

**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**

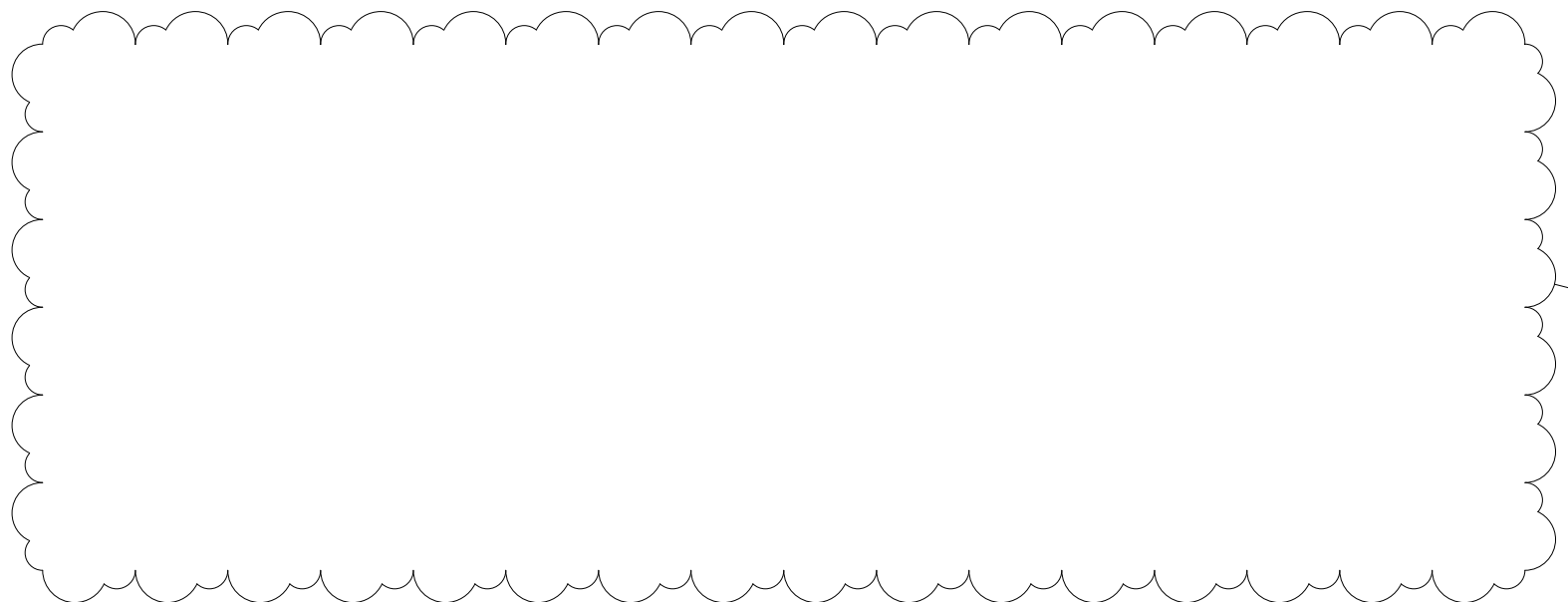
- A. FURNISH AND INSTALL R-454B ROOFTOP SINGLE PACKAGE HEAT PUMPS AS SHOWN ON DRAWINGS. EQUIPMENT SHALL BE ARI CERTIFIED AND A.G.A. AND U.L. LISTED.
- B. ACCESSORIES SHALL INCLUDE LOW AND HIGH PRESSURE SAFETIES, CRANK CASE HEATER, OVERCURRENT AND OVERTEMPERATURE SAFETY, COMPRESSOR VIBRATION ISOLATORS, 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 FREZE STAT.
- C. COMPRESSORS SHALL BE HERMETIC SCROLL TYPE WITH INTERNAL VIBRATION ISOLATORS. COMPRESSORS SHALL BE PROVIDED WITH A MINIMUM FIVE (5) YEAR FULL WARRANTY.

**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 A 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 ALUMINIUM 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 IN SUPPLY DUCT 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: 877-544-6879). 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'S 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.



**PART III - EXECUTION**

**3.01 SCOPE**

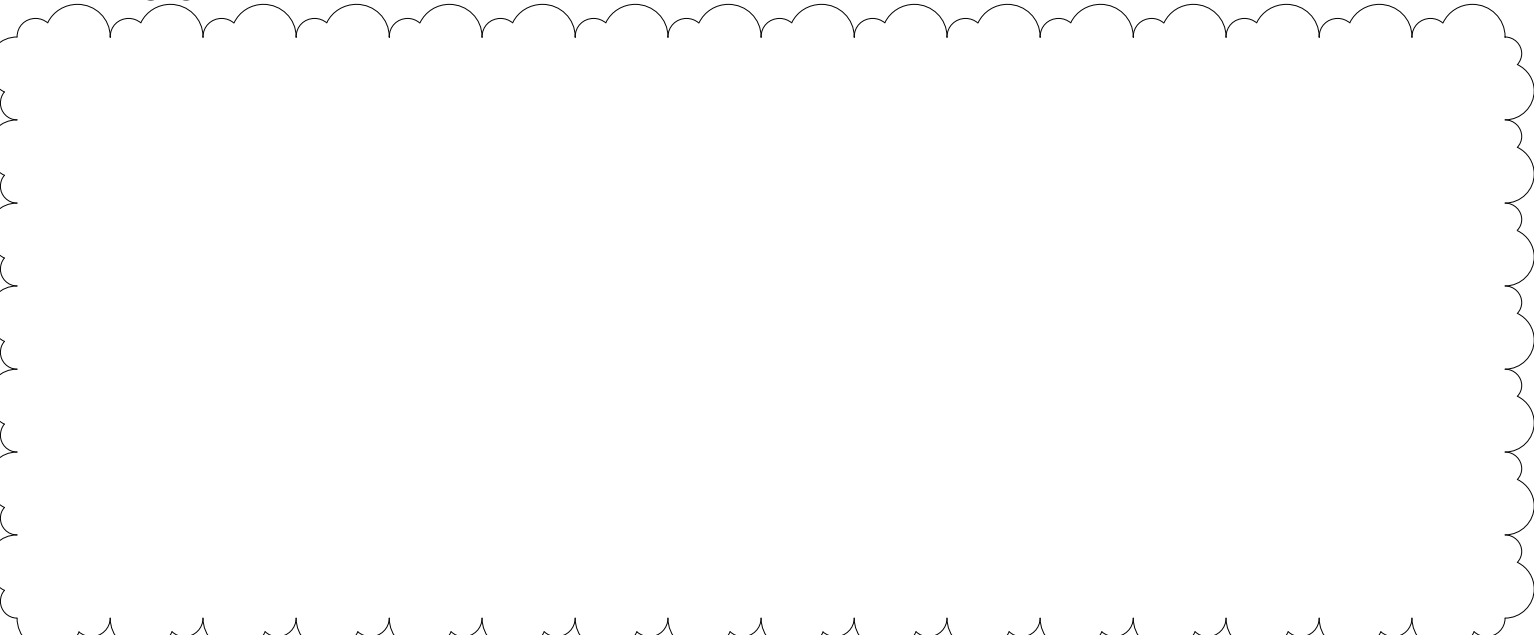
- A. FURNISH AND INSTALL SYSTEM IN ACCORDANCE WITH REFERENCED STANDARDS, APPLICABLE CODES, MANUFACTURER'S RECOMMENDATIONS AND AS INDICATED ON DRAWINGS.
- B. CONTRACTOR SHALL INSTRUCT THE OWNER'S REPRESENTATIVE IN ALL MATTERS PERTAINING TO THE PROPER MAINTENANCE OF EQUIPMENT FURNISHED UNDER THIS CONTRACT 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 RE-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 AABC 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.



**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 NEW GREASE DUCT WITH UNIFRAX FYREWAP. INSULATION ON ACCESS DOORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTALLATION RECOMMENDATIONS. UNIFRAX FYREWAP 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.)
	SPIN-IN FITTING WITH MANUAL BALANCING DAMPER, WITHOUT SCOOP	AC#1	AIR CONDITIONING UNIT #1 (TYP.)
	SPIN-IN HARD FLEXIBLE DIFFUSER		RETURN/EXHAUST (TYP.)
	REMOTE TEMPERATURE SENSOR		SUPPLY DIFFUSER, SQ FACE (TYP.)
	HUMIDITY SENSOR		PLAN NOTE REFERENCE
	SMOKE DETECTOR		MANUAL VOLUME DAMPER
12x18	DUCT SIZE (reverse for elevation views) 1ST NUMBER - HORIZONTAL DIMENSION 2ND NUMBER - VERTICAL DIMENSION		DIRECTION OF THROW ON DIFFUSER
			CLOSED AIR PATTERN DEFLECTOR GAS INFRARED HEATER (TYP.)
	AIR DOOR SWITCH	B/G	BELOW GRADE
	ELECTRIC INFRARED HEATER		THERMOSTAT

**ABBREVIATIONS**

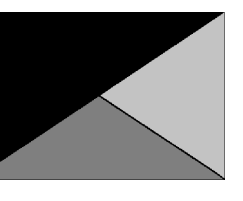
EC	ELECTRICAL CONTRACTOR
GC	GENERAL CONTRACTOR
MC	MECHANICAL CONTRACTOR
PC	PLUMBING CONTRACTOR
O.C.	ON CENTER
IRH	INFRARED HEATER
CF	CIRCULATING FAN
TF	TRANSFER FAN
EF	EXHAUST FAN

**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. NOT USED.
- 4. CONTROL WIRING FOR HEATERS BY EC. COORDINATE REQUIRED WIRE GAUGE WITH EC. SEE CONTROLS PLAN AND ELECTRICAL DRAWINGS, (TYP.).



**Chick-Fil-A**  
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Atlanta, Georgia  
30349-2998



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Telephone: (615) 255-5203



07/25/25

**CHICK-FIL-A**  
Stafford & Heard FSU  
99 Stafford Street  
Worcester, MA 01603

**FSR#05916**

BUILDING TYPE / SIZE: P14 LS BN  
DATE: 07/25/2025  
ISSUED FOR PERMIT  
REVISION SCHEDULE  
NO. DATE DESCRIPTION  
2 07/25/2025 PERMIT COMMENTS

CONSULTANT PROJECT # 25010.CD.S  
DATE 07/25/2025  
DRAWN BY BLM

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SHEET  
GENERAL NOTES, LEGENDS, SYMBOLS, AND ABBREVIATIONS  
SHEET NUMBER

**M-001**

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IECC COMMISSIONING REQUIREMENTS FOR MECHANICAL

IECC COMMISSIONING REQUIREMENTS

C408.1 MECHANICAL SYSTEMS SHALL BE DOCUMENTED IN ACCORDANCE WITH THE FOLLOWING SECTIONS.

C408.1.1 - PROVIDE AN OPERATION AND MAINTENANCE MANUAL WHICH INCLUDES THE FOLLOWING:

1. PROVIDE HVAC EQUIPMENT SUBMITTAL DATA.
2. PROVIDE MANUFACTURER'S OPERATION AND MAINTENANCE MANUALS FOR HVAC EQUIPMENT. ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.
3. PROVIDE THE NAME AND ADDRESS OF AT LEAST ONE HVAC SERVICE AGENCY.
4. PROVIDE HVAC CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES. TENANT DESIRED DRAWINGS AT CONTROL DEVICES OR IN SYSTEM PROGRAMMING INSTRUCTIONS.
5. PROVIDE A NARRATIVE OF HOW EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING RECOMMENDED SETPOINTS.

C408.2 COMMISSIONING OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS.

C408.2.1 - A COMMISSIONING PLAN SHALL BE DEVELOPED IN ACCORDANCE WITH THIS SECTION AND SHALL INCLUDE THE FOLLOWING ITEMS.

1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES TO BE PERFORMED.
2. A LIST OF THE SYSTEMS AND EQUIPMENT REQUIRED TO BE COMMISSIONED.
3. A LIST OF THE TEST FUNCTIONS TO BE PERFORMED ON THE CORRESPONDING EQUIPMENT.
4. CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED.
5. MEASURABLE CRITERIA FOR PERFORMANCE.

C408.2.2 - MECHANICAL SYSTEMS SHALL UNDERGO TEST AND BALANCE AND SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS AS WELL AS THE 2018 IECC. AIR AND WATER FLOW RATES SHALL BE MEASURED AND ADJUSTED TO DELIVER FINAL FLOW RATES WITHIN THE TOLERANCES PROVIDED IN THE CONSTRUCTION SPECIFICATIONS.

C408.2.2.1 - CONDUCT AIR SYSTEMS TEST AND BALANCE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION AND THE CONSTRUCTION SPECIFICATIONS.

C408.2.2.2 - CONDUCT WATER SYSTEMS TEST AND BALANCE IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION AND THE CONSTRUCTION SPECIFICATIONS.

C408.2.3 - PERFORM FUNCTIONAL PERFORMANCE TESTING IN ACCORDANCE WITH THE FOLLOWING SECTIONS.

C408.2.3.1 - PERFORM FUNCTIONAL PERFORMANCE TESTING FOR HVAC EQUIPMENT IN ORDER TO DEMONSTRATE THE OPERATION OF COMPONENTS, SYSTEM AND SYSTEM-TO-SYSTEM INTERACTION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER REQUIREMENTS. TESTING SHALL INCLUDE FULL-LOAD, PART-LOAD, AND EMERGENCY OPERATING CONDITIONS AND SHALL COVER ALL OPERATING MODES LISTED IN THE SEQUENCE OF OPERATIONS AS DEFINED IN THE CONSTRUCTION DOCUMENTS.

C408.2.3.2 - HVAC SYSTEMS SHALL BE TESTED IN ORDER TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS ARE CALIBRATED AND ADJUSTED TO OPERATE IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS. HVAC CONTROL SYSTEMS SHALL BE TESTED FOR ALL OPERATING MODES LISTED IN THE SEQUENCE OF OPERATIONS AS DEFINED IN THE CONSTRUCTION DOCUMENTS.

C408.2.3.3 - AIRSIDE ECONOMIZERS SHALL UNDERGO FUNCTIONAL PERFORMANCE TESTING IN ORDER TO ENSURE OPERATIONAL MODES ARE FUNCTIONING IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.

C408.2.4 - COMPLETE A PRELIMINARY COMMISSIONING REPORT OUTLINING TEST PROCEDURES AND RESULTS IN ACCORDANCE WITH THIS SECTION. THE REPORT SHALL IDENTIFY:

1. ITEMIZATION OF DEFICIENCIES FOUND DURING TESTING REQUIRED BY THIS SECTION THAT HAVE NOT BEEN CORRECTED AT THE TIME OF REPORT PREPARATION.
2. DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF THE REPORT PREPARATION DUE TO CLIMATIC CONDITIONS.
3. CLIMATIC CONDITIONS REQUIRED FOR PERFORMANCE OF THE DEFERRED TESTS.
4. RESULTS OF FUNCTIONAL PERFORMANCE TESTS.
5. FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS, INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.

C408.2.4.1 - THE OWNER SHALL RECEIVE A COPY OF THE PRELIMINARY COMMISSIONING REPORT BEFORE FINAL INSPECTION BY THE CODE OFFICIAL OCCURS.

C408.2.4.2 - THE PRELIMINARY COMMISSIONING REPORT SHALL BE MADE AVAILABLE TO THE PROJECT CODE OFFICIAL UPON REQUEST.

C408.2.5 - COMMISSIONING DOCUMENTATION OUTLINED IN SECTION C408 SHALL BE PROVIDED TO THE OWNER WITHIN 90 DAYS OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

C408.2.5.1 - PROVIDE AIR AND WATER SYSTEM TEST AND BALANCE REPORTS IN ACCORDANCE WITH SECTION C408.2.2.

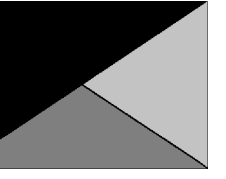
C408.2.5.2 - PROVIDE A FINAL COMMISSIONING REPORT TO THE OWNER INCLUDING THE FOLLOWING:

1. RESULTS OF THE FUNCTIONAL TESTS.
2. DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIVE MEASURES USED OR PROPOSED.
3. FUNCTIONAL PERFORMANCE TESTING PROCEDURES USED DURING THE COMMISSIONING PROCESS, INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED FOR REPEATABILITY.
4. LIST OUT ANY DEFERRED TESTS STILL OUTSTANDING DUE TO CLIMATIC CONDITIONS.

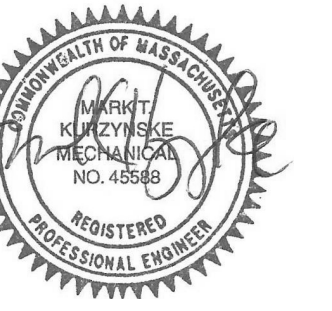
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30-LS-05916-M-002-COMMISSIONING REQUIREMENTS - MECHANICAL



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**FSR#05916**

BUILDING TYPE / SIZE: P-14 LS BN

RELEASE: 24.05

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SHEET

COMMISSIONING REQUIREMENTS - MECHANICAL

SHEET NUMBER

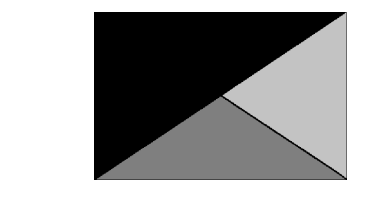
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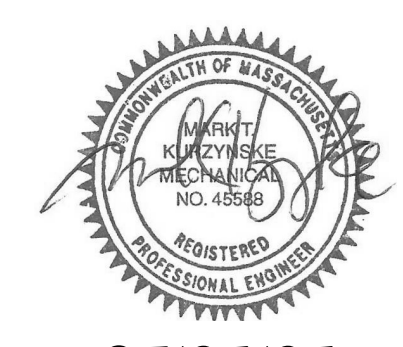


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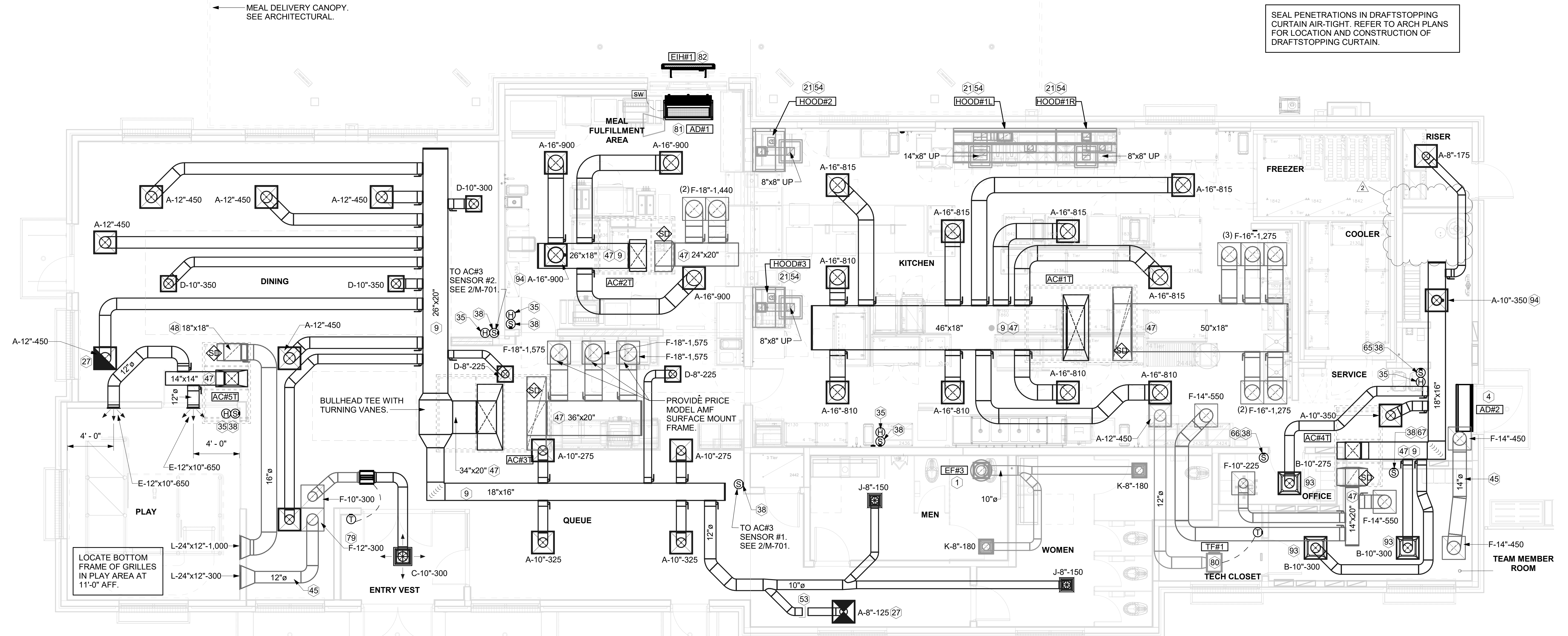
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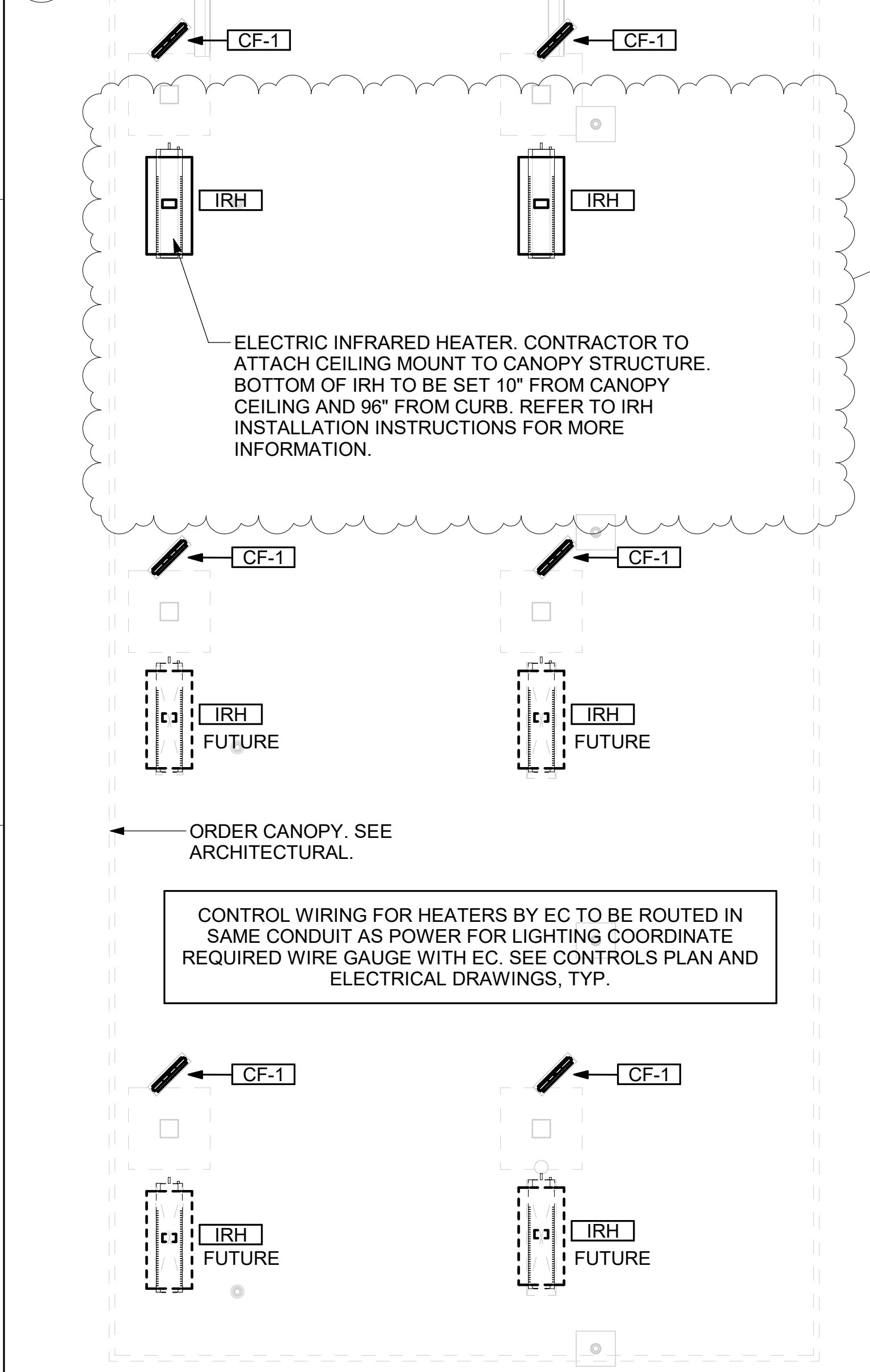
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EQUIPMENT AND DUCTWORK PLAN - TRANE  
SHEET NUMBER  
**M-101T**

SEAL PENETRATIONS IN DRAFTSTOPPING CURTAIN AIR-TIGHT. REFER TO ARCH PLANS FOR LOCATION AND CONSTRUCTION OF DRAFTSTOPPING CURTAIN.



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



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

MASSACHUSETTS STRETCH ENERGY CODE 2021  
SPECIALIZED ENERGY CODE COMPLIANCE  
PER APPENDIX CC, CC101.3, THE COMPLIANCE PATHWAY FOR THIS PROJECT IS #2 THE ALL-ELECTRIC PATHWAY  
PER APPENDIX CC, CC104.1  
• COMPLIANCE WITH CC101.4 SHALL BE DEMONSTRATED WITH COMCHECK VIA THE PRESCRIPTIVE PATHWAY OF C401.2.1  
• COMPLIANCE WITH CC101.5 WILL BE DEMONSTRATED ON THE ELECTRICAL DRAWINGS.  
• THIS MECHANICAL DESIGN COMPLIES WITH C401.4.3. THERE IS NO FOSSIL FUEL EQUIPMENT FOR SPACE HEATING, VENTILATION HEATING, OR SERVICE WATER HEATING. ALL SPACE AND VENTILATION HEATING IS VIA AIR SOURCE HEAT PUMPS AND SERVICE WATER HEATING IS VIA ELECTRIC RESISTANCE.

Mark	SUPPLY AIR	RETURN AIR	OUTSIDE AIR	EXHAUST AIR	BUILDING POSITIVE PRESSURE
AC#1T	8,125	6,375	1,750	0	
AC#2T	3,600	2,880	720	0	
AC#3T	6,125	3,975	1,400	0	
AC#4T	1,750	1,325	425	0	
AC#5T	1,300	1,325	300	0	
EF#1	0	0	0	1,913	
EF#2	0	0	0	1,402	
EF#3	0	0	0	360	
	20,900	15,880	4,595	3,675	920

FANS SHALL HAVE MINIMUM 2 STAGES OF FAN CONTROL. VALUES SHOWN IN TABLE ABOVE ARE FOR FULL FAN SPEED. MINIMUM FAN SPEED FOR LOW COOLING OR ECONOMIZER SHALL BE SET AT 66% OF VALUE SHOWN IN TABLE ABOVE. OUTSIDE AIR VALUES SHOWN IN TABLE ABOVE SHALL REMAIN THE SAME AT ALL FAN SPEEDS.

**H.E.S. SYSTEM**  
MECHANICAL CONTRACTOR TO PROVIDE AND INSTALL SUNCOAST H.E.S. SYSTEM FOR ALL HOODS. SEE HOOD FAN/EQUIPMENT INTERLOCK WIRING DIAGRAM ON M-701 FOR MORE INFORMATION.

**KEY NOTES**

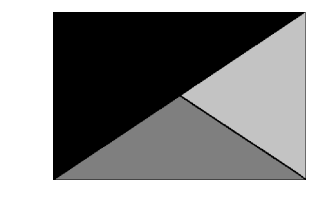
- 1 10" UP THRU ROOF.
- 4 AIR CURTAIN MOUNTED OVER DOOR HEADER AT 7'-2" AFF TO BOTTOM OF UNIT. PROVIDE BLOCKING IN WALL BEHIND AIR CURTAIN. USE FACTORY PRE-PUNCHED MOUNTING HOLES ON BACK SIDE OF AIR CURTAIN ONLY. ATTACH AIR CURTAIN TO WALL USING 3/8" LAG BOLTS. LENGTH AS REQUIRED TO FULLY PENETRATE BLOCKING. 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 HALTON 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.
- 45 TRANSFER AIR DUCT. NO BALANCING DAMPERS AT GRILLES.
- 47 TRANSITION IN VERTICAL DROP FROM FULL SIZE OF CURB OPENING TO SIZE SHOWN. TRANSITION WITHIN CURB WHERE REQUIRED TO AVOID STRUCTURE. WHERE SUPPLY DUCT, PROVIDE ELBOWS WITH TURNING VANES. WHERE RETURN DUCT, NO TURNING VANES IN ELBOWS. HORIZONTAL DUCT MINIMUM 10" ABOVE CEILING TO BOTTOM OF DUCT..
- 48 TRANSITION IN VERTICAL DROP FROM FULL SIZE OF CURB OPENING TO SIZE SHOWN. TRANSITION WITHIN CURB WHERE REQUIRED TO AVOID STRUCTURE. STOP VERTICAL DROP A MINIMUM OF 10" ABOVE CEILING.
- 53 RUSKIN MDRS25 MVD W/LOCKING QUADRANT HANDLE.
- 54 SEE ELEVATIONS ON M-201 FOR CJ FAN DUCTING REQUIREMENT.
- 65 TO AC#4, SENSOR #1. SEE 2/M-701.
- 66 TO AC#4, SENSOR #2. SEE 2/M-701.
- 67 TO AC#4, SENSOR #3. SEE 2/M-701.
- 79 PROVIDE 7 DAY PROGRAMMABLE THERMOSTAT, OCCUPIED/UNOCCUPIED TERMINALS. MOUNT THERMOSTAT ON WALL AT 4'-0" AFF. OCCUPIED SETPOINTS: 75 DEG. F COOLING, 69 DEG. F HEATING; UNOCCUPIED SETPOINTS: 85 DEG. F COOLING, 55 DEG. F HEATING.
- 80 CEILING MOUNTED RECIRCULATING FAN. DUCT AND DISCHARGE TO TYPE 'A' DIFFUSER AS SHOWN. MOUNT THERMOSTAT FOR RECIRCULATING FAN ON WALL AT 4'-0" AFF.
- 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.
- 93 MAXIMUM HEATING AND COOLING AIRFLOWS INDICATED. SET MINIMUM AIRFLOW TO 50 CFM.
- 94 TAKE OFF WITH DAMPER AT THE BOTTOM OF DUCTWORK. TYP.

