

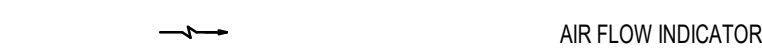
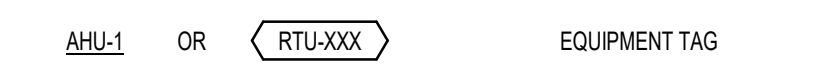
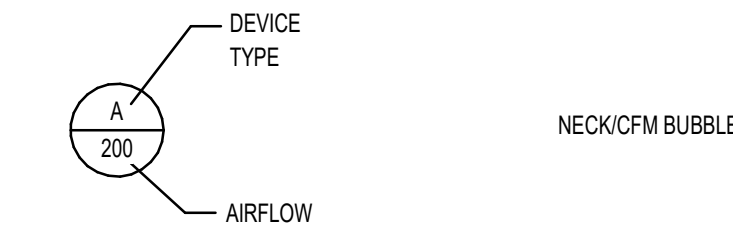
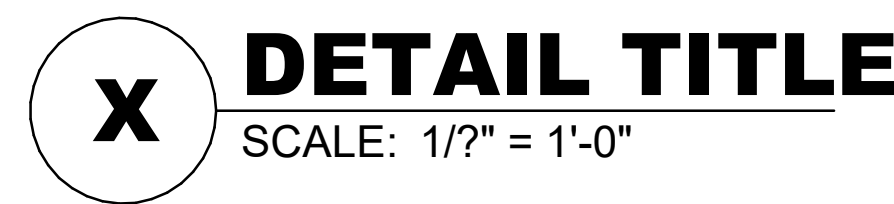
MECHANICAL SYMBOLS ABBREVIATIONS

(SOME SYMBOLS MAY NOT BE USED ON THE DRAWINGS)

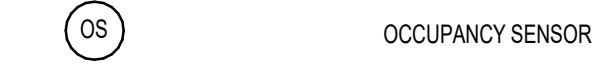
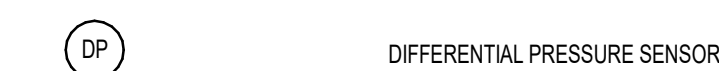
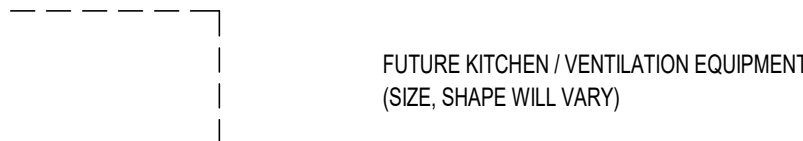
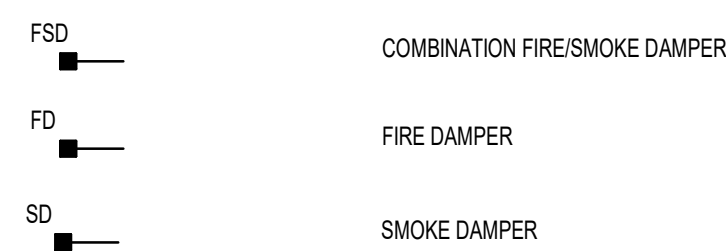
%	PERCENT
ABS	ABSOLUTE
ACC	AIR-COOLED CHILLER
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AIR FOIL
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTITUDE
AMB	AMBIENT
AMCA	AIR MOVEMENT AND CONTROL ASSOCIATION
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARI	AIR-CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
AVG	AVERAGE
B	BOILER
BD	BACKDRAFT DAMPER
BG	BELOW GRADE
BEMCS	BUILDING ENERGY MANAGEMENT AND CONTROL SYSTEM
BHP	BRAKE HORSEPOWER
BI	BACKWARD INCLINED
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CD	COLD DECK
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CHET	CHILLED WATER EXPANSION TANK
CMPR	COMPRESSOR
COND	CONDENSER
CRAC	COMPUTER ROOM AIR CONDITIONER
CT	COOLING TOWER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CU IN	CUBIC INCH
dB	DECIBEL
DB	DRY BULB
DCP	DISTRIBUTED CONTROL PANEL
DEG	DEGREE
DIA	DIAMETER
DWG	DRAWING
DX	DIRECT-EXPANSION
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EFF	EFFICIENCY
EL	ELEVATION
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
EXP	EXPANSION
F	FAHRENHEIT
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FH	FUME HOOD
FLEX	FLEXIBLE
FFM	FEET PER MINUTE
FFS	FEET PER SECOND
FRP	FIBERGLASS REINFORCED PIPE
FS	FLOW SWITCH
FSD	COMBINATION FIRE-SMOKE DAMPER
FT	FEET OR FOOT
FTU	FAN TERMINAL UNIT
GA	GAUGE OR GAGE
GAL	GALLONS
GALV	GALVANIZED
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRAINS
H	ENTHALPY
HD	HEAD
HD	HOT DECK
HG	HEAT GAIN OR MERCURY
HGT	HEIGHT
HP	HORSEPOWER
HPS	HIGH PRESSURE STEAM
HR	HOUR
HTHW	HIGH TEMPERATURE HEATING WATER
HVAC	HEATING/VENTILATING/AIR-CONDITIONING
HVU	HEATING AND VENTILATING UNIT
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HZ	FREQUENCY
ID	INSIDE DIAMETER
IPS	INTERNATIONAL PIPE STANDARD
ips	IRON PIPE SIZE
K	THERMAL CONDUCTIVITY
KH	KITCHEN HOOD
KW	KILOWATT

LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET
LG	LENGTH
LPS	LOW PRESSURE STEAM
LTHW	LOW TEMPERATURE HOT WATER
LWT	LEAVING WATER TEMPERATURE
MCA	MINIMUM CIRCUIT AMPACITY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MAX	MAXIMUM
MBH	BTU PER HOUR (THOUSAND)
MIN	MINIMUM
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPOSED BLADE DAMPER
OD	OUTSIDE DIAMETER
PD	PUMPED DISCHARGE
PBD	PARALLEL BLADE DAMPER
PH	PHASE (ELECTRICAL)
PPM	PARTS PER MILLION
PRESS	PRESSURE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ABSOLUTE
PSIG	PSI GAGE
R	RANKINE
R-22	REFRIGERANT (NUMBER INDICATES TYPE)
RA	RETURN AIR
RAF	RELIEF AIR FAN
RECIRC	RECIRCULATE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SC	SHADING COEFFICIENT
SCFM	CUBIC FEET PER MINUTE-STANDARD CONDITIONS
SD	SMOKE DAMPER
SEC	SECOND
SF	SQUARE FEET
SG	SPECIFIC GRAVITY
SHG	SENSIBLE HEAT GAIN
SHR	SENSIBLE HEAT RATIO
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
SSD	SUB-SOIL DRAINAGE
STD	STANDARD
SUCT	SUCTION
t	TIME
T	TEMPERATURE SENSOR
TD	TEMPERATURE DIFFERENCE
TEMP	TEMPERATURE
TOC	TOP OF CONCRETE
TOD	TOP OF DUCT
TONS	TONS OF REFRIGERATION
TOP	TOP OF PIPE
TOS	TOP OF STEEL
TSP	TOTAL STATIC PRESSURE
T-STAT	THERMOSTAT
TU	TERMINAL UNIT
TYP	TYPICAL
U	HEAT TRANSFER COEFFICIENT
UH	UNIT HEATER
UF	UNDER FLOOR
V	VOLT
VA	VOLT AMPERE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VENT	VENTILATION
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VP	VELOCITY PRESSURE
W	HUMIDITY RATIO OR WATT
W.C.	WATER COLUMN
W.G.	WATER GAUGE
WB	WET BULB
WT	WEIGHT
YR	YEAR

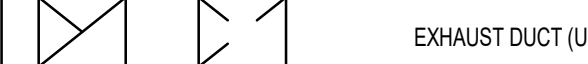
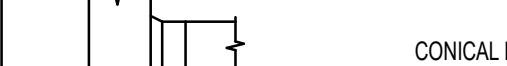
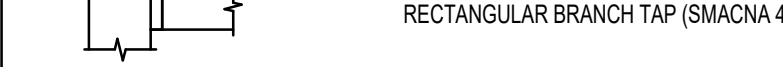
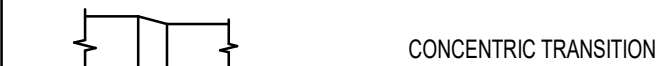
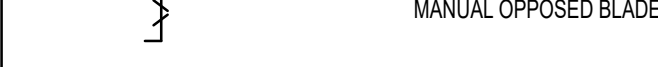
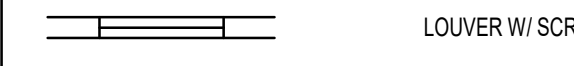
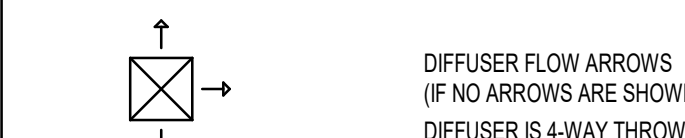
SHEET SYMBOLS



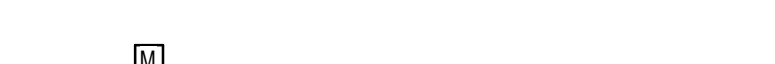
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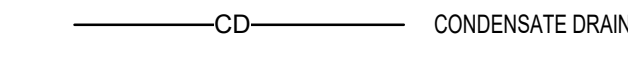
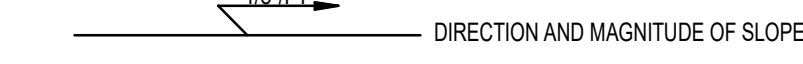
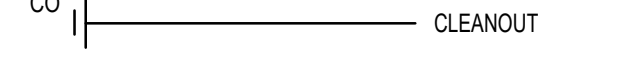
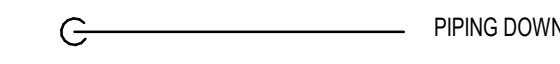
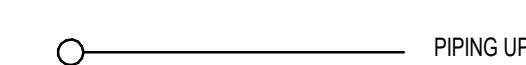
DUCTWORK



DUCTWORK



PIPING SYMBOLS



HVAC DESIGN CRITERIA

ASHRAE FUNDAMENTALS - 2021: SUMMER COOLING DESIGN (0.4%):

WEATHER STATION - TRIANGLE NORTH EXECUTIVE, NC 94.0 °F DRY BULB
ELEVATION: 369' 78.4 °F WET BULB

WINTER HEATING DESIGN (99.6%):

18.8 °F DRY BULB

GENERAL NOTES

- PERFORM WORK IN ACCORDANCE WITH THE LATEST EDITIONS, REVISIONS, AMENDMENTS OR SUPPLEMENTS OF APPLICABLE STATUTES, ORDINANCES, CODES OR REGULATIONS OF FEDERAL, STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN EFFECT ON THE DATE BIDS ARE RECEIVED.
- PROVIDE ALL SYSTEMS AS COMPLETE WITH ALL REQUIRED ACCESSORIES FOR CODE COMPLIANCE.
- REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
- DUCTWORK SIZES SHOWN ARE FREE AIR STREAM DIMENSIONS.
- INSTALL DUCTWORK AND PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH. (BETWEEN STRUCTURE OR CEILING AND TOP OF DUCT).
- WHERE APPROVAL CODES HAVE BEEN ESTABLISHED BY OSHA, UNDERWRITER'S LABORATORY, AMERICAN CODES, ANSI, ASME, ASA, ASHRAE, ASTM, ARI, NEL, NFPA, SMACNA, OR THE STATE FIRE INSURANCE REGULATORY BODY, FOLLOW THESE STANDARDS WHETHER OR NOT INDICATED ON THE DRAWINGS AND SPECIFICATIONS.
- PROVIDE THE ENTIRE SYSTEM AND ITS COMPONENT ITEMS OF EQUIPMENT IN OPERATING CONDITION FREE OF OBJECTIONABLE VIBRATION OR NOISE.
- COORDINATE WORK SO THAT INTERFERENCES BETWEEN PIPING, DUCTWORK, EQUIPMENT, PLUMBING WORK, ELECTRICAL WORK, AND BUILDING STRUCTURE WILL BE AVOIDED.
- FURNISH ACCESS DOORS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED MECHANICAL EQUIPMENT, VALVES, DAMPERS, CONTROLS AND OTHER DEVICES.
- COORDINATE THE EXACT LOCATION OF DRAIN AND MECHANICAL EQUIPMENT LOCATIONS WITH MECHANICAL, ARCHITECTURAL, AND STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
- RECTANGULAR ELBOWS SHALL BE LONG-RADIUS ELBOWS UNLESS OTHERWISE SHOWN OR NOTED. SUPPLY AIR STANDARD NON-RADIUS 90° ELBOWS SHALL HAVE TURNING VANES.

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Planning

PREPARED FOR:



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Mansfield, CT 06150
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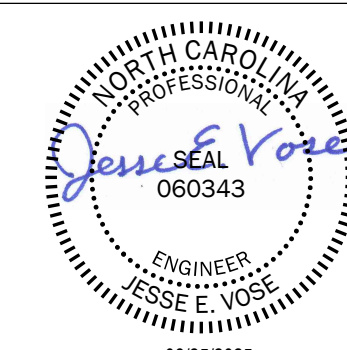
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Prototype Version

09.30.2024 2024 Q3 PT22M Prototype Release

Date Description

Seal / Signature



08/25/2025
LICENSE EXPIRES: 12/31/2025

Project Name

WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number

2301794

Description

GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

Scale

NOT TO SCALE

M0.1

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REFRIGERATION CALCULATIONS PER ASHRAE 15/34-2022, TABLE 4-2:					
AREA SERVED	KITCHEN/ STORAGE	FREEZER 108	COOLER 109	KITCHEN (RTU-1)	DINING (RTU-2)
REFRIGERANT TYPE	404A	488A	488A	454B	454B
REFRIGERANT CLASSIFICATION	A1	A1	A1	A2L	A2L
SYSTEM CLASSIFICATION	DIRECT SYSTEM, HIGH PROBABILITY	DIRECT SYSTEM, HIGH PROBABILITY	DIRECT SYSTEM, HIGH PROBABILITY	DIRECT SYSTEM, HIGH PROBABILITY	DIRECT SYSTEM, HIGH PROBABILITY
MAX REFRIG. QTY (LBS./1000 CU. FT.)	31	24	24	3.1	3.1
SPACE VOLUME (CU. FT.)	12344	698	698	12344	10646
MAX. SYSTEM REFRIG. (LBS.)	382.6	16.75	16.75	38.2	33.0
PROPOSED SYSTEM REFRIG. (LBS.)	43.5 (14.5/UNIT)	14.3	11.6	28.5	28.5
NOTES	1,3	1,3	1,3	2,3	2,3

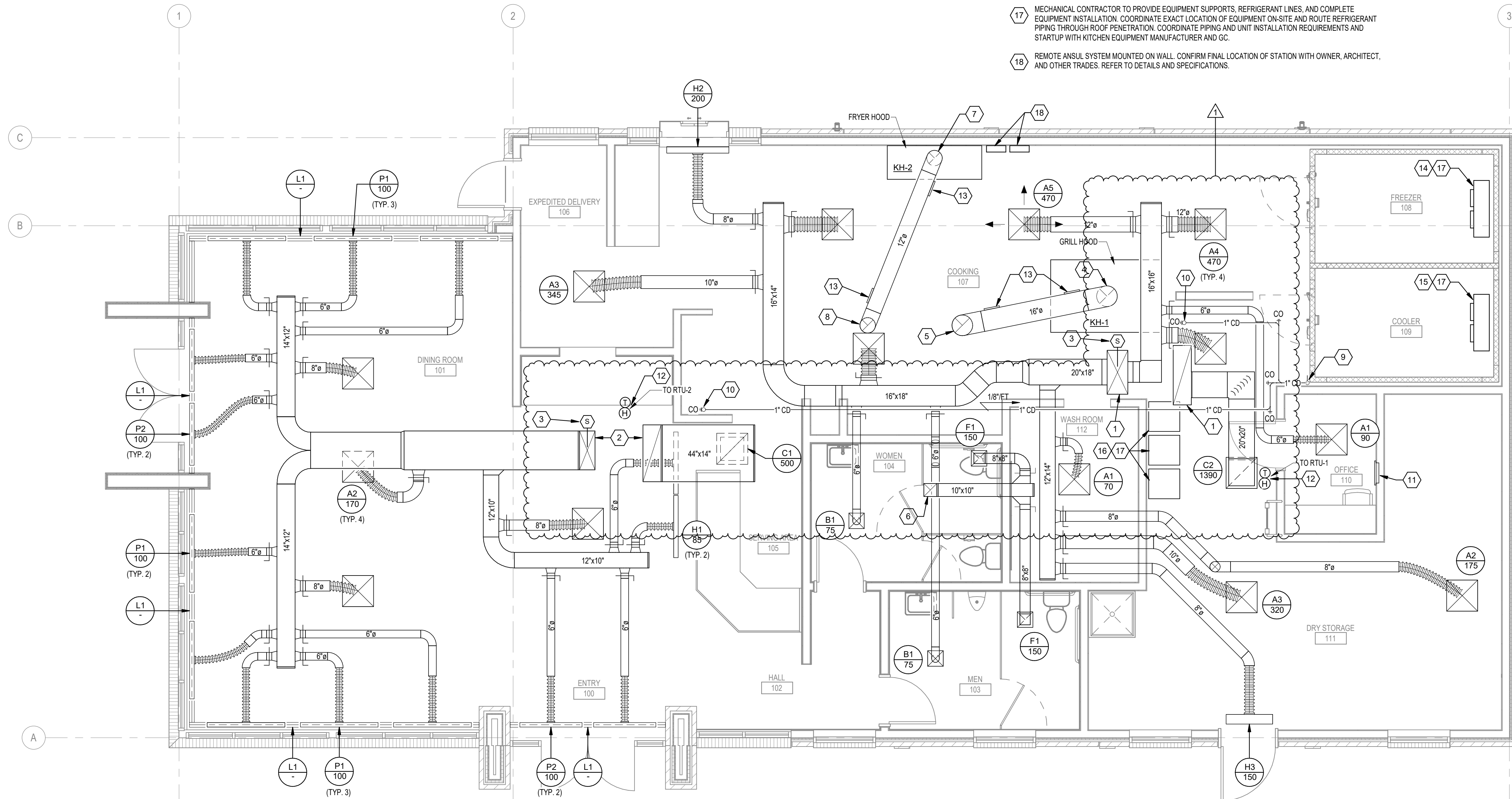
- NOTES:
- PROPOSED REFRIGERANT VOLUME IS BASED ON A MAXIMUM LINE LENGTH OF 50 FEET. FINAL SIZING OF REFRIGERANT LINES AND DETERMINATION OF REFRIGERANT VOLUME IS THE RESPONSIBILITY OF THE EQUIPMENT SUPPLIER. PROPOSED REFRIGERANT VOLUME IS BASED ON THE FACTORY PROVIDED CHARGE OF THE LARGEST REFRIGERANT CIRCUIT WITHIN THE UNIT. ACTUAL SITE CHARGE MAY DIFFER.
 - INSTALLED REFRIGERANT CHARGE SHALL COMPLY WITH ASHRAE 34 REQUIREMENTS AND SHALL NOT EXCEED THE MAXIMUM AMOUNT SPECIFIED IN THE TABLE ABOVE. EQUIPMENT SUPPLIER AND MECHANICAL CONTRACTOR SHALL COMPLY WITH THIS REQUIREMENT AND SHALL ADVISE ENGINEER AND GC IF UNABLE TO COMPLY.

