor wall sections will be insulated with a minimum semi-rigid, foil-faced board capable of being wiped clean. Aluminum foil-faced fiberglass insulation shall be used in the entire indoor air cavity section.
- Unit shall have a field-supplied condensate trap.
- Metal Insulated Duct Covers for side discharge will be standard on all sizes.
- Unit insulation conforms to ASHRAE 62P.

Fans:

- The indoor fan shall be 5-speed, direct-drive, as shown on equipment drawings.
- Fan wheel shall be made from steel and shall be double-inlet type with forward-curved blades with corrosion resistant finish. Fan wheel shall be dynamically balanced.
- Outdoor fan shall be direct-drive, propeller-type with aluminum blades riveted to corrosion resistant steel spiders, be dynamically balanced, and discharge air vertically.

Compressor:

- Fully hermetic compressors with factory-installed vibration isolation.
- Scroll compressors shall be standard on all units.

Coils:

- Indoor coils shall have aluminum plate fins mechanically bonded to seamless aluminum tubes with all joints brazed. Tube sheet openings shall be belled to prevent tube wear. Outdoor coil shall have aluminum fins with copper tubing.

Refrigerant Metering Device:

- Refrigerant metering device shall be thermostatic expansion valve or fixed orifice for cooling, and fixed orifice for heating.

Filters:

- Filter section shall consist of field-installed, throwaway, 1-in. (25 mm) - thick fiberglass filters of commercially available sizes.

Controls and Safeties:

- Unit controls shall be complete with a self-contained, low-voltage control circuit.
- Units shall incorporate an internal compressor protector that provides reset capability.

Operating Characteristics:

- Unit shall be capable of starting and running at 125°F (51.7°C) ambient outdoor temperature.
- Compressor with standard controls shall be capable of operation down to 40°F (4.4°C) ambient outdoor temperature in cooling mode.
- Unit shall be provided with 90-second fan time delay after the thermostat is satisfied.

Electrical Requirements:

- All unit power wiring shall enter the unit cabinet at a single location.

Motors:

- Compressor motors shall be of the refrigerant-cooled type with line-break thermal and current overload protection.
- All fan motors shall have permanently lubricated bearings, and inherent, automatic reset, thermal overload protection.
- Condenser fan motor shall be totally enclosed.
- Evaporator fan motor to be ECM Motor.

Special Features Available:

- Compressor Start Kit (single phase units only):
Shall provide additional starting torque for single-phase compressors.
- Thermostat:
To provide for two-stage heating and one-stage cooling in addition manual or automatic changeover and indoor fan control.
- Crankcase Heater:
Shall provide anti-floodback protection for lowload cooling applications.
- Economizer:
(Horizontal - Field installed accessory)
(Vertical - Field installed accessory)
 - a. Economizer controls capable of providing free cooling using outside air.
 - b. Equipped with low leakage dampers not to exceed 3% leakage, at 1.0 IN. W.C. pressure differential.
 - c. Spring return motor shuts off outdoor damper on power failure.

Guide Specifications (Continued)

- Electric Heaters
 - a. Electric heater shall be available as a field installed option.
 - b. Heater elements shall be open wire type, adequately supported and insulated with ceramic bushings.
 - c. Electric heater packages must provide single point power connection capability.
- Filter Rack Kit:
Shall provide filter mounting for downflow applications. Offered as a field installed accessory.
- Flat Roof Curb:
Curbs shall have seal strip and a wood nailer for flashing and shall be installed per manufacturer's instructions.
- Low Ambient Package:
Shall consist of a solid-state control and outdoor coil temperature sensor for controlling outdoor-fan motor operation, which shall allow unit to operate down to 0°F (-17.7°C) outdoor ambient temperature.
- Manual Outdoor Air Damper:
Package shall consist of damper, birdscreen, and rainhood which can be preset to admit outdoor air for year-round ventilation.
- Square-To-Round Duct Transitions (24-48 size):
Shall have the ability to convert the supply and return openings from rectangular to round.
- Time Guard II
Automatically prevents the compressor from restarting for at least 4 minutes and 45 seconds after shutdown of the compressor. Not required when a corporate programmable thermostat is applied or with a RTU-MP control. Offered as a field installed accessory.
- Dual Point Electric Heaters|
Allows you to power the electric heater and unit contactor separately by having two individual field power supply circuits connected respectively.
- Cabinet air leakage of 2.0% or less at .5 in. W.C. when tested in accordance with ASHRAE standard 193. Available as a factory installed option.
- Louver Metal Outdoor Coil Grille
Shall provide hail and vandalism protection. Available as a field installed accessory.

Training

My Learning Center is your central location for professional residential HVAC training resources that help strengthen careers and businesses. We believe in providing high quality learning experiences both online and in the classroom.

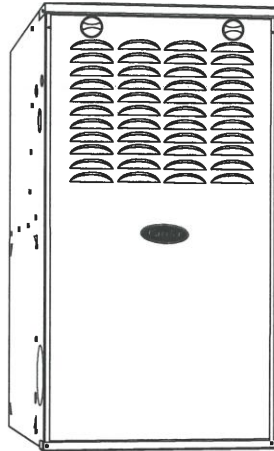
Access My Learning Center with your HVACpartners credentials at www.mlctraining.com. Please contact us a mylearning@carrier.com with questions.

58TP0/58TP1

Performance™ Two-Stage, Variable Speed, Non-Communicating, Non-Condensing, Gas Furnace



Product Data



A190411

PERFORMANCE™ 80 TWO-STAGE GAS FURNACE

The 58TP0/58TP1 Two-Stage, Variable-speed, 4-way Multipoise Gas Furnaces offer unmatched comfort in their class with ComfortHeat® technology in an 80% AFUE gas furnace. You get the benefits of a ComfortHeat® technology furnace: reduced drafts, reduced sound levels, longer cycles, less temperature swings between cycles, and less temperature differences between rooms. Its exclusive, intelligent microprocessor control adapts to the heating needs of the home by automatically adjusting high and low heat times to maximize comfort. The 58TP0/58TP1 furnaces are approved for use with natural or propane gas. 58TP1 - Low NOx units are designed for California installations and can be installed in air quality management districts with a 40 ng/J NOx emissions limit.

Performance™
SERIES



Use of the AHRI Certified™ Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.



A200315

PERFORMANCE

- ComfortHeat® Technology Intelligent microprocessor control
- Two-stage heating with single-stage thermostat with patented Adaptive Control Technology
- Lower operating sound through low-stage operation and QuicTech™ system
- Microprocessor based control center
 - Enhanced diagnostics with LED and reflective sight glass
 - Stores fault codes during power outages
 - Adjustable heating air temperature rise
 - Adjustable cooling airflow
- Stores fault codes during power outages
- Power Heat™ Igniter
- Draft Safeguard switch designed to ensure proper furnace venting
- Insulated blower compartment
- Inner door for tighter sealing
- Variable-speed, constant torque ECM blower motor
 - Increased SEER ratings for AC and HP systems as compared to the Air Conditioning Heating and Refrigeration Institute's standard coil-only rating when paired with selected Carrier evaporator coils.
- Noise reduction combustion system

INSTALLATION FLEXIBILITY

- Four-position furnace: Upflow, Horizontal Right, Horizontal Left, Downflow, 13 different vent options
- 4-way Multipoise furnace, 13 vent applications
- Compact design - only 33-1/3 in. (847 mm) tall

APPLICATIONS

- SmartEvap™ Humidity control when using a Thermostat™ control
- SmartEvap™ can lower the humidity level in the home by nearly 10 percent
- Comfort Fan™ All models are Chimney friendly when used with accessory vent kit
- Twinning capable with accessory kit (sizes 070V17--16, 090V17--16, 090V21--20, 110V21--22, and 135V24--22)
- HYBRID HEAT® Dual Fuel System compatible

CERTIFICATION

- Cabinet air leakage less than 2.0% at 1.0 in. W.C. and cabinet air leakage less than 1.4% at 0.5 in. W.C. when tested in accordance with ASHRAE standard 193
- Residential installations eligible for consumer financing through the Retail Credit Program

SPECIFICATIONS

Unit Size			045V14-12	070V14-12	070V17-16	090V17-16	090V21-20	110V21-22	135V24-22
RATINGS AND PERFORMANCE									
Input Btuh* Nonweatherized ICS	All Standard All Low NOx Upflow	High	44,000	66,000	66,000	88,000	88,000	110,000	132,000
		Low	29,000	43,500	43,500	58,000	58,000	72,500	87,000
	All Low Nox Downflow/ Horizontal	High	42,000	63,000	63,000	84,000	84,000	105,000	126,000
		Low	29,000	43,500	43,500	58,000	58,000	72,500	87,000
Output Capacity (Btuh) Nonweatherized ICS†	All Standard All Low NOx Upflow	High	35,000	53,000	53,000	71,000	71,000	89,000	107,000
		Low	23,000	35,000	35,000	47,000	47,000	59,000	70,000
	All Low Nox Downflow/ Horizontal	High	34,000	51,000	51,000	68,000	68,000	85,000	102,000
		Low	23,000	35,000	35,000	47,000	47,000	59,000	70,000
AFUE‡			80.00						
Certified Temperature Rise Range °F (°C)		High	30-60 (17-33)	30-60 (17-33)	25-55 (14-30)	40-70 (22-39)	25-55 (14-30)	30-60 (17-33)	40-70 (22-39)
		Low	20-50 (11-28)	30-60 (17-33)	15-45 (8-25)	30-60 (17-33)	15-45 (8-25)	20-50 (11-28)	25-55 (14-31)
Certified External Static Pressure	Heat/Cool		0.10/0.50	0.12/0.50	0.12/0.50	0.15/0.50	0.15/0.50	0.20/0.50	0.20/0.50
Airflow CFM **	Heating High/Low		915/780	1180/715	1400/1225	1380/1005	1800/1570	2055/1685	2075/1795
	Cooling		1175	1380	1740	1505	1915	2230	2160
ELECTRICAL									
Unit Volts-Hertz-Phase			115-60-1						
Operating Voltage Range	Min/Max		104/127						
Maximum Unit Amps			7.70	8.00	10.50	8.60	11.50	13.10	13.90
Maximum Wire Length (Measure one way in Ft. (M))			35 (10.9)	34 (10.4)	26 (8.1)	32 (10)	24 (7.5)	34 (10.4)	32 (9.8)
Minimum Wire Size			14	14	14	14	14	12	12
Maximum Fuse or Ckt Bkr Size (Amps)††			15	15	15	15	15	20	20
Transformer (24v)			40va						
External Control	Heating		12va						
Power Available	Cooling		35va						
Air Conditioning Blower Relay			Standard						
CONTROLS									
Burners (Monoport)			2	3	3	4	4	5	6
Gas Connection Size			1/2in. NPT						
GAS CONTROLS									
Gas Valve (Redundant)	Mfr.		WhiteRodgers						
	Min. inlet pressure (In. W.C.)		4.5 (Natural Gas)						
	Max. inlet pressure (In. W.C.)		13.6 (Natural Gas)						
Ignition Device			Hot Surface						
Factory installed orifice			Size 43						
BLOWER DATA									
Variable-Speed Constant Torque (VCT) ECM			1/2	1/2	3/4	1/2	3/4	1	1
Motor Full Load Amps			6.4	6.7	9.2	6.7	9.6	10.9	11.7
RPM (Nominal)			1200	1200	1200	1200	1200	1200	1200
Blower Wheel Diameter x Width - In. (mm)			10 x 6 (254x152)	10 x 6 (254x152)	11 x 8 (279x203)	10 x 10 (254x254)	11 x 11 (279x279)	11 x 11 (279x279)	11 x 11 (279x279)

*. Gas input ratings are certified for elevations to 2000 ft. (610 M). For elevations above 2000 ft. (610 M), reduce ratings 4 percent for each 1000 ft. (305 M) above sea level. Refer to National Fuel Gas Code NFPA 54/ANSI Z223.1-2012 Table F.4 or furnace installation instructions.

†. ICS = Isolated Combustion System

‡. Capacity in accordance with U.S. Government DOE test procedures

**. Airflow shown is for bottom only return-air supply for Max Cooling Airflow and heating airflows (efficiency setting) at certified external static pressure. For air delivery above 1800 CFM, see Air Delivery table for other options. A filter is required for each return-air supply. An airflow reduction of up to 7 percent may occur when using the factory-specified 4-5/16 in. (110 mm) wide, high efficiency media filter.

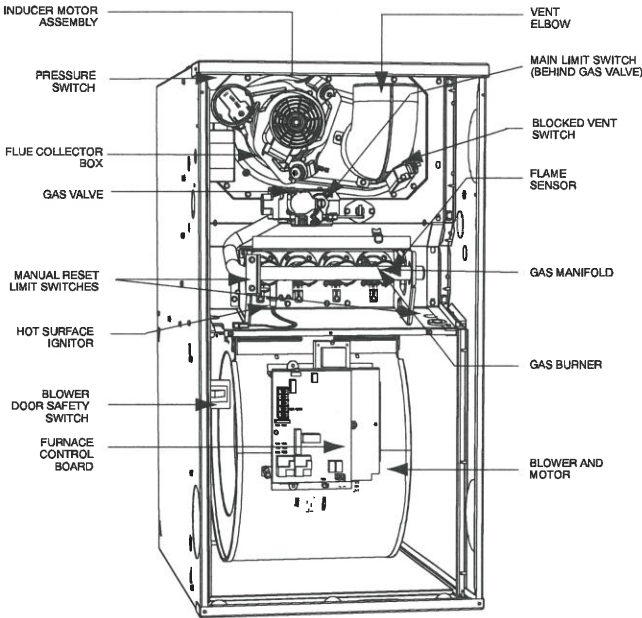
††. Time-delay type is recommended.

MODEL NUMBER NOMENCLATURE

1, 2 Gas Furnace 58	3 Heating Stages M	4 Tier N	6 Min. AFUE/NOx 7	6 Major Series B	7, 8, 9 Heating Input 060	10 Motor Type E	11, 12 Width 17	13 Voltage (1-phase) 1	14 Minor Series 1	15, 16 Airflow 16
58 = 80% Non-Condensing 59 = 90%+ Condensing	M = Modulating S = Single Stage T = Two Stage	B = Base C = Comfort E = Export N = Infinity P = Performance U = Ultra Low Nox	0 = Std. NOx 80% 1 = 80% Low Nox 2 = 92% 5 = 95% 6 = 96% 7 = 97% 8 = 98%	A B C	026 = 26,000 BTU/h 040 = 40,000 BTU/h 060 = 60,000 BTU/h 155 = 155,000 BTU/h	C = Comm. Variable-Speed Constant Airflow (VCA) ECM E = Fixed-Speeds Constant Torque (FCT) ECM V = Variable-Speed Constant Torque (VCT) ECM	14 - 14.2" 17 - 17.5" 21 - 21.0" 24 - 24.5"	1 = 110V/60Hz 2 = 230V/50Hz	1 2 3	08 = 800 CFM 10 = 1000 CFM 12 = 1200 CFM 14 = 1400 CFM 16 = 1600 CFM 20 = 2000 CFM 22 = 2200 CFM

A200524

FURNACE COMPONENTS



A190086

NOTE: The furnaces are factory shipped for use with natural gas. These furnaces can be field-converted for propane gas with a factory-authorized and listed accessory conversion kit.

WARNING

FIRE, EXPLOSION, ASPHYXIATION HAZARD

Improper adjustment, alteration, service, maintenance, or installation can cause serious injury or death.

Read and follow instructions and precautions in User's Information Manual provided with this furnace. Installation and service must be performed by a qualified service agency or the gas supplier.

CAUTION

Check entire gas assembly for leaks after lighting this appliance.

INSTALLATION

1. This furnace must be installed in accordance with the manufacturer's instructions and local codes. In the absence of local codes, follow the National Fuel Gas Code ANSI Z223.1 / NFPA54 or CSA B-149.1 Gas Installation Code.

2. This furnace must be installed so there are provisions for combustion and ventilation air. See manufacturer's installation information provided with this appliance.

OPERATION

This furnace is equipped with manual reset limit switch(es) in burner compartment to protect against overheating conditions that can result from inadequate combustion air supply or blocked vent conditions.

1. Do not bypass limit switches.

2. If a limit opens, call a qualified serviceman to correct the condition and reset limit switch.

INSTALLATION

MINIMUM INCHES CLEARANCE TO COMBUSTIBLE CONSTRUCTION

This forced air furnace is equipped for use with natural gas at altitudes 0 - 10,000 ft (0 - 3,050m). An accessory kit, supplied by the manufacturer, shall be used to convert to propane gas use or may be required for some natural gas applications. This furnace is for indoor installation in a building constructed on site.

This furnace may be installed on combustible flooring in alcove or closet at minimum clearance as indicated by the diagram from combustible material.

This furnace may be used with a Type B-1 Vent and may be vented in common with other gas fired appliances.

MINIMUM INCHES CLEARANCE TO COMBUSTIBLE CONSTRUCTION

DOWNFLOW POSITIONS:

↑ Installation on non-combustible floors only.

For installation on combustible flooring only when installed on special base, Part No. KGA58020J-ALL or NAAU1015B. Call Assembly, Part No. CAR, CAP, CNPV, CNRV, END4X, ENW4X, WENC, WTNC, WENW OR WTNW.

✱ 18 inches front clearance required for alcove.

✱ Indicates supply or return sides when furnace is in the horizontal position. Line contact only permissible between lines formed by intersections of the Top and two Sides of the furnace jacket, and building joists, studs or framing.

Clearance arrows do not change with furnace orientation.

Clearance in inches

Vent Clearance to combustibles:
For Single Wall vents 6 inches (6 in.)
For Type B-1 vent type 1 inch (1 in.)

33809-101 REV. C

A10269

ACCESSORIES

DESCRIPTION	PART NO.	045V14-12	070V14-12	070V17-16	090V17-16	090V21-20	110V21-22	135V24-22
External Bottom Return Filter Rack	FHG1425-2	X	X	-	-	-	-	-
	FHG1625-2	-	-	X	X	-	-	-
	FHG2025-2	-	-	-	-	X	X	-
	FHG2424-2	-	-	-	-	-	-	X
Unframed Filter 3/4-in. (19 mm)	325531-402	X	X	X	X	-	-	-
	325531-403	-	-	-	-	X	X	-
	325531-404	-	-	-	-	-	-	X
Flue Extension	KGAFE0112UPH	X	X	X	X	X	X	X
Combustible Floor Base	KGASB0201ALL	X	X	X	X	X	X	X
Downflow Vent Guard	KGBVG0101DFG	X	X	X	X	X	X	X
Vent Extension Kit	KGAVE0101DNH	X	X	X	X	X	X	X
Chimney Adapter Kit	KGACA02014FC	X	X	X	X	X	X	X
	KGACA02015FC	-	-	-	-	-	X	X
Natural-to-Propane Conversion Kit*	AGAGC8NPS01A	X	X	X	X	X	X	X
Propane-to-Natural Conversion Kit	AGAGC8PNS01A	X	X	X	X	X	X	X
Twinning Kit VCT-ECM Motor	AGATWNPME01B	-	-	X	X	X	X	X
High Altitude Pressure Switch Kit	KGAHA5801PSW	X	X	X	X	X	X	X

*. Factory-authorized and field installed. Fuel conversion kits are CSA (formerly AGA/CGA) recognized.

X = Accessory

ORIFICES		
Gas Orifice Kit - #42 (Nat Gas)	LH32DB207	See Installation Instructions for model, altitude, and heat value usages.
Gas Orifice Kit - #43 (Nat Gas)	LH32DB202	
Gas Orifice Kit - #44 (Nat Gas)	LH32DB200	
Gas Orifice Kit - #45 (Nat Gas)	LH32DB205	
Gas Orifice Kit - #46 (Nat Gas)	LH32DB208	
Gas Orifice Kit - #47 (Nat Gas)	LH32DB078	
Gas Orifice Kit - #48 (Nat Gas)	LH32DB076	
Gas Orifice Kit - #54 (LP)	LH32DB203	
Gas Orifice Kit - #55 (LP)	LH32DB201	
Gas Orifice Kit - #56 (LP)	LH32DB206	
Gas Orifice Kit - 1.25mm (LP)	LH32DB209	
Gas Orifice Kit - 1.30mm (LP)	LH32DB210	

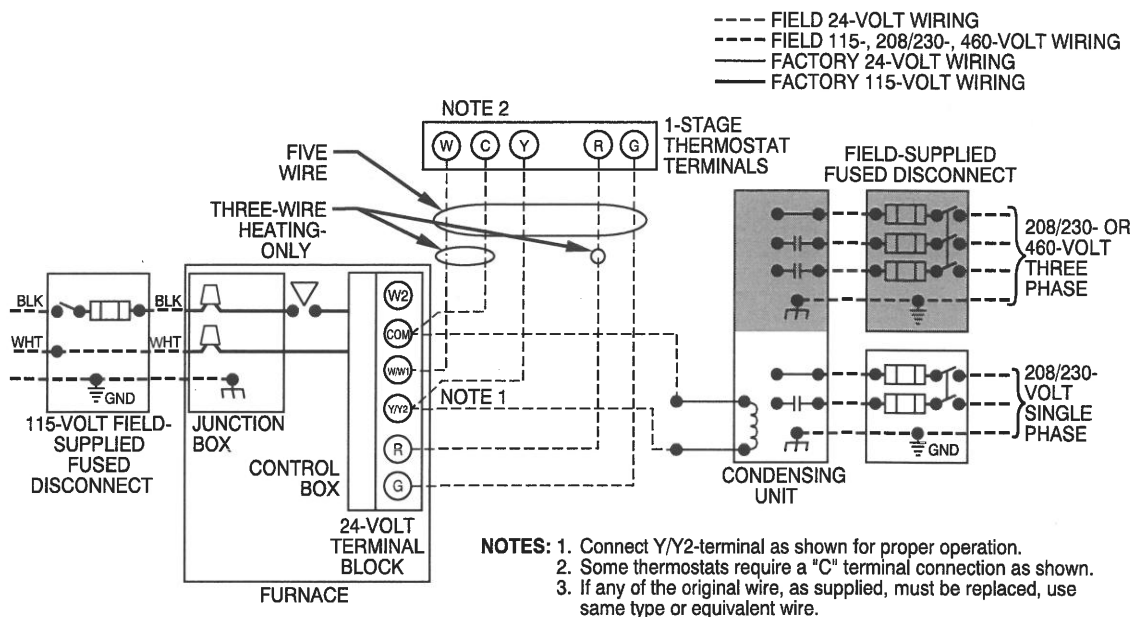
DESCRIPTION	ACCESSORY
HUMIDIFIER	Model HUM
HEAT RECOVERY VENTILATOR	Model HRV
ENERGY RECOVERY VENTILATOR	Model ERV
UV LIGHTS	Model UVL

- Carrier has a wide variety of thermostats for your system, please visit www.Carrier.com to see all thermostat and IAQ products.

DESCRIPTION	ACCESSORY	14"	17"	21"	24"
Carrier Carbon Monoxide Alarm (10 pack)	COALMCCNRB02-A10	X	X	X	X
Carrier Infinity Air Purifier - 16x25 (407x635 mm)	DGAPAXX1625	X	X	-	-
Carrier Infinity Air Purifier - 20x25 (508x635 mm)	DGAPAXX2025	-	-	X	X
Carrier Infinity Air Purifier Repl. Filter- 16x25 (407x635 mm)	GAPCCCAR1625-A05	X	X	-	-
Carrier Infinity Air Purifier Repl. Filter- 20x25 (508x635 mm)	GAPCCCAR2025-A05	-	-	X	X
Cartridge Media Filter - 16" (407 mm) (MERV 11)	FILXXCAR0116	X	X	-	-
Cartridge Media Filter - 16" (407 mm) (MERV 8)	FILXXCAR0016	X	X	-	-
Cartridge Media Filter - 20" (508 mm) (MERV 8)	FILXXCAR0020	-	-	X	-
Cartridge Media Filter - 20" (508 mm) (MERV11)	FILXXCAR0120	-	-	X	-
Cartridge Media Filter - 24" (610 mm) (MERV 8)	FILXXCAR0024	-	-	-	X
Cartridge Media Filter - 24" (610 mm) (MERV11)	FILXXCAR0124	-	-	-	X
EZ Flex Cabinet Side or Bottom - 16"	EZXCABCR0016	X	X	-	-
EZ Flex Cabinet Side or Bottom - 20"	EZXCABCR0020	-	-	X	X
EZ Flex Replacement Filters 16" MERV 10	EXPXXFIL0016	X	X	-	-
EZ Flex Replacement Filters 16" MERV 13	EXPXXFIL0316	X	X	-	-
EZ Flex Replacement Filters 20" MERV 10	EXPXXFIL0020	-	-	X	-
EZ Flex Replacement Filters 20" MERV 13	EXPXXFIL0320	-	-	X	-
EZ Flex Replacement Filters 24" MERV 10	EXPXXFIL0024	-	-	-	X
EZ Flex Replacement Filters 24" MERV 13	EXPXXFIL0324	-	-	-	X
EZ-Flex Filter with End Caps - 16" (407 mm) (MERV 10)	EXPXXUNV0016	X	X	-	-
EZ-Flex Filter with End Caps - 16" (407 mm) (MERV 13)	EXPXXUNV0316	X	X	-	-
EZ-Flex Filter with End Caps - 20" (508 mm) (MERV 10)	EXPXXUNV0020	-	-	X	-
EZ-Flex Filter with End Caps - 20" (508 mm) (MERV 13)	EXPXXUNV0320	-	-	X	-
EZ-Flex Filter with End Caps - 24" (610 mm) (MERV 10)	EXPXXUNV0024	-	-	-	X
EZ-Flex Filter with End Caps - 24" (610 mm) (MERV 13)	EXPXXUNV0324	-	-	-	X
Media Filter Cabinet - 20"	FILCABXL0020	-	-	X	-
Media Filter Cabinet - 24"	FILCABXL0024	-	-	-	X
Media Filter Cabinet - 16"	FILCABXL0016	X	X	-	-

Manufacturer reserves the right to change, at any time, specifications and designs without notice and without obligations.

TYPICAL WIRING SCHEMATIC



A95236

AIR DELIVERY—CFM (With Filter)*

Air Delivery - CFM (With Filter)*

COOLING ⁴ AND HEATING AIR DELIVERY - CFM (Bottom Return ⁵ With Filter) (SW1-5 and SW2-2 set to OFF, except as indicated. See Notes 1 and 2.)													
Unit Size: 045V14-12	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1190	1140	1100	1065	1020	985	905	800	665	525
Cooling (SW2-8,7,6)	OFF	OFF	ON	620	560	520	455	410	355	305	255	See Note 4	
	OFF	ON	OFF	795	755	705	670	615	585	530	490	440	405
	OFF	ON	ON	1020	955	930	890	840	805	755	715	645	490
	ON	OFF	OFF	1190	1140	1100	1065	1020	985	905	800	665	525
	ON	OFF	ON	1455	1390	1325	1255	1175	1085	1000	880	755	575
	ON	ON	OFF	1455	1390	1325	1255	1175	1085	1000	880	755	575
	ON	ON	ON	1455	1390	1325	1255	1175	1085	1000	880	755	575
Maximum Clg Airflow ²				1455	1390	1325	1255	1175	1085	1000	880	755	575
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	620	560	520	455	410	355	305	255	See Note 4	
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	620	560	520	455	410	355	305	255	See Note 4	
	OFF	ON	OFF	795	755	705	670	615	585	530	490	440	405
	OFF	ON	ON	1020	955	930	890	840	805	755	715	645	490
	ON	OFF	OFF	1190	1140	1100	1065	1020	985	905	800	665	525
	ON	OFF	ON	1455	1390	1325	1255	1175	1085	1000	880	755	575
	ON	ON	OFF	1455	1390	1325	1255	1175	1085	1000	880	755	575
	ON	ON	ON	1455	1390	1325	1255	1175	1085	1000	880	755	575
Cont. Fan Default:	OFF	OFF	OFF	620	560	520	455	410	355	305	255	See Note 4	
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	620	560	520	455	410	355	305	255	See Note 4	
	OFF	ON	OFF	795	755	705	670	615	585	530	490	440	405
	OFF	ON	ON	1020	955	930	890	840	805	755	715	645	490
	ON	OFF	OFF	1020	955	930	890	840	805	755	715	645	490
	ON	OFF	ON	1020	955	930	890	840	805	755	715	645	490
	ON	ON	OFF	1020	955	930	890	840	805	755	715	645	490
	ON	ON	ON	1020	955	930	890	840	805	755	715	645	490
Heating (SW1)	High Heat Airflow ³			915	860	825	790	735	700	650	610	550	450
	Low Heat Airflow ³			780	730	685	635	585	545	495	450	400	370

Air Delivery - CFM (With Filter)* (Continued)

COOLING ⁴ AND HEATING AIR DELIVERY - CFM (Bottom Return ⁵ With Filter)													
(SW1-5 and SW2-2 set to OFF, except as indicated. See Notes 1 and 2.)													
Unit Size: 070V14-12	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1155	1125	1095	1065	1035	1005	975	950	915	875
Cooling (SW2-8,7,6)	OFF	OFF	ON	605	555	500	440	375	320	265	See Note 4		
	OFF	ON	OFF	775	735	690	650	600	550	500	450	405	365
	OFF	ON	ON	980	950	915	880	845	810	775	735	695	655
	ON	OFF	OFF	1155	1125	1095	1065	1035	1005	975	950	915	875
	ON	OFF	ON	1370	1340	1310	1285	1260	1235	1210	1140	1025	880
	ON	ON	OFF	1505	1480	1455	1420	1380	1335	1250	1155	1045	900
	ON	ON	ON	1505	1480	1455	1420	1380	1335	1250	1155	1045	900
	Maximum Clg Airflow ²			1505	1480	1455	1420	1380	1335	1250	1155	1045	900
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	605	555	500	440	375	320	265	See Note 4		
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	605	555	500	440	375	320	265	See Note 4		
	OFF	ON	OFF	775	735	690	650	600	550	500	450	405	365
	OFF	ON	ON	980	950	915	880	845	810	775	735	695	655
	ON	OFF	OFF	1155	1125	1095	1065	1035	1005	975	950	915	875
	ON	OFF	ON	1370	1340	1310	1285	1260	1235	1210	1140	1025	880
	ON	ON	OFF	1505	1480	1455	1420	1380	1335	1250	1155	1045	900
	ON	ON	ON	1505	1480	1455	1420	1380	1335	1250	1155	1045	900
Cont. Fan Default:	OFF	OFF	OFF	605	555	500	440	375	320	265	See Note 4		
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	605	555	500	440	375	320	265	See Note 4		
	OFF	ON	OFF	775	735	690	650	600	550	500	450	405	365
	OFF	ON	ON	980	950	915	880	845	810	775	735	695	655
	ON	OFF	OFF	1155	1125	1095	1065	1035	1005	975	950	915	875
	ON	OFF	ON	1370	1340	1310	1285	1260	1235	1210	1140	1025	880
	ON	ON	OFF	1370	1340	1310	1285	1260	1235	1210	1140	1025	880
	ON	ON	ON	1370	1340	1310	1285	1260	1235	1210	1140	1025	880
Heating (SW1)	High Heat Airflow ³			1190	1160	1130	1100	1070	1045	1015	985	955	900
	Low Heat Airflow ³			725	680	635	585	530	475	425	375	330	285
Unit Size: 070V17-16	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1600	1570	1535	1500	1465	1430	1400	1365	1335	1300
Cooling (SW2-8,7,6)	OFF	OFF	ON	590	520	440	365	300	235	See Note 4			
	OFF	ON	OFF	790	730	670	610	550	485	430	380	330	275
	OFF	ON	ON	1025	980	930	880	835	785	735	690	635	590
	ON	OFF	OFF	1230	1190	1150	1105	1065	1025	980	940	900	860
	ON	OFF	ON	1390	1355	1315	1280	1240	1200	1165	1125	1090	1055
	ON	ON	OFF	1600	1570	1535	1500	1465	1430	1400	1365	1335	1300
	ON	ON	ON	1855	1830	1800	1770	1740	1695	1645	1600	1520	1415
	Maximum Clg Airflow ²			1855	1830	1800	1770	1740	1695	1645	1600	1520	1415
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	590	520	440	365	300	235	See Note 4			
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	590	520	440	365	300	235	See Note 4			
	OFF	ON	OFF	790	730	670	610	550	485	430	380	330	275
	OFF	ON	ON	1025	980	930	880	835	785	735	690	635	590
	ON	OFF	OFF	1230	1190	1150	1105	1065	1025	980	940	900	860
	ON	OFF	ON	1390	1355	1315	1280	1240	1200	1165	1125	1090	1055
	ON	ON	OFF	1600	1570	1535	1500	1465	1430	1400	1365	1335	1300
	ON	ON	ON	1855	1830	1800	1770	1740	1695	1645	1600	1520	1415
Cont. Fan Default:	OFF	OFF	OFF	590	520	440	365	300	235	See Note 4			
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	590	520	440	365	300	235	See Note 4			
	OFF	ON	OFF	685	625	565	505	445	385	325	265	See Note 4	
	OFF	ON	ON	790	730	670	610	550	485	430	380	330	275
	ON	OFF	OFF	790	730	670	610	550	485	430	380	330	275
	ON	OFF	ON	790	730	670	610	550	485	430	380	330	275
	ON	ON	OFF	790	730	670	610	550	485	430	380	330	275
	ON	ON	ON	790	730	670	610	550	485	430	380	330	275
Heating (SW1)	High Heat Airflow ³			1410	1375	1340	1300	1260	1225	1190	1155	1120	1085
	Low Heat Airflow ³			1235	1195	1155	1110	1070	1025	985	945	905	865

Air Delivery - CFM (With Filter)* (Continued)

COOLING ⁴ AND HEATING AIR DELIVERY - CFM (Bottom Return ⁵ With Filter)													
(SW1-5 and SW2-2 set to OFF, except as indicated. See Notes 1 and 2.)													
Unit Size: 090V17-16	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1560	1520	1485	1450	1415	1380	1340	1300	1260	1115
Cooling (SW2-8,7,6)	OFF	OFF	ON	680	605	495	415	345	275	See Note 4			
	OFF	ON	OFF	835	770	700	600	535	465	410	350	285	240
	OFF	ON	ON	1035	980	930	870	795	720	665	605	555	505
	ON	OFF	OFF	1210	1165	1125	1080	1030	975	905	845	790	740
	ON	OFF	ON	1375	1335	1300	1260	1220	1175	1125	1075	1010	955
	ON	ON	OFF	1560	1520	1485	1450	1415	1380	1340	1300	1260	1115
	ON	ON	ON	1640	1605	1570	1540	1505	1470	1435	1390	1325	1110
	Maximum Clg Airflow ²			1640	1605	1570	1540	1505	1470	1435	1390	1325	1110
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	680	605	495	415	345	275	See Note 4			
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	680	605	495	415	345	275	See Note 4			
	OFF	ON	OFF	835	770	700	600	535	465	410	350	285	240
	OFF	ON	ON	1035	980	930	870	795	720	665	605	555	505
	ON	OFF	OFF	1210	1165	1125	1080	1030	975	905	845	790	740
	ON	OFF	ON	1375	1335	1300	1260	1220	1175	1125	1075	1010	955
	ON	ON	OFF	1560	1520	1485	1450	1415	1380	1340	1300	1260	1115
	ON	ON	ON	1640	1605	1570	1540	1505	1470	1435	1390	1325	1110
Cont. Fan Default:	OFF	OFF	OFF	680	605	495	415	345	275	See Note 4			
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	680	605	495	415	345	275	See Note 4			
	OFF	ON	OFF	835	770	700	600	535	465	410	350	285	240
	OFF	ON	ON	1035	980	930	870	795	720	665	605	555	505
	ON	OFF	OFF	1210	1165	1125	1080	1030	975	905	845	790	740
	ON	OFF	ON	1375	1335	1300	1260	1220	1175	1125	1075	1010	955
	ON	ON	OFF	1560	1520	1485	1450	1415	1380	1340	1300	1260	1115
	ON	ON	ON	1560	1520	1485	1450	1415	1380	1340	1300	1260	1115
Heating (SW1)	High Heat Airflow ³			1400	1360	1325	1285	1245	1200	1155	1110	1045	995
	Low Heat Airflow ³			1035	980	930	870	795	720	665	605	555	505
Unit Size: 090V21-20	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	1985	1935	1885	1835	1785	1735	1685	1630	1583	1532
Cooling (SW2-8,7,6)	OFF	OFF	ON	860	755	650	545	445	350	235	See Note 4		
	OFF	ON	OFF	1085	1000	910	830	735	655	565	485	405	310
	OFF	ON	ON	1255	1180	1105	1025	950	870	790	715	640	570
	ON	OFF	OFF	1425	1355	1290	1220	1150	1085	1015	940	870	800
	ON	OFF	ON	1630	1575	1515	1455	1395	1330	1270	1210	1155	1090
	ON	ON	OFF	1985	1935	1885	1835	1785	1735	1685	1630	1583	1532
	ON	ON	ON	2100	2055	2010	1960	1915	1870	1820	1775	1715	1640
	Maximum Clg Airflow ²			2100	2055	2010	1960	1915	1870	1820	1775	1715	1640
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	860	755	650	545	445	350	235	See Note 4		
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	700	575	455	345	225	See Note 4				
	OFF	ON	OFF	860	755	650	545	445	350	235	See Note 4		
	OFF	ON	ON	1085	1000	910	830	735	655	565	485	405	310
	ON	OFF	OFF	1255	1180	1105	1025	950	870	790	715	640	570
	ON	OFF	ON	1425	1355	1290	1220	1150	1085	1015	940	870	800
	ON	ON	OFF	1630	1575	1515	1455	1395	1330	1270	1210	1155	1090
	ON	ON	ON	1985	1935	1885	1835	1785	1735	1685	1630	1583	1532
Cont. Fan Default:	OFF	OFF	OFF	860	755	650	545	445	350	235	See Note 4		
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	700	575	455	345	225	See Note 4				
	OFF	ON	OFF	860	755	650	545	445	350	235	See Note 4		
	OFF	ON	ON	1085	1000	910	830	735	655	565	485	405	310
	ON	OFF	OFF	1255	1180	1105	1025	950	870	790	715	640	570
	ON	OFF	ON	1255	1180	1105	1025	950	870	790	715	640	570
	ON	ON	OFF	1255	1180	1105	1025	950	870	790	715	640	570
	ON	ON	ON	1255	1180	1105	1025	950	870	790	715	640	570
Heating (SW1)	High Heat Airflow ³			1830	1775	1725	1675	1625	1570	1520	1465	1410	1360
	Low Heat Airflow ³			1600	1540	1485	1430	1370	1315	1255	1195	1140	1070

