

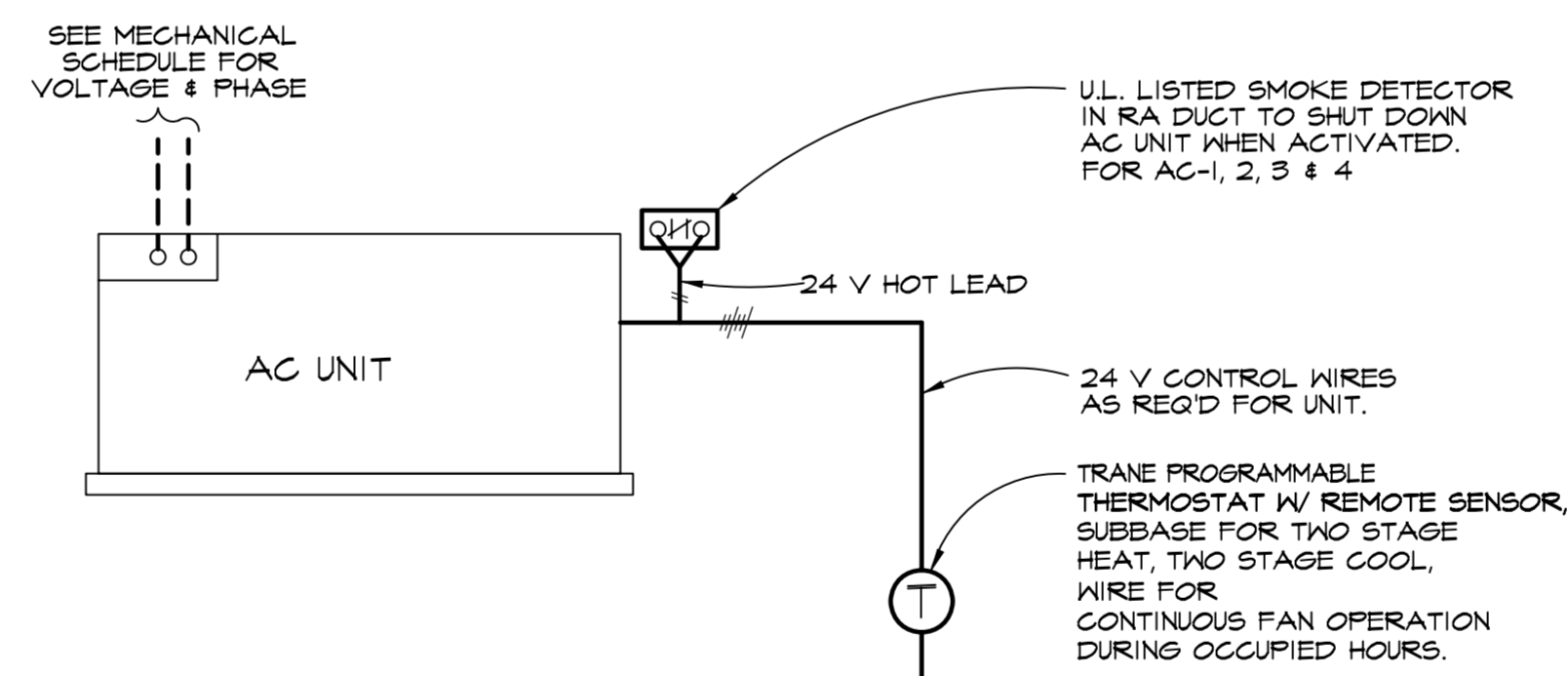
GRILLE, REGISTER, & DIFFUSER SCHEDULE			
TAG	MFR. / MODEL	BORDER TYPE	REMARKS
18" CD	TITUS TMRA TYPE 3, 18" NECK	STD	DUCT MOUNTED
16" CD	TITUS TMRA TYPE 3, 16" NECK	STD	DUCT MOUNTED
8" CD	SEIHO TT&P WITH CLEAR ANODIZED FINISH	SURFACE	
36" LD	AIR FACTOR B-25(2)-HFHF STD WEIR GATE, 36" LONG	SURFACE	W/ (AL) PLENUM AND 12" INLET COLLAR DAMPER
14" CD3	TITUS TDCA W/ 18X18 NECK, 14" NECK ADAPTOR & THROW REDUCING VANES	3	3-WAY WITH TRM PLASTER FRAME
14" CD2	TITUS TDCA W/ 18X18 NECK, 14" NECK ADAPTOR & THROW REDUCING VANES	3	2-WAY OPPOSED WITH TRM PLASTER FRAME
10" CD4	TITUS TDCA W/ 18X18 NECK, 10" NECK ADAPTOR & THROW REDUCING VANES	3	4-WAY WITH TRM PLASTER FRAME
14" CD4T	TITUS TDCA W/ 18X18 NECK, 14" NECK ADAPTOR & THROW REDUCING VANES	3	4-WAY
14" CD2T	TITUS TDCA W/ 18X18 NECK, 14" NECK ADAPTOR & THROW REDUCING VANES	3	2-WAY OPPOSED
14" CD2CT	TITUS TDCA W/ 18X18 NECK, 14" NECK ADAPTOR & THROW REDUCING VANES	3	2-WAY CORNER
10" CD4T	TITUS TDCA W/ 18X18 NECK, 10" NECK ADAPTOR & THROW REDUCING VANES	3	4-WAY
10" CD2T	TITUS TDCA W/ 18X18 NECK, 10" NECK ADAPTOR & THROW REDUCING VANES	3	2-WAY OPPOSED
24X24 CR&T	TITUS 50F	3	
24X24 CR&	TITUS 50F	3	WITH TRM PLASTER FRAME
24X24 CR&T	TITUS 50F WITH ROUND NECK ADAPTOR	3	
24X24 CR&	TITUS 50F WITH ROUND NECK ADAPTOR	3	WITH TRM PLASTER FRAME
10" CD4TF	ACUTHERM ST-HC THERMAFUSER	T-BAR	4-WAY
CONCENTRIC	CAN FAB CONCENTRIC DIFFUSER TO MATCH TRANE UNIT		SUPPORT FROM STRUCTURE ABOVE