MECHANICAL KEY NOTES

- 34"x16" SUPPLY DUCT AND 46"x14" RETURN DUCT UP TO RTU-1. PROVIDE DUCT TRANSITIONS TO MATCH UNIT CONNECTION SIZE.
- 30"x12" SUPPLY DUCT AND 44"x14" RETURN DUCT UP TO RTU-2. PROVIDE DUCT TRANSITIONS TO MATCH UNIT CONNECTION SIZE.
- DUCT MOUNTED SUPPLY AIR SMOKE DETECTOR, FURNISHED BY RTU MANUFACTURER, INSTALLED IN DUCT BY MC, AND WIRED BY FA CONTRACTOR.
- CONNECT KITCHEN EXHAUST HOOD ABOVE GRILL UP TO KEF-1 WITH 16" DIA. PRE-FABRICATED UL 1978 LISTED AND LABELED GREASE DUCT (DURAVENT DIS1 OR EQUAL). PROVIDE TRANSITION ABOVE CEILING TO MATCH HOOD CONNECTION SIZE. CONNECT TO HOOD VIA MANUFACTURER'S UL METHOD FOR GREASE AND SMOKE TIGHT JOINT. INSTALL ACCORDING TO MANUFACTURER'S DIRECTIONS FOR NFPA 96 COMPLIANCE.
- 16" GREASE EXHAUST DUCT UP TO KEF-1 ON ROOF. RE: A2M5.1
- 10"x10" EXHAUST DUCT UP TO EF-1 ON ROOF. RE: A1M5.1
- CONNECT KITCHEN EXHAUST HOOD ABOVE FRYER UP TO KEF-2 WITH 12" DIA. PRE-FABRICATED UL 1978 LISTED AND LABELED GREASE DUCT (DURAVENT DIS1 OR EQUAL). PROVIDE TRANSITION ABOVE CEILING TO MATCH HOOD CONNECTION SIZE. CONNECT TO HOOD VIA MANUFACTURER'S UL METHOD FOR GREASE AND SMOKE TIGHT JOINT. INSTALL ACCORDING TO MANUFACTURER'S DIRECTIONS FOR NFPA 96 COMPLIANCE.
- 12" GREASE EXHAUST DUCT UP TO KEF-2 ON ROOF. RE: A2M5.1
- 1" CONDENSATE DOWN TO FLOOR. TERMINATE CONDENSATE AT FLOOR DRAIN WITH 1" AIR GAP.
- FULLY INSULATED 1" COPPER CONDENSATE PIPE UP THROUGH ROOF. RE: C4M5.1. CONDENSATE TO START HORIZONTAL RUN AS CLOSE TO STRUCTURE INSIDE BUILDING AS POSSIBLE.
- THE PILOT RDM SYSTEM CONTROLLER PANEL SHALL BE MOUNTED AND INSTALLED FLUSH IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER. COORDINATE FINAL LOCATION OF PANEL WITH OWNER AND GC.
- TEMPERATURE AND HUMIDITY SENSORS "T" AND "H" TO BE CEILING MOUNTED AND TIED INTO THE BUILDING CONTROL SYSTEM.
- LISTED GREASE DUCT ACCESS DOOR ASSEMBLY (DIS1-0ADL26 OR EQUAL). INSTALL ON SIDE OF DUCT.
- KITCHEN FREEZER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
- KITCHEN COOLER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
- KITCHEN ICEMAKER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
- MECHANICAL CONTRACTOR TO PROVIDE EQUIPMENT SUPPORTS, REFRIGERANT LINES, AND COMPLETE EQUIPMENT INSTALLATION. COORDINATE EXACT LOCATION OF EQUIPMENT ON-SITE AND ROUTE REFRIGERANT PIPING THROUGH ROOF PENETRATION. COORDINATE PIPING AND UNIT INSTALLATION REQUIREMENTS AND STARTUP WITH KITCHEN EQUIPMENT MANUFACTURER AND GC.
- REMOTE ANSUL SYSTEM MOUNTED ON WALL. CONFIRM FINAL LOCATION OF STATION WITH OWNER, ARCHITECT, AND OTHER TRADES. REFER TO DETAILS AND SPECIFICATIONS.

MECHANICAL GENERAL NOTES

- A. REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B. SMOKE DETECTORS SHALL BE PROVIDED AND INSTALLED BY THE RTU MANUFACTURER IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE INSTALLATION AND CONNECTION OF SMOKE DETECTORS WITH FA CONTRACTOR, GC, AND GC. REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU AND ACTIVATE THE AUDIBLE AND VISUAL SIGNAL PROVIDED.
- C. PROVIDE NECESSARY ACCESS AND CLEARANCES AROUND ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATION.
- D. MAINTAIN A MINIMUM DISTANCE OF 10'-0" BETWEEN ALL ROOF MOUNTED EQUIPMENT AND EDGE OF ROOF WITH THE EXCEPTION OF EQUIPMENT LOCATED BEHIND AN ARCHITECTURAL GUARD (MINIMUM 42" HIGH) OR PROVIDED WITH AN APPROVED FALL ARREST ANCHORAGE CONNECTOR DEVICE.
- E. MAINTAIN A MINIMUM DISTANCE OF 10'-0" BETWEEN MECHANICAL AIR INTAKES AND ALL MECHANICAL EXHAUSTS OR PLUMBING VENTS.
- F. AN APPROVED AGENCY SHALL BE HIRED BY THE OWNER AS PART OF THIS PROJECT TO PROVIDE A COMMISSIONING PLAN THAT INCLUDES THE FOLLOWING ITEMS:
- A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.
- G. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED. COORDINATE WITH GC.
- H. FINAL LOCATION OF ALL TEMPERATURE AND HUMIDITY SENSORS TO BE COORDINATED IN FIELD. LOCATE SENSORS SUCH THAT THEY ARE ACCESSIBLE, PROTECTED, AND IN AN AREA OF UNOBSTRUCTED AIR CIRCULATION.
- I. ALL TESTS AND BALANCES TO BE PERFORMED BY A THIRD PARTY - NOT BY MEP SUBCONTRACTOR.
- J. PRIOR TO BEGINNING WORK, COORDINATE COMPLETE INSTALLATION OF ALL ROOFTOP EQUIPMENT AND ACCESSORIES WITH GC AND OTHER TRADES.
- K. VERIFY RTUS ARE LEVEL AND CONDENSATE IS DRAINING PROPERLY.



PREPARED FOR:



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Prototype Version
09.30.2024 2024 Q3 PT22M Prototype Release

Date	Description
1 8.18.2025	MECHANICAL EQUIPMENT UPDATE

Seal / Signature



Project Name
WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number
2301794

Description
MECHANICAL FLOOR PLAN

Scale
As indicated Ref North

M1.1

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Planning

M1 MECHANICAL FLOOR PLAN - LEVEL 1
1/4" = 1'-0"

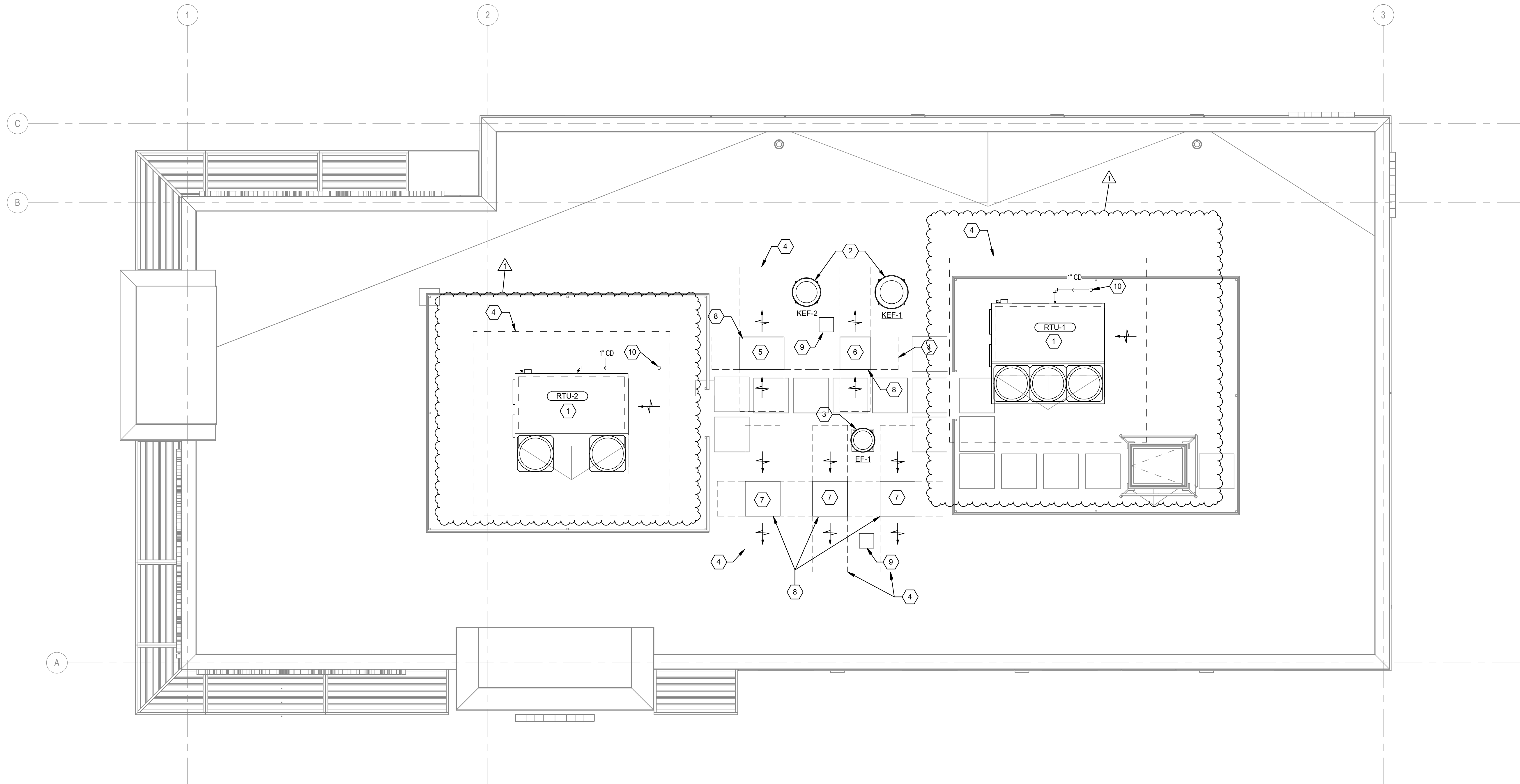
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MECHANICAL KEY NOTES

- 1 ROOFTOP HVAC UNIT MOUNTED ON PRE-FABRICATED CURB, RE: C3M5.1
- 2 CENTRIFUGAL UPBLAST GREASE HOOD EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A2M5.1
- 3 CENTRIFUGAL DOWNBLAST EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A1M5.1
- 4 REQUIRED UNIT CLEARANCE PER BOB MANUFACTURER. COORDINATE EXACT CLEARANCE REQUIREMENTS WITH INSTALLED EQUIPMENT. COORDINATE FINAL LOCATION OF INSTALLED EQUIPMENT WITH ARCHITECTURAL ROOF SCREEN.
- 5 KITCHEN FREEZER CONDENSING UNIT MOUNTED ON ROOFTOP. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC. PROVIDE R448A REFRIGERANT, 3/8" LIQUID LINE AND 7/8" SUCTION LINE BETWEEN INDOOR AND OUTDOOR UNIT PER EQUIPMENT MFR.
- 6 KITCHEN COOLER CONDENSING UNIT MOUNTED ON ROOFTOP. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC. PROVIDE R448A REFRIGERANT, 3/8" LIQUID LINE AND 5/8" SUCTION LINE BETWEEN INDOOR AND OUTDOOR UNIT PER EQUIPMENT MFR.
- 7 KITCHEN ICEMAKER CONDENSING UNIT MOUNTED ON ROOFTOP. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC. PROVIDE R404A REFRIGERANT, 3/8" LIQUID LINE AND 7/8" SUCTION LINE BETWEEN INDOOR AND OUTDOOR UNIT PER EQUIPMENT MFR.
- 8 MECHANICAL CONTRACTOR TO PROVIDE EQUIPMENT SUPPORTS, REFRIGERANT LINES, AND COMPLETE EQUIPMENT INSTALLATION. COORDINATE EXACT LOCATION OF EQUIPMENT ON-SITE AND ROUTE REFRIGERANT PIPING THROUGH ROOF PENETRATION. COORDINATE PIPING AND UNIT INSTALLATION REQUIREMENTS AND STARTUP WITH KITCHEN EQUIPMENT MANUFACTURER AND GC.
- 9 REFRIGERATION PIPING ROOF PENETRATION, RE: C4M5.1
- 10 ROUTE CONDENSATE LINE DOWN THROUGH ROOF, RE: M1M1.1 FOR CONTINUATION AND RE: C4M5.1 FOR DETAIL.

MECHANICAL GENERAL NOTES

- A. REFER TO M0.1 FOR GENERAL NOTES, SYMBOLS AND ABBREVIATIONS.
- B. SMOKE DETECTORS SHALL BE PROVIDED AND INSTALLED BY THE RTU MANUFACTURER IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE INSTALLATION AND CONNECTION OF SMOKE DETECTORS WITH FA CONTRACTOR, EC, AND GC. REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU AND ACTIVATE THE AUDIBLE AND VISUAL SIGNAL PROVIDED.
- C. PROVIDE NECESSARY ACCESS AND CLEARANCES AROUND ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATION.
- D. MAINTAIN A MINIMUM DISTANCE OF 10'-0" BETWEEN ALL ROOF MOUNTED EQUIPMENT AND EDGE OF ROOF WITH THE EXCEPTION OF EQUIPMENT LOCATED BEHIND AN ARCHITECTURAL GUARD (MINIMUM 42" HIGH) OR PROVIDED WITH AN APPROVED FALL ARREST ANCHORAGE CONNECTOR DEVICE.
- E. MAINTAIN A MINIMUM DISTANCE OF 10'-0" BETWEEN MECHANICAL AIR INTAKES AND ALL MECHANICAL EXHAUSTS OR PLUMBING VENTS.
- F. AN APPROVED AGENCY SHALL BE HIRED BY THE OWNER AS PART OF THIS PROJECT TO PROVIDE A COMMISSIONING PLAN THAT INCLUDES THE FOLLOWING ITEMS:
 - A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
 - A LISTING OF THE SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND A DESCRIPTION OF THE TESTS TO BE PERFORMED.
 - FUNCTIONS TO BE TESTED INCLUDING, BUT NOT LIMITED TO, CALIBRATIONS AND ECONOMIZER CONTROLS.
 - CONDITIONS UNDER WHICH THE TEST WILL BE PERFORMED. TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
 - MEASURABLE CRITERIA FOR PERFORMANCE.
- G. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED. COORDINATE WITH GC.
- H. FINAL LOCATION OF ALL TEMPERATURE AND HUMIDITY SENSORS TO BE COORDINATED IN FIELD. LOCATE SENSORS SUCH THAT THEY ARE ACCESSIBLE, PROTECTED, AND IN AN AREA OF UNOBSTRUCTED AIR CIRCULATION.
- I. ALL TESTS AND BALANCES TO BE PERFORMED BY A THIRD PARTY - NOT BY MEP SUBCONTRACTOR.
- J. PRIOR TO BEGINNING WORK, COORDINATE COMPLETE INSTALLATION OF ALL ROOFTOP EQUIPMENT AND ACCESSORIES WITH GC AND OTHER TRADES.
- K. VERIFY RTU'S ARE LEVEL AND CONDENSATE IS DRAINING PROPERLY.



