

LIVING ACCOMMODATION SPECIFICATIONS

PROJECT TITLE: Construction of Single Family and Duplex Residences

LOCATIONS: Pinehouse; Patuanak; Kamsack; Canora; Coronach, Saskatchewan

PROJECT NUMBER: N/A

DATE: January 19, 2016

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LIVING ACCOMMODATION SPECIFICATIONS

Project No:

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Duplex

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Single Family

A-1 Exterior Elevations
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GENERAL REQUIREMENTS

GENERAL REQUIREMENTS

Section 01A

1. Description of Contract:

- .1 Pinehouse - 1 Duplex (PWF Foundation, Propane Heat/ Domestic Hot Water)
- Patuanak - 1 Duplex (PWF Foundation, Propane Heat/ Domestic Hot Water)
- Kamsack - 2 Duplexes (Concrete Foundations, Natural Gas Heat/ Domestic Hot Water)
- Canora - 2 Single Family Bungalows (Concrete Foundations, Natural Gas Heat/ Domestic Hot Water)
- Coronach - 1 Duplex (Concrete Foundation, Natural Gas Heat/ Domestic Hot Water)

2. Time of Completion:

- .1 December 31, 2016 or earlier

3. Codes & Standards

- .1 All materials and work, unless more stringently specified herein, shall be performed in accordance with the relevant provisions of the National Building Code of Canada (NBC) 2010, Central Mortgage and Housing Corporation (CMHC), the measurers for Energy Conservation in new buildings, or any other relevant code or ordinance as it may apply, including amendments in effect at time of Tendering closing.

Where Specified - Construction of the preserved wood foundation must be in accordance with CAN/CSA-S406 "Construction of Preserved Wood Foundations" as required by the NBC.

- .2 All design, materials, equipment, installation, systems, and components shall, unless otherwise specified, conform to the latest edition of Residential Standards Canada (RSC) and shall at least meet or exceed those standards of residential construction acceptable to Canada Mortgage and Housing Corporation (CMHC) for National Housing Act (NHA), financed construction.

4. Taxes/Permits:

- .1 Pay all taxes and permits properly levied by law, as applicable at the place of manufacture, or conventional construction, the sites, and along the routes of major components of any transportable or pre-built units.

GENERAL REQUIREMENTS

GENERAL REQUIREMENTS

Section 01A

5. Shop Drawings:

- .1 The contractor shall provide the Owner with relevant shop drawings. "As-built" drawings are required for the completed unit and may be "amended shop drawings". Contractor to submit shop drawings and samples as requested subsequent to tender award. Site plans to be supplied by the Owner.
- .2 Shop drawings indicating Structural framing shall bear the stamp of a Professional Engineer registered or licensed to practice in the province of the Place of Manufacture.
- .3 Provide all above items as soon as possible after contract award.
- .4 Until shop drawings or samples are approved, do not proceed with associated work.

6. Samples:

- .1 Finish, colour co-ordination samples, details of interior and exterior materials, including roofing must be approved by the Project Manager before incorporating into this project.
- .2 Approval of samples does not imply acceptance of the finished work.

7. Warranties:

- .1 The Contractor shall be totally responsible for the accommodation unit until such time as it has been formally accepted by the Owner from the contractor. Any damage incurred prior to acceptance of the completed structure shall be made good at the contractor's expense and to the satisfaction of the Owner. In addition, to maintain the unit, including its systems and components, free of defects in material and workmanship, without charge for a period of one year from the date of acceptance by the Owner. This shall be in addition to any other guarantee or extended warranty of components, equipment and appliances, etc., as provided by the individual product manufacturer(s).

GENERAL REQUIREMENTS

GENERAL REQUIREMENTS

Section 01A

8. Foundations:

- .1 Pressure Treated Wood - These specifications include for the provision of a preserved wood foundation basement, on concrete footings, with concrete floor, designed to comply with all applicable code ordinances and regulations.
- .2 Concrete - These specifications include for the provision of a cast in place concrete foundation basement, on concrete footings, with concrete floor and walls, designed to comply with all applicable code ordinances and regulations.

9. Local Bylaws & Regulations:

- .1 Visit the site prior to tendering and consult with the local authorities having jurisdiction to ensure that a building permit will be obtainable should the tenderer be the successful bidder.

10. Documents:

- .1 The following documents are a requirement of this Contract:
 - (a) A detailed breakdown from each building discipline shall be provided with each progress claim.
 - (b) A Statutory Declaration shall be provided with each claim, stating that all claims and liabilities have been paid on payment #2 forward.
 - (c) Electrical and mechanical inspection certificates, maintenance manuals, guarantees, as-built drawings of plumbing installed below basement floor and copy of site plan showing accurate location of underground services shall be provided with the final progress claim.
 - (d) Upon final completion the contractor shall provide Workers' Compensation and E & H taxation clearances.
 - (e) Submit mechanical equipment manufacturer's inspection reports as instructed in section 15B.5.2., 15C 2.3.F., and 15C 4.10.

11. Temporary Power:

- .1 Contractor to provide and pay for all temporary power.

GENERAL REQUIREMENTS

DESIGN CRITERIA

Section 01B

1. Designs Loads:

- .1 Each accommodation unit shall be designed and constructed to withstand:
 - (a) Maximum wind, snow and suction loads, calculated in accordance with currently prescribed regulations for structural sufficiency set out in the NBC, applicable to the site location.
 - (b) Minimum live floor load of 2.4 kN/m².

2. Thermal Design Values:

- .1 The unit shall be constructed to meet or exceed the minimum thermal conductivity values, as required by the measures for Energy Conservation in New Buildings and as augmented by Section 7 of these specifications.

SITWORK

GENERAL INSTRUCTION

Section 02A

1. Examination of the Site:
 - .1 Examine drawings and specifications to ascertain the scope of work of others that might affect the work of this Section.
 - .2 Prior to submitting a tender, bidders are to visit and examine the site to be completely aware of all aspects of the work. No extras will be allowed for failure to do this.
 - .3 The Contractor shall be responsible to make his own computations of the amount and nature of the work required.
2. Protection:
 - .1 Claims for property loss or damage caused by the Contractor's work will be discharged by the Contractor at his own expense.
 - .2 Protect excavations, concrete slabs, concrete sill and footings from surface water and frost damage.
 - .3 Shore and brace banks of the excavation as necessary to prevent sloughing and damage to excavations, adjacent property, workmen and the public.
 - .4 Pay for replacement of site corner pins or bench marks disturbed during construction.

EXCAVATION AND SITWORK

Section 02B

1. General Requirements:
2. Clearing & Grubbing:
 - .1 Site clearing shall be carried out as shown on the contract drawings and to be sufficient to accommodate the structures, service lines, and driveway.
 - .2 Strip grass and topsoil from areas to be excavated, filled, or as required by the drawings. Remove grass from site; place topsoil in a position which will not interfere with the building operations and where it can be readily brought back to provide topsoil over finished areas.

SITWORK

EXCAVATION AND SITWORK

Section 02B

3. Excavation:

- .1 Contractor is responsible to excavate soil, rock, etc., to the required level, by whatever means necessary for the foundation type specified.
- .2 Fill over-excavated areas under structural bearing surfaces with concrete of compressive strength of 20 MPA.
- .3 The contractor shall check and confirm elevation of municipal sewer and water services prior to setting elevation of residence with the Project Manager. It shall be the responsibility of the contractor to locate property pins to ensure proper locations of residence and fence.

