COMcheck Software Version COMcheckWeb
Mechanical Compliance Certificate

Project Information

Energy Code:	90.1 (2019) Standard
Project Title:	Project Kona - Bldg Shell
Location:	Beavercreek, Ohio
Climate Zone:	4a
Project Type:	New Construction

Construction Site:
4123 Colonel Glenn Hwy
Beavercreek, Ohio 45431

Owner/Agent:

Designer/Contractor:
Dayton
Detmer Mechanical Services
9181 N. Dixie Dr.
Dayton, Ohio 45414
9377093877
troot@detmermechanical.com

Mechanical Systems List

Quantity System Type & Description

8 RTU1 thru RTU8 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 310 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 81.00 % Et
Cooling: 1 each - Single Package DX Unit, Capacity = 227 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.80 EER, Required Efficiency = 10.80 EER
Proposed Part Load Efficiency = 14.50 IEER, Required Part Load Efficiency = 14.00 IEER
Fan System: FAN SYSTEM 1 | 17.5 Ton RTU -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 7000 CFM, 5.0 motor nameplate hp, 1.00 fan energy index

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COM*check* Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Theresa A. Root, P.E.-Mechanical Engineer — Name - Title
Theresa A. Root, P.E. — Signature
11-4-24 — Date

DUCT CONSTRUCTION & SEALING

DUCT SYSTEM	SMACNA CLASSIFICATION (NOTE 1) SUPPLY AIR S.P. CONSTRUCTION	SUPPLY AIR SEAL CLASS	RETURN AIR S.P. CONSTRUCTION	RETURN AIR SEAL CLASS	EXHAUST AIR S.P. CONSTRUCTION	EXHAUST AIR SEAL CLASS	NOTES
DUCT MAINS	3"	B	-2"	B	-2"	B	2
DUCT BRANCHES	1"	B	-1"	B	-1"	B	2

NOTES:
1. FOR DUCT SYSTEMS NOT LISTED, REFER TO SMACNAS "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" FOR REQUIREMENTS.
2. REFER TO SPECIFICATIONS FOR DUCT CONSTRUCTION OPTIONS CONCERNING: METAL DUCT, DUCT LINER, DUCT INSULATION AND DUCT ACCESSORIES.

MIN. DUCT INSUL. R-VALUE (NOTE 1)

SUPPLY & RETURN FOR SERVICE(S)	CLIMATE ZONE	DUCT LOCATION EXTERIOR (NOTE 2)	UNCONDITIONED SPACE AND BURIED DUCTS	INDIRECTLY CONDITIONED SPACES (NOTE 3 & 4)	NOTES
HEATING & COOLING	0 TO 4	R-8	R-6	R-1.9	
	5 TO 8	R-12	R-6	R-1.9	
HEATING ONLY	0 TO 1	NONE	NONE	NONE	
	2 TO 4	R-6	R-6	R-1.9	
	5 TO 8	R-12	R-6	R-1.9	
COOLING ONLY	0 TO 6	R-8	R-6	R-1.9	
	7 TO 8	R-1.9	R-1.9	R-1.9	

NOTES:
1. INFORMATION TAKEN FROM ANSI/ASHRAE/ESNA STANDARD 90.1-2019, TABLE 6.8.2. MINIMUM INSULATION R-VALUES MAY BE EXCEEDED. INSULATION R-VALUES, MEASURED IN H-FT2-F/Btu, ARE FOR THE INSULATION INSTALLED AND DO NOT INCLUDE FILM FILM RESISTANCE.
2. INCLUDES ATTICS ABOVE INSULATED CEILINGS, PARKING GARAGES AND CRAWL SPACES.
3. INCLUDES RETURN AIR PLENUMS WITH OR WITHOUT EXPOSED ROOFS ABOVE.
4. RETURN DUCTS IN THIS DUCT LOCATION DO NOT REQUIRE INSULATION.

MINIMUM DUCT SEAL LEVEL (NOTE 1)

DUCT LOCATION	DUCT TYPE SUPPLY ≤ 2 in. w.c.	SUPPLY > 2 in. w.c.	RETURN	EXHAUST
OUTDOOR	A	A	A	C
UNCONDITIONED SPACES	B	A	B	C
CONDITIONED SPACES (NOTE 2)	C	B	C	B

NOTES:
1. THIS IS A COMPILATION OF ASHRAE 90.1 & SMACNA DUCT CONSTRUCTION STDS.
2. INCLUDES INDIRECTLY CONDITIONED SPACES SUCH AS RETURN AIR PLENUMS.

SEAL CLASS REQUIREMENTS:
CLASS A ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS, AND DUCT WALL PENETRATIONS.. PRESSURE-SENSITIVE TAPES SHALL NOT BE USED AS THE PRIMARY SEALANT, UNLESS IT HAS BEEN CERTIFIED TO COMPLY W/ UL-181A OR UL 181B BY AN INDEPENDENT TESTING LABORATORY AND THE TAPE IS USED IN ACCORDANCE WITH THAT CERTIFICATION.
CLASS B ALL TRANSVERSE JOINTS AND LONGITUDINAL SEAMS. PRESSURE-SENSITIVE TAPES SHALL NOT BE USED AS THE PRIMARY SEALANT, UNLESS IT HAS BEEN CERTIFIED COMPLY W/ UL-181A OR UL-181B BY AN INDEPENDENT TESTING LABORATORY AND THE TAPE IS USED IN ACCORDANCE WITH THAT CERTIFICATION.
CLASS C ALL TRANSVERSE JOINTS

DIV. 23 - MECHANICAL SPECIFICATIONS

23 0500 - COMMON WORK RESULTS FOR HVAC

A. CUTTING OF EXISTING OR NEW CONSTRUCTION BY SAWING, DRILLING, BREAKING, CHIPPING, GRINDING, AND SIMILAR OPERATIONS, REQUIRED TO INSTALL SYSTEMS SHOWN, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR DIRECTLY RELATED TO THE WORK BEING PERFORMED.

23 0593 - TESTING, ADJUSTING, AND BALANCING

A. ASHRAE 62.1-2019: VENTILATION SYSTEMS SHALL BE BALANCED AT LEAST TO THE EXTENT THAT IS NECESSARY IN ORDER TO VERIFY AIRFLOW (SUPPLY, RETURN, EXHAUST, ETC.) QUANTITIES ARE WITHIN PLUS OR MINUS 10% OF THE CFM INDICATED IN THE CONSTRUCTION DOCUMENTS.

23 0700 - HVAC INSULATION

A. DUCTWORK INSULATION: INSULATION AND INSTALLATION SHALL COMPLY WITH OMC 604.

B. INSULATION SHALL BE MINERAL-FIBER WITH ALL-PURPOSE FACTORY-APPLIED FSK JACKET WHICH MEETS OR EXCEEDS THE 25/50 FLAME SPREAD/SMOKE DEVELOPED RATINGS.

C. DUCTWORK THAT IS NOT INTERNALLY LINED OR CONSTRUCTED WITH 1" THICK FIBERBOARD SHALL BE PROVIDED WITH 1" THICK MIN. FSK INSULATION THAT MEETS OR EXCEEDS CODE REQUIRED MINIMUM INSTALLED R-VALUE.

D. MINIMUM DUCT INSULATION R-VALUE SHALL BE PER TABLE 6.8.2 "MINIMUM DUCT INSULATION R-VALUE, COMBINED HEATING AND COOLING SUPPLY DUCTS AND RETURN DUCTS." REFER TO CLIMATE ZONE 5 IN ASHRAE 90.1-2019 FOR R-VALUES.

23 3113 - METAL DUCTS

A. DUCTWORK SYSTEMS SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" AND OMC 603 FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS.

B. MATERIAL: GALVANIZED SHEET STEEL; LOCK-FORMING QUALITY; COMPLYING WITH ASTM A 653/A 653M AND HAVING G60 COATING DESIGNATION; DUCTS SHALL HAVE MILL-PHOSPHATIZED FINISH FOR SURFACES EXPOSED TO VIEW.

C. DUCT LINER: FIBROUS-GLASS; 1" THICK WITH THERMAL CONDUCTIVITY OF 0.26 AT 75 DEG F MEAN TEMPERATURE; COMPLY WITH NFPA 90A OR NFPA 90B AND NAIMA AH124. SURFACES EXPOSED TO AIRSTREAM SHALL BE COATED TO PREVENT EROSION OF GLASS FIBERS. MAXIMUM 25/50 FLAME-SPREAD/SMOKE-DEVELOPED INDEX PER ASTM E 84.

D. HANGER AND SUPPORTS: GALVANIZED SHEET STEEL OR THREADED STEEL ROD; SIZE AND INSTALLED PER SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

E. RECTANGULAR DUCT: FABRICATE DUCTS, ELBOWS, TRANSITIONS, ETC. IN ACCORDANCE WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE."

F. ROUND DUCT: LONGITUDINAL- AND SPIRAL LOCK-SEAM DUCTS SHALL BE FABRICATED OF GALVANIZED STEEL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE."

23 3116 - NONMETAL DUCTS

A. FIBROUS-GLASS DUCTS SHALL COMPLY WITH SMACNA'S "FIBROUS GLASS DUCT CONSTRUCTION STANDARDS" FOR DUCT AND FITTING FABRICATION, CLOSURE, REINFORCEMENT AND INSTALLATION METHODS.

B. FIBROUS-GLASS DUCTS (DUCT BOARD) SHALL BE CLASS 1 WITH FLAME-SPREAD INDEX OF 25 WITH NO EVIDENCE OF PROGRESSIVE COMBUSTION, AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50. DUCTS SHALL COMPLY WITH NFPA 90A AND NFPA 90B.

C. DUCT BOARD SHALL BE A RIGID, RESIN BONDED FIBROUS GLASS BOARD WITH A TOUGH, DAMAGE-RESISTANT, FLAME RETARDANT, REINFORCED ALUMINUM FOIL (FRK) FACING. DURABLE MAT AIR STREAM SURFACE SHALL ISOLATE THE GLASS FIBER SUBSTRATE FROM THE AIRSTREAM. INTERIOR SURFACE SHALL ALSO INCLUDE AN EPA REGISTERED BIOCIDE THAT PROTECTS THE AIR STREAM SURFACE FROM MICROBIAL GROWTH AND MEETS ASTM C 1338, ASTM G 21 (FUNGI TEST) AND ASTM G22 (BACTERIA TEST).

D. HANGER AND SUPPORTS: GALVANIZED SHEET STEEL; GALVANIZED-STEEL HANGER WIRE; AND GALVANIZED-STEEL CHANNELS.

E. CLOSURE MATERIAL: FOIL-SCRIM TAPE COMPLYING WITH UL 181A.

F. REQUIRED MARKINGS: EI-RATING, UL LABEL, AND OTHER MARKINGS REQUIRED BY UL 181 ON EACH FULL SHEET OF DUCT BOARD; UL RATINGS FOR CLOSURE MATERIALS.

G. SIZES SHOWN ON THE DRAWINGS ARE INSIDE DIMENSIONS. FIBROUS-GLASS DUCTS DO NOT NEED EXTERIOR INSULATION.

H. MANUFACTURERS: OWENS CORNING #800 (1.5" THICKNESS, R-6) OR EQUAL.

23 3300 - DUCT ACCESSORIES

A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESSES, AND DUCT CONSTRUCTION METHODS.

B. MANUAL BALANCING DAMPERS: SINGLE-BLADE, OPPOSED-BLADE DESIGN, STANDARD LEAKAGE RATING WITH LINKAGE OUTSIDE OF AIRSTREAM, AND SUITABLE FOR HORIZONTAL OR VERTICAL INSTALLATIONS. INCLUDE LOCKING DEVICE TO HOLD SINGLE-BLADE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION.

C. TURNING VANES: FABRICATE 1-1/2" WIDE DOUBLE-WALL VANE, CURVED BLADES OF GALVANIZED SHEET STEEL SET 3/4" O.C.; SUPPORT WITH BARS PERPENDICULAR TO BLADES SET 2" O.C.; AND SET INTO VANE RUNNERS SUITABLE FOR DUCT MOUNTING.

D. 4" FLEXIBLE CANVAS CONNECTOR: FLAME-RETARDANT OR NONCOMBUSTIBLE FABRICS, COATINGS, AND ADHESIVES COMPLYING WITH UL 181, CLASS 1. GLASS FABRIC DOUBLE COATED WITH NEOPRENE; 26 OZ./SQ. YD. MINIMUM WEIGHT; SERVICE TEMP -40 TO +200 DEG F.

E. FLEXIBLE DUCTS: INSULATED CONNECTORS SHALL COMPLY WITH UL 181, CLASS 1, BLACK POLYMER FILM SUPPORTED BY HELICALLY WOUND, SPRING-STEEL WIRE; FIBROUS-GLASS INSULATION; POLYETHYLENE VAPOR BARRIER FILM. CONNECT TO DUCT WITH NYLON STRAPS.

F. FIRE DAMPERS: LABELED ACCORDING TO UL 555; RATED FOR 1.5 HOURS; CURTAIN TYPE WITH BLADES OUTSIDE OF AIRSTREAM. FABRICATED ROLL-FORMED, GALVANIZED-STEEL FRAME. SLEEVE SHALL BE INTEGRAL WITH DAMPER OR PROVIDED BY THE MECHANICAL CONTRACTOR. DAMPER TO BE COMPLETE WITH REPLACEABLE 165 DEG F RATED FUSIBLE LINK. FIRE DAMPERS SHALL BE STATIC TYPE FOR USE IN HVAC SYSTEMS THAT ARE AUTOMATICALLY SHUT DOWN IN THE EVENT OF FIRE.

23 3423 - EXHAUST FANS

A. POWER VENTILATORS SHALL BE OF SIZE, CAPACITY, AND ELECTRICAL REQUIREMENTS AS INDICATED ON THE DRAWING AND AS SPECIFIED HEREIN.

B. UNITS SHALL BE LISTED, LABELED AND COMPLY WITH NFPA 70, AMCA AND UL 705.

C. UNITS SHALL INCLUDE: INTEGRAL OR PLUG TYPE DISCONNECT; GRAVITY BACKDRAFT DAMPER; VIBRATION ISOLATION; DUCT CONNECTION; 12"H ROOF CURB

23 3713 - DIFFUSERS, REGISTERS, AND GRILLES

A. DEVICES SHALL HAVE A WHITE ENAMEL BAKED FINISH UNLESS NOTED OTHERWISE.

B. DEVICES SHALL BE AS FOLLOWS:
SUPPLY: LAY-IN: 24"x24" or 12"x12"; NECK SIZE ON PLAN — TITUS #OMNI | PRICE #SPD
SURFACE: DBL DEFLECTION; SIZE ON PLAN — TITUS #300RS | PRICE #520D
RETURN: LAY-IN: LOUVER FACE; SIZE ON PLAN 3/4" SPACING; 45 DEG DEFLECTION — TITUS #350RL | PRICE #530

C. PROVIDE SHEET METAL ROUND TO RECTANGULAR RETURN AIR BOX (FULL SIZE) AT EACH RETURN AIR DEVICE WITH NECK/COLLAR AS SHOWN FOR DUCTED RETURNS; FLAT BLACK INTERIOR.

D. DEVICE NECK SIZE w/AIRFLOW RANGES IF NOT SHOWN ON PLANS:

SUPPLY:			RETURN/ EXHAUST:		
6"DIA	0 – 125 CFM		6"DIA	0 – 125 CFM	
8"DIA	125 – 225 CFM		8"DIA	125 – 225 CFM	
10"DIA	225 – 325 CFM		10"DIA	225 – 400 CFM	
12"DIA	350 – 450 CFM		12"DIA	400 – 700 CFM	
14"DIA	450 – 650 CFM		14"DIA	700 – 1,100 CFM	

E. BASIS OF DESIGN: TITUS, PRICE, OR EQUAL.

GENERAL NOTES

A. PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE CONTRACT DRAWINGS, IN ACCORDANCE WITH THE MFR'S RECOMMENDATIONS, AS SPECIFIED AND AS REQUIRED BY ALL APPLICABLE STATE, CITY AND LOCAL CODES AND REGULATIONS. ALL MECHANICAL WORK SHALL BE INSPECTED AND APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO COVER-UP.

B. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY UNLESS NOTED OTHERWISE. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST RESULTS SHALL BE DETERMINED AND COORDINATED WITH FIELD CONDITIONS.

C. LOCATION OF AIR DEVICES SHALL BE COORDINATED WITH REFLECTED CEILING PLANS, SPRINKLER HEAD LAYOUTS, ETC. PRIOR TO DOING ROUGH-IN OR INSTALLATION WORK. PROVIDE DUCT RUNOUTS TO DIFFUSERS, GRILLES AND REGISTERS SAME SIZE AS THE DEVICE NECK.