PREPARED FOR:



355 Research Parkway
Merriden, CT 06450
(203) 630-1406
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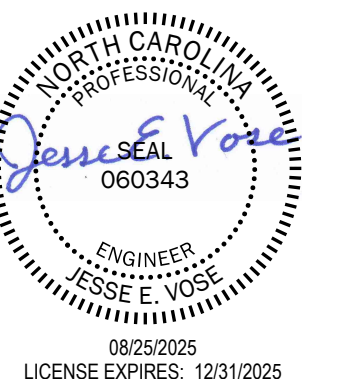
Prototype Version

09.30.2024 2024 Q3 PT22M Prototype Release

△ Date Description

1 8.18.2025 MECHANICAL EQUIPMENT UPDATE

Seal / Signature



Project Name

WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number

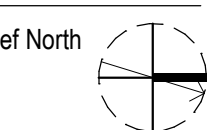
2301794

Description

MECHANICAL ROOF PLAN

Scale

1/4" = 1'-0"



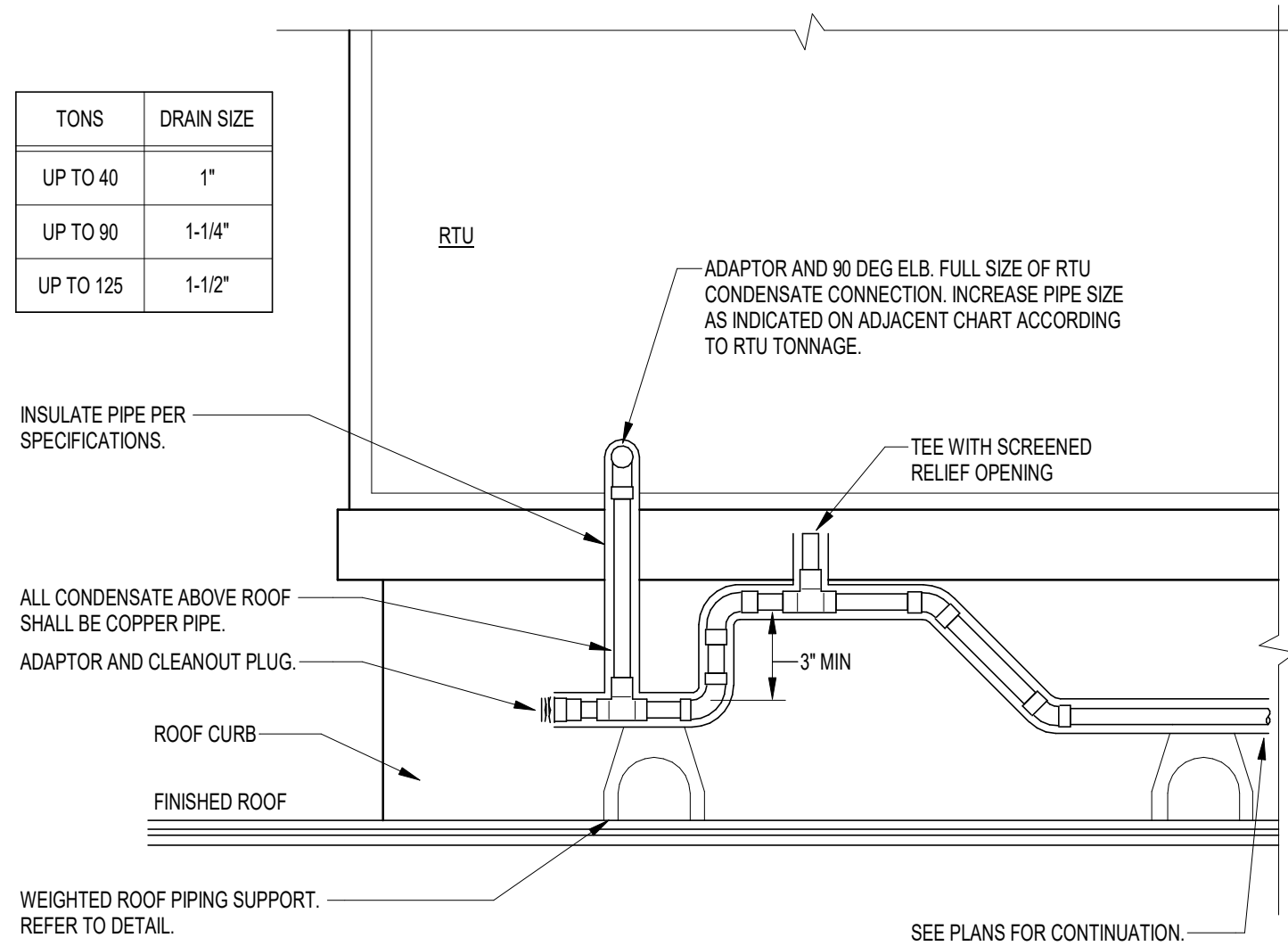
M2.1

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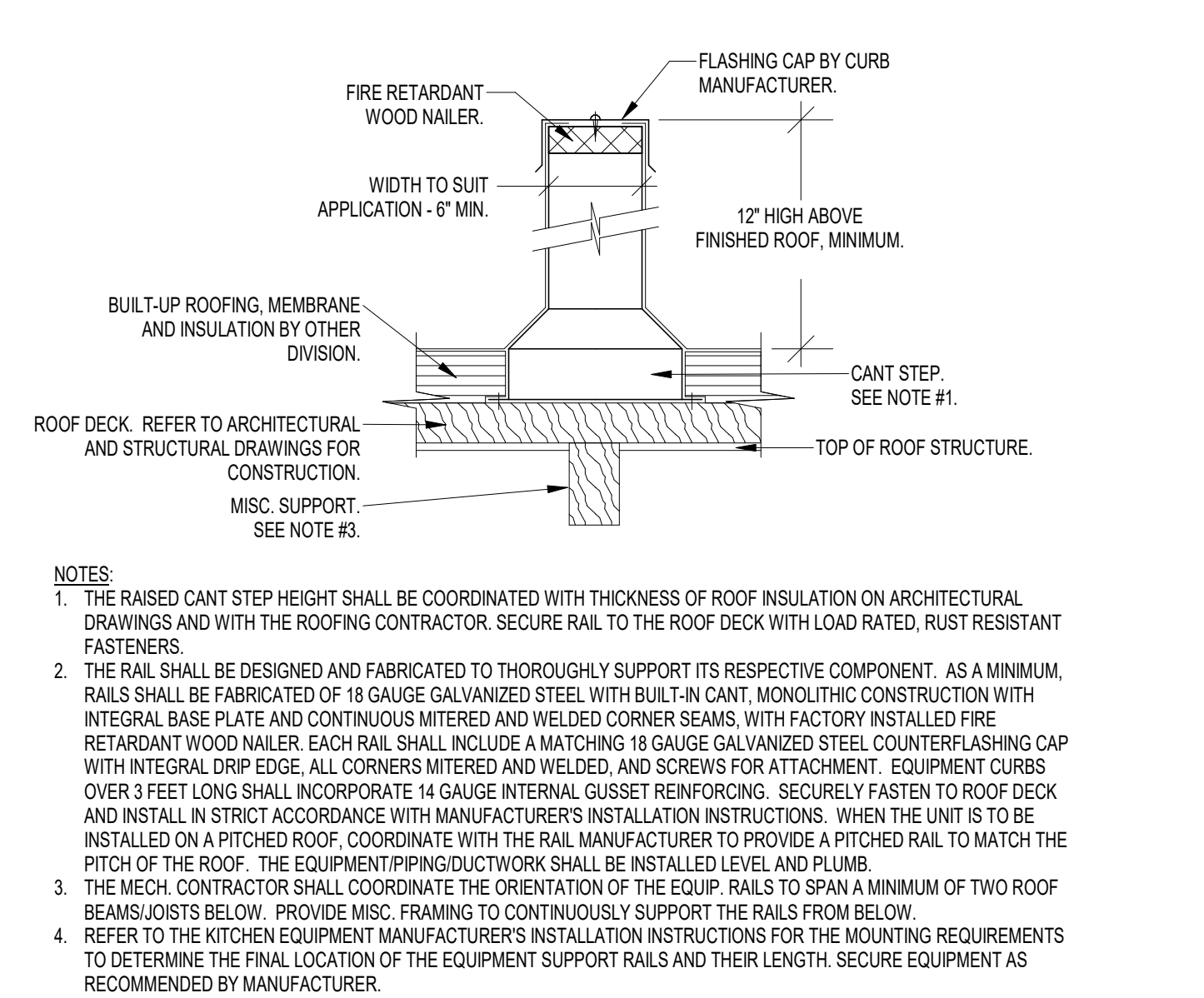
M1 MECHANICAL ROOF PLAN
1/4" = 1'-0"

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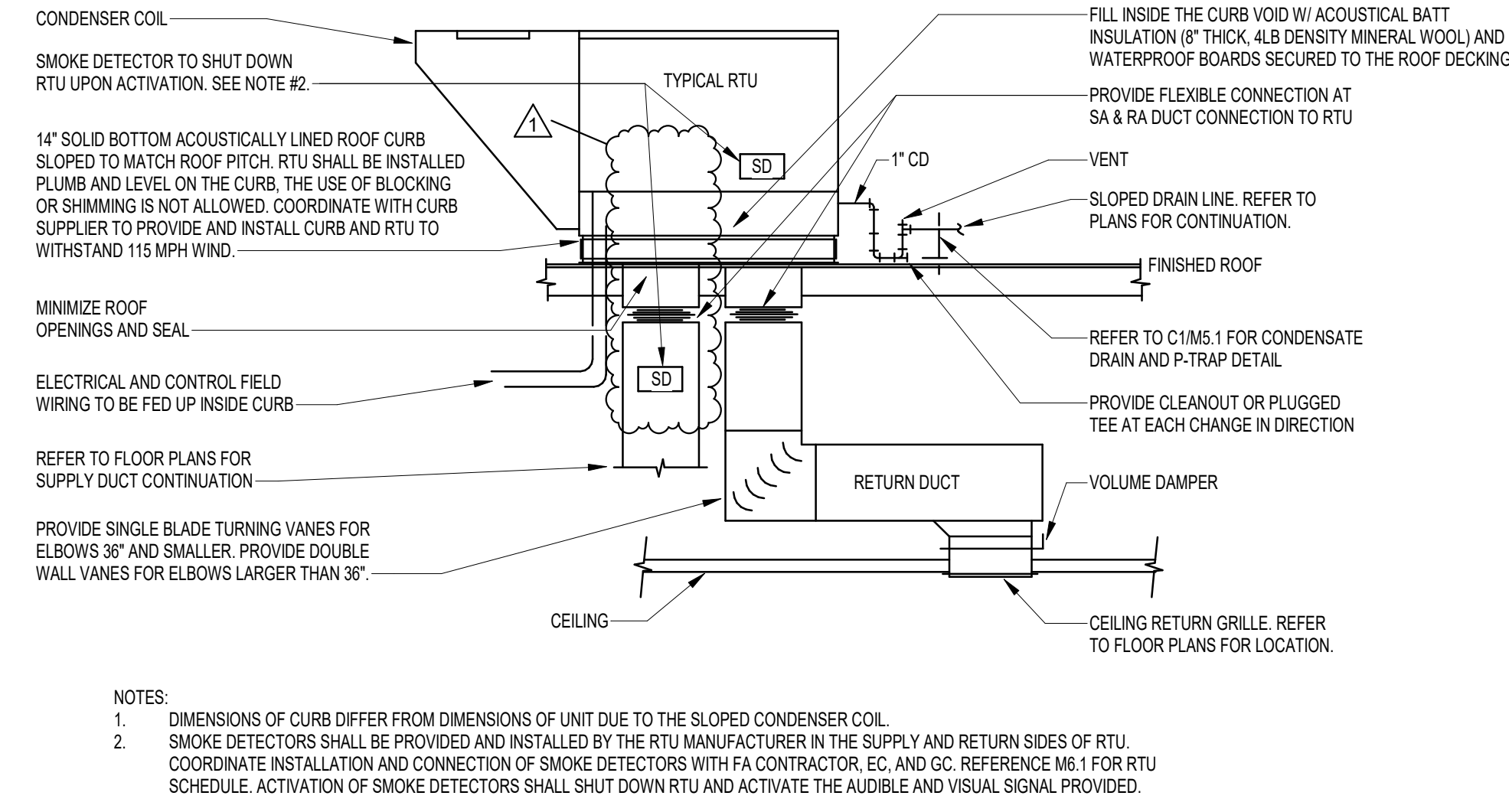
Planning



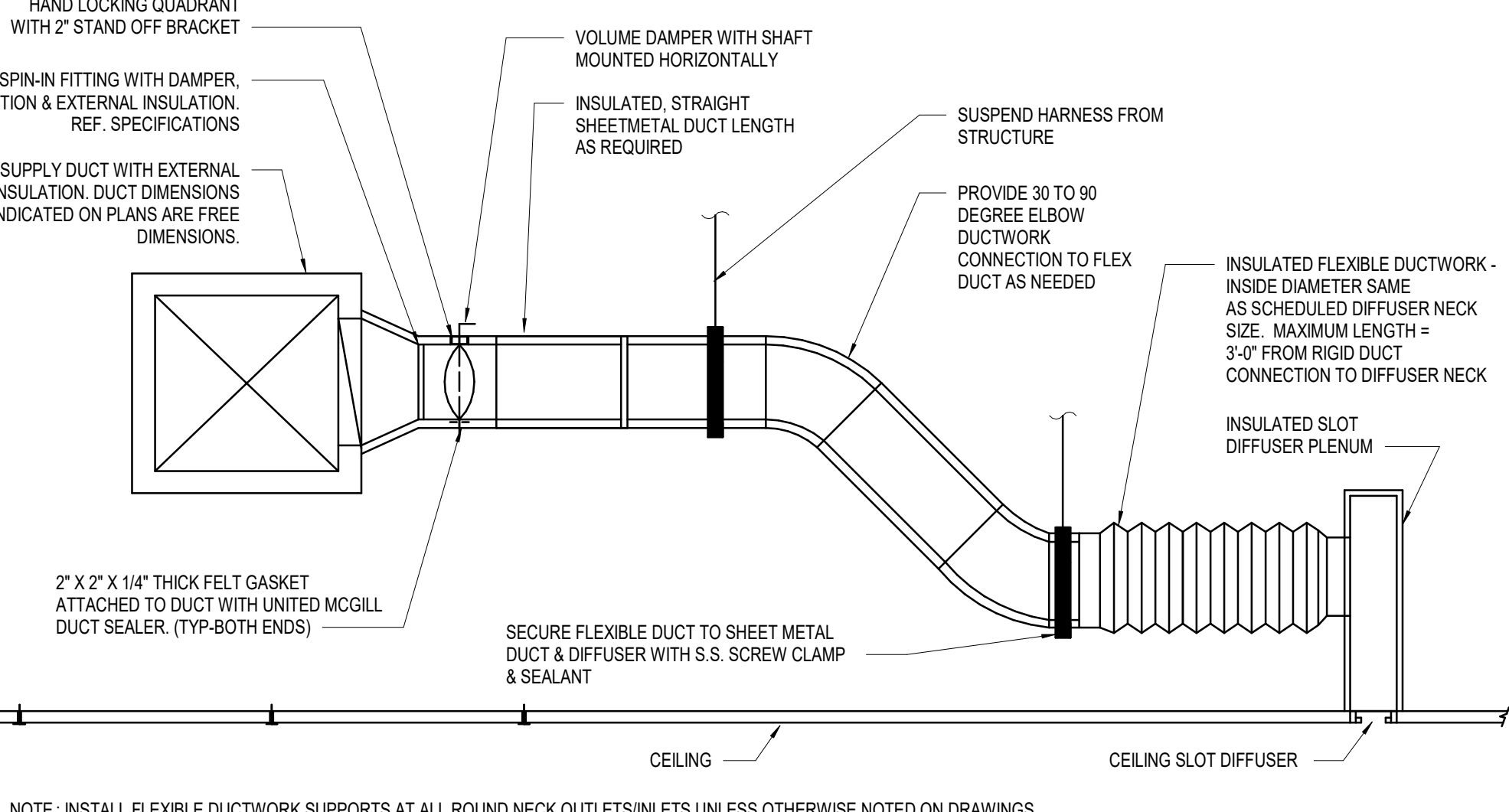
C1 RTU CONDENSATE DRAIN DETAIL
N.T.S.