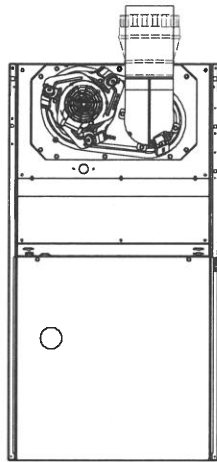
Air Delivery - CFM (With Filter)* (Continued)

COOLING ⁴ AND HEATING AIR DELIVERY - CFM (Bottom Return ⁵ With Filter)													
(SW1-5 and SW2-2 set to OFF, except as indicated. See Notes 1 and 2.)													
Unit Size: 110V21-22	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	2055	2000	1950	1900	1840	1790	1740	1675	1625	1565
Cooling (SW2-8,7,6)	OFF	OFF	ON	855	755	See Note 4							
	OFF	ON	OFF	1060	985	875	800	700	See Note 4				
	OFF	ON	ON	1250	1180	1095	1025	925	860	775	715	See Note 4	
	ON	OFF	OFF	1445	1380	1320	1235	1175	1100	1035	955	900	825
	ON	OFF	ON	1685	1630	1560	1505	1445	1375	1320	1265	1195	1140
	ON	ON	OFF	2055	2000	1950	1900	1840	1790	1740	1675	1625	1565
	ON	ON	ON	2465	2415	2365	2305	2230	2140	2045	1925	1805	1655
	Maximum Clg Airflow ²			2465	2415	2365	2305	2230	2140	2045	1925	1805	1655
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	855	755	See Note 4							
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	640	540	See Note 4							
	OFF	ON	OFF	855	755	See Note 4							
	OFF	ON	ON	1060	985	875	800	700	See Note 4				
	ON	OFF	OFF	1250	1180	1095	1025	925	860	775	715	See Note 4	
	ON	OFF	ON	1445	1380	1320	1235	1175	1100	1035	955	900	825
	ON	ON	OFF	1685	1630	1560	1505	1445	1375	1320	1265	1195	1140
	ON	ON	ON	2055	2000	1950	1900	1840	1790	1740	1675	1625	1565
Cont. Fan Default:	OFF	OFF	OFF	855	755	See Note 4							
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	640	540	See Note 4							
	OFF	ON	OFF	855	755	See Note 4							
	OFF	ON	ON	1060	985	875	800	700	See Note 4				
	ON	OFF	OFF	1250	1180	1095	1025	925	860	775	715	See Note 4	
	ON	OFF	ON	1445	1380	1320	1235	1175	1100	1035	955	900	825
	ON	ON	OFF	1445	1380	1320	1235	1175	1100	1035	955	900	825
	ON	ON	ON	1445	1380	1320	1235	1175	1100	1035	955	900	825
Heating (SW1)	High Heat Airflow ³			2105	2055	2005	1955	1895	1850	1795	1735	1665	1580
	Low Heat Airflow ³			1740	1685	1620	1560	1505	1440	1385	1325	1260	1205
Unit Size: 135V24-22	Clg/CF Switch settings			External Static Pressure (ESP)									
Clg Switches:	SW2-8	SW2-7	SW2-6	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
Clg Default:	OFF	OFF	OFF	2105	2050	1995	1940	1880	1820	1765	1705	1650	1590
Cooling (SW2-8,7,6)	OFF	OFF	ON	990	885	780	665	570	See Note 4				
	OFF	ON	OFF	1180	1090	995	900	815	715	635	555	475	400
	OFF	ON	ON	1355	1270	1190	1105	1020	940	855	775	700	630
	ON	OFF	OFF	1535	1465	1395	1320	1245	1165	1095	1025	945	875
	ON	OFF	ON	1735	1670	1605	1535	1470	1405	1335	1270	1205	1140
	ON	ON	OFF	2105	2050	1995	1940	1880	1820	1765	1705	1650	1590
	ON	ON	ON	2280	2225	2175	2120	2065	2010	1955	1905	1850	1800
	Maximum Clg Airflow ²			2360	2310	2265	2215	2160	2115	2060	2010	1960	1870
CF Switches	SW2-5	SW2-4	SW2-3										
Low-Clg Default:	OFF	OFF	OFF	990	885	780	665	570	See Note 4				
Low-Cooling (SW2-5,4,3)	OFF	OFF	ON	800	670	540	410	280	See Note 4				
	OFF	ON	OFF	990	885	780	665	570	See Note 4				
	OFF	ON	ON	1180	1090	995	900	815	715	635	555	475	400
	ON	OFF	OFF	1355	1270	1190	1105	1020	940	855	775	700	630
	ON	OFF	ON	1535	1465	1395	1320	1245	1165	1095	1025	945	875
	ON	ON	OFF	1735	1670	1605	1535	1470	1405	1335	1270	1205	1140
	ON	ON	ON	2105	2050	1995	1940	1880	1820	1765	1705	1650	1590
Cont. Fan Default:	OFF	OFF	OFF	740	605	470	360	255	See Note 4				
Continuous Fan (SW2-5,4,3)	OFF	OFF	ON	740	605	470	360	255	See Note 4				
	OFF	ON	OFF	900	775	650	525	400	See Note 4				
	OFF	ON	ON	1080	980	885	785	680	595	510	430	345	260
	ON	OFF	OFF	1080	980	885	785	680	595	510	430	345	260
	ON	OFF	ON	1080	980	885	785	680	595	510	430	345	260
	ON	ON	OFF	1080	980	885	785	680	595	510	430	345	260
	ON	ON	ON	1080	980	885	785	680	595	510	430	345	260
Heating (SW1)	High Heat Airflow ³			2130	2075	2020	1970	1910	1855	1805	1745	1690	1630
	Low Heat Airflow ³			1855	1795	1730	1670	1605	1545	1480	1420	1360	1300

Notes following table.

1. Nominal 350 CFM/ton cooling airflow is delivered with SW1-5 and SW2-2 set to OFF.
Set both SW1-5 and SW2-2 to ON for +7% airflow (nominal 370 CFM/ton).
Set SW1-5 to ON and SW2-2 to OFF for +15% airflow (nominal 400 CFM/ton).
Set SW2-2 to ON and SW1-5 to OFF for -7% airflow (nominal 325 CFM/ton).
The above adjustments in airflow are subject to motor horsepower range/capacity.
This applies to Cooling and Low-Cooling airflow, but does not affect continuous fan airflow.
2. Maximum cooling airflow is achieved when switches SW2-6, SW2-7, SW2-8 and SW1-5 are set to ON, and SW2-2 is set to OFF.
3. All heating CFM's are when comfort/efficiency adjustment switch (SW1-4) is set to OFF
4. Ductwork must be sized for high-heating CFM within the operational range of ESP. Operation within the blank areas of the chart is not recommended because high-heat operation will be above 1.0 ESP.
5. All airflows on 21" casing size furnaces are 5% less on side return only installations.
6. Side returns for 24.5" casing sizes require two sides, or side and bottom, to allow sufficient airflow at the return of the furnace.
7. Airflows over 1800 CFM require bottom return, two-side return, or bottom and side return or excessive watt draw may result. A minimum filter size of 20 x 25" (508 x 635 mm) is required.

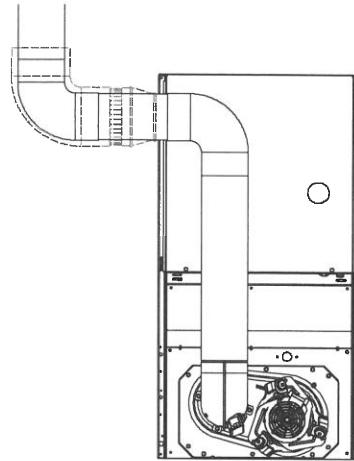
VENTING



SEE NOTES: 1,2,4,7,8,9
on the page following

Fig. 1 – Upflow Application - Vent Elbow Up

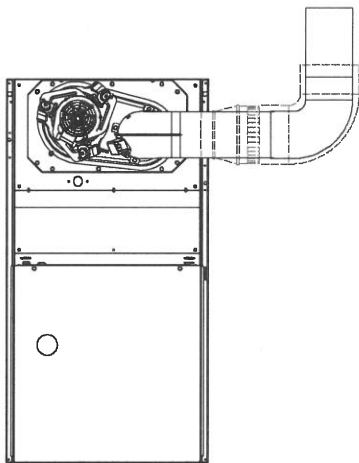
A03208



SEE NOTES: 1,2,3,4,5,7,8,9
on the page following
these figures

Fig. 3 – Downflow Application - Vent Elbow Up then Left

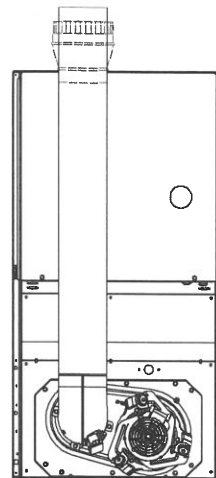
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SEE NOTES: 1,2,3,4,7,8,9
on the pages following
these figures

Fig. 2 – Upflow Application - Vent Elbow Right

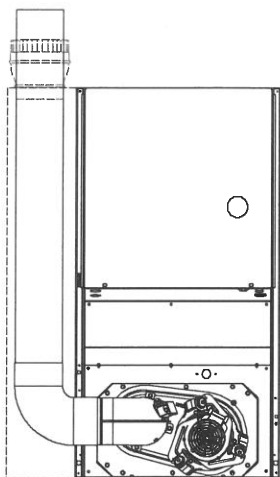
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SEE NOTES: 1,2,4,5,7,8,9
on the page following
these figures

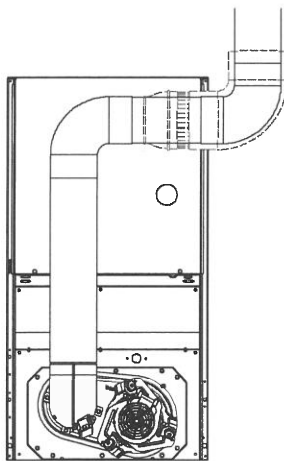
Fig. 4 – Downflow Application - Vent Elbow Up

A03211



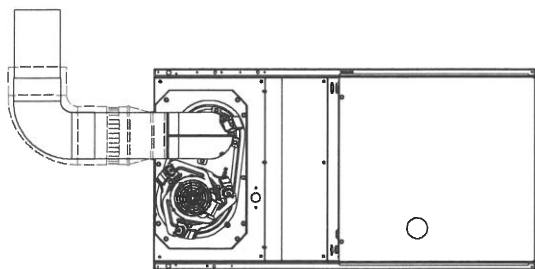
SEE NOTES: 1,2,4,5,6,7,8,9
on the page following these figures

Fig. 5 – Downflow Application - Vent Elbow Left then Up ^{A03207}



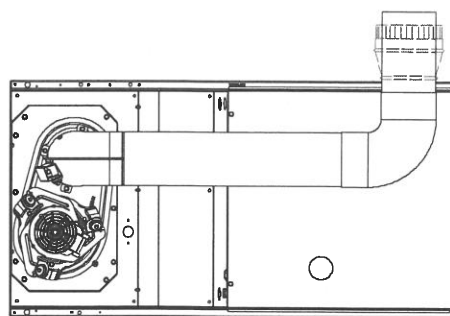
SEE NOTES: 1,2,3,4,5,7,8,9
on the page following
these figures.

Fig. 6 – Downflow Application - Vent Elbow Up then Right ^{A03212}



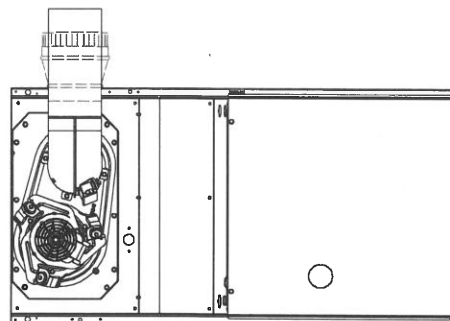
SEE NOTES: 1,2,4,7,8,9 on the page
following these figures

Fig. 7 – Horizontal Left Application - Vent Elbow Left ^{A03213}



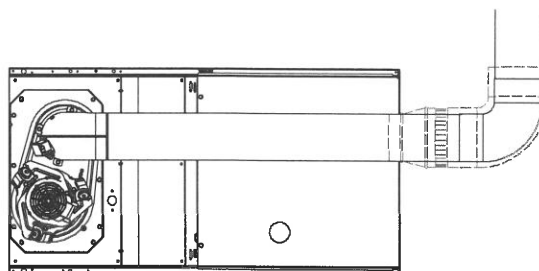
SEE NOTES: 1,2,4,5,7,8,9 on the page
following these figures

Fig. 8 – Horizontal Left Application - Vent Elbow Right then Up ^{A03214}



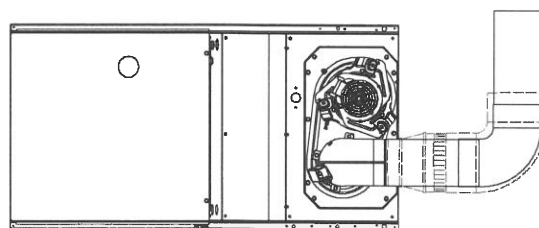
SEE NOTES: 1,2,4,5,7,8,9 on the page
following these figures

Fig. 9 – Horizontal Left Application - Vent Elbow Up ^{A03215}



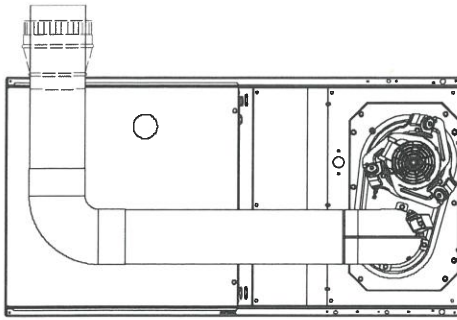
SEE NOTES: 1,2,4,5,7,8,9 on the page
following these figures

Fig. 10 – Horizontal Left Application - Vent Elbow Right ^{A03216}



SEE NOTES: 1,2,4,7,8,9 on the page
following these figures

Fig. 11 – Horizontal Right Application - Vent Elbow Right ^{A03218}



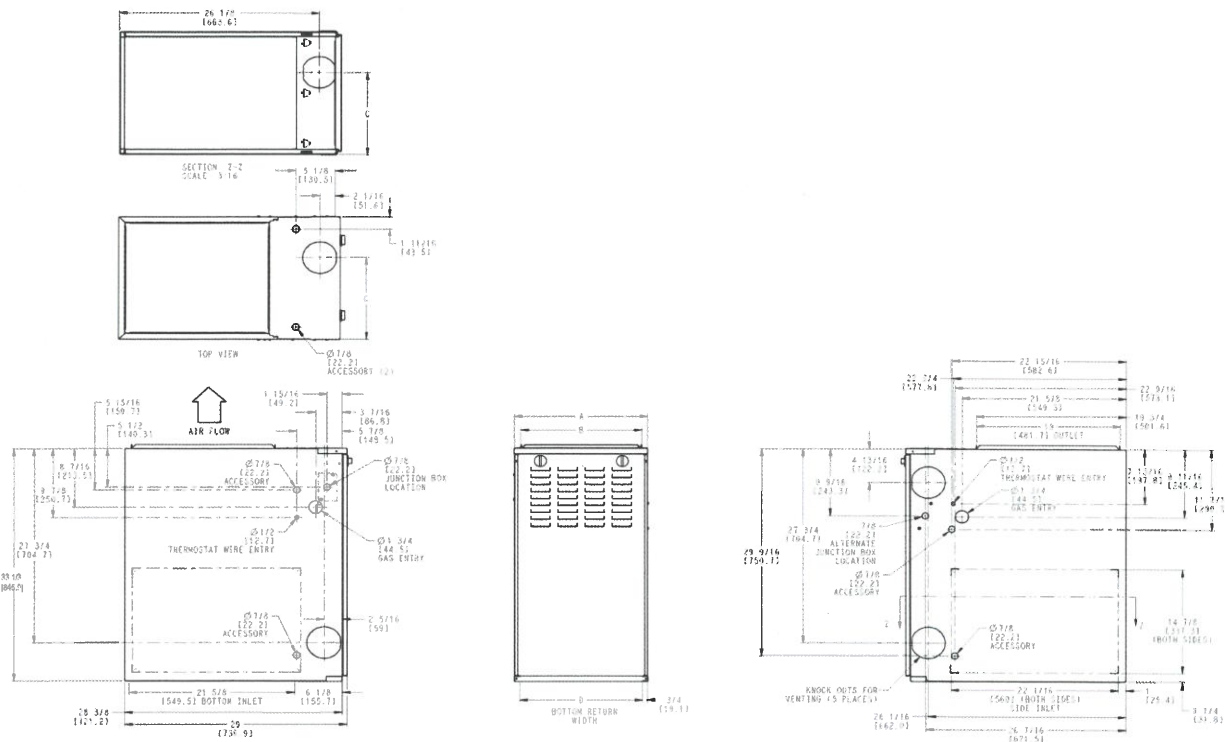
SEE NOTES: 1,2,4,5,7,8,9 on the page following these figures

Fig. 12 – Horizontal Right Application - Vent Elbow Left then Up A03219

Venting Notes

1. For common vent, vent connector sizing and vent material: United States, latest edition of the National Fuel Gas Code (NFPA), ANSI Z223.1/NFPA 54.
2. Immediately increase to 5-in. (127 mm) vent connector outside furnace casing when 5-in. (127 mm) vent connector required, refer to Note 1.
3. Side outlet vent for upflow and downflow installations must use Type B vent immediately after exiting the furnace, except when Downflow Vent Guard is used in downflow position.
4. Type B vent where required, refer to Note 1.
5. 4-in. (102 mm) single wall vent must be used inside furnace casing and the Downflow Vent Guard Kit.
6. Accessory Downflow Vent Guard Kit, required in downflow installations with bottom vent configuration.
7. Chimney Adapter Kit required for exterior masonry chimney applications. Refer to Chimney Adapter Kits for sizing and complete application details.
8. Secure vent connector to furnace elbow with (2) corrosion-resistant sheet metal screws, space approximately 180° apart.
9. Secure all other single wall vent connector joints with (3) corrosion-resistant screws spaced approximately 120° apart. Secure Type B vent connectors per vent connector manufacturer's recommendations.

DIMENSIONAL DRAWING



A190084

FURNACE SIZE	A	B	C	D	VENT CONNECTION SIZE	SHIP WT. LB (KG)	ACCESSORY FILTER MEDIA CABINET SIZE
	CABINET WIDTH	OUTLET WIDTH	TOP AND BOTTOM FLUE COLLAR	BOTTOM INLET WIDTH			
045V14-12	14-3/16 (360)	12-9/16 (319)	9-5/16 (237)	12-11/16 (322)	4 (102)	111 (50)	16 (406)
070V14-12	14-3/16 (360)	12-9/16 (319)	9-5/16 (237)	12-11/16 (322)	4 (102)	118 (54)	16 (406)
070V17-16	17-1/2 (445)	15-7/8 (403)	11-9/16 (294)	16 (406)	4 (102)	132 (60)	16 (406)
090V17-16	17-1/2 (445)	15-7/8 (403)	11-9/16 (294)	16 (406)	4 (102)	131 (59)	16 (406)
090V21-20	21 (533)	19-3/8 (492)	13-5/16 (338)	19-1/2 (495)	4 (102)	142 (64)	20 (506)
110V21-22	21 (533)	19-3/8 (492)	13-5/16 (338)	19-1/2 (495)	4 (102)	154 (70)	20 (506)
135V24-22	24-1/2 (622)	22-7/8 (581)	15-1/16 (383)	23 (584)	4 (102)*	168 (76)	24 (610)

*. 135 size furnaces require a 5 or 6-in. (127 or 152 mm) vent. Use a vent adapter between furnace and vent stack. See Installation Instructions for complete installation requirements.

GUIDE SPECIFICATIONS

Gas Furnace 58TP0/58TP1

SYSTEM DESCRIPTION

- Furnish a _____ fixed capacity gas-fired furnace for use with natural gas or propane (factory authorized conversion kit required for propane); furnish cold air return plenum.

QUALITY ASSURANCE

- Unit will be designed, tested and constructed to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces.
- Unit will be 3rd party certified by CSA to the current ANSI Z 21.47/CSA 2.3 design standard for gas-fired central furnaces.
- Unit will carry the CSA Blue Star® label.
- Unit efficiency testing will be performed per the current DOE test procedure as listed in the Federal Register.
- Unit will be certified for capacity and efficiency and listed in the latest AHRI Consumer's Directory of Certified Efficiency Ratings.
- Unit shall carry the current Federal Trade Commission Energy Guide efficiency label.

DELIVERY, STORAGE AND HANDLING

- Unit shall be shipped as single package only and is stored and handled per unit manufacturer's recommendations.

WARRANTY (for inclusion by specifying engineer)

- U.S. only. Warranty certificate available upon request.

Products

EQUIPMENT

- Components shall include: slow-opening two stage gas valve to reduce ignition noise, regulate gas flow, with electric switch gas shut-off; flame proving sensor, hot surface igniter, pressure switch assembly, flame rollout switch, blower and inducer assembly, 40va transformer; low-voltage (heating) (heating/cooling) thermostat.

Blower Wheel and Blower Motor

- Galvanized blower wheel shall be centrifugal type, statically and dynamically balanced. Blower motor of ECM type shall be permanently lubricated with sealed bearings, of _____ hp, and shall be multiple-speed direct drive. Blower motor shall be soft mounted to the blower scroll to reduce vibration transmission.

Filters

- Furnace may have reusable-type filters. Filter shall be _____ (x) _____ in. (mm). An accessory high efficiency Media Filter is available as an option. _____ Media Filter.

Casing

- Casing shall be of .030 in. (.76 mm) thickness minimum, pre-painted steel.

Two Speed Inducer Motor

- Two Speed Inducer motor shall be soft mounted to reduce vibration transmission.

Draft Safeguard Switch

- Draft Safeguard Switch (blocked vent safeguard) shall be factory installed to reduce the possibility of vent gas infiltration due to a blocked or restricted vent pipe.

Heat Exchangers

- Heat exchangers shall be a 4-Pass 20 gage aluminized steel of fold-and-crimp sectional design when applied operating under negative pressure.

Controls

- Control shall include a micro-processor based integrated electronic control board with at least 11 service troubleshooting codes displayed via diagnostic flashing enhanced LED light on the control, a self-test feature that checks all major functions of the furnace within one minute, and a replaceable automotive-type circuit protection fuse. Multiple operational settings available including, separate blower speeds for low heat, high heat, low cooling, high cooling and continuous fan. Continuous fan speed may be adjusted from the thermostat. Cooling airflow will be selectable between 350 or 400 CFM per ton of air conditioning. Features will also include temporary reduced airflow in the cooling mode for improved dehumidification when a control or Thermostat™ is selected as the thermostat.

OPERATING CHARACTERISTICS

- Heating Capacity shall be _____ Btuh input; _____ Btuh output capacity.
- Fuel Gas Efficiency shall be 80% AFUE.
- Air delivery shall be _____ CFM minimum at 0.50 in. W.C. external static pressure.
- Dimensions shall be: depth _____ in. (mm); width _____ in. (mm); height _____ in. (mm). (casing only). Height shall be _____ in. (mm). with A/C coil and _____ in. (mm) overall with plenum.

ELECTRICAL REQUIREMENTS

- Electrical supply shall be 115 volts, 60 Hz, single-phase (nominal). Minimum wire size shall be _____ AWG; maximum fuse size or circuit breaker shall be _____ Amps.

SPECIAL FEATURES

- Refer to section of the product data sheet identifying accessories and descriptions for specific features and available enhancements.



SUBMITTAL

Project

Climatec - Bay Area 2023

Date

February 13, 2023

Job Name Climatec - Bay Area 2023
Mark for FCU Option B



Unit Parameters

Aero Indoor Air Handler
39MN Size 21W
Insulation: R-13 Double Wall Sealed Panel
Exterior Finish: Galvanized Exterior Panels
Interior Finish: Galvanized Interior Panels
Level I Thermal Break
6 inch tall Base Rail

Filter Mixing Box

Damper: Rear Premium Parallel
2In. Angle Filter
2" Pleated MERV 13 Filter
Qty (12) 16in. x 25in.
Door Right Side
Minihelic Differential Pressure Gage 0-2" w.c. Right Side

Chilled Water Coil and Plenum

304 Stainless Steel Drain Pan Right Side
Chilled Water 21.44 sq.ft 10 Row 14 FPI Double Circuit
Coil Connection Right Side
1/2 in. Tube Diameter
AL fins 304 Stainless Steel Casing
Non-Ferrous Header
No Coating
Door Right Side

Draw-Thru Supply Fan

Rear Inlet
Fan Sled
AirFoil B AFMV01201
2035 fanRPM Class II
Top Horiz. Front Discharge
Right Side Fan Motor Location
Spring Fan Isolation
Piezometer and Transducer
Motor Shaft Grounding
Motor
10 HP Premium Efficiency ODP 208-230/460 3Ph 60Hz 1800 RPM

Job Name Climatec - Bay Area 2023
Mark for FCU Option B

Manufacturer - Generic
Frame Size - 215T
Motor Shaft Diameter (in.) - 1.375
Voltage Selected - 208/3/60
Full Load Amps - 28.6
Efficiency - 91.7%

Belt Drive

1.2 Service Factor
Fixed Pitch Drive
1 or more belts

Variable Frequency Drive

208 Volts 3 Phase 60Hz
Factory Mounted No Bypass

Door Right Side

Configuration Notes

Discharge duct(s) must be gasketed and screwed directly to the discharge panel of the unit.
Careful consideration must be made for mixing outside and return air streams in VAV applications due to reduced velocity in heating mode.
Consider the use of a blow-thru plenum fan as a mixing device.

Weights and Dimensions

(LxWxH in ft in) 9' 4" x 7' 5" x 5' 0" **

Operating 3300 LB **

Weights and Dimensions are approximate. Weights include base unit weight, coils (wet & dry), fans and fan motors, and other components, but does not include filters, drives and skids. Approximate dimensions are provided primarily for shipping purposes. Shipping skids are not included.
All filter media efficiency ratings are for the filter media only.

Chilled Water Coil Performance Summary

Project: Climatec - Bay Area 2023
Tag: FCU Option B

Cooling Application's Balance Criteria: Fluid Flow

Coil Model _____
Number of Coils _____
Row / FPI / Circ _____
Fin Thickness _____
Fin Type _____
Face Area Type _____
Coil Face Area _____
Face Velocity _____
Fin-Casing Material _____
Tube Diameter _____
Tube spacing: Stf x Str _____
Tube Wall Thickness _____
Actual Airflow _____
Site Altitude _____
Standard Airflow (adj. to std. dry atmosphere) _____
Total Cooling Capacity _____
Sensible Cooling Capacity _____
Fluid Flow Rate _____
Fluid Pressure Drop _____
Fluid Velocity _____
Entering Fluid Temperature _____
Leaving Fluid Temperature _____
Fluid Temperature Rise _____
Entering Air Dry Bulb _____
Entering Air Wet Bulb _____
Entering Air Enthalpy _____
Leaving Air Dry Bulb _____
Leaving Air Wet Bulb _____
Leaving Air Enthalpy _____
Air Friction _____
Brine _____
Brine Concentration _____
Fouling Factor _____

Carrier 28MC

1

10 / 14 / DB

.0042 in

Sine Wave

Large

21.44 sqft

466.4 fpm

Al-St. Stl.

0.5 in

1.25 x 0.781 in

0.016 in

10000 CFM

0 ft

9664 SCFM

317.83 MBH

250.16 MBH

64.0 gpm

2.5 ft wg

1.7 ft/s

46.00 F

55.90 F

9.9 F

80.00 F

65.00 F

29.94 BTU/lb

56.03 F

54.04 F

22.6 BTU/lb

1.24 in wg

FW

0 %

0.0 (hr-sqft-F)/BTU



NOTE: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory (www.ahridirectory.org).

LEGEND:

Stf -- Tube spacing across coil face

Str -- Tube spacing in direction of airflow

Unit Acoustics Summary

Project: Climatec - Bay Area 2023
Tag: FCU Option B

Unit Acoustics Sound Power Level:

	Discharge Inlet Casing		
63 Hz	101	90	92
125 Hz	95	85	86
250 Hz	99	81	83
500 Hz	95	76	79
1000 Hz	92	75	76
2000 Hz	88	71	72
4000 Hz	84	68	59
8000 Hz	79	60	54

Sound power levels for 39M units are rated in accordance with AHRI Standard 260.

Unit Acoustics A-weighted Sound Power Level:

	Discharge Inlet Casing		
63 Hz	75	64	66
125 Hz	79	69	70
250 Hz	90	72	74
500 Hz	92	73	76
1000 Hz	92	75	76
2000 Hz	90	73	74
4000 Hz	85	69	60
8000 Hz	77	58	52

Sound power levels for 39M units are rated in accordance with AHRI Standard 260.

Sound contributed by Supply Fan

Unit Acoustics PART-LOAD Sound Power Level:

	Discharge Inlet Casing		
63 Hz	96	85	87
125 Hz	88	78	79
250 Hz	85	67	69
500 Hz	76	57	60
1000 Hz	75	58	59
2000 Hz	71	54	55
4000 Hz	65	49	40
8000 Hz	60	41	35

Sound power levels for 39M units are rated in accordance with AHRI Standard 260.

Unit Acoustics PART-LOAD A-weighted Sound Power Level:

	Discharge Inlet Casing		
63 Hz	69	58	60
125 Hz	72	62	63
250 Hz	76	58	60
500 Hz	73	54	57
1000 Hz	75	58	59
2000 Hz	72	55	56
4000 Hz	66	50	41
8000 Hz	59	40	34

Sound power levels for 39M units are rated in accordance with AHRI Standard 260.

Sound contributed by Supply Fan

Supply Fan Performance Summary

Project: Climatec - Bay Area 2023
Tag: FCU Option B

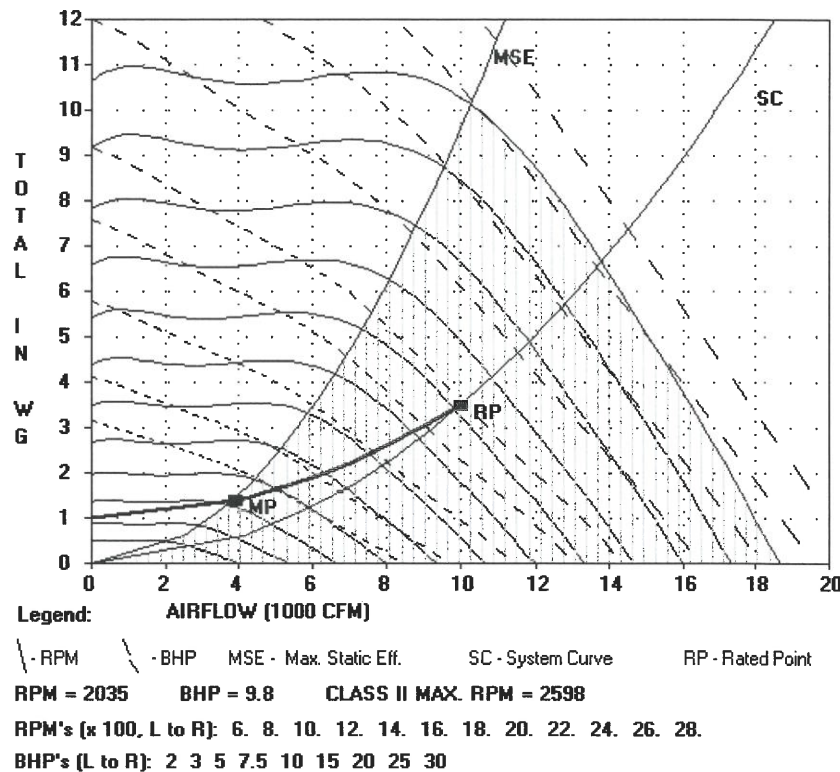
Fan Model	39M2101HAFM-D
Unit Size	21W
Fan Type	AIRFOIL
Fan Wheel Diameter	20
Fan Class	II
Fan Application	Draw Thru
Orientation	Horizontal
Actual Airflow, CFM	10000
Site Altitude, ft	0
Upstream Ext. Static, in wg	0.00
Downstream Ext. Static, in wg	2.00
Cooling Coil Static, in wg	1.24
Heating Coil Static, in wg	0.00
Total Accessory Static, in wg	0.26
Total Static Pressure, in wg	3.50
Calculated Fan RPM / Motor RPM	2035 / 1800
Class II Max. RPM	2598
Static Efficiency (%)	56
Fan BHP	9.8
VFD Setting, Hz	69
Fan Electrical Power, kW	8.7



Accessories:

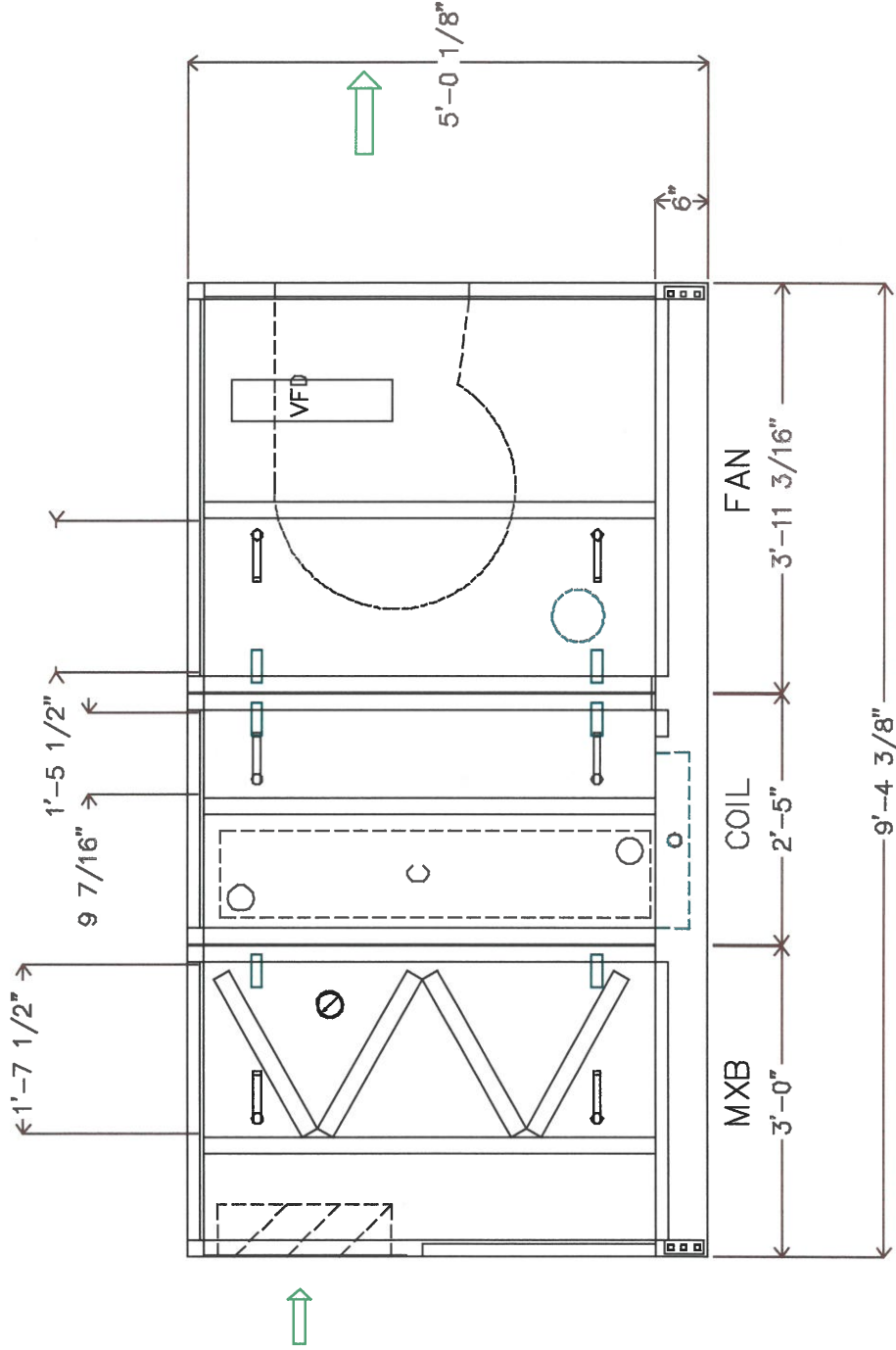
- (1) Filter/Mixing Box Synthetic (2") MERV 13 [0.15]
- (1) Mixing or Exhaust Box [0.11]

Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, which is based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org



Unit width: 7'-5 3/8" (plus lifting lugs)
 2in. Angle Filter
 Qty (12) 16in. x 25in.
 Chilled Water 10 Row 14 FPI Double Circuit (qty. 1)
 Draw-Thru Supply Fan
 10 HP Premium Efficiency QDP 208-230/460 3Ph 60Hz 1800 RPM
 Operating weight: 3301.0 lbs.
 Upstream Corner Weight (each): 775.0 lbs.
 Downstream Corner Weight (each): 875.0 lbs.