MECHANICAL EQUIPMENT SCHEDULE	
MARK	DESCRIPTION
AC 1	TRANE YCD 301, 25 TON, DOWNSHOT ROOFTOP PACKAGED GAS ELECTRIC AC UNIT, 142.2 MBH SENSIBLE, 235.9 MBH TOTAL COOLING CAPACITIES @ 65°F EDB, 74°F EDB, 105°F AMBIENT AND 1000 CFM @ 0.9" ESP, 115/250 MBH 1st & 2nd STAGE INPUT, 142/203 MBH 1st & 2nd STAGE OUTPUT HEATING CAPACITIES. PROVIDE UNIT WITH HAIL GAIRD, DIFFERENTIAL ENTHALPHY ECONOMIZER, LOW AMBIENT CONTROL, AND FACTORY VERTICAL CURB, 10.4 EER, 81% AFUE, 51 MCA, TO MOCP, 460V/3P, 2490 LBS
AC 2	TRANE YCD 301, 25 TON, DOWNSHOT ROOFTOP PACKAGED GAS ELECTRIC AC UNIT, 190.1 MBH SENSIBLE, 246.6 MBH TOTAL COOLING CAPACITIES @ 65°F EDB, 74°F EDB, 105°F AMBIENT AND 10000 CFM @ 0.8" ESP, 115/250 MBH 1st & 2nd STAGE INPUT, 142/203 MBH 1st & 2nd STAGE OUTPUT HEATING CAPACITIES. PROVIDE UNIT WITH HAIL GAIRD, DIFFERENTIAL ENTHALPHY ECONOMIZER, LOW AMBIENT CONTROL, AND FACTORY VERTICAL CURB, 10.4 EER, 81% AFUE, 51 MCA, TO MOCP, 460V/3P, 2490 LBS
AC 3	TRANE THG 036, 3 TON, DOWNSHOT ROOFTOP PACKAGED COOLING ONLY ELECTRIC AC UNIT, 23.9 MBH SENSIBLE, 34.0 MBH TOTAL COOLING CAPACITIES @ 67°F EDB, 78°F EDB, 105°F AMBIENT AND 1200 CFM @ 0.5" ESP. PROVIDE UNIT WITH HAIL GAIRD WITH DIFFERENTIAL ENTHALPHY ECONOMIZER, LOW AMBIENT CONTROL, AND FACTORY VERTICAL CURB, 10.5 SEER, 9.2 MCA, 15 MOCP, 460V/3P, 600 LBS
FC 1	MITSUBISHI FC-42BK, 3-1/2 TON, CEILING MOUNTED DUCTLESS SPLIT FAN COIL, 33 MBH SENSIBLE, 34 MBH TOTAL COOLING CAPACITIES @ 65°F EDB, 80°F EDB, 95°F AMBIENT AND 260 CFM. PROVIDE UNIT WITH LOW AMBIENT CONTROL, SINGLE POINT ELECTRICAL CONNECTION, LIQUID LINE SOLENOID VALVE, FILTER DRYER, AND THERMOSTAT, 9.6 SEER, 3.0 MCA, 15 MOCP, 120V/1P, HEIGHT 120 LBS
FC 2	MITSUBISHI FC-42BK, 3-1/2 TON, CEILING MOUNTED DUCTLESS SPLIT FAN COIL, 33 MBH SENSIBLE, 34 MBH TOTAL COOLING CAPACITIES @ 65°F EDB, 80°F EDB, 95°F AMBIENT AND 260 CFM. PROVIDE UNIT WITH LOW AMBIENT CONTROL, SINGLE POINT ELECTRICAL CONNECTION, LIQUID LINE SOLENOID VALVE, FILTER DRYER, AND THERMOSTAT, 9.6 SEER, 3.0 MCA, 15 MOCP, 120V/1P, HEIGHT 120 LBS
CU 1	MITSUBISHI PU-42S, 3-1/2 TON, CONDENSING UNIT, TO MATCH FC-1 & FC-2 AND LISTED CAPACITIES. PROVIDE UNIT WITH LOW AMBIENT CONTROL AND HAIL GAIRD, 27.0 MCA, 40 MOCP, 208V/1P, 260 LBS
CU 2	MITSUBISHI PU-42S, 3-1/2 TON, CONDENSING UNIT, TO MATCH FC-1 & FC-2 AND LISTED CAPACITIES. PROVIDE UNIT WITH LOW AMBIENT CONTROL AND HAIL GAIRD, 27.0 MCA, 40 MOCP, 208V/1P, 260 LBS
CU 3	TRANE TTA 240, 20 TON, CONDENSING UNIT, TO MATCH UP WITH ONE CIRCUIT OF CAPTIVE AIRE COIL IN MAU-1. PROVIDE UNIT WITH R-22, LOW AMBIENT CONTROL, HAIL GAIRD, LIQUID LINE SOLENOID VALVE, FILTER DRYER, AND ALL REFRIGERANT DEVICES INCLUDING CHARGING SYSTEM FOR A COMPLETE SYSTEM WITH THE CAPTIVE AIRE COIL, 42.5 MCA, 50 MOCP, 460V/3P, 900 LBS
CU 4	TRANE TTA 240, 20 TON, CONDENSING UNIT, TO MATCH UP WITH ONE CIRCUIT OF CAPTIVE AIRE COIL IN MAU-1. PROVIDE UNIT WITH R-22, LOW AMBIENT CONTROL, HAIL GAIRD, LIQUID LINE SOLENOID VALVE, FILTER DRYER, AND ALL REFRIGERANT DEVICES INCLUDING CHARGING SYSTEM FOR A COMPLETE SYSTEM WITH THE CAPTIVE AIRE COIL, 42.5 MCA, 50 MOCP, 460V/3P, 900 LBS
MAU 1	CAPTIVE AIRE MAKE UP AIR UNIT 15650 CFM, 640 MBH HEATING SECTION WITH 40 TON SPLIT ROW DX COOLING COIL, COOLING SECTION, MAU UNIT TO BE PROVIDED WITH SUPPLY AIR SENSORS AND ALL CONTROLS TO CONTROL HEATING AND COOLING SECTIONS OF THE MAU, THE CONTRACTOR SHALL INSTALL ALL CONTROLS REQUIRED FOR AN OPERATING INCLUDING BUT NOT LIMITED TO WIRING, INTERCONNECTING WIRING AND ANY REQUIRED TRANSFORMERS, 15 HP, 460V/3P, HEIGHT, 3400 LBS

