MECHANICAL SYMBOLS

(SOME SYMBOLS MAY NOT BE USED ON THE DRAWINGS)

ABBREVIATIONS

%	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
FPM	FEET PER MINUTE
FPS	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	OPPOSED 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

X **DETAIL TITLE**
SCALE: 1/?" = 1'-0"

Ref North — NORTH ARROW

A / 200 — DEVICE TYPE, AIRFLOW — NECK/CFM BUBBLE

AHU-1 OR RTU-XXX — EQUIPMENT TAG

AIR FLOW INDICATOR

1 — NOTE BY SYMBOL (KEYNOTE)

1 — REVISION

POINT OF CONNECTION (NEW TO EXISTING)

POINT OF DISCONNECTION

MECHANICAL EQUIPMENT

FSD — COMBINATION FIRE/SMOKE DAMPER

FD — FIRE DAMPER

SD — SMOKE DAMPER

NEW EQUIPMENT (SIZE, SHAPE WILL VARY)

FUTURE KITCHEN / VENTILATION EQUIPMENT (SIZE, SHAPE WILL VARY)

EQUIPMENT TO REMAIN (SIZE, SHAPE WILL VARY)

SP — DUCT STATIC PRESSURE SENSOR

DP — DIFFERENTIAL PRESSURE SENSOR

T — WALL MOUNTED THERMOSTAT

T — TEMPERATURE SENSOR

H — HUMIDITY SENSOR

CO2 — CARBON DIOXIDE SENSOR

OS — OCCUPANCY SENSOR

DUCTWORK

DIFFUSER FLOW ARROWS (IF NO ARROWS ARE SHOWN, DIFFUSER IS 4-WAY THROW)

SUPPLY DIFFUSER

ROUND SUPPLY DIFFUSER

RETURN REGISTER

EXHAUST REGISTER

SIDEWALL SUPPLY GRILLE

SIDEWALL RETURN GRILLE

LOUVER W/ SCREEN (IN WALL)

SLOT DIFFUSER

LINEAR DIFFUSER

RETURN AIR SLOT DEVICE

MANUAL OPPOSED BLADE DAMPER

MANUAL BLADE DAMPER

90° ELBOW W/ TURNING VANES

90° MITERED ELBOW

45° MITERED ELBOW

90° LONG RADIUS ELBOW

45° LONG RADIUS ELBOW

CONCENTRIC TRANSITION

ECCENTRIC TRANSITION

RECTANGULAR TO ROUND TRANSITION

RECTANGULAR BRANCH TAP (SMACNA 45)

CONICAL BRANCH TAP

CONICAL LATERAL BRANCH TAKE-OFFS

DUCT CAP

DUCT CONTINUATION - ROUND

DUCT CONTINUATION - RECTANGULAR

AD — DUCT ACCESS DOOR

SUPPLY DUCT (UP / DOWN)

RETURN DUCT (UP / DOWN)

EXHAUST DUCT (UP / DOWN)

ROUND DUCT (UP / DOWN)

18x14 — RECTANGULAR DUCT SIZE (WIDTH x HEIGHT)

18Ø — ROUND DUCT SIZE

FLEXIBLE DUCT CONNECTION

FLEXIBLE DUCT

DUCTWORK

M — MOTORIZED DAMPER

M — OPPOSED BLADE MOTORIZED DAMPER

BD — BACKDRAFT DAMPER

FLEXIBLE DUCT CONNECTION

MAJOR SPLIT

TRANSFER BOOT

PIPING SYMBOLS

PIPING UP

PIPING DOWN

CO — CLEANOUT

1/8"/FT — DIRECTION AND MAGNITUDE OF SLOPE

CD — CONDENSATE DRAIN

HVAC DESIGN CRITERIA

ASHRAE FUNDAMENTALS - 2021:

WEATHER STATION - NASHVILLE INTL, TN
ELEVATION: 600'

SUMMER COOLING DESIGN (0.4%):

94.4 °F DRY BULB
78.1 °F WET BULB

WINTER HEATING DESIGN (99.6%):

14.9 °F DRY BULB

GENERAL NOTES

1. 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.
2. PROVIDE ALL SYSTEMS AS COMPLETE WITH ALL REQUIRED ACCESSORIES FOR CODE COMPLIANCE.
3. REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
4. DUCTWORK SIZES SHOWN ARE FREE AIR STREAM DIMENSIONS.
5. INSTALL DUCTWORK AND PIPING TO PROVIDE THE MAXIMUM POSSIBLE CLEAR HEIGHT UNDERNEATH. (BETWEEN STRUCTURE OR CEILING AND TOP OF DUCT).
6. 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.
7. PROVIDE THE ENTIRE SYSTEM AND ITS COMPONENT ITEMS OF EQUIPMENT IN OPERATING CONDITION FREE OF OBJECTIONABLE VIBRATION OR NOISE.
8. COORDINATE WORK SO THAT INTERFERENCES BETWEEN PIPING, DUCTWORK, EQUIPMENT, PLUMBING WORK, ELECTRICAL WORK, AND BUILDING STRUCTURE WILL BE AVOIDED.
9. FURNISH ACCESS DOORS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED MECHANICAL EQUIPMENT, VALVES, DAMPERS, CONTROLS AND OTHER DEVICES.
10. COORDINATE THE EXACT LOCATION OF DRAIN AND MECHANICAL EQUIPMENT LOCATIONS WITH MECHANICAL, ARCHITECTURAL, AND STRUCTURAL DRAWINGS PRIOR TO INSTALLATION.
11. RECTANGULAR ELBOWS SHALL BE LONG-RADIUS ELBOWS UNLESS OTHERWISE SHOWN OR NOTED. SUPPLY AIR STANDARD NON-RADIUS 90° ELBOWS SHALL HAVE TURNING VANES.

WHATABURGER

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△ Date	Description

BRIAN A. POELTL — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 128166 — STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

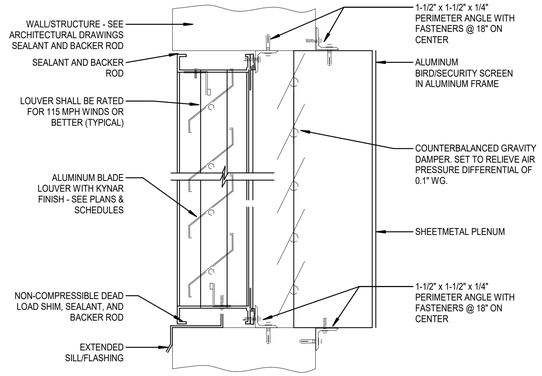
Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

Scale
12" = 1'-0"

M0.1



EXTERIOR WALL

2 LOUVER INSTALLATION
NOT TO SCALE

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.

MECHANICAL KEY NOTES

1. 24"x20" SUPPLY DUCT UP TO RTU-1. PROVIDE DUCT TRANSITION TO MATCH UNIT CONNECTION SIZE.
2. 22"x20" SUPPLY DUCT UP TO RTU-2. PROVIDE DUCT TRANSITION TO MATCH UNIT CONNECTION SIZE.
3. 44"x14" RETURN DUCT UP TO RTU. PROVIDE DUCT TRANSITION TO MATCH UNIT CONNECTION SIZE.
4. CONNECT KITCHEN EXHAUST HOOD ABOVE GRILL UP TO KEF-1 WITH 18" DIA. PRE-FABRICATED UL 1978 LISTED AND LABELED GREASE DUCT (DURAVENT DIS1 OR EQUAL). PROVIDE TRANSITION ABOVE CEILING TO MATCH HOOD CONNECTION SIZE.
5. 18" GREASE EXHAUST DUCT UP TO KEF-1 ON ROOF, RE: A2/M5.1
6. 8"x8" EXHAUST DUCT UP TO EF-1 ON ROOF, RE: A1/M5.1
7. 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.
8. 12" GREASE EXHAUST DUCT UP TO KEF-2 ON ROOF, RE: A2/M5.1
9. 1" CONDENSATE DOWN TO MOP SINK. TERMINATE CONDENSATE 1" ABOVE RIM OF SINK. PROVIDE SLEEVE FOR CONDENSATE CROSSING ABOVE RTU CONTROL PANEL(S). EXTEND SLEEVE MINIMUM 12" BEYOND EACH SIDE OF PANEL AND WIRING.
10. FULLY INSULATED 1" COPPER CONDENSATE PIPE UP THROUGH ROOF, RE: C4/M5.1
11. THE RTU CONTROLLERS SHALL BE MOUNTED AND IN THE MANAGER'S OFFICE AT 5' AFF TO CENTER. COORDINATE FINAL LOCATION WITH OWNER AND GC.
12. TEMPERATURE AND HUMIDITY SPACE SENSORS "TS" AND "HS" TO BE CEILING MOUNTED AND TIED INTO THE RTU CONTROL SYSTEM.
13. LISTED GREASE DUCT ACCESS DOOR ASSEMBLY. INSTALL ON SIDE OF DUCT.
14. SUPPLY AIR DUCT MOUNTED TEMPERATURE SENSOR. INSTALL ON BOTTOM OF DUCT.
15. KITCHEN FREEZER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
16. KITCHEN COOLER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
17. KITCHEN ICEMAKER EVAPORATOR UNIT. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC.
18. 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.
19. ANSUL SYSTEM PULL STATION TO BE INSTALLED A MINIMUM OF 4'-0" AFF, BETWEEN 10' AND 20' AWAY FROM HOODS, AND NEAR PATH OF EGRESS. CONFIRM FINAL LOCATION OF PULL STATIONS WITH OWNER AND GC. REFER TO DETAILS AND SPECIFICATIONS.
20. REMOTE ANSUL TANK SYSTEM MOUNTED ON WALL. CONFIRM FINAL LOCATION OF STATION WITH OWNER, ARCHITECT, AND OTHER TRADES. REFER TO DETAILS AND SPECIFICATIONS.
21. COORDINATE WITH GC TO PROVIDE 1" AIRSPACE BELOW DOOR FOR AIRFLOW.
22. MOUNT BOTTOM OF LOUVER 8'-0" AFF. PROVIDE PLENUM BOX THE FULL SIZE OF THE LOUVER WITH BOTTOM SLOPED TOWARD LOUVER FOR DRAINAGE. COORDINATE FINAL LOCATION AND MANUFACTURER REQUIRED WALL OPENING SIZE WITH GC. PROVIDE DUCT MOUNTED COUNTERBALANCED GRAVITY DAMPER, SET TO 0.1" WG PRESSURE DIFFERENTIAL. REFER TO DETAIL.
23. 24/7 TORK TIME CLOCK (OR EQUAL) FOR EXHAUST FAN EF-2 CONTROL. COORDINATE FINAL LOCATION WITH OWNER AND GC. FAN SHALL BE SCHEDULED TO RUN DURING BUILDING OCCUPIED HOURS.
24. INSTALL UNIT HEATER ON MANUFACTURER'S WALL BRACKET. BOTTOM OF HEATER 8'-0" AFF.
25. EXHAUST FAN INSTALLED APPROXIMATELY 11'-0" AFF. SUPPORT FAN FROM BUILDING STRUCTURE PER MANUFACTURER'S INSTALLATION REQUIREMENTS.

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

N

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△	Date	Description
2	2/12/2025	PERMIT REVISIONS

BRIAN A. POELL II
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 128166
STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
MECHANICAL FLOOR PLAN

Scale
As indicated

M1.1

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MECHANICAL KEY NOTES

1. ROOFTOP HVAC UNIT MOUNTED ON PRE-FABRICATED CURB, RE: C3/M5.1
2. CENTRIFUGAL UPBLAST GREASE HOOD EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A2/M5.1
3. CENTRIFUGAL DOWNBLAST EXHAUST FAN MOUNTED ON MANUFACTURER PROVIDED ROOF CURB, RE: A1/M5.1
4. PRIOR TO BEGINNING WORK, COORDINATE COMPLETE INSTALLATION OF ALL ROOFTOP EQUIPMENT AND ACCESSORIES WITH GC AND OTHER TRADES.
5. KITCHEN FREEZER 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.
6. KITCHEN COOLER CONDENSING UNIT MOUNTED ON ROOFTOP. FURNISHED BY OWNER, INSTALLED BY MC IN COORDINATION WITH GC. PROVIDE R404A 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: C4/M5.1
10. ROUTE CONDENSATE LINE DOWN THROUGH ROOF. RE: A1/M1.1 FOR CONTINUATION AND RE: C4/M5.1 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.

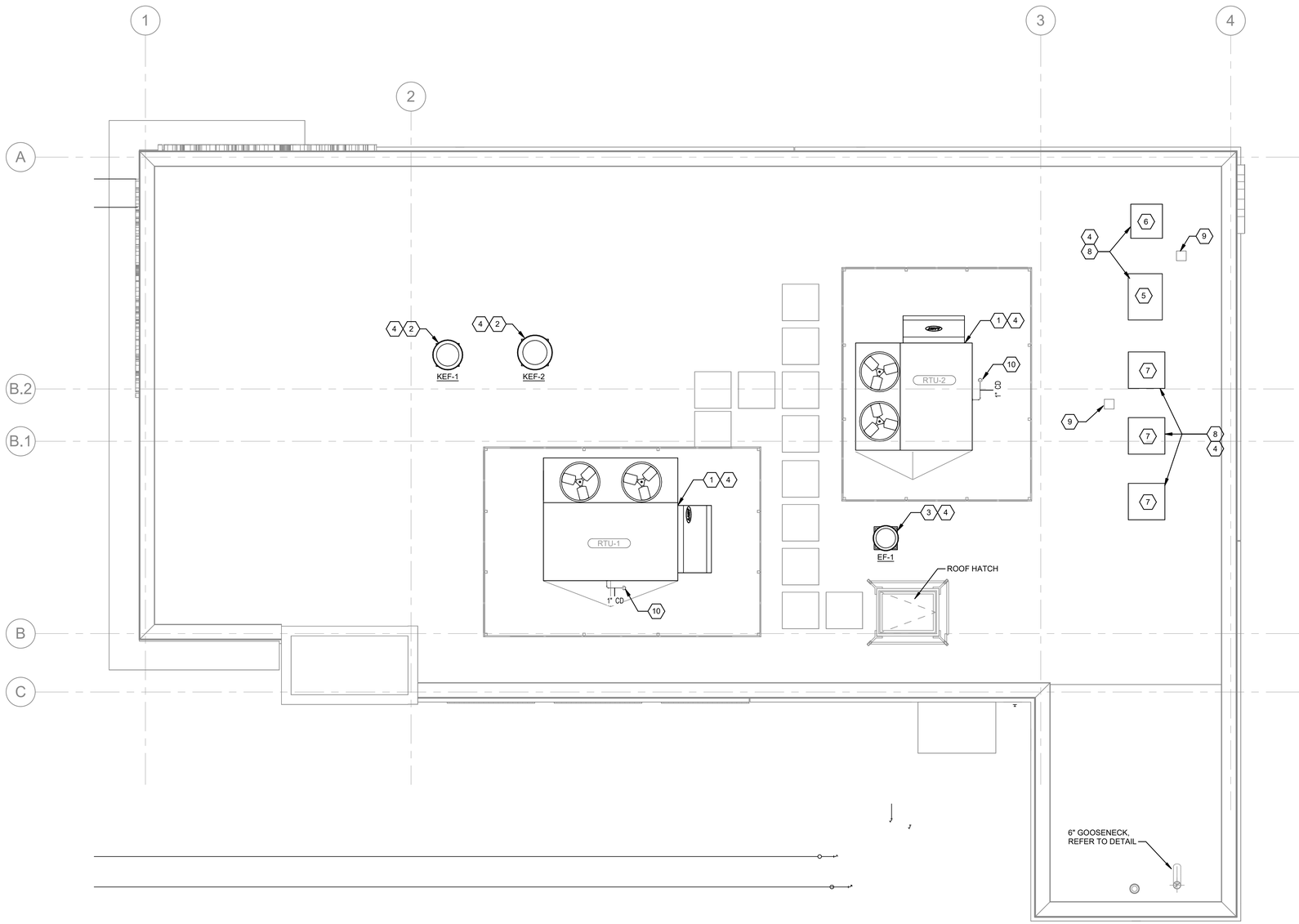
E. MAINTAIN A MINIMUM DISTANCE OF 10'-0" BETWEEN MECHANICAL AIR INTAKES AND ALL MECHANICAL EXHAUSTS OR PLUMBING VENTS.

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.

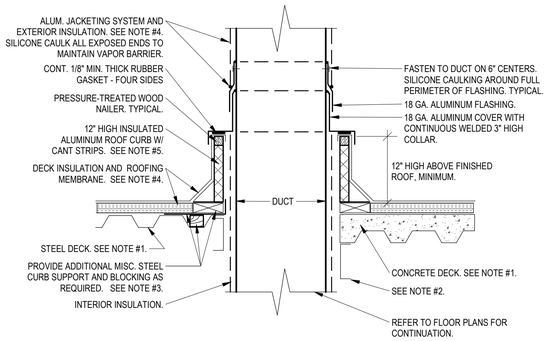
G. KITCHEN HOODS, ANSUL FIRE SUPPRESSION SYSTEM AND HOOD CONTROLS SHALL BE OWNER-FURNISHED AND CONTRACTOR-INSTALLED. COORDINATE WITH GC.

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.

