ADDENDUM #1

January 3, 2018

This Addendum to the Bid Documents is issued to clarify, correct, and supplement the Drawings issued as "WOODBURN CITY HALL – REMODEL & HVAC UPGRADE 100% CD DRAWINGS" dated December 14, 2018. This addendum adds to, and where in conflict with, supersedes previously issued drawings and addenda. This Document is hereby made a part of the Contract Documents to the same extent as though it were originally included therein.

MODIFICATIONS TO DRAWINGS AND SUPPLEMENTAL INFORMATION

Description of item number: **1.A101.3**, where
1. is the addendum number,
A101. is the Drawing number or Specification section, and
3. is the sequential addendum item number for that Drawing or Specification.

ATTACHMENTS

Drawing Sheets:	M002, FP200, FP201 E300, E301, E801, E802, E803 TA001, TA401, TA501, TA601
Specifications:	21 05 00 Common Work Results for Fire Suppression 21 10 00 Water Based Fire Suppression Systems 23 81 00 Decentralized Unitary HVAC Equipment
Substitution Requests:	(23) substitution requests approved (7) substitution request not approved

DRAWINGS

1.G001.1	ADD general note 10 to read: “AV SYSTEM DESIGN AND INSTALLATION BY OTHERS, CONTRACTOR TO COORDINATE WITH AV INSTALLER AND PROVIDE RACEWAYS FOR AV CABLING AS INDICATED ON AV DRAWINGS (PROVIDED FOR REFERENCE ONLY)”
1.A301.1	ADD sheet note 7 to read: “ALL NEW FIBER CEMENT CLADDING TO BE PAINTED TO MATCH EXISTING”

1.A702.1 ADD door schedule note 7 to read: “ACCESS CONTROL DEVICES WILL BE INSTALLED BY OWNER'S ACCESS CONTROL VENDOR. CONTRACTOR TO COORDINATE WITH ACCESS CONTROL VENDOR TO ENSURE ACCESS AND PROPER INSTALLATION.”

1.M002.1 REVISE sheet M002 as attached: *Clarified heating control type and added energy recovery information for AHU schedule*

1.FP200.1 REVISE sheet FP200 as attached: *Added notes about existing areas to remain and sprinkler heads that need replacement.*

1.FP201.1 REVISE sheet FP201 as attached. *Removed areas of canopy sprinkler scope from design. Removed air compressor notes associated with dry pipe system. Added note to relocate existing sprinkler piping above council chamber due to new ceiling. Added notes about specific areas where sprinkler heads need replacement.*

1.E300.1 REVISE sheet E300 as attached: *Relocating Inverter and LCP in IT Storage. Correcting AC-102 Designation*

1.E301.1 REVISE sheet E301 as attached: *Turned off VAV boxes and added data drops and data in floor box location as shown.*

1.E801.1 REVISE sheet E801 as attached: *Updated load information on panel schedules.*

1.E802.1 REVISE sheet E802 as attached: *Updated ME Schedule by removing DDC Panel Line Items.*

1.E803.1 REVISE sheet E803 as attached: *Updated ME Schedule to show AC-102.*

1.TA001.1 REVISE sheet TA001 for reference as attached: *Updates to clarify raceway requirements for AV cabling.*

1.TA401.1 REVISE sheet TA401 for reference as attached: *Updates to clarify raceway requirements for AV cabling.*

1.TA501.1 REVISE sheet TA501 for reference as attached: *Updates to clarify raceway requirements for AV cabling and additional details.*

1.TA501.1 REVISE sheet TA501 for reference as attached: *Updates to clarify raceway requirements for AV cabling and additional details.*

PROJECT MANUAL

1.01 10 00.1 REVISE the following in section 1.10, section C to read as follows: *Work shall be generally performed inside the existing building during ~~normal business working hours of 8 a.m. to 5 p.m~~.* ***the hours of 7:00 am to 9:00 pm****, Monday through Friday, except otherwise indicated.*

1.21 05 00.1 ADD spec section 21 05 00 Common Work Results for Fire Suppression

1.21 10 00.1 ADD spec section 21 10 00 Water Based Fire Suppression Systems

1.23 72 00.1 **REMOVE** spec section 23 72 00 Air to Air Energy Recovery Units

1.23 81 00 REVISE spec section 23 81 00 Decentralized Unitary HVAC Equipment as attached. *Included additional information about packaged controls for the two rooftop units and VRF system.*

CLARIFICATIONS

1 *The existing City Hall building will be closing on December 24th, and can be inspected by prospective bidders during bidding. Contact Eric Liljequist at (503) 982-5241 or at Eric.Liljequist@ci.woodburn.or.us to arrange a visit.*

2 *Audio-visual (AV) system drawings have been included for reference only. AV systems will be bid separately and installed by a separate contractor. Bidders to coordinate with the AV system installer to ensure a complete and functional AV system.*

3 *Bidder shall provide boxes, raceways and pull strings connecting to server room for all tel/data locations (see E300 & 301). The City will install tel/data cabling, devices and terminations.*

4 *Building security cameras, camera cabling, and associated devices will be removed and reinstalled by City staff. Contractor to coordinate with City during construction to ensure access.*

5 *Contractor shall provide the bulk of the HVAC controls scope. All controls associated with the packaged rooftop units AHU-001 and AHU-002, the VRF system and VAV boxes are provided as part of the procurement of those systems. The City has a centralized Building Automation System (BAS) by Automated Logic. All building mechanical equipment needs to be connected to that system for viewable read only access. The City can provide a point of contact to coordinate this scope of work with as part of the bids, if requested.*

6 *Owner has procured a Limited Asbestos Building Material Survey and Limited Lead Based Paint Sampling report which will be made available for download from the bid documents website. Owners intends to remove asbestos-containing material prior to construction.*

7 *Bidders to submit all questions and substitution requests by Friday, January 11th at 12:00 noon.*

END OF DOCUMENT

DESIGN CONDITIONS - PORTLAND, OR

SPACE	WINTER		SUMMER	
	TEMPERATURE	HUMIDITY	TEMPERATURE	HUMIDITY
OUTDOOR	25.2° F DB	9.6° F DP / 9.0 HR / 29.8 ° F MCDB	91.4° F DB / 67.3° F MCWB	63.2° F DP / 87.0 HR / 75.1° F MCDB
INDOOR	70° F ± 2° F DB	50% RH MAX, NO MINIMUM	75° F ± 2° F DB	50% RH MAX, NO MINIMUM

GENERAL NOTES:

A. OUTDOOR CONDITIONS BASED ON ASHRAE FUNDAMENTALS 2013 99.6% AND 0.4% DATA.

TERMINAL UNIT SCHEDULE

TAG NUMBER	LOCATION	TYPE	PRIMARY AIR INLET (IN)	PRIMARY AIR MAX CFM	PRIMARY AIR MIN CFM	MANUFACTURER & MODEL	NOTES
VAV-001	OPEN STORAGE 010	VV	7	400	146	PRICE SDV	
VAV-002	CONF ROOM 004	VV	7	400	109	PRICE SDV	1,2
VAV-003	TRAINING AREA 006	VV	7	400	214	PRICE SDV	1,2
VAV-004	OPEN STORAGE 010	VV	7	400	319	PRICE SDV	
VAV-005	IT STORAGE 023	VV	7	400	100	PRICE SDV	
VAV-101	LEGAL ASSISTANT 106	VV	7	400	125	PRICE SDV	
VAV-102	FINANCE DEPT 107	VV	7	400	191	PRICE SDV	
VAV-103	HALLWAY 162	VV	7	400	148	PRICE SDV	
VAV-104	LUNCH ROOM 140	VV	7	400	155	PRICE SDV	
VAV-105	HR DIRECTOR 156	VV	7	400	338	PRICE SDV	1,2
VAV-106	HR DIRECTOR 156	VV	7	400	248	PRICE SDV	

GENERAL NOTES:

A. AIR PRESSURE DROP THROUGH TERMINAL UNIT TO BE NO GREATER THAN 0.25 IN.WG.

NOTES:

1. CO2 SENSOR LOCATED ADJACENT TO THERMOSTAT.
2. OCCUPANCY SENSOR IN SPACE TURNS TERMINAL UNIT OFF WHEN SPACE IS UNOCCUPIED.

KEY:

VV = VARIABLE AIR VOLUME TERMINAL UNIT

VRF HEAT RECOVERY PORTS

TAG NUMBER	LOCATION	ELECTRICAL FLA	ELECTRICAL VOLT/ PHASE	APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
HRP-001	TRAINING AREA 006	0.09	208/1	50	LG PRHR083A	1
HRP-101	LOCKER ROOM 155	0.09	208/1	50	LG PRHR063A	1
HRP-102	CONF ROOM 124	0.06	208/1	50	LG PRHR043A	1
HRP-103	COMM DEVT 114	0.06	208/1	50	LG PRHR043A	1
HRP-104	FINANCE DEPT 107	0.09	208/1	50	LG PRHR083A	1
HRP-105	LEGAL ASSISTANT 106	0.06	208/1	50	LG PRHR033A	1

GENERAL NOTES:

A. PROVIDE ISOLATION BALL VALVES FOR EACH REFRIGERANT BRANCH.

B. SIZE REFRIGERANT PIPING PER MANUFACTURER'S INSTRUCTIONS.

NOTES:

1. UNIT MOUNTED TO BUILDING STRUCTURE.

DIFFUSERS AND GRILLES

TAG NUMBER	TYPE	CFM RANGE MIN	CFM RANGE MAX	INLET SIZE (IN)	FACE SIZE T-BAR (IN)	FACE SIZE HARD LID (IN)	MAX NC	THROW (FT)	MANUFACTURER & MODEL	NOTES
C-1	CEILING SUPPLY DIFFUSER	0	125	6x6	24x24	13x13	12	2-2-5	TITUS PMC	
		126	220	8x8	24x24	15x15	17	2-3-6		
		221	345	10x10	24x24	17x17	21	3-4-8		
		346	500	12x12	24x24	19x19	24	3-5-9		
		501	780	16x16	24x24	23x23	28	4-6-11		
C-2	CEILING RETURN/ EXHAUST GRILLE	0	340	10x10	24x24	12x12	17	-	TITUS PAR	
		341	780	15x15	24x24	17x17	22	-		
		781	1125	18x18	24x24	20x20	24	-		
		1129	1670	22x22	24x24	24x24	26	-		
		1671	3500	22x46	24x48	24x48	25	-		
S-1	CEILING SUPPLY DIFFUSER	0	250	8	48x2	48x2	18	7-10-19	TITUS FLS-SUB	1
		251	280	8	60x2	60x2	17	7-10-20		1

GENERAL NOTES:

A. NOISE CRITERIA (NC) BASED ON ROOM ABSORPTION OF 10 dB, MEASURED PER ANSI/ASHRAE STANDARD 70.

B. THROW VALUES GIVEN FOR TERMINAL VELOCITIES 150, 100, AND 50 FPM FOR ISOTHERMAL CONDITIONS.

NOTES:

1. ONE SLOT.

AIR HANDLING UNIT SCHEDULE

TAG NUMBER				AHU-101	AHU-102
LOCATION				ROOF	ROOF
SERVICE				-	COUNCIL CHAMBER
MIXING BOX	MAX OSA		CFM	3,600	2,000
	CODE MIN OSA		CFM	3,600	760
	MIN OSA		CFM	3,600	760
	LOW MIN OSA		CFM	3,600	760
	PRE-FILTER MERV RATING			8	8
	FINAL FILTER MERV RATING			13	13
SUPPLY FAN	QUANTITY			1	1
	AIRFLOW		CFM	3,600	2,000
	FAN TYPE			PLUG	PLUG
	TSP		(IN. WG.)	3.5	2.1
	ESP		(IN. WG.)	1.4	0.9
	FAN RPM			2,200	2,200
	MOTOR BHP			3.2	1.0
	MOTOR HP			5.0	2.0
	VOLT/PHASE			208/3	208/3
	VFD			YES	YES
RETURN/ RELIEF FAN	QUANTITY			1	1
	AIRFLOW		CFM	3,600	2,000
	FAN TYPE			PLUG	PLUG
	TSP		(IN. WG.)	2.1	0.9
	ESP		(IN. WG.)	0.8	0.5
	FAN RPM			2,200	1,440
	MOTOR BHP			2.0	1.3
	MOTOR HP			3.0	2.0
	VOLT/PHASE			208/3	208/3
	VFD			YES	YES
AIR COOLED CONDENSER FAN	QUANTITY			2	2
	FAN TYPE			PROP	PROP
	MOTOR BHP			0.25	0.25
	MOTOR HP			0.33	0.33
	VOLT/PHASE			208/1	208/1
NATURAL GAS FIRED HEATING COIL	INPUT		(MBH)	195	150
	OUTPUT		(MBH)	156.00	120.00
	CONTROL			MODULATING 10:1	MODULATING 8:1 1
	EAT		(°F)	47	52
	LAT		(°F)	80	90
DX REFRIGERANT COIL 1	COOLING	EAT	(°F DB/WB)	82/64	82/64
		LAT	(°F DB/WB)	56/54	54/52
ENERGY RECOVERY SECTION	COOLING	TYPE		WHEEL	NONE
		EAT	(F DB/WB)	92/68	-
		LAT	(F DB/WB)	82/64	-
		CAPACITY	(MBH)	38	-
	HEATING	EAT	(F)	22	-
		LAT	(F)	47	-
		CAPACITY	(MBH)	160	-
APPROX. WEIGHT			(LBS)	2,400	1,300
MANUFACTURER & MODEL				AAON	AAON
NOTES				1	1

GENERAL NOTES:

A. UNITS MOUNTED ON ROOF CURB

B. MINIMUM OSA CALCULATED BASED ON CODE AND ASHRAE STANDARD 62.1

C. HEATING COILS BASED ON MAXIMUM FACE VELOCITY OF 750 FPM, 0.15 IN WG MAXIMUM AIR PRESSURE DROP, 5FT WG MAXIMUM WATER PRESSURE DROP.

D. COOLING COILS BASED ON MAXIMUM FACE VELOCITY OF 500 FPM, 0.75 IN WG MAXIMUM AIR PRESSURE DROP AND 18 FT WG MAXIMUM WATER PRESSURE DROP.

E. PROVIDE SCCR SUFFICIENT TO MEET THE AVAILABLE FAULT CURRENT AT THE PANELBOARD OR SWITCHBOARD FROM WHICH THE UNIT IS FED. COORDINATE WITH ELECTRICAL DRAWINGS AND ELECTRICAL CONTRACTOR.

F. HEAT RECOVERY SECTION EFFECTIVENESS IS BASED ON AHRI 1060.

NOTES:

1. ARRANGE UNIT FOR SINGLE POINT POWER CONNECTION W/ DISCONNECT SWITCH. PROVIDE A SEPARATE, DEDICATED 120V CONNECTION FOR RECEPTACLE(S) AND LIGHTS.

deca
ARCHITECTURE.INC
935 SE Alder Street, Portland Oregon 97214
tel 503 239 1987 fax 503 239 6558

WOODBURN CITY HALL REMODEL AND HVAC UPGRADE

270 Montgomery St.
Woodburn, OR 97071

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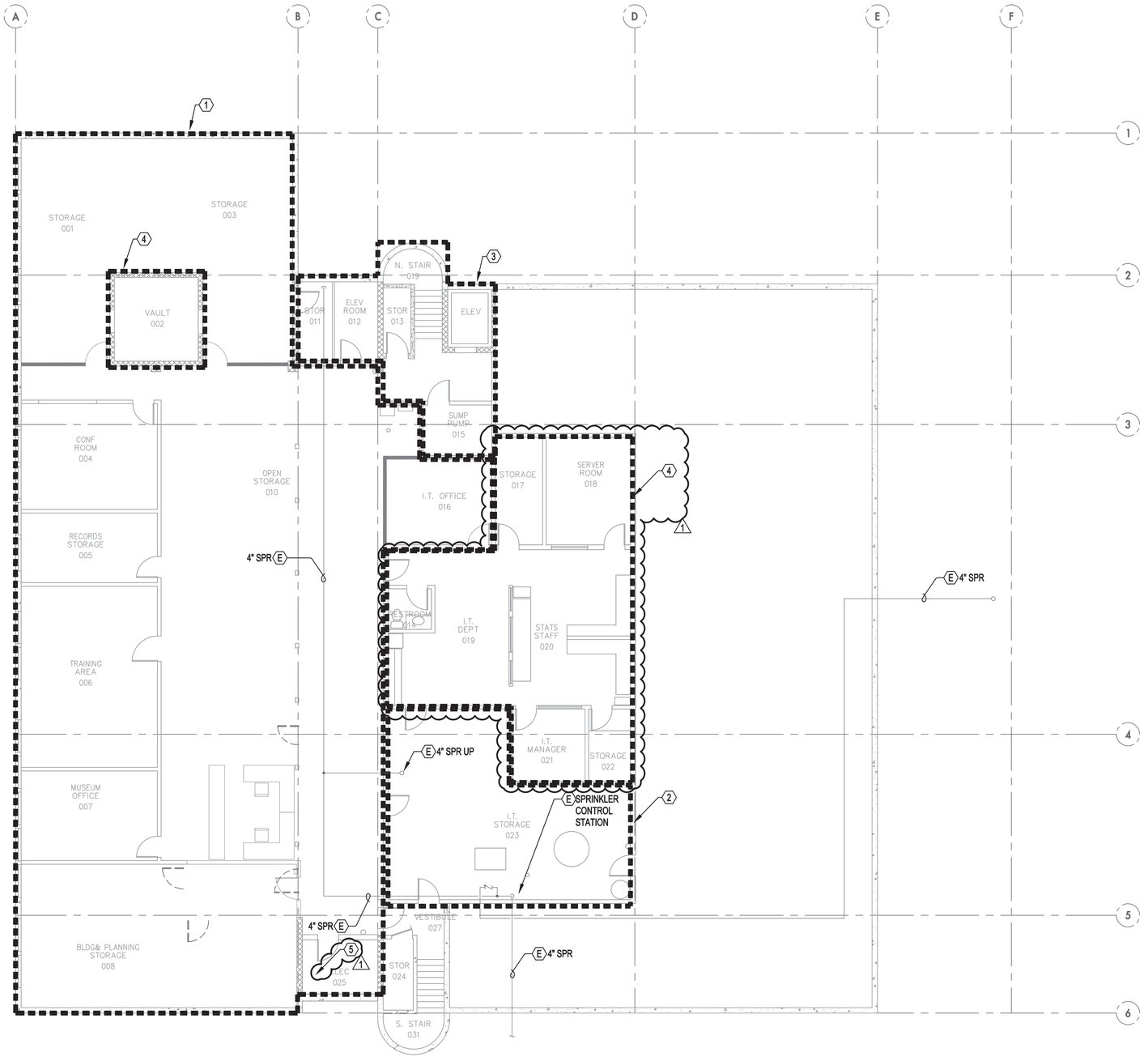
Issue	Revision	Date
100% CD		12/14/18
ADDENDUM 1	1	1/3/19

SCHEDULES - MECHANICAL

Scale N.T.S.
Date JANUARY 3, 2019
Sheet No. M002



1 / FP200 FLOOR PLAN - BASEMENT - FIRE PROTECTION

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

A. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. PRIOR TO PROCEEDING WITH WORK, NOTIFY THE ARCHITECT ABOUT ANY DISCREPANCIES BETWEEN DESIGN DOCUMENTS AND FIELD CONDITIONS.
B. PATCH AND REPAIR ALL OPENINGS MADE BY REMOVALS/DEMOLITION.
C. AFTER COMPLETING DEMO WORK, VERIFY THAT ALL SERVICES TO THE AREAS NOT INCLUDED IN THE DEMO WORK SCOPE AREA ARE FUNCTIONAL.

NOTE:

1. REVISE SPRINKLER HEAD LOCATIONS AND PIPING LAYOUT TO PROVIDE TOTAL COVERAGE PER NFPA 13. COORDINATE NEW SPRINKLER HEAD LOCATIONS WITH ARCHITECTURAL CEILING PLANS AND CEILING MOUNTED DEVICES AND DIFFUSERS. COORDINATE SPRINKLER TYPES (PENDANT VS UPRIGHT) IN AREAS WHERE CEILINGS HAVE BEEN REMOVED OR WHERE CEILINGS HAVE CHANGED. PROVIDE NEW SPRINKLER HEADS AS REQUIRED AND CONNECT TO EXISTING PLUMBING MAINS.
2. EXISTING FIRE PROTECTION TO BE DEMOLISHED AND REPLACED WITH LIKE FOR LIKE SPRINKLER PIPING AND SPRINKLER HEADS.
3. MODIFY EXISTING SPRINKLER LAYOUT IN ROOM, PROVIDE NEW SPRINKLERS AS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH NFPA 13.
4. EXISTING FIRE PROTECTION SPRINKLER HEADS AND PIPING IN ROOM TO REMAIN.
5. PROVIDE NEW SPRINKLER HEAD IN ELECTRICAL CLOSET IN PLACE OF EXISTING PAINTED HEAD. (1)

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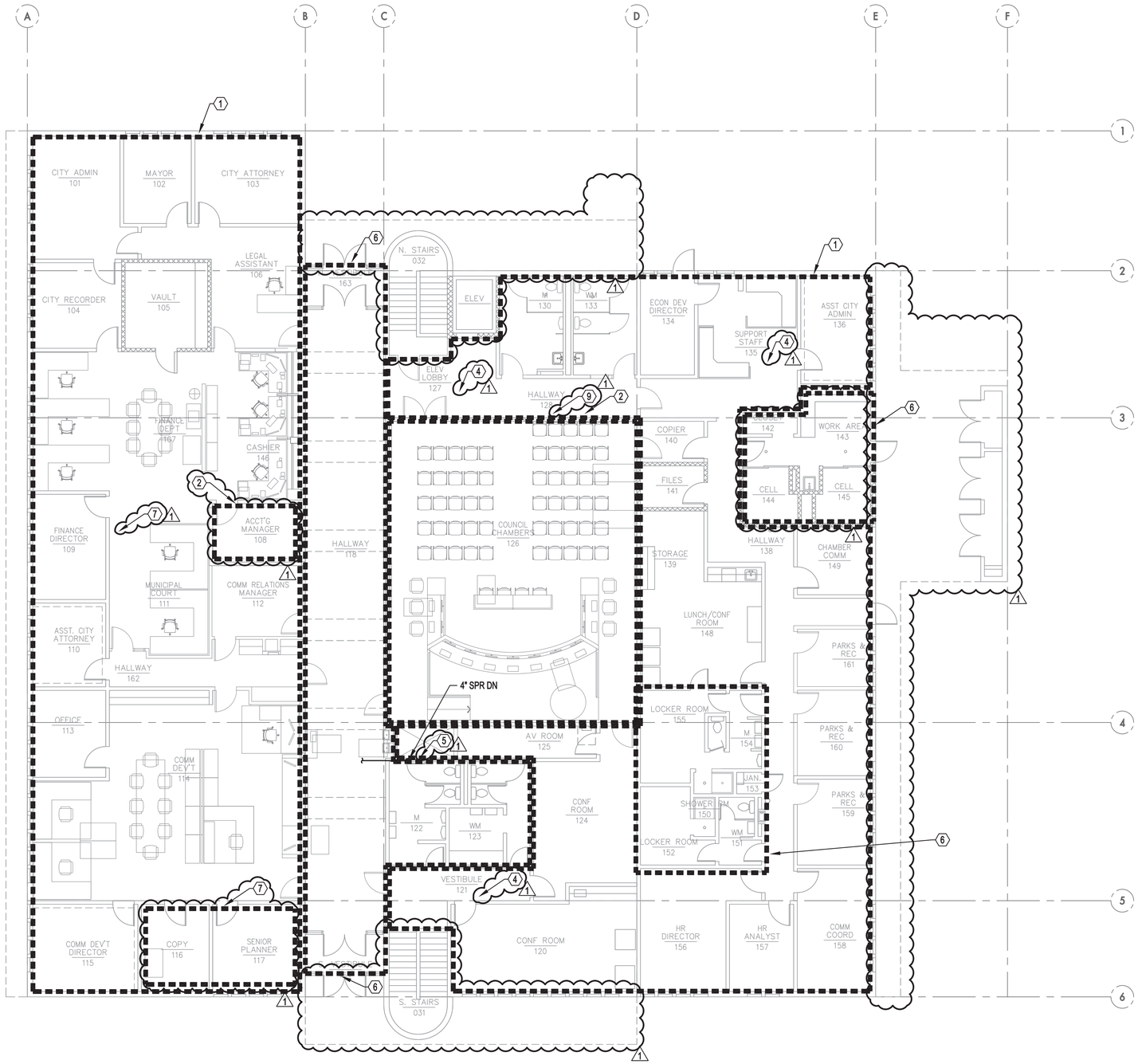
BASEMENT FLOOR PLAN - FIRE PROTECTION

Scale	1/8" = 1'-0"
Date	JANUARY 3, 2019
Sheet No.	FP200



1 FP201 FLOOR PLAN - GROUND LEVEL - FIRE PROTECTION

SCALE: 1/8" = 1'-0"

N

GENERAL NOTES:

A. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK. PRIOR TO PROCEEDING WITH WORK, NOTIFY THE ARCHITECT ABOUT ANY DISCREPANCIES BETWEEN DESIGN DOCUMENTS AND FIELD CONDITIONS.
B. PATCH AND REPAIR ALL OPENINGS MADE BY REMOVALS/DEMOLITION.
C. AFTER COMPLETING DEMO WORK, VERIFY THAT ALL SERVICES TO THE AREAS NOT INCLUDED IN THE DEMO WORK SCOPE AREA ARE FUNCTIONAL.

NOTE:

1. REVISE SPRINKLER HEAD LOCATIONS AND PIPING LAYOUT TO PROVIDE TOTAL COVERAGE PER NFPA 13. COORDINATE NEW SPRINKLER HEAD LOCATIONS WITH ARCHITECTURAL CEILING PLANS AND CEILING MOUNTED DEVICES AND DIFFUSERS. COORDINATED SPRINKLER TYPES (PENDANT VS UPRIGHT) IN AREAS WHERE CEILINGS HAVE BEEN REMOVED OR WHERE CEILINGS HAVE CHANGED. PROVIDE NEW SPRINKLER HEADS AS REQUIRED AND CONNECT TO EXISTING PIPING MAINS.
2. SEE ARCHITECTURAL RCP DRAWINGS FOR SPRINKLER HEAD LAYOUT. EXISTING SPRINKLER LINES TO BE RAISED TO ACCOMMODATE NEW CEILING HEIGHT. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR NEW CEILING HEIGHT.
3. MODIFY EXISTING SPRINKLER LAYOUT IN ROOM, PROVIDE NEW SPRINKLERS AS REQUIRED TO PROVIDE COVERAGE IN ACCORDANCE WITH NFPA 13.
4. PROVIDE NEW SPRINKLER HEAD FOR HEAD MISSING ESCUTCHEON.
5. FIELD VERIFY EXISTING SPRINKLER RISER LOCATION.

1

6. EXISTING FIRE PROTECTION SPRINKLER HEADS AND PIPING IN ROOM TO REMAIN.
7. PROVIDE NEW SPRINKLER HEAD IN PLACE OF QUICK RESPONSE HEADS.
8. PROVIDE NEW SPRINKLER HEAD IN PLACE OF 360 DEGREE HEADS.
9. RELOCATE EXISTING FIRE PROTECTION PIPING LOCATED ABOVE COUNCIL CHAMBERS ROOM TO COORDINATE WITH NEW CEILING HEIGHT.

1

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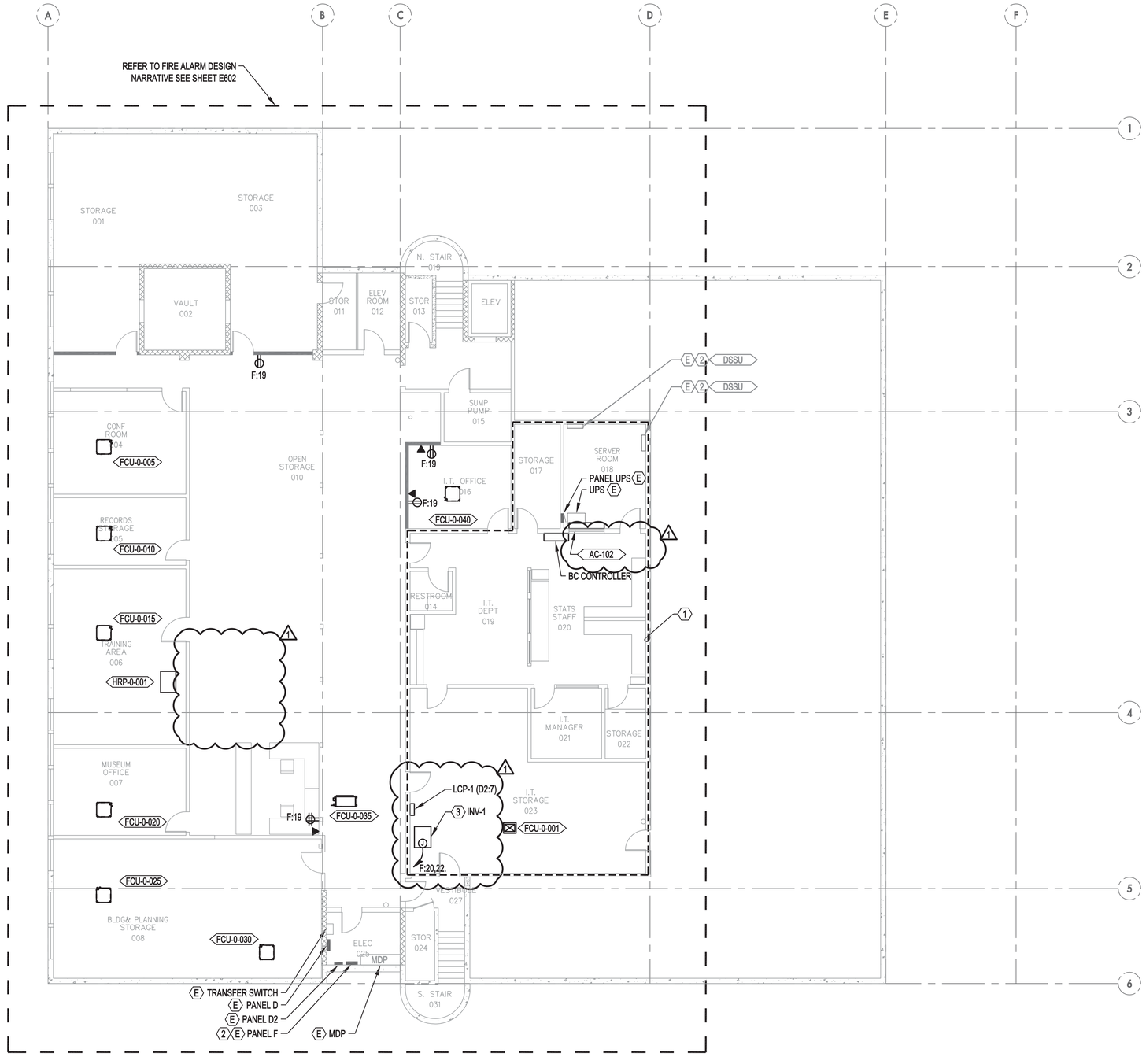
GROUND FLOOR PLAN - FIRE PROTECTION

Scale 1/8" = 1'-0"
Date JANUARY 3, 2019
Sheet No. FP201



1 E-300 FLOOR PLAN - BASEMENT - POWER & SIGNAL

SCALE: 1/8" = 1'-0"

N

GENERAL NOTES:

A. REFER TO THE ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES. WHERE NO ELEVATION EXISTS, REFER TO TYPICAL MOUNTING HEIGHTS ON THE E-001 LEGEND DRAWING.

B. REFER TO ARCHITECTURAL FLOOR PLANS FOR EXACT LOCATION OF FLOOR DEVICES.

C. PROVIDE FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED STAIR ENCLOSURES, RATED EGRESS CORRIDORS, RATED SHAFTS, FLOOR AND CEILING ASSEMBLIES.

D. PROVIDE FLEXIBLE CONNECTIONS FOR ALL CONDUITS CROSSING EXPANSION JOINTS.

E. COORDINATE EQUIPMENT CONNECTIONS WITH MECHANICAL CONTRACTOR. REFER TO DRAWING E802 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.

F. PROVIDE #10 CONDUCTORS FOR RECEPTACLES CIRCUITS EXCEEDING TOTAL LENGTH OF 100 FEET BETWEEN DEVICE AND PANEL.

G. REFER TO THE MECHANICAL AND PLUMBING PLANS FOR EXACT EQUIPMENT LOCATIONS.

H. ALL PENETRATIONS AND ROUTING PATHS OF EXPOSED CONDUIT SHALL BE COORDINATED AND REVIEWED BY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.

I. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT, DO NOT SHARE NEUTRAL CONDUCTORS.

J. UTILIZE NO MORE THAN SIX CURRENT CARRYING CONDUCTORS PER BRANCH CIRCUIT HOMERUN.

K. CONTRACTOR TO INSTALL BOXES, RACEWAYS WITH PULL STRINGS FROM DEVICE LOCATION TO SERVER ROOM FOR ALL DATA DROPS. COORDINATE WITH WOODBURN IT PERSONNEL FOR STANDARD MEANS AND METHODS FOR IT INSTALLATION. CABLES, DEVICES AND TERMINATIONS BY OTHERS.

L. ALL ELECTRICAL PANELS/DISTRIBUTION BOARDS/UPS SYSTEMS ARE EXISTING UNLESS OTHERWISE NOTED.

M. PANEL SCHEDULES TO BE UPDATED BASED ON CIRCUIT UPDATES.

NOTES:

1. AREA WITHIN DASHED REGION SHALL MAINTAIN OPERATION DURING CONSTRUCTION. ANY POWER OUTAGES IN THIS AREA ARE TO BE SCHEDULED WITH OWNER/OWNER REPRESENTATIVES.

2. PROVIDE 5-20A/1P BREAKER IN PANEL F FOR FUTURE EXPANSION.

3. PROVIDE 30A/2P BREAKER IN PANEL F FOR LIGHTING INVERTER.

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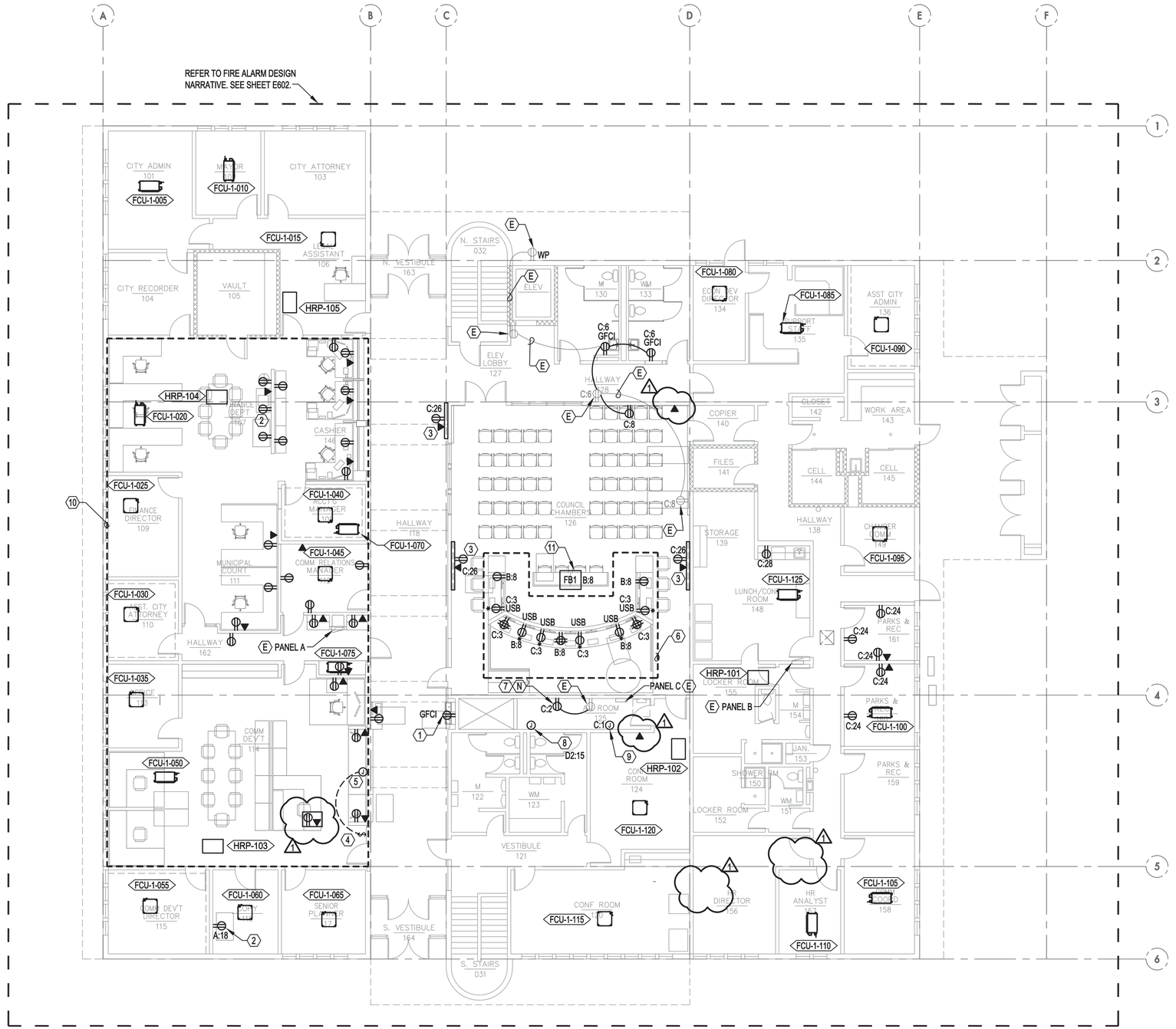
BASEMENT FLOOR PLAN - POWER & SIGNAL

Scale 1/8" = 1'-0"
Date JANUARY 3, 2019
Sheet No. E300



1 E301 FLOOR PLAN - GROUND LEVEL - POWER & SIGNAL

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

A. REFER TO THE ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES. WHERE NO ELEVATION EXISTS, REFER TO TYPICAL MOUNTING HEIGHTS ON THE E-XXX LEGEND DRAWING.

B. REFER TO ARCHITECTURAL FLOOR PLANS FOR EXACT LOCATION OF FLOOR DEVICES.

C. PROVIDE FIRESTOPPING AT ALL PENETRATIONS THROUGH RATED STAIR ENCLOSURES, RATED EGRESS CORRIDORS, RATED SHAFTS, FLOOR AND CEILING ASSEMBLIES.

D. PROVIDE FLEXIBLE CONNECTIONS FOR ALL CONDUITS CROSSING EXPANSION JOINTS.

E. COORDINATE EQUIPMENT CONNECTIONS WITH MECHANICAL CONTRACTOR. REFER TO DRAWING E802 FOR MECHANICAL EQUIPMENT CONNECTION SCHEDULE.

F. PROVIDE #10 CONDUCTORS FOR RECEPTACLES CIRCUITS EXCEEDING TOTAL LENGTH OF 100 FEET BETWEEN DEVICE AND PANEL.

G. REFER TO THE MECHANICAL AND PLUMBING PLANS FOR EXACT EQUIPMENT LOCATIONS.

H. ALL PENETRATIONS AND ROUTING PATHS OF EXPOSED CONDUIT SHALL BE COORDINATED AND REVIEWED BY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION.

I. PROVIDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR FOR EACH BRANCH CIRCUIT, DO NOT SHARE NEUTRAL CONDUCTORS.

J. UTILIZE NO MORE THAN SIX CURRENT CARRYING CONDUCTORS PER BRANCH CIRCUIT HOMERUN.

K. CONTRACTOR TO INSTALL BOXES, RACEWAYS WITH PULL STRINGS FROM DEVICE LOCATION TO SERVER ROOM FOR ALL DATA DROPS. COORDINATE WITH WOODBURN IT PERSONNEL FOR STANDARD MEANS AND METHODS FOR IT INSTALLATION. CABLE, DEVICES AND TERMINATIONS BY OTHERS.

L. ALL ELECTRICAL PANELS ARE EXISTING UNLESS OTHERWISE NOTED.

NOTES:

1. REPLACE WITH GFCI RECEPTACLE.

2. RECEPTACLE FOR COPIER.

3. POWER AND DATA FOR MONITORS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS. BACKBOXES BY OTHERS. COORDINATE WITH AV INTEGRATOR BEFORE INSTALLATION. REFER TO AV DRAWINGS FOR FURTHER INFORMATION.

4. SWITCH FOR MOTORIZED SHUTTER TO BE CONCEALED IN CASEWORK.

5. EQUIPMENT CONNECTION: MOTORIZED SHUTTER.

6. REFER TO ARCHITECTURAL DRAWINGS FOR RECEPTACLE LOCATIONS/MOUNTING HEIGHTS WITHIN CASEWORK OF COUNCIL CHAMBERS STAFF DESK.

7. INTERCEPT EXISTING CIRCUIT WHERE NEW RECEPTACLE IS SHOWN.

8. EQUIPMENT CONNECTION: ACCESS CONTROL HEADEND. PROVIDE 20A/1P BREAKER IN PANEL D2

9. EQUIPMENT CONNECTION: AV NETWORK HEADEND.

10. DASHED REGION IS FED BY PANEL A. CONTRACTOR TO VERIFY RECEPTACLE/CIRCUIT DESIGNATION TO VERIFY CAPACITY. AFTER EXTENSIVE RENOVATION, SPARED CIRCUITS ARE TO BE USED FOR ALL NEW RECEPTACLES SHOWN IN THIS AREA. 6 RECEPTACLES PER CIRCUIT IS ALLOWED FOR SALVAGED CIRCUITS PROVIDE SEPARATE NEUTRALS. PLEASE SUBMIT CIRCUITING INTENT FOR PAE'S REVIEW BEFORE INSTALLATION.

11. FLOORBOX TO BE PROVIDED SHALL BE FSR-FL-600-6 OR APPROVED EQUAL.

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935 SE Alder Street, Portland Oregon 97214
tel 503 239 1987 fax 503 239 6558

WOODBURN CITY HALL REMODEL AND HVAC UPGRADE

270 Montgomery St.
Woodburn, OR 97071

PAE
pae-engineers.com

Issue	Revision	Date
100% CD		12/14/18
ADDENDUM 1	1	1/3/19

GROUND FLOOR PLAN - POWER & SIGNAL

Scale 1/8" = 1'-0"
Date JANUARY 3, 2019
Sheet No. E301

EXISTING LAYOUT EXISTING PANEL MR

DESIGNATION: MR (E) (1)				VOLTAGE: 208Y/120V - 3 Ph - 4 Wire							BUS RATING(A): 300
AVAILABLE FAULT(A):		MAIN: MLO		MOUNTING: Surface					ENCLOSURE: NEMA 1		
DESCRIPTION	DEMAND	VA	BKR A/P	CKT	PH	CKT	BKR A/P	VA	DEMAND	DESCRIPTION	
AC-1	Equipment	4600	50/3	1	A	2	50/3	4600	Equipment	AC-2	
		4600		3	B	4		4600			
		4600		5	C	6		4600			
AC-3	Equipment	3500	45/3	7	A	8	45/3	3500	Equipment	AC-4	
		3500		9	B	10		3500			
		3500		11	C	12		3500			
AC-5	Equipment	3500	45/3	13	A	14	45/3	3500	Equipment	AC-6	
		3500		15	B	16		3500			
		3500		17	C	18		3500			
AC-7	Equipment	3500	45/3	19	A	20	45/3	3500	Equipment	AC-8	
		3500		21	B	22		3500			
		3500		23	C	24		3500			
SPACE				25	A	26				SPACE	
SPACE				27	B	28	15/2	100	Equipment	PANEL MR HTR	
SPACE				29	C	30		100			
				31	A	32					
				33	B	34					
				35	C	36					
				37	A	38					
				39	B	40					
				41	C	42					

DEMAND CATEGORY	A PH (VA)	B PH (VA)	C PH (VA)	TOTAL (VA)
Equipment	30200	30300	30300	90800
DESIGN LOAD PHASE SUB-TOTAL	30200	30300	30300	90800

TOTAL CONNECTED LOAD VA:	90800
MAX CONNECTED PHASE AMPS:	252.3
TOTAL DESIGN LOAD VA:	90800
MAX DESIGN PHASE AMPS:	252.3

NOTES:

NEW LAYOUT EXISTING PANEL MR

DESIGNATION: MR(E)				VOLTAGE: 208Y/120V - 3 Ph - 4 Wire							BUS RATING(A): 400
AVAILABLE FAULT(A): 19996		MAIN: MLO		MOUNTING: Surface					ENCLOSURE: NEMA 1		
DESCRIPTION	DEMAND	VA	BKR A/P	CKT	PH	CKT	BKR A/P	VA	DEMAND	DESCRIPTION	
FCU-0-001/005/10/15/20/25/30/35/40	Equipment	696	20/2	1	A	2	40/3	3158	Equipment	ACCU-101 (FRAME 1)	
		696		3	B	4		3158			
HRP-001	Equipment	21	20/2	5	C	6		3158			
		21		7	A	8	70/3	7241	Equipment	ACCU-101 (FRAME 2)	
FCU-1-005/010/015/020/025/040	Equipment	538	20/2	9	B	10		7241			
		538		11	C	12		7241			
FCU-1-030/35/45/50/55/60/65/70/75	Equipment	872	20/2	13	A	14	40/3	0	Equipment	SPARE	
		872		15	B	16		0			
FCU-1-080/085/090/095/125	Equipment	444	20/2	17	C	18		0			
		444		19	A	20	90/3	7926	Equipment	AHU-101	
FCU-1-100/105/110/115/120	Equipment	772	20/2	21	B	22		7926			
		772		23	C	24		7926			
HRP-101/102/103/104/105	Equipment	40	20/2	25	A	26				SPACE	
		40		27	B	28	15/2	100	Equipment	PANEL MR HTR	
BC CONTROLLER	Equipment	100	20/1	29	C	30		100			
DDC PANEL 1ST FLOOR	Equipment	200	20/1	31	A	32	50/3	4368	Equipment	AHU-102	
DDC PANEL PENTHOUSE	Equipment	200	20/1	33	B	34		4368			
SPARE			20/1	35	C	36		4368			
SPARE			20/1	37	A	38				SPACE	
SPACE			20/1	39	B	40				SPACE	
SPACE			20/1	41	C	42				SPACE	

DEMAND CATEGORY	A PH (VA)	B PH (VA)	C PH (VA)	TOTAL (VA)
Equipment	24966	25911	24668	75545
DESIGN LOAD PHASE SUB-TOTAL	24966	25911	24668	75545

TOTAL CONNECTED LOAD VA:	75545
MAX CONNECTED PHASE AMPS:	215.8
TOTAL DESIGN LOAD VA:	75545
MAX DESIGN PHASE AMPS:	215.8

NOTES:

DESIGNATION: PANEL D2 (E)				VOLTAGE: 208Y/120V - 3 Ph - 4 Wire							BUS RATING(A): 100
AVAILABLE FAULT(A): 17972		MAIN: MLO		MOUNTING: Surface					ENCLOSURE: NEMA 1		
DESCRIPTION	DEMAND	VA	BKR A/P	CKT	PH	CKT	BKR A/P	VA	DEMAND	DESCRIPTION	
WASTEWATER LIFT STATION CP (E)	Equipment	1000	30/3	1	A	2	20/1	500	Lighting	ELECTRICAL LTG RM (E)	
		1000		3	B	4	20/1	180	Receptacles	ELECTRICAL RM REC (E)	
		1000		5	C	6	20/1	650	Equipment	SUMP PUMP (E)	
A/C GOODMAN (E)	Equipment	750	20/2	7	A	8	30/2	900	Equipment	WASTEWATER LIFT ECP1/SF1/EF1/EDH1 (E)	
		750		9	B	10		900			
A/C FUJITSU (E)	Equipment	750	30/2	11	C	12	30/2	900	Equipment	FIRE ALARM SYSTEM (E)	
		750		13	A	14	40/3	2894	Equipment	ACCO-102/AC-102	
ACCESS CONTROL	Equipment	500	20/1	15	B	16		2894			
LIGHTING CONTROL PANEL	Equipment	500	20/1	17	C	18		2894			

DEMAND CATEGORY	A PH (VA)	B PH (VA)	C PH (VA)	TOTAL (VA)
Equipment	6294	6044	6294	18632
Lighting	625	0	0	625
Receptacles	0	180	0	180
DESIGN LOAD PHASE SUB-TOTAL	6919	6224	6294	19437

TOTAL CONNECTED LOAD VA:	19312
MAX CONNECTED PHASE AMPS:	56.6
TOTAL DESIGN LOAD VA:	19437
MAX DESIGN PHASE AMPS:	57.6

NOTES:

DESIGNATION: INV-1	INPUT VOLTAGE: 208V OUTPUT VOLTAGES: 120V / 208V
INVERTER RATING: 5 KVA	ENCLOSURE: NEMA 1

DESCRIPTION	DEMAND CATEGORY	V	VA	BKR A/P	CKT
VESITBULE NORTH (163)/NORTH EXTERIOR (r101 & r102)	Lighting	120	240	20/1	1
VESITBULE SOUTH (163)/SOUTH EXTERIOR (r103 & r104)	Lighting	120	240	20/1	2
HALLWAY (118/162) (r105 & 106)	Lighting	120	600	20/1	3
WEST & EAST SPOTLIGHTS (r107 & r108)	Lighting	120	560	20/1	4
NORTH STAIRS (032)/SOUTH STAIRS (031) (r109)	Lighting	120	440	20/1	5
SOFFIT LIGHTS & HALLWAY (128) (r110 & r111)	Lighting	120	480	20/1	6
HALLWAY (138)	Lighting	120	560	20/1	7
SPARE		120		20/1	8
SPARE		120		20/1	9
SPARE		120		20/1	10

DEMAND CATEGORY	A ph (VA)
Lighting	3120
CONNECTED LOAD:	3120

TOTAL CONNECTED LOAD (AT 120V)	VA:	3120
	AMPS:	15.0
TOTAL DESIGN LOAD (AT 120V)	VA:	3900
	AMPS:	18.8

GENERAL NOTES:

A. ALL EQUIPMENT IS EXISTING TO REMAIN UNLESS OTHERWISE NOTED.

PANEL MR EXISTING LOAD SUMMARY:
- PHASE A: 30.2 KVA
- PHASE B: 30.3 KVA
- PHASE C: 30.3 KVA
- TOTAL AMPS = 252.3 A

PANEL MR NEW LOAD SUMMARY:
- PHASE A: 30.34 KVA
- PHASE B: 31.02 KVA
- PHASE C: 30.68 KVA
- TOTAL AMPS = 258.3 A

NOTES:

1. PROVIDE NEW BREAKERS AS SHOWN UNLESS OTHERWISE NOTED.

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ADDENDUM 1	1	1/3/19

PANEL SCHEDULES

Scale N.T.S.
Date JANUARY 3, 2019
Sheet No. E801

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT DESCRIPTIONS			ELECTRICAL CHARACTERISTICS							CONNECTION CHARACTERISTICS				FEEDER CHARACTERISTICS			PANEL INFORMATION	SCCR	NOTES
TAG	DESCRIPTION	LOCATION	KW	HP	FLA	MCA	MOCP	VOLTS	PHASE	VFD	1-POINT CONNECT	STARTER DIVISION	DISCONNECT DIVISION	CONDUIT DIA (INCH)	PHASE CONDUCTORS	GROUND CONDUCTOR	PANEL NAME	AVAILABLE FAULT AT EQUIPMENT (AMPS)	
AHU-101	DOAS AIR HANDLING UNIT	ROOF			64.3	80.4	90	208	3	Y		23	26	(1) 1-1/4"	(3) #3	#8	MR	20,000	
	-COMPRESSOR 1				16.9			208	3										
	-COMPRESSOR 2				15.6			208	3										
	-CONDENSER FANS			0.33	2.6			208	1										
	-SUPPLY FAN			5.00	16.7			208	3										
	-RETURN/RELIEF FAN			3.00	10.6			208	3										
	-ENERGY RECOVERY			0.09	1.3			208	1										
	-COMBUSTION			0.05	0.6			208	1										
AHU-102	AIR HANDLING UNIT	ROOF			36.4	45.5	50	208	3	Y		23	26	(1) 3/4"	(3) #6	#10	MR	20,000	
	-COMPRESSOR 1				20.4			208	3										
	-CONDENSER FAN			0.33	2.6			208	1										
	-SUPPLY FAN			2.0	7.5			203	3										
	-RETURN/RELIEF FAN			1.0	4.6			208	3										
	-COMBUSTION			0.1	1.3			208	1										
FCU-0-001	SPLIT SYSTEM AC INDOOR-	IT STORAGE 023	0.228		1.12	1.40		208	1	Y		23	26						
	-CONDENSATE PUMP																		
FCU-0-005	SPLIT SYSTEM AC INDOOR-	CONF ROOM 004	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-010	SPLIT SYSTEM AC INDOOR-	RECORDS STORAGE 005	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-015	SPLIT SYSTEM AC INDOOR-	TRAINING AREA 006	0.144		0.56	0.71		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-020	SPLIT SYSTEM AC INDOOR-	MUSEUM OFFICE 007	0.144		0.56	0.71		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-025	SPLIT SYSTEM AC INDOOR-	STORAGE 007	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-030	SPLIT SYSTEM AC INDOOR-	STORAGE 009	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-035	SPLIT SYSTEM AC INDOOR-	OPEN STORAGE 010	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-0-040	SPLIT SYSTEM AC INDOOR-	IT OFFICE 016	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-005	SPLIT SYSTEM AC INDOOR-	CITY ADMIN 101	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-010	SPLIT SYSTEM AC INDOOR-	MAYOR 102	0.150		1.06	1.32		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-015	SPLIT SYSTEM AC INDOOR-	LEGAL ASSISTANT 106	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-020	SPLIT SYSTEM AC INDOOR-	FINANCE DEPT 107	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-025	SPLIT SYSTEM AC INDOOR-	FINANCE DIRECTOR 109	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-030	SPLIT SYSTEM AC INDOOR-	ASST CITY ATTORNEY 110	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-035	SPLIT SYSTEM AC INDOOR-	OFFICE 113	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		
FCU-1-040	SPLIT SYSTEM AC INDOOR-	ACCTG MANAGER 108	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
	-CONDENSATE PUMP																		

GENERAL NOTES: (SOME MAY NOT BE USED ON THIS SHEET)

A. REFER TO PANEL SCHEDULES FOR OVERCURRENT PROTECTION CHARACTERISTICS AND CIRCUIT NUMBERS.
B. COORDINATE ALL EQUIPMENT CONNECTION REQUIREMENTS WITH INSTALLING CONTRACTOR PRIOR TO THE INSTALLATION OF ANY ELECTRICAL WORK.
C. VFD'S ARE FURNISHED BY DIVISION 23. INSTALL VFD AND PROVIDE LINE AND LOAD SIDE FEEDERS IN ELECTRICAL WORK.
D. COMBINATION STARTER/DISCONNECTS AND DISCONNECT SWITCHES SHALL BE LOCATED WITHIN SIGHT OF AND ADJACENT TO EQUIPMENT SERVED. COORDINATE INSTALLATION WITH EQUIPMENT INSTALLER.
E. NOT ALL EQUIPMENT IDENTIFIED HERE IS SHOWN ON FLOOR PLANS. REFER TO DRAWINGS IN OTHER DISCIPLINES FOR EQUIPMENT LOCATIONS.

NOTES: (SOME MAY NOT BE USED ON THIS SHEET)

1. MULTIPULE UNITS ARE FED FROM ONE CIRCUIT. PROVIDE INDIVIDUAL DISCONNECT AT EACH UNIT.

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100% CD		12/14/18
ADDENDUM 1	1	1/3/19

M&E SCHEDULE
1 of 2

Scale N.T.S.
Date JANUARY 3, 2019
Sheet No. E802

MECHANICAL EQUIPMENT CONNECTION SCHEDULE

EQUIPMENT DESCRIPTIONS			ELECTRICAL CHARACTERISTICS							CONNECTION CHARACTERISTICS				FEEDER CHARACTERISTICS			PANEL INFORMATION	SCCR	NOTES
TAG	DESCRIPTION	LOCATION	KW	HP	FLA	MCA	MOCP	VOLTS	PHASE	VFD	1-POINT CONNECT	STARTER DIVISION	DISCONNECT DIVISION	CONDUIT DIA (INCH)	PHASE CONDUCTORS	GROUND CONDUCTOR	PANEL NAME	AVAILABLE FAULT AT EQUIPMENT (AMPS)	
FCU-1-045	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COMM RELATIONS MANAGER 112	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-050	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COMM DEVT 114	1.500		1.06	1.32		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-055	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COMM DEVT DIRECTOR 115	0.144		0.56	0.71		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-060	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COPY 116	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-065	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	SENIOR PLANNER 117	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-070	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COMM RELATIONS MANAGER 112	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-075	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	HALLWAY 162	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-080	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	ECON DEV DIRECTOR 134	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-085	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	SUPPORT STAFF 135	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-090	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	ASST CITY ADMIN 136	0.144		0.56	0.71		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-095	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	CHAMBER COMM 149	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-100	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	PARKS & REC 160	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-105	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	COMM COORD 158	1.500		1.06	1.32		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-110	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	ANALYST 157	0.450		2.65	3.30		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-115	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	CONF ROOM 120	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-120	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	CONF ROOM 124	0.030		0.20	0.25		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
FCU-1-125	SPLIT SYSTEM AC INDOOR--CONDENSATE PUMP	CONF ROOM 148	1.500		1.06	1.32		208	1	Y		23	26	(1) 3/4"	(2) #12	#12	MR	10,000	1
ACCU-101	AIR COOLED CONDENSING UNIT	ROOF																	
	FRAME 1				24.4	28.5	40	208	3				26	(1) 3/4"	(3) #8	#10	MR	20,000	
	FRAME 2				54.2	60.3	70	208	3					(1) 1-1/4"	(3) #3	#8	MR	20,000	
ACCU-102	AIR COOLED CONDENSING UNIT	ROOF																	
	FRAME 1				24.1	30.0	40	208	3				26	(1) 3/4"	(3) #8	#10	D2	20,000	
AC-102	SPLIT SYSTEM AC INDOOR	SERVER ROOM			5.2			208	1				26	(1) 3/4"	(2)#12	#12	D2	10,000	FED VIA ACCU-102
BC CONTROLLER	VRF BRANCH CIRCUIT CONTROLLER							120						(1) 3/4"	(2) #12	#12	MR		
HRP-001	HEAT RECOVERY UNIT		0.08		0.09			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1
HRP-101	HEAT RECOVERY UNIT		0.04		0.09			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1
HRP-102	HEAT RECOVERY UNIT		0.08		0.06			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1
HRP-103	HEAT RECOVERY UNIT		0.04		0.06			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1
HRP-104	HEAT RECOVERY UNIT		0.08		0.09			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1
HRP-105	HEAT RECOVERY UNIT		0.08		0.06			208	1				26	(1) 3/4"	(2) #12	#12	MR	10,000	1

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100% CD		12/14/18
ADDENDUM 1	1	1/3/19

M&E SCHEDULE
2 of 2

Scale N.T.S.
Date JANUARY 3, 2019
Sheet No. E803

GENERAL NOTES

1. THE TA DRAWINGS DESCRIBE BASE–BUILDING ACCOMMODATIONS FOR AUDIO AND VIDEO SYSTEMS, INCLUDING POWER, DATA, RACEWAY, AND MOUNTING REQUIREMENTS. THESE DRAWINGS PROVIDE COORDINATION INFORMATION BETWEEN THE ARCHITECT, ELECTRICAL, MECHANICAL, AND STRUCTURAL ENGINEERS.
2. THE AUDIO AND VIDEO SYSTEMS SHOWN IN THESE DOCUMENTS WILL BE PROVIDED AND INSTALLED BY A A/V SYSTEMS TRADE CONTRACTOR SPECIALIZING IN THESE SYSTEMS. IT IS THE RESPONSIBILITY OF THE A/V SYSTEMS CONTRACTOR TO COORDINATE THEIR INSTALLATION WORK WITH THE OTHER TRADES WORKING ON THIS PROJECT.

ARCHITECTURAL NOTES

1. ROOM DIMENSIONS ON THESE DRAWINGS HAVE BEEN TAKEN FROM THE ARCHITECTURAL DRAWINGS. ALL DIMENSIONS MUST BE VERIFIED
2, WHERE EXACT DIMENSIONS ARE NOT CALLED FOR, THE SCALE OF THESE DRAWINGS IS SUFFICIENTLY ACCURATE TO DETERMINE THE LOCATION OF EQUIPMENT, JUNCTION BOXES, OUTLET BOXES, WIREWAYS, PANELS, ETC. WHERE EXACT DIMENSIONS ARE CALLED FOR, THE REFERENCE SURFACE WILL BE THE FINAL FINISHED SURFACE INCLUDING ANY ACOUSTICAL TREATMENT.
3. PROVIDE ADDITIONAL BACKING AS REQUIRED TO SUPPORT EQUIPMENT WEIGHT WITH A SAFETY FACTOR IN COMPLIANCE WITH GOVERNING CODES.

AUDIOVISUAL SYSTEMS NOTES

1. THE DRAWINGS DO NOT SHOW ALL REQUIREMENTS OF THE SYSTEMS. THE DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY AND WHAT IS CALLED FOR (OR SHOWN) IN EITHER IS REQUIRED TO BE PROVIDED AS IF CALLED FOR IN BOTH. NOTIFY THE AV CONSULTANT OF ANY CONFLICTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS.
2. VERIFY ALL CONDUIT AND RACEWAY PATHWAYS. VERIFY ALL DEVICE LOCATIONS AND EXISTING DEVICES. IF ADDITIONAL EQUIPMENT IS REQUIRED TO COMPLETE SYSTEMS, NOTIFY OWNER OF COST AND GET APPROVAL BEFORE PROCEEDING.
3. CONDUIT WHERE REQUIRED TO BE 3/4" MIN. UNLESS OTHERWISE NOTED.

