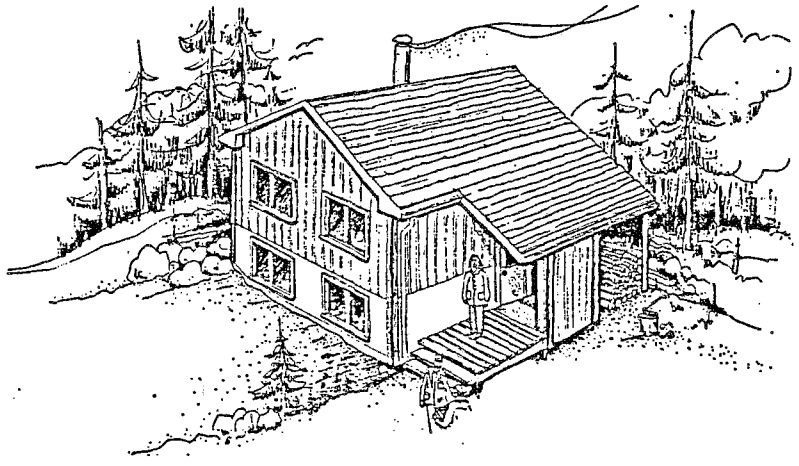

SHELTER HOUSE

A

RURAL AND NATIVE DEMONSTRATION HOUSE DESIGN

FOR THE

Canada Mortgage and Housing Corporation
Société canadienne d'hypothèques et de logement

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RURAL AND NATIVE DEMONSTRATION PROGRAM

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SHELTER HOUSE

A RURAL AND NATIVE DEMONSTRATION HOUSE DESIGN

INTRODUCTION

This Rural and Native Demonstration House Design is prepared for the use of the future homeowner who wishes to construct his own house. The basic idea of this house design is to keep it compact and simple, and therefore economical and yet provide comfort and energy efficiency. The high levels of insulation and triple glazed windows keep the heat in. This particular design has several features which make the house well suited for heating with a wood stove.

The design has 4 bedrooms upstairs with an open living-dining-kitchen area on the lower level surrounding the woodstove which heats the house and could be used for cooking. This open, multiple use of space increases livability and the house "feels" much larger than its 24'x26' dimensions. The total living space is 1248 square feet (116 m^2) with 624 square feet (58 m^2) per floor. The bathroom is located right next to the kitchen. This reduces the amount of plumbing, but more importantly it keeps all the water lines within this small bathroom area, which can be heated with a small baseboard heater whenever the occupants are away. When planning to leave the house unoccupied , the family can place all freezables such as houseplants inside the washroom area, turn on the heater and close the door thereby protecting the water lines and anything inside this room from freezing during their absence.

The open space allows the heat to be distributed to all areas without a fan. The open stairway and grilles with dampers cut in the floor of each bedroom allow the warm air to rise up into these upper rooms. The main entryway passes beside a service area which includes a woodbox and a workbench for meat cleaning or possibly repairs to equipment and enters directly into the edge of the kitchen area. This arrangement keeps the cold air from blowing directly into the living area.

If the house were to be heated by an oil or electric furnace, it might be better to locate the bathroom more centrally and provide an enclosed furnace room. An optional plan showing this arrangement is presented on page 27.

The split level entry with the living area on the lower floor allows the ground floor to sit slightly recessed into the ground and eliminates piers or basement foundations. By putting exterior insulation out from the footings, the possibility of frost heaving is minimized. Also the excavated earth is bermed up against the north and west sides for better insulation and frost protection.

The main large windows are all on one side of the house so that this side can face south and therefore pick up significant solar heating. There are no windows on the north side and only small windows east and west. It is important for the homeowner to chose a site so that the "south window" side of the house can face south.

The house is sealed with a polyethylene vapour barrier, which is made airtight by caulking, folding and stapling all the joints and around the windows and doors.In summer, the windows (with screens) can be opened for fresh air, but in the winter, when the stove is running, fresh air is brought in by using a fan. The fresh air intake duct is surrounded by the exhaust duct which partially warms up the fresh cold incoming air. Whenever the house is stuffy, instead of opening a window, the fan brings in fresh air. This can be done manually by a regular switch or by a dehumidistat. Some of this fresh air is ducted to the woodstove to provide combustion air.

