

**ARCHITECHNICS, INC.**  
**510 MAINE STREET**  
**QUINCY, ILLINOIS 62301**

PROJECT NO. : 6181

**ADDENDUM NO.:** 1  
ISSUED: 02/06/24

Project: Mechanical Systems Replacement at  
Quincy Senior High School - Building E  
3322 Maine Street  
Quincy, Illinois 62301

This addendum becomes a part of the bidding and contract documents and modifies the drawings and specifications dated January 25, 2024. Acknowledge receipt of this addendum by noting such on the Contractor's Proposal (Bid) Form.

FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION

ITEM	DESCRIPTION		
<b><u>General</u></b>			
1.0	Pre-Bid Meeting Minutes attached are informational only and do not supercede the drawings and specifications. Addenda only can modify or change the drawings and specifications.		
2.0	As part of demolition, contractor to remove wall mounted TV's in Rooms E104, E106, E107, E109, E111, E113, E116, E120, E130, E206 and E213 and properly dispose. Remove TV and wall bracket / anchor lag screws. Owner to patch wall and paint.		
3.0	Roof mounted Heat Recovery Units to be demolished as shown on the mechanical demolition drawings - owner to remove parts (compressors, etc.) prior to removal from site. Coordinate with owner prior to demolition of units.		
<b><u>Substitutions</u></b>			
1.0	E501 & E502 Lighting Fixture	Add	Metalux Achieva 24ARS-L3C3-UNV is an acceptable manufacturer.
<b><u>Specifications</u></b>			
1.0	Section 02 2115 Supplementary ITC	Replace	Para. 24 - Contractor will have access and ability to work in the penthouse or on the roof pre and post Spring Break for work that does not cause noise or safety issues. Any noise related work shall take place before 7:00 a.m. or after 3:00 p.m. If lifts are made during school hours, contractor shall cover windows with plywood sheathing in the area of the lift. During Spring break, contractor has access to the penthouse and roof for any work that does not inhibit the HVAC operation. At the completion of school, contractor has access to the building between 6:00 a.m. to 7:00 p.m., unless given otherwise approval by owner.
2.0	Section 23 0713 Duct Insulation	Revise	See attached highlighted areas of specification.
3.0	Section 23 2113 Hydronic Piping	Add	Propress is an acceptable means for joining piping up through 4".
4.0	Section 23 3100 HVAC Ducts and Casings	Revise	See attached highlighted areas of specification.

## Drawings

1.0	M001 Building Key Plan	Add	Concrete drive and turn-around on the south side of Building E is constructed of 6.5" PC concrete, 8" aggregate base (CA-6) and geotextile fabric - constructed in 2015.
2.0	M401 VAV Schedule	Revise	Note 4 should read, "Damper and valve controllers shall be supplied and installed by BAS contractor. Control transformers shall be supplied by the BAS contractor and installed by the Electrical Contractor."
3.0	E201, E202, E205	Clarify	Electrical contractor shall install transformers for each VAV box. Transformer provided by BAS contractor.
4.0	E205	Clarify	See attached. Revised notes 3 & 4.
5.0	E301 & E302	Add	Surface mounted raceway and accessories: Wiremold 3000 Series. Steel, ivory, single power channel with hangers, fittings, couplings, elbows, receptacles, receptacle covers, etc. for a complete installation.
6.0	E501 & E502	Replace	See attached. Replace drawings in their entirety with updated reflected ceiling plans, revised notes and legend.

Attachments: Pre-Bid Meeting Minutes; Pre-Bid Attendance Record; Approved Substitution Form; Specification Sections 23 0713, 23 3100, Drawings E205, E501 & E502; I-Line Panelboard (pre-purchased by owner); Plan Holder's List



## Pre-Bid Meeting Minutes

Client: Quincy Public School District #172

Project Name: Mechanical System Replacement at Quincy Senior High – Building E

Project Number: 6181

Date: February 1, 2024

Time: 3:00 p.m.

Location: Quincy Senior High

### I. GENERAL / SPEC 00

- a. Attendance Sheet - attached
- b. Introductions
  - i. Owner representatives: Ryan Claire – Dir. of Maintenance.; Scott Hall – Building Supervisor; Bill Sanders – Assistant Principal; Jamie Riley; Riley Cane; Steve McNeilly
  - ii. Engineers: Todd Moore – Mechanical; Joel Peck - Electrical
- c. All inquiries emailed to Todd Moore and he will distribute question to proper person. NO verbal responses constitute a change in the contract plans and specs – only changes through Addenda during bidding or field directives/change orders in field.
- d. Additional site visits beyond this meeting – contact Ryan Claire, 217-228-7140.
- e. Bids
  - i. (1) Base Bid “A” category (no alternate bids).
  - ii. \$75,000 contingency (part of your base bid total) – only used if necessary and approved by owner.
  - iii. List subcontractors on Bid Form as indicated.
  - iv. Addenda – if you are submitting bidder – your responsibility to ensure any subcontractors and vendors are aware of addenda.
    - a) 1<sup>st</sup> addenda will be issued early next week.
  - v. Due – Friday, 02/23/24, 2:00 p.m.; Board of Education, 1416 Maine, Rm 231 (If in person – Allow time through security and security line/backup).
  - vi. Bid shall include – bid form and 5% bid bond (in the form per spec).
  - vii. An award if made will be withing (60) days; however, anticipate at an award at 02/28/24 board meeting.
  - viii. Substantial Completion – 08/02/24; Final Completion – 08/30/24.
- f. 100% Performance labor and material bond.
- g. Pre-purchased equipment:
  - i. AHU, CU
    - a) Contractor to receive, unload and store on site as per Dwg. M001 (delivery TBD – contact Kevin Krimmel at TMI, 636-236-1257.
    - b) Delivery: Condensing Unit – mid March; AHU – (9) pieces in May.

- ii. I-line Panelboard
  - a) Handout (cut sheet of panel).
  - b) Contractor to receive, unload and store.
- h. Tax exempt.
- i. Prevailing wage.
- j. Work restrictions
  - i. 6:00 a.m. – 7:00 p.m. during summer unless otherwise approved by owner.
  - ii. Start dates prior to summer – to be addressed in Addendum.
  - iii. Parking and building entrance by workers – per Dwg. M001.
- k. Familiarization of building – understand obstacles above ceiling. Owner will be cleaning up cabling during demolition.
- l. Product request form 00 4325 – must be used and submitted (10) days prior to bid date.
- m. Other certifications – drug free workplace, IL human rights, criminal background.
- n. Project record documents – keep track of changes and submit to Engineer. Engineer will create as-built set of drawings for the owner.
- o. Agreement Form – AIA A101 with A201 General Conditions (Exhibit A of A101 – note: insurance requirements).

## II. SPECIFICATIONS

- a. Summary
  - i. Demolition work:
    - a) Mechanical / HVAC systems and associated structural, plumbing and electrical.
    - b) Selective exhaust fans.
    - c) Acoustical tile ceiling and light fixtures (support ceiling devices).
    - d) Water heaters - electric.
  - ii. New work:
    - a) Complete new Mechanical / HVAC system including but not limited to a custom air handling unit / DX condensing unit; ductwork; VAV boxes with hot water reheat; high efficiency boilers; pumps; piping; split system DX for IT Room and DDC controls.
    - b) Exhaust fans - replacement of existing exhaust fans.
    - c) Roof mounted structural framing for new AHU.
    - d) Concrete closure for top of duct shaft.
    - e) Associated electrical power for new HVAC system.
    - f) High efficiency gas fired water heaters. Low pressure gas is stubbed into the room with new water heaters.
    - g) Associated gas piping for new HVAC system and water heaters.
    - h) Acoustical tile ceilings – matching existing. Wall runners to remain.
    - i) LED light fixtures & switches with dimming.
    - j) Classroom electrical power raceways.
    - k) New speakers with use of existing wiring.

- l) Owner provided security cameras and associated new cabling back to IT RM E230.
- b. Other closeout, demonstration & training procedures.
- c. Protection of existing conditions – demo and new work
  - i. Isolated to E building.
  - ii. Dust, protection of surfaces.
  - iii. Dumpster location.
- d. Owner will move furniture
- e. Conformance set of drawings and specifications will be issued for “Construction Set” including all addenda.

### **III. DRAWINGS**

- a. Plot 30 x 42
- b. M001 – site, staging, storage, building access
- c. Important dates (M001)
  - i. Spring Break: 03/25 – 04/01
  - ii. Last day of school (now): 05/27 (staff out 05/28)
  - iii. Staff back: 08/14
  - iv. First day of school: 08/16
  - v. Substantial completion (systems functional): 08/02 (custodial staff starting: 08/05)
- c. TPO roof – under warranty (contact Goerlich Roofing - Quincy)
- d. Note: work to remain – to be re-used (ductwork, diffusers, EF curbs and items noted on drawings)
- e. Entire ceiling replacement (except addition). Building addition ceiling removal and reinstallation only in limited areas of work.

### **IV. ADDENDA ITEMS for clarification and items per questions (addressed in forthcoming Addendum No. 1)**

- a. Clarification by owner on start date and allowable work times.
- b. Pro-press is acceptable.
- c. Duct pressure classifications and duct insulation modifications.
- d. VAV transformers – supplied by BAS, installed by E.C.
- e. Clarify control of lighting in stair towers.
- f. Demo restroom wall light fixture & cover (owner to paint)
- g. Electric raceway specification.
- h. 3-way switches (one with dimmer and one with toggle only) – verify in field which gets dimmer
- i. All switches and face plates (dimmer with toggle and toggle only) to be replaced; ivory color; switches that are toggle only (storage rooms, etc.) will be identified.
- j. Concrete thickness in area of crane placement.

### **V. SITE WALK - THROUGH**

# ARCHITECTHNICS

ARCHITECTS • ENGINEERS • INTERIOR DESIGNERS



## ATTENDANCE RECORD

Owner: Quincy Public School District #172

Project Name: Mechanical System Replacement at Quincy Senior High – Building E

Project Number: 6181

### Meeting Description: Pre-Bid Meeting

Date: February 1, 2024

Time: 3:00 p.m.

