SUMMIT PLASTIC SURGERY

OPERATING ROOM ROOFTOP UNIT

3151 NE CARNEGIE DRIVE
LEE'S SUMMIT, MO 64064

Design-Build Contractor

P1 Service
13605 W. 96TH TERRACE
LENEXA, KANSAS 66215
PHONE: 913.529.5200

DRAWING INDEX

SHEET	DESCRIPTION
C-100	COVER SHEET
M-100	MECHANICAL DEMO AND NEW WORK
M-101	MECHANICAL DETAILS AND NOTES
S-100	STRUCTURAL NEW WORK

ADOPTED CODES:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL MECHANICAL CODE
2017 ASHRAE 170 VENTILATION OF HEALTHCARE FACILITIES
2017 NATIONAL ELECTRIC CODE

OCCUPANCIES:
ALL FLOORS: HOSPITAL
EXISTING CONSTRUCTION TYPES:
TYPE II-A PROTECTED NON-COMBUSTIBLE

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STATE OF MISSOURI
WILLIAM S. FREDA
NUMBER E-29382
REGISTERED PROFESSIONAL ENGINEER
07/14/2023

REV	DESCRIPTION	DATE:
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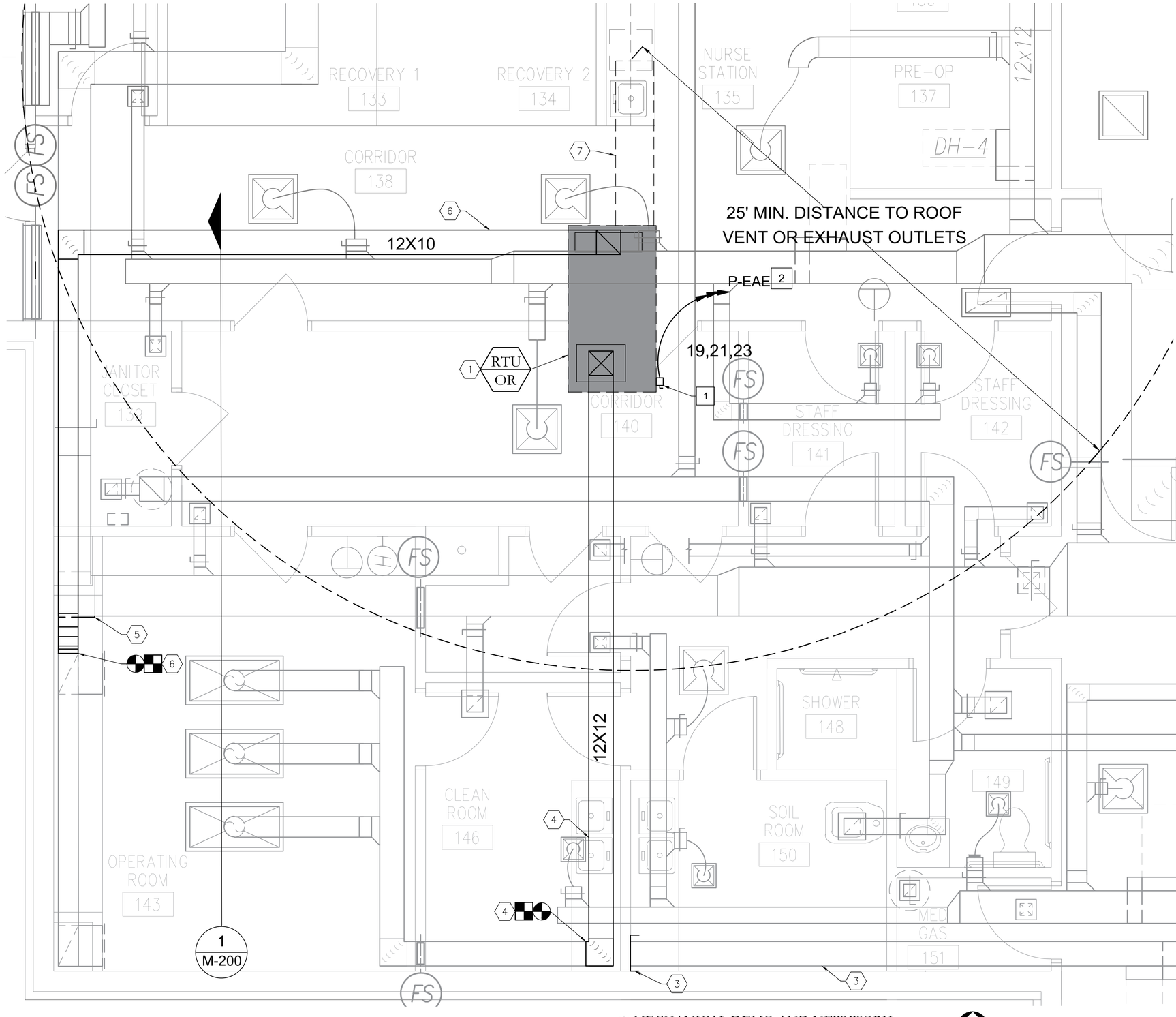