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30-LS-05916-M-101T-EQUIPMENT AND DUCTWORK PLAN - TRANE

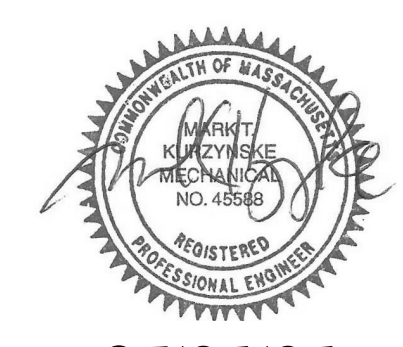


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BUILDING TYPE / SIZE: P14 LS BN  
RELEASE: 24.05

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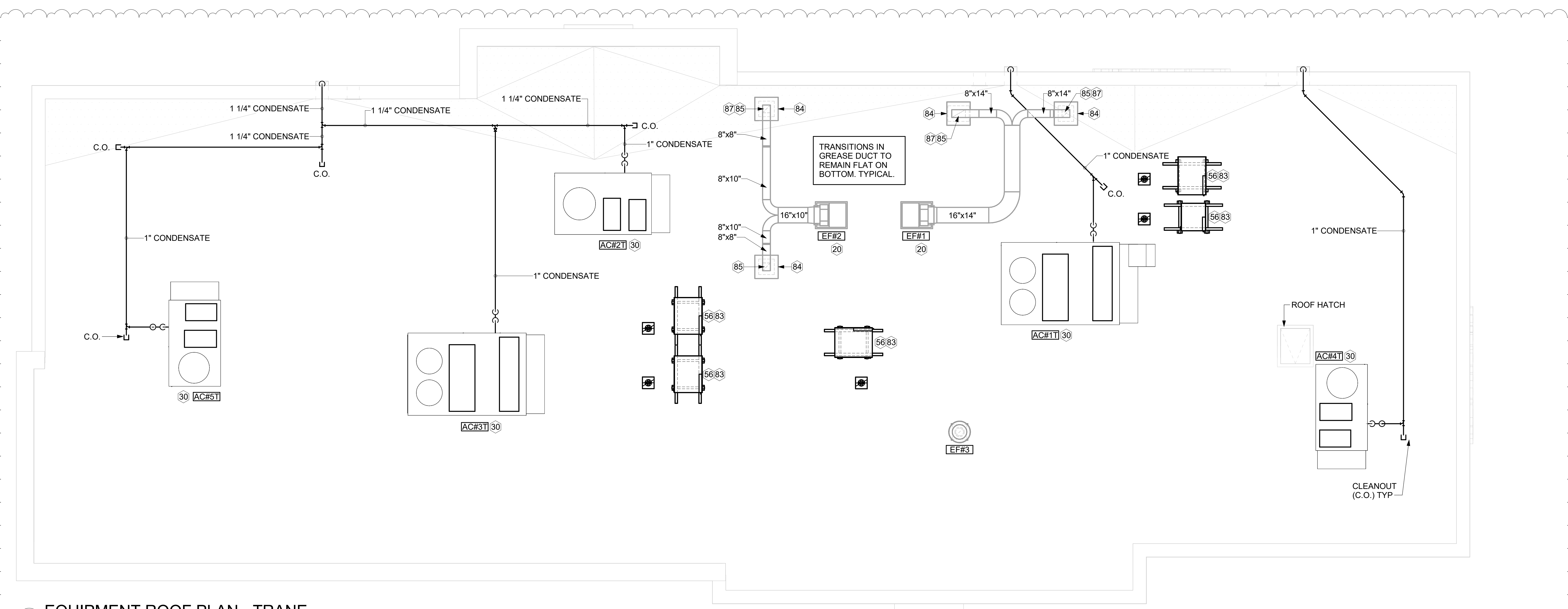
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SHEET  
EQUIPMENT ROOF PLAN - TRANE

SHEET NUMBER  
**M-102T**



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

**KEY NOTES**

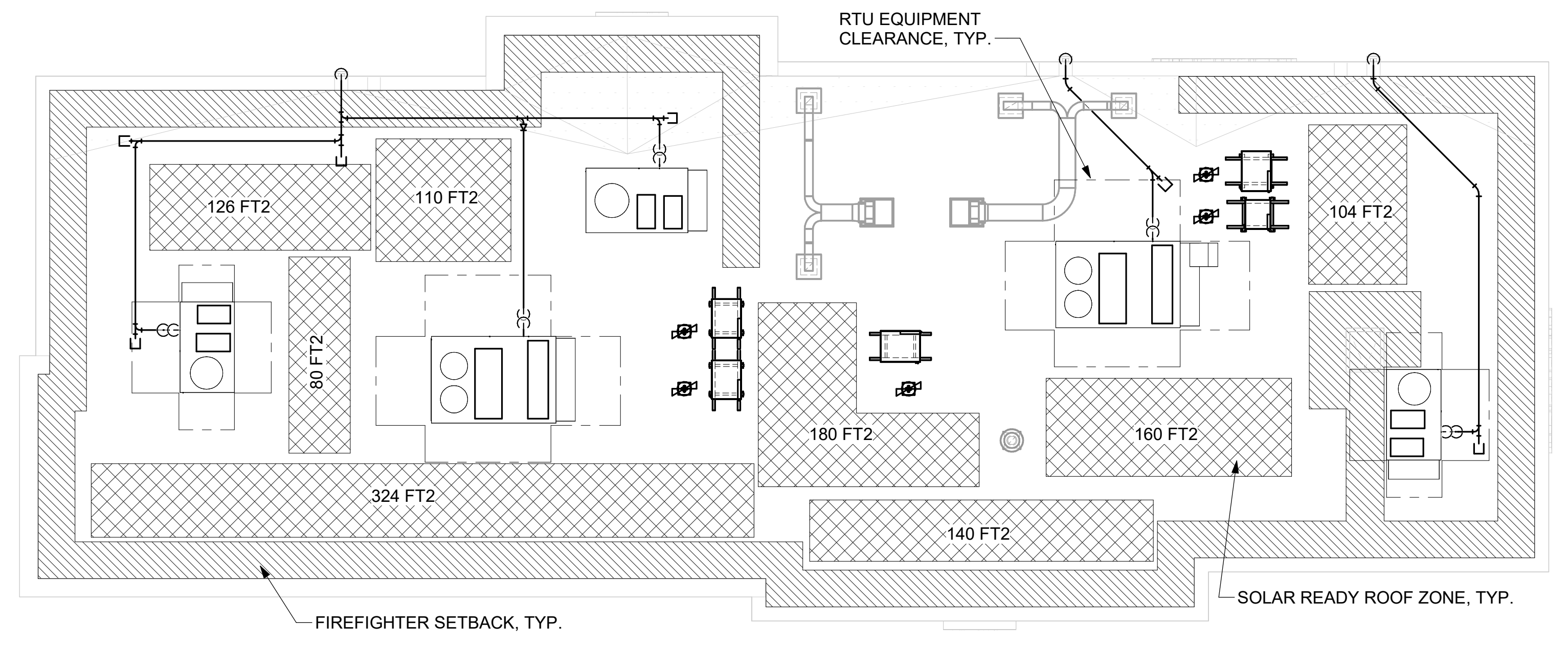
- 20 GREASE EXHAUST DUCT LOCATED ON ROOF SHALL SLOPE 1/4" PER FOOT TOWARDS THE HOOD, THE FAN, OR A COMBINATION OF THE TWO SUCH THAT NO PORTION OF THE RADIUS ELBOW AT THE CURB IS BELOW THE CURB CAP AND SUCH THAT THE FAN BASE SETS DIRECTLY ON THE CURB RAILS. THE BOTTOM OF THE RADIUS ELBOW MAY BE EVEN OR FLUSH WITH THE CURB CAP, BUT NOT BELOW THE CAP. THE DUCT AT THE FAN MUST BE CENTERED ON THE FAN INLET.
- 30 MECHANICAL CONTRACTOR TO SEE ARCHITECTURAL ROOF PLAN FOR NOTES REGARDING LEVELING FRAMES FOR RTUS. COORDINATE WITH GENERAL CONTRACTOR EXACT LOCATIONS AND SIZE NEEDED.
- 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-1.4 AND MH-1.5 FOR DETAILS.
- 85 TURN DOWN THRU ROOF. SEE M-101/LM-101T FOR CONTINUATION.
- 87 DUCT PENETRATIONS ON ROOF MUST BE AT LEAST 18" FROM ADJACENT PARAPETS.

SOLAR READY ROOF ZONE AREAS SHALL BE KEPT CLEAR OF PIPE, ROOF PENETRATIONS, AND EQUIPMENT. TYPICAL.

TOTAL PROJECTED HORIZONTAL AREA:	5030 FT2
FIREFIGHTER SETBACK:	1015 FT2
NET PROJECTED HORIZONTAL AREA:	4015 FT2
40% OF NET PROJECTED HORIZ. AREA:	1606 FT2

SOLAR READY ROOF AREA PROVIDED: 1224 FT2

DUE TO ROOF EQUIPMENT, EQUIPMENT CLEARANCES, AND PIPING ON ROOF, THE REQUIRED AREA OF 1606 FT2 CANNOT BE ATTAINED FOR SOLAR READY ROOF AREA. 1224 FT2 HAS BEEN SET ASIDE FOR SOLAR READY ROOF AREA. THIS IS AS MUCH AS IS POSSIBLE WITH THE BUILDING EQUIPMENT.



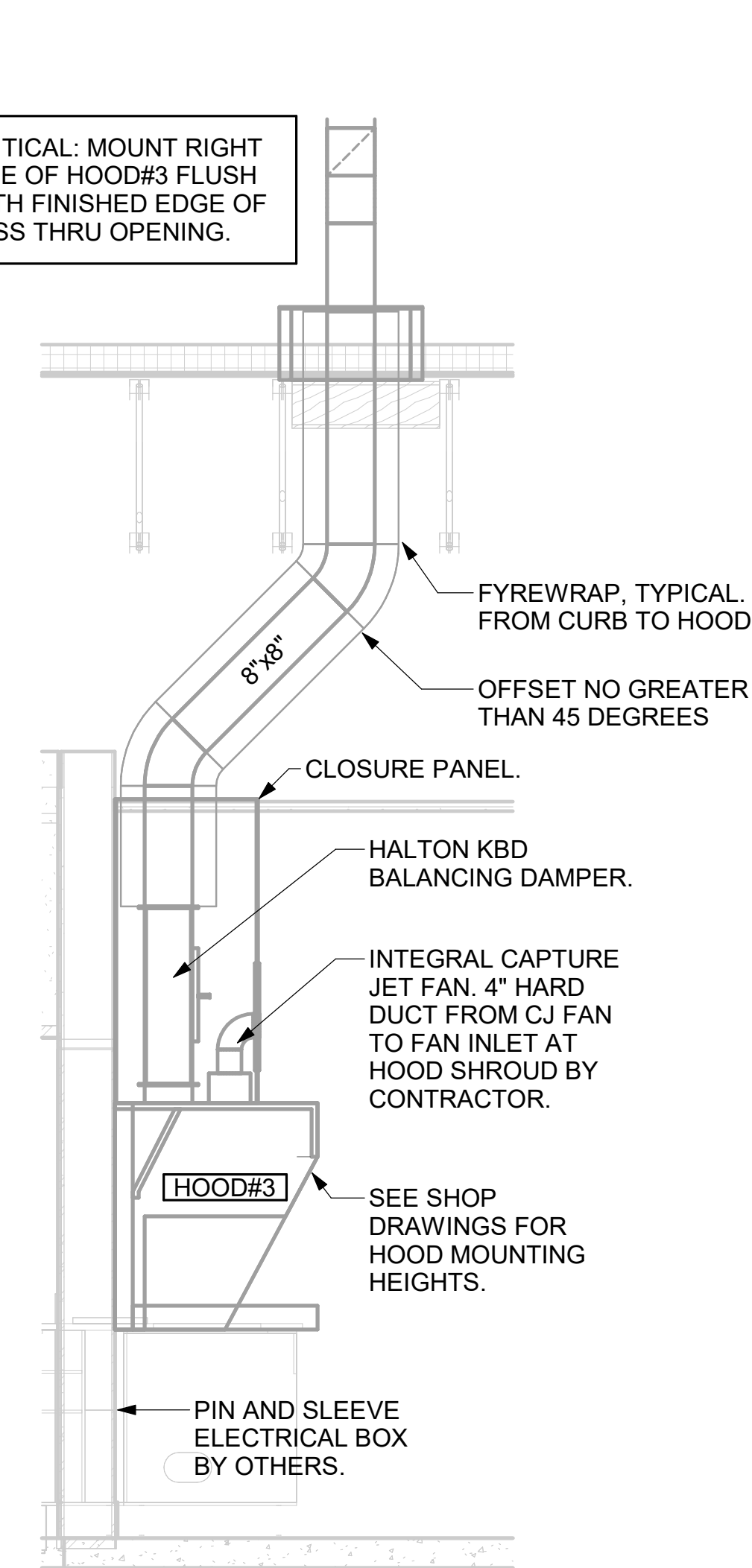
**2** SOLAR READY ROOF ZONE  
1/8" = 1'-0"

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30-LS-05916-M-102T-EQUIPMENT ROOF PLAN - TRANE

**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.

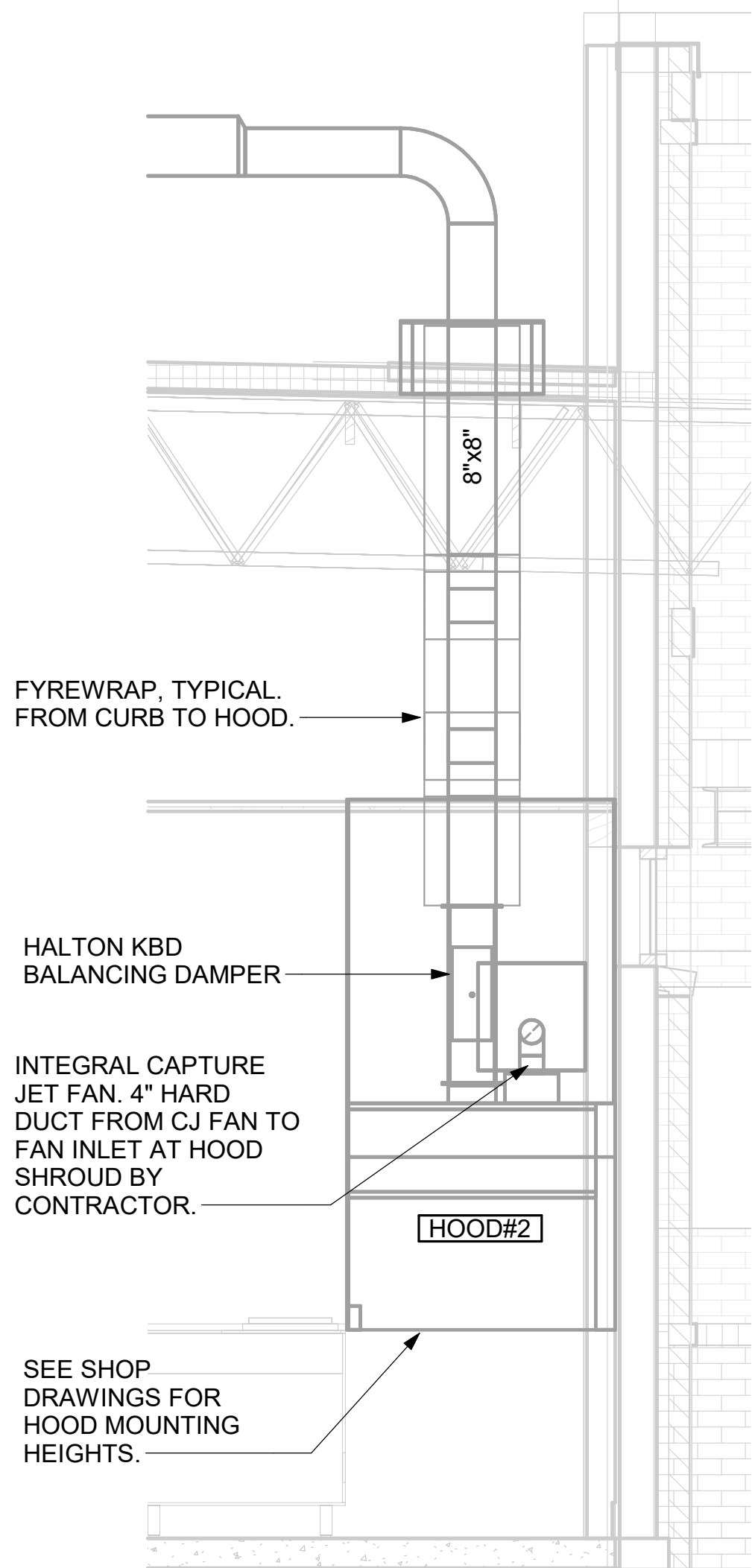
**CLEANOUT DOOR NOTE:**  
 DUCT WRAP SHALL BE APPLIED TO THE CLEANOUT DOOR PER THE WRAP MFR'S INSTALLATION INSTRUCTIONS. NO EXCEPTIONS. ALSO, THE CLEANOUT DOOR MUST BE REMOVABLE WITHOUT TOOLS AND MUST BE CLEARLY AND PERMANENTLY LABELED.

CRITICAL: MOUNT RIGHT SIDE OF HOOD#3 FLUSH WITH FINISHED EDGE OF PASS THRU OPENING.

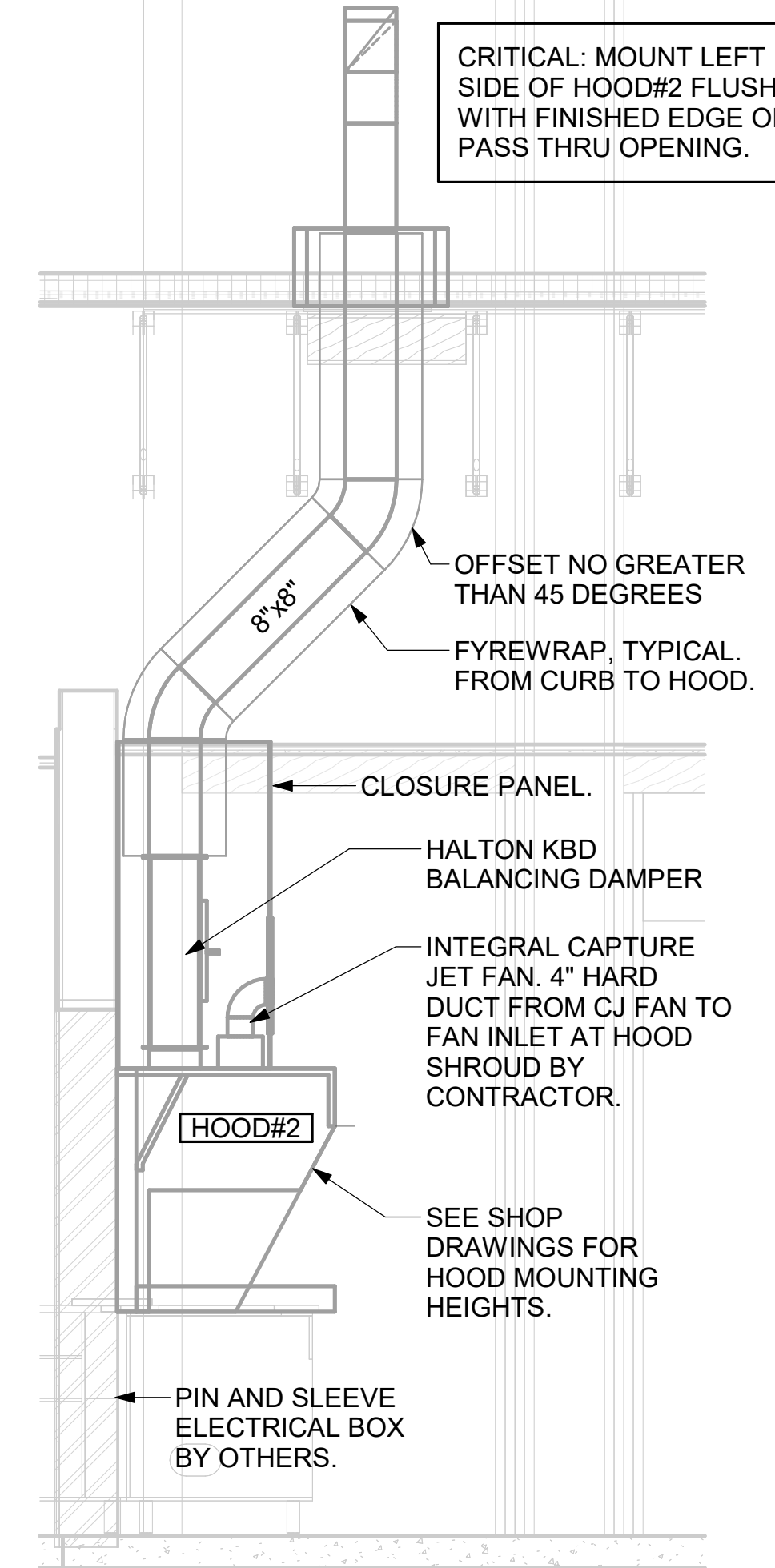


6 HOOD ELEVATION - HOOD#3  
 NOT TO SCALE

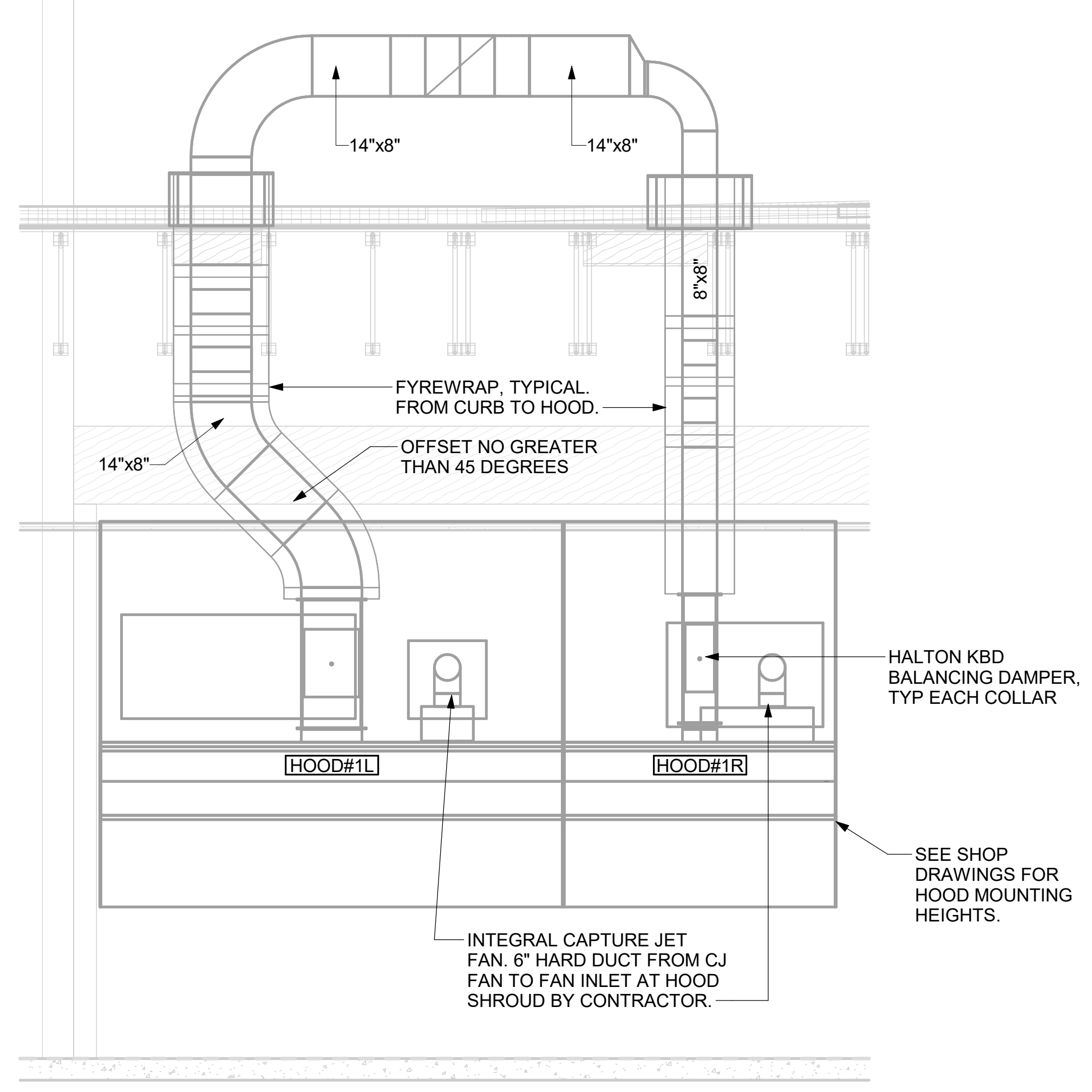
CRITICAL: MOUNT LEFT SIDE OF HOOD#2 FLUSH WITH FINISHED EDGE OF PASS THRU OPENING.



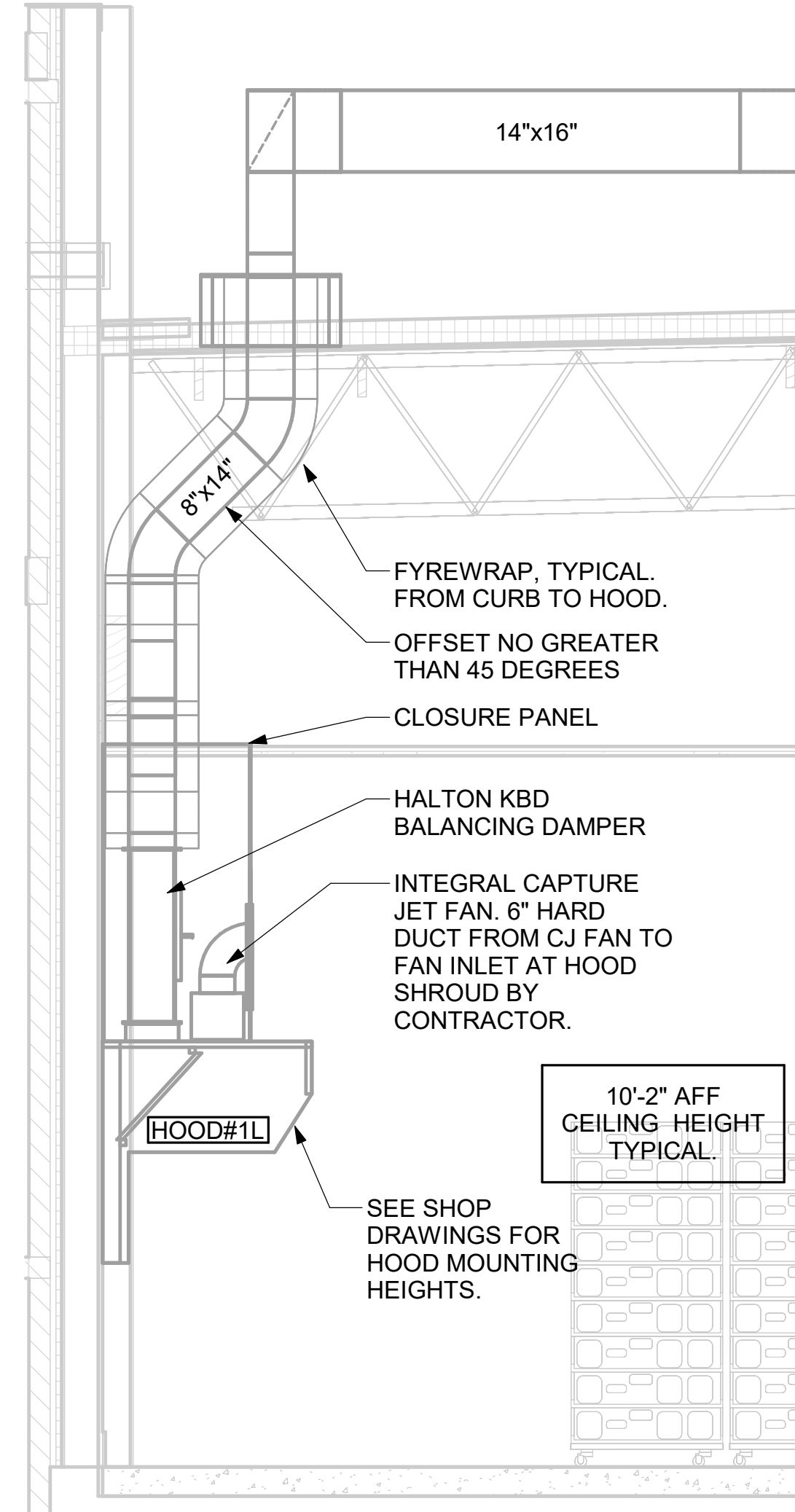
5 HOOD ELEVATION - HOOD#2 - FRONT  
 NOT TO SCALE



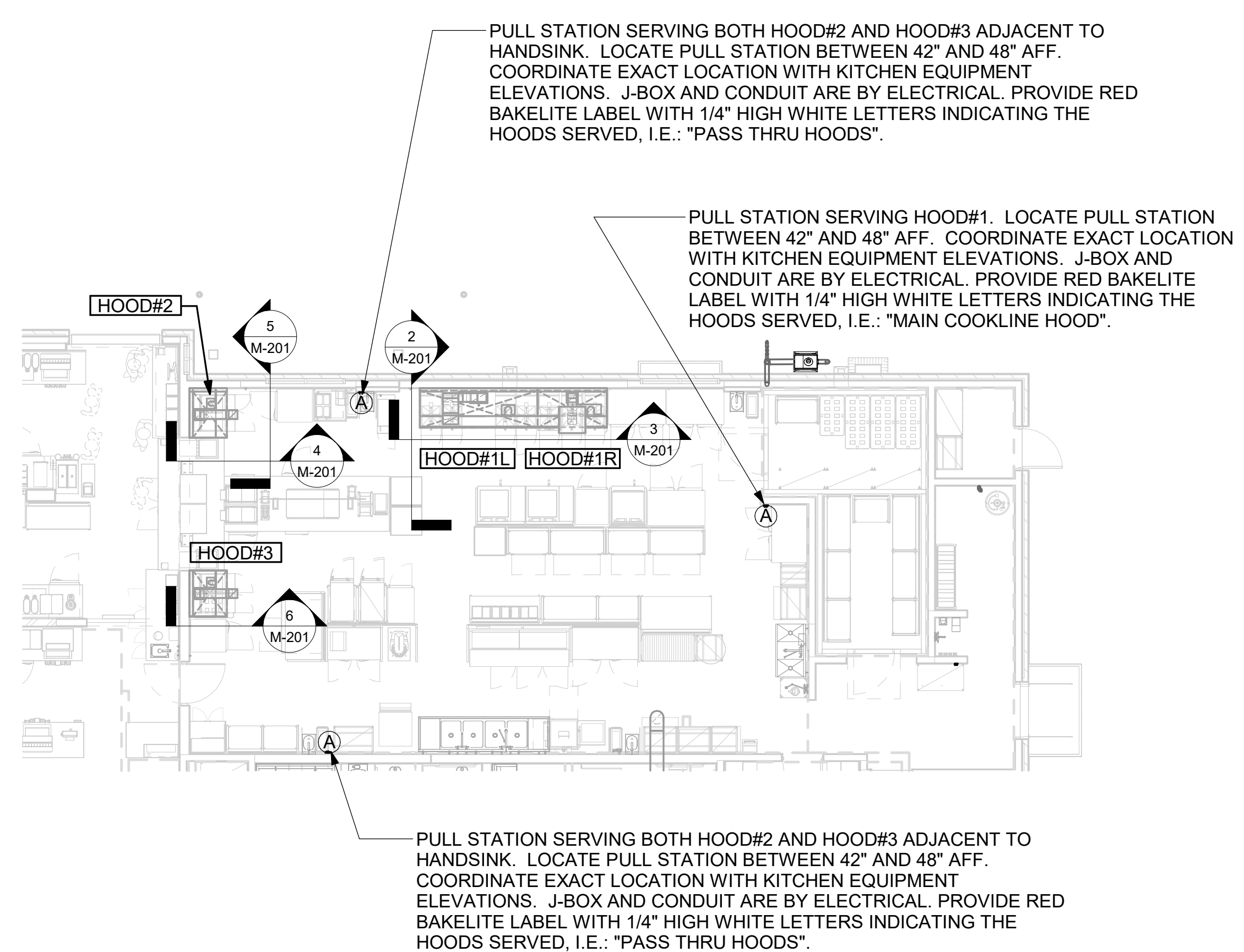
4 HOOD ELEVATION - HOOD#2 - SIDE  
 NOT TO SCALE



