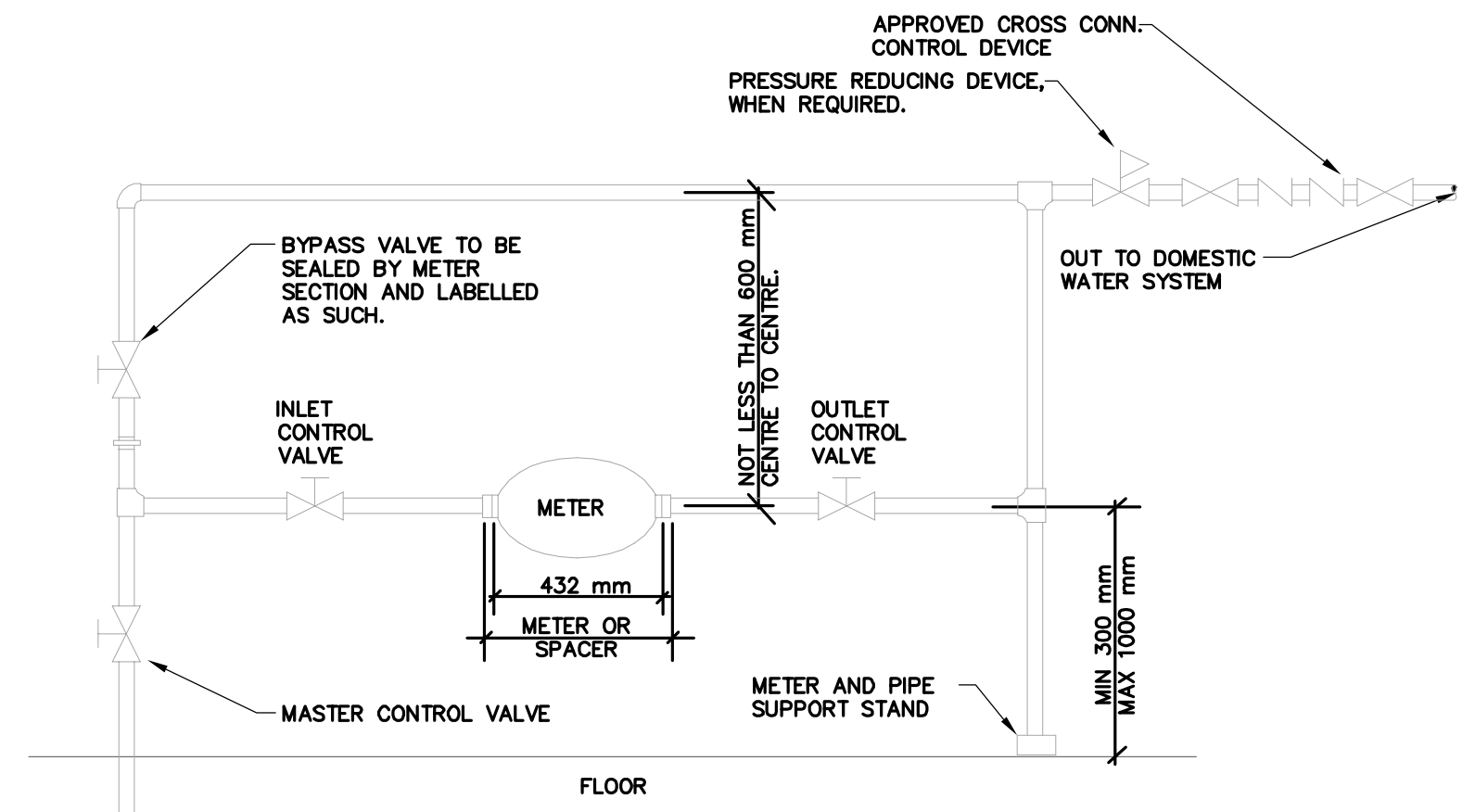


1 MECHANICAL SITE PLAN  
SCALE: 1:300

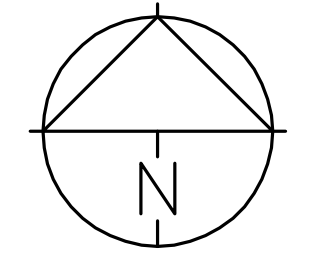


2 50mm WATER METER DETAIL (USING COPPER PIPE)  
SCALE: N.T.S.

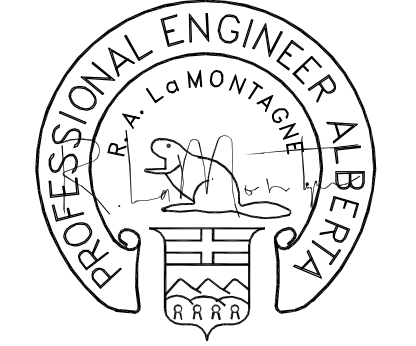
STORM RETENTION CALCULATIONS  
 TOTAL SITE AREA = 2930 SQ. M. (0.2930 HECTARES)  
 ROOF AREA = 630 SQ. M. (0.0630 HECTARES)  
 LANDSCAPED AREA = 638 SQ. M. (0.0638 HECTARES)  
 PARKING AREA = 1662 SQ. M. (0.1662 HECTARES)  
 RETENTION  
 MAXIMUM ALLOWABLE FLOW FROM SITE = 69 L/S / HA  
 $Q1 = 0.3 \times 2930 \times 82.55 \times 2.78 = 20.2 \text{ L/S}$   
 $C2 = \frac{[(0.3 \times 0.0638) + (0.9 \times 0.1662) + (1.0 \times 0.0630)]}{0.2930} = 0.791$   
 $Q2 = 0.791 \times 82.55 \times 2.78 / 1000 = 0.0532$   
 SITE RETENTION  
 WITH A 125VHV-2 HYDROVEX, DISCHARGE FROM THE SITE WILL BE = 20.2 L/S  
 $C1' = 20.2 / (2.78 \times 82.55 \times 0.2930) = 0.300$   
 $C2 / C1' = 0.791 / 0.300 = 2.64$   
 STORAGE VOLUME FACTOR = 610  
 VOLUME REQUIRED = 610 X 0.2930 X 0.300 = 53.6 CU. M.  
 POND VOLUME:  
 POND = 1063 X 0.27 / 3 = 95.7 CUBIC M  
 POND VOLUME EXCEEDS REQUIRED STORAGE VOLUME.

LEGAL DESCRIPTION  
 UNIT 1, PLAN 071 6428  
 SEC 14-24-25-W4M  
 MUNICIPAL ADDRESS  
 500 RANCH MARKET  
 STRATHMORE, ALBERTA

DESIGN & INSTALL ALL MECHANICAL SYSTEMS TO THE FOLLOWING CODES AND STANDARDS.  
 ALBERTA BUILDING CODE - LATEST EDITION  
 ALBERTA FIRE CODE - LATEST EDITION  
 NATIONAL BUILDING CODE - LATEST EDITION  
 NATIONAL FIRE CODE - LATEST EDITION  
 NFPA-13 & ALL OTHER APPLICABLE NFPA SECTIONS  
 CANADIAN PLUMBING CODE - LATEST EDITION  
 NATURAL GAS INSTALLATION CODE CGA-B149  
 SMACNA



FIELD REVIEW:  
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 SITE SAFETY:  
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 DRAWING REVIEW:  
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20/07/12  
 PERMIT TO PRACTICE P10904

REVISIONS			
NO.	DESCRIPTION	DATE	CK
1	ISSUED TO CITY	28/05/12	
2	REVISED WITH AS-BUILT SANITARY & REVISED STORM	20/07/12	