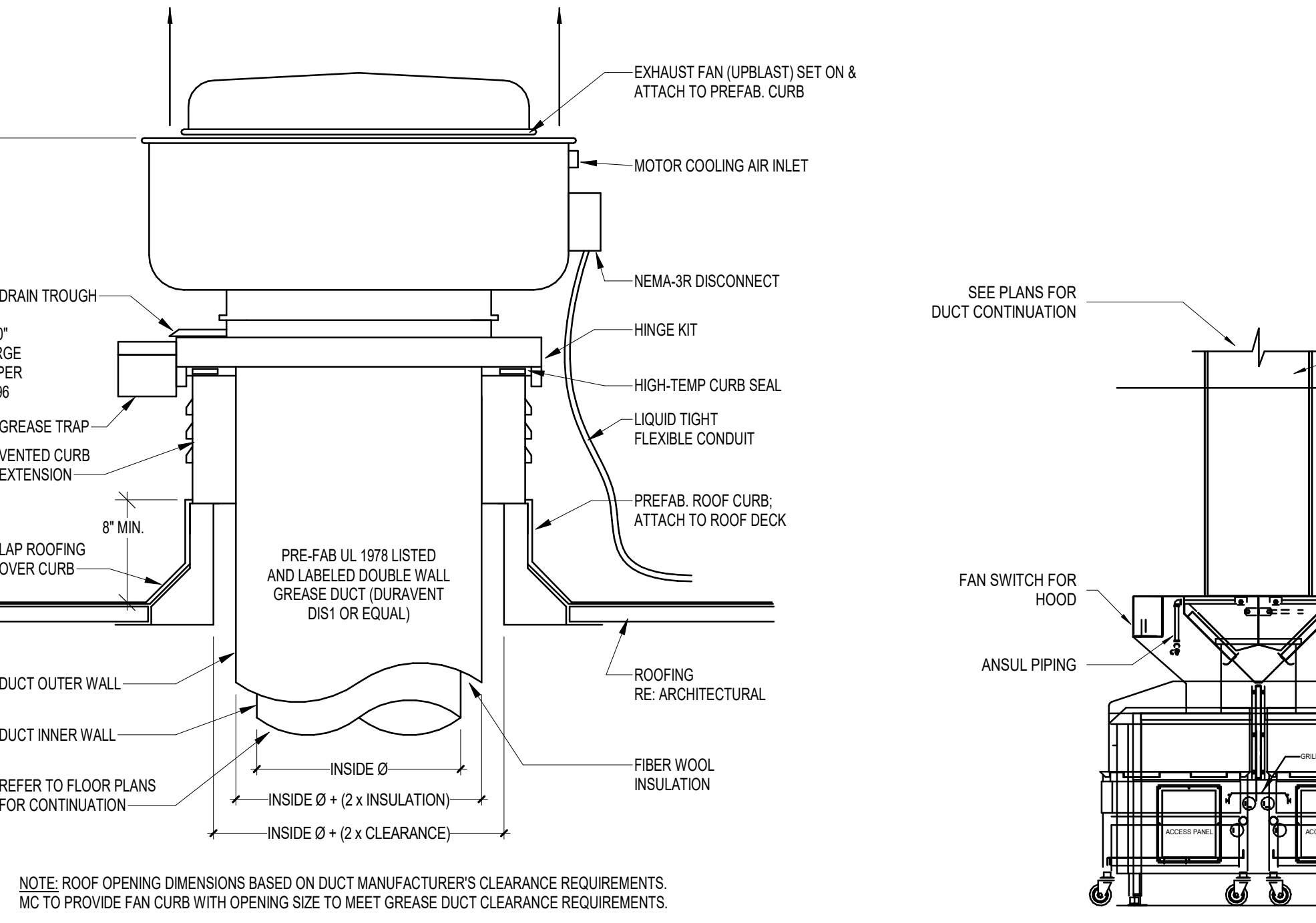
A1 ROOF MOUNTED EXHAUST FAN AND CURB DETAIL
N.T.S.



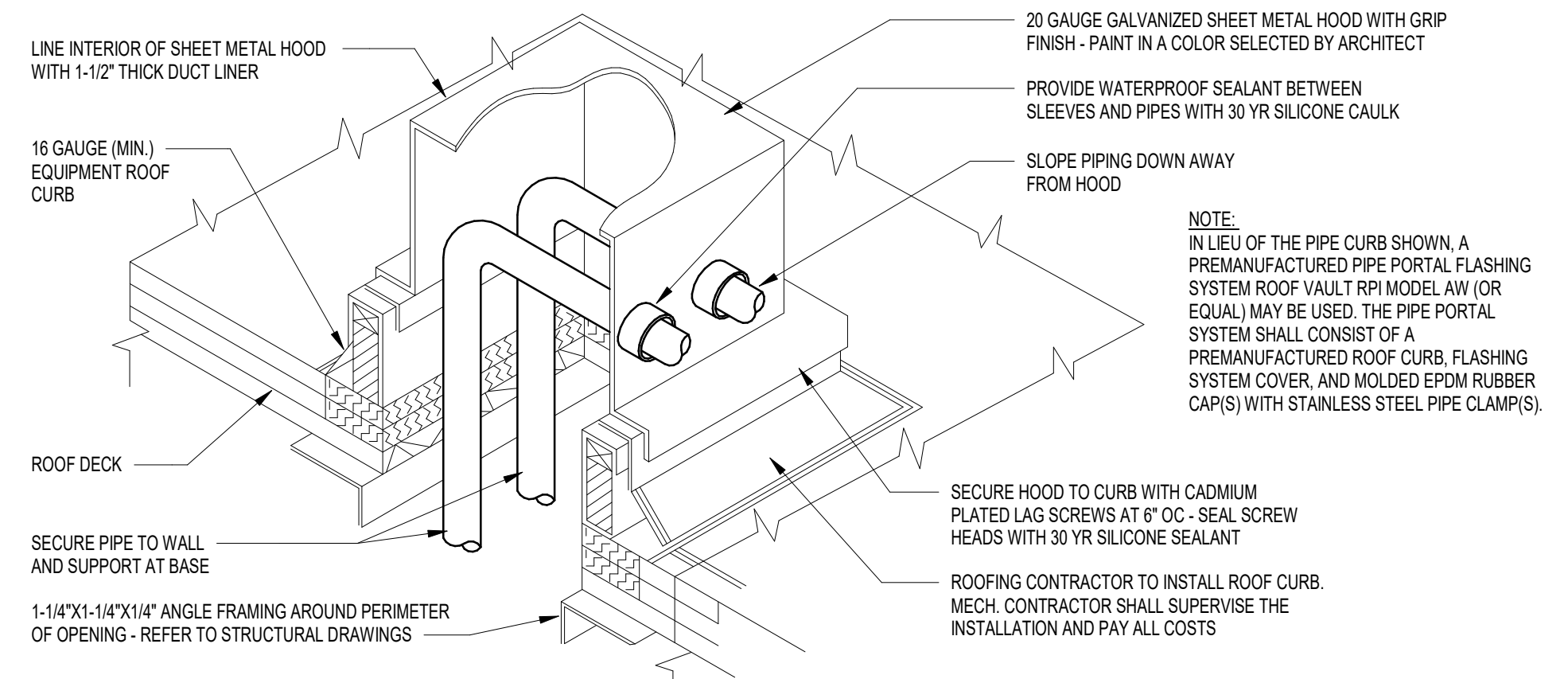
C3 ROOFTOP HVAC UNIT DETAIL
N.T.S.



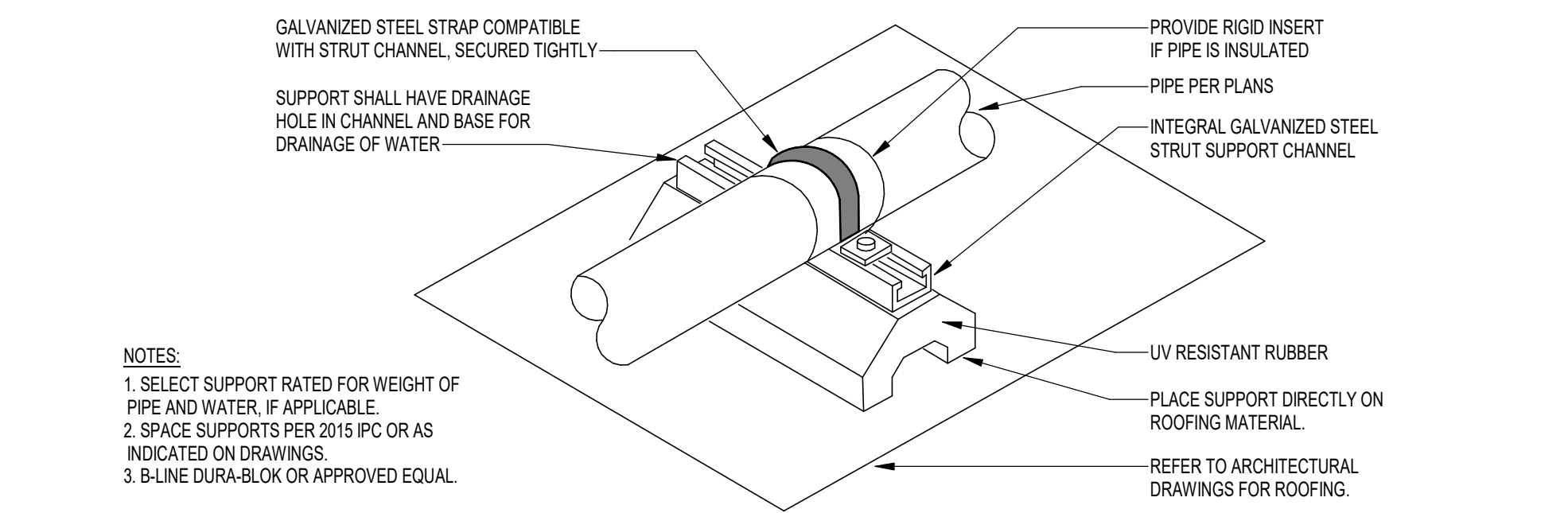
B1 PLENUM SLOT DIFFUSER DETAIL
N.T.S.



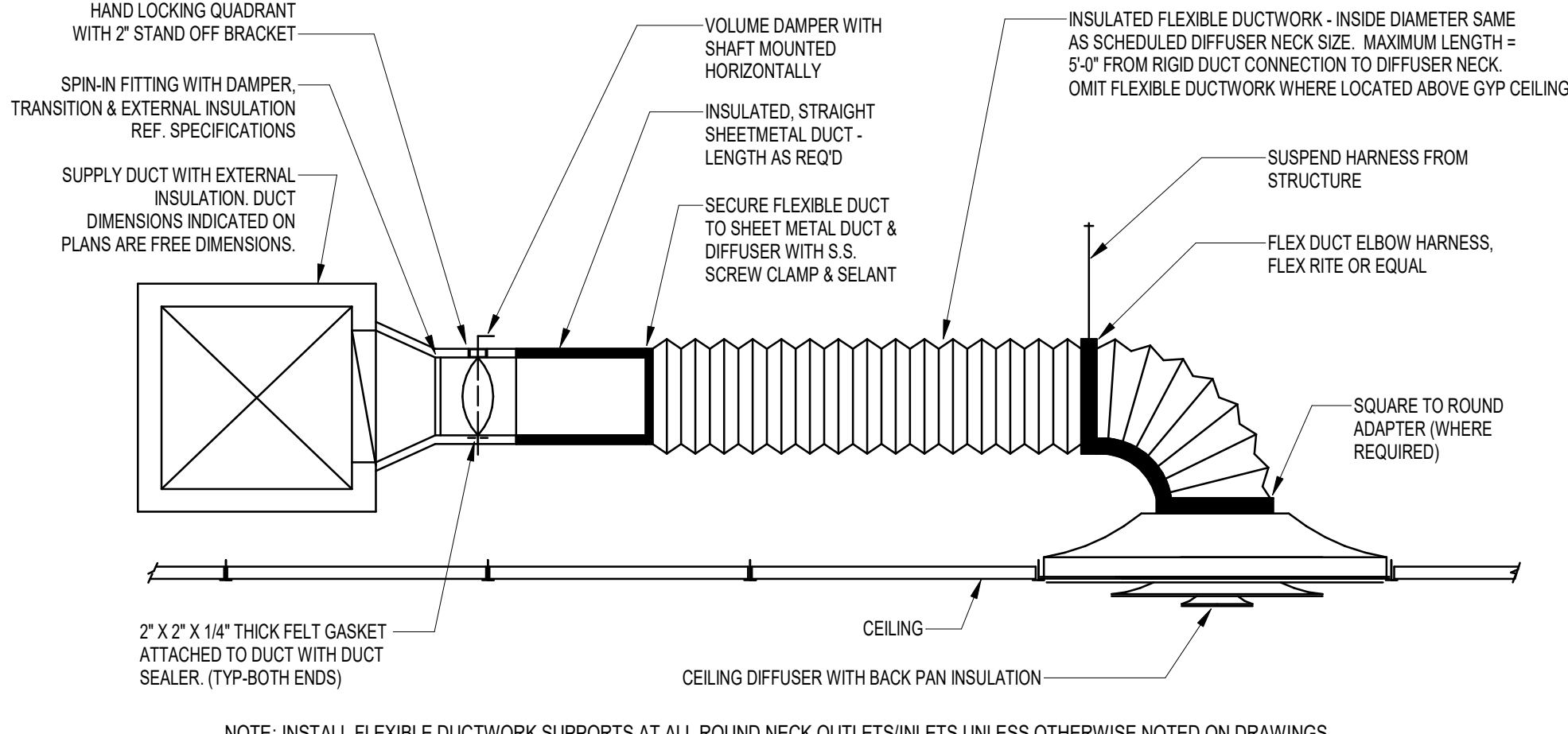
A2 ROOFTOP GREASE EXHAUST FAN DETAIL
N.T.S.



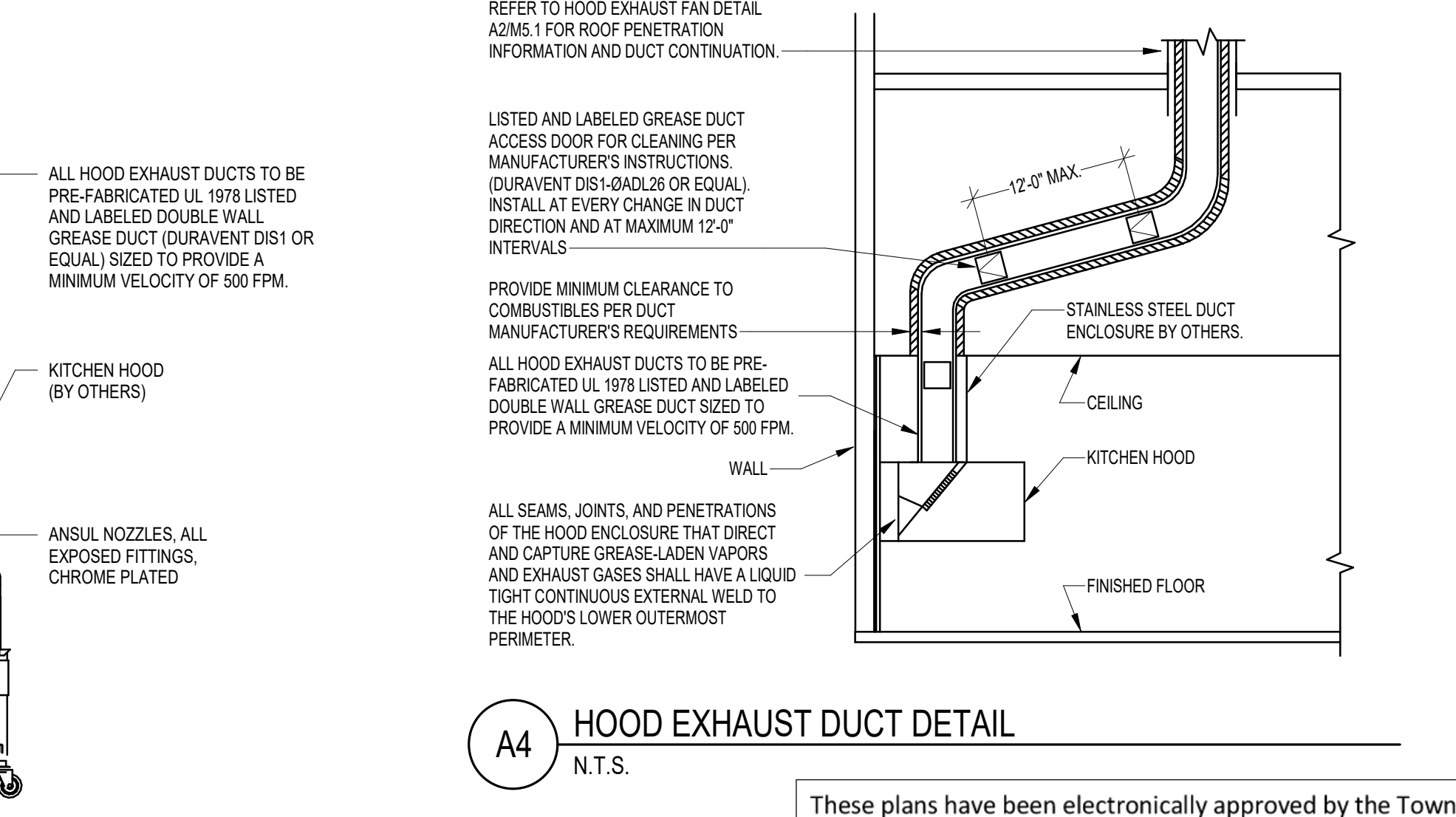
C4 PIPING THROUGH ROOF DETAIL
N.T.S.



C5 ROOFTOP PIPE SUPPORT DETAIL
N.T.S.



B2 DIFFUSER CONNECTION DETAIL
N.T.S.



A4 HOOD EXHAUST DUCT DETAIL
N.T.S.