1 MECHANICAL DEMO AND NEW WORK
SCALE: 1/2" = 1'-0"

KEY PLAN

GENERAL CONSTRUCTION NOTES

1. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK/PIPING, CONNECTIONS, ACCESSORIES, OFFSETS AND MATERIAL NECESSARY FOR A COMPLETE SYSTEM.
2. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS, INCLUDING APPLICABLE SECTIONS OF NFPA, OSHA, INTERNATIONAL BUILDING CODES.
3. ROOFTOP UNIT SHALL BE BALANCED FOR TOTAL AIRFLOW AND OUTDOOR AIR FLOW PER THE EQUIPMENT SCHEDULE VALUES.

MECHANICAL CONSTRUCTION NOTES ⟨#⟩

1. FURNISH AND INSTALL NEW ROOFTOP UNIT ON NEW 14" ROOF CURB.
2. DISCONNECT AND REMOVE HIGH EFFICIENCY TAKEOFF AND VOLUME DAMPER. PATCH OPENING IN DUCTWORK.
3. INSTALL NEW 12"X12" DUCT CAP ON EXISTING SUPPLY AIR DUCTWORK. ABANDON DUCTWORK IN PLACE.
4. INSTALL NEW 12"X12" SUPPLY AIR DUCTWORK AND ELBOW WITH TURNING VANES. CONNECT TO EXISTING DUCTWORK AT LOCATION SHOWN.
5. DISCONNECT RETURN AIR BRANCH DUCT FROM MAIN INSTALL. NEW 12X10 CAP ON EXISTING RETURN AIR DUCTWORK ELBOW AS SHOWN ON PLAN AND SECTION. SEE SHEET M-101.
6. FURNISH AND INSTALL NEW 12"X12" RETURN AIR DUCTWORK WITH 45 DEG ELBOW OFFSETS TO AVOID OBSTRUCTIONS. CONNECT TO EXISTING RETURN AIR DUCTWORK AS SHOWN. SEE SECTION 1 ON SHEET M-101.
7. NEW OUTDOOR AIR DUCTWORK ABOVE ROOF. DUCTWORK EXTENSION PROVIDED TO PROVIDE 25'. SEE DETAIL 2 ON SHEET M-101.

ELECTRICAL CONSTRUCTION NOTES [#]

1. ROUTE NEW ELECTRICAL FEEDER (3) #6 AND (1) #10 GND IN 1"C THRU ROOF CURB TO PANEL EAE.
2. FURNISH AND INSTALL NEW 60 AMP 3-POLE BREAKER IN PANEL EAE.