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



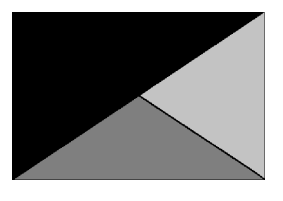
2 HOOD ELEVATION - HOOD#1 - SIDE  
 NOT TO SCALE



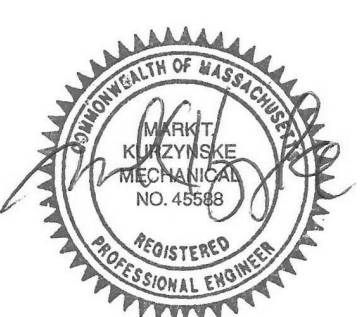
1 HOOD LAYOUT  
 NOT TO SCALE



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BUILDING TYPE / SIZE: P-14 LS BN  
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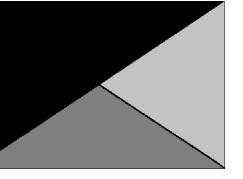
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SHEET EXHAUST HOOD ELEVATIONS

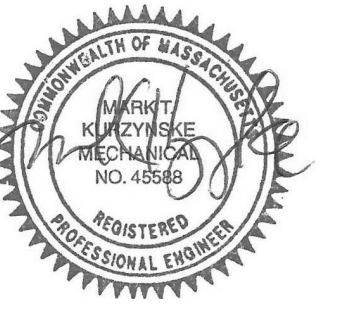
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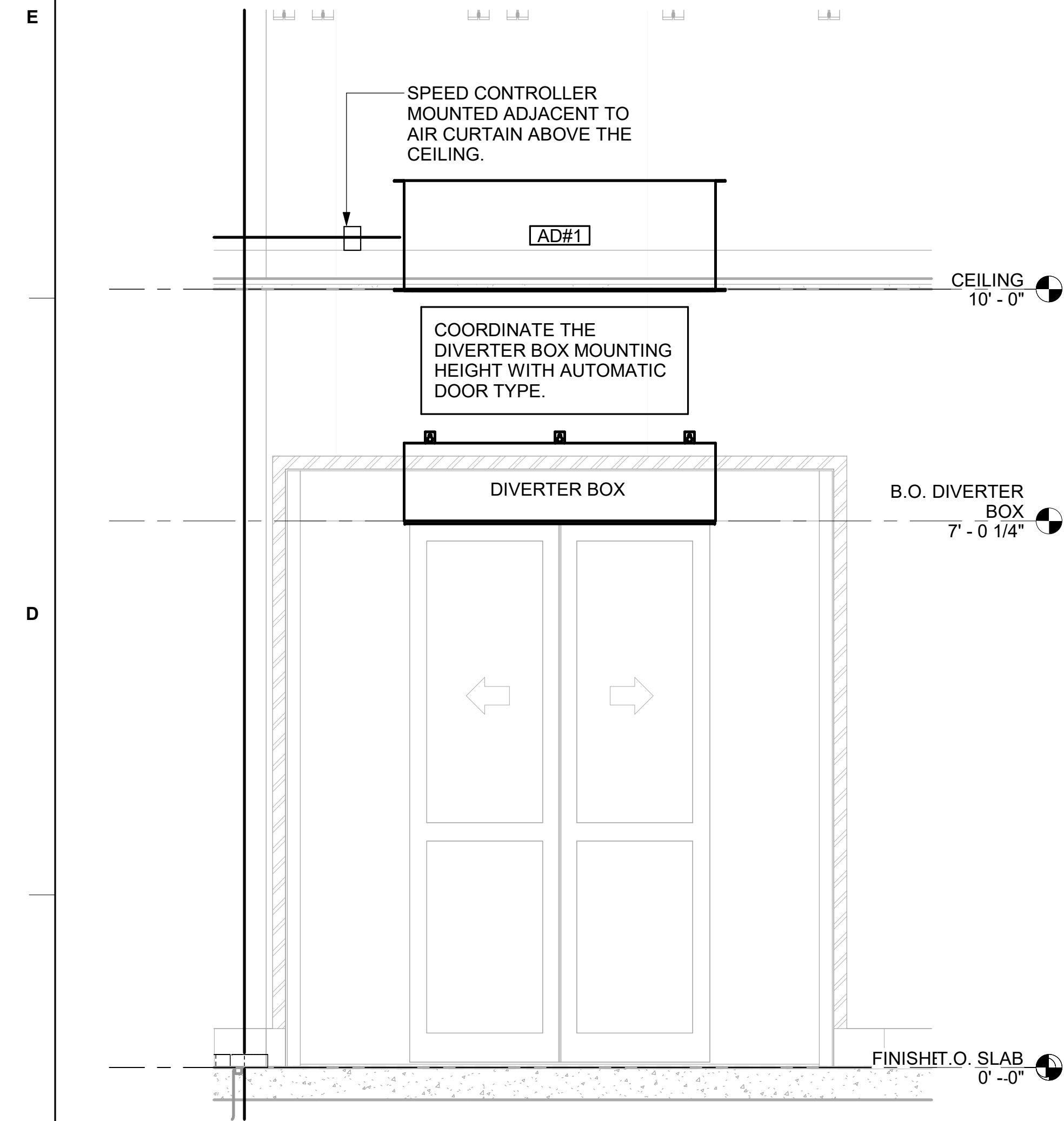
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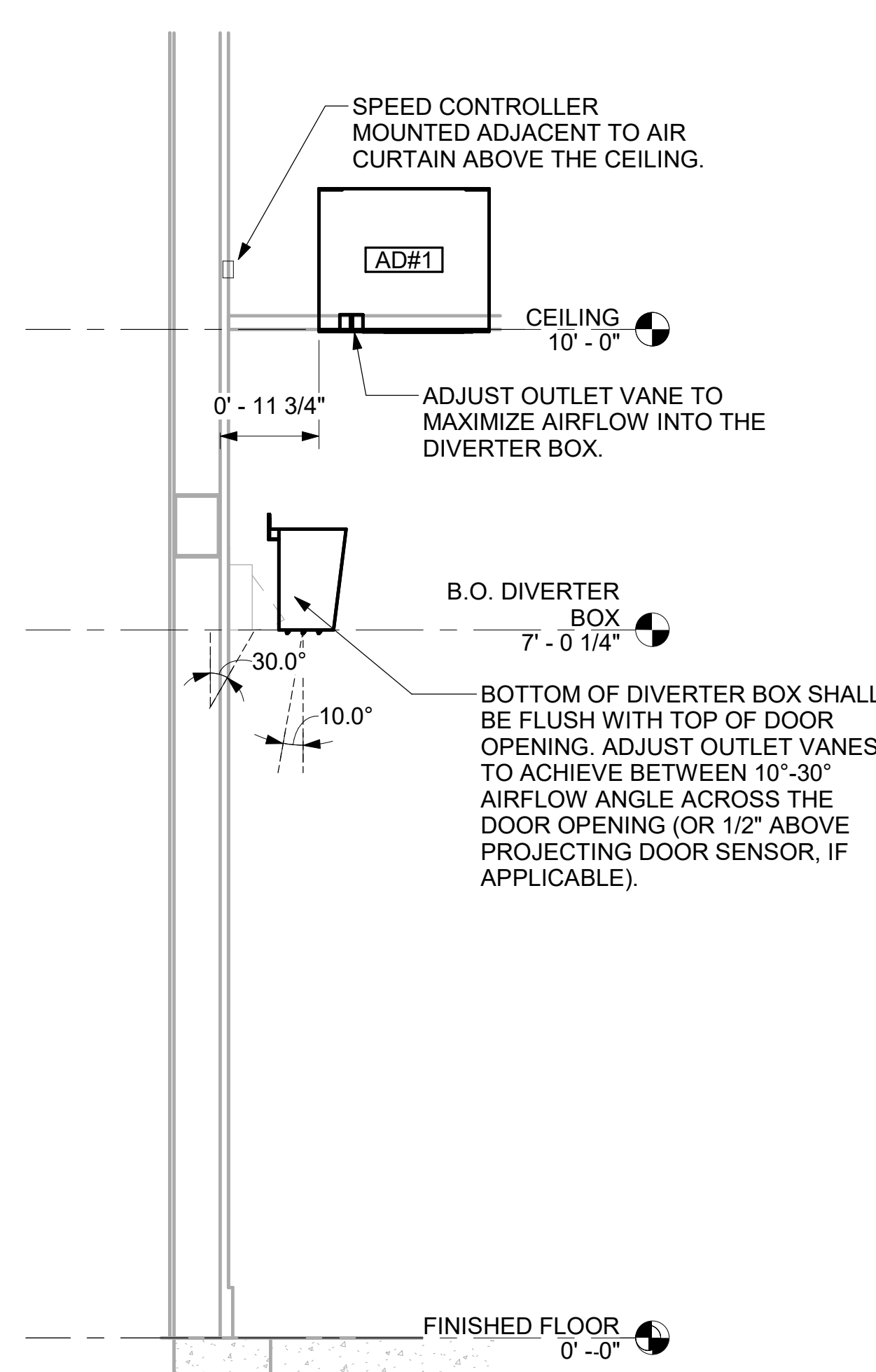
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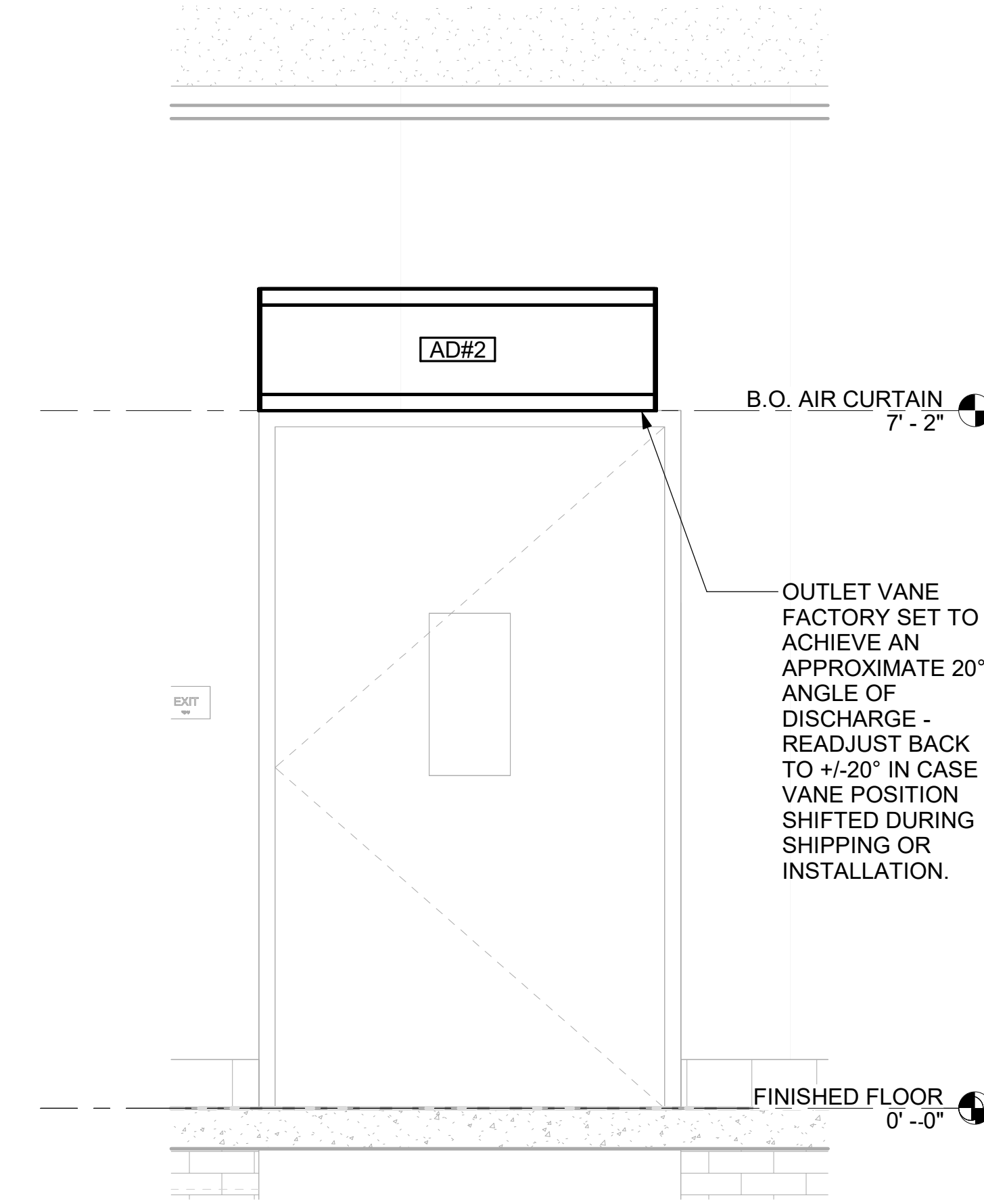
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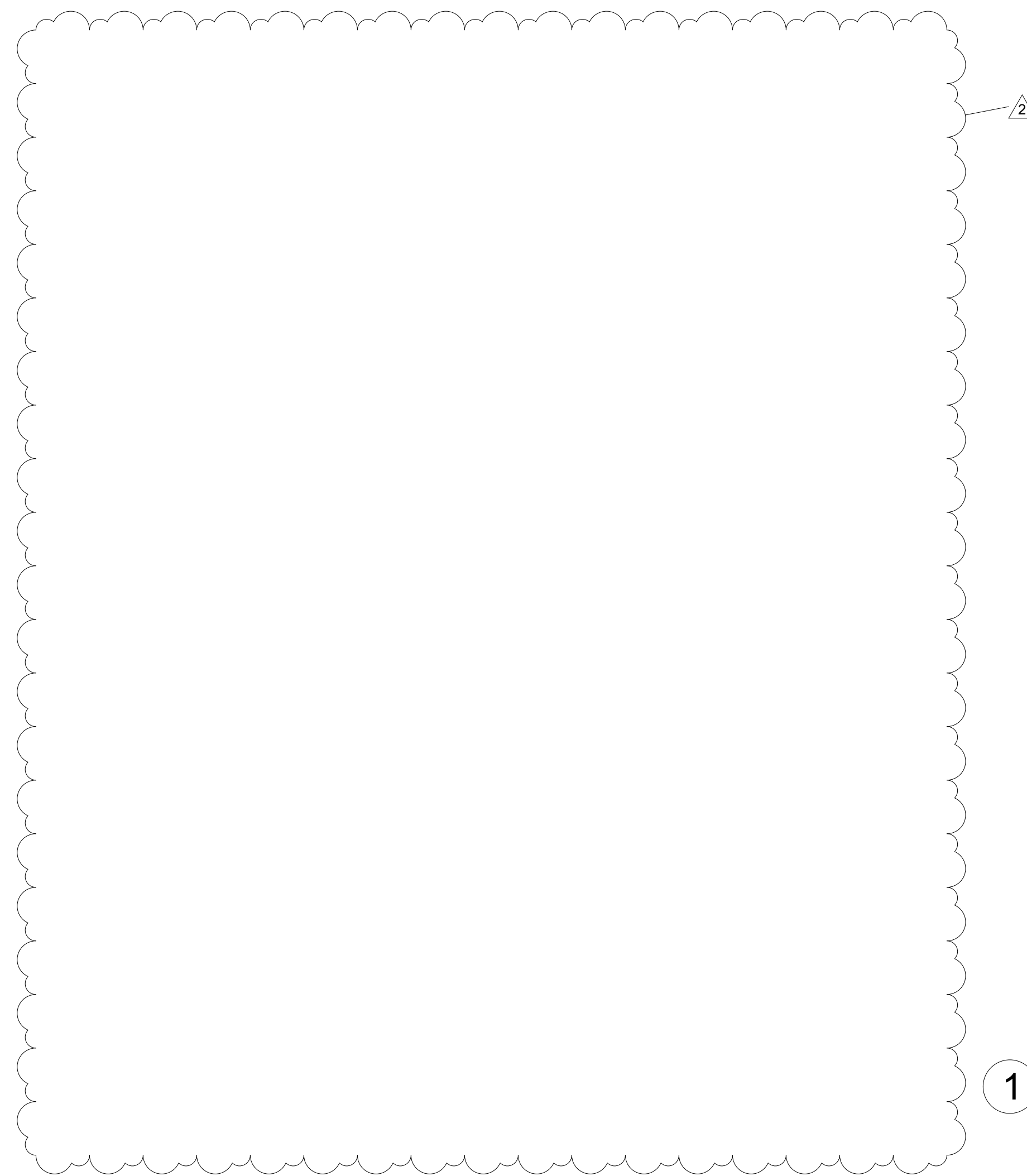
2 AD#1 FRONT VIEW  
3/4" = 1'-0"



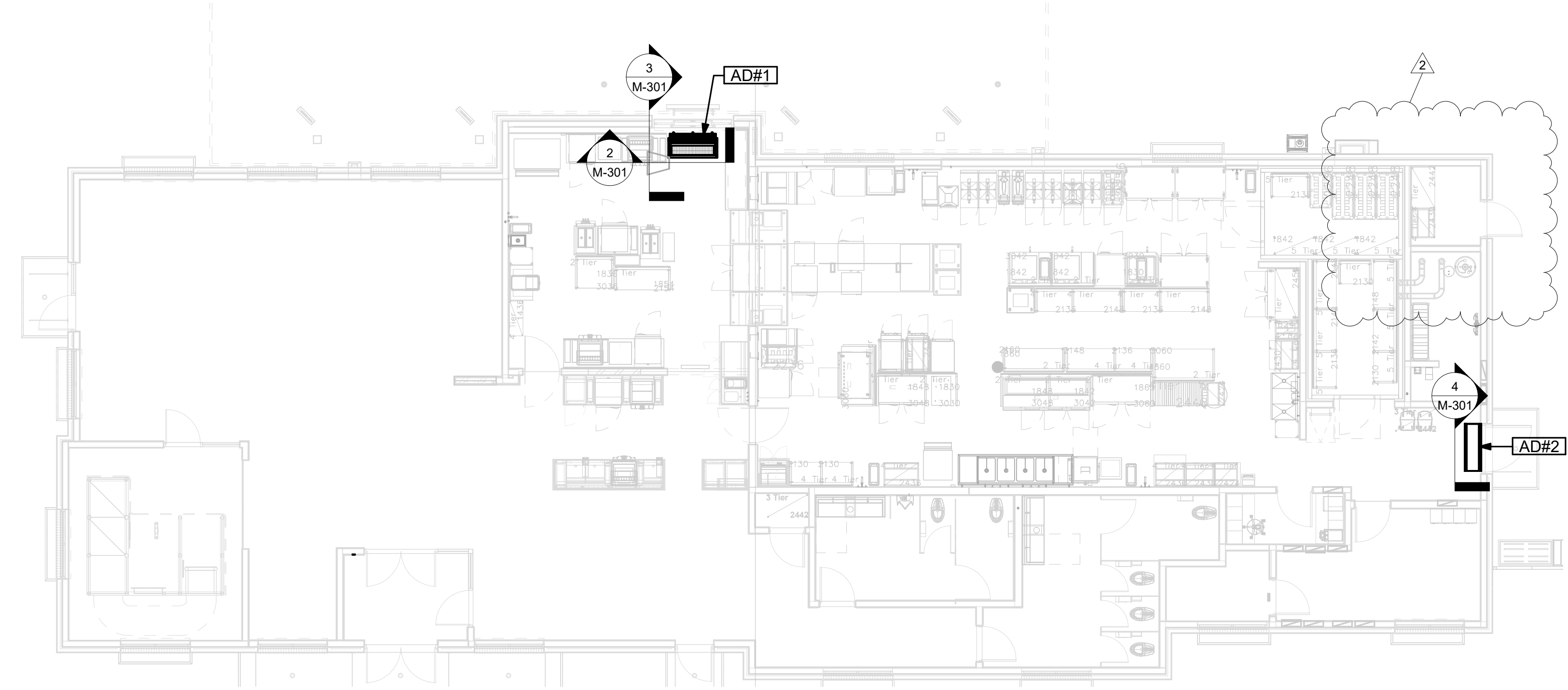
3 AD#1 SIDE VIEW  
3/4" = 1'-0"