Location: Quincy Senior High

### Attendants

Name	Representing	Email	Phone
<u>TODD MOORE</u>	<u>ARCHITECTHNICS</u>	<u>TMOORE@ARCHITECTHNICSINC.COM</u>	<u>217-257-0033</u>
<u>Ryan Clair</u>	<u>QPS</u>	<u>clairny@qps.org</u>	<u>217-430-3164</u>
<u>JAMIE REILLY</u>	<u>QPS</u>	<u>Reillyja@qps.org</u>	<u>217-242-9864</u>
<u>STEVE MCNEILLY</u>	<u>QPS</u>	<u>MCNEILST@QPS.ORG</u>	<u>217-257-7498</u>
<u>JASON ANDERSON</u>	<u>Brinkman Plumbing</u>	<u>janderson@brinkmanplumbing.com</u>	<u>217-223-1962</u>
<u>RYAN REIL</u>	<u>Reil HVAC</u>		<u>217 223-5325</u>
<u>Tom Matthews</u>	<u>EL Pruitt</u>	<u>Tmatthews@elpruitt.com</u>	<u>217-899-1148</u>
<u>Lance Klausner</u>	<u>Marold Electric</u>	<u>MaroldElectric@com.net</u>	<u>217-222-6267</u>
<u>Rick Craven</u>	<u>Brown Electric</u>	<u>Rickc@brownelectric.net</u>	
<u>Nathan Nuttelman</u>	<u>" "</u>	<u>NathanN@pruittelectric.net</u>	
<u>Dave Sparrow</u>	<u>Sparrow Plumbing</u>	<u>bick@adams.net</u>	<u>217-223-9289</u>
<u>Tim Haache</u>	<u>Henson Robinson Co</u>	<u>THaache@Henson-Robinson.com</u>	
<u>Carl M Clamhar</u>	<u>Henson Robinson Co</u>	<u>CarlM@Henson-Robinson.com</u>	
<u>Melanie Allen</u>	<u>Shortridge</u>	<u>melanieeshortridgeconst.com</u>	<u>217-222-6647</u>
<u>Dennis Shortridge</u>	<u>" "</u>		
<u>JERRY SETTERLUND</u>	<u>ENTEC</u>	<u>JSETTERLUND@ENTEC-SOLUTIONS.COM</u>	<u>309-697-2122</u>
<u>John Howard</u>	<u>VERSUS Heating &amp; A/C</u>	<u>john@pfrstvac.net</u>	<u>(217) 222-1368</u>
<u>Ryan Fischer</u>	<u>Fischer Builders</u>	<u>Ryan@fischerbuilders.com</u>	<u>217 430 4058</u>
<u>Kyle Vichney</u>	<u>Mac's Electric</u>	<u>rvichney@macsco.com</u>	<u>217-257-3889</u>
<u>Bryce Beasta</u>	<u>Mac's Electric</u>	<u>BBeasta@macsco.com</u>	<u>217-430-4047</u>



SECTION 00 4325  
PROPOSED EQUIVALENT PRODUCT REQUEST FORM

TO: Architechnics

Project: HEALTH LIFE SAFETY WORK: MECHANICAL SYSTEMS REPLACEMENT  
QUINCY SENIOR HIGH SCHOOL - BUILDING E

We hereby submit for your consideration the following product instead of the specified item for the above project:

Section                      Paragraph                      Specified Item

E501 & E502

Proposed Equivalent Product: METALUX ACHIEVA 2AARS-L3C3-UNV

Attach complete technical data including laboratory test if applicable.  
Include complete information changes to Drawings and/or Specifications which proposed equivalent product require for proper installation.

Fill in blanks below, use additional sheets if necessary:

- A. Does the proposed equivalent product affect dimensions shown on Drawings? NO
- B. Will the undersigned pay for changes to building design, including engineering and detailing costs caused by proposed equivalent product, if any? NO
- C. What effect does proposed equivalent product have on other trades? NONE
- D. Differences between proposed equivalent product and specified item? NAME
- E. Manufacturer's guarantees of proposed and specified items are: FIVE YEARS
- Same                       Different (explain on attachment)

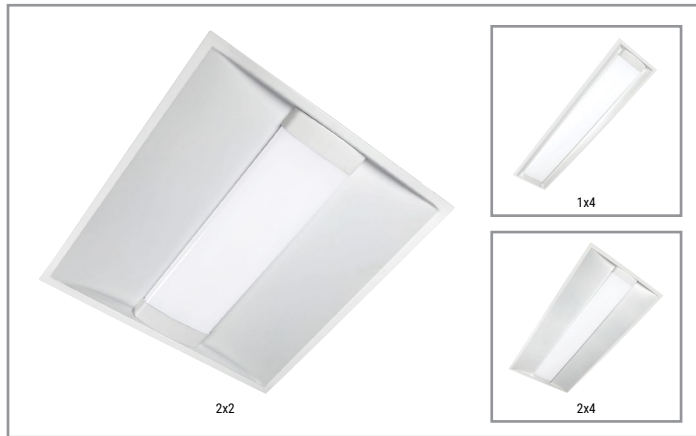
The undersigned states that the function, appearance and quality are equivalent or superior to the specified item.

Submitted by: Paul M. Kuhlmann  
Signature Paul M. Kuhlmann  
Firm LIGHTING ASSOCIATES  
Address 3116 S. Brentwood Blvd.  
Webster Groves, MO 63119  
Telephone 314-606-6412

For use by Design Consultant  
 Accepted                       Accepted as Noted  
 Not Accepted                       Received to Late  
By TODD MOORE  
Date 02.06.24  
Remarks \_\_\_\_\_



Project		Catalog #		Type	
Prepared by		Notes		Date	



# Metalux

## Achieva™ Selectable Center Basket

Achieva™ Selectable Lumens and CCT Troffer  
1x4 / 2x2 / 2x4

### Typical Applications

Offices • Education • Healthcare • Retail

### Interactive Menu

- Order Information/Performance page 2
- Photometric Data page 3
- Product Specifications page 4
- Product Warranty

### Product Certification



### Product Features

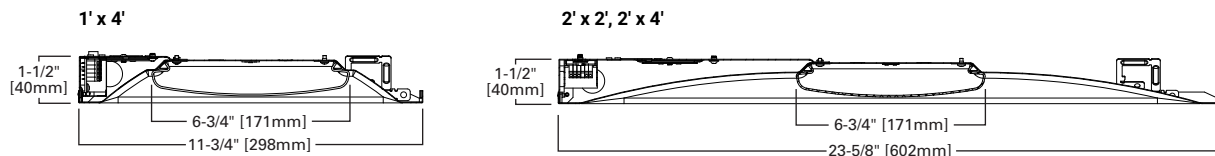


### Top Product Features

- Selectable lumens (low/medium/high) and selectable CCT (3500K/4000K/5000K) for use in a variety of applications and stock simplicity
- Selectable lumens offered in both standard selectable and high output selectable options
- Shallow plenum - 1.5" depth fits the most challenging spaces
- 0-10V dimming to 5% standard with 120-277V UNV
- Fully assembled driver integrated without exposed wires in the plenum.
- Emergency, Wavelinx, and Flex options available
- Integrated grid clips with holes for retaining wire and end hole to enable secure attachment to the grid where required
- Matches Achieva Surface for one family look across a space

## Achieva Dimensions

(Full Dimensions on Page 3)



### Ceiling Compatibility

G	G	G	Ceiling Type	Trim Type
Grid/Lay-in Standard	Concealed T	Slot Grid	Exposed Grid	Standard
			Concealed T	Standard
			Slot Grid	Standard
			Flange	*

\*See Drywall Frame Kit Accessory in Ordering Information Section

See page 4 for Junction Box details for ARS

[additional product diagrams](#)



## Achieva Ordering Information/Performance

Size	Catalog Number	Pack	Lumen Setting	CCT	CRI (Min)	Delivered Nominal Lumens	Watts	Efficacy (lm/W)
2x4	24ARS-L3C3-UNV	Single Carton	Low	3500K	80	3407	24.8	137
				4000K	80	3532	24.2	146
				5000K	80	3519	24.9	141
	24ARS-L3C3-UNV-MP2	Multi-Pack (2)	Medium	3500K	80	4566	34.4	133
				4000K	80	4777	33.3	143
				5000K	80	4718	34.5	137
			High	3500K	80	5877	47.0	125
				4000K	80	6254	45.5	138
				5000K	80	6120	47.3	130
2x4	24ARS-L3C3-HO-UNV	Single Carton	Low	3500K	80	6331	47.5	133
				4000K	80	6630	46.0	144
				5000K	80	6528	47.6	137
			Medium	3500K	80	6971	53.5	130
				4000K	80	7332	51.6	142
				5000K	80	7186	53.6	134
			High	3500K	80	7652	60.9	126
				4000K	80	8158	58.4	140
				5000K	80	8064	60.7	133
2x2	22ARS-L3C3-UNV	Single Carton	Low	3500K	80	2767	20.8	133
				4000K	80	2867	20.2	142
				5000K	80	2823	20.8	136
	22ARS-L3C3-UNV-MP4	Multi-Pack (4)	Medium	3500K	80	3488	27.2	129
				4000K	80	3646	26.3	139
				5000K	80	3563	27.2	131
			High	3500K	80	4183	33.4	125
				4000K	80	4308	32.9	131
				5000K	80	4229	33.3	127
2x2	22ARS-L3C3-HO-UNV	Single Carton	Low	3500K	80	5001	38.4	130
				4000K	80	5263	37.0	142
				5000K	80	5142	38.4	134
			Medium	3500K	80	5417	42.3	128
				4000K	80	5705	40.7	140
				5000K	80	5551	42.2	131
			High	3500K	80	5973	46.8	128
				4000K	80	6372	45.1	141
				5000K	80	6204	46.8	133
1x4	14ARS-L3C3-UNV	Single Carton	Low	3500K	80	2790	20.5	136
				4000K	80	2890	19.9	145
				5000K	80	2871	20.6	140
			Medium	3500K	80	3530	26.8	132
				4000K	80	3695	25.9	142
				5000K	80	3632	26.9	135
			High	3500K	80	4584	34.4	133
				4000K	80	4647	32.9	141
				5000K	80	4579	34.1	134

Multi-Pack "MP" option only available for (2) skus listed above.

