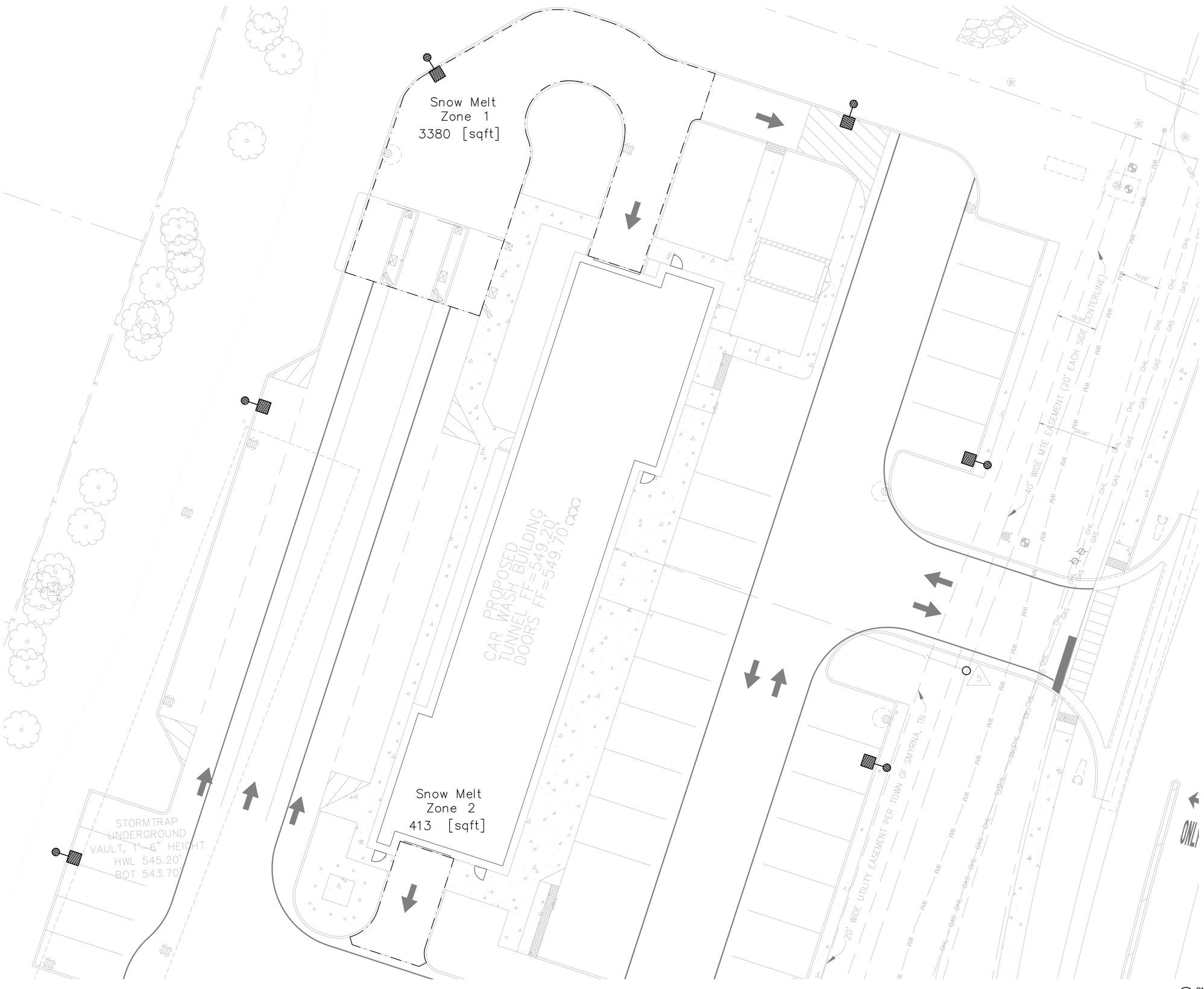


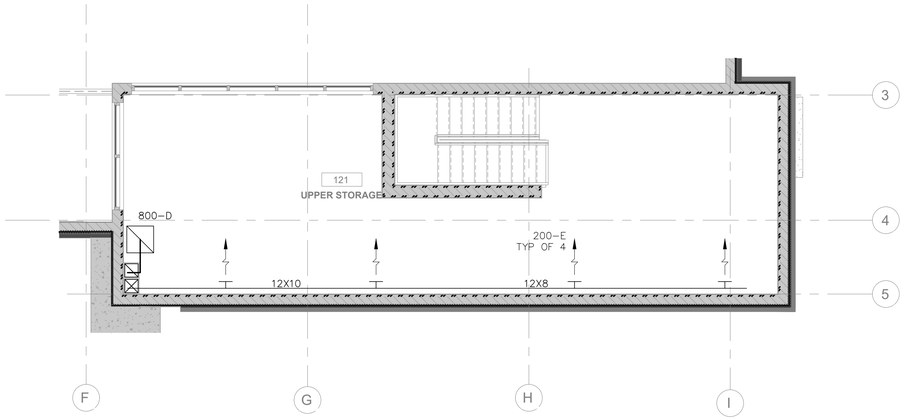
NERO ARCHITECTS
6400 N NORTHWEST HWY
SUITE 4
CHICAGO IL 60631
TEL 847.825.9400

PROJECT #	2245
DATE:	01.04.23

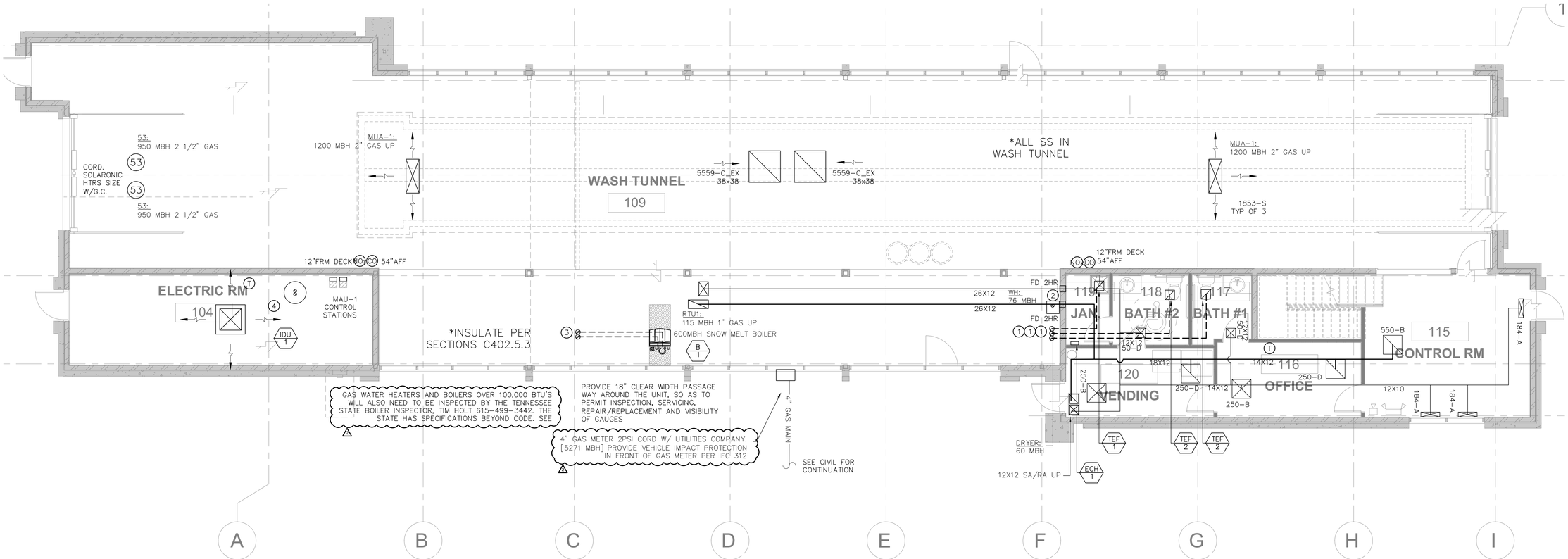
NATALIE REGAN
REGISTERED LANDSCAPE ARCHITECT
AGRICULTURE
COMMERCE
No. 1280
STATE OF TENNESSEE

NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"
ALMAVILLE ROAD & GENERAL FORREST
SMYRNA, TN
PERMIT SET - NOT FOR CONSTRUCTION

2	06.02.23	ISSUED FOR PERMIT REV
	04.11.23	ISSUED FOR PERMIT
1	01.04.23	ZONING SUBMITTAL
	12.05.22	ZONING SUBMITTAL
		REVISIONS
DRAWN BY:		RAM
APPROVED BY:		GCN / MAM
SCALE:		AS NOTED
DESCRIPTION:		SITE PLAN
SHEET NO.		M-2.0



2 M2.1 UPPER STORAGE PLAN
SCALE: 3/16" = 1'-0"



1 M2.1 FIRST FLOOR PLAN
SCALE: 3/16" = 1'-0"

MECHANICAL NOTES:

1. 6"ø TE/EX UP THRU ROOF
2. 4"ø DRYER VENT PER FBC M504
3. (2) 4"ø PVC/CAI FROM BOILER
4. (2) 3"ø PVC/CAI FROM WATER HTR DIRECT VENT

   TE OR PVC/CAI TERMINATE THRU WALL PROVIDE WALL CAP & BIRD SCREEN.