4. Landscaping:

- .1 Rough grade entire site, bearing in mind any necessary drainage requirements. Minimum slope of 3% away from all buildings, towards lot limits and roadways, unless otherwise specified.
- .2 Supply & install 100mm, watered and compacted depth, of topsoil to top of approved rough grade elevation to all areas where sod is specified.
- .3 Apply sod to entire area within lot limits, unless noted otherwise on site plan.
- .4 Supply and install 100mm compacted depth of pit run gravel with product no larger than 19mm to top of approved undisturbed rough grade in driveway.

5. Fencing:

- .1 Fencing area shall encompass both sides of the front of the home to the rear property line within the legal limits. Shall incorporate gates on either side of the home and one at the rear of the property. Prior to commencement, contractor is to sketch what they proposing to do for approval by the Project Manager.
- .2 The fencing shall be "Chain Link" material. Fabric shall be 9 gauge wire, 2 inch mesh, hot-dip galvanized or electro galvanized. Posts, top rails, frames, braces and fabric shall conform to Specification CAN2-138.1-M80 latest edition. Wire shall have a minimum tensile strength of 65,000 psi All minimum of 1.2 oz. zinc coating per square foot of surface. All pipes shall be .125 wall. All fencing shall be 1200mm high. Lower edge of the fencing shall be set within 50mm of finish grade. Details as follows:

SITework

EXCAVATION AND SITework

Section 02B

- (a) Line Posts: shall be hot dip galvanized scale-free pipe, sections 47mm O.D. minimum. All line posts shall be installed at 3.0 m centres maximum.
- (b) Terminal and Corner Posts: "End and Corner" posts shall be hot dip galvanized scale-free pipe, sections 73mm O.D. minimum
- (c) Gate Posts: shall be hot dipped galvanized scale-free pipe, 73mm O.D. minimum
- (d) Post Caps: all posts shall be fitted with heavy malleable iron or pressed steel tops. Base of post caps shall have flanges around the outside of the posts to provide a watertight top.
- (e) Top Rail: shall be 42mm O.D. minimum, hot-dip galvanized continuous pipe section and shall pass through the line post tops and form a continuous brace from end to end of each run of fence. Couplings shall be made of the sleeve type in which provision is made for expansion and contraction of the top rail.
- (f) Gates
 - (1) All gates shall be 1067 wide with fittings to match fence. Gates shall be constructed of 42mm O.D. full weight galvanized scale-free pipe, equipped with welded corners and bearing the fabric specified in this Section.
 - (2) Gates shall be provided with centre brace rail and diagonal bracing.
 - (3) Each gate shall be equipped with close-set galvanized malleable iron hinges permitting the gates to swing back against the brace. Each gate shall also be provided with a positive locking device complete with an attachment for a padlock.
 - (4) Gates will be installed at all locations of fence crossing a sidewalk as shown on the site plans.
 - (5) Coronach and Canora locations only are to incorporate vehicle gates at the rear of the yard. This is in addition to the man gate. Opening to have two 1.8 meter hinged gates.

SITWORK

EXCAVATION AND SITWORK

Section 02B

(g) Post Bases

- (1) Terminal posts shall be set in concrete a minimum depth of 1060mm. Line posts shall be set in concrete a minimum depth of 750mm. All post bases shall be set in concrete testing 20 MPA in 28 days. Place concrete in post holes then embed posts into concrete to depths indicated.
- (2) The fence and gates shall be erected as specified and so that the fence is plumb, taut, true to line and grade and complete in all detail. All fencing shall be erected with standard stretching equipment in accordance with the Manufacturer's standards.

BACKFILLING

Section 02C

1. General Requirements:

2. General:

- .1 Entire site to be graded to satisfaction of the Project Manager. Additional fill to be supplied as required; any excess excavation shall be removed from site and properly disposed.
- .2 Backfill all excavated areas in maximum 150mm deep lifts compacted to 95% standard proctor density before placing next lift.
- .3 Soak foundation and service trench backfill areas daily when water is connected to the residence to obtain maximum settlement prior to levelling and landscaping.
- .4 Do not backfill until basement floor and main floor are fully installed, including subfloor sheathing and all fastenings. Backfill uniformly and exercise caution when backfilling to avoid damage;

FOUNDATION & BASEMENT DRAINAGE SYSTEM

Section 02D

1. General Requirements:

2. General:

- .1 Place 65mm drainage passages @ 1200 O.C. as shown on drawings. Minimum four passages, one centrally on each wall.
- .2 Place 180mm depth x 300mm width 25mm river rock around perimeter of footing.

SITWORK

FOUNDATION & BASEMENT DRAINAGE SYSTEM

Section 02D

- .3 Grade interior subgrade excavation to drain to sump, located as indicated on drawings.
- .4 Place 200mm granular drainage layer compacted to 100% SPD over the prepared and graded subgrade. Granular material must be clean crushed stone or clean gravel that passes through a 40mm sieve, with not more than 10 % passing through a 5mm sieve. Place 6 mil polyethylene sheeting over the drainage layer.
- .5 Supply and install 500mm diameter perforated PVC “Big O” sump liner and cover, in location shown, at appropriate depth. Sump bottom to be cast-in-place concrete.
- .6 Supply and install a top quality stainless steel submersible sump pump complete with foot valve, piping, high level alarm, etc. with an exterior discharge line to concrete splash pad. Location of discharge to be determined on site in consultation with the Project Manager.
- .7 Completed drainage system installation to be inspected and approved by the Project Manager prior to backfilling

SERVICES

Section 02E

1. General Requirements:
2. General:
 - .1 The contractor shall ensure that all utilities and services to suit this location are supplied, connected, and functioning. All fees and costs relative to the utilities and services installation shall be the responsibility of the contractor. The costs and fees referred to shall include the installation of services and utilities on municipal property, as well as Federal owned property, as required. Water service line shall be 1” and sewer service line shall be 4”.
 - .2 The means of installation and entrance of utilities to be as approved by the Project Manager.

CONCRETE

GENERAL CLAUSES & TESTING

Section 03A

1. General Requirements:

- .1 Protect concrete from freezing for seven days.

2. General:

- .1 The owner may arrange and pay for inspection of testing of various stages of the work and materials.
- .2 Replace all products, materials, work, etc., identified as contrary to the plans and specifications, at no additional cost to the owner. Contractor to pay for re-testing or re- inspection.

MATERIALS

Section 03B

1. General Requirements:

REINFORCING & INSERTS

Section 03C

1. General Requirements:

- .1 Refer to related work described in Section 02D, FOUNDATION & BASEMENT DRAINAGE SYSTEM.

2. General:

- .1 Place two 15 M lengthwise in footings cross tied with 10 M at 1200mm o.c. Maintain 50mm clear cover from bottom of footing.
- .2 Place four 15 M bars at 250mm o.c. both ways in telepost pads. Maintain 75 mm clear cover from bottom of pad.
- .3 Place 15 M bars at 400mm o.c. both ways in shed and patio and entrance pads at mid depth.
- .4 All bends, corners etc. shall be shop bent. Field bending is not acceptable.

FORMS & MISCELLANEOUS

Section 03D

1. General Requirements:

2. General:

- .1 Footings to be minimum 203mm deep by 610mm wide. Telepost pads to be minimum 203mm deep x 760mm square. Shed pad to be approximately 2400 x 3000 x 100 mm thick.