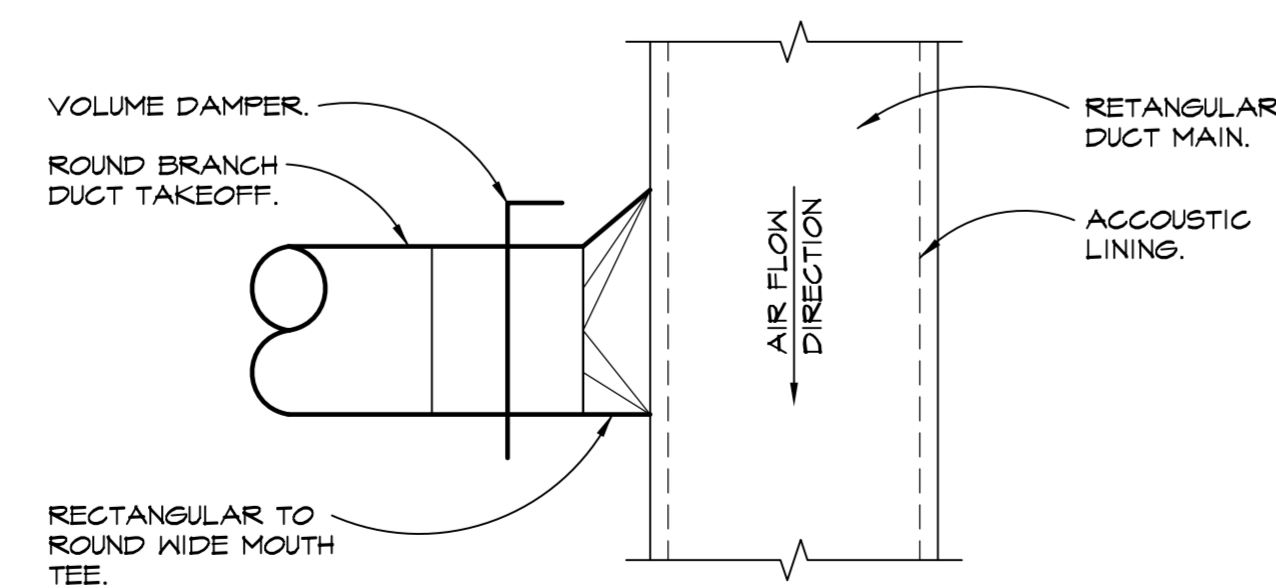
NOTE: TRANE HAS NATIONAL ACCOUNT WITH YARD HOUSE, CONTACT ED REMBECKY AT 409-420-0984 FOR PRICING. ALL AC UNITS AND DUCTLESS SPLIT SYSTEMS ARE PROVIDED BY TRANE INSTALLED BY CONTRACTOR.

EXHAUST FAN SCHEDULE							
MARK	MODEL	CFM	"SP	ELECTRICAL			REMARKS
				HP	VOLTS	PH	
EF 1	CAPTIVE AIRE NCA18HFA	2575	-1.25	1.5 HP	460	3P	W/ EXTENDED VENTED CURB GREASE CUP, HINGING KIT, & DRAIN CONNT.
EF 2	CAPTIVE AIRE NCA18HFA	3540	-1.5	3.0 HP	460	3P	W/ EXTENDED VENTED CURB GREASE CUP, HINGING KIT, & DRAIN CONNT.
EF 3	CAPTIVE AIRE NCA18HFA	1900	-1.0	1.0 HP	460	3P	W/ EXTENDED VENTED CURB GREASE CUP, HINGING KIT, & DRAIN CONNT.
EF 4	CAPTIVE AIRE NCA16FA	2885	-1.0	2.0 HP	460	3P	W/ EXTENDED VENTED CURB GREASE CUP, HINGING KIT, & DRAIN CONNT.
EF 5	CAPTIVE AIRE HRE-20	4325	-1.5	3 HP	460	3P	W/ EXTENDED VENTED CURB GREASE CUP, HINGING KIT, & DRAIN CONNT.
EF 6	CAPTIVE AIRE DUT8HFA	1575	-.4	3/4 HP	120	1P	W/ CURB AND BDD
EF 7	CAPTIVE AIRE DD11FA	1000	-.4	1/3 HP	120	1P	W/ CURB AND BDD
EF 8	CAPTIVE AIRE DR10HFA	200	-.25	1/4 HP	120	1P	W/ CURB AND BDD

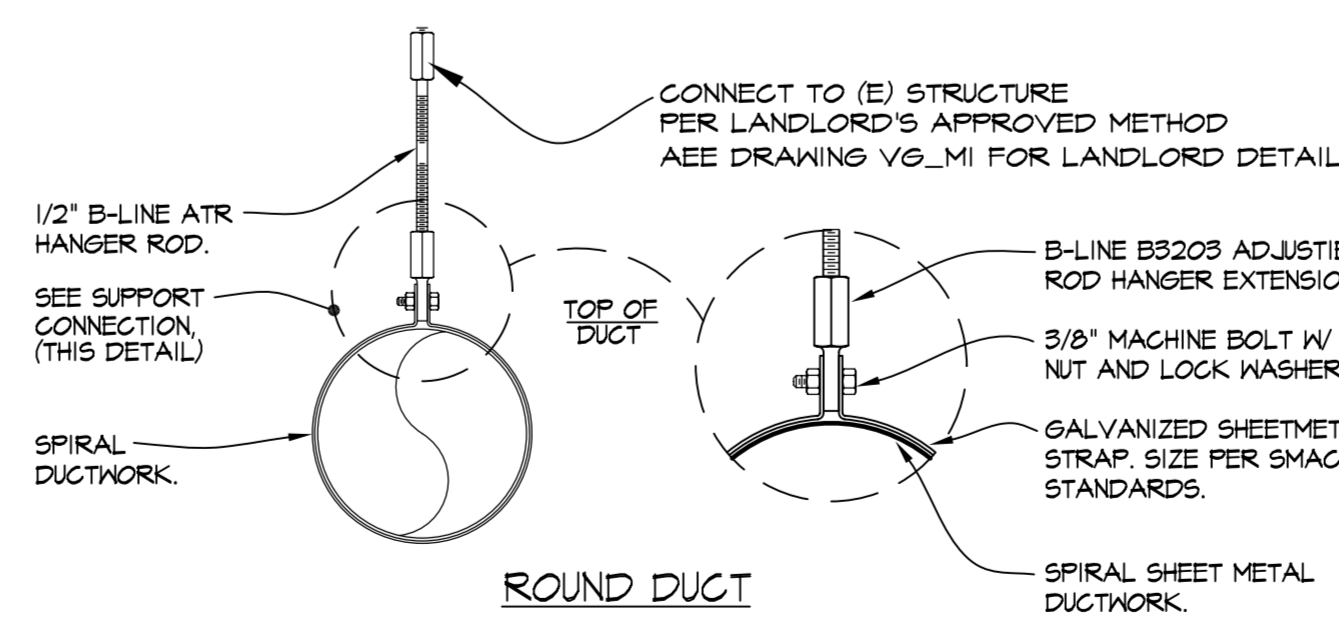
ALL CAPTIVE AIRE FANS ARE PROVIDED BY CAPTIVE AIRE AND INSTALLED BY MECHANICAL CONTRACTOR. NOTE: EF-1 THROUGH EF-8 SHALL BE INTERLOCKED WITH THE MAKE UP AIR UNITS.



