

**ADDENDUM NO. 1 - TO
SPECIFICATIONS AND CONTRACT DOCUMENTS
SOUTHAVEN ELEMENTARY SCHOOL
CLASSROOM EXPANSION
DESOTO COUNTY, MISSISSIPPI
FOR
DESOTO COUNTY SCHOOLS**

JANUARY 13, 2017

This addendum forms a part of the Contract Documents and modifies the original specifications and drawings, dated 12-6-16 as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

This Addendum consists of 2 pages and 52 attachments.

- Item No. 1: MINUTES OF PRE-BID MEETING AND SIGN-IN SHEET: See attached Minutes of Pre-Bid Meeting and Sign-In Sheet consisting of 3 pages and dated January 10, 2017.
- Item No. 2: SPECIFICATIONS, SECTION 23 70 05 – HVAC MECHANICAL: Insert new section 237005 MULTIPLE EVAPORATOR, DIRECT EXPANSION (DX), AIR-COOLED, VARIABLE CAPACITY, SPLIT SYSTEM, consisting of 45 pages and marked “Revised 1-13-17” in lower left corner.
- Item No. 3: SPECIFICATIONS, SECTION 31 2000 – EARTHWORK:
1. Page 2, Page 2.1 A.1, delete “GW, GP, GM, SM, SP, ML, and CL.”
 2. Page 2, Page 2.1 A.2, delete “2.” And replace with:
“2. Imported fill soils should consist of select clayey sands (SC) or slightly clayey silty sands (SM) with a plasticity index in the range of 3 to 15 and a liquid limit less than 35 or silty clays (CL) or sand clays (CL) having a plasticity index in the range of 10 to 24 and a liquid limit less than 45.”
 3. Page 2, Page 2.1 B., add the following sentence: “Earth excavated from the project site must meet the requirements noted above.”
- Item No. 4: DRAWINGS, SHEET A0.1 – ARCH. SYMBOLS, ABBREVIATIONS, WALL TYPES, & PENETRATIONS: Add the following Notes:
- “Phasing/Schedule Notes: Add note “5. A PRE-BID WALK THROUGH WILL BE HELD ON JANUARY 16TH AT 8:30 AM. MEET IN FRONT OF SOUTHAVEN ELEMENTARY SCHOOL.”
- Item No. 5: DRAWINGS, SHEET M0.1 – LEGEND, GENERAL NOTES – MECHANICAL: Remove and destroy this sheet and insert the attached revised Sheet M0.1 – GENERAL NOTES – MECHANICAL dated 1-13-17.
- Item No. 6: DRAWINGS, SHEET M1.1 – FLOOR PLAN – MECHANICAL: Remove and destroy this sheet and insert the attached revised Sheet M1.1 – FLOOR PLAN – MECHANICAL dated 1-13-17.
- Item No. 7: DRAWINGS, SHEET E0.1 – LEGEND, LIGHTING FIXTURE SCHEDULE AND DETAILS - ELECTRICAL: Remove and destroy this sheet and insert the attached revised Sheet E0.1 – LEGEND, LIGHTING FIXTURE SCHEDULE AND DETAILS - ELECTRICAL dated 1-13-17.

Item No. 8: DRAWINGS, SHEET E3.1 – FLOOR PLAN – POWER, COMMUNICATIONS, AND FIRE ALARM - ELECTRICAL: Remove and destroy this sheet and insert the attached revised Sheet E3.1 – FLOOR PLAN – POWER, COMMUNICATIONS, AND FIRE ALARM - ELECTRICAL dated 1-13-17.

ALLEN & HOSHALL, PLLC
ENGINEERS ARCHITECTS
1661 INTERNATIONAL DRIVE
SUITE 100
MEMPHIS, TENNESSEE
38120

JOB NO. 62565

PRE-BID MEETING MINUTES

Southaven Elementary Expansion

January 10, 2017 - 10:00 am

Desoto County Schools – Physical Office Location

In Attendance: See Sign-In Sheet

AGENDA

- I. Introductions
 - A. DeSoto County Schools –
 1. Leslie Pool – Field Representative
 2. Mike Ramage – Plant Maintenance, Office representative
 3. Jerry White – Plant Maintenance, Director
 - B. Allen & Hoshall – Michel Lebel, Architect – Project Manager
- II. Bid Schedule and Requirements
 - A. Bids Received at the DCS Headquarters until January 20th @ 2:00 PM
 - B. Bid Submittal Requirements – See Instructions to Bidders
 - C. Bid Bond Required
- III. Bid Form, Section 00 41 00
 - A. Allowances
 - Contingency Allowance for Owner-Authorized Amendments – Will be changed via addendum
 - Unit Price Items for Undercut Excavation
 - B. NOTE: Lump Sum Base Bid includes the bid amount for the Contingency Allowance and undercut excavation provide listed. The amounts listed in the bid form are for each school and separated as such.
- IV. Project Schedule **(There will be a walkthrough of the project on January 16th at 10am – meet in the school lobby)**
 - Bids January 20th
 - School Board meets Feb 6th and approves contract
 - Notice to Proceed by about February 10th, 2017, assuming bonds and insurance are in place.
 - Substantial Completion by July 27, 2017
 - Final Completion by August 26, 2017
 - Liquidated Damages are set at \$1,000/calendar day, per the Bid Form.
- V. There will be no contract time extension for Weather delays.
- VI. Or Equal Substitution – Substitution requests will be considered after the bids are received. All properly submitted requests will be considered, but the burden of proof is with Contractor. Pre-bid substitutions are recommended.

- VII. Communication During Bidding
- Written communication is preferred either by email (mlebel@allenhoshall.com) or by fax to Michel Lebel: 901 683 1001. If not written, you may call Me: 901 820 0820.
 - Addendum will be sent to all the Plan Holders, which includes the plan rooms.
 - We will not be answering any questions within 48 hours of the bid (excluding weekends and holidays), after January 18th at 1:00 PM. Please try to get your questions in before the last minute so we can have time to answer them properly.
- VIII. Contracting Requirements
- See Agreement included in these documents for form of Agreement.
 - See General Conditions included in these documents.
- IX. Use of Premises – Will be worked out with successful bidder.
- X. Working Hours – hours will not be limited. Work located inside the existing school shall be coordinated.
- XI. Security – Contractor will be responsible for security of the work site and his property thereon.
- XII. Safety –
- Clean and safe work area
 - Typical workplace safety precautions
- XIII. Hauling and Deliveries/Access During Daily Heavy Traffic Times – shall be discussed with successful bidder.
- XIV. Temp Utilities will be provided on site by the school
- XV. Processing Pay Applications – Submit for Review 1st week of the Month. Payment by DCS around the 15th.
- XVI. Southaven for permit and Inspections. –
- XVII. Testing – Owner will select and pay for construction testing under a separate agreement, per the contract documents if any required.
- XVIII. City Review Fees - Paid by the Owner. Bidders should anticipate that the plans review will be complete by the time of bidding.
- XIX. Building Permit – Contractor Pays Building Permit and inspection fees.
- XX. Construction Trailer and Lay Down Area
- XXI. Other Items

DESOTO COUNTY SCHOOLS

BID - SIGN-IN SHEET
Southaven Elementary School Expansion

1/10/2017 - 2:00 PM

Page 1

Name	Organization	Phone	Fax	email
1 Mike Amajc	Desoto County Schools	901 734 5149		Mike.Amajc@dcsm.s.org
2 Shea Smith	C+M Builders	662-342-7182	662-342-5302	Sheas@cmbuilders.com
3 Bill Brudshaw	Tri. State Ironworks	901-628-8914	901-942-2303	bbrudshaw@tristateironworks.com
4 Ray Boveher	Levine & Roof, Inc	901 683 6885	901 683 1740	Ray@LevineandRoof.com
5 Jamie White	Fulwood Const	901-496-4188	662-890-8949	Jamie@fulwoodconstruction.com
6 Todd Fulwood	Fulwood Const	662-890-8904	662-890-8949	Toddc.Fulwood@construction.com
7 Leslie Pool	DCS	901-461-4188		
8 Hugh Brewer	CTS	662-282-4625	662-542-7484	hbrewer@cs.page.com
9 DANNT JACKSON	AMERICAN FIRE PROT. GROUP	731-256-5529	731-724-9069	DANNY.JACKSON@AFPG-USA.US
10 DAVIO SANDOZ	SMS CONTRACTORS	901 774-4171	901 774-9360	DSANDOZ@SMS CONTRACTORS.COM
11 Jerry White	ACS	901-282-2247		jerry.white@dcsm.s.org
12 JAMES BAZI	DATA NETWORK SYSTEMS	901-670-3766		JAMES@DATANETWORKSYSTEMS.NET
13 JOHN ALBER	ALBRO CONSTRUCTION	612 298 8569 901-581-0225	662-510-0389	Jalbro@albroconstruction.com
14 Jerry Lewis	Amteck, LLC	731-286-2772	731-286-2777	JLewis@Amteck.com
15 Nick Ingram	OKMOR Construction	970-275-8383		Nick@okmorse.com

Ray Woods MidSouth Erosion 662-838-2323 M.SouthErosion@yahoo.com
Zach Herin Legacy Const Services 901-828-3336 Zachherin71@gmail.com

SECTION 23 7005

MULTIPLE EVAPORATOR, DIRECT EXPANSION (DX), AIR-COOLED, VARIABLE CAPACITY,
SPLIT SYSTEM

PART 1 – GENERAL

1.1 VARIABLE REFRIGERANT VOLUME AIR CONDITIONING
– Three Pipe Heat Recovery

SYSTEM DESCRIPTION

The variable capacity, heat recovery air conditioning system shall be a Daikin Variable Refrigerant Volume Series (heat and cool model) split system as specified. The system shall consist of multiple evaporators, branch selector boxes, REFNET™ joints and headers, a three pipe refrigeration distribution system using PID control and Daikin VRV® condenser unit. The condenser shall be a direct expansion (DX), air-cooled heat recovery, multi-zone air-conditioning system with variable speed inverter driven compressors using R-410A refrigerant. The condensing unit may connect an indoor evaporator capacity up to 200% of the condensing unit capacity. All zones are each capable of operating separately with individual temperature control. A dedicated hot gas pipe shall be required to ensure optimum heating operation performance. Two-pipe, heat recovery systems utilizing a lower temperature mixed liquid/gas refrigerant to perform heat recovery are not acceptable due to reduced heating capabilities.

The Daikin condensing unit shall be interconnected to indoor unit models FXFQ, FXHQ, FXMQ, FXLQ, FXNQ, FXTQ, FXDQ, FXZQ, FXAQ, FXMQ_MF and FXUQ and shall range in capacity from 7,500 Btu/h to 96,000 Btu/h in accordance with Daikin's engineering data book detailing each available indoor unit. The indoor units shall be connected to the condensing unit utilizing Daikin's REFNET™ specified piping joints and headers to ensure correct refrigerant flow and balancing. T style joints are not acceptable for a variable refrigerant system.

Operation of the system shall permit either individual cooling or heating of each indoor unit simultaneously or all of the indoor units associated with each branch of the cool/heat selector box (BSQ_T / BS_Q54T). Each indoor unit or group of indoor units shall be able to provide set temperature independently via a local remote controller, an Intelligent Controller, an Intelligent Manager or a BMS interface.

Branch selector boxes shall be located as shown on the drawing. The branch selector boxes shall have the capacity to control up to 290 MBH (cooling) downstream of the branch selector box. Each branch of the branch selector box shall consist of three electronic expansion valves, refrigerant control piping and electronics to facilitate communications between the box and main processor and between the box and indoor units. The branch selector box shall control the operational mode of the subordinate indoor units. The use of three EEV's ensures continuous heating during defrost (multiple condenser systems), no heating impact during changeover and reduced sound levels. The use of solenoid valves for changeover and pressure equalization shall not be acceptable due to refrigerant noise.

The REYQ_T condensing unit model numbers and the associated number of connectable indoor units per REYQ_T condensing unit is indicated in the following table. Each indoor unit or group of indoor units shall be independently controlled.

Model Number	Nominal Capacity (Tons)	Number of Connectable Indoor Units
REYQ72TTJU	6	12
REYQ96TTJU	8	16
REYQ120TTJU	10	20
REYQ144TTJU	12	25
REYQ168TTJU	14	29
REYQ192TTJU	16	33
REYQ216TTJU	18	37
REYQ240TTJU	20	41
REYQ264TTJU	22	45
REYQ288TTJU	24	49
REYQ312TTJU	26	54
REYQ336TTJU	28	58
REYQ360TTJU	30	64
REYQ384TTJU	32	64
REYQ408TTJU	34	64
REYQ432TTJU	36	64
REYQ456TTJU	38	64

ENERGY RECOVERY VENTILATOR - SYSTEM DESCRIPTION

The fresh air ventilation system shall consist of the Daikin VAM-GVJU series energy recovery ventilator, incorporating a high-efficiency paper, cross-flow heat exchanger core in order to provide both sensible and latent heat recovery.

1.2 VRV IV FEATURES AND BENEFITS

- A. Voltage Platform –Heat recovery condensing units shall be available with a 208-230V/3/60 power supply.
- B. Advanced Zoning – A single system shall provide for up to 64 zones.
- C. Independent Control – Each indoor unit shall use a dedicated electronic expansion valve with 2000 positions for independent control.
- D. VFD Inverter Control and Variable Refrigerant Temperature – Each condensing unit shall use high efficiency, variable speed all “inverter” compressor(s) coupled with inverter fan motors to optimize part load performance. The system capacity and refrigerant temperatures shall be modulated automatically to set suction and condensing pressures while varying the refrigerant volume for the needs of the cooling or heating loads. The control will be automatic and customizable depending on load and weather conditions.
Indoor units shall use PID to control superheat to deliver a comfortable room temperature condition and optimize efficiency.
- E. Configurator software – Each system shall be available with configurator software package to allow for remote configuration of operational settings and also for assessment of operational data and error codes. If this software is not provided by an alternate manufacturer, for each individual outdoor unit the contractor shall do the settings manually and keep detailed records for future maintenance purposes.
- F. Autocharging – Each system shall have a refrigerant auto-charging function.
- G. Defrost Heating – Multiple condenser VRV systems shall maintain continuous heating during defrost operation. Reverse cycle (cooling mode) defrost operation shall not be permitted due to the potential reduction in space temperature.
- H. Oil Return Heating – Multiple condenser VRV systems shall maintain continuous heating during oil return operation. Reverse cycle (cooling mode) oil return during

heating operation shall not be permitted due to the potential reduction in space temperature.