D. ALLOWABLE LENGTH OF FLEXIBLE DUCT FOR CONNECTIONS TO AIR DEVICES SHALL NOT BE LIMITED IN LENGTH (OMC 603.6.1.1). SUPPORT DUCTWORK PER SMACNA AND INSTALL WITHOUT SHARP BENDS, KINKS, ETC. FLEXIBLE CONNECTORS/DUCT SHALL NOT PASS THROUGH ANY WALL, FLOOR, CEILING OR FIRE-RESISTANCE-RATED ASSEMBLY (OMC 603.6.2.2 & OMC 607.7).

E. REFER TO ARCHITECTURAL SHEETS FOR LOCATION OF WALLS THAT EXTEND UP TO ROOF DECK/STRUCTURE AND WALLS THAT ONLY EXTEND UP TO THE BOTTOM OF THE ROOF JOIST/FRAMING OR ABOVE CEILING SYSTEM.

F. CONTRACTOR HAS THE OPTION OF PROVIDING ROUND OR RECTANGULAR GALV. SHEET METAL DUCTWORK WITH 2" THICK FSK WRAPPED INSULATION (R-6 VALUE AFTER INSTALLATION) OR 1" THICK FIBERGLASS DUCTBOARD. DUCTWORK MAY BE RE-SIZED AT 0.08" TO 0.10" W.G. PER 100' OF DUCT AS NECESSARY IN ORDER TO ACCOMMODATE FIELD CONDITIONS.

G. INSTALL ALL REFRIGERANT PIPING AND ACCESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND ANSI/ASHRAE STANDARD 15 "SAFETY STANDARD FOR REFRIGERATION SYSTEMS."

H. EQUIPMENT: PROVIDE SERVICE AND OPERATING CLEARANCES AROUND ALL SIDES OF EACH PIECE OF EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED REQUIREMENTS AND RECOMMENDATIONS.

SCOPE OF WORK - Shell HVAC

A. INSTALL PACKAGED ROOFTOP UNITS (GAS-FIRED/DX COOLING) W/CURB AND DUCT DROPS DUCT TO RESPECTIVE FLOORS FOR THE BUILDING SHELL.

B. REQUIRED ROOF OPENING FRAMING/SUPPORTS SHALL BE BY OTHERS.

C. FURNISH AND INSTALL CORE RESTROOM & HOUSE/ELECTRICAL ROOM EXHAUST FAN W/DUCTWORK EXTENDED OUT AT EACH FLOOR TO AREAS AS INDICATED.

D. A DUCTED MINI-SPLIT SYSTEM SHALL BE FURNISHED AND INSTALLED TO CONDITION THE ELEVATOR SHAFT; DUCT PENETRATIONS PROVIDED W/FIRE DAMPERS.

E. AN ELECTRIC UNIT HEATER SHALL BE PROVIDED AND INSTALLED IN HOUSE ROOM TO KEEP AREA(S) ABOVE FREEZING.

F. AN ELECTRIC WALL HEATER SHALL BE PROVIDED AND INSTALLED AT THE FIRST FL LANDING OF ENCLOSED STAIRWELL(S).

SCOPE OF WORK - T.I. 2nd FL NASK

A. PROVIDE FULLY DUCTED AIR DISTRIBUTION SYSTEMS WITH AIR DEVICES, ZONE/AND BYPASS DAMPERS, RF WAVEGUIDES, MAN BARS, CONTROLS, ACCESSORIES, ETC., FOR A FULLY FUNCTIONAL AND OPERATIONAL SYSTEM.

B. ELECTRICAL, IT SERVER, LAB ROOMS, ETC. SHALL BE PROVIDED WITH A DEDICATED, STAND ALONE DUCTLESS MINI SPLIT SYSTEM AS DIRECTED BY THE TENANT WITH ROOF MOUNTED OUTDOOR UNITS AND WIRED, WALL MOUNTED THERMOSTATS PROVIDED FOR EACH SYSTEM.

LEGEND

NOTE: NOT ALL SYMBOLS MAY BE USED

- SA — SUPPLY AIR DUCTWORK
- RA — RETURN AIR DUCTWORK
- EA — EXHAUST AIR DUCTWORK
- OA — OUTSIDE AIR DUCTWORK
- SUPPLY AIR DEVICE
- RETURN AIR DEVICE
- EXHAUST AIR DEVICE
- S, 1hr, FD — SMOKE DETECTOR (FACTORY INSTALLED IN ROOFTOP UNIT UNDER BLDG SHELL PKG)
- FIRE DAMPER W/WALL RATING INDICATED
- AP, AD — ACCESS DOOR (AD) OR PANEL (AP)
- MANUAL BALANCE DAMPER W/LOCKING QUADRANT
- DOUBLE WALL TURNING VANES
- RADIUS ELBOW
- RECTANGULAR TO ROUND TRANSITION
- SUPPLY AIRFLOW SYMBOL
- RETURN/EXHAUST AIRFLOW SYMBOL
- U/C — DOOR UNDERCUT BY G.C. (3/4" MAX. FOR RATED DOORS-NFPA 80-SECTION 6.3.1.7.1)
- ZD1 (RTU2) — THERMOSTAT/ZONE DMPR CTRL/RTU SHOWN
- AS ZD1 (RTU2) — REMOTE AVERAGING SENSOR W/RTU SHOWN
- ZONE (ZDx) OR BYPASS (BPDx) DAMPER
- CO2 — CO2 SENSOR (FACTORY INSTALLED IN ROOFTOP UNIT UNDER BLDG SHELL PKG)
- D — CONDENSATE DRAIN LINE (SCH 40 PVC)
- SB, AD SB — SECURITY/MAN BAR ASSEMBLIES W/ACCESS DOORS (HORIZONTAL/FLOOR; VERTICAL/WALL) REFER TO DETAILS ON SHEET M002 FOR SECURITY BAR (SB) ASSEMBLY REQUIREMENTS
- WG, AD WG — RF WAVEGUIDE ASSEMBLY W/ACCESS DOOR (HORIZONTAL/FLOOR; VERTICAL/WALL); SEE DETAILS ON SHEET M002 FOR ADDITIONAL INFORMATION OR REQUIREMENTS.

ABBREVIATIONS

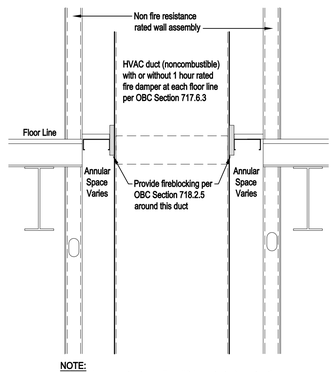
A	AMP
ACH	AIR CHANGES PER HOUR
AD/AP	ACCESS DOOR/PANEL
AFF	ABOVE FINISH FLOOR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
ARI	AIR CONDITIONING & REFRIG. INSTITUTE
AS	AVERAGING SENSOR
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIG. AND AIR-CONDITIONING ENGINEERS, INC.
BTUH	BRITISH THERMAL UNIT PER HOUR
CFH	CUBIC FOOT PER HOUR
CFM	CUBIC FEET PER MINUTE
DIA, ø	DIAMETER
E.C.	ELECTRICAL CONTRACTOR
ETR, EXIST.	EXISTING TO REMAIN
E.S.P.	EXTERNAL STATIC PRESSURE
EER	ENERGY EFFICIENCY RATIO
FLA	FULL LOAD AMPS
G.C.	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTER
HP	HORSEPOWER
M.C.	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPS
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MOCP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
NEC	NATIONAL ELECTRIC CODE
O.C.	ON CENTER
OBC	OHIO BUILDING CODE
OMC	OHIO MECHANICAL CODE
P.C.	PLUMBING CONTRACTOR
PF	PLASTER FRAME
PVC	POLYVINYL CHLORIDE PLASTIC
R.F.	RADIO FREQUENCY
R.O.	ROOF OPENING
RAS	RETURN AIR SILENCER
RLA	RATED LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
S.P.	STATIC PRESSURE
SB	SECURITY/MAN BARS
SCH	SCHEDULE
SEER	SEASONAL ENERGY EFFICIENCY RATING
SF	SQUARE FEET
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
STC	SOUND TRANSMISSION CLASS
TYP	TYPICAL
UL	UNDERWRITER'S LABORATORY
UNO	UNLESS NOTED OTHERWISE
VRF	VARIABLE REFRIGERANT FLOW
VTR	VENT THRU ROOF
WG	WAVEGUIDE
ZP	ZONE PANEL

Mechanical Sheet Index

APPLICABLE CODES

APPLICABLE CODES AND EDITION YEAR SHOWN BELOW FOR THIS PROJECT INCLUDE:
2024 OHIO BUILDING CODE (OBC)
2024 OHIO MECHANICAL CODE (OMC)
2024 OHIO PLUMBING CODE (OPC)
2021 INTERNATIONAL FUEL GAS CODE (IFGC)
2019 ANSI/ASHRAE/IES STANDARD 90.1 "ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS"
2019 ANSI/ASHRAE STANDARD 62.1 "VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY"

Work Performed Under the Building Shell Package



NOTE:
This building is constructed as Type IIB (unprotected) construction and is equipped with an automatic fire suppression system.

OBC Section 714.6 "Non Fire Resistance Rated Floor Assemblies", Penetrations of nonfire-resistance-rated floor or floor/ceiling assemblies or the ceiling membrane of a nonfire-resistance-rated roof/ceiling assembly shall meet the requirements of Section 713 or shall comply with Section 714.6.1 or 714.6.2

OBC Section 714.6.1 "Noncombustible penetrating items" Noncombustible penetrating items that connect not more than five stories are permitted, provided that the annular space is filled to resist the free passage of flame and the products of combustion with an approved noncombustible material or with a fill, void or cavity material that is tested and classified for use in through penetration firestop systems.

OBC Section 714.6.2 "Penetrating Items" Penetrating items that connect not more than two stories are permitted, provided that the annular space is filled with an approved material to resist the free passage of flame and the products of combustion.

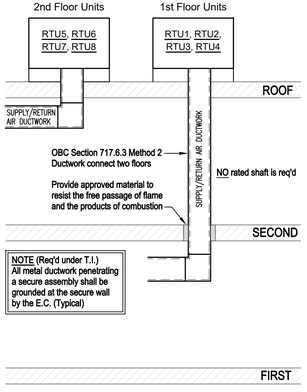
Fill the annular space between non fire resistance rated floor and duct with approved non combustibule material, such as 1" gypsum board shaft liner panel, coped to ductwork, and supported as required with noncombustible material. Secure to prevent accidental relocation. Provide firestopping consisting of mineral wool insulation safing and/or caulking that resists the free passage of flame and the products of combustion at any remaining gap.

No UL Assembly rating is required since there is no fire resistance rating to be maintained.

OBC Section 717.6.3 "Nonfire-resistance-rated Floor Assemblies" Duct systems constructed of approved materials in accordance with the Mechanical Code that penetrate non fire-resistance-rated floor assemblies shall be protected by any of the following methods:
1. A shaft enclosure in accordance with Section 713.
2. The duct connects not more than two stories, and the annular space around the penetrating duct is protected with an approved non-combustible material that resists the free passage of flame and the products of combustion.
3. In floor assemblies composed of noncombustible materials, a shaft shall not be required where the duct connects not more than three stories, the annular space around the penetrating duct is protected with an approved noncombustible material that resists the free passage of flame and the products of combustion and a fire damper is installed at each floor line.

ANNULAR SPACE BETWEEN DUCTWORK & NON-FIRE RESISTANCE RATED FLOOR ASSEMBLIES

SCALE: NONE (Refer to Architectural Drawing set for more information; shown here for coordination purposes)



HVAC SHAFT SCHEMATIC

SCALE: NONE (Refer to Architectural Drawing Set for more information; shown here for coordination purposes)

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

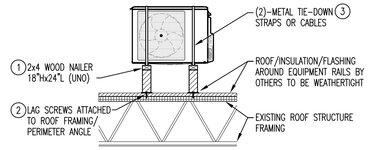
STATE OF OHIO — THERESA A. ROOT — E68169 — REGISTERED PROFESSIONAL ENGINEER
Theresa A. Root
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

MECHANICAL SCHEDULES & SPECs

SHEET NO.

M001



DETAIL NOTES

1. 18"Hx24"L (UNO) 2"x4" SELF LEVELING EQUIPMENT SUPPORT RAIL.
2. LAG SCREWS (#12-1"L) SHALL BE PROVIDED AT 12" O.C. ON ALL SIDES AND SECURED TO THE PERIMETER ANGLE PROVIDED BY OTHERS. NO. OF LAG SCREWS REQ'D AT EACH RAIL:
   24"L RAILS:
   - (2) LONG SIDE OF UNIT
   - (1) SHORT SIDE OF UNIT
3. PROVIDE (2)-METAL TIE-DOWN STRAPS OR CABLES W/(2)-SIDE-BY-SIDE #12 SCREWS ON EACH STRAP SECURED TO THE EQUIPMENT RAILS.

GENERAL NOTES

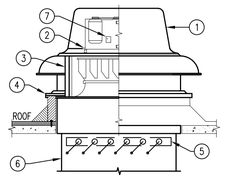
A. ALL ROOF/ROOFING WORK (FLASHING, SEALING, ETC.) TO BE PERFORMED BY THE ROOFING CONTRACTOR. COORDINATE AND FIELD VERIFY RAIL SPACING W/ ROOFING CONTRACTOR PRIOR TO ROUGH-IN WORK.

B. EQUIPMENT INSTALLATION AND SECUREMENT SHALL BE IN COMPLIANCE FOR RESISTANCE TO HIGH WIND-PRESSURES FOR 3-SECOND WIND GUST SPEEDS OF 115 MPH (OBC CHAPTER 16) AND OMC 301.15 "WIND RESISTANCE: MECHANICAL EQUIPMENT, APPLIANCES AND SUPPORTS THAT ARE EXPOSED TO TO WIND SHALL BE DESIGNED AND INSTALLED TO RESIST THE WIND PRESSURES DETERMINED IN ACCORDANCE WITH THE BUILDING CODE.

C. EQUIPMENT ATTACHMENT INFORMATION IS BASED ON FEMA DOCUMENT: "ATTACHEMENT OF ROOFTOP EQUIPMENT IN HIGH-WIND REGIONS."

EQUIPMENT RAIL DETAIL

SCALE: NONE



DETAIL NOTES

1. EXHAUST FAN WITH SPUN ALUMINUM HOUSING AND COMPONENTS.
2. VIBRATION ELIMINATORS INTEGRAL TO FAN.
3. ALUMINUM BIRDSCREEN.
4. SECURE FAN TO CURB W/ LAG SCREWS (#12-1"L) AT NOT MORE THAN 6" O.C. ALL AROUND. SECURE CURB TO PERIMETER ANGLE (BY OTHERS) (#12-1"L).
5. GRAVITY BACKDRAFT DAMPER; FACTORY INSTALLED.
6. DUCT EXTENSION, SAME SIZE AS FAN/DAMPER OPENING. PROVIDE SMOOTH TRANSITION TO DUCT SIZE AS SHOWN ON PLANS.
7. INTEGRAL DISCONNECT SWITCH.

GENERAL NOTES

A. REFER TO FAN SCHEDULE, DRAWING NOTES, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

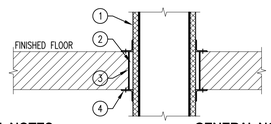
B. COORDINATE ALL ROOFING REQUIREMENTS WITH ROOFING CONTRACTOR PRIOR TO BEGINNING ANY WORK. REFER TO ROOF PLAN FOR CURB LOCATION AND SIZE OF ROOF OPENING. ROOF OPENING & FRAMING SHALL BE BY OTHERS.

C. THE EQUIPMENT MANUFACTURER MAY OUTLINE FLASHING METHODS, STRUCTURAL OPENING REQUIREMENTS, SEALING, TECHNIQUES, ETC., WHICH MUST BE COORDINATED WITH THE G.C.

D. INSTALL FAN LEVEL AND PLUMB AND PER THE FAN MANUFACTURER'S INSTALLATION INSTRUCTIONS.

EXHAUST FAN (REF1 & REF2)

SCALE: NONE



DETAIL NOTES

1. REFER TO PLANS FOR DUCT SIZES; SIZES SHOWN ARE INSIDE DIMENSIONS; INCREASE SIZE BASED ON THICKNESS OF INSULATION WHERE REQ'D.
2. 1/2" CLEARANCE AROUND FLOOR/CEILING OPENING. PROVIDE APPROVED MATERIAL IN THE ANNULAR SPACE BETW. THE ANGLES THAT RESISTS THE FREE PASSAGE OF FLAME AND THE PRODUCTS OF COMBUSTION.
3. PROVIDE 20 GAGE GALV. SLEEVE WHERE NECESSARY TO PROTECT FLOOR ASSEMBLY.
4. 2"x2"x1/4" ANGLE ALL AROUND DUCT FOR RIGIDITY.

GENERAL NOTES

A. REFER TO SMACNA "HVAC DUCT CONSTRUCTION STANDARDS--METAL AND FLEXIBLE" AND THE SPECIFICATIONS FOR INSULATION INSTALLATION REQUIREMENTS AND THICKNESS.