FIRE/SMOKE DAMPER NOTES:

FIRE/SMOKE DAMPERS SHALL BE PROVIDED WITH AN APPROVED MEANS OF ACCESS, LARGE ENOUGH TO PERMIT INSPECTIONS AND MAINTENANCE OF THE DAMPER AND ITS OPERATING PARTS. ACCESS POINTS SHALL BE PERMANENTLY IDENTIFIED ON THE EXTERIOR BY A LABEL HAVING LETTERS NOT LESS THAN HALF INCH (0.5") READING "SMOKE DAMPER" OR "FIRE DAMPER"

SMOKE DAMPERS SHALL CLOSE UPON ACTUATION OF A LISTED SMOKE DETECTOR OR DETECTORS INSTALLED IN ACCORDANCE WITH SECTION 907.3 OF THE INTERNATIONAL BUILDING CODE.

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CHICAGO, IL 60631
TEL 847.825.9400

PROJECT #	2245
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NATALIE REGAN REGISTERED ENGINEER AGRICULTURE COMMERCE No. 128291 STATE OF TENNESSEE

NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"
ALMAVILLE ROAD & GENERAL FORREST
SMYRNA, TN
PERMIT SET - NOT FOR CONSTRUCTION

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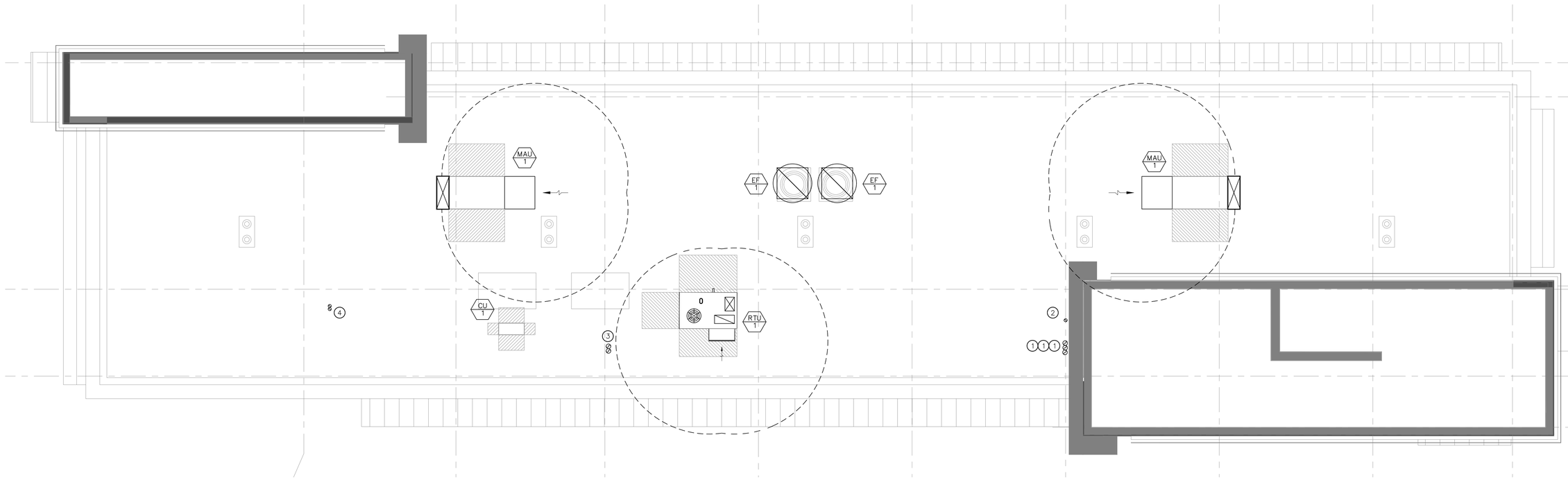
	04.11.23	ISSUED FOR PERMIT
1	01.04.23	ZONING SUBMITTAL
	12.05.22	ZONING SUBMITTAL
		REVISIONS

DRAWN BY:	RAM
APPROVED BY:	GCN / MAM
SCALE:	AS NOTED
DESCRIPTION:	FLOOR & UPPER STORAGE PLAN
SHEET NO.	M-2.1



1 M-2.2 ROOF PLAN
SCALE: 3/16" = 1'-0"

MECHANICAL NOTES:

1. 6"ø TE/EX UP THRU ROOF
2. 4"ø DRYER VENT PER FBC M504
3. (2) 4"ø PVC/CAI FROM BOILER
4. (2) 3"ø PVC/CAI FROM WATER HTR DIRECT VENT

   TE OR PVC/CAI TERMINATE THRU WALL PROVIDE WALL CAP & BIRD SCREEN.

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DATE:	01.04.23

NATALIE REGAN
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 128291
STATE OF TENNESSEE

NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"

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	12.05.22	ZONING SUBMITTAL
▲		**REVISIONS**
DRAWN BY:		RAM
APPROVED BY:		GCN / MAM
SCALE:		AS NOTED
DESCRIPTION:		ROOF PLAN
SHEET NO.		M-2.2

DIFFUSERS, REGISTERS, GRILLES, AND LOUVERS.

REFER TO DRAWINGS FOR:
1. DUCT SIZE OR NECK SIZE.
2. FACE SIZE – i.e.: 8"(24x24).
3. PATTERN (3–WAY,etc.) IF APPLICABLE.
4. CFM
5. SYMBOL

A EXT AIR EXTRACTOR
ALB AIR LIGHT BOOT, PLENUM AND VOLUME DAMPER
ASR ANTI–SMUDGE RING
AVD AUTOMATIC VOLUME DAMPER
BWE BAKED WHITE ENAMEL
EQE EQUALIZING GRID
FR–1 WITH 1–HOUR DAMPER
MSD MULTI SHUTTER DAMPER
OBD OPPOSED BLADE DAMPER
PC PRIME COAT

REFER TO ROOM FINISH SCHEDULE AND REFLECTED CEILING PLAN FOR PROPER COORDINATING OF DIFFUSERS, GRILLES, AND REGISTERS.

SYBMOL	TYPE	MODEL	FRAME	DAMPER	FINISH	REMARKS
A	SUPPLY	TITUS FBI–20	LAYIN	OBD	BWE	2FT, 6" NECK
B	RETURN	TITUS PAR	SURF MTD	OBD	BWE	24x24 SEE NECK SCHEDULE
C	RETURN	TITUS 50F–SS	SURF MTD	OBD	BWE	SEE PLANS
D	SUPPLY	TITUS OMNI	SURF MTD	OBD	BWE	24X24 MODULE, UNLESS OTHERWISE NOTED, SEE NECK SCHEDULE
D	SUPPLY	TITUS JSAL	SURF MTD	OBD	BWE	12X6 MODULE

*PER ARCH FLOOR PLANS, WOOD GRILLES TO MATCH FLOORS
**PROVIDE HEAVY DUTY CORE IN ALL FLOOR APLICATIONS, CORDINATE LOCATIONS OF ALL DIFFUSERS, REGISTERS, GRILLES AND LOUVERS WITH ARCH PRIOR TO INSTALL

FOR TYPE B/D DIFFUSER:

SUPPLY AIR DIFFUSER NECK SIZE SCHEDULE

CFM RANGE	NECK SIZE		TOTAL PRESSURE	REMARKS
	SQUARE	ROUND		
50–100	6" x 6"	6"ø	0.04	(1)
100–200	9" x 9"	8"ø	0.04	(1)
200–300	10" x 10"	10"ø	0.04	(1)
300–450	12" x 12"	12"ø	0.04	(1)
500–750	15" x 15"	14"ø	0.04	(1)
500–1000	18" x 18"	16"ø	0.04	(1)

(1) DIFFUSER SHALL BE LAY–IN CEILING TYPE. COORDINATE WITH DIFFUSER SCHEDULE.