Split	Alrway Length (Split 1)	Weight (lbs.)
	9'-4 3/8"	3301



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39MN

REVISION
Side View

39M Central Station Air-Handler, Size 21W
 Climatec - Bay Area 2023: FCU Option B
 Assembly Drawing

DATE
2/13/2023

AHUBuilder
v6.690



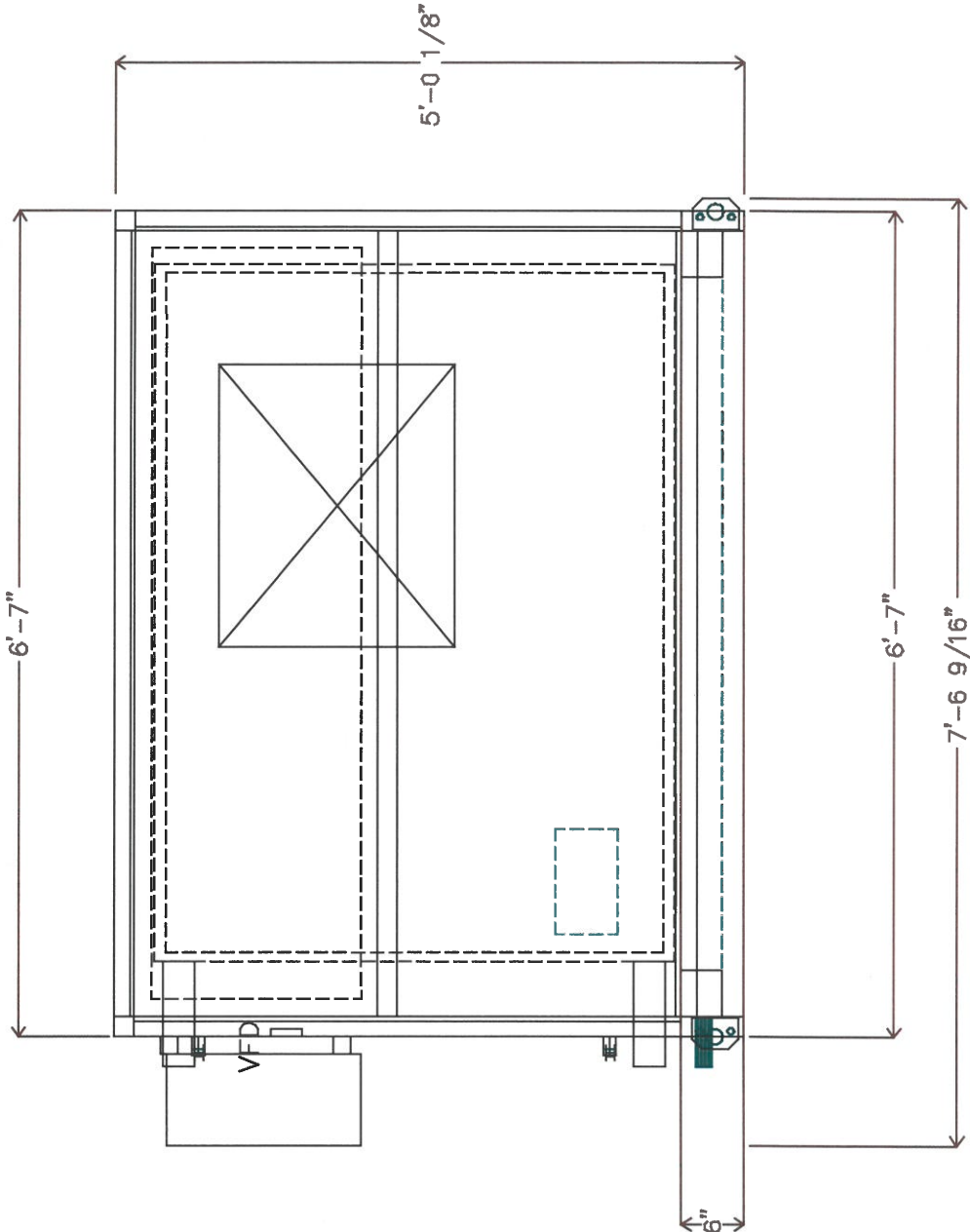
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10 HP Premium Efficiency ODP 208-230/460 3ph 60Hz 1800 RPM
Operating weight: 3301.0 lbs.
Upstream Corner Weight (each): 775.0 lbs.
Downstream Corner Weight (each): 875.0 lbs.

Unit viewed from right side of side elevation view.
Unit length: 9'-4 3/8"
2in. Angle Filter
Qty (12) 16in. x 25in.
Chilled Water 10 Row 14 FPI Double Circuit (qty. 1)
Draw-Thru Supply Fan



REVISION
End View

39M Central Station Air-Handler, Size 21W
Climatec - Bay Area 2023: FCU Option B
Assembly Drawing

AHUBuilder
v6.69a

DATE
2/13/2023

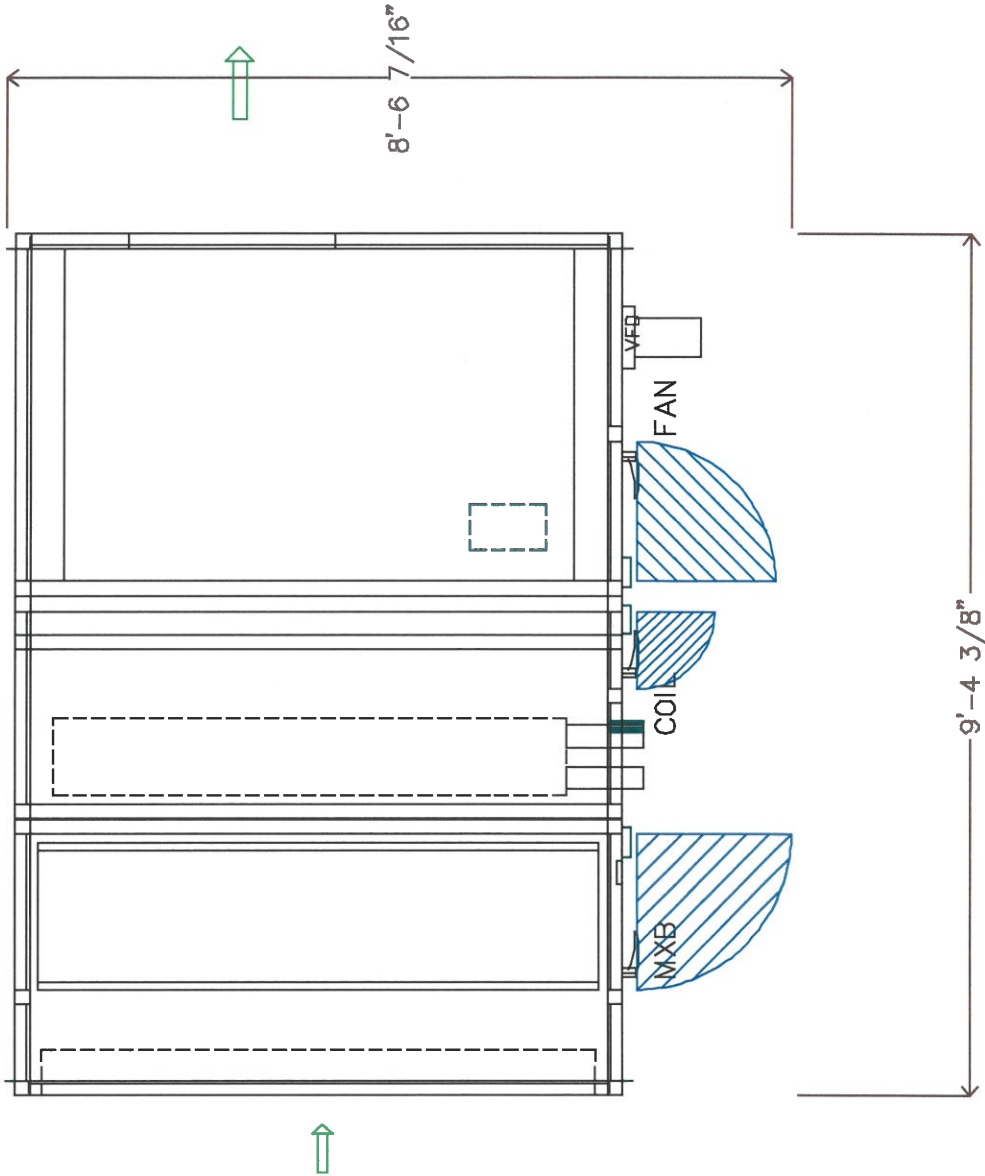


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39MN

Unit height: 5'-0 1/8"
2In. Angle Filter
Qty (12) 16In. x 25In.
Chilled Water 10 Row 14 FPI Double Circuit (qty. 1)
Draw-Thru Supply Fan
10 HP Premium Efficiency QDP 208-230/460 3Ph 60Hz 1800 RPM
Operating weight: 3301.0 lbs.
Upstream Corner Weight (each): 775.0 lbs.
Downstream Corner Weight (each): 875.0 lbs.



REVISION
Top View

39M Central Station Air-Handler, Size 21W
Climatec - Bay Area 2023: FCU Option B
Assembly Drawing

AHUBuilder
v6.69a

DATE
2/13/2023

Chilled Water 10 Row 14 FPI Double Circuit (qty. 1)

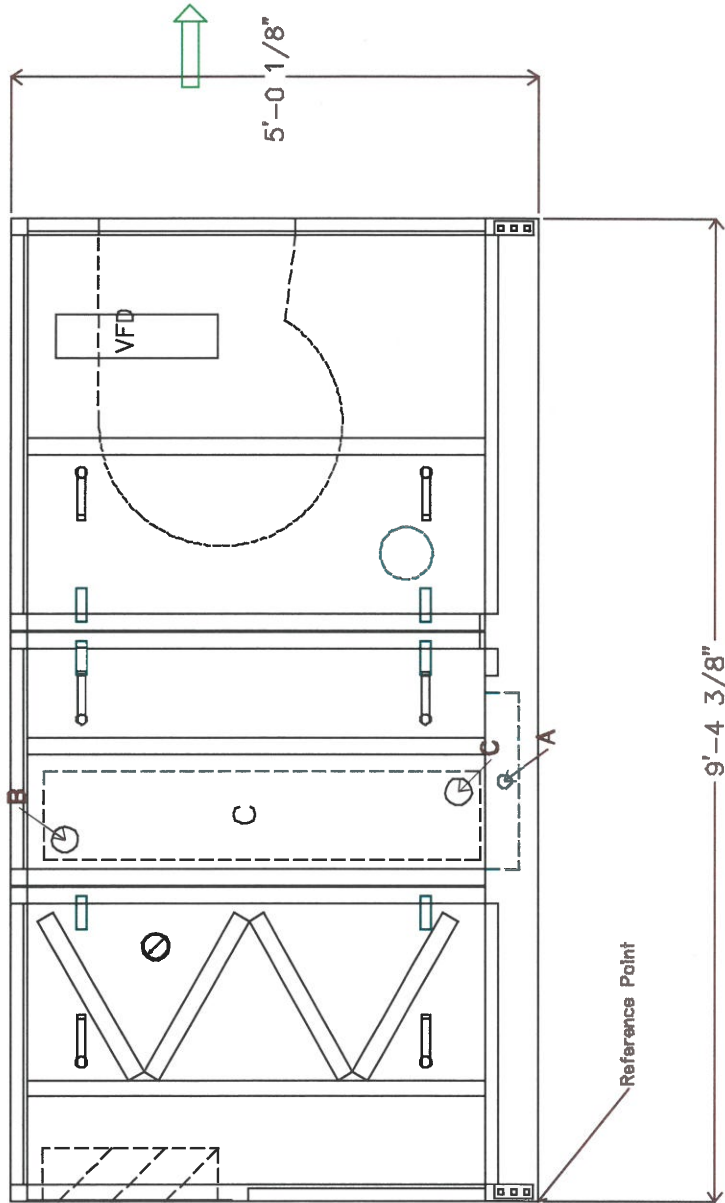


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Pipe	x	y	diameter	Usage
A	4'-0 1/16"	3 13/16"	1 1/2"	DrainPan
B	3'-5 7/16"	4'-5 15/16"	3"	CW Outlet
C	3'-10 7/8"	9"	3"	CW Inlet



REVISION
Side View

39M Central Station Air-Handler, Size 21W
Climatec - Bay Area 2023: FCU Option B
Assembly Drawing

AHUBuilder
v6.690

DATE
2/13/2023

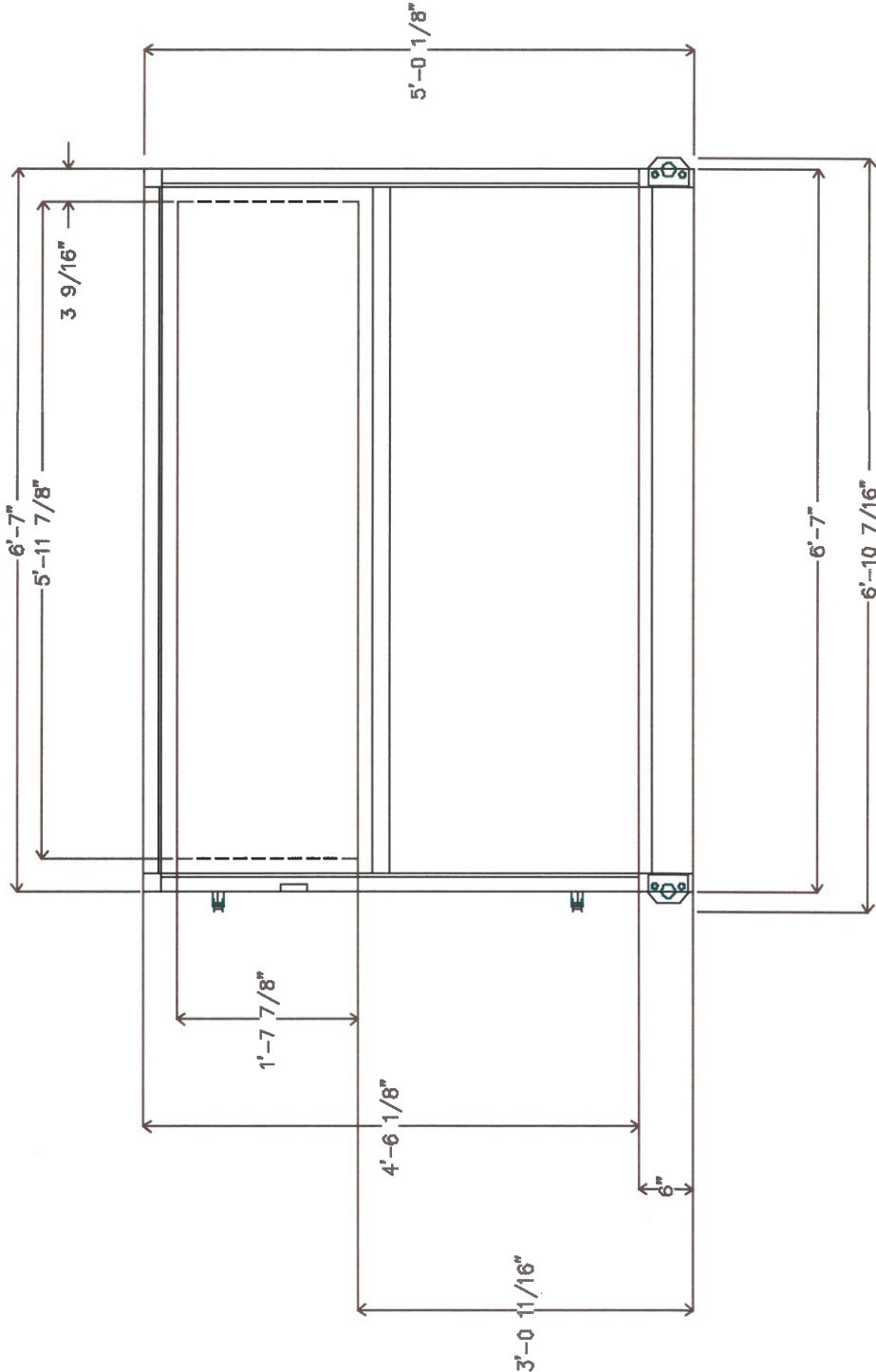


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39MN

Unit viewed from right side of side elevation view.
2in. Angle Filter
Qty (12) 16in. x 25in.



REVISION
End View

39M Central Station Air-Handler, Size 21W
Climatec - Bay Area 2023: FCU Option B
Filter Mixing Box

AHUBuilder
v6.690

DATE
2/13/2023

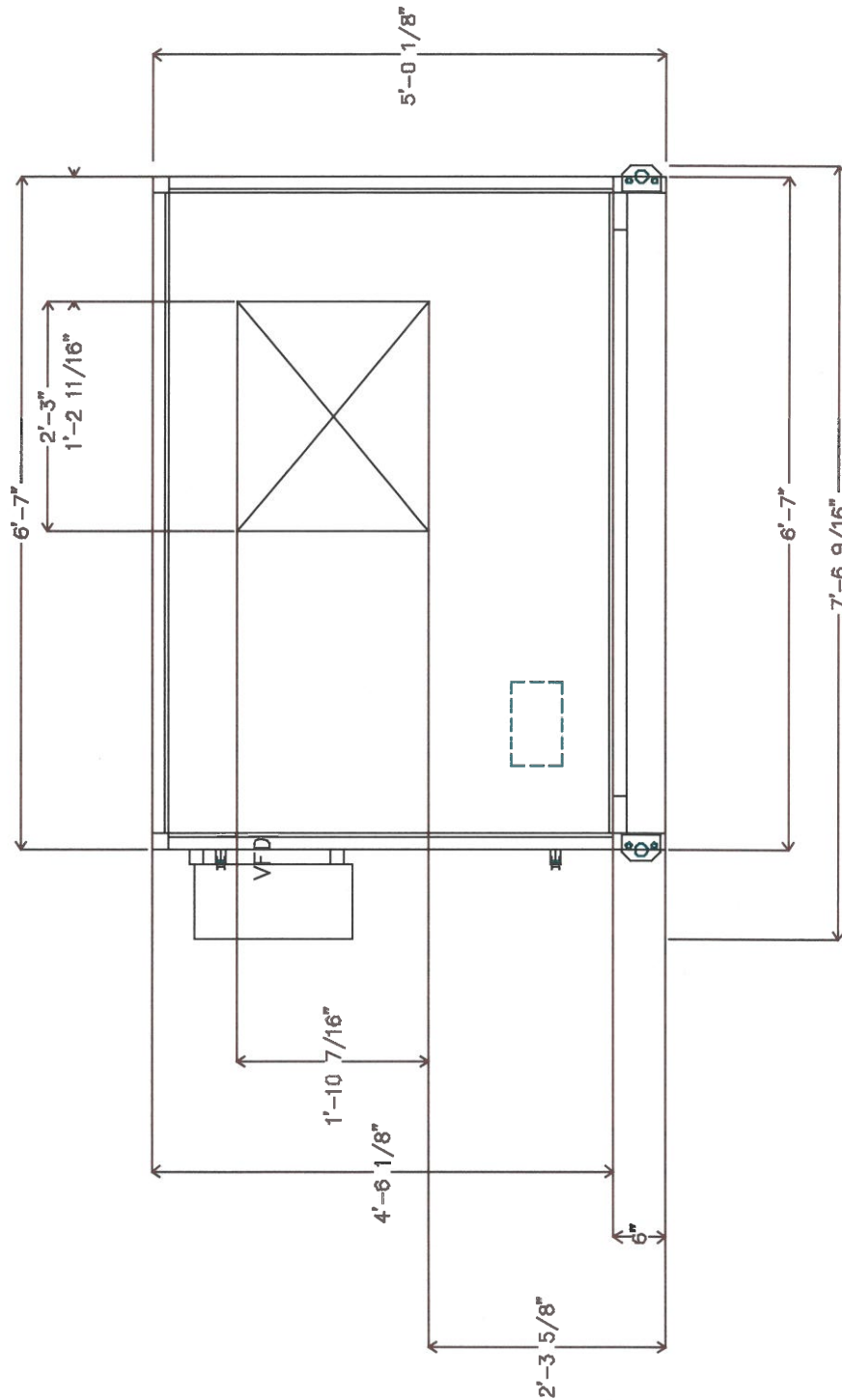
Unit viewed from right side of side elevation view.
 Draw-Thru Supply Fan
 10 HP Premium Efficiency ODP 208-230/460 3Ph 60Hz 1800 RPM



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39MN



REVISION
End View

39M Central Station Air-Handler, Size 21W
 Climatec - Bay Area 2023: FCU Option B
 Draw-Thru Supply Fan

AHUBuilder
v6.690

DATE
2/13/2023

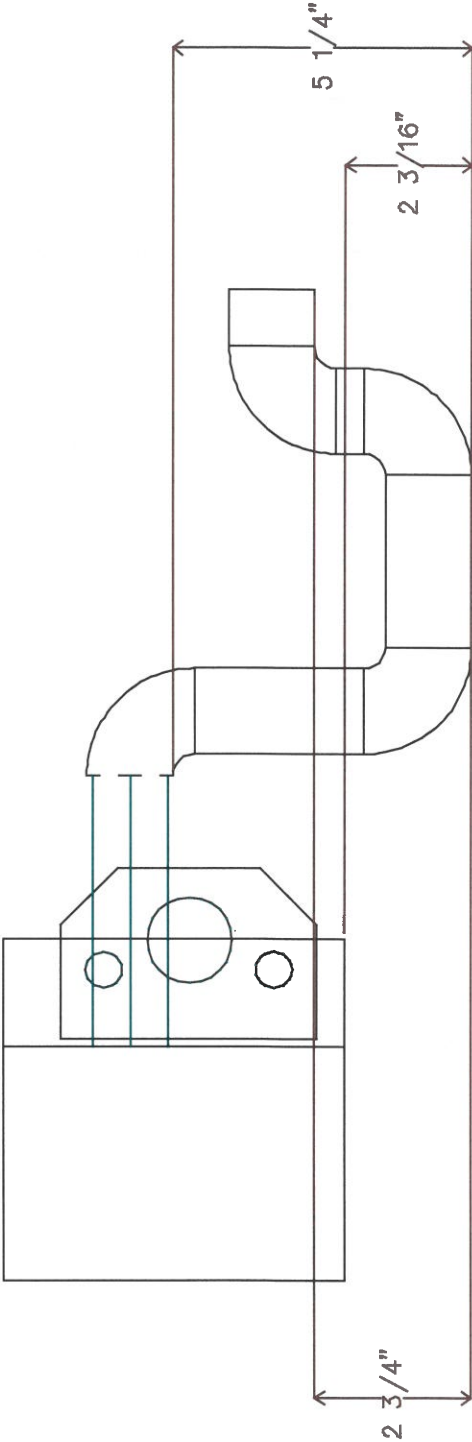


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39MN

DRAW—THRU



REVISION
End View

39M Central Station Air-Handler, Size 21W
Climatec – Bay Area 2023: FCU Option B
Condensate Trap Dimensions

AHUBuilder
v6.69a

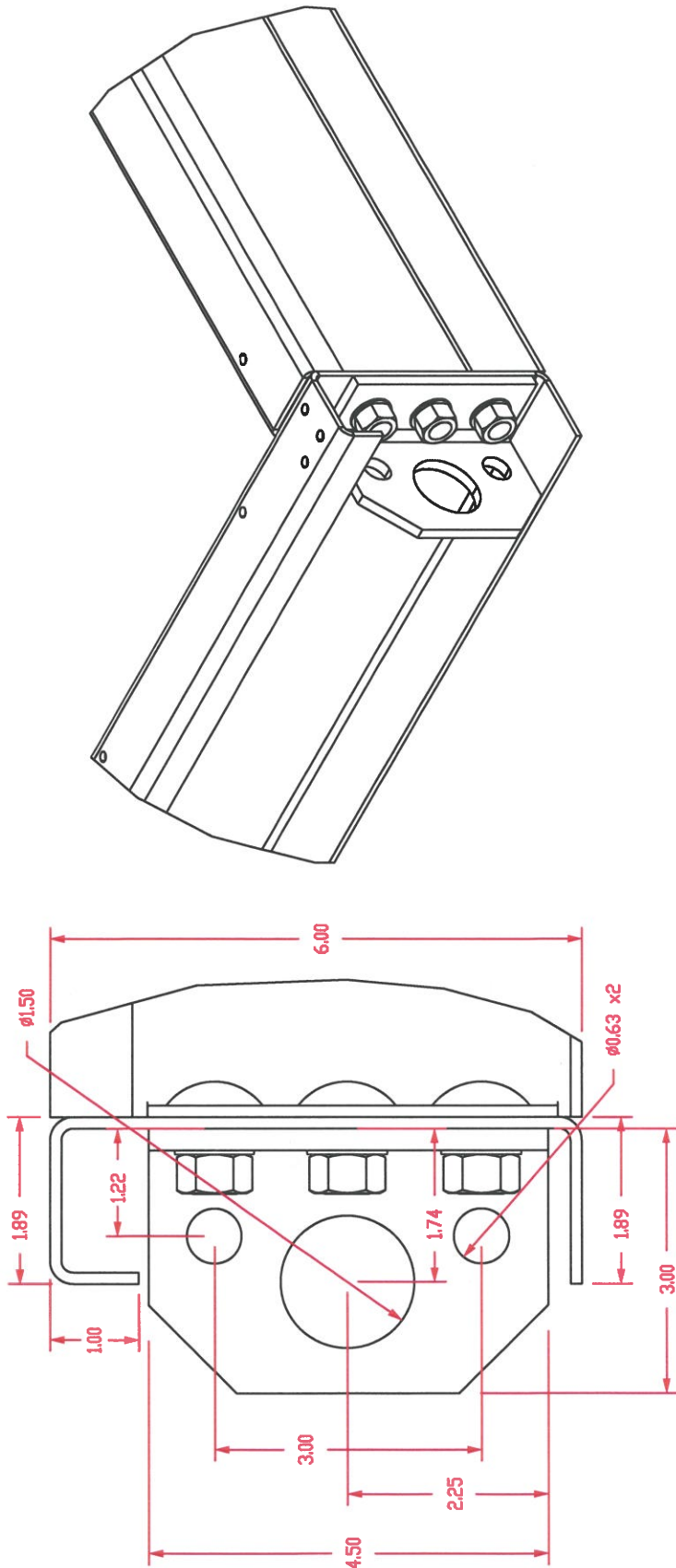
DATE
2/13/2023



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39M



39M Central Station Air-Handler, Size 03 - 110
6" Baserrail and Lifting Lug Detail

AHUBuilder
v6.69o

DATE
2/13/2023

REVISION

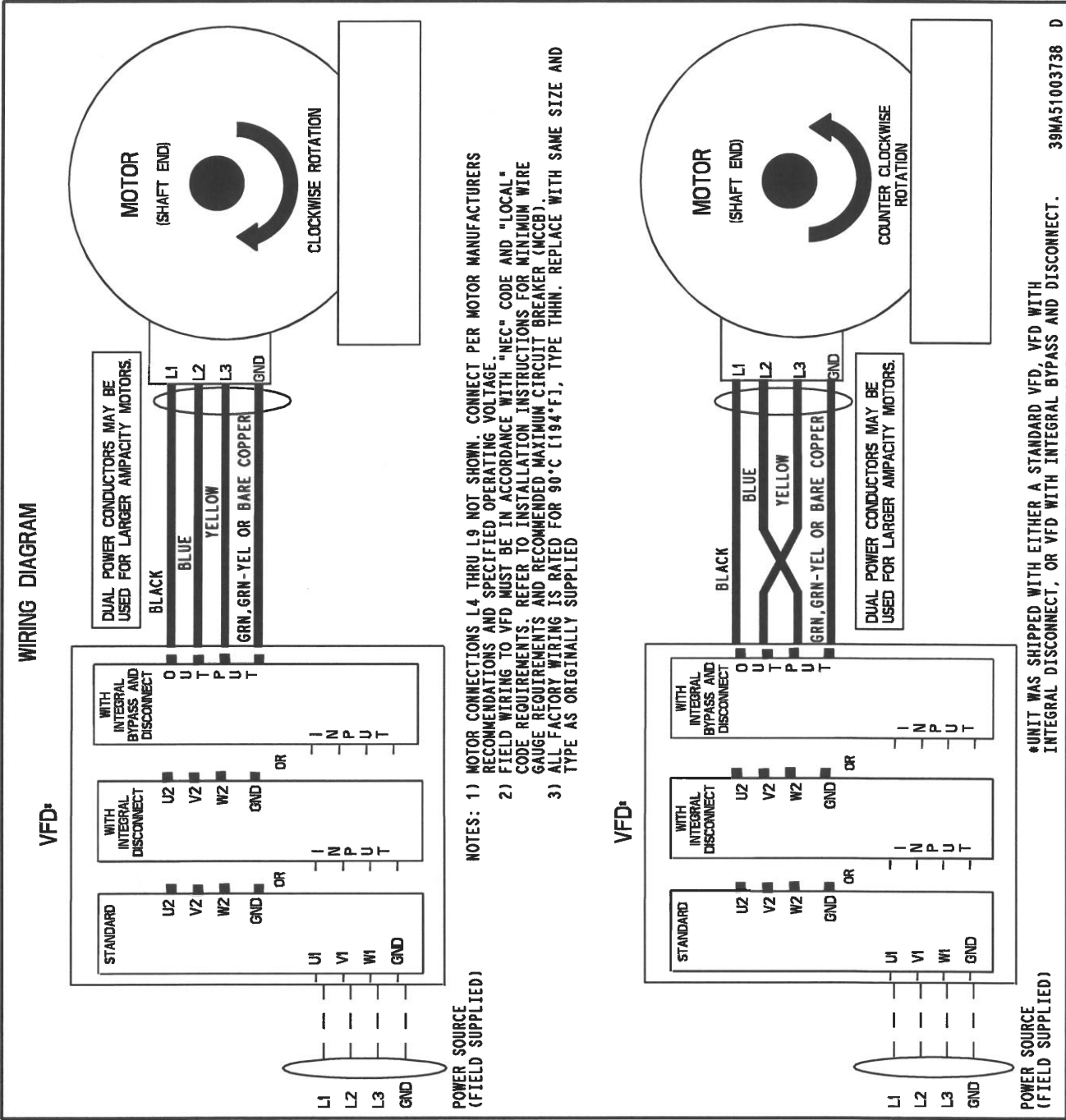


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39M

WIRING DIAGRAM



UNIT WAS SHIPPED WITH EITHER A STANDARD VFD, VFD WITH INTEGRAL DISCONNECT, OR VFD WITH INTEGRAL BYPASS AND DISCONNECT. 39MA51003738 D

Component wiring for reference only. When components are factory installed, wiring will be factory installed unless otherwise noted. When components are provided by the factory for field installation, wiring is not included or installed.

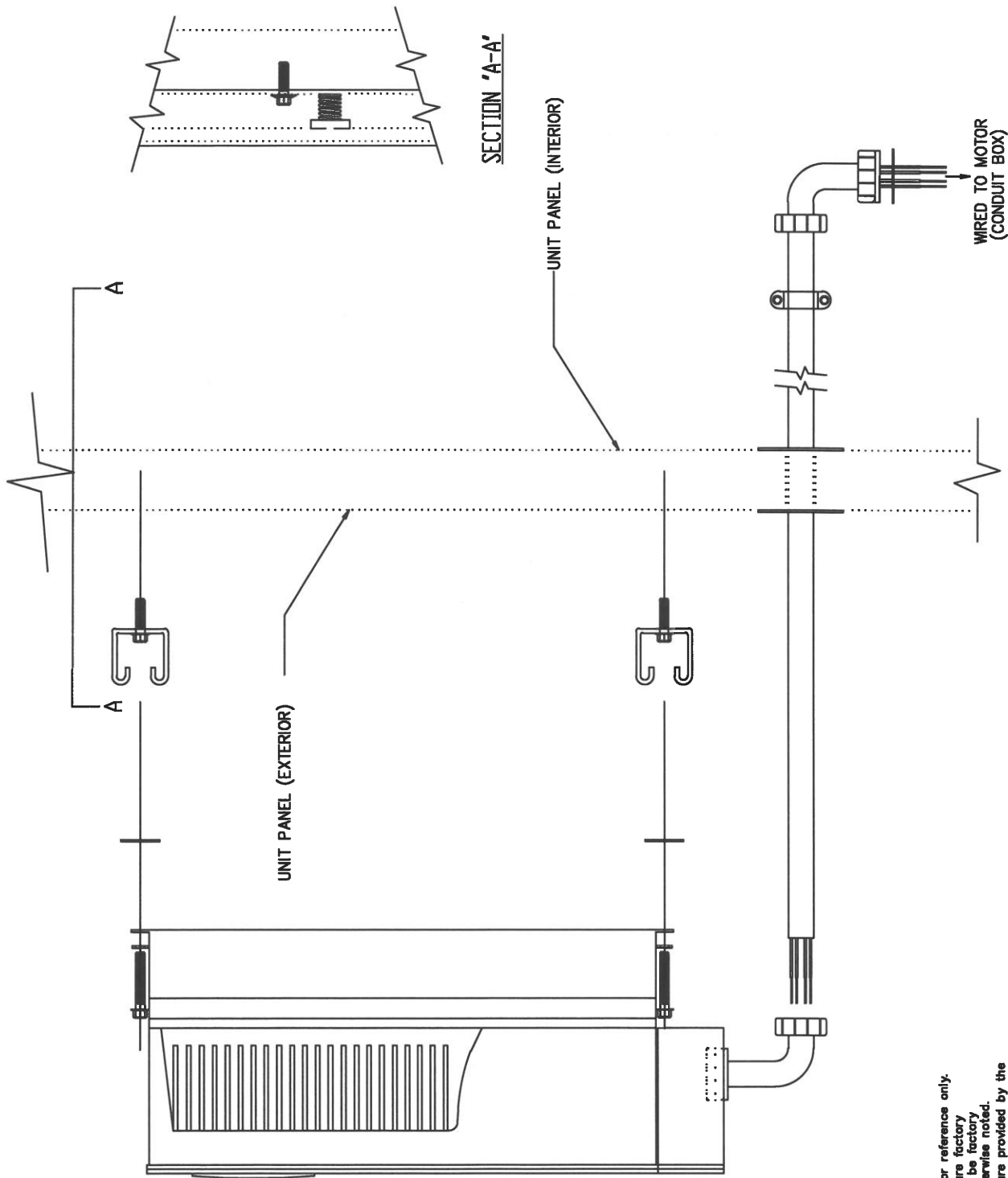
DATE	2/13/2023	AHUBuilder v6.69o	39M Central Station Air-Handler Three Phase VFD Wiring Detail	REVISION
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Component wiring for reference only.
When components are factory installed, wiring will be factory installed unless otherwise noted.
When components are provided by the factory for field installation, wiring is not included or installed.