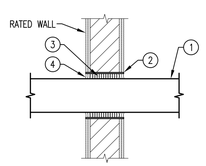
B. IF PASSING THRU A RATED ASSEMBLY, PROVIDE THE APPROPRIATE SMOKE OR FIRE DAMPER FOR A CODE COMPLIANT INSTALLATION.

DUCT THRU FLOOR (NON-FIRE RATED ASSEMBLY)

SCALE: NONE

DETAIL NOTES

1. REFER TO PLAN FOR DUCT AND/OR PIPE SIZE(S).
2. 20 GAGE GALVANIZED STEEL SLEEVE OR FRAMED OPENING. SLEEVED OR FRAMED OPENING SHALL BE 0.5" TO 0.75" LARGER THAN OUTSIDE DIAMETER OF DUCT OR PIPE.
3. PACK ANNULAR SPACE COMPLETELY W/MINERAL FIBER OR BULK CERAMIC FIBER AS REQ'D FOR FIRE RATING. RECESS FIBROUS MATERIAL INTO SLEEVE 0.5 INCHES OR AS REQ'D BY THE SPECIFIC U.L. SYSTEM FOR REQ'D SEALANT THICKNESS.
4. CAULK OPENINGS FROM WALL SURFACE TO DUCT OR PIPE WITH NON-HARDENING, FIRE-RATED SEALANT; BOTH SIDES OF WALL.

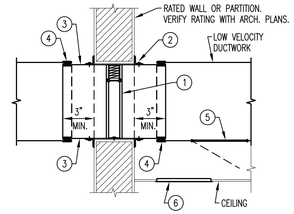


GENERAL NOTES

A. IF PASSING THRU A RATED WALL ASSEMBLY, THAT COMMUNICATES BETWEEN SPACES, PROVIDE THE REQUIRED CODE COMPLIANT SMOKE OR FIRE DAMPER.

DUCT/PIPE PENETRATION THRU WALL (FIRE-RATED)

SCALE: NONE



DETAIL NOTES

1. FIRE DAMPER AND WALL SLEEVE INTEGRAL W/DAMPER OR FURNISHED SEPARATELY. DAMPER SHALL BE FASTENED TO SLEEVE. SLEEVE SHALL EXTEND A MIN. OF 3" FROM WALL OR PER MFR'S INSTRUCTIONS.
2. RETAINING ANGLE ON ALL FOUR SIDES, GAUGE PER SMACNA. 1" MINIMUM OVERLAP OF WALL OPENING. LONGER LEG MAY BE REQUIRED TO ATTAIN REQUIRED OVERLAP. BOLT, SCREW OR TACK WELD TO WALL SLEEVE. SPACING OF FASTENERS PER SMACNA.
3. SHEET METAL WALL SLEEVE, SAME MATERIAL AS DUCT (EXCEPT USE GALVANIZED METAL FOR FIBERGLASS DUCTWORK).
4. BREAKAWAY TYPE DUCT/SLEEVE CONNECTION SHOWN. CONNECTION MAY BE RIGID TYPE IF ALLOWED BY CODE AUTHORITY HAVING JURISDICTION.
5. ACCESS PANEL OR ACCESS DOOR AS REQUIRED PER FIELD CONDITIONS.
6. ACCESS TO FIRE DAMPER IS TYPICALLY THRU AN ACCESSIBLE CEILING. FOR OTHER CEILING TYPES, AN ACCESS PANEL IS REQ'D; PANEL PROVIDED BY G.C.

GENERAL NOTES

A. FIRE DAMPERS SHALL BE FOLDED BLADE CURTAIN TYPE EXCEPT AS NOTED. VERTICAL MOUNT SHALL BE GRAVITY DROP. HORIZONTAL MOUNT SHALL BE SPRING LOADED TO CLOSE.
TYPE "A" - BLADES STORED IN AIR STREAM.

B. MOUNT FIRE DAMPER IN ACCORDANCE WITH MFR'S PUBLISHED INSTRUCTIONS. INSTALLATION SHALL ALSO CONFORM WITH NFPA 90A AND SMANCA RECOMMENDATIONS.

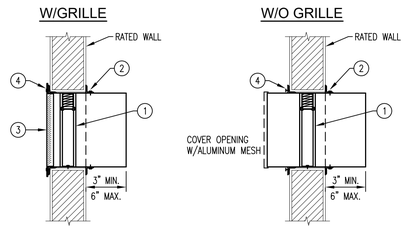
C. FIRE DAMPERS SHALL HAVE AN AFFIXED UL LABEL AND SHALL BE STATIC TYPE FOR INSTALLATION IN HVAC SYSTEMS THAT ARE AUTOMATICALLY SHUT DOWN IN THE EVENT OF FIRE.

D. COORDINATE REQ'D DAMPER RATING WITH ARCH. DRAWINGS BEFORE ORDERING DEVICES AND WITH OMC 607.3.2. MINIMUM DAMPER RATING 1.5 HR FOR 3-HOUR OR LESS FIRE-RESISTANCE RATED ASSEMBLIES.

E. FIRE DAMPER'S INSTALLATION MANUAL MUST BE KEPT ON THE JOB SITE FOR HVAC INSPECTION. (OBC 715.0 / OMC 607.0)

FIRE DAMPER AT WALL (TYPE "A")

SCALE: NONE



DETAIL NOTES

1. FIRE DAMPER AND WALL SLEEVE INTEGRAL WITH DAMPER OR FURNISHED SEPARATELY. DAMPER TO BE FASTENED TO SLEEVE. SLEEVE SHALL EXTEND A MINIMUM OF 3" FROM WALL OR AS REQUIRED BY THE MANUFACTURER'S INSTRUCTIONS.
2. PERIMETER MOUNTING ANGLES TO BE A MINIMUM OF 1.5"x1.5"x16 GA ON DAMPERS 36"x50" AND AND SMALLER. SECURE ANGLES TO SLEEVE ONLY, SO AS TO FRAME THE WALL OPENING. FASTEN TO SLEEVE ONLY USING THE SAME MEANS AS REQ'D FOR FASTENING THE DAMPER TO THE SLEEVE.
3. GRILLE TO BE A MINIMUM 26 GAUGE STEEL OR 0.025" THICK ALUMINUM CONSTRUCTION. GRILLE TO FLANGE FASTENERS CANNOT PENETRATE FIRE WALL.
4. GRILLE TO FLANGE ATTACHMENT BY MEANS OF 1/8" DIA. POP RIVETS, #8 SHEET METAL SCREWS OR #8 BOLTS AND NUTS. FASTENERS TO BE PLATED STEEL OR STAINLESS STEEL, MINIMUM TWO FASTENERS PER SIDE.

GENERAL NOTES

A. FIRE DAMPERS SHALL BE FOLDED BLADE CURTAIN TYPE EXCEPT AS NOTED. VERTICAL MOUNT SHALL BE GRAVITY DROP. HORIZONTAL MOUNT SHALL BE SPRING LOADED TO CLOSE.
TYPE "A" - BLADES STORED IN AIR STREAM.
TYPE "B" - BLADES STORED OUT OF AIR STREAM.

B. MOUNT FIRE DAMPER IN ACCORDANCE WITH MFR'S PUBLISHED INSTRUCTIONS. INSTALLATION SHALL ALSO CONFORM WITH NFPA 90A AND SMANCA RECOMMENDATIONS.

C. FIRE DAMPERS SHALL HAVE AN AFFIXED UL LABEL AND SHALL BE STATIC TYPE FOR INSTALLATION IN HVAC SYSTEMS THAT ARE AUTOMATICALLY SHUT DOWN IN THE EVENT OF FIRE.

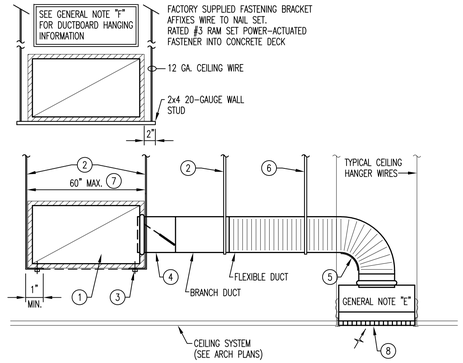
D. COORDINATE REQ'D DAMPER RATING WITH ARCH. DRAWINGS BEFORE ORDERING DEVICES AND WITH OMC 607.3.2. MINIMUM FIRE DAMPER RATING IS 1.5 HR FOR 3-HOUR OR LESS FIRE-RESISTANCE RATED ASSEMBLIES.

E. FIRE DAMPER'S INSTALLATION MANUAL MUST BE KEPT ON THE JOB SITE FOR HVAC INSPECTION. (OBC 715.0 / OMC 607.0)

FIRE DAMPER @ GRILLE (TYPE "A")

SCALE: NONE

Detail similar for NO grille at opening



DETAIL NOTES

1. RETURN OR EXHAUST DUCT; SEE PLANS FOR SIZES.
2. DUCT STRAP HANGER ATTACHED TO STRUCTURE PER SMACNA RECOMMENDATIONS.
3. SCREWS - MAY BE OMITTED IF HANGER LOOPS.
4. SPIN-IN BRACH TAP FITTING, STRAIGHT SIDE WITH MANUAL LOCKING DAMPER. DAMPER SHAFT IN HORIZONTAL INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
5. RADIUS'D ELBOW, ADJUSTABLE SHEET METAL ELBOW OR FLEXIBLE DUCT SUPPORT (INSTALLED PER MFR'S INSTRUCTIONS) REQUIRED TO ENSURE PROPER AIRFLOW INTO AIR DEVICE.
6. ADDITIONAL DUCT STRAP HANGER REQ'D IF LENGTH OF FLEXIBLE DUCT EXCEEDS 4 FEET.
7. 60" MAXIMUM UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.
8. RETURN/EXHAUST GRILLE; SEE PLAN FOR TYPE.

GENERAL NOTES

A. THE CEILING SUPPORT SYSTEM MUST SUPPORT DIFFUSER WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED. THE DIFFUSER DOES NOT SUPPORT CEILING TILE(S).

B. EXPOSED AND CONCEALED TEE BAR FRAMES ARE PROVIDED BY THE CEILING CONTRACTOR.

C. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH. SUPPORT PER SMACNA WITH NO BENDS, KINKS OR SAGS.

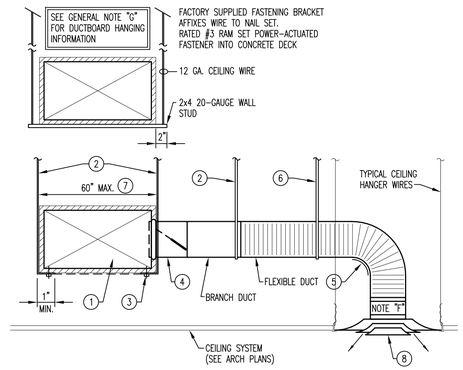
D. DUCT MATERIAL, TYPE, AND METHOD OF INSTALLATION SHALL COMPLY WITH CURRENT SMACNA STANDARDS.

E. SHEET METAL PLENUM SHALL BE SAME SIZE AS AIR DEVICE; PAINTED FLAT BLACK INTERIOR WITH A COLLAR/NECK SIZE PER PLAN.

F. TO HANG DUCTBOARD VS SHEET METAL DUCTWORK, INSTALLATION SHALL INCLUDE THE FOLLOWING IN LIEU OF WHAT'S INDICATED IN DETAIL NOTES 2, 3 & 7: PROVIDE 2x4, 20-GAUGE, METAL STUD UNDER DUCT; STUD SHALL EXTEND 2" PAST EDGE OF DUCT. 12 GAUGE CEILING WIRE (IN LIEU OF DUCT STRAP) SHALL BE ATTACHED TO THE STUD AND POWER-ACTUATED FASTENED INTO CONCRETE ABOVE WITH #3 RAM SET FASTENER.

RETURN/EXHAUST DUCT CONNECTION

SCALE: NONE



DETAIL NOTES

1. SUPPLY DUCT WITH INSULATION WHERE INDICATED; SEE PLANS FOR SIZES.
2. DUCT STRAP HANGER ATTACHED TO STRUCTURE PER SMACNA RECOMMENDATIONS.
3. SCREWS - MAY BE OMITTED IF HANGER LOOPS.
4. SPIN-IN BRACH TAP FITTING, STRAIGHT SIDE WITH MANUAL LOCKING DAMPER. DAMPER SHAFT IN HORIZONTAL INTEGRAL INSULATION GUARD SLEEVE REQUIRED FOR TAP FITTING TO MAIN DUCT WITH INTERNAL INSULATION.
5. RADIUS'D ELBOW, ADJUSTABLE SHEET METAL ELBOW OR FLEXIBLE DUCT SUPPORT (INSTALLED PER MFR'S INSTRUCTIONS) REQUIRED TO ENSURE PROPER AIRFLOW INTO AIR DEVICE.
6. ADDITIONAL DUCT STRAP HANGER REQ'D IF LENGTH OF FLEXIBLE DUCT EXCEEDS 4 FEET.
7. 60" MAXIMUM UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.
8. CEILING DIFFUSER; SEE PLAN FOR TYPE. WHERE REQUIRED, PROVIDE A SQUARE TO ROUND ADAPTER.

GENERAL NOTES

A. THE CEILING SUPPORT SYSTEM MUST SUPPORT DIFFUSER WEIGHT WHEN FLEXIBLE CONNECTIONS ARE USED; DIFFUSER DOES NOT SUPPORT CEILING TILE(S).

B. EXPOSED AND CONCEALED TEE BAR FRAMES ARE PROVIDED BY THE CEILING CONTRACTOR.

C. STRETCH FLEXIBLE DUCT TO AT LEAST 90% OF FULLY EXTENDED LENGTH. SUPPORT PER SMACNA WITH NO BENDS, KINKS OR SAGS.

D. DUCT MATERIAL, TYPE, AND METHOD OF INSTALLATION SHALL COMPLY WITH CURRENT SMACNA STANDARDS.

E. LOCKING DAMPER(S) REQUIRED IF BRANCH DUCT DUCT SERVES MORE THAN ONE DEVICE.

F. PROVIDE HARD DUCT/SPOOL PIECE AT AIR DEVICE COLLAR/NECK (SCREWED AND SEALED) PRIOR TO ATTACHING FLEX DUCTWORK TO IMPROVE AIRFLOW INTO AIR DEVICE.

G. TO HANG DUCTBOARD VS SHEET METAL DUCTWORK, INSTALLATION SHALL INCLUDE THE FOLLOWING IN LIEU OF WHAT'S INDICATED IN DETAIL NOTES 2, 3 & 7: PROVIDE 2x4, 20-GAUGE, METAL STUD UNDER DUCT; STUD SHALL EXTEND 2" PAST EDGE OF DUCT. 12 GAUGE CEILING WIRE (IN LIEU OF DUCT STRAP) SHALL BE ATTACHED TO THE STUD AND POWER-ACTUATED FASTENED INTO CONCRETE ABOVE WITH #3 RAM SET FASTENER.

SUPPLY DIFFUSER DUCT CONNECTION

SCALE: NONE

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

STATE OF OHIO · THERESA A. ROOT · E68169 · REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

MECHANICAL DETAILS

SHEET NO.

