

KEYED NOTES:

- CONTRACTOR TO FURNISH AND INSTALL NEW ROOF CURBS FOR NEW RTU IN THIS LOCATION. PROVIDE ROOF FLASHING AS REQUIRED. COORDINATE WITH EXISTING STRUCTURE AND UTILITIES AND ADJUST LOCATION TO ACCOMMODATE.
- NEW ROOFTOP UNIT LOCATED DIRECTLY OVER DROP BOX LOCATION.
- RETURN AIR DUCT ROUTED AT 14" O" TO BOTTOM, IN BETWEEN JOIST IF POSSIBLE. CAP END OF RETURN AIR DUCT AND INSTALL RETURN AIR GRILL IN SIDE OF RETURN AIR DUCT.
- NEW ROOF MOUNTED EXHAUST FAN. PROVIDE AND INSTALL FULL ROOF STRUCTURE AND FLASHING AS REQUIRED ABOVE ROOF. COORDINATE WITH EXISTING STRUCTURE AND OVERHEAD UTILITIES AND ADJUST RTU LOCATIONS AS REQUIRED. CONTROL VIA EMPLOYEE LIGHTING CONTROL ZONE "A". PROVIDE SEPARATE WALL SWITCH FOR EF-2 FOR LOCAL CONTROL.
- MECHANICAL CONTRACTOR TO PROVIDE DUCT ROUTING & DROP FROM RTU DOWN TO CEILING DROP BOX DIFFUSER LOCATION. PROVIDE TRANSITION AT DUCT OPENING TO 2"x2" INLET AT DIFFUSER. COORDINATE WITH ASHME MECHANICAL CUT SHEETS.
- ELECTRIC CEILING HEATER WITH INTEGRAL TSTAT PROVIDED AND INSTALLED BY THE MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. HEATER TO BE CONTROLLED BY NOVAR SYSTEM. SEE SCHEDULE ON THIS SHEET.
- PROVIDE PROCESSING ROOM CIRCULATION FANS CF-1 THROUGH CF-4. WALL MOUNT FAN AT 10'-0" TO CENTER. CF-1 AND RTU-4 TO BE AIMED AT RECEIVING DOORS. CF-2 THROUGH CF-4 TO BE AIMED AT PROCESSING TABLES. INSTALLATION LOCATIONS MUST BE VERIFIED IN FIELD. FANS TO BE CONTROLLED WITH EMPLOYEE LIGHTING THROUGH BMS SYSTEM AND LOCALLY CONTROLLED VIA WALL MOUNTED SPRING WINDER TIMER. SEE CIRCULATION FAN SCHEDULE ON DRAWING SHEET #2 FOR ADDITIONAL INFORMATION.
- CONTROL VIA EMPLOYEE LIGHTING CONTROL RELAY.
- MOUNT DUCTWORK AT 12"± (MINIMUM) AFT IN PROCESSING ROOM. PROVIDE NECK AND DAMPERS IN ROUND DUCT AS REQUIRED. INSTALL REGISTERS AT -20 DEGREES. VERIFY FINAL MOUNTING HEIGHT WITH TUX CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
- HOLLOW METAL DOORS SHALL BE PROVIDED WITH UNDERCUT FOR ADDITIONAL MAKE-UP AIR. DESIGNER OF RECORD TO COORDINATE WITH ARCHITECTURAL.
- TEMPERATURE SENSOR LOCATIONS TO BE DETERMINED BY TUX A/E AS WELL AS INSTALLED VIA NOVAR PACKAGE. RTU-2 AND RTU-4 TO BE PROVIDED WITH CO2 SENSORS FOR DEMAND CONTROL VENTILATION.
- FINAL LOCATION OF UNIT HEATER TO BE COORDINATED WITH TUX CONSTRUCTION MANAGER.
- PHOTO-ELECTRIC SMOKE DETECTOR IN RETURN AIR STREAM FOR AUTO SHUT DOWN OF BLOWER SYSTEM TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR AND WIRED BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR TO BE INTERLOCKED WITH BMS SYSTEM AFTER INSTALLATION.
- BASEBOARD HEATER. SEE SCHEDULE ON THIS SHEET AND SPECIFICATION #1180-158.12 FOR ADDITIONAL INFORMATION.
- DUCTWORK TO EXTEND 2'-0" BEYOND LAST REGISTER.
- PROVIDE TURNING VANES AT 90 DEGREE TURNS IN ALL RECTANGULAR DUCT WORK.
- EXISTING RTU TO REMAIN IN PLACE AND BE REUSED. MECHANICAL CONTRACTOR SHALL FULLY SERVICE UNIT AS PART OF MECHANICAL SCOPE OF WORK. SEE EXISTING EQUIPMENT NOTES ON THIS SHEET. RE-BALANCE AS REQUIRED TO MEET CFM REQUIREMENTS INDICATED ON PLAN. VERIFY ALL CONDITIONS IN FIELD.

