

EF-1

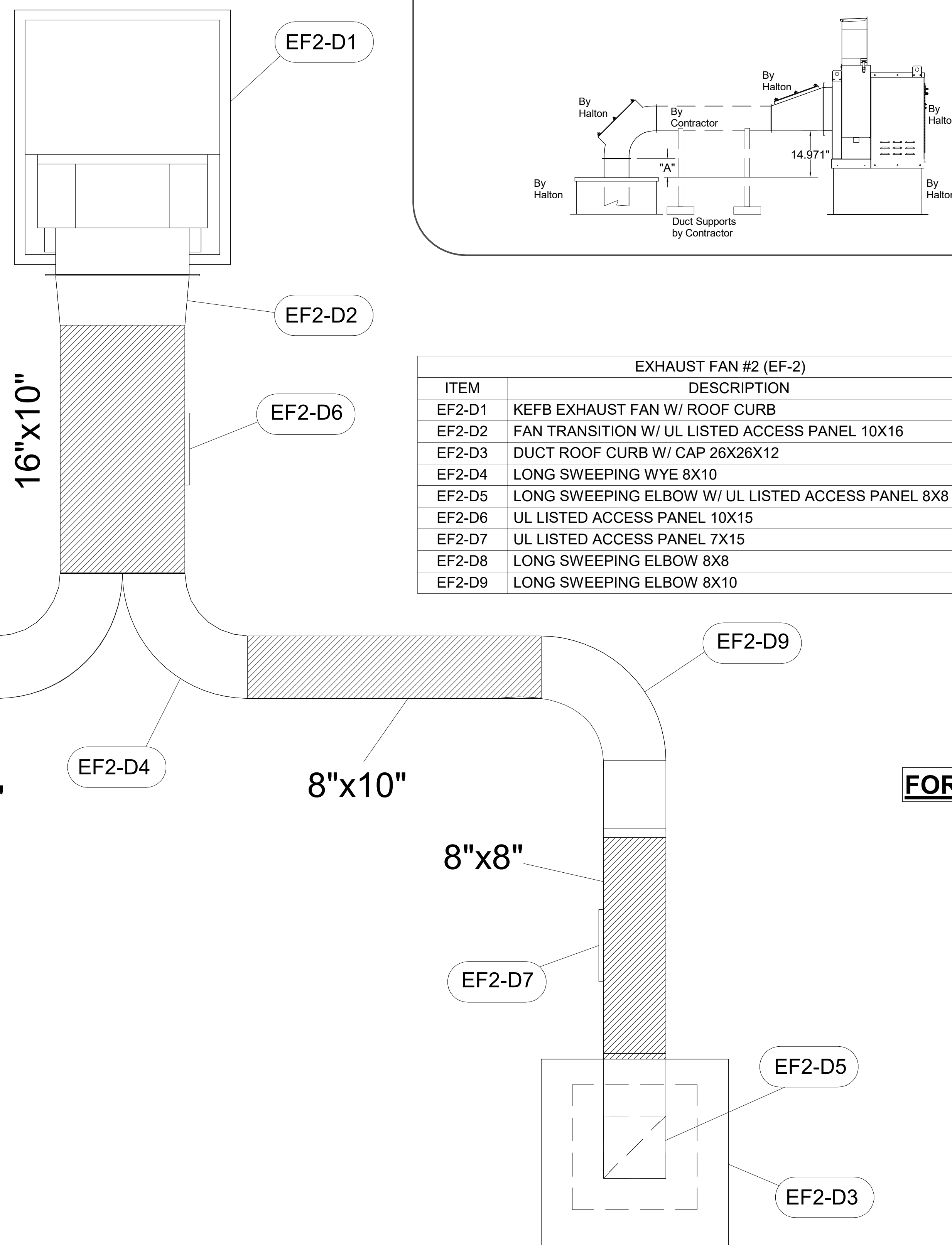
EXHAUST FAN #1 (EF-1)		
ITEM	DESCRIPTION	QTY
EF1-D1	KEFB EXHAUST FAN W/ ROOF CURB	1
EF1-D2	FAN TRANSITION W/ UL LISTED ACCESS PANEL 14X16	1
EF1-D3	DUCT ROOF CURB W/ CAP 26X26X12	2
EF1-D4	LONG SWEEPING STRAIGHT WYE 14X8	1
EF1-D5	LONG SWEEPING ELBOW W/ UL LISTED ACCESS PANEL 8X8	1
EF1-D6	LONG SWEEPING ELBOW W/ UL LISTED ACCESS PANEL 14X8	1
EF1-D7	UL LISTED ACCESS PANEL 10X15	1

ALL DUCTS AND FITTINGS DEPICTED BY HATCH AREAS ARE BY HVAC CONTRACTOR.

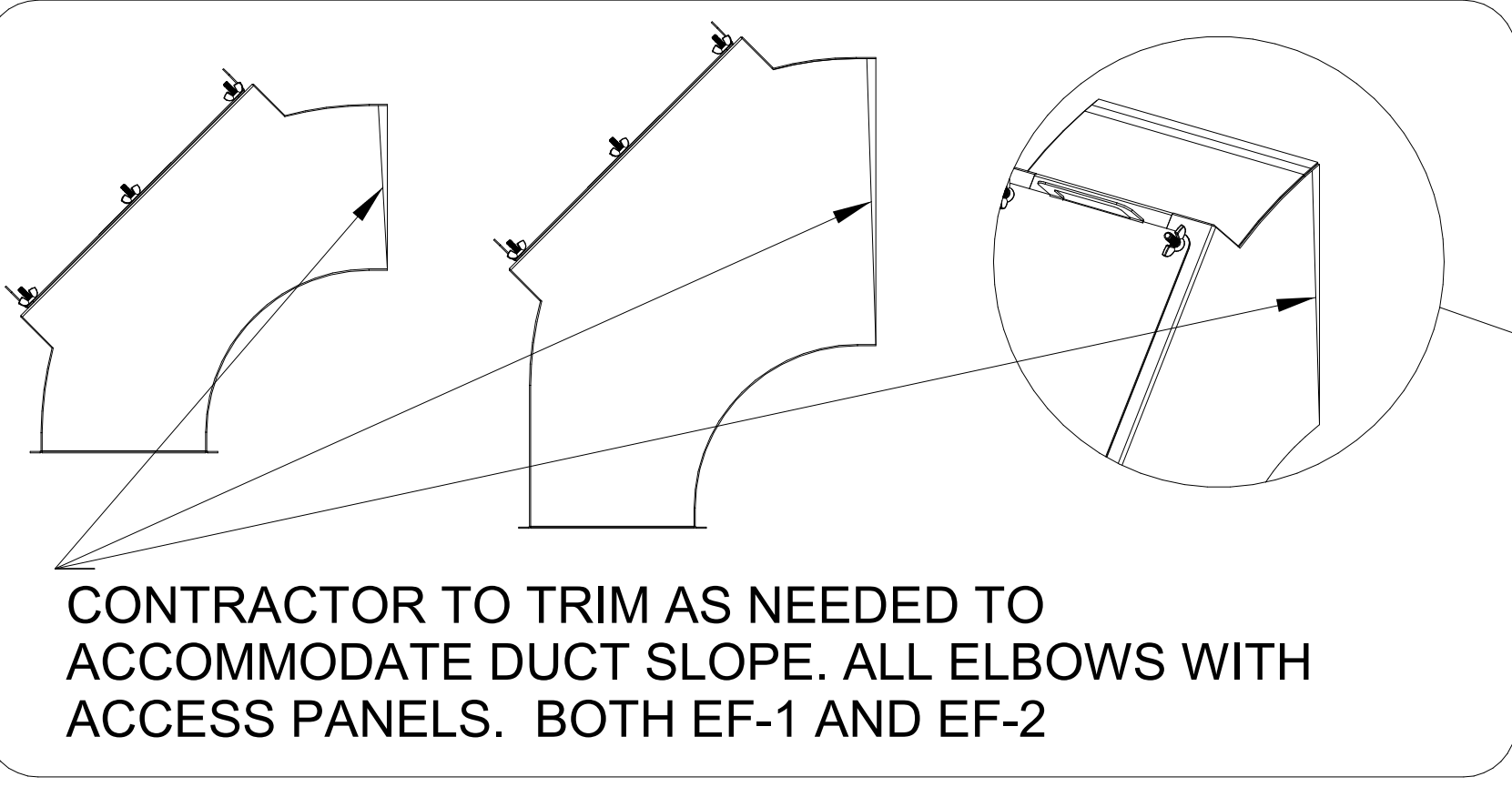
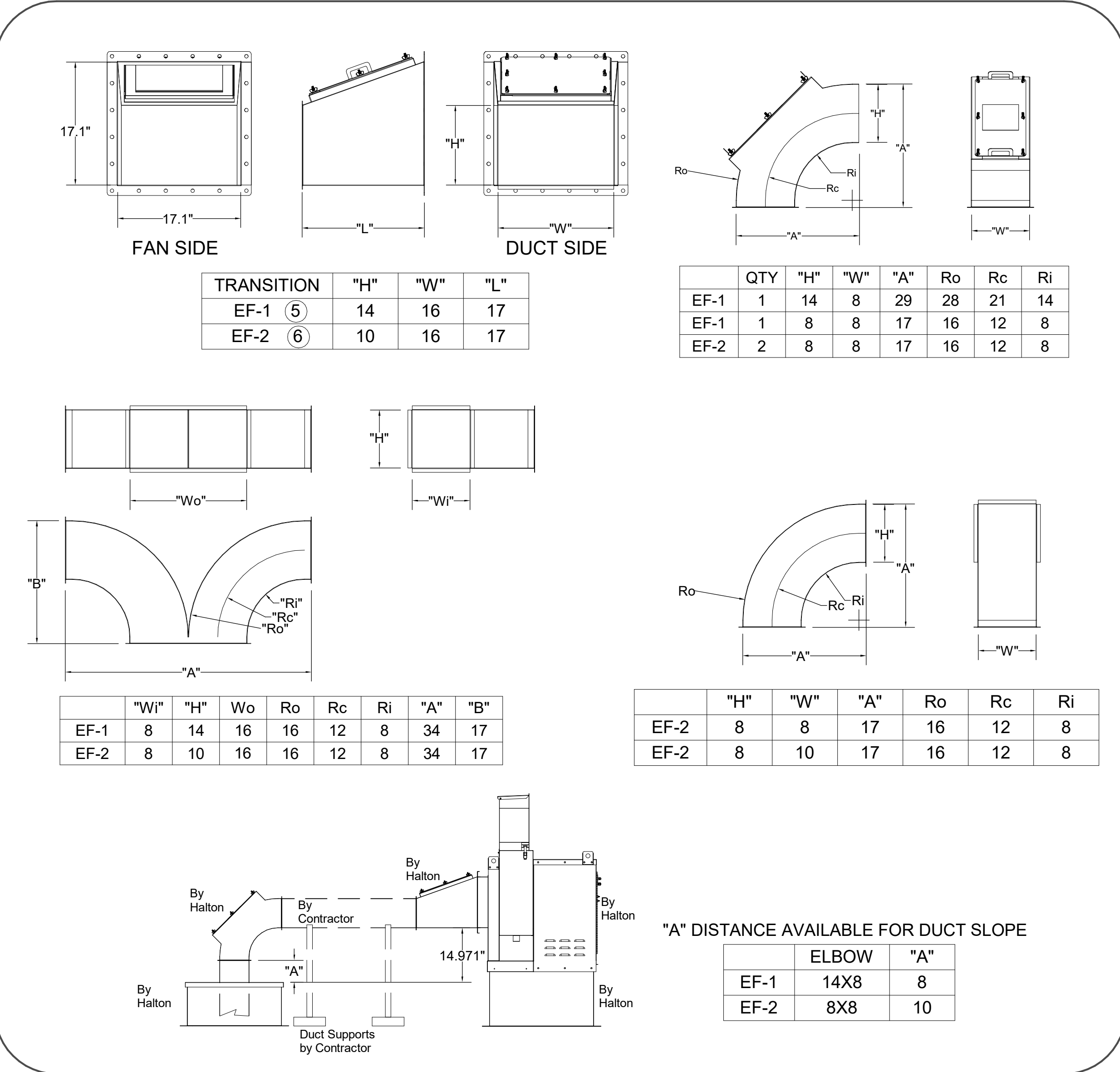
-CONTACT HALTON CUSTOMER SERVICE FOR HALTON PROVIDED ITEMS. ONLY DUCT SECTIONS SPECIFIED BY NUMBERS AND SHOWN IN THE ABOVE CHART ARE PROVIDED BY HALTON

-ALL OTHER DUCTS AND FITTINGS BY HVAC CONTRACTOR. DUCT SECTIONS PROVIDED BY HVAC CONTRACTOR ARE SHOWN IN ORDER TO DEPICT TOTAL SYSTEM DESIGN. THE UL LISTED ACCESS PANELS PROVIDED BY HALTON MUST BE INSTALLED IN DUCT SECTIONS NOT PROVIDED BY HALTON BY HVAC CONTRACTOR.

EF-2



EXHAUST FAN #2 (EF-2)		
ITEM	DESCRIPTION	QTY
EF2-D1	KEFB EXHAUST FAN W/ ROOF CURB	1
EF2-D2	FAN TRANSITION W/ UL LISTED ACCESS PANEL 10X16	1
EF2-D3	DUCT ROOF CURB W/ CAP 26X26X12	2
EF2-D4	LONG SWEEPING WYE 8X10	1
EF2-D5	LONG SWEEPING ELBOW W/ UL LISTED ACCESS PANEL 8X8	2
EF2-D6	UL LISTED ACCESS PANEL 10X15	1
EF2-D7	UL LISTED ACCESS PANEL 7X15	2
EF2-D8	LONG SWEEPING ELBOW 8X8	1
EF2-D9	LONG SWEEPING ELBOW 8X10	1



FOR REFERENCE ONLY

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

- ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
- THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER:
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

REVISE AND RESUBMIT
 APPROVED FOR FABRICATION
 WITH NO CHANGES
 WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

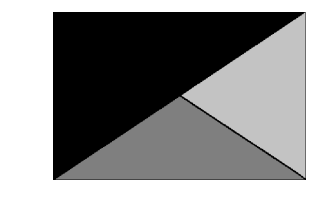
WEBSITE: www.halton.com HALTON CO. (USA) 101 INDUSTRIAL DRIVE SCOTTSDALE, AZ 85251-1604 1-270-237-5800	REVISION DESCRIPTION ① CREATED HOOD BLOCKS ② SHEET LAYOUT ③ NO CHANGE ④ ADDED GREASE CUPS ⑤ ADDED 1.5 GAL TANK TO ANSUL SYSTEM
---	---

PROJECT: CHICK-FIL-A P14 NAME
 LOCATION: -- DATE: 05.23.24
 DRAWN BY: SKK SCALE: NOT TO SCALE
 SHEET NO.: MH-1.5

Halton



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

MARK T. KURZYNSKE
 NEW JERSEY LICENSE # GE44646



03/05/25

CHICK-FIL-A
GLoucester OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733

BUILDING TYPE / SIZE: P14 LE BASE
 RELEASE: 24.11
 PRINTED FOR:
 PERMIT

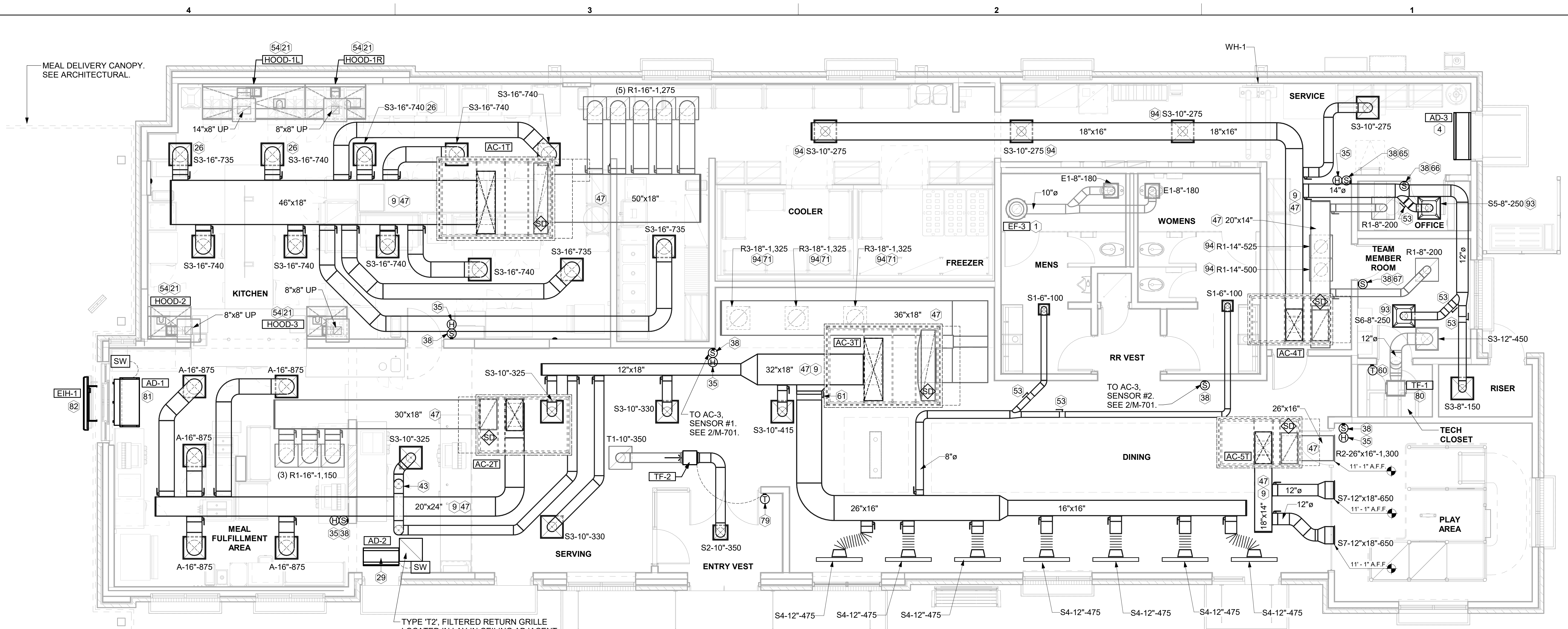
REVISION SCHEDULE		
NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # XXXX
 DATE 03/05/2025
 DRAWN BY Author

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.

SHEET
 EQUIPMENT AND DUCTWORK PLAN - TRANE
 SHEET NUMBER

M-101T

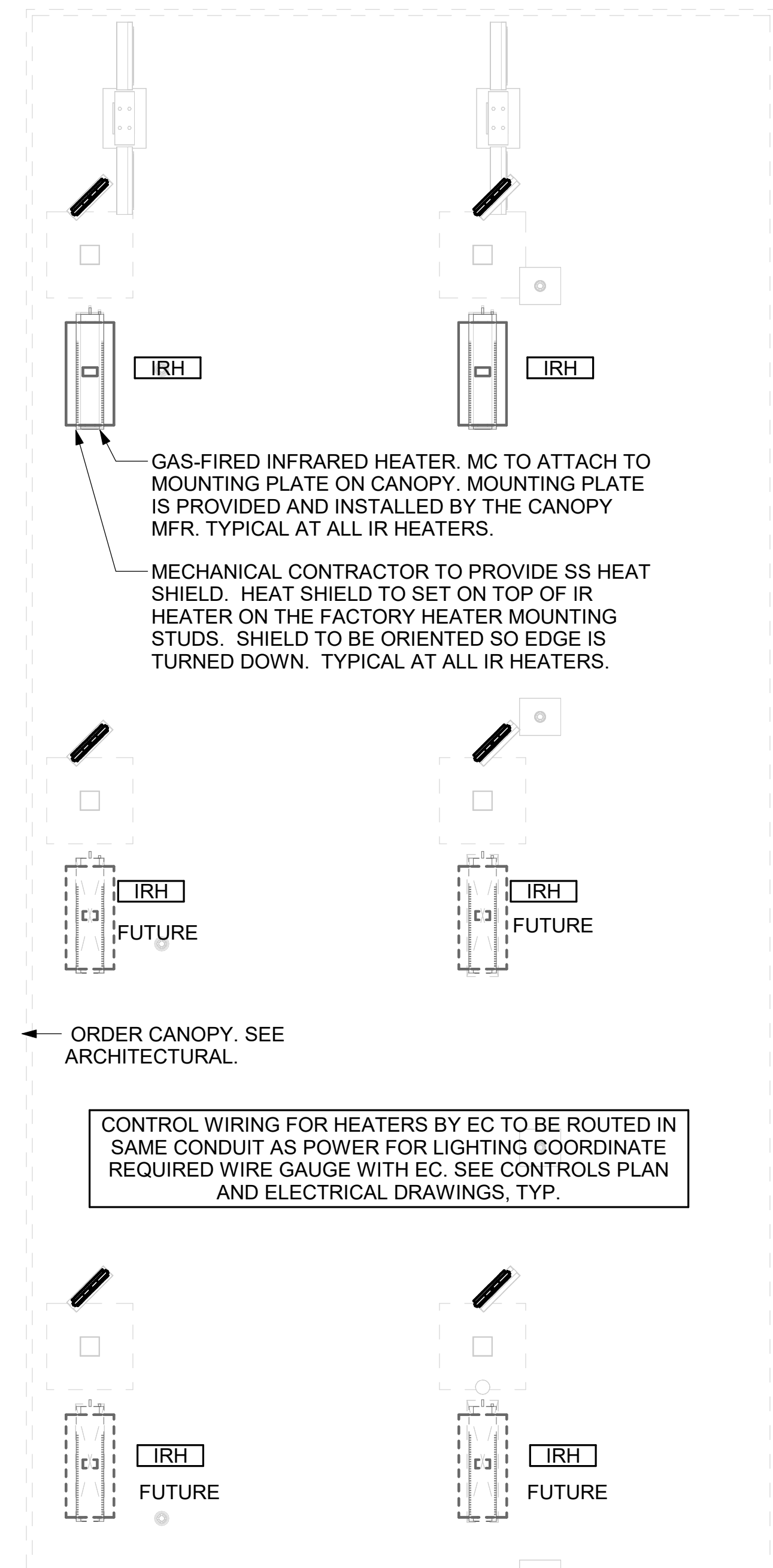


1 EQUIPMENT AND DUCTWORK PLAN
 1/4" = 1'-0"

KEY NOTES

- 1 10" DIA. DUCT 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.
- 26 MECHANICAL CONTRACTOR TO ADJUST PATTERN DEFLECTORS TO THROW STRAIGHT DOWN.
- 29 MOUNT AIR CURTAIN ABOVE CEILING. REFER TO SECTION ON SHEET M-301. LOCATE MAGNETIC CONTACT TYPE MICROSWITCH IN DOOR FRAME ON STRIKE 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. 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.
- 53 RUSKIN MDRS25 MVD W/LOCKING QUADRANT HANDLE.
- 54 SEE ELEVATIONS ON M-201 FOR CJ FAN DUCTING REQUIREMENT.
- 60 MOUNT THERMOSTAT FOR TRANSFER FAN AT 4'-0" AFF.
- 61 PROVIDE RUSKIN CD35 MANUAL BALANCING DAMPER WITH 6" MAXIMUM BLADE WIDTH. OPPOSED BLADE ACTION. LOCKING QUADRANT HANDLE WITH 2" STANDOFF AND 16 GA GALVANIZED BLADE AND FRAME CONSTRUCTION.
- 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.
- 71 CONTROL DAMPER SHALL BE INSTALLED FACING THE ACT CEILING FOR ACCESS.
- 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.
- 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 25 CFM.
- 94 TAKE OFF WITH DAMPER AT THE BOTTOM OF DUCTWORK, TYP.

Mark	SUPPLY AIR	RETURN AIR	OUTSIDE AIR	EXHAUST AIR	BUILDING POSITIVE PRESSURE
AC-1T	8,125	8,125	1,750	0	750
AC-2T	4,375	3,450	925	0	
AC-3T	5,250	3,975	1,275	0	
AC-4T	1,750	1,425	325	0	
AC-5T	1,300	1,150	150	0	
EF-1	0	0	0	1,913	750
EF-2	0	0	0	1,402	
EF-3	0	0	0	360	
	20,800	18,125	4,425	3,675	

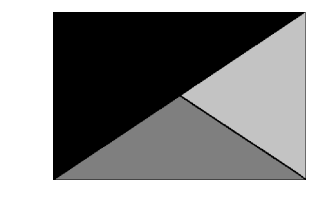


2 MECHANICAL FLOOR PLAN - ORDER CANOPY
 1/4" = 1'-0"

Autodesk Docs://NJ_05733_Gloucester Outlets_2024_6_FSR05733_Gloucester Outlets_KA_MEC.rvt
 2/28/2025 12:16:23 PM
 30-LE-05733-M-101T-EQUIPMENT AND DUCTWORK PLAN - TRANE



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

MARK T. KURZYSNSKE
 NEW JERSEY LICENSE # GE44646



CHICK-FIL-A
GLoucester OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733

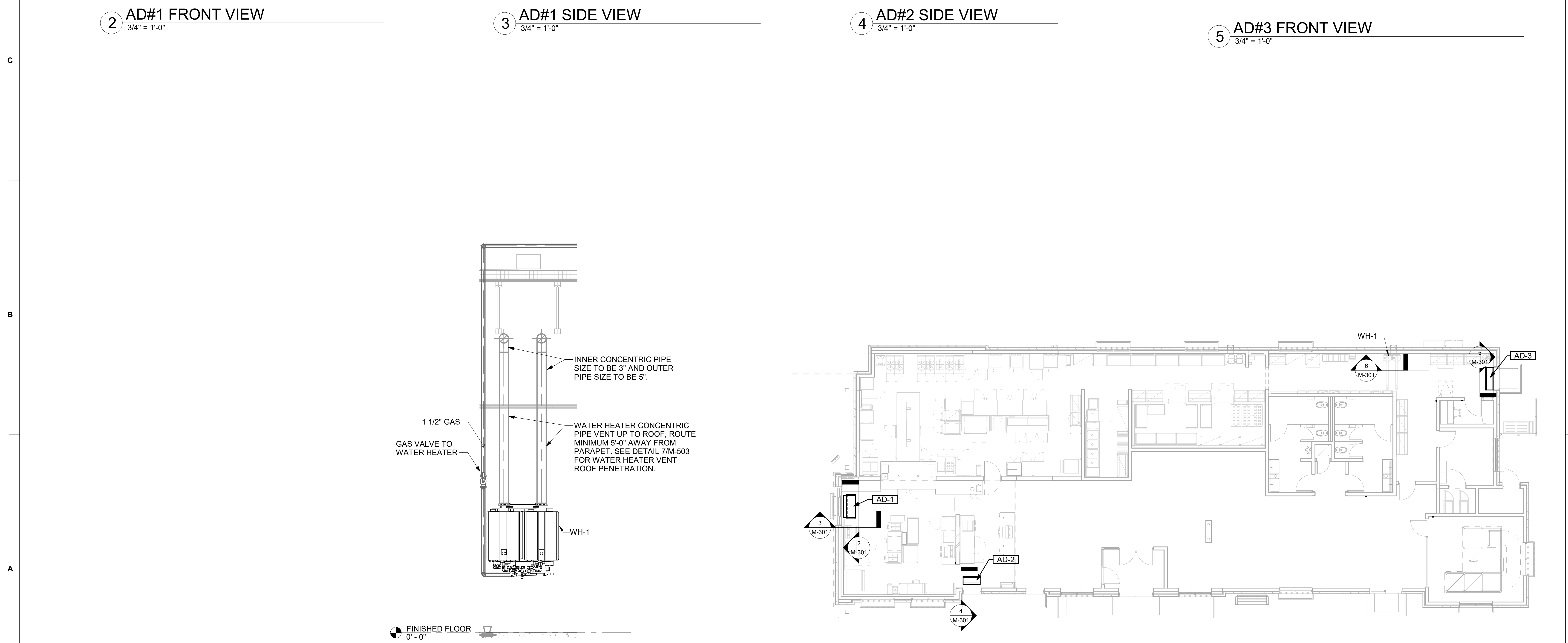
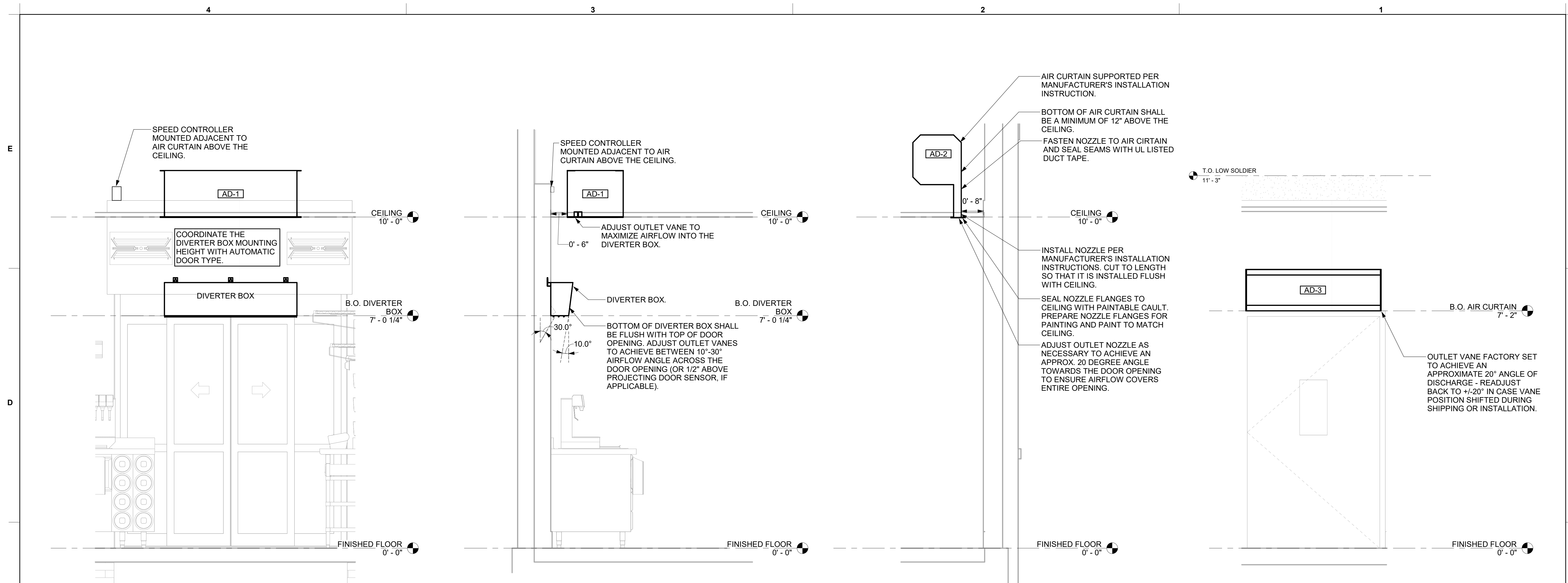
BUILDING TYPE / SIZE: P14 LE BASE
 RELEASE: 24.11
 PRINTED FOR: PERMIT

REVISION SCHEDULE		
NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # XXXX
 DATE 03/05/2025
 DRAWN BY BLM

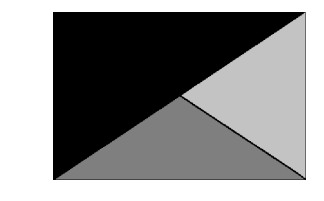
Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.
 SHEET SECTIONS

SHEET NUMBER
M-301





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
GLoucester OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733
 BUILDING TYPE / SIZE: P14 LE BASE
 RELEASE: 24.11
 PRINTED FOR:
 PERMIT
 REVISION SCHEDULE
 NO. DATE DESCRIPTION

CONSULTANT PROJECT # XXXX
 DATE 03/05/2025
 DRAWN BY BLM

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.

SHEET
 COMMISSIONING REQUIREMENTS - MECHANICAL
 SHEET NUMBER

M-002

Chick-fil-A HVAC Commissioning Scope

HVAC COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

B. OPR, BoD, and BoD-HVAC documentation prepared by Owner and Architect contains requirements that apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for commissioning the HVAC system and its subsystems and equipment. This Section supplements the general requirements specified in Division 1 Section "General Commissioning Requirements."

B. Related Sections include the following:

1. Division 1 Section "General Commissioning Requirements" for general requirements for commissioning processes that apply to this Section.

1.3 DEFINITIONS

A. Architect: Includes Architect identified in the Contract for Construction between Owner and Contractor, plus consultant/design professionals responsible for design of HVAC, electrical, communications, controls for HVAC systems, and other related systems.

B. BoD: Basis of Design.

C. BoD-HVAC: HVAC systems basis of design.

D. CxA: Commissioning Authority.

E. OPR: Owner's Project Requirements.

F. Systems, Subsystems, and Equipment: Where these terms are used together or separately, they shall mean "as-built" systems, subsystems, and equipment.

G. TAB: Testing, Adjusting, and Balancing.

HVAC COMMISSIONING REQUIREMENTS 1

Chick-fil-A HVAC Commissioning Scope

B. Testing Instrumentation: Install measuring instruments and logging devices to record test data for the required test period. Instrumentation shall monitor and record full range of operating conditions and shall allow for calculation of total capacity of system for each mode of operation. For individual room cooling tests, provide temporary heaters to impose a cooling load indicated in BoD. Operational modes include the following:

1. Occupied and unoccupied.
 2. Warm up and cool down.
 3. Economizer cycle.
 4. Power loss recovery.
 5. Life-safety and safety systems.
 6. Fire safety.

3.2 TAB VERIFICATION

A. TAB Agency shall coordinate with CxA for work required during TAB activities and shall copy CxA with required reports, sample forms, checklists, and certificates.

B. Mechanical, General Contractor, and CxA shall witness TAB Work.

C. TAB Preparation:

1. TAB shall provide CxA with data required for Pre-Grid Inspection activities as applicable.

a. CxA shall use this data to certify that prestart and startup activities have been completed for systems, subsystems, and equipment installation.

D. Verification of Final TAB Report:

1. CxA shall select, at random, 10 percent of report for field verification.
 2. CxA shall notify TAB 10 days in advance of the date of field verification; however, notice shall not include data points to be verified. The TAB shall use the same instruments (by model and serial number) that were used when original data were collected.
 3. Failure of an item is defined as follows:
 a. For all readings other than sound, a deviation of more than 10 percent.
 4. Failure of more than 10 percent of selected items shall result in rejection of final TAB report.

E. If deficiencies are identified during verification testing, CxA shall notify the Mechanical and General Contractor, whom shall take immediate action to remedy the deficiency. Architect shall review final tabulated checklists and data sheets to determine if verification is complete and that system is operating according to the Contract Documents.

HVAC COMMISSIONING REQUIREMENTS 5

HVAC COMMISSIONING REQUIREMENTS 5

Chick-fil-A HVAC Commissioning Scope

1.4 CONTRACTOR'S RESPONSIBILITIES

A. The following responsibilities are in addition to those specified in Division 1 Section "General Commissioning Requirements."

B. Mechanical, General Contractor and CxA:

1. Attend procedures meeting for TAB Work.
 2. Certify that TAB Work is complete.

C. CxA:

1. Attend TAB verification testing.
 2. Provide measuring instruments and logging devices to record test data, and data acquisition equipment to record data for the complete range of testing for the required test period.