M002

OUTDOOR AIR SCHEDULE - 2nd Floor

ROOM DESIGNATION					ASHRAE 62.1–2019 TABLE 6–1 REQUIREMENTS			AIR DISTRIBUTION				
NUMBER	NAME	ROOM AREA (SQ. FT.)	NO. OF PEOPLE	NO. OF FIXTURES	EST. MAX. OCCUPANCY (P/1000 SQ. FT.)	OA CFM / PERSON	OA CFM / SQ. FT.	OA CFM – CODE MINIMUM	OA CFM – DESIGN	SUPPLY AIR CFM	RETURN AIR CFM	EXHAUST/EXFILTRATE CFM (ASHRAE 62.1, TABLE 6–2)
RTU5 (17.5 TON / 7,000 CFM)							**[O/A Dmpr @ 20%]**					
	CORRIDORS	1,294					.06	78	180	900	900	
2065	STORAGE	35					.12	4				
2067	PROPOSAL ROOM	321	8		50	5	.06	59	100	500	500	
2069	OFFICE	115	1		25	10	.12	24	35	175	175	
2070	STORAGE	63					.12	8				
2071	OFFICE	120	1		25	10	.12	24	35	175	175	
2072	STORAGE	63					.12	8				
2073	OFFICE	120	1		25	10	.12	24	35	175	175	
2075	OFFICE	120	1		25	10	.12	24	35	175	175	
2076	OFFICE	116	1		25	10	.12	24	35	175	175	
2077	STORAGE	28					.12	3				
2078	OFFICE	120	1		25	10	.12	24	35	175	175	
2079	OFFICE	120	1		25	10	.12	24	35	175	175	
2080	OFFICE	120	1		25	10	.12	24	35	175	175	
2081	OFFICE	120	1		25	10	.12	24	35	175	175	
2082	OFFICE	117	1		25	10	.12	24	35	175	175	
2083	OFFICE	120	1		25	10	.12	24	35	175	175	
2084	OFFICE	111	1		25	10	.12	23	35	175	175	
2085	OFFICE	120	1		25	10	.12	24	35	175	175	
2086	HOTELING OFFICE	100	1		25	10	.12	22	35	175	175	
2087	OFFICE	120	1		25	10	.12	24	35	175	175	
2088	HOTELING OFFICE	123	1		25	10	.12	25	35	175	175	
2089	HOTELING OFFICE	101	1		25	10	.12	22	35	175	175	
2090	HOTELING OFFICE	102	1		25	10	.12	22	35	175	175	
2091	STORAGE	36					.12	4				
2092	HOTELING OFFICE	100	1		25	10	.12	22	35	175	175	
2093	HOTELING OFFICE	98	1		25	10	.12	22	35	175	175	
2094	HOTELING OFFICE	101	1		25	10	.12	22	35	175	175	
2095	HOTELING OFFICE	100	1		25	10	.12	22	35	175	175	
2096	HOTELING OFFICE	100	1		25	10	.12	22	35	175	175	
2098	HOTELING OFFICE	100	1		25	10	.12	22	35	175	175	
2100	STORAGE	26					.12	3				
2102	HOTELING OFFICE	98	1		25	10	.12	22	35	175	175	
2104	OFFICE (CORNER)	210	1		25	10	.12	35	65	325	325	
2105	OFFICE	118	1		25	10	.12	24	45	225	225	
2106	OFFICE	116	1		25	10	.12	24	45	225	225	
2107	OFFICE	107	1		25	10	.12	23	45	225	225	
2108	OFFICE	123	1		25	10	.12	25	45	225	225	
							SYSTEM TOTALS =	882	1,400	7,000	7,000	

SYSTEM SUMMARY:

CONDITIONED AREA: 5,322 SF
DESIGN AIRFLOW: 7,000 CFM
DESIGN CFM/SF: 1.32 CFM/SF
EST. OCCUPANCY: 38 PEOPLE

MIN. O/A REQ'D: 882 CFM
DESIGN O/A: 1,400 CFM, 36.8 CFM/PERSON, 0.26 CFM/SF

MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1–2019, TABLE 6–1 IS 17.0 CFM PER PERSON FOR OFFICES AND 15.0 CFM PER PERSON FOR COMPUTER LABS

RTU6 (17.5 TON / 7,000 CFM) **[O/A Dmpr @ 17.5%]**

	CORRIDORS	577					.06	35	153	875	875	
2022	HOTELING OFFICE	118	1		25	10	.12	24	35	200	200	
2023	OFFICE	180	1		25	10	.12	32	61	350	350	
2024	HOTELING OFFICE	118	1		25	10	.12	24	35	200	200	
2025	OFFICE	174	1		25	10	.12	31	61	350	350	
2026	HOTELING OFFICE	118	1		25	10	.12	24	35	200	200	
2027	OFFICE	161	1		25	10	.12	29	61	350	350	
2028	HOTELING OFFICE	118	1		25	10	.12	24	35	200	200	
2029	OFFICE	158	1		25	10	.12	29	61	350	350	
2030	OPEN COLLABORATION	800	10		25	10	.12	196	280	1,600	1,600	
2031	HOTELING OFFICE	121	1		25	10	.12	24	44	250	250	
2032	LAB (O/A TO MSS)	264	4		25	10	.12	72		75		
2033	STORAGE	121					.12	14	35	200	200	
2074	OPEN OFFICE	884	8		25	10	.12	186	245	1,400	1,400	
S2–2	STAIR S–2	286					.06	17	70	400	400	
							SYSTEM TOTALS =	762	1,225	7,000	7,000	

SYSTEM SUMMARY:

CONDITIONED AREA: 4,198 SF
DESIGN AIRFLOW: 7,000 CFM
DESIGN CFM/SF: 1.67 CFM/SF
EST. OCCUPANCY: 31 PEOPLE

MIN. O/A REQ'D: 762 CFM
DESIGN O/A: 1,225 CFM, 39.5 CFM/PERSON, 0.29 CFM/SF

MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1–2019, TABLE 6–1 IS 17.0 CFM PER PERSON FOR OFFICES AND 15.0 CFM PER PERSON FOR COMPUTER LABS

OUTDOOR AIR SCHEDULE - 2nd Floor

ROOM DESIGNATION					ASHRAE 62.1–2019 TABLE 6–1 REQUIREMENTS			AIR DISTRIBUTION				
NUMBER	NAME	ROOM AREA (SQ. FT.)	NO. OF PEOPLE	NO. OF FIXTURES	EST. MAX. OCCUPANCY (P/1000 SQ. FT.)	OA CFM / PERSON	OA CFM / SQ. FT.	OA CFM – CODE MINIMUM	OA CFM – DESIGN	SUPPLY AIR CFM	RETURN AIR CFM	EXHAUST/EXFILTRATE CFM (ASHRAE 62.1, TABLE 6–2)
RTU7 (17.5 TON / 7,000 CFM)							**[O/A Dmpr @ 15%]**					
	CORRIDORS	1,309					.06	79	124	825	825	
2051	HOTELING OFFICE	125	1		25	10	.12	25	30	200	200	
2052	OFFICE	110	1		25	10	.12	23	30	200	200	
2053	OFFICE	115	1		25	10	.12	24	26	175	175	
2054	HOTELING OFFICE	144	1		25	10	.12	27	30	200	200	
2055	SUPPLIES	61					.12	7				
2056	SECURITY OFFICE	241	2		25	10	.12	49	75	500	500	
2057	OFFICE (CORNER)	178	2		25	10	.12	41	53	350	350	
2058	OFFICE	120	1		25	10	.12	24	30	200	200	
2059	HOTELING OFFICE	98	1		25	10	.12	22	30	200	200	
2060	OFFICE	121	1		25	10	.12	24	30	200	200	
2061	OFFICE	118	1		25	10	.12	24	30	200	200	
2062	OFFICE	358	10		5	5	.06	72	105	700	700	
2063	CONFERENCE	691	14		50	5	.06	112	180	1,200	1,200	
2064	BREAK RM/LOUNGE	415	8		50	5	.12	90	120	800	800	
2064B	PANTRY	104					.12	13	15	100	100	
2097	OFFICE	121	1		25	10	.12	24	37	250	250	
2099	OFFICE	127	1		25	10	.12	25	37	250	250	
2101	HOTELING OFFICE	98	1		25	10	.12	22	30	200	200	
2103	OFFICE	120	1		25	10	.12	24	38	250	250	
							SYSTEM TOTALS =	751	1,050	7,000	7,000	

SYSTEM SUMMARY:

CONDITIONED AREA: 4,774 SF
DESIGN AIRFLOW: 7,000 CFM
DESIGN CFM/SF: 1.47 CFM/SF
EST. OCCUPANCY: 48 PEOPLE

MIN. O/A REQ'D: 751 CFM
DESIGN O/A: 1,050 CFM, 21.9 CFM/PERSON, 0.22 CFM/SF

MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1–2019, TABLE 6–1 IS 17.0 CFM PER PERSON FOR OFFICES AND 15.0 CFM PER PERSON FOR COMPUTER LABS

RTU8 (17.5 TON / 7,000 CFM) **[O/A Dmpr @ 15%]**

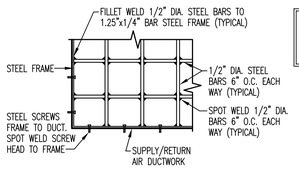
201	LOBBY	320					.06	19	105	700	700	
S1–2	STAIR 1	242					.06	14	60	400	400	
	CORRIDORS	503					.06	30	90	600	600	
2001	RECEPTION	748	4		5	5	.06	65	150	1,000	1,000	
2003	WOMEN'S RESTROOM	154		3					30	200		250
2004	JANITOR CLOSET	14					.12	2				50
2005	MEN'S RESTROOM	203		5					45	300		350
2011	STORAGE	78					.12	9	11	75	75	
2012	HOTELING OFFICE	86	1		25	10	.12	20	30	200	200	
2013	STORAGE	80					.12	10	11	75	75	
2014	HOTELING OFFICE	86	1		25	10	.12	20	30	200	200	
2015	BREAK ROOM	385	8		50	5	.12	86	112	750	750	
2015A	STORAGE (BREAK RM)	49					.12	6	11	75	75	
2016	CONFERENCE	719	14		50	5	.06	113	210	1,400	1,400	
2017	STORAGE	26					.12	3				
2018	OFFICE	185	1		25	10	.12	32	52	350	350	
2019	HOTELING OFFICE	139	1		25	10	.12	27	37	250	250	
2021	OFFICE	180	1		25	10	.12	32	52	350	350	
2051A	SECURE VESTIBULE	40					.06	2	11	75	75	
							SYSTEM TOTALS =	491	1,050	7,000	6,500	650

SYSTEM SUMMARY:

CONDITIONED AREA: 4,237 SF
DESIGN AIRFLOW: 7,000 CFM
DESIGN CFM/SF: 1.65 CFM/SF
EST. OCCUPANCY: 31 PEOPLE

MIN. O/A REQ'D: 491 CFM
DESIGN O/A: 1,050 CFM, 33.9 CFM/PERSON, 0.25 CFM/SF

MINIMUM COMBINED OUTDOOR AIR RATE PER ASHRAE 62.1–2019, TABLE 6–1 IS 17.0 CFM PER PERSON FOR OFFICES AND 15.0 CFM PER PERSON FOR COMPUTER LABS



Special Note:
SECURITY/MAN BAR CONSTRUCTION IS BASED ON ICD 705 AND DEPARTMENT OF HOMELAND SECURITY REQUIREMENTS

GENERAL NOTES

A. MANBARS ARE REQUIRED FOR ANY PENETRATION LARGER THAN 96 SQ. IN. (UNLESS ONE DIMENSION IS 6" OR LESS).

B. PROVIDE A 12"x12" ACCESS PANEL/DOOR (INSPECTION PORT) ON THE SECURE SIDE OF THE PENETRATION.

C. MAN BAR FRAME SHALL BE CONSTRUCTED TO SLIDE INTO DUCT. THE OVERALL FRAME DIMENSIONS TO BE 1/4" SMALLER IN BOTH DIRECTIONS THAN THE DUCT SIZE SHOWN ON THE PLANS. STEEL CHANNEL ALL AROUND OPENING AT DUCT PENETRATION SHALL HAVE 2"x5/16" MIN. FLANGE BY DEPTH TO FIT WALL OPNG.

D. FRAMES SHALL BE PRE–DRILLED.

E. MAN BARS REQUIRED AT ALL VERTICAL DROPS AT THE ROOFTOP UNIT, AT EACH FLOOR PENETRATION W/AN ACCESS DOOR ON THE MORE SECURE SIDE AND HORIZONTAL PENETRATIONS THRU "APPLICABLE WALL TYPES" INDICATED AT THE RIGHT.

REF: Round Duct Areas

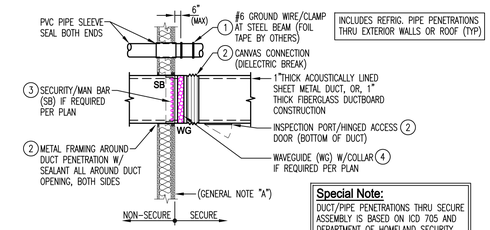
6" DIA = 28.2 SQ. IN.
7" DIA = 28.2 SQ. IN.
8" DIA = 50.2 SQ. IN.
10" DIA = 78.5 SQ. IN.
12" DIA = 113.1 SQ. IN.

DUCTS ≤ 10" DIA DON'T NEED MAN BARS

DUCTS ≥ 12" DIA REQUIRE A MAN BAR ASSEMBLY WITH AN INSPECTION PANEL ON THE MORE SECURE SIDE OF THE PENETRATION

MAN/SECURITY BAR DETAIL (PLAN TAG: SB)

SCALE: NONE



INCLUDES REFRIG. PIPE PENETRATIONS THRU EXTERIOR WALLS OR ROOF (TYP)

Special Note:
DUCT/PIPE PENETRATIONS THRU SECURE ASSEMBLY IS BASED ON ICD 705 AND DEPARTMENT OF HOMELAND SECURITY REQUIREMENTS

DETAIL NOTES

1. CONDUIT/PIPE PENETRATIONS THRU PVC WALL SLEEVE SHALL BE SEALED ALL AROUND W/ROCK WOOL IN CAVITY. PROVIDE #6 GROUND WIRE AND CLAMP TO STEEL BEAM ON THE SECURE SIDE OF THE ROOM FOR VISIBLE INSPECTION.

2. DUCT PENETRATIONS THRU WALL SHALL BE SEALED ALL AROUND, AND SHALL BE FITTED W/A DIELECTRIC OR CANVAS BREAK WITHIN 6" AT THE SECURE ROOM SIDE WALL. A 12"x12" ACCESS PANEL SHALL BE INSTALLED IN BOTTOM OF DUCT.

3. COORDINATE ORDER AND LOCATION OF ALL DEVICES INSTALLED AT THE WALL: SECURITY BARS (SB), WAVE GUIDES (WG), ACCESS DOORS, ETC W/END USER.

4. WAVEGUIDE (R.F. AIR VENT) IF REQ'D PER PLAN W/ ACCESS DOOR ON SECURE SIDE. MFR/MODEL: UNIVERSAL SHIELDING SERIES #1200A TYPE: 3/16"x1" DEEP STEEL HONEYCOMB CELLS FRAME: 11 GAUGE STEEL ELECTRO–ZINC PLATED W/SOLDER SEAM ON BOTH SIDES

GENERAL NOTES

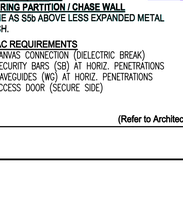
A. WALL CONSTRUCTION AND SOUND TRANSMISSION CLASS (STC) RATING PER ARCHITECTURAL PLANS AND DETAILS FOR LOCATION(S) AND RATINGS.

B. SECURITY BARS (SB) TO BE PROVIDED IN HORIZONTAL DUCT PENETRATIONS THRU AN S4 OR S4a SECURE WALL TYPE.

C. IF BOTH WAVEGUIDES AND MAN BARS ARE INSTALLED, COORDINATE ORDER WITH CLIENT AND LOCATION OF ACCESS DOORS PRIOR TO ROUGH–IN WORK.

DUCT/PIPE PENETRATIONS (THRU SECURE ASSEMBLY)

SCALE: NONE



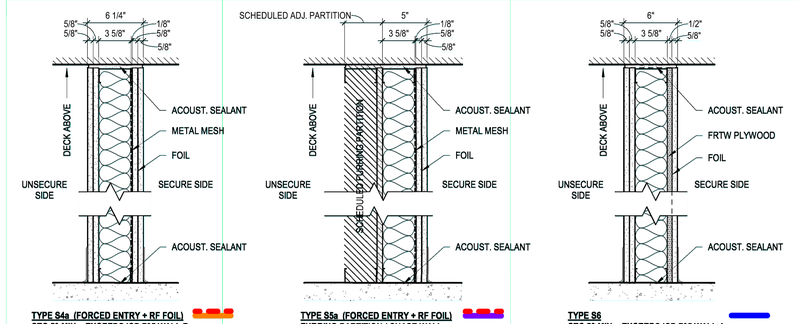
GENERAL NOTES

A. DESIGN AND INSTALLATION OF THE Z–DUCT SHALL NOT COMPROMISE THE STC RATING OF THE WALL.
B. THE Z–DUCT SHALL HAVE (2)–90° BENDS IN ORDER TO ENSURE THERE IS NOT A DIRECT SOUND PATH THRU THE DUCT.
C. ENTIRE LENGTH OF DUCT TO BE LINED W/SOUND ATTENUATION MATERIAL OR CONSTRUCTED OF 1" THK FIBERGLASS DUCTBOARD.

Special Note:
RETURN AIR "Z–DUCT" CONSTRUCTION IS BASED ON ICD 705 AND DEPARTMENT OF HOMELAND SECURITY REQUIREMENTS

Z-DUCT" DETAIL (SUPPLY/RETURN DUCT)

SCALE: NONE



TYPE S4a (FORCED ENTRY + RF FOIL)
STC 50 MIN. - EXCEEDS ICD 705 WALL B
PROVIDE TWO LAYERS TYPE "X" GYPSUM WALLBOARD SECURE SIDE AND TWO LAYERS ON UNSECURE SIDE OF 3 5/8" 16 GA. METAL STUDS @ 16" O.C. WITH 3" SOUND ATTENUATION BLANKETS IN STUD SPACE. 3/4" #9 10 GAGE EXPANDED METAL MESH ON CONTROLLED SIDE, EITHER SPOT WELDED OR SCREWED W/ WASHERS @ 6" O.C. TO 16 GA. METAL STUDS. STAGGER GWB JOINTS. TVM RADIANT FOIL BARRIER ON CONTROLLED SIDE BETWEEN 2 LAYERS GWB. EXTEND STUDS, BOARD, AND BLANKETS FULL HEIGHT TO DECK ABOVE. ATTACH TO STRUCTURE ABOVE W/ VERTICAL SLIP CONNECTIONS. SEE PARTITION NOTES THIS DWG.