THERMOSTAT/SENSOR NOTE:

ALL SENSORS AND THERMOSTATS PROVIDED BY NOVAR CONTROLS. FINAL LOCATIONS AND ELEVATIONS PER NOVAR CONTROLS PLANS. MECHANICAL CONTRACTOR SHALL PROVIDE TEMPORARY THERMOSTATS FOR UNIT OPERATION FOR SPACE TEMPERING. THERMOSTAT SHALL BE LOCATED NEAR RETURN AIR LOCATION.

REHAB / DESIGN BUILD VOLTAGE NOTE:

THE AWARDED CONTRACTOR SHALL FIELD VERIFY VOLTAGE/PHASE REQUIREMENTS FOR ALL NEW RTUS. IF THE BUILDING ENGINEER/EXISTING VOLTAGE DOES NOT MATCH TUX M-1 VOLTAGE AWARDED CONTRACTOR SHALL CONTACT BOTH YORK NATIONAL ACCOUNTS, DAN BALANCA (405-418-6537) AND TUX PROJECT MANAGER WITH CORRECT VOLTAGE INFO.

- COORDINATE MOUNTING FRAME CEILING/WALL CONNECTION TYPE.
- MAXIMUM INDOOR CENTER RATING -C30.

EXISTING EQUIPMENT NOTES:

- G.C. SHALL PROVIDE THE FOLLOWING (BUT NOT LIMITED TO):
 - THE COMPLETE LUBRICATION OF ALL SPINDS AND BEARINGS THAT HAVE LUBRICATION ZERES.
 - THE REPLACEMENT OF ALL BELTS, HOSES AND FABRIC/RIBBER COATED ITEMS THAT ARE SUBJECT TO WEAR.
 - REPLACE FILTERS.
 - CHECK AMPS OF THE INDOOR, OUTDOOR MOTORS, AND COMPRESSORS.
 - TURN UNIT POWER OFF - TIGHTEN ALL ELECTRICAL CONNECTIONS, CONNECTORS, ETC.
 - EXAMINE AND REPAIR ALL ELECTRICAL WIRING, CONTROLS, STARTERS, RELAYS, CAPACITORS AND LINE ITEMS THAT TEND TO GENERATE OVER TIME OR BECOME NON-OPERATIONAL. THIS INCLUDES SMOKE DETECTORS.
 - CHECK REFRIGERANT CHARGE (GAUGES OR RETURN/SUPPLY TEMPERATURE VARIANCE).
 - ENSURE DRAIN PAN AND DRAIN LINES ARE CLEAN AND FREE OF BLOCKAGE.
 - ENSURE EXHAUSTOR AND CONDENSER COILS, THE STRAIGHTENING (COMBINO) OF ALL LOUVERS & FINS.
 - VERIFY ANY WORK REQUIRED BY THE LANDLORD PRIOR TO BID.
 - ALL FINDINGS AND VALUES TO BE NOTED AND PROVIDED TO TENANT'S CONSTRUCTION MANAGER & OR TENANT'S MAINTENANCE DIRECTOR.
 - VERIFY THAT UNIT IS PREPARED TO ACCEPT NOVAR CONTROLS MODULE. COORDINATE REQUIREMENTS WITH NOVAR CONTROLS CONTRACTOR.

DROP BOX DIFFUSER SCHEDULE

TAG	MANUFACTURER	MODEL	CFM	TYPE	S.P.	THROW (FEET)	NECK VELOCITY (F.P.M.)	NOISE LEVEL (NC)	REMARKS
DB-1	AES MECHANICAL	ADB1-15.4-CM	3000	FOUR WAY	112	49	555	15.63	1.2
DB-2	AES MECHANICAL	ADB1-15.4-CM	6000	FOUR WAY	112	78	1111	34.99	1.2

AIR DEVICE SCHEDULE

MARK	MANUF	TYPE	SIZE	REMARKS
SD-1	TUTTLE & BAILEY	S-1200	24x24	ADJUST NECK SIZES PER OEM LAMIN FRAME
SD-2	TUTTLE & BAILEY	S-1200	24x24	ADJUST NECK SIZES PER CFM SURFACE FRAME
SR-1	TUTTLE & BAILEY	T84	14x6	PROVIDE NECK & DAMPER
R-1	TUTTLE & BAILEY	CR6500	24x24	PROVIDE W/SWR ADAPTOR.
R-2	TUTTLE & BAILEY	TR50	30x18	
EG-1	TUTTLE & BAILEY	CT000	VARIES	PROVIDE W/SWR ADAPTOR

