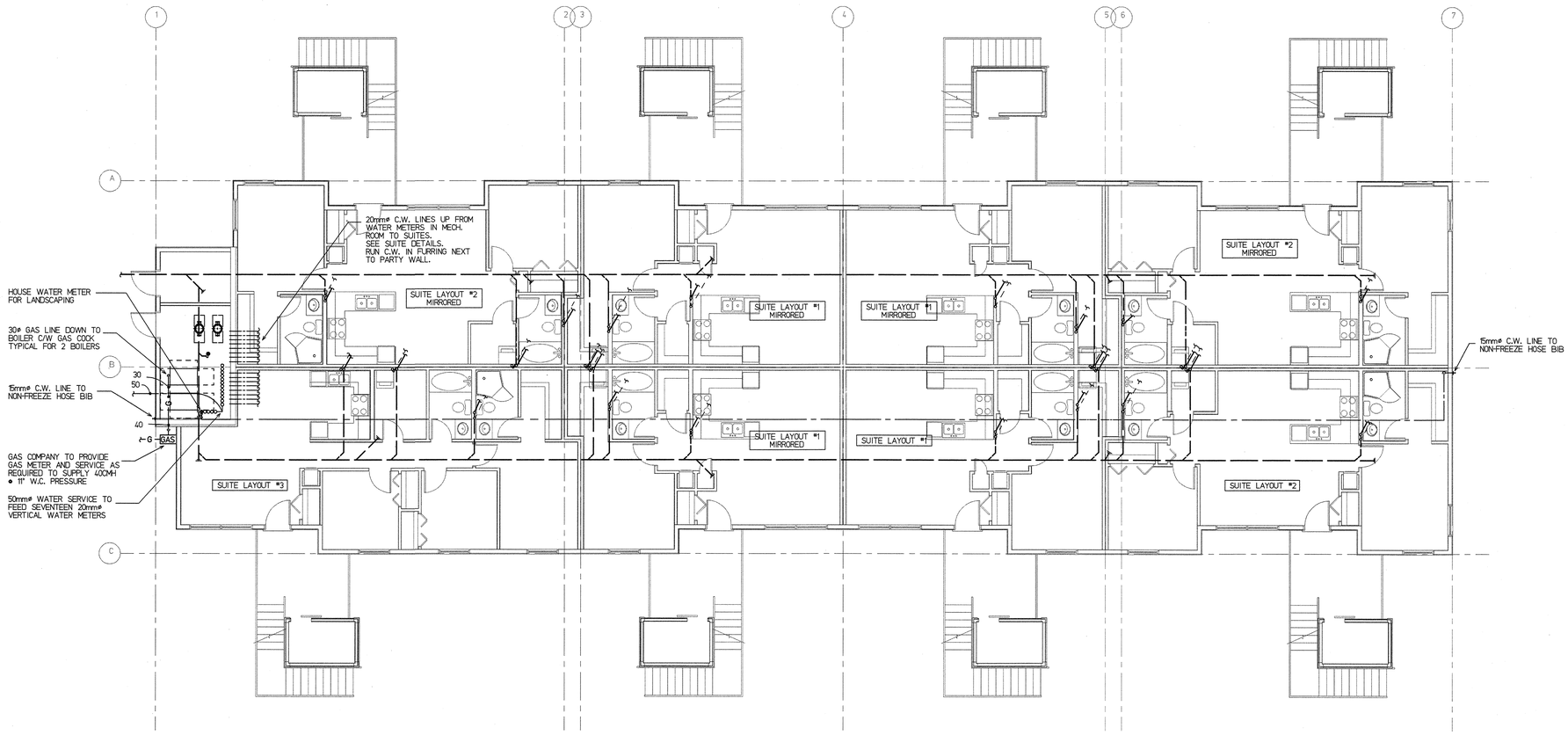

NOTE:
SEE DRAWING M-2 FOR TYPICAL MAIN FLOOR SUITE LAYOUTS

MAIN FLOOR PLAN - PLUMBING
SCALE 1:100

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02	Issued For Construction	2014/11/07
01	Issued For Building Permit	2014/10/31
00	Issued For Tender	2014/09/11

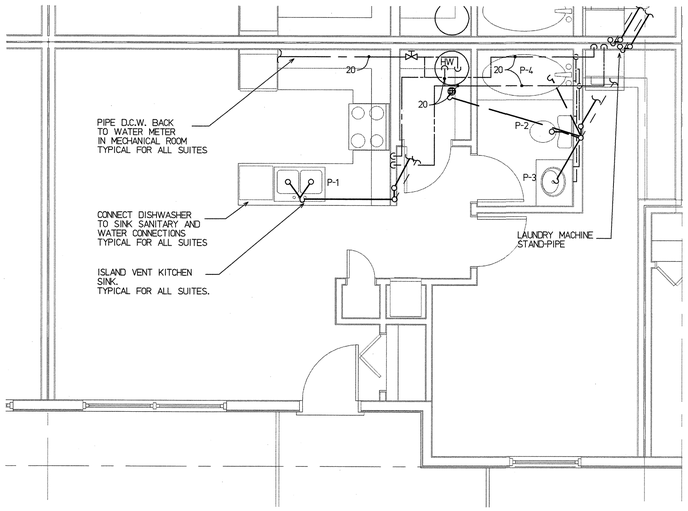
Revisions

PROJECT TITLE
CANMORE COMMUNITY HOUSING CORPORATION

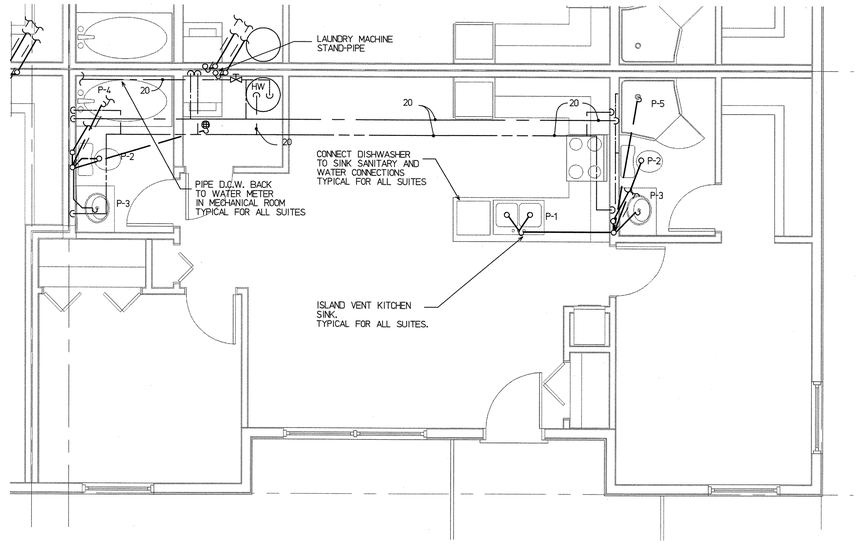
PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

DRAWING TITLE
MAIN FLOOR PLAN
PLUMBING
TYPICAL 2 BUILDINGS

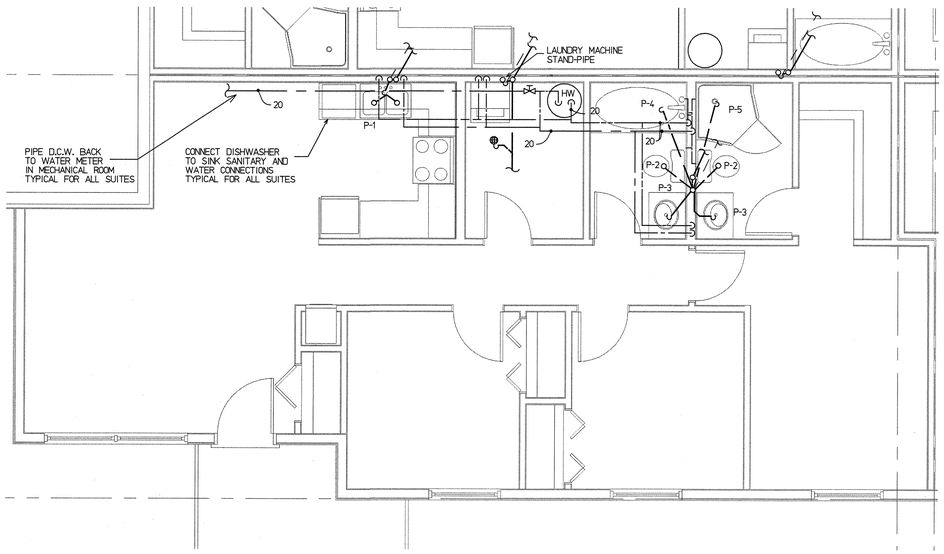
DRAWN S.F./D.L.	PROJECT NUMBER 214 019
CHECKED S.E.M.	SCALE AS NOTED
DATE 2014-07-25	SHEET NO. M-1