## Achieva options

Catalog	Description	Example	Notes
EL7W	7W EM Pack, Installed	22ARS-L3C3-UNV-EL7W	Integrated Indicator/Test Switch into end cap
EL14W	14W EM Pack, Installed	24ARS-L3C3-UNV-EL14W	Integrated Indicator/Test Switch into end cap
A3/8-5/18GDIM	6' Length, 3/8" Cable, 3 Wire, 3 Dimming Leads, Ground	24ARS-L3C3-UNV-A3/8-5/18GDIM	
EL7W-A3/8-5/18GDIM EL14W-A3/8-5/18GDIM	7W/14W EM Pack, Installed, and 6' Flex, 3/8" Cable, 3 Wire, 2 Dimming Leads, Ground	24ARS-L3C3-UNV-EL7W-A3/8-5/18GDIM 22ARS-L3C3-UNV-EL14W-A3/8-5/18GDIM	EL7W and EL14W only use 5/18G flex with emergency. EM pack is always specified before (to the left of) the flex, in the catalog number.
WAB	WaveLinX Lite Wireless Integrated Sensor	22ARS-L3C3-UNV-WAB	Sensor Integrated into end cap
WAA	WaveLinX Wireless Integrated Sensor	24ARS-L3C3-UNV-WAA	Sensor Integrated into end cap

\*Emergency + Sensor Available (EL7W/EL14W + WAA/WAB)

## Achieva Shipping Data

Size	Fixture Net Weight	Fixture Gross Weight	Fixture Dimension	Carton Dimension	Fixtures per Carton	Pallet QTY (Cartons)	Pallet QTY (Fixtures)
2' x 2'	6.8 lbs.	9 lbs.	23.7" L x 1.8" W x 23.7" H	25.7" L x 2.8" W x 26.2" H	1	54	54
2' x 4'	11.3 lbs.	15.8 lbs.	47.7" L x 1.8" W x 23.7" H	50.4" L x 2.8" W x 26" H	1	27	27
1' x 4'	7 lbs.	10.2 lbs.	47.7" L x 1.8" W x 11.7" H	50.4" L x 2.8" W x 15.2" H	1	27	27
2' x 2' MP4	6.8 lbs.	31.8 lbs.	23.7" L x 1.8" W x 23.7" H	27.2" L x 8.1" W x 27.4" H	4	12	48
2' x 4' MP2	11.3 lbs.	30.1 lbs.	47.7" L x 1.8" W x 23.7" H	51.2" L x 5.1" W x 27.8" H	2	9	18

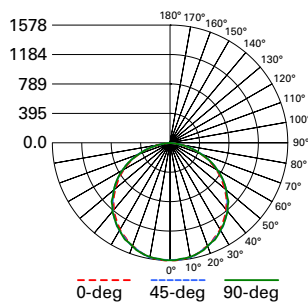
### Accessories

#### Accessories (order separately)

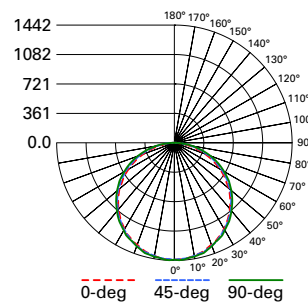
**DF-14W-U**=1' x 4' Drywall Frame Kit  
**DF-22W-U**=2' x 2' Drywall Frame Kit  
**DF-24W-U**=2' x 4' Drywall Frame Kit  
**SK-22-WS**=2' x 2' Shallow Surface Mount Kit  
**SK-24-WS**=2' x 4' Shallow Surface Mount Kit  
**SK-14-WT**=1' x 4' Tall Surface Mount Kit  
**SK-22-WT**=2' x 2' Tall Surface Mount Kit  
**SK-24-WT**=2' x 4' Tall Surface Mount Kit

## Photometric Data

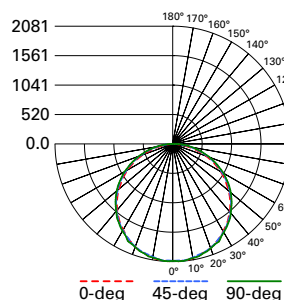
[View IES files](#)



**14ARS-L3C3-UNV-4000K-HI**  
 Electronic Driver  
 Linear LED 4000K  
 Spacing criterion: (II) 1.26 x mounting height, (L) 1.28 x mounting height  
 Lumens: 4647  
 Input Watts: 32.9W  
 Efficacy: 141 LPW  
 Test Report: 14ARS-L3C3-UNV-4000K-HI.IES



**22ARS-L3C3-UNV-4000K-HI**  
 Electronic Driver  
 Linear LED 4000K  
 Spacing criterion: (II) 1.26 x mounting height, (L) 1.28 x mounting height  
 Lumens: 4308  
 Input Watts: 32.9W  
 Efficacy: 131 LPW  
 Test Report: 22ARS-L3C3-UNV-4000K-HI.IES



**24ARS-L3C3-UNV-4000K-HI**  
 Electronic Driver  
 Linear LED 4000K  
 Spacing criterion: (II) 1.27 x mounting height, (L) 1.29 x mounting height  
 Lumens: 6254  
 Input Watts: 45.5W  
 Efficacy: 138 LPW  
 Test Report: 24ARS-L3C3-UNV-4000K-HI.IES

## Achieva Product Specifications

### Construction

- Die formed of code gauge prime cold rolled steel in one-piece housing design
- Four auxiliary fixture end suspension points
- Integral formed one-piece housing improves aesthetic design removing end plate light gaps
- Integrated T-Grid clip design for screw installation to the grid where required by code and in "earthquake" zones

### Integrated Controls

- Standard 0-10V dimming driver down to 5%

### LED and Light Engine

- Selectable Color temperature choices 3500K, 4000K, and 5000K
- Selectable lumen output up to 8000 lumens, with choices of low, medium, high
- TM21 life at 60,000 hours up to L94 and calculated L70 exceeds 290,000 hrs.
- Driver 120-277V Standard

### Emergency Options

- Optional emergency battery available in 7W and 14W
- 90-minute backup period for code compliance
- Factory installed integral test switch visible from room side

### Finish

- Powder Coat matte white
- 90% reflective, matte white enamel finish
- Full fixture housing painted after fabrication

### Shielding

- Rounded ribbed frosted lens standard
- Square ribbed frosted option coming Q1 (Consult Factory)

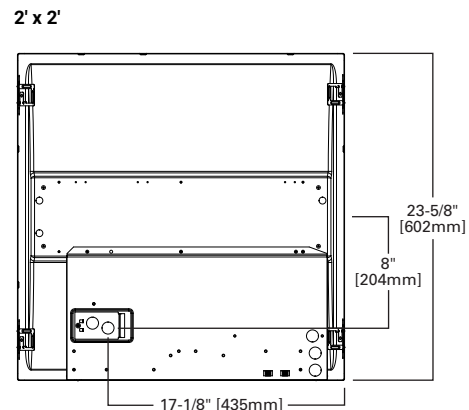
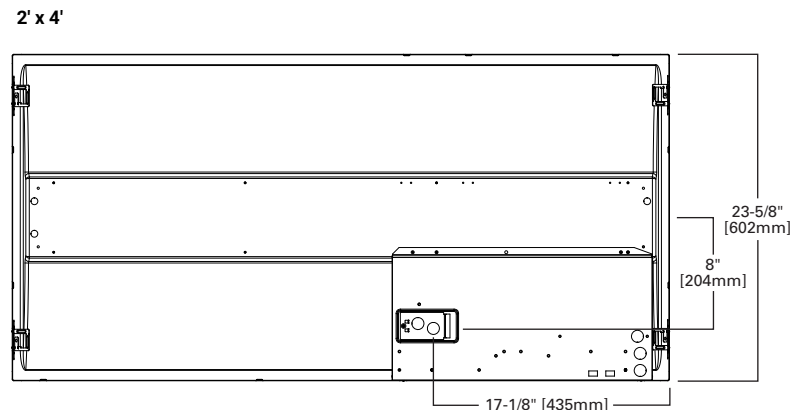
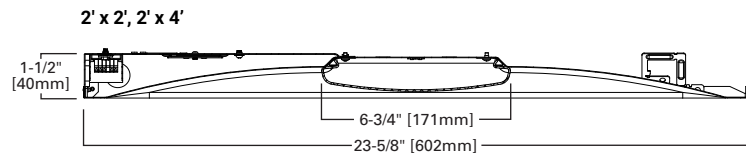
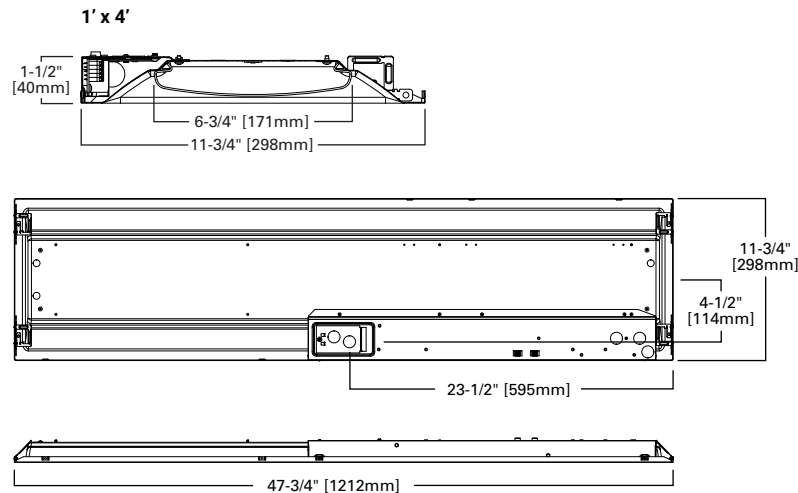
### Compliance

- IC rated for insulation contact
- cULus listed for damp locations
- RoHS compliant
- Tested to IESNA LM-79 and LM-80
- Stated life tested to TM21 standards
- Can be used for State of California Title 24 high efficacy luminaire
- Can be use for Non-residential T24
- DesignLights Consortium® Qualified and classified for DLC Standard and DLC Premium (refer to [www.designlights.org](http://www.designlights.org))

### Limited Warranty

- Five-year warranty standard. Optional ten year warranty available.

## Dimensional and Mounting Details



**SECTION 23 0713  
DUCT INSULATION**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Duct insulation.
- B. Duct liner.
- C. Weather barrier coatings.
- D. Jacketing and accessories.

**1.02 RELATED REQUIREMENTS**

- A. Section 23 0553 - Identification for HVAC Piping and Equipment.