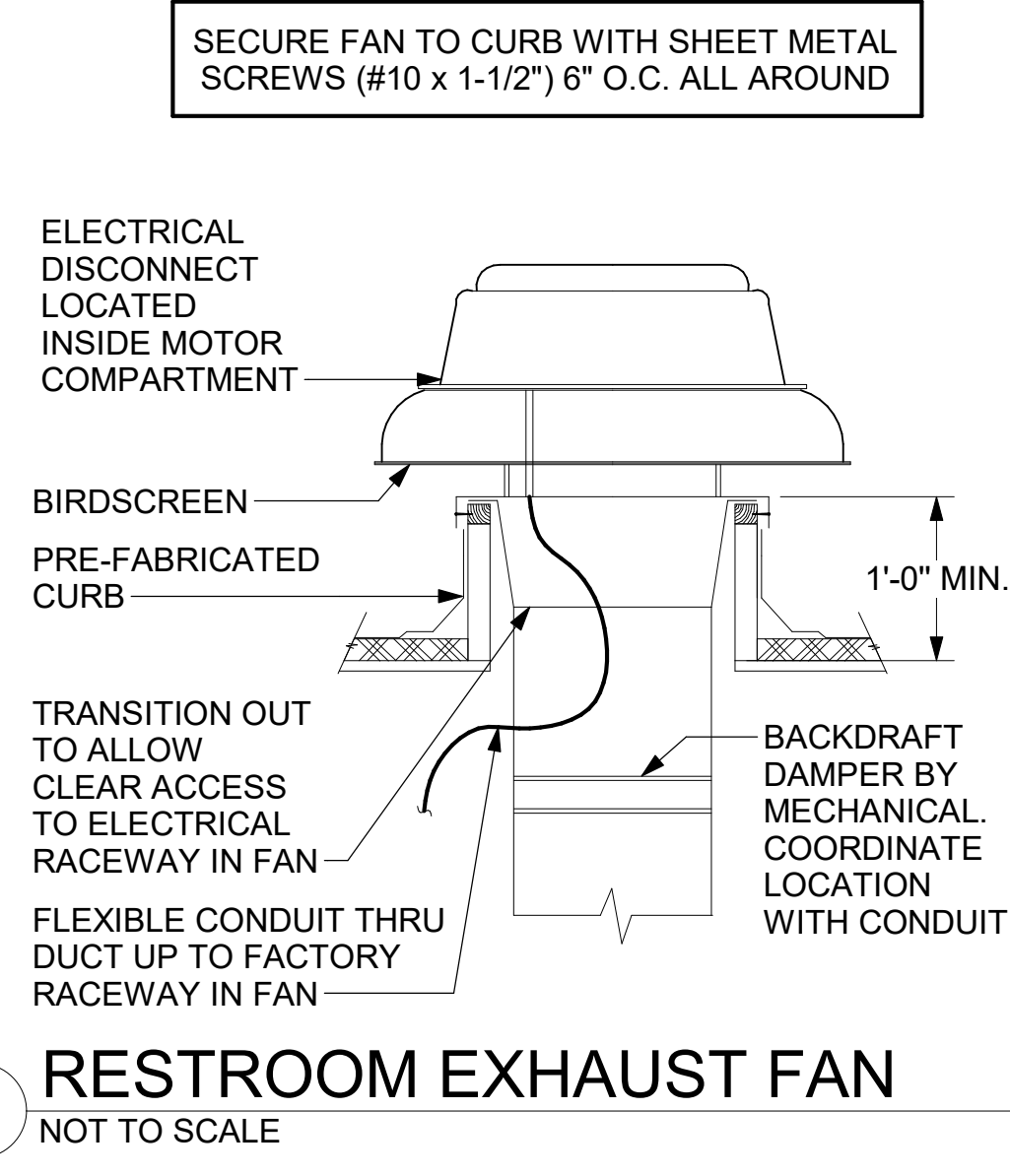


4 AD#4 FRONT VIEW  
3/4" = 1'-0"

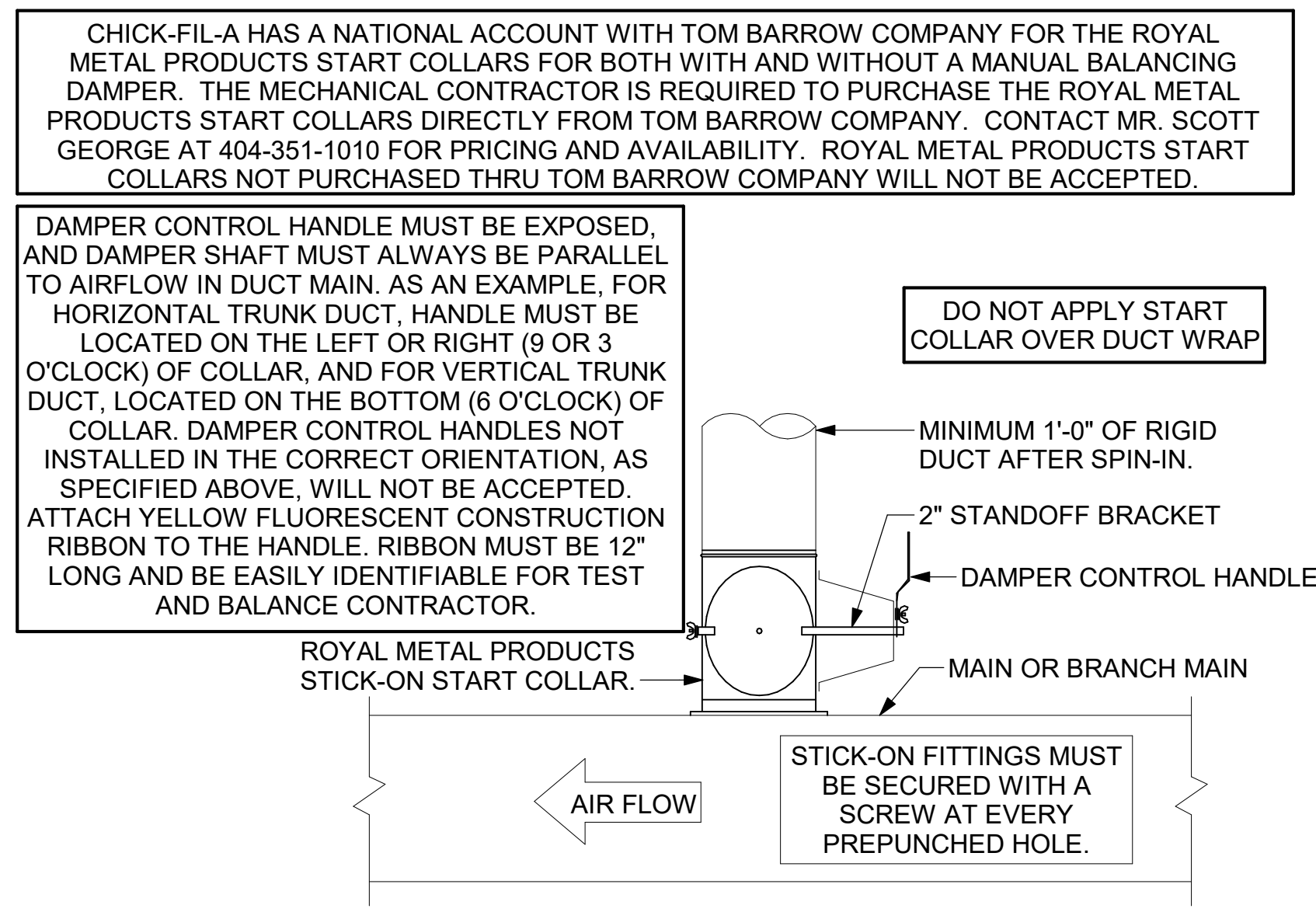


1 VARIOUS SECTIONS  
1/8" = 1'-0"

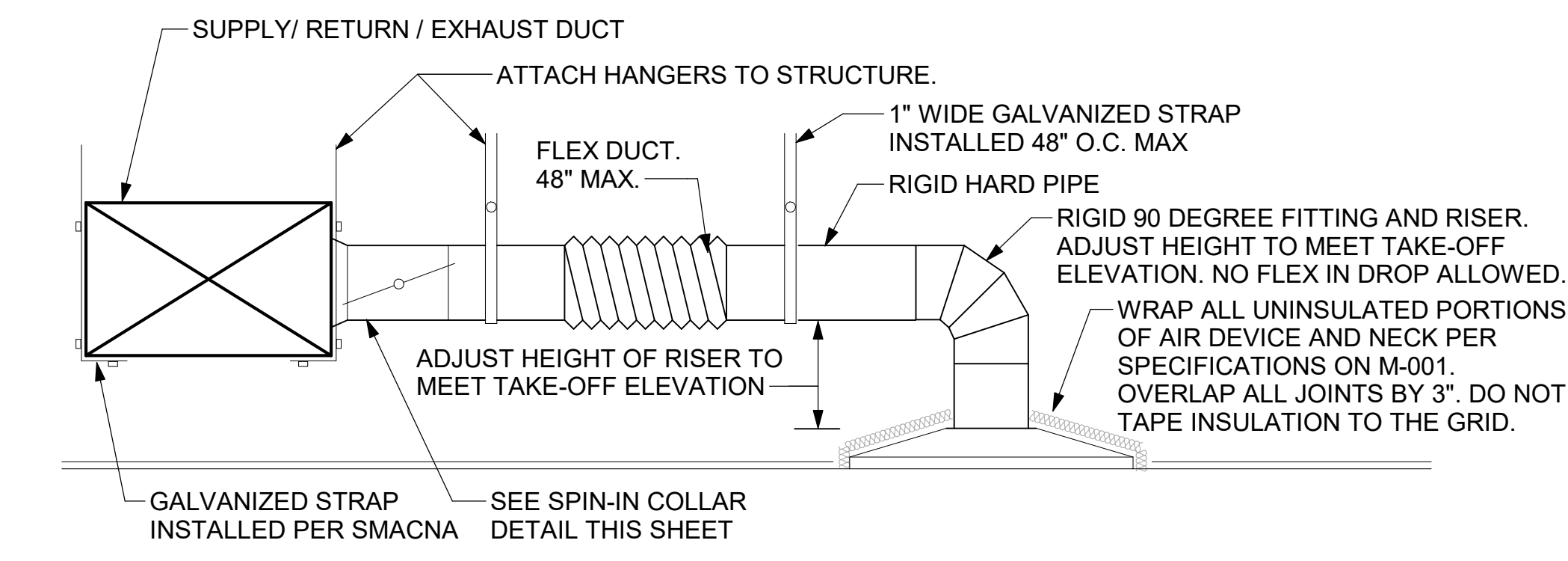




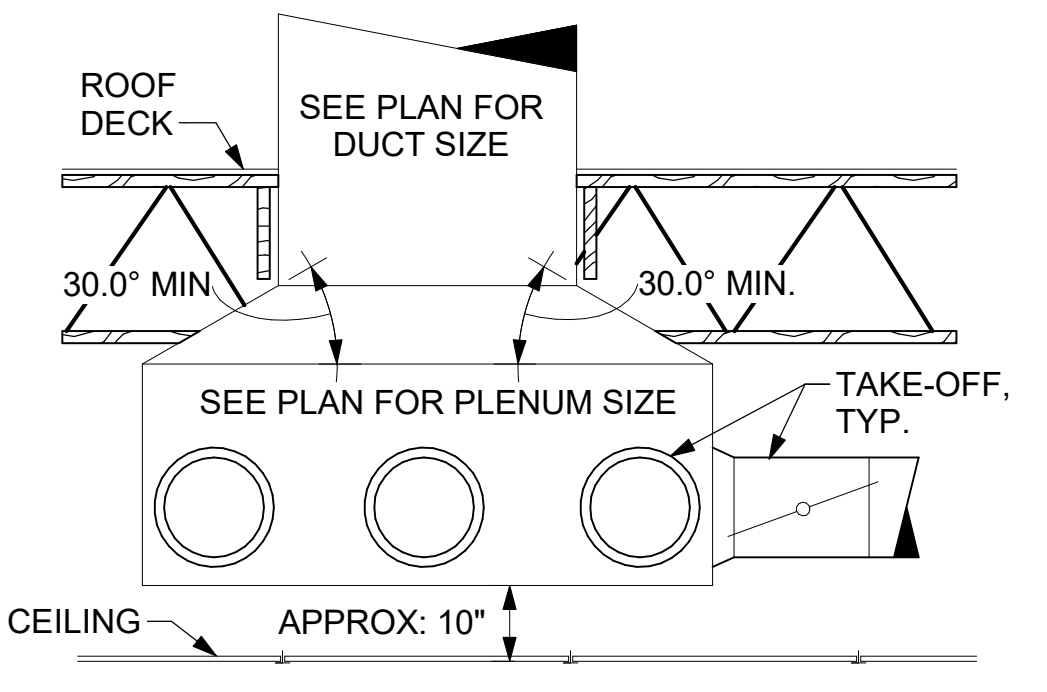
**3 RESTROOM EXHAUST FAN**  
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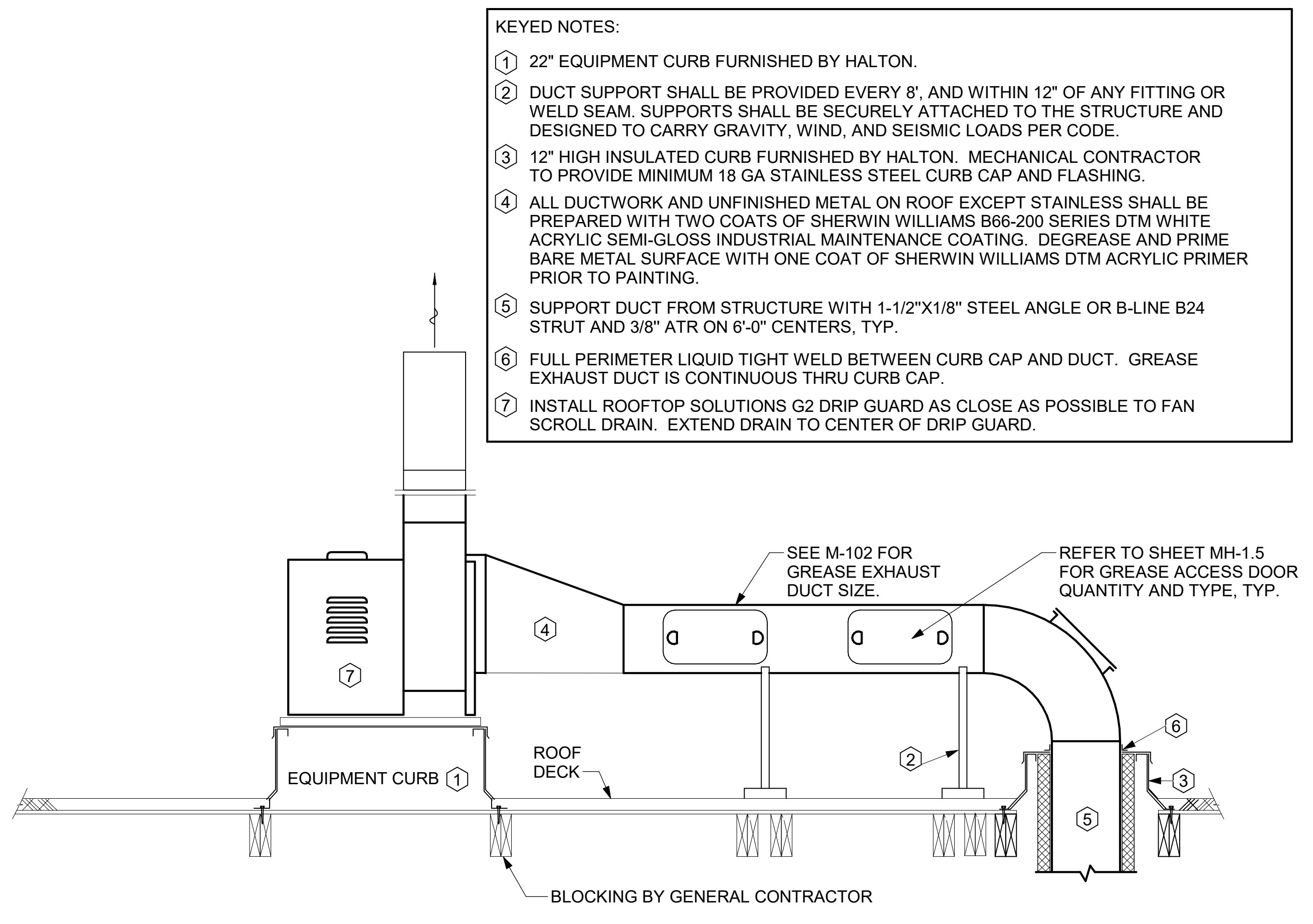
**2 START COLLAR - LARGE**  
NOT TO SCALE



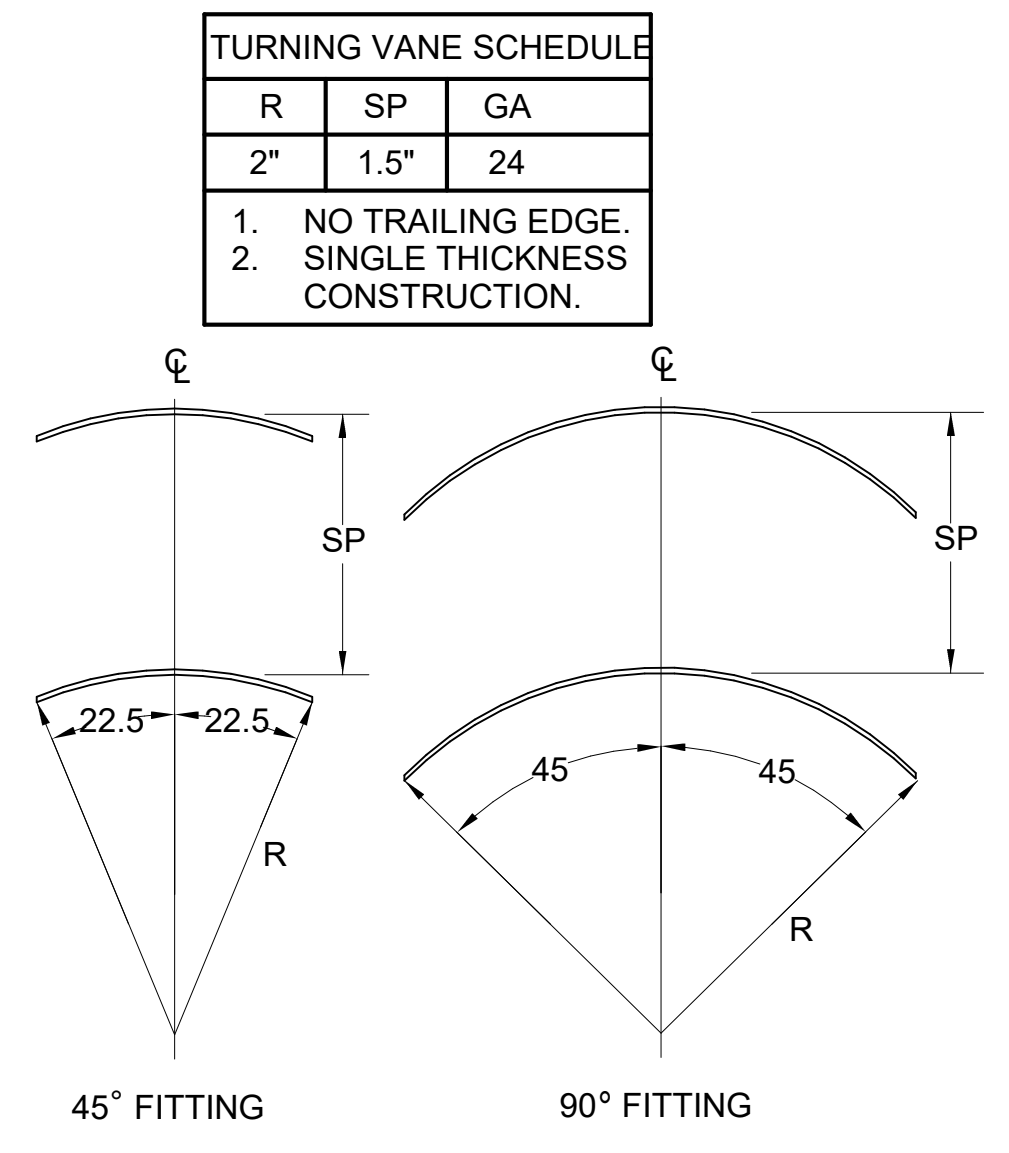
**1 SAG/RAG/GRILLE TAKE-OFF - LARGE**  
NOT TO SCALE



**6 RETURN DROP GEOMETRY**  
NOT TO SCALE



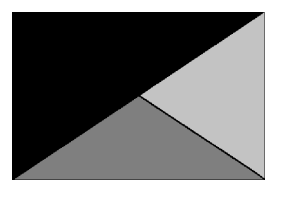
**5 KITCHEN HOOD EXHAUST FANS**  
NOT TO SCALE



**4 TURNING VANES**  
NOT TO SCALE



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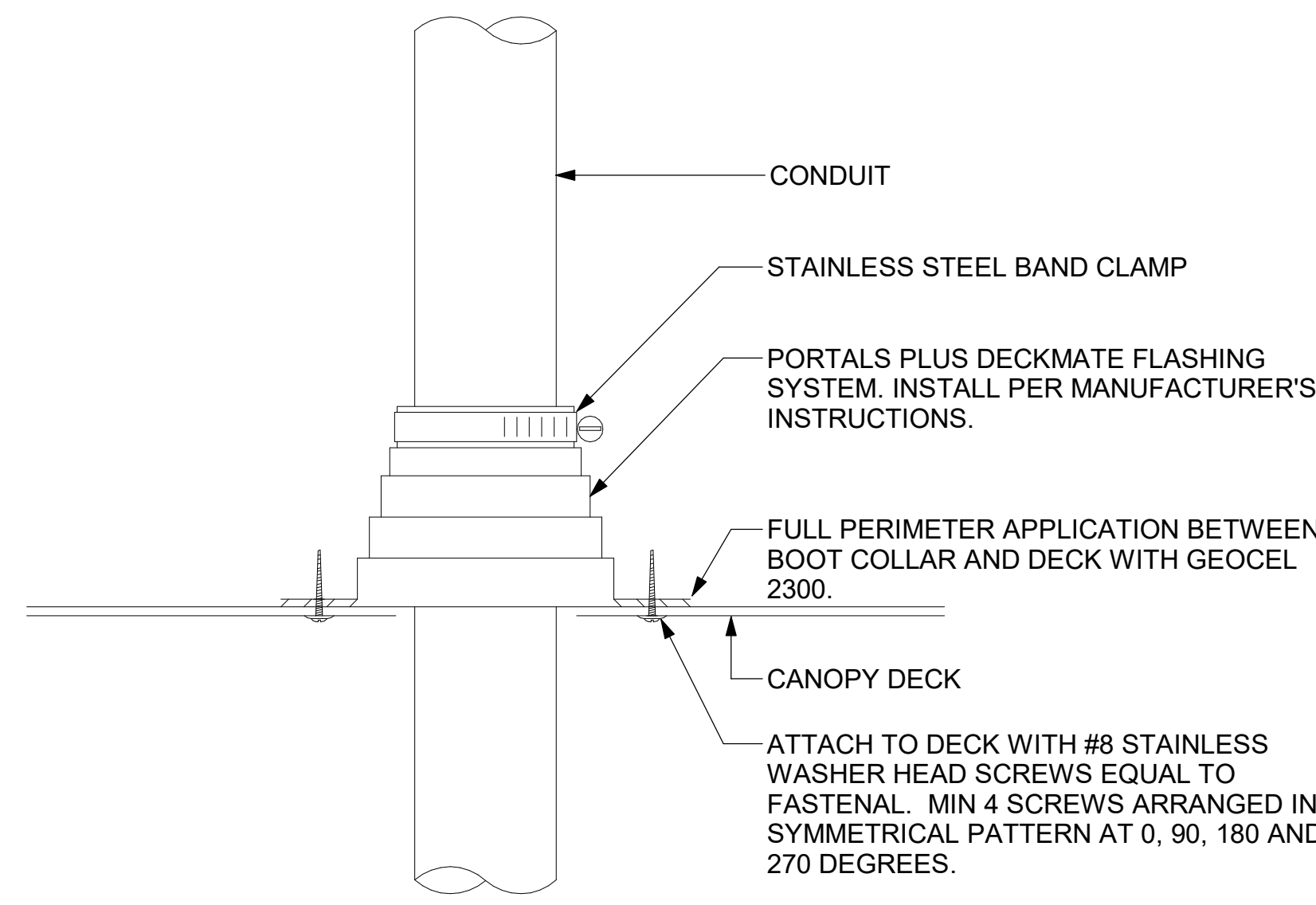
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NO.	DATE	DESCRIPTION

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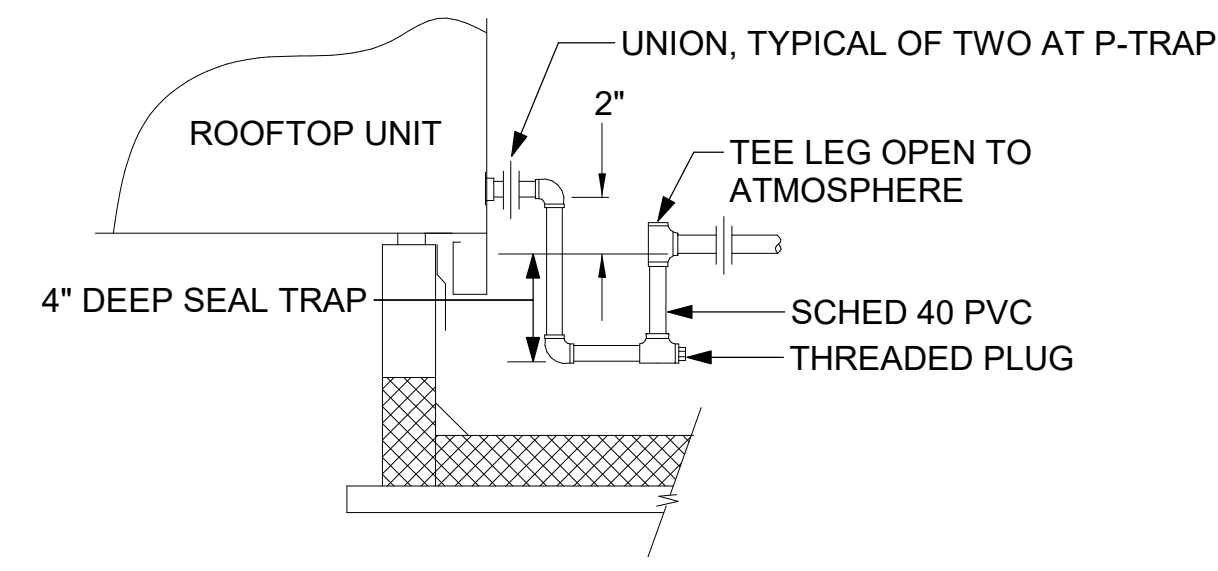
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DETAILS

SHEET NUMBER  
**M-501**

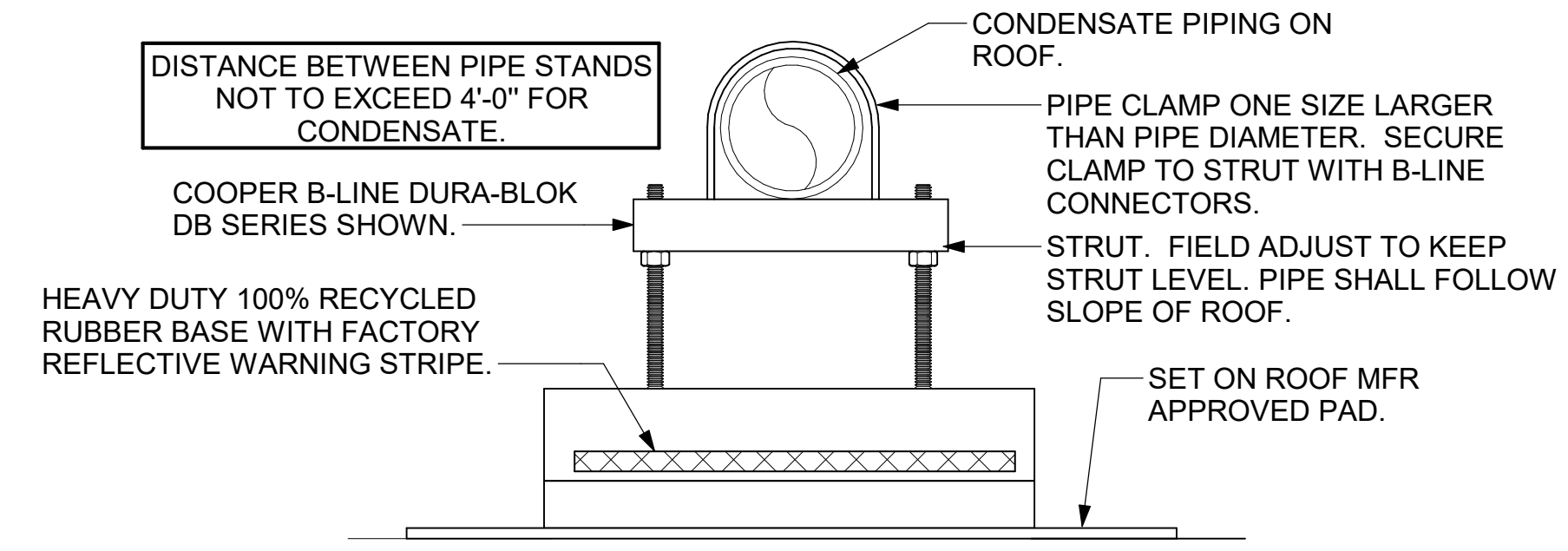


**6 WEATHERPROOFING AT CANOPY PENETRATION**  
NOT TO SCALE



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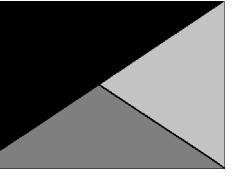
- NOTES:**
1. NOT USED.
  2. PROVIDE MODEL DBE 10-8 OR DBE 10-12 OR DBE 10-16 AS NEEDED FOR ELEVATING CONDENSATE PIPING TO MAINTAIN PROPER SLOPE AND FOR GAS PIPING CROSSING OVER CONDENSATE PIPING.
  3. ENSURE GAS AND CONDENSATE PIPING DO NOT OBSTRUCT ROOFTOP EQUIPMENT ACCESS OPENINGS. RE-PIPING OF SYSTEMS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



**4 PIPING SUPPORT ON ROOF**  
NOT TO SCALE



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07/25/25

**CHICK-FIL-A**  
Stafford & Heard FSU

99 Stafford Street  
Worcester, MA 01603

**FSR#05916**

BUILDING TYPE / SIZE: P-14 LS BN  
RELEASE: 24.05

ISSUED FOR PERMIT

NO.	DATE	DESCRIPTION
2	07/25/2025	PERMIT COMMENTS

CONSULTANT PROJECT # 25010.CD.S  
DATE 07/25/2025  
DRAWN BY BLM

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SHEET  
DETAILS

SHEET NUMBER

**M-502**

ROOFTOP UNIT SCHEDULE - TRANE

MARK	MFGR	MODEL	EER	IEER/SEER	EER2	SEER2	COP @ 47 DEG.	COP @ 17 DEG.	HSPF2	TOTAL WEIGHT	SUPPLY (CFM)	OA (CFM)	HP	# OF FANS	ESP (in-wg)	TOTAL COOLING MBH	SENSIBLE COOLING MBH	HEATING CAPACITY (MBH @ 47 DEG. F.)	HEATING CAPACITY (MBH @ 17 DEG. F.)	AUX HEAT (KW)	VOLTAGE (V)	PHASE	MCA (A)	MOCP (A)	REMARKS
AC#1T	TRANE	WHK300A3S	10.1	15.5	-	-	3.40	2.05	-	3084.00 lbf	8,125	1,750	2.9	2	0.8	256.1	188.1	247	136.6	27	208	3	218	225	1,3,4,5,6,7,8,9,10,11,12,13,14,15
AC#2T	TRANE	WHK120A3S	11.4	16.1	-	-	3.57	2.25	-	1795.00 lbf	3,600	720	4.2	1	0.8	115.2	87.3	109.1	65.1	40.5	208	3	209	225	1,3,4,5,6,7,8,9,10,11,12,13,14,15
AC#3T	TRANE	WHK210A3S	11.3	16.2	-	-	3.60	2.20	-	2932.00 lbf	6,125	1,400	2.9	2	0.8	201.2	147.7	198.7	114.8	54	208	3	251	300	1,3,4,5,6,7,8,9,10,11,12,14,15,16
AC#4T	TRANE	WHK060A3S	13.5	16.4	12.8	15.8	3.80	2.46	7.20	1326.00 lbf	1,750	425	3	1	0.8	58.6	43.4	56.1	32.4	20.25	208	3	105	110	2,3,4,5,6,7,8,9,10,11,12,13,15
AC#5T	TRANE	WHK048A3S	13.5	16.8	12.8	16.2	3.80	2.46	7.20	1389.00 lbf	1,300	300	3	1	0.8	46.8	33.1	45.1	24.8	13.5	208	3	84	90	1,3,4,5,6,7,8,9,10,11,12,13,15

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

REMARKS  
 1. DIFFERENTIAL ENTHALPY ECONOMIZER WITH POWER EXHAUST.  
 2. DIFFERENTIAL ENTHALPY ECONOMIZER WITH BAROMETRIC EXHAUST.  
 3. 14" HIGH ROOF CURB.  
 4. SEE DETAIL 2/M-701T FOR SETTING OF CONTROL PARAMETERS BY MC.  
 5. FACTORY INSTALLED 115V GFI SERVICE OUTLET. SEPERATE 115V CIRCUIT PROVIDED BY ELECTRICAL CONTRACTOR.  
 6. FACTORY INSTALLED RETURN AIR SMOKE DETECTOR.  
 7. 2" MERV 8 THROW AWAY FILTERS.  
 8. HINGED PANELS FOR ACCESS TO FILTER(S), FAN BLOWER & MOTOR, COMPRESSOR(S) ACCESS AND CONTROLS.  
 9. FACTORY INSTALLED COIL HAIL GUARD.  
 10. FACTORY INSTALLED CONDENSATE PAN DRAIN OVERFLOW SWITCH.  
 11. HOT GAS DEHUMIDIFICATION OPTION WITH WALL MOUNTED HUMIDITY SENSOR.  
 12. FACTORY CONFIGURED PHASE LOSS PROTECTION.  
 13. FACTORY HIGH FAULT (6SK) SCOR AND FACTORY CIRCUIT BREAKER.  
 14. FRESH AIR TEMPERING KIT.  
 15. SINGLE POINT POWER CONNECTION. AUX. ELECTRIC HEAT SHOWN IS NOMINAL 208V/3PH.  
 16. ELECTRICAL CONTRACTOR TO PROVIDE CURRENT LIMITING FUSE AND DISCONNECT FOR UNIT. REFER TO ELECTRICAL DRAWINGS.

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"	36"	38"	HALTON	KVL-2-IC 1	
HOOD#1R	709	0.13	47 @ 0.30"	BACKSHELF	8"x8"	63"	36"	38"	HALTON	KVL-2-IC 1	
HOOD#2	701	0.3	30 @ 0.29"	BACKSHELF	8"x8"	45"	34"	38"	HALTON	KVL-C-IC 1	
HOOD#3	701	0.3	30 @ 0.29"	BACKSHELF	8"x8"	42"	34"	38"	HALTON	KVL-C-IC 1	

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  
 1. REFER TO HOOD SHOP DRAWINGS FOR HOOD CONSTRUCTION AND OPTIONS. PRELIMINARY HOOD SHOP DRAWINGS ARE INCLUDED FOR REFERENCE ON SHEETS MH-1.1, MH-1.2, AND MH-1.3.

HEATER SCHEDULE

MARK	HEATING INPUT		FRAME LENGTH	FRAME WIDTH	FRAME DEPTH	MOUNTING TYPE	VOLTAGE (V)	PHASE	FLA (A)	MOCP (A)	MODEL	MANUFACTURER	REMARKS
	ELECTRIC (KW)	GAS (MBH)											
EIH#1	6.00	0.0	56"	8.5"	3.5"	WALL BRACKET	208	1	28.9	40	BH0420035	BROMIC	1,2,3
IRH	3.00	0.0	56"	8.5"	3.5"	CEILING	208	1	14.4	20	BH0420031	BROMIC	1,3,4

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

REMARKS  
 1. STAINLESS STEEL LENS WITH BLACK EMISSIVE COATING.  
 2. PROVIDE ENGRAVED PLASTIC LABEL AT EACH UNIT WITH UNIT DESIGNATION IN 1" HIGH WHITE LETTERS ON A BLACK BACKGROUND.  
 3. PROVIDE BLACK HEATER WITH HIGH TEMPERATURE COATING, AND MANUFACTURER MOUNTING BRACKETS.  
 4. 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.

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	20,21,22
EF#1	1,913	0.75	1,747	0.75	HOOD#1	120	1	13.8	25	KEFB-14-CFA	HALTON	1,2,3,4,5,6,7,8,9,10,11
EF#2	1,402	0.95	1,522	0.75	HOOD#2 & HOOD#3	120	1	13.8	25	KEFB-14-CFA	HALTON	1,2,3,4,5,6,7,8,9,10,11
EF#3	360	0.375	1,207	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	1,070	0.127	TECH CLOSET	120	1	2.5	20	SP-A510-VG	GREENHECK	1,17,18,19
TF#2	300	0.3	1,725	0.167	VESTIBULE	115	1	1.3	20	XID-7-VG	ACCUREX	1,17,20

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

REMARKS  
 1. FANS SUPPLIED BY HALTON.  
 2. U.L. 705 LISTED AND LABELED FOR RESTUARANT APPLICATIONS.  
 3. FACTORY INSTALLED PREWIRED DISCONNECT SWITCH.  
 4. 22" HIGH ROOF CURB.  
 5. INSTALL ROOFTOP SOLUTIONS G2 DRIP GUARD. MECHANICAL CONTRACTOR TO CONTACT ROOFTOP SOLUTIONS AT 800-913-7034.  
 6. FACTORY WEATHER HOUSING W/ HINGED ACCESS DOOR.  
 7. FACTORY DRAIN CONNECTION.  
 8. FACTORY BOLTED ACCESS DOOR ON SCROLL.  
 9. FACTORY INSTALLED BELT DRIVE WITH ADJUSTABLE MOTOR SHEAVE, SPARE BELT, AND BELT TENSIONER.  
 10. FACTORY INSTALLED OUTLET WITH QUICK RELEASE, HINGED ACCESS, AND GRAVITY BACKDRAFT DAMPER.  
 11. INTEGRAL THERMAL OVERLOAD.  
 12. BIRDSCREEN.  
 13. BACKDRAFT DAMPER IN DUCT BY MECHANICAL CONTRACTOR AS SHOWN ON 3/M-501.  
 14. STARTER BY ELECTRICAL CONTRACTOR. INTERLOCK WITH LIGHTS BY ELECTRICAL CONTRACTOR.  
 15. 12" HIGH CURB.  
 16. FACTORY INSTALLED AND WIRED SPEED CONTROLLER.  
 17. PROVIDE NEMA 1 PREWIRED DISCONNECT.  
 18. INTEGRAL POTENTIOMETER ON FAN MOTOR. SET TO FULL SPEED.  
 19. PROVIDE THERMOSTAT / TEMPERATURE CONTROLLER, SET TO 78°F.  
 20. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.  
 21. PROVIDE WITH ON/OFF SWITCH.  
 22. FAN SUPPLIED BY TOM BARRROW OR POWERS OF ARKANSAS FOR THE SOUTHWEST REGION.

AIR DEVICE SCHEDULE - LARGE BLDG

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.	DINING/ KITCHEN	VARIES	24"x24"	LAY-IN	1,7
B	VARITHERM PLAQUE DIFFUSER	OFFICE / TEAM ROOM	VARIES	24"x24"	LAY-IN	1,7,8
C	PRICE MODEL SMCD STEEL SUPPLY AIR DIFFUSER FIELD ADJUSTABLE AIR PATTERN CONTROLLERS.	ENTRY	14"x14"	19"x19"	BEVELLED	1,3,5,6
D	PRICE MODEL APDC ALUMINUM SUPPLY AIR DIFFUSER WITH INDIVIDUALLY ADJUSTABLE CURVED AIR PATTERN CONTROLLERS.	DINING/ KITCHEN	VARIES	16"x16"	LAY-IN	1,2,3,5,6
E	PRICE MODEL 22 DOUBLE DEFLECTION ALUMINUM SIDEWALL SUPPLY GRILLE. FRONT BLADE PARALLEL TO LONG SIDE.	PLAY AREA	12"x10"	14"x12"	SURFACE	1
F	PRICE MODEL 80 EGGCRATE RETURN AIR GRILLE WITH REMOVABLE AIR PATTERN CONTROLLERS.	KITCHEN / DINING / OFFICE	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	1,3,4,5,6
K	PRICE MODEL APDDR ALUMINUM PERFORATED FACE RETURN AIR GRILLE.	RESTROOMS / ENTRY	14"x14"	16"x16"	SURFACE	1,4,5,6
L	PRICE MODEL 21 ALUMINUM SIDEWALL RETURN GRILLE. FRONT BLADE PARALLEL TO LONG SIDE.	PLAY AREA	24"x12"	26"x14"	SURFACE	1

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

REMARKS  
 1. STANDARD OFF WHITE FINISH.  
 2. PROVIDE PRICE MODEL AMF SURFACE MOUNT FRAME.  
 3. SEE DRAWING M-101 FOR THROW TRANSITION.  
 4. PROVIDE FACTORY MOUNTED MODEL VCS3 NECK DAMPER AND FIELD INSTALLED RECTANGULAR TO ROUND TRANSITION.  
 5. PROVIDE BACKPAN. MC TO SEAL JOINTS WITH MASTIC AND INSULATE EXTERNALLY.  
 6. FIELD INSULATE BACKPAN AS SHOWN ON DETAIL 1/M-501.  
 7. FACTORY INSULATED R-6 BACKPAN.  
 8. PROVIDE RELIEF COLLAR ACCESSORY FOR VAV DIFFUSER.