MAIN FLOOR SUITE LAYOUT #1
SCALE - 1:50



MAIN FLOOR SUITE LAYOUT #2
SCALE - 1:50



MAIN FLOOR SUITE LAYOUT #3
SCALE - 1:50

HOT WATER TANK SCHEDULE

HOT WATER TANK
'A.O. SMITH'
EPOX-50
3000W
TYPICAL FOR ALL SUITES.

LEGEND

- Plumbing vent
- Domestic cold water
- Domestic hot water
- Sanitary above ground
- Sanitary below ground
- G - Gas piping
- Heating supply piping
- Heating return piping
- Isolation valve
- Balancing valve
- Pipe up
- Pipe down
- C.O. - Cleanout
- 4" floor drain
- "P" Trap

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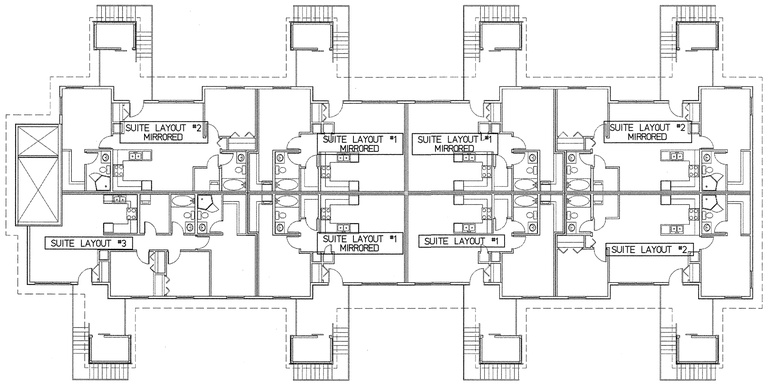
CANMORE COMMUNITY HOUSING CORPORATION

PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

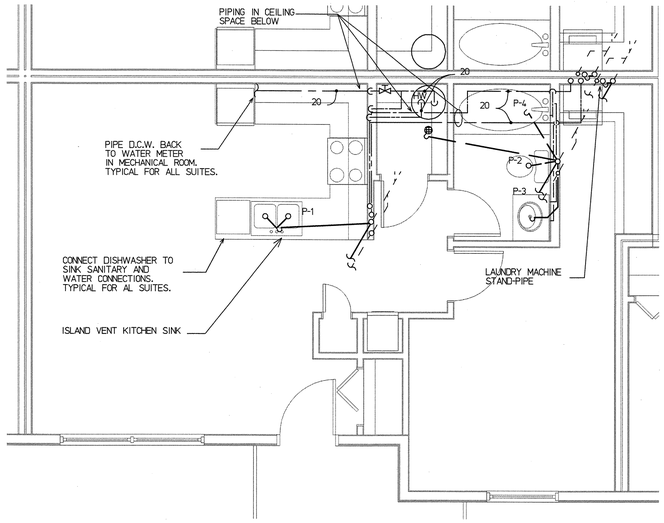
DRAWING TITLE
MAIN FLOOR PLAN
PLUMBING
TYPICAL SUITE LAYOUTS
TYPICAL 2 BUILDINGS

DRAWN S.F./D.L.	PROJECT NUMBER 214 019
CHECKED S.E.M.	SCALE AS NOTED
DATE 2014-07-25	SHEET NO. M-2

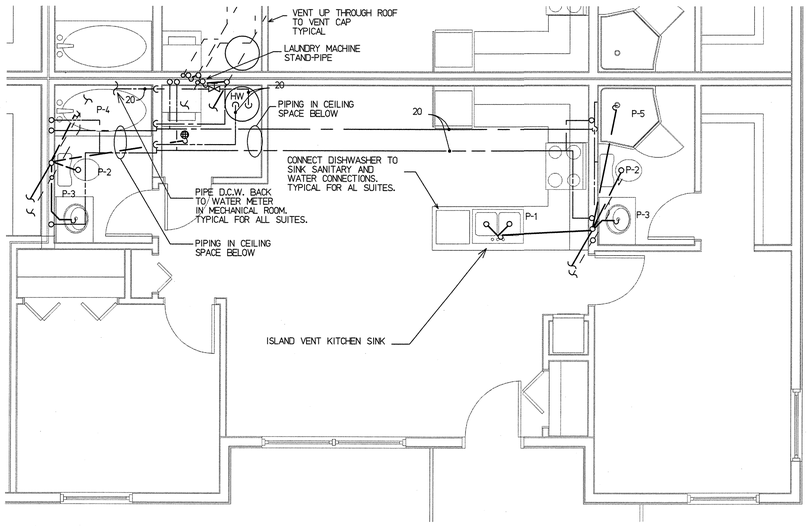


SECOND FLOOR PLAN - PLUMBING SUITE LAYOUTS
SCALE 1:200

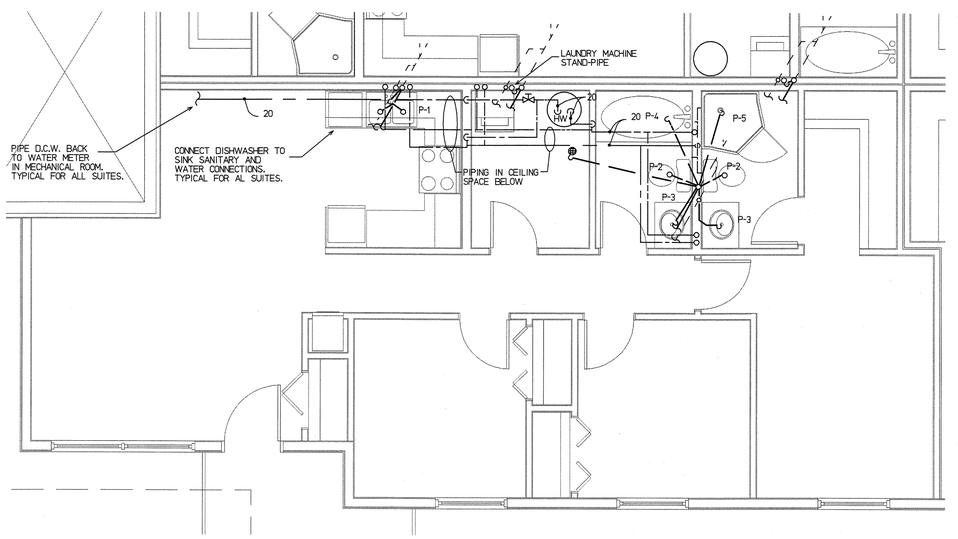
NOTE:
SEE DRAWING M-2 FOR PLUMBING LEGEND.