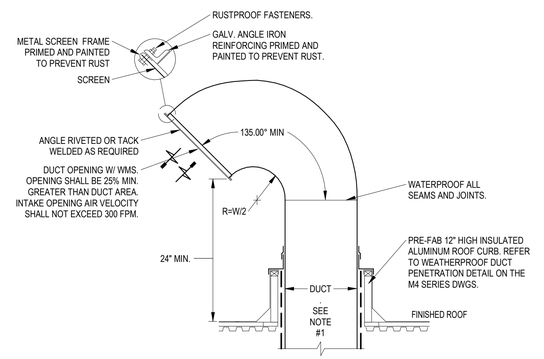


1 MECHANICAL ROOF PLAN
1/4" = 1'-0"



NOTES:
1. COORDINATE WITH ARCH. & STRUCT. DWGS FOR ROOF CONSTRUCTION AND ADDITIONAL INFORMATION.
2. REFER TO STRUCT. DWGS. FOR ADDITIONAL INFORMATION REGARDING ROOF OPENING FRAMING.
3. PROVIDE THE PRESSURE-TREATED BLOCKING, UNDER THE CURB, AND RAISE THE CURB TO ACCOMMODATE THE THICKNESS OF THE ROOF INSULATION. SECURE BLOCKING TO THE ROOF STRUCTURE WITH LOAD RATED, RUSTPROOF FASTENERS.
4. PROVIDE APPROPRIATE INSULATION AND JACKETING AS REQUIRED PER THE SPECIFICATIONS.
5. WHEN THE CURB IS TO BE INSTALLED ON A PITCHED ROOF, THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CURB MANUFACTURER TO PROVIDE A PITCHED CURB TO MATCH THE PITCH OF THE ROOF.

3 ROOFTOP WEATHERPROOF DUCT PENETRATION
NOT TO SCALE



NOTE:
1. REFER TO FLOOR PLANS FOR SIZING AND LOCATIONS. ALL INTAKE AIR DUCTWORK AND ALL APPURTENANCES THEREOF SHALL BE ALUMINUM. ALL EXHAUST AIR DUCTWORK AND ALL APPURTENANCES THEREOF SHALL BE GALVANIZED.
2. INTAKE AIR GOOSENECKS SHALL BE LOCATED A MINIMUM OF 10'-0" HORIZONTALLY FROM ALL EXHAUST DISCHARGES AND PLUMBING VENTS.

2 GOOSENECK
NOT TO SCALE

N

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Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

△	Date	Description
2	2/12/2025	PERMIT REVISIONS

BRIAN A. POELL II
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 128166
STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

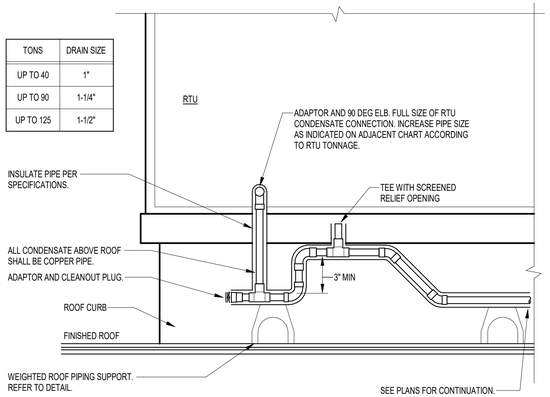
Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

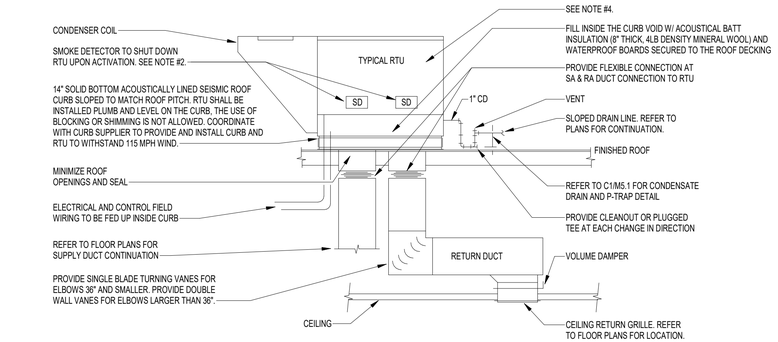
Description
MECHANICAL ROOF PLAN

Scale
As indicated

M2.1

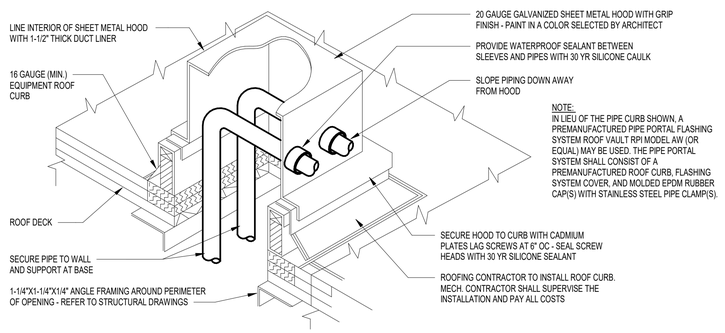


C1 RTU CONDENSATE DRAIN DETAIL
N.T.S.

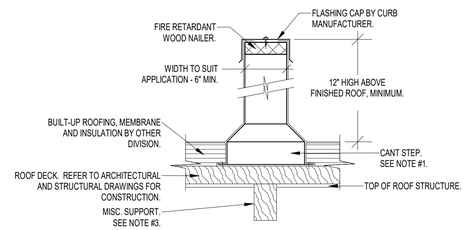


NOTES:
1. DIMENSIONS OF CURB DIFFER FROM DIMENSIONS OF UNIT DUE TO THE SLOPED CONDENSER COIL.
2. SMOKE DETECTORS SHALL BE PROVIDED AND INSTALLED BY THE RTU MANUFACTURER IN THE SUPPLY AND RETURN SIDES OF RTU. COORDINATE INSTALLATION AND CONNECTION OF SMOKE DETECTORS WITH FA CONTRACTOR, EC, AND GC. REFERENCE M6.1 FOR RTU SCHEDULE. ACTIVATION OF SMOKE DETECTORS SHALL SHUT DOWN RTU AND ACTIVATE THE AUDIBLE AND VISUAL SIGNAL PROVIDED.

C3 ROOFTOP HVAC UNIT DETAIL
N.T.S.

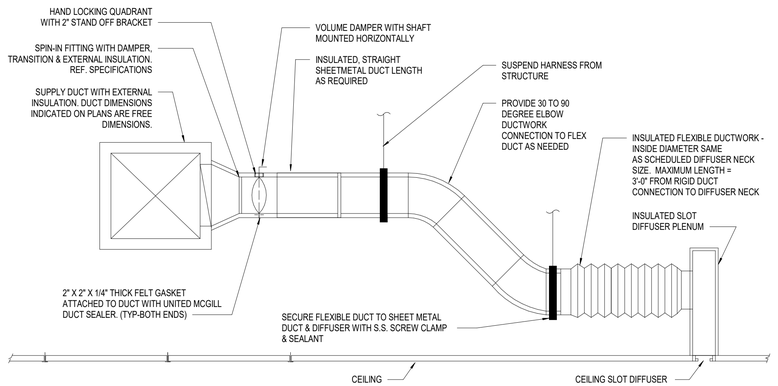


C4 PIPING THROUGH ROOF DETAIL
N.T.S.



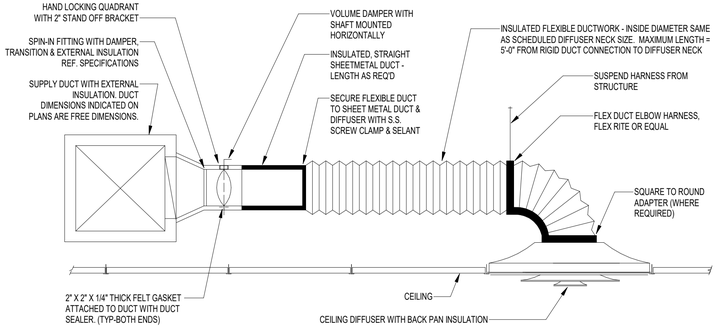
NOTES:
1. THE RAISED CANT STEP HEIGHT SHALL BE COORDINATED WITH THICKNESS OF ROOF INSULATION ON ARCHITECTURAL DRAWINGS AND WITH THE ROOFING CONTRACTOR. SECURE RAIL TO THE ROOF DECK WITH LOAD RATED, RUST RESISTANT FASTENERS.
2. THE RAIL SHALL BE DESIGNED AND FABRICATED TO THOROUGHLY SUPPORT ITS RESPECTIVE COMPONENT. AS A MINIMUM, RAILS SHALL BE FABRICATED OF 18 GAUGE GALVANIZED STEEL WITH BUILT-IN CANT, MONOLITHIC CONSTRUCTION WITH INTEGRAL BASE PLATE AND CONTINUOUS MITERED AND WELDED CORNER SEAMS, WITH FACTORY INSTALLED FIRE RETARDANT WOOD NAILER. EACH RAIL SHALL INCLUDE A MATCHING 18 GAUGE GALVANIZED STEEL COUNTERFLASHING CAP WITH INTEGRAL DRIP EDGE, ALL CORNERS MITERED AND WELDED, AND SCREWS FOR ATTACHMENT. EQUIPMENT CURBS OVER 3 FEET LONG SHALL INCORPORATE 14 GAUGE INTERNAL GUSSET REINFORCING. SECURELY FASTEN TO ROOF DECK AND INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. WHEN THE UNIT IS TO BE INSTALLED ON A PITCHED ROOF, COORDINATE WITH THE RAIL MANUFACTURER TO PROVIDE A PITCHED RAIL TO MATCH THE PITCH OF THE ROOF. THE EQUIPMENT/PIPING/DUCTWORK SHALL BE INSTALLED LEVEL AND PLUMB.
3. THE MECH. CONTRACTOR SHALL COORDINATE THE ORIENTATION OF THE EQUIP. RAILS TO SPAN A MINIMUM OF TWO ROOF BEAMS/JOISTS BELOW. PROVIDE MISC. FRAMING TO CONTINUOUSLY SUPPORT THE RAILS FROM BELOW.
4. REFER TO THE KITCHEN EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE MOUNTING REQUIREMENTS TO DETERMINE THE FINAL LOCATION OF THE EQUIPMENT SUPPORT RAILS AND THEIR LENGTH. SECURE EQUIPMENT AS RECOMMENDED BY MANUFACTURER.

C2 ROOFTOP CONDENSING UNIT SUPPORT RAILS
N.T.S.



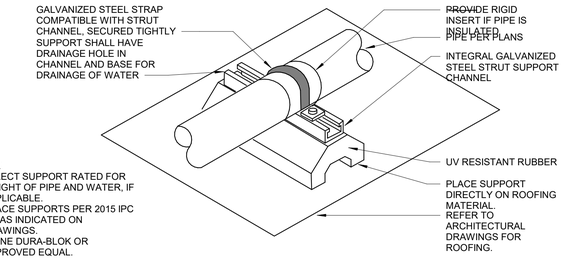
NOTE: INSTALL FLEXIBLE DUCTWORK SUPPORTS AT ALL ROUND NECK OUTLETS/INLETS UNLESS OTHERWISE NOTED ON DRAWINGS.

B1 PLENUM SLOT DIFFUSER DETAIL
N.T.S.



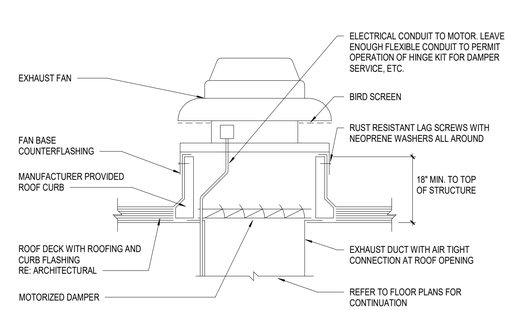
NOTE: INSTALL FLEXIBLE DUCTWORK SUPPORTS AT ALL ROUND NECK OUTLETS/INLETS UNLESS OTHERWISE NOTED ON DRAWINGS.

B2 DIFFUSER CONNECTION DETAIL
N.T.S.



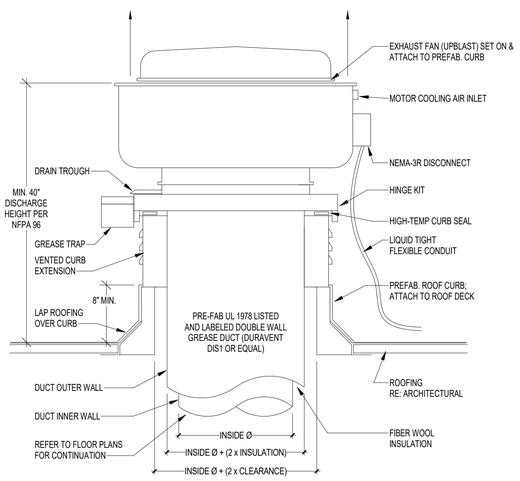
NOTES:
1. SELECT SUPPORT RATED FOR WEIGHT OF PIPE AND WATER, IF APPLICABLE.
2. SPACE SUPPORTS PER 2015 IPC OR AS INDICATED ON DRAWINGS.
3. B-LINE DURA-BLOK OR APPROVED EQUAL.

C5 ROOFTOP PIPE SUPPORT DETAIL
N.T.S.



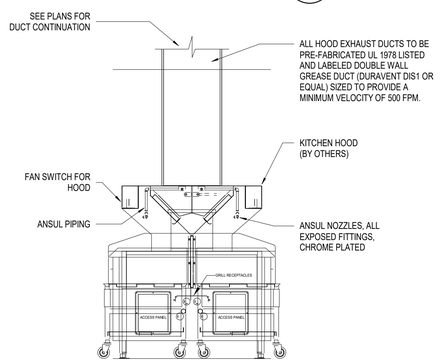
NOTES:
1. COORDINATE FINAL DIMENSIONS WITH ROOF INSTALLER.
2. THE FAN SHALL BE MOUNTED PLUMB AND LEVEL ON THE ROOF CURB. THE USE OF BLOCKING OR SHIMMING UNDER THE ROOF CURB IS NOT ACCEPTABLE. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CURB MANUFACTURER TO COMPENSATE FOR ANY ROOF PITCH.
3. PROVIDE ALL COMPONENTS REQUIRED TO INSTALL AND SECURE THE ROOF CURB AND EXHAUST FAN IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

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

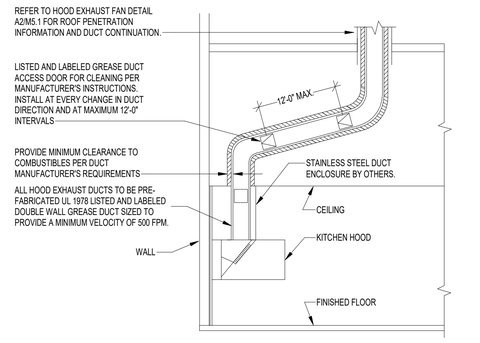


NOTE: ROOF OPENING DIMENSIONS BASED ON DUCT MANUFACTURER'S CLEARANCE REQUIREMENTS. MC TO PROVIDE FAN CURB WITH OPENING SIZE TO MEET GREASE DUCT CLEARANCE REQUIREMENTS.

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



A3 LOW PROFILE HOOD DETAIL
N.T.S.



A4 HOOD EXHAUST DUCT DETAIL
N.T.S.

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△	Date	Description

BRIAN A. POELTL
REGISTERED ENGINEER
AGRICULTURE
DATE 7/25/25
COMMERCE
No. 128166
STATE OF TENNESSEE

Seal / Signature

Project Date 3/22/2024

Project Name NASHVILLE, TN
WHATABURGER

Project Number 2302472

Description MECHANICAL DETAILS

Scale N.T.S.

M5.1

ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	AREA SERVED	OA CFM	SUPPLY FAN				COOLING SECTION								HOT GAS REHEAT (MBH)	HEATING SECTION								ELECTRICAL				FILTER TYPE	WEIGHT (LBS)	NOTES
					CFM	ESP ("WG)	RPM	HP	TYPE	REFRIG. TYPE	AMBIENT (°F) DB/WB	TOTAL OUTPUT (MBH)	SENS. OUTPUT (MBH)	MAT (°F) DB/WB	LAT (°F) DB/WB	EER / IEER		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	AAON	RN-020-8-0-GB04-389	DINING	3225	3750	1.0	1019	3.0	DX	R-410A	94.4/78.1	253.5	136.9	91.5/76.3	56.8/56.0	12.7 / 17.5	62.3	NAT. GAS	14.9/14.0	405.0	328.1	4.3:1	3.5 / 10.5	22.8/22.0	106.4/62.1	208	3	99	125	2" MERV 8	2578	ALL
RTU-2	AAON	RN-013-8-0-GB04-3F9	KITCHEN	720	3600	1.0	1744	3.0	DX	R-410A	94.4/78.1	158.2	100.5	78.1/66.5	52.4/51.6	11.3 / 17.6	77.6	NAT. GAS	14.9/14.0	195.0	156.0	3:1	3.5 / 10.5	59.0/55.1	99.9/69.0	208	3	71	90	2" MERV 8	1966	ALL

NOTES:
1. PROVIDE WITH PREMIUM EFFICIENCY MOTORS IN ACCORDANCE WITH NEMA MG-1.
2. PROVIDE WITH SUPPLY AND RETURN SMOKE DETECTORS TO SHUT DOWN UNIT UPON SMOKE DETECTION. COORDINATE CONNECTION TO FIRE ALARM SYSTEM WITH FA CONTRACTOR AND GC.
3. PROVIDE WITH TERMINAL STRIP FOR FIELD INSTALLED CONTROLS.
4. UNITS TO BE 2" DOUBLE WALL R-13 CONSTRUCTION WITH 2500-HOUR SALT SPRAY RESISTANT PAINT.
5. UNIT TO HAVE MODULATING HOT GAS REHEAT AND MODULATE HEAT CONTROL. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLING (2) FACTORY PROVIDED SUPPLY AIR TEMPERATURE SENSORS.
6. PROVIDE FACTORY INSTALLED HAIL GUARDS.
7. PROVIDE 6-ROW DX COIL AND STAINLESS STEEL DRAIN PAN.
8. PROVIDE FACTORY MOUNTED AND WIRED CONDENSATE FLOW SWITCH.
9. PROVIDE ULTRA-LOW LEAKAGE ECONOMIZER WITH BAROMETRIC RELIEF DAMPER, AND FAULT DETECTION AND DIAGNOSTIC.
10. PROVIDE STAINLESS STEEL GAS HEAT EXCHANGER WITH MODULATING CONTROL.
11. PROVIDE FACTORY POWERED GFCI CONVENIENCE OUTLET AND NON-FUSED DISCONNECT.
12. PROVIDE 14" HIGH INSULATED, SEISMICALLY RATED SOLID BOTTOM CURB FOR PITCHED ROOF. MECHANICAL CONTRACTOR TO FIELD CUT SUPPLY AND RETURN OPENINGS AS REQUIRED.
13. AAON UNITS PROVIDED BY WHATABURGER. FACTORY STARTUP IS INCLUDED. CONTACT AARON HUMPHRIES @ 210-954-6657 OR aaron.humphries@texasairsystems.com TO COORDINATE STARTUP.