EXHAUST FAN SCHEDULE

UNIT No.	MODEL	AREA SERVED	CFM	S.P. IN W.G.	FPM	FAN RPM	DRIVE	MOTOR				REMARKS
								HP	RPM	VOLT	PHASE	
TEF–1	Panasonic FV–05–11VKT	TOILET RMS	80	0.10	–	659	DD	16.1W	1205	120	1	NOTE 1
TEF–2A,2B	Panasonic FV–11–15VKT	Toilet RMS	130,150	0.5	–	832	DD	21.7W	904	120	1	NOTE 1
EF–1	Greenheck CUBE300	TUNNEL	5559	0.2	–	402	BD	0.5HP	402	460	3	NOTE 2

NOTE 1: WALL SW, ROOF CAP,INSULATED DAMPER & PROVIDE FABRIC FLEX CONNECTION FOR THERMAL BREAK AT EXTERIOR PENETRATION,WIRED TO TIMER
NOTE 2: BDD, BIRDSCREEN, DS,ROOFCURB, SPEED CONTROL, VIBRATION ISOLATION,
NOTE 2: ISOLATORS, MBD, TIED TO CO, DS, WALL CAP/LOUVER

CABINET/UNIT HEATER SCHEDULE

LFV – LOUVER FIN (VERTICAL)
LFH – LOUVER FIN (HORIZONTAL)
H – HORIZONTAL TYPE
P – PROTECTION TYPE
FG – FAN GUARD
LCD – LOUVER CONE DIFFUSER

UNIT No.	UNIT DESCRIPTION	LOCATION	MOTOR				TOTAL KW	FINAL AIR TEMP.	CFM @ FINAL AIR TEMP.	REMARKS
			HP	RPM	VOLT	PHASE				
ECH–1	MARKEL F3422	VARIES	9.6A	1400	208	1	2.0	–	245	(1) (2) (4)
ECH–2	MARKEL UH Series	VARIES	9.1	–	480	3	5	–	400	(1) (2) (4) WALL BRACKET
ECH–3	BROAN 124	VARIES	12.5A	–	120	1	1.5	–	–	(1) (2) (4)*, PROVIDE RECESSED HOUSING, LOW

(1) UNIT MTD. THERMOSTAT.
(2) UNIT MTD. DISCONNECT SW
(3) 4–WIRE SERVICE
(4) LOW–VOLTAGE CONTACTOR

MCFS–MIN. CIRCUIT FUSE SIZE
FLA–FULL LOAD AMP
*CORD COLOR W/ARCH

UNIT HEATERS SHALL BE INSTALLED IN ACCORDANCE WITH THE LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUSPENDED TYPE HEATERS SHALL BE SUPPORTED BY ELEMENTS TAHT ARE DESIGNED TO ACCOMMODATE THE WEIGHT AND DYNAMIC LOADS. HANGERS AND BRACKETS SHALL BE OF NON–COMBUSTIBLE MATERIAL. IMC 2012 SECTION 920

ROOFTOP UNIT SCHEDULE

TAG RTU–	LOCATION	SUPPLY AIR DATA				POWER EX. DATA		COOLING COIL DATA							HEATING COIL DATA	ELECTRICAL DATA				MODEL	REMARKS
		CFM	O.A.	ESP	BHP	CFM	ESP	EAT/DB	EAT/WB	LAT/DB	LAT/WB	TMBH	SMBH	NOM.CAP. TON	INP/OUT [MBH]	MCA	MOCP	VOLT	PH		
RTU–1	ROOF	1750	200	0.5	1.11	2000	0.25	95	77	55.2	53.5	58.5	47.2	5	115/93	30	45	208	3	Carrier 48TC06	SEE NOTES 1

NOTE 1: COOLING CAPACITY AT 95F AMBIENT, ASHRAE 90.1 COMPLIANT, GAS FIRED, FILTER INDICATOR, C02 CONTROLS, MODULATING CENTRIFUGAL POWER EXHAUST, SS DRAIN PAN, DISCONNECT SWITCH, CONVENIENCE OUTLET. 7–DAY PROGRAMMABLE T–STAT., VFD CONTROLLER, PROVIDE ECONOMIZER IN ACCORDANCE W SECTION C403.3, ECONOMIZER FAULT DETECTION PER SECTION C403.2.4.7, PROVIDE POWERED CONVENIENCE OUTLET

MAKEUP AIR UNIT SCHEDULE

TAG	LOCATION	SUPPLY AIR DATA		HEATING COIL DATA	TEMPERATURE		GAS. DATA			ELECTRICAL DATA				WEIGHT [LBS]	MODEL	REMARKS
		CFM	TESP	INP/OUT [MBH]	RISE [°F]	INLET [°F]	SUPPLY	PRESSURE	INLET	FLA	HP	VOLT	PH			
MAU–1	ROOF	5559	0.3	1200/1104	160	–10	NG	2PSI	1 1/4NPT	6	3	460	3	1035	CAMBRIDGE S1200	SEE NOTES 1

NOTE 1: RAINHOOD WITH INTEGRAL INLET BIRD SCREEN, TWO POSITION MOTORIZED DISCHARGE DAMPER, INSULATED DOWNTURN WITH TURNING VANES, DIRECTIONAL ELBOWS – QUANTITY 3, 24" MOUNTING, CURB WITH COUNTERFLASHING, 12" MOUNTING RAIL, 12" ADJUSTABLE MOUNTING STANDS, CAMBRIDGE ENGINEERING STAINLESS STEEL BURNER, HIGH PRESSURE REGULATOR PROVIDED (MUST BE VENTED 15' FROM INTAKE), EDL GAS CONTROLS, DISCHARGE TEMPERATURE DIAL IN HEATER, •INTEGRAL NON–FUSED DISCONNECT SWITCH, PREMIUM EFFICIENCY ODP MOTOR WITH ADJUSTABLE SHEAVES, INTEGRAL MOTOR STARTER WITH THERMAL OVERLOADS, REMOTE CONTROL STATION INCLUDING:– ELECTRONIC SETBACK THERMOSTAT. DIRECT FIRED ASHRAE 90.1 COMPLIANT. S/S DIRECTIONAL ELBOWS, 50" SS DISCHARGE DUCT. ECONOMIZER FAULT DETECTION PER SECTION C403.2.4.7. PROVIDE POWERED CONVENIENCE OUTLET

BOILER SCHEDULE

TAG	MANUFACTURER & MODEL No.	BOILER TYPE	GAS TYPE	INLET GAS PRES. IN.	CAPACITY INPUT (MBH)	CAPACITY OUTPUT (MBH)	OPER. EFF. (%)	EWT (°F)	LWT (°F)	MAX FLOW RATE (GPM)	MAX P.D. (FT.)	MAX WORKING PRES. (PSI)	VOLTAGE/ PHASE	AMPS	REMARKS
B–1	LOCHINVAR FTX600	CONDENSING	NG	1	600	589	98	180	160	59	4.4	80	120	<12	SEE NOTE1

NOTE 1: STAINLESS STEEL HEAT EXCHANGER, FLOW SW, LOW WEAR CUTOFF W/ MANUAL RESET AND ST, MODULATING BURNER W 5:1 TURNDOWN, 50PSI RELIEF VALVE, AUTOMATIC RESET LIMIT, LOW Nox OPERATION, LOW GAS PRESSURE OPERATION, OUTDOOR RESET, PUMP RELAY W/ FREEZE PROTECTION, LOW WATER FLOW INDICATION, SIDEWALL VENT TERMINALS, ON/OFF SW, CONTACTS ON ANY FAILURE, CONDENSATE NEUTRALIZATION KIT, SMART SYSTEM CONTROL PACKAGE. BOILER RECIRCULATING PUMP PROVIDED BY MANUFACTURER. (4"ø PVC CAI & EA)

MISCELLANEOUS EQUIPMENT SCHEDULE

TAG	DESCRIPTION	SPECIFICATION
IDU 1 / CU 1	MINI SPLIT	MITSUBISHI MINI SPLIT PLA–A36EA7, PUY–A36NKA7, DS, COOLING ONLY UNIT, 208/230V, 1PH, 2MCA (INDOOR), 25/31 MCA/MOCP (OUTDOOR) WIRED PROGRAMMABLE TSTAT, CORD CONDENSATE WITH PLUMBER. IOSLATION HANGERS, OUTDOOR STAND. LOCATE IDU ACROSS FROM ELECTRICAL PANEL, PROVIDE WIND BAFFLES FOR COOLING DOWN TO –40F

THE EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THESE INSTRUCTIONS SHALL BE ON–SITE AND AVAILABLE FOR ALL INSPECTIONS.

HVAC 2018 IMC WITH VILLAGE AMENDMENTS IEC

GENERAL MECHANICAL NOTES:

1. ALL WORK SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH BUILDING STANDARDS AND ALL APPLICABLE CODES.
2. MEDIUM/LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST SMACNA STANDARDS.
3. PROVIDE MANUAL DAMPER ON ALL LOW PRESSURE SUPPLY BRANCH TAKE–OFFOF DUCTWORK.
4. ALL DUCT SIZES SHOWN SHALL BE CLEAR INSIDE DIMENSIONS.
5. DIFFUSERS, REGISTERS ARE AS SCHEDULED IN THE DRAWING. CONTRACTOR TO VERIFY AND COORDINATE WITH ARCHITECT TYPE OF CEILING TO DETERMINE FRAME TYPE.
6. BLANK–OFF WITH BLACK PAINTED PANEL WHERE SHOWN. DO NOT PAINT EXPOSED DUCTS OR REGISTERS.
7. PROVIDE UL APPROVED FIRE DAMPERS. PROVIDE UL APPROVED FIRE DAMPERS IN ALL DUCT PENETRATIONS THRU FIRERATED ASSEMBLIES WHETHER INDICATED OR NOT.
8. FLEXIBLE DUCTWORK:NOT TO BE USED
10. PROVIDE LINNING ON ALL SUPPLY AND RETURN AIR DUCTWORK AT A MIN. OF 15'–0" FROM THE HEAT PUMPS/FURNACES.
11. INSULATE ALL DUCTWORK LOCATED IN UNCONDITIONED SPACES. PER IECC C403.2.9
12. ALL LONGITUDINAL AND TRANSVERSE JOINTS, SEAMS AND CONNECTIONS IN METALLIC AND NONMETALLIC DUCTS SHALL BE CONSTRUCTED AS SPECIFIED IN SMACNA HVAC DUCT CONSTRUCTION STANDARDS––METAL AND FLEXIBLE AND NAIMA FIBROUS GLASS DUCT CONSTRUCTION STANDARDS. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS (ADHESIVES), MASTIC–PLUS–EMBEDDED–FABRIC SYSTEMS, LIQUID SEALANTS OR TAPES. CLOSURE SYSTEMS USED TO SEAL DUCTWORK LISTED AND LABELED IN ACCORDANCE WITH UL 181A SHALL BE MARKED "181A–P"FOR PRESSURE–SENSITIVE TAPE, "181 A–M"FOR MASTIC OR "181 A–H"FOR HEAT–SENSITIVE TAPE. CLOSURE SYSTEMS USED TO SEAL FLEXIBLE AIR DUCTS AND FLEXIBLE AIR CONNECTORS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B–FX"FOR PRESSURE–SENSITIVE TAPE OR "181B–M" FOR MASTIC. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. MECHANICAL FASTENERS FOR USE WITH FLEXIBLE NONMETALLIC AIR DUCTS SHALL COMPLY WITH UL 181B AND SHALL BE MARKED "181B–C."CLOSURE SYSTEMS USED TO SEAL METAL DUCTWORK SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. UNLISTED DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY DUCT.