NATIONAL ACCOUNTS

UNIT ID	MANUFACTURER	GAS UNIT	HEATER SCHEDULE	MBH	ELECTRICAL
					AMPS VOLTS PHASE HERTZ
UH-1	STERLING	XF200	PROCESSING ROOM	200	8.0 120 1 60

ELECTRIC CEILING HEATER SCHEDULE

UNIT ID	MANUFACTURER	AREA SERVED	BTUH	ELECTRICAL
				AMPS VOLTS PHASE HERTZ
EC-1	QMARK	EF3007	VESTIBULE	10239 10.8 277 1 60

RTU UNIT SCHEDULE - TUX PRODUCTION ORDER

UNIT (E)XISTING	COL NOMINAL(TON)	AREA SERVED	REFRIGERANT	MFR	UNIT MODEL NUMBER	SUPPLY FAN AIRFLOW (CFM)	O.A. (CFM)	ESP (IN.WC)	HP	MOTOR DRIVE	COOLING			HEATING			ELECTRICAL			TOTAL WEIGHT (LB)	REMARKS		
											TOTAL (MBH)	NET SENS (MBH)	EFF (SEER)	STAGES	SOURCE	INPUT (K BTU)	OUTPUT (K BTU)	STAGES	VPHHZ			MCA (AMP)	MOCF (AMP)
RTU-1 (E)	15	SALES AREA	R-410A	TRANE	YSD180	6000	1100	1.20	5.0	HS	180.0	135.0	11.0	2	NG	250	203	2	480/360	40.5	50	2030	3.9,11,12
RTU-2 (E)	15	SALES AREA	R-410A	TRANE	YSD180	6000	1100	1.20	5.0	HS	180.0	135.0	11.0	2	NG	250	203	2	480/360	40.5	50	2030	3.9,11,12
RTU-3	7.5	SALES AREA	R-410A	YORK	ZJ090N	3000	650	1.20	3.0	HS	90.7	67.5	12.0	2	NG	180	144	2	480/360	20.1	25	1400	1.2,3,4,5,7,8,9,11,12,13
RTU-4	7.5	SALES AREA	R-410A	YORK	ZJ090N	3000	650	1.20	3.0	HS	90.7	67.5	12.0	2	NG	180	144	2	480/360	20.1	25	1400	1.2,3,4,5,7,8,9,11,12,13
RTU-5	7.5	MRESINS/BROOMS	R-410A	YORK	ZJ090N	3000	650	1.20	3.0	HS	90.7	67.5	12.0	2	NG	180	144	2	480/360	20.1	25	1400	1.2,3,4,5,7,8,9,11,12,13
RTU-6	6.5	OFFICE AREA	R-410A	YORK	ZJ078N	2600	400	1.00	1.5	STD	78.0	53.2	11.80	2	NG	180	144	2	480/360	16.0	20	1400	1.2,3,4,5,7,8,9,11,12,13
RTU-7	5	PROCESSING AREA	R-410A	YORK	ZT061N	2000	400	1.00	2.0	HS	61.8	43.1	(16.30)	2	NG	180	128	2	480/360	14.8	20	1100	1.2,3,4,5,7,8,9,11,12,13

- NOTES:
- PROVIDE WITH PREFABRICATED ROOF CURB(14" HIGH, WOOD NAILED, INSULATED DECK).
 - PROVIDE WITH INELLSPEED VFD FAN CONTROLLER.
 - PROVIDE WITH BURGULAR BARS.
 - PROVIDE WITH FACTORY INSTALLED, WIRED DISCONNECT SWITCH, FACTORY INSTALLED UNPOWERED 120V GFCI CONVENIENCE OUTLET.
 - PROVIDE WITH HAIL GUARD.
 - PROVIDE WITH DUAL ENTHALPHY CONTROLLED ECONOMIZER WITH POWER EXHAUST.
 - PROVIDE WITH DUAL ENTHALPHY CONTROLLED ECONOMIZER WITH BAROMETRIC RELIEF.
 - PROVIDE WITH FACTORY INSTALLED SMOKE DETECTOR IN RETURN AIR COMPARTMENT.
 - PROVIDE WITH 2" PLEATED MERV 8 FILTERS.
 - PROVIDE WITH CO2 SENSOR ECONOMIZER DAMPERS SHALL MODULATE BASED ON DEMAND CONTROL VENTILATION REQUIREMENTS.
 - PROVIDE WITH NOVAR CONTROLS. RTU TO BE CONTROLLED BY NOVAR CONTROLS. CONTRACTOR SHALL EMPLOY NOVOR CONTROLS CORPORATION TO INSTALL BMS SYSTEM. REFER TO SECTION 15C.11 IN TUX OUTLINE SPECIFICATION.
 - PROVIDE WITH TEMPORARY THERMOSTAT FOR UNIT OPERATION. REFER TO SECTION 15C.11 OF TUX OUTLINE SPECIFICATION.
 - FURNISH WITH MANUFACTURERS 10 YEAR WARRANTY FOR HEAT EXCHANGERS AND COMPRESSORS.

