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WHITLEY COUNTY CONSOLIDATED SCHOOLS
WCCS Northern Heights Elementary Mechanical Renovation-2025 ; DC's #20240001
2/26/2025

ADDENDUM NO. 1

This addendum is issued as a supplement to the plans and specifications and shall be considered an integral part of the same.

Item:	**1.01**
Location:	N/A General
Description:	Pre-Bid Meeting Minutes and sign-in sheet are attached to this addendum. All items included in the minutes shall be considered part of this addendum. Thank you to all who attended!

Item:	**1.02**
Location:	N/A General
Description:	See attached Nothern Heights Key dates including equipment provided by others delivery dates as well.

Item:	**1.03**
Location:	N/A General
Description:	See attached Conceptual Project Schedule.

Item:	**1.04**
Location:	Electrical Sheets
Description:	Keynotes were updated and added where needed.

Item:	**1.05**
Location:	Sheet ED1.1E - Electrical Demolition Plan - Main Level - Unit E
Description:	Additional demo was added in rooms E143, E145, and E147.

Item:	**1.06**
Location:	Sheet E2.1E - Lighting Plan - Main Level - Unit E
Description:	Scope was added to the lighting plan.

Item:	**1.07**
Location:	Sheet E4.6 - Electrical Schedules and Details
Description:	Notes were added to the mechanical equipment schedule and two details were added.

Item:	**1.08**
Location:	Sheet E4.7 - Panel Schedules
Description:	Breakers were rearranged in Panel L2 to accommodate the needed space.

Item:	**1.09**
Location:	Reference Documents
Description:	See attached submittals for Heating Coils, Blower Coil, Crest Boilers, and Air-Cooled Chiller.

Each contractor is responsible for incorporating all changes into their bid.

Respectfully submitted,

Craig Scully, PE, Project Manager
Design Collaborative, Inc.
CSS/KLB

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PRE-BID MEETING MINUTES
WCCS NORTHERN HEIGHTS ELEMENTARY SCHOOL

MECHANICAL REPLACEMENT - 2025

February 20, 2025

Introductions

1. Please sign in – a sheet is being distributed.
2. WCCS representatives
3. TRANE representatives
4. AE representatives

Discussion Items

1. Scope: The project consists of removing existing unit vents and installing new vertical unit vents and ductwork along with the replacement of one chiller and boilers along with other misc equipment. Lighting will be replaced in classroom as denoted on drawings.

2. Subcontracts:
    a. Trane Technologies is acting as Construction Manager as agent
        i. They will be providing equipment and controls as denoted on drawings.
        ii. They will contract directly with the metal shelving contractor.

3. Bid date: **March 6th at 2:00PM EST** Bids will be accepted at the Whitley County Consolidated Schools Administration Office, 107 N. Walnut, Columbia City, Indiana. Single prime contractor bids should be submitted with a Form 96. Refer to Instructions to Bidders will be opened and read publicly in Board Room. Any bids received after 2:00pm or in another location shall be returned to the bidder unopened. Refer to additional specification requirements including Supplementary Instructions to Bidders & Addendums for additional details on bidding procedure. (Hardcopy bids must be provided.)

4. Construction Schedule:
    Start of Construction: June 2, 2025
    Substantial Completion: August 5, 2025
    Classrooms will not be accessible until June 2, 2025. All classroom work will need to be substantially complete by August 5, 2025. Construction prior to June 2, 2025 and after August 5, 2025, will need to occur between the hours of 3:30pm and 6:30am. All corridors and office spaces will need to be clean and secured for use the next day. Contractor will need to work closely and coordinate this work with the owner.

5. Bid Documents: Plans, specifications, instructions to bidders and bid forms are on file and available at Eastern Engineering's Virtual Planroom: http://www.easternengineering.com or are available at the office of Eastern Engineering located at 1239 North Wells Street, Fort Wayne, Indiana 46802, P: (260) 426-3119, F: (260) 426-3101.

6. Specifications: Please review the specifications in their entirety. Of special note will be Supplementary conditions, Alternates and Allowances.

    Note the Indiana Department of Administration prequalification requirements – subcontractors over $150,000

7. Bonds
    a. Bid Bond: The bid shall also be accompanied by a bid bond in the amount of 5% of the bid.
    b. Performance and Payment Bond: A Performance Bond and Payment Bond in the amount of 100 percent of the contract price shall be required upon notification of the successful bidder prior to signing of the contract.

8. Addenda: At this time, no addenda have been issued. No addenda will be issued less than 48 hours prior to bid. To accommodate this schedule, the deadline for RFIs will February 28 at 4:00pm EST.

9. Alternates & Unit Prices: The project has Alternate No. 1: Water Heater Replacement; Alternate No. 2: Chilled Water and Hot Water Pump Replacement. No Unit Prices.

10. Allowances: Allowance No 1: Contingency Allowance of $50,000

11. All contractor inquiries on this project shall be directed as follows:
    a. Craig Scully, Design Collaborative Project Manager
        i. Email: cscully@designcollaborative.com
        ii. Phone: (260) 422-4241

12. Site Visit: The building will be open to Contractors for field investigation. Sit visits shall be requested/scheduled through Lauren Ayres, Trane Technologies, Lauren.Ayres@trane.com, 317-864-8492

13. Site logistics: Refer to Section 010100 Project Requirements
    a. Contractors shall park in designated areas.
    b. Dumpster location: The construction dumpster can be located in the back by the mechanical room prior to end of school. After June 2, dumpster location(s) shall be coordinated with owner. Pickup times need to be coordinated with the owner to minimize disruption to students and building operation.

14. Questions
    a. ***Who is providing the water heater?*** Water heater will be provided by successful contractor.
    b. ***Schedule of work?*** A proposed schedule and delivery dates for equipment will be provided by Trane.
    c. ***Who is removing furniture in classrooms?*** All furniture will be removed by the owner including ceiling speakers and classroom projectors. Contractor shall protect existing floor, finishes, etc.… in room during construction.

15. Toured typical classrooms, along music and art rooms, and main mechanical room.

Sign-In Sheet

DESIGN COLLABORATIVE

Project Name - Pre-Bid Meeting

Date: February 20, 2025

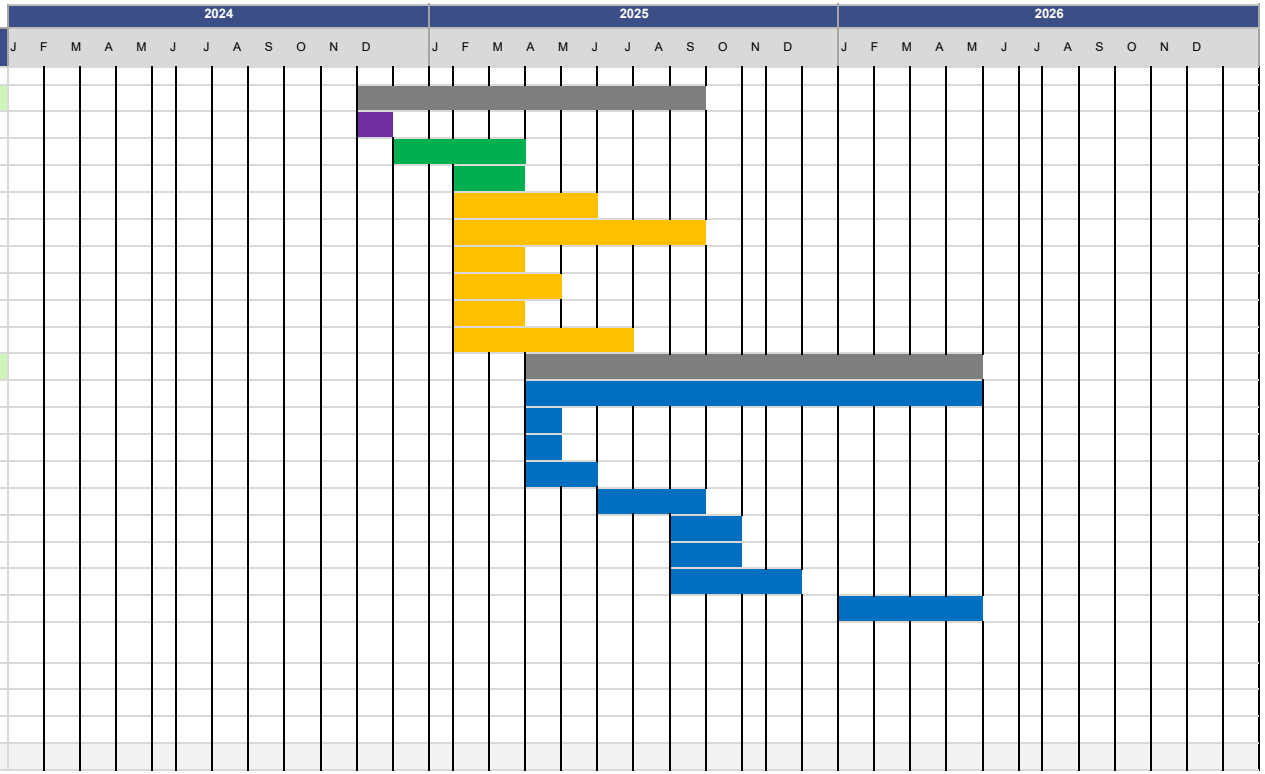
Name	Company	Phone	E-Mail
Marc Brown	MPS	260-271-9857	Mbrown@M-p-solutions.com
Brett Brown	MPS	260-503-9939	Bbrown@M-p-solutions.com
Chet Burch	WCCS	260-715-9900	burchca@wccsonline.com
Ken Wright	RYC	260-243-3983	kwright@[illegible]construction.com
Chad Ralston	WCCS	260-609-7642	Ralstonca@wccsonline.com
Brad Jenkins	AHS	260-433-0[illegible]	B[illegible]@[illegible].com
Brad Schinnerer	Conti Mechanical	260-433-7886	bschinnerer@contimechanical.com

WCCS Northern Heights

Trane Technologies / OMNIA

**Conceptual Project Schedule*

TASK DESCRIPTION	PLAN START	PLAN END	TYPE	END
Pre-Construction	11/1/2024	8/31/2025		
Contract Award	11/1/2024	11/30/2024	P	
Engineering/Design Development	12/1/2024	3/31/2025	G	
Public Bid / Contractor Selection	2/1/2025	3/31/2025	G	
Temspec VUV's procurement	2/1/2025	5/31/2025	O	
Chiller procurement	2/1/2025	8/31/2025	O	
Boiler procurement	2/1/2025	3/31/2025	O	
BCU, VAV, & CUH procurement	2/1/2025	4/30/2025	O	
RTU procurement	2/1/2025	3/31/2025	O	
BAS procurement	2/1/2025	6/30/2025	O	
Construction	4/1/2025	8/15/2026		
BAS installation	4/1/2025	8/15/2026	B	
(Spring Break) Construction Prep	4/1/2025	4/15/2025	B	
RTU replacement (Qty-1)	4/1/2025	4/30/2025	B	
Boiler replacement (Qty-2)	4/15/2025	5/30/2025	B	
Classroom VUV install (Qty-28)	6/1/2025	8/15/2025	B	
BCU install (Qty-2)	8/15/2025	9/15/2025	B	
VAV install (Qty-3)	8/15/2025	9/15/2025	B	
CUH install (Qty-13)	8/15/2025	11/15/2025	B	
Chiller install	1/15/2026	4/15/2026	B	
Any remaining classrooms leftover from previous summer (IF NECESSARY)	6/1/2026	8/15/2026	R	
Insert new rows ABOVE this one				



NORTHERN HEIGHTS

Key Dates

KEY DATES

Spring Break ’25 – April 7-April 11

Last Day of School – May 30th

No Teachers/Students – June 3rd - August 7th

School Resumes – August 14th

Fall Break ’25 – October 15-17

Thanksgiving Break ’25 – November 26-28

Christmas Break ’25 – December 22 – January 2

EQUIPMENT

Equipment Description	Estimated Ship Date
Vertical Unit Ventilators	June 16 – June 20
Classroom Metal Shelving	TBD
Chiller	10/01
Blower Coils	04/24
Unit Cabinet Heaters	Awaiting Revised Submittal 6/24 (15 Weeks)
Ductless Split	Awaiting Submittal 3/24 (7 Days)
Roof Top Unit	04/04
Boiler	03/31

WCNH 24-25 Calendar

WCNH 25-26 Calendar

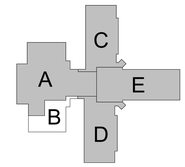
GENERAL ELECTRICAL DEMOLITION NOTES

1.	REMOVE ELECTRICAL WORK FROM WALLS, CEILINGS AND OTHER SURFACES TO BE REMOVED. EXISTING BOXES AND CONDUIT MAY BE RE-USED IF ALL REQUIREMENTS SHOWN ON DRAWINGS ARE SATISFIED.
2.	REMOVE ALL ABANDONED CONDUCTORS, ELECTRICAL EQUIPMENT AND ACCESSIBLE RACEWAYS INCLUDING LOW-VOLTAGE, INTERCOM, BELLS AND FIRE ALARM SYSTEMS.
3.	EXISTING EQUIPMENT, DEVICES, ETC. INDICATED TO REMAIN ARE INTENDED TO REMAIN OPERATIONAL. EXTEND OR REROUTE CIRCUITS AS REQUIRED TO KEEP DOWN STREAM DEVICES OPERATIONAL.
4.	REMOVE EXISTING LIGHT FIXTURES FROM ALL AREAS WHERE NEW LIGHTING IS INDICATED.
5.	EXISTING EQUIPMENT AND CIRCUITING IS INTENDED TO BE A REASONABLE APPROXIMATION AND IS FOR CONVENIENCE ONLY. NOT FOR THE BASIS OF BIDDING. DETERMINE EXACT QUANTITIES, LOCATIONS AND WIRING METHODS AT JOB SITE.
6.	ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND REMOVING POWER FEEDS TO ALL FIXED EQUIPMENT SHOWN TO BE REMOVED OR RELOCATED.
7.	EXISTING LOW VOLTAGE DEVICES MOUNTED IN CEILINGS INCLUDING PROJECTORS, WIRELESS ACCESS POINTS, SPEAKERS, ETC. WILL BE REMOVED AND/OR PROTECTED BY OWNER. THESE DEVICES WILL BE REINSTALLED BY OWNER AFTER NEW CEILINGS ARE IN PLACE. TAKE CARE TO PROTECT AND MAINTAIN ANY WIRING SERVICE LOOPS DURING CONSTRUCTION.

ELECTRICAL DEMOLITION KEYNOTES

ED02	EXISTING CABINET HEATER TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. SEE NEW POWER PLANS FOR ADDITIONAL INFORMATION.
ED06	EXISTING SPLIT SYSTEM TO BE REMOVED, INCLUDING BOTH INDOOR AND OUTDOOR UNIT. REMOVE CABLING BACK TO PANEL. EXISTING CONDUIT PATHWAY MAY BE REUSED.
ED08	EXISTING PUMP TO BE REMOVED. REMOVE EXISTING PUMP MOTOR STARTER IN ITS ENTIRETY, INCLUDING DISCONNECT SWITCH, WIRES, AND CONDUIT BACK TO SOURCE.
ED09	EXISTING CHILLER TO BE REMOVED. REMOVE ALL CABLING BACK TO PANEL. ALSO REMOVE BREAKER IN EXISTING PANEL FEEDING CHILLER. EXISTING CONDUIT PATHWAY MAY BE REUSED IF ALL REQUIREMENTS OF NEW EQUIPMENT ARE MET.
ED10	REMOVE EXISTING WATER HEATER. EXISTING RECIRCULATION PUMP TO REMAIN AND BE RECONNECTED TO NEW EQUIPMENT.
ED11	EXISTING BOILER TO BE REMOVED. REMOVE ALL CABLING AND CONDUIT BACK TO PANEL. LABEL EXISTING BREAKER AS SPARE.

1 **ELECTRICAL DEMOLITION PLAN - MAIN LEVEL**
SCALE: 1/8" = 1'-0"
NORTH



KEY PLAN
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Whitley County Consolidated Schools
NORTHERN HEIGHTS ELEMENTARY
MECANICAL RENOVATION - 2025
5209 IN-109
Columbia City, IN 46725
PROJECT: 2024.0001

KELSEY L. ROWE
REGISTERED
No. 11400779
STATE OF INDIANA
PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

ISSUE DATE: 02/14/2025

REVISIONS

NO.	DATE	DESCRIPTION
1	02-26-2025	ADD-01

ELECTRICAL DEMOLITION PLAN - MAIN LEVEL - UNIT B

ED1.1B

GENERAL ELECTRICAL DEMOLITION NOTES

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3.	EXISTING EQUIPMENT, DEVICES, ETC. INDICATED TO REMAIN ARE INTENDED TO REMAIN OPERATIONAL. EXTEND OR REROUTE CIRCUITS AS REQUIRED TO KEEP DOWN STREAM DEVICES OPERATIONAL.
4.	REMOVE EXISTING LIGHT FIXTURES FROM ALL AREAS WHERE NEW LIGHTING IS INDICATED.
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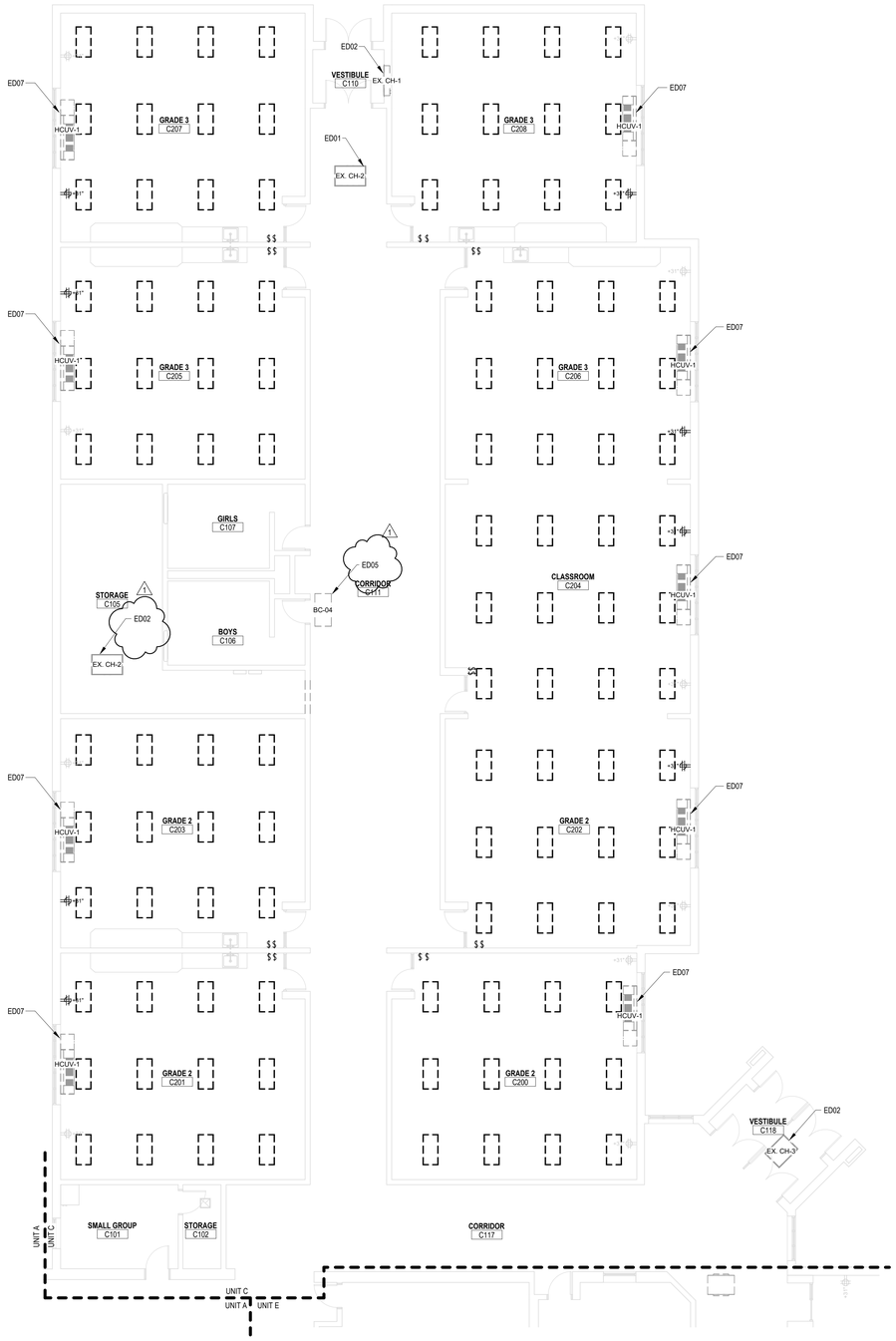
ELECTRICAL DEMOLITION KEYNOTES

ED01	EXISTING EQUIPMENT TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. REMOVE ABANDONED CONDUCTORS AND CONDUIT BACK TO NEAREST JUNCTION BOX. SPLICE AND EXTEND BRANCH CIRCUIT WIRING AS REQUIRED TO MAINTAIN OPERATION OF EXISTING TO REMAIN DOWNSTREAM DEVICES.
ED02	EXISTING CABINET HEATER TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. SEE NEW POWER PLANS FOR ADDITIONAL INFORMATION.
ED05	EXISTING CORRIDOR UNIT TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. SEE NEW POWER PLANS FOR ADDITIONAL INFORMATION.
ED07	EXISTING HORIZONTAL UNIT VENT TO BE REMOVED. DISCONNECT POWER IN PREPARATION FOR REMOVAL. REMOVE CONDUCTORS BACK TO PANEL. EXISTING CONDUIT PATHWAYS MAY BE REUSED IF ACCESSIBLE AND IF ALL DRAWING REQUIREMENTS SHOWN ON NEW POWER PLANS ARE MET.



1 **ELECTRICAL DEMOLITION PLAN - MAIN LEVEL - UNIT C**
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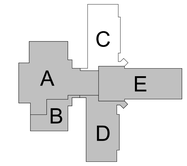

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ELECTRICAL DEMOLITION PLAN - MAIN LEVEL - UNIT C

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4.	REMOVE EXISTING LIGHT FIXTURES FROM ALL AREAS WHERE NEW LIGHTING IS INDICATED.
5.	EXISTING EQUIPMENT AND CIRCUITING IS INTENDED TO BE A REASONABLE APPROXIMATION AND IS FOR CONVENIENCE ONLY. NOT FOR THE BASIS OF BIDDING. DETERMINE EXACT QUANTITIES, LOCATIONS AND WIRING METHODS AT JOB SITE.
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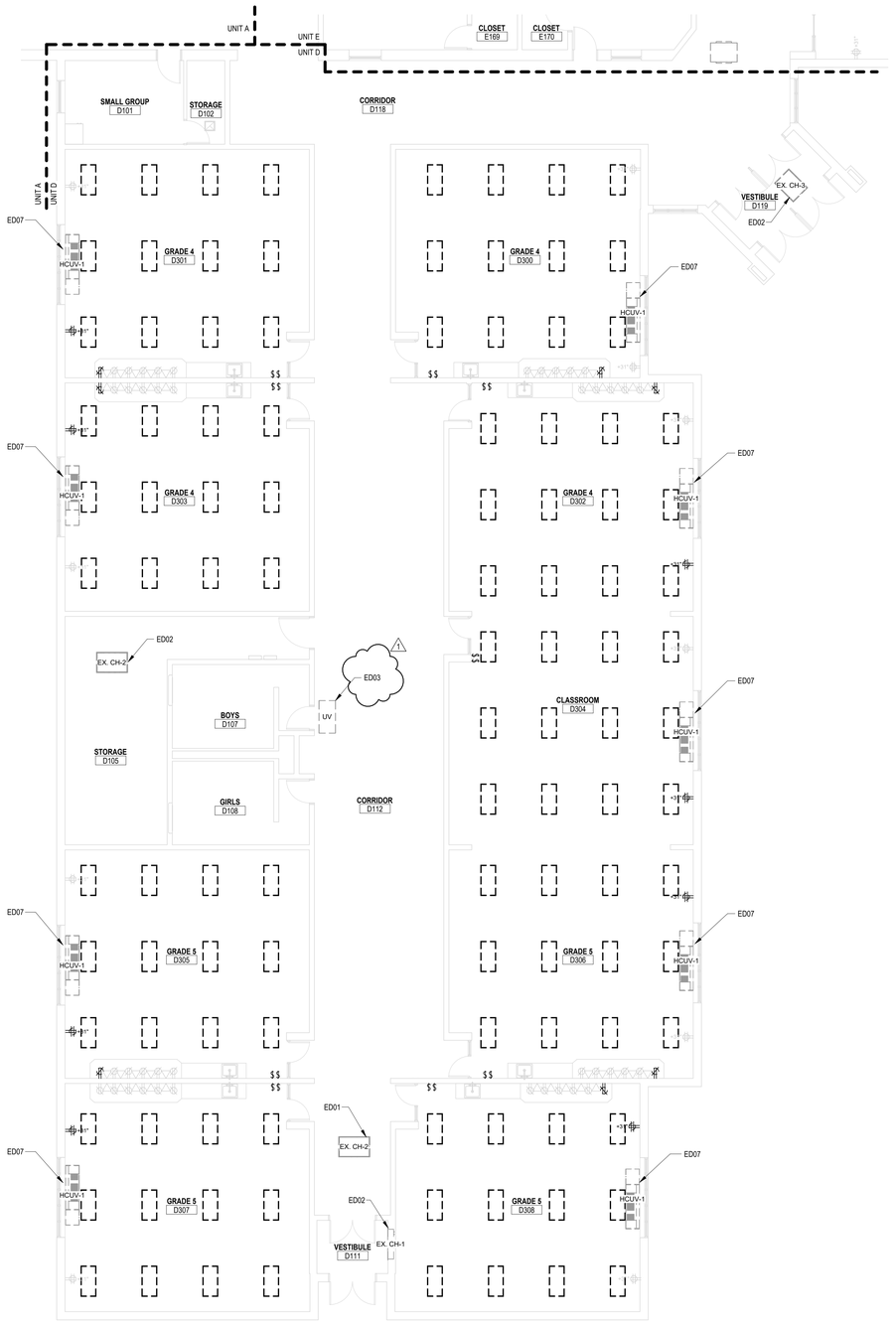
ELECTRICAL DEMOLITION KEYNOTES

ED01	EXISTING EQUIPMENT TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. REMOVE ABANDONED CONDUCTORS AND CONDUIT BACK TO NEAREST JUNCTION BOX. SPLICE AND EXTEND BRANCH CIRCUIT WIRING AS REQUIRED TO MAINTAIN OPERATION OF EXISTING TO REMAIN DOWNSTREAM DEVICES.
ED02	EXISTING CABINET HEATER TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. SEE NEW POWER PLANS FOR ADDITIONAL INFORMATION.
ED03	EXISTING UNIT VENTILATOR TO BE REMOVED. DISCONNECT POWER TO UNIT TO PREPARE FOR REMOVAL. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. SEE NEW POWER PLANS FOR ADDITIONAL INFORMATION.
ED07	EXISTING HORIZONTAL UNIT VENT TO BE REMOVED. DISCONNECT POWER IN PREPARATION FOR REMOVAL. REMOVE CONDUCTORS BACK TO PANEL. EXISTING CONDUIT PATHWAYS MAY BE REUSED IF ACCESSIBLE AND IF ALL DRAWING REQUIREMENTS SHOWN ON NEW POWER PLANS ARE MET.



1 **ELECTRICAL DEMOLITION PLAN - MAIN LEVEL**
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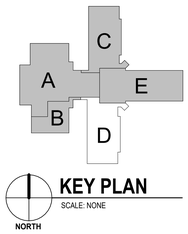

KEY PLAN
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ELECTRICAL DEMOLITION PLAN - MAIN LEVEL - UNIT D

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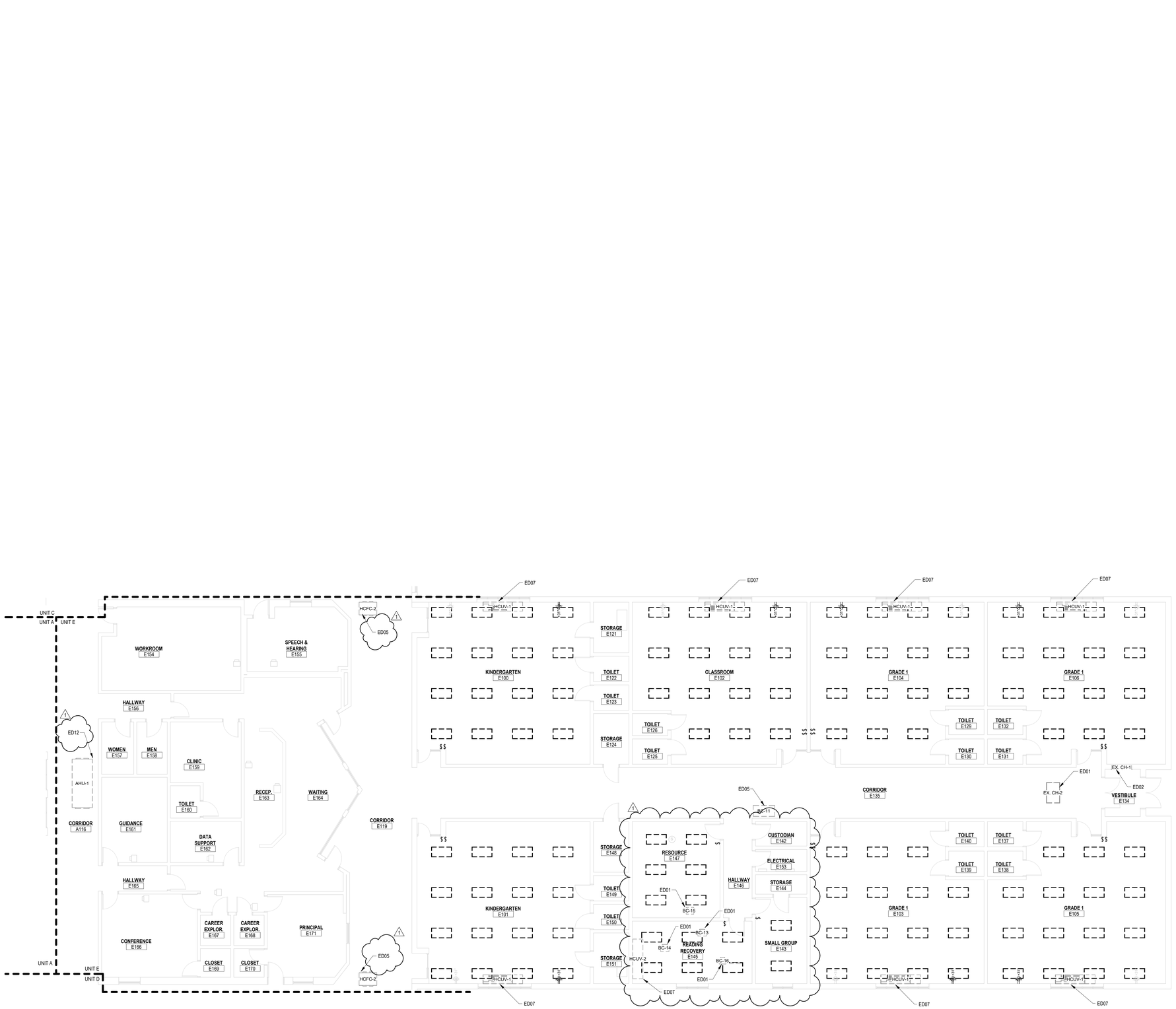
ED07	EXISTING HORIZONTAL UNIT VENT TO BE REMOVED. DISCONNECT POWER IN PREPARATION FOR REMOVAL. REMOVE CONDUCTORS BACK TO PANEL. EXISTING CONDUIT PATHWAYS MAY BE REUSED IF ACCESSIBLE AND IF ALL WIRING REQUIREMENTS SHOWN ON NEW POWER PLANS ARE MET.
ED12	REMOVE EXISTING INDOOR AND OUTDOOR UNIT. REMOVE ALL ASSOCIATED CABLING AND CONDUIT BACK TO PANEL. REMOVE EXISTING BREAKER AND PREPARE PANEL FOR NEW BREAKER FOR NEW EQUIPMENT.



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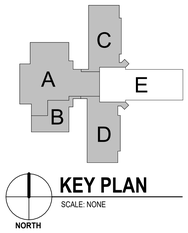

KEY PLAN
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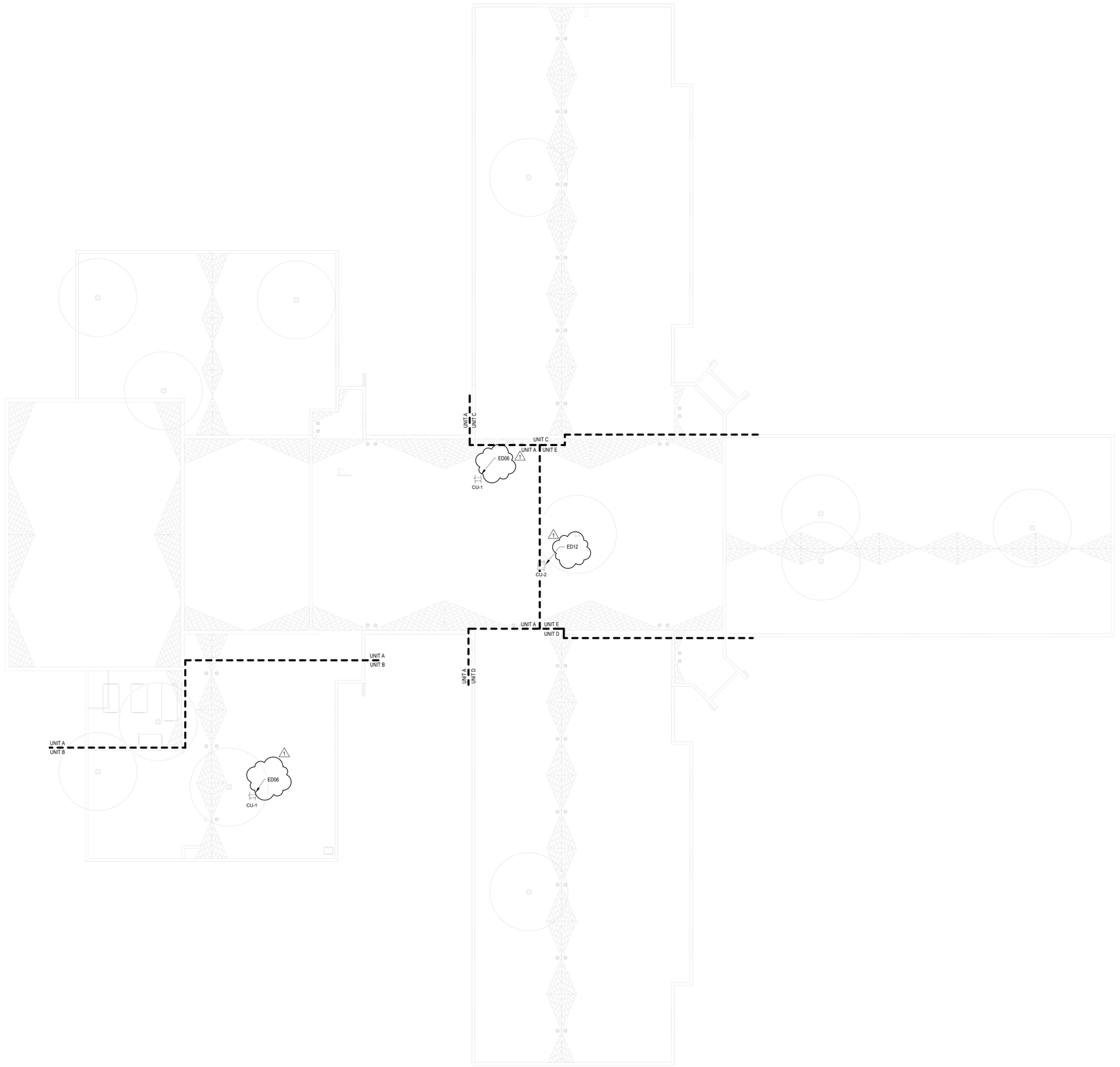
NO.	DATE	DESCRIPTION
1	02-26-2025	ADD-01

ELECTRICAL DEMOLITION PLAN - MAIN LEVEL - UNIT E

ED1.1E



GENERAL ELECTRICAL DEMOLITION NOTES

1.	REMOVE ELECTRICAL WORK FROM WALLS, CEILINGS AND OTHER SURFACES TO BE REMOVED. EXISTING BOXES AND CONDUIT MAY BE RE-USED IF ALL REQUIREMENTS SHOWN ON DRAWINGS ARE SATISFIED.
2.	REMOVE ALL ABANDONED CONDUCTORS, ELECTRICAL EQUIPMENT AND ACCESSIBLE RACEWAYS INCLUDING LOW-VOLTAGE, INTERCOM, BELLS AND FIRE ALARM SYSTEMS.
3.	EXISTING EQUIPMENT, DEVICES, ETC. INDICATED TO REMAIN ARE INTENDED TO REMAIN OPERATIONAL. EXTEND OR REROUTE CIRCUITS AS REQUIRED TO KEEP DOWN STREAM DEVICES OPERATIONAL.
4.	REMOVE EXISTING LIGHT FIXTURES FROM ALL AREAS WHERE NEW LIGHTING IS INDICATED.
5.	EXISTING EQUIPMENT AND CIRCUITING IS INTENDED TO BE A REASONABLE APPROXIMATION AND IS FOR CONVENIENCE ONLY, NOT FOR THE BASIS OF BIDDING. DETERMINE EXACT QUANTITIES, LOCATIONS AND WIRING METHODS AT JOB SITE.
6.	ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DISCONNECTING AND REMOVING POWER FEEDS TO ALL FIXED EQUIPMENT SHOWN TO BE REMOVED OR RELOCATED.
7.	EXISTING LOW VOLTAGE DEVICES MOUNTED IN CEILINGS INCLUDING PROJECTORS, WIRELESS ACCESS POINTS, SPEAKERS, ETC. WILL BE REMOVED AND/OR PROTECTED BY OWNER. THESE DEVICES WILL BE REINSTALLED BY OWNER AFTER NEW CEILINGS ARE IN PLACE. TAKE CARE TO PROTECT AND MAINTAIN ANY WIRING SERVICE LOOPS DURING CONSTRUCTION.

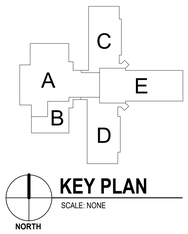
ELECTRICAL DEMOLITION KEYNOTES

ED06	EXISTING SPLIT SYSTEM TO BE REMOVED, INCLUDING BOTH INDOOR AND OUTDOOR UNIT. REMOVE CABLING BACK TO PANEL. EXISTING CONDUIT PATHWAY MAY BE REUSED.
ED12	REMOVE EXISTING INDOOR AND OUTDOOR UNIT. REMOVE ALL ASSOCIATED CABLING AND CONDUIT BACK TO PANEL. REMOVE EXISTING BREAKER AND PREPARE PANEL FOR NEW BREAKER FOR NEW EQUIPMENT.

