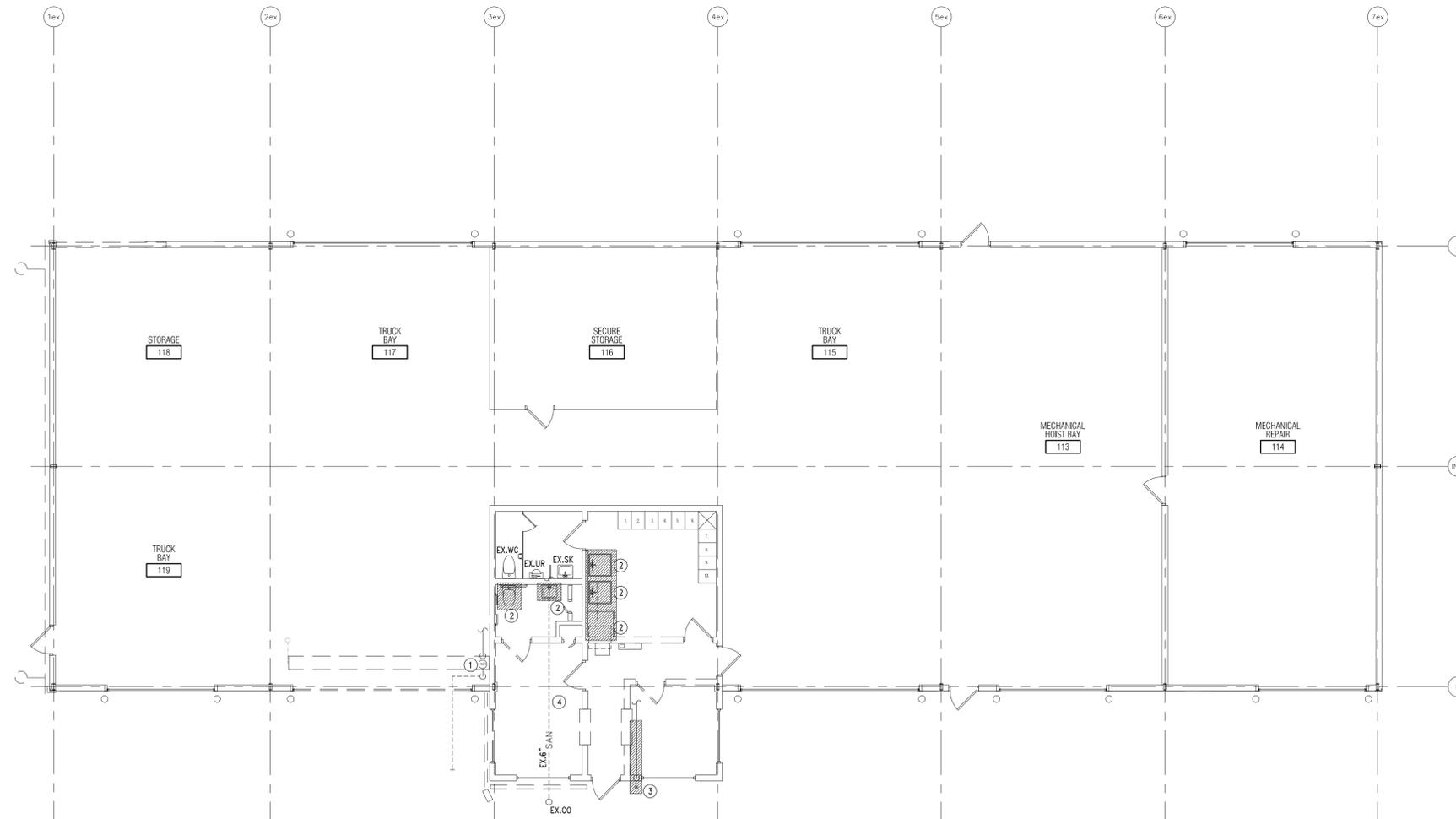


DEMOLITION KEY NOTES:

- ① EXISTING WATER METER ASSEMBLY TO BE REMOVED AND TO BE RELOCATED. CAP EXISTING UNDERGROUND LINE FLUSH WITH FLOOR. ABANDON PIPE UNDERGROUND.
- ② REMOVE AND LEGALLY DISCARD EXISTING PLUMBING FIXTURE AND ALL RELATED PIPING TO MAIN. PREPARE MAIN TO ACCEPT NEW CONNECTION.
- ③ REMOVE AND LEGALLY DISCARD EXISTING HOSE BIBB AND ALL RELATED ACCESSORIES AND CAP AS REQUIRED.
- ④ CONTRACTOR TO FIELD VERIFY EXACT LOCATION, DIRECTION OF FLOW AND THE INVERT ELEVATION PRIOR OF ANY WORK.



Demolition Floor Plan - Plumbing
1/8" = 1'-0"

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35389 Cricklewood
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PROJECT NO.

13-107

ISSUES / REVISIONS

OWNER REVIEW	5/8/2013
BIDS & CONSTRUCTION	5/17/2013



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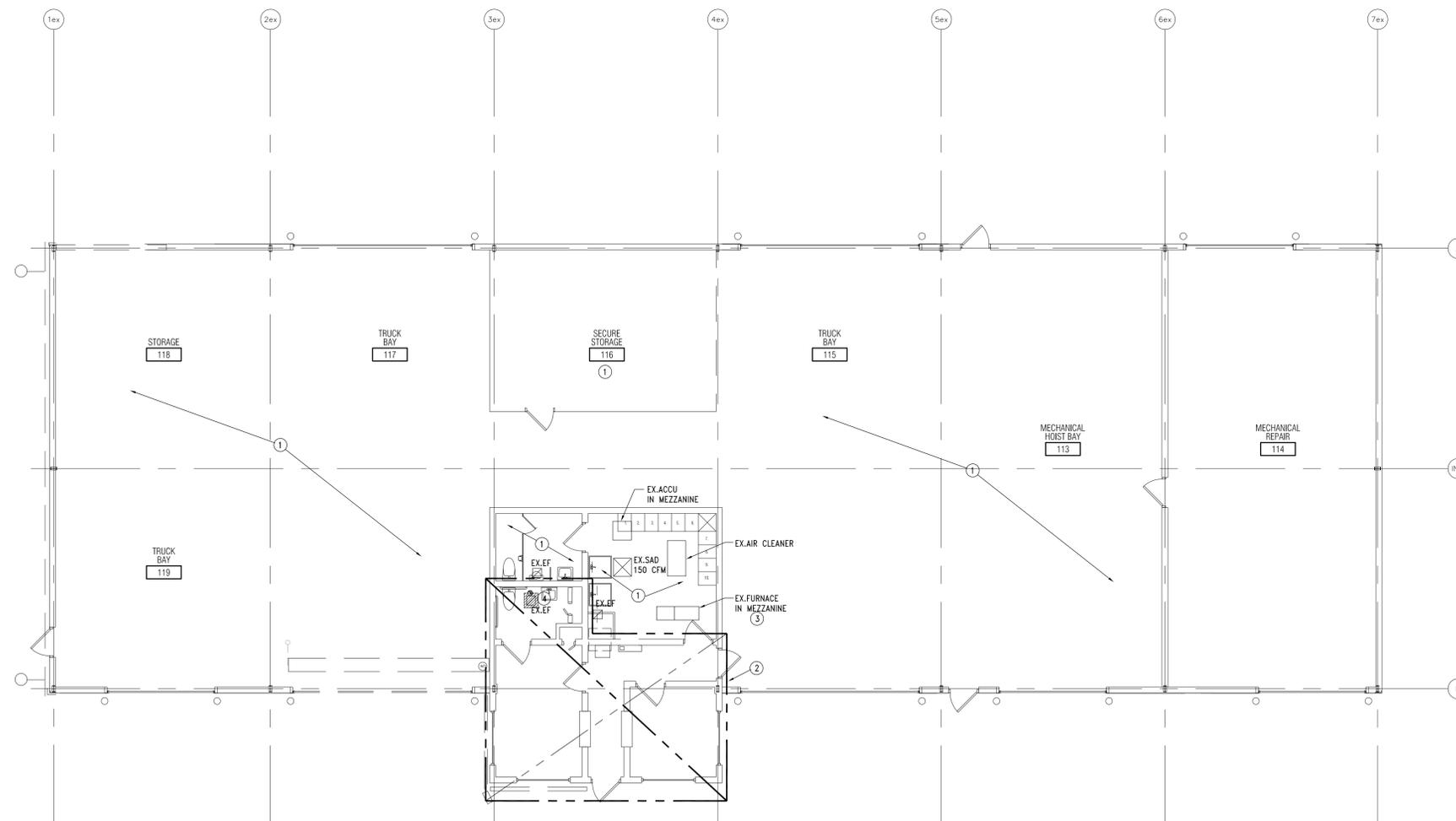
**DEMOLITION
FLOOR PLAN -
PLUMBING**

SHEET NO.

MD1-01

DEMOLITION KEY NOTES:

- ① EXISTING MECHANICAL EQUIPMENTS IN THIS AREA IS REMAIN ACTIVE.
- ② REMOVE AND LEGALLY DISCARD EXISTING SUPPLY DIFFUSERS AND RETURN GRILLE AND BRANCH DUCT TO MAIN DUCTS. PREPARE MAIN DUCTWORK (SUPPLY AND RETURN) TO ACCEPT NEW CONNECTION.
- ③ CONTRACTOR TO INSPECT, CLEAN AND REPAIR EXISTING FURNACE FOR OPTIMAL PERFORMANCE. REPLACE FILTERS AS REQUIRE.
- ④ REMOVE AND LEGALLY DISCARD EXISTING EXHAUST FAN AND CONTROLS AS REQUIRES. PREPARE EXHAUST DUCT TO ACCEPT NEW EXHAUST.