- NOTES:
- WEIGHTS INCLUDE BASE UNIT AND INTERNAL ACCESSORIES. ALLOWANCE SHALL BE INCLUDED FOR ROOF CURB OR CURB ADAPTERS AS NECESSARY.
 - CONTRACTOR SHALL INCLUDE TWO FILTERS CHANGES AND ORIGINAL EQUIPMENT FILTERS ARE TO BE CHANGED WHEN (1) STORE FIXTURING STARTS AND (2) WHEN STORE IS BEING STOCKED.
 - HS - HIGH STATIC MOTOR / STD- STANDARD MOTOR.
 - HD - HIGH STATIC DRIVE / STD- STANDARD DRIVE / F-FIELD SUPPLIED DRIVE.

GAS UNIT HEATER SCHEDULE

UNIT ID	MANUFACTURER	MODEL	AREA SERVED	MBH	ELECTRICAL
					AMPS VOLTS PHASE HERTZ
UH-1	STERLING	XF200	PROCESSING ROOM	200	8.0 120 1 60

EXHAUST FAN SCHEDULE

UNIT ID	MANUFACTURER	MODEL	SERVICE	TYPE	CFM	S.P.	IN.WG.	ELECTRICAL
								AMPS VOLTS PHASE HERTZ
EF-1	PENBARRY	DX18R	RESTROOM/LAUNTERS	ROOF	675	0.5	120	1 60
EF-2	PENBARRY	DX18R	LOUNGE	ROOF	270	0.25	120	1 60
EF-5	PENBARRY	DX103	DRESSING ROOM	ROOF	250	0.25	120	1 60

BASEBOARD UNIT HEATER SCHEDULE

UNIT ID	MANUFACTURER	MODEL	AREA SERVED	BTUH	ELECTRICAL
					AMPS VOLTS PHASE HERTZ
BB-1	MARKEL	2800S	LOUNGE	3413	8.3 277 1 60

- NOTES:
- CABINETS SHALL BE CONSTRUCTED OF MINIMUM 18 GAUGE STEEL.
 - UNITS SHALL HAVE BUILT-IN THERMAL OVERLOAD PROTECTION.
 - 1 MOUNTING ACCESSORIES.
 - 2 DISCONNECT SWITCH.
 - 3 PROVIDE THERMOSTAT.