- I. Low Ambient Cooling – Each system shall be capable of low ambient cooling operation to -4 °F DB.
- J. Independent Control – Each indoor unit shall use a dedicated electronic expansion valve for independent control.
- K. Flexible Design –
 - 1. Systems shall be capable of up to 540ft (623ft equivalent) of linear piping between the condensing unit and furthest located indoor unit.
 - 2. Systems shall be capable of up to 3,280ft total “one-way” piping in the piping network.
 - 3. Systems shall have a vertical (height) separation of up to 295ft between the condensing unit and the indoor units.
 - 4. Systems shall be capable of up to 295ft from the first REFNET™ / branch point.
 - 5. The condensing unit shall have the ability to connect an indoor unit evaporator capacity of up to 200% of the condensing unit capacity.
 - 6. Systems shall be capable of 98ft vertical separation between indoor units.
 - 7. Condensing units shall be supported with a fan motor ESP up to 0.32” WG as standard to allow connection of discharge ductwork and to prevent discharge air short circuiting.
- L. Oil Return – Each system shall be furnished with a centrifugal oil separator and active oil recovery cycle
- M. Simple Wiring – Systems shall use 16/18 AWG, 2 wire, multi-stranded, non-shielded and non-polarized daisy chain control wiring.
- N. Outside Air – Systems shall provide outside air capability.
- O. Space Saving – Each system shall have a condensing unit module footprint as small as 36-5/8” x 30-1/8”.
- P. Advanced Diagnostics – Systems shall include a self diagnostic, auto-check function to detect a malfunction and display the type and location.
- Q. Each condensing unit shall incorporate contacts for electrical demand shedding with optional 3 stage demand control with 12 customizable demand settings.
- R. Advanced Controls – Each system shall have at least one remote controller capable of controlling up to 16 indoor units.
- S. Each system shall be capable of integrating with open protocol BACnet and LonWorks building management systems.
- T. Low Sound Levels – Each system shall use indoor and condensing units with quiet operation as low as 27 dB(A).

1.3 QUALITY ASSURANCE

- A. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL 1995 – Heating and Cooling Equipment and bear the Listed Mark.
- B. All wiring shall be in accordance with the National Electric Code (NEC).
- C. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system shall be factory tested for safety and function.
- D. Mechanical equipment for wind-born debris regions shall be designed in accordance with ASCE 7-2010 and installed to resist the wind pressures on the equipment and the supports.
- E. The condensing unit will be factory charged with R-410A.
- F. The system shall be certified in accordance with Air Conditioning, Heating, and Refrigeration Institute’s (AHRI) Standard 1060 and bear the AHRI Certified label.

- G. The heat exchanger core shall be tested in accordance with Underwriters Laboratories (UL) 723 and shall have a flame spread rating of not more than 25, and a smoke developed rating of not more than 50.
- H. System efficiency shall meet or exceed 65% thermal efficiency and 40% enthalpy recovery efficiency.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Unit shall be stored and handled according to the manufacturer's recommendations.

1.5 WARRANTY

Five (5) year warranty on all parts and labor.

1.6 PERFORMANCE

The VRV IV REYQ_T system shall perform as indicated below:

Model Number	System IEER* (part load - ducted)	System IEER* (part load – non-ducted)	System IEER* (part load - mixed)
REYQ72TTJU	20.80	26.20	23.50
REYQ96TTJU	21.00	29.30	25.15
REYQ120TTJU	20.70	25.40	23.05
REYQ144TTJU	20.70	24.20	22.45
REYQ168TTJU	19.50	22.00	20.75
REYQ192TTJU	20.40	22.90	21.65
REYQ216TTJU	20.20	22.90	21.55
REYQ240TTJU	19.20	21.90	20.55
REYQ264TTJU	18.10	21.60	19.85
REYQ288TTJU	18.20	21.40	19.80
REYQ312TTJU	17.80	20.20	19.00
REYQ336TTJU	17.00	19.00	18.00
REYQ360TTJU	17.90	19.60	18.75
REYQ384TTJU	16.60	18.30	17.45
REYQ408TTJU	16.50	17.20	16.85
REYQ432TTJU	16.50	16.20	16.35
REYQ456TTJU	15.90	16.20	16.05

Model Number	System SCHE* (part load - ducted)	System SCHE* (part load – non-ducted)	System SCHE* (part load - mixed)
REYQ72TTJU	22.60	27.80	25.20
REYQ96TTJU	23.00	27.30	25.15
REYQ120TTJU	25.10	27.90	26.50
REYQ144TTJU	23.80	25.50	24.65
REYQ168TTJU	22.80	26.60	24.70
REYQ192TTJU	22.90	26.60	24.75
REYQ216TTJU	22.50	25.60	24.05
REYQ240TTJU	22.70	25.60	24.15
REYQ264TTJU	22.00	24.40	23.20
REYQ288TTJU	21.40	23.30	22.35
REYQ312TTJU	20.30	23.60	21.95
REYQ336TTJU	20.40	23.20	21.80
REYQ360TTJU	20.20	22.60	21.40

REYQ384TTJU	18.70	22.40	20.55
REYQ408TTJU	18.30	21.80	20.05
REYQ432TTJU	18.10	21.10	19.60
REYQ456TTJU	17.90	20.90	19.40

Model Number	System EER* (full load - ducted)	System EER* (full load – non-ducted)	System EER* (full load - mixed)
REYQ72TTJU	13.40	15.80	14.60
REYQ96TTJU	13.10	15.10	14.10
REYQ120TTJU	12.60	13.90	13.25
REYQ144TTJU	11.90	12.90	12.40
REYQ168TTJU	11.30	11.70	11.50
REYQ192TTJU	12.60	12.50	12.55
REYQ216TTJU	12.40	12.50	12.45
REYQ240TTJU	11.60	12.20	11.90
REYQ264TTJU	10.50	11.80	11.15
REYQ288TTJU	10.90	11.80	11.35
REYQ312TTJU	10.60	11.30	10.95
REYQ336TTJU	10.00	10.70	10.35
REYQ360TTJU	11.00	10.80	10.90
REYQ384TTJU	9.80	9.80	9.80
REYQ408TTJU	9.70	9.80	9.75
REYQ432TTJU	9.70	9.80	9.75
REYQ456TTJU	9.50	9.50	9.50

Model Number	System COP@47F* (full load - ducted)	System COP@47F* (full load – non-ducted)	System COP@47F* (full load - mixed)
REYQ72TTJU	3.82	4.29	4.06
REYQ96TTJU	3.72	4.25	3.99
REYQ120TTJU	3.51	3.98	3.75
REYQ144TTJU	3.55	3.81	3.68
REYQ168TTJU	3.33	3.77	3.55
REYQ192TTJU	3.67	3.84	3.76
REYQ216TTJU	3.67	3.73	3.70
REYQ240TTJU	3.55	3.67	3.61
REYQ264TTJU	3.38	3.55	3.47
REYQ288TTJU	3.26	3.51	3.39
REYQ312TTJU	3.22	3.56	3.39
REYQ336TTJU	3.20	3.52	3.36
REYQ360TTJU	3.31	3.51	3.41
REYQ384TTJU	3.21	3.21	3.21
REYQ408TTJU	3.20	3.21	3.21
REYQ432TTJU	3.20	3.21	3.21
REYQ456TTJU	3.20	3.21	3.21

Model Number	System COP@17F* (full load - ducted)	System COP@17F* (full load – non-ducted)	System COP@17F* (full load - mixed)
REYQ72TTJU	2.63	2.77	2.70
REYQ96TTJU	2.31	2.63	2.47
REYQ120TTJU	2.32	2.54	2.43
REYQ144TTJU	2.35	2.56	2.46

REYQ168TTJU	2.15	2.32	2.24
REYQ192TTJU	2.38	2.55	2.47
REYQ216TTJU	2.28	2.45	2.37
REYQ240TTJU	2.31	2.48	2.40
REYQ264TTJU	2.26	2.42	2.34
REYQ288TTJU	2.24	2.41	2.33
REYQ312TTJU	2.24	2.41	2.33
REYQ336TTJU	2.06	2.18	2.12
REYQ360TTJU	2.17	2.42	2.30
REYQ384TTJU	2.06	2.34	2.20
REYQ408TTJU	2.06	2.09	2.08
REYQ432TTJU	2.06	2.08	2.07
REYQ456TTJU	2.05	2.07	2.06

Performance Conditions

Cooling: indoor temp. of 80°F DB, 67°F WB and outdoor temp. of 95°F DB.

Heating: indoor temp. of 70°F DB and outdoor temp. of 47°F DB, 43°F WB.

Equivalent piping length: 25ft

OPERATING RANGE

The operating range in cooling or cooling dominant simultaneous cooling/heating will be (-4°F) 23°F DB ~ 122°F DB.

Each system as standard shall be capable of onsite reprogramming to allow low ambient cooling operation down to -4°F DB

The operating range in heating or heating dominant simultaneous cooling/heating will be -13°F WB – 60°F WB.

If an alternate equipment manufacturer is selected, the mechanical contractor shall provide, at their own risk and cost, all additional material and labor to meet low ambient operating condition and performance.

Cooling mode indoor room temperature range will be 57°F-77°F WB.

Heating mode indoor room temperature range will be 59°F-80°F DB.

REFRIGERANT PIPING

The system shall be capable of refrigerant piping up to 540 actual feet or 623 equivalent feet from the condensing unit to the furthest indoor unit, a total combined liquid line length of 3,280 feet of piping between the condensing and indoor units with 295 feet maximum vertical difference, without any oil traps.

REFNET™ piping joints and headers shall be used to ensure proper refrigerant balance and flow for optimum system capacity and performance. T style joints shall not be acceptable as this will negatively impact proper refrigerant balance and flow for optimum system capacity and performance.

DESIGN BASIS

The HVAC equipment basis of design is Daikin North America. All bidders shall furnish the minimum system standards as defined by the base bid model numbers, model families or as otherwise specified herein (see Key General Specifications Alternate Supplier Checklist). In any event, the contractor shall be responsible for all specified items and intents of this document without further compensation.

PART 2 PRODUCTS

2.1 CONDENSING UNIT

- A. General: The condensing unit is designed specifically for use with VRV IV series components.
1. The condensing unit shall be factory assembled in the USA and pre-wired with all necessary electronic and refrigerant controls. The refrigeration circuit of the condensing unit shall consist of Daikin inverter scroll compressors, motors, fans, condenser coil, electronic expansion valves, solenoid valves, 4-way valve, distribution headers, capillaries, filters, shut off valves, oil separators, service ports, liquid receiver and suction accumulator.
High/low pressure gas line, liquid and suction lines must be individually insulated between the condensing and indoor units.
 2. The condensing unit can be wired and piped with access from the left, right, rear or bottom.
 3. The connection ratio of indoor units to condensing unit shall be permitted up to 200%.
 4. Each condensing system shall be able to support the connection of up to 64 indoor units dependent on the model of the condensing unit.
 5. The sound pressure level standard shall be that value as listed in the Daikin engineering manual for the specified models at 3 feet from the front of the unit. The condensing unit shall be capable of operating automatically at further reduced noise during night time or via an external input.
 6. The system will automatically restart operation after a power failure and will not cause any settings to be lost, thus eliminating the need for reprogramming.
 7. The unit shall incorporate an auto-charging feature. Manual changing should be support with a minimum of 2 hours of system operation data to ensure correct operation.
 8. The condensing unit shall be modular in design and should allow for side-by-side installation with minimum spacing.
 9. The following safety devices shall be included on the condensing unit; high pressure sensor and switch, low pressure sensor, control circuit fuses, crankcase heaters, fusible plug, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
 10. To ensure the liquid refrigerant does not flash when supplying to the various indoor units, the circuit shall be provided with a sub-cooling feature.
 11. Oil recovery cycle shall be automatic occurring 2 hours after start of operation and then every 8 hours of operation. Each system shall maintain continuous heating during oil return operation.
 12. The condensing unit shall be capable of heating operation at -13°F wet bulb ambient temperature without additional low ambient controls or an auxiliary heat source.
 13. The multiple condenser VRV systems shall continue to provide heat to the indoor units in heating operation while in the defrost mode.
- B. Unit Cabinet:
1. The condensing unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
- C. Fan:

1. The condensing unit shall consist of one or more propeller type, direct-drive 350 or 750 W fan motors that have multiple speed operation via a DC (digitally commutating) inverter.

Model Number	Fan Motor Output (kW) & Quantity
REYQ72TTJU	0.40
REYQ96TTJU	0.35 x 2
REYQ120TTJU	0.35 x 2
REYQ144TTJU	0.65 x 2
REYQ168TTJU	0.65 x 2
REYQ192TTJU	(0.40 x 1) + (0.35 x 2)
REYQ216TTJU	(0.35 x 2) x 2
REYQ240TTJU	(0.35 x 2) + (0.65 x 2)
REYQ264TTJU	(0.35 x 2) + (0.65 x 2)
REYQ288TTJU	(0.65 x 2) x 2
REYQ312TTJU	(0.65 x 2) x 2
REYQ336TTJU	(0.65 x 2) x 2
REYQ360TTJU	(0.35 x 2) x 3
REYQ384TTJU	(0.35 x 2) x 2 + (0.65 x 2)
REYQ408TTJU	(0.35 x 2) + (0.65 x 2) x 2
REYQ432TTJU	(0.65 x 2) x 3
REYQ456TTJU	(0.65 x 2) x 3

2. The condensing unit fan motor shall have multiple speed operation of the DC (digitally commutating) inverter type, and be of high external static pressure and shall be factory set as standard at 0.12 in. WG. A field setting switch to a maximum 0.32 in. WG pressure is available to accommodate field applied duct for indoor mounting of condensing units.
3. The fan shall be a vertical discharge configuration with a nominal airflow maximum range of 5,544 CFM to 24,684 CFM dependent on model specified.
4. Nominal sound pressure levels shall be as shown below.

Model Number	Sound Pressure Level dB(A)
REYQ72TTJU	58
REYQ96TTJU	61
REYQ120TTJU	61
REYQ144TTJU	65
REYQ168TTJU	65
REYQ192TTJU	63
REYQ216TTJU	64
REYQ240TTJU	66
REYQ264TTJU	66
REYQ288TTJU	68
REYQ312TTJU	68
REYQ336TTJU	68
REYQ360TTJU	66
REYQ384TTJU	68
REYQ408TTJU	69
REYQ432TTJU	70
REYQ456TTJU	70

5. The fan motor shall have inherent protection and permanently lubricated bearings and be mounted.
6. The fan motor shall be provided with a fan guard to prevent contact with moving parts.
7. Night setback control of the fan motor for low noise operation by way of automatically limiting the maximum speed shall be a standard feature. Operation sound level shall be selectable from 3 steps as shown below.