    EXCEPTION: CONTINUOUSLY WELDED AND LOCKING–TYPE LONGITUDINAL JOINTS AND SEAMS IN DUCTS OPERATING AT STATIC PRESSURES LESS THAN 2 INCHES OF WATER COLUMN (500 PA) PRESSURE CLASSIFICATION SHALL NOT REQUIRE ADDITIONAL CLOSURE SYSTEMS.
13. DUCTS SHALL BE SUPPORTED AT INTERVALS NOT TO EXCEED 10 FEET AND SHALL BE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS–METAL AND FLEXIBLE. FLEXIBLE AND OTHER FACTORY–MADE DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
14. ALL EQUIPMENT AND APPLIANCES, INCLUDING THE AIR CONDITIONER, WATER HEATER AND FURNACE, SHALL BE INSTALLED IN ACCORDANCE WITH THEIR LISTINGS AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. A COPY OF THE MANUFACTURER'S INSTALLATION INSTRUCTIONS MUST BE PROVIDED ON SITE AT THE TIME OF INSPECTION.
15. ALL SYSTEMS >4.5 TONS REQUIRE ECONOMIZER FAULT DETECTION AND DIAGNOSIS. PER IECC C403.2.4.7
16. INSULATE ALL PIPING PER TABLE IECC C403.2.1
17. SYSTEM ADJUST AND BALANCE PROVIDE TEST AND BALANCE REPORT PER IECC C408.2.5.3. PROVIDE REPORT TO THE MUNICIPALITY PRIOR TO THE FINAL INSPECTION FOR THEIR FILE. ALSO PROVIDE TO THE FIELD INSPECTOR AT TIME OF FINAL INSPECTION.

GAS WATER HEATERS AND BOILERS OVER 100,000 BTU'S WILL ALSO NEED TO BE INSPECTED BY THE TENNESSEE STATE BOILER INSPECTOR, TIM HOLT 615–499–3442. THE STATE HAS SPECIFICATIONS BEYOND CODE. SEE (A)

PERMIT NOTES:

1. EQUIPMENT NOISE LEVEL NOT TO EXCEED 55 DB AT THE LOT LINE.
2. ALL EXPANSION VALVES, DEVICES AND CONNECTIONS SHALL BE REMOVED FROM THE AIRSTREAM OF ALL MECHANICAL EQUIPMENT AS PER LOCAL CODES.
3. THE MECHANICAL CONTRACTOR SHALL GUARANTEE, AS APPLICABLE, THAT THE PLENUM CHAMBER USED FOR RECIRCULATION OF AIR WILL BE OF TIGHT CONSTRUCTION AND THAT ALL SOURCES OF AIR CONTAMINANTS FROM TRAPS, SOIL STACKS, DOWN SPOUTS, VENTS. EXHAUST DISCHARGES AND OTHER SOURCES WILL BE ENCLOSED SO THAT NO CONTAMINATED AIR WILL BE RECIRCULATED.
4. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL A SAFETY RELIEF VALVE DESIGNED TO RELIEVE AND/OR PREVENT THE BUILDUP OF EXCESSIVE REFRIGERANT PRESSURE WITHIN THE DIRECT EXPANSION SYSTEMS. THE PRESSURE RELIEF DEVICE SHALL BE SET AT 400 PSI AND SHALL BE INSTALLED ON THE HIGH PRESSURE SIDE AT THE DISCHARGE OF THE COMPRESSOR AND UPSTREAM OF THE COMPRESSOR SHUTOFF (STOP) VALVE.
5. ALL FRESH AIR INTAKE OPENINGS SHALL BE A MINIMUM OF 10'–0" AWAY FROM ANY EXHAUST OR POINT OF CONTAMINATE DISCHARGE.
6. ALL DUCTWORK SHALL BE IN ACCORDANCE WITH "SMACNA" LOW VELOCITY DUCT MANUAL AND "ASHRAE" RECOMMENDATIONS.
7. THE EQUIPMENT IN THE VENTILATING AND HEATING SYSTEM SHALL BE SUFFICIENT TO MAINTAIN 72 DEGREES F WITHIN THE AREA SERVED AT ALL TIMES WHEN 33–1/3 PERCENT OF CODE REQUIRED AIR IS SUPPLIED FROM OUTDOORS AT –10 DEGREES F.
8. VOLUME DAMPERS OF LOCKING TYPE SHALL BE PLACED IN EACH FORCED WARM AIR RUN.

VENTILATION NOTES:

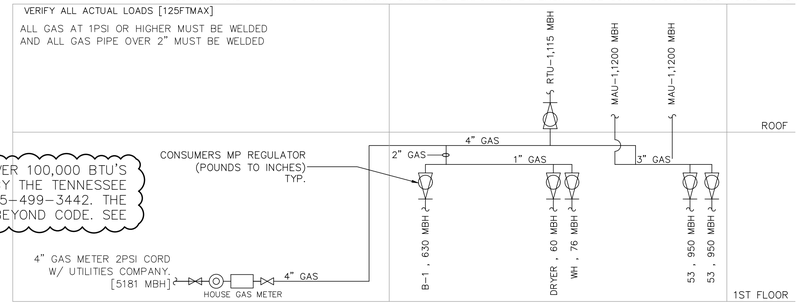
1. CLEARANCES FOR FORCED AIR FURNACES MUST CONFORM TO MANUFACTURERS REQUIREMENTS (OR SHOW CLEARANCES ON THE DRAWINGS).
2. ALL DUCTWORK MUST BE GALVANIZED STEEL OR STAINLESS STEEL.
3. SMOKE DETECTORS AND CARBON MONOXIDE DETECTORS ARE SHOWN ON ELECTRICAL DRAWING(S).
4. IF THE PROJECT INCLUDES A PLENUM CEILING OR FLOOR: THE CONTRACTOR SHALL GUARANTEE THAT THE PLENUM CHAMBER USED FOR RECIRCULATION OF AIR WILL BE OF TIGHT CONSTRUCTION AND THAT ALL SOURCES OF AIR CONTAMINATION FROM TRAPS, SOIL STACKS, DOWNSPOUTS, VENTS AND ALL OTHER SOURCES OF CONTAMINATION WILL BE ENCLOSE SUCH THAT NO CONTAMINATED AIR WILL BE RECIRCULATED.

GENERAL COORDINATION NOTES:

1. EACH TRADE CONTRACTOR SHALL VISIT CONSTRUCTION SITE PRIOR TO BIDDING, EXAMINE SCOPE AND CONDITIONS OF OTHER CONTRACT WORK, EXAMINE EXISTING CONDITIONS AND ALL INTERFERENCES AND REQUIRED COORDINATION IN ORDER TO INCLUDE EFFECT OF SAID CONDITIONS IN THEIR BID. BID DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE ALL REQUIRED RELOCATIONS, OFFSETS, CHANGE IN ASPECT RATIOS, OR ROUTING CHANGES REQUIRED TO INTEGRATE WORK WITH ALL OTHER CONDITIONS OR TRADES. WORK INSTALLED BEFORE COORDINATING SO AS TO CAUSE INTERFERENCES WITH OTHER TRADES SHALL BE REMOVED AND REWORKED WITHOUT COST TO OWNER. COST OF PROVIDING SUCH RELOCATIONS, OFFSETS, SIZE, CHANGES, REROUTING, ETC. SHALL BE INCLUDED IN BID. CODE CONFORMING SCALED (1/4") COORDINATED DRAWINGS SHALL BE PREPARED BY EACH TRADE TO FACILITATE AND VERIFY FIT AND CONGRUENCE OF THEIR INSTALLATION WITH OTHER TRADES.
2. WHERE ADDITIONAL DETAILS, DIAGRAMS, EQUIPMENT DATA, AND ISOMETRICS ARE REQUIRED BY BUILDING DEPARTMENT OR CODE AUTHORITIES FOR PERMIT OR APPROVAL, CONTRACTOR SHALL PROVIDE SAME AT NO ADDITIONAL COST.
3. BUILDING PLANS SHOWN ARE COMPILED FROM SOURCES BELIEVED TO BE ACCURATE. HOWEVER, THE INFORMATION SHOWN ON THESE PLANS IS SCHEMATIC AND CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROPER DIMENSIONS, SIZES, SYSTEM VOLTAGES, QUANTITIES AND EXTENT OF WORK.
4. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL, STRUCTURAL, PLUMBING, FIRE PROTECTION, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR COORDINATION AND EXTENT OF THE WORK OF THE VARIOUS TRADES AND IMPACT ON THEIR WORK.
5. WITH THE APPROVAL OF THE ARCHITECT AND WITHOUT ADDITIONAL COST TO THE OWNER, MAKE MODIFICATIONS IN THE WORK, INCLUDING REROUTING AS REQUIRED BY INTERFERENCE WITH STRUCTURAL, GENERAL AND WORK OF OTHER TRADES FOR PROPER EXECUTION OF THE WORK.
6. REFER TO THE ARCHITECTURAL DRAWINGS, FIELD CONDITIONS AND DETAILS FOR EXACT LOCATION OF PARTITIONS.
7. CUTTING AND PATCHING FOR THEIR WORK SHALL BE PERFORMED BY EACH TRADE CONTRACTOR UNLESS NOTED OTHERWISE.