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Planning

PREPARED FOR:

Whataburger

Architecture
Engineering
Environmental
Land Surveying
Companies

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Prototype Version

09.30.2024 2024 Q3 PT22M Prototype Release

Date	Description
1 8.18.2025	MECHANICAL EQUIPMENT UPDATE

Seal / Signature

Project Name

WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number

2301794

Description

MECHANICAL DETAILS

Scale

NOT TO SCALE

Scale

NOT TO SCALE

M5.1

ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	SUPPLY FAN					COOLING SECTION						HEATING SECTION					ELECTRICAL				FILTER TYPE	WEIGHT INCL. CURB (LBS)	NOTES						
				TOTAL SUPPLY CFM	OUTSIDE AIR CFM	RETURN AIR CFM	ESP (WG)	HP	TYPE	REFRIG. TYPE	AMBIENT (°F) DB/WB	TOTAL OUTPUT (MBH)	SENS. OUTPUT (MBH)	MAT (°F) DB/WB	LAT (°F) DB/WB	IEER / ISMRE2	HOT GAS REHEAT (MBH)	TYPE	AMBIENT (°F) DB/WB	INPUT (MBH)	OUTPUT (MBH)	STAGES	GAS PRESS. MIN / MAX (”WC)				MAT (°F) DB/WB	LAT (°F) DB/WB	VOLTS	PH	MCA	MOP
RTU-1	CAPTIVEAIRE	CAS-HVAC3-1300-20-20T	KITCHEN	3850	2460	1390	1.0	5.0	DX	R-454B	94.078.4	236.1	139.4	86.973.4	52.852.3	18.2/7.9	74.6	NAT. GAS	18.8/18.0	270.0	218.7	6.1	7.0/14.0	36.131.8	90.957.9	208	3	96.7	110	2” MERV 13	2781	ALL
RTU-2	CAPTIVEAIRE	CAS-HVAC3-1200-15-15T	DINING	2050	1550	500	1.0	2.0	DX	R-454B	94.078.4	193.3	86.5	88.973.4	48.746.6	18.8/8.3	47.0	NAT. GAS	18.8/18.0	192.6	156	6.1	7.0/14.0	30.327.6	105.662.8	208	3	66.3	70	2” MERV 13	2580	ALL

NOTES:

- PROVIDE WITH PREMIUM EFFICIENCY MOTORS IN ACCORDANCE WITH NEMA MG-1. PROVIDE SUPPLY FAN VFD.
- PROVIDE WITH FACTORY INSTALLED RETURN AIR SMOKE DETECTOR AND FIELD INSTALLED SUPPLY AIR SMOKE DETECTOR TO SHUT DOWN UNIT UPON SMOKE DETECTION. COORDINATE CONNECTIONS TO FIRE ALARM SYSTEM WITH FA CONTRACTOR AND GC.
- PROVIDE WITH TERMINAL STRIP FOR FIELD INSTALLED CONTROLS.
- UNITS TO BE 2” DOUBLE WALL R-13 CONSTRUCTION WITH 2500-HOUR SALT SPRAY RESISTANT PAINT.
- UNIT TO HAVE MODULATING HOT GAS REHEAT WITH SPACE DEWPOINT CONTROL. INTAKE AND DISCHARGE TEMPERATURE SENSORS SHALL BE FACTORY INSTALLED. PROVIDE FIRESTAT AND FREEZE/STAT.
- PROVIDE FACTORY INSTALLED HAIL GUARDS.
- PROVIDE VARIABLE SPEED COMPRESSORS, ECM CONDENSING FANS, ELECTRONIC EXPANSION VALVE, HIGH/LOW REFRIGERATION PRESSURE MONITORING, AND REFRIGERANT LEAK DETECTOR.
- PROVIDE STAINLESS STEEL DRAIN PAN AND FACTORY MOUNTED AND WIRED CONDENSATE FLOW SWITCH.
- PROVIDE LOW LEAKAGE ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL, BAROMETRIC RELIEF DAMPER, AND FAULT DETECTION AND DIAGNOSTIC.
- PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER WITH MODULATING CONTROL AND PRESSURE GAUGE.
- PROVIDE FACTORY NON-FUSED DISCONNECT SWITCH. GFCI CONVENIENCE RECEPTACLE SHALL BE FIELD INSTALLED. COORDINATE WITH EC.
- DOWN DISCHARGE AND DOWN RETURN. PROVIDE 14” HIGH INSULATED, SOLID BOTTOM CURB FOR PITCHED ROOF. MECHANICAL CONTRACTOR TO FIELD CUT SUPPLY AND RETURN OPENINGS AS REQUIRED.
- PROVIDED CLOGGED FILTER SWITCH AND LOUVERED OUTDOOR AIR INTAKE WITH METAL MESH FILTERS.
- CAPTIVEAIRE UNITS PROVIDED BY WHATABURGER. FACTORY STARTUP IS INCLUDED. CONTACT BRADLEY CANNAN @ 210-647-7244 OR bradley.cannan@captivaire.com TO COORDINATE STARTUP.

HVAC KITCHEN HOOD SCHEDULE

MARK	MANUFACTURER	MODEL	DESCRIPTION	EXHAUST VENT DIAMETER	EXHAUST AIRFLOW (CFM)	TYPE
KH-1	H&K DALLAS INC.	CUSTOM	8” DOUBLE SIDED GRILL HOOD	16”	1994	TYPE I
KH-2	H&K DALLAS INC.	CUSTOM	10-BASKET FRYER HOOD	12”	1216	TYPE I

NOTES:

- EQUIPMENT MANUFACTURER SHALL PROVIDE ALL HANGING MATERIALS FOR KITCHEN HOOD.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	TYPE	AIRFLOW (CFM)	TSP (”WG)	RPM	BHP	HP	DRIVE TYPE	VOLTS	PH	WEIGHT (LBS.)	NOTES
EF-1	GREENHECK	G-080-VG	ROOF-MOUNTED CENTRIFUGAL DOWNBLAST	300	0.50	1680	0.07	0.10	DIRECT	120	1	44	1.2,3
KEF-1	GREENHECK	CLUE-140-VG	ROOF-MOUNTED CENTRIFUGAL UPBLAST	1994	1.00	1517	0.64	1.00	DIRECT	208	1	148	3,4,5,6
KEF-2	GREENHECK	CLUE-120-VG	ROOF-MOUNTED CENTRIFUGAL UPBLAST	1216	0.75	1415	0.25	0.50	DIRECT	208	1	115	3,4,5,6

NOTES:

- PROVIDE INSULATED 18” HIGH ROOF CURB WITH DAMPER TRAY AND MOTORIZED DAMPER WITH END SWITCHES AND SPRING RETURN ACTUATOR.
- PROVIDE ALUMINUM BIRD SCREEN.
- PROVIDE WITH INTEGRAL DISCONNECT SWITCH NEMA-3R.
- PROVIDE GREASE BOX.
- PROVIDE INSULATED AND VENTED 24” HIGH ROOF CURB AND HIGH TEMPERATURE CURB SEAL.
- PROVIDE HINGED ACCESS KIT.

FLEX DUCT SCHEDULE

CFM RANGE	SIZE (DIAMETER)
< 50	5
51 - 100	6
101 - 250	8
251 - 400	10
401 - 650	12
651 - 900	14
901 - 1300	16
1301 - 1800	18
1800 - 2300	20

NOTES:

- ALL FLEX DUCT SHALL BE SIZED IN ACCORDANCE WITH FLEX DUCT SCHEDULE. PROVIDE RIGID REDUCER AT NECK OF AIR DEVICE TO TRANSITION FROM FLEX DUCT SIZE TO DIFFUSER INLET CONNECTION SIZE. FLEX DUCT LENGTH NOT TO EXCEED 5 FT.

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	FACE SIZE (IN.)	NECK SIZE (IN.)	MAX NC	PATTERN	MOUNTING	SLOT LENGTH	SLOT WIDTH	SLOT QTY	SYSTEM CLASS.	COMMENTS
A1	TITUS	TMS	24x24	6	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
A2	TITUS	TMS	24x24	6	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
A3	TITUS	TMS	24x24	10	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
A4	TITUS	TMS	24x24	12	30	4-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
A5	TITUS	TMS	24x24	12	30	3-WAY	LAY-IN	-	-	-	SUPPLY AIR	1
B1	TITUS	TMS	12x12	6	30	4-WAY	FLANGE	-	-	-	SUPPLY AIR	1.2
C1	TITUS	350FLF1	22x22	18x18	30	-	FLANGE	-	-	-	RETURN AIR	2.5
C2	TITUS	350FLF1	24x24	20x20	30	-	LAY-IN	-	-	-	RETURN AIR	5
F1	TITUS	50F	12x12	8x8	30	-	FLANGE	-	-	-	EXHAUST AIR	2
H1	TITUS	TBDI-30	48x1-34	6	30	2-WAY	FLANGE	48	34	1	SUPPLY AIR	3
H2	TITUS	TBDI-80	48x5	8	30	2-WAY	FLANGE	48	1-1/2	2	SUPPLY AIR	3
H3	TITUS	TBDI-80	36x7-1/2	8	30	2-WAY	FLANGE	36	1-1/2	3	SUPPLY AIR	3
L1	TITUS	FL-15-JT	SEE PLANS	-	30	1-WAY	FLANGE	CONTINUOUS	1-1/2	1	SUPPLY AIR	4
P1	TITUS	FBPI	60 X 3-1/2	6	30	-	FLANGE	60	-	-	SUPPLY AIR	3
P2	TITUS	FBPI	48 X 3-1/2	6	30	-	FLANGE	48	-	-	SUPPLY AIR	3

NOTES:

- PROVIDE MOLDED INSULATION BLANKET (R-6).
- PROVIDE PLASTER FRAME FOR MOUNTING IN GYP. CEILING.
- PROVIDE INSULATED PLENUM.
- CONTINUOUS LINEAR SLOT DIFFUSER TO BE INSTALLED IN GYP. CEILING. PROVIDE INSULATED SUPPLY AIR PLENUMS AS SCHEDULED FOR A COMPLETE SYSTEM.
- PROVIDE 1” MERV-5 FILTER.

2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS MECHANICAL DESIGN (PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: 18.8°F
summer dry bulb: 94.0°F
relative humidity: 50%

Interior design conditions
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 50%

Building heating load: 374.7 MBh

Building cooling load: 449.4 MBh

Mechanical Spacing Conditioning System
Unitary description of unit: Packaged RTUs
heating efficiency: 81%
cooling efficiency: 18.2 to 18.8 IEER, 7.9 to 8.3 ISMRE2
size category of unit: 15 to 20 tons
Refrigerant: R-454B
Size category. If oversized, state reason: N/A
Chiller: N/A
Size category. If oversized, state reason: N/A

List equipment efficiencies: See Above

COMcheck Software Version 4.1.5.1 Mechanical Compliance Certificate

Project Information
Energy Code: 2018 IECC
Project Title: Whataburger
Location: Wake Forest, North Carolina
Climate Zone: 4a
Project Type: New Construction

Construction Site: NC Highway 98 & Ligon Mill Rd
Wake Forest, NC
Owner/Agent: Whataburger
Designer/Contractor: BL Companies, Inc.
355 Research Parkway
Meriden, CT 06450

Additional Efficiency Package(s)
Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.

Mechanical Systems List
Quantity System Type & Description

- RTU-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 270 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et
Cooling: 1 each - Single Package DX Unit, Capacity = 256 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 12.50 EER, Required Efficiency: 9.80 EER + 11.4 IEER
Fan System: FAN SYSTEM 1 | RTU-1 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 1 Supply, Constant Volume, 3850 CFM, 5.0 motor nameplate hp, 1.1 fan efficiency grade
- RTU-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 193 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE
Cooling: 1 each - Single Package DX Unit, Capacity = 130 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 13.10 EER, Required Efficiency: 11.00 EER + 12.6 IEER
Fan System: FAN SYSTEM 2 | RTU-2 -- Compliance (Motor nameplate HP method) : Passes
Fans:
FAN 2 Supply, Constant Volume, 2050 CFM, 2.0 motor nameplate hp, 1.5 fan efficiency grade
- GWH-1:
Gas Storage Water Heater, Capacity: 50 gallons, Input Rating: 100 kBtu/h w/ Circulation Pump
Proposed Efficiency: 96.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement
Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Philip Anderson - Project Engineer
Signature: *Philip Anderson* Date: 08/15/2025

Project Title: Whataburger Report date: 08/15/25
Data filename: G:\052316\2301794\DOCS\Comcheck\2302249-Comcheck WB Wake Forest, NC 2025.cck

AIR BALANCE AND VENTILATION CALCULATION:

TOTAL OUTSIDE AIR INTAKE = 4010 CFM
TOTAL GREASE HOOD EXHAUST = 3210 CFM
TOTAL RESTROOM EXHAUST = 300 CFM

OUTSIDE AIRFLOW - (GREASE HOOD EXHAUST AIRFLOW + RESTROOM EXHAUST AIRFLOW) = NET POSITIVE AIRFLOW
4010 CFM - (3210 + 300) = 500 CFM

BALANCE REPORT TO BE PROVIDED TO INSPECTOR, OWNER, AND ARCHITECT/ENGINEER FOR REVIEW AND APPROVAL.

VENTILATION CALCULATION PER IMC 2015, TABLE 403.3.1.1:

HVAC UNIT	AREA SERVED	CLASSIFICATION	OCCUPANT LOAD	REQUIRED VENTILATION	O.A./E.A. REQUIRED (CFM)	O.A./E.A. DESIGN (CFM)	REMARKS
RTU-1	EXPEDITED DELIVERY 106	KITCHENS (COOKING)	2 (73 SQFT)	0 CFM / PERSON 0 CFM / SQFT	0	220	
	COOKING 107	KITCHENS (COOKING)	15 (745 SQFT)	0 CFM / PERSON 0 CFM / SQFT	0	1629	
	OFFICE 110	OFFICE SPACES	1 (53 SQFT)	5 CFM / PERSON 0.06 CFM / SQFT	8	58	
	DRY STORAGE 111	STORAGE ROOMS	0 (458 SQFT)	0 CFM / PERSON 0.12 CFM / SQFT	55	412	
	WASH ROOM 112	KITCHENS (COOKING)	2 (93 SQFT)	0 CFM / PERSON 0 CFM / SQFT	0	45	
RTU-2	MEN 103 / WOMEN 104	TOILET ROOMS	0 (216 SQFT)	0 CFM / PERSON 0 CFM / SQFT	0	96	
	CALCULATED OUTSIDE AIR FOR SYSTEM TOTAL				63	2460	OA ADDED FOR KITCHEN EXHAUST MAKEUP
	ENTRY 100 / HALL 102	CORRIDOR	0 (147 SQFT)	0 CFM / PERSON 0.06 CFM / SQFT	9	76	
	DINING ROOM 101	CAFETERIA, FAST FOOD	88 (882 SQFT)	7.5 CFM / PERSON 0.16 CFM / SQFT	819	1346	
EF-1	SERVING AREA 105	RECEPTION AREAS	3 (94 SQFT)	5 CFM / PERSON 0.06 CFM / SQFT	21	128	
	CALCULATED OUTSIDE AIR FOR SYSTEM TOTAL				849	1550	OA ADDED FOR KITCHEN EXHAUST MAKEUP
	MEN 103	TOILET ROOMS (INTERMITTENT)	2 W.C.	70 CFM / W.C.	140	150	
KEF-1, KEF-2	WOMEN 104	TOILET ROOMS (INTERMITTENT)	2 W.C.	70 CFM / W.C.	140	150	
	CALCULATED EXHAUST AIR FOR SYSTEM TOTAL				280	300	
KEF-1, KEF-2	TOTAL KITCHEN AREAS	KITCHENS (COOKING)	911 SQFT	0.7 CFM / SQFT	638	3210	
	CALCULATED EXHAUST AIR FOR SYSTEM TOTAL				638	3210	EA ADDED FOR GREASE HOOD OPERATION

These plans have been electronically approved by the Town of Wake Forest Planning Department. This approval may not be altered once issued.