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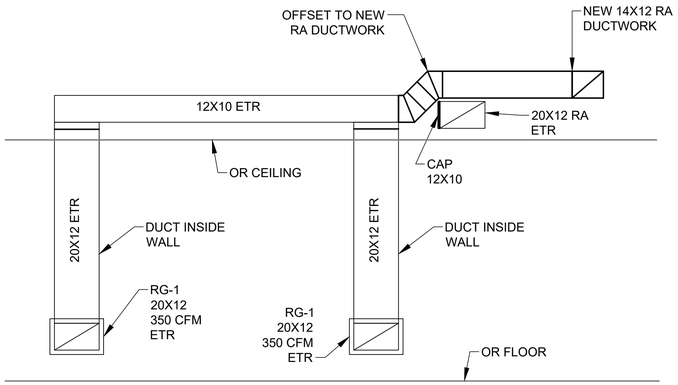
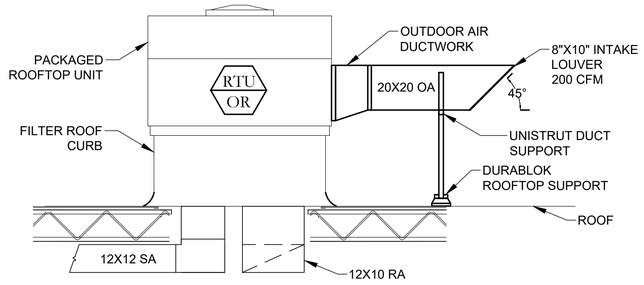
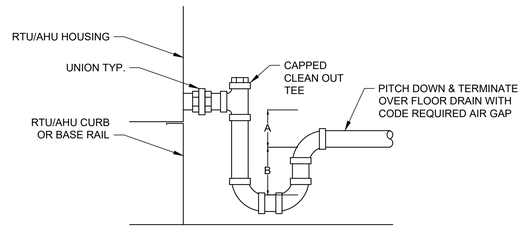


1 RETURN AIR DUCTWORK SECTION
SCALE: 3/8" = 1'-0"



2 OUTDOOR AIR DUCTWORK ELEVATION
NOT TO SCALE

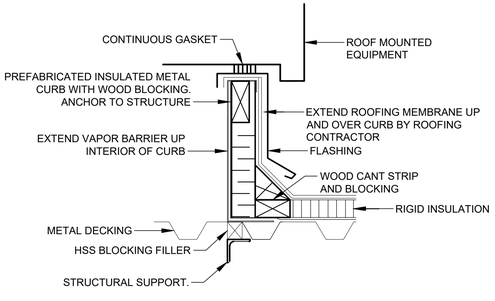


DRAW THRU UNIT:
DIMENSION "A" = 2" MIN.
DIMENSION "B" = 4" MIN. OR STATIC PRESSURE (WHICHEVER IS GREATER)

BLOW THRU UNIT:
DIMENSION "A" = 1" MIN.
DIMENSION "B" = 6" MIN. OR STATIC PRESSURE PLUS 2" (WHICHEVER IS GREATER)

NOTES:
1. CONTRACTOR SHALL VERIFY PRESSURES EXPECTED AT THE COIL WITH THE ACTUAL EQUIPMENT BEING PROVIDED.
2. PROVIDE ADDITIONAL SUPPLEMENTARY STRUCTURAL STEEL UNDER BASE RAIL AS REQUIRED TO ELEVATE THE UNIT FOR DRAIN TRAP INSTALLATION AND AIR GAP AT FLOOR DRAIN IF REQUIRED.
3. DRAIN LINE SIZE SHALL BE UNIT CONNECTION SIZE MINIMUM.

3 CONDENSATE DRAIN TRAP DETAIL
NOT TO SCALE



4 ROOF CURB INSTALLATION DETAIL
NOT TO SCALE

PANELBOARD: PANEL - EAE
BUS SIZE: 400 A MLO
VOLTAGE: 208/120V, 3PH, 4W
MOUNTING: SURFACE
RATING: 14K AMP MIN INT CAPACITY