D. Mechanical Contractor: With the CxA, review control designs for compliance with the OPR and BoD, controllability with respect to actual equipment to be installed, and recommend adjustments to control designs and sequence of operation descriptions.

E. TAB Agency:

1. Contract Documents Review: With the CxA, review the Contract Documents before developing TAB procedures.

a. Verify the following:

1) Accessibility of equipment and components required for TAB Work.
 2) Adequate number and placement of duct balancing dampers to allow proper balancing while minimizing sound levels in occupied spaces.
 3) Adequate number and placement of balancing valves to allow proper balancing and recording of water flow.
 4) Adequate number and placement of test ports and test instrumentation to allow reading and compilation of system and equipment performance data needed to conduct both TAB and commissioning testing.
 5) Air and water flow rates have been specified and compared to central equipment output capacities.

b. Identify discontinuities and omissions in the Contract Documents.

1.5 COMMISSIONING DOCUMENTATION

A. BoD HVAC: Owner will provide BoD-HVAC documents, prepared by Architect and approved by Owner, to the CxA and Contractor for use in developing the commissioning plan, systems manual, and operation and maintenance training plan.

HVAC COMMISSIONING REQUIREMENTS 2

Chick-fil-A HVAC Commissioning Scope

F. CxA shall certify that TAB Work has been successfully completed.

3.3 TESTING

A. Test systems and intersystem performance after test checklists for systems, subsystems, and equipment have been approved.

B. Perform tests using design conditions whenever possible.

1. Simulate conditions by imposing an artificial load when it is not practical to test under design conditions and when written approval for simulated conditions is received from CxA. Before simulating conditions, calibrate testing instruments. Set and document simulated conditions and methods of simulation. After tests, return settings to normal operating conditions.

2. Alter set points when simulating conditions is not practical and when written approval is received from CxA.

3. Alter sensor values with a signal generator when design or simulating conditions and altering set points are not practical. Do not use sensor to act as signal generator to simulate conditions or override values.

C. Detailed Testing Procedures: CxA, with Mechanical Contractor, shall prepare detailed testing plans, procedures, and checklists for HVAC systems, subsystems, and equipment.

D. HVAC Instrumentation and Control System Testing:

1. The CxA and Mechanical Contractor shall collaborate to prepare testing plans.
 2. CxA shall convene a meeting of appropriate entities to review test report of HVAC instrumentation and control systems.

E. Energy Supply System Testing: CxA, with Mechanical Contractor, shall prepare a testing plan to verify performance of natural gas systems and equipment. Plan shall include the following:

1. Sequence of testing and testing procedures for each equipment item and pipe section to be tested, identified by pipe zone or sector identification marker. Markers shall be keyed to Drawings for each pipe sector showing the physical location of each designated pipe test section. Drawings keyed to pipe zones or sectors shall be formatted to allow each section of piping to be physically located and identified when referred to in system testing plan.
 2. Tracking checklist for managing and ensuring that all pipe sections have been tested.

F. Refrigeration System Testing: CxA, with Mechanical Contractor, shall prepare a testing plan to verify performance of chillers, cooling towers, refrigerant compressors and condensers, heat pumps, and other refrigeration systems. Plan shall include the following:

HVAC COMMISSIONING REQUIREMENTS 6

HVAC COMMISSIONING REQUIREMENTS 6

Chick-fil-A HVAC Commissioning Scope

B. Test Checklists: CxA shall develop test checklists for HVAC systems, subsystems, and equipment, including interfaces and interlocks with other systems. CxA shall prepare separate checklists for each mode of operation and provide space to indicate whether the mode under test responded as required. Checklists shall include, but not be limited to, the following:

1. Calibration of sensors and sensor function.
 2. Testing conditions under which test was conducted, including (as applicable) ambient conditions, set points, override conditions, and status and operating conditions that impact the results of test.
 3. Control sequences for HVAC systems.
 4. Strength of control signal for each set point at specified conditions.
 5. Responses to control signals at specified conditions.
 6. Sequence of response(s) to control signals at specified conditions.
 7. Electrical demand or power input at specified conditions.
 8. Power quality and related measurements.
 9. Expected performance of systems, subsystems, and equipment at each step of test.
 10. Narrative description of observed performance of systems, subsystems, and equipment. Notation to indicate whether the observed performance at each step meets the expected results.
 11. Interaction of auxiliary equipment.
 12. Issues log.

1.6 SUBMITTALS

A. The following submittals shall be submitted to the Owner's Agent.

B. Testing Procedures: CxA shall submit detailed testing plan, procedures, and checklists for each series of tests. Submittals shall include samples of data reporting sheets that will be part of the reports.

C. Certificate of Readiness: CxA shall compile certificates of readiness from Contractor certifying that systems, subsystems, equipment, and associated controls are ready for testing.

D. Certificate of Completion of Installation, Prestart, and Startup: CxA shall certify that installation, prestart, and startup activities have been completed. Certification shall include completed checklists provided by TAB as result of TAB activities.

E. Test and Inspection Reports: CxA shall compile and submit preliminary report, test and inspection reports and certificates, and shall include them in systems manual and final commissioning report.

F. Corrective Action Documents: CxA shall submit corrective action documents.

G. Certified TAB Reports: CxA shall submit verified, certified TAB reports.

HVAC COMMISSIONING REQUIREMENTS 3

Chick-fil-A HVAC Commissioning Scope

1. Sequence of testing and testing procedures for each item of equipment and section of pipe to be tested, identified by identification marker. Markers shall be keyed to Drawings showing the physical location of each item of equipment and pipe test section. Drawings shall be formatted to allow each item of equipment and section of piping to be physically located and identified when referred to in the system testing plan.

2. Tracking checklist for managing and ensuring that all pipe sections have been tested.

G. HVAC Distribution System Testing: CxA, with Mechanical Contractor, shall prepare a testing plan to verify performance of air; special exhaust; and other distribution systems. Include HVAC terminal equipment and unitary equipment. Plan shall include the following:

1. Sequence of testing and testing procedures for each item of equipment and section of pipe to be tested, identified by identification marker. Markers shall be keyed to Drawings showing the physical location of each item of equipment and pipe test section. Drawings shall be formatted to allow each item of equipment and section of piping to be physically located and identified when referred to in the system testing plan.

H. Deferred Testing:

1. If tests cannot be completed because of a deficiency outside the scope of the HVAC system, the deficiency shall be documented and reported to Owner. Deficiencies shall be resolved and corrected by appropriate parties and test rescheduled.
 2. If the testing plan indicates specific seasonal testing, appropriate initial performance tests shall be completed and documented and additional tests scheduled.

I. Testing Reports:

1. Reports shall include measured data, data sheets, and a comprehensive summary describing the operation of systems at the time of testing.
 2. Include data sheets for each controller to verify proper operation of the control system, the system it serves, the service it provides, and its location. For each controller, provide space for recording its readout, the reading at the controller's sensor(s), plus comments. Provide space for testing personnel to sign off on each data sheet.
 3. Prepare a preliminary test report. Deficiencies will be evaluated by Owner's Agent to determine corrective action. Deficiencies shall be corrected and test repeated. This report shall be submitted to the Owner's Agent within 90 days of issuance of the Certificate of Occupancy.
 4. If it is determined that the system is constructed according to the Contract Documents, Owner will decide whether modifications required to bring the performance of the system to the OPR and BoD documents shall be implemented or if tests will be accepted as submitted. If corrective Work is performed, Owner will decide if tests shall be repeated and a revised report submitted.

HVAC COMMISSIONING REQUIREMENTS 7

HVAC COMMISSIONING REQUIREMENTS 7

Chick-fil-A HVAC Commissioning Scope

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TESTING PREPARATION

A. Prerequisites for Testing:

1. Certify that HVAC systems, subsystems, and equipment have been completed, calibrated, and started; are operating according to the OPR, BoD, and Contract Documents; and that Certificates of Readiness are signed and submitted.
 2. Certify that HVAC instrumentation and control systems have been completed and calibrated; are operating according to the OPR, BoD, and Contract Documents; and that pretest set points have been recorded.
 3. Certify that TAB procedures have been completed, and that TAB reports have been submitted, discrepancies corrected, and corrective work approved.
 4. Test systems and intersystem performance after approval of test checklists for systems, subsystems, and equipment.
 5. Set systems, subsystems, and equipment into operating mode to be tested (e.g., normal shut down, normal auto position, normal manual position, unoccupied cycle, emergency power, and alarm conditions).
 6. Verify each operating cycle after it has been running for a specified period and is operating in a steady-state condition.
 7. Inspect and verify the position of each device and interlock identified on checklists. Sign off each item as acceptable, or failed. Repeat this test for each operating cycle that applies to system being tested.
 8. Check safety cutouts, alarms, and interlocks with smoke control and life-safety systems during each mode of operation.
 9. Annotate checklist or data sheet when a deficiency is observed.
 10. Verify equipment interface with monitoring and control system and TAB criteria; include the following:
 a. Supply and return flow rates for systems in each operational mode.
 b. Minimum outdoor-air intake in each operational mode and at minimum and maximum airflows.
 c. Building pressurization.
 d. Total exhaust airflow and total outdoor-air intake.

11. Verify proper responses of monitoring and control system controllers and sensors to include the following:

a. For each controller or sensor, record the indicated monitoring and control system reading and the test instrument reading. If initial test indicates that the test reading is outside of the control range of the installed device, check calibration of the installed device and adjust as required. Retest malfunctioning devices and record results on checklist or data sheet.
 b. Report deficiencies and prepare an issues log entry.

HVAC COMMISSIONING REQUIREMENTS 4

Chick-fil-A HVAC Commissioning Scope

1. Sequence of testing and testing procedures for each item of equipment and section of pipe to be tested, identified by identification marker. Markers shall be keyed to Drawings showing the physical location of each item of equipment and pipe test section. Drawings shall be formatted to allow each item of equipment and section of piping to be physically located and identified when referred to in the system testing plan.

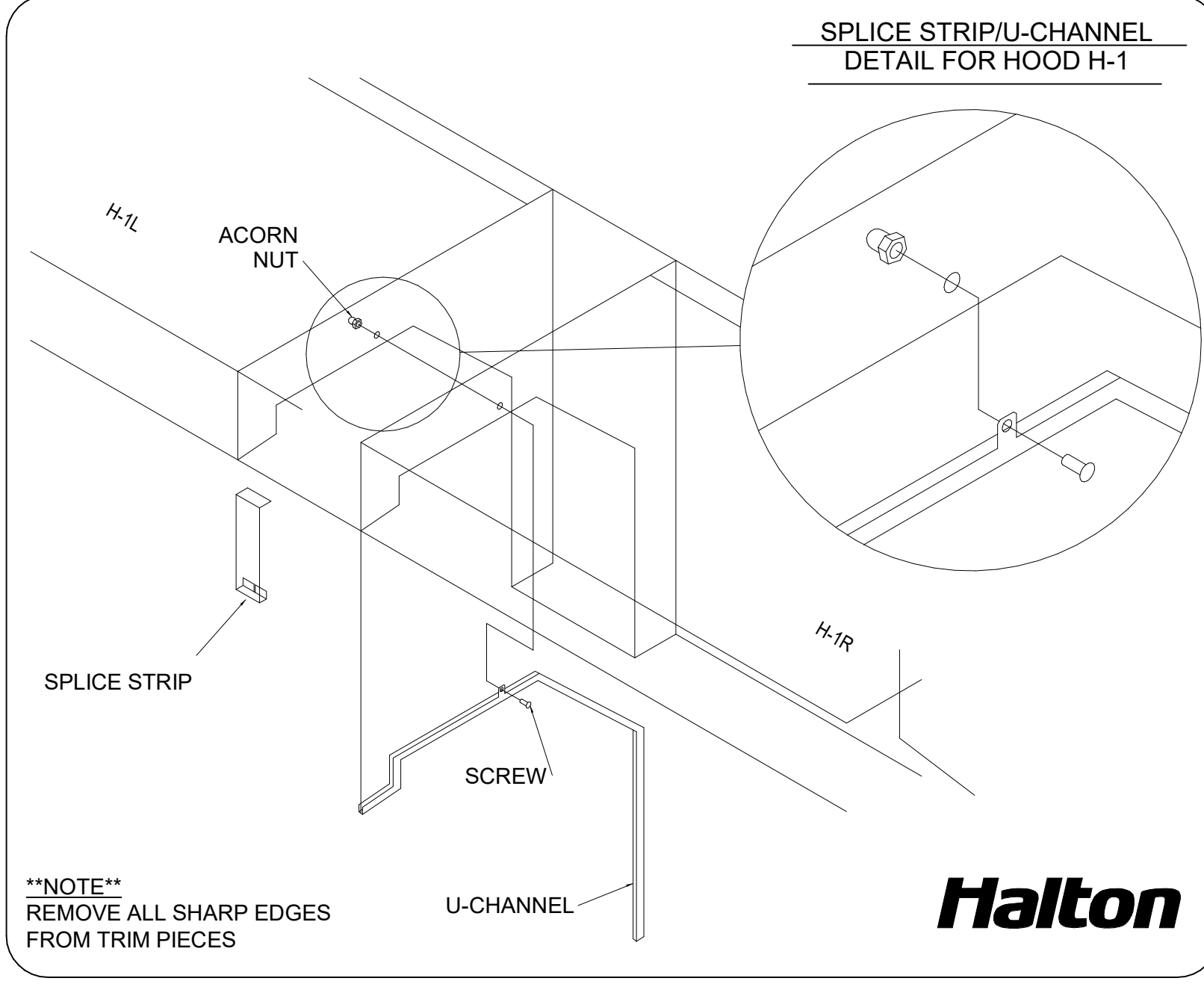
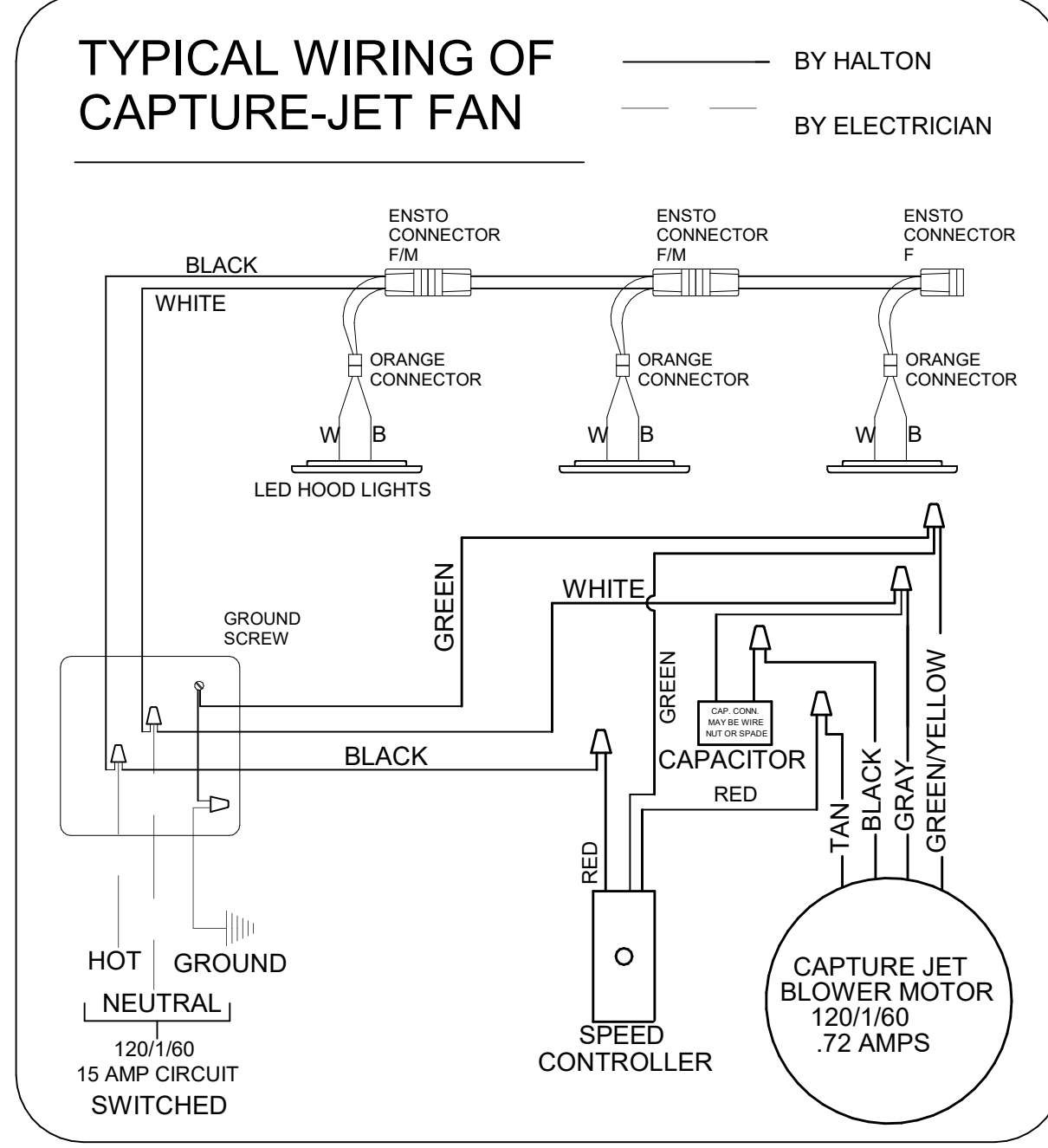
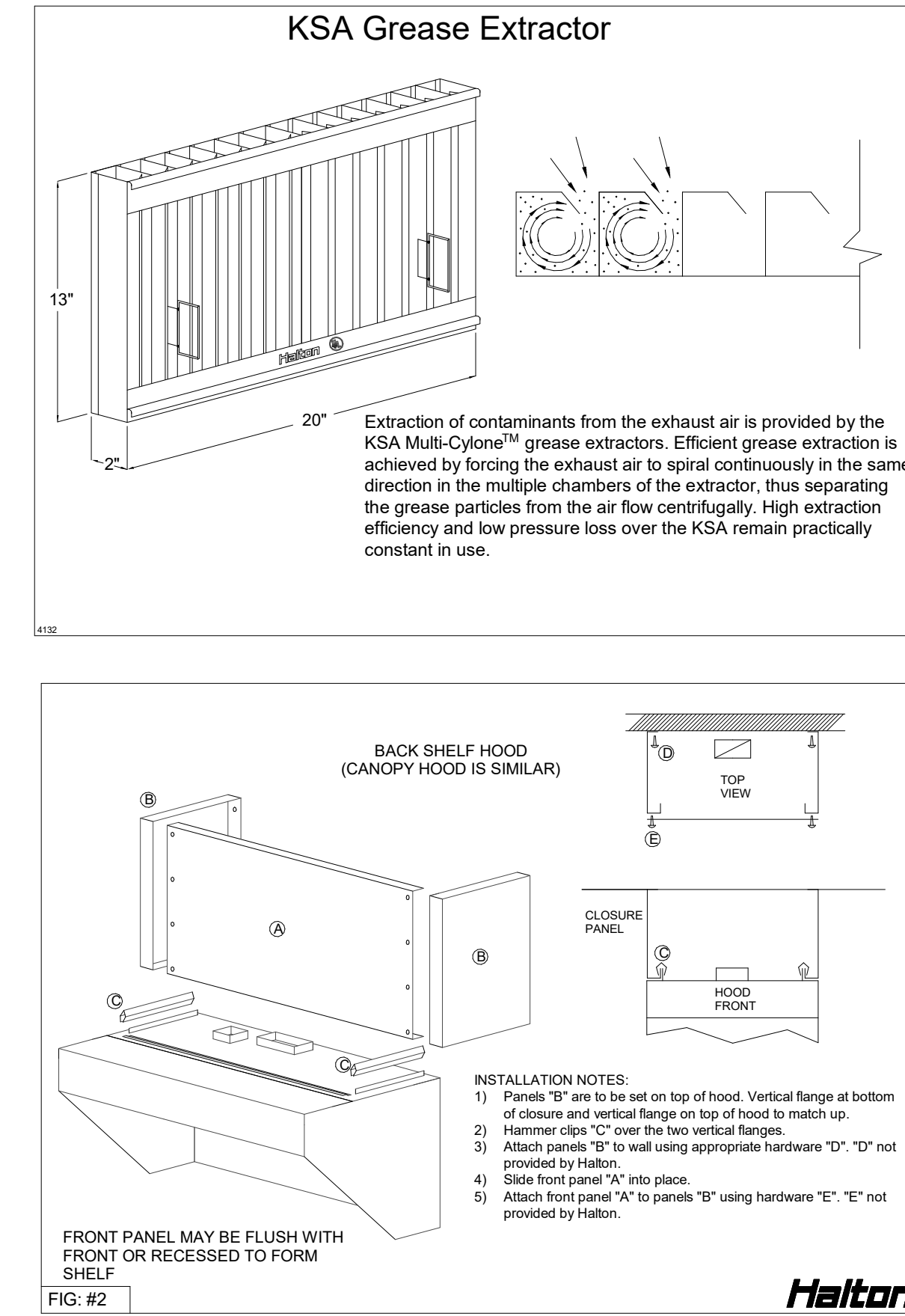
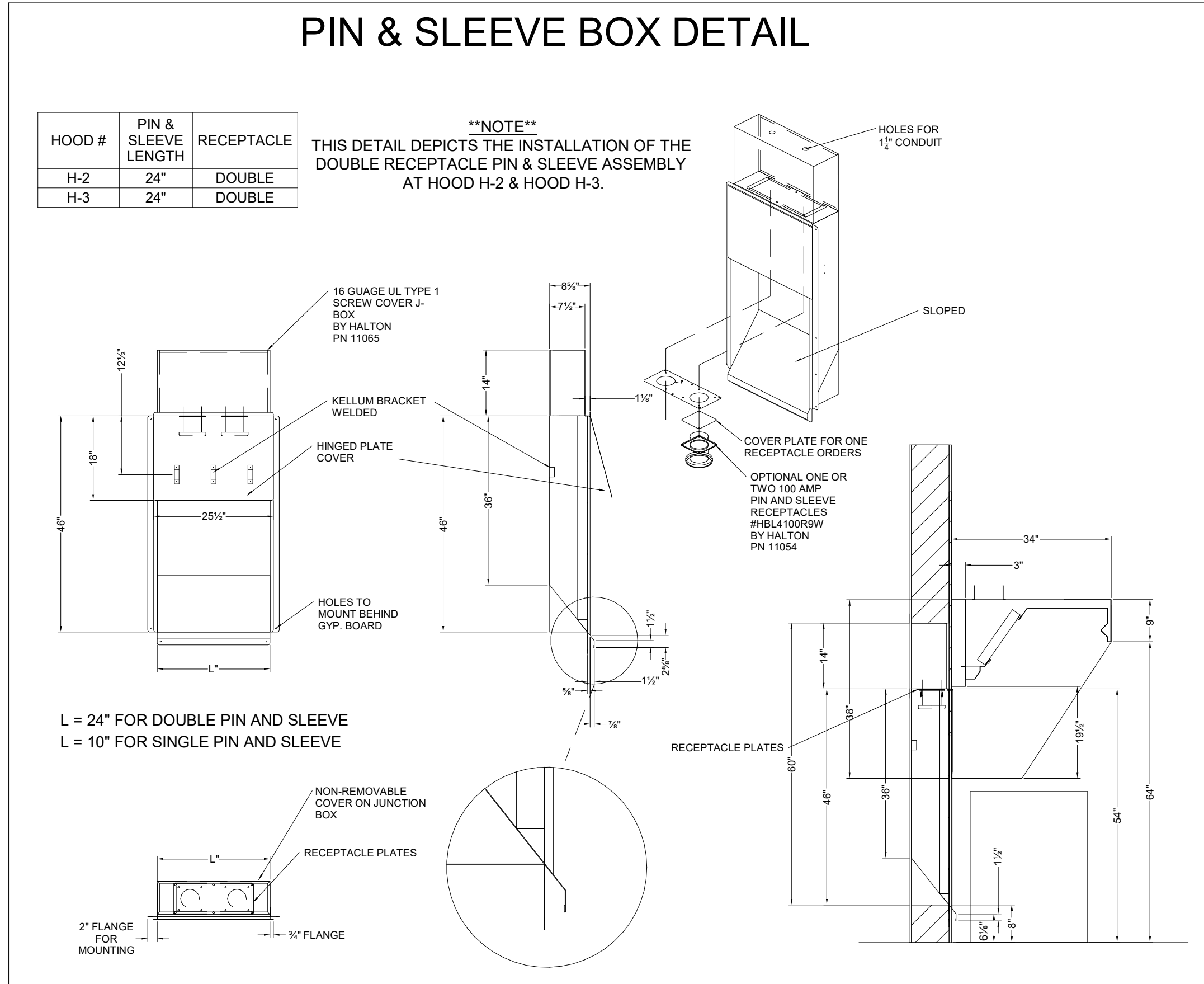
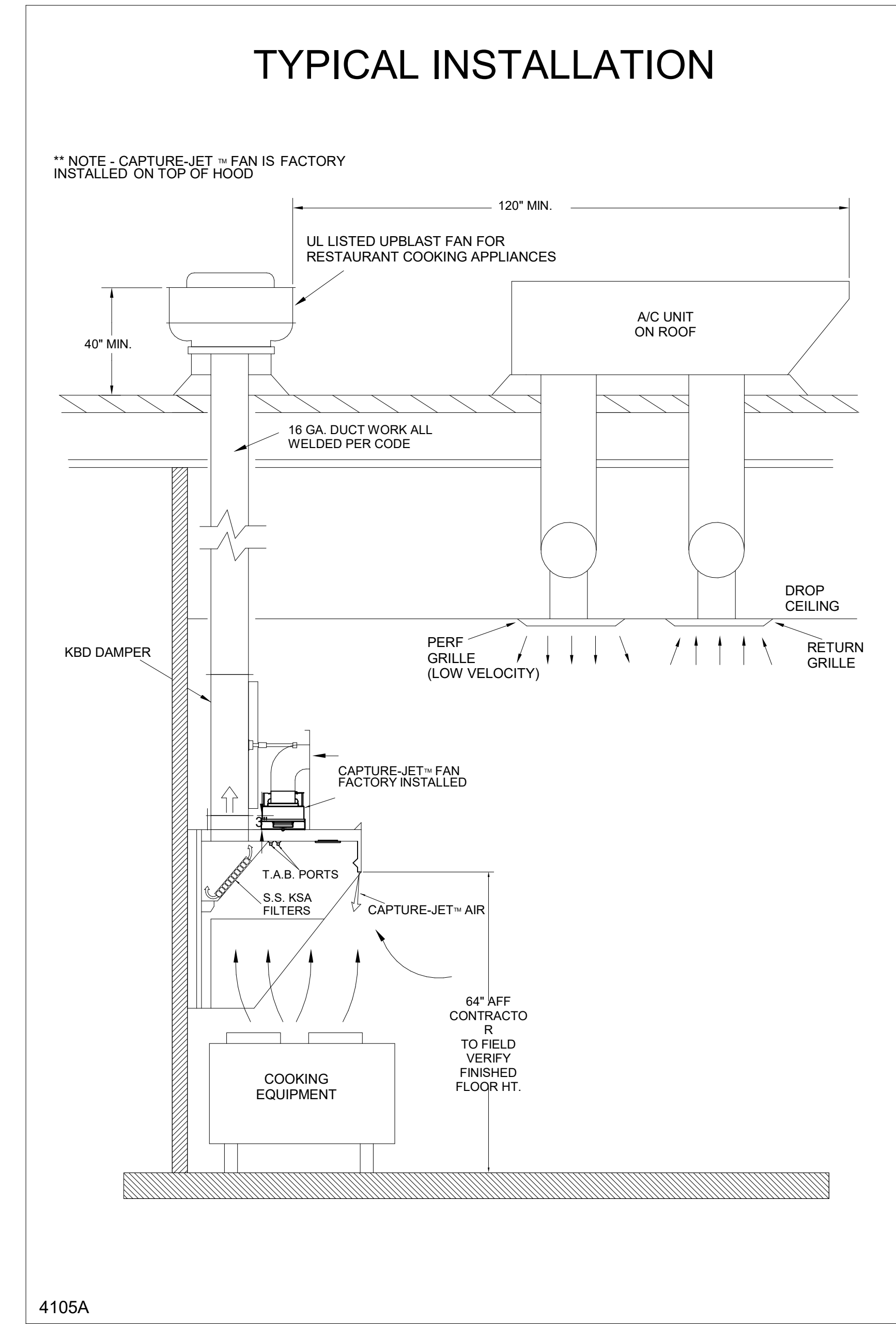
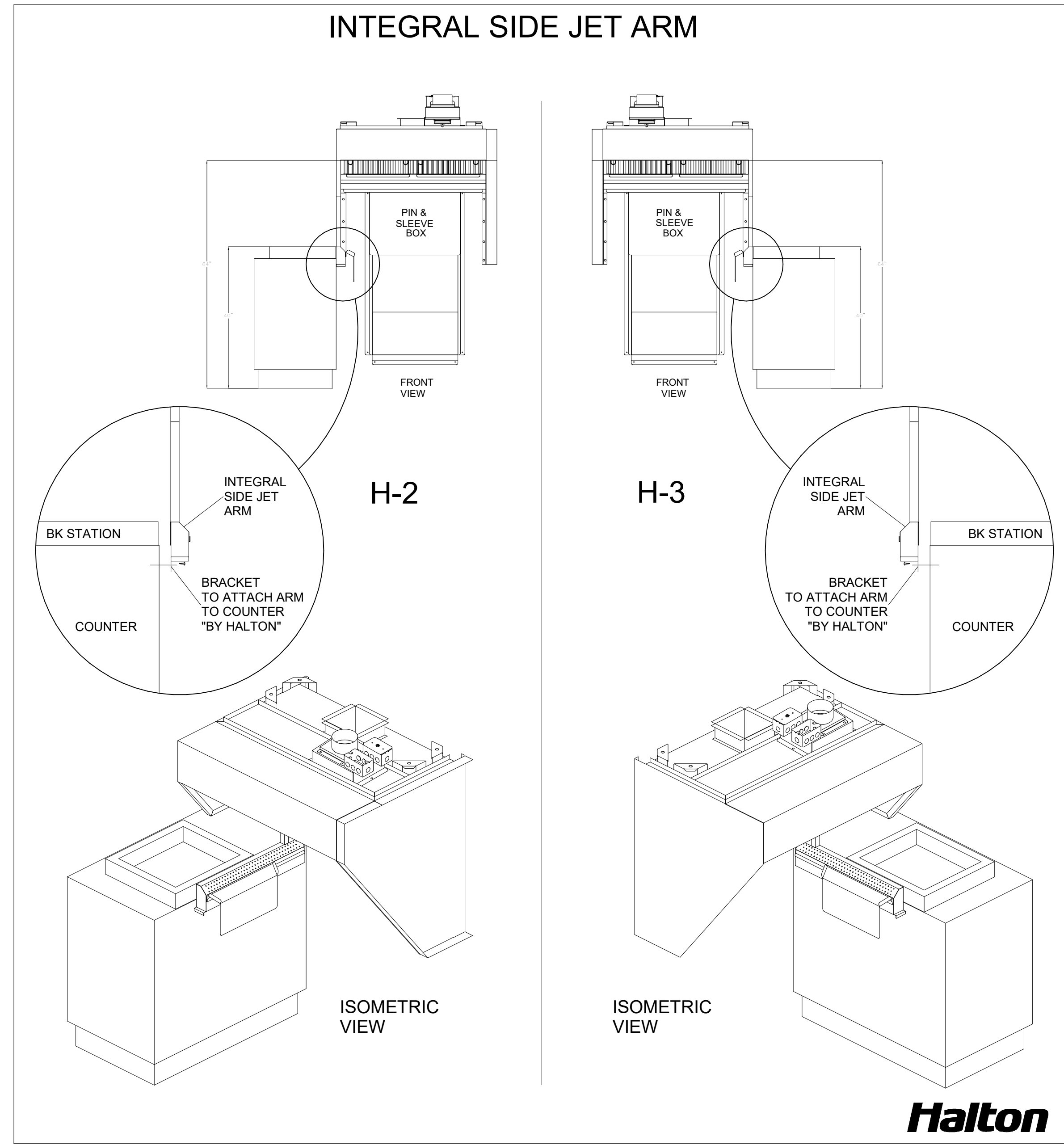
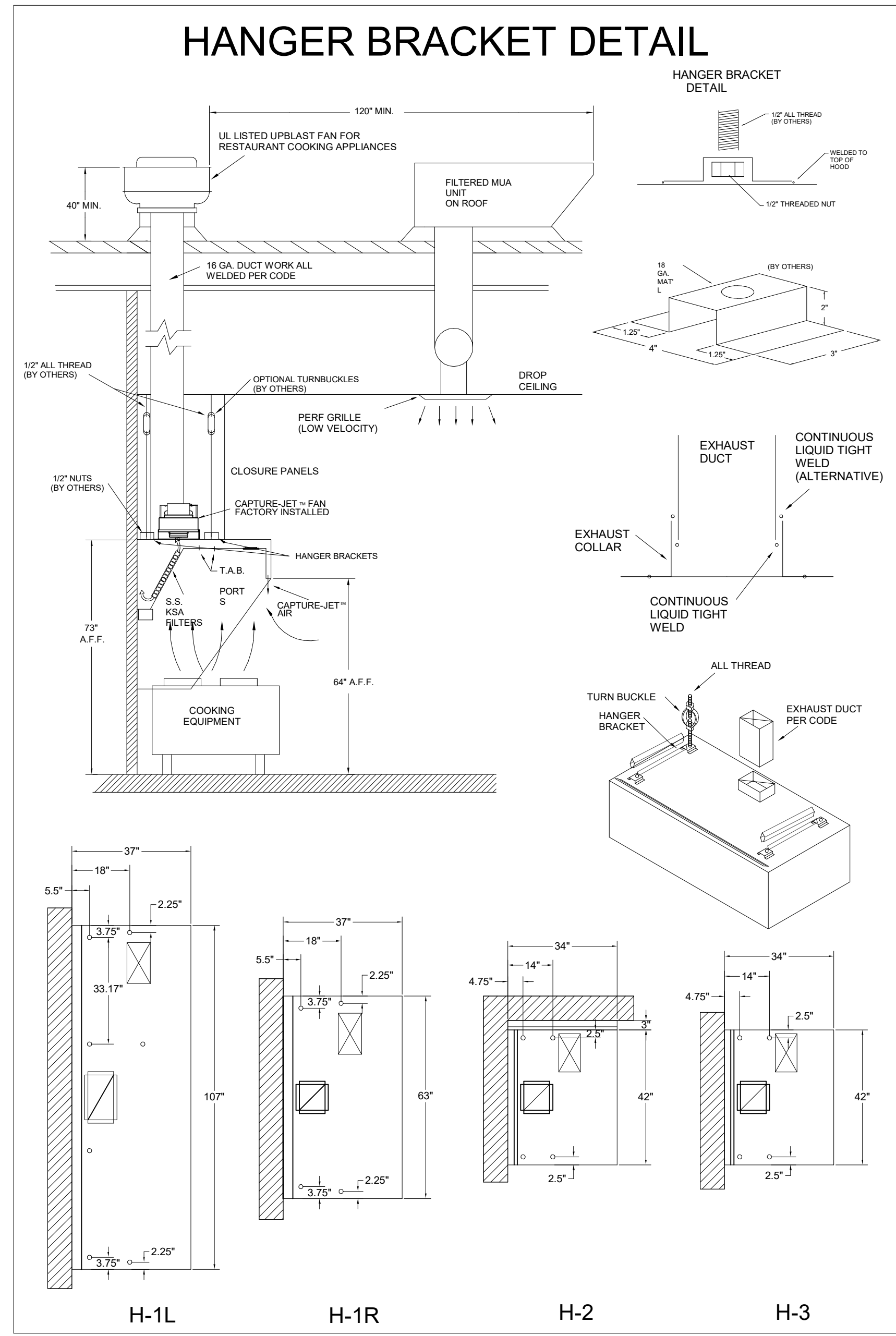
H. Deferred Testing:

1. If tests cannot be completed because of a deficiency outside the scope of the HVAC system, the deficiency shall be documented and reported to Owner. Deficiencies shall be resolved and corrected by appropriate parties and test rescheduled.
 2. If the testing plan indicates specific seasonal testing, appropriate initial performance tests shall be completed and documented and additional tests scheduled.