1 ELECTRICAL DEMOLITION PLAN - THIRD LEVEL

SCALE: 1/16" = 1'-0"

NORTH



KEY PLAN

SCALE: NONE

NORTH

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Whitley County Consolidated Schools

NORTHERN HEIGHTS ELEMENTARY

MECANICAL RENOVATION - 2025

5209 IN-109
Columbia City, IN 46725

PROJECT: 2024.0001

KELSEY L. ROWE
REGISTERED
No. 11400779
STATE OF INDIANA
PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

ISSUE DATE: 02/14/2025

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NO.	DATE	DESCRIPTION
1	02-26-2025	ADD-01

ELECTRICAL DEMOLITION PLAN - ROOF LEVEL

ED1.2

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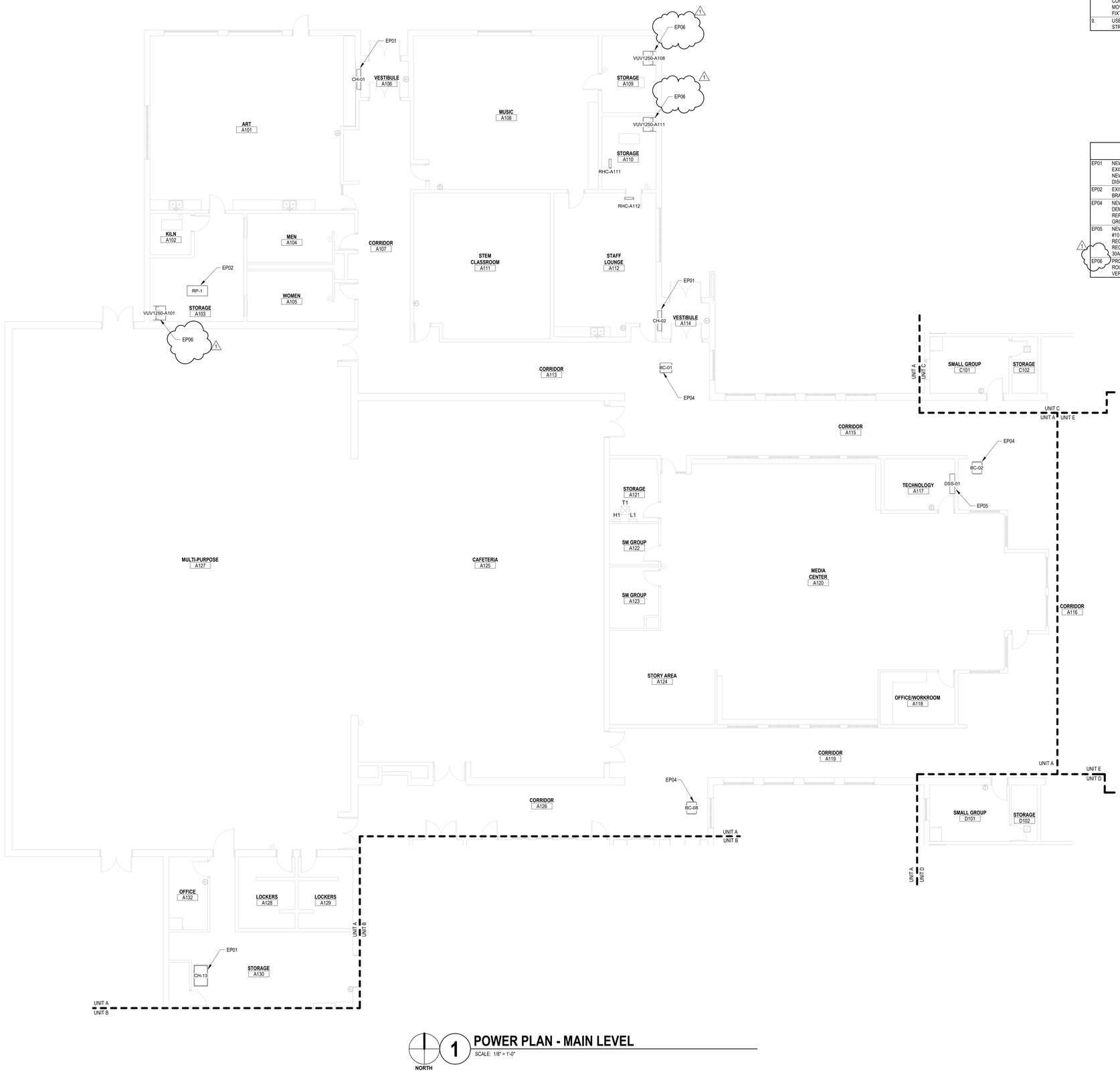
GENERAL ELECTRICAL NOTES

1.	THE SCOPE OF THE WORK COVERED BY THESE DRAWINGS AND SPECIFICATIONS INCLUDES LABOR, EQUIPMENT, AND MATERIALS FOR THE COMPLETE ELECTRICAL SYSTEM.
2.	THE ENTIRE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NEC AND ALL STATE AND LOCAL CODES.
3.	THE ENTIRE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE
4.	EACH CONDUIT RUN SHALL HAVE A SEPARATE GROUND WIRE.
5.	ALL BRANCH CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. SHARING OF NEUTRAL WIRES IS NOT ACCEPTABLE.
7.	FIELD VERIFY EVERY CIRCUIT AFFECTED BY CONSTRUCTION AND PROVIDE UPDATED, TYPED CIRCUIT DIRECTORY WITH CLEAR PROTECTIVE COVER/HOLDER INSIDE DOOR OF EVERY PANELBOARD AFFECTED BY CONSTRUCTION.
8.	MC TYPE CABLE ALLOWABLE IN CONCEALED HORIZONTAL RUNS, INSTALLED CONCEALED IN STUD WALLS BETWEEN OUTLET DEVICES, CONNECTIONS TO MOVING OR VIBRATING EQUIPMENT, AND FOR FINAL CONNECTION TO LIGHT FIXTURES (6 FT. MAX).
9.	USE BOLTED CLAMP TYPE HANGERS FOR SUPPORTING CONDUITS. ONE-HOLE STRAP AND SPRING TYPE CONDUIT HANGERS ARE NOT ACCEPTABLE.

POWER PLAN KEYNOTES

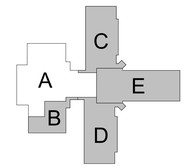
EP01	NEW CABINET HEATER TO BE INSTALLED IN SAME LOCATED AS DEMOLISHED UNIT. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. RECONNECT BRANCH CIRCUIT WIRING TO UNIT MOUNTED DISCONNECT.
EP02	EXISTING RADIANT PANEL TO BE RELOCATED TO NEW LOCATION SHOWN. EXISTING BRANCH CIRCUIT WIRING TO BE REROUTED / EXTENDED TO NEW LOCATION.
EP04	NEW BLOWER COIL UNIT. REROUTE AND EXTEND BRANCH CIRCUIT WIRING FROM DEMOLISHED UNIT VENTILATOR AND CONNECT TO UNIT MOUNTED DISCONNECT. REPLACE EXISTING BREAKER WITH 25A BREAKER. CONFIRM THAT #12 WIRE AND GROUND ARE USED. IF NOT, PROVIDE NEW WIRE SIZED TO PROTECT NEW UNIT.
EP05	NEW SPLIT SYSTEM. INCLUDING BOTH INDOOR AND OUTDOOR UNIT. ROUTE NEW #10 WIRE AND #10 GROUND TO INDOOR AND OUTDOOR UNIT. ALSO ROUTE REQUIRED CONTROL WIRING BETWEEN UNITS PER MANUFACTURER'S REQUIREMENTS. EXISTING CONDUIT PATHWAY MAY BE REUSED. PROVIDE NEW 30A/2P BREAKERS.
1 EP06	PROVIDE NEW BREAKER IN EXISTING PANEL AS SHOWN ON PANEL SCHEDULES. ROUTE NEW #12 WIRE AND #12 GROUND IN 3/4" CONDUIT OVERHEAD TO NEW VERTICAL UNIT VENT. CONNECT TO UNIT MOUNTED DISCONNECT.



1 POWER PLAN - MAIN LEVEL

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

NORTH



KEY PLAN

SCALE: NONE

NORTH

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1	02-26-2025	ADD-01

POWER PLAN - MAIN LEVEL - UNIT A

E1.1A

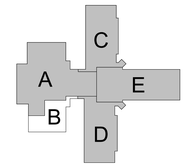
GENERAL ELECTRICAL NOTES

1.	THE SCOPE OF THE WORK COVERED BY THESE DRAWINGS AND SPECIFICATIONS INCLUDES LABOR, EQUIPMENT, AND MATERIALS FOR THE COMPLETE ELECTRICAL SYSTEM.
2.	THE ENTIRE ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NEC AND ALL STATE AND LOCAL CODES.
3.	THE ENTIRE ELECTRICAL SYSTEM SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE
4.	EACH CONDUIT RUN SHALL HAVE A SEPARATE GROUND WIRE.
5.	ALL BRANCH CIRCUITS SHALL HAVE SEPARATE NEUTRAL CONDUCTORS. SHARING OF NEUTRAL WIRES IS NOT ACCEPTABLE.
7.	FIELD VERIFY EVERY CIRCUIT AFFECTED BY CONSTRUCTION AND PROVIDE UPDATED, TYPED CIRCUIT DIRECTORY WITH CLEAR PROTECTIVE COVER/HOLDER INSIDE DOOR OF EVERY PANELBOARD AFFECTED BY CONSTRUCTION.
8.	MC TYPE CABLE ALLOWABLE IN CONCEALED HORIZONTAL RUNS, INSTALLED CONCEALED IN STUD WALLS BETWEEN OUTLET DEVICES, CONNECTIONS TO MOVING OR VIBRATING EQUIPMENT, AND FOR FINAL CONNECTION TO LIGHT FIXTURES (6 FT. MAX).
9.	USE BOLTED CLAMP TYPE HANGERS FOR SUPPORTING CONDUITS. ONE-HOLE STRAP AND SPRING TYPE CONDUIT HANGERS ARE NOT ACCEPTABLE.

POWER PLAN KEYNOTES

EP01	NEW CABINET HEATER TO BE INSTALLED IN SAME LOCATED AS DEMOLISHED UNIT. EXISTING BRANCH CIRCUIT WIRING AND CONDUIT PATHWAY TO BE REUSED FOR NEW EQUIPMENT. RECONNECT BRANCH CIRCUIT WIRING TO UNIT MOUNTED DISCONNECT.
EP05	NEW SPLIT SYSTEM, INCLUDING BOTH INDOOR AND OUTDOOR UNIT. ROUTE NEW #10 WIRE AND #10 GROUND TO INDOOR AND OUTDOOR UNIT. ALSO ROUTE REQUIRED CONTROL WIRING BETWEEN UNITS PER MANUFACTURER'S REQUIREMENTS. EXISTING CONDUIT PATHWAY MAY BE REUSED. PROVIDE NEW 30A/2P BREAKERS.
EP07	EMERGENCY SHUT OFF MUSHROOM BUTTON FOR GAS BOILERS. REFER TO DETAIL ON SHEET E4.6 FOR WIRING OF EMERGENCY BUTTON TO CONTROL BOILER SHUNT TRIP BREAKERS. PROVIDE CLEAR PLASTIC PROTECTIVE COVER FOR BUTTON TO AVOID ACCIDENTAL ACTIVATION.
EP09	EXISTING RECIRCULATION PUMP TO REMAIN. INSTALL WIRING TO THE NEW GAS WATER HEATER.
EP10	PROVIDE WIRING FROM THE NEW VFDS TO POWER THE NEW MECHANICAL EQUIPMENT.
EP14	WIRE THRU CHILLER PER MANUFACTURER'S REQUIREMENTS.

1 **POWER PLAN - MAIN LEVEL**
SCALE: 1/8" = 1'-0"
NORTH



KEY PLAN
SCALE: NONE
NORTH

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POWER PLAN - MAIN LEVEL - UNIT B

E1.1B

GENERAL ELECTRICAL NOTES

1.	THE SCOPE OF THE WORK COVERED BY THESE DRAWINGS AND SPECIFICATIONS INCLUDES LABOR, EQUIPMENT, AND MATERIALS FOR THE COMPLETE ELECTRICAL SYSTEM.
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7.	FIELD VERIFY EVERY CIRCUIT AFFECTED BY CONSTRUCTION AND PROVIDE UPDATED, TYPED CIRCUIT DIRECTORY WITH CLEAR PROTECTIVE COVER/HOLDER INSIDE DOOR OF EVERY PANELBOARD AFFECTED BY CONSTRUCTION.
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POWER PLAN KEYNOTES

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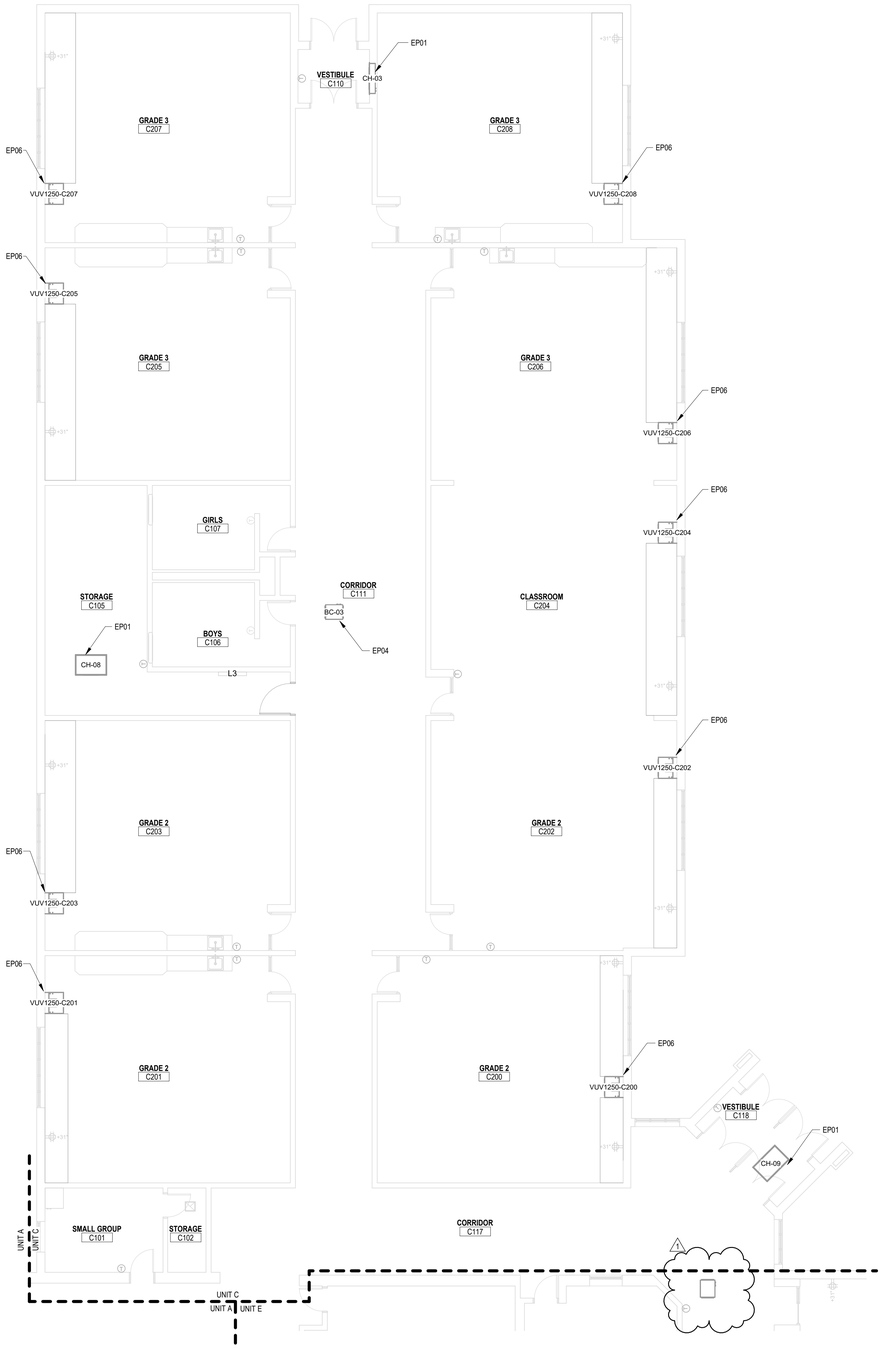
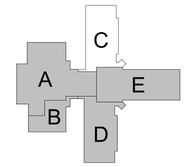
EP04	NEW BLOWER COIL UNIT. REROUTE AND EXTEND BRANCH CIRCUIT WIRING FROM DEMOLISHED UNIT VENTILATOR AND CONNECT TO UNIT MOUNTED DISCONNECT. REPLACE EXISTING BREAKER WITH 25A BREAKER. CONFIRM THAT #12 WIRE AND GROUND ARE USED. IF NOT, PROVIDE NEW WIRE SIZED TO PROTECT NEW UNIT.
EP06	PROVIDE NEW BREAKER IN EXISTING PANEL AS SHOWN ON PANEL SCHEDULES. ROUTE NEW #12 WIRE AND #12 GROUND IN 3/4" CONDUIT OVERHEAD TO NEW VERTICAL UNIT VENT. CONNECT TO UNIT MOUNTED DISCONNECT.



1 **POWER PLAN - MAIN LEVEL**
SCALE: 1/8" = 1'-0"
NORTH



KEY PLAN
SCALE: NONE
NORTH

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POWER PLAN - MAIN LEVEL - UNIT C

E1.1C

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GENERAL ELECTRICAL NOTES

1.	THE SCOPE OF THE WORK COVERED BY THESE DRAWINGS AND SPECIFICATIONS INCLUDES LABOR, EQUIPMENT, AND MATERIALS FOR THE COMPLETE ELECTRICAL SYSTEM.
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POWER PLAN KEYNOTES

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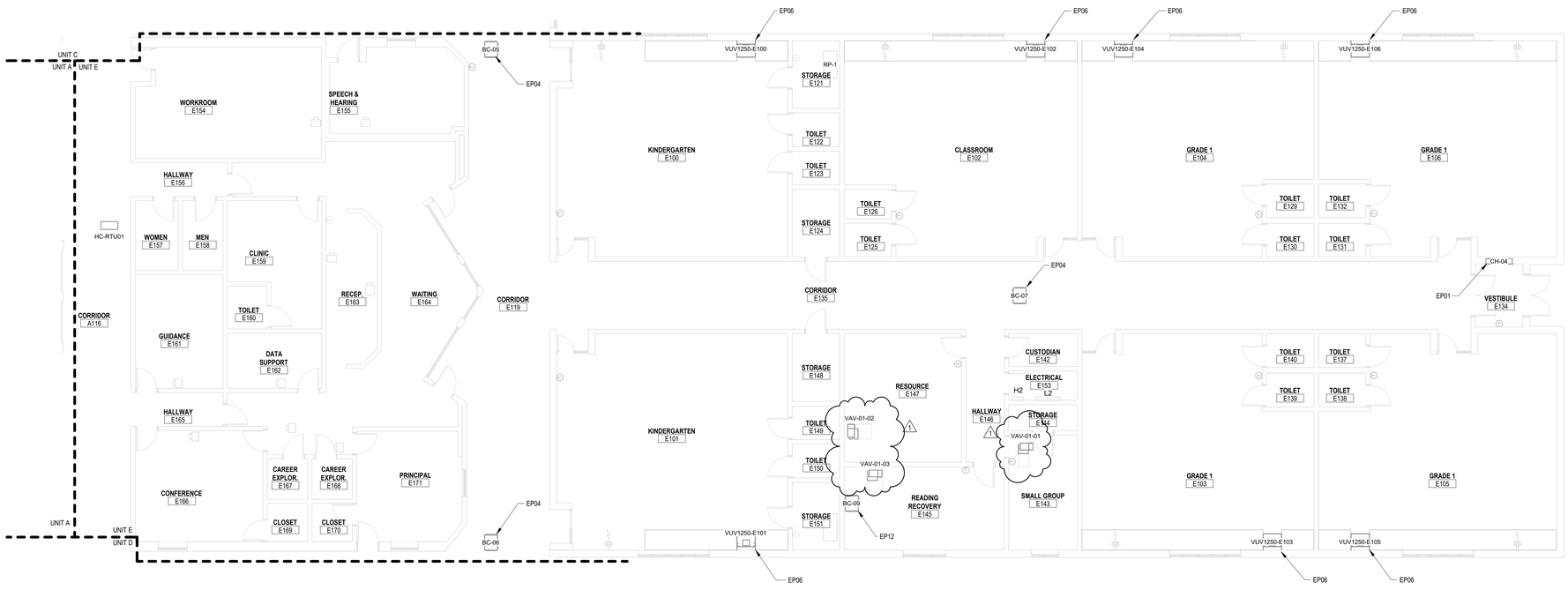
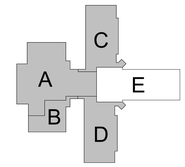
EP04	NEW BLOWER COIL UNIT. REROUTE AND EXTEND BRANCH CIRCUIT WIRING FROM DEMOLISHED UNIT VENTILATOR AND CONNECT TO UNIT MOUNTED DISCONNECT. REPLACE EXISTING BREAKER WITH 25A BREAKER. CONFIRM THAT #12 WIRE AND GROUND ARE USED. IF NOT, PROVIDE NEW WIRE SIZED TO PROTECT NEW UNIT.
EP06	PROVIDE NEW BREAKER IN EXISTING PANEL AS SHOWN ON PANEL SCHEDULES. ROUTE NEW #12 WIRE AND #12 GROUND IN 3/4" CONDUIT OVERHEAD TO NEW VERTICAL UNIT VENT. CONNECT TO UNIT MOUNTED DISCONNECT.
EP12	NEW BLOWER COIL UNIT. POWER FROM PANEL L2 WITH FREE BREAKER SPACE FROM EXISTING SPARES OR DEMOLISHED BREAKERS. PROVIDE 208V/3P 20A BREAKER. USE #12 WIRE AND #12 GROUND. CONNECT TO UNIT MOUNTED DISCONNECT.



1 **POWER PLAN - MAIN LEVEL**
SCALE: 1/8" = 1'-0"
NORTH



KEY PLAN
SCALE: NONE
NORTH

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POWER PLAN - MAIN LEVEL - UNIT E

E1.1E

GENERAL ELECTRICAL NOTES

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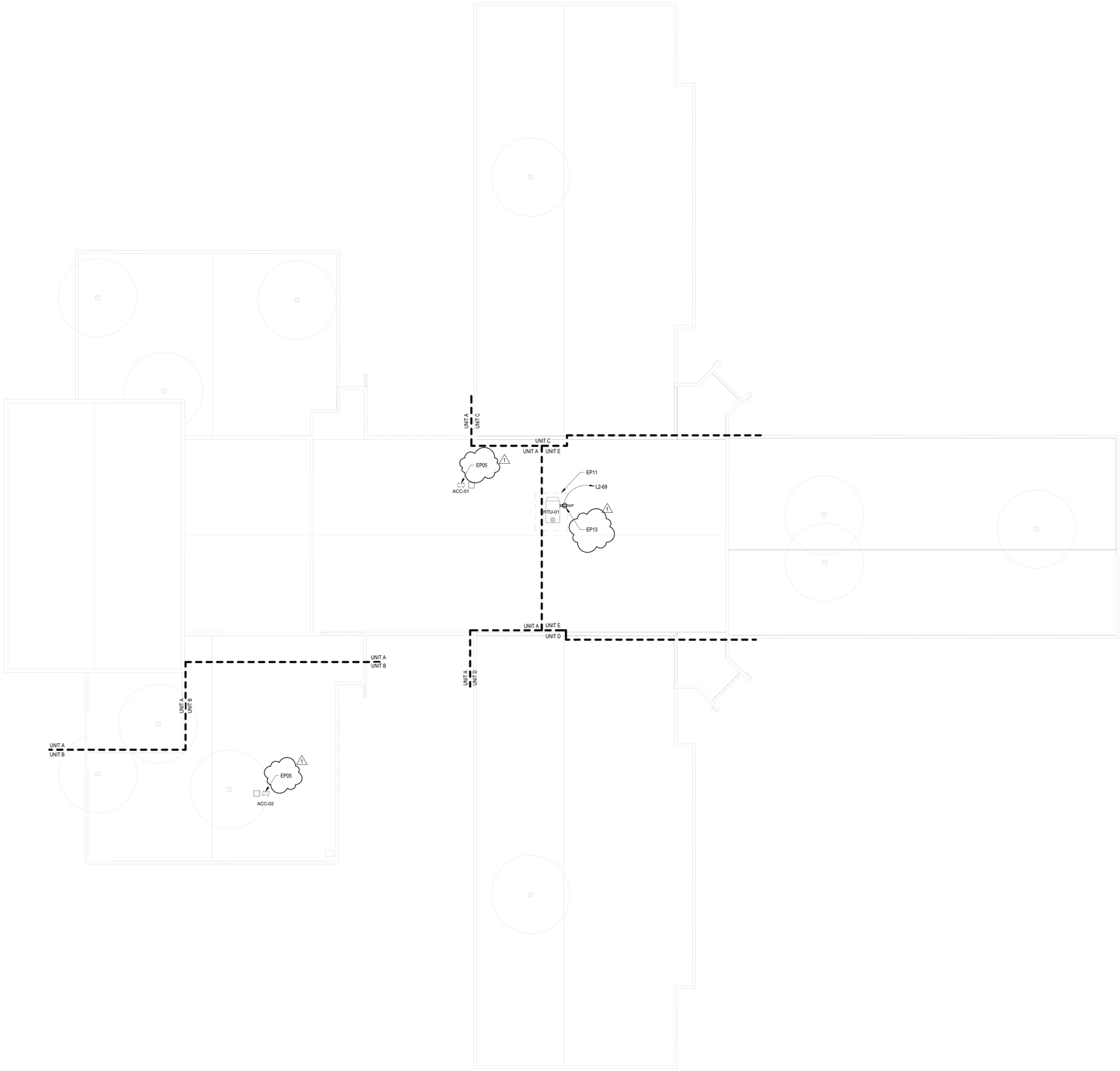
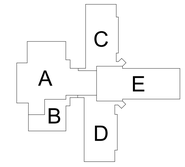
POWER PLAN KEYNOTES

EP05	NEW SPLIT SYSTEM, INCLUDING BOTH INDOOR AND OUTDOOR UNIT. ROUTE NEW #10 WIRE AND #10 GROUND TO INDOOR AND OUTDOOR UNIT. ALSO ROUTE REQUIRED CONTROL WIRING BETWEEN UNITS PER MANUFACTURER'S REQUIREMENTS. EXISTING CONDUIT PATHWAY MAY BE REUSED. PROVIDE NEW 30A/2P BREAKERS.
EP11	NEW ROOFTOP UNIT. PROVIDE NEW BREAKER IN PANEL AS NOTED IN MECHANICAL EQUIPMENT SCHEDULE.
EP13	RECEPTACLE IS BUILT INTO THE UNIT. PROVIDE #12, #12 GROUND IN 3/4" CONDUIT.



1 **POWER PLAN - ROOF LEVEL**
SCALE: 1/16" = 1'-0"
NORTH



KEY PLAN
SCALE: NONE
NORTH

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POWER PLAN - ROOF LEVEL

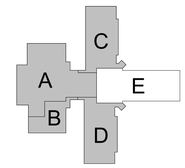
E1.3

GENERAL LIGHTING NOTES

1.	LIGHT FIXTURES SHALL BE AS SCHEDULED OR APPROVED EQUAL 10 DAYS PRIOR TO BID.
2.	OCCUPANCY SENSORS SHALL HAVE SEPARATE LINE VOLTAGE RELAYS/POWER PACKS FOR CONTROL OF LIGHTING CIRCUIT AND LOW VOLTAGE WIRING CONNECTION TO SENSOR TO ALLOW FOR RELOCATION OR MULTIPLE SENSORS. SENSORS SHALL BE DUAL TECHNOLOGY TYPE. APPROVED MANUFACTURER`S FOR LINE-VOLTAGE CEILING AND WALLBOX SENSORS SHALL BE WATT STOPPER, SENSOR SWITCH, HUBBELL, ACUITY, AND LEVITON.
3.	OCCUPANCY SENSOR LOCATIONS ON PLANS ARE SHOWN TO INDICATE AREAS TO BE COVERED, AND LIGHTS TO BE CONTROLLED. OCCUPANCY SENSOR MANUFACTURER SHALL ADJUST LOCATIONS, QUANTITIES, AND SENSOR TYPES TO ENSURE PROPER COVERAGE OF ALL AREAS. PROVIDE ADDITIONAL SENSORS IF NEEDED TO COVER ENTIRE AREA. USE WALL MOUNTED, LONG THROW SENSORS FOR CORRIDORS WHERE APPLICABLE, AND CEILING MOUNTED SENSORS IN OTHER AREAS.
4.	WHERE NEW LIGHTING CONTROL DEVICES ARE SHOWN IN EXISTING CLASSROOMS, REMOVE EXISTING SWITCH(ES) AND INSTALL NEW DEVICES IN SAME BACKBOX.
5.	CEILING MOUNTED OCCUPANCY SENSORS MOUNTED IN WOOD, OR PAINTED CEILINGS SHALL BE PAINTED TO MATCH CEILING COLOR. VERIFY FINISH WITH ARCHITECT PRIOR TO PAINTING.
6.	IN AREAS WHERE LED FIXTURES ARE SHOWN TO BE DIMMED, CONTRACTOR SHALL RUN LOW VOLTAGE CONTROL CABLE TO EACH FIXTURE IN ADDITION TO LINE VOLTAGE WIRING. CONTROL WIRING MAY BE RUN USING OPEN CABLING.
7.	E.C. SHALL PROVIDE ALL REQUIRED CABLING TO INTERCONNECT ALL CONTROL DEVICES, INCLUDING RJ-45 PLUGS ON ALL CABLES

1 **LIGHTING PLAN - MAIN LEVEL**
SCALE: 1/8" = 1'-0"

NORTH



KEY PLAN
SCALE: NONE

NORTH

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LIGHTING PLAN - MAIN LEVEL - UNIT E

E2.1E

MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE

MARK	LOAD	VOLTS / PH	CIRCUITING	FEEDER SIZE	NOTES
ACC-01 / DSS-01	2.00 kW	208 V / 1	L1-76,78	#12, #12 G. IN 3/4" C. (CU)	2,7
ACC-02 / DSS-02	2.00 kW	208 V / 1	KL-44,46	#12, #12 G. IN 3/4" C. (CU)	2,7
B-01	1.62 kW	208 V / 3	KL-20,22,24	#12, #12 G. IN 3/4" C. (CU)	
B-02	1.62 kW	208 V / 3	KL-21,23,25	#12, #12 G. IN 3/4" C. (CU)	
BC-01	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-02	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-03	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-04	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-05	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-06	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-07	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-08	1.60 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	1,8
BC-09	1.04 kW	208 V / 3	L2-62,64,66	#12, #12 G. IN 3/4" C. (CU)	2
CH-01	0.09 kW	120 V / 1	L1-2	#12, #12 G. IN 3/4" C. (CU)	4
CH-02	0.09 kW	120 V / 1	L1-19	#12, #12 G. IN 3/4" C. (CU)	4
CH-03	0.09 kW	120 V / 1	L3-28	#12, #12 G. IN 3/4" C. (CU)	4
CH-04	0.09 kW	120 V / 1	L2-1	#12, #12 G. IN 3/4" C. (CU)	4
CH-05	0.09 kW	120 V / 1	L4-1	#12, #12 G. IN 3/4" C. (CU)	4
CH-06	0.09 kW	120 V / 1	L5-3	#12, #12 G. IN 3/4" C. (CU)	4
CH-07	0.09 kW	120 V / 1	L5-17	#12, #12 G. IN 3/4" C. (CU)	4
CH-08	0.09 kW	120 V / 1	L3-14	#12, #12 G. IN 3/4" C. (CU)	4
CH-09	0.09 kW	120 V / 1	L3-57	#12, #12 G. IN 3/4" C. (CU)	4
CH-10	0.09 kW	120 V / 1	L4-19	#12, #12 G. IN 3/4" C. (CU)	4
CH-11	0.09 kW	120 V / 1	L4-17	#12, #12 G. IN 3/4" C. (CU)	4
CH-12	0.09 kW	120 V / 1	L5-17	#12, #12 G. IN 3/4" C. (CU)	4
CH-13	0.09 kW	120 V / 1	L1-40	#12, #12 G. IN 3/4" C. (CU)	4
CHILLER	146.00 kW	480 V / 3	MDP-5	#350, #4 G. IN 3" C. (CU)	4
CHP-01	6.32 kW	480 V / 3	XH1-17,19,21	#12, #12 G. IN 3/4" C. (CU)	4
GWH-01	0.12 kW	120 V / 1	RECONNECT	#12, #12 G. IN 3/4" C. (CU)	
RTU-01	9.82 kW	480 V / 3	H2-1,3,5	#10, #10 G. IN 3/4" C. (CU)	4
VAV-01-01	0.25 kW	120 V / 1	L2-67	#12, #12 G. IN 3/4" C. (CU)	1
VAV-01-02	0.25 kW	120 V / 1	L2-67	#12, #12 G. IN 3/4" C. (CU)	1
VAV-01-03	0.25 kW	120 V / 1	L2-67	#12, #12 G. IN 3/4" C. (CU)	1
VUV1250-A101	1.34 kW	120 V / 1	L1-43	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-A108	1.34 kW	120 V / 1	L1-58	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-A111	1.34 kW	120 V / 1	L1-72	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C200	1.34 kW	120 V / 1	L3-69	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C201	1.34 kW	120 V / 1	L3-70	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C202	1.34 kW	120 V / 1	L3-68	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C203	1.34 kW	120 V / 1	L3-71	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C204	1.34 kW	120 V / 1	L3-67	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C205	1.34 kW	120 V / 1	L3-72	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C206	1.34 kW	120 V / 1	L3-66	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C207	1.34 kW	120 V / 1	L3-73	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-C208	1.34 kW	120 V / 1	L3-65	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D300	1.34 kW	120 V / 1	L4-32	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D301	1.34 kW	120 V / 1	L4-22	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D302	1.34 kW	120 V / 1	L4-34	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D303	1.34 kW	120 V / 1	L4-18	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D304	1.34 kW	120 V / 1	L4-63	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D305	1.34 kW	120 V / 1	L4-10	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D306	1.34 kW	120 V / 1	L4-45	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D307	1.34 kW	120 V / 1	L4-62	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-D308	1.34 kW	120 V / 1	L4-53	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E100	1.34 kW	120 V / 1	L2-60	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E101	1.34 kW	120 V / 1	L2-63	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E102	1.34 kW	120 V / 1	L2-60	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E103	1.34 kW	120 V / 1	L2-65	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E104	1.34 kW	120 V / 1	L2-60	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E105	1.34 kW	120 V / 1	L2-56	#12, #12 G. IN 3/4" C. (CU)	4
VUV1250-E106	1.34 kW	120 V / 1	L2-5	#12, #12 G. IN 3/4" C. (CU)	4

1 E.C. TO PROVIDE 120V/1P SNAP SWITCH WITH PILOT LIGHT FOR DISCONNECTING MEANS.
2 E.C. TO PROVIDE DISCONNECT AT UNIT.
3 PROVIDE NEMA 3R ENCLOSURE FOR DISCONNECTING MEANS.
4 E.C. TO WIRE TO UNIT MOUNTED DISCONNECT.
5 E.C. TO INSTALL, MOUNT AND WIRE TO VFD. VFD PROVIDED BY OTHERS.
6 WIRE UNIT THROUGH OCCUPANCY SENSOR / SWITCH IN ROOM.
7 E.C. TO CONNECT INDOOR UNIT TO OUTDOOR UNIT. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR EXACT REQUIREMENTS.
8 EXISTING PANEL SCHEDULES DO NOT REFLECT NEW BREAKER SIZE, BUT EXISTING 20A BREAKER SHALL BE REPLACED WITH NEW 25A BREAKER AS NOTED ON PLANS.

LIGHT FIXTURE SCHEDULE

LIGHT FIXTURES SHALL BE AS SCHEDULED OR APPROVED EQUAL 10 DAYS PRIOR TO BID.