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	42	45	208	3	DRIVE THRU	CHA-1-48E	POWERED AIRE	1,2,3,5
AD#2	3,867	4,218	0	0.75	10	15	120	1	REAR DOOR	RBT-1-48	POWERED AIRE	4

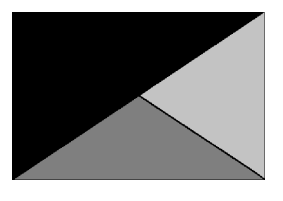
NOTES  
 • NATIONAL ACCOUNT - NO SUBSTITUTIONS PERMITTED - SEE DRAWING G-004

REMARKS  
 1. FACTORY PROVIDED, WIRED, AND UNIT MOUNTED SPEED CONTROLLER ABOVE CEILING.  
 2. FACTORY WIRED DISCONNECT.  
 3. FACTORY PROVIDED, FIELD INSTALLED BY MC, REMOTE WALL SWITCHES FOR HEATING ON/OFF AND FAN ON/AUTO SWITCH. SEE DETAILS ON M-702.  
 4. FACTORY PROVIDED MAGNETIC DOOR CONTACT WITH FACTORY INSTALLED LOW VOLTAGE CONTROLS LOCATED IN AIR DOOR CABINET.  
 5. PROVIDE WITH A DIVERTER BOX. PROVIDE WITH MOUNTING BRACKETS PER MANUFACTURER'S RECOMMENDATIONS.



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07/25/25

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FSR#05916

BUILDING TYPE / SIZE: P-14 LS BN  
 RELEASE: 24.05  
 PRINTED FOR:  
 ISSUED FOR PERMIT  
 REVISION SCHEDULE  
 NO. DATE DESCRIPTION  
 1 06/20/2025 ISSUED FOR CONSTRUCTION  
 2 07/25/2025 PERMIT COMMENTS

CONSULTANT PROJECT # 25010.CD.S  
 DATE 07/25/2025  
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SHEET  
 EQUIPMENT SCHEDULES  
 - TRANE

SHEET NUMBER  
 M-601T

### VENTILATION SCHEDULE

General			Ventilation													Exhaust					Served by				
Room #	Room Name	Area Az ft2	People			Area						Breathing Zone Outdoor Airflow CFM Vbz	Zone Air Distribution Effectiveness Ez	Zone Outdoor Airflow CFM Voz	Primary Zone Airflow CFM Vpz	Primary Outdoor Air Fraction Zp	Actual Outdoor Airflow CFM	Area			Toilet		Actual Exhaust CFM	Supply	Exhaust
			Occupant Density People/1,000 ft2	Occupants People Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/ft2 Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/ft2	Total Required Exhaust CFM							Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM					
1	Kitchen	1,287	20	26	7.5	195	0.12	154	349	0.8	436	8,125	0.05	1,750	0.7	901	-	-	-	3,315	AC#1	EF-1 / EF-2			
<b>Total Area 1,287</b>			<b>Total Vbz 349</b>						<b>Total Supply Airflow 8,125</b>			<b>1,750 Actual Outdoor Airflow</b>													
			Diversity (D) 1.00			Maximum Zp 0.05																			
			Uncorrected Outdoor Air Intake (You) 349			System Ventilation Efficiency (Ev) 1.00																			
			Required Outdoor Air Intake (CFM) 349																						

### VENTILATION SCHEDULE

General			Ventilation													Exhaust					Served by				
Room #	Room Name	Area Az ft2	People			Area						Breathing Zone Outdoor Airflow CFM Vbz	Zone Air Distribution Effectiveness Ez	Zone Outdoor Airflow CFM Voz	Primary Zone Airflow CFM Vpz	Primary Outdoor Air Fraction Zp	Actual Outdoor Airflow CFM	Area			Toilet		Actual Exhaust CFM	Supply	Exhaust
			Occupant Density People/1,000 ft2	Occupants People Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/ft2 Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/ft2	Total Required Exhaust CFM							Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM					
1	Meal Fulfillment Area	418	15	7	7.5	53	0.12	50	103	0.8	129	3,600	0.04	720	-	-	-	-	-	-	-	-	AC#2	-	
<b>Total Area 418</b>			<b>Total Vbz 103</b>						<b>Total Supply Airflow 3,600</b>			<b>720 Actual Outdoor Airflow</b>													
			Diversity (D) 1.00			Maximum Zp 0.04																			
			Uncorrected Outdoor Air Intake (You) 103			System Ventilation Efficiency (Ev) 1.00																			
			Required Outdoor Air Intake (CFM) 103																						

### VENTILATION SCHEDULE

General			Ventilation													Exhaust					Served by				
Room #	Room Name	Area Az ft2	People			Area						Breathing Zone Outdoor Airflow CFM Vbz	Zone Air Distribution Effectiveness Ez	Zone Outdoor Airflow CFM Voz	Primary Zone Airflow CFM Vpz	Primary Outdoor Air Fraction Zp	Actual Outdoor Airflow CFM	Area			Toilet		Actual Exhaust CFM	Supply	Exhaust
			Occupant Density People/1,000 ft2	Occupants People Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/ft2 Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/ft2	Total Required Exhaust CFM							Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM					
1	Dining	1,026	100	103	7.5	773	0.18	185	958	0.8	1,198	4,050	0.30	926	-	-	-	-	-	-	-	-	AC#3	-	
2	Queueing	563	15	9	7.5	68	0.12	68	136	0.8	170	1,650	0.10	377	-	-	-	-	-	-	-	-	AC#3	-	
3	Men's RR	176	-	-	-	-	-	-	-	0.8	-	150	-	34	-	-	Continuous	50	150	180	AC#3	EF-3	-		
4	Women's RR	204	-	-	-	-	-	-	-	0.8	-	150	-	34	-	-	Continuous	50	150	180	AC#3	EF-3	-		
5	RR Vestibule	110	-	-	-	-	0.06	7	7	0.8	9	125	0.05	29	-	-	-	-	-	-	-	-	AC#3	-	
<b>Total Area 2,079</b>			<b>Total Vbz 1,101</b>						<b>Total Supply Airflow 6,125</b>			<b>1,400 Actual Outdoor Airflow</b>													
			Diversity (D) 1.00			Maximum Zp 0.30																			
			Uncorrected Outdoor Air Intake (You) 1,101			System Ventilation Efficiency (Ev) 0.80																			
			Required Outdoor Air Intake (CFM) 1,376																						

### VENTILATION SCHEDULE

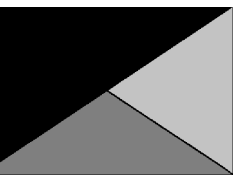
General			Ventilation													Exhaust					Served by				
Room #	Room Name	Area Az ft2	People			Area						Breathing Zone Outdoor Airflow CFM Vbz	Zone Air Distribution Effectiveness Ez	Zone Outdoor Airflow CFM Voz	Primary Zone Airflow CFM Vpz	Primary Outdoor Air Fraction Zp	Actual Outdoor Airflow CFM	Area			Toilet		Actual Exhaust CFM	Supply	Exhaust
			Occupant Density People/1,000 ft2	Occupants People Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/ft2 Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/ft2	Total Required Exhaust CFM							Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM					
1	Team Member Room	149	50	8	5	40	0.06	9	49	0.8	61	600	0.10	146	-	-	-	-	-	-	-	-	AC#4	-	
2	Riser Room	41	-	-	-	-	0.12	5	5	0.8	6	175	0.03	43	-	-	-	-	-	-	-	-	AC#4	-	
3	Service / Beverage	193	-	-	-	-	0.12	24	24	0.8	30	700	0.04	170	-	-	-	-	-	-	-	-	AC#4	-	
4	Office	46	5	1	5	5	0.06	3	8	0.8	10	275	0.04	66	-	-	-	-	-	-	-	-	AC#4	-	
<b>Total Area 428</b>			<b>Total Vbz 86</b>						<b>Total Supply Airflow 1,750</b>			<b>425 Actual Outdoor Airflow</b>													
			Diversity (D) 1.00			Maximum Zp 0.10																			
			Uncorrected Outdoor Air Intake (You) 86			System Ventilation Efficiency (Ev) 1.00																			
			Required Outdoor Air Intake (CFM) 86																						

### VENTILATION SCHEDULE

General			Ventilation													Exhaust					Served by				
Room #	Room Name	Area Az ft2	People			Area						Breathing Zone Outdoor Airflow CFM Vbz	Zone Air Distribution Effectiveness Ez	Zone Outdoor Airflow CFM Voz	Primary Zone Airflow CFM Vpz	Primary Outdoor Air Fraction Zp	Actual Outdoor Airflow CFM	Area			Toilet		Actual Exhaust CFM	Supply	Exhaust
			Occupant Density People/1,000 ft2	Occupants People Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/ft2 Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/ft2	Total Required Exhaust CFM							Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM					
1	Play Area	250	7	2	20	40	0.18	45	85	0.8	106	1,300	0.08	300	-	-	-	-	-	-	-	-	AC#5	-	
<b>Total Area 250</b>			<b>Total Vbz 85</b>						<b>Total Supply Airflow 1,300</b>			<b>300 Actual Outdoor Airflow</b>													
			Diversity (D) 1.00			Maximum Zp 0.08																			
			Uncorrected Outdoor Air Intake (You) 85			System Ventilation Efficiency (Ev) 1.00																			
			Required Outdoor Air Intake (CFM) 103																						



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6/20/25

**CHICK-FIL-A**  
Stafford & Heard FSU  
99 Stafford Street  
Worcester, MA 01603

**FSR#05916**

BUILDING TYPE / SIZE: P-14 LS BN  
RELEASE: 24.05  
PRINTED FOR:  
ISSUED FOR CONSTRUCTION  
REVISION SCHEDULE

NO. DATE DESCRIPTION

ISSUE FOR CONSTRUCTION

CONSULTANT PROJECT # 25010.CD.S  
DATE 06/20/2025  
DRAWN BY BLM

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SHEET VENTILATION SCHEDULES

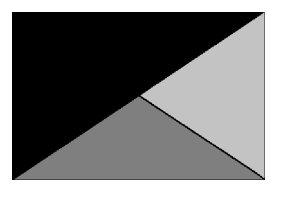
SHEET NUMBER

**M-602**



Chick-fil-A

Chick-fil-A  
5200 Buffington Road  
Atlanta, Georgia  
30349-2998



Kurzynske  
& Associates  
2705 Lebanon Pike - Suite One  
Nashville, Tennessee 37214  
Telephone: (615) 255-5203



6/20/25

**CHICK-FIL-A**  
Stafford & Heard FSU  
99 Stafford Street  
Worcester, MA 01603

**FSR#05916**

BUILDING TYPE / SIZE: P-14 LS BN  
RELEASE: 24.05  
PRINTED FOR  
ISSUED FOR CONSTRUCTION  
REVISION SCHEDULE  
NO. DATE DESCRIPTION

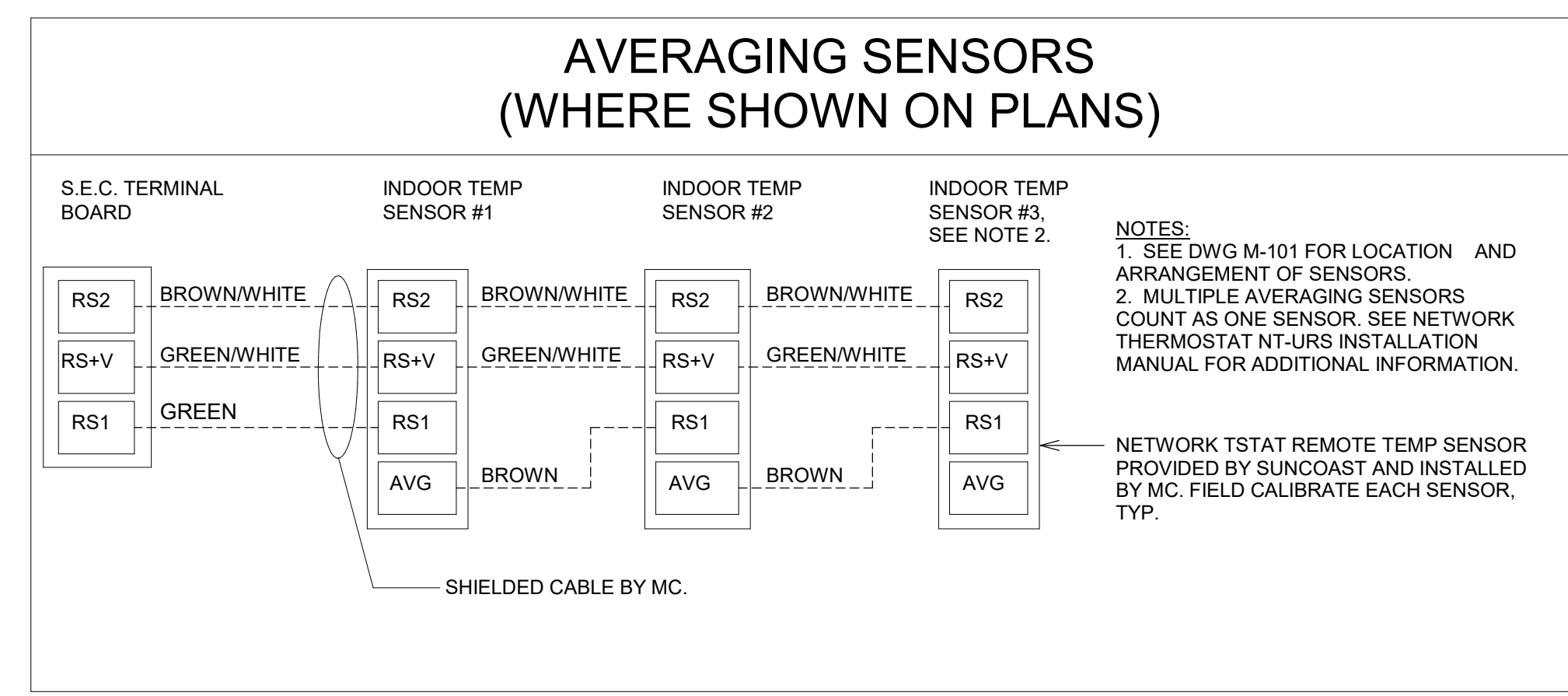
ISSUE FOR CONSTRUCTION

CONSULTANT PROJECT # 25010.CD.S  
DATE 06/20/2025  
DRAWN BY BLM

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SHEET CONTROL WIRING DIAGRAMS - TRANE

SHEET NUMBER  
**M-701T**

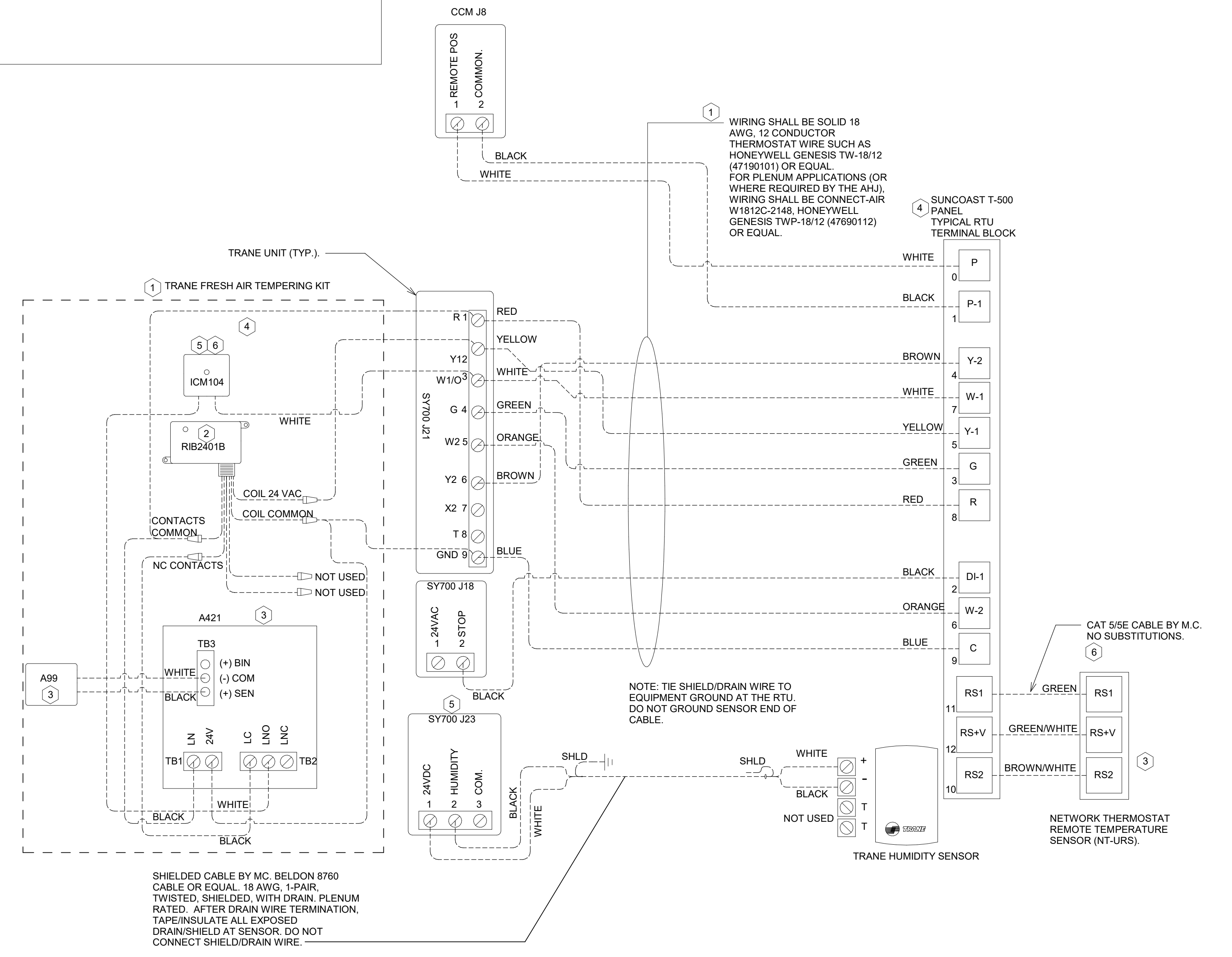


- KEYED NOTES:
1. LOW VOLTAGE WIRING TO RTU TO BE ROUTED TO UNIT THRU FACTORY WIREWAY.
  2. WIRING TO HUMIDITY SENSOR TO BE MADE WITH SINGLE 18/2 SENSOR CABLE: BELDEN 8760 OR EQUAL.
  3. NETWORK TSTAT REMOTE TEMP SENSOR PROVIDED BY SUNCOAST AND INSTALLED BY MC. SENSOR IS INTENDED TO BE SURFACE MOUNTED AND DOES NOT REQUIRE A SINGLE GANG BOX OR CONDUIT. FIELD CALIBRATE EACH SENSOR. SEAL CABLE PENETRATION AT ALL WALL LOCATIONS.
  4. FACTORY WIRING IN SUNCOAST T-500 PANEL NOT SHOWN FOR CLARITY. SEE SUNCOAST WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
  5. SY700 INTERFACE TO SET RELATIVE HUMIDITY. SET TO 60%.
  6. CAT 5/5E CABLE BY M.C. NO SUBSTITUTIONS.

- NOTES:
1. PROVIDE A PROFESSIONALLY LAMINATED COPY OF THESE DETAILS TO BE INSTALLED INSIDE THE ROOFTOP UNIT CONTROL CABINET. USE A SETON CHART FRAME STYLE #68624. TELEPHONE NUMBER 800-243-6624. FOR MOUNTING THE DETAIL, ATTACH THE FRAME TO THE INTERIOR OF THE UNIT IN PLAIN AND EASY VIEW OF THE CONTROLS SECTION. CONTACT ENGINEER OF RECORD FOR A REPRODUCIBLE COPY OF THE DETAIL.
  2. SEE DETAILS IN THIS SHEET FOR SMOKE DETECTOR AND ANNUNCIATOR WIRING.
  3. SET ALL THERMOSTATS TO AUTO CHANGEOVER.
  4. PROVIDE PLASTIC ENGRAVABLE AT ALL SENSORS WITH 1/4" HIGH WHITE LETTERING ON BLACK BACKGROUND (E.G., "AC#2 HUMIDITY SENSOR" OR "AC#2 TEMP SENSOR"). PLACE LABELS ON WALL DIRECTLY ABOVE OR BELOW THE SENSOR. DO NOT APPLY LABEL DIRECTLY TO DEVICE.

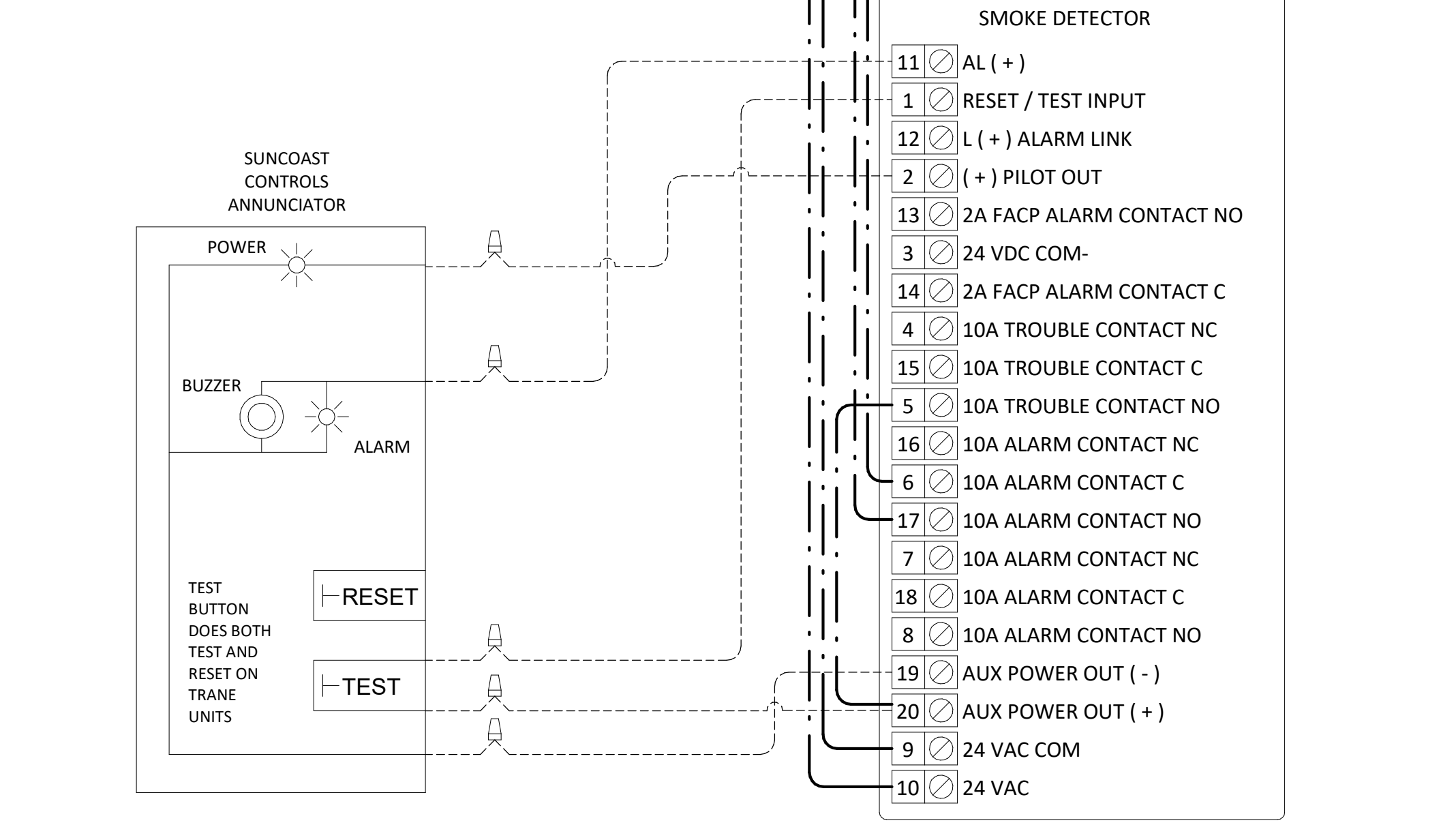
- LEGEND
- S.E.C. SUNCOAST ENVIRONMENTAL CONTROLS (SUPPLIER OF TEMPFAN CONTROL PANEL) LOCATED IN KITCHEN
  - MC MECHANICAL CONTRACTOR
  - AC SUNCOAST RELAY FACTORY INSTALLED AND WIRED IN CFA-500 PANEL, ENERGIZED BY PUTTIN STORE SWITCH IN "STORE OCCUPIED" POSITION
  - AN SUNCOAST RELAY FACTORY INSTALLED AND WIRED IN CFA-500 PANEL, DEENERGIZED WHEN ANSUL FIR SUPPRESSION SYSTEM IS ACTIVATED AS NOTED
- 18 AWG MIN WIRING BY MECH CONTRACTOR  
FACTORY ANNUNCIATOR DETECTOR WIRING  
FACTORY TRANE WIRING

- FRESH AIR TEMPERING KEYED NOTES:
1. INSTALL FRESH AIR TEMPERING KIT AS RECOMMENDED BY TRANE.
  2. RIB2401B SPDT RELAY FURNISHED BY TRANE AND INSTALLED BY CONTRACTOR IN CONTROL CABINET OF TRANE UNIT.
  3. JCI A421 TEMPERATURE CONTROLLER FURNISHED BY TRANE AND INSTALLED BY CONTRACTOR IN RTU CONTROL CABINET. CONTRACTOR SHALL INSTALL TRANE FURNISHED JCI A99 SENSOR IN THE SUPPLY DUCT DOWNSTREAM OF FIRST ELBOW. SECURE WIRING TO DUCT WITH TE8001-1 SENSOR DUCT MOUNTING PLATE FURNISHED BY TRANE. DO NOT RUN WIRING INSIDE DUCTWORK. SET A421 CONTROLLER PARAMETERS TO THE FOLLOWING:  
• RELAY ON TEMPERATURE: 58°F  
• RELAY OFF TEMPERATURE: 80°F
  4. 18 AWG MIN. LOW VOLTAGE WIRING BY MC.
  5. ICM104 TIME DELAY RELAY FURNISHED BY TRANE AND INSTALLED BY CONTRACTOR IN CONTROL CABINET OF ROOFTOP UNIT.
  6. SET TIME DELAY RELAY (ICM104) TO 15 MINUTES.



FIELD INSTALLED WIRING: WITHIN THE ROOFTOP UNITS, WIRING SHALL BE ROUTED BY WAY OF FACTORY WIREWAYS ONLY. WIRING ROUTED OVER THE BLOWER HOUSING OR BY WAY OF OTHER ROUTES DETRIMENTAL TO WIRING LIFE WILL NOT BE ACCEPTED.

LABELING: PROVIDE ENGRAVED LABEL WITH 1" HIGH WHITE LETTERS ON BLACK BACKGROUND IDENTIFYING UNIT SERVED.