SECOND FLOOR SUITE LAYOUT #1
SCALE 1:50



SECOND FLOOR SUITE LAYOUT #2
SCALE 1:50



SECOND FLOOR SUITE LAYOUT #3
SCALE 1:50

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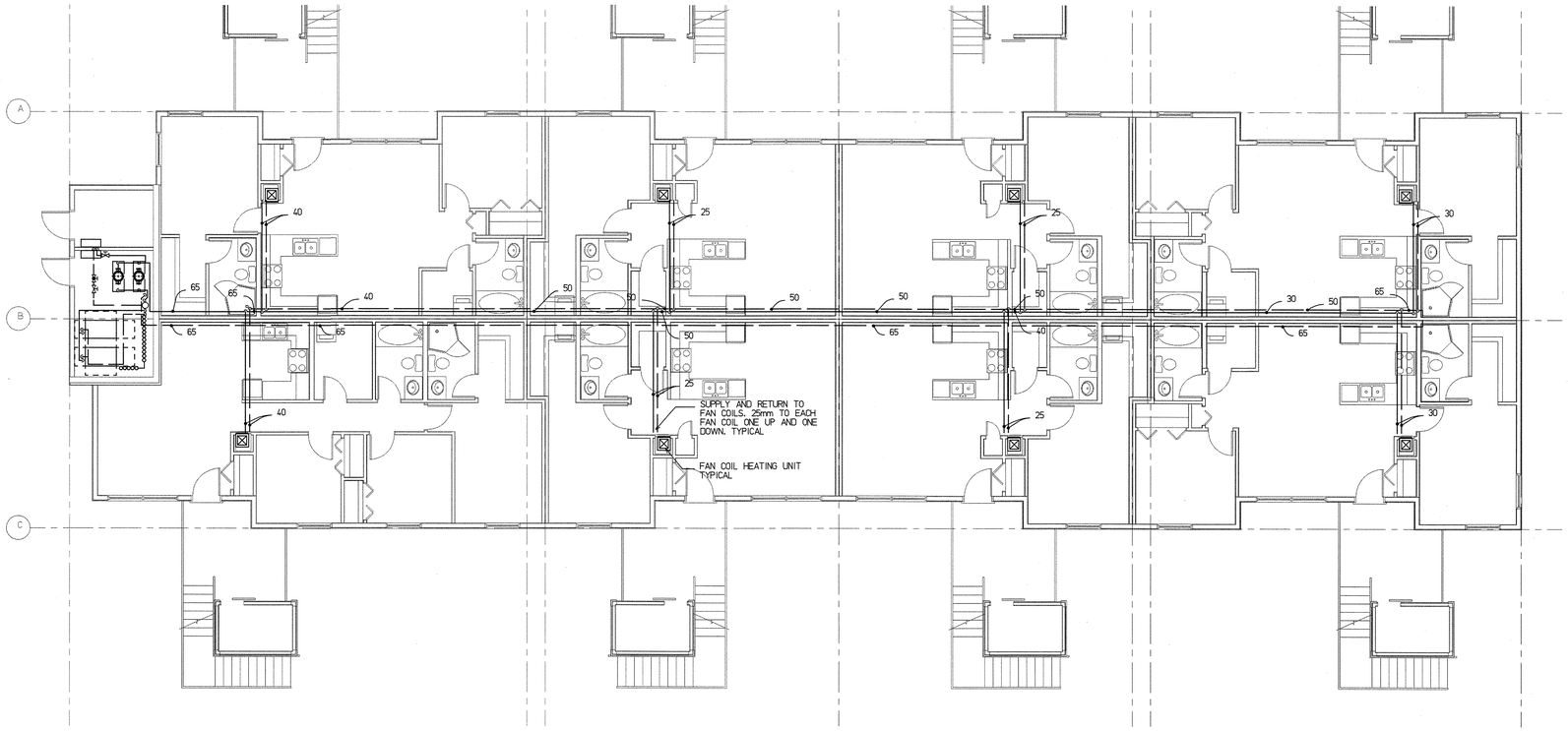
PROJECT TITLE
CANMORE COMMUNITY HOUSING CORPORATION

PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

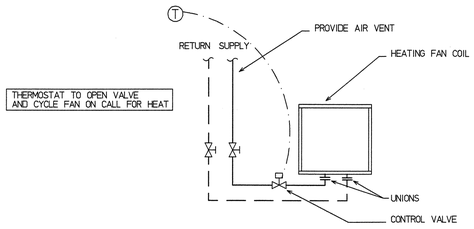
DRAWING TITLE
SECOND FLOOR PLAN
PLUMBING
TYPICAL 2 BUILDINGS

DRAWN S.F./D.L.	PROJECT NUMBER 214 019
CHECKED S.E.M.	SCALE AS NOTED
DATE 2014-07-25	SHEET NO. M-3

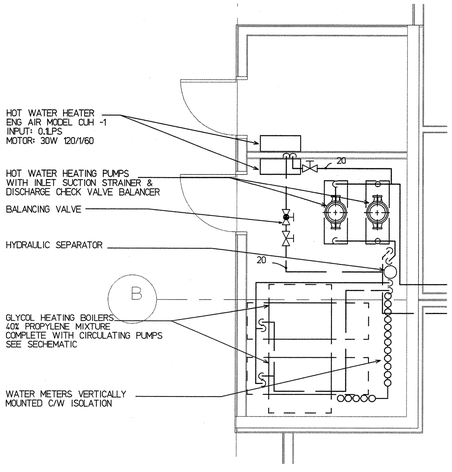


NOTE:
PIPING TO BE RUN IN FURRING RUNNING NORTH SOUTH

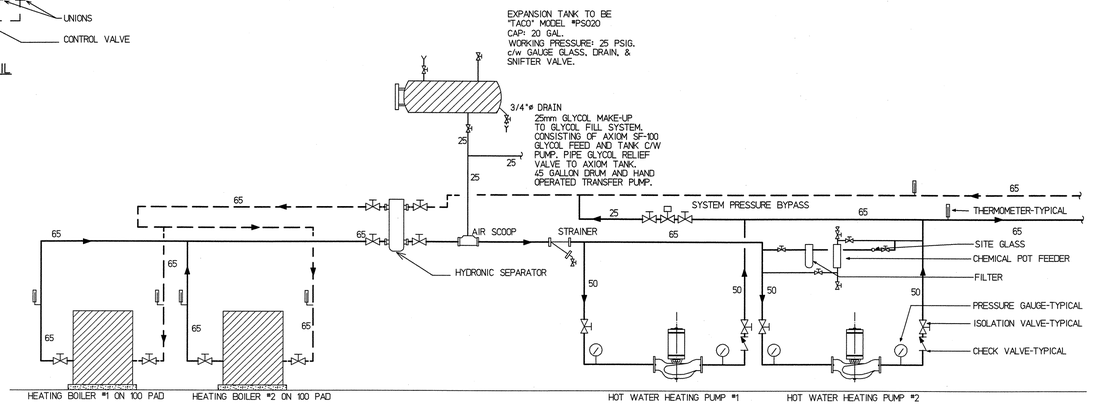
MAIN FLOOR PLAN - HEATING PIPING
SCALE 1:100



HEATING FAN COIL PIPING DETAIL
SCALE N.T.S.



MECHANICAL ROOM -PIPING DETAIL
SCALE 1:50



HOT WATER HEATING BOILER #1 AND #2
'CAMUS' DYNAMAX MODEL NO. 0701
INPUT: 205.15 KW
OUTPUT: 190.79 KW
MAX. OPERATING TEMP: 82.5°C
40% PROPYLENE GLYCOL
C/W INTEGRAL RECIRC. PUMP AND CONTROLS FOR CONTROLLING 2 EXTERNAL PUMPS WITH INDOOR/ OUTDOOR CONTROL AND ALARM

HOT WATER HEATING PUMP #1 AND #2
'ARMSTRONG' MODEL NO. 1060 1.5D
CAPACITY: 1.45LPS @ 7.6m HEAD
MOTOR: 3/4HP 240V/1ø/60HZ
PARALLEL PUMPING ARRANGEMENT
TOTAL FLOW: 2.9LPS