Operation Sound dB(A)	Night Mode Sound Pressure Level dB(A)
Step 1 max.	55
Step 2 max.	50
Step 3 max.	45

D. Condenser Coil:

1. The condenser coil shall be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The heat exchanger coil shall be of a waffle louver fin and rifled bore tube design to ensure high efficiency performance.
3. The heat exchanger on the condensing units shall be manufactured from Hi-X seamless copper tube with N-shape internal grooves mechanically bonded on to aluminum fins to an e-Pass Design.
4. The fins are to be covered with an anti-corrosion Ulta Gold coating as standard with a salt spray test rating of 1000hr (ASTM B117 & Blister Rating:10), Acetic acid salt spray test: 500hr (ASTM G85 & Blister Rating:10)
5. The pipe plates shall be treated with powdered polyester resin for corrosion prevention. The thickness of the coating must be between 2.0 to 3.0 microns.
6. The outdoor coil shall have three-circuit heat exchanger design eliminating the need for bottom plate heater. The lower part of the coil shall be used for inverter cooling and be on or off during heating operation enhancing the defrost operation.
7. The condensing unit shall be factory equipped with condenser coil guards on all sides.

E. Compressor:

1. The Daikin inverter scroll compressors shall be variable speed (PVM inverter) controlled which is capable of changing the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures shall be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity (INV frequency) shall be controlled to eliminate deviation from target value. Non inverter-driven compressors, which may cause starting motor current to exceed the nominal motor current (RLA) and require larger wire sizing, shall not be allowed.
2. The inverter driven compressor in each condensing unit shall be of highly efficient reluctance DC (digitally commutating), hermetically sealed scroll "G-type" or "J-type".
3. Neodymium magnets shall be adopted in the rotor construction to yield a higher torque and efficiency in the compressor instead of the normal ferrite magnet type. At complete stop of the compressor, the neodymium magnets will position the rotor into the optimum position for a low torque start.
4. The capacity control range shall be as low as 3% to 100%.

5. The compressors' motors shall have a cooling system using discharge gas, to avoid sudden changes in temperature resulting in significant stresses on winding and bearings.
6. Each compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
7. Oil separators shall be standard with the equipment together with an intelligent oil management system.
8. The compressor shall be spring mounted to avoid the transmission of vibration eliminating the standard need for spring insulation.
9. Compressor configurations

Tonnage	Number of Compressors	Compressor Types
6	1	Inverter controlled
8	2	All inverter controlled
10	2	All inverter controlled
12	2	All inverter controlled
14	2	All inverter controlled
16	3	All inverter controlled
18	4	All inverter controlled
20	4	All inverter controlled
22	4	All inverter controlled
24	4	All inverter controlled
26	4	All inverter controlled
28	4	All inverter controlled
30	6	All inverter controlled
32	6	All inverter controlled
34	6	All inverter controlled
36	6	All inverter controlled
38	6	All inverter controlled

10. In the event of compressor failure the remaining compressors shall continue to operate and provide heating or cooling as required at a proportionally reduced capacity. The microprocessor and associated controls shall be designed to specifically address this condition.
11. In the case of multiple condenser modules, conjoined operation hours of the compressors shall be balanced by means of the Duty Cycling Function, ensuring sequential starting of each module at each start/stop cycle, completion of oil return, completion of defrost or every 8 hours and extending the operating life of the system. When connected to a central control system, sequential start is activated for all system on each DIII network.

F. Electrical:

1. The power supply to the condensing unit shall be 208-230 volts, 3 phase, 60 hertz +/- 10%.

Power Supply Voltage	Voltage Range
208-230V/3/60	187V-253V

Model	MCA	MOP	Compressor RLA
REYQ72TTJU	30.2	35	20.7
REYQ96TTJU	38.0	45	13.7 + 13.7
REYQ120TTJU	43.0	50	15.0 + 15.0

REYQ144TTJ U	55.0	70	16.2 + 22.6
REYQ168TTJ U	61.9	70	17.4 + 24.4
REYQ192TTJ U	30.2 + 43.0	35 + 50	20.7 + (15.0 + 15.0)
REYQ216TTJ U	38.0 + 43.0	45 + 50	(13.7 + 13.7) + (15.0 + 15.0)
REYQ240TTJ U	38.0 + 55.0	45 + 70	(13.7 + 13.7) + (16.2 + 22.6)
REYQ264TTJ U	43.0 + 55.0	50 + 70	(15.0 + 15.0) + (16.2 + 22.6)
REYQ288TTJ U	55.0 + 55.0	70 + 70	(16.2 + 22.6) x 2
REYQ312TTJ U	55.0 + 61.9	70 + 70	(16.2 + 22.6) + (17.4 + 24.4)
REYQ336TTJ U	61.9 + 61.9	70 + 70	(17.4 + 24.4) x 2
REYQ360TTJ U	43.0 + 43.0 + 43.0	50 + 50 + 50	(15.0 + 15.0) x 3
REYQ384TTJ U	38.0 + 43.0 + 61.9	45 + 50 + 70	(13.7 + 13.7) + (15.0 + 15.0) + (17.4 + 24.4)
REYQ408TTJ U	38.0 + 55.0 + 43.0	45 + 70 + 70	(13.7 + 13.7) + (16.2 + 22.6) + (17.4 + 24.4)
REYQ432TTJ U	55.0 + 55.0 + 55.0	70 + 70 + 70	(16.2 + 22.6) x 3
REYQ456TTJ U	55.0 + 55.0 + 61.9	70 + 70 + 70	(16.2 + 22.6) x 2 + (17.4 + 24.4)

- The control voltage between the indoor and condensing unit shall be 16VDC non-shielded, stranded 2 conductor cable.
- The control wiring shall be a two-wire multiplex transmission system, making it possible to connect multiple indoor units to one condensing unit with one 2-cable wire, thus simplifying the wiring installation.
- The control wiring lengths shall be as shown below.

	Condenser to Indoor Unit	Condenser to Central Controller	Indoor Unit to Remote Control
Control Wiring Length	6,665 ft	3,330 ft	1,665 ft
Wire Type	16/18 AWG, 2 wire, non-polarity, non-shielded, stranded		

BS(4/6/8/10/12)Q_T BRANCH SELECTOR BOX FOR VRV IV HEAT RECOVERY SYSTEM

A. General: The BSQ36TVJ, BSQ60TVJ, BSQ96TVJ, BS4Q54TVJ, BS6Q54TVJ, BS8Q54TVJ, BS10Q54TVJ and BS12Q54TVJ branch selector boxes are designed specifically for use with VRV IV series heat recovery system components.

- These selector boxes shall be factory assembled, wired, and piped.
- These BSQ_T / BS(4/6/8/10/12)Q54T branch controllers must be run tested at the factory.
- These selector boxes must be mounted indoors.
- When simultaneously heating and cooling, the units in heating mode shall energize their subcooling electronic expansion valve.

5. The number of connectable indoor units shall be in accordance with the table below:

Model Number	Maximum Connectable Cooling Capacity	Maximum Number of Connectable Indoor Units Per Branch
BSQ36TVJ	36,000 Btu/h	4
BSQ60TVJ	60,000 Btu/h	8
BSQ96TVJ	96,000 Btu/h	8
BS4Q54TVJ	144,000 Btu/h	5
BS6Q54TVJ	216,000 Btu/h	5
BS8Q54TVJ	290,000 Btu/h	5
BS10Q54TVJ	290,000 Btu/h	5
BS12Q54TVJ	290,000 Btu/h	5

B. Unit Cabinet:

1. These units shall have a galvanized steel plate casing.
2. Each cabinet shall house 3 electronic expansion valves for refrigerant control per branch.
3. The cabinet shall contain one subcooling heat exchanger per branch.
4. The unit shall have sound absorption thermal insulation material made of flame and heat resistant foamed polyethylene.
5. Nominal sound pressure levels must be measured and published on the submittals by the manufacturer. These sound levels must not exceed the values below.

Model Number	Sound Level dB(A) Operating	Sound Level dB(A) Max
BSQ36TVJ	42	32
BSQ60TVJ	43	32
BSQ96TVJ	44	34
BS4Q54TVJ	38	45
BS6Q54TVJ	39	47
BS8Q54TVJ	39	47
BS10Q54TVJ	40	48
BS12Q54TVJ	40	48

If an alternate manufacturer is selected, the mechanical contractor shall provide, at their own cost and expense, any additional material and labor to meet the published sound levels above.

C. Dimensions:

1. Each BSQ_T unit shall be no larger than 8-1/8" x 15-1/4" x 12-13/16".
2. Each BS4Q_T shall be no larger than 11-3/4" x 14-9/16" x 18-15/16".
3. Each BS(6/8)Q_T shall be no larger than 11-3/4" x 22-13/16" x 18-15/16".
4. Each BS(10/12)Q_T shall be no larger than 11-3/4" x 32-5/16" x 18-15/16".

D. Refrigerant Valves:

1. The unit shall be furnished with 3 electronic expansion valves per branch to control the direction of refrigerant flow. The use of solenoid valves for changeover and pressure equalization shall not be acceptable due to refrigerant noise.
2. The refrigerant connections must be of the braze type.
3. In multi-port units, each port shall have its own electronic expansion valves. If common expansion/solenoid valves are used, redundancy must be provided.

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
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4. Each circuit shall have at least one (36,000 Btu/h indoor unit or smaller for the BSQ36TVJ, 54,000 Btu/h indoor unit or smaller for the BS(4/6/8/10/12)Q54TVJ, 60,000 Btu/h indoor unit or smaller for the BSQ60TVJ and 96,000 Btu/h indoor unit or smaller for the BSQ96TVJ) branch selector box.
 5. Multiple indoor units may be connected to a branch selector box with the use of a REFNET™ joint provided they are within the capacity range of the branch selector.
- E. Condensate Removal:
1. The unit shall not require provisions for condensate removal. A safety device or secondary drain pan shall be installed by the mechanical contractor to comply with the applicable mechanical code, if an alternate manufacturer is selected.
- F. Electrical:
1. The unit electrical power shall be 208/230 volts, 1 phase, 60 hertz.
 2. The unit shall be capable of operation within the limits of 187 volts to 255 volts.
 3. The minimum circuit amps (MCA) shall be 0.1 and the maximum overcurrent protection amps (MOP) shall be 15.
 4. The control voltage between the indoor and condensing unit shall be 16VDC non-shielded 2 conductor cable.

2.2 **INDOOR UNITS - FXFQ_T – ROUND FLOW SENSING CEILING CASSETTE UNIT**

- A. General: Daikin indoor unit model FXFQ_T shall be a round flow ceiling cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, direct drive DC (ECM) type fan, for installation into the ceiling cavity equipped with an air panel grill. It shall be available in capacities from 7,500 Btu/h to 48,000 Btu/h. Model numbers are FXFQ07TVJU, FXFQ09TVJU, FXFQ12TVJU, FXFQ15TVJU, FXFQ18TVJU, FXFQ24TVJU, FXFQ30TVJU, FXFQ36TVJU, FXFQ48TVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a round flow air distribution type, fresh white, impact resistant decoration panel, or optional self-cleaning filter panel. The supply air is distributed via four individually motorized louvers. To save energy and optimize occupancy comfort, the indoor unit shall be equipped with built in occupancy sensor and surface temperature sensor. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73, BRC2A71 and BRC1E52B7. The indoor units sound pressure shall range from 30 dB(A) to 45 dB(A) at High speed measured at 5 feet below the unit.

- B. Performance: Each unit's performance is based on nominal operating conditions:

FXFQ07TVJU	7,500	8,500
FXFQ09TVJU	9,500	10,500
FXFQ12TVJU	12,000	13,500
FXFQ15TVJU	15,000	16,500
FXFQ18TVJU	18,000	20,000
FXFQ24TVJU	24,000	27,000
FXFQ30TVJU	30,000	34,000
FXFQ36TVJU	36,000	40,000
FXFQ48TVJU	48,000	54,000

C. Indoor Unit:

1. The Daikin indoor unit FXFQ_T shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
3. Both refrigerant lines shall be insulated from the outdoor unit.
4. The round flow supply air flow can be field modified to 23 different airflow patterns to accommodate various installation configurations including corner installations.
5. Return air shall be through the concentric panel, which includes a resin net, mold resistant, antibacterial filter.
6. The indoor units shall be equipped with a condensate pan with antibacterial treatment and condensate pump. The condensate pump provides up to 33-1/2" of lift from bottom of unit to top of drain piping and has a built in safety shutoff and alarm.
7. The indoor units shall be equipped with a return air thermistor.
8. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
9. The voltage range will be 253 volts maximum and 187 volts minimum.
10. To save energy and optimize occupancy comfort, the indoor unit shall be equipped with built in occupancy sensor and surface temperature sensor.
11. Supplied air shall be directed automatically by four individually controlled louvers.

D. Unit Cabinet:

1. The cabinet shall be space saving and shall be located into the ceiling.
2. Four auto-adjusted louvers shall be available to choose, which include standard, draft prevention and ceiling stain prevention.
3. The airflow of the unit shall have the ability to shut down outlets with multiple patterns allowing for simpler installation in irregular spaces.
4. Fresh air intake shall be possible by way of Daikin's optional fresh air intake kit.
5. A branch duct knockout shall exist for branch ducting of supply air.
6. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
7. Optional high efficiency air filters are available for each model unit.

A. Fan:

1. The fan shall be direct-drive DC (ECM) type fan, statically and dynamically balanced impeller with three fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.08 to 0.16 HP.

FXZQ – 4 WAY CEILING CASSETTE UNIT (2'x2')

- A. General: Daikin indoor unit model FXZQ shall be a ceiling cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation into the ceiling cavity equipped with an air panel grill. It shall be available in capacities from 7,500 Btu/h to 18,000 Btu/h. Model numbers are FXZQ07MVJU9, FXZQ09MVJU9, FXZQ12MVJU9, FXZQ15MVJU9, FXZQ18MVJU9 to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a four-way air distribution type, white (RAL9010), impact resistant with a washable decoration panel. The supply air is distributed via motorized louvers which can be horizontally and vertically adjusted from 0° to 90°. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. The indoor units sound pressure shall range from 29 dB(A) to 34 dB(A) at low speed measured at 5 feet below the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXZQ shall be completely factory assembled and

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXZQ07MVJU9	7,500	8,700
FXZQ09MVJU9	9,500	11,100
FXZQ12MVJU9	12,000	14,000
FXZQ15MVJU9	15,000	17,500
FXZQ18MVJU9	18,000	21,000

- tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The 4-way supply air flow can be field modified to 3-way and 2-way airflow to accommodate various installation configurations including corner installations.
 5. Return air shall be through the concentric panel, which includes a resin net mold resistant filter.
 6. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 21" of lift and has a built in safety shutoff and alarm.
 7. The indoor units shall be equipped with a return air thermistor.
 8. All electrical components are reached through the decoration panel, which reduces the required side service access.
 9. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 10. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be space saving and shall be located into the ceiling.