Demolition Floor Plan - HVAC
1/8" = 1'-0"

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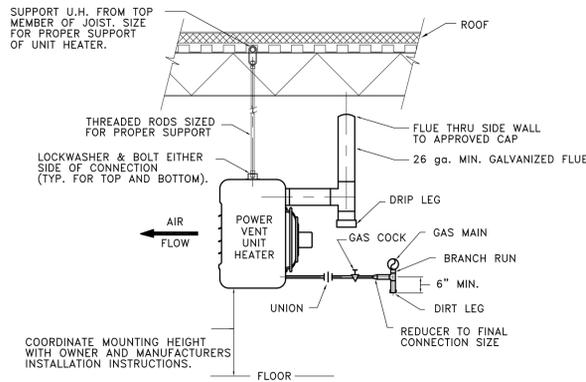
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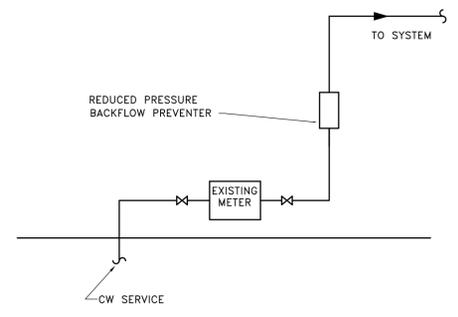
DEMOLITION
FLOOR PLAN -
HVAC

SHEET NO.

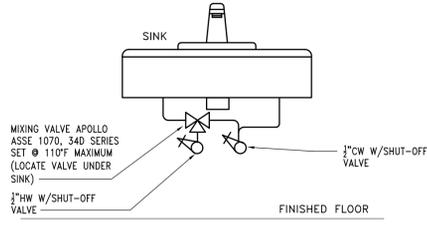
MD2-01



* ALL GAS PIPING BY PLUMBING CONTRACTOR
GAS FIRED UNIT HEATER DETAIL
 NO SCALE



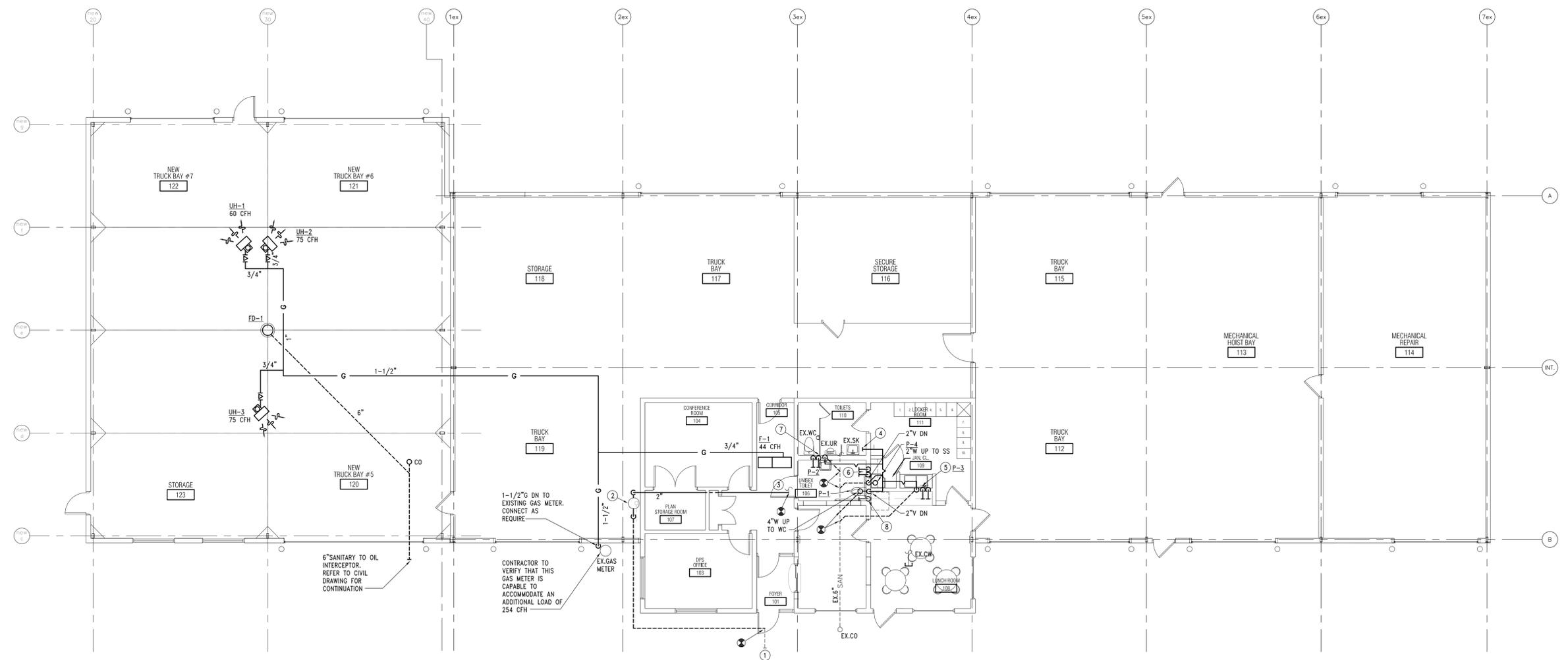
TYPICAL WATER METER DIAGRAM
 NO SCALE



MIXING VALVE PIPING DETAIL
 NO SCALE

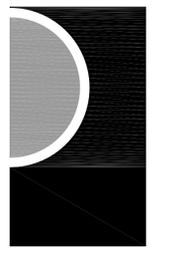
KEY NOTES:

- 1 EXISTING UNDERGROUND WATER MAIN.
- 2 RELOCATED EXISTING WATER METER.
- 3 CONNECT MAIN WATER LINE TO EXISTING MAIN COLD WATER LINE.
- 4 CONNECT NEW 2" VENT LINE TO EXISTING VENT LINE SYSTEM OF 2" OR LARGER.
- 5 3/4" HOT AND COLD WATER DOWN, 1-1/2" V DOWN, 2" WASTE DOWN, RUN 3/4" H & CW TO EXISTING MAIN LINES AS REQUIRED. PROVIDE SHUT-OFF VALVE.
- 6 3/4" HOT AND COLD WATER DOWN, RUN 3/4" H & CW TO EXISTING MAIN LINES AS REQUIRED. PROVIDE SHUT-OFF VALVE.
- 7 1/2" HOT AND COLD WATER DOWN, 1-1/2" VENT & WASTE DOWN, RUN 1/2" H & CW TO EXISTING MAIN LINES AS REQUIRED. PROVIDE SHUT-OFF VALVE.
- 8 1-1/2" COLD WATER DOWN, 1-1/2" CW TO EXISTING MAIN LINES AS REQUIRED. PROVIDE SHUT-OFF VALVE.



Floor Plan - Plumbing
 1/8" = 1'-0"

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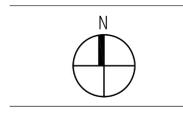
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ISSUES / REVISIONS
 OWNER REVIEW 5/8/2013
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SHEET NAME
FLOOR PLAN - PLUMBING

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M1-01



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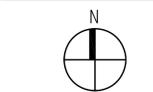
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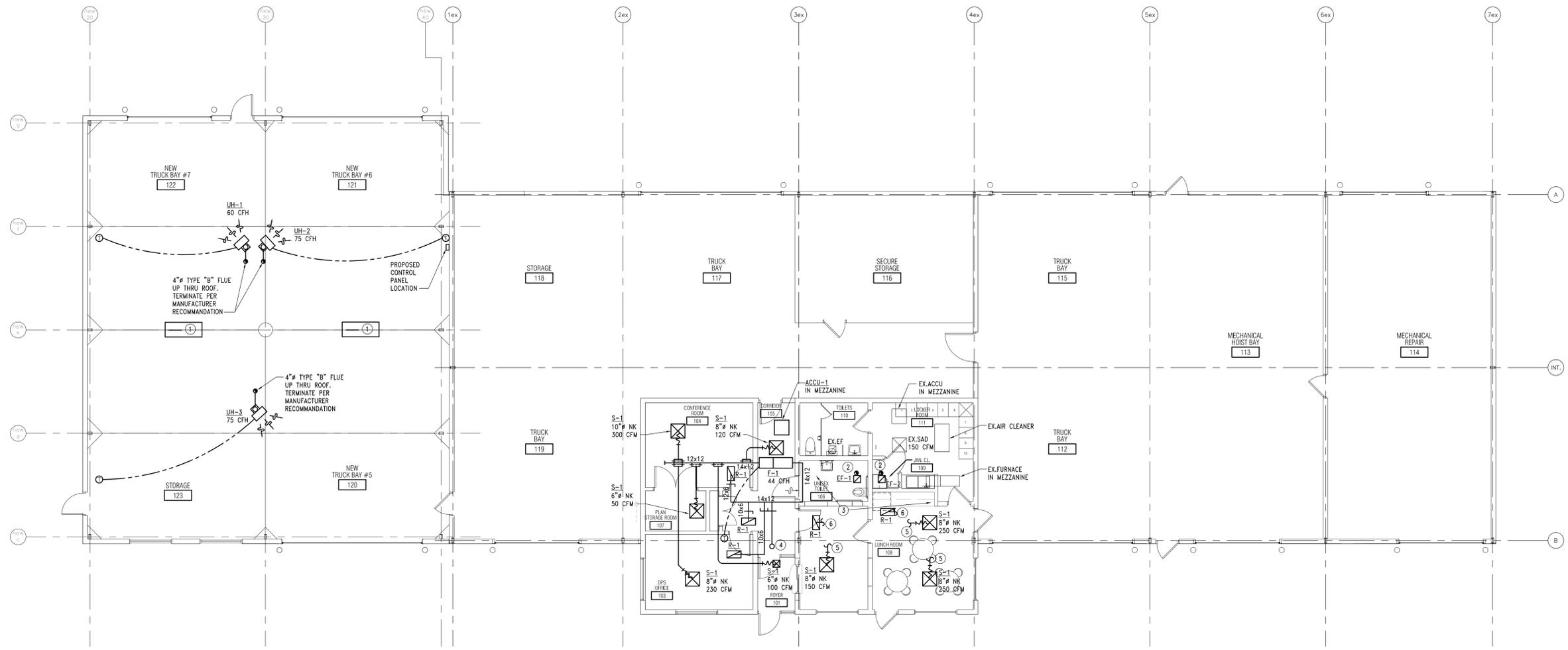
FLOOR PLAN -
 HVAC