I. Testing Reports:

1. Reports shall include measured data, data sheets, and a comprehensive summary describing the operation of systems at the time of testing.
 2. Include data sheets for each controller to verify proper operation of the control system, the system it serves, the service it provides, and its location. For each controller, provide space for recording its readout, the reading at the controller's sensor(s), plus comments. Provide space for testing personnel to sign off on each data sheet.
 3. Prepare a preliminary test report. Deficiencies will be evaluated by Owner's Agent to determine corrective action. Deficiencies shall be corrected and test repeated. This report shall be submitted to the Owner's Agent within 90 days of issuance of the Certificate of Occupancy.
 4. If it is determined that the system is constructed according to the Contract Documents, Owner will decide whether modifications required to bring the performance of the system to the OPR and BoD documents shall be implemented or if tests will be accepted as submitted. If corrective Work is performed, Owner will decide if tests shall be repeated and a revised report submitted.

HVAC COMMISSIONING REQUIREMENTS 7



HALTON HOODS
- ETL LISTED PER LATEST 710 STANDARD
- BUILT PER NFPA 96
- NSF LISTED

NSF Halton CONFORMS TO UL STD UL STD 710 CERTIFIED TO ULC STD 5846

INTERTEK 3012225

HALTON COMPANY, 101 INDUSTRIAL DR., SCOTTSVILLE, KY 42164

MODEL NO.	SERIAL NO.	ITEM NO.
KVL-C-IC		

GENERAL REQUIREMENTS

THE FAN TYPE EXHAUST HOOD FOR COMMERCIAL AND INSTITUTIONAL KITCHENS
THE FAN CIRCUIT IS RATED FOR 120V, 15A, 60HZ.
THE LIGHTING CIRCUIT IS RATED FOR 120V, 15A, 60HZ.
THE HOOD HAS BEEN CERTIFIED BY ETL FOR 6" BACH CLEARANCE TO COMBUSTIBLE MATERIALS (TOP, SIDES, FRONT AND REAR) IN COMPLIANCE WITH UL710 WITH CONSIDERATION TO NFPA 96.
REPLACE FILTERS ONLY WITH UL CLASSIFIED FILTER TYPE OF THE SAME MODEL AND MANUFACTURER.
SUITABLE FOR USE TO MEDIUM DUTY COOKING APPLIANCES.

DUTY LEVEL	MINIMUM OVERHANG		DISTANCE BETWEEN FRONT EDGE OF HOOD AND COOKING SURFACE, IN.		MIN. EXHAUST DUCT HOOD LENGTH
	FRONT, IN.	SIDE, IN.	MIN.	MAX.	
MEDIUM	6"	0"	20"	30"	121"
MEDIUM	6"	0"	20"	30"	106"
MEDIUM	6"	0"	20"	30"	120"
HEAVY	9"	2"	20"	25"	101"
HEAVY	9"	2"	20"	30"	216"

†† SETBACK/DIMENSIONAL TOLERANCE
JET SUPPLY AIR FLOW SHALL ONLY BE SET AT 1.30 IN HOOD

NSF Halton CONFORMS TO UL STD UL STD 710 CERTIFIED TO ULC STD 5846

INTERTEK 3012225

HALTON COMPANY, 101 INDUSTRIAL DR., SCOTTSVILLE, KY 42164

MODEL NO.	SERIAL NO.	ITEM NO.
KVL-2-IC		

GENERAL REQUIREMENTS

FILTER TYPE EXHAUST HOOD FOR COMMERCIAL AND INSTITUTIONAL KITCHENS
THE FAN CIRCUIT IS RATED FOR 120V, 15A, 60HZ.
THE LIGHTING CIRCUIT IS RATED FOR 120V, 15A, 60HZ.
THE HOOD HAS BEEN CERTIFIED BY ETL FOR 6" BACH CLEARANCE TO COMBUSTIBLE MATERIALS (TOP, SIDES, FRONT AND REAR) IN COMPLIANCE WITH UL710 WITH CONSIDERATION TO NFPA 96.
REPLACE FILTERS ONLY WITH UL CLASSIFIED FILTER TYPE OF THE SAME MODEL AND MANUFACTURER.
SUITABLE FOR USE TO HEAVY DUTY COOKING APPLIANCES.

DUTY LEVEL	MINIMUM OVERHANG		DISTANCE BETWEEN FRONT EDGE OF HOOD AND COOKING SURFACE, IN.		MIN. EXHAUST DUCT HOOD LENGTH
	FRONT, IN.	SIDE, IN.	MIN.	MAX.	
MEDIUM	6"	0"	20"	30"	121"
MEDIUM	6"	0"	20"	30"	106"
MEDIUM	6"	0"	20"	30"	120"
HEAVY	9"	2"	20"	25"	101"
HEAVY	9"	2"	20"	30"	216"

†† SETBACK/DIMENSIONAL TOLERANCE
JET SUPPLY AIR FLOW SHALL ONLY BE SET AT 1.26 IN HOOD

FOR REFERENCE ONLY

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

- ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
- THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

REVISION AND RESUBMIT
WITH NO CHANGES
WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

WEBSITE: www.halton.com

HALTON CO. (USA)
101 INDUSTRIAL DRIVE
SCOTTSVILLE, KY 42164
1-270-237-5800

DATE: 06.27.23
SKK

DATE: 08.28.23
SKK

DATE: 02.02.24
SKK

DATE: 05.16.24
SKK

DATE: 07.26.24
SKK

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

HALTON CO. (CANADA)
1021 BREVIK PLACE
MISSISSAUGA, ON L4W 3R7
1-905-624-0301

REVISION DESCRIPTION

CREATED HOOD BLOCKS

SHEET LAYOUT

NO CHANGE

ADDED GREASE CUPS

ADDED 1.5 GAL TANK TO ANSUL SYSTEM

PROJECT: CHICK-FIL-A P14 NAME

LOCATION: --
DRAWN BY: SKK
SCALE: NOT TO SCALE

DATE: 05.23.24

DRAWING NO.: U22-606-02

SHEET NO.: MH-1.2

Halton

VENTILATION SCHEDULE

General			Ventilation											Exhaust											
Room #	Room Name	Area Az ft2	People			Area					Breathing Zone Outdoor Airflow CFM	Zone Air Distribution Effectiveness	Zone Outdoor Airflow CFM	Primary Zone Airflow CFM	Primary Outdoor Air Fraction	Actual Outdoor Airflow CFM	Area			Toilet			Served by		
			Occupant Density People/1,000 ft2	Occupants Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/Rt2							Total Required Exhaust CFM	Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM	Actual Exhaust CFM	Supply	Exhaust		
1	Kitchen	876	20	18	7.5	135	0.12	105	240	0.8	301	7,390	0.04	1,578	0.70	614	-	-	-	-	-	3,315	AC-1L / AC-1T	EF-1 / EF-2	
2	Kitchen (Dish Washing)	126	15	2	7.5	15	0.18	23	38	0.8	48	735	0.07	172	-	-	-	-	-	-	-	-	-	AC-1L / AC-1T	-
Total Area 1,002						Total Vbz 278					Total Supply Airflow 8,125			1,750			Actual Outdoor Airflow								
						Diversity (D) 1.00					Maximum Zp 0.07														
						Uncorrected Outdoor Air Intake (Vou) 278					System Ventilation Efficiency (Ev) 1.00														
						Required Outdoor Air Intake (CFM) 278																			

VENTILATION SCHEDULE

General			Ventilation											Exhaust											
Room #	Room Name	Area Az ft2	People			Area					Breathing Zone Outdoor Airflow CFM	Zone Air Distribution Effectiveness	Zone Outdoor Airflow CFM	Primary Zone Airflow CFM	Primary Outdoor Air Fraction	Actual Outdoor Airflow CFM	Area			Toilet			Served by		
			Occupant Density People/1,000 ft2	Occupants Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/Rt2							Total Required Exhaust CFM	Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM	Actual Exhaust CFM	Supply	Exhaust		
1	Meal Fulfillment Area	430	15	7	7.5	52.5	0.12	62	105	0.8	131	4,375	0.03	925	-	-	-	-	-	-	-	-	-	AC-2L / AC-2T	-
Total Area 430						Total Vbz 105					Total Supply Airflow 4,375			925			Actual Outdoor Airflow								
						Diversity (D) 1.00					Maximum Zp 0.03														
						Uncorrected Outdoor Air Intake (Vou) 105					System Ventilation Efficiency (Ev) 1.00														
						Required Outdoor Air Intake (CFM) 129																			

VENTILATION SCHEDULE

General			Ventilation											Exhaust											
Room #	Room Name	Area Az ft2	People			Area					Breathing Zone Outdoor Airflow CFM	Zone Air Distribution Effectiveness	Zone Outdoor Airflow CFM	Primary Zone Airflow CFM	Primary Outdoor Air Fraction	Actual Outdoor Airflow CFM	Area			Toilet			Served by		
			Occupant Density People/1,000 ft2	Occupants Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/Rt2							Total Required Exhaust CFM	Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM	Actual Exhaust CFM	Supply	Exhaust		
1	Dining	1,084	100	108	7.5	810	0.18	195	1,005	0.8	1,256	4,020	0.31	976	-	-	-	-	-	-	-	-	-	AC-3L / AC-3T	-
2	Serving	515	15	8	7.5	60	0.12	62	122	0.8	153	980	0.16	239	-	-	-	-	-	-	-	-	-	AC-3L / AC-3T	-
3	Men's RR	162	-	-	-	-	-	-	-	0.8	-	100	-	24	-	-	Continuous	50	150	180	-	-	-	AC-3L / AC-3T	EF-3
4	Women's RR	172	-	-	-	-	-	-	-	0.8	-	100	-	24	-	-	Continuous	50	150	180	-	-	-	AC-3L / AC-3T	EF-3
5	RR Vestibule	32	-	-	-	-	0.06	2	2	0.8	3	50	0.05	12	-	-	-	-	-	-	-	-	-	AC-3L / AC-3T	-
Total Area 1,964						Total Vbz 1,129					Total Supply Airflow 5,250			1,275			Actual Outdoor Airflow								
						Diversity (D) 0.83					Maximum Zp 0.31														
						Uncorrected Outdoor Air Intake (Vou) 991					System Ventilation Efficiency (Ev) 0.80														
						Required Outdoor Air Intake (CFM) 1,239																			

VENTILATION SCHEDULE

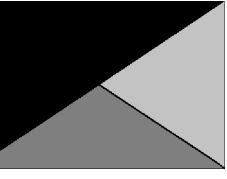
General			Ventilation											Exhaust											
Room #	Room Name	Area Az ft2	People			Area					Breathing Zone Outdoor Airflow CFM	Zone Air Distribution Effectiveness	Zone Outdoor Airflow CFM	Primary Zone Airflow CFM	Primary Outdoor Air Fraction	Actual Outdoor Airflow CFM	Area			Toilet			Served by		
			Occupant Density People/1,000 ft2	Occupants Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/Rt2							Total Required Exhaust CFM	Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM	Actual Exhaust CFM	Supply	Exhaust		
1	Team Member Room	106	50	6	5	30	0.06	6	36	0.8	46	250	0.19	46	-	-	-	-	-	-	-	-	-	AC-4L / AC-4T	-
2	Service	880	-	-	-	-	0.12	106	106	0.8	132	1,100	0.12	205	-	-	-	-	-	-	-	-	-	AC-4L / AC-4T	-
3	Riser	37	-	-	-	-	0.12	4	4	0.8	6	150	0.04	28	-	-	-	-	-	-	-	-	-	AC-4L / AC-4T	-
4	Office	41	5	1	5	5	0.06	2	7	0.8	10	250	0.04	46	-	-	-	-	-	-	-	-	-	AC-4L / AC-4T	-
Total Area 1,064						Total Vbz 154					Total Supply Airflow 1,750			325			Actual Outdoor Airflow								
						Diversity (D) 1.00					Maximum Zp 0.19														
						Uncorrected Outdoor Air Intake (Vou) 154					System Ventilation Efficiency (Ev) 0.90														
						Required Outdoor Air Intake (CFM) 170																			

VENTILATION SCHEDULE

General			Ventilation											Exhaust											
Room #	Room Name	Area Az ft2	People			Area					Breathing Zone Outdoor Airflow CFM	Zone Air Distribution Effectiveness	Zone Outdoor Airflow CFM	Primary Zone Airflow CFM	Primary Outdoor Air Fraction	Actual Outdoor Airflow CFM	Area			Toilet			Served by		
			Occupant Density People/1,000 ft2	Occupants Pz	Outdoor Airflow Rate CFM/Person Rp	Outdoor Airflow CFM Pz x Rp	Outdoor Airflow Rate CFM/Ra	Outdoor Airflow CFM Az x Ra	Outdoor Airflow CFM Vbz	Required Exhaust Rate CFM/Rt2							Total Required Exhaust CFM	Exhaust Control/Operation	Fixture Exhaust Rate CFM/Fixture	Required Fixture Exhaust CFM	Actual Exhaust CFM	Supply	Exhaust		
1	Play	254	7	2	20	40	0.18	46	86	0.8	108	1,300	0.08	150	-	-	-	-	-	-	-	-	-	AC-5L / AC-5T	-
Total Area 254						Total Vbz 86					Total Supply Airflow 1,300			150			Actual Outdoor Airflow								
						Diversity (D) 1.00					Maximum Zp 0.08														
						Uncorrected Outdoor Air Intake (Vou) 86					System Ventilation Efficiency (Ev) 1.00														
						Required Outdoor Air Intake (CFM) 85																			



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



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

MARK T. KURZYNSKE
NEW JERSEY LICENSE # GE44646



03/05/25

CHICK-FIL-A
GLoucester OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733

BUILDING TYPE / SIZE: P14 LE BASE
RELEASE: 24.11
PRINTED FOR:
PERMIT
REVISION SCHEDULE

NO.	DATE	DESCRIPTION

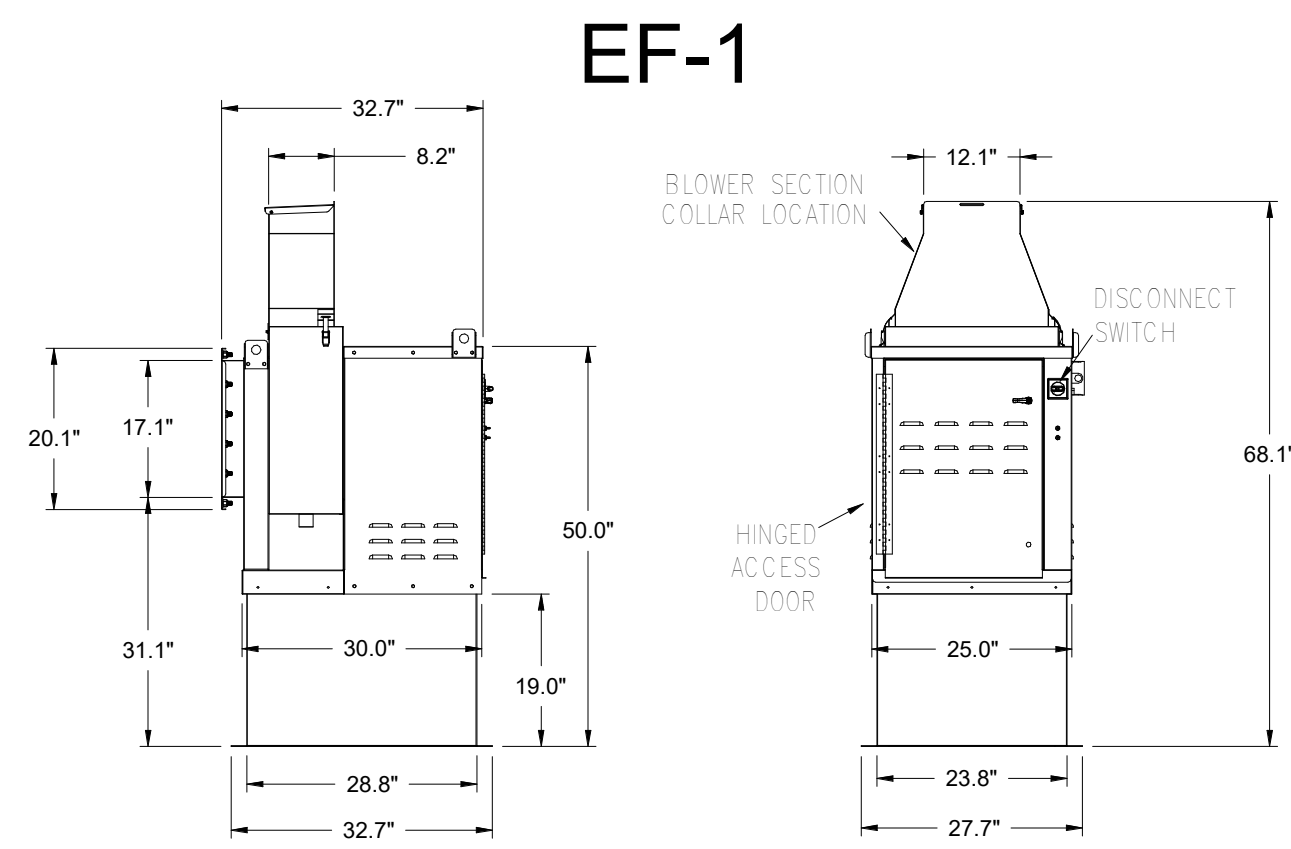
CONSULTANT PROJECT # XXXX
DATE 03/05/2025
DRAWN BY BLM

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.

SHEET VENTILATION SCHEDULES

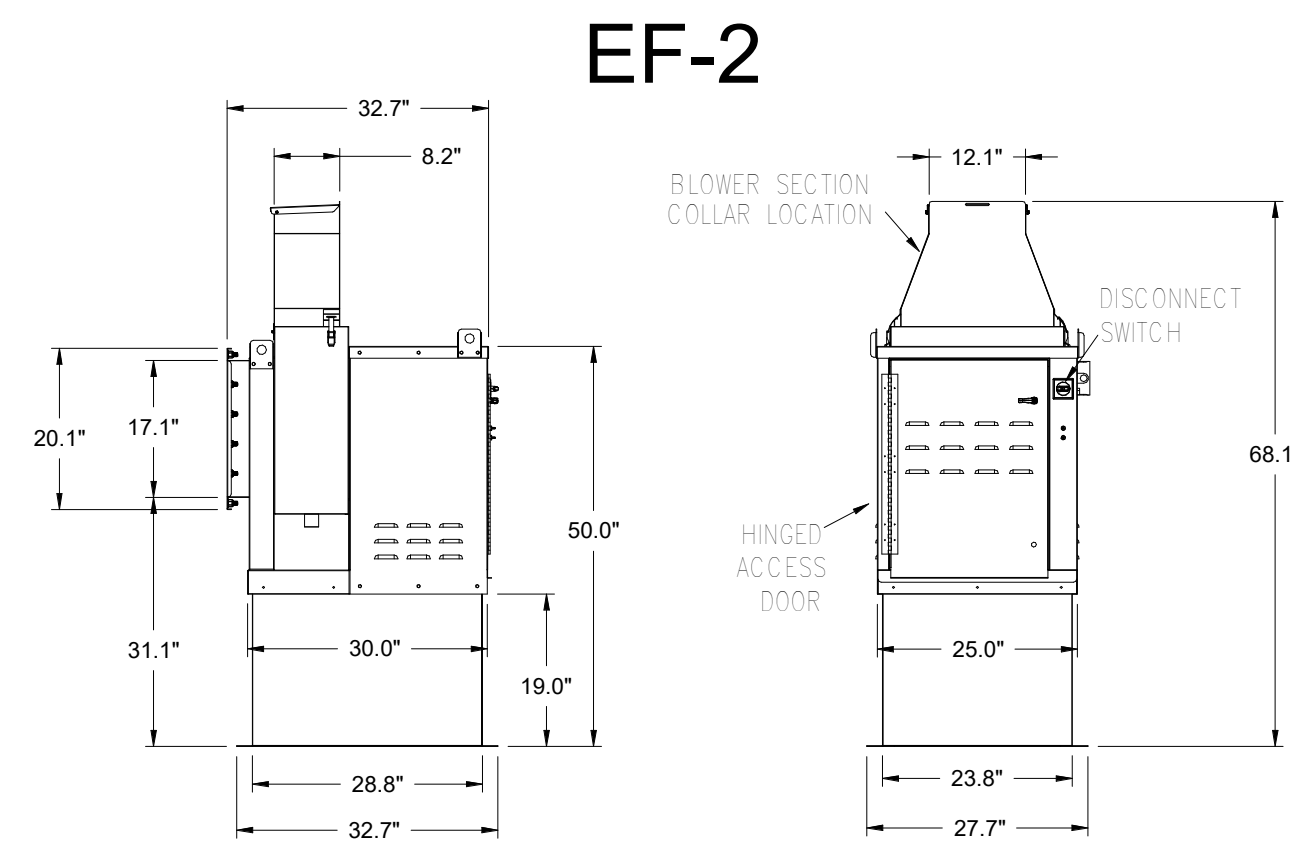
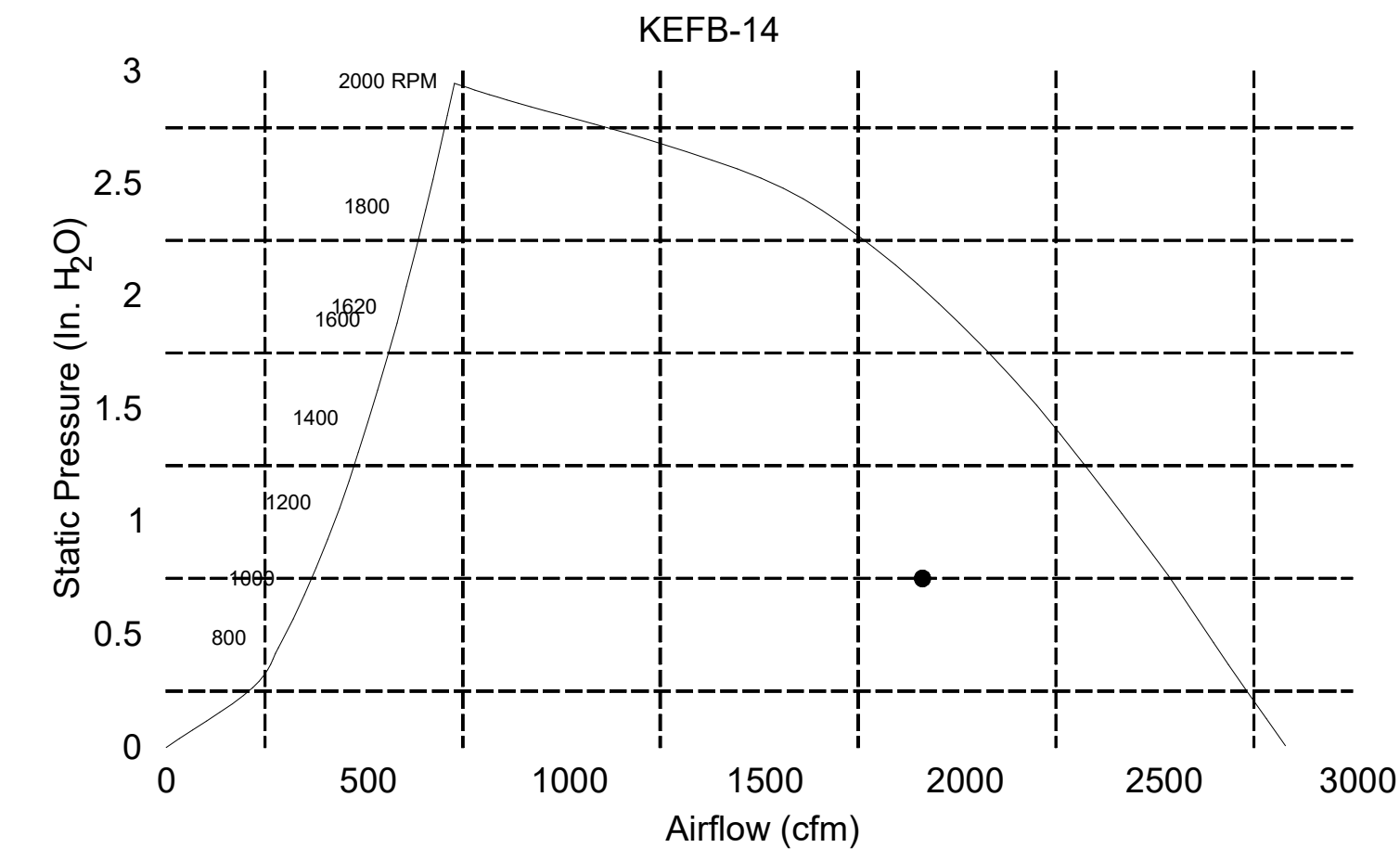
SHEET NUMBER

M-602



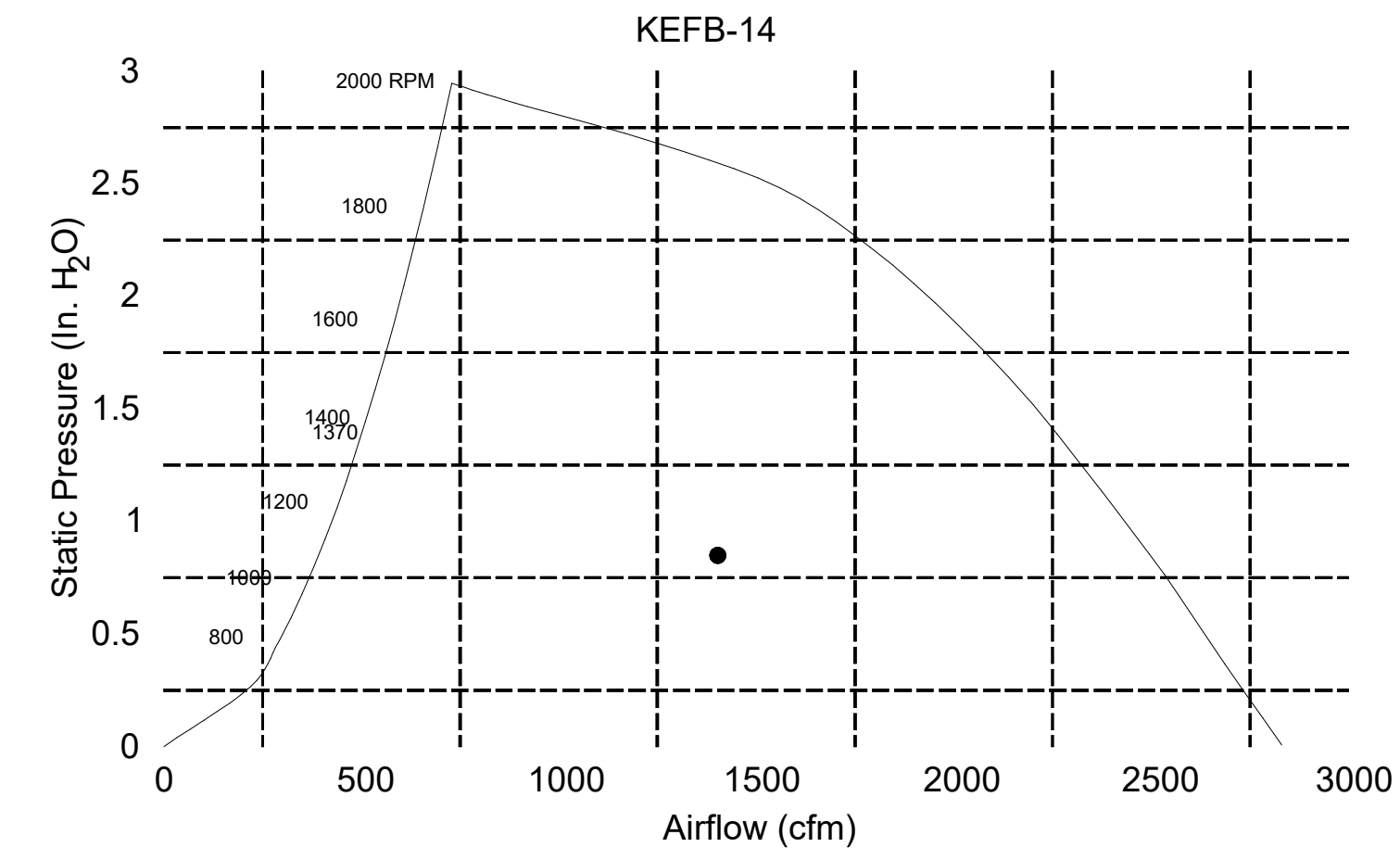
Halton KEFB Exhaust Fan

Job Name	Chick-fil-A	Item No	Qty	Fan RPM	1,620	Volts/Ph/Amps	115/1/60
Location	EF-1	Model	KEFB-14	Fan BHP	0.55	Motor HP	0.75
Date	1/26/2023	Airflow, cfm	1,312	dB	85.3	TAB Port, in WC	4.8
Static Pressure, in WC	0.75						



Halton KEFB Exhaust Fan

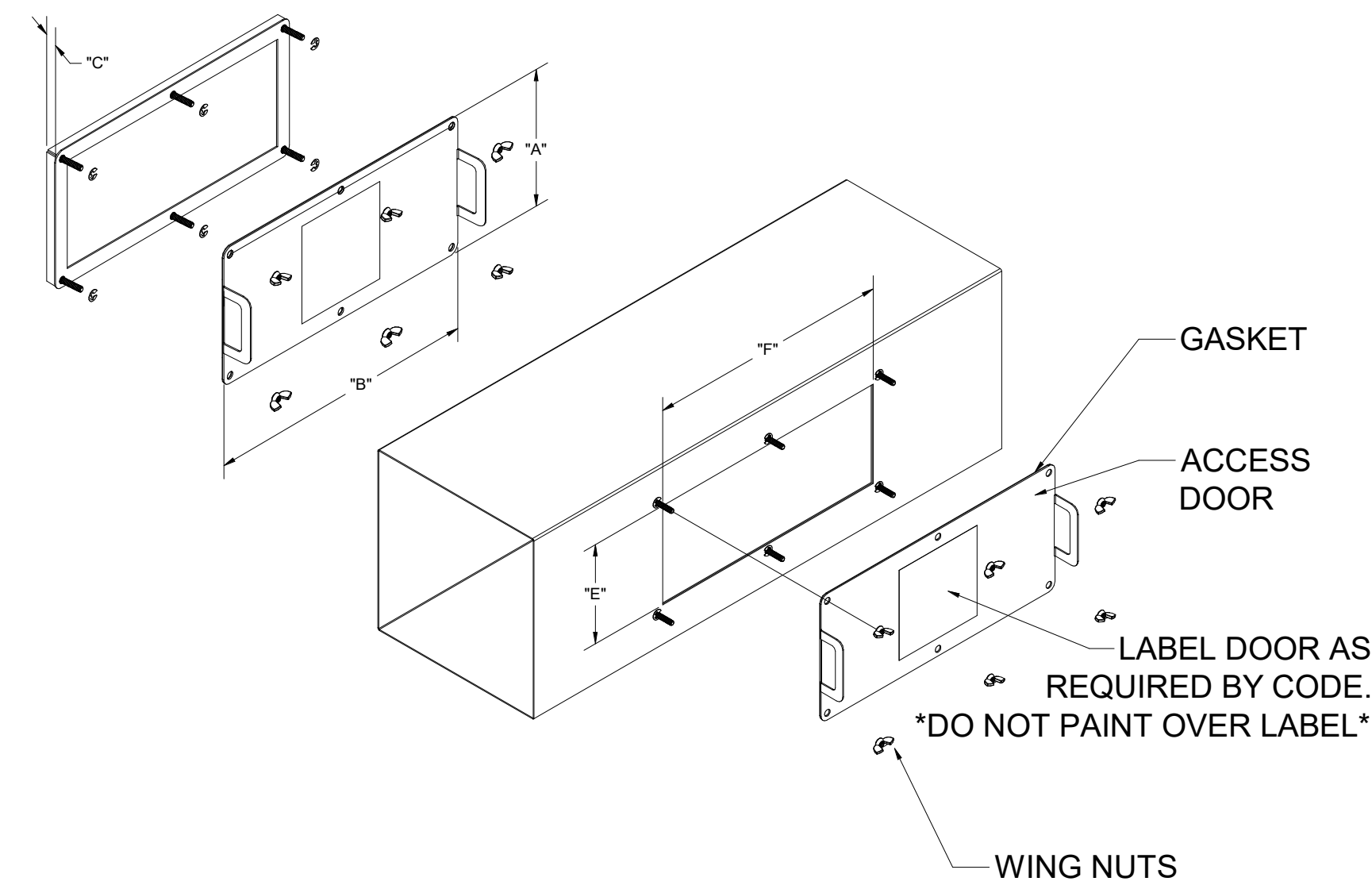
Job Name	Chick-fil-A	Item No	Qty	Fan RPM	1,410	Volts/Ph/Amps	115/1/60
Location	EF-2	Model	KEFB-14	Fan BHP	0.38	Motor HP	0.75
Date	1/26/2023	Airflow, cfm	1,402	dB	81	TAB Port, in WC	2.1
Static Pressure, in WC	0.95						



FOR REFERENCE ONLY

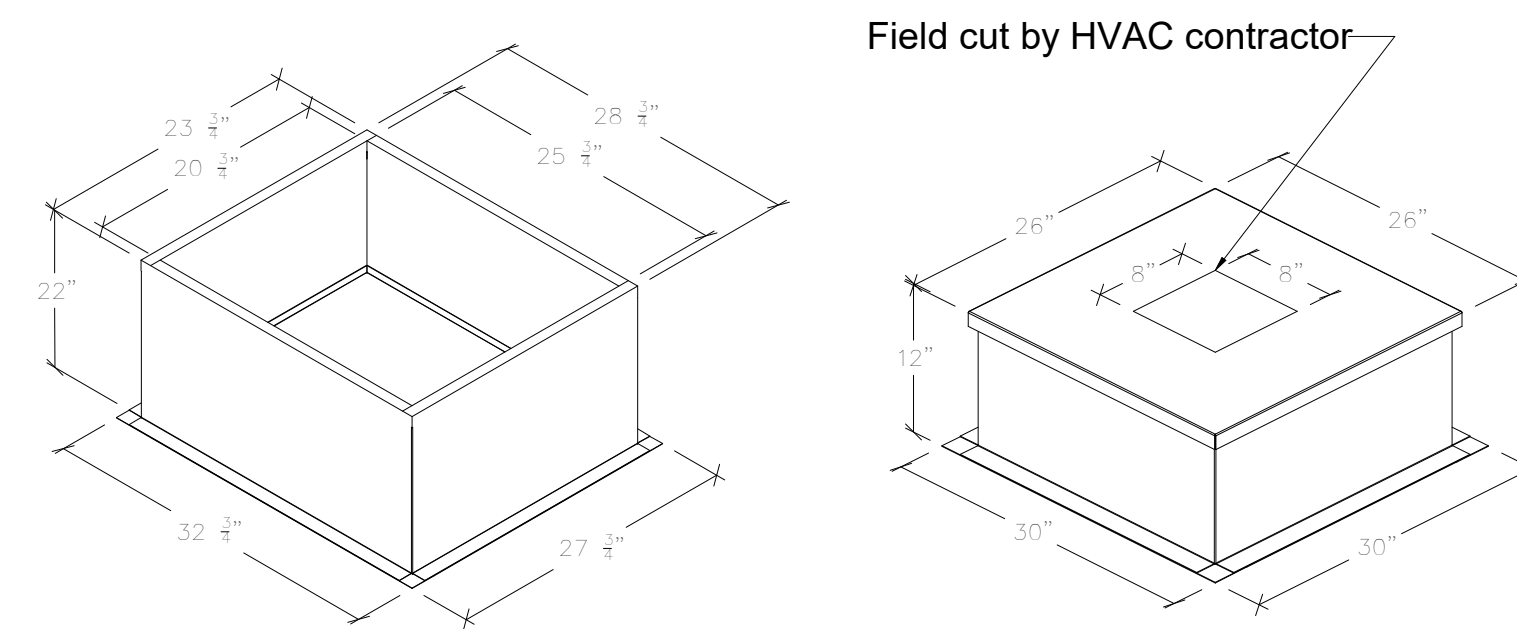
MODEL	DOOR SCHEDULE			OPTIONAL FLANGE	OPENING SIZE	
	"A"	"B"	"C"		"E"	"F"
KAP0715	7	15	FLAT	5.5	13.5	
KAP1015	10	15	1/2	7	12	

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 I.M.C. ACCESS DOOR SHALL BE SECURED WITH THUMB SCREWS. ACCESS DOOR SHALL BE SEALED WITH A MINIMUM 1500 DEGREE GASKET MATERIAL.



