

DIVISION 15 SPECIFICATIONS

PART I - GENERAL

1.01 SCOPE

- A. IT IS THE RESPONSIBILITY OF CONTRACTOR TO READ ALL SPECIFICATIONS AND CONSULT ALL DRAWINGS WHICH MAY AFFECT THE INSTALLATION AND COORDINATION OF WORK WITH OTHER TRADES. CONTRACTOR SHALL COORDINATE AND MAKE MINOR ADJUSTMENTS IN LOCATION OF EQUIPMENT AND MATERIALS AS NECESSARY FOR COORDINATION.
- B. COMPLETED INSTALLATION SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND ORDINANCES.
- C. SYSTEM LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY STRUCTURAL CONDITIONS, COORDINATION WITH OTHER TRADES, COORDINATION WITH FINISHES AND OTHER CONDITIONS. STRUCTURAL SUPPORTS SHALL NOT BE CUT OR ALTERED TO ASSURE FIT OF HVAC SYSTEM. TEN FOOT CLEARANCE SHALL BE MAINTAINED BETWEEN OUTSIDE AIR INTAKES AND EXHAUST FANS AND PLUMBING VENT TERMINALS.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND REPLACEMENTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER FINAL PAYMENT IS APPROVED. CONTRACTOR SHALL HONOR FACTORY WARRANTIES ON ALL EQUIPMENT PROVIDED AS PART OF THIS SYSTEM.
- E. UPON COMPLETION OF PROJECT, ALL SYSTEM EQUIPMENT AND MATERIALS SHALL BE IN NEW, CLEAN CONDITION WITH ALL DAMAGE RESTORED TO CONDITION ACCEPTABLE TO THE OWNERS REPRESENTATIVE. ALL EQUIPMENT, COMPONENTS, DUCTWORK AND AIR DEVICES SHALL BE INSPECTED AND THOROUGHLY CLEANED, CLEARED OF DEBRIS, AND READY FOR USE. AT COMPLETION OF JOB, ALL MISCELLANEOUS TOOLS, SCAFFOLDING, SURPLUS MATERIALS, RUBBISH AND DEBRIS SHALL BE REMOVED BY CONTRACTOR.
- F. CONTRACTOR SHALL PROVIDE TWO SETS OF 2" MERV 8 OR HIGHER THROW AWAY TYPE FILTERS. A CLEAN SET SHALL BE PROVIDED PRIOR TO TEST AND BALANCE AND AGAIN PRIOR TO OPENING.

PART II - PRODUCTS

2.01 HEATING AND COOLING EQUIPMENT

- A. FURNISH AND INSTALL R-410A ROOFTOP SINGLE PACKAGE COMBINATION ELECTRIC COOLING AND NATURAL GAS FIRED HEATING UNITS AS SHOWN ON DRAWINGS. EQUIPMENT SHALL BE ARI CERTIFIED AND A.G.A. AND U.L. LISTED.
- B. ACCESSORIES SHALL INCLUDE LOW AND HIGH PRESSURE SAFETIES, CRANK CASE HEATER, OVERCURRENT AND OVERTEMPERATURE SAFETY, COMPRESSOR VIBRATION ISOLATORS, FILTER DRIERS, REFRIGERANT SERVICE VALVES, COIL HAIL GUARDS WHERE SCHEDULED, CONVENIENCE OUTLETS FACTORY INSTALLED ON SCHEDULED UNITS, UNIT MOUNTED NON-FUSED DISCONNECTS, LOW AMBIENT OPERATION DOWN TO 30 DEGREES F AND EVAPORATOR FREEZE STAT.
- C. COMPRESSORS SHALL BE HERMETIC SCROLL TYPE WITH INTERNAL VIBRATION ISOLATORS. COMPRESSORS SHALL BE PROVIDED WITH A MINIMUM FIVE (5) YEAR FULL WARRANTY.
- D. THE UNIT HEAT EXCHANGERS SHALL BE ALUMINIZED STEEL COATING. HEATING CONTROLS SHALL CONSIST OF REDUNDANT GAS VALVES, INTERMITTENT PILOT WITH ELECTRONIC SPARK OR HOT PLATE IGNITION SYSTEM, COMBUSTION/EXHAUST FAN PROTECTED BY CENTRIFUGAL SWITCHES, HEAT LIMIT SWITCHES, TIME-DELAY RELAY, FLAME, AND PILOT SENSORS. HEAT EXCHANGERS SHALL HAVE A TEN (10) YEAR WARRANTY. BURNERS SHALL BE IN-SHOT TYPE. THE DRAFT MOTOR SHALL BE MONITORED BY THE CONTROL SYSTEM.

2.02 DUCTWORK (C15735)

- A. ACCEPTABLE MANUFACTURERS OF INSULATION SHALL BE: JOHNS MANVILLE, OWENS CORNING OR KNAUF.
- B. ALL DUCTWORK SHALL BE SHEET METAL, UNLESS NOTED OTHERWISE (U.N.O.).
- C. DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS, U.N.O.
- D. CONSTRUCTION OF DUCTWORK SHALL MEET SMACNA 1" W.C. PRESSURE CLASS STANDARD AND RECOMMENDATIONS. SMACNA SHALL BE FOLLOWED WITH RESPECT TO GAGE THICKNESS, JOINTS, REINFORCING, CONSTRUCTION, INSTALLATION AND SUPPORT FOR PRESSURE CLASS STATED. ALL TRANSVERSE JOINTS IN RECTANGULAR AND ROUND DUCT INCLUDING DUCT CONNECTION TO AIR DEVICE COLLAR SHALL BE SEALED PER SMACNA SEAL CLASS C WITH U.L. DUCT MASTIC SEALANT APPROVED FOR INTENDED USE. DUCT TAPE IS NOT AN ACCEPTABLE SUBSTITUTE FOR MASTIC UNLESS EQUAL TO HARDCAST FOIL-GRIP 1402 BUTYL RUBBER ADHESIVE TAPE.
- E. DUCT SHALL BE SUPPORTED AT BASE OF DUCT DROPS. CURB DUCT RAILS ARE NOT INTENDED TO AND SHALL NOT SUPPORT THE WEIGHT OF THE DUCT.
- F. ALL DUCT WRAP SHALL BE MINIMUM 2" THICK, 3/4 PCF AND 6 R-VALUE INSTALLED WITH EITHER A VAPOR BARRIER WITH MAXIMUM PERMEANCE 0.05 OR A MINIMUM 2 MIL ALUMINUM REINFORCED FOIL/KRAFT FACING.
- G. ALL DUCT DROPS FROM THE ROOFTOP UNITS SHALL BE EXTERNALLY INSULATED.
- H. SUPPLY AND RETURN AIR DUCTWORK SERVING ALL AREAS SHALL BE EXTERNALLY INSULATED.
- I. ALL AIR CONVEYANCE COMPONENTS SUCH AS, BUT NOT LIMITED TO DUCT, DUCT PLENUMS, GRILLES/DIFFUSERS, BACK PANS, AND BOOTS SHALL BE INSULATED. INSULATION TYPE IS COVERED ELSEWHERE IN THIS SPECIFICATION.
- J. RESTROOM RECTANGULAR EXHAUST AIR DUCTWORK SHALL BE LINED WITH 1" THICK, 1-1/2 PCF INSULATION. RESTROOM ROUND EXHAUST DUCT SHALL BE EXTERNALLY INSULATED PER SECTION 2.02F.
- K. DUCT DROPS SHALL BE ISOLATED FROM UNIT VIBRATION WITH THE USE OF NFPA AND U.L. APPROVED FLEXIBLE CONNECTORS INSTALLED AT THE TOP OF BOTH SUPPLY AND RETURN DROPS.
- L. INSULATED FLEXIBLE DUCT MAY BE UTILIZED FOR RUNOUTS TO GRILLES AND DIFFUSERS ONLY IN THE HORIZONTAL POSITION AND IN MAXIMUM LENGTHS OF 4'-0", NO EXCEPTIONS.
- M. CONSTRUCTION OF FLEXIBLE DUCTWORK SHALL INCLUDE SPIRAL METAL HELIX BONDED TO A POLYESTER CORE, FIBERGLASS INSULATION WITH POLYETHYLENE OR MYLAR VAPOR BARRIER. ALL COMPONENTS SHALL HAVE APPROPRIATE U.L. APPROVAL AND SHALL BE EQUIVALENT TO THERMAFLEX MKE. FLEX DUCT SHALL HAVE A MINIMUM R-VALUE OF 6.
- N. FLEXIBLE DUCT SHALL BE INSTALLED PER THE "ADC FLEXIBLE DUCT PERFORMANCE AND INSTALLATION STANDARDS, 4TH ED" USING FOIL TAPE AND DRAWBAND ON THE INNER CORE AND TAPE OR DRAWBAND ON THE OUTER JACKET.
- O. DUCT TAPE SHALL BE EQUAL TO FASSON 181-B FX, 2-1/2" WIDE.
- P. SINGLE THICKNESS TURNING VANES SHALL BE INSTALLED AT ALL 90 DEGREE ELBOWS WHERE THE CENTERLINE RADIUS (R) IS LESS THAN THE WIDTH OF THE DUCT AND ANY ONE DIMENSION IS GREATER THAN 12".
- Q. EXTERNAL INSULATION ON BOTTOM OF DUCTS 24" OR WIDER SHALL BE SUPPORTED WITH STICK PINS ON 18" CENTERS. STICK PIN WASHERS SHALL BE COVERED WITH DUCT TAPE OR MASTIC.

2.03 CONTROLS

- A. SYSTEMS SHALL BE COMPLETE WITH CONNECTIONS TO CFA-500 TEMPERATURE CONTROL PANEL AS MANUFACTURED BY SUNCOAST ENVIRONMENTAL CONTROLS (S.E.C.) (PH: 877-544-6679). THE PANEL IS PROVIDED AND MOUNTED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING TERMINATIONS ARE BY THE MECHANICAL CONTRACTOR WHERE PERMITTED BY AHJ.
- B. THE SMOKE DETECTORS SHALL BE FACTORY INSTALLED AND WIRED BY THE ROOFTOP UNIT MANUFACTURER.
- C. A FACTORY INSTALLED SMOKE DETECTOR IN THE RETURN AIR SECTION OF EACH AIR CONDITIONING UNIT SHALL STOP THE INDOOR FAN AND CLOSE THE OUTSIDE AIR DAMPER IN THE EVENT OF EXCESSIVE TEMPERATURE OR SMOKE. SMOKE DETECTOR SHALL BE LOCATED PRIOR TO ANY EXHAUST FROM THE BUILDING OR MIXING WITH FRESH AIR MAKE-UP. UPON DETECTION, THE SYSTEM SHALL NOT RESTART UNTIL THE DEVICE IS MANUALLY RESET. DEVICES SHALL BE LOCATED WHERE THEY CAN BE EASILY ACCESSED AND WHERE CLEAR OF FILTERS.
- D. CHICK-FIL-A HAS A NATIONAL ACCOUNT WITH SUNCOAST ENVIRONMENTAL CONTROLS FOR THE SMOKE DETECTOR TEST/RESET ANNUNCIATOR STATIONS. THE TEST/RESET STATIONS WILL BE PURCHASED BY THE ELECTRICAL CONTRACTOR AS A PART OF A NATIONAL ACCOUNT PACKAGE AND TURNED OVER TO THE MECHANICAL CONTRACTOR FOR INSTALLATION.
- E. THE REMOTE TEST/RESET ANNUNCIATORS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR. INSTALLATION BY MECHANICAL SHALL INCLUDE MOUNTING OF THE ANNUNCIATORS AND ALL WIRING FROM EACH DEVICE TO THE RTU. ELECTRICAL WILL PROVIDE A JUNCTION BOX IN THE WALL WITH 1/2" CONDUIT STUBBED UP ABOVE THE CEILING FOR EACH REMOTE TEST STATION AS SHOWN ON THE ELECTRICAL PLANS. ANNUNCIATOR SHALL BE SUNCOAST CONTROLS REMOTE TEST/RESET STATION WITH POWER LED, TROUBLE LED, ALARM LED, 90DB HORN AND TEST/RESET BUTTON.
- F. THE RESTROOM FAN SHALL BE INTERLOCKED TO THE LIGHTS SERVING THE MEN AND WOMEN RESTROOMS. THE HOOD FANS SHALL BE CONTROLLED VIA THE SUNCOAST CFA-500 CONTROL PANEL. WIRING, RELAYS AND SWITCHES FOR CONTROL OF ALL FANS ARE BY ELECTRICAL CONTRACTOR.
- G. THERMOSTATS ARE PROVIDED AND INTEGRATED INTO THE TEMPERATURE CONTROL PANEL BY SUNCOAST ENVIRONMENT CONTROLS. SUNCOAST WILL PROVIDE A NETWORK THERMOSTAT US32-CFA THERMOSTAT PRE-WIRED IN THE TEMPERATURE CONTROL PANEL. REMOTE TEMPERATURE SENSOR(S) FOR EACH THERMOSTAT IS ALSO PROVIDED. MECHANICAL CONTRACTOR SHALL INSTALL ALL WIRING BETWEEN THE THERMOSTAT, THE REMOTE SENSOR(S) AND THE ROOFTOP UNIT.
- H. MECHANICAL CONTRACTOR SHALL INSTALL CONTROL WIRING IN 1/2" CONDUIT WHERE REQUIRED BY CODE. WHERE NOT REQUIRED TO BE IN CONDUIT, ALL WIRING SHALL BE RUN PARALLEL TO STRUCTURAL MEMBERS OR PERPENDICULAR WITH NO DIAGONAL ROUTING. ALL WIRING SHALL BE SECURED TO THE FRAMING TO PREVENT SAGGING IN RUNS. WIRING TO ROOFTOP UNITS SHALL BE ROUTED THROUGH THE FACTORY THRU-BASE FITTING IN THE UNIT BASE. NO SPLICING OF WIRING WILL BE ACCEPTED. ALL WIRING ABOVE THE ROOF SHALL BE INSTALLED IN EXTERIOR GRADE FLEXIBLE CONDUIT. ALL CONTROL WIRING AND CONTROL WIRING CONDUIT SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. WIRING SHALL BE INSTALLED IN ACCORDANCE WITH LATEST EDITION OF NEC. ALL LOW VOLTAGE CONTROL WIRING SHALL BE NO LESS THAN 18 AWG MIN. CONTROL WIRING CONDUCTORS SHALL BE SIZED TO ACCOUNT FOR LOAD AND LENGTH OF RUN TO ALLOW SUFFICIENT VOLTAGE AVAILABLE AT CONTROLLED DEVICE TO OPERATE THE SYSTEM RELIABLY.

2.04 PIPING

- A. ALL ABOVE GRADE NATURAL GAS PIPING SHALL BE SCHEDULE 40 STEEL MEETING ASTM A53 WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES. FOR SCREWED PIPING, PIPING SHALL BE JOINED WITH BLACK 150 POUND MALLEABLE IRON SCREWED FITTINGS AS ALLOWED BY LOCAL AUTHORITY. CONTRACTOR SHALL VERIFY THE NEED FOR WELDED PIPING AS REQUIRED BY THE LOCAL GAS CODE AND/OR APPLICABLE LOCAL ORDINANCES AND AMENDMENTS.
- B. ALL BELOW GRADE NATURAL GAS PIPING SHALL BE MEDIUM DENSITY POLYETHYLENE (PE) MEETING ASTM D2513 AS MANUFACTURED BY GASTITE WITH JOINING SYSTEM AS MANUFACTURED BY CON-STAB. TRANSITIONS FROM ABOVE GRADE RIGID PIPING TO PE BELOW GRADE PIPING SHALL BE MADE WITH ANODE-LESS RISER ASSEMBLY AS MANUFACTURED BY CON-STAB.

- C. PROVIDE AND INSTALL A CUT-OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS-FIRED PIECE OF EQUIPMENT. INSTALL PIPING AT AND AROUND EQUIPMENT SO AS TO NO WAY OBSTRUCT EQUIPMENT ACCESS PANELS AND/OR ACCESS DOORS.
- D. ALL GAS PIPING ABOVE ROOF SHALL BE CLEANED FREE OF RUST AND PAINTED WITH COAT OF ZINC RUST PRIMER AND ONE COAT OF ALUMINUM BASE PAINT. METER AND GAS RISER SHALL BE PRIMED AND PAINTED TO MATCH BUILDING.
- E. NATURAL GAS PIPING SHALL BE LEAK TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS AND MANUFACTURERS RECOMMENDATIONS.

PART III - EXECUTION

3.01 SCOPE

- A. FURNISH AND INSTALL SYSTEM IN ACCORDANCE WITH REFERENCED STANDARDS, APPLICABLE CODES, MANUFACTURER'S RECOMMENDATIONS AND AS INDICATED ON DRAWINGS.
- B. CONTRACTOR SHALL INSTRUCT THE OWNER'S REPRESENTATIVE IN ALL MATTERS PERTAINING TO THE PROPER MAINTENANCE OF EQUIPMENT FURNISHED UNDER THIS CONTRACT THROUGH DEMONSTRATION AND EXPLANATION OF OPERATING & MAINTENANCE MANUALS.
- C. CONTRACTOR SHALL PROVIDE A "SAMPLE MAINTENANCE PROPOSAL" TO THE OWNER'S REPRESENTATIVE IN ALL MATTERS PERTAINING TO THE PROPER MAINTENANCE OF EQUIPMENT FURNISHED UNDER THIS CONTRACT.
- D. CONTRACTOR SHALL COMPLETE A/C EQUIPMENT STARTUP DOCUMENTATION PROVIDED BY OWNER AND/OR MANUFACTURER. THIS SHALL INCLUDE R-TORQUE OF ALL FIELD AND FACTORY HIGH VOLTAGE CONNECTIONS.