Planning

PREPARED FOR:



Whataburger



**Architecture
Engineering
Environmental
Land Surveying
Companies**

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Prototype Version
09.30.2024 2024 Q3 PT22M Prototype Release

Date Description
1 8.18.2025 MECHANICAL EQUIPMENT UPDATE

Seal / Signature



Project Name
WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number
2301794

Description
MECHANICAL SCHEDULES

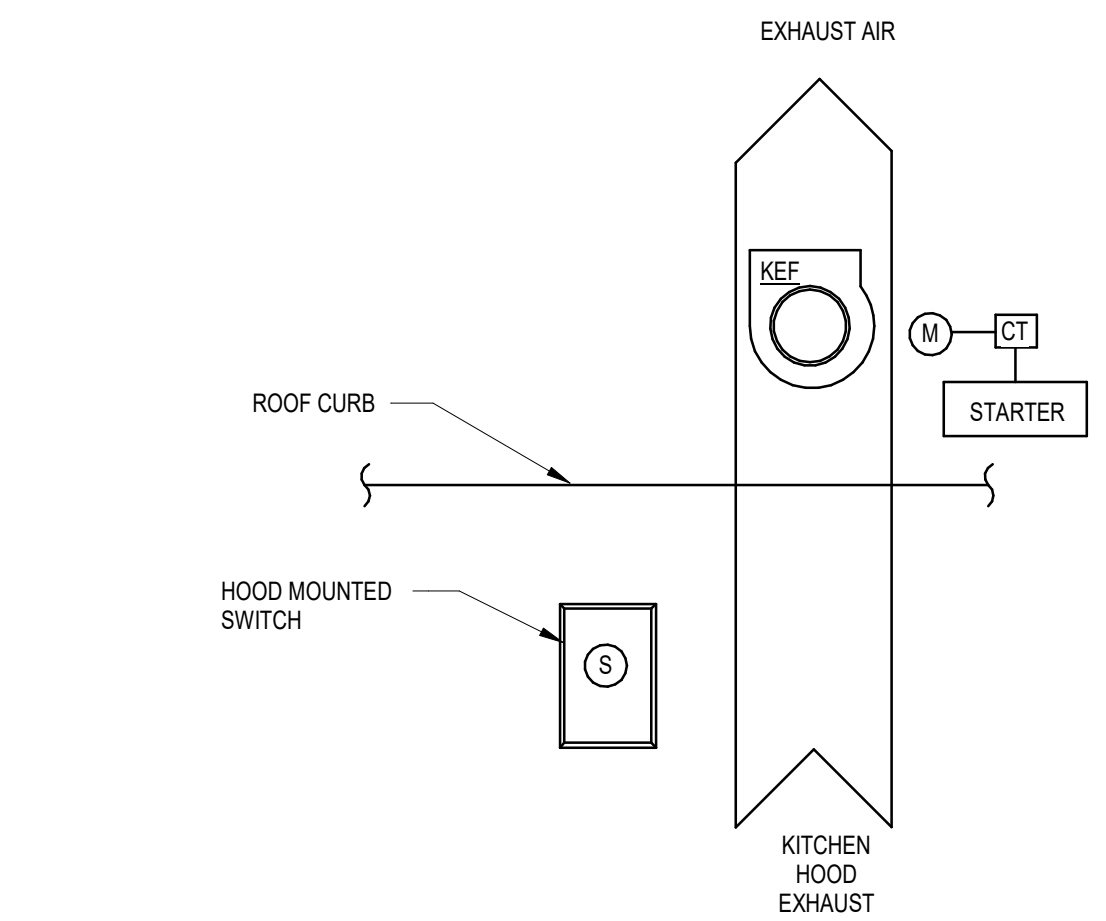
Scale
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M6.1

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CONTROL SYMBOLS

AE	ANALYZER ELEMENT		CARBON MONOXIDE SENSOR
DDC	DIRECT DIGITAL CONTROL		COMMUNICATION SIGNAL
BMS	BUILDING MANAGEMENT SYSTEM		HIGH STATIC PRESSURE SENSOR
RDC	ROOFTOP UNIT DDC CONTROLLER		DAMPER ACTUATOR
FACP	FIRE ALARM CONTROL PANEL		CONTROL VALVE
	DIFFERENTIAL PRESSURE INDICATOR		DX COOLING COIL
	DIFFERENTIAL PRESSURE SWITCH		NATURAL GAS HEATING COIL
	DIFFERENTIAL PRESSURE TRANSMITTER		HOT GAS REHEAT
	ELECTRIC DUCT HEATER		SUPPLY AIR FAN
	EXHAUST FAN		
	FLOW ELEMENT		
	FILTER		
	FLOW SWITCH		
	HUMIDISTAT		
	HIGH TEMPERATURE LIMIT SWITCH		
	MOTOR		
	PRESSURE CONTROL VALVE		
	PRESSURE TRANSMITTER		
	SMOKE DETECTOR		
	TEMPERATURE SENSOR		
	TEMPERATURE CONTROL VALVE		
	LOW LIMIT THERMOSTAT (FREEZE/STAT)		
	TEMPERATURE TRANSMITTER		
	VARIABLE FREQUENCY DRIVE		
	MOTOR STARTER (PROVIDE CONTROL RELAY)		
	CURRENT TRANSDUCER		
	OCCUPANCY SENSOR		



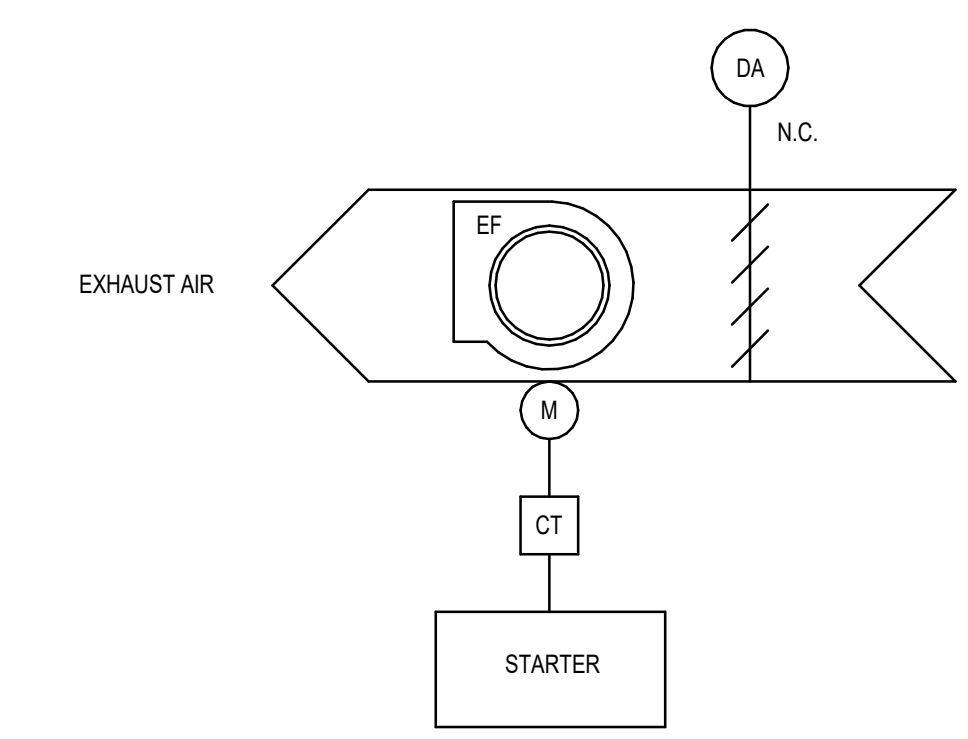
SEQUENCE OF OPERATION

OPERATING CONDITIONS - CONTINUOUS 24/7:
THE KITCHEN HOOD EXHAUST FAN SHALL RUN CONTINUOUSLY WHEN THE KITCHEN HOOD MOUNTED SWITCH IS ON.

INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM:
UPON ACTIVATION OF THE INTEGRATED ANSUL FIRE SUPPRESSION SYSTEM DURING NORMAL KITCHEN OPERATION, THE KITCHEN HOOD EXHAUST FAN SHALL REMAIN ENERGIZED.

FIRE/SMOKE CONTROL:
UPON SENSING DUCT SMOKE, THE KITCHEN EXHAUST FAN SHALL BE CYCLED OFF. FAN STATUS SHALL BE REPORTED TO THE BAS.

B1 KITCHEN HOOD EXHAUST FAN CONTROL DIAGRAM
N.T.S.

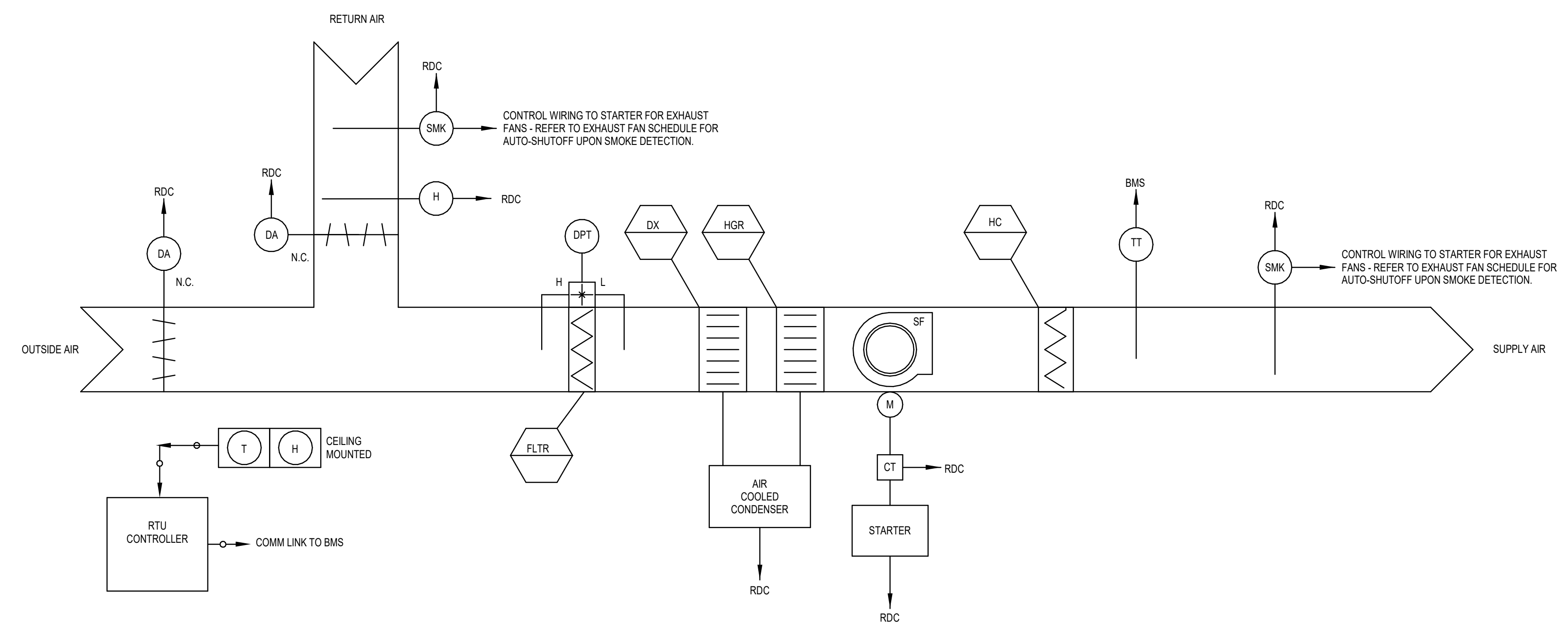


SEQUENCE OF OPERATION

OPERATING CONDITIONS:
THE GENERAL EXHAUST FAN SHALL BE INTERLOCKED WITH THE RESTROOM OCCUPANCY SENSORS. THE EXHAUST FAN SHUTOFF DAMPER SHALL BE INTERLOCKED WITH THE EXHAUST FAN TO OPEN WHEN THE FAN IS ENERGIZED AND CLOSE WHEN THE FAN IS DE-ENERGIZED.

ALARMS:
ALARMS SHALL BE PROVIDED AS FOLLOWS:
1. FAN FAILURE: FAN COMMANDED ON BUT STATUS IS OFF.
2. FAN IN HAND: FAN COMMANDED OFF BUT STATUS IS ON.
3. FAN BELT FAILURE: MOTOR AMPERAGE READS ZERO AS MEASURED BY CURRENT TRANSDUCER.

B2 GENERAL EXHAUST FAN CONTROL DIAGRAM
N.T.S.



SEQUENCE OF OPERATION

OPERATING CONDITION - CONTINUOUS 24/7 (INTERLOCKED WITH KITCHEN EXHAUST)

THE PILOT RTU CONTROLLER (RDC) SHALL PERFORM ALL CONTROL, SAFETY AND INTERLOCKS AS DESCRIBED IN THE SEQUENCE OF OPERATION. THE BMS SHALL MONITOR THE RTU DDC CONTROLLER VIA BMS PROTOCOL COMMUNICATION AND/OR COMBINATION OF DISCRETE INPUT/OUTPUT POINTS. THE BMS SHALL OPERATE THE UNIT CONTINUOUSLY 24/7. WHEN THE UNIT IS DE-ENERGIZED BY THE BMS, THE FAN SHALL SHUT DOWN, THE OA DAMPER SHALL CLOSE. THE REFRIGERATION SYSTEM SHALL ALSO BE DE-ENERGIZED AND THE HEATING SYSTEM LOCKED OUT OF HEATING MODE.

THE BMS SHALL BE PROGRAMMED SO THAT THE HEATING AND COOLING SYSTEMS SHALL NEVER OPERATE SIMULTANEOUSLY.

TEMPERATURE CONTROL
OCCUPIED MODE - THE BMS WILL MAINTAIN THE FOLLOWING SPACE TEMPERATURE SETPOINTS:
• COOLING: 75°F, 55% RH (ADJUSTABLE)
• HEATING: 70°F (ADJUSTABLE)
SETBACK MODE - THE BMS WILL MAINTAIN THE FOLLOWING SPACE TEMPERATURE SETPOINTS:
• COOLING: 85°F (ADJUSTABLE) (ADJUST TO 80°F 1-HR PRIOR TO OCCUPANCY)
• HEATING: 60°F (ADJUSTABLE) (ADJUST TO 65°F 1-HR PRIOR TO OCCUPANCY)
THERE SHALL BE A DEADBAND OF +/- 5°F ON ALL TEMPERATURE CONTROL.

HUMIDITY CONTROL
IF THE RELATIVE HUMIDITY OF THE RETURN AIR EXCEEDS 80% (ADJUSTABLE) AND THERE IS NO CALL FOR COOLING IN THE SPACE, THE RDC SHALL ENABLE DEHUMIDIFICATION MODE OF THE RTU BASED ON ITS OWN INTERNAL CONTROLS UTILIZING HOT GAS REHEAT.

SEQUENCE OF OPERATION (CONTINUED)

ECONOMIZER OPERATION
BASED ON THE RTU INTERNAL DIFFERENTIAL ENTHALPY CONTROLS, THE RDC SHALL VARY THE OUTSIDE AIR DAMPER POSITION, BASED ON CALL FOR COOLING IN THE SPACE. THERE SHALL BE ONE FAN SPEED. THE RDC SHALL LOAD AND UNLOAD COMPRESSORS BASED ON THE UNIT INTERNAL CONTROLS TO CONDITION OR DEHUMIDIFY THE SPACE AS NEEDED.

UNIT SHUTDOWN
UNIT SHALL BE DE-ENERGIZED UPON DETECTION OF SMOKE IN UNIT OR BUILDING FIRE ALARM.

ALARMS
THE BMS SHALL MONITOR ALL SAFETIES ON THE REFRIGERATION SYSTEM AND THE HEATING SYSTEM THROUGH THE RDC COMMUNICATION PROTOCOL. ALL ABNORMAL CONDITIONS SHALL BE ALARMED AT THE BMS.

A. **FILTERS:**
THE RDC SHALL MONITOR THE STATIC PRESSURE DROP ACROSS THE FILTER BANK AND ALARM ON HIGH STATIC PRESSURE DROP. A DIFFERENTIAL PRESSURE SWITCH ACROSS THE FILTER SHALL INITIATE FILTER ALARM WHEN THE PRESSURE DROP ACROSS THE FILTER REACHES THE SETPOINT OF 1.0 INCHES W.C. (ADJUSTABLE).

B. **FIRE/SMOKE CONTROL:**
UPON ACTIVATION OF A DUCT SMOKE DETECTOR, THE BMS SHALL RECEIVE AN ALARM.

C. **GENERAL ALARM:**
ANY TROUBLE ALARM OR FAULT WITHIN THE UNIT ONBOARD CONTROLS WILL GENERATE A GENERAL ALARM TO THE BMS.

A1 PACKAGED ROOFTOP UNIT CONTROLS DIAGRAM
N.T.S.

These plans have been electronically approved by the Town of Wake Forest Planning Department. This approval may not be altered once issued.

Planning

PREPARED FOR:

Whataburger

BL Architecture
Engineering
Environmental
Land Surveying
Companies

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Prototype Version
09.30.2024 2024 Q3 PT22M Prototype Release

Date	Description
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Seal / Signature



Project Name
WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number
2301794

Description
MECHANICAL CONTROLS

Scale
NOT TO SCALE

M7.1

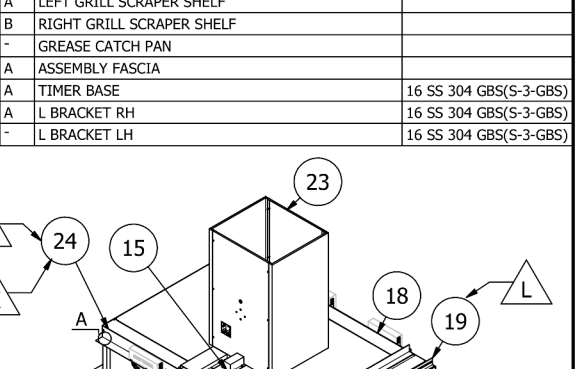
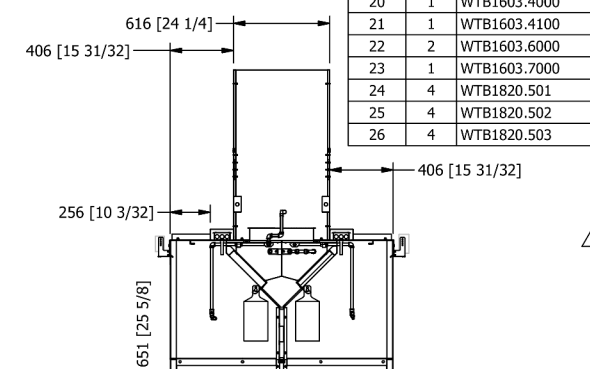
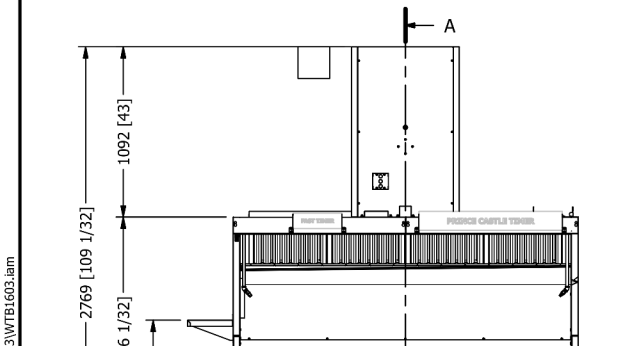
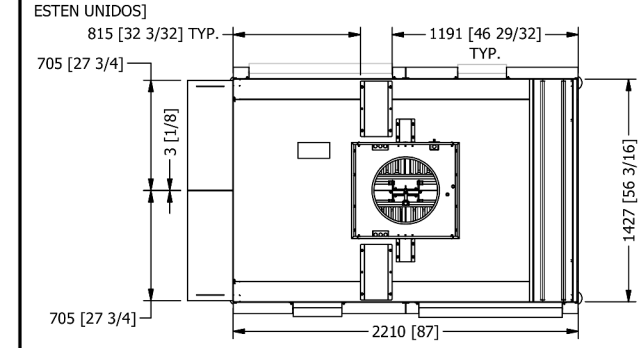
metric ALL DOCUMENTATION RELATED TO THIS UNIT IS TO BE KEPT WITH THE UNIT. (TODAS LA DOCUMENTACION RELACIONADA CON ESTA UNIDAD DEBE SER MANTENIDA CON LA UNIDAD.)