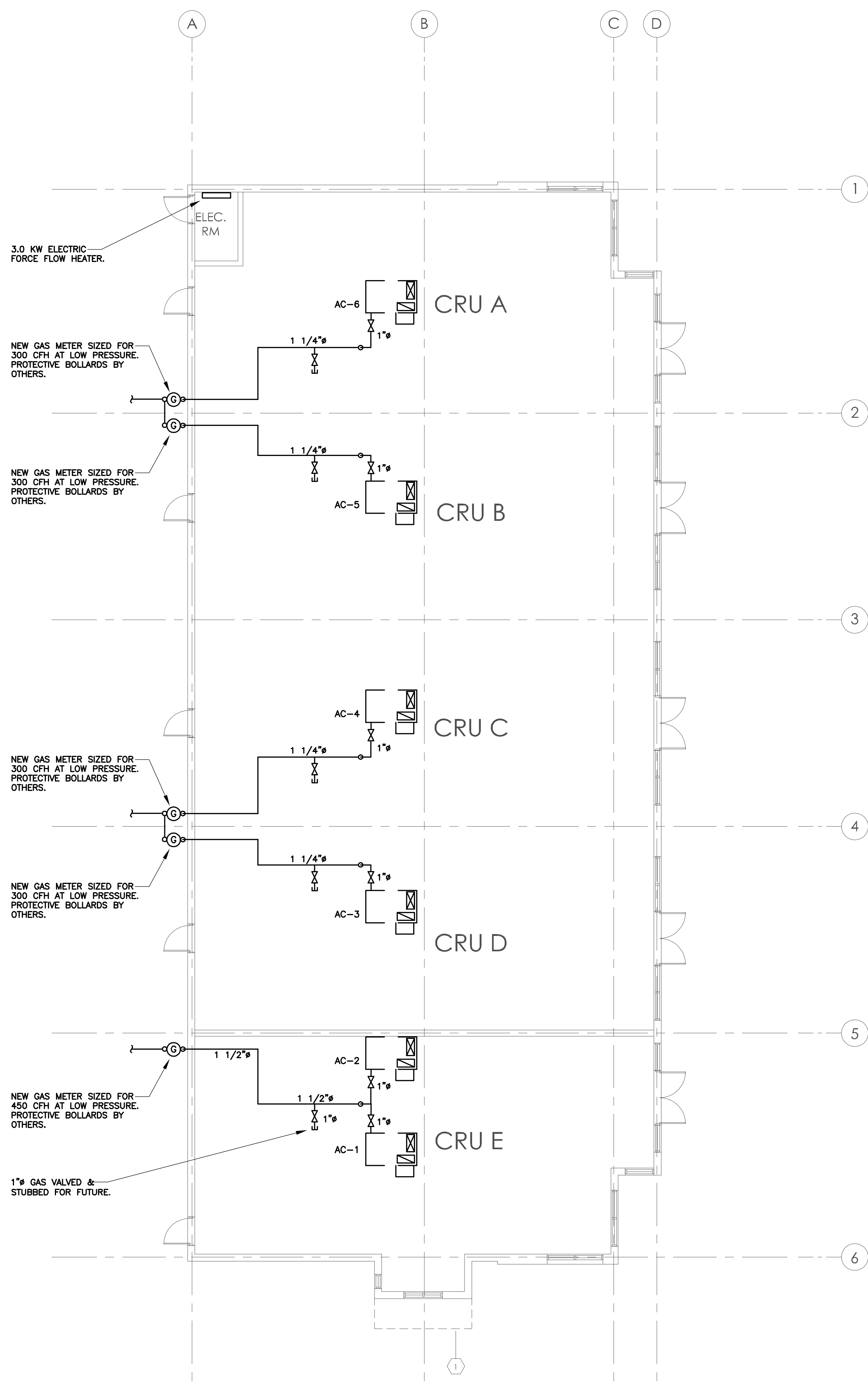
DMH Designs Ltd.  
 117 Royal Oak Green NW  
 Calgary, Alberta T3G 6A7  
 Tel: (403) 620-3170  
 Fax: (403) 208-4185

CLIENT  
 WEST 18 STREET ENTERPRISES  
 CALGARY, ALBERTA

PROJECT  
 VISIONS  
 STRATHMORE, ALBERTA

TITLE  
 MECHANICAL SITE PLAN

SCALE AS NOTED	DATE MAY/2012	DRAWING NO. <b>M1-1</b>
DRAWN BY DP	CHECKED BY	
JOB #: 12-744	DWG:	REVISION: 1
PLOTTED:	COPIED:	



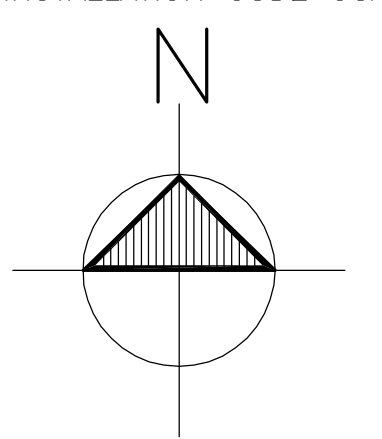
1 MAIN FLOOR HVAC PLAN  
SCALE: 1/8"=1'-0"

HVAC NOTES:  
1. ALL RTU'S TO BE A MIN OF 12' FROM RTU VENT TO ADJACENT UNIT ECONOMIZER.

ROOF TOP UNIT SCHEDULE (CARRIER OR APPROVED EQUAL)							
TAG	MODEL	HEATING CAPACITY		COOLING CAPACITY (NET)	AIR VOL (CFM)	POWER	REMARKS
		INPUT	OUTPUT				
AC-1	48TCA05	150 MBH	120 MBH	4 TONS	1600	208V/3/60	EACH UNIT TO BE C/W - 50MM DISPOSABLE FILTER - ROOF CURB - ECONOMIZER - CONTROL TRANSFORMER - 24 VOLT SPACE HEAT/COOL THERMOSTAT - BELT DRIVE - HAIL GUARD - 150' OF THERMOSTAT CABLE
AC-2	48TCA04	115 MBH	92 MBH	3 TONS	1200	208V/3/60	
AC-3	48TCA06	150 MBH	120 MBH	5 TONS	2000	208V/3/60	
AC-4	48TCA06	150 MBH	120 MBH	5 TONS	2000	208V/3/60	
AC-5	48TCA06	150 MBH	120 MBH	5 TONS	2000	208V/3/60	
AC-6	48TCA06	150 MBH	120 MBH	5 TONS	2000	208V/3/60	

ELECTRIC FORCE FLOW HEATER SCHEDULE (QUELLET OR APPROVED EQUAL)			
WATTS	MODEL	POWER	REMARKS
3000	OAC03000	240/208V/1/60	PROVIDE HEATER WITH AN INTEGRAL THERMOSTAT. DIV 15 TO PROVIDE. DIV 16 TO INSTALL.

DESIGN & INSTALL ALL MECHANICAL SYSTEMS TO THE FOLLOWING CODES AND STANDARDS.  
ALBERTA BUILDING CODE - LATEST EDITION  
ALBERTA FIRE CODE - LATEST EDITION  
NATIONAL BUILDING CODE - LATEST EDITION  
NATIONAL FIRE CODE - LATEST EDITION  
NFPA-13 & ALL OTHER APPLICABLE NFPA SECTIONS  
CANADIAN PLUMBING CODE - LATEST EDITION  
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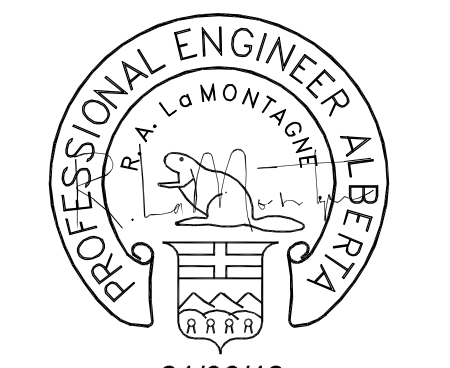
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21/06/12  
PERMIT TO PRACTICE P10904

REVISIONS			
NO.	DESCRIPTION	DATE	CK
1	ISSUED FOR BP	21/06/12	

**DMH Designs Ltd.**  
117 Royal Oak Green NW  
Calgary, Alberta T3G 6A7  
Tel: (403) 620-3170  
Fax: (403) 208-4185

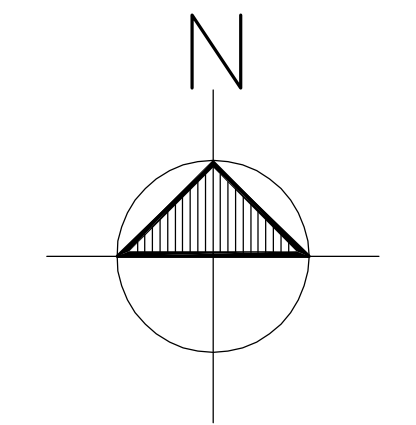
**CLIENT**  
WEST 18 ST ENTERPRISES  
CALGARY, ALBERTA