**1.03 REFERENCE STANDARDS**

- A. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2021a.
- B. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
- C. ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2023.
- D. ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
- E. ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).
- F. ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2020.
- G. ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.
- H. ASTM C1290 - Standard Specification for Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts; 2016 (Reapproved 2021).
- I. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers; 2015 (Reapproved 2022).
- J. ASTM C1423 - Standard Guide for Selecting Jacketing Materials for Thermal Insulation; 2021.
- K. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- L. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials; 2022a, with Editorial Revision (2023).
- M. ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).

- N. SAE AMS3779 - Tape, Adhesive, Pressure-Sensitive Thermal Radiation Resistant, Aluminum Coated Glass Cloth; 2016b.
- O. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2020.
- P. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.

#### **1.04 SUBMITTALS**

- A. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.

#### **1.05 QUALITY ASSURANCE**

- A. Manufacturer Qualifications: Company specializing in manufacturing products of the type specified in this section with not less than three years of documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified in this section, documented experience and approved by manufacturer.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Accept materials on site in original factory packaging, labelled with manufacturer's identification, including product density and thickness.
- B. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

#### **1.07 FIELD CONDITIONS**

- A. Maintain ambient temperatures and conditions required by manufacturers of adhesives, mastics, and insulation cements.
- B. Maintain temperature during and after installation for minimum period of 24 hours.

### **PART 2 PRODUCTS**

#### **2.01 REGULATORY REQUIREMENTS**

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

#### **2.02 GLASS FIBER, FLEXIBLE**

- A. Manufacturer:
  - 1. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
  - 2. Johns Manville: [www.jm.com/#sle](http://www.jm.com/#sle).

3. Knauf Insulation: [www.knaufinsulation.com/#sle](http://www.knaufinsulation.com/#sle).
  4. Owens Corning Corporation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
  5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Insulation: ASTM C553; flexible, noncombustible blanket.
1. K value: 0.36 at 75 degrees F, when tested in accordance with ASTM C518.
  2. Maximum Service Temperature: 1,200 degrees F.
  3. Maximum Water Vapor Absorption: 5.0 percent by weight.
- C. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
  2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
  3. Secure with pressure-sensitive tape.
- D. Vapor Barrier Tape:
1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure-sensitive rubber-based adhesive.
- E. Outdoor Vapor Barrier Mastic:
1. Vinyl emulsion type acrylic or mastic, compatible with insulation, black color.
- F. Tie Wire: Annealed steel, 16 gauge, 0.0508 inch diameter.

### **2.03 GLASS FIBER, RIGID**

- A. Manufacturer:
1. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
  2. Johns Manville: [www.jm.com/#sle](http://www.jm.com/#sle).
  3. Knauf Insulation: [www.knaufinsulation.com/#sle](http://www.knaufinsulation.com/#sle).
  4. Owens Corning Corporation; 700 Series FIBERGLAS Insulation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
  5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Insulation: ASTM C612; rigid, noncombustible blanket.
1. K Value: 0.24 at 75 degrees F, when tested in accordance with ASTM C518.
  2. Maximum Service Temperature: 450 degrees F.
  3. Maximum Water Vapor Absorption: 5.0 percent.
  4. Maximum Density: 8.0 pcf.
- C. Vapor Barrier Jacket:
1. Kraft paper with glass fiber yarn and bonded to aluminized film.
  2. Moisture Vapor Permeability: 0.02 perm inch, when tested in accordance with ASTM E96/E96M.
  3. Secure with pressure-sensitive tape.

- D. Vapor Barrier Tape:
  - 1. Kraft paper reinforced with glass fiber yarn and bonded to aluminized film, with pressure-sensitive rubber-based adhesive.
- E. Protective Coating:
- F. Indoor Vapor Barrier Finish:
  - 1. Cloth: Untreated; 9 oz/sq yd weight, glass fabric.
  - 2. Vinyl emulsion type acrylic, compatible with insulation, black color.

#### **2.04 JACKETING AND ACCESSORIES**

- A. Flexible Weather-Proofing Outdoor Jacket: Self-healing, field-applied outdoor cladding.
  - 1. Material: Aluminum foil/polymer laminate with rubberized asphalt layer and acrylic adhesive.
  - 2. Thickness: 34 mil, 0.034 inch.
  - 3. Finish: Embossed.
  - 4. Color: Silver.
  - 5. Water Vapor Transmission: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
  - 6. Emissivity: 0.30 when tested in accordance with ASTM C1371.
  - 7. Manufacturers:
    - a. Polyguard Products; Alumaguard: [www.polyguardproducts.com.com/#sle](http://www.polyguardproducts.com.com/#sle) or equal.
    - b. Substitutions: See Section 01 6000 - Product Requirements
- B. Reinforced Tape:
  - 1. FSK tape suitable for sealing seams between insulation, insulated elbows, and fittings resulting in a tight, smooth surface without wrinkles.
  - 2. Comply with UL 723 or ASTM E84.
  - 3. Moisture Vapor Permeability: 0.00 perm inch, when tested in accordance with ASTM E96/E96M.
  - 4. Finish: Match insulation.
- C. Plain Foil Tape:
  - 1. Aluminum foil with pressure-sensitive adhesive on paper release liner.
  - 2. Finish: Plain foil.

#### **2.05 DUCT LINER**

- A. Manufacturers:
  - 1. CertainTeed Corporation: [www.certainteed.com/#sle](http://www.certainteed.com/#sle).
  - 2. Ductmate Industries, Inc, a DMI Company: [www.ductmate.com/#sle](http://www.ductmate.com/#sle).
  - 3. Johns Manville: [www.jm.com/#sle](http://www.jm.com/#sle).



4. Owens Corning Corporation; QuietR Rotary Duct  
Insulation: [www.ocbuildingspec.com/#sle](http://www.ocbuildingspec.com/#sle).
  5. Substitutions: See Section 01 6000 - Product Requirements.
- B. Glass Fiber Insulation: Non-corrosive, incombustible glass fiber complying with ASTM C1071; rigid board and preformed round liner board; impregnated surface and edges coated with black composite.
1. Fungal Resistance: No growth when tested according to ASTM G21.
  2. Apparent Thermal Conductivity: Maximum of 0.31 at 75 degrees F.
  3. Service Temperature: Up to 250 degrees F.
  4. Rated Velocity on Coated Air Side for Air Erosion: 5,000 fpm, minimum.
  5. Minimum Noise Reduction Coefficients:
    - a. 1 inch Thickness: 0.45.
- C. Liner Fasteners: Galvanized steel, impact applied or welded with integral head.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Test ductwork for design pressure prior to applying insulation materials.
- B. Verify that surfaces are clean, foreign material removed, and dry.

### **3.02 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Insulated Ducts Conveying Air Above and Below Ambient Temperature:
  1. Provide insulation with vapor barrier jackets.
  2. Finish with tape and vapor barrier jacket.
  3. Continue insulation through walls, sleeves, hangers, and other duct penetrations.
  4. Insulate entire system, including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
- C. Exterior Applications: Provide insulation with vapor barrier jacket. Cover with caulked aluminum jacket with seams located on bottom side of horizontal duct section.
- D. Slope exterior ductwork to shed water.
- E. External Duct Insulation Application:
  1. Secure insulation with vapor barrier with wires and seal jacket joints with vapor barrier adhesive or tape to match jacket.
  2. Secure insulation without vapor barrier with staples, tape, or wires.
  3. Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.
  4. Seal vapor barrier penetrations by mechanical fasteners with vapor barrier adhesive.

F. Duct and Plenum Liner Application:

1. Adhere insulation with adhesive for 90 percent coverage.
2. Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.
3. Seal and smooth joints. Seal and coat transverse joints.
4. Seal liner surface penetrations with adhesive.
5. Duct dimensions indicated are net inside dimensions required for airflow. Increase duct size to allow for insulation thickness.

**3.03 SCHEDULES**

- A. Rectangular Supply / Return Ducts - rigid (exterior): 1" liner; 2" wrap; aluminum jacket
- B. Rectangular Supply Ducts - rigid (interior) - upstream of VAV Boxes: 1" liner
- C. Rectangular Return Ducts - rigid (interior): 1" liner
- D. Round Supply Ducts – rigid between take-off and VAV Boxes: 1" sleeve over rigid spiral
- E. Rectangular Supply Ducts – downstream of VAV Boxes: 1" liner

**END OF SECTION**

**SECTION 23 3100  
HVAC DUCTS AND CASINGS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Metal ducts.
- B. Flexible ducts.

**1.02 RELATED REQUIREMENTS**

- A. Section 07 8400 - Firestopping.
- B. Section 23 0130.51 - HVAC Air-Distribution System Cleaning: Post install duct cleaning.
- C. Section 23 0713 - Duct Insulation: External insulation and duct liner.
- D. Section 23 3300 - Air Duct Accessories.
- E. Section 23 3600 - Air Terminal Units.
- F. Section 23 3700 - Air Outlets and Inlets: Fabric air distribution devices.

**1.03 REFERENCE STANDARDS**

- A. ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; Most Recent Edition Cited by Referring Code or Reference Standard.
- B. ASHRAE Std 126 - Method of Testing HVAC Air Ducts; 2020.
- C. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.
- D. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2023c.
- E. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2024.
- F. NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2024.
- G. SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2020.
- H. SMACNA (LEAK) - HVAC Air Duct Leakage Test Manual; 2012.
- I. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. Shop Drawings: Indicate duct fitting types, gauges, sizes, welds, and configuration.

## 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum three years of documented experience.

## 1.06 FIELD CONDITIONS

- A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
- B. Maintain temperatures within acceptable range during and after installation of duct sealants.