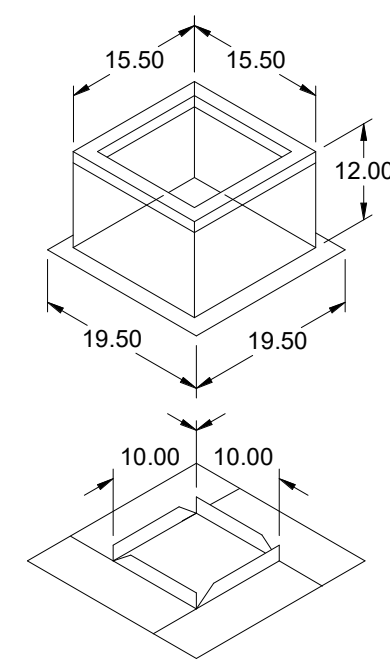
INSTALL PER MANUFACTURER'S INSTRUCTIONS

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 aluminumized 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 aluminumized steel - Straight Sided without a cant - 2 in. mounting flange - Height is 12 in. - 16 ga. cap



Model: GPI
For Model: XRED-090-G
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 (in.)	Weight (lb)	Shipped Assembled	Union Label
EF-3	1	GPI-17	Nominal	1.5	14	Yes	No Preference

Dimensions										
Curb Height (in.)	Nominal Width (in.)	Nominal Length (in.)	Actual Outside Width (in.)	Actual Outside Length (in.)	Actual Inside Width (in.)	Actual Inside Length (in.)	Flange Width (in.)	Flange Length (in.)	Hinge Base Length (in.)	Hinge Base Width (in.)
12	17	17	15.5	15.5	12	12	19.5	16		

*May not be applicable

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

- ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
- THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER:
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

APPROVED FOR FABRICATION WITH NO CHANGES WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

WEBSITE: www.halton.com	REVISION DESCRIPTION
HALTON CO. (USA) 101 INDUSTRIAL DRIVE SCOTTSDALE, AZ 85257-5800	DATE: 06.27.23 BY: SKK
HALTON CO. (CANADA) 1021 BREVIK PLACE MISSISSAUGA, ON L4W 3R7 1-905-624-0301	DATE: 08.28.23 BY: SKK
	DATE: 02.02.24 BY: SKK
	DATE: 05.16.24 BY: SKK
	DATE: 07.26.24 BY: SKK

CREATED HOOD BLOCKS
SHEET LAYOUT
NO CHANGE
ADDED GREASE CUPS
ADDED 1.5 GAL TANK TO ANSUL SYSTEM

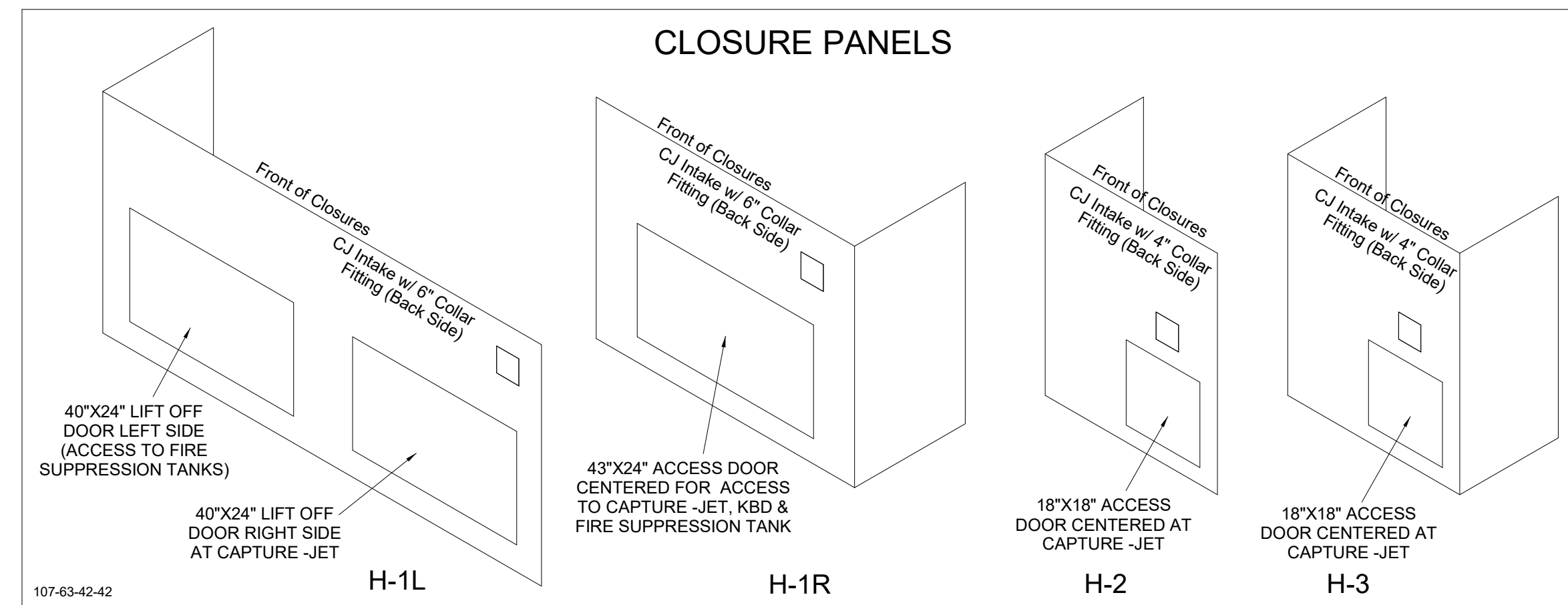
PROJECT: CHICK-FIL-A P14 NAME
LOCATION: -- DATE: 05.23.24
DRAWN BY: SKK SCALE: NOT TO SCALE

DRAWING No.: U24-672
SHEET NO.: MH-1.4

Halton

HOOD MODEL	HOOD NUMBER	EXHAUST COLLAR			EXHAUST AIR INFORMATION			CAPTURE AIR INFORMATION		S.S. KSA FILTERS		LED LIGHTS	QTY	CEILING CLOSURES		KBD DAMPER	K FACTOR (CFM = K FACTOR * √DP)	MATERIAL
		QTY	LENGTH	WIDTH	CFM	TAB	SP	CFM	SP	FULL	HALF			CLOSURE HEIGHT	CEILING HEIGHT			
KVL-2-IC	H-1L	1	14"	8"	1204	0.13"	0.22"	80	0.30"	5	-	3	2	51"	122"	*	3369	ALL 18 GA 430 S.S.
KVL-2-IC	H-1R	1	8"	8"	709	0.13"	0.23"	47	0.30"	3	-	2	2					
KVL-C-IC	H-2	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	2					
KVL-C-IC	H-3	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	3					

FOR REFERENCE ONLY

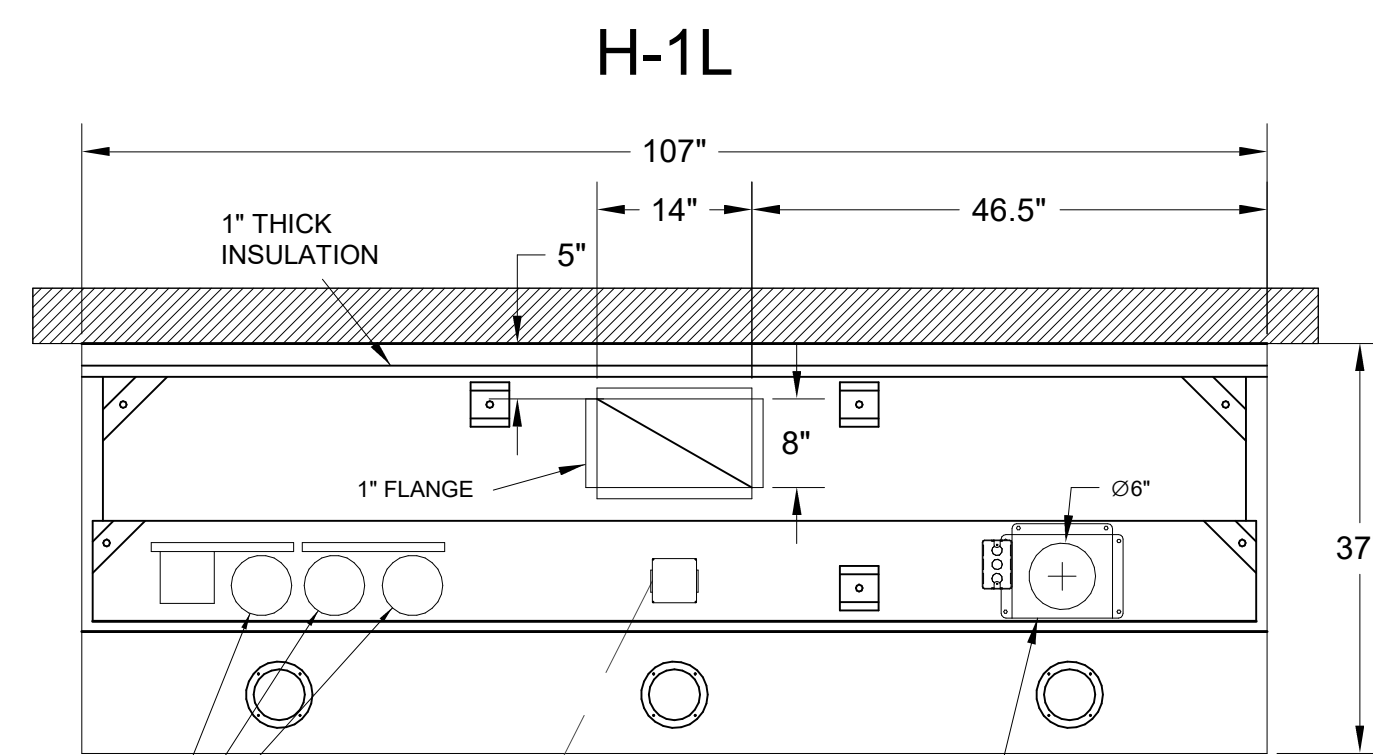
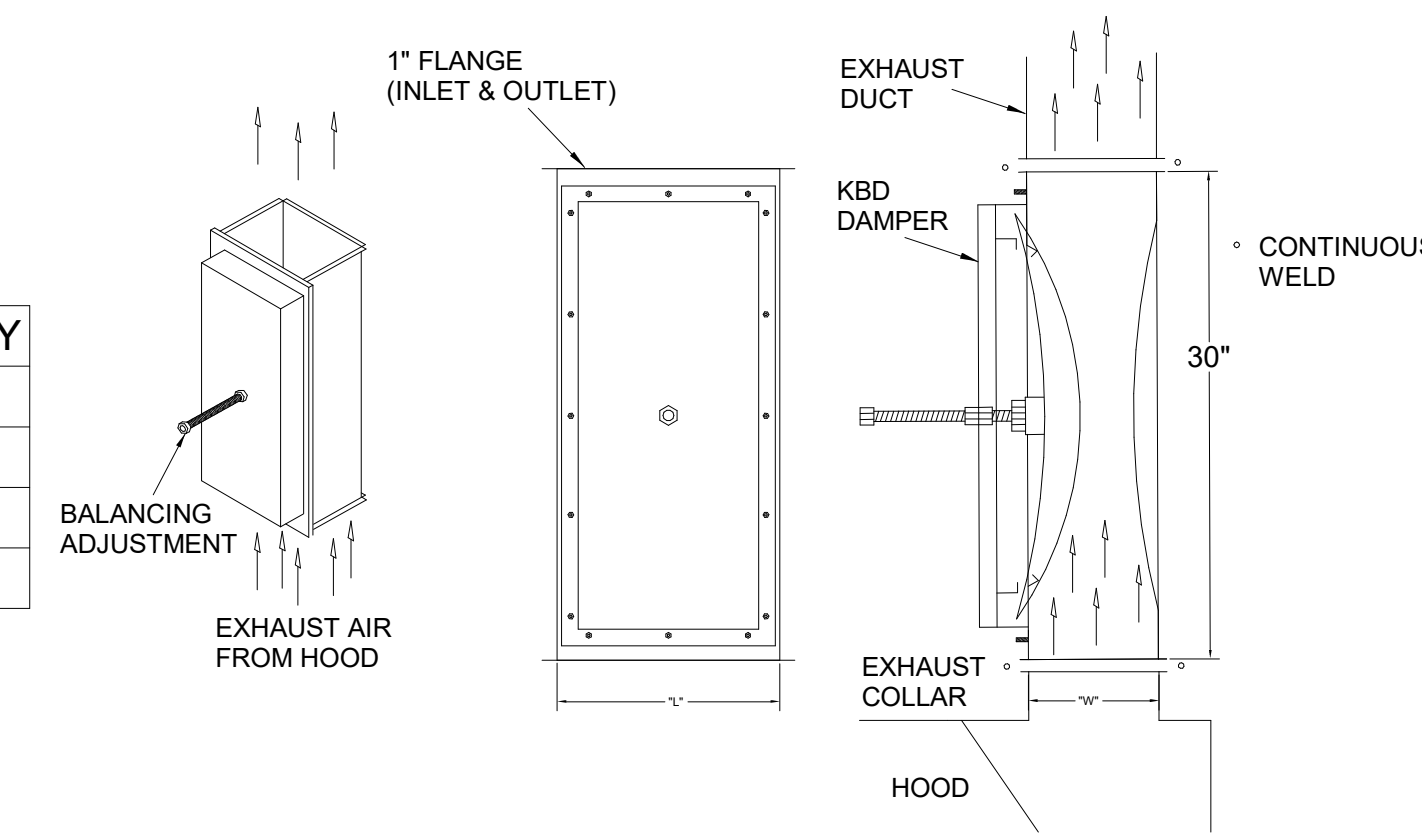


**MODEL:KBD
CALIBRATED KBDs
KITCHEN BALANCING DAMPER**

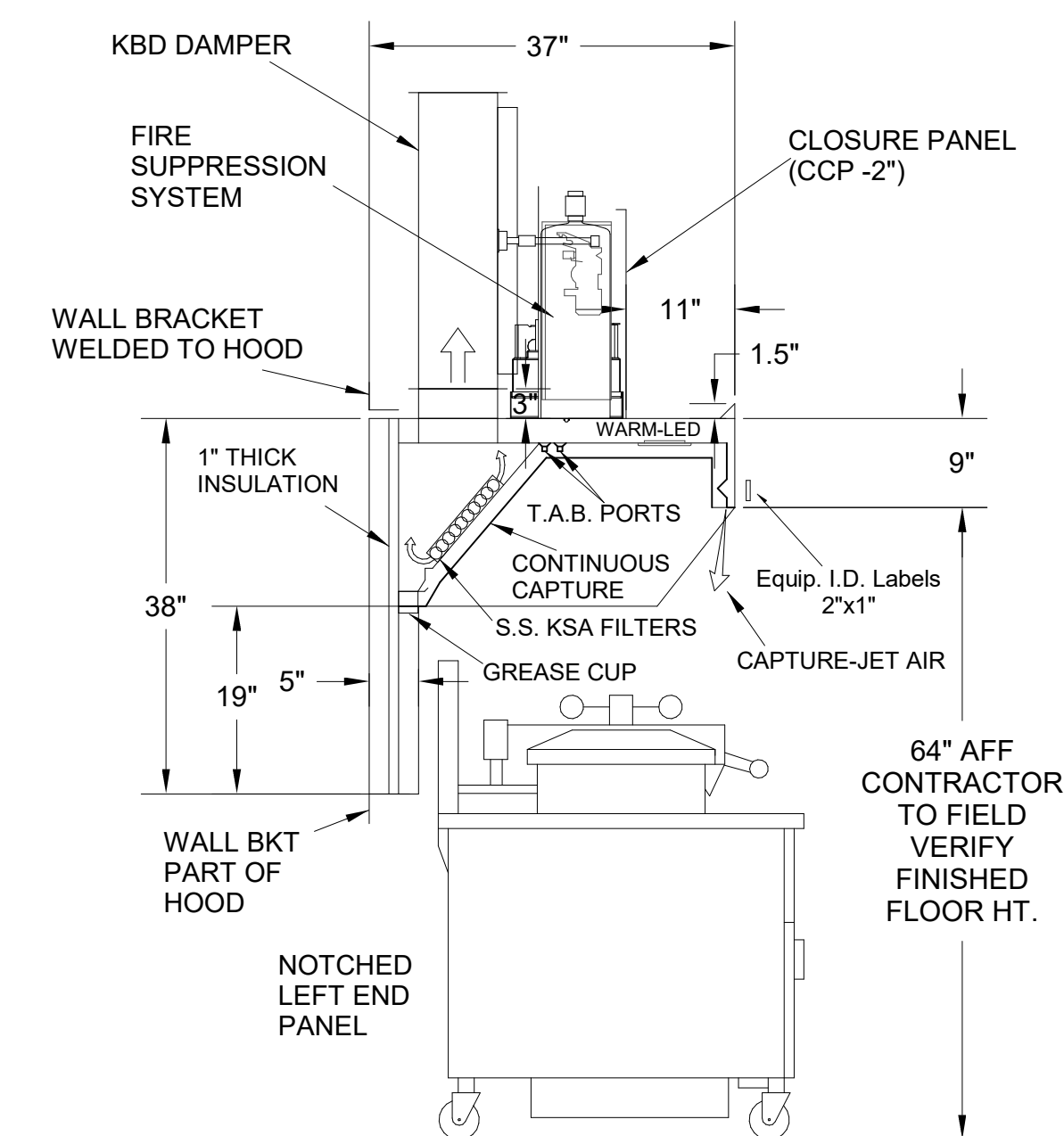
EXHAUST VOLUME DAMPER

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.

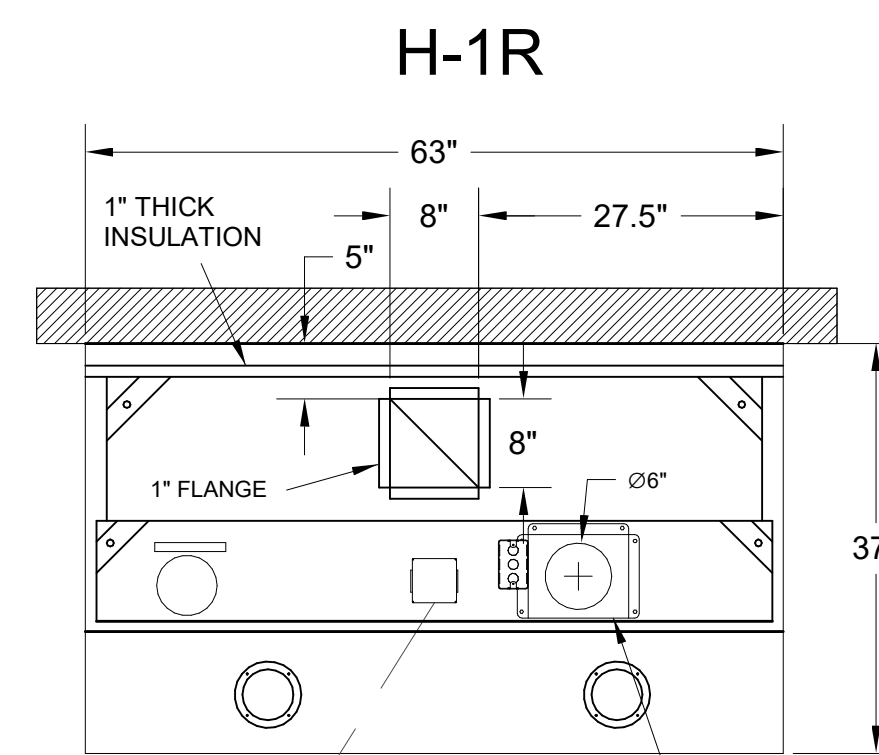
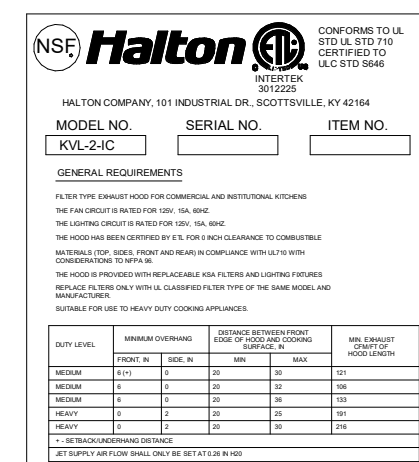


PLAN VIEW

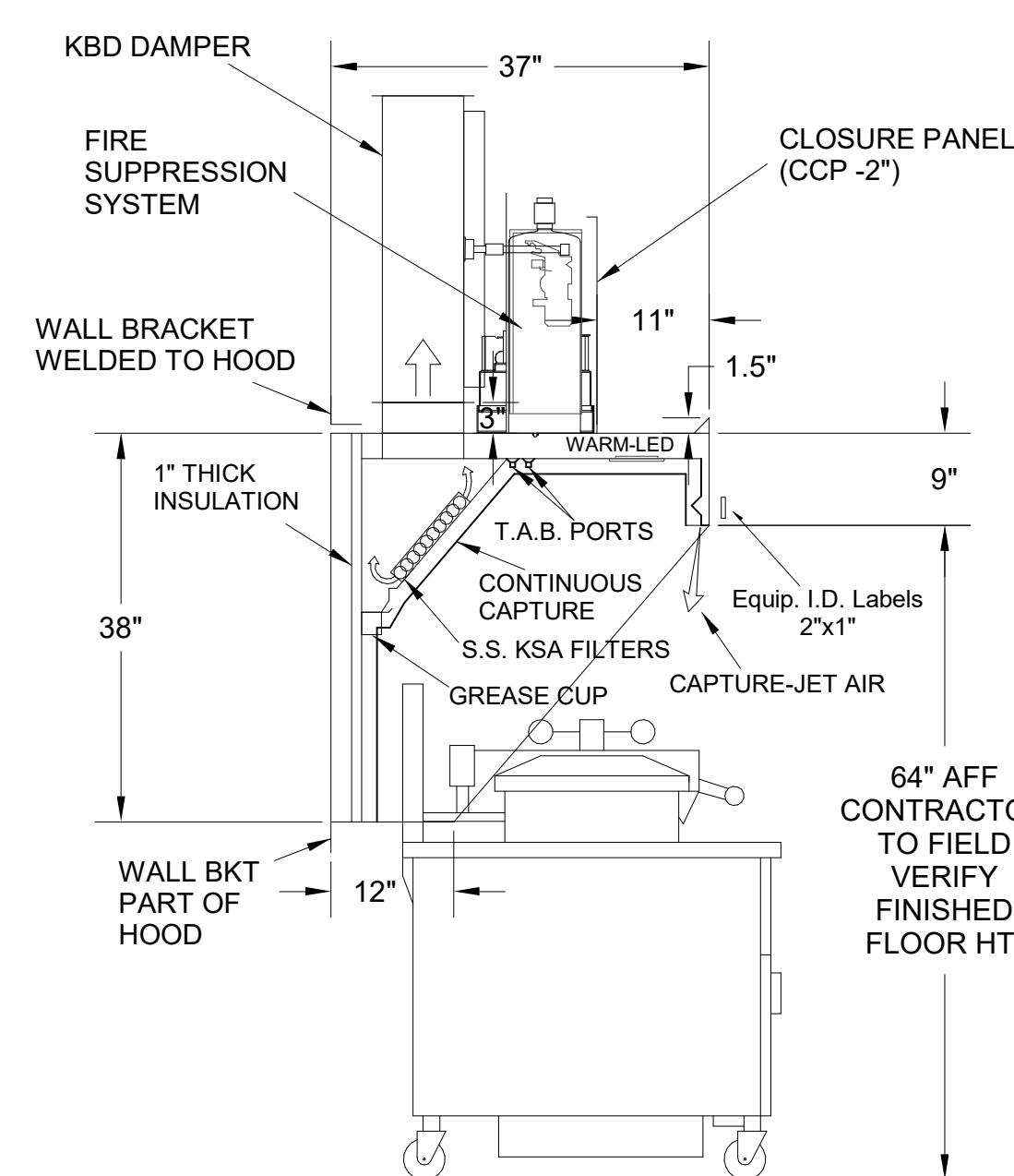


H-1L SECTION VIEW

- 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
- GREASE CUP RIGHT END
- ANSUL WEIGHT = 328 LBS
- AMEREX WEIGHT = 264 LBS

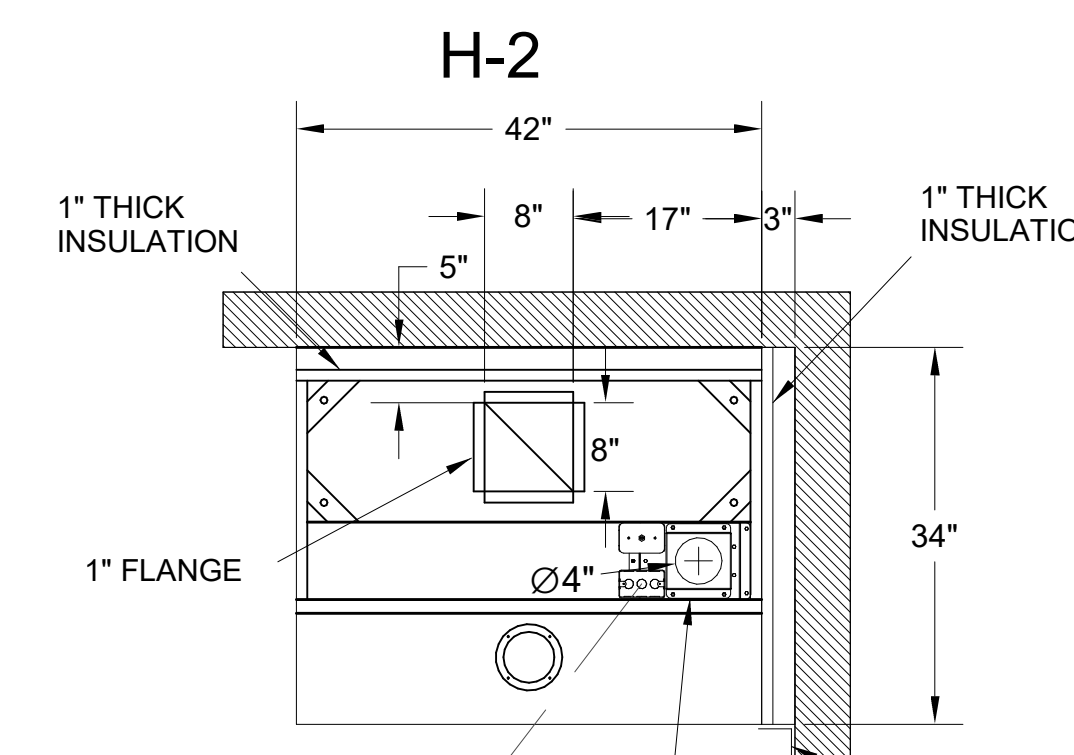
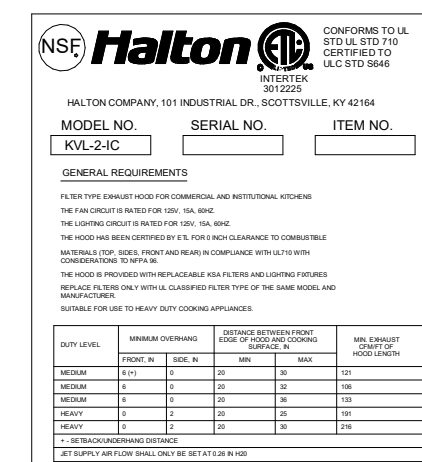


PLAN VIEW

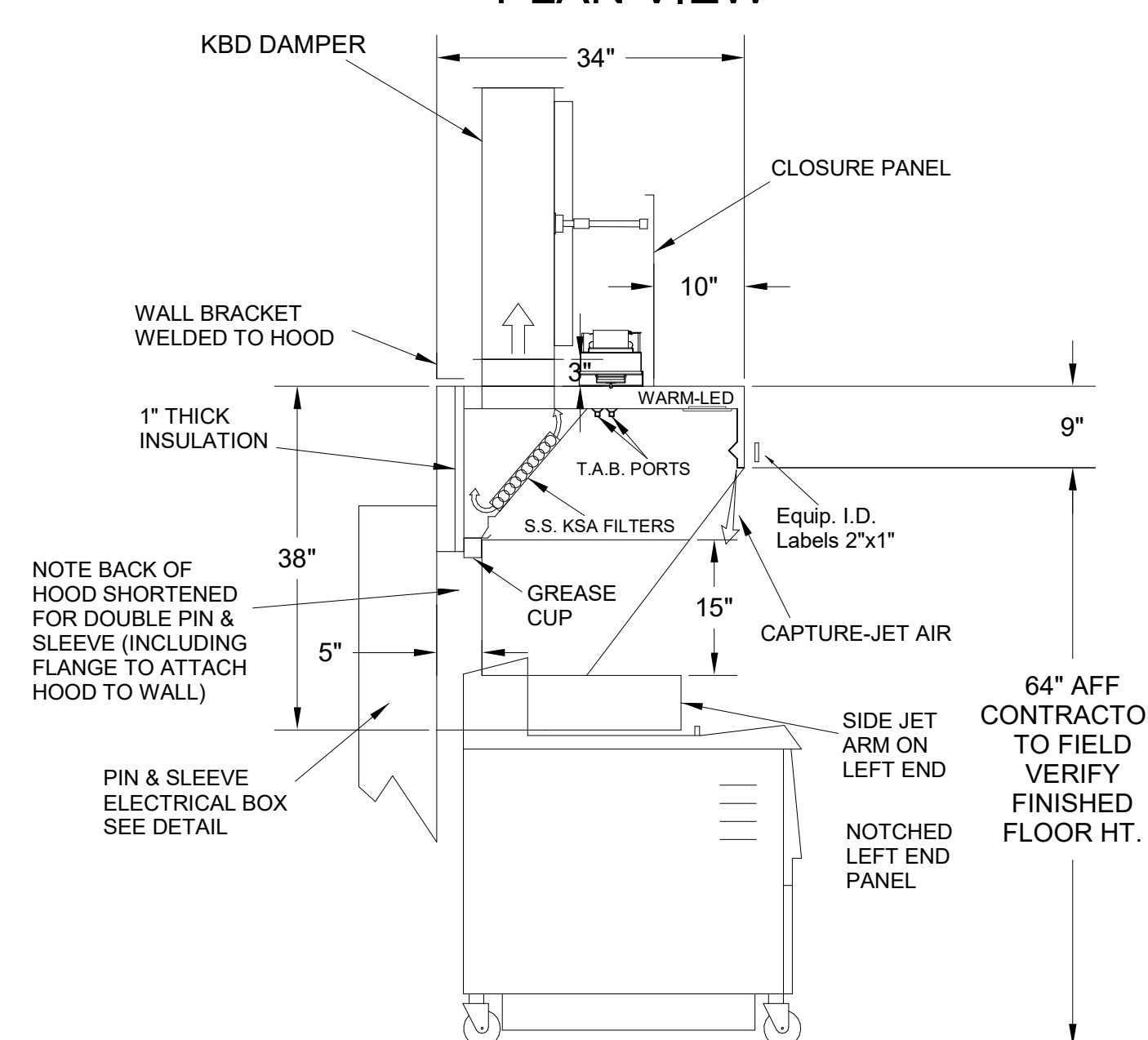


H-1R SECTION VIEW

- CEILING CLOSURE RECESSED 11" FROM FRONT TO CREATE SHELF
- FRONT CLOSURE PANEL WITH 43"X24" ACCESS DOOR FOR ACCESS TO CAPTURE-JET AND FIRE SUPPRESSION
- CONTINUOUS CAPTURE INTERNAL LEFT END CUTOUT
- 3" REAR STAND-OFF TO HAVE 1" THICK INSULATION
- GREASE CUP RIGHT END