DATA SYSTEMS NOTES

1. DATA OUTLETS SHOWN ON THESE DRAWINGS ARE DEDICATED TO THE AUDIO AND VIDEO SYSTEMS AND EQUIPMENT,

DRAWING LIST

CABLE LEGEND

SYMBOL	DESCRIPTION
< AN >	ANTENNA – RG–8/U
< ML >	MIC & LINE LEVEL AUDIO – 1pr 22 AWG SHLD
< CN >	CONTROL – 1pr 22 AWG SHLD
< CT >	NETWORK – CAT6A
< SC >	VIDEO – CAT6E SHLD
< SS >	70V SPEAKER LEVEL AUDIO – 1pr 16 AWG
< DV >	HDMI CABLE ASSY. LENGTH AS REQ'D
< VG >	VGA CABLE ASSY. LENGTH AS REQ'D
< CN >	CONTROL – 1pr 22 AWG SHLD

SYMBOL LEGEND

SYMBOL	DESCRIPTION	ROUGH–IN	NOTES
(S)	CEILING SPEAKER	SECURE SPEAKER TO STRUCTURE PER NEC	SUBSCRIPT DENOTES ZONE ASSIGN STUB 1–1/4" CONDUIT TO IP ROOM
M	DESK MICROPHONE	GOOSENECK MICROPHONE AND BASE	CONNECT TO INTERFACE IN DAIS RACEWAY.
VM	COMPUTER MONITOR	PROVIDE WITH CUSTOM MOUNT PER SPECIFICATIONS	CONNECT TO DISTRIBUTION AMPLIFIER IN DAIS RACEWAY
MI	MICROPHONE JACK	PROVIDE WITH FSR COVER PER SPECIFICATIONS	ROUTE CABLE TO INTERFACE IN DAIS RACEWAY
M2	DUAL MICROPHONE JACK	2G BOX W/1G RING PROJECT STANDARD OUTLET HEIGHT	ROUTE CABLE TO AV RACK, BASEMENT LEVEL
DS1	SPEAKER TIMER	MASTER STATION ON DESKTOP	
DS2	SPEAKER TIMER COUNTDOWN DISPLAY	2G ARLINGTON TVBS505 POWER AND RJ–45 CONNECTION, +96" AFF	ROUTE CATEGORY CABLE TO MASTER STATION
DS3	SPEAKER TIMER COUNTDOWN DISPLAY	SPEAKER DISPLAY ON TESTIMONY TABLE TOP	ROUTE CATEGORY CABLE TO MASTER STATION
MNB	LCD MONITOR IN–WALL BOX	CHIEF PAC526. PROVIDE AC POWER IN BOX +60" AFF	PROVIDE BACKING FOR 85" MONITOR. MOUNT HDBT RECEIVER IN PAC 526
PT	P/T/Z CAMERA	2G BOX W/2G RING, ON CEILING	PROVIDE CEILING MOUNT TO PLACE BOTTOM OF CAMERA +96" AFF.
FB	FLOOR BOX	FSR FL–600–6. PROVIDE AC POWER AND NETWORK	4ea MICROPHONE JACK, HDBT TRANSMITTER, RJ–45 FOR SPEAKER TIMER
AN1	WIRELESS MIC ANTENNAE	2ea 2G BOX, 1G RING. ON CEILING. SPACE 8" TO 20" APART HORIZONTALLY.	
AN2	ALS ANTENNA	2G BOX, 1G RING. ON CEILING	
TP	10" WALL MOUNTED TOUCH PANEL	CRESTRON TSW–UMB–60–PMK PREINSTALL BRACKET RING. +48" AFF.	CRESTRON TSW–UMB–60–PMK PREINSTALL BRACKET RING. +48" AFF.
VP	VIDEO PRODUCTION LOCATION	3G BOX, 2G RING PROJECT STANDARD OUTLET HEIGHT	VIDEO OUPTUT (MULTI–VIEW), HEADPHONE AUDIO OUT, AV NETWORK CONNECTION

DISPLAY SCHEDULE

DISPLAY TYPE	MFG.	MODEL	ORIENTATION	SIZE (DIAGONAL)	MOUNTING HEIGHT	MOUNT MAKE AND MODEL	NOTES
FPD 1	VIEWSONIC	VG2253	LANDSCAPE	22"	BTM AT DESK	ERGOMART POS6	TRIM TUBE TO LENGTH SO THAT BOTTOM OF MONITOR IS JUST ABOVE DESKTOP
FPD 2	LG	86UH5C	LANDSCAPE	86"	+40" AFF BTM	CHIEF RLF2	PROVIDE PAC526F WITH AC POWER & NETWORK
FPD 3	LG	55UH5C	LANDSCAPE	55'	+60" AFF BTM	CHIEF RMF2	PROVIDE PAC526F WITH AC POWER & NETWORK FOR DIGITAL SIGNAGE PLAYER

ASSISTIVE LISTENING SYSTEM (ALS) REQUIREMENTS

SEATING CAPACITY IN ASSEMBLY AREAS	MINIMUM NUMBER OF RECEIVERS REQUIRED	MINIMUM NUMBER OF RECEIVERS TO BE HEARING AID COMPATIBLE
50 OR LESS	2	2
51 TO 200	2, PLUS 1 PER 25 SEATS OVER 50 SEATS	2
201 TO 500	2, PLUS 1 PER 25 SEATS OVER 50 SEATS	1 PER 4 RECEIVERS
501 TO 1000	20, PLUS 1 PER 33 SEATS OVER 500 SEATS	1 PER 4 RECEIVERS
1001 TO 2000	35, PLUS 1 PER 50 SEATS OVER 1000 SEATS	1 PER 4 RECEIVERS
OVER 2000	55, PLUS 1 PER 100 SEATS OVER 2000 SEATS	1 PER 4 RECEIVERS

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AUX	LINE LEVEL AUDIO
CKT	CIRCUIT
DED	DEDICATED
FBOIC	FURNISHED BY OTHERS, INSTALLED BY CONTRACTOR
G, GND	GROUND
J–BOX	JUNCTION BOX
LINE	LINE LEVEL AUDIO
L/R	STEREO LINE LEVEL AUDIO
M, MIC	MICROPHONE LEVEL AUDIO
NIC	NOT IN CONTRACT
PBO	PROVIDED BY OTHERS
LAN	LOCAL AREA NETWORK
PNL	PANEL
R	RACEWAY
RGBHV	RED/GRN/BLU + H/V SYNC
RO	RACEWAY ONLY
SPECS	SPECIFICATIONS
TYP	TYPICAL
V	VOLT
W	WATTS

deca
ARCHITECTURE.INC
935 SE Alder Street, Portland Oregon 97214
tel 503 239 1987 fax 503 239 6558

INCLUDED FOR REFERENCE ONLY

WOODBURN CITY HALL REMODEL AND HVAC UPGRADE

270 Montgomery St.
Woodburn, OR 97071

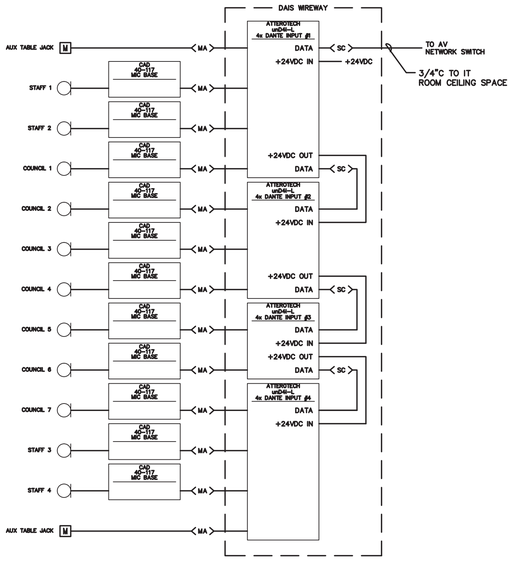
delta AV
2450 NW Eleven Mile Ave
Gresham, Oregon 97030

voice
503.907.0137
fax
503.907.0065

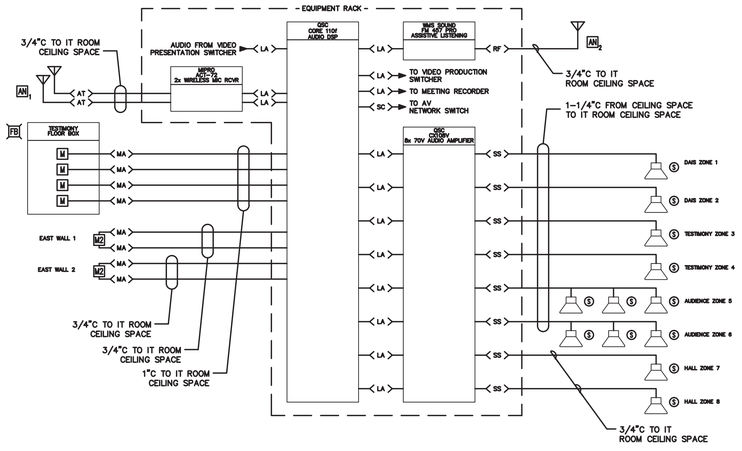
Issue	Revision	Date
100% CD		12/14/18
100% CD	R1	1/3/19

AUDIO/VIDEO SYSTEMS NOTES & SYMBOLS

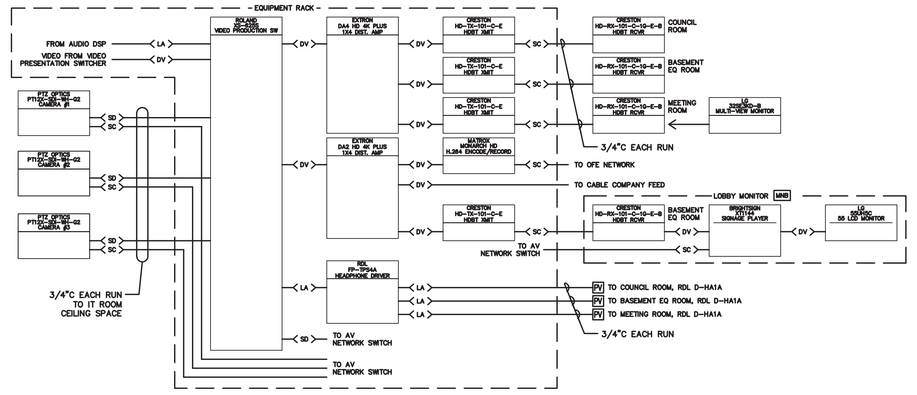
Scale NONE
Date DECEMBER 14, 2018
Sheet No. TA001



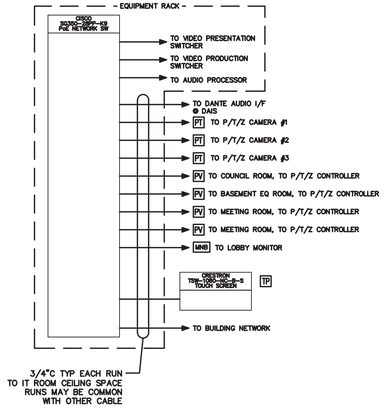
1 DAIS AUDIO
SCALE: NONE



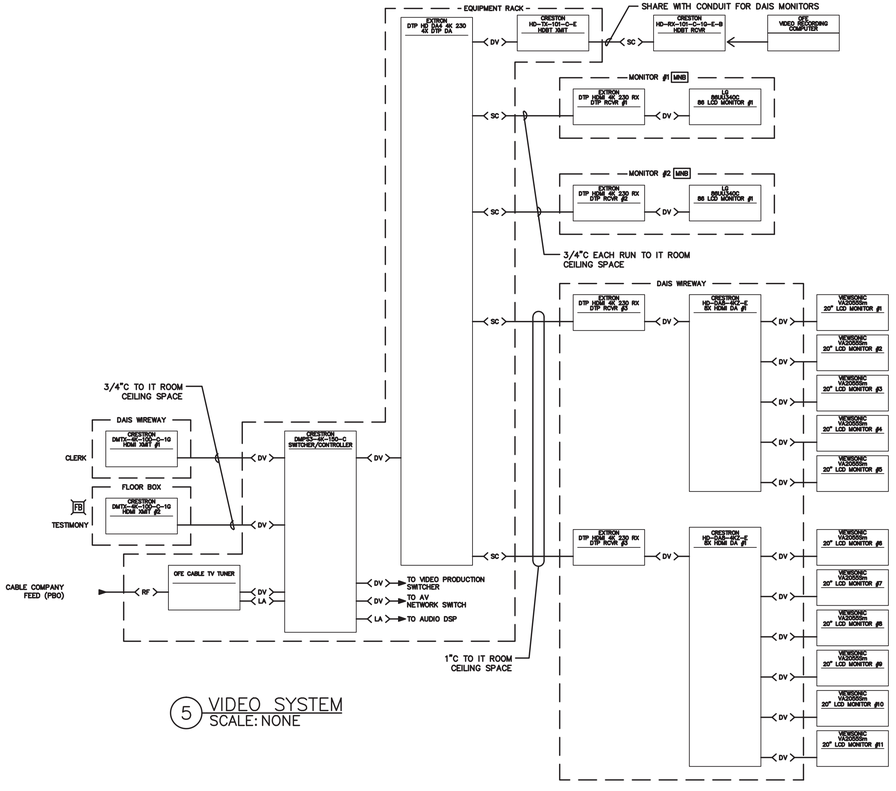
2 MAIN AUDIO SYSTEM
SCALE: NONE



3 PRODUCTION VIDEO SYSTEM
SCALE: NONE



4 AV NETWORK
SCALE: NONE



5 VIDEO SYSTEM
SCALE: NONE

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ARCHITECTURE.INC
935 SE Alder Street, Portland Oregon 97214
tel 503 239 1987 fax 503 239 6558

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270 Montgomery St.
Woodburn, OR 97071

delta AV
2450 NW Eleven Mile Ave
Gresham, Oregon 97030

voice
503.907.0137
fax
503.907.0065

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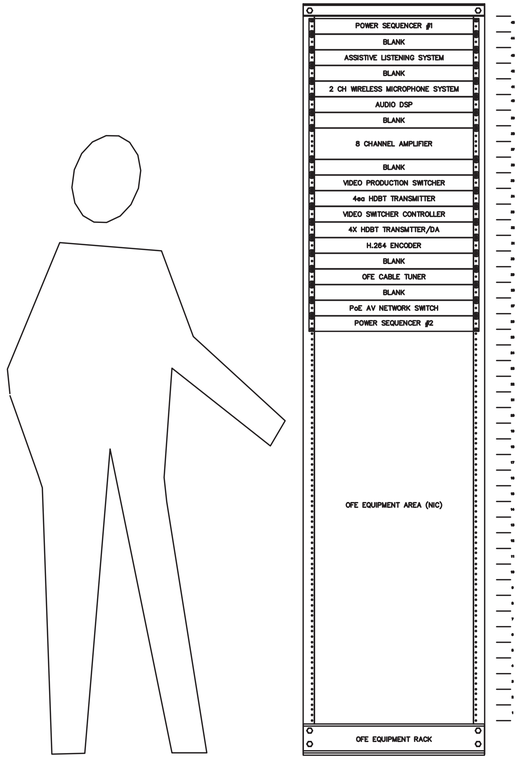
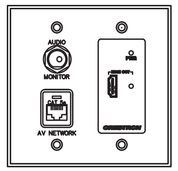
AUDIO/VIDEO SYSTEMS BLOCK DIAGRAMS

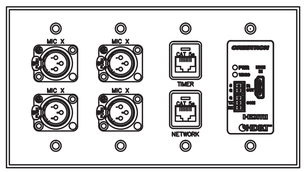
Scale NONE
Date DECEMBER 14, 2018
Sheet No. TA401



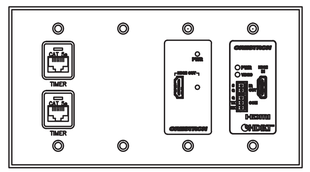
1 EQ RACK ELEVATION
SCALE: 1-1/2" = 1'-0"



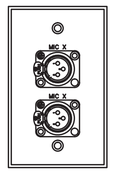
2 PRODUCTION VIDEO VP
SCALE: 6"=1'-0"



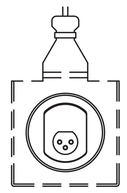
3 FLOOR BOX I/O FB
SCALE: 6"=1'-0"



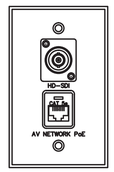
4 RECORDER'S I/O R
SCALE: 6"=1'-0"



5 MIC INPUT M2
SCALE: 6"=1'-0"



6 MIC INPUT MI
SCALE: 6"=1'-0"



7 CAMERA INPUT PT
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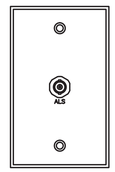

8 ANTENNA AN2
SCALE: 6"=1'-0"

8 ANTENNA AN1
SCALE: 6"=1'-0"

deca
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503.907.0137
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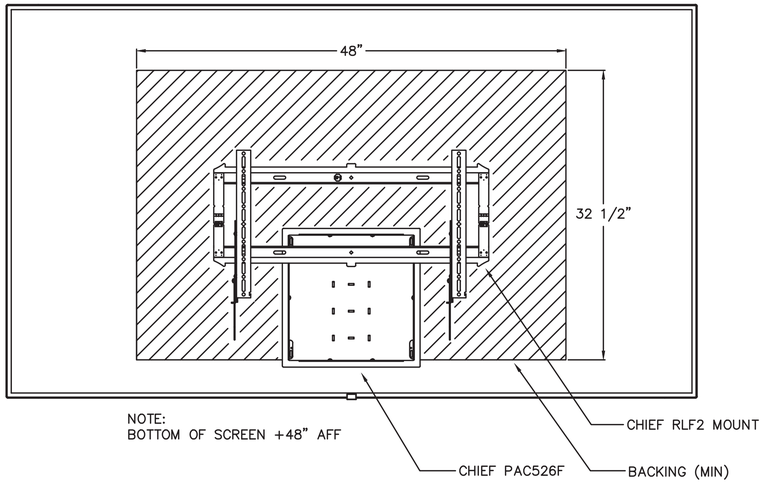
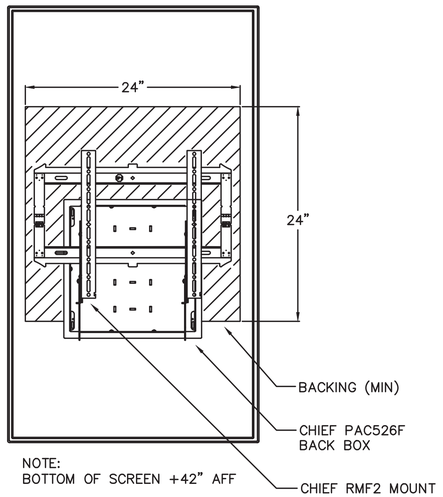
AUDIO/VIDEO SYSTEMS DETAILS: PLATES & RACK ELEVATIONS

Scale	NONE
Date	DECEMBER 14, 2018
Sheet No.	TA501



1 86" MONITOR MOUNTING
SCALE: 1-1/2"=1'-0"



2 55" LOBBY SIGNAGE/MONITOR MOUNTING
SCALE: 1-1/2"=1'-0"

deca
ARCHITECTURE.INC
935 SE Alder Street, Portland Oregon 97214
tel 503 239 1987 fax 503 239 6558

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270 Montgomery St.
Woodburn, OR 97071

delta AV
2450 NW Eleven Mile Ave
Gresham, Oregon 97030

voice
503.907.0137
fax
503.907.0065

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AUDIO/VIDEO SYSTEMS MOUNTING DETAILS

Scale NONE
Date DECEMBER 14, 2018
Sheet No. TA601

COMMON WORK RESULTS FOR FIRE SUPPRESSION

PART 1 GENERAL

1.1 SUMMARY

A. The intent of Division 21, Fire Suppression Specifications, and the accompanying Drawings is to be a reference for preliminary locations and routing of fire protection system components. Not all components required for a complete system are shown, including but not limited to standpipes, hose connections, sprinkler heads, fire protection zones, air compressors, dry valves, piping, appurtenances, connections, etc.

B. Provide a complete and workable facility with complete systems that comply with the requirements of the state codes, local codes, fire marshal, owner's insurance underwriter, and any other authority having jurisdiction.

C. Division 21, Fire Suppression Specifications and the accompanying Drawings are complimentary and what is called for by one as binding as if called for by both. Items shown on the Drawings are not necessarily included in the Specifications and vice versa.

D. Imperative language is frequently used in Division 21, Fire Suppression Specifications. Except as otherwise specified, requirements expressed imperatively are to be performed by the Contractor.

E. Piping and sprinkler head locations meet the Architectural design intent for the building in addition to applicable code. The right is reserved to make any reasonable changes in sprinkler head location prior to roughing-in, without cost impact. Deviation from the general routing piping mains, standpipes, or other routing shown must be approved by the architect prior to installation. If additional space is required for fire protection system components, Architect to make a formal request.

F. Heat, heat trace, and associated power required for fire protection system components are the responsibility of the design-build contractor. Request approval from the electrical engineer to use spaces in electrical panels provided at no additional cost.

G. Furnish piping, pipe fittings, valves, gauges, and incidental related items as required for complete systems. Identify valves, piping and equipment components to indicate their function and system served.

H. The General and Supplemental Conditions apply to this Division, including but not limited to:

1. Drawings and specifications.

2. Public ordinances, permits.

3. Include payments and fees required by governing authorities for work of this Division.

I. Division 01, General Requirements, applies to this Division.

1.2 RELATED SECTIONS

A. Division 01, General Requirements

B. Division 21, Fire Suppression

1.3 QUALITY ASSURANCE

A. Regulatory Requirements:

1. Products and equipment prohibited from containing pentabrominated, octabrominated and decabrominated diphenyl ethers. Where products or equipment's within this specification contain these banned substances, provide complying products and equipment's from approved manufacturers with equal performance characteristics.

2. General:

a. Conform Work and materials to requirements of the local and State codes, fire marshal, the owner's insurance underwriter, and any other authority having jurisdiction; and Federal, State and other applicable laws and regulations.

3. Contractor responsible for obtaining and payment for permits, licenses, and inspection certificates required in accordance with provisions of Contract Documents.

4. Fire protection system designs must bear the stamp and seal of the registered Professional Engineer who prepared the documents. The Engineer's stamp certifies that the work was done under the Engineer's supervision and control. Certification from NICET technicians, or other contractors, cannot replace the certification by the Engineer. Verify/coordinate with local building department for their specific requirements.

B. New materials and Equipment:

1. Good work quality, free of faults and defects and in conformance with the Contract Documents.

C. Apparatus: Build and install to deliver full rated capacity at the efficiency for which it was designed.

D. The entire system and apparatus operate at full capacity without objectionable noise or vibration.

E. For remodel projects, the existing system must remain fully operational, or provisions made to provide coverage while the new system is being installed. New installation switchover requires minimal down time. Provide method to maintain fire protection or fire watch during any system down time. Include any related cost for materials or labor that is needed for providing continuous coverage.

F. Install equipment level and true equipment. Housekeeping pads and curbs account for floor or roof slope.

G. Materials and Equipment:

1. Each piece of equipment furnished meet detailed requirements of the Drawings and Specifications and suitable for the installation shown. Equipment not meeting requirements will not be acceptable, even though specified by name along with other manufacturers.

2. Where two or more units of the same class of equipment are furnished, use products of the same manufacturer. Component parts of the entire system need not be products of same manufacturer.

3. Furnish materials and equipment of size, make, type, and quality herein specified.

4. Equipment scheduled by performance or model number considered the basis of the design. If other specified manufacturer's equipment is provided in lieu of the basis of design equipment the contractor is responsible for changes and costs which may be necessary to accommodate this equipment, including different sizes and locations for connections, different electrical characteristics, different dimensions, different access requirements, or any other differences which impact the project.

H. Workmanship:

1. General: Install materials in a neat and professional manner.

2. Manufacturer’s Instructions:

a. Follow manufacturer’s directions where they cover points not specifically indicated. If they are in conflict with the Drawings and Division 21, Fire Suppression Specifications, obtain clarification before starting work.

I. Cutting and Patching:

1. Cutting, patching, and repairing for the proper installation and completion of the work specified in this Division including plastering, masonry work, concrete work, carpentry work, and painting performed by skilled craftsmen of each respective trade in conformance with the appropriate Division of Work.

2. Make additional openings required in building construction by drilling or cutting. Use of jackhammer is specifically prohibited.

3. Fill holes which are cut oversize so that a tight fit is obtained around the sleeves passing through.

4. Do not pierce beams or columns without permission of Architect and then only as directed.

5. New or existing work cut or damaged restored to its original condition. Where alterations disturb lawns, paving, walks, etc., the surfaces repaired, refinished, and left in condition existing prior to commencement of work.

1.4 SUBMITTALS

A. Certified Shop Drawings:

1. Drawings indicate the general layout of the piping and various items of equipment. Coordination with other trades and with field conditions will be required. For this purpose, prepare fire protection system layout Drawings showing locations and types of head or outlets, alarm valves and devices, pipe sizes and cutting lengths, test tees and valves, drain valves, and other related items. New drawings prepared by Contractor and not reproductions or tracings of Architect's Drawings. Overlay drawings with shop drawings of other trades and check for conflicts. Drawings the same size as Architect's Drawings with title block similar to the Drawings and identifying Architect's Drawing number or any reference drawings. Drawings fully dimensioned including both plan and elevation dimensions. Shop drawings cannot be used to make scope changes.

2. Shop Drawings:

a. Prepare in two-dimensional format.

b. Include but are not limited to:

(1) Sprinkler head layout drawings overlaid with ceiling and floor plans.

(2) Sprinkler floor plans, including piping, equipment, and heads to a minimum of 1/4-inch equals 1-foot scale or same as plans, whichever is greater.

3. Submit shop drawings for review prior to beginning fabrication. Additional shop drawings may be requested when it appears that coordination issues are not being resolved in the field or when there is a question as to whether contract documents are being complied with or the design intent is being met.

B. Product Data:

1. Submit product data for review on scheduled pieces of equipment, on equipment requiring electrical connections or connections by other trades, and as required by each specification section or by Drawing notes. Include manufacturer's detailed shop drawings, specifications, and data sheets. Data sheets include capacities, RPM, BHP, pressure drop, design and operating pressures, temperatures, and similar data. Manufacturer's abbreviations or codes are not acceptable

2. Provide sample of each type of sprinkler head.

3. Indicate equipment operating weights including bases and weight distribution at support points.

4. In the case of equipment such as wiring devices, time switches, valves, etc., specified by specific catalog number, a statement of conformance will suffice.

C. Test Reports:

1. Submit certificates of completion of tests and inspections.

D. Submission Requirements:

1. Refer to Division 01, General Requirements for additional requirements related to submittals.

2. Shop Drawings:

a. Provide three sets of Drawings showing sprinkler head locations and layout coordinated with architectural ceiling details to the Architect for review prior to submitting Drawings to insurance underwriter and Fire Marshal.

b. Provide six sets of Drawings and calculations to the Architect to be sent to the Owner's insurance underwriter for approval.

c. Then submit six sets of approved Drawings to Architect for final review.

3. Product Data:

a. Submit electronic copies of shop drawings and product data for Work of Division 21 in PDF format with each item filed under a folder and labeled with its respective specification section number, article, paragraph, and mark, if applicable.

b. Include a complete index in the original submittal. Indicate both original items submitted and note stragglers that will be submitted at a later date to avoid delay in submitting.

c. Submit shop product data in a single submittal. Partial submittals will not be accepted. Re-submittals submitted after return of the original binder includes a tab similar to that originally submitted. Upon receipt of the returned re-submittals, insert them in the previously submitted binder.

E. Contractor Responsibilities:

1. See that submittals are submitted at one time and are in proper order.

2. Obtain approvals and permits from the AHJ.

3. Ensure that equipment will fit in the space provided.

4. Assure that deviations from Drawings and Specifications are specifically noted in the submittals. Failure to comply will void review automatically.

1.5 OPERATING AND MAINTENANCE MANUAL, PARTS LISTS, AND OWNERS INSTRUCTIONS

A. Refer to Division 01, General Requirements for additional requirements.

B. Submit three bound copies of manufacturer's operation and maintenance instruction manuals and parts lists for each piece of equipment or item requiring servicing. Literature on 8-1/2-inch by 11-inch sheets or catalogs suitable for side binding. Submit data when the work is substantially complete, packaged separately, and clearly identified in durable 3-ring binder. Include name and contact information for location of source parts and service for each piece of equipment. Clearly mark and label in each submittal, the piece of equipment provided with the proper nameplate and model number identified. Provide wiring diagrams for electrically powered equipment.

C. Instruct Owner thoroughly in proper operation of equipment and systems, in accordance with manufacturer's instruction manuals. Operating instructions cover phases of control.

D. Furnish competent engineer knowledgeable in this building system for minimum of one 8-hour day to instruct Owner in operation and maintenance of systems and equipment. Keep a log of this instruction including dates, times, subjects, and those present and present such log when requested by Architect.

1.6 PROJECT CONDITIONS

A. Existing Conditions: Prior to bidding, verify and become familiar with existing conditions by visiting the site, and include factors which may affect the execution of this Work. Include related costs in the initial bid proposal.

B. Coordinate exact requirements governed by actual job conditions. Check information and report any discrepancies before fabricating work. Report changes in time to avoid unnecessary work.

C. Coordinate shutdown and start-up of existing, temporary, and new systems and utilities. Notify Owner, City, and Utility Company.

1.7 WARRANTY

A. Provide a written guaranty covering the work of this Division (for a period of one calendar year from the date of acceptance by the Owner) as required by the General Conditions.

B. Provide manufacturer's written warranties for material and equipment furnished under this Division insuring parts and labor for a period of one year from the date of Owner acceptance of Work of this Division.

C. Correct warranty items promptly upon notification.

1.8 PROVISIONS FOR LARGE EQUIPMENT

A. Make provisions for the necessary openings in building to allow for admittance of equipment.

1.9 TEST REPORTS AND CERTIFICATES

A. Submit one copy of test reports and certificates specified herein to the Architect.

1.10 SUBSTITUTIONS

A. Submit any requests for product substitutions in accordance with the Instructions to Bidders and the General and Supplemental Conditions.

PART 2 PRODUCTS

2.1 ACCESS PANELS

A. Furnish under this Division as specified in another Division of work.

2.2 PIPE SLEEVES

A. Interior Wall and Floor Sleeves:

1. 18 gauge galvanized steel or another pre-approved water tight system.

B. Interior Wall and Floor Sleeves (fire rated):

1. Fire rated and water tight system approved by Authority Having Jurisdiction and Owners Insurance underwriter, with rating equal to floor or wall penetration, and designed specifically for the floor or wall construction, piping material, size and service.

C. Exterior Wall Sleeves:

1. Cast Iron

D. On Grade Floor Sleeves:

1. Same as exterior wall sleeves.

2.3 FLOOR, WALL AND CEILING PLATES

A. Furnish stamped split type plates as follows:

1. Floor Plates:

a. Cast brass, chromium plated.

2. Wall and Ceiling Plates:

a. Spun aluminum.

2.4 MACHINERY GUARDS

A. Furnish guards for protection on rotating and moving parts of equipment. Provide guards for drives and motor pulleys, regardless of being enclosed in a metal cabinet.

B. Design guards so as not to restrict air flow or heat transfer.

C. Provide shaft holes in guards for easy use of tachometers at pulley centers. Guards easily removable for pulley adjustment or removal and changing of belts.

D. Meet OSHA requirements including back plates.

2.5 ELECTRICAL EQUIPMENT

A. General:

1. Equipment and installed work as specified under Division 26, Electrical.

B. Motors:

1. Furnish as integral part of driven equipment. Drip-proof induction type with ball bearings unless noted otherwise.

2. Built to NEMA Standards for the service intended.

3. Rated for the voltage specified, suitable for operation within the range of 10 percent above to 10 percent below the specified voltage.

4. Manufacturers:

a. Baldor

b. Westinghouse

c. General Electric

d. Or approved equal.

5. Where provided, refer to Equipment Schedules on the Drawings for motor horsepower, voltage, and phase.

6. Refer to individual product sections for additional motor requirements.

7. Built-in thermal overload protection, or be protected externally with separate thermal overload devices with low voltage release or lockout. Hermetically sealed motors have quick trip devices.

C. Starters:

1. Provided under Division 26, Electrical, suitable for performing the control functions required, with the exception of self-contained equipment and where the starters are furnished as part of the control package.

D. Equipment Wiring:

1. Provide interconnecting wiring within or on a piece of fire suppression equipment with the equipment unless shown otherwise. This does not include the wiring of motors, starters and controllers provided under Division 26, Electrical.

E. Control Wiring:

1. Provide control wiring for fire suppression equipment.

F. Codes:

1. Electrical equipment and products to bear the UL as required by governing codes and ordinances.

PART 3 EXECUTION

3.1 COORDINATION

A. Coordinate fire protection piping and appurtenances with ducts, other piping, electrical conduit, and other equipment.

B. Conceal fire protection piping and equipment be concealed except in area without ceilings and as noted on the Drawings.

C. Locate piping, heads, and equipment where shown on Drawings.

3.2 GENERAL

A. Install fire protection systems to serve the entire building.

B. The drawings indicate approximate locations of piping, sprinkler zones, and types of systems. The drawings do not indicate the locations of sprinkler heads in ceiling areas. Locate sprinklers in the center of ceiling panels and symmetrically within rooms and down corridors, coordinated with and in pattern with lights and grilles. Deviations must be approved.

C. Locations of sprinkler heads, outlets, piping, and appurtenances are not shown in areas and therefore are to be installed in accord with code requirements.

D. Location of heads shown in ceiling areas may be changed if required by code requirements, but only after review by the Architect for new head locations for each specific instance.

3.3 SLEEVES

A. Interior Floor and Wall Sleeves:

1. Provide sleeves large enough to provide clearances around pipe outside diameter as required by NFPA. Penetrations through mechanical room and fan room floors made watertight by packing with safing insulation and sealing with Tremco Dymeric Sealant or approved water tight system.

B. Sleeves through Rated Floors and Walls:

1. Similar to interior sleeves except install fire-rated system approved by Authority Having Jurisdiction and Owner’s Insurance Underwriter, with rating equal to floor or wall penetration, and designed specifically for the floor or wall construction, piping material, size and service.

C. Exterior Wall Sleeves Below Grade:

1. Large enough to allow for caulking and made watertight. Caulking from outside using link-seal modular wall and casing seal or lead and oakum. Secure sleeves against displacement.

D. On Grade Floor Sleeves:

1. Same as below grade exterior wall sleeves, caulked from inside.

E. Exterior Wall Sleeves Above Grade:

1. Similar to interior wall sleeves except caulk outside with Tremco Dymeric Sealant.

F. Layout work prior to concrete forming. Do cutting and patching required. Reinforce sleeves to prevent collapse during forming and pouring.

G. Floor sleeves maintain a water barrier by providing a water tight seal or extend 1-inch above finished floor except through mechanical equipment room floors and shafts where sleeves extend 2-inches above finished floor level. Sleeves through roof extend 8-inches above roof. Wall sleeves flush with face of wall unless otherwise indicated. Sleeves through planters extend 8-inches above planter base.

H. Do not support pipes by resting pipe clamps on floor sleeves. Provide supplementary members so pipes are floor supported.

I. Special sleeves detailed on the Drawings take precedence over this section.

3.4 FLOOR, WALL AND CEILING PLATES

A. Install on piping passing through finished walls, floors, ceilings, partitions, and plaster furrings. Plates completely cover opening around pipe and duct.

B. Secure wall and ceiling plates to pipe or structure.

C. Plates not required in mechanical rooms or unfinished spaces.

3.5 CLEANING

A. General:

1. Clean equipment and piping of stampings and markings (except those required by codes), iron cuttings, and other refuse.

B. Painted Surfaces:

1. Clean scratched or marred painted surfaces of rust or other foreign matter and paint with matching color industrial enamel, except as otherwise noted.

C. Additional requirements are specified under specific Sections of this Division.

3.6 EQUIPMENT PROTECTION

A. Keep pipe and conduit openings closed by means of plugs or caps to prevent the entrance of foreign matter. Protect piping, conduit, equipment, and apparatus against dirty water, chemical or mechanical damage both before and after installation. Restore damaged or contaminated equipment, or apparatus to original conditions or replace at no cost to the Owner.

B. Protect bright finished shafts, bearing housings, and similar items until in service. No rust will be permitted.

C. Cover or otherwise suitably protect equipment and materials stored on the job site.

3.7 ACCESSIBILITY

A. General:

1. Locate valves, indicating equipment or specialties requiring frequent reading, adjustments, inspection, repairs, and removal or replacement conveniently and accessibly with reference to the finished building.

B. Gauges:

1. Install gauges so as to be easily read from the floors, platforms, and walkways.

3.8 PAINTING

A. General:

1. Coordinate painting of fire suppression equipment and items with products and methods in conformance with the appropriate Division of Work, Painting.

B. Equipment Rooms and Finished Areas:

1. Hangers
2. Miscellaneous Iron Work
3. Structural Steel Stands
4. Tanks
5. Equipment Bases:
    a. Paint one coat of black enamel.
6. Steel Valve Bodies and Bonnets:
    a. One coat of black enamel.
7. Equipment:
    a. One coat of red machinery enamel. Do not paint nameplates.

8. Sprinkler Heads:

a. Not painted.

C. Concealed Spaces (above ceilings, not visible):

1. Hangers, Miscellaneous Iron Work, Valve Bodies, and Bonnets: Not painted.

D. Sprinkler Piping:

1. Concealed from View: Not painted.

2. Exposed to View: Paint pipe and hangers exposed to view, including in equipment spaces, with one coat approved rust inhibiting primer. Final finish coat as specified in conformance with the appropriate Division of Work, Painting.

3. Exterior: Wire brush and apply two coats of rust-inhibiting primer and one coat of grey exterior machinery enamel. Final finish coat as specified in conformance with the appropriate Division of Work, Painting.

4. Alarm Bell: Factory paint with two coats of red enamel.

3.9 ADJUSTING AND CLEANING

A. General:

1. Before operating any equipment or systems, make thorough check to determine that systems have been flushed and cleaned as required and equipment has been properly installed, lubricated, and serviced. Check factory instructions to see that installations have been made accordingly and that recommended lubricants have been used.

2. Use particular care in lubricating bearings to avoid damage by over-lubrication and blowing out seals. Check equipment for damage that may have occurred during shipment, after delivery, or during installation. Repair damaged equipment as approved or replace with new equipment.

B. Piping:

1. Clean interior of piping before installation.

2. Flush sediment out of piping systems.

3.10 ELECTRICAL EQUIPMENT

A. Do not install fire suppression systems in switchgear rooms, transformer vaults, telephone rooms, or electric closets except as indicated.

B. Fire Suppression systems not to pass over switchboards or electrical panelboards. Where conflicts exist, bring to attention of Architect.

END OF SECTION

WATER BASED FIRE SUPPRESSION SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Sprinkler Heads
2. Ductile Iron Water Pipe
3. Black Steel Pipe
4. Flanged Joints
5. Mechanical Pipe Couplings and Fittings
6. Piping Markers
7. Equipment Identification

1.2 RELATED SECTIONS

1. Division 01, General Requirements
2. Division 21, Fire Suppression

1.3 QUALITY ASSURANCE

A. Provide a complete automatic fire sprinkler system.

1. Grooved joint couplings, fittings, valves, and specialties products of a single manufacturer. Grooving tools of the same manufacturer as the grooved components.
2. Castings used for coupling housings, fittings, valve bodies, etc., date stamped for quality assurance and traceability.

B. Regulatory Requirements:

1. Sprinkler system to comply with NFPA 13 and local Fire Marshal requirements.
2. Refer to Section 21 05 00, Common Work Results for Fire Suppression for additional requirements.

C. Hydraulically Calculated Sprinkler System: Sprinkler system to be hydraulically calculated grid system designed to provide:

1. Light Hazard Occupancies: 0.10 GPM/Ft2 density at most remote 1500 SF for public areas, living spaces, or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

2. Ordinary Hazard Occupancies Group 1: 0.15 GPM/Ft2 density at most remote 1500 SF for mechanical rooms, kitchen, and parking areas, or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

3. Ordinary Hazard Occupancies Group 2: 0.20 GPM/Ft2 density at most remote 1500 SF for mechanical rooms, kitchen, and parking areas, or designated by the local fire marshal with an excess of 10 psi additional pressure requirements incorporated into the design over specified pressure requirements.

D. NFPA 13 (without the use of exceptions found in NFPA 13 systems minimum guideline) used for the location, sizing, and installation of piping and sprinkler systems unless local fire marshal or owner's insurance underwriter requirements are more stringent. Exceptions must be approved by the Engineer prior to usage.

E. Water Service Pressure Basis of Design:

1. Coordination was done to determine fire service water pressure used to develop the fire sprinkler system design information included herein.

2. Fire Protection contractor to obtain current flow test information prior to starting their design of the fire sprinkler system.

F. Automatic sprinklers within elevator hoistways and machine rooms complies with ANSI A17.1-102.2 (c) 4 requirements.

1.4 SUBMITTALS

A. Provide submittal in accordance with Section 21 05 00, Common Work Results for Fire Suppression.

B. Sprinklers referred to on shop drawings and identified by the listed manufacturer's style or series designation. Trade names and abbreviations are not permitted.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Sprinkler Heads:

1. Viking

2. Victaulic

3. Reliable Automatic Sprinkler

4. Tyco Fire Products

B. Mechanical Pipe Couplings and Fittings:

1. Victaulic

2. Gruvlok

C. Pressure Gauges:

1. Marsh
2. Ashcroft
3. Weiss
4. Trerice
5. Weksler
6. Tel-Tru

D. Piping Markers:

1. W.H. Brady
2. Seton
3. Marking Systems, Inc. (MSI).

2.2 SPRINKLER HEADS

A. General:

1. One manufacturer throughout building. Mixing of sprinkler brands is not permitted.
2. Brass frame construction with a coated metal-to-metal seating mechanism. Sprinklers utilizing non-metal parts in the sealing portion of the sprinkler are strictly prohibited.
3. Quick response frangible bulb type fusible element with a temperature rating of 155 degrees or 200 degrees F or a fast response metal type fusible element with a temperature rating of 165 degrees or 212 degrees F.
4. 1/2-inch NPT, a standard orifice, and a 5.6 nominal K Factor.
5. UL listed and FM Approved for working water pressures up to 175 psi. Sprinkler heads in dry and pre-action type systems installed per NFPA 13.
6. Heads, UL approved for application and installation.

B. Provide high temperature, 212 degrees F heads for mechanical rooms, areas below skylights, dishwashing and other areas which have high heat producing equipment to prevent accidental trip page.

C. Sprinklers Installed in Finished Ceilings:

1. Quick response, recessed, bulb type, chrome finish, 165 degrees F unless required otherwise.

D. Sprinklers Installed in Unfinished Ceiling Areas (or Above Finished Ceilings Where Required):

1. Pendant or up-right fusible solder type, rough bronze finish, and adequate temperature for the hazard.

E. Flexible Stainless Steel Hose:

1. UL rated, FM approved stainless steel hose assembly for individual sprinkler connections, Victaulic Vic-Flex.

2. Drop includes a UL approved braided hose with a bend radius to 2-inch to allow for proper installation in confined spaces.

3. Provide union joints for ease of installation.

4. Attach flexible drop to the ceiling grid using a one-piece open gate bracket. The bracket allows installation before the ceiling tile is in place.

5. The braided drop system is UL listed and FM Approved for sprinkler services to 175 psi (1206 kPa).

2.3 DUCTILE IRON WATER PIPE

A. Pipe: Ductile iron pipe conforming to ANSI A21.51.

B. Fittings:

1. Below grade, Class 150 Boltite mechanical joint type complete with gaskets, bolts, and nuts, or Tyton for joints employing a single gasket for the joint seal with bell-and-spigot pipe.

2. Above grade, mechanical couplings and fittings as specified herein.

3. Provide interior pipe coating per ANSI Regulation listed.

C. Service: Below grade incoming fire protection main.

2.4 BLACK STEEL PIPE

A. General:

1. UL listed and FM approved for fire protection use.

2. Fittings and joints must be UL listed with pipe chosen for use.

3. Listing restrictions and installation procedures per NFPA 13 and state and local authorities for fire protection use.

4. Pipe/fittings must be hot-dipped galvanized in accordance with ASTM A53 for dry pipe sprinkler systems.

B. Pipe: ASTM A135 or A53.

1. Fire Protection:

a. Schedule 10 or Schedule 40 in sizes up to 5 inches.

b. 0.134-inch wall thickness for 6-inch.

c. 0.188-inch wall thickness for 8-inch and 10-inch.

d. 0.330-inch wall thickness for 12-inch.

C. Fittings: Roll grooved ends with mechanical couplings as specified.

D. Service Above Grade: Fire protection system only for sizes listed, as approved by NFPA 13.

2.5 FLANGED JOINTS

A. Flanged Joints:

1. Cast iron or steel for screwed piping and forged steel welding neck for welded line sizes.

2. Pressure rating and drilling matches the apparatus, valve, or fitting to which they are attached.

3. Flanges in accordance with ANSI B16.1; 150 lb. for system pressures to 150 psig; 300 pounds for system pressures 150 psig to 400 psig.

4. Gaskets 1/16-inch thick, Cranite, or equal, ring type, coated with graphite and oil to facilitate making a tight joint.

5. Make joint using American Standard hexagon head bolts, lock washers, and nuts (per ASTM A307 GR.B) for service pressures to 150 psig; alloy steel stud bolts, lock washer, and American Standard hexagon head nuts (per ASTM A307 GR.B) for service pressures 150 psig to 400 psig. Use length of bolt required for full nut engagement.

6. Provide electro-cad plated bolts and nuts.

2.6 MECHANICAL PIPE COUPLINGS AND FITTINGS

A. Couplings and Fittings:

1. Coupling housing to be zero flex rigid type coupling with angled bolt pad design. Couplings fully installed at visual pad-to-pad offset contact. Couplings that require gapping of bolt pads or specific torque ratings for proper installation are not permitted. Installation-Ready, for direct stab installation without field disassembly. Similar to Victaulic Type 009N.

2. Flexible couplings to be used only when expansion contraction, deflection or noise and vibration is to be dampened. Flexible Coupling to be similar to Victaulic Installation-Ready Type 005.Coupling gasket similar to Victaulic's Grade E molded synthetic rubber per ASTM D-2000.

3. Coupling bolts oval neck track head type with hexagonal heavy nuts per ASTM A-449 and A-183.

2.7 PIPING MARKERS

A. Label pipes with all-vinyl, self-sticking labels or letters.

B. Pipe covering sizes up to and including 3/4-inch outside diameter, select labels with 1/2-inch letters. For sizes from 3/4 to 2-inch outside diameter, 3/4-inch letters; above 2-inches outside diameter, 2-inch letters.

C. Identify and color code as follows with white directional arrows.

SERVICE	PIPE MARKER	BACKGROUND COLOR
SPRINKLER WATER	FIRE PROTECTION WATER	RED

PART 3 EXECUTION

3.1 INSTALLATION

A. General:

1. Provide seismic hangers as required by code.

2. Provide tamper switches on sprinkler system isolation valves. Provide flow switches for sprinkler zones. See Drawings for locations.

3. A corrosion-resistant metal placard provided on riser indicating location number of sprinklers, design criteria, water demand, and date of installation.

4. Install fire sprinklers in exhaust ductwork from grease hood per NFPA 13. Provide access doors for sprinkler access per NFPA 96 and IBC. Provide access doors at a maximum of 10-feet on center in horizontal run. Provide a dry pendant sprinkler head at top of ductwork to prevent freezing.

5. Provide sprinkler systems in lab ductwork as required by code.

6. Provide fire sprinkler guards on exposed sprinklers in areas subject to damage.

7. Quick response sprinklers listed for installation in an Ordinary Hazard occupancy when installed in an Ordinary Hazard occupancy.

B. Flexible Sprinkler Wet and Dry Head Drop:

1. Install per manufacturer’s installation requirements.

2. Coordinate head location with other trades to assure space is available to maintain proper radius requirements.

3. Provide flexible sprinkler drops of appropriate length as conditions require.

4. Provide flexible sprinkler drops at sprinkler heads located in suspended, dropped, or acoustical ceilings. In hard lid ceiling areas, provide flexible heads at Contractor's option.

C. Sprinklers in Elevator Hoistways and Machine Rooms:

1. Reference Division 26, Electrical for heat detectors provided to disconnect mainline power of elevator prior to application of water from the sprinklers.

2. A shutoff valve with tamper switch will be provided for each branch service serving these spaces and located in an accessible location outside these spaces.

D. Sprinklers above finished ceilings: Include heads above finished ceilings if structure is combustible, or if steel beams are not provided with spray-on fire proofing.

E. Electrical: Electrical work to comply with Division 26, Electrical.

F. Fire Service: Connect to sprinkler line where it enters the building.

G. Hangers and Supports:

1. Install sprinkler system and service main piping, hangers, and supports in accordance with NFPA 13.

2. Install standpipe piping, hangers, and supports in accordance with NFPA 14.

3. Connections to structural framing not to introduce twisting, torsion, or lateral bending in the framing members. Provide supplementary steel as required.

H. Piping Preparation:

1. Measurements, Lines and Levels:

a. Check dimension at the building site and establish lines and levels for work specified in this Section.

b. Establish inverts, slopes, and elevations by instrument, working from an established datum point. Provide elevation markers for use in determining slopes and elevations in accordance with Drawings and Specifications.

c. Use established grid and area lines for locating trenches in relation to building and boundaries.

I. Piping:

1. Hold piping as tight to structure as possible. In general, run piping in areas without ceilings parallel to building elements in a neat, professional manner.

2. Pipe inspector test connections to exterior and discharge as approved by local applicable governing authorities.

3. Provide test tees as required.

4. Install unions in non-flanged piping connections to apparatus and adjacent to screwed control valves, and appurtenances requiring removal for servicing so located that piping may be disconnected without disturbing the general system.

5. Mechanical Couplings:

   a. On systems using galvanized pipe and fittings, galvanize fittings at factory.

   b. Before assembly of couplings, lightly coat pipe ends and outside of gaskets with approved lubricant.

   c. Pipe grooving in accordance with manufacturer's specifications contained in latest published literature.

6. Install piping as to drain per NFPA 13.

7. Support piping independently at apparatus so that its weight not carried by the equipment.

8. Utility Marking:

   a. Installed over the entire length of the underground piping utilities. Install plastic tape along both sides and the center line of the trenches at the elevation of approximately 12-inches above the top of utility.

9. Underground Water System:

   a. Prior to testing pipe provide concrete thrust blocks at changes in direction.

   b. Block size as required for types of fittings involved.

J. Drain Piping:

1. Pitch drain piping 1/2-inch per 10-feet minimum; no traps allowed.

2. Discharge drain piping to outside with suitable splash plate to a location as approved by the architect.

K. Piping Joints:

1. Join pipe and fittings using methods and materials recommended by manufacturer in conformance with standard practice and applicable codes. Cleaning, cutting, reaming, grooving, etc. done with proper tools and equipment. Hacksaw pipe cutting prohibited. Peening of welds to stop leaks not permitted.

2. Grooved Joints:

   a. Install in accordance with the manufacturer's latest published installation instructions.

   b. Clean pipe ends free from indentations, projections and roll marks in the area from pipe end to (and including) groove.

c. Gasket manufactured by the coupling manufacturer and verified as suitable for the intended service.

d. Factory trained representative (direct employee) of the coupling manufacturer to provide on-site training for contractor's field personnel in the use of grooving tools, application of groove, and product installation.

e. Periodically visit the job site and review installation to ensure best practices in grooved joint installation are being followed.

f. Remove and replace any improperly installed products.

3. No couplings installed in floor or wall sleeves.

4. Steel Piping:

a. Screwed Joints:

(1) Pipes cut evenly with pipe cutter reamed to full inside diameter with burrs and cuttings removed.

(2) Joints made up with suitable lubricant or Teflon tape applied to male threads only, leaving two threads bare.

(3) Joints tightened so that not more than two threads are left showing.

(4) Junctions between galvanized steel waste pipe and bell of cast iron pipe made with tapped spigot or half coupling on steel pipe to form spigot end and caulked.

b. Flanged Joints:

(1) Pressure rating of flanges match valve or fitting joined.

(2) Coat joint gaskets with graphite and oil.

5. Welded Joints:

a. Preparation for Welding: Bevel piping on both ends before welding:

(1) Use following weld spacing on buttwelds:

NOMINAL PIPE WALL THICKNESS	SPACING	BEVEL
1/4-inch or less	1/8-inch	37-1/2
Over 1/4-inch, less than 3/4-inch	3/16-inch	27-1/2

(2) Before welding, remove corrosion products and foreign material from surfaces.

b. Welded Joints:

(1) Use arc-welding process using certified welders. Port openings of fittings must match the inside diameter of the pipe to which they are welded. Use full radius welding elbows for turns, use welding tees for tees. Use reducing fittings for size reduction. Weldolets may be used for branches up through one-half the pipe size of the main to which they are attached. Nipples are not allowed.

c. Welding Operation:

(1) After deposition, clean each layer of weld metal to remove slag and scale by wire brushing or grinding. Chip where necessary to prepare for proper deposition of next layer.

(2) Weld reinforcement no less than 1/16-inch not more than 1/8-inch above normal surface of jointed sections. Reinforcement crowned at center and taper on each side to surfaces being joined. Exposed surface of weld present professional appearance and be free of depressions below surface of jointed members.

(3) Do not weld when temperature of base metal is lower than 0 degrees F. Material to be welded during freezing temperatures made warm and dry before welding is started. Metal warm to the hand or approximately 60 degrees F.

6. Ductile Iron Pipe: Install joints per manufacturer's written instructions.

L. Pipe Wrap:

1. Apply per manufacturer's written instructions.

2. Apply wrapping to fittings in field after installation.

3.2 IDENTIFICATION

A. Piping Markers:

1. Unless recommendations of ANSI A13.1 are more stringent, apply labels or letters after completion of pipe cleaning, painting, or other similar work, as follows:

a. Every 20-feet along continuous exposed lines.

b. Every 10-feet along continuous concealed lines.

c. Adjacent to each valve and stub out for future.

d. Where pipe passes through a wall, into and out of concealed spaces.

e. On each riser.

f. On each leg of a T.

g. Locate conspicuously where visible.

2. Apply labels or letters to lower quarters of the pipe on horizontal runs where view is not obstructed or on the upper quarters when pipe is normally viewed from above. Apply arrow labels indicating direction of flow. Arrows to be the same color and sizes as identification labels.

B. Equipment Identification:

1. Nameplates:

a. Attach to prominent area of equipment, either with sheet metal screws, brass chain, or contact cement as applicable.

2. Nameplate Directory:

a. Post final copy in Operation and Maintenance Manual.

3.3 EXTRA STOCK

A. Provide additional number of heads of each type and temperature rating installed as required to meet NFPA 13 requirements.

B. Provide storage cabinet or cabinets as required to receive reserve sprinkler heads and special installation tools required.

C. Provide index label for each head indicating manufacturer, model, orifice size of K-factor, and temperature rating.

D. Provide, inside cabinet a list of heads stored within and brief description of where installed.

E. Locate cabinet near sprinkler control station as approved.

3.4 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Perform tests and arrange for required inspections of installed system as required.

2. Notify the Architect 48 hours prior to any test or inspection.

3. Provide final test and certification in the presence of an Owner representative. Coordinate hereunder.

B. Inspection Service:

1. At start of warranty year, execute inspection agreement.

2. Without additional charge to Owner, make quarterly inspection of system during year.

a. Check and operate control valves.

b. Lubricate valve parts.

C. Report each inspection to Owner.

END OF SECTION

DECENTRALIZED UNITARY HVAC EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

A. This Section includes:

1. Rooftop Mounted Packaged HVAC Unit
2. Split System Air Conditioning Unit
3. Variable Refrigerant Flow (VRF) System

1.2 RELATED SECTIONS

A. Division 01, General Requirements

B. Division 23, Heating, Ventilating, and Air Conditioning (HVAC)

C. Section 23 05 14, Variable Frequency Drives for HVAC Equipment

D. Section 23 05 48, Vibration and Seismic Controls for HVAC Piping and Equipment

E. Section 23 09 00, Instrumentation and Controls for HVAC

1.3 SUBMITTALS

A. Submit the following:

1. Shop drawings showing details of construction, dimensions, arrangement of components, isolation, filters, etc.
2. Product data showing performance data, standard items, and accessories, operating weight.
3. Flow diagrams and pipe sizing for refrigerant systems.
4. Operating and maintenance data.
5. Testing Submittals:

a. Provide test plan and test procedures for approval.

b. Explain in detail, step-by-step, actions and expected results to demonstrate compliance with the requirements of this specification and methods for simulating necessary conditions of operation to demonstrate performance of the system.

c. Test plan and test procedures demonstrate capability of system to monitor and control equipment and to accomplish control and monitoring specified.

1.4 ACCEPTANCE TESTING AND TRAINING

A. Site Testing:

1. General:

a. Provide personnel, equipment, instrumentation, and supplies necessary to perform testing by a representative authorized by the manufacturer.

b. Owner or Owner's representative will witness and sign off on acceptance testing.

2. Acceptance Test:

a. Demonstrate compliance of completed control system with contract documents.

b. Use approved test plan, physical and functional requirements of project

B. Training:

1. General:

a. A representative authorized by the manufacturer conduct training courses for designated personnel in operation and maintenance of system.

b. Orient training to specific system being installed under this contract.

c. Provide training manuals for each trainee, with two additional copies provided for archival at project site.

d. Manuals include detailed description of the subject matter for each lesson.

e. Copies of audiovisuals delivered to Owner.

f. Training day is defined as 8 hours of classroom instruction, including two 15-minute breaks and excluding lunchtime, Monday through Friday, during normal first shift in effect at training facility.

g. Notification of planned training given to the Owner's representative at least 15 days prior to the training.

2. Operator's Training I:

a. Teach at a convenient location for a period of one training day.

b. Upon completion, each student, using appropriate documentation, should be able to perform elementary operations with guidance and describe general hardware architecture and functionality of system.

3. Operator's Training II:

a. Teach at project site for a period of one training day after completion of field-testing.

b. Course includes instruction on specific hardware configuration of installed system and specific instructions for operating the installed system.

c. Upon completion, each student should be able to start system, operate the system, recover the system after failure, and describe the specific hardware architecture and operation of system.

4. Operator's Training III:

a. Teach at project site for period of one training day no later than six months after completion of the acceptance test.

b. Course will be structured to address specific topics that students need to discuss and to answer questions concerning operation of system.

c. Upon completion, students should be fully proficient in system operation and have no unanswered questions regarding operation of installed system.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Rooftop Mounted Packaged HVAC Unit:

1. Trane
2. Daikin
3. Carrier
4. York
5. AAON
6. Other Manufacturers: Submit substitution request.

B. Split System Air Conditioning Unit:

1. Mitsubishi (Mr. Slim)
2. Carrier
3. Trane
4. Lennox
5. Daikin
6. LG
7. Other Manufacturers: Submit substitution request.

C. Variable Refrigerant Flow (VRF) System:

1. Mitsubishi (City Multi)

2. Daikin (VRV)

3. LG (Multi-V)

4. The basis of design is LG Multi-V. Responsible for changes required from basis of design, such as pipe quantity, routing, control coordination, and power requirements if a different manufacturer is selected.

2.2 ROOFTOP MOUNTED PACKAGED HVAC UNIT

A. Description: Roof-mounted, **multi-zone(AHU-101) and** single zone**(AHU-102)**, variable volume packaged air conditioning unit designed for full curb mounting, natural gas heat, variable frequency drives, capacities as indicated, factory assembled, wired, piped, tested and shipped in one piece with UL listing.

B. Unit Casing:

1. Heavy gauge galvanized steel, phosphatized and coated with baked enamel finish, gasketed and insulated with 1-inch 1 pound density glass fiber insulation.

2. ~~[Gas-fired heat exchanger section insulation: Foil faced]~~**Unit to be double wall construction throughout**

C. Air Conditioning Refrigeration:

1. Air-cooled with refrigerant line filter drier, thermostatic expansion valve, factory refrigerant charge, high and low pressure cutouts, and loss of charge protection.

2. Low ambient operation to **cooling to** 40 degrees F.

3. Dual refrigeration circuits for units with two compressors and independent safety controls.

4. Provide refrigerant sight glass.

D. Compressors:

1. Hermetic type compressor with positive constant pressure lubrication, current and thermal overloads, crankcase heater, time delay, and anti-recycle relays.

~~Each unit contains a minimum of [2] [4] compressors.~~

2. **Unit to be equipped with digital scroll or VFD compressor on lead circuit for LAT control without hot gas bypass.**

3. Provide compressor isolation valves **so compressor can be changed out without removing all refrigerant.**

E. Cooling Coils:

1. Provide indoor and outdoor coils of non-ferrous construction with aluminum fins mechanically bonded to seamless copper tubing with joints brazed.

2. Dual-circuited **interlaced** coils in units with two compressors.

~~3. Protect coils with plywood covers during shipment and installation.~~

~~4.~~**3.** Evaporator Coil Drain Pan: Stainless steel internally sealed and insulated.

F. Natural Gas Heating:

1. AGA approved for intended application and fuel, completely assembled, wired, piped, and tested with threaded gas connections.

2. Provide ~~[aluminized steel]~~ **stainless steel** heat exchanger and burners, forced draft combustion blower, and electronic ignition.

3. Provide **at least 8:1** full modulation~~]~~ of heating.

G. Fans:

1. Indoor Fan: Centrifugal type, permanently lubricated, belt driven by a permanently lubricated motor.

2. Outdoor Fan: Propeller type direct driven by a permanently lubricated motor.

H. Filters:

1. Provide **MERV 8 and MERV 13** ~~[~~high~~]~~ efficiency pleated filters.

2. Provide filter curb when filters cannot be mounted in the unit.

3. Provide one extra set of filters for each unit.

I. Dampers:

1. Provide motor-operated outside air and return air dampers with spring-return actuators, capable of supplying 0 percent-100 percent outside air.

2. Outside air damper minimum position adjustable independently of return damper position.

3. Maximum leakage rate no greater than 15 CFM per SF. at 2-inches wg.~~]~~

J. Economizer:

1. Enthalpy controlled type.

2. Outside air and return air dampers modulate to maintain discharge temperature on call for cooling.

3. Provide adjustable minimum outside air damper position.

4. Outside air and relief air dampers, close when indoor fan shuts down.

5. Provide relief capability equal to 100 percent of supply air with automatic motorized relief damper and weather hood.

K. Powered Exhaust: Provide relief air capability equal to 100 percent of supply air with exhaust fan, counterbalanced backdraft damper, and weather hood.

L. AHU-101 Wheel Heat Exchanger Section:

1. Rotating styrene wheel treated with molecular sieve desiccant coating for latent and sensible energy recovery.

2. Mount wheel in a rigid frame containing drive motor, drive belt, wheel seals and bearings and purge.

3. Removeable heat wheel from unit without the use of tools.

4. Provide MERV 8 filters on the outside air intake side of the heat recovery wheel as well as MERV 8 on the return side of the heat recovery wheel

5. Manufacturers that do not provide integral wheel in main unit cabinet must provide required mounting curbs, posts, required accessories, fans, pre-filters, dampers and insulated cabinet to provide fully assembled working unit.

~~K.~~**M.** Controls: Complete, factory-installed control system with operating and safety controls. Include remote sensors and devices for field-installation.

1. AHU-101 to be VAV controller with pertinent devices for stand-alone operation. Packaged controller to have MS/TP BACnet connection to be integrated with city control system.

~~1.~~**2.** Provide programmable ~~7-day~~ **thermostats****touch screen controller for single zone VAV operation** with automatic change over, fan on-auto switch, system off-auto switch, and individual set point for heating and cooling. Provide minimum of four independent programmable temperature periods per day.

~~2.~~**3.** Economizer:

a. Provide enthalpy controlled type, with outside air sensor, return air sensor and logic control to select outside air as the first stage for cooling operation when favorable conditions are detected.

b. Outside air and return air dampers modulate to maintain discharge temperature on call for cooling.

~~3.~~**4.** Provide adjustable minimum outside air damper position. Outside air dampers close when indoor fan shuts down.

~~4.~~**5.** Demand Controlled Ventilation:

a. Provide an automatically adjustable minimum outside air damper position, controlled to maintain a set CO2 concentration in the occupied space.

b. Provide adjustable wall mounted CO2 sensor using Non-Dispersion-Infrared (NDIR) technology, gold plated sensor, LDC display, and automatic background calibration to reduce zero drift.

~~L.~~**N.** Electrical:

1. Furnish magnetic contactors (starters), separate fusing for compressors, condenser fans, evaporator fans and exhaust fans, and control transformer.

2. Arrange unit for single point electrical connection with integral unit mounted disconnect.

~~M.~~**O.** Service Outlet:

1. Provide 115 VAC circuit with ground fault interrupter electrical outlet mounted in the unit controls cabinet.

2. Outlet circuit rated at 15A and factory wired to a step down transformer, fuse block, and 115V disconnect.

3. Wire circuit to line side of power block or power switch permitting use of the outlet while power to the unit is shut off.

~~N.~~**P.** Variable Frequency Drives:

1. Mount integral to unit or in external weatherproof NEMA rated VFD enclosure.

2. Refer to Section 23 05 14, Variable Frequency Drives for HVAC Equipment for additional requirements.

~~O.~~**Q.** Roof Curb:

1. Formed, 16 gauge galvanized steel with wood nailer strip capable of supporting entire unit weight.

2. Account for roof slope to provide level mounting service for equipment.

~~3. Provide spring isolated roof curbs where indicated or if fans and compressors are not internally isolated.~~

~~4.~~**3.** Curb height accounts for roof insulation depth and flashing requirements.

~~P.~~**R.** Warranty: One-year on parts**, 5 year compressor parts, and 25 year gas heat exchanger parts**~~.~~

2.3 SPLIT-SYSTEM AIR CONDITIONING UNIT

A. Indoor Unit:

1. Description:

a. Furnish complete unit including cabinet, wall mounting kit and accessories, refrigerant line set, fan and motor assembly, cooling coil and filter.

b. Unit as scheduled on drawing, factory-tested and assembled, factory wired, refrigerant-to-air heat exchanger, fan/motor assembly, compressor, controls and safety devices, control circuit transformer, shipped in one piece with ARI certification and UL listing.

2. Cabinet: 18 gauge steel, removable panels for access to components. Drain connection and return air filter racks.

3. Fan and Motor:

a. Assembly with a turbo fan direct driven by a single motor.

b. Statically and dynamically balanced and run on a motor with permanently lubricated bearings.

c. Fan consists of two speeds:

(1) High

(2) Low.

4. Controls:

a. Run wiring direct from the indoor unit to the controller with no splices.

b. System capable of automatic restart when power is restored after power interruption

5. Condensate Pump: Provide condensate pump when required; pipe drain to floor drain.

B. Outdoor Unit:

1. Description:

a. Provide air-cooled air conditioner (outdoor unit) designed for outdoor installation with factory-supplied supports, properly assembled, and tested at the factory.

b. Completely weatherproofed and include compressor, condenser coils, condensing fans, motor, refrigerant reservoir, charging valve, controls, and a holding charge of R410A.

c. Provide guards on condenser fans and coil guard.

2. Compressors:

a. Furnish hermetically sealed type with isolation and sound muffling.

b. Overload and inherent winding thermostat protection to prevent burn out.

c. Provide crankcase heater.

d. Manifold multiple compressors for single joint connection on liquid and suction lines.

3. Refrigeration Circuits: Back seating service valve and gauge ports in liquid and suction lines. Provided refrigerant filter-dryer.

4. Condenser Fans and Motors: Direct driven propeller type fans with permanently lubricated motors.

5. Controls:

   a. Provide high and low pressure cutouts, contactors and internal overload protection on motors.

   b. Provide low ambient operation to 20 degrees F outside to maintain condensing temperature on part load operation.

   c. Provide short cycle timer.

C. Controls Interface:

1. Equip with network port and network type data transfer interface with the DDC controller.

2. The following interface are required:

   a. BACnet protocol compatible with the system specified in Section 23 09 00, Instrumentation and Controls for HVAC.

   b. Alarms read to DDC controller.

   c. Analog signals read to DDC controller as a minimum:

      (1) Space Temperature

   d. The following status signals be read to the DDC controller as a minimum:

      (1) Occupied Cycle

      (2) Unoccupied Cycle

      (3) Warmup

      (4) Override

      (5) Supply Fan

      (6) Compressors

      (7) Heating/Cooling Operation

D. Controls Interface:

1. Equip with network port and network type data transfer interface with the system specified in Section 23 09 00, Instrumentation and Controls for HVAC.

2. Input and output points, setpoints and functions identified in the Sequences of Operation accessible to the DDC control system.

E. Electrical:

1. Furnish starters, contactors and disconnects.

2. Arrange for single point electrical connections.

3. Provide power and control wiring.

F. Controls:

1. Provide wall-mounted locally programmable 7-day thermostats with automatic change over, fan on-auto switch, system off-auto switch, and individual set point for heating and cooling with backlit LCD display.