CONCRETE

PROPORTIONING, MIXING, PLACING & CURING

Section 03E

1. General Requirements:
2. General:
 - .1 All concrete to conform to the following: cement type 50 (sulphate resistant), maximum aggregate size 20mm slump 75 +- 25, air content 5% +- 1%. Compressive strength: for footings 30 MPA; for floor and exterior 25 MPA.
 - .2 Place concrete for footings or slabs continuously in one operation to avoid cold joints.

FINISHING

Section 03F

1. General Requirements:
2. General:
 - .1 Float and trowel all floor slabs to provide smooth, hard, blemish free surface. Finish concrete slab as per manufacturers' specification with National Concrete Accessories "Clear" Cure and Seal.
 - .2 Floor slab in mechanical room shall have a slope of 20mm in 3 m to floor drains. If this slope is not evident, it shall be grounds to reject the entire slab.
3. Parging:
 - .1 Exposed portion of basement wall to be parged to line of damproofing and below finished grade.

CONCRETE

PRECAST CONCRETE

Section 03G

1. General Requirements:
2. Steps
 - .1 Supply and install concrete landing as detailed on drawings.
 - .2 Platform height of landing to be 50mm below bottom of threshold.
3. Sidewalk Slabs:
 - .1 Provide and install 600mm x 750mm x 50mm precast, wire-mesh reinforced concrete slabs on 50mm of sand from front and rear entrances to street. All slabs shall be laid to provide 750mm wide sidewalks.
4. Splash Pads:
 - .1 Provide and install 300mm x 600mm precast splash pad at each downspout.

METALS

METALS

Section 05A

1. General Requirements:
2. Flashings, Mouldings, Soffit, Fascia & Accessories:
 - .1 Apply .5mm thick precoloured flashings and mouldings to window and door heads, eaves and gable ends, and wherever required for a complete waterproof and windproof installation.
 - .2 Starter channels, filler, exterior corners, flashings and drip edge shall match siding colour where exposed to view.
 - .3 Apply prefinished perforated metal soffit to all roof overhangs.
 - .4 Apply prefinished metal fascia to all fascia surfaces.
3. Teleposts:
 - .1 Teleposts shall be adjustable steel type designed for supporting the superimposed load. Bearing plates to be steel 10mm x 180mm x 180mm. Shop prime.
4. Miscellaneous Metals:
 - .1 Miscellaneous anchor bolts, nuts, washers, hanger sleeves, brackets, anchoring devices, etc., not specified in the work of other sections, shall be as indicated. Where not indicated but required, they shall be of standard generally accepted in the trade for the use intended.
 - .2 Sizes and shapes of miscellaneous metal items shall be in accordance with the details shown on the drawings and this specification.
5. Colours:
 - .1 To be selected by the Project Manager.
6. Materials:
 - .1 Metals shall be free from defects impairing strength, durability or appearance, and be of best commercial quality for purposes specified.
 - .2 Jointing shall be continuous interlocking.

METALS

METALS

Section 05A

7. Application:

- .1 Lap and seal all joints adequately to prevent leakage and caulk with an approved elastomeric type caulking compound.
- .2 Fit and assemble work in shop, where possible, according to details required.
- .3 Joints shall be tight, welded conforming to applicable current CSA specification. Exposed welding shall be smooth and flush.
- .4 Set and erect work carefully, providing adequate reinforcing and anchorage.

8. Eavestrough & Drain Pipe:

- .1 5" Prefinished seamless "K" shape aluminum eavestrough to match fascia; fastened at each truss with 7" screws, complete with screws. Provide a minimum of four (4) 3" x 4" downpipes and install to suit site conditions. Generally, downspouts should be located at opposite end of unit to driveway and walks, unless site conditions do not permit. Seek Project Manager's approval of location before installing downpipes.

9. Roof Vents:

- .1 Provide ventilation for attic spaces by installing equally spaced square vents as per national Building Code (5 minimum per unit). Vents to be screened on interior and placed on the back of the house. Prefinished, colour to be selected.

10. Shutters:

- .1 Not required

11. Plumbing Flashings

- .1 Plumbing flashings shall be thermoplastic.

CARPENTRY

GENERAL

Section 06A

1. General Requirements:

2. General:

- .1 Structural members shall be of sufficient size and strength to distribute safely the imposed loads as specified.
- .2 Countersink and fill wherever nails and screws are used on trim, appearance lumber, interior wall paneling, gypsum wallboard, cabinetry, etc., except where panel edges might be concealed by battens.

3. Studding:

- .1 Sizes of studding shall conform to NBC, however, as a minimum standard, exterior walls shall be 38 X 140 at 400 o.c. and interior walls shall be 38 x 89 at 400 o.c. with plumbing/ventilation walls being 38 x 140 at 400mm o.c.

4. Quality Assurance:

- .1 Lumber shall bear the grading stamp of an agency certified by the Canadian Standards Administration Board.

5. Materials:

- .1 Dimension Lumber: to CSA 0141-1970 and species group 086-1970 as listed and to National Lumber Grades Authority Grading Rules 1970 - grade category as follows:
 - (a) Structural joists and load bearing members:
Douglas Fir or Hem-Fir No. 1 grade.
 - (b) Studding: Spruce, No. 1 grade.
 - (c) Appearance Lumber: Species Group A. Appearance grade.

CARPENTRY

GENERAL

Section 06A

5. Materials (con't)

- .2 Roof sheathing to be exterior grade spruce plywood 13mm thick. Supply and install H-clips to roof sheathing between all trusses.
- .3 Wall sheathing to be Oriented Strand Board 11mm thick.
- .4 Floor sheathing to be select grade Douglas Fir tongue and groove plywood 19mm thick with construction adhesive on every joist, with 8mm thick Sturdywood Underlayment or approved equal. Fasten with minimum 1 5/8" wood screws.
- .5 Trusses to be engineer approved of "high heel" design suitable for R50 insulation plus a minimum 1.5 inch air gap.
- .6 Door sill to be set in acoustical type caulking.
- .7 Subfloor glue: High solids, rubber contact type glue supplied in cartridges.
- .8 Nails, spikes and staples: to CSA Bill-1974, galvanized for exterior work, galvanized or stainless steel for preserved wood foundation, plain finish elsewhere. Staples shall be stainless steel with a minimum diameter or thickness of 1.6mm and a 9.5mm crown. Framing straps and anchors shall be galvanized.
- .9 Rough hardware: Bolts, nuts, washers, lag pins, screws, joist hangers, hot dipped galvanized.
- .10 Wood preservative: Copper naphthenate base, water repellent wood preservative.
- .11 All lumber and plywood for preserved wood foundation must be treated with preservative and identified as such by a certification mark stamped on the material, stating conformance with CSA Standard 080:15. Foundation wall studs, blocking and floor joists shall not be cut, notched or bored to accommodate electrical or mechanical utilities. Foundation studs may be cut to length and installed with their factory treated end down. Where it is necessary to treat field cuts, holes or injuries, a copper naphthenate preservative solution containing a minimum of 2% copper
- .12 Trusses shall be secured to wall with 18 gauge galvanized steel hurricane ties. Acceptable product is "Simpson Strong-Tie H1" or equal. To be installed as per manufacturers recommendation and NBC.
- .13 Metal and prepared with a solvent conforming to CSA Standard CAN/CSA-080.201 must be used.

CARPENTRY

GENERAL

Section 06A

6. Shelving:

- .1 All shelves shall be 19mm plywood G1S. Mount on 19 X 64 wood wall cleats.
- .2 Coat spaces and clothes closets - One shelf 350mm wide. Install chrome finish pressed steel valet rod to each shelf.
- .3 Linen and pantry shelves at 500, 875, 1250, 1625mm from floor.
- .4 Install hardwood nosing, 19mm to all shelves less than 1000mm wide and 40mm to shelves greater than 1000mm wide.