## PART 2 PRODUCTS

### 2.01 GENERAL REQUIREMENTS

- A. Provide UL Class 1 ductwork, fittings, hangers, supports, and appurtenances in accordance with NFPA 90A and SMACNA (DCS) guidelines unless stated otherwise.
- B. Provide metal duct unless otherwise indicated.
- C. Duct Shape and Material in accordance with Allowed Static Pressure Range:
  - 1. Rectangular / Round (medium pressure): 3-6 in-wc of galvanized steel.
    - a) Supply - upstream of VAV Boxes.
  - 2. Rectangular / Round (low pressure): ½-1 in-wc of galvanized steel.
    - a) Supply - downstream of VAV Boxes.
  - 3. Rectangular (low pressure): up to 3 in-wc of galvanized steel.
    - a) Return.
  - 4. Flexible Duct (Fabric and wire): Plus or minus 1/2 in-wc; see Section 23 3700.
- D. Duct Sealing and Leakage in accordance with Static Pressure Class:
  - 1. Duct Pressure Class and Material for Common Mechanical Ventilation Applications:
    - a. Supply Air: 3-6 in-wc pressure class, galvanized steel.
    - b. Return: up to 3 in-wc pressure class, galvanized steel.
  - 2. Low Pressure Service: Up to 2 in-wc:
    - a. Seal: Class C, apply to seal off transverse joints.
    - b. Leakage:
      - 1) Rectangular: Class 24 or 24 cfm/100 sq ft.
      - 2) Round: Class 12 or 12 cfm/100 sq ft.
  - 3. Low Pressure Service: From 2 in-wc to 3 in-wc:
    - a. Seal: Class B, apply sealing of transverse joints and longitudinal seams.
    - b. Leakage:

1) Rectangular: Class 12 or 12 cfm/100 sq ft.

**4. Medium Pressure Service: 3-6 in-wc:**

a. Seal: Class A, apply sealing of transverse joints, longitudinal seams, and duct wall penetrations.

b. Leakage:

1) Rectangular: Class 6 or 6 cfm/100 sq ft.

**E. Duct Fabrication Requirements:**

1. Duct and Fitting Fabrication and Support: SMACNA (DCS) including specifics for continuously welded round and oval duct fittings.
2. No variation of duct configuration or size permitted except by written permission.
3. Use reinforced and sealed sheet-metal materials at recommended gauges for indicated operating pressures or pressure class.
4. Construct tees, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide airfoil turning vanes of perforated metal with glass fiber insulation.
5. Provide turning vanes of perforated metal with glass fiber insulation when acoustical lining is indicated.
6. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
7. Where ducts are connected to exterior wall louvers and duct outlet is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted black on exterior side; seal to louver frame and duct.

## **2.02 METAL DUCTS**

**A. Material Requirements:**

1. Galvanized Steel: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.

**B. Round Metal Ducts:**

1. Round Single Wall Duct: Round lock seam duct with galvanized steel outer wall (downstream of VAV Boxes).
2. Round spiral (upstream of VAV Boxes).

**C. Connectors, Fittings, Sealants, and Miscellaneous:**

1. Fittings: Manufacture with solid inner wall of perforated galvanized steel.
2. Transverse Duct Connection System: SMACNA "E" rated rigid class connection, interlocking angle and duct edge connection system with sealant, gasket, cleats, and corner clips in accordance with SMACNA (DCS).

a. Manufacturers:

- 1) Carlisle HVAC Products; Nexus Flange Connectors with Sealant Pocket: [www.carlislehvac.com/#sle](http://www.carlislehvac.com/#sle).

- 2) Ductmate Industries, Inc, a DMI Company: [www.ductmate.com/#sle](http://www.ductmate.com/#sle).
  - 3) Elgen Manufacturing Company, Inc: [www.elgenmfg.com/#sle](http://www.elgenmfg.com/#sle).
  - 4) MKT Metal Manufacturing: [www.mktduct.com/#sle](http://www.mktduct.com/#sle).
  - 5) Substitutions: See Section 01 6000 - Product Requirements.
3. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
    - a. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
    - b. VOC Content: Not more than 250 g/L, excluding water.
    - c. Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with ASTM E84.
    - d. For Use with Flexible Ducts: UL labeled.
  4. Gasket Tape:
    - a. Provide butyl rubber gasket tape for a flexible seal between transfer duct connector (TDC), transverse duct flange (TDF), applied flange connections, and angle ring connections.

### **2.03 FLEXIBLE DUCTS**

- A. Flexible Ducts: UL 181, Class 1, polyethylene film, mechanically fastened and rolled using galvanized steel to form spiral helix.
  1. Insulation: R6 insulation with polyethylene vapor barrier film.
  2. Pressure Rating: 10 in-wc positive and 5 in-wc negative.
  3. Maximum Velocity: 5500 fpm.
  4. Temperature Range: Minus 20 degrees F to 250 degrees F.
  5. Manufacturers:
    - a. Flexmaster USA, a brand of Masterduct, Inc; Type 1: [www.flexmasterusa.com/#sle](http://www.flexmasterusa.com/#sle).
    - b. Substitutions: See Section 01 6000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install, support, and seal ducts in accordance with SMACNA (DCS).
- B. Install products following the manufacturer's instructions.
- C. Comply with safety standards NFPA 90A and NFPA 90B.
- D. During construction, provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering the ductwork system.

- E. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
- F. Flexible Ducts: Connect to metal ducts with adhesive.
- G. Duct sizes indicated are precise inside dimensions. For lined ducts, maintain sizes inside lining.
- H. For openings, insulate ductwork and install insulation material inside a metal ring.
- I. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
- J. Use crimp joints with or without bead for joining round duct sizes 8 inch and smaller with a crimp in the direction of airflow.
- K. Use double nuts and lock washers on threaded rod supports.
- L. Connect terminal units to supply ducts directly or with one foot maximum length of flexible duct. Do not use flexible duct to change direction.
- M. Connect diffusers to low-pressure ducts with 5 feet maximum length of flexible duct held in place with strap or clamp.
- N. Fire Partitions: Provide firestopping sealing. See Section 07 8400.
- O. Duct Accessories, Terminal Units, Inlets, and Outlets: Interconnect as indicated in Sections 23 3300, 23 3600, and 23 3700.

### **3.02 CLEANING**

- A. Clean thoroughly each duct system.

### **3.03 SCHEDULES**

- A. Supply – upstream of VAV Boxes: 6" wc
- B. Supply – downstream of VAV Boxes: 1" wc
- C. Return – 3" wc

### **END OF SECTION**







**LEGEND**

- NEW LIGHT FIXTURE (NEW OR EXIST)
- PROJECTOR SCREEN (EXIST)
- SPEAKER (NEW)
- SMOKE DETECTOR (NEW OR EXIST)
- MOTION DETECTOR (NEW OR EXIST)
- SECURITY CAMERA (NEW OR EXIST)
- WIRELESS ACCESS POINT (EXIST)
- PHOTO CELL (EXIST)
- EXIT SIGN (EXIST)
- SWITCH WITH SLIDE DIMMER AND TOGGLE (NEW)
- SWITCH WITH TOGGLE ONLY (NEW)
- SUPPLY DIFFUSER (NEW BY MECH. CONTRACTOR)
- RETURN AIR GRILLE (NEW BY MECH. CONTRACTOR)
- EXHAUST AIR GRILLE (EXIST)

**CONSTRUCTION NOTES**

1. EXISTING 2X2 OR 2X4 S.A.T. CEILINGS TO BE REMOVED INCLUDING TILE, MAIN RUNNERS AND CROSS SECTIONS UNLESS NOTED OTHERWISE.
2. EXISTING S.A.T. CEILING WALL RUNNERS TO REMAIN (TO BE REUSED)
3. EXISTING DEVICES IN CEILING TO REMAIN AND BE SUPPORTED FROM STRUCTURE ABOVE FOR CEILING DEMOLITION WORK. DEVICES INCLUDE, BUT ARE NOT LIMITED TO, LIGHT FIXTURES, SMOKE DETECTORS, SPEAKERS, EXIT SIGNS, MOTION DETECTORS, SECURITY CAMERAS, ETC.
4. S.A., R.A. AND E.A. GRILLES AND REGISTERS (NOT SHOWN ON THIS PLAN) ARE TO BE REMOVED BY THE MECHANICAL CONTRACTOR AS INDICATED ON THE MECHANICAL DEMOLITION DRAWINGS. ALL DEVICES SHALL BE RE-INSTALLED IN THEIR EXISTING LOCATIONS (IN NEW CEILING TILE) UNLESS NEW CEILING HVAC FAN COILS, DIFFUSERS OR GRILLES CAUSE RELOCATION.
5. ANY LOOSE DATA CABLING, SPEAKER WIRE, SECURITY CABLES, ETC. SHALL BE SUPPORTED FROM STRUCTURE ABOVE DURING CEILING REMOVAL AND REPLACEMENT.
6. SMOKE DETECTORS SHALL BE PROTECTED WITH APPROVED CAP PRIOR TO CEILING DEMOLITION WORK IN COORDINATION WITH THE OWNER.
7. ALL SECURITY DEVICES SHALL BE COORDINATED WITH THE OWNER PRIOR TO TEMPORARY SUPPORT/RELOCATION.
8. CONTRACTORS SHALL FULLY REVIEW THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
9. CONTRACTOR AND SUPPLIER ARE RESPONSIBLE FOR SUBMITTING ALL REQUIRED PAPERWORK TO AMEREN FOR LED INCENTIVES TO BE RECEIVED BY THE DISTRICT.