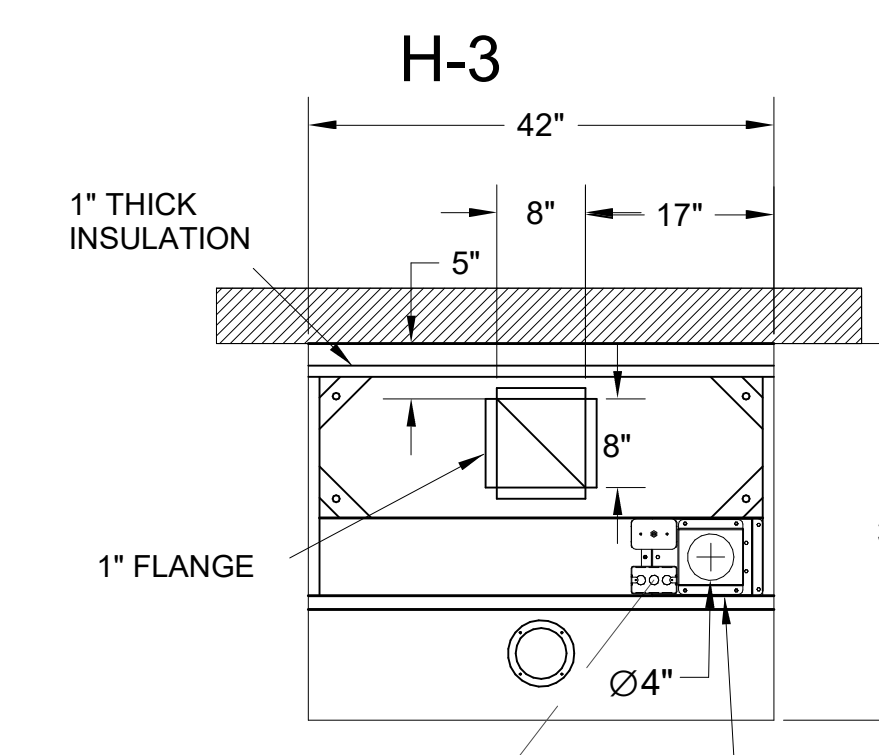
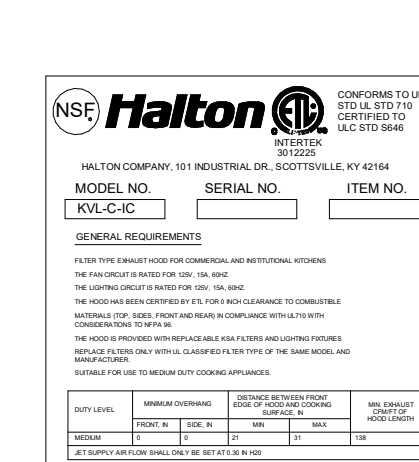


PLAN VIEW

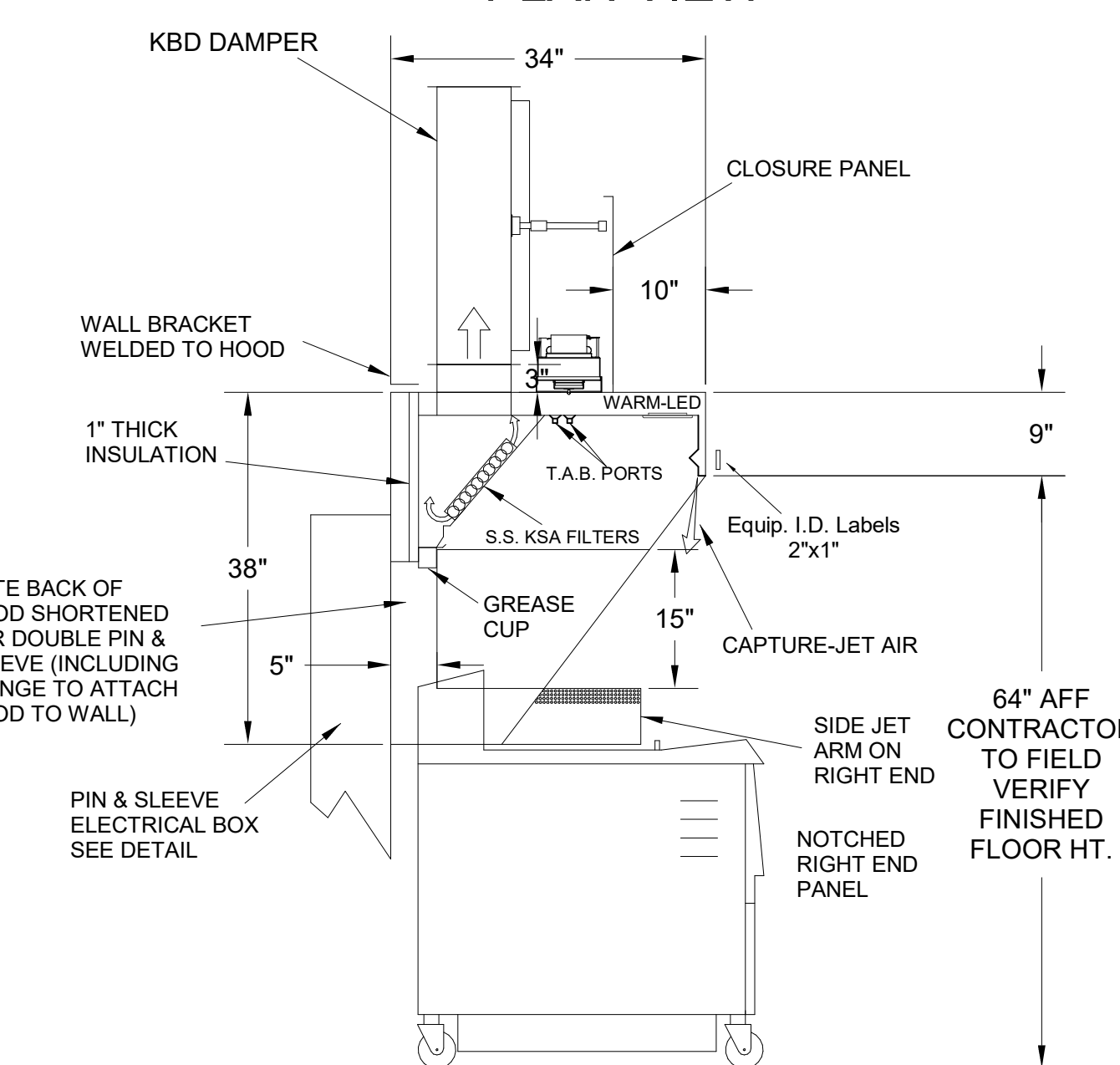


H-2 SECTION VIEW

- 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
- GREASE CUP RIGHT END



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
- GREASE CUP RIGHT END



THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER:
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

REVISION AND RESUBMIT
APPROVED FOR FABRICATION
WITH NO CHANGES
WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

WEBSITE: www.halton.com

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

DATE	BY	REVISION DESCRIPTION
06.27.23	SKK	CREATED HOOD BLOCKS
08.28.23	SKK	SHEET LAYOUT
02.02.24	SKK	NO CHANGE
05.16.24	SKK	ADDED GREASE CUPS
07.26.24	SKK	ADDED 1.5 GAL TANK TO ANSUL SYSTEM

HALTON CO. (USA)
101 INDUSTRIAL DRIVE
SCOTTSDALE, KY 42164
1-270-237-5800

HALTON CO. (CANADA)
1021 BREVIK PLACE
MISSISSAUGA, ON L4W 3R7
1-905-624-0301

PROJECT: CHICK-FIL-A P14 NAME

LOCATION: -- DATE: 05.23.24

DRAWN BY: SKK

SCALE: NOT TO SCALE

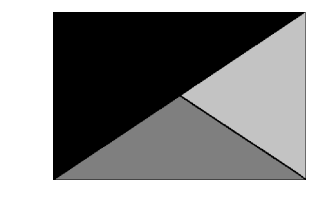
DRAWING No.: U22-606-01

SHEET No.: MH-1.1



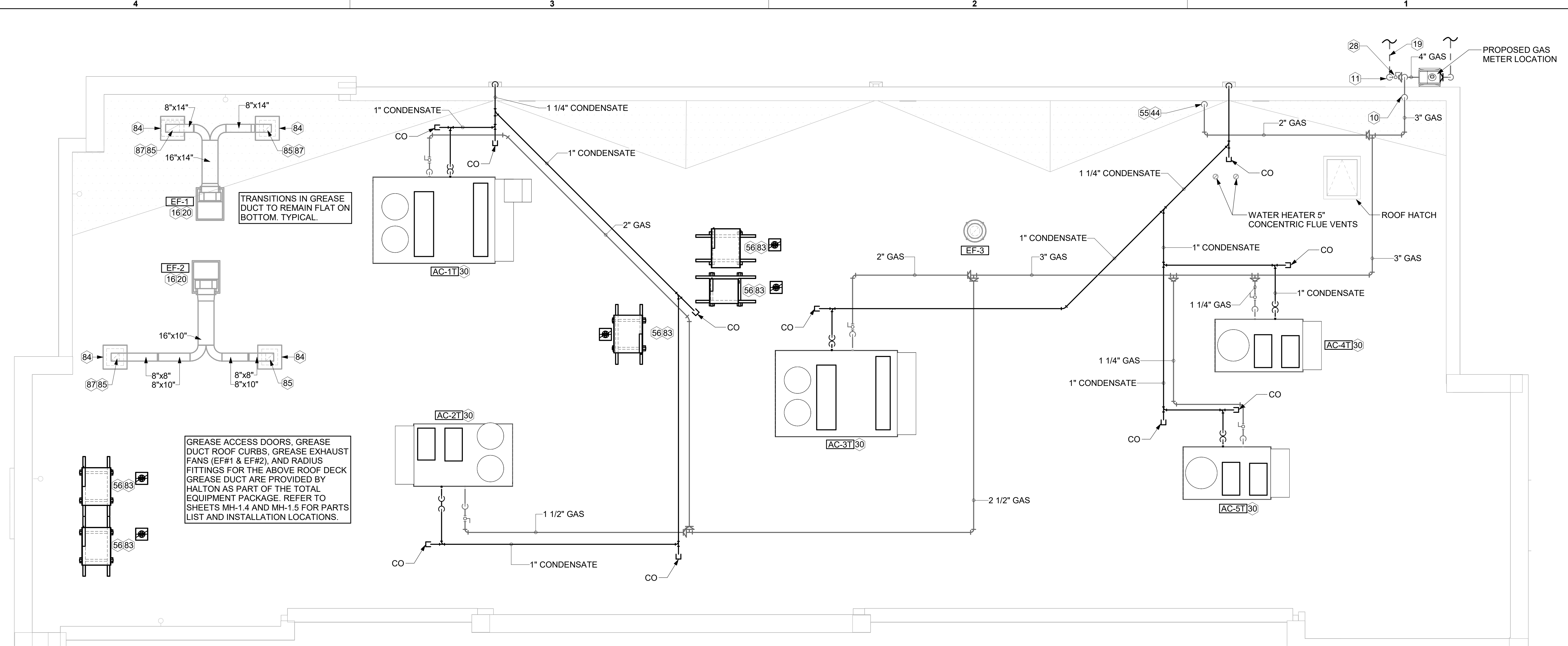
Chick-fil-A

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



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

MARK T. KURZYNSKE
NEW JERSEY LICENSE # GE44646

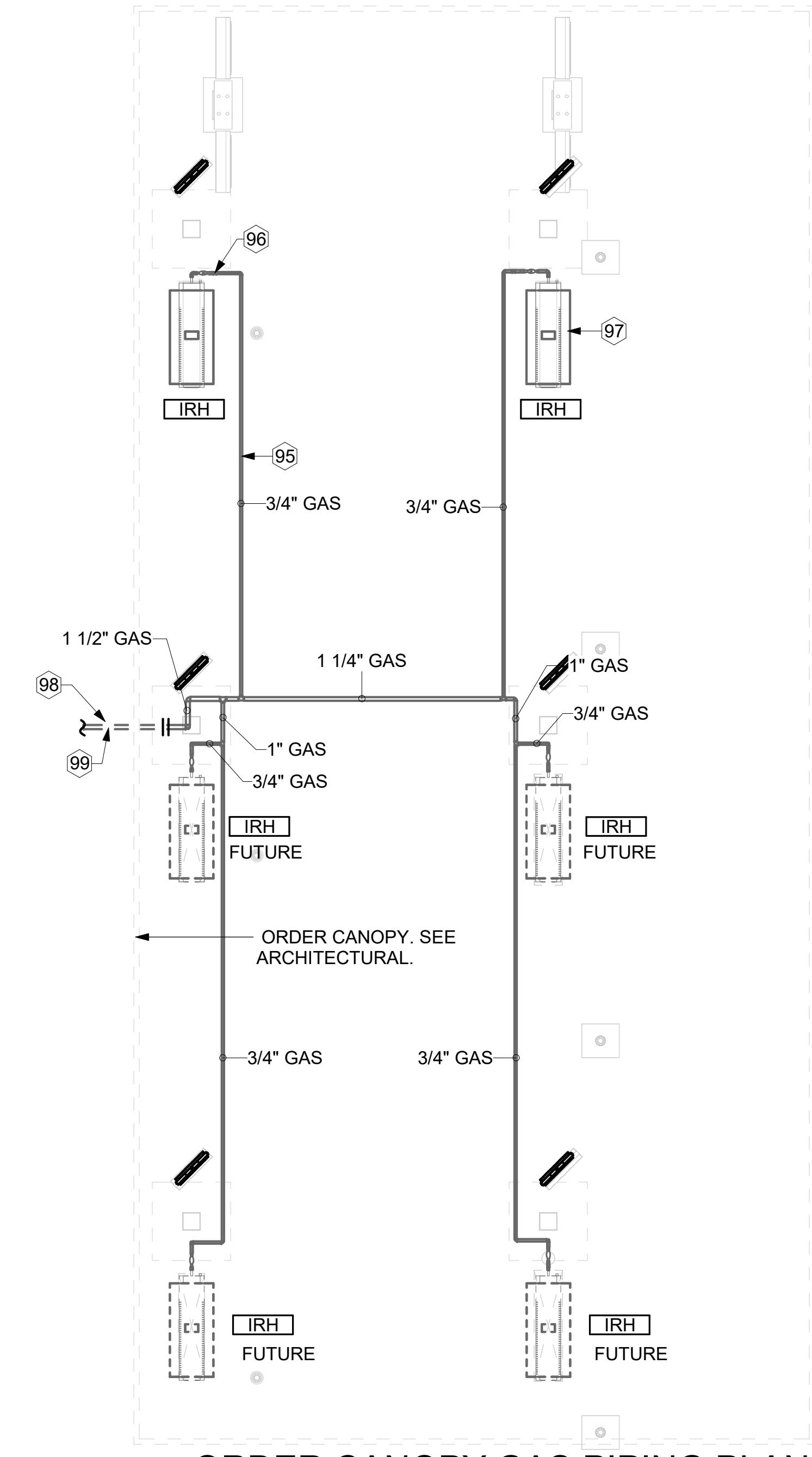


1 EQUIPMENT ROOF PLAN - TRANE
1/4" = 1'-0"

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 VERIFY EXHAUST TERMINATION IS A MINIMUM 10'-0" FROM PARAPETS AND OUTSIDE AIR INTAKES. MINIMUM TERMINATION 40" ABOVE ROOF SURFACE. REFER TO MH-1.4 AND MH-1.5 FOR DETAILS.
- 19 1-1/2" GAS BELOW GRADE TO ORDER CANOPY, SEE DETAIL 2 SHEET M-102.
- 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 TAG 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 2" GAS DOWN THRU ROOF TO WATER HEATER. SEE DETAIL 2/M-502 FOR MORE INFORMATION ON CONSTRUCTION AND PENETRATION.
- 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-1.4 AND MH-1.5 FOR DETAILS.
- 85 TURN DOWN THRU ROOF. SEE M-101 FOR CONTINUATION.
- 87 DUCT PENETRATIONS ON ROOF MUST BE AT LEAST 18" FROM ADJACENT PARAPETS.
- 95 GAS PIPING TO BE ROUTED ABOVE CANOPY, ON TOP OF STRUCTURAL MEMBERS, EXCEPT WHERE ROUTED DOWN THROUGH PENETRATIONS AS INDICATED.
- 96 GAS PIPING DOWN THROUGH DECK. WEATHERPROOF DECK PENETRATION PER DETAIL 6/M-502, TYPICAL.
- 97 SEE DETAIL 1/M-502 FOR PIPING AT IRH, TYPICAL.
- 98 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.
- 99 1-1/2" GAS B/G TO METER SEE 1/M-102.

3. GAS LOAD SCHEDULE	
EQUIPMENT	GAS LOAD
AC-1T	400,000 BTUS
AC-2T	250,000 BTUS
AC-3T	400,000 BTUS
AC-4T	150,000 BTUS
AC-5T	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 FUTURE CONNECTED LOAD	2,028,000 BTUS
REMARKS:	1. EQUIVALENT TO 2,028.0 CFH 2. 7" W.C. DELIVERY PRESSURE 3. DEVELOPED LENGTH: 250 FT. (METER TO AC-1T) 4. GAS PIPING SIZED FOR FUTURE LOAD 5. SIZED PER IFGC TABLE 402.4(2).



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

CHICK-FIL-A
GLOUCESTER OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733
BUILDING TYPE / SIZE: P14 LE BASE
RELEASE: 24.11
PRINTED FOR: PERMIT
REVISION SCHEDULE

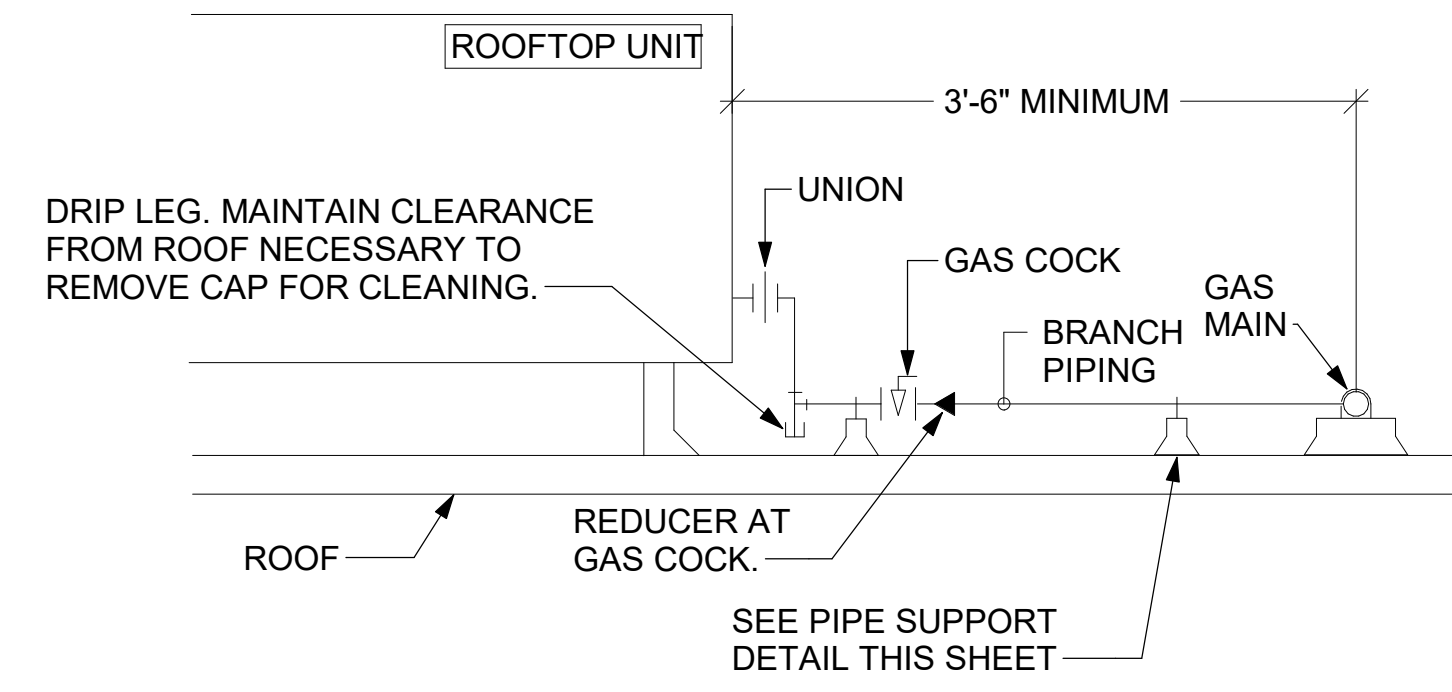
NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # XXXX
DATE 03/05/2025
DRAWN BY Author

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.
SHEET
EQUIPMENT ROOF PLAN - TRANE

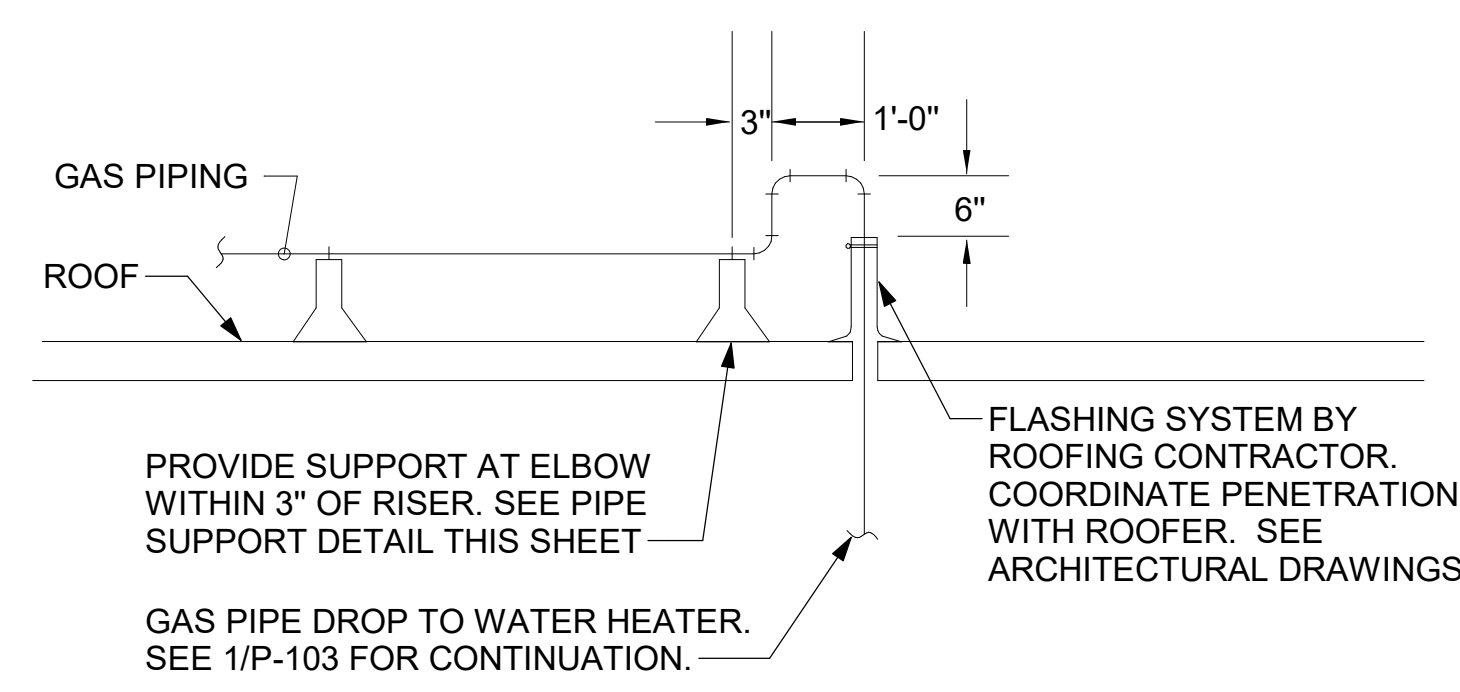
SHEET NUMBER
M-102T

- 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.

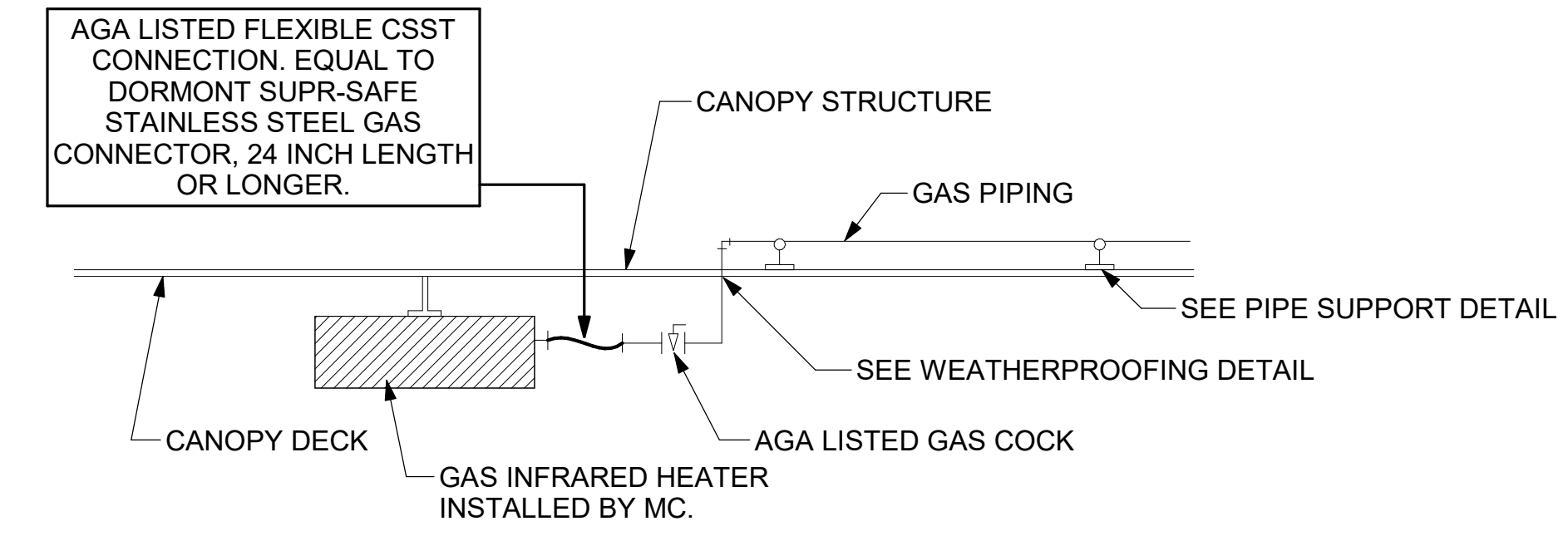


3 GAS PIPING AT RTU
NTS

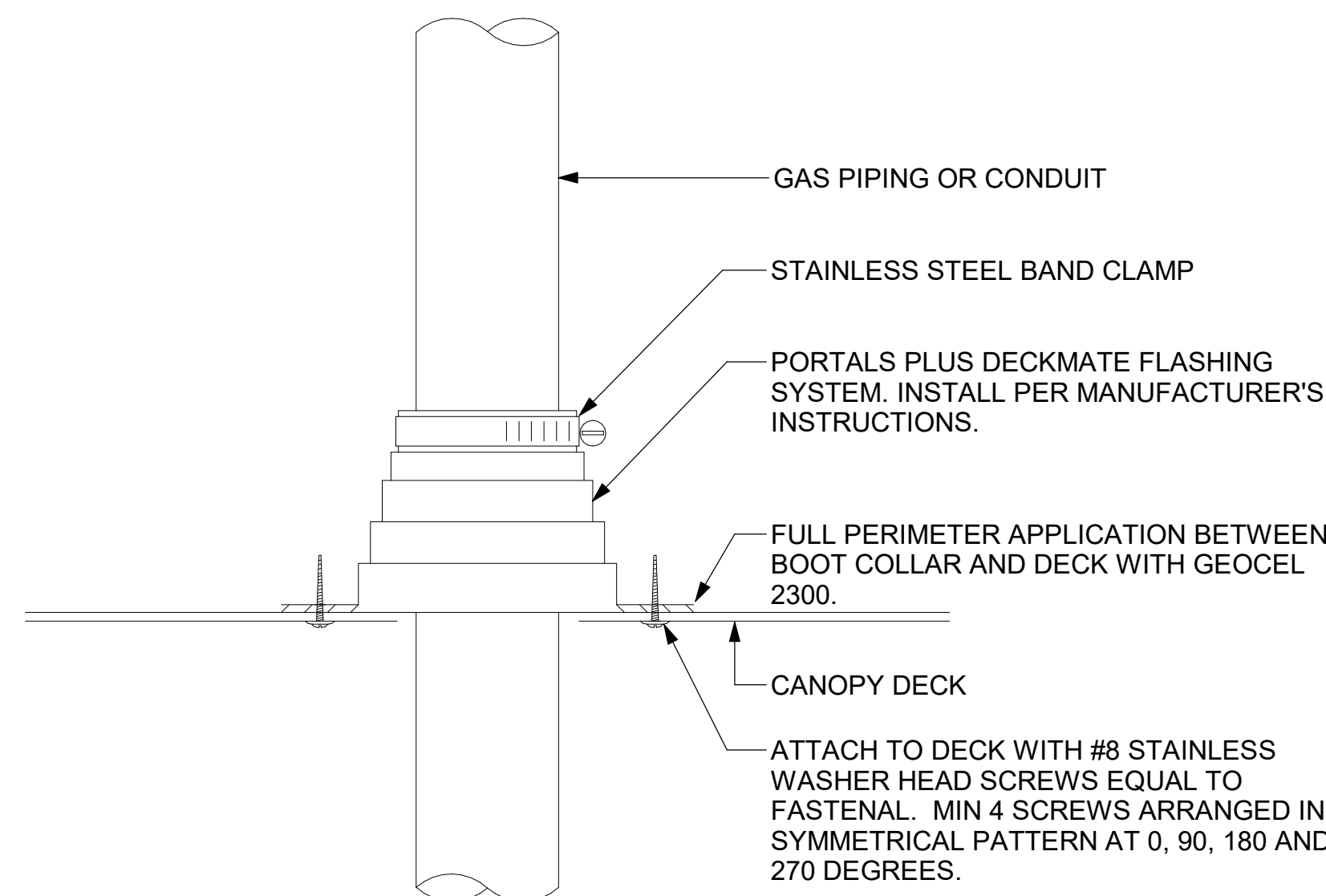
OFFSET PIPING A MINIMUM OF 6" ABOVE TOP EDGE OF FLASHING.



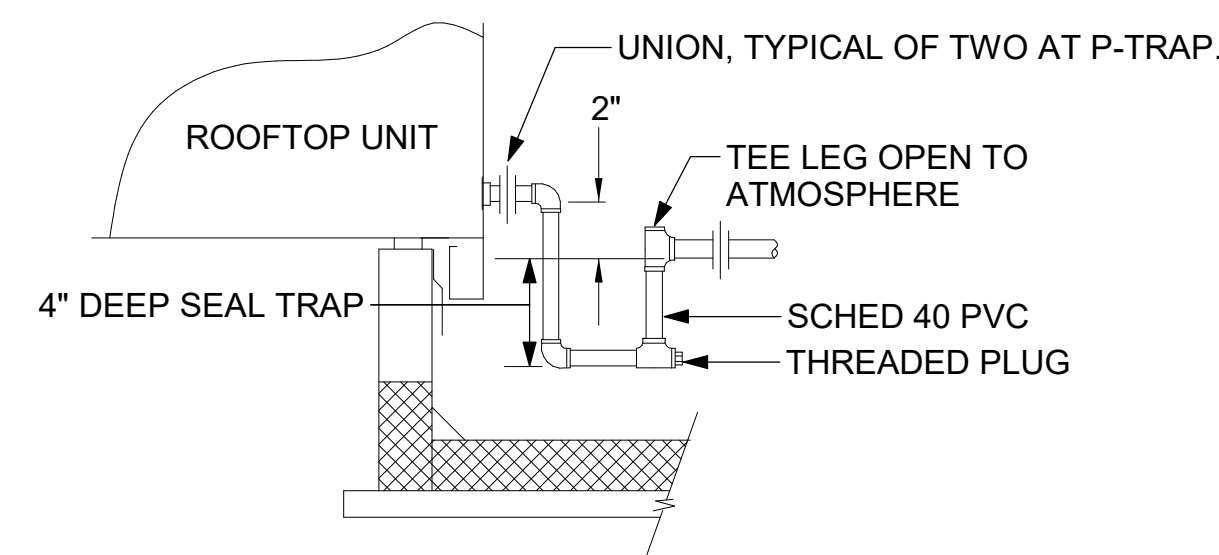
2 GAS PIPE DROP TO WATER HEATER
NTS



1 GAS CONNECTION AT APPLIANCE
NTS

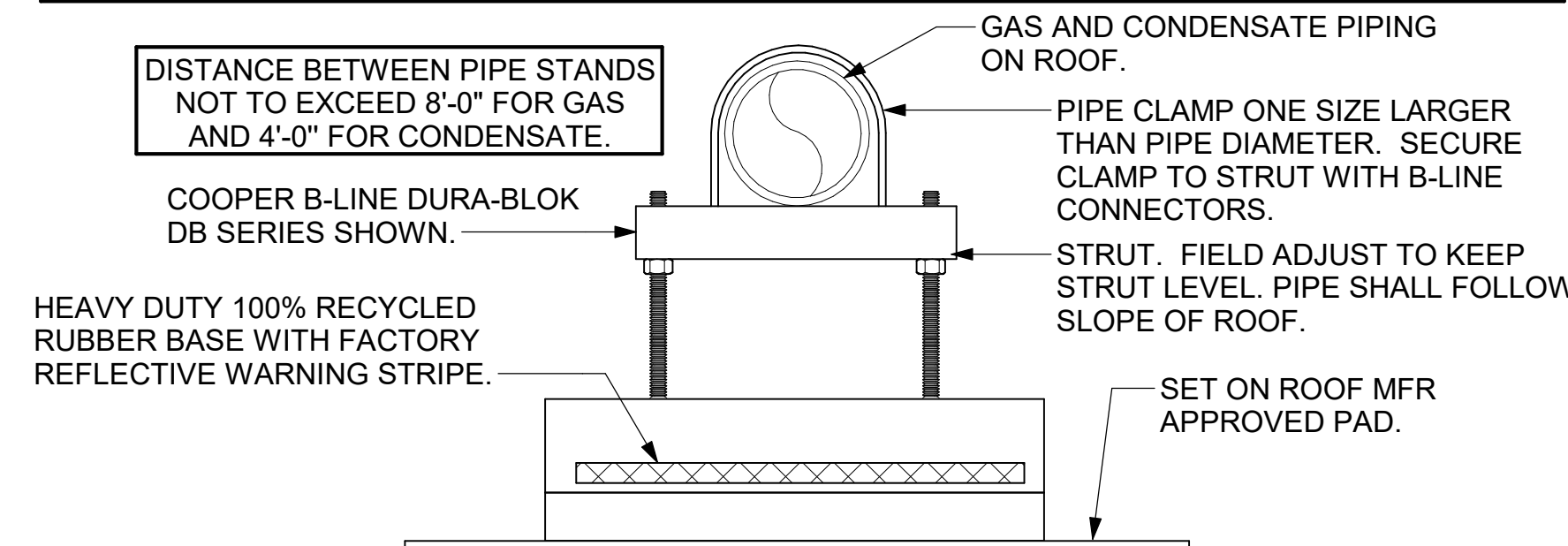


6 WEATHERPROOFING AT CANOPY PENETRATION
NTS

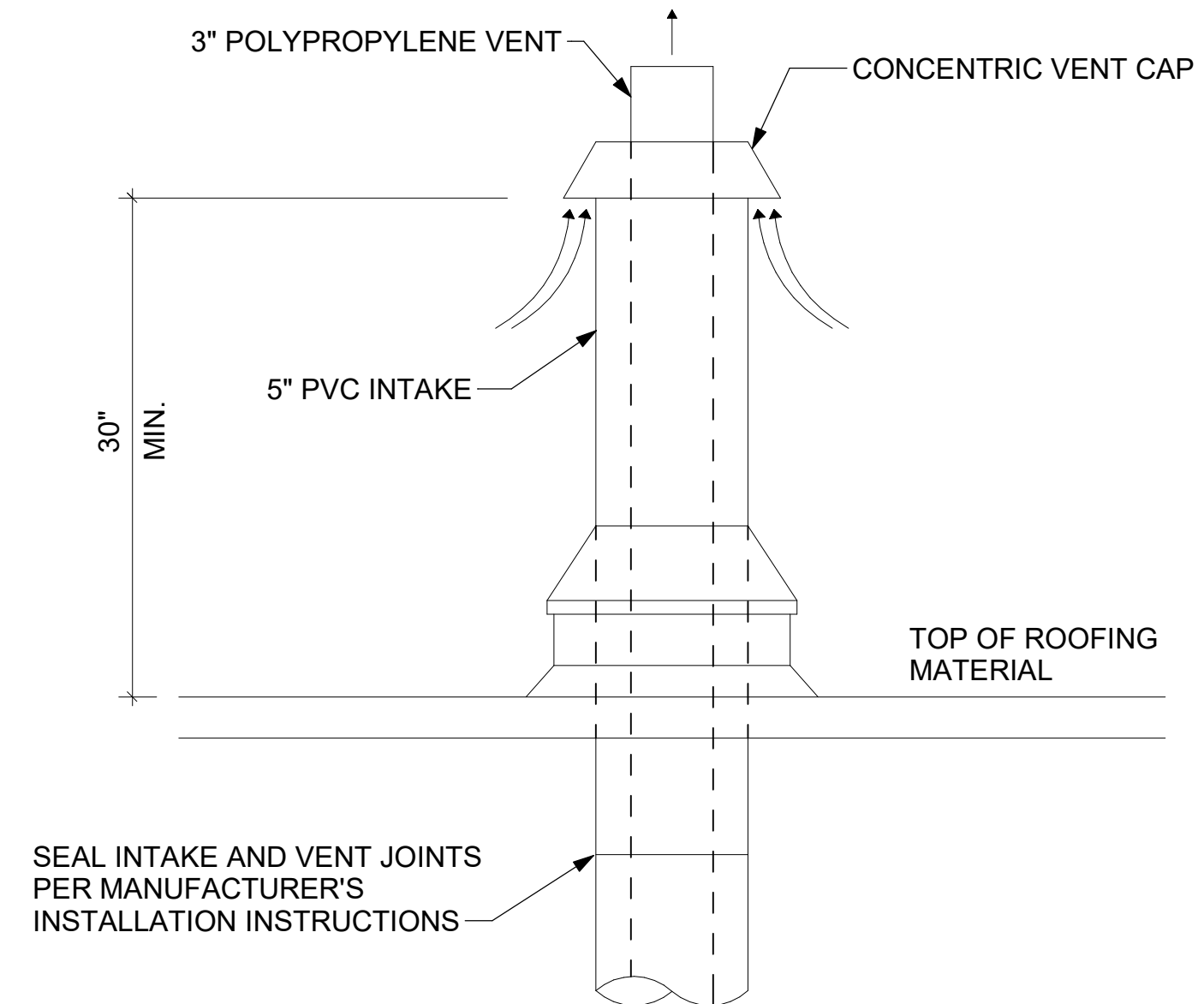


5 CONDENSATE DRAIN PIPING
NTS

- 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.