2. Provide minimum of four independent programmable temperature periods per day.

3. Provide retrievable error codes in the event of system abnormality/error.

4. Hand-held remote controller is not acceptable.

2.4 VARIABLE REFRIGERANT FLOW SYSTEM (VRF)

A. Indoor Unit – Ceiling Cassette:

1. Description:

a. Ceiling-recessed cassette fan-coil unit.

b. Furnish complete unit including cabinet, ceiling mounting kit and accessories, refrigerant line set, electronic expansion valve, fan and motor assembly, cooling coil, condensate drain pan, and filter.

c. Unit as scheduled on drawing, factory-tested and assembly, compressor, controls and safety devices, control circuit transformer, shipped in one piece with ARI certification and UL listing.

2. Cabinet:

a. Ceiling-recessed cassette constructed of 18 gauge steel, removable panels for access to components.

b. Provide drain connection.

c. Painted finish.

d. Cabinet Panel: Provisions for a field installed filtered outside air intake.

e. Branch ducting allowed from cabinet. Fix grille to bottom of cabinet allowing four-way blow.

3. Fan and Motor:

   a. Evaporator fan to have an assembly with one or two line-flow fan(s) direct driven by a single motor.

   b. Statically and dynamically balanced and run on a motor with permanently lubricated bearings.

   c. Consist of two speeds:

      (1) High

      (2) Low

4. Coil/Piping:

   a. Indoor Coil: Direct expansion type of nonferrous construction with smooth plate fins on copper tubing.

   b. Condensate Pan: Locate under coil.

   c. Insulate both refrigerant lines.

5. Filter: Return air filtered by means of an easily removable, washable filter.

6. Electrical:

   a. Furnish starters, contactors and disconnects.

   b. Arrange for single point electrical connection.

7. Condensate Pump:

   a. Provide external condensate pump with hard-wired electrical connection when required.

   b. Pipe drain to floor drain.

B. Indoor Unit – Ceiling Concealed Ducted:

1. Description:

   a. Ceiling-concealed ducted fan coil designed to mount above the ceiling with a 2-position, field adjustable return and a fixed horizontal discharge supply.

   b. Furnish complete unit including cabinet, mounting kit and accessories, refrigerant line set, electronic expansion valve, fan and motor assembly, cooling coil, condensate drain pan, and filter.

   c. Unit as scheduled on drawing, factory-tested and assembled, factory wired, refrigerant-to-air heat exchanger, fan/motor assembly, compressor, controls and safety devices, control circuit transformer, shipped in one piece with ARI certification and UL listing.

2. Cabinet:

   a. Space saving, ceiling-concealed, ducted and have provisions for a field installed filtered outside air intake.

   b. Constructed of 18 gauge steel, removable panels for access to components.

   c. Provide drain connection.

3. Fan and Motor:

   a. Evaporator fan an assembly with one or two lines-flow fan(s) direct driven by a single motor.

   b. Statically and dynamically balanced and run on a motor with permanently lubricated bearings.

   c. Fan consist of two speeds, High and Low.

4. Coil/Piping:

   a. Indoor Coil: Direct expansion type of nonferrous construction with smooth plate fins on copper tubing.

   b. Condensate Pan: Locate under coil.

   c. Insulate both refrigerant lines.

5. Filter: Filter return air using standard factory installed return air filter.

6. Electrical:

   a. Furnish starters, contactors and disconnects.

   b. Arrange for single point electrical connection.

7. Condensate Pump:

   a. Provide external condensate pump with hard-wired electrical connection when required.

   b. Pipe drain to floor drain.

8. Condensate Drain Pan Sensor: Provide secondary condensate drain pan sensor interlocked to turn off unit upon detection. Based on Mitsubishi DPLS series.

C. Indoor Unit – Floor Standing Concealed or Exposed:

1. Description:

   a. Consist of a floor-standing indoor section.

b. Furnish complete unit including cabinet, mounting kit and accessories, refrigerant line set, electronic expansion valve, fan and motor assembly, cooling coil, condensate drain pan, and filter.

c. Unit as scheduled on drawing, factory-tested and assembled, factory wired, refrigerant-to-air heat exchanger, fan/motor assembly, compressor, controls and safety devices, control circuit transformer, shopped in one piece with ARI certification and UL listing.

2. Cabinet:

a. 18 gauge steel, removable panels for access to components.

b. Provide drain connection.

c. Exposed Units: Painted finish.

d. Concealed Units: Sheet metal finish.

3. Fan and Motor:

a. Evaporator fan an assembly with one or two line-flow fan(s) direct driven by a single motor.

b. Statically and dynamically balanced and run on a motor with permanently lubricated bearings.

c. Consists of two speeds:

(1) High

(2) Low

4. Coil/Piping:

a. Indoor Coil: Direct expansion type of nonferrous construction with smooth plate fins on copper tubing.

b. Condensate Pan: Locate under coil.

c. Insulate both refrigerant lines.

5. Filter: Return air filtered by means of an easily removable, washable filter.

6. Electrical:

a. Furnish starters, contactors and disconnects.

b. Arrange for single point electrical connection.

7. Condensate Pump:

   a. Provide external condensate pump with hard-wired electrical connection when required.

   b. Pipe drain to floor drain.

D. Outdoor Unit:

1. Description:

   a. Provide air-cooled heat pump (with heat recovery system for simultaneous heating and cooling) designed for outdoor installation with factory-supplied supports, properly assembled, and tested at the factory.

   b. Completely weatherproof and include compressor, condenser coils, condensing fans, motor, refrigerant reservoir, charging valve, controls, and a holding charge of refrigerant.

   c. Provide guards on condenser fans and coil guard. Power coated finish.

   d. Completely factory assembled, piped, wired, and tested.

   e. Both refrigerant lines insulated between the outside and inside units.

   f. Sound rating no higher than 63 dB(A).

   g. Modular in design and allow for side-by-side installation with minimum spacing.

   h. Provide accessories and kits required for a complete installation including field connection of heat pump units.

2. Cabinet: The casing(s) fabricated of galvanized steel, bonderized and finished with baked enamel.

3. Condenser Fans and Motors:

   a. Direct driven variable speed propeller type fans with permanently lubricated motors.

   b. Provide fans with a raised guard to prevent contact with moving parts.

   c. Outdoor Unit: Vertical discharge airflow.

4. Refrigerant Circuits:

   a. Units hold a charge of R410A refrigerant.

   b. Include back seating service valve and gauge ports in liquid and suction lines.

   c. Provided refrigerant filter-dryer.

d. Refrigeration circuit of the condensing unit consists of the following:

(1) Scroll Compressor

(2) Motors

(3) Fans

(4) Condenser Coil

(5) Electric Expansion Valve

(6) Solenoid Valves

(7) 4-Way Valve

(8) Distribution Headers

(9) Capillaries

(10) Filters

(11) Shut-Off Valves

(12) Oil Separators

(13) Service Ports

(14) Liquid Receivers

(15) Accumulators

5. Outdoor Coil: Nonferrous construction with lanced or corrugated plat fins on copper tubing.

6. Compressors:

a. Furnish inverter driven scroll hermetic sealed compressor isolation and sound muffling.

b. Overload and inherent winding thermostat protection to prevent burn out.

c. Provide crankcase heater.

d. Multiple compressors manifolded for single joint connection on liquid and suction lines.

e. Capacity completely variable down to 16 percent of rated capacity.

7. Controls:

a. Provide high and low pressure cutouts, contactors and internal overload protection on motors.

b. Provide low ambient operation to 0 degrees F outside to maintain condensing temperature on part load operation.

c. Provide short cycle timer.

8. Warranty: Provide 5 year warranty on compressors.

E. Branch Circuit Controller:

1. General:

a. Galvanized steel finish.

b. Completely factory assembled, piped, and wired.

c. Each unit run tested at the factory.

d. Mount indoors and operate so that different zones served by each controller can be in heating and cooling mode simultaneously.

2. Cabinet:

a. House a liquid-gas separator and multiple refrigeration control valves.

b. Contain tube-in-tube heat exchangers.

c. Casing: Fabricated of galvanized steel.

3. Refrigerant Valves:

a. Furnish unit with multiple two position refrigerant valves.

b. Circuit: Two-position liquid line valve and a two-position suction line valve.

c. When connecting a 54,000 BTU-h or larger indoor unit section, 2 branch circuits joined together at the branch controller to deliver an appropriate amount of refrigerant the two refrigerant valves operate simultaneously.

d. Linear electronic expansion valves used to control the variable refrigerant flow.

4. Integral Drain Pan: Provide integral condensate pan and drain.

5. Condensate Pump:

a. Provide internal factory-mounted condensate pump with hard-wired electrical connection.

b. Provide external condensate pump with hard-wired electrical connection when required.

c. Pipe drain to floor drain.

6. Electrical:

   a. Furnish starters and contactors.

   b. Arrange for single point electrical connection.

F. VRF Controls:

1. Provide a complete, control system with operating and safety controls, consisting of remote controllers and centralized controllers.

2. Network together using a high-speed communication bus and wiring as recommended by manufacturer.

3. Provide control wiring and control power wiring for a complete and operational system.

4. Provide required controllers for stand-alone temperature sensors.

5. Controls network to support operation monitoring, scheduling, error email distribution, personal browsers, and online maintenance support.

~~6. Room Thermostat:~~

   ~~a. Provide locally programmable 7-day thermostats with automatic change over, fan on-auto switch, system off-auto switch, and individual set point for heating and cooling with backlit LCD display.~~

   ~~b. Provide minimum of four independent programmable temperature periods per day.~~

   ~~c. Provide error codes in the event of system abnormality/error.~~

   ~~d. Provide one thermostat per unit unless otherwise indicated.~~

   ~~e. Provide 10 percent spare stock to owner.~~

   ~~f. Based on: Mitsubishi Deluxe MA Controller.~~

~~7.~~**6.** Room Thermostat:

   a. Ability to allow the user to change on/off, temperature setting, and fan speed setting.

   b. Provide display of a four-digit error code in the event of system abnormality/error.

   c. Provide one thermostat per unit unless otherwise indicated. Provide 10 percent spare stock to owner.

   d. Based on: ~~Mitsubishi Simple MA Controller.~~**LG Simple Stat**

~~8.~~**7.** **Touch Screen** Centralized Controller:

a. Capable of controlling a maximum of ~~50~~ **128** indoor units with multiple outdoor units.

~~b.~~ Override remote controllers every 2 hours, system configuration, daily/weekly/annual scheduling, monitoring of operation status, error email notification, online maintenance tool, and malfunction monitoring.

b.

c. Provide basic operation controls which can be applied to an individual indoor unit, a group of indoor units (up to ~~50~~ **128** indoor units), or indoor units (collective batch operation) including on/off, operation mode selection (cool, heat, auto, dry, and fan), temperature setting, fan speed setting, airflow direction setting, error email notification, and online maintenance.

~~9.~~**8.** Power Supply: Provide power supply for controls from spare electrical circuits, including breakers, disconnects, transformers, and wiring.

~~10. Refer to Section 23 09 93, Sequence of Operations for HVAC Controls for required controls, control functions, and sequences of operation for controls.~~

G. Controls Interface:

1. Equip with network port and network type data transfer interface with the DDC controller.

2. The following interface required:

a. BACnet protocol compatible with the system specified in Section 23 09 00, Instrumentation and Controls for HVAC.

b. Alarms read to DDC controller.

c. The following analog signals read to the DDC controller as a minimum: Space temperature.

d. The following status signals be read to the DDC controller as a minimum:

(1) Occupied Cycle

(2) Unoccupied Cycle

(3) Warmup

(4) Override

(5) Supply Fan

(6) Compressors

(7) Heating/Cooling Operation

H. Controls Interface:

1. The packaged equipment controls equipped with a network port and network type data transfer interface with the system specified in Section 23 09 00, Instrumentation and Controls for HVAC.

2. Input and output points, setpoints and functions identified in the Sequences of Operation accessible to the DDC control system.

PART 3 EXECUTION

3.1 ROOFTOP MOUNTED AIR CONDITIONING UNIT AND HEAT PUMP

A. Installation:

1. Coordinate roof penetration with others.

2. Install curb.

3. Furnish 2-inch thick, 2 pcf density insulation along inside of curb. Installation per Section 23 07 00, Insulation for HVAC.

4. Install unit where shown, with air filters in place before operating unit. Comply with manufacturer’s recommendation.

5. Provide minimum of 3-inch trap seal on condensate drain connections.

6. Keep access door to roof mounted equipment closed to prevent wind and weather damage.

B. Start-Up:

1. General: Comply with manufacturer’s instructions.

2. Start-up of units provided under the direct supervision of the manufacturer’s representative with factory-trained personnel.

C. Testing and Adjusting/Performance Test:

1. Except where initial unit operation clearly shows the performance meets or exceeds the requirements, test to show compliance.

2. Perform tests by the manufacturer’s representative in the presence of the Engineer.

3.2 SPLIT-SYSTEM AIR CONDITIONING UNIT

A. Installation:

1. Install in location shown on the Drawings. Level unit and secure to structure.

2. Make piping connections and unit installation per manufacturer's recommendations and installation guides.

3. Size and run refrigerant piping between fan coil unit(s) and air-cooled condensing unit(s) per manufacturer's recommendations. Provide traps and double suction and/or discharge risers if recommended by the manufacturer.

4. Insulate refrigerant piping as specified in Section 23 07 00, Insulation for HVAC.

5. Pipe condensate pan to floor drain per manufacturers installation guide.

6. Make refrigerant piping connections, install refrigeration accessories, and charge system. Provide additional refrigerant as required for proper operation at design capacities.

B. Start-up:

1. General: Comply with manufacturer’s instructions.

2. Install filters before operating unit.

3. Insure proper refrigerant and airflow before operating unit compressor.

C. Provide interconnecting power and control wiring, routed in conduit from the outdoor unit to the indoor unit, and control panel thermostat. Where unit provided requires separate power connections to the indoor and outdoor units provide at no additional cost. Include branch circuit conduit, wiring, circuit breaker, terminations, etc. as required for complete system. Branch circuit serving indoor unit originates in same panelboard serving outdoor unit.

D. Testing and Adjusting/Performance Test: Except where initial unit operation clearly shows the performance meets or exceeds the requirements, test to show compliance. The manufacturer’s representative in the presence of the Engineer to perform tests.

3.3 VARIABLE REFRIGERANT FLOW SYSTEM

A. Installation:

1. Install in location shown on the Drawings. Level unit and secure to structure. Provide secondary structural base where required to attached to structure. Provide vibration isolators where indicated.

2. Make piping connections and unit installation per manufacturer's recommendations and installation guides.

3. Size and run refrigerant piping between fan coil unit(s), branch circuit controller(s) and condensing unit(s) per manufacturer's recommendations.

4. Insulate refrigerant piping as specified in Section 23 07 00, Insulation for HVAC.

5. Pipe coil drain pan to floor drain per manufacturers installation guide.

6. Provide secondary drain protection via a sensor in the drain pain overflow. Field wire interlock to shut down the unit upon sensing of moisture.

7. Make refrigerant piping connections, install refrigeration accessories, and charge system. Provide additional refrigerant as required for proper operation at design capacities.

8. Provide interconnecting power and control wiring.

B. Controls:

1. Install controls.

~~2.~~ Provide devices, materials, equipment, software, wiring, interconnecting power, labor, and engineering necessary to achieve a fully functioning system.

2.

C. Start-up:

1. Comply with manufacturer's instructions. Startup checklist to be provided by the manufacturer and completed by the contractor prior to startup.

2. Startup to be witnessed and signed off on by the manufacturer's representative.

3. Install filters before operating unit.

4. Ensure proper refrigerant and airflow before operating unit compressor.

END OF SECTION

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: DECA ARCHITECTURE INC.

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM: CASEWORK MANUFACTURERS

06 40 00	4	2.1 A	APPROVED MANUFACTURERS
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: ACTION-PRIDE CABINETS Inc.

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

MARCK KORLESKY
Name (Print)

MARCK KORLESKY
Signature

ACTION-PRIDE CABINETS Inc.
Firm Name

63017 SHERMAN RD.
Address

BEND, OR 97703
City, State, Zip

12/28/18
Date

541-383-2061 541-330-3958
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments: APC BUSINESS PROFILE

1999 Edition

ACTION PRIDE CABINETS

"In GOD We Trust'

63017 Sherman Rd. Bend, OR 97701
PH. (541) 383-2061 FAX (541) 330-3958

BUSINESS PROFILE:

Established: 1991
Employees: 9
Gross Annual Sales: $1,600,000 +
Market: 90% Commercial / 10% High End Residential
AWI Compliant.

COMPLETED PROJECTS:

Bend Library: Thomas Hacker Architects.
Crook County Library: Richard P. Turi Architects.
Columbia River Banks: Steele & Associates.
Reynolds High School: Ellis, Eslick Architects.
Bend Family Shelter: Stevens Architects.
Crescent District Office – US Forest Service: Steele & Associates
State of Oregon – Labor and Industries: Studio 3 Architecture
Tetherow Clubhouse: Ankrom Moisan
West Salem Memory Care: Lenity Architecture
COCC - Redmond Technology Education Center: BBT Architects
Oregon Dept. of Administrative Services: Hennebery Eddy Architects
Ray Schultens Ford: Axis Design Group
Bend Park and Recreation Dist. – Simpson Pavilion: Opsis Architecture
Glaze Meadow Recreation Complex: Robertson / Sherwood Architects
Deschutes Recovery Center: Pinnacle Architecture
See www.actionpride.com – photo gallery for a comprehensive list of completed projects.

CONTRACTORS:

CS Construction – Bend, OR - 541-617-9190
Woodburn Construction – Woodburn, OR – 541-981-9504
Keeton King Construction – Sisters, OR – 541-923-0704
Apollo General Contractor – Kennewick, WA – 509-586-1104
Mortenson Construction – Portland, OR – 971-202-4100
Walsh Construction – Portland, OR – 503-222-4375
Hoffman Construction – Portland, OR – 503-221-8811
Deacon Corp. – Portland, OR – 503-297-8791
Baldwin General Contracting – Albany, OR – 541-926-2719
Chambers Construction – Eugene, OR – 541-687-9445
McCormack Construction – Pendleton, OR – 541-276-1353
Perlo Construction – Portland, OR – 503-624-2090
Leone & Keeble – Spokane, WA – 509-327-4451
Robinson Construction – Hillsboro, OR – 503-645-8531
McKenzie Commercial – Eugene, OR – 541-343-7143

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: DECA Architects Attn: Shem Harding

PROJECT: Woodburn City Hall Remodel Woodburn, Oregon

SPECIFIED ITEM: Armstrong Cirrus Second Look 510

09 51 00	19 - 23	2.2	Acoustical Ceilings
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Rockfon Tropic 1021

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Sarah Lyons
Name (Print)

Signature

Valhalla Construction Products
Firm Name

5904 NE 112th Ave
Address

Portland, Oregon 97220
City, State, Zip

01/02/2019
Date

(503) 387-5773
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

SUBSTITUTION REQUEST

We believe our acoustical ceiling and wall solutions are a fast and simple way to create beautiful, comfortable spaces. Easy to install and durable, they protect people from noise and the spread of fire while making a constructive contribution towards a sustainable future.

Project Name:	Woodburn City Hall Remodel	Bid Date:	**1/17/2019**
Project Number:		Request Date:	January 2, 2019
Location:	Woodburn, Oregon	Submitted By:	Sarah Lyons
Submitted To:	DECA Architects	Company:	ROCKFON LLC
Attn:	Shem Harding	Address:	4849 S. Austin Ave.
Address:	harding@deca-inc.com		Chicago IL, 60638
Phone Number:	(503) 239-1987	Phone Number:	(800) 323-7164
Section Number:	09 51 00	Local Distributor:	Valhalla Construction Products
Section Title:	Acoustical Ceilings	Address:	5904 NE 112th
Paragraph(s):	2.2		Portland, Oregon 97220
Specification Page(s):	19 - 23	Phone Number:	(503) 387-5773

Additional support materials included: [X] Product Data [ ] Samples [ ] Other:

Specified Product ACT-1		Proposed Product ACT-1	
Product:	Armstrong Cirrus Second Look II	Product:	Rockfon Tropic
Item Number:	510	Item Number:	1021
Size:	2x4	Size:	2x4
Edge Detail:	Narrow Tegular	Edge Detail:	Narrow Tegular
Color:	White	Color:	White
NRC:	.65	NRC:	.82
LR:	.85	LR:	.86
Warranty:	Only valid when combined with Armstrong suspension systems.	Warranty:	30 years when combined with Rockfon Chicago Metallic suspension systems.
Other:	Made of paper; Additives for mold, mildew, sag, water, and fire resistance. Looks like a 2x2 tile.	Other:	Made of stone wool; Naturally mold, mildew, sag, water, and fire resistant. Has a high end look with superior performance and competitive pricing. Also comes in a 2x2 tile.

Specified Suspension -		Proposed Suspension -	
Product:	Armstrong Suprafine XL	Product:	Rockfon Chicago Metallic Tempra 4000
Size:	9/16	Size:	9/16
Detail:	Heavy Duty	Detail:	Heavy Duty
Color:	White	Color:	White
Material:	Steel	Material:	Steel
Warranty:	Only valid when combined with Armstrong ceiling tiles.	Warranty:	40 years, regardless of the ceiling tile manufacturer used.

Approved: _____ _____ _____

Print Name Signature Date

Rockfon®

Part of the ROCKWOOL Group

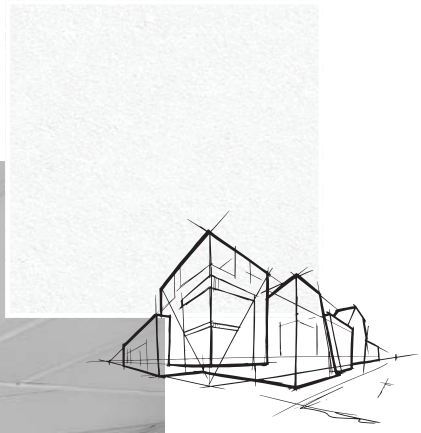
Rockfon Tropic®

Features & Benefits

- Smooth white surface
- Good sound absorption (NRC = 0.85)
- High fire performance
- High light reflectance (LR = 0.86)
- Available in square lay-in and tegular

Applications

- Open Plan Office
- Cellular Office
- Classroom
- Department Stores



GREENGUARD GOLD

PRODUCT CERTIFIED FOR LOW CHEMICAL EMISSIONS
UL.COM/GG
UL 2818

Rockfon Tropic®

LEED® v4 Highlights

Materials and Resources (MR)

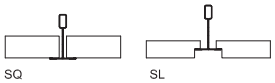
Waste Management Planning	✓
Interiors Life Cycle Impact Reduction	✓
Environmental Product Declarations	✓
Sourcing of Raw Materials	✓
Material Ingredients	✓
Waste Management	✓

Indoor Environmental Quality (EQ)

Low-Emitting Materials	✓
Interior Lighting	✓
Acoustic Performance	✓

Recycled Content: up to 37%

Edge designation		Item number	Modular size (nominal)	lbs/ sqft	sqft/ carton	NRC	CAC	AC	Fire Class	Light Reflectance	Sag resistance (relative humidity)	Low VOC
Square Lay In	SQ	1000	2′ x 2′ x 5/8″	0.38	112	0.85	20	-	A	0.86	up to 100 %	✓
	SQ	1001	2′ x 4′ x 5/8″	0.38	112	0.85	20	-	A	0.86	up to 100 %	✓
	SQ	1009	20″ x 60″ x 3/4″	0.45	83.33	0.90	20	180	A	0.86	up to 100 %	✓
Square Tegular Narrow	SLN	1020	2′ x 2′ x 5/8″	0.47	56	0.85	20	-	A	0.86	up to 100 %	✓
	SLN	1021	2′ x 4′ x 5/8″	0.47	112	0.85	20	-	A	0.86	up to 100 %	✓
Square Tegular	SL	1060	2′ x 2′ x 5/8″	0.47	56	0.85	20	-	A	0.86	up to 100 %	✓
	SL	1061	2′ x 4′ x 5/8″	0.47	112	0.85	20	-	A	0.86	up to 100 %	✓

15/16" Suspension Systems	9/16" Suspension Systems
1200, 200 and Fire rated systems	4000, 4500, 4600 and Fire rated systems
	

Budget: **$$**$$$

Material
Stone wool (Mineral Wool) ceiling tiles with factory painted glass scrim surface
ASTM E1264 CLASSIFICATION: Type XX - Stone wool base with membrane-faced overlay, Pattern G

Fire Performance

Surface burning characteristics:
UL723 (ASTM E84) Flame Spread Index: 0
Smoke Developed Index (UL Labeled): 5
CAN/ULC S102 Flame Spread Index: 5
Smoke Developed Index: 0

Environment

Fully recyclable

Thermal Insulation

R Value (BTU Units): 2.2 - 2.6
RSI Value (Watts Units): 0.39 - 0.46

VOC Emissions

All Rockfon stone wool acoustic solutions are GREENGUARD Gold low VOC certified and meet the State of California's Department of Public Health Services Standard Practice for Specification Section 01350 (California Section 01350) for testing chemical emissions.

Selected potential applications: LEED, WELL, CHPS, Green Globes, BREEAM Int. and CALGreen.

Warranty Information

30 YEARS

30-Year Limited Product Warranty.
See www.rockfon.com

Hygiene

Stone wool provides no sustenance to microorganisms

Cleaning

- Vacuum

Rockfon
4849 S. Austin Ave., Chicago, IL 60638 USA
Tel. +1-800-323-7164
Fax. +1-800-222-3744
www.rockfon.com
cs@rockfon.com
SNL150024

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: DECA Architects Attn: Shem Harding

PROJECT: Woodburn City Hall Remodel Woodburn, Oregon

SPECIFIED ITEM: Armstrong Suprafine XL

09 51 00	19 - 23	2.2	Acoustical Ceilings
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Rockfon Chicago Metallic Tempra 4000

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Sarah Lyons
Name (Print)

Signature

Valhalla Construction Products
Firm Name

5904 NE 112th Ave
Address

Portland, Oregon 97220
City, State, Zip

01/02/2019
Date

(503) 387-5773
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

SUBSTITUTION REQUEST

We believe our acoustical ceiling and wall solutions are a fast and simple way to create beautiful, comfortable spaces. Easy to install and durable, they protect people from noise and the spread of fire while making a constructive contribution towards a sustainable future.

Project Name:	Woodburn City Hall Remodel	Bid Date:	**1/17/2019**
Project Number:		Request Date:	January 2, 2019
Location:	Woodburn, Oregon	Submitted By:	Sarah Lyons
Submitted To:	DECA Architects	Company:	ROCKFON LLC
Attn:	Shem Harding	Address:	4849 S. Austin Ave.
Address:	harding@deca-inc.com		Chicago IL, 60638
Phone Number:	(503) 239-1987	Phone Number:	(800) 323-7164
Section Number:	09 51 00	Local Distributor:	Valhalla Construction Products
Section Title:	Acoustical Ceilings	Address:	5904 NE 112th
Paragraph(s):	2.2		Portland, Oregon 97220
Specification Page(s):	19 - 23	Phone Number:	(503) 387-5773

Additional support materials included: [X] Product Data [ ] Samples [ ] Other:

Specified Product ACT-1		Proposed Product ACT-1	
Product:	Armstrong Cirrus Second Look II	Product:	Rockfon Tropic
Item Number:	510	Item Number:	1021
Size:	2x4	Size:	2x4
Edge Detail:	Narrow Tegular	Edge Detail:	Narrow Tegular
Color:	White	Color:	White
NRC:	.65	NRC:	.82
LR:	.85	LR:	.86
Warranty:	Only valid when combined with Armstrong suspension systems.	Warranty:	30 years when combined with Rockfon Chicago Metallic suspension systems.
Other:	Made of paper; Additives for mold, mildew, sag, water, and fire resistance. Looks like a 2x2 tile.	Other:	Made of stone wool; Naturally mold, mildew, sag, water, and fire resistant. Has a high end look with superior performance and competitive pricing. Also comes in a 2x2 tile.

Specified Suspension -		Proposed Suspension -	
Product:	Armstrong Suprafine XL	Product:	Rockfon Chicago Metallic Tempra 4000
Size:	9/16	Size:	9/16
Detail:	Heavy Duty	Detail:	Heavy Duty
Color:	White	Color:	White
Material:	Steel	Material:	Steel
Warranty:	Only valid when combined with Armstrong ceiling tiles.	Warranty:	40 years, regardless of the ceiling tile manufacturer used.

Approved: _____ _____ _____

Print Name Signature Date

Rockfon®

Part of The ROCKWOOL Group

Chicago Metallic® 4000 Tempra™ 9/16”

Acoustical ceiling suspension system

Ideal for: Hospitals, hospitality, retail, airports, transit, galleries, and offices.

Performance Properties:
-Grid system is available in both intermediate and heavy duty designs, with either stab-end and hook-end cross tees
-Fire rated components are designed with expansion reliefs, making it suitable for fire-rated ceiling assemblies
-Suspension system in (4000) non-fire rated, (4050) fire rated, and in (4000HRC) high recycled content
-Sustainable: Minimum 25% recycled content,100% locally recyclable
-Chicago Metallic® suspension systems meet a Class-A flame spread rating in accordance with ASTM standard E1264-08

Chicago Metallic® 4000 Tempra™ 9/16”

LEED® V4 HIGHLIGHTS

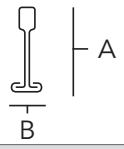
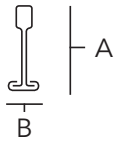
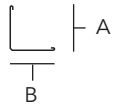
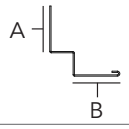
Materials and Resources (MR)

-Waste Management Planning	✓
-Interiors Life Cycle Impact Reduction	✓
-Environmental Product Declarations	✓
-Sourcing of Raw Materials	✓
-Material Ingredients	✓
-Waste Management	✓

Indoor Environmental Quality (EQ)

-Low-Emitting Materials	✓
-Interior Lighting	✓
-Acoustic Performance	✓

RECYCLED CONTENT: UP TO: 65%

Detail	Product Number	Length	Height (A)	Face (B)	Grid Coupling Type	Slotting / Class	Fire Rated	Seismic	Recycled Content
Main Runners									
	4000.01CZ	144”	1-5/8”	9/16”	Bayonet-End	6” OC, ID	-	C	25
	4040.01CH	144”	1-5/8”	9/16”	Bayonet-End	6” OC, HD	-	C, DEF	25
	4001.01CH	120”	1-5/8”	9/16”	Bayonet-End	10” OC, ID	-	C	25
	4050.01CZ	144”	1-5/8”	9/16”	Bayonet-End	6” OC, ID	✓	C	25
	4040.01HRC	144”	1-5/8”	9/16”	Bayonet-End	Slots 6” OC, HD	-	C, DEF	65
Cross Tees									
	4004.01Z	4”	1-1/2”	9/16”	Stab-End	No Slots	-	C, DEF	25
	4006.01Z	6”	1-1/2”	9/16”	Stab-End	No Slots	-	C, DEF	25
	4013.01CZ	30”	1-1/2”	9/16”	Stab-End	No Slots	-	C, DEF	25
	4014.01CZ	48”	1-1/2”	9/16”	Stab-End	12” OC	-	C, DEF	25
	4015.01CH	60”	1-1/2”	9/16”	Stab-End	10” OC	-	C, DEF	25
	4017.01CH	72”	1-1/2”	9/16”	Stab-End	24” OC	-	C, DEF	25
	4018.01CH	96”	1-1/2”	9/16”	Stab-End	24” OC	-	C, DEF	25
	4020.01CZ	20”	1-1/2”	9/16”	Stab-End	No Slots	-	C, DEF	25
	4022.01CZ	24”	1-1/2”	9/16”	Stab-End	No Slots	-	C, DEF	25
	4032.01CZ	24”	1-1/2”	9/16”	Hook-End	No Slots	-	C	25
	4034.01CZ	48”	1-1/2”	9/16”	Hook-End	24” OC	-	C	25
	4052.01CZ	24”	1-3/4”	9/16”	Stab-End	No Slots	✓	C, DEF	25
	4054.01CZ	48”	1-3/4”	9/16”	Stab-End	12” OC	✓	C, DEF	25
	4014.01HRCZ	24”	1-5/8”	9/16”	Stab-End	No Slots	-	C, DEF	65
	4022.01HRCZ	48”	1-5/8”	9/16”	Stab-End	Slots 12” OC	-	C, DEF	65
Wall Angles & Channels									
	21420.01	144”	15/16”	15/16”	-	-	-	C, DEF	25
	1480.01	144”	9/16”	15/16”	-	-	-	C, DEF	25
	1420.01	144”	15/16”	15/16”	-	-	-	C, DEF	25
	1480.01HRC	144”	9/16”	15/16”	-	-	-	C, DEF	65
	1420.01HRC	144”	15/16”	15/16”	-	-	-	C, DEF	65
Shadow Moldings									
	1460.01	120”	3/4”	3/4”	-	3/8” Reveal	-	C	25
	1461.01	120”	3/4”	3/4”	-	3/4” Reveal	-	C	25
	1466.01	144”	1-3/4”	1-1/4”	-	3/4” x 1/4” Reveal	-	C	25
	1469.01	120”	15/16”	9/16”	-	3/8” Reveal	-	C	25

Note: Cross tees are override design, with stab-in end detail, unless noted otherwise. Hook end tees are suitable for seismic areas 1 and 2 only. Butt-cut tees are used for true, flat panel installation, i.e., metal panels. Wires required at mid point for loads exceeding weight of Rockfon tile.

Available in the following standard colors, Rockfon® Color-all™ colors, and RAL color options.

01 White

08 Black

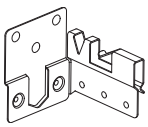
44 Satin Silver

Color-all

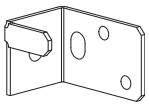
Packaging

Product Number	Pieces per Carton	Ft per Carton	Lbs per Carton	Cartons per Pallet	Lbs per Pallet
Main Runners					
4000.01CZ	20	240	54.7	30	1640
4040.01CH	20	240	84	30	2520
4001.01CH	30	300	74	28	2058
4050.01CZ	20	240	62	30	1860
4040.01HRC	20	240	84	30	2520
Cross Tees					
4004.01Z	60	20	5	10	50
4006.01Z	60	30	5	10	50
4013.01CZ	60	150	40	Palletized to Order	Palletized to Order
4014.01CZ	60	240	55	30	1650
4015.01CH	60	300	68	30	2040
4017.01CH	20	120	25	28	700
4018.01CH	20	160	28	28	784
4020.01CZ	60	100	21	64	1344
4022.01CZ	60	120	22.2	64	1421
4032.01CZ	60	120	21	64	1344
4034.01CZ	60	240	55	30	1650
4052.01CZ	60	120	30.6	64	1958
4054.01CZ	60	240	59	30	1770
4014.01HRCZ	60	240	52.8	30	1584
4022.01HRCZ	60	120	22	64	1421
Wall Angles & Channels					
21420.01	25	300	41	30	1230
1480.01	25	300	39	30	1170
1420.01	42	504	69	30	2070
1480.01HRC	25	300	39	30	1170
1420.01HRC	42	504	69	30	2070
Shadow Moldings					
1460.01	40	400	64	32	2048
1461.01	40	400	90	32	2880
1466.01	20	240	61	20	1220
1469.01	40	200	77	Palletized to Order	Palletized to Order

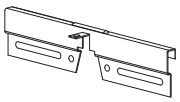
Accessories



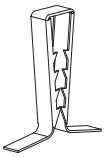
1496.00
Seismic
Perimeter Clip
100 PCS/Carton



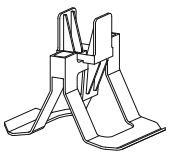
1493.00
Unopposed
Tee Clip
100 PCS/Carton



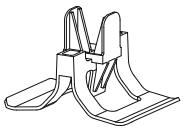
1494.00
Seismic
Separation Clip
100 PCS/Carton



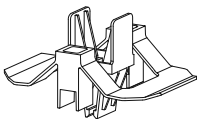
935.00
Hold Down Clip
for Various
Height Panels
1000 PCS/Carton



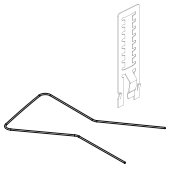
490.00
Hold Down Clip
for 0" – 3/4" Panels
100 PCS/Carton



491.00
Hold Down Clip for
3/4" – 1-1/4" Panels
150 PCS/Carton



492.00
Hold Down Clip
for 1-1/2" Panels
100 PCS/Carton



495.00
Facett™ Hold
Down Clip for
2" – 4" Panels
100 PCS/Carton

826.00H
2' Spacer Bar
80 LF/Carton

828.00H
4' Spacer Bar
160 LF/Carton

824.00H
4' Spacer Bar,
Notched at 2'
160 LF/Carton

Performance

Component Load Test Data and Material

Allowable Load per ASTM C635						
				Hanger Spacing		
Main Tee	Length			4′	5′	6′
4000	144″			ID	6.4	3.8
4040	144″			HD	8.8	5.3
4040 HRC	144″			HD	8.8	
4050	144″			ID		
Cross Tee	Length	2′	3′	4′	5′	
4022	24″	24.5 ♦				
4022 HRC	24″	24.5 ♦				
4032	24″	24.5 ♦				
4052	24″	45.0 ♦				
4014	48″			12.9		
4014 HRC	48″			12.9		
4034	48″			12.9		
4054	48″			12.9		
4015	60″				6.5	
4017	72″		27.3 •♦			
4018	96″			12.5 •♦		

To convert data into lb/ft2, divide on center spacing of component into lb/ft.
♦ Limited by safety factor of 2.
• Wire at mid-point of member
Note: For 6′ and 8′ cross tee spans with no hanger support at mid-point of member, please contact Technical Services

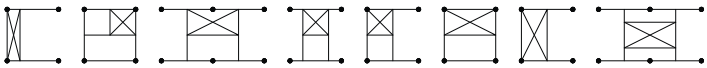
Light Fixture Load Test Data (based on 1/360 span deflection)

Light Fixtures	Main & Cross Tees - Allowable Fixture Weight – Pounds				
Dimensions	4040CH 4014CZ	4040CH 4014HRCZ	4000CZ 4015CH	4001CH 4015CH	4050.01CH 4054.01CH
1′ x 4′	42.4	42.4	45.6		
2′ x 2′	38.8	38.8			38.8
2′ x 4′	49.6	49.6	44.0 ♦		49.6
20″ x 48″			35.0	35.0	
20″ x 60″			35.0	35.0	

♦ Limited by safety factor of 2.

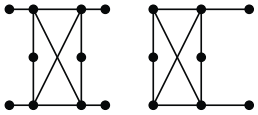
Non-Fire Rated Assemblies

Hanger Positions for Non-Fire Rated Situations
This illustrates hanger positions for single fixtures in a field. Provide extra hangers for tandem fixtures.



Fire Rated Assemblies

Hanger Positions for Fire Rated Situations
This illustrates hanger positions for single fixtures in a field. Provide extra hangers for tandem fixtures.



UL® Fire Rated Assemblies

Floor-Ceiling Type 4050C
A202, D216, G217, G229, G236, G256, G262, G265, L201
Roof-Ceiling Type 4050C
P204, P225, P227, P251, P253, P259, P260, P261, P262

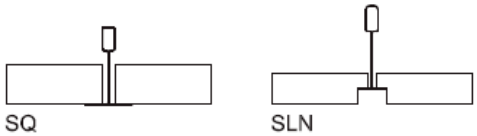
Material

ASTM C 635 Heavy Duty (HD) and Intermediate Duty (ID) main tee classifications; commercial quality steel, G30 hot-dip galvanized body and cap, 9/16″ width, 1-1/2″ and 1-5/8″ heights.

Note: A metallurgist should be consulted regarding the suitability of this product for the environmental conditions in which it is being installed.

Compatible Tile Edge Types

4000/4050/4000HRC Systems



Rockfon
4849 S. Austin Ave., Chicago, IL 60638 USA
Tel. +1-800-323-7164
Fax. +1-800-222-3744
www.rockfon.com
cs@rockfon.com
SNL150024

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: DECA Architects Attn: Shem Harding

PROJECT: Woodburn City Hall Remodel Woodburn, Oregon

SPECIFIED ITEM: Sound Concepts HIR-1

09 84 13	49 - 51	2.2	Acoustical Wall Panels
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Valhalla Silent Treatment

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Sarah Lyons
Name (Print)

Signature

Valhalla Construction Products
Firm Name

5904 NE 112th Ave
Address

Portland, Oregon 97220
City, State, Zip

01/02/2019
Date

(503) 387-5773
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

SUBSTITUTION REQUEST

We believe our acoustical ceiling and wall solutions are a fast and simple way to create beautiful, comfortable spaces. Easy to install and durable, they protect people from noise and the spread of fire while making a constructive contribution towards a sustainable future.

Project Name:	Woodburn City Hall Remodel	Bid Date:	**1/17/2019**
Project Number:		Request Date:	January 2, 2019
Location:	Woodburn, Oregon	Submitted By:	Sarah Lyons
Submitted To:	DECA Architects	Company:	ROCKFON LLC
Attn:	Shem Harding	Address:	4849 S. Austin Ave.
Address:	harding@deca-inc.com		Chicago IL, 60638
Phone Number:	(503) 239-1987	Phone Number:	(800) 323-7164
Section Number:	09 84 13	Local Distributor:	Valhalla Construction Products
Section Title:	Acoustical Wall Panels	Address:	5904 NE 112th
Paragraph(s):	2.2		Portland, Oregon 97220
Specification Page(s):	49 - 51	Phone Number:	(503) 387-5773

Additional support materials included: [X] Product Data [ ] Samples [ ] Other:

Specified Product FWP-1		Proposed Product FWP-1	
Product:	Sound Concepts HIR-1	Product:	Valhalla Silent Treatment
Panel Size:	Varies	Panel Size:	Custom Sizes Available
Thickness:	1" with Impact Screen	Thickness:	1" with Impact Screen
Edge Detail:	Square and Resin Hardened	Edge Detail:	Square and Resin Hardened
NRC:	.95	NRC:	.95
Fabric:	Knoll Textiles Arena WC2138/5	Fabric:	Knoll Textiles Arena WC2138/5
Mounting Method:	Impaling Clips	Mounting Method:	Impaling Clips
Other:		Other:	Locally Manufactured

Specified Product FWP-2		Proposed Product FWP-2	
Product:	Sound Concepts HIR-1	Product:	Valhalla Silent Treatment
Panel Size:	Varies	Panel Size:	Custom Sizes Available
Thickness:	1" with Impact Screen	Thickness:	1" with Impact Screen
Edge Detail:	Square and Resin Hardened	Edge Detail:	Square and Resin Hardened
NRC:	.95	NRC:	.95
Fabric:	Guilford of Maine Anchorage White 2664	Fabric:	Guilford of Maine Anchorage White 2664
Mounting Method:	Impaling Clips	Mounting Method:	Impaling Clips
Other:		Other:	Locally Manufactured

Approved:

Print Name Signature Date

VALHALLA

Sound Panels

PHYSICAL DATA

- Semi-rigid 6 PCF Fiberglass

APPLICATIONS:

-Sound Studios
-Music Rooms
-Auditoriums
-Gymnasium
-Conference Rooms
-Home Theaters
-Reception Areas
-Offices
-School Classrooms
-Ceiling Baffles

SOUND TEST:

(Per Riverbank Laboratories, Per ASTM C423-90A)
-3/4" NRC .08 RAL A01-87
-1" NRC .90 RAL A01-88
-2" NRC 1.15 RAL A01-89

FIRE TEST:

(Per SGS U.S. Testing #154556R)
Class A per ASTM E84-97a

Fabric Options

- [ ] Guilford of Maine: _____
- [X] Other: Knoll Textiles Arena WC2137/5
- [X] 1/8" High Impact Screen

Sizes

Thickness:

- [X] 1"
- [ ] 1 ½"
- [ ] 2"

Lengths:

- [ ] 4x8
- [ ] 4x9
- [ ] 4x10
- [X] Custom sizes available: _____

Edge Options

- [X] Resin Hardened Edges
- [X] Square Edges
- [ ] Quarter Bevel
- [ ] Half Bevel

Mounting Options:

- [ ] Z-clip
- [ ] Concealed Splines
- [X] Impaling Clips
- [ ] Hook & Loop
- [ ] Z-Bar

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: DECA Architects Attn: Shem Harding

PROJECT: Woodburn City Hall Remodel Woodburn, Oregon

SPECIFIED ITEM: Sound Concepts HIR-1

09 84 13	49 - 51	2.2	Acoustical Wall Panels
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Valhalla Silent Treatment

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Sarah Lyons
Name (Print)

Signature

Valhalla Construction Products
Firm Name

5904 NE 112th Ave
Address

Portland, Oregon 97220
City, State, Zip

01/02/2019
Date

(503) 387-5773
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

VALHALLA

Sound Panels

PHYSICAL DATA

- Semi-rigid 6 PCF Fiberglass

APPLICATIONS:

-Sound Studios
-Music Rooms
-Auditoriums
-Gymnasium
-Conference Rooms
-Home Theaters
-Reception Areas
-Offices
-School Classrooms
-Ceiling Baffles

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(Per Riverbank Laboratories, Per ASTM C423-90A)
-3/4" NRC .08 RAL A01-87
-1" NRC .90 RAL A01-88
-2" NRC 1.15 RAL A01-89

FIRE TEST:

(Per SGS U.S. Testing #154556R)
Class A per ASTM E84-97a

Fabric Options

- [x] Guilford of Maine: Anchorage White 2664
- [ ] Other: _____
- [x] 1/8" High Impact Screen

Sizes

Thickness:

- [x] 1"
- [ ] 1 ½"
- [ ] 2"

Lengths:

- [ ] 4x8
- [ ] 4x9
- [ ] 4x10
- [ ] Custom sizes available: _____

Edge Options

- [x] Resin Hardened Edges
- [x] Square Edges
- [ ] Quarter Bevel
- [ ] Half Bevel

Mounting Options:

- [ ] Z-clip
- [ ] Concealed Splines
- [x] Impaling Clips
- [ ] Hook & Loop
- [ ] Z-Bar

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Stage)

Project:	Woodburn City Hall Remodel & HVAC Upgrade (17-860979)	Substitution Request Number:	SubReq-01822
	WOODBURN, OR	From:	Courtney Damore, Scranton Products
To:	Eric Liljequist, City of Woodburn, Public Works	Date:	01/04/2019
	eric.liljequist@ci.woodburn.or.us, (503) 980-2408	A/E Project Number:	
Re:	Plastic Toilet Compartments	Contract For:	City of Woodburn, Public Works

Specification Title: Plastic Toilet Compartments
Description: Manufacturers
Section: 10 21 15
Page: 1
Article/Paragraph: 2.1

Proposed Substitution: Hiny Hiders Solid Plastic
Manufacturer: Scranton Products
Address: scrantonproducts.com
Phone: 570-348-0997
Trade Name: Scranton Hiny Hiders Solid Plastic
Model No.: N/A

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.

Submitted by: Courtney Damore
Signed by: Courtney Damore
Firm: Scranton Products
Address: 801 E. Corey Street
Scranton, Pennsylvania 18504
Telephone: (570) 348-0997 ext. 8032, courtney.damore@azekco.com

A/E' s REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Substitution Procedures.

☐ Substitution approved as noted - Make submittals in accordance with Specification Substitution Procedures.

☐ Substitution rejected - Use specified materials.

☐ Substitution Request received too late - Use specified materials.

Signed by: **Date:**

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ ____

PARTITION COLORS & TEXTURES

SCRANTON PRODUCTS®

INNOVATIVE SOLUTIONS FOR A BETTER FUTURE

COLOR & TEXTURE OPTIONS

Textures


ROTARY BRUSHED RB

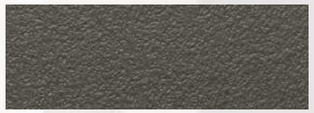

ORANGE PEEL OP


HAMMERED H

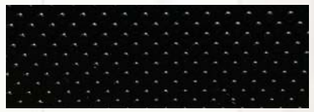

EX EX

TRADITIONAL
COLOR COLLECTION


BLACK OP


SHALE OP

GLACIER GREY OP


BLACK EX


CHARCOAL GREY OP

WHITE OP


PAISLEY OP

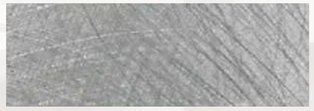

GREY OP

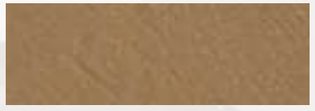
METALLIC
COLOR COLLECTION


STAINLESS H


BRONZE H


NICKEL H


STAINLESS RB

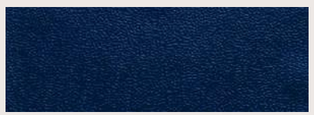

BRONZE RB

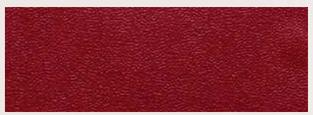

NICKEL RB

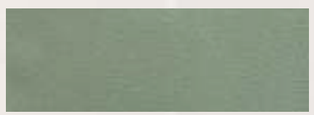

STAINLESS EX

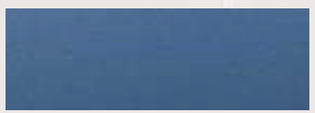
BOLD
COLOR COLLECTION


HUNTER GREEN OP


BLUEBERRY OP


BURGUNDY OP


FOSSIL OP


FRENCH BLUE OP

CUSTOM COLORS AVAILABLE UPON REQUEST

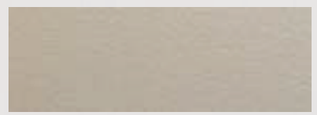
Color matching is limited by printing process. Actual samples are available and recommended prior to color selections.

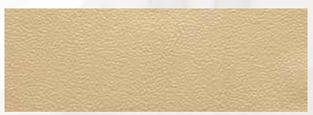
*Special orders require extended lead times. Minimum order requirements may apply.

WARM TONE
COLOR COLLECTION

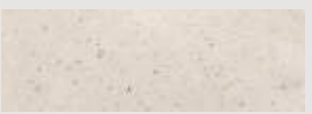

MAHOGANY OP


SANDSTONE OP


CONCRETE OP


DESERT BEIGE OP

LINEN OP


SANDCASTLE OP


MOCHA OP

BATHROOM PARTITIONS
LOCKERS
LOCKER ROOM BENCHES
SHOWER CUBICLES
DRESSING COMPARTMENTS
VANITIES

WE DON'T JUST TALK TOUGH. WE BACK IT UP.

Just as there's no limit to the toughness of Scranton Products bathroom partitions, now there's no limit to color choices either. Look inside and see which of our many style options best fits your project. Scranton Products offers a wide array of colors and textures.

Call 800.445.5148 for the Scranton Products sales representative in your area, or visit scrantonproducts.com.

ARIA PARTITIONS™

ECLIPSE PARTITIONS™

HINY HIDERS®

Scranton Products
801 E. Corey Street
Scranton, PA 18505
800.445.5148
info@scrantonproducts.com
www.scrantonproducts.com

DESIGNED TO BE WORRY-FREE

With tough construction and rugged good looks, Hiny Hiders partitions offer durability that will save customers time, hassle, and maintenance costs. Hiny Hiders partitions offer superior value that simply can't be beat by the competition.

Benefits of Hiny Hiders Bathroom Partitions:

- Durable and dent, mold, scratch and graffiti resistant
- Easy to clean and low maintenance
- Never rust, corrode, or delaminate
- Never needs painting

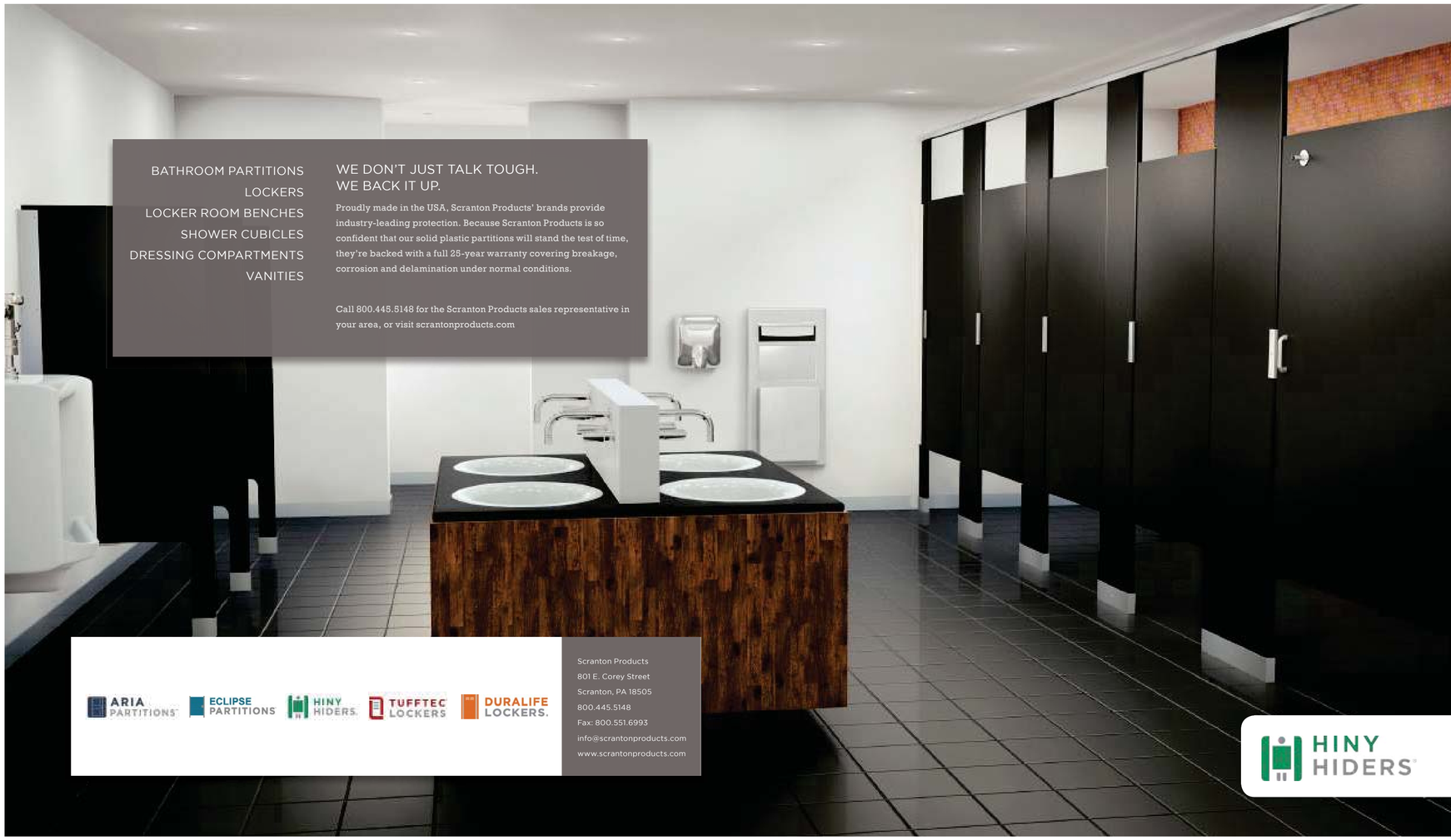
HDPE materials are also resistant to scratches, dents, and writing/graffiti. They don't need to be repainted, which results in less volatile organic compounds in the air. These partitions help keep your air quality favorable while providing a comfortable environment for occupants.

WHY HINY HIDERS?

Facility managers choose Hiny Hider Commercial Bathroom Partitions for the following reasons:

- Durable HDPE material
- Large selection of colors and textures
- Customizable partitions and engravable
- Fire rating options
- Three ADA compliant configurations
- 25-year warranty

SCRANTON PRODUCTS
INNOVATIVE SOLUTIONS FOR A BETTER FUTURE



BATHROOM PARTITIONS
LOCKERS
LOCKER ROOM BENCHES
SHOWER CUBICLES
DRESSING COMPARTMENTS
VANITIES

WE DON'T JUST TALK TOUGH. WE BACK IT UP.

Proudly made in the USA, Scranton Products' brands provide industry-leading protection. Because Scranton Products is so confident that our solid plastic partitions will stand the test of time, they're backed with a full 25-year warranty covering breakage, corrosion and delamination under normal conditions.

Call 800.445.5148 for the Scranton Products sales representative in your area, or visit scrantonproducts.com

ARIA PARTITIONS
ECLIPSE PARTITIONS
HINY HIDERS
TUFFTEC LOCKERS
DURALIFE LOCKERS

Scranton Products
801 E. Corey Street
Scranton, PA 18505
800.445.5148
Fax: 800.551.6993
info@scrantonproducts.com
www.scrantonproducts.com

HINY HIDERS

SCRANTON PRODUCTS LIMITED WARRANTY

Scranton Products' Hiny Hider® Partitions, Eclipse Partitions®, Aria Partitions™, Tufftec Lockers®, Tufftec™ benches, Duralife Lockers®, Scranton Product® brand shower stalls, dressing compartments and vanities, including products sold under the company names (Santana©, Comtec©, Capitol©) (hereinafter "warranted products") are warranted by the manufacturer to a corporation or other commercial entity which purchases the partitions and lockers for use in the conduct of its business to be free from defects in material and workmanship that (i) occur as a direct result of the manufacturing process; (ii) occur under normal use and service; (iii) occur during the warranty period; and (iv) result in breakage or delamination. Limited warranty periods are as follows:

Lockers/Benches

Tufftec Lockers ®	25 years
Tufftec® Benches	25 years
Duralife Lockers®	15 years

Bathroom Partitions

Eclipse Partitions®	25 years
Hiny Hiders® Partitions	25 years
Aria Partitions™	25 years

Shower Stalls/Vanities/Dressing Compartments

Scranton Products ® Shower Stalls	25 years
Scranton Products ® Vanities	25 years
Scranton Products ® Dressing Compartments	25 years

SCRANTON PRODUCTS LIMITED WARRANTY

This limited warranty is subject to the following conditions:

1. The warranted products have been installed in accordance with the manufacturer's written instructions and drawings (as contained in the instruction sheet supplied with the order).

2. The limited warranty is effective only with regard to the original installation of the warranted products and not to any subsequent installation that has altered the warranted product without the consent of the manufacturer.

3. The limited warranty shall not be applicable if the defect in the warranted product has resulted from any failure or defect in the building or substructure to which the warranted product is attached (including but not limited to settling, shifting, distorting, or movement of the walls or foundation of the structure), extraordinary wear and tear, violent action of the elements (such as sunlight, lightening, hurricane, tornado, or hail), vandalism, misuse, neglect, or improper handling of the warranted product, during or after installation, or improper or insufficient ventilation of the building to which the warranted product is attached.

Subject to the above conditions, in the event that the warranted product or any portion thereof, is found to be defective in workmanship or materials within limited warranty period from the date of receipt by customer, the Manufacturer will repair or replace the defective material, or will refund the original purchase price of the defective material. The choice of remedy is in Manufacturer's sole discretion. The Manufacturer will not be liable for labor and/or removal costs connected with the claim. Replacement product will be provided as close to the original color and design as possible, although it is not guaranteed to match completely. In the event of repair or replacement, the original limited warranty shall apply to the repaired or replaced portion of the warranted products and will extend for the balance of the warranty period in effect at the time the material proved defective.

THE WARRANTY STATEMENTS CONTAINED IN THIS LIMITED WARRANTY SET FORTH THE ONLY WARRANTIES EXTENDED BY SCRANTON PRODUCTS AND ARE IN LIEU OF ALL OTHER CONDITIONS AND WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PROVISIONS OF THIS WARRANTY SHALL CONSTITUTE THE ENTIRE LIABILITY OF SCRANTON PRODUCTS AND THE PURCHASER/PROPERTY OWNER'S EXCLUSIVE REMEDY FOR BREACH OF THIS WARRANTY. IN NO EVENT SHALL SCRANTON PRODUCTS BE LIABLE TO THE PURCHASER/PROPERTY OWNER FOR SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL, OR PUNITIVE DAMAGES ARISING FROM THE USE OF THE WARRANTED PRODUCTS OR THE BREACH OF ANY EXPRESS OR IMPLIED WARRANTY. The laws of some states and provinces do not allow the exclusion, limitation or variation of certain conditions or warranties implied by legislation so the above limitations or exclusions may not apply to you. This Limited Warranty gives you specific legal rights and you may also have other rights that vary from state to state and province to province.

Any claim under such warranties must be made during the applicable warranty period and shall be asserted by contacting: Scranton Products, (Santana/Comtec/Capitol) 801 E. Corey Street-Scranton, PA 18505-Phone# 800-445-5148

THE POSSIBILITIES ARE LIMITLESS.

STANDARD / HARDWARE COLLECTION

To complement the appearance of your interior, Scranton Products offers an array of great-looking hardware options. Whichever style you choose, rest assured it will match the toughness of our partitions and deliver years of worry-free service.

Continuous Bracket

54" Plastic, Aluminum* 54" or 68", or Stainless Steel*

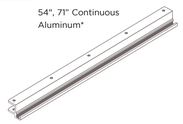
Double Ear

Single Ear

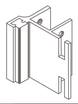
Strikes

6" Aluminum

54", 71" Continuous Aluminum*



3" Stainless Steel emergency access



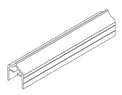
Stirrup Brackets

Aluminum or Stainless Steel Double Ear

Single Ear

Head Rail

Aluminum



Latches

Aluminum or Stainless Steel††

Occupancy Indicator

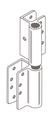
Shoes

Plastic Pilaster††

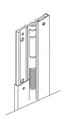
Stainless Steel

Hinges

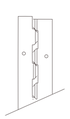
8" Wrap Around



54", 71", 65" Continuous Aluminum*



54", 65", Continuous Stainless Steel Helix*



54", Continuous Stainless Steel Spring Loaded*

Stealth Integral Hinge

Regal Hinge

Vault Hinge

* Optional hardware † Stainless steel option varies from aluminum hardware shown. †† Limited colors available.

TRADITIONAL COLOR COLLECTION


PAISLEY OP


SHALE OP


BLACK OP


CHARCOAL GREY OP


BLACK EX


GREY OP

WHITE OP


GLACIER GREY OP

WARM TONE COLOR COLLECTION


MAHOGANY OP

LINEN OP


CONCRETE OP


SANDSTONE OP


MOCHA OP


DESERT BEIGE OP


SANDCASTLE OP

BOLD COLOR COLLECTION


BURGUNDY OP


BLUEBERRY OP


FOSSIL OP


FRENCH BLUE OP


HUNTER GREEN OP

METALLIC COLOR COLLECTION


STAINLESS H


BRONZE H


STAINLESS RB


BRONZE RB


STAINLESS EX


NICKEL H


NICKEL RB

CUSTOM COLORS AVAILABLE UPON REQUEST.

Color matching is limited by printing process. Actual samples are available and recommended prior to color selections.
*Special orders require extended lead times. Minimum order requirements may apply.

TEXTURE KEY: OP ORANGE PEEL EX EX H HAMMERED RB ROTARY BRUSHED

January 4, 2019

Shem Harding
Deca Architecture
935 SE Alder St
Portland, Oregon, 97214

Project: City of Woodburn City Hall HVAC
Project Number: 17-1848

Subject: Lighting Request

Dear Shem:

The following substitution request responses are forwarded for your review and implementation into the reference project.

Substitution request has been reviewed for acceptable manufacturer only. Product data will be reviewed for conformance to the project requirements when submitted during the construction phase.

Substitution Requests

Specification Section; Article	Description	Manufacturer	Response
265000	L5	TMS Lighting	Approved Manufacturer
265000	L7	Juno	Approved Manufacturer

If there are any questions, please do not hesitate to call.

Sincerely,

Michael Lopez
MRL2/tje

January 2, 2019
Transmittal Sheet

Project: Woodburn City Hall Remodel and HVAC Upgrade

Bid Date: January 17th, 2019 at 2:00 p.m.
Prior Date: January 7th, 2019
Plan No: 1299 / Internal Project: 18-43868

Attn: Shem Harding
DECA Architecture
harding@deca-inc.com

Mr. Harding--

Harry L Stearns Requests Prior Approval for Lighting via the attached Submittals for Substitution.

Please contact myself if you have any questions.

Thank you for your time and consideration.

Jennifer Blake

Jennifer Blake, LC
jblake@hlstearns.com
503.744.0232

Project: Woodburn City Hall Remodel and HVAC Upgrade

Contents - January 2, 2019

Type	Factory	Description
L5	TMS Lighting	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML
L7	Juno	T383L 40K XX(CRI) PDIM XX(DISTRIBUTION) WH T40N WH

Advancement of Construction Technology

SUBSTITUTION REQUEST

TO: Shem Harding - DECA Architecture

PROJECT: Woodburn City Hall

SPECIFIED ITEM: Type L5

265100	Lighting	Schedule	Eaton
Section	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: TMS Lighting - I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable data portions.

Attached data also includes description of changes to Contract Documents and proposed substitution required for its proper installation.

Undersigned certifies following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing, and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts available locally or readily obtainable for proposed substitution.

Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by:

Jennifer M Blake, LC
Name (printed or typed)

Jennifer Blake
Signature

Harry L. Stearns
Firm Name

7305 NE Glisan Street
Address

Portland, OR. 97213
City, State, Zip

Date

503-262-2640 n/a
Telephone Fax

General Contractor (if after award of Contract)

For use by LRS

☐ Approved ☐ Approved as Noted
☐ Not Approved ☐ Received Too Late

By _____
Date _____
Remarks _____

2007 Edition

If After Award of Contract:
Reason for Substitution Request: _____

List of Attachments:

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L5

KINGSTON OW KG600OW

TMSLIGHTING

Features

- Clean, open window design complements today's architecture
- Available in 2 sizes, with options for application and design flexibility
- Up and downlight project a soft glow, for a unique grazing effect
- Smooth dimming without any color shift (optional)
- Stays ON in case of a power interruption with the optional, emergency ballast
- Quality components and workmanship for peace of mind

Applications

The Kingston OW sconce is ideal for illuminating facades, entrances, walkways, and other areas that could benefit from clean light and today's aesthetics. The clean, convex fascia design enables it to blend with most environments, complementing the existing architecture.