AC UNIT CONTROL
SCALE: NTS



TYPICAL BRANCH DUCT TAKEOFF
SCALE: NTS



ROUND DUCT EXPOSED SPIRAL DUCT SUPPORT
SCALE: NTS

- DUCT SUPPORT NOTES:
- ALL STRAPS, RODS, TRAPEZE ANGLES AND TRAPEZE CHANNELS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE LATEST SMACNA REQUIREMENTS.
 - ALL BOLTS, NUTS, SCREWS AND OTHER FASTENING DEVICES SHALL BE LOAD-RATED AND SHALL MEET ALL CODE REQUIREMENTS AND SAFETY FACTORS WHICH APPLY.
 - WIRE USED IN LIEU OF STRAPS AND RODS, IS NOT ALLOWED.
 - WHERE APPLICABLE, INSTALL INSULATION AFTER INSTALLING DUCT HANGERS.
 - SHAFTS ARE FOR ROOFER DUCTWORK ONLY.

MECHANICAL SYMBOLS	
MARK	DESCRIPTION
(E)	EXISTING
(N)	NEW
(AC)	ABOVE CEILING
UTR	UP THRU ROOF W/ CAP & FLASHING
SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
OA	OUTSIDE AIR
BDD	BACKDRAFT DAMPER
LD	LINEAR DIFFUSER
(AL)	ACOUSTICALLY LINED PLENUM OR DUCT SECTION
(T)	WALL THERMOSTAT, UP 4'-6"
(SD)	DUCT MOUNTED SMOKE DETECTOR (SEE ELEC.)
(RS)	REMOTE FULL STATION FOR ANSUL SYSTEM
UTR	UP THROUGH ROOF WITH CAP AND FLASHING
SEG	SMOKE EXHAUST GRILLE
SE	SMOKE EXHAUST
STG	SMOKE TRANSFER GRILLE
CTG	CEILING TRANSFER GRILLE
(CTE)	CONNECT TO EXISTING
CEG	CEILING EXHAUST GRILLE
CRG	CEILING RETURN GRILLE
CD4, CD3, ETC.	CEILING DIFFUSER, 4 WAY, 3 WAY, ETC.
	VOLUME DAMPER (VD)
	FLEXIBLE DUCT CONNECTION (FC)
	SECTION THRU SUPPLY AIR DUCT
	SECTION THRU RETURN AIR DUCT
	SECTION THRU EXHAUST OR OUTSIDE AIR DUCT
	CROSS HATCHING OF DUCT SECTION INDICATES PENETRATION OF DUCT UP THRU ROOF OR NEXT FLOOR.

AIR BALANCE SCHEDULE					
UNIT	SUPPLY	O.S.A.	RETURN	EXHAUST	MUA
AC-1	9000	1200	7800	-	-
AC-2	9000	1200	7800	-	-
AC-3	9000	1200	7800	-	-
AC-4	10,000	1200	8800	-	-
EF-1	-	-	-	2575	-
EF-2	-	-	-	3540	-
EF-3	-	-	-	1900	-
EF-4	-	-	-	2885	-
EF-5	-	-	-	4325	-
EF-6	-	-	-	1575	-
EF-7	-	-	-	1000	-
EF-8	-	-	-	200	-
MAU-1	-	-	-	-	13,650
TOTAL	28,000	4800	32,200	18,000	13,650

BUILDING PRESSURE = 450 CFM POSITIVE PRESSURE

NOTE: THE TYPE I GREASE HOODS, TYPE II VAPOR HOOD AND ASSOCIATED EXHAUST FANS ARE PROVIDED BY THE OWNER/KITCHEN CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL THIS EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL COORDINATE FULLY WITH ALL OTHER TRADES AND SHALL PROVIDE EVERYTHING NECESSARY FOR A COMPLETE OPERATIONAL KITCHEN MAKE UP AIR AND EXHAUST SYSTEM AS DESIGNED.



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YARD HOUSE RESTAURANT L.L.C.

THE SHOPS AT
LA CANTERA
SPACE 3200
SAN ANTONIO, TX

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Date	Issue
09/24/08	ISSUE FOR PERMIT
11/13/08	PLAN CHECK COMMENTS/ ISSUE FOR BID