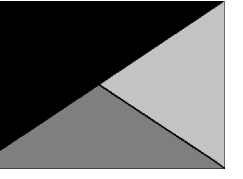
1 SMOKE DETECTOR AND ANNUNCIATOR WIRING DIAGRAM - TRANE  
NOT TO SCALE

2 ROOFTOP UNIT CONTROL WIRING - TRANE  
NOT TO SCALE

Autodesk Docs://MA\_05916\_Stafford & Heard FSU\_2024.6\_FSR05916\_Stafford & Heard FSU\_K&A\_MEC.rvt  
6/19/2025 1:00:54 PM  
30-LS-05916-M-701T-CONTROL WIRING DIAGRAMS - TRANE



**Chick-fil-A**  
5200 Buffington Road  
Atlanta, Georgia  
30349-2998



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2705 Lebanon Pike - Suite One  
Nashville, Tennessee 37214  
Telephone: (615) 255-5203



6/20/25

**CHICK-FIL-A**  
Stafford & Heard FSU

99 Stafford Street  
Worcester, MA 01603

**FSR#05916**

BUILDING TYPE / SIZE: P-14 LS BN

RELEASE: 24.05

PRINTED FOR

ISSUED FOR CONSTRUCTION

REVISION SCHEDULE

NO. DATE DESCRIPTION

ISSUE FOR CONSTRUCTION

CONSULTANT PROJECT # 25010.CD.S

DATE 06/20/2025

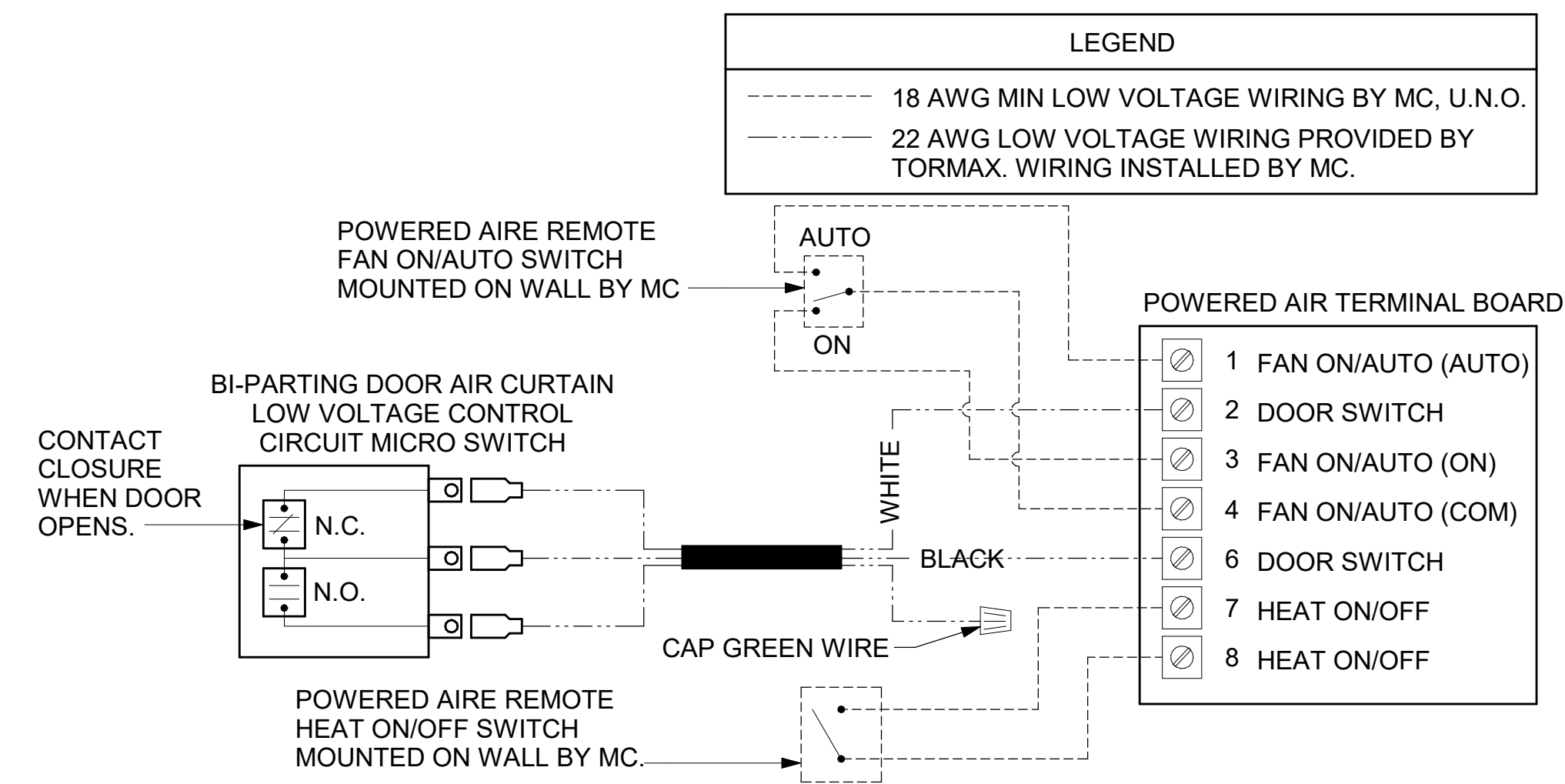
DRAWN BY BLM

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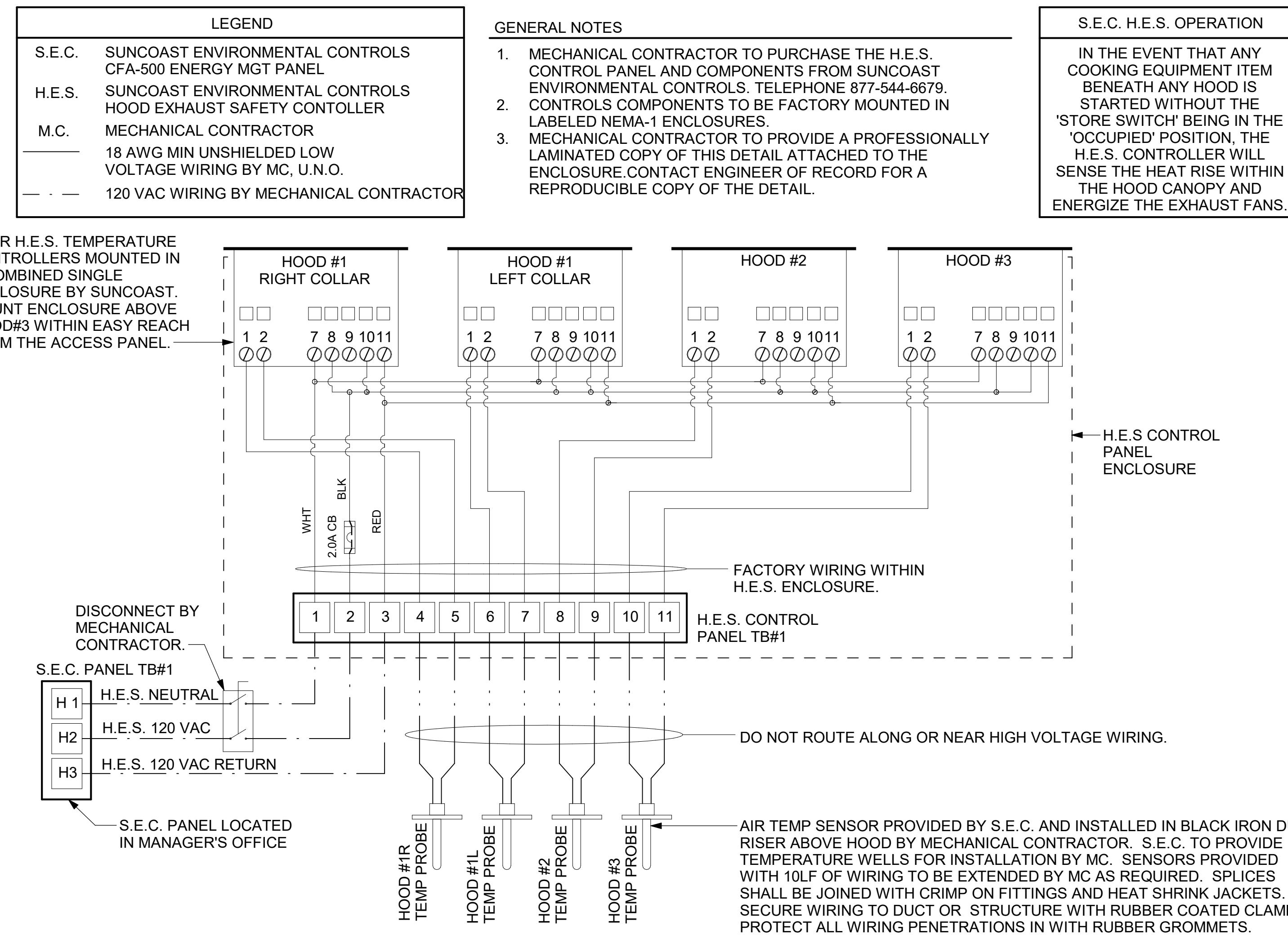
SHEET HVAC CONTROLS

SHEET NUMBER

**M-702**

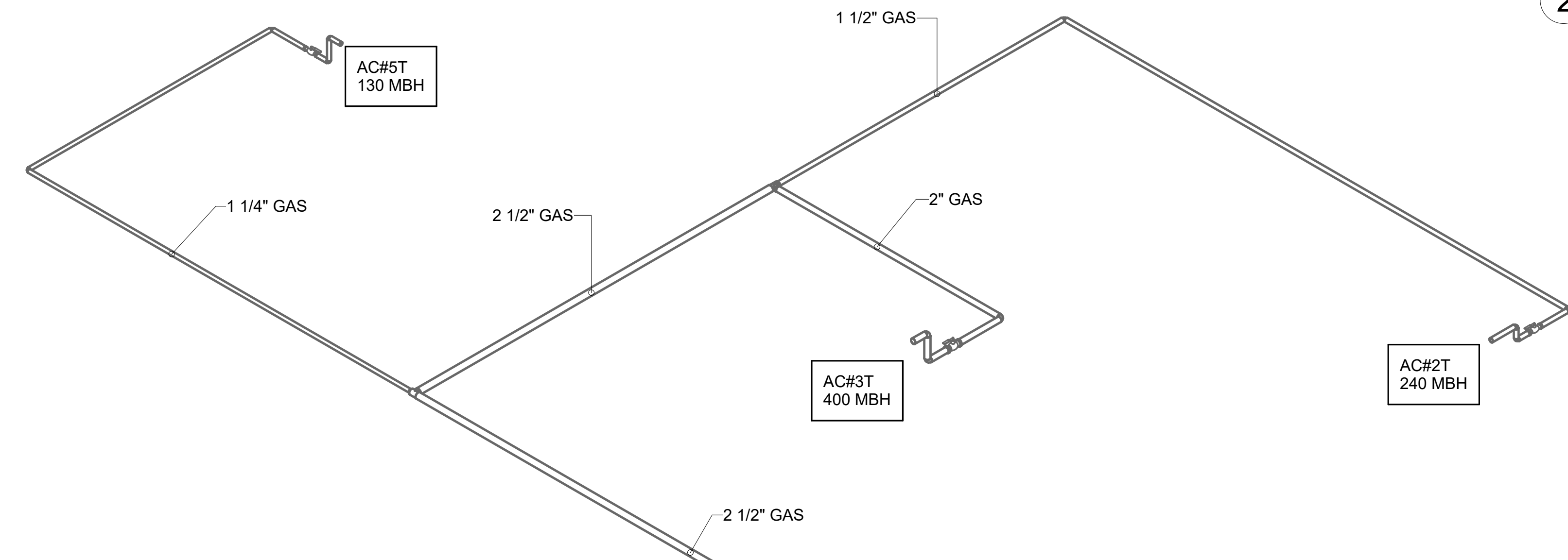


**2 AIR CURTAIN WIRING DIAGRAM**  
NOT TO SCALE



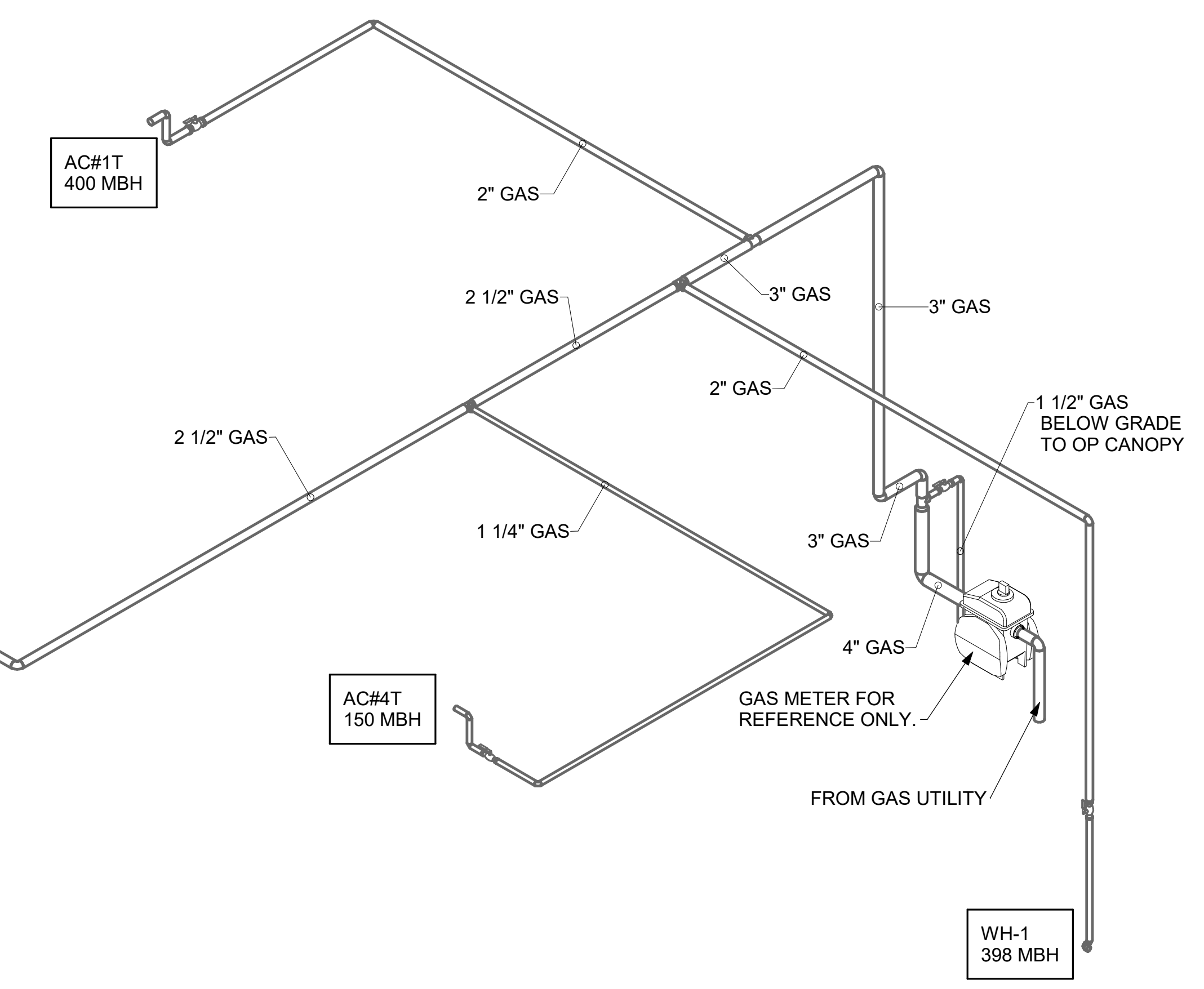
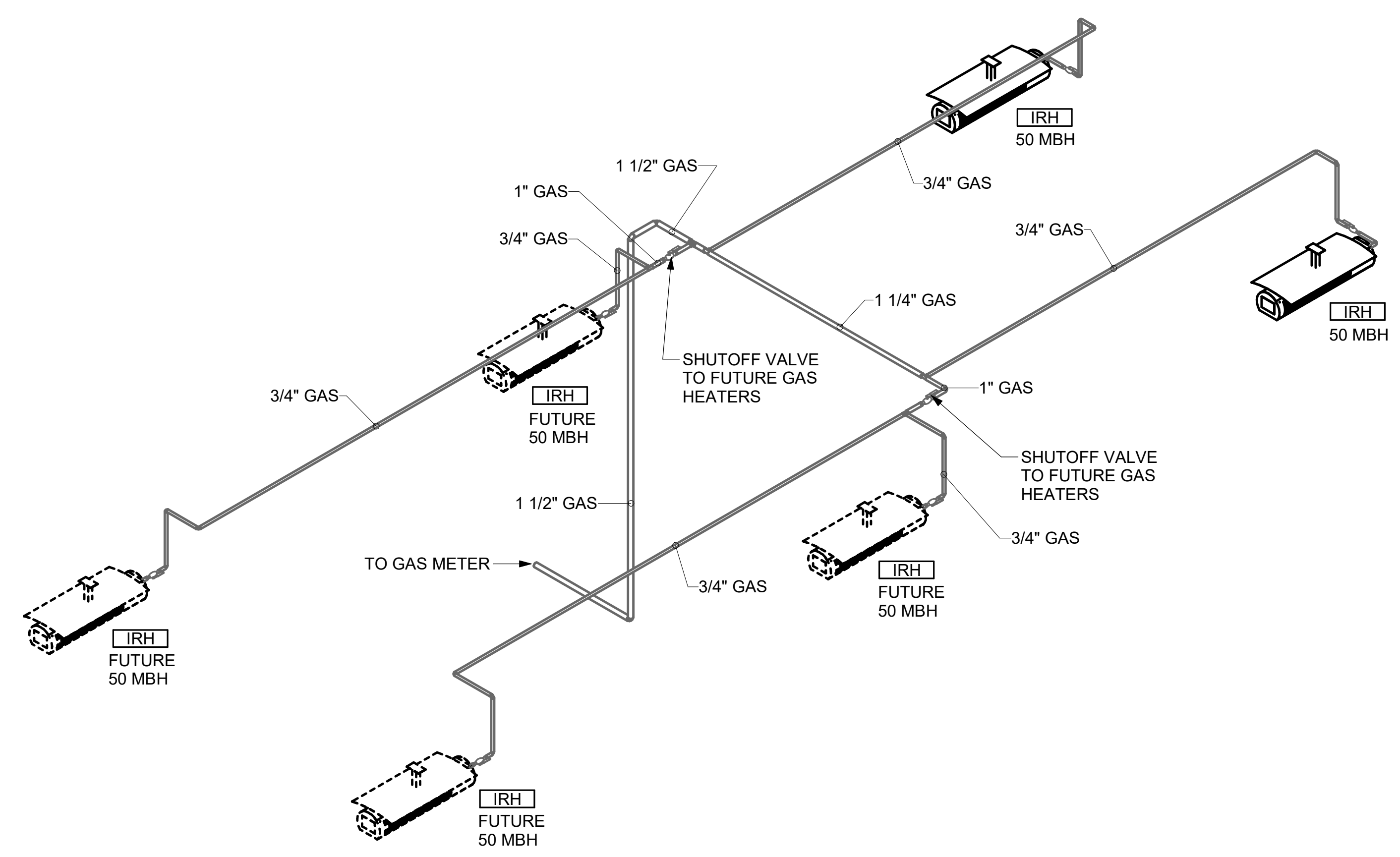
**1 HOOD FAN/EQUIPMENT INTERLOCK**  
NOT TO SCALE

Autodesk Docs://MA\_05916\_Stafford & Heard FSU\_2024.6\_FSR#05916\_Stafford & Heard FSU\_K&A\_MEC.rvt  
 6/19/2025 1:00:29 PM  
 30-LS-05916-M-901T-GAS PIPING ISOMETRICS - TRANE



**1** GAS PIPING ISOMETRIC - TRANE

**2** ORDER CANOPY GAS PIPING ISOMETRIC



**Chick-fil-A**  
 5200 Buffington Road  
 Atlanta, Georgia  
 30349-2998

**Kurzynske & Associates**  
 2705 Lebanon Pike - Suite One  
 Nashville, Tennessee 37214  
 Telephone: (615) 255-5203



**CHICK-FIL-A**  
 Stafford & Heard FSU  
 99 Stafford Street  
 Worcester, MA 01603

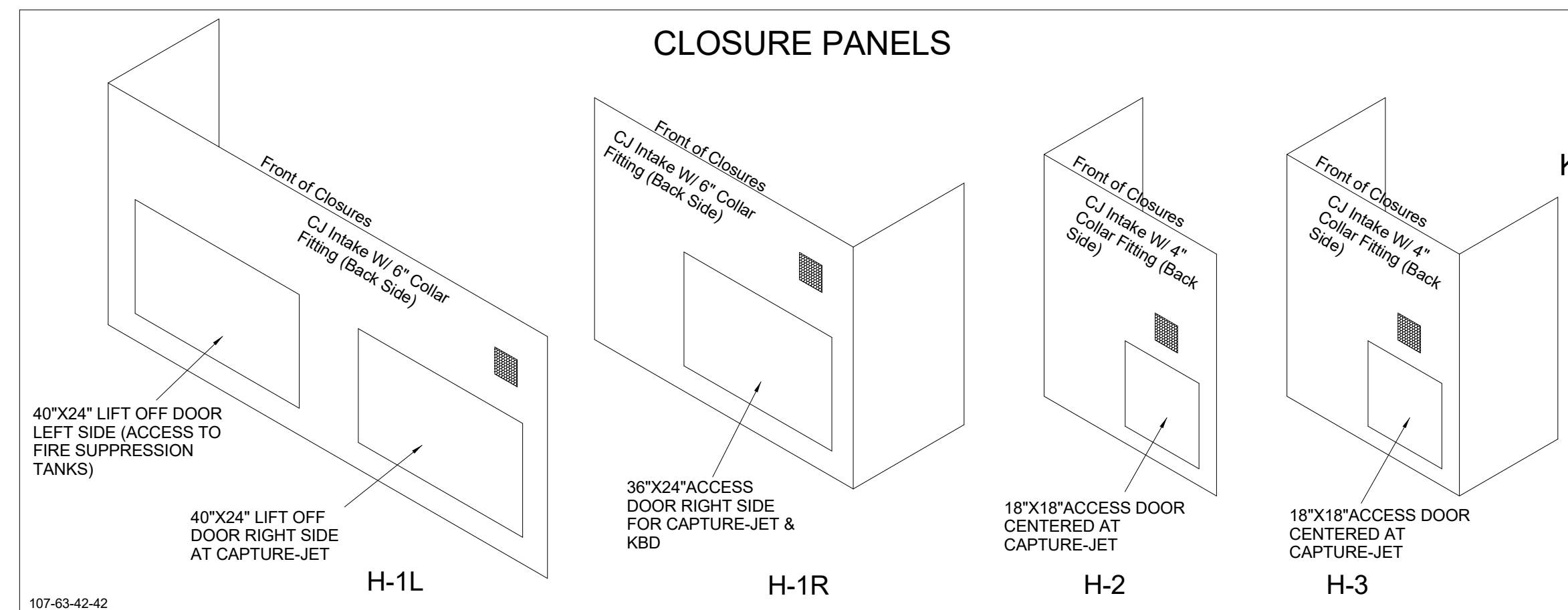
**FSR#05916**  
 BUILDING TYPE / SIZE: P-14 LS BN  
 RELEASE: 24.05  
 PRINTED FOR  
 ISSUED FOR CONSTRUCTION  
**REVISION SCHEDULE**  
 NO. DATE DESCRIPTION

**ISSUE FOR CONSTRUCTION**  
 CONSULTANT PROJECT # 25010.CD.S  
 DATE 06/20/2025  
 DRAWN BY BLM  
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 SHEET  
 GAS PIPING ISOMETRICS - TRANE  
 SHEET NUMBER

**M-901T**

HOOD MODEL	HOOD NUMBER	EXHAUST COLLAR			EXHAUST AIR INFORMATION			CAPTURE AIR INFORMATION		S.S. KSA FILTERS		LED LIGHTS		CEILING CLOSURES				MATERIAL	
		QTY	LENGTH	WIDTH	CFM	TAB	SP	CFM	SP	FULL	HALF	QTY	CLOSURE HEIGHT	CEILING HEIGHT	HOOD WEIGHT	KBD DAMPER	K FACTOR (CFM = K FACTOR * √DP)		
KVL-2-IC	H-1L	1	14"	8"	1204	0.13"	0.22"	80	0.30"	5	-	3	2	51"	122"	669 LBS	*	3365	EXPOSED SURFACES 18 GA. S.S.
KVL-2-IC	H-1R	1	8"	8"	709	0.13"	0.23"	47	0.30"	3	-	2	2			394 LBS	*	1959	
KVL-C-IC	H-2	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	2			245 LBS	*	1291	
KVL-C-IC	H-3	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	3			245 LBS	*	1291	

**FOR REFERENCE ONLY**

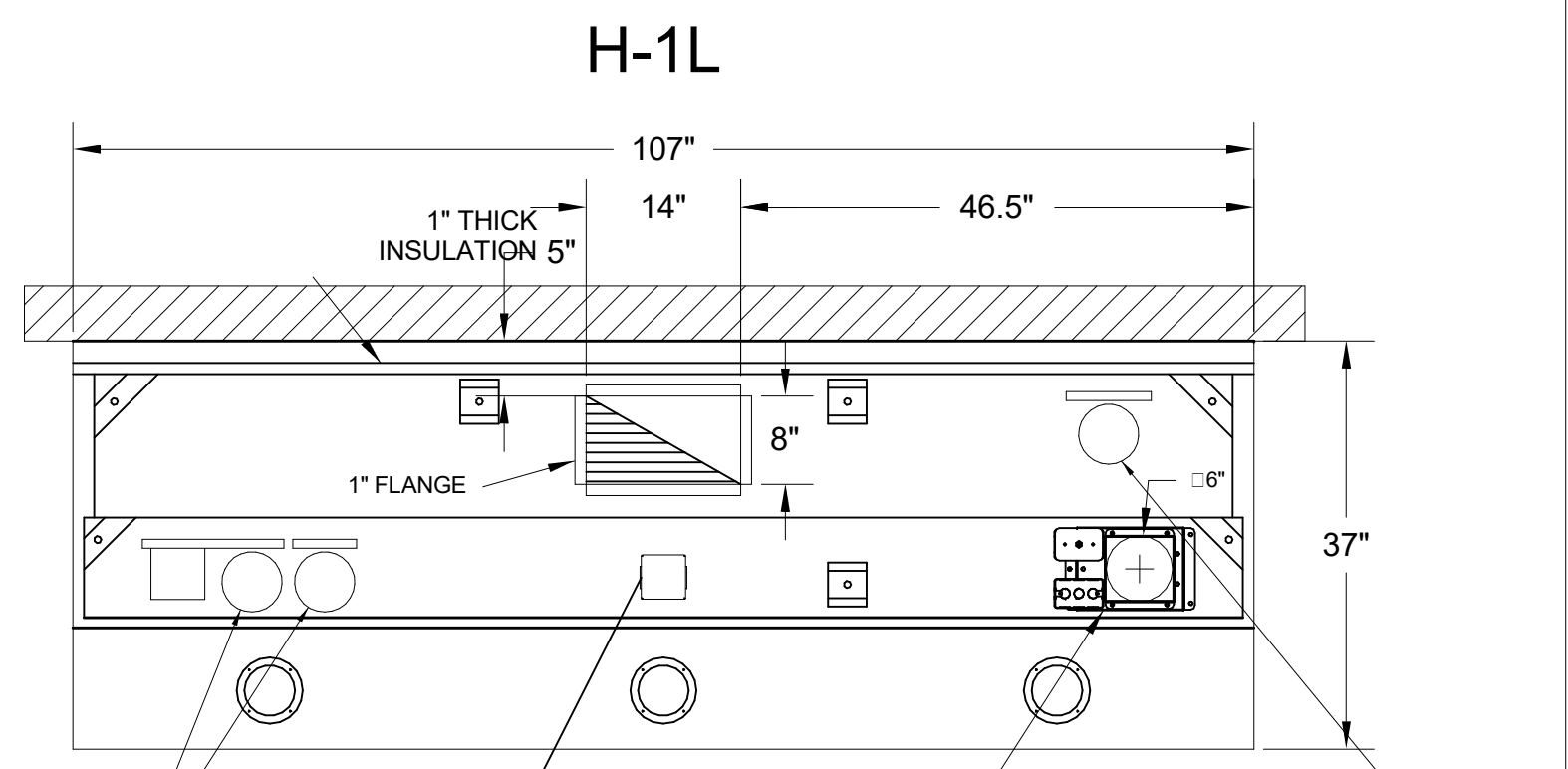
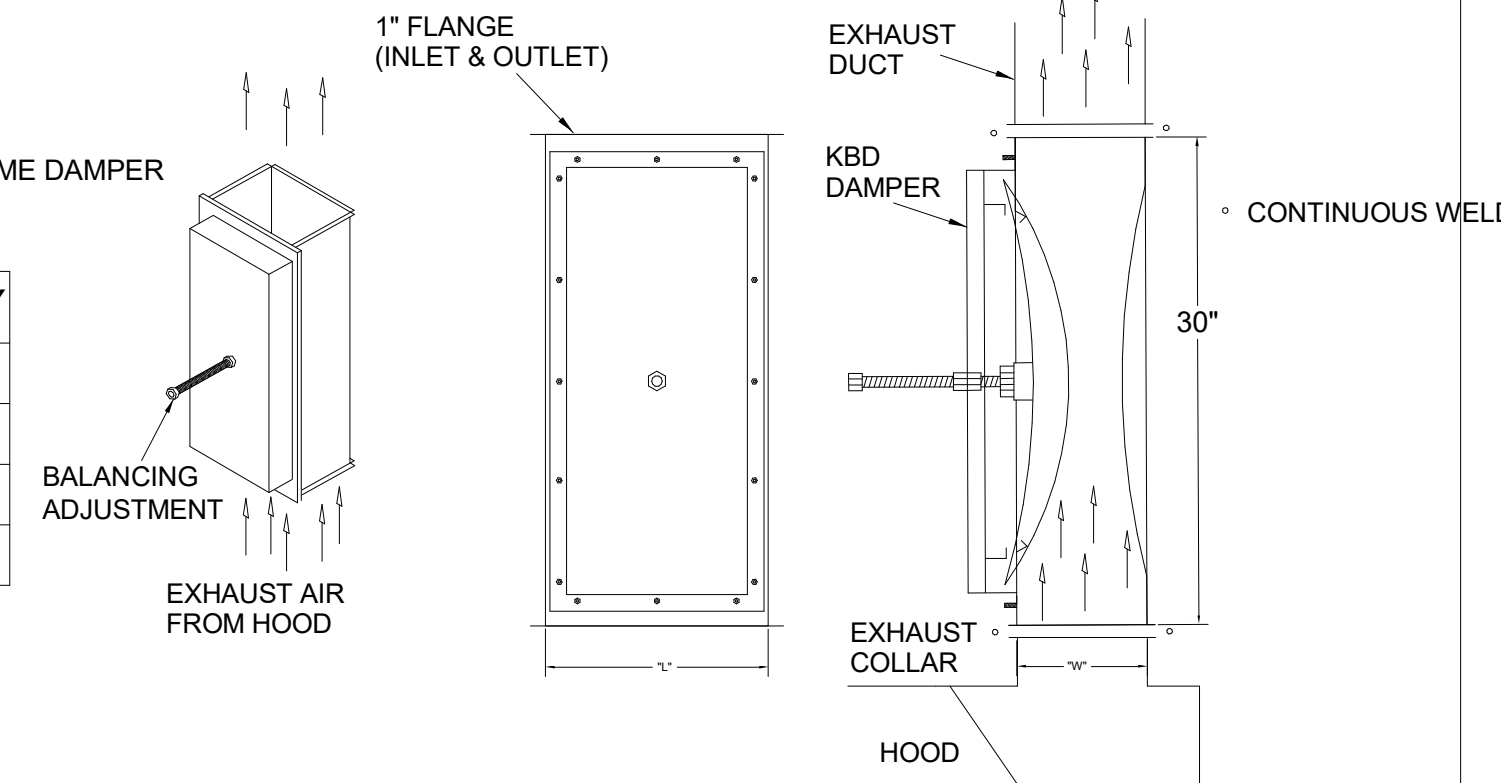


**MODEL:KBD CALIBRATED**

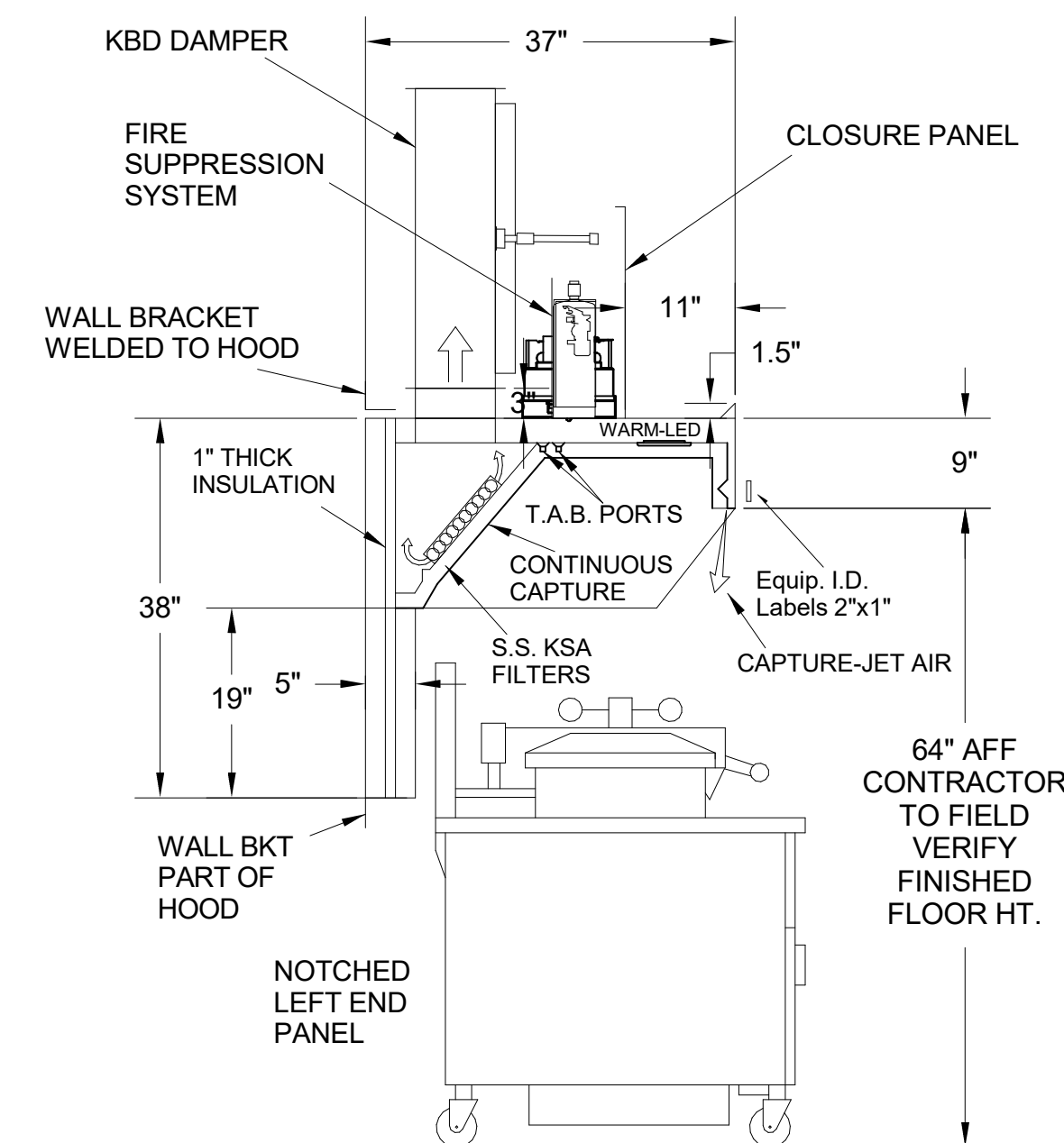
KITCHEN BALANCING DAMPER EXHAUST VOLUME DAMPER

TAG	"L"	"W"	QUANTITY
H-1L	14"	8"	1
H-1R	8"	8"	1
H-2	8"	8"	1
H-3	8"	8"	1

MATERIAL: FRAME - 16GA CONT. GALV. ADJUSTABLE PANEL 18GA S.S.