**PROJECT**  
500 RANCH MARKET  
CALGARY, ALBERTA

**TITLE**  
FLOOR HVAC PLANS

SCALE AS NOTED	DATE JUNE 2012	DRAWING NO. M-1
DRAWN BY DP	CHECKED BY	REVISION: 1
JOB #: 12-744	DWG:	
PLOTTED:	COPIED:	

DESIGN & INSTALL ALL MECHANICAL SYSTEMS TO THE FOLLOWING CODES AND STANDARDS.  
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 ALBERTA FIRE CODE – LATEST EDITION  
 NATIONAL BUILDING CODE – LATEST EDITION  
 NATIONAL FIRE CODE – LATEST EDITION  
 NFPA-13 & ALL OTHER APPLICABLE NFPA SECTIONS  
 CANADIAN PLUMBING CODE – LATEST EDITION  
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 SMACNA



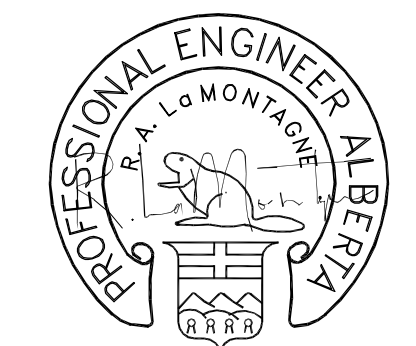
**FIELD REVIEW:**  
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20/07/12  
 PERMIT TO PRACTICE P10904

REVISIONS			
NO.	DESCRIPTION	DATE	CK
1	ISSUED FOR BP	21/06/12	
2	REVISED SAN & WATER	20/07/12	

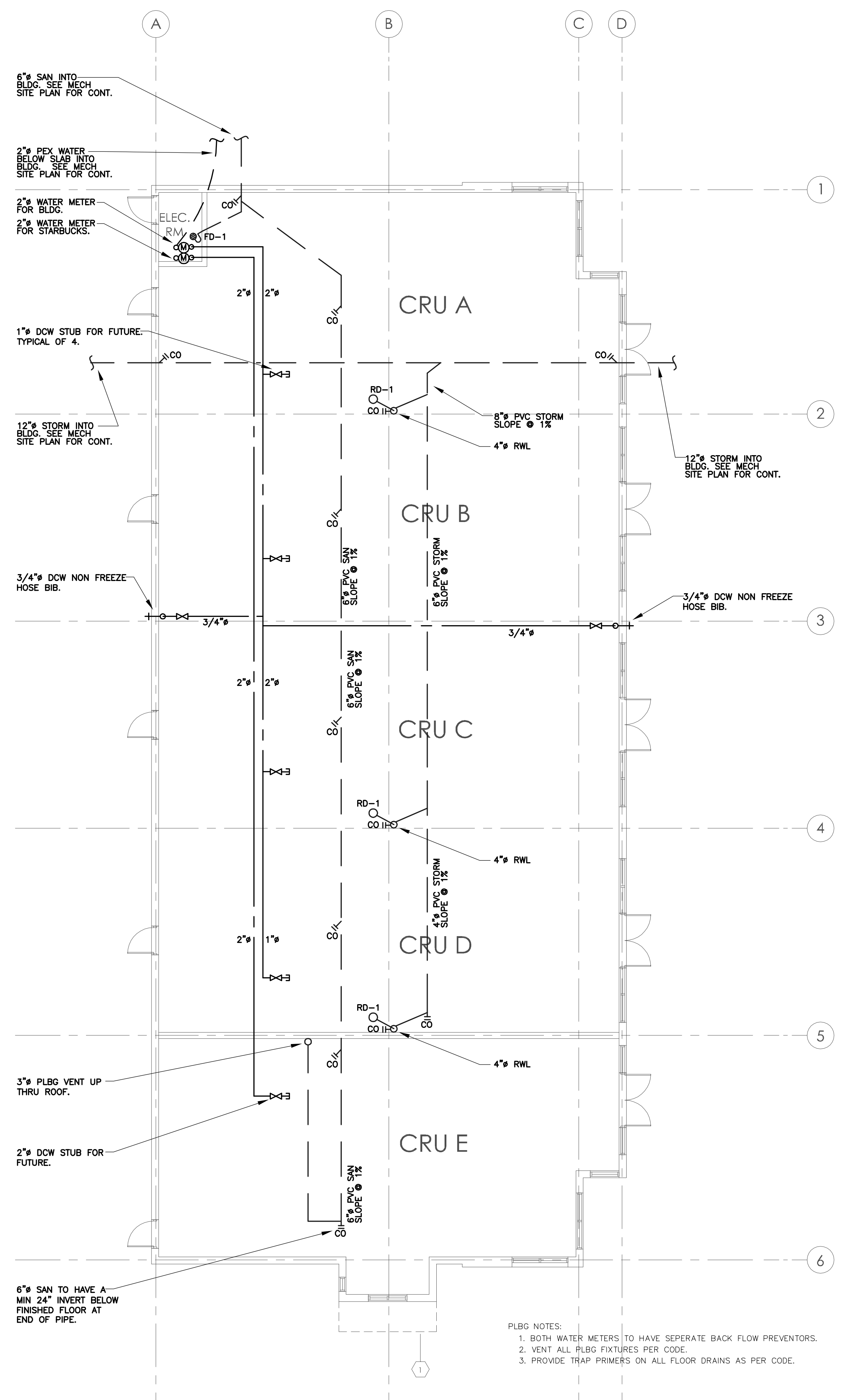
**DMH Designs Ltd.**  
 117 Royal Oak Green NW  
 Calgary, Alberta T3G 6A7  
 Tel: (403) 620-3170  
 Fax: (403) 208-4185

**CLIENT**  
 WEST 18 ST ENTERPRISES  
 CALGARY, ALBERTA

**PROJECT**  
 500 RANCH MARKET  
 CALGARY, ALBERTA

**TITLE**  
 FLOOR PLBG & DRAINAGE PLANS

SCALE AS NOTED	DATE JUNE 2012	DRAWING NO. M-2
DRAWN BY DP	CHECKED BY	
JOB #: 12-744	DWG:	REVISION: 1
PLOTTED:	COPIED:	



PLBG NOTES:  
 1. BOTH WATER METERS TO HAVE SEPERATE BACK FLOW PREVENTORS.  
 2. VENT ALL PLBG FIXTURES PER CODE.  
 3. PROVIDE TRAP PRIMERS ON ALL FLOOR DRAINS AS PER CODE.