7. Counter & Cupboards:

- .1 Kitchen Cabinets & Bathroom Vanities:
 - (a) Shall be constructed of 20mm maple faced plywood, except that unit fronts, doors and drawer fronts shall be of 20mm solid maple. Doors and drawer fronts shall be shaker style, solid maple framed, c/w shaped edges, with solid maple panel inset.
 - (b) Finish shall be natural stain and lacquer.
 - (c) All drawers and shelves to be of plywood construction. Drawers to have continuous metal tracks and roller system on each side of drawer. Connection joints shall be dove tailed.
 - (d) Counter tops will be prefinished, molded and coordinated to match cupboards subject to Project Manager's approval.
 - (e) Fit doors with spring loaded hinges.
 - (f) Hardware to be Amerock #BP52997G10 Allison Value Hardware, Satin Nickel or equal.
 - (g) Cupboards will include accommodation for dishwasher.
 - (h) Submit shop drawings to Project Manager for approval.
 - (i) In the case of pre-manufactured units, acceptable products will be: Merillatt "Classic" Portrait, Kitchen Kraft "Marquis" or Decora "Rivington".

CARPENTRY

GENERAL

Section 06A

8. Interior Stairs:

- .1 Plank stringers cut of 38mm x 253mm Fir, closed risers. Treads to be 38 x 285 ripped to provide a 38 x 255 tread complete with 19 plywood riser. Stringers should be painted, treads and risers shall be covered with laminate flooring.
- .2 Provide “floating” (min. 25mm space) stud wall 38mm X 89mm on both sides of stairs and drywall both sides of walls.
- .3 Provide one handrail c/w three mounting brackets.

9. Attic Access:

- .1 Access door shall be 20mm G.1.S. plywood, painted, insulated with minimum 100mm thick, styrofoam rigid insulation, resting on 13mm thick rubber weatherstrip secured to wood stop, and held down by two surface mounted camlock fasteners. Attic access shall be located in a hallway linen closet.

10. Interior Wall Finishes:

- .1 All interior walls shall be finished with gypsum wallboard specified in section 09. ULC S102 minimum flame spread 150. Washrooms to have moisture resistant type gypsum wallboard.

11. Eaves Projection:

- .1 Eaves shall overhang 550mm minimum.

12. Framing:

- .1 All materials and work shall conform to the relevant portion of CMHC Standards and 9.23 NBC, or any other relevant standard or code, as it may apply, including amendments in effect at the time of tender closing.
- .2 On exterior walls, caulk between faces of all double studs, plates, lintels, etc., and between bottom plate and subfloor and studs at intersecting corner locations.
- .3 Additional framing is required to totally enclose acrylic modular tub and shower units as installed to give units a finished, built in appearance. Width of rough openings for tub shall be determined by model of tub and shower installed. Location of framing in these areas shall take into consideration abutment of drywall to tub and shower to provide quality finished product.

CARPENTRY

GENERAL

Section 06A

- .4 Basement wall framing shall be "floating" construction (min. 25mm space), to allow for floor movement at bottom. Bottom Plate to be pressure treated.
13. Storage Shed:
- .1 Construct wooden storage shed approximately 2400 x 3000 on concrete pad. Gable roof design, 38 x 89mm framing members at 600 o.c. 10mm exterior grade plywood sheathing. Inside head clearance to be 2420mm. Gable ends to have weather proof louvered plastic vent, screened on inside. Roof shall extend a minimum of 100mm past wall at eave and gable ends and be finished with metal soffits and fascia. Exterior siding shall be same as house. Shingles shall be 210#, 25 year warranty. Door to be outswing, residential standard, metal in prehung frame c/w brickmould and sill, weatherstripped, 1 1/2 pair butt hinges, heavy duty check chain, and lockset keyed alike to residence.
14. Exterior Cladding:
- .1 Air barrier - as specified in section 07A.4.
 - .2 Siding – HardiePlank lap siding, 180mm exposure, horizontal siding, or approved equal. Colour - “Cobble Stone”
 - .3 Application: Siding to be applied to vertical surfaces in accordance with the manufacturer's recommendations.
15. Casings and Baseboards
- .1 All window casings, door casings and baseboards (Alexandria moulding style 356) to be 57mm to match doors.

THERMAL AND MOISTURE PROTECTION

INSULATION - VAPOUR BARRIER & SHEATHING PAPER

Section 07A

1. General Requirements:

2. Insulation:

- .1 Insulation shall be installed to achieve minimum acceptable thermal resistance values of:
 - (a) Ceiling insulation (See note on drawing) - R50
 - (b) Wall insulation - R20
 - (c) Exterior Rigid Insulation - R7.5
 - (d) Perimeter Basement Walls (Concrete Foundations) – 2” Rigid / R12 Batt Insulation: R22. Where concrete foundation walls are formed on the outside.
 - (e) Perimeter Basement P.W.F. Walls – R24. Where 2x8 PWF foundation is used.
- .2 Insulation acceptable to provide thermal qualities required by design criteria:
 - (a) Preformed, friction fit, mineral fibre batt to CAN/ULC S702, Type 1.
 - (b) Rigid insulation of expanded polystyrene.
- .3 All materials and work shall conform to the relevant portion of the NBC, CMHC Standards, or any other relevant standards or code as it may apply, including amendments in effect at time of Tender Closing.
- .4 Place insulation stops at every rafter space.
- .5 Completely fill all window and door jamb spaces to with low expansion spray foam.
- .6 Fill all rim joist areas with R40 thickness of mineral fibre insulation and a poly vapor barrier on the warm side.

3. Vapour Barriers:

- .1 All materials and work shall conform to the relevant portion of the NBC, CMHC Standards, or any other relevant standards or code as it may apply, including amendments in effect at time of Tender Closing.
- .2 Thickness of the vapour barrier will be 6 mil.

THERMAL AND MOISTURE PROTECTION

INSULATION - VAPOUR BARRIER & SHEATHING PAPER

Section 07A

- .3 Seal vapour barrier at all door and window openings with acoustical sealant/
tuck tape.
 - .4 Extend vapour barrier over all interior partitions. Seal all joints with acoustic
sealant.
 - .5 Ensure vapour barrier is continuous behind all exterior wall or ceiling electrical
boxes and seal where penetrated by wires
 - .4 Press vapour barrier firmly into continuous bead of acoustical sealant along top and
bottom wall plates.
 - .5 Insulation and vapour barrier to be inspected before covering. Vapour barrier to be
sealed at any penetrations.
 - .6 Basement wall vapour barrier to extend from floor and up face of stud wall to
underside of floor sheathing.
 - .7 Ensure vapour barrier covers insulation and is sealed between every floor joist.
3. Sheathing Paper
- .1 Air barrier shall be Dupont "Tyvek" or equal housewrap, installed in accordance
with manufacturer's instruction.

THERMAL AND MOISTURE PROTECTION

ASPHALT SHINGLES

Section 07B

1. General Requirements:
2. Materials:
 - .1 Asphalt shingles shall meet or exceed CSA A123.1 (12 kg/m²) and asphalt-saturated roofing felt shall conform at least to CSA 123.3 (27.2 kg). Shingles shall have 25 year guarantee.
 - .2 All materials and work shall conform to the relevant portion of the NBC, CMHC Standards, or any other relevant standard or code as it may apply, including amendments in effect at time of Tender Closing.
 - .3 Tab all shingles immediately after installation with plastic asphalt cement to CGSB 37- GP-5M "Fibergum" or equal.
 - .4 Install 1200 wide self-adhering eave protection at the lower edge of roof to 300mm inside the exterior wall vertically and roofing underlayment "DuPont RoofLiner" or equal over the balance of the roof surface.
 - .5 Install drip edge around entire perimeter of roof.