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L5

KINGSTON OW KG600OW

TMSLIGHTING

PROJECT

TYPE:

QTY:

DATE:

KG600OW	1	2	3	4	5	6	7	8	9

1	I	O
LOCATION	INDOOR	OUTDOOR

2	25	37
SIZE	25.5" H x 11.875" W x 4.75" (65 cm x 30 cm x 12 cm)	37.5" H x 11.875" W x 4.75" (95 cm x 30 cm x 12 cm)

3	24F2	39F2	31LED
LAMPING	2x 24W T5 HO (25.5" height)	2x 39W T5 HO (37.5" height)	31W LED (25.5" height)

4	30K	35K	40K
CCT	3000	3500	4000

5	120	277	347
VOLTAGE	120V	277V	347V

6	F05	F09	F15	F16	F18	F19	F24
FINISH	WHITE	PEWTER	MATTE BLACK	GLOSS BLACK	FLAT ALUM.	MIRROR SILVER	MELTED PLATINUM
POWDER	F25	F26	F31	F33	RAL		
	MELTED GOLD	MELTED COPPER	SILVER METALLIC	PYRITE BRONZE	CUSTOM		
PLATED	SN	CH	BC	AC	AB	SB	PB
	SATIN NICKEL	CHROME	BLACK CHROME	ANTIQUE COPPER	ANTIQUE BRASS	SATIN BRASS	POLISHED BRASS
SPECIALTY	CO	SS					
(BRUSHED)	SOLID COPPER	STAINLESS STEEL					

7	OP	SD	FPD
DIFFUSER	OPAL-WHITE ACRYLIC	SAND-BLASTED, WHITE ACRYLIC	FAUX, PEROFRATED ACRYLIC

8	DIM	DIME	DIML
DIMMING	CF ADVANCE MARK 10	CF LUTRON ECOSYSTEM	LED DIMMING (0-10V)

9	EM	N
EMERGENCY	INTEGRAL CF (min. operating temp. +5ºC/ +40ºC)	NONE

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L5

KINGSTON OW KG600OW

TMSLIGHTING

Construction

The tall, rectangular enclosure is available in stainless steel, solid copper, or high grade aluminum, with stainless steel hardware. The diffuser is formed with UV stabilized acrylic. Available in 2 sizes: 25.5” h x 11.875” w x 4.75” (65 cm x 30 cm x 12 cm), and 37.5” h x 11.875” w x 4.75” (95 cm x 30 cm x 12 cm).

Lamp

Operates with linear fluorescent sources (2x 39W T5 HO max.), or integrated Cree™ LED (26W max.), CRI 80. Select 3000K, 3500K, or 4000K CCT for LED systems.
Note: LED systems are compatible with a 120V supply voltage only. Only fluorescent systems accommodate a 347V supply.
Lamp sockets are installed with CF systems. LED modules are wired directly to the integral driver, and do not require a socket.
Only integrated LED sources are supplied, not lamps.

Ballast / LED Driver

Ballasts are electronic. They are efficient with a high power factor greater than 90%, and quiet with an “A” sound rating.
The LED source is controlled by an advanced electronic driver that delivers consistent power.

Surge Suppressor

All 120V, 277V, and universal voltage fixtures are protected by a 6kV surge suppressor.

Diffusers

The primary, top and bottom diffusers are formed with UV-stabilized acrylic, secured into the enclosure. The primary diffuser would be the selected acrylic color, while the upper and lower would be clear acrylic.
A selection of diffusers is available to suit the theme.

Dimming

Fluorescent dimming options include the Mark 10 ® (line voltage), or Ecosystem ®.
The LED dimming option is the 0-10V, current-sinking type.
Note: Use a current-sinking dimming system for LED dimming. The compatibility of this product is not guaranteed with all control systems.
The dimming option is not available with 347V systems, or for outdoor fluorescent applications.

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L5

KINGSTON OW KG600OW

TMSLIGHTING

Emergency
An optional, integral, emergency back-up is available for fluorescent systems, where power would be supplied to 1 lamp.
Note: The test switch and indicator light would be remote. The emergency back-up option is available to systems with 120-277V supply only.
EM Integral fluorescent: (min. operating temp. +5C/+40F)

Finish
Available with a choice of specialty, plated, and powder-coated finishes; see page 3, and the “Finishes and Diffusers” chart.
Custom RAL finishes are available by special order.
Note: Brushed stainless steel and brushed copper are protected with a clear coat. Yet, with exposure to the elements, over time, patina will form on copper.
Plated finishes are to be used for indoor applications only.

Compliances
QPS-C/US, or UL-C/US certified to UL1598 standards, and the Americans with Disabilities Act (ADA). Rated IP55 for use in dry to wet, indoor and outdoor locations. The Consultants Europe (CE) listing is available upon request.

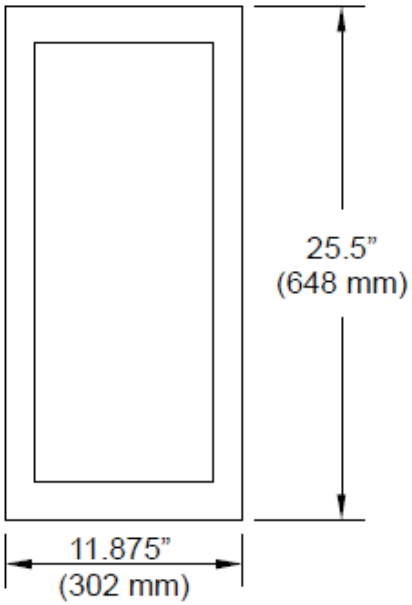
Mounting
Mount on a flat wall, directly over a standard 4” electrical junction box. The distance from the top of the luminaire to the ceiling should exceed the height of the fascia. This would allow removal of the fascia for installation and re-lamping.
Follow the installation instructions, and adhere to the local electrical code.

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	I-25-31LED-40K-120-XX(FINISH/POWDER/PLATED)-XX(DIFFUSER)-DIML Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L5

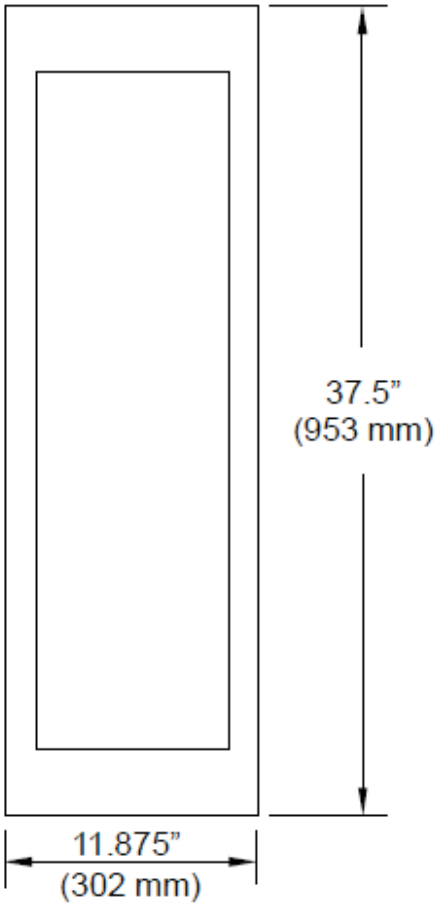
KINGSTON OW KG600OW

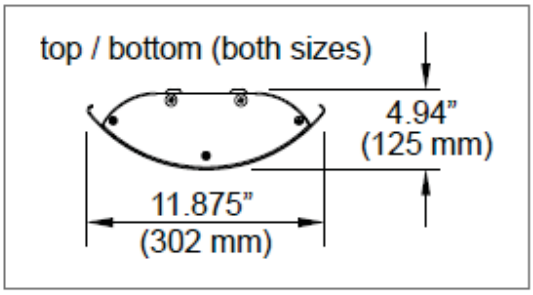
TMSLIGHTING

KG600OW-I/O-25



KG600OW-I/O-37





Advancement of Construction Technology

SUBSTITUTION REQUEST

TO: Shem Harding - DECA Architecture

PROJECT: Woodburn City Hall

SPECIFIED ITEM: Type L7

265100	Lighting	Schedule	Clarte Lighting
Section	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: ACUITY LIGHTING - JUNO - T383L 40K XXCRI PDIM XX(DISTRIBUTION) WH T40N WH

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable data portions.

Attached data also includes description of changes to Contract Documents and proposed substitution required for its proper installation.

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4. Maintenance and service parts available locally or readily obtainable for proposed substitution.

Undersigned further certifies function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by:

Jennifer M Blake, LC
Name (printed or typed)

Jennifer Blake
Signature

Harry L. Stearns
Firm Name

7305 NE Glisan Street
Address

Portland, OR. 97213
City, State, Zip

Date

503-262-2640 n/a
Telephone Fax

General Contractor (if after award of Contract)

For use by LRS

☐ Approved ☐ Approved as Noted
☐ Not Approved ☐ Received Too Late

By _____
Date _____
Remarks _____

2007 Edition

If After Award of Contract:
Reason for Substitution Request: _____

List of Attachments:

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	T383L 40K XX(CRI) PDIM XX(DISTRIBUTION) WH T40N WH Project: Woodburn City Hall Remodel and HVAC Upgrade Notes:	L7

D1.3.50

JUNO

TRAC-MASTER®

Avant Garde

24W VERTICAL CYLINDER LED

T383L

Project:

Fixture Type:

Location:

Contact/Phone:

PRODUCT DESCRIPTION

The classic, simple appearance of the Vertical Cylinder LED fixtures offers a fresh take on a traditional aesthetic. The subtle elegance is carried through the entire design producing an understated charm. The 24W Vertical Cylinder LED fixtures have integral TIR optics which enable uniform spot, narrow flood, flood or wide flood distributions to be achieved. These fixtures have an integral, bayonet-mounted accessory holder that accommodates up to two accessories if desired. The 24W Vertical Cylinder LED can deliver up to 2112 lumens, at efficacies up to 87LPW and having a rated life of 50,000 hours. Available in 2700K, 3000K, 3500K and 4000K color temperatures, the white-light 24W Vertical Cylinder LED is compatible with all Juno line voltage trac and standard adapter accessories.

PRODUCT SPECIFICATIONS

Construction All-metal housing and custom designed concealed heat sink provides outstanding thermal management, yielding 70% average lumen maintenance at 50,000 hours of operation • Passively-cooled design – no moving parts to break or wear-out • Extruded aluminum vertically mounted LED driver housing • Concealed fixture wiring for a clean aesthetic • Fashionable, elegant design complements any decor • Available in white, black and silver painted finishes.

LED High performance LED array provides outstanding reliability, performance and color quality/consistency • 2700K, 3000K, 3500K or 4000K white phosphor high performance LEDs • Chromaticity range within a 3-step MacAdam Ellipse • 80 CRI minimum on standard product • Optional high CRI versions offer 90 CRI minimum • Optional SpectralWhite versions are also available which make whites appear naturally brilliant and render colors more richly.

Driver Assembled in a side-mount vertical housing to minimize overall fixture footprint • Insulating air gap between driver and LED light engine optimizes thermal operation • Provides quiet operation with or without dimming • 120V fixtures are dimmable using high quality, factory approved reverse phase ELV dimmers - see T381L-DIM • Solid state electronic, Class 2 compliant • Integral overcurrent and short circuit protection • Class B FCC Part 15 rated.

Optics Interchangeable computer-designed custom TIR optics available in four factory-configured beam spreads • One TIR optic provided with fixture (as specified in catalog number) • Accessory optics available to enable beam changes in the field • Beam patterns can be altered as desired using a variety of available light control accessories.

Juno Universal Trac Adapter Universally compatible with both Trac-Master 1-circuit or 2-circuit trac, Trac-Lites trac, monopoints and special mountings • Also UL Recognized for use on ConTech® LT Series track • Copper alloy contacts provide precise spring action – no arcing and will not take a set • True, positive electrical ground • On /off switch included • Patented embossed polarity arrows on bottom of adapter • Spring-loaded positive latch with embossed polarity arrows secures trac light to trac • Two-position power contact provided for two-circuit application.

Alternate TEK/HTEK Trac Adapter Compatible with either Juno TEK or HTEK trac systems • System specific and assembled to trac fixture • Integrally polarized construction to prevent reverse installation – only allows insertion in proper orientation • Rotary circuit selector enables simple switching between circuits • Integral on/off switch enables individual fixtures to be switched for servicing.

Alternate GTYPE Trac Adapter Compatible with track systems based on GES type track, including Lithonia LT Commercial Track (not LTS type) • System specific and assembled to trac fixture • Consult factory for additional information.

Alternate HTYPE Trac Adapter Compatible with track systems which use a H-type track adapter, including Lithonia LTS Decorative Track (not LT type) • System specific and assembled to trac fixture • Two-position power contact provided for two-circuit application • Consult factory for additional information.

Alternate LTYPE Trac Adapter Compatible with track systems which use a L-type track adapter • System specific and assembled to trac fixture • Two-position power contact provided for two-circuit application • Consult factory for additional information.

Accessory Holder Integral to fixture design • Die cast aluminum construction • Precision bayonet mounting • Accommodates up to two accessories if desired.

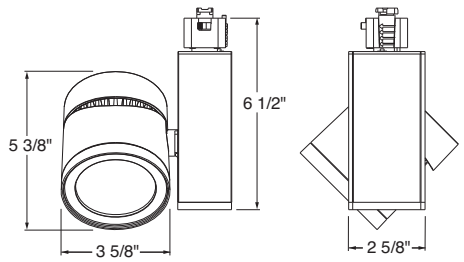
Aiming 360° horizontal coverage • Greater than 90° vertical aiming capability.

Labels UL and C-UL Listed • ENERGY STAR® certified • DesignLights Consortium® Qualified • Union made • Assembled in U.S.A.

Warranty 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Specifications subject to change without notice.

DIMENSIONS



ConTech is a registered trademark of ConTech Lighting.

D1.3.50

JUNO

TRAC-MASTER®

Avant Garde

24W VERTICAL CYLINDER LED

T383L

ORDERING INFORMATION

Ordering Example: T383L 27K 80CRI PDIM SP BL

Series	Mounting Adapter Type	Color Temperature	Color Rendering Index	Dimming Compatibility	Distribution	Finish
T383L 24W Vertical Cylinder LED	**(Blank)** Universal 120V Trac Adapter **HTEK**[1] HTEK 277V Trac Adapter **TEK** TEK 120V Trac Adapter **GTYPE** G-Type Trac Adapter **HTYPE** H-Type Trac Adapter **LTYPE** L-Type Trac Adapter	**27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K	**80CRI** 80 CRI **90CRI** 90 CRI **SPW**[2] SpectralWhite	**OFF** On/Off (Non-Dimming) **PDIM** Phase Dimmable	**SP** Spot **NFL** Narrow Flood **FL** Flood **WFL** Wide Flood	**BL** Black **SL** Silver **WH** White

Accessories					
HCLBL 300	Hexcell Louver - Black	**UVF 300**	UV Filter	**TIR3 SPT**	TIR Optic - Spot
SNOOTBL 300	Snoot - Black	**DIFF 300**	Diffusion Lens	**TIR3 NFLD**	TIR Optic - Narrow Flood
EYEBROWBL 300	Eyebrow - Black	**SOLITE 300**	Uniformity Lens	**TIR3 FLD**	TIR Optic - Flood
CGF 300	Color Glass Filters	**PRISM 300**	Prismatic Spread Lens	**TIR3 WFLD**	TIR Optic - Wide Flood
DGF 300	Dichroic Glass Filters	**LSPREAD 300**	Linear Spread Lens		
DCCF 300[3]	Dichroic Color Correction Filters	**T40N**[4]	Monopoint Canopy		

See specification sheet D1.2.2 for details. Other accessories can be found on specification sheet D1.2.0.

Notes:
1 HTEK versions available with OFF option only.
2 3000K and 3500K only.
3 DCCF 300 HAL2700 corrects 3000K color to approximately 2700K and 4000K color to approximately 3400K.
4 Add finish code to complete catalog number (Example: T40N WH).

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	T383L 40K XX(CRI) PDIM XX(DISTRIBUTION) WH T40N WH	L7
	Project: Woodburn City Hall Remodel and HVAC Upgrade	
	Notes:	

D1.3.50

JUNO

TRAC-MASTER®

Avant Garde

24W VERTICAL CYLINDER LED

T383L

PERFORMANCE DATA[1]

Catalog Number	Input Voltage	Input Watts (Typical)	Lumens	Efficacy (LPW)	Rated Life (Hours)
T383L 27K 80CRI SP	120V	24.3	1824	75	50,000
T383L 27K 80CRI NFL	120V	24.3	1815	75	50,000
T383L 27K 80CRI FL	120V	24.3	1816	75	50,000
T383L 27K 80CRI WFL	120V	24.3	1778	73	50,000
T383L 27K 90CRI SP	120V	24.3	1594	66	50,000
T383L 27K 90CRI NFL	120V	24.3	1585	65	50,000
T383L 27K 90CRI FL	120V	24.3	1587	65	50,000
T383L 27K 90CRI WFL	120V	24.3	1554	64	50,000
T383L 30K 80CRI SP	120V	24.3	1920	79	50,000
T383L 30K 80CRI NFL	120V	24.3	1910	79	50,000
T383L 30K 80CRI FL	120V	24.3	1912	79	50,000
T383L 30K 80CRI WFL	120V	24.3	1872	77	50,000
T383L 30K 90CRI SP	120V	24.3	1670	69	50,000
T383L 30K 90CRI NFL	120V	24.3	1662	68	50,000
T383L 30K 90CRI FL	120V	24.3	1663	68	50,000
T383L 30K 90CRI WFL	120V	24.3	1629	67	50,000
T383L 30K SPW SP	120V	24.3	1670	69	50,000
T383L 30K SPW NFL	120V	24.3	1662	68	50,000
T383L 30K SPW FL	120V	24.3	1663	68	50,000
T383L 30K SPW WFL	120V	24.3	1629	67	50,000
T383L 35K 80CRI SP	120V	24.3	2016	83	50,000
T383L 35K 80CRI NFL	120V	24.3	2006	83	50,000
T383L 35K 80CRI FL	120V	24.3	2008	83	50,000
T383L 35K 80CRI WFL	120V	24.3	1966	81	50,000
T383L 35K 90CRI SP	120V	24.3	1728	71	50,000
T383L 35K 90CRI NFL	120V	24.3	1719	71	50,000
T383L 35K 90CRI FL	120V	24.3	1721	71	50,000
T383L 35K 90CRI WFL	120V	24.3	1685	69	50,000
T383L 35K SPW SP	120V	24.3	1728	71	50,000
T383L 35K SPW NFL	120V	24.3	1719	71	50,000
T383L 35K SPW FL	120V	24.3	1721	71	50,000
T383L 35K SPW WFL	120V	24.3	1685	69	50,000
T383L 40K 80CRI SP	120V	24.3	2112	87	50,000
T383L 40K 80CRI NFL	120V	24.3	2101	86	50,000
T383L 40K 80CRI FL	120V	24.3	2103	87	50,000
T383L 40K 80CRI WFL	120V	24.3	2059	85	50,000
T383L 40K 90CRI SP	120V	24.3	1766	73	50,000
T383L 40K 90CRI NFL	120V	24.3	1757	72	50,000
T383L 40K 90CRI FL	120V	24.3	1759	72	50,000
T383L 40K 90CRI WFL	120V	24.3	1722	71	50,000

Notes:
1 Performance data, including Rated Life, is based on measurements of an individual fixture operating in a 25°C ambient.

ELECTRICAL DATA

Input Voltage	120V
Input Current (max.)	0.22A
Power Factor	>0.90
T.H.D.	<20%

Submitting Agency:	Description:	Type:
HARRY L. STEARNS 503-262-2640	T383L 40K XX(CRI) PDIM XX(DISTRIBUTION) WH T40N WH	L7
	Project: Woodburn City Hall Remodel and HVAC Upgrade	
	Notes:	

D1.3.50

JUNO

TRAC-MASTER®

Avant Garde

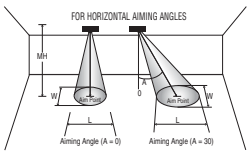
24W VERTICAL CYLINDER LED

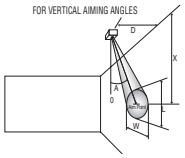
T383L

PHOTOMETRICS

CBCP • Centerbeam candlepower
FC • Footcandles at beam center (aim point)

In vertical aiming applications, aim point (X) is determined by dividing distance from the wall (D) by the tangent of the desired aim angle (A) (0.5774 for 30˚, 1.0 for 45˚,1.732 for 60˚).





Horizontal Aiming Angles

Vertical Aiming Angles

Fixture	Beam Type	Beam Spread	Rated Life	CBCP	0°				30°			30°					45°				60°				
					MH	FC	L	W	FC	L	W	D	FC	X	L	W	FC	X	L	W	D	FC	X	L	W
Cylinder 24W LED, 30K, 80CRI Spot	SP	16°	50000	16001	8	250	1.8	1.8	162	2.4	2.1	4	125	6.9	3.7	1.8	354	4	1.8	1.3	8	162	4.6	2.4	2.1
					10	160	2.2	2.2	104	3	2.6	5	80	8.7	4.6	2.2	226	5	2.3	1.6	10	104	5.8	3	2.6
					12	111	2.7	2.7	72	3.6	3.1	6	56	10.4	5.5	2.7	157	6	2.7	1.9	12	72	6.9	3.6	3.1
					14	82	3.1	3.1	53	4.2	3.6	7	41	12.1	6.5	3.1	115	7	3.2	2.2	14	53	8.1	4.2	3.6
					16	63	3.6	3.6	41	4.8	4.1	8	31	13.9	7.4	3.6	88	8	3.6	2.5	16	41	9.2	4.8	4.1
Cylinder 24W LED, 30K, 80CRI Narrow Flood	NFL	26°	50000	7536	6	204	2.6	2.6	133	3.5	3	2	230	3.5	4.1	1.7	650	2	1.8	1.2	6	133	3.5	3.5	3
					8	115	3.5	3.5	75	4.7	4	3	102	5.2	6.1	2.6	289	3	2.7	1.9	7	98	4	4.1	3.5
					10	74	4.4	4.4	48	5.9	5	4	57	6.9	8.1	3.5	163	4	3.7	2.5	8	75	4.6	4.7	4
					12	51	5.2	5.2	33	7.1	6	5	37	8.7	10.2	4.4	104	5	4.6	3.1	9	59	5.2	5.3	4.5
					14	38	6.1	6.1	24	8.3	7	6	26	10.4	12.2	5.2	72	6	5.5	3.7	10	48	5.8	5.9	5
Cylinder 24W LED, 30K, 80CRI Flood	FL	39°	50000	3902	4	244	2.6	2.6	158	3.6	3	2	122	3.5	7.8	2.6	345	2	2.9	1.9	3	282	1.7	2.7	2.3
					5	156	3.3	3.3	101	4.5	3.8	3	54	5.2	11.7	3.9	153	3	4.4	2.8	4	158	2.3	3.6	3
					6	108	3.9	3.9	70	5.5	4.6	4	30	6.9	15.6	5.3	86	4	5.9	3.7	5	101	2.9	4.5	3.8
					7	80	4.6	4.6	52	6.4	5.3	5	20	8.7	19.5	6.6	55	5	7.4	4.6	6	70	3.5	5.5	4.6
					8	61	5.3	5.3	40	7.3	6.1	6	14	10.4	23.4	7.9	38	6	8.8	5.6	7	52	4	6.4	5.3
Cylinder 24W LED, 30K, 80CRI Wide Flood	WFL	51°	50000	2239	2	560	1.9	1.9	364	2.8	2.2	1	280	1.7	13.3	1.9	792	1	2.5	1.4	2	364	1.2	2.8	2.2
					3	249	2.9	2.9	162	4.2	3.4	1.5	124	2.6	19.9	2.9	352	1.5	3.8	2.1	3	162	1.7	4.2	3.4
					4	140	3.9	3.9	91	5.6	4.5	2	70	3.5	**	3.9	198	2	5.1	2.7	4	91	2.3	5.6	4.5
					5	90	4.9	4.9	58	7	5.6	2.5	45	4.3	**	4.9	127	2.5	6.4	3.4	5	58	2.9	7	5.6
					6	62	5.8	5.8	40	8.4	6.7	3	31	5.2	**	5.8	88	3	7.6	4.1	6	40	3.5	8.4	6.7

For 27K 80CRI fixtures, use 0.95 multiplier; For 27K 90CRI fixtures, use 0.83 multiplier.
For 30K 90CRI fixtures, use 0.87 multiplier; For 30K SPW fixtures, use 0.87 multiplier.
For 35K 80CRI fixtures, use 1.05 multiplier; For 35K 90CRI fixtures, use 0.90 multiplier; For 35K SPW fixtures, use 0.90 multiplier.
For 40K 80CRI fixtures, use 1.10 multiplier; For 40K 90CRI fixtures, use 0.92 multiplier

**Due to steep aiming angle, length of beam extends beyond 25'.

January 4, 2019

Shem Harding
Deca Architecture
935 SE Alder St
Portland, Oregon, 97214

Project: City of Woodburn City Hall HVAC
Project Number: 17-1848

Subject: Lighting Request

Dear Shem:

The following substitution request responses are forwarded for your review and implementation into the reference project.

Substitution request has been reviewed for acceptable manufacturer only. Product data will be reviewed for conformance to the project requirements when submitted during the construction phase.

Substitution Requests

Specification Section; Article	Description	Manufacturer	Response
265000	L1	Metalumen	Approved Manufacturer
265000	L2	Day-Brite	Approved Manufacturer
265000	L3	Lightolier	Approved Manufacturer
265000	L4	A Light	Not Approved
265000	L5	Legion	Approved Manufacturer
265000	L6	Primus	Not Approved
265000	L9	Primus	Not Approved
265000	L10	Lightolier	Not Approved
265000	L11	Ledalite	Not Approved
265000	X1	Evenlight	Approved Manufacturer
265000	NLC	WattStopper	Approved Manufacturer
265000	CBE	Evenlight	Approved Manufacturer

If there are any questions, please do not hesitate to call.

Sincerely,

Michael Lopez
MRL2/tje

Northern Illumination Company, LLC
17400 SW Upper Boones Ferry Road, Suite 270
Portland, OR 97224

503-226-3633 503-226-3733 fax

To: Deca Architecture
935 SE Alder St.
Portland, OR

Submittal

Source Quote: 18-1168
Entry Date: 1/2/2019
Project: WOODBURN CITY HALL REMODEL

Original Submittal for Prior Approval
1 Copy of Submittals is Attached

Qty	Type	Mfg	Description
	L1	Metalumen	TC5-2L40K-24-PCB-W-L2-1-T-4
			2X4 LED TROFFER
	L2	Day-Brite	1TG32L840-4-02F-UNV-DIM
			1X4 LED TROFFER
	L3	Lightolier	C4SN / C4L20840MZ10U / C4SDLNMCL
			4" SQUARE LED DOWNLIGHT
	L4	a Light	ACL2-4-ILH-DLH-40-U-M-D-HE-S-W-1-D
			D/ID LINEAR LED PENDANT
	L5	Legion	4308L2140ACWUNV
			2' LED VANITY LIGHT
	L6	Primus	ALX3-RLR-LED-M-4K-UNV-SM-AEB-S-2' OR 4'
			2' OR 4' LED VANITY LIGHT
	L9	Primus	ALX8-LED-M-4K-UNV-W-XX'
			LINEAR LED COVE LIGHT
	L10	Lightolier	C4SN / C4L20840MZ10U / C4SDLNMCL
			4" SQUARE LED DOWNLIGHT
	L11	Ledalite	4908LAEQSN0471E
			LED PERIMETER LIGHT
	X1	Evenlite	SOVEMR1CBARCUC
			EDGE LIT LED EXIT
	NLC	WattStopper	DLM
			NETWORK LIGHTING CONTROLS
	CBE	Evenlite	LM-5200-3P-IF-OF-C9-TA-TB-KE
			CENTRAL BATTERY EQUIPMENT

Remarks:

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L1, Finelite HPR Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Metalumen, TC5-2L40K-24-PCB-W-L2-1-T-4

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

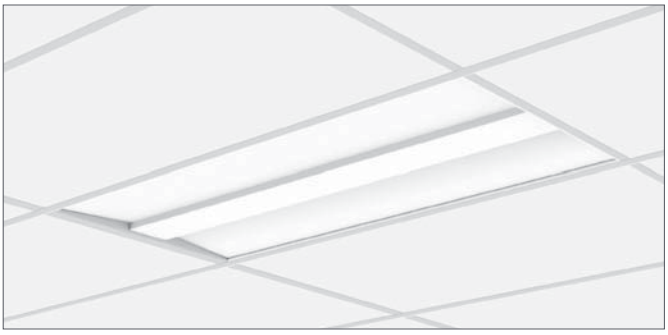
	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

TYPE L1

SPECIFICATION SHEET

CARLISLE TC5

LED . RECESSED . DIRECT



PART #:	
PREP BY:	DATE:
PROJECT:	
NOTES:	
APPROVAL SIGNATURE:	DATE (DD/MM/YYYY):

PERFORMANCE SUMMARY
3500K, 80 CRI

		1 x 4			2 x 2			2 x 4		
		Lumens	Wattage	Efficacy	Lumens	Wattage	Efficacy	Lumens	Wattage	Efficacy
PCB Lens Only	L1	3047	23.3	131	2527	20.7	122	3045	22.1	138
	L2	3539	26.6	133	3060	25	122	4068	29.2	139
	L3	4071	30.6	133	3547	29.1	122	5049	36.8	137
	L4	5053	38.2	132	4052	33.7	120	6564	47.9	137
	L5	7005	54.4	129	4576	38.7	118	8074	60.6	133
Color Rendering (CRI)[1]		80+								
L80 Estimate (h)		≥ 50,000 hrs								

[1] See page 2 for complete Light Level Performance chart and 90 CRI Lumen Adjustment Factor chart.

FEATURES

- Up to 139 LPW
- CRI 80+ standard (CRI 90+ optional)
- Rated to deliver L80 performance ≥ 50,000

ORDERING LOGIC

Example Part Number: TC5-2L35K-24-PCB24-W-L21-T-4-90

TC5 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11

1. SERIES
- **TC5**

2. COLOR TEMP
- **2L30K** 3000K
- **2L35K** 3500K
- **2L40K** 4000K
- **2LTUN** Tunable White (2700 - 6500K) (Consult Factory)

CRI 90 is available under OPTIONS

3. SIZE
- **14** 1 x 4 ft
- **22** 2 x 2 ft
- **24** 2 x 4 ft

4. OPTICS
- **PCB** Polycarbonate Basket Lens
- **PCB70** Polycarbonate Basket Lens with decorative side rails
- **PCB24** Polycarbonate Basket Lens with rectangular printed basket overlay and decorative side rails

5. FINISH
- **W** White
- **C** Custom Finish (Consult Factory)

6. LIGHT LEVEL / DRIVER
- **L1**
- **L2**
- **L3**
- **L4**
- **L5**

Select Driver below.
See a complete Light Level Performance chart on page 2.

7. CIRCUITRY
- **1** 1 Circuit
- **EM** Emergency / Night Light (Consult factory)
- **B** Battery Pack

8. MOUNTING
- **T** Recessed T-bar

Recessed Drywall Mounting Kit is available under OPTIONS

9. VOLTAGE
- **3** 347 V
- **4** UNV (120 - 277V)

10. CONTROLS / SENSORS
Consult factory

11. OPTIONS
- **90** 90 CRI, High R9
- **DK14** Drywall Mounting Kit 1x4
- **DK22** Drywall Mounting Kit 2x2
- **DK24** Drywall Mounting Kit 2x4
- **_** None (leave space empty)

Select Driver:

- ☐ Factory standard 0-10V, dimming to 1%
- ☐ **LHE** Lutron H-Series Hi-lume 1% EcoSystem LED Driver
- ☐ **LAE** Lutron A-Series Hi-lume 1% EcoSystem LED Driver
- ☐ **LA3** Lutron A-Series Hi-lume 1% 3-wire LED Driver
- ☐ **LA2** Lutron A-Series Hi-lume 1% 2-wire LED Driver
- ☐ **L5E** Lutron 5-Series EcoSystem LED Driver

	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

Light Level Performance at 3500K

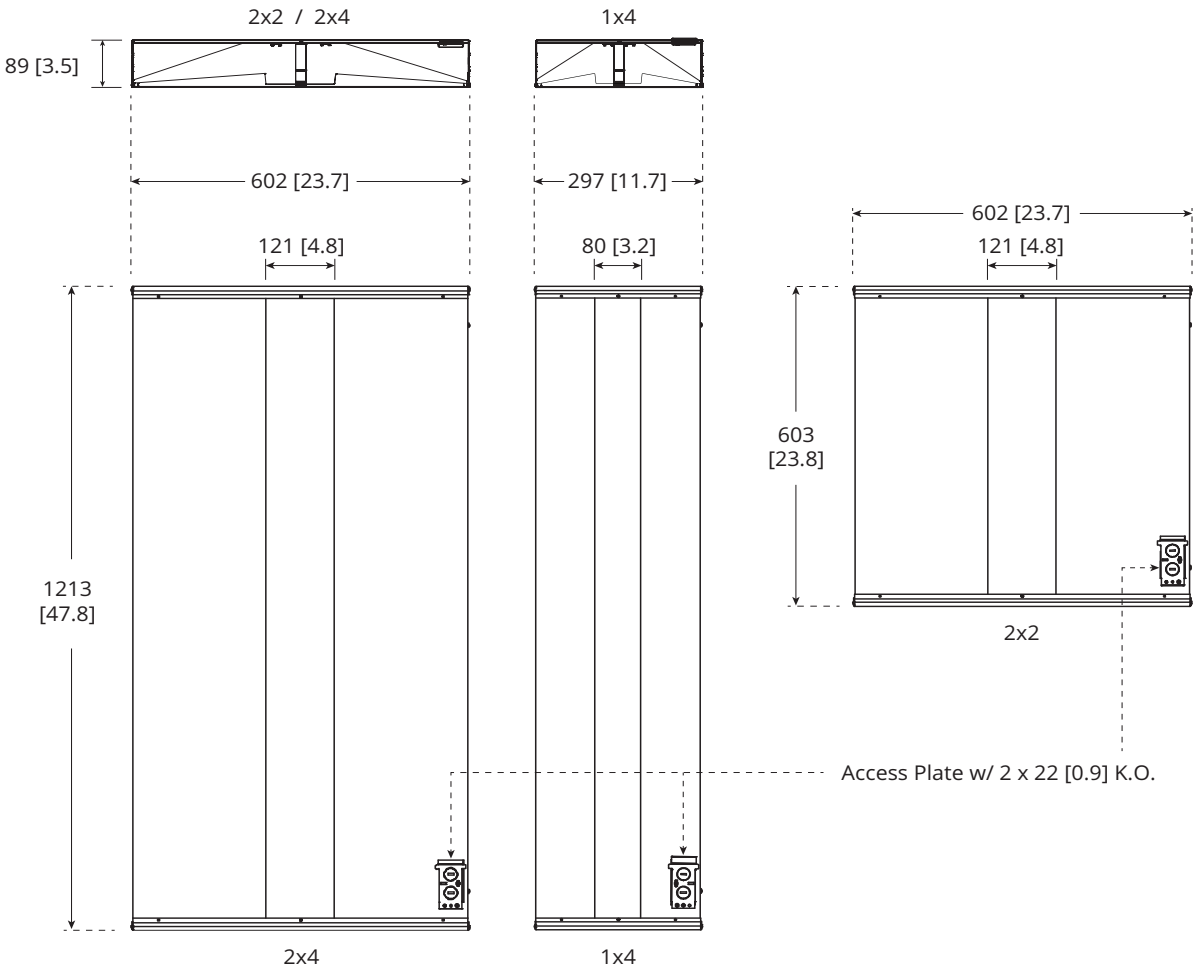
Optics	Light Level	1 x 4			2 x 2			2 x 4		
		Lumens	Wattage	Efficacy (lm/W)	Lumens	Wattage	Efficacy (lm/W)	Lumens	Wattage	Efficacy (lm/W)
PCB Lens Only	**L1**	3047	23.3	131	2527	20.7	122	3045	22.1	138
	L2	3539	26.6	133	3060	25	122	4068	29.2	139
	L3	4071	30.6	133	3547	29.1	122	5049	36.8	137
	L4	5053	38.2	132	4052	33.7	120	6564	47.9	137
	L5	7005	54.4	129	4576	38.7	118	8074	60.6	133
PCB70 Lens with Rails	**L1**	2843	23.2	123	2381	20.7	115	2911	22.2	131
	L2	3302	26.6	124	2883	25	115	3889	29.3	133
	L3	3799	30.5	125	3341	29.1	115	4826	36.7	131
	L4	4715	38.1	124	3818	33.6	114	6273	47.9	131
	L5	6536	53.7	122	4310	38.7	111	7718	60.6	127
PCB24 Lens with Overlay and Rails	**L1**	2608	23.2	112	2117	20.7	102	2710	22.2	122
	L2	3029	26.6	114	2564	25	103	3620	29.3	124
	L3	3484	30.5	114	2972	29.1	102	4493	36.7	122
	L4	4324	38.1	113	3395	33.6	101	5840	47.9	122
	L5	5994	53.7	112	3834	38.7	99	7185	60.6	119

Lumen Adjustment Factor

Color Temp	80 CRI	90 CRI
3000K	0.984	0.873
3500K	1.000	0.875
4000K	1.032	0.879

	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

CROSS SECTIONS & DIMENSIONS



SPECIFICATIONS

Due to the Continuous Improvement Policy at Metalumen, we reserve the right to change our specifications without notice.

Housing: Die-formed, code gauge pre-painted, high-reflectance white steel housing. Precision formed steel reflector. Wiring access plate and knockout is provided on end plate.
Optical System: White translucent single-piece Polycarbonate diffuser lens is standard. Decorative rails and a rectangular printed overlay is optional.
CRI: 80+ CRI
Lumen Maintenance: At an ambient operating temperature of 35°C, the LED lifetime expectancy is ≥ 50 000hrs at L80.
Finish: White, polyester powder painted finish is standard.
Weight: 1x4 = 7.3 kg [16 lbs]
2x2 = 6.8 kg [15 lbs]
2x4 = 9.5 kg [21 lbs]
Mounting: This luminaire has been designed to fit 9/16" and 15/16" T-bar. Holes provided for chain-mounting support to building structure. Integral earthquake clips are provided for additional support.
Electrical: Long life LEDs coupled with high efficiency drivers provide quality illumination.
Drivers: Standard low voltage dimming (0-10V).
Approvals: Pending approval to CSA/UL standards.
Environment: Suitable for dry or damp locations.

WARRANTY

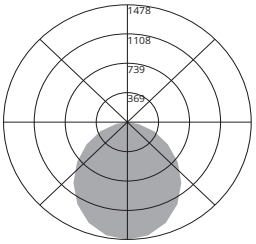
Metalumen will warrant defective luminaires for 5 years from date of purchase. Warranty is valid if luminaire is installed and used according to specification. If defective, Metalumen will send replacement boards or drivers at no cost along with detailed replacement instructions and instructions on how to return defective components to Metalumen.

	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

PHOTOMETRIC DATA - 3500K, 80 CRI, PCB

Optics: **Polycarbonate basket lens**
IES File: **TC5-2L35K-14-PCB-W-L3**
Lumens: **4071** Wattage: **30.6**
Efficacy: **133**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	539	13.20
0-30	1137	27.90
0-40	1843	45.30
0-60	3197	78.50
0-80	3975	97.60
0-90	4071	100.00
10-90	3931	96.60
20-40	1304	32.00
20-50	2021	49.70
40-70	1840	45.20
60-80	778	19.10
70-80	292	7.20
80-90	96	2.40
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	4071	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	99	95	106	101	97	94	97	94	91
2	99	90	83	78	96	88	82	77	85	80	75
3	90	79	71	65	87	78	70	64	75	68	63
4	82	70	62	55	80	69	61	54	66	59	54
5	76	63	54	47	74	62	53	47	60	52	46
6	70	57	48	41	68	56	47	41	54	46	41
7	65	51	43	36	63	51	42	36	49	42	36
8	61	47	38	33	59	46	38	32	45	38	32
9	57	43	35	29	55	43	35	29	41	34	29
10	53	40	32	27	52	39	32	27	38	31	26

LUMINANCE DATA (CD/M²)

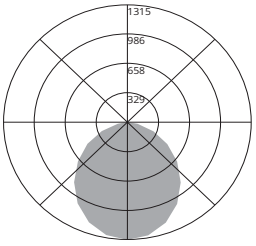
Vertical Angle	Horizontal Angle		
	0	45	90
45	3384	3545	3599
55	3143	3360	3426
65	2865	3165	3232
75	2478	2958	2980
85	2131	2876	2855

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1478	1478	1478	1478	1478
10	1444	1444	1452	1461	1465
20	1345	1355	1364	1374	1380
30	1192	1207	1223	1230	1237
40	998	1019	1037	1046	1051
50	782	804	828	837	842
60	559	584	606	617	620
70	341	368	389	395	396
80	136	167	180	179	177
90	2	5	6	7	8

Optics: **Polycarbonate basket lens**
IES File: **TC5-2L35K-22-PCB-W-L3**
Lumens: **3547** Wattage: **29.1**
Efficacy: **122**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	476	13.40
0-30	999	28.20
0-40	1617	45.60
0-60	2794	78.80
0-80	3463	97.70
0-90	3547	100.00
10-90	3423	96.50
20-40	1141	32.20
20-50	1766	49.80
40-70	1595	45.00
60-80	670	18.90
70-80	251	7.10
80-90	83	2.30
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	3547	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	99	95	106	101	97	94	97	94	91
2	99	90	84	78	96	89	82	77	85	80	75
3	90	79	71	65	88	78	70	64	75	68	63
4	83	70	62	55	80	69	61	55	67	59	54
5	76	63	54	47	74	62	53	47	60	52	47
6	70	57	48	41	68	56	47	41	54	47	41
7	65	52	43	37	63	51	42	37	49	42	36
8	61	47	39	33	59	46	38	33	45	38	32
9	57	43	35	30	55	43	35	29	42	34	29
10	53	40	32	27	52	39	32	27	38	31	27

LUMINANCE DATA (CD/M²)

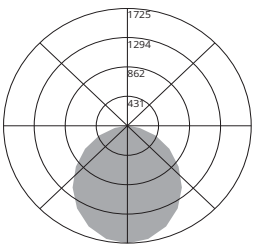
Vertical Angle	Horizontal Angle		
	0	45	90
45	2980	3077	3164
55	2762	2903	3016
65	2508	2711	2862
75	2117	2537	2762
85	1727	2479	2788

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1315	1315	1315	1315	1315
10	1284	1279	1281	1286	1289
20	1194	1192	1196	1204	1209
30	1054	1055	1067	1076	1083
40	880	886	902	915	924
50	688	696	717	732	741
60	491	501	522	539	546
70	298	304	331	347	354
80	110	130	158	172	178
90	2	4	3	3	3

Optics: **Polycarbonate basket lens**
IES File: **TC5-2L35K-24-PCB-W-L3**
Lumens: **5049** Wattage: **36.8**
Efficacy: **137**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	632	12.50
0-30	1339	26.50
0-40	2184	43.30
0-60	3846	76.20
0-80	4874	96.50
0-90	5049	100.00
10-90	4886	96.80
20-40	1553	30.70
20-50	2424	48.00
40-70	2286	45.30
60-80	1028	20.40
70-80	404	8.00
80-90	175	3.50
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	5049	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	108	103	98	94	105	100	96	92	96	93	90
2	98	89	82	76	95	87	81	75	84	78	73
3	89	78	70	63	87	77	69	62	73	67	61
4	81	69	60	53	79	68	59	53	65	58	52
5	75	62	52	46	73	61	52	45	58	51	45
6	69	56	46	40	67	55	46	40	53	45	39
7	64	50	41	35	62	50	41	35	48	40	35
8	60	46	37	31	58	45	37	31	44	36	31
9	56	42	34	28	54	42	34	28	40	33	28
10	52	39	31	26	51	38	31	26	37	30	25

LUMINANCE DATA (CD/M²)

Verti-cal Angle	Horizontal Angle		
	0	**45**	**90**
45	2010	2155	2233
55	1886	2086	2191
65	1741	2030	2174
75	1542	2046	2263
85	1378	2643	3117

CANDELA DISTRIBUTION

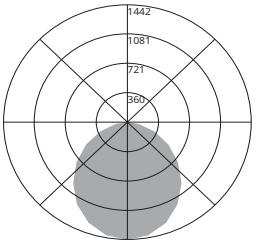
Vertical Angle	Horizontal Angle				
	0	**22.5**	**45**	**67.5**	**90**
0	1725	1725	1725	1725	1725
10	1685	1687	1699	1711	1717
20	1572	1588	1606	1625	1635
30	1399	1423	1454	1474	1487
40	1180	1213	1250	1277	1290
50	934	970	1017	1046	1059
60	676	715	764	798	811
70	419	461	513	545	556
80	175	222	276	306	315
90	4	34	67	87	89

	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

PHOTOMETRIC DATA - 3500K, 80 CRI, PCB70

Optics: **Polycarbonate basket lens with side rails**
IES File: **TC5-2L35K-14-PCB70-W-L3**
Lumens: **3799** Wattage: **30.5**
Efficacy: **125**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	524	13.80
0-30	1099	28.90
0-40	1773	46.70
0-60	3038	79.90
0-80	3723	98.00
0-90	3799	100.00
10-90	3663	96.40
20-40	1249	32.90
20-50	1925	50.70
40-70	1702	44.80
60-80	685	18.00
70-80	248	6.50
80-90	77	2.00
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	3799	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	100	96	106	102	98	95	98	94	92
2	99	91	84	79	97	89	83	78	86	80	76
3	91	80	72	66	88	79	71	65	76	69	64
4	83	71	62	56	81	70	62	55	67	60	55
5	76	64	55	48	74	63	54	48	60	53	47
6	71	57	49	42	69	56	48	42	55	47	42
7	66	52	43	37	64	51	43	37	50	42	37
8	61	48	39	33	60	47	39	33	46	38	33
9	57	44	36	30	56	43	35	30	42	35	30
10	54	40	33	27	52	40	32	27	39	32	27

LUMINANCE DATA (CD/M²)

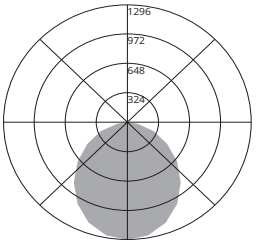
Vertical Angle	Horizontal Angle		
	0	45	90
45	3324	3328	3284
55	3100	3092	3025
65	2836	2818	2724
75	2459	2474	2301
85	2117	2235	1968

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1442	1442	1442	1442	1442
10	1409	1407	1413	1421	1424
20	1314	1320	1318	1319	1321
30	1166	1172	1169	1164	1166
40	979	984	980	973	972
50	770	773	770	759	756
60	553	556	549	539	535
70	338	342	337	327	322
80	135	147	140	127	121
90	2	4	5	6	6

Optics: **Polycarbonate basket lens with side rails**
IES File: **TC5-2L35K-22-PCB70-W-L3**
Lumens: **3341** Wattage: **29.1**
Efficacy: **115**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	466	14.00
0-30	975	29.20
0-40	1569	47.00
0-60	2677	80.10
0-80	3274	98.00
0-90	3341	100.00
10-90	3219	96.30
20-40	1103	33.00
20-50	1696	50.70
40-70	1489	44.60
60-80	597	17.90
70-80	216	6.50
80-90	67	2.00
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	3341	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	100	96	106	102	98	95	98	94	92
2	99	91	84	79	97	89	83	78	86	80	76
3	91	80	72	66	88	79	71	65	76	69	64
4	83	71	63	56	81	70	62	56	67	60	55
5	77	64	55	48	74	63	54	48	61	53	48
6	71	58	49	42	69	57	48	42	55	47	42
7	66	52	44	38	64	52	43	37	50	43	37
8	61	48	39	34	60	47	39	33	46	38	33
9	57	44	36	30	56	43	36	30	42	35	30
10	54	41	33	28	52	40	33	27	39	32	27

LUMINANCE DATA (CD/M²)

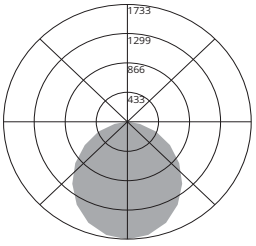
Vertical Angle	Horizontal Angle		
	0	45	90
45	2936	2906	2909
55	2721	2689	2692
65	2468	2437	2446
75	2074	2154	2166
85	1673	1974	1973

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1296	1296	1296	1296	1296
10	1265	1258	1258	1262	1265
20	1176	1171	1166	1167	1169
30	1039	1032	1029	1026	1029
40	867	861	858	857	859
50	678	671	671	669	671
60	484	477	476	477	477
70	292	282	290	291	292
80	107	114	125	126	125
90	2	3	3	3	2

Optics: **Polycarbonate basket lens with side rails**
IES File: **TC5-2L35K-24-PCB70-W-L3**
Lumens: **4826** Wattage: **36.7**
Efficacy: **131**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	631	13.10
0-30	1331	27.60
0-40	2162	44.80
0-60	3767	78.10
0-80	4699	97.40
0-90	4826	100.00
10-90	4662	96.60
20-40	1531	31.70
20-50	2380	49.30
40-70	2184	45.30
60-80	932	19.30
70-80	353	7.30
80-90	127	2.60
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	4826	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	108	103	99	95	106	101	97	94	97	94	91
2	98	90	83	77	96	88	82	76	85	79	75
3	90	79	71	64	87	77	70	64	74	68	62
4	82	70	61	54	80	69	60	54	66	59	53
5	76	63	54	47	73	62	53	47	59	52	46
6	70	56	47	41	68	55	47	41	54	46	40
7	65	51	42	36	63	50	42	36	49	41	36
8	60	47	38	32	59	46	38	32	45	37	32
9	56	43	35	29	55	42	34	29	41	34	29
10	53	40	32	26	52	39	31	26	38	31	26

LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal Angle		
	0	45	90
45	2034	2089	2122
55	1914	1989	2021
65	1771	1873	1911
75	1575	1769	1812
85	1413	1874	1960

CANDELA DISTRIBUTION

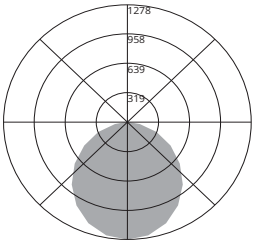
Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1733	1733	1733	1733	1733
10	1693	1691	1697	1707	1711
20	1583	1588	1594	1603	1609
30	1411	1419	1430	1439	1447
40	1193	1203	1219	1231	1239
50	947	956	980	988	993
60	687	698	718	729	732
70	427	440	460	469	470
80	179	198	221	228	228
90	4	13	22	26	26

	Description : TC5-2L40K-24-PCB-W-L2-1-T-4 **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L1**

PHOTOMETRIC DATA - 3500K, 80 CRI, PCB24

Optics: **Polycarbonate basket lens with overlay and side rails**
IES File: **TC5-2L35K-14-PCB24-W-L3**
Lumens: **3484** Wattage: **30.5**
Efficacy: **114**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	467	13.40
0-30	986	28.30
0-40	1602	46.00
0-60	2774	79.60
0-80	3414	98.00
0-90	3484	100.00
10-90	3363	96.50
20-40	1135	32.60
20-50	1758	50.50
40-70	1582	45.40
60-80	641	18.40
70-80	231	6.60
80-90	69	2.00
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	3484	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	100	96	106	102	98	94	98	94	91
2	99	91	84	78	96	89	83	77	85	80	76
3	90	80	72	65	88	78	71	65	75	69	64
4	83	71	62	55	80	69	61	55	67	60	54
5	76	63	54	48	74	62	54	48	60	53	47
6	70	57	48	42	68	56	48	42	54	47	41
7	65	52	43	37	64	51	43	37	49	42	37
8	61	47	39	33	59	47	39	33	45	38	33
9	57	43	35	30	55	43	35	30	42	35	29
10	53	40	32	27	52	40	32	27	39	32	27

LUMINANCE DATA (CD/M²)

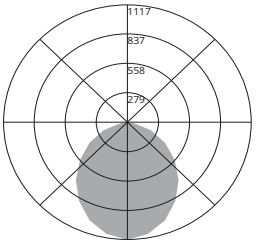
Vertical Angle	Horizontal Angle		
	0	45	90
45	3032	3066	3087
55	2859	2870	2874
65	2648	2631	2602
75	2339	2297	2146
85	2051	2018	1717

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1278	1278	1278	1278	1278
10	1250	1250	1256	1263	1267
20	1171	1178	1182	1189	1193
30	1047	1055	1061	1066	1073
40	888	895	900	904	909
50	706	708	713	713	715
60	513	512	512	511	511
70	319	316	316	309	307
80	131	136	127	112	106
90	2	3	4	5	5

Optics: **Polycarbonate basket lens with overlay and side rails**
IES File: **TC5-2L35K-22-PCB24-W-L3**
Lumens: **2972** Wattage: **29.1**
Efficacy: **102**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	405	13.6
0-30	853	28.7
0-40	1383	46.5
0-60	2386	80.3
0-80	2917	98.1
0-90	2972	100
10-90	2867	96.5
20-40	979	32.9
20-50	1514	50.9
40-70	1345	45.3
60-80	531	17.9
70-80	188	6.3
80-90	55	1.9
90-110	0	0
90-120	0	0
90-130	0	0
90-150	0	0
90-180	0	0
110-180	0	0
0-180	2972	100

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	109	104	100	96	106	102	98	95	98	95	92
2	99	91	84	79	97	89	83	78	86	80	76
3	91	80	72	66	88	79	71	65	76	69	64
4	83	71	62	56	81	70	62	55	67	60	55
5	76	64	55	48	74	63	54	48	60	53	47
6	71	57	49	42	69	56	48	42	55	47	42
7	66	52	43	37	64	51	43	37	50	42	37
8	61	48	39	33	59	47	39	33	46	38	33
9	57	44	36	30	56	43	35	30	42	35	30
10	54	40	33	27	52	40	32	27	39	32	27

LUMINANCE DATA (CD/M²)

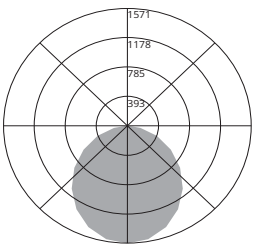
Vertical Angle	Horizontal Angle		
	0	45	90
45	2217	2470	2526
55	1963	2226	2272
65	1527	1910	1938
75	1060	1676	1673
85	1060	1676	1673

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1117	1117	1117	1117	1117
10	1077	1080	1089	1099	1104
20	990	1013	1025	1035	1042
30	866	906	921	929	939
40	718	766	780	790	800
50	556	604	616	623	631
60	390	432	438	443	447
70	227	253	262	266	267
80	67	97	106	106	106
90	1	3	3	3	2

Optics: **Polycarbonate basket lens with overlay and side rails**
IES File: **TC5-2L35K-24-PCB24-W-L3**
Lumens: **4493** Wattage: **36.7**
Efficacy: **122**

PHOTOMETRIC CURVE
100% Down



ZONAL LUMEN SUMMARY

Zone	Lumens	%Fixt
0-20	575	12.80
0-30	1217	27.10
0-40	1985	44.20
0-60	3482	77.50
0-80	4370	97.30
0-90	4493	100.00
10-90	4344	96.70
20-40	1410	31.40
20-50	2199	48.90
40-70	2045	45.50
60-80	887	19.70
70-80	339	7.50
80-90	123	2.70
90-110	0	0.00
90-120	0	0.00
90-130	0	0.00
90-150	0	0.00
90-180	0	0.00
110-180	0	0.00
0-180	4493	100.00

COEFFICIENTS OF UTILIZATION
Zonal Cavity Method | Effective Floor Cavity Reflectance = .20

RC	80				70				50		
RW	70	50	30	10	70	50	30	10	50	30	10
RCR											
0	119	119	119	119	116	116	116	116	111	111	111
1	108	103	99	95	106	101	97	93	97	93	90
2	98	90	83	77	96	88	81	76	84	79	74
3	90	79	70	64	87	77	69	63	74	68	62
4	82	70	61	54	80	68	60	54	66	59	53
5	75	62	53	46	73	61	53	46	59	51	46
6	70	56	47	41	68	55	47	40	53	46	40
7	65	51	42	36	63	50	42	36	48	41	35
8	60	46	38	32	58	46	38	32	44	37	32
9	56	43	34	29	55	42	34	29	41	34	28
10	53	39	31	26	51	39	31	26	38	31	26

LUMINANCE DATA (CD/M²)

Vertical Angle	Horizontal Angle		
	0	45	90
45	1868	1941	1994
55	1768	1859	1921
65	1646	1770	1845
75	1476	1700	1789
85	1338	1824	1973

CANDELA DISTRIBUTION

Vertical Angle	Horizontal Angle				
	0	22.5	45	67.5	90
0	1571	1571	1571	1571	1571
10	1536	1537	1546	1556	1561
20	1439	1450	1459	1471	1478
30	1287	1301	1317	1332	1342
40	1094	1109	1129	1149	1160
50	872	885	913	929	938
60	637	649	674	695	702
70	399	410	439	454	458
80	170	187	216	229	231
90	4	13	21	25	25

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L2, Lithonia GTL Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Day-Brite, 1TG32L840-4-02F-UNV-DIM

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : 1TG32L840-4-02F-UNV-DIM **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L2**

TYPE L2

PHILIPS

Day-Brite

CFI

Recessed

T-Grid LED troffer 1x4

2200, 3200, 4200 or 5000 lumens

Project:

Location:

Cat.No:

Type:

Lumens: Qty:

Notes:

The Philips Day-Brite / Philips CFI T-Grid LED troffer is an energy efficient low profile luminaire offering excellent performance for general lighting applications such as offices, schools, healthcare, or retail. Featuring a frosted prismatic lens to enhance visual comfort, the T-Grid LED Troffer utilizes highly reliable and efficient Philips LED platform boards and dimmable driver, enabling market leading efficiency in its category.

Ordering guide

Example: 1TG32L840-4-FS-02F-UNV-DIM

Width	Family	Ceiling Type	Lumen Package	Color Temp.	Length	Door Frame	Lens	Voltage	Driver	Options
1	T	G		–	4 –	–	–	–	–	
1 1'	**T** T-Grid LED troffer	**G** Grid	**22L** 2200 nominal delivered lumens **32L** 3200 nominal delivered lumens **42L** 4200 nominal delivered lumens **50L** 5000 nominal delivered lumens	**830** 80 CRI, 3000K **835** 80 CRI, 3500K **840** 80 CRI, 4000K **850** 80 CRI, 5000K	**4** 4'	**FS** Flat Steel **RA** Regressed Aluminum	**02F** Pattern 12, .100" nominal diffuse 50% **12F** DB 12 .125" nominal diffuse 50% **19F** DB 19 .156" nominal diffuse 50%	**UNV** Universal Voltage 120–277V **347** 347V	**DIM** 0-10V dimming **SDIM** Step dimming to 40% input power	**F1** 3/8" flex, 3 wire, 18 gauge 6' **F2** 3/8" flex, 4 wire, 18 gauge 6' **F1/D** 3/8" twin flex, 3 wire, 18 gauge 6', for dimmable luminaires **F2/5W** 3/8" single flex, 5 wire, 18 gauge 6', for dimmable luminaires **EMLED**[1] Integral emergency battery pack **1W** 1-way gasket between lens & door frame (not avail. for RA door frame) **2W** 1-way & gasket between door frame & housing **3W** 2-way & gasket betweem housing & ceiling (field installed) **GLR** Fusing, fast blow **CHIC** Chicago Plenum rated **DSC** Quick driver disconnect

Footnotes

1 1100 nominal lumens delivered in DC mode

Accessories (order separately)

- **FMA14** – 1'x4' "F" mounting frame for NEMA "F" mounting
- **GCP** – Grid clip pack (1'x4')

	Description : 1TG32L840-4-02F-UNV-DIM **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L2**

1TG T-Grid LED troffer 1x4

2200, 3200, 4200 or 5000 lumens

Application

- High efficacy long life solid state lighting platform.
- General lighting distribution is excellent for ambient lighting.
- High CRI source provides excellent color rendering.
- LEDs are an excellent source for use with controls since frequent switching does not affect the life of a light source.

Construction/finish

- Quality recessed troffer for the following "NEMA" ceiling types: NEMA "G"-Grid, NEMA "NFSG"-Narrow Faced Slot Grid, NEMA "GR"-Grid Regressed, NEMA "NFG"-Narrow Faced Grid.
- Field assembled and installed "F" mounting Frame adapts fixture for use in NEMA "F" ceilings requiring flanges.
- Housing is constructed of pre-painted steel.
- Troffer body die-formed CR steel with reinforcing ribs for rigidity.
- 7/8 K.O.'s provided in each end cap and quick wire access plate in housing top with two 7/8 K.O.'s provided.
- Snap on wireway cover.
- T-bar clips are not integral to the luminaire, and must be ordered separately.
- Low profile body minimizes clearance required.
- All units have wire hanger tabs for independent wire suspension.

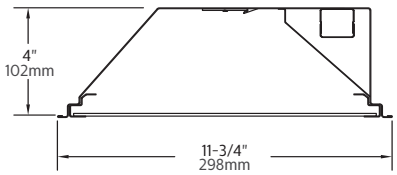
Electrical

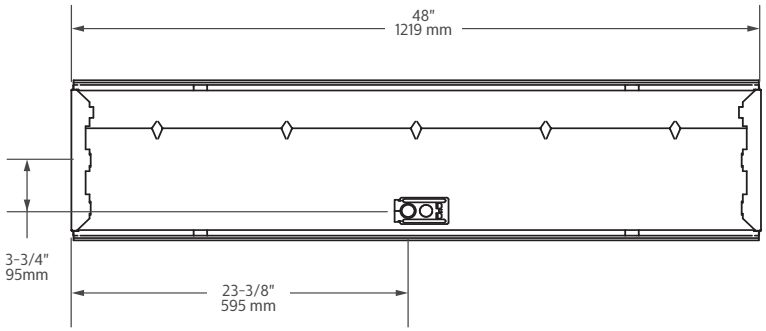
- Standard 0-10V dimming.
- Driver and LED boards are accessible from below. LED boards are individually replaceable if required.
- Five-year luminaire limited warranty including LED boards and driver. Visit www.philips.com/warranties for complete warranty information.
- High efficiency LEDs have 50,000 hour rated life (defined by testing at 70% lumen maintenance (L70)), based on 25°C ambient operating temperature.
- UL listed, suitable for damp locations.
- No exposed internal wiring.
- cETLus listed to UL and CSA standards, suitable for damp location.
- T-Grid LED luminaires are DesignLights Consortium® qualified. Please see the DLC QPL list for exact catalog numbers (http://www.designlights.org/QPL).
- Many luminaire components, such as reflectors, refractors, lenses, sockets, lampholders, and LEDs are made from various types of plastics which can be adversely affected by airborne contaminants. If sulfur based chemicals, petroleum based products, cleaning solutions, or other contaminants are expected in the intended area of use, consult factory for compatibility.

Enclosure

- Flat steel door frame has mitered corners.
- Hinged and latched (from either side) door frame.
- Mechanically designed interlocks eliminate light leaks.
- White (standard) or black (optional) door frames available.
- Diffuser is clear color stabilized 100% prismatic acrylic.

Dimensions





	Description : 1TG32L840-4-02F-UNV-DIM **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L2**

1TG T-Grid LED troffer 1x4

2200, 3200, 4200 or 5000 lumens

Photometry

1x4 T-Grid LED troffer, 2200 nominal delivered lumens — LER – 106

Catalog No.	1TG22L840-4-FS-02F-UNV
Test No.	33591
S/MH	1.1
Lamp Type	LED
Lumens	2284
Input Watts	21.6

Comparative yearly lighting energy cost per 1000 lumens – **$2.26** based on 3000 hrs. and $.08 pwr KWH.

The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.

Photometric values based on test performed in compliance with LM-79.

Candlepower

Angle	End	45	Cross
0	1055	1055	1055
5	1045	1049	1051
15	998	1000	996
25	897	886	873
35	744	715	685
45	558	511	470
55	372	324	294
65	224	188	178
75	131	106	104
85	51	37	36

Light Distribution

Degrees	Lumens	% Luminaire
0-30	789	34.5
0-40	1235	54.1
0-60	1924	84.3
0-90	2283	100.0

Average Luminance

Angle	End	45°	Cross
45	2672	2448	2252
55	2197	1911	1733
65	1794	1503	1424
75	1709	1385	1356
85	1981	1425	1397

Coefficients of Utilization

EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

pcc	80			70			50	
pw	70	50	30	70	50	30	50	30
RCR								
0	118	118	118	115	115	115	111	111
1	110	105	101	107	103	98	98	95
2	101	93	86	97	91	84	88	82
3	93	82	75	90	81	73	78	71
4	84	73	66	82	72	65	69	64
5	79	67	58	77	66	57	64	56
6	72	60	52	71	59	52	57	51
7	68	56	46	67	55	46	53	46
8	64	51	42	61	50	42	48	41
9	59	46	39	58	46	39	45	39
10	56	44	35	55	42	35	41	35

1x4 T-Grid LED troffer, 3200 nominal delivered lumens — LER – 104

Catalog No.	1TG32L840-4-FS-02F-UNV
Test No.	33592
S/MH	1.1
Lamp Type	LED
Lumens	3163
Input Watts	30.4

Comparative yearly lighting energy cost per 1000 lumens – **$2.31** based on 3000 hrs. and $.08 pwr KWH.