2. Three auto-swing positions shall be available to choose, which include standard, draft prevention and ceiling stain prevention.
 3. The airflow of the unit shall have the ability to shut down one or two sides allowing for simpler corner installation.
 4. Fresh air intake shall be possible by way of direct duct installation to the side of the indoor unit cabinet.
 5. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be direct-drive turbo fan type with statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.06 to 0.12 HP.
 3. The airflow rate shall be available in high and low settings.
 4. The fan motor shall be thermally protected.
- F. Filter:
1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin.
- G. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 2-row cross fin copper evaporator coil with 17 FPI design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 1 -1/32 inch outside diameter PVC.
 5. A condensate pan shall be located under the coil.
 6. A condensate pump with a 21 inch lift shall be located below the coil in the condensate pan with a built in safety alarm.
 7. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- J. Optional Accessories Available:
1. Direct fresh air intake kit (KDDQ44X60).
 2. Supply air duct connections.
 3. Remote "in-room" sensor kit (KRCS01-1B).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).

FXMQ_M – CONCEALED CEILING DUCTED UNIT (Med. Static)

- A. General: Daikin indoor unit FXMQ_M shall be a built-in ceiling concealed fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation into the ceiling cavity. It is constructed of a galvanized steel casing. It shall be available in capacities from 72,000 Btu/h to 96,000 Btu/h. Model numbers are FXMQ72MVJU and FXMQ96MVJU to be connected to outdoor unit model RXYQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a horizontal discharge air with horizontal return air configuration. All models feature a low height cabinet making them applicable to ceiling pockets that tend to be shallow. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. The indoor units sound pressure shall be 48 dB(A) at low speed measured 5 feet below the ducted unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXMQ_M shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have an adjustable external static pressure switch.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The indoor units shall be equipped with a return air thermistor.
 5. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 6. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be located into the ceiling and ducted to the supply and return openings.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be direct-drive Sirocco type fan, statically and dynamically

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXMQ72MVJU	72,000	96,000
FXMQ96MVJU	96,000	108,000

- balanced impeller with high and low fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz, with a motor output of 0.51 HP.
3. The airflow rate shall be available in high and low settings.
4. The fan motor shall be thermally protected.
5. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings.
6. Fan motor external static pressure for nominal airflow:

Model Number	Fan ESP (in. WG)
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FXMQ72MVJU	0.95 – 0.72
FXMQ96MVJU	0.95 – 0.8

F. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 3 row cross fin copper evaporator coil with 13 fpi design completely factory tested.
4. The refrigerant connections shall be flare connections and the condensate will be 1-5/16 inch outside diameter PVC.
5. A thermistor will be located on the liquid and gas line.

G. Electrical:

1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.

H. Control:

1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.

I. Optional Accessories Available:

1. Remote "in-room" sensor kit KRCS01-1B (recommended).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).

FXMQ_PA - CONCEALED CEILING DUCTED UNIT (Med. Static)

- A. General: Daikin indoor unit FXMQ_PA shall be a built-in ceiling concealed fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, direct-drive DC (ECM) type fan with auto CFM adjustment at commissioning, for installation into the ceiling cavity. It is constructed of a galvanized steel casing. It shall be available in capacities from 7,500 Btu/h to 48,000 Btu/h. Model numbers are FXMQ07PAVJU, FXMQ09PAVJU, FXMQ12PAVJU, FXMQ15PAVJU, FXMQ18PAVJU, FXMQ24PAVJU, FXMQ30PAVJU, FXMQ36PAVJU, FXMQ48PAVJU, and FXMQ54PAVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a horizontal discharge air with horizontal return air configuration. All models feature a low height cabinet making them applicable to ceiling pockets that tend to be shallow. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. Included as standard equipment, a condensate drain pan and drain pump kit that pumps to 18-3/8" from the drain pipe

opening. The indoor units sound pressure shall range from 29 dB(A) to 43 dB(A) at low speed measured 5 feet below the ducted unit.

- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXMQ_PA shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall be equipped with automatically adjusting external static pressure logic that is selectable during commissioning. This adjusts the airflow based on the installed external static pressure.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 18-3/8" of lift from the center of the drain outlet and has a built in safety shutoff and alarm.
 5. The indoor units shall be equipped with a return air thermistor.
 6. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 7. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be located into the ceiling and ducted to the supply and return openings.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXMQ07PAVJU	7,500	8,500
FXMQ09PAVJU	9,500	10,500
FXMQ12PAVJU	12,000	13,500
FXMQ15PAVJU	15,000	16,500
FXMQ18PAVJU	18,000	20,000
FXMQ24PAVJU	24,000	27,000
FXMQ30PAVJU	30,000	34,000
FXMQ36PAVJU	36,000	40,000
FXMQ48PAVJU	48,000	54,000
FXMQ54PAVJU	54,000	60,000

1. The fan shall be direct-drive DC (ECM) type fan, statically and dynamically balanced impeller with three fan speeds available.
2. The unit shall be equipment with automatically adjusting external static pressure logic selectable during commissioning.
3. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range of 0.12 to 0.47 HP respectively.
4. The airflow rate shall be available in three settings.
5. The fan motor shall be thermally protected.

6. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings.
7. Fan motor external static pressure range for nominal airflow:

Model Number	Fan ESP (in. WG)
FXMQ07PAVJU	0.40 – 0.12
FXMQ09PAVJU	0.40 – 0.12
FXMQ12PAVJU	0.40 – 0.12
FXMQ15PAVJU	0.80 – 0.20
FXMQ18PAVJU	0.80 – 0.20
FXMQ24PAVJU	0.80 – 0.20
FXMQ30PAVJU	0.80 – 0.20
FXMQ36PAVJU	0.80 – 0.20
FXMQ48PAVJU	0.80 – 0.20
FXMQ54PAVJU	0.56 – 0.20

F. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 3 row cross fin copper evaporator coil with 15 fpi design completely factory tested.
4. The refrigerant connections shall be flare connections and the condensate will be 1-1/4" outside diameter PVC.
5. A condensate pan shall be located under the coil.
6. A condensate pump with an 18-3/8" lift shall be located below the coil in the condensate pan with a built in safety alarm.
7. A thermistor will be located on the liquid and gas line.

G. Electrical:

1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.

H. Control:

1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.

I. Optional Accessories Available:

1. Remote "in-room" sensor kit KRCS01-4B (recommended).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for when a NAV controller is not used or when the NAV controller is not located in the space that is being controlled. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).
2. MERV 13 Filter kit. Can be configured for right or left access. Filters replaceable without tools.
3. Air side Economizer designed for connection to the rear of FXMQ30-54PAVJU.

FXMQ_PB - CONCEALED CEILING DUCTED UNIT (Med. Static)

- A. General: Daikin indoor unit FXMQ_PB shall be a built-in ceiling concealed fan coil unit, operable with refrigerant R-410A, equipped with an electronic

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXMQ07PBVJU	7,500	8,500
FXMQ09PBVJU	9,500	10,500
FXMQ12PBVJU	12,000	13,500
FXMQ15PBVJU	15,000	16,500
FXMQ18PBVJU	18,000	20,000
FXMQ24PBVJU	24,000	27,000
FXMQ30PBVJU	30,000	34,000
FXMQ36PBVJU	36,000	40,000
FXMQ48PBVJU	48,000	54,000
FXMQ54PBVJU	54,000	60,000

expansion valve, direct-drive DC (ECM) type fan with auto CFM adjustment at commissioning, for installation into the ceiling cavity. It is constructed of a galvanized steel casing. It shall be available in capacities from 7,500 Btu/h to 48,000 Btu/h. Model numbers are FXMQ07PBVJU, FXMQ09PBVJU, FXMQ12PBVJU, FXMQ15PBVJU, FXMQ18PBVJU, FXMQ24PBVJU, FXMQ30PBVJU, FXMQ36PBVJU, FXMQ48PBVJU, and FXMQ54PBVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a horizontal discharge air with horizontal return air configuration. All models feature a low height cabinet making them applicable to ceiling pockets that tend to be shallow. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. Included as standard equipment, a condensate drain pan and drain pump kit that pumps to 18-3/8" from the drain pipe opening. The indoor units sound pressure shall range from 29 dB(A) to 43 dB(A) at low speed measured 5 feet below the ducted unit.

- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXMQ_PB shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall be equipped with automatically adjusting external static pressure logic that is selectable during commissioning. This adjusts the airflow based on the installed external static pressure.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 18-3/8" of lift

from the center of the drain outlet and has a built in safety shutoff and alarm.

5. The indoor units shall be equipped with a return air thermistor.
6. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
7. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet shall be located into the ceiling and ducted to the supply and return openings.
2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.

E. Fan:

1. The fan shall be direct-drive DC (ECM) type fan, statically and dynamically balanced impeller with three fan speeds available.
2. The unit shall be equipped with automatically adjusting external static pressure logic selectable during commissioning.
3. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range of 0.12 to 0.47 HP respectively.
4. The airflow rate shall be available in three settings.
5. The fan motor shall be thermally protected.
6. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings.
7. Fan motor external static pressure range for nominal airflow:

Model Number	Fan ESP (in. WG)
FXMQ07PBVJU	0.40 – 0.12
FXMQ09PBVJU	0.40 – 0.12
FXMQ12PBVJU	0.40 – 0.12
FXMQ15PBVJU	0.80 – 0.20
FXMQ18PBVJU	0.80 – 0.20
FXMQ24PBVJU	0.80 – 0.20
FXMQ30PBVJU	0.80 – 0.20
FXMQ36PBVJU	0.80 – 0.20
FXMQ48PBVJU	0.80 – 0.20
FXMQ54PBVJU	0.56 – 0.20

F. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 3 row cross fin copper evaporator coil with 15 fpi design completely factory tested.
4. The refrigerant connections shall be flare connections and the condensate will be 1-1/4" outside diameter PVC.
5. A condensate pan shall be located under the coil.
6. A condensate pump with an 18-3/8" lift shall be located below the coil in the condensate pan with a built in safety alarm.
7. A thermistor will be located on the liquid and gas line.

G. Electrical:

1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).

3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- H. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- I. Optional Accessories Available:
1. Remote "in-room" sensor kit KRCS01-4B (recommended).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for when a NAV controller is not used or when the NAV controller is not located in the space that is being controlled. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).
 2. MERV 13 Filter kit. Can be configured for right or left access. Filters replaceable without tools.
 3. Air side Economizer designed for connection to the rear of FXMQ30-54PBVJU.

FXDQ – SLIM DUCT CONCEALED CEILING UNIT

- A. General: Daikin indoor unit model FXDQ shall be a Slim, built-in ceiling concealed fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation into the ceiling cavity. The unit shall be constructed of a galvanized steel casing. It shall be available in capacities from 7,000 Btu/h to 24,000 Btu/h. Model numbers are FXDQ07MVJU, FXDQ09MVJU, FXDQ12MVJU, FXDQ18MVJU, and FXDQ24MVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a horizontal discharge air with horizontal return air or bottom return air configuration. All models feature a very low height (7-7/8") making them applicable to ceiling pockets that tend to be shallow. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. Included as standard equipment, a long-life filter that is mold resistant and a condensate drain pan and drain pump kit that pumps to 23-5/8" from the drain pipe opening. The indoor units sound pressure level shall range from 29 dB(A) to 32 dB(A) at low speed and 33 dB(A) to 36 dB(A) at high speed 5 feet below the suction grille.
- B. Performance: Each unit's performance is based on nominal operating conditions:

C. Indoor Unit:

1. The Daikin indoor unit FXDQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXDQ07MVJU	7,500	8,500
FXDQ09MVJU	9,500	10,500
FXDQ12MVJU	12,000	13,500
FXDQ18MVJU	18,000	20,000
FXDQ24MVJU	24,000	27,000
Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXDQ07MVJU	7,500	8,500
FXDQ09MVJU	9,500	10,500
FXDQ12MVJU	12,000	13,500
FXDQ18MVJU	18,000	20,000
FXDQ24MVJU	24,000	27,000

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXDQ07MVJU	7,500	8,500
FXDQ09MVJU	9,500	10,500
FXDQ12MVJU	12,000	13,500
FXDQ18MVJU	18,000	20,000
FXDQ24MVJU	24,000	27,000

proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate drain pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have adjustable external static pressure capabilities.

2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
3. Both refrigerant lines shall be insulated from the outdoor unit.

4. Return air shall be through a resin net mold resistant filter.
 5. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 23-5/8" of lift from the center of the drain outlet and has a built in safety shutoff and alarm.
 6. The indoor units shall be equipped with a return air thermistor.
 7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 8. The voltage range will be 253 volts maximum and 187 volts minimum.
 9. Switch box shall be reached from the side or bottom for ease of service and maintenance.
- D. Unit Cabinet:
1. The cabinet shall be located into the ceiling and ducted to the supply and return openings.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 62W to 130W.
 3. The airflow rate shall be available in high and low settings.
 4. The fan motor shall be thermally protected.
 5. The fan motor shall be equipped as standard with adjustable external static pressure (ESP) settings.
 6. Fan motor external static pressure range for nominal airflow:

Model Number	Fan ESP (in. WG)
FXDQ07MVJU	0.12 - 0.04
FXDQ09MVJU	0.12 – 0.04
FXDQ12MVJU	0.12 – 0.04
FXDQ18MVJU	0.17 – 0.06
FXDQ24MVJU	0.17 – 0.06

- F. Filter:
1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin.
- G. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 2 or 3-row cross fin copper evaporator coil with 14 FPI design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 1-1/32" outside diameter PVC.
 5. A condensate pan shall be located under the coil.
 6. A condensate pump with a 23-5/8" lift shall be located below the coil in the condensate pan with a built in safety alarm.
 7. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.

2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- J. Optional Accessories Available:
1. Remote "in-room" sensor kit KRCS01-1B (recommended).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXHQ12MVJU	12,000	13,500
FXHQ24MVJU	24,000	27,000
FXHQ36MVJU	36,000	40,000

in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).