1 MAIN FLOOR PLBG & DRAINAGE PLAN  
 SCALE: 1/8"=1'-0"

**MECHANICAL SPECIFICATIONS**

**GENERAL**

- IT IS THE INTENTION OF THESE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR COMPLETE AND FULLY OPERATING SYSTEMS WITH FACILITIES AND SERVICES TO MEET THE OWNER'S REQUIREMENTS AS DESCRIBED HEREIN AND IN ACCORDANCE WITH THE APPLICABLE CODES AND ORDINANCES. THE WORK TO BE DONE SHALL INCLUDE THE PROVISION OF ALL LABOUR, MATERIALS, TOOLS AND EQUIPMENT, AS WELL AS WHETHER OR NOT DIRECTLY SPECIFIED OR SHOWN ON THE PLANS, AS REQUIRED FOR THE INSTALLATION, TESTING AND PUTTING INTO OPERATION, THE COMPLETE SYSTEMS, AS SHOWN AND DESCRIBED EXCEPT WHERE IT IS SPECIFICALLY MENTIONED THAT SUCH MATERIAL OR WORK IS NOT PART OF THE CONTRACT.
- THE DRAWINGS AND SPECIFICATIONS ARE NOT A DETAILED SET OF INSTALLATION INSTRUCTIONS, BUT A GUIDE TO ESTABLISHING QUALITY OF EQUIPMENT, MATERIAL, WORKMANSHIP, AND PERFORMANCE. REFER TO ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS, AS WELL AS, MECHANICAL DRAWINGS FOR DETAILS AFFECTING THE MECHANICAL WORK. DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY TO ONE ANOTHER, AND THAT WHICH IS SHOWN ON ONE IS AS BINDING AS THAT WHICH IS SHOWN ON BOTH. THE TERM "PROVIDE" SHALL MEAN TO SUPPLY AND INSTALL.
- ANY DISCREPANCIES BETWEEN DRAWINGS OR SPECIFICATIONS, LEAVING IN DOUBT THE INTENT OF WORK, SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANT, IN WRITING, PRIOR TO CLOSING OF TENDERS.
- ALL WORK AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF THE ALBERTA BUILDING CODE, REVISIONS THERETO, THE LOCAL BUILDING REGULATIONS, THE FIRE PROTECTION ACT, AND AUTHORITIES HAVING JURISDICTION.
- AFTER THE WORK IS COMPLETE, BUT PRIOR TO FINAL PAYMENT, FURNISH A WRITTEN GUARANTEE STATING THAT ALL EQUIPMENT SUPPLIED AND ALL WORK EXECUTED UNDER THIS CONTRACT WILL BE FREE FROM DEFECTS OF MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE PROJECT, AND FURTHER THAT ANY DEFECTIVE MATERIALS OR WORKMANSHIP THAT BECOME EVIDENT DURING THE GUARANTEE PERIOD WILL BE CORRECTED AT NO ADDITIONAL COST TO THE OWNER.
- ONLY FIRST CLASS WORKMANSHIP WILL BE ACCEPTED, NOT ONLY AS REGARDS TO THE NEATNESS OF DETAIL, PIPEWORK AND DUCTWORK MUST BE LINED UP PARALLEL TO OR AT RIGHT ANGLES TO BUILDING WALLS. EQUIPMENT MUST BE ACCURATELY SET, PLUMBED AND WELDED, AND HANGER RODS MUST BE IN TRUE VERTICAL ADJUSTMENT. THE ENTIRE WORK SHALL PRESENT A NEAT AND CLEAN APPEARANCE ON COMPLETION.
- ALL MATERIAL USED SHALL BE NEW AND THE BEST OF THE RESPECTIVE KIND. ALL EQUIPMENT INSTALLED SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION DIRECTIONS.
- MAKE ANY NECESSARY CHANGES OR ADDITIONS TO THE PLACEMENT OF EQUIPMENT AND ROUTING OF PIPING AND DUCTWORK TO ACCOMMODATE STRUCTURAL, ELECTRICAL AND ARCHITECTURAL CONDITIONS.
- NECESSARY PIPE SLEEVES, HANGER INSERTS, EQUIPMENT SUPPORTS, ETC., SHALL BE INSTALLED AT THE PROPER TIME AND PROVIDED WHERE NECESSARY TO CARRY OUT THE MECHANICAL WORK.
- FLASH, COUNTER FLASH, AND PROVIDE SLEEVES FOR ALL PIPING AND DUCTWORK THROUGH ROOF, AND SUPPLY AND SET SLEEVES FOR THE PROJECT. ALL CUTTING, PATCHING, ROOF REPAIR, CAULKING, ETC., REQUIRED FOR THE COMPLETION OF THE INSTALLATION, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SUBMIT FOR REVIEW, A MINIMUM OF EIGHT COPIES OF SHOP DRAWINGS OF ALL EQUIPMENT PRIOR TO ORDERING OF EQUIPMENT. EQUIPMENT THAT HAS NOT BEEN REVIEWED BY THE CONSULTANT WILL NOT BE ACCEPTED.
- PROVIDE ISOLATION VALVES AND MAKE CONNECTIONS TO EQUIPMENT, FIXTURES, ETC., PROVIDED AS PART OF THIS CONTRACT AND SUPPLIED BY OTHERS AND LEAVE IT IN FULL OPERATING CONDITION.
- FOLLOW THE RECOMMENDED INSTALLATION DETAILS AND PROCEDURES FOR EQUIPMENT AS FOUND IN SUPPLIER'S TECHNICAL DATA, SUPPLEMENTED BY DETAILS GIVEN HEREIN AND ON PLANS, WHICH IN TURN SHALL BE SUBJECT TO THE APPROVAL OF THE CONSULTANT.
- PROVIDE ADDITIONAL MATERIAL FOR MODIFICATIONS THAT MAY BE REQUIRED TO CORRECT MINOR JOB CONFLICTS, FOR NORMALLY ACCEPTED PROCEDURES IN THE RESPECTIVE TRADE.
- UPON COMPLETION OF THE PROJECT SUPPLY TO THE CONSULTANT ONE SET OF MARKED-UP RECORD DRAWINGS, AS WELL AS, THREE SETS OF APPROVED SHOP DRAWINGS AND EQUIPMENT MAINTENANCE INSTRUCTIONS, IN THREE-RING BINDERS NEATLY SHOWN AND LABELED. OPERATING AND MAINTENANCE MANUALS SHALL BE PREPARED SO THAT THEY ARE EASY TO USE, CONTAIN TABLE OF CONTENTS, NUMBERED PAGES, TABLED DIVIDERS AND TYPEWRITTEN INFORMATION. MANUALS SHALL INCLUDE THE FOLLOWING INFORMATION: INDEX, LIST OF CONTRACTORS AND EQUIPMENT SUPPLIERS, SYSTEMS DESCRIPTION, MAINTENANCE TASKS, LUBRICATION INFORMATION, PARTS AND TROUBLE SHOOTING DATA, TESTING AND INSPECTION CERTIFICATES, BALANCE REPORTS, SHOP DRAWINGS, AND MANUFACTURER'S INSTALLATION AND MAINTENANCE DATA SHEETS.