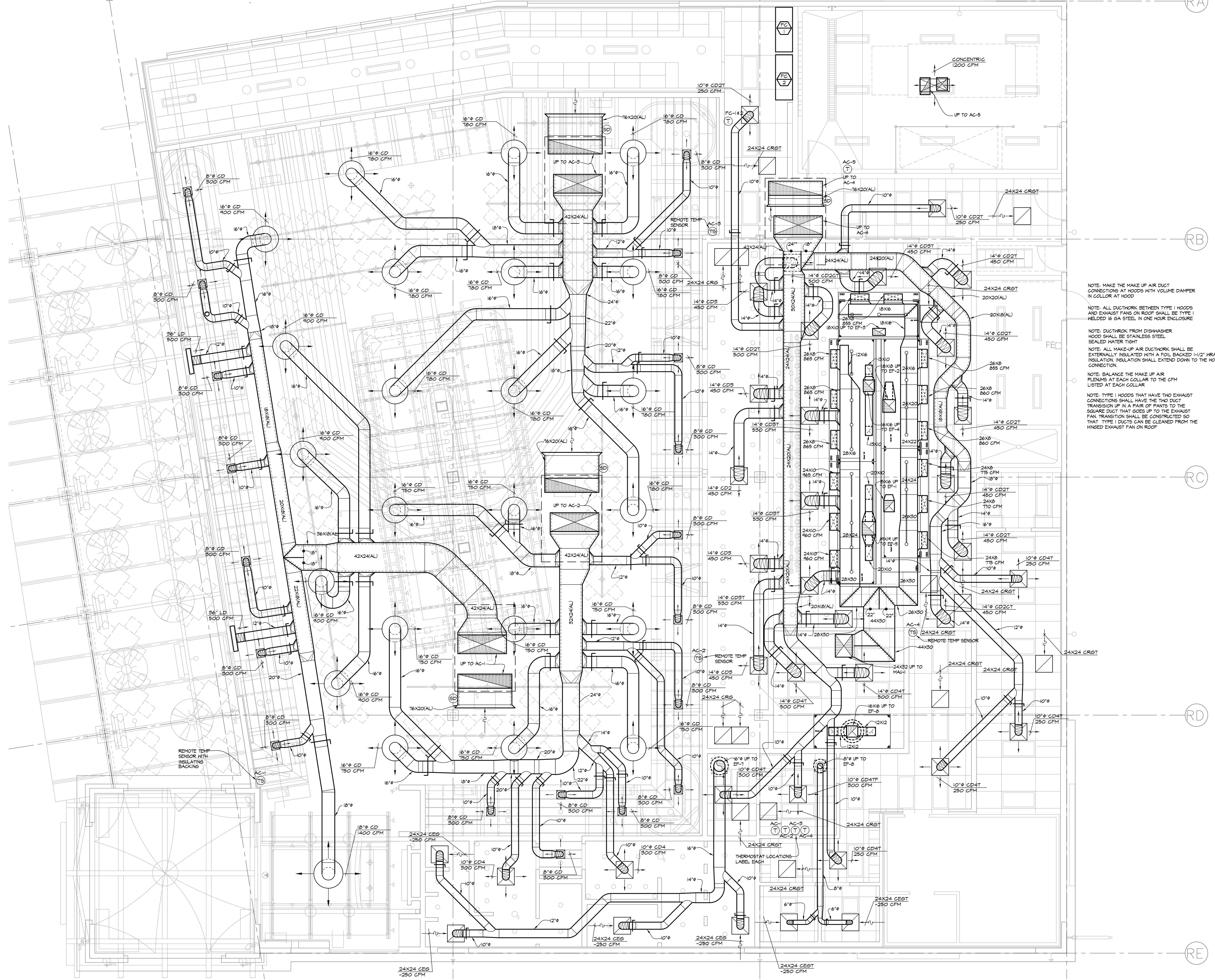
Project No. 0826

Scale NTS

Drawing Title
MECHANICAL SCHEDULES AND DETAILS

Drawing No.

M1.1



NOTE: MAKE THE MAKE UP AIR DUCT CONNECTIONS AT HOODS WITH VOLUME DAMPER IN COLLAR AT HOOD

NOTE: ALL DUCTWORK BETWEEN TYPE I HOODS AND EXHAUST FANS ON ROOF SHALL BE TYPE WELDED 16 GA STEEL IN ONE HOUR ENCLOSURE

NOTE: DUCTWORK FROM DISHWASHER HOOD SHALL BE STAINLESS STEEL SEALED WATER TIGHT

NOTE: ALL MAKE-UP AIR DUCTWORK SHALL BE EXTERNALLY INSULATED WITH A FOIL BACKED 1/2" HRAP INSULATION. INSULATION SHALL EXTEND DOWN TO THE HOOD CONNECTION.

NOTE: BALANCE THE MAKE UP AIR FLENUMS AT EACH COLLAR TO THE CFM LISTED AT EACH COLLAR

NOTE: TYPE I HOODS THAT HAVE TWO EXHAUST CONNECTIONS SHALL HAVE THE TWO DUCT TRANSITION UP IN A PAIR OF PANTS TO THE SQUARE DUCT THAT GOES UP TO THE EXHAUST FAN. TRANSITION SHALL BE CONSTRUCTED SO THAT TYPE I DUCTS CAN BE CLEANED FROM THE HINGED EXHAUST FAN ON ROOF



YARD HOUSE RESTAURANT L.L.C.

THE SHOPS AT
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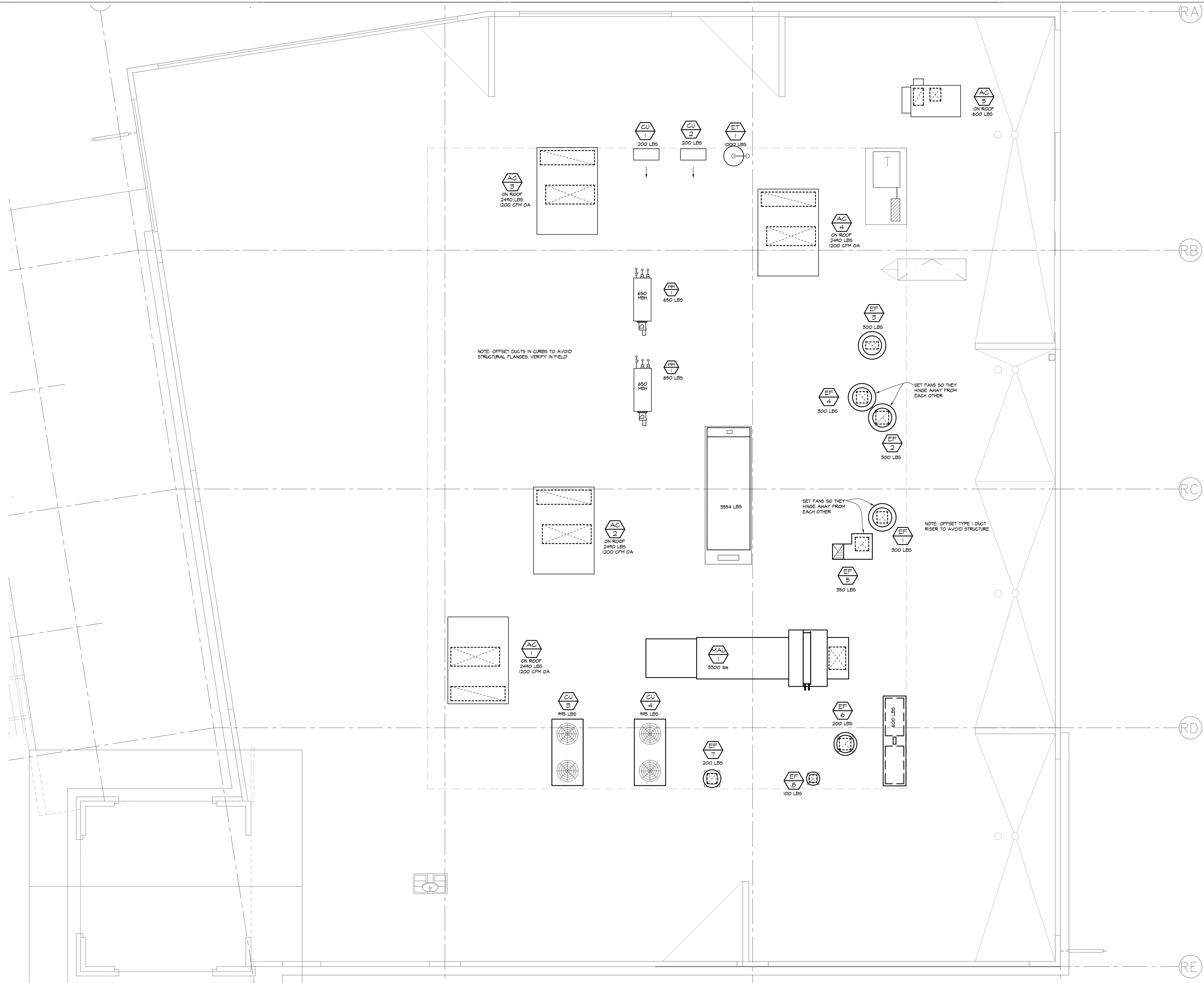
Project No. 0826