FXHQ – CEILING SUSPENDED CASSETTE UNIT

- A. General: Daikin indoor unit FXHQ shall be a ceiling suspended fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation onto a wall or ceiling within a conditioned space. This compact design with finished white casing shall be available in capacities from 12,000 Btu/h to 36,000 Btu/h. Model numbers are FXHQ12MVJU, FXHQ24MVJU and FXHQ36MVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. A mildew-proof, polystyrene condensate drain pan and resin net mold resistant filter shall be included as standard equipment. The indoor units sound pressure shall range from 32 dB(A) to 38 dB(A) at low speed measured at 3.3 feet below and from the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXHQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops. The remote controller shall be able to set five (5) steps of discharge angle. The front

- grille shall be easily removed for washing. The discharge angle shall automatically set at the same angle as the previous operation upon restart. The drain pipe can be fitted to from the rear, top or left and right sides of the unit.
2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. Return air shall be through a resin net mold resistant filter.
 5. The indoor units shall be equipped with a condensate pan.
 6. The indoor units shall be equipped with a return air thermistor.
 7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 8. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be affixed to a factory supplied wall/ceiling hanging brackets and located in the conditioned space.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be a direct-drive cross-flow fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 62W to 130W.
 3. The airflow rate shall be available in high and low settings.
 4. The fan motor shall be thermally protected.
- F. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 2-row cross fin copper evaporator coil with 15 dpi design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 1 inch outside diameter PVC.
 5. A thermistor will be located on the liquid and gas line.
 6. A condensate pan shall be located in the unit.
- G. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- H. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- I. Optional Accessories Available:
1. Remote "in-room" sensor kit KRCS01-1B.
 2. A condensate pump (DACA-CP3-1).

FXAQ – WALL MOUNTED UNIT

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXAQ07PVJU	7,500	8,500
FXAQ09PVJU	9,500	10,500
FXAQ12PVJU	12,000	13,500
FXAQ18PVJU	18,000	20,000
FXAQ24PVJU	24,000	26,500

- A. General: Daikin indoor unit FXAQ shall be a wall mounted fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation onto a wall within a conditioned space. This compact design with finished white casing shall be available in capacities from 7,500 Btu/h to 24,000 Btu/h. Model numbers are FXAQ07PVJU, FXAQ09PVJU, FXAQ12PVJU, FXAQ18PVJU and FXAQ24PVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. A mildew-proof, polystyrene condensate drain pan and resin net mold resistant filter shall be included as standard equipment. The indoor units sound pressure shall range from 31 dB(A) to 41 dB(A) at low speed measured at 3.3 feet below and from the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXAQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops. The remote controller shall be able to set five (5) steps of discharge angle. The front grille shall be easily removed for washing. The discharge angle shall automatically set at the same angle as the previous operation upon restart. The drain pipe can be fitted to from either left or right sides.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. Return air shall be through a resin net mold resistant filter.
 5. The indoor units shall be equipped with a condensate pan.
 6. The indoor units shall be equipped with a return air thermistor.
 7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 8. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:

1. The cabinet shall be affixed to a factory supplied wall mounting template and located in the conditioned space.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be a direct-drive cross-flow fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.054 to 0.058 HP.
 3. The airflow rate shall be available in high and low settings.
 4. The fan motor shall be thermally protected.
- F. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 2-row cross fin copper evaporator coil with 14 fpi design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 11/16 inch outside diameter PVC.
 5. A thermistor will be located on the liquid and gas line.
 6. A condensate pan shall be located in the unit.
- G. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- H. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- I. Optional Accessories Available:
1. Remote "in-room" sensor kit KRCS01-1B.
 2. A condensate pump (DACA-CP3-1)

FXLQ – FLOOR CONSOLE UNIT

- A. General: Daikin indoor unit FXLQ shall be a floor or low wall mounted console fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation within a conditioned space. It shall have a top discharge air grill and resin net mold resistant filtered bottom return air. This compact design with finished ivory white casing shall be available in capacities from 7,500 Btu/h to 24,000 Btu/h. Model numbers are FXLQ07MVJU9, FXLQ09MVJU9, FXLQ12MVJU9, FXLQ18MVJU9 and FXLQ24MVJU9 to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. The cabinets can be mounted on the floor with refrigerant and condensate lines directed downward or affixed to the wall with horizontal refrigerant and condensate knockouts. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote

control BRC1E72, BRC1E73 and BRC2A71. A mold-resistant, resin net air filter shall be included as standard equipment. The indoor units sound pressure shall range from 35 dB(A) to 40 dB(A) at high speed measured at 5 feet away and 5 feet high.

- B. Performance: Each unit's performance is based on nominal operating conditions:

Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Model Number	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
7,500	FXLQ07MVJU9	8,500
9,500	FXLQ09MVJU9	10,500
12,000	FXLQ12MVJU9	13,500
18,000	FXLQ18MVJU9	20,000
24,000	FXLQ24MVJU9	27,000

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Unit:

1. The Daikin indoor unit FXLQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. Return air shall be through a resin net mold resistant filter.
 5. Condensate draining shall be made via gravity or external condensate pump.
 6. The indoor units shall be equipped with a return air thermistor.
 7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 8. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be affixed to a factory supplied wall mounting template and located in the conditioned space.
 2. The cabinet shall be constructed with sound absorbing fiberglass urethane foam insulation.
 3. Maintenance access shall be a minimum of ¾ inch in the rear, 4 inches on the right and left sides.
- E. Fan:
1. The fan shall be a direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.034 to 0.047 HP.
 3. The airflow rate shall be available in high and low settings.
 4. The fan motor shall be thermally protected.
- F. Filter:
1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin.
- G. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.

2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 3-row cross fin copper evaporator coil with 17 fpi design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 27/32 inch outside diameter PVC.
 5. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- J. Optional Accessories Available:
1. Remote "in-room" sensor kit KRCS01-1B
 2. Condensate pump (DACA-CP1-3)

FXNQ – FLOOR CONSOLE CONCEALED UNIT

- A. General: Daikin indoor unit FXNQ shall be a floor or wall mounted console fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation within a conditioned space. It shall have a top discharge air grill and filtered bottom return air. This compact design unfinished casing shall be available in capacities from 7,500 Btu/h to 24,000 Btu/h. Model numbers are FXNQ07MVJU9, FXNQ09MVJU9, FXNQ12MVJU9, FXNQ18MVJU9 and FXNQ24MVJU9 to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. The cabinets can be mounted on the floor with refrigerant and condensate lines directed downward or affixed to the wall with horizontal refrigerant and condensate knockouts. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E72, BRC1E73 and BRC2A71. A mold-resistant, resin net air filter shall be included as standard equipment. The indoor units sound pressure shall range from 35 dB(A) to 40 dB(A) at high speed measured at 5 feet away and 5 feet high.
- B. Performance: Each unit's performance is based on nominal operating conditions:

C. Indoor Unit:

1. The Daikin indoor unit FXNQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch. The unit shall have an auto-swing louver which ensures efficient air distribution, which closes automatically when the unit stops.
2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
3. Both refrigerant lines shall be insulated from the outdoor unit.
4. Return air shall be through a resin net mold resistant filter.
5. Condensate draining shall be made via gravity or external condensate pump.
6. The indoor units shall be equipped with a return air thermistor.
7. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
8. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet shall be affixed to a factory supplied wall mounting template and located in the conditioned space.
2. The cabinet shall be constructed with sound absorbing fiberglass urethane foam insulation.
3. Maintenance access shall be a minimum of ¾ inch in the rear, 4 inches on the right and left sides.

E. Fan:

1. The fan shall be a direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.034 to 0.047 HP.
3. The airflow rate shall be available in high and low settings.
4. The fan motor shall be thermally protected.

F. Filter:

1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin.

G. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 3-row cross fin copper evaporator coil with 17 fpi

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXNQ07MVJU9	7,500	8,500
FXNQ09MVJU9	9,500	10,500
FXNQ12MVJU9	12,000	13,500
FXNQ18MVJU9	18,000	20,000
FXNQ24MVJU9	24,000	27,000

design completely factory tested.

4. The refrigerant connections shall be flare connections and the condensate will be 27/32 inch outside diameter PVC.
5. A thermistor will be located on the liquid and gas line.

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXTQ12PAVJU	12,000	13,500
FXTQ18PAVJU	18,000	20,000
FXTQ24PAVJU	24,000	27,000
FXTQ30PAVJU	30,000	34,000
FXTQ36PAVJU	36,000	40,000
FXTQ42PAVJU	42,000	47,000
FXTQ48PAVJU	48,000	54,000
FXTQ54PAVJU	54,000	60,000

C. Indoor Unit:

1. The Daikin indoor unit FXTQ_PA components shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, brazed connections, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
3. Both refrigerant lines shall be insulated from the outdoor unit.
4. Return air shall be through an optional or field supplied filter.
5. Condensate draining shall be made via gravity or external condensate pump.
6. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
7. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet shall be constructed with sound absorbing, foil-faced insulation to control air leakage.
2. Select an installation location with adequate structural support, space for service access and clearance for air return and supply duct connections.
3. A field supplied secondary drain pan must be installed

E. Fan:

1. The fan shall be a direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.2 to 0.5 HP.
3. The airflow rate shall be available in high setting.

4. The fan motor shall be thermally protected.
5. Fan motor external static pressure for nominal airflow:

Model Number	Fan ESP (in. WG)
FXTQ12PAVJU	Up to 0.5
FXTQ18PAVJU	Up to 0.5
FXTQ24PAVJU	Up to 0.5
FXTQ30PAVJU	Up to 0.5
FXTQ36PAVJU	Up to 0.5
FXTQ42PAVJU	Up to 0.5
FXTQ48PAVJU	Up to 0.5
FXTQ54PAVJU	Up to 0.5

F. Filter:

1. The return air shall be filtered by means of a field supplied filter.

G. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coil shall be a 4-row cross fin copper evaporator coil with 15 fpi design completely factory tested.
4. The refrigerant connections shall be brazed connections and the condensate will be 3/4 inch outside diameter PVC.
5. A thermistor will be located on the liquid and gas line.

H. Electrical:

1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.

I. Control:

1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.

J. Optional Accessories Available:

1. Field installed 3-20kW electric heaters (HKR-03, HKR-05C, HKR-06, HKR-08C, HKR-10C). The indoor units shall have circuit breakers supplied with each electric heat kit.
2. Air filter (FIL 36-42, FIL 48-61).
3. Insulation kit for vertical (DPI 36-42/20, DPI 48-61/20) and horizontal (DPIH 36-42, DPIH 48-61) configurations.
4. BRC4C84 wireless controller.

FXMQ_MF – OUTSIDE AIR PROCESSING UNIT

- A. General: Daikin indoor unit FXMQ_MF shall be a built-in ceiling concealed fan coil unit, operable with refrigerant R-410A, equipped with an electronic expansion valve, for installation into the ceiling cavity. The unit shall be capable of introducing up to 100% outside air controlled to a fixed discharge air temperature. It is constructed of a galvanized steel casing. It shall be available in capacities from 48,000 Btu/h to 96,000 Btu/h. Model numbers are FXMQ48MFVJU, FXMQ72MFVJU and FXMQ96MVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ /

RWEYQ heat recovery model. It shall be a horizontal discharge air with horizontal return air configuration. All models feature a low height cabinet making them applicable to ceiling pockets that tend to be shallow. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The indoor units sound pressure shall range from 42 dB(A) to 47 dB(A) at low speed measured 5 feet below the ducted unit.

- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXMQ_MF shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, self-diagnostics, auto-restart function, 3-minute fused time delay and test run switch.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
 3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The indoor units shall be equipped with a discharge air thermistor.
 5. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 6. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be located into the ceiling and ducted to the supply and return openings.
 2. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz, with a motor output of 0.51 HP.
 3. The fan motor shall be thermally protected.

Model Number	Cooling (Outdoor 91°F DB / 82°F WB, Discharge 64°F DB, 25 ft pipe length)	Heating (Outdoor 32°F DB / 27°F WB, Discharge 77°F DB, 25 ft pipe length)
FXMQ48MFVJU	48,000	30,000
FXMQ72MFVJU	72,000	47,000
FXMQ96MFVJU	96,000	59,000

4. Fan motor external static pressure for nominal airflow:

Model Number	Fan ESP (in. WG)
FXMQ48MFVJU	0.88
FXMQ72MFVJU	0.96
FXMQ96MFVJU	1.03

- F. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 3 row cross fin copper evaporator coil with 13 fpi design completely factory tested.

4. The refrigerant connections shall be flare connections and the condensate will be 1-5/16 inch outside diameter PVC.
 5. A thermistor will be located on the liquid and gas line.
- G. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- H. Control:

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXUQ18PVJU	18,000	20,000
FXUQ24PVJU	24,000	27,000
FXUQ30PVJU	30,000	34,000
FXUQ36PVJU	36,000	40,000

1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.

FXUQ – 4 WAY CEILING SUSPENDED CASSETTE UNIT

- A. General: Daikin indoor unit model FXUQ shall be a ceiling suspended cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation onto a ceiling within a conditioned space. It shall be available in capacities from 18,000 Btu/h to 36,000 Btu/h. Model numbers are FXUQ18PVJU, FXUQ24PVJU, FXUQ30PVJU, FXUQ36PVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a four-way air distribution type, fresh white, impact resistant with a washable panel. The supply air is distributed via motorized louvers which can be horizontally and vertically adjusted from 0° to 60°. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E73. The indoor units sound pressure shall range from 36 dB(A) to 40 dB(A) at low speed measured at 5 feet below the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:
- C. Indoor Unit:
1. The Daikin indoor unit FXUQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
 2. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.