3.02 LEED PROJECTS

- A. CONTRACTOR SHALL COMPLETE RECEIPT INSPECTION CHECKLISTS PROVIDED IN THE COMMISSIONING PLAN WITHIN 5 DAYS OF RECEIVING EQUIPMENT ON SITE.
- B. CONTRACTOR SHALL COMPLETE PRE-FUNCTIONAL CHECKLISTS PROVIDED IN THE COMMISSIONING PLAN. CHECKLISTS SHALL BE RETURNED AT LEAST 5 DAYS PRIOR TO SCHEDULING FUNCTIONAL PERFORMANCE TESTING.
- C. CONTRACTOR SHALL PROVIDE A TECHNICIAN TO ASSIST THE THIRD PARTY COMMISSIONING AUTHORITY WITH FUNCTIONAL TESTING. FUNCTIONAL TESTING SHALL OCCUR AFTER ALL CONTROLS HAVE BEEN INSTALLED AND VERIFIED AND AFTER TEST AND BALANCE IS COMPLETE. THE FUNCTIONAL PERFORMANCE TEST PROCEDURES CAN BE FOUND IN THE COMMISSIONING PLAN.
- D. IF THE TOTAL TIME REQUIRED TO CORRECT PROBLEMS DURING TESTING IS GREATER THAN FORTY-FIVE (45) MINUTES (UNLESS EXTENUATING CIRCUMSTANCES EXIST), THE TEST SHALL BE CONSIDERED FAILED AND MUST BE REPEATED IN ITS ENTIRETY.
- E. RE-TESTING: DURING THE COURSE OF THE RETEST, IF AT ANY POINT A MAJOR DEFICIENCY IS DISCOVERED, THE TEST WILL BE STOPPED. REPEAT TESTS UNTIL ACCEPTABLE RESULTS ARE ACHIEVED. IF MORE THAN TWO FUNCTIONAL PERFORMANCE TESTS (ONE INITIAL TEST AND ONE RETEST) FOR ANY TYPE OF EQUIPMENT DUE TO ISSUES THAT THE CONTRACTOR HAD DIRECT OR INDIRECT CONTROL OVER ARE REQUIRED, THE COSTS FOR THE CXA TO WITNESS RETESTING OF SIMILAR TYPES OF EQUIPMENT UNTIL SATISFACTORY RESULTS ARE OBTAINED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3.03 TEST & BALANCE

- A. OWNER SHALL TEST AND BALANCE MECHANICAL SYSTEM IN ACCORDANCE WITH NEBB, NBC OR AAC STANDARDS TO ASSURE CONFORMANCE WITH DESIGN. G.C. WILL MAKE MECHANICAL CONTRACTOR AVAILABLE DURING TEST AND BALANCE TO ASSIST TESTING AGENCY AND TO MAKE CORRECTIONS IMMEDIATELY NECESSARY. CONTRACTOR SHALL CORRECT ITEMS ON WRITTEN TEST AND BALANCE REPORT.
- B. ALL EQUIPMENT TO BE BALANCED MUST HAVE GONE THRU SUCCESSFUL START-UP PROCEDURE BY THE MECHANICAL CONTRACTOR (MC) PRIOR TO TAB VISIT.
- C. THE FLOOR OF THE RESTAURANT SHALL BE CLEARED OF DEBRIS, STAGED CONSTRUCTION MATERIALS, EQUIPMENT, ETC. WHICH MAY, IN THE OPINION OF THE TAB TECHNICIAN, OBSTRUCT ACCESS TO AIR DISTRIBUTION COMPONENTS IN AND ABOVE THE CEILING.
- D. EQUIPMENT ACCESS PANELS, DUCT AIR DEVICES SUCH AS BALANCING DAMPERS AND ACTUATORS SHALL BE ACCESSIBLE AND CLEAR OF PIPING, CONDUIT, FRAMING, SUPPORTS ETC..
- E. PROVIDE AN 8 FT PORTABLE A-FRAME STYLE LADDER DEDICATED FOR THE TAB TECHNICIAN'S USE DURING THE ENTIRE TAB EFFORT DURATION.

CANOPY GENERAL NOTES

- 1. COORDINATE WORK WITH CONDUIT, STRUCTURE, AND PIPING. FIELD VERIFY CONDITIONS PRIOR TO START OF WORK.
- 2. COORDINATE LOCATION AND RESPONSIBILITIES FOR UNDERGROUND PIPING AND ASSOCIATED TRENCHING WITH GENERAL CONTRACTOR PRIOR TO START OF WORK.
- 3. EXPOSED GAS PIPING SHALL BE COVERED WITH A RUST INHIBITING PAINT SUCH AS RUST-OLEUM 5200. PAINT COLOR SHALL MATCH STRUCTURE. ROOF MOUNTED GAS PIPING COLOR SHALL BE YELLOW.
- 4. CONTROL WIRING FOR HEATERS BY EC. COORDINATE REQUIRED WIRE GAUGE WITH EC. SEE CONTROLS PLAN AND ELECTRICAL DRAWINGS. (TYP.)

GENERAL NOTES

- 1. DUCT SIZES SERVING DIFFUSERS AND GRILLES ARE SAME SIZE AS DIFFUSER OR GRILLE NECK UNLESS NOTED OTHERWISE.
- 2. FLEXIBLE DUCT AND INSULATION NOT SHOWN FOR CLARITY.
- 3. FOR ALL ROOF EQUIPMENT, PROVIDE A PLASTIC ENGRAVED LABEL WITH 1" HIGH WHITE LETTERS ON A BLACK BACKGROUND. WITH A SELF ADHESIVE BACKING.
- 4. UNLESS NOTED OTHERWISE, MC TO ADJUST ALL DIFFUSER AIR PATTERN DEFLECTORS TO THROW HORIZONTALLY ALONG THE CEILING.
- 5. ALL EXHAUST DUCTWORK AND UNFINISHED METAL ON ROOF EXCEPT STAINLESS SHALL BE PREPARED WITH TWO COATS OF SHERWIN WILLIAMS PRO INDUSTRIAL DTM ACRYLIC COATING, SEMI-GLOSS WHITE. DEGREASE AND PRIME BARE METAL SURFACE WITH ONE COAT OF SHERWIN WILLIAMS PRO INDUSTRIAL PRO-CRYLACRYLIC UNIVERSAL PRIMER, WHITE, PRIOR TO PAINTING.
- 6. MAINTAIN 18" CLEARANCE FROM GREASE EXHAUST DUCTWORK ABOVE ROOF TO ANY COMBUSTIBLE CONSTRUCTION INCLUDING PARAPET WALLS.

KITCHEN HOOD SYSTEMS NOTES

- 1. CHICK-FIL-A MAINTAINS A NATIONAL ACCOUNT WITH HALTON CO. FOR THE HOODS. CHICK-FIL-A WILL PURCHASE AND PROVIDE THE HOODS FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING THE HOODS. CONTACT HALTON CO. AT 270-237-5600 FOR MORE INFO.
- 2. THE FIRE SUPPRESSION SYSTEM SHALL CONSIST OF A COMPLETE WET CHEMICAL SYSTEM FURNISHED BY HALTON. THE HOOD SHALL BE FURNISHED PRE-PIPED BY HALTON.
- 3. THE FIRE SUPPRESSION SYSTEM EXTERNAL TO THE HOODS SHALL BE INSTALLED IN ACCORDANCE WITH HOOD MANUFACTURER'S SHOP DRAWINGS BY AN AUTHORIZED INSTALLER SELECTED AND HIRED BY HALTON. COST FOR INSTALLATION INCLUDED IN PRICE OF HOODS TO CFA.
- 4. HOOD EXHAUST DUCTWORK SHALL BE 16 GA. BLACK STEEL WITH CONTINUOUS LIQUID TIGHT WELD OF JOINTS & SEAMS.
- 5. TURNS IN GREASE EXHAUST DUCTWORK SHALL BE LONG RADIUS TYPE, WITH A CENTERLINE RADIUS R=3W/2, UNLESS OTHERWISE NOTED. NO MITERED FITTINGS ALLOWED.
- 6. ALL STAINLESS STEEL CLOSURE PANELS SHALL BE SUPPLIED BY HOOD MANUFACTURER AND INSTALLED BY THE MECHANICAL CONTRACTOR ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
- 7. SLOPE ALL GREASE EXHAUST DUCT BACK TO HOOD AT 1/4" PER FOOT OF RUN.
- 8. WRAP NEAR GREASE DUCT WITH UNIFRAX FYREWRAPE. INSULATION ON ACCESS DOORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTALLATION RECOMMENDATIONS. UNIFRAX FYREWRAPE PRODUCT USED SHALL MEET LOCAL CODE REQUIREMENTS.
- 9. SUPPORT ALL HOODS WITH THREADED ROD AT EACH FACTORY SUPPORT POINT. EACH SUPPORT POINT MUST SUPPORT THE HOOD WEIGHT EQUALLY. ATTACH TO STRUCTURE AS DETAILED ON STRUCTURAL DRAWINGS. ATTACH HOOD TO WALL AT 16" INTERVALS ALONG FULL LENGTH OF HOOD ON TOP AND BOTTOM. ATTACHMENT TO WALL REQUIRES FIELD DRILLING OF SUPPORT ANGLE AT BACK OF HOODS. EACH WALL ATTACHMENT POINT MUST OCCUR AT A WALL STUD. ATTACHMENT HARDWARE TO BE #12-24 HEX HEAD SHEET METAL SCREW EQUAL TO TEXTRON SDS EDT265, LENGTH AS REQUIRED TO FULLY PENETRATE THE STUD.

LEGEND

A-12-400	TYPE - NECK SIZE - CFM	[EF#1]	EXHAUST FAN #1 (TYP.)
[Symbol]	SPIN-IN FITTING WITH MANUAL BALANCING DAMPER, WITHOUT SCOOP	[AC#1]	AIR CONDITIONING UNIT #1 (TYP.)
[Symbol]	SPIN-IN HARD & FLEXIBLE DIFFUSER	[Symbol]	RETURN/EXHAUST (TYP.)
(S)	REMOTE TEMPERATURE SENSOR	[Symbol]	SUPPLY DIFFUSER, SQ FACE (TYP.)
(H)	HUMIDITY SENSOR	(1)	PLAN NOTE REFERENCE
[Symbol]	SMOKE DETECTOR	[Symbol]	MANUAL VOLUME DAMPER
12x18	DUCT SIZE (reverse for elevation views) 1ST NUMBER - HORIZONTAL DIMENSION 2ND NUMBER - VERTICAL DIMENSION	[Symbol]	DIRECTION OF THROW ON DIFFUSER
[SW]	AIR DOOR SWITCH	[Symbol]	CLOSED AIR PATTERN DEFLECTOR
EIH	ELECTRIC INFRARED HEATER	[GIH]	GAS INFRARED HEATER (TYP.)
		B/G	BELOW GRADE
		(T)	THERMOSTAT

ABBREVIATIONS

EC	ELECTRICAL CONTRACTOR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
O.C.	ON CENTER
IRH	INFRARED HEATER
CF	CIRCULATING FAN
TF	TRANSFER FAN
EF	EXHAUST FAN

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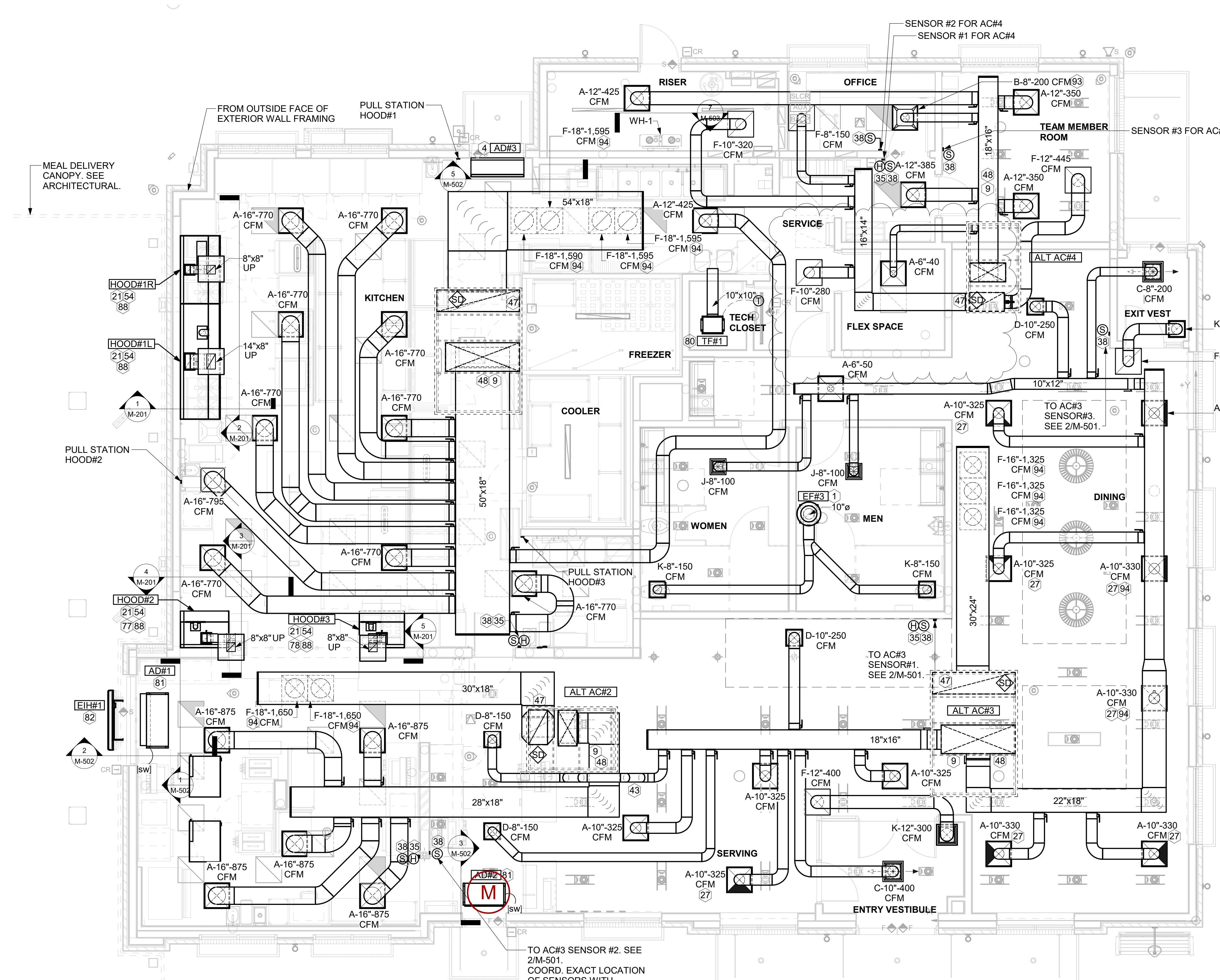
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GENERAL NOTES, LEGENDS, SYMBOLS, AND ABBREVIATIONS
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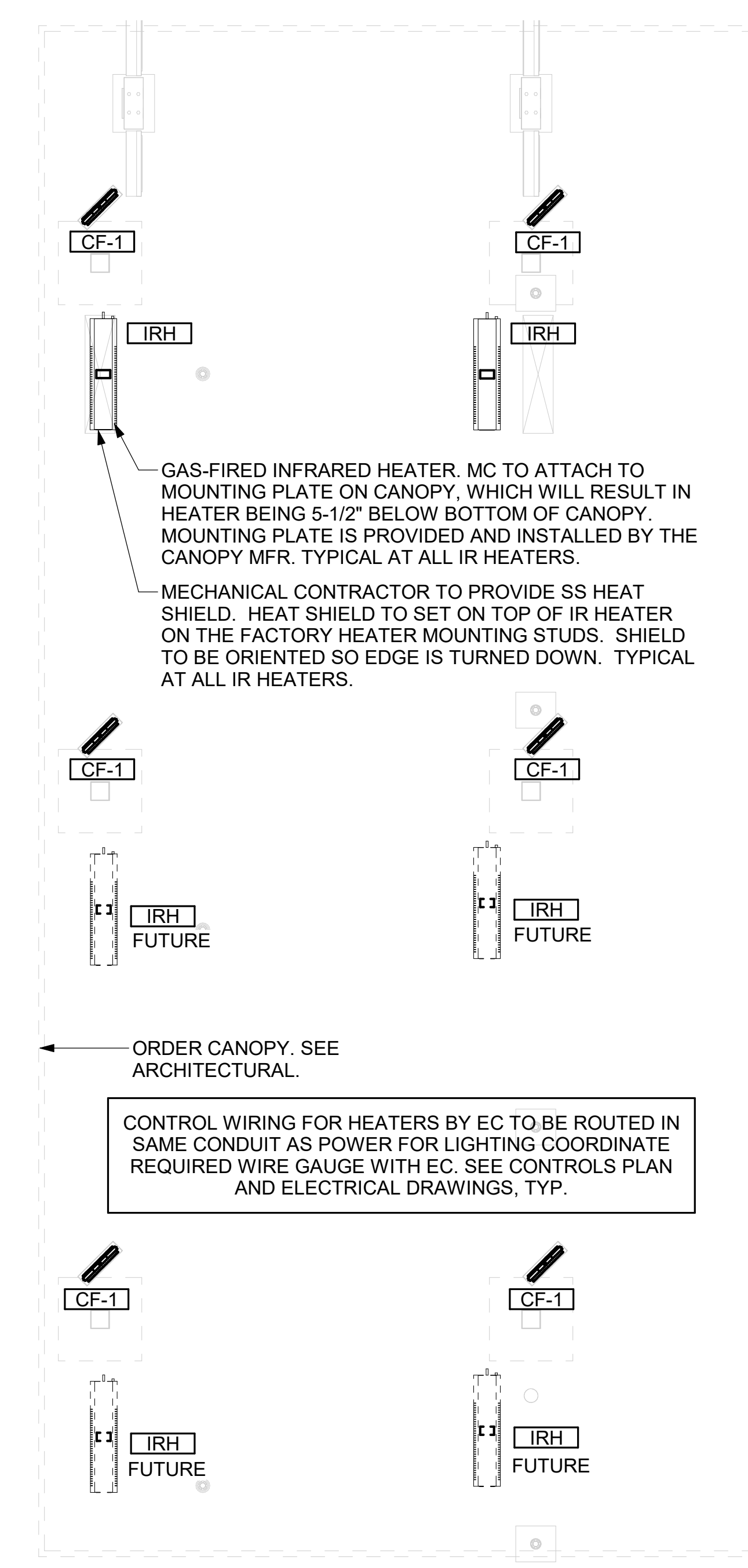
KEY NOTES

- 1 10" UP THRU ROOF.
- 4 AIR CURTAIN MOUNTED OVER DOOR HEADER AT 7'-2" AFF TO BOTTOM OF UNIT. PROVIDE BLOCKING IN WALL BEHIND AIR CURTAIN. USE FACTORY PRE-PUNCHED MOUNTING HOLES ON BACK SIDE OF AIR CURTAIN ONLY. ATTACH AIR CURTAIN TO WALL USING 3/8" LAG BOLTS. LENGTH AS REQUIRED TO FULLY PENETRATE BLOCKING. LOCATE MAGNETIC CONTACT TYPE MICROSWITCH IN DOOR FRAME ON STRIKE SIDE.
- 9 BRANCH TAKE-OFFS ARE NOT TO BE LOCATED CLOSER THAN 3'-0" FROM ANY OFFSET OR ELBOW INCLUDING THE SUPPLY AIR DROP FROM CURB.
- 21 HALT ON KBD DAMPER AT HOOD COLLAR BY MECHANICAL CONTRACTOR. SEE HOOD ELEVATIONS ON M-201 FOR LOCATION.
- 27 MECHANICAL CONTRACTOR TO CLOSE THE AIR PATTERN DEFLECTORS ON SHADED SIDE.
- 35 MOUNT HUMIDITY SENSOR ON WALL ABOVE SPACE TEMP SENSOR AND ROUTE WIRING TO UNIT ON ROOF.
- 38 MOUNT REMOTE SENSOR ON WALL AT 5'-0" AFF U.N.O. AND ROUTE WIRING BACK TO SUNCOAST TEMP CONTROL PANEL. FOR SENSOR SERVING AC#1, COORDINATE EXACT LOCATION WITH KITCHEN EQUIPMENT.
- 43 ROUTE DUCT WITHIN STRUCTURE.
- 47 TRANSITION IN VERTICAL DROP FROM FULL SIZE OF CURB OPENING TO SIZE SHOWN. SEE DETAIL 6/M-501 FOR REQUIRED TRANSITION GEOMETRY. TRANSITION WITHIN CURB WHERE REQUIRED TO AVOID STRUCTURE. WHERE THE DUCT IS SHOWN OFFSET HORIZONTALLY, PROVIDE ELBOW WITHOUT TURNING VANES. FOR DROPS WITH NO HORIZONTAL OFFSET, EXTEND DROP BELOW STRUCTURE TO ACCOMMODATE START COLLARS. TERMINATE DROP A MINIMUM 0'-10" ABOVE CEILING (0'-4" ABOVE CEILING IF REQUIRED TO ACCOMMODATE TAKE-OFF AND DROP IS NOT LOCATED DIRECTLY ABOVE A LIGHT).
- 48 TRANSITION IN VERTICAL DROP FROM FULL SIZE OF CURB OPENING TO SIZE SHOWN. TRANSITION WITHIN CURB WHERE REQUIRED TO AVOID STRUCTURE. WHERE THE DUCT IS SHOWN OFFSET HORIZONTALLY, PROVIDE ELBOW WITH TURNING VANES. FOR DROPS WITH NO HORIZONTAL OFFSET, EXTEND DROP BELOW STRUCTURE TO ACCOMMODATE START COLLARS. TERMINATE DROP A MINIMUM 0'-10" ABOVE CEILING (0'-4" ABOVE CEILING IF REQUIRED TO ACCOMMODATE TAKE-OFF AND DROP IS NOT LOCATED DIRECTLY ABOVE A LIGHT).
- 54 SEE ELEVATIONS ON M-201 FOR C.J. FAN DUCTING REQUIREMENT.
- 77 INSTALL LEFT SIDE OF HOOD FLUSH WITH FINISHED EDGE OF PASS-THRU OPENING.
- 78 INSTALL RIGHT SIDE OF HOOD WITH FINISHED EDGE OF PASS-THRU OPENING.
- 80 CEILING MOUNTED RECIRCULATING FAN. DUCT AND DISCHARGE ABOVE CEILING.
- 81 MOUNT AIR DOOR IN CEILING, CENTERED ON DRIVE-THRU/MFA DOOR OPENING. REFER TO WIRING DIAGRAM ON SHEET M-702 FOR MORE INFORMATION.
- 82 ELECTRIC HEATER, MC TO MOUNT ON WALL PER MANUFACTURER'S RECOMMENDATIONS.
- 88 PULL STATION FOR KITCHEN EXHAUST HOOD MOUNTED 42" TO 48" A.F.F. COORDINATE EXACT LOCATION WITH KITCHEN EQUIPMENT ELEVATIONS. JUNCTION BOX AND CONDUIT PROVIDED BY ELECTRICAL CONTRACTOR. PROVIDE PLASTIC ENGRAVED LABEL - RED WITH 1" HIGH WHITE LETTERING. LABELS SHALL BE AS FOLLOWS: HOOD #1 - "MAIN COOKLINE", HOOD #2 - "PASS THRU - RIGHT", HOOD #3 - "PASS THRU - LEFT".
- 93 MAXIMUM HEATING AND COOLING AIRFLOWS INDICATED. SET MINIMUM AIRFLOW TO 25 CFM.
- 94 TAKE OFF WITH DAMPER AT THE BOTTOM OF DUCTWORK, TYP.