GENERAL NOTES

- CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS, INFORMATION REGARDING THE COMPLETE WORK IS EXPRESSED THROUGHOUT THE CONSTRUCTION DOCUMENTS WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.
- COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISERS AND DROPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES BEFORE STARTING WORK.
- DRAWINGS FOR HVAC WORK ARE DIAGNRAMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY CODE.
- CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS AND SIZES OF ALL UTILITIES, INCLUDING THE DEPTHS OF ALL BELOW GRADE SANITARY SEWERS, PRIOR TO START OF WORK. THIS DRAWING IS NOT INTENDED TO INDICATE ALL EXISTING UTILITIES.
- CONTRACTOR SHALL BE FAMILIAR WITH LANDLORD'S STANDARDS, RULES AND REGULATIONS. ALL LANDLORD'S CRITERIA SHALL BE COMPLIED WITH AND INCLUDED IN THE BID.
- CONTRACTOR SHALL VERIFY AND COORDINATE ALL UTILITY CONNECTION POINTS, INCLUDING SIZES AND INVERTS WITH EXISTING FIELD CONDITION PRIOR TO START OF WORK.
- MAKE ALL UTILITY CONNECTION AND INSTALLATION IN FULL ACCORDANCE WITH ALL UTILITY REGULATIONS. PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED BY UTILITY COMPANY. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY, AND THE MANUFACTURER'S STRICTEST REQUIREMENTS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.
- MAINTAIN ALL MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES FOR ALL FITTINGS AND EQUIPMENT.
- ALL HORIZONTAL FIRE PROTECTION SPRINKLER PIPING AND ALL ABOVE GRADE EXPOSED SHALL BE INSTALLED AS HIGH AS POSSIBLE. SPRINKLER CONTRACTOR SHALL COORDINATE SPRINKLER SYSTEM WITH DUCTWORK AND LIGHTS. ALL COSTS ASSOCIATED WITH RAISING SPRINKLER PIPING WHERE THE ARCHITECTURAL DESIGN CAN NOT BE ACCOMMODATED SHALL BE THE RESPONSIBILITY OF THE SPRINKLER CONTRACTOR.
- CONTRACTOR SHALL COORDINATE TIMES TO WORK IN SPECIFIC AREAS OF THE EXISTING BUILDING WITH THE BUILDING MANAGER.
- SLEEVE AND SEAL ALL PIPE PENETRATIONS OF WALLS AND FLOORS. APPLY INTUMESCENT FIRE SAFING COMPOUND AT PENETRATIONS OF FIRE-RATED WALLS AND FLOORS. MAINTAINING INTEGRITY AND RATING OF FIRE SEPARATION. SLEEVES THROUGH FLOORS SHALL EXTEND 2" ABOVE FLOOR, BE GROUDED INTO PLACE AND WATER PROOFED. PIPING THROUGH EXTERIOR WALLS SHALL BE SLEAVED AND SEALED WEATHER TIGHT WITH SILICONE CALK.
- ROOF TOP EQUIPMENT SHALL BE TAGGED WITH 2"-1/2" HIGH PERMANENT LETTERS TO IDENTIFY SPACE SERVED.
- EXHAUST FANS / DUCTS AND ROOF VENTS SHALL TERMINATE A MINIMUM OF 10'-0" FROM OUTSIDE AIR INTAKES.
- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25, AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL EXPOSED WIRING IN THE PLENUM SHALL BE PLENUM RATED.
- CONTRACT LANDLORD APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL ROOF CURBS TO MAINTAIN ROOFING WARRANTY.
- CONTRACTOR TO DETERMINE IF ANY STRUCTURAL ELEMENTS SUCH AS REBAR OR POST TENSION CABLE EXIST IN FLOORS, WALLS OR ROOFS BY INSPECTION COORDINATED WITH THE LANDLORD'S TENANT COORDINATOR OR STRUCTURAL ENGINEER AND BY USE OF X-RAY WHEN REQUIRED PRIOR TO ANY CUTTING OR CORE DRILLING. IF SUCH ELEMENTS EXIST, REPORT THIS IMMEDIATELY TO THE ARCHITECT AND THE LANDLORD'S TENANT COORDINATOR FOR RESOLUTION PRIOR TO CUTTING OR DRILLING.
- VISIT SITE PRIOR TO BIDDING AND FIELD VERIFY EXISTING CONDITIONS. TAKE INTERFERENCES INTO CONSIDERATION.
- DUCTWORK SHALL BE INSTALLED THRU TO UNDERSIDE OF ROOF STRUCTURE AS HIGH AS POSSIBLE TO AVOID OBSTRUCTIONS.
- INTERIOR OF ALL DUCTS VISIBLE THROUGH DIFFUSERS/GRILLES PAINT BLACK.
- SPRINKLER CONTRACTOR SHALL COORDINATE SPRINKLER SYSTEM WITH DUCTWORK AND LIGHTS.
- ALL ABANDONED HVAC EQUIPMENT SHALL BE REMOVED AND PROPERLY DISPOSED, CAP AND INSULATE ALL UNUSED ROOF OPENINGS.
- REPLACE ALL HVAC FILTERS JUST PRIOR TO STORE GRAND OPENING.

OUTSIDE AIR CALCULATIONS
(BASED ON ASHRAE STANDARD 62.2013)

OUTSIDE AIR REQUIRED:

SALES AREAS:

17223/1000 x 15 = 258 OCCUPANTS	1935 CFM
258 OCCUPANTS x 7.5 CFM=	2066 CFM
17223 x .12 CFM=	2066 CFM
TOTAL SALES AREA=	4001 CFM

MERCHANDISE HANDLING, RECEIVING, OFFICE & STORAGE AREAS:

4981 S.F. x .12 CFM/S.F. =	597 CFM
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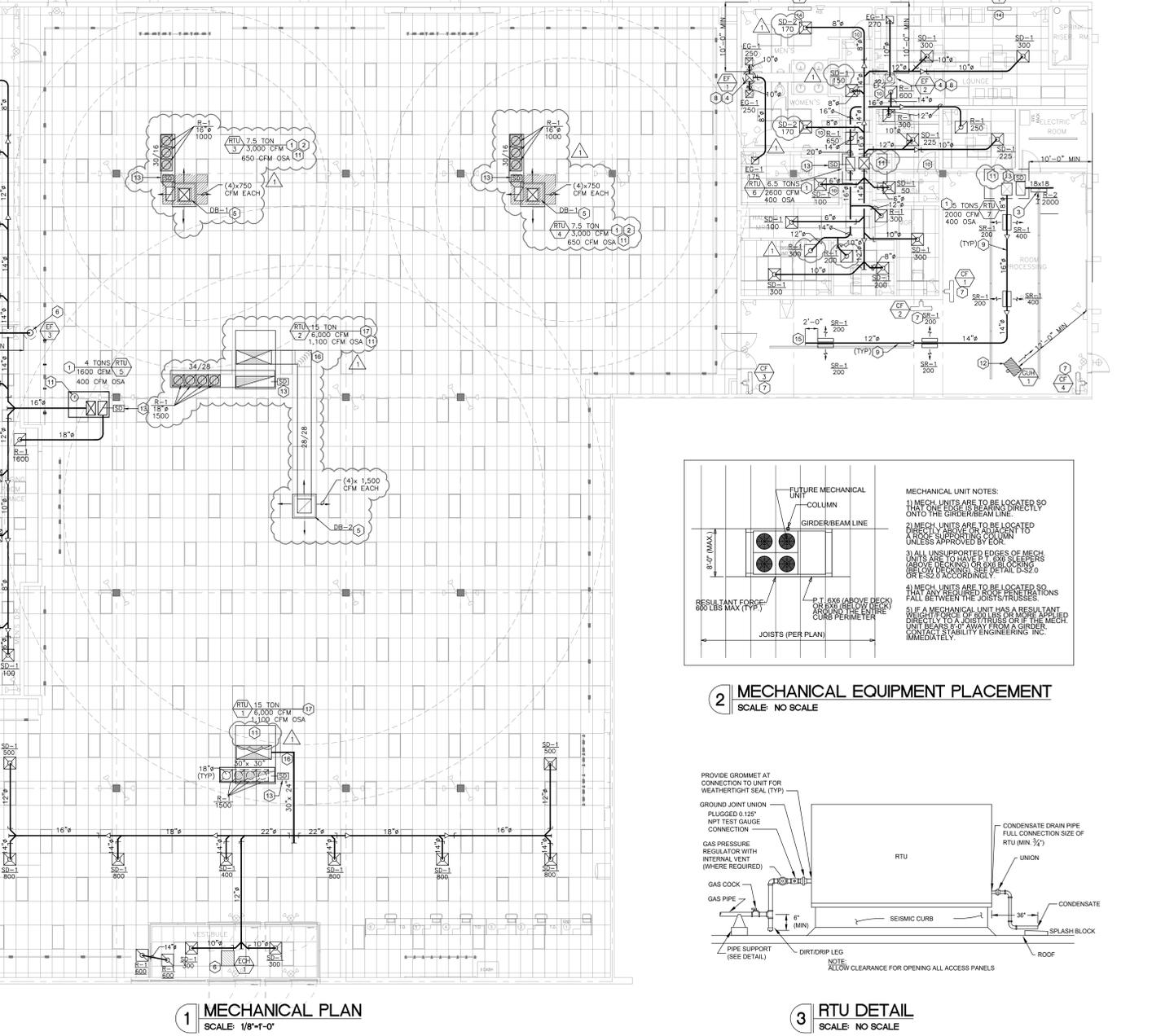
TOTAL OUTSIDE AIR CFM REQUIRED: 4998 CFM

OUTSIDE AIR PROVIDED:

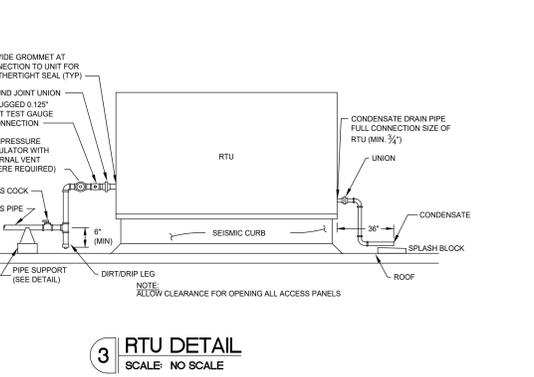
RTU-1	= 1100 CFM
RTU-2	= 1100 CFM
RTU-3	= 650 CFM
RTU-4	= 650 CFM
RTU-5	= 300 CFM
RTU-6	= 400 CFM
RTU-7	= 400 CFM
TOTAL O.A. PROVIDED =	4600 CFM