HEATING SYSTEM SCHEMATIC PIPING
NTS

PLOTTED DATE: NOVEMBER 05, 2014
JOB NUMBER: 7353.14
SHEET: A1

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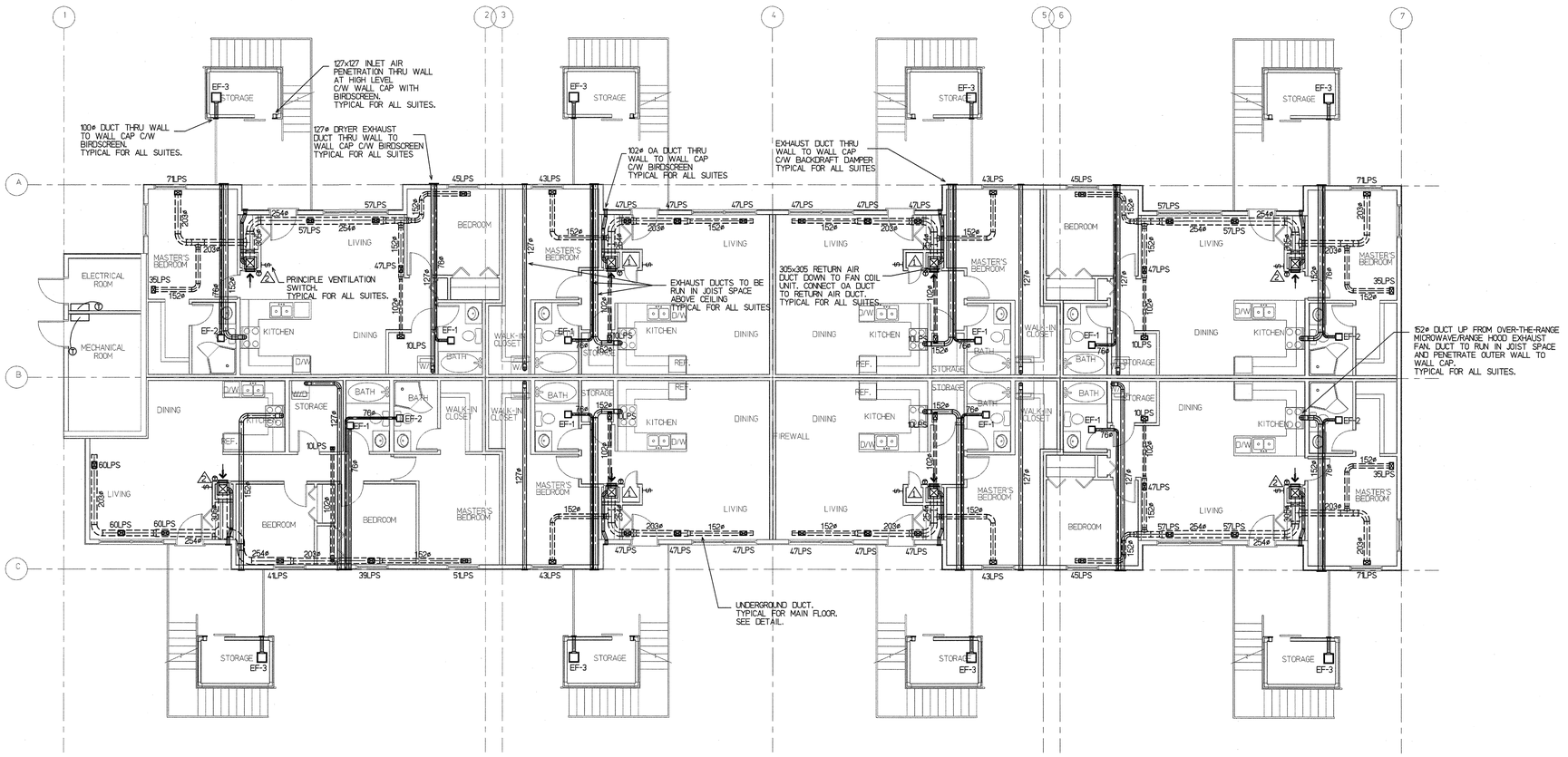
PROJECT TITLE
CANMORE COMMUNITY HOUSING CORPORATION

PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

DRAWING TITLE
MAIN FLOOR PLAN
HEATING PIPING AND DETAILS
TYPICAL 2 BUILDINGS

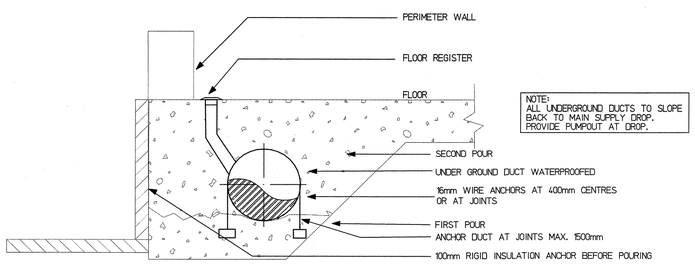
DRAWN S.F./D.L.	PROJECT NUMBER 214 019
CHECKED S.E.M.	SCALE AS NOTED
DATE 2014-07-25	SHEET NO. M-4



NOTE:
JOIST SPACES CONTAINING DUCTWORK TO BE FIRE RATED.

MAIN FLOOR PLAN - HVAC

SCALE: 1 : 100



NOTE:
ALL UNDERGROUND DUCTS TO SLOPE BACK TO MAIN SUPPLY DROP. PROVIDE PUMPOUT AT DROP.

UNDERGROUND DUCT DETAIL - NTS

FAN COIL UNIT SCHEDULE

1. 'FIRST CO.' FAN COIL UNIT
MODEL: FWA30-HW
AIR: 19LPS ø 7.6mm S.P.
HTG. CAP.: 11.56KW ø 180° EWT AND 40% PROPYLENE GLYCOL
C/W REMOTE THERMOSTAT

2. 'FIRST CO.' FAN COIL UNIT
MODEL: FWA30-HW
AIR: 32LPS ø 7.6mm S.P.
HTG. CAP.: 15.53KW ø 180° EWT AND 40% PROPYLENE GLYCOL
C/W REMOTE THERMOSTAT

EXHAUST FAN SCHEDULE

EF-1 & EF-2

'BROAN' ECONOMY VENTILATOR FAN
MODEL: EC50
AIR: 24LPS ø 7.6mm E.S.P.
120V/1ø/60HZ, 1.1A
C/W BACKDRAFT DAMPER AND WALL CAP ON OUTSIDE OF EXTERIOR WALL.
INTERLOCK EF-1 WITH THE FAN COIL UNIT FAN AND THE PRINCIPAL VENTILATION SWITCH SO THAT BOTH RUN WHEN PRINCIPAL VENTILATION IS CALLED FOR.

EF-3

'PENN BARRY' CEILING EXHAUST FAN
MODEL: ZEPHYR 25H
AIR: 47LPS ø 7.6mm E.S.P.
120V/1ø/60HZ, 79W, 1AMP
MOUNT AT HIGH LEVEL
C/W BACKDRAFT DAMPER AND WALL CAP ON OUTSIDE OF EXTERIOR WALL AND MANUAL ACTIVATION SWITCH

LEGEND

- T - New thermostat c/w sub-base
- New ductwork
- New duct with 25mm acoustic insulation
- New duct up, size as shown
- New duct down, size as shown
- Principal ventilation switch
- New 'SHOEMAKER' AFP series floor register c/w opposed blase balance damper. 254x152 unless otherwise shown
- New 'E.H. Price' Louvered face return air grille. Model 530. 356x356 unless otherwise shown
- New exhaust fan