WALL LOUVER SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	SIZE			AIRFLOW (CFM)	FREE AREA (SQFT)	MAX PD (IN WC)	REMARKS
				WIDTH	HEIGHT	DEPTH				
WL-1	GREENHECK	ESD-202	INTAKE	16"	8"	2"	50	0.2	0.01	ALL

NOTES:
1. PROVIDE HEAVY GAUGE EXTRUDED ALUMINUM LOUVER WITH DRAINABLE BLADES AND INTERIOR ALUMINUM BIRD AND INSECT SCREENS.
2. PROVIDE COUNTERBALANCED GRAVITY DAMPER, FULL SIZE OF LOUVER. 0.1" PRESSURE DIFFERENTIAL.
3. LOUVER SHALL BE RATED FOR 115 MPH WIND SPEED.
4. KYNAR FINISH. SUBMIT COLOR CHART FOR SELECTION BY ARCHITECT. COORDINATE FINAL LOCATION AND WALL OPENING SIZE WITH GC.

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	200	0.35	1310	0.00	0.10	DIRECT	115	1	44	1,2,3
EF-2	GREENHECK	SP-LP0810W	CEILING MOUNTED	50	0.25	714	0.00	0.01	DIRECT	115	1	8	7,8,9
KEF-1	GREENHECK	CUE-120-VG	ROOF-MOUNTED CENTRIFUGAL UPBLAST	1216	0.75	1415	0.25	0.50	DIRECT	208	1	111	3,4,5,6
KEF-2	GREENHECK	CUE-140-VG	ROOF-MOUNTED CENTRIFUGAL UPBLAST	1994	1.00	1517	0.64	1.00	DIRECT	208	1	135	3,4,5,6

NOTES:
1. PROVIDE INSULATED 18" HIGH ROOF CURB WITH DAMPER TRAY AND MOTORIZED DAMPER WITH END SWITCHES AND SPRING RETURN ACTUATOR.
2. PROVIDE ALUMINUM BIRD SCREEN.
3. PROVIDE WITH INTEGRAL DISCONNECT SWITCH NEMA-3R.
4. PROVIDE GREASE BOX.
5. PROVIDE INSULATED AND VENTED 24" HIGH ROOF CURB AND HIGH TEMPERATURE CURB SEAL.
6. PROVIDE HINGED ACCESS KIT.
7. PROVIDE DISCONNECT SWITCH, INTEGRAL BACKDRAFT DAMPER, GALVANIZED STEEL HOUSING, VIBRATION ISOLATION KIT, AND POLYMER GRILLE.
8. PROVIDE FACTORY MOUNTED AND WIRED FAN SPEEED CONTROLLER.
9. PROVIDE 24/7 TORK TIME CLOCK (OR EQUAL). FAN SHALL BE SCHEDULED TO RUN DURING BUILDING OCCUPIED HOURS. EC TO FURNISH AND INSTALL POWER AND INTERLOCK WIRING.

ELECTRIC UNIT HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	MOUNTING TYPE	ELEC DATA				WEIGHT (LBS)	REMARKS
				KW	AMPS	VOLTS	PH		
EUH-1	QMARK	MUH03-81	WALL BRACKET	3.0	14.5	208	1	27	ALL

NOTES:
1. PROVIDE OPTIONAL WALL MOUNTING BRACKET, POWER DISCONNECT SWITCH, AND AUTO-RESET THERMAL CUT-OUT.
2. PROVIDE OPTIONAL 24V CONTROL TRANSFORMER AND REMOTE WALL-MOUNTED THERMOSTAT (INITIAL SETPOINT 60°F).

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
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
B1	TITUS	TMS	12x12	6	30	4-WAY	FLANGE	-	-	-	SUPPLY AIR	1,2
B5	TITUS	TMS	24x24	10	30	4-WAY	FLANGE	-	-	-	SUPPLY AIR	1,2
C1	TITUS	350FLF1	24x24	16x16	30	-	LAY-IN	-	-	-	RETURN AIR	
C2	TITUS	350FL	48x24	44x20	30	-	LAY-IN	-	-	-	RETURN AIR	
D1	TITUS	350FL	24x24	16x16	30	-	LAY-IN	-	-	-	TRANSFER AIR	
F1	TITUS	50F	12x12	6x6	30	-	FLANGE	-	-	-	EXHAUST AIR	2
H2	TITUS	TBDI-80	48x5	8	30	2-WAY	FLANGE	48	1-1/2	2	SUPPLY AIR	3

NOTES:
1. PROVIDE MOLDED INSULATION BLANKET (R-6).
2. PROVIDE PLASTER FRAME FOR MOUNTING IN GYP. CEILING.
3. PROVIDE INSULATED PLENUM.

COMcheck Software Version 4.1.5.1

Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Whataburger
Location: Nashville, Tennessee
Climate Zone: 4a
Project Type: New Construction

Construction Site:
NEC GALLATIN AVE. &
W.GREENWOOD AVE.
NASHVILLE, TN

Owner/Agent:
Whataburger

Designer/Contractor:
BL Companies
355 Research Pkwy
Meriden, CT, SC 06450
(203) 630-1406

Mechanical Systems List

Quantity	System Type & Description
1	RTU-1 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 328 kBtu/h Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et Cooling: 1 each - Single Package DX Unit, Capacity = 253 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 12.10 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, 3750 CFM, 3.0 motor nameplate hp, 0.0 fan efficiency grade
1	RTU-2 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 156 kBtu/h Proposed Efficiency = 80.00% Et, Required Efficiency: 80.00 % Et or 80% AFUE Cooling: 1 each - Single Package DX Unit, Capacity = 158 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 11.90 EER, Required Efficiency: 10.80 EER + 12.2 IEER Fan System: FAN SYSTEM 2 | RTU-2 -- Compliance (Motor nameplate HP method) : Passes Fans: FAN 2 Supply, Constant Volume, 3600 CFM, 3.0 motor nameplate hp, 0.0 fan efficiency grade

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 COM*check* Version 4.1.5.1 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Philip Anderson - Project Engineer — Name - Title
Philip Anderson — Signature
01/30/2024 — Date

Project Title: Whataburger — Report date: 01/30/24
Data filename: G:\JOBS23\24\2302472\DOCS\Comcheck\2302472-Comcheck WB Nashville, TN.cck — Page 1 of 11

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:
1. 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 CONECTION SIZE. FLEX DUCT LENGTH NOT TO EXCEED 5 FT.

AIR BALANCE AND VENTILATION CALCULATION:

TOTAL OUTSIDE AIR INTAKE = 3945 CFM

TOTAL GREASE HOOD EXHAUST = 3210 CFM
TOTAL RESTROOM EXHAUST = 200 CFM

OUTSIDE AIRFLOW - (GREASE HOOD EXHAUST AIRFLOW + RESTROOM EXHAUST AIRFLOW) = NET POSITIVE AIRFLOW

3945 CFM - (3210 + 200) = 535 CFM

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

VENTILATION CALCULATION PER IMC 2018, 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)	7.5 CFM / PERSON 0.12 CFM / SQFT	24	220	
	COOKING 107	KITCHENS (COOKING)	15 (745 SQFT)	7.5 CFM / PERSON 0.12 CFM / SQFT	202	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)	7.5 CFM / PERSON 0.12 CFM / SQFT	26	45	
	MEN 103 / WOMEN 104	TOILET ROOMS (CONTINUOUS)	0 (216 SQFT)	0 CFM / PERSON 0 CFM / SQFT	0	96	
	CALCULATED OUTSIDE AIR FOR SYSTEM TOTAL				315	2460	OA ADDED FOR KITCHEN EXHAUST MAKEUP
RTU-2	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 0.18 CFM / SQFT	819	1346	
	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
EF-1	MEN 103	TOILET ROOMS (CONTINUOUS)	2 W.C.	50 CFM / W.C.	100	150	
	WOMEN 104	TOILET ROOMS (CONTINUOUS)	2 W.C.	50 CFM / W.C.	100	150	
	CALCULATED EXHAUST AIR FOR SYSTEM TOTAL				200	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

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REGISTERED ENGINEER
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No. 128166
STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
MECHANICAL SCHEDULES

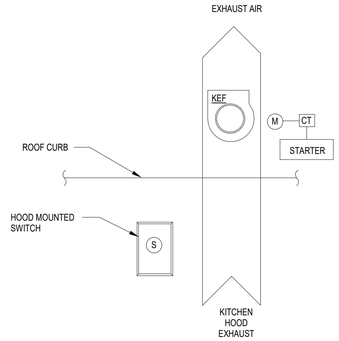
Scale
12" = 1'-0"

M6.1

7/25/2025 2:22:36 PM C:\Users\jcanelo\Documents\2302472_MEP_Central_R22_jcanelo79KF8.rvt

CONTROL SYMBOLS

AE	ANALYZER ELEMENT
DDC	DIRECT DIGITAL CONTROL
BMS	BUILDING MANAGEMENT SYSTEM
RDC	ROOFTOP UNIT DDC CONTROLLER
FACP	FIRE ALARM CONTROL PANEL
DPI	DIFFERENTIAL PRESSURE INDICATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
FE	FLOW ELEMENT
FLTR	FILTER
FS	FLOW SWITCH
H	HUMIDISTAT
HL	HIGH TEMPERATURE LIMIT SWITCH
M	MOTOR
PCV	PRESSURE CONTROL VALVE
PT	PRESSURE TRANSMITTER
SMK	SMOKE DETECTOR
T	TEMPERATURE SENSOR
TCV	TEMPERATURE CONTROL VALVE
TSL	LOW LIMIT THERMOSTAT (FREEZESTAT)
TT	TEMPERATURE TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
STARTER	MOTOR STARTER (PROVIDE CONTROL RELAY)
CT	CURRENT TRANSDUCER
OS	OCCUPANCY SENSOR
CO	CARBON MONOXIDE SENSOR
	COMMUNICATION SIGNAL
HPS	HIGH STATIC PRESSURE SENSOR
DA	DAMPER ACTUATOR
CV	CONTROL VALVE
DX	DX COOLING COIL
HC	NATURAL GAS HEATING COIL
HGR	HOT GAS REHEAT
SF	SUPPLY AIR FAN



SEQUENCE OF OPERATION

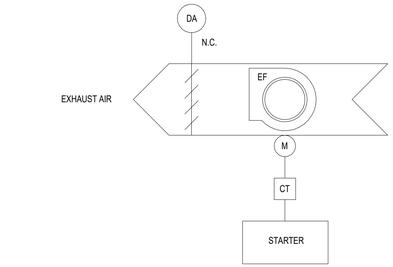
OPERATING CONDITIONS - CONTINUOUS 24/7:
THE KITCHEN HOOD EXHAUST FAN SHALL RUN CONTINUOUSLY WHEN THE KITCHEN HOOD MOUNTED SWITCH IS ON.

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.



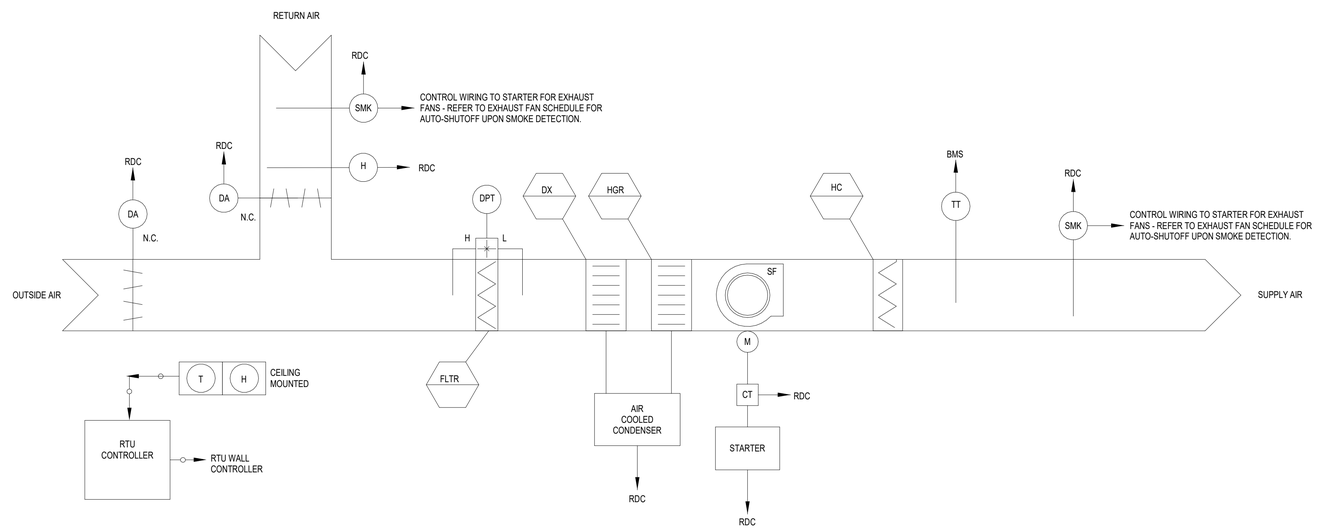
SEQUENCE OF OPERATION

OPERATING CONDITIONS - CONTINUOUS 24/7:
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

THE 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 UNIT SHALL OPERATE CONTINUOUS 24/7. WHEN THE UNIT IS DE-ENERGIZED BY ALARM OR SHUTOFF, 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 RTU SHALL BE PROGRAMMED SO THAT THE HEATING AND COOLING SYSTEMS SHALL NEVER OPERATE SIMULTANEOUSLY.

TEMPERATURE CONTROL
OCCUPIED MODE - THE RTU WILL MAINTAIN THE FOLLOWING SPACE TEMPERATURE SETPOINTS:
- COOLING: 75°F, 55% RH (ADJUSTABLE)
- HEATING: 70°F (ADJUSTABLE)

SETBACK MODE - THE RTU 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 60% (ADJUSTABLE) AND THERE IS NO CALL FOR COOLING IN THE SPACE, THE RDC SHALL ENABLE DEHUMIDIFICAITON 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 UNIT 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 UNIT CONTROLLER.

A. FILTERS:
THE UNIT 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 UNIT SHALL RECEIVE AN ALARM.

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

A1 PACKAGED ROOFTOP UNIT CONTROLS DIAGRAM

N.T.S.