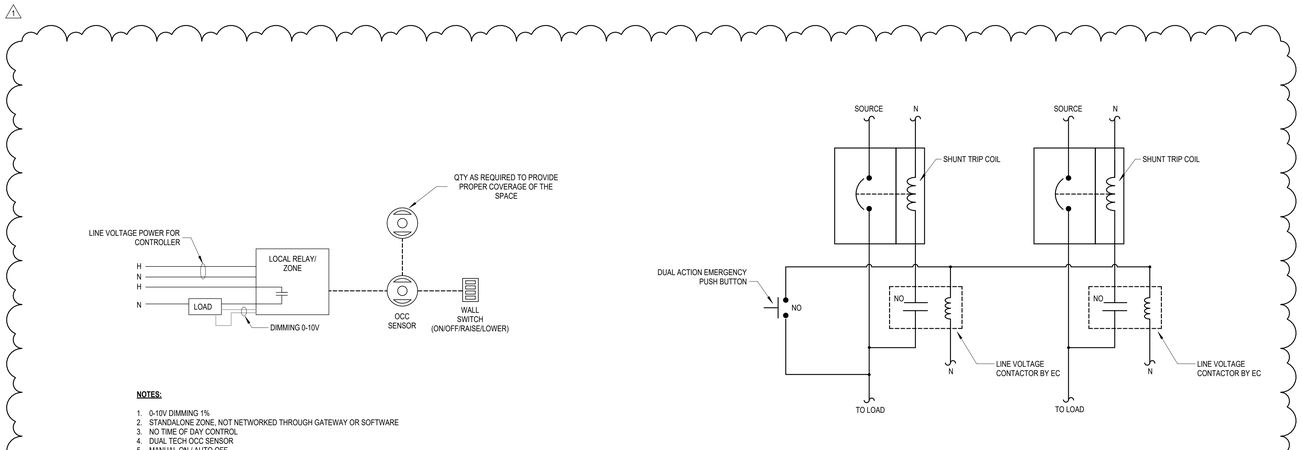
MARK	DESCRIPTION	COLOR TEMPERATURE	LUMENS	MOUNTING	FINISH	FIXTURE WATTAGE	COMMENTS	APPROVED MANUFACTURERS
F02	2X4 LOW-PROFILE "VOLUMETRIC" STYLE LAY-IN FIXTURE	3500 K	6000 lm	RECESSED	WHITE	48 W	PROVIDE 0-10V 1% DIMMING DRIVER.	TO BE SPECIFIED BY OWNER

VOLTAGE DROP SCHEDULE (ALL SIZES BASED ON COPPER CONDUCTORS)

LOAD AMPACITY	WIRE SIZE	MAX WIRE LENGTH - 120/208V		MAX WIRE LENGTH - 277/480V	
		2% DROP - FEEDERS	3% DROP - BRANCH CKTS	2% DROP - FEEDERS	3% DROP - BRANCH CKTS
50 A	#8	69'	103'	158'	238'
50 A	#6	107'	160'	246'	370'
50 A	#4	160'	240'	370'	554'
50 A	#3	200'	300'	462'	693'
50 A	#2	240'	360'	554'	831'
60 A	#6	89'	133'	205'	308'
60 A	#4	133'	200'	308'	462'
60 A	#3	167'	250'	385'	577'
60 A	#2	200'	300'	462'	693'
60 A	#1	250'	375'	577'	866'
80 A	#4	100'	150'	231'	346'
80 A	#3	125'	188'	289'	433'
80 A	#2	150'	225'	346'	520'
80 A	#1	188'	281'	433'	650'
80 A	#1/0	231'	346'	533'	799'
100 A	#3	100'	150'	231'	346'
100 A	#2	120'	180'	277'	416'
100 A	#1	150'	225'	346'	520'
100 A	#1/0	185'	277'	426'	640'
100 A	#2/0	218'	328'	504'	756'
150 A	#1/0	123'	185'	284'	426'
150 A	#2/0	146'	218'	336'	504'
150 A	#3/0	170'	256'	393'	590'
150 A	#4/0	200'	300'	462'	693'
150 A	#250	219'	329'	506'	759'
200 A	#3/0	128'	192'	295'	426'
200 A	#4/0	150'	225'	346'	520'
200 A	#250	165'	247'	380'	569'
200 A	#300	185'	277'	426'	640'
200 A	#350	200'	300'	462'	693'
350 A	#350	114'	172'	264'	396'
350 A	#400	123'	184'	283'	424'
350 A	#500	137'	206'	317'	475'
350 A	#600	146'	219'	337'	505'
400 A	#600	128'	192'	295'	442'

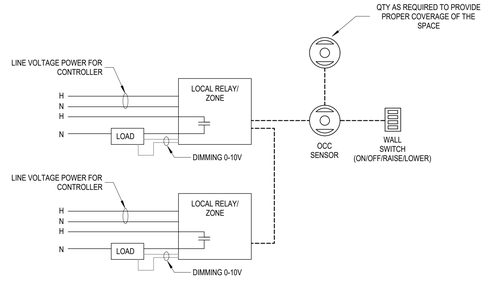
M/E/P SYSTEM COORDINATION SCHEDULE

SYSTEM	FURNISHED BY	INSTALLED BY	POWER WIRING BY	CONTROL / SUPERVISION WIRING BY
COMBINATION STARTER / DISCONNECT (INTEGRAL)	DIV 22/23	---	DIV 26	DIV 23
COMBINATION STARTER / DISCONNECT (NON-INTEGRAL)	DIV 26	DIV 26	DIV 26	DIV 23
DISCONNECT SWITCHES (NON-INTEGRAL)	DIV 26	DIV 26	DIV 26	DIV 22/23
MOTOR STARTER (NON-INTEGRAL TO EQUIP)	DIV 26	DIV 26	DIV 26	DIV 23
MOTOR STARTERS (INTEGRAL TO EQUIP)	DIV 22/23	---	DIV 26	DIV 23
VFD (VARIABLE FREQUENCY DRIVES)	DIV 22/23	DIV 22/23	DIV 26	DIV 23
LIFE SAFETY				
DUCT SMOKE DETECTOR	DIV 28	DIV 23	---	DIV 28
FIRE/SMOKE DAMPER/ACTUATOR	DIV 23	DIV 23	DIV 26	DIV 28
SMOKE DAMPER / ACTUATOR	DIV 23	DIV 23	DIV 26	DIV 28
SPRINKLER				
DRY PIPE SYSTEM	DIV 21	DIV 21	---	DIV 28
SUPERVISORY CONTACTS	DIV 21	DIV 21	---	DIV 28
TAMPER SWITCHES	DIV 21	DIV 21	---	DIV 28
WATER FLOW SWITCHES	DIV 21	DIV 21	---	DIV 28



3 CEILING SENSOR WITH LOCAL ORLO WALL SWITCH
NTS

2 SHUNT TRIP BREAKER WITH EPO DETAIL
NTS



1 CEILING SENSOR WITH LOCAL ORLO WALL SWITCH (2 ZONES)
NTS

DESIGN COLLABORATIVE
200 East Main Street
Suite 600
Fort Wayne, IN 46802
260.422.4241
260.422.4847
designcollaborative.com

Whitley County Consolidated Schools
NORTHERN HEIGHTS ELEMENTARY
MECANICAL RENOVATION - 2025
5209 IN-109
Columbia City, IN 46725
PROJECT: 2024.0001

KELSEY L. ROWE REGISTERED No. 11400779 STATE OF INDIANA PROFESSIONAL ENGINEER

CONSTRUCTION DOCUMENTS

ISSUE DATE: 02/14/2025

REVISIONS

NO.	DATE	DESCRIPTION
1	02-26-2025	ADD-01

ELECTRICAL SCHEDULES AND DETAILS

E4.6

2/24/2025 1:07:10 PM

Branch Panel: L1

Location: STORAGE A121 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 200 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	EXISTING	40 A	2		2	50 A	EXISTING	2
3	--	--	--		--	--	--	4
5								6
7	EXISTING	20 A	1		1	20 A	EXISTING	8
9	EXISTING	20 A	1		1	20 A	EXISTING	10
11	EXISTING	20 A	1		1	20 A	EXISTING	12
13	EXISTING	20 A	1		1	20 A	EXISTING	14
15	EXISTING	20 A	1		1	20 A	EXISTING	16
17	EXISTING	30 A	1		1	30 A	EXISTING	18
19	CH-02	20 A	1		1	20 A	EXISTING	20
21	EXISTING	20 A	1		1	20 A	EXISTING	22
23	EXISTING	20 A	1		1	20 A	EXISTING	24
25	EXISTING	20 A	1		1	20 A	EXISTING	26
27	EXISTING	20 A	1		1	20 A	EXISTING	28
29	EXISTING	20 A	1		1	25 A	*CH-01 & BC-01	30
31	EXISTING	20 A	1		1	20 A	EXISTING	32
33	EXISTING	20 A	1		1	20 A	EXISTING	34
35	EXISTING	20 A	1		1	20 A	EXISTING	36
37	EXISTING	20 A	1		1	20 A	EXISTING	38
39	EXISTING	20 A	1		1	20 A	CH-13	40
41	EXISTING	20 A	1		1	20 A	EXISTING	42
43	VUV1250-A101	20 A	1		1	20 A	EXISTING	44
45	EXISTING	20 A	1		1	20 A	EXISTING	46
47	EXISTING	20 A	1		1	20 A	EXISTING	48
49	EXISTING	20 A	1		1	20 A	EXISTING	50
51	EXISTING	20 A	1		2	30 A	EXISTING	52
53	EXISTING	20 A	1		--	--	--	54
55	EXISTING	20 A	1		1	20 A	EXISTING	56
57	EXISTING	20 A	1		1	20 A	VUV1250-A108	58
59	EXISTING	20 A	1		1	20 A	EXISTING	60
61	EXISTING	20 A	1		1	20 A		62
63	EXISTING	20 A	1		1	20 A	EXISTING	64
65	EXISTING	20 A	1		1	20 A	EXISTING	66
67	EXISTING	20 A	1		1	20 A	EXISTING	68
69	EXISTING	20 A	1		1	20 A	EXISTING	70
73	20A SPARE	20 A	1		1	30 A	EXISTING	74
75	EXISTING	20 A	2		2	20 A	ACC-01/DSS-01	76
77	--	--	--		--	--	--	78

Branch Panel: L2

Location: ELECTRICAL E153 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 150 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	CH-04	20 A	1		1	20 A	EXISTING	2
3	EXISTING	20 A	1		1	20 A	EXISTING	4
5	VUV1250-E106	20 A	1		1	20 A	EXISTING	6
7	EXISTING	20 A	1		1	20 A	EXISTING	8
9	EXISTING	20 A	1		1	20 A	EXISTING	10
11	EXISTING	20 A	1		1	20 A	EXISTING	12
13	EXISTING	20 A	1		1	20 A	EXISTING	14
15	EXISTING	20 A	1		1	20 A	EXISTING	16
17	EXISTING	20 A	1		1	20 A	EXISTING	18
19	EXISTING	20 A	1		1	20 A	EXISTING	20
21	EXISTING	20 A	1		1	20 A	EXISTING	22
23	EXISTING	20 A	1		1	20 A	EXISTING	24
25	EXISTING	20 A	1		1	20 A	EXISTING	26
27	EXISTING	20 A	1		1	20 A	EXISTING	28
29	EXISTING	20 A	1		1	20 A	EXISTING	30
31	EXISTING	20 A	1		1	20 A	EXISTING	32
33	EXISTING	20 A	1		1	20 A	20A SPARE	34
35	EXISTING	20 A	1		1	20 A	EXISTING	36
37	EXISTING	20 A	1		1	20 A	EXISTING	38
39	EXISTING	20 A	1		1	20 A	EXISTING	40
41	EXISTING	20 A	1		1	20 A	EXISTING	42
43	EXISTING	20 A	1		1	20 A	EXISTING	44
45	EXISTING	20 A	1		1	20 A	EXISTING	46
47	EXISTING	20 A	1		1	20 A	20A SPARE	48
49	20A SPARE	20 A	1		1	20 A	20A SPARE	50
51	EXISTING	20 A	1		1	20 A	EXISTING	52
53	EXISTING	20 A	1		1	20 A	20A SPARE	54
55	EXISTING	20 A	1		1	20 A	VUV1250-E105	56
57	20A SPARE	20 A	1		1	20 A	EXISTING	58
59	EXISTING	20 A	1		1	20 A	VUV1250-E100, -E102, -E104	60
61	20A SPARE	20 A	1		3	20 A	*BC-09	62
63	VUV1250-E101	20 A	1		--	--	--	64
65	VUV1250-E103	20 A	1		--	--	--	66
67	VAV-01-01, 01-02, 01-03	20 A	1		1	20 A	EXISTING	68
69	RCPT	20 A	1		1	20 A	EXISTING	70
71	EXISTING	20 A	1					72

1

Branch Panel: L3

Location: STORAGE C105 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 200 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	EXISTING	20 A	1		1	20 A	EXISTING	2
3	EXISTING	20 A	1		1	20 A	EXISTING	4
5	EXISTING	20 A	1		1	20 A	EXISTING	6
7	EXISTING	20 A	1		1	20 A	EXISTING	8
9	EXISTING	20 A	1		1	20 A	EXISTING	10
11	EXISTING	20 A	1		1	20 A	EXISTING	12
13	EXISTING	20 A	1		1	20 A	CH-08	14
15	EXISTING	20 A	1		1	20 A	EXISTING	16
17	EXISTING	20 A	1		1	20 A	EXISTING	18
19	EXISTING	20 A	1		1	20 A	EXISTING	20
21	EXISTING	20 A	1		1	20 A	EXISTING	22
23	EXISTING	20 A	1		1	20 A	EXISTING	24
25	EXISTING	20 A	1		1	20 A	EXISTING	26
27	EXISTING	20 A	1		1	20 A	CH-03	28
29	EXISTING	20 A	1		1	20 A	EXISTING	30
31	EXISTING	20 A	1		1	20 A	EXISTING	32
33	EXISTING	20 A	1		1	20 A	EXISTING	34
35	EXISTING	20 A	1		1	20 A	EXISTING	36
37	EXISTING	20 A	1		1	20 A	EXISTING	38
39	EXISTING	20 A	1		1	20 A	EXISTING	40
41	EXISTING	20 A	1		1	20 A	EXISTING	42
43	EXISTING	20 A	1		1	20 A	EXISTING	44
45	EXISTING	20 A	1		1	20 A	EXISTING	46
47	EXISTING	20 A	1		1	20 A	EXISTING	48
49	EXISTING	20 A	1		1	20 A	EXISTING	50
51	EXISTING	20 A	1		1	20 A	EXISTING	52
53	EXISTING	20 A	1		1	20 A	EXISTING	54
55	EXISTING	20 A	1		1	20 A	20A SPARE	56
57	CH-09	20 A	1		1	20 A	20A SPARE	58
59	EXISTING	20 A	1		1	20 A	20A SPARE	60
61	EXISTING	20 A	1		1	20 A	EXISTING	62
63	EXISTING	20 A	1		1	20 A	EXISTING	64
65	*VUV-1250-C208	20 A	1		1	20 A	*VUV-1250-C206	66
67	*VUV-1250-C204	20 A	1		1	20 A	*VUV-1250-C202	68
69	*VUV-1250-C200	20 A	1		1	20 A	*VUV-1250-C201	70
71	*VUV-1250-C203	20 A	1		1	20 A	*VUV-1250-C205	72
73	*VUV-1250-C207	20 A	1					74
75								76
77								78
79								80
81								82
83								84

Branch Panel: L4

Location: HALLWAY D106 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 200 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	CH-05	20 A	1		1	20 A	EXISTING	2
3	EXISTING	20 A	1		1	20 A	EXISTING	4
5	EXISTING	20 A	1		1	20 A	EXISTING	6
7	EXISTING	20 A	1		1	20 A	EXISTING	8
9	EXISTING	20 A	1		1	20 A	VUV1250-D305	10
11	EXISTING	20 A	1		1	20 A	EXISTING	12
13	EXISTING	20 A	1		1	20 A	EXISTING	14
15	EXISTING	20 A	1		1	20 A	EXISTING	16
17	CH-11	20 A	1		1	20 A	VUV1250-D303	18
19	CH-10	20 A	1		1	20 A	EXISTING	20
21	EXISTING	20 A	1		1	20 A	VUV1250-D301	22
23	EXISTING	20 A	1		1	20 A	EXISTING	24
25	EXISTING	20 A	1		1	20 A	EXISTING	26
27	EXISTING	20 A	1		1	20 A	EXISTING	28
29	EXISTING	20 A	1		1	20 A	EXISTING	30
31	EXISTING	20 A	1		1	20 A	VUV1250-D300	32
33	EXISTING	20 A	1		1	20 A	VUV1250-D302	34
35	EXISTING	20 A	1		1	20 A	EXISTING	36
37	EXISTING	20 A	1		1	20 A	EXISTING	38
39	EXISTING	20 A	1		1	20 A	EXISTING	40
41	EXISTING	20 A	1		1	20 A	EXISTING	42
43	EXISTING	20 A	1		1	20 A	EXISTING	44
45	VUV1250-D306	20 A	1		1	20 A	EXISTING	46
47	EXISTING	20 A	1		1	20 A	EXISTING	48
49	EXISTING	20 A	1		1	20 A	EXISTING	50
51	EXISTING	20 A	1		1	20 A	EXISTING	52
53	VUV1250-D308	20 A	1		1	20 A	EXISTING	54
55	EXISTING	20 A	1		1	20 A	EXISTING	56
57	EXISTING	20 A	1		1	20 A	EXISTING	58
59	EXISTING	20 A	1		1	20 A	EXISTING	60
61	EXISTING	20 A	1		1	20 A	VUV1250-D307	62
63	VUV1250-D304	20 A	1		1	20 A	EXISTING	64

Branch Panel: L5

Location: DRY FOOD STORAGE B109 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: RECESSED **Wires:** 4 **Mains Rating:** 100 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	EXISTING	20 A	1		1	20 A	EXISTING	2
3	CH-06	20 A	1		1	20 A	20A SPARE	4
5	20A SPARE	20 A	1		1	20 A	EXISTING	6
7	EXISTING	20 A	1		1	20 A	EXISTING	8
	EXISTING	20 A	1		1	20 A	EXISTING	10
11	EXISTING	20 A	1		1	20 A	EXISTING	12
13	EXISTING	20 A	1		1	20 A	EXISTING	14
15	EXISTING	20 A	1		1	20 A	20A SPARE	16
17	CH-07 & CH-12	20 A	1		1	20 A	EXISTING	18
1	EXISTING	20 A	1		1	20 A	EXISTING	20
21	EXISTING	20 A	1		1	20 A	EXISTING	22
23	EXISTING	20 A	1		1	20 A	EXISTING	24
25	EXISTING	20 A	3		3	20 A	EXISTING	26
27	--	--	--		--	--	--	28
2	--	--	--		--	--	--	30

Branch Panel: XH1

Location: BOILER ROOM B101 **Volts:** 277/480
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: SURFACE **Wires:** 4 **Mains Rating:** 100 A
Enclosure: TYPE 1

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	EXISTING	40 A	3		3	40 A	EXISTING	2
3	--	--	--		--	--	--	4
5	--	--	--		--	--	--	6
7	EXISTING	20 A	3		3	20 A	EXISTING	8
9	--	--	--		--	--	--	10
11	--	--	--		--	--	--	12
13	EXISTING	20 A	1		3	40 A	EXISTING	14
15	EXISTING	20 A	1		--	--	--	16
17	*CHP-01	20 A	3		--	--	--	18
19	--	--	--					20
21	--	--	--					22
23								24
25								26
27								28
29								30

Branch Panel: KL

Location: DRY FOOD STORAGE B109 **Volts:** 120/208
Supply From: **Phas...** 3 **Mains Type:** MCB
Mounting: RECESSED **Wires:** 4 **Mains Rating:** 200 A
Enclosure: TYPE 1

Notes:

CKT	Circuit Description	Rating	Poles		Poles	Rating	Circuit Description	CKT
1	20A SPARE	20 A	1		1	20 A	20A SPARE	2
3	20A SPARE	20 A	1		1	20 A	20A SPARE	4
5	20A SPARE	20 A	1		1	20 A	20A SPARE	6
7	20A SPARE	20 A	1		1	20 A	20A SPARE	8
9	20A SPARE	20 A	1		1	20 A	20A SPARE	10
11	20A SPARE	20 A	1		1	20 A	20A SPARE	12
13	20A SPARE	20 A	1		1	20 A	20A SPARE	14
15	20A SPARE	20 A	1		1	20 A	20A SPARE	16
17	20A SPARE	20 A	1		1	20 A	20A SPARE	18
19	20A SPARE	20 A	1		3	20 A	B-01	20
21	B-02	20 A	3		--	--	--	22
23	--	--	--		--	--	--	24
25	--	--	--					26
27								28
29								30
31	20A SPARE	20 A	1		1	20 A	20A SPARE	32
33	20A SPARE	20 A	1		1	20 A	20A SPARE	34
35	20A SPARE	20 A	1		1	20 A	20A SPARE	36
37	20A SPARE	20 A	1		1	20 A	20A SPARE	38
39	20A SPARE	20 A	1		1	20 A	20A SPARE	40
41	20A SPARE	20 A	1		1	20 A	20A SPARE	42
43	20A SPARE	20 A	1		2	20 A	ACC-2/DSS-2	44
45	20A SPARE	20 A	1		--	--	--	46
47	20A SPARE	20 A	1		1	20 A	20A SPARE	48
49	20A SPARE	20 A	1		1	20 A	20A SPARE	50
51	20A SPARE	20 A	1		1	20 A	20A SPARE	52
53	20A SPARE	20 A	1		1	20 A	20A SPARE	54
55	20A SPARE	20 A	1		1	20 A	20A SPARE	56
57	20A SPARE	20 A	1		1	20 A	20A SPARE	58
59	20A SPARE	20 A	1		1	20 A	20A SPARE	60

Switchboard: MDP

Location: **Volts:** 277/480 **A.I.C. Rating:**
Supply From: **Phases:** 3 **Mains Type:** MLO
Mounting: **Wires:** 4 **Mains Rating:** 1600 A

Notes:
EXISTING PANEL TO BE REUSED. PROVIDE NEW / ADDITIONAL BREAKERS AS NOTED WITH AN ASTERISK (*). IF NOT NOTED AS NEW, REUSE BREAKER. UPDATE PANEL SCHEDULE UPON PROJECT COMPLETION.

CKT	Circuit Description	# of Poles	Trip Rating	Load
1				
2				
3				
4				
5	*CHILLER	3	350 A	146.00 kW
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
				146.00 kW
				176 A

Legend:

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
HVAC	146.00 kW	100.00%	146.00 kW		
				Total Conn. Load:	146.00 kW
				Total Est. Demand:	146.00 kW
				Total Conn. Current:	176 A
				Total Est. Demand...	176 A

DESIGN COLLABORATIVE
200 East Main Street
Suite 600
Fort Wayne, IN 46802
260.422.4241
260.422.4847
designcollaborative.com

NORTHERN HEIGHTS ELEMENTARY

Whitley County Consolidated Schools
MECANICAL RENOVATION - 2025
5209 IN-109
Columbia City, IN 46725
PROJECT: 2024.0001

CONSTRUCTION DOCUMENTS

ISSUE DATE: 02/14/2025

REVISIONS

NO.	DATE	DESCRIPTION
1	02-26-**2025**	**ADD-01**

PANEL SCHEDULES

E4.7

2/24/2025 1:07:12 PM

Submittal

Prepared For:
Design Collaborative

Date: February 13, 2025

Job Name:
Whitley County Schools Northern Heights TK
5209 N State Road 109
COLUMBIA CITY, IN 46725

Opportunity ID: 7560267

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty	Product
3	Heating Coils

Matt Eckhart, Sales Engineer
Trane U.S. Inc.
6602 Innovation Blvd.
Fort Wayne, IN 46818
E-mail: matt.eckhart@Trane.com
Office Phone: (260) 489-0884
Cell: (260) 417-7990
Fax: (260) 489-5117

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

DESIGN COLLABORATIVE

Project Name:	Trane - WCCS Northern Heights Elementary
Project Number:	20240001
Submittal ID:	23 00 00-3
Received On:	None
Reviewed On:	2/18/2025
Reviewed By:	Laura Zerla
Action:	Reviewed & Released

Document release in no way voids any requirements of the contract documents. Review is only for confirmation of general type, appearance, quality, & performance characteristics. Provide exact accessories, dimensions & options for compatibility with related systems / products & to fulfill project requirements. As determined from field conditions & contract documents.

Table of Contents

Tag Data - Heating Coils (Qty: 3)

Item	Tag(s)	Qty	Description	Model Number
A1	HC - RTU	1	Heating coil (HTCL)	DWPB18030G0BA110CAAA0AA
A2	HC - 1	1	Heating coil (HTCL)	DT0B09020G0AA150EABA0AA
A3	HC -2	1	Heating coil (HTCL)	DT0B09020G0AA150EABA0AA

Product Data - Heating Coils

All Units

Heating coil
Shipping coil
Right hand supply
Galvanized steel casing (Std)
Aluminum fins
Turbulators

Item: A1 Qty: 1 Tag(s): HC - RTU

WP coil 1/2" copper header
2 rows
18" (457 mm) coil height
30" (762 mm) finned length
Delta flo E (energy efficient)
110 fins per foot nominal fin spacing
.016 (0.406) copper tubes
AHRI ACHC certified

Item: A2, A3 Qty: 2 Tag(s): HC - 1, HC -2

T -5/8" hot water, same end con.
1 row
9" (229 mm) coil height
20" (508 mm) finned length
Prima-flo H (Hi efficient)
150 fins per foot nominal fin spacing
.020 (0.508 mm) std copper tubes
Outside scope of AHRI

Performance Data - Heating Coils

Tags	HC - RTU	HC - 1	HC -2
Elevation (ft)	0.00	0.00	0.00
Leaving dry bulb (F)	100.00	101.13	102.33
Fouling factor (hr-sq ft-deg F/Btu)	0.00025	0.00025	0.00025
Fluid type	Water	Water	Water
Actual airflow (cfm)	3000	640	610
Entering dry bulb (F)	50.00	55.00	55.00
Entering fluid temp (F)	180.00	180.00	180.00
Total capacity (MBh)	162.68	32.02	31.31
Standard fluid flow rate (gpm)	16.25	2.13	2.09
Volume (gal)	1.15	0.18	0.18
Fluid temp drop (F)	20.00	30.00	30.00
Air pressure drop (in H2O)	0.334	0.148	0.137
Fluid PD (ft fluid)	6.79	2.01	1.94
Face velocity (ft/min)	768	512	488
Leaving fluid temp (F)	160.00	150.00	150.00
Fluid velocity (ft/sec)	3.98	2.36	2.30
Actual coil face area (sq ft)	3.91	1.25	1.25
Installed weight (lb)	42.7	14.1	14.1
Rigging weight (lb)	33.1	12.6	12.6
System type	Hot Water	Hot Water	Hot Water
Solution number (Each)	22.00	12.00	12.00
Reynolds number (Each)	41744.58	29724.28	29069.79
Air pressure drop (standard air) (in H2O)	0.330	0.145	0.135

Mechanical Specifications - Heating Coils
Item: A1 - A3 Qty: 3 Tag(s): HC - RTU, HC - 1, HC -2

GENERAL
Coil is manufactured by Trane. Coil will be designed with aluminum or copper plate fins and copper/copper alloy tubes. Fins have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. Coil has airflow arrow and nameplate attached to coil casing. Coil is outside of the scope of AHRI Standard 410.

GENERAL
Coil is manufactured by Trane. Coil is designed with aluminum plate fins and copper tubes. Fins have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. Coil will have airflow arrow and nameplate attached to coil casing. Coil is certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

TYPE "T" HOT WATER HEATING COIL
A single tube feed, booster coil, with 5/8" [16mm] OD tubes. Coil is proof tested at a minimum of 300 psig [2068kPa] and leak tested to 200 psig [1379kPa], air pressure under water. Working pressure for hot water is maximum 225 psig [1551kPa] at 325F [163C]. Coil can be used for non-modulating steam coil applications. For steam applications, working pressure is minimum 100 psig [689kPa] at 400F [204C]. Coil supply/return connections are made of steel.

COIL CASING
Coil casing is manufactured with galvanized steel.

COIL PLATE FIN TYPE
Aluminum plate fin is Trane DELTA FLO E (Energy Efficient) fin design.

COIL PLATE FIN TYPE
Aluminum plate fin is Trane PRIMA FLO H (Hi-Efficient) fin design.

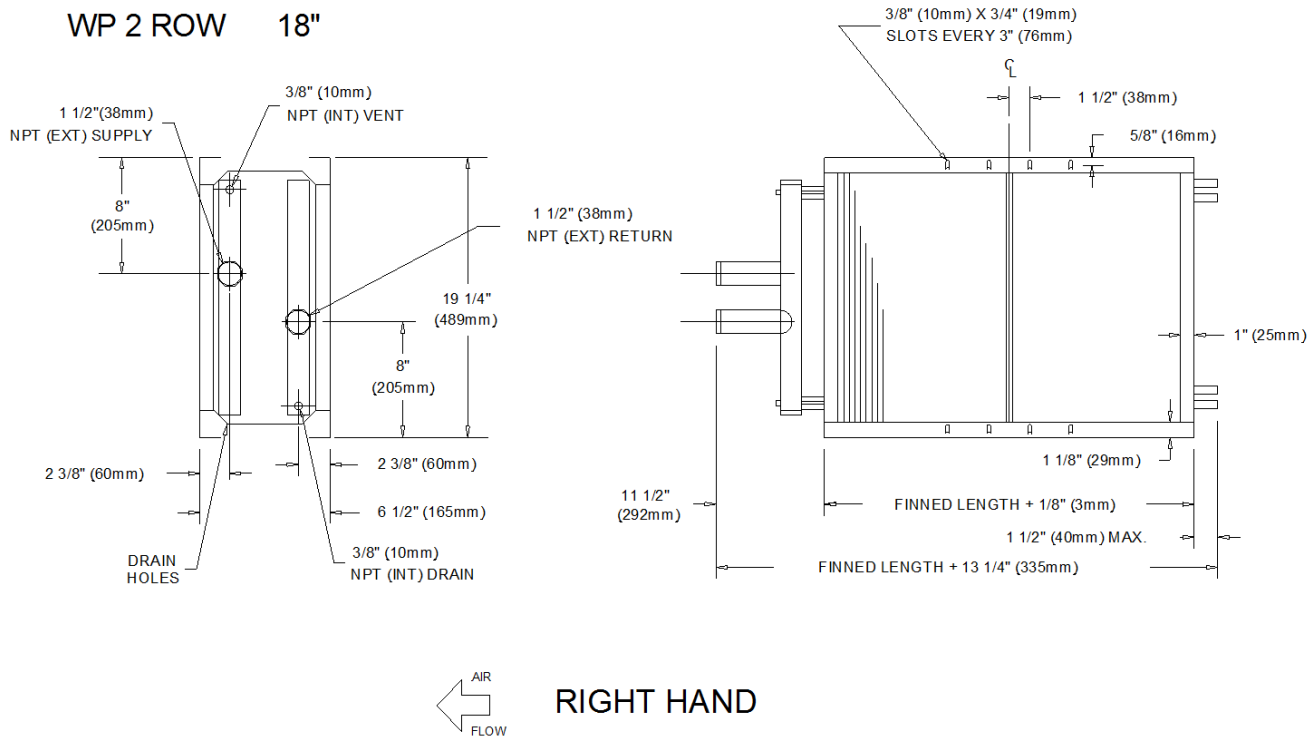
WATER COIL TUBES
Tubes are 1/2" [13mm] OD .016" [0.406mm] thick copper tubes.

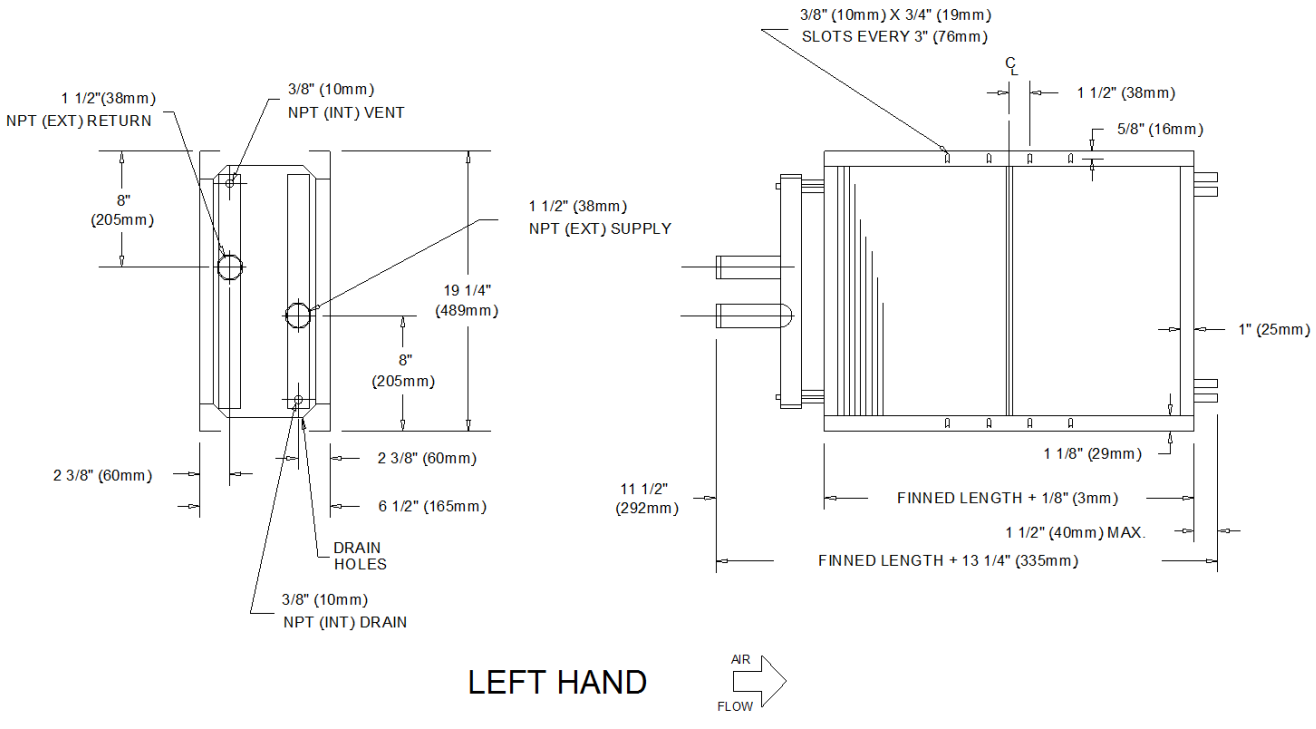
COIL SUPPLY CONNECTION
Coil supply connection is on right side of coil with horizontal airflow (facing airflow).

TURBULATORS
Silicon bronze, spring turbulators are fitted in tubes for increased heat transfer at lower water tube velocities.

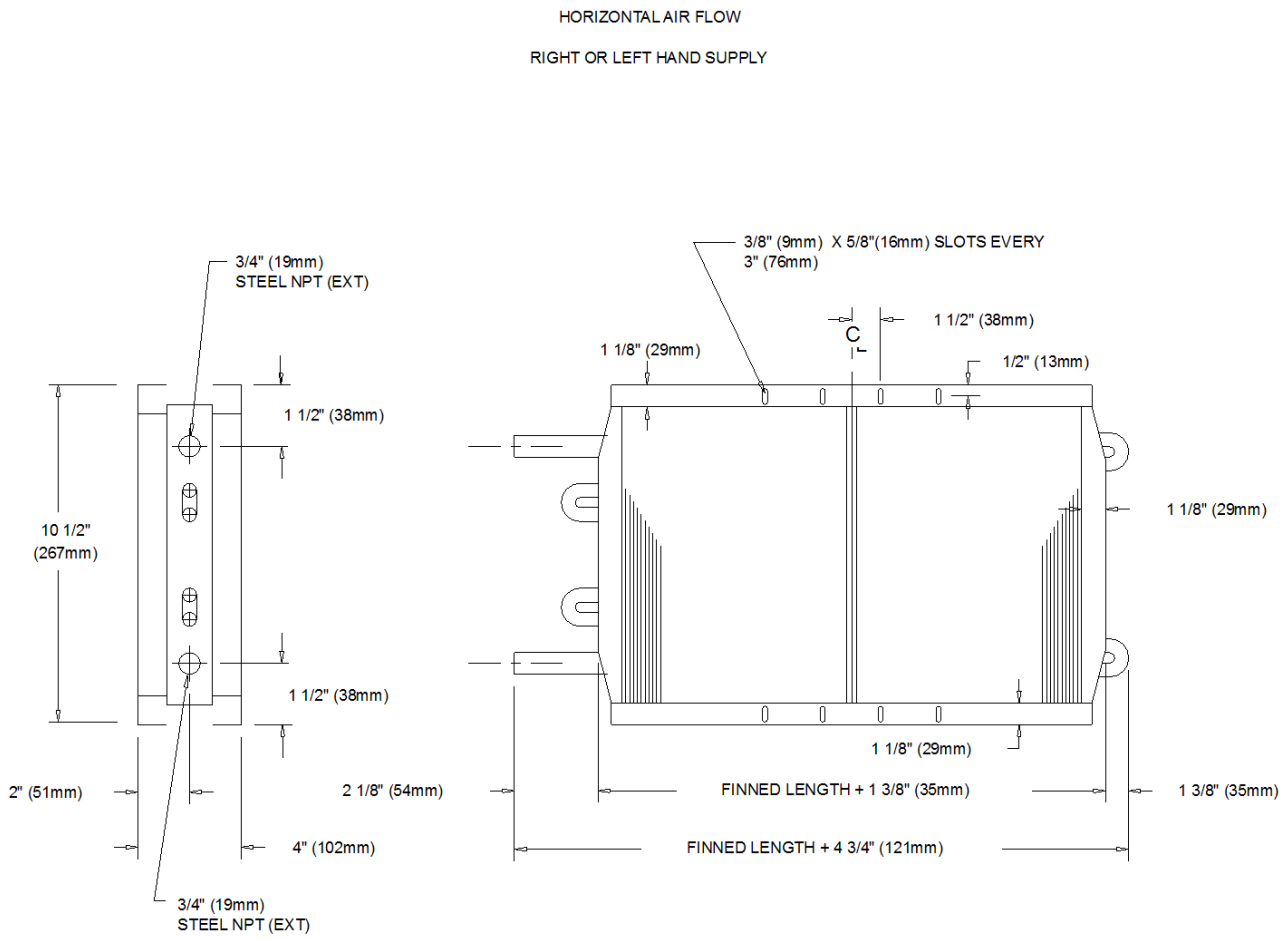
TYPE "WP" HOT WATER COIL
A single-row serpentine coil, with 1/2" [13mm] OD tubes. Coil has a supply header to ensure distribution of hot water to each tube of coil. Coil is proof tested at a minimum of 300 psig [2068kPa] and leak tested to 200 psig [1379kPa], air pressure under water. Working pressure is 200 psig [1379kPa] at 220F [104C].

Dimensional Drawings - Heating Coils
Item: A1 Qty: 1 Tag(s): HC - RTU





Dimensional Drawings - Heating Coils
Item: A2, A3 Qty: 2 Tag(s): HC - 1, HC -2



Submittal

Prepared For:
Design Collaborative

Date: February 13, 2025

Job Name:
Whitley County Schools Northern Heights TK
5209 N State Road 109
COLUMBIA CITY, IN 46725

Opportunity ID: 7560267

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty	Product
9	Blower coil

NOTE:

1) Please confirm piping location (LH/RH) as determined by air hitting you in the face

Matt Eckhart, Sales Engineer
Trane U.S. Inc.
6602 Innovation Blvd.
Fort Wayne, IN 46818
E-mail: matt.eckhart@Trane.com
Office Phone: (260) 489-0884
Cell: (260) 417-7990
Fax: (260) 489-5117

DESIGN COLLABORATIVE

Project Name:	Trane - WCCS Northern Heights Elementary
Project Number:	20240001
Submittal ID:	23 00 00-2
Received On:	None
Reviewed On:	2/18/2025
Reviewed By:	Laura Zerla
Action:	Reviewed & Released

Document release in no way voids any requirements of the contract documents. Review is only for confirmation of general type, appearance, quality, & performance characteristics. Provide exact accessories, dimensions & options for compatibility with related systems / products & to fulfill project requirements. As determined from field conditions & contract documents.