SHEET NO.

M2-01

KEY NOTES:

- ① VEHICLE EXHAUST REMOVAL SYSTEM AIRHAWK MODEL 3000XL MEDIA AIR FILTRATION UNITS, 16 GAUGE CABINET, PRE-FILTER MERV 11, HEPA PRIMARY FILTER MERV 16 - 3 MICRON 95%+, GAS PHASE FILTER - BLENDED CARBON, POTASSIUM PERMANGANATE AND ZEOLITE TITANIUM DIOXIDE PHOTO-CATALYTIC OXIDIZER CHAMBER (PCO), 208V/1PH, 1HP, 3000 CFM @ 1.2"SP.(2) UVC LAMPS, 600700-01 PHOTO EYE SET COMPLETE, ONE UNIT, NEMA 4, UL LISTED AUTOMATED CONTROL PANEL, SUSPEND UNIT FROM STRUCTURE, (300 POUND), PROVIDE ALL NECESSARY HARDWARES.
- ② 4" EXHAUST UP THRU ROOF. TERMINATE WITH ROOF CAP.
- ③ CONTRACTOR TO FIELD VERIFY LOCATION OF THE EXISTING INTAKE HOODS AND INSTALL ANY EXHAUST/FLUE A MIN. OF 10 FEET AWAY.
- ④ 8" INTAKE DUCT UP THRU ROOF. TERMINATE WITH GOOSENECK AND BIRDSCREEN. INSULATE FRESH AIR DUCT WITH 1"WRAP INSULATION TO RETURN AIR MAIN.
- ⑤ CONNECT NEW BRANCH DUCT TO EXISTING MAIN SUPPLY DUCT OF THE EXISTING FURNACE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE.
- ⑥ CONNECT NEW 12x6 RETURN AIR DUCT TO EXISTING MAIN RETURN DUCT OF THE EXISTING FURNACE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE.



Floor Plan - HVAC
 1/8" = 1'-0"

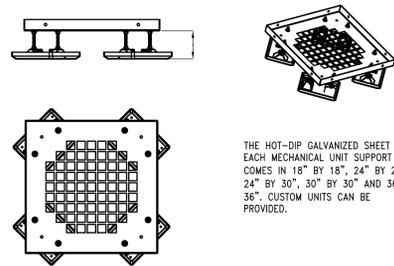
WARM AIR FURNACE SCHEDULE														
TAG	MANUFACTURER & MODEL No.	AREA SERVED	TYPE	LOCATION	ESP	CFM	MIN. O.A. (CFM)	GAS DATA			ELECTRICAL			NOTES/ACCESSORIES
								TYPE	INPUT	VOLTS	BLOWER HP	MOCF	VOLTS	
F-1	LENNOX ML193UH045	SEE DWG	HORIZONTAL	TOP OF MEZZANINE	.60	800	75	NAT	44	120/1	1/3	15	A B C D E F G	
NOTES AND ACCESSORIES DESIGNATION														
A	2 TON CASING COOLING COIL						E	PROGRAMMABLE THERMOSTAT						
B	ROOF TERMINATION KIT						F	FIRESTAT UNDER 2000 CFM						
C	THROWAWAY FILTER (25K)						G	DISCONNECT SWITCH						
D	DRAIN PAN													

AIR COOLED CONDENSING UNIT SCHEDULE														
TAG	MANUFACTURER & MODEL No.	UNIT SERVED	COOLING CAP.		REFRIG.	SUCTION TEMP DEG °F	LIQUID TEMP DEG °F	AMBIENT TEMP DEG °F	ELECTRICAL		NOTES/ACCESSORIES			
			TOTAL MBH	SENS. MBH					VOLTS	MCA				
ACCU-1	LENNOX 13ACX-024	F-1	24	--	410A	44	95	95	208/3	14.1	A B C D E			
NOTES AND ACCESSORIES DESIGNATION														
A	EQUIPMENT RAILS			D	REFRIGERANT LINE KIT									
B	LOW AMBIENT CONTROL			E	DRYER AND SIGHT GLASS									
C	DISCONNECT SWITCH													

GRILLE, REGISTER & DIFFUSER SCHEDULE						
TAG	MANUFACTURER & MODEL No.	SERVICE	MOUNTING	OVERALL SIZE	NECK SIZE	NOTES/ACCESSORIES
S-1	TITUS OMNI	SAD	LAY-IN	24x24	SEE PLAN	A
S-2	TITUS OMNI	SAD	LAY-IN	12x12	SEE PLAN	A
R-1	TITUS SOF	RAR	LAY-IN	12x24	---	A
KEY: SAD - CEILING SUPPLY DIFFUSER RAR - CEILING OR WALL RETURN REGISTER SAG - CEILING OR WALL SUPPLY GRILLE RAG - CEILING OR WALL RETURN GRILLE SAR - CEILING OR WALL SUPPLY REGISTER EAR - CEILING OR WALL EXHAUST REGISTER TAG - CEILING OR WALL TRANSFER GRILLE EAG - CEILING OR WALL EXHAUST GRILLE						
NOTES AND ACCESSORIES DESIGNATION						
A	WHITE FINISH					

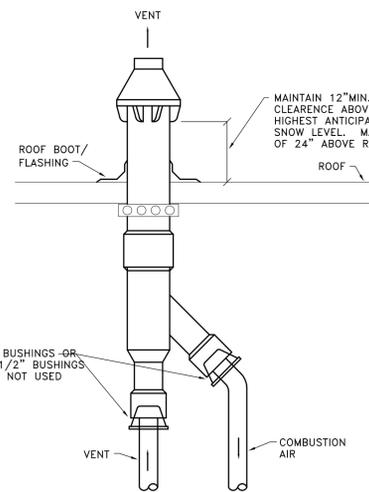
FAN SCHEDULE													
TAG	MANUFACTURER & MODEL No.	SERVICE	LOCATION	CFM	ESP "WC	FAN KEY	WHEEL TYPE	ELECTRICAL		NOTES/ACCESSORIES			
								VOLTS	WATT				
EF-1	GREENHECK SP-B110	TOILET	CEILING	75	.125	RMC	BI	120/1	80	A B			
EF-2	GREENHECK SP-B110	TOILET	CEILING	75	.125	RMC	BI	120/1	80	A B			
FAN KEY: RMP - ROOF MOUNTED PROPELLER VA - VANE AXIAL RMC - ROOF MOUNTED CENTRIFUGAL TA - TUBE AXIAL RMA - ROOF MOUNTED AXIAL WMC - WALL MOUNTED CENTRIFUGAL WMC - WALL MOUNTED CENTRIFUGAL CLC - CEILING MOUNT ILC - IN-LINE CENTRIFUGAL UTL - UTILITY SET (ROOF) ILA - IN-LINE AXIAL WMP - WALL MOUNTED PROPELLER													
WHEEL KEY: FC - FORWARD CURVED BI - BACKWARD INCLINED AF - AIRFOIL RAD - RADIAL P - PROPELLER													
NOTES AND ACCESSORIES DESIGNATION													
A	GRAVITY BACKDRAFT DAMPERS												
B	LIGHT SWITCH												

GAS FIRED UNIT HEATER SCHEDULE											
TAG	MANUFACTURER & MODEL No.	AREA SERVED	TYPE	CFM	FLUE SIZE	GAS DATA			ELECTRICAL		NOTES/ACCESSORIES
						TYPE	MBH IN	MBH OUT	VOLTS	HP	
UH-1	REZNR UDAP-60	SEE PLAN	PROP.	769	4"	NAT	60.0	49.8	120	.03	A B C D E F G
UH-2	REZNR UDAP-75	SEE PLAN	PROP.	769	4"	NAT	75.0	62.2	120	.06	A B C D E F G
UH-3	REZNR UDAP-75	SEE PLAN	PROP.	769	4"	NAT	75.0	62.2	120	.06	A B C D E F G
NOTES AND ACCESSORIES DESIGNATION											
A	VIBRATION ISOLATORS				E	DISCONNECT SWITCH					
B	4 POINT SUSPENSION KIT				F	ADJUSTABLE LOUVER					
C	THERMOSTAT 1 STAGE				G	VENT CAP					
D	MOUNT BOTTOM AS HIGH AS POSSIBLE										