CAULKING & WEATHERSTRIPPING

Section 07C

1. General Requirements:
2. Materials:
 - .1 Caulking compound shall be Elastomeric, chemical-curing type, one component, gun grade to CGSB 19-9Ma.
 - (a) Colours: Exposed areas to match adjacent surfaces.
 - (b) Colours: Concealed areas - Black may be used.
 - .2 Bedding Material: Dry spun oakum or glass or mineral wool, or foam rod.
 - .3 Weatherstripping: Phospor bronze or zinc - tension type in full length pieces, or extruded vinyl or rubber.
 4. Sealant for PWF plywood edges and joints to be butyloid or one part urethane conforming to CGSB 19-GP-13 or 19-GP-14. Acceptable product is Masterseal NP-1 or Tremco Dimonic.

THERMAL AND MOISTURE PROTECTION

CAULKING & WEATHERSTRIPPING

Section 07C

3. Weatherstripping:

- .1 Install weather stripping as specified to all exterior door heads, jambs, and windows.
- .2 Fit all exterior door bottoms with an extruded aluminum channel incorporating an adjustable vinyl sweep.
- .3 All materials and work shall conform to the relevant portion of the NBC, CMHC Standard, or any other relevant standard or code as it may apply, including amendments in effect at time of Tender Closing.

EXTERIOR MOISTURE BARRIER

Section 07D

1. General Requirements:

- .1 Exterior moisture barrier is to be applied directly to all foundation types.
- .2 Uniformly apply primer in accordance with manufacturer's recommendations.
- .3 Apply self-adhesive waterproof bituminous membrane moisture barrier to all foundation types in accordance with manufacturer's/CSA recommendations. Terminate 150 above grade level by detail recommended by manufacturer.
3. Protect moisture barrier at corners by applying additional membrane layer 600mm each way and installing protective 300x 300 x full height plywood angle. Protective plywood should be held in place by backfill material only and should not be mechanically fastened.
4. Apply full height protection board as recommended by manufacturer.
5. Acceptable membrane product is Blueskin WP 200 c/w recommended primer and protection board

WINDOWS, DOORS AND GLAZING

WINDOWS, DOORS & GLAZING

Section 08A

1. General Requirements:
2. Window & Door Glazing:
 - .1 In conformity with the Canadian Code for Energy Conservation in New Buildings, each accommodation unit shall be equipped with:
 - (a) Triple glazed windows and screens.
 - (b) Double glazing on exterior door.
 - .2 All doors and windows shall conform to current NBC or CMHC requirements, whichever is more stringent.
3. Doors:
 - .1 To be manufactured to meet requirements as established by CSA Specifications 0132.2-1960.
 - .2 Exterior Doors:
 - (a) Entrance doors and storm doors shall be factory pre-hung, double hung units. Entrance doors shall be 45mm, insulated to RSI 2.1, embossed face. Storm doors shall be 35mm, insulated, embossed face, c/w double glazed and screened vertical slider. Doors to be fiberglass.
 - (b) Frames to be 25.4mm to 38.1mm stock material, rabbeted stops, treated with water repellent preservative as specified in CSA Specifications 0131.1. Dado frames together at heads. Doors lock stile edge slightly beveled.
 - (c) Sill shall be aluminum clad with vinyl thermal break; adjustable door sweep, triple sealed with compression bulb type seals.
 - (d) Weatherstripping shall be non-absorbent, vinyl-clad polyurethane foam on head and jambs.

WINDOWS, DOORS AND GLAZING

WINDOWS, DOORS & GLAZING

Section 08A

3. Doors: (con't)

.3 Interior Doors:

- (a) Pre-finished, Solid core, to Owner approval. Acceptable product is Premdor – Six Panel Textured door.
- (b) Frames to be 15.88mm thick, full width of partitions, with planted stops.

4. Guarantee:

- .1 Guarantee doors for three (3) years against warping.

5. Opening Windows (Triple Glazing):

- .1 Factory assembled, maintenance-free, prefinished rigid PVC windows, complete with glass, triple glazing, low E, Argon filled, operable hardware, weather stripping, fiberglass insect screens, and all required anchorages, attachments, and shims. Windows shall be of 15mm jamb dimension, with extension to the suit wall assembly (2x6 framing + 1.5" rigid insulation).
- .2 Windows may be of the following types or combination thereof, as approved by: Fixed Sealed Units, Full Awning, Full Casement. Acceptable product is "Equibuilt" or approved equal.
- .3 Each window, or group of windows to have minimum of one operable sash. Cam locks & fasteners to be vinyl coated steel. Each unit is to be provided with an additional three (3) operators and locking mechanisms, each.
- .4 Submit product name, specifications and sample for approval along with copy of manufacturer's 20 year guarantee.
- .5 Sheet glass: "B" quality, (24 oz) sheet glass thickness computed by united inches method with draw lines horizontal and to CGSB 12-GP-2M. 12mm airspace between glass. Supply swiggle spacer strip between glass.
- .6 All bedroom and basement windows are to meet legal egress requirements.

6. Hermetically Sealed Units:

- .1 Install approved factory assembled, fixed glazing units.

WINDOWS, DOORS AND GLAZING

WINDOWS, DOORS & GLAZING

Section 08A

6. Hermetically Sealed Units (con't)

- .2 Factory sealed, triple pane units shall be as accepted by CMHC and consist of three panes of 4.76mm sheet glass separated by an approximate 12.7mm wide hermetically sealed air space.
- .3 Guarantee hermetically sealed units for period of ten (10) years from date of building completion.

7. Wood Closet Doors:

- .1 Solid core wood swinging double doors to be used. Bi-fold doors are not allowed.

FINISHING HARDWARE

Section 08B

1. General Requirements:

2. Drapery :

- .1 Supply and install room darkening roller blinds on all windows. Blinds shall overlap the window trim. Acceptable product is Value Vinyl Blackout Roller Shades by SelectBlinds.ca.

3. Locksets:

- .1 Locksets and latchsets shall meet or exceed CGSB69-GP- 4M, bored, standard duty, wrought brass, to all doors. Bathrooms and master bedroom to have added privacy feature. All to have 57.2mm diameter screwless plain knobs and 63.5mm diameter roses and escutcheons. Exterior doors shall have a “Weiser” Grade 2 cylindrical passage hardware (ANSI 75) with a lever handle and a “Weiser” Grade 2 keyed auxiliary deadbolt locking system with a “Weiser” 5 pin keyway and a minimum 1” throw. Storm doors shall have keyed lockset only.
- .2 Front, rear and shed door locksets and auxiliary deadbolts to be keyed alike. Provide minimum of three keys.

4. Doorstops:

- .1 Provide flexible white rubber tipped stops for all doors opening against walls.

WINDOWS, DOORS AND GLAZING

FINISHING HARDWARE

Section 08B

5. Hardware Schedule:

- .1 Submit completed hardware schedule for all doors, windows, cabinets, closet doors, etc., for approval to Project Manager prior to ordering.
- .2 All hardware shall be commercial grade Weiser or approved equal.