NOTA IMPORTANTE: POR FAVOR COMPRIERE QUE TODAS LAS BORNAS ESTAN COLOCADAS EN SU UBICACION CORRECTA. (PLEASE CHECK THAT ALL J BOX ARE PLACED IN THEIR CORRECT LOCATION.)

IMPORTANT NOTE: PLEASE CHECK THAT ALL J BOX ARE PLACED IN THEIR CORRECT LOCATION. (NOTA IMPORTANTE: POR FAVOR COMPRIERE QUE TODAS LAS BORNAS ESTAN COLOCADAS EN SU UBICACION CORRECTA.)

MEETS TYPE 1 HOOD REQUIREMENTS

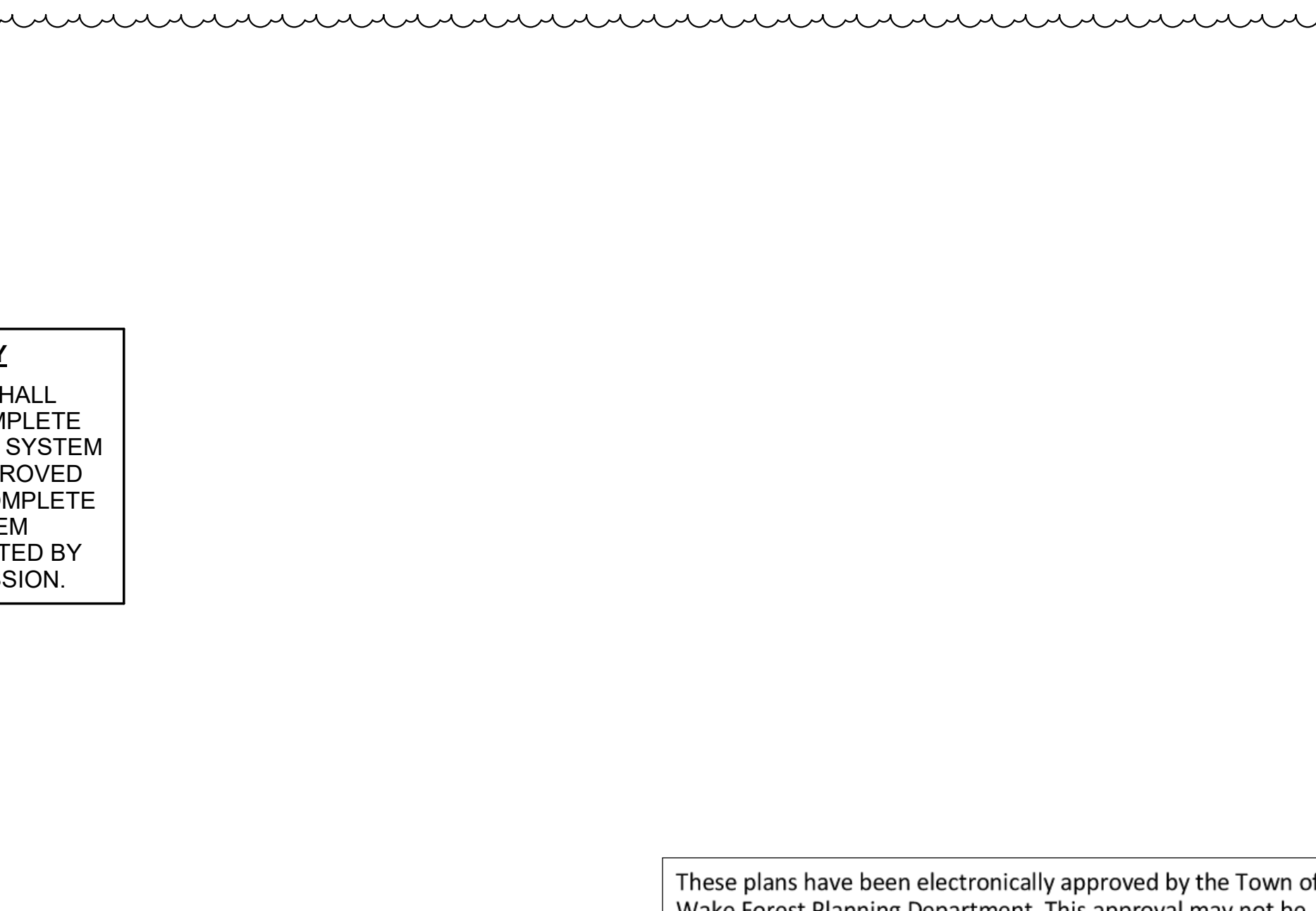
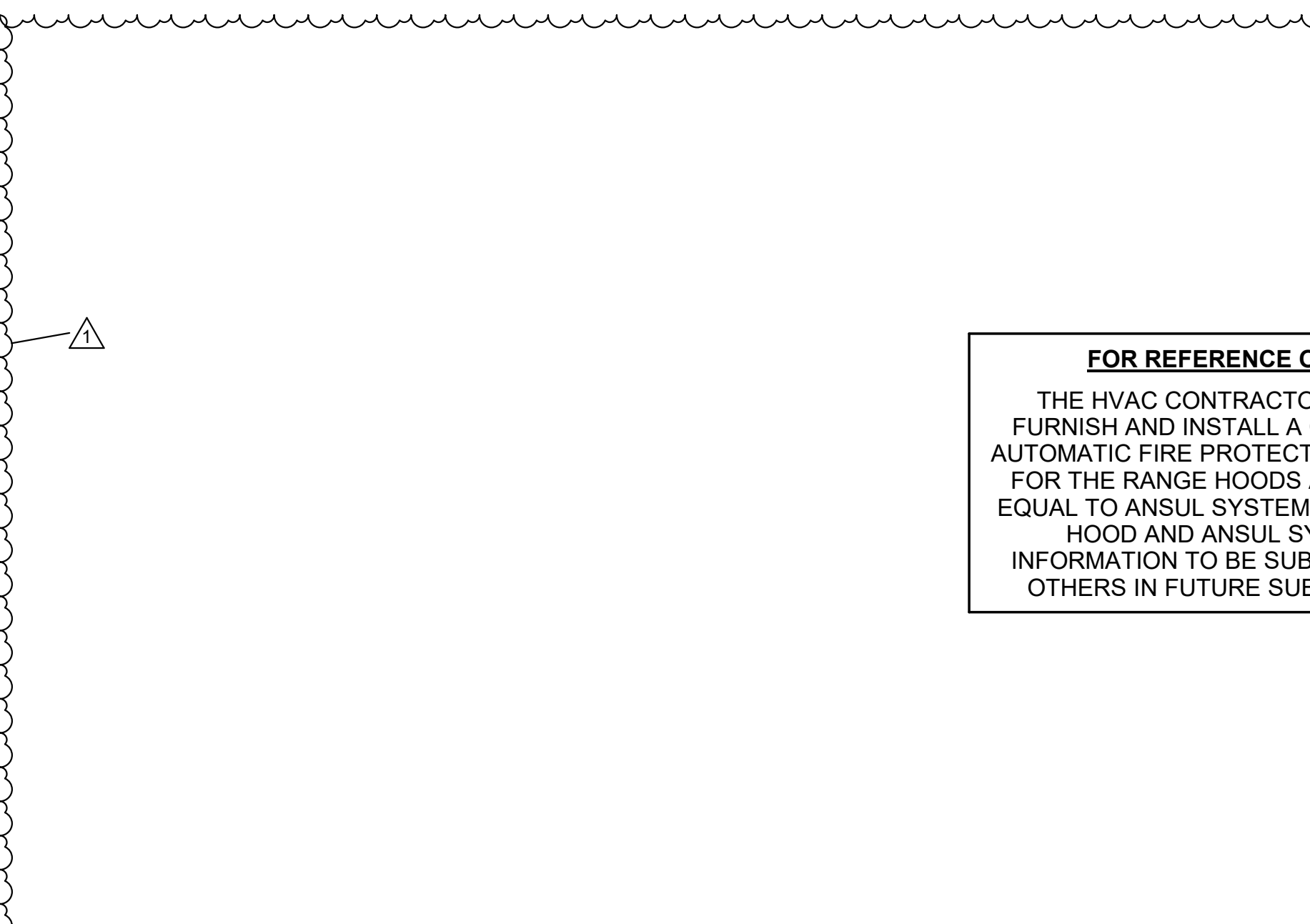
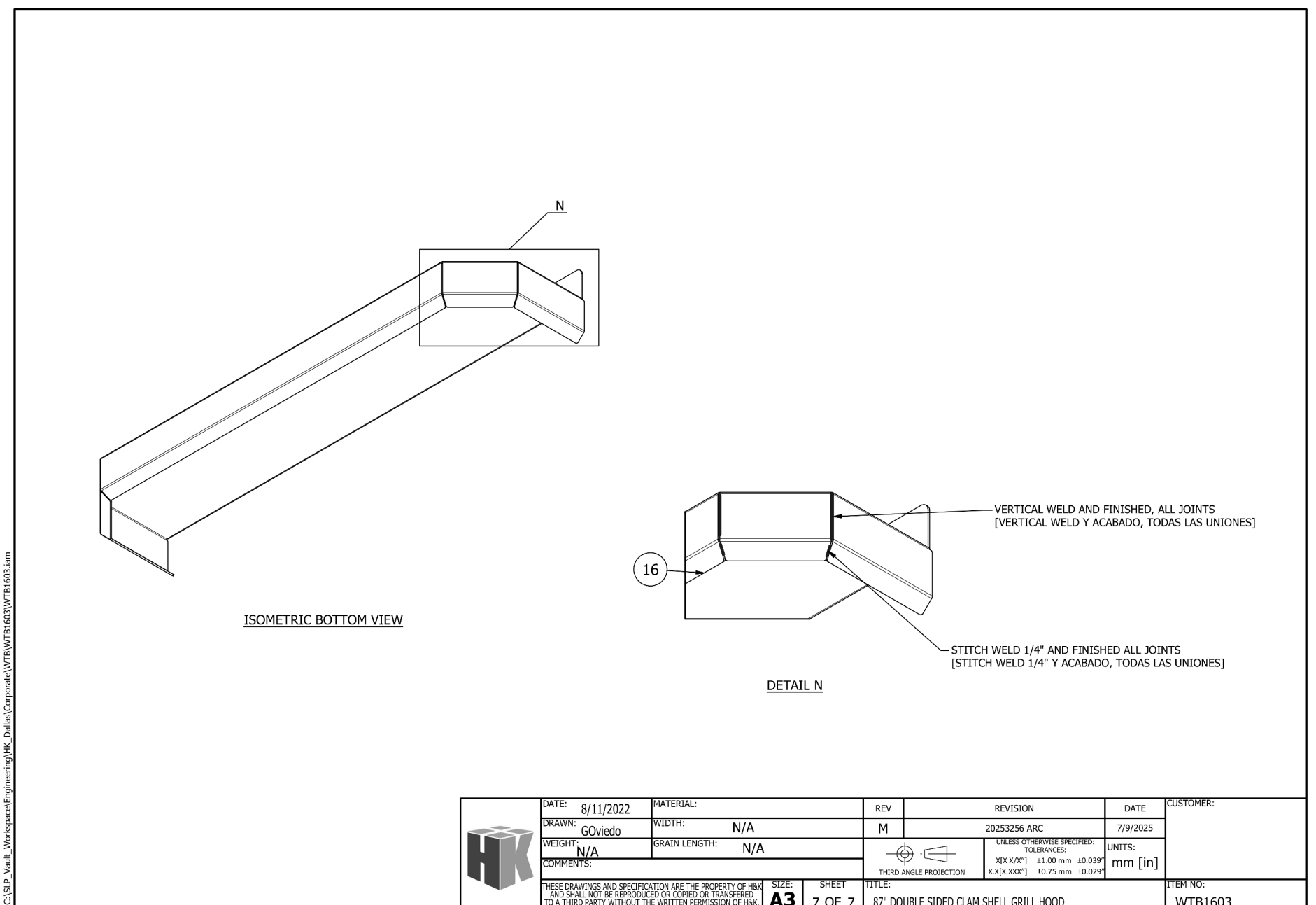
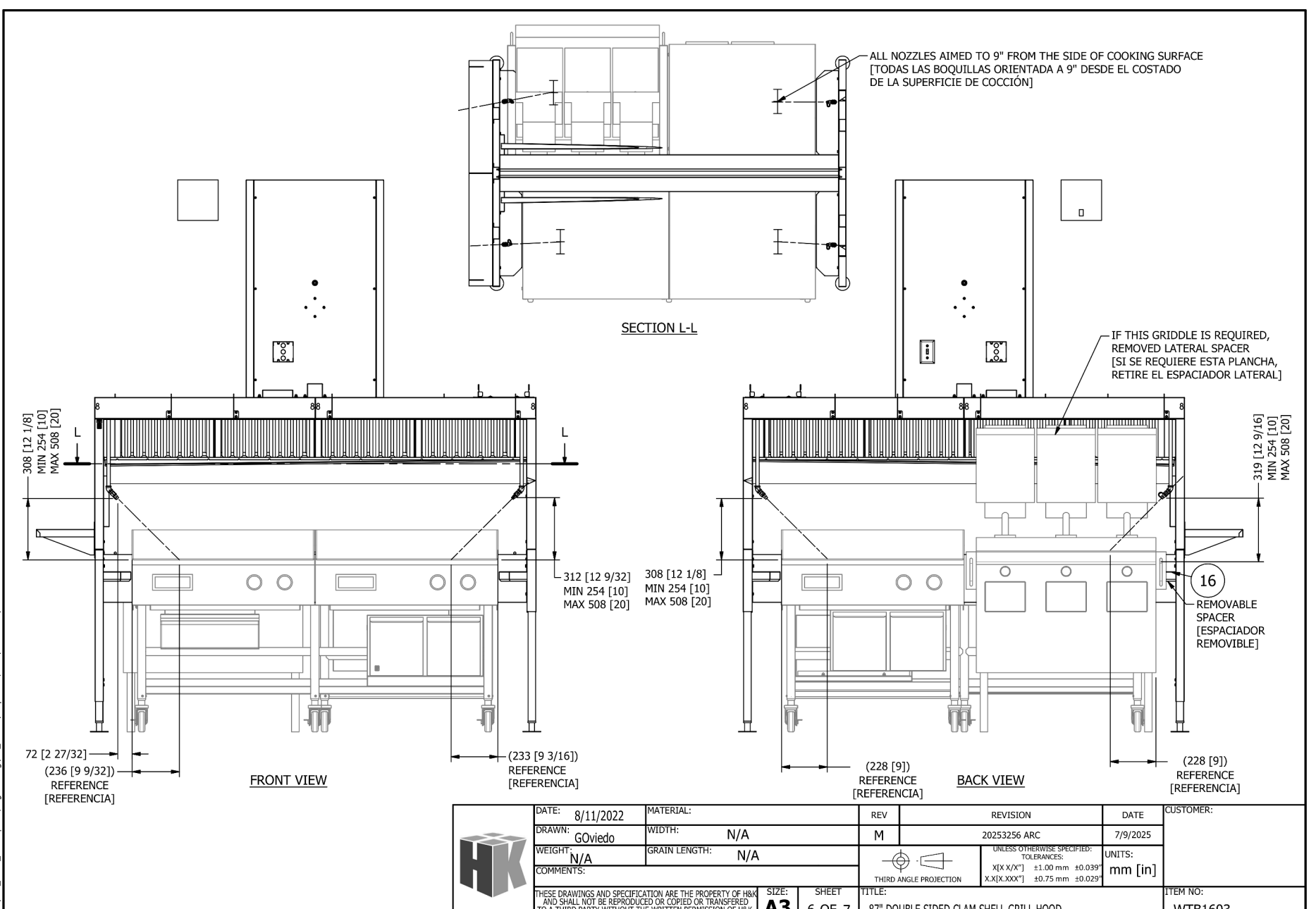
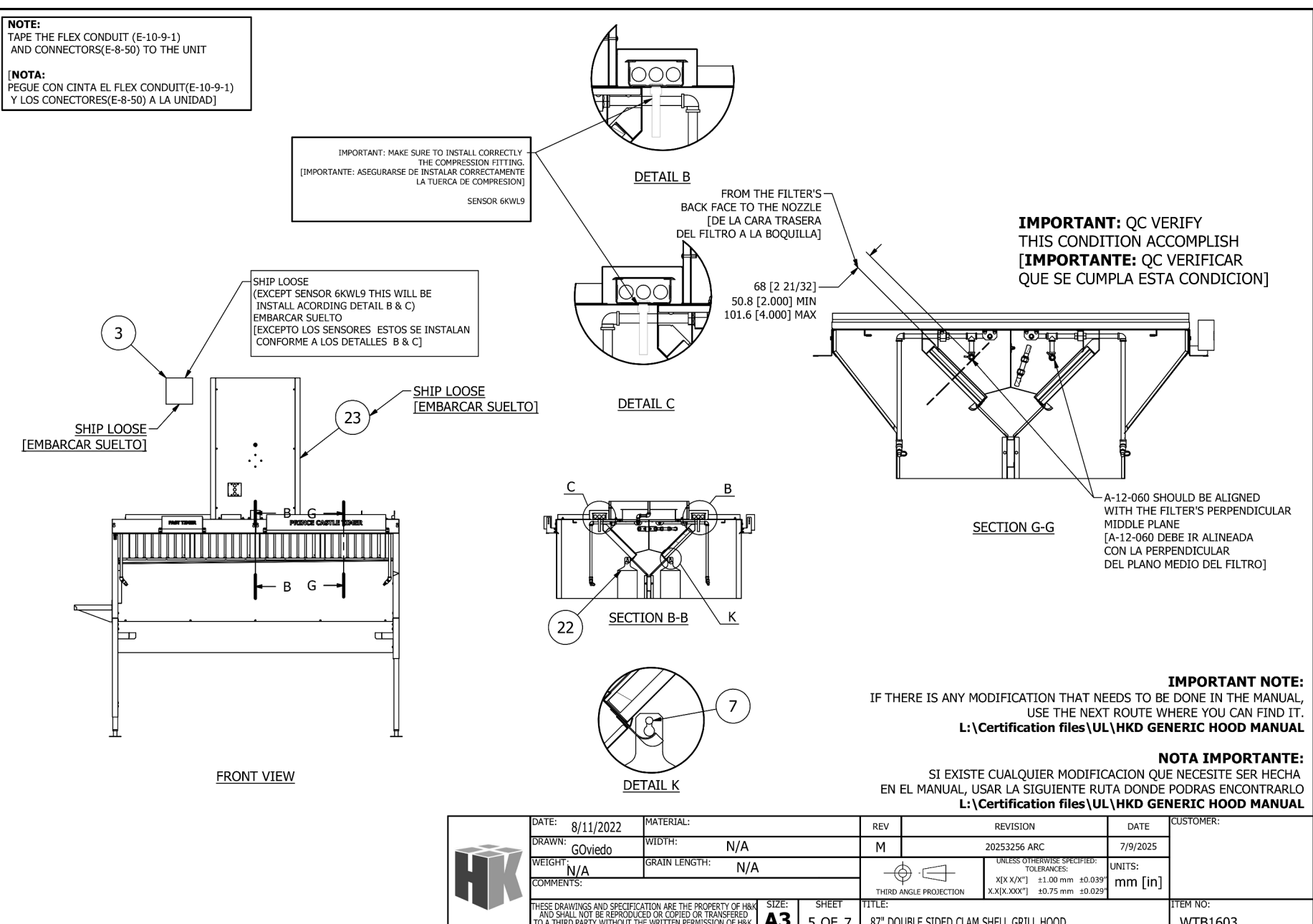
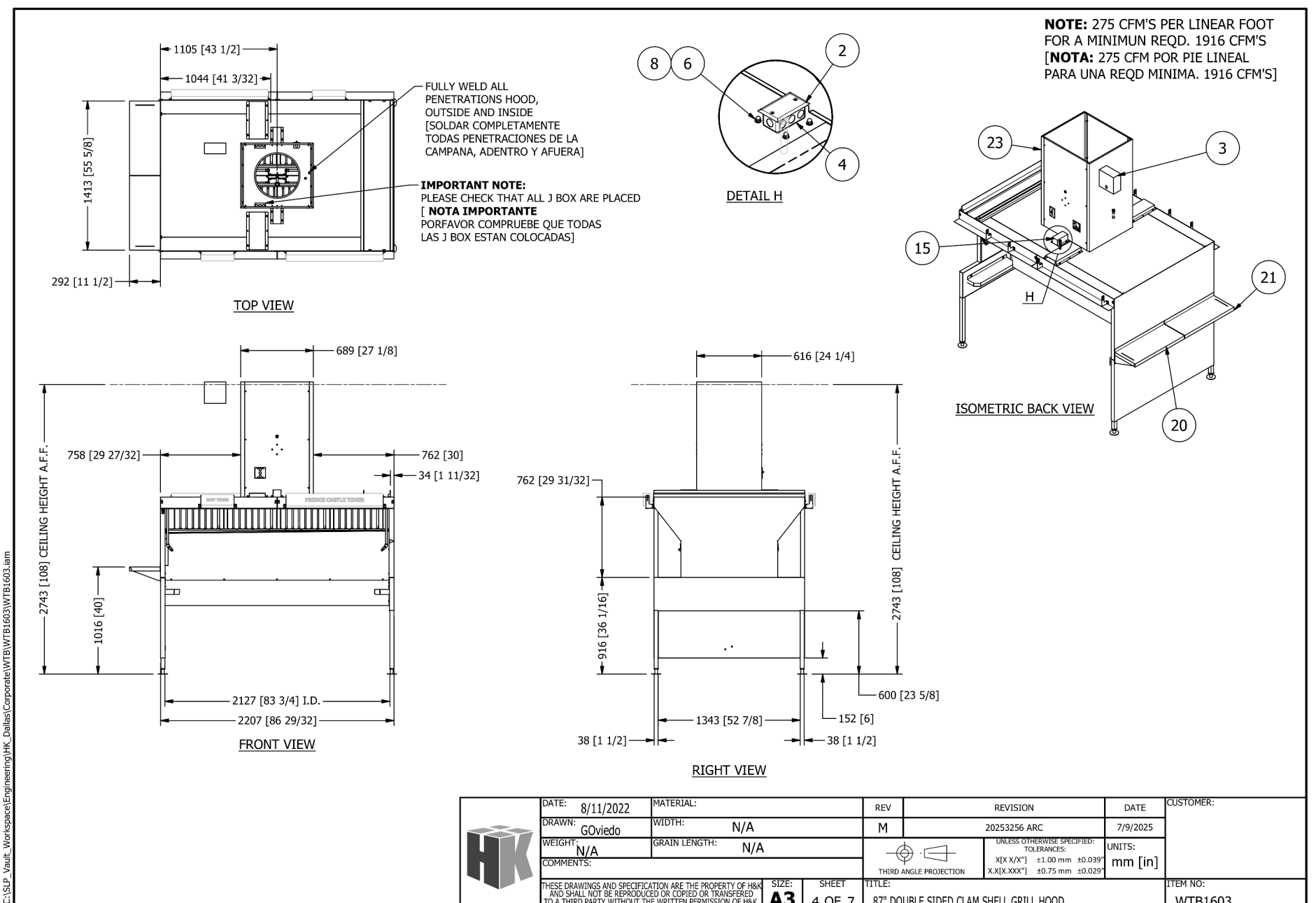
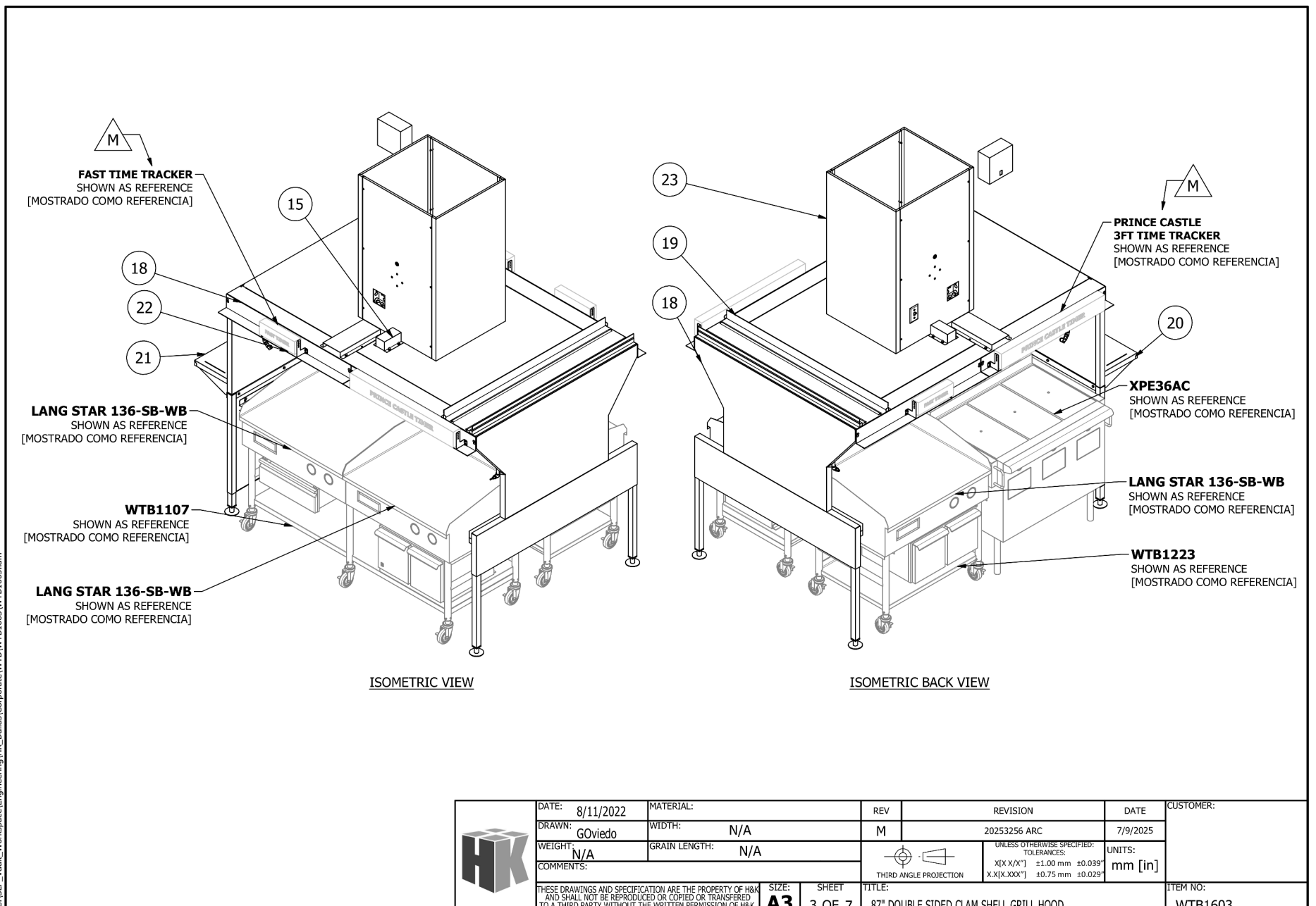
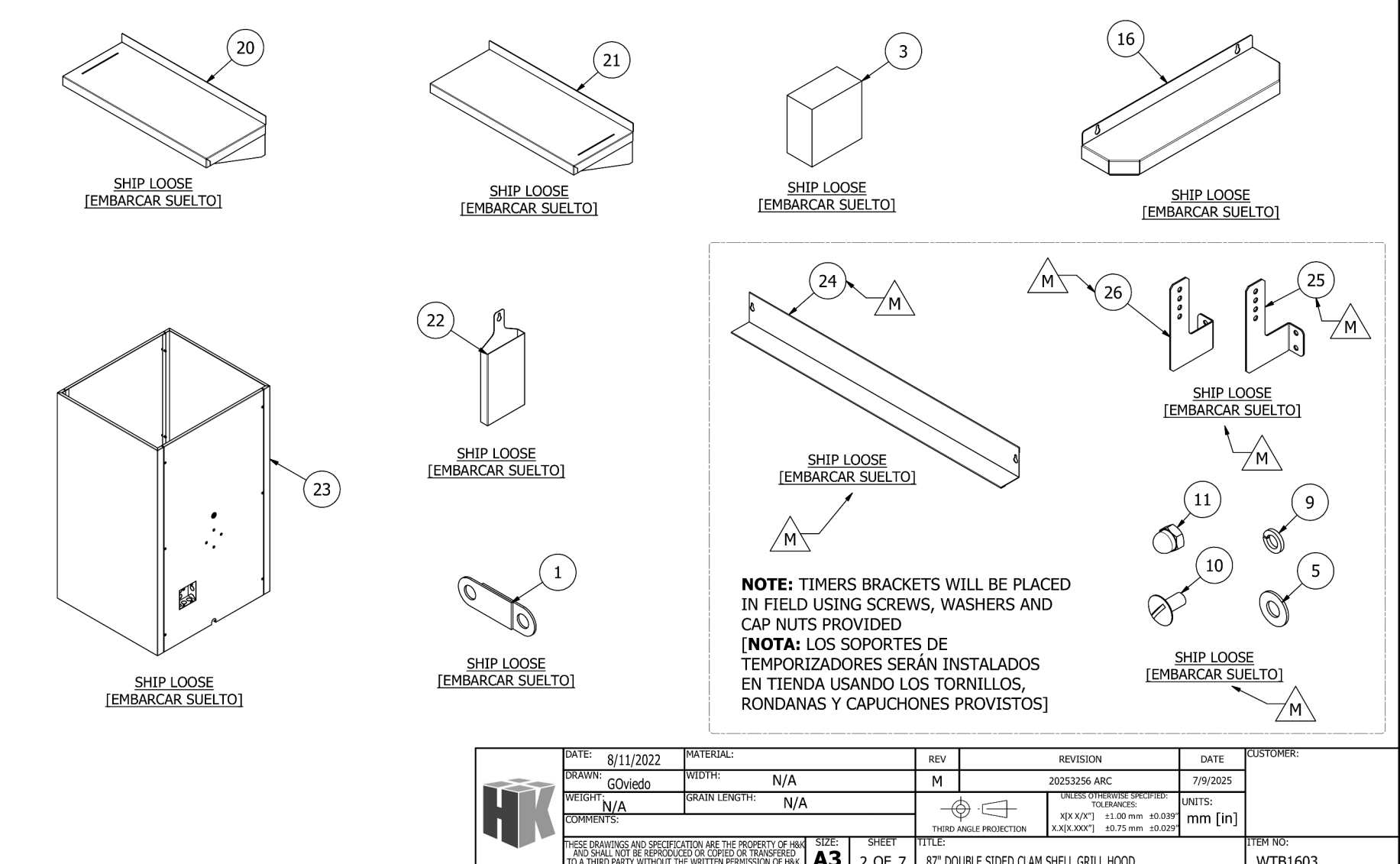
ITEM NO.	QTY	PART NUMBER	REV	DESCRIPTION	MATERIAL
1	6	A-12-023	-	PLUMBING LINE (25/80) 360 DEG. #415745	Generic
2	2	E-1-17	-	COVER BLANK, SS, 24" X 60" #73151	Generic
3	2	E-1-2-4	-	TEMPERATURE INTERLOCK SYSTEM (2-SENSOR)	Generic
4	2	E-2-12	-	J BOX FS, 4X2, 18X1-7/8	Generic
5	16	F-2-11	-	WASHER PLAT SS, 1/2"	Generic
6	36	F-3-33	-	F03081 NUT CAP PAR RD, TYPE KD 10-24	Generic
7	2	F-11-26	-	T10001 BUNNY FLAT HD SS, 1/4X3/16"	Generic
8	36	F-13-11	-	F03020 STUDIOS CO. WELD 16, 1/2X1/2"	Generic
9	16	G-1-020	-	F04622 WASHER SPRING SS BLANK	Generic
10	16	G-1-031	-	201 1/4 X 1/2 W/SHIM HARDWOOD TRAD. SUSTAIN	Generic
11	16	G-F0308	-	F03058 NUT SS, M4 DOME A2	Generic
12	1	H-1-27-8	-	LABEL, REGULADOR ROP	Generic
13	1	H-1-27-16	-	S/C LABEL, W/1001 FLEX LOGO 15/16" X 15/16" 5/16"	Generic