TYPE S4b (RF FOIL)
STC 50 MIN. - EXCEEDS ICD 705 WALL A
SAME AS S4a ABOVE LESS EXPANDED METAL MESH.

HVAC REQUIREMENTS
- CANVAS CONNECTION (DIELECTRIC BREAK)
- SECURITY BARS (SB) AT HORIZ. PENETRATIONS
- WAVEGUIDES (WG) AT HORIZ. PENETRATIONS
- ACCESS DOOR (SECURE SIDE)

TYPE S5a (FORCED ENTRY + RF FOIL)
FURRING PARTITION / CHASE WALL
PROVIDE TWO LAYERS TYPE "X" GYPSUM WALLBOARD ON SECURE SIDE OF 3 5/8" 16 GA. METAL STUDS @ 16" O.C. WITH 3" SOUND ATTENUATION BLANKETS IN STUD SPACE OVER ADJACENT FURRING PARTITION. 3/4" #9 10 GAGE EXPANDED METAL MESH ON CONTROLLED SIDE, EITHER SPOT WELDED OR SCREWED W/ WASHERS @ 6" O.C. TO 16 GA. METAL STUDS. STAGGER GWB JOINTS. TVM RADIANT FOIL BARRIER ON CONTROLLED SIDE BETWEEN 2 LAYERS GWB. EXTEND STUDS, BOARD, AND BLANKETS FULL HEIGHT TO DECK ABOVE. ATTACH TO STRUCTURE ABOVE W/ VERTICAL SLIP CONNECTIONS. SEE PARTITION NOTES THIS DWG.

TYPE S5b (RF FOIL)
FURRING PARTITION / CHASE WALL
SAME AS S5b ABOVE LESS EXPANDED METAL MESH.

HVAC REQUIREMENTS
- CANVAS CONNECTION (DIELECTRIC BREAK)
- SECURITY BARS (SB) AT HORIZ. PENETRATIONS
- WAVEGUIDES (WG) AT HORIZ. PENETRATIONS
- ACCESS DOOR (SECURE SIDE)

TYPE S6
STC 50 MIN. - EXCEEDS ICD 705 WALL A
PROVIDE ONE LAYER OF TYPE "X" GYPSUM WALLBOARD OVER ONE LAYER 1/2" FRTW PLYWOOD ON SECURE SIDE AND TWO LAYERS OF TYPE "X" GYPSUM WALLBOARD ON UNSECURE SIDE OF 3 5/8" 16 GA. METAL STUDS @ 16" O.C. WITH 3" SOUND ATTENUATION BLANKETS IN STUD SPACE. STAGGER GWB JOINTS. TVM RADIANT FOIL BARRIER ON CONTROLLED SIDE BETWEEN PLYWOOD AND GYPBOARD. EXTEND STUDS, BOARD, PLYWOOD, AND BLANKETS FULL HEIGHT TO DECK ABOVE. ATTACH TO STRUCTURE ABOVE W/ VERTICAL SLIP CONNECTIONS. SEE PARTITION NOTES THIS DWG.

HVAC REQUIREMENTS
- CANVAS CONNECTION (DIELECTRIC BREAK)
- Z–DUCT ON SUPPLY & RETURN DUCTWORK
- ACCESS DOOR (SECURE SIDE)

SECURE PARTITION TYPES

(Refer to Architectural Sheet AG004 for more information; shown here for coordination purposes)

SCALE: NONE

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

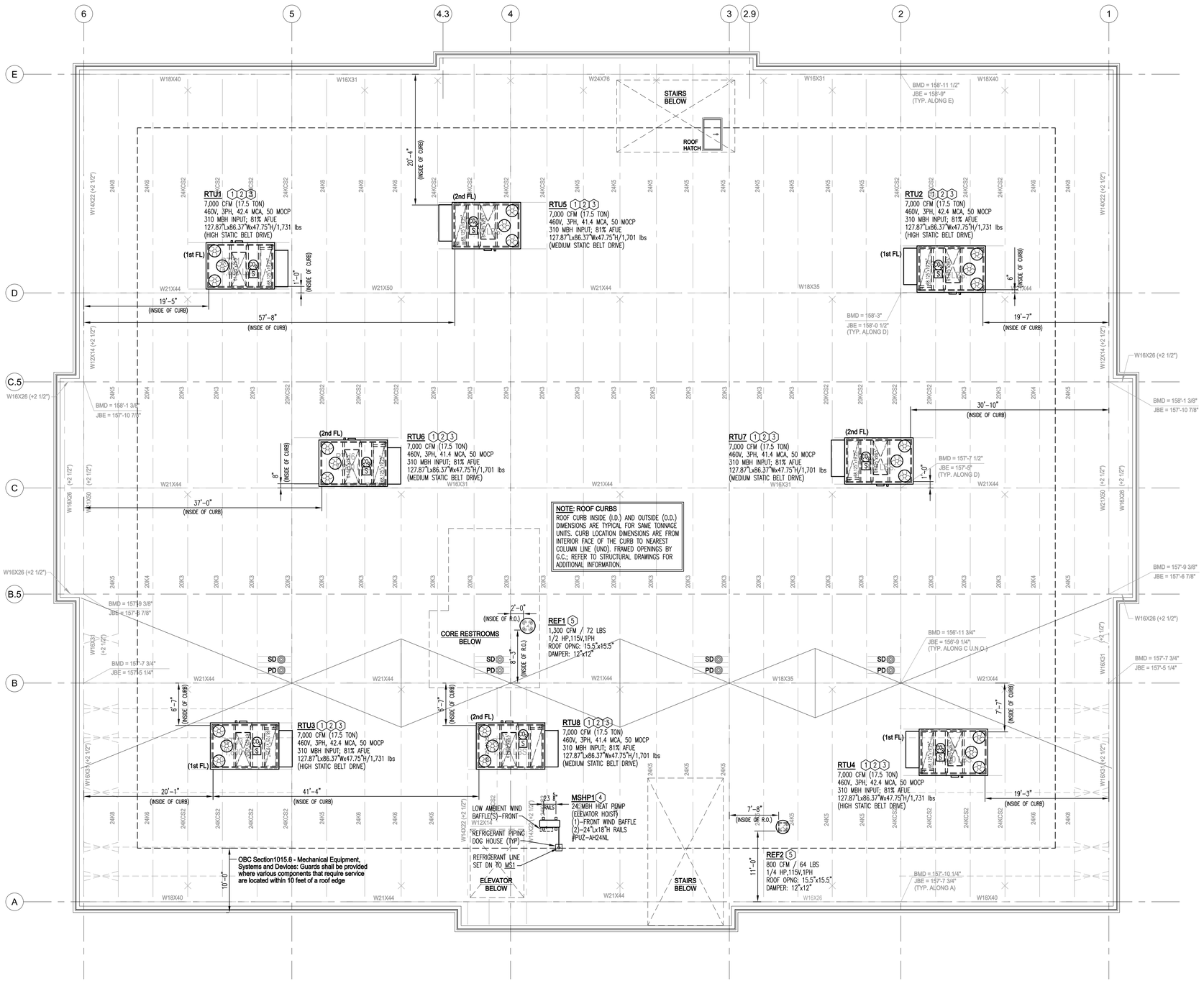
Client Number 727

Project Number 7617

STATE OF OHIO — THERESA A. ROOT E68169 — REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL SCHEDULES

SHEET NO.
M003



ROOF PLAN (SHELL)

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

EQUIPMENT LIST - SHELL ROOFTOP

REF1 [SHELL CORE RESTROOMS]
MFR & MODEL: GREENHECK G-130-VG (DIRECT DRIVE)
EXHAUST CAP.: 1,300 CFM @ 0.5" S.P.
ELECTRICAL: 1/2 HP, 6.4 FLA, 115V, 1PH, 1725 RPM; 8 MCA, 15 MOCP VARI-GREEN EC MOTOR W/DIAL FOR BALANCING
WEIGHT W/ACC'S: 72 LBS
ROOF OPNG/DMPR: 15.5"x15.5" / 12"x12"
FEATURES/OPTIONS: 14"H ROOF CURB; GRAVITY BACKDRAFT DAMPER; NEMA 1 TOGGLE DISCONNECT (FIELD INSTALLED); UL LISTED; AMCA CERTIFIED; BIRDSCREEN; CORROSION RESISTANT FASTENERS; ALUMINUM HOUSING/CURB CAP

REF2 [SHELL ELEC/HOUSE ROOMS]
MFR & MODEL: GREENHECK G-090-VG (DIRECT DRIVE)
EXHAUST CAP.: 800 CFM @ 0.5" S.P.
ELECTRICAL: 1/4 HP, 2.85 FLA, 115V, 1PH, 1725 RPM; 4 MCA, 15 MOCP VARI-GREEN EC MOTOR W/DIAL FOR BALANCING
WEIGHT W/ACC'S: 64 LBS
ROOF OPNG/DMPR: 15.5"x15.5" / 12"x12"
FEATURES/OPTIONS: 14"H ROOF CURB; GRAVITY BACKDRAFT DAMPER; NEMA 1 TOGGLE DISCONNECT (FIELD INSTALLED); UL LISTED; AMCA CERTIFIED; BIRDSCREEN; CORROSION RESISTANT FASTENERS; ALUMINUM HOUSING/CURB CAP

RTU1 thru RTU4 [1st FLOOR UNITS w/HIGH STATIC BELT DRIVES]
MFR & MODEL: CARRIER 48FEEM20B3A6-8M0A0
COOLING CAP.: 7,000 CFM (17.5 TON); 227.04 MBH; 2-STAGE COOLING 10.8 ARI EER / 14.5 IEER
NATURAL GAS: 310/251 MBH INPUT/OUTPUT; 81% AFUE; 2-STAGE HEATING
ELECTRICAL: 3.95 BHP, 460V, 3PH, 42.4 MCA, 50 MOCP HIGH STATIC BELT DRIVE
DIMENSIONS/WEIGHT: 127.875"Lx86.375"Wx47.75"H / 1,701 lbs
FEATURES: ECONOMIZER W/ENTHALPY CONTROL; CO2 AND RETURN AIR DUCT SMOKE DETECTOR (FACTORY INSTALLED)
FILTERS: (6)-20"x25"x2" THROWAWAY
REFRIGERANT: R-454B
CURB: #CRRFCURB045A00; 255 lbs

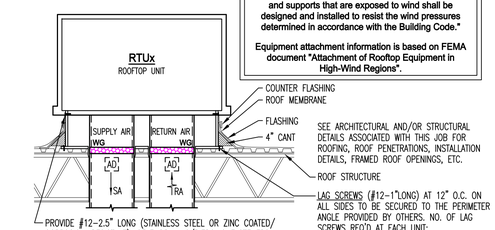
RTU5 thru RTU8 [2nd FLOOR UNITS w/MED STATIC BELT DRIVES]
MFR & MODEL: CARRIER 48FEEM20B2A6-8M0A0
COOLING CAP.: 7,000 CFM (17.5 TON); 227.04 MBH; 2-STAGE COOLING 10.8 ARI EER / 14.5 IEER
NATURAL GAS: 310/251 MBH INPUT/OUTPUT; 81% AFUE; 2-STAGE HEATING
ELECTRICAL: 3.95 BHP, 460V, 3PH, 41.4 MCA, 50 MOCP HIGH STATIC BELT DRIVE
DIMENSIONS/WEIGHT: 127.875"Lx86.375"Wx47.75"H / 1,701 lbs
FEATURES: ECONOMIZER W/ENTHALPY CONTROL; CO2 AND RETURN AIR DUCT SMOKE DETECTOR (FACTORY INSTALLED)
FILTERS: (6)-20"x25"x2" THROWAWAY
REFRIGERANT: R-454B
CURB: #CRRFCURB045A00; 255 lbs

CONSTRUCTION NOTES

1. COORDINATE LOCATION OF ROOFTOP UNIT WITH STRUCTURAL FRAMING; SHIFT AS NECESSARY. PROVIDE FULL SIZE, SCHEDULE 40 PVC CONDENSATE DRAIN W/TRAP ROUTED/DIRECTED TOWARDS AREA ROOF DRAIN.
2. PROVIDE FULL SIZE SUPPLY AND RETURN AIR DROPS DOWN THRU CURB INTO SHELL SPACE. DUCTWORK EXTENSIONS/LAYOUT, FOR TENANT INTERIOR SHALL BE PROVIDED UNDER SEPARATE CONTRACT.
3. IF NOT FACTORY INSTALLED, INSTALL RETURN AIR DUCT MOUNTED SMOKE DETECTOR AND CO2 SENSOR PER THE MFR'S INSTRUCTIONS; DEVICES PROVIDED WITH RTU. SMOKE DETECTORS SHALL BE INTERLOCKED TOGETHER BY FLOOR SUCH THAT DETECTION OF SMOKE BY ANY UNIT ON THAT FLOOR SHALL SHUT DOWN ALL UNITS SERVING THAT FLOOR UNDER THE BUILDING SHELL PACKAGE.
4. MINI SPLIT OUTDOOR UNIT (AC/HP) SHALL BE INSTALLED ON, AND SECURED TO (2)-18"Hx24"L EQUIPMENT RAILS WITH (2)-STRAPS AND A MINIMUM OF (2)-SCREWS ON EACH STRAP TO COMPLY WITH OMC 301.15 WIND RESISTANCE AND FEMA'S "ATTACHMENT OF ROOFTOP EQUIPMENT IN HIGH-WIND REGIONS." EQUIPMENT RAILS SHALL BE SECURED/ATTACHED TO ROOF FRAMING. ROUTE REFRIGERANT LINE SET DOWN TO RESPECTIVE INDOOR UNIT THRU COMMON DOG HOUSE/PIPE CURB. SEAL ALL PENETRATIONS WEATHERTIGHT.
5. COORDINATE LOCATION OF ROOF MOUNTED EXHAUST FAN W/STRUCTURAL FRAMING; SHIFT AS NECESSARY. DROP DUCTWORK DOWN TO RESPECTIVE FLOOR AS SHOWN.

This unit attachment drawing was created to show that equipment installation complies for resistance to high wind-pressures for 3-second wind gust speeds of 115 mph (OBC, Chap 16), and OMC 301.15 "Wind resistance: Mechanical equipment, appliances and supports that are exposed to wind shall be designed and installed to resist the wind pressures determined in accordance with the Building Code."

Equipment attachment information is based on FEMA document "Attachment of Rooftop Equipment in High-Wind Regions".



NOTE: T.I. DEVICES
RF WAVEGUIDES (WG) AND ACCESS DOOR (AD) SHALL BE FURNISHED AND INSTALLED UNDER THE T.I. PHASE IF REQUIRED.