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

Table of Contents

Tag Data - Blower coil (Qty: 9)

Item	Tag(s)	Qty	Description	Model Number
A1	BC-1	8	BCXE Blower Coil (BCXE)	BCHE036AAA0A3AC4A000000BDFJ00J0000BB0E
A2	BC-2	1	BCXE Blower Coil (BCXE)	BCHE036EAA0A3AC5A000000BRFJ00J0000BB0E

Product Data - Blower coil

All Units

Horizontal Blower Coil Unit
Unit Size 36; 3 Ton
Matte face insulation 1"
Back return
SST Drain pan right hand coil
1 Row Heating Hydronic Coil
6 Row Hydronic Coil
2" Pleated MERV 8
Symbio 400-B with Air-Fi WCI
Field Supplied, Modulating (Field Installed)
Field Supplied, Modulating (Field Installed)
Condensate Overflow & Low Limit
Discharge Air Sensor
Wireless Display snsr, Unit mtd receiver (SP, OALMH) (Field Installed)
Hydronic Preheat
Year 2-5 parts warranty whole unit
1st year labor warranty whole unit
2nd-5th year labor warranty whole unit

Item: A1 Qty: 8 Tag(s): BC-1

115/60/1
1 Horsepower
Top/Bottom Access Filter Module

Item: A2 Qty: 1 Tag(s): BC-2

208/60/3
1.5 Horsepower
Top/Bottom Access filter and Mixing box
Mixing box

Performance Data - Blower coil

Tags	BC-1	BC-2
Design airflow (cfm)	1000	1250
Fan speed (rpm)	1648	1885
Medium speed (rpm)	1400	1602
Low Speed (rpm)	1087	1244
Total cooling capacity (MBh)	40.01	50.94
Sensible capacity (MBh)	27.25	34.09
Cooling EDB (F)	80.00	80.00
Cooling EWB (F)	67.00	67.00
Cooling LDB (F)	55.26	55.23
Cooling LWB (F)	53.99	53.72
Cooling ent fluid temp (F)	42.00	42.00
Cooling leaving fluid temp (F)	62.08	59.49
Cooling flow rate (gpm)	4.19	6.17
Cooling delta T (F)	20.08	17.49
Cooling fluid PD (ft H2O)	2.08	3.77
Fluid type	Water	Water
Cooling fluid velocity (ft/s)	1.05	1.54
APD (in H2O)	0.506	0.767
Cooling face velocity (ft/min)	375	469
Preheat APD (in H2O)	0.073	0.107
Total Unit length (in)	41.270	64.870
Total Unit width (in)	42.000	42.000
Total Unit height (in)	17.000	17.000
Installed weight (lb)	202.5	312.3
Main Unit Weight (lb)	167.7	186.3
Preheat face velocity (ft/min)	375	469
Elevation (ft)	0.00	0.00
ESP (in H2O)	1.000	1.000
TSP (in H2O)	1.709	2.254
Motor heat calculation	Include	Include
Preheat fluid freeze pt (F)	32.00	32.00
Preheat fluid velocity (ft/s)	5.53	6.18
Min circuit ampacity (A)	16.63	9.50
Maximum overcurrent protection (A)	25.00	15.00
Coil 1 Weight (lb)	1.8	1.8
Coil 2 Weight (lb)	10.4	10.4
Motor Max BHP (hp)	1.012	1.500
ECM - brake horsepower (hp)	0.606	1.045
Motor full load amps (A)	13.30	7.60
Preheat EAT (F)	50.00	50.00
Preheat LAT (F)	103.22	98.17
Total preheat capacity (MBh)	57.55	65.10
Preheat ent fluid temp (F)	180.00	180.00
Preheat Delta T (F)	20.00	20.00
Preheat fluid type	Water	Water
Preheat lvg fluid temp (F)	160.00	160.00
Main Unit Weight (lb)	110.4	110.4
Main Unit Height (in)	17.000	17.000
Main Unit Length (in)	33.100	33.100
Main Unit Width (in)	42.000	42.000
WCI address	11	11
Controller Address	1	1
Mixing Box Weight (lb)	-	91.3
Bottom Filter Weight (lb)	22.5	22.5
Mixing Box Height (in)	-	17.000
Bottom Filter Height (in)	17.000	17.000
Mixing Box Length (in)	-	23.600

Tags	BC-1	BC-2
Bottom Filter Length (in)	8.170	8.170
Mixing Box Width (in)	-	42.000
Bottom Filter Width (in)	42.000	42.000
ECM - service factor	1.67	1.44
Preheat flow rate (gpm)	5.53	6.18

Factory Controls Addressing - Blower coil (Qty: 9)

Item	Tag	WCI address	Controller Address
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A1	BC-1	11	1
A2	BC-2	11	1

Please confirm each unit selected with Factory Addressing has the correct controller and WCI address.

Mechanical Specifications - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

BCHE General
The product line consists of a horizontal air handling unit and optional accessories. Air-handling airflow data is certified in accordance with AHRI standard 430. The unit is UL listed to U. S. and Canadian safety standards and complies with NFPA 90A. Air handlers consist of a hydronic and/or DX coil, drain pan, and centrifugal fan with motor in a common cabinet. Air handlers are provided with mounting brackets on the top and bottom in all four corners for installing the unit suspended from the ceiling with threaded rods. Unit and accessories are insulated with 1" 1.0 lb/cu. ft density fiberglass insulation. Double wall is also available. Large motor access panels are provided on one side of the unit.

Casing
Casings are constructed of galvanized steel, insulated with 1" 1.0 lb/cu. ft density fiberglass fire resistant and odorless glass fiber material to provide thermal and acoustical insulation. Fan housing sides are directly attached to the air handler top and bottom panels strengthening the entire unit assembly. Coil access panels are located on one side of the air handler Main access panels provide generous access to the fan and motor from one side of the air handler.

Matte Faced Insulation
The interior surface of the unit casing is acoustically and thermally lined with 1" glass fiber insulation. The insulation has a density of 1.0 lb/cu. ft and an R-Value of 4.2. The insulation is UL listed and meets NFPA-90A and UL191 standards.

Coil #1 Hydronic Heating Coils
Heating coils are one or two row hot water. All water coils are 12 fins per inch and have 3/8" tubes with 0.012" wall thickness. All water coils use highly efficient Trane Delta Flo, Type H aluminum fins, mechanically bonded to seamless copper tubes. All coils are specifically designed and circuited for water use. All coils are factory tested with 450.00 psi air under water. Maximum standard operating conditions are 300.00 psi at 200.0 F. Sweat type connections are standard. Coil performance data is in accordance with the current edition of AHRI Standard 410.

Coil #2 Hydronic Cooling Coils
Cooling coils are four, six, or eight row chilled water. All water coils are 12 fins per inch and have 3/8" tubes with 0.012" wall thickness. All water coils use highly efficient Trane Delta Flo, Type H aluminum fins, mechanically bonded to seamless copper tubes. All coils are specifically designed and circuited for water use. All coils are factory tested with 450.00 psi air under water. Maximum standard operating conditions are 300.00 psi at 200.0 F. Sweat type connections are standard. Coil performance data is in accordance with the current edition of AHRI Standard 410.

Unit Fan
The fans are DWDI (double width double inlet) forward curved centrifugal blower type. The fans are direct drive mounted directly to the motor shaft. All fans are dynamically balanced. All air handlers have a single fan.

Electronically Commutated Motors (ECM) - Single Phase
All motors are brushless DC (BLDC) electronically commutated motors (ECM) factory programmed and run tested in assembled units. The motor controller is mounted in a control box with a built in integrated user interface and LED tachometer. If adjustments are needed, motor parameters can be adjusted through momentary contact switches accessible without factory service personnel on the motor control board. Motors will soft ramp between speeds to lessen the acoustics due to sudden speed changes. Motors can be operated at three speeds or at variable speed with factory supplied or field supplied controllers. The motor will choose the highest speed if there are simultaneous or conflicting speed requests. All motors have integral overload protection with a maximum ambient operating temperature of 104.0 F and use permanently sealed ball bearings. Motors can operate at plus or minus 10 percent of rated voltage on all speed settings.

Electronically Commutated Motors (ECM) - Three Phase
All motors are brushless DC (BLDC) electronically commutated motors (ECM) factory programmed and run tested in assembled units. The motor controller is mounted in a control box with a built in integrated user interface and LED tachometer. If adjustments are needed, motor parameters can be adjusted through momentary contact switches accessible without factory service personnel on the motor control board. Motors will soft ramp between speeds to lessen the acoustics due to sudden speed changes. Motors can be operated at three speeds or at variable speed with factory supplied or field supplied controllers. The motor will choose the highest speed if there are simultaneous or conflicting speed requests. All motors have integral overload protection with a maximum ambient operating temperature of 130.0 F and use permanently sealed ball bearings. Motors can operate at plus or minus 10 percent of rated voltage on all speed settings.

2" Pleated Throw-Away Merv 8 Filter
2-inch pleated media filters made with 100% synthetic fibers that are continuously laminated to a supported steel-wire grid with water repellent adhesive shall be provided. Filters shall be capable of operating up to 625 fpm face velocity without loss of filter efficiency and holding capacity. The filters shall have a MERV 8 rating when tested in accordance with the ANSI/ASHRAE Standard 52.2.

Mixing Box
The mixing box has two low-leak, parallel blade dampers with jamb seals.
Dampers are tested and certified in accordance with AMCA 511 for air performance and air leakage. Leakage rate shall not exceed 5.4 cfm/ft2 at one-inch w.g.
Damper blades and frames are galvanized steel. The mixing box has an access panel on both sides. When used with vertical units, mounting legs are provided.

Bottom Access Filter Section
The bottom access filter section contains a 2 inch filter and a hinged access door on the bottom.

Stainless Steel Drain Pan
The drain pan is noncorrosive and double-sloped to allow condensate drainage. The drainpan construction is stainless steel. Coils mount above the drain pan, not in the drain pan - thus allowing the drain pan to be fully inspected and cleaned. The drain pan can also be removed for cleaning. The drain pan connections are 3/4" NPT schedule 40 stainless steel pipe. The main drain connection is at the lowest point of the drain pan. An auxiliary drain connection is provided on the same side as the main connection.

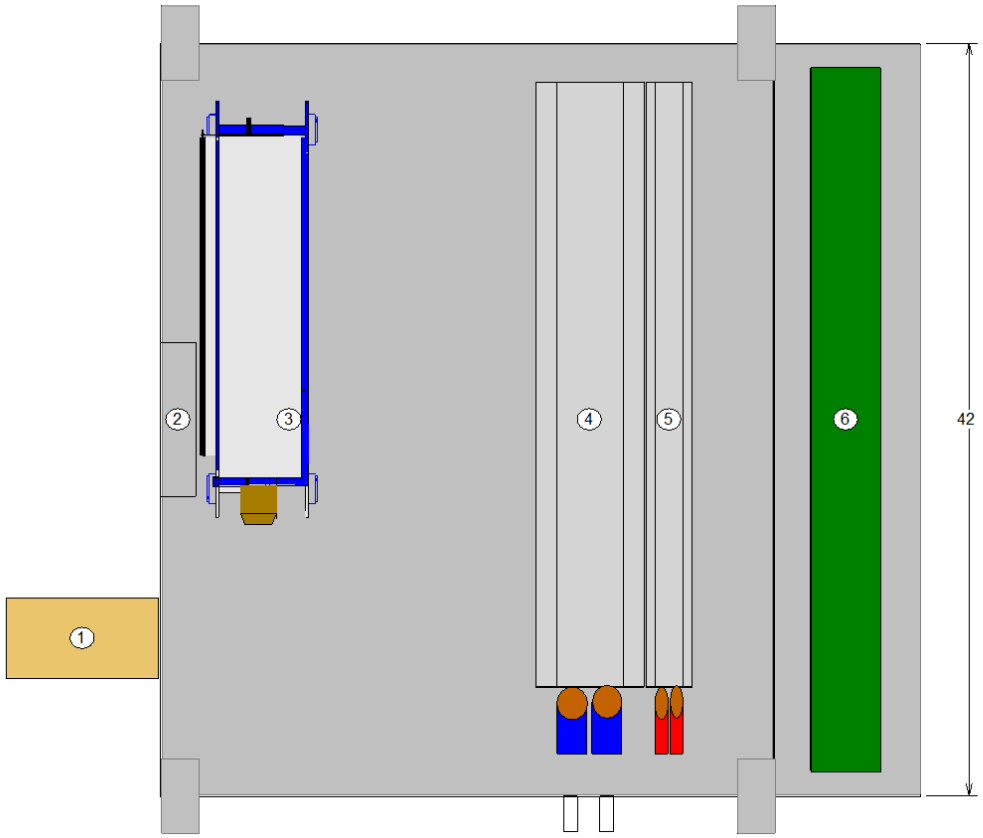
UC400-B/SYMBIO 400-B with Air-Fi WCI
The UC400-B/SYMBIO 400-B controller is a factory installed microprocessor based controller. The controller shall be factory installed, wired and tested with an Air-Fi Wireless Communications Interface (WCI) for wireless communications with a Building Automation System (BAS) and optional wireless zone sensor. The controller is located in a control box containing line voltage to a 24VAC transformer, ECM engine board, adapter board and optional disconnect switch. The wires from the transformer are terminated in the factory on the control board. All factory mounted end devices are installed and wires are terminated on the control board. All field connections other than power are made with screw-type connections on the control board with the exception of field supplied valves which are connected to a factory supplied harness. This option can be used in a stand-alone application or as part of a Trane Integrated Comfort System (ICS). The UC400-B/SYMBIO 400-B controller ships with a unit of measure over BACnet link in SI units. When a Building Automation System (BAS) is unable to convert to other desired units, a free software tool is available for changing to another unit of measure. A number of control options may be configured to meet the customer's needs at the factory, through an Integrated Comfort System (ICS) or by using Integrated Comfort System (ICS) service tool software. Refer to the current installation operation programming guide (IOM) for all available configurations and control options.

Freezestat
A freezestat is a normally closed protection device that opens the circuit when the entering air temperature to the main coil is below a specific trip temperature. This circuit will not close until the entering air temperature exceeds a specific release temperature.

Discharge Air Sensor
The factory supplied, factory mounted (field mounted with electric heat) discharge air sensor is for use with the unit controller option only. This sensor is mounted on the fan housing which is downstream of the main and auxiliary coils. When electric heat is provided, the discharge air sensor is field mounted in the ductwork downstream of the electric heater. The temperature signal provided is used as a status point or with other control algorithms.

Wireless Display Zone Sensor and Receiver
Factory mounted receiver with field mounted digital display sensor eliminates the need for the wiring between the zone sensor and unit level controller. The zone sensor houses the space temperature sensor, digital display, setpoint adjustment, fan speed switch occupancy setting, signal strength and battery life indicators, and spread spectrum transmitter. The receiver/translator functions as a communication translator between spread spectrum radio communications and the Blower Coil communications link.

Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1

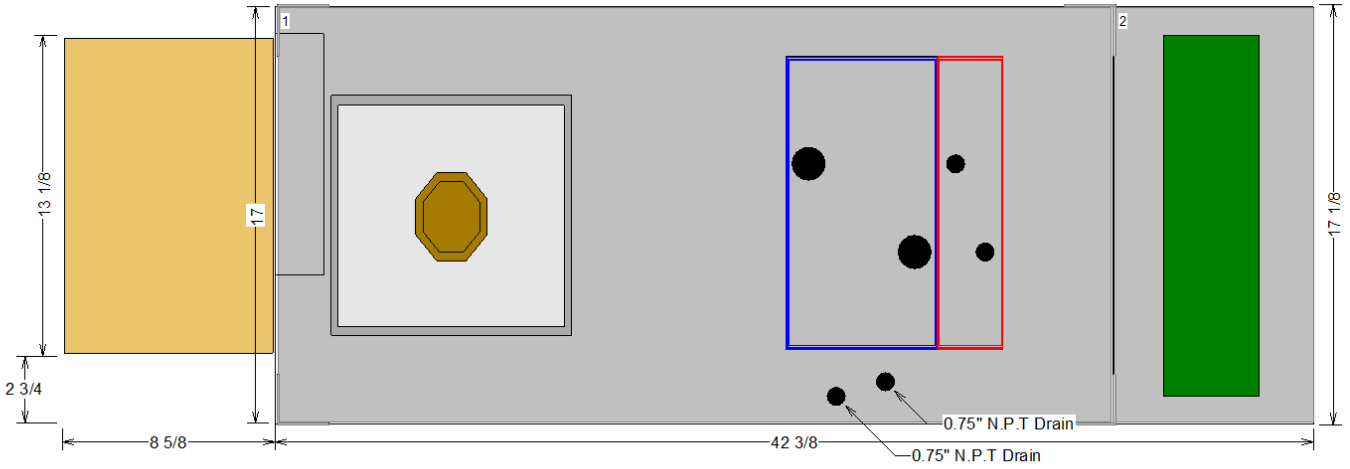


1 External control box front
2 Opening front
9.85 x 8.6
3 Housed fan
4 Cooling coil
5 Heating coil
6 Flat filters

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

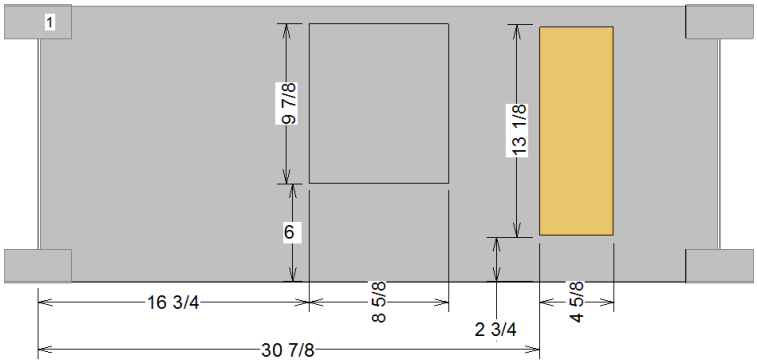
Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



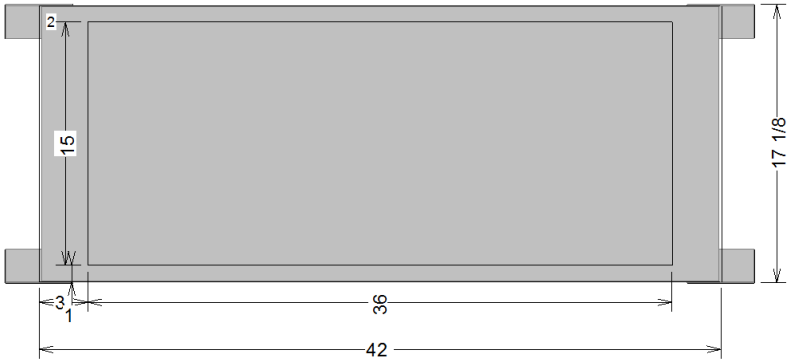
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



Detailed Elevation View: Front - Measurements in inches

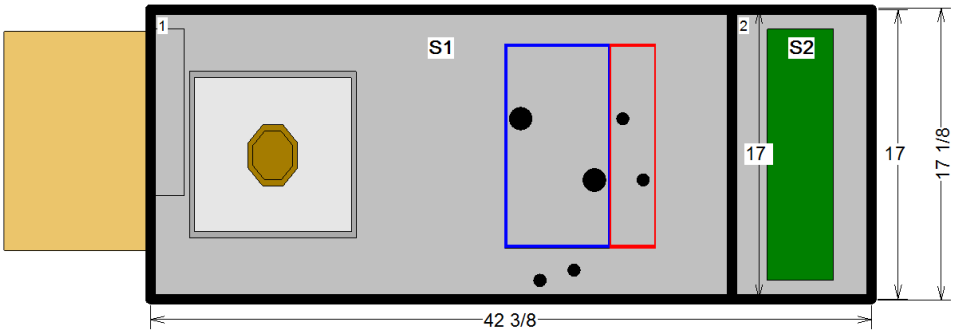


Detailed Elevation View: Back - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

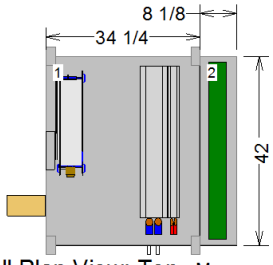
Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



Shipping splits are indicated by thick black lines

Pos #	Module	Length	Weight
1	Fan and coil section	34 1/4	179.90
2	Bottom access filter	8 1/8	22.50

Installed Unit Weight 202.40 lbs

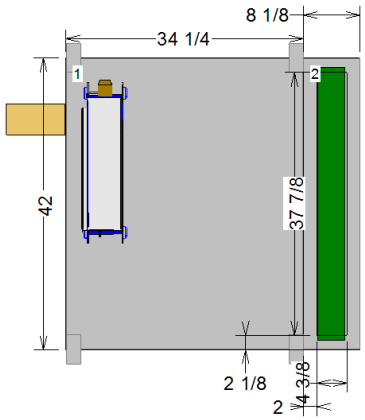


Basic Overall Plan View: Top - Measurements in inches

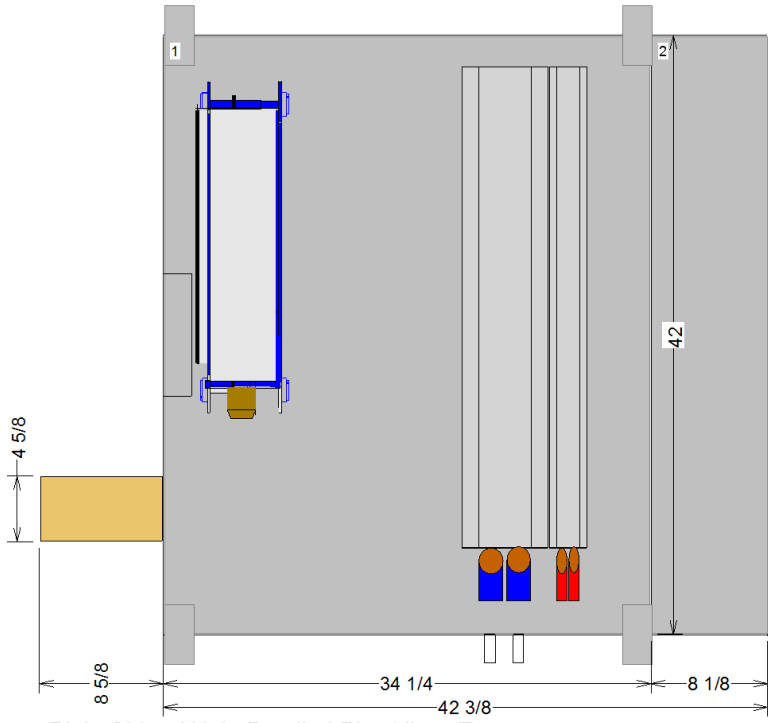
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



Left Side of Unit Detailed Plan View: Bottom - Measurements in inches

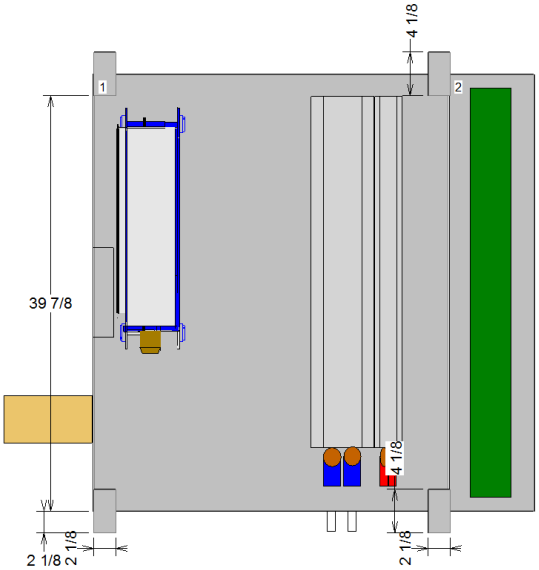


Right Side of Unit Detailed Plan View: Top - Measurements in inches

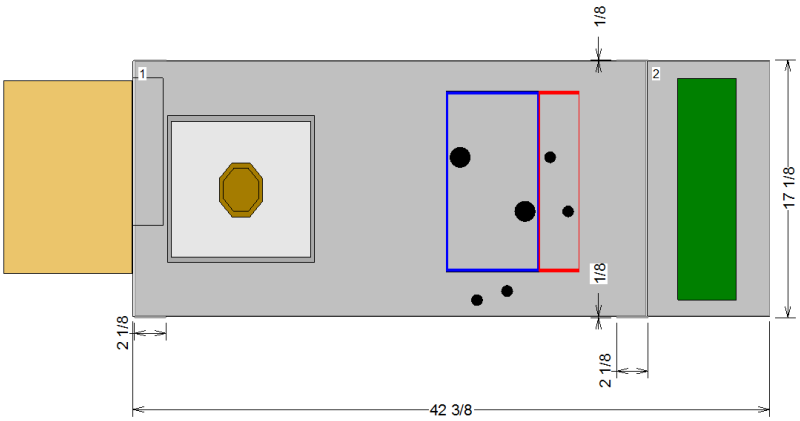
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



Lifting Lugs: Top - Measurements in inches



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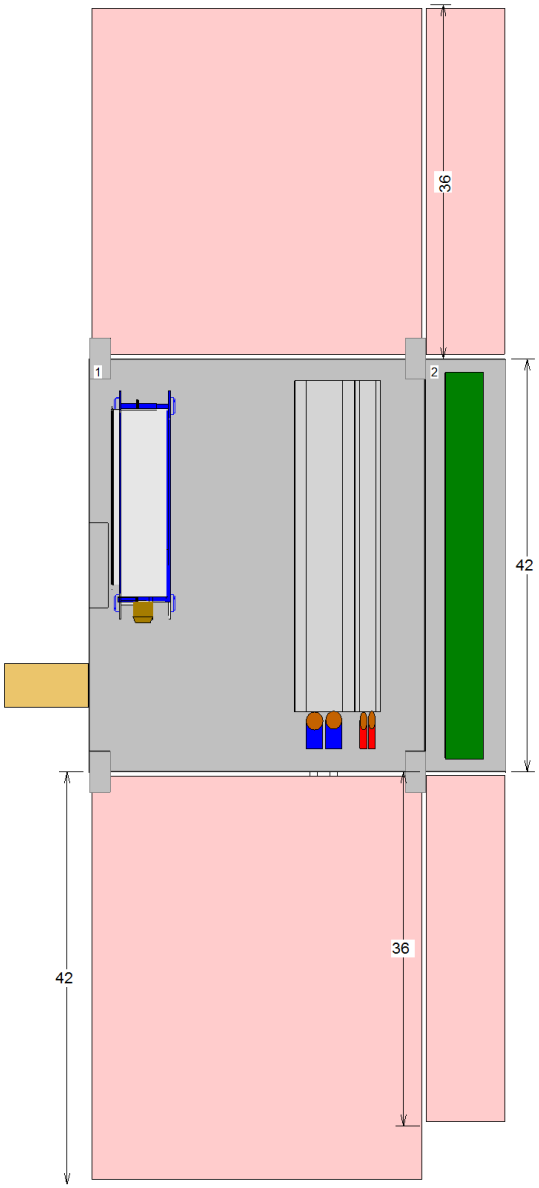
Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



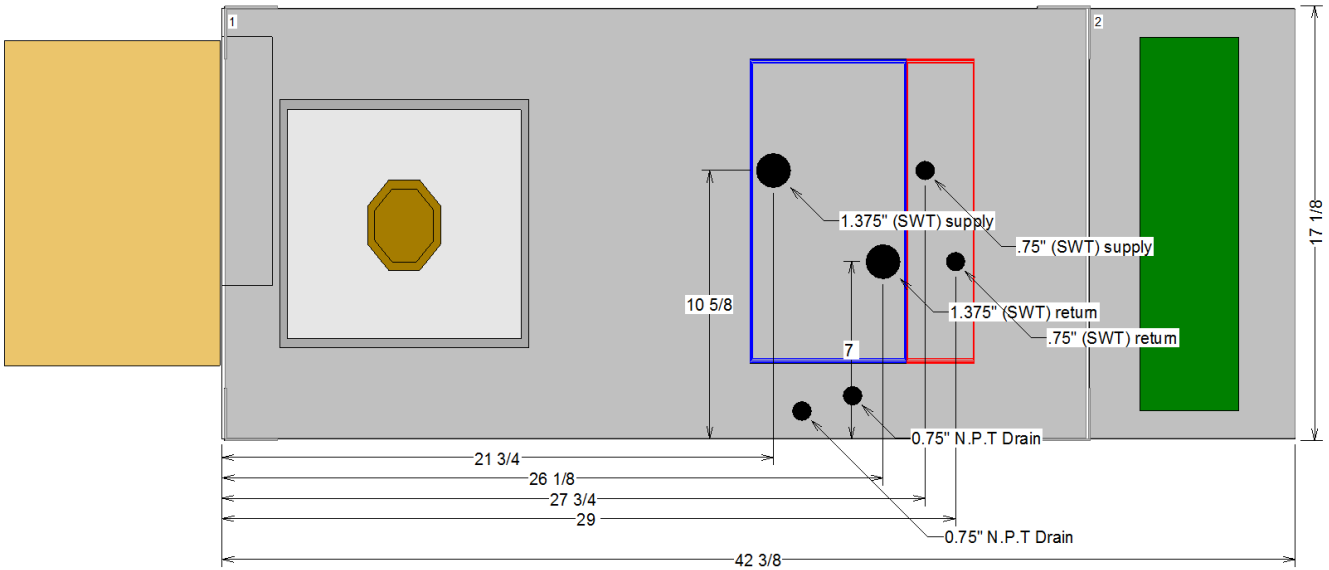
Basic Service Clearance - Plan - Measurements in inches

The coil(s) are intended to be removed from the coil connection side of the unit
In the event of a coil removal, the clearance located opposite of the coil connection side is required to remove hardware that secures the coil
****If the clearance opposite of the coil conection side of the unit is not available, the unit will need to be repositioned at the time of the coil removal****

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1000. cfm	Proposal Number
	Sales Office	Tags: BC-1
		Rigging/Installed Weight: 167.7 lb / 202.5 lb

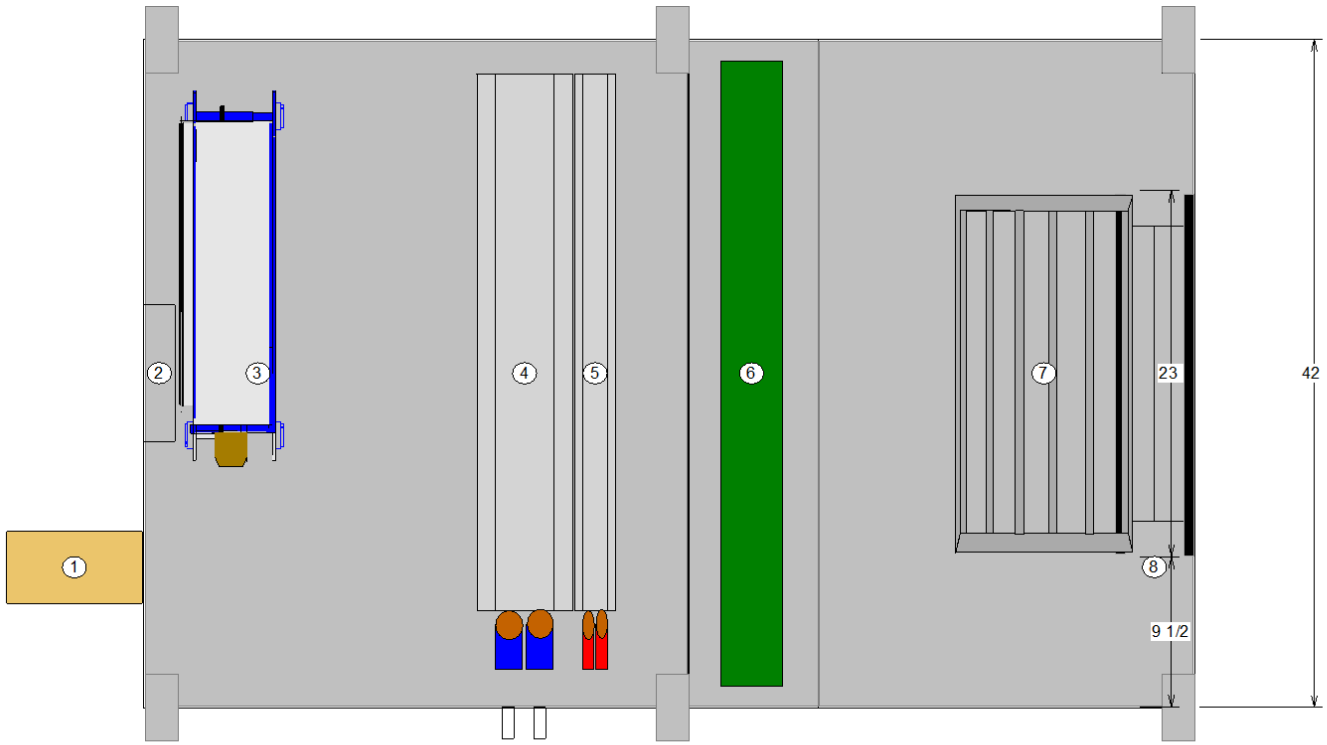
Dimensional Drawings - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1



OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation	TRANE
Seismic certification:	Design airflow: 1000. cfm	Proposal Number	
	Sales Office	Tags: BC-1	
		Rigging/Installed Weight: 167.7 lb / 202.5 lb	

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2

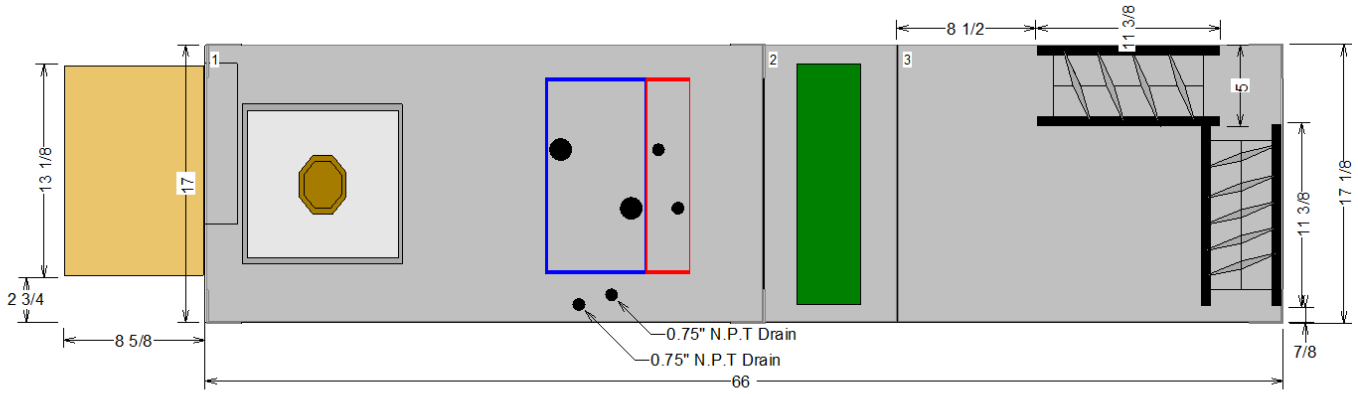


1 External control box front
2 Opening front
9.85 x 8.6
3 Housed fan
4 Cooling coil
5 Heating coil
6 Flat filters
7 Damper top
23 x 11.33
8 Damper back
11.33 x 23

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



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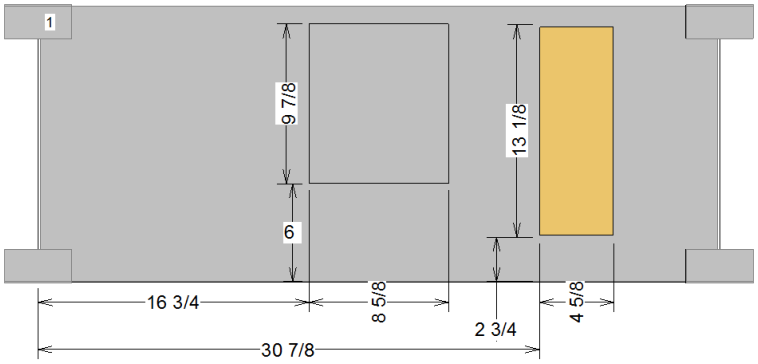
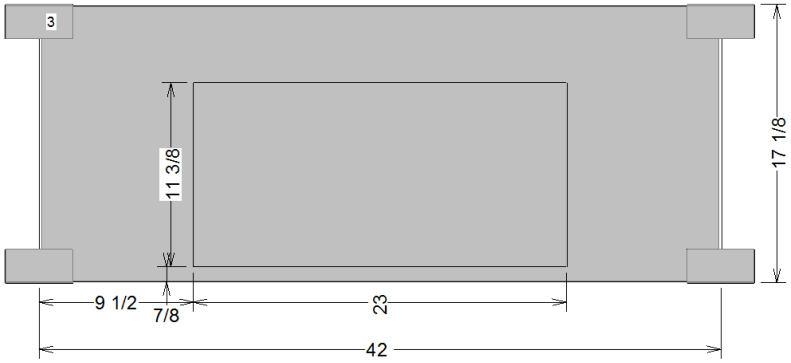
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



Detailed Elevation View: Front - Measurements in inches

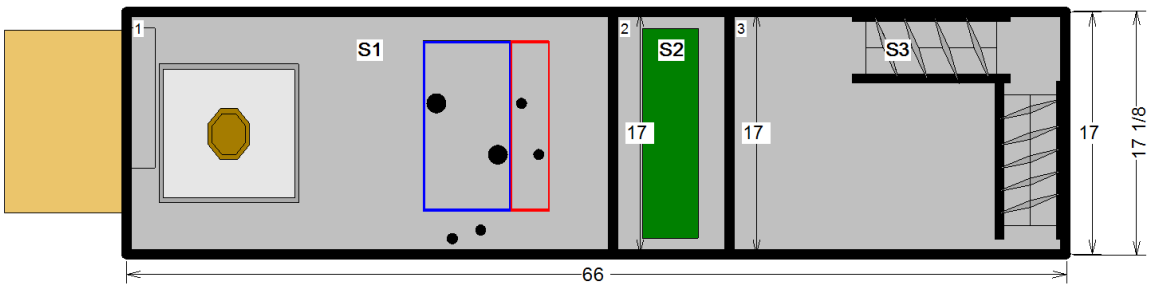


Detailed Elevation View: Back - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

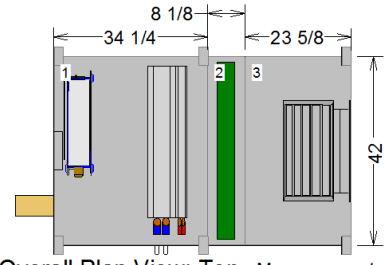
Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



Shipping splits are indicated by thick black lines

Pos #	Module	Length	Weight
1	Fan and coil section	34 1/4	198.50
2	Bottom access filter	8 1/8	22.50
3	Mixing box or angled filter	23 5/8	91.30
		Installed Unit Weight	312.30 lbs