DIRECTORY	# OF POLES	CKT BKR AMPS	CKT BKR TYPE	CKT #	A	B	C	A	B	C	CKT #	CKT BKR TYPE	CKT BKR AMPS	# OF POLES	DIRECTORY
SURGERY RTU SRT-1 (ETR)				1							2				DUCT HEATER DH-1 (ETR)
SURGERY RTU SRT-1 (ETR)				3							4				DUCT HEATER DH-1 (ETR)
SURGERY RTU SRT-1 (ETR)				5							6				DUCT HEATER DH-1 (ETR)
VACUUM PUMP VP-1 (ETR)				7							8				DUCT HEATER DH-3 (ETR)
VACUUM PUMP VP-1 (ETR)				9							0				DUCT HEATER DH-3 (ETR)
VACUUM PUMP VP-1 (ETR)				11							12				DUCT HEATER DH-3 (ETR)
EXHAUST FANS EF-1,2,3 (ETR)				13							14				DUCT HEATER DH-4 (ETR)
VACUUM PUMP (ETR)				15							16				DUCT HEATER DH-4 (ETR)
VACUUM PUMP (ETR)				17							18				DUCT HEATER DH-4 (ETR)
				19							20				SPACE
OPERATION ROOM RTU-X	**3**	**60**		21							22				SPACE
				23							24				SPACE
SPACE				25							26				SPACE
SPACE				27							28				SPACE
SPACE				29							30				SPACE
SPACE				31							32				SPACE
SPACE				33							34				SPACE
SPACE				35							36				SPACE
SPARE				37							38				SPARE
SPARE				39							40				SPARE
SPARE				41							42				SPARE
							TOTAL WATTS A:			TOTAL WATTS B:			TOTAL WATTS C:		TOTAL WATTS:

VENTILATION SCHEDULE
PATIENT AREAS

UNIT	RM # NAME	OCCUPANCY CLASSIFICATION	AREA (FT2)	VOLUME (FT3)	MIN SUPPLY ACH	MIN OA ACH	MIN REQ. SUPPLY CFM	SCHEDULED TOTAL CFM	MIN REQ. OA CFM	SCHEDULED OA CFM
RTU-OR	OPERATING ROOM 143	OPERATING ROOM	**264**	2376	20	4	792	1000	158	200

NOTES:
1. PER ASHRAE 170 VENTILATION OF HEALTHCARE FACILITIES, FOR OPERATING ROOM MINIMUM OA CHANGES/HR = 4, MINIMUM TOTAL SUPPLY AIR CHANGES/HR = 20
2. AIR CHANGES PER HOUR = 60 X CFM / ROOM VOLUME

PACKAGED ROOFTOP UNIT SCHEDULE (CONSTANT VOLUME)

MARK	SERVES	MANUFACTURER	MODEL	SUPPLY FAN						DX COOLING COIL DATA					ELECTRICAL HEATING COIL				FILTER DATA	ELECTRICAL DATA			NOTES
				TOTAL CFM	MIN. OA CFM	EXT. SP. (IN WG)	TSP (IN WG)	RPM	HP	EAT	LAT	SENS. CAP. (MBH)	TOT. CAP. (MBH)	AMBIENT (F)	EAT (F)	LAT (F)	CAPACITY (KW)	CONTROL		VOLT./HZ/PHASE	MCA	MOCP	
RTU-OR	OR	VALENT	VX-12-3I-1-G1	1,000	200	0.5	1.2	1392	1/2	73.6/59.6	46.9/46.9	28.8	34.3	96	58.8	107.8	15.5	SCR	2" MERV 8	208/60/3	56.2	60	ALL

NOTES:
1) PROVIDE UNIT WITH INTEGRAL NON-FUSED DISCONNECT AND FACTORY WIRED SUPPLY FAN VFD. (SOFT START)
2) PROVIDE UNIT WITH ADAPTER ROOF CURB.
3) PROVIDE UNIT WITH STEEL HAIL GUARDS AND ROOM THERMOSTAT.

SHEET METAL GENERAL NOTES:

A. These drawings are diagrammatic and indicate the general extent of the work. Provide sheet metal systems complete and per applicable codes the including all necessary offsets, fittings and special radius or mitered elbows which are required due to space constraints or other conditions.
B. Coordinate the installation of the ductwork and equipment with the work of all other trades. Verify all clearances prior to the fabrication of any system components.
C. Ductwork shall not be located over electrical equipment/panels. Provide the code required working clearance around all electrical equipment.
D. Provide all miscellaneous supporting steel, etc. for the proper installation of all mechanical systems.
E. Coordinate floor, wall, roof penetrations, louver sizes, pad locations, etc. with the architectural trades.
F. Duct dimensions shown are free clear area. Increase duct size to account for liner
G. All runouts to supply diffusers shall be provided with balancing dampers. Provide concealed damper operators where located above hard ceilings.