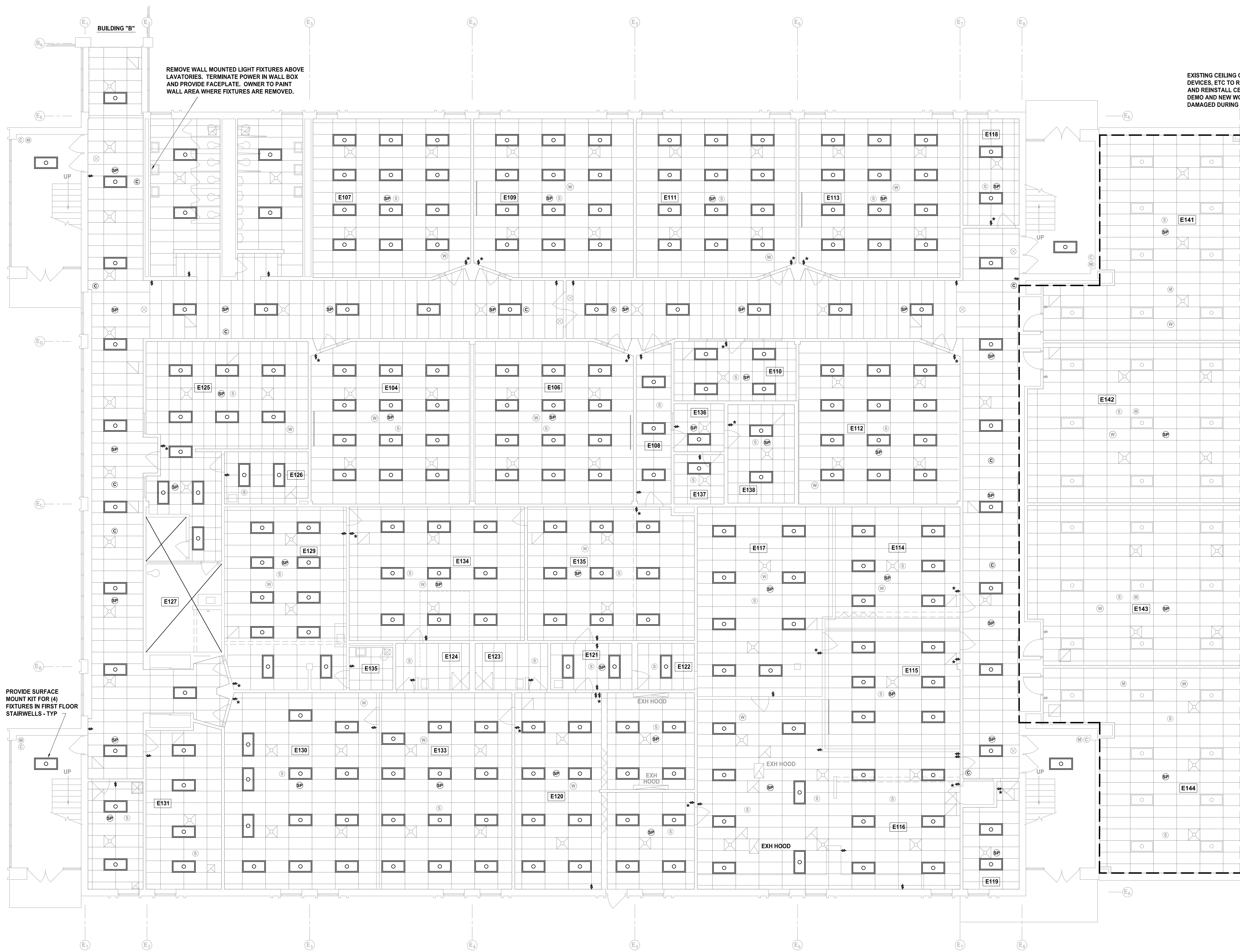
REPLACE EXISTING 2X4 LIGHT FIXTURE WHERE INDICATED ON DRAWINGS WITH NEW FIXTURE WITH DLC LISTED UNIVERSAL VOLTAGE, SELECTABLE WATTAGE AND COLOR TEMP.  
ESL MODEL CSS-830-24-3445W-3550K  
LITHONIA MODEL STAKS-2X4ALOG-SW77-U/VOLT OR APPROVED EQUAL. PROVIDE SURFACE MOUNT KIT IN FIRST FLOOR STAIRWELLS.

NO WORK IN SHOWER ROOM E127 AND ADJACENT TOILET ROOM.

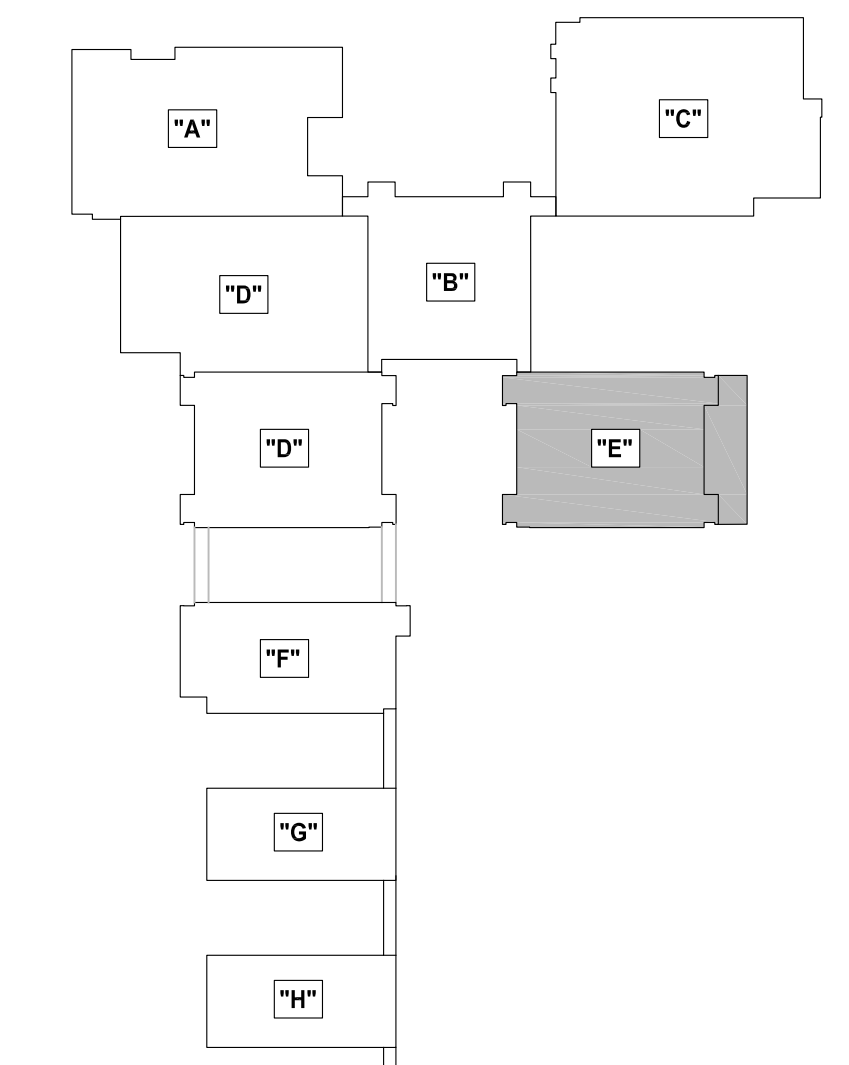
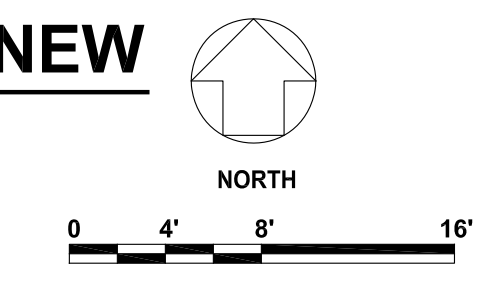
PROVIDE NEW 3-WIRE WHIP AT EACH LIGHTING FIXTURE. ADD GROUND WIRE BETWEEN NEW SWITCH AND FIXTURE.

CONTRACTOR SHALL PROVIDE LEGRAND OR EQUAL TSD4FBL3PW LINE VOLTAGE TOGGLE SLIDE DIMMER SWITCH AT EACH EXISTING LOCATION SHOWN AND INSTALL GROUND WIRE FROM SWITCH TO FIXTURES AS REQUIRED FOR DIMMING. SWITCHES WITH DIMMERS ARE DENOTED WITH 'D'. ALL OTHER SWITCHES TO BE TOGGLE ONLY. LEGRAND CS SERIES (2, 3 OR 4-WAY). ROOMS WITH 3-WAY SWITCHES - PROVIDE ONE TOGGLE SLIDE DIMMER SWITCH AND ONE TOGGLE ONLY SWITCH. ALL SWITCHES AND FACEPLATES TO BE IVORY COLOR.

STAIRWELLS (TOTAL OF 4)  
REMOVE EXISTING PHOTOCELLS IN STAIRWELLS. REPLACE EXISTING CEILING MOTION SENSORS AND MODIFY WIRING AS REQUIRED TO CONTROL FIXTURES THROUGH NEW MOTION SENSORS. CAMERAS TO REMAIN. ADD NEW SMOKE DETECTORS IN WEST (2) STAIRWELLS AND CONNECT INTO EXISTING FIRE ALARM SYSTEM - SMOKE DETECTORS CURRENTLY DO NOT EXIST.