WHATABURGER

BL Companies
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Engineering
Environmental
Land Surveying

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

△	Date	Description

BRIAN A. POELL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 128166
STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

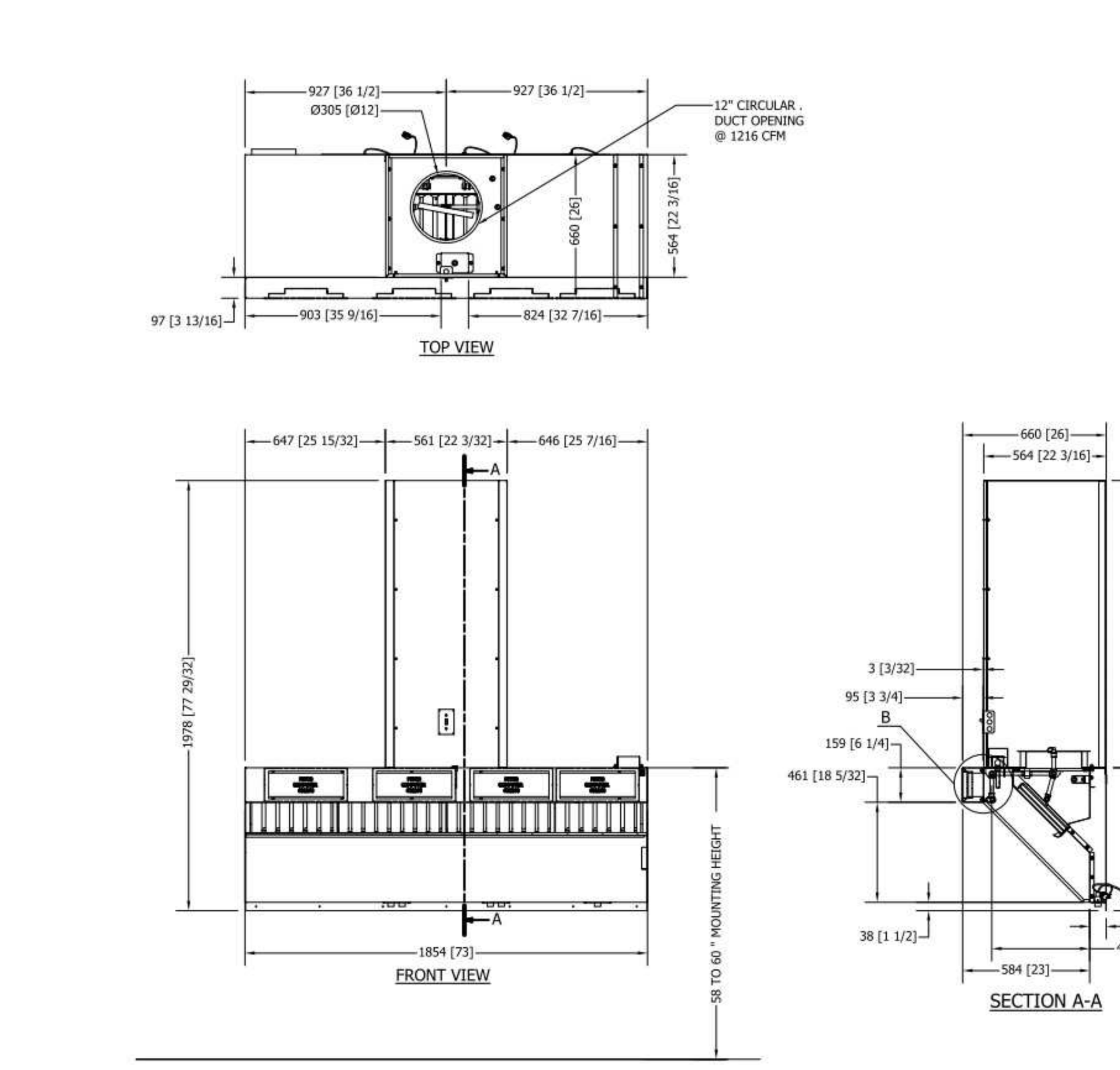
Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
MECHANICAL CONTROLS

Scale
NOT TO SCALE

M7.1



APPROVALS / CERTIFICATIONS
· THIS HOOD COMPLIES WITH THE FOLLOWING:
UL710 / ULC-S646
STANDARD FOR EXHAUST HOOD AND RELATED CONTROLS FOR COMMERICAL AND INSTITUTIONAL COOKING EQUIPMENT
NFPA96
NATIONAL FIRE PROTECTION ASSOCIATION - STD 96
NSF2:
NATIONAL SANITATION FOUNDATION NO. 2 "FOOD SERVICE EQUIPMENT"

NOTE: THE EXHAUST AIR FLOW RATES WERE ESTABLISHED UNDER CONTROLLED LABORATORY CONDITIONS. GREATER EXHAUST RATES MAY BE REQUIRED FOR COMPLETE VAPOR AND SMOKE REMOVAL IN SPECIFIC INSTALLATIONS.

FILTERS/GREASE REMOVAL
· THIS HOOD UTILIZES A COMBINATION OF FLAMEGUARD SS TYPE-5 12X16 AND/OR 12X20 ARE KASON TRAPPER S/S FILTERS 7001 SERIES 12X16 &12X20 MUST BE UL LISTED STAINLESS STEEL GREASE FILTERS

· THEY MUST BE INSTALLED AT ALL TIMES DURING VENTILATION HOOD OPERATION

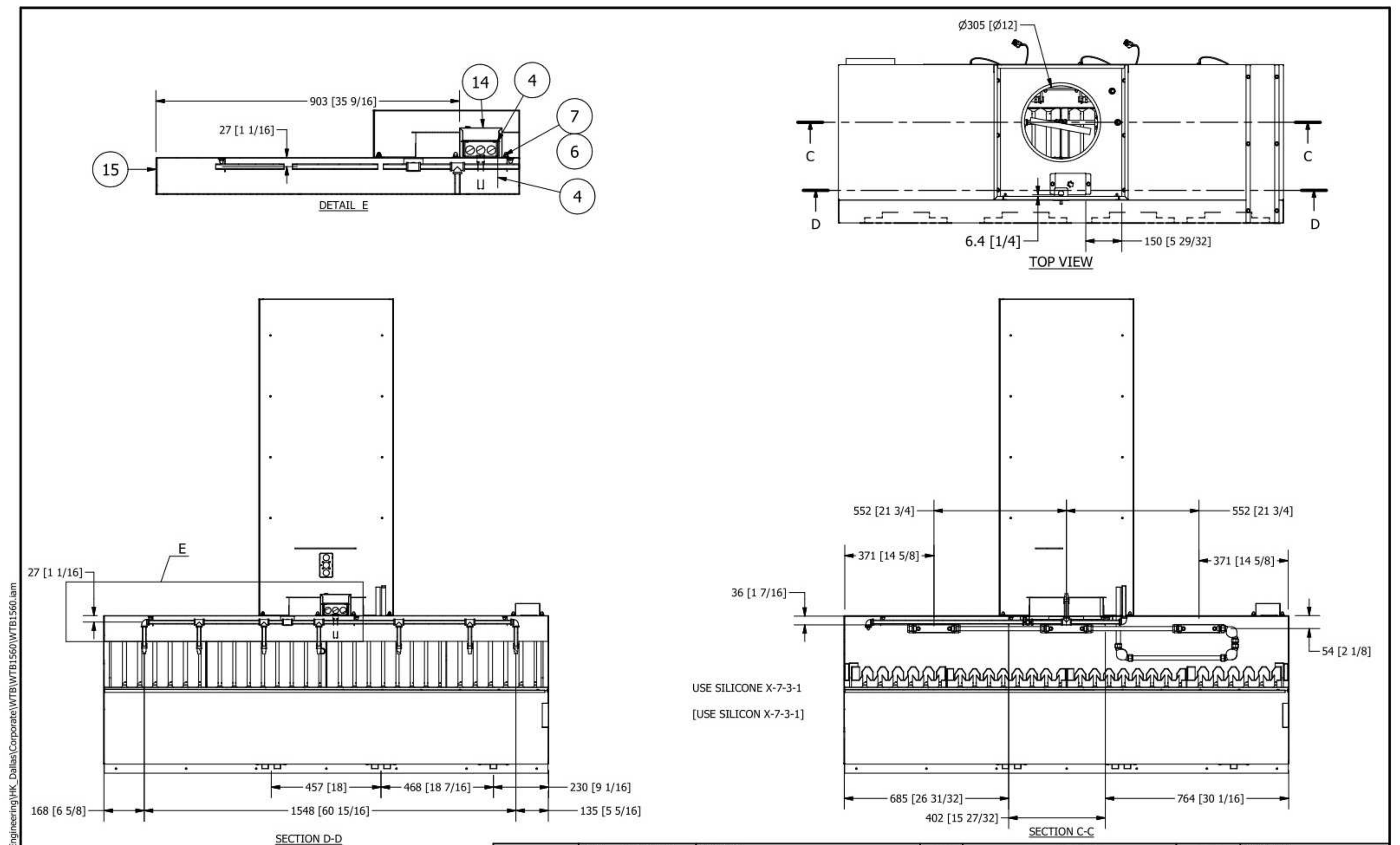
THIS UNIT REQUIRES: (2) 12X20 AND (2) 12X16

FLAMGUARD FILTER, S/S BAFFLE TYPE VI

(NOTE) HOOD INCLUDES TEMPERATURE INTERLOCK SYSTEM

H&K DALLAS #HKD023
FRY HOOD U.L. #MH16346
(STANDARD USED U.L. 710)

DATE: 6/15/2021 | DRAWN: HArredondo | WEIGHT: 133.54 kg | WIDTH: N/A | GRAIN LENGTH: N/A | UNITS: mm [in] | SIZE: A3 | SHEET 1 OF 4 | TITLE: WALL MOUNT FRY HOOD WITH CIRCULAR DUCT | ITEM NO: WTB1560

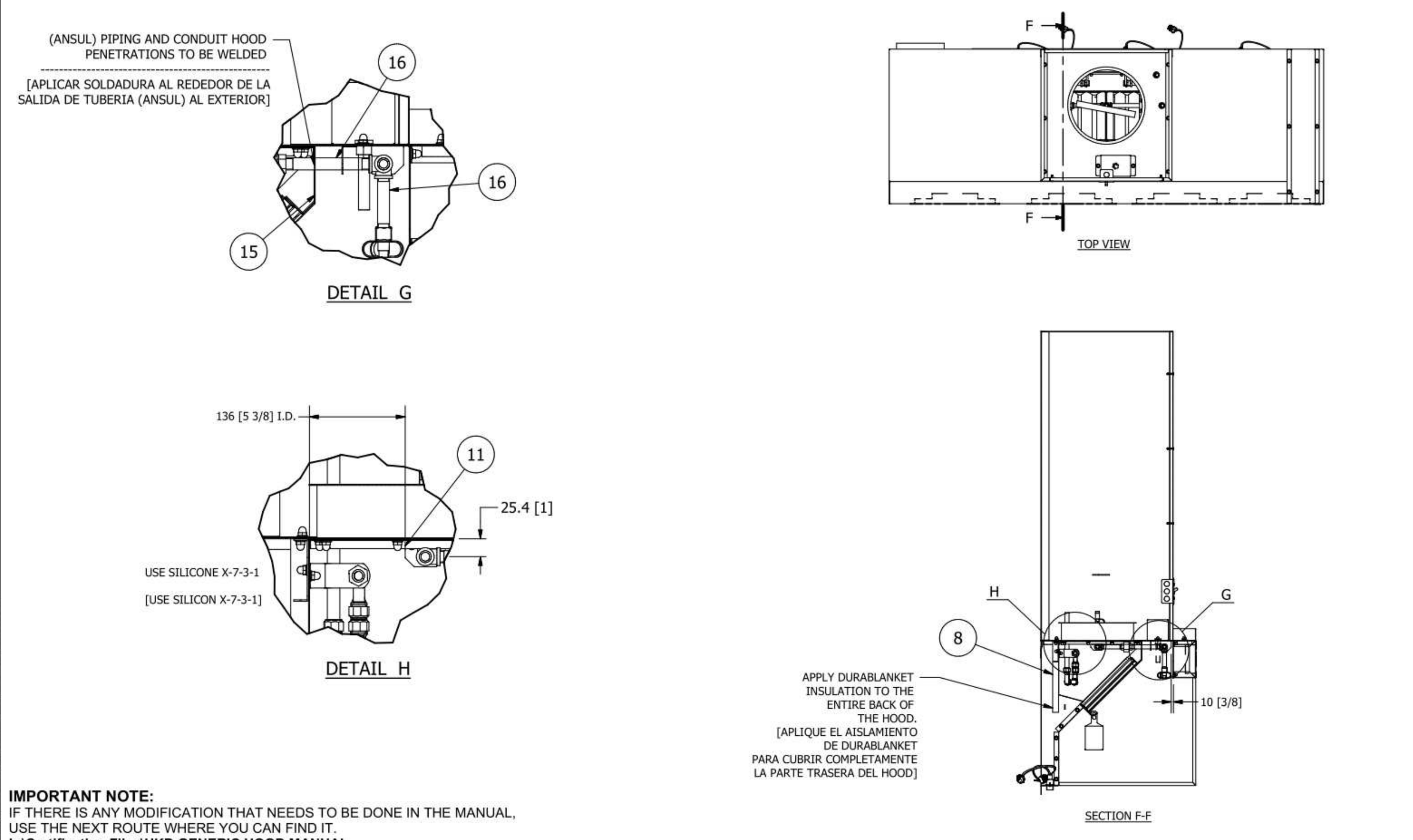


USE SILICONE X-7-3-1
[USE SILICON X-7-3-1]

DATE: 6/16/2021 | DRAWN: HArredondo | WEIGHT: 133.54 kg | WIDTH: N/A | GRAIN LENGTH: N/A | UNITS: mm [in] | SIZE: A3 | SHEET 2 OF 4 | TITLE: WALL MOUNT FRY HOOD WITH CIRCULAR DUCT | ITEM NO: WTB1560

FOR REFERENCE ONLY

THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE AUTOMATIC FIRE PROTECTION SYSTEM FOR THE RANGE HOODS APPROVED EQUAL TO ANSUL SYSTEM. COMPLETE HOOD AND ANSUL SYSTEM INFORMATION TO BE SUBMITTED BY OTHERS IN FUTURE SUBMISSION.



(ANSUL) PIPING AND CONDUIT HOOD PENETRATIONS TO BE WELDED
[APLICAR SOLDADURA AL REDEDOR DE LA SALIDA DE TUBERIA (ANSUL) AL EXTERIOR]

DETAIL G

DETAIL H

USE SILICONE X-7-3-1
[USE SILICON X-7-3-1]

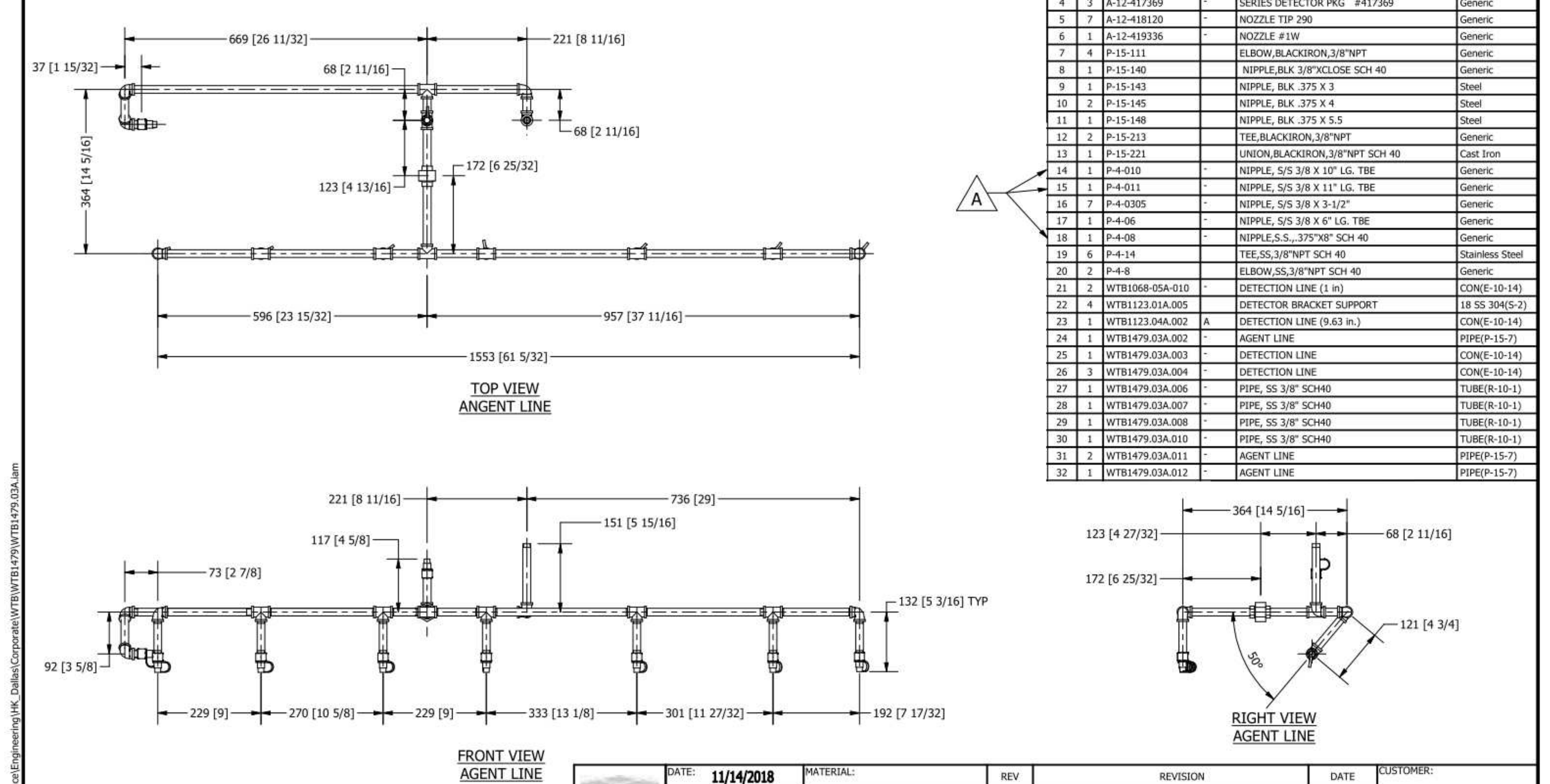
APPLY DURABLANKET INSULATION TO THE ENTIRE BACK OF THE HOOD. [APLIQUE EL AISLAMIENTO DE DURABLANKET PARA CUBRIR COMPLETAMENTE LA PARTE TRASERA DEL HOOD]

SECTION F-F

IMPORTANT NOTE:
IF THERE IS ANY MODIFICATION THAT NEEDS TO BE DONE IN THE MANUAL, USE THE NEXT ROUTE WHERE YOU CAN FIND IT.
L:\Certification Files\HKD GENERIC HOOD MANUAL

NOTA IMPORTANTE:
SI EXISTE CUALQUIER MODIFICACION QUE NECESITE SER HECHA EN EL MANUAL, USAR LA SIGUIENTE RUTA DONDE PODRAS ENCONTRARLO
L:\Certification Files\HKD GENERIC HOOD MANUAL