3. Both refrigerant lines shall be insulated from the outdoor unit.
 4. The 4-way supply air flow can be field modified to 3-way and 2-way airflow to accommodate various installation configurations including corner installations.
 5. Return air shall be through the concentric panel, which includes a resin net mold resistant filter.
 6. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 23-5/8" of lift and has a built in safety shutoff and alarm.
 7. The indoor units shall be equipped with a return air thermistor.
 8. All electrical components are reached through the decoration panel, which reduces the required side service access.
 9. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
 10. The voltage range will be 253 volts maximum and 187 volts minimum.
- D. Unit Cabinet:
1. The cabinet shall be space saving and shall be located into the ceiling.
 2. Three auto-swing positions shall be available to choose, which include standard, draft prevention and ceiling stain prevention.
 3. The airflow of the unit shall have the ability to shut down outlets with multiple patterns allowing for simpler installation in irregular spaces.
 4. The cabinet shall be constructed with sound absorbing foamed polystyrene and polyethylene insulation.
- E. Fan:
1. The fan shall be direct-drive turbo fan type with statically and dynamically balanced impeller with three fan speeds available.
 2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.06 to 0.14 HP.
 3. The airflow rate shall be available in three settings.
 4. The fan motor shall be thermally protected.
- F. Filter:
1. The return air shall be filtered by means of a washable long-life filter with mildew proof resin.
- G. Coil:
1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
 2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
 3. The coil shall be a 3-row cross fin copper evaporator coil with 21 FPI design completely factory tested.
 4. The refrigerant connections shall be flare connections and the condensate will be 1 inch outside diameter PVC.
 5. A condensate pan with antibacterial treatment shall be located under the coil.
 6. A condensate pump with a 23-5/8 inch lift shall be located below the coil in the condensate pan with a built-in safety alarm.
 7. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:

1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- J. Optional Accessories Available:
1. Remote "in-room" sensor kit (KRCS01-4B).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).
 2. Sensor Kit (BRE49B1F)
 - i. The infrared presence sensor can detect human presence and adjust the airflow direction automatically to prevent drafts. Optional and configurable energy saving occupancy control can be performed when no presence is detected
 - ii. The infrared floor sensor can detect the floor temperature and automatically adjust operation of the indoor unit to provide an improved and even temperature distribution
 3. Air Outlet Blocking Decoration Panel (KDBTP49B140)
 4. Blocking Material Kit for 2-way Discharge (KDBHP49B140)

FXEQ – ONE WAY BLOW CASSETTE UNIT

- A. General: Daikin indoor unit model FXEQ shall be a ceiling suspended cassette fan coil unit, operable with R-410A refrigerant, equipped with an electronic expansion valve, for installation onto a ceiling within a conditioned space. It shall be available in capacities from 7,500 Btu/h to 24,000 Btu/h. Model numbers are FXEQ07PVJU, FXEQ09PVJU, FXEQ12PVJU, FXEQ15PVJU, FXEQ18PVJU, FXEQ24PVJU to be connected to outdoor unit model RXYQ / RXYMQ / RWEYQ heat pump and REYQ / RWEYQ heat recovery model. It shall be a one-way air distribution type, fresh white, impact resistant with a washable panel. The supply air is distributed via motorized vertical and horizontal louvers which can be adjusted from 0° to 45° and 20° to 70° respectively. Computerized PID control shall be used to control superheat to deliver a comfortable room temperature condition. The unit shall be equipped with a programmed drying mechanism that dehumidifies while limiting changes in room temperature when used with Daikin remote control BRC1E73. The indoor units sound pressure shall range from 26 dB(A) to 38 dB(A) at low speed measured at 3.3 feet below the unit.
- B. Performance: Each unit's performance is based on nominal operating conditions:

Model Number	Cooling (Indoor 80°F DB / 67°F WB, Outdoor 95°F DB, 25 ft pipe length)	Heating (Indoor 47°F DB / 43°F WB, Outdoor 70°F DB, 25 ft pipe length)
FXEQ07PVJU	7,500	8,500
FXEQ09PVJU	9,500	10,500
FXEQ12PVJU	12,000	13,500
FXEQ15PVJU	15,000	17,000

FXEQ18PVJU	18,000	20,000
FXEQ24PVJU	24,000	27,000

C. Indoor Unit:

1. The Daikin indoor unit FXEQ shall be completely factory assembled and tested. Included in the unit is factory wiring, piping, electronic proportional expansion valve, control circuit board, fan motor thermal protector, flare connections, condensate drain pan, condensate lift pump, condensate safety shutoff and alarm, self-diagnostics, auto-restart function, 3-minute fused time delay, and test run switch.
2. The indoor unit shall be able to process up to 15% fresh air
3. Indoor unit and refrigerant pipes will be charged with dehydrated air prior to shipment from the factory.
4. Both refrigerant lines shall be insulated from the outdoor unit.
5. Return air shall be through the flat back panel, which includes a white resin net mold resistant filter.
6. The indoor units shall be equipped with a condensate pan and condensate pump. The condensate pump provides up to 33-716" of lift and has a built in safety shutoff and alarm.
7. The indoor units shall be equipped with a return air thermistor.
8. Motor and some of the electrical components shall be reachable through the decoration panel.
9. The indoor unit will be separately powered with 208~230V/1-phase/60Hz.
10. The voltage range will be 253 volts maximum and 187 volts minimum.

D. Unit Cabinet:

1. The cabinet shall be space saving and shall be located into the ceiling.
2. The cabinet shall have a built in 4" knock-out to connect fresh air intake
3. The cabinet shall be constructed with sound absorbing foamed polyurethane noise insulation.
4. The cabinet shall be equipped with foamed polystyrene and foamed polyethylene heat insulation.

E. Fan:

1. The fan shall be direct-drive Sirocco fan type with statically and dynamically balanced impeller with five selectable fan speeds available.
2. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range from 0.11 to 0.15 HP.
3. The airflow rate shall be available in five settings.
4. The fan motor shall be thermally protected.

F. Filter:

1. The return air shall be filtered by means of a mold resistant Resin net filter.
2. The filter shall be accessible from the decoration panel

G. Coil:

1. Coils shall be of the direct expansion type constructed from copper tubes expanded into aluminum fins to form a mechanical bond.
2. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance.
3. The coils for units up to 1 ton shall be a 2-row cross fin copper evaporator coil with 20.5 FPI design completely factory tested for the
4. The coils for units from 1.25 ton to 2.0 ton shall be 2-row cross fin copper evaporator coil with 20.5 FPI and an additional row with 15.9 FPI.
5. The refrigerant connections shall be flare connections and the condensate will be 1-1/32 inch outside diameter PVC.
6. A condensate pan with antibacterial treatment shall be located under the coil.

7. A condensate pump with a 33-7/16 inch lift shall be located below the coil in the condensate pan with a built-in safety alarm.
 8. A thermistor will be located on the liquid and gas line.
- H. Electrical:
1. A separate power supply will be required of 208/230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
 2. Transmission (control) wiring between the indoor and outdoor unit shall be a maximum of 3,280 feet (total 6,560 feet).
 3. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.
- I. Control:
1. The unit shall have controls provided by Daikin to perform input functions necessary to operate the system.
 2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
 3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
- J. Standard Accessories Required:
1. Decoration panel BYEP40AW1 shall be required for operation of FXEQ07 PVJU thru FXEQ15PVJU
 2. Decoration panel BYEP63AW1 shall be required for operation of FXEQ18PVJU and FXEQ24PVJU.
- K. Optional Accessories Available:
1. Remote controller wire type (BRC1E73)
 2. Simplified remote controller (BRC2A71)
 3. Remote "in-room" sensor kit (KRCS01-4B).
 - i. The Daikin wall mounted, hard wired remote sensor kit is recommended for ceiling-embedded type fan coils, which often result in a difference between set temperature and actual temperature. The sensor for detecting the temperature can be placed away from the indoor unit (branch wiring is included in the kit).
 4. Central remote controller (DCS302C71)
 5. Electrical box (KJB311AA)
 6. Unified ON/OFF controller (DCS301C71)
 7. Electrical box (KJB212AA)
 8. Scheduled timer (DST301BA61)
 9. Intelligent Touch controller (DCS601C71)
 10. DIII-NET expander adaptor (DTA109A51)
 11. Wiring adaptor printed circuit board (KRP1C75)
 12. Group control adaptor printed circuit board (KRP4A74)
 13. Adaptor mounting box (KRP1B101)

ERV Size Range:**300 to 1200 nominal cubic feet per minute**

Daikin AC Model Number:

VAM300GVJU

VAM470GVJU

VAM600GVJU

VAM1200GVJU

2.3 ENERGY RECOVER VENTILATOR

A. General:

The fresh air ventilation system shall consist of the Daikin VAM-GVJU series energy recovery ventilator, incorporating a high-efficiency paper, cross-flow heat exchanger core in order to provide both sensible and latent heat recovery.

A. Unit Cabinet:

1. The cabinet shall be constructed of galvanized steel plate.
2. The unit shall be internally insulated with a self-extinguishing urethane foam.

B. Fans:

1. The fans shall be direct-drive, forward-curved centrifugal type with statically and dynamically balanced impellers with extra-high, high, and low fan speeds.
2. The fan motor(s) shall operate on 208-230 volts, 1 phase, 60 hertz.
3. The air flow rate shall be available in extra-high, high, and low settings.
4. The fan motor shall be thermally protected.

C. Filter:

1. The supply and exhaust air streams shall be filtered prior to entering the heat exchanger core by means of a multidirectional fibrous fleece filter.

D. Heat Exchanger:

1. The heat exchanger element shall consist of a specially processed, nonflammable, HEP (high efficiency paper) heat exchanger designed to allow the exchange of both sensible and latent energy between the supply and exhaust airstreams. The core material shall be tested as specified in UL 723 and have a flame spread rating of not more than 25, and a smoke developed rating of not more than 50.

E. Electrical:

1. A separate power supply will be required of 208-230 volts, 1 phase, 60 hertz. The acceptable voltage range shall be 187 to 253 volts.
2. Transmission (control) wiring between the indoor unit and remote controller shall be a maximum distance of 1,640 feet.

F. Control:

1. The unit shall be compatible with Daikin D-III net via the F1/F2 terminal.
2. The unit shall be capable of the following methods of control:
 - i. Independent control – The unit shall be operable directly by a local remote controller.
 - ii. Interlocked control – The unit shall be operable in conjunction with a VRV or Sky Air system by a local remote controller.
 - iii. Centralized control – The unit shall be operable by a centralized control without the need for a local remote controller to be connected.
3. The unit shall be capable of the following modes of operation:
 - i. Energy recovery
 - ii. Bypass ventilation – The unit shall be capable of bypass ventilation which diverts air flow around the heat exchanger core. No energy recovery is performed.
 - iii. Auto Mode – The unit shall be capable of automatically determining the need for performing energy recovery or bypassing the heat exchanger core based on the current fan coil operation mode and the current indoor and outdoor temperatures.
 - iv. Fresh-up Mode (supply) – The unit shall be capable of entering Fresh-up Supply operation in which the incoming supply air ratio is greater than the exhaust air ratio.

- v. Fresh-up Mode (exhaust) – The unit shall be capable of entering Fresh-up Exhaust operation which in the incoming supply air ratio is less than the exhaust air ratio.
- vi. Night Time Free Cooling – The unit shall be capable of Night Time Free Cooling in which the unit will automatically energize to lower the space temperature based on the current outdoor temperature, the current indoor temperature, current set point, and the operating state of the indoor fan coils.

G. Installation

1. The unit shall be capable of inverted installation if required by ductwork and access clearance requirements.
2. The unit shall not require a condensate drain connection or condensate pan of any kind.

H. Accessories Available

1. Replacement air filter.
2. BRC1E - Navigation Remote Controller

PART 3 EXECUTION

3.1 INSTALLATION REQUIREMENTS

The system must be installed by a Daikin factory trained contractor/dealer. The bidders shall be required to submit training certification proof with bid documents. The mechanical contractor's installation price shall be based on the systems installation requirements. The mechanical contractor bids with complete knowledge of the HVAC system requirements. Untrained contractors who wish to bid this project may contact Cyrus Booker to arrange training prior to bid day.

3.2 PERFORMANCE

The energy recovery ventilator units shall be based on nominal airflow conditions:

System Model	Nominal Airflow (CFM)	External Static (in. H ₂ O) EX-H/H/L
VAM300GVJU	300	0.64 / 0.26 / 0.16
VAM470GVJU	470	0.73 / 0.39 / 0.33
VAM600GVJU	600	0.76 / 0.34 / 0.32
VAM1200GVJU	1200	0.56 / 0.16 / 0.24

The cooling thermal recovery and enthalpy recovery efficiencies shall be based on 95°F DB / 78°F WB for the entering supply air and 75°F DB / 63°F WB for the exhaust air, at both 100% nominal airflow and 75% nominal airflow.

The heating thermal recovery and enthalpy recovery efficiencies shall be based on 35°F DB / 33°F WB for the entering supply air and 70°F DB / 58°F WB for the exhaust air, at both 100% nominal airflow and 75% nominal airflow.

			VAM300GVJU	VAM470GVJU	VAM600GVJU	VAM1200GVJU
Temperature Recovery Efficiency %	Cooling	100%	65	68	72	72
		75%	70	72	74	74
	Heating	100%	65	66	70	70
		75%	69	69	73	73
Enthalpy Recovery Efficiency %	Cooling	100%	40	45	49	49
		75%	48	50	52	52
	Heating	100%	57	59	60	60
		75%	63	65	63	63

3.3 OPERATING RANGE

The equipment operating range shall be 5°F DB ~ 122°F DB and 80%RH or less.