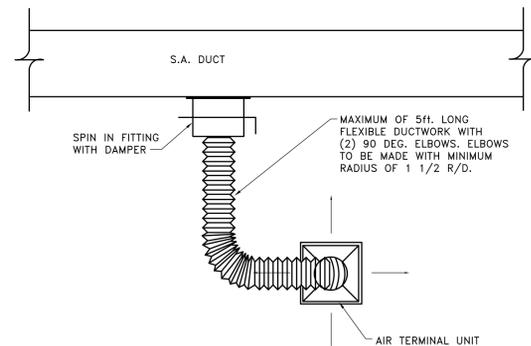


POLYCARBONATE MECHANICAL SUPPORTS MIRO MODEL MECH SUPPORT-LD:
PRODUCT DESCRIPTION: MIRO MECHANICAL UNIT SUPPORTS ARE SUPPORTS TO ELEVATE ROOFTOP MECHANICAL UNITS SUCH AS AIR CONDITIONING OR OTHER DEVICES. THE MECHANICAL UNIT SUPPORTS ARE DESIGNED SO THAT THE MECHANICAL UNITS REST IN HEAVY-DUTY CORNER OR SIDE SUPPORTS WHICH ARE CONNECTED TO BASES DESIGNED WITH MIRO TECHNOLOGY TO PROTECT THE ROOF MEMBRANE. THE MECHANICAL UNIT SUPPORTS ARE ADJUSTABLE IN THAT THE STRUT CAN BE SELECTED TO THE APPROPRIATE HEIGHT AND THERE IS PROVIDED AN ADDITIONAL THREADED ROD WHICH ALLOWS FINE ADJUSTMENT TO LEVEL THE ROOF-TOP UNITS. ALL METAL PIECES ARE MADE OUT OF HOT-DIP GALVANIZED STEEL FOR OUTDOOR WEATHERING PROTECTION. THE MIRO MECHANICAL UNIT SUPPORT CONSISTS OF (1) FOUR MIRO DESIGNED BASES WITH GENTLY CURVED EDGES TO PROTECT THE ROOF MEMBRANE AND TO DISTRIBUTE THE WEIGHT OVER THE MAXIMUM ROOF SURFACE, (2) HOT-DIP GALVANIZED SHEET AND ALL-THREAD HEIGHT ADJUSTABLE COLLUMN.

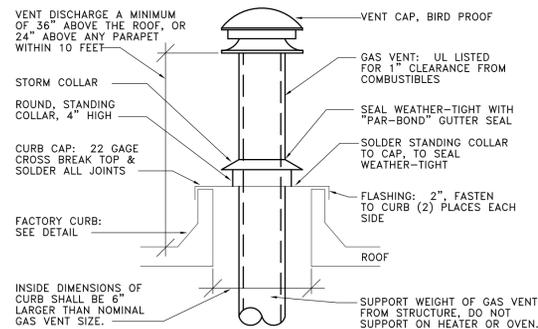
ROOF MECHANICAL EQUIPMENT SUPPORT
NO SCALE



CONCENTRIC VENT KIT
ROOF INSTALLATION DETAIL
NO SCALE

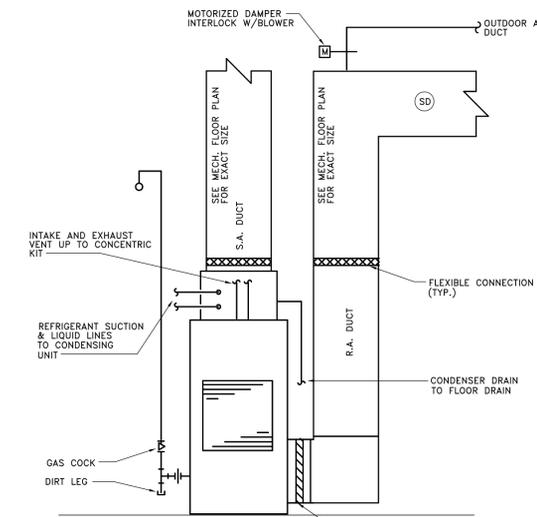


FLEXIBLE DUCT CONNECTION DETAIL
NO SCALE



GAS VENT DETAIL
NO SCALE

GAS VENT (VENT CAP, SECTIONS AND ELBOWS, AND APPLIANCE CONNECTOR) SHALL BE "SELKIRK - METALBESTOS", OR EQUAL. VENT SHALL BE DOUBLE WALL, TYPE "B", INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTALLATION INSTRUCTIONS AND UNDERWRITERS LABORATORIES LISTING.



TYPICAL FURNACE DETAIL
NO SCALE

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MECHANICAL
DETAILS AND
SCHEDULES

SHEET NO.

M2-02

MECHANICAL SPECIFICATION

MECHANICAL MATERIALS, METHODS AND EXECUTION WORK INCLUDED:

WORK INCLUDED:

- FURNISH ALL LABOR AND MATERIAL, APPLIANCES, EQUIPMENT AND SUPERVISION TO PUT IN PLACE A COMPLETE AND FUNCTIONING MECHANICAL INSTALLATION READY FOR OPERATION, AS SPECIFIED HEREIN AND AS INDICATED ON THE DRAWINGS. SYSTEMS SHALL INCLUDE BUT NOT NECESSARILY LIMITED TO THE FOLLOWING MAJOR EQUIPMENT OR OPERATIONS:
 - PLUMBING.
 - HEATING, VENTILATING AND AIR CONDITIONING.
 - INSULATION.
 - TEMPERATURE CONTROLS.

DEFINITIONS:

A. "PROVIDE" TO FURNISH AND COMPLETELY INSTALL SPECIFIED PRODUCTS AND INCIDENTALS, WHETHER SPECIFICALLY INDICATED OR NOT, NECESSARY FOR A COMPLETE, FUNCTIONAL INSTALLATION. INCLUDES ALL GENERAL AND SPECIALIZED LABOR, EQUIPMENT AND TOOLS NECESSARY TO COMPLETE THE INSTALLATION.

B. "FINISH" A COMPLETE SYSTEM INCLUDING PIPE, TUBING, FITTINGS, HANGERS, SUPPORTS, VALVES, AND ALL SPECIALTIES THAT COMPRISE A FULLY FUNCTIONAL PIPING SYSTEM, WHETHER SPECIFICALLY INDICATED OR NOT.

CODES, ORDINANCES, AND STANDARDS:

- ALL WORK SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF THE LATEST ADOPTED FEDERAL, STATE AND LOCAL CODES, ORDINANCES, AND STANDARDS HAVING JURISDICTION OVER THE WORK.
- WHERE CONTRACT DOCUMENT REQUIREMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, ORDINANCES, AND STANDARDS, THE CONTRACT DOCUMENT REQUIREMENTS SHALL BE TAKEN AS MINIMUM.
- ALL EQUIPMENT CONTAINING ELECTRICAL WIRING AND/OR ELECTRICAL COMPONENTS SHALL HAVE A UNDERWRITERS LABORATORIES (UL) "PACKAGE" LABEL.
- ALL GAS FIRED EQUIPMENT SHALL HAVE THE AMERICAN GAS ASSOCIATION (AGA) LABEL.

PERMITS, FEES AND INSPECTIONS:

- SECURE ALL NECESSARY PERMITS, CONNECTION FEES, TAD FEES, LICENSES AND APPROVALS AND ARRANGE FOR ALL INSPECTIONS, INCLUDE ALL RELATED COSTS.
- FURNISH CERTIFICATES OF FINAL INSPECTION AND APPROVAL UPON COMPLETION OF PROJECT.

EXAMINATION OF SITE:

- VERIFY PROJECT SITE AND BECOME FULLY COGNIZANT OF ALL EXISTING ARCHITECTURAL, MECHANICAL, ELECTRICAL, STRUCTURAL AND SITE CONDITIONS, OR EXISTING CODE VIOLATIONS WHICH MAY AFFECT THE WORK.
- VERIFY ARCHITECT PRIOR TO SUBMITTING BID IF REVISIONS TO CONTRACT DOCUMENTS ARE NECESSARY TO RECTIFY ANY OF THE AFOREMENTIONED EXISTING CONDITIONS.
- NO "EXTRAS" TO CONTRACT PRICE WILL BE ALLOWED AFTER RECEIVING BID IN ORDER TO RECTIFY EXISTING CONDITIONS IN ORDER TO MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS OR SATISFY CODE REQUIREMENTS.

COORDINATION WITH OTHER TRADES:

- COORDINATE ALL WORK BEFORE AND DURING CONSTRUCTION WITH ALL OTHER AFFECTED TRADES.
- WHERE INTERFERENCES OCCUR, NOTIFY ARCHITECT FOR RESOLUTION OF CONFLICT.
- RELOCATION OF CONFLICTING INSTALLED WORK, DUE TO LACK OF COORDINATION, OR POOR COORDINATION WILL NOT BE CONSIDERED EXTRA WORK.
- NO "EXTRAS" TO CONTRACT PRICE WILL BE ALLOWED AFTER RECEIVING BID IN ORDER TO RECTIFY EXISTING CONDITIONS IN ORDER TO MEET THE DESIGN INTENT OF THE CONTRACT DOCUMENTS OR SATISFY CODE REQUIREMENTS.