PLOTTED DATE: NOVEMBER 05, 2014
JOB NUMBER: 7553.14
SHEET: A1

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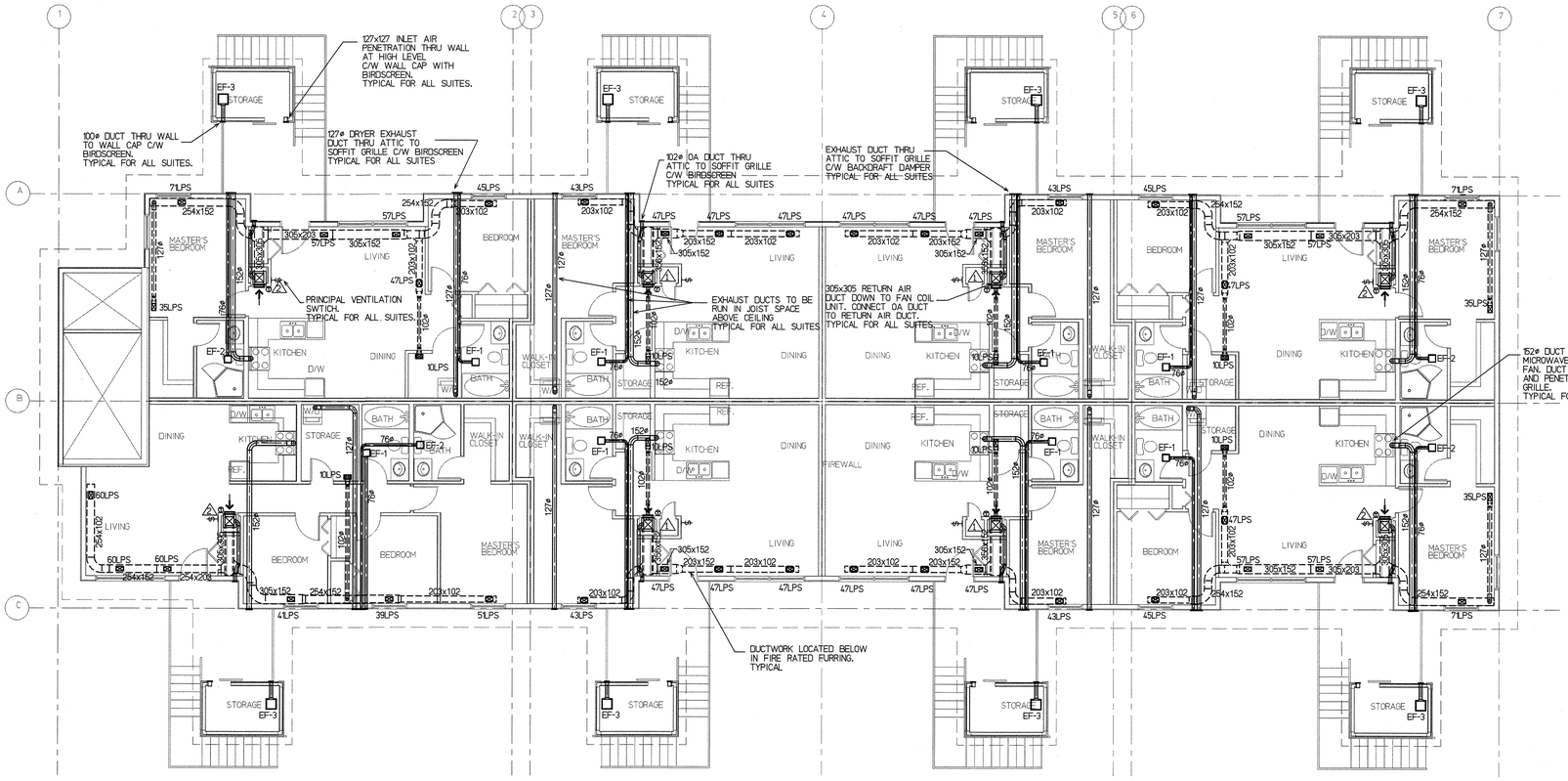
Revisions

PROJECT TITLE
CANMORE COMMUNITY HOUSING CORPORATION

PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

DRAWING TITLE
MAIN FLOOR PLAN
HVAC
TYPICAL 2 BUILDINGS

DRAWN S.F./D.L.	PROJECT NUMBER 214 019
CHECKED S.E.M.	SCALE AS NOTED
DATE 2014-07-25	SHEET NO. M-5



SECOND FLOOR PLAN - HVAC
SCALE: 1 : 100

PLOTTED DATE: NOVEMBER 05, 2014
JOB NUMBER 7353.14
SHEET: A1

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CANMORE COMMUNITY HOUSING CORPORATION

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DRAWING TITLE
SECOND FLOOR PLAN
HVAC
TYPICAL 2 BUILDINGS

DRAWN S.F./D.L.	PROJECT NUMBER 214 019
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DATE 2014-07-25	SHEET NO. M-6

BASIC MATERIALS AND METHODS
GENERAL
Materials and methods specification is subject to approval of authorities having jurisdiction.

Codes, Regulations and By-Laws
The contractor shall make himself fully acquainted with all codes and by-laws as relating to the installation and equipment. Such regulations shall have precedence over the drawings and specifications and any conditions embodied in such codes and by-laws shall be carried out without extra compensation. Obtain and pay for all permits for the execution of work and pay all charges incidental to such permits. This shall include the cost of all permits and fees that must be made on the Owner's name and which are necessary in order to complete the work of this contract. All materials shall be supplied and installed in accordance with manufacturer's recommendations for the use intended.
Where a manufacturer's name is mentioned, it is for the purpose of setting a standard of quality, performance, capacity, appearance and serviceability. Equivalent equipment must be submitted to engineer for approval prior to close of tender with the provision that any extra associated costs will be the responsibility of the contractor.

Drawings and Specifications
Where variance occurs between the drawings and specifications or within either document, reference should be made to the engineer for clarification prior to tendering. Failing to do this will not relieve the contractor of the responsibility of the intent of the specification or provide grounds for additional costs.
The mechanical drawings are not intended to show all of the structural details of the building and therefore, must be read in conjunction with the structural and architectural drawings. The contractor shall be responsible for a thorough knowledge of the architectural and structural work in such a way as to conserve headroom and interfere as little as possible with the free use of space through which they pass.
Before submitting his tender the mechanical contractor shall examine the site and all existing conditions affecting the work under this contract. The contractor shall investigate and allow for cost of services to be provided under this contract and satisfy himself that he can supply and install all the services without any additional charges after award of contract.

Deviation from Specifications and Drawings
Any deviation from the specifications and/or drawings must be referred to the engineer before proceeding with the work. Failing to do so shall make the contractor liable for any costs involved in the removal of piping, ductwork, equipment, etc., and the replacement as directed by the engineer.

The engineer shall have the power to reject any work and materials, which in his judgement, are not in full accordance with the intent of the engineer.

Guarantee
This contractor, in accepting this contract, binds himself to replace or repair at his own expense, any defect in workmanship or materials which may appear within a period of one year from the date of final acceptance of the work, and to pay for all resulting damage which shall appear within the said period provided always that the contractor shall not be held liable for anything attributable to acts of the servants and agents of the Owners, or for ordinary wear.
It shall be further agreed that this contractor will repair or replace any material, wall finish, etc., which might be damaged through faulty equipment or workmanship, at his own expense. Guarantees of a longer period on equipment etc., shall be passed on to the Owner, whenever they are made available to the contractor.

Maintenance Manual and Record Drawings
Furnish six copies of the manufacturer's maintenance manuals of all equipment installed, to the Owner, suitably bound in ring binders.
This contractor shall undertake to keep a record of all changes and deviations approved by the engineer, and upon completion, present to the engineer a marked up set of "as-built" drawings.

PRODUCT
Hot Water Heating Pipe and Fittings
Schedule 40 ASTM specification A53 steel pipe. Copper type "M" pipe with sweated fittings using 95/5 solder may be used. For ball valves with solder connections use 50/50 tin lead soft solder. Fittings shall be welded, screwed, or soldered type couplers.
All components shall have a working pressure rating of not less than 125 psig.

Domestic Water Pipe and Fittings
CSA-706 type "M" copper.

Plumbing Drainage and Vent Pipe and Fittings
Class 4000 cast iron soil pipe with CSA approved stainless steel clamp mechanical joints.
Pipe 2 in. and smaller may DWV copper with 50/50 solder joints and matching fittings.
ABS may be used where specific approval is obtained from authorities having jurisdiction.

Gas Piping
All gas piping shall be ASTM A53 Schedule 40 with 125 psig screwed malleable fittings. All gas piping over 1 in. shall be welded. Pipe must be welded in concealed areas.

Hangers
Hangers supporting piping shall be clevis type, constructed of materials compatible with those of the pipe supported. Grinnel fig. 65, 260 and 300 as applicable.