The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.

Photometric values based on test performed in compliance with LM-79.

Candlepower

Angle	End	45	Cross
0	1460	1460	1460
5	1447	1452	1455
15	1380	1384	1378
25	1240	1228	1208
35	1029	992	948
45	772	710	651
55	515	449	406
65	310	261	246
75	181	147	143
85	70	51	49

Light Distribution

Degrees	Lumens	% Luminaire
0-30	1092	34.5
0-40	1709	54.1
0-60	2664	84.2
0-90	3161	100.0

Average Luminance

Angle	End	45°	Cross
45	3698	3398	3118
55	3040	2650	2399
65	2483	2090	1970
75	2371	1925	1877
85	2730	1990	1909

Coefficients of Utilization

EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

pcc	80			70			50	
pw	70	50	30	70	50	30	50	30
RCR								
0	118	118	118	115	115	115	111	111
1	110	105	101	107	103	98	98	95
2	101	93	86	97	91	84	88	82
3	93	82	75	90	81	73	78	71
4	84	73	66	82	72	65	69	64
5	79	67	58	77	66	57	64	56
6	72	60	52	71	59	52	57	51
7	68	56	46	67	55	46	53	46
8	64	51	42	61	50	42	48	41
9	59	46	39	57	46	39	45	39
10	56	44	35	55	42	35	41	34

	Description : 1TG32L840-4-02F-UNV-DIM **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L2**

1TG T-Grid LED troffer 1x4

2200, 3200, 4200 or 5000 lumens

Photometry

1x4 T-Grid LED troffer, 4200 nominal delivered lumens — LER – 101

Catalog No.	1TG42L840-4-FS-02F-UNV
Test No.	33599
S/MH	1.1
Lamp Type	LED
Lumens	4404
Input Watts	43.6

Comparative yearly lighting energy cost per 1000 lumens – **$2.38** based on 3000 hrs. and $.08 pwr KWH.

The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.

Photometric values based on test performed in compliance with LM-79.

Candlepower

Angle	End	45	Cross
0	2030	2030	2030
5	2011	2020	2023
15	1919	1926	1918
25	1727	1709	1682
35	1432	1379	1321
45	1076	985	909
55	717	625	567
65	432	362	344
75	253	205	201
85	98	71	69

Light Distribution

Degrees	Lumens	% Luminaire
0-30	1518	34.5
0-40	2378	54.0
0-60	3708	84.2
0-90	4404	100.0

Average Luminance

Angle	End	45°	Cross
45	5151	4719	4352
55	4233	3691	3348
65	3465	2904	2754
75	3304	2676	2624
85	3806	2750	2680

Coefficients of Utilization

EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

pcc	80			70			50	
pw	70	50	30	70	50	30	50	30
RCR								
0	118	118	115	115	115	111	111	
1	110	105	101	107	103	98	98	95
2	101	93	86	97	91	84	88	82
3	93	82	75	90	81	73	78	71
4	84	73	66	82	72	65	69	64
5	79	67	58	77	66	57	64	56
6	72	60	52	70	59	52	57	51
7	68	56	46	67	55	46	53	46
8	64	51	42	61	50	42	48	41
9	59	46	39	57	46	39	45	39
10	56	44	35	55	42	35	41	34

1x4 T-Grid LED troffer, 5000 nominal delivered lumens — LER – 98

Catalog No.	1TG50L840-4-FS-02F-UNV
Test No.	33596
S/MH	1.1
Lamp Type	LED
Lumens	5078
Input Watts	51.9

Comparative yearly lighting energy cost per 1000 lumens – **$2.45** based on 3000 hrs. and $.08 pwr KWH.

The photometric results were obtained in the Philips Day-Brite laboratory which is NVLAP accredited by the National Institute of Standards and Technology.

Photometric values based on test performed in compliance with LM-79.

Candlepower

Angle	End	45	Cross
0	2337	2337	2337
5	2315	2325	2329
15	2209	2217	2208
25	1986	1968	1935
35	1650	1590	1522
45	1238	1140	1046
55	827	723	653
65	498	420	396
75	291	237	231
85	113	83	80

Light Distribution

Degrees	Lumens	% Luminaire
0-30	1749	34.4
0-40	2740	54.0
0-60	4275	84.2
0-90	5075	100.0

Average Luminance

Angle	End	45°	Cross
45	5929	5457	5009
55	4880	4265	3853
65	3992	3368	3171
75	3813	3099	3021
85	4403	3210	3089

Coefficients of Utilization

EFFECTIVE FLOOR CAVITY REFLECTANCE 20 PER (pfc=0.20)

pcc	80			70			50	
pw	70	50	30	70	50	30	50	30
RCR								
0	118	118	118	115	115	115	111	111
1	110	105	101	107	103	98	98	95
2	101	93	86	97	91	84	88	82
3	93	82	75	90	81	73	78	71
4	84	73	66	82	72	65	69	64
5	79	67	58	77	66	57	64	56
6	72	60	52	70	59	52	57	51
7	68	56	46	67	55	46	53	46
8	64	51	42	61	50	42	48	41
9	59	46	39	57	46	39	45	38
10	56	44	35	55	42	35	41	34

Philips Lighting North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Philips Lighting Canada Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L3, Gotham EVO Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Lightolier, C4SN / C4L20840MZ10U / C4SDLNMCL

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
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Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL Project Name: WOODBURN CITY HALL REMODEL Notes:	TYPE: L3

TYPE L3,L10

PHILIPS
LIGHTOLIER

Downlighting

Calculite LED gen 3

4" square downlight, 500-3000lm

Calculite LED 4" generation 3 features industry leading visual comfort, excellent uniform illumination over time, and patented installation flexibility.

Complete luminaire = Frame + Engine + Trim + Accessories (optional)

Project:
Location:
Cat.No:
Type:
Lamps: Qty:
Notes:

*** Note:** All **4SN** frames will replace **C4SN** frames beginning in 2Q18.

Frame

example: C4SN

Series	Aperture	Installation	Voltage / Options
C4 Calculite LED 4" **4** 4" Non-IC *	**S** Square	**N** New construction[1] **R** Remodeler	**—** Universal 120V/277V (specify for Power Over Ethernet) **EM** Emergency[1,2] **LC** Chicago Plenum[1] **3** 347V (not ELV dimming compatible) **3IP** 347V with Interact Pro (not ELV dimming compatible)[1,3] **IP** Interact Pro[1,3]

Engine

example: C4L15835NZ10U

Series	Lumens	CRI	CCT	Beam[6]	Dimming	Voltage
C4L Calculite LED 4"	**05** 500lm[4] **10** 1000lm **15** 1500lm **20** 2000lm **25** 2500lm[5] **30** 3000lm[5]	**8** 80CRI **9** 90CRI	**27** 2700K **30** 3000K **35** 3500K **40** 4000K	**N** Narrow (45°) **M** Medium (58°) and Wide (69°)	**Z10** 0-10V 1%[4] **SOL** EldoLED Solo 0-10V 0.1% **D** Dali **L** Lutron LDE1 EcoSystem (fade-to-black) **DMX** Digital Multiplexing **E** ELV (120V dimming only)[7] **P** Power over Ethernet (PoE) Only compatible with 1000 (10) to 2500 (25) lumen configurations.	**U** Universal 120V/277V/347V **1** Universal 120V/277V **E** Ethernet 48V DC

Trim

example: C4SDLNMCCP

Series	Aperture	Style	Beam[5]	Finish	Flange
C4 Calculite LED 4"	**S** Square	**DL** Downlight	**NM** Narrow and Medium **W** Wide	**CL** Specular clear **CC** Comfort clear **CD** Comfort clear diffuse **WH** White (matte)	**–** White (matte) **P** Polished **F** Flangeless **–** White (matte) **F** Flangeless

Beam options

Trim	Narrow engine	Medium engine
Narrow & Medium	47° (0.7 s.c.)	63° (0.9 s.c.)
Wide	Not recommended	79° (1.2 s.c.)

1. Interact Pro (IP), Emergency (EM) and Chicago Plenum (LC) options are only available with New construction (N) installations.
2. Emergency (EM) frame comes with emergency battery pack and ceiling mountable test switch (see page 5).
3. Integral Interact Pro RF sensor, enables network lighting control; to be specified with 0-10V light engines only.
4. The 500lm (05) package is only compatible with 0-10V (Z10) dimming.
5. The 2500lm (25) and 3000lm (30) packages have marked spacing requirements (see page 2).
6. See Beam Options table to the left for light engine and trim combination spacing criterion.
7. ELV (E) dimming is only compatible with up to 2000lm (20) configurations.

c UL us LISTED · WET LOCATION · RoHS COMPLIANT · ENERGY STAR · interact ready.

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL Project Name: WOODBURN CITY HALL REMODEL Notes:	TYPE: L3

C4SDL Calculite LED generation 3

4" square downlight

Accessories

CA4SFT	Mud-in ring for use with flangeless installations (ordered with a flangeless trim)
CAEM	Field installable EM pack
AMS	ActiLume multi-sensor (optional accessory for Power Over Ethernet configurations)
SWZDT	SpaceWise wireless controller with dwell time functionality (compatible with all 0-10V - see "SWZDT" spec sheet)

Narrow

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_NZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_NZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_NZ10U	120V	50/60Hz	0.12	360 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_NZ10U	120V	50/60Hz	0.17	490 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95
C4L25_NZ10U	120V	50/60Hz	0.22	640 mA	27W	<10%	>0.95
	277V		0.10			<15%	>0.95
C4L30_NZ10U	120V	50/60Hz	0.27	790 mA	33W	<10%	>0.95
	277V		0.13			<15%	>0.95

Medium/Wide

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_MZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_MZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_MZ10U	120V	50/60Hz	0.12	350 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_MZ10U	120V	50/60Hz	0.16	470 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95
C4L25_MZ10U	120V	50/60Hz	0.21	610 mA	25W	<10%	>0.95
	277V		0.09			<15%	>0.95
C4L30_MZ10U	120V	50/60Hz	0.26	770 mA	31W	<10%	>0.95
	277V		0.12			<15%	>0.95

Narrow (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___NPE	53V	51-54V	DC	160 mA	8.9 W
C4L15___NPE	53V	51-54V	DC	250 mA	13.6 W
C4L20___NPE	53V	51-54V	DC	340 mA	18.5 W
C4L25___NPE	53V	51-54V	DC	460 mA	24.6 W

Medium (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___MPE	53V	51-54V	DC	160 mA	8.8 W
C4L15___MPE	53V	51-54V	DC	250 mA	13.4 W
C4L20___MPE	53V	51-54V	DC	320 mA	17.6 W
C4L25___MPE	53V	51-54V	DC	430 mA	23.2 W

Wide (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___WPE	53V	51-54V	DC	160 mA	8.8 W
C4L15___WPE	53V	51-54V	DC	250 mA	13.4 W
C4L20___WPE	53V	51-54V	DC	320 mA	17.6 W
C4L25___WPE	53V	51-54V	DC	430 mA	23.2 W

1. Nominal input volts.
2. Preferred volt range.

Marked spacing applications

Light engine	2500 lm	3000 lm
C4L_Z10U series	—	X
C4L_LU series	X	X
C4L_DU series	—	X
C4L_DMXU series	—	X

Modules marked with an X require marked spacing:
- Center-to-center of adjacent luminaires: 24" (610mm)
- Luminaire center to side building member: 12" (305mm)

Lifetime (TM-21) data

Lumens	Narrow beam	Medium/Wide beam*
500lm **1000lm** **1500lm**	L90 @ 60,000 hrs.	L90 @ 60,000 hrs.
2000lm **2500lm** **3000lm***	L90 @ 60,000hrs.	L85 @ 60,000hrs.

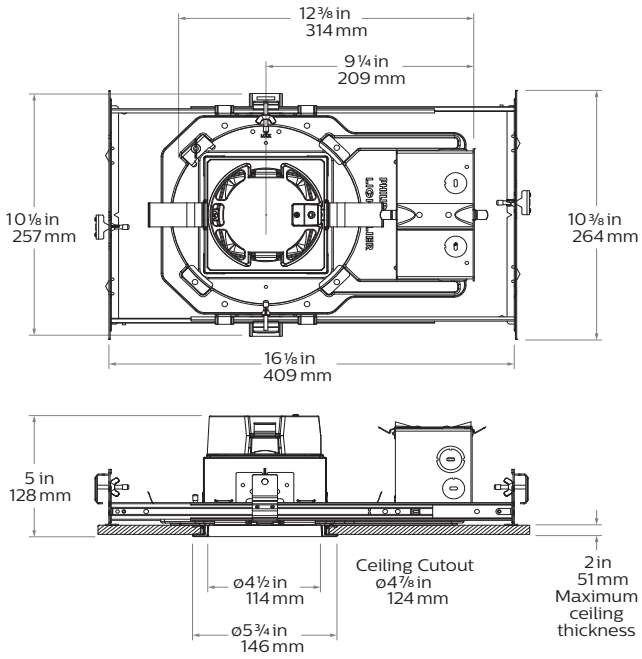
* Lutron 3000lm with Medium/Wide beam is L80 @ 60,000hrs.

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L3**

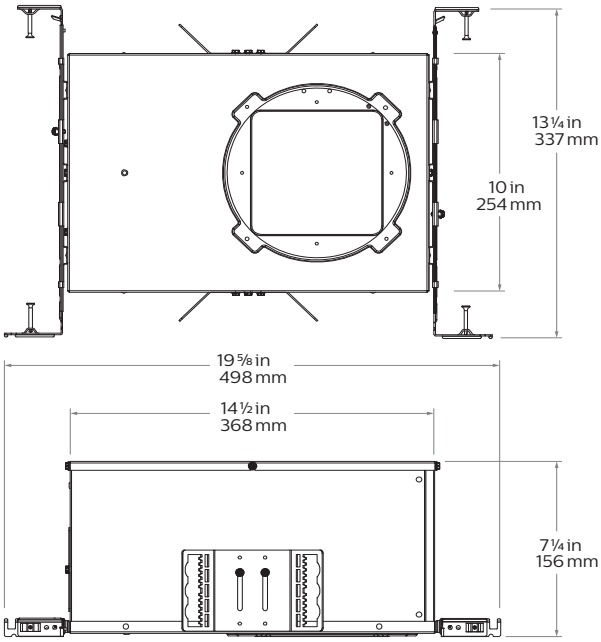
C4SDL Calculite LED generation 3

4" square downlight

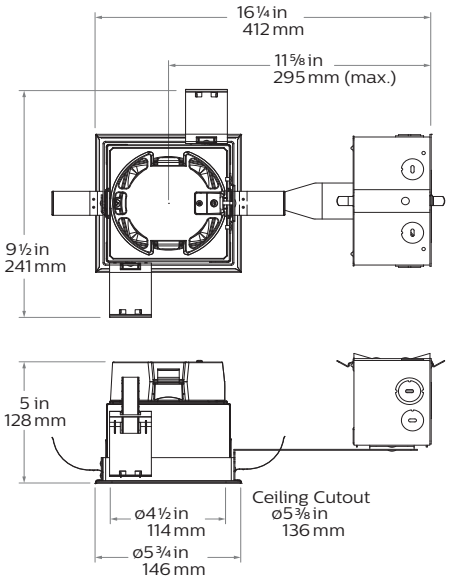
New Construction (N)



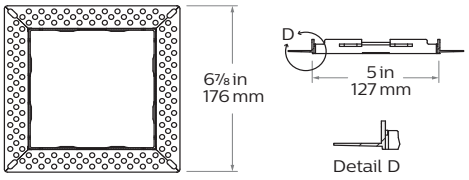
Chicago Plenum (LC)



Remodeler (R)



Flangeless mud-in ring (CA4SFT) accessory



	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L3**

C4SDL Calculite LED generation 3

4" square downlight

Reflector

Specular clear (CL): Most specular and most efficient finish, delivers maximum photometric performance but can produce a mirror image effect of the interior space.

Comfort clear (CC): Semi-specular finish that softens the light at the source of the reflector and creates a subtle, even luminance from the reflector cone.

Comfort clear diffuse (CD): Slightly diffuse clear finish, that eliminates iridescence and reduces the mirror image effect inherent with specular finishes.

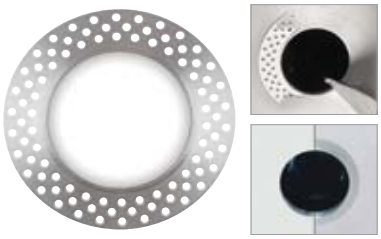
White (WH): (matte) Brightest illuminated aperture and provides the smoothest transition to most ceilings when off (white is only available with a white flange).

Flange

White (–): (matte) Provides the smoothest transition to ceilings when off.

Polished (P): (matches aperture) Produces a continuous look throughout the reflector (aperture matching).

Flangeless (F): (flush-mount)Creates a flush, virtually seamless transition from aperture to ceiling.



Mud-in ring (FT): Low profile, machined aluminum mud-in ring provides a raised rib to plaster up to and a 3/16" flange thickness. The ring is attached to the ceiling material as opposed to the frame-in kit to avoid conduction of heat and vibration which can cause yellowing or cracking of the plaster.

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L3**

C4SDL Calculite LED generation 3

4" square downlight

Frame-in-kits

New Construction

Galvanized stamped steel for dry or plaster ceilings. Preinstalled telescoping mounting bars from 13" to 24". For 4' distances, use 1/2" EMT, 1-1/2" x 1/2" U or C channel.

Max ceiling thickness is 2".
Including PoE frame 4.88" (124 mm).

Emergency

Reflector mounted test switch requires above ceiling access. For reflector mounted test switch, order emergency frame and add "EM" suffix to reflector (example: C4SDLCCEM).

Patented install Mounting frame

With no driver attached, this versatile frame is independent of driver accommodating a wide range of lumen packages, driver types and CCTs, including 120V and 277V inputs.

Pre-installed mounting bars for fast and tool-less installs into T-grid & hat channel ceilings.

Close-cut aperture design eliminates possibility of gap between ceiling opening & reflector flange.

Separate wiring compartment for wiring frame to building allows inspection prior to light engine install.

Simple plug-and-play connection between frame and light engine from below ceiling eliminates need for wiring between frame and LED driver, and also saves time during installation and future replacements/upgrades. Plug-and-play receptacle accommodates technology upgrade of light engines and replacements for the life of the building.

Easy alignment of fixtures and present locking at 0°, 45°, & 90° with 360° rotation via tool-less locking.

Drivers

- Advance 0-10V 1% dimming
- Lutron Hi-lume EcoSystem H Series 1% dimming
- EldoLED ECOdrive Dali 1% dimming
- EldoLED SOLOdrive 0-10V 0.1% dimming
- ELV dimming and DMX dimming

Power over Ethernet

Powered via Philips PoE lighting controller: complies with FCC rules per Title 47 part 15 (Class A) for EMI / RFI (conducted & radiated). PoE lighting controller accessible from below ceiling.

Rated life: 60,0000 hrs at 70% lumen maintenance based on IES LM-80-08 and TM-21-11.

Interact Pro (IAP)

- Interact Pro brings the power of connected lighting to small and medium businesses without the complexity usually associated with connected lighting.
- Interact Pro includes an app, a portal and a broad portfolio of wireless Luminaires, lamps and retrofit kits all working on the same system.
- Commissioning via Interact Pro App (Android or iPhone)
- Prepare commissioning remotely via Interact Pro portal
- Requires compatible Interact Pro Gateway and internet connectivity for commissioning
- Compatible with UID8451/10 ZigBee Greenpower wireless dimmer switch
- Compatible with wireless Occ sensor (OCC SENSOR IA CM IP42 WH 10/1) or wireless Day/Occ sensor (OCC MULTI SENSOR IA CM WH 10/1)
- For more information on Interact Pro visit: www.interact-lighting.com/pro
- For more information on Interact Ready visit: www.philips.com/interactready

Optical systems

Comfort throughout the space:
Patented optical system combines primary and secondary optics to provide a true 50° physical cutoff and 45° reflected cutoff virtually eliminating the view of the light source and bright spots in the reflector. A new reflector curve reduces reflector brightness by up to 50% compared to existing products, allowing for the use of higher lumen packages in smaller apertures without creating bright spots in the ceiling.

Quality of light: 2 SDCM ensures color consistency from fixture to fixture and over the luminaire's long lifetime. Proprietary optical grade silicone lens with patterned surface provides soft, even beam diffusion without hotspots or dark rings.

Light Engine

Quick connect power pack comprised of light source and driver allow for easy installation and replacement from below ceiling with no need for additional wiring. This allows for

- Frame and ceiling installation to be performed while still finalizing details such as lumen packages, CCT and control type.
- Easy replacement of electronics at end of life with minimal wasted material and labor required.
- Ease and upgradability of technology.

Options and Accessories

Flangeless mud-in ring: Use **CA4SFT** for use with flangless plaster installations.

ENERGY STAR® exceptions

- 500lm & 90 CRI configurations
- Champagne Bronze & Black finishes
- 347V & Emergency voltage/options
- Dali, EldoLED Solo & PoE drivers

Title 24 exceptions

- 1000lm configurations
- Champagne Bronze & Black finishes

Labels and Listings

- cULus listed for wet location
- ENERGY STAR® certified
- RoHS certified
- CEC Title 24 JA8 certified
- CCEA (frames with *LC suffix)
- IBEW Union made (light engines & reflectors)

Warranty

5 year warranty on complete system.

Complete warranty available at: http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/United%20States/ODLI20150930_003-UPD-en_US-Philips-warranty-indoor-PLS-us.pdf

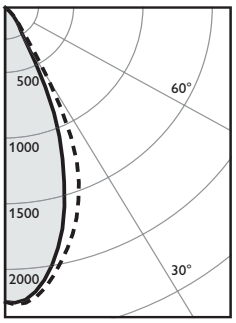
	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L3**

C4SDL Calculite LED generation 3

4" square downlight

Narrow beam, 1500lm Engine, 93.0 lm/w at 14.7W or 100.6 lm/W at 13.6W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835NZ10U**
Trim: **C4SDLNMCL**

CCT[1]:	3500K
Output lumens:	1369 lms
Input watts:	14.7 W (±5%)
CRI:	80 min
Spacing Crit.:	0.7
Beam Angle:	45°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1142	83.4%
0-40	1311	95.7%
0-60	1369	100.0%
0-90	1369	100.0%

Angle	0°	45°	Lms
0	2242	2242	
5	2206	2238	207
10	1995	2072	
15	1661	1845	488
20	1234	1568	
25	783	1196	447
30	334	637	
35	197	264	168
40	132	156	
45	73	87	58
50	0	0	
55	0	0	0
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	90	3.5'
6'	62	4.2'
7'	46	4.9'
8'	35	5.6'
9'	28	6.3'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	63.4	0.65
6'	41.6	0.43
7'	29.7	0.31
8'	24.8	0.25
9'	19.8	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 93.0 lm/w
Report[2]: T20161391

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 107%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 99%	2000lm = 133%
CZ = 63%	80CRI 2700K = 93%	1500lm = 100%
WH = 87%	90CRI 3000K = 87%	1000lm = 67%
BK = 57%	90CRI 2700K = 81%	500lm = 33%

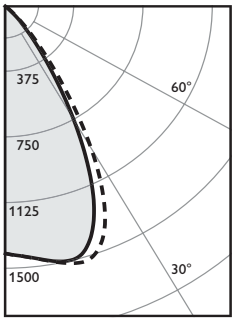
Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	109	107	109	106	105	102	102	99	95
2	109	105	101	98	103	97	100	95	97	93	89
3	104	99	94	91	97	90	95	88	92	87	84
4	100	93	88	84	92	84	90	83	88	82	80
5	95	88	83	79	87	79	85	78	84	77	75
6	91	83	78	74	83	74	81	73	80	73	71
7	87	79	74	70	78	70	77	69	76	69	67
8	84	75	70	66	75	66	74	66	73	66	64
9	80	72	66	63	71	63	70	62	69	62	61
10	77	68	63	60	68	60	67	59	66	59	58

Room Cavity Ratio

Medium beam, 1500lm Engine, 103.8 lm/w at 14.2W or 110.1 lm/W at 13.4W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835MZ10U**
Trim: **C4SDLNMCL**

CCT[1]:	3500K
Output lumens:	1475 lms
Input watts:	14.2 W (±5%)
CRI:	80 min
Spacing Crit.:	0.9
Beam Angle:	58°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1092	74.0%
0-40	1393	94.5%
0-60	1475	100.0%
0-90	1475	100.0%

Angle	0°	45°	Lms
0	1414	1414	
5	1442	1442	139
10	1481	1484	
15	1494	1522	422
20	1387	1485	
25	1119	1287	531
30	755	943	
35	430	561	301
40	217	285	
45	100	129	82
50	0	0	
55	0	0	0
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	57	4.5'
6'	39	5.4'
7'	29	6.3'
8'	22	7.2'
9'	17	8.1'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	67.5	0.63
6'	44.3	0.41
7'	31.6	0.30
8'	26.4	0.25
9'	21.1	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 103.8 lm/w
Report[2]: T20161398

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	111	109	106	109	105	105	101	101	98	94
2	108	103	99	96	102	95	98	93	96	91	87
3	103	97	92	88	95	87	93	86	90	84	82
4	98	90	85	81	89	80	87	79	85	78	76
5	93	85	79	75	84	74	82	74	80	73	71
6	88	79	74	69	79	69	77	69	76	68	66
7	84	75	69	65	74	64	73	64	72	64	62
8	80	70	64	60	70	60	69	60	68	60	58
9	76	66	61	57	66	57	65	56	64	56	55
10	72	63	57	53	62	53	62	53	61	53	51

Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

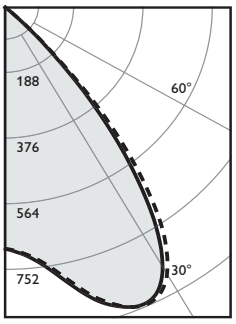
	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L3**

C4SDL Calculite LED generation 3

4" square downlight

Wide beam, 1500lm Engine, 90.8 lm/w at 14.2W or 96.1 lm/W at 13.4W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835MZ10U**
Trim: **C4SDLWCL**

CCT[1]:	3500K
Output lumens:	1288 lms
Input watts:	14.2 W (±5%)
CRI:	80 min
Spacing Crit.:	1.2
Beam Angle:	69°

Zonal summary

Zone	Lumens	%Luminaire
0-30	725	56.3%
0-40	1141	88.6%
0-60	1288	100.0%
0-90	1288	100.0%

Angle	0°	45°	Lms
0	688	688	
5	713	709	69
10	766	757	
15	846	837	237
20	907	904	
25	923	928	419
30	854	878	
35	666	720	416
40	410	466	
45	163	181	146
50	28	27	
55	0	0	1
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	28	6.0'
6'	19	7.2'
7'	14	8.4'
8'	11	9.6'
9'	8	10.8'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	57.9	0.63
6'	38.0	0.41
7'	27.1	0.29
8'	22.6	0.25
9'	18.1	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 90.8 lm/w
Report[2]: T20161399

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	107	105	108	103	104	100	100	97	93
2	107	102	97	93	100	92	97	90	94	88	85
3	101	94	88	84	92	83	90	82	87	81	78
4	95	87	80	76	85	75	83	74	81	74	71
5	89	80	74	69	79	69	77	68	75	67	65
6	84	74	67	63	73	63	72	62	70	62	60
7	79	69	62	57	68	57	67	57	65	57	55
8	74	64	57	53	63	53	62	52	61	52	50
9	70	59	53	49	59	48	58	48	57	48	46
10	66	56	49	45	55	45	54	45	53	44	43

Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Philips Lighting Canada Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L4, Finelite HP-2 Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: a Light, ACL2-4-ILH-DLH-40-U-M-D-HE-S-W-1-D

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

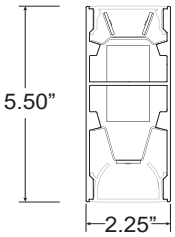
Attachments

1999 Edition

	Description : ACL2-4-ILH-DLH-40-U-M-D-HE-S-W-1-D **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L4**

TYPE L4

ACL2 | SPECIFICATION GUIDE



ORDERING CODE

ACL2			+		
	D	HE			

PROJECT INFO | DATE

TYPE | QUANTITY

PERFORMANCE AT 4000K

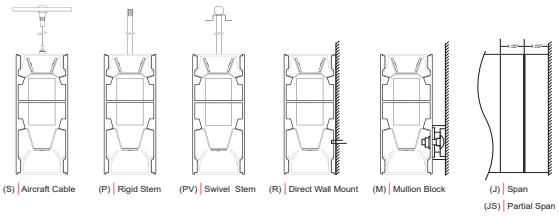
		NOMINAL LUMEN OUTPUT		INPUT WATTS	EFFICACY
OUTPUT	DISTRIBUTION	INDIRECT	DIRECT		
High	Symmetric	N/A	921 lm/ft	9.7 W/ft	95 lm/W
	Symmetric Wide	673 lm/ft	N/A	9 W/ft	75 lm/W
	Symmetric Narrow	912 lm/ft	N/A	9.6 W/ft	95 lm/W
	Asymmetric	670 lm/ft	N/A	9.6 W/ft	70 lm/W
Standard	Symmetric	N/A	460.5 lm/ft	5 W/ft	95 lm/W
	Symmetric Wide	352.5 lm/ft	N/A	5 W/ft	74 lm/W
	Symmetric Narrow	456 lm/ft	N/A	5 W/ft	95 lm/W
	Asymmetric	335 lm/ft	N/A	5 W/ft	70 lm/W

Custom tuned output available from 25% to 125% of high output. Please consult factory for custom lumen output and wattage.

LIGHT LOSS FACTORS

	OUTPUT	LED CCT	CRI
BASELINE	LH	4000K	80+ CRI
	LS - 50%	3500K - 97%	90+ CRI - 80%
		3000K - 93%	

MOUNTING OPTIONS



ACL2		+			
SERIES	**LENGTH OR PATTERN TYPE**	**OUTPUT**	**LED CCT**	**VOLTAGE**	**INDIRECT DISTRIBUTION**
ACL2	**_** Nominal Length* **M_** Exact Length** **PL_** “L” Shape*** **PU_** “U” Shape*** **PR_** Rectangle / Square*** **CP** Custom Pattern**** *Specify in feet to the nearest foot (i.e. 12) **Specify in inches to the nearest 1/8 (i.e. M180.125) ***Specify in inches to the nearest 1/8 (See Pattern Guide for details) ****Contact Design Assist	**ILS** Indirect LED Standard Output **ILH** Indirect LED High Output **IC_** Indirect LED Custom Output* **+** **DLS** Direct LED Standard Output **DLH** Direct LED High Output **DC_** Direct LED Custom Output* *Available from 25% to 125% of LED High Output	**30** 3000K **35** 3500K **40** 4000K	**U** Universal 120V - 277V **3** 347V	**M** Symmetric Wide* **G** Symmetric Narrow **N** Asymmetric *Not recommended for wall mount

D	HE			
INDIRECT OPTICS	**DIRECT OPTICS**	**MOUNTING**	**FINISH**	**CIRCUITING**
D Rigid Diffuse Dust Cover	**HE** HE Tech™	**S** Aircraft Cable* **P_** Rigid Stem** **PV_** Swivel Stem** **R** Direct Wall Mount **M_** Mullion Blocks*** **JS** Partial Span **J** Full Span *Standard 48” field adjustable cable, specify length to nearest inch if over 48”. Black power cord provided for satin black and a•lightanium finish and white power cord provided for all other fixture finishes, unless otherwise specified. **Indicate stem length to nearest inch. 1.00” minimum. ***Enter “1” for 1” depth. Enter “5” for 1/2” depth	**T** a•lightanium™ **W** Satin White **B** Satin Black **O_** Other* *Specify RAL#	**1** Single Circuit **2** Multi-Circuit* **M** Other Multi-Circuit** *Separate uplight and downlight circuits **Submit multi-circuiting requirements

DIMMING	**EMERGENCY**	**SENSORS**	**OPTIONS**
D Standard 0-10 dimming* **D1** Lutron Eco H series (LDE1) **D3** Other Dimming** *Dimming to 1% stated for standard 0-10v dimming **Specify model/series	**EC** Emergency - circuited **E_** Emergency - battery* *Factory-installed emergency battery pack: ILB-SL-CP12 (1200lm for 90min). Specify desired quantity of batteries. Not available on fixtures < 4’ length. Not available for 347V. See technical data for more information.	**O** Occupancy Sensor* **P** Photocell / Daylight Sensor** **OP** Occupancy & Daylight Sensor *Wattstopper FS-205 (Ø1”) **Wattstopper FD-301 wired for daylight harvesting. Requires 0-10v dimming.	**R** Right Endcap Feed **L** Left Endcap Feed **N** New York City Code **K** Natatorium Application* **Q** Wet Location** **CRI** 90+ CRI *Not available with aircraft cable. See guide and contact Design Assist **Not available with aircraft cable. Wet location suitable in full coverage and/or mullion mounted applications (direct to sky not recommended); not suitable for extreme weather applications. Refer to Wet Location brochure and contact Design Assist for more information.

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L5, Eaton 605 Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Legion, 4308L2140ACWUNV

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

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Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : **4308L2140ACWUNV** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L5**

TYPE L5

LEGION® LIGHTING CO., INC. LED

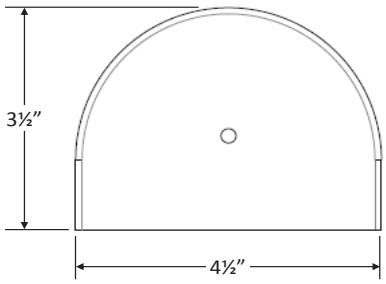
CORRITEMPO® IV CURVE ADA - Series 4308L

4½" X 3½" LED Wrap - ADA

Project:

Type: Prepared By: Date:

Notes:



SPECIFICATIONS

CONSTRUCTION: Die formed of code gauge steel, rigidly fabricated and electronically welded to insure true and perfect alignment.

REFLECTOR/COMPONENT PLATE: Die formed of code gauge steel and mounted securely to the fixture housing.

ELECTRICAL: Long life replaceable LED, rated for 50,000 hours, with a high efficiency 0-10V electronic dimming driver, 120-277V, 50/60Hz operation. Other voltages, current and frequencies available, CONSULT FACTORY.

LED MODULE: Philips LED light engine, available in 3000°K, 3500°K, 4000°K and 5000°K @ L70 for 50,000 hours. Nominal lumen output options of 700,1100 and 2000 per foot result in multiple standard configurations. LM79 and LM80 Certified. Color temperature may affect total lumen output. CONSULT FACTORY for other lumen output options.

SHIELDING: One piece heavy gauge precision extruded smooth white acrylic plastic, removable for access to light engine by removal of the end caps. Tight fit minimizes dust accumulation inside of lamp compartment.

MOUNTING: Surface mounted either horizontally or vertically on the wall, or surface mounted flush on the ceiling, singly or in continuous rows. For continuous row mounting, one set of end caps are eliminated and replaced with a joiner band to prevent light leakage between the two diffuser ends. Specify all continuous row lengths so that the proper accessories may be provided. End caps are used at the ends of rows and on individual units. Adequate knockouts and holes are provided for mounting and feeds.

FINISH: All steel component parts are completely protected against rust and discoloration after fabrication by an Anchorized Process and coated with 365˚ sprayed baked white synthetic enamel for maximum durability, providing a high reflectance efficiency. Other finishes available, consult factory.

CERTIFICATION: The CORRITEMPO® IV Series 4308L luminaire is U.L. and C.U.L. listed and bears the label of the I.B.E.W./AFL-CIO, Local #3. A.D.A. Compliant.

LUMEN OPTIONS

		NOMINAL LUMENS/WATTS	
LUMEN LEVEL	**LEDs**	**24¼"**	**46¼"**
LL1 (Normal)	1 Row	1400/12	2800/24
	2 Rows	2800/24	5600/48
LL2 (High)	1 Row	2200/14	4400/28
	2 Rows	4400/28	8800/56
LL3 (Very High)	1 Row	4000/30	8000/60
	2 Rows	8000/60	16,000/120

Consult factory for latest specification as LED technology is frequently changing. Custom lumen packages available.

ORDERING INFORMATION

Example: 4308L 4 2 LL1 35 ACP UNV DL US

4308L					ACW	UNV	
SERIES	NOMINAL LENGTH	ROWS LED	LUMEN LEVEL	COLOR TEMP	LENS	VOLTAGE	OPTIONS
4308L	2 24¼"	1 1 Row	LL1 Normal	30 3000°K	ACW Acrylic white smooth plastic	UNV 120-277V	DL Damp location
	4 46¼"	2 2 Rows	LL2 High	35 3500°K			EM Emergency battery pack (4' unit only - consult factory for other sizes)
			LL3 V. High	40 4000°K			OS Occupancy sensor
			C Custom	50 5000°K			US Ultrasonic sensor
							GCO Grounded convenience outlet
							PS1C Single circuit pull switch

WeRGreen LEGION RoHS COMPLIANT ENERGY STAR PARTNER

(Consult factory for other options or special requests)

2016-05-18-4308L-LED

*221 Glenmore Avenue, Brooklyn, New York 11207 / Tel **800.4.LEGION** / **www.legionlighting.com** / **sales@legionlighting.com***

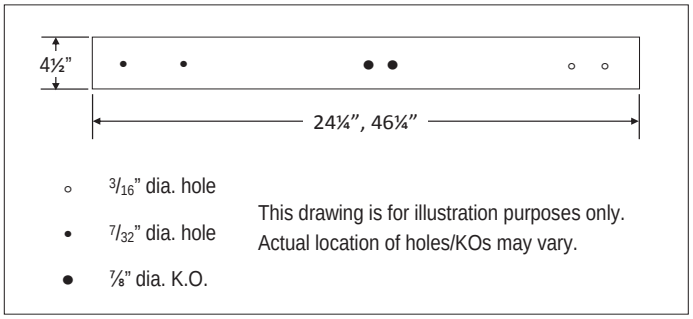
	Description : **4308L2140ACWUNV** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L5**

LEGION® LIGHTING CO., INC. LED

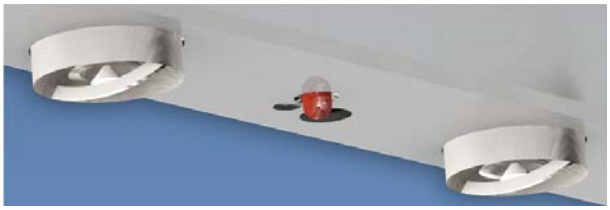
CORRITEMPO® IV CURVE ADA - Series 4308L

4½" X 3½" LED Wrap - ADA

BACK DETAIL



ULTRASONIC SENSOR



PHOTOMETRICS - CONSULT FACTORY

2016-05-18-4308L-LED

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SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L6, Lithonia FMVCCL Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Legion, 4308L2140ACWUNV

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General Contractor (if after award of Contract)

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Date

Remarks

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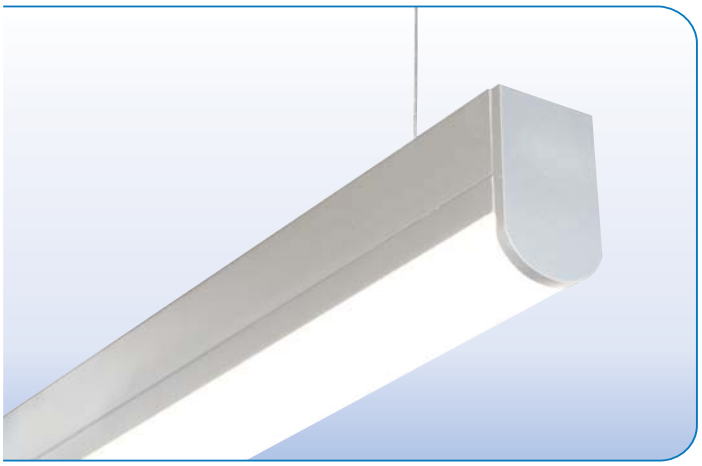
1999 Edition

	Description : ALX3-RLR-LED-M-4K-UNV-SM-AEB-S-2' OR 4' **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L6**

TYPE L6

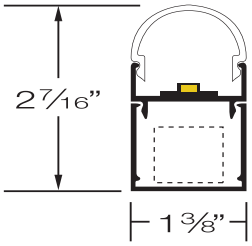
ALX3 – RLR – LED SERIES

LINEAR LED CABLE SUSPENDED / SURFACE MOUNT



PROJECT:

TYPE:



SPECIFICATIONS

HOUSING	Extruded aluminum housing up to 12' long. Continuous runs available.
FINISH	Satin anodized or white paint finish standard. Custom finish optional.
LENS	Extruded DR acrylic, snap-on frosted widespread lens.
LED DRIVER	Integral, universal voltage; 0-10V dimming standard; 1% dimming optional.
K/O's	Optional. 1/2" Back service hole provided for surface mount when using blank endcaps only.
MOUNTING	SURFACE MOUNT: Mounting holes pre-drilled. See page 2 for details. CABLE SUSPENDED: Aircraft cable suspention kit (SK), canopy and prewired with 18/5 SVT cord.
LED's	60,000 hours. (L70), High uniformity, 85 CRI, by Nichia and Cree.
CERTIFICATION	ETL/CSA listed for damp locations. 2001431 MADE IN THE USA

LED COLOR & LUMEN OPTIONS

		LUMENS PER FOOT – WATTS PER FOOT – LUMENS PER WATT		
LED COLOR	CRI	LOW	MEDIUM	HIGH
WHITE 2700K	85	458 L/FT 3.9 W/FT 117 L/W	850 L/FT 7.9 W/FT 107 L/W	1149 L/FT 11.5 W/FT 100 L/W
WHITE 3000K	85	474 L/FT 3.9 W/FT 121 L/W	878 L/FT 7.9 W/FT 111 L/W	1187 L/FT 11.5 W/FT 103 L/W
WHITE 3500K	85	487 L/FT 3.9 W/FT 124 L/W	903 L/FT 7.9 W/FT 114 L/W	1221 L/FT 11.5 W/FT 106 L/W
WHITE 4000K	85	497 L/FT 3.9 W/FT 126 L/W	920 L/FT 7.9 W/FT 116 L/W	1244 L/FT 11.5 W/FT 108 L/W

Values include .85 driver efficiency factor. Higher lumen packages available.

FIXTURE LENGTHS

NOMINAL LENGTH	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'
ACTUAL LENGTH	14"	23"	34"	49"	56"	73"	89"	97"	111"	121"	133"	145"

PART NUMBER

SERIES
- ALX3-RLR-LED

LUMENS
- L LOW
- M MEDIUM
- H HIGH
- CP CUSTOM PROGRAMMED (Specify Lumens/FT or Watts/FT)

COLOR
- 27K 2700K
- 3K 3000K
- 35K 3500K
- 4K 4000K

VOLTS
- UNV (120/277) 10% DIM
- UNV 1% (120/277) 1% DIM

MOUNTING

SURFACE MOUNT
- SM SURFACE MOUNT
- JBP J BOX PLATE

CABLE SUSPENDED
- SK36 36" CABLE KIT
- SK72 72" CABLE KIT

ENDCAP STYLE

STANDARD ENDCAP
- SEB BLANK ENDS
- SEK ONE END K/O
- SBEK BOTH ENDS K/O

ARCHITECTURAL ENDCAP
- AEB BLANK ENDS

DECORATIVE ENDCAP
- DEB BLANK ENDS

FINISH
- S SATIN
- W WHITE
- C CUSTOM

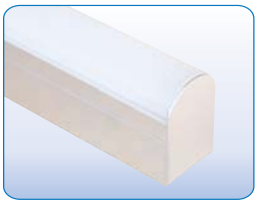
LENGTH
- 1' 7'
- 2' 8'
- 3' 9'
- 4' 10'
- 5' 11'
- 6' 12'

	Description : ALX3-RLR-LED-M-4K-UNV-SM-AEB-S-2' OR 4' **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L6**

ALX3 – RLR – LED SERIES

LINEAR LED CABLE SUSPENDED / SURFACE MOUNT

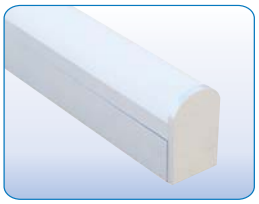
ENDCAP STYLES



STANDARD ENDCAP

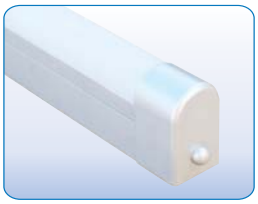
K/O OPTIONS

SEB BLANK ENDS
SEK ONE END K/O+
SBEK BOTH END K/O+



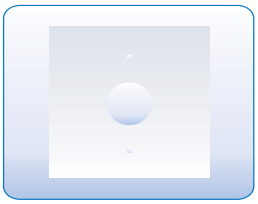
ARCHITECTURAL ENDCAP

AEB BLANK ENDS
3/16" PLATE ENDCAP++
1/2" BACK SERVICE HOLE



DECORATIVE ENDCAP

DEB BLANK ENDS
CUPPED ENDCAP++
1/2" BACK SERVICE HOLE



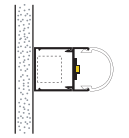
J-BOX PLATE

JBP 5" FLAT CANOPY
PLATE TO COVER
J-BOX

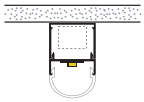
\+ Easy Row Mounting
++ Consult Factory for Row Mounting

MOUNTING DETAILS

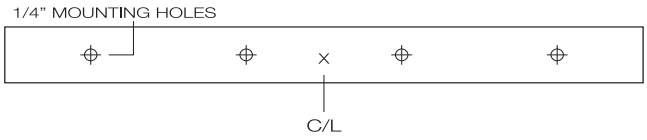
SURFACE MOUNT



WALL MOUNT



CEILING MOUNT

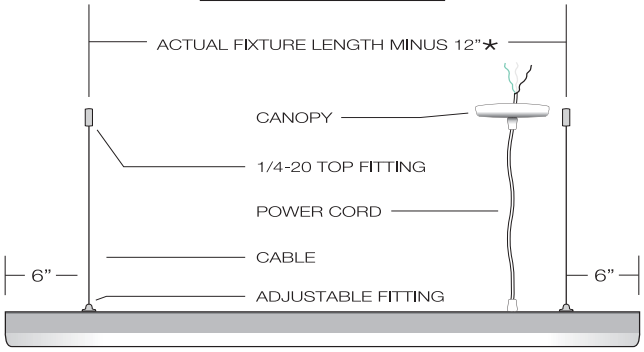


1/2" BACK CENTER SERVICE HOLE

- 1/4" Mounting holes provided evenly spaced on back channel.
- 1/2" Back center service hole for snap-in connector provided for surface mount applications when using standard blank endcap, architectural or decorative endcap.
- 1' and 2' fixtures require off center service hole (field drill) due to 12" driver

Note: Narrow housing will not cover recessed J-Box. Whip feed recommended. Use optional "JBP" canopy for J-Box mount.

CABLE SUSPENDED



SK36 36" Suspension Kit
SK72 72" Suspension Kit
Other cable lengths available.

Suspension Kit includes:
(2) Top Fittings for 1/4-20 Rod
(2) Adjustable Bottom Fittings
(2) Aircraft Cables
(1) Prewired 18/5 White SVT Cord
(1) White Canopy with Mounting Hardware

*Custom pendant spacing available; consult factory

*Lengths over 8' require center cable support

PHOTOMETRICS

CONSULT FACTORY

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L9, Elliptipar S314 Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Primus, ALX8-LED-M-4K-UNV-W-XX'

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

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Remarks

Attachments

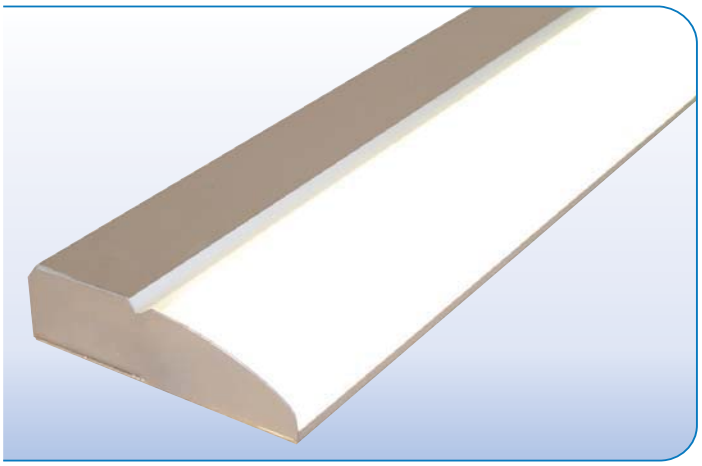
1999 Edition

	Description : ALX8-LED-M-4K-UNV-W-XX' **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L9**

TYPE L9

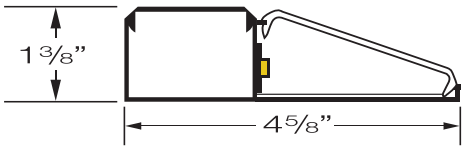
ALX8 – LED SERIES

HIGH PERFORMANCE LED COVE & INDIRECT LIGHTING



PROJECT:

TYPE:



SPECIFICATIONS

HOUSING	Extruded aluminum housing up to 12' long.
FINISH	Satin anodized or white paint finish standard. Custom finish optional.
REFLECTOR	High specular reflector installed inside the fixture to improve light performance.
LENS	Extruded DR acrylic, snap-on frosted widespread lens.
LED DRIVER	Integral, universal voltage; 0-10V dimming to 10% standard; 1% dimming optional.
K/O's	1/2" K/O on both ends standard.
MOUNTING	Surface Mount: Mounting holes pre-drilled.
LED's	60,000 hours. (L70), High uniformity 85 CRI. By Nichia and Cree.
CERTIFICATION	ETL/CSA listed for damp locations. ETL 2001431 MADE IN THE USA

LED COLOR & LUMEN OPTIONS

		LUMENS PER FOOT – WATTS PER FOOT – LUMENS PER WATT		
LED COLOR	CRI	LOW	MEDIUM	HIGH
WHITE 2700K	85	458 L/FT 3.9 W/FT 117 L/W	850 L/FT 7.9 W/FT 107 L/W	1149 L/FT 11.5 W/FT 100 L/W
WHITE 3000K	85	474 L/FT 3.9 W/FT 121 L/W	878 L/FT 7.9 W/FT 111 L/W	1187 L/FT 11.5 W/FT 103 L/W
WHITE 3500K	85	487 L/FT 3.9 W/FT 124 L/W	903 L/FT 7.9 W/FT 114 L/W	1221 L/FT 11.5 W/FT 106 L/W
WHITE 4000K	85	497 L/FT 3.9 W/FT 126 L/W	920 L/FT 7.9 W/FT 116 L/W	1244 L/FT 11.5 W/FT 108 L/W

Values include .85 driver efficiency factor. Higher lumen packages available.

FIXTURE LENGTHS

NOMINAL LENGTH	1'	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'
ACTUAL LENGTH	14"	23"	34"	49"	56"	73"	89"	97"	111"	121"	133"	145"

Order long runs as total run length.

PART NUMBER

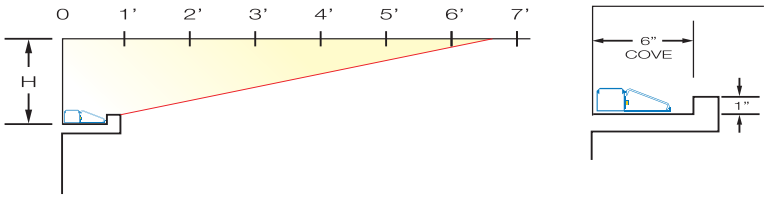
SERIES	LUMENS	COLOR	VOLTS	OPTIONS	FINISH	LENGTH
ALX8-LED	L LOW	27K 2700K	UNV (120/277) 10% DIM	EM PACKS	S SATIN	1' 7'
	M MEDIUM	3K 3000K		EM1 800 LUMENS	W WHITE	2' 8'
	H HIGH	35K 3500K		EM2 1400 LUMENS	C CUSTOM	3' 9'
	CP CUSTOM PROGRAMMED (Specify Lumens/FT or Watts/FT)	4K 4000K	UNV 1% (120/277) 1% DIM	CABLE SUSPENDED		4' 10'
				SK36 36" CABLE KIT		5' 11'
				SK72 72" CABLE KIT		6' 12'

	Description : ALX8-LED-M-4K-UNV-W-XX' **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L9**

ALX8 – LED SERIES

QUICK LIGHTING GUIDE

CEILING COVE

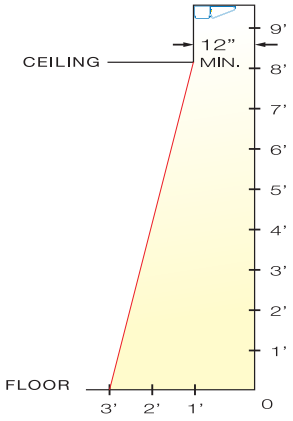


COVE FOOTCANDLES

H	1'	2'	3'	4'	5'	6'	7'	8'
12"	20	18	16	14	12	10	6	3
18"	18	16	14	12	10	6	5	3
24"	14	12	10	9	8	7	6	5
36"	12	10	9	8	7	6	5	2
48"	9	8	7	6	5	4	3	1

Calculations using "low lumens" 400 lumen/ft 3500K LED's.

WALL "FIGURE A"



"FIGURE A" WALL WASH FOOTCANDLES

	8'	7'	6'	5'	4'	3'	2'	1'
WALL	93	46	23	13	9	6	5	4
FLOOR			7	9	10	11	13	14

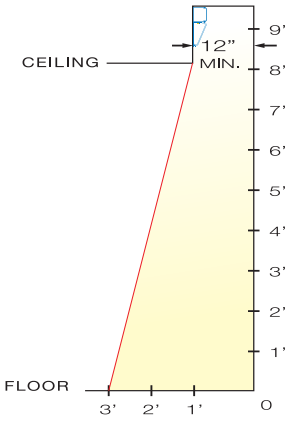
Calculations using "low lumens" 400 lumen/ft 3500K LED's.

"FIGURE B" WALL WASH FOOTCANDLES

	9'	8'	7'	6'	5'	4'	3'	2'	1'
WALL	123	45	20	11	7	5	4	3	2
FLOOR				4	5	5	5	4	14

Calculations using "low lumens" 400 lumen/ft 3500K LED's.

WALL "FIGURE B"

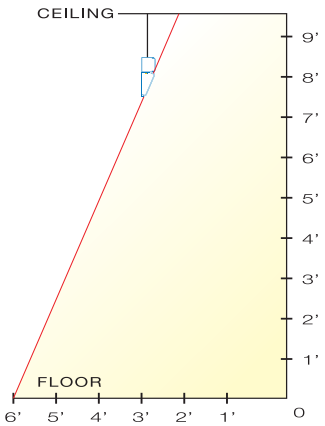


CONVERSION CHART MULTIPLIER

LUMENS	27K	3K	35K	4K
LOW	.90	.96	1	1.06
MEDIUM	1.75	1.86	1.97	2.05
HIGH	2.05	2.11	2.57	2.64

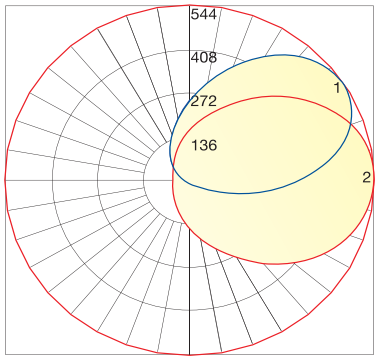
CABLE SUSPENDED

WALL (SEE COVE FOOTCANDLES)
FLOOR (SEE FIGURE B FOOTCANDLES)



PHOTOMETRICS

FILE NAME: L10137802R01.IES



POLAR GRAPH

Maximum Candela = 544
Located at Horizontal Angle = 0 Vertical Angle = 125
#1 – Vertical Plane through Horizontal Angles (0–180) (Through Max. Cd.)
#2 – Horizontal Cone through Vertical Angle (125) (Through Max. Cd.)

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L10, Gotham EVO Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Lightolier, C4SN / C4L20840MZ10U / C4SDLNMCL

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL Project Name: WOODBURN CITY HALL REMODEL Notes:	TYPE: L10

TYPE L3,L10

PHILIPS
LIGHTOLIER

Downlighting

Calculite LED gen 3

4" square downlight, 500-3000lm

Calculite LED 4" generation 3 features industry leading visual comfort, excellent uniform illumination over time, and patented installation flexibility.

Complete luminaire = Frame + Engine + Trim + Accessories (optional)

Project:
Location:
Cat.No:
Type:
Lamps: Qty:
Notes:

*** Note:** All **4SN** frames will replace **C4SN** frames beginning in 2Q18.

Frame

example: C4SN

Series	Aperture	Installation	Voltage / Options	
C4 Calculite LED 4" **4** 4" Non-IC *	**S** Square	**N** New construction[1] **R** Remodeler	**—** Universal 120V/277V (specify for Power Over Ethernet) **EM** Emergency[1,2] **LC** Chicago Plenum[1]	**3** 347V (not ELV dimming compatible) **3IP** 347V with Interact Pro (not ELV dimming compatible)[1,3] **IP** Interact Pro[1,3]

Engine

example: C4L15835NZ10U

Series	Lumens	CRI	CCT	Beam[6]	Dimming	Voltage
C4L Calculite LED 4"	**05** 500lm[4] **10** 1000lm **15** 1500lm **20** 2000lm **25** 2500lm[5] **30** 3000lm[5]	**8** 80CRI **9** 90CRI	**27** 2700K **30** 3000K **35** 3500K **40** 4000K	**N** Narrow (45°) **M** Medium (58°) and Wide (69°)	**Z10** 0-10V 1%[4] **SOL** EldoLED Solo 0-10V 0.1% **D** Dali **L** Lutron LDE1 EcoSystem (fade-to-black) **DMX** Digital Multiplexing	**U** Universal 120V/277V/347V
					E ELV (120V dimming only)[7]	**1** Universal 120V/277V
					P Power over Ethernet (PoE)	**E** Ethernet 48V DC
					Only compatible with 1000 (10) to 2500 (25) lumen configurations.	

Trim

example: C4SDLNMCCP

Series	Aperture	Style	Beam[5]	Finish	Flange
C4 Calculite LED 4"	**S** Square	**DL** Downlight	**NM** Narrow and Medium **W** Wide	**CL** Specular clear **CC** Comfort clear **CD** Comfort clear diffuse	**–** White (matte) **P** Polished **F** Flangeless
				WH White (matte)	**–** White (matte) **F** Flangeless

Beam options

Trim	Narrow engine	Medium engine
Narrow & Medium	47° (0.7 s.c.)	63° (0.9 s.c.)
Wide	Not recommended	79° (1.2 s.c.)

1. Interact Pro (IP), Emergency (EM) and Chicago Plenum (LC) options are only available with New construction (N) installations.
2. Emergency (EM) frame comes with emergency battery pack and ceiling mountable test switch (see page 5).
3. Integral Interact Pro RF sensor, enables network lighting control; to be specified with 0-10V light engines only.
4. The 500lm (05) package is only compatible with 0-10V (Z10) dimming.
5. The 2500lm (25) and 3000lm (30) packages have marked spacing requirements (see page 2).
6. See Beam Options table to the left for light engine and trim combination spacing criterion.
7. ELV (E) dimming is only compatible with up to 2000lm (20) configurations.

c UL us LISTED · WET LOCATION · RoHS COMPLIANT · ENERGY STAR · interact ready.

C4SDL Calculite LED generation 3

4" square downlight

Accessories

CA4SFT	Mud-in ring for use with flangeless installations (ordered with a flangeless trim)
CAEM	Field installable EM pack
AMS	ActiLume multi-sensor (optional accessory for Power Over Ethernet configurations)
SWZDT	SpaceWise wireless controller with dwell time functionality (compatible with all 0-10V - see "SWZDT" spec sheet)

Narrow

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_NZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_NZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_NZ10U	120V	50/60Hz	0.12	360 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_NZ10U	120V	50/60Hz	0.17	490 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95
C4L25_NZ10U	120V	50/60Hz	0.22	640 mA	27W	<10%	>0.95
	277V		0.10			<15%	>0.95
C4L30_NZ10U	120V	50/60Hz	0.27	790 mA	33W	<10%	>0.95
	277V		0.13			<15%	>0.95

Medium/Wide

Light engine	Input volts	Input freq	Input current	Drive current	Input power	THD power	Power factor
C4L05_MZ10U	120V	50/60Hz	0.05	110 mA	6W	<20%	>0.95
	277V		0.03			<20%	>0.90
C4L10_MZ10U	120V	50/60Hz	0.08	230 mA	11W	<15%	>0.95
	277V		0.04			<20%	>0.95
C4L15_MZ10U	120V	50/60Hz	0.12	350 mA	16W	<10%	>0.95
	277V		0.06			<15%	>0.95
C4L20_MZ10U	120V	50/60Hz	0.16	470 mA	21W	<10%	>0.95
	277V		0.08			<15%	>0.95
C4L25_MZ10U	120V	50/60Hz	0.21	610 mA	25W	<10%	>0.95
	277V		0.09			<15%	>0.95
C4L30_MZ10U	120V	50/60Hz	0.26	770 mA	31W	<10%	>0.95
	277V		0.12			<15%	>0.95

Narrow (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___NPE	53V	51-54V	DC	160 mA	8.9 W
C4L15___NPE	53V	51-54V	DC	250 mA	13.6 W
C4L20___NPE	53V	51-54V	DC	340 mA	18.5 W
C4L25___NPE	53V	51-54V	DC	460 mA	24.6 W

Medium (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___MPE	53V	51-54V	DC	160 mA	8.8 W
C4L15___MPE	53V	51-54V	DC	250 mA	13.4 W
C4L20___MPE	53V	51-54V	DC	320 mA	17.6 W
C4L25___MPE	53V	51-54V	DC	430 mA	23.2 W

Wide (Power over Ethernet)

	Input				
Light engine	Volts[1]	Voltage[2]	Freq	Current	Power
C4L10___WPE	53V	51-54V	DC	160 mA	8.8 W
C4L15___WPE	53V	51-54V	DC	250 mA	13.4 W
C4L20___WPE	53V	51-54V	DC	320 mA	17.6 W
C4L25___WPE	53V	51-54V	DC	430 mA	23.2 W

1. Nominal input volts.
2. Preferred volt range.

Marked spacing applications

Light engine	2500 lm	3000 lm
C4L_Z10U series	—	X
C4L_LU series	X	X
C4L_DU series	—	X
C4L_DMXU series	—	X

Modules marked with an X require marked spacing:
- Center-to-center of adjacent luminaires: 24" (610mm)
- Luminaire center to side building member: 12" (305mm)

Lifetime (TM-21) data

Lumens	Narrow beam	Medium/Wide beam*
500lm **1000lm** **1500lm**	L90 @ 60,000 hrs.	L90 @ 60,000 hrs.
2000lm **2500lm** **3000lm***	L90 @ 60,000hrs.	L85 @ 60,000hrs.

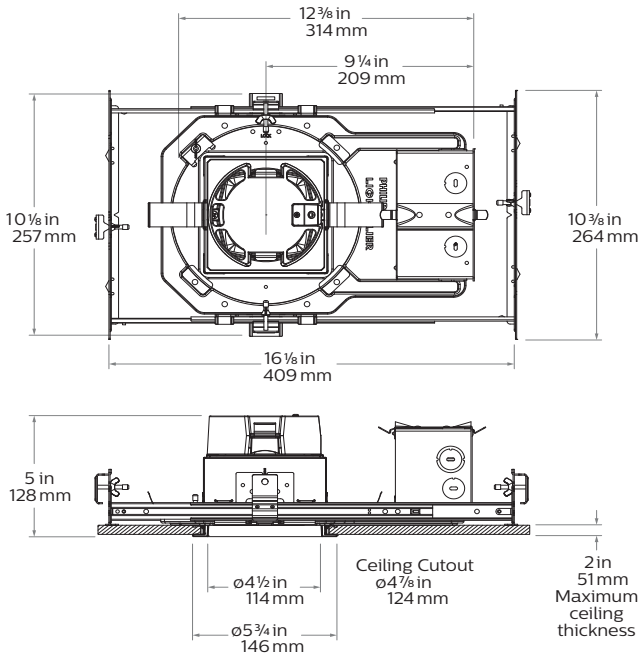
* Lutron 3000lm with Medium/Wide beam is L80 @ 60,000hrs.