REVISION
39M Central Station Air-Handler, Size: 03 - 110
VFD Mounting Detail

AHUBuilder
v6.69o

DATE
2/13/2023

VFD Submittal

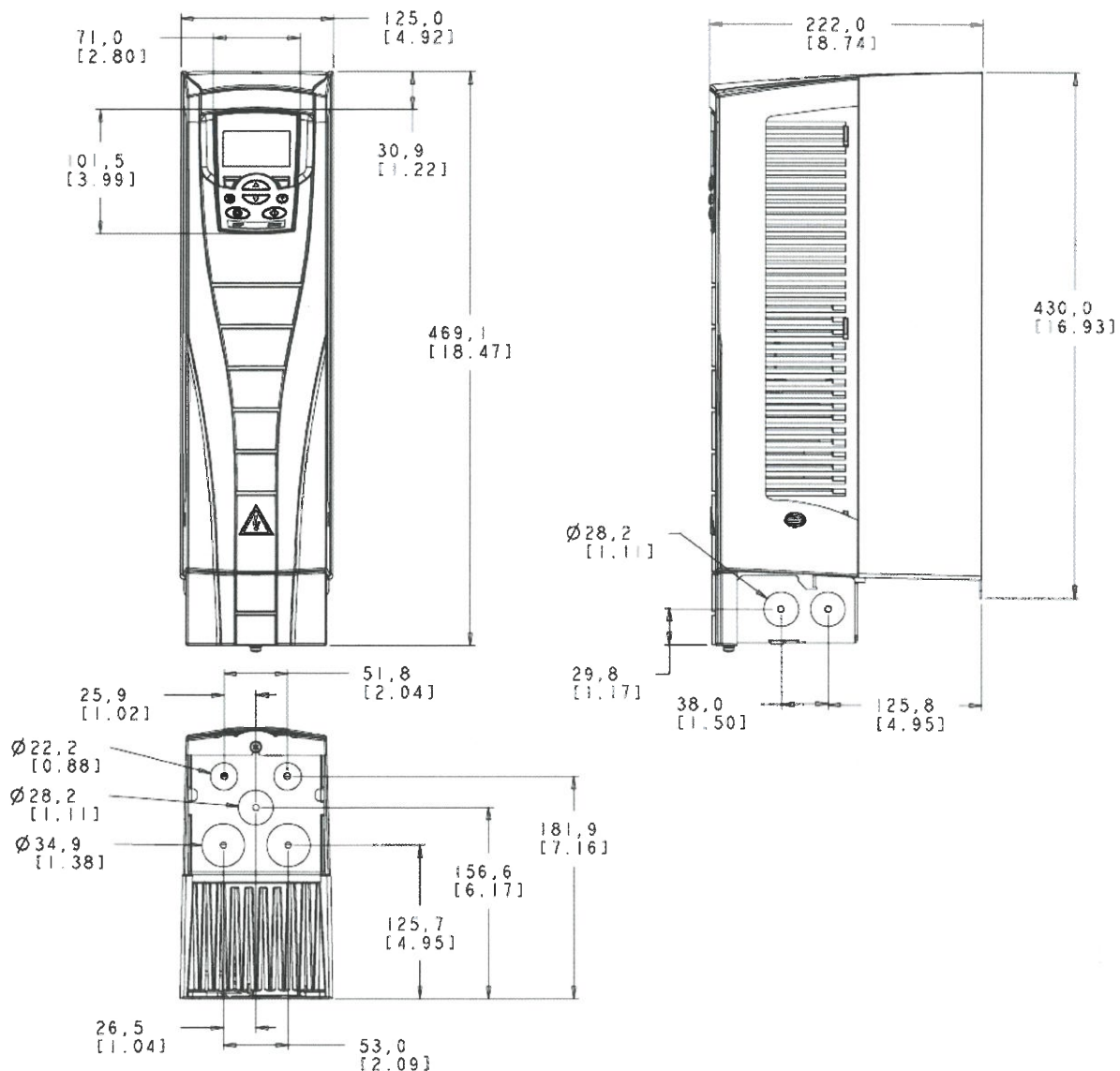
Project: Climatec - Bay Area 2023
Unit Tag: FCU Option B

Manufacturer Part Number	ACH550-UH-031A-2
Voltage	208 Volts 3 Phase 60Hz
Frame Size	R2
Application Horsepower	10 HP
Maximum Continuous Output (A)	30.8
UL Class T Fuse Amps	40

R2

General Dimensions

Height (in.)	18.5
Width (in.)	4.9
Depth (in.)	8.7
Shipping Weight (lbs.)	19.8



Note: Unbracketed dimensions listed in millimeters [Bracketed dimensions listed in inches]

Air Filter Submittal

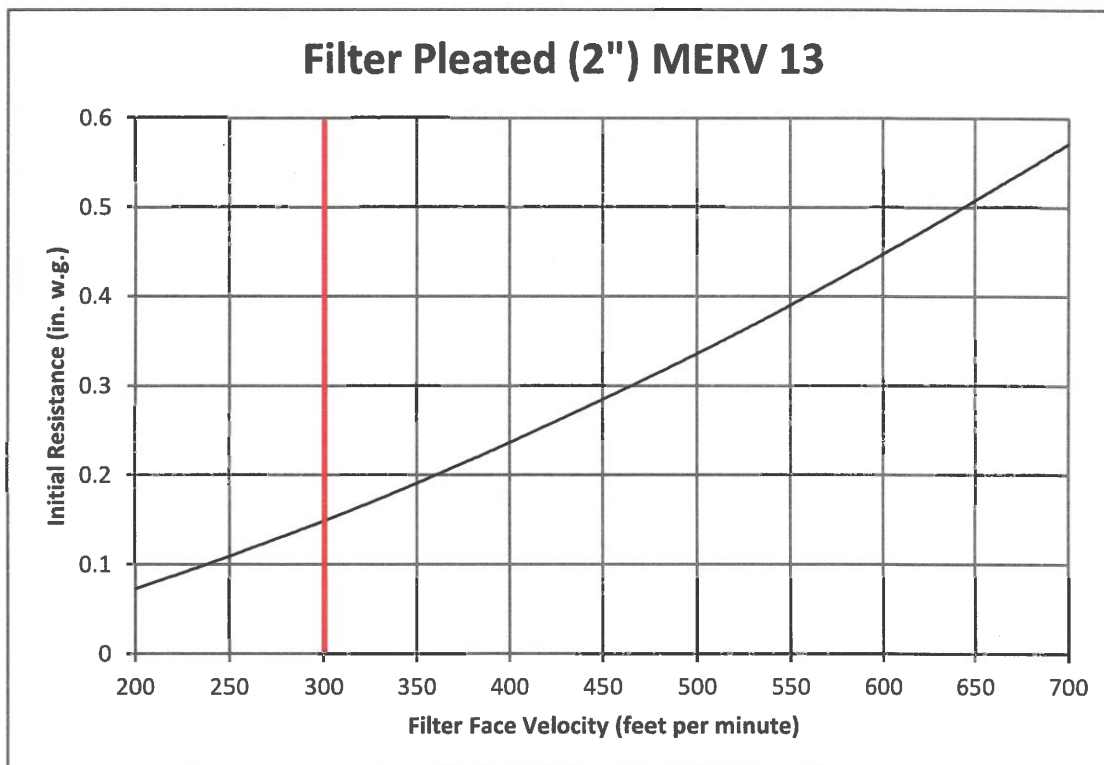
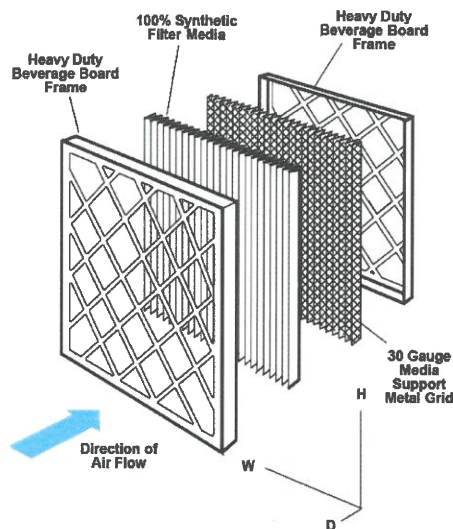
Project: Climatec - Bay Area 2023
Unit Tag: FCU Option B

Carrier Part Number	31K2C0000001216254
Kit Description	Filter Kit
Unit Airflow, CFM	10000
Filter Velocity, FPM	300
Filter Sizes and Quantities	Qty (12) 16in. x 25in.

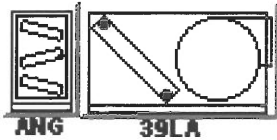
DFpro MERV 13 Pleated Filter

The 100% synthetic graduated density media is continuously bonded to a 30 gauge galvanized, corrosion resistant, expanded metal support grid with an effective open area of 96%. The media is resistant to a wide range of chemicals, does not absorb moisture and will not support microbial growth.

The controlled pleat spacing maximizes surface area and dust holding capacity and is bonded to the enclosure frame to prevent dust bypass. The enclosure frame is constructed of high wet strength moisture resistant beverage board. The diagonal support members of the frame are bonded to the entering and exiting apexes of each pleat to prevent pleat collapse and filter bowing.



Job Name Climatec - Bay Area 2023
Mark for FCU3



Unit Parameters

39L Size: 21
Insulation: 1" 1.5# Tuf-Skin II Single Wall
Hand: Right
No Export Crate
Controls: No Product Integrated Controls

ANG Angle Filter Section

2in Pleated MERV13 Filters - kit
(4) 16in. x 20in.
(8) 16in. x 25in.

LA Horizontal Cooling (LFA) Coil/Fan Section

Belt Drive RPM: 939
Belt Drive Factory Installed
Motor HP: 10
Voltage: 208/230/460 3 Phase 60Hz
Efficiency: Premium
Enclosure: ODP
RPM: 1800
Manufacturer - Generic
Frame Size - 215T
Motor Shaft Diameter (in.) - 1.375
Full Load Amps - 27.3/24.7/12.4
MCA - 34.1/30.9/15.4
MOCP - 60/50/25
Efficiency - 91.7%
Discharge: Top Horiz. Front
CW 21.6 sq.ft. 6 Rows 14 FPI Full Circuit
0.016 in. Tube Wall Thickness
Factory Installed VFD 208-230 3 Phase 60Hz

Weights and Dimensions

(LxWxH in ft in) 8' 4" x 6' 5" x 3' 8" **
Dry 1402 LB ** Wet 1520 LB **

Weights and Dimensions are approximate. Weights include base unit weight, coils (wet & dry), fans and fan motors, and other components, but does not include filters, drives and skids. Approximate dimensions are provided primarily for shipping purposes. Shipping skids are not included.
All filter media efficiency ratings are for the filter media only.

Chilled Water Coil Performance Summary

Project: Climatec - Bay Area 2023
Tag: FCU3

Cooling Application's Balance Criteria: Fluid Flow

Coil Model _____
Number of Coils _____
Row / FPI / Circ _____
Fin Thickness _____
Fin Type _____
Face Area Type _____
Coil Face Area _____
Face Velocity _____
Fin-Casing Material _____
Tube Diameter _____
Tube spacing: Stf x Str _____
Tube Wall Thickness _____
Actual Airflow _____
Site Altitude _____
Standard Airflow (adj. to std. dry atmosphere) _____
Total Cooling Capacity _____
Sensible Cooling Capacity _____
Fluid Flow Rate _____
Fluid Pressure Drop _____
Fluid Velocity _____
Entering Fluid Temperature _____
Leaving Fluid Temperature _____
Fluid Temperature Rise _____
Entering Air Dry Bulb _____
Entering Air Wet Bulb _____
Entering Air Enthalpy _____
Leaving Air Dry Bulb _____
Leaving Air Wet Bulb _____
Leaving Air Enthalpy _____
Air Friction _____
Brine _____
Brine Concentration _____
Fouling Factor _____

Carrier 28NA

1

6 / 14 / FL

.0042 in

Sine Wave

Large

21.60 sqft

462.8 fpm

Al-Galv.

0.5 in

1.25 x 0.781 in

0.016 in

10000 CFM

0 ft

9664 SCFM

344.83 MBH

284.86 MBH

64.0 gpm

6.2 ft wg

2.9 ft/s

46.00 F

56.75 F

10.7 F

80.00 F

65.00 F

29.94 BTU/lb

53.15 F

52.95 F

22.0 BTU/lb

0.72 in wg

FW

0 %

0.0 (hr-sqft-F)/BTU



NOTE: Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory (www.ahridirectory.org).

LEGEND:

Stf -- Tube spacing across coil face

Str -- Tube spacing in direction of airflow

Unit Acoustics Summary

Project: Climatec - Bay Area 2023

Tag: FCU3

Unit Acoustics Sound Power Level:

63 Hz	
125 Hz	
250 Hz	
500 Hz	
1000 Hz	
2000 Hz	
4000 Hz	
8000 Hz	

Discharge Inlet Casing

95	84	89
95	74	83
90	68	73
88	65	68
85	65	69
77	63	64
70	54	57
62	43	52

Unit Acoustics A-weighted Sound Power Level:

63 Hz	
125 Hz	
250 Hz	
500 Hz	
1000 Hz	
2000 Hz	
4000 Hz	
8000 Hz	

Discharge Inlet Casing

68	57	62
79	58	67
82	60	65
85	62	65
85	65	69
78	64	65
71	55	58
61	42	51

Unit Acoustics PART-LOAD Sound Power Level:

63 Hz	
125 Hz	
250 Hz	
500 Hz	
1000 Hz	
2000 Hz	
4000 Hz	
8000 Hz	

Discharge Inlet Casing

83	72	77
83	62	71
78	56	61
79	56	59
70	50	54
65	51	52
58	42	45
50	31	40

Unit Acoustics PART-LOAD A-weighted Sound Power Level:

63 Hz	
125 Hz	
250 Hz	
500 Hz	
1000 Hz	
2000 Hz	
4000 Hz	
8000 Hz	

Discharge Inlet Casing

57	46	51
67	46	55
70	48	53
76	53	56
70	50	54
66	52	53
59	43	46
49	30	39

Supply Fan Performance Summary

Project: Climatec - Bay Area 2023
Tag: FCU3

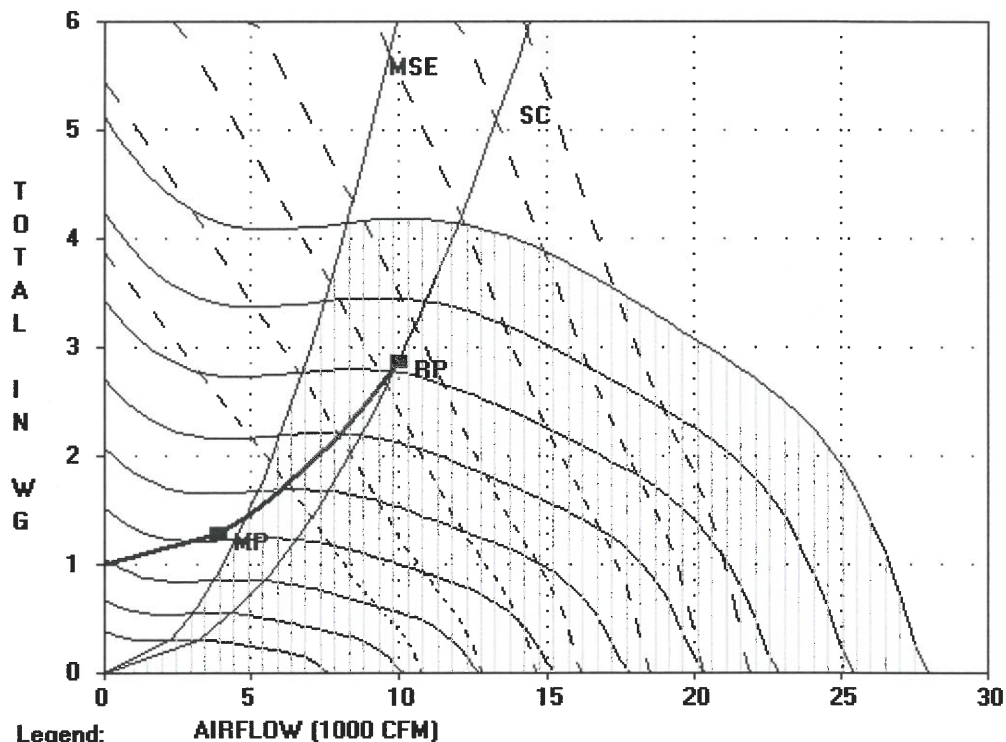
Fan Model	39LA21
Unit Size	21
Fan Type	LA (For LFA Clg. Coils)
Inlet Guide Vanes	No
Actual Airflow, CFM	10000
Site Altitude, ft	0
Upstream Ext. Static, in wg	0.00
Downstream Ext. Static, in wg	2.00
Cooling Coil Static, in wg	0.72
Heating Coil Static, in wg	0.00
Total Accessory Static, in wg	0.16
Total Static Pressure, in wg	2.88
Fan RPM	918
Fan BHP	8.5
VFD Setting, Hz	31
Fan Electrical Power, kW	7.6



Accessories:

(1) ANG Synthetic 2 inch MERV 13 [0.16]

Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, which is based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third-party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org



RPM = 918 BHP = 8.5 Max RPM = 1100 Max BHP = 20.0

RPM's (x 100, L to R): 3. 4. 5. 6. 7. 8. 9. 10. 11.

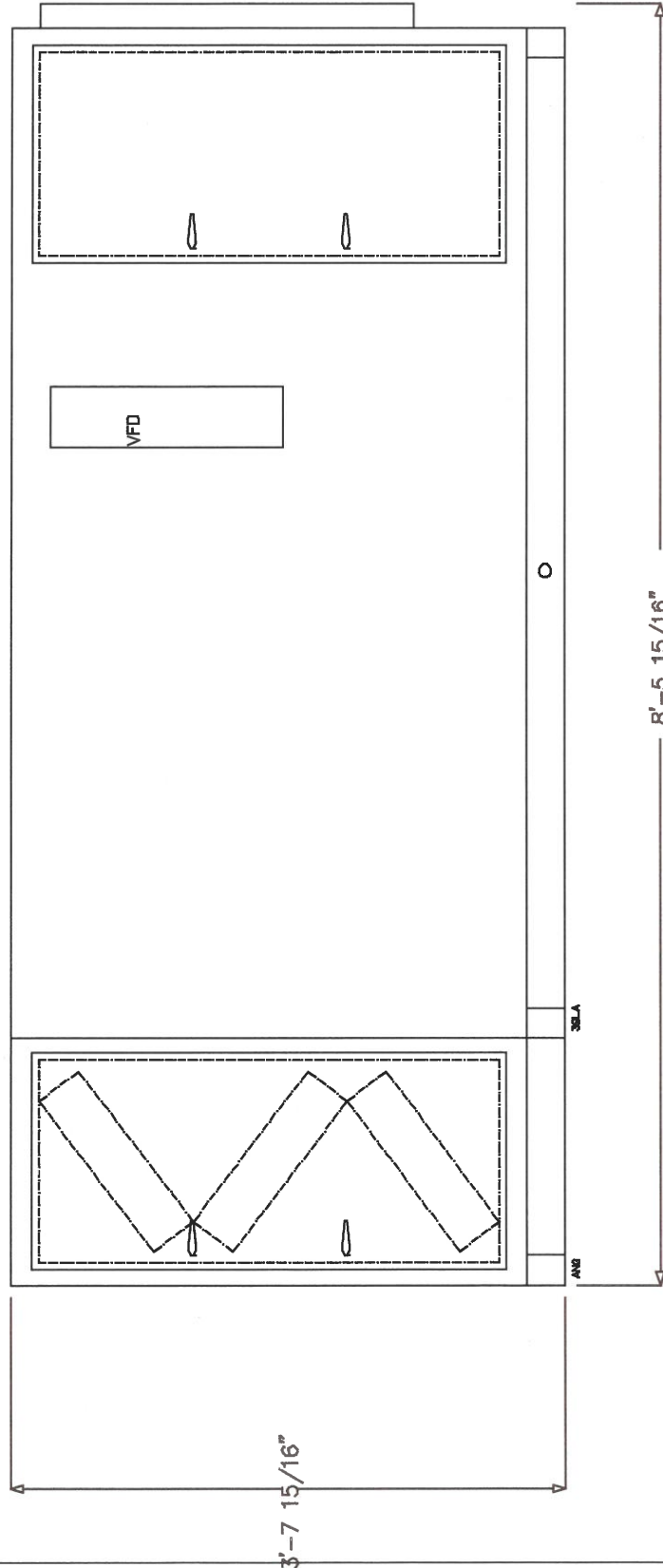
BHP's (L to R): 3 5 7.5 10 15 20 25



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Submission of these drawings or documents does not constitute part performance or acceptance of contract.

39L



39L Central Station Air Handler
39LA21BA-A3-ADK2A6, Size 21, RH Unit, (Side View)
Insulation 1in., 1.5# Tuff-Skin II

AHUBuilder v6.69a

Date:
02/13/23

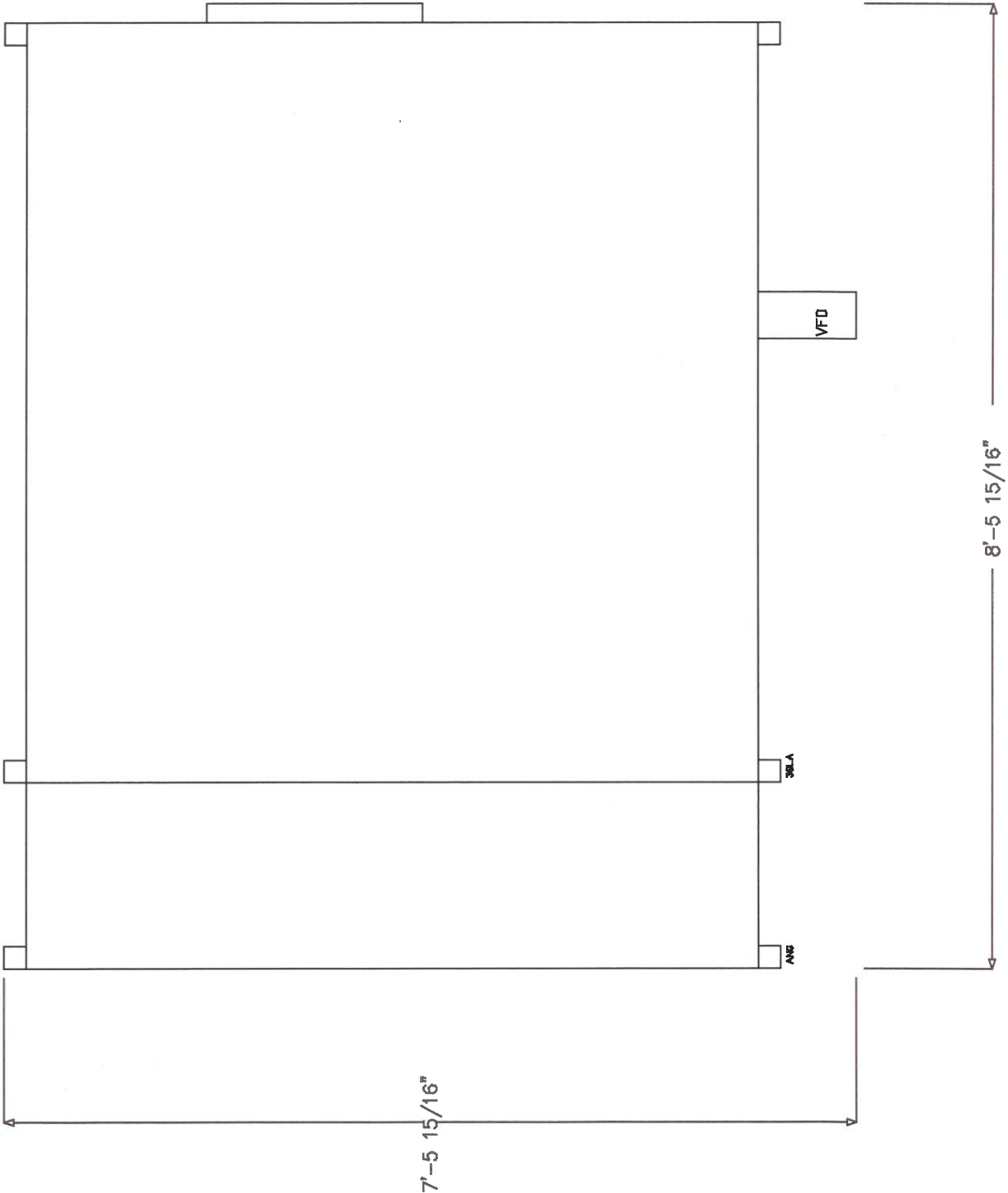


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39L

Mark for FQJ3
Job name: Climate - Bay Area 2023



39L Central Station Air Handler
39LA21BA-A3-AUD2A9, Size 21, RH Unit, (Top View)
Insulation 1in., 1.5# Tuff-Skin II

AHJBuilder v6.69a

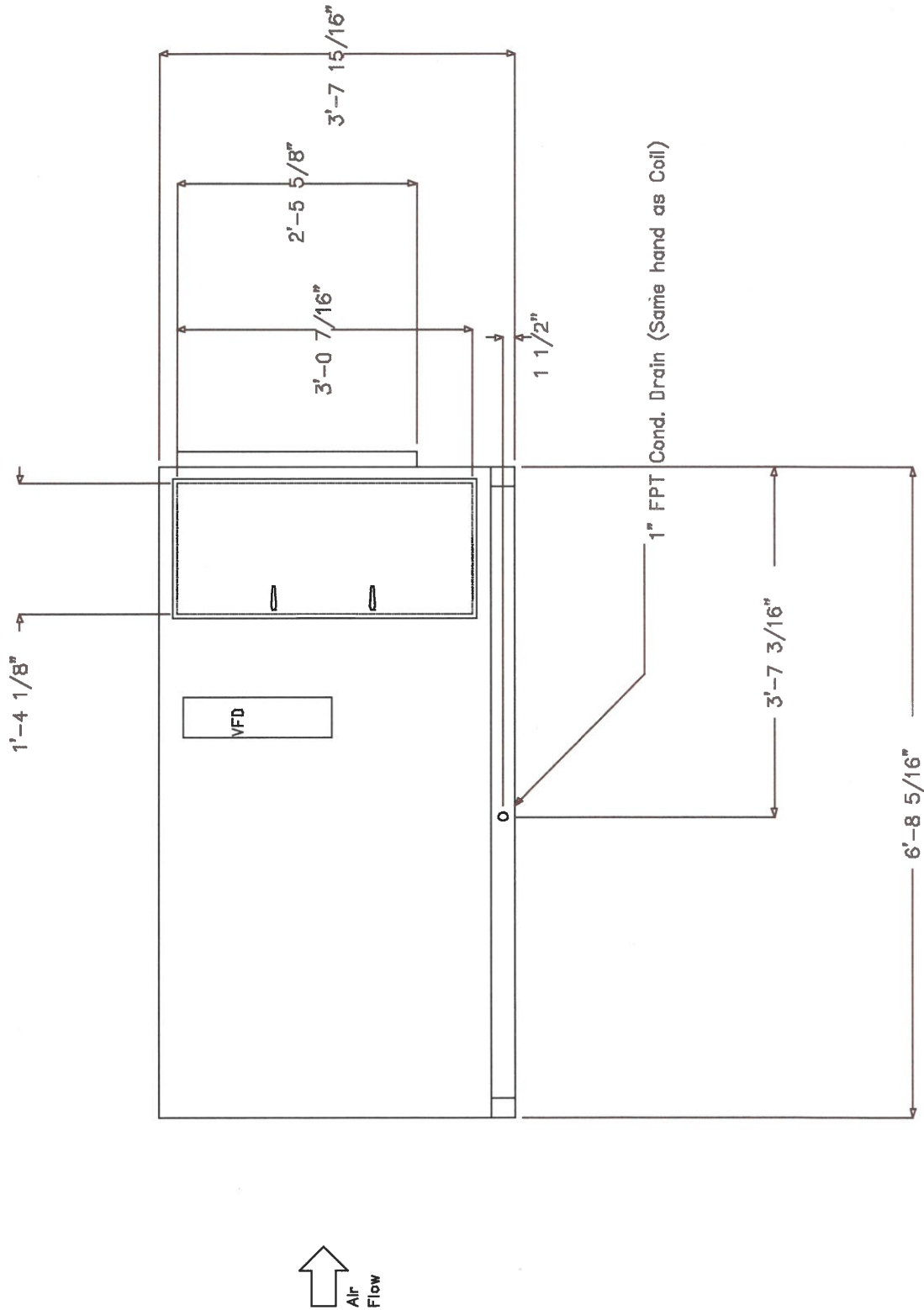
Date:
02/13/23



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39L



Date:
02/13/23

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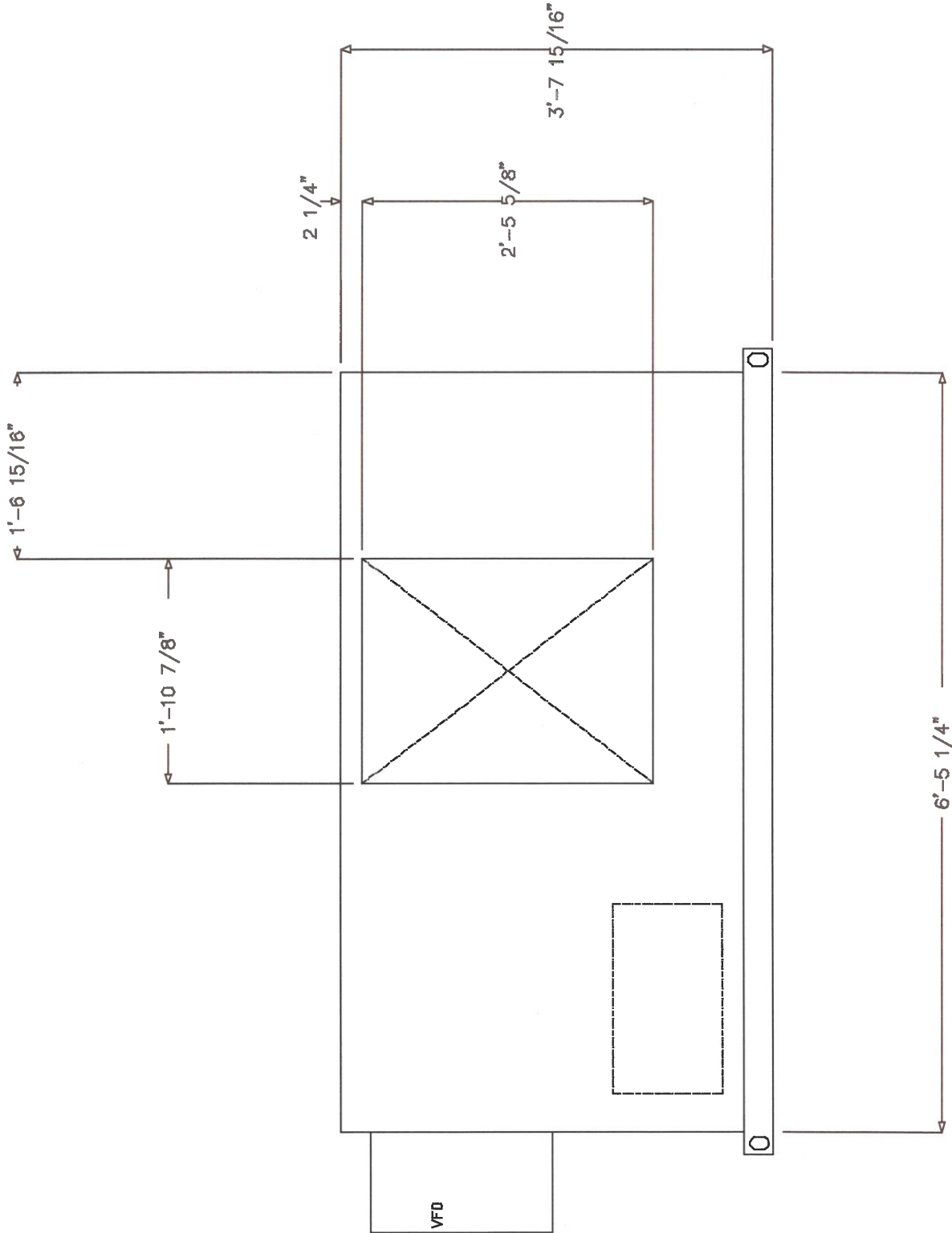
39L Central Station Air Handler
39LA, Size 21, RH Unit, (Side View)
Insulation 1in, 1.5ft TUF-Skin II



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39L



39L Central Station Air Handler
39LA, Size 21, Rtn Unit; (End View)
, Insulation 11in, 1.5M Tuff-Skin II

AHUBuilder v6.69a

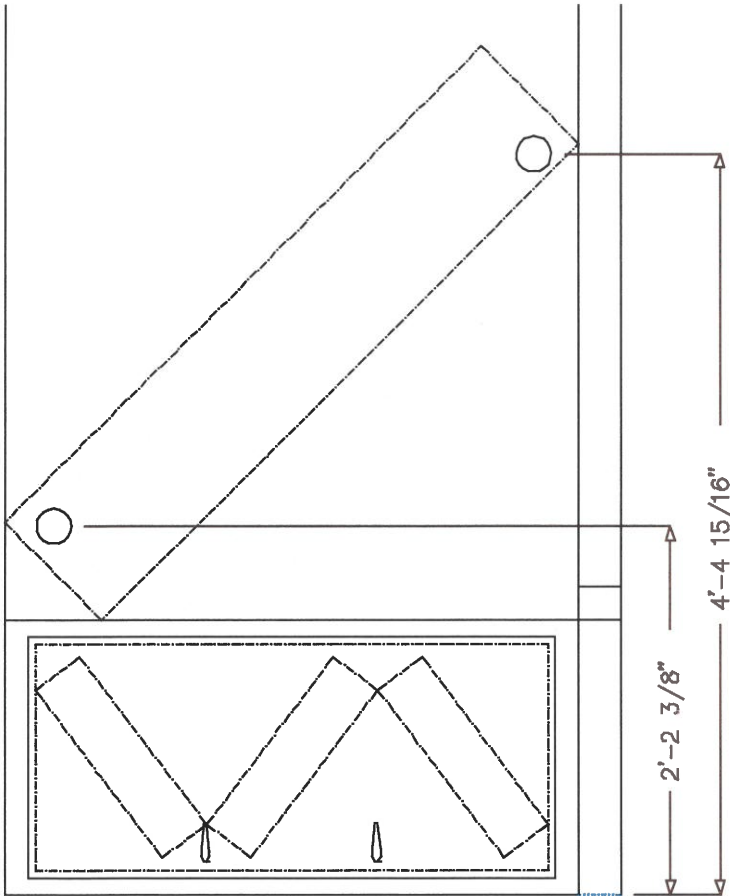
Date:
02/13/23



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39L



Mark for: FQJ3
Job name: Climatec - Bay Area 2023

39L Central Station Air Handler
39LA27BA-A3-AD12A6, Size 21, RT Unit, (Side View)
, Insulation 1in., 1.5# Tuff-Skin II

AHJBuilder v6.690

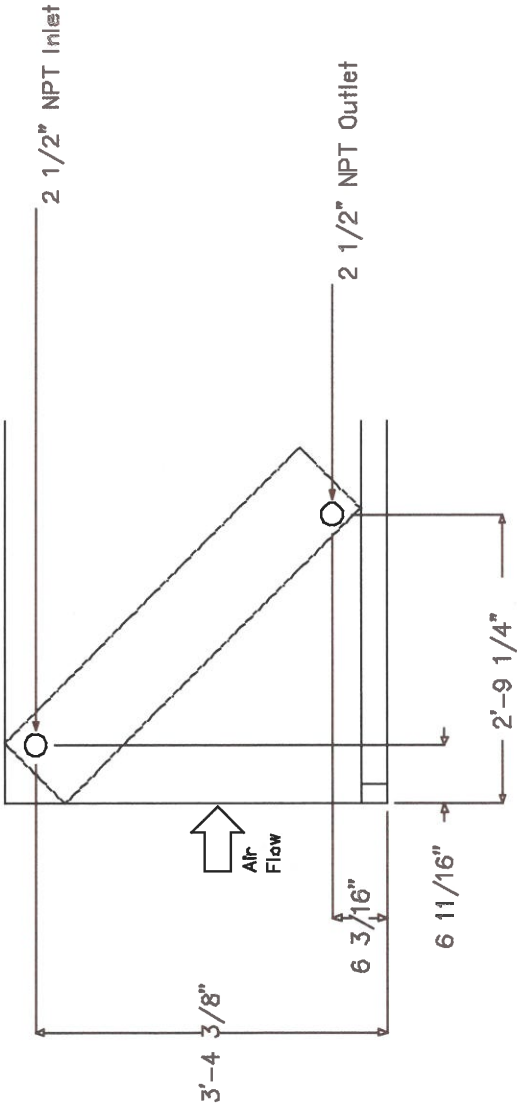
Date:
02/13/23



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39L



Date:
02/13/23

AHUBuilder v6.650

39L Central Station Air Handler
39LA Base Unit, Size 21, RT Unit
Cooled Water Coil, 5 Row, Full Circuit

Air Filter Submittal

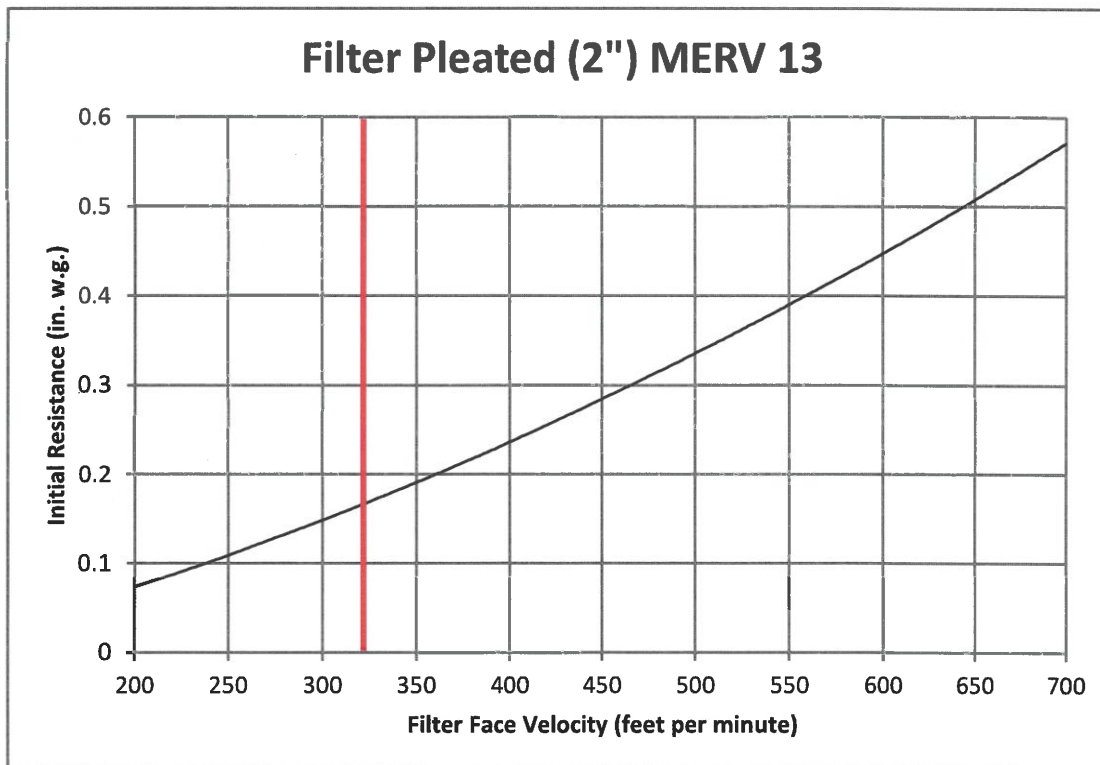
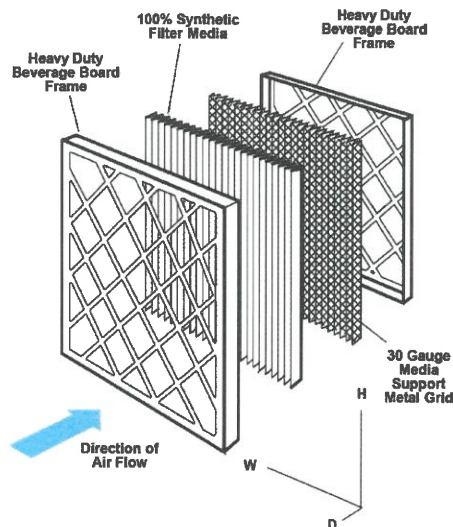
Project: Climatec - Bay Area 2023
Unit Tag: FCU3

Carrier Part Number	31KFG39LA021822
Kit Description	Filter Kit, 2" ANG Pleated (MERV13), 39L021
Unit Airflow, CFM	10000
Filter Velocity, FPM	321
Filter Sizes and Quantities	(4) 16in. x 20in., (8) 16in. x 25in.