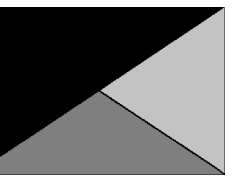
4 PIPING SUPPORT ON ROOF
NTS



7 WATER HEATER VENT ROOF PENETRATION
NTS



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



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

MARK T. KURZYNSKE
NEW JERSEY LICENSE # GE44646



CHICK-FIL-A
GLOUCESTER OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733

BUILDING TYPE / SIZE: P14 LE BASE
RELEASE: 24.11
PRINTED FOR PERMIT
REVISION SCHEDULE

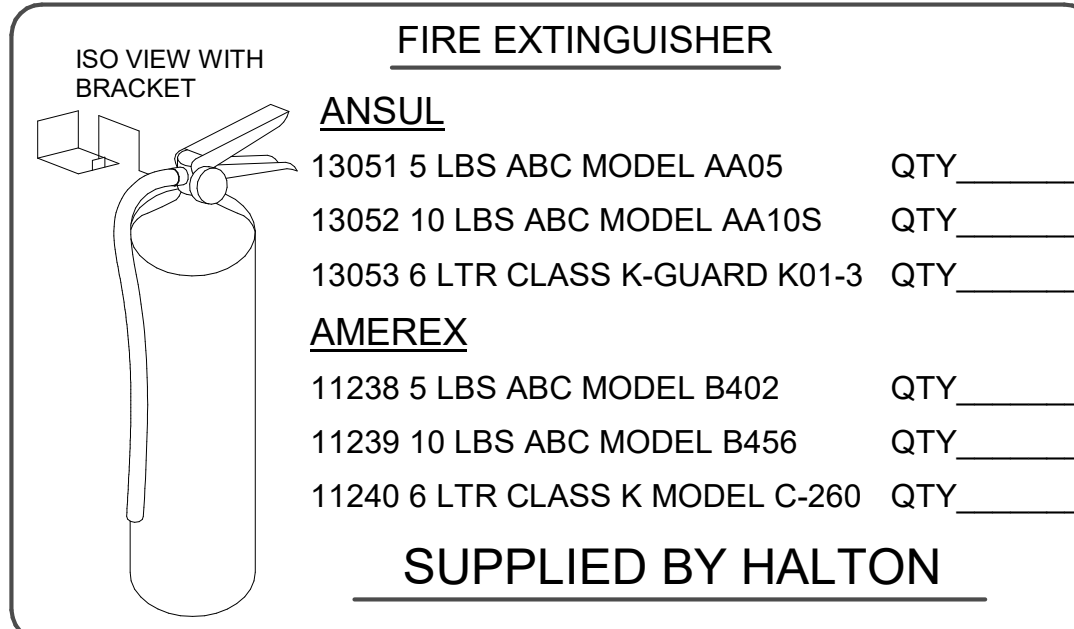
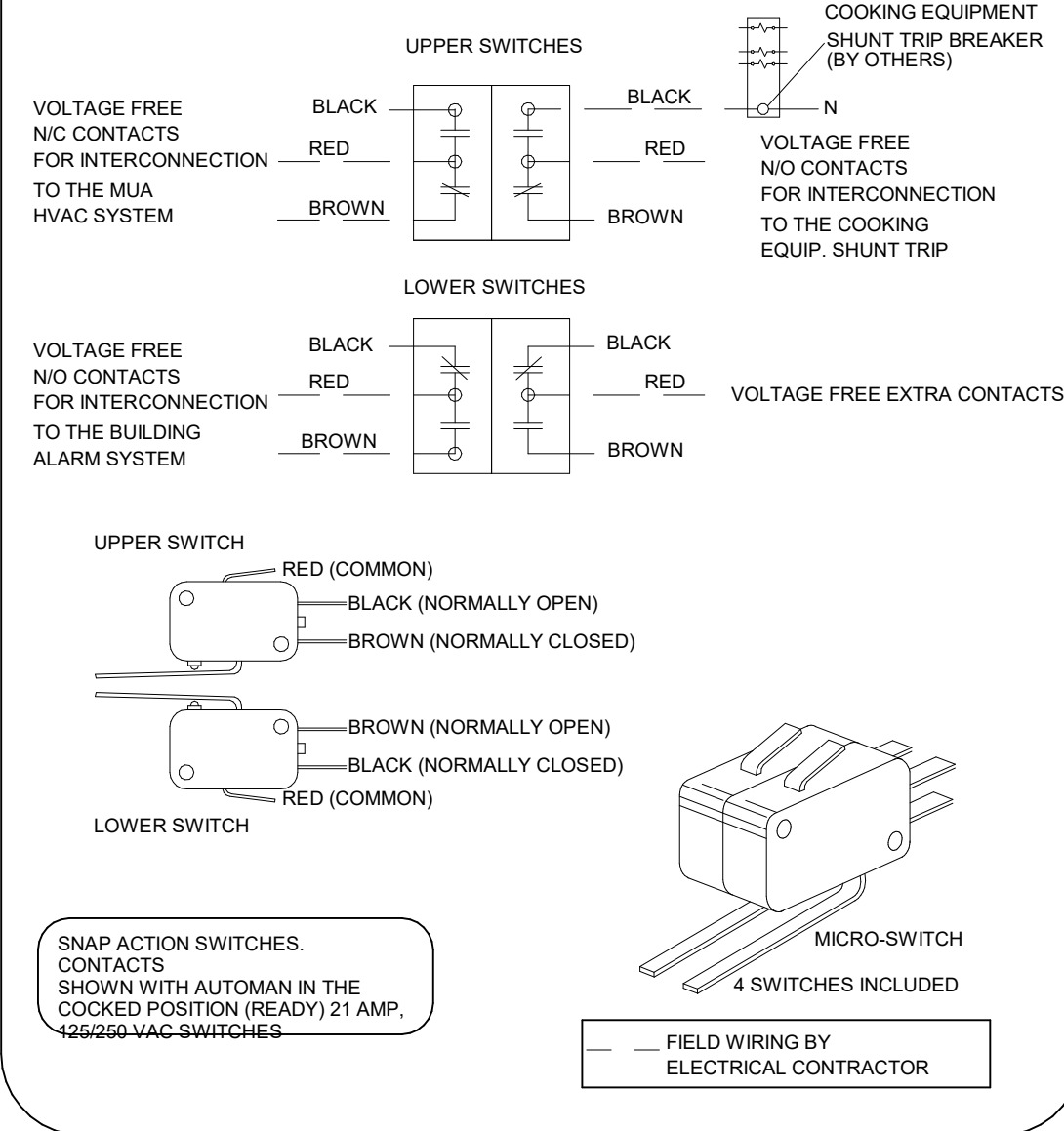
NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # XXXX
DATE 03/05/2025
DRAWN BY BLM

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.
SHEET
DETAILS

SHEET NUMBER
M-502

ANSUL MICROSWITCH DETAIL



NOTE:
FIRE SYSTEM TYPE TO BE DETERMINED AT TIME OF ORDER RELEASE.

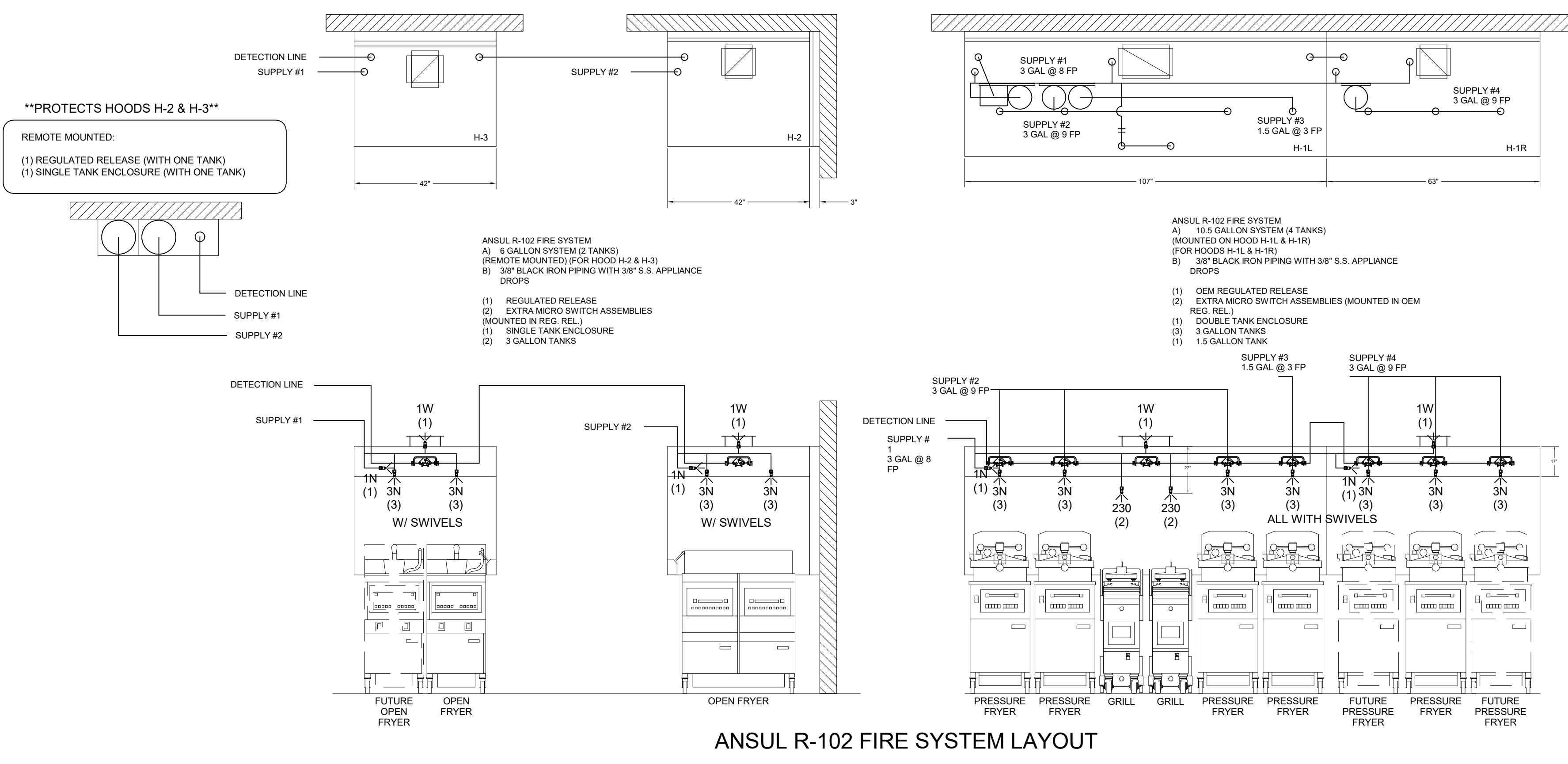
ANSUL

FUSIBLE LINK RATINGS
ITEM TEMP
OPEN FRYERS 450°
2 BURNER / FLAT TOP 450°
PRESSURE FRYERS 450°
GRILL 450°
EXHAUST COLLARS 450°
ANSUL R-102 FIRE SYSTEM NOTES
FOUR TANK SYSTEM MOUNTED ON TOP OF H-1L/H-1R
MAXIMUM FLOW POINTS = 38
ANSUL R-102 FIRE SYSTEM NOTES
TWO TANK SYSTEM REMOTE MOUNTED
MAXIMUM FLOW POINTS = 22

ITEM	PART #	QTY	DESCRIPTION	FLOW PTS (TOTAL)
1W	10023	4	DUCT NOZZLES	4
1N	10022	4	PLENUM NOZZLES	4
230	10025	2	APPLIANCE NOZZLES	4
3N	10021	11	APPLIANCE NOZZLES	33
TOTAL FLOW POINTS				45
QTY		DESCRIPTION		
10035	10	DETECTORS W/ FUSIBLE LINKS		
10046	1	OEM REGULATED RELEASE W/ DOUBLE POLE MICRO SWITCH		
10033	1	REGULATED RELEASE W/ DOUBLE POLE MICRO SWITCH		
10333	5	3 GALLON TANKS		
10682	1	1.5 GALLON TANK		
10047	1	DOUBLE TANK ENCLOSURE		
10044	1	SINGLE TANK ENCLOSURE		
10040	2	REMOTE PULL STATION		
10065	4	DOUBLE TANK NITROGEN CARTRIDGE		
11128	5	3 GALLON ANSULEX CONTAINER		
13459	1	1.5 GALLON ANSULEX CONTAINER		

ANSUL R-102 FIRE SYSTEM
UL LISTED PER STD LATEST STD 300
1. FINAL INSTALLATION IS TO BE MADE IN ACCORDANCE WITH ALL APPLICABLE CODES
2. ALL ELECTRICAL COMPONENTS FOR EQUIPMENT SHUT DOWN TO BE PROVIDED BY THE ELECTRICIAN. MICRO-SWITCH INSTALLED IN REGULATED RELEASE BY ANSUL INSTALLER
3. REMOTE PULL STATION LOCATED PER MECHANICAL DRAWINGS

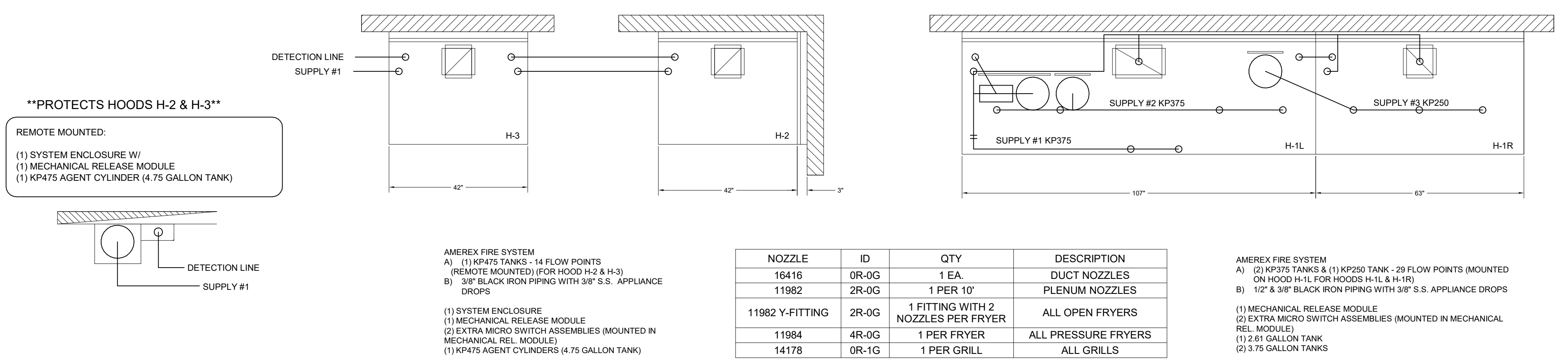
FOR REFERENCE ONLY



1/2" BLACK IRON SUPPLY LINE REQ'D FROM TANK TO FIRST BRANCH LINE FOR 475 TANKS ONLY!

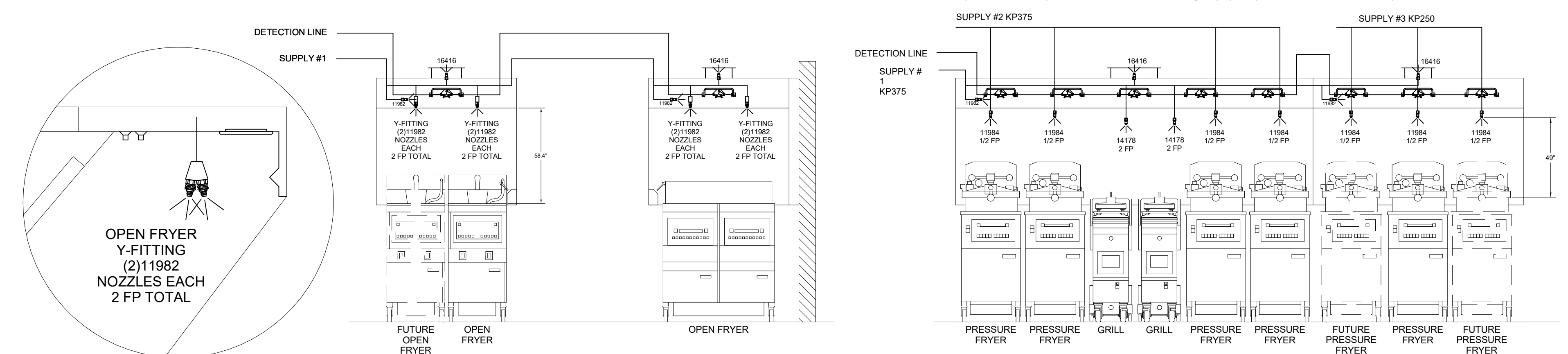
AMEREX

FUSIBLE LINK RATINGS
ITEM TEMP
OPEN FRYERS 450°
2 BURNER / FLAT TOP 450°
PRESSURE FRYERS 450°
GRILL 450°
EXHAUST COLLARS 450°
AMEREX FIRE SYSTEM NOTES
(2) KP375 & (1) KP250 TANK SYSTEM MOUNTED ON TOP OF (H-1L)
MAXIMUM FLOW POINTS = 29
AMEREX FIRE SYSTEM NOTES
(1) KP475 TANK SYSTEM REMOTE MOUNTED
MAXIMUM FLOW POINTS = 14



NOZZLE	ID	QTY	DESCRIPTION
16416	0R-0G	1 EA	DUCT NOZZLES
11982	2R-0G	1 PER 10'	PLENUM NOZZLES
11982	Y-FITTING	1 FITTING WITH 2 NOZZLES PER FRYER	ALL OPEN FRYERS
11984	4R-0G	1 PER FRYER	ALL PRESSURE FRYERS
14178	0R-1G	1 PER GRILL	ALL GRILLS

PRESSURE FRYER AND GRILL NOZZLES WITH SWIVELS ONLY



ITEM	QTY	DESCRIPTION	FLOW PTS (TOTAL)	
16416	4	DUCT NOZZLES	4	
11982	4	PLENUM NOZZLES	4	
11982	4	APPLIANCE NOZZLES	8	
14178	2	APPLIANCE NOZZLES	4	
11984	7	APPLIANCE NOZZLES	3.5	
TOTAL FLOW POINTS				23.5
ITEM	QTY	DESCRIPTION		
12508-P001	10	DETECTORS BRACKET ASSEMBLY		
26948	1	KP250 AGENT CYLINDER		
13334	2	KP375 AGENT CYLINDER		
17379	1	KP475 AGENT CYLINDER		
18001	1	MECHANICAL RELEASE MODULE WITH ENCLOSURE WITH DOUBLE POLE MICRO SWITCH		
11977	1	MECHANICAL RELEASE MODULE WITHOUT ENCLOSURE WITH DOUBLE POLE MICRO SWITCH		
21481	2	REMOTE MANUAL PULL STATION		

AMEREX FIRE SYSTEM
UL LISTED PER STD LATEST STD 300
1. FINAL INSTALLATION IS TO BE MADE IN ACCORDANCE WITH ALL APPLICABLE CODES
2. ALL ELECTRICAL COMPONENTS FOR EQUIPMENT SHUT DOWN TO BE PROVIDED BY THE ELECTRICIAN. MICRO-SWITCH INSTALLED IN REGULATED RELEASE BY AMEREX INSTALLER
3. REMOTE PULL STATION LOCATED PER MECHANICAL DRAWINGS

THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:
1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.
NOTE TO APPROVER: ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

APPROVED FOR FABRICATION: WITH NO CHANGES WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

MAIL APPROVED DRAWINGS TO APPROPRIATE FACTORY BELOW:

WEBSITE: www.halton.com

PROJECT: CHICK-FIL-A P14 NAME

LOCATION: - - DRAWN BY: SKK SCALE: NOT TO SCALE

DATE: 05.23.24

REVISION DESCRIPTION

REV.	BY	DATE
1	SKK	06.27.23
2	SKK	08.28.23
3	SKK	02.02.24
4	SKK	05.16.24
5	SKK	07.26.24

CREATED HOOD BLOCKS
SHEET LAYOUT
NO CHANGE
ADDED GREASE CUPS
ADDED 1.5 GAL TANK TO ANSUL SYSTEM

UL LISTED PER STD LATEST STD 300

1. FINAL INSTALLATION IS TO BE MADE IN ACCORDANCE WITH ALL APPLICABLE CODES

2. ALL ELECTRICAL COMPONENTS FOR EQUIPMENT SHUT DOWN TO BE PROVIDED BY THE ELECTRICIAN. MICRO-SWITCH INSTALLED IN REGULATED RELEASE BY AMEREX INSTALLER

3. REMOTE PULL STATION LOCATED PER MECHANICAL DRAWINGS

DRAWING No.: U22-606-03
SHEET NO.: MH-1.3

HALTON

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 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 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 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: 977-544-6679). 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 ANNUCIATOR 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 ANNUCIATORS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR. INSTALLATION BY MECHANICAL SHALL INCLUDE MOUNTING OF THE ANNUCIATORS 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. ANNUCIATOR 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. REMOTE TEST 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 ABOVE UNIFORMITY 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 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 CFA 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.

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 FYREWREAP. INSULATION ON ACCESS DOORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTALLATION RECOMMENDATIONS. UNIFRAX FYREWREAP 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
	AIR DOOR SWITCH		GAS INFRARED HEATER (TYP.)
	ELECTRIC INFRARED HEATER	B/G	BELOW GRADE
	PULL STATION	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

GENERAL NOTES

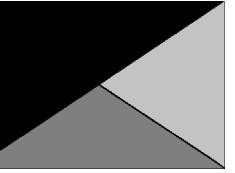
1. DUCT SIZES SERVING DIFFUSERS AND GRILLES ARE SAME SIZE AS DIFFUSER OR GRILLE NECK UNLESS NOTED OTHERWISE.
2. FLEXIBLE DUCT AND INSULATION NOT SHOWN FOR CLARITY.
3. FOR ALL ROOF EQUIPMENT, PROVIDE A PLASTIC ENGRAVED LABEL WITH 1" HIGH WHITE LETTERS ON A BLACK BACKGROUND. WITH A SELF ADHESIVE BACKING.
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.

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.)



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



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

MARK T. KURZYNSKE
NEW JERSEY LICENSE # GE44646



03/05/25

CHICK-FIL-A
GLoucester OUTLETS
FSR
PREMIUM OUTLETS DRIVE
BLACKWOOD, NJ 08012

FSR#05733

BUILDING TYPE / SIZE: P14 LE BASE
RELEASE: 24.11
PRINTED FOR:
PERMIT
REVISION SCHEDULE

NO. DATE DESCRIPTION

CONSULTANT PROJECT # XXXX
DATE 03/05/2025
DRAWN BY BLM

Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.

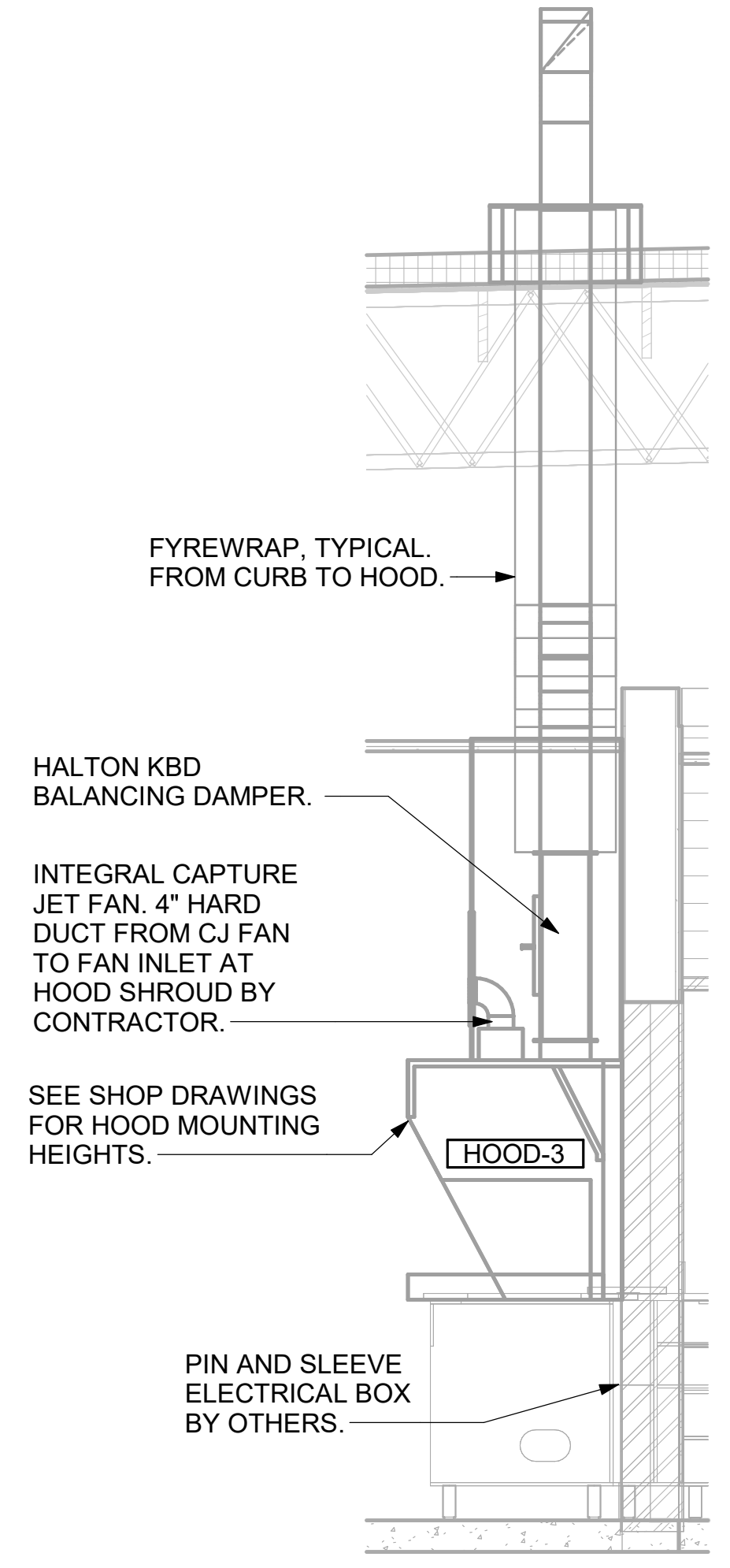
GENERAL NOTES,
LEGENDS, SYMBOLS, AND
ABBREVIATIONS
SHEET NUMBER

M-001

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.

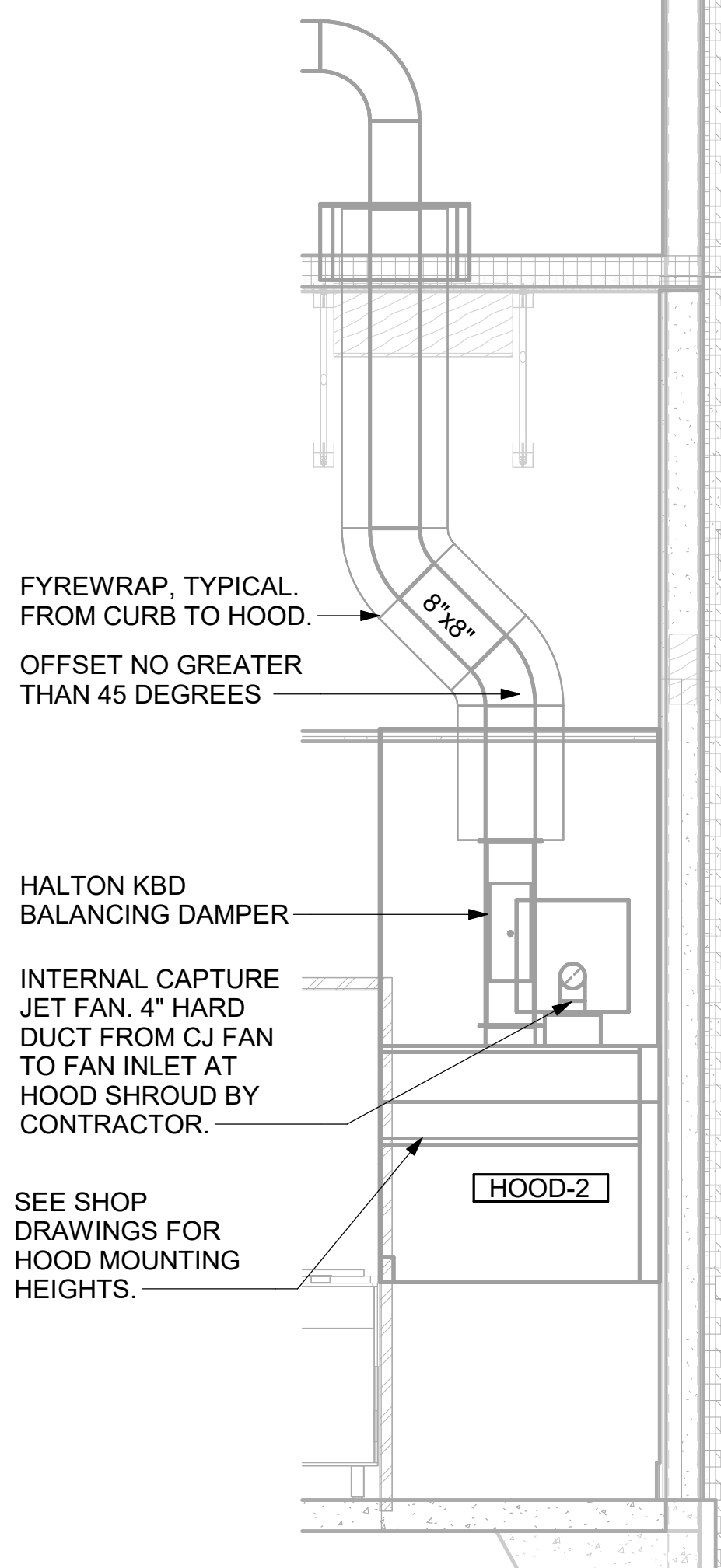
CLEANOUT DOOR NOTE:
 DUCT WRAP SHALL BE APPLIED TO THE CLEANOUT DOOR PER THE WRAP MFR'S INSTALLATION INSTRUCTIONS. NO EXCEPTIONS. ALSO, THE CLEANOUT DOOR MUST BE REMOVABLE WITHOUT TOOLS AND MUST BE CLEARLY AND PERMANENTLY LABELED.