Scale 1/4"=1'-0"

Drawing Title
MECHANICAL PLAN

Drawing No.

M2.1



YARD HOUSE RESTAURANT L.L.C.

THE SHOPS AT
LA CANTERA
SPACE 3200
SAN ANTONIO, TX

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Date	Issue
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11/13/08	PLAN CHECK COMMENTS/ ISSUE FOR BID

Project No. 0826
Scale 1/4"=1'-0"
Drawing Title
MECHANICAL ROOF PLAN

Drawing No.
M2.2

MECHANICAL SPECIFICATIONS
SECTION 15800 - HEATING, VENTILATING AND AIR CONDITIONING

1.00 - GENERAL

1.01 SCOPE OF WORK

Provide and install complete and operational HVAC system as indicated on the drawings and in this specification. Work shall include, but not be limited to the following:

- A. Heating, ventilating & air conditioning systems, including all component parts.
- B. Air distribution system including grilles, registers, diffusers, ductwork and insulation of supply and return ductwork.
- C. Flashing and sealing of roof penetrations for water tightness.
- D. Toilet exhaust systems.
- E. Licenses, permits and associated fees.
- F. Hangers and support systems for air conditioning units, ductwork and piping.
- G. Complete Temperature Controls, including all components necessary.
- H. The kitchen ventilation system is supplied by Greiner/KEC but is received and installed by the HVAC contractor.

1.02 RELATED WORK INCLUDED UNDER OTHER SECTIONS

- A. Plumbing Section 15400
- B. Testing and Balancing Section 15400
- C. Electrical Section 16000
- D. Fire Protection Section 15800

1.03 EXAMINATION OF SITE

- A. Contractor shall visit site and verify all existing conditions prior to submitting bid to familiarize himself with all existing conditions including entrance and exit facilities, elevator limitations, hours of permitted by the building for transportation of equipment and materials. Contractor must satisfy himself as to the nature and scope of the work and difficulties that affect the execution and completion of the work. The contractor shall examine all existing structural conditions, take all necessary measurements and note existing conditions for the purpose of moving equipment into the building.
- B. Submission of a bid will be construed as evidence that such an examination has been made and later claims for labor, equipment or materials required, or for any difficulties encountered which could have been avoided had a proper examination been made will not be compensated for or recognized.

1.04 DRAWINGS

- A. The drawings are generally diagrammatic and indicate general arrangement of equipment, ducts and piping.
- B. The contractor shall coordinate his work with all contract drawings and drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions at all locations.
- C. The contractor shall without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades and structural members or for the proper execution of work.

1.05 RULES AND REGULATIONS

- A. The work and materials shall conform and comply to the Uniform Plumbing Code and International Mechanical Code, National Energy Code, National Electrical Code, National Fire Protection Association and all applicable ordinances and codes of the authority having jurisdiction. Furnish without any extra charge, additional material and labor when required to comply with these laws, ordinances and codes though the work be not mentioned in this division or shown on the drawings.
- B. Contractor shall obtain all approvals, tests, inspections and permits, and pay all necessary fees for all work pertaining to this project. All agencies having jurisdiction shall be complied with.

1.06 SHOP DRAWINGS AND MATERIAL SUBMITTALS

- A. Submit for review to Yard House (6 copies) a complete and all-inclusive list of all equipment and materials, including automatic temperature controls, cuts of equipment, sequence of operation, and ductwork prepared for use, accompanied by manufacturer's data sheets giving sizes, capacities, etc. Data shall be forwarded in a single package written 15 days after award of contract. Contractor shall not install any equipment without Engineer's approval.
- B. A set of shop drawings shall be prepared by the contractor showing all equipment, ductwork, piping and air outlets to be installed in the field, including all sizes and changes to the original design for approval prior to construction. A set of reproductions, along with three sets of blueprints of these shop drawings shall be delivered to Yard House. These drawings shall be modified to represent "as-built" conditions upon completion of the work. A set of reproductions with three sets of blueprints shall be delivered to Yard House prior to final acceptance of this project.
- C. The contractor shall coordinate his work with architectural drawings, final ceiling layout, lighting and work of other trades.

1.07 ELECTRICAL WORK

- A. The following electrical work shall be part of division 15 performed in accordance with division 16 specifications.
- B. Mechanical contractor shall verify the electrical characteristics required of all equipment with the electrical drawings, electrical contractor, and field conditions prior to ordering any equipment.
- C. All power wiring shall be by electrical contractor, mechanical contractor shall provide all controls and control and interlock wiring, wiring diagrams, relays, starters and motors for all mechanical equipment. Starters shall have low voltage protection and built-in thermal overload protection.

1.08 OPERATION MANUALS AND OWNER INSTRUCTIONS

- A. Contractor shall furnish operating and maintenance instruction including control all control systems at the completion of the installation. Submit three copies of bound manuals.
- B. At the completion of work the contractor shall in the conjunction with the Yard House's representatives, arrange a meeting to instruct the maintenance contractor. Contractor shall fully instruct all details of operation and maintenance for the equipment provided. Contractor shall provide equipment check list shown on these drawings.