DFpro MERV 13 Pleated Filter

The 100% synthetic graduated density media is continuously bonded to a 30 gauge galvanized, corrosion resistant, expanded metal support grid with an effective open area of 96%. The media is resistant to a wide range of chemicals, does not absorb moisture and will not support microbial growth.

The controlled pleat spacing maximizes surface area and dust holding capacity and is bonded to the enclosure frame to prevent dust bypass. The enclosure frame is constructed of high wet strength moisture resistant beverage board. The diagonal support members of the frame are bonded to the entering and exiting apexes of each pleat to prevent pleat collapse and filter bowing.





SUBMITTAL

Project

Climatec - Bay Area 2023

Date

Monday, February 13, 2023

Shawn Harlan
Sigler - Brea
205 Puente Street
Brea CA

Table Of Contents

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

02/13/2023

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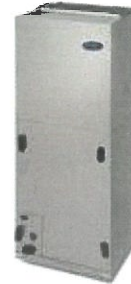
Main Hall - MW Restrooms

**Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings**

Unit Report For Main Hall - MW Restrooms

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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Outdoor Unit Parameters

Unit Model:.....25SPA
Unit Size:.....4 Tons (Size 48)
Voltage:.....208/230-1-60 V-Ph-Hz

Indoor Coil Parameters

Unit Model:.....FV4C
Unit Size:.....Size 005 (30 - 48,000 Btuh)
Cabinet Insulation:Single-piece cabinet with 1-in. super thick insulation
Voltage:.....208-1-60 V-Ph-Hz
Refrigerant Type:.....Puron
Heating Size:.....No Heat

Outdoor Unit Dimensions and Weight

Unit Length:.....31.1875 in
Unit Width:.....31.1875 in
Unit Height:.....35.5 in
Unit Shipping Weight:.....277. lb

Indoor Coil Dimensions and Weight

Unit Length:.....22.0625 in
Unit Width:.....21.125 in
Unit Height:.....53.4375 in
Unit Shipping Weight:.....172. lb

RESIDENTIAL APPLICATIONS

This warranty is to the original purchasing owner and subsequent owners only to the extent and as stated in the Warranty Conditions and below. The limited warranty period in years, depending on the part and the claimant, is as shown in the table below.

Limited Warranty (Years)		
Item	Original Owner	Subsequent Owner
Parts	10* (or 5)	5
Compressor	10* (or 5)	5

*If properly registered within 90 days of original installation, otherwise 5 years (except in California and Quebec and other jurisdictions that prohibit warranty benefits conditioned on registration). See Warranty Conditions below.

OTHER APPLICATIONS

The warranty period is five (5) years on the compressor, and one (1) year on all other parts. The warranty is the original owner only and is not available for subsequent owners.

Ordering Information

Part Number	Description	Quantity
Outdoor Unit		
25SPA548A003	25SPA Performance Single Stage Heat Pump with Puron Refrigerant 4 Tons Cooling 15 SEER @ ARI Conditions	1
Indoor Coil		
FV4CNF005L00	FV4C Performance Series Fan Coil with Puron 5 Tons Cooling 208/230-1-60 Single-piece cabinet with 1-in. super thick insulation Aluminum	1

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature

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and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Performance Summary For Main Hall - MW Restrooms

Project: Climatec - Bay Area 2023
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System Performance

System:	25SPA/FV4C	Actual Clg Airflow:.....	1520.0	CFM
System Quantity:.....	1	Standard Clg Airflow:.....	1520.0	CFM
Altitude:.....	0.0 ft	Total Net Clg Capacity:.....	46.00	MBH
Linear Pipe Length:.....	0.0 ft	Net Sensible Clg Capacity:.....	34.83	MBH
COP @ 47 F:.....	3.76	Htg HP Capacity:.....	45.88	MBH
COP @ 17 F:.....	2.66	Htg HP Integrated Capacity:.....	45.88	MBH
SEER @ ARI Conditions:.....	15.0	Heating HP Compressor Power:.....	3.52	kW
EER @ ARI Conditions:.....	12.0	Total System Power:.....	3.67	kW
HSPF @ ARI Conditions:.....	8.5			

System Parameters

Outdoor Unit Parameters

Unit Model:.....	25SPA548A003
Unit Size (Nominal):.....	4 Tons (Size 48)
Voltage:.....	208/230-1-60 V-Ph-Hz
Clg Ent Air DB Ambient:.....	95.0 °F
Htg Ent Air DB Ambient:.....	47.0 °F

Indoor Coil Parameters

Unit Model:.....	FV4CNF005L00
Unit Size (Nominal):.....	Size 005 (30 - 48,000 Btuh)
Voltage:.....	208-1-60 V-Ph-Hz
Ent Air DB:.....	80.00 °F
Ent Air WB:.....	67.00 °F
Ent Enthalpy:.....	31.44 BTU/lb
Lvg Air DB:.....	58.79 °F
Lvg Air WB:.....	57.50 °F
Lvg Enthalpy:.....	24.71 BTU/lb
Htg Ent Air DB:.....	70.0 °F
Htg Lvg Air DB:.....	97.9 °F
Heating Size (Nominal):.....	No Heat
Total External Static Pressure:.....	0.50 in wg
Clg Coil Note:.....	***Airflow adjusted to high (400 cfm/ton).

Electrical Data

Outdoor Electrical Data

Unit Voltage:.....	208/230-1-60 V-Ph-Hz
Fan Motor FLA:.....	1.52 Amps
MCA:.....	32.8 Amps
Max Fuse:.....	50 Amps
Operating Range Min:.....	197 V
Operating Range Max:.....	253 V
Compressor RLA:.....	25.0 Amps
Compressor LRA:.....	120.0 Amps

Indoor Electrical Data:

(For units with no factory installed electric heaters)	
Unit Voltage:.....	208-1-60 V-Ph-Hz
Unit FLA:.....	4.3 Amps
Unit MCA:.....	5.4 Amps
Unit MOCP:.....	15.0 Amps
Unit Min Wire Size:.....	14.0
Unit Fuse/Ckt Bkr Amps:.....	15.0 Amps
Motor HP:.....	1/2 HP
Notice: Indoor Elect. data is for 208-1-60 voltage	

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Acoustic Summary For Main Hall - MW Restrooms

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Outdoor Unit Parameters:

Unit Model:.....**25SPA**
Unit Size:.....**4 Tons (Size 48)**
Variations:.....**Standard**

Octave Band Center Frequency, Hz	125	250	500	1k	2k	4k	8k	dBA
Sound Power,dB	73.7	72.2	71.2	67.9	62.5	59.5	53.3	
A-Weighted Sound Power, dBA								73.0

Indoor Coil Parameters:

Unit Model:.....**FV4C**
Unit Size:.....**Size 005 (30 - 48,000 Btuh)**
Cabinet Insulation:.....**Single-piece cabinet with 1-in. super thick insulation**

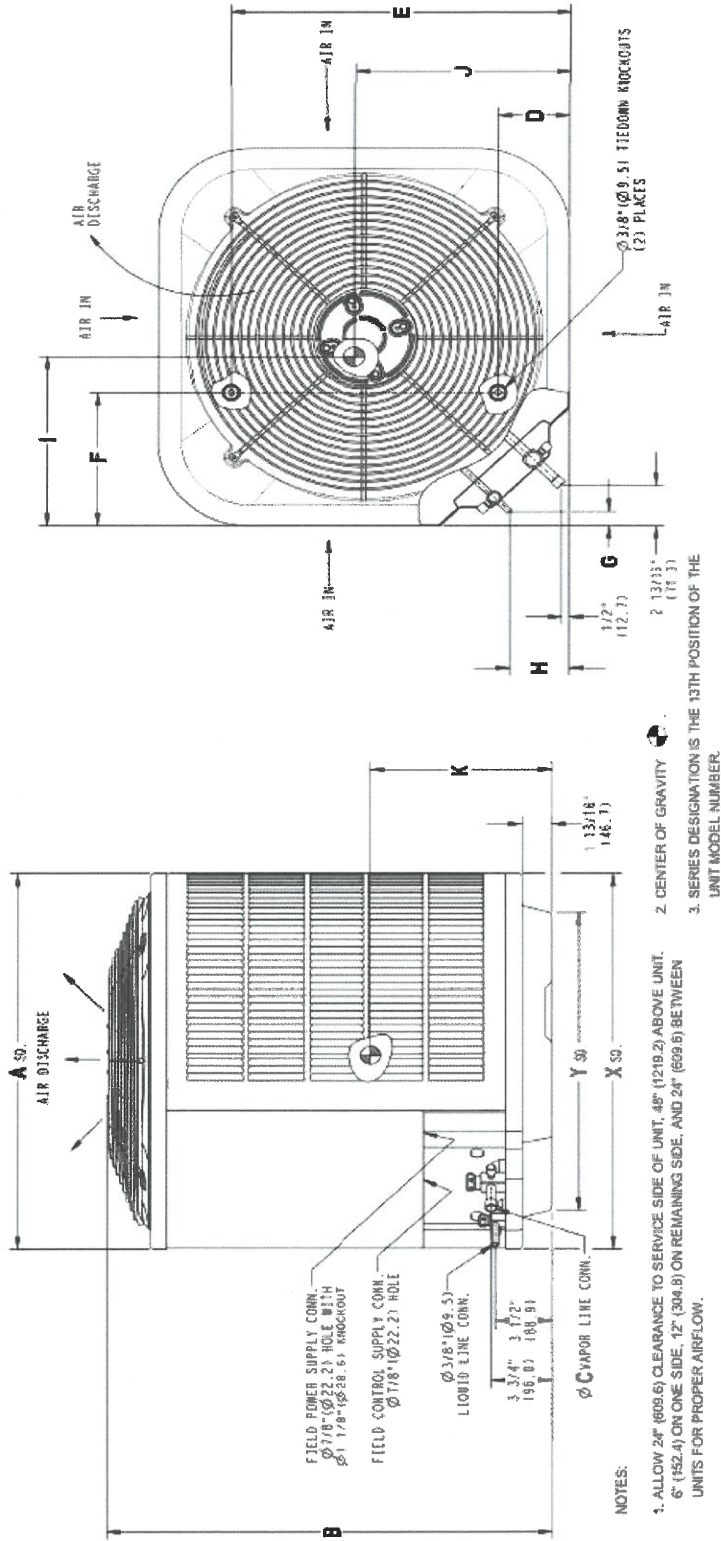
Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k
Sound Power,dB	67.8	63.8	59.8	56.8	54.8	52.8	48.8

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Certified Drawing For Main Hall - MW Restrooms

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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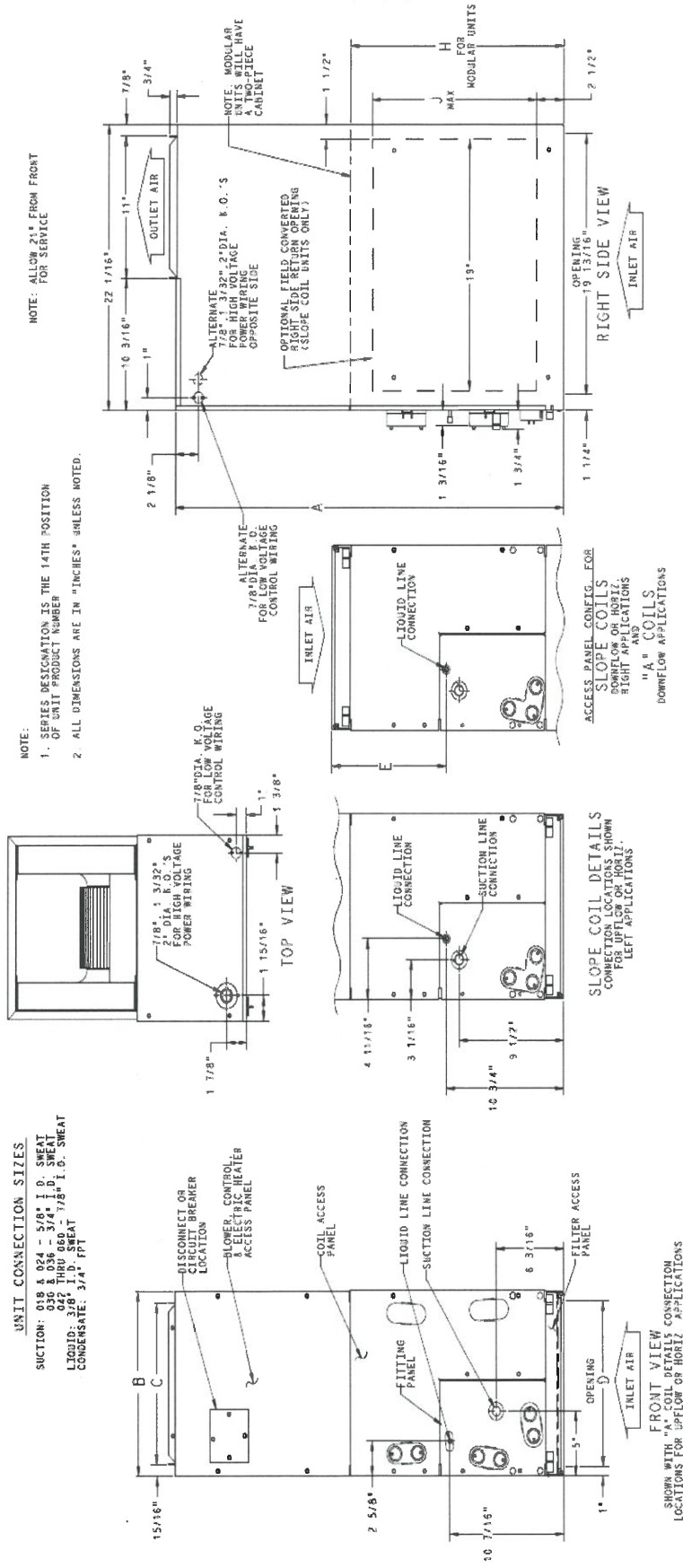
Outdoor Model

Unit Model: 25SPA
Unit Size: 4 Tons (Size 48)
Voltage: 208/230-1-60 V-Ph-Hz
SEER: 15
Part Number: 25SPA548A003

Shipping Dimensions and Weights		Outdoor Unit
Height		40.75 in
Width		34.25 in
Length		34.25 in
Operating Weight		245. lb
Shipping Weight		277. lb

Dimensions									
A	B	C	D	E	F	G	H	I	J
31.19 in	35.50 in	0.88 in	6.56 in	24.70 in	9.13 in	1.10 in	3.81 in	15.25 in	14.75 in
									K
									15.75 in

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahrirectory.org for the most up-to-date information.



Dimensions and Weights		Indoor Coil
Height		53.44 in
Width		21.13 in
Length		22.06 in
Shipping Weight		172 lb

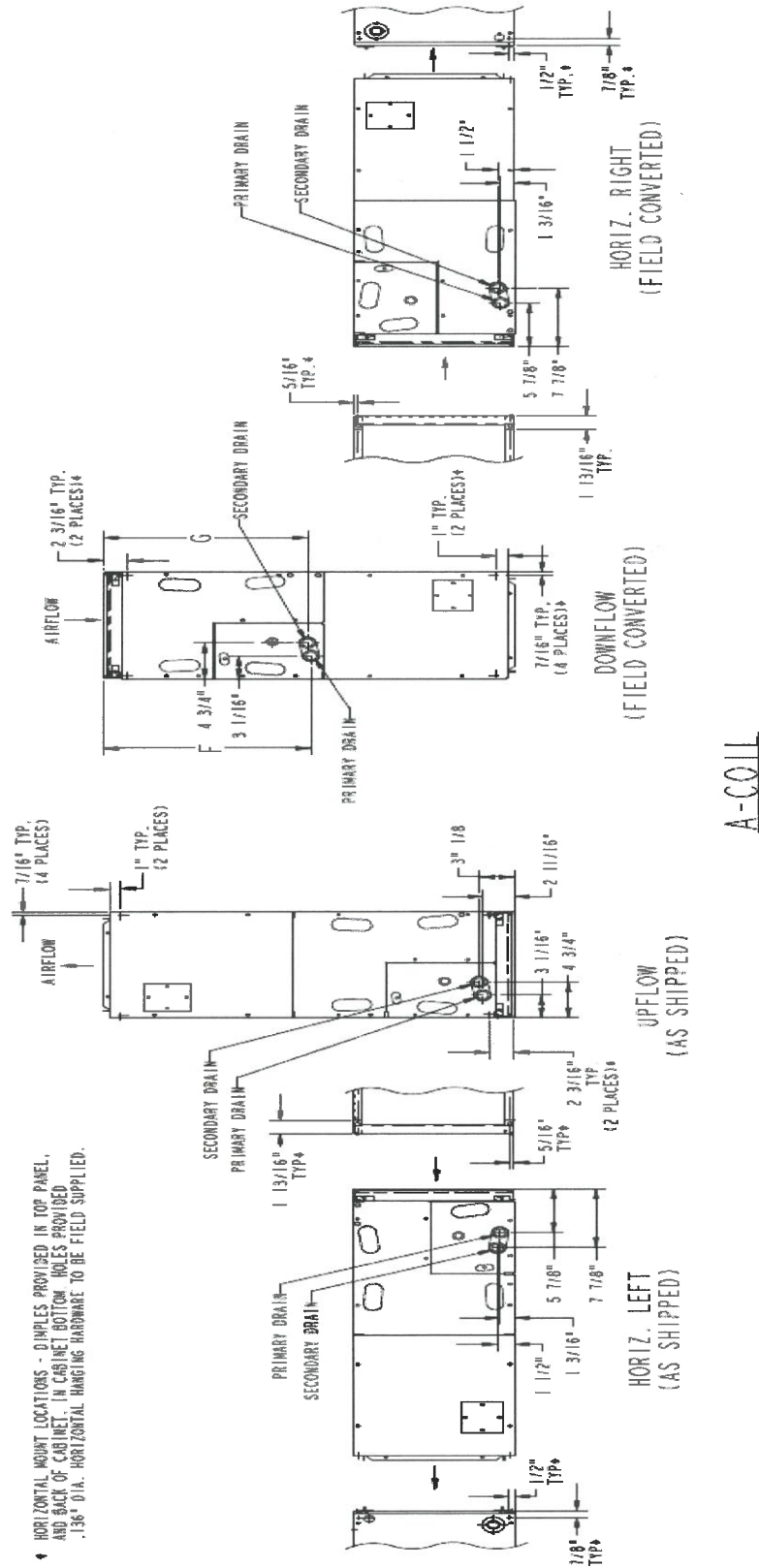
Dimensions								
A	B	C	D	E	F	G	H	J
53.44 in	21 13 in	19.25 in	19.13 in	19.50 in				

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRJ directory at www.ahrjdirectory.org for the most up-to-date information.

Certified Drawing For Main Hall - MW Restrooms

Project: Climatec - Bay Area 2023
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Indoor Coil
Unit Model: FV4C
Unit Size: Size 005 (30 - 48,000 Btuh)
Voltage: 208-1-60 V-Ph-Hz
Part Number: FV4CNF005L00

The Product and Ratings Data in this program is subject to change at any time and without notice. Please refer to the latest product literature and the AHRI directory at www.ahridirectory.org for the most up-to-date information.

Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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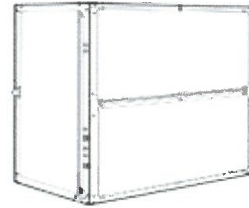
Main Hall 7.5T SPLIT HP

**Submittal Cover Sheet
Unit Report
Performance Summary Report
Acoustic Summary
Certified Drawings**

Unit Report For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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Outdoor Unit Parameters

Unit Quantity:.....1
Unit Model:.....38AUQ
Unit Size:.....7.5 Tons
Voltage:.....208-3-60 V-Ph-Hz
No. of DX Circuits:.....1
No. of Stages:.....Dual Stage

Indoor Unit Parameters

Unit Model:.....40RFQ
Unit Size:.....7.5 Tons
No. of Coils:.....1
Voltage:.....208-3-60 V-Ph-Hz

System Parameter

System Quantity:.....1
Refrigerant Type:.....PURON
Compressor Quantity:.....1
Compressor Type:.....Hermetic
Std. Capacity Steps:.....67,100
No. of Outdoor fans:.....2

Outdoor Unit Dimensions and Weight

Unit Length:.....4' 11.4"
Unit Width:.....3' 9.9"
Unit Height:.....3' 6.4"
Unit Weight:.....429 lb

Indoor Unit Dimensions and Weight

Unit Length:.....4' 1.0"
Unit Width:.....2' 4.2"
Unit Height:.....4' 8.1"
Unit Weight:.....385 lb

Warranty Information Outdoor (Note: for US & Canada only)

First Year - Parts Only (Standard)

Warranty Information Indoor (Note: for US & Canada only)

First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUQM08A0M5-0A0A0		1
	Base Unit	
	Al/Cu with Louvered Hail Guard Condensing Coil	1
	Single Circuit/ Dual Stage (DOE 2023) Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Single Circuit/Dual Stage	1
Base Unit - Indoor		
40RFQA08A3A5-UA0A0		1
	Base Unit	
	Alt High Static, Std Eff Motor / High Drive	1

Unit Report For Main Hall 7.5T SPLIT HP

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	Cabinet Paint - None	1
	2-Speed Fan Controller (VAF)	1
	Electromechanical Unit Control Board	1
Accessories		
CAECOMZR008A01	Economizer - temperature dry bulb controlled - Ultra LOW LEAK for Indoor Unit	1

Performance Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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System: 38AUQ_08/40RFQ_08
No. of Circuits: Single Circuit
System Quantity: 1
Altitude: 0.0 ft
EER @ ARI Conditions: 11.2
IEER: 15.3
COP @ AHRI Conditions: 3.5
Suction Line Loss: 1.4 °F
 System meets ASHRAE 90.1-2023 min IEER requirement.

This system has a combined part load efficiency (IEER) that meets or exceeds the US DOE 2023 minimum cooling efficiency standards.

Typical Liquid and Suction Line Sizing

Pipe Length	Liquid Line Size	Suction Line Size
0 - 25	1/2	7/8
26 - 50	1/2	1 1/8
51 - 75	1/2	1 1/8
76 - 100	1/2	1 1/8

Outdoor Unit Parameters

Unit Quantity: 1
PartNumber: 38AUQM08A0M5-0A0A0
Unit Model: 38AUQ
Unit Size: 7.5 Tons
No. of DX Circuits: 1
Voltage: 208-3-60 V-Ph-Hz
Clg Ent Air DB: 95.0 °F
Htg Ent Air DB: 47.0 °F

Outdoor Electrical Data

Unit Voltage: 208-3-60 V-Ph-Hz
Unit MCA: 35.0 Amps
Unit MOCP: 50.0 Amps
Total Compressor Power of Unit: NA
Voltage Range Min: 187 V
Voltage Range Max: 253 V
Compressor RLA: 25.2
Compressor LRA: 164
Compressor Quantity: 1
Fan Motors Qty: 2
Fan Motor FLA: 1.5 Amps

Notice: Outdoor unit elect. data is based on 208-3-60

Indoor Unit Parameters

PartNumber: 40RFQA08A3A5-UA0A0
Unit Model: 40RFQ
Unit Size: 7.5 Tons
Coil Rows: 4
No. of Splits: 1
Voltage: 208-3-60 V-Ph-Hz
Actual Airflow: 3000.0 CFM
Standard Airflow: 3000.0 CFM
Total Clg Cap.(Gross): 90.5 MBH
Sensible Clg Cap.(Gross): 65.7 MBH
Ent Air DB: 80.0 °F
Ent Air WB: 67.0 °F
Ent Enthalpy: 31.44 BTU/lb
Lvg Air DB: 59.7 °F
Lvg Air WB: 57.5 °F

Performance Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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Lvg Enthalpy:..... **24.73** BTU/lb
Coil Bypass Factor:..... **NA**

Heat Pump System

Htg HP Capacity:..... **86.67** MBH
Htg HP Integrated Capacity:..... **86.67** MBH
Heating HP Compressor Power:..... **0.00** kW
Htg Ent Air DB Temp:..... **70.0** °F
Htg Lvg Air DB:..... **96.8** °F
COP: (AHRI Conditions):..... **3.5**

Indoor Supply Fan

Indoor Unit External Static:..... **1.00** in wg
Economizer Loss:..... **0.09** in wg
Grille Loss:..... **0.00** in wg
Plenum Loss:..... **0.00** in wg
Acc. Heating Loss:..... **0.00** in wg
Total Ext Static:..... **1.09** in wg
Fan Speed:..... **1521** RPM
Fan Power:..... **1.31** BHP
Fan Motor Max:..... **3.00** BHP
Fan Motor FLA:..... **7.5** Amps
Motor and High Static Drive Required.

Indoor Electrical Data

Unit Voltage:..... **208-3-60** V-Ph-Hz
Unit MCA:..... **10.0** Amps
Unit MOC:..... **15.0** Amps
Notice: Indoor unit elect. data is based on 208-3-60

Acoustics

Sound Power Levels, db re 10E-12 Watts

A-Weighted	Outdoor Unit (dB)	Indoor Unit (dB,Ducted)
Total Level	83.3	91.7
63Hz	64.4	72.4
125Hz	70.7	78.5
250Hz	77.1	82.0
500Hz	77.1	86.4
1000Hz	77.7	85.6
2000Hz	73.5	84.8
4000Hz	71.2	80.6
8000Hz	64.3	NA
Sound Message	Sound for AUQ_08	Sound for RFQ_08

Acoustic Note:

1. 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
2. 40RF/40RU units sound ratings are in accordance with AHSRAE 1987 HVAC Systems and Applications handbook.
3. The acoustic center of the unit is located at the geometric center of the unit.

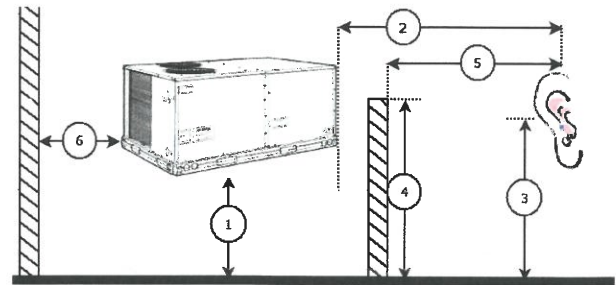
Performance Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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Advanced Acoustics Parameters

1. Unit height above ground:.....1.0 ft
2. Horizontal distance from unit to receiver:.....20.0 ft
3. Receiver height above ground:.....5.7 ft
4. Height of obstruction:.....0.0 ft
5. Horizontal dist. from obstruction to receiver:.....0.0 ft
6. Horizontal dist. from unit to obstruction:.....0.0 ft



Detailed Acoustics Information

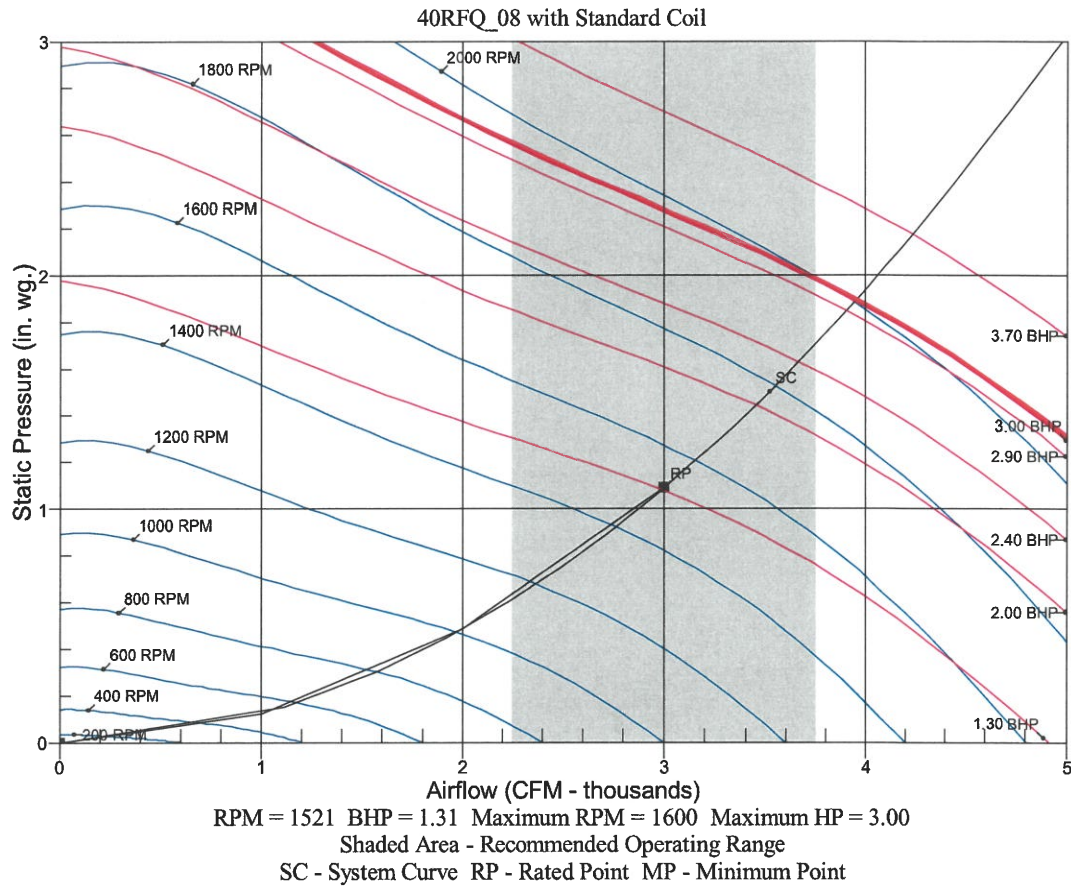
Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
Sound Power Levels at Unit's Acoustic Center (L _w), dB	91	87	86	80	78	72	70	65	93
A-Wgtd Sound Power Levels at Unit's Acoustic Center (L _{wA}), dBA	64	71	77	77	78	74	71	64	83
Sound Press. Levels at Dist. Specified above (L _p), dB	66	62	61	56	53	48	46	41	69
A-Wgtd Sound Press. Levels at Dist. Specified above (L _{pA}), dBA	40	46	53	53	53	49	47	40	59

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Performance Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

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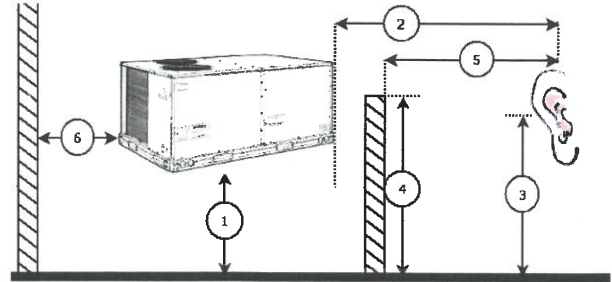
Acoustic Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

02/13/2023
08:11AM

Outdoor Unit Parameters:

Tag Name:.....**Main Hall 7.5T SPLIT HP**
Unit Model:.....**38AUQ**
Unit Size:.....**7.5 Tons**
System Type:.....**Dx Heat Pump**
Refrigerant Type:.....**PURON**
Compressor Quantity:.....**1**
Compressor Type:.....**Hermetic**



Advanced Acoustics Parameters

1. Unit height above ground:.....**1.0** ft
2. Horizontal distance from unit to receiver:.....**20.0** ft
3. Receiver height above ground:.....**5.7** ft
4. Height of obstruction:.....**0.0** ft
5. Horizontal distance from obstruction to receiver:.....**0.0** ft
6. Horizontal distance from unit to obstruction:.....**0.0** ft

Detailed Acoustics Information

Octave Band Center Frequency, Hz	63	125	250	500	1k	2k	4k	8k	Overall
Sound Power Levels at Unit's Acoustic Center (Lw), dB	91	87	86	80	78	72	70	65	93
A-Wgtd Sound Power Levels at Unit's Acoustic Center (LwA), dBA	64	71	77	77	78	74	71	64	83
Sound Press. Levels at Dist. Specified above (Lp), dB	66	62	61	56	53	48	46	41	69
A-Wgtd Sound Press. Levels at Dist. Specified above (LpA), dBA	40	46	53	53	53	49	47	40	59

Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the AHRI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Acoustic Note:

- 38AUZ/D/Q units sound ratings are in accordance with AHRI 270-2008 - Sound Rating of Outdoor Unitary Equipment.
- The acoustic center of the unit is located at the geometric center of the unit.
- All estimated sound power levels, dB re 1 Picowatt should not be guaranteed or certified as being the actual sound power levels.