Valves
Valves for isolating and/or Throttling Service, 50mm (2 in.) and Under:
Appollo 3 series 82-100 (threaded) or 82-200 (solder), Watts Regulator B-6080 or B-6081, or Milwaukee Butterball BBI-100 or BBI-350. Working pressure 1035 kPa (gal. (150 psig). Valves used on radiation heating systems to be complete with balancing stops and steel tee handles.

Gas Valves:
Natural gas service stop valves to be DeZurik fig. 425 with RS19 plug seal. Newman-Milliken 170M or DPM equal. Walttec 28W904-916 may be used for valves 1/2" to 2". All gas valves must be CGA approved.
Natural gas PRV's to be Fischer, or approved equal.

Dielectric Unions
Watts Regulator Series 3000.

Gauges
Gauges shall be Ashcroft Model 45-1279ASL-4L 4 1/2" dial size with a pressure range of, 0-200 psig. Trerice No. 450LFSA and Winter's No. 100-45 with 1/2% accuracy, equal.
Each gauge to have a brass tee handle shut-off and brass gauge pipe connection and snubbers.

Thermometers
Fluid Measurement:
Ashcroft 5" dial, Model 50E160E hermetically sealed, every angle, with separable well. Hot water 50 deg. F. to 300 deg. F. Trerice No. V80045 and Winter's No. 800-1A dial thermometers, complete with separable wells and extension socket equal.

Wall Hydrants
Watts HY-420 non-freeze type with vacuum breaker.

Backflow Preventors
Watts No. 909HW-S-QT series complete with ball valves for 50mm and under. For service 65mm and over use Watts No. 909.

Pumps
Pumps to have mechanical seals and shall be 1750 rpm.

EXECUTION
Water Piping Installation
Piping shall be installed parallel to building lines except where shown otherwise on the drawings and where deviation from this practice contributes to the quality of installation.
All piping shall be installed as high as possible beneath structure and shall be arranged in a manner to minimize the amount of space consumed. Offsets around structure shall be at forty-five degree angles wherever possible. Where piping passes through steel studs, plastic inserts for protection of piping must be supplied.
Copper piping shall not be in contact with metals of other nobility. Copper to steel connections shall be dielectric unions or flanges.

Pipe Support
Hangers shall be installed at intervals of not more than 12' for pipe sizes 3" and larger. Smaller sizes shall be supported at intervals of 8' or less.

Expansion of Pipe
Adequate provision shall be made for expansion of pipe including sufficient dimension between the pipe and all obstructions. Wherever possible pipe loops shall be used for expansion. In the event that expansion joints become necessary, the contractor shall submit diagrams for approval indicating method of installation.

Equipment Connections
All equipment shall be connected in a manner that makes possible easy removal of equipment components such as coils. Valving and disconnecting means shall be arranged so that component removal is unobstructed. Disconnecting means may be by extra heavy unions, flange connection or other devices acceptable to the engineer.

Cleanouts, Traps, Vents and Drains
Systems shall be installed so that air pockets can be eliminated, accumulated foreign material can be removed, and drainage components can be cleaned.
All high points in the piping system shall be vented, all low points in the system shall contain drains and pockets shall be incorporated in the system in order to collect foreign matter, which may circulate in the system. All equipment shall have drain valves and vents.
All drainage systems shall have cleanouts in horizontal lines at intervals not exceeding 15M, at the foot of each vertical waste or soil stack, at ends of all drainage lines and at all changes of direction forty-five degrees or more.
System Cleaning, Start-Up and Water Treatment
Each water circulating system must be thoroughly flushed before it is placed in operation in order to remove all foreign materials that may have been left or deposited in the piping system during their erection.
cleaning and start-up. Pressure to be maintained on the system Assure that the hot water system has been pressure tested before for twenty-four hours.
Provide adequate drain connections such that the systems can be completely drained in one hour maximum.
System circulating pumps may be used for cleaning and temporary heat provided that new seals and packing, where applicable, are provided following the cleaning procedure. Any worn parts must be replaced at no cost to the Owner prior to building completion.
Contractor shall provide chemicals and labour for cleaning of all water systems (excluding domestic water systems).
Prior to chemical cleaning, the systems shall be inspected to ensure removal of heavy debris and excessive oil or dirt.
Temporary strainers shall be installed in the suction of each recirculating pump. Provisions shall be made for temporary connections between supply and return mains in the distribution system to permit circulation of the cleaning solution and a temporary by-pass shall be installed at the cooling tower(s) to permit by-passing of the tower fill. A 25mm pipe connection shall be provided on the suction side of the circulating pumps of each system for the introduction of the cleaning solution.
The system shall be flushed to remove loose dirt, and hydrostatically tested to detect water losses. Rotation of all circulating pumps shall be checked.
Contractor shall introduce one gallon of neutral pH cleaner and provide a passive metal surface for each 100 gallons of water in the systems and circulate for a minimum of 72 hours at ambient temperature.
Systems shall be drained, refilled with fresh water and circulated for a minimum of 4 hours to flush out remaining chemical solution.
Following flushing, systems shall be drained and refilled with fresh water and immediately treated with the specified corrosion inhibitor.
Contractor shall provide for the services of a qualified water treatment specialist to supervise cleaning and to certify that the system is clean.
Provide chemical by-pass feeders with necessary chemicals for one year's operation of the systems. The chemical shall be a combination oxygen scavenger and scale inhibitor with built-in seal lubricant. Provide test kit. The water treatment supplier shall provide a written report on the status of each system at start-up and shall include monthly service calls and reports during operation of the boilers and chiller in the first year.
Systems included in this section are the heating and water systems.
It shall be the responsibility of the contractor to recharge the systems with chemicals, during the first year warranty period, in the event that they are partially or totally drained for warranty repair purposes.

Testing of Piping Systems
All systems shall be tested prior to being insulated or concealed. Systems may be tested in part if the construction schedule or progress warrants this procedure.
Systems shall be tested at pressures 50% in excess of normal working pressure wherever possible. The test period shall be a minimum of twelve hours.
Any areas or joints identified as defective by testing procedures shall be removed and replaced.

Access to Systems
Systems shall be generally arranges so as to make access to shut off points as convenient as possible. Access doors shall be provided in finished areas as required. Appearance, size and location of access doors shall be subject to the approval of the architect.
Wherever drain points cannot be drained directly to a drain, hose and fittings shall be provided and a suitable length of 20mm hose shall be supplied to the project. This applies to both concealed and equipment areas.

Pipe Sleeves
Pipe sleeves in floors and walls shall be either galvanized iron or plastic and shall be compatible with the piping that may come in contact with the sleeves. Drilling of holes for piping shall be subject to the approval of the electrical engineer.

Levels
This sub-contractor shall check all levels shown and ensure adequate slope of sewers and pipes.

Excavation and Backfill
Trench and provide backfill to cover piping 300mm of material.
Trenches shall be cut not wider than required with at least 150mm to be removed by hand to obtain correct inverts. Excavation carried below the correct inverts shall be backfilled with approved material and tamped to provide firm support over the full length of pipe between joints.
Provide, install and maintain all required shoring until lines are installed, tested and ready for backfill. Backfill and tamp with 25mm of fine granular material free from rocks, boulders, and frozen earth. Balance of backfill by general contractor.

Cutting and Patching
All holes through which pipe and duct pass are to be provided for, and patched by the General Contractor. It is the responsibility of this contractor to coordinate all such work with the general and electrical contractors as required.
Wiring: Electric Motors, Starters and Associated Equipment
Electrically operated equipment shall be CSA approved and bear approval label. Voltages as per electrical engineers drawings.
Starters and disconnects will be supplied and installed under Electrical, unless the starter is supplied as part of an integral control package.
Power wiring for equipment under mechanical trades will be by Electrical.
Control wiring, 24 volts and less, will be by the mechanical contractor or his control contractor.

END OF SECTION

INSULATION

GENERAL
Insulation shall be supplied to piping, ductwork and equipment in accordance with insulation industry standards, and materials and methods as outlined herein.
Materials shall meet fire and smoke hazard ratings defined in Alberta Building Code.