1.09 CUTTING AND PATCHING

- A. The contractor shall do all cutting, drilling and patching which may be required for the installation of the work under this specification.
- B. Patching shall be of the same workmanship, material and finish, and shall match accurately all surrounding construction in a manner satisfactory to the Architect/Engineer.
- C. No cutting of the structure shall be permitted without written approval of the Architect/Engineer.
- D. Existing ducts, pipes, utilities, etc. that are damaged during the construction period, whether or not due to the contractor's negligence shall be repaired or replaced by the contractor and left in a condition satisfactory to the Engineer.
- E. The space around pipes, ducts, utilities, etc. penetrating rated walls, shall not exceed 1/2 inch and shall be packed solid with mineral wool or equivalent. Perimeter shall be closed off by tight fitting metal enclosures on both sides of this construction as required by applicable codes.

1.10 GUARANTEE

The Contractor shall leave the entire installation in complete working order free from any defective material, workmanship or finish. He shall guarantee to repair or replace, without charge, defects due to faulty workmanship or material for a period of one year from the date of filing of the Notice of Completion.

2.00 - PRODUCTS

2.01 DUCTWORK

- A. All ductwork shall be galvanized sheet steel of gauges called for in ASHRAE and SMACNA guidelines & standards. Complete installation shall comply with the latest SMACNA standards. All ductwork shall be sealed tight not to exceed 3% air leakage. Seal all ducts in accordance with seal class "B" 2 inch as per SMACNA standards. Materials shall be clearly stamped or marked with grades and gauges.
- B. Round sheet metal shall be United Sheet Metal spiral "Uniseal" with uniform fittings, machine formed or approved equal.
- C. Flexible ductwork shall be pre-insulated low pressure type (rated to 4" H.P.) and with vapor barrier. Ducts shall meet Class I requirements of NFPA and shall be UL labeled. Flexible ducts shall be Genflex, Thermaflex type M-ICE or approved equal. Flexible duct is allowed only at final connections to air distribution fixtures at lengths of 6 feet maximum.
- D. Provide flexible duct connections to inlet and discharge connections to all blowers and A/C units. Omit at ceiling type Toilet Room exhaust fans.
- E. Provide low leakage adjustable volume damper at the end of each branch duct just upstream of the flexible duct connection to the diffuser to allow for balancing of system. Access to volume damper shall be from diffuser which shall have a plaster frame which it shall rest in. The diffuser shall be lifted and the volume damper shall be located to be easily reached from the diffuser's plaster frame opening. Where shown on drawings or where required by space limitations, access panels shall be provided in ceiling for volume damper access.
- F. Type I grease exhaust ductwork shall be 16 gauge welded steel.
- G. Dishwasher exhaust duct shall be stainless steel ductwork sealed water tight.

2.02 DUCTWORK ACCESSORIES

- A. Damper Operators:
 - 1. Ducts with external insulation: Ventlock #637, DuraDyne, Young, or approved equal.
 - 2. Ducts with internal insulation and/or no insulation: Ventlock #635, DuraDyne, Young, or approved equal.
- B. Flexible Connections: Ventifabrics "Ventigas", DuraDyne, or approved equal, U.L. approved with metal attachment.
- C. Air Extractor: Tibus-AG or approved equal.
- D. Duct turning vanes shall be in accordance with SMACNA Duct Manual for hollow double thickness turning vanes.
- E. Round branch take-off fittings from rectangular ducts fittings shall be 45° rectangular wide mouth tees.
- F. Support ductwork according to the SMACNA Duct Manual and the drawings.
- G. Duct Access Doors: Ventifabrics, Ventlock, or approved equal, insulated access doors. Provide with all hardware and sealant. Access doors at fire dampers shall be Ruskin Manufacturing Co. approved type only.
- H. "Ductmate" connections may be used whenever possible. Ductwork having other type of joints shall be sealed with duct sealant of a non-hardening type mastic or liquid elastic sealant, such as "Dura Dyne" type S-2 or approved equal.
- I. Duct Hangers:
 - 1. Band Hangers: same material as ducts.
 - 2. Rod-Type Hangers: Mild low carbon steel, fully threaded at each end with 2 removable nuts each end for positioning and locking rod in place. Must be galvanized.
- J. Curved elbows shall have centerline radius equal to one and one-half times duct width in plane of turn.
- K. Square elbows shall have turning vanes. Miter elbows (not square) shall have turning vanes 3 inches o.c.
- L. Volume dampers shall be constructed to SMACNA Standards and shall be American Harming and Ventilating, Inc. series "VC" or approved equal.

2.03 AIR DEVICES

- A. Diffusers: Tibus model as shown on plans. Provide sizes and type as shown on plans. Provide with volume dampers or extractors at diffuser as shown on plans or as required to allow for proper balancing of system. Paint entire interior flat black. Provide Thermaflex TF-4C heating/cooling diffusers in office as indicated on plans.
- B. Return Grilles and Exhaust Registers: Tibus model 50F with TRM plaster frame as shown on plans. Provide with accessories as shown on drawings.

2.04 FIRE DAMPERS

Fire and Smoke Dampers: Ruskin or approved equal. All fire and smoke dampers shall be UL listed and NFPA approved. Damper shall be located out of air stream, installed in accordance with their requirements and rated for use in Dynamic System.

2.05 PIPING

- A. Hot and Chilled Water Piping: Type "L" copper tubing, hard drawn, with wrought copper solder fittings, or Schedule 40 black steel with malleable fittings. Provide dielectric fittings between all dissimilar metals.

2.06 INSULATION

- A. Supply Return and Make Up Air ductwork material: Owens-Corning or approved equal 1/2 inch reinforced foil faced fiberglass (vapor sealed) insulation. Install in accordance with Manufacturer's recommendations. Provide exterior duct with two coats of aerobol emulsion and wrap with fiberglass mesh.
- B. Flame spread index and smoke-density ratings shall not exceed 25 and 50, respectively.
- C. Acoustically Lined Ductwork and Plenums:
 - 1. Acoustically line rectangular ductwork as shown on plans and within ten feet of any fan.
 - 2. Acoustical internal insulation shall be 1" Owens-Corning Fiberglas coated duct liner board or approved equal. Duct sizes shown on drawings are inside clear dimensions. Apply insulation with Manufacturer's approved adhesives, mastic and mechanical fasteners.
- D. Hot and Chilled water piping above ground: 500 degree "Snap on" or approved equal sectional pipe covering with factory applied all service jacket and joint sealed with ASJ butt strips, 1" thick for exterior. 1-1/2" for exterior.
- E. Type I grease duct shall be ripped with 3M FIREMASTER one hour duct, install per manufacturer's installation instructions.

2.07 TEMPERATURE CONTROL SYSTEM

Provide complete control system as shown on plans and as necessary for proper control of all mechanical systems. Controls shall be carrier as shown on plans.