- INSTALL ALL PIPING, DUCTWORK, ETC., GENERALLY IN LOCATIONS AND ROUTES SHOWN ON THE DRAWINGS, CLOSE TO THE BUILDING STRUCTURE TO MINIMIZE FURRING (WHERE NECESSARY) AND INTERFERENCE WITH OTHER SERVICES OR FREE SPACE. PIPING, DUCTWORK, ETC. THAT IS NOT PROPERLY INSTALLED WILL BE REMOVED AND REPLACED, TO THE SATISFACTION OF THE CONSULTANT.
- THE DETAILED LAYOUT OF WORK WITH RESPECT TO OTHER WORK IS THE RESPONSIBILITY OF THE CONTRACTOR. NO PRICE CHANGE WILL BE CONSIDERED WHICH IS DUE TO INTERFERENCE WITH THE WORK OF OTHER TRADES, UNLESS SUCH INTERFERENCES HAVE BEEN BROUGHT TO THE ATTENTION OF THE CONSULTANT IN WRITING, FOR CLARIFICATION.
- GIVE ALL NECESSARY NOTICES, OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM AUTHORITIES HAVING JURISDICTION, AND PAY ALL FEES, IN ORDER THAT THE WORK HEREIN SPECIFIED AND SHOWN ON THE DRAWINGS, MAY BE CARRIED OUT. FURNISH ANY CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK IS INSTALLED, IN ACCORDANCE WITH THE LAWS AND REGULATIONS OF ALL AUTHORITIES BEFORE FINAL CERTIFICATES ARE ISSUED. ALL CHANGES AND ALTERATIONS REQUIRED BY AN AUTHORIZED INSPECTOR OF ANY AUTHORITY, SHALL BE CARRIED OUT WITHOUT CHARGE OR EXPENSE TO THE OWNER. UPON COMPLETION OF THE WORK, PROVIDE A CERTIFICATE OF FINAL APPROVAL FROM THE INSPECTION AUTHORITY.
- PROVIDE ALL NECESSARY INFORMATION TO THE RESPECTIVE SUBCONTRACTORS SO THAT OPENINGS AND CHASES MAY BE PROVIDED FOR THE INSTALLATION OF WORK. ALL DRILLING FOR EXPANSION SHELDLS, HANGER RODS, BRACKETS, OR SLEEVES SHALL BE BY THE CONTRACTOR.
- THE USE OF AN EQUIVALENT MANUFACTURER SHALL IN NO WAY RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF FURNISHING ANY WORK THAT MAY BE REQUIRED BY REASON OF DIFFERENT SPACE, WEIGHT, ELECTRICAL REQUIREMENTS, ETC., FROM THAT OF THE SPECIFIED MANUFACTURER. IF, IN THE OPINION OF THE CONSULTANT, SUCH WORK IS NECESSARY AND IS NOT CARRIED OUT IN A MANNER THAT WILL ENSURE SATISFACTORY OPERATION AND PERFORMANCE OF THE PRODUCT, THEN THE CONTRACTOR SHALL BE REQUIRED TO USE THE SPECIFIED MANUFACTURER.
- BE RESPONSIBLE FOR THE PROTECTION AND MAINTENANCE OF THE WORK OF THIS PROJECT UNTIL THE BUILDING HAS BEEN COMPLETED AND ACCEPTED BY THE OWNER, AND FOR THE STORING OF MATERIALS ON SITE AND THE CLEANUP ALL REFUSE CAUSED BY THIS WORK.
- PROTECT ALL PARTS OF THE BUILDING FROM DAMAGE DUE TO THE CARRYING OUT OF THE WORK AND MAKE GOOD, OR PAY FOR, ANY DAMAGES SUSTAINED.
- THOROUGHLY CLEAN WALLS, CEILINGS, FLOORS, PIPING, DUCTS, CONDUITS AND EQUIPMENT OF DIRT, CUTTINGS AND OTHER FOREIGN SUBSTANCES. DISCONNECT, CLEAN AND RECONNECT WHEREVER NECESSARY, FOR THE PURPOSE OF LOCATING AND REMOVING OBSTRUCTIONS. REPAIR WORK DAMAGED IN THE COURSE OF REMOVING OBSTRUCTIONS.
- NO ALTERATION BY MEANS OF CUTTING, DRILLING OR OTHERWISE TO COLUMNS, FLOORS, ROOF OR WALLS OF THE STRUCTURE WILL BE PERMITTED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE STRUCTURAL CONSULTANT. PROPER PROTECTION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- REMOVE ALL TOOLS, SURPLUS AND WASTE MATERIAL FROM THE BUILDING UPON COMPLETION. CLEAN ALL GREASE, DIRT AND EXCESS MATERIAL FROM WALLS, FLOORS, CEILINGS AND FIXTURES FOR WHICH THE CONTRACTOR WAS RESPONSIBLE, AND LEAVE THE PREMISES SUITABLE FOR IMMEDIATE USE.
- BE RESPONSIBLE FOR TRANSPORTATION, STORAGE, AND PROTECTION OF ALL MATERIAL AND EQUIPMENT SUPPLIED UNDER THIS CONTRACT, UP TO THE TIME THE PROJECT IS COMPLETE AND ACCEPTED BY THE OWNER.
- PROVIDE ALL REQUIRED SCAFFOLDING, HOISTS, AND RIGGING NECESSARY FOR THE ERECTION AND DELIVERY OF THE MECHANICAL WORK.
- EQUIPMENT SPECIFIED BY NAME, MODEL AND SIZE FOR TYPE OF MATERIAL TO BE USED, SERVES TO SET A STANDARD OF QUALITY AND SHALL BE USED AS A STANDARD FOR THE CONTRACTOR'S PROPOSAL. WHERE A MANUFACTURER WISHES TO FURNISH EQUIPMENT ALTERNATIVE TO THAT SPECIFIED, HE MUST SUBMIT TOGETHER WITH COMPLETE DETAILED TECHNICAL SUBMISSION TO HAVE HIS EQUIPMENT APPROVED. FAXED SUBMISSIONS AND INFORMATION OF A GENERAL NATURE WILL NOT BE ACCEPTED. REQUESTS FOR APPROVAL SHALL BE MADE TO THE CONSULTANT DURING THE TENDERING PERIOD AND THREE WORKING DAYS PRIOR TO CLOSING OF SUBCONTRACTORS TENDERS.
- SUPPLY MECHANICAL EQUIPMENT WITH MOTORS OPERATING AT 1800 RPM, UNLESS OTHERWISE SPECIFIED. REFER TO ELECTRICAL (DIVISION 16) DRAWINGS AND SPECIFICATIONS FOR VOLTAGE, PHASE, AND CYCLES. WHERE VOLTAGES ARE INDICATED IN DIVISION 15, CONFIRMATION SHALL BE MADE BY REFERENCE TO DIVISION 16 DOCUMENTS, PRIOR TO ORDERING MOTORS.
- BE RESPONSIBLE FOR ALL EXCAVATION AND BACKFILLING FOR ALL UNDERGROUND MECHANICAL SERVICES. CONTRACTOR TO TEST COMPACTION OF ALL BACK FILL. SUPPLY TEST REPORT TO OWNER.
- PRIOR TO COMMENCING WORK, CHECK LOCATIONS AND INVERTS OF SERVICE LINES ENTERING OR LEAVING A BUILDING, AND THROUGH THE BUILDING AND SITE TO ENSURE THEIR PROPER FUNCTION AND THAT NO CONFLICT OCCURS.
- PROVIDE ALL SERVICES WITHIN THE BOUNDS OF THE SITE PROPERTY LINES. ARRANGE FOR AND PAY COST OF THE INSTALLATION OF ALL SERVICES AND SERVICE TIE-INS OUTSIDE THE PROPERTY LINES AND IN ALL EASEMENTS AND RIGHTS-OF-WAY.