VERIFY ALL ACTUAL LOADS [125FTMAX]

ALL GAS AT 1PSI OR HIGHER MUST BE WELDED AND ALL GAS PIPE OVER 2" MUST BE WELDED



Gas Distribution Building
SCALE: NONE

GENERAL GAS PIPING NOTES:

1. FUEL GAS PIPING AND CONTROLS MUST CONFORM TO THE INTENTIONAL FUEL GAS CODE(IFGC), CHAPTER 4 (WITH MODIFICATIONS AS NOTED IN ARTICLE 14).
2. GAS PIPING MUST BE SIZED IN ACCORDANCE WITH IFGC TABTES 402.(1) THROUGH 402.3(34). [IFGC 402.3]
3. THE MAXIMUM DESIGN OPERATING PRESSURE FOR GAS PIPING SYSTEMS LOCATED INSIDE BUILDINGS SHALL NOT EXCEED 5 PSIG (SOME EXCEPTIONS ARE NOTED). [IFGC 402.5]
4. GAS PIPING MATERIALS MUST CONFORM TO THE GAS PIPING & TUBING MATERIAL MATRIX (IFGC 403 REQUIREMENTS). [IFGC 403]
5. PIPING IN CONCEALED LOCATIONS MUST CONFORM TO THIS IFGC 404.3. [IFGC 404.3]
6. MINIMUM REQUIRED BURIAL DEPTH FOR UNDERGROUND PIPING SYSTEMS MUST CONFORM TO IFGC 404.9. (MINIMUM 18 INCHES BELOW GRADE). [IFGC 404.9]
7. GAS PIPES MUST BE SLOPED AT 1/4 INCH IN EVERY 15 FEET. [IFGC 408.1]
8. ALL NEW GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH SECTION 406 OF IFGC. THE SYSTEM SHALL PURGED, VISUALLY AN PRESSURE TESTED. SOAP TESTING IS NOT ACCEPTABLE. MECHANICAL GAUGES USED TO MEASURE TEST PRESSURES, SHALL HAVE A RANGE SUCH THAT THE HIGHEST END OF THE SCALE IS NOT GREATER THAN FIVE (5) TIMES THE TEST PRESSURE. THE TEST SHALL BE WITNESSED BY THE LOCAL INSPECTOR AND REPORT PROVIDED.

GAS PIPING GREATER THAN 2" INSIDE DIAMETER OR CARRYING MORE THAN 5 POUNDS(PSIG) SHALL BE SCHEDULE 40 STANDARD WELD FITTINGS.

ALL FUEL GAS PIPING MATERIALS, SIZES AND CONTROLS SHALL CONFORM TO THE NATIONAL FUEL GAS CODE (IFGC).

PAINT ALL GAS PIPING THAT IS EXPOSED TO THE ELEMENTS.

METALLIC PIPE OR TUBING EXPOSED TO CORROSIVE ACTIONS, SUCH AS SOIL CONDITION OR MOISTURE, SHALL BE PROTECTED IN AN MANNER. ZINC COATING (GALVANIZING) SHALL NOT BE DEEMED ADEQUATE PROTECTION FOR GAS PIPING UNDERGROUND. WHERE DISSIMILAR METALS ARE JOINED UNDERGROUND, AN INSULATING COUPLING OR FITTING SHALL BE USED. PIPING SHALL NOT BE LAID IN CONTACT WITH CINDERS [IFGC 404.11]

Gas Piping/Tubing Material Matrix(Based on IFGC 403)

Material	Permitted	Not Permitted	Standards to Follow
Wrought–Iron	Schedule 40 or better		ASME B 36.10.10M or ASTM A35 or ASTM A106
Steel	Schedule 40 or better		ASME B 36.10.10M or ASTM A35 or ASTM A106
N.G. DISTRIBUTION PIPING SHALL BE SCHEDULE 40 STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A 53/A 53M WITH 150# MALLEABLE IRON FITTINGS. GAS PIPING LARGER THAN 3" OR MORE THAN 5 PSIG TO BE WELDED TO BE SCHEDULE 40 STEEL PIPING.			

Note: The gas piping design shall conform to all the requirements of IFGC 403.

NERI ARCHITECTS
6400 N NORTHWEST HWY SUITE 4
CHICAGO, IL 60631
TEL 847.825.9400

PROJECT #	2245
DATE:	01.04.23

NATALIE REGAN — REGISTERED LANDSCAPE ARCHITECT — DEPARTMENT OF AGRICULTURE — COMMERCE — No. 128297 — STATE OF TENNESSEE

NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"
ALMAVILLE ROAD & GENERAL FORREST
SMYRNA, TN
PERMIT SET - NOT FOR CONSTRUCTION

(1)	06.02.23	ISSUED FOR PERMIT REV
	04.11.23	ISSUED FOR PERMIT
(1)	01.04.23	ZONING SUBMITTAL
	12.05.22	ZONING SUBMITTAL
(1)		REVISIONS
DRAWN BY:		RAM
APPROVED BY:		GCN / MAM
SCALE:		AS NOTED
DESCRIPTION:		MECH SCHEDULES, NOTES, & DETAILS
SHEET NO.		M-3.0

SYMBOL LIST

CONTROL SYMBOLS

SYMBOL	DESCRIPTION
B	DIGITAL INPUT
B	ANALOG INPUT
B	DIGITAL OUTPUT
A	ANALOG OUTPUT
	CONTROL VALVE (ELECTRICAL)
	CONTROL VALVE (PNEUMATIC)
DPS	DIFFERENTIAL PRESSURE SWITCH
VSC	VARIABLE SPEED CONTROLLER
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
ES	END SWITCH
	MOTOR OPERATED DAMPER
V	VELOCITY SENSOR
T	TEMPERATURE SENSOR
H	HUMIDITY SENSOR
DP	DIFFERENTIAL PRESSURE SENSOR
SD	SMOKE DETECTOR

ABBREVIATIONS

SYMBOL	DESCRIPTION
FD	FIRE DAMPER
H.P.	HORSE POWER
EXP VLV	EXPANSION VAVLE
MBH	THOUSAND BRITISH THERMAL UNITS
MFG.	MANUFACTURER
MTD.	MOUNTED
PH.	PHASE
R.P.M.	REVOLUTIONS PER MINUTE
T-STAT	THERMOSTAT
V	VOLTS
VEL.	VELOCITY
W.C.	INCHES IN WATER COLUMN
TG	TRANSFER GRILLE
DN	DOWN
CFH	CUBIC FEET PER HOUR
GPS	GEOEXCHANGE PIPE SUPPLY
GPR	GEOEXCHANGE PIPE RETURN
CAI	COMBUSTION AIR INTAKE
RBD	ROUND BACKDRAFT DAMPER
TYP	TYPICAL
S.A.	SUPPLY AIR DUCT
R.A.	RETURN AIR DUCT
E.A.	EXHAUST AIR DUCT
O.S.A.	OUTSIDE AIR
C.D.	CEILING DIFFUSER
C.F.M.	CUBIC FEET PER MINUTE
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
CAP.	CAPACITY
CLG.	CEILING
CONN.	CONNECTION