6. Shed Locking Hardware

- .1 All sheds require a Grade 2 cylindrical passage (ANSI 75) sets to be installed. These shall be coupled with a quality heavy duty padlock hasp reinforced with blocking in the wall and bolted through (not screwed on with wood screws). Each shed to have a heavy duty padlock with "Weiser" keyway (or capable of accepting "Ilco" 15995 cylinders) as well so that it can be keyed alike with the house locks.

FINISHES

PAINTING

Section 09A

1. General Requirements:
2. General:
 - .1 Paint materials acceptable for use on interior work are to CGSB 1-GP series, generally with one coat of primer sealer undercoat, and two coats of alkyd egg shell/alkyd flat/varnish.
 - .2 All wall surfaces to be painted off white alkyd egg shell and all ceilings to be painted flat white alkyd throughout.
 - .3 Intent is to have maintenance free finishes as far as possible on the outside; however, where finish may be wood, ie. doors, paint finishes are to comply basically to procedures outlined in .1 above.

LAMINATED FLOORING

Section 09B

1. General Requirements:
2. General:
 - .1 Quality of flooring shall conform to NALFA certified brands standard.
 - .2 Living room, hallways, and bedrooms to be laminated flooring. Acceptable product is:
 - (a) Mannington "Natural Centerville Oak" # 65001M or equal.
 - .3 All accessories to be by the flooring manufacturer and installation shall conform to manufacturer's recommendations.

RESILIENT SHEET FLOORING

Section 09C

1. Material Requirements:
2. General:
 - .1 In kitchens, bathrooms, laundry rooms, entrances, and stairways, resilient sheet flooring shall be conforming to CSA S126.3 - Type 1, Grade 1, smooth pattern with inorganic backing, installed as recommended by the product manufacturer. Acceptable Product: Mannington "Aurora". Colour: Canyon Ridge # 41223; to be confirmed with the Project Manager before ordering.

FINISHES

GYPSUM WALLBOARD

Section 09D

1. General Requirements:
2. General:
 - .1 Gypsum wallboard shall conform to CSA A-82-27 and shall be installed with rust resistant screws. Sheets shall be 1200mm wide, plain, of maximum size lengths to minimize joints. Wallboard shall be 13mm on walls and 15mm on ceilings.
 - .2 Metal accessories: Minimum 25 gauge galvanized steel, perforated flanges, one single piece per corner/location.
3. Ceiling:
 - .1 All ceilings shall be standard gypsum board with smooth finish.
 - .2 Do not fasten within two feet of interior partitions to prevent "nail popping".
4. Basement:
 - .1 All basements walls shall have gypsum wallboard installed, finish taped and primed.
5. Erection:
 - .1 Install wallboard so as to stagger end joints and locate joints away from line of openings and in best location.
 - .2 Tape, fill, and sand joints, including those in basements, in accordance with manufacturers written instructions.
6. Guarantee:
 - .1 The entire wallboard installation shall be guaranteed for a period of one (1) year from final acceptance date of the building against "nail popping" and ridging. Evidence of same shall be remedied at no expense to the owner.

SPECIALTIES

WASHROOM ACCESSORIES

Section 10A

1. General Requirements:

2. Products, Locations:

.1 Supply and install the following items in each bathroom :

- (a) Two chrome plated towel bars 600mm long by 19mm square. One near tub, one near lavatory.
- (b) One chrome plated robe hooks, placed behind doors, 1800mm from floor.
- (c) One recessed wood medicine cabinets (350 X 450 X 90mm approx. size) at end of vanity. Cabinet door to be face framed and to match vanity doors. Install internal swing stop to avoid door/mirror contact.
- (d) One soap holder/grab bar integral in tub surround.
- (e) One chrome tumbler/toothbrush holders above vanities.
- (f) One recessed chrome toilet paper holders adjacent toilet.
- (g) Vanity mirrors, to Can 2-12, 5-M76, silvered type 2B, 5mm thick, glass 900 X 900mm. Supported with concealed fasteners.

3. Installation and Workmanship:

.1 Erect work plumb, true, level, and securely fastened in place.

MISCELLANEOUS

Section 10B

1. General Requirements:

2. Closet Rods:

.1 Steel, 25mm diameter with integral support flange at each end, chrome finish, telescoping. Provide centre supports for rods over 1200mm in length.

SPECIALTIES

MISCELLANEOUS

Section 10B

3. Fire Extinguishers:

- .1 Supply and install a 5 kg. dry chemical fire extinguishers, suitable for all types of fire, Model 4A- 40BC. Mount in each foyer and basement of all units.

4. Floor Drains

- .1 Floor drains shall be installed as referred to in Section 03F 2.3 and be complete with threaded cap below floor ring and perforated cover.

5. Backwater Valves

- .1 It shall be the responsibility of the contractor to protect the sump pit, stand pipes and floor drain with in-line backwater valves to prevent sewer backup.
- .2 The in-line backwater valves shall be accessible for maintenance and repair by use of a length of 300mm diameter PVC pipe, floor ring and blank cover.

MECHANICAL

GENERAL CLAUSES

Section 15A

1. General Requirements:
2. Codes & Requirements:
 - .1 All mechanical work shall conform to the requirements of these specifications, local authorities and the latest National Building Code provisions. Should conflicts arise, the installation shall satisfy the most stringent of the relevant regulations and/or codes.
2. Services:
 - .1 Services connection points for water and sewer shall be grouped at one location, preferably in the immediate area of the utility room (as applicable).
3. Motors:
 - .1 All motors shall be manufactured and installed according to CSA requirements and CEMA standards for a 40°C temperature rise. No motor shall operate in excess of 1800 RPM.

PLUMBING

Section 15B

1. General Requirements:
2. General:
 - .1 The manufacturer or contractor shall provide all labour, materials and equipment necessary to construct and install a complete, functioning, plumbing system in accordance with the Canadian Plumbing Code, for the accommodation unit selected.
 - .2 Hot and cold water lines shall be Pex. Entire cold water supply line to be insulated with 10mm thick preformed foam insulation, properly sized to fit pipe diameter. Acceptable product, Incolock 10mm foam pipe insulation or approved equal.
3. Approval of Fixtures:
 - .1 Fixtures, fittings and, pipes are to bear CSA approval.

MECHANICAL

PLUMBING

Section 15B

3. Approval of Fixtures: (con't)

.2 Fixtures Types:

- (a) Water Closet: White coloured vitreous china jet, whirlpool action, close coupled closet combination with regular bowl, vitreous china lined tank and flapper type flush valve. Acceptable products are Crane "Chateau" and American Standard "Cadet II". Seat to be matching Olsonite #30. Supply pipe to be chrome plated 10mm angle with stop and escutcheon.
- (b) Bath: White colour modular tub Empire KD 53 made by Mirolin complete with dome light DL2-white, heavy gauge curved CCR55 curtain rod, or approved equal. Tub to be fitted out with single lever washerless chrome plated brass faucet assembly with mechanical waste and shower diverter, Delta brand 1600 series or approved equal, 40mm waste and overflow. Trap to be 40mm copper or plastic with clean out. Concealed shower fittings c/w balljoint shower head, bent arm and escutcheon.
- (c) Shower: White colour modular showerstall Madison 3 SH33L/R made by Mirolin complete with dome light DL2-white, heavy gauge straight CR55 curtain rod, or approved equal. Shower to be fitted out with single lever washerless chrome plated supply assembly and concealed shower fittings c/w balljoint shower head, bent arm and escutcheon. Delta brand or approved equal.
- (d) Vanity Lavatory: 53 cm X 43 cm steel resisting, white coloured porcelain on steel, self-rimming counter top lavatory with supply openings on 10 cm centres, semi-oval basin with front overflow and cushion seal gasket, soap depressions and swivel clamps. To be fitted with 10 cm combination lavatory supply fittings with mechanical waste, 10 cm long spout with aerator, single lever washerless chrome plated brass faucet assembly. Delta or approved equal.
- (e) Kitchen Sink: Double compartment 79 cm X 52 cm X 18 cm Type 203, Steelqueen by Waltec, heavy gauge 18-8 grade stainless steel sink with back ledge and three hole drilling. All corners well back in the bowl. Baked on heavy undercoating. Positive water-proof seal and under-rim adhesive factory applied. Kitchen supply fitting with 19.7 cm long swing spout and aerator. Heavy chrome finish, single lever washerless construction. Delta or approved equal.
- (f) Hard water supply pantry faucet – not required