- DO NOT USE THE PERMANENT HEATING SYSTEM FOR TEMPORARY HEATING PURPOSES WITHOUT WRITTEN PERMISSION FROM THE CONSULTANT. ALL AIR HANDLING EQUIPMENT ASSOCIATED WITH THE WORK OF THIS CONTRACT SHALL BE PROVIDED WITH NEW FILTERS PRIOR TO TAKEOVER OF THE PROJECT.
- REFERENCE TO "CONSULTANT" SHALL BE TAKEN TO MEAN THE MECHANICAL DESIGN CONSULTANT, AS WELL AS, THE AUTHORIZED REPRESENTATIVE OF THE OWNER.

**PIPED UTILITIES**

- BE RESPONSIBLE FOR THE EXCAVATING TO FACILITATE THE INSTALLATION OF SITE SERVICES.
- BE RESPONSIBLE FOR ADDITIONAL BEDDING MATERIAL, BACKFILLING AND TAMPING WHERE OVER-EXCAVATION HAS BEEN PERFORMED.
- THE WORK SHALL NOT UNDERMINE BUILDING FOUNDATIONS.
- FROST REMOVAL DONE BY BURNING SHALL BE DONE IN ACCORDANCE WITH LOCAL BYLAWS AND REGULATIONS.
- TRENCHES SHALL NOT BE OPEN FOR MORE THAN 30 M IN ADVANCE OF PIPE LAYING NOR 30 M BEHIND PIPE LAYING.
- COMMENCE CONSTRUCTION OF MAN-HOLES AND CATCH BASINS WITHIN ONE DAY OF LAYING PIPE UP TO SAME.
- BACKFILL TRENCHES WITHOUT DELAY, SO THAT USE OF THE SITE IS AVAILABLE AS QUICKLY AS POSSIBLE.
- BRACE AND SHORE EXCAVATIONS IN ACCORDANCE WITH GOVERNING LAWS.
- REMOVE AND DISPOSE OF WATER IN EXCAVATIONS WITHOUT DAMAGE TO CONSTRUCTION WORK, PERSONS OR PROPERTY, IN ACCORDANCE WITH CODES AND BYLAWS.
- BE RESPONSIBLE FOR ANY DAMAGE WHICH MAY OCCUR DUE TO STORM WATER ENTERING EXCAVATIONS.
- CHECK AND ASCERTAIN SATISFACTORY INVERT ELEVATIONS FOR SERVICE CONNECTIONS BEFORE INSTALLING THE DRAINAGE SYSTEMS.
- PROVIDE DISINFECTION OF WATER MAINS, WHERE REQUIRED.
- PROVIDE BARRICADES, GUARDS, CONSTRUCTION SIGNS, TORCHES AND LANTERNS IN ACCORDANCE WITH RULES AND REGULATIONS OF THE LOCAL AUTHORITIES, TO PROTECT PERSONS FROM INJURY AND AVOID PROPERTY DAMAGE.
- EXCAVATE TO CAUSE THE LEAST INTERRUPTION TO TRAFFIC. PROVIDE SUITABLE BRIDGES WHERE TRAFFIC MUST CROSS OPEN TRENCHES.
- CATCH BASIN AND MAN-HOLE BARRELS, FRAMES AND COVERS SHALL CONFORM TO LOCAL MUNICIPALITY STANDARDS.
- BURIED PIPING SHALL BE BEDDED ON A MINIMUM 150 MM THICKNESS, APPROVED FINE GRANULAR MATERIAL, CAREFULLY SLOPED TO FIT 60 PERCENT OF THE PIPE DIAMETER.
- USE FINE GRAVEL OR SAND WHERE THE EXISTING MATERIAL IS NOT SUITABLE FOR BEDDING.
- UNSTABLE SOIL SHALL BE REMOVED AND SHALL BE REPLACED WITH THOROUGHLY COMPACTED GRAVEL TO PROVIDE ACCEPTABLE BEDDING.
- REMOVE BOULDERS AND STONES ENCOUNTERED IN THE EXCAVATION TO PROVIDE A MINIMUM CLEARANCE OF 160 MM BELOW AND ON EACH SIDE OF THE PIPE.
- USE LOOSE DRY EARTH, SAND OR GRAVEL NOT EXCEEDING 25 MM IN SIZE FOR BEDDING, THOROUGHLY COMPACT AND FORM TO GIVE THE SPECIFIED BEDDING CONDITIONS.
- USE SUITABLE EXCAVATED MATERIAL, OR PROVIDE GRANULAR MATERIAL FOR BACKFILL, MAKING SURE NOT TO DROP EXCAVATED MATERIAL IS UNSUITABLE. WASTE UNSUITABLE MATERIAL AS DIRECTED.
- PLACE BACKFILLING BY HAND IN 150 MM LAYERS TO 300 MM ABOVE THE PIPE, MAKING SURE NOT TO DROP MATERIAL DIRECTLY ON THE EMBEDDED PIPE. MECHANICAL MENOPS MAY BE USED TO BACKFILL ABOVE THIS POINT.
- BACKFILL SOILS TO WITHIN 1 M OF FINISHED SUBGRADE SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF THE SOILS MAXIMUM DENSITY, WITH THE MOISTURE CONTENT WITHIN 3 PERCENT OF THE SOILS OPTIMUM MOISTURE. THE UPPER 1 M SHALL HAVE A MAXIMUM DENSITY OF 90 PERCENT AND AN AVERAGE DENSITY OF NOT LESS THAN 95 PERCENT.
- TRENCHES OR CUTS IN ROADWAYS OR PROPOSED ROADWAYS SHALL BE BACKFILLED IN LIFTS TO SUBGRADE. EACH LIFT SHALL BE MECHANICALLY COMPACTED.
- INSTALL SEWERS WITH THE USE OF SURVEYOR'S GRADE SHEETS AND BATTER BOARDS. GRADE SHEETS SHALL NOTE ACTUAL INSTALLATION AND SHALL BE SIGNED BY AN INDEPENDENT SURVEYOR.
- PROVIDE REINFORCED CONCRETE OR WOODEN BRIDGES WHERE SERVICE LINES MUST CROSS.

**PIPING AND PIPE FITTINGS**

- DOMESTIC WATER PIPING ABOVE GRADE SHALL BE TYPE L HARD COPPER WITH WROUGHT COPPER, BRONZE OR CAST BRASS FITTINGS, JOINED WITH 95-5 LEAD FREE SOLDER. DOMESTIC WATER PIPING BELOW GRADE SHALL BE PVC (PEX BLUE BRUTE OR EQUAL) WITH PVC FITTINGS AND HUB AND SPOUT AND RUBBER GASKET JOINTS. ALL PIPING SHALL MEET THE APPROVAL OF LOCAL CODES AND AUTHORITIES HAVING JURISDICTION. ALL EXPOSED WATER PIPING CONNECTED TO PLUMBING FIXTURES IN FINISHED AREAS TO BE CHROME PLATED.
- STORM DRAINAGE, SANITARY DRAINAGE, AND VENT PIPING BELOW GRADE SHALL BE PVC - SDR35 (IPEX OR EQUAL) WITH PVC FITTINGS AND SOLVENT WELDED JOINTS. ALL PIPING BELOW FLOOR SLAB MUST BE TESTED AND TESTS CERTIFIED, IN WRITING, BEFORE FLOOR SLABS ARE POURED. STORM DRAINAGE, SANITARY DRAINAGE AND VENT PIPING ABOVE GRADE SHALL BE DWV COPPER WITH WROUGHT COPPER OR CAST BRASS FITTINGS AND 50-50 SOLDER JOINTS. IPEX PVC-DWV (FLAME SPREAD RATING 10) MAY BE USED ABOVE GRADE IF APPROVED BY LOCAL AUTHORITIES. ALL EXPOSED DRAINAGE PIPING CONNECTED TO PLUMBING FIXTURES IN FINISHED AREAS SHALL BE CHROME PLATED.
- NATURAL GAS PIPING SHALL BE STEEL SCHEDULE 40 BLACK. FITTINGS SHALL BE MALLEABLE IRON 1035 KPA, WITH SCREWED JOINTS, OR WELDED JOINTS, AS REQUIRED BY CODE. PROVIDE YELLOW JACKET PIPE COVERING ON ALL BURIED GAS PIPING.

**PIPE AND DUCT HANGERS**

- HANGERS AND HANGER RODS SHALL BE SUPPLIED AND INSTALLED BY THIS CONTRACTOR. USE OF PERFORATED STRAP, WIRE OR CHAIN HANGERS IS NOT PERMITTED.
- CAST IRON AND STEEL PIPES, USE CLEVIS TYPE HANGERS.
- COPPER PIPES, USE HANGERS IN COPPER PLATE FINISH.
- SUPPORT PIPES IN ACCORDANCE WITH ASHRAE STANDARDS AND/OR APPLICABLE CODES.
- PROVIDE CLEARANCES FOR PROPER INSTALLATION OF INSULATION, AND FOR ACCESS TO VALVES, DRAINS, ETC..
- PROVIDE HANGERS AND SUPPORTS FOR ALL DUCTWORK IN ACCORDANCE WITH SMACNA - HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, LATEST EDITION.

**PIPE IDENTIFICATION**

- ALL INTERIOR GAS PIPING IS TO BE BANDED AS CALLED FOR IN GAS CODE.
- ALL EXTERIOR GAS PIPING IS TO BE PROPERLY PRIMED AND PAINTED YELLOW USING RUST RESISTANT PAINT.

**VALVES**

- VALVES SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED TO ISOLATE ALL FIXTURES, EQUIPMENT, ETC..
- PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO ALL PLUMBING FIXTURES WITH STOPS, REDUCERS, AND ESCUTCHEONS SECURELY ATTACHED TO WALL OR FLOOR SURFACE.
- ALL PLUMBING FIXTURES SHALL BE PROVIDED WITH AN APPROVED CLEAR SILICONE SEALANT AROUND PERIMETER WHERE FIXTURES ATTACH TO WALLS OR FLOORS.
- FOR SHUTOFF SERVICE ON PIPING AND BRANCH LINES, USE RED & WHITE BALL VALVES, UNLESS OTHERWISE SPECIFIED.
- VALVES ON NATURAL GAS SERVICE; WRENCH OPERATED PLUG TYPE, CLASS 125, NEWMAN-MILLIKEN OR EQUAL. VALVES SHALL BE CGA APPROVED AND SUITABLE FOR INDOOR AND OUTDOOR LOW TEMPERATURE INSTALLATIONS.
- PRESSURE REDUCING VALVES FOR GAS SERVICE; FISHER OR EQUAL, SIZED FOR MAXIMUM OF 75 PERCENT OF FULL RATED CAPACITY C/W PRESSURE RELIEF.