2.08 REFRIGERANT PIPING

Type ACR refrigerant tubing, vacuum sealed deoxidized and dehydrated. Install "Semco Tri Isolator" 500 isolators at all piping attachments to building. Insulate with 1" thick Armstrong Armaflex or Rubatex Flexible rubber insulation, sealed with approved mastic. For insulation located outdoors, apply two coats aerobol emulsion and wrap with fiberglass mesh.

3.00 - INSTALLATION AND EXECUTION

3.01 INSTALLATION REQUIREMENTS

A. Ductwork:

- 1. Install all ductwork straight and level and to provide maximum headroom.
- 2. Properly seam, brace, stiffen, support, and render ducts air tight. Where SMACNA plates indicate duct stiffeners or reinforcing angles, install continuous angles around all four sides.
- 3. Adjust ducts to suit local conditions and if necessary to accomplish this, dimensions may be changed by maintaining cross-sectional areas. All changes must be approved by the Engineer.
- 4. Diagonally or transversely crossbreak all panels on metal rectangular ducts over 18 inches in either direction.
- 5. Tapers: Pitch sides of duct in "diverting" or "converging" air flow with a maximum of 1 to 7 tapers.
- 6. Tape all transverse and longitudinal duct and plenum joints and field formed seams airtight.
- 7. Install seismic restraints and duct hangers as specified in SMACNA guidelines.
- 8. Duct branches shall be fitted with volume dampers where shown on drawings and where required, extraction dampers. All accessible volume controls shall have locking quadrants. All inaccessible controls (dampers, etc.) shall be provided with permanent extensions to accessible spaces.
- 9. Air inlets, outlets shall be properly set in place and are to have hang wires in all four corners or as required by mall or local code. Registers and grilles shall be tightly sealed.

3.02 VIBRATION ISOLATION

- A. Install all new AC units and exhaust fans with approved vibration isolators with seismic restraints, submit isolators to Engineer for approval. Make duct connections and arrange ductwork to minimize all transmission of vibration and/or fan noise.

3.03 TESTING AND BALANCING

- A. Balancing of air conditioning system will be performed by an independent test and balancing agency. The mechanical contractor shall cooperate with the selected test and balance agency in the following manner:
 - B. Provide sufficient time before final completion date so that test and balancing can be accomplished.
 - C. Provide immediate labor and tools to make corrections when required without undue delay. Install balancing dampers, belts and pulleys as required by test and balance agency.
 - D. The contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing.
 - E. Testing and balancing agency shall be kept informed of any major changes made to system during construction and shall be provided with complete as-built drawings.
 - F. Tenant must furnish Landlord's Construction Superintendent at site with two (2) copies of certified Air Balance Report. The Balance Report must be approved before Tenant will be permitted to open for business.

END OF SECTION

Section 15400 - TESTING, ADJUSTING AND BALANCING

1.00 - GENERAL

1.01 DESCRIPTION

The system balancing contract shall be performed under a separate contract from the HVAC contract. Balancing of the systems shall be performed by an independent test and balancing agency, which specializes in the balancing and testing of HVAC systems. The balancing contractor shall be a member of the Associated Air Balancing Council or approved equal organization. Document shall be certified by a Registered Testing and Balancing Engineer.

1.02 SCOPE OF WORK

- A. Perform systems balancing in strict accordance with the test procedures established by Associated Air Balancing Council.
- B. The test and balance shall be performed upon completion of the HVAC systems and after completion of the general operating test.
- C. Prior to starting the AC equipment, the contractor shall install a new set of filters. After testing and balancing is complete a new set of filters shall be installed as a final change before the store stocking process.
- D. Provide test and balance reports.

1.03 RELATED WORK SPECIFIED IN OTHER SECTIONS

- A. For extent of mechanical work to be performed by the mechanical contractor see specification section 15800.

1.03 SUBMITTALS

Provide (6) six copies of a completion report to Yard House for evaluation and approval. Report shall include as a minimum, but not limited to the following design and test balance information: Submit one copy to the landlord.

- A. Diagram of system tested with outlets identified by numbers keyed to the test report sheets. Diagram showing location, type and unit served of all thermostats.
- B. Each equipment shall be identified by equipment service number, manufacturer model number and serial number, motor H.P., motor nameplate voltage, motor RPM, actual and design static pressure, actual outlet velocity, and actual and design CFM.
- C. Each air outlet shall be identified with manufacture model number, size, velocity, correction factor, actual and design CFM.
- D. Each coil shall be identified by equipment service number, manufacture model number and size, number of rows, total cfm, air inlet and outlet dry bulb and wet bulb temperatures, and whether DX coil, chilled water coil, hot water coil, electric strip, etc.. If water coil indicate water inlet and outlet temperatures and GPM.
- E. Traverse reading of main supply, return and outside air ducts to establish air quantities.
- F. Test and record temperatures from main supply during full heating and full cooling.
- G. Report in writing with the balancing report any discrepancies on items not installed in accordance with HVAC drawings and specifications.
- H. As part of the mechanical work the mechanical contractor will make any changes in the pulleys, belts and dampers or the addition of dampers required for the correct balance as recommended by the air balance agency, at no additional cost.

2.00 - PRODUCTS (Not Applicable)

3.00 - EXECUTION

3.01 ADDITIONAL INFORMATION

For Yard House's records, test and balance contractor shall complete the following questionnaire and submit with final report:

- A. Are the thermostats as specified? _____ yes, _____ no. If not indicate make and model _____.
- B. Are the duct joints taped with high pressure duct sealant (United Sheet Metal's United Duct sealer) or 6 ounce canvas saturated with aerobol or hardcast type "DT" as specified? _____ yes, _____ no.
- C. How are the connections between the main trunk and flexible duct made? Provide sketch.
- D. Note any deviations from the mechanical drawings.
- E. Balancing reports will not be considered complete until all questions noted under "additional information" are completed.

3.03 WARRANTY

The test and balance agency shall include an extended warranty of 90 days after completion of work, during which time Yard House, at their discretion, may request a recheck or resetting of any outlet, supply air fan, or exhaust fan as listed in test report.

END OF SECTION



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YARD HOUSE RESTAURANT L.L.C.

THE SHOPS AT
LA CANTERA
SPACE 3200
SAN ANTONIO, TX

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Date	Issue
09/24/08	ISSUE FOR PERMIT
11/13/08	PLAN CHECK COMMENTS/ ISSUE FOR BID

Project No. 0826

Scale NTS

Drawing Title
MECHANICAL SPECIFICATION

Drawing No.

M3.1