**1 REFLECTED CEILING FIRST FLOOR - DEMOLITION & NEW**  
SCALE: 1/8" = 1'-0"



**BUILDING KEY PLAN**  
SCALE: NONE



**FOR BIDDING**

ISSUE DATE: 01/25/24

REVISIONS

NO.	Date	Description
1	02.06.24	ADDENDUM #1

PROJECT NUMBER: 6181

**FIRST FLOOR REFLECTED CEILING**





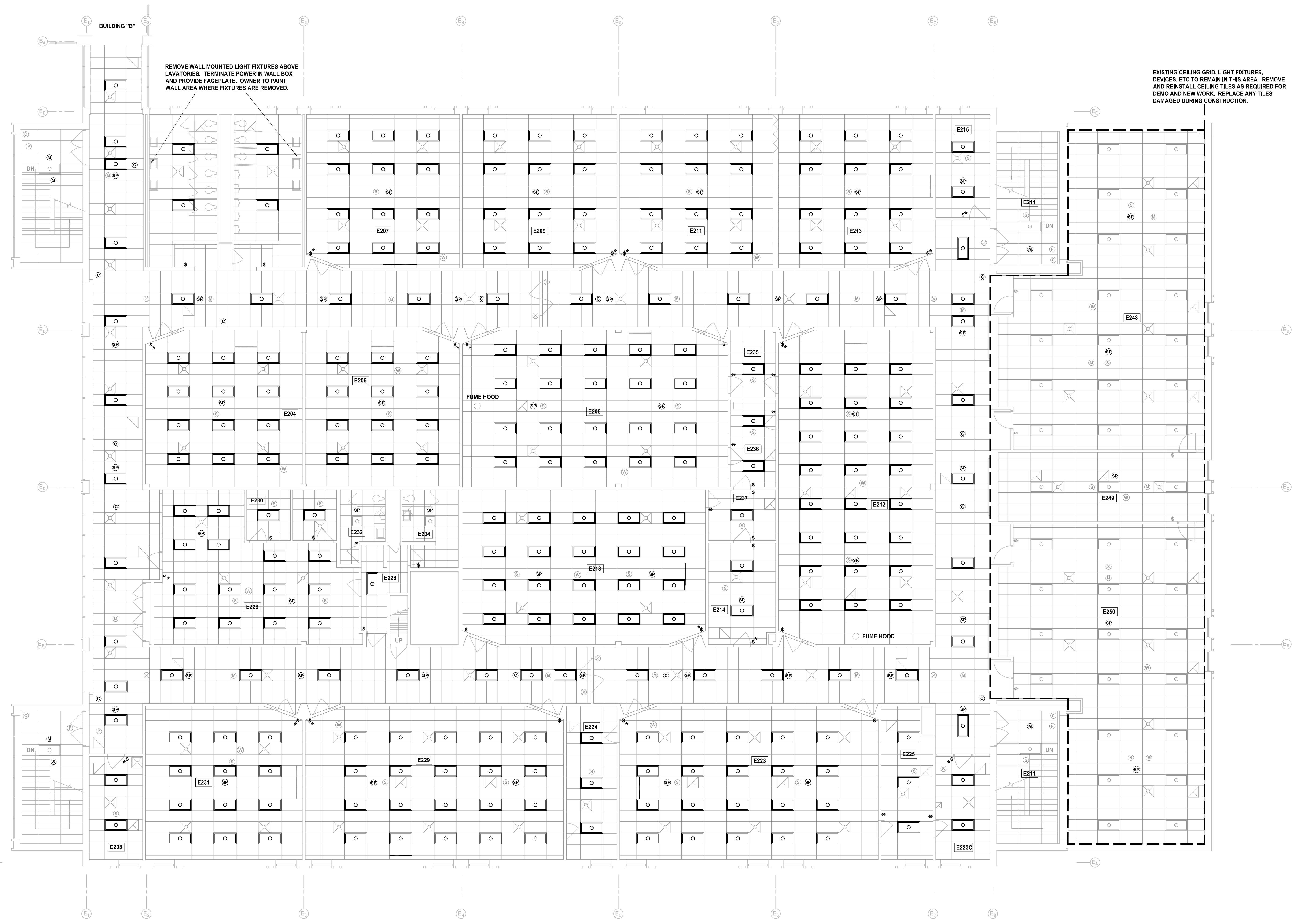
REVISIONS		
NO.	Date	Description
1	02.06.24	ADDENDUM #1

**LEGEND**

- NEW LIGHT FIXTURE (NEW OR EXIST)
- PROJECTOR SCREEN (EXIST)
- SPEAKER (NEW)
- SMOKE DETECTOR (NEW OR EXIST)
- MOTION DETECTOR (NEW OR EXIST)
- SECURITY CAMERA (NEW OR EXIST)
- WIRELESS ACCESS POINT (EXIST)
- PHOTO CELL (EXIST)
- EXIT SIGN (EXIST)
- SWITCH WITH SLIDE DIMMER AND TOGGLE (NEW)
- SWITCH WITH TOGGLE ONLY (NEW)
- SUPPLY DIFFUSER (NEW BY MECH. CONTRACTOR)
- RETURN AIR GRILLE (NEW BY MECH. CONTRACTOR)
- EXHAUST AIR GRILLE (EXIST)

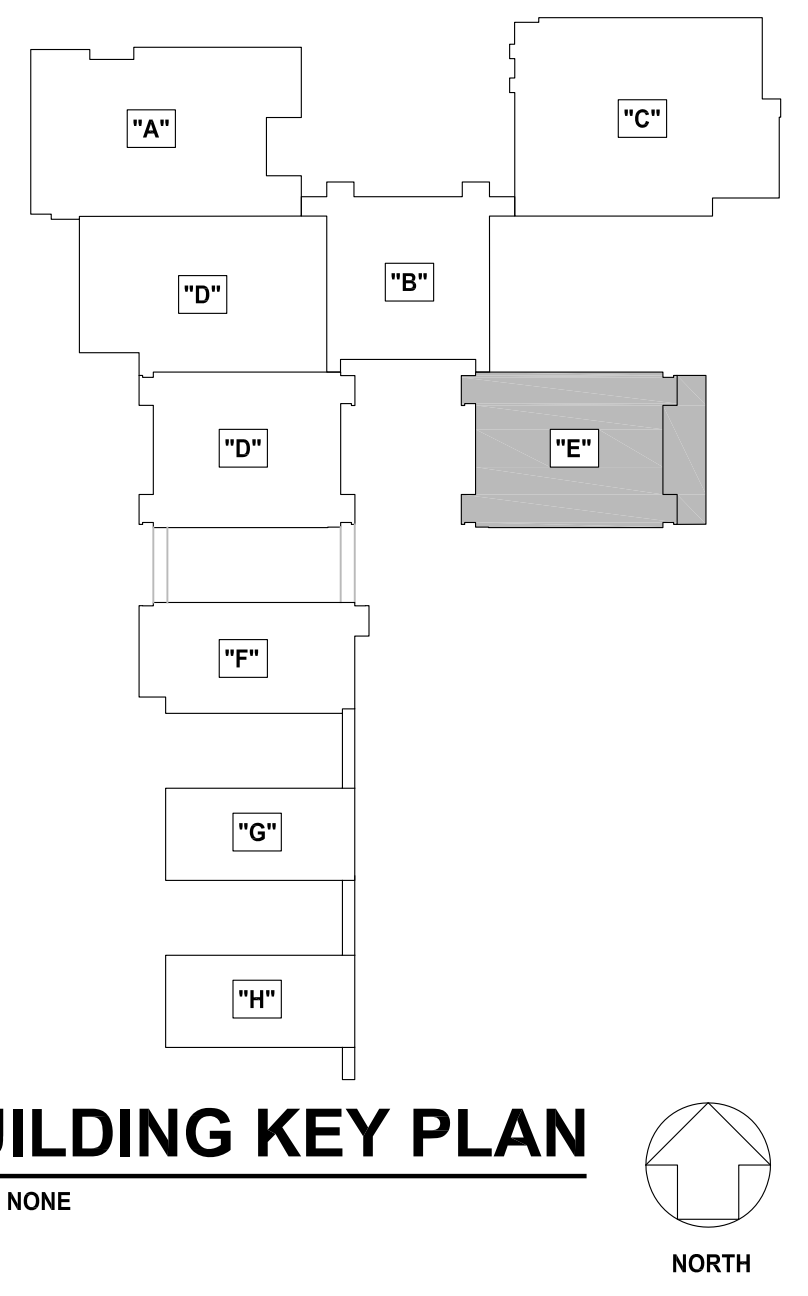
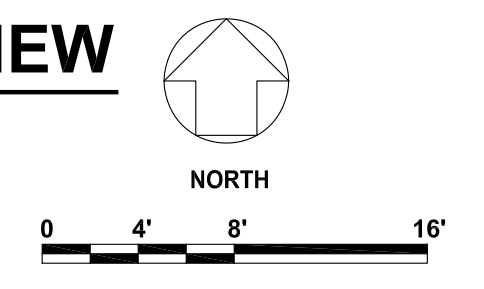
- CONSTRUCTION NOTES**
- EXISTING 2X2 OR 2X4 S.A.T. CEILINGS TO BE REMOVED INCLUDING TILE, MAIN RUNNERS AND CROSS SECTIONS UNLESS NOTED OTHERWISE.
  - EXISTING S.A.T. CEILING WALL RUNNERS TO REMAIN (TO BE REUSED)
  - EXISTING DEVICES IN CEILING TO REMAIN AND BE SUPPORTED FROM STRUCTURE ABOVE FOR CEILING DEMOLITION WORK. DEVICES INCLUDE, BUT ARE NOT LIMITED TO, LIGHT FIXTURES, SMOKE DETECTORS, SPEAKERS, EXIT SIGNS, MOTION DETECTORS, SECURITY CAMERAS, ETC.
  - S.A., R.A. AND E.A. GRILLES AND REGISTERS (NOT SHOWN ON THIS PLAN) ARE TO BE REMOVED BY THE MECHANICAL CONTRACTOR AS INDICATED ON THE MECHANICAL DEMOLITION DRAWINGS. ALL DEVICES SHALL BE RE-INSTALLED IN THEIR EXISTING LOCATIONS IN NEW CEILING (TILE) UNLESS NEW CEILING HVAC FAN COILS, DIFFUSERS OR GRILLES CAUSE RELOCATION.
  - ANY LOOSE DATA CABLING, SPEAKER WIRE, SECURITY CABLING, ETC. SHALL BE SUPPORTED FROM STRUCTURE ABOVE DURING CEILING REMOVAL AND REPLACEMENT.
  - SMOKE DETECTORS SHALL BE PROTECTED WITH APPROVED CAP PRIOR TO CEILING DEMOLITION WORK IN COORDINATION WITH THE OWNER.
  - ALL SECURITY DEVICES SHALL BE COORDINATED WITH THE OWNER PRIOR TO TEMPORARY SUPPORT/RELOCATION.
  - CONTRACTORS SHALL FULLY REVIEW THE EXISTING CONDITIONS PRIOR TO SUBMITTING BID.
  - CONTRACTOR AND SUPPLIER ARE RESPONSIBLE FOR SUBMITTING ALL REQUIRED PAPERWORK TO AMEREN FOR LED INCENTIVES TO BE RECEIVED BY THE DISTRICT.

- REPLACE EXISTING 2X4 LIGHT FIXTURE WHERE INDICATED ON DRAWINGS WITH NEW FIXTURE WITH DLC LISTED, UNIVERSAL VOLTAGE, SELECTABLE WATTAGE AND COLOR TEMP.  
 ESL MODEL CSS-830-24-3449W-3500K  
 LITHONIA MODEL STAKS-2X4ALD-SWMT-JUNLV OR APPROVED EQUAL. PROVIDE SURFACE MOUNT KIT IN FIRST FLOOR STAIRWELLS.
- LIGHT FIXTURES IN TOILET ROOMS E232 AND E234 TO REMAIN.
- PROVIDE NEW 3-WIRE WHIP AT EACH LIGHTING FIXTURE. ADD GROUND WIRE BETWEEN NEW SWITCH AND FIXTURE.
- CONTRACTOR SHALL PROVIDE LEGRAND OR EQUAL TSD4FBL3PW LINE VOLTAGE TOGGLE SLIDE DIMMER SWITCH AT EACH EXISTING LOCATION SHOWN AND INSTALL GROUND WIRE FROM SWITCH TO FIXTURES AS REQUIRED FOR DIMMING. SWITCHES WITH DIMMERS ARE DENOTED WITH \*. ALL OTHER SWITCHES TO BE TOGGLE ONLY. LEGRAND CS SERIES (2, 3 OR 4-WAY). ROOMS WITH 3-WAY SWITCHES - PROVIDE ONE TOGGLE SLIDE DIMMER SWITCH AND ONE TOGGLE ONLY SWITCH. ALL SWITCHES AND FACEPLATES TO BE IVORY COLOR.
- STAIRWELLS (TOTAL OF 4)  
 REMOVE EXISTING PHOTOCELLS IN STAIRWELLS.  
 REPLACE EXISTING CEILING MOTION SENSORS AND MODIFY WIRING AS REQUIRED TO CONTROL FIXTURES THROUGH NEW MOTION SENSORS. CAMERAS TO REMAIN.  
 ADD NEW SMOKE DETECTORS IN WEST (2) STAIRWELLS AND CONNECT INTO EXISTING FIRE ALARM SYSTEM - SMOKE DETECTORS CURRENTLY DO NOT EXIST.