APPROVED MANUFACTURERS:

- USE ONLY MATERIALS SPECIFICALLY INDICATED IN CONTRACT DOCUMENTS, OR COMPARABLE MATERIALS BY OTHER LISTED ACCEPTABLE MANUFACTURERS. NOTE THAT "ACCEPTABLE MANUFACTURERS" DOES NOT CONSTITUTE AUTOMATIC APPROVAL OF SPECIFIC MATERIALS BY ONE OR ALL OF THE LISTED ACCEPTABLE MANUFACTURERS. ARCHITECT AND/OR ENGINEER OF RECORD RESERVES THE RIGHT OF FINAL DETERMINATION OF ACCEPTABILITY OF EACH ITEM.
- SHOW COMPLETE SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT INTENDED FOR USE ON THIS PROJECT.
- SHOP DRAWINGS SHALL CLEARLY INDICATE ALL PHYSICAL, PERFORMANCE AND ELECTRICAL CHARACTERISTICS FOR ALL MATERIALS AND EQUIPMENT.
- SUBMIT ELECTRONIC COPY OF ALL SHOP DRAWINGS FOR REVIEW.
- NO WORK IS TO BE INSTALLED PRIOR TO RETURN OF ARCHITECT REVIEWED SHOP DRAWINGS.

OPERATION AND MAINTENANCE MANUALS:

- UPON COMPLETION OF PROJECT, SUBMIT TWO (2) COMPLETE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT AND SYSTEMS INSTALLED IN THIS PROJECT.
- MANUALS SHALL INCLUDE GUARANTEES, COMPLETE OPERATING INSTRUCTIONS, REPAIR PARTS LIST, PREVENTATIVE MAINTENANCE SCHEDULE, BELT AND FILTER SCHEDULE, AND LIST OF ALL SUBCONTRACTORS ASSOCIATED WITH THE WORK, INCLUDING TELEPHONE NUMBER AND CONTACT PERSON.

OPERATION AND MAINTENANCE INSTRUCTIONS:

- PRIOR TO FINAL ACCEPTANCE BY OWNER, PROVIDE ALL PERSONNEL, EQUIPMENT, AND LABOR AS NECESSARY TO INSTRUCT OWNER'S PERSONNEL IN PROPER OPERATION AND MAINTENANCE OF THE SYSTEMS AND EQUIPMENT INSTALLED IN THIS PROJECT. PROVIDE INSTRUCTIONAL SESSION DURING TIME PERIOD AGREED TO WITH OWNER.

CUTTING AND PATCHING:

- ALL CUTTING AND PATCHING SHALL BE PROVIDED BY THE GENERAL TRADES UNDER THE DIRECTION OF THE MECHANICAL TRADES. COSTS WILL BE PAID BY THE MECHANICAL TRADE REQUESTING THE WORK.
- RESTORED SURFACES SHALL BE OF SAME MATERIALS AND QUALITY AS ADJACENT SURFACES, AND SHALL MATCH SURROUNDING SURFACES, AND/OR BE RESTORED TO PRE-CONSTRUCTION CONDITION.

PROTECTION OF EXISTING SERVICES:

- PROTECT FROM ALL DAMAGE, EXISTING SERVICES (I.E., GAS, WATER, ELECTRICAL, ETC.), ENCOUNTERED IN THE WORK, NOT SPECIFICALLY INDICATED TO BE REMOVED, INCLUDE ALL RELATED COSTS.
- REPAIR AND/OR REPLACE EXISTING ACTIVE SERVICES INTENDED TO REMAIN IN SERVICE, BUT DAMAGED DURING THE COURSE OF CONSTRUCTION. ABSORB ALL RELATED COSTS. NO "EXTRAS" WILL BE PAID TO RESTORE EXISTING ACTIVE SERVICES DAMAGED DURING CONSTRUCTION.
- ARCHITECT WILL DETERMINE COURSE OF ACTION WHEN EXISTING INACTIVE SERVICES ARE DAMAGED DURING COURSE OF EXISTING, DAMAGED INACTIVE SERVICES AS DIRECTED BY ARCHITECT.

ELECTRICAL WORK:

- PROVIDE ALL ELECTRICAL WORK ASSOCIATED WITH, AND NECESSARY TO COMPLETE THIS PROJECT, WHICH IS NOT INCLUDED AS ELECTRICAL TRADES WORK.
- PROVIDE ALL ELECTRICAL WORK, AS APPLICABLE, IN ACCORDANCE WITH DIVISION 16 REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION (WITH ELECTRICAL TRADES) OF CORRECT VOLTAGES FOR ALL MECHANICAL EQUIPMENT. IN CASE OF DISCREPANCY, NOTIFY ENGINEER IMMEDIATELY AND PRIOR TO SHOP DRAWING SUBMITTALS. FAILURE TO COMPLY WITH THIS REQUIREMENT HOLDS THE CONTRACTOR FULLY RESPONSIBLE FOR ANY SUBSEQUENT PROBLEMS.

CLEANING AND FINISHING:

- PRIOR TO FINAL ACCEPTANCE BY OWNER, THOROUGHLY CLEAN ALL WORK INSIDE AND OUT AS APPLICABLE, AND LEAVE ALL SYSTEMS AND EQUIPMENT IN PERFECT WORKING ORDER. THOROUGHLY CLEAN ALL PLUMBING FITTINGS, EXPOSED PIPING, FLOOR DRAIN GRATES, AND CLEANOUT COVERS AS APPLICABLE.

GUARANTEE:

- REFER TO ARCHITECTURAL SPECIFICATIONS FOR GUARANTEES, IF NONE EXIST THE FOLLOWING MINIMUM GUARANTEES SHALL BE PROVIDED:
 - PROVIDE A ONE (1) YEAR GUARANTEE COVERING ALL LABOR AND MATERIAL PROVIDED IN THIS PROJECT. GUARANTEE SHALL INCLUDE ALL SHIPPING AND TRANSPORTATION CHARGES NECESSARY TO RETURN DEFECTIVE MATERIALS TO MANUFACTURER, AS WELL AS LABOR CHARGES NECESSARY TO REMOVE AND REPLACE DEFECTIVE MATERIALS.
 - PROVIDE A ONE YEAR GUARANTEE FOR ALL COMPRESSORS.
 - DEFECTIVE MATERIALS AND/OR EQUIPMENT MAY BE REPAIRED IN LIEU OF REPLACED WITH PRIOR APPROVAL OF ARCHITECT AND/OR OWNER.

PIPES:

SANITARY WASTE AND VENT PIPE AND FITTINGS:

BELOW GRADE AND/OR BELOW FLOOR SLABS WITHIN BUILDING WALLS AND EXTENDING 5'-0" OUTSIDE:
PIPE: ASTM D2665 SCHEDULE 40 PVC-DWV COMPLETED PER MANUFACTURER'S RECOMMENDATIONS.
FITTINGS: ASTM D1554 SOLVENT CEMENTED.
SOLVENT CEMENT: ASTM D2564.
INSTALLATION: IN ACCORDANCE WITH ASTM D2231.

ABOVEGROUND SANITARY WASTE AND VENT PIPING AND FITTINGS:
PIPE 4" AND UNDER: ASTM A-53, SCHEDULE 40, GALVANIZED STEEL.
PIPE OVER 4": ASTM A-53, SCHEDULE 40, GRADE A AND GRADE B, SEAMLESS OR ERW GALVANIZED STEEL.
FITTINGS: ANSI B2.1 THREADS.

PIPE AND FITTINGS: CAST IRON HUBLESS SOIL PIPE AND FITTINGS CONFORMING TO THE REQUIREMENTS OF CISR STANDARD 310 AND LOCAL CODE REQUIREMENTS. HUBLESS COUPLING GASKETS SHALL CONFORM TO ASTM STANDARD C-584.

DOMESTIC WATER PIPING:

ABOVEGROUND DOMESTIC HOT AND COLD WATER 2" AND SMALLER:
ASTM 888, TYPE L, SEAMLESS HARD DRAWN RIGID COPPER WATER TUBE. FITTINGS: ANSI B16.22, WROUGHT COPPER, ASTM B32-951A SOLDER JOINT.

DOMESTIC HOT AND COLD WATER VALVES:

BALL VALVES:
BALL VALVES 1/4" TO 1" PIPE SIZE: APOLLO 71C-140-01 FULL PORT, TWO PIECE WITH SCREWED ENDS, BRONZE BODY AND END PIECE, STAINLESS STEEL BALL, TEFLON SEAT RINGS, STAINLESS STEEL STEM, REINFORCED TEFLON PACKING WITH BRASS PACKING GLAND, ZINC PLATED STEEL HANDLE WITH PLASTIC GRIP SECURED BY ZINC PLATED STEEL HANDLE NUT, 150 PSI STEAM, 600 PSI WOG WORKING PRESSURE.
BALL VALVES 1-1/4" TO 2" PIPE SIZE: APOLLO 82-140-01, 3 PIECE, FULL SIZE PORT WITH SCREWED ENDS, BRONZE BODY, STAINLESS STEEL BALL, TEFLON DOUBLE SEAL SEATS AND THRUST WASHER, BRASS PACKING GLAND, REINFORCED TEFLON PACKING, STAINLESS STEEL STEM, PLASTIC COATED ZINC PLATED STEEL HANDLE AND ZINC PLATED STEEL HANDLE NUT, 150 PSI SATURATED STEAM, 600 PSI WOG.

CHECK VALVES:
INDUSTRIAL SERVICE, 150 LB., SWP 300 LB., WOG COMPOSITION DISC, THREADED UNIONS. MILWAUKEE NO. 510.