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

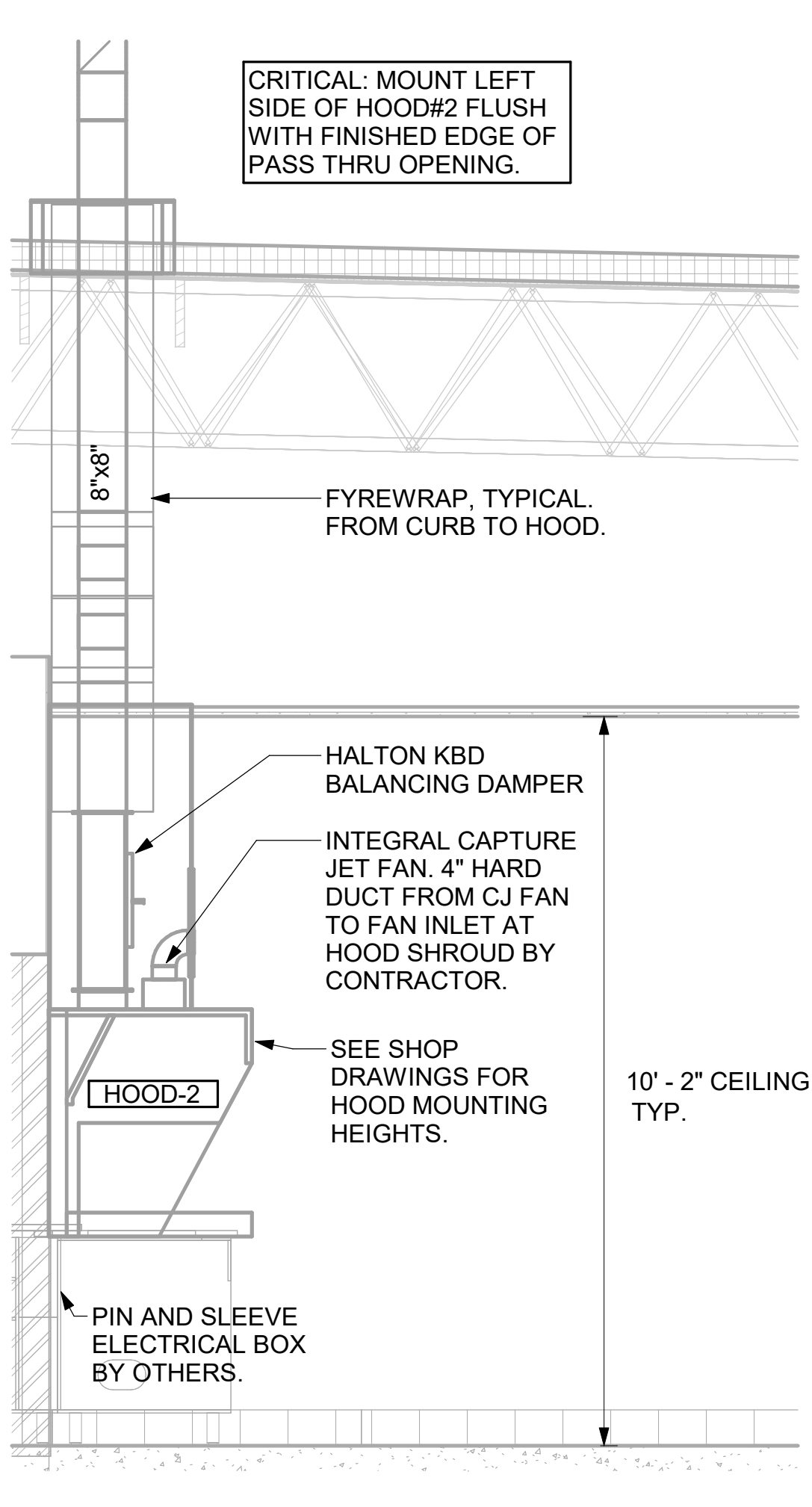


6 HOOD ELEVATION - HOOD#3
 NOT TO SCALE

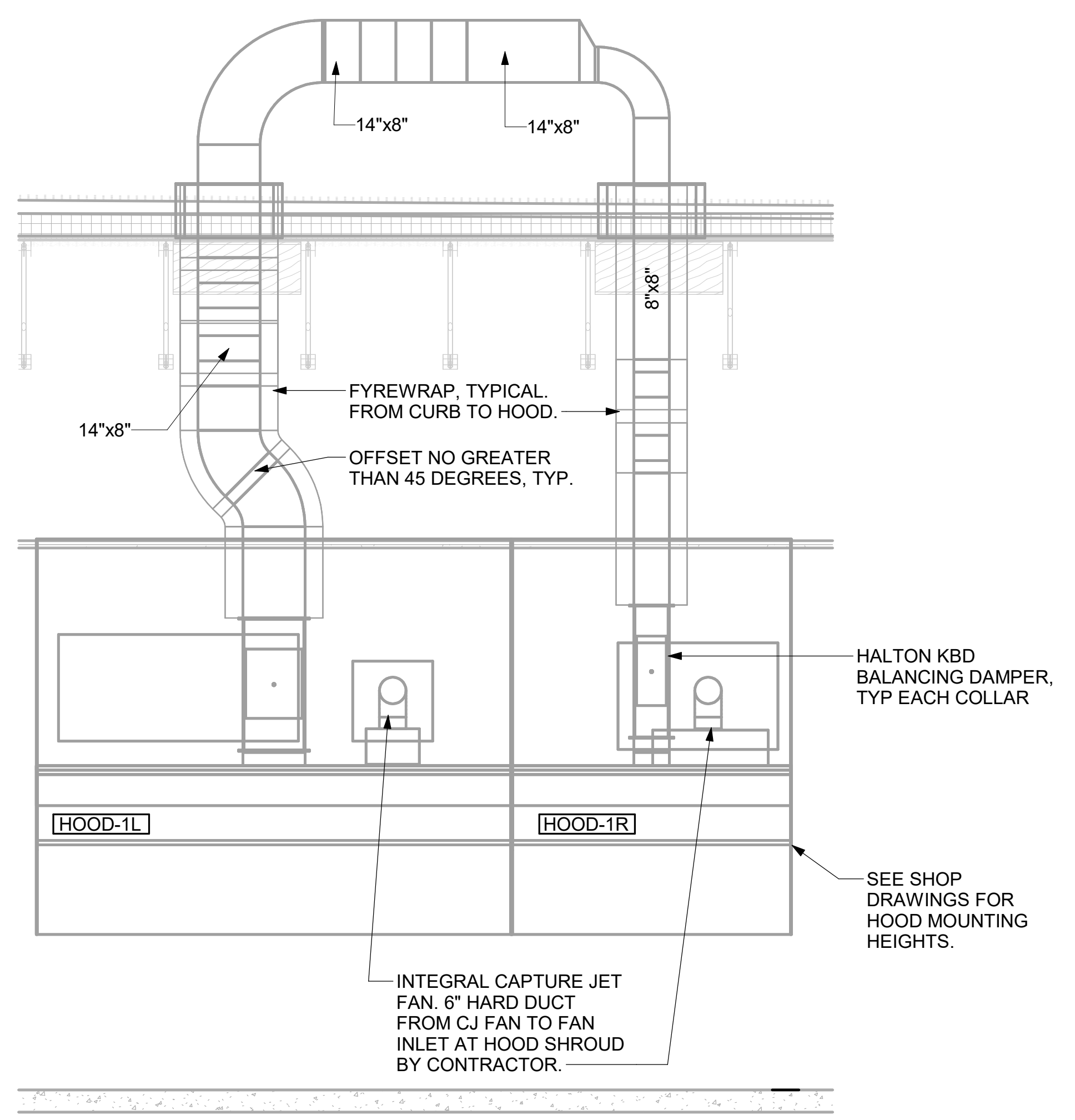
CRITICAL: MOUNT LEFT SIDE OF HOOD#2 FLUSH WITH FINISHED EDGE OF PASS THRU OPENING.



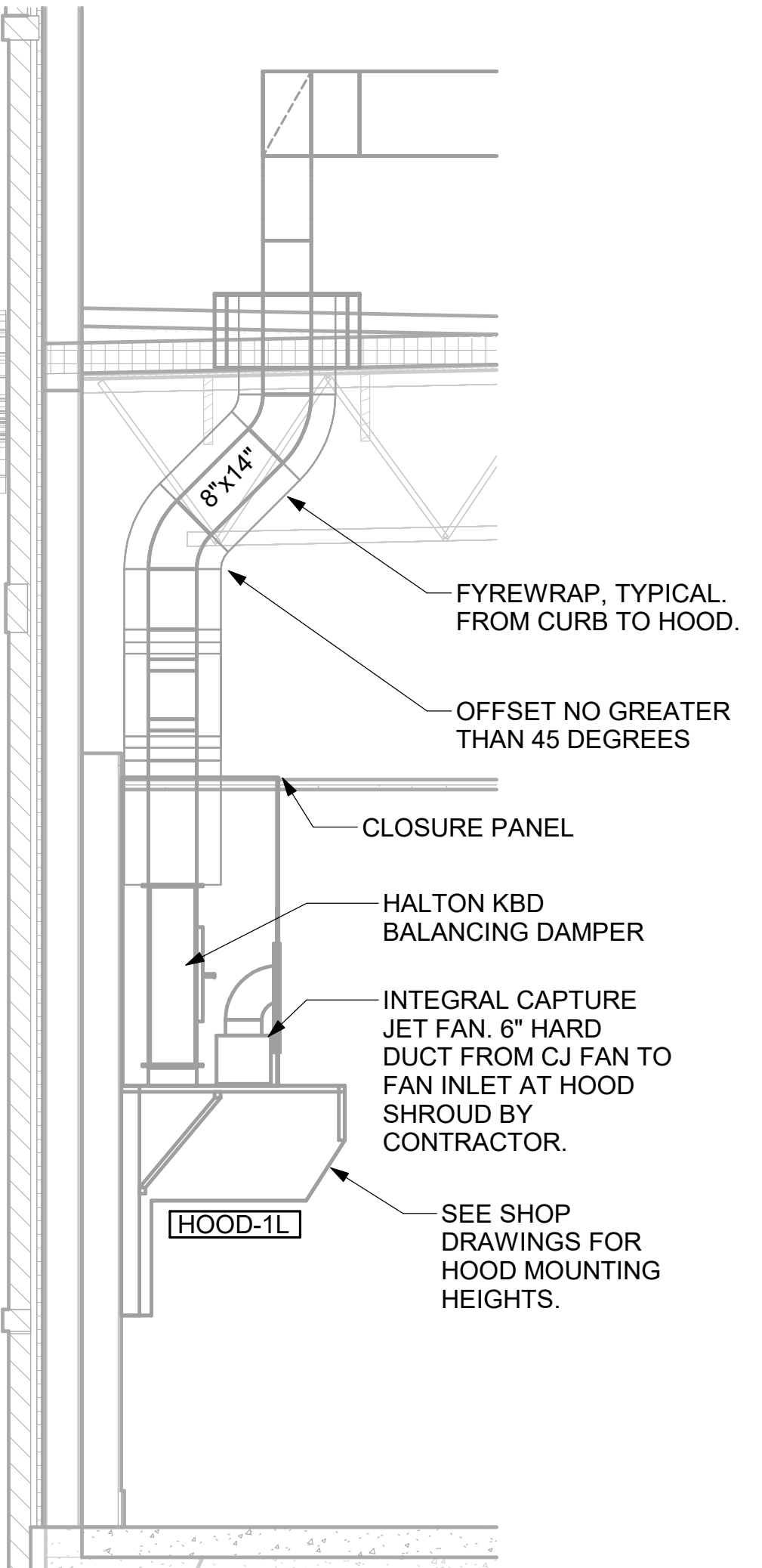
5 HOOD ELEVATION - HOOD#2 - FRONT
 NOT TO SCALE



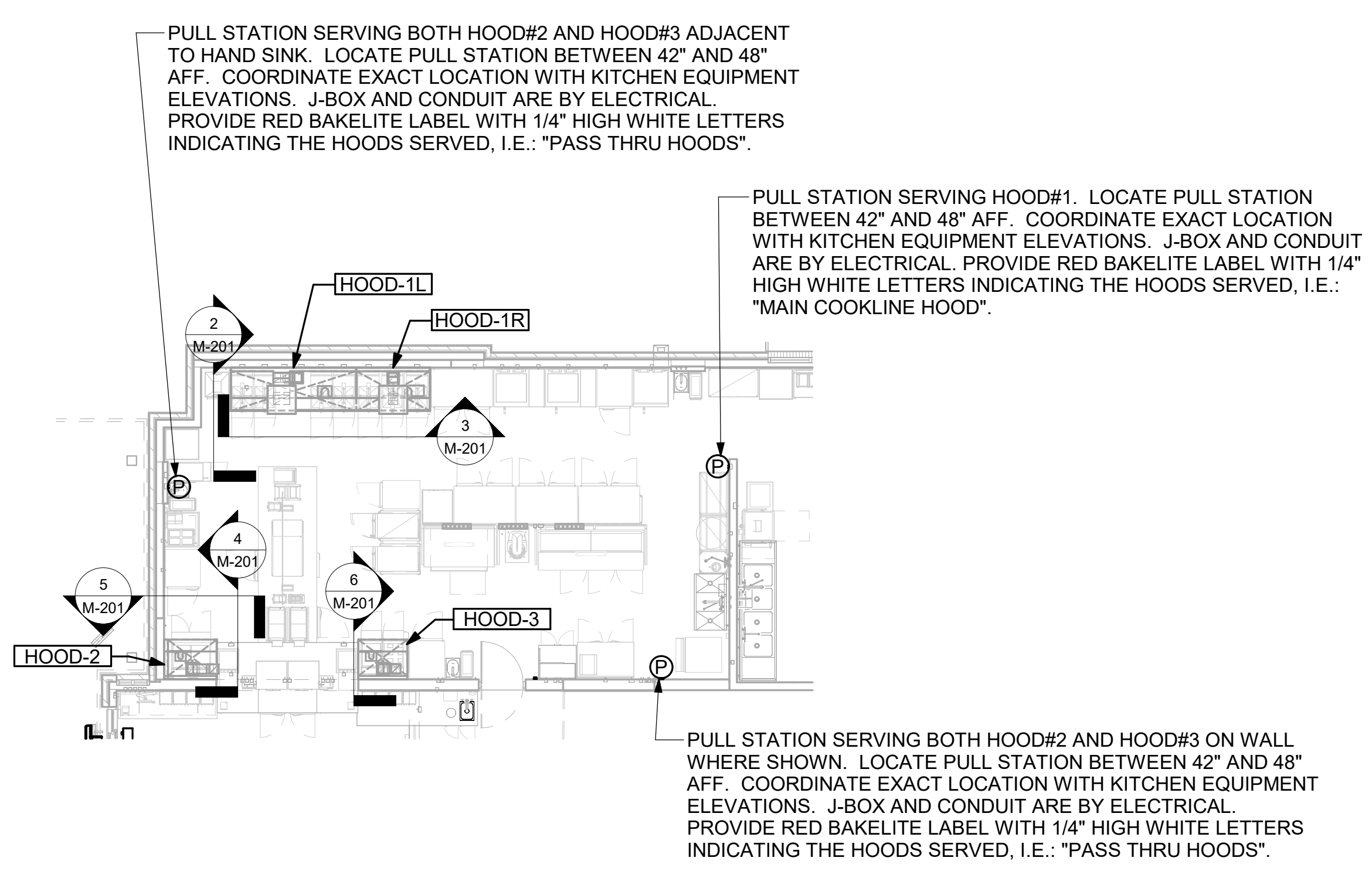
4 HOOD ELEVATION - HOOD#2 - SIDE
 NOT TO SCALE



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



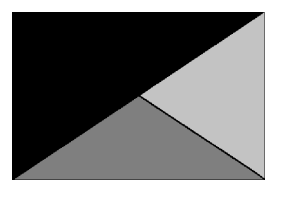
2 HOOD ELEVATION - HOOD#1 - SIDE
 NOT TO SCALE



1 HOOD LAYOUT
 1/8" = 1'-0"



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



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

MARK T. KURZYNSKE
 NEW JERSEY LICENSE # GE44646



03/05/25

CHICK-FIL-A
GLoucester OUTLETS
FSR
 PREMIUM OUTLETS DRIVE
 BLACKWOOD, NJ 08012

FSR#05733

BUILDING TYPE / SIZE: P14 LE BASE
 RELEASE: 24.11
 PRINTED FOR:
 PERMIT

REVISION SCHEDULE		
NO.	DATE	DESCRIPTION

CONSULTANT PROJECT # XXXX
 DATE 03/05/2025
 DRAWN BY BLM

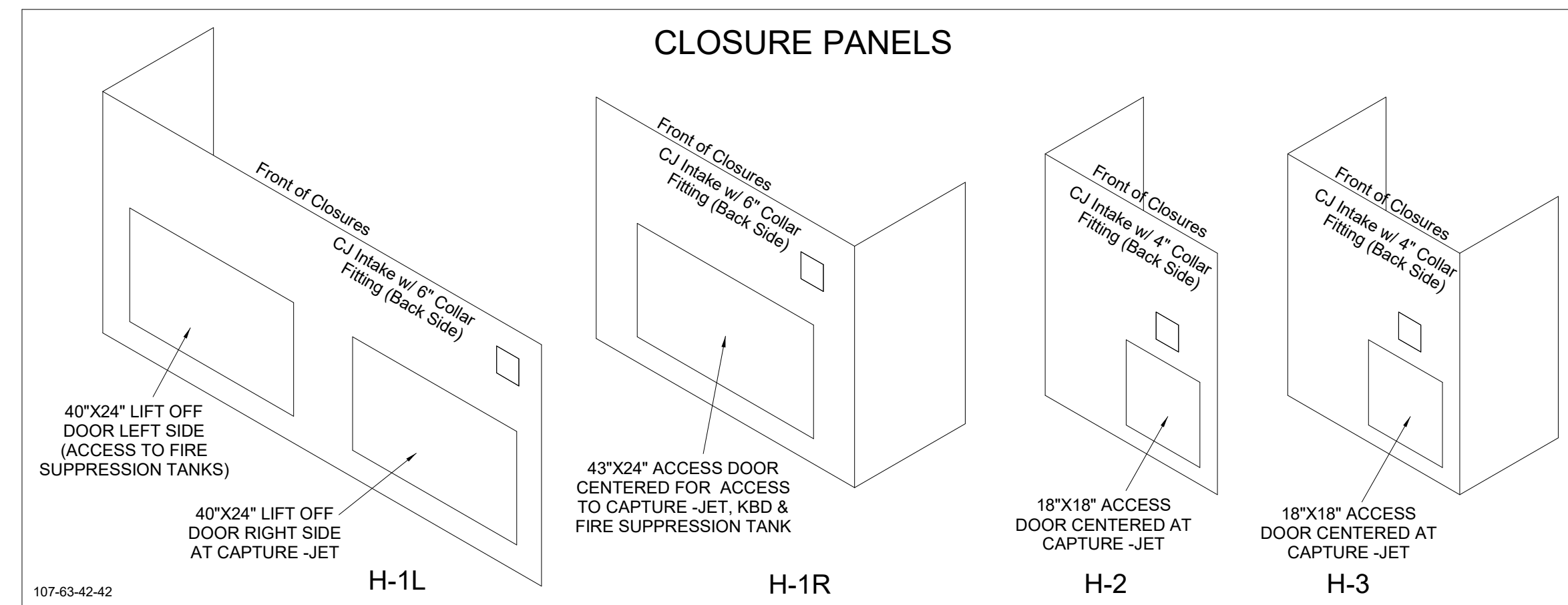
Information contained on this drawing and in all digital files produced for above named project may not be reproduced in any manner without express written or verbal consent from authorized project representatives.

SHEET EXHAUST HOOD ELEVATIONS
 SHEET NUMBER

M-201

HOOD MODEL	HOOD NUMBER	EXHAUST COLLAR			EXHAUST AIR INFORMATION			CAPTURE AIR INFORMATION		S.S. KSA FILTERS		LED LIGHTS	QTY	CEILING CLOSURES		KBD DAMPER	K FACTOR (CFM = K FACTOR * √DP)	MATERIAL
		QTY	LENGTH	WIDTH	CFM	TAB	SP	CFM	SP	FULL	HALF			CLOSURE HEIGHT	CEILING HEIGHT			
KVL-2-IC	H-1L	1	14"	8"	1204	0.13"	0.22"	80	0.30"	5	-	3	2	51"	122"	*	3369	ALL 18 GA 430 S.S.
KVL-2-IC	H-1R	1	8"	8"	709	0.13"	0.23"	47	0.30"	3	-	2	2					
KVL-C-IC	H-2	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	2					
KVL-C-IC	H-3	1	8"	8"	701	0.30"	0.39"	30	0.29"	2	-	1	3					

FOR REFERENCE ONLY

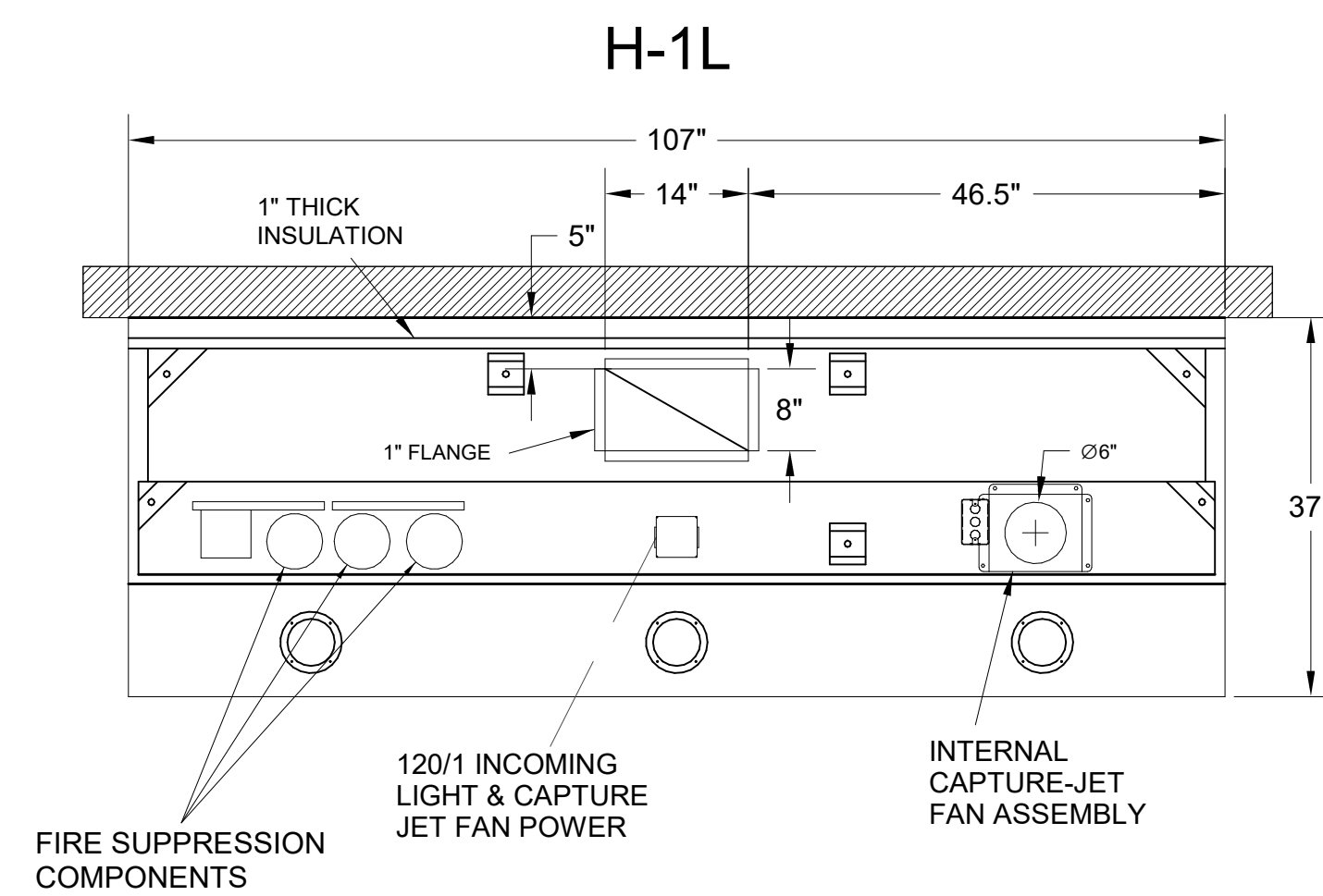
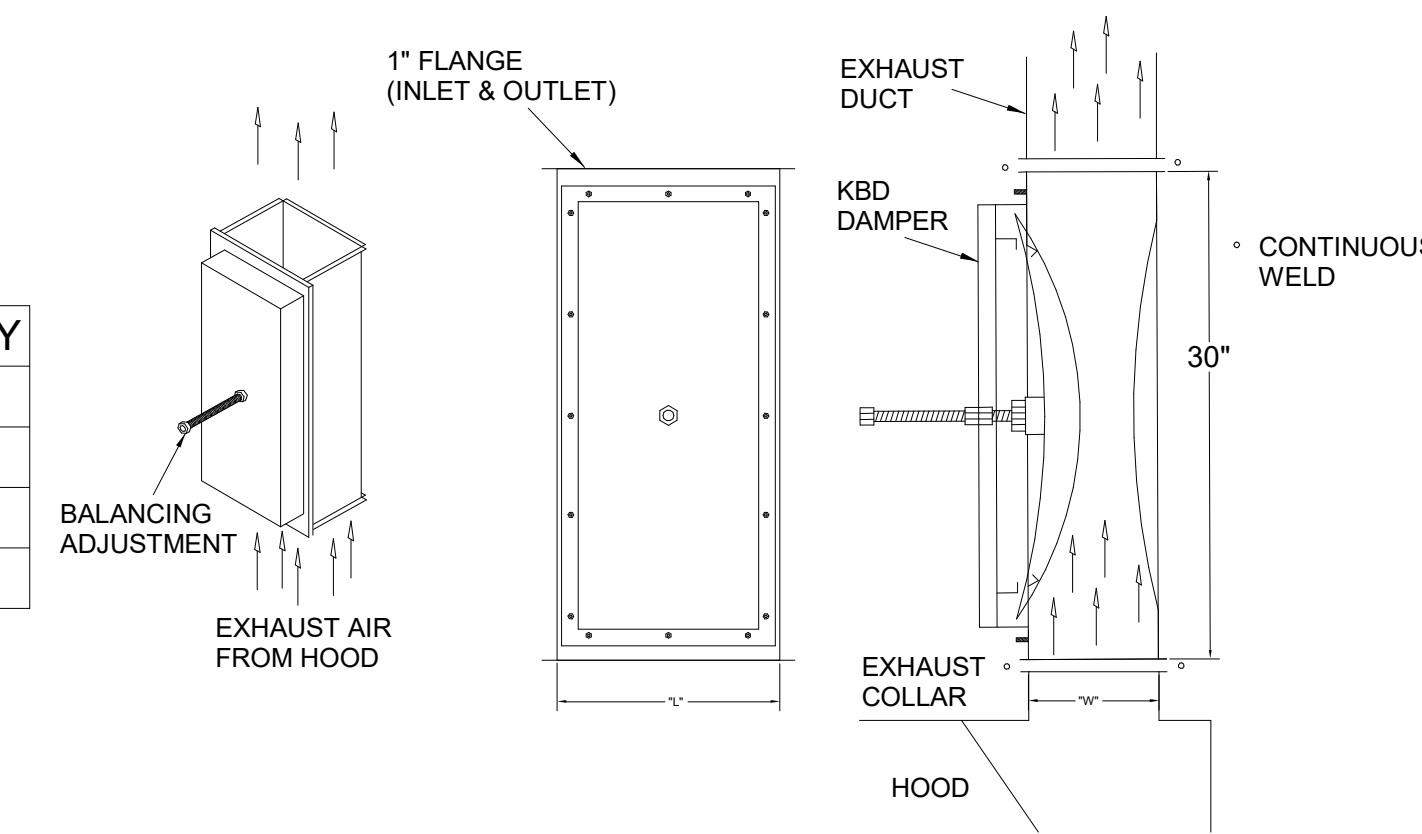


**MODEL:KBD
CALIBRATED KBDs
KITCHEN BALANCING DAMPER**

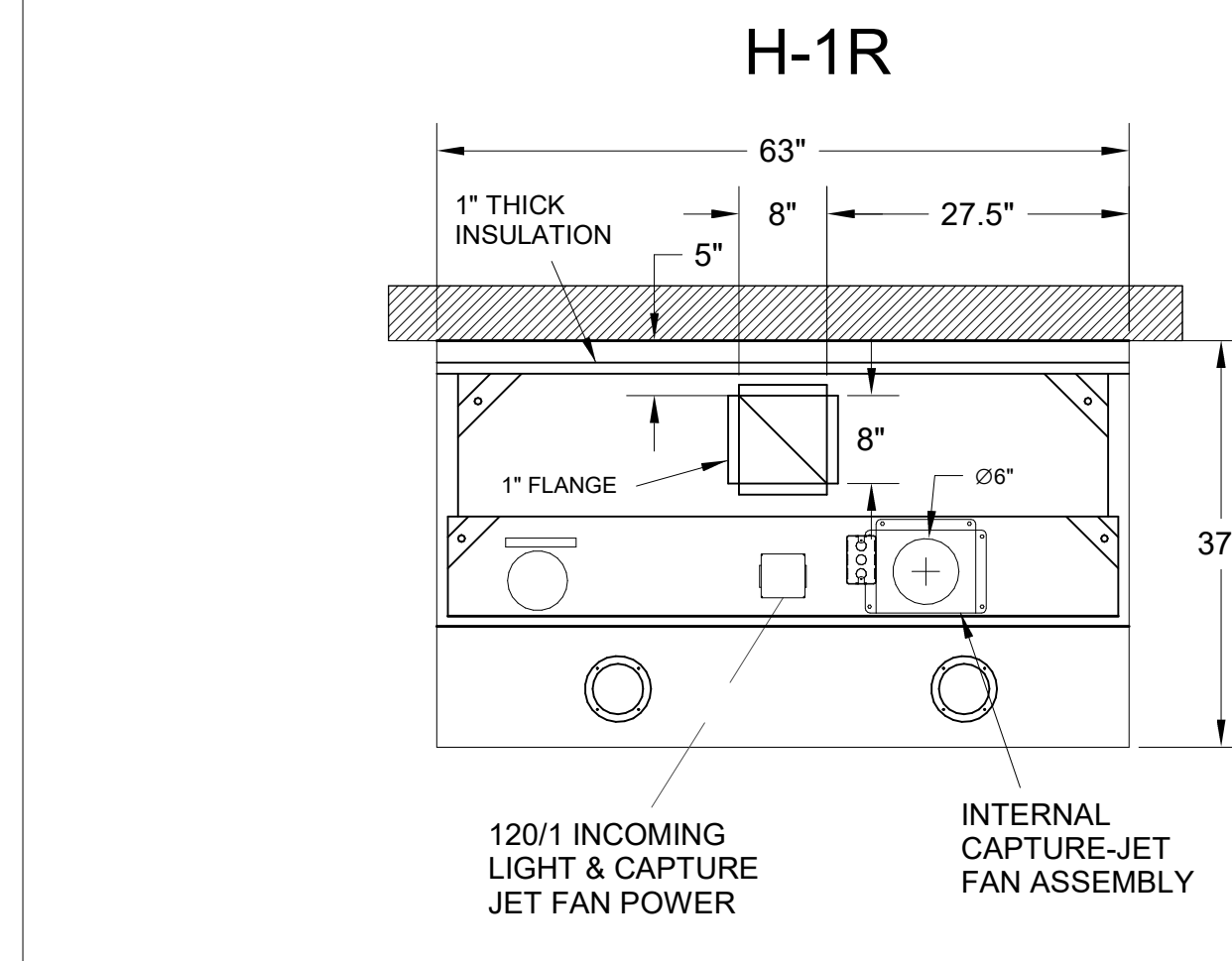
EXHAUST VOLUME DAMPER

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

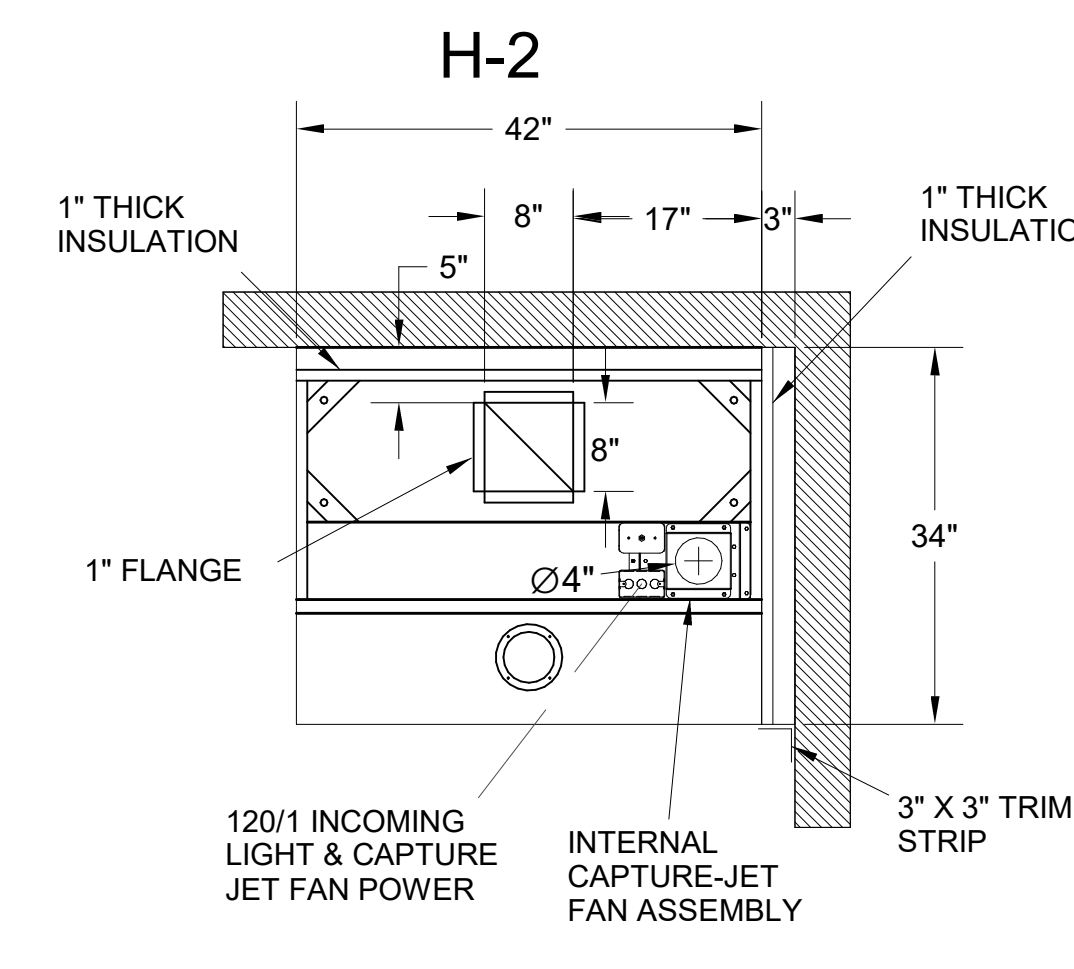
MATERIAL: FRAME - 16GA CONT.
GALV. ADJUSTABLE PANEL 18GA S.S.