DATE: 6/16/2021 | DRAWN: HArredondo | WEIGHT: 133.54 kg | WIDTH: N/A | GRAIN LENGTH: N/A | UNITS: mm [in] | SIZE: A3 | SHEET 3 OF 4 | TITLE: WALL MOUNT FRY HOOD WITH CIRCULAR DUCT | ITEM NO: WTB1560



TOP VIEW AGENT LINE

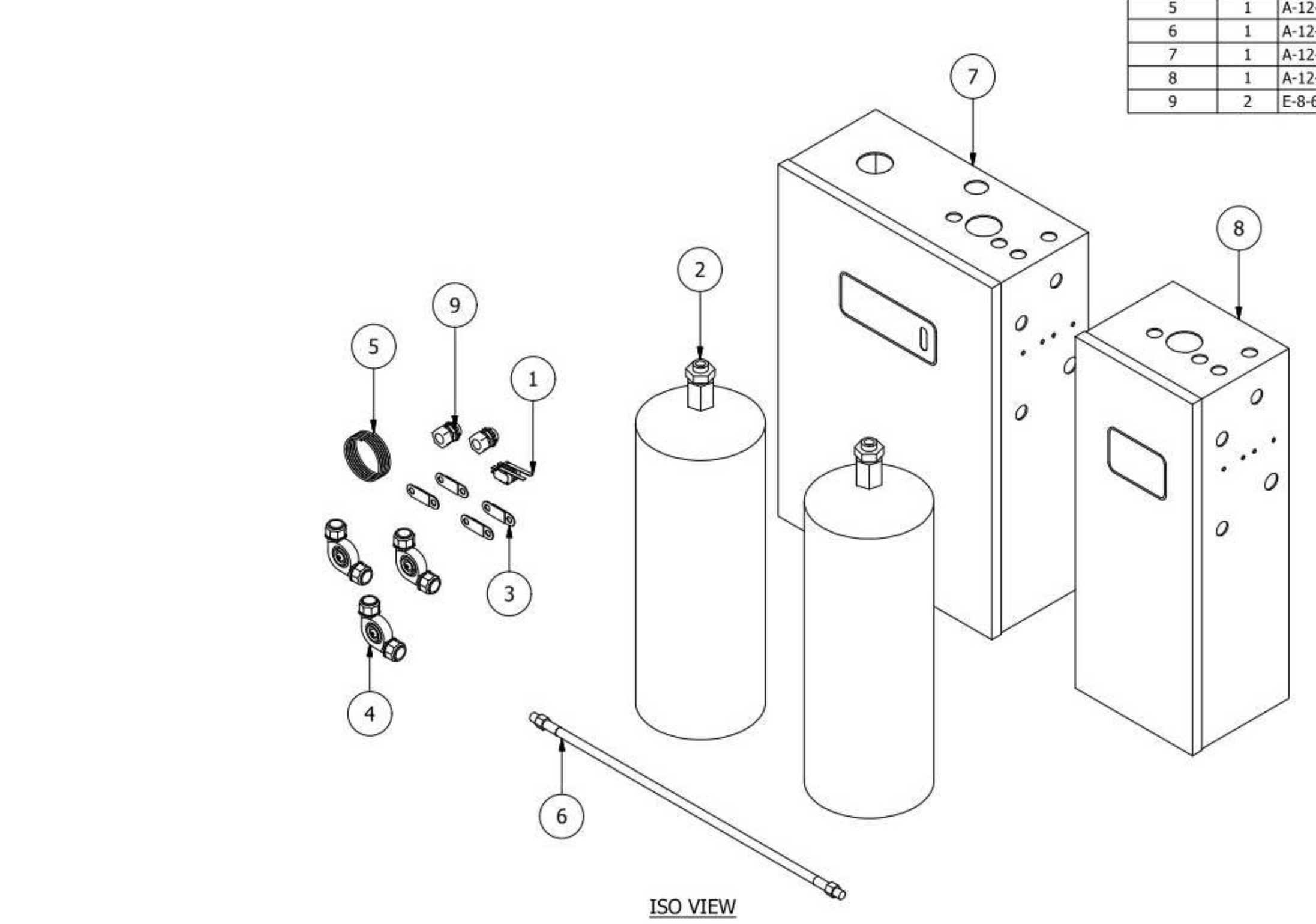
FRONT VIEW AGENT LINE

RIGHT VIEW AGENT LINE

ITEM	QTY	PART NUMBER	REVIS	DESCRIPTION	MATERIAL
1	3	A-12-045	-	PULLEY ELBOW #423251	Generic
2	1	A-12-060	-	NOZZLE,APPL. #1N (25/BX) #419335(419346)	Generic
3	1	A-12-417368	-	TERMINAL DETECTOR PKG #417368	Generic
4	3	A-12-417369	-	SERIES DETECTOR PKG #417369	Generic
5	7	A-12-418120	-	NOZZLE TIP 290	Generic
6	1	A-12-419336	-	NOZZLE #1W	Generic
7	4	P-15-111		ELBOW,BLACKIRON,3/8"NPT	Generic
8	1	P-15-140		NIPPLE,BLK 3/8"XCLOSE SCH 40	Generic
9	1	P-15-143		NIPPLE, BLK .375 X 3	Steel
10	2	P-15-145		NIPPLE, BLK .375 X 4	Steel
11	1	P-15-148		NIPPLE, BLK .375 X 5.5	Steel
12	2	P-15-213		TEE,BLACKIRON,3/8"NPT	Generic
13	1	P-15-221		UNION,BLACKIRON,3/8"NPT SCH 40	Cast Iron
14	1	P-4-010	-	NIPPLE, S/S 3/8 X 10" LG. TBE	Generic
15	1	P-4-011	-	NIPPLE, S/S 3/8 X 11" LG. TBE	Generic
16	7	P-4-0305	-	NIPPLE, S/S 3/8 X 3-1/2"	Generic
17	1	P-4-06	-	NIPPLE, S/S 3/8 X 6" LG. TBE	Generic
18	1	P-4-08	-	NIPPLE,S.S.,.375"X8" SCH 40	Generic
19	6	P-4-14		TEE,SS,3/8"NPT SCH 40	Stainless Steel
20	2	P-4-8		ELBOW,SS,3/8"NPT SCH 40	Generic
21	2	WTB1068-05A-010	-	DETECTION LINE (1 in)	CON(E-10-14)
22	4	WTB1123.01A.005		DETECTOR BRACKET SUPPORT	18 SS 304(S-2)
23	1	WTB1123.04A.002	A	DETECTION LINE (9.63 in.)	CON(E-10-14)
24	1	WTB1479.03A.002	-	AGENT LINE	PIPE(P-15-7)
25	1	WTB1479.03A.003	-	DETECTION LINE	CON(E-10-14)
26	3	WTB1479.03A.004	-	DETECTION LINE	CON(E-10-14)
27	1	WTB1479.03A.006	-	PIPE, SS 3/8" SCH40	TUBE(R-10-1)
28	1	WTB1479.03A.007	-	PIPE, SS 3/8" SCH40	TUBE(R-10-1)
29	1	WTB1479.03A.008	-	PIPE, SS 3/8" SCH40	TUBE(R-10-1)
30	1	WTB1479.03A.010	-	PIPE, SS 3/8" SCH40	TUBE(R-10-1)
31	2	WTB1479.03A.011	-	AGENT LINE	PIPE(P-15-7)
32	1	WTB1479.03A.012	-	AGENT LINE	PIPE(P-15-7)

REVISION HISTORY
A — WTB1479.03A.001 was changed by P-4-08, WTB1479.03A.005 was changed by P-4-010, WTB1479.03A.009 was changed by P-4-011 — 03/26/2019
First check in

DATE: 11/14/2018 | DRAWN: KURIAS | REV A: 20190816 GRn 3/26/2019 | UNITS: mm [in] | SIZE: B | SHEET 1 OF 4 | TITLE: ASSEMBLY ANSUL | ITEM NO: WTB1479.03A



ISO VIEW

BILL OF MATERIALS					
ITEM NO.	QTY R	PART NUMBER	RE	DESCRIPTION	MATERIAL
1	1	A-12-006L		SWITCH, DUAL SNAP ACTION #423879 WITH LEADS	Generic
2	2	A-12-013	-	3 GAL. TANKSHELL W/ADAPTER #429862	Generic
3	4	A-12-022	-	FUSIBLE LINK 165 DEG #415739 (1)	Generic
4	3	A-12-045	-	PULLEY ELBOW #423251	Generic
5	1	A-12-080		WIRE ROPE (50' STAINLESS STEEL)	Generic
6	1	A-12-087		HOSE GROMMET PACKAGE #418511	Generic
7	1	A-12-429853	-	R102 MECH. RELEASE ASSY #429853	Generic
8	1	A-12-429870		R102 1/2 BOX SHPG ASM #429870	Generic
9	2	E-8-64	-	CONNECTOR,1/2 STR.R/T #TC601	Generic

REVISION HISTORY
First check in

DATE: 1/8/2019 | DRAWN: achavez | WIDTH: N/A | GRAIN LENGTH: N/A | UNITS: mm [in] | SIZE: B | SHEET 1 OF 1 | TITLE: REMOTE ANSUL SYSTEM | ITEM NO: A-WTB1479

THESE DRAWINGS AND SPECIFICATION ARE THE PROPERTY OF H&K AND SHALL NOT BE REPRODUCED OR COPIED OR TRANSFERED TO A THIRD PARTY WITHOUT THE WRITTEN PERMISSION OF H&K.

WHATABURGER

BL Companies
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Land Surveying

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Meriden, CT 06450
(203) 630-1406
(203) 630-2815 Fax

△ Date Description

BRIAN A. POELTL
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 128166
STATE OF TENNESSEE
7/25/25

Seal / Signature

Project Date 3/22/2024

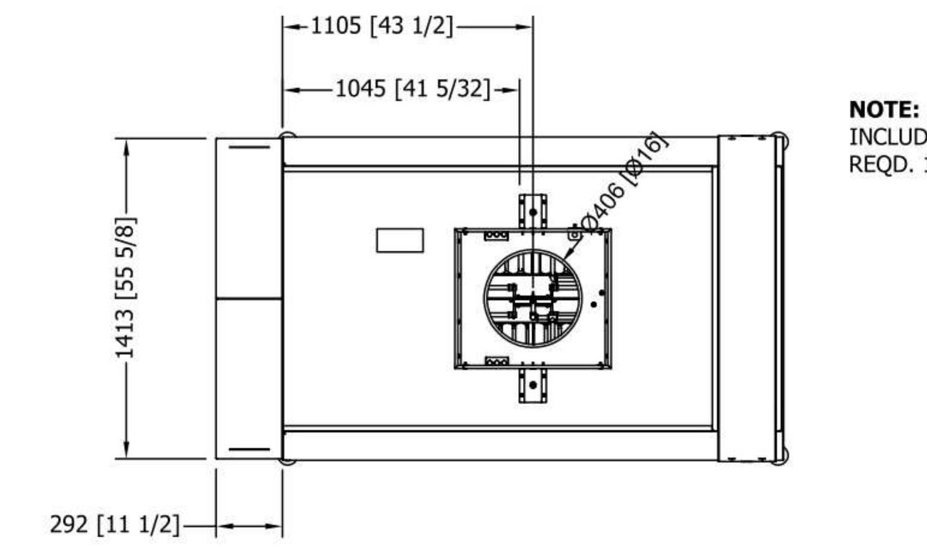
Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
HOOD DRAWINGS

Scale
NOT TO SCALE

M8.1



NOTE: 275 CFM'S PER LINEAR FOOT INCLUDES BOTH SIDES MINIMUN REQD. 1994 CFM'S

TOP VIEW

APPROVALS / CERTIFICATIONS

· THIS HOOD COMPLIES WITH THE FOLLOWING:

UL710 / ULC-S646
STANDARD FOR EXHAUST HOOD AND RELATED CONTROLS FOR COMMERICAL AND INSTITUTIONAL COOKING EQUIPMENT

NFPA96
NATIONAL FIRE PROTECTION ASSOCIATION - STD 96

NSF2:
NATIONAL SANITATION FOUNDATION NO. 2 "FOOD SERVICE EQUIPMENT"

NOTE: THE EXHAUST AIR FLOW RATES WERE ESTABLISHED UNDER CONTROLLED LABORATORY CONDITIONS. GREATER EXHAUST RATES MAY BE REQUIRED FOR COMPLETE VAPOR AND SMOKE REMOVAL IN SPECIFIC INSTALLATIONS.

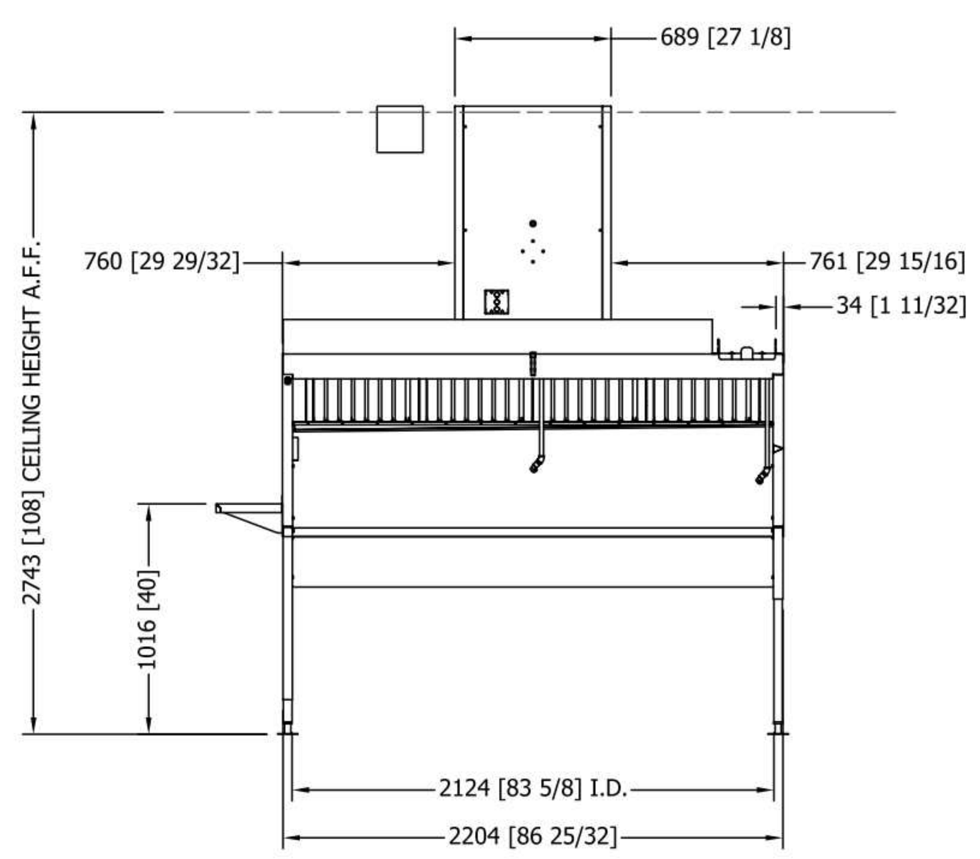
FILTERS/GREASE REMOVAL

· THIS HOOD UTILIZES A COMBINATION OF FLAMEGUARD SS TYPE-5 12X16 AND/OR 12X20 ARE KASON TRAPPER S/S FILTERS 7001 SERIES 12X16 &12X20 MUST BE UL LISTED STAINLESS STEEL GREASE FILTERS