1 EQUIPMENT AND DUCTWORK PLAN
1/4" = 1'-0"

AIR BALANCE SCHEDULE TRANE					
Mark	SUPPLY AIR	RETURN AIR	OUTSIDE AIR	EXHAUST AIR	BUILDING POSITIVE PRESSURE
ALT AC#1	8,125 CFM	6,375 CFM	1,750 CFM	0 CFM	
ALT AC#2	4,375 CFM	3,300 CFM	1,075 CFM	0 CFM	
ALT AC#3	5,250 CFM	3,975 CFM	1,275 CFM	0 CFM	
ALT AC#4	1,750 CFM	1,325 CFM	425 CFM	0 CFM	
EF#1	0 CFM	0 CFM	0 CFM	1,913 CFM	
EF#2	0 CFM	0 CFM	0 CFM	1,402 CFM	
EF#3	0 CFM	0 CFM	0 CFM	300 CFM	
	19,500 CFM	14,975 CFM	4,525 CFM	3,615 CFM	910 CFM



2 MECHANICAL FLOOR PLAN - ORDER CANOPY
1/4" = 1'-0"



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FSR#05513
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RELEASE: 23.11
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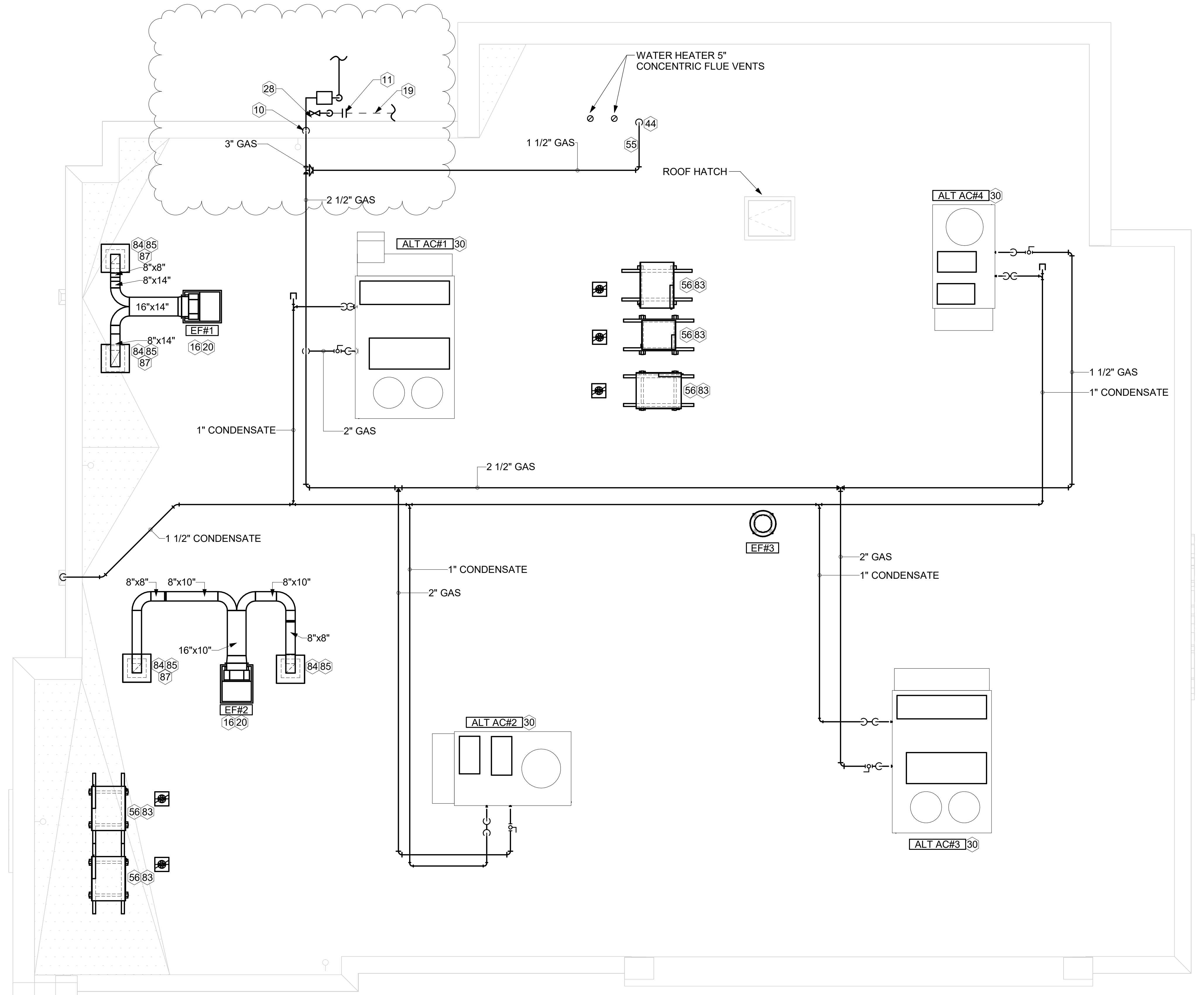
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SHEET
EQUIPMENT AND DUCTWORK PLAN - TRANE
SHEET NUMBER

M-101T

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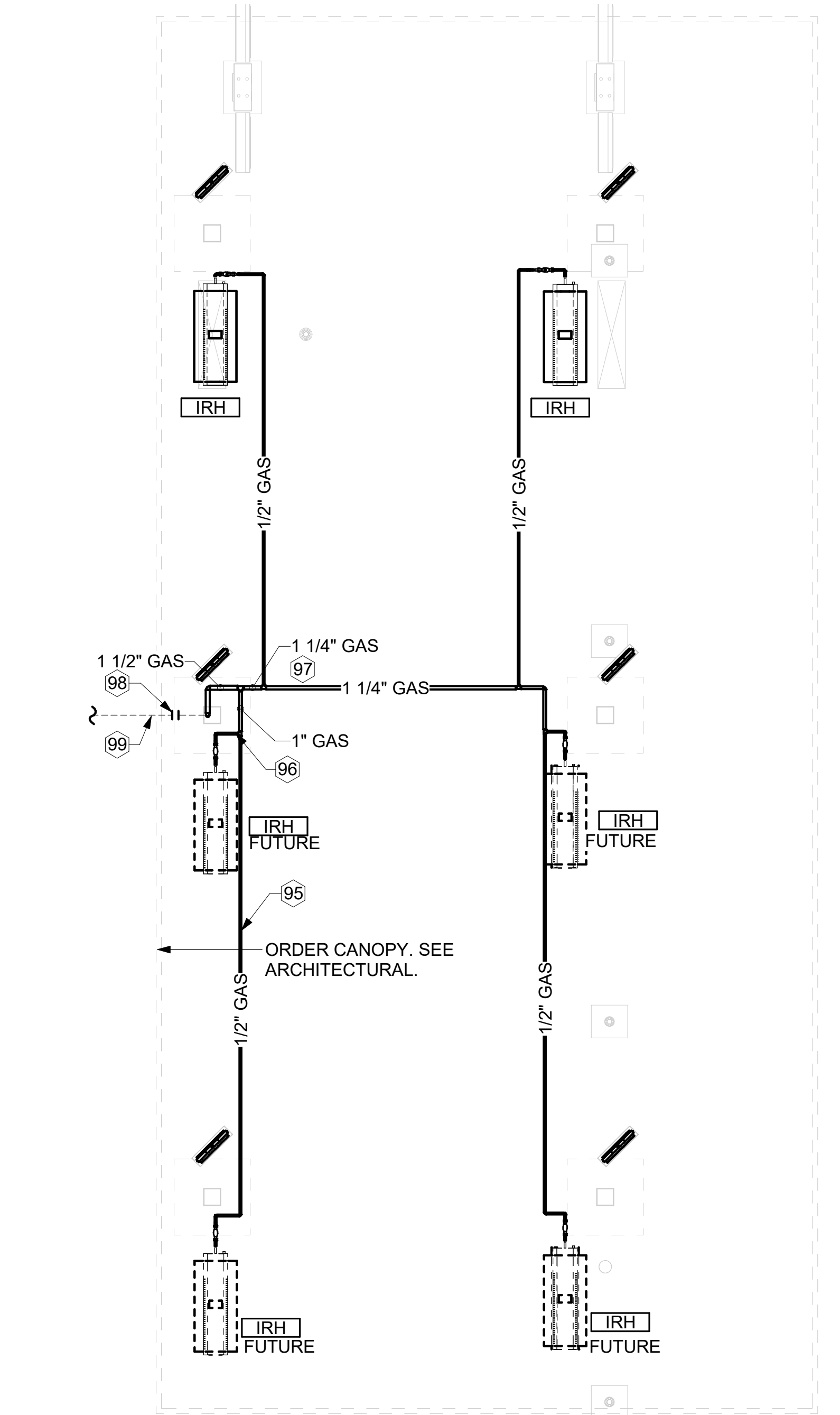
KEY NOTES

- 10 TURN 3" GAS UP WITHIN WALL, THRU PARAPET AND ONTO ROOF.
- 11 ROUTE POLYETHYLENE GAS BELOW GRADE FROM THE METER. FOR TRANSITION FROM POLYETHYLENE PIPING BELOW GRADE TO STEEL AT THE METER, INSTALL ANODELESS RISER WITH INTEGRAL CONSTAB PE-TO-IPS TRANSITION FITTING BY CONTINENTAL INDUSTRIES OR EQUAL BY ELSTER.
- 16 FABRICATE DISCHARGE AIR NOZZLE. VERIFY EXHAUST TERMINATION IS A MINIMUM 10'-0" FROM PARAPETS AND OUTSIDE AIR INTAKES. REFER TO MH-1.3 AND MH-1.4 FOR DETAILS.
- 19 1-1/2" GAS BELOW GRADE TO ORDER CANOPY. SEE DETAIL 2 THIS SHEET.
- 20 GREASE EXHAUST DUCT LOCATED ON ROOF SHALL SLOPE 1/4" PER FOOT TOWARDS THE HOOD, THE FAN, OR A COMBINATION OF THE TWO SUCH THAT NO PORTION OF THE RADIUS ELBOW AT THE CURB IS BELOW THE CURB CAP AND SUCH THAT THE FAN BASE SETS DIRECTLY ON THE CURB RAILS. THE BOTTOM OF THE RADIUS ELBOW MAY BE EVEN OR FLUSH WITH THE CURB CAP, BUT NOT BELOW THE CAP. THE DUCT AT THE FAN MUST BE CENTERED ON THE FAN INLET.
- 28 PROVIDE FULL PORT BALL VALVE EQUAL TO APOLLO 50GB SERIES WITH WINGS HANDLE OPTION ABOVE GRADE AT THE METER. PROVIDE BRASS VALVE TAGS WITH JACK CHAIN AT VALVE MARKED "SERVICE SHUTOFF FOR CANOPY HEATERS."
- 30 MECHANICAL CONTRACTOR TO SEE ARCHITECTURAL ROOF PLAN FOR NOTES REGARDING LEVELING FRAMES FOR RTUS. COORDINATE WITH GENERAL CONTRACTOR EXACT LOCATIONS AND SIZE NEEDED.
- 44 1-1/2" GAS DOWN THRU ROOF TO WATER HEATER. SEE DETAIL 3/P-502 FOR MORE INFORMATION ON CONSTRUCTION AND PENETRATION. WHEN CONTRACTOR OPTS TO PROVIDE ALTERNATIVE WATER-HEATER, INCREASE PIPE SIZE AS NEEDED PER CODE.
- 55 SEE ARCHITECTURAL DETAILS FOR ROOFTOP PIPE PENETRATIONS.
- 56 GC SHALL PROVIDE EQUIPMENT STANDS AS MANUFACTURED BY AVCOA OR EQUAL. STANDS SHALL BE INSTALLED PRIOR TO ROOF INSULATION SO THAT THE INSULATION IS CONTINUOUS UP TO THE PIPE POSTS. POSTS SHALL BE FLASHED IN ACCORDANCE WITH ROOFING MANUFACTURER'S INSTALLATION INSTRUCTIONS. COORDINATE BLOCKING BELOW THE ROOF DECK AS REQUIRED.
- 83 DO NOT DISCHARGE OF CONDENSING UNITS INTO CONDENSER SECTION OF ROOFTOP UNITS, TYP.
- 84 ROOF CURB FOR DUCT PENETRATION. REFER TO MH-1.3 AND MH-1.4 FOR DETAILS.
- 85 TURN DOWN THRU ROOF. SEE M-101L/M-101T FOR CONTINUATION.
- 87 DUCT PENETRATIONS ON ROOF MUST BE AT LEAST 18" FROM ADJACENT PARAPETS. GAS PIPING TO BE ROUTED ABOVE CANOPY, ON TOP OF STRUCTURAL MEMBERS, EXCEPT WHERE ROUTED DOWN THROUGH PENETRATIONS AS INDICATED.
- 95 GAS PIPING DOWN THROUGH DECK. WEATHERPROOF DECK PENETRATION PER DETAIL 6/M-503, TYPICAL.
- 96 SEE DETAIL 1/M-503 FOR PIPING AT IRH, TYPICAL.
- 97 GAS TRANSITION FITTING TO GAS PIPE STUB-OUT. GAS PIPING INSIDE COLUMN AND STUB-OUTS BY CANOPY MFR. JOIN UNDERGROUND POLYETHYLENE GAS PIPING TO TRANSITION FITTING WITH ELSTER PERMASERT COUPLING. CANOPY MFR'S EXPOSED STEEL PIPING BELOW GRADE SHALL BE PROTECTED WITH TWO COATS ASPHALT TUM BASE PAINT AND POLY SLEEVE.
- 98 1-1/2" GAS B/G TO METER SEE 1/M-102L OR 1/M-102T.



1 EQUIPMENT ROOF PLAN - TRANE
1/4" = 1'-0"

3. GAS LOAD SCHEDULE	
EQUIPMENT	GAS LOAD
ALT - AC#1	400,000 BTUS
ALT - AC#2	240,000 BTUS
ALT - AC#3	400,000 BTUS
ALT - AC#4	130,000 BTUS
IRH (2 @ 50,000 BTU EA.)	100,000 BTUS
IRH (FUTURE 4 @ 50,000 BTU EA.)	200,000 BTUS
WATER HEATER	398,000 BTUS
TOTAL BASIS OF DESIGN LOAD	1,668,000 BTUS
TOTAL FUTURE CONNECTED LOAD	1,868,000 BTUS
REMARKS:	1. EQUIVALENT TO 1,868.0 CFH 2. 7" W.C. DELIVERY PRESSURE 3. DEVELOPED LENGTH: 180 FT. (METER TO AC#4) 4. GAS PIPING SIZED FOR FUTURE LOAD