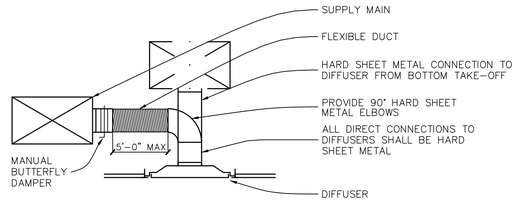
VENTILATION SYMBOLS

SINGLE LINE	DOUBLE LINE	DESCRIPTION
20 x 12	20 x 12	NEW DUCTWORK – WxD AIRWAY DIMENSIONS
		DUCT SECTION – SUPPLY UP
		DUCT SECTION – SUPPLY DOWN
		DUCT SECTION – RETURN OR EXHAUST UP
		DUCT SECTION – RETURN OR EXHAUST DOWN
		DUCT SECTION – SUPPLY UP/DN
R	R D	INCLINED RISE W/RESPECT TO AIR FLOW
D	D	INCLINED DROP W/RESPECT TO AIR FLOW
		FLEXIBLE CONNECTION TO EQUIPMENT
48x24	48x24	LOUVER & SCREEN WxD GROSS OPENING
		FLEXIBLE DUCT
		VOLUME DAMPER WITH QUADRANT LOCKING
M	M	MOTORIZED DAMPER
		SPLITTER DAMPER
BDD	BDD	BACK DRAFT DAMPER (GRAVITY)
FD	FD	FIRE DAMPER, SLEEVE & ACCESS DOOR
		AIR EXTRACTING VANES
		TURNING VANES. DOUBLE THICKNESS AIRFOIL TYPE.
SYSTEM RISER NO.	SYSTEM RISER NO.	RISER MARK
T	T	THERMOSTAT (C) W/GUARD
S	S	SENSOR
H	H	HUMIDISTAT
700x8 20x12	700x8 20x12	EXHAUST OR RETURN AIR REGISTER
700x8 20" ø S.	700x8 20" ø S.	ROUND CEILING SUPPLY DIFFUSER
700x8 20x12	700x8 20x12	RECTANGULAR CEILING SUPPLY DIFFUSER
700x8 20x12	700x8 20x12	SIDE WALL SUPPLY REGISTER W/VOLUME DAMPER
24x18 SL 20 FT	24x18 SL 20 FT	DOOR GRILLE W/BUILT-IN FIRE DAMPER IF LOCATED ON A FIRE DOOR.
		LINEAR DIFFUSER W/BOOT. NO VOLUME DAMPER IN BOOT.
U	U	AIR VALVE
		TERMINAL UNIT-VARIABLE VOLUME INTEGRAL DIFFUSER
		UNDERCUT DOOR MINIMUM 1"
		ROOF MOUNTED POWER OR GRAVITY ROOF VENTILATOR
		ROOF MOUNTED AIR INTAKE
		ELECTRIC DUCT HEATER

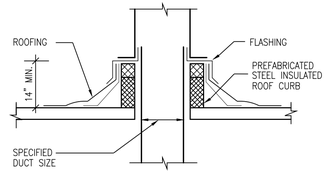
MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION
	PRESSURE GAUGE AND COCK
	STRAINER
	STRAINER W/BLOW-OFF VALVE
	THERMOMETER
P/T	PRESSURE / TEMPERATURE SENSOR
	CAP
	UNION
	ANCHOR W/ALIGNMENT GUIDES
	EXPANSION JOINT
	FLEXIBLE CONNECTION
	PRESSURE RED. VALVE
	RELIEF VALVE
	TRIPLE DUTY VALVE
	CHECK VALVE (SP) SPRING
	BALANCING VALVE
	GLOBE VALVE
	GATE VALVE
	BUTTERFLY VALVE – WHEN DIA. > 2"
	BALL VALVE – WHEN DIA. < 2"
M	VALVE WITH MEMORY STOP
	GAS COCK
	CONTROL VALVE, 2-WAY
	CONTROL VALVE, 3-WAY
	CIRCUIT SETTER
BF	CODE BACKFLOW PREVENTOR
	UNIT HEATER – HORIZONTAL
	PIPE DOWN
	PIPE UP
	NEW PIPING
	PIPING ASSEMBLY – SEE DETAIL
V	VENT (MANUAL OR AUTOMATIC)
	FLOW CONTROL FITTING
FI	FLOW INDICATOR
FS	FLOW SWITCH
PS	PRESSURE SWITCH
	BASE MOUNTED PUMP – SEE DETAIL
P	IN-LINE PUMP – SEE DETAIL
	EQUIPMENT (SPECIFIED BY TAG BELOW)
TAG #	EQUIPMENT TAG W/NUMBER
D	DRAIN LINE
G	GAS LINE
V	VENT LINE
HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
CHWS	CHILLED WATER HEATING SUPPLY
CHWR	CHILLED WATER HEATING RETURN
SL	REFRIGERANT SUCTION LINE
LL	REFRIGERANT LIQUID LINE
CR	CONDENSATE RETURN LINE
CDW	CONDENER WATER LINE

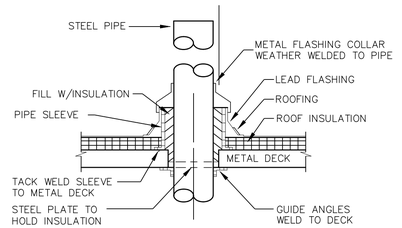
NOTE: NOT ALL SYMBOLS ARE APPLICABLE TO THIS PROJECT.



DIFFUSER INSTALLATION DETAIL
SCALE: NONE

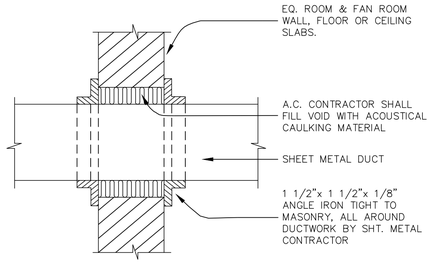


DUCT PENETRATION OF ROOF AND COUNTER FLASHING
SCALE: NTS

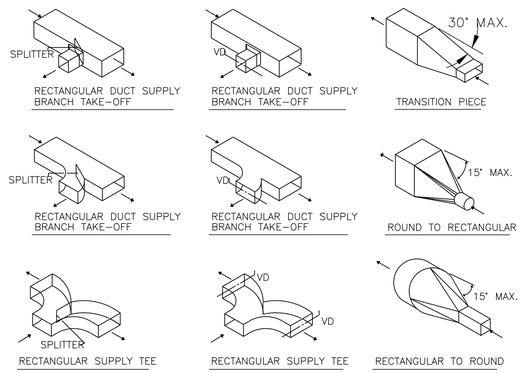


NOTE: PROVIDE EXPANDING TYPE SILICONE FIRE RATED SEALANT.

PIPE PENETRATION THRU ROOF
SCALE: NONE



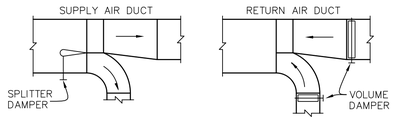
DETAIL OF ACOUSTICAL CAULKING OF DUCTS PIERCING EQ. AREA WALLS, FLOORS OR SLABS
SCALE: NONE



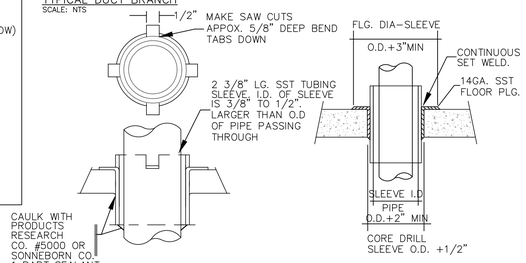
NOTES:
1. PROVIDE STANDARD RADIUS ELBOWS WHEN POSSIBLE – SHORT RADIUS WHERE REQUIRED.
2. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED & FASTENED AS RECOMMENDED BY SMACNA.
3. NO SQUARE OR RECTANGULAR HEEL ELBOWS SHALL BE ALLOWED.

NOTE:
1. IF R IS LESS THAN W, THEN FULL ARC TURNING VANE(S) SHALL BE PROVIDED, SEE SCHEDULE BELOW.
2. INSIDE BEND MAY BE SQUARE FOR W > 12", NO SQUARE HEELS PERMITTED.

VANE SCHEDULE	
WIDTH	NO. OF VANES
≤ 12"	1
12"-24"	2
24"-36"	3
36"-60"	4
60"-84"	5
> 84"	6

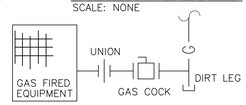


TYPICAL DUCT BRANCH
SCALE: NTS



CEILING SLEEVE DETAIL
SCALE: NONE

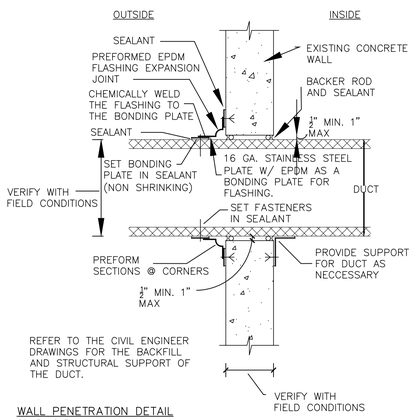
FLOOR SLEEVE DETAIL
SCALE: NONE



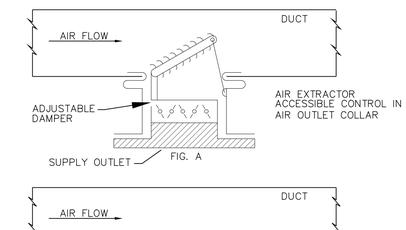
NOTE: PROVIDE REGULATORS ON EACH EQUIPMENT

TYPICAL GAS PIPING DIAGRAM
SCALE: NONE

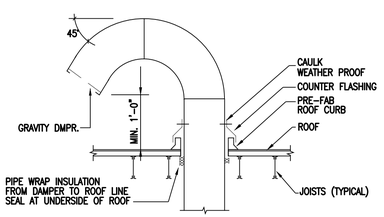
TYPICAL DUCT DETAILS
SCALE: NTS



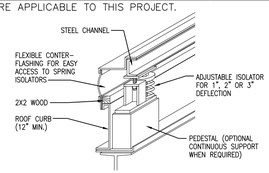
WALL PENETRATION DETAIL
SCALE: NONE



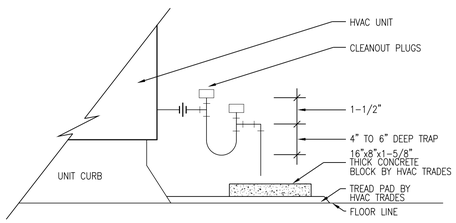
NOTE:
REGISTER CONTAINS VOLUME CONTROL AT GRILLE. GRILLE HAS NO VOLUME CONTROL.
GRILLE FLANGES MUST COVER DUCT FLANGES.