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L10**

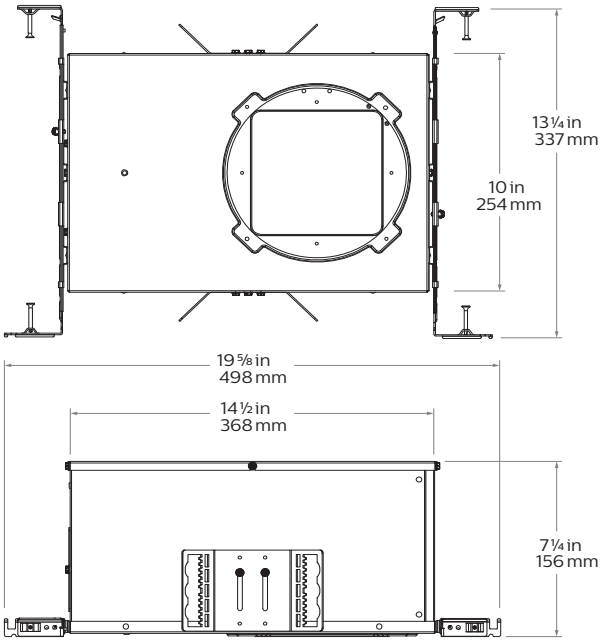
C4SDL Calculite LED generation 3

4" square downlight

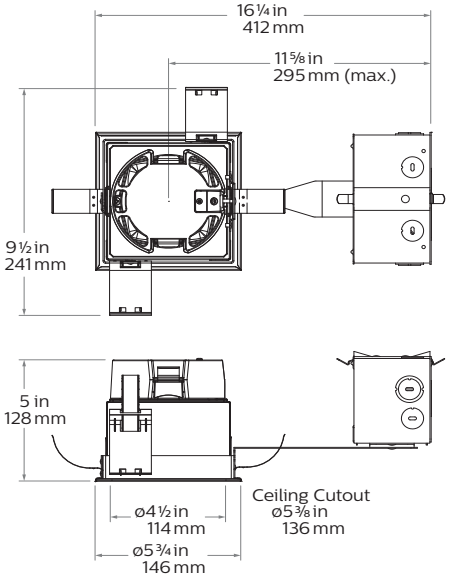
New Construction (N)



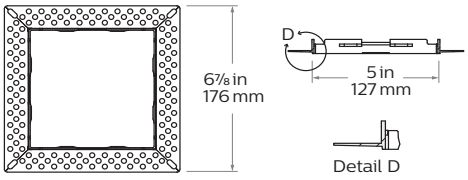
Chicago Plenum (LC)



Remodeler (R)



Flangeless mud-in ring (CA4SFT) accessory



	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L10**

C4SDL Calculite LED generation 3

4" square downlight

Reflector

Specular clear (CL): Most specular and most efficient finish, delivers maximum photometric performance but can produce a mirror image effect of the interior space.

Comfort clear (CC): Semi-specular finish that softens the light at the source of the reflector and creates a subtle, even luminance from the reflector cone.

Comfort clear diffuse (CD): Slightly diffuse clear finish, that eliminates iridescence and reduces the mirror image effect inherent with specular finishes.

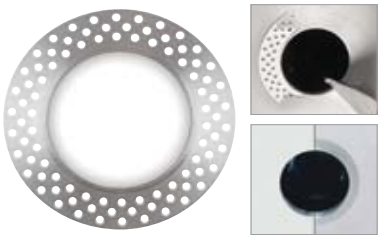
White (WH): (matte) Brightest illuminated aperture and provides the smoothest transition to most ceilings when off (white is only available with a white flange).

Flange

White (–): (matte) Provides the smoothest transition to ceilings when off.

Polished (P): (matches aperture) Produces a continuous look throughout the reflector (aperture matching).

Flangeless (F): (flush-mount)Creates a flush, virtually seamless transition from aperture to ceiling.



Mud-in ring (FT): Low profile, machined aluminum mud-in ring provides a raised rib to plaster up to and a 3/16" flange thickness. The ring is attached to the ceiling material as opposed to the frame-in kit to avoid conduction of heat and vibration which can cause yellowing or cracking of the plaster.

	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L10**

C4SDL Calculite LED generation 3

4" square downlight

Frame-in-kits

New Construction

Galvanized stamped steel for dry or plaster ceilings. Preinstalled telescoping mounting bars from 13" to 24". For 4' distances, use 1/2" EMT, 1-1/2" x 1/2" U or C channel.

Max ceiling thickness is 2".
Including PoE frame 4.88" (124 mm).

Emergency

Reflector mounted test switch requires above ceiling access. For reflector mounted test switch, order emergency frame and add "EM" suffix to reflector (example: C4SDLCCEM).

Patented install Mounting frame

With no driver attached, this versatile frame is independent of driver accommodating a wide range of lumen packages, driver types and CCTs, including 120V and 277V inputs.

Pre-installed mounting bars for fast and tool-less installs into T-grid & hat channel ceilings.

Close-cut aperture design eliminates possibility of gap between ceiling opening & reflector flange.

Separate wiring compartment for wiring frame to building allows inspection prior to light engine install.

Simple plug-and-play connection between frame and light engine from below ceiling eliminates need for wiring between frame and LED driver, and also saves time during installation and future replacements/upgrades. Plug-and-play receptacle accommodates technology upgrade of light engines and replacements for the life of the building.

Easy alignment of fixtures and present locking at 0°, 45°, & 90° with 360° rotation via tool-less locking.

Drivers

- Advance 0-10V 1% dimming
- Lutron Hi-lume EcoSystem H Series 1% dimming
- EldoLED ECOdrive Dali 1% dimming
- EldoLED SOLOdrive 0-10V 0.1% dimming
- ELV dimming and DMX dimming

Power over Ethernet

Powered via Philips PoE lighting controller: complies with FCC rules per Title 47 part 15 (Class A) for EMI / RFI (conducted & radiated). PoE lighting controller accessible from below ceiling.

Rated life: 60,0000 hrs at 70% lumen maintenance based on IES LM-80-08 and TM-21-11.

Interact Pro (IAP)

- Interact Pro brings the power of connected lighting to small and medium businesses without the complexity usually associated with connected lighting.
- Interact Pro includes an app, a portal and a broad portfolio of wireless Luminaires, lamps and retrofit kits all working on the same system.
- Commissioning via Interact Pro App (Android or iPhone)
- Prepare commissioning remotely via Interact Pro portal
- Requires compatible Interact Pro Gateway and internet connectivity for commissioning
- Compatible with UID8451/10 ZigBee Greenpower wireless dimmer switch
- Compatible with wireless Occ sensor (OCC SENSOR IA CM IP42 WH 10/1) or wireless Day/Occ sensor (OCC MULTI SENSOR IA CM WH 10/1)
- For more information on Interact Pro visit: www.interact-lighting.com/pro
- For more information on Interact Ready visit: www.philips.com/interactready

Optical systems

Comfort throughout the space:
Patented optical system combines primary and secondary optics to provide a true 50° physical cutoff and 45° reflected cutoff virtually eliminating the view of the light source and bright spots in the reflector. A new reflector curve reduces reflector brightness by up to 50% compared to existing products, allowing for the use of higher lumen packages in smaller apertures without creating bright spots in the ceiling.

Quality of light: 2 SDCM ensures color consistency from fixture to fixture and over the luminaire's long lifetime. Proprietary optical grade silicone lens with patterned surface provides soft, even beam diffusion without hotspots or dark rings.

Light Engine

Quick connect power pack comprised of light source and driver allow for easy installation and replacement from below ceiling with no need for additional wiring. This allows for

- Frame and ceiling installation to be performed while still finalizing details such as lumen packages, CCT and control type.
- Easy replacement of electronics at end of life with minimal wasted material and labor required.
- Ease and upgradability of technology.

Options and Accessories

Flangeless mud-in ring: Use **CA4SFT** for use with flangless plaster installations.

ENERGY STAR® exceptions

- 500lm & 90 CRI configurations
- Champagne Bronze & Black finishes
- 347V & Emergency voltage/options
- Dali, EldoLED Solo & PoE drivers

Title 24 exceptions

- 1000lm configurations
- Champagne Bronze & Black finishes

Labels and Listings

- cULus listed for wet location
- ENERGY STAR® certified
- RoHS certified
- CEC Title 24 JA8 certified
- CCEA (frames with *LC suffix)
- IBEW Union made (light engines & reflectors)

Warranty

5 year warranty on complete system.

Complete warranty available at: http://images.philips.com/is/content/PhilipsConsumer/PDFDownloads/United%20States/ODLI20150930_003-UPD-en_US-Philips-warranty-indoor-PLS-us.pdf

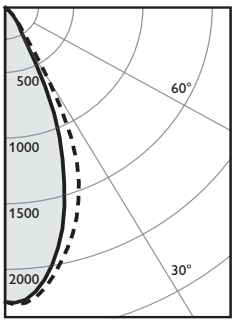
	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L10**

C4SDL Calculite LED generation 3

4" square downlight

Narrow beam, 1500lm Engine, 93.0 lm/w at 14.7W or 100.6 lm/W at 13.6W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835NZ10U**
Trim: **C4SDLNMCL**

CCT[1]:	3500K
Output lumens:	1369 lms
Input watts:	14.7 W (±5%)
CRI:	80 min
Spacing Crit.:	0.7
Beam Angle:	45°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1142	83.4%
0-40	1311	95.7%
0-60	1369	100.0%
0-90	1369	100.0%

Angle	0°	45°	Lms
0	2242	2242	
5	2206	2238	207
10	1995	2072	
15	1661	1845	488
20	1234	1568	
25	783	1196	447
30	334	637	
35	197	264	168
40	132	156	
45	73	87	58
50	0	0	
55	0	0	0
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	90	3.5'
6'	62	4.2'
7'	46	4.9'
8'	35	5.6'
9'	28	6.3'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	63.4	0.65
6'	41.6	0.43
7'	29.7	0.31
8'	24.8	0.25
9'	19.8	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 93.0 lm/w
Report[2]: T20161391

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 107%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 99%	2000lm = 133%
CZ = 63%	80CRI 2700K = 93%	1500lm = 100%
WH = 87%	90CRI 3000K = 87%	1000lm = 67%
BK = 57%	90CRI 2700K = 81%	500lm = 33%

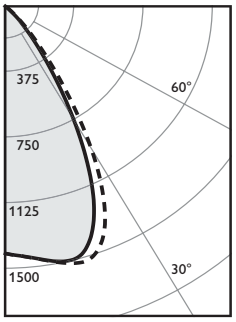
Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	112	109	107	109	106	105	102	102	99	95
2	109	105	101	98	103	97	100	95	97	93	89
3	104	99	94	91	97	90	95	88	92	87	84
4	100	93	88	84	92	84	90	83	88	82	80
5	95	88	83	79	87	79	85	78	84	77	75
6	91	83	78	74	83	74	81	73	80	73	71
7	87	79	74	70	78	70	77	69	76	69	67
8	84	75	70	66	75	66	74	66	73	66	64
9	80	72	66	63	71	63	70	62	69	62	61
10	77	68	63	60	68	60	67	59	66	59	58

Room Cavity Ratio

Medium beam, 1500lm Engine, 103.8 lm/w at 14.2W or 110.1 lm/W at 13.4W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835MZ10U**
Trim: **C4SDLNMCL**

CCT[1]:	3500K
Output lumens:	1475 lms
Input watts:	14.2 W (±5%)
CRI:	80 min
Spacing Crit.:	0.9
Beam Angle:	58°

Zonal summary

Zone	Lumens	%Luminaire
0-30	1092	74.0%
0-40	1393	94.5%
0-60	1475	100.0%
0-90	1475	100.0%

Angle	0°	45°	Lms
0	1414	1414	
5	1442	1442	139
10	1481	1484	
15	1494	1522	422
20	1387	1485	
25	1119	1287	531
30	755	943	
35	430	561	301
40	217	285	
45	100	129	82
50	0	0	
55	0	0	0
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	57	4.5'
6'	39	5.4'
7'	29	6.3'
8'	22	7.2'
9'	17	8.1'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	67.5	0.63
6'	44.3	0.41
7'	31.6	0.30
8'	26.4	0.25
9'	21.1	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 103.8 lm/w
Report[2]: T20161398

Adjustment factors

Finish	CCT	Lumens
CL = 100%	80CRI 4000K = 102%	3000lm = 200%
CC = 95%	80CRI 3500K = 100%	2500lm = 167%
CD = 87%	80CRI 3000K = 97%	2000lm = 133%
CZ = 63%	80CRI 2700K = 87%	1500lm = 100%
WH = 87%	90CRI 3000K = 77%	1000lm = 67%
BK = 57%	90CRI 2700K = 73%	500lm = 33%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	114	111	109	106	109	105	105	101	101	98	94
2	108	103	99	96	102	95	98	93	96	91	87
3	103	97	92	88	95	87	93	86	90	84	82
4	98	90	85	81	89	80	87	79	85	78	76
5	93	85	79	75	84	74	82	74	80	73	71
6	88	79	74	69	79	69	77	69	76	68	66
7	84	75	69	65	74	64	73	64	72	64	62
8	80	70	64	60	70	60	69	60	68	60	58
9	76	66	61	57	66	57	65	56	64	56	55
10	72	63	57	53	62	53	62	53	61	53	51

Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

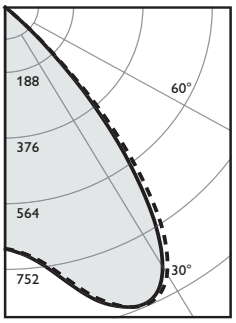
	Description : C4SN / C4L20840MZ10U / C4SDLNMCL **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **L10**

C4SDL Calculite LED generation 3

4" square downlight

Wide beam, 1500lm Engine, 90.8 lm/w at 14.2W or 96.1 lm/W at 13.4W (Power over Ethernet)

Candela Curve



Frame: **C4SN or 4SN**
Engine: **C4L15835MZ10U**
Trim: **C4SDLWCL**

CCT[1]:	3500K
Output lumens:	1288 lms
Input watts:	14.2 W (±5%)
CRI:	80 min
Spacing Crit.:	1.2
Beam Angle:	69°

Zonal summary

Zone	Lumens	%Luminaire
0-30	725	56.3%
0-40	1141	88.6%
0-60	1288	100.0%
0-90	1288	100.0%

Angle	0°	45°	Lms
0	688	688	
5	713	709	69
10	766	757	
15	846	837	237
20	907	904	
25	923	928	419
30	854	878	
35	666	720	416
40	410	466	
45	163	181	146
50	28	27	
55	0	0	1
60	0	0	
65	0	0	0
70	0	0	
75	0	0	0
80	0	0	
85	0	0	0
90	0	0	

Single unit data

Height to lighted plane	Initial center beam foot-candles	Beam diameter (ft)*
5'	28	6.0'
6'	19	7.2'
7'	14	8.4'
8'	11	9.6'
9'	8	10.8'

* Beam diameter is where foot-candles drop to 50% of maximum.

Multiple unit data - RCR 2

Spacing on center	Initial center beam foot-candles	Watts per sq. ft.
5'	57.9	0.63
6'	38.0	0.41
7'	27.1	0.29
8'	22.6	0.25
9'	18.1	0.20

38' x 38' x 10' Room, Workplane 2.5' above floor, 80/50/20% Reflectances

Efficacy: 90.8 lm/w
Report[2]: T20161399

Adjustment factors

Finish		CCT		Lumens	
CL	= 100%	80CRI 4000K	= 102%	3000lm	= 200%
CC	= 95%	80CRI 3500K	= 100%	2500lm	= 167%
CD	= 87%	80CRI 3000K	= 97%	2000lm	= 133%
CZ	= 63%	80CRI 2700K	= 87%	1500lm	= 100%
WH	= 87%	90CRI 3000K	= 77%	1000lm	= 67%
BK	= 57%	90CRI 2700K	= 73%	500lm	= 33%

Coefficients of utilization

Ceiling	80%				70%		50%		30%		0%
Wall	70	50	30	10	50	10	50	10	50	10	0
RCR	Zonal cavity method - Effective floor reflectance = 20%										
0	119	119	119	119	116	116	111	111	106	106	100
1	113	110	107	105	108	103	104	100	100	97	93
2	107	102	97	93	100	92	97	90	94	88	85
3	101	94	88	84	92	83	90	82	87	81	78
4	95	87	80	76	85	75	83	74	81	74	71
5	89	80	74	69	79	69	77	68	75	67	65
6	84	74	67	63	73	63	72	62	70	62	60
7	79	69	62	57	68	57	67	57	65	57	55
8	74	64	57	53	63	53	62	52	61	52	50
9	70	59	53	49	59	48	58	48	57	48	46
10	66	56	49	45	55	45	54	45	53	44	43

Room Cavity Ratio

1. Correlated Color Temperature within specs as defined in ANSI_NEMA_ANSLG C78.377-2008: Specifications for the Chromaticity of Solid State Lighting Products.
2. Tested using absolute photometry as specified in LM79: IESNA Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products.

Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Philips Lighting Canada Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE L11, Finelite HP-WS Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Ledalite, 4908LAEQSN0471E

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : **4908LAEQSN0471E** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L11**

TYPE L11

PHILIPS
LEDALITE

Linear

TruGroove perimeter ambient

3000 lm/4ft
3000/3500/4000K

LED

Project:	
Spec Type:	
Catalog No:	4908LxEQ
Qty	
Line Notes:	

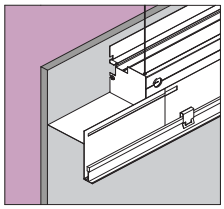
Placing emphasis where it belongs... Philips Ledalite brings you the latest high performance lighting solution for your designer toolbox, TruGroove LED perimeter ambient and graze. Whether your desire is to set the mood or create a statement, TruGroove lets you emphasize with illumination.

Ordering guide

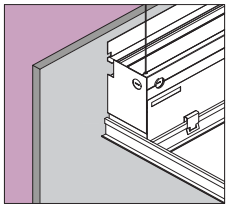
Product Type	Source	Color Temp *	Lumens *	Optics	Housing	Ceiling / Trim	Run Length	Wiring †	Voltage	Driver
4908	L		E	Q	S					
TruGroove Perimeter Ambient	L LED	A 4000K B 3500K C 3000K	D 4100 lm/4ft E 3000 lm/4ft G 2100 lm/4ft K 1400 lm/4ft	Q Flush MesoOptics Lens	S Standard C Chicago Plenum	N All Ceiling Trims *Refer to separate slot & ceiling trim selection.*	02 2ft 03 3ft 04 4ft 05 5ft 06 6ft 08 8ft XX Total wall length from 2ft (to 1/8")	7 1 cct Dimming M 1 cct Dimming + EM Wiring N 1 cct Dimming + EM Batt. Pack	1 120V 2 277V 3 347V	E Philips Advance 0-10V (1% dim) *Other drivers available - consult your Philips representative*

* Nominal values within a range. Consult photometry data for color temp, lumens & distribution of chosen configuration.
† Not all wiring types are available with all configurations. Consult Philips Ledalite for a complete list of available options.

Endsets (Left/Right) -



C Variable/Wall endplate



S Fixed/Pocket endplate (S)

Slot & Ceiling Trim -

Slot Height	Slot Panel	Ceiling Trim
2 1.75"	S Standard Solid	1 T-Grid
4 4"	A Air Return**	3 Drywall Trimless
		4 Drywall Trim

** Air Return is only available with a 4" slot height and T-Grid ceiling trim (e.g. 4A1)

5 YEARS FIXTURE + LED + DRIVER

mesoOptics

	Description : **4908LAEQSN0471E** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L11**

TruGroove Perimeter Ambient

3000 lm/4ft
3000/3500/4000K

Optical System

Ambient: An extruded flush lens assembly with MesoOptics film is used to homogenize and control light from a linear array of downward-facing LEDs. This delivers a uniform, discreet ambient 'glow' along the top of a wall as well as directing fill light into the space.
Graze: A highly efficient parabolic reflector mounted in the reverse orientation from the wall focuses light from an angled array of LEDs into a tight linear beam. This creates dramatic grazing shadow effects down the length of a textured wall with textures 1/16" - 1" deep.

Slot & Trim

Lit modules are regressed into a provided slot, 4" deep as standard or 1.75" deep for narrow plenums. The standard slot avoids direct view of the optics when standing 3' or more from a 9' wall. Slot panels are available to integrate with T-grid or drywall ceilings. The drywall edge can be finished with either a supplied visible extruded aluminum trim or a mud-in 'trimless' flange.

Ends & Corners

The perimeter slot can be terminated at a chosen position with a flat / pocket end; or at a feature or wall with a variable length / wall end containing a sliding panel to close the plenum. All corners are variable length, with sliding panels and trimmable covers, available in 90° inside or outside versions. Other angles may be handled by request.

Housing

Precision aluminum extrusion, powder coated in white (Ambient) or black (Graze).

Weight

Maximum: Ambient 3.6lb/ft, Graze 3.8lb/ft

Electrical

Factory pre-wired to section ends with quick-wire connectors.

Standard Driver

Philips Advance Xitanium 0-10V, 1-100%.
Class 2 rated output. Consult Philips Ledalite for other available drivers.

Standard Battery Pack

Philips Bodine, 90 min, 10W, Class 2 rated output, Emergency lumen output = 10W x luminaire efficacy x 1.1. Typical output: 1100lm.
Available in ambient version.

Lumen Maintenance

LEDs have been tested by the manufacturer in accordance with IESNA LM-80-08. At an ambient temperature of 25°C, the LED lumen maintenance expectation according to IES TM-21-11 **Reported** methodology is:
L_{80} (12k) >72,000 hrs.

Source Color

LEDs rated for color rendering CRI >80, R9 >0 and fixture to fixture color accuracy within 2 SDCM.

Mounting

Modules are supported on the wall side by a hidden extruded aluminum rail. On the ceiling side, support and final height adjustment are provided by an aircraft cable and gripper system attached to a bracket on the ceiling structure. Slot panels for closing the plenum are attached using either clips in the case of T-grid ceiling, or a screw mounted finishing trim for drywall.

Joints

Self-aligning joining system with hands-free pre-joining wire access.

Approvals

Certified to UL, CSA and IES standards.

Warranty

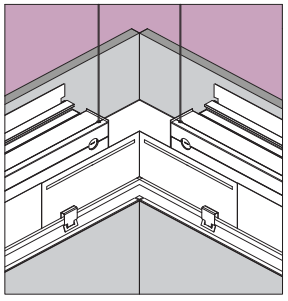
Philips indoor professional luminaires 5 year LED warranty: **http://www.philips.com/warranties**

Environment

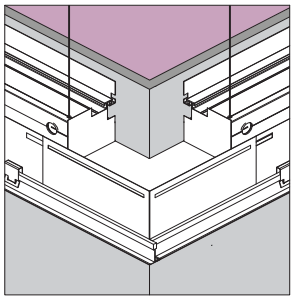
Rated for dry or damp locations in operating ambient temperatures 0-40°C (32-104°F). Certain luminaire components may be adversely affected by contaminants. Damage caused by sulfur, chlorine, petroleum based solutions or other contaminants in the area of operation are not covered under warranty. Not suitable for natatorium environments.

Corners

(grid shown)

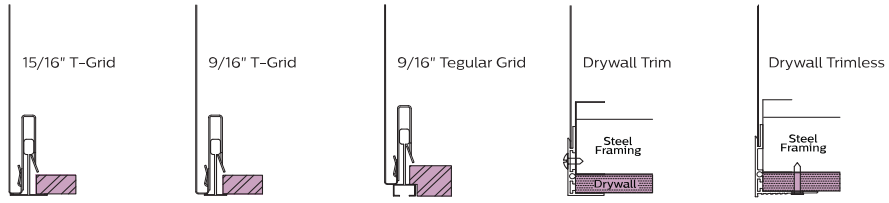


Inside Corner



Outside Corner

Ceiling Trims

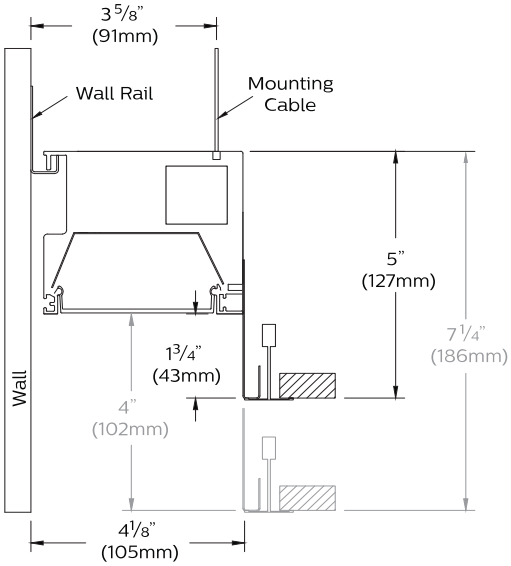


	Description : **4908LAEQSN0471E** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L11**

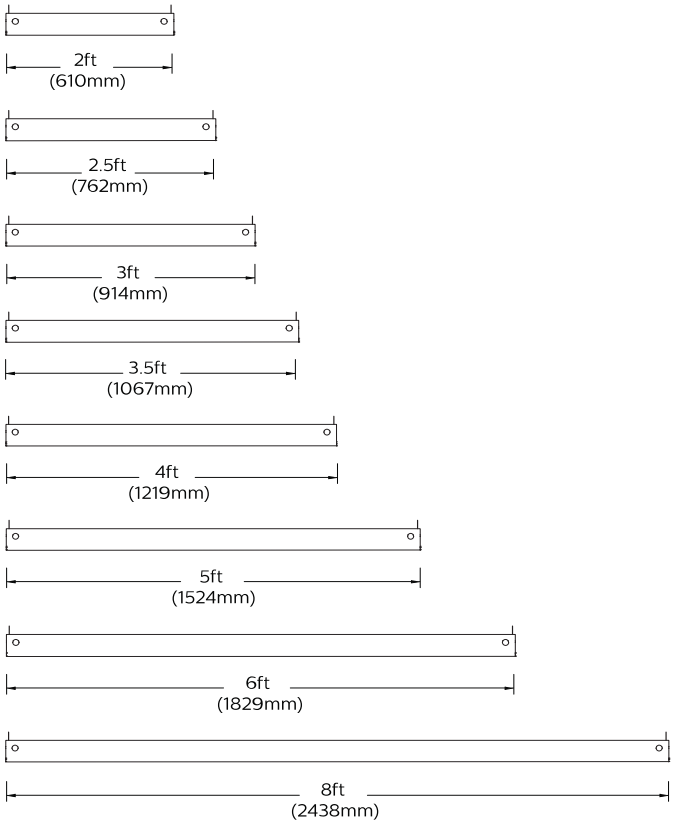
TruGroove Perimeter Ambient

3000 lm/4ft
3000/3500/4000K

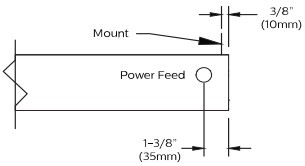
Dimensions



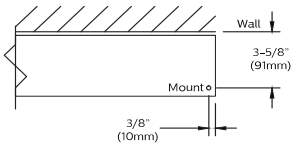
Modules



Side View



Top View



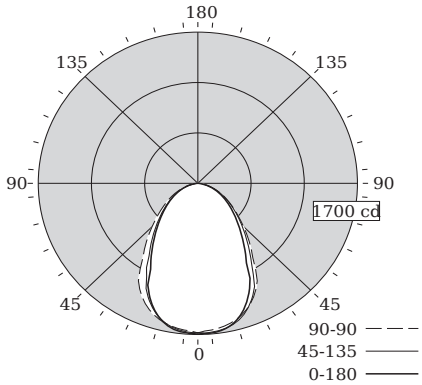
Power feed location available on room side 1-3/8" (35mm) from each joint or end condition.

	Description : **4908LAEQSN0471E** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **L11**

TruGroove Perimeter Ambient

3000 lm/4ft
3000/3500/4000K

Photometry - 3500K



0% Up / 100% Down

Candela Distribution

Vertical Angle	Horizontal Angle 0	45	90	135	180	Zonal Lumens
0	1682	1682	1682	1682	1682	0
5	1687	1680	1656	1670	1682	159
15	1592	1610	1584	1567	1568	445
25	1304	1387	1407	1305	1262	611
35	860	966	1020	883	833	586
45	584	659	690	598	568	489
55	392	435	445	394	382	373
65	239	267	270	237	236	252
75	113	131	127	109	115	129
85	24	33	27	22	28	32
90	0	0	0	0	0	0
95	0	0	0	0	0	0
105	0	0	0	0	0	0
115	0	0	0	0	0	0
125	0	0	0	0	0	0
135	0	0	0	0	0	0
145	0	0	0	0	0	0
155	0	0	0	0	0	0
165	0	0	0	0	0	0
175	0	0	0	0	0	0
180	0	0	0	0	0	0

Fixture photometry has been conducted in accordance with IESNA LM-79-08

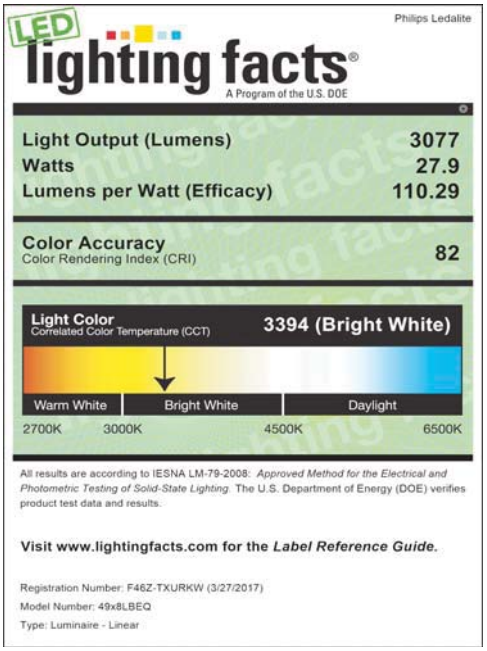
IES files for this and other photometric options can be downloaded online at www.lightingproducts.philips.com

Coefficients of Utilization (%)

RCR	Ceiling:	80				70			50			0
	Wall:	70	50	30	10	70	50	30	50	30	10	0
0		119	119	119	119	116	116	116	111	111	111	100
1		110	106	103	99	108	104	101	100	97	95	87
2		102	95	89	84	99	93	87	89	85	81	75
3		94	85	78	72	92	83	77	80	75	70	66
4		87	76	69	63	85	75	68	73	66	61	58
5		81	69	61	55	79	68	61	66	59	54	51
6		75	63	55	49	73	62	55	61	54	49	46
7		70	58	50	44	69	57	50	56	49	44	42
8		66	53	46	40	64	53	45	52	45	40	38
9		62	50	42	37	61	49	42	48	41	37	35
10		58	46	39	34	57	46	39	45	38	34	32

Avg. Luminance (cd/m2)

Vertical Angle	Horizontal Angle 0	90	180
55	7363	8351	7164
65	6087	6882	6005
75	4700	5265	4788
85	2965	3358	3463



Distribution

Hemisphere	0% Up / 100% Down
Glare Control	Meets RP-1-12 recommendations for VDT-Normal spaces
Spacing Along (0 °)	1.04
Spacing Across (90 °)	1.14
Spacing at 180 °	0.99

	Description : 4908LAEQSN0471E Project Name: WOODBURN CITY HALL REMODEL Notes:	TYPE: L11

TruGroove Perimeter Ambient

3000 lm/4ft
3000/3500/4000K

Optical Performance

Nominal CCT:	3000K	3500K	4000K
Flux (lm)	2937	3077	3102
Efficacy (lm/W)	106.8	110.3	112.0
Power (W)	27.5	27.9	27.7
CCT (K)	3120	3394	4083
CRI	85	82	84
R9	15	4	10
x	0.4279	0.4108	0.3773
y	0.3995	0.3922	0.3763
Duv	0.0006	0.0006	0.0008

Electrical Performance - 3500K

Input Voltage	120V	277V	347V
Input Power	27.9W	28.0W	27.9W
Input Current	0.24A	0.10A	0.08A
Power Factor	0.950	0.994	0.951
Total Harm. Distortion	14.7%	8.2%	12.0%

Tested values . contact technical support for rated values. Off-state power zero unless certain controls are specified.

Philips Lighting, North America Corporation
200 Franklin Square Drive, Somerset, NJ 08873
Tel. 855-486-2216

Philips Lighting Canada Ltd.,
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

PLANS	E002	LUM SCHD	TYPE X1, Lithonia EDG Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Evenlite, SOVEMR1CBARCUC

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : **SOVEMR1CBARCUC** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **X1**

TYPE X1

Sovereign

LED Exit Signs

Architectural Edgelit

Recessed Ceiling Mount

Surface Wall Mount

Surface Ceiling Mount

New Flat Trim for Recessed Ceiling Mount

Surface End Mount

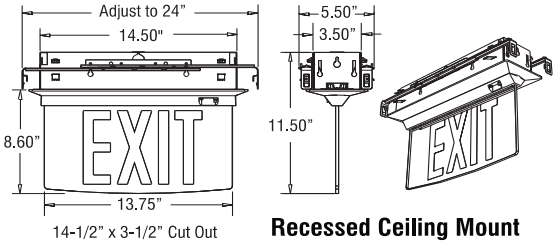
EYE APPEAL

Sovereign LED edgelit exit signs set the standard for architectural appeal; always enhancing their surroundings and pleasing even the most discerning eye.

Subtle lines and soft curves create a distinctive “floating” edgelit look. Quality construction includes precision die cast aluminum housings with a unique, crystal clear, laser-formed thin acrylic legend.

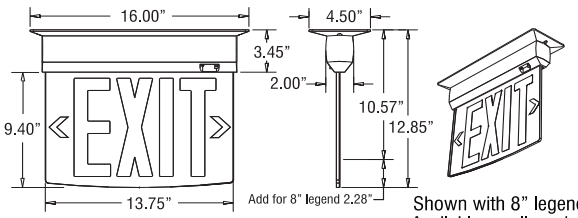
The Sovereign has been designed with the latest high efficiency LED light sources to provide vivid pronouncement of its exit legend with exceptional uniformity and luminance levels – 4X the UL requirement.

Engineered for reliability and ease of installation, Sovereign comes in many cost-effective configurations offering superlative quality, performance, and aesthetics.



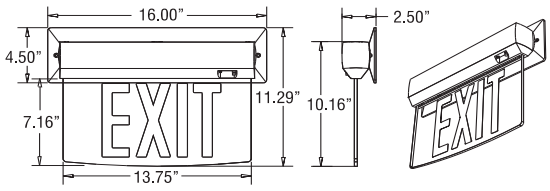
14-1/2” x 3-1/2” Cut Out

Recessed Ceiling Mount

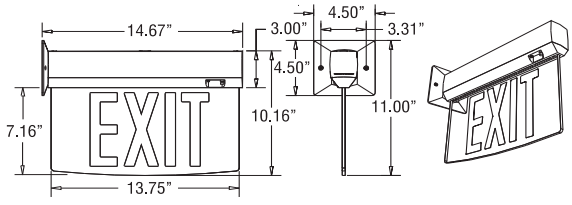


Surface Ceiling Mount

Shown with 8” legend
Available on all models

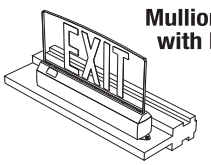


Surface Wall Mount



Surface End Mount

Pendant Mount



Mullion Mount with Inverted Legend

Power Consumption				
Type		**Volts**	**Max Watts**	**Power Factor**
RED	AC Only	120 / 277	1.5	.70
RED	Battery Backup	120 / 277	2.5	.70
RED	Battery Backup with Remote	120 / 277	3.0	.73
GREEN	AC Only	120 / 277	2.3	.70
GREEN	Battery Backup	120 / 277	3.0	.76
GREEN	Battery Backup with Remote	120 / 277	4.0	.81

UL LISTED

CEC Title 20 Compliant

EVENLITE
LIFE SAFETY LIGHTING SOLUTIONS

2575 Metropolitan Drive, Trevose, PA 19053 • USA
TEL: (800) 872 0879 • FAX:(215) 244 4208 • www.evenlite.com

Project name:	*Approved By:*
Catalog No:	*Type No:*

	Description : **SOVEMR1CBARCUC** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **X1**

Sovereign LED Exit Signs

FEATURES

- Diagnostic Battery Monitoring on all "EM" models
- Maintenance free LED Light source with 25+ years life expectancy
- Contoured crystal clear laser formed edgelit lens
- Refractive light guide engineered to optimize LED utilization and illumination uniformity
- Lens Panel is "Last-to-Assemble" snap-in for versatility and ease of installation
- Full size universal, self-adhesive Chevron arrows with template enable on-site configuration
- Available with a range of information signage or custom graphics to order
- Custom legends with white LED light source available to order
- Precision pressure die cast aluminum legend holder, trim and surface mount housing
- Quality brushed aluminum sealed finish is standard, optional White, Black, brushed painted Brass finishes available. Consult factory for custom finishes.
- Hinged retaining springs eliminate exposed mounting hardware on recessed model
- Modular design provides ease of installation and matching configurations
- Low profile recessed housing is suitable for old or new work installations and is Type IC Rated
- Recessed ceiling back box features universal adjustable mounting brackets with quick-fit retaining clips to suit most ceiling types
- Slimline low profile surface mount housing eliminates need for recessing box in wall mount applications
- Available with Master/Remote combinations
- Battery Diagnostic Circuit monitors battery status, detects cell failure and issues alert of reduced capacity and the need to replace battery
- Unique electronic driver circuit provides current control and protection ensuring optimum LED efficiency and life
- Universal 120/277 VAC field selectable input. All versions feature fully integral electronic components
- Premium long life high temperature rated, fused Nickel Cadmium battery
- Recessed AC Indicator and Test Switch
- Brownout sensing assures emergency illumination during periods of low line voltage
- Self-compensating solid state Constant Current Charger provides extended float life and rapid recharge
- Zero current LVCO ensures positive charge acceptance following extended discharge
- Approved for use in New York City calendar #48851
- UL Listed 3 hour emergency duration standard
- UL 924 Listed by Underwriters Laboratories and meets or exceeds all performance standards as required by NFPA 101, NFPA 70-NEC and OSHA
- California Energy Commission (CEC) Title 20 Compliant
- 5 year limited warranty

ORDERING GUIDE

SOV							
Model	**Operation**	**Legend Size/ Letter Color**	**Faces/ Background**	**Trim/ Housing Color**	**Mounting**	**Chevron Direction**	**Options**
SOV	**AC** AC Only 120/277 VAC **EM** Battery Backup Emergency	**R** RED Standard 6" EXIT **G** GREEN Standard 6" EXIT **NR** RED 8" EXIT **NG** GREEN 8" EXIT	**1C** Single Face, Clear Background (standard) **1M** Single Face, Mirror Background **2M** Double Face, Mirror Background (Mirror simulates clear background for double face exits) **1W** Single Face, White Background **2W** Double Face, White Background	**BA** Brushed Aluminum (standard) **WH** White Finish **BK** Black Finish **BR** Brushed Brass Painted Finish **CC** Custom Color (specify)	**Standard Mounting** **RC** Recessed Ceiling **SC** Surface Ceiling **SW** Surface Wall **SE** Surface End **Optional Mounting** **MM** Mullion Mount **PA** 12 " Swivel Pendant Mount **PB** 24" Swivel Pendant Mount **PC** 36" Swivel Pendant Mount **PD** 48" Swivel Pendant Mount	**UC** Field Installed Adhesive Chevron Indicators **AR** Arrow Right EXIT> **AL** Arrow Left <EXIT **AA** Double Arrow <EXIT> **LR** Arrow Left/ Arrow Right <EXIT/EXIT> (Double Face units only) *Factory installation of Chevrons is recommended for Double Face Signs*	**DK** Two Circuit Input –Specify Input Voltage (AC Models only) **DL** Damp location listed **EU** Euro Legends (Consult factory for full range) **F** Flash in Emergency Mode (EM Models) or continuous Flash in AC models **FA** Flash in AC and Emergency mode on 12-24V (AC or DC) normally-off fire alarm signal (Available for AC and EM models) **FB** FA Option including Buzzer **FZ** F Option including Buzzer **FP** Flat Panel (no curve on panel bottom) **FT** Flat Trim for Recessed Ceiling Mount **IN** Inverted Legend – Use with Mullion Mount **IR** Self-Diagnostics with Infrared remote Testing (EM models only) **TLRT** Infrared hand held Transmitter (order separately) **LL** High/Low Level Master and Remote (available for AC and EM Models-Remote is Die Cast Exit Razor to match master) **SD** Self-Test / Self-Diagnostic(EM models Only) **VA** Other Input Supply Voltage (Consult Factory)

Example: SOV-EM-R-1C-BA-RC-AR-SD-FT

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SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

260943	2	2.5	TYPE NLC, Greengate Network Lighting Controls
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: WattStopper, DLM

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

	Description : **DLM** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **NLC**

TYPE NLC

WATTSTOPPER

DIGITAL LIGHTING MANAGEMENT

legrand®

DIGITAL LIGHTING MANAGEMENT

Plug n' Go™ automatic configuration for quick installation and maximum energy savings

Optional networking for scheduled control and remote system management

Full suite of digital room controllers, occupancy sensors, switches, panels and more

Push n' Learn™ for simple personalization and wireless tool for ladder-free configuration

Plugs together using Cat 5e cables with RJ45 connectors eliminating wiring errors

Integrates plug load and lighting control

Description

Digital Lighting Management (DLM) is an intelligent, distributed control system that automatically maximizes lighting energy efficiency. DLM includes room controllers, occupancy sensors, switches, daylighting sensors, plug load controls, lighting control panels, interfaces and accessories that provide convenient, energy-saving control of dimmed and switched loads. DLM can be used for stand-alone control of individual building spaces, or for centralized control of a floor, a building, or an entire campus.

Operation

Digital Lighting Managment components operate on a free-topology DLM local network. Each DLM local network is managed by one or more room controllers that, upon startup, automatically configure system components for the most energy-efficient sequence of operation using Plug n' Go technology. Devices may be personalized using Push n' Learn pushbutton programming. DLM sensors and switches feature two-way infrared (IR) communication that enables personal control from handheld remotes. An optional handheld IR wireless configuration tool may be used to view and modify system parameters, and store occupancy sensor settings. Additionally, multiple local networks may be connected to a BACnet-compatible segment network for centralized monitoring and management (see Segment Network section).

Plug n' Go and Push n' Learn

Plug n' Go establishes default functionality based on the installed components. If a local network includes only a room controller and an occupancy sensor, it will default to auto-on/auto-off operation. If it includes a single relay room controller, an occupancy sensor and a switch, it will default to manual-on/auto-off operation. A dual relay room controller, an occupancy sensor and a switch will default to bi-level auto-on/auto-off operation; relay 1 turns on automatically while relay 2 defaults to manual-on (both automatically shut off). Push n' Learn mode allows any load to be selected and assigned to any sensor(s), switch(es) and switch button(s). It also allows load parameters such as operating mode (manual- or auto-on), blink warning and daylighting setpoints to be modified.

Energy Savings Beyond Code

Digital Lighting Management has been engineered to meet and exceed energy codes, facilitate sustainable development and provide an unprecedented return on investment for both new construction and retrofit projects. Features, such as bi-level control, daylight harvesting, plug load control and dimming are provided by a range of room controllers, sensors and switches that control multiple lighting sources in a wide variety of applications. DLM simplifies designing for ASHRAE 90.1, IECC, EPAct, California Title 24 and LEED.

Features

- Sensors and switches include infrared (IR) transceiver for bi-directional communication
- On/off and dimming control options
- Handheld remotes for personal control
- Digital sensors feature easy-to-read LCD displays
- Includes self-calibrating open loop daylighting sensor
- Components plug together in any configuration on free-topology Category 5e DLM local networks
- Boot loading capable for firmware upgrades
- All DLM products are RoHS compliant

PROJECT		LOCATION/ TYPE	

	Description : **DLM** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **NLC**

Wattstopper DLM Local Network Parameters

- Communication and power delivered via Cat 5e cables with RJ45 connectors
- 24VDC power provided by room controller(s)
- Room controllers provide cumulative current output; maximum network capacity 800mA
- Free topology permits both star and daisy-chain connection patterns
- Up to 1,000' of cable per DLM local network; 150' allowance per DLM communicating device
- Supports Plug n' Go (patented) and Push n' Learn technologies

When only LMRC-100 Series, LMPB-100 and/or LMPL-101 Load Controllers are used:

- 150mA per controller (maximum 4)
- Up to 24 communicating devices
- Up to 8 loads

When LMRC-110, -210, -220 Series and/or LMPL-201 Load Controllers are used:

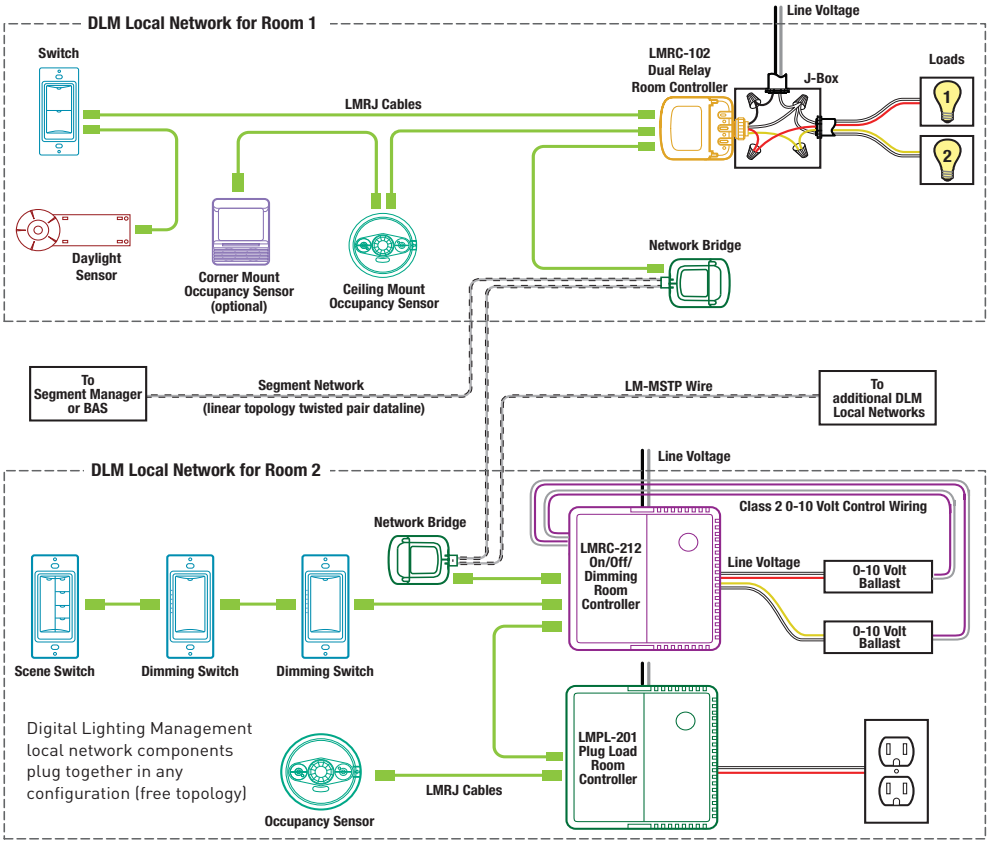
- Up to 150mA per LMRC-110 Series or 250mA per 200 Series controller (output is limited if network is fully powered)
- Up to 48 communicating devices
- Up to 64 loads
- Up to 4 LMRC-100 Series, LMPB-100 and/or LMPL-101 Load Controllers

DLM Segment Network (MS/TP) Parameters

- RS485 network, BACnet MS/TP twisted pair, baud rate 9600, 19200, 38400, 76800 or 115200 selectable
- Wattstopper LM-MSTP wire, rated for BACnet MS/TP (RS485)
- Linear topology (daisy chain wiring); 4,000' max per segment
- Up to 40 DLM local networks, or up to 300 DLM devices, connected via LMBC-300 Network Bridge. LMCP panels added via equivalency chart (see TB# 189).

Connecting

Two DLM local networks connected to optional DLM segment network



Each segment network can connect up to 40 local networks, or up to 300 DLM devices, for centralized monitoring and control

	Description : **DLM** **Project Name:** **WOODBURN CITY HALL REMODEL** **Notes:**	TYPE: **NLC**

Segment Network Control Options

Description

Digital Lighting Management is designed to scale from individual rooms to whole buildings and campuses. For building-wide monitoring and management, multiple DLM local networks may be connected to an industry standard open protocol network for control by a segment manager or building automation system (BAS). Networking also allows lighting control panels to be incorporated into a DLM system.

Operation

Because DLM uses a robust bottom-up design architecture, based on individual rooms, segment network operation is simple; it builds on the Plug n' Go and Push n' Learn functionality of each local network. Building operators can create normal and after hours lighting control schedules and conveniently monitor and fine tune DLM operation for even greater energy savings. They can also monitor power consumption in real time (requires enhanced room controllers).

BACnet Compatibility

System integrators can quickly and easily incorporate new or existing DLM systems into BACnet MS/TP and BACnet/IP networks. DLM Network Bridge devices are standard MS/TP master devices, and the MS/TP MAC address is automatically configured through arbitration with other devices on the network.

Applications

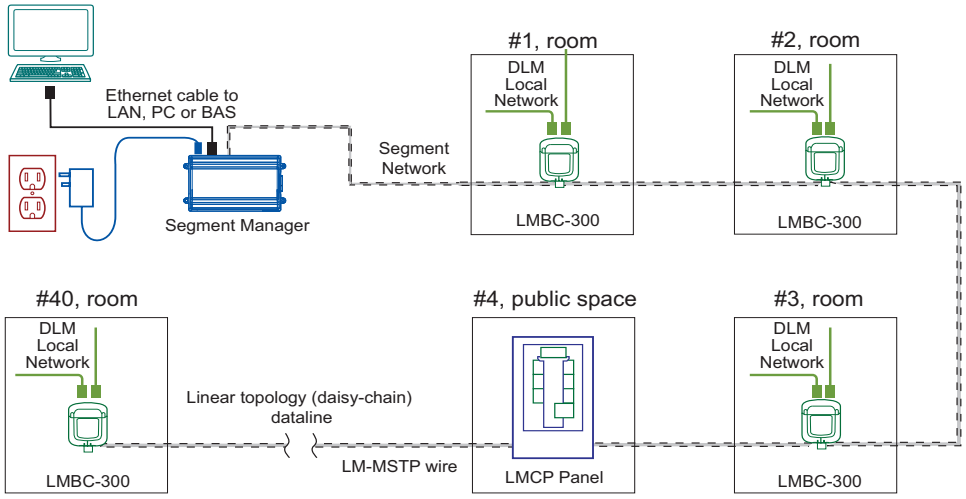
Network capability is an ideal solution when remote access to DLM local networks is desired. It can help energy managers take advantage of demand response opportunities and help cut operating costs. It is also recommended for control of lighting in areas best suited to schedule-based control, such as lobbies, corridors and exteriors. If enhanced Room Controllers or Plug Load Controllers are used, energy data can also be made available to a BAS.

Features

- Enables centralized control of individual DLM local networks
- Connects to LMCP lighting control panels
- Allows scheduling of DLM devices
- Enables remote system management that includes real-time current monitoring
- Web browser user interface can be accessed via direct TCP/IP connection, local LAN or via the Internet
- Easy integration with BAS through use of standard BACnet objects to represent DLM local network device settings and states

Network Wiring

DLM segment network with optional segment manager



The segment manager may be located at any point along the segment network so long as the linear topology (daisy chain wiring) is maintained. However, the recommended best practice is to install the LMSM at the beginning of the network segment as shown above.

	Description : **DLM** Project Name: **WOODBURN CITY HALL REMODEL** Notes:	TYPE: **NLC**

DLM Components

Load Controllers

LMRC-101 On/Off Room Controller with 1 relay
LMRC-102 On/Off Room Controller with 2 relays
LMRC-111 On/Off/0-10 Volt Dimming Room Controller with 1 relay and 1 0-10 volt dimming output
LMRC-112 On/Off/0-10 Volt Dimming Room Controller with 2 relays and 2 0-10 volt dimming outputs
LMRC-211 On/Off/0-10 Volt Dimming Room Controller with 1 relay and 1 0-10 volt dimming output
LMRC-212 On/Off/0-10 Volt Dimming Room Controller with 2 relays and 2 0-10 volt dimming outputs
LMRC-213 On/Off/0-10 Volt Dimming Room Controller with 3 relays and 3 0-10 volt dimming outputs
LMRC-221 Forward Phase Dimming Room Controller, 1 line voltage dimming output
LMRC-222 Forward Phase Dimming Room Controller, 2 line voltage dimming outputs
LMFC-011 On/Off/0-10 Volt Dimming Fixture Controller with 1 relay and 1 0-10 volt dimming output
LMPL-101 Plug Load Room Controller
LMPL-201 Plug Load Room Controller
LMPB-100 Power Booster

Lighting Control Panels

LMCP Series Panels and Zone Controller

Occupancy Sensors

LMPW-101 PIR Wall Switch Occupancy Sensor with 1 relay
LMPW-102 PIR Wall Switch Occupancy Sensor with 2 relays
LMPX-100 PIR Corner Mount Occupancy Sensor
LMPC-100 PIR Ceiling Mount Occupancy Sensor
LMUC-100 Ultrasonic Ceiling Mount Occupany Sensor
LMDW-101 Dual Technology Wall Switch Occupancy Sensor with 1 relay
LMDW-102 Dual Technology Wall Switch Occupancy Sensor with 2 relays
LMDX-100 Dual Technology Corner Mount Occupancy Sensor
LMDC-100 Dual Technology Ceiling Mount Occupancy Sensor

Personal Controls

LMSW-101 1-Button Wall Switch
LMSW-102 2-Button Wall Switch
LMSW-103 3-Button Wall Switch
LMSW-104 4-Button Wall Switch
LMSW-108 8-Button Wall Switch
LMDM-101 1-Button Dimming Wall Switch
LMSW-105 5-Button Scene Switch
LMPS-104 Partition Switch
DLM Switch Button Kits and Switch Button Engraving
LMRH-102 2-Button IR Remote Control
LMRH-101 Dimming IR Remote Control
LMRH-105 Scene IR Remote Control

Daylighting Sensors

LMLS-400 Single Zone On/Off and Dimming Closed Loop Photosensor
LMLS-500 Multi-zone On/Off and Dimming Open Loop Photosensor
LMLS-600 Dual Loop Switching and Dimming Photosensor

Configuration Tools

LMCT-100 Wireless Configuration Tool
DLM Computer Interface Tools and Software

Network Components

LMBC-300 Network Bridge
LMSM Series Segment Manager and Network Supervisor
LMSM-ENC1 Enclosure for LMSM Segment Manager
NB-ROUTER DLM Segment Network to IP Router
NB-SWITCH DLM Global Network 5-Port Switch
NB-SWITCH 8 DLM Global Network 8-Port Switch
NB-SWITCH 16 DLM Global Network 16-Port Switch
LMNC DLM Network Component Enclosure
LMAX-100 Niagara AX Driver Module
Wireless Network Bridge Series (BACnet, LonWorks, Ethernet)

Interfaces

LMIR-100 IR Ceiling Mount Receiver
LMRL-100 Isolated Relay Interface
LMIO-101 Input/Output Interface
LMIO-102 Partition Interface
LMIO-201 Analog Sensor Input Module
LMIO-301 Photocell Input Module
LMDI-100 RS-232 Serial Data Interface
WRC Series Wireless Receptacle Controls for DLM

Cables and Accessories

LMRJ Series Pre-Terminated Cables (available in 6", 3', 10', 15', 25', 35', 50', 75' and 100' lengths, in plenum and non-plenum rated versions)
LM-MSTP Segment Network Wire (available by the foot or in 1000', 2000' or 4000' reel)
Local and Segment Network Accessories

Pub. No. 32406 Rev. 5/2016

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Deca Architecture / PAE Consulting Engineering

PROJECT: WOODBURN CITY HALL REMODEL

SPECIFIED ITEM:

263323	2	2.5	TYPE CBE, Chloride, INVERTER Series
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION: Evenlite, LM-5200-3P-IF-OF-C9-TA-TB-KE

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

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Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

David Wray
Name (Print) David Wray

Signature

Northern Illumination Co.
Firm Name

17400 SW Upper Boones Ferry Rd. #270
Address

Portland, OR 97224
City, State, Zip

1/2/2018
Date

(503) 226-3633
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

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By

Date

Remarks

Attachments

1999 Edition

	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

TYPE CBE

LiteMinder

Fast Transfer System

1.0 to 18.75KVA LED Compatible

LM Series Inverter

Pure Sine Wave Modular Inverter Technology

MODULAR AC SYSTEM

Evenlite's LiteMinder Central Inverter System provides an innovative Emergency Lighting solution for today's complex energy saving systems, light sources and maintenance requirements. The LiteMinder represents the pinnacle of engineering excellence with features not found in the traditional systems currently available:

- **Modularity:** LiteMinder features unique inverter modules available in increments from 1.0 to 18.75 KVA capacities(see ordering guide). Modules are interconnected to build the required system capacity, and can even be field upgraded to increase system sizes ! Modules can be configured to provide Single Phase, Split Phase, and Three Phase outputs thereby eliminating costly, inefficient external transformers.
- **Control Features:** A keypad and LCD display provides user interface and extensive status diagnostics. Self-test, Self-Diagnostics in compliance with UL 924 is field configurable, and stores 1,000 Test, Event and Alarm logs thereby eliminating the need for costly manual test and data recording.
- **Web Site Monitoring:** unique web interface constantly monitors the system status and records all essential data. Users can log on, view, interact and download records as needed. The factory can also monitor, diagnose remotely.
- **Diagnostics:** In addition to Self-test, Self-Diagnostics, LiteMinder also includes unique startup diagnostics to aid in installation and maintenance: Eight individual startup alarms (Communications, Set-Up Conflict, Low Battery, Back-feed, Transfer/AC Fuse, Short/Overload, Miswire, Incorrect AC Input) eight individual Charger Alarms and eight individual Inverter Alarms.

ARRA Compliant for Levels 1&2

UL LISTED

EVENLITE
LIFE SAFETY LIGHTING SOLUTIONS

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TEL: (800) 872 0879 • FAX:(215) 244 4208 • www.evenlite.com

Project name:	*Approved By:*
Catalog No:	*Type No:*

	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

- PWM MOSFET and IGBT (Model Dependant) Inverter provide Pure Sine Wave output with less than 3% THD, and fully compatible with LED Lighting Loads
- Fast transfer for H.I.D. compatibility ensures smooth operation of combined lighting loads, transfers in less than 2 mS
- Modular inverter allows operation for single phase or three phase operation to order
- Less than 3% THD, load power factor 0.5 Lag to 0.5 Lead, 98% efficient in standby mode
- Automatic Low Voltage Disconnect (LVD) set at 1.67 VPC
- Automatic restart upon utility power return, no need to manually reset the system
- Input circuit breaker is provided sized to system rating
- Shorted circuit protected to 65KAIC tested and approved to UL 6180-5-1 standard
- UL924 compliant Self-Test/Self-Diagnostics are standard, with interactive LCD display
- Monthly and the annual 90 minute test can be programmed by the user for a specific date and time to ensure NFPA Code Compliance
- Up to 1000 events stored in the memory log on a "FIFO" basis, and is easily accessible thru the MMI
- MMI (Man-Machine Interface) consists of a 5 button keypad for easy menu navigation
- A 4x20 backlit White display with heads-up LED's allow for a quick diagnosis of the system status and alarms
- Five LED indicators provide the status of the Inverter, Charger, AC present, Ready, and Switched Load (if provided with Switched Output Circuit Breakers)
- An additional six LED indicators provide the alarm status for Alarm Summary, Bypass (if equipped with Maintenance Bypass option) , CB Trip, Startup Fault, Charger Fault, and Inverter Fault
- A dedicated System Test button is provided for a user initiated 30 second on demand test
- An Alarm On/Off LED is provided to indicate that an audible alarm is present.
- A dedicated Alarm Silence On/Off push button allows the user to silence the audible alarm
- SD card slot allows the user to download all Test, Event and Alarm Logs
- The Meter Menu allows the user to access the Input and Output Voltages, Output Current, Output VA, Battery Voltage, Battery Current, Battery Power, Temperature, System Days, Inverter minutes and Inverter Events
- Crest factor >4 for high inrush demanding loads, overload 120 percent for 10 minutes, 400 percent for 500mS
- The inverter and battery cabinets are constructed from 14 gauge CRS and are powder painted with no visible outside bolts or hardware
- Internally the inverter has all galvanized or painted steel parts for all modules and shelves to resist corrosion and provide high durability
- Installer friendly front mounted battery terminals for easier and faster installation
- VRLA Maintenance Free Lead Calcium Battery's provide the required 90 minute minimum run time
- Battery recharge time is less than 24 hours, meets all UL 924 and NFPA101 Life Safety Code requirements
- Operating temperature 20˚ to 30˚ C
- Three Rate Charger circuit is fully temperature compensated for added reliability
- Brownout protection set for 85% of the nominal line voltage
- Electronics are warranted for 2 years and the VRLA batteries have a 10 year warranty, optional factory startup increases the warranty to 3 years
- Listed to UL924, and meets NFPA101 Life Safety Code, NFPA70-NEC and OSHA Requirements,1.0-2.8KVA models meet CSA C22.2 No. 141-10

Warranty: *(For full warranty details see warranty data sheet CPS-WAR)*

Electronics: Evenlite Inc. warrants the LM series electronics assembly (except batteries) against defects in material and workmanship for a period of two years or three years with Factory Startup option.

Battery: Evenlite Inc. warrants the LC series Lead Calcium batteries carry a 1 year full, 9 year pro-rated limited warranty.