NATURAL GAS PIPING:

ABOVE GRADE:
PIPE 4" AND UNDER: ASTM A-130, SCHEDULE 40, BLACK STEEL.
PIPE OVER 4": ASTM A-53, GRADE A OR GRADE B, SEAMLESS OR ERW, SCHEDULE 40, BLACK STEEL.
FITTINGS: ANSI B16.3, 150 POUND, MALLEABLE IRON SCREWED; ANSI B16.9 STEEL BUTTWELD.
JOINTS: 2" AND SMALLER, ANSI B2.1 THREADS; 2-1/2" AND LARGER, ANSI B16.25 BUTTWELD.

BELOW GRADE:
STANDARD WEIGHT SEAMLESS STEEL PIPING ASTM A53 GRADE B WITH WELDED FITTINGS ALL COATED AND WRAPPED IN ACCORDANCE WITH LOCAL UTILITY COMPANY AND AGA RECOMMENDATIONS.

NATURAL GAS SYSTEM VALVES:

PIPELINE AND SERVICE VALVES SHALL BE RESIN, MANUFACTURED BY H.J. BURK CORPORATION. EACH VALVE SHALL BE U.L. APPROVED AND BEAR THE PROPER U.L. STAMP.
FOR PIPING 2" AND SMALLER MILWAUKEE VALVE CO., INC. MODEL #BB-1-150 "BUTTERBALL" OR APPROVED EQUAL GAS CERTIFIED AND UL LISTED QUARTER-TURN BUTTERFLY VALVE, BRONZE BODY, THREADED ENDS, STAINLESS STEEL STEM AND DISC, WITH SEAL WITH POSITIVE SHUT-OFF AND RATED FOR 175 LB. WORKING.

EACH VALVE SHALL BE PROVIDED WITH A WRENCH OPERATOR.

CLEANOUTS:

PROVIDE CLEANOUTS AS REQUIRED BY LOCAL CODES. THE FINISH OF COVER PLATES, TOP AND TOP FRAME ACCESS COVERS SHALL BE NICKEL BRONZE, UNLESS OTHERWISE SPECIFIED.

PIPING INSTALLATION:

INSTALL ALL PIPING PARALLEL OR PERPENDICULAR TO BUILDING WALL AND COLUMNS IN LOCATIONS TO AVOID INTERFERENCE WITH DUCTWORK, STRUCTURE, OTHER PIPING, LIGHTING AND ELECTRICAL EQUIPMENT OR OTHER EQUIPMENT.

DO NOT LOCATE PIPING ABOVE OR WITHIN 3 FEET HORIZONTALLY OF ELECTRICAL PANELS OR EQUIPMENT.

FOR PIPING PASSING THROUGH WALLS, PACK VOID BETWEEN PIPE AND STRUCTURE WITH APPROVED, NON-COMBUSTIBLE MATERIAL. DO NOT ALLOW CONTACT BETWEEN PIPING AND MASONRY OF CONCRETE SURFACES.

PROVIDE ALL THE NECESSARY HANGERS, RODS, SUPPORTS, CHANNELS, ANGLES, STRUCTURAL MEMBERS AND CONCRETE INSERTS TO PROPERLY SECURE PIPING AND RELATED EQUIPMENT. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF ANSI CODE FOR PRESSURE PIPING B31.1 AND MSS STANDARD PRACTICE 58-58.

PROTECT ALL INSULATED PIPE LINES AGAINST INSULATION DAMAGE AT ALL HANGERS BY THE USE OF 1 FOOT LONG, 1/2 GAUGE STEEL SEAM-CIRCULAR SHIELDS FOR PIPE SIZES WITH 12" OD OR LESS (INCLUDING INSULATION) AND 2 FOOT LONG, 1/2" STEEL SEAM-CIRCULAR SHIELDS FOR PIPE SIZES OVER 12" OD (INCLUDING INSULATION). SECURELY CEMENT ALL SHIELDS TO THE INSULATION. PROVIDE RIGID PIPE INSULATION AT EACH HANGER.

FLOOR DRAIN SCHEDULE:

FD-1 15" DIAMETER PARKING DECK DRAIN WITH SUPPORT FLANGE ZURN MODEL # 7536-Z DURA COATED CAST IRON BODY WITH BOTTOM OUTLET, HEAVY DUTY GASKETED DRAIN SUPPORT FLANGE WITH HEAVY DUTY SLOTTED GRATE.

REDUCED PRESSURE BACKFLOW PREVENTERS:

PROVIDE "REDUCED PRESSURE" BACKFLOW PREVENTERS WHERE INDICATED AND AS REQUIRED BY LOCAL CODES COMPLETE WITH TWO SPRING LOADED CHECK VALVES, SPRING LOADED DIAPHRAGM ACTIVATED DIFFERENTIAL PRESSURE RELIEF VALVES, TWO GATE VALVES, FOUR TEST COCKS, TWO DISCS AND INTERCONNECTING PIPING AT 175 PSI MAXIMUM WORKING PRESSURE. RELIEFS SHALL BE UNIT SIZED PIPED TO SAFE WASTE.

SMALL DEVICES SUCH AS COFFEE MAKERS AND ICE MACHINES SERVED BY DOMESTIC WATER MAKE-UP TUBING SHALL BE FITTED WITH APOLLO MODEL 40-100 SERIES BACKFLOW PREVENTER #A/ATMOSPHERIC VENT SUITABLE FOR 150 PSI WORKING PRESSURE. DESIGN SHALL CONFORM TO ASSE 1022.

UNITS SHALL BE APPROVED BY STATE AND LOCAL CODES.

FIXTURE CONNECTIONS SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

FIXTURE	SOIL OR WASTE	VENT	TRAP	HOT WATER	COLD WATER
WATER CLOSETS (FLUSH)	4"	2"			1-1/2"
LAVATORY	1-1/2"	1-1/2"	1-1/4"	1/2"	1/2"
SERVICE SINKS	3"	1-1/2"	3"	3/4"	3/4"

OTHERS AS INDICATED IN THE CONTRACT DOCUMENTS:

FIXTURES SHALL BE AMERICAN STANDARD, KOHLER, MANFREDI OR AS SPECIFY BELOW.
FIXTURE SUPPORTS SHALL BE ZURN, J.R. SMITH, JOSEPH AND WADE.
FLUSH VALVE SHALL BE SLOAN, JORN OR DELTA.
FAUCETS SHALL BE CHICAGO, DELTA OR SPEAKMAN.

PLUMBING FIXTURE SCHEDULE:

P-1 PHYSICALLY HANDICAPPED FLOOR MOUNTED WATER CLOSET; MANFREDI 1318NS ADRIATIC, 1.6 GPF CONSUMPTION, WHITE DURABLE VITREOUS CHINA, ELONGATED BOWL, 17" HIGH, 1-1/2" TOP SPRIG AND BOLT CAPS.

P-2 WALL MOUNTED LAVATORIES: MANFREDI 2018BNS GRAND ISLE, 22" X 18-1/8" SIZE Oval, WHITE VITREOUS CHINA, FITTING LEVER AND FRONT OVERFLOW. UNIT SHALL BE DRILLED TO RECEIVE THE SPECIFIED TRIM SUPPLIES. 1/2" X 3/8" ANGLE SUPPLIES WITH WHEEL STOPS, FLEXIBLE RISERS AND CP ESCUTCHION PLATES. TRAP: CP 1-1/2" BENT TUBE, ADJUSTABLE TP TRAP WITH CLEANOUT, CP TUBING TO WALL AND CP ESCUTCHION PLATE.

TRIM: DECK MOUNTED, VANDAL RESISTANT, DELTA MODEL 500, SINGLE LEVER, WASHLESS, 4" CENTERSET WITH 3/8" OD COPPER INLETS, AERATOR, 3 GPM MAXIMUM FLOW RESTRICTOR, GRID DRAIN AND 1-1/4" CP TAILPIECE. ALL EXPOSED SURFACES HEAVILY CHROME PLATED.

P-3 SINKS BY XPR LOCKERS MODEL X9B-LD-3010 ONMIXER WITH 2 RECTANGULAR BOWLS COMPLETE WITH FAUCETS AND GRID DRAINS. P-TRAP SUPPLIES: 1/2" X 3/8" ANGLE SUPPLIES WITH WHEEL STOPS, FLEXIBLE RISERS AND CP ESCUTCHION PLATES.

P-4 SERVICE SINKS: FINE TERRAZZO WOP SERVICE SINK, 12" DEPTH NO. 1580010-2424, ONE-PIECE MOLDED STONE UNIT HAVING 12" HIGH WALLS WITH NOT LESS THAN 1/8" MIN. SHOULDER. COVER SHALL BE #213 WHITE DRIET. DRAIN BODY SHALL BE FACTORY INSTALLED STAINLESS STEEL #302 WITH COMINATION DOME STRAINER AND DRAIN BASKET. THE DRAIN BODY SHALL PROVIDE FOR A LEAD CASHELD JOINT TO A 2" IPS SILICONE GASKET SHALL BE PLATE #832-ALL.

SUPPLY FITTING, VANDAL-RESISTANT CHICAGO FAUCET NO. 897, COMINATION SERVICE SINK FITTING WITH VACUUM BREAKER, 3/4" HOSE THREAD RIGID SPOUT, NO. 369 LEVER HANDLE, WALL BRACE PAL, HOOK AND NO. 74" 1/2" FLANGED FEMALE ADJUSTABLE ARMS WITH INTERNAL STOPS. ALL EXPOSED SURFACES SHALL BE HEAVILY CHROME PLATED. (IN GUIDE: VINTI BRACKER GUARDS EQUAL TO PLATE #E-77-7A, SHALL BE PROVIDED ON ALL SIZES NOT ADJACENT TO WALL.