EXHAUST FAN GOOSENECK DETAIL
SCALE: NTS

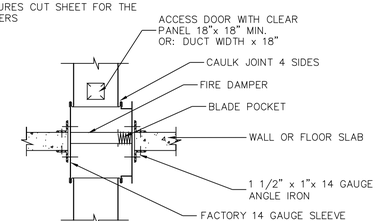


VIBRO-CURB DETAIL
SCALE: NTS

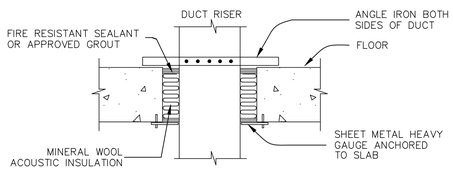


AHU/RTU UNIT CONDENSATE DRAIN DETAIL
SCALE: NTS

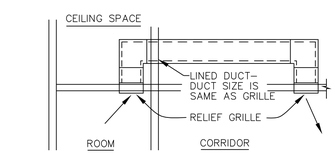
FIRE DAMPERS SHALL BE LISTED AND BEAR THE LABEL OF AN APPROVED TESTING AGENCY INDICATING COMPLIANCE OF UL555. PROVIDE MANUFACTURES CUT SHEET FOR THE FIRE DAMPERS



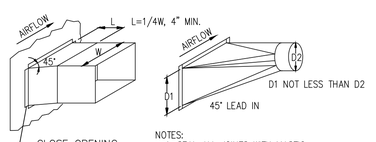
HORIZONTAL AND VERTICAL FIRE DAMPER DETAIL
SCALE: NONE



DETAIL OF RISER DUCT PENETRATING THRU FLOOR SLAB
SCALE: NTS

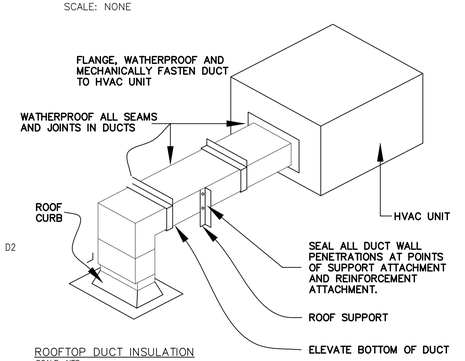


RELIEF TRANSFER DUCT-TYPICAL
SCALE: NONE



RECTANGULAR/ROUND DUCT BRANCH CONNECTION DETAILS
SCALE: NONE

GRILLE AND REGISTER CONNECTION
SCALE: NONE



ROOFTOP DUCT INSULATION
SCALE: NTS

NERO ARCHITECTS
6400 N NORTHWEST HWY SUITE 4
CHICAGO, IL 60631
TEL 847.825.9400

PROJECT #	2245
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NATALIE REGAN — REGISTERED PROFESSIONAL ENGINEER — AGRICULTURE — COMMERCE — No. 128291 — STATE OF TENNESSEE

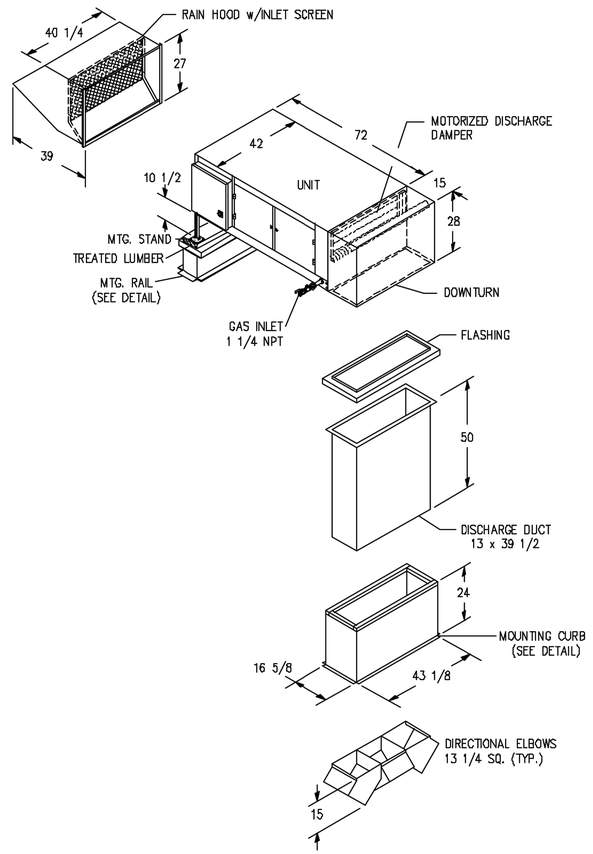
NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"
ALMAVILLE ROAD & GENERAL FORRESTT
SMYRNA, TN
PERMIT SET - NOT FOR CONSTRUCTION

⚠	06.02.23	ISSUED FOR PERMIT REV
	04.11.23	ISSUED FOR PERMIT
⚠	01.04.23	ZONING SUBMITTAL
	12.05.22	ZONING SUBMITTAL
▲		REVISIONS
DRAWN BY:		RAM
APPROVED BY:		GCN / MAM
SCALE:		AS NOTED
DESCRIPTION:		MECH SCHEDULES, NOTES, & DETAILS
SHEET NO.		M-3.1

AIR BALANCE SCHEDULE					
TAG	O.A.	R.A.	S.A.	E.A.	PRESSURE
RTU-1	250	1750	1750	250	–
MUA-1	11118	–	–	–	+11118
EF-1	–	–	–	-11118	-11118
TEF	–	–	–	-460	-460
TOTALS	11368	1750	1750	11828	460

TOILET EXHAUST FANS DO NOT RUN CONTINUOUSLY, THE BUILDING IS NEUTRAL

S1200 SERIES ROOF TOP DIMENSIONAL DRAWING



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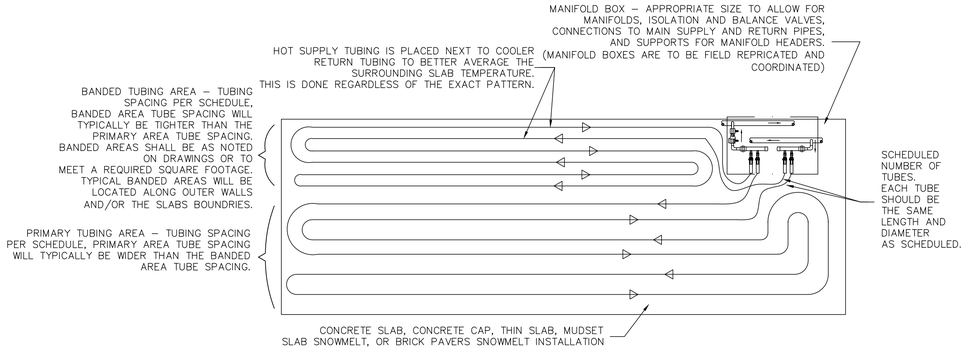
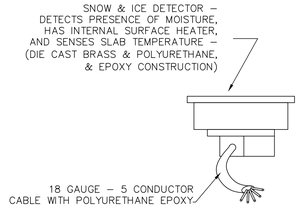
▲		**REVISIONS**

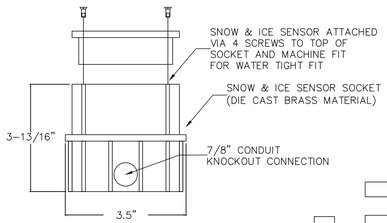
DRAWN BY:	RAM
APPROVED BY:	GCN / MAM
SCALE:	AS NOTED
DESCRIPTION:	MECH SCHEDULES, NOTES, & DETAILS
SHEET NO.	M-3.2