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Tel: (800) 872-0879 • Fax: (215) 244-4208
www.evenlite.com

	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

ORDERING GUIDE Three Phase

LM

Model	VA Rating	Phase Configuration	Input Voltage	Output Voltage	Output Breaker Configuration	Options
LM	**3000 VA** **5200 VA** **8250 VA** **10500 VA** **12500 VA** **15750 VA** **18750 VA**	**3P** Three Phase 120/208 or 277/480	**IF** 120V/208 L-N//L-L **IG** 277V/480V L-N/L-L 4 wire + Ground	**OF** 120V/208 L-N//L-L **OG** 277V/480V L-N/L-L 4 wire + Ground	***C(n)** 20A Normally On Output Breaker ***O(n)** 20A Normally Off Output Breaker ***S(n)** 20A Switched Output Breaker *(n) = Quantity Required **BB** Indicates Special Breaker Current Requirement, Contact Factory **Quantity Limitations** (Any combination of output types) **3000VA** 6 x 20A Normally On without TA option 3 x 20A Switched With or Without TA Option 3 x 20A Normally Off With or Without TA Option 3 x 20A Normally On with TA Option **5200 - 18750VA** 24 x 20A Normally On without TA option 12 x 20A Switched With or Without TA Option 12 x 20A Normally Off With or Without TA Option 15 x 20A Normally on with TA Option Note: Three phase inverters require breakers per phase so must be specified in multiples of three	***TA** Trip Alarm for all circuit breakers **TB** 1 Summary / 2 programmable terminal block for form C dry contacts **MB** Internal Maintenance Bypass Switch (make before break) **DT** Delayed Transfer, 60 ms **Z4** Seismic Zone 4 Certified **RA** Remote Annunciator **M(n)** Maintenance Plan, n= years (5 max.) **EW** Extended Warranty to 5 Years (EW requires FS) **FS** Startup commissioning on Site *Maximum Number of Breaker Trip Alarms Model Dependant

Example: LM-15750-3P-IG-OG-S6-TA-MB-FS

Model	No of Cabinets	Width	Height	Depth	Weight Inverter Cabinet	*Weight Battery Cabinet	**Total Shipping Weight	Max. BTU's/Hr. at Full Load
LM3000	2	24"	38"	13"	218 lbs.	576 lbs.	820 lbs.	205
LM5200	2	32"	50"	23"	565 lbs.	1,060 lbs.	1,890 lbs.	355
LM8250	2	32"	50"	23"	565 lbs.	1,532 lbs.	2,210 lbs.	563
LM10500	2	32"	50"	23"	565 lbs.	1,850 lbs.	2,530 lbs.	716
LM12500	2	32"	50"	23"	565 lbs	2,161 lbs.	2,850 lbs.	853
LM15750	3	32"	50"	23"	565 lbs.	2,908 lbs.	3,630 lbs.	1,074
LM18750	3	32"	50"	23"	565 lbs.	3,380 lbs.	4,120 lbs.	1,279

* Battery cabinet weight is with batteries installed
** Total shipping weight includes pallets and packaging

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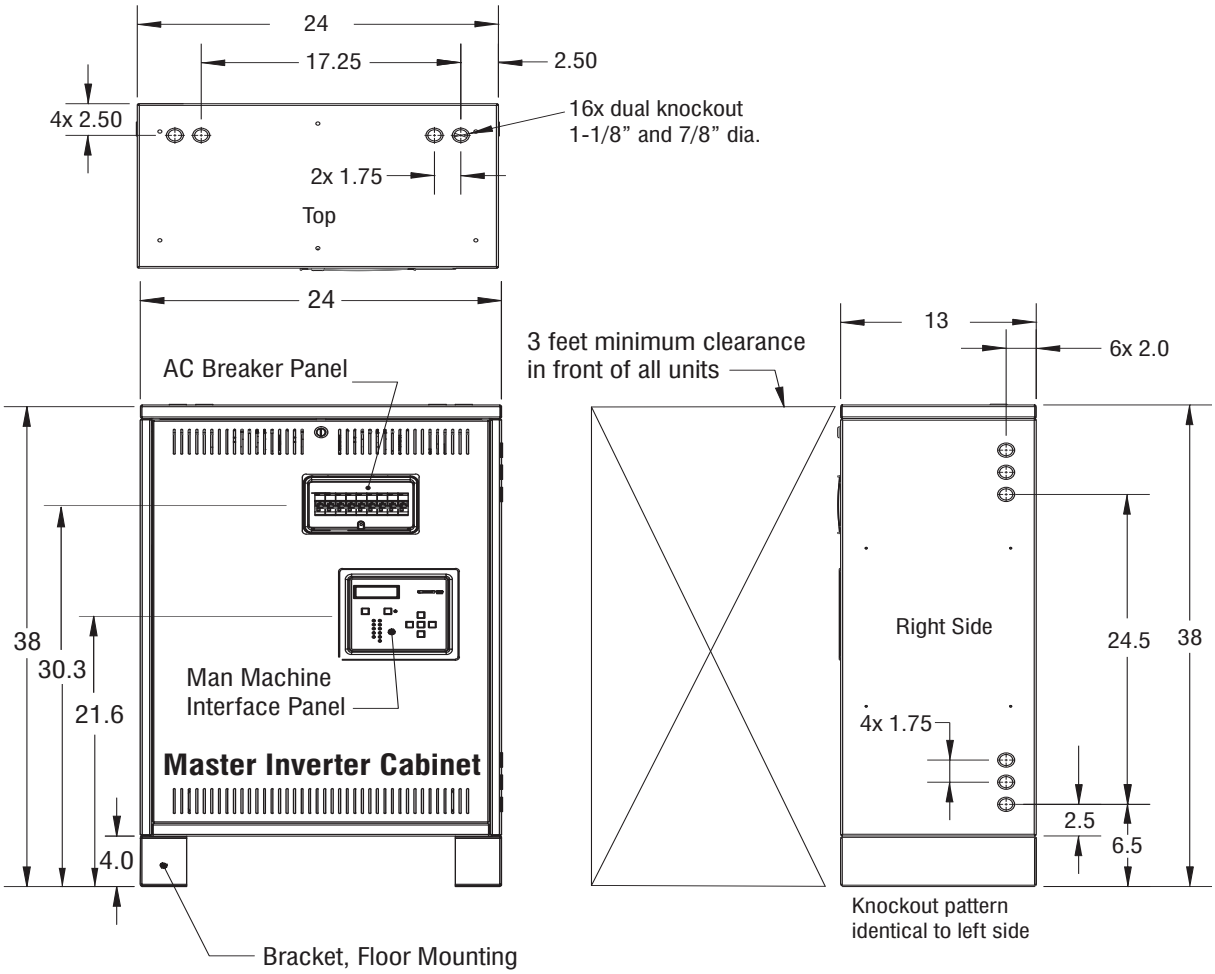
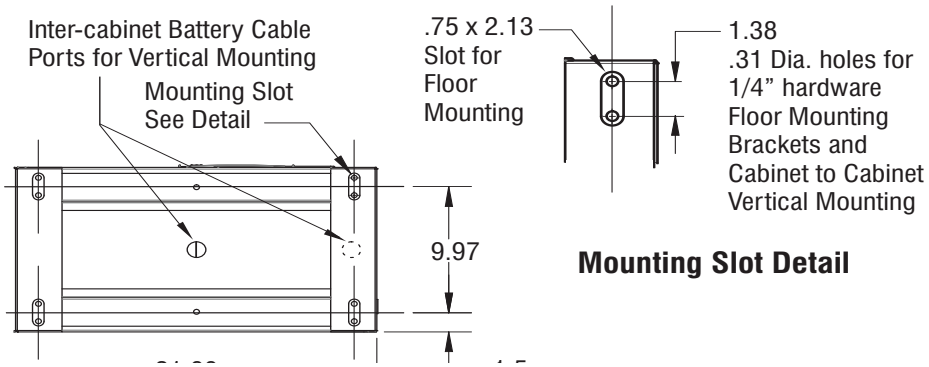
	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

Overall Mechanical Dimensions 1KVA Single Cabinet





Mounting Slot Detail

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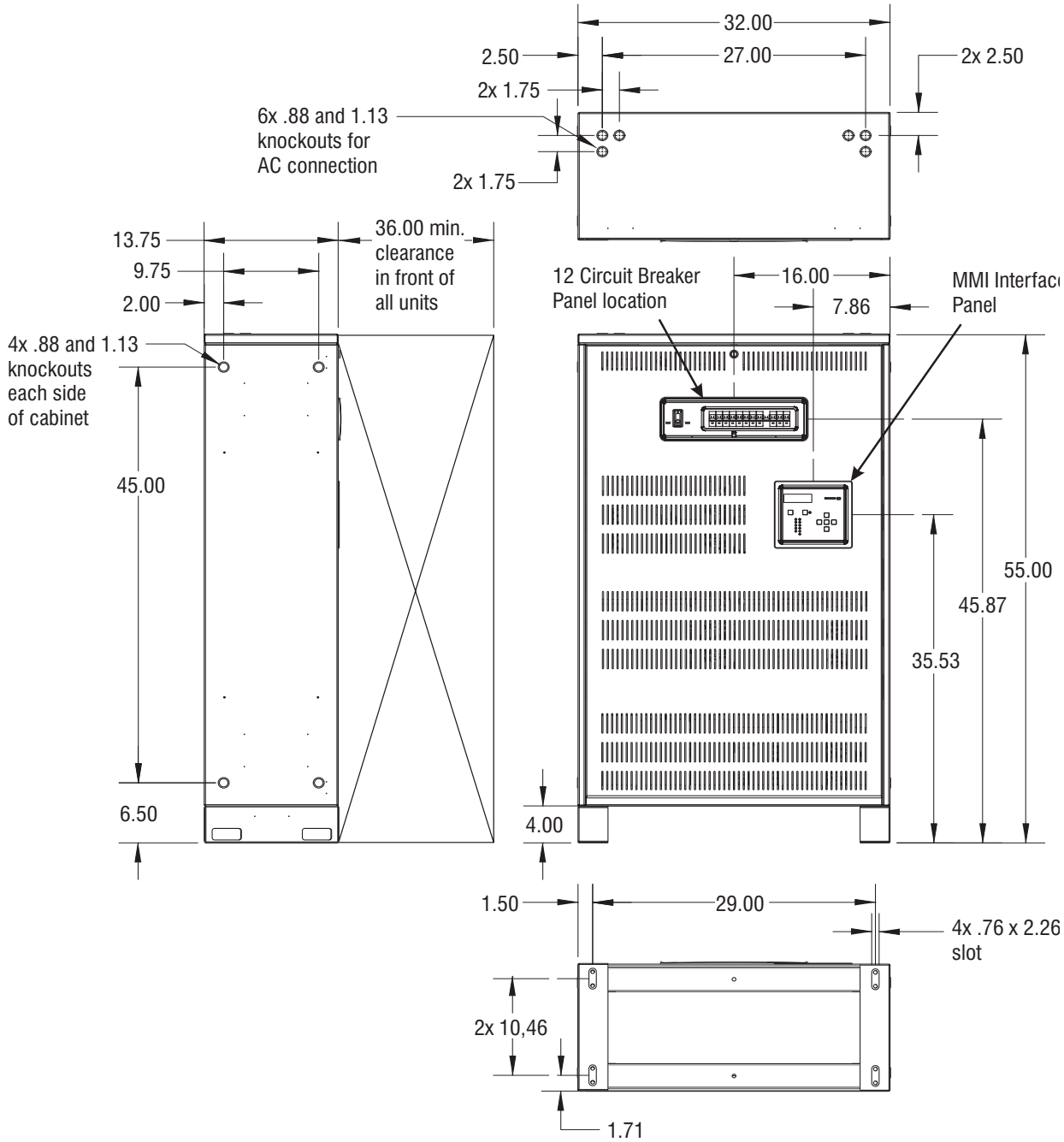
	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

Overall Mechanical Dimensions1.6 - 3.0 KVA Single Cabinet



Floor Mounting Bolt Pattern

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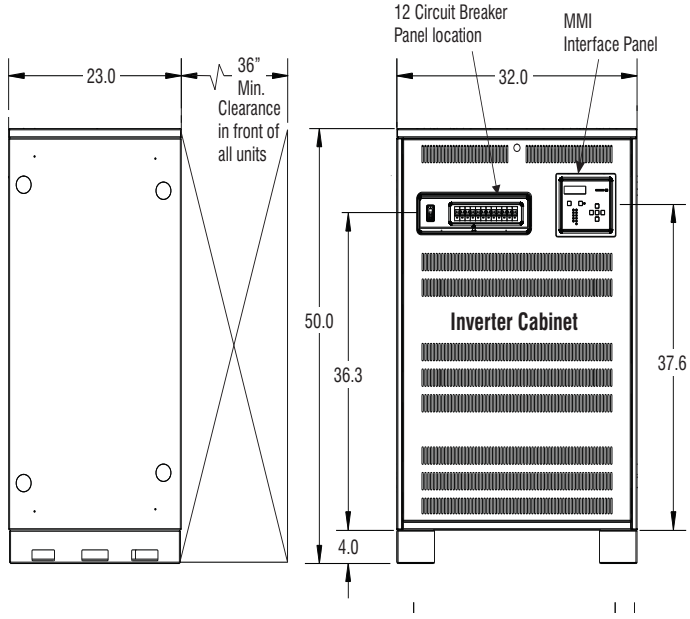
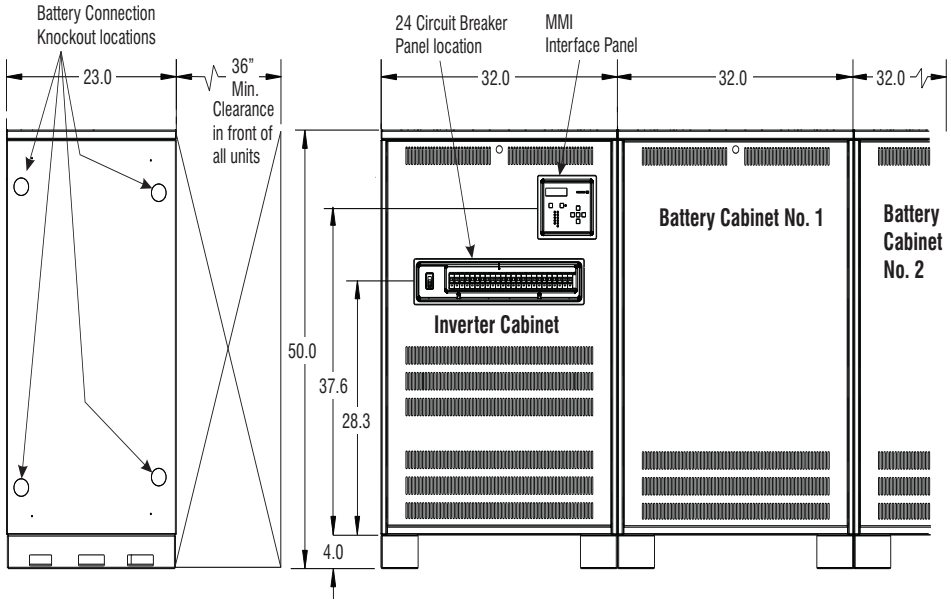
	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

Overall Mechanical Dimensions 4.2 to 18.75KVA



LM4200-6250 single phase uses a single cabinet for inverter and batteries



LM8250-12500 single phase requires two cabinets (inverter and batteries)

LM5200-12500 three phase requires two cabinets (inverter and batteries)

LM15750-18750 three phase requires three cabinets (inverter and batteries)

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	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

EVENLITE Single Phase Inverters
Input/Output Current Chart

Inverter Power	Input Voltage	Input Current	Minimum Breaker Required	Suggested Feed Breaker
1000	120	10.4	13.0	20
	208	6.0	7.5	20
	240	5.2	6.5	20
	277	4.5	5.6	20
	480	2.6	3.3	20
1600	120	16.7	20.8	30
	208	9.6	12.0	20
	240	8.3	10.4	20
	277	7.2	9.0	20
	480	4.2	5.2	20
2200	120	22.9	28.6	30
	208	13.2	16.5	20
	240	11.5	14.3	20
	277	9.9	12.4	20
	480	5.7	7.2	20
2800	120	29.2	36.5	40
	208	16.8	21.0	30
	240	14.6	18.2	20
	277	12.6	15.8	20
	480	7.3	9.1	20
3000	120	31.3	39.1	40
	208	18.0	22.5	30
	240	15.6	19.5	20
	277	13.5	16.9	20
	480	7.8	9.8	20
4200	120	41.7	52.1	60
	208	24.0	30.0	30
	240	20.8	26.0	30
	277	18.1	22.6	30
	480	10.4	13.0	20

Inverter Power	Input Voltage	Input Current	Minimum Breaker Required	Suggested Feed Breaker
5200	120	52.1	65.1	70
	208	30.0	37.6	40
	240	26.0	32.6	40
	277	22.6	28.2	30
	480	13.0	16.3	20
6250	120	62.5	78.1	80
	208	36.1	45.1	50
	240	31.3	39.1	40
	277	27.1	33.8	40
	480	15.6	19.5	20
8250	120	83.3	104.2	110
	208	48.1	60.1	70
	240	41.7	52.1	60
	277	36.1	45.1	50
	480	20.8	26.0	30
10500	N/A	N/A	N/A	N/A
	208	60.1	75.1	80
	240	52.1	65.1	70
	277	45.1	56.4	60
	480	26.0	32.6	40
12500	N/A	N/A	N/A	N/A
	208	75.1	93.9	100
	240	65.1	81.4	90
	277	56.4	70.5	80
	480	32.6	40.7	50

Notes:
1. Input Current = Output Current + Max Charge Current
2. Suggested Feed Breaker sizes are rounded up in 10 Amp increments

na - Not Available

KAIC Rating for all models = 65KAIC (UL rated per UL 61800-5-1)

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	Description : LM-5200-3P-IF-OF-C9-TA-TB-KE **Project Name:** WOODBURN CITY HALL REMODEL **Notes:**	TYPE: **CBE**

LiteMinder Modular Fast Transfer Sine Wave Inverter

EVENLITE Three Phase Inverters
Input/Output Current Chart

Inverter Power	Input Voltage	Input Current	Minimum Breaker Required	Suggested Feed Breaker	Inverter Power	Input Voltage	Input Current	Minimum Breaker Required	Suggested Feed Breaker
3000	120/208	10.4	13.0	20	10500	120/208	34.7	43.4	50
	277/480	4.5	5.6	20		277/480	15.0	18.8	20
4000	120/208	13.9	17.4	20	12500	120/208	43.4	54.3	60
	277/480	6.0	7.5	20		277/480	18.8	23.5	30
5200	120/208	17.4	21.7	30	15750	120/208	52.1	65.1	70
	277/480	7.5	9.4	20		277/480	22.6	28.2	30
8250	120/208	27.8	34.7	40	18750	120/208	62.5	78.1	80
	277/480	12.0	15.0	20		277/480	27.1	33.8	40

Notes:
1. Input Current = Output Current + Max Charge Current
2. Suggested Feed Breaker sizes are rounded up in 10 Amp increments
3. Input Power requires 3 Wires, Neutral and Ground. Neutral is passed through and current carrying - Feeder Neutral to be sized same as Line conductors.

KAIC Rating for all models = 65KAIC (UL rated per UL 61800-5-1)

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Tel: (800) 872-0879 • Fax: (215) 244-4208
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January 4, 2019

Shem Harding
Deca Architecture
935 SE Alder St
Portland, Oregon, 97214

Project: City of Woodburn City Hall HVAC
Project Number: 17-1848

Subject: Lighting Request

Dear Shem:

The following substitution request responses are forwarded for your review and implementation into the reference project.

Substitution request has been reviewed for acceptable manufacturer only. Product data will be reviewed for conformance to the project requirements when submitted during the construction phase.

Substitution Requests

Specification Section; Article	Description	Manufacturer	Response
265000	L1	Williams	Approved Manufacturer
265000	L2	Williams	Approved Manufacturer
265000	L3	Contech	Approved Manufacturer
265000	L4	Lumenwerx	Approved Manufacturer
265000	L5	Camman Lighting	Approved Manufacturer
265000	L7	Elite	Not Approved
265000	L9	Lumenwerx	Approved Manufacturer
265000	L10	Contech	Approved Manufacturer
265000	L11	Lumenwerx	Approved Manufacturer
265000	X1	Exitronix	Approved Manufacturer

If there are any questions, please do not hesitate to call.

Sincerely,

Michael Lopez
MRL2/tje

The Lighting Project

315 Columbia St.

Vancouver WA 98660

360.314.4100

www.tlpnw.com

Woodburn City Hall Remodel and HVAC Upgrade

LUMINAIRE SPEC SHEET PACKAGE

December, 26th 2018

The Lighting Project NW
315 Columbia Street
Vancouver WA 98660
Phone: (360) 314-4100
Fax:

Date: Dec 26, 2018

Job Name
Woodburn City Hall Remodel and HVAC Upgrade
TLPNW18-9722
Woodburn OR

Bid Date
Jan 17, 2019

Submittal Date
Dec 26, 2018

Architect:
DECA Inc.
935 SE Alder Street
Portland OR 97214

Engineer:
PAE Engineers
522 SW 5th Ave
Portland OR 97204

Transmittal

The Lighting Project NW
315 Columbia Street
Vancouver WA 98660
Phone: (360) 314-4100
From: Austyn Parks

Project **Woodburn City Hall Remodel and HVAC Upgrade**
Quote# TLPNW18-9722
Location Woodburn OR
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

☐ Drawings ☐ Specifications Other:
☐ Prints ☐ Information
☐ Plans ☐ Submittals

THESE ARE TRANSMITTED FOR:

☐ Prior Approval ☐ Resubmittal for Approval ☐ Record
☐ Approval ☐ Corrections Bids due on:
☐ Approval as Submitted ☐ Your Use Other:
☐ Approval as Noted ☐ Review and Comment

Type	MFG	Part
L1	H.E. WILLIAMS 2x4 troffer	AT1-24-L40/840-D-DIM-UNV
L2	H.E. WILLIAMS 1x4 troffer	50-G-S-14-L27/840-S-AF12125-DIM-UNV
L3	Con-Tech Lighting 4" square downlight	R4SQNC340K12DBEAM-DIST. C4322SQ-WHT
L4	LumenWerx Linear pendant	VIA2PD-HLO-LED-80-1750-40-4-UNV-D1-1-53WAC36-FINISH
L5	Camman Lighting Wall sconce	WS16280-25
L7	ELITE LIGHTING Spot track led	ET-LED-374-2000-DIMTR-120-41K-SP-FINISH ET12X-FINISH
L9	LumenWerx Cove fixture	ALC-APO-LED-80-863-40-4-UNV-D1-1-MOUNTING-W
L10	Con-Tech Lighting 4" square wall wash downlight	R4SQNC340K12DWW
L11	LumenWerx 4' perimeter fixture	V5PERS-HLO-LED-80-750-40-4-UNV-D1-1-MOUNTING-W
X1	BARRON LIGHTING Exit sign	902E-R-WB-RC-FINISH

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

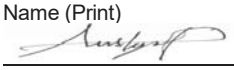
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

ARCHITECTURAL LED TROFFER – CURVED FLOATING CENTER

AT1

LED

CATALOG #:

TYPE:

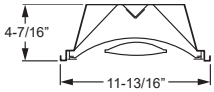
PROJECT:

NOTES:

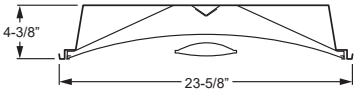
EXAMPLE **AT1 - 2 4 - L70/835 - D - OPTIONS - DIM - UNV**

SERIES	NOM. W.	NOM. L.	LUMEN PACKAGE	CRI & CCT	SHIELDING	OPTIONS/ ACCESSORIES	DRIVER	VOLTAGE

CROSS SECTIONS



1x4



2x2 | 2x4

ORDERING INFORMATION

SERIES

AT1	Architectural LED Troffer – Curved Floating Center

NOMINAL WIDTH

1	1'
2	2'

NOMINAL LENGTH

2	2' (2' width only)
4	4'

LED PACKAGE

Example: L70/835			
LUMEN PACKAGE	NOMINAL LUMENS	MINIMUM CRI & CCT	WATTAGE
1x4			
L20	2,000		20
L30	3,000		28
L40	4,000		39
L50	5,000		51
L63	6,300		63
2x2		**827** = 82 CRI, 2700K	
L20	2,000	**830** = 82 CRI, 3000K	21
L30	3,000	**835** = 82 CRI, 3500K	31
L40	4,000	**840** = 82 CRI, 4000K	44
L50	5,000	**850** = 82 CRI, 5000K	50
2x4			
L30	3,000		31
L40	4,000		42
L55	5,500		59
L70	7,000		70
L85	8,500		75
L100	10,000		96

Nominal lumen output based on 3500 CCT. Actual lumens may vary +/-5%, see fixture performance data. Additional LED lumen packages available, see options.

SHIELDING

D	Diffuse matte acrylic center
P	Perforated center (decreases lumen output by 15%)

OPTIONS

For flexible whip options, see Technical Info.
See page 2 for fixture details.

EM/10W	10-watt emergency LED battery (120V-277V only; 2x2, 2x4 only)
EM/10WLP	Low-profile 10-watt emergency LED battery (120V-277V only; 1x4 only)
EQCLIPS	Earthquake clips (4 per fixture)
(L__)	Additional lower lumen packages available. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package. Example: 5,000 nominal lumens = AT1-24-L55/835-D-**(L50)**.
SS	Gasketed clear flat acrylic lens (not available with OCC option)
AMW	Anti-microbial white finish
NEMA F	NEMA Type "F" flange kit, factory-installed
CP	Chicago Plenum (CCEA)

DRIVER

Additional dimming drivers available, see Technical Info.

DRV	Driver prewired for non-dimming applications
DIM	10% dimming driver prewired for 0-10V low voltage applications

VOLTAGE

120	120V
277	277V
UNV	120-277V
347	347V (not available with EM drivers)

FEATURES

- Curved floating lens effect creates an appealing visual appearance.
- Matte white paint and diffuse lens combination provide pleasing architectural aesthetics with non-glare reflective surfaces
- Quiet and smooth illumination for visual comfort
- Hinged door frame with optical assembly swings down to allow easy access from room side of fixture
- Optional gasketed acrylic lens adds extra layer of protection
- Rated for 25°C ambient operating temperature.
- This fixture is proudly made in the USA

AT1 ARCHITECTURAL LED TROFFER – CURVED FLOATING CENTER

LED

SPECIFICATIONS

Housing – Precision die-formed 22-gauge C.R.S.
Door Frame – Hinged, flat, extruded aluminum door frame with optical assembly.
Shielding – Diffuse polycarbonate lens and acrylic center standard.
Finish – 95% reflective white polyester powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
Electrical – High quality mid-power LED boards. L70 >60,000 hours per IES TM-21.
Mounting –NEMA Type "G" standard, NEMA Type "F" available.
Labels –

- cETLus conforms to UL STD 1598 and UL STD 8750.
- Certified to CAN/CSA STD C22.2 No. 250.0.
- Suitable for damp locations.
- IC-rated for direct contact with insulation.
- DesignLights Consortium qualified product. Not all versions of this product may be DLC qualified, see the DLC Qualified Products List at www.designlights.org/QPL.
- City of Chicago Environmental Air approved when specified with CP option.

Warranty – 5-year limited warranty, see hew.com/warranty.

IMPORTANT:

Electrostatic sensitive unit. Observe precautions when handling.

FIXTURE PERFORMANCE DATA

LED PACKAGE	DELIVERED LUMENS	WATTAGE	EFFICACY (LM/W)
1x4			
L20	2048	20	102.4
L30	3003	28	107.3
L40	4052	39	103.9
L50	4826	51	94.6
L63	6294	63	99.9
2x2			
L20	1974	21	94.0
L30	2843	31	91.7
L40	3747	44	85.2
L50	4919	50	98.4
2x4			
L30	3085	31	99.5
L40	4003	42	95.3
L55	5445	59	92.3
L70	6965	70	99.7
L85	8445	75	112.6
L100	10445	96	108.8

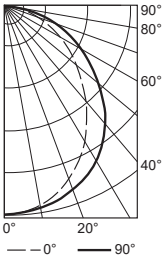
- Photometrics tested in accordance with IESNA LM-79. Results shown are based on 25ºC ambient temperature.
- Wattage shown is average for 120V through 277V input.
- Results based on 3500K, 80 CRI, actual lumens may vary +/-5%
- Use multiplier table to calculate additional options.

MULTIPLIER TABLE

COLOR TEMPERATURE	
CCT/CRI	CONVERSION FACTOR
2700K/80CRI	0.97
3000K/80CRI	0.99
3500K/80CRI	1.00
4000K/80CRI	1.03
5000K/80CRI	1.06

PHOTOMETRY

AT1-22-L40/835-D-DIM-UNV Report #: 18874.0; 06/02/15 | Total Luminaire Output: 3747 lumens; 44 Watts
Efficacy: 85.2 lm/W | 82 CRI; 3500K CCT | IES Spacing Criteria: End: 1.1, Across: 1.3, Diagonal: 1.2



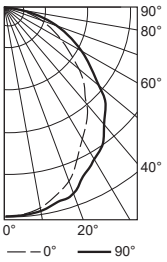
CANDLEPOWER DISTRIBUTION

Vertical Angle	Horizontal Angle 0°	45°	90°	Zonal Lumens
0	1452.	1452.	1452.	
5	1448.	1443.	1444.	137.9
15	1362.	1379.	1402.	391.3
25	1200.	1250.	1319.	581.5
35	987.	1085.	1180.	681.1
45	757.	862.	960.	667.5
55	544.	654.	723.	574.4
65	341.	442.	509.	429.5
75	165.	244.	273.	246.4
85	28.	36.	33.	37.2
90	0.	0.	0.	

LUMEN SUMMARY

Zone	Lumens	% Fixture
0 - 30	1111.	29.6
0 - 40	1792.	47.8
0 - 60	3034.	81.0
0 - 90	3747.	100.0
0 - 180	3747.	100.0

AT1-24-L70/835-D-DIM-UNV Report #: 18880.0; 06/10/15 | Total Luminaire Output: 6965 lumens; 70 Watts
Efficacy: 99.7 lm/W | 82 CRI; 3500K CCT | IES Spacing Criteria: End: 1.1, Across: 1.3, Diagonal: 1.2



CANDLEPOWER DISTRIBUTION

Vertical Angle	Horizontal Angle 0°	45°	90°	Zonal Lumens
0	2634.	2634.	2634.	
5	2614.	2614.	2618.	249.6
15	2455.	2496.	2541.	707.7
25	2125.	2230.	2347.	1033.7
35	1785.	1971.	2134.	1234.3
45	1403.	1640.	1781.	1250.2
55	987.	1209.	1311.	1057.2
65	650.	857.	920.	814.7
75	338.	500.	514.	494.4
85	101.	102.	107.	122.9
90	0.	0.	0.	

LUMEN SUMMARY

Zone	Lumens	% Fixture
0 - 30	1991.	28.6
0 - 40	3225.	46.3
0 - 60	5533.	79.4
0 - 90	6965.	100.0
0 - 180	6965.	100.0

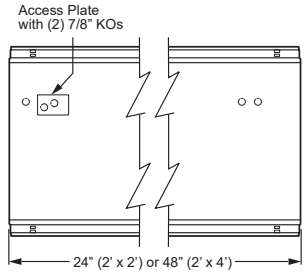
ARCHITECTURAL LED TROFFER – CURVED FLOATING CENTER

AT1

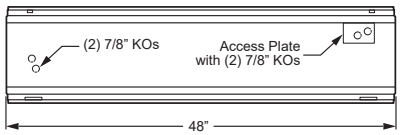
LED

FIXTURE DETAILS

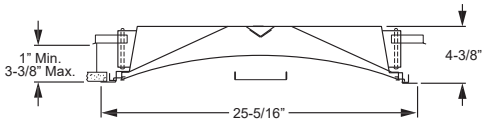
2x2 | 2x4 BACK VIEW



1x4 BACK VIEW



NEMA TYPE "F" INSTALLATION



Note: Maximum recommended ceiling opening is 24-3/8" x 24-38" for 2'x2' and 24-3/8"x 48-3/8" for 2'x4'. For continuous row mounting, add 49-5/16" for each additional fixture to obtain ceiling opening. 1-5/16" between end plates.

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

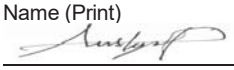
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

STATIC LED TROFFER

50 STATIC

LED

CATALOG #:

TYPE:

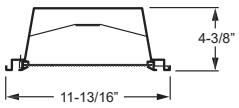
PROJECT:

NOTES:

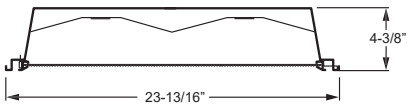
EXAMPLE: **50 G - S 2 4 - L130/840 - S - AF12125 - OPTIONS - DIM - UNV**

50	G	S	2	4	L130/840	S	AF12125	OPTIONS	DIM	UNV
SERIES	CEILING TYPE	FIX. STYLE	NOM. W.	NOM. L.	LUMEN PACKAGE	CRI & CCT	DOOR FRAME	SHIELDING	OPTIONS/ ACCESSORIES	DRIVER	VOLTAGE

CROSS SECTIONS



1x4



2x2 | 2x4

ORDERING INFORMATION

SERIES

50	Static LED Troffer (no air handling)

CEILING TYPE

G	NEMA Type "G"
F	NEMA Type "F"

FIXTURE STYLE

S	Full door frame–no reveal

NOMINAL WIDTH

1	1' (4' length only)
2	2'

NOMINAL LENGTH

2	2' (2' width only)
4	4'

LED PACKAGE

EXAMPLE: L130/840			
LUMEN PACKAGE	NOMINAL LUMENS	MINIMUM CRI & CCT	WATTAGE
1x4			
L27	2,700		21
L45	4,500		34
L65	6,500		55
2x2		**827** = 82 CRI, 2700K	
L26	2,600	**830** = 80 CRI, 3000K	21
L43	4,300	**835** = 80 CRI, 3500K	34
L65	6,500	**840** = 80 CRI, 4000K	56
2x4		**850** = 80 CRI, 5000K	
L33	3,300		26
L59	5,900		48
L90	9,000		72
L130	13,000		103

Nominal lumen output based on 3500 CCT. Actual lumens may vary +/-5%, see fixture performance table. Additional LED lumen packages available, see options.

DOOR FRAME

S	White flat steel
F	White flat aluminum
R	White regress aluminum
SB	Black flat steel
FB	Black flat aluminum
RB	Black regress aluminum

SHIELDING

AF12125	Frosted acrylic, pattern #12, .125" thick
AF19156	Frosted acrylic, pattern #19, .156" thick
A12125	Clear acrylic, pattern #12, .125" thick
A19156	Clear acrylic, pattern #19, .156" thick
PC12187	Polycarbonate, pattern #12, .187" thick

OPTIONS

For color options, visit the 50 LED online at hew.com.
For flexible whip options, see Technical Info.

EM/10W	10-watt emergency battery (120-277V only)
DG	Double gasket (flat aluminum door only)
TG	Triple gasket (flat aluminum door only; field installed)
EQCLIPS	Earthquake clips (4 per fixture)
(L__)	Additional lower lumen packages available. Specify in increments of 100 nominal lumens. Option must be specified with next higher lumen package. **Example:** 8,500 nominal lumens = 50G-S24-L90/850-**(L85).**
WET	UL/CUL listed for wet location under covered ceiling (flat aluminum door only, TG option included).
CP	Chicago Plenum (CCEA)

DRIVER

Additional dimming drivers available, see Technical Info.

DRV	Driver prewired for non-dimming applications
DIM	10% dimming driver prewired for 0-10V low voltage applications

VOLTAGE

120	120V
277	277V
UNV	120-277V
347	347V (not available with EM drivers)

FEATURES

- Frosted prismatic lens provides pleasing diffused light without LED pixelation.
- Multiple dimming protocols available.
- Fully-enclosed spring-loaded cam latches allow years of hassle-free maintenance.
- T-slot steel hinge ensures positive retention when door is opened.
- Back reinforcement ribs provide added strength.
- Rolled-edge channel adds superior strength.
- Integral T-bar clips quickly secure fixture to structure. (2x2 and 2x4 only)
- Rated for direct contact with insulation.
- Fully gasketed door minimizes contaminants.
- This fixture is proudly made in the USA.

50 STATIC

STATIC LED TROFFER

LED

SPECIFICATIONS

Housing – 22-gauge die-formed C.R.S.
Door Frame – 20-gauge C.R.S. or .050" extruded aluminum, flat or regress, with mitered corners. T-slot steel hinge allows reversible hinging and latching. Fully enclosed spring-loaded cam latches.
Shielding – Frosted acrylic, pattern #12, .125" thick.
Finish – 92% minimum average reflective white polyester powder coat bonded to phosphate-free, multi-stage pretreated metal. All parts painted after fabrication to facilitate installation, increase efficiency, and inhibit corrosion.
Electrical – High quality mid-power LED board. L70 at 50,000 hours. 25°C maximum ambient operating temperature.
Mounting – NEMA Type "G" standard. NEMA Type "F" available.
Listings –

- cETLus conforms to UL STD 1598. Certified to CAN/CSA STD C22.2 No. 250.0. Suitable for damp locations
- DesignLights Consortium qualified product. Not all versions of this product may be DLC qualified, see the DLC Qualified Products List at www.designlights.org/QPL
- IC-rated for direct contact with insulation
- City of Chicago Environmental Air approved when specified with CP option

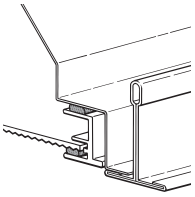
Warranty – 5-year limited warranty, see hew.com/warranty.

IMPORTANT:

Electrostatic sensitive unit. Observe precautions when handling.

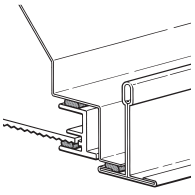
GASKETING DETAILS

DOUBLE GASKETING (DG)



Gasketing is factory-installed continuously between door frame and luminaire housing; and between door frame and lens.

TRIPLE GASKETING (TG)



Gasketing is factory-installed continuously between door frame and luminaire housing; and between door frame and lens. Gasketing between bottom perimeter of unit (adjacent to T-bar or hardpan ceiling) is provided by factory and field installed.

FIXTURE PERFORMANCE DATA

LED PACKAGE	DELIVERED LUMENS	WATTAGE	EFFICACY (lm/W)
1x4			
L27	2662	21.4	124.6
L45	4425	33.7	131.3
L65	6526	54.6	119.5
2x2			
L26	2602	21.4	121.8
L43	4325	33.7	128.3
L65	6527	56.1	116.4
2x4			
L33	3272	26.3	124.6
L59	5884	48.4	121.5
L90	9045	72.4	124.9
L130	13171	102.7	128.3

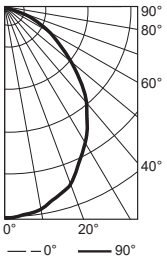
- Photometrics tested in accordance with IESNA LM-79. Results shown are based on 25°C ambient temperature.
- Wattage shown is average for 120V through 277V input.
- Results based on 3500K, 80 CRI, actual lumens may vary +/-5%
- Use multiplier table to calculate additional options.

MULTIPLIER TABLE

COLOR TEMPERATURE	
CCT/CRI	CONVERSION FACTOR
2700K/80CRI	0.97
3000K/80CRI	0.99
3500K/80CRI	1.00
4000K/80CRI	1.03
5000K/80CRI	1.06

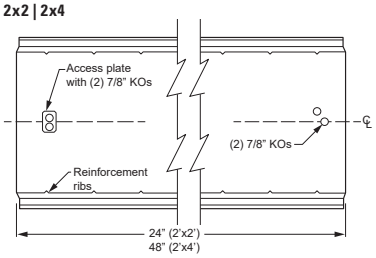
PHOTOMETRY

50G-S24-L130/835-SAF12125-DIM-UNV Total Luminaire Output: 13171 lumens; 103 Watts | Efficacy: 128 lm/W | 83.8 CRI; 4012K CCT

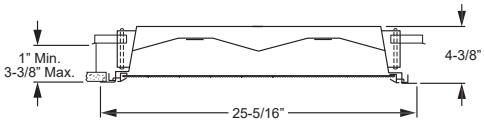


FIXTURE DETAILS

BACK VIEW
2x2 | 2x4

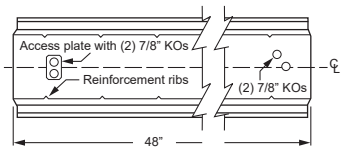


NEMA TYPE "F" INSTALLATION

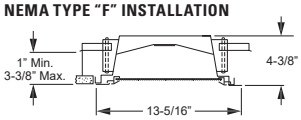


Note: Maximum recommended ceiling opening is 24-3/8" x 24-38" for 2'x2' and 24-3/8"x 48-3/8" for 2'x4'. For continuous row mounting, add 49-5/16" for each additional fixture to obtain ceiling opening. 1-5/16" between end plates.

1x4



NEMA TYPE "F" INSTALLATION



Note: Maximum recommended ceiling opening is 12-3/8"x 48-3/8". For continuous row mounting, add 49-5/16" for each additional fixture to obtain ceiling opening. 1-5/16" between end plates.

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

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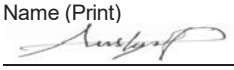
Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

CONTECH LIGHTING | a LEVITON company

Catalog No. _____

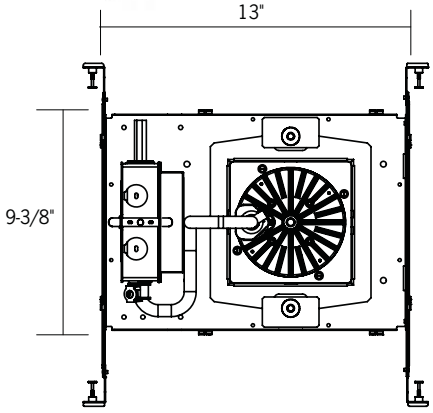
Type _____

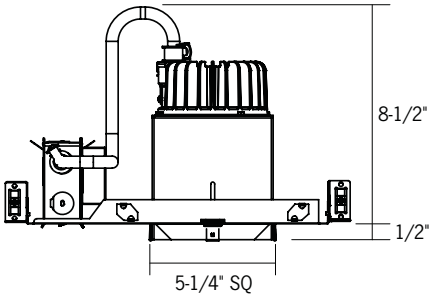
Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing

ENERGY STAR





Ceiling Opening: 5-3/8"
Ceiling Thickness: 1/2" – 2"

Specifications/Features

Housing/Mounting
Specification grade 4" Square New Construction housing delivering over 3600lm.
16 Gauge galvanized steel housing with die-cast aluminum heat sink.
Requires minimum 3" clearance around fixture from insulation material.
Thermal protection provided in case of improper insulation use.
Dual nailer hanger bars are adjustable for 16" and 24" center joists (14-1/4" to 24-1/2"). Nailer bars enable easy installation and may be extended to rest on T-bar ceilings. Optional clip-on T-bar hangers also available.
Mounting frame features a post installation mechanism that allows 1/4" adjustment in all directions, as well as 5° of rotation adjustment to ensure proper alignment.
Quick-connect LED light engine enables easy installation and removal.
LED Drivers are fully accessible from below the ceiling and can be easily removed.

Electrical
UL8750 and Class 2 Compliant; RoHS Compliant, US only.
Output over voltage, over-current and short circuit protection.
Approved for through-circuit wiring. Max.: (6) 12 AWG (3in/3out).
Pre-wired junction box with convenient screwdriver pry-outs. (4) 1/2" and (1) 1/2" x 3/4" concentric knockouts.
Optional emergency battery pack with remote test switch is available.

Lamp
Utilizes glass TIR optics engineered to provide smooth uniform beams, maximizing output and minimizing glare.
Available in 33°, 39° and 73° beam distributions. A high efficiency soft-focus film is installed for even greater softening of beam [field removable].
Light engine consists of a high output multi-chip LED array. Excellent fixture-to-fixture color consistency within a 3-step MacAdam Ellipse tolerance.
System designed and rated for 50,000 hours at 70% lumen maintenance

Dimming
All R4SQNC downlights are available for non-dimming and dimming applications.
For a list of compatible dimmers, refer to Dimming Specification sheet.

Trims
Specification Grade trims are available in different styles and finishes for your space. Featuring a high quality Alzak™ finish; optically designed for reduced glare while maintaining maximum lumen output.

Warranty
This complete fixture is covered by ConTech's full five (5) year replacement guarantee after date of purchase.
Emergency Battery option is covered by a one (1) year replacement guarantee after date of purchase.

Listing
cCSAus Certified to UL Standards.
Suitable for wet locations.
cCSAus Certified to UL924 Standard for Emergency Lighting when specified with the emergency battery backup option.
Energy Star certified: All color temperatures except 27KC. Trim No. C4322SQ-(all finishes).
Lutron and eldoLED dimming options are not Energy Star certified. 347V option is not Energy Star Certified.
Assembled in the USA.

	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6
Input Wattage (W)	10	14	20	28	37	43
Input Current (A) 120/277/347	.08/.04/.03	.12/.06/.04	.17/.08/.06	.23/.11/.08	.31/.14/.11	.36/.16/.12
Input Voltage						
Standard Driver (120V & 277V)	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
Standard Driver (347V)	347V AC, 50/60Hz					
Lutron HiLume® Driver	120V AC, 50/60Hz					
Lutron Eco-System® Driver	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
eldoLED ECOdrive / SOLOdrive	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
Color Temp	2700K/3000K/3500K/4000K					
CRI Standard/High	83 (80min) / 90+					
Driver						
Power Factor	> 0.90					
THD	< 20%					

CONTECH LIGHTING | a LEVITON company

Catalog No. _____

Type _____

Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing

Ordering Information

Example Order: R4SQNC430K12DW – ER

Housing	LED Series	Color Temp	Electrical	Dimming	Beam Dist.		Options
						-	
R4SQNC	**1** - 10W/1000lm **2** - 14W/1400lm **3** - 20W/2000lm **4** - 28W/2600lm **5** - 37W/3200lm **6** - 43W/3600lm	**27K** - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K **27KC** - 2700K, 90+ CRI **30KC** - 3000K, 90+ CRI **35KC** - 3500K, 90+ CRI **40KC** - 4000K, 90+ CRI	**12** - 120V **27** - 277V **34**[1] - 347V	**D**[2] - TRIAC, ELV, 0-10V Dimming **D2**[1] - 347V, 0-10V Dimming Only **D3**[3] - Lutron Hi-Lume 1% 2-Wire LED Driver (120V Forward Phase Only) **D4** - Lutron Hi-Lume 1% EcoSystem LED Driver with Soft-on, Fade-to-Black **D6**[4] - eldoLED ECODRIVE, 0-10V, 1% Dimming **D7**[4] - eldoLED ECODRIVE, DALI, 1% Dimming **D8**[4] - eldoLED SOLODRIVE, 0-10V, 0.1% Dimming **D9**[4] - eldoLED SOLODRIVE, DALI, 0.1% Dimming **DMX**[4,5] - eldoLED POWERDRIVE, DMX 0.0% Dimming	**N** - 33° **M** - 39° **W** - 73° **WW** - Wall Wash		**ER**[6] - Factory Installed 7W/200mA Emergency Battery Backup (Remote Test Switch)

For Intellect™ Enabled housing, refer to R4SQNCIE specification sheet.

1. Only available for 347V Dimming option (D2).
2. Triac and ELV Dimming For 120V Only.
3. Lutron Hi-lume Dimming Only Available in 120V.
4. eldoLED Drivers are Programmed for Linear Curve Dimming as Standard. For Logarithmic Curve Dimming, Please Consult Factory.
5. Verify DMX Driver and Control System Compatibility with Factory Prior to Ordering.
6. Emergency Battery Backup Option: 725 Lumen Nominal Average For Any Series 1 Through 6.

Accessories

Standard Hanger Bars Supplied with Housing

4SQOPT-N - 33° Beam Optic
4SQOPT-M - 39° Beam Optic
4SQOPT-W - 73° Beam Optic
RL-KIT - Commercial Mounting Brackets
HB-24 - 27" Flat Hanger Bars for RL-KIT
HBC-24 - 25" C-Channel Hanger Bars for RL-KIT in Grid Ceiling Construction
HB-30 - T-Bar Hanger Set

CONTECH LIGHTING | a LEVITON company

Catalog No. _____

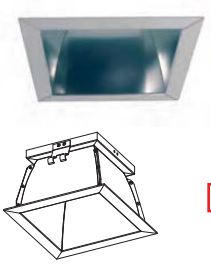
Type _____

Project _____

R4SQ

4" Square LED Recessed Downlight Series

Trims and Accessories



Specification Grade Reflector Trim

Specification grade segmented reflector; available in anodized clear specular, anodized platinum and painted matte white finishes.

Trim flange: 5-3/4" SQ; Aperture: 4-1/2" SQ

C4322SQ-CLR* - Clear Specular Reflector
C4322SQ-PL* - Platinum Reflector
C4322SQ-WHT - White Reflector

**Available with White Painted Flange, add "-WPF" to part number.*

ISOWET
Dead Front Square Reflector Trim

Isolated, wet location approved thermoplastic reflector.

Trim flange: 5-3/4" SQ; Aperture 4-1/2" SQ

C4322SQDF-SL - Satin Silver Paint
C4322SQDF-SL-WPF - Satin Silver Paint with White Painted Flange
C4322SQDF-WHT - Matte White Paint

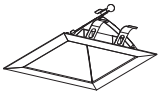
Lensed Wall Wash Trim

Lensed wall wash trim; available in anodized clear specular, anodized platinum and painted matte white finishes, with angled diffuse glass spread lens.

Trim flange: 5-3/4" square
Aperture: 4-1/2" square

C4323SQ-CLR* - Clear Specular Reflector
C4323SQ-PL* - Platinum Reflector
C4323SQ-WHT - White Reflector

**Available with White Painted Flange, add "-WPF" to part number.*



CONTECH LIGHTING | a LEVITON company

Catalog No. _____

Type _____

Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing

Photometrics

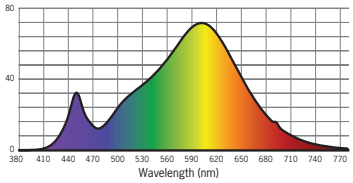
Multiplication Factors

CCT	STD CRI	HIGH CRI	SERIES 1	SERIES 2	SERIES 3	SERIES 4	SERIES 5	WHT/PL REFLECTORS
2700K	0.94	0.70	0.29	0.39	0.53	0.73	0.90	1.0
3000K	N/A	0.75	0.29	0.39	0.53	0.73	0.90	1.0
3500K	1.0	0.81	0.29	0.39	0.53	0.73	0.90	1.0
4000K	1.0	0.87	0.29	0.39	0.53	0.73	0.90	1.0

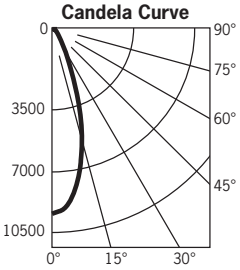
R4SQNC630K12DN/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87326

Light Output (Fixture Delivered Lumens): 3627
Total Watts@120V: 46.3
Lumens Per Watt: 78.3
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3011K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	9760	
5	9210	833
15	5648	1554
25	1611	885
35	354	269
45	67	69
55	9	10
65	4	4
75	2	2
85	0	0
95	0	

Intensity Distribution

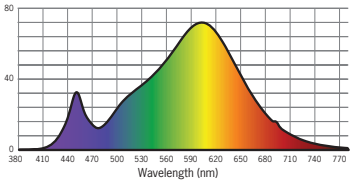
DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	271.1	3.4
8'	152.5	4.5
10'	97.6	5.6
12'	67.8	6.7
14'	49.8	7.8
16'	38.1	8.9

Beam Distribution: 33°
Spacing Criteria: 0.55

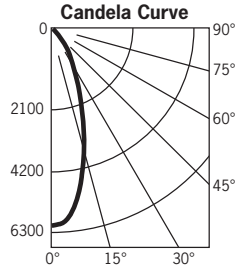
R4SQNC630K12DM/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87328

Light Output (Fixture Delivered Lumens): 3490
Total Watts@120V: 46.3
Lumens Per Watt: 75.4
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3026K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	6166	
5	5923	537
15	4028	1108
25	2051	997
35	981	624
45	148	203
55	10	14
65	4	4
75	1	2
85	0	0
95	0	

Intensity Distribution

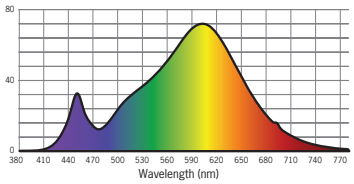
DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	171.3	3.7
8'	96.3	5.0
10'	61.7	6.2
12'	42.8	7.4
14'	31.5	8.7
16'	24.1	9.9

Beam Distribution: 39°
Spacing Criteria: 0.62

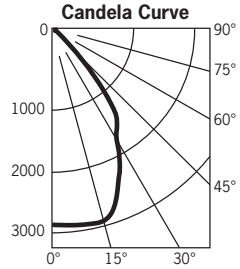
R4SQNC630K12DW/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87339

Light Output (Fixture Delivered Lumens): 3569
Total Watts@120V: 45.8
Lumens Per Watt: 77.9
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3011K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	2921	
5	2938	280
15	2941	811
25	2302	1094
35	1615	983
45	253	370
55	14	22
65	5	6
75	2	3
85	0	1
95	0	

Intensity Distribution

DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	81.1	6.5
8'	45.6	8.6
10'	29.2	10.8
12'	20.3	12.9
14'	14.9	15.1
16'	11.4	17.2

Beam Distribution: 73°
Spacing Criteria: 1.04

1. Dependent on surrounding temperatures
2. Accuracy of rendering colors
3. Color appearance of light source
4. Colors present within the light source

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

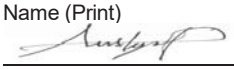
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

VIA 2 LED

PENDANT DIRECT

5 YEARS WARRANTY

LUMENWERX
WWW.LUMENWERX.COM

Shown with HLO optics

Integrated track

DESCRIPTION

Via 2 is the elegant and flexible linear LED luminaire system for pendant, surface, and recessed or in-wall installation, whether as discrete luminaires, continuous runs, or patterns. Via 2 features numerous optical configurations, which are difficult to achieve in luminaires. See separate spec sheets for patterns and other available mountings.

PROJECT: _____

TYPE: _____

NOTES: _____

LED lighting facts
LED Product Partner

up to 119 lm/w performance

ORDER GUIDE

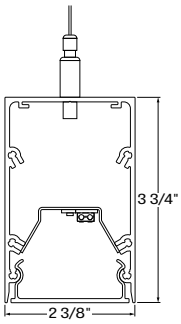
VIA2PD	HLO	LED			
LUMINAIRE ID	**OPTICS**	**LIGHT SOURCE**	**CRI**	**LUMEN PACKAGES**	**COLOR TEMP.**
VIA2PD - via 2" pendant direct	**HLO** - High-Efficiency Lambertian Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**350** - min. low output 350lm/ft **500** - medium output 500lm/ft **750** - max. high output 750lm/ft **####** - other required lm/ft 1750 lm/ft	**30** - 3000k **35** - 3500k **40** - 4000k

LUMINAIRE LENGTH	VOLTAGE	DRIVER	ELECTRICAL
Standard sections - 2', 3', 4', 5', 8' & 12' For all other specify length **#FT** - nominal length in feet **#IN** - length in inches Continuous Run - for luminaires over 12' Minimum Individual section 2'	**120** - 120V **277** - 277V **UNV** - 120V-277V **347** - 347V (not available with Lutron)	**D1** - 1% dimming 0-10V **DA** - Dali **LTEA2W** - Lutron 1% - 2 wires 120V **LDE1** - Lutron 1% Eco Dim to Off **LDE5** - Lutron 5% EcoSystem	**1** - 1 circuit **+#EB** - emergency battery (min 6' fixture, except Lutron) **+#EM** - emergency light circuit **+#NL** - night light circuit **+GTD###** - generator transfer device, 120V or 277V

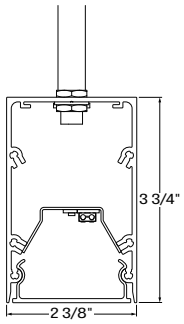
MOUNTING	FINISH	CONTROLS	OPTIONS
53WAC36 - power 5" + non power 3" white canopy (36" air craft cable) **55WSW18** - power 5" + non power 5" white canopy & stem (18" stem) For all other options refer to our Pendant Mounting Guide	**W** - matte white **AL** - aluminum **B** - matte black **CF#** - custom finish specify RAL#	INDIVIDUAL CONTROLS **OMS** - Onboard Occupancy **ODS** - Onboard Daylight **OCS** - Onboard Occupancy & Daylight GROUPED CONTROLS **LSC** - Local system **NSC** - Network system	**FU** - fuse **ITR** - integrated track (consult factory) **TB#** - T-bar caddy clip specify grid size **TG#** - Tegular caddy clip specify grid size **ST** - Screw Slots caddy clip **CU** - custom

See page 2 for ordering code detailed information

CROSS SECTION



VIA2PD - air craft cable



VIA2PD - stem

OPTICS

HLO - High-efficiency Lambertian Optic

VIA 2 LED

PENDANT DIRECT

LUMENWERX
WWW.LUMENWERX.COM

OPTICS

HIGH EFFICIENCY LAMBERTIAN OPTIC (HLO) - matte white side reflectors combined with High-Efficiency Lambertian Optic (HLO) shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration. Luminaire brightness is controlled by the flux-to-shielding area ratio.

LIGHT SOURCE - LED

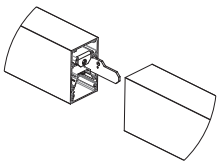
Custom linear array of mid-flux LED's are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 3000K, 3500K and 4000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. LEDs operated at reduced drive current to optimize efficacy and lumen maintenance.
All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

PERFORMANCE PER 4' AT 4000K

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	12	1400	119
medium output	4000K	17	2000	116
high output	4000K	27	3000	112

LUMINAIRE LENGTH

Via 2 is made up of standard 2, 3, 4, 5, 8 and 12 foot sections that may be joined together to create longer continuous run lengths. Exact run length must be noted in the product code. The minimum individual section available is 2 foot.
All individual sections are joined together onsite using the joiner kits provided. LumenWerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.



joining system for Via 2

ELECTRICAL

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% (specify 2-wire, or Ecosystem Dim-to-Off), Lutron 5-Series (5% Ecosystem), DMX (RDM compatible) and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

EMERGENCY

Factory installed long life high temperature recyclable Ni-Cad battery pack with test switch and charge indicator, minimum of 90 minutes operation, up to 1000 lumens per 4ft (25°C) emergency lighting output. Recharge time of 24 hours.

MOUNTING OPTIONS

Fixtures can be pendant-mounted, using aircraft cables, or stem-mounted.
Unless otherwise specified, LumenWerx provides the following hardware:
For cable-mounted fixtures - 53WAC36 (5" white canopy for all power mounting point, 3" white canopy for non power mounting point, and a 36" cable)
For stem mounted fixtures - 55WSW18 (5" white canopy for all power mounting point, and non power mounting point, and a 18" white stem)
Caddy clips, if required specify under **OPTIONS**
For all other options, see our website for a detailed Pendant Mounting Guide

FINISH

Interior - 95%, reflective matte powder coated white paint
Exterior - matte white, matte black or aluminum powder coating.
Custom finishes are also available.

CONTROLS

LumenWerx offers several options for integrating occupancy and daylight controls. Whether a sensors control its own fixture or is part of a group of fixtures, lights can be automatically controlled according to different energy saving strategies.
With **individual Controls**, an on-board sensor controls the fixture in which it is installed. Depending on the length, more than one sensor may be necessary and may control the entire fixture, or just a section.
With **Grouped Controls**, on-board or remote sensor are part of a either a local or network sensor infrastructure. It's possible to scale the controls, from a switch to a fixture setup, to a room or a whole building Occupancy and or daylight harvesting.

VIA 2 LED

PENDANT DIRECT

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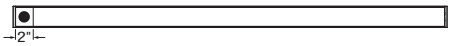
INDIVIDUAL CONTROLS

Individual controls are integrated into the fixture and are therefore easy to use and allow for a cleaner looking space as no ceiling or wall-mounted sensors are required. Individual controls can be one of three types (**OMS**) Occupancy, (**ODS**) Daylight Harvesting (Photocell), or (**OCS**) combined occupancy and daylight harvesting. These controls will be installed with factory settings, but most offer field adjustability with regular tools or manufacturer supplied configuration tools.



Location of an Onboard control

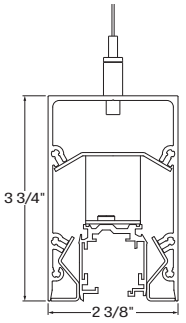
GROUPED CONTROLS

Local systems permit added flexibility and interconnectivity. Each fixture can now become part of a group of fixtures and be controlled by On-Board or remote sensors as well as wireless switches or controllers. With this architecture, it is now possible to have fewer fixtures with On-Board sensor which control all of the fixtures of the lighting zone. In order to have grouped controls programmed in factory, it is required that a floor layout with requested grouping and functionality be supplied. Field commissioning is also possible but must be requested and discussed before final Purchase Order is placed.

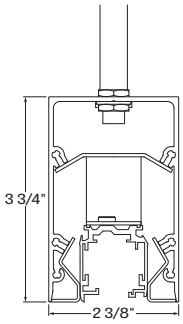
Network Controls, Lumenwerx fixtures are compatible with most popular BMS integration protocols such as DALI, DMX, EnOcean, BACnet, Enlighted and Lutron Ecosystem just to name a few. Field commissioning is usually required and details must be discussed before final Purchase Order is placed.
Please contact our controls department at controls@lumenwerx.com for further assistance.

OPTIONS

ITR - integrated track
Multiple track systems manufactured by others, are offered in Via 2 , in individual, or runs, with or without LED integrated sections. Detailed specifications of the track system must be supplied. For other mounting options, please consult factory.



VIA2-ITR - air craft cable



VIA2-ITR - stem

CONSTRUCTION

Housing - Extruded Aluminum (0.095" nominal) up to 90% Recycled Content
Interior brackets - Die formed cold rolled sheet steel 18 gauge thick
Joining system - Die cast Zinc (0.95" nominal)
Reflectors - Extruded Aluminum (0.075" nominal) up to 95% reflective matte
End caps - Die cast Aluminum (0.95" nominal)
Hanger - Chromed Griplock securely attached with spring steel hardware in end caps and/or joiners
Air craft cable suspension - 7x7 braids Aluminum air craft cable 0.06" thick
Stem - 0.5" diameter threaded steel tube matte white or aluminum powder coating. Custom finishes are also available

WEIGHT

Via 2 4ft - 9.03lbs - 4.1kg
Via 2 8ft - 18.28lbs - 8.3kg
Via 2 12ft - 27.97lbs - 12.7kg

CERTIFICATIONS

ETL - Rated for Indoor Dry/Damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
Lighting facts - testing products and reporting performance results according to industry standards.

WARRANTY

LumenWerx provides a five-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. LumenWerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

VIA 2 LED

PENDANT DIRECT

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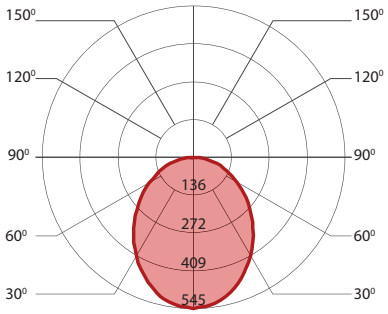
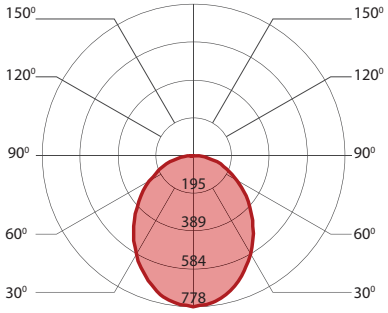
350 LUMEN AT 80CRI - LOW OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	3000K	12.5	1400	113
low output	3500K	12	1400	115
low output	4000K	12	1400	119

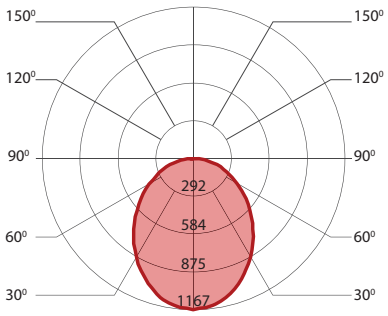
500 LUMEN AT 80CRI - MEDIUM OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	3000K	18	2000	111
medium output	3500K	17.5	2000	113
medium output	4000K	17	2000	116

750 LUMEN AT 80CRI - HIGH OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	3000K	28.5	3000	106
high output	3500K	28	3000	108
high output	4000K	27	3000	112

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

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2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

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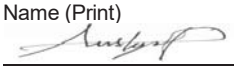
Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

Submitted by The Lighting Project NW

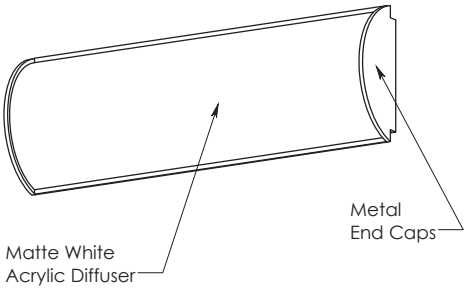
Job Name:
Woodburn City Hall Remodel and HVAC Upgrade
Architect: DECA Inc. (Portland)
Engineer: PAE Engineers (Portland)

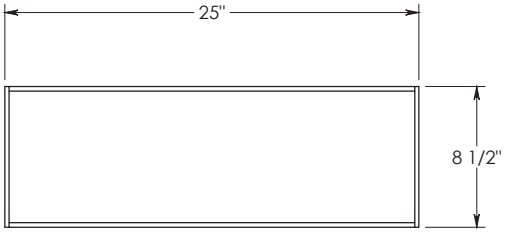
Catalog Number:
WS16280-25

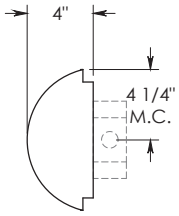
Notes:

Type:
L5

TLPNW18-9722







Quote No.:	117916		
Job Name:	*		
Item No.:	WS16280-25	Rev:	*
Type:	*	Qty:	1
Lamping:	LED: 4000K Approx Source Lumens: 2000		
Ballast:	120/277V Dimmable Power Supply, 0-10V		
Finish:	Standard Powder Coat Finish-(TBD)		
Date:	12/20/2018		
Notes:	Suitable for Dry Locations		
	*		
	*		

Mounting: Fixture is supplied with hardware for attachment to a 4 inch octagonal junction box (provided by others).

CAMMAN LIGHTING
111 STRAWCUTTER ROAD | DERRY, PA 15627
P: 724.539.7670 F: 724.539.7746
www.cammanlighting.com

APPROVAL: _____

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

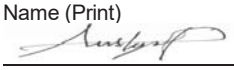
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

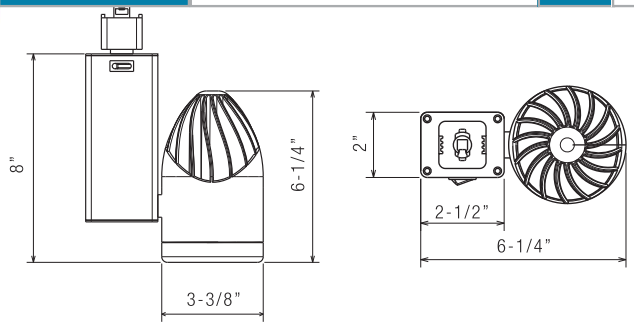
1999 Edition

ET-LED-374 LED-TRACK FIXTURE

Catalog Number: ET-LED-374

Project Name:

Type:



INPUT VOLT.	INPUT FREQ.	INPUT CUR.	INPUT POWER	THD	POWER FACTOR	LUMENS	TECHNOLOGY
20	50/60Hz	83mA	10W (+/-5%)	<20%	>0.9	600	HIGH PERFOR-MANCE
20	50/60Hz	100mA	12W (+/-5%)	<20%	>0.9	900	
20	50/60Hz	125mA	15W (+/-5%)	<20%	>0.9	1200	
20	50/60Hz	217mA	26W (+/-5%)	<20%	>0.9	2000	
20	50/60Hz	167mA	20W (+/-5%)	<20%	>0.9	1200	RGB + W
20	50/60Hz	83mA	10W (+/-5%)	<20%	>0.9	650	WARM DIM
20	50/60Hz	117mA	14W (+/-5%)	<20%	>0.9	900	
20	50/60Hz	267mA	32W (+/-5%)	<20%	>0.9	1200	

LED

RACK

LED TRACK LIGHTING SERIES

Elite's LED Track collection has the qualities of a true "Green" Product: energy efficiency, low emision, long life and no negative environmental impact. It's excellent for retail, commercial and residential applications. Elite's LED Track collection is the perfect solution for your eco-friendly lighting needs.

Warm Dim with Smart Dim technology mimics traditional incandescent halogen lighting through dimming. Using Warm Dim, luminaires dim smoothly from 3000K to 1800K. Warm Dim shifts smoothly over the black body radiator curve as the light dims you move into the rich amber tones that encourages relaxation. It is ideal for hospitality, architectural as well as residential applications, all while maintaining high lumen output for the most stringent energy codes today's legislation requires. Warm Dim comes pared with high CRI of 90+ and superior lumen output.

RGB + White with Smart Hue Technology is a Color Tuning Downlight across a tuning range of 8000-1650 (RGBW-LTX-80K-16K) using Luminetix components. Light can be dimmed from 100-1% while maintaining constant CCT. Gradients of saturated colors from 1-100% can be added to color points within the tuning range. Smart Hue can change a spaces' atmosphere by manipulating the color temperature of the room. For instance, the temperature is warm at sunrise, cool at noon high, and warm again by sunset. With Smart Hue, you can mimic the daylight patterns in indoor space with electric light or gradients of saturated colors from 1-100% that can be added to color points within the tuning range. This creates a more contrasting environment, which is perceived to be more exciting to the brain and helps people to adjust their moods accordingly.

If reducing glare while maintaining peak performance is your goal, you'll achieve that with our ET-LED-374. Our baffle optic design will enhance any space by distributing light evenly, while minimizing unwanted glare and brightness. With over three different optic choices, you have the flexibility to design around your needs.

HOUSING
- Constructed of die-cast aluminum body with toggle switch.
- Engineered to dissipate the heat produced by the LED module to ensure maximum life of 50,000 hours at 70% lumen maintenance.