2 ORDER CANOPY GAS PIPING PLAN
1/4" = 1'-0"



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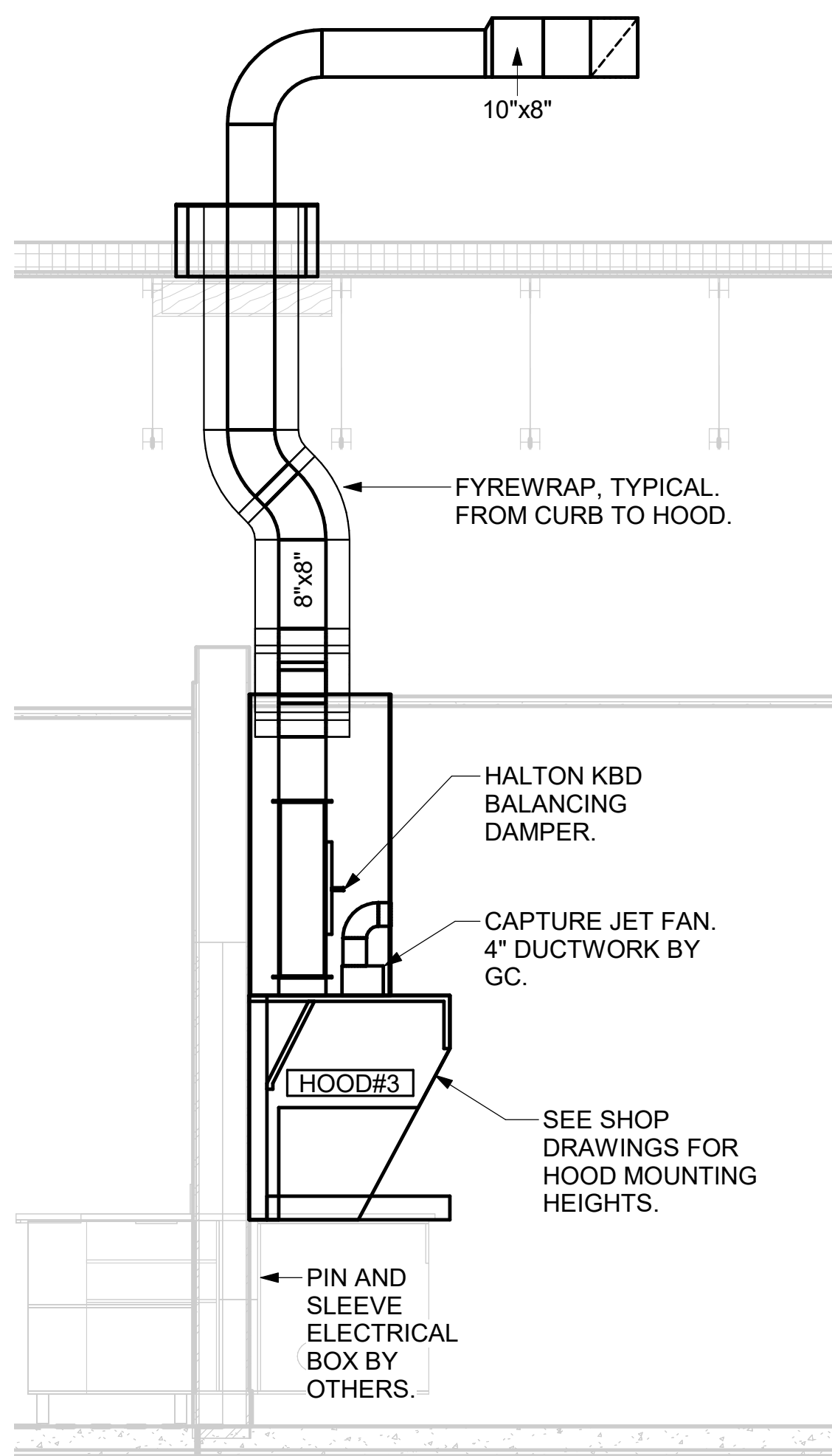
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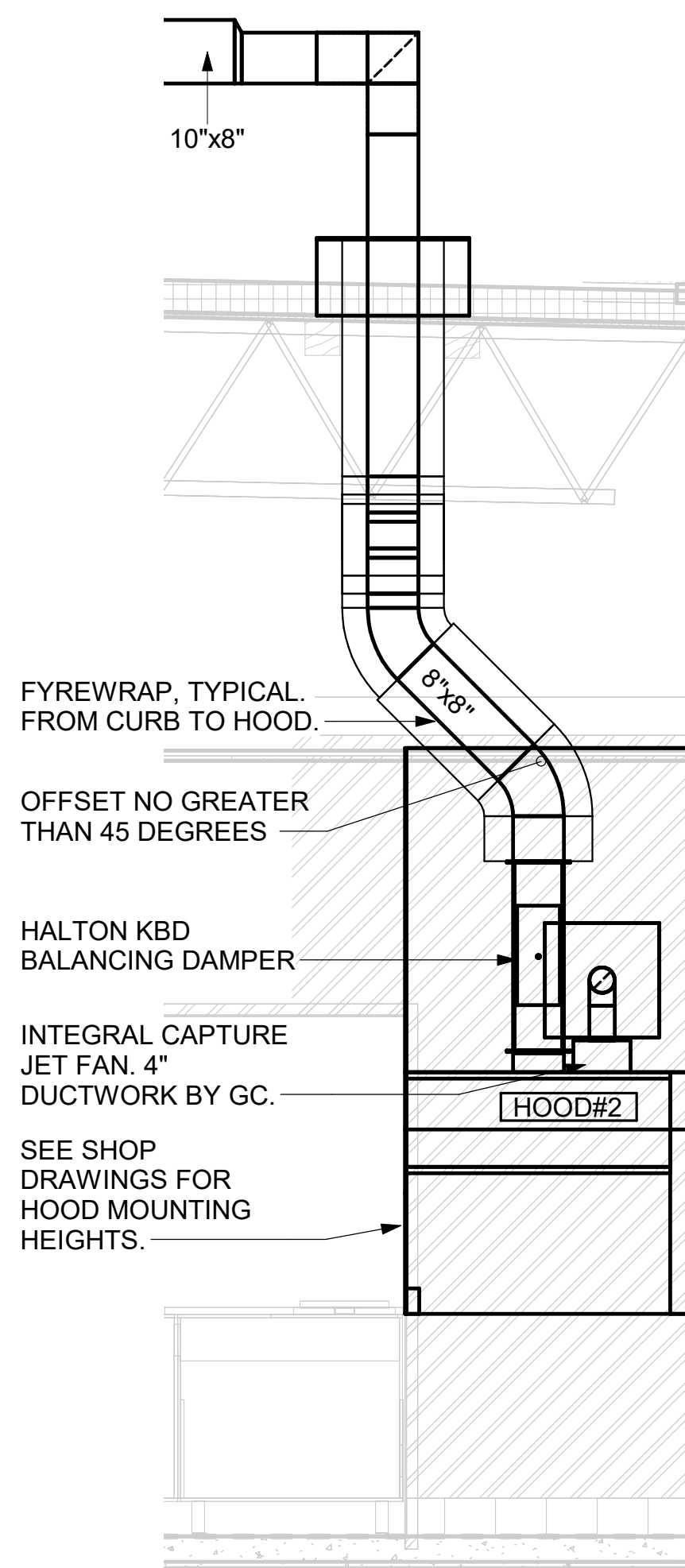
SHEET
EQUIPMENT ROOF PLAN - TRANE
SHEET NUMBER
M-102T

GREASE EXHAUST DUCT CLEARANCE NOTE:
 CLEARANCES ABOVE CEILING ARE TIGHT. MECHANICAL CONTRACTOR TO FIELD VERIFY EXACT ROUTING AND CLEARANCES PRIOR TO FABRICATING GREASE EXHAUST DUCT.

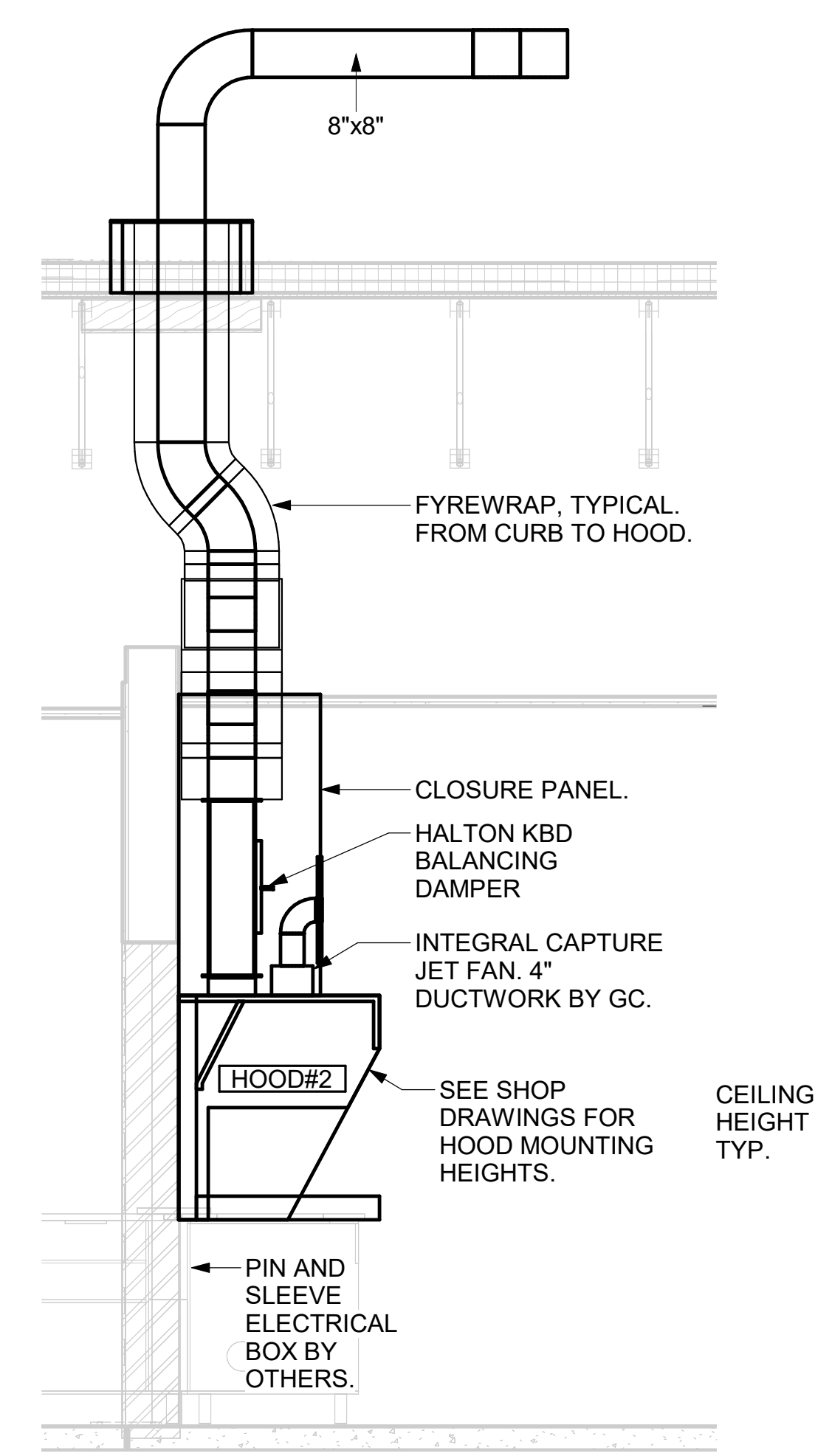
CLEANOUT DOOR NOTE:
 DUCT WRAP SHALL BE APPLIED TO THE CLEANOUT DOOR PER THE WRAP MFR'S INSTALLATION INSTRUCTIONS. NO EXCEPTIONS. ALSO, THE CLEANOUT DOOR MUST BE REMOVABLE WITHOUT TOOLS AND MUST BE CLEARLY AND PERMANENTLY LABELED.



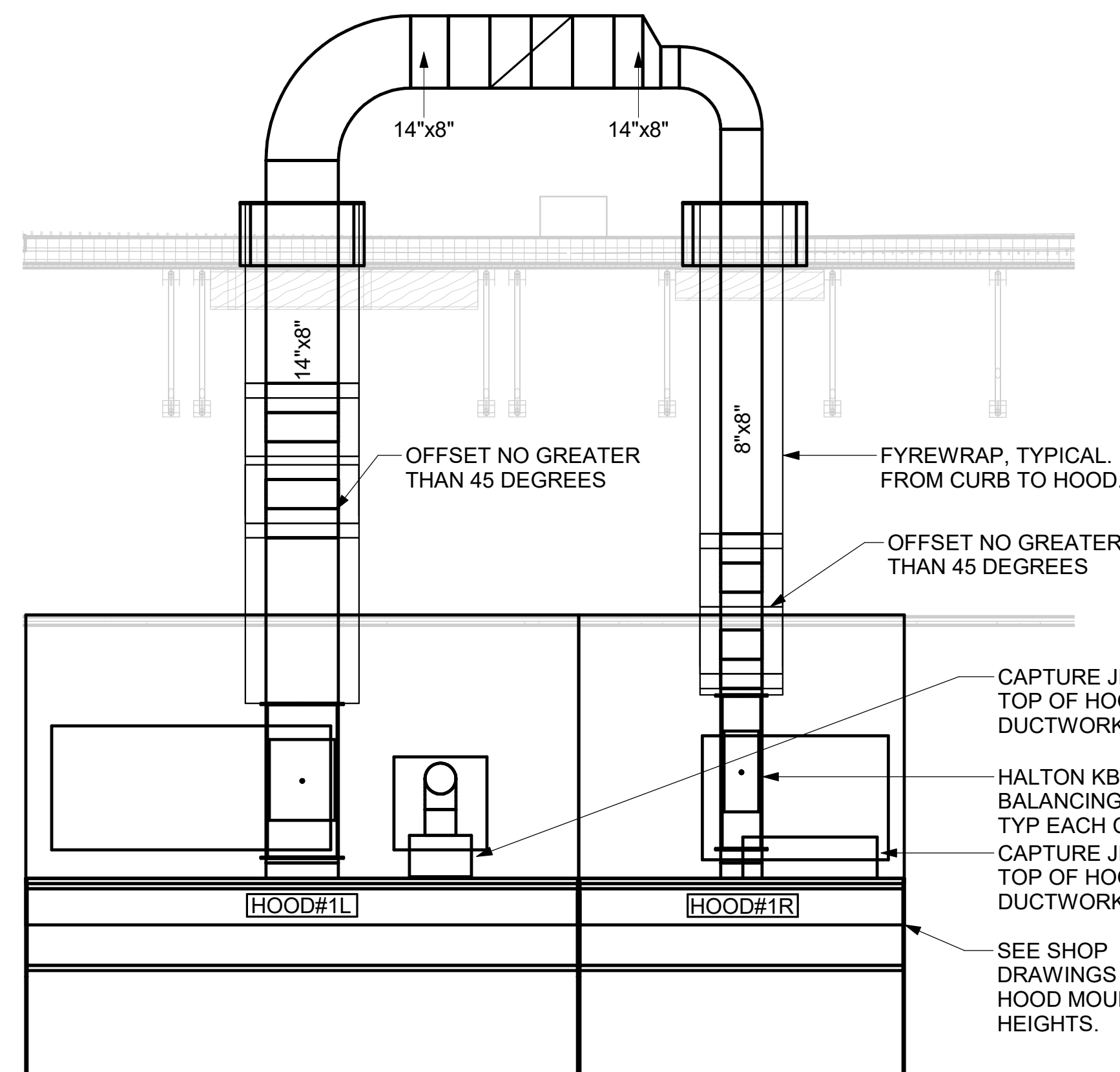
5 HOOD ELEVATION - HOOD#3
 NOT TO SCALE



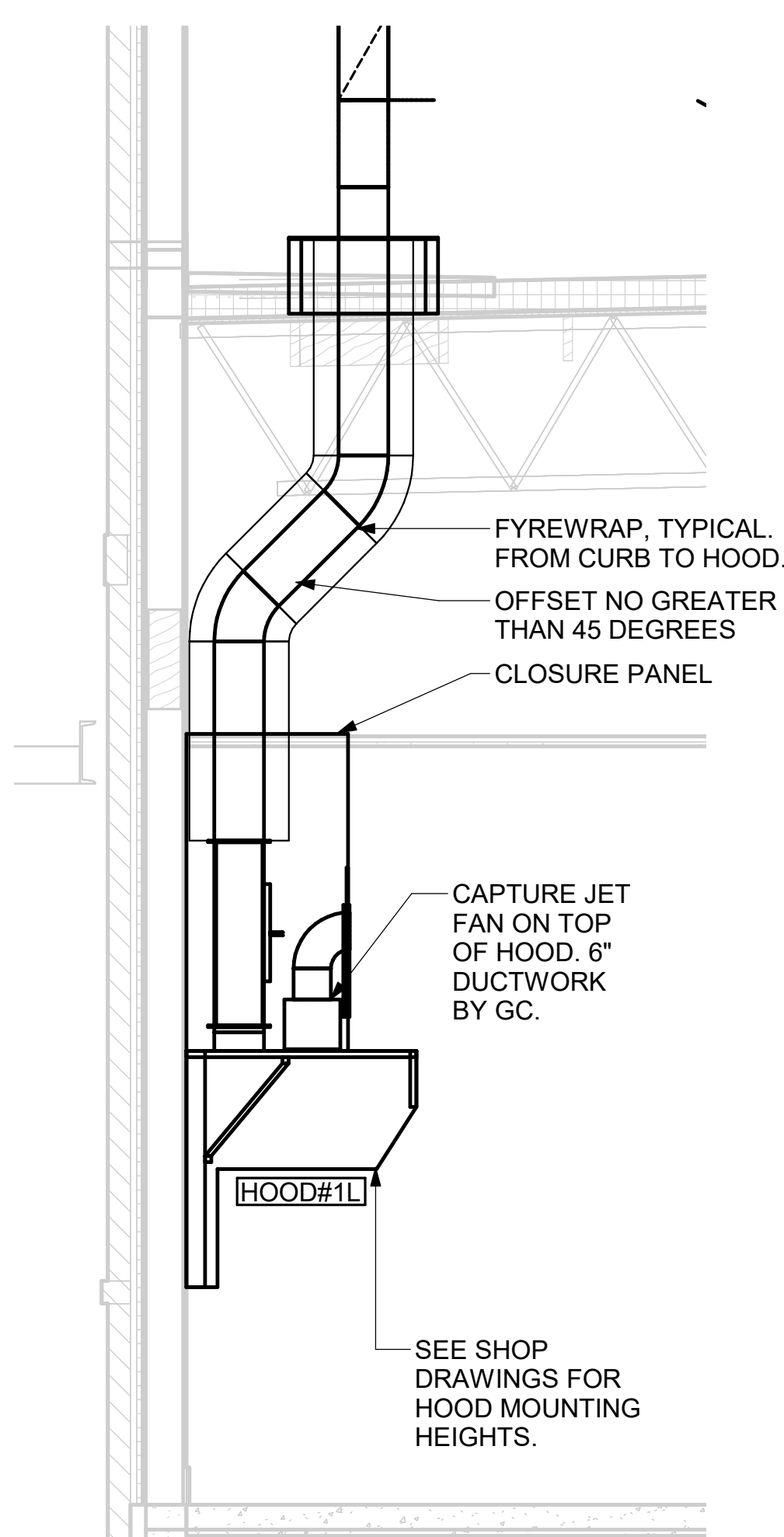
4 HOOD ELEVATION - HOOD#2 - FRONT
 NOT TO SCALE