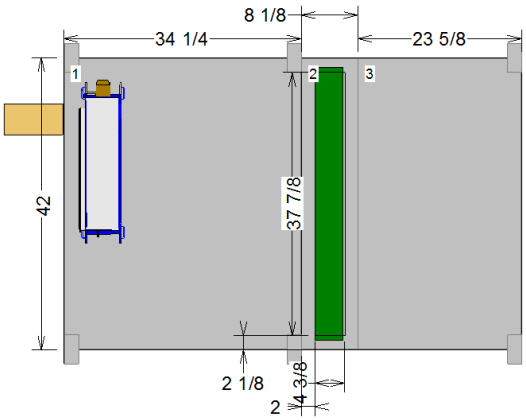


Basic Overall Plan View: Top - Measurements in inches

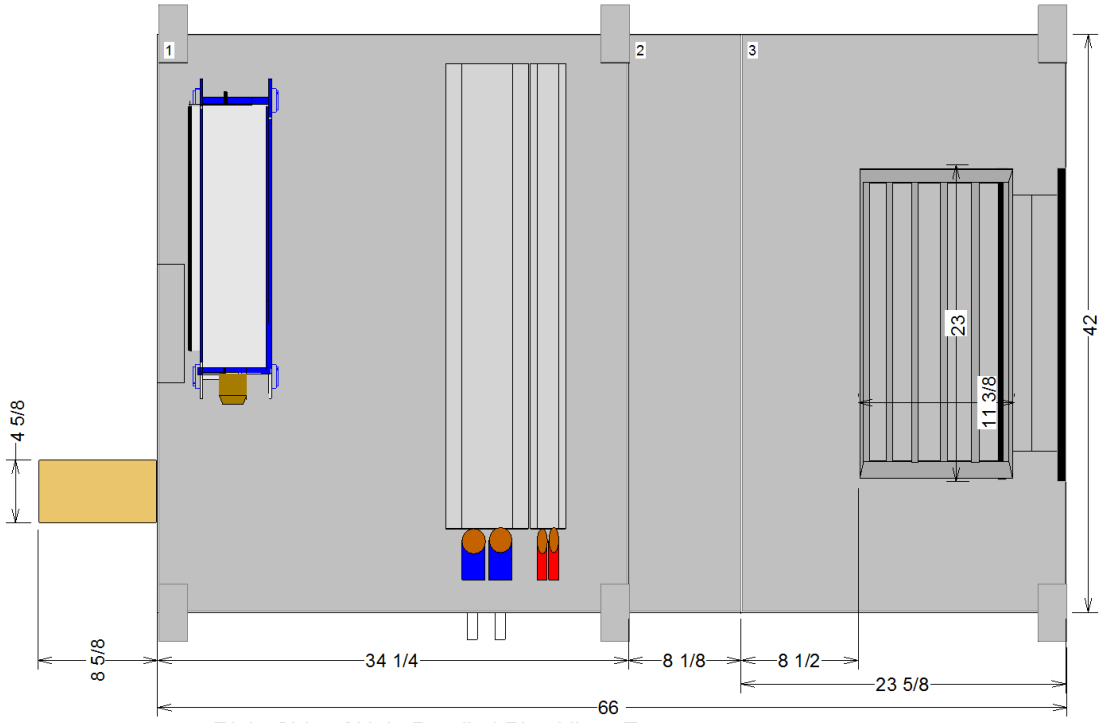
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



Left Side of Unit Detailed Plan View: Bottom - Measurements in inches

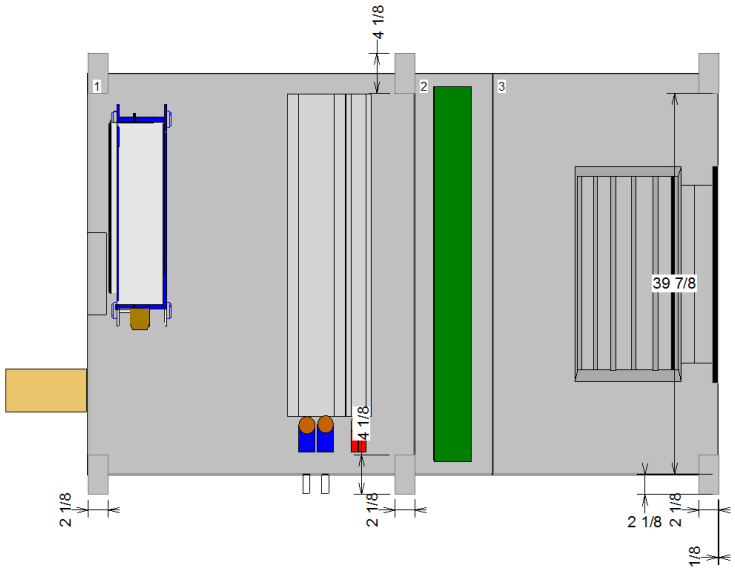


Right Side of Unit Detailed Plan View: Top - Measurements in inches

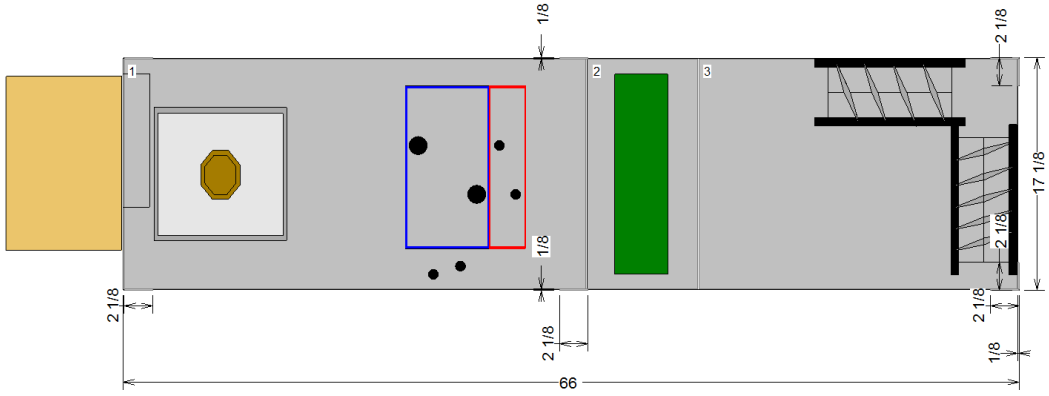
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



Lifting Lugs: Top - Measurements in inches



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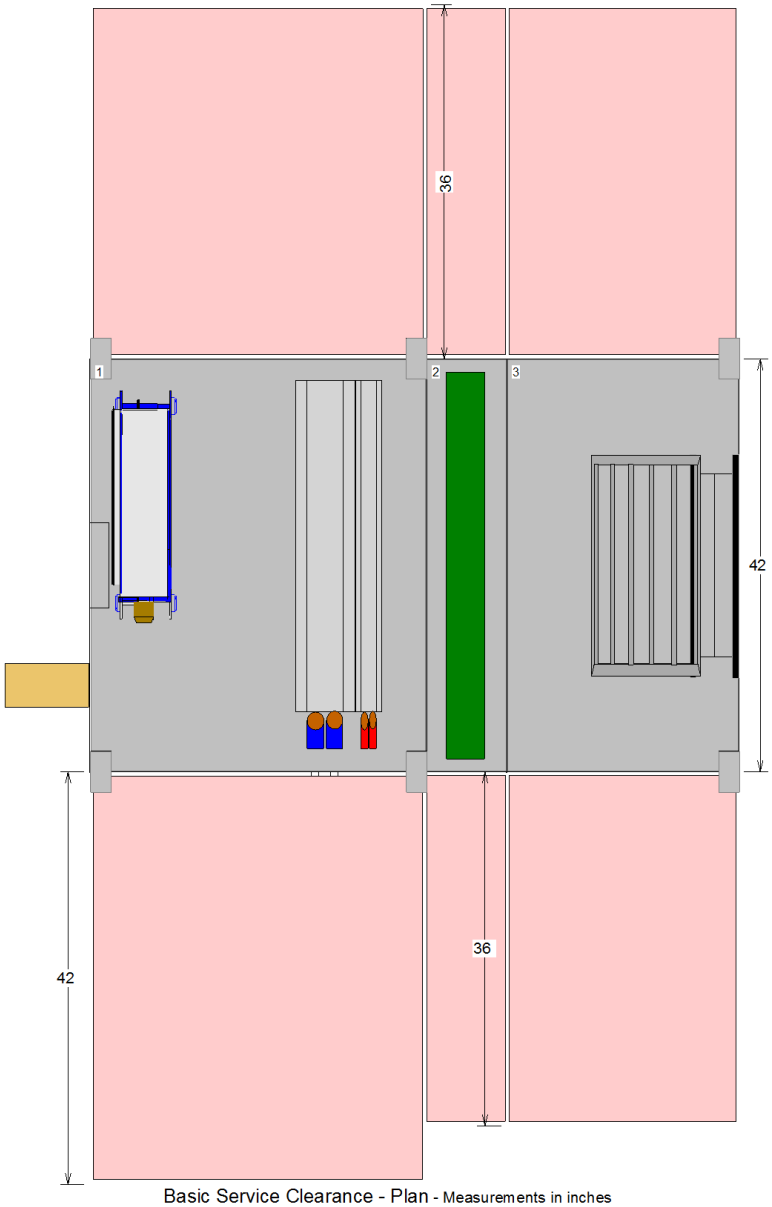
Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



Basic Service Clearance - Plan - Measurements in inches

The coil(s) are intended to be removed from the coil connection side of the unit
In the event of a coil removal, the clearance located opposite of the coil connection side is required to remove hardware that secures the coil
****If the clearance opposite of the coil conection side of the unit is not available, the unit will need to be repositioned at the time of the coil removal****

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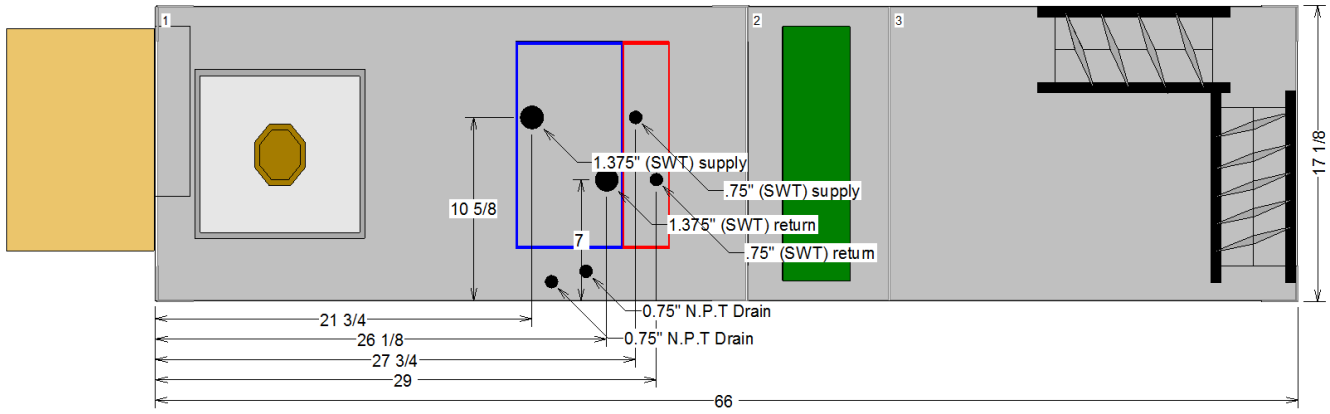
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Dimensional Drawings - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2



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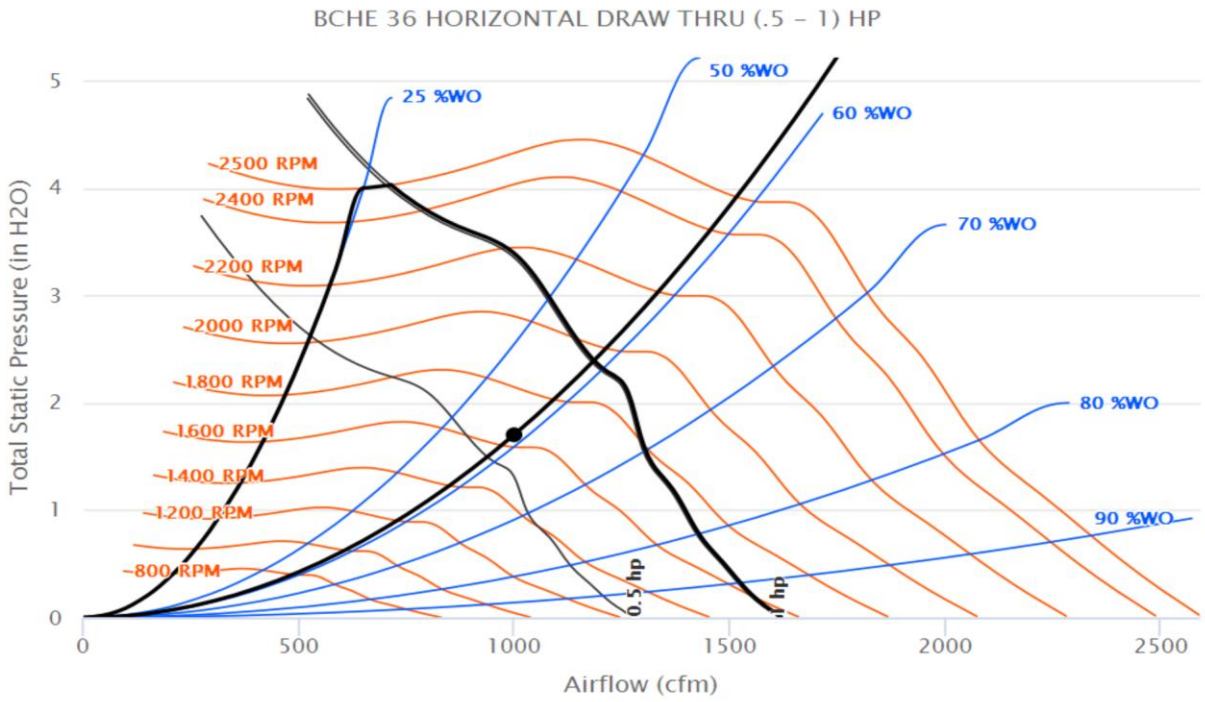
Unit size (Nominal CFM): 36 (1200 CFM)	Job Name: Whitley County Schools Northern Heights TK	Unit Insulation: 1 in. Matte Face Insulation
Seismic certification:	Design airflow: 1250. cfm	Proposal Number
	Sales Office	Tags: BC-2
		Rigging/Installed Weight: 186.3 lb / 312.3 lb

Fan Curve - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1

Fan Details

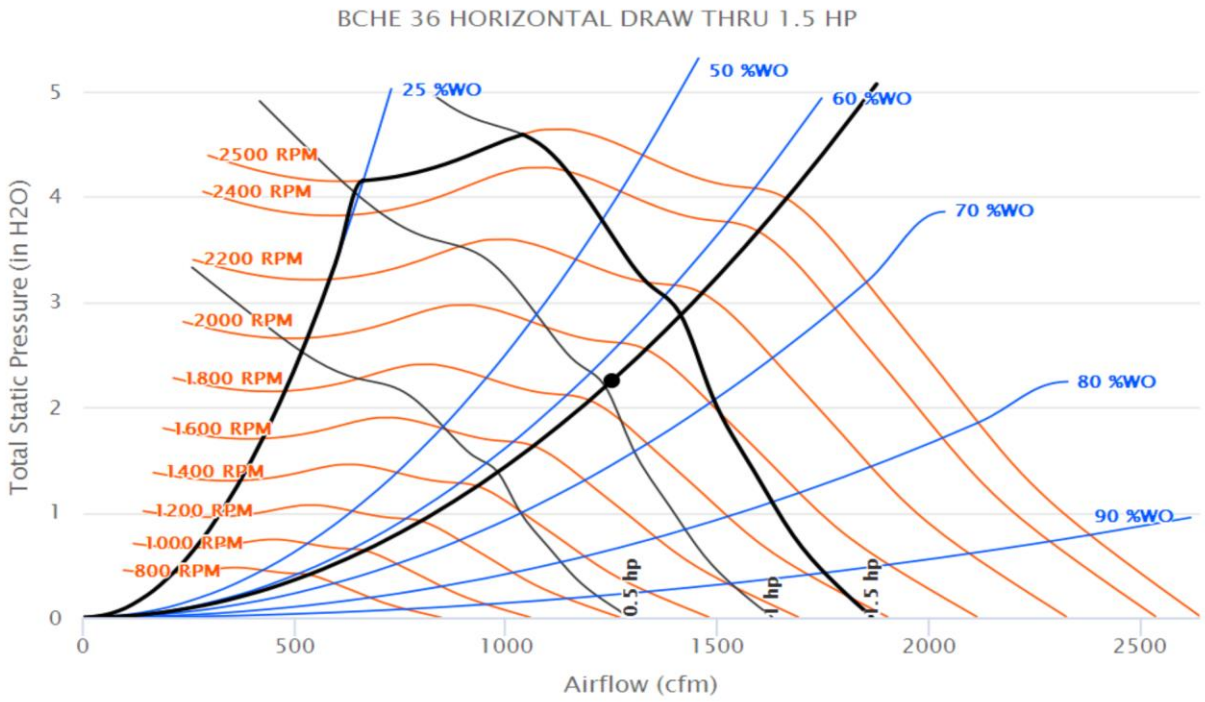
Unit Size	36 (1200 CFM)	**Operating Brake Power**	0.606 hp
Operating Airflow	1,000 cfm	**Altitude**	0.00 ft
Operating Static Pressure	1.709 in H2O	**Design Temp.**	80.00 F
Operating RPM	1,648 rpm		



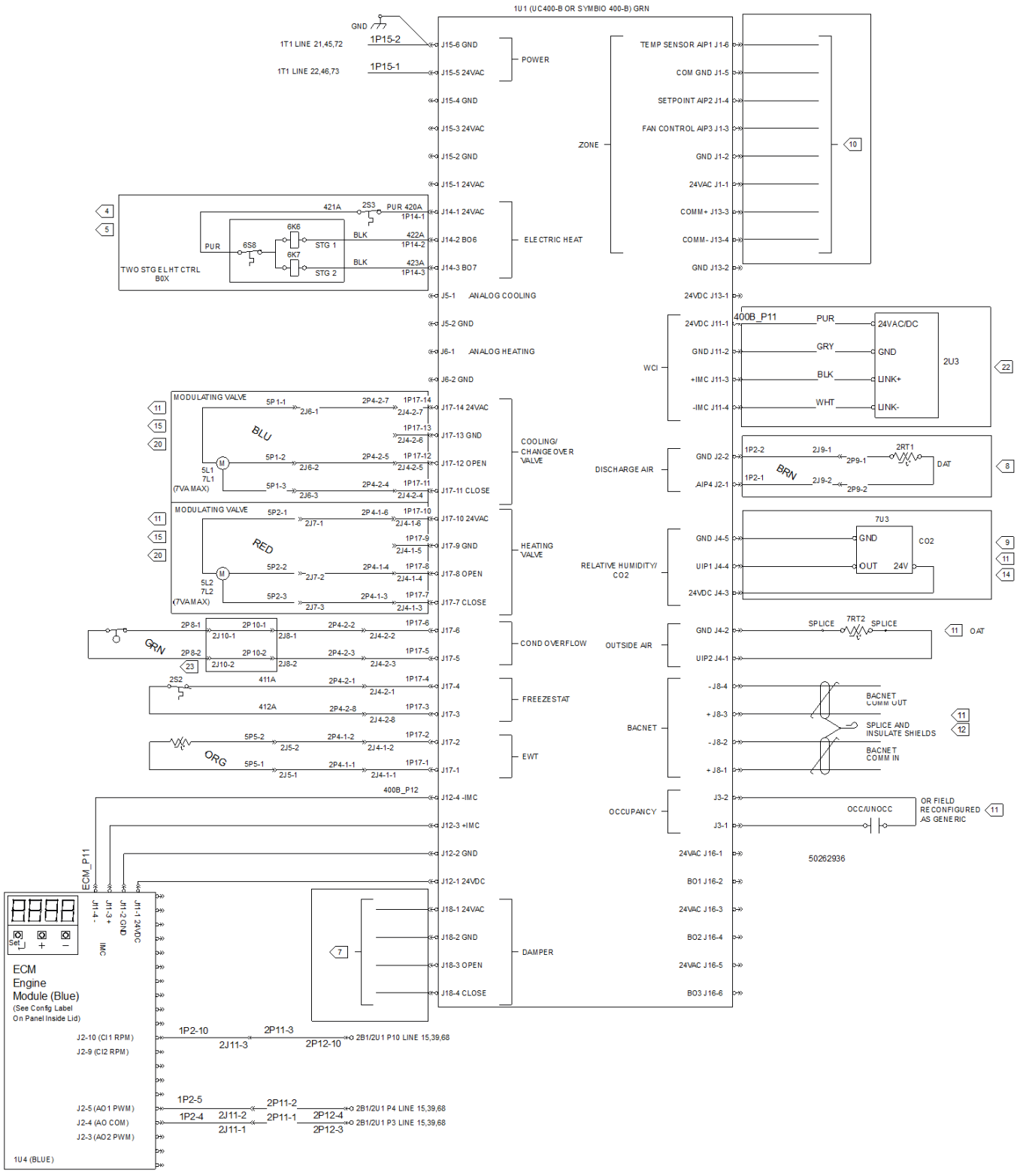
Fan Curve - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2

Fan Details

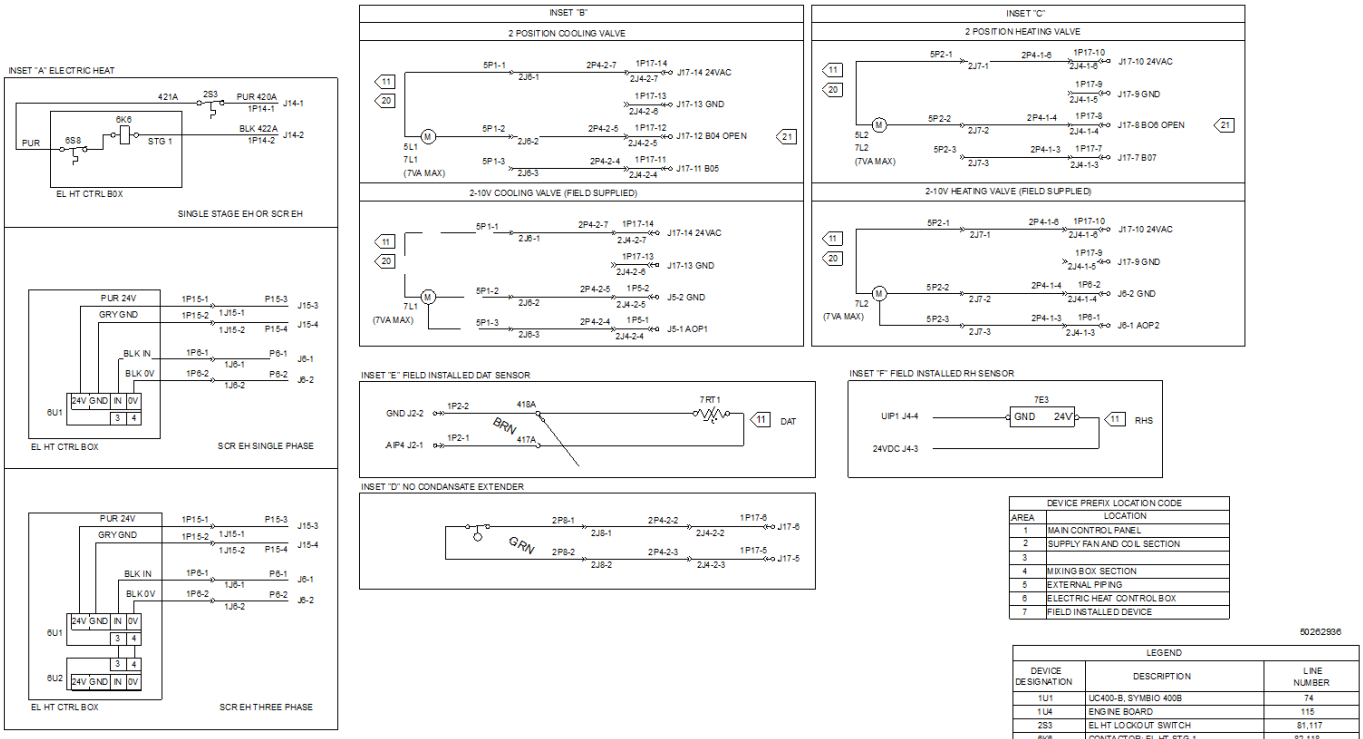
Unit Size	36 (1200 CFM)	**Operating Brake Power**	1.045 hp
Operating Airflow	1,250 cfm	**Altitude**	0.00 ft
Operating Static Pressure	2.254 in H2O	**Design Temp.**	80.00 F
Operating RPM	1,885 rpm		



Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2



Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2



DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN CONTROL PANEL
2	SUPPLY FAN AND COIL SECTION
3	
4	MIXING BOX SECTION
5	EXTERNAL PIPING
6	ELECTRIC HEAT CONTROL BOX
7	FIELD INSTALLED DEVICE

50262936

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
1U1	UC400-B, SYMBIO 400B	74
1U4	ENGINE BOARD	115
2S3	EL HT LOCKOUT SWITCH	81,117
6K6	CONTACTOR; EL HT STG 1	82,118
6S8	EL HT HIGH TEMP	82,118
6K7	CONTACTOR; EL HT STG 2	83
6U1	SCR CONTROLLER	126,133
6U2	SCR CONTROLLER	135
2U3	WIRELESS COM INTERFACE	96
5L1	COOLING COIL VALVE MOTOR	90,115
5L2	HEATING COIL VALVE MOTOR	94,115
7L1	COOLING COIL VALVE MOTOR	90,115,120
7L2	HEATING COIL VALVE MOTOR	94,115,120
2RT1	DISCHARGE AIR TEMP SNSR	89
7U3	CO2 SENSOR	92
2S1	CONDENSATE OVERFLOW SWTCH	96,127
7RT2	OUTSIDE AIR TEMP SENSOR	95
2S2	FREEZESTAT	98
5RT1	ENTERING WATER TEMP SENSOR	100
7RT1	FLD INSTALLED DAT SENSOR	123
7E3	FLD INSTALLED RH SENSOR	123

NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25° C (77° F), AT ATMOSPHERIC PRESSURE, AT 50 % RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
2. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINED ENCLOSURES AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. PHANTOM LINED ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINES INDICATE WIRING BY TRANE.
3. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL REQUIREMENTS. ALL FIELD WIRING MUST HAVE AN INSULATION VOLTAGE RATING THAT EQUALS OR EXCEEDS UNIT RATED VOLTAGE.

4 ELECTRIC HEAT SCHEMATIC IS LOCATED IN THE ELECTRIC HEAT CONTROL BOX PANEL.

5 WIRING SHOWN IS FOR TWO STAGE ELECTRIC HEAT. FOR SINGLE STAGE EH , SCR ELECTRIC HEAT SINGLE PHASE AND SCR ELECTRIC HEAT THREE PHASE, SEE INSET "A".

7 SEE SHEET 5026-2938 FOR DAMPER CONNECTIONS.

8 WIRING SHOWN IS FOR FACTORY INSTALLED DISCHARGE AIR SENSOR. FOR FIELD INSTALLED DISCHARGE AIR SENSOR SEE INSET "E".

9 WIRING SHOWN IS FOR CO2 SENSOR. FOR FIELD INSTALLED HUMIDITY SENSOR SEE INSET "F".

10 SEE SHEET 5026-2938 FOR ZONE SENSOR CONNECTIONS.

11 USE CLASS 2 WIRING.

12 COMMUNICATION WIRE MUST BE TRANE PART NO. 400-20-28, OR WINDY CITY OR CONNECT AIR "LEVEL 4" CABLE. MAXIMUM OF 4500 FOOT AGGREGATE RUN. CAUTION DO NOT RUN POWER IN THE SAME CONDUIT OR WIRE BUNDLE WITH COMMUNICATION LINK. FOR ADDITIONAL INFORMATION REFER TO EMTX-EB-68.

14 CONFIGURE THE CO2 SENSOR FOR 4-20mA OPERATION USING THE OUT2 JUMPER SUPPLIED WITH THE SENSOR.

15 WIRING SHOWN IS FOR MODULATING VALVE SECTION. FOR COOLING 2 POSITION AND 2-10V VALVE, SEE INSET "B". FOR HEATING 2 POSITION OR 2-10V VALVE, SEE INSET "C".

20 FIELD SUPPLIED ACTUATOR WIRING UTILIZES THE SAME CONNECTION POINTS AS FACTORY ACTUATOR WIRING.

21 VALVES SHOWN IN NORMALLY CLOSED POSITION. FOR NORMALLY OPEN POSITION, THE VALVE SIGNAL BECOMES CLOSE.

22 WIRING SHONW IS FOR THE UNIT WITH UC400-B, SYMBIO 400-B WWCI.

23 WIRING SHONW IS FOR BCHE/BCVE UNIT CONDANSATE EXTENDER. FOR BCCE UNIT SEE INSET D

Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

Air Temperature Sensor

NOTE:

1. NICKEL PLATED BRASS HOUSING, EPOXY FILLED ENTIRE LENGTH. THERMISTOR BEAD TO BE PLACED WITHIN 3/8" FROM END OF HOUSING. PROBE TO BE INDIVIDUALLY IDENTIFIED WITH VENDOR PART NUMBER AND DATE CODE.

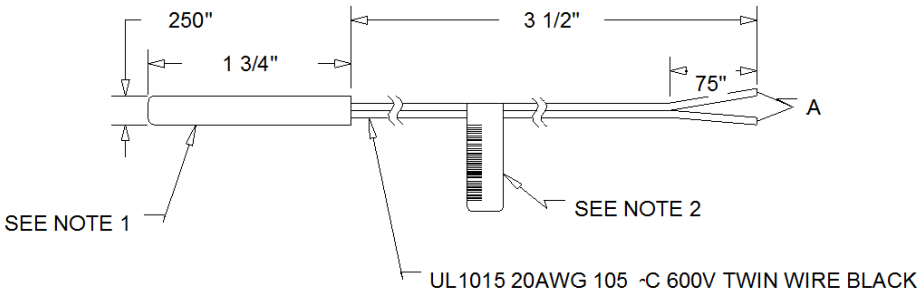
2. ID LABEL TO CONTAIN BAR CODE AND 12 DIGIT TRANE PART NUMBER (NO DASHES OR SPACES). BAR CODE TO BE PER STANDARD CODE 128. RECOMMENDED MINIMUM SIZE OF .40"X1.70". ID LABELS TO BE ATTACHED TO CABLE NEAR TERMINALS.

3. ALL PARTS UPDATES OR ADDITIONS SHOULD MEET TRANE STANDARD S65162000.

RESISTANCE TEMPERATURE CHARACTERISTICS			
TEMPERATURE	RESISTANCE		TEMP COEFF
	MIN	MAX	
-40°C	320.9K	369.0K	-6.61 % /°C
-25°C	125.6K	142.3K	-6.04 % /°C
0°C	31.17K	34.6K	-5.16 % /°C
25°C	9.56K	10.44K	-4.40 % /°C
65°C	2.012K	2.158K	-3.50 % /°C

X13790374

EXT	A	B
010	PLUG; AMP #172165-1 TERMINAL; PIN AMP #171638-1 (2 REQD)	16 ± .25

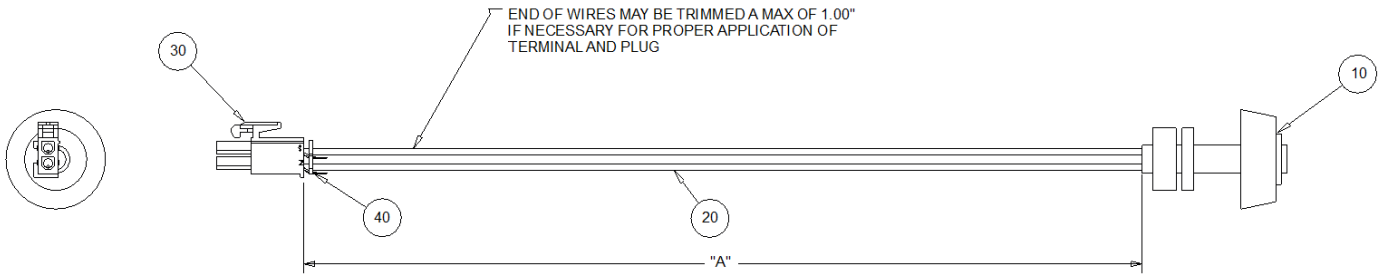


Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

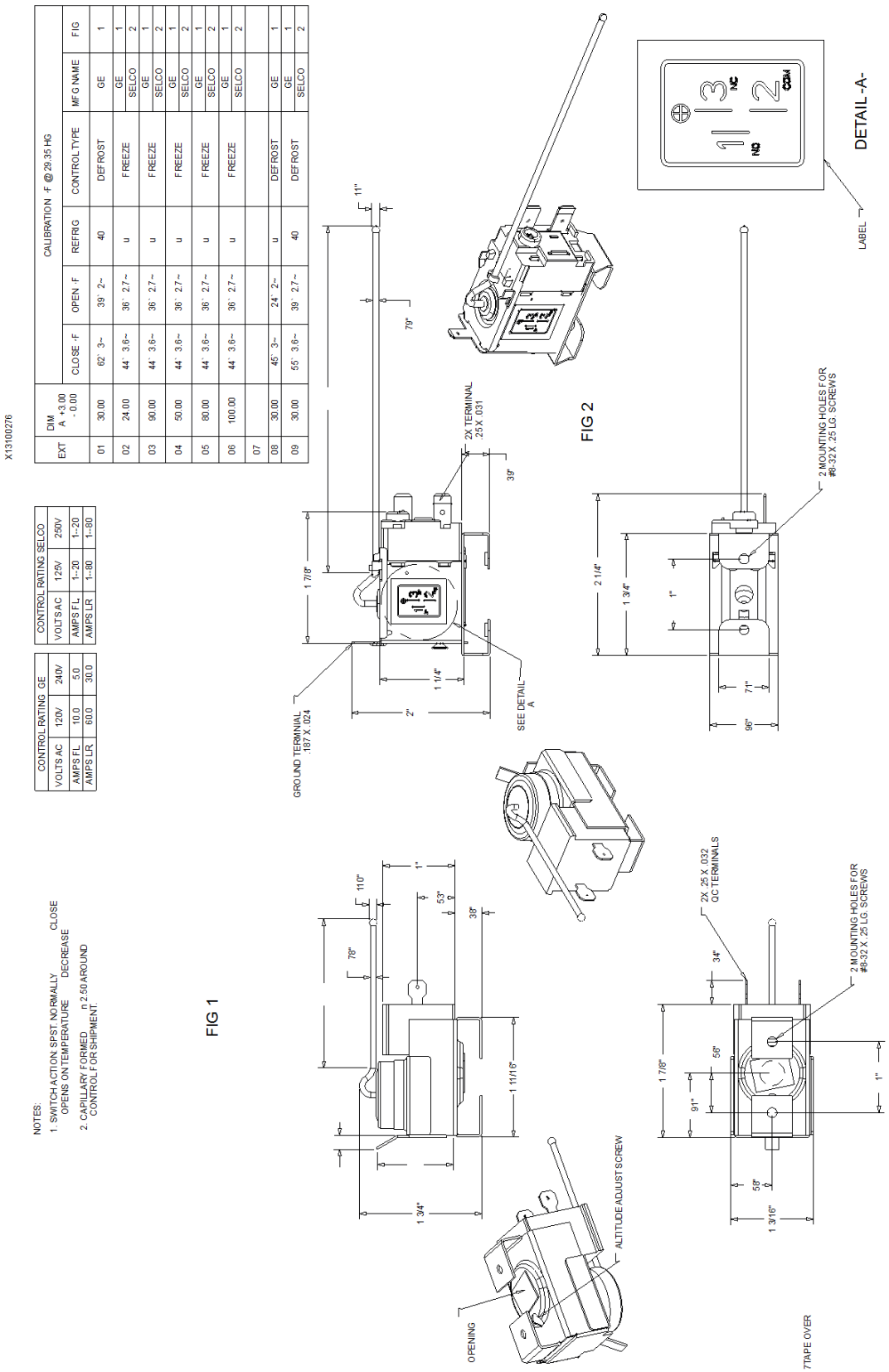
CONDENSATE OVERFLOW

EXT	A (IN)	ITEM			
		10	20	30	40
		FLOAT SWITCH	WIRE	PLUG (GREEN)	TERMINAL PIN
X13470527010	9.0	X13470484010	AWM (20 AWG)	AMP #1-172165-5	AMP #171638-1
X13470527020	50.0	X13470484010	AWM (20 AWG)	AMP #1-172165-5	AMP #171638-1