WALL GUARD: STAINLESS STEEL MODEL NO. WEGARD-18. WEGARD-18 GAUGE, NO. 302 STAINLESS STEEL HOSE BRACKET WITH RUBBER GRIP. COMPLETE WITH 30" LONG FLEXIBLE, CLOTH REINFORCED, 5/8" HEAVY DUTY RUBBER HOSE WITH 3/4" CHROME COUPLING AT HOSE END, WOP HANGER: #889-CC, 24" LONG X 3" WIDE, STAINLESS STEEL ATTACHED WITH THREE (3) RUBBER TOOL GRIPS.

PIPE INSTALLATION:
PROVIDE ALL THE NECESSARY HANGERS, RODS, SUPPORTS, CHANNELS, ANGLES, STRUCTURAL MEMBERS AND CONCRETE INSERTS TO PROPERLY SECURE PIPING AND RELATED EQUIPMENT. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF ANSI CODE FOR PRESSURE PIPING B31.1, AND MSS STANDARD PRACTICE 58-58.

FLEXIBLE DUCTWORK:

ALL LOW PRESSURE AND HIGH PRESSURE FLEXIBLE DUCT SHALL BE FLEDMASTER USA, INC., TYPE #PM INSULATED FLEXIBLE DUCT CONSISTING OF A FACTORY FABRICATED ASSEMBLY OF A TRIMINATE ALUMINUM FOL, FIBERGLASS AND POLYESTER. THE FLEXIBLE DUCT SHALL BE UL LISTED 181 CLASS 1 AIR DUCT AND COMPLY WITH NFPA 90A AND 90B AND HAVE A FLAME SPREAD OF NOT OVER 25 AND A SMOKE DEVELOPED RATING OF NOT OVER 50. THE FLEXIBLE DUCT SHALL HAVE A MINIMUM PRESSURE RATING OF 12" WC THROUGH TEMPERATURE RANGE OF -20 DEGREES F. TO + 250 DEGREES F.

SHEET METAL NOTES:

INSTALL TRANSFER GRILLES ON ALL FULL HEIGHT PARTITIONS TO ALLOW RETURN AIR FLOW. SIZE PER MECHANICAL ENGINEER REQUIREMENTS. THESE SHALL BE FIRE DAMPERS IN RATED WALLS.

BLANK-OFF RETURN DUCTWORK IN AREAS OF WORK THAT CREATES DUST TO PREVENT DEBRIS FROM ENTERING MECHANICAL SYSTEM.

LOW PRESSURE DUCTWORK: ALL DUCTWORK ON DISCHARGE OF HVAC UNIT, ALL RETURN AIR DUCTWORK AND EXHAUST AIR DUCTWORK SHALL BE CONSTRUCTED AND SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST SNAKMA'S ISSUE OF "LOW PRESSURE DUCT CONSTRUCTION STANDARDS".

IN ADDITION, ALL JOINTS AND SEAMS SHALL BE SEALED WITH DUCT SEALANT EQUAL TO FOSTER #32-14. APPROVED SEALANT MANUFACTURERS: 5M COMPANY, BENJAMIN FOSTER COMPANY, UNITED SHEET METAL, FUNKFOTE.

FLEXIBLE CONNECTIONS:

AT EACH POINT OF CONNECTION OF DUCTWORK TO FANS, PROVIDE A FLEXIBLE CONNECTION, VENTRICARS, INC., "VENTILAS L.A." NOT LESS THAN 12" IN LENGTH AND MADE OF HEAVY GRADE CLASS FABRIC DOUBLE COATED WITH NEOPRENE AND PROVIDED WITH A SUITABLE FRAME AT EACH END ARRANGED FOR BOLTING TO INLET AND OUTLET OF FAN AND DUCTWORK, RESPECTIVELY.

VANES AND DEFLECTORS: ALL ELBOWS AND TURNS SHALL BE MADE WITH A RADIUS NOT LESS THE 1/2-1/2" TIMES THE DUCT DIAMETER OR WIDTH, WHERE BUILDING CODES DO NOT REQUIRE A LONG RADIUS ELBOW OR TURN OR IF SHOWN ON THE CONTRACT DOCUMENTS, ACoustICAL TURNING VANES AND DEFLECTORS SHALL BE PROVIDED.

PIPE INSULATION:

ALL ADHESIVE, SEALERS AND COATINGS SHALL BE INCOMBUSTIBLE. INSULATION SHALL BE APPLIED BY EXPERIENCED PIPE COVERERS AS PER BEST TRADE PRACTICE. WHERE EXISTING INSULATION AND SURFACES ARE EXPOSED DUE TO RENOVATIONS, RE-INSULATE AND EXPOSED SURFACES TO MATCH THE EXISTING INSTALLATION. APPLY INSULATION TO PIPE LINES AND EQUIPMENT ONLY AFTER TESTING AND INSPECTION, AND ALL SURFACES HAVE BEEN THOROUGHLY CLEANED.

DOMESTIC HOT AND COLD WATER PIPINGS SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. PIPING INSULATION AND COVERING SHALL HAVE FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 AND SHALL BE SIMILAR TO OWENS-CORNING NO. 25A52/55L-11.

INDOOR REFRIGERANT PIPINGS SHALL BE INSULATED WITH 1" THICK FIBERGLASS INSULATION. PIPING INSULATION AND COVERING SHALL HAVE FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPED RATING OF 50 AND SHALL BE SIMILAR TO OWENS-CORNING NO. 25A52/55L-11.

OUTDOOR REFRIGERANT PIPING:

1/2" AERUTUBE # 8 FOR OUTDOOR TEMPERATURE -20 DEGREES TO 120 DEGREES F. WITH RESISTANT AEROTUBE FINISH. SEAL WITH P-W 57 ADHESIVE.
PROVIDE TRAPS AT CONNECTIONS TO COOLING COIL DRIP PANS HAVING A SEAL EQUAL TO OR GREATER THAN THE OPERATING STATIC PRESSURE OF THE EQUIPMENT SERVED AT THE POINT OF CONNECTION.

DUCT INSULATION:

ALL DUCTWORK SHALL BE THERMALLY INSULATED
-OUTSIDE AIR INTAKE AND RELIEF PLenums AND DUCTS.
ALL DUCT INSULATION SHALL HAVE A FLAME SPREAD CLASSIFICATION OF 25 OR LESS, A FUEL CONTRIBUTED RATING OF 35 OR LESS AND SMOKE DEVELOPED RATING OF 50 OR LESS, AS RATED BY UNDERWRITERS' LABORATORIES.

BLANKET TYPE (UP TO 1-1/2 LB./CU. FT. INSULATION).
INSULATION WITH ATTACHED FACING SHALL BE SECURED TO THE DUCTS WITH ADHESIVE APPLIED IN 4" BRUSH WIDTHS EVERY 12".
THE ADHESIVE SHALL BE RIDGED SLIGHTLY BY USING A SERATED TROWEL. INSULATION WITHOUT ATTACHED FACING (BODY) SHALL BE SECURED TO IT DUCTS THE SAME AS ABOVE THEN BND WITH TYPIC COROL, SPIRAL WRAPPED OR HALF WITCHED.

DUCT FITTINGS SHALL BE INSULATED BY WRAPPING WITH A CLASS FIBER BLANKET. BLANKETS SHALL BE SECURED NOT BE DUCT FITTINGS BY INSULATION STAPLES OR JUTE TWINE. THE BLANKET SHALL BE COVERED WITH AN OPEN MESH CLOTH OR GLOSS FIBER HEAVILY COATED, WITH VAPOR BARRIER ADHESIVE. THE INSULATION THICKNESS SHALL BE EQUAL TO THE THICKNESS OF THE INSULATION ON THE ADJOINING DUCTWORK.

RECTANGULAR SUPPLY DUCTWORK FROM ALL TERMINAL BOXES TO GRILLES, REGISTERS AND DIFFUSERS. ROUND DUCTWORK ON DISCHARGE ON TERMINAL BOXES SHALL BE INSULATED EXTERNALLY UNLESS OTHERWISE NOTED.

TESTING AND ADJUSTING:

TEST AND ADJUST ALL NEW PIPING SYSTEMS INSTALLED IN THIS PROJECT. PROVIDE ALL TESTING INSTRUMENTS, GAUGES, PUMPS AND OTHER EQUIPMENT REQUIRED OR NECESSARY FOR TEST. REPAIR ALL DEFECTS DISCLOSED BY TESTS WITHOUT ADDITIONAL COST TO THE OWNER. REPEAT TESTS AFTER ANY DEFECTS DISCLOSED ARE REPAIRED OR REPLACED, UNLESS MANDY BY ARCHITECT. ARRANGE AND PAY THE COST OF ALL UTILITIES USED ON TESTS. COMPLETE ALL TESTS BEFORE COVERING IS APPLIED. ISOLATE ALL PIPING SYSTEM COMPONENTS NOT CONTRIBUTED TO WITHSTAND TEST PRESSURES.

WATER SYSTEMS TEST:

TEST AT 150 PSIG FOR EIGHT (8) HOURS WITH ZERO LOSS IN PRESSURE. CHECK JOINTS AND FITTINGS FOR LEAKS WITH LIQUID SOAP SOLUTION.