3 HOOD ELEVATION - HOOD#2 - SIDE
 NOT TO SCALE



2 HOOD ELEVATION - HOOD#1 - FRONT
 NOT TO SCALE



1 HOOD ELEVATION - HOOD#1 - SIDE
 NOT TO SCALE



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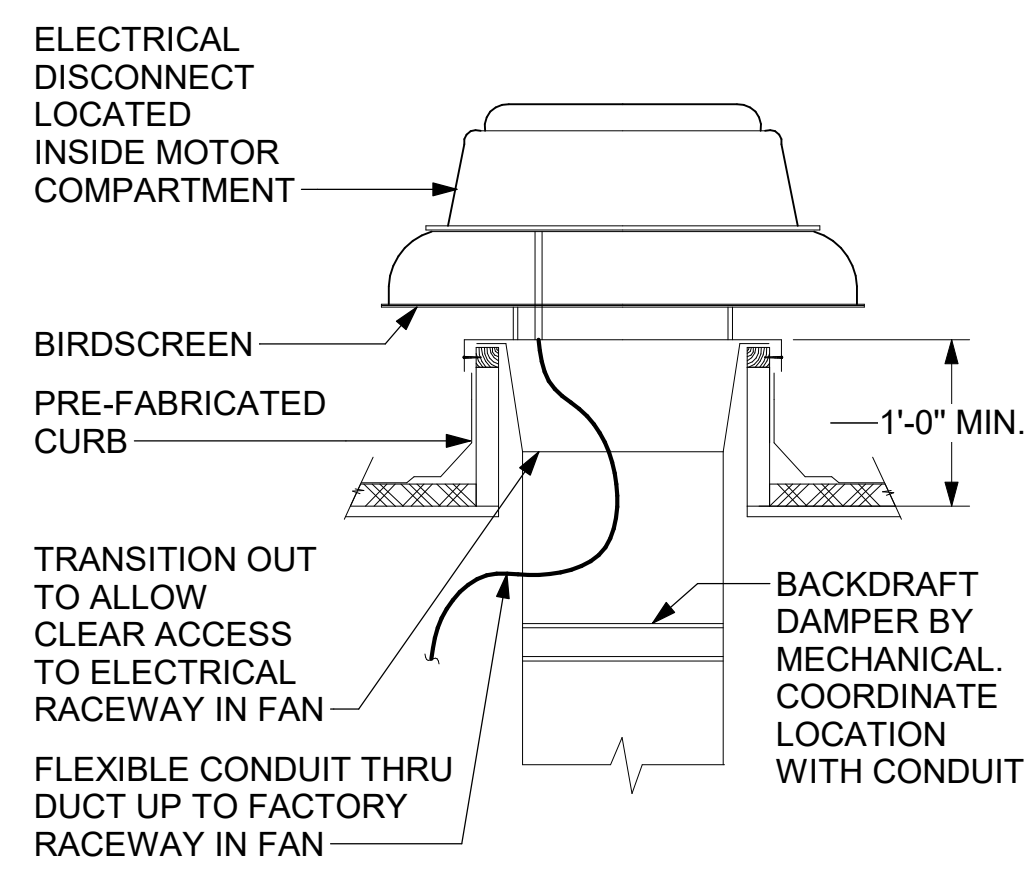
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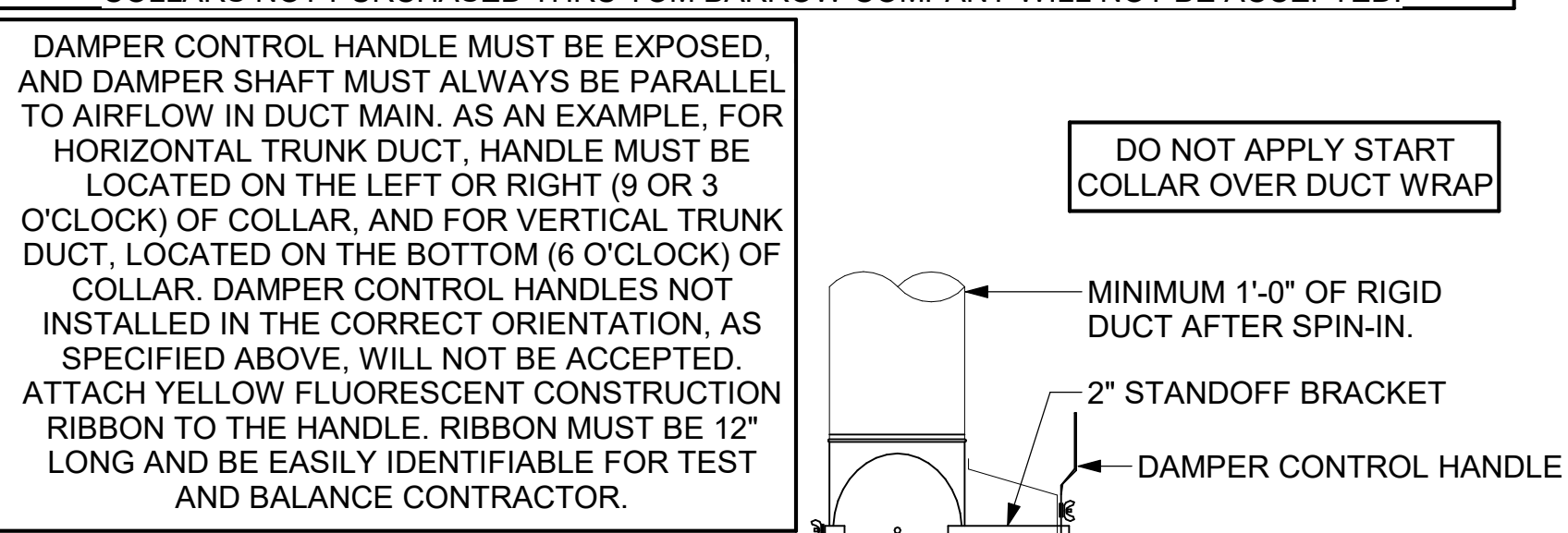
SHEET EXHAUST HOOD ELEVATIONS
 SHEET NUMBER

M-201

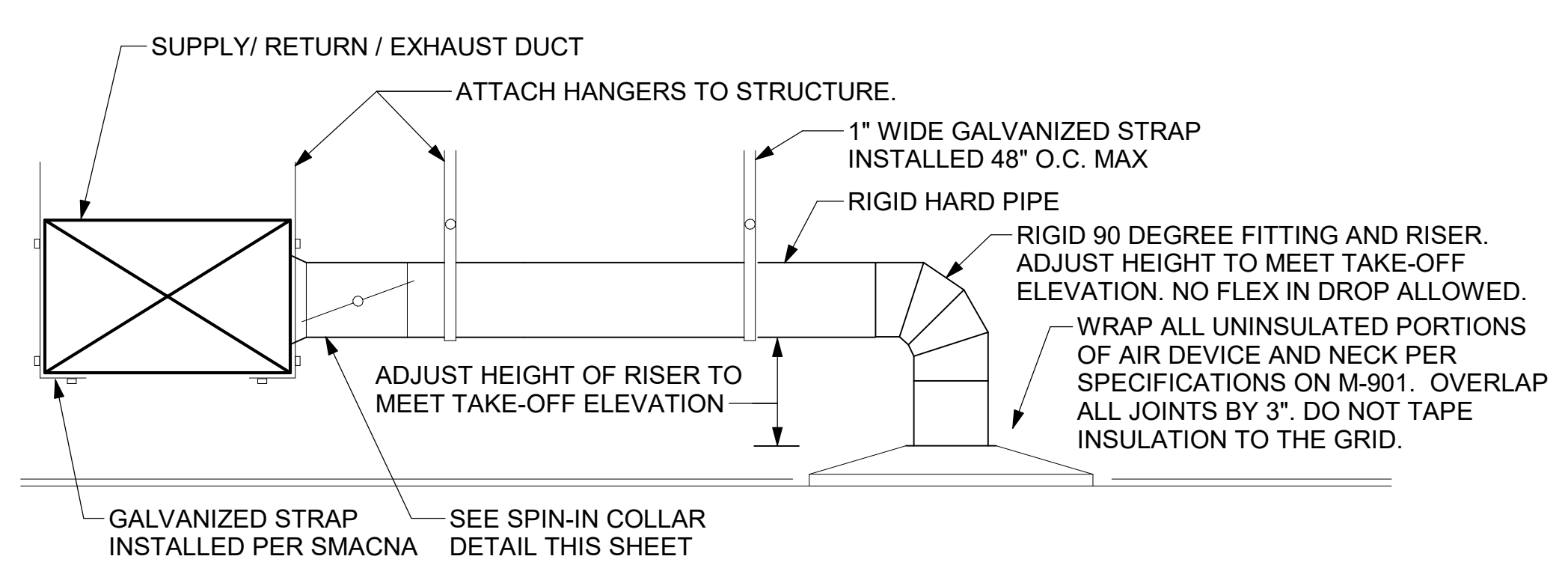


3 RESTROOM EXHAUST FAN
NOT TO SCALE

CHICK-FIL-A HAS A NATIONAL ACCOUNT WITH TOM BARROW COMPANY FOR THE ROYAL METAL PRODUCTS START COLLARS FOR BOTH WITH AND WITHOUT A MANUAL BALANCING DAMPER. THE MECHANICAL CONTRACTOR IS REQUIRED TO PURCHASE THE ROYAL METAL PRODUCTS START COLLARS DIRECTLY FROM TOM BARROW COMPANY. CONTACT MR. SCOTT GEORGE AT 404-351-1010 FOR PRICING AND AVAILABILITY. ROYAL METAL PRODUCTS START COLLARS NOT PURCHASED THRU TOM BARROW COMPANY WILL NOT BE ACCEPTED.

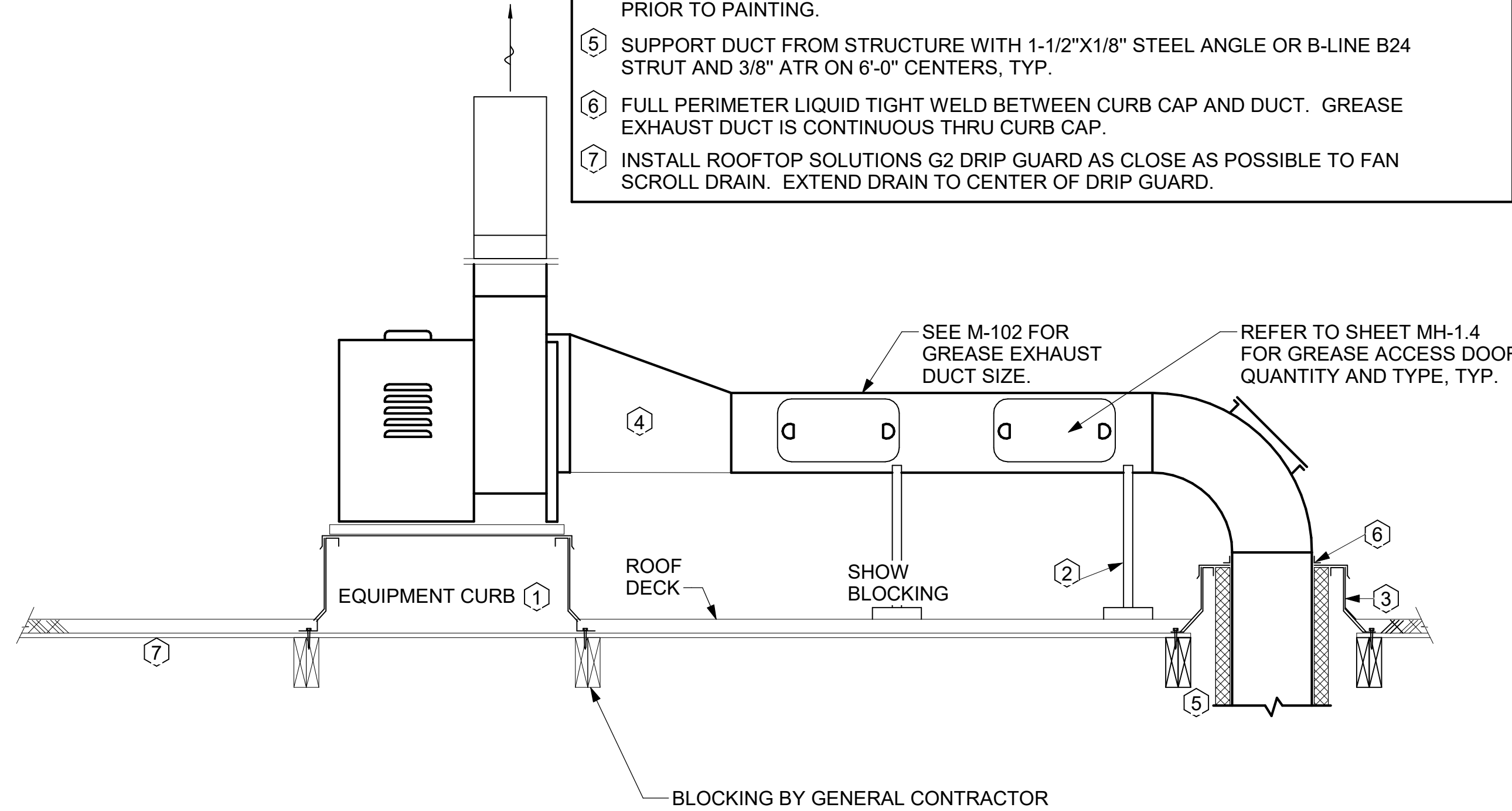


2 START COLLAR
NOT TO SCALE

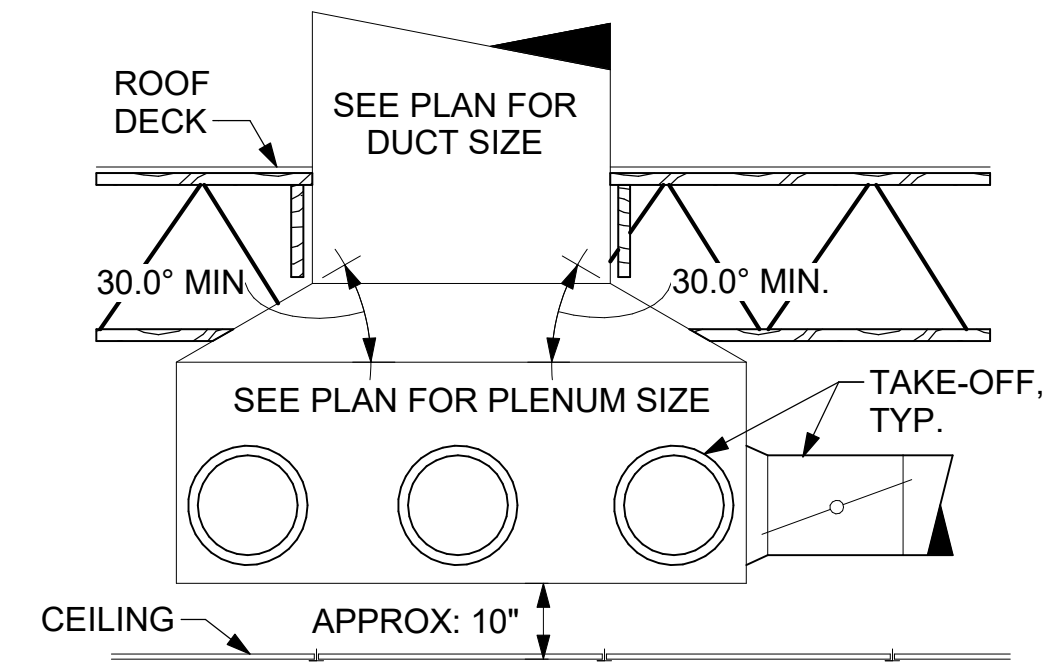


1 SAG/RAG/GRILLE TAKE-OFF
NOT TO SCALE

- KEYED NOTES:
- 22" EQUIPMENT CURB FURNISHED BY HALTON.
 - DUCT SUPPORT SHALL BE PROVIDED EVERY 8', AND WITHIN 12" OF ANY FITTING OR WELD SEAM. SUPPORTS SHALL BE SECURELY ATTACHED TO THE STRUCTURE AND DESIGNED TO CARRY GRAVITY, WIND, AND SEISMIC LOADS PER CODE.
 - 12" HIGH INSULATED CURB FURNISHED BY HALTON. MECHANICAL CONTRACTOR TO PROVIDE MINIMUM 18 GA STAINLESS STEEL CURB CAP AND FLASHING.
 - ALL DUCTWORK AND UNFINISHED METAL ON ROOF EXCEPT STAINLESS SHALL BE PREPARED WITH TWO COATS OF SHERWIN WILLIAMS B66-200 SERIES DTM WHITE ACRYLIC SEMI-GLOSS INDUSTRIAL MAINTENANCE COATING. DEGREASE AND PRIME BARE METAL SURFACE WITH ONE COAT OF SHERWIN WILLIAMS DTM ACRYLIC PRIMER PRIOR TO PAINTING.
 - SUPPORT DUCT FROM STRUCTURE WITH 1-1/2"x1/8" STEEL ANGLE OR B-LINE B24 STRUT AND 3/8" ATR ON 6'-0" CENTERS, TYP.
 - FULL PERIMETER LIQUID TIGHT WELD BETWEEN CURB CAP AND DUCT. GREASE EXHAUST DUCT IS CONTINUOUS THRU CURB CAP.
 - INSTALL ROOFTOP SOLUTIONS G2 DRIP GUARD AS CLOSE AS POSSIBLE TO FAN SCROLL DRAIN. EXTEND DRAIN TO CENTER OF DRIP GUARD.