PRODUCT
Basic Water Pipe Insulation
Sectional fiberglass pipe insulation in premoulded sections, split and ready for application, shall be used on the basic insulation for all piping except where otherwise noted. This insulation shall have a maximum "R" factor of .24 Btu-in/hr.-sq. ft. deg. F. at 75-deg. F. mean temperature. Insulation shall have a factory applied vapour barrier jacket. Fiberglas Canada ASJ. or Manville Micro-Lok 650.

Duct Insulating Board
Fiberglass ductboard with a "R" factor of .21 Btu-in/hr.-sq. ft. deg. F. at 75 deg. F. and a density of 4.5 lbs./cu. ft. Ductboard shall have a factory applied vapour barrier jacket. Fiberglass Canada AF-545/RFFK.

Duct Insulation Blanket
Duct insulation blanket with a "R" factor of.264 Btu-in./hr.-sq. ft. deg. F. at 75 deg. F. and complete with vapour barrier jacket. Fiberglas Canada Type 2, RFFRK, or Manville Microlite with FSK facing.

EXECUTION
Areas of Application
All domestic hot and cold water lines except chrome supplies connecting fixtures.
All heating pipe.
All fresh air intakes and ducts.
Exhaust ducts for 10' to the exhaust discharge, wherever exhaust is directed to outdoors.
All ductwork located in attic.

Insulation Thickness
All hot water heating pipe insulation shall be 25mm thick.
All domestic hot and cold-water piping up to 50mm sizes shall have 12mm insulation. All pipe sizes over 50mm to have 25mm insulation.
Duct insulation shall be 1" thick, except ducts carrying direct outside air and ducts in attic which shall be insulated with 2" thick ductboard.
Do not install covering before piping, ductwork, and equipment has been tested and approved.
Ensure surfaces are clean and dry prior to installation. Ensure insulation is dry before and during application. Finish with system at operating conditions.
Ensure insulation is continuous through inside walls. Pack around pipes and ducts with fire proof self-supporting insulation materials, property sealed.
Insulate fittings and valves. Do not insulate unions, flanges, strainers, (except on chilled water lines). Do not insulate flexible connections and expansion joints. Terminate insulation neatly with one coat of finishing cement trowelled on a bevel. Provide recovering jackets on exposed insulation throughout, including equipment room. Insulation located in shafts, and suspended ceiling spaces is not considered exposed.
Use pressized paper under recovering at uneven insulated surfaces.

Cold Piping: Cover fittings and valves with equivalent thickness of insulation material. Cover with open mesh glass cloth sealed with vapour barrier sealant. Seal lap joints with 100% coverage of vapour barrier sealant and adhesive. Seal butt joints with 100 mm wide strips or vapour barrier sealed with vapour barrier adhesive. For exposed fittings and valves, apply hydraulic setting cement paste over insulation material before applying recovering. Staples not to be used on any vapour barrier jacket insulation.

Hot Piping: Cover fittings and valves with equivalent thickness of insulation material. Recover. For exposed fittings and valves apply hydraulic setting cement paste over insulating material before apply recovering.

Vents: Adhere flexible insulation with adhesive applied in 150 mm wide strips on 400 mm centres. Provide 1.6 mm annealed tie wire tied, spiral wound or half hitches at 400 mm centre for securing insulation until adhesive sets. Butt insulation and seal joints and breaks with 50 mm of foil adhered over joint.

Exposed Rectangular Ducts: Secure rigid insulation with 50% coverage of adhesive and 12 gauge galvanized impales anchor tabs on 400mm centres. Seal joints and breaks in duct conveying air at less than room temperature with 100mm wide strips of open mesh glass cloth or tape imbedded between 2 coats of vapour barrier sealant. Point up other joints and breaks with hydraulic setting cement.

Round Duct and Concealed Rectangular Ducts: Adhere flexible insulation to ductwork with adhesive applied in 150mm wide strips on 400mm centres. Provide 16 gauge annealed tire wire tied, spiral wound or half hitches at 400mm centres for securing duct insulation until adhesive sets. Butt insulation and seal joints and breaks (in ducts conveying air at less than room temperature) with 50mm lap of foil adhered over joint.
END OF SECTION

PLUMBING SYSTEMS
GENERAL

Provide labour and tools for the complete supply and installation of the plumbing and domestic hot water systems.
Drainage products as manufactured by Watts, Rota-Tech Smith, and Zurn, are approved for those models and materials as specified in Section 2.0 below.
Refer to Section 15050 for materials and methods used in the plumbing and domestic water systems. Installations must comply with the Plumbing Code and all local plumbing regulations.

PRODUCT
Floor Drains
General Areas: Watts FD-100 Equivalent.
Mechanical Rooms: Ancon FD-100C EG Equivalent.
Drains must include epoxy coated nickel polished bronze strainers: cast iron bodies.
Clamp collars must be coated cast iron.
Where waterproof membrane is required, use clamp device as applicable.
Provide trap primer adapters on floor drains.
Automatic trap primers to be Watts A-200 Equivalent

Cleanouts shall be sized equal to pipe sizes up to 100mm, and not less than 100 mm (4 in.) on larger sizes. Main building drain cleanouts to be 150mm.
Carpet Areas: Watts CO-100C-RC Equivalent.
Finished Floor Areas: Watts C-100C-R Equivalent.
Tile Floor Areas: Watts CO-100C-T or TS as required Equivalent.
Wall Cleanouts: Watts CO-460 Equivalent.
Where waterproof membrane is used, provide appropriate cleanout as applicable to floor finish, complete with clamp device "C".

EXECUTION
Drainage products to be from one manufacturer only.

Cleanouts
Provide and set cleanouts in building drains as near as practicable to the inner face of the wall through which the drain passes.
Where a building trap is inside the building, the cleanout shall be installed between the trap and the wall.
A cle anout shall be installed at the foot of each vertical waste soil stack, at the ends of all drainage lines and at all changes of direction of forty-five degrees or more. In horizontal lines cleanouts shall be located at intervals of not more than 50 ft.

END OF SECTION

PLUMBING FIXTURES AND TRIM

GENERAL
Provide labour and tools for the complete supply and installation of plumbing fixtures, fittings, and all associated water and vent piping.

PRODUCT

KITCHEN SINK P-1
Bowl: 450 x 780 x 200 mm O.D., Type 18-8 stainless steel, self rimming, double compartment with undercoating, 89 mm crumb cups.
Kindred QDUA1839/8. Trim: Chrome plated supply with swing spout, aerator, indexed lever handle, Delta Linden Model # 1353-DST c/w optional 267 mm long escutcheon plate.

TOILET P-2
American Standard Cadet Pro Elongated Toilet Model # 215CA.104.
Bowl: Elongated vitreos China, 381mm height, PowerWash system.
High Efficiency Toilet 4.8 LPS Color: white. C/W closed front elongated seat with cover, 300 series stainless steel, self sustaining hinges.
Bemis Model No. 1900SS

BATHROOM DROP-IN VANITY SINK P-3
Lavatory: Drop in bathroom sink, 489 x 413 mm, cast iron lavatory with drillings on 102mm centres, overflow, rim sealant Kohler Farmington K-2905.
Trim: Chrome plated heavy duty brass, two lever handle deck mount, 102mm centreset, rotating cylinder type with stainless steel plate, polypropolene pop-up drain fitting with plated flange and stopper cap. Delta Lahara Model # 2538.

TUB/SHOWER P-4
One piece bath and shower module, acrylic, includes grab bar and shelf, right or left drain, white, 1524 X 884 X 2266 mm Kohler Model K-1161K-1582.
Trim: Tub/Shower system with lever handle, Symmons temptrol pressure balancing mixing valve with stop screws to limit handle turn, shower head is #S522H 3 mode, 4"diameter, flow rate is 2.5 gpm, tub spout with diverter, polished chrome finish. Symmons Elm 5502.

SHOWER P-5
Premanufactured acrylic shower Maax Olympia Pentangle Model no. 105759 including acrylic wall with storage,drain and strainer.
Trim: Symmons temptrol pressure balancing mixing valve with adjustable stop screw to limit handle turn. Symmons S-5501 shower system with lever handle, screwless escutcheon, showerhead #S525H 3 mode 4"diameter.