HVAC MATERIAL NOTES:

A. DUCTWORK, RECTANGULAR (low pressure) - rectangular exhaust air, pressure relief, low pressure supply air ducts, outdoor air and return air ducts shall conform to the duct construction, gauges, reinforcing and details shown by SMACNA Tables 2-3, and 2-29 through 2-33. Branch takeoffs shall be the 45 deg. entry design with manual damper (STO fitting).
B. DUCTWORK, ROUND (low pressure) - ducts 10" and smaller in diameter shall be constructed per SMACNA Table 3-5 and 3-6, 2" w.g. with grooved longitudinal seam and sleeved type transverse joint, pipe riveted. Hangers shall be 2" band, attached at duct joints with draw bands.
C. DUCTWORK, ROUND (low pressure) - ducts 12" and larger in diameter, and all exposed round ducts, shall be ASTM A-527-67 galvanized steel, United Sheet Metal Co. Spiral UniSeal Duct, Semco, or Wesco. All round fittings shall be United Sheet Metal Co. UniForm manufactured from galvanized steel with continuous welds.
D. DUCT INSULATION - All new ducts shall be wrapped with Certainteed Soft-Touch type 150 with FSK facing, 2.125" thickness, 1.5 pcf with an R-Value of 6.2. Provide installation in accordance with manufacturers instructions. Provide complete vapor seal at all joints and fittings.
E. DUCT LINER - Interior ductwork shall have Certainteed Tough gard R duct liner, 1" thickness, 1.5 pcf with an r-value of 4.2. exterior ductwork shall have Certainteed Tough gard R duct liner, 2" thickness r-value 8.0.
F. FLEX DUCT - Flexible ductwork shall be Flexmaster Type 8M, or approved equal, UL-181 Class I air duct, insulated, flexible duct with manufacturer's maximum working pressure rating of 6" W.G. . Medium pressure applications the maximum length shall be 3'-0" and for low pressure applications the maximum length shall be 6'-0".
G. TURNING VANES - provide turning vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3 - "Vanes and Vane Runners," and Figure 2-4 - "Vane Support in Elbows.
H. CONTROL DAMPERS - shall be Ruskin CD-35 or approved equal. Outside air and relief air dampers shall be Ruskin CD-50 extruded aluminum, low leakage damper, opposed blade design.
I. FIRE STOPPING - Provide fire stopping, as manufactured by 3M or Hilti, at fire-rated construction to maintain an effective barrier against the spread of flame, smoke, and hot gases. Components shall be compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the fire stopping manufacturer based on testing and field experience.

POWER GENERAL NOTES:

A. These drawings are diagrammatic in nature and indicate the general extent of the work. The electrical contractor shall provide all pull boxes, junction boxes and incidental materials and labor for a complete and fully functional system.
B. Verify requirements of all mechanical equipment with shop drawing submittals. Notify engineer of any conflicts between equipment submittals and electrical drawings.
C. E.C. to maintain all existing circuit continuities.

POWER MATERIAL NOTES:

A. CONDUIT (exterior above grade) - shall be galvanized rigid with threaded fittings. Final connection to Mechanical Equipment shall be made with minimum 12" length of Liquid-Tite conduit.
B. CONDUIT (interior above grade) - circuits shall be routed in EMT conduit with set-screw or compression fittings.
C. CONDUCTORS (#10 awg & smaller) - shall be annealed soft copper, solid construction, and Code Type THWN or THHN with #12awg minimum size.
D. CONDUCTORS (#8 awg & larger) - shall be annealed soft copper, compressed strand construction, and Code Type THWN-2 or THHN.
E. MC CABLE - type MC cable with listed fittings and coupler may be used in lieu of EMT conduit and conductors for interior branch circuits. Homeruns to panels shall be made with EMT conduit (no MC connections to panel cans). Type NMC cable is NOT allowed
F. GROUNDING (equipment) - All circuits shall be provided with Code sized equipment grounding conductor.
G. FIRE STOPPING - provide fire stopping, as manufactured by 3M or Hilti, at fire-rated construction to maintain an effective barrier against the spread of flame, smoke, and hot gases. Components shall be compatible with each other, the substrates forming openings, and the items, if any, penetrating the fire stopping under conditions of service and application, as demonstrated by the fire stopping manufacturer based on testing and field experience.