MECHANICAL

PLUMBING

Section 15B

- (g) Hose Bibb: Provide 13mm hot and cold chrome plated for the washer where shown.
 - (h) Hot and cold water supplies to each fixture or group of fixtures are to be fitted with two ball type isolating valves. Include inlet and outlet on hot water heater.
4. Exterior Hose Bibbs:
- .1 Two exterior hose bibbs with frost proof hydrant shall be provided, 254mm long, all brass, with wall flange. Install at front and rear yard elevations with interior shut off ball valves.
5. Laundry Tub:
- .1 Provide one PVC laundry tub per unit- 1 in the single family home and two in the duplexes. Install next to washer and dryer.
6. Hot Water Heater:
- .1 The hot water tank shall be heated by natural gas or Propane (as per locations dictated in the general requirements- page 3) and shall have a 144 litre capacity and a minimum recovery rate of 155 litres per hour at 50C. Unit shall be a high-efficiency unit. Acceptable product is Jetglas M-4-TW40T6FSX. Provide a minimum (10) year guarantee. Provide venting as per manufacturers specifications. Include all chimney extensions as required for water heater to be floor mounted and wall vented. Provide mesh vent cap protector over exterior exhaust vent.
 - .2 Upon completion of the installation, the contractor shall have the equipment installation **inspected by the equipment manufacturer's representative and submit a report to Owner** certifying that the entire installation is in accordance with the manufacturer's instructions
 - .3 Provide one (1) water heater per Single Family Home, two (2) per Duplex.
7. Washing Machine:
- .1 Washer to be provided by others. Contractor is responsible for installation of plumbing systems. To be ready for hook up.
8. Dishwasher:
- .1 Dishwasher to be provided by others. Contractor is responsible for installation of plumbing systems. To be ready for hook up.

MECHANICAL

PLUMBING

Section 15B

9. Stand Pipe:
 - .1 Not required.
8. Water Softener:
 - .1 Not required.

HEATING & VENTILATION

Section 15C

1. General Requirements:
2. Heating Unit:
 - .1 The manufacturer of the accommodation unit, shall provide all labour, material and equipment necessary to construct and install an approved package type, fully operative, ducted warm air heating and exhaust system. This system shall be fueled by Natural Gas or Propane (as per locations dictated in the general requirements- page 3). The System shall have sufficient capacity to maintain on a continuing basis, a minimum indoor temperature of 22.2°C at the outside winter design temperature as determined by the NBC for the site location. All duct connections shall be sealed by a mastic approved for the purpose. Balance the heating system when complete to ensure even heat throughout residence and provide a written report of the air flows. No branch ducts will be allowed out of the ends of the trunk ducts.
 - .2 All materials and equipment, including CSA/CGA/ULC approved furnace, automatic controls, air supply and return ductwork, prefinished metal supply registers, thermostats, return grilles, filters, shall meet the most stringent standards, and requirements of the NBC Provincial Regulations and local codes and by-laws.
 - .3
 - (a) The furnace shall be most energy efficient model commonly available. Acceptable product: Lennox model EL296UH070XE36B, (70,000 BTU with two stage heating).
 - (b) Venting shall be side wall vent, No concentric vent kits allowed.
 - (c) Installation shall include external filter rack in return plenum and top quality balancing dampers in supply air ducts.
 - (d) Install clear vinyl tubing from flue drain to standpipe. Install tubing as high as flue drain elevation will allow.

MECHANICAL

HEATING & VENTILATION

Section 15C

- (e) Upon completion of residence construction, the furnace and all ductwork shall be power-vacuumed by the contractor to ensure all debris has been removed.
- (f) Upon completion of the installation, the contractor shall have the equipment installation **inspected by the equipment manufacturer's representative and submit a report to Owner** certifying that the entire installation is in accordance with the manufacturer's instructions.
- (g) All duct joints shall be sealed with a sealing compound or a reflective tape designed for this purpose.
- (h) Provide an air balancing report to owner prior to project turnover (substantial completion).

3. Dryer Vent:

- .1 Provide and install weather hood c/w back draft damper on outside; rigid duct 4" aluminum ductwork and all necessary accessories for dryer hookup inside.

4. Air Exchanger:

- .1 Install air exchanger in location indicated on plan and as per manufacturer's specification.
- .2 Air supply and exhaust are to be balanced within five percent of each other. Provide written report of the actual air flows.
- .3 Install a 75mm x 250mm metal duct c/w 100 x 250 grille in the kitchen, 75 x 150 metal duct c/w a 100 x 250 grille in each bathroom. All ducts shall feed to a collector duct adequately sized and connected to the air exchanger. All grilles to be off white plastic.
- .4 Fresh air from the air exchanger shall be routed to the cold air return of the furnace using a 150mm round metal duct. That duct shall enter into the cold air return on the narrow side of the duct further than 10' back from the furnace.
- .5 Exhaust and intake air to the air exchanger from the exterior shall be ducted by 150mm pre-insulated flex duct. Exterior vents shall be located, as shown on the plan.

MECHANICAL

HEATING & VENTILATION

Section 15C

- .6 Install a separate timer switch in the kitchen, each bathroom and laundry area connected to the air exchanger to allow high speed exhaust operation. Switch to be installed adjacent to light switch and shall have a 20 minute “automatic off” timer. Furnace will be interlocked to run when ventilation system is on (any speed). Install a dehumistat control centrally on the main floor of the home.
- .7 Install 19mm clear vinyl tubing drain line from the condensate pan to the washer standpipe. Slope to drain.
- .8 Acceptable product is Life Breath 155 Max.
- .9 Provide balance collars in the supply and return air metal ducts adjacent to the unit.
- .10 Upon completion of the installation, the **contractor shall have the equipment installation inspected by the equipment manufacturer's representative and submit a report to Owner** certifying that the entire installation is in accordance with the manufacturer's instructions.

PROPANE TANKS

Section 15D

1. Supply and install a 500 Imperial Gallon propane tank for each living unit in locations requiring propane heat (Duplex=2 tanks).
2. Fully wrap each propane tank with an electric blanket specially made for the purpose.

ELECTRICAL

GENERAL CLAUSES

SECTION 16A

1. General Requirements:
2. Codes & Regulations:
 - .1 The manufacturer shall ensure that all material, equipment, components and workmanship, involved in the construction and installation of the complete operative electrical system required for the accommodation unit, conforms to and complies with the most stringent provisions of the Canadian Electrical Code and any applicable Provincial and Municipal rules, laws, and ordinances, as amended and revised to the date of Tender Closing.
3. Supply Capacity:
 - .1 Each unit shall be supplied by a separately metered electrical service at 100 amp 20/240 volt.
 - .2 Supply and install “Generlink” portable generator connection at each meter.