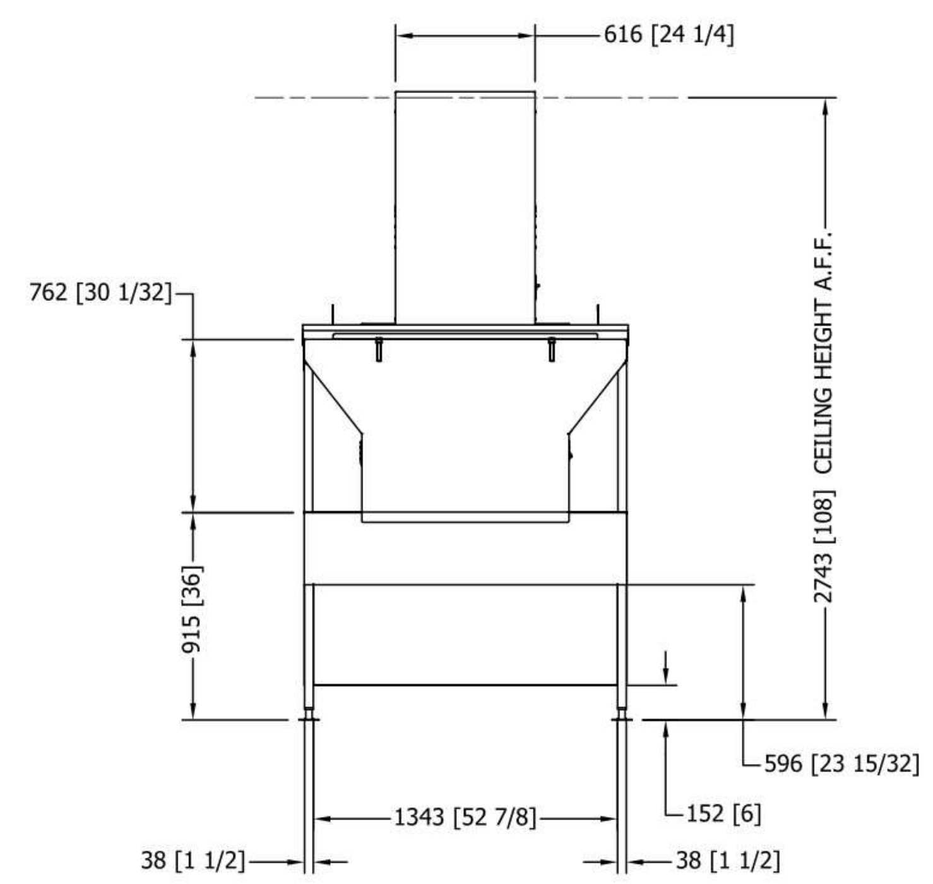
· THEY MUST BE INSTALLED AT ALL TIMES DURING VENTILATION HOOD OPERATION

THIS UNIT REQUIRES: FILTERS (8)
FLAMGUARD FILTER, S/S BAFFLE TYPE VI
(8) 12X20

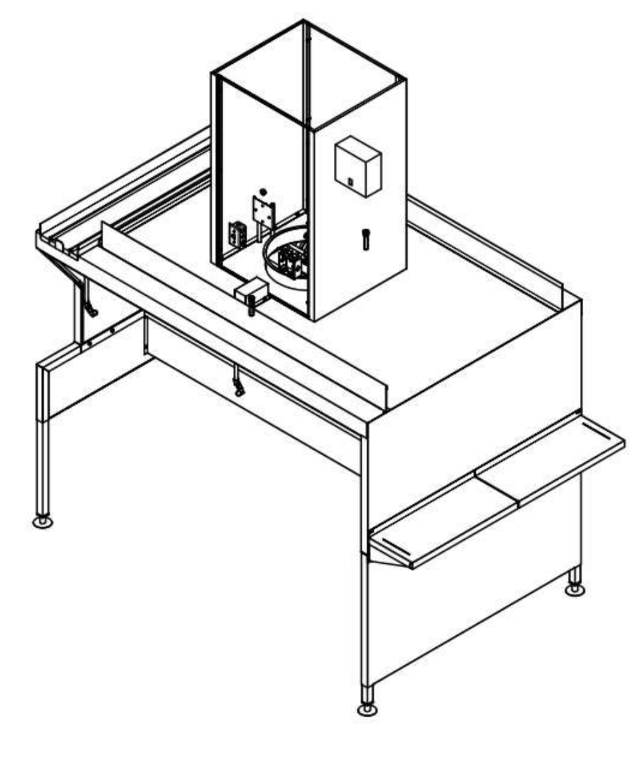
(NOTE) HOOD INCLUDES TEMPERATURE INTERLOCK SYSTEM



FRONT VIEW



RIGHT VIEW



ISOMETRIC BACK VIEW

GRILL HOOD U.L. #MH16346
(STANDARD USED U.L. 710)

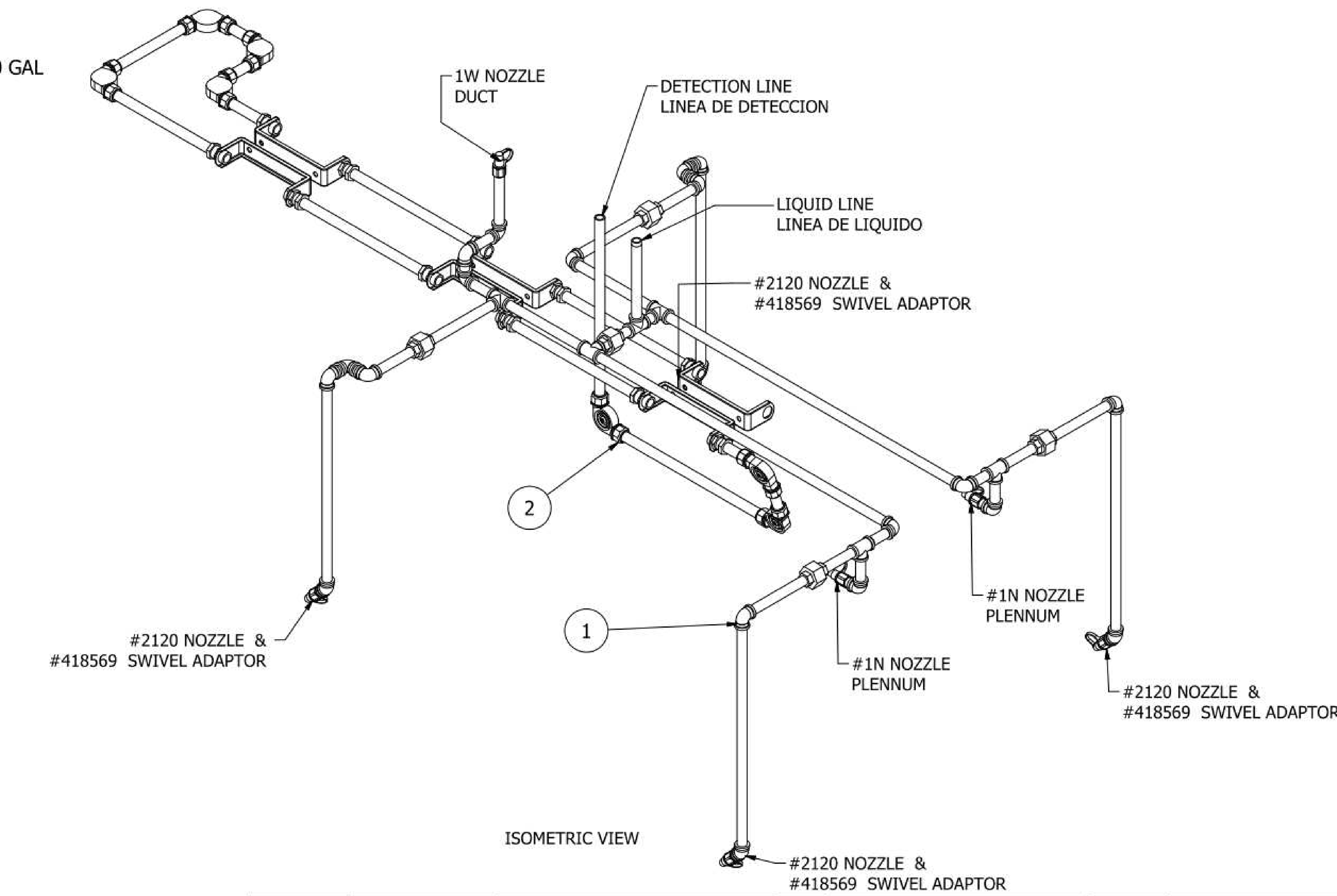
DATE: 8/11/2022	MATERIAL:	REV	REVISION	DATE	CUSTOMER:
DRAWN: GOviedo	WIDTH: N/A	B	20230019 FR	1/10/2023	
WEIGHT: N/A	GRAIN LENGTH: N/A	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: TOLERANCES: X[X X/X"] ±1.00 mm ±0.039" X.X[X.XXX"] ±0.75 mm ±0.029"	UNITS: mm [in]	
COMMENTS:					
THESE DRAWINGS AND SPECIFICATION ARE THE PROPERTY OF H&K AND SHALL NOT BE REPRODUCED OR COPIED OR TRANSFERED TO A THIRD PARTY WITHOUT THE WRITTEN PERMISSION OF H&K.	SIZE: A3	SHEET 2 OF 3	TITLE: 87" DOUBLE SIDED CLAM SHELL GRILL HOOD		ITEM NO: WTB1603

metric — ALL DOCUMENTATION RELATED TO THIS UNIT IS RELEASED ON METRIC SYSTEM [TODA LA DOCUMENTACION RELACIONADA CON ESTA UNIDAD ESTA LIBERADA EN SISTEMA METRICO]

DOUBLE SIDE GRILL HOOD
SUPPLIED WITH (1) 3.0 GAL TANK

DOUBLE SIDE GRILL HOOD
INCLUIDO CON (1) TANQUE DE 3.0 GAL

BILL OF MATERIALS					
ITEM NO.	QTY REQD.	PART NUMBER	REV	DESCRIPTION	MATERIAL
1	1	WTB1603.5100	-	LIQUID LINE ASSEMBLY	
2	1	WTB1603.5200	-	DETECTION LINE ASSEMBLY	

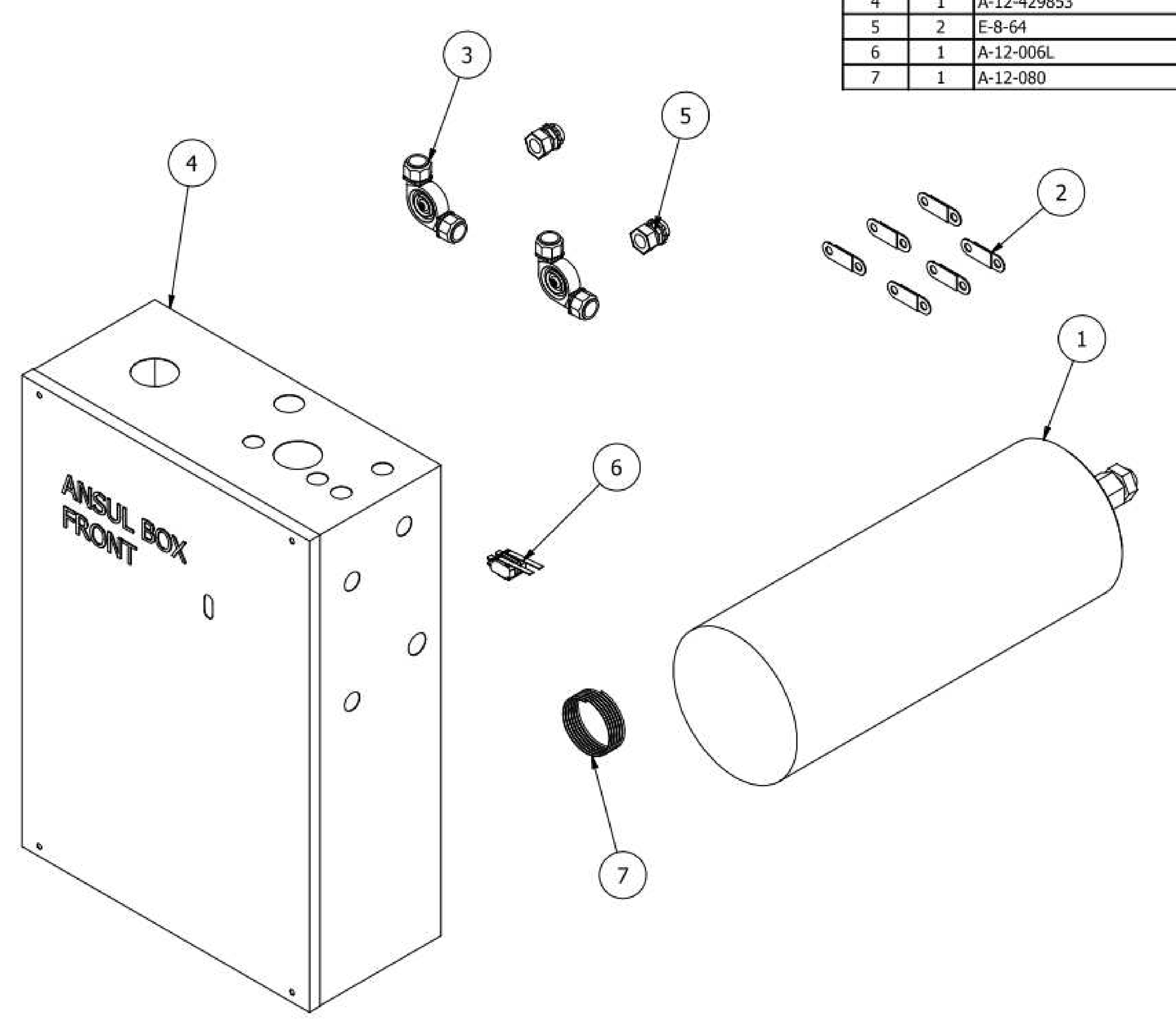


ISOMETRIC VIEW

REVISION HISTORY			
REV	CHANGE DESC	REV DATE	ENG
-	First Check In		

DATE: 8/9/2022	MATERIAL:	REV	REVISION	DATE	CUSTOMER:
DRAWN: GOviedo	WIDTH: N/A	-			
WEIGHT: 5.25 kg	GRAIN LENGTH: N/A	THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED: TOLERANCES: X[X X/X"] ±1.00 mm ±0.039" X.X[X.XXX"] ±0.75 mm ±0.029"	UNITS: mm [in]	
COMMENTS:					
THESE DRAWINGS AND SPECIFICATION ARE THE PROPERTY OF H&K AND SHALL NOT BE REPRODUCED OR COPIED OR TRANSFERED TO A THIRD PARTY WITHOUT THE WRITTEN PERMISSION OF H&K.	SIZE: A3	SHEET 1 OF 1	TITLE: ANSUL ASSY		ITEM NO: WTB1603.5000

BILL OF MATERIALS					
ITEM N	QTY R	PART NUMBER	RE	DESCRIPTION	MATERIAL
1	1	A-12-013	-	3 GAL. TANKSHELL W/ADAPTER #429862	Generic
2	6	A-12-022		FUSIBLE LINK, 165F DEG, #415739	Generic
3	2	A-12-045	-	PULLEY ELBOW #423251	Generic
4	1	A-12-429853		R102 MECH. RELEASE ASSY #429853	Generic
5	2	E-8-64	-	CONNECTOR,1/2 STR.R/T #TC601	Generic
6	1	A-12-006L		SWITCH, DUAL SNAP ACTION #423879 WITH LEADS	Generic
7	1	A-12-080		WIRE ROPE (50' STAINLESS STEEL)	Generic



DATE: 6/3/2013	MATERIAL:	SYM	REVISION	DATE	CUSTOMER:
DRAWN: D.BOOTE	WIDTH: N/A				
SCALE:	GRAIN LENGTH: N/A				
COMMENTS:					
THESE DRAWINGS AND SPECIFICATION ARE THE PROPERTY OF H&K AND SHALL NOT BE REPRODUCED OR COPIED OR TRANSFERED TO A THIRD PARTY WITHOUT THE WRITTEN PERMISSION OF H&K.	SIZE: B	SHEET 1 OF 1	TITLE: REMOTE ANSUL SYSTEM		ITEM NO: A-WTB1263

FOR REFERENCE ONLY

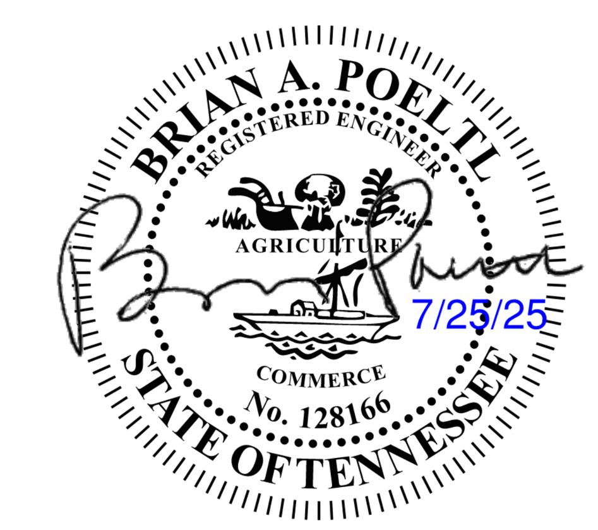
THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE AUTOMATIC FIRE PROTECTION SYSTEM FOR THE RANGE HOODS APPROVED EQUAL TO ANSUL SYSTEM. COMPLETE HOOD AND ANSUL SYSTEM INFORMATION TO BE SUBMITTED BY OTHERS IN FUTURE SUBMISSION.

WHATABURGER

BL Companies
Architecture
Engineering
Environmental
Land Surveying

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

△ Date	Description



Seal / Signature

Project Date 3/22/2024

Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
HOOD DRAWINGS

Scale
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SECTION 23 05 01.00 — COMMON REQUIREMENTS FOR HVAC

General:

General Provisions of the Contract including General and Supplementary Conditions and General Requirements apply to work of this section.

Scope:

The base bid includes furnishing all materials, labor, tools, and equipment and the performance of all work required to install a complete heating and air conditioning system as outlined herein.

Guarantee:

The contractor shall provide a guarantee in written form stating that all work under this section shall be free of defective work, materials, or parts for a period of one year from the date of owner's final acceptance and shall repair, revise or replace at no cost to the owner any such defects occurring within the guarantee period. Contractor shall also state in written form that any items or occurrences arising during the guarantee period will be attended to in a timely manner and will in no case exceed four (4) working days from date of notification by owner.

Quality Assurance:

Provide a complete installation in conformance with the following standards.

ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers

NFPA: National Fire Protection Association

SMACNA: Sheet Metal and Air Conditioning Contractors National Association.

Statewide Building Code

IMC: International Mechanical Code

Permits, Fees, Inspections, Laws and Regulations Permits and fees of every nature required in connection with this work shall be obtained and paid for by this contractor who shall also pay for all the installation fees and similar charges. Laws and regulations, which bear upon or affect the various branches of this work shall be complied with by this contractor and are hereby made a part of this contract. All work, which such laws require to be inspected, shall be submitted to the proper public official for inspection and a certificate of final approval must be furnished.

Tests and Adjustments:

No ducts, piping, fixtures or equipment shall be concealed or covered until they have been inspected and approved by the Architect and the inspector who shall be notified by the contractor when the work is ready for inspection. Work shall be completely installed, tested and leak tight before inspection is required. All tests shall be repeated to the satisfaction of those making the inspection.