ROOFTOP UNIT SECUREMENT DETAIL

SCALE: NONE

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

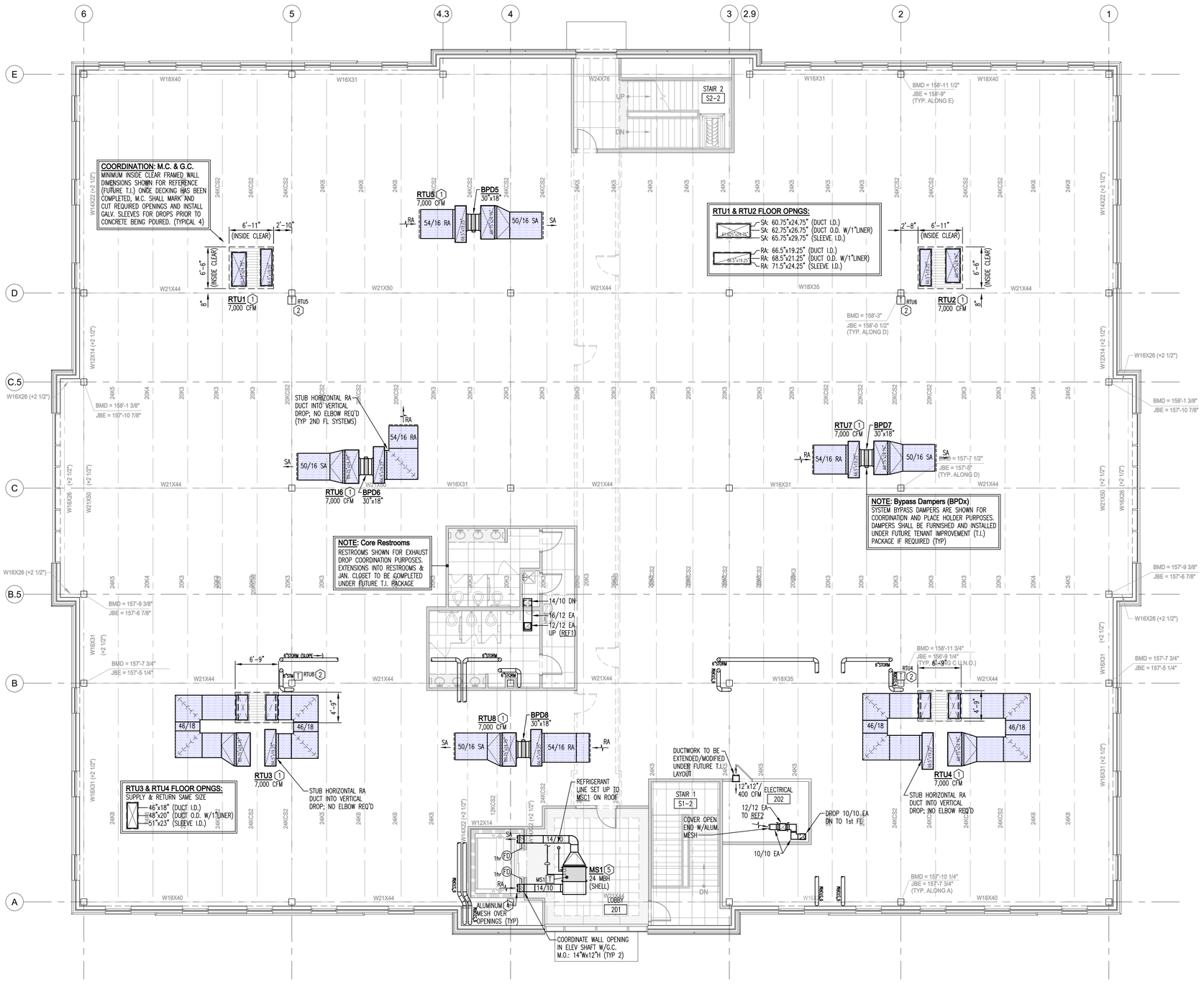
No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By
Checked By
Client Number 727
Project Number 7617

STATE OF OHIO THERESA A. ROOT E68169 REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL ROOF SHELL PLAN

SHEET NO.
M101



2nd FLOOR (SHELL)
SCALE: 1/8"=1'-0"

NORTH

DUCTWORK CONST. NOTES

INTERNALLY LINED (1", R-6) GALVANIZED, SHEET METAL DUCTWORK FROM THE UNIT DOWN TO FLOOR SERVED AND THRU THE FIRST 5 FT HORIZONTAL SECTION. AVG SECTION LENGTH W/TDC FLANGE 56.25". [PROVIDED UNDER THE BLDG SHELL PACKAGE]

GALVANIZED, SHEET METAL DUCTWORK FOR SECTIONS SHOWN. DUCT TO BE WRAPPED W/FIBERGLASS INSULATION (R-6 INSTALLED).

SHEET METAL TRANSITIONS SHALL BE AT LEAST 24°L (MINIMUM).

RTU1 THRU RTU8:
PACKAGED UNIT DUCTWORK CONNECTIONS THRU CURB W/1.5" FLANGE
SUPPLY: 60.75"x24.75" (I.D.) / 62.75"x26.75" (O.D.)
RETURN: 66.5"x19.25" (I.D.) / 68.5"x21.25" (O.D.)

NON-COLORED (NO HATCH PATTERN) DUCTWORK
ALL OTHER DUCTWORK, OFFSETS AND/OR TRANSITIONS SHALL BE FIELD FABRICATED BY THE MECHANICAL CONTRACTOR.

NOTE:
UNLESS NOTED OTHERWISE, DUCT DIMENSIONS SHOWN ARE INSIDE, FREE CLEAR AREA FOR AIRFLOW. COORDINATE WORK AND OPENINGS REQUIRED BASED ON FINAL OUTSIDE/FINISHED DUCT DIMENSIONS IF DUCT IS LINED OR OTHER.

EQUIPMENT LIST - Bldg Shell

MS1 & MSHP1	(SERVES ELEVATOR HOIST SHAFT @ 2nd FL)
MFR & MODEL:	MITSUBISHI PEAD-AA24NL/PUZ-AH24NL (HEAT PUMP)
INDOOR UNIT:	UNIT SHALL BE SUSPENDED FROM STRUCTURE ABOVE 2nd FL ELEVATOR LOBBY AND DUCTED OVER TO ELEVATOR HOIST SHAFT
COOLING CAP:	24,000 BTUH / 9,900 BTUH (MIN.)
HEATING CAP:	@47°F 31.4 MBH / @17°F 15.3 MBH / @5°F 11.5 MBH / @-4°F 10.3 MBH
AIRFLOW (DRY):	512/565/636/742 CFM
MOISTURE REMOVAL:	2.9 PINTS/HR
ELECTRICAL:	208/230V, 1PH, 60 Hz; INDOOR UNIT POWERED FROM OUTDOOR INDOOR UNIT: 121W, 2.25 MCA OUTDOOR UNIT: 74W, 22 MCA, 37 MOCP
RATINGS:	19.6 SEER2, 12 EER2; 9.1 HSPF2; ENERGY STAR CERTIFIED
DIMENSIONS/WEIGHT:	INDOOR UNIT: 43.3"Wx28.875"Dx9.875"H / 67 LBS OUTDOOR UNIT: 37.4"Wx14"Dx37.125"H / 155 LBS
REFRIGERANT:	R-454B
REFRIGERANT PIPING:	5/8"GAS, 3/8"LIQUID / MAX. PIPE LENGTH 165 FT / MAX. HEIGHT DIFFERENCE 100 FT / MAX # OF BENDS 15
DRAIN PIPE SIZE:	1.25" DIA.
CONDENSATE LIFT:	27" MAX. DISTANCE
ACCESSORIES:	LOW AMBIENT WIND BAFFLES: FRONT (1)-WB-PA5, REAR (1)-WB-RE5; SIDE (1)-WB-SD5 WIRED CONTROLLER (#PAC-YT53CRAU-J) INSTALLED AT UNIT; RETURN AIR SENSED AT UNIT-ADJUST DIP SWITCH SETTING; AUTO FAN SPEED MODE (4 SPEEDS); INVERTER DRIVEN COMPRESSOR (OUTDOOR UNIT); PRE-CHARGED EZ-PULL LINE SET (R-454B)

CONSTRUCTION NOTES

1. BLDG SHELL DUCTWORK SHALL BE EXTENDED DOWN INTO EACH SPACE UNLESS NOTED OTHERWISE. DUCT MAINS SHOULD HAVE AT LEAST (1)-90° ELBOW WITH HORIZONTAL SECTION(S) SHOWN. COVER OPEN END OF DUCTS W/ALUMINUM MESH.
2. TEMPORARY LOCATION OF SYSTEM THERMOSTAT.
3. COORDINATE FLOOR OPENINGS REQ'D UP THRU ROOF FOR EXHAUST DUCT UP TO REF1 (CORE RESTROOMS) ON THE ROOF. REFER TO DETAIL ON SHEET M002 "DUCT THRU FLOOR-NON-RATED ASSEMBLY" FOR ADDITIONAL INFORMATION.
4. EXTEND DUCTWORK INTO ELEVATOR SHAFT W/FIRE DAMPER; COVER OPEN END W/ ALUMINUM MESH. REFER TO SHEET M002 FOR FIRE DAMPER DETAIL.
5. FIELD VERIFY BEST LOCATION FOR HORIZONTAL HUNG INDOOR UNIT W/FRAMING, EQUIPMENT, OWNER EQUIPMENT, ETC. TO AVOID CONFLICTS. ROUTE LINE SET UP THRU DOG HOUSE TO ROOF MOUNTED OUTDOOR UNIT; INSULATE ENTIRE RUN. ROUTE FULL SIZE, SCH 40 PVC CONDENSATE DRAIN LINE SLOPED OVER TO HUB DRAIN OR MOP BASIN IN JANITOR CLOSET. PROVIDE CONDENSATE PUMP AS REQ'D. RETURN AIR TEMP SHALL BE SENSED AT THE UNIT; COORDINATE W/INSTRUCTIONS FOR DIP SWITCH SETTING ADJUSTMENTS.

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

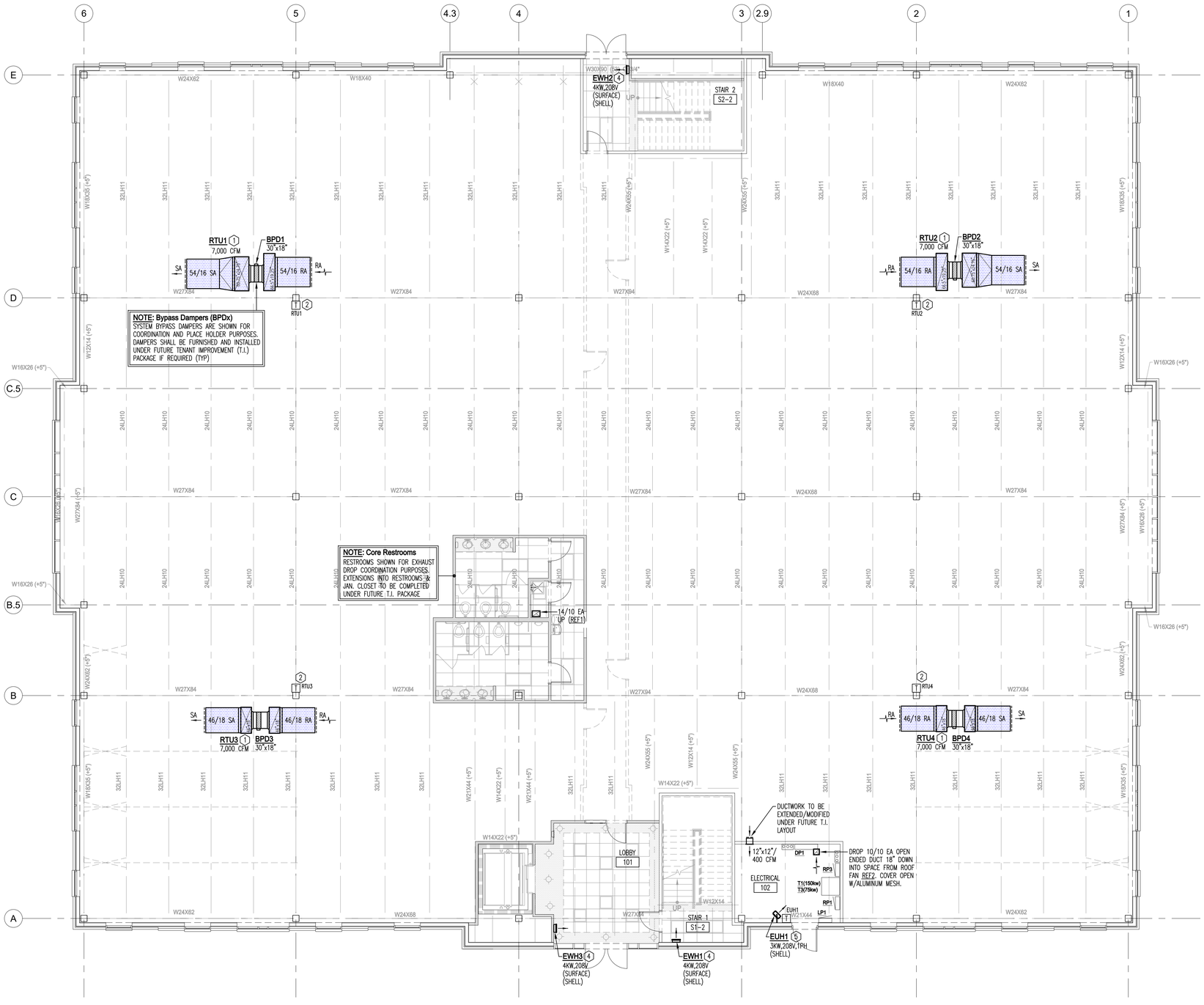
Client Number 727

Project Number 7617

STATE OF OHIO
THERESA A. ROOT
E68169
REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL
2nd FL SHELL PLAN

SHEET NO.
M102



1st FLOOR (SHELL)

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

NORTH

DUCTWORK CONST. NOTES

INTERNALLY LINED (1", R-6) GALVANIZED, SHEET METAL DUCTWORK FROM THE UNIT DOWN TO FLOOR SERVED AND THRU THE FIRST 5 FT HORIZONTAL SECTION. AVG SECTION LENGTH W/TDC FLANGE 56.25". [PROVIDED UNDER THE BLDG SHELL PACKAGE]

GALVANIZED, SHEET METAL DUCTWORK FOR SECTIONS SHOWN. DUCT TO BE WRAPPED W/FIBERGLASS INSULATION (R-6 INSTALLED).

SHEET METAL TRANSITIONS SHALL BE AT LEAST 24"L (MINIMUM).

RTU1 THRU RTU8:
PACKAGED UNIT DUCTWORK CONNECTIONS THRU CURB W/1.5" FLANGE
SUPPLY: 60.75"x24.75" (I.D.) / 62.75"x26.75" (O.D.)
RETURN: 66.5"x19.25" (I.D.) / 68.5"x21.25" (O.D.)

NON-COLORED (NO HATCHED) DUCTWORK
ALL OTHER DUCTWORK, OFFSETS AND/OR TRANSITIONS SHALL BE FIELD FABRICATED BY THE MECHANICAL CONTRACTOR.

NOTE:
UNLESS NOTED OTHERWISE, DUCT DIMENSIONS SHOWN ARE INSIDE, FREE CLEAR AREA FOR AIRFLOW. COORDINATE WORK AND OPENINGS REQ'D BASED ON FINAL OUTSIDE/FINISHED DUCT DIMENSIONS IF DUCT IS LINED OR OTHER.

EQUIPMENT LIST - Bldg Shell

EUH1 LOCATED: HOUSE ROOM

MFR & MODEL:	QMARK MUH03-81 OR EQUAL
HEATING CAP:	10.2 MBH
ELECTRICAL:	3 KW, 208V; 1PH; 14.5A
DIMENSIONS/WEIGHT:	14"Wx7.5"Dx16"H / 27 lbs
FEATURES/OPTIONS:	UNIVERSAL MOUNTING BRACKET; LINE VOLTAGE THERMOSTAT–(#M601W SINGLE POLE) TURN OVER TO E.C. FOR INSTALLATION AND WIRING.

EWH1, EWH2 & EWH3 LOCATED: 1st FL STAIR LANDINGS; MAIN ENTRY

MFR & MODEL:	QMARK/BERKO/MARLEY #SSHO4008
HEATING CAPACITY:	1800–4000W (13,650 BTU/HR) THERMOSTAT RANGE: 40–99 DEG F
AIRFLOW:	100 CFM
ELECTRICAL:	208V, 1PH, 8.7–19.2A; TOGGLE DISCONNECT SWITCH MTD ON FAN DECK TO DISCONNECT SINGLE POINT POWER CONNECTION.
WEIGHT W/ACC'S:	26 lbs.
DIMENSIONS:	HOUSING: 14.375"Wx4"Dx18.25"H GRILLE: 15.75"Wx19.125"H (LOUVERED FACE/WHITE)
FEATURES/OPTIONS:	SMARTSERIES WALL HEATER W/LCD TOUCH SCREEN DISPLAY OF DIGITAL THERMOSTAT WITH 5/2-DAY PROGRAMMABILITY WITH FOUR PROGRAM PERIODS PER DAY; LOCKOUT FEATURE.
INSTALLATION NOTE:	SURFACE MOUNTING FRAME (#HTWHSM). COORDINATE SURFACE MOUNTING FRAME/BACK BOX WITH G.C. IN ORDER CAULK AND/OR SEAL AROUND BOX TO MAINTAIN RATING OF WALL ASSEMBLY.

CONSTRUCTION NOTES

1. BLDG SHELL DUCTWORK SHALL BE EXTENDED DOWN INTO EACH SPACE UNLESS NOTED OTHERWISE. DUCT MAINS SHOULD HAVE AT LEAST (1)-90° ELBOW WITH HORIZONTAL SECTION(S) SHOWN. COVER OPEN END OF DUCTS W/ALUMINUM MESH.
2. TEMPORARY LOCATION OF SYSTEM THERMOSTAT.
3. COMBINE AND ROUTE RESTROOM EXHAUST DUCTS FOR 1st AND 2nd FLOOR CORE RESTROOMS UP THRU CHASE. OFFSET ABOVE 2nd FLOOR CEILING AND EXTEND UP THRU ROOF TO EXHAUST FAN REF1.
4. COORDINATE LOCATION OF SURFACE MOUNTED ELECTRIC WALL HEATER W/G.C. AND E.C. IN STAIRWELL AND MAIN ENTRY. FIRE CAULK/SEAL AROUND SURFACE FRAMES/BACK BOX AS REQUIRED TO MAINTAIN RATING OF WALL ASSEMBLY WHERE REQ'D.
5. COORDINATE LOCATION OF UNIT HEATER W/ALL TRADES TO AVOID CONFLICT. TURN OVER LINE VOLTAGE THERMOSTAT TO E.C. FOR INSTALLATION AND WIRING.