Acoustic Note:

- Estimated Sound Power levels - dB re: 1 picowatt
- Estimated Sound Pressure levels - dB re: 20 micropascal
- Estimated sound levels given above are assumed to originate at the acoustic center of the unit. The acoustic center of the unit is located at the projection of the condensing unit's geometric center of its base.

4. Sound power levels shown above were determined in accordance with ARI standard 370 for large outdoor refrigeration and air conditioning equipment.

5. Calculation methods used in this program are patterned after the ASHRAE Guide; other ASHRAE Publications and the ARI Acoustical Standards. While a very significant effort has been made to insure the technical accuracy of this program, it is assumed that the user is knowledgeable in the art of system sound estimation and is aware of the tolerances involved in real world acoustical estimation. This program makes certain assumptions as to the dominant sound sources and sound paths which may not always be appropriate to the real system being estimated. Because of this, no assurances can be offered that this software will always generate an accurate sound prediction from user supplied input data. If in doubt about the estimation of expected sound levels in a space, an Acoustical Engineer or a person with sound prediction expertise should be consulted.

Acoustic Summary For Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

02/13/2023
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Indoor Unit Parameters:

Tag Name:.....**Main Hall 7.5T SPLIT HP**
Unit Model:.....**40RFQ**
Unit Size:.....**7.5 Tons**
System Type:.....**Dx Heat Pump**
External Static Pressure:.....**1.09** in wg
Fan Speed:.....**1521** RPM
Fan BHP:.....**1.31** BHP

Detailed Acoustics Information

Octave Band Center Frequency, Hz	31	63	125	250	500	1k	2k	4k	8k	Total
Sound Power,dB	NA	99	95	91	90	86	84	80	NA	101
A-Weighted Sound Power, dBA	NA	72	79	82	86	86	85	81	NA	92

Acoustic Notes:

1. 40RU units sound ratings are in accordance with AHSRAE 1987 HVAC Systems and Applications handbook.
2. The acoustic center of the units is located at the geometric center of the unit.
3. All estimated sound power levels, dB re 1 Picowatt should not be guaranteed or certified as being the actual sound power levels.

Certified Drawing for Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

02/13/2023
08:11AM



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UNIT	ELECTRICAL CHARACTERISTICS	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT	
		LBS.	NO.	LBS.	NO.	LBS.	NO.	LBS.	NO.	LBS.	NO.	X	Y	Z	IN	M
38AUZ-07 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	399	176	148	64	96	44	62	28	91	41	18 1457.23	24 1609.61	21 1533.41	42-3/8	11076.03
38AUZ1A-B100 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	391	177	142	64	96	44	62	28	91	41	18 1457.23	24 1609.61	21 1533.41	42-3/8	11076.03
38AUZ1B-E100 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	430	195	142	64	96	44	76	34	111	50	18 1457.23	24 1609.61	21 1533.41	42-3/8	11076.03
38AUZ-12 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	490	222	171	80	120	54	35	35	118	52	18 1457.23	24 1609.61	24 1609.61	50-3/8	12779.23
38AUZ-16 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	598	271	195	80	142	64	110	50	154	69	20 1508.03	25 1635.01	24 1609.61	50-3/8	12779.23
38AUZ-18 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	516	234	165	84	111	53	83	38	133	59	19 1482.61	23 1504.21	24 1609.61	50-3/8	12779.23
38AUZ-24 (RTFF)	208/230-3-60, 440-3-60, 575-3-60	654	297	214	97	155	70	120	54	165	75	20 1508.03	25 1635.01	24 1609.61	50-3/8	12779.23
38AUZ-07	208/230-3-60, 440-3-60, 575-3-60	444	201	134	61	97	44	90	41	123	56	22 1558.83	25 1635.01	13 1330.21	42-3/8	11076.03
38AUZ1A-B100	208/230-3-60, 440-3-60, 575-3-60	483	219	142	74	110	56	85	39	125	57	20 1508.03	24 1609.61	21 1533.41	42-3/8	11076.03
38AUZ1B-E100	208/230-3-60, 440-3-60, 575-3-60	533	257	174	79	110	54	96	44	135	61	21 1533.41	24 1609.61	23 1504.21	50-3/8	12779.23
38AUZ-12	208/230-3-60, 440-3-60, 575-3-60	575	281	186	84	126	57	106	48	157	71	21 1533.41	24 1609.61	23 1504.21	50-3/8	12779.23

NOTES:

1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
 - A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
 - B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL. STANDARD CLEARANCES ON REMAINING TWO SIDES.
 - C. OVERHEAD: 60 INCHES. TO ASSURE PROPER OUTDOOR FAN OPERATION.
 - D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
 - E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
 - F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

UIC CLASSIFICATION	SHEET	DATE	SUPERCHARGES	CONDENSING UNIT	REV
U.S. ECCN: NSR	1 OF 2	06/29/21	05/08/19	38AUZ/ 38AUB/ 38AUC-07/08/12/14	38AUC00349

Project: Climatec - Bay Area 2023
 Prepared By: Shawn Harlan
 02/13/2023 08:11AM

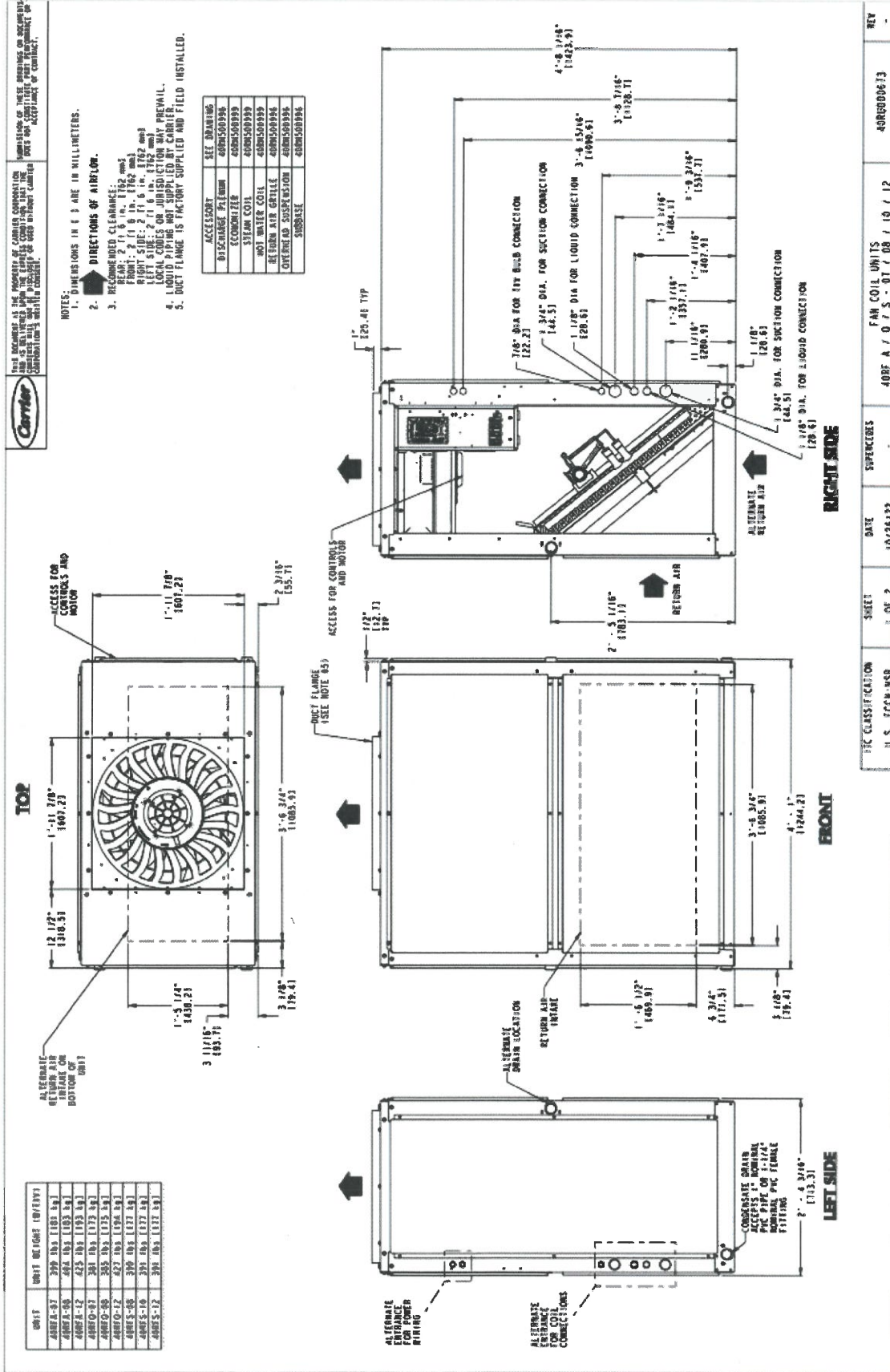
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Certified Drawing for Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

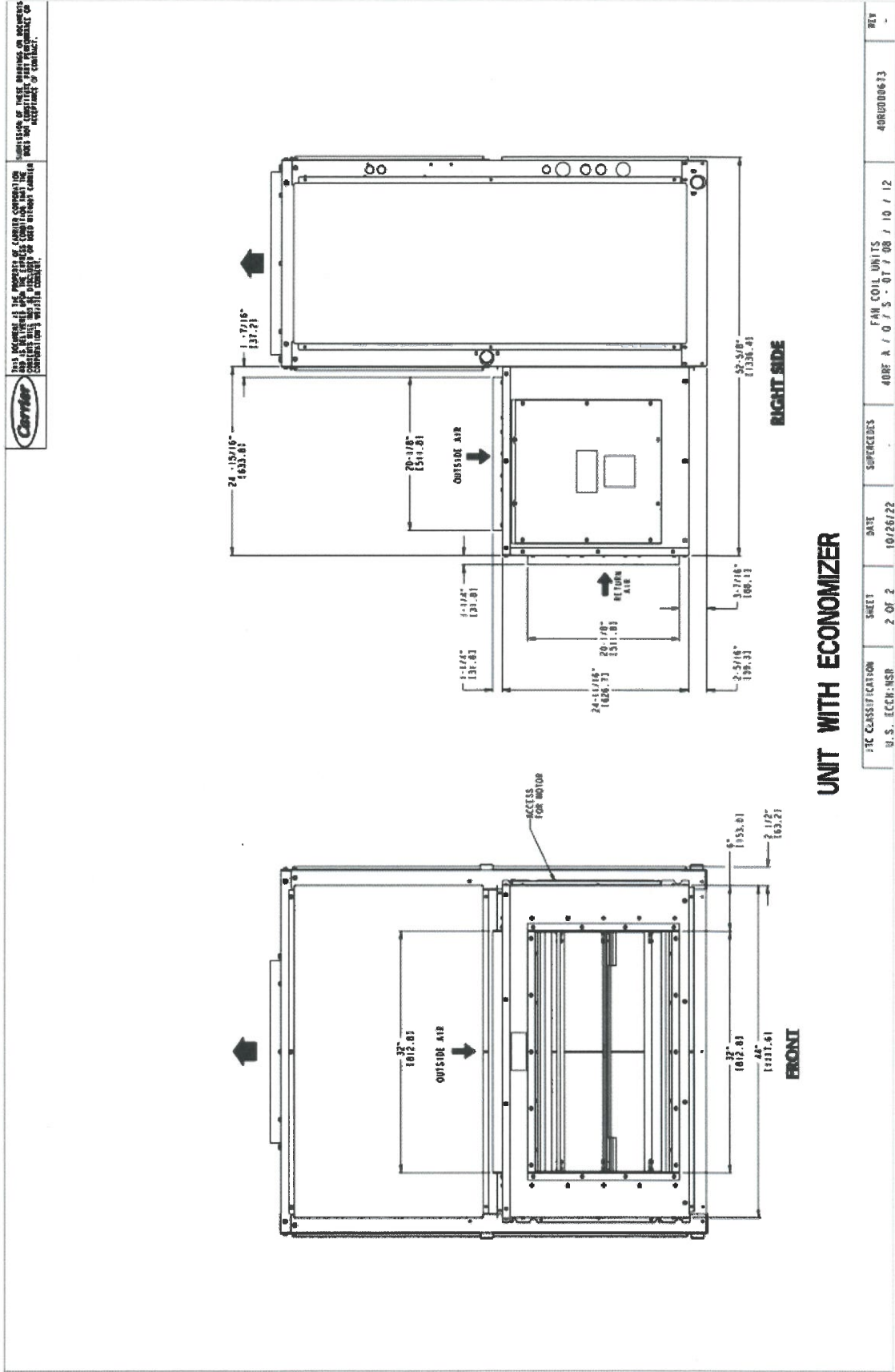
02/13/2023
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Certified Drawing for Main Hall 7.5T SPLIT HP

Project: Climatec - Bay Area 2023
Prepared By: Shawn Harlan

02/13/2023
08:11AM



PVI 50TL-480 / PVI 60TL-480

3-PHASE TRANSFORMERLESS COMMERCIAL STRING INVERTERS

FEATURES

- Wirebox models with built-in SunSpec compliant transmitters for Module-Level Rapid Shutdown for simple, safe NEC compliance
- UL Listed as PV Rapid Shutdown Systems with Tigo Energy and APsmart
- Dual rated listing allows selection of either 50/60 kVA (factory default) or 55/66 kVA (allowing full rated power down to ± 0.91 PF)
- Integrated UL-listed Arc-Fault protection
- 15 - 90° mounting angle allows low-profile rooftop installations
- 3 MPPTs with 5 fused inputs each for PV array flexibility
- Industry-leading DC/AC ratios of 1.8 (50TL) and 1.5 (60TL)
- Integrated AC and DC disconnects
- Remote firmware upgrades and diagnostics
- NEMA 4X outdoor rated enclosure, with proven performance
- UL1741SA certified to CA Rule 21, including SA14 FW and SA 15 VW

OPTIONS

- Shade cover
- DC fuse bypass
- Web-based monitoring

Yaskawa Solectria Solar's PVI 50TL-480 and PVI 60TL-480 are transformerless 3-phase inverters, ideal for rooftops, carports and ground-mount PV systems



The PVI 50TL-480 and PVI 60TL-480 come standard with AC and DC disconnects, three MPPTs, and a wiring box with 15 fuse positions.

For rooftop PV systems, both Module-Level Rapid shutdown (MLRSD) wirebox models provide PV Rapid Shutdown System (PVRSS) compliance and include a built-in SunSpec compliant powerline communication transmitter.

One wirebox model is Tigo Enhanced for rapid shutdown and the other wirebox model is compatible with APsmart rapid shutdown devices.

Yaskawa Solectria Solar's family of PVI 50/60TL-480 inverters, including standard wireboxes and the rapid-shutdown ready wirebox models, provides flexibility and convenience unmatched in the industry.

Standard Wirebox

- 20A fuses, both polarities
- No built-in PVRSS transmitter



Module-Level Rapid Shutdown Wireboxes

- 20A fuses; positive polarity only
- Built-in PVRSS transmitter
- 2 models for compatibility with Tigo and APsmart module-level shutdown devices



PVI 50TL-480 / PVI 60TL-480 TECHNICAL DATA

SPECIFICATIONS

Inverter Model		PVI 50TL-480	PVI 60TL-480
DC Input	Maximum PV Power	90 kW (33 kW per MPPT)	90 kW (33 kW per MPPT)
	Maximum Input Voltage	1000 VDC	1000 VDC
	Dc Voltage Ranges: Operating/Max. Power (MPPT)	200-950 VDC / 480-850 VDC	200-950 VDC / 540-850 VDC
	Start-up DC Input Voltage/Power	330 V / 80 W	330 V / 80 W
	Number of MPPT Trackers/Inputs	3 Trackers / 5 Fused-inputs each	3 Trackers / 5 Fused-inputs each
	Maximum Available PV Current (Isc x 1.25)	204 A (68 A per MPPT)	204 A (68 A per MPPT)
	Maximum Operating Input Current (clipping point)	108 A (36 A per MPPT)	114 A (38 A per MPPT)
AC Output	DC Surge Protections	Type II MOV, 2800 V _c , 20 kA I _{TM} (8/20 μs)	
	Rated AC Real Power/Apparent Power/Output Current	50 kW / 50 kVA / 60.2 A	60 kW / 60 kVA / 72.2 A
	Overhead Mode: Real Power/Apparent Power/Output Current	50 kW / 55 kVA / 66.2 A	60 kW / 66 kVA / 79.4 A
	Nominal Output Voltage/Range	480 VAC / -12% to +10%	480 VAC / -12% to +10%
	Nominal Output Frequency/Range	60 Hz / 57-63 Hz	60 Hz / 57-63 Hz
	Power Factor	Unity, >0.99 (Adjustable 0.8 leading to 0.8 lagging)	Unity, >0.99 (Adjustable 0.8 leading to 0.8 lagging)
	Fault Current Contribution (1 Cycle RMS)	64.1 A	64.1 A
	Total Harmonic Distortion (THD) @ Rated Load	< 3%	< 3%
	Grid Connection Type	3-Ph/PE/N (neutral conductor optional)	3-Ph/PE/N (neutral conductor optional)
	Maximum OCPD Device	110 A	125 A
Efficiency	AC Surge Protection	Type II MOV, 1240 V _c , 15 kA I _{TM} (8/20 μs)	
	Peak Efficiency	98.8%	98.8%
	CEC Efficiency	98.5%	98.5%
	Tare Loss	< 1 W	< 1 W
Environment	Ambient Temperature Range	-22°F to +140°F (-30°C to +60°C); Derating occurs over +113°F (+45°C)	
	Storage Temperature Range	No low temp minimum to +158°F (+70°C)	
	Relative Humidity (non-condensing)	0-100%	
	Operating Altitude	13,123 ft (4,000 m) Derating occurs from 9,842.5 ft (3,000 m)	
Communications	Modbus Protocol	Proprietary / SunSpec	
	SolrenView Web-Based Monitoring Service	Optional	
	Revenue Grade Metering	Optional, External	
	Communication Interface	RS-485 Modbus RTU	
	Remote Firmware Upgrades	Ethernet Network Card required	
	Remote Diagnostics	Ethernet Network Card required	
Safety	Certifications and Standards	UL 1741SA-2016, UL1699B, UL1998, CSA-C22.2 No. 107.1-01, IEEE1547, FCC Part 15 (Subpart B, Class A)	
	Selectable Grid Standards	IEEE 1547, CA Rule 21, ISO-NE, HECO	
	Smart Grid Features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAr, Freq-Watt, Volt-Watt	
		10 Years	
Warranty	Standard Limited Warranty	10 Years	
Mechanical	Acoustic Noise Rating	< 60 dBA @ 1 m and 25°C	
	AC/DC Disconnect	Standard, fully-integrated, load break rated	
	Mounting Angle*	15° - 90° from horizontal	
	Weight	Inverter: 123.5 lbs (56 kg); Wiring Box: 33 lbs (15 kg)	
	Enclosure Rating and Finish	NEMA Type 4X; Polyester Powder Coated Aluminum	
		Power Head: 22.7" x 23.6" x 10.24" (576 mm x 600 mm x 260 mm)	
		Wirebox: 16.7" x 23.6" x 10.24" (424 mm x 600 mm x 260 mm)	
	Dimensions (H x W x D)	Overall: 39.4" x 23.6" x 10.24" (1000 mm x 600 mm x 260 mm)	

Wirebox Specifications			
Wirebox	Fused Inputs	15 Fused Positions (5 Positions per MPPT) 20 A Standard (25, 30 A accepted)**	
	Standard	PVI 50-60TL-BX-S20 (both polarities fused), No MLRSD transmitter needed	
Wirebox Versions	APsmart Transmitter Built-in	PVI50-60TL-WB-APS (only positive polarity fused)	MLRSD compatibility: APsmart RSD-S and RSD-D ***
	Tigo Transmitter Built-in	PVI50-60TL-WB-TGO (only positive polarity fused)	MLRSD compatibility: Tigo TS4-A-F (ver 6.7+) and TS4-A-2F



* Shade cover accessory required for installation of 75° or less
 ** Yaskawa Solecetria Solar does not supply optional fuses sizes
 *** Compatibility testing with APsmart RSD-D in Q3 2021



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ETHERNET NETWORK CARD

RELIABLE AND CONVENIENT
REMOTE COMMUNICATIONS AND TROUBLESHOOTING



FEATURES

- Installed in wiring box: no additional equipment needed*
- Modbus communications input (up to 32 inverters per card)
- Modbus RTU Complete controls functionality via Modbus (per inverter or broadcast command)
- Flexible outbound communications
- Programmable IP address for customer direct data
- Remote firmware solutions for third party solutions
- WiFi for local smart device access to YConnect Pro embedded. No extra WiFi dongle required.
- DIN rail enclosure provided for use in third-party communications enclosures
- Cellular communications options for up to 10 inverters or up to 32 inverters
- Web Portal Access option

The Yaskawa Solectria Solar Ethernet Network Card is a new and powerful monitoring and controls solution for the PVI 25TL-208, PVI 25TL-480, PVI 36TL-480*, PVI 50TL-480, and PVI 60TL-480 inverters.

This network card acts as a Modbus master data logger and communications device with the added optional benefit of Web Portal Access and Cellular Accessibility. On top of these new capabilities, the ENC-G5 offers, seamless compatibility through Ethernet-based communications to the SolrenView monitoring portal along with local pass-through Modbus data to third-party solutions.

The ENC-G5 Options and Packages include the ENC-PORT, ENC-PORT-C510, ENC-PORT-C532, which allow Web Portal Access through the YConnect Pro Portal giving users access to features such as remote resets, kiosk views, and remote firmware upgrades. Cellular accessibility options can cover the data requirements of up to 10 or 32 inverters depending on the package chosen, and require AT&T or T-Mobile cellular coverage on site.

* The PVI 36TL-480 inverter requires the use of a third-party external weatherproof box and the included DIN-rail enclosure. The ENC-G5 can be mounted directly inside the wirebox of the new PVI 36TL-480-V2.

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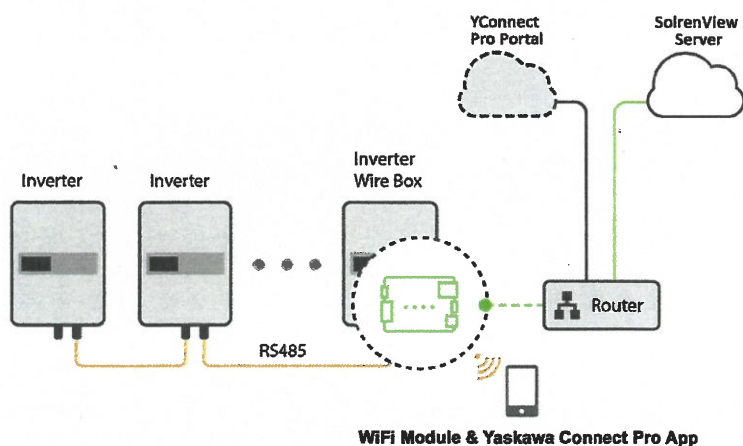
ETHERNET NETWORK CARD TECHNICAL DATA

SPECIFICATIONS

Ethernet Network Card		ENC-G5	ENC-PORT-C510	ENC-PORT-C532	ENC-PORT
Hardware	Includes Fifth Generation Ethernet Network Card (ENG-G5) with local WiFi capabilities embedded, Plastic DIN Rail Enclosure	✓	✓	✓	-
	4G SIM Card	-	✓ Up to 10 inverters	✓ Up to 32 inverters	-
Remote Capabilities	5 Years of Web Portal Access (Y Connect Pro)	-	✓	✓	✓
	Firmware Upgrade (Remote)	Via Solectria Service	✓	✓	✓
	On/Off Reset (Remote)	Via Modbus	✓	✓	✓
	Arc-Fault Clearing (Remote)	-	✓	✓	✓
	Active Power Setting (Remote)	Via Modbus	✓	✓	✓
	PF Setting (Remote)	Via Modbus	✓	✓	✓
	Fault Code Observation	-	✓	✓	✓
	Public Kiosk View	-	✓	✓	✓
	Asset Portfolio Feature	-	✓	✓	✓
	Monitoring Alerts	-	✓	✓	✓
	2 years of Rolling Data Storage	-	✓	✓	✓
	End User Account Administration	-	✓	✓	✓
Communications	Inverter to ENC-G5	RS485			
	Native Internet Access	Ethernet	4G Cellular	4G Cellular	N/A
	Inverter Connections per Item	32	10	32	32
Data Logging Specifications	Protocol	SunSpec XML, HTTPS, DHCP, DNS Resolution, Solectria Proprietary RTU			
	Data sampling rate	Programmable data sampling (1 to 15 minute sample rate)			
	Local Data Storage	30 days based on 15 minute intervals			
Power Supply	Data parameters	Modbus ID, Inverter S/N's, Model, TYield/DYield(kWh), RunT(min), Mode, Upv(V), Ipv(A), Pac(kW), PF, Freq(HZ), Uabc(V), Iabc(A)			
	DC Input Voltage	9-24 Vdc, 28 Vdc max (provided when installed in inverter wire box)			
	Power Consumption	< 1 W typical; Max 5 W			
Performance	Ambient Temperature Range	-22°F to 185°F (-30°C to +85°C)			
	Environmental Protection	Installed in NEMA 4X inverter wire box (PVI 36TL-480 inverters: use included DIN rail enclosure & install in third-party weatherproof box)			
	Relative Humidity	< 85% Non-condensing			
Mechanical Parameters	Ethernet Network Card (H x W x D)	2.76 in x 3.94 in x 1.10 in (70 mm x 100 mm x 28 mm)			
	ENC-G5 in Enclosure (H x W x D)	3.66 in x 3.94 in x 1.46 in (93 mm x 100 mm x 37 mm)			
	Weight (Card / With Enclosure)	0.16 lb (73 g) / 0.65 lb (296 g)			

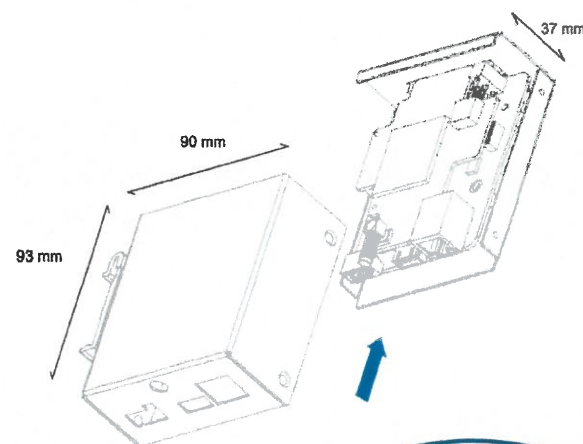
TYPICAL INSTALLATION

(with Ethernet Network Card in Inverter Wire Box)



DIN RAIL ENCLOSURE

(included for use with Third Party Enclosure)



IT'S PERSONAL

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MAXEON 3 SOLAR PANEL

470-485 W | Up to 22.4% Efficient



Ideal for commercial applications



White backsheet, silver frame

More Lifetime Energy

Designed to maximise energy generation through leading efficiency, enhanced performance in high temperatures, and higher energy conversion in low-light conditions like mornings, evenings and cloudy days.

Uncompromising Durability

Engineered to power through all types of weather conditions—from crack-resistant cells and reinforced connections that protect against fatigue and corrosion, to an electrical architecture that mitigates the impact of shade and prevents hot-spot formation.



Superior Sustainability

Clean ingredients, responsible manufacturing, and lasting energy production for 40 years make SunPower Maxeon panels the most sustainable choice in solar.

SUNPOWER



The Industry's Longest Warranty

SunPower Maxeon panels are covered by a 40-year warranty¹ backed by extensive third-party testing and field data from more than 33 million panels deployed worldwide.

Product and power coverage	40 Years
Year 1 minimum warranted output	98.0%
Maximum annual degradation	0.25%



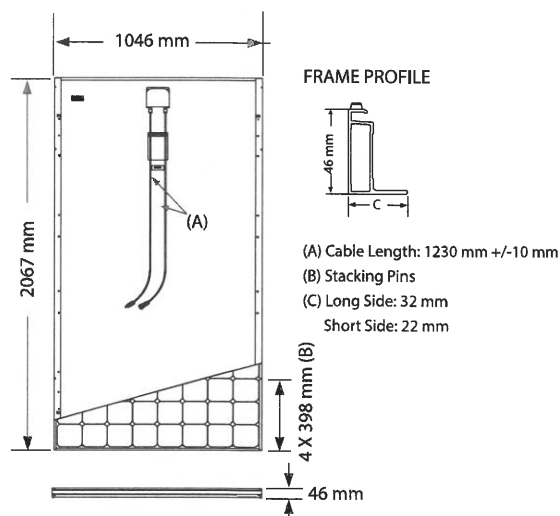
Learn more about the SPR-X22-XXX-COM
sunpower.maxeon.com

MAXEON 3 POWER: 470-485 W | EFFICIENCY: Up to 22.4%

Electrical Data		
	SPR-X22-485-COM	SPR-X21-470-COM
Nominal Power (P _{nom}) ²	485 W	470 W
Power Tolerance	+5/0%	+5/0%
Panel Efficiency	22.4%	21.7%
Rated Voltage (V _{mpp})	78.8 V	77.6 V
Rated Current (I _{mpp})	6.16 A	6.06 A
Open-Circuit Voltage (V _{oc}) (+/-3%)	92.7 V	91.5 V
Short-Circuit Current (I _{sc}) (+/-3%)	6.55 A	6.45 A
Max. System Voltage	1500 V IEC & 1500 V UL	
Maximum Series Fuse	15 A	
Power Temp Coef.	-0.27% / °C	
Voltage Temp Coef.	-0.236% / °C	
Current Temp Coef.	0.058% / °C	

Warranties, Certifications and Compliance	
Standard Tests ³	IEC 61215, IEC 61730
Quality Management Certs	ISO 9001:2015, ISO 14001:2015
Ammonia Test	IEC 62716
Desert Test	IEC 60068-2-68, MIL-STD-810G
Salt Spray Test	IEC 61701 (maximum severity)
PID Test	1500 V: IEC 62804
Available Listings	TUV, UL, CEC
IFLI Declare Label	First solar panel labeled for ingredient transparency and LBC-compliance. ⁴
Cradle to Cradle Certified™ Bronze	First solar panel line certified for material health, water stewardship, material reutilisation, renewable energy & carbon management, and social fairness. ⁵
Green Building Certification Contribution	Panels can contribute additional points toward LEED and BREEAM certifications.
EHS Compliance	RoHS, OHSAS 18001:2007, lead free, REACH SVHC-163

Operating Condition And Mechanical Data	
Temperature	-40°C to +85°C
Impact Resistance	25 mm diameter hail at 23 m/s
Solar Cells	128 Maxeon 3 Cells
Tempered Glass	High-transmission tempered anti-reflective
Junction Box	IP-65, PV4S
Weight	25.4 kg
Max. Load ⁶	Wind: 2400 Pa, 244 kg/m ² front & back Snow: 5400 Pa, 550 kg/m ² front
Frame	Class 2 silver anodised; stacking pins



Please read the safety and installation instructions.
Visit www.sunpower.maxeon.com/int/PVInstallGuideIEC
Paper version can be requested through
techsupport.ROW@maxeon.com

¹ 40-year warranty is not available in all countries or all installations and requires registration, otherwise our 25-year warranty applies. Service availability varies by country and installation provider.

² Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25° C). NREL calibration Standard: SOMS current, LACCS FF and Voltage.

³ 8 Type 2 fire rating per UL1703:2013, Class C fire rating per UL1703:20

⁴ Maxeon DC panels first received the International Living Future Institute Declare Label in 2016.

⁵ Maxeon DC panels are Cradle to Cradle Certified™ Bronze -

www.c2ccertified.org/products/scorecard/e-series_xseries_solar_panels_-_sunpower_corporation.

Cradle to Cradle Certified™ is a certification mark licensed by the Cradle to Cradle Products Innovation Institute.

⁶ Safety factor 1.5 included.

Made in Philippines (Cells)
Assembled in Mexico (Module)

Specifications included in this datasheet are subject to change without notice.

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View warranty, patent and trademark information at maxeon.com/legal.

maxeon

MAKER OF SUNPOWER PANELS

544457 REV A / A4_EN
Publication Date: January 2022

END



ENERGY AUDIT REPORT

ENERGY CONSERVATION ASSISTANCE ACT (PON-22-002)

THE CITY OF CLAYTON

6000 Heritage Trail, Clayton, CA 94517

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1.0 PROJECT OVERVIEW

The City of Clayton requested that Climatec perform an energy audit of City-owned facilities, parks, and streetlights. There are (4) city buildings, (2) parks, and over (400) City-owned streetlights included in this report:

Facility / Site	Address / Location
City Hall	6000 Heritage Trail, Clayton, CA 94517
Maintenance Shop	5901 Heritage Trail, Clayton, CA 94517
Clayton Community Library	6125 Clayton Road, Clayton, CA 94517
Endeavor Hall	6008 Center Street, Clayton, CA 94517
Clayton Community Park	7411 Marsh Creek Road, Clayton, CA 94517
Grove Park	6100 Main Street, Clayton, CA 94517
Outdoor Lights (B-1)	City-wide
Streetlights (LS-2)	City-wide

Over the past few months, Climatec has gathered utility billings, performed a baseline utility analysis, assessed the City of Clayton's heating, cooling, ventilation, lighting, and building automation systems, prepared a summary of existing conditions and developed a set of energy conservation measures (ECMs) recommended for implementation. Sources for the data gathered during the energy audit process included:

- * Monthly electric and gas utility billing data
- * Public data relating to facility use and issues
- * Actual field inventory
- * City staff interviews

The four city buildings surveyed encompass over 50,000 square feet of energy-consuming space.

The majority of the heating and cooling equipment throughout the City is newer and well maintained, though there are several units that are past their useful life. Equipment types vary by site but consist of central plant equipment, including an air-cooled chiller, air-cooled condensing unit, Air Handling Units (AHUs), boilers, pumps, and Variable Air Volume (VAV) terminal boxes at the City Hall and Library. HVAC equipment at these sites is controlled via Johnson Control Building Automation System (BAS). The mechanical systems at the Maintenance Shop and Endeavor Hall include a heating only furnace and split system heat pumps. HVAC is controlled at these sites via standalone programmable thermostats.

Interior lighting systems in city buildings consist of primarily T8 lamps with electronic ballasts and recessed compact fluorescent (CF) can lighting. Interior lighting is controlled primarily through wall switches. Exterior area lighting systems consist primarily of high intensity discharge (HID), incandescent, and CFL fixtures. HID systems are no longer as efficient as newer technologies, specifically LEDs, and do not last as long or produce the quality of light that today's more energy efficient LED systems produce. Exterior lighting fixtures typically operate from dusk to dawn and are controlled by a combination of time clocks, photocells, and manual switches.

The City of Clayton has replaced approximately 30% of city-owned streetlights to high efficiency LED systems. The remaining city-owned streetlights consist of HID systems with high pressure sodium (HPS) lamps.

The city buildings, parks, and streetlighting included in the survey receive electric power and natural gas through Pacific Gas and Electric (PG&E). The utility baseline analysis that follows illustrates that the City of Clayton spent over \$289,000 on electricity and over \$33,000 on natural gas for the 12-month reporting period ending in June 2022.