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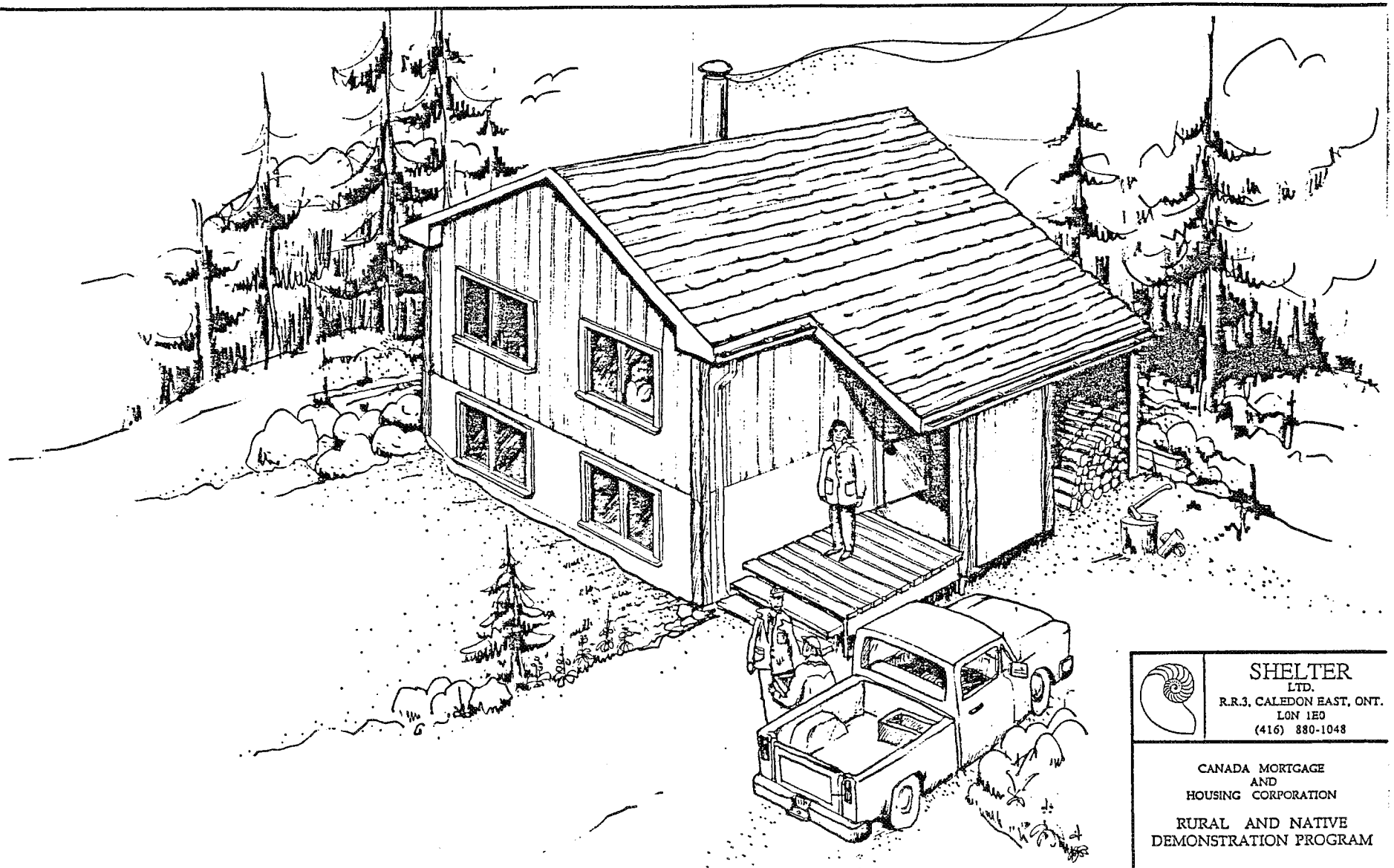