EXECUTION
Plumbing Trim
Ensure that all plumbing trim is securely installed and tested.
Remove, clean and replace all spray faces and aerators as applicable. Set stops at all lavatory trim to prevent splashing.
Adjust flush valves to provide smooth operation.
All lavatories to be provided with chrome supplies, wheel handle stops, and chrome plated "P" traps with escutcheon. Water closets to be provided with chrome supplies.

Water Closets
Provide caulking bead at floor of all water closets to create tight seal.

Offset Waste Assemblies
Insulate waste assemblies on lavatories for handicapped washrooms.
Plumbing fittings to be one manufacturer wherever possible in order to minimize future parts and maintenance programs.

END OF SECTION

HEAT GENERATION
GENERAL
Provide labour and tools for complete supply and installation of hot water boiler system.

PRODUCT
Boilers
High Efficiency:
Factory assembled, self-contained water boiler with modulating output.Boilers to be complete with circulating pump, electronic sequencing and indoor/outdoor sensor. Relief valves for 50 psig. Provide approved backflow preventors and regulators, flow switches, and low water cut-off controls.

EXECUTION
Boilers to be installed completely in accordance with manufacturers recommendations.
Provide flow switches in each boiler circuit. Control contractor to supply all control component connections.

END OF SECTION

LIQUID HEAT TRANSFER

GENERAL
Provide labour and tools for the complete supply and installation of fan coils and associated equipment.

PRODUCT
Heating Fan Coil Units
Provide models and sizes as shown on the drawings.

EXECUTION
Fan coil units to be supplied with all necessary mounting drawings, and, if necessary, mock-up sections.
brackets, access doors, trim and accessories to provide detailed Fan coils to have access doors at control valve locations.
All heating equipment to be isolated with ball valves.
END OF SECTION

AIR DISTRIBUTION

GENERAL
Provide labour, material and tools for the complete installation of supply and exhaust ductwork, fans, diffusers, air volume control boxes, gas heaters, and associated accessories.

PRODUCT
All ducts and plenums to be of galvanized steel with gauges, supports, joints, and sealing in accordance to SMACNA standards for Duct Class 3" and Seal Class "A".

Acoustic Duct Liner
Manville Linacoustic, 1" thick unless otherwise specified, coated to prevent fibrous erosion at air velocities up to 4000 fpm.

EXECUTION
Vibration and Objectionable Noises
The ductwork installation will be free from pulsation, chatter, vibration or objectionable noises. Should any of these defects appear after the system is in operation, they shall be corrected by either removing, replacing or reinforcing the work as directed by the engineer at the site.

Cross Breaking Sheet Metal
Sheet metal which is not to be insulated shall be cross-broken on the four sides on each panel section.
Insulated or acoustically lined sheet metal and ducts are not to be cross-broken.The contractor may, at his option, delete crossbreaking of the sheet metal described above providing the gauge of material used in the unbroken ductwork is one gauge heavier than that specified under SMACNA standards.

Deflectors in Sheet Metal Ducts
Where obstructions pass through ductwork, there shall be provided air stream deflectors to minimize interference with the movement of air. Ductwork at these deflectors shall be increased in size to maintain equivalent area around the deflectors.

Sheet Metal Installation
Where ducts require to be transformed or divided due to the maintained. Allowance and provision shall be made in the tender

structural conditions of the building, the required area shall be for any of these changes, however, before proceeding with this work, approval must be received from the Engineer.
During installation, the open ends of ducts shall be protected to prevent debris and dirt from entering.
Where ducts are shown alongside partitions, these shall be placed tight to the surface.

Access Doors
Access doors where shown on the drawings shall be constructed of No. 22 gauge material. A flat iron or angle iron stiffening frame, so constructed that the door can be operated without twisting or distortion, shall be provided. Doors in insulated ductwork shall be of double panel construction with an insulating filler not less than 1 inch thick. The duct opening shall be ribbed with a continuous reinforcing galvanized bar or angle against which the door will close. To ensure a minimum of air leakage, gasketing materials shall be held to the angle by an adhesive.
Where fire dampers are installed in ductwork, rated access panels shall be provided.

Flexible Connections
All inlet and outlet connections on fan equipment shall be installed with flexible connections. These connections shall be not less than 3" wide, constructed of synthetic flexible fabric. The flexible connection shall be fastened to the fan inlet and outlet by a galvanized iron band provided with tightening screws.
Ducts Through Roofs
Where ducts pass through roofs, galvanized angle iron frames bolted to the curb around the openings shall be provided. Flashing and counter-flashing will be done by others, contractor to coordinate with General Contractor.

Duct Supports
For ducts up to 18" in width, hangers shall be placed on not more than 8' centresi ducts 19" and above in width on not more than 4' centres.
Hangers on ducts up to 36" in width shall be galvanized band iron 1 x 1/8". On ducts 37" and above in width hangers shall be galvanized iron angles not less than 1 x 1 x 1/8". Perforated band iron will not be permitted to be used as hanging material.
Each duct hanger shall be attached to expansion bolt inserts of adequate size which shall be driven into the concrete slab above. Wherever it may be necessary to support ducts from the floor, this shall be done with galvanized iron angles of adequate size.

Acoustical Lining
Duct sizes to increase accordingly to maintain equivalent free area.
Acoustic Lining: Apply to interior of ducts where shown. Secure to ductwork with adhesive using 50% coverage and 12 gauge impale anchor tabs on 16" centres. Cut off excess fastener length and cove with brush coat of mastic. Provide vapour barrier located on the warm side for outside air intakes. Ducts with acoustic insulation do not require external thermal insulation.
Acoustical lining applied from fan discharge through the first 90 degree elbow shall be lined with 24 gauge perforated plate, 1/8" holes on 3/16" staggered centres.

Deflector Vanes
Where shown on the drawings and/or in square elbows and in elbows where radius is not full, sheet metal deflector vanes shall be installed the full height of the duct in which the deflector is installed with a maximum weight of No. 18 gauge.

Duct Sealings
All sheet metal connections and joints, after fabrication, shall be sealed with 3-M high velocity duct sealer, Hardcast sealer, or approved equal.

Duct Testing
Pressure test ducts after sealing in order to assure leakage is no greater than SMACNA standards.

Air Balancing
It is the responsibility of this contractor or his subcontractor to assure that proper air system balance is achieved. The use of certified air balance firms to achieve this work is required and it is the intention of the engineer to review this work.

END OF SECTION

CONTROLS
GENERAL
The work shall include, but not be limited to the supply of materials and labour for the complete automatic temperature control systems.
The temperature control contractor shall set and adjust all control components after completion of installation.

PRODUCT
Commercial quality controls as manufactured by JohnsonControls, Siemens Controls or Convergint Controls.

EXECUTION
Hot Water Boiler Heating Controls
Boiler controls are to be provided as integral components of the specified boilers. This contractor shall
install control components provided by boiler supplier in accordance to boiler manufacturer's recommendations.
Provide an adjustable outdoor thermostat (located away from direct and/or radiated heat) to shut heating system off at 15 deg. C. (60 deg. F.). The heating pumps and boilers are to be automatically re-activated below this set point temperature.

Suite Controls
Fan coil fan to be activated on a call for heat and the control valve to open to provide hot glycol to coil. Two way control valves to control heating coil flow.
Suite ventilation manual activation switch to be provided to start fan coil fan and washroom exhaust fan. Ventilation switch to be labelled and placed in the corridor. Kitchen exhaust hood to be separately switched and be independantly operated.

END OF SECTION

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NO.	Description	Date (Y/M/D)
02	Issued For Construction	2014/11/07
01	Issued For Building Permit	2014/10/31
00	Issued For Tender	2014/09/11

Revisions

PROJECT TITLE
CANMORE COMMUNITY HOUSING CORPORATION

PROJECT ADDRESS
100 Dyrgas Lane
Canmore, AB

DRAWING TITLE
MECHANICAL SPECIFICATION

DRAWN: S.F./D.L.	PROJECT NUMBER: 214 019
CHECKED: S.E.M.	SCALE: AS NOTED
DATE: 2014-07-25	SHEET NO.: M-7

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