1.1 SUMMARY OF ENERGY EFFICIENCY PROJECTS

Project Measure / Location	Measure Installation Cost (\$)*	Peak Demand Savings (kW)	Annual Electric Savings (kWh)	Annual Natural Gas Savings (therms)	Annual Other Energy Savings (specify units)	Measure Annual Cost Savings (\$)	EUL (years)*** (EUL Considered for 1% Loans will be lesser of actual EUL or 17 Years)	Measure Cost Savings over EUL (\$)	Measure Payback (years)	GhG Emissions Reduction
Controls - City Hall - Retro-commission existing JCI BAS	\$29,004	0.0	5,341	631		\$2,930	15.0	\$43,950	9.9	0.9
Controls - Library - Install new JCI BAS	\$183,710	0.0	7,413	714		\$4,022	15.0	\$60,330	45.7	1.3
Controls - Maintenance Shop - Install New JCI BAS	\$8,791	0.0	0			\$0	15.0	\$0	#DIV/0!	0.0
HVAC - Library - Install (1) New Air Handling Unit	\$80,564	0.0	0			\$0	15.0	\$0	#DIV/0!	0.0
HVAC - Library - Install (1) New Package Heat Pump	\$25,923	0.0	284	-1		\$80	15.0	\$1,200	324.0	0.0
HVAC - Endeavor Hall - Install (2) New Split System Heat Pumps	\$87,184	0.0	-1,409	457		\$647	15.0	\$9,705	134.8	-0.2
HVAC - Maintenance Shop - Install (1) New High Efficiency Furnace	\$14,629	0.0	0			\$0	15.0	\$0	#DIV/0!	0.0
Lighting - City Hall - Interior & Exterior	\$39,985	5.1	17,315			\$4,411	15.0	\$66,168	9.1	3.0
Lighting - City Hall - Occupancy Sensors	\$11,198	0.0	693			\$150	8.0	\$1,201	74.6	0.1
Lighting - Library - Interior & Exterior	\$95,175	15.4	39,854			\$11,697	15.0	\$175,459	8.1	6.9
Lighting - Library - Occupancy Sensors	\$7,173	0.0	478			\$119	8.0	\$955	60.1	0.1
Lighting - Endeavor Hall - Interior & Exterior	\$8,358	0.9	1,429			\$424	15.0	\$6,363	19.7	0.2
Lighting - Maintenance Shop - Interior & Exterior	\$23,807	2.8	7,437			\$1,895	15.0	\$28,418	12.6	1.3
Lighting - Maintenance Shop - Occupancy Sensors	\$709	0.0	650			\$141	8.0	\$1,126	5.0	0.1
Lighting - Clayton Community Park - Interior	\$2,341	0.5	228			\$71	15.0	\$1,062	33.1	0.0
Lighting - Grove Park - Interior & Exterior	\$11,763	2.8	10,889			\$3,403	15.0	\$51,038	3.5	1.9
Lighting - Outdoor/ Street Lighting - Exterior	\$267,998	67.9	278,251			\$58,835	15.0	\$882,520	4.6	47.9
EV Charging - Library - Install (1) Level III EV Charger	\$155,147	0.0	0			\$0	15.0	\$0	#DIV/0!	0.0
Solar PV - Maintenance Shop - Install (1) Carport Shade Structure	\$848,654	0.0	211,404			\$48,261	17.0	\$820,437	17.6	36.4
TOTAL	\$1,902,113	95.14	580,257	1,801	0	\$ 137,085		\$2,149,930	13.9	100.0

1.2 UTILITY BASELINE ANALYSIS

Baseline Period: 7/1/2021 through 6/30/2022

Site Name	Address	Square Footage	Electric (PG&E)			Natural Gas (PG&E)			Total Energy Cost (\$)	Energy Intensity (\$/ SF)
			Dollars Electric	kWh	\$ / kWh	Dollars Gas	Therms	\$ / Therms		
City Hall	6000 Heritage Trail, Clayton CA 94517	34,765*	\$33,407*	131,134	\$0.25	\$20,441*	8,220	\$2.49	\$53,848	\$1.55
Endeavor Hall	6008 Center St, Clayton CA 94517	2,561	\$2,052	6,914	\$0.30	\$371	159	\$2.33	\$2,422	\$0.95
Library	6125 Clayton Rd, Clayton CA 94517	17,830	\$43,935	149,689	\$0.29	\$12,686	4,907	\$2.59	\$56,621	\$3.18
Clayton Community Park	7411 Marsh Creek Rd, Clayton CA 94517	N/A	\$2,797	9,012	\$0.31	\$0	0		\$2,797	\$0.00
The Grove Park	6100 Main St, Clayton CA 94517	N/A	\$3,511	11,236	\$0.31	\$0	0		\$3,511	\$0.00
Streetlights LS-1	Various	N/A	\$85,680	157,698	\$0.54	\$0	0		\$85,680	\$0.00
Streetlights LS-2	Various	NA	\$74,839	372,182	\$0.20	\$0	0		\$74,839	\$0.00
Streetlights TC-1	Various	N/A	\$10,092	36,246	\$0.28	\$0	0		\$10,092	\$0.00
Outdoor Lights B-1	Various	NA	\$11,797	36,231	\$0.33	\$0	0		\$11,797	\$0.00
Irrigation	Various	N/A	\$10,979	27,841	\$0.39	\$0	0		\$10,979	\$0.00
Oakhurst Fountain	Various	NA	\$10,118	36,758	\$0.28	\$0	0		\$10,118	\$0.00
Project Totals		55,156	\$289,204	974,940	\$0.30	\$33,498	13,286	\$2.52	\$322,702	\$6.46

*Note: Includes Maintenance Shop – no independent electric/ gas meters.

2.0 SITE OVERVIEW

CITY HALL

- *SQFT: 29,565
- *Rate Schedule:
 - B10S (Elec.)
 - G-NR1 (Natural Gas)
- * Annual Energy Usage:
 - \$33,407
 - 131,134 kWh
 - 8,220 Therms
- *Energy Intensity
 - Cost: \$1.55/sqft
 - EUI: 43 kBtu/sqft



SITE DESCRIPTION

The City Hall consists of 29,565 square feet of energy consuming space. The facility receives electric power and natural gas service through Pacific Gas & Electric. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

HVAC and Control Systems

The building is conditioned primarily by a central plant consisting of one boiler, one AHU tied to an air-cooled condensing unit feeding twenty VAV terminal boxes. The total building load is 30 tons. HVAC throughout the building is controlled via a Johnson Controls Building Automation System (BAS).

Lighting Systems

Interior lighting, in the majority of spaces, are 32-Watt linear fluorescent lighting systems with electronic ballasts, as well as recessed CF can fixtures, incandescent, and LED lighting systems in select locations. Interior lighting is controlled via manual wall switches. Exterior area lighting system are building and pole mounted with HID and CF lamps, as well as a few LED, controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

Typical occupancy schedules are 9:00am – 5:00pm, Monday through Friday. Select areas may have varying schedules based on special activities and events.

RECOMMENDATIONS

Controls

- ✦ Retrocommission existing Johnson Controls BAS HVAC control system. This scope includes verifying sequence of operations, verifying valve and damper actuators are operating correctly, verifying failures and alarms are reporting correctly, reprogramming equipment occupied/ unoccupied schedules and set points according to facility occupied hours, providing system start-up and report, and providing BAS training to City personnel.

Lighting

- ✦ Retrofit existing interior linear fluorescent, CF, incandescent, and LED lighting systems with new high efficiency LED lighting systems. Occupancy sensors and/or dimming switches will be included on fixtures in select locations. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- ✦ Retrofit existing exterior CF, HID, and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

MAINTENANCE SHOP

* SQFT: 5,200

*Rate Schedule:
○ See City Hall

* Annual Energy Usage:
○ See City Hall

*Energy Intensity
○ See City Hall



SITE DESCRIPTION

The Maintenance Shop consists of 5,200 square feet of energy consuming space. The facility receives electric power and natural gas service through Pacific Gas & Electric. The utilities serving the Maintenance Shop are fed from the City Hall with no independent meters at this site. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

HVAC and Control Systems

The Maintenance Administration office is conditioned by one 75 MBH horizontal furnace, while the rest of the maintenance bay remains unconditioned. HVAC is controlled by a standalone programmable thermostat.

Lighting Systems

Lighting, in the majority of spaces, are 32-Watt linear fluorescent lighting systems with electronic ballasts, with HID lighting serving the garage bays. Control is provided by manual wall switch controls. Exterior area lighting systems are building and pole mounted, with HID and LED lamps. Exterior lighting systems are controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

Typical occupancy schedules are 7:00am – 3:00pm, Monday through Friday. Select areas may have varying schedules based on special activities and events.

RECOMMENDATIONS

Controls

- * Replace existing standalone thermostat with new Johnson Controls BAS. This scope includes removal of existing thermostat, installation of new controls equipment to be connected to the new HVAC unit, engineering, programming, commissioning, start-up and report, and integration to City's existing BAS to allow City staff to access control system remotely for adjustments to equipment setpoints and schedules.

Lighting

- * Retrofit existing interior linear fluorescent and HID lighting systems with new high efficiency LED lighting systems. Fixture mounted occupancy sensors will be included in select locations. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

Mechanical

- * Replace one (1) horizontal furnace with new high efficiency units of similar size and capacity. The scope includes removal of existing units, necessary duct modifications, disconnection/reconnection of the existing electrical and gas lines, installation of new NEMA electrical disconnects, condensate connections, start-up/testing of the new units, and connection to the new HVAC control system. Please refer to the HVAC Replacement Inventory for equipment size and location.

Renewables

- * Install new carport structure solar photovoltaic system to connect to the City's existing electrical meter. The PV structure will be installed at the Maintenance Shop parking lot to provide shading for the police vehicles and the point of interconnection will be at Clayton Community Library. This system will provide electrical energy offset for the Maintenance Shop, City Hall, and Clayton Community Library. Please refer to the Technical Appendix for additional information on scope, locations, system sizing, and point of interconnection.

CLAYTON COMMUNITY LIBRARY

- * SQFT: 17,830
- * Rate Schedule:
 - o B10S (Elec.)
 - o G-NR1 (Natural Gas)
- * Annual Energy Usage:
 - o \$43,935
 - o 149,689 kWh
 - o 4,907 Therms
- * Energy Use Intensity
 - o Cost: \$3.18/sqft
 - o EUI: 56 kBtu/sqft



SITE DESCRIPTION

The Clayton Community Library consists of approximately 18,000 square feet of energy consuming space. The facility receives electric power and natural gas service through Pacific Gas & Electric. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

HVAC and Control Systems

The building is conditioned by a central plant consisting of one air cooled chiller, one boiler, and three AHUs tied to VAV terminal boxes. Additionally, there is one separate reading room which is conditioned by one rooftop packaged heat pump for a total building load of 71.5 tons. HVAC is controlled primarily via a Johnson Controls BAS with the reading room being controlled independently via a programmable thermostat.

Lighting Systems

Lighting, in the majority of spaces, are 25-Watt, 32-Watt, or 58-Watt linear fluorescent lighting systems with electronic ballasts in addition to CF, incandescent and LED lighting systems. Control is provided by manual wall switch controls. Exterior area lighting systems are building and pole mounted with HID and CF lamps, along with linear fluorescent lighting above walkway tunnel. Exterior lighting systems are controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

Typical occupancy schedules are 12:00pm – 8:00pm on Tuesday, 10:00am – 6:00pm, Wednesday, Thursday, Friday, and Saturday. The Library is closed on Sunday and Monday. Select areas may have varying schedules based on special activities and events.

RECOMMENDATIONS

Controls

- ✦ Replace existing BAS with new Johnson Controls BAS. This scope includes removal of existing thermostats, installation of new controls equipment (including new VAV controls and sensors), engineering, programming, commissioning, start-up and report, and integration to City's existing BAS to allow City staff to access control system remotely for adjustments to equipment setpoints and schedules.

Lighting

- ✦ Retrofit existing interior linear fluorescent, CF, incandescent, and LED lighting systems with new high efficiency LED lighting systems. Occupancy sensors and/or dimming switches will be included on fixtures in select locations. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- ✦ Retrofit existing exterior building and pole mounted linear fluorescent, CF, and HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

Mechanical

- ✦ Replace one (1) Air Handling Unit with new high efficiency unit of similar size and capacity. The scope includes removal of existing unit, proper disposal or containment of refrigerant, necessary duct modifications, disconnection/reconnection of the existing electrical and gas lines, installation of new NEMA electrical disconnects, condensate connections, start-up/testing of the new units, and connection to the new HVAC control system. All equipment removed shall be disposed of per EPA guidelines. Please refer to the HVAC Replacement Inventory for equipment size and location.
- ✦ Replace one (1) packaged heat pump unit with new high efficiency unit of similar size and capacity. The scope includes removal of existing units, proper disposal or containment of refrigerant, necessary duct/curb modifications, disconnection/reconnection of the existing electrical and gas lines, installation of new NEMA electrical disconnects, condensate connections, new economizer, start-up/testing of the new units, and connection to the new HVAC control system. All equipment removed shall be disposed of per EPA guidelines. Please refer to the HVAC Replacement Inventory for equipment size and location.

Electric Vehicle (EV) Charging

- ✦ Provide and install one (1) new dual-port, Level III EV charging station. Installation will include necessary parts and labor, concrete foundation and mounting stand, striping where required, start-up and testing of new equipment. New equipment will be connected to the existing electric meter. Please refer to the Technical Appendix for additional detail on charging station sizing, location, and point(s) of interconnection.

- * BLDG SQFT: 2,561
- *Rate Schedule:
 - B1 (Elec.)
 - G-NR1 (Natural Gas)
- * Annual Energy Usage:
 - \$2,052
 - 6,914 kWh
 - 159 Therms
- *Energy Use Intensity
 - Cost: \$0.95/sqft
 - EUI: 15 kBtu/sqft



SITE DESCRIPTION

Endeavor Hall consists of 2,561 square feet of conditioned space. The facility receives electric power and natural gas service through Pacific Gas & Electric. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

HVAC and Control Systems

The building is conditioned by two split system HVAC units. The system supplying conditioned air to the main assembly hall is twin 4-ton condensing units tied to one Reznor furnace. The other 4-ton split system heat pump unit serves the kitchen/ men's and women's restroom. The total building load is 12 tons. HVAC is controlled via programmable thermostats.

Lighting

Lighting throughout the building is a combination of 32-Watt linear fluorescent lighting systems with electronic ballasts and LED lighting systems in select locations. Control is provided by manual wall switch controls. Exterior area lighting systems are building mounted with CF and LED lamps. Exterior lighting systems are controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

This building does not follow a typical occupancy schedule. The building is available for rent 8:00am – 10:00pm on Sunday, 8:00am – 10:00pm Monday through Friday, and 8:00am – 12:00am on Saturday.

RECOMMENDATIONS

Lighting

- * Retrofit existing interior linear fluorescent and LED lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building mounted CF lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

Mechanical

- * Replace existing HVAC units with two (2) new high efficiency units of similar size and capacity – the existing system with twin condensing units tied to one furnace will be replaced with a 7.5-ton split system unit. The scope includes removal of the existing unit, proper disposal or containment of refrigerant, necessary duct/curb modifications, disconnection/reconnection of the existing electrical lines, installation of a new NEMA electrical disconnect, condensate connections, start-up/testing of the new unit, and connection to the HVAC control system. All equipment removed shall be disposed of per EPA guidelines. Please refer to the HVAC Replacement Inventory for equipment size and location.

CLAYTON COMMUNITY PARK

- * 13.8 acres
- *Rate Schedule:
 - B1 (Elec.)
- *Annual Energy Usage:
 - \$2,797
 - 9,012 kWh



SITE DESCRIPTION

Clayton Community Park is approximately 13.8 acres and is the largest park in the City. The facility consists of two small unconditioned buildings with restrooms, concession area, and storage. The park has baseball fields, soccer fields, picnic areas, and playground equipment. The facility receives electric power through Pacific Gas & Electric. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

Lighting Systems

Lighting for the park restroom, concession, and storage rooms are 32-Watt linear fluorescent lighting systems with electronic ballasts. Control is provided by manual wall switch controls. Exterior area lighting systems are building and pole mounted with LED lamps. Exterior lighting systems are controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

The park is open daily dawn – dusk, Sunday through Saturday. In addition to normal community park use, there are several baseball games played in the evening throughout the week and most of the day during the weekends throughout the late spring/summer.

RECOMMENDATIONS

Lighting

- * Retrofit existing interior linear fluorescent lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

THE GROVE PARK

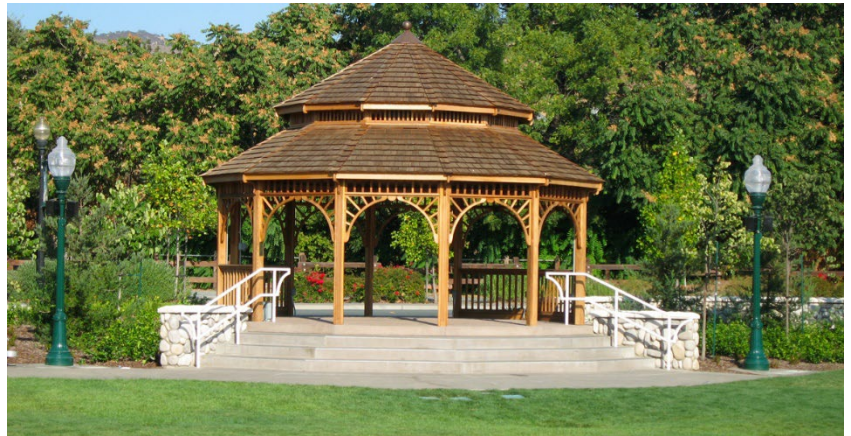
* 1.08 acres

*Rate Schedule:

- o B1 (Elec.)

* Annual Energy Usage:

- o \$3,511
- o 11,236 kWh



SITE DESCRIPTION

The Grove Park is approximately 1.08 acres and the newest public park in the City. The park is located in the historic part of downtown Clayton and features picnic areas, restrooms, and playground equipment. The facility receives electric power through Pacific Gas & Electric. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

Lighting Systems

Lighting for the park restroom is 32-Watt linear fluorescent lighting systems with electronic ballasts. Control is provided by manual wall switch controls. Exterior area lighting systems are building and pole mounted HID lighting. Exterior lighting systems are controlled by a combination of automatic controls such as time clocks and photocells and typically operate from dusk to dawn. Refer to the Technical Appendix for a detailed list of all installed lighting systems.

Occupancy Schedules

The park is open daily dawn – dusk, Sunday through Saturday. In addition to normal community park use, the City hosts Saturday Concerts in the Grove from the first of May through the first of November.

RECOMMENDATIONS

Lighting

- * Retrofit existing interior linear fluorescent lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- * Retrofit existing exterior building and pole mounted HID lighting systems with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

CITY-OWNED OUTDOOR LIGHTING

*Rate Schedule & Qty:

- LS-2: 436
- B-1: 36

* Annual Energy Usage:

- LS-2: \$74,839
- LS-2: 372,182 kWh
- B-1: \$11,797
- B-1: 36,231 kWh



SITE DESCRIPTION

The City has a total of 1,168 streetlights, of which 561 are on an LS-1 rate (PG&E owned) and 607 streetlights on LS-2 rate schedule (City-owned). The City has replaced approximately 30% of existing LS-2 lamps with LED over the past several years. There are a total of 436 LS-2 fixtures that have not yet been converted to LED; below is a table illustrating quantity by fixture type and size. The existing non-LED City-owned fixtures are all decorative and are a mixture of post-top acorn or lanterns as shown in above photos.

Type	Wattage	Quantity
Decorative - High Pressure Sodium	70 Watt	62
Decorative - High Pressure Sodium	100 Watt	4
Decorative - High Pressure Sodium	150 Watt	364
Decorative - High Pressure Sodium	200 Watt	2
Decorative - High Pressure Sodium	250 Watt	4

The City also has 36 pole mounted fixtures on a B-1 rate schedule. These fixtures are primarily high pressure sodium, post-top acorns, similar to the LS-2 fixtures, with the exception of one metal halide flood light serving a flag pole in Downtown Clayton.

The streetlights and outdoor lights are controlled via fixture mounted photocell, and operated from dusk – dawn, Sunday through Saturday. Refer to the Utilities tab of the Technical Appendix for details on facility baseline energy use and benchmarking information.

RECOMMENDATIONS

Lighting

- * Retrofit remaining (436) City-owned (LS-2) High Pressure Sodium streetlights with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.
- * Retrofit (35) High Pressure Sodium and (1) Metal Halide (B-1) outdoor lights with new high efficiency LED lighting systems. Please see the Lighting Detail Report in the Technical Appendix for detailed information on lighting scope, quantities, and locations.

ANTICIPATED PROJECT SCHEDULE

<i>Submission of ECAA 1% Loan Application</i>	<i>Completed</i>
Approval of ECAA 1% Loan Application	May 2023
Project Implementation Begins	June 2023
Lighting Installation Complete	November 2023
Mechanical Installation Complete	June 2024
EV Charging Installation Complete	March 2024
Building Automation Installation Complete	June 2024
Solar PV Installation Complete	June 2024

Note: Actual completion dates will depend upon equipment lead times at order date, Contra Costa County approval durations, coordination with City schedules and PG&E approvals and coordination.

3.0 TECHNICAL APPENDIX

1.) Utility Information

- a. Utility Baseline Summary

2.) Lighting Systems

- a. Lighting Detail Report and Savings Calculations
- b. Lighting Equipment Data Sheets

3.) Mechanical and Building Automation

- a. HVAC Replacement Inventory
- b. HVAC Savings Calculations
- c. Building Automation Savings Calculations
- d. Proposed Mechanical Equipment Data Sheets

4.) Electric Vehicle Charging Station

- a. EV Charging Station Equipment Data Sheet

5.) Solar PV

- a. Solar PV Helioscope Report and Layout
- b. Solar PV Savings Calculations
- c. Solar PV Energy Toolbase Simulation Report
- d. Solar PV Equipment Data Sheets



Comprehensive Infrastructure Renewal and General Fund Savings Program

Council Consideration | April 4, 2023



CURRENT CHALLENGES

Aging
Infrastructure

Unfunded
Capital
Project
Priorities

Rising Utility
Costs

Lack of
Resources

THE GROVE



PROCESS TO DATE

✓ Competitive Selection Process

✓ Utility Baseline Development

✓ Engineering Site Assessments

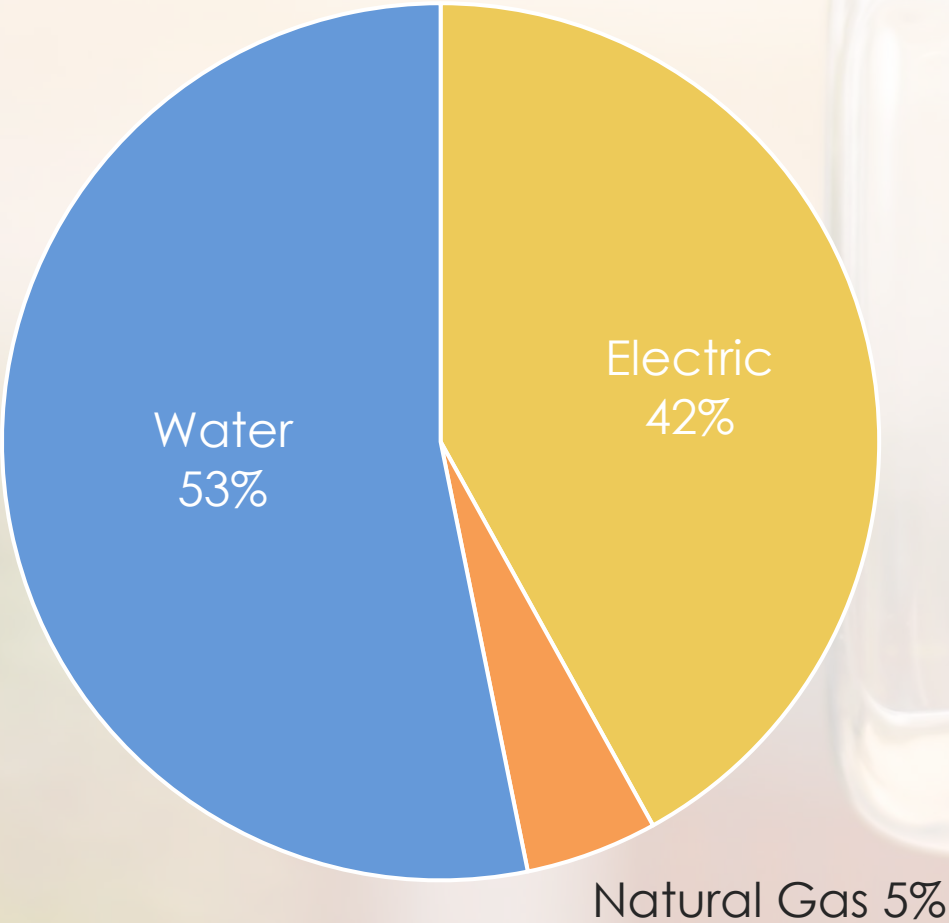
✓ Verify Scope & Funding w/ Staff

✓ Ad-Hoc Committee Program Update

✓ Council Approval of CEC Resolution

Council Consideration of the Amended Agreement

ANNUAL UTILITY SUMMARY



TOTAL ANNUAL UTILITY SPEND
\$689,343

July 2021 – June 2022	
Utility	Annual Spend
Electric	\$289,204
Natural Gas	\$33,498
Water	\$366,641

ADDITIONAL OPERATIONAL EXPENDITURES

HVAC/BAS
Third-Party Expense
(2022)

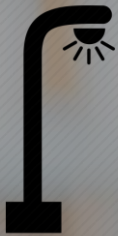
\$37,090*

Street Lighting Repair
Third-Party Expense
(2021 & 2022 average)

\$17,328

*Excludes equipment

INFRASTRUCTURE NEEDS



Street, Pathway,
& Building
Lighting



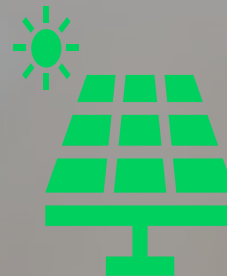
Water
Conservation



HVAC & Building
Automation
Systems (BAS)

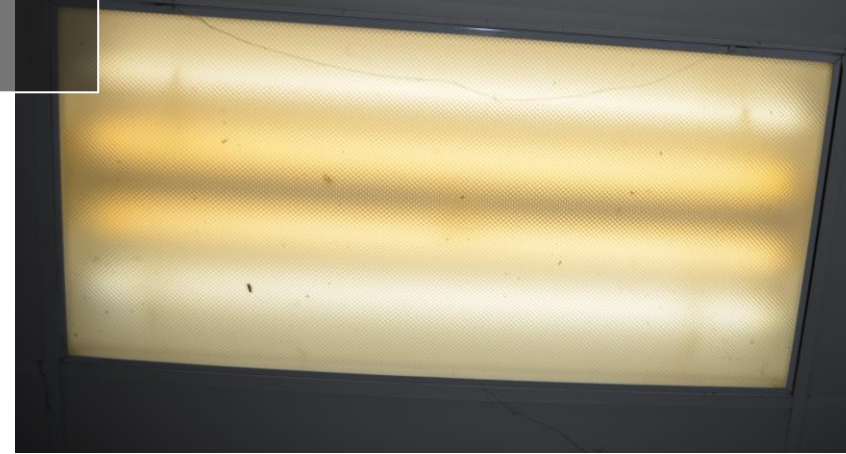


Electric Vehicle
(EV) Charging



Solar PV

EXISTING STREET, PATHWAY, & BUILDING LIGHTING



- The City still has several antiquated lighting systems, which are inefficient and provide poor light levels.
- City-owned streetlights vary in color due to aged lighting systems and are not energy efficient.

NEW LED LIGHTING

- LED modernization of street, pathway, and building lighting systems will drastically reduce energy consumption & enhance the environment around the City.
- Occupancy sensors will be added to City Hall & Library to further reduce energy consumption by controlling lighting when areas is unoccupied.



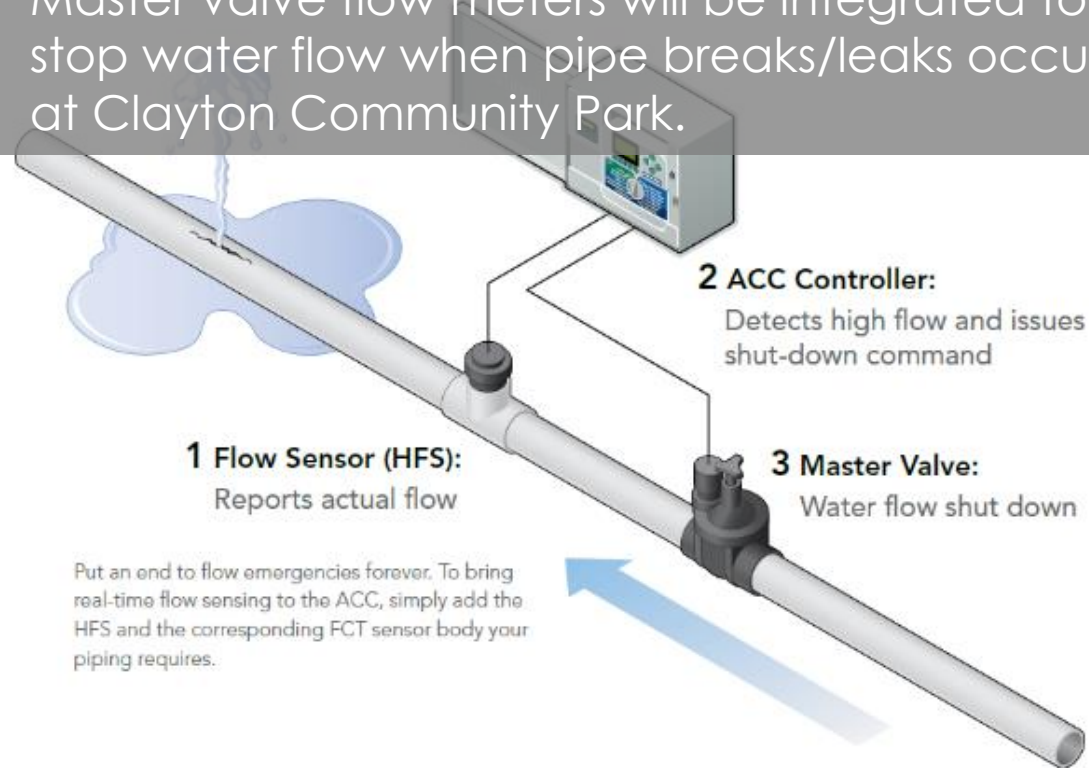
EXISTING IRRIGATION CONTROLLERS

- City has a blend of irrigation controllers; networked & non-networked.
- Clayton Community Park is susceptible to major leaks contributing to ongoing maintenance challenges



NEW IRRIGATION CONTROLLERS

- New smart irrigation controllers to help standardize throughout the City & provide networked, remote control to improve staff efficiency.
- Master valve flow meters will be integrated to stop water flow when pipe breaks/leaks occur at Clayton Community Park.



EXISTING HEATING & COOLING + BUILDING AUTOMATION SYSTEMS

- The City has some HVAC units that are past useful life and in need of frequent maintenance.
- Aging systems are energy inefficient, compromise air quality and can be disruptive to services as units fail.
- The City has standardized on one BAS, however some sites still have older or no BAS at all.



NEW HEATING & COOLING + BAS

- New high efficiency HVAC units at 2 sites will reduce operating expenditures, improve comfort & reduce maintenance burdens.
- Add new & retrocommission existing JCI BAS will provide more standardization and remote access for improved staff efficiency and comfort within the spaces.



NEW EV CHARGING STATION

New Level III EV charging station at the Library for City & public use to further promote sustainability.



SAMPLE SOLAR LAYOUTS





Net Zero
Energy



- Solar PV located at the maintenance building will provide shade for police vehicles. The solar PV structures are projected to offset the site's electrical load 100% including Library, City Hall, & Maintenance Facility creating a Net Zero Energy (NZE) site.
- Solar PV columns will be equipped with electrical outlets allowing police vehicles to charge electronic devices.

NEW SOLAR PV

FINANCIAL SUMMARY

Turnkey
Sustainability &
Infrastructure
Improvements

\$2,049,083

Lifecycle Savings

\$ 4,735,375

Funding Sources

- American Rescue Plan Act (ARPA) Funds
- CEC 1% ECAA Loan
- Tax Exempt Lease Purchase (TELP)

FINANCIAL BREAKOUT

Improvement/ Sustainability Measure	Turnkey Budget
LED Street, Pathway, & Building Lighting	\$ 468,507
Irrigation Modernizations & Water Rate Study	\$ 146,970
HVAC/ BAS	\$ 429,805
Solar PV Carport Structures	\$ 848,654
Electric Vehicle Charging Stations	\$ 155,147

POTENTIAL FINANCIAL SCENARIOS

Maximum Capital Flexibility

Turnkey Price	Capital Contribution (ARPA/ Reserves)	Financing Amount	Financing Source	Lifecycle Savings ^{1,2,3}	Net General Fund Relief (Years 1-5)
\$ 2,049,083	\$ 146,970	\$ 1,902,113	CEC	\$ 4,735,375	\$ 230,692
\$ 2,049,083	\$ 400,000	\$ 1,649,083	Muni Lease	\$ 4,735,375	\$ 135,614
\$ 2,049,083	\$ 400,000	\$ 1,649,083	CEC	\$ 4,735,375	\$ 321,939

Maximum General Fund Relief

Turnkey Price	Capital Contribution (ARPA/ Reserves)	Financing Amount	Financing Source	Lifecycle Savings ^{1,2,3}	Net General Fund Relief (Years 1-5)
\$ 2,049,083	\$ 2,049,083	\$ -	N/A	\$ 4,735,375	\$ 916,630

¹ Excludes Capital Cost Avoidance, includes energy (gas/electric) & water savings and financing costs

² Savings over the life of the equipment (Solar PV = 30 years, energy efficiency = 15 years)

³ Excludes 3rd party contractor savings, Federal IRA benefits and staff efficiency improvements

ANNUAL SUSTAINABILITY BENEFITS



91

Cars removed
from the roadway



82

Clayton
homes powered



7,034

Trees preserved
from deforestation



47,868

Gallons of
gasoline saved

PROGRAM BENEFITS



COMMUNITY ENGAGEMENT



INFORM

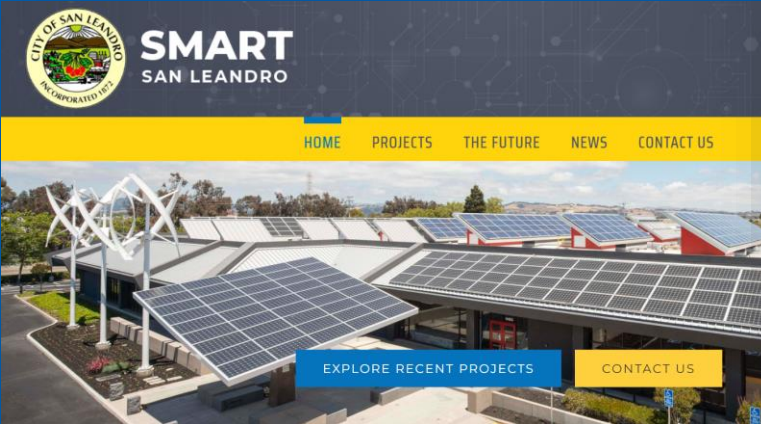
- Press Releases
- Ribbon Cutting
- Dedications
- Ground-Breaking
- Sustainability Website

INVOLVE

- City Events
- Local Fairs
- Walking Tours with Local Leaders & Community Members

INSPIRE

Clayton's initiatives toward energy efficiency can inspire the entire community to take steps to be more energy efficient



San Leandro Receives Climate Protection Award for Solar Power Resiliency Program

February 2nd, 2021



San Leandro Receives Smart 50 Award

February 2nd, 2018

Ontario approves funding plan for energy infrastructure modernization

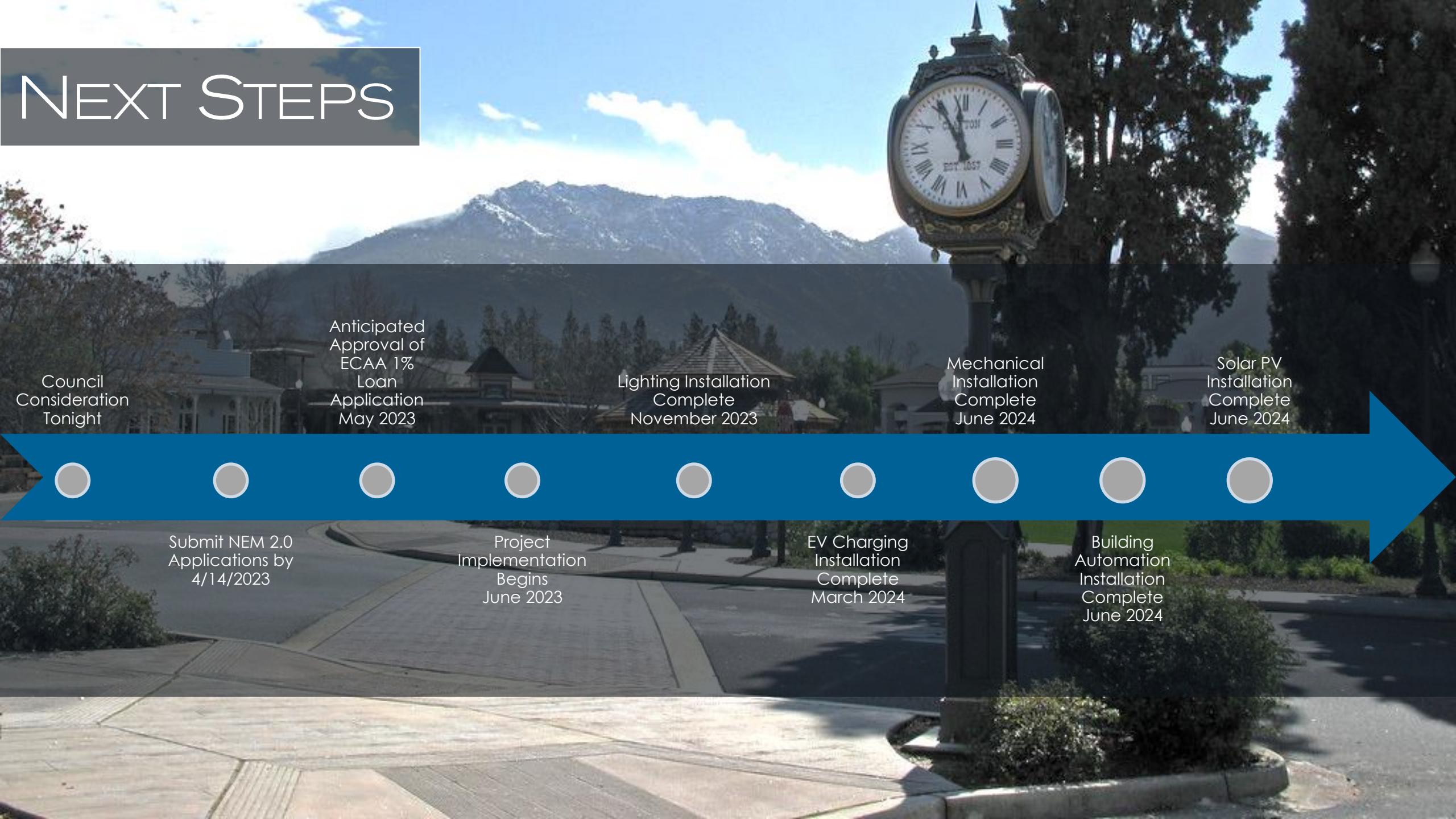
June 17, 2021

The City of Ontario has secured more than \$35 million in funding for energy infrastructure improvements—an infrastructure renewal program that is projected to save the City more than \$75 million over the life of its new equipment.