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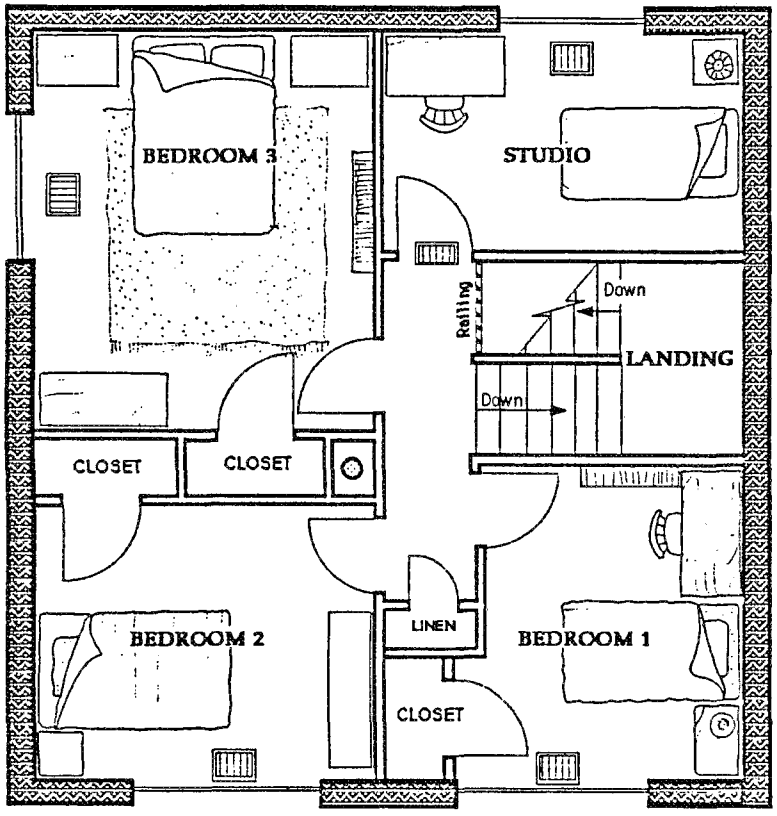
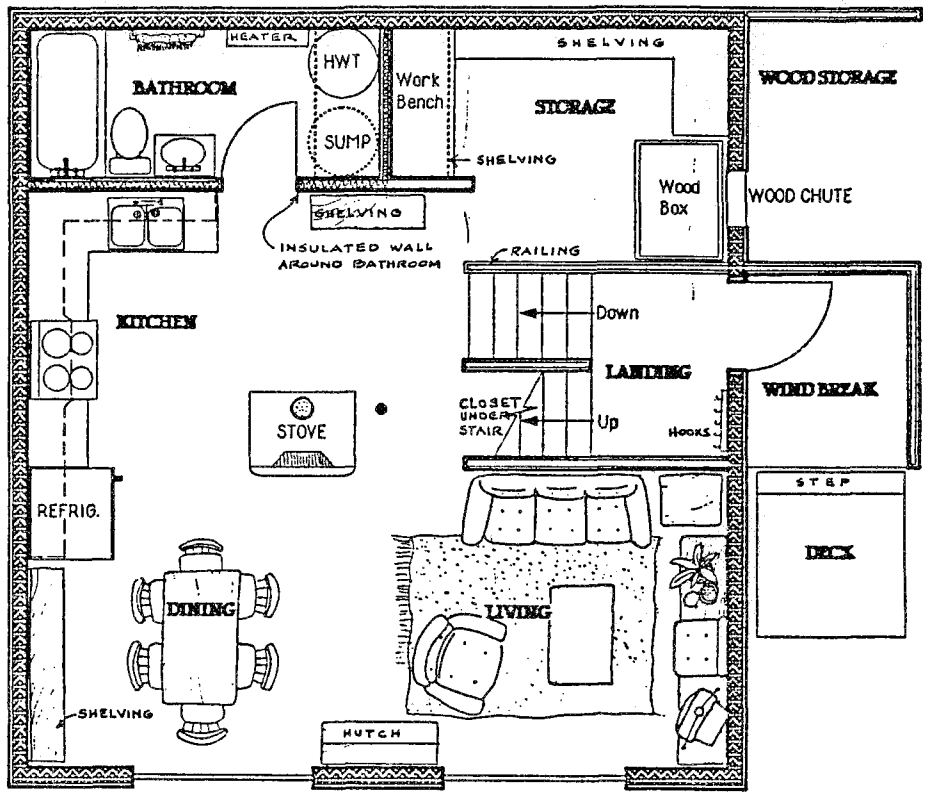
PICTURE OF
THE HOUSE

3



UPPER FLOOR PLAN



LOWER FLOOR PLAN

SCALE 1/4" = 1'-0"

If the woodstove is not the primary heat source and a forced air distribution system is used, then a furnace room can be provided as shown on the optional plan presented on page 27.

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DEMONSTRATION PROGRAM

INTERIOR
DESIGN

SITE SELECTION

THINK SUN!

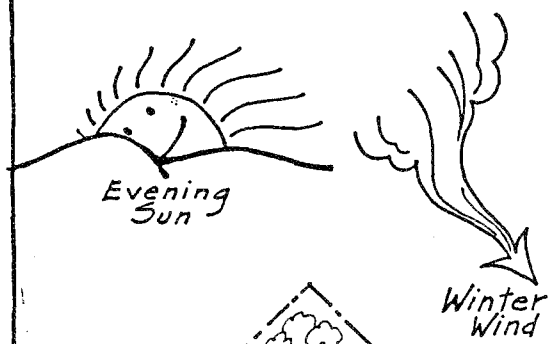
The choice of lot and then the proper siting of the house on the lot is very important since the best use of solar gain, natural windbreaks and servicing can lower the cost and increase the comfort of the house.