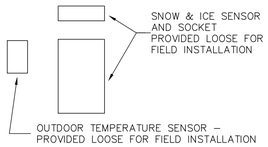


RADIANT TUBING LAYOUT – ENCAPSULATED TUBING INSTALLATION – DOUBLE SERPENTINE LAYOUT

SCALE: NTS

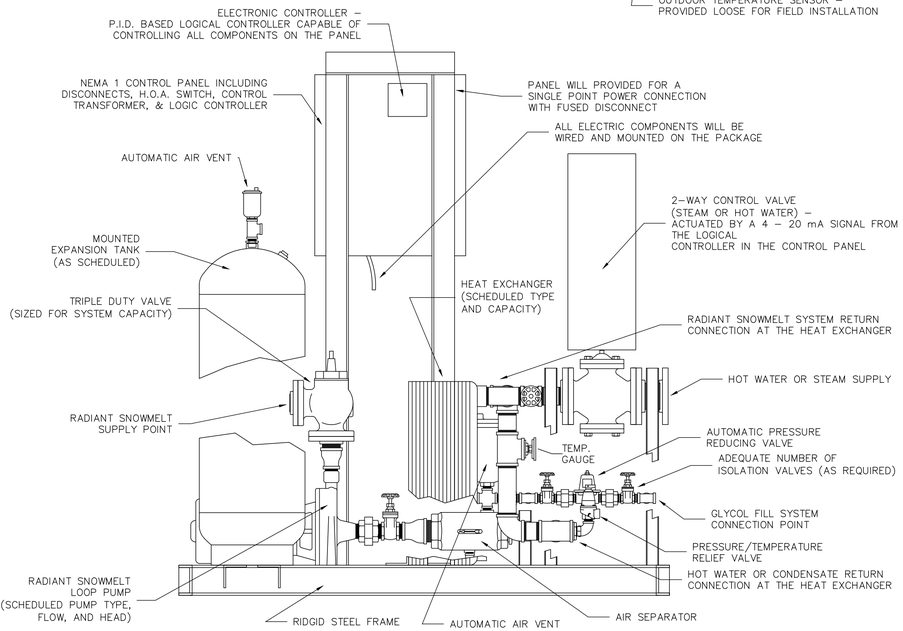






RADIANT SNOWMELT SYSTEM – SNOW & ICE SENSOR WITH SOCKET DETAIL

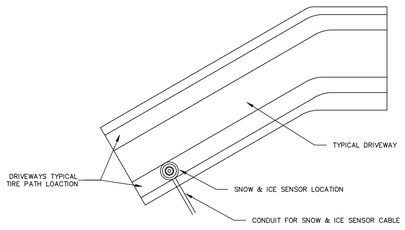
SCALE: NTS



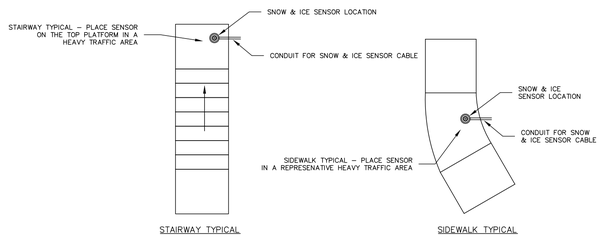
RADIANT SNOWMELT PACKAGE DETAIL (HEAT TRANSFER AND CONTROL)

SCALE: NONE

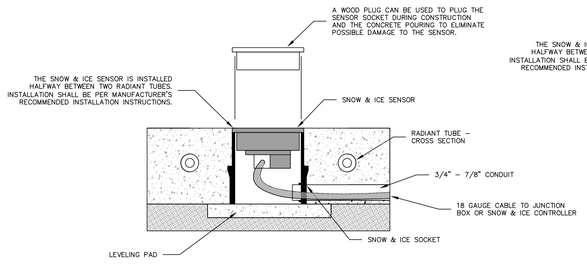
SNOW AND ICE MELT SYSTEMS SHALL INCLUDE AUTOMATIC CONTROLS TO SHUT OFF THE SYSTEM WHEN THE PAVEMENT TEMP IS ABOVE 50°F AND PRECIPITATION IS NOT FALLING, AND AN AUTOMATIC OR MANUAL CONTROL THAT IS CONFIGURED TO SHUT OFF WHEN THE OUTDOOR TEMP IS ABOVE 40°F.



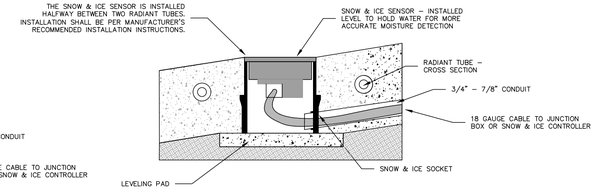
RECOMMENDED SENSOR INSTALLATION – DRIVEWAY INSTALLATIONS



RECOMMENDED SENSOR INSTALLATION – STAIRS AND SIDEWALKS INSTALLATIONS



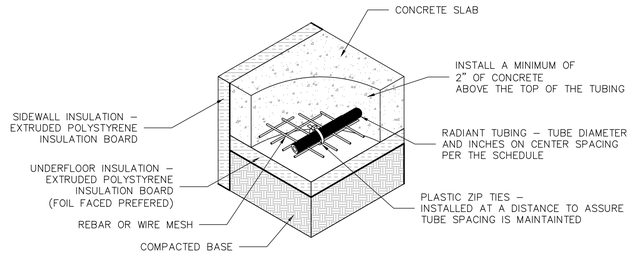
INSTALLATION OF SENSOR IN LEVEL SURFACE



INSTALLATION OF SENSOR IN SLOPPED SURFACE

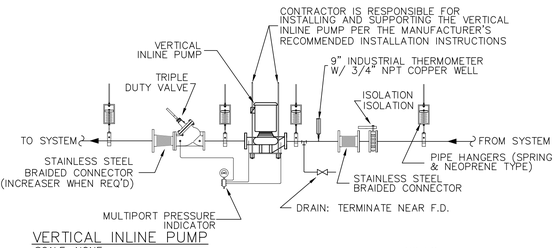
RADIANT SNOWMELT SYSTEM – SNOW & ICE SENSOR (WITH SOCKET) INSTALLATION

SCALE: NTS



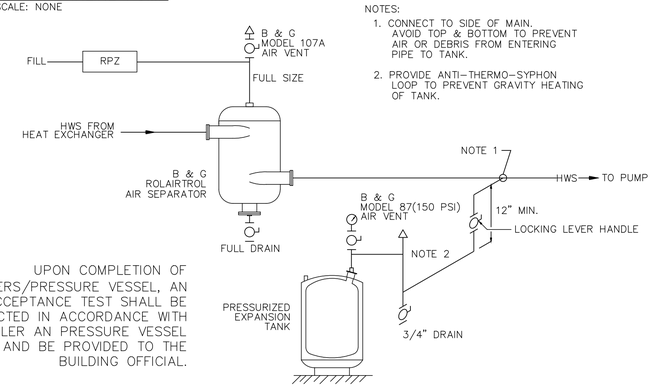
RADIANT SNOWMELT – SLAB ON GRADE WITH FOAM INSULATION

SCALE: NONE



VERTICAL INLINE PUMP

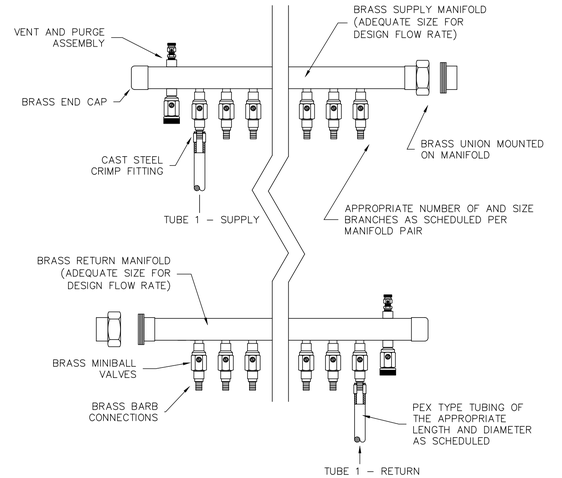
SCALE: NONE



UPON COMPLETION OF BOILERS/PRESSURE VESSEL, AN ACCEPTANCE TEST SHALL BE CONDUCTED IN ACCORDANCE WITH ASME BOILER AN PRESSURE VESSEL CODE AND BE PROVIDED TO THE BUILDING OFFICIAL.

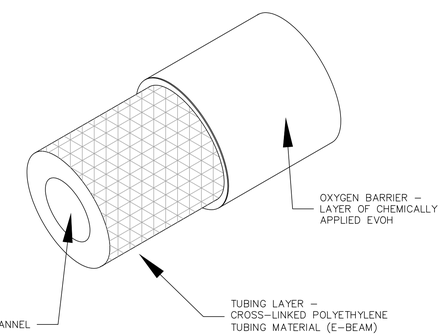
VERTICAL PRESSURIZED EXPANSION TANK & AIR SEPARATOR PIPING DETAIL

SCALE: NONE



RADIANT TUBING MANIFOLD – PEX TUBING (CRIMP LOCK DESIGN)

SCALE: NTS



RADIANT TUBING MATERIAL – PEX

SCALE: NTS

NERO ARCHITECTS
6400 N NORTHWEST HWY SUITE 4
CHICAGO, IL 60631
TEL 847.825.9400

NEW AUTOMATED CARWASH FACILITY
"GRAND WASH"
ALMAVILLE ROAD & GENERAL FORREST
SMYRNA, TN
PERMIT SET - NOT FOR CONSTRUCTION

PROJECT #	2245
DATE:	01.04.23

NATALIE REGAN – REGISTERED LANDSCAPE ARCHITECT – DEPARTMENT OF AGRICULTURE – COMMERCE – No. 128291 – STATE OF TENNESSEE

1	06.02.23	ISSUED FOR PERMIT REV
	04.11.23	ISSUED FOR PERMIT
1	01.04.23	ZONING SUBMITTAL
	12.05.22	ZONING SUBMITTAL
1		REVISIONS

DRAWN BY:	RAM
APPROVED BY:	GCN / MAM
SCALE:	AS NOTED
DESCRIPTION:	MECH SCHEDULES, NOTES, & DETAILS
SHEET NO.	M-3.3