To pay for the project, Ontario leveraged funds from several sources, including the California Energy Commission Energy Conservation Assistance Act (ECAA), Southern California Edison utility rebates, California Self-Generation Incentive Program (SGIP) and a tax-exempt municipal lease at historically low interest rates. This creative funding approach empowered Ontario to make a significant investment that addresses its aging energy infrastructure and establishes sustainability measures without needing to use general funds or capital dollars.

The funding plan enables the City to add a variety of energy infrastructure improvements throughout the City. Highlights of the planned improvements include LED streetlight conversions equipped with “smart” streetlight monitoring controls; high-efficiency heating, cooling and ventilation equipment; temperature controls; interior and exterior LED building and park lighting; solar PV structures at the Convention Center, Toyota Arena and City Hall Annex; solar thermal systems at Westwind and Dorothy Quesada swim centers; and battery storage systems that provide backup power to critical sites.

NEXT STEPS



Council
Consideration
Tonight

Anticipated
Approval of
ECAA 1%
Loan
Application
May 2023

Lighting Installation
Complete
November 2023

Mechanical
Installation
Complete
June 2024

Solar PV
Installation
Complete
June 2024

Submit NEM 2.0
Applications by
4/14/2023

Project
Implementation
Begins
June 2023

EV Charging
Installation
Complete
March 2024

Building
Automation
Installation
Complete
June 2024

City of Clayton Public Hearing Notice

4217.10 *et seq.* Energy Services Contract

**NOTICE OF PUBLIC HEARING
BEFORE THE CITY COUNCIL OF THE CITY OF CLAYTON
TO CONSIDER APPROVAL OF ENERGY SERVICE CONTRACT
WITH CLIMATEC LLC**

NOTICE IS HEREBY GIVEN that the City Council of the City of Clayton (“City”) will hold a public hearing on April 4, 2023, at 7:00 p.m., or as soon thereafter as practicable, at Hoyer Hall, Clayton Community Library 6125 Clayton Road, Clayton, CA 94517 to consider entering into an energy service contract with Climatec LLC for the installation of energy efficiency upgrades and renewable technologies at various City-owned sites throughout the City. At the public hearing, the City Council will receive public comments and consider adoption of a resolution making findings required by Government Code section 4217.12 regarding anticipated energy cost savings and other benefits the City will receive by entering into the energy service contract. The resolution and supporting documents will be included with the City Council’s regular public agenda available for review on the City’s website, <http://claytonca.gov>, 72 hours prior to the meeting. The hearing will be open to the public, and all interested persons in attendance will have the opportunity to be heard.



STAFF REPORT

TO: HONORABLE COMMITTEE MEMBERS

**FROM: ANGELINE LOEFFLER, FINANCE DIRECTOR
NITISH SHARMA, FINANCE CONSULTANT**

DATE: APRIL 4, 2023

SUBJECT: THE FISCAL YEAR 2022-23 MID-YEAR BUDGET UPDATE

RECOMMENDATION

Following staff report and presentation, staff recommends that the Committee receive the presentation on the FY2022/23 Mid-year Budget Review, provide feedback to staff.

BACKGROUND

On June 21, 2022, the City Council adopted a balanced budget for the Fiscal Year 2022-23. It is the City's practice that at the end of the first half of the year, the City reports to the City Council on the status of the revenues and expenses along with any recommendations for adjustments in the remainder of the budget period.

Budget planning intends to resource and allocate the available funding for the period covered and, if possible, to address future economic contingencies. The expectation is that mid-year budget adjustments will address changing conditions unknown from the budget adoption period and adjust for anticipated economic trends.

DISCUSSION

The analysis below addresses the operating funds for Fiscal Year (FY) 2022-23, including the General Fund, and American Rescue Plan Act.

General Fund

General Fund Revenues

The total General Fund revenue budget adopted for the Fiscal Year 2022-23 was \$5.4 million excluding funds from the American Recovery Plan Act (ARPA) funds of approximately \$1.7 million while the appropriations budget, including capital improvement budget, was \$5.4 million. It is important to note that the original projection for the General Fund was a net deficit of \$127,542. The City Council approved several adjustments to allocate funds from the Pandemic Reserve Fund

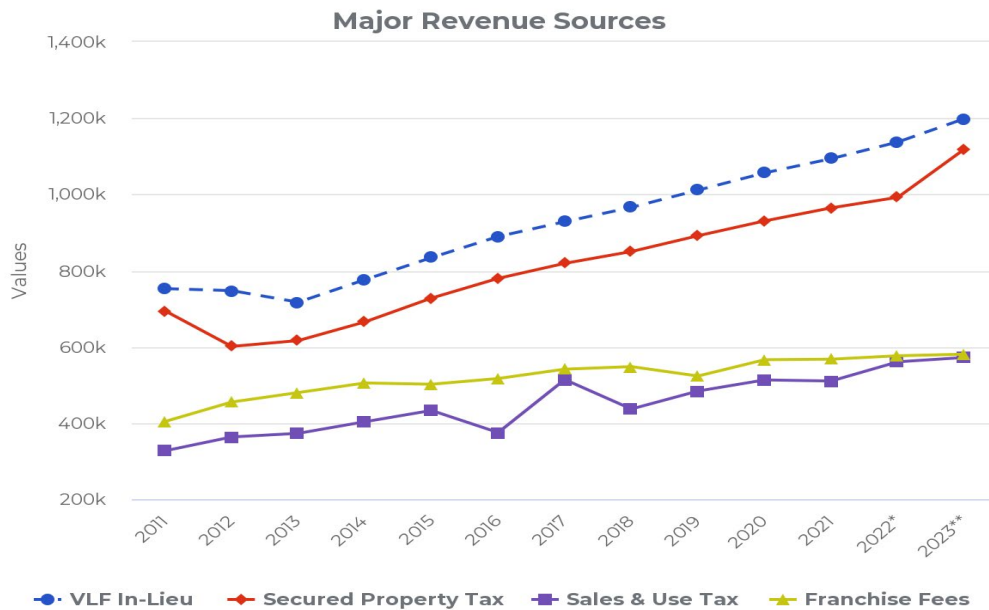
(ARPA), as illustrated in Table 1 below to approve a balanced General Fund Budget for the Fiscal Year 2022-23.

Table 1

Fiscal Year 2022-23 Budget Adoption	
Projected Surplus (Deficit)	-127,542
Budget Actions Approved from the Pandemic Reserve Fund:	
Transfer into the General Fund	37,139
Police Vehicle Replacement	70,000
Neighborhood Streetlight Maintenance	20,403
Net General Fund:	127,542

The total General Fund revenues (not including ARPA Funds) appropriated included for key revenue source: (1) property tax in-lieu of vehicle license fees (VLF), (2) local secured ad valorem property taxes (secured property taxes), (3) sales and use taxes, and (4) franchise fees. Each of these revenue sources are described in detail below. Chart 1 below illustrates the major revenue sources for the General Fund for the last 10 years.

Chart 1: General Fund Revenues¹



¹Note: This table highlights the material General Fund revenue categories.

1. Property Taxes: Property tax is an ad valorem tax imposed on real property, such as land, buildings, and tangible personal property. Property tax revenue is collected by the County and allocated according to state law among cities, counties, school districts and special districts. Clayton property owners pay a basic tax equal to 1% of the assessed value on real property. The City receives approximately 6.6¢ of every dollar collected with larger shares going to local schools, community colleges and Contra Costa County. For Fiscal Year 2022-23, the total assessed valuation of property values within the Contra Costa County increased by 7.79%. The City of Clayton included some of the increase in the property tax growth as part of the approved budget for the Fiscal Year 2022-23. **The City's share of the property tax revenues increased by \$41,289 or 3.6% from the approved budget for the Fiscal Year 2022-23.** (6.6 cents of every dollar). The City works with a property tax consultant, HDL Coren & Cone, in projecting property tax revenue, an estimate made with five factors in mind: property turnover rate, pricing and appeals exposure, new construction activity, Proposition 8 administrative reductions and Proposition 13's annual inflation adjustment.
2. Vehicle License Fee (VLF): The largest revenue source, making up 22.1% of General Fund budgeted revenues for FY 2022/23, is property tax in-lieu of vehicle license fees (VLF). The VLF is an annual value tax on the ownership of registered vehicles. It is collected by the California Department of Motor Vehicles and then distributed to cities and counties. As part of the State Budget Act of 2004, the legislature reduced VLF revenue allocations to cities, replacing this funding with additional property tax allocations that change proportionately with the City's annual assessed valuation (property tax in-lieu of VLF revenue). **Total VLF estimated for the Fiscal Year 2022-23 are projected to increase by \$12,774, or 1.07% from the approved budget.**
3. Sales Tax: California sales tax is imposed on the total retail price of any tangible personal property (excluding a variety of state mandated exemptions), while use tax is imposed on the purchaser for eligible transactions when sales tax has not been collected. Although the unadjusted general state-wide sales tax rate applied to transactions is 7.25%, the basic local rate (aka "Bradley-Burns" rate) returned to local agencies (i.e., City of Clayton) is only one percent (1%). This local share is unrestricted and must be received into the General Fund. In the City of Clayton, the applicable sales tax rate is currently 8.75% due to a combination of other additional local and regional voter-approved measures. The City to-date has received \$228,000 or 39% of the budgeted sales tax for the year. The sales tax receipts are two months in arrears. The City staff received a sales tax projection report from the City's consultant, HDL Coren & Cone, for the Fiscal Year 2022-23. HDL projects the City's sales tax revenues will be slightly over the approved budget; however, staff will not propose any adjustment in the mid-year budget due to the uncertainty in sales tax receipts during the first half of the fiscal year. Staff will continue to monitor the sales tax revenues during the year and will update as part of the annual budget for Fiscal Year 2023-24.
4. Franchise Fees: The third largest revenue source, making up 10.7% of General Fund

budgeted revenues for FY 2022/23, is franchise fees. Franchise fees are rent paid by utilities or other businesses for the privilege of using the City's right-of-way (i.e., streets, sidewalks, etc.) to locate utility lines, operate vehicles, and/or conduct private business for profit. The City currently collects a 1% franchise fee from Pacific Gas & Electric and a 5% franchise fee from cable operators (i.e., Comcast and AT&T/Pacific Bell). In addition, the City collects a 10% franchise fee from Republic Services for its collection, transportation, disposal and diversion of solid waste and recyclable materials. For Fiscal Year 2022-23, the **Franchise Fee revenues are projected to increase by a total of \$11,577** when compared to the adopted budget. This revenue source can fluctuate for the cable television franchise fees due to a shift from customers to change to digital streaming.

5. Interest Earnings: Actual interest earning for the prior year was \$148,649. The City has been reinvesting the current securities that have matured into new securities with a higher yield. The average returns on these securities are greater than 4% with a longer than one-year term. The City has earned and collected to date a total of \$106,256 and projected to receive approximately \$69,000 through June 30, 2023. The General Fund portion of the interest earnings from the portfolio is approximately sixty percent (60%). **Staff is projecting an increase of \$16,300 in interest earning for the proposed budget for the Fiscal Year 2022-23.**

General Fund Expenditures

Total General Fund expenditures approved by the Council for Fiscal Year 2022-23 was \$5.4 million, a balanced budget after a contribution of approximately \$127,542 from the Pandemic Reserve Fund (ARPA). The chart below illustrates the General Fund analysis for the Fiscal Year 2022-23:

Table 2: General Fund Operational Expenditures²

	FY 22-23	FY 22-23	FY 22-23
Expenses	Approved Appropriations	Supplemental Request	Proposed Appropriations
Personnel Costs	3,549,556		3,549,556
Operations and Maintenance	1,870,879		1,870,879
Transfers Out	1,467,024	-	1,467,024
Total	6,887,459	-	6,887,459

²*Note: This table does not include all General Fund expenditure categories.*

1. Personnel Costs: Mandatory personnel expenses, such as salaries, overtime, retirement, retiree health, and group insurance, make up approximately 63.12% of the City's total operating budget. The City does not expect a personnel cost increase in FY 2022-23; however, there is **one-time cost of approximately \$16,145.63 in payouts associated with the separation of the City Manager**. The

proposed budget includes a supplemental request for these mandatory costs that has been incurred. **There is an estimated \$84,367 in salaries and benefit savings which is illustrated in Attachment 1.** These salaries saving are estimated projection based on not filling current vacancies in the City and upon filling of vacant positions and additional unanticipated personnel costs may take away the salary savings noted above.

2. Operations and Maintenance: Increase in Operations and Maintenance for FY 2022-23 will primarily be offset with the current revenue budget as adopted. The proposed budget for the Fiscal Year 2022-23 includes no new increases in the cost adjustments related to materials and supplies. The new costs that are unanticipated will be brought forward to the Council if it cannot be absorbed within the allocated budget.

The net change in the General Fund after accounting for the proposed changes to the revenues and expenditures for the Fiscal Year 2022-23 is \$166,307. The table below illustrates the original budget and the proposed budget.

Table 3: General Fund Summary

General Fund Projections			
	Original Budget (Adopted June 21, 2022)	Supplemental Budget Adjustments	Proposed Revised Budget for Fiscal Year 2022-23
Revenues			
Property Taxes	1,118,781	41,289	1,160,070
Sales Taxes	571,816	12,774	584,590
Vehicle License Fees (VLF)	1,198,595	11,577	1,210,172
Franchise Fees	580,380		580,380
Interest Earnings	86,000	16,300	102,300
Other Revenues	1,652,289		1,652,289
Transfer In: Grant Funds	1,510,549		1,510,549
Transfers In: Administrative Support	169,049		169,049
Total Revenues	6,887,459	81,940	6,969,399
Expenditures			
Salaries	2,351,230		2,351,230
Benefits	1,187,676		1,187,676
Operations and Maintenance	1,881,529		1,881,529
Transfers Out	1,467,024		1,467,024
Total Expenditures	6,887,459		6,887,459
Total Estimated Personnel Cost Saving		84,367	
Net Operating Surplus (Deficit)	-	166,307	81,940

Capital Improvement Program (CIP): The City Council approved \$1,362,497 in capital improvement projects for the Fiscal Year 2022-23. There is no new budget request for the CIP in the Fiscal Year 2022-23 budget.

AMERICAN RECOVERY PLAN ACT (ARPA) FUND

Signed into law on March 11, 2021, The American Rescue Plan Act of 2021 (“ARPA”) provides \$350 billion in additional funding for state and local governments. The state funding portion is approximately \$195 billion with \$25.5 billion distributed equally among the fifty states and the District of Columbia and the remaining amount distributed according to a formula based on unemployment.

The following table illustrates the status of the ARPA Fund for the Fiscal Year 2022-23.

Table 4: ARPA Fund Analysis through FYE 21-23 though FYE 22-23

		General Operating Fund
Revenue	1st ARPA Received on July 1, 2021	\$1,467,024
	Total Revenue FYE 21/22:	\$1,467,024
Expenditure	Professional services	\$41,744
	Office Supplies (COVID Test kits)	\$3,251
	DocuSign part of Clayton Cares	\$432
	Clayton Cares	\$800,000
	Hero Pay	\$247,082
	IT Expenses	\$42,052
	Street Lighting	\$20,403
	Fund 502 CERF for Police Vehicle Replacement	\$70,000
	Transfer to General Fund	\$37,139
	Total Expenditure:	\$1,262,103
	Net Ending Balance as of FYE 21/22	\$204,921
	Proposed Expenditures in FY23 (allocation)	
	Full time Senior Accountant limited one year term	\$135,348
	Software and Services to Digitize Records	\$35,000
	City Council Recommended Organizational Assessments	\$35,000
	Subtotal:	\$205,348
Revenue	2nd ARPA received on July 1, 2022	\$1,467,024
	Net Balance as of FYE 22/23:	\$1,466,597

FEES STUDY

On March 27, 2023 at Budget/Audit Committee Council Meeting, Finance Director presented updated proposed timeline for the City of Clayton’s master fee schedule. The following is updated timeline:

FY 23-24 Budget and Master Fee Schedule Timeline	
Date	FY 23-24 Budget & Master Fee Schedule
3/1/2023 – 3/20/2023	Kick-off project for FY 23-24 Budget; Labor Costing, Updating Master fee schedule.
3/20/2023- 3/31/2023	<ul style="list-style-type: none">• FY23-24 Revenue and Expenses: Working with CLT on their budgetary input• FY23-24 Labor Costing with GovInvest• Updating Master Fee Schedule: Interviewing with relevant personnel and gathering the information
4/1/2023 - 4/7/2023	Updating the Master Fee Schedule and compiling preliminary proposed FY23-24 Budget
4/7/2023	Preliminary proposed Budget to City Manager for review
4/24/2023	Budget/Audit Committee: Presentation of proposed FY 23-24 Budget, Master Fee Schedule update and 5-Year CIP
5/8/2023	TLC Meeting LMD Review CPI Increase Draft Budget FY 23-24
5/15/2023	TLC for LMD Review meeting if needed
5/22/2023	Budget/Audit Committee: Budget Workshop for Proposed Annual Budget for FY 23-24 and Master Fee Schedule Updates
6/6/2023	Council Meeting: FY 23-24 Budget Workshop
6/20/2023	Council Action: Approval of the Proposed Annual Budget for FY 23-24, Master Fee Schedule and 5-Year CIP

ATTACHMENTS

Attachment 1: Estimated Salary Savings Worksheets

Department		Funding Items Description	Benefit	Amount
Community Development Department	1	Permit management software (estimated set-up cost \$12,000; annually \$3,000 thereafter)	Implement permit processing enhancements to improve efficiency, consistency and reliability in permit processing - Implement permit processing enhancements to improve efficiency, consistency and reliability in permit processing	\$ 12,000
	2	Establishment of GIS funded by grants; ongoing licensing for GIS plus City Engineer	Implement grant funded programs (geographic information system [GIS] for City land use and infrastructure; ADU pre-reviewed plan set; facilities replacements and installations at Clayton Community Park and The Grove) and asset management system	\$ 50,000 Additional \$10,000 annually
Community Development Total:				\$ 62,000
Finance Department	1	Financial Consultanting fees	Develop strategies and modeling that incorporate the City's liabilities and assets over the next 10-20 years	\$ 8,000
	2	Building interactive the City's website with database	Build self-service portal and database within the City's website for Business license and Rental Facilities module including the capacity to accept on-demand online payment	\$ 20,000
	3	Strengthen Network capabilities	This initiative shall implement network capabilities and evaluate opportunities to increase public access to network infrastructure throughout the system	\$ 25,000
Finance Department Total :				\$ 53,000
Public Works	1	Ditch Witch vacuum trailer	Crews can clean storm drains and dig around pipes more efficiently while reducing possibility of worker injuries	\$ 85,000
	2	2 F250 Utility body trucks	Replace existing 1998 and 1999 service trucks	\$ 130,000
	3	2 Rain Master DXI controllers for CCP	Accomplished through Climatec project if approved	\$ 50,000
	4	2 Flow meters for CCP	Accomplished through Climatec project if approved	\$ 2,000
	5	2 Master valves for CCP	Accomplished through Climatec project if approved	\$ 3,000
	6	Rain Master DXI for Stranahan Park	Allow staff to communicate with controller via central system	\$ 20,000
	7	New Toro Turf Master Mower 6000 series	Replace existing mower	\$ 100,000
	8	Flat Bed trailer	Allow staff to move mini excavator and skid steer tractor and eliminates need for backup vehicle	\$ 10,000
Public Works Total:				\$ 400,000
Engineering Department	1	GIS asset management system, with using latest technology of Google Streetview type data collection for storm drain inlets, signs, etc.		Please refer to CDD item 2 above for the cost information.
Engineering Department Total:				

Department		Funding Items Description	Benefit	Amount
Police Department	1	Video surveillance system at City Hall/PD	This will provide security and monitoring of the entrances to the building, as well as the area where the on-duty patrol cars are parked.	\$ 8,000
	2	Tattle-Tale traffic signal lights for 6 intersections	These are used in many jurisdictions, and assist officers monitoring traffic signals because you can see when the light is red or green from a position behind the lights where you would not ordinarily be able to see them.	\$ 3,000
	3	A New Patrol Vehicle	New fully outfitted Ford Explorer to replace vehicle at end of useful life	\$ 85,000
	4	Dash cameras with License Plate Reader technology for 8 cars	We currently have the second generation dash camera from Axon, which video records the road in front of the patrol car, as well as the back seat of the car where arrestees are placed during transport. The third generation cameras also have License Plate Reader technology, so as the patrol car drives around, it is scanning plates of all vehicles that it passes. This can detect stolen vehicles, but can also log where vehicles have historically been located in the event that we are looking for a particular vehicle.	\$ 100,000
	5	Install automated entry points at all entrances to the building	This would allow us to more closely monitor who gains access to the building, and also allows us to disable someone's access when they should not have access to the building, such as former employees. The last time the building was re-keyed was over 10 years ago, and many people have come and gone since then.	\$ 10,000
	6	Drone program	Many Law Enforcement agencies throughout the country have turned to drone technology as another tool for solving crime and providing rescue operations. A drone can be used to search for outstanding suspects where it may be unsafe for an officer to enter, such as backyards, houses, and bushes. It can also be used to search for a lost child or adult. Drones can be used for aerial photographs of crime or traffic collision scenes, and to assess damage in areas that are not safe to enter. The cost listed is for the drone and the training needed to operate it.	\$ 20,000
	7	Create turn-outs for bus stops along Clayton Rd - 6 total	There are 6 bus stops along Clayton Rd that do not have turn-outs, meaning that the bus must stop in the right hand lane of traffic to pick up passengers. This creates traffic hazards because cars must either stop behind the bus while it is stopped, or try to change lanes to go around the bus.	\$ 1,500,000
Police Department Total:				\$ 1,726,000

Department		Funding Items Description	Benefit	Amount
City Clerk/HR Manager	1	Agenda Management System		\$ 19,730
	2	File Cabinet System, 1st Floor	This will replace the broken filing cabinets that are currently used to store Planning, City Clerk, Finance, and Personnel Records. The Personnel Records require a locking fire-proof cabinet.	\$ 26,500
	3	Chairs at Hoyer Hall for Elected Officials and Staff	The current chairs are broken and uncomfortable.	\$ 4,300
	4	DocuSign for 500 envelopes	Digital Signature	\$ 2,400
	5	Dropbox Sign for up to 4 users including unlimited signing	Digital Signature	\$ 600
	6	Hire Facility Person to attend CC/PC meeting to assist with room temperature, notify A/V person of sound issues or issues with the monitors during the meeting.	Could be staffed by someone in Maintenance (on overtime) or volunteer - \$100 per meeting	
City Clerk/HR Manager Total:				\$ 53,530
City Manager	1	Salary Survey	Establish competitive compensation structure	\$ 20,000
	2	City Hall pool vehicle (preferably electric)	Eliminates need for employees to utilize personal vehicles	\$ 40,000
	3	PR and Marketing Firm	Create a platform to highlight and publicize positive aspects of	\$ 50,000 annually
	4	Citywide GIS/Asset Management		\$ 50,000
	5	Replace generator at City Hall	Existing diesel generator has limitations for essential facility	\$ 250,000
	6	New Irrigation system at Clayton Community Park	Existing system breaks frequently causing costly water leaks and disruption to planned activities	\$ 1,000,000
	7	Keller House Restoration	Create unique venue for special events	\$ 5,000,000
City Manager Total:				\$ 6,410,000
TOTAL				\$ 8,704,530



AGENDA REPORT

TO: HONORABLE MAYOR AND COUNCIL MEMBERS

FROM: Ron Bernal Jr, Interim City Manager

DATE: April 4, 2023

SUBJECT: Approve Funding Appropriation for American Rescue Plan Act (ARPA) Funds for Energy Cost Savings, Efficiency Measures and Asset Replacement

RECOMMENDATION

It is recommended the City Council discuss, provide direction to staff and approve one-time appropriation of American Rescue Plan Act (ARPA) funds for energy cost savings, efficiency measures and asset replacement.

BACKGROUND

In March 2021 the Federal Government passed the American Rescue Plan Act (ARPA), which had total funding of \$1.9 trillion. This included \$350 billion in funding to States, Localities, and Tribal Governments. This program is separate from Federal grants targeting both institutions and businesses that were impacted by the COVID-19 Pandemic. The City of Clayton is expected to receive a total of \$2,934,049 in two installments of approximately \$1,467,025 each.

As of March 29, 2023, \$1,466,597 of ARPA fund remains as illustrated below:

		General Operating Fund
Revenue	1st ARPA Received on July 1, 2021	\$1,467,024
	Total Revenue FYE 21/22	\$1,467,024
Expenditure	Professional services	\$41,744
	Office Supplies (COVID testkits)	\$3,251
	DocuSign part of Clayton Cares	\$432
	Clayton Cares	\$800,000
	Hero Pay	\$247,082

	IT Expenses	\$42,052
	Street Lighting	\$20,403
	Fund 502 CERF for Police Vehicle Replacement	\$70,000
	Transfer to General Fund	\$37,139
	Total Expenditure	\$1,262,103
	Net Ending Balance as of FYE 21/22	\$204,921
	Proposed Expenditures in FY23 (allocation)	
	Full time Senior Accountant limited one year term	\$135,348
	Software and Services to Digitize Records	\$35,000
	City Council Recommended Organizational Assessments	\$35,000
	Subtotal	\$205,348
Revenue	2nd ARPA received on July 1, 2022	\$1,467,024
	Net Balance as of FYE 22/23	\$1,466,597

DISCUSSION

As part of the Goal Setting Special Meeting on the March 13, 2023 Council meeting, the staff present each department's goals along with funding requests. The staff considered the use of ARPA funds to improve efficiency and add tools and technology to enhance City business operations (Attachment 1).

Additionally, the Climatec Comprehensive Infrastructure Renewal and General Fund Savings Program may require City funding to secure project financing. This project has also been included in Attachment 1.

FISCAL IMPACTS

Depending on the items the City Council wishes to fund, the ARPA Fund 111 balance will be reduced. There is currently \$1,466,597 available in the account.

ATTACHMENT

1. ARPA Fund Appropriation Request List

Department		Funding Items Description	Benefit	Amount
Community Development Department	1	Permit management software (estimated set-up cost \$12,000; annually \$3,000 thereafter)	Implement permit processing enhancements to improve efficiency, consistency and reliability in permit processing - Implement permit processing enhancements to improve efficiency, consistency and reliability in permit processing	\$ 12,000
	2	Establishment of GIS funded by grants; ongoing licensing for GIS plus City Engineer	Implement grant funded programs (geographic information system [GIS] for City land use and infrastructure; ADU pre-reviewed plan set; facilities replacements and installations at Clayton Community Park and The Grove) and asset management system	\$ 50,000 Additional \$10,000 annually
Community Development Total:				\$ 62,000
Finance Department	1	Financial Consultanting fees	Develop strategies and modeling that incorporate the City's liabilities and assets over the next 10-20 years	\$ 8,000
	2	Building interactive the City's website with database	Build self-service portal and database within the City's website for Business license and Rental Facilities module including the capacity to accept on-demand online payment	\$ 20,000
	3	Strengthen Network capabilities	This initiative shall implement network capabilities and evaluate opportunities to increase public access to network infrastructure throughout the system	\$ 25,000
Finance Department Total :				\$ 53,000
Public Works	1	Ditch Witch vacuum trailer	Crews can clean storm drains and dig around pipes more efficiently while reducing possibility of worker injuries	\$ 85,000
	2	2 F250 Utility body trucks	Replace existing 1998 and 1999 service trucks	\$ 130,000
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	6	Rain Master DXI for Stranahan Park	Allow staff to communicate with controller via central system	\$ 20,000
	7	New Toro Turf Master Mower 6000 series	Replace existing mower	\$ 100,000
	8	Flat Bed trailer	Allow staff to move mini excavator and skid steer tractor and eliminates need for backup vehicle	\$ 10,000
Public Works Total:				\$ 400,000
Engineering Department	1	GIS asset management system, with using latest technology of Google Streetview type data collection for storm drain inlets, signs, etc.		Please refer to CDD item 2 above for the cost information.
Engineering Department Total:				

Department		Funding Items Description	Benefit	Amount
Police Department	1	Video surveillance system at City Hall/PD	This will provide security and monitoring of the entrances to the building, as well as the area where the on-duty patrol cars are parked.	\$ 8,000
	2	Tattle-Tale traffic signal lights for 6 intersections	These are used in many jurisdictions, and assist officers monitoring traffic signals because you can see when the light is red or green from a position behind the lights where you would not ordinarily be able to see them.	\$ 3,000
	3	A New Patrol Vehicle	New fully outfitted Ford Explorer to replace vehicle at end of useful life	\$ 85,000
	4	Dash cameras with License Plate Reader technology for 8 cars	We currently have the second generation dash camera from Axon, which video records the road in front of the patrol car, as well as the back seat of the car where arrestees are placed during transport. The third generation cameras also have License Plate Reader technology, so as the patrol car drives around, it is scanning plates of all vehicles that it passes. This can detect stolen vehicles, but can also log where vehicles have historically been located in the event that we are looking for a particular vehicle.	\$ 100,000
	5	Install automated entry points at all entrances to the building	This would allow us to more closely monitor who gains access to the building, and also allows us to disable someone's access when they should not have access to the building, such as former employees. The last time the building was re-keyed was over 10 years ago, and many people have come and gone since then.	\$ 10,000
	6	Drone program	Many Law Enforcement agencies throughout the country have turned to drone technology as another tool for solving crime and providing rescue operations. A drone can be used to search for outstanding suspects where it may be unsafe for an officer to enter, such as backyards, houses, and bushes. It can also be used to search for a lost child or adult. Drones can be used for aerial photographs of crime or traffic collision scenes, and to assess damage in areas that are not safe to enter. The cost listed is for the drone and the training needed to operate it.	\$ 20,000
	7	Create turn-outs for bus stops along Clayton Rd - 6 total	There are 6 bus stops along Clayton Rd that do not have turn-outs, meaning that the bus must stop in the right hand lane of traffic to pick up passengers. This creates traffic hazards because cars must either stop behind the bus while it is stopped, or try to change lanes to go around the bus.	\$ 1,500,000
Police Department Total:				\$ 1,726,000

Department		Funding Items Description	Benefit	Amount
City Clerk/HR Manager	1	Agenda Management System		\$ 19,730
	2	File Cabinet System, 1st Floor	This will replace the broken filing cabinets that are currently used to store Planning, City Clerk, Finance, and Personnel Records. The Personnel Records require a locking fire-proof cabinet.	\$ 26,500
	3	Chairs at Hoyer Hall for Elected Officials and Staff	The current chairs are broken and uncomfortable.	\$ 4,300
	4	DocuSign for 500 envelopes	Digital Signature	\$ 2,400
	5	Dropbox Sign for up to 4 users including unlimited signing	Digital Signature	\$ 600
	6	Hire Facility Person to attend CC/PC meeting to assist with room temperature, notify A/V person of sound issues or issues with the monitors during the meeting.	Could be staffed by someone in Maintenance (on overtime) or volunteer - \$100 per meeting	
City Clerk/HR Manager Total:				\$ 53,530
City Manager	1	Salary Survey	Establish competitive compensation structure	\$ 20,000
	2	City Hall pool vehicle (preferably electric)	Eliminates need for employees to utilize personal vehicles	\$ 40,000
	3	PR and Marketing Firm	Create a platform to highlight and publicize positive aspects of	\$ 50,000 annually
	4	Citywide GIS/Asset Management		\$ 50,000
	5	Replace generator at City Hall	Existing diesel generator has limitations for essential facility	\$ 250,000
	6	New Irrigation system at Clayton Community Park	Existing system breaks frequently causing costly water leaks and disruption to planned activities	\$ 1,000,000
	7	Keller House Restoration	Create unique venue for special events	\$ 5,000,000
City Manager Total:				\$ 6,410,000
TOTAL				\$ 8,704,530



AGENDA REPORT

TO: HONORABLE MAYOR AND COUNCILMEMBERS

FROM: Ron Bernal, Interim City Manager

DATE: April 4, 2023

SUBJECT: Annual Consideration of Canceling Any Regular City Council Meetings During the Summer of 2023

RECOMMENDATION

It is recommended the City Council discuss its collective desire to cancel any regularly-scheduled City Council meetings during the upcoming summer months of July, August and/or September 2023; and if so determined, by motion cancel the specific meetings date(s).

BACKGROUND

Clayton Municipal Code Section 2.04.010 specifies the regular public meetings of the Clayton City Council shall be held on the first and third Tuesdays of each and every month.

In previous years, the City Council has canceled one or more of its regularly-scheduled meetings during summer months to accommodate various travel plans of its elected officials. In addition, the workload of the City Council business items for action often decreases in the summer months following formal adoption of the annual City and Capital Improvement Program (CIP) Budgets and the associated procedures to levy the annual special taxes for the several assessment and maintenance districts administered by the City. Various key members of the City Management staff also take scheduled vacations during the summer months.

In order to provide optimum notice of meeting cancellation to interested members of the public and the development community as well as to arrange placement of agenda matters around the vacation plans of the City Council, this item has typically been placed on a agenda for discussion and direction purposes. The act of canceling one or more regularly-scheduled meetings is a matter to be taken in open public session by the City Council.

SUMMER 2023 REGULAR MEETINGS

The following table outlines the upcoming dates for regular City Council meetings in the summer months of 2023:

Meeting Date	Comments
Tuesday, July 4	City Holiday – Consider Canceling
Tuesday, July 18	Agenda handles the remainder of annual levies for existing assessment districts in FY 23-24, including the previously-set & noticed Public Hearing on GHAD annual assessments
Tuesday, August 1	Consider Canceling - No pressing Agenda Items at this time
Tuesday, August 15	No pressing Agenda Items at this time
Tuesday, September 5	Consider Canceling - No pressing Agenda Items at this time
Tuesday, September 19	No pressing Agenda Items at this time

FISCAL IMPACT

There is no adverse financial impact to the City for cancellation of City Council meetings. Nominal savings occur for expenses incurred in the preparation, publication, and holding of a Council meeting (e.g. staff time, paper and copying expenses, meeting room utilities, video-taping/zoom virtual of the meetings for livestreaming and cable television re-broadcast).

If necessary or should an emergency arise between canceled meetings, a special meeting of the City Council may always be called by the Mayor with proper notice to members of the City Council, the press, and with fully-required public postings of the Agenda.