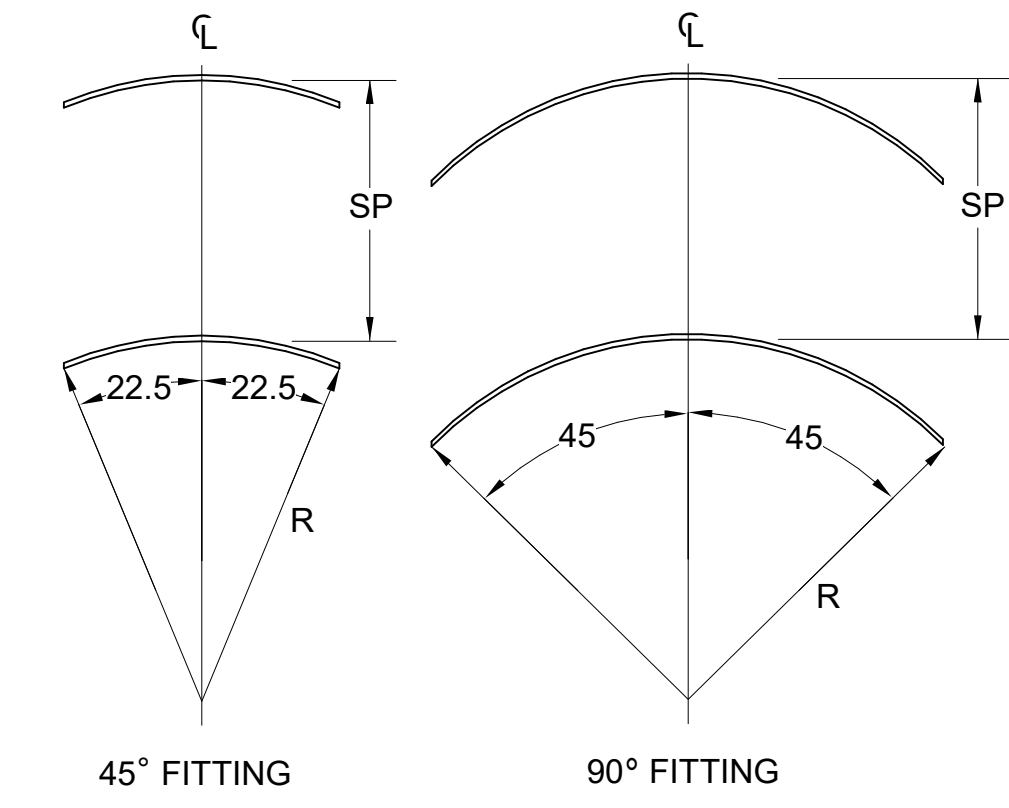
6 KITCHEN HOOD EXHAUST FAN - UTILITY SET - WOOD FRAMING
NOT TO SCALE



5 RETURN DROP GEOMETRY
NOT TO SCALE

TURNING VANE SCHEDULE		
R	SP	GA
2"	1.5"	24

1. NO TRAILING EDGE.
2. SINGLE THICKNESS CONSTRUCTION.



4 TURNING VANES
NOT TO SCALE



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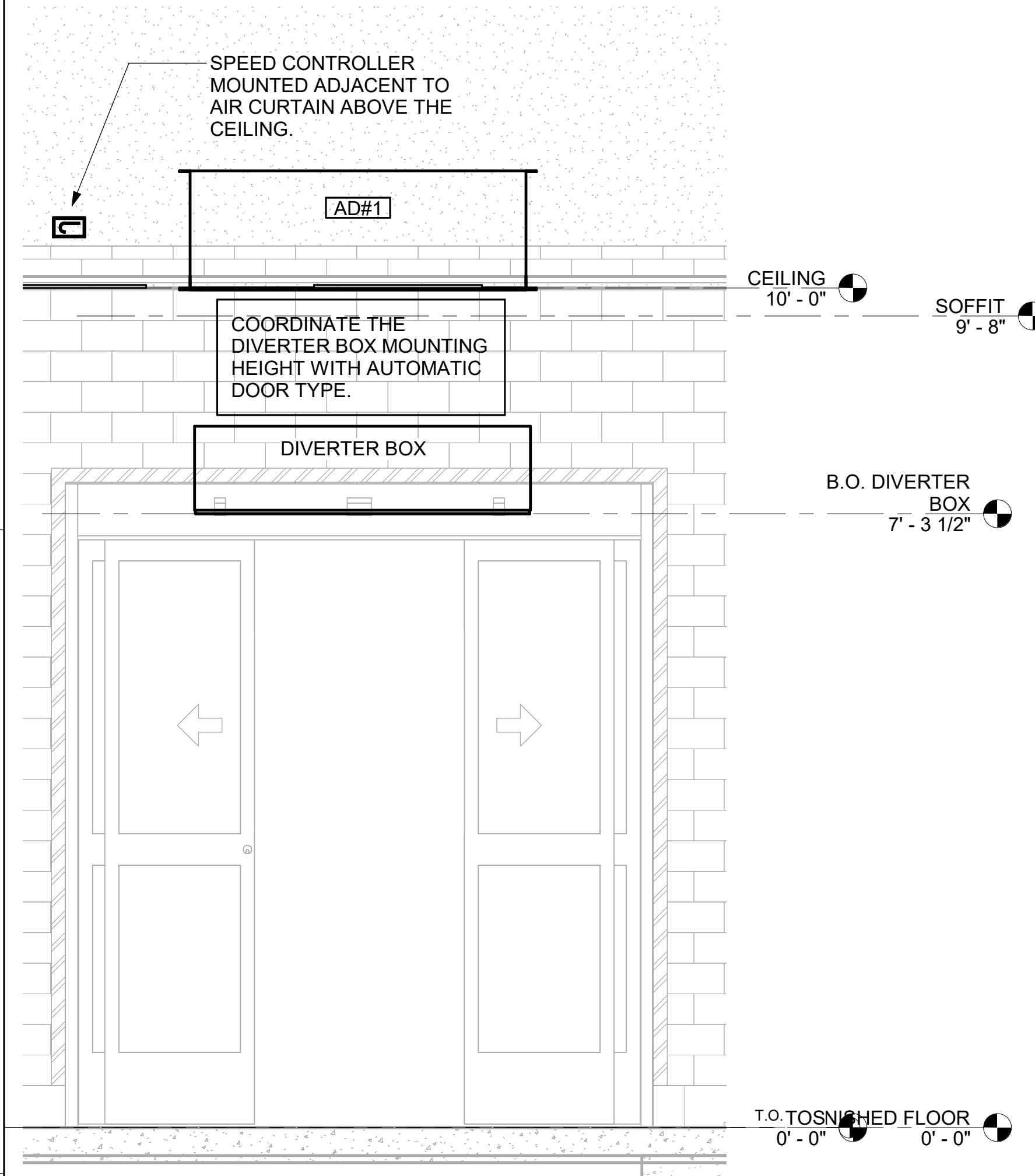
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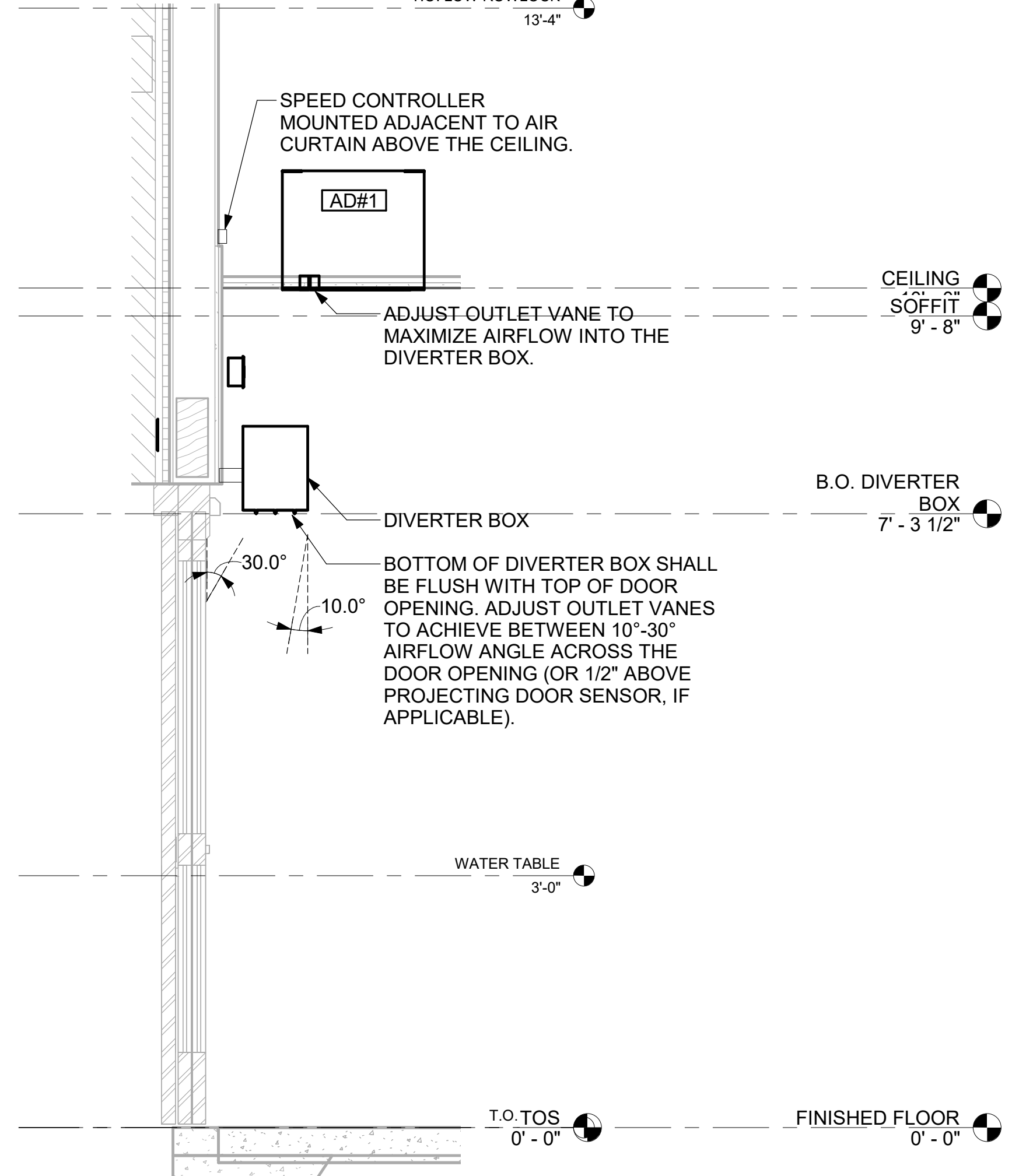
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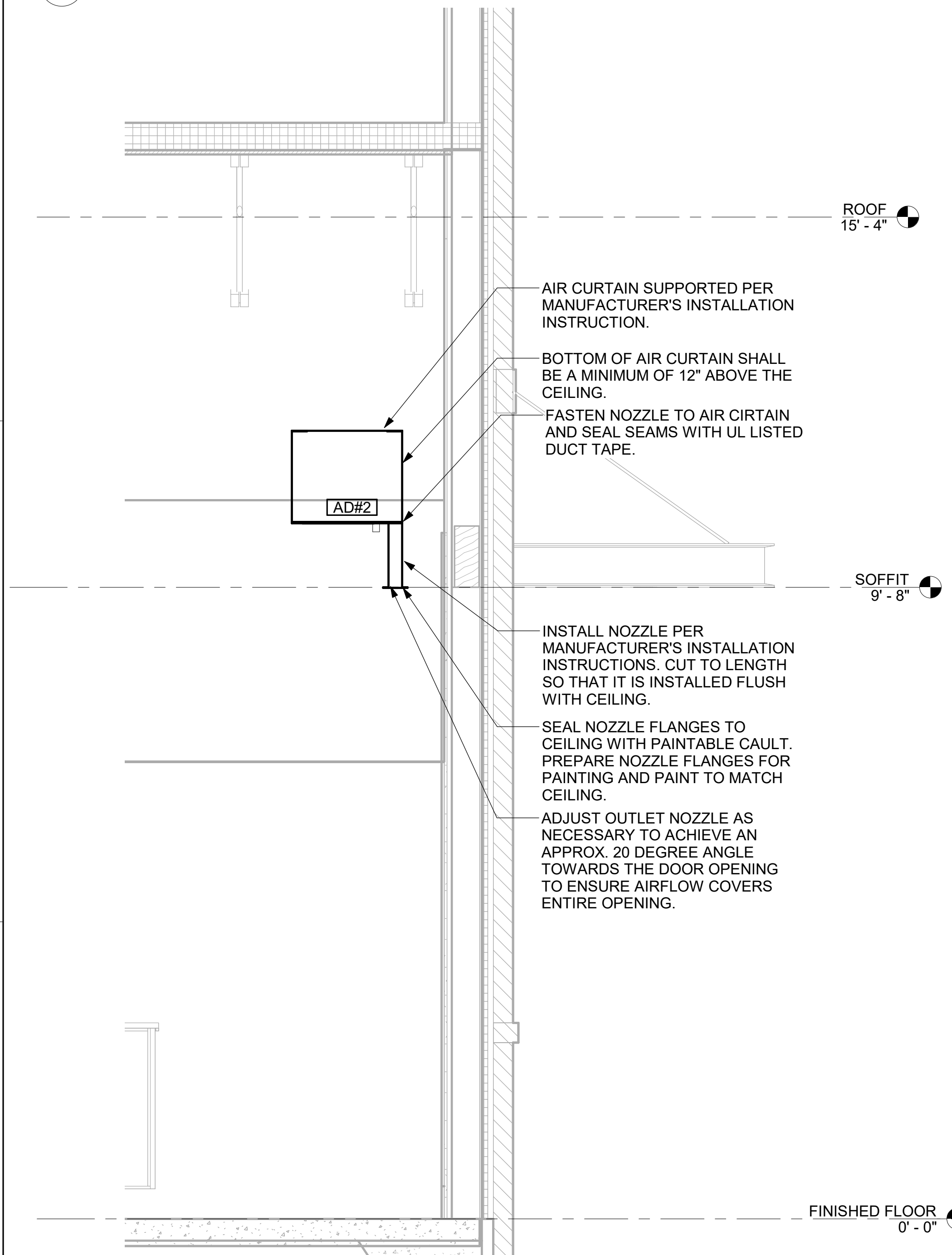
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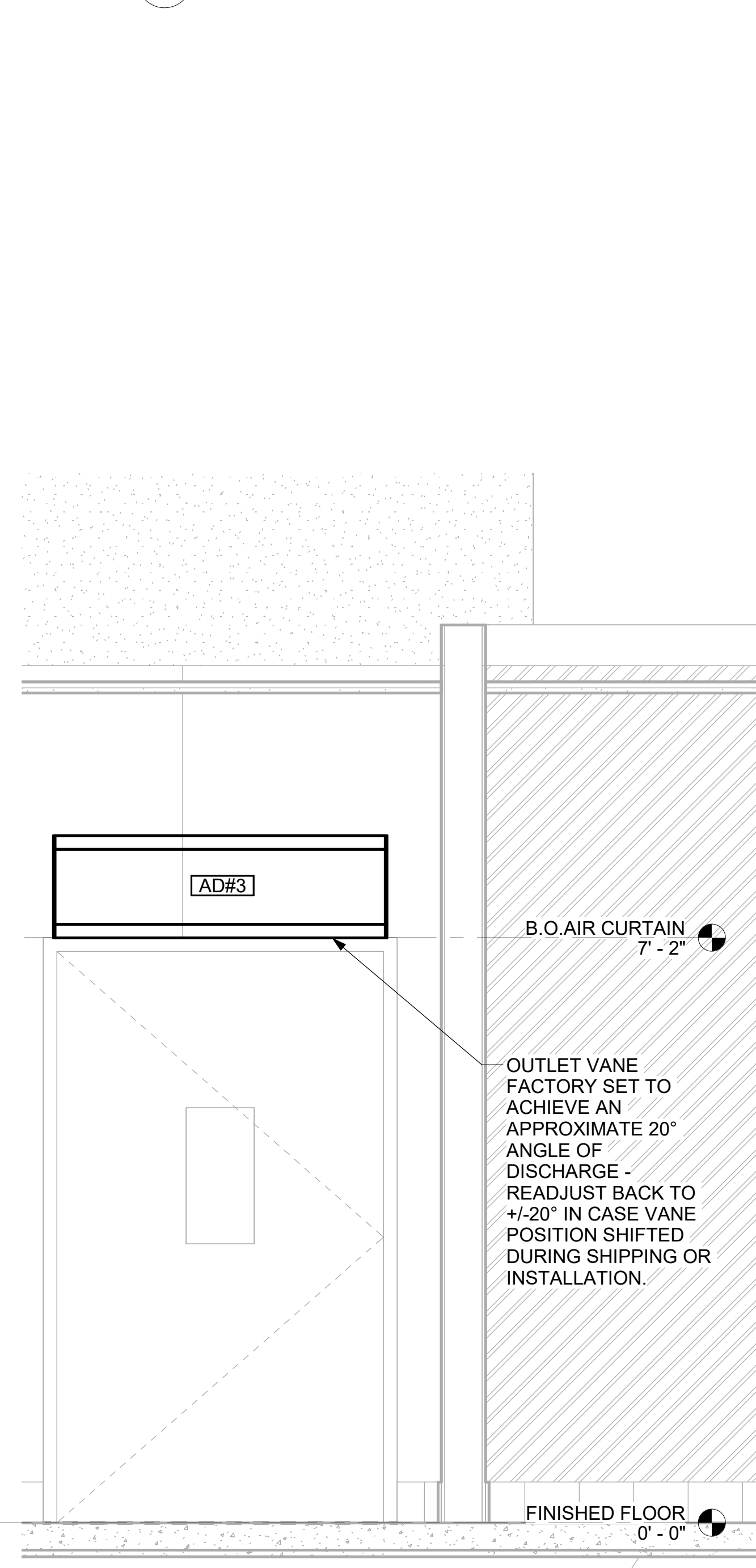
1 AD#1 FRONT VIEW
3/4" = 1'-0"



2 AD#1 SIDE VIEW
3/4" = 1'-0"



3 AD#2 SIDE VIEW
3/4" = 1'-0"



5 AD#3 FRONT VIEW
3/4" = 1'-0"



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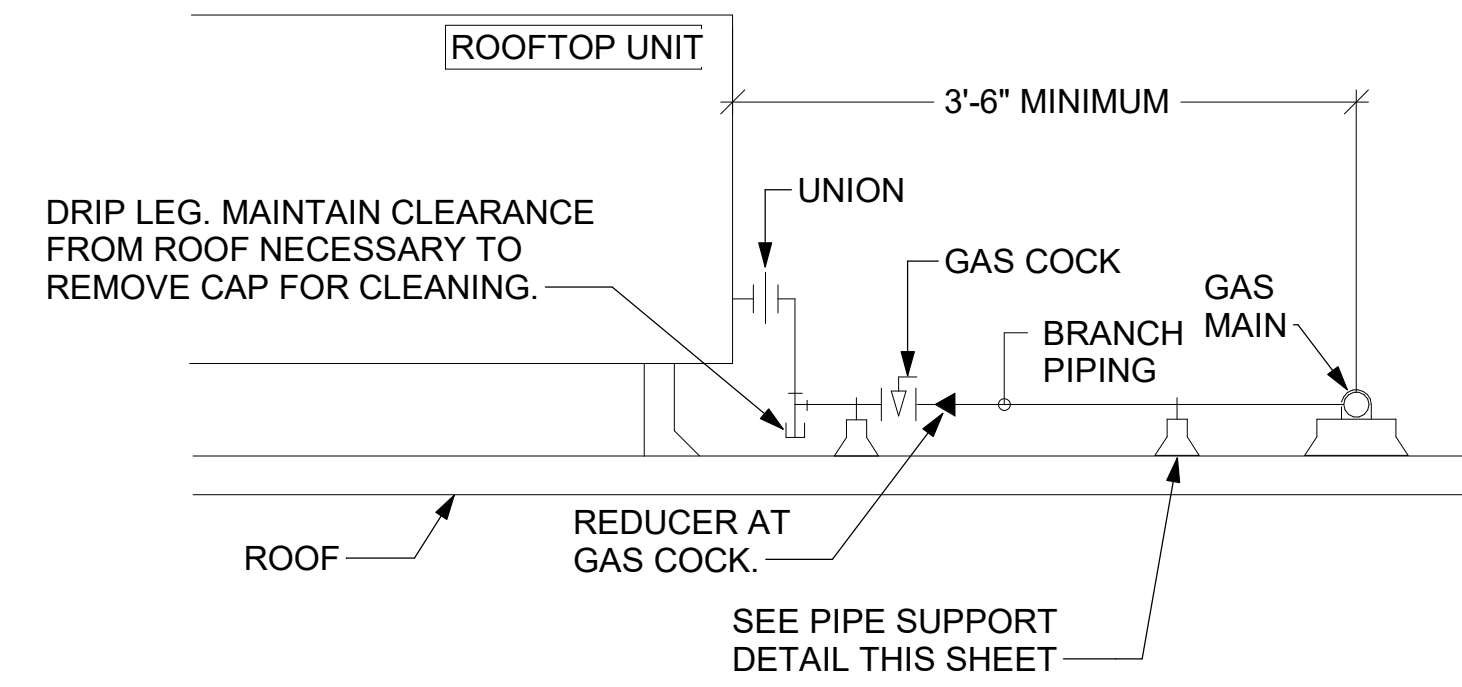
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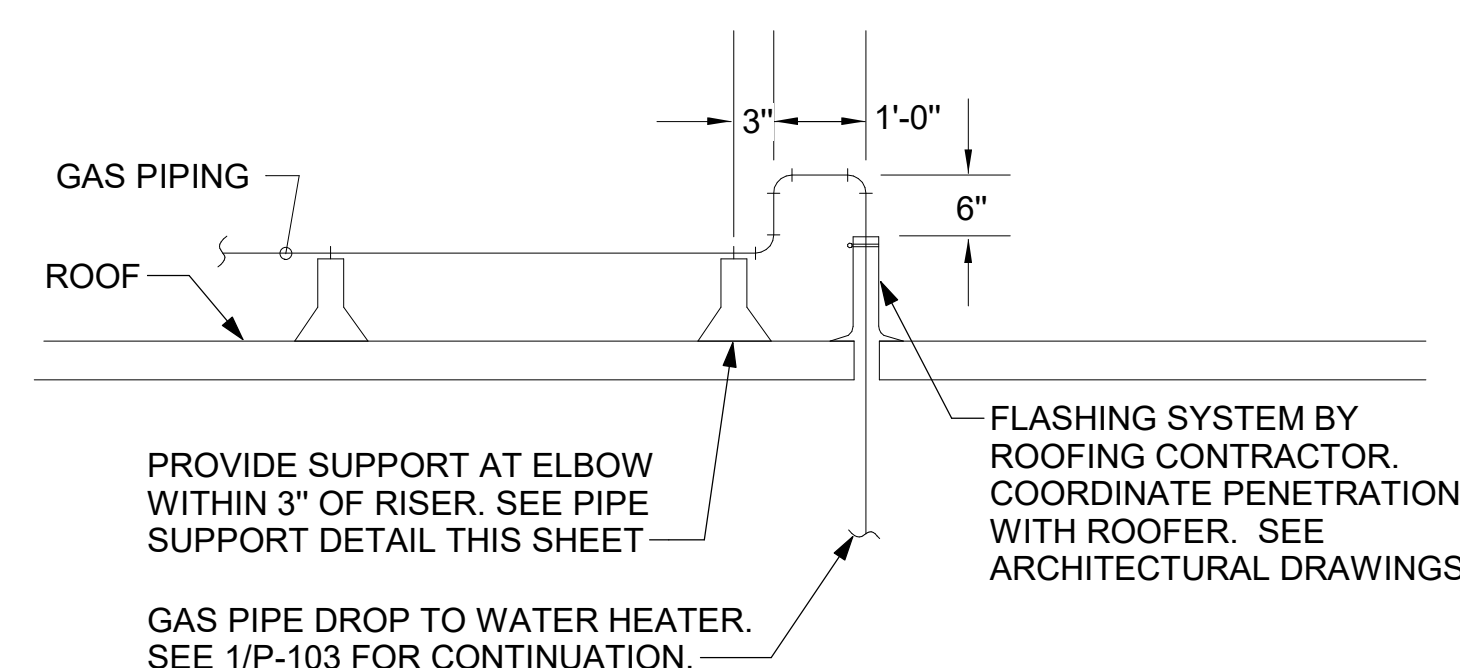
SHEET
DETAILS
SHEET NUMBER
M-502

- NOTES:**
1. INSTALL GAS PIPING SUCH THAT HVAC EQUIPMENT ACCESS PANELS AND/OR DOORS ARE IN NO WAY OBSTRUCTED BY PIPING, VALVES, OR SUPPORTS.
 2. TO AVOID CONFLICT WITH AC UNIT ACCESS DOORS, INSTALL GAS PIPING NO CLOSER THAN 3'-6" FROM AC UNIT. (EXCEPT FOR BRANCH LINE CONNECTED TO AC UNIT.)
 3. ROUTE BRANCH TAKE-OFF DIRECTLY FROM MAIN TO ROOFTOP UNIT AS SHOWN ON PLAN AND DETAILS WITHOUT LATERAL OFFSETS WHICH MAY OBSTRUCT UNIT ACCESS DOORS.