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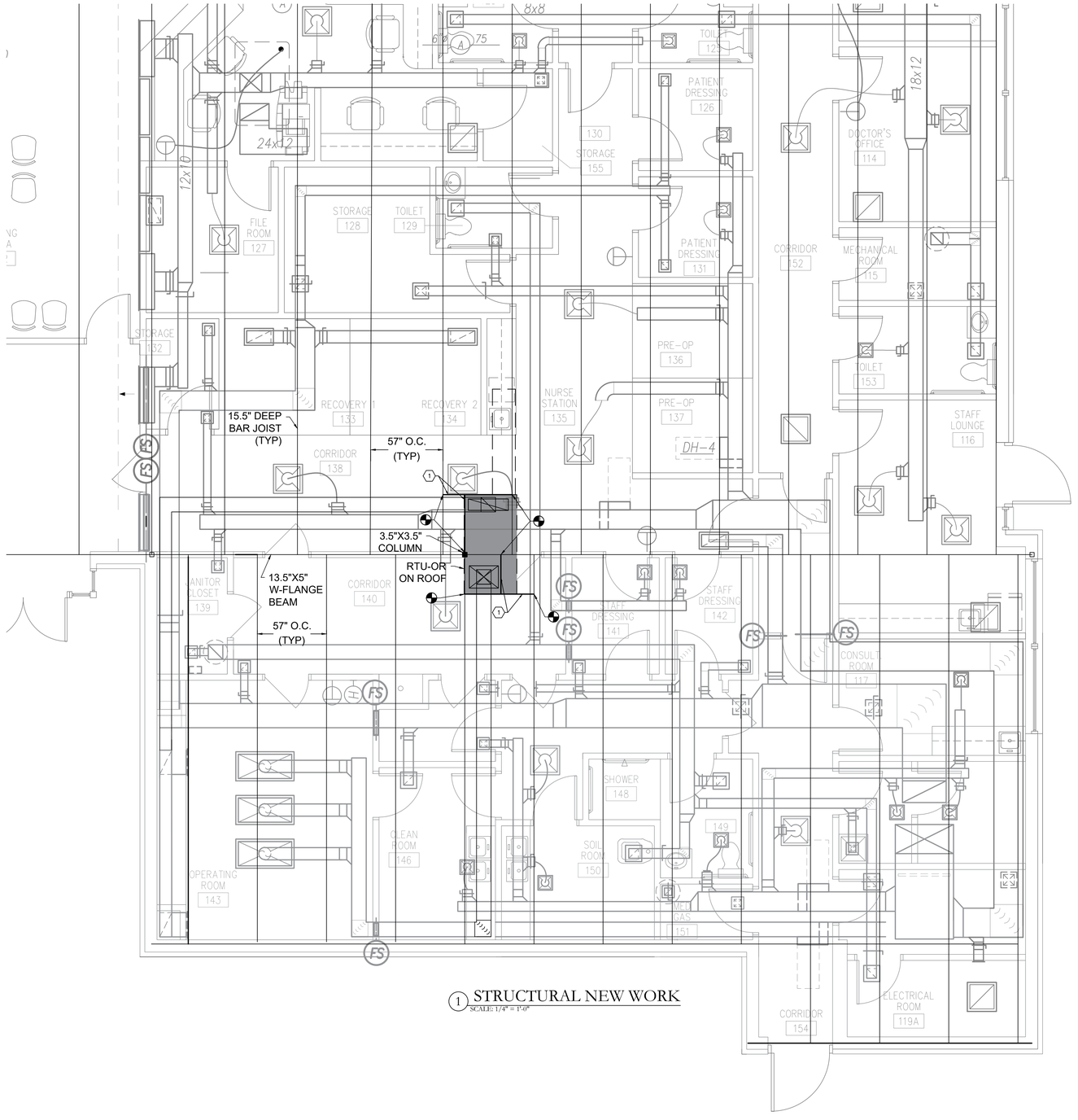

1 STRUCTURAL NEW WORK
SCALE: 1/4" = 1'-0"

STRUCTURAL NOTES (#)

1. NEW 4"X3"X5/16" ANGLE TO FRAME AROUND NEW ROOFTOP UNIT AND OPENINGS IN DECK.

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