14	1	H-HK0200-HK0205-04	-	GENERIC HOOD MANUAL	Generic
15	2	WTR1603-002	-	GRIPPER COVER	16 SS 304(S-3)
16	4	WTR1603-004	-	REMOVABLE SLIDE SPACER	16 SS 304(S-3)
17	2	WTR1603-005	-	TIMER WIRE ROUTING CHANNEL	16 SS 304(S-3)
18	1	WTR1603-006	-	HOOD BODY ASSY	16 SS 304(S-3-6RE)
19	1	WTR1603-008	-	ASSY SLIDE TRAY	16 SS 304(S-3-6RE)
20	1	WTR1603-009	-	LEFT GRILL SCRAPER SHELF	16 SS 304(S-3-6RE)
21	1	WTR1603-010	-	RIGHT GRILL SCRAPER SHELF	16 SS 304(S-3-6RE)
22	2	WTR1603-000	-	GREASE CATCH PAN	16 SS 304(S-3)
23	1	WTR1603-000	-	ASSEMBLY GRACA	16 SS 304(S-3-6RE)
24	4	WTR1603-001	-	TIMER BASE	16 SS 304(S-3-6RE)
25	4	WTR1603-002	-	L BRACKET RH	16 SS 304(S-3-6RE)
26	4	WTR1603-003	-	L BRACKET LH	16 SS 304(S-3-6RE)



REV	DATE	DESCRIPTION	BY	CHKD
1	8/11/2022	Removed WTR1603-010, updated & added WTR1603-001, WTR1603-002 & WTR1603-003 to general assembly, updated ship loose notes	ARC	
2	7/19/25	WTR1603-1000 & -5100 were updated	JS	
3	4/25/25	WTR1603-5100 Was added, WTR1603-003 Deleted & WTR1603-1000 Was update	HT	

DATE	REVISION	BY	CHKD
8/11/2022	M	2023226 ARC	5/9/2025

SHIP LOOSE [EMBARCAR SUELTO]



Architecture Engineering Environmental Land Surveying Companies

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Date	Description
1 8.18.2025	MECHANICAL EQUIPMENT UPDATE

Seal / Signature

Project Name
WHATABURGER WAKE FOREST, NC

Date: 01.10.2025

Project Number
2301794

Description
HOOD DRAWINGS

Scale
NOT TO SCALE

M8.2

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Planning