X13470527

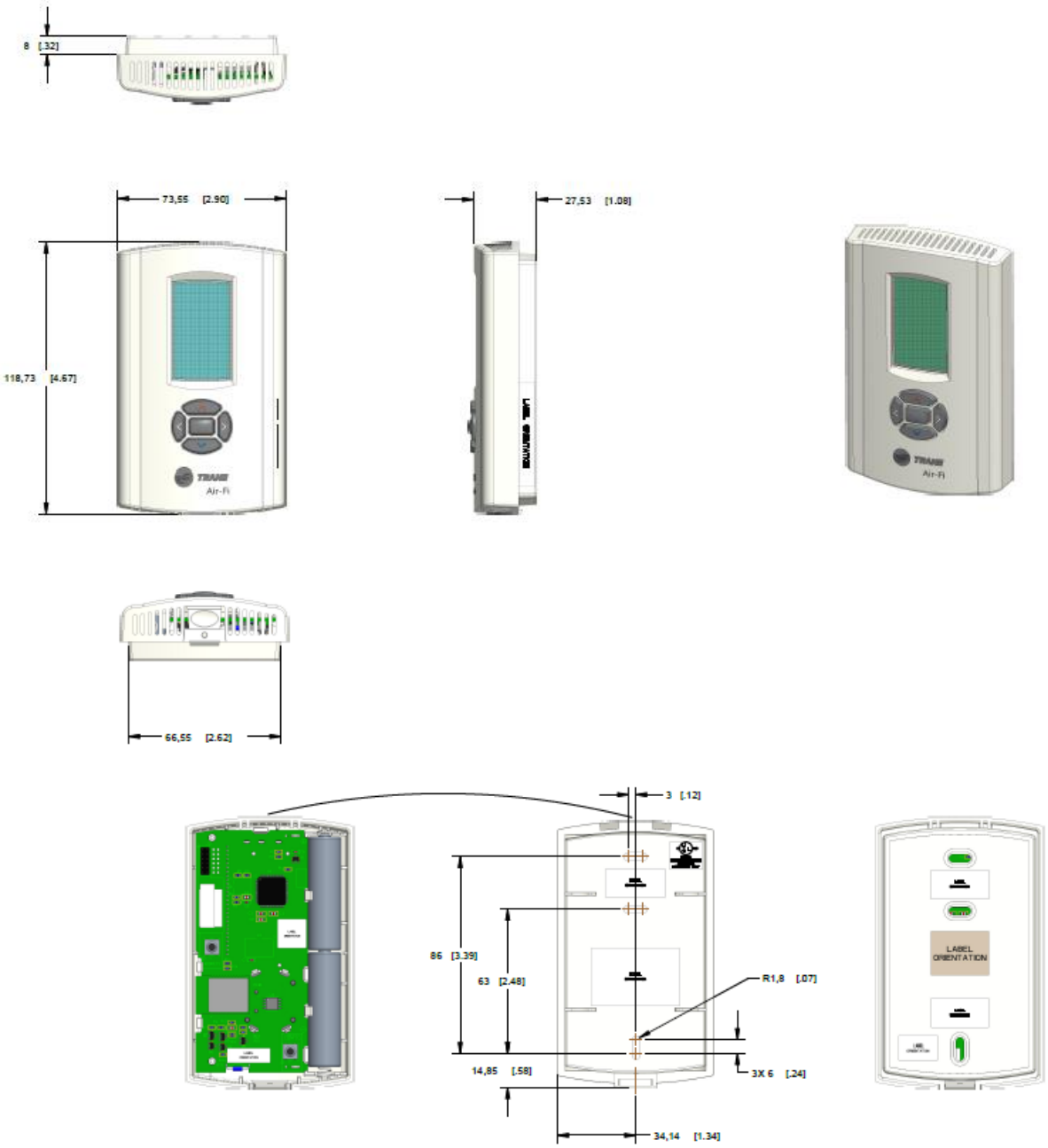


Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

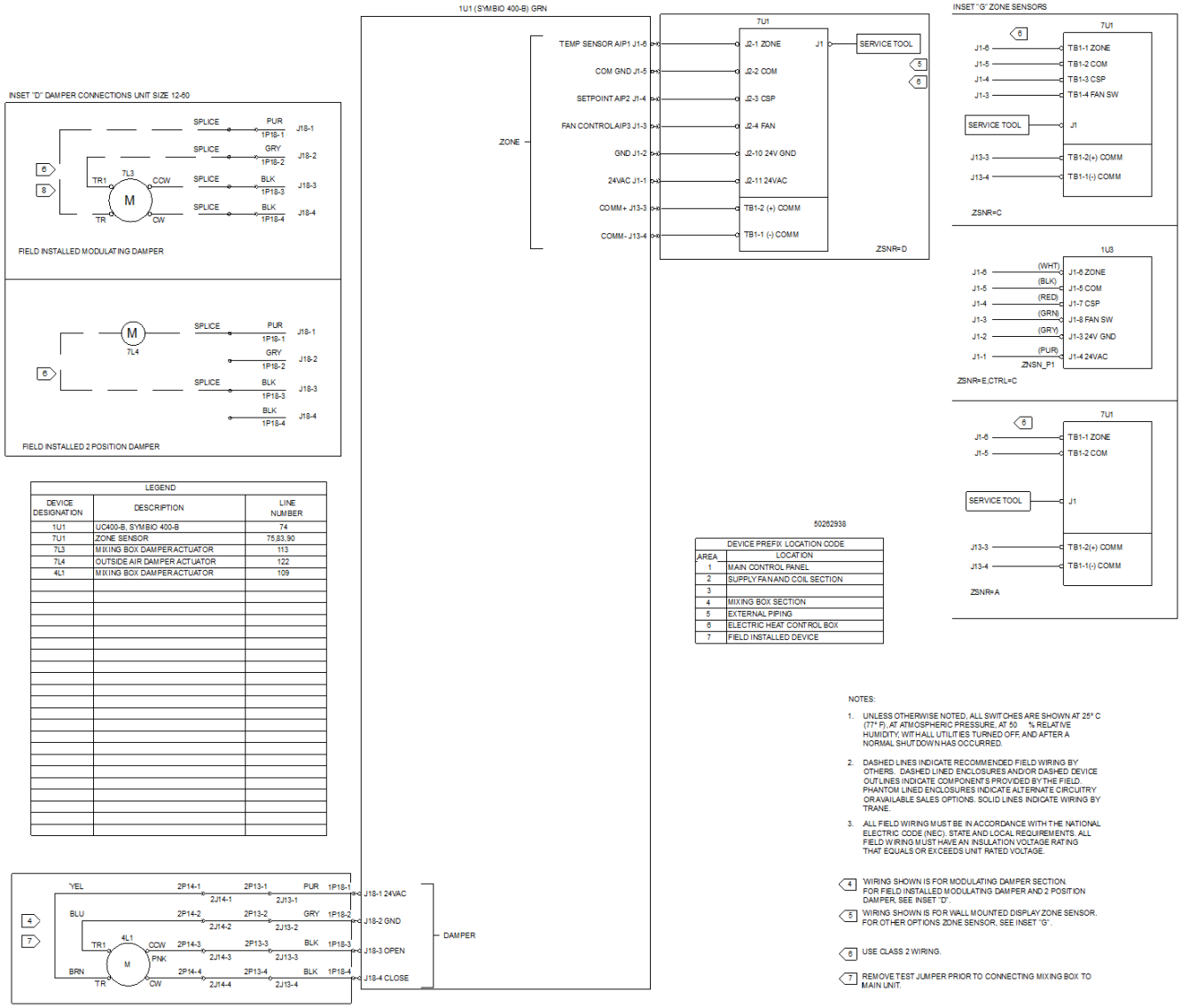


Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

SENSOR WIRELESS COMM SD



Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2



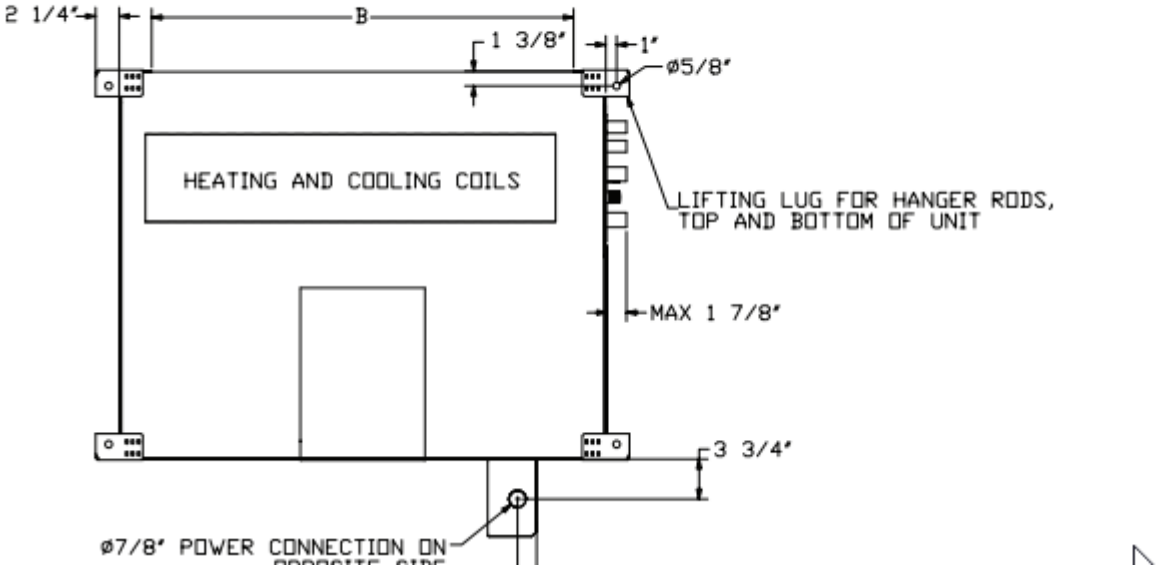
Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

Hanger placement for Horizontal Blower Coil

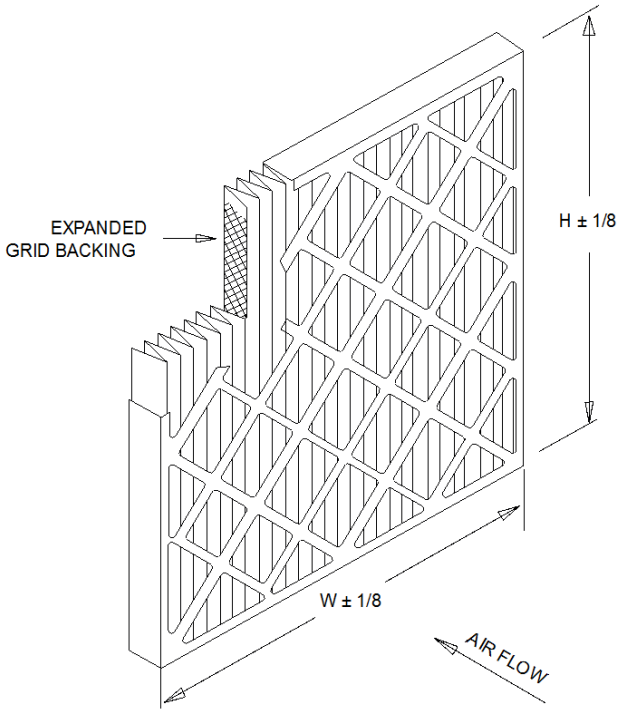
Unit Size	Lug Hole Spacing – Unit Width	Lug Rod Spacing – Unit Length
12	26.236	27.152
18	30.236	27.152
24	32.236	27.152
36	44.236	31.152
54	48.236	33.852
72	60.236	32.852
90	50.236	37.752
120	60.236	37.752

Horizontal Blower Coil

Figure 18. BCHE horizontal Blower Coil



Accessory - Blower coil
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2



NOMINAL SIZE IN. W X H	ACTUAL SIZE IN. W X H
12 X 12	11-1/2 X 11-1/2
12 X 20	11-1/2 X 19-1/2
12 X 24	11-1/2 X 23-1/2
16 X 16	15-1/2 X 15-1/2
16 X 25	15-1/2 X 24-1/2
18 X 20	17-1/2 X 19-1/2
18 X 24	17-1/2 X 23-1/2
18 X 25	17-1/2 X 24-1/2
20 X 20	19-1/2 X 19-1/2
20 X 24	19-1/2 X 23-1/2
20 X 25	19-1/2 X 24-1/2
24 X 24	23-1/2 X 23-1/2

Unit Size	12	18	24	36	48	54	60	72	90	120
Unit Flat Filter (BCHE)										
(Qty) Size	(1) 12 X 20	(1) 12 X 24	(1) 12 X 24	(1) 12 X 12 (1) 12 X 24	-	(1) 16 X 16 (1) 16 X 25	-	(2) 16 X 25	(1) 20 X 24 (1) 24 X 24	(3) 18 X 24
Unit Flat Filter (BCVE)										
(Qty) Size	-	-	(1) 12 X 24	(1) 18 X 24	(1) 18 X 20 (1) 12 X 20	-	(1) 18 X 24 (1) 12 X 24	(2) 16 X 25	(1) 20 X 24 (1) 24 X 24	(3) 18 X 24
Bottom (or Top) Access Filter										
(Qty) Size	(1) 12 X 20	(1) 12 X 24	(1) 12 X 24	(1) 12 X 12 (1) 12 X 24	-	(1) 16 X 16 (1) 16 X 25	-	(2) 16 X 25	(1) 20 X 24 (1) 24 X 24	(3) 18 X 24
Angle Filter										
(Qty) Size	(2) 12 X 20	(2) 12 X 24	(2) 12 X 24	(2) 12 X 12 (2) 12 X 24	-	(2) 12 X 20 (2) 12 X 24	-	(2) 12 X 12 (4) 12 X 20	(2) 20 X 20 (2) 20 X 25	(6) 18 X 20

Accessory - Blower coil
Item: A2 Qty: 1 Tag(s): BC-2

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN CONTROL PANEL
2	SUPPLY FAN AND COIL SECTION
3	
4	MIXING BOX
5	EXTERNAL PIPING
6	ELECTRIC HEAT CONTROL BOX
7	FIELD INSTALLED DEVICE

NOTICE

USE COPPER CONDUCTORS ONLY

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.

FAILURE TO DO THE ABOVE COULD RESULT IN EQUIPMENT DAMAGE.

AVIS

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!

LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.

FAIRE DÉFAUT À LA PROCÉDURE CI-DESSUS PEUT ENTRAÎNER DES DOMMAGES À L'ÉQUIPEMENT.

AVISO

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!

LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.

NO SEGUIR LAS INSTRUCCIONES ANTERIORES PUEDE PROVOCAR DAÑOS EN EL EQUIPO.

⚠ WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.

FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ AVERTISSEMENT

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE, PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS.

NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.

⚠ ADVERTENCIA

¡VOLTAJE PELIGROSO!

DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUSO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGÚRESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.

EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

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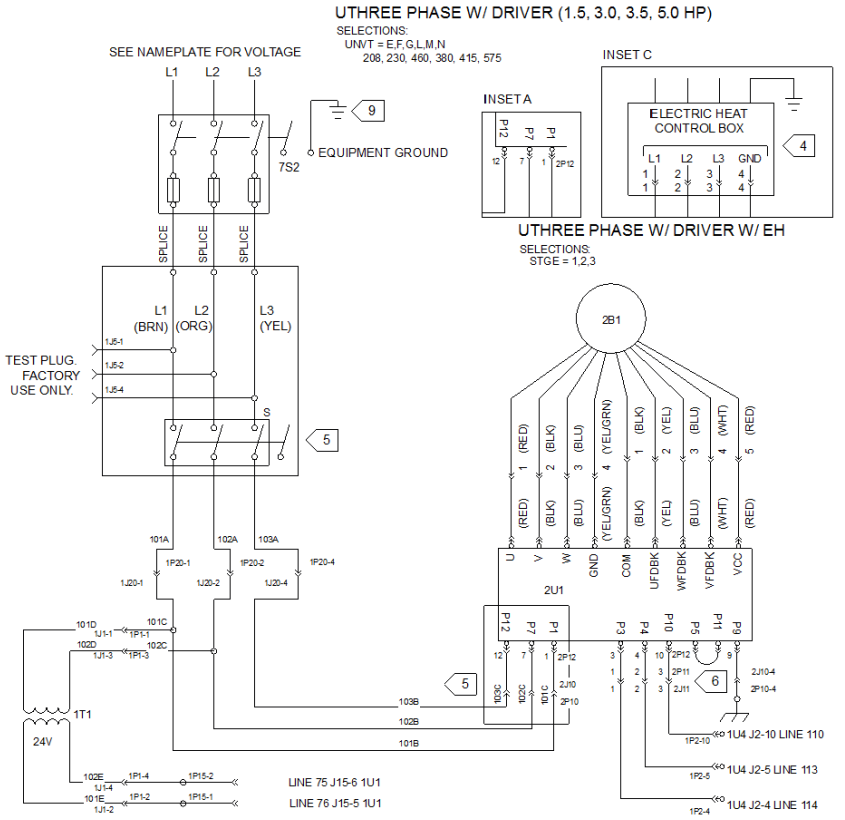

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
SINGLE PHASE		
7S2	FUSED DISCONNECT SWITCH	3
1S1	MANUAL DISCONNECT SWITCH	12
1T1	TRANSFORMER	18
2B1	FAN MOTOR	14
THREE PHASE (0.5, 1, 2.3 HP)		
7S2	FUSED DISCONNECT SWITCH	27
1S1	MANUAL DISCONNECT SWITCH	37
1T1	TRANSFORMER	44
2B1	FAN MOTOR	39
THREE PHASE (1.5, 3.0, 3.5, 5.0 HP)		
7S2	FUSED DISCONNECT SWITCH	54
1S1	MANUAL DISCONNECT SWITCH	63
1T1	TRANSFORMER	70
2B1	FAN MOTOR	58
2U1	MOTOR DRIVER	67

NOTES:

1. UNLESS OTHERWISE NOTED, ALL SWITCHES ARE SHOWN AT 25° C (77° F), AT ATMOSPHERIC PRESSURE, AT 50 % RELATIVE HUMIDITY, WITH ALL UTILITIES TURNED OFF, AND AFTER A NORMAL SHUTDOWN HAS OCCURRED.
2. DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. DASHED LINE ENCLOSURES AND/OR DASHED DEVICE OUTLINES INDICATE COMPONENTS PROVIDED BY THE FIELD. PHANTOM LINED ENCLOSURES INDICATE ALTERNATE CIRCUITRY OR AVAILABLE SALES OPTIONS. SOLID LINES INDICATE WIRING BY TRANE CO.
3. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL REQUIREMENTS.

4 ELECTRIC HEAT SCHEMATIC IS LOCATED IN THE ELECTRIC HEAT CONTROL BOX PANEL.

5 WIRING SHOWN IS FOR NO ELECTRIC HEAT. FOR ELECTRIC HEAT SINGLE PHASE SEE INSET A&B. FOR ELECTRIC HEAT THREE PHASE SEE INSET A&C.

6 CW JUMPER IS PRESENT FROM PIN P5 TO P11 ON UNITS WITH CW MOTOR ROTATION AS VIEWED FROM SHAFT END.

7 MOTOR VOLTAGE CONFIGURATION P2-P8 JUMPERED FOR 115V OPERATION ONLY.

8 USE COPPER CONDUCTORS ONLY.

9 ATTACH EQUIPMENT GROUND .

Accessory - Blower coil
Filter Schedule
Item: A1, A2 Qty: 9 Tag(s): BC-1, BC-2

Unit Tag(s)	Unit Size	Filter Arrangement	Filter Type \ MERV Rating	Filter Quantity	Filter Size
BC-1, BC-2	Unit Size 36; 3 Ton	Flat filter	2" Pleated MERV 8	1 1	12in.x12in. 12in.x24in.

Field Wiring - Blower coil
Item: A1 Qty: 8 Tag(s): BC-1

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	MAIN CONTROL PANEL
2	SUPPLY FAN AND COIL SECTION
3	
4	MIXING BOX
5	EXTERNAL PIPING
6	ELECTRIC HEAT CONTROL BOX
7	FIELD INSTALLED DEVICE

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N'UTILISER QUE DES CONDUCTEURS EN CUIVRE
AVIS
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
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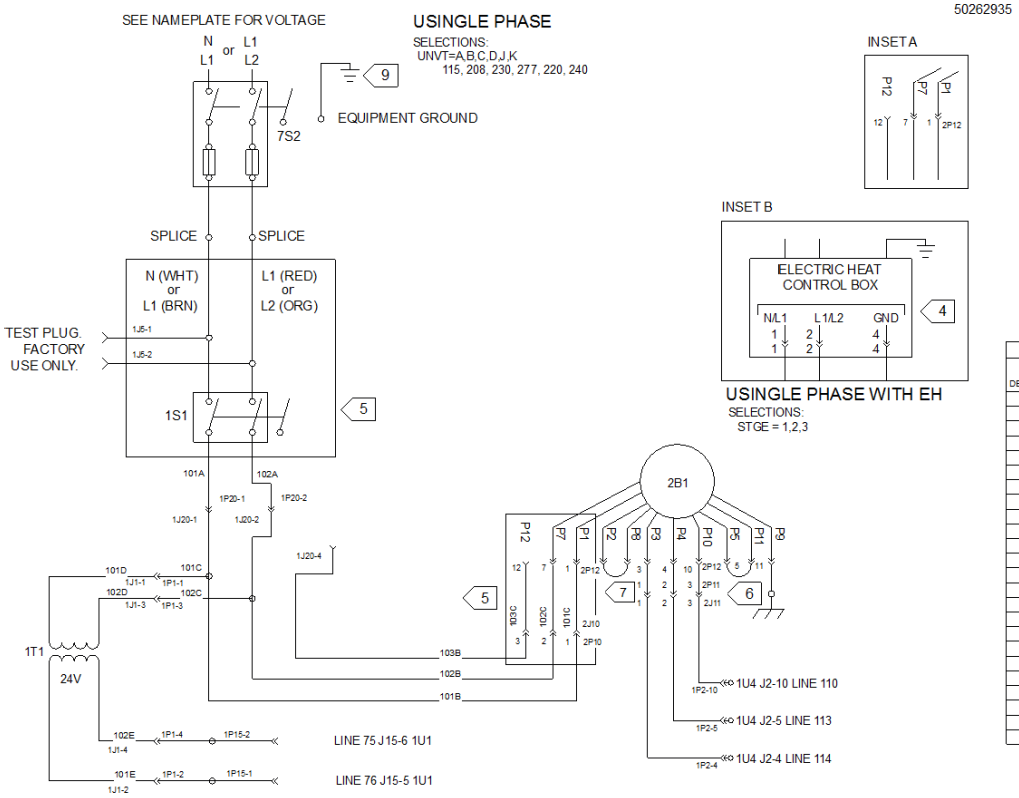

LEGEND		
DEVICE DESIGNATION	DESCRIPTION	LINE NUMBER
SINGLE PHASE		
7S2	FUSED DISCONNECT SWITCH	3
1S1	MANUAL DISCONNECT SWITCH	12
1T1	TRANSFORMER	18
2B1	FAN MOTOR	14
THREE PHASE (0.5, 1, 2.3 HP)		
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5 WIRING SHOWN IS FOR NO ELECTRIC HEAT. FOR ELECTRIC HEAT SINGLE PHASE SEE INSET A&B. FOR ELECTRIC HEAT THREE PHASE SEE INSET A&C.

6 CW JUMPER IS PRESENT FROM PIN P5 TO P11 ON UNITS WITH CW MOTOR ROTATION AS VIEWED FROM SHAFT END.

7 MOTOR VOLTAGE CONFIGURATION P2-P8 JUMPERED FOR 115V OPERATION ONLY.

8 USE COPPER CONDUCTORS ONLY.

9 ATTACH EQUIPMENT GROUND .

Field Installed Options - Part/Order Number Summary

This is a report to help you locate field installed options that arrive at the jobsite. This report provides part or order numbers for each field installed option, and references it to a specific product tag. It is NOT intended as a bill of material for the job.

Product Family - Blower coil

Item	Tag(s)	Qty	Description	Model Number
A1	BC-1	8	BCXE Blower Coil (BCXE)	BCHE036AAA0A3AC4A000000BDFJ00J0000BB0E
A2	BC-2	1	BCXE Blower Coil (BCXE)	BCHE036EAA0A3AC5A000000BRFJ00J0000BB0E

Field Installed Option Description	Part/Ordering Number
Field Supplied, Modulating	
Field Supplied, Modulating	
Wireless Display snsr, Unit mtd receiver (SP, OALMH)	

CREST COMMERCIAL CONDENSING BOILER

Submittal Sheet

Lochinvar®
HIGH EFFICIENCY BOILERS & WATER HEATERS

MODELS FB 0751 - FB 6001

AHRI CERTIFIED www.ahridirectory.org

FBN-Sub-13

Job Name: Northern Heights

Location:

Contractor:

Type Gas:

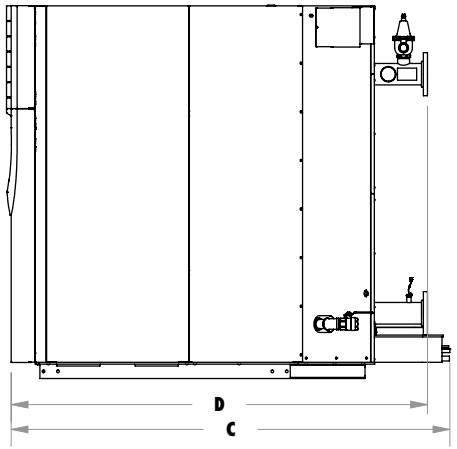
Engineer:

Model #:

Agent/Wholesaler:

Equipment Tag(s): Boiler-1, Boiler-2

SIDE



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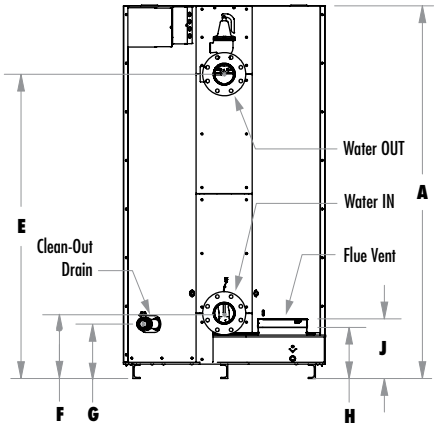

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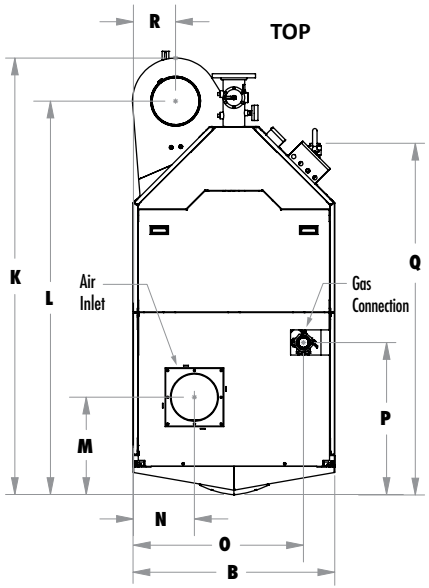


JOB NOTES:

DESIGN COLLABORATIVE

Project Name:	Trane - WCCS Northern Heights Elementary
Project Number:	20240001
Submittal ID:	23 00 00-5
Received On:	None
Reviewed On:	2/17/2025
Reviewed By:	Laura Zerla
Action:	Reviewed & Released as Corrected

Document release in no way voids any requirements of the contract documents. Review is only for confirmation of general type, appearance, quality, & performance characteristics. Provide exact accessories, dimensions & options for compatibility with related systems / products & to fulfill project requirements. As determined from field conditions & contract documents.

Notes:

* *Insert "N" for natural gas, "L" for LP gas models and "D" for dual fuel.*

- *Indoor installation only.*
- *Low NOx Operation.*
- *Lochinvar should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.*
- *The ratings have been determined under the provisions governing forced draft burners.*
- *The Net AHRI water ratings shown are based on a piping and pickup allowance of 1.15.*

Model Number	Input MBH Min	Input MBH Max	Thermal %	Gross Output MBH	Net AHRI Rating MBH	Turn-down	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	Gas Conn.	Water Inlet / Outlet	Air Intake	Vent Size	Oper. Weight (with water)	Ship. Weight (lbs.)
FB*0751	50	750	96.2%	722	628	15:1	78″	30″	55-1/2″	57-5/8″	66-1/8″	11-7/8″	11-3/8″	11-1/4″	12-1/2″	55″	51″	13″	8-3/4″	26-3/4″	23-3/4″	49-1/2″	7-3/8″	1-1/4″	3″	6″	6″	1,768	1,560
FB*1001	50	999	96.2%	961	836	20:1	78″	30″	56-1/2″	57-5/8″	66-1/8″	11-7/8″	11-3/8″	11-1/4″	12-1/2″	56″	51″	13″	8-3/4″	26-3/4″	23-1/8″	49-1/2″	6-1/2″	1-1/4″	3″	6″	6″	1,838	1,596
FB*1251	62.5	1,250	96.2%	1,203	1,046	20:1	78″	30″	56-1/2″	57-3/4″	66-1/8″	11-7/8″	11-3/8″	11-1/4″	12-1/2″	56″	51-3/8″	13″	8-3/4″	26-3/4″	21-5/8″	49-1/2″	6-1/2″	1-1/2″	3″	6″	8″	1,975	1,648
FB*1501	60	1,500	96.2%	1,443	1,255	25:1	78″	30″	67-3/4″	68″	65-3/8″	12-3/8″	11-3/8″	11-1/4″	12-1/2″	67-1/4″	62-3/8″	15-7/8″	9″	26-7/8″	27-7/8″	59-1/4″	5-1/8″	1-1/2″	4″	8″	8″	2,307	1,961
FB*1751	70	1,750	96.2%	1,684	1,464	25:1	78″	30″	66-1/4″	68″	65-3/8″	12-3/8″	11-3/8″	11-1/4″	12-1/2″	65-3/4″	61-1/2″	15-7/8″	9″	27″	27-1/8″	58-3/4″	5-1/8″	1-1/2″	4″	8″	8″	2,458	2,017
FB*2001	80	1,999	96.2%	1,923	1,672	25:1	78″	30″	66-1/2″	68″	65-3/8″	12-3/8″	11-3/8″	11-1/4″	12-1/2″	66″	61-1/2″	15-7/8″	9″	27″	26-3/4″	58-3/4″	5-1/8″	1-1/2″	4″	8″	8″	2,570	2,087
FB*2501	125	2,500	96%	2,400	2,087	20:1	77-3/4″	35″	83-3/4″	83-3/4″	63-3/4″	13-1/2″	11-1/4″	10-1/2″	12-1/4″	83-1/4″	76-1/4″	19-3/4″	9-1/4″	28-3/4″	32″	71″	7-1/4″	2″	4″	8″	9″	3,600	2,577
FB*3001	150	3,000	96%	2,883	2,507	20:1	77-3/4″	35″	83-3/4″	83-3/4″	63-3/4″	13-1/2″	11-1/4″	10-1/2″	12-1/4″	83-1/4″	76-1/4″	19-3/4″	9-1/4″	28-3/4″	32″	71″	7-1/4″	2″	4″	10″	10″	3,900	2,881
FB*3501	175	3,500	96%	3,364	2,925	20:1	77-3/4″	42″	91-1/2″	86-3/4″	63-1/2″	13-1/4″	11-1/2″	10-3/4″	12-1/2″	91″	82″	20-1/4″	12-3/4″	35-1/2″	31-3/4″	73-1/4″	8-3/4″	2″	4″	10″	10″	4,600	3,218
FB*4001	333.3	3,999	96%	3,843	3,342	12:1	77-3/4″	45-1/2″	103-1/2″	99″	63-1/2″	13-3/4″	11-1/2″	10-3/4″	12-1/2″	103″	94″	24-3/4″	13-1/2″	39-1/2″	42-1/4″	85-1/4″	10-1/2″	2-1/2″	4″	12″	12″	5,200	3,805
FB*5001	499.9	4,999	96%	4,804	4,177	10:1	77-3/4″	46-1/2″	102-1/4″	99-1/2″	63-1/2″	15″	11-1/2″	10-3/4″	12-1/2″	101-3/4″	92-1/2″	22″	14″	39-3/4″	39-1/2″	84″	9″	2-1/2″	6″	14″	14″	5,900	4,101
FB*6001	600	6,000	96%	5,766	5,014	10:1	77-3/4″	50″	102-3/4″	99-3/4″	63-1/4″	14-3/4″	11-1/2″	10-3/4″	12-1/2″	102-1/2″	93-1/4″	20″	15-3/4″	43-1/2″	36-1/2″	83-3/4″	9-1/4″	3″	6″	14″	14″	6,900	4,711

Information subject to change without notice. Dimensions shown are approximate and should not be used for construction purposes.

CREST®
CONDENSING BOILER

ENERGY STAR 0751-2001

AHRI CERTIFIED

ASME H

CSD-1 CERTIFIED

DESIGN CERTIFIED

DESIGNED ★ ENGINEERED ★ ASSEMBLED USA

Codes & Registrations

- ANSI Z21.13/CSA Certified
- ASME Certified, "H" Stamp / National Board
- California Code Compliant
- Canadian Registration Number (CRN)
- CSD1 / Factory Mutual / GE Gap Compliant
- South Coast Air Quality Management District Qualified & Energy Star Rated (FB 0751-2001)

INCLUDE CONDENSATE NEUTRALIZATION KIT.

Smart Touch™ Features

CON·X·US Remote Connect

SMART TOUCH Touchscreen Operating Control

Full-Color 8" Touchscreen LCD Display

Built-in Cascading Sequencer for up to 8 Boilers
- › Built-in Redundancy
- › Cascade Multiple Sized Boilers
- › Lead/Lag Cascade
- › Efficiency Optimized Cascade

Front-End Loading Capability with Copper-Fin II® and Power-Fin® Boilers

Building Management System Integration with 0-10 VDC Input

BACnet MSTP Communications

Outdoor Reset Control with Outdoor Air Sensor

Password Security

Domestic Hot Water Prioritization
- › DHW tank piped with priority in the boiler loop
- › DHW tank piped as a zone in the system with the pumps controlled by the Smart System
- › DHW Modulation Limiting
- › Separately Adjustable SH/DHW Switching Times

Low Water Flow Safety Control & Indication

Inlet & Outlet Temperature Readout

Freeze Protection

Service Reminder

Time Clock

Data Logging
- › Hours Running, Space Heating
- › Hours Running, Domestic Hot Water
- › Hours Running, Modulation Rate
- › Ignition Attempts
- › Last 10 Lockouts

Programmable System Efficiency Optimizers
- › Night Setback
- › Anti-Cycling
- › Outdoor Air Reset Curve
- › Ramp Delay
- › Boost Temperature & Time
- › Modulation Factor Control

Three Pump Control
- › System Pump
- › Boiler Pump
- › Domestic Hot Water Pump

High-Voltage Terminal Strip
- › 120V/1PH/60Hz Power Supply (FB 0751-2001)
- › 208V/3PH/60Hz Power Supply (FB 2501-3501)
- › 480V/3PH/60Hz Power Supply (FB 4001-6001)
- › System Pump, Boiler Pump and DHW Pump Power

Low-Voltage Terminal Strip
- › 24 VAC Auxiliary Device Relay
- › Auxiliary Proving Switch Contacts
- › Alarm on Any Failure Contacts
- › Runtime Contacts
- › DHW Thermostat Contacts
- › Unit Enable/Disable Contacts
- › System Sensor Contacts
- › DHW Tank Sensor Contacts
- › Outdoor Air Sensor Contacts
- › Cascade Contacts
- › 0-10 VDC BMS External Control Contact
- › 0-10 VDC Variable Speed Boiler Pump Control Contact

Standard Features

- Proof of Closure Valve (FB 6001)
- Modulating Burner with up to 25:1 Turndown
- Direct-Spark Ignition
- Low NOx Operation
- Sealed Combustion
- Air Inlet Filter
- Low Gas Pressure Operation
- **Vertical and Horizontal Direct Venting**
  - › Direct Vent up to 100 Feet
  - › PVC, CPVC, Polypropylene or AL29-4C (FB 0751-4001)
  - › AL29-4C (FB 0751-6001)
- ASME "H" Stamped Heat Exchanger
- 316L Stainless Steel Fire Tubes
- 160 psi Working Pressure
- On/Off Switch
- Adjustable High Limit with Manual Reset
- Low Water Cutoff with Manual Reset & Test
- High & Low Gas Pressure Switches w/Manual Reset
- Low Air Pressure Switches
- Condensate Trap w/Blocked Drain Switch
- Drain Valve
- System Sensor
- Outdoor Air Sensor
- Inlet & Outlet Temperature Sensors
- High-Voltage Terminal Strip
- Low-Voltage Terminal Strip
- Downstream Gas Test Cocks
- 50 psi ASME Relief Valve
- Temperature & Pressure Gauge
- Zero Clearances to Combustible Materials
- High Altitude Models Available
- 10-Year Limited Warranty (See Warranty for Details)
- 1-Year Warranty on Parts (See Warranty for Details)

Optional Equipment

- ☑ Alarm on Any Failure
- ASME Relief Valve Option:
  - ☐ 75 psi ☐ 100 psi ☐ 125 psi ☐ 150 psi
- ☑ BMS Gateway - BACnet IP or LonWorks
- ☐ Condensate Neutralization Kit
- ☐ Common Vent Kits Damper
- ☐ Modbus Communication
- ☐ Motorized Isolation Valve
- ☐ RealTime O_2 Feedback™
- ☑ Variable Speed Boiler Pump
- ☐ Wireless Outdoor Temperature Sensor

BOILER PUMP TO BE SIZED FOR 350 GPM.

Electrical Transformer Options (Shipped Loose):
- › FB 0751-2001
  - ☐ 208V/3PH/60Hz → 120V/1PH/60Hz
  - ☐ 480V/3PH/60Hz → 120V/1PH/60Hz
  - ☐ 600V/3PH/60Hz → 120V/1PH/60Hz
- › FB 2501-3501
  - ☐ 480V/3PH/60Hz → 208V/3PH/60Hz
  - ☐ 600V/3PH/60Hz → 208V/3PH/60Hz
- › FB 4001-6001
  - ☐ 208V/3PH/60Hz → 480V/3PH/60Hz
  - ☐ 600V/3PH/60Hz → 480V/3PH/60Hz

Lochinvar® HIGH EFFICIENCY BOILERS & WATER HEATERS

Lochinvar, LLC
300 Maddox Simpson Parkway
Lebanon, Tennessee 37090
P: 615.889.8900 / F: 615.547.1000
Lochinvar.com

07/20—Printed in U.S.A.

DESIGN COLLABORATIVE

SHOP DRAWING STAMP SHEET

Please use the following area for approval stamps:

Architect's or Consultant's Stamp:

DESIGN COLLABORATIVE

Project Name:	Trane - WCCS Northern Heights Elementary
Project Number:	20240001
Submittal ID:	23 00 00-Air-Cooled Chiller
Received On:	None
Reviewed On:	2/17/2025
Reviewed By:	Laura Zerla
Action:	Reviewed & Released

Document release in no way voids any requirements of the contract documents. Review is only for confirmation of general type, appearance, quality, & performance characteristics. Provide exact accessories, dimensions & options for compatibility with related systems / products & to fulfill project requirements. As determined from field conditions & contract documents.

General Comments:

Submittal

Prepared For:
Design Collaborative

Date: February 11, 2025

Job Name:
Whitley County Schools Northern Heights TK
5209 N State Road 109
COLUMBIA CITY, IN 46725

Opportunity ID: 7560267

Trane U.S. Inc. is pleased to provide the following submittal for your review and approval.

Product Summary

Qty	Product
1	Air-Cooled Scroll

Matt Eckhart, Sales Engineer
Trane U.S. Inc.
6602 Innovation Blvd.
Fort Wayne, IN 46818
E-mail: matt.eckhart@Trane.com
Office Phone: (260) 489-0884
Cell: (260) 417-7990
Fax: (260) 489-5117

The attached information describes the equipment we propose to furnish for this project and is submitted for your approval.

Submittal acceptance and return is a critical step, so please ensure submittals are returned with approval to release to production within 14 days of submittal date.

Product performance and submittal data is valid for a period of 6 months from the date of submittal generation. If six months or more has elapsed between submittal generation and equipment release, the product performance and submittal data will need to be verified. It is the customer's responsibility to obtain such verification.