Architectural coordination items:

Cutting and Patching: Cut and drill all openings in walls and floors required for the installation. Secure approval of Engineer before cutting and drilling. Neatly patch all openings cut.

Fire Caulking: Patching through fire rated walls and enclosures shall not diminish the rating of that wall or enclosure. Patch shall be equal to rockwool, firestop, caulk or approved "rated" patch.

Access Panels and Pathways: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls, cleanout doors, and sprinkler devices required by NFPA. Provide access panels for all fire and/or fire & smoke dampers. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.

DELEGATED DESIGN:

For equipment supports, this contractor shall retain a qualified professional engineer to provide support calculations of static and dynamic loading due to operating equipment weight. The signed and sealed calculations and details shall be submitted by the retained professional engineer.

MECHANICAL EQUIPMENT COMMON REQUIREMENTS:

INSPECTION:

Examine areas and conditions under which mechanical equipment is to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

Uncrate equipment and inspect for damage. Verify that nameplate data corresponds with unit designation.

INSTALLATION:

General: Install mechanical equipment as indicated, and in accordance with manufacturer's installation instructions.

Location: Install each unit level/plum and accurately in position indicated in relation to other work; and maintain sufficient clearance for normal service and maintenance, but in no case less than that recommended by manufacturer.

Coordinate with other trades to assure correct recess size for recessed units.

Protect interior mechanical equipment with protective covers during balance of construction.

For ducted equipment, connect ductwork to units with flexible duct connections. Provide transitions to exactly match unit duct connection size. Provide 1" acoustic duct lining on return air side a minimum of 10' from fan. Piping: Restrictors or piping changes shall be made as necessary to achieve manufacturers recommended pressure drops. The findings shall be reported to the engineer at project closeout.

Provide trap at drain piping connection to unit sized per manufacturer's recommendations.

Access: Provide access space around and over mechanical equipment for service as indicated, but in no case less than that recommended by manufacturer or required by code in effect.

Access Panels: Furnish all access panels required for proper servicing of equipment. Provide access panels for all concealed valves, vents, controls and cleanout doors, and sprinkler devices required by NFPA. Provide frame as required for finish. Furnish panels to General Contractor. Exact locations to be approved by the Architect. Minimum size to be 12" x 12", units to be 16 gauge steel, locking device shall be screwdriver cam locks.

Rooftop mechanical equipment shall be installed a minimum of 10'-0" from any roof edge regardless of location indicated on plans, unless a screen wall or railing is installed per the local building code. See the architectural plans for coordination.

Roof Curbs: Furnish roof curbs to roofing Installer for installation. Install and secure roof curb to roof structure, in accordance with National Roofing Contractor's Association (NRCA) installation recommendations and shop drawings. Install and secure units on curbs and coordinate roof penetrations and flashing. Install according to roofing manufacturer's recommendation and specifications.

Rooftop supports: Provide rooftop equipment rails for mechanical equipment located on the roof that spans two or more bar joists. Verify roof structure, mounting supports, and membrane installations are completed to the proper point to allow installation of roof mounted units.

ELECTRICAL COORDINATION ITEMS:

Electrical Wiring: Install electrical devices furnished by manufacturer but not specified to be factory-mounted. Furnish copy of manufacturer's wiring diagram submittal to Electrical Installer.

Verify that electrical wiring installation is in accordance with manufacturer's submittal and installation requirements of Division 26 sections. Do not proceed with equipment start-up until wiring installation is acceptable to equipment installer.

Install electric heating terminal units including components in accordance with equipment manufacturer's written instructions, and with recognized industry practices; complying with applicable installation requirements of NEC and NECA's "Standard of Installation".

Tighten connectors and terminals, including screws and bolts, in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torquing requirements are not indicated, tighten connectors and terminals to comply with tightening torques specified in UL Std 486A.

Grounding: Provide equipment grounding connections for electric heating terminals as indicated. Tighten connections to comply with tightening torque values specified in UL Std 486A to assure permanent and effective grounding.

FIELD QUALITY CONTROL:

Testing: After installation has been completed, test to demonstrate proper operation of mechanical equipment at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units, which cannot be satisfactorily corrected. Test controls and demonstrate compliance with requirements.

Cleaning: After construction is completed, including painting, clean unit exposed surfaces, vacuum clean coils and inside of cabinets. Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint.

START-UP:

Provide the services of a factory-authorized service representative to start-up rooftop units, in accordance with manufacturer's written start-up instructions. Test controls and demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

TRAINING OF OWNER'S PERSONNEL:

Provide services of manufacturer's technical representative for 1-half day to instruct Owner's personnel in operation and maintenance of units. Schedule training with Owner, provide at least 7-day notice to Contractor and Engineer of training date.

SECTION 23 05 03.00 — SUBMITTALS FOR HVAC

General:

Where submittals are required by the Contract Documents, they shall be prepared and supplied in accordance with the Contract Documents. In addition to Division 01, the Contractor is advised to review and comply with the requirements articulated within each Division and within each section of that Division.

Some Divisions may include a division-specific "Submittal Requirements for ...." section. Where this section exists, it articulates additional requirements for submittals that apply to the work of that Division.

The following requirements help to identify, track and keep the project organized for all parties involved. They are necessary to ensure a timely turnaround and an appropriate technical review. Submittals that do not conform to the administrative requirements are rejected and returned, without technical review.

Requirements

Supply submittals for each section: Submittals shall be supplied on a section-by-section and type-by-type basis. For example, independent product data submittals shall be furnished for each section that requires product data submittals. Independent shop drawing submittals shall be furnished for each section that requires shop drawings. Refer to the specifications for identification of which submittals are required for the project.

Separate PDF file packages shall be supplied for each section, for each submittal type, where electronic submittals are required. Each PDF shall represent a single standalone submittal.

Separately bound and identified submittals shall be provided where hardcopies are required.

Include a transmittal: Transmittals shall enumerate each submittal for each section of each type and iteration. Include cover sheet / title page: The cover sheet shall include the information identified in the contract documents. It shall be included as the first page of each electronic and/or hardcopy document-based submittal.

Include an index: The index shall enumerate the contents of the submittal.

Include checklists: Where checklists are included with the specifications, complete and include them within the appropriate submittal. Supply complete submittals: Complete submittals of each type are required. Partial submittals will be rejected. Where a section requires a product data submittal, all product data for that section shall be supplied together, at one time, as one complete submittal. Do not send half the product data as one submittal and the other half as a separate one. When resubmittal is required (e.g. Revise and Resubmit) the revised submittal shall be more complete, more accurate and more contract-compliant than its rejected predecessor. The submittal number (for each section and type) shall increment for each subsequent submittal (00 —Original submission, 01 — First Resubmission, 02 —Second Resubmission, etc...). Resubmittals shall include a copy of the reviewer's comments supplied with the prior submittal rejection and shall be amended with a description of the specific action taken to comply with the reviewer's comments. The absence of this on resubmittal is cause for rejection.

Name electronic files to match the submittal ID and cover sheet: The electronic file name of submittals shall match the submittal ID included on the submittals cover page. For example: The original/first product data submittal for Section 234116 would be labeled as "234116.00-PD-00"; the first resubmittal of same shall be labeled "234116.00PD-01". The original/first shop drawings submittal file for the same section would be labeled "234116.00-SD-00"; the first resubmittal of same shall be labeled "234116.00- SD-01".

Use of Electronic Drawings from the Owner's Design Team Plan drawings for the Project were created with Revit. If expressly permitted by the Owner and the terms of the Contract, editable electronic versions of standard-scale, AutoCAD-based plan drawings may be made available for the creation of shop and as-built drawings.

Due to the proprietary nature of internal design systems, editable native-software versions of some drawings, including but not limited to system diagrams and details will not be made available in an editable form. In these cases, electronic versions of the drawings may be made available only in PDF, JPG or similar non-editable electronic form, at the sole discretion of the Design Professional.

SECTION 23 05 93.00 — TESTING, ADJUSTING AND BALANCING FOR HVAC

Submittal Requirements:

Shop Drawings:

Certified Reports: Submit testing, adjusting, and balancing reports bearing the seal and signature of the Test and Balance Engineer.

The reports shall be certified proof that the systems have been tested, adjusted, and balanced in accordance with the referenced standards; are an accurate representation of how the systems have been installed; are a true representation of how the systems are operating at the completion of the testing, adjusting, and balancing procedures; and are an accurate record of all final quantities measured, to establish normal operating values of the systems.

Final Report: Upon verification and approval prepare final reports, type written, and organized and formatted as specified below. Submit 2 complete sets of final report to the owner.

General:

Test, adjust, and balance the following mechanical systems:

Supply air systems, all pressure ranges

Return air systems.

Exhaust air systems.

Verify temperature control system operation.

Test systems for proper sound and vibration levels.

Quality Assurance:

Codes and Standards:

AABC: "National Standards for Total System Balance".

ASHRAE: ASHRAE Handbook, 2011 Applications, Chapter 38, Testing, Adjusting, and Balancing. Qualifications

The contractor shall procure the services of an independent Balance and Testing Agency, approved by the Engineer, and a member of Associated Air Balance Council (AABC) or NEBB, which specializes in the balancing and testing of heating, ventilating and air conditioning systems, to balance, adjust and test all air and water systems and equipment as herein specified. All work by this agency shall be done under direct supervision of a qualified heating and ventilating Engineer employed by this agency. All instruments used by this agency shall be accurately calibrated and maintained in good working order.

Sequencing and Scheduling:

Test, adjust, and balance the air systems before hydronic, steam, and refrigerant systems.

Test, adjust and balance air conditioning systems during summer season and heating systems during winter season, including at least a period of operation at outside conditions within 5 deg F wet bulb temperature of maximum summer design condition, and within 10 deg F dry bulb temperature of minimum winter design condition. Take final temperature readings during seasonal operation.

Check all filters for cleanliness, provide new as required. Check dampers (volume and fire) for correct and locked position, and temperature control for completeness of installation before starting fans. Place outlet dampers in full open position. Lubricate all motors and bearings. Check fan belt tension. Check fan rotation.

Open valves to full open position. Remove and clean all strainers. Set temperature controls so all coils are calling for full flow.

Air balance and testing shall not begin until the system has been completed and is in full working order. The Contractor shall put all heating, ventilating and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing. The contractor shall submit within 30 days after receipt of contract, 8 copies of submittal data for the testing and balancing of the air conditioning, heating, and ventilating systems. The Air Balance and Testing Agency shall provide proof of having successfully completed at least five projects of similar size and scope.

The air balancing contractor shall include the additional cost to change every fan factory installed sheave, pulley and/or belt of in order to obtain the design air flows.

Performing Testing, Adjusting and Balancing:

Perform testing and balancing procedures on each system identified, in accordance with the detailed procedures outlined in the referenced standards.

Cut insulation, ductwork, and piping for installation of test probes to the minimum extent necessary to allow adequate performance of procedures.

Patch insulation, ductwork, and housings, using materials identical to those removed.

Seal ducts and piping, and test for and repair leaks.

Seal insulation to re-establish integrity of the vapor barrier. Mark equipment settings, including damper control positions; valve indicators, fan speed control levers, and similar controls and devices, to show final settings. Mark with paint or other suitable, permanent identification materials.

Retest, adjust, and balance systems subsequent to significant system modifications, and resubmit test results.

SECTION 23 07 13.00 — DUCT INSULATION

Submittal Requirements:

Product Data: For each product indicated.

Shop Drawings: Include plans, elevations, sections, details and attachments to other work.

All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50. Insulation shall have a minimum installed thermal resistance value of R8 or code minimum, whichever higher.

Rigid Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IB, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

Flexible Fiberglass Ductwork Insulation: Glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II, without facing and with vapor barrier all-service jacket manufactured from kraft paper, reinforcing scrim, aluminum foil, and vinyl film.

Vapor Barrier Material for Ductwork: Paper-backed aluminum-foil, except as otherwise indicated; strength and permeability rating equivalent to factory-applied vapor barriers on adjoining ductwork insulation, where available; with following additional construction characteristics:

High Puncture Resistance: Low vapor transmission (for ducts in exposed areas: Mech. Rooms, etc.)

Moderate Puncture Resistance: Medium vapor transmission (for ducts in concealed areas).

All ductwork shall be insulated except:

Double wall ductwork

Fabric ductwork

Metal ducts with duct liner of sufficient thickness to comply with energy code.

Factory insulated flexible ductwork

Factory insulated plenums and casings

Flexible connectors

Vibration control devices

Factory insulated access panels and doors

Supply ductwork exposed in conditioned spaces excluding mechanical rooms, server rooms and electric equipment rooms

Toilet exhaust, general exhaust and return ductwork in an insulated joist or attic space.

SECTION 23 31 13.00 — METAL DUCTS

Submittal Requirements:

Product Data: For liners, adhesives, sealants and gaskets.

Shop Drawings: Sheet metal thickness, reinforcing details, duct layouts indicating sizes, configuration, liner material, elevation and static pressure class.

Ductwork Materials:

Exposed Ductwork Materials: Where ductwork is indicated to be exposed to view in occupied spaces, provide materials which are free from visual imperfections including pitting, seam marks, roller marks, stains and discolorations, and other imperfections, including those which would impair painting. Mechanical contractor shall confirm ductwork paint scope and color with architect. Exposed ductwork which is to be painted shall have paint grip applied and be oil free.

Sheet Metal: Except as otherwise indicated, fabricate ductwork from galvanized sheet steel, lock forming quality; with G 90 zinc coating and mill phosphatized for exposed locations. Minimum gauge shall be 24.

Aluminum sheet: Where indicated, provide aluminum sheet, Alloy 3003, Temper H14.

Miscellaneous Ductwork Materials:

Volume Dampers: Provide volume dampers in all branch ducts or as required for balancing to required air flows.

Fittings: Provide radius type fittings fabricated of multiple sections with maximum 15 deg. change of direction per section. Unless specifically detailed otherwise, use 45 deg. laterals and 45 deg. elbows for branch takeoff connections. Where 90 deg. branches are indicated, provide conical type tees.

Duct Sealant: Non-hardening, non-migrating mastic or liquid elastic sealant, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for sealing joints and seams in ductwork.

Duct Cement: Non-hardening migrating mastic or liquid neoprene based cement, type applicable for fabrication/installation detail, as compounded and recommended by manufacturer specifically for cementing fitting components, or longitudinal seams in ductwork.

Ductwork Support Materials: Except as otherwise indicated, provide hot-dipped galvanized steel fasteners, anchors, rods, straps, trim and angles for support of ductwork.

For aluminum ductwork, provide aluminum support materials except where materials are electrolytically separated from ductwork.

Flexible Ducts:

Either spiral-wound spring steel with flameproof vinyl sheathing, or corrugated aluminum. Unless specifically mentioned, the maximum length of flex duct on the supply equals 5 feet. Flex is not allowed for return, relief or exhaust applications. The flexible ducts indicated for use in the H.V.A.C. system shall conform to the requirements of UL 181 for Class 0 or Class 1 flexible air ducts and shall be so identified.

Where installed in unconditioned spaces other than return air plenums, provide 1" thick 1-1/2 lb. continuous flexible fiberglass sheath with vinyl vapor barrier jacket.

Installation is not permitted above drywall ceilings and inaccessible ceilings.

Fabrication:

Shop fabricate ductwork in 4, 8, 10 or 12-ft lengths, unless otherwise indicated or required to complete runs. All ductwork shall be Pittsburgh Construction with a minimum of thickness of 24 gauge. In addition, ductwork used in systems over 3" W.G. shall have cold sealant applied. Shop fabricate ductwork of gauges and reinforcement complying with SMACNA "HVAC Duct Construction Standards".

Lined Duct:

Fabricate ductwork with duct liner in each section of duct where indicated. Laminate liner to internal surfaces of duct in accordance with instructions by manufacturers of lining and adhesive, and fasten with mechanical fasteners. Duct liner to be 3-lb density for acoustic requirements 1" thick or as noted. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used.

Duct Liner: Fibrous glass of thickness indicated. 3-lb density. All liners, insulation and adhesives shall have a flame spread index not more than 25 and a smoke developed index of not more than 50.

Duct Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.

Duct Liner Fasteners: Comply with SMACNA HVAC Duct Construction Standards.

Double Wall Ducts:

Exposed round and rectangular ductwork and fittings shall be manufactured or shop-fabricated double wall a minimum G-90 galvanized steel ductwork with 1"
fiberglass insulation between the solid outer shell and perforated inner liner. All ducts and fittings shall be construction for SMACNA's latest standards. All gaskets shall be UL listed to conform to ASTM E84-91a and NFPA 90A.

Manufacturers: Subject to compliance with requirements, provide ductwork of one of the following: United-McGills K27, Lindab Safe, Semco or approved equal.

Installation of Metal Ductwork:

General: Assemble and install ductwork in accordance with recognized industry practices which will achieve airtight (5% leakage for systems rated 3" and under; VA for systems rated over 3") and noiseless (no objectionable noise) systems, capable of performing each indicated service. Install each run with minimum number of joints. Align ductwork accurately at connections, within 1/8" misalignment tolerance and with internal surfaces smooth. Support ducts rigidly with suitable ties, braces, hangers and anchors of type which will hold ducts true-to-shape and to prevent buckling. Support vertical ducts at every floor. Sheetmetal Ducts shall be supported per SMACNA standards, pre-fabricated ductwork shall be supported per the manufacturer's instructions.

Sealing: Seal all longitudinal seams, S's and drives and all joints with UL-181A listed and labeled mastic or cement. Install according to SMACNA standards. Duct connections to air equipment shall be sealed and mechanically fastened. Fasteners for flexible nonmetal duct shall be UL-181B listed and labeled.