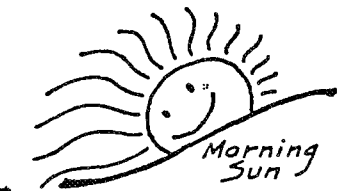
1: Solar Gain: In most areas of mid-Canada, up to half of the heating can be provided by the sun. This is known as "passive solar heating". In monitoring examples of south facing houses done by Shelter Ltd., it has been interesting to note that on cold, sunny days the furnace would not come on as long as the sun was shining. On the other hand, during much warmer but cloudy days the furnace ran all through the day.
Another factor is that the south light will brighten up the house and make it feel lighter and less cramped and more comfortable. Therefore it is important to face the window side of this house towards the south, or at least as close as practical. Actually, up to 20° east of south is even better since this collects more early morning sun when it is often less cloudy and the occupants (who may be leaving for work) are still at home. This also means the low west sun is cut off during the summer, which will keep the house cooler in the evening.
Shelter House is designed so that most of the windows can face south, with no windows on the north. So, try to choose a lot so that the house can face with its "window side" to the south. This can be done no matter which way the lot faces as can be seen in the drawings below, although, the best lots are on the north, west or east side of the road.

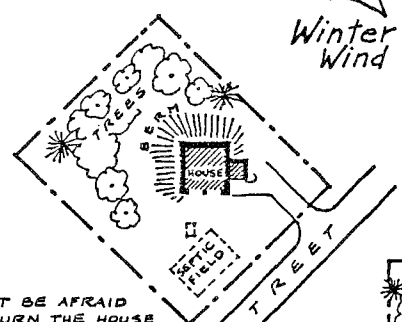
2: Windbreak: Another benefit of this southerly orientation is for protection against the winds. Usually the cold winter winds come from the northwest or west. Therefore it is good to put the back of the house into the wind.
If the lot is tree covered, it is best if the trees are to the north and west side of the house to form a windbreak to provide protection from the wind.

3: Servicing: If a septic tank and tile field are being installed, if possible, place them on the south side of the house so that any trees which must be cut are from the south of the house while trees to the north and west are protected.

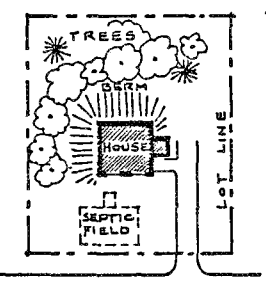
Other considerations for choice of lot include the view, driveway access, drainage and the suitability of the soil. A dry lot with the water table at least below excavation level is desirable.

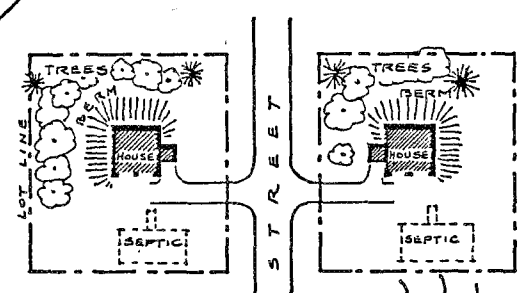




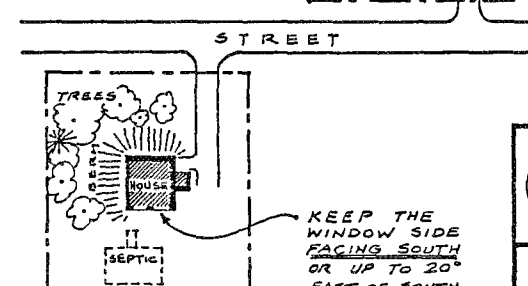


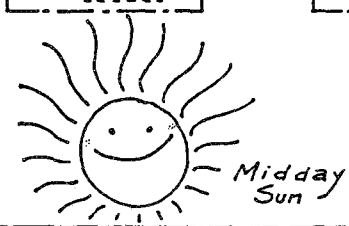
- DON'T BE AFRAID TO TURN THE HOUSE ON THE LOT.
- THIS ORIENTATION LOOKS QUITE ATTRACTIVE — PARTICULARLY IF SEVERAL HOUSES ON THE STREET ARE TURNED THE SAME WAY!





SOUTH SIDE OF LOT





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