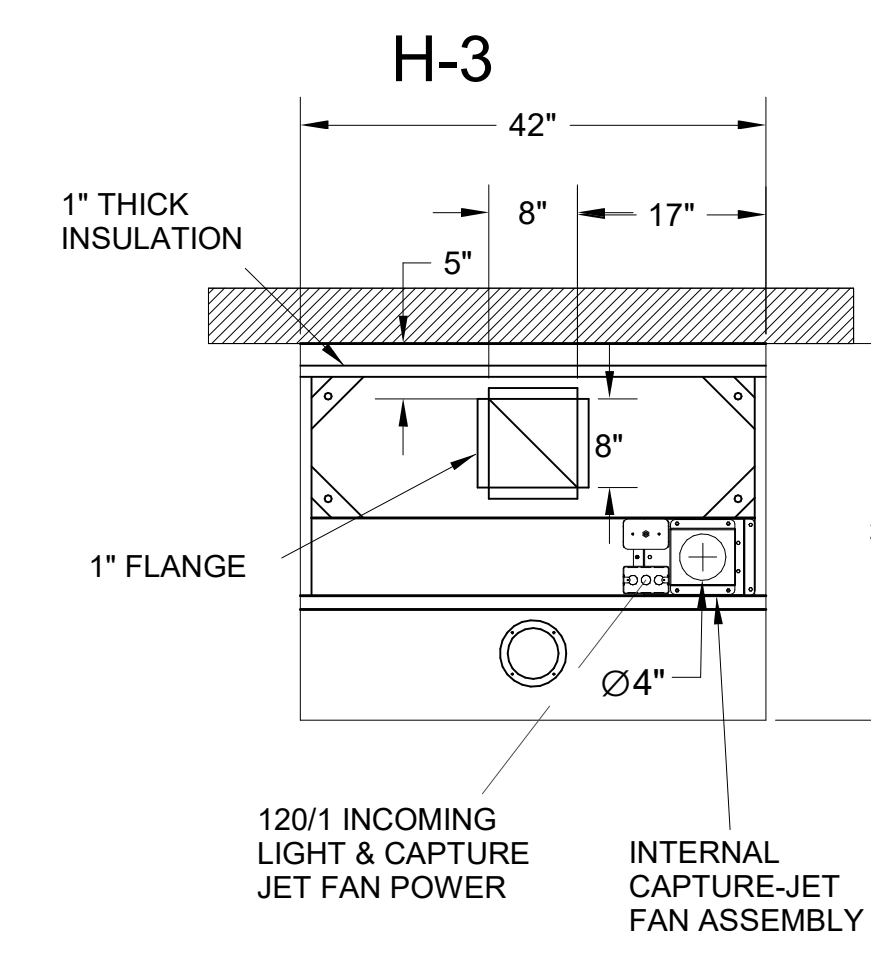
PLAN VIEW



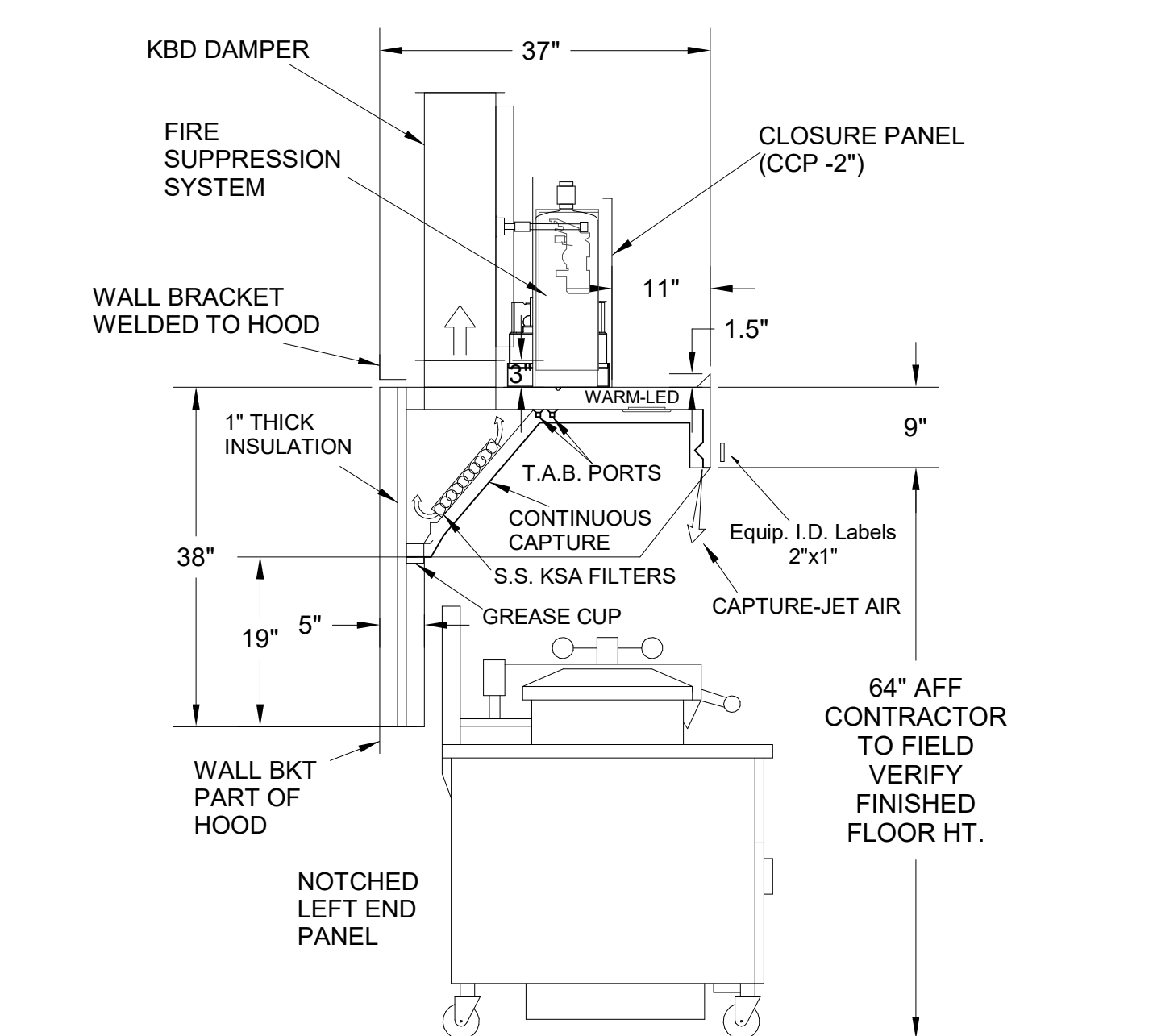
PLAN VIEW



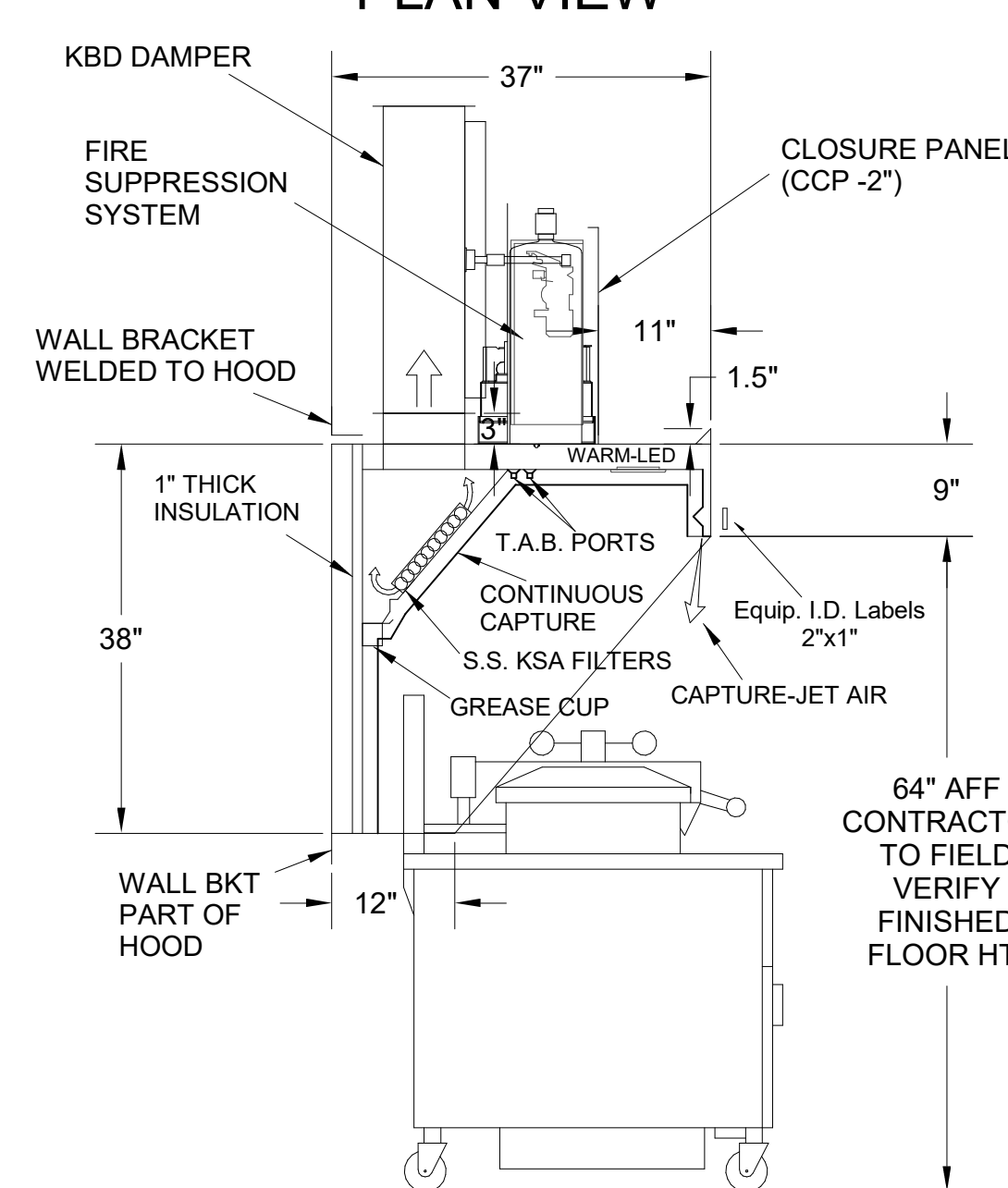
PLAN VIEW



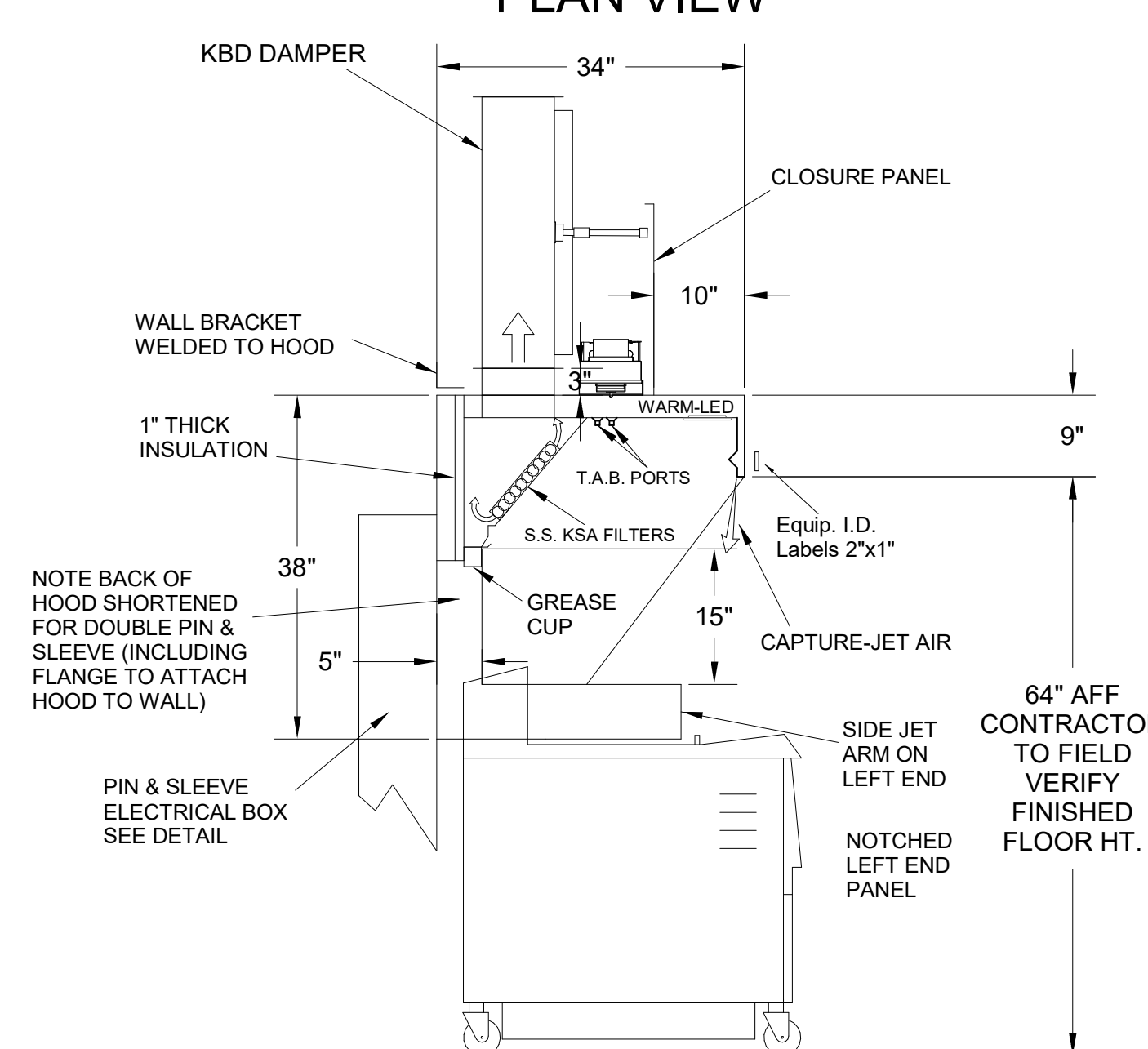
PLAN VIEW



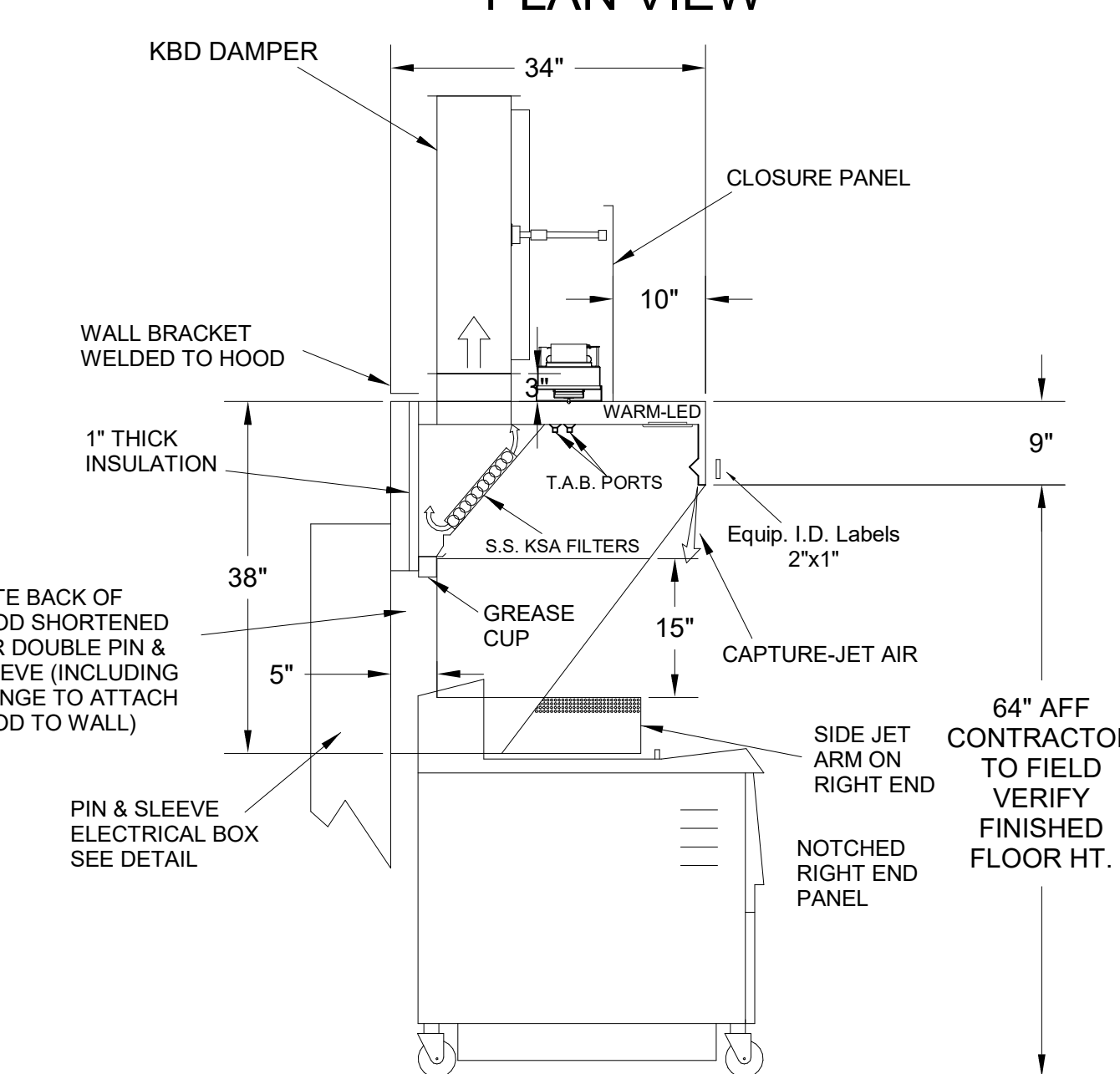
H-1L SECTION VIEW



H-1R SECTION VIEW

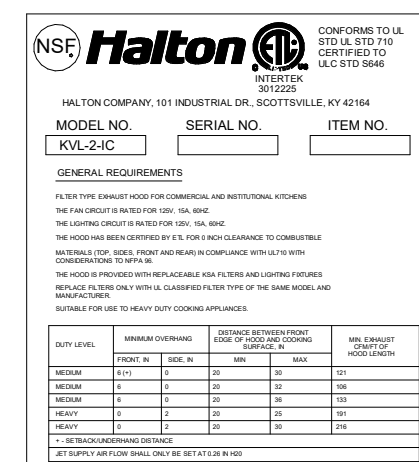


H-2 SECTION VIEW

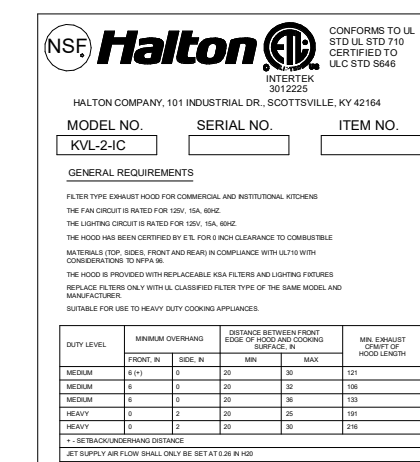


H-3 SECTION VIEW

- 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
- GREASE CUP RIGHT END
- ANSUL WEIGHT = 328 LBS
- AMEREX WEIGHT = 264 LBS



- CEILING CLOSURE RECESSED 11" FROM FRONT TO CREATE SHELF
- FRONT CLOSURE PANEL WITH 43"X24" ACCESS DOOR FOR ACCESS TO CAPTURE-JET AND FIRE SUPPRESSION
- CONTINUOUS CAPTURE INTERNAL LEFT END CUTOUT
- 3" REAR STAND-OFF TO HAVE 1" THICK INSULATION
- GREASE CUP RIGHT END



- 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
- GREASE CUP RIGHT END



- 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
- GREASE CUP RIGHT END



THIS DRAWING MUST BE CHECKED, SIGNED AND RETURNED TO THE APPROPRIATE FACTORY. PLEASE VERIFY THE FOLLOWING:

1. ALL DIMENSIONAL INFORMATION, MOUNTING POSITIONS
2. THE LOCATION AND TYPE OF COOKING EQUIPMENT.

NOTE TO APPROVER:
ANY CHANGES IN COOKING EQUIPMENT SUCH AS INCREASED ENERGY INPUTS OR EQUIPMENT POSITION MAY AFFECT EXHAUST AIRFLOW. HALTON MUST BE NOTIFIED IF ANY OF THESE CHANGES OCCUR. A RECALCULATION EXHAUST AIRFLOW MAY BE REQUIRED.

REVISION AND RESUBMIT
APPROVED FOR FABRICATION
WITH NO CHANGES
WITH CHANGES AS NOTED

APPROVED BY: _____ DATE: _____

UL, NSF, ETL, IEC, NEMA, CE, FCC, RoHS, REACH, ISO 9001, ISO 14001, ISO 45001, ISO 50001, ISO 26000, ISO 27001, ISO 28000, ISO 30000, ISO 31000, ISO 34000, ISO 35000, ISO 36000, ISO 37000, ISO 38000, ISO 39000, ISO 40000, ISO 41000, ISO 42000, ISO 43000, ISO 44000, ISO 45000, ISO 46000, ISO 47000, ISO 48000, ISO 49000, ISO 50000, ISO 51000, ISO 52000, ISO 53000, ISO 54000, ISO 55000, ISO 56000, ISO 57000, ISO 58000, ISO 59000, ISO 60000, ISO 61000, ISO 62000, ISO 63000, ISO 64000, ISO 65000, ISO 66000, ISO 67000, ISO 68000, ISO 69000, ISO 70000, ISO 71000, ISO 72000, ISO 73000, ISO 74000, ISO 75000, ISO 76000, ISO 77000, ISO 78000, ISO 79000, ISO 80000, ISO 81000, ISO 82000, ISO 83000, ISO 84000, ISO 85000, ISO 86000, ISO 87000, ISO 88000, ISO 89000, ISO 90000, ISO 91000, ISO 92000, ISO 93000, ISO 94000, ISO 95000, ISO 96000, ISO 97000, ISO 98000, ISO 99000, ISO 100000, ISO 101000, ISO 102000, ISO 103000, ISO 104000, ISO 105000, ISO 106000, ISO 107000, ISO 108000, ISO 109000, ISO 110000, ISO 111000, ISO 112000, ISO 113000, ISO 114000, ISO 115000, ISO 116000, ISO 117000, ISO 118000, ISO 119000, ISO 120000, ISO 121000, ISO 122000, ISO 123000, ISO 124000, ISO 125000, ISO 126000, ISO 127000, ISO 128000, ISO 129000, ISO 130000, ISO 131000, ISO 132000, ISO 133000, ISO 134000, ISO 135000, ISO 136000, ISO 137000, ISO 138000, ISO 139000, ISO 140000, ISO 141000, ISO 142000, ISO 143000, ISO 144000, ISO 145000, ISO 146000, ISO 147000, ISO 148000, ISO 149000, ISO 150000, ISO 151000, ISO 152000, ISO 153000, ISO 154000, ISO 155000, ISO 156000, ISO 157000, ISO 158000, ISO 159000, ISO 160000, ISO 161000, ISO 162000, ISO 163000, ISO 164000, ISO 165000, ISO 166000, ISO 167000, ISO 168000, ISO 169000, ISO 170000, ISO 171000, ISO 172000, ISO 173000, ISO 174000, ISO 175000, ISO 176000, ISO 177000, ISO 178000, ISO 179000, ISO 180000, ISO 181000, ISO 182000, ISO 183000, ISO 184000, ISO 185000, ISO 186000, ISO 187000, ISO 188000, ISO 189000, ISO 190000, ISO 191000, ISO 192000, ISO 193000, ISO 194000, ISO 195000, ISO 196000, ISO 197000, ISO 198000, ISO 199000, ISO 200000, ISO 201000, ISO 202000, ISO 203000, ISO 204000, ISO 205000, ISO 206000, ISO 207000, ISO 208000, ISO 209000, ISO 210000, ISO 211000, ISO 212000, ISO 213000, ISO 214000, ISO 215000, ISO 216000, ISO 217000, ISO 218000, ISO 219000, ISO 220000, ISO 221000, ISO 222000, ISO 223000, ISO 224000, ISO 225000, ISO 226000, ISO 227000, ISO 228000, ISO 229000, ISO 230000, ISO 231000, ISO 232000, ISO 233000, ISO 234000, ISO 235000, ISO 236000, ISO 237000, ISO 238000, ISO 239000, ISO 240000, ISO 241000, ISO 242000, ISO 243000, ISO 244000, ISO 245000, ISO 246000, ISO 247000, ISO 248000, ISO 249000, ISO 250000, ISO 251000, ISO 252000, ISO 253000, ISO 254000, ISO 255000, ISO 256000, ISO 257000, ISO 258000, ISO 259000, ISO 260000, ISO 261000, ISO 262000, ISO 263000, ISO 264000, ISO 265000, ISO 266000, ISO 267000, ISO 268000, ISO 269000, ISO 270000, ISO 271000, ISO 272000, ISO 273000, ISO 274000, ISO 275000, ISO 276000, ISO 277000, ISO 278000, ISO 279000, ISO 280000, ISO 281000, ISO 282000, ISO 283000, ISO 284000, ISO 285000, ISO 286000, ISO 287000, ISO 288000, ISO 289000, ISO 290000, ISO 291000, ISO 292000, ISO 293000, ISO 294000, ISO 295000, ISO 296000, ISO 297000, ISO 298000, ISO 299000, ISO 300000, ISO 301000, ISO 302000, ISO 303000, ISO 304000, ISO 305000, ISO 306000, ISO 307000, ISO 308000, ISO 309000, ISO 310000, ISO 311000, ISO 312000, ISO 313000, ISO 314000, ISO 315000, ISO 316000, ISO 317000, ISO 318000, ISO 319000, ISO 320000, ISO 321000, ISO 322000, ISO 323000, ISO 324000, ISO 325000, ISO 326000, ISO 327000, ISO 328000, ISO 329000, ISO 330000, ISO 331000, ISO 332000, ISO 333000, ISO 334000, ISO 335000, ISO 336000, ISO 337000, ISO 338000, ISO 339000, ISO 340000, ISO 341000, ISO 342000, ISO 343000, ISO 344000, ISO 345000, ISO 346000, ISO 347000, ISO 348000, ISO 349000, ISO 350000, ISO 351000, ISO 352000, ISO 353000, ISO 354000, ISO 355000, ISO 356000, ISO 357000, ISO 358000, ISO 359000, ISO 360000, ISO 361000, ISO 362000, ISO 363000, ISO 364000, ISO 365000, ISO 366000, ISO 367000, ISO 368000, ISO 369000, ISO 370000, ISO 371000, ISO 372000, ISO 373000, ISO 374000, ISO 375000, ISO 376000, ISO 377000, ISO 378000, ISO 379000, ISO 380000, ISO 381000, ISO 382000, ISO 383000, ISO 384000, ISO 385000, ISO 386000, ISO 387000, ISO 388000, ISO 389000, ISO 390000, ISO 391000, ISO 392000, ISO 393000, ISO 394000, ISO 395000, ISO 396000, ISO 397000, ISO 398000, ISO 399000, ISO 400000, ISO 401000, ISO 402000, ISO 403000, ISO 404000, ISO 405000, ISO 406000, ISO 407000, ISO 408000, ISO 409000, ISO 410000, ISO 411000, ISO 412000, ISO 413000, ISO 414000, ISO 415000, ISO 416000, ISO 417000, ISO 418000, ISO 419000, ISO 420000, ISO 421000, ISO 422000, ISO 423000, ISO 424000, ISO 425000, ISO 426000, ISO 427000, ISO 428000, ISO 429000, ISO 430000, ISO 431000, ISO 432000, ISO 433000, ISO 434000, ISO 435000, ISO 436000, ISO 437000, ISO 438000, ISO 439000, ISO 440000, ISO 441000, ISO 442000, ISO 443000, ISO 444000, ISO 445000, ISO 446000, ISO 447000, ISO 448000, ISO 449000, ISO 450000, ISO 451000, ISO 452000, ISO 453000, ISO 454000, ISO 455000, ISO 456000, ISO 457000, ISO 458000, ISO 459000, ISO 460000, ISO 461000, ISO 462000, ISO 463000, ISO 464000, ISO 465000, ISO 466000, ISO 467000, ISO 468000, ISO 469000, ISO 470000, ISO 471000, ISO 472000, ISO 473000, ISO 474000, ISO 475000, ISO 476000, ISO 477000, ISO 478000, ISO 479000, ISO 480000, ISO 481000, ISO 482000, ISO 483000, ISO 484000, ISO 485000, ISO 486000, ISO 487000, ISO 488000, ISO 489000, ISO 490000, ISO 491000, ISO 492000, ISO 493000, ISO 494000, ISO 495000, ISO 496000, ISO 497000, ISO 498000, ISO 499000, ISO 500000, ISO 501000, ISO 502000, ISO 503000, ISO 504000, ISO 505000, ISO 506000, ISO 507000, ISO 508000, ISO 509000, ISO 510000, ISO 511000, ISO 512000, ISO 513000, ISO 514000, ISO 515000, ISO 516000, ISO 517000, ISO 518000, ISO 519000, ISO 520000, ISO 521000, ISO 522000, ISO 523000, ISO 524000, ISO 525000, ISO 526000, ISO 527000, ISO 528000, ISO 529000, ISO 530000, ISO 531000, ISO 532000, ISO 533000, ISO 534000, ISO 535000, ISO 536000, ISO 537000, ISO 538000, ISO 539000, ISO 540000, ISO 541000, ISO 542000, ISO 543000, ISO 544000, ISO 545000, ISO 546000, ISO 547000, ISO 548000, ISO 549000, ISO 550000, ISO 551000, ISO 552000, ISO 553000, ISO 554000, ISO 555000, ISO 556000, ISO 557000, ISO 558000, ISO 559000, ISO 560000, ISO 561000, ISO 562000, ISO 563000, ISO 564000, ISO 565000, ISO 566000, ISO 567000, ISO 568000, ISO 569000, ISO 570000, ISO 571000, ISO 572000, ISO 573000, ISO 574000, ISO 575000, ISO 576000, ISO 577000, ISO 578000, ISO 579000, ISO 580000, ISO 581000, ISO 582000, ISO 583000, ISO 584000, ISO 585000, ISO 586000, ISO 587000, ISO 588000, ISO 589000, ISO 590000, ISO 591000, ISO 592000, ISO 593000, ISO 594000, ISO 595000, ISO 596000, ISO 597000, ISO 598000, ISO 599000, ISO 600000, ISO 601000, ISO 602000, ISO 603000, ISO 604000, ISO 605000, ISO 606000, ISO 607000, ISO 608000, ISO 609000, ISO 610000, ISO 611000, ISO 612000, ISO 613000, ISO 614000, ISO 615000, ISO 616000, ISO 617000, ISO 618000, ISO 619000, ISO 620000, ISO 621000, ISO 622000, ISO 623000, ISO 624000, ISO 625000, ISO 626000, ISO 627000, ISO 628000, ISO 629000, ISO 630000, ISO 631000, ISO 632000, ISO 633000, ISO 634000, ISO 635000, ISO 636000, ISO 637000, ISO 638000, ISO 639000, ISO 640000, ISO 641000, ISO 642000, ISO 643000, ISO 644000, ISO 645000, ISO 646000, ISO 647000, ISO 648000, ISO 649000, ISO 650000, ISO 651000, ISO 652000, ISO 653000, ISO 654000, ISO 655000, ISO 656000, ISO 657000, ISO 658000, ISO 659000, ISO 660000, ISO 661000, ISO 662000, ISO 663000, ISO 664000, ISO 665000, ISO 666000, ISO 667000, ISO 668000, ISO 669000, ISO 670000, ISO 671000, ISO 672000, ISO 673000, ISO 674000, ISO 675000, ISO 676000, ISO 677000, ISO 678000, ISO 679000, ISO 680000, ISO 681000, ISO 682000, ISO 683000, ISO 684000, ISO 685000, ISO 686000, ISO 687000, ISO 688000, ISO 689000, ISO 690000, ISO 691000, ISO 692000, ISO 693000, ISO 694000, ISO 695000, ISO 696000, ISO 697000, ISO 698000, ISO 699000, ISO 700000, ISO 701000, ISO 702000, ISO 703000, ISO 704000, ISO 705000, ISO 706000, ISO 707000, ISO 708000, ISO 709000, ISO 710000, ISO 711000, ISO 712000, ISO 713000, ISO 714000, ISO 715000, ISO 716000, ISO 717000, ISO 718000, ISO 719000, ISO 720000, ISO 721000, ISO 722000, ISO 723000, ISO 724000, ISO 725000, ISO 726000, ISO 727000, ISO 728000, ISO 729000, ISO 730000, ISO 731000, ISO 732000, ISO 733000, ISO 734000, ISO 735000, ISO 736000, ISO 737000, ISO 738000, ISO 739000, ISO 740000, ISO 741000, ISO 742000, ISO 743000, ISO 744000, ISO 745000, ISO 746000, ISO 747000, ISO 748000, ISO 749000, ISO 750000, ISO 751000, ISO 752000, ISO 753000, ISO 754000, ISO 755000, ISO 756000, ISO 757000, ISO 758000, ISO 759000, ISO 760000, ISO 761000, ISO 762000, ISO 763000, ISO 764000, ISO 765000, ISO 766000, ISO 767000, ISO 768000, ISO 769000, ISO 770000, ISO 771000, ISO 772000, ISO 773000, ISO 774000, ISO 775000, ISO 776000, ISO 777000, ISO 778000, ISO 779000, ISO 780000, ISO 781000, ISO 782000, ISO 783000, ISO 784000, ISO 785000, ISO 786000, ISO 787000, ISO 788000, ISO 789000, ISO 790000, ISO 791000, ISO 792000, ISO 793000, ISO 794000, ISO 795000, ISO 796000, ISO 797000, ISO 798000, ISO 799000, ISO 800000, ISO 801000, ISO 802000, ISO 803000, ISO 804000, ISO 805000, ISO 806000, ISO 807000, ISO 808000, ISO 809000, ISO 810000, ISO 811000, ISO 812000, ISO 813000, ISO 814000, ISO 815000, ISO 816000, ISO 817000, ISO 818000, ISO 819000, ISO 820000, ISO 821000, ISO 822000, ISO 823000, ISO 824000, ISO 825000, ISO 826000, ISO 827000, ISO 828000, ISO 829000, ISO 830000, ISO 831000, ISO 832000, ISO 833000, ISO 834000, ISO 835000, ISO 836000, ISO 837000, ISO 838000, ISO 839000, ISO 840000, ISO 841000, ISO 842000, ISO 843000, ISO 844000, ISO 845000, ISO 846000, ISO 847000, ISO 848000, ISO 849000, ISO 850000, ISO 851000, ISO 852000, ISO 853000, ISO 854000, ISO 855000, ISO 856000, ISO 857000, ISO 858000, ISO 859000, ISO 860000, ISO 861000, ISO 862000, ISO 863000, ISO 864000, ISO 865000, ISO 866000, ISO 867000, ISO 868000, ISO 869000, ISO 870000, ISO 871000, ISO 872000, ISO 873000, ISO 874000, ISO 875000, ISO 876000, ISO 877000, ISO 878000, ISO 879000, ISO 880000, ISO 881000, ISO 882000, ISO 883000, ISO 884000, ISO 885000, ISO 886000, ISO 887000, ISO 888000, ISO 889000, ISO 890000, ISO 891000, ISO 892000, ISO 893000, ISO 894000, ISO 895000, ISO 896000, ISO 897000, ISO 898000, ISO 899000, ISO 900000, ISO 901000, ISO 902000, ISO 903000, ISO 904000, ISO 905000, ISO 906000, ISO 907000, ISO 908000, ISO 909000, ISO 910000, ISO 911000, ISO 912000, ISO 913000, ISO 914000, ISO 915000, ISO 916000, ISO 917000, ISO 918000, ISO 919000, ISO 920000, ISO 921000, ISO 922000, ISO 923000, ISO 924000, ISO 925000, ISO 926000, ISO 927000, ISO 928000, ISO 929000, ISO 930000, ISO 931000, ISO 932000, ISO 933000, ISO 934000, ISO 935000, ISO 936000, ISO 937000, ISO 938000, ISO 939000, ISO 940000, ISO 941000, ISO 942000, ISO 943000, ISO 944000, ISO 945000, ISO 946000, ISO 947000, ISO 948000, ISO 949000, ISO 950000, ISO 951000, ISO 9