NOVAR SYSTEM NOTES

- NOVAR INTERFACE SUMMARY (REFER TO TUX SPECIFICATIONS FOR DETAIL INFORMATION.)**
- GENERAL CONTRACTOR**
 - PROVIDE 4'x8' PLYWOOD BACKSPOUD IN ELECTRIC ROOM FOR NOVAR TO MOUNT THEIR EQUIPMENT. PHONE AND ETHERNET JACKS FOR THE NOVAR CONTROLLER WILL ALSO BE LOCATED ON THIS BOARD BY SEPARATE TUX VENDOR.
 - MECHANICAL CONTRACTOR**
 - MOUNT 2X4 J-BOX WITH CONDUIT (WIREDMOLD IF EXPOSED IN FINISHED AREAS) AT LOCATIONS DESIGNATED ON NOVAR CONTROLS SITE SPECIFIC PLANS. THE J-BOXES ARE SHALL BE MOUNTED 60" AFF EXCEPT IN FITTING ROOM LOCATIONS WHERE J-BOXES SHALL BE MOUNTED 84" AFF. ON SALES FLOOR J-BOXES SHALL BE MOUNTED ON BACK SIDE OF COLUMNS WHEN VIEWED FROM FRONT OF STORE.
 - PROVIDE PERMANENT STRANDED 18/2 AWG NON SHIELDED CABLE (18/8) IF THE RTU IS EQUIPPED WITH A CO2 SENSOR FROM EACH ROOFTOP UNIT TO THE NOVAR ETM (T-STAT) LOCATION SHOWN ON THE NOVAR PLAN THAT SUPERSEDES ANY MECHANICAL PLAN LOCATIONS. ALL CONTROL DEVICES SHALL BE APPROPRIATELY IDENTIFIED AND PERMANENTLY ATTACHED.
 - TEMPORARY THERMOSTATS SHALL BE INSTALLED NEAR THE ROOFTOP UNITS.
 - HVAC EQUIPMENT SHALL HAVE MANUFACTURER'S RECOMMENDED STARTUP PROCEDURE PERFORMED AND BE OPERATIONAL IN ALL MODES BEFORE ARRIVAL OF NOVAR CONTROLS REPRESENTATIVE FOR FINAL NOVAR INSTALLATION.
 - IN COLD WEATHER THE CONTRACTOR SHALL PROVIDE TEMPORARY THERMOSTAT TO OPERATE THE HEATERS IN RECEIVING.
 - BASEBOARD HEATERS SHALL BE FACTORY EQUIPPED WITH INTEGRAL THERMOSTATS AND INSTALLED IN ALL OFFICES, LOUNGE, RESTROOMS, AND SECURITY OFFICES WITH AT LEAST ONE EXTERIOR WALL WHEN LOCATED IN CLIMATE ZONES 4 AND 5. THE CIRCUITING FOR BASEBOARD HEATING SHALL BE THROUGH CEILING RELAY PANEL.
 - ELECTRIC VESTIBULE HEATERS SHALL BE FACTORY EQUIPPED WITH LOW VOLTAGE CONTROLS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: POWER CONNECTIONS, LOW VOLTAGE TRANSFORMER, AND TWO WIRE FIELD TERMINATION CONTROL POINT.
 - ELECTRICAL CONTRACTOR**
 - REFER TO ELECTRICAL PLANS FOR REQUIREMENTS AND COORDINATION INFORMATION.