**INSULATION**

- INSULATE ALL DOMESTIC HOT AND COLD WATER LINES AND HYDRONIC HEATING LINES, WITH 25 MM THICK FIBREGLASS HEAVY DENSITY PIPE INSULATION, WITH ALL SERVICE JACKET.
- INSULATE THE FIRST 3 M OF STORM AND VENT PIPING FROM THE ROOF TERMINAL, AND ALL HORIZONTAL STORM AND VENT PIPING LOCATED IN CEILING SPACES BELOW ROOF DECK, WITH 25 MM THICK FIBREGLASS HEAVY DENSITY INSULATION WITH ALL SERVICE JACKET.
- INSULATE THE FIRST 3 M OF EXHAUST SUPPLY DUCTWORK FROM ROOF OR WALL TERMINAL, LOCATED INDOORS, WITH 25 MM FLEXIBLE FOIL FACED FIBREGLASS EXTERIOR DUCT INSULATION.
- INSULATE ALL DUCTWORK LOCATED OUTDOORS OR SUBJECT TO OUTDOOR TEMPERATURES WITH 50 MM THICK RIGID FIBREGLASS INTERIOR DUCT INSULATION.
- INSULATE VENTILATION EQUIPMENT AND CABINET EXHAUST FAN CASINGS WITH 25 MM THICK RIGID FIBREGLASS INTERIOR DUCT INSULATION.
- WHERE FIBREGLASS PIPE INSULATION IS USED, INSULATE ALL PIPE FITTINGS, ELBOWS, ETC., WITH PREFORMED FIBROUS GLASS INSULATION FITTINGS OR INSULATING CEMENT, TO THE SAME THICKNESS AS ADJACENT INSULATION. PIPE ELBOWS AND PIPE FITTINGS ON ALL EXPOSED INSULATION SHALL BE COVERED WITH PVC FITTING COVERS OR APPROVED EQUAL.

**PLUMBING GENERAL**

- ALL SANITARY SEWERS SHALL HAVE A MINIMUM SLOPE OF 1 PERCENT FOR LINES 100 MM AND OVER. FOR LINES 75 MM AND UNDER USE MINIMUM 2 PERCENT SLOPE.
- PROVIDE BARRETT TYPE CLEANOUTS OF MATERIALS COMPATIBLE TO PIPING MATERIALS AT BASES OF STACKS.
- PLUMBING INSTALLATION SHALL COMPLY WITH LOCAL BUILDING REGULATIONS. SUCH REQUIREMENTS SHALL HAVE PRECEDENCE OVER THE DRAWINGS AND SPECIFICATIONS.
- ALL CLEANOUTS SHALL BE ACCESSIBLE.
- ALL PIPES SHALL BE LOCATED AWAY FROM LOAD BEARING FOOTINGS.
- PROVIDE EPOXY COATED CAST IRON BODIED CLEANOUTS C/W CLAMPING DEVICE ON PIPING BELOW GRADE. ACCESS COVERS TO BE ROUND, BOLTED AND GASKETED, HEAVY DUTY OR HEAVY DUTY SCORiated CAST IRON IN UNFINISHED AREAS, EXTRA HEAVY DUTY IN WAREHOUSE AREAS, NICKEL BRONZE SCORiated IN CONCRETE FLOORS IN FINISHED AREAS, AND POLISHED BRONZE RECESSED FOR TILE, SHEET VINYL AND SEAMLESS FLOORING (ZURN ZKN-1610-NB).
- FD-1 PROVIDE EPOXY COATED CAST IRON BODY FLOOR DRAINS, C/W REVERSIBLE CLAMPING COLLAR AND 165 MM ROUND, EXTRA HEAVY DUTY, NICKEL BRONZE STRAINER (ZURN ZN-210-B), UNLESS OTHERWISE NOTED.
- INTERIOR HOSE BIBBS ARE TO BE 3/4" TYPE C/W WALL MT BRACKET.
- NON-FREEZE HOSE BIBBS SHALL BE ZURN MODEL ZN-1315-VB, 20 MM, OR APPROVED EQUAL.
- PROVIDE CAST IRON ROOF DRAINS, WITH INTEGRAL COLLAR AND GRAVEL GUARD, POLY-DOME, SUMP RECEIVER AND UNDERDECK CLAMP (ZURN Z-105-5-CR), UNLESS OTHERWISE NOTED.
- FIT WATER SUPPLY PIPING TO EACH FIXTURE OR GROUP OF FIXTURES WITH AN AIR CHAMBER. PROVIDE AIR CHAMBERS TWO PIPE SIZES LARGER THAN INSTALLED ON AND MINIMUM 600 MM LONG, OR PROVIDE ZURN SHOKTROL OR APPROVED EQUAL WATER HAMMER ARRESTERS SIZED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS.
- WHERE STEEL PIPE IS USED, EXTREME CARE SHALL BE EXERCISED TO INSULATE BETWEEN STEEL PIPING AND COPPER PIPING OR VESSELS, BY THE USE OF DIELECTRIC UNIONS.
- PROVIDE APPROVED POTABLE WATER PROTECTION DEVICES ON PLUMBING LINES WHERE CONTAMINATION OF POTABLE DOMESTIC WATER MAY OCCUR. THESE DEVICES SHALL BE GENERALLY PROVIDED FOR JANIORS SINKS, HOSE BIBBS, FLUSH VALVES, FIRE PROTECTION SYSTEMS, IRRIGATION SYSTEMS AND WHERE REQUIRED BY CODE. PROTECTION DEVICES SHALL COMPLY WITH CSA B64.
- THE PLUMBING CONTRACTOR IS TO HAVE ALL BELOW GRADE PIPING INSPECTED BY MECHANICAL CONSULTANT PRIOR TO BACKFILLING. ADVISE CONSULTANT IN WRITING WITH 24 HOURS NOTICE OF BACKFILLING.

**H.V.A.C. DUCTWORK, EQUIPMENT & ACCESSORIES**

- DUCTWORK SHALL BE CONSTRUCTED AND SEALED IN CONFORMANCE WITH SMACNA - HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, LATEST EDITION, AND ASHRAE STANDARDS. DUCT SIZES SHOWN ARE SHEET METAL SIZES, WHERE INTERNAL INSULATION IS SPECIFIED MAKE AN ALLOWANCE FOR INSULATION THICKNESS, MAINTAIN INTERNAL DUCT SIZES SHOWN. PRIOR TO FABRICATION, CHECK CEILING SPACES, HEIGHTS AND CONFLICTIONS, WITH OTHER TRADES AT THE SITE AND OFF DRAWINGS. PROVIDE ADDITIONAL OFFSETS AND CHANGES IN DIRECTION REQUIRED, WITHOUT ADDITIONAL COST.
- RECTANGULAR DUCTS SHALL HAVE OPPOSED BLADE VOLUME DAMPERS.
- ROUND DUCTS SHALL HAVE BUTTERFLY DAMPERS.
- HAND BALANCING DAMPERS SHALL BE FABRICATED OF GALVANIZED IRON, TWO GAUGES HEAVIER THAN THAT OF THE DUCT IN WHICH THE DAMPER IS TO BE INSTALLED.
- FIRE DAMPER BLADE THICKNESS AND CONSTRUCTION SHALL COMPLY WITH THE CANADIAN BOARD OF INSURANCE UNDERWRITER'S REQUIREMENTS. THESE SHALL BE INSTALLED WHERE DUCTS AND GRILLES PASS THROUGH FIRE RATED ASSEMBLIES. THE CONTRACTOR SHALL REVIEW ARCHITECTURAL PLANS, AND CONFIRM FIRE DAMPER REQUIREMENTS. PROVIDE APPROVED ACCESS PANELS AT EACH FIRE DAMPER.
- DUCTS SHALL NOT, UNDER ANY CIRCUMSTANCES, BE SUPPORTED BY MEANS OF PERFORATED BAND IRON, WIRE OR CHAIN. DUCTS SHALL NOT BE SUPPORTED FROM HANGERS SUPPLIED BY OTHER TRADES.
- THE CONNECTIONS BETWEEN DUCTS AND AIR HANDLING UNIT FANS SHALL BE MADE WITH 150 MM LONG FLEXIBLE NEOPRENE, TO PREVENT TRANSMISSION OF VIBRATION. THE CONTRACTOR SHALL ENSURE THAT ALL CONNECTIONS ARE LEAKPROOF.
- THE CONTRACTOR SHALL SUPPLY AND INSTALL FOR EACH ROOFTOP HVAC UNIT AND EACH MAKE-UP AIR UNIT, A MINIMUM OF THREE GUM CUPS FOR SERVICE CONNECTIONS TO THE UNIT. EACH SERVICE TO THE UNIT (GAS, POWER AND CONTROL) SHALL BE RUN THROUGH A SEPARATE GUM CUP.
- THE HVAC UNIT SUPPLIER AND THE MAKE-UP AIR UNIT SUPPLIER SHALL VISIT THE SITE AND INSPECT THE INSTALLATION OF ALL UNITS. THE SUPPLIER OR HIS REPRESENTATIVE SHALL TEST AND PROVIDE START-UP SERVICES FOR ALL OF THIS EQUIPMENT. THE SUPPLIER SHALL CONFIRM IN WRITING, TO THE CONSULTANT, THAT THE INSTALLATION AND OPERATION OF THIS EQUIPMENT MEETS SPECIFIED CONDITIONS, AND MANUFACTURER'S INSTALLATION AND OPERATION GUIDELINES.