Balancing Dampers: The sheet metal contractor shall be fully responsible for installing balancing dampers in the ductwork, (whether shown on the drawing or not) in order to arrive at the intended air flow. The balancing subcontractor shall provide direction and assistance in determining locations where dampers are required. Additional dampers, if required shall be installed at no additional cost to the owner.

Wall Penetrations: Seal and pack around all ducts and piping sleeves which pass through walls that extend to bottom side of structure and rated walls.

Field Fabrication: Complete fabrication of work at project as necessary to match shop-fabricated work and accommodate installation requirements.

Routing: Locate ductwork runs, except as otherwise indicated, vertically and horizontally and avoid diagonal runs wherever possible. Run ductwork in shortest route which does not obstruct useable space or block access for servicing building and its equipment. Hold ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building. Limit clearance to 1/2" where furring is shown for enclosure or concealment of ducts, but allow for insulation thickness, if any. Where possible, locate insulated ductwork for 1" clearance outside of insulation. Wherever possible in finished and occupied spaces, conceal ductwork from view, by locating in mechanical shafts, hollow wall construction or above suspended ceilings. Do not encase horizontal runs in solid partitions, except as specifically shown.

Coordinate layout with suspended ceiling and lighting layouts and similar finished work.

Electrical Equipment Spaces: Do not route ductwork through transformer vaults and their electrical equipment spaces and enclosures.

Penetrations: Where ducts pass through interior partitions and exterior walls, and are exposed to view, conceal space between construction opening and duct or duct insulation with sheet metal flanges of same gage as duct. Overlap opening on 4 sides by at least 1-1/2". Fasten to duct and substrate.

All dampers integral to or utilized as part of an engineered smoke control system shall be listed and comply with UL 555S.

All dampers shall be low leakage with edge and blade seals.

Damper manufacturers are subject to specification compliance.

Provide products by one of the following:

Greenheck Fan Corporation

Nailor Industries

Pottorff

Ruskin Company

Young Regulator Company

Coordination: Coordinate duct installations with installation of accessories, dampers, coil frames, equipment, controls and other associated work of ductwork system.

Installation of Duct Liner

General: Install duct liner in accordance with SMACNA HVAC Duct Construction Standards. Size of ductwork shown on the drawings is free net area, outside dimension of ducts will need to be increased if lined duct is used. Store internally lined ductwork up off of the floor. Protect internally lined ductwork from water and dust.

The following ductwork shall be lined in addition to that shown per plans:

Return from open ceiling plenum return to HVAC unit.

Supply and return ductwork 10 feet downstream of HVAC unit.

Transfer air ducts.

Butter the leading edge of all internal duct lining with the manufacturer's recommended adhesive.

Inspect and repair all damaged lining prior to installation of ductwork.

Installation of Flexible Ducts:

Maximum Length: For any duct run using flexible ductwork, do not exceed 5' - 0" extended length. Installation shall have smooth full radius turns down to diffuser.

Installation not permitted above inaccessible ceilings.

23 34 23.00 — HVAC POWER VENTILATORS

Submittal Requirements:

Product Data: For each type of product indicated.

Centrifugal Roof Ventilators:

Provide centrifugal roof type, curb mounted, power ventilators of type, size, and capacity as scheduled, and as specified herein.

Type: Centrifugal fan, direct or belt driven as scheduled. Provide aluminum, galvanized steel, or fiberglass weatherproof housings as scheduled. Provide square base to suit roof curb. Provide permanent split-capacitor type motor for direct driven fans; capacitor-start, induction-run type motor for belt driven fans.

Provide the Following Types of Housing Design:

Hooded dome type.

Upblast type.

Electrical: Provide factory-wired non-fusible type disconnect switch at motor in fan housing. Provide thermal overload protection in fan motor. Provide conduit chase within unit for electrical connection.

Provide NEMA 1 disconnect factory mounted. For single phase fractional HP fans use a toggle type disconnect switch. On three phase integral HP fans use a NEMA 1 safety switch.

Bird Screens: Provide removable bird screens, 1/2" mesh, 16-ga aluminum or brass wire.

Duct Lining: Provide 1" thick, 3-lb density duct liner a minimum of 10' (ten feet) up stream of fan.

Kitchen Hood Exhaust: Provide UL listed fan with grease cup and drain and extended roof curb for fan outlet at 40" above roof.

Roof Curb: Provide factory fabricated roof curb by the same manufacturer as the equipment. Roof curb to be insulated.

Manufacturer: Subject to compliance with requirements, provide centrifugal roof ventilators of one of the following:

Acme

CaptiveAire

Cook (Loren) Co.

Greenheck.

Twin City Fan & Blower

Prefabricated Roof Curbs:

General: Provide manufacturer's standard shop-fabricated units, modified if necessary to comply with requirements.

Fabricate structural framing for units of structural quality sheet steel, formed to manufacturer's standard profiles for coordination with roofing, insulation and deck construction.

Include 45 deg. cant strips and deck flanges with offsets to accommodate roof insulation. Weld corners and seams to form watertight units.

Clean and paint units with manufacturer's standard rust-inhibitive metal primer paint.

Reinforce continuous runs of over 3'-0" length, by inserting welded stiffeners of heavy gage with flanges as required to provide sufficient rigidity and strength to withstand maximum lateral forces in addition to superimposed vertical loads.

Gage and Height: Fabricate units of metal gage and to height above roof surface as indicated.

Where gage or height are not indicated, fabricate units of 14-ga metal, and nominal height of 14".

Provide pressure treated wood nailer, not less than 1-5/8" thick and of width indicated, but not less than width of support wall assembly. Anchor nailer securely to top of metal frame unit.

Provide lumber pressure treated with water-borne preservatives for "above ground" use.

Insulate units inside structural support wall with rigid glass fiber insulation board of approximately 3-lb. density and 11/2" minimum thickness, except as otherwise indicated.

Manufacturer: Subject to compliance with requirements, provide prefabricated roof curbs of one of the following:

Custom Curb, Inc.

Equipment Manufacturer.

MicroMetl

Pate Co.

Shipman.

Thycurb.

INSTALLATION:

Coordinate ventilator work with work of roofing, walls, and ceilings, as necessary for proper interfacing.

Provide access door in duct below ventilator to service damper.

Solder bottom joints and up 2" of side joints of duct under roof ventilator to retain any moisture entering ventilator.

23 37 13.00 — DIFFUSERS, REGISTERS AND LOUVERS

Submittal Requirements:

Product Data: For each type of product indicated.

DIFFUSERS, GRILLES AND REGISTERS:

Manufacturer: Subject to compliance with requirements, provide diffusers of one of the following:

Anemostat Products Div., Dynamics Corp. of America.

Metal-Aire

Titus Products Div., Philips Industries, Inc.

Tuttle and Bailey.

Price

Louvers and dampers:

Provide louvers and dampers of size as noted.

Manufacturer: Subject to compliance with requirements, provide diffusers of one of the following:

Aerolite

Prefco

Pottorff

Greenheck

Ruskin

23 38 13.00 — COMMERCIAL KITCHEN HOODS AND DUCTWORK

Submittal Requirements:

Product Data: For each type of product indicated.

Type 1 Commercial Kitchen Hood:

Refer to food service drawings for equipment furnished by food service vendor.

Type 1 Kitchen Exhaust Ductwork:

General: Kitchen exhaust ducts and supports, used for smoke and vapor removal from cooking equipment, shall be pre-fabricated UL 1978 listed and labeled grease duct, DuraVent model DIS1 or equal. For duct construction, comply with SMACNA "HVAC Duct Construction Standards", and NFPA 96 "Removal of Smoke and Grease-Laden Vapors from Commercial Cooking Equipment".

Provide flexible fire resistive duct enclosure/wrap per ASTM E2336. Insulation shall be a lightweight non-asbestos, high temperature, inorganic, ceramic fiber blanket totally encapsulated in foil/scrim having a service temperature range up to 2000 degrees F. Insulation is a 2 hour fire resistive rated grease air duct enclosure as a shaft alternative and a method for providing zero inch clearances around commercial kitchen grease duct exhaust systems to combustible materials. Provide 2 layers of insulation per code. Insulate with two (2) layers of 1-1/2" thickness foil encapsulated fire resistive duct wrap, total thickness is 3". Install with 1" high performance filament and 3" aluminum foil tape to seal blanket edges. Provide 304 Carbon Steel banding for 2 hour ratings, steel angle opening frame, 16 gage access cover, 1/4" diameter thread rods 5 " long and fire stop materials. Install according to manufacturer's installation instructions.

For access doors that are part of the tested enclosure system in kitchen grease exhaust duct, FireMaster F2-HTXL2 Access doors are acceptable.

Provide a manual reset fire stat mounted in the exhaust duct above the hood for automatic shutdown of hood exhaust fan. Wiring by electrical contractor.

Kitchen Exhaust Fan:

Refer to food service drawings for equipment furnished by food service vendor.

Exhaust fan shall be UL listed for grease removal, upblast (or sideblast for sidewall applications) type of spun aluminum construction with backward inclined or airfoil blades only, containing a built-in grease trough and drain and having a completely isolated motor compartment.

Provide the following for each fan:

No bird screens or dampers will be permitted.

Provide extended curb so that fan discharge is 40 inches above the roof surface.

The fan shall be complete with fused disconnect switch.

Hinged base for access to grease duct and blower wheel.

Fire Protection System:

Refer to food service drawings for equipment furnished by food service vendor.

The HVAC contractor shall furnish and install a complete automatic fire protection system for the range hoods approved equal to Ansul System. All cooking equipment located beneath the Range Hoods shall be protected against fire by the installation of ARS or equal automatic liquid chemical fire extinguishing system.

The system shall be installed in accordance with Underwriters Laboratories listing and shall conform with all state and local governing codes.

Fire extinguishing unit and controls shall be completely installed and wired within a stainless steel fire suppression cabinet, mounted on wall within 15 feet of range hood. Cabinet shall have space in lower portion of panel for 3-gang hood switch.

Provide the following for each hood:

Complete pre-piping of kitchen hood with schedule 40 black iron pipe.

Fuel shut-off device with manual reset relay solenoid shutoff valve.

One double pole, double throw microswitch for electric appliances.

All detectors, links, release mechanism, tanks and fire suppression agent.

One manual pull station for fire extinguishing unit located at fire suppression cabinet. Pull station shall be located at least 10 feet away from cooking operation in a visible and accessible location near the exit from the cooking area. Provide all necessary switches, emergency gas valves, control wiring and two set of No/NC contacts for interface with the gas valve and fire alarm system.

Manufacturer: Subject to compliance with the requirements, provide automatic fire protection system of one of the following:

Safety First

Ansul

Kidde

Inspection

Installation of Type 1 Kitchen Exhaust Ducts:

General: Fabricate joints and seams with continuous welds for watertight construction. Provide for thermal expansion of ductwork through 2000 deg. F temperature range. Install without dips or traps which may collect residues, except where traps have continuous or automatic residue removal. Provide access openings at duct connection to hood and at each change in direction, located on sides of duct 1-1/2" minimum from bottom, and fitted with grease-tight covers of same material as duct.

Field Quality Control:

Testing: After installation of Hood exhaust system has been completed, test each system to demonstrate proper operation of units at performance requirements specified. When possible, field correct malfunctioning units, then retest to demonstrate compliance. Replace units which cannot be satisfactorily corrected.

Provide testing, permits and approvals as required by state and local authorities.

Adjusting and Cleaning:

Clean factory-finished surfaces.

Repair any marred or scratched surfaces.

Inspection:

Installation:

Coordinate work with work of roofing, walls, and ceilings, as necessary for proper interfacing.

Duct connections to be provided by the HVAC contractor. The termination of kitchen exhaust outlets shall not be less than 10 feet horizontally from parts of the same or contiguous buildings, adjacent property lines and air intakes.

Outlet shall not be less than 10 feet vertically above adjoining grade level.

Ensure that rotation is in direction indicated and intended for proper performance.

Do not proceed with centrifugal fan start-up until wiring installation is acceptable to fan Installer.

23 74 33.00 — PACKAGED OUTDOOR ROOFTOP UNITS

Submittal Requirements:

Product Data: For each type of product indicated.

Warranty:

Warranty on Compressor and Heat Exchanger: Provide written warranty, signed by manufacturer, agreeing to replace/repair, within warranty period, compressors and heat exchangers with inadequate and defective materials and workmanship, including leakage, breakage, improper assembly, or failure to perform as required; provided manufacturer's instructions for handling, installing, protecting, and maintaining units have been adhered to during warranty period. Replacement is limited to component replacement only, and does not include labor for removal and reinstallation.

Warranty Period: 5 years from date of owner acceptance.

STAGED VOLUME:

General: Rooftop unit shall be factory-assembled and tested, designed for roof or slab installation and,
consisting of compressors, condensers, evaporator coils, condenser and evaporator fans, refrigeration and temperature controls, filters, and dampers. Capacities and electrical characteristics are scheduled. Casing manufacturer's standard casing construction, having corrosion protection coating, and exterior finish. Casings shall have removable panels or access doors for inspection and access to internal parts, a minimum of 1" thick thermal insulation, knockouts for electrical and piping connections, and an exterior condensate drain connection, and lifting lugs.

Unit casing shall be single wall construction.

Roof Curbs: Manufacturer's standard construction, insulated and having corrosive protective coating, complete with factory-installed wood nailer and drain nipple. Construction shall be in accordance with NRCA Standards. Evaporator Fans: Forward-curved, centrifugal, belt-driven fans with adjustable sheaves; and permanently lubricated motor bearings.

Condenser fans: Propeller-type, direct-driven fans with permanently lubricated bearings.

Coils: Aluminum plate fin and seamless copper tube type. Fins shall have collars drawn, belled and firmly bonded to the tubes by means of mechanical expansion of the tubes. No soldering or tinning shall be used in the bonding process. Coils shall have a galvanized steel casing. Coils shall be mounted in the coil casing with same end connections accessible for service. Coils shall be removable from the unit through the roof or through the piping enclosure. Coil section shall be completely insulated.

Refrigerant cooling coils: have an equalizing type vertical distributor to ensure each coil circuit receives the same amount of refrigerant. Coils shall be proof (450 psig) and leak (300 psig) tested with air pressure under water, then cleaned, dehydrated, and sealed with a holding charge of nitrogen.

Condensate Pan: Provide IAQ steel, double sloping drain pain. Provide high condensate in primary condensate pan to de-energize unit upon detection of high condensate levels.

Compressors: Serviceable, semi-hermetic, or hermetic compressors with integral vibration isolators, and crankcase heaters, which de-energize during compressor operation.

Units shall also have:

Safety Controls:

low pressure cutout, manual reset;

high pressure cutout, manual reset;

compressor motor overload protection, manual reset; anti-recycling timing device;

adjustable low-ambient lockout;

oil pressure switch.

Controls:

high limit cutout;

Dry Bulb Economizer Control: Operated to automatically use outdoor air for "free cooling" when outdoor air temperature and is at acceptable levels. Automatically modulated outdoor and return air dampers maintain proper discharge air temperature into the conditioned space. Adjustable minimum position control is standard.

Economizer Fault Detection and Diagnostics — Provide fault detection and diagnostics to monitor outside airflow temperature, return airflow temperature, supply airflow temperature, refrigerant gas and liquid pressures. Unit controller shall provide status of available free cooling, enabled economizer, enabled compressor(s), enabled heating, mixed air low limit cycle and current value of all sensors. Provide manual override of each operating mode (occupied and unoccupied heating and cooling, economizer and shutdown) for testing and verification. System shall be able to detect air temperature sensor failure, not economizing when unit should be or shouldn't be, dampers not modulating and excessive outside air. Temperature sensors shall have an accuracy of +/-2 deg. F across the range of 40. deg F to 80 deg. F. Refrigerant pressure sensors shall have an accuracy of +/- 3%. Faults shall be annunciated at unit's thermostat.

Heating Types:

Heat exchangers: Provide manufacturer's construction of aluminized steel gas-fired heat exchangers and burners, designed for minimum of 2-stage operation. Provide single gas connection.

Temperature Control:

Temperature control: factory-installed, demand-oriented solid-state control system above 5 tons shall have minimum of 2 cooling steps and 2 heating steps. Controls shall include solid-state thermostats with dead-band, and subbase with system and fan switches. Other control features include:

Relief:

Barometric Relief - Shall include relief damper section with mist eliminator. Dampers open to relieve positive pressure within the building. Available only with economizer.

Filters:

Provide air filters to fit in filter box, with a Maximum filter face velocity of 500 fpm, of the following type:

Disposable Type: Provide 85% efficient disposable type air filters 2" thick, consisting of viscous coated fibers with filtering media encased in fiberboard cell sides having perforated metal grids on each side to provide media support.

Provide filters with clean resistance not exceeding 0.10" w.g. at face velocity of 300 fpm, and ASHRAE weight arrestance efficiency of 70-82%, based on final operating resistance of 0.5" w.g.

Options:

Hail guards protecting the condenser fins.

Controls:

Manufacturers: Subject to compliance with requirements, provide rooftop units of one of the following:

Aaon

WHATABURGER

Architecture
Engineering
Environmental
Land Surveying

Companies

355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

Date	Description

BRIAN A. POELT
No. 128166
7/25/25

Seal / Signature

Project Date 3/22/2024

Project Name NASHVILLE, TN
WHATABURGER

Project Number
2302472

Description
MECHANICAL SPECIFICATIONS

Scale

M9.1

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