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

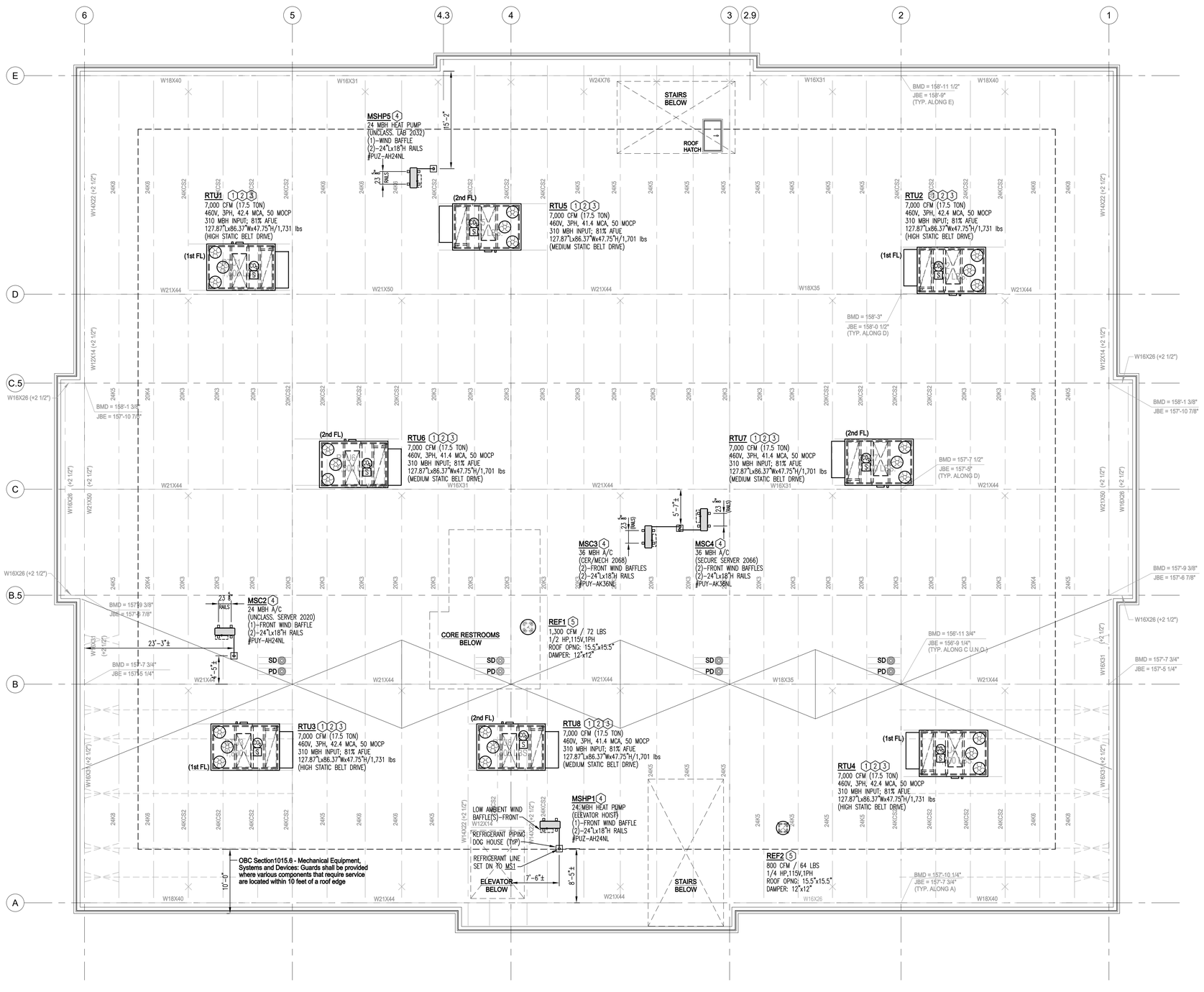
STATE OF OHIO — THERESA A ROOT E68169 — REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

MECHANICAL
1st FL SHELL PLAN

SHEET NO.

M103



ROOF PLAN (T.I.)

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

NORTH

CONSTRUCTION NOTES

1. ROOFTOP UNIT INSTALLED UNDER THE BUILDING SHELL PACKAGE.
2. SUPPLY AND RETURN AIR DROPS DOWN INTO BUILDING TO EACH FLOOR INSTALLED UNDER BUILDING SHELL PACKAGE. EXTEND DUCTWORK AS SHOWN PER T.I. PLANS.
3. EXISTING RETURN AIR DUCT MOUNTED SMOKE DETECTOR AND CO2 CONTROLS PROVIDED AND INSTALLED UNDER BUILDING SHELL PACKAGE.
4. MINI SPLIT OUTDOOR UNIT (AC/HP) SHALL BE INSTALLED ON, AND SECURED TO (2)-18"Hx24"L EQUIPMENT RAILS WITH (2)-STRAPS AND A MINIMUM OF (2)-SCREWS ON EACH STRAP TO COMPLY WITH OMC 301.15 WIND RESISTANCE AND FEMA'S "ATTACHMENT OF ROOFTOP EQUIPMENT IN HIGH-WIND REGIONS." EQUIPMENT RAILS SHALL BE SECURED/ATTACHED TO ROOF FRAMING. ROUTE REFRIGERANT LINE SET DOWN TO RESPECTIVE INDOOR UNIT THRU COMMON DOG HOUSE/PIPE CURB. SEAL ALL PENETRATIONS WEATHERTIGHT.
5. ROOF MOUNTED EXHAUST FANS FURNISHED AND INSTALLED UNDER THE BUILDING SHELL PACKAGE. EXTEND DUCTWORK AS SHOWN PER T.I. LAYOUT.

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

STATE OF OHIO · THERESA A. ROOT · E68169 · REGISTERED PROFESSIONAL ENGINEER

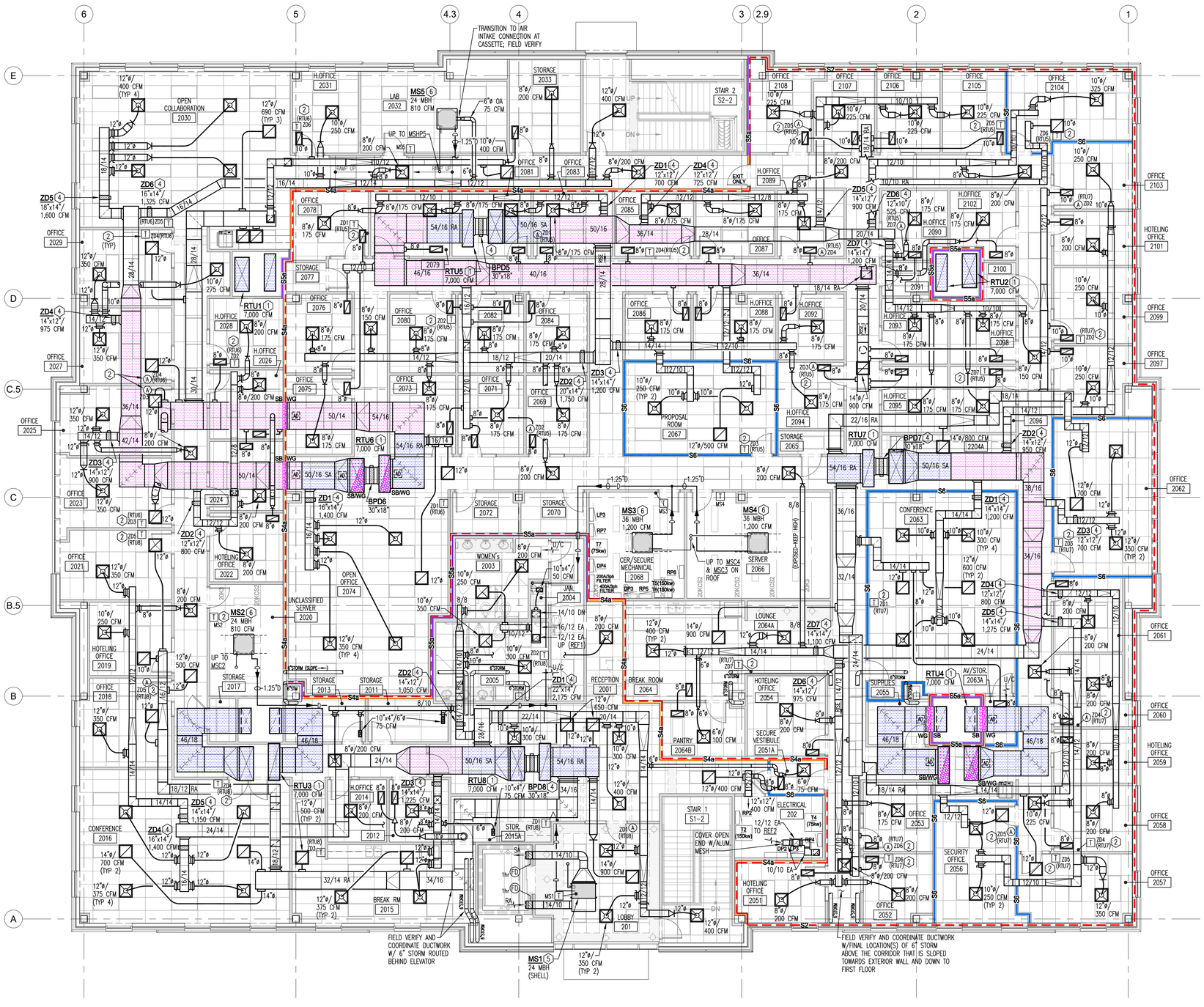
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

MECHANICAL
ROOF T.I. PLAN

SHEET NO.

M201



2nd FLOOR (T.I.)

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

CONSTRUCTION NOTES

1. BLDG SHELL DUCTWORK DOWN THRU SHAFTS TO BE MAINTAINED. REMOVE MESH FROM END OF DUCTWORK AND EXTEND AS SHOWN. ENSURE INSULATION IS CONTINUOUS WITHOUT TEARS.
2. REMOVE TEMPORARY THERMOSTAT AS REQUIRED TO ACCOMMODATE T.I. WORK AND CONTROLS ASSOCIATED WITH ZONE DAMPERS, ETC. WHERE SHOWN. IF THERMOSTAT IS INSTALLED ON A WALL OR SECURE CONSTRUCTION, THE DEVICE SHOULD BE SURFACE MOUNTED; COORDINATE W/E.C.. CONTROLS SHALL BE HARD WIRED; NO WIRELESS CONTROLS (OR HAVE THE CAPABILITY TO BE WIRELESS) ARE PERMITTED. THERMOSTATS/CONTROLLERS TO BE CLEARLY LABELED FOR ZONE AND RTU SERVED.
3. SECURITY BARS (SB) AND/OR WAVE GUIDES (WG) WITH ACCESS DOOR AND DIELECTRIC BREAK (CANVAS CONNECTION) ON THE SECURE SIDE. REFER TO DETAILS ON SHEET M003 FOR DUCTWORK THAT PENETRATES SECURE ASSEMBLIES.
4. INSTALL ZONE AND BYPASS DAMPER IN AN ACCESSIBLE LOCATION; DO NOT INSTALL ABOVE LIGHTS, SPRINKLER HEADS, DUCTWORK, ETC. PROVIDE CONTROL WIRING TO RESPECTIVE THERMOSTAT, AVERAGING SENSOR AND ZONE CONTROL BOARD; LABEL STAT FOR DAMPER AND RTU IT SERVES.
5. -- NOTE DELETED --
6. FIELD VERIFY LOCATION OF SUSPENDED INDOOR CASSETTE WITH OTHER CEILING MOUNTED DEVICES AND SHIFT AS NECESSARY. ROUTE LINE SET UP TO HEAT PUMP OR A/C UNIT ON ROOF W/DIELECTRIC BREAK INSIDE. INSULATE LINE SET THE ENTIRE RUN. ROUTE FULL SIZE (1.25") SCH 40 PVC DRAIN LINE SLOPED OR PUMPED OVER TO MOP BASIN IN JANITOR CLOSET; LABEL DRAIN LINE FOR FUTURE REFERENCE.
7. INSTALL HUMIDIFIER W/REMOTE DISTRIBUTION UNIT PER THE MFR'S INSTRUCTIONS; ADJUST/SHIFT UNIT AS NECESSARY BASED ON MOUNTING BRACKETS AND WALL STUD SPACING FOR A SECURE INSTALLATION. COORDINATE WATER SUPPLY, DRAIN AND ELECTRICAL CONNECTIONS W/P.C. AND E.C. PROVIDE CONDENSATE PUMP TO ENSURE PROPER DISPOSAL OF CONDENSATE TO MAIN DRAIN LINE USED BY

ZONE DAMPER SCHEDULE

UNIT TAG	AREA(S) SERVED	DESIGN AIRFLOW RATE (CFM)	SIZE (INCHES)	QTY: THERMOSTAT (WIRED)	QTY: SENSOR (REMOTE/AVERAGING)
RTU5 (7,000 CFM)					
ZD1	OFFICES 2078,79,81,83	700	12"x12"	1	1
ZD2	OFFICES 2069,71,73,75,76,80,82,84	1,750	20"x14"	1	1
ZD3	PROPOSAL 2067; OFFICES 286,88,92,94	1,200	14"x14"	1	1
ZD4	OFFICES 2085,87,89; CORRIDOR	725	12"x12"	1	1
ZD5	OFFICES 2105–2108	900	14"x12"	1	1
ZD6	OFFICE 2104; CORRIDOR	525	12"x10"	1	
ZD7	OFFICES 2090,93,95,96,98; 2102	1,200	14"x14"	1	1
BPD5	BYPASS DAMPER (NOTE E)	5,600	30"x18"		
RTU6 (7,000 CFM)					
ZD1	OPEN OFFICE 2074	1,400	16"x14"	1	
ZD2	H. OFFICES 2022,24,26,28	800	12"x12"	1	
ZD3	OFFICES 2023,25; CORRIDOR	900	14"x12"	1	1
ZD4	OFFICES 2027,29; CORRIDOR	975	14"x12"	1	1
ZD5	OPEN COLLABORATION 2030	1,600	18"x14"	1	
ZD6	OFFICE 2031, STOR 2033, STAIR 2; CORR.	1,325	16"x14"	1	
BPD6	BYPASS DAMPER (NOTE E)	5,600	30"x18"		
RTU7 (7,000 CFM)					
ZD1	CONFERENCE 2063	1,200	14"x14"	1	
ZD2	OFFICES 2097,99 & 2101,2103	950	14"x12"	1	1
ZD3	OFFICE 2062	700	12"x12"	1	
ZD4	OFFICES 2058–2061	800	12"x12"	1	1
ZD5	OFFICE 2057; SECURITY 2056; CORRIDOR	1,275	14"x14"	1	1
ZD6	OFFICES 2051,52,53; CORRIDOR	975	14"x12"	1	1
ZD7	BREAK ROOM 264; CORRIDOR	1,100	14"x14"	1	
BPD7	BYPASS DAMPER (NOTE E)	5,600	30"x18"		
RTU8 (7,000 CFM)					
ZD1	RECEPTION 2001; LOBBY 201, STAIR 1	2,175	22"x14"	1	1
ZD2	WOMEN 2003; MEN 2005; CORR; STOR.	1,050	14"x12"	1	
ZD3	BREAK ROOM 2015; OFFICES 2012,14	1,225	14"x14"	1	
ZD4	CONFERENCE 2016	1,400	16"x14"	1	
ZD5	OFFICES 2018,19; CORRIDOR	1,150	14"x14"	1	1
BPD8	BYPASS DAMPER (NOTE E)	5,600	30"x18"		

GENERAL NOTES:

A. ZONE DAMPERS (ROUND OR RECTANGULAR) SHALL BE 2-POSITION TYPE, 24vac, SPRING-RETURN DAMPER W/BUILT-IN ACTUATOR.

B. LOCATION OF ZONE DAMPERS SHALL BE COORDINATED WITH CEILING SYSTEMS, LIGHTS, FRAMING, ETC. IF ZONE DAMPER IS LOCATED ABOVE A HARD CEILING (SOFFIT, ETC.) A LABELED ACCESS PANEL SHALL BE INSTALLED.

C. PROVIDE ALL POWER AND WIRING DIAGRAMS TO E.C. FOR COORDINATION.

D. LOCATION FOR ZONE BOARD FOR EACH ZONE DAMPER SYSTEM SHALL BE FIELD VERIFIED AND DETERMINED. E.C. SHALL PROVIDE POWER TO BOARD.