MATERIALS & INSTALLATION

Section 16B

1. General Requirements:
2. Wire & Cable:
 - .1 All wire and cable shall be copper of standard AWG sizes. Aluminum conductors shall not be used.
3. Equipment:
 - .1 All equipment shall be CSA approved and shall carry the CSA label of CSA Test Lab. Listing.
4. Door Chimes:
 - .1 An electric door chime, complete with low voltage transformer, is to be installed in foyer or hallway with push buttons at front and rear entrances.
5. Receptacles:
 - .1 Exterior duplex receptacles, 20 amp GFCI type, on dedicated circuits with weatherproof covers installed located one at each corner of the building (front and back) and 1 regular 20 amp Waterproof receptacle post mounted at the end of each driveway.

ELECTRICAL

MATERIALS & INSTALLATION

Section 16B

- .2 One 20 amp dedicated circuit GFCI outlet shall be provided in each bathroom.
- .3 Provision shall be made in utility room for receptacle on separate circuits (120/240 volts - 30 amps) to service clothes dryer. Washer on a 15 amp 120 volt separate circuit.
- .4 For stove and dryer provide Type S cable matching CEMA receptacle and plug for stove and dryer. Size cable for its circuit breaker. Locate so appliances are free to fit against wall.
- .5 Provide and install duplex receptacles as required by the Canadian Electrical and other applicable Codes. The following is given as a minimum:

	<u>Duplex</u>	<u>Single Family</u>
Living Room	(5)	(4)
Dining Room	(2)	(2)
Kitchen	(10)	(7)
(6 on separate circuits over counter, wire as split feed receptacles, plus microwave, fridge, dishwasher)		
Bedroom Master	(5)	(4)
Bedroom Other (in each)	(4)	(3)
Hallway	(1)	(2)
Rear Exterior	(2) GFI	(1) GFI
Front Exterior	(2) GFI	(1) GFI
Bath	(1) GFI in each	(1) GFI in each
Utility area	(4)	(4)
(one on a separate circuit for a freezer)		

ELECTRICAL

MATERIALS & INSTALLATION

SECTION 16B

6. Lighting:

- .1 Lighting fixtures, complete with energy efficient light bulbs, shall be "Russell" fixtures unless noted. Provide maximum sized energy efficient bulbs for each fixture, plus one spare bulb per fixture.

Kitchen	321-713/BCH	Bath	750-704
Sink	Pot light (white trim)	Master Bedroom	Ceiling Fan
Dining Room	Ceiling Fan	Bedroom (#2)	Ceiling Fan
Front Entry	341-716	Bedroom (#3)	341-716
Rear Entry	341-716	Front Exterior	799-601/BLK
Hall	341-716	Rear Exterior	799-601/BLK
Stairwell	341-716	Bath Tub	LEDS345 "Contrast lighting"***
Bath	750-704 BCH	Shower	LEDS345 "Contrast lighting"***
Living Room	Pot lights (white trim)		
Laundry/Mech.	4 ft., two tube T8 fluorescent, c/w acrylic lenses (warm white bulbs)		

Note ** - Unless supplied by the tub & shower manufacturer

2. Ceiling Fans/ lights
Dining Room, "Kendal" AC6852SN /LK4-CL Light kit - SG9042WH
Bedrooms "Kendal" AC6842SN/LK7006SN

7. Smoke / Carbon Monoxide Detectors:

- .1 Install two (2) interconnected 120 volt smoke/carbon monoxide detectors – one on each level. Wire all detectors (smoke and carbon monoxide) within each living unit together for simultaneous alarm.

8. Air Exchanger:

- .1 Provide all necessary circuitry and hookup for complete and functional operation of air exchanger.

9. Range Hood:

- .1 Install a CSA approved fumehood for the kitchen range, complete with charcoal filter, aluminum-mesh filter and light. Colour - white. Acceptable product is Nutone WS230WWC or Broan QS230WWN.

ELECTRICAL

MATERIALS & INSTALLATION

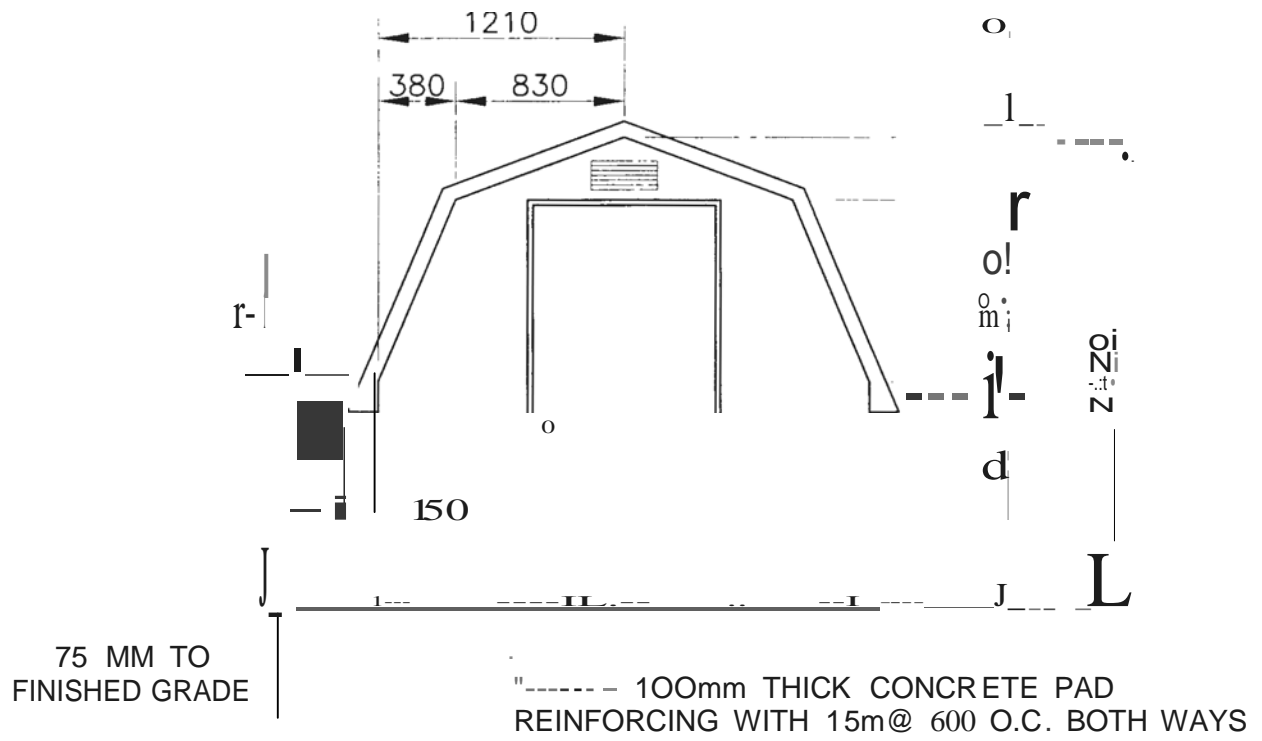
SECTION 16B

12. Switching

- .1 No switches are to be placed inside closets.

10. Satellite Hookup

- .1 T.V. and data cabling (Cat 6 and RG 6 Coax cables) to be provided in each Bedroom and in the Living Room. All to be centrally wired to one location in the Basement near the phone/cable service entrance.
- .2 Satellite location to be determined- allowance for double hub wiring (South facing roof/wall area to basement central wiring point) to be made in every unit and shall be included in the contract.



STORAGE SHED - Not to scale