END OF SECTION

- RECESSED LIGHTING FIXTURE - PROVIDE 1300 LUMEN BATTERY BACK-UP EMERGENCY BALLAST. RUN ADDITIONAL UNSWITCHED HOT CONDUCTOR TO EACH FIXTURE LOCATION.
- RECESSED LIGHTING FIXTURE
- WALL MTD. EMERGENCY LIGHTING FIXTURE
- SURFACE, PENDANT OR BRACKET MTD. LIGHTING FIXTURE
- EXIT FIXTURE - FACE & DIRECTIONAL ARROWS AS INDICATED, TYPE "E", UOI.
- A** DENOTES FIXTURE TYPE "A" - SEE FIXTURE SCHEDULE
- WALL MTD. WIRELESS WALL SWITCH WITH DIMMING. TIME-OUT SHALL BE SET TO 5 MINUTES FOR ALL AREAS, UOI. LUTRON PX-3BRL-GWH-I01 OR APPROVED EQUIVALENT- MTD. 48" AFF, UOI
- CEILING MOUNTED WIRED OCCUPANCY SENSOR. DELAY TIME SHALL BE SET TO 5 MINUTES FOR ALL AREAS, UOI. LUTRON LOS-CDT-2000-WH OR APPROVED EQUIVALENT.
- DUPLEX RECEPTACLE, MTD. 18" AFF, UOI
- DOUBLE DUPLEX RECEPTACLE, MTD. 18" AFF, UOI
- RECEPTACLE FOR TV EQUIPMENT, CENTER MTD. 96" AFF, UOI
- GROUND FAULT INTERRUPTER RECEPTACLE, MTD. 44" AFF, UOI
- 120/208V 3PH, 4W PANELBOARD
- 277/480V 3PH, 4W PANELBOARD
- TRANSFORMER
- WIRE IN CONDUIT RUN OVERHEAD - CONCEALED IN OR ABOVE CEILING IN WALL OR EXPOSED ON STRUCTURE
- WIRE IN CONDUIT RUN CONCEALED BELOW FLOOR, IN WALL OR BELOW GRADE
- INDICATES GROUNDING CONDUCTOR
- CONTACTOR - PROVIDE AMPERAGE & NUMBER OF POLES AS REQUIRED.
- MOTOR CONNECTION - NO. INDICATES HORSEPOWER
- FUSED DISCONNECT SWITCH IN WP ENCLOSURE - SIZE AS INDICATED
- CONNECTION TO MOTORIZED DAMPER
- OUTLET FOR DATA CABLE MTD. 18" AFF, UOI. - RUN 1" EMPTY CONDUIT UP TO NEAREST ACCESSIBLE CEILING SPACE - PROVIDE BLANK COVERPLATE
- D-X** INDICATES NUMBER OF DATA DROPS - BY DIVISION 27 - SEE SPECS
- TV DEVICE AND ADJACENT RECEPTACLE MTD. 98" AFF. SEE ARCH. ELEVATIONS FOR EXACT LOCATION. RUN 1" EMPTY CONDUIT UP TO NEAREST ACCESSIBLE CEILING SPACE - PROVIDE BLANK COVERPLATE
- TELEPHONE BACKBOARD - 0.75" AC PLYWOOD, 8' TALL. INSTALL PER OWNER'S STANDARDS.
- NOTE INDICATION
- UOI** UNLESS OTHERWISE INDICATED
- GFCI** GROUND FAULT CIRCUIT INTERRUPTER
- WP** WEATHERPROOF
- EX** EXISTING
- FIRE ALARM SYSTEM - MANUAL PULL STATION, MTD. 48" AFF, UOI.
- FIRE ALARM SYSTEM - COMBINATION AUDIBLE & VISUAL INDICATOR
- FIRE ALARM SYSTEM - VISUAL SIGNAL DEVICE
- FIRE ALARM SYSTEM - SMOKE DETECTOR MTD. IN DUCT
- FACP** FIRE ALARM SYSTEM - CONTROL PANEL
- INDICATES DEVICE TO BE REMOVED
- INTERCOM/PAGING CEILING MOUNTED SPEAKER
- FIRE STOPPING COMMUNICATIONS PENETRATION. EZ PATH BY STI FIRE STOP - NO SUBSTITUTE, 22 INDICATES EZD22, 33 INDICATES EZDP33FWS, & 44 INDICATES EZD44. LOCATIONS WITH (3) 44'S REQUIRE A EZP544W WALL KIT. FURNISHED AND INSTALLED BY DIVISION 26. PENETRATION SHALL BE ABOVE FINISHED CEILING, AS APPLICABLE.
- RECESSED CONNECTION BLOCK FOR POWER, COAXIAL, USB AND HDMI CABLES (DATACOMM ELECTRONICS MODEL # 45-0010-WH OR APPROVED EQUAL). SHALL HAVE (1) DUPLEX PLATE, (1) COAXIAL PLATE, AND (1) DATA PLATE. FLUSH MOUNT IN CEILING, AGAINST WALL, CENTERED ABOVE WALL MOUNTED PROJECTOR. USB AND HDMI CABLING SHALL BE PER SMART TV MANUFACTURER'S REQUIREMENTS. ROUTE FROM TEACHER'S DESK LOCATION TO SMART TV LOCATION AS INDICATED ON PLANS.
- J** J-HOOK ARRAY
- SECURITY CAMERA - ELECTRICAL CONTRACTOR SHALL PROVIDE EMPTY BOX AND CONDUIT. ROUTE 3/4" UP TO NEAREST ACCESSIBLE CEILING SPACE. PROVIDE SEPARATE BOX AND CONDUIT WITH 120V CIRCUIT AS INDICATED. COORDINATE MOUNTING HEIGHT WITH OWNER. INDOOR CAMERAS SHALL BE AXIS MODEL # 5502-781 (WITH 0511-001 RING). OUTDOOR CAMERAS SHALL BE AXIS MODEL # 0637-001. CAMERA & DATA CABLING BY DIVISION 27.
- ARUBA WIRELESS ACCESS POINT (MODEL # AP-305) AND ARUBA MOUNTING KIT (MODEL # AP-220-MNT-02) WITH 75" TO CEILING SPACE FOR WIRELESS ACCESS POINT - PROVIDE 2 DATA DROPS FROM NEAREST DATA CLOSET.
- FIRE ALARM SYSTEM - CEILING MTD. SMOKE DETECTOR
- INTERCOM PUSH BUTTON - MTD. 48" AFF. SEE SPECIFICATIONS
- MAGNETIC DOOR HOLDER
- FIRE ALARM SPRINKLER SYSTEM TAMPER SWITCH
- FIRE ALARM SPRINKLER SYSTEM POST INDICATOR VALVE WITH TAMPER SWITCH
- FIRE ALARM SPRINKLER SYSTEM ELECTRICAL GONG

FIXTURE MOUNTING		FIXTURE TYPE		LENS		FINISH	
R-RECESSED	U-UNIVERSAL	F-FLUORESCENT	L-LED	A-ACRYLIC	P-POLYCARBONATE	WH-WHITE	CB-CARBON BRONZE
S-SURFACE	W-WALL	LED-LIGHT EMITTING DIODE		G-GLASS			

TYPE NO.	MANUF'R	CATALOG NO.	FIX. MTG.	FIX. TYPE	LENS	FIN.	LAMP NO.	WATTS	VOLTS	COMMENTS
A	METALUX	24SR-LD1-48-C-UNV-L840	R	LED	A	WH	-	49	UNV	LED VOLUMETRIC TROFFER - PROVIDE WITH DIMMING BALLAST, UOI
AE	METALUX	24SR-LD1-48-C-UNV-EL14-L840	R	LED	A	WH	-	49	UNV	LED VOLUMETRIC TROFFER - PROVIDE WITH DIMMING BALLAST AND 1400 LUMEN EMERGENCY OPTION, UOI
D	PRESCOLITE	LF6LED-6LFLED5-40K-WT	R	LED	G	WH	-	25	UNV	LED DOWNLIGHT WITH WET-LOCATION LENS
DE	LITHONIA	AFN-DB-EXT-FWD	W	LED	G	DB	-	11	UNV	LED ARCHITECTURAL EMERGENCY LIGHT
E	SURE-LITES	EEX-2-G	U	LED	P	WH	-	4.6	UNV	LED EXIT SIGN - MTD. ABOVE DOOR HEADER AS REQUIRED
J	LUMARK	XTOR5A-MS/DIM-L20	W	LED	A	CB	-	50	UNV	LED WALL PACK WITH INTEGRAL PHOTOCELL AND DIMMING DRIVER - SEE NOTE 4

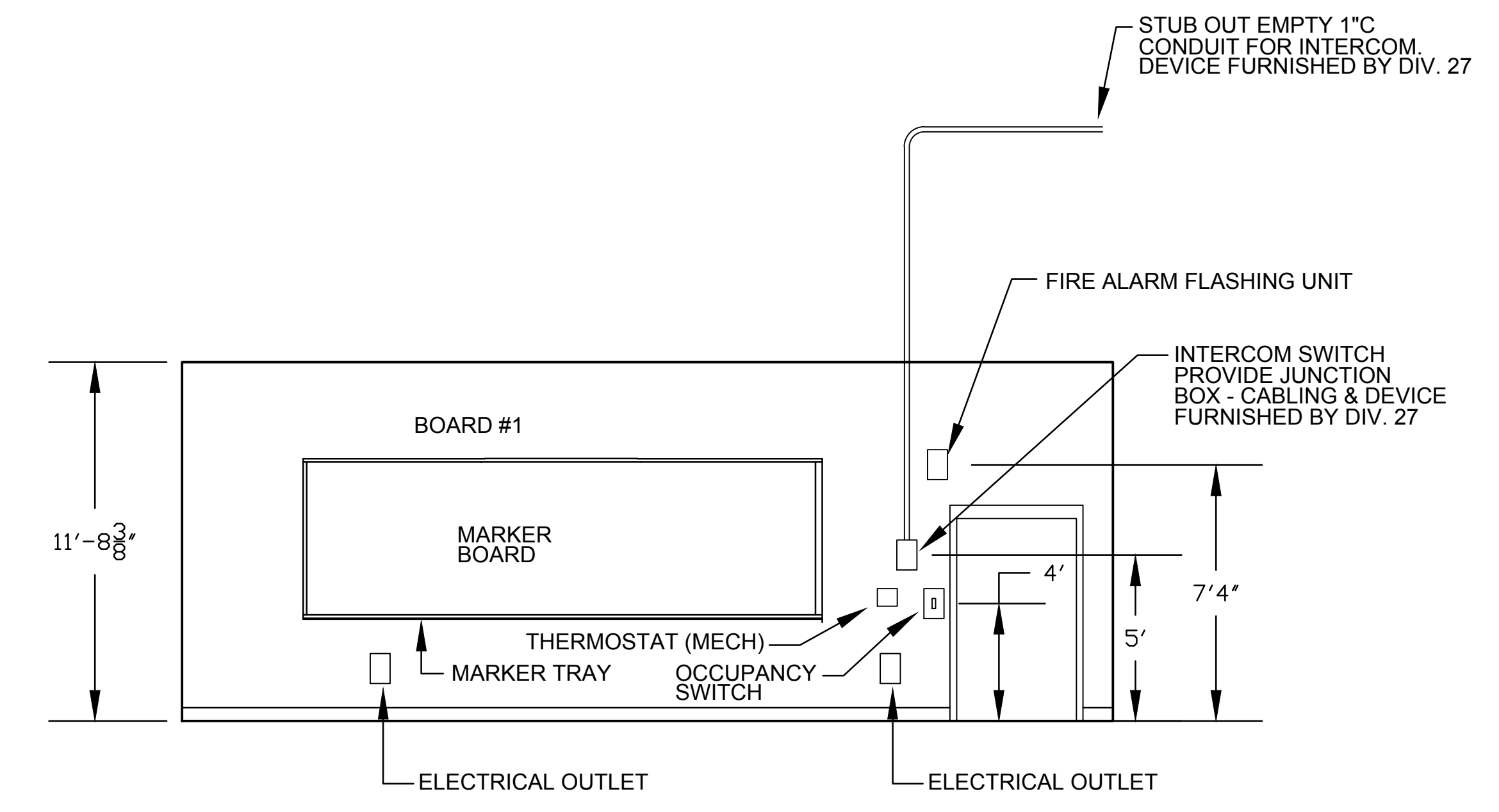
GENERAL LIGHTING NOTES:

- ALL BALLASTS SHALL BE ELECTRONIC WITH ≤ 20% THD.
- ALL "EQUAL" ALTERNATE FIXTURES ARE SUBJECT TO APPROVAL BY ARCHITECT/ENGINEER, 10 DAYS PRIOR TO BID.
- ALL EXIT FIXTURES SHALL BE WALL, CENTER MOUNTED ABOVE DOOR HEADER, UOI.
- FIXTURE MOUNTING SHALL BE COORDINATED WITH ARCHITECTURAL ELEVATIONS.

L8	LIGHTING FIXTURE SCHEDULE - ELECTRICAL
	NO SCALE

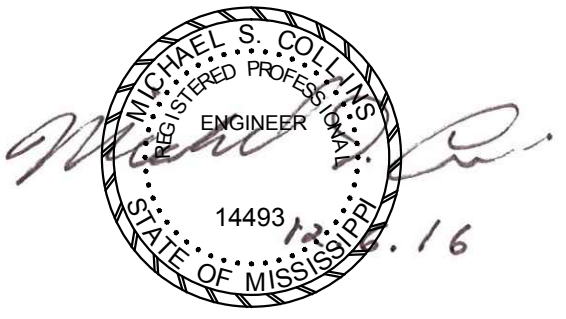
GENERAL NOTES:

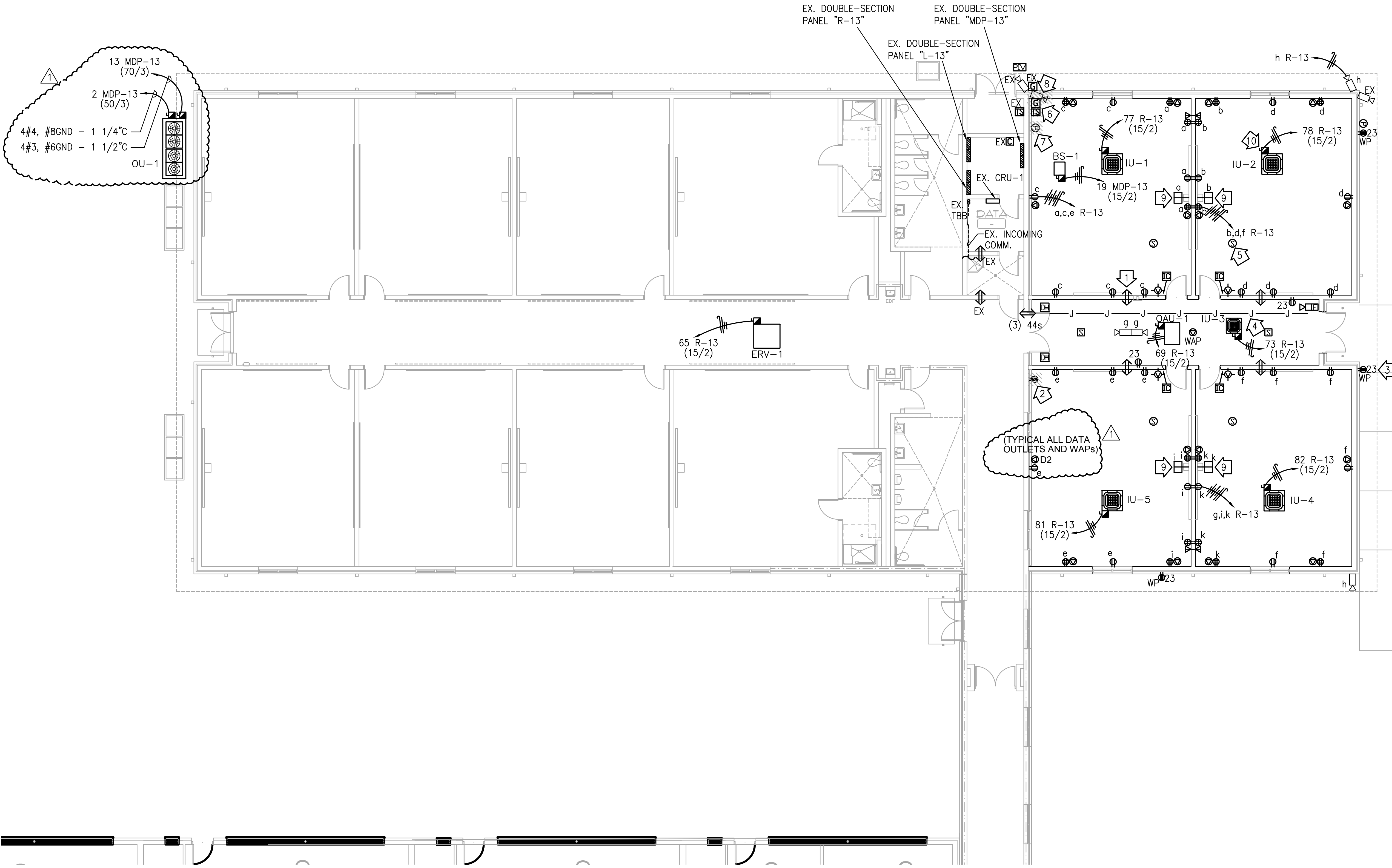
- CONTRACTOR SHALL PROVIDE ALL ACCESSORIES AND CIRCUITRY AS REQUIRED FOR OPERATION OF ALL OCCUPANCY SENSORS. CONTRACTOR SHALL PROVIDED OCCUPANCY SENSORS RATED FOR EXHAUST FANS AS REQUIRED.
- CONTRACTOR SHALL PROVIDE PROJECTORS, DATA, AND INTERCOM SYSTEMS INCLUDING WIRING AS DESCRIBED IN THE SPECIFICATIONS.
- CONTRACTOR SHALL TIE ALL FIRE ALARM DEVICES INTO EXISTING FIRE ALARM SYSTEM IN EXISTING SCHOOL. CONTRACTOR SHALL PROVIDE (1) NEW LOOP CARD AND (2) NEW POWER SUPPLIES TO ALLOW INTEGRATION OF NEW FIRE ALARM DEVICES.