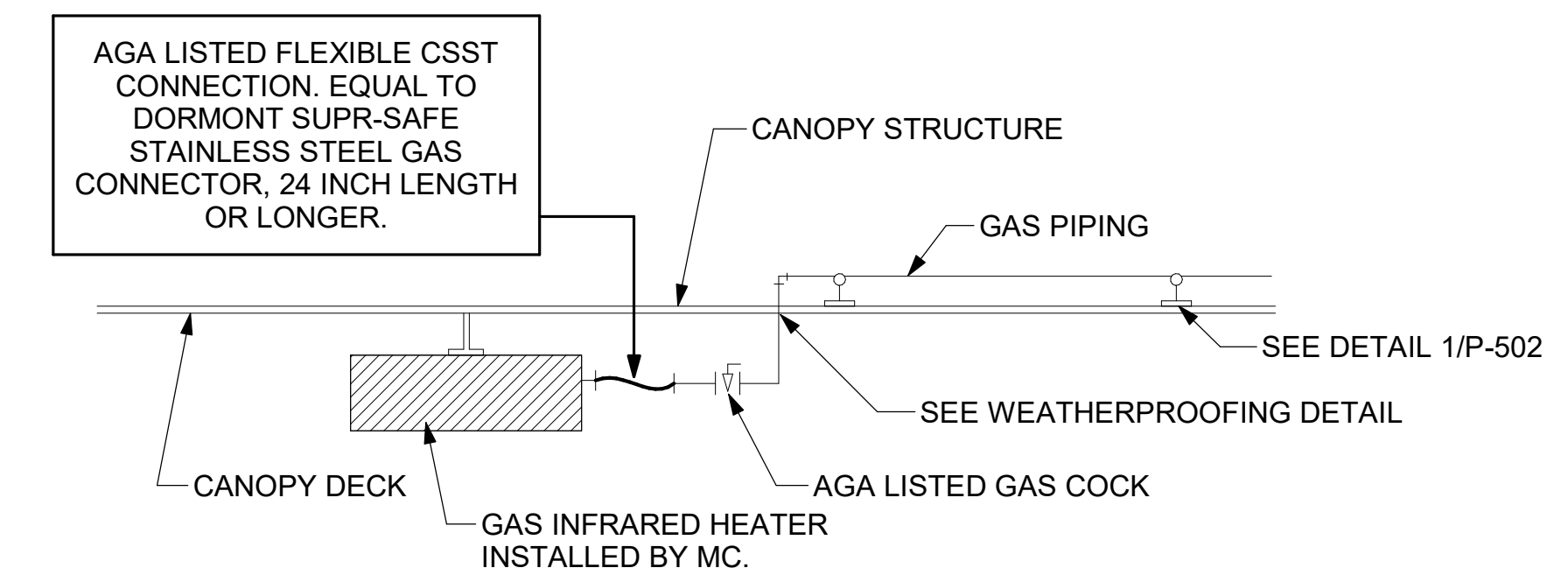


3 GAS PIPING AT RTU
NOT TO SCALE

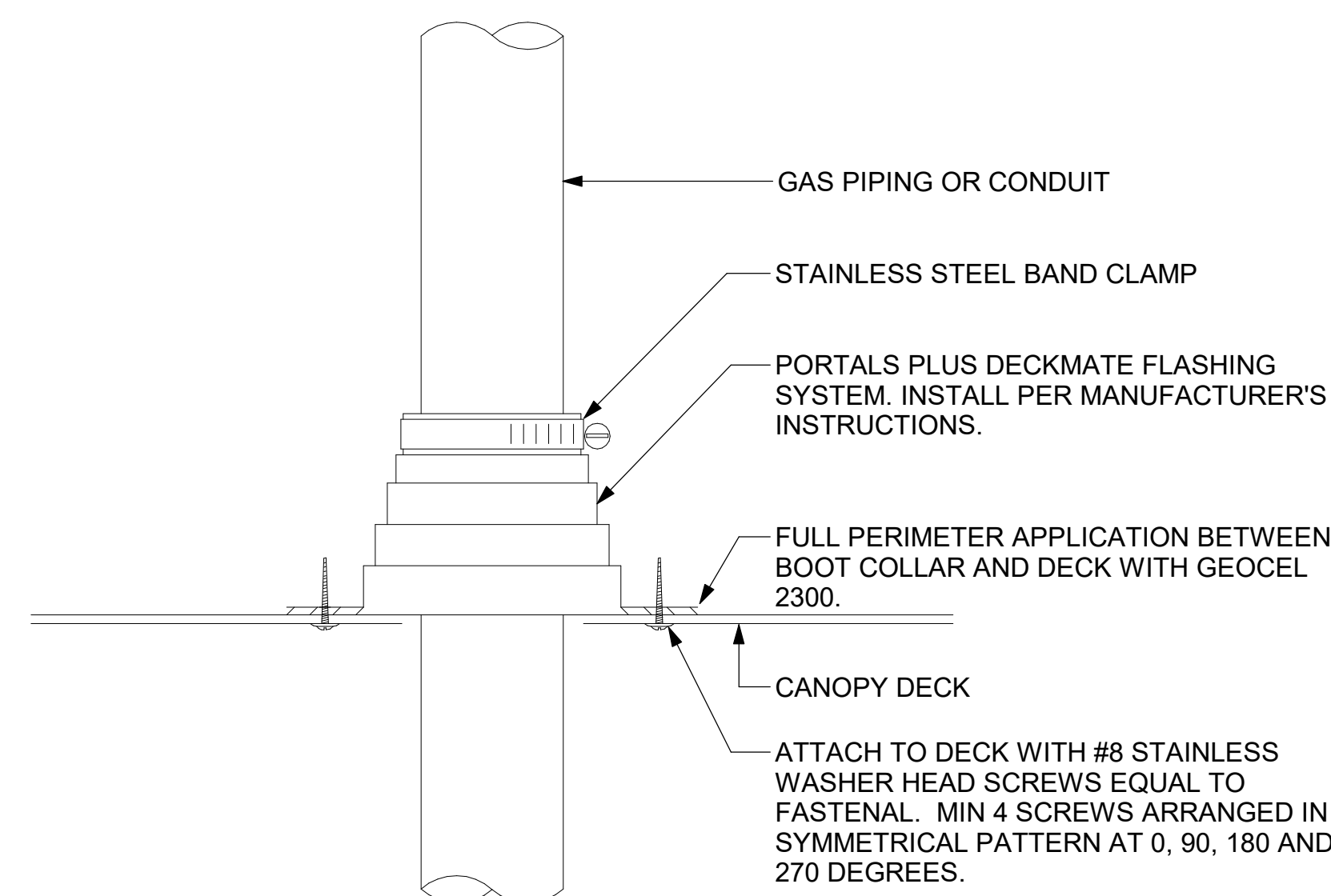
OFFSET PIPING A MINIMUM OF 6" ABOVE TOP EDGE OF FLASHING.



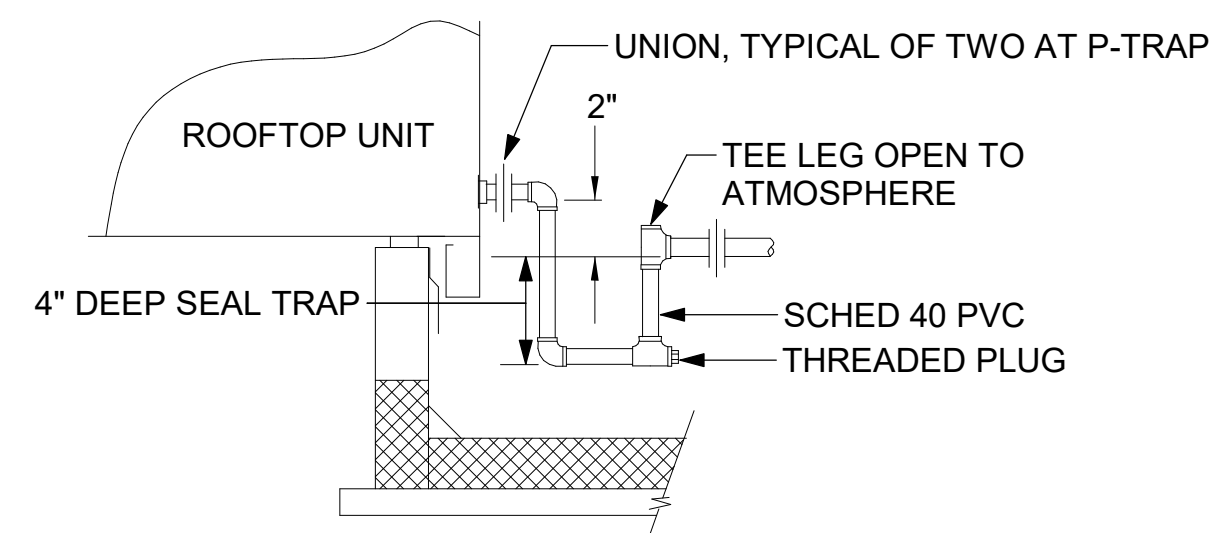
2 GAS PIPE DROP TO WATER HEATER
NOT TO SCALE