Table of Contents

Tag Data - Air-Cooled Scroll (Qty: 1)

Item	Tag(s)	Qty	Description	Model Number
A1	ACSA-1	1	Ascend(TM) Air-Cooled Chiller Models ACS	ACSA1402EUA*LEXLXNB2XLNWSMEX1CABBAXAA 1XXXXONX

Product Data - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

Air-Cooled Scroll Chiller
Unit Startup By Trane
140 Nominal Tons
Scroll With Variable Volume Ratio
460V/60Hz/3Phase
Pueblo, CO
United States
Superior Sound Level
Refrigerant Charge R-454B
Standard Cooling (Above 40 Deg F)
Brazed Plate Heat Exchanger
Water
Grooved Pipe Connection
Flow Switch Set Point 60
Factory Insulation 0.75 Inch
Wide Ambient
Standard
Long Life Alloy Aluminum Coil
EC Condenser Fan Motors
Across-The-Line-Starter
Single Point Unit Power Connection
Circuit Breaker
Default Short Circuit Rating
Convenience Outlet and Under/Overage Voltage protection
BACnet MS/TP Interface
Hard wired bundle - all
Architectural Louvered Panels
Elastomeric Isolators
Year 2-5 parts warranty whole unit
1st year labor warranty whole unit
2-5th year labor warranty whole unit
1st year refrigerant warranty
2-5th year refrigerant warranty

Additional Options:

Remote Evaporator

Additional options are covered by TCS 1 year parts only warranty

Remote Evap Shipping weight (lb)	900
Field Suction Line OD – Risers	2-5/8”
Field Suction Line OD – Horizontal	3-1/8”
Field Liquid Line OD	1-3/8”

Performance Data - Air-Cooled Scroll

Tags	ACSA-1
Refrigeration capacity (tons)	133.83
Unit Power (Cooling Mode) (kW)	145.90
Compressor Power (Cooling Mode) (kW)	136.51
Efficiency (EER (Btu/W-h))	11.008
IPLV (Cooling Mode) (EER (Btu/W-h))	16.596
NPLV (Cooling Mode) (EER (Btu/W-h))	17.035
Evap leaving temp (F)	45.00
Evap entering temp (F)	57.00
Evap flow rate (gpm)	266.94
Evaporator Head Loss (ft)	6.13
Evap fouling factor (hr-sq ft-deg F/ Btu)	0.000100
Evap fluid freeze point (F)	32.00
VPF Min Evap Flow Rate (gpm)	177.79
Strainer Head Loss (ft)	3.17
Saturated Evap Temp - Ckt 1 (F)	40.36
Saturated Evap Temp - Ckt 2 (F)	40.36
Ambient air temp (F)	95.00
Saturated Cond Temp - Ckt 1 (F)	121.71
Saturated Cond Temp - Ckt 2 (Cooling) (F)	121.71
Elevation (ft)	0.00
Compressor 1A - RLA (A)	54.00
Compressor 1B - RLA (A)	69.00
Compressor 2A - RLA (A)	54.00
Compressor 2B - RLA (A)	69.00
Compressor 1A - LRA XL (A)	294.00
Compressor 1B - LRA XL (A)	389.00
Compressor 2A - LRA XL (A)	294.00
Compressor 2B - LRA XL (A)	389.00
Number of condenser fans	8
FLA - condenser fan (each) (A)	2.50
Fan Motor Power (Cooling) (kW)	9.87
Single point power MCA (A)	287
Single point power MOP (A)	350
Short circuit current rating (A)	10000
Refrigerant charge - ckt 1 (lb)	50.0
Refrigerant Charge - ckt 1 (Metric) (kg)	23
Refrigerant charge - ckt 2 (lb)	50.0
Refrigerant Charge - ckt 2 (Metric) (kg)	23
Oil Charge - Ckt 1 (gal)	3.20
Oil Charge - Ckt 1 (Metric) (L)	12.10
Oil Charge - Ckt 2 (gal)	3.20
Oil Charge - Ckt 2 (Metric) (L)	12.10
Shipping weight (lb)	7154
Operating weight (lb)	7297
Length (in)	232
Width (in)	88
Height (in)	98
Acoustic Note 1	Sound power data collected per AHRI 370 methodology.
Acoustic Note 2	Sound power referenced to 1pW; sound pressure referenced to 20µPa.

NOTE: Performance is for packaged chiller. Remote evaporator units will have decreased capacity and efficiency.

Tags	ACSA-1
Acoustic Note 3	Sound pressure values are at 30 feet from broadside of unit.
Rated Cooling Capacity (AHRI) (tons)	130.46
Rated Cooling Efficiency (AHRI) (EER (Btu/W-h))	10.787
Trane Select Assist Version Number	291
Number of Refrigerant Circuits	2
Number of Compressors CKT1	2
Number of Compressors CKT2	2
Total Number of Compressors	4

Product Report - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1
NOTE: Performance is for packaged chiller. Remote evaporator units will have decreased capacity and efficiency.

Unit Overview

Chiller Model	Ascend (TM) Air-Cooled Chiller Model ACS
Unit Nominal Tonnage	140 Nominal Tons
Refrigeration Capacity	133.8 tons
Cooling Efficiency	11.01 EER (Btu/W-h)
IPLV.IP	16.60 EER (Btu/W-h)
NPLV.IP	17.04 EER (Btu/W-h)
Voltage	460V/60Hz/3Phase
Refrigerant	Refrigerant Charge R-454B
Elevation	0.00 ft
Agency Listing	
Model Number	ACSA1402EUA*LEXLXNB2XLNW SMEX1CABBAXAA1XXXXONX

Evaporator Information

Evaporator Application	Standard Cooling (Above 40 Deg F)
Fouling Factor	0.000100 hr-sq ft-deg F/ Btu
Flow Sense Set Point	Flow Switch Set Point 60
Design Flow	266.9 gpm
Evaporator Head Loss	6.13 ft H2O
Strainer Head Loss	3.17 ft
VPF Min Flow	177.8 gpm

Fluid Properties	
Fluid Type	Water
Fluid Freeze Point	32.00 F
Entering Temperature	57.00 F
Leaving Temperature	45.00 F

Condenser Information

Unit Application	Wide Ambient
Condenser Fin Options	Long Life Alloy Aluminum Coil
Number of Fans	8

Temperatures	
Ambient Air Temp.	95.00 F
Saturated Cond - ckt 1	121.71 F
Saturated Cond - ckt 2	121.71 F

Electrical Information

Unit Voltage	460V/60Hz/3Phase
Total Power	145.9 kW
Compressor Starter	Across-The-Line-Starter
Incoming Line Connection	Single Point Unit Power Connection
Incoming Line Connection Type	Circuit Breaker
Short Circuit Current Rating	Default Short Circuit Rating
FLA - Condenser Fan (each)	2.50 A
MCA	
Single Point Power	287 A
MOP	
Single Point Power	350. A

RLA	
Compressor 1A	54.00 A
Compressor 1B	69.00 A
Compressor 2A	54.00 A
Compressor 2B	69.00 A
LRA	
Compressor 1A X-L LRA	294.00 A
Compressor 1B X-L LRA	389.00 A
Compressor 2A X-L LRA	294.00 A
Compressor 2B X-L LRA	389.00 A

Physical Information

Dimensions		**Weights**		**Charge**	**Circuit 1**	**Circuit 2**
Length	232 in	**Operating**	7297 lb	**Refrigerant**	50.0 lb	50.0 lb
Width	88 in	**Shipping**	7154 lb	**Oil**	3.20 gal	3.20 gal
Height	98 in					

Product Report - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

Acoustical Performance

Unit Sound Level	Superior Sound Level

Sound Power Levels (Lw, in dB, ref1 pW)									
Percent Load	Octave Band Center Frequency (Hz)								Overall A-Wtd
	63	125	250	500	1000	2000	4000	8000	

Standard full and part-load rating conditions per AHRI 550/590

Sound Pressure Levels (Lw, in dB, ref1 pW) 10m from center of broad sides of chiller									
Percent Load	Octave Band Center Frequency (Hz)								Overall A-Wtd
	63	125	250	500	1000	2000	4000	8000	

Standard full and part-load rating conditions per AHRI 550/590

Partload Information

Partload Data.IP - IPLV 16.60 EER (Btu/W-h)								
Load %	Cap. tons	LWT Evap F	EWT Evap F	Flow Evap gpm	WPD Evap ft H2O	Amb. F	Power kW	Eff. EER (Btu/W-h)
100	130.5	44.00	54.00	305.8	7.88	95.00	0.0000	10.79
75	97.85	44.00	51.50	305.8	7.91	80.00	0.0000	14.31
50	65.23	44.00	49.00	305.8	7.95	65.00	0.0000	17.93
25	32.62	44.00	46.50	305.8	7.97	55.00	0.0000	20.08

Standard Rating Performance and Information for LEED Rating

Refrigerant Charge - ckt 1	50.0 lb
Refrigerant Charge - ckt 2	50.0 lb
Rated Refrigerating Capacity	130.5 tons
Rated Cooling Efficiency	10.79 EER (Btu/W-h)
Rated IPLV	16.60 EER (Btu/W-h)
Refrigerating Capacity	133.8 tons
Cooling Efficiency	11.01 EER (Btu/W-h)
Compressor Power	136.5 kW
Fan Motor Power	9.870 kW

This product meets the minimum efficiency requirements of ASHRAE Standard 90.1 and CANS/CSA C743 for all versions (which are based on AHRI standard rating conditions with water) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmohphere section.

The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides indepenent, third-party verification that a building project meets green building and performance measures

Trane Select Assist Version Number: 291
Data Generation Date: 1/21/2025

Mechanical Specifications - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

Foundation
Provide rigid, non-warping mounting pads or a concrete foundation of sufficient strength and mass to support the applicable operating weight (i.e. including completed piping, and full operating charges of refrigerant, oil and water). The expectation of Trane equipment is that piping is fully supported by an independent structure/system, without being connected to the waterbox. Once in place, the unit must be level within 1/2" across the length and width of the unit. The Trane Company is not responsible for equipment problems resulting from an improperly designed or constructed foundation.

Center of Gravity

Different unit configurations and options may cause a variation in the center of gravity from what is listed in the submittal. Refer to the Installation, Operating and Maintenance manual for specific lifting instructions.

General
Units are leak and pressure tested at 650 psig high side, 495 psig low side, then evacuated and charged. All Air-cooled chillers are factory tested to confirm operation prior to shipment.

Standard power connections include main three phase power to the compressors, condenser fans and control power transformer.

Note: A separate field supplied low voltage power source is required to power the evaporator freeze protection. The evaporator heat trace terminates in the left hand side of the control cabinet behind the low voltage door. Termination points are 1X6-1 and 1X6-2 for the evaporator heat trace.

Unit panels, structural elements and control boxes are constructed of galvanized steel and mounted on a bolted galvanized steel base. Unit panels, control boxes and the structural base are finished with a baked on powder paint.

Anytime water only is present in the evaporator, the Trane Symbio (TM) 800 controller must have flow control of the chilled water system. Flow control can be done either directly or through an input to a building automation system to conduct an action resulting in minimum flow through the chiller evaporator barrel to avoid potentially catastrophic damage to the evaporator due to freezing. If the system has sufficient glycol to protect down to the lowest expected ambient, flow control is optional.

Factory Refrigerant Charge (R454B)
Packaged units ship with a full operating charge of oil and R454B refrigerant. Remote evaporator units will require additional field provided refrigerant.

Compressor and Motor
The unit is equipped with two hermetic, direct-drive, 3600 rpm 60 Hz suction gas-cooled scroll compressors per circuit. The simple design has only three major moving parts and a completely enclosed compression chamber which leads to increased efficiency. Overload protection is internal to the compressors. The compressor includes: centrifugal oil pump, oil level sight glass and oil charging valve. Each compressor will have compressor heaters installed and properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

Unit-Mounted Starter
The control panel is designed per 60335-2-40 UL. The starter is an across-the-line configuration, factory-mounted and fully pre-wired to the compressor motor and control panel. A factory-installed, factory-wired control power transformer provides all unit power.

A molded case standard interrupting capacity circuit breaker, factory pre-wired with terminal block power connections and equipped with a lockable external operator handle, is available to disconnect the chiller from main power.

Power Connection
Relay board will be provided to notify a Building Automation System of certain events or states of the chiller.

Note: An additional field supplied power connection must be provided to power the programmable relays

Control Inputs

Building Automation System Communication Interface permits remote leaving evaporator temperature set point and remote current limit set point by accepting a 4-20 mA or 2-10 Vdc analog signal.

Control Outputs
Relay board and percent capacity output will be provided to notify a Building Automation System of certain events or states of the chiller. Requires separate field supplied power source.

Short Circuit Current Rating (SCCR)
A short circuit current rating offers a measure of safety for what the starter panel enclosure is able to withstand in the event of an explosion caused by a short circuit.

Short circuit current rating of 10kA is provided.

Remote Evaporator
Braze plate heat exchanger is made of stainless steel with copper as the braze material. It is designed to withstand a refrigerant side working pressure of 650 psig (44.8 bars) and a waterside working pressure of 150 psig (10.5 bars). Evaporator is tested at 1.1 times maximum allowable refrigerant side working pressure and 1.5 times maximum allowable water side working pressure. It has one water pass. A water strainer and a flow switch are factory installed. Immersion heaters protect the evaporator to an ambient of -20.0 F, All evaporators have grooved pipe connections.

The evaporator is covered with factory-installed 0.75 inch (19.05 mm) Armaflex II or equal (k=0.28) insulation. Foam insulation is used on the suction line.

Unit is designed for operation in standard leaving evaporator temperature greater than or equal to 40.0 F.

The remote evaporator will have the following electrical components installed and wired to a terminal box: Factory Flow Switch, Power Supply module, Circuit 1 and 2 Modulating Expansion Valves, Evaporator Entering and Leaving Water Temperature Sensors, Circuit 1 and 2 Suction Pressure Transducers, and Circuit 1 and 2 Suction Temperature Sensors.

The brazed plate evaporator shall be installed on rails.

Note: An additional 115V, 20 amp field provided single phase power connection is required to power the heaters (if used for freeze protection).

Remote Evaporator Notes:

1. The remote evaporator must be between 0 and 25 feet below the ACSA.
2. The line set must be less than 100’ total length.
3. The shipping and operating weights of the chiller have been updated to exclude the weight of the evaporator.
4. A single 120V, 15 amp customer provided single phase connection is required to power the remote power supply for the evaporator sensors.
5. A field provided 4 conductor communication wire is required to connect the evaporator flow switch back to the chiller.
6. A field provided 2 conductor communication wire is required to connect the remote evaporator power supply back to the chillers power supply for sensor communication.
7. The remote evaporator does not include a leak detection sensor or related controls. For unit operation a field supplied leak detection sensor and related controls must be provided.

Condenser
Air-cooled condenser coils use all Long Life Alloy aluminum brazed fin constructions. Each slab is split horizontally into separate condensing and sub-cooling coils that are connected by either a copper tube or received tank. The maximum allowable working pressure of the condenser is 650 psig (44.8 bars). Condensers are factory proof and leak tested at 650 psig (44.8 bars).

Direct-drive vertical discharge condenser fans are balanced and individually protected. Three-phase condenser fan motors with permanently lubricated ball bearings and external thermal overload protection are provided.

Condenser Fan Motor (Variable Speed Motor)
The motor running speed can be adjusted to make sure unit runs with higher efficiency.

A variable speed drive on the first fan of each circuit allows the unit to start and operate with ambient temperatures between -20.0 F and 130.0 F.

Refrigerant Circuits and Capacity Modulation
The unit has dual refrigerant circuits. Each refrigerant circuit has Trane scroll compressors piped in parallel with a passive oil management system. A passive oil management system maintains proper oil levels within compressors and has no moving parts. Each refrigerant circuit includes filter drier, electronic expansion valve, liquid line and discharge service valves.

Capacity modulation is achieved by turning compressors on and off. The unit has four capacity stages.

Unit Controls
All unit controls are housed in an outdoor rated weather tight enclosure with removable plates to allow for customer connection of power wiring and remote interlocks. All controls, including sensors, are factory mounted and tested prior to shipment. Microcomputer controls provide all control functions including startup and shut down, leaving chilled/hot water temperature control, evaporator flow proving, compressor staging and speed control, electronic expansion valve modulation, condenser fan sequencing and speed control, anti-recycle logic, automatic lead/lag compressor starting and load limiting.

The Symbio (TM) 800 unit control module, utilizing Adaptive Control microprocessor, automatically takes action to avoid unit shut-down due to abnormal operating conditions associated with low refrigerant pressure, high condensing pressure, Should the abnormal operating condition continue until a protective limit is violated, the unit will be shut down. Unit protective functions of the Symbio (TM) 800, include loss of chilled water flow, evaporator freezing, loss of refrigerant, low refrigerant pressure, high refrigerant pressure, high compressor motor temperature, and loss of oil to the compressor.

The display is outdoor capable including an UV resistant touchscreen with removable cover.

Remote Communications - BACnet Interface (MS/TP)
BACnet Interface allows the user to easily interface with using BACnet MS/TP via a single twisted-pair wiring to a factory-installed and tested communication board. Provides support for BACnet defined MS/TP protocol as defined by ASHRAE standard 135-2004.

Programmable Relays
Predefined, factory-installed, programmable relays allow the user to select four relay outputs.
Available outputs are: Latching alarm (manual reset), Non-latching alarm (auto reset), Alarm, Alarm ckt1, Alarm ckt2, Chiller limit mode, Compressor running, Ckt1 running, Ckt2 running, Warning, Maximum capacity, Evaporator freeze avoidance request, Service request, Ice making status, Refrigerant charge loss detected, Hot water control status and Defrost status

Note: An additional 115V field provided power connection is required to power the programmable relays.

The following hardwire inputs are available: Ice making control. External chilled water setpoint, external demand limit setpoint. Chilled water temperature reset.

Architectural Louvered Panels
Louvered panels cover the complete condensing coil and service area beneath the condenser.

Isolators
Molded elastomeric isolators, sized to reduce vibration transmission to the supporting structure when the unit is installed, ship with the chiller.

Convenience Outlet
Provides a 20 amp, 115 volt (60 Hz) convenience outlet on the unit.

Note: An additional field supplied power connection must be provided to power the convenience outlet. The chiller is configured with the optional convenience outlet, it will require an additional circuit which terminates on 1X6-4 and 1X6-5.

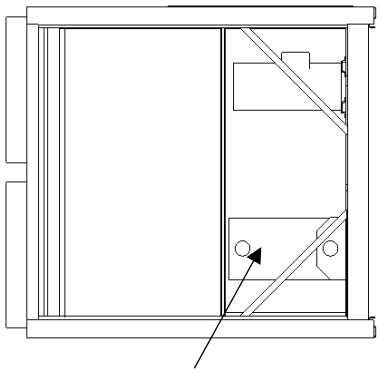
Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

NOMINAL TONNAGE 140

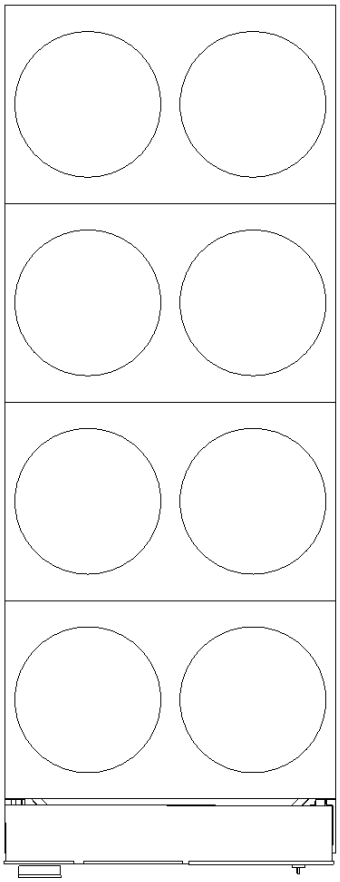
WATER CONNECTION 4" (100mm)

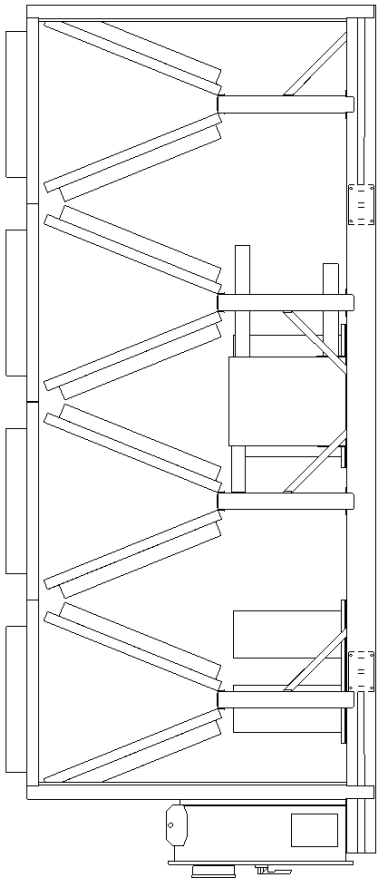
WATER VOLUME 17.4 Gallons/65.9 Liters

NOTE: WIRING AND MOST PIPING IS NOT SHOWN FOR CLARITY. ONLY MAJOR COMPONENTS ARE SHOWN.

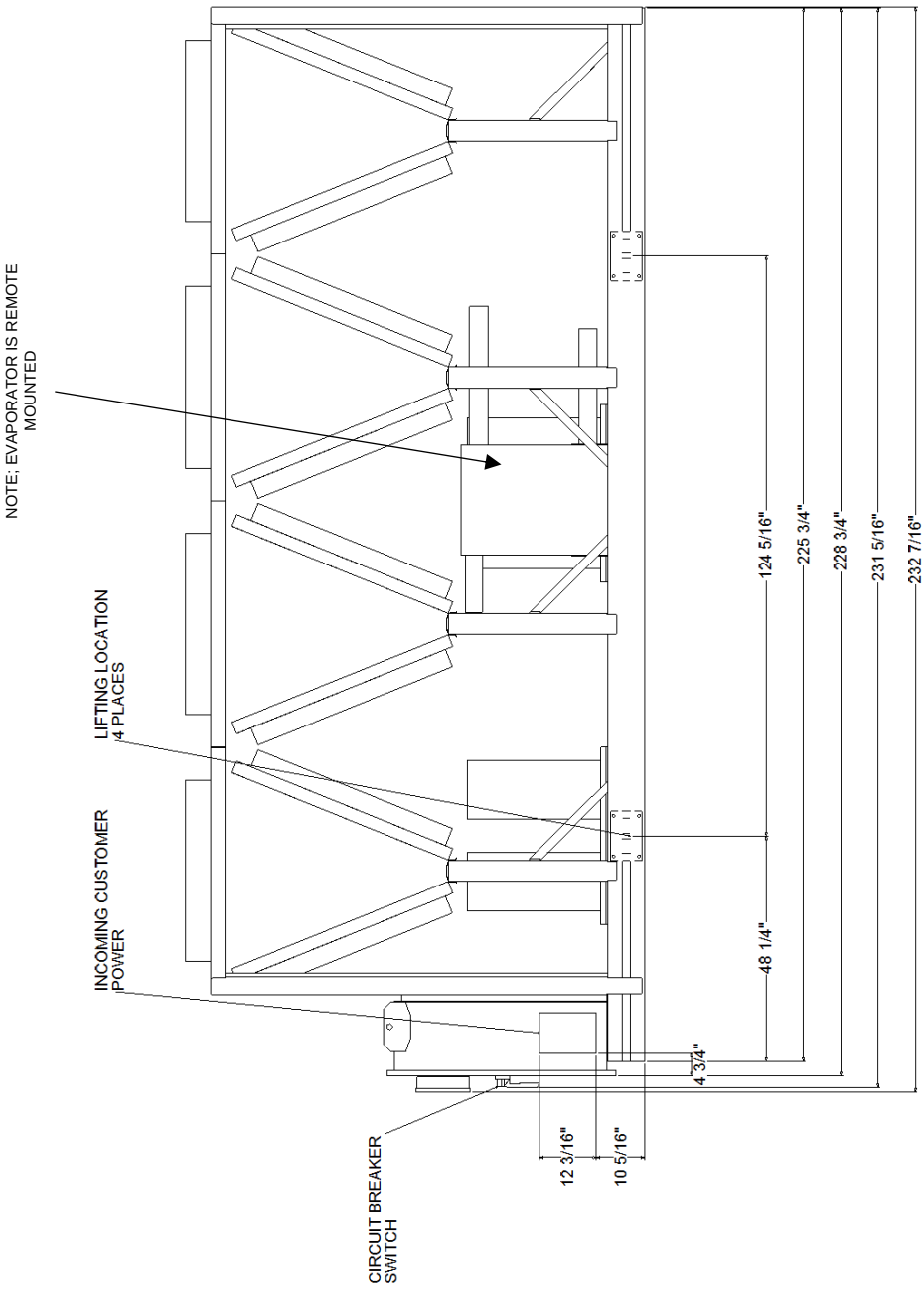


NOTE; EVAPORATOR IS REMOTE MOUNTED

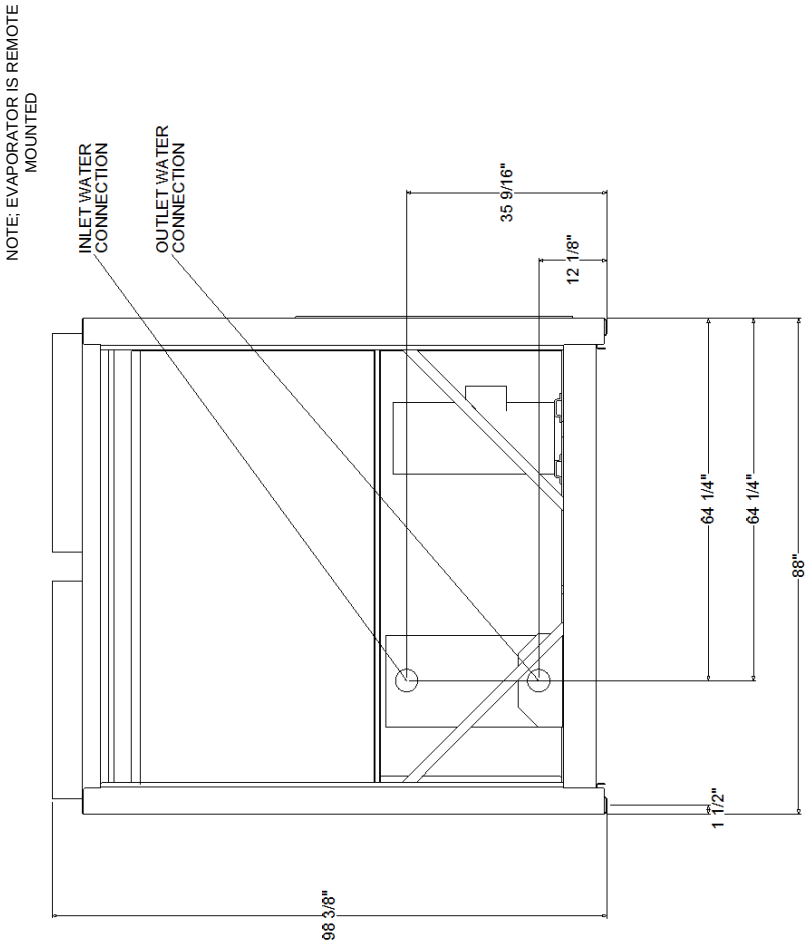




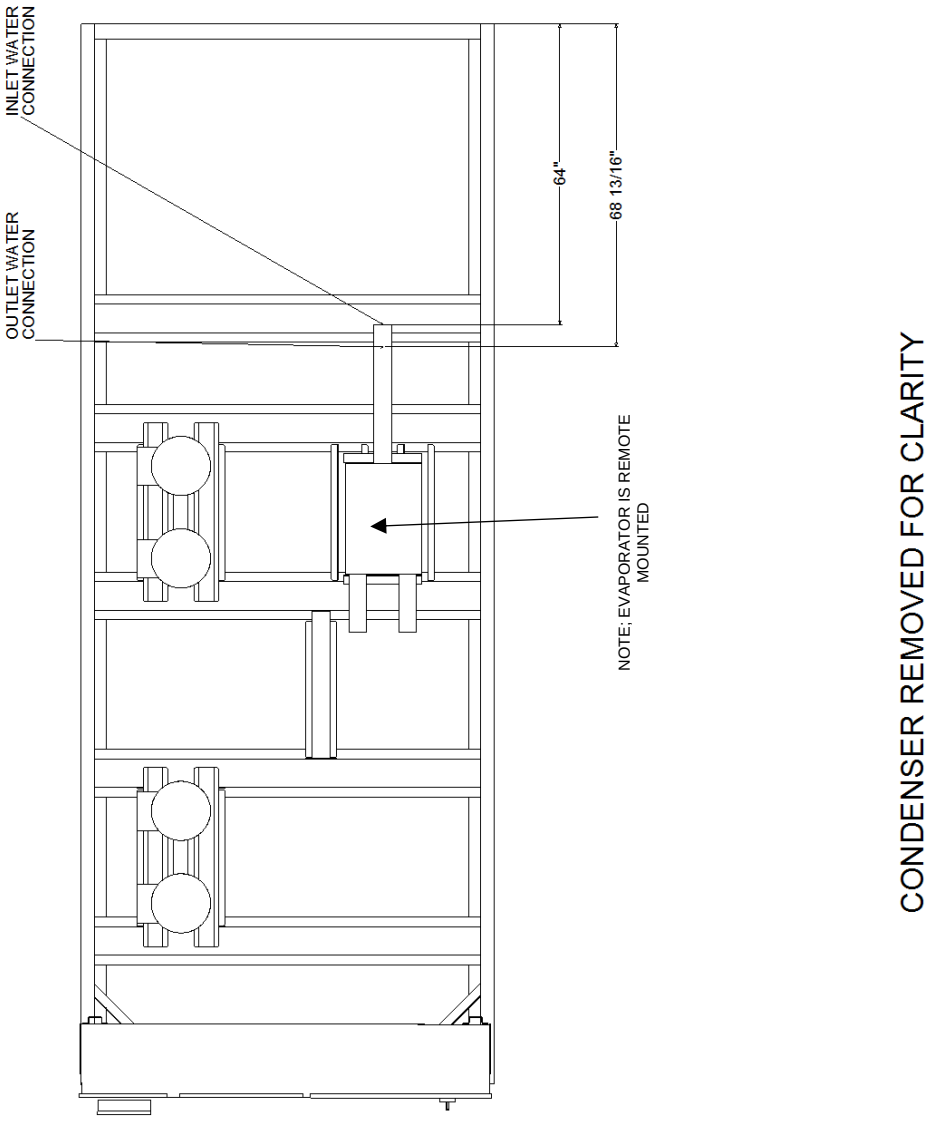
Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



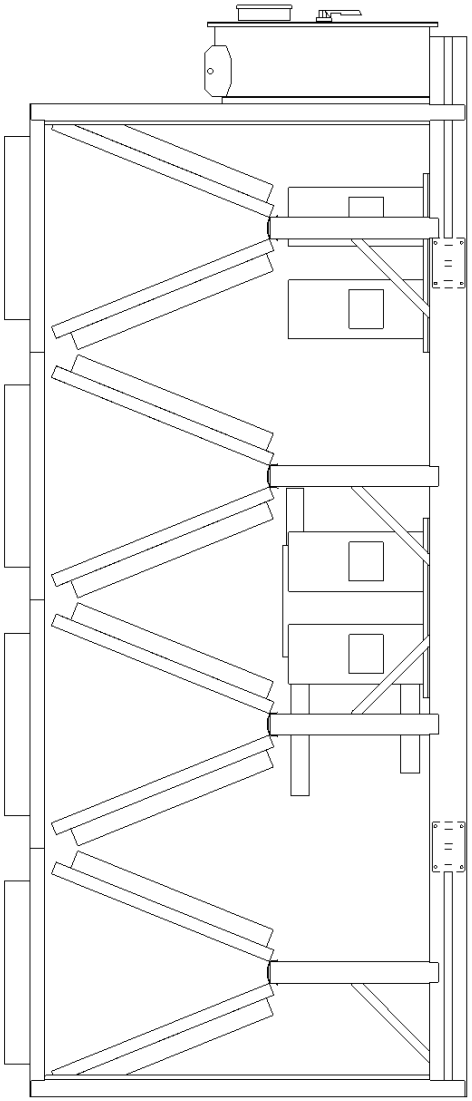
Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

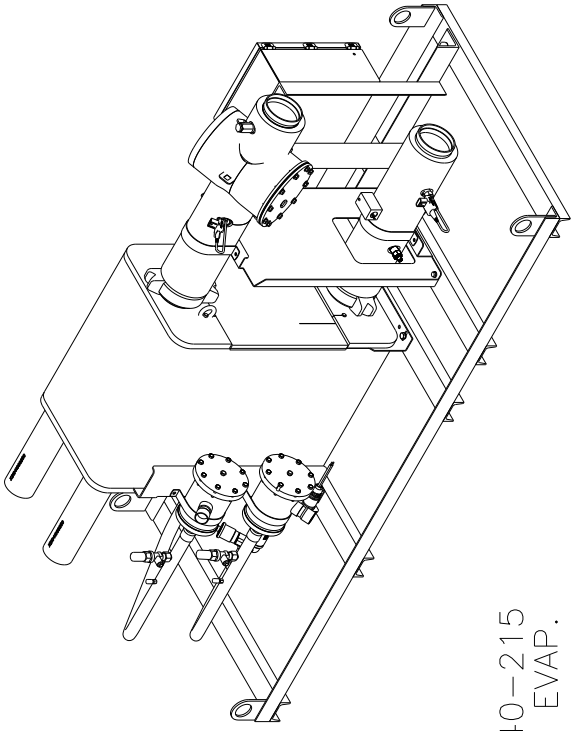


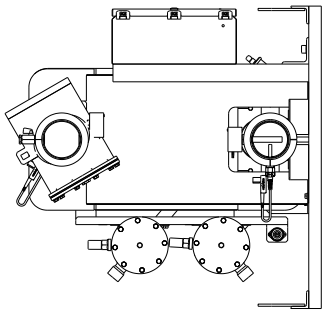
Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



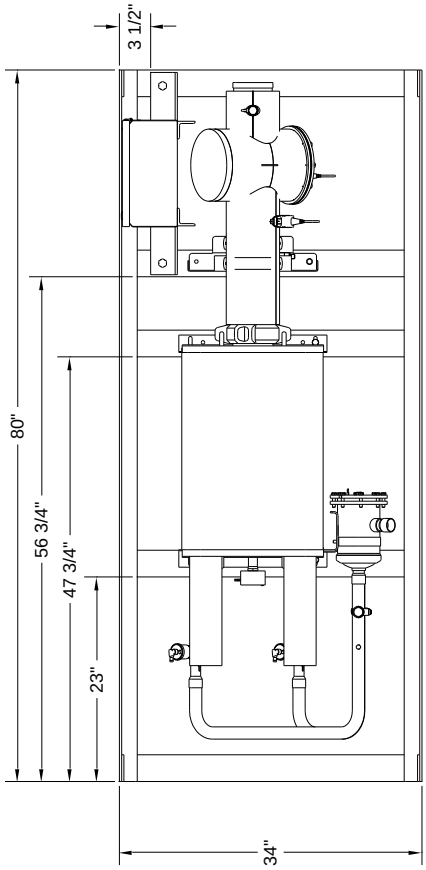
The left side view of the unit is displayed for units with partial heat recovery. If no heat recovery option is selected, no dimensions will be displayed.

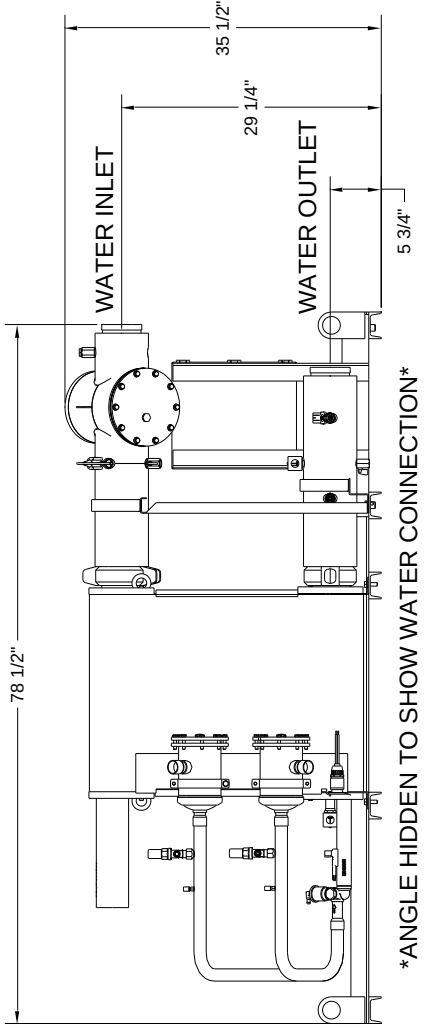
Dimensional Drawings - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



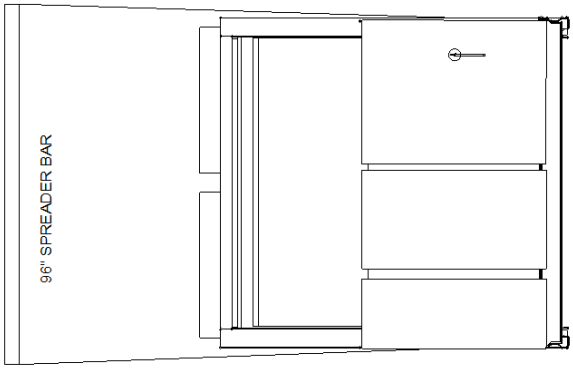


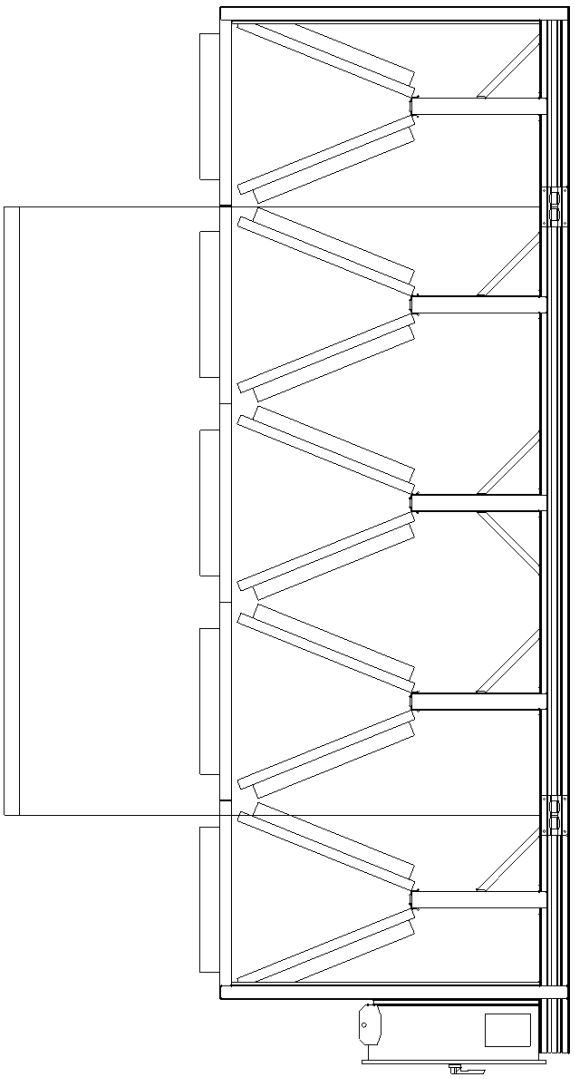
ACSA 140–215
REMOTE EVAP.