A1	LEGEND - ELECTRICAL
	NO SCALE

A11	CLASSROOM WALL SCHEMATIC - ELECTRICAL
	NO SCALE





GENERAL NOTES:

1. EXPAND EXISTING FIRE ALARM SYSTEM TO CONNECT NEW INITIATING, CONTROL, AND ANNUNCIATING DEVICES.
2. DISCONNECTS ARE PROVIDED BY MECHANICAL AND SHALL BE CIRCUITED BY ELECTRICAL CONTRACTOR. COORDINATE WITH MECHANICAL.
3. COORDINATE WITH OWNER FOR EXACT CAMERA LOCATIONS AND AIMS.
4. CIRCUITS DESIGNATED BY LOWER-CASE LETTERING ARE DIAGRAMMATIC AND SHALL BE SELECTED BY THE CONTRACTOR IN THE DESIGNATED PANEL, IN A BALANCED MANNER. CONTRACTOR SHALL UPDATE ALL EXISTING PANEL CIRCUIT DIRECTORIES WITH NEW, TYPED DIRECTORIES.

REFERENCE NOTES:

1. (3) 33s (TYPICAL FOR (4) LOCATIONS).
2. DEMOLISH WP, GFCI RECEPTACLE.
3. EXTEND CIRCUIT "23 R-13" FROM DEMOLISHED OUTDOOR RECEPTACLE TO NEW CORRIDOR/EXTERIOR RECEPTACLES LABELED FOR CIRCUIT #23 (SEE REFERENCE NOTE #2).
4. PROVIDE AN ARRAY OF J-HOOKS ABOVE CEILING OF CORRIDOR TO SUPPORT DATA CABLES AND OTHER LOW VOLTAGE CABLES. SPACE J-HOOKS PER CABLE MANUFACTURER STANDARDS. COORDINATE INSTALLATION WITH ALL TRADES.
5. COORDINATE CEILING SPEAKERS WITH REFLECTED CEILING PLAN AND LIGHT FIXTURES (TYPICAL).
6. DEMOLISH TAMPER SWITCH AND GONG ELECTRICAL CONNECTIONS. MAKE NEW ELECTRICAL CONNECTIONS TO EXISTING TAMPER SWITCH AND GONG AT NEW LOCATIONS AS SHOWN. PROVIDE EXTENSIONS AS REQUIRED.
7. DEMOLISH PHOTOCELL AND PROVIDE NEW PHOTOCELL AT NEW ROOF LINE AS SHOWN. PROVIDE EXTENSIONS AS REQUIRED.
8. CLEAN AND RELOCATE CAMERA TO NEW BUILDING CORNER AS SHOWN. PROVIDE EXTENSION TO CIRCUIT "4 R-13" AND DATA EXTENSIONS AS REQUIRED. COORDINATE WITH OWNER FOR CORRECT CAMERA AIM.
9. PROVIDE HBL4750B10GY SURFACE MOUNTED RACEWAY WITH COVER FROM CEILING DOWN TO WALL COMPONENT OF WALL MOUNTED EPSON EB-585WI PROJECTOR. FOR CONCEALING PROJECTOR CABLES. FIELD-CUT RACEWAY AS REQUIRED (APPROX. 12"). PAINT TO MATCH WALL.
10. TAP ONE HOT AND ONE NEUTRAL FROM DISCONNECT TO POWER 120V PLASMA AIR IONIZER IN IU (TYPICAL (5) IUs).

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SOUTHAVEN ELEMENTARY SCHOOL EXPANSION

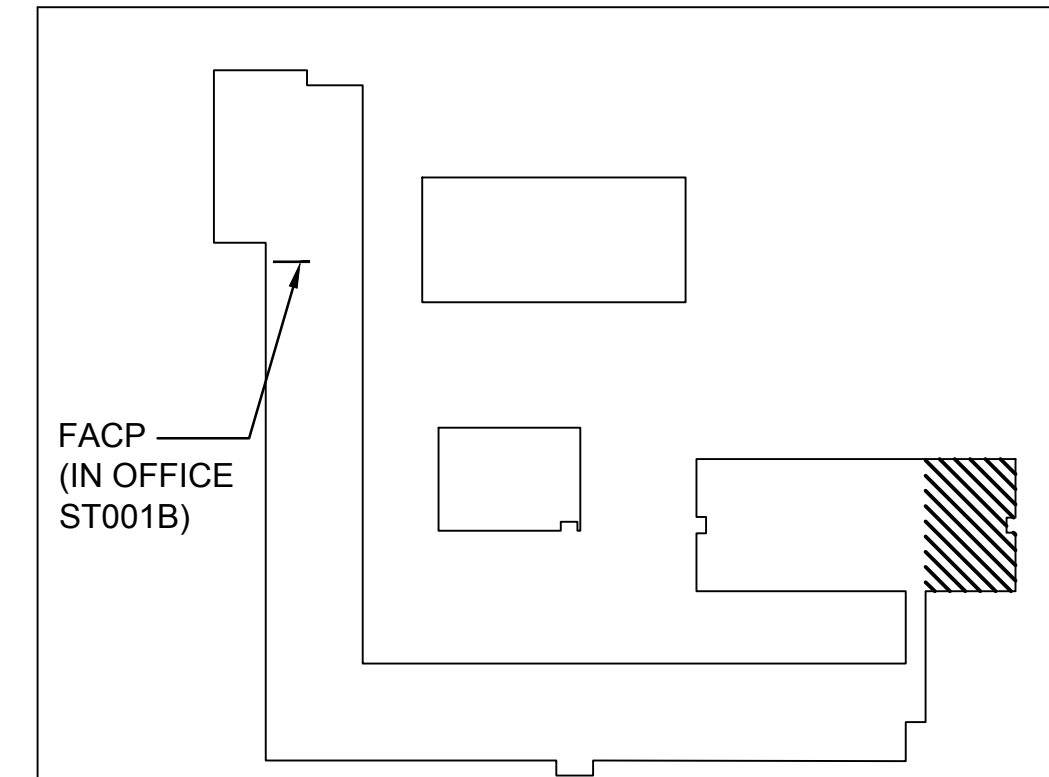
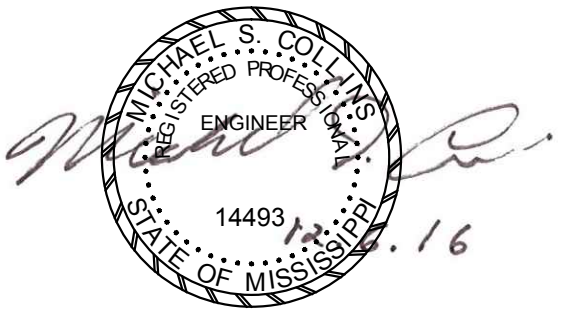
8274 Claiborne Dr.
Southaven, MS 38671

Desoto County School District
5 East South Street, Hernando, Mississippi 38632

No.	Revision	Date
1	ADDENDUM NO. 1	1.13.17

FLOOR PLAN - POWER,
COMMUNICATIONS, AND FIRE ALARM
- ELECTRICAL

JOB NO: 62565
DATE: 12.06.16
DRAWN: JAB
CHECKED: MSC
CAD FILE: E3.1



A1 FLOOR PLAN - POWER, COMMUNICATIONS, AND FIRE ALARM - ELECTRICAL

A16 KEYPLAN

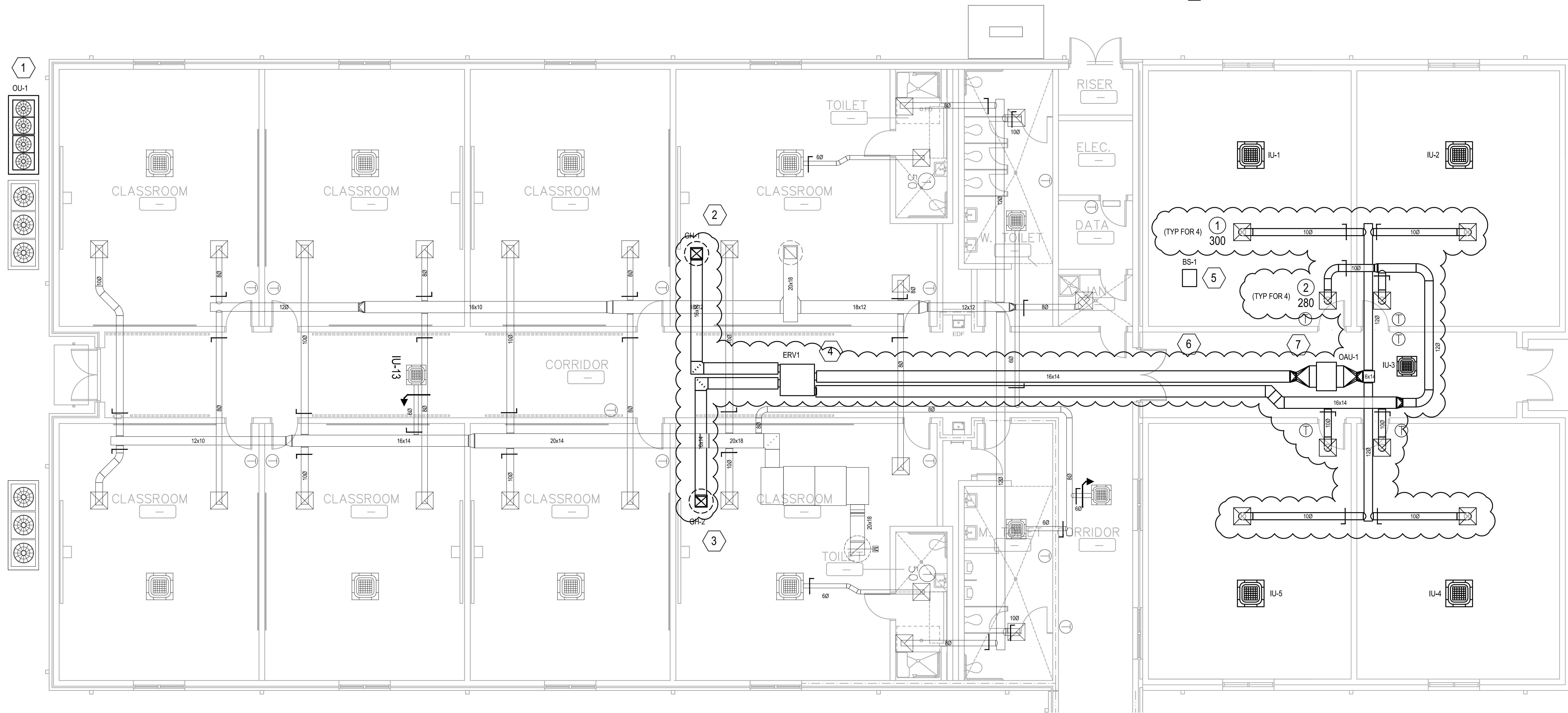
1/8" = 1'-0"

NO SCALE

E3.1

KEYNOTES:

- 1 MECHANICALLY FASTEN CONDENSING UNIT TO POURED IN PLACE CONCRETE PAD. ROUTE REFRIGERANT PIPING THRU WALL TO BRANCH SELECTOR. SPACE CONDENSING UNITS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. PROVIDE LINE SIZES FOR UNIT FROM UNIT MANUFACTURER FOR APPROVAL PRIOR TO INSTALLING PIPING. CONCRETE PAD TO EXTEND TO BUILDING AND 12" PAST EQUIPMENT ON ALL SIDES. MAINTAIN 30" CLEARANCE BETWEEN EQUIPMENT AND BUILDING.
- 2 16x14 EAD UP TO GH-1 ON ROOF. GH-1 TO BE EQUAL TO GREENHECK GRSR-16. PROVIDE WITH INTEGRAL BIRDSCREEN, GRAVITY BACKDRAFT DAMPER, AND PITCHED ROOF CURB. PRESSURE DROP NOT TO EXCEED 0.08" @ 1120 CFM.
- 3 16x14 OAD UP TO GH-2 ON ROOF. GH-2 TO BE EQUAL TO GREENHECK GRSI-18. PROVIDE WITH INTEGRAL BIRDSCREEN, GRAVITY BACKDRAFT DAMPER, AND PITCHED ROOF CURB. PRESSURE DROP NOT TO EXCEED 0.08" @ 1200 CFM.
- 4 LOCATE ERV IN ATTIC SPACE OF EXISTING BUILDING. EXTEND SERVICE PLATFORM AS REQUIRED TO ACCESS AND SERVICE UNIT.
- 5 LOCATE BRANCH SELECTOR ABOVE CEILING.
- 6 ROUTE EAD AND OAD THROUGH EXISTING ROOF IN NEW ATTIC SPACE. CUT OPENINGS AS REQUIRED. TURN DOWN BELOW DECK AND ROUTE DUCTS ABOVE CEILING AFTER ENTERING NEW BUILDING.
- 7 LOCATE OAU-1 ABOVE CEILING.



1 FLOOR PLAN - MECHANICAL
SCALE: 3/16" = 1'-0"

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Desoto County School District
5 East South Street, Hernando, Mississippi 38632

No.	Revision	Date
1	ADDENDUM #1	01.13.17

FLOOR PLAN - MECHANICAL

JOB NO: 62565
DATE: 12.06.16
DRAWN: DCM
CHECKED: WLP
CAD FILE: M1.1