**AUTOMATIC CONTROLS**

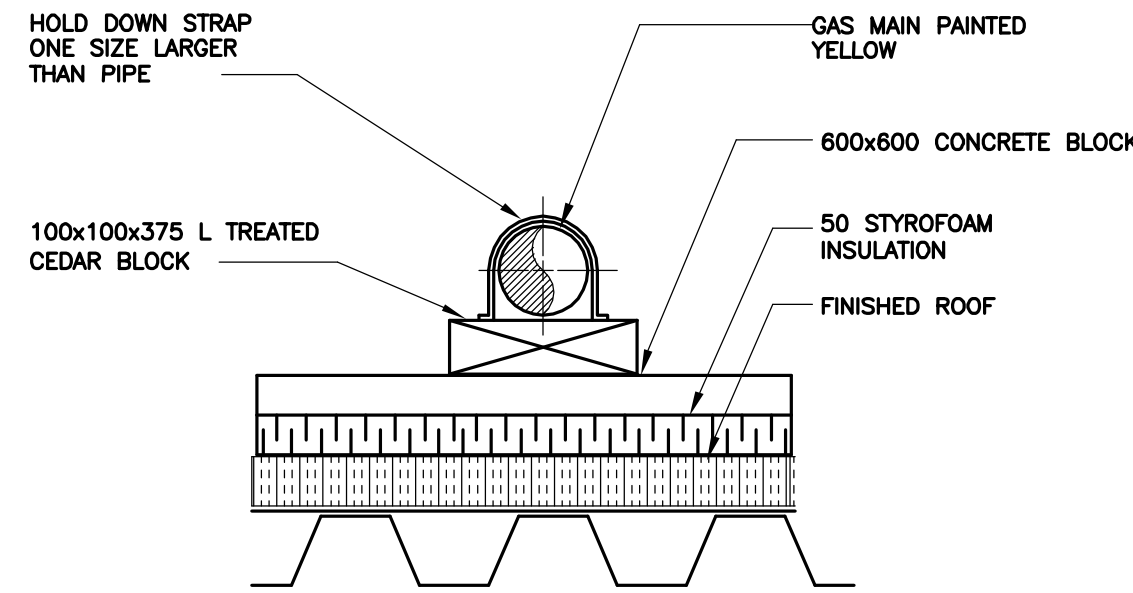
- ALL AUTOMATIC CONTROLS FOR MECHANICAL EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR.
- PROVIDE ALL NECESSARY WIRING DIAGRAMS AND INSTRUCTIONS IN ORDER THAT THE ELECTRICAL WORK CAN BE SATISFACTORILY COMPLETED.
- INSTALLATION OF CONTROL WORK BY THE ELECTRICAL TRADE SHALL BE DONE UNDER THE SUPERVISION OF THE MECHANICAL TRADE.
- CONTROL WIRING AND ELECTRICAL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF DIVISION 16 - ELECTRICAL.
- THERMOSTATS SHALL BE MOUNTED 1.5 M ABOVE THE FLOOR LEVEL AND ON LOCK SIDE OF DOORS (IF ADJACENT THERETO) IN LINE WITH THE LIGHT SWITCH, UNLESS OTHERWISE SPECIFIED. THERMOSTATS MOUNTED ON OUTSIDE WALLS SHALL BE STOOD OFF FROM THE WALL BY INSULATED BLOCKS OR BRACKETS WHICH ALLOW FREE AIR MOVEMENT BEHIND THE THERMOSTAT. THERMOSTATS IN PUBLIC SPACES SHALL BE PROVIDED WITH CLEAR PLASTIC LOCKING COVERS.
- IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ENSURE THAT ALL CONTROL DEVICES SERVING MECHANICAL EQUIPMENT ARE INSTALLED CORRECTLY AND FUNCTION PROPERLY AND THAT ALL MECHANICAL EQUIPMENT OPERATES AS DESIGNED AND SPECIFIED, IN CONJUNCTION WITH THE CONTROLS.

**TESTING AND BALANCING**

- TEST EQUIPMENT, PIPING, AND MATERIALS AS REQUIRED BY SPECIFICATIONS OR AUTHORITY HAVING JURISDICTION, TO DEMONSTRATE ITS PROPER AND SAFE OPERATION. PROVIDE EQUIPMENT, MATERIAL, AND LABOUR FOR TESTS AND PAY EXPENSES.
- TAKE CHARGE DURING TESTS, ASSUME RESPONSIBILITY FOR DAMAGES IN THE EVENT OF INJURY TO PERSONNEL BUILDING OR EQUIPMENT AND BEAR COSTS OF LIABILITY, REPAIRS AND RESTORATIONS IN THIS CONNECTION.
- MAKE CHANGES IMMEDIATELY TO CORRECT DEFECTS SHOULD TESTS INDICATE DEFECTIVE WORK. CORRECT LEAKS BY REMAKING JOINTS AND RETEST.
- CONDUCT PERFORMANCE TESTS TO DEMONSTRATE EQUIPMENT AND SYSTEMS MEET SPECIFIED REQUIREMENTS AFTER MECHANICAL INSTALLATION. CONDUCT TESTS AND INSTRUMENTED PRESSURE AND FLOW TESTS AS SOON AS CONDITIONS PERMIT. MAKE CHANGES, REPAIRS, ADJUSTMENTS AND REPLACEMENTS REQUIRED AS TESTS MAY INDICATE, PRIOR TO OPERATING.

**PRESSURE TEST SHALL BE AS FOLLOWS:**

- CARRY OUT HYDRAULIC TESTS FOR 8 HOUR PERIOD AND MAINTAIN PRESSURE WITH NOT APPRECIABLE PRESSURE DROP. WHERE LEAKAGE OCCURS, REPAIR AND RETEST.
- DOMESTIC WATER PIPING: TEST TO 1035 KPA WATER PRESSURE MEASURED AT SYSTEM LOW POINT.
- SANITARY DRAINAGE SYSTEMS: TEST BY FILLING WITH WATER TO PRODUCE WATER PRESSURE OF 5 M. CHECK FOR PROPER GRADE AND OBSTRUCTION BY BALL TEST.
- STORM DRAINAGE SYSTEMS: TEST BY FILLING WITH WATER TO PRODUCE WATER PRESSURE OF 10 M. CHECK FOR PROPER GRADE AND OBSTRUCTION BY BALL TEST.
- GAS PIPING: TEST AS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
- LOW VELOCITY DUCTS: TEST FOR TIGHTNESS SUCH THAT LEAKAGE IS INAUDIBLE AND NOT DETECTABLE BY FEEL.
- THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO BALANCE ALL AIR SYSTEMS TO WITHIN +10 PERCENT OF THE SPECIFIED REQUIREMENTS. BALANCING SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR APPROVED BY THE CONSULTANT PRIOR TO CLOSING OF TENDERS. BALANCING OF SYSTEMS SHALL INCLUDE MAKING CHANGES TO PULLEYS, BELTS, DAMPERS, VALVES, ETC. AT NO EXTRA COST TO THE CONTRACTOR. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE CONSULTANT THREE COPIES OF BALANCING REPORTS FOR ALL HEATING AIR HANDLING SYSTEMS IN ACCORDANCE WITH THE NATIONAL STANDARDS FOR TESTING AND BALANCING OF HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS.



**DETAIL OF GAS PIPING ON ROOF**  
N.T.S.