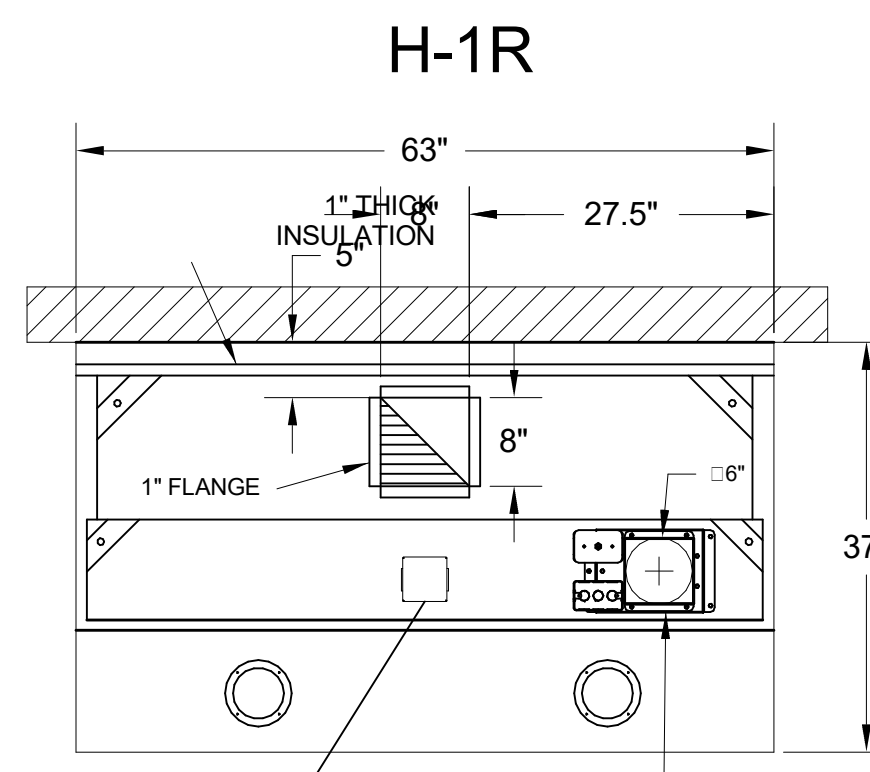
**PLAN VIEW**



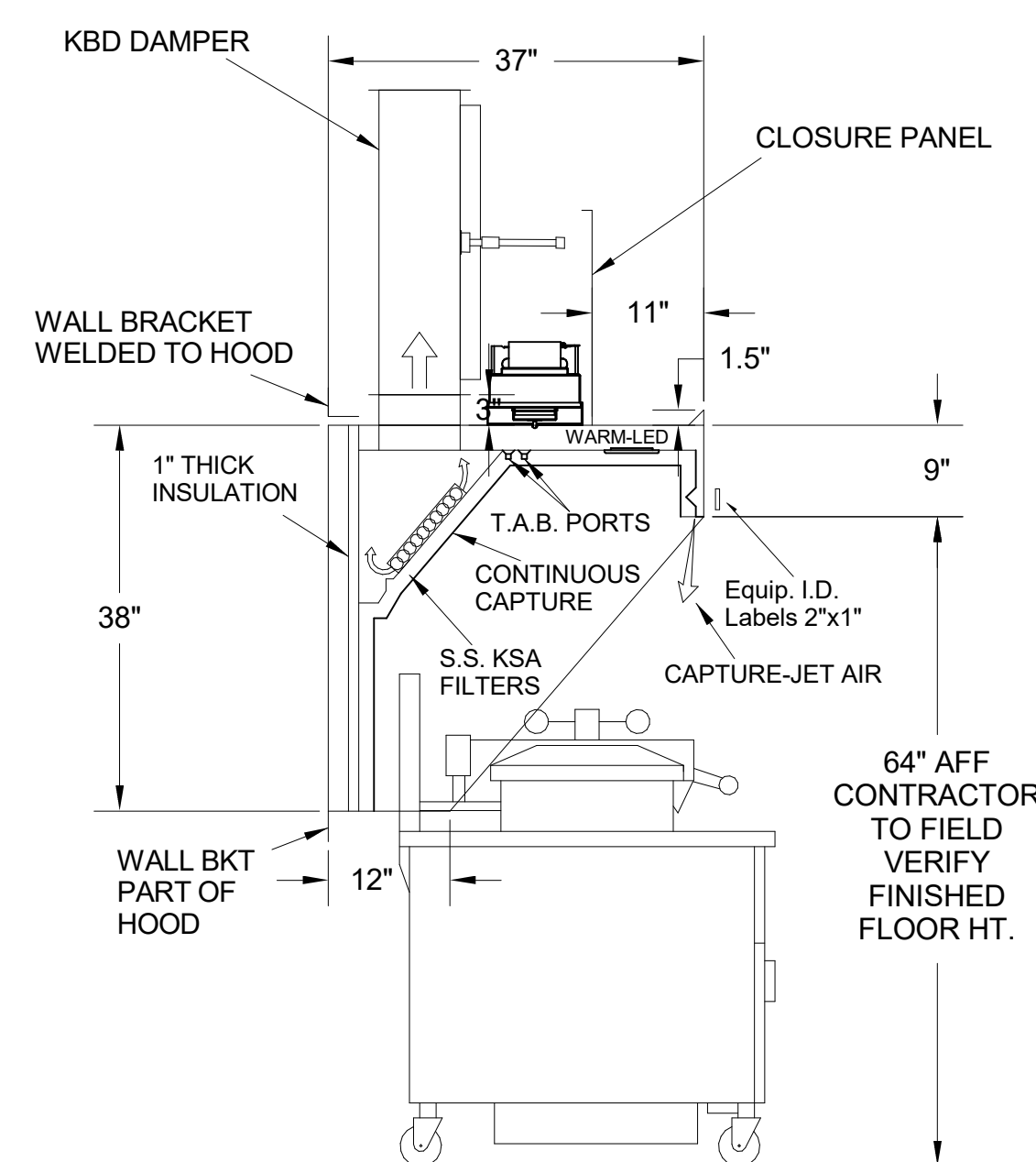
**H-1L SECTION VIEW**

- CEILING CLOSURE RECESSED 11" FROM FRONT TO CREATE SHELF
- FRONT CLOSURE PANEL WITH 40"X24" LIFT OUT DOOR LEFT SIDE (ACCESS TO FIRE SUPPRESSION)
- 40"X24" LIFT DOOR RIGHT SIDE AT CAPTURE-JET WITH FRONT CJ INTAKE
- CONTINUOUS CAPTURE INTERNAL RIGHT END CUTOUT
- 3" REAR STAND-OFF TO HAVE 1" THICK INSULATION
- NOTCHED LEFT END PANEL
- EQUIPMENT COVERED: (4) PRESSURE FRYERS (2) GRILLS
- ANSUL WEIGHT = 286 LBS
- AMEREX WEIGHT = 264 LBS

MODEL NO.	SERIAL NO.	ITEM NO.



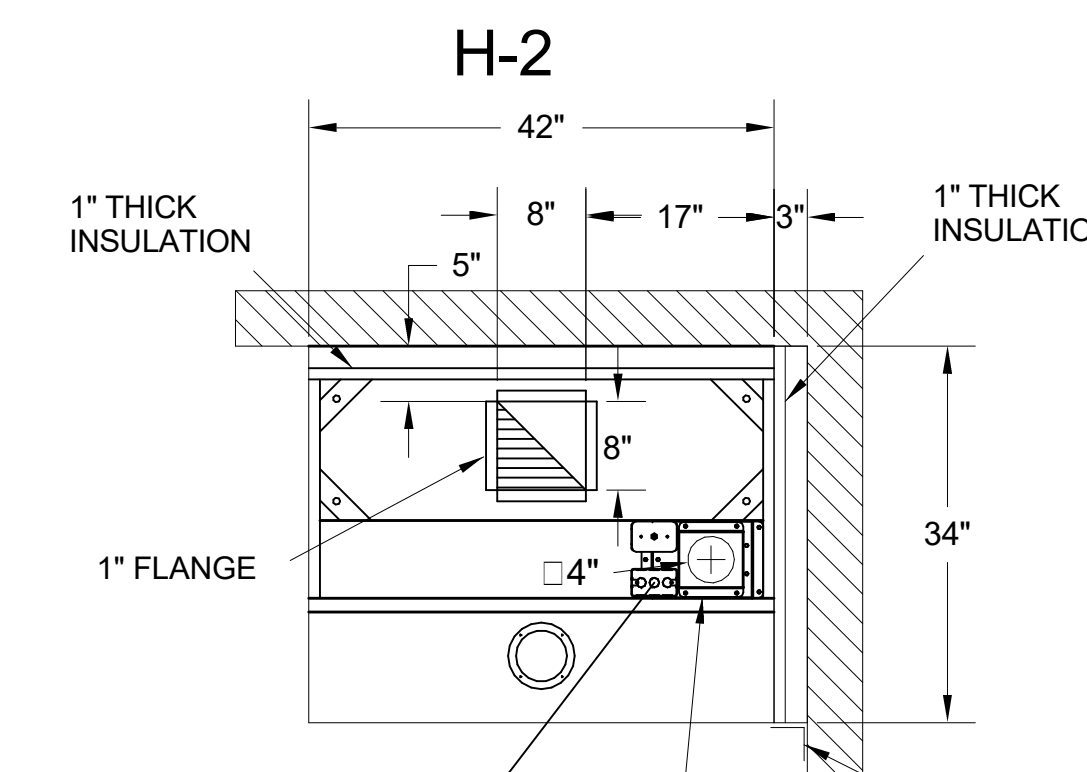
**PLAN VIEW**



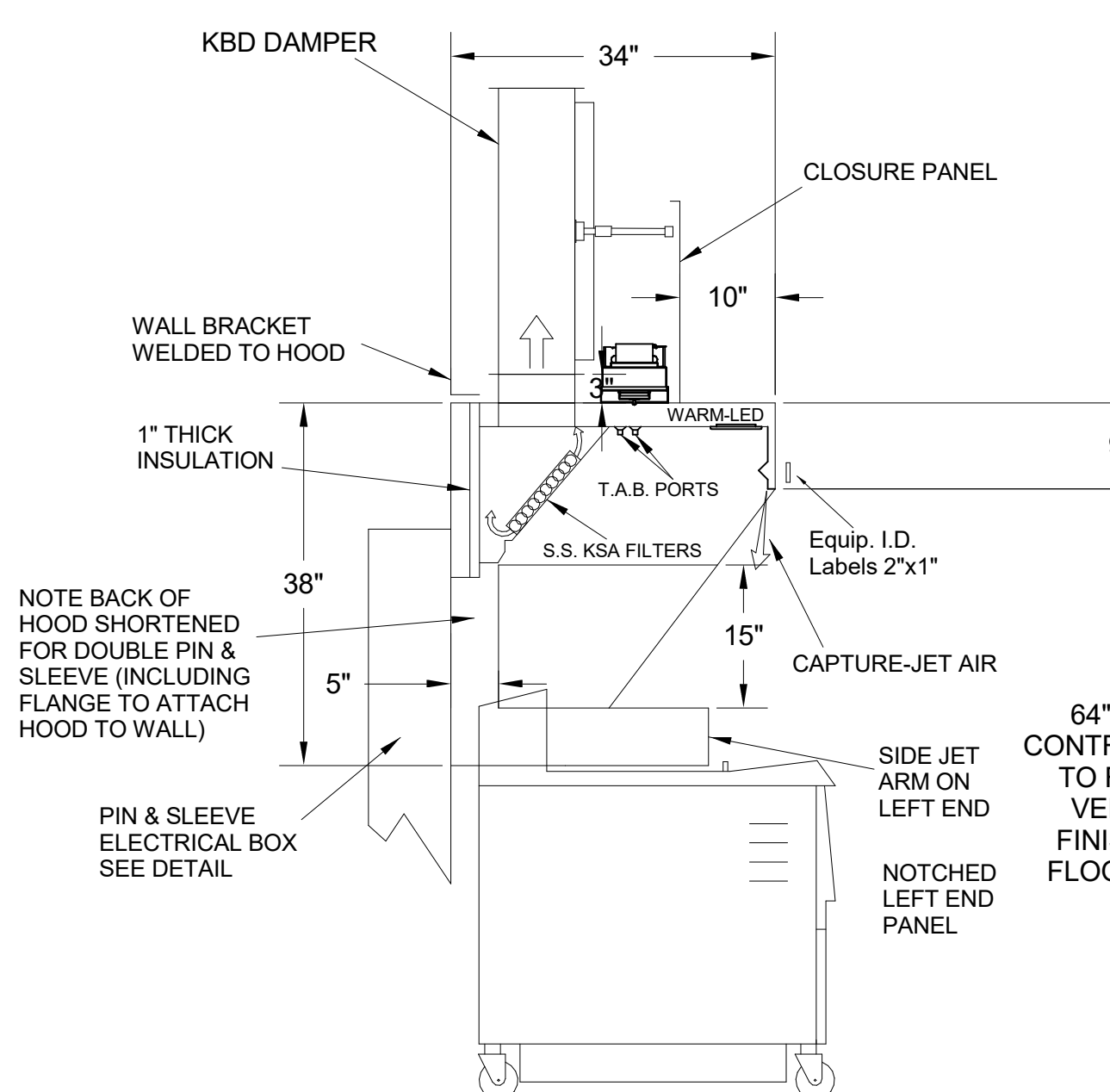
**H-1R SECTION VIEW**

- CEILING CLOSURE RECESSED 11" FROM FRONT TO CREATE SHELF
- 36"X24" ACCESS DOOR RIGHT SIDE FOR ACCESS TO CAPTURE-JET WITH FRONT CJ INTAKE & KBD
- CONTINUOUS CAPTURE INTERNAL LEFT END CUTOUT
- 3" REAR STAND-OFF TO HAVE 1" THICK INSULATION
- EQUIPMENT COVERED: (3) PRESSURE FRYERS

MODEL NO.	SERIAL NO.	ITEM NO.



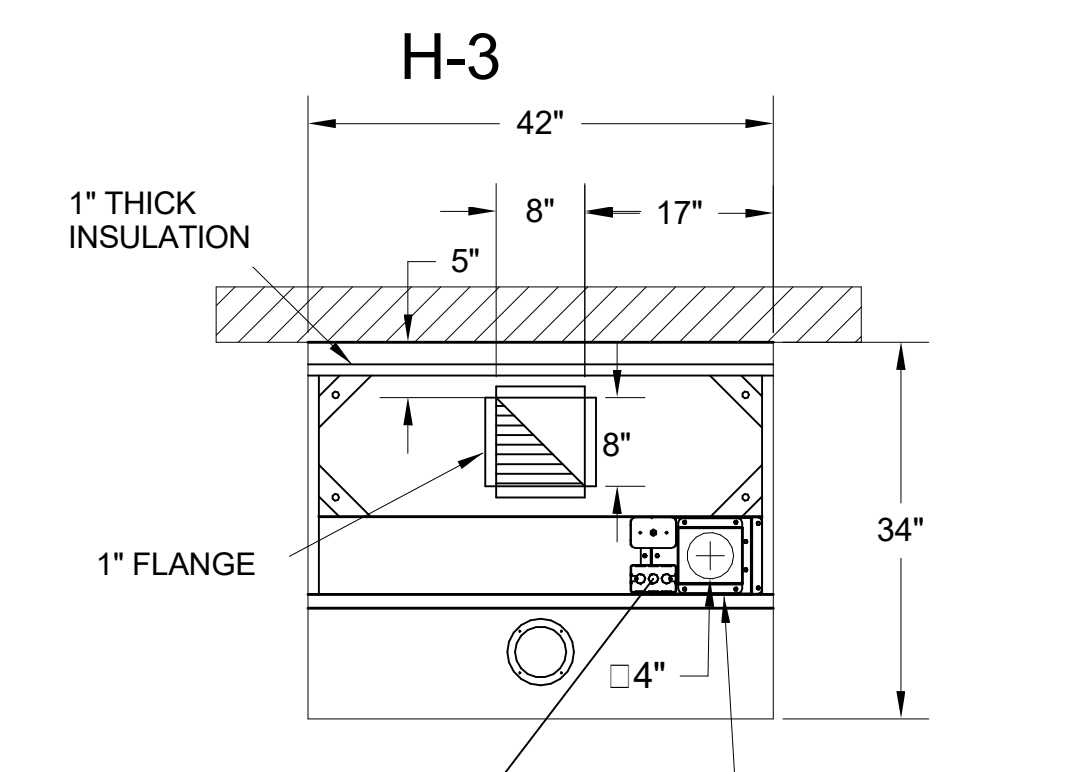
**PLAN VIEW**



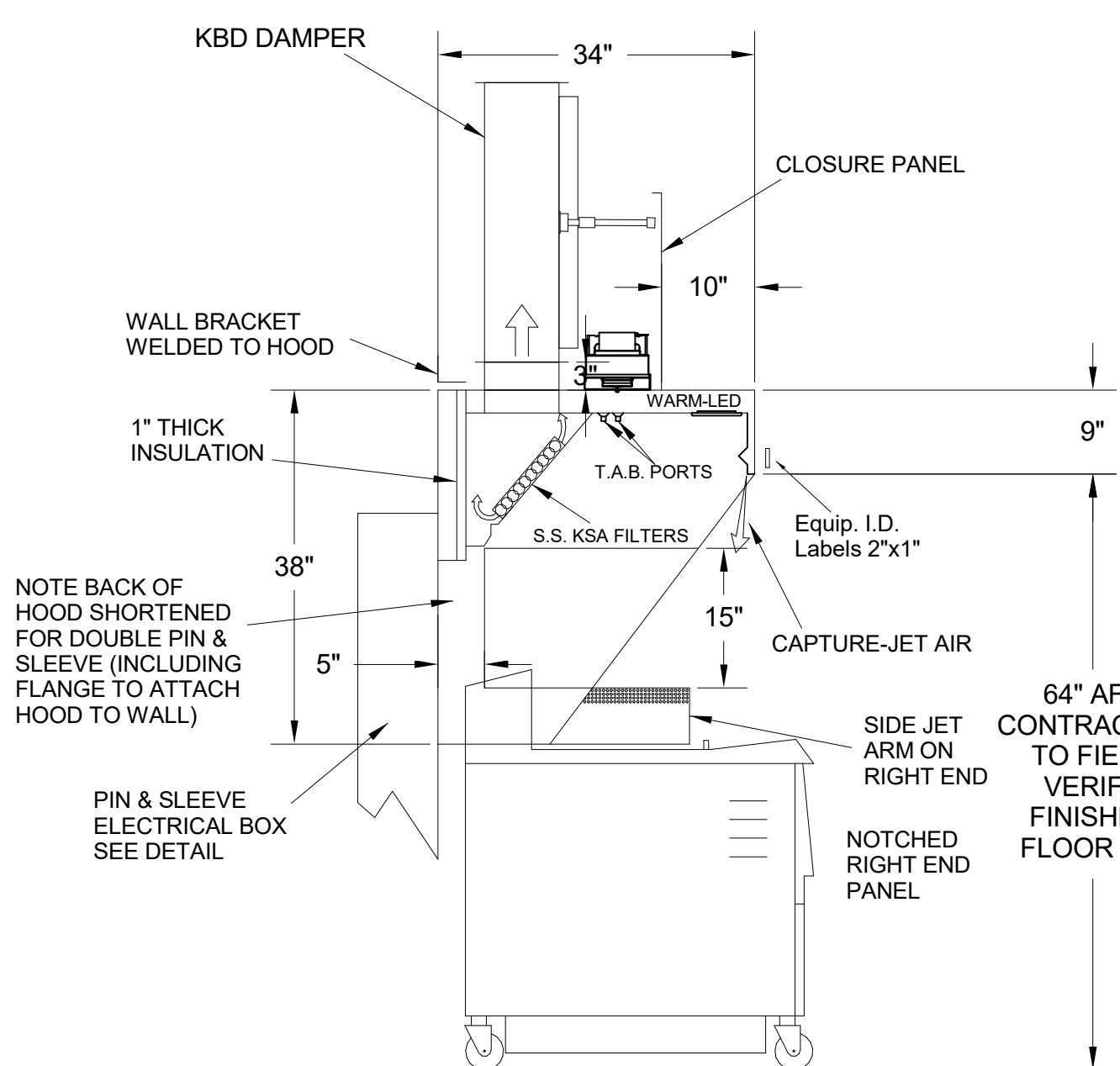
**H-2 SECTION VIEW**

- CEILING CLOSURE RECESSED 10" FROM FRONT TO CREATE SHELF
- 18"X18" ACCESS DOOR CENTERED AT CAPTURE-JET WITH FRONT CJ INTAKE
- NOTCHED LEFT END PANEL
- DOUBLE RECEPTACLE PIN & SLEEVE
- 3"X3" TRIM STRIP FOR STANDOFF ON RIGHT END
- 3" SIDE & REAR STAND-OFF TO HAVE 1" THICK INSULATION
- EQUIPMENT COVERED: (2) FRYERS

MODEL NO.	SERIAL NO.	ITEM NO.



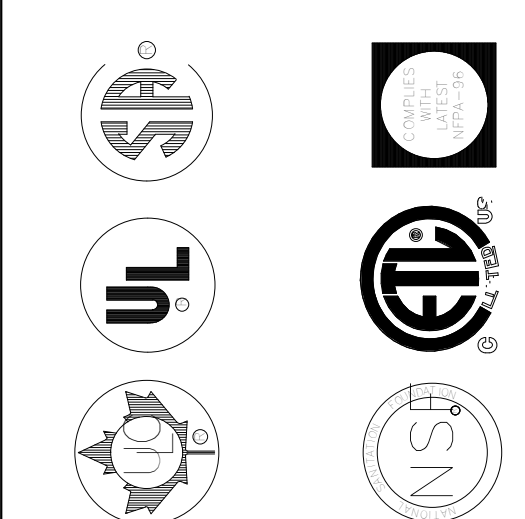
**PLAN VIEW**



**H-3 SECTION VIEW**

- CEILING CLOSURE RECESSED 10" FROM FRONT TO CREATE SHELF
- 18"X18" ACCESS DOOR CENTERED AT CAPTURE-JET WITH FRONT CJ INTAKE
- NOTCHED RIGHT END PANEL
- DOUBLE RECEPTACLE PIN & SLEEVE
- 3" REAR STAND-OFF TO HAVE 1" THICK INSULATION
- EQUIPMENT COVERED: (2) FRYERS

MODEL NO.	SERIAL NO.	ITEM NO.



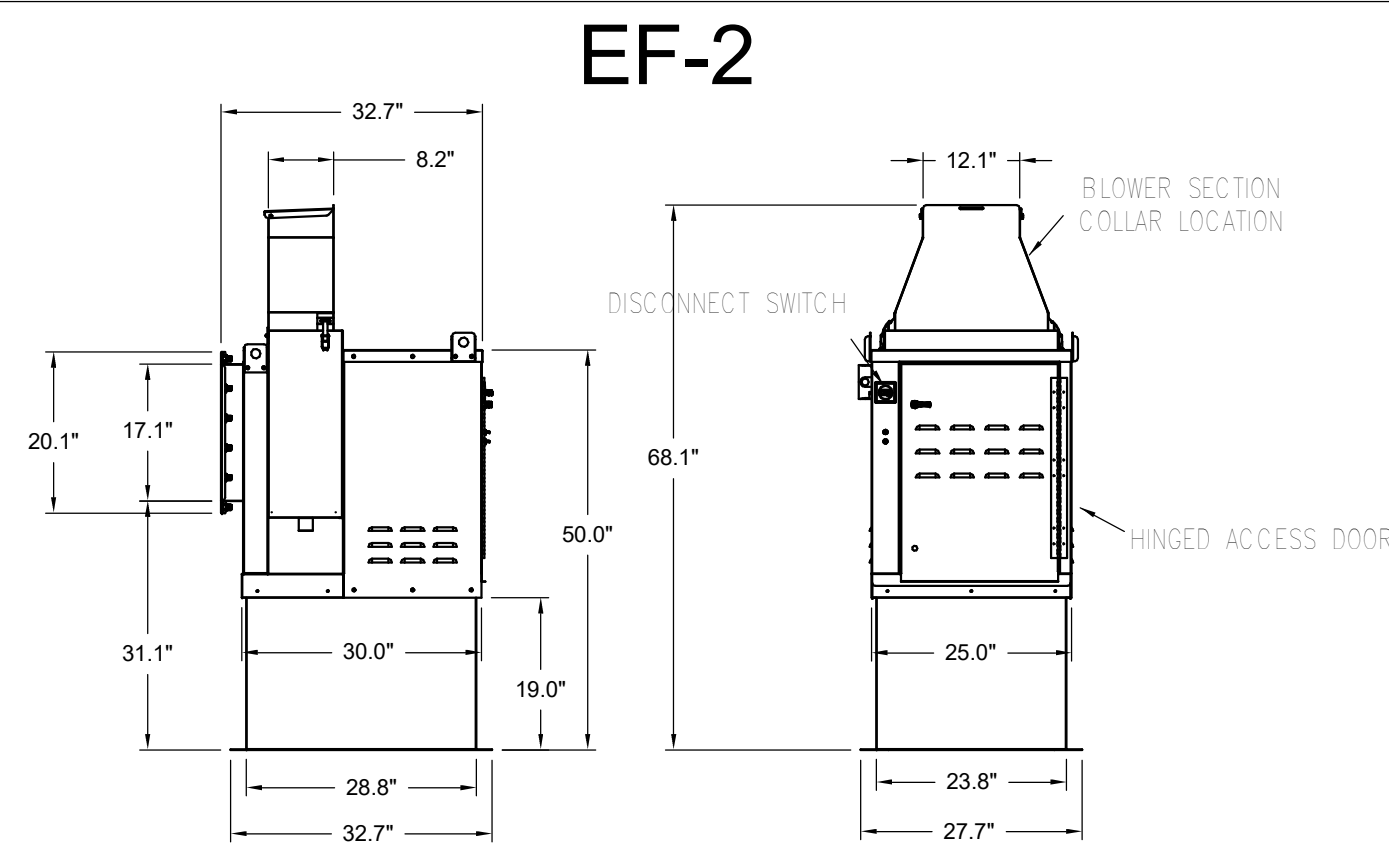
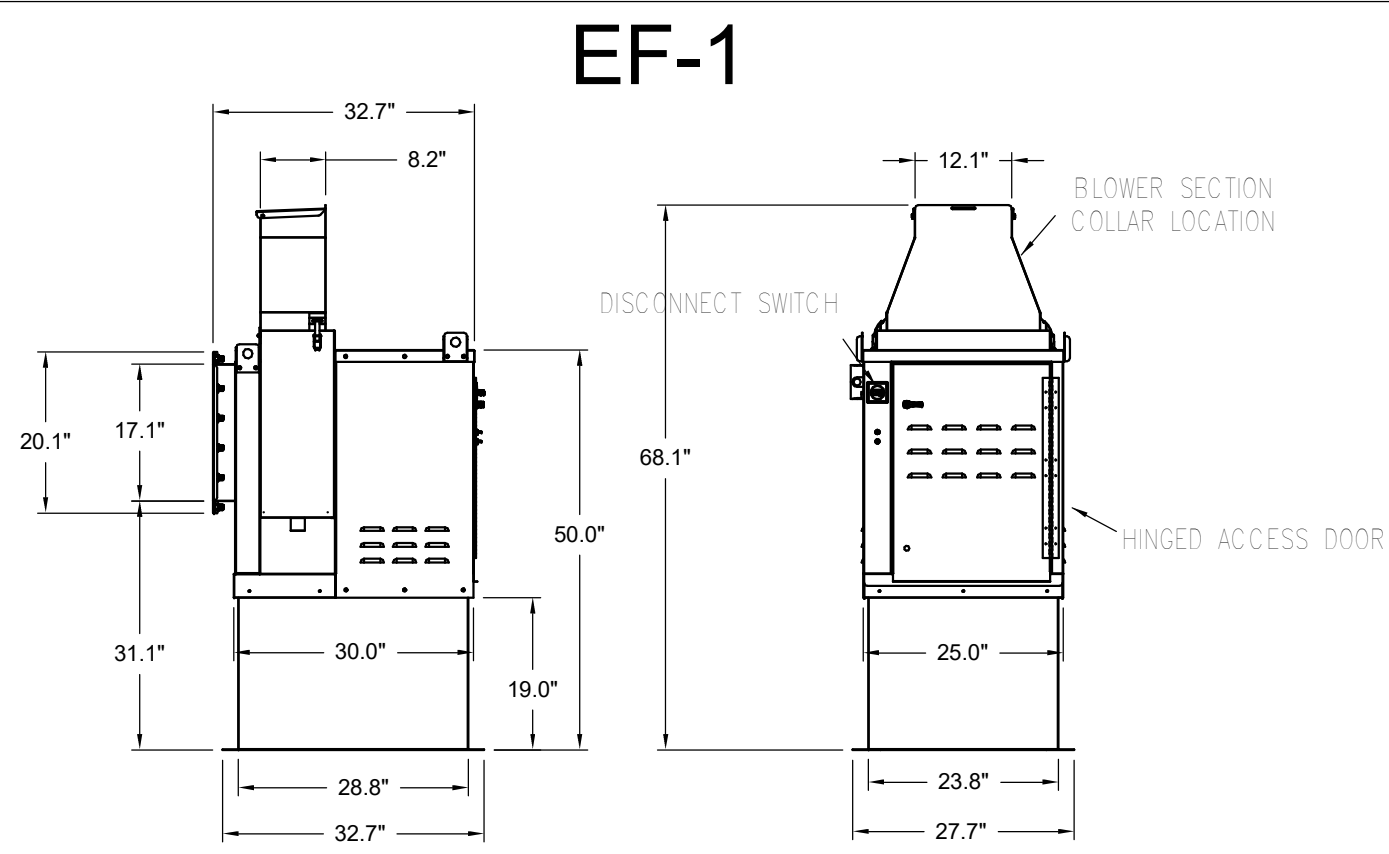
REV.	DATE	BY	DESCRIPTION
1			
2			
3			
4			
5			
6			
7			

PROJECT: **CHICK-FIL-A**  
 LOCATION: **Stafford & Heard FSU**  
 DRAWN BY: **DATE: 02/14/2025**  
 SCALE: **NTS**  
 Halton Dwg:  
**Halton**  
 CARE FOR INDOOR AIR