2 MECHANICAL EQUIPMENT PLACEMENT
SCALE: NO SCALE



MECHANICAL REQUIREMENTS

- PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM. ALL TUX SPECIFICATION REQUIREMENTS SHALL BE MET IN ADDITION TO THE BELOW. NOTIFY CONSTRUCTION MANAGER OF ALL DISCREPANCIES.
- DEFINITIONS:** BUSINESS MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION. INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE. PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.
- MATERIALS:** PROVIDE LABOR AND MATERIALS TO REMOVE OR REPLACE EXISTING PARTS AS REQUIRED FOR ONE YEAR OF SUBSTANTIAL COMPLIANCE OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DEDUCT WARRANTY SERVICE AT THE OWNER'S OPTION. COORDINATE WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.
- DUCT DIMENSIONS:** UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE UNLESS CLEAR DIMENSIONS.
- SHEETMETAL DUCTWORK:** PROVIDE SHEETMETAL DUCTWORK FABRICATED AND INSTALLED IN ACCORDANCE WITH ASHRAE AND SWANNA STANDARDS. FOR 1" W.G. PRESSURE CLASS, SEAM CLASS 7X. SHEETMETAL SHALL BE GALVANIZED STEEL OF THICK FORMING QUALITY, WITH 0.01 ZINC COATING. SHEET STEEL SHALL COMPLY WITH ASTM A593 STANDARD SPECIFICATION FOR STEEL SHEETMETAL, ZINC COATED (GALVALUME) OR ZINC-IRON ALLOY-COATED (GALVALANNE) BY THE HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED CONNECTIONS TO WALLS OR FLOORS SHALL BE AIR-TIGHT WITH ASBESTOS AND CHALKING. SEAL ALL DUCT JOINTS, TRANSVERSE AND LONGITUDINAL, AIR-TIGHT. PROVIDE TURNING VANES AT ALL 90 DEGREE BENDS.
- ROUND SHEETMETAL DUCT:** PROVIDE SPINAL SEAM (ALL SIZES) OR SWAMP LOCK (DUCT SIZES UP TO 10" ABOVE CEILING) GALVANIZED STEEL, COMPLYING WITH SWANNA STANDARDS. SPINAL SEAM DUCTWORK SHALL HAVE SWANNA SEAM TYPE RL-1.
- DUCTWORK FITTINGS AND ACCESSORIES:** ALL FITTINGS AND ACCESSORIES SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST PUBLISHED STANDARDS FROM SWANNA AND ASHRAE.
- FLEXIBLE DUCT:** PROVIDE FACTORY ASSEMBLED CLASS 1 AIR DUCT (UL 811) WITH 1" THICK 1" PLY FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER/ANOR BARRIER. FLEXIBLE DUCT SHALL MEET NFPA 96A WITH FLAME SPREAD UNDER 25. SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR MINIMUM 2" W.G. PRESSURE AND 1 TO 200°F TEMPERATURE. PROVIDE SMOKE-RESISTANT CLAMPING DEVICES. USE TIGHT-LOCK 1"X1" COLLARS AT CONNECTIONS INTO SHEETMETAL DUCTWORK. MAXIMUM EXTENDED LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 4 FEET.
- EXPOSED DUCTWORK:** EXPOSED DUCTWORK SHALL BE CLEANED OF DEBRIS AND OIL, THEN WIPED DOWN WITH VULGAR OR OTHER SURFACE PREPARING CHEMICAL TO PREPARE DUCT FOR PAINT.
- DUCT SEALANT:** PROVIDE POLYMERIC RUBBER TYP SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE. FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAP SEALING SYSTEM, CONSISTING OF NOVEL FIBER REINFORCED WITH A OPTIMUM AMINERAL CARBON, AND A MOVED AEROSOL/SILOXANE ACTIVATOR THAT REACTS EXTERNALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS.
- DUCT INSULATION:** ALL ROUND, SLEEVY DUCT AND ROUND RETURN DUCT ABOVE CEILING: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553. TYPE II WITH FACTORY APPLIED FRUIT PROTECTOR. ALL ROUND, SLEEVY DUCT BELOW CEILING: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553. TYPE II WITH FACTORY APPLIED FRUIT PROTECTOR. ALL ROUND, SLEEVY DUCT BELOW CEILING: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553. TYPE II WITH FACTORY APPLIED FRUIT PROTECTOR. ALL ROUND, SLEEVY DUCT BELOW CEILING: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553. TYPE II WITH FACTORY APPLIED FRUIT PROTECTOR. ALL ROUND, SLEEVY DUCT BELOW CEILING: PROVIDE MINIMUM 1-1/2" THICK BLANKET TYPE FIBERGLASS INSULATION COMPLYING WITH ASTM C-553. TYPE II WITH FACTORY APPLIED FRUIT PROTECTOR.
- DUCT LINER:** ALL RECTANGULAR SLEEVY AND RETURN DUCTS: PROVIDE MINIMUM 1" THICK, 3" ROF DENITY, HEMPSTONE COATED, LONG TEXTURE FIBER TYPE DUCT LINER, WITH COATING ON THE AIR STREAM SIDE CONFORMING TO NFPA 96A. DUCT LINER ADHESIVE SHALL BE AS RECOMMENDED BY DUCT LINER MANUFACTURER, AND SHALL COMPLY WITH ASTM C-216. DUCT LINER FASTENERS SHALL COMPLY WITH SWANNA "THAN" DUCT CONSTRUCTION STANDARDS, LATEST EDITION. THERMAL CONDUCTIVITY SHALL BE EQUAL TO OR LESS THAN 0.28 AT 75°F.
- ROUND VOLUME DAMPERS:** PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOADING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEETMETAL BRACKET BEHIND DUCT COVER, WHERE POSITIVE REGULATOR IS NOT AVAILABLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CLEAR WALL INSTALLATION, AS REQUIRED.
- RECTANGULAR VOLUME DAMPERS:** PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM #16 HEXAGONAL AXLE, MOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE STEEL CONTROL SHAFT. IMAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 4 FEET.
- DUCT TURNING VANES:** PROVIDE FABRICATED TURNING VANES AND VANE BRACKETS, CONSTRUCTED IN ACCORDANCE WITH SWANNA "THAN"