LED MODULE PERFORMANCE
- Up to 2000 lumen output with 5000K CCT
- At least 50,000 hours of operating life
- Dimmable to 15% with Triac dimmer, available in 600, 900, 1200 & 2000 lumens

OPTICAL ACCESORIES
- Engineered and tested for superb light output and efficiency
- Available in 20º, 26º and 42º beam spread

LUMEN QUALITY
- Ultra Violet-free illumination
- CRI: 80+
- Available in 27K, 30K, 35K, 41K & 50K color temperature
- Also available with Warm Dimming Technology (Smart Dim)

While dimming, the color temperature changes from 3000K to 1800K

WARRANTY
- This fixture is covered by ELITE LIGHTING full three year replacement guarantee after date of purchase.

FINISH
AWH - White, ABK - Black

ET-LED-374

HIGH PERF.

CAT. #:	Lumens	Driver/Voltage	Color Temperature	Optics	Finish
ET-LED-374	☐600 ☐900 ☐1200 ☐2000	☐DIMTR-120	☐27K (2700 kelvin) ☐30K (3000 kelvin) ☐35K (3500 kelvin) ☐41K (4100 kelvin) ☐50K (5000 kelvin)	☐SP = 20º Spot ☐NFL = 26º Narrow ☐FL = 42º Flood	☐AWH ☐ABK

WARM DIM

CAT. #:	Lumens	Driver/Voltage	Color Temperature	Optics	Finish
ET-LED-374	☐650 ☐900 ☐1200	☐DIMTR-120	☐WDM-30K-18K (Smart Dim)	☐SP = 20º Spot ☐NFL = 26º Narrow ☐FL = 42º Flood	☐AWH ☐ABK

RGB + WHITE

CAT. #:	Lumens	Voltage	Color Temperature	Optics	Finish
ET-LED-374	☐1200	☐120	☐RGBW-80K-16K (Smart Hue)	☐SP = 20º Spot ☐NFL = 26º Narrow ☐FL = 42º Flood	☐AWH ☐ABK

For more information about RGB + W controllers, please contact the factory

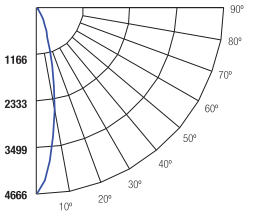
TRACK FIXTURE PHOTOMETRY DATA

ET-LED-374-1200L-40K-NFL-WH

TEST NO.: **EL-1115138**

INPUT WATTS: **15.1** LUMENS: **1209** CRI: **85+** EFFICACY: **80** CCT: **4000K** SPACING CRITERIA: **0.46**

Candle Power Distribution (Candelas)



Cone of Light		
4.0	291	1.9 ft.
8.0	72.8	3.7 ft.
12.0	32.3	5.6 ft.
16.0	18.2	7.5 ft.
20.0	11.6	9.3 ft.
24.0	8.09	11.2 ft.
Distance to Plane	Initial Footcandle at Nadir	Beam diameter

BEAM DIA. MEASURED AT 50% OF NADIR F.C.

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixt
0-20	856.94	N.A.	70.90
0-30	1117.05	N.A.	92.40
0-40	1178.63	N.A.	97.50
0-60	1198.61	N.A.	99.10
0-80	1207.63	N.A.	99.90
0-90	1209.34	N.A.	100.00

Luminance (Average candela/M²)

Angle in Degrees	Average 0°	Average 45°	Average 90°
45	1270	1300	11166
55	1300	1322	1389
65	1713	1618	1860
75	2176	2289	2395
85	419	3163	3393

Lumens Per Zone

Zone	Lumens
0-10	350.67
10-20	506.27
20-30	260.11
30-40	61.58
40-50	15.14
50-60	4.84
60-70	4.86
70-80	4.16
80-90	1.71

Candela Tabulation

	0
0	4657.566
5	3868.482
15	1496.796
25	483.558
35	12.036
45	5.904
55	4.902
65	4.758
75	3.702
85	0.240
90	0.036

Coefficients of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
ROOM CAVITY RATIO 0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	112	110	108	112	110	108	107	106	105	103	103	101	100	99	98	97	96
2	110	107	103	101	108	105	102	99	102	99	97	99	97	95	96	95	93	92
3	107	101	98	94	105	100	97	94	98	95	92	95	93	91	93	91	89	88
4	103	97	93	89	101	96	92	89	94	91	88	92	89	87	90	88	86	85
5	99	93	88	85	98	92	88	85	90	87	84	89	86	83	87	85	83	81
6	96	89	85	81	95	89	84	81	87	83	81	86	83	80	85	82	80	79
7	93	86	81	78	92	85	81	78	84	80	78	83	80	77	82	79	77	76
8	90	83	78	75	89	82	78	75	81	78	75	81	77	75	80	77	74	73
9	87	80	76	73	86	80	75	73	79	75	72	78	75	72	77	74	72	71
10	85	78	73	70	84	77	73	70	76	73	70	76	72	70	75	72	70	69

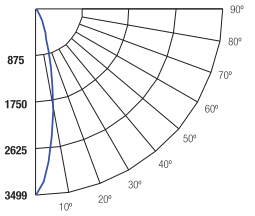
RC - Ceiling Cavity Reflectance *RW - Wall Reflectance*

ET-LED-374-900L-40K-NFL-WH

TEST NO.: **EL-1115138**

INPUT WATTS: **12.1** LUMENS: **907** CRI: **85+** EFFICACY: **75** CCT: **4000K** SPACING CRITERIA: **0.46**

Candle Power Distribution (Candelas)



Cone of Light		
4.0	146	1.9 ft.
8.0	36.4	3.7 ft.
12.0	16.2	5.6 ft.
16.0	9.10	7.5 ft.
20.0	5.82	9.3 ft.
24.0	4.04	11.2 ft.
Distance to Plane	Initial Footcandle at Nadir	Beam diameter

BEAM DIA. MEASURED AT 50% OF NADIR F.C.

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixt
0-20	642.71	N.A.	70.90
0-30	837.79	N.A.	92.40
0-40	883.98	N.A.	97.50
0-60	898.96	N.A.	99.10
0-80	905.72	N.A.	99.90
0-90	907.00	N.A.	100.00

Luminance (Average candela/M²)

Angle in Degrees	Average 0°	Average 45°	Average 90°
45	953	975	8375
55	975	992	1042
65	1284	1213	1395
75	1632	1716	1796
85	314	2372	2545

Lumens Per Zone

Zone	Lumens
0-10	263.00
10-20	379.70
20-30	195.08
30-40	46.19
40-50	11.35
50-60	3.63
60-70	3.64
70-80	3.12
80-90	1.28

Candela Tabulation

	0
0	3493.174
5	2901.361
15	1122.597
25	362.668
35	9.027
45	4.428
55	3.676
65	3.568
75	2.776
85	0.180
90	0.027

Coefficients of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
ROOM CAVITY RATIO 0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	115	112	110	108	112	110	108	107	106	105	103	103	101	100	99	98	97	96
2	110	106	103	101	108	105	102	99	102	99	97	99	97	95	96	95	93	92
3	106	101	98	94	105	100	97	94	98	95	92	95	93	91	93	91	89	88
4	103	97	93	89	101	96	92	89	94	91	88	92	89	87	90	88	86	85
5	99	93	88	85	98	92	88	85	90	87	84	89	86	83	87	85	83	81
6	96	89	85	81	95	89	84	81	87	83	81	86	83	80	85	82	80	79
7	93	86	81	78	92	85	81	78	84	80	78	83	80	77	82	79	77	76
8	90	83	78	75	89	82	78	75	81	78	75	81	77	75	80	77	74	73
9	87	80	76	73	86	80	75	73	79	75	72	78	75	72	77	74	72	71
10	85	77	73	70	84	77	73	70	76	73	70	76	72	70	75	72	70	69

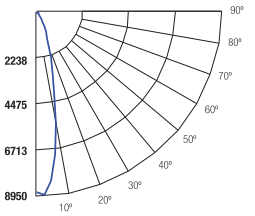
RC - Ceiling Cavity Reflectance *RW - Wall Reflectance*

ET-LED-374-2000L-40K-SP-WH

TEST NO.: **EL-101544**

INPUT WATTS: **24.1** LUMENS: **1987** CRI: **85+** EFFICACY: **82** CCT: **4000K** SPACING CRITERIA: **0.40**

Candle Power Distribution (Candelas)



Cone of Light		
4.0	551	1.5 ft.
8.0	138	3.0 ft.
12.0	61.2	4.5 ft.
16.0	34.4	6.0 ft.
20.0	22.0	7.5 ft.
24.0	15.3	9.0 ft.
Distance to Plane	Initial Footcandle at Nadir	Beam diameter

BEAM DIA. MEASURED AT 50% OF NADIR F.C.

Zonal Lumens Summary

Zone	Lumens	%Lamp	%Fixt
0-20	1344.49	N.A.	67.70
0-30	1752.57	N.A.	88.20
0-40	1898.99	N.A.	95.60
0-60	1965.32	N.A.	98.90
0-80	1983.84	N.A.	99.90
0-90	1986.74	N.A.	100.00

Luminance (Average candela/M²)

Angle in Degrees	Average 0°	Average 45°	Average 90°
45	8763	10469	23678
55	4716	5212	4642
65	4190	3960	4111
75	4362	4103	3921
85	3386	5865	5673

Lumens Per Zone

Zone	Lumens
0-10	598.74
10-20	745.75
20-30	408.08
30-40	146.42
40-50	49.83
50-60	16.50
60-70	11.26
70-80	7.26
80-90	2.90

Candela Tabulation

	0
0	8810.57
5	8286.81
15	3114.81
25	1046.86
35	236.57
45	40.73
55	17.78
65	11.64
75	7.42
85	1.94
90	0.07

Coefficients of Utilization - Zonal Cavity Method
Effective Floor Cavity Reflectance 0.20

RC	80%				70%				50%			30%			10%			0%
RW	70%	50%	30%	10%	70%	50%	30%	10%	50%	30%	10%	50%	30%	10%	50%	30%	10%	0%
ROOM CAVITY RATIO 0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	114	112	110	108	112	110	108	106	106	104	103	102	101	100	99	98	97	95
2	110	106	103	100	108	104	101	99	101	99	97	98	96	95	96	94	93	91
3	106	101	97	94	104	99	96	93	97	94	91	95	92	90	92	90	89	87
4	102	96	92	88	101	95	91	88	93	90	87	91	88	86	89	87	85	84
5	99	92	87	84	97	91	87	84	89	86	83	88	85	82	86	84	82	80
6	95	88	84	80	94	88	83	80	86	82	79	85	81	79	84	81	78	77
7	92	85	80	77	91	84	80	77	83	79	76	82	79	76	81	78	76	74
8	89	82	77	74	88	81	77	74	80	76	73	79	76	73	78	75	73	72
9	86	79	74	71	85	78	74	71	78	74	71	77	73	71	76	73	70	69
10	84	76	72	69	83	76	72	69	75	71	69	75	71	68	74	71	68	67

RC - Ceiling Cavity Reflectance *RW - Wall Reflectance*

TRACK LIGHTING SERIES - ACCESSORIES

Conduit Connector

ET126-_ 1-Circuit
ET2126-_ 2-Circuit
Color:
ET126- ❑ White ■ Black ❑ Satin Nickel
ET2126- ❑ White ■ Black

Continuation Kit

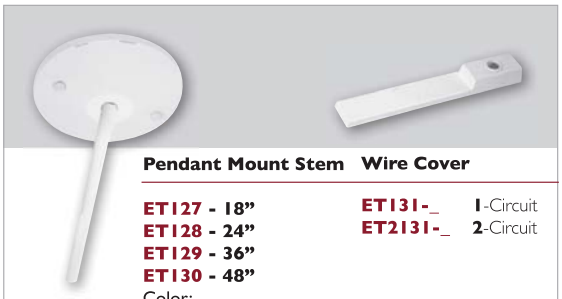
ET156-_ 1-Circuit
ET2156-_ 2-Circuit

Color:
❑ White ■ Black

"X" Connector to Connect 4 Track Sections

ET112-_ 1-Circuit
ET2112-_ 2-Circuit

Color:
❑ White ■ Black



Pendant Mount Stem

ET127 - 18"
ET128 - 24"
ET129 - 36"
ET130 - 48"
Color:
❑ White ■ Black

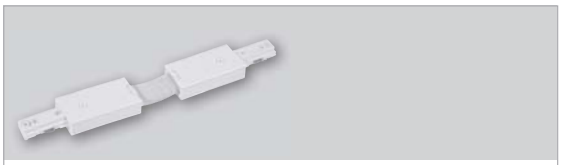
Wire Cover

ET131-_ 1-Circuit
ET2131-_ 2-Circuit

"T" Connector to Connect 3 Track Sections

ET111-_ 1-Circuit
ET2111-_ 2-Circuit

Color:
❑ White ■ Black



Flex Connector to Connect Track at any Angle

ET110-_ 1-Circuit
ET2110-_ 2-Circuit

Color:
❑ White ■ Black

Pendant Drop Slope Ceiling 5"

Diameter
ET139-_ **Universal-1, 2**-Circuit

Color:
❑ White ■ Black

T-bar Clip

ET150

Aircraft Gripper

ET165-_

Adjustable Gripper with Ceiling Coupler (Specify cable length)

TRACK LIGHTING SERIES - ACCESSORIES

Conduit Connector

ET126-_ 1-Circuit
ET2126-_ 2-Circuit
Color:
ET126- ❑ White ■ Black ❑ Satin Nickel
ET2126- ❑ White ■ Black

Continuation Kit

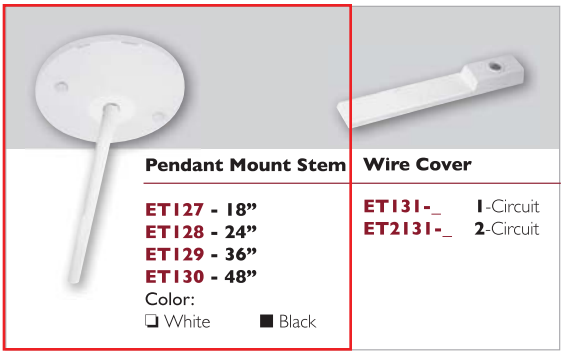
ET156-_ 1-Circuit
ET2156-_ 2-Circuit

Color:
❑ White ■ Black

"X" Connector to Connect 4 Track Sections

ET112-_ 1-Circuit
ET2112-_ 2-Circuit

Color:
❑ White ■ Black



Pendant Mount Stem

ET127 - 18"
ET128 - 24"
ET129 - 36"
ET130 - 48"
Color:
❑ White ■ Black

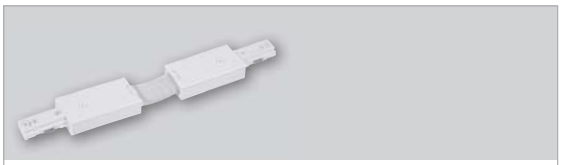
Wire Cover

ET131-_ 1-Circuit
ET2131-_ 2-Circuit

"T" Connector to Connect 3 Track Sections

ET111-_ 1-Circuit
ET2111-_ 2-Circuit

Color:
❑ White ■ Black



Flex Connector to Connect Track at any Angle

ET110-_ 1-Circuit
ET2110-_ 2-Circuit

Color:
❑ White ■ Black

Pendant Drop Slope Ceiling 5"

Diameter
ET139-_ **Universal-1, 2**-Circuit

Color:
❑ White ■ Black

T-bar Clip

ET150

Aircraft Gripper

ET165-_

Adjustable Gripper with Ceiling Coupler (Specify cable length)

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

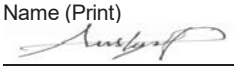
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

ALCOVE LED

5 YEARS WARRANTY

LUMENWERX
WWW.LUMENWERX.COM

DESCRIPTION

ALCOVE LED is a compact, high-performance luminaire providing efficient asymmetric light distribution. ALCOVE measures just 1 13/16" high by 3 7/8" deep. With peak intensity at 110°, adjustable optics, light output from 350 to 1200 lumens per foot, and efficacy up to 134LPW, ALCOVE delivers very effective ceiling illumination. Highly flexible, ALCOVE installs in site-built coves and other architectural enclosures, either as individual luminaires or in continuous runs with quick-connect wiring. Driver and LED boards are accessible without removing the luminaire.

PROJECT: _____

TYPE: _____

NOTES: _____

LED lighting facts
LED Product Partner

up to 134 lm/w performance

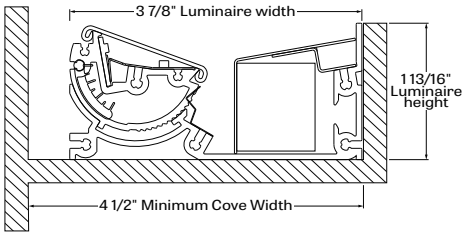
ORDER GUIDE

ALC	APO	LED				
LUMINAIRE ID	**OPTICS**	**LIGHT SOURCE**	**CRI**	**INDIRECT LUMEN PACKAGES**	**COLOR TEMP.**	**LUMINAIRE LENGTH**
ALC - alcove	**APO** - Adjustable Asymmetric Projecting Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**350** - min. eco low output 350lm/ft **550** - low output 550lm/ft **750** - medium output 750lm/ft **950** - high output 950lm/ft **1200** - max. ultra high output 1200lm/ft **####** - other required lm/ft 836 lm/ft	**30** - 3000k **35** - 3500k **40** - 4000k	Standard sections - 2', 3', **4'**, 5' 8' & 12' For all other specify length **#FT** - nominal length in feet **#IN** - length in inches Continuous Run - for luminaires over 12' Minimum Individual section 2'

				W	
VOLTAGE	**DRIVER**	**ELECTRICAL**	**MOUNTING**	**FINISH**	**OPTIONS**
120 - 120V **277** - 277V **UNV** - 120V-277V **347** - 347V (not available with Lutron)	**D1** - 1% dimming 0-10V **DA** - Dali **LTEA2W** - Lutron 1% - 2 wires 120V **LDE1** - Lutron 1% Eco Dim to Off **LDE5** - Lutron 5% EcoSystem	**1** - 1 circuit **+#EB** - emergency battery (min 4' fixture, except Lutron) **+#EM** - emergency light circuit **+#NL** - night light circuit **+GTD###** - generator transfer device, 120V or 277V	**COVH** - cove horizontal **COVV** - cove vertical	**W** - matte white	**FU** - fuse **CU** - custom

See page 2 for ordering code detailed information

CROSS SECTION

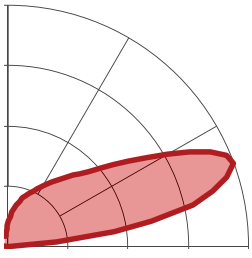


ALC - alcove

OPTICS

APO - Asymmetric Projecting Optics

PHOTOMETRY



110° peak candelas

RECOGNIZED BY NGL

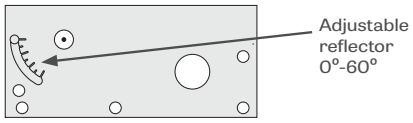
ALCOVE LED

LUMENWERX
WWW.LUMENWERX.COM

OPTICS

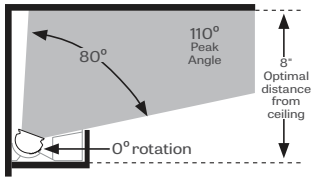
ASYMMETRIC PROJECTING OPTIC (APO) - Cartridge-mounted, linear LED arrays are paired with precisely formed specular and matte white reflectors for smooth light distribution. The LED array is protected by a clear acrylic cover. For maximum horizontal projection, the APO cartridge is angled 20°. This produces peak intensity at 110° above nadir and a peak-to-zenith intensity ratio of 11.8:1. Field angle coverage extends for 80°. For optimal beam spread, locate ALCOVE at least 8" below the ceiling.

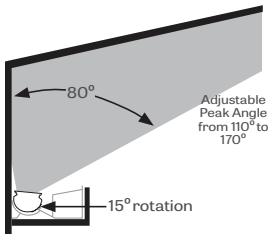
Field Adjustable Aiming (13 options)



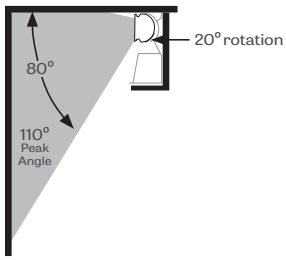
The Asymmetric Projecting Optic cartridges can be rotated upwards on site by 60° to increase vertical projection. Click-stop of 5° intervals, as well as visible aiming marks, provide 13 discrete aiming angles and simplify consistent orientation in long coves.

Horizontal Mount





Vertical Mount



LIGHT SOURCE - LED

Custom linear array of mid-flux LED's are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 3000K, 3500K and 4000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. LEDs operated at reduced drive current to optimize efficacy and lumen maintenance.
All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

PERFORMANCE PER 4' AT 4000K

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
eco low output	4000K	10.5	1400	131
low output	4000K	16.5	2200	134
medium output	4000K	23.5	3000	129
high output	4000K	30	3800	127
ultra high output	4000K	38	4800	127

LUMINAIRE LENGTH

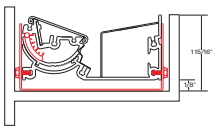
ALCOVE is highly flexible and can be installed as a single luminaire up to 12' long (see ordering code) or in continuous runs with a maximum module length of 8' (to simplify aiming). In continuous runs, modules are connected with easy-to-install joiner kits and electrical quick-connects. Total luminaire length must be 2" shorter than the inside of the cove to permit access to electrical connections.

ELECTRICAL

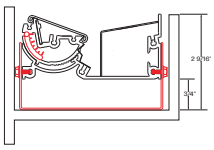
Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% (specify 2-wire, or Ecosystem Dim-to-Off), Lutron 5-Series (5% Ecosystem), DMX (RDM compatible) and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

ADJUSTABLE MOUNTING BRACKET

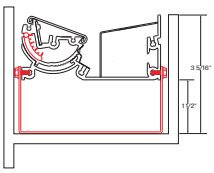
For optimal performance, ALCOVE should be installed flush to the top of the cove and is furnished with a adjustable mounting bracket to help locate the luminaire in coves of different depths. Mounted directly to the bottom of the cove, ALCOVE will be properly positioned in a cove with an inside depth of 1 15/16". The mounting bracket help raises the luminaire up to 3 5/16" in 1/8" increments. Other brackets height can be specified.



1 15/16" height



2 9/16" height



3 5/16" height

ALCOVE LED

LUMENWERX
WWW.LUMENWERX.COM

FINISH

Interior - 95%, reflective matte powder coated white paint
Exterior - matte white powder coating.

EMERGENCY

Factory installed long life high temperature recyclable Ni-Cad battery pack with test switch and charge indicator, minimum of 90 minutes operation, up to 1000 lumens per 4ft (25°C) emergency lighting output. Recharge time of 24 hours.

CONSTRUCTION

Housing - extruded aluminum 0.075" nominal thickness / Painted White
Reflectors - extruded aluminum 0.080" nominal thickness / Unfinished
Dust-Cover - Extruded Clear Acrylic 0.050" nominal thickness
Interior Brackets - 22 GA CRS / Painted White
White Reflectors - 22 GA CRS / Painted White
Specular reflectors - Specular aluminum sheet 0.020" thickness / Unfinished
End-Plates - 16 GA CRS / Painted White
Reflector Cartridge End-Plates - 14 GA CRS / Painted White
Joiner Plates - 16 GA CRS / Painted White

MAINTENANCE

LED boards are removable from the cartridge for easy replacement. Both cartridge and driver are accessible without removing the luminaire.

WEIGHT

ALCOVE 4ft - 4.2Kg - 9.4 lb
ALCOVE 8ft - 8.4Kg - 18.8 lb
ALCOVE 12ft - 12.6Kg - 28.2 lb

CERTIFICATIONS

ETL - Rated for Indoor Dry/Damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
Lighting facts - testing products and reporting performance results according to industry standards

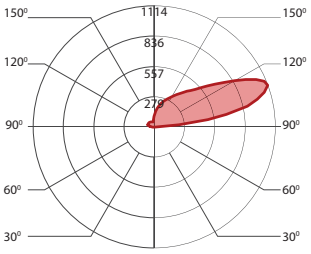
WARRANTY

LumenWerx provides a five-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. LumenWerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

ALCOVE LED

LUMENWERX
WWW.LUMENWERX.COM

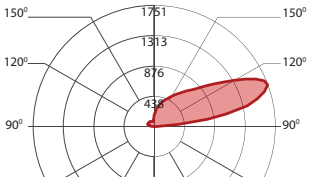
350 LUMEN AT 80CRI - ECO LOW OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
eco low output	3000K	11	1400	125
eco low output	3500K	11	1400	127
eco low output	4000K	10.5	1400	131

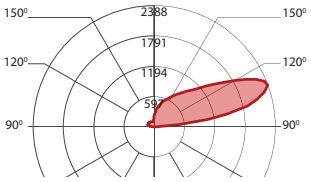
550 LUMEN AT 80CRI - LOW OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	3000K	17.5	2200	127
low output	3500K	17	2200	129
low output	4000K	16.5	2200	134

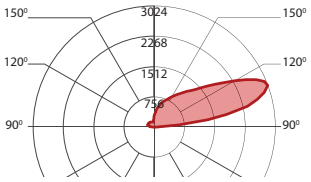
750 LUMEN AT 80CRI - MEDIUM OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	3000K	24.5	3000	122
medium output	3500K	24	3000	125
medium output	4000K	23.5	3000	129

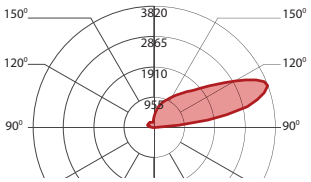
950 LUMEN AT 80CRI - HIGH OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	3000K	31.5	3800	120
high output	3500K	31	3800	123
high output	4000K	30	3800	127

1200 LUMEN AT 80CRI - UTRA HIGH OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
ultra high output	3000K	39.5	4800	121
ultra high output	3500K	39	4800	123
ultra high output	4000K	38	4800	127

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

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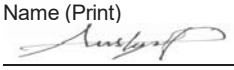
Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

ConTech Lighting | a Leviton company

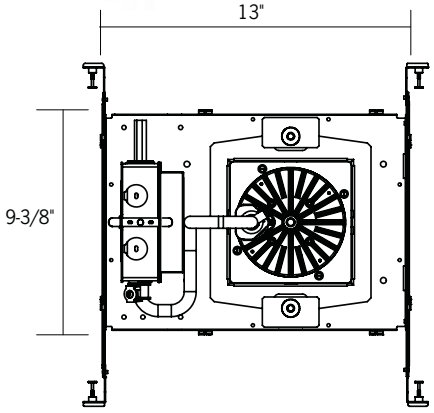
Catalog No. _____

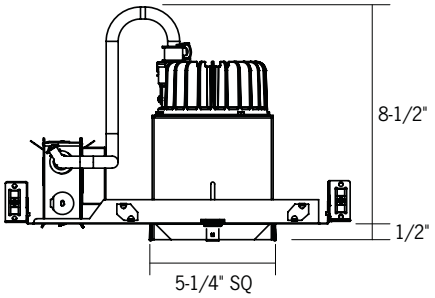
Type _____

Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing





Ceiling Opening: 5-3/8"
Ceiling Thickness: 1/2" – 2"

Specifications/Features

Housing/Mounting
Specification grade 4" Square New Construction housing delivering over 3600lm.
16 Gauge galvanized steel housing with die-cast aluminum heat sink.
Requires minimum 3" clearance around fixture from insulation material.
Thermal protection provided in case of improper insulation use.
Dual nailer hanger bars are adjustable for 16" and 24" center joists (14-1/4" to 24-1/2"). Nailer bars enable easy installation and may be extended to rest on T-bar ceilings. Optional clip-on T-bar hangers also available.
Mounting frame features a post installation mechanism that allows 1/4" adjustment in all directions, as well as 5° of rotation adjustment to ensure proper alignment.
Quick-connect LED light engine enables easy installation and removal.
LED Drivers are fully accessible from below the ceiling and can be easily removed.

Electrical
UL8750 and Class 2 Compliant; RoHS Compliant, US only.
Output over voltage, over-current and short circuit protection.
Approved for through-circuit wiring. Max.: (6) 12 AWG (3in/3out).
Pre-wired junction box with convenient screwdriver pry-outs. (4) 1/2" and (1) 1/2" x 3/4" concentric knockouts.
Optional emergency battery pack with remote test switch is available.

Lamp
Utilizes glass TIR optics engineered to provide smooth uniform beams, maximizing output and minimizing glare.
Available in 33°, 39° and 73° beam distributions. A high efficiency soft-focus film is installed for even greater softening of beam [field removable].
Light engine consists of a high output multi-chip LED array. Excellent fixture-to-fixture color consistency within a 3-step MacAdam Ellipse tolerance.
System designed and rated for 50,000 hours at 70% lumen maintenance

Dimming
All R4SQNC downlights are available for non-dimming and dimming applications.
For a list of compatible dimmers, refer to Dimming Specification sheet.

Trims
Specification Grade trims are available in different styles and finishes for your space. Featuring a high quality Alzak™ finish; optically designed for reduced glare while maintaining maximum lumen output.

Warranty
This complete fixture is covered by ConTech's full five (5) year replacement guarantee after date of purchase.
Emergency Battery option is covered by a one (1) year replacement guarantee after date of purchase.

Listing
cCSAus Certified to UL Standards.
Suitable for wet locations.
cCSAus Certified to UL924 Standard for Emergency Lighting when specified with the emergency battery backup option.
Energy Star certified: All color temperatures except 27KC. Trim No. C4322SQ-(all finishes).
Lutron and eldoLED dimming options are not Energy Star certified. 347V option is not Energy Star Certified.
Assembled in the USA.

	Series 1	Series 2	Series 3	Series 4	Series 5	Series 6
Input Wattage (W)	10	14	20	28	37	43
Input Current (A) 120/277/347	.08/.04/.03	.12/.06/.04	.17/.08/.06	.23/.11/.08	.31/.14/.11	.36/.16/.12
Input Voltage						
Standard Driver (120V & 277V)	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
Standard Driver (347V)	347V AC, 50/60Hz					
Lutron HiLume® Driver	120V AC, 50/60Hz					
Lutron Eco-System® Driver	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
eldoLED ECOdrive / SOLOdrive	120V AC, 50/60Hz					
	277V AC, 50/60Hz					
Color Temp	2700K/3000K/3500K/4000K					
CRI Standard/High	83 (80min) / 90+					
Driver						
Power Factor	> 0.90					
THD	< 20%					

CONTECH LIGHTING | a LEVITON company

Catalog No. _____

Type _____

Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing

Ordering Information

Example Order: R4SQNC430KI2DW – ER

Housing	LED Series	Color Temp	Electrical	Dimming	Beam Dist.		Options
						-	
R4SQNC	**1** - 10W/1000lm **2** - 14W/1400lm **3** - 20W/2000lm **4** - 28W/2600lm **5** - 37W/3200lm **6** - 43W/3600lm	**27K** - 2700K **30K** - 3000K **35K** - 3500K **40K** - 4000K **27KC** - 2700K, 90+ CRI **30KC** - 3000K, 90+ CRI **35KC** - 3500K, 90+ CRI **40KC** - 4000K, 90+ CRI	**12** - 120V **27** - 277V **34**[1] - 347V	**D**[2] - TRIAC, ELV, 0-10V Dimming **D2**[1] - 347V, 0-10V Dimming Only **D3**[3] - Lutron Hi-Lume 1% 2-Wire LED Driver (120V Forward Phase Only) **D4** - Lutron Hi-Lume 1% EcoSystem LED Driver with Soft-on, Fade-to-Black **D6**[4] - eldoLED ECODRIVE, 0-10V, 1% Dimming **D7**[4] - eldoLED ECODRIVE, DALI, 1% Dimming **D8**[4] - eldoLED SOLODRIVE, 0-10V, 0.1% Dimming **D9**[4] - eldoLED SOLODRIVE, DALI, 0.1% Dimming **DMX**[4,5] - eldoLED POWERDRIVE, DMX 0.0% Dimming	**N** - 33° **M** - 39° **W** - 73° **WW** - Wall Wash		**ER**[6] - Factory Installed 7W/200mA Emergency Battery Backup (Remote Test Switch)

For Intellect™ Enabled housing, refer to R4SQNCIE specification sheet.

1. Only available for 347V Dimming option (D2).
2. Triac and ELV Dimming For 120V Only.
3. Lutron Hi-lume Dimming Only Available in 120V.
4. eldoLED Drivers are Programmed for Linear Curve Dimming as Standard. For Logarithmic Curve Dimming, Please Consult Factory.
5. Verify DMX Driver and Control System Compatibility with Factory Prior to Ordering.
6. Emergency Battery Backup Option: 725 Lumen Nominal Average For Any Series 1 Through 6.

Accessories

Standard Hanger Bars Supplied with Housing

4SQOPT-N - 33° Beam Optic
4SQOPT-M - 39° Beam Optic
4SQOPT-W - 73° Beam Optic
RL-KIT - Commercial Mounting Brackets
HB-24 - 27" Flat Hanger Bars for RL-KIT
HBC-24 - 25" C-Channel Hanger Bars for RL-KIT in Grid Ceiling Construction
HB-30 - T-Bar Hanger Set

CONTECH LIGHTING | a LEVITON company

Catalog No. _____

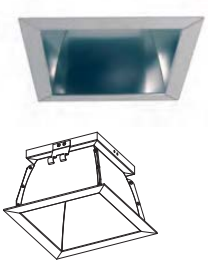
Type _____

Project _____

R4SQ

4" Square LED Recessed Downlight Series

Trims and Accessories



Specification Grade Reflector Trim

Specification grade segmented reflector; available in anodized clear specular, anodized platinum and painted matte white finishes.

Trim flange: 5-3/4" SQ; Aperture: 4-1/2" SQ

C4322SQ-CLR* - Clear Specular Reflector
C4322SQ-PL* - Platinum Reflector
C4322SQ-WHT - White Reflector

**Available with White Painted Flange, add "-WPF" to part number.*

ISOWET
Dead Front Square Reflector Trim

Isolated, wet location approved thermoplastic reflector.

Trim flange: 5-3/4" SQ; Aperture 4-1/2" SQ

C4322SQDF-SL - Satin Silver Paint
C4322SQDF-SL-WPF - Satin Silver Paint with White Painted Flange
C4322SQDF-WHT - Matte White Paint

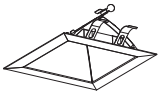
Lensed Wall Wash Trim

Lensed wall wash trim; available in anodized clear specular, anodized platinum and painted matte white finishes, with angled diffuse glass spread lens.

Trim flange: 5-3/4" square
Aperture: 4-1/2" square

C4323SQ-CLR* - Clear Specular Reflector
C4323SQ-PL* - Platinum Reflector
C4323SQ-WHT - White Reflector

**Available with White Painted Flange, add "-WPF" to part number.*



CONTECH LIGHTING | a LEVITON company

Catalog No. _____

Type _____

Project _____

R4SQNC

4" Square LED Recessed Downlight: Universal New Construction Housing

Photometrics

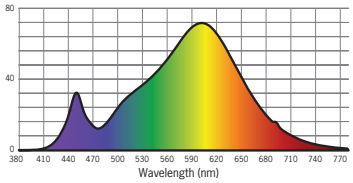
Multiplication Factors

CCT	STD CRI	HIGH CRI	SERIES 1	SERIES 2	SERIES 3	SERIES 4	SERIES 5	WHT/PL REFLECTORS
2700K	0.94	0.70	0.29	0.39	0.53	0.73	0.90	1.0
3000K	N/A	0.75	0.29	0.39	0.53	0.73	0.90	1.0
3500K	1.0	0.81	0.29	0.39	0.53	0.73	0.90	1.0
4000K	1.0	0.87	0.29	0.39	0.53	0.73	0.90	1.0

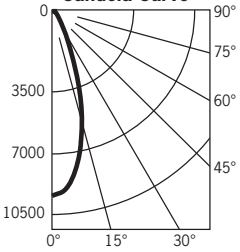
R4SQNC630K12DN/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87326

Light Output (Fixture Delivered Lumens): 3627
Total Watts@120V: 46.3
Lumens Per Watt: 78.3
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3011K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	9760	
5	9210	833
15	5648	1554
25	1611	885
35	354	269
45	67	69
55	9	10
65	4	4
75	2	2
85	0	0
95	0	

Intensity Distribution

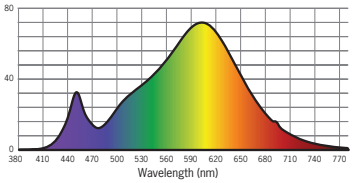
DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	271.1	3.4
8'	152.5	4.5
10'	97.6	5.6
12'	67.8	6.7
14'	49.8	7.8
16'	38.1	8.9

Beam Distribution: 33°
Spacing Criteria: 0.55

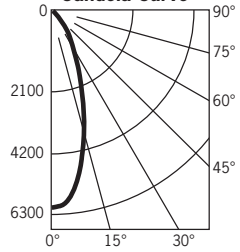
R4SQNC630K12DM/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87328

Light Output (Fixture Delivered Lumens): 3490
Total Watts@120V: 46.3
Lumens Per Watt: 75.4
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3026K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	6166	
5	5923	537
15	4028	1108
25	2051	997
35	981	624
45	148	203
55	10	14
65	4	4
75	1	2
85	0	0
95	0	

Intensity Distribution

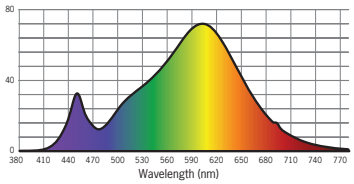
DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	171.3	3.7
8'	96.3	5.0
10'	61.7	6.2
12'	42.8	7.4
14'	31.5	8.7
16'	24.1	9.9

Beam Distribution: 39°
Spacing Criteria: 0.62

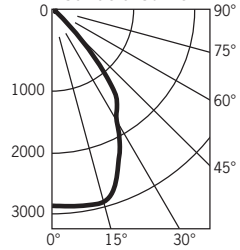
R4SQNC630K12DW/C4322SQ-CLR (Soft Focus Film)

Designed for 50,000 Hour Lamp Life[1]; LM-63 Test No. 87339

Light Output (Fixture Delivered Lumens): 3569
Total Watts@120V: 45.8
Lumens Per Watt: 77.9
Color Rendering Index (CRI)[2]: 82
Color Temperature (CCT)[3]: 3011K
Spectral Power Distribution Chart[4]



Candela Curve



Candlepower Summary

FROM 0	CANDELA	LUMENS
0	2921	
5	2938	280
15	2941	811
25	2302	1094
35	1615	983
45	253	370
55	14	22
65	5	6
75	2	3
85	0	1
95	0	

Intensity Distribution

DISTANCE (FT.)	FOOTCANDLES (FC)	BEAM DIAMETER (FT.)
6'	81.1	6.5
8'	45.6	8.6
10'	29.2	10.8
12'	20.3	12.9
14'	14.9	15.1
16'	11.4	17.2

Beam Distribution: 73°
Spacing Criteria: 1.04

1. Dependent on surrounding temperatures
2. Accuracy of rendering colors
3. Color appearance of light source
4. Colors present within the light source

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

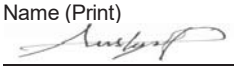
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

VIA 5 PERIMETER LED

RECESSED

LUMENWERX
WWW.LUMENWERX.COM

DESCRIPTION

Via Perimeter 5 creates a continuously illuminated "slot" at the wall/ceiling intersection. Lighted corners with an adjustable end sleeves are available. Via Perimeter installs in grid or drywall ceilings in a choice of three arrangements: level, shallow 1", and deep 3 ¼".

5 YEARS WARRANTY

PROJECT: _____

TYPE: _____

NOTES: _____

up to 115 lm/w performance

ORDER GUIDE

IC RATED

	HLO	LED			
LUMINAIRE ID	**OPTICS**	**LIGHT SOURCE**	**CRI**	**LUMEN PACKAGES**	**COLOR TEMP.**
V5PERL - via 5 perimeter levelled **V5PERS** - via 5 perimeter shallow **V5PERD** - via 5 perimeter deep	**HLO** - High-Efficiency Lambertian Optic	**LED** - high performance LED	**80** - 80CRI **90** - 90CRI	**500** - min. low output 500lm/ft **750** - medium output 750lm/ft **1000** - max. high output 1000lm/ft **####** - other required lm/ft	**30** - 3000k **35** - 3500k **40** - 4000k

LUMINAIRE LENGTH	**VOLTAGE**	**DRIVER**	**ELECTRICAL**	**MOUNTING**
Standard sections - 2', 3', 4', 5', 8' & 12' For all other specify length **#FT** - nominal length in feet **#IN** - length in inches Continuous Run - for luminaires over 12' Minimum Individual section 2'	**120** - 120V **277** - 277V **UNV** - 120V-277V **347** - 347V (not available with Lutron)	**D1** - 1% dimming 0-10V **DA** - Dali **LTEA2W** - Lutron 1% - 2 wires 120V **LDE1** - Lutron 1% Eco Dim to Off **LDE5** - Lutron 5% EcoSystem	**1** - 1 circuit **+#EB** - emergency battery (min 4' fixture, except Lutron) **+#EM** - emergency light circuit **+#NL** - night light circuit **+GTD###** - generator transfer device, 120V or 277V	**TG9** - tegular 9/16" **TG15** - tegular 15/16" **TB9** - t-bar 9/16" **TB15** - t-bar 15/16" **ST** - screw slot t-bar **DTR** - drywall trim **DTL** - drywall trimless **DMF** - drywall mud flange

FINISH	**OPTIONS**
W - matte white **CF#** - custom finish specify RAL#	**FU** - fuse **FWC** - flexible whip cable (6' std) **CP** - Chicago Plenum **CU** - custom

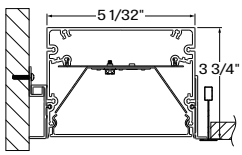
ADJUSTABLE SLEEVE

TES - optional adjustable end sleeve (for a minimum 5FT fixture length)

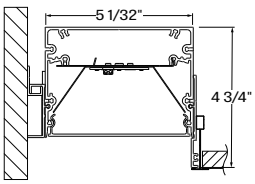
IMPORTANT: see page 4 when ordering a sleeve, TES.

See page 2 for ordering code detailed information

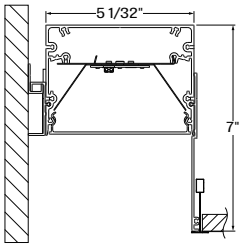
CROSS SECTION



V5PERL - via 5 perimeter levelled

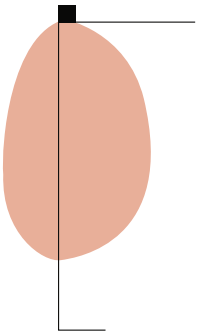


V5PERS - via 5 perimeter shallow



V5PERD - via 5 perimeter deep

LIGHT DISTRIBUTION



V5PERL - via 5 perimeter levelled

2016 PROGRESS Report SELECTION

TECHZONE™ & **USG** Compatible with 6" ceiling

VIA 5 PERIMETER LED

RECESSED

LUMENWERX
WWW.LUMENWERX.COM

OPTICS

HIGH EFFICIENCY LAMBERTIAN OPTIC (HLO) - matte white side reflectors combined with High-Efficiency Lambertian Optic (HLO) shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration. Luminaire brightness is controlled by the flux-to-shielding area ratio.

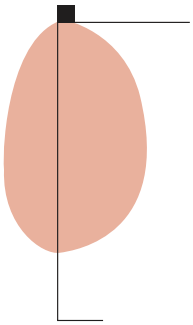
LIGHT SOURCE - LED

Custom linear array of mid-flux LED's are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 3000K, 3500K and 4000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. LEDs operated at reduced drive current to optimize efficacy and lumen maintenance.
All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

PERFORMANCE PER 4' AT 4000K

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	4000K	17.5	2000	115
medium output	4000K	26.5	3000	114
high output	4000K	36	4000	111

LIGHT DISTRIBUTION



V5PERD-HLO-
LED-80-750-40-20
Wall Luminaires: 20' run
Lumen Output: 750 lm/ft
Watts: 8.3 watts/ft
Ceiling Height: 10'
Efficacy: 90 lpw

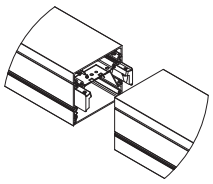
Foot Candles on 20' wide wall, 10' ceiling

156.9	154.3	162.4	152.9	153.0	152.9	152.9	163.0	154.4	157.5
14.8	14.1	13.1	12.7	12.6	12.6	12.7	13.1	14.2	15.8
8.6	8.0	7.2	6.9	6.8	6.8	6.8	7.2	8.1	8.7
7.0	6.5	6.0	5.8	5.8	5.8	5.9	6.1	6.5	7.0
6.2	5.9	5.5	5.6	5.9	5.9	5.7	5.5	5.9	6.4

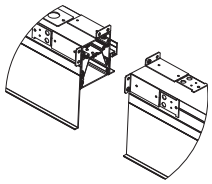
LUMINAIRE LENGTH

All individual sections are joined together onsite using the joiner kits provided. LumenWerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.

Joining system



Drywall joining



Grid joining

ELECTRICAL

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% (specify 2-wire, or Ecosystem Dim-to-Off), Lutron 5-Series (5% Ecosystem), DMX (RDM compatible) and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

EMERGENCY

Factory installed long life high temperature recyclable Ni-Cad battery pack with test switch and charge indicator, minimum of 90 minutes operation, up to 1000 lumens per 4ft (25°C) emergency lighting output. Recharge time of 24 hours.

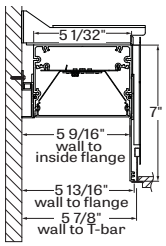
VIA 5 PERIMETER LED

RECESSED

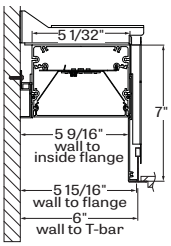
LUMENWERX
WWW.LUMENWERX.COM

MOUNTING OPTIONS

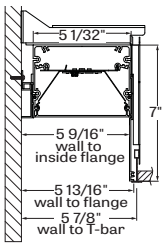
Recess mount into exposed or concealed T-Bar or Tegular grid ceiling,



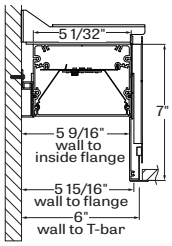
TG9 - tegular 9/16"



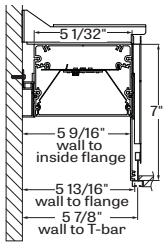
TG15 - tegular 15/16"



TB9 - t-bar 9/16"

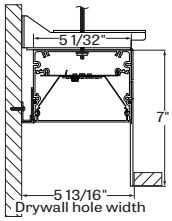


TB15 - t-bar 15/16"

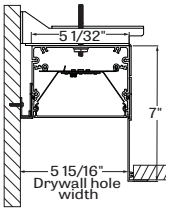


ST - screw slot t-bar

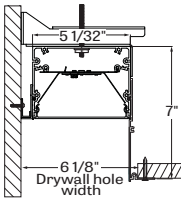
Mounting for drywall ceilings are available with visible trim, mud flange, trim or trimless.



DTL - drywall trimless



DTR - drywall trim



DMF - drywall mud flange

FINISH

Interior - 95%, reflective matte powder coated white paint
Exterior - matte white powder coating.
Custom finishes are also available.

CONSTRUCTION

Housing - Extruded Aluminum (0.095" nominal) up to 90% Recycled Content
Interior brackets - Die formed cold rolled sheet steel 18 gauge thick
Joining system - Die cast Zinc (0.95" nominal) and die Formed galvanized sheet 18 gauge
Reflectors - Flat rolled Aluminum sheet 0.040" thick precisely die formed, 95% reflective matte white painted
Recessed flanges - Extruded Aluminum (0.075" nominal) up to 90% Recycled Content
End plate - Die formed cold rolled sheet steel 18 gauge thick

MAINTENANCE

LED boards are housed in a removable cartridge for easy replacement. Driver is accessible from below.

WEIGHT

Via 5 perimeter 4ft - 11.78lbs - 5.35kg
Via 5 perimeter 8ft - 23.79lbs - 10.8kg
Via 5 perimeter 12ft - 35.24lbs - 16kg

CERTIFICATIONS

ETL - Rated for Indoor Dry/Damp locations.
Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0.
IC rated - suitable for direct contact with insulation.

WARRANTY

LumenWerx provides a five-year limited warranty of electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. LumenWerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications.

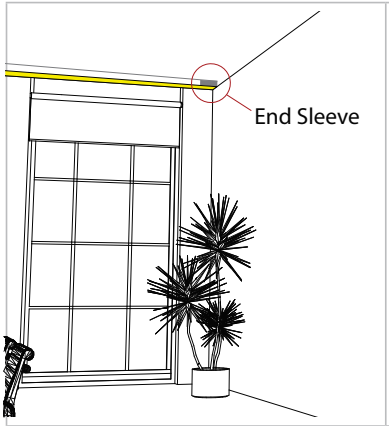
VIA 5 PERIMETER LED

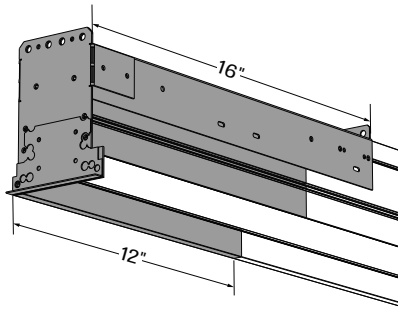
RECESSED

LUMENWERX
WWW.LUMENWERX.COM

ADJUSTABLE SLEEVE INSTALLATION

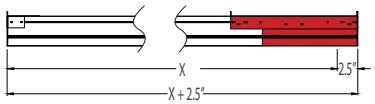
Adjustable sleeve is designed to provide on-site luminaire adjustability of +2.5" to -4.5". A sleeve accommodates an easy installation and maintenance. **Available for fixtures over 5ft long**. Please read the instruction below before you submit your order.



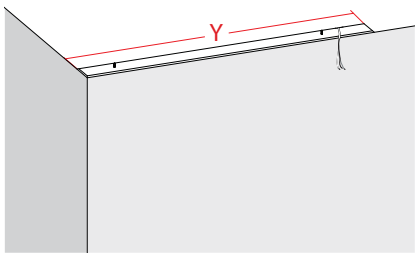


TES - End sleeve

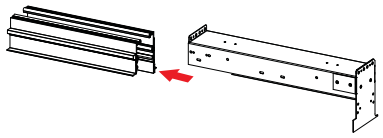
X = fixture measure provided by client
X+2.5" = measurement built and supplied



STEP 1 - ACTUAL SIZE PRODUCT

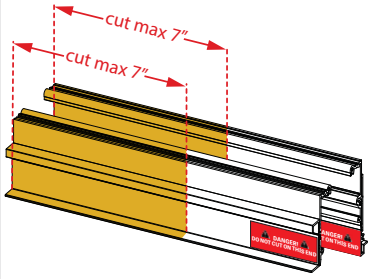


STEP 2 - MEASURE THE OPENING ON SITE

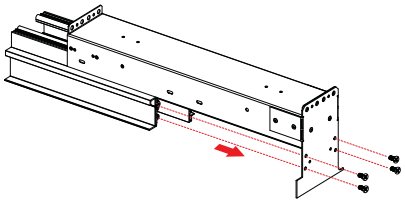


STEP 3 - REMOVE EXTRUSIONS FROM SLEEVE BASE

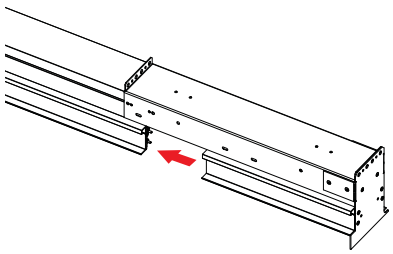
(X+2.5) - Y = length to cut the sleeve's extrusions



STEP 4 - CUT THE EXTRUSIONS



STEP 5 - PUT EXTRUSIONS BACK ON SLEEVE BASE



STEP 6 - RECONNECT SLEEVE BASE TO FIXTURE

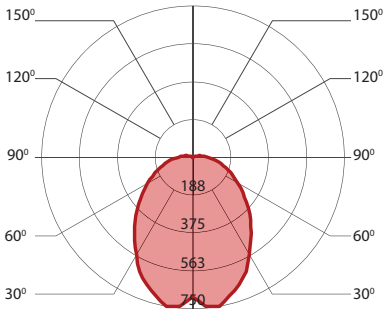
FOR MORE DETAILS, SEE OUR WEBSITE FOR INSTALLATION INSTRUCTIONS BY CEILING AND MOUNTING TYPE

VIA 5 PERIMETER LED

RECESSED

LUMENWERX
WWW.LUMENWERX.COM

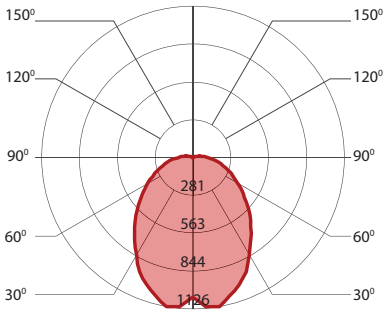
500 LUMEN AT 80CRI - LOW OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
low output	3000K	18.5	2000	109
low output	3500K	18	2000	112
low output	4000K	17.5	2000	115

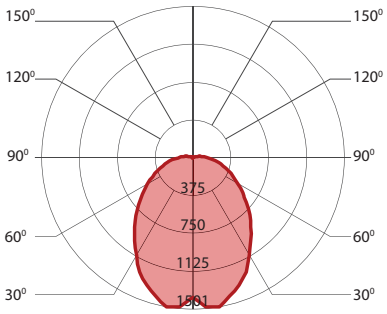
750 LUMEN AT 80CRI - MEDIUM OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
medium output	3000K	28	3000	108
medium output	3500K	27.5	3000	110
medium output	4000K	26.5	3000	114

1000 LUMEN AT 80CRI - HIGH OUTPUT



PERFORMANCE PER 4'

LED output	Color Temp	Watts	Nominal Delivered Lumens	Efficacy LPW
high output	3000K	38	4000	105
high output	3500K	37.5	4000	107
high output	4000K	36	4000	111

SUBSTITUTION REQUEST

The Construction Specifications Institute
Northwest Region

TO: Shem Harding (Deca Architecture, Inc)

PROJECT: Woodburn City Hall Remodel and HVAC Upgrade

SPECIFIED ITEM:

26 50 00	3 of 16	D	As described on luminaire schedule, Type:
Section No.	**Page**	**Paragraph**	**Description**

PROPOSED SUBSTITUTION:

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of request including identifying applicable portions.

Attached data also includes description of changes to Contract Documents that proposed substitution requires for proper installation.

Undersigned certifies that the following items, unless modified by attachments, are correct:

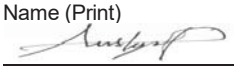
1. Proposed substitution does not affect dimensions shown on Drawings.
2. Undersigned pays for changes to building design, including engineering design, detailing and construction costs caused by proposed substitution.
3. Proposed substitution has no adverse effect on other trades, construction schedule, or specified warranty requirements.
4. Maintenance and service parts are available locally or are readily obtainable for proposed substitution.

Undersigned further certifies that function, appearance, and quality of proposed substitution are equivalent or superior to specified item.

Undersigned agrees that, if this page is reproduced, terms and conditions for substitutions found in Bidding Documents apply to this proposed substitution.

Submitted by

Austyn Parks
Name (Print)


Signature

The Lighting Project
Firm Name

315 Columbia st
Address

Vancouver, WA, 98661
City, State, Zip

12/18/2018
Date

360-314-4100
Telephone Fax

General Contractor (if after award of Contract)

For use by A/E:

____ Approved ____ Approved as Noted

____ Not Approved ____ Received Too Late

By

Date

Remarks

Attachments

1999 Edition

Submitted by The Lighting Project NW			
TLP	**Job Name:** Woodburn City Hall Remodel and HVAC Upgrade Architect: DECA Inc. (Portland) Engineer: PAE Engineers (Portland)	**Catalog Number:** 902E-R-WB-RC-FINISH Notes:	**Type:** **X1** TLPNW18-9722

BARRON EXITRONIX emergency lighting

900E Series

LED Edge-Lit Exit Sign

The 900E Series exit features an architectural, slim design to fit into any environment. Attractive and functional, the 900E Series is completely self-contained and utilizes reliable, energy-efficient LED illumination.

Model: _____ Date: _____

Accessories: _____

Job Name: _____ Type: _____

Custom legends available

FEATURES

- Attractive specification-grade aluminum design
- High clarity acrylic panels
- Ceiling recessed, wall recessed, surface ceiling, wall or end mount
- Custom legends available
- 120/277VAC Dual primary, 50/60Hz input
- Low voltage disconnect eliminates deep discharge
- Brownout, short-circuit and voltage surge protection
- Maintenance-free NiMH (G2) and Sealed Lead Calcium (WB) batteries
- Optional Guardian Self-test/Self-diagnostics (G2) available
- Constant, uniform illumination by long-life, high-intensity red or green LEDs
- Fully-illuminated 6" characters with 3/4" stroke
- Field-selectable directional chevrons included for all configurations
- Standard finishes: Black, Brushed Aluminum or White
- Consult factory for alternative Specialty Signage
- Assembled in U.S.A. with global components
- UL 924 Listed 90 minute emergency run time, 24 hour recharge time

WARRANTY

Any component that fails due to manufacturer's defect is guaranteed for 25 years with a separate five year prorated warranty on the battery. The warranty does not cover physical damage, abuse or instances of uncontrollable natural forces. See the full Exitronix warranty document for detailed information.

ORDERING INFORMATION Example: 902E-U-WB-RM-BA-G2

Series	**Mounting**	**Power Source**	**Panel Color**	**Finish**	**Options** (Factory Installed)
902E = Single-Face	R = Recessed	LB = AC Only	GC[2] = Green Letters/Clear Panel	BA = Brushed Alum.	DR = Damp Location Rated
903E[1] = Double-Face	U = Universal Surface	WB = With Battery	GM = Green Letters/Mirror Panel	BL = Black	G2[4] = Self-test/Self-diagnostics
	WR[2] = Wall Recessed	2CI1[3] = 2 Circuit Input 120/120V	GW = Green Letters/White Panel	WH = White	G2-220V[5,6] = Self-test/Self-diagnostics
		2CI7[3] = 2 Circuit Input 277/277V	RC[2] = Red Letters/Clear Panel		G2-230V[5,7] = Self-test/Self-diagnostics
		2CI17[3] = 2 Circuit Input 120/277V	RM = Red Letters/Mirror Panel		G2-240V[5,8] = Self-test/Self-diagnostics
			RW = Red Letters/White Panel		IV = Inverted Mount EXIT Panel

Notes
[1] Double face available with white or mirror panel only
[2] Single face, clear panels only (RC or GC)
[3] 2CI not available with G2 option
[4] NiMH only
[5] Available with battery units only, cannot be combined with any other options
[6] 220V version
[7] 230V version
[8] 240V version
[9] Order as separate line item, surface mount only

Note: See Specialty Signage specification for custom/alternate legends

Accessories[9] (Field Installed)
ER1-KIT = 1' Pendant Mount Kit
ER2-KIT = 2' Pendant Mount Kit

CONSTRUCTION
Surface Mounting: Engineering grade aluminum extrusion with mounting canopy in either a powder coated or brushed aluminum finish

Recessed Mounting: Galvanized steel enclosure supplied with a trim plate and adjustable bar hanger

Panels constructed of high quality clear acrylic for maximum light output. Exit letters are 6" high with a 3/4" stroke. Double-face panels are supplied with a mirror or white separator. Units are supplied with field selectable directional chevrons for all configurations.

ILLUMINATION
Illumination of the 900E Series is accomplished utilizing high-intensity, long-life LEDs. LEDs are a maintenance-free solution, providing up to 100,000 hours of use without failure.

ELECTRICAL
Input
Dual-voltage input 120 or 277VAC @ 50/60Hz.

Sealed Lead Calcium Battery (WB)
Exitronix sealed lead calcium batteries are maintenance-free. Lead calcium batteries perform optimally in temperatures ranging from 15°C to 40°C (59°F to 104°F).

Nickel-Metal Hydride - NiMH (With G2 option only)
Exitronix NiMH batteries are maintenance-free. NiMH batteries perform optimally in temperatures ranging from 0°C to 40°C (32°F to 104°F).

Emergency
The 900E Series exit will operate for a minimum of 90 minutes during a loss of power with a 24 hour maximum recharge time for the battery.

Two-Circuit Operation (Option: 2CI1, 2CI7 or 2CI17)
Two-Circuit input allows for a primary and auxiliary power source to be connected to the emergency unit that does not contain a battery. Applications include those with inverters or alternate backup power sources.

Brownout Circuit
Brownout circuit monitors the line voltage, as the line voltage sags and can no longer illuminate the exit sign to meet UL 924 visibility test, the emergency circuit will turn on to supply a portion or all the power to illuminate the sign for a minimum of 90 minutes until the line voltage is restored.

Low Voltage Disconnect
Low Voltage Disconnect (LVD) measures the battery terminal voltage. The LVD continuously monitors the battery terminal voltage and if it should fall below a preset voltage threshold, the LVD will disconnect the load. When the battery is recharging and voltage is raised above another preset voltage threshold, the load is automatically reconnected.

Test Button
The test button is easy to locate and provides manual verification of the transfer circuit and emergency lamps.

Solid-State Transfer (G2 option only)
The circuit features solid-state switching for emergency lamps, eliminating concerns of damaged contact or mechanical failures associated with relays. The switching circuit detects a loss of line voltage and automatically switches to emergency mode.

Overload and Short Circuit Protection
The overload monitoring system is a solid-state circuit which monitors the lamp load and disconnects from the battery shall an overload or short circuit occur. The overload current protection eliminates the need for fuses or circuit breakers for the DC load.

INSTALLATION
Installs in minutes with easy-to-read instructions and detailed diagrams. No special hardware or tools necessary. Internally housed components and battery.

Assembled in the U.S.A. with Global Components
Assembled in the U.S.A. with global components and is in full compliance with the American Recovery and Reinvestment Act of 2009 (ARRA) requirements.

OPTIONS
Damp Location Rated (Option: DR)
Damp Location Rated fixture that is normally or periodically subject to condensation of moisture in, on or adjacent to, and includes partially protected locations.

Guardian Self-test/Self-diagnostics (Option: G2)
Operation
The purpose of the Guardian circuit is to provide self-testing and self-diagnostic capabilities to the EXIT sign. The EXIT sign will automatically switch to battery mode every 28 days for a period of 5 minutes and every 6 months for a period of 90 minutes. The EXIT sign will also perform various self-diagnostic tests of the unit. Visual signaling will alert maintenance personnel to a fault of the EXIT sign electronics, battery and/or battery charger. The circuitry continuously monitors the operating condition of the EXIT sign and battery charging circuit/battery supply voltage. Refer to Self-Diagnostic section of this page for fault reporting details.

Indicator LEDs
The EXIT sign is provided with a state-of-the art pulse charging system for the battery. The yellow LED (STEADY STATE) indicates that the charger is turned off. The red LED (CHARGER ON) indicates that the battery is under full charge. NOTE – the “STEADY STATE” and “CHARGER ON” LEDs will toggle faster with a discharged battery. A fully charged battery will cause the “STEADY STATE” LED to be illuminated longer than the “CHARGER ON” LED. The green “AC ON” LED indicates that normal AC power is being supplied to the EXIT sign. The red “UNIT ALERT” indicates whenever the self-diagnostic system has detected a fault condition.

Test Button Features
- Pressing the “TEST BUTTON” once will switch the unit into battery mode for a period of 2 seconds.
- MANUAL TEST - Pressing the “TEST BUTTON” twice (in rapid succession), will switch the unit to battery mode for a period of 15 minutes. Pressing the “TEST BUTTON” once while the unit is MANUAL TEST mode will cancel the manual test and return the unit to normal AC power.
- RESET – Pressing the “TEST BUTTON” 3 times will reset the red “UNIT ALERT” LED. If multiple faults are present, it may be necessary to repeat this procedure for each remaining fault indicated by the “UNIT ALERT” LED.

Self-Diagnostic Features
Refer to the chart below when the “UNIT ALERT” LED is blinking.

Number of Blinks	Unit Fault	Corrective Action
1	Battery is Disconnected	Check battery connections
2	Battery	Replace battery
3	Not Applicable	Not Applicable
4	Charger	Check battery then consult factory
5	Transfer (AC to DC)	Check battery then consult factory

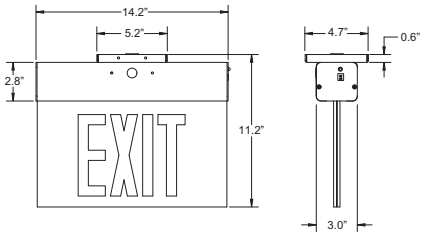
Inverted Mount EXIT Panel (Option: IV)
The IV option is designed were the panel is inverted to allow the enclosure to be installed on a ledge application.

Specialty Signage
For custom/alternate legends, see our Specialty Signage specifications.

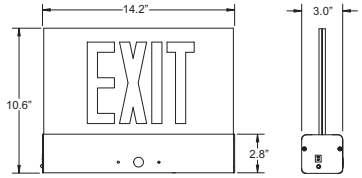
CONFORMANCE TO CODES & STANDARDS
The 900E Series is UL 924 Listed and meets or exceeds the following: NEC requirements and NFPA 101.

DIMENSIONS

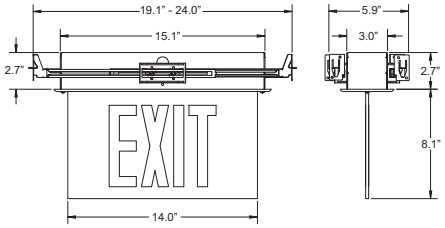
Surface Mount



Inverted Mount EXIT Panel



Recessed Mount



Wall Recessed Mount