EXISTING CEILING GRID, LIGHT FIXTURES, DEVICES, ETC TO REMAIN IN THIS AREA. REMOVE AND REINSTALL CEILING TILES AS REQUIRED FOR DEMO AND NEW WORK. REPLACE ANY TILES DAMAGED DURING CONSTRUCTION.

**1 REFLECTED CEILING SECOND FLOOR - DEMOLITION & NEW**  
 SCALE: 1/8" = 1'-0"



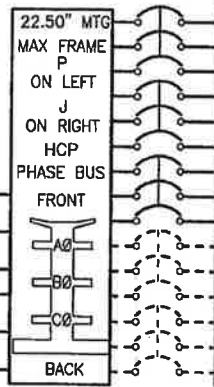
**BUILDING KEY PLAN**  
 SCALE: NONE

Seq #	Qty	Product Description
1	1	<p><b>Designation :</b> <b>Product Details :</b> 1 - I-Line MB Panel (INTERIOR)-I-Line Panelboard Consisting of 480Y/277V 3Ph 4W 60Hz SCCR: 18kA Fully Rated Single Main: 400A/3P LA Circuit Breaker Incoming Conductors: 1 - #1 - 600,(2)#1 - 250 kcmil AL Ground Bar Bus: 400A Rated Aluminum: Tin Plated 45" of Mounting Inches Type 1,Box: 59H x 42W x 9.5D Incoming: Bottom Trim: Surface with Door Box Cat No: HC4259DB Front Cat No: HCW59TSD Ref. Drawing: PBA418 Type: HCP Feeders: 1 - 300A/3P LA 2 - 15A/3P BD 1 - 70A/3P BD 2 - 100A/3P BD Prepared Space Optional Features: Standard Panel (Box Ahead),Standard Solid Neutral,Standard Ground Bar,Standard Mains and Feeders Mechanically Restrained 1 - HC4259DB-PANELBOARD ENCLOSURE/BOX TYPE 1 59H 42W  1 - HCW59TSD-PANELBOARD COVER/TRIM ILINE 4PC W/DOOR</p>

**Estimated days to ship, excluding transit:** 100 working days after customer release to manufacturer. See Conditions of Sale.

REV	DESCRIPTION	BY	DATE				
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CKT NO	ACCESSORIES	TYPE	RATING AMP/P	PHASE BUS CONN	PHASE BUS CONN	RATING AMP/P	TYPE	ACCESSORIES	CKT NO
	4.50" BLANK				C	15/3	BD		2
	4.50" BLANK				A				
	1.50" BLANK				C	15/3	BD		4
					B				
1		LA	300/3	A	C	70/3	BD		6
				B	A				
				C	B	100/3	BD	PS 4.50" FP	8
	BRANCH MOUNTED MAIN	LA	400/3	A	C	100/3	BD	PS 4.50" FP	10
				B	A				
				C	B				



S/N

**PHYSICAL DATA**

ENCLOSURE Type 1

Surface with Door  
 FRONT CAT#: HCW59TSD  
 BOX CAT#: HC4259DB

**DIMENSIONS:**

59"(1499mm)Hx42"(1067mm)Wx9.5"(241mm)D

**WIRE BENDING SPACE:**

TOP - 11.66"(296mm)  
 BOTTOM - 17.50"(445mm)  
 LEFT SIDE - 8.66"(220mm)  
 RIGHT SIDE - 8.77"(223mm)

PBA: 418

BUSSING: 400A RATED ALUMINUM BUS

Tin Plated

**OPTIONAL FEATURES:**

ALUMINUM SOLID NEUTRAL  
 ALUMINUM GROUND BAR

**ELECTRICAL DATA**

SYSTEM: 480Y/277V 3Ph 4W 60Hz

System Ampacity: 400A

18kA SYMS. SCCR

Fully Rated

MAIN: MAIN BREAKER LA 400A

Bottom FEED

30kA AIR

INCOMING CONDUCTORS(S) PER NEC, CEC, NOM:

Wire Bending Space:

Phase Lugs: 1 - #1 - 600, (2) #1 - 250 kcmil

-----BRANCH SUMMATION-----

1 - 300A/3P LA

2 - 15A/3P BD

1 - 70A/3P BD

2 - 100A/3P-PS BD

JOB NAME: Quincy Public Schools	EQUIPMENT DESIGNATION:
JOB LOCATION:	EQUIPMENT TYPE: I-Line (Circuit Breaker Type) PANEL 1 OF 1
DRAWN BY: (Q2C)	DRAWING TYPE: ONE LINE DIAGRAM
ENGR:	
DATE: January 08 2024	
DRAWING STATUS: QUOTE	DWG# OQ-4652669-136123080-01   PG 1 OF 1   REV -

**Prepared By:**  
Tim Terwelp  
SPRINGFIELD ELECTRIC SUP CO  
2009 Jennifer Lane  
Quincy, IL 62301  
tterwelp@springfieldelectric.com  
D:(217) 641-5515

**Proposal Name:** Quincy Public Schools

**Quote Name:** Quincy Public Schools

---

**Proposal Number:** P-240108-4205669

**Quote Number:** Q-4652669

**Quote Date:** 01/08/2024

**Through Addenda Number:** 0

**Sales Representative:** Cory Hunsley

**Conditions of Sale**

*This Quotation is subject to Coordinated Project Terms. See <https://www.se.com/us/en/download/document/0100PL0043/>*

Quoted price in currencies other than U.S. Dollars is per the annual Schneider Electric exchange guidance.  
Quote is valid for 30 days. Quoted lead times are approximate and subject to change.

Schneider Electric reserves the right to amend, withdraw or otherwise alter this submission without penalty or charge as a result of any event beyond its control arising from or due to the current Covid-19 epidemic or events subsequent to this epidemic / pandemic including changes in laws, regulations, by laws or direction from a competent authority.

**Pricing**

**Total DISTRIBUTOR SELL PRICE**

# RECORD OF PLANS AND SPECIFICATIONS

NAME OF PROJECT QHS BLDG E HVAC Replacement

PROJECT NO. 6181 DATE BIDS DUE Friday, February 23, 2024 DEPOSIT \$50.00

TIME AND PLACE OF LETTING 2:00 PM PQS Board of Education - Room 231  
1416 Maine Street, Quincy, IL

\*\*\* Indicates Potential Bidding Contractor

CONTRACTOR NAME ADDRESS/PHONE/EMAIL	COPY NO.	DATE RECEIVED	DATE RETURNED	DEPOSIT RECEIVED	DEPOSIT RETURNED
Architect	#1				
Owner	#2				
*** Peters Heating & A/C 4520 Broadway Quincy, IL 62305 217-222-1368 Fax 217-222-1088 jhoward@petershvac.net	D				
*** Keck Heating & A/C 431 State Street Quincy, IL 62301 217-223-5325 Fax 217-223-8325 keckhvac@keckheatingandair.com	D				
*** S.M. Wilson & Co. 2185 Hampton Ave. St. Louis, MO 63139 314 645-9595 Fax: 314 645-1700 alyssa.kampwerth@smwilson.com	D				
*** E. L. Pruitt Co. 3090 Colt Rd Springfield, IL 62707 217-789-0966 Fax: 217-789-2694 bids@elpruitt.com	D				
NMC General Contracting 2303 North 1300th Place Camp Point, IL 62320 217-653-5167 nolanqramsey@hotmail.com	D				
Tournear Roofing Co 2605 Spring Lake Rd Quincy, IL 62305 217-222-5879 Fax: 217-222-8346 tourroof@adams.net	D				
Brinkman Plumbing Co. 2510 Ellington Rd. Quincy, IL 62301 217 223-1962 Fax: 217 223-1972 janderson@brinkmanplumbing.com	D				
*** Henson Robinson Co P.O. Box 13137 Springfield, IL 62791-3137 217-544-8451 Fax: 217-544-0829 hrc@henson-robinson.com	D				

# RECORD OF PLANS AND SPECIFICATIONS

NAME OF PROJECT

QHS BLDG E HVAC Replacement

PROJECT NO. 6181

DEPOSIT: \$50.00

CONTRACTOR NAME ADDRESS/PHONE/EMAIL	COPY NO.	DATE RECEIVED	DATE RETURNED	DEPOSIT RECEIVED	DEPOSIT RETURNED
Brown Electric Const. Co. 1309 Watts Lane Quincy, IL 62305 217-222-3483 Fax: 217-222-7733 MATTK@brownelectric.net	D				
Maas Construction Co. 3615 St. Anthony's Rd. Quincy, IL 62305 217-228-1105 Fax: 217 228-1151 maas@maasconstruction.net	D				
Dodge Data & Analytics 4300 Beltway Place, STE #180 Arlington, Texas 888-667-8198  elaine.wilson@construction.com	D				
*** Vinson & Sill, Inc PO Box 74 Lima, IL 62348 217 985-5100 Fax: 217 985-4900 vinsonsill@gmail.com	D				
Mac's Ltd. Electrical Contractor 402 Delaware Street Quincy, IL 62301 217 223-8268 Fax: 217 223-0733 bbeaston@macsltdelectrical.com	D				
Marold Electric Co. 129 S 10th Quincy, IL 62301 217-222-6267 Fax: 217-222-6289 maroldelectric@comcast.net	D				