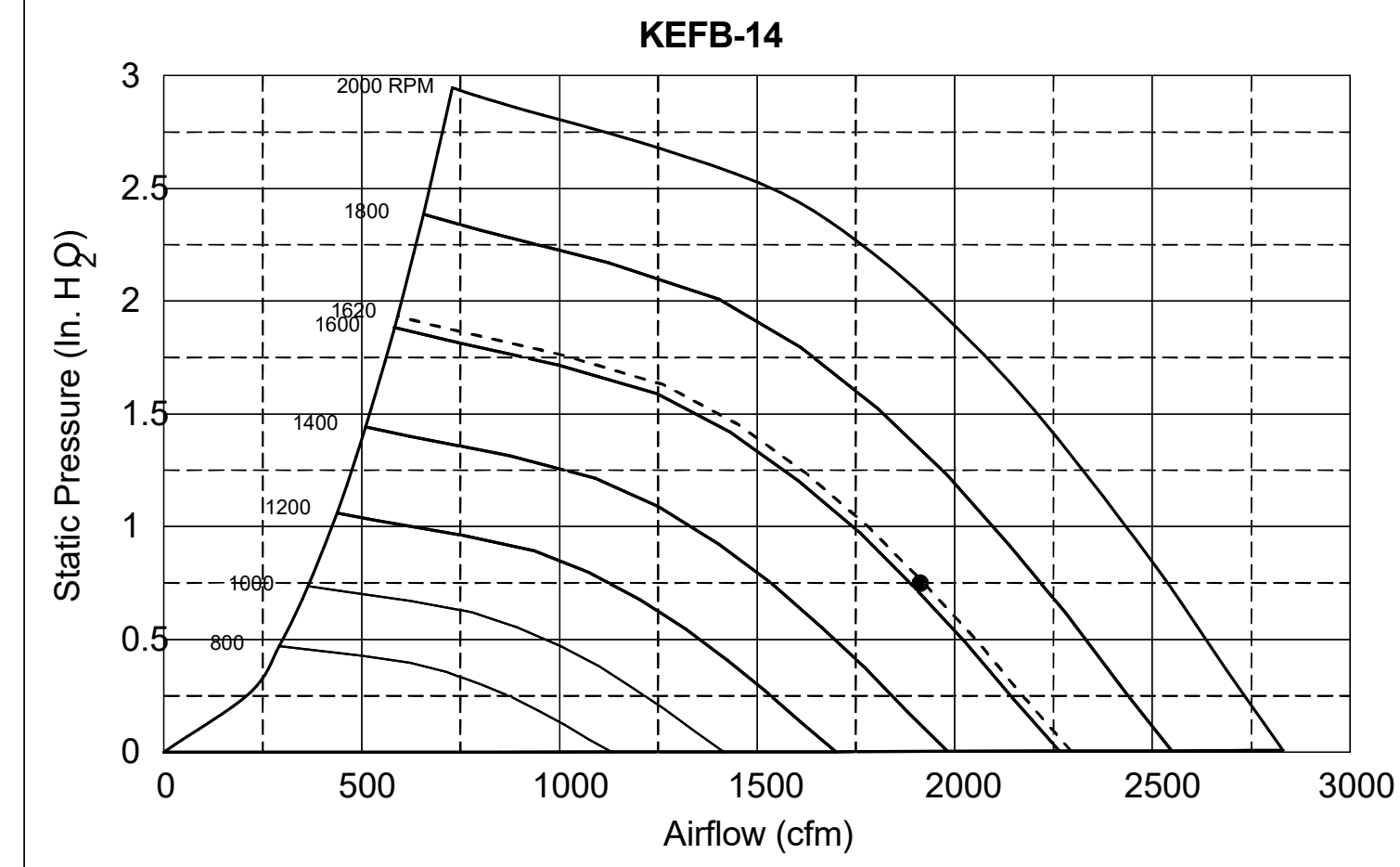


**FOR REFERENCE ONLY**



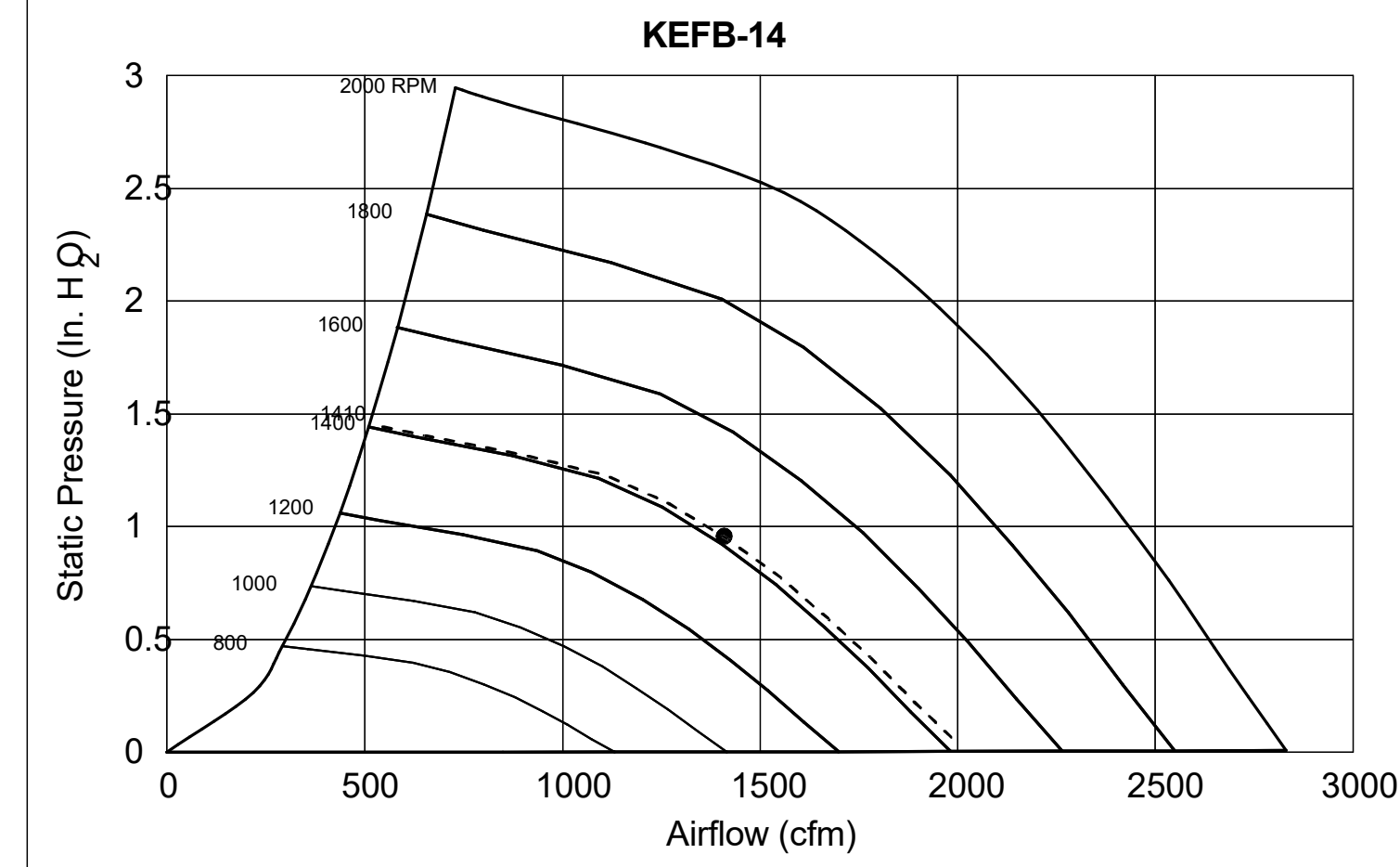
Halton KEFB Exhaust Fan

Job Name	Chick-FL-A	Location	EF-1	Item No	1747	Qty	115/160
Date	1/26/2023	Model	KEFB-14	Fan RPM	1,747	Volts/Ph/Amps	115/1/60
Model	KEFB-14	Airflow, cfm	1,913	Fan BHP	0.75	Motor HP	0.75
Airflow, cfm	1,913	Static Pressure, in WC	0.75	dB	85.3	TAB Port, in WC	4



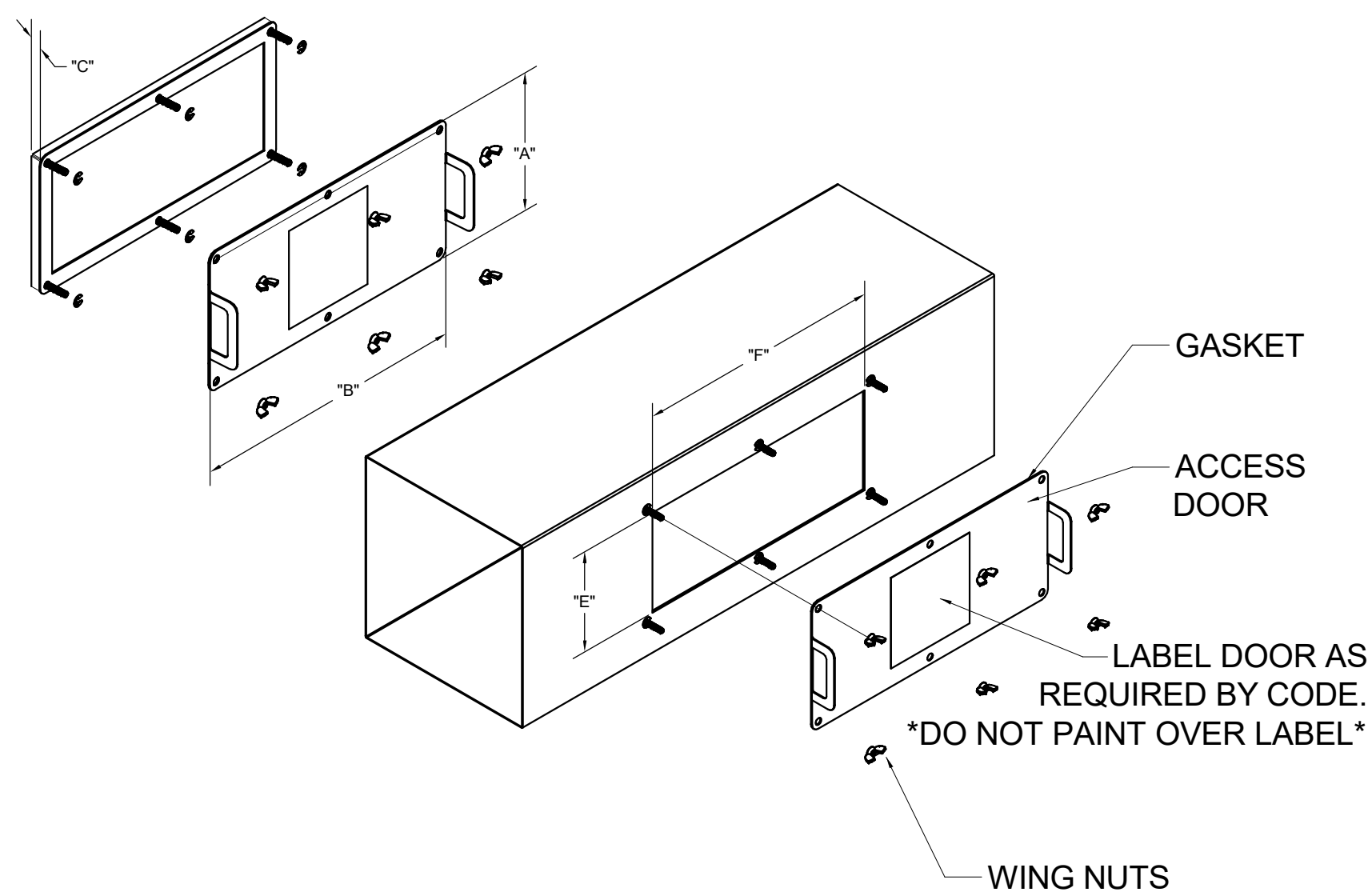
Halton KEFB Exhaust Fan

Job Name	Chick-FL-A	Location	EF-2	Item No	1,522	Qty	115/160
Date	1/26/2023	Model	KEFB-14	Fan RPM	1,522	Volts/Ph/Amps	115/1/60
Model	KEFB-14	Airflow, cfm	1,402	Fan BHP	0.38	Motor HP	0.75
Airflow, cfm	1,402	Static Pressure, in WC	0.95	dB	81.6	TAB Port, in WC	2.1

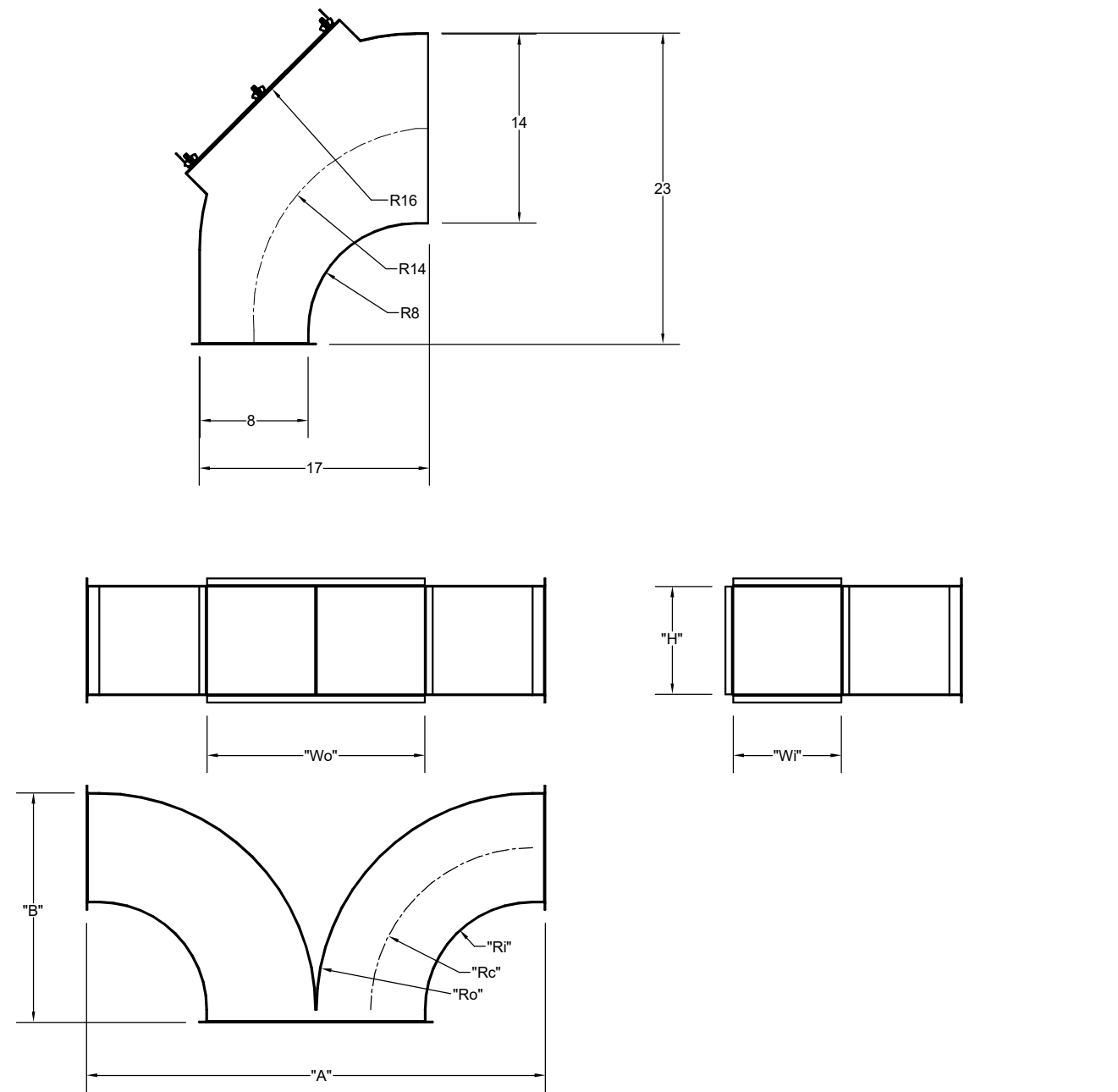


MODEL	DOOR				
	"A"	"B"	"C"	"E"	"F"
KAP0715	7	15	FLAT	5.5	13.5
KAP1015	10	15	1/2	7	12

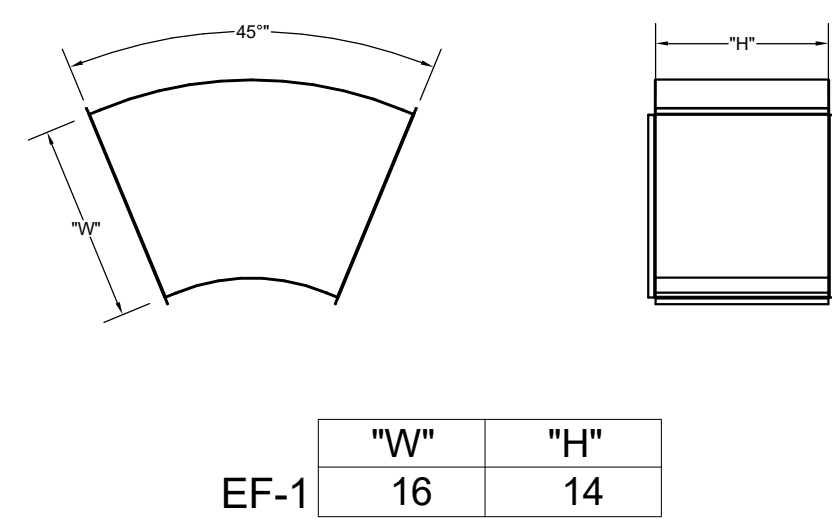
ACCESS DOORS SHALL BE U.L. 1978 LISTED OR FIELD FABRICATED, REQUIRE NO TOOLS FOR REMOVAL AND MEET THE REQUIREMENTS OF THE CURRENT EDITION OF THE IMC. ACCESS DOOR SHALL BE SECURED WITH THUMB SCREWS. ACCESS DOORS SHALL BE SEALED WITH A MINIMUM 1500 DEREK GASKET MATERIAL.



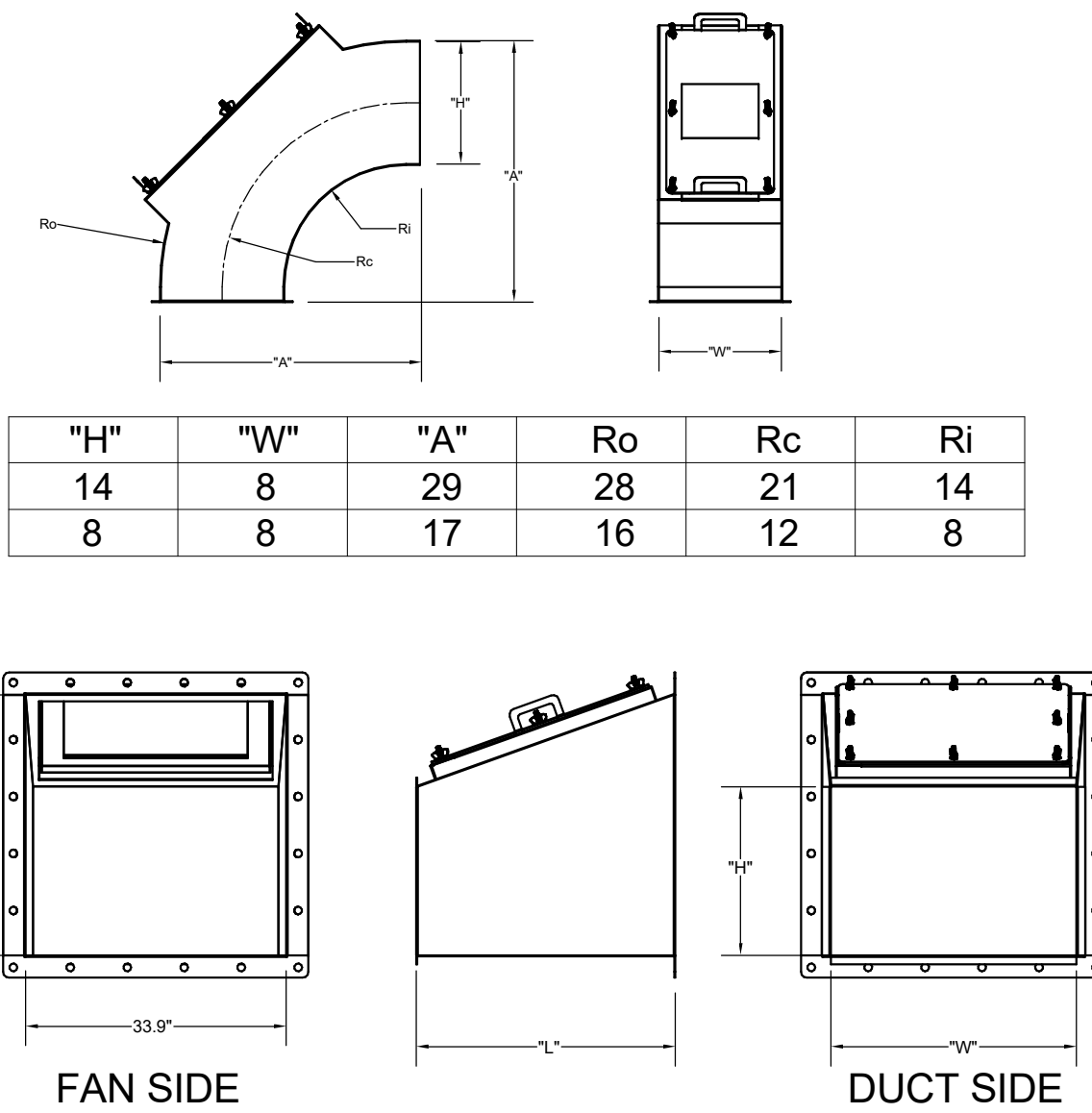
INSTALL PER MANUFACTURER'S INSTRUCTIONS



	"W"	"H"	Wo	Ro	Rc	Ri	"A"	"B"
EF-1	8	14	16	16	12	8	34	17
EF-2	8	10	16	16	12	8	34	17

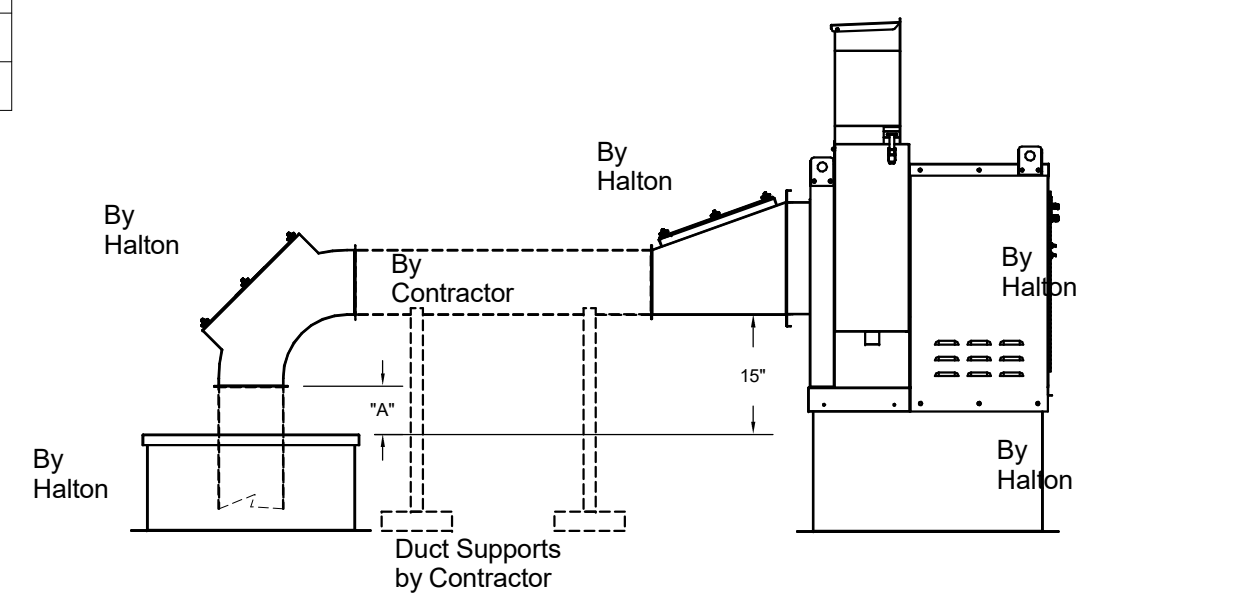


	"W"	"H"
EF-1	16	14



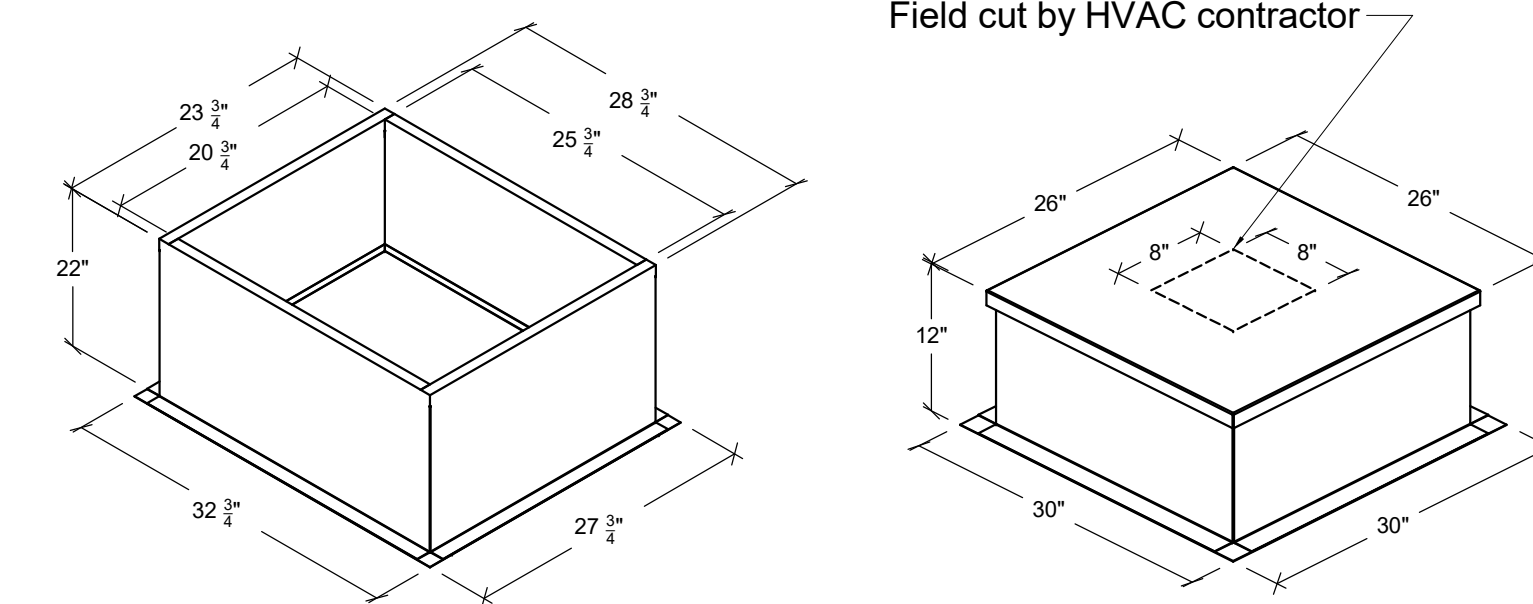
"H"	"W"	"A"	Ro	Rc	Ri
14	8	29	28	21	14
8	8	17	16	12	8

TRANSITION	"H"	"W"	"L"
EF-1 (5)	14	16	25
EF-2 (6)	10	16	17



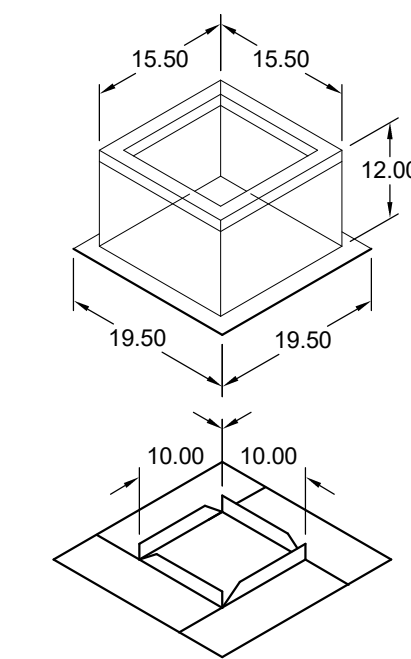
"A" DISTANCE AVAILABLE FOR DUCT SLOPE ELBOW	"A"
EF-1	14x8
EF-2	8x8

Halton Kitchen Exhaust Fan Curb Insulated Duct Curb



**Kitchen Exhaust Fan Roof Curb Standard Construction Features:**  
 - Roof Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of 18 ga aluminum steel - Straight Sided without a cant - 2 in. mounting flange - Height is 22 in.

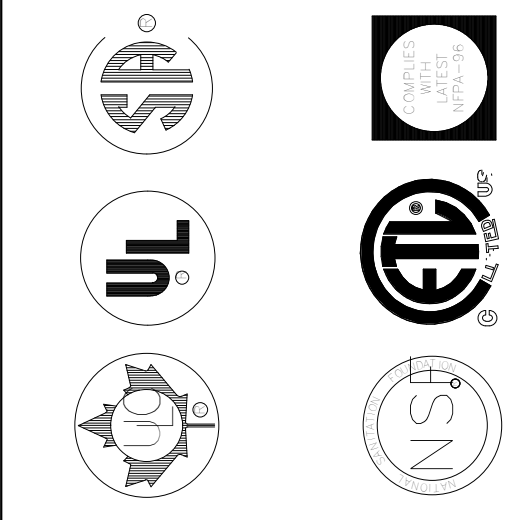
**Insulated Duct Curb Standard Construction Features:**  
 - Duct Curb fits between the building roof and the fan mounted directly to the roof support structure - Constructed of 18 ga aluminum steel - Straight Sided without a cant - 2 in. mounting flange - Height is 12 in. - 16 ga. cap



Model: GPI  
 For Model: XRED-090-VG  
 Curb & Damper Tray

Accessories				
Material	Security Bars	Liner	Insulation (in.)	Insulation R Value
Galvanized	No	No	1	R4.3

General									
Tag	Qty	Model	Sizing Method	Undersizing	Weight (lb)	Shipped Assembled	Union Label		
EF-3	1	GPI-17	Nominal	1.5	14	Yes	No Preference		
Dimensions									
Curb Height (in.)	Nominal Outside Width (in.)	Nominal Outside Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Length (in.)	Actual Inside Width (in.)	(Flange Length (in.)	Hinge Base Width (in.)	Hinge Base Length (in.)
12	17	17	15.5	15.5	12	12	19.5	16	



MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY. BELOW WEBSITE: WWW.HALTONCOMPANY.COM  
 HALTON CO. (USA)  
 101 INDUSTRIAL DRIVE  
 SCOTTSVILLE, KY 42764  
 1-270-237-5600  
 HALTON CO. (CANADA)  
 1021 BREVIK PLACE  
 MISSISSAUGA, ON L4W 3R7  
 1-905-624-0301  
 REVISION DESCRIPTION

PROJECT: **CHICK-FL-A**  
 LOCATION: **Stafford & Heard FSU**  
 DRAWN BY: **NTS** DATE: **02/14/2025**  
 SCALE: **NTS**  
 Halton Dwg:  
**halton**  
 CARE FOR INDOOR AIR  
 Sheet **MH-1.4**