1 GAS CONNECTION AT APPLIANCE
NOT TO SCALE

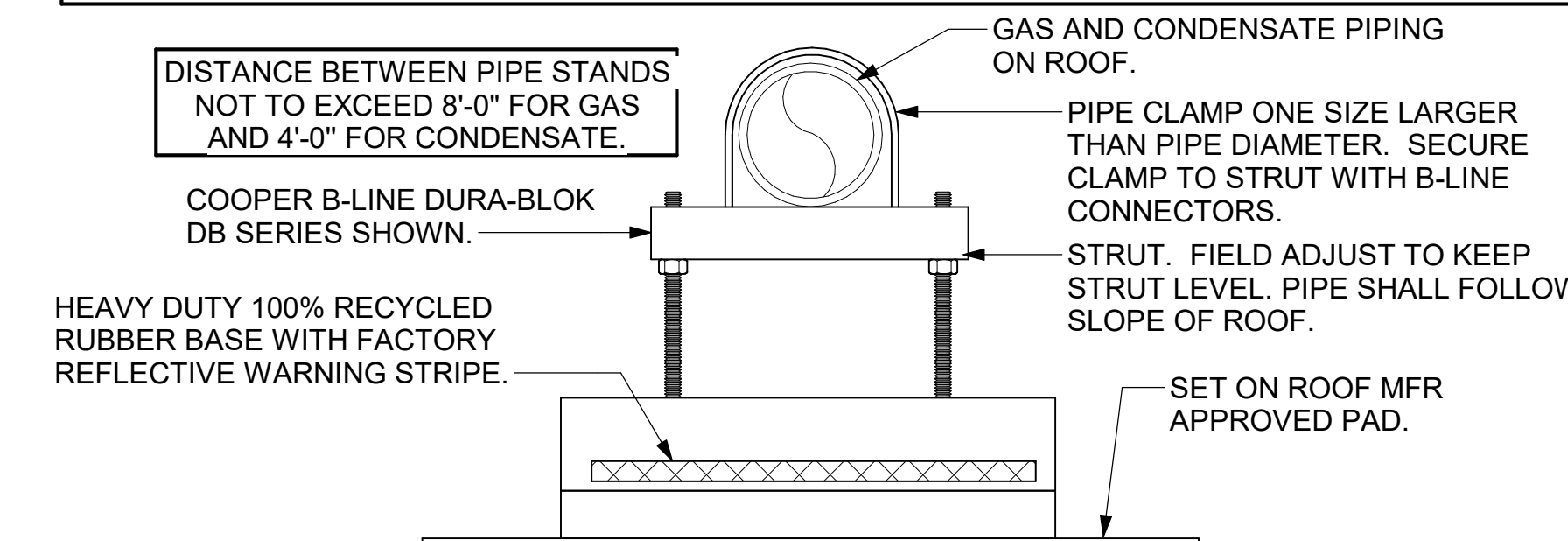


6 WEATHERPROOFING AT CANOPY PENETRATION
NOT TO SCALE

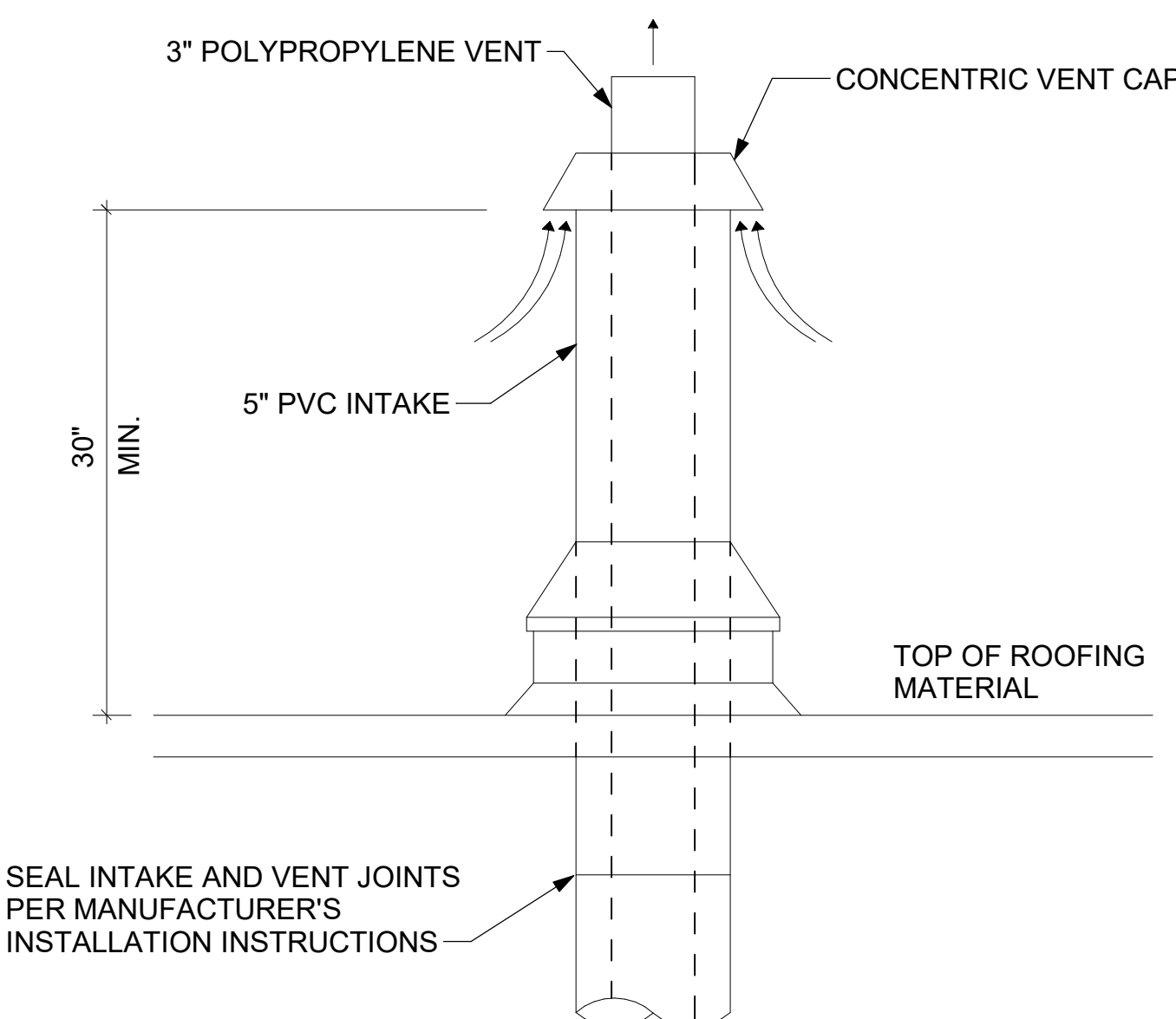


5 CONDENSATE DRAIN PIPING
NOT TO SCALE

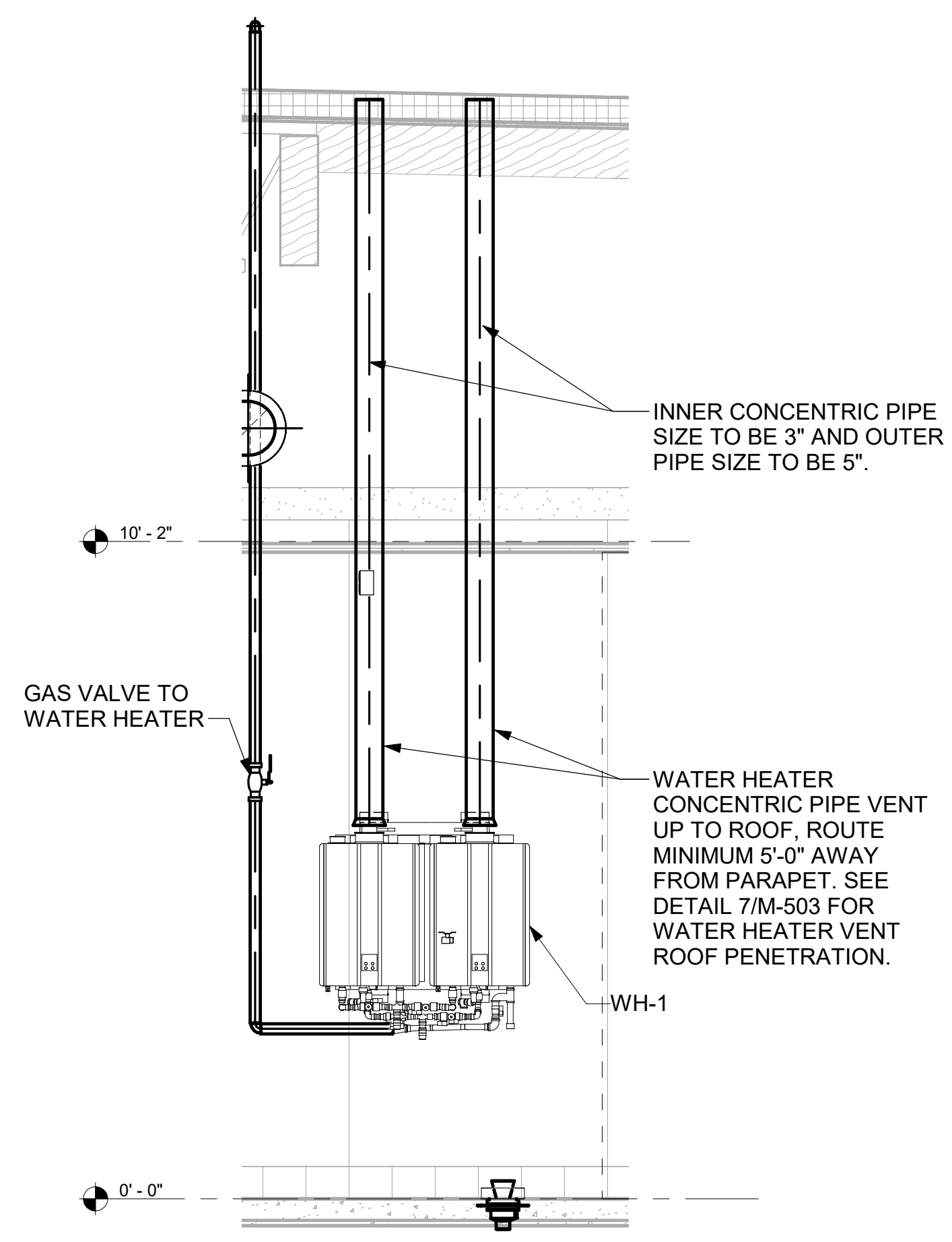
- NOTES:**
1. NON ADJUSTABLE MODEL DB610 PIPE STAND TO BE USED FOR NON-ELEVATED PIPING INSTALLED FLAT ON ROOF DECK.
 2. PROVIDE MODEL DBE 10-8 OR DBE 10-12 OR DBE 10-16 AS NEEDED FOR ELEVATING CONDENSATE PIPING TO MAINTAIN PROPER SLOPE AND FOR GAS PIPING CROSSING OVER CONDENSATE PIPING.
 3. ENSURE GAS AND CONDENSATE PIPING DO NOT OBSTRUCT ROOFTOP EQUIPMENT ACCESS OPENINGS. RE-PIPING OF SYSTEMS DUE TO CONFLICTS WITH EQUIPMENT ACCESS OPENINGS SHALL BE DONE AT PLUMBING CONTRACTOR'S EXPENSE.



4 PIPING SUPPORT ON ROOF
NOT TO SCALE



8 WATER HEATER VENT ROOF PENETRATION
NOT TO SCALE



7 WATER HEATER GAS PIPING AND VENTING
NOT TO SCALE



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SHEET
DETAILS

SHEET NUMBER
M-503

ROOFTOP UNIT SCHEDULE - TRANE

MARK	TOTAL COOLING MBH	SENSIBLE COOLING MBH	HEATING INPUT MBH	HEATING OUTPUT MBH	SUPPLY AIRFLOW (CFM)	OA (CFM)	HP	ESP (in-wg)	EER	IEER/SEER	VOLTAGE (V)	PHASE	MCA (A)	MOCP (A)	MODEL	MANUFACTURER	REMARKS
ALT AC#1	271.1	202.4	400	324.5	8,125	1,750	3	0.80	9.8	13	208	3	125	150	YSJ300A3S	TRANE	1,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
ALT AC#2	150.9	114.9	240	194.4	4,375	1,075	4.6	0.80	11	14.6	208	3	78	100	YSJ150A3S	TRANE	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
ALT AC#3	184.3	140.4	400	324	5,250	1,275	3	0.80	10.8	14	208	3	78	100	YSJ180A3S	TRANE	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
ALT AC#4	58.1	44.2	130	104.5	1,750	425	1	0.80	13	17	208	3	33	45	YHC067E3R	TRANE	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17

NOTES

- MECHANICAL CONTRACTOR TO VERIFY TRANE SUBMITTAL WITH CONSTRUCTION DOCUMENTS. NATIONAL ACCOUNTS - NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004.

REMARKS

- DIFFERENTIAL ENTHALPY ECONOMIZER WITH POWER EXHAUST.
- DIFFERENTIAL ENTHALPY ECONOMIZER WITH BAROMETRIC EXHAUST.
- 14" HIGH ROOF CURB.
- SEE DETAIL 2/M-702T FOR SETTING OF CONTROL PARAMETERS BY MC.
- FACTORY INSTALLED 115V GFI SERVICE OUTLET. SEPERATE 115V CIRCUIT PROVIDED BY ELECTRICAL CONTRACTOR.
- FACTORY INSTALLED RETURN AIR SMOKE DETECTOR.
- FACTORY INSTALLED NON-FUSED DISCONNECT.
- 2" MERV 8 THROW AWAY FILTERS.
- HINGED PANELS FOR ACCESS TO FILTER(S), FAN BLOWER & MOTOR, COMPRESSOR(S) ACCESS AND CONTROLS.
- FACTORY COIL HAIL GUARD, FIELD INSTALLED.
- FRESH AIR TEMPERING KIT.
- HOT GAS DEHUMIDIFICATION OPTION WITH WALL MOUNTED HUMIDITY SENSOR.
- FACTORY INSTALLED BELT TENSIONER.
- FACTORY CONFIGURED PHASE LOSS PROTECTION.
- FACTORY INSTALLED CONDENSATE PAN DRAIN OVERFLOW SWITCH.
- FACTORY STAINLESS STEEL HEAT EXCHANGER.
- 100K SCCR RATING.

FAN SCHEDULE

MARK	FAN CFM	ESP (in-wg)	MOTOR RPM	HP	AREA SERVED	VOLTAGE (V)	PHASE	FLA (A)	MOCP (A)	MODEL	MANUFACTURER	REMARKS
CF-1	1,900	0.01	1,625	0.1	OUTDOOR CANOPY	120	1	1.1	20	U-18-TE-HD	TPI	
EF#1	1,913	0.75	1,331	0.75	HOOD#1	120	1	0	25	KEFB-14-CFA	HALTON	1,2,3,4,5,6,7,8,9,10,11
EF#2	1,402	0.95	1,199	0.75	HOOD#2 & HOOD#3	115	1	0	25	KEFB-14-CFA	HALTON	1,2,3,4,5,6,7,8,9,10,11
EF#3	300	0.375	1,550	0.125	RESTROOMS	120	1	2.2	20	XRED-095-VG	ACCUREX	1,3,11,12,13,14,15,16
TF#1	450	0.3	1,144	0.127	TECH CLOSET	120	1	2.5	0	SP-A510-VG	GREENHECK	1,17,18,19

NOTES

- GREASE EXHAUST FAN RPM BASED ON 80 DEGREE F AIR AT 1000 FEET ABOVE SEA LEVEL.

REMARKS

- FANS SUPPLIED BY HALTON.
- U.L. 705 LISTED AND LABELED FOR RESTUARANT APPLICATIONS.
- FACTORY INSTALLED PREWIRED DISCONNECT SWITCH.
- 19" HIGH ROOF CURB.
- INSTALL ROOFTOP SOLUTIONS G2 DRIP GUARD. MECHANICAL CONTRACTOR TO CONTACT ROOFTOP SOLUTIONS AT 800-913-7034.
- FACTORY WEATHER HOUSING W/ HINGED ACCESS DOOR.
- FACTORY DRAIN CONNECTION.
- FACTORY BOLTED ACCESS DOOR ON SCROLL.
- FACTORY INSTALLED BELT DRIVE WITH ADJUSTABLE MOTOR SHEAVE, SPARE BELT, AND BELT TENSIONER.
- FACTORY INSTALLED OUTLET WITH QUICK RELEASE, HINGED ACCESS, AND GRAVITY BACKDRAFT DAMPER.
- INTEGRAL THERMAL OVERLOAD.
- BIRDSCREEN.
- BACKDRAFT DAMPER IN DUCT BY MECHANICAL CONTRACTOR AS SHOWN ON 5/M-501.
- STARTER BY ELECTRICAL CONTRACTOR. INTERLOCK WITH LIGHTS BY ELECTRICAL CONTRACTOR.
- 12" HIGH CURB.
- FACTORY INSTALLED AND WIRED SPEED CONTROLLER.
- PROVIDE NEMA 1 PREWIRED DISCONNECT.
- INTEGRAL POTENTIOMETER ON FAN MOTOR. SET TO FULL SPEED.
- PROVIDE THERMOSTAT / TEMPERATURE CONTROLLER, SET TO 76°F.
- INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE WITH ON/OFF SWITCH.
- FAN SHALL BE CONTROLLED WITH THE ROOM LIGHTING. ALL WIRING IS BY THE ELECTRICAL CONTRACTOR.
- DIRECT DRIVE CEILING FAN. PROVIDE DISCONNECT SWITCH. INTEGRAL BACKDRAFT DAMPER, AND MANUFACTURER'S FAN SPEED CONTROLLER.
- FAN SUPPLIED BY TOM BARROW OR POWERS OF ARKANSAS FOR THE SOUTHWEST REGION.

HOOD SCHEDULE

MARK	EXHAUST CFM	SP @ TAB PORT (in-wg)	CAPTURE JET CFM & S.P.	TYPE	COLLAR SIZE	WIDTH	DEPTH	HEIGHT	MANUFACTURER	MODEL	REMARKS
HOOD#1L	1,204	0.13	80 @ 0.30"	BACKSHELF	14"X8"	107"	37"	38"	HALTON	KVL-2 IC	1, 2, 3, 4, 5, 7, 8, 9, 12, 16, 21, 23
HOOD#1R	709	0.13	47 @ 0.30"	BACKSHELF	8"X8"	63"	37"	38"	HALTON	KVL-2 IC	1, 2, 3, 5, 7, 8, 9, 12, 20, 21, 22
HOOD#2	701	0.3	30 @ 0.29"	BACKSHELF	8"X8"	42"	34"	38"	HALTON	KVL-C-IC	1, 2, 3, 6, 7, 8, 9, 13, 15, 16, 18, 21
HOOD#3	701	0.3	30 @ 0.29"	BACKSHELF	8"X8"	42"	34"	38"	HALTON	KVL-C-IC	1, 2, 3, 4, 6, 7, 8, 9, 13, 17, 21

NOTES

- DIMENSIONS OF HOODS INCLUDE BACK AND SIDE SPACERS (HEIGHT DOES NOT INCLUDE CLOSURE PANELS). NATIONAL ACCOUNTS - NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004.

REMARKS

- STAINLESS STEEL CONSTRUCTION.
- PROVIDE FULL HEIGHT SS CLOSURE PANEL WITH ACCESS PANEL IN FRONT LARGE ENOUGH TO REMOVE CAPTURE JET FAN, FIRE SUPPRESSION COMPONENTS, AND/OR TO ACCESS KBD EQUALIZER JACK SCREW.
- PRE-PIPED FIRE SUPPRESSION SYSTEM.
- FIRE SUPPRESSION CABINET AND COMPONENTS ABOVE HOOD ON LEFT SIDE.
- 3" ZERO CLEARANCE TO COMBUSTIBLE BACK SPACER.
- 3" ZERO CLEARANCE TO COMBUSTIBLE CUSTOM BACK SPACER TO ACCOMMODATE PIN AND SLEEVE ELECTRICAL BOX.
- EQUIPMENT I.D. LABELS LOCATED ON FRONT LEADING EDGE OF HOOD.
- FACTORY WALL MOUNTING ANGLE AT TOP OF HOOD.
- INTEGRAL CAPTURE JET FAN.
- NOT USED.
- NOT USED.
- NOT USED.
- PIN AND SLEEVE ELECTRICAL BOX (DOUBLE CONNECTION). SEE ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- NOT USED.
- 3" ZERO CLEARANCE TO COMBUSTIBLE RIGHT SIDE SPACER.
- NOTCHED LEFT END SIDE PANEL.
- NOTCHED RIGHT END SIDE PANEL.
- 3"X3" HORIZONTAL AND VERTICAL TRIM ANGLE FOR RIGHT SIDE OF HOOD TO FINISH OFF GAP AT WALL.
- FULL LEFT END SIDE PANEL.
- FULL RIGHT END SIDE PANEL.
- HALTON KBD EQUALIZER.
- CONTINUOUS CAPTURE INTERNAL LEFT END CUTOUT.
- CONTINUOUS CAPTURE INTERNAL RIGHT END CUTOUT.

AIR DOOR SCHEDULE

MARK	CFM	VELOCITY (FPM)	HEATING (KW)	MOTOR HP	MCA (A)	MOCP (A)	VOLTAGE (V)	PHASE	AREA SERVED	MODEL	MANUFACTURER	REMARKS
AD#1	1,543	2,338	10	0.75	31.4	40	208	3	DRIVE THRU	CHA-1-48E	POWERED AIRE	1, 2, 3, 5
AD#2	1,197	2,443	10	0.75	31.4	40	208	3	SERVING	CHA-1-36E	POWERED AIRE	1, 2, 3, 6
AD#3	3,867	4,218	0	0.75	3.6	20	208	1	REAR DOOR	RBT-1-48	POWERED AIRE	4

NOTES

- NATIONAL ACCOUNT - NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004

REMARKS

- FACTORY PROVIDED, WIRED, AND UNIT MOUNTED SPEED CONTROLLER ABOVE CEILING.
- FACTORY WIRED DISCONNECT.
- FACTORY PROVIDED, FIELD INSTALLED BY MC, REMOTE WALL SWITCHES FOR HEATING ON/OFF AND FAN ON/AUTO SWITCH. SEE DETAILS ON M502.
- FACTORY PROVIDED MAGNETIC DOOR CONTACT WITH FACTORY INSTALLED LOW VOLTAGE CONTROLS LOCATED IN AIR DOOR CABINET.
- PROVIDE WITH A DIVERTER BOX. PROVIDE WITH MOUNTING BRACKETS PER MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE WITH NOZZLE EXTENSION, SEE DETAIL 4/M502.

AIR DEVICE SCHEDULE

MARK	DESCRIPTION	LOCATION	NECK SIZE	FACE SIZE	FRAME TYPE	REMARKS
A	PRICE MODEL APDC ALUMINUM SUPPLY AIR DIFFUSER WITH INDIVIDUALLY ADJUSTABLE CURVED AIR PATTERN CONTROLLERS.	<varies>	<varies>	24"x24"	LAY-IN	1,7
B	VARIATHERM PLAQUE DIFFUSER	OFFICE	8"	24"x24"	LAY-IN	1,7,8
C	PRICE MODEL SMCD STEEL SUPPLY AIR DIFFUSER FIELD ADJUSTABLE AIR PATTERN CONTROLLERS.	<varies>	<varies>	19"x19"	BEVELLED	1,3,5,6
D	PRICE MODEL APDC ALUMINUM SUPPLY AIR DIFFUSER WITH INDIVIDUALLY ADJUSTABLE CURVED AIR PATTERN CONTROLLERS.	<varies>	<varies>	16"x16"	SURFACE	1,3,5,6
F	PRICE MODEL 80 EGGRATE RETURN AIR GRILLE WITH REMOVABLE WHITE CORE, FACTORY FLAT BLACK BACKPAN AND ROUND NECK.	DINING/OFFICE/ KITCHEN	<varies>	24"x24"	LAY-IN	1,7
J	PRICE MODEL SMCD STEEL SUPPLY AIR DIFFUSER FIELD ADJUSTABLE AIR PATTERN CONTROLLERS.	RESTROOMS	10"x10"	15"x15"	BEVELLED	1,2,3,5,6
K	PRICE MODEL APDDR ALUMINUM PERFORATED FACE RETURN AIR GRILLE.	<varies>	14"x14"	16"x16"	SURFACE	1,4,5,6

NOTES

- NATIONAL ACCOUNT - NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004

REMARKS

- STANDARD OFF WHITE FINISH.
- PROVIDE MODEL VC3S NECK DAMPER.
- SEE DRAWING M-101 FOR THROW.
- PROVIDE MODEL VCR7 NECK DAMPER ON GRILLES IN RESTROOMS SERVING EXHAUST FAN.
- PROVIDE BACKPAN. MC TO SEAL JOINTS WITH MASTIC AND INSULATE EXTERNALLY.
- FIELD INSULATE BACKPAN AS SHOWN ON DETAIL 3/M-501.
- FACTORY INSULATED R-6 BACKPAN.
- PROVIDE RELIEF COLLAR ACCESSORY FOR VAV DIFFUSER.

HEATER SCHEDULE

MARK	HEATING INPUT		FRAME LENGTH	FRAME WIDTH	FRAME HEIGHT	MOUNTING TYPE	VOLTAGE (V)	PHASE	FLA (A)	MOCP (A)	MODEL	MANUFACTURER	REMARKS
	INPUT (KW)	INPUT (MBH)											
EIH#1	6.00	0.0	56"	8.5"	3.5"	WALL BRACKET	208	1	28.9	40	BH0420035	BROMIC	1, 2, 3, 4
IRH	0.00	50.0	48"	13.37"	9.5"	BRACKET	120	1	0.4	20	WB50	SPACE-RAY	1, 5, 6, 7

NOTES

- CONFIRM HEATER QUANTITY WITH CANOPY SHOP DRAWINGS.
- NATIONAL ACCOUNT NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004.

REMARKS

- STAINLESS STEEL LENS WITH BLACK EMISSIVE COATING.
- PROVIDE ENGRAVED PLASTIC LABEL AT EACH UNIT WITH UNIT DESIGNATION IN 1" HIGH WHITE LETTERS ON A BLACK BACKGROUND.
- PROVIDE BLACK HEATER WITH HIGH TEMPERATURE COATING, AND MANUFACTURER MOUNTING BRACKETS.
- PROVIDE BROMIC WALL MOUNTED ELECTRIC HEATER MODEL: BH0420033 FOR 220-240V SITES.
- STEEL BURNER WITH CERAMIC BURNER TILES.
- PROVIDE ENGRAVED PLASTIC LABEL AT EACH UNIT WITH UNIT DESIGNATION IN 1" HIGH WHITE LETTERS ON A BLACK BACKGROUND. MOUNT TO CANOPY DECK, FACING FORWARD, 12" Laterally FROM THE LONG SIDE OF THE HEATER.
- STAINLESS STEEL HEAT SHIELDS.



Chick-fil-A

Chick-fil-A
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Atlanta, Georgia
30349-2998



CHICK-FIL-A
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AUBURN HILLS, MI 48326

FSR#05513

BUILDING TYPE / SIZE: P14 SE BN
RELEASE: 23.11
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DRAWN BY JDF

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SHEET EQUIPMENT SCHEDULES - TRANE

SHEET NUMBER M-601T