Weight, Clearance & Rigging - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1





NOTES:
1. DO NOT FORK LIFT UNIT.
2. KEEP UNIT LEVEL WHEN LIFTING.
3. TOTAL WEIGHT IS TYPICAL FOR UNITS WITH REFRIGERANT CHARGE AND WITHOUT LOUVER PANELS.
4. DIAGRAM IS A GENERIC REPRESENTATION OF THE UNIT.
5. THE MAXIMUM RIGGING ABLGE AT EACH CHILLER LIFT POINT IS 30 DEGREES FROM VERTICAL.
6. DO NOT ALLOW LIFTING STRAPS/CHAINS TO CONTACT UNIT DURING LIFT.

TOTAL SHIPPING/LIFTING WEIGHT 7,154 lb

WARNING
LIFITNG AND RIGGING
Use the spreader bar as shown in the diagram. Refer to installation instructions located inside control panel for further rigging information.

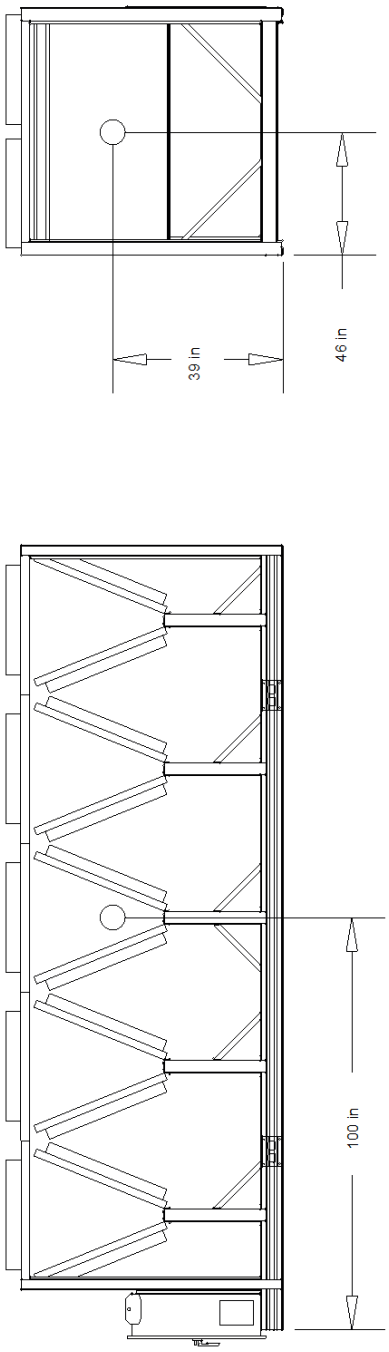
Other lifting arrangements could result in death, serious injury or equipment damage.

DO NOT ALL LIFTING STRAPS TO CONTACT UNIT DURING LIFT.

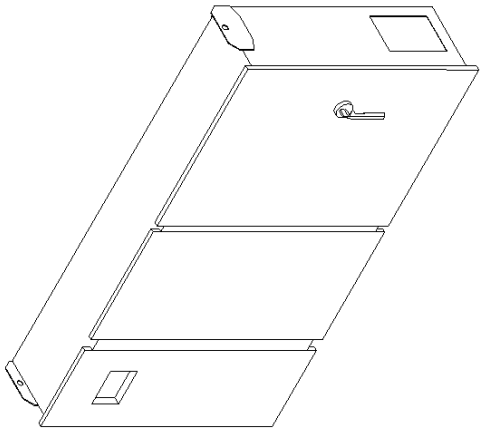
Weight, Clearance & Rigging - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

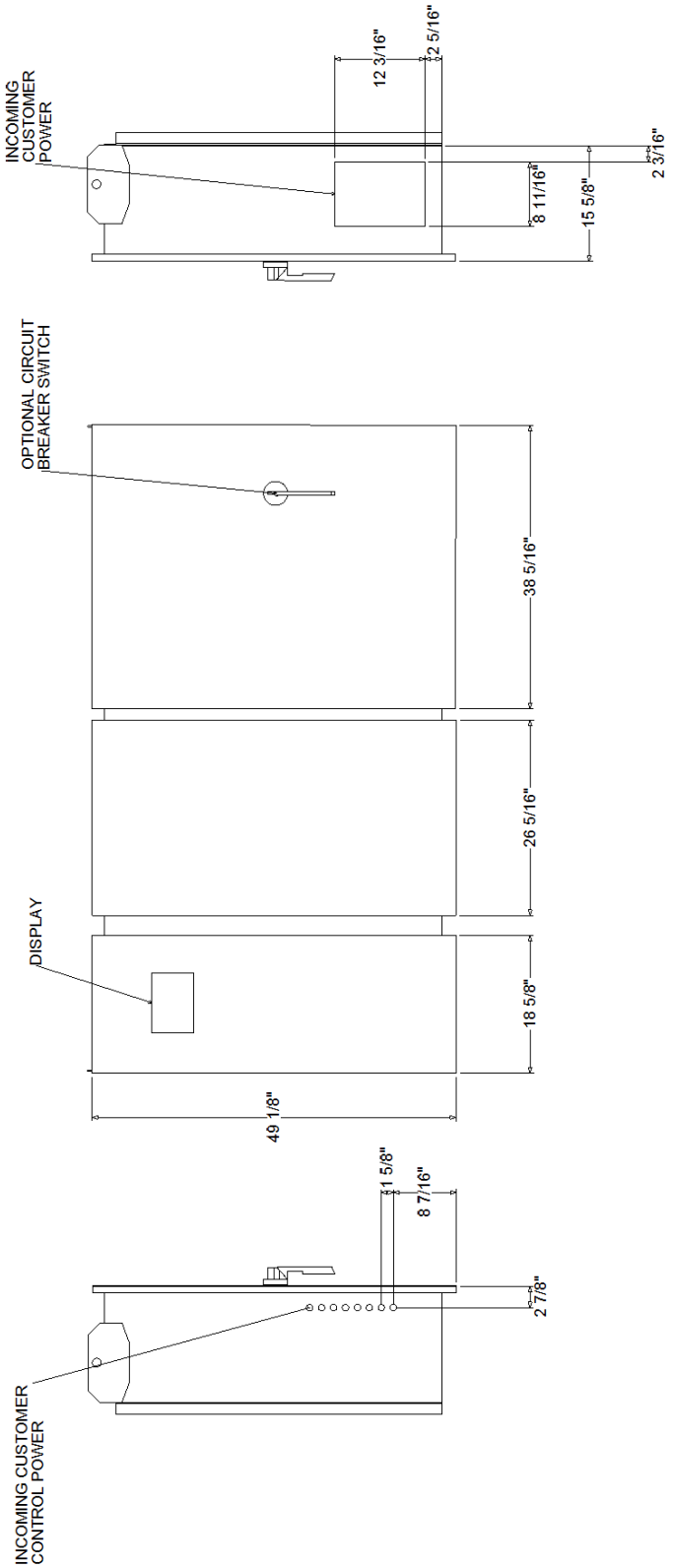
CENTER OF GRAVITY

Different unit configurations and options may cause a variation in the center of gravity from what is listed. Refer to the Installation, Operating and Maintenance manual for specific lifting instructions.



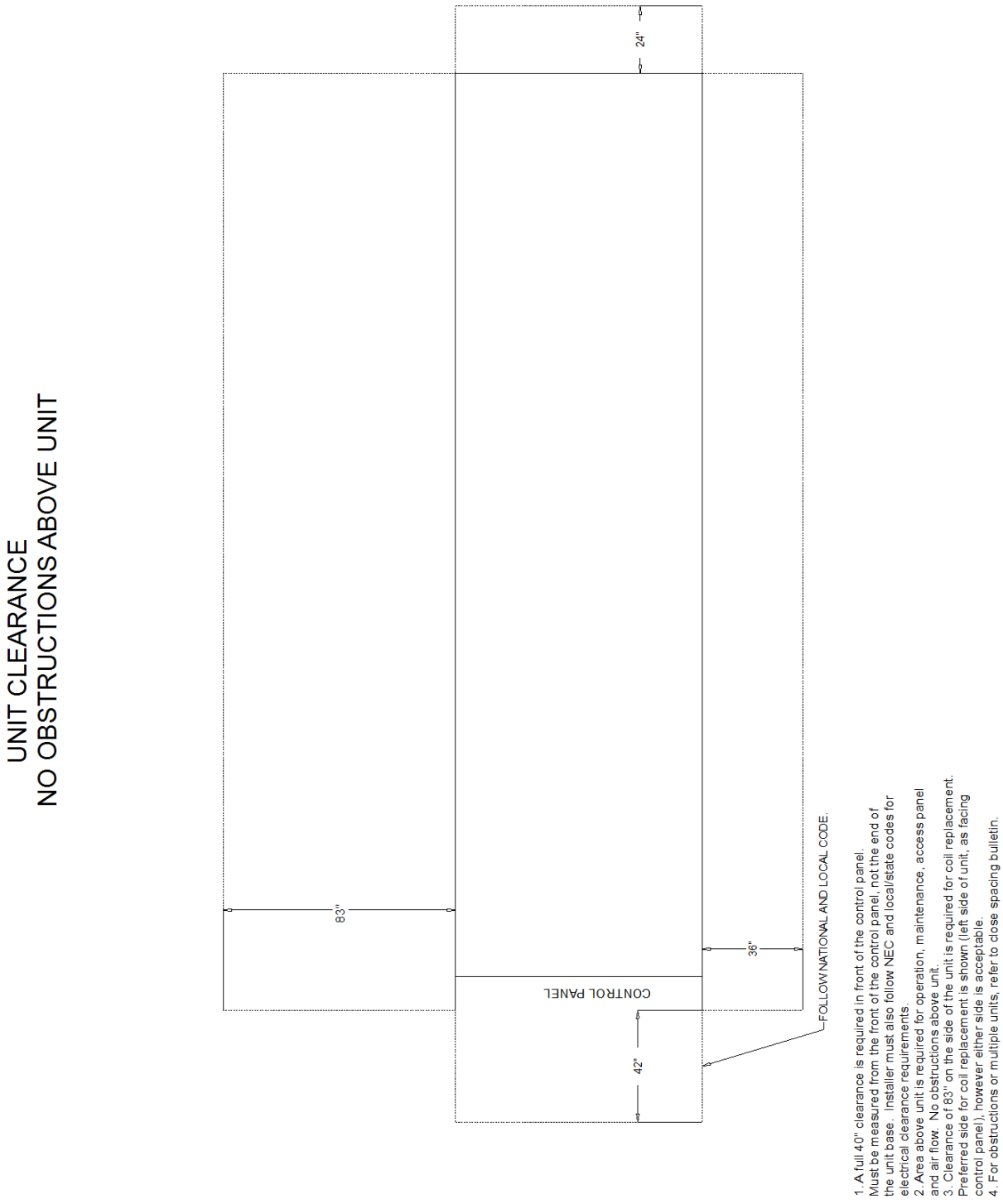
Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1





CUSTOMER WIRE SELECTION TABLE	
POWER WIRE CONNECTION TO STANDARD FAULT CIRCUIT BREAKER	
CIRCUIT 1 & 2 (SINGLE POINT POWER) LUG WIRE SIZE RANGE (PER PHASE)	(2) 2/0 - 500 MCM
SHORT CIRCUIT RATING	10,000 A

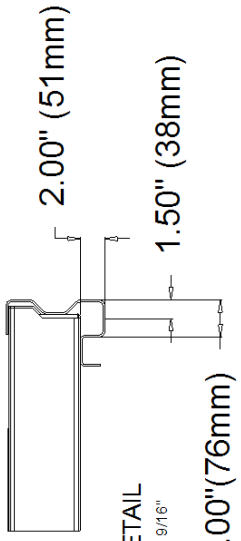
Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



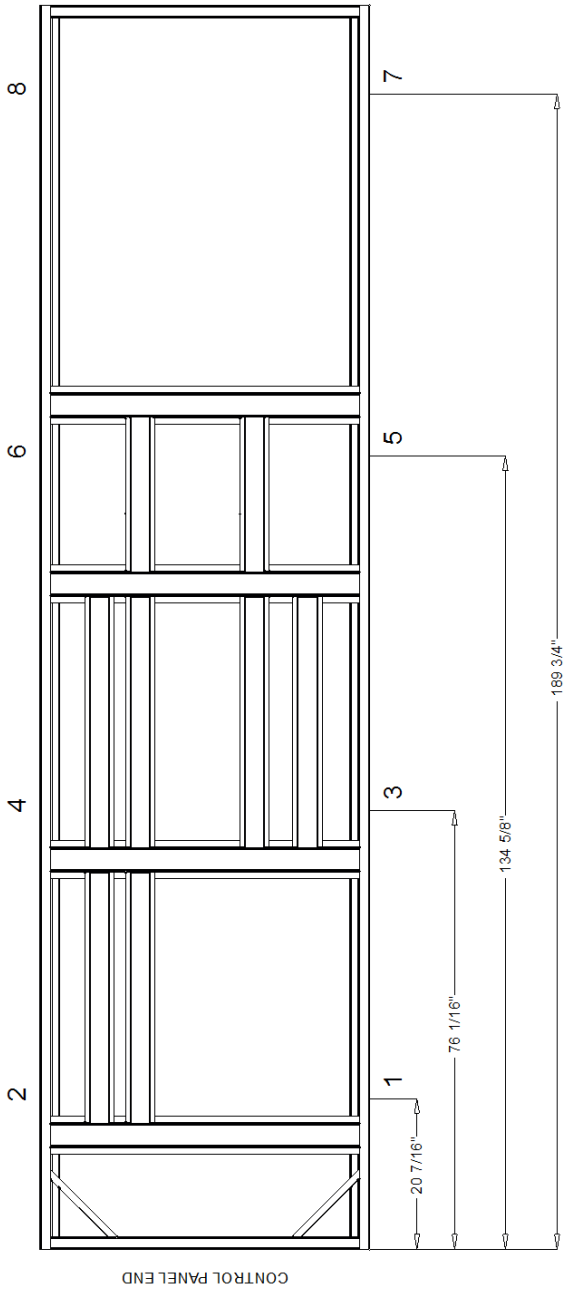
Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

MOUNTING DETAILS

UNIT SIZE	1	2	3	4	5	6	7	8	OPERATING WEIGHT
140	1,328 lb	1,410 lb	870 lb	1,319 lb	484 lb	621 lb	601 lb	662 lb	7,297 lb
	RDP4-WR BRICK RED	RDP4-WR LIME	RDP4-WR BRICK RED	RDP4-WR LIME	RDP4-WR BROWN	RDP4-WR BROWN	RDP4-WR BROWN	RDP4-WR BROWN	WEIGHT TOLERANCE +/- 10 %



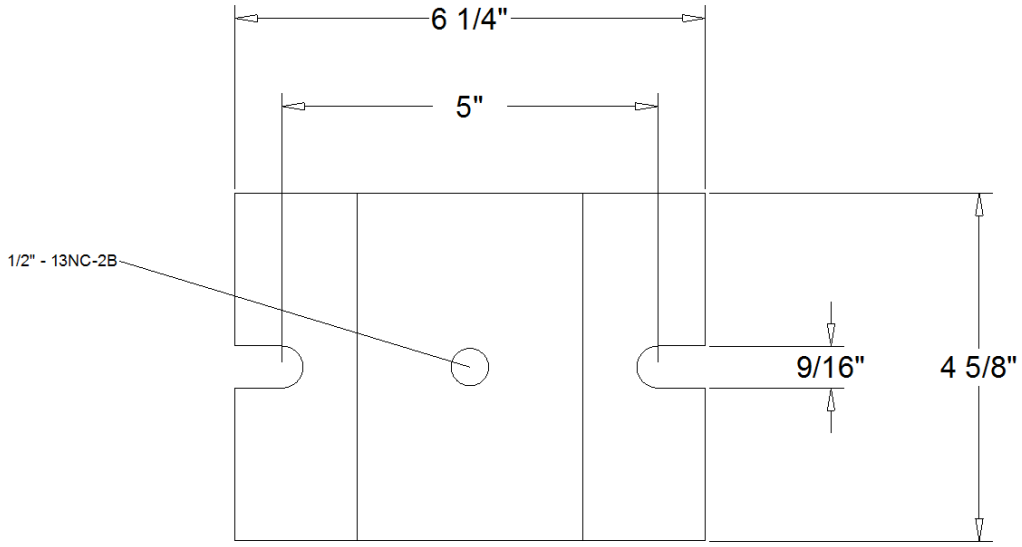
BASE RAIL/MOUNTING DETAIL
Mounting Hole Diameter: 9/16"

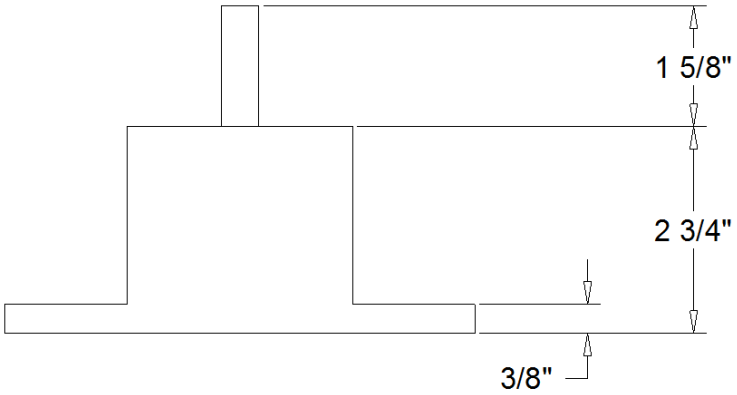


TOP VIEW
DIMENSIONS FROM END OF UNIT BASE
DIMENSIONS TYPICAL OF BOTH SIDES

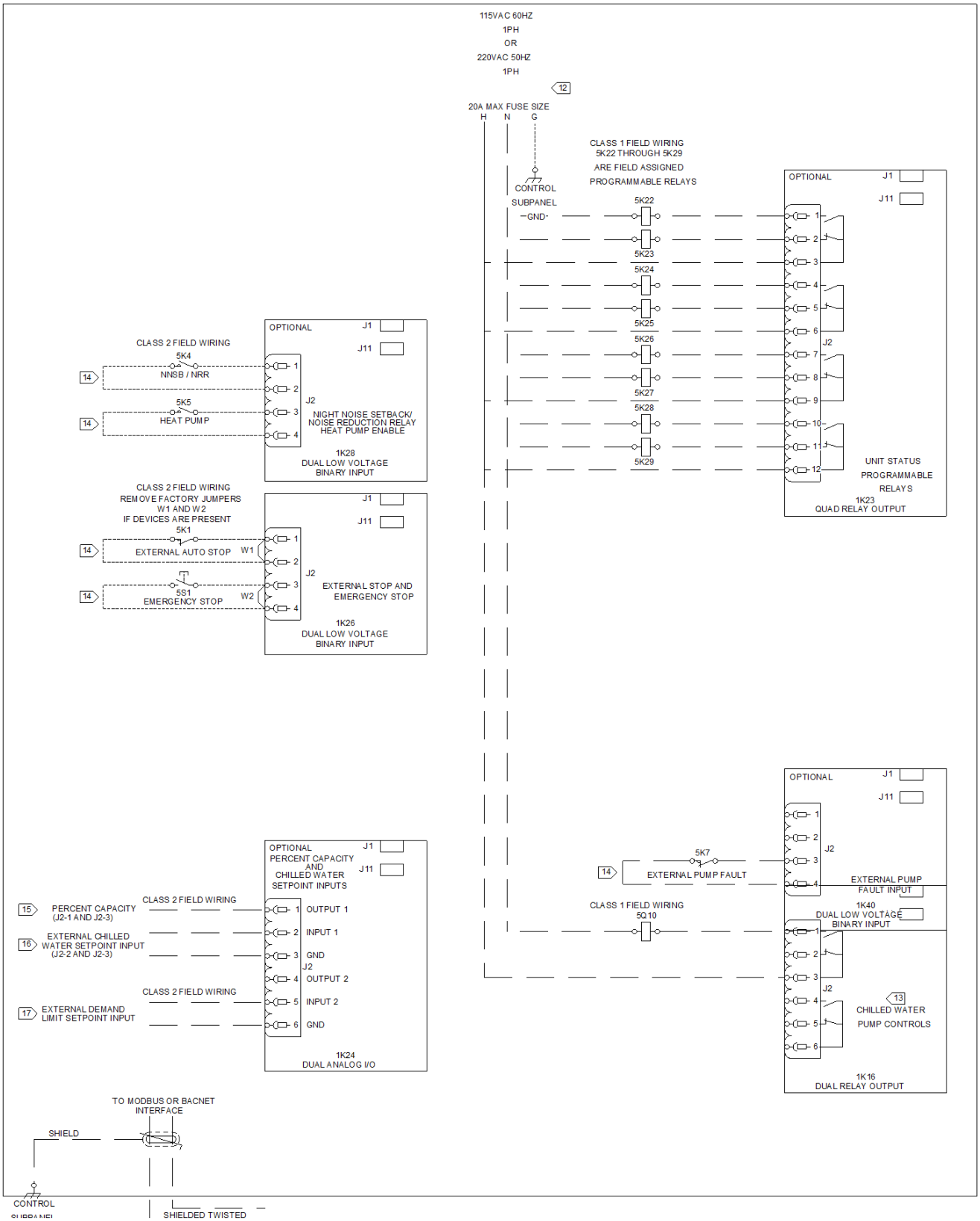
Accessory - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

NEOPRENE ISOLATOR DIMENSIONS

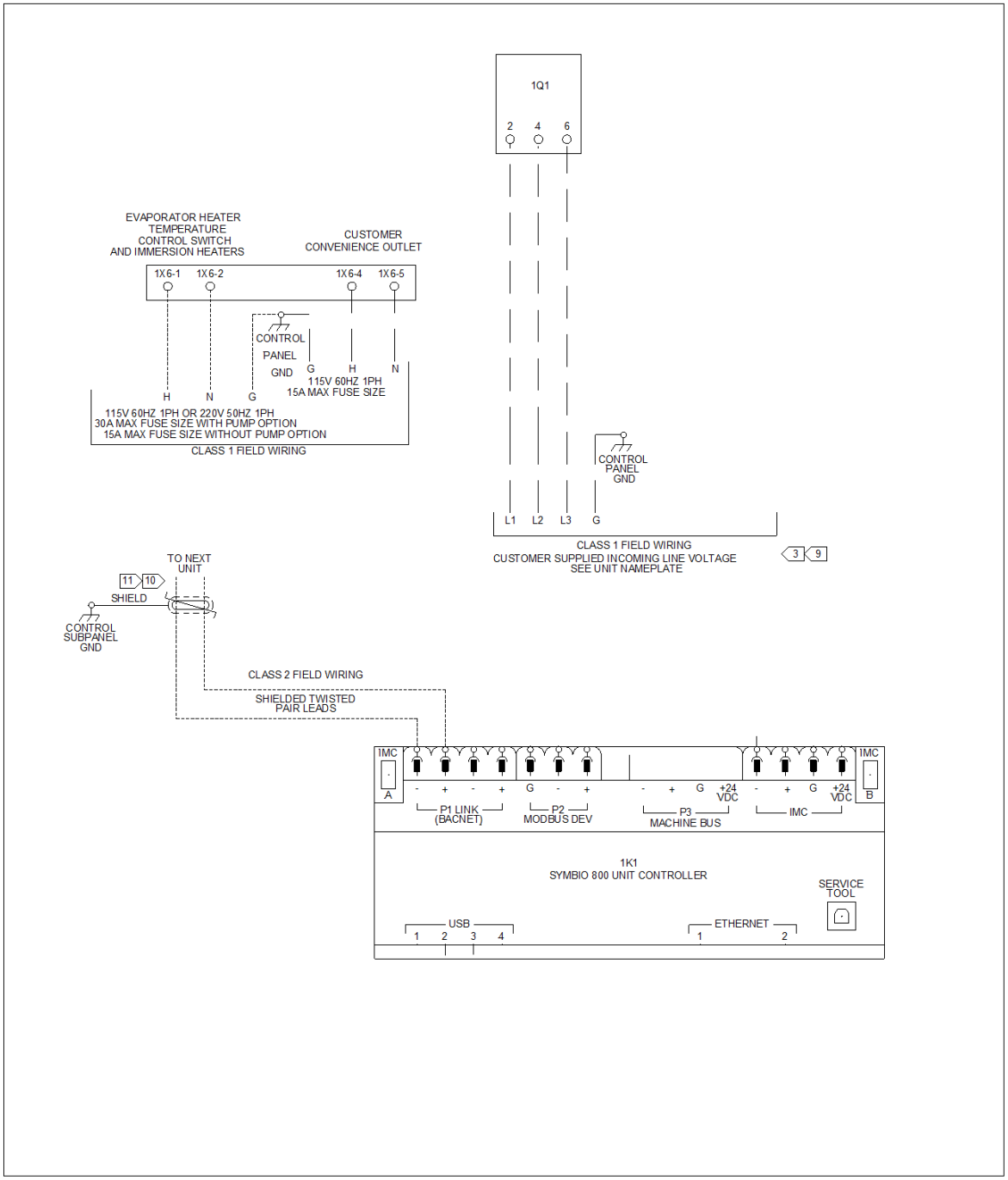




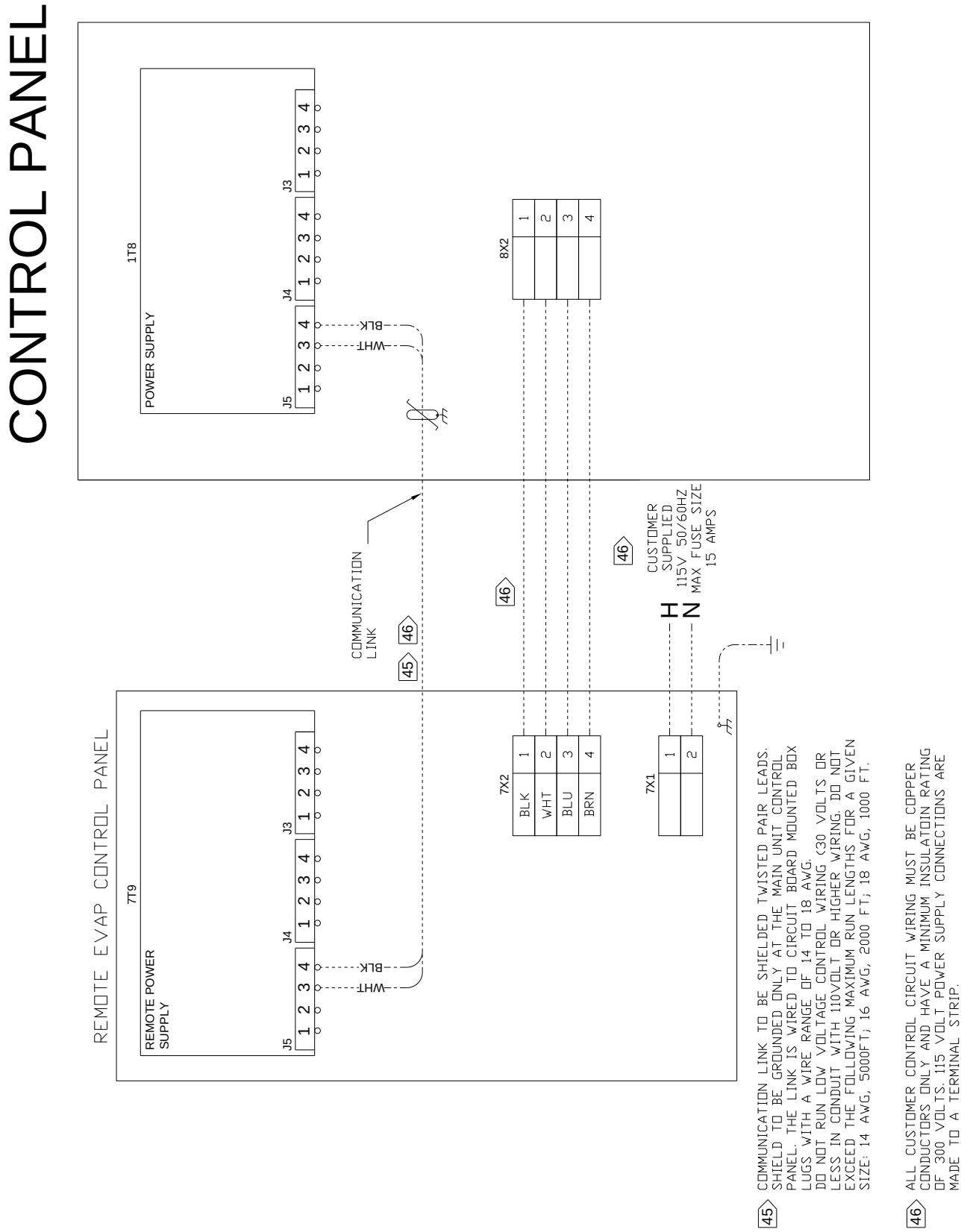
Field Wiring - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



Field Wiring - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



Field Wiring - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1



Field Wiring - Air-Cooled Scroll
Item: A1 Qty: 1 Tag(s): ACSA-1

GENERAL NOTES:

1. WIRE REPRESENTED BY DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
2. ALL STANDARD AND OPTIONAL COMPONENTS SHOWN.
3. SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THIS PRODUCT. FIELD CONNECTIONS ARE MADE TO DEVICES 1Q1 OR 1X1.
4. ALL MOTORS ARE PROTECTED FROM PRIMARY SINGLE PHASE FAILURES.
5. CAUTION - TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. EVAPORATOR CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN DAMAGE TO THE UNIT.
6. CAUTION - DO NOT ENERGIZE THE UNIT UNTIL CHECK OUT AND STARTUP PROCEDURES HAVE BEEN COMPLETED.

WIRING REQUIREMENTS:

7. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL CODES.
8. DO NOT RUN LOW VOLTAGE CONTROL WIRING (30V OR LESS) IN CONDUIT WITH 110V OR HIGHER WIRING. DO NOT EXCEED THE FOLLOWING MAXIMUM RUN LENGTH FOR A GIVEN SIZE: 14 AWG OF 5000 FT, 16 AWG OF 2000 FT OR 18 AWG OF 1000 FT.

9 ALL UNIT POWER WIRING MUST BE 600V COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 90 C. REFER TO UNIT NAMEPLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION DEVICE. PROVIDE AN EQUIPMENT GROUNDING IN ACCORDANCE WITH APPLICABLE ELECTRIC CODES. REFER TO WIRE RANGE TABLE FOR LUG SIZES.

10 SHIELDED, TWISTED PAIR LEADS ARE REQUIRED FOR CONNECTIONS TO THE COMMUNICATIONS INTERFACE MODULES (1K1 OR OPTIONAL 1K6). THE SHIELD SHOULD BE GROUNDED AT THE UNIT CONTROL PANEL END.

11 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 IS RECOMMENDED FOR WIRING TO NEXT UNIT. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS ARE NOT TO EXCEED 4500 FT. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.

12 ALL CUSTOMER SUPPLIED CONTROL CIRCUIT WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM INSULATION RATING OF 300V. EXCEPT AS NOTED, ALL CUSTOMER WIRING CONNECTIONS ARE MADE TO CIRCUIT BOARD MOUNTED BOX LUGS WITH A WIRE RANGE OF 14 TO 18 AWG OR TO DIN RAIL MOUNTED SPRING FORCE TERMINALS.

CONTACT RATINGS AND REQUIREMENTS:

13 UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER / CHILLED WATER PUMP CONTROL. RELAY CONTACT RATINGS AT 120VAC: 7.2A RESISTIVE, 2.88A PILOT DUTY, OR 1/3 HP, 7.2 FLA. CONTACTS ARE RATED FOR 240VAC, 5A GENERAL PURPOSE DUTY. 1K16 IS NOT PRESENT WITH PUMP PACKAGE OPTION.

14 CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATABLE WITH DRY CIRCUIT 24VDC FOR A 12mA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS ARE RECOMMENDED.

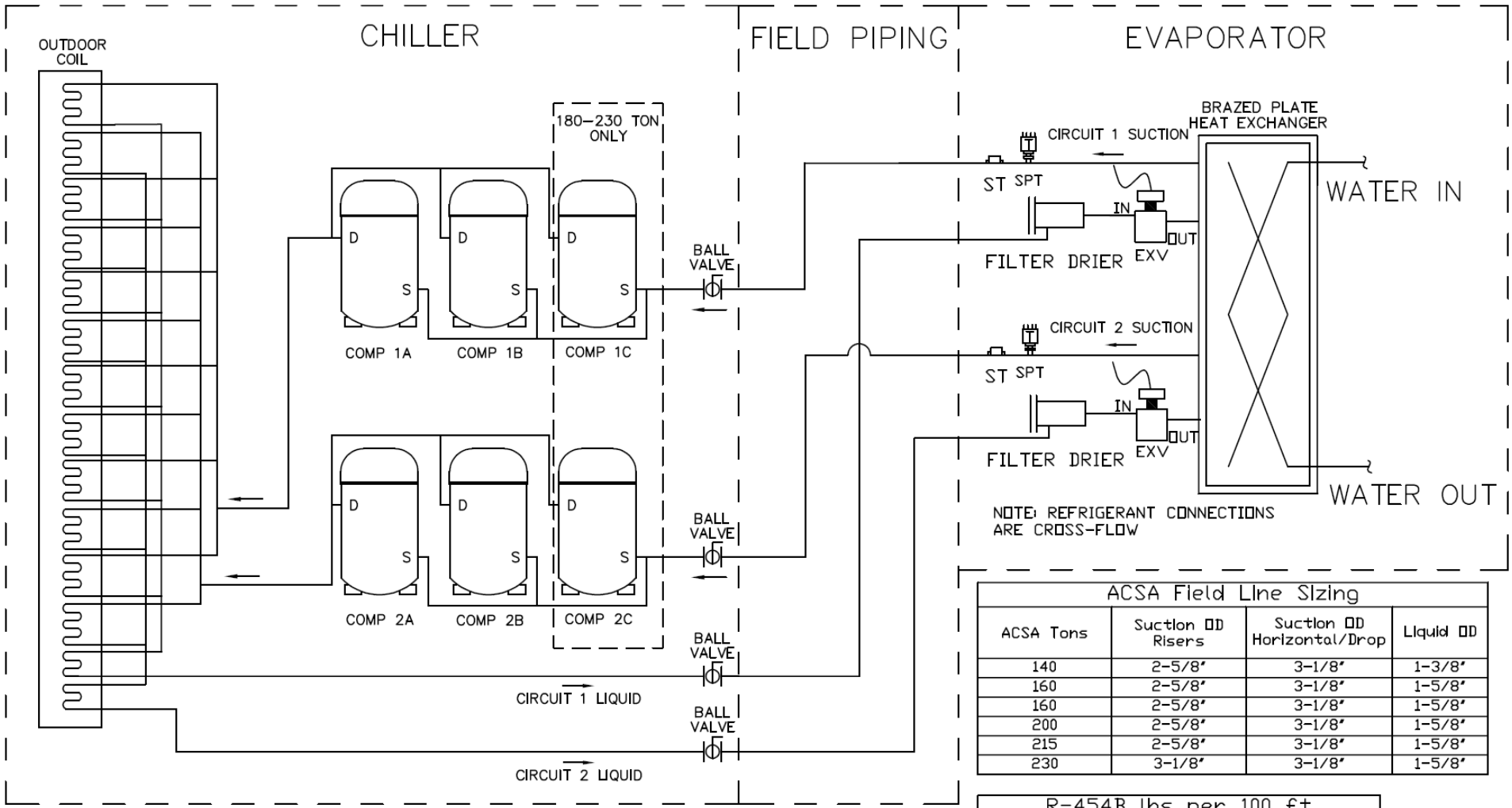
15 TERMINALS 1 & 3 ARE TO BE WIRED TO REPORT % CAPACITY. OUTPUT CONFIGURED 2-10 VDC.

16 TERMINALS 2 & 3 ARE TO BE WIRED TO CUSTOMER EXTERNAL CHILLED WATER SETPOINT. INPUT CONFIGURED 2-10 VDC FROM FACTORY. SEE OPERATING INSTRUCTIONS TO CONFIGURE FOR 4-20 mA.

17 TERMINALS 5 & 6 ARE TO BE WIRED TO CUSTOMER EXTERNAL DEMAND LIMIT SETPOINT. INPUT CONFIGURED 2-10 VDC FROM FACTORY. SEE OPERATING INSTRUCTIONS TO CONFIGURE FOR 4-20 mA.

18 WHEN ICE MAKING OPTION SELECTED, DEFAULT RELAY SETTING WILL BE REPLACED WITH "ICE MAKING COMPLETE" OUTPUT FUNCTION.

19 CURRENT TRANSFORMERS 1T11, 1T12, AND 1T13 ARE WIRED TO 1K50 AND ARE LOOSE FOR FIELD INSTALLATION. INSTALLING CONTRACTOR TO LOOP EACH CURRENT TRANSFORMER AROUND INCOMING WIRING IN ACCORDANCE WITH ENERGY METER INSTALLATION INSTRUCTIONS. BE MINDFUL OF PHASING AND THE DIRECTION THE ARROWS ARE POINTING ON THE CURRENT TRANSFORMERS.



ACSA Field Line Sizing			
ACSA Tons	Suction OD Risers	Suction OD Horizontal/Drop	Liquid OD
140	2-5/8"	3-1/8"	1-3/8"
160	2-5/8"	3-1/8"	1-5/8"
160	2-5/8"	3-1/8"	1-5/8"
200	2-5/8"	3-1/8"	1-5/8"
215	2-5/8"	3-1/8"	1-5/8"
230	3-1/8"	3-1/8"	1-5/8"

R-454B lbs per 100 ft		
Tube OD	Suction	Liquid
1-3/8"	-	51.9
1-5/8"	-	73.5
2-1/8"	-	-
2-5/8"	5.65	-
3-1/8"	8.06	-

Routing:
LIQUID: Install the liquid line with a slight slope in the direction of flow so that it can be routed with the suction line. A height limitation exists for liquid lines that include a liquid riser because of the loss of subcooling that accompanies the pressure loss in the height of the liquid column.

SUCTION: To prevent residual or condensed refrigerant from "free–flowing" toward the compressor during the off cycle, install the suction line so that it slopes by ¼ to 1 inch per 10 feet of run toward the evaporator.