E. BYPASS DAMPERS SHALL BE ELECTRONIC TYPE WITH DAMPERS SIZED AT 0.15"–0.2" W.C. FOR APPROX. AIRFLOW SHOWN.

Zone Damper Totals:

Size	QTY	Size	QTY
12x10	1	16x14	3
12x12	5	18x14	1
14x12	6	20x14	1
14x14	7	22x14	1
		TOTAL	25

Bypass Damper Totals:

Size	QTY
30x18	4
TOTAL	4

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

STATE OF OHIO — THERESA A. ROOT — E68169 — REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

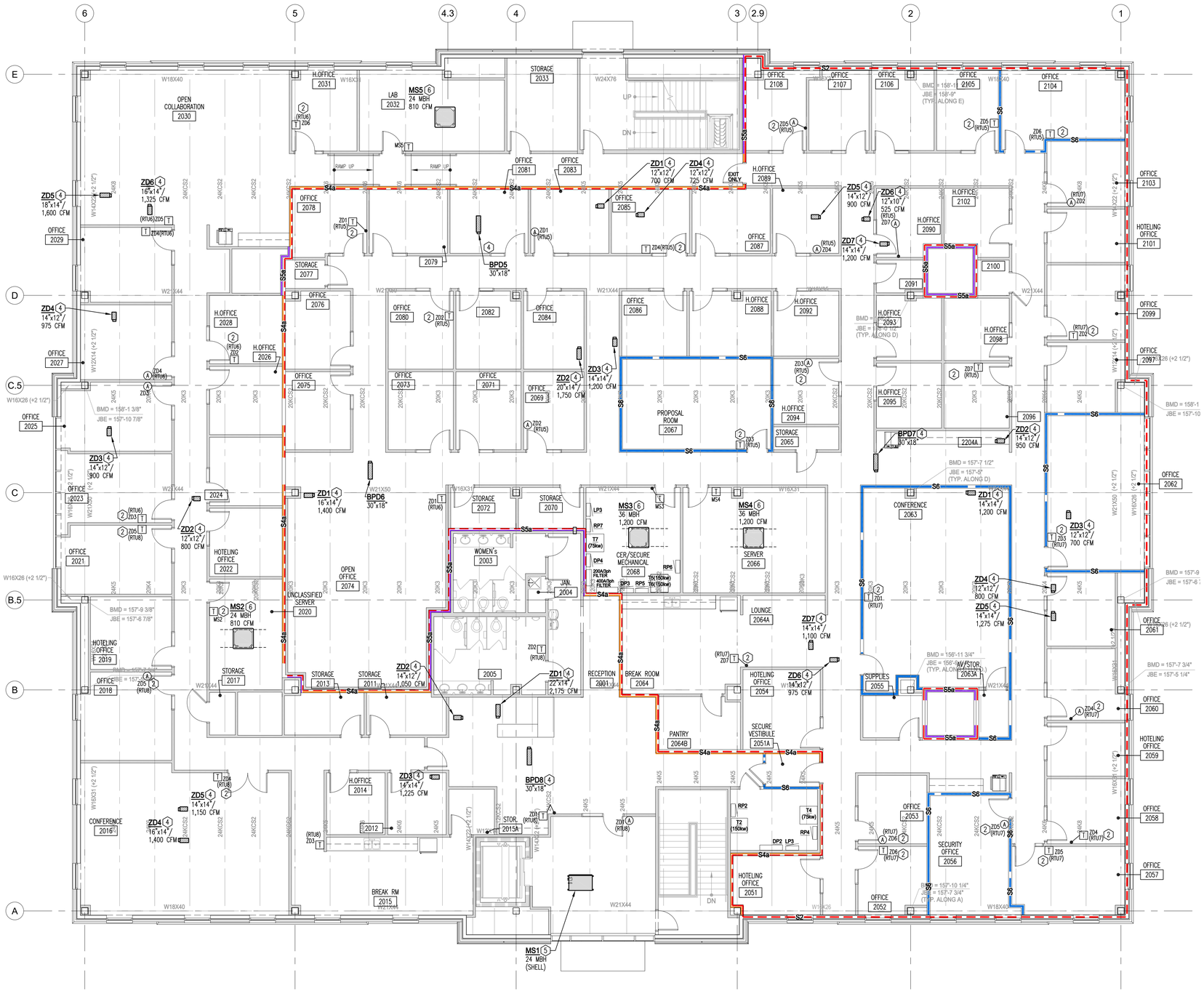
MECHANICAL
2nd FL T.I. PLAN

SHEET NO.

M202

CONSTRUCTION NOTES

** SEE SHEET M202 FOR KEYED CONSTRUCTION NOTES **



2nd FLOOR - EQUIPMENT & CONTROLS (T.I.)

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

EQUIPMENT LIST - T.I. (2nd FL)

MS2 / MSC2 (UNCLASSIFIED SERVER 2020)
MFR & MODEL: MITSUBISHI PLA-AE24NL/PUY-AH24NL (COOLING ONLY)
COOLING CAP: 24,500 BTUH / 10,300 BTUH (MAX./MIN.)
AIRFLOW (DRY): 530/640/710/810 CFM
MOISTURE REMOVAL: 4.0 PINTS/HR
ELECTRICAL: 208/230V, 1PH, 60 Hz; INDOOR UNIT POWERED FROM OUTDOOR
INDOOR UNIT: 120W
OUTDOOR UNIT: 74W, 22 MCA, 37 MOCP
RATINGS: 22.6 SEER2, 13.2 EER2; ENERGY STAR CERTIFIED
DIMENSIONS/WEIGHT: INDOOR UNIT: 33.1"Wx33.1"Dx11.75"H / 57 LBS
INDOOR GRILLE: 37.4"Wx37.4"Dx1.5"H / 11 LBS
OUTDOOR UNIT: 37.4"Wx14.2"Dx37.125"H / 155 LBS
REFRIGERANT: R-454B
REFRIGERANT PIPING: 5/8"GAS, 3/8"LIQUID / MAX. PIPE LENGTH 225 FT / MAX. HEIGHT DIFFERENCE 100 FT / MAX # OF BENDS 10
DRAIN PIPE SIZE: 1.25" DIA.
CONDENSATE LIFT: 27" MAX. DISTANCE
ACCESSORIES: LOW AMBIENT WIND BAFFLES: FRONT (1)-WB-PA5,
WALL MOUNT WIRED CONTROLLER (#PAC-YT53CRAU-J);
AUTO FAN SPEED MODE (4 SPEEDS);
INVERTER DRIVEN COMPRESSOR (OUTDOOR UNIT);
PRE-CHARGED EZ-PULL LINE SET (R-454B)

MS3 / MSC3 (CER/SECURE MECH 2068)
MS4 / MSC4 (SERVER ROOM 2066)
MFR & MODEL: MITSUBISHI PLA-AE36NL/PUY-AK36NL (COOLING ONLY)
COOLING CAP: 36,600 BTUH / 14,300 BTUH (MAX./MIN.)
AIRFLOW (DRY): 670/850/1,020/1,200 CFM
MOISTURE REMOVAL: 8 PINTS/HR
ELECTRICAL: 208/230V, 1PH, 60 Hz; INDOOR UNIT POWERED FROM OUTDOOR
INDOOR UNIT: 120W
OUTDOOR UNIT: 74W, 34 MCA, 56 MOCP
RATINGS: 23.3 SEER2, 13.7 EER2; ENERGY STAR COMPLIANT
DIMENSIONS/WEIGHT: INDOOR UNIT: 33.1"Wx33.1"Dx11.75"H / 57 LBS
INDOOR GRILLE: 37.4"Wx37.4"Dx1.5"H / 11 LBS
OUTDOOR UNIT: 41.3"Wx14"Dx53"H / 224 LBS
REFRIGERANT: R-454B
REFRIGERANT PIPING: 5/8"GAS, 3/8"LIQUID / MAX. PIPE LENGTH 225 FT / MAX. HEIGHT DIFFERENCE 100 FT / MAX # OF BENDS 15
DRAIN PIPE SIZE: 1.25" DIA.
CONDENSATE LIFT: 27" MAX. DISTANCE
ACCESSORIES: LOW AMBIENT WIND BAFFLES: FRONT (2)-WB-PA3,
WALL MOUNT WIRED CONTROLLER (#PAC-YT53CRAU-J);
AUTO FAN SPEED MODE (4 SPEEDS);
INVERTER DRIVEN COMPRESSOR (OUTDOOR UNIT);
PRE-CHARGED EZ-PULL LINE SET (R-454B)

MS5 / MSHP5 (UNCLASSIFIED LAB 2032)
MFR & MODEL: MITSUBISHI PLA-AE24NL/PUZ-AH24NL (HEAT PUMP)
COOLING CAP: 24,500 BTUH / 10,300 BTUH (MIN.)
HEATING CAP: @47°F 31.6 MBH / @17°F 15.7 MBH / @5°F 11.5 MBH
@-4°F 10.3 MBH
AIRFLOW (DRY): 530/640/710/810 CFM
MOISTURE REMOVAL: 4 PINTS/HR
ELECTRICAL: 208/230V, 1PH, 60 Hz; INDOOR UNIT POWERED FROM OUTDOOR
INDOOR UNIT: 120W
OUTDOOR UNIT: 74W, 22 MCA, 37 MOCP
RATINGS: 22.6 SEER2, 13.2 EER2; 9.8 HSPF2
DIMENSIONS/WEIGHT: INDOOR UNIT: 33.1"Wx33.1"Dx11.75"H / 57 LBS
INDOOR GRILLE: 37.4"Wx37.4"Dx1.5"H / 11 LBS
OUTDOOR UNIT: 37.4"Wx14"Dx37.125"H / 155 LBS
REFRIGERANT: R-454B
REFRIGERANT PIPING: 5/8"GAS, 3/8"LIQUID / MAX. PIPE LENGTH 165 FT / MAX. HEIGHT DIFFERENCE 100 FT / MAX # OF BENDS 15
DRAIN PIPE SIZE: 1.25" DIA.
CONDENSATE LIFT: 27" MAX. DISTANCE
FEATURES: LOW AMBIENT WIND BAFFLES: FRONT (1)-WB-PA5,
WALL MOUNT WIRED CONTROLLER (#PAC-YT53CRAU-J);
AUTO FAN SPEED MODE (4 SPEEDS);
INVERTER DRIVEN COMPRESSOR (OUTDOOR UNIT);
PRE-CHARGED EZ-PULL LINE SET (R-454B)

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By
Checked By
Client Number 727
Project Number 7617

STATE OF OHIO THERESA A. ROOT E68169 REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE
MECHANICAL
2nd FL EQUIPMENT

SHEET NO.
M202a

CONSTRUCTION NOTES

** SEE SHEET M202 FOR KEYED CONSTRUCTION NOTES **

DUCTWORK CONST. NOTES

INTERNALLY LINED (1", R-6) GALVANIZED, SHEET METAL DUCTWORK FROM THE UNIT DOWN TO FLOOR SERVED AND THRU THE FIRST 5 FT HORIZONTAL SECTION. AVG SECTION LENGTH W/TDC FLANGE 56.25". [PROVIDED UNDER THE BLDG SHELL PACKAGE]

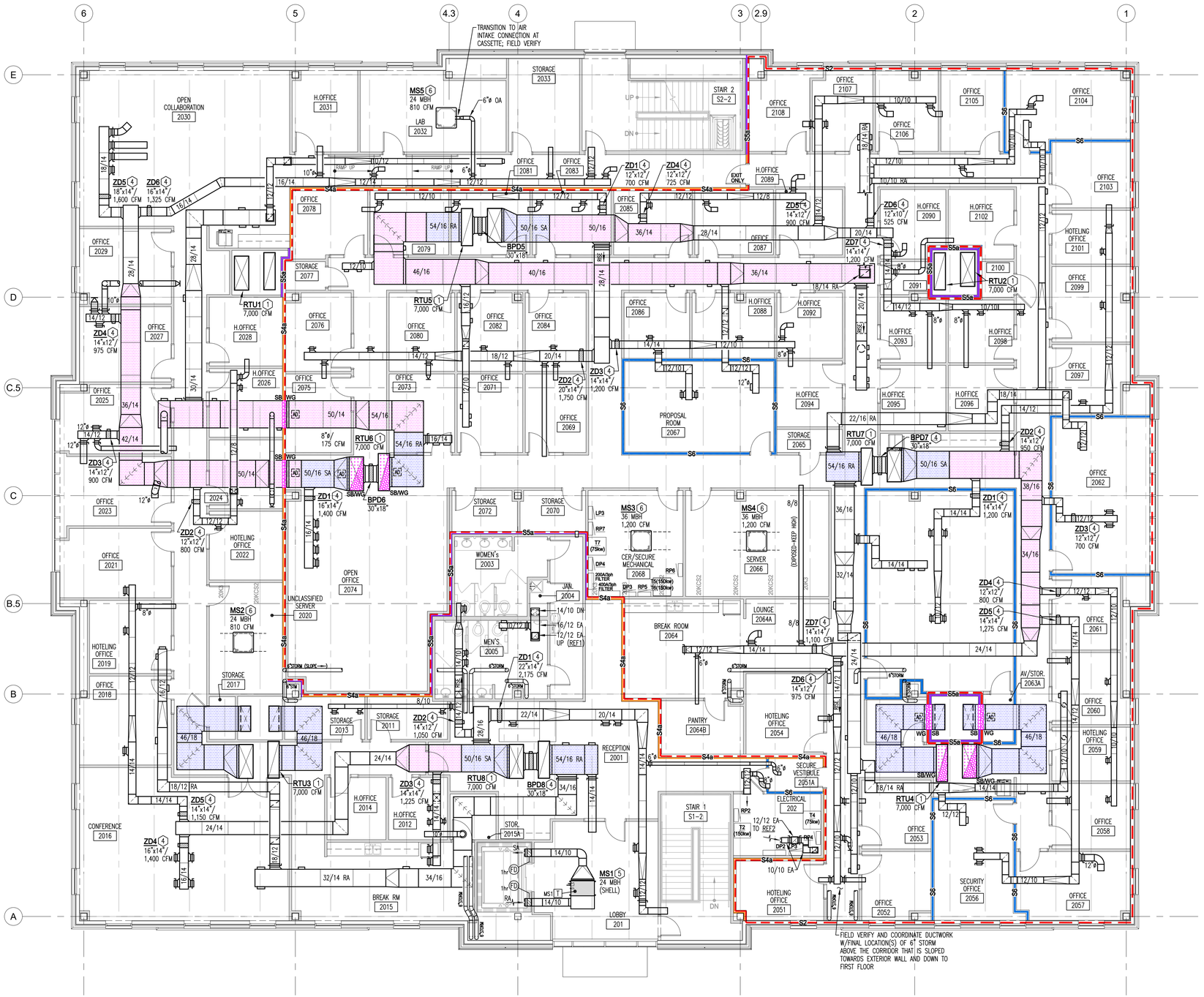
GALVANIZED, SHEET METAL DUCTWORK FOR SECTIONS SHOWN. DUCT TO BE WRAPPED W/FIBERGLASS INSULATION (R-6 INSTALLED).

SHEET METAL TRANSITIONS SHALL BE AT LEAST 24"L (MINIMUM).

RTU1 THRU RTU8:
PACKAGED UNIT DUCTWORK CONNECTIONS THRU CURB W/1.5" FLANGE
SUPPLY: 60.75"x24.75" (I.D.) / 62.75"x26.75" (O.D.)
RETURN: 66.5"x19.25" (I.D.) / 68.5"x21.25" (O.D.)

NON-COLORED (NO HATCH PATTERN) DUCTWORK
ALL OTHER DUCTWORK, OFFSETS AND/OR TRANSITIONS SHALL BE FIELD FABRICATED BY THE MECHANICAL CONTRACTOR.

NOTE:
UNLESS NOTED OTHERWISE, DUCT DIMENSIONS SHOWN ARE INSIDE, FREE CLEAR AREA FOR AIRFLOW. COORDINATE WORK AND OPENINGS REQUIRED BASED ON FINAL OUTSIDE/FINISHED DUCT DIMENSIONS IF DUCT IS LINED OR OTHER.



2nd FLOOR - MAIN DUCT LAYOUT (T.I.)
SCALE: 1/8"=1'-0"

NORTH

CHAMPLIN ARCHITECTURE
10 S Patterson Blvd
Dayton, OH 45402
T 937.224.4474
thinkchamplin.com
THINK CREATE REALIZE

SYNERGY BUILDING SYSTEMS

DETMER MECHANICAL SERVICES
9181 N. Dixie Dr., Dayton, Ohio 45414
T: (937) 709-3877 Job #132759255

PROJECT KONA
NASK TI

4123 Colonel Glenn Hwy
Beavercreek, OH 45431

ISSUANCES

No.	Description	Date
	Issued for Bldg Shell Permit	2-10-25
	Issued for 2nd FL T.I. Permit	11-24-25

Drawn By

Checked By

Client Number 727

Project Number 7617

STATE OF OHIO — THERESA A. ROOT — E68169 — REGISTERED PROFESSIONAL ENGINEER
Digitally Signed by Theresa A. Root
License No. E68169, Exp. Date 12-31-27

DRAWING TITLE

MECHANICAL
2nd FL MAIN DUCT

SHEET NO.
M202b