DRAINAGE SYSTEM:

THE DRAINAGE SYSTEM SHALL BE TESTED IN ACCORDANCE WITH ALL LOCAL CODES AND REGULATIONS AND IN THE PRESENCE OF THE PROPER INSPECTOR. AIR TEST SHALL BE 5 PSIG AND SHALL REMAIN IN OPERATION FOR A PERIOD OF 15 MINUTES.

NATURAL GAS SYSTEM:

ALL GAS PIPING SHALL BE TESTED IN ACCORDANCE WITH RULES AND REGULATIONS OF THE COMPANY OR UTILITY SERVING THE PROJECT, AND IN ANY CASE SHALL NOT BE LESS THAN THE FOLLOWING:
THE PIPING SYSTEM OR PORTIONS OF THE PIPING SYSTEM TO BE TESTED SHALL BE SUBJECTED TO AN AIR PRESSURE, USING OIL-FREE COMPRESSOR AIR, OF NOT LESS THAN 100 POUNDS PER SQUARE INCH EQUAL 20" OF MERCURY. THE PRESSURE SHALL BE APPLIED WITH A FORCE PUMP AND SHALL BE MAINTAINED FOR NOT LESS THAN 30 MINUTES WITHOUT LEAKAGE. A MERCURY COLUMN GAUGE SHALL BE USED IN MAKING THE TESTS. TESTS SHALL BE SCHEDULED WITH LOCAL AUTHORITY FOR PRESENCE OF PROPER INSPECTOR. THE CONTRACTOR INSTALLING THESE PIPING SYSTEMS SHALL BE HELD RESPONSIBLE FOR THE TEST AND SHALL CERTIFY THE APPLICATION AND SHALL CERTIFY THE APPLICATION AND SUCCESS OF THE TEST.

AIR BALANCING:

BALANCE ALL OUTLETS AND TERMINAL BOXES TO WITHIN 100% OF RATED C.F.M. IN ACCORDANCE WITH AABC AND NEBB, SUBMIT BALANCING REPORT.

PIPE IDENTIFICATION:

IDENTIFY ALL NEW PIPING INSTALLED IN THIS PROJECT IN ACCORDANCE WITH ANSI A13.1 1981, OSHA, AND OWNER'S STANDARDS.

TEMPERATURE CONTROLS:

FURNACE AND CONDENSER:

WIRE PROGRAMMABLE THERMOSTAT FURNISHED BY UNIT MANUFACTURER.
DURING OCCUPIED CYCLE, SUPPLY FAN SHALL RUN CONTINUOUSLY.
(WINTER) SPACE STAT SHALL CYCLE THE GAS FIRED HEATING SECTION (GAS VALVE) TO MAINTAIN HEATING SET TEMPERATURE.
(SUMMER) SPACE STAT SHALL CYCLE THE CONDENSER UNIT TO MAINTAIN COOLING SET TEMPERATURE.

DURING UNOCCUPIED CYCLE, SUPPLY FAN SHALL CYCLE THE BLOWER FAN ON AND OFF.
(WINTER) SPACE STAT SHALL CYCLE SUPPLY FAN, AND GAS FIRED HEATING SECTION TO MAINTAIN HEATING SET TEMPERATURE.
(SUMMER), UNIT SHALL BE DEACTIVATED.

SMOKE DETECTOR DEACTIVATES FAN WHENEVER PRODUCTS OF COMBUSTION ARE SENSID.

REFRIGERATION SYSTEMS:

THE REFRIGERATION SYSTEMS SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH ALL REQUIREMENTS OF ANSI B31.5 "REFRIGERATION PIPING", AND B91 "SAFETY CODE FOR MECHANICAL REFRIGERATION" AND ALL APPLICABLE LOCAL CODES.
THE INSTALLED SHALL BE A FIRM WITH AT LEAST FIVE (5) YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE OF PROJECTS WITH REFRIGERANT PIPING SIMILAR TO THAT REQUIRED FOR THIS PROJECT. ALL MATERIALS USED IN THE CONSTRUCTION OF THE REFRIGERATION SYSTEM SHALL BE SUITABLE FOR THE TYPE OF REFRIGERANT USED AND BE ABSOLUTELY CLEAN AND DRY PRIOR TO USE. THE REFRIGERATION SYSTEMS SHALL BE COMPLETELY TESTED, DEWATERED AND DRAINED DURING FABRICATION. THE SYSTEM SHALL BE KEPT FULL OF AN INERT GAS SUCH AS NITROGEN OR CARBON DIOXIDE TO PREVENT SCALE FORMATION. PIPE ALL DISCHARGE FROM PIPING AND FITTINGS: REFRIGERANT PIPING SHALL BE ASTM 888 TYPE L, HARD TEMPER COPPER TUBE WITH ANSI B16.22 WROUGHT COPPER FITTINGS AND HIGH TEMPERATURE "SALTS" SOLDERED JOINTS. FLEXIBLE PIPE CONNECTIONS: FLEXIONS VALVES: STOP VALVES SHALL BE MUELLER BRASS CO., "LODGEMASTER" PACKED TYPE BACKS EXTING GLOBE VALVES WITH WINGED TYPE SEALED CAP, BRONZE BODY AND SOLDERED ENDS. STEM PACKING SHALL BE CAPABLE OF REPLACEMENT UNDER PRESSURE. PROVIDE HEAT STABILIZED NYLON SEAT DISCS FOR LIQUID LINES AND LEAD ALOY SEAT DISCS FOR HOT GAS LINES. ALL VALVES SHALL BE LINE SIZE. TESTING: PRIOR TO INITIAL OPERATION, CLEAN AND TEST REFRIGERANT PIPING IN ACCORDANCE WITH ANSI B31.5 "REFRIGERATION PIPING". TESTS SHALL BE REPEATED AFTER ANY DEFECTS HAVE BEEN MADE GOOD OR THE WORK REPEATED, IF, IN THE JUDGMENT OF THE ARCHITECT, IT IS DEEMED NECESSARY. ALL REPAIRS TO PIPING SYSTEMS SHALL BE MADE WITH NEW MATERIAL. NO CAULKING ON SCREWED JOINTS, CRACKS OR HOLES WILL BE ACCEPTABLE. ARRANGE AND PAY FOR THE COST OF REFRIGERANT, HALIDE AND UTILITIES USED ON ANY TEST. AFTER SUCCESSFULLY COMPLETING TESTS EXHAUST, DEWATER AND CHANGE THE SYSTEMS WITH REFRIGERANT. ALL REFRIGERANT PIPING SHALL BE SUPPORTED ON UNSTRUCT CHANNEL SUPPORTS WITH PIPE CLAMPS AND UNSTRUCT F2600 ON-CUSHION FLEXIBLE ELASTOMER OR OTHER APPROVED RESILIENT BUSHING TO ISOLATE THE PIPE FROM THE PIPE CLAMPS. UNDER NO CIRCUMSTANCES SHALL ANY REFRIGERANT PIPING TOUCH CEILINGS, WALLS, ETC., WITHOUT A RESILIENT ISOLATOR.

DEMOLITION: DEMOLITION DRAWINGS ARE DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF THE WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, PLUMBING FITURES, DUCTS, PIPING AND APPROXIMATE SIZES AND APPROXIMATE LOCATIONS. DO NOT SCALE DRAWINGS FOR EXACT MEASUREMENTS.

ALL MECHANICAL WORK SHOWN ON THE DEMOLITION DRAWINGS HAS BEEN TAKEN FROM THE OWNER'S RECORD DRAWINGS AND/OR CERTAIN FIELD OBSERVATIONS, EXACT SIZES, LOCATIONS, ARRANGEMENT AND ELEVATIONS OF ALL EXISTING MECHANICAL EQUIPMENT, EXISTING PLUMBING FITTINGS, EXISTING DUCTWORK, EXISTING PIPING AND EXISTING MECHANICAL DEVICES SHALL BE VERIFIED IN THE FIELD.

THE CONTRACTOR SHALL INCLUDE, IN HIS QUOTE, ALLOWANCES FOR REASONABLE DEVIATIONS BETWEEN WHAT IS SHOWN AND ACTUAL JOB CONDITIONS IN ORDER TO COMPLETE THE WORK IN THE SCOPE INDICATED.

REMOVE, RECONNECT, CAP, PLUG AND REPLACE EXISTING PIPING AND DUCTWORK ONLY WHERE INDICATED IN THE CONTRACT DOCUMENTS. REMOVE AND/OR REPLACE EXISTING EQUIPMENT, VALVES, CONTROLS, ETC., ONLY WHERE INDICATED IN THE CONTRACT DOCUMENTS. INTERRUPTION OF EXISTING ACTIVE PIPING: WHERE THE WORK MAKES TEMPORARY SHUT-DOWNS OF SERVICE UNAVOIDABLE, SHUT-DOWN AT THE AS APPROVED BY THE OWNER, WHICH WILL CAUSE LEAST INTERFERENCES WITH ESTABLISHED OPERATING ROUTINE.

ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED TO MAKE NECESSARY CONNECTION TO EXISTING WORK, UNLESS SPECIFICALLY NOTED TO THE CONTRARY. REMOVED MATERIALS SHALL NOT BE REUSED IN THE WORK.

SALVAGE MATERIALS THAT ARE TO BE REUSED SHALL BE STORED SAFE AGAINST DAMAGE AND TURNED OVER TO THE APPROPRIATE TRADE FOR REUSE. SALVAGED MATERIALS OF VALUE THAT ARE NOT TO BE REUSED SHALL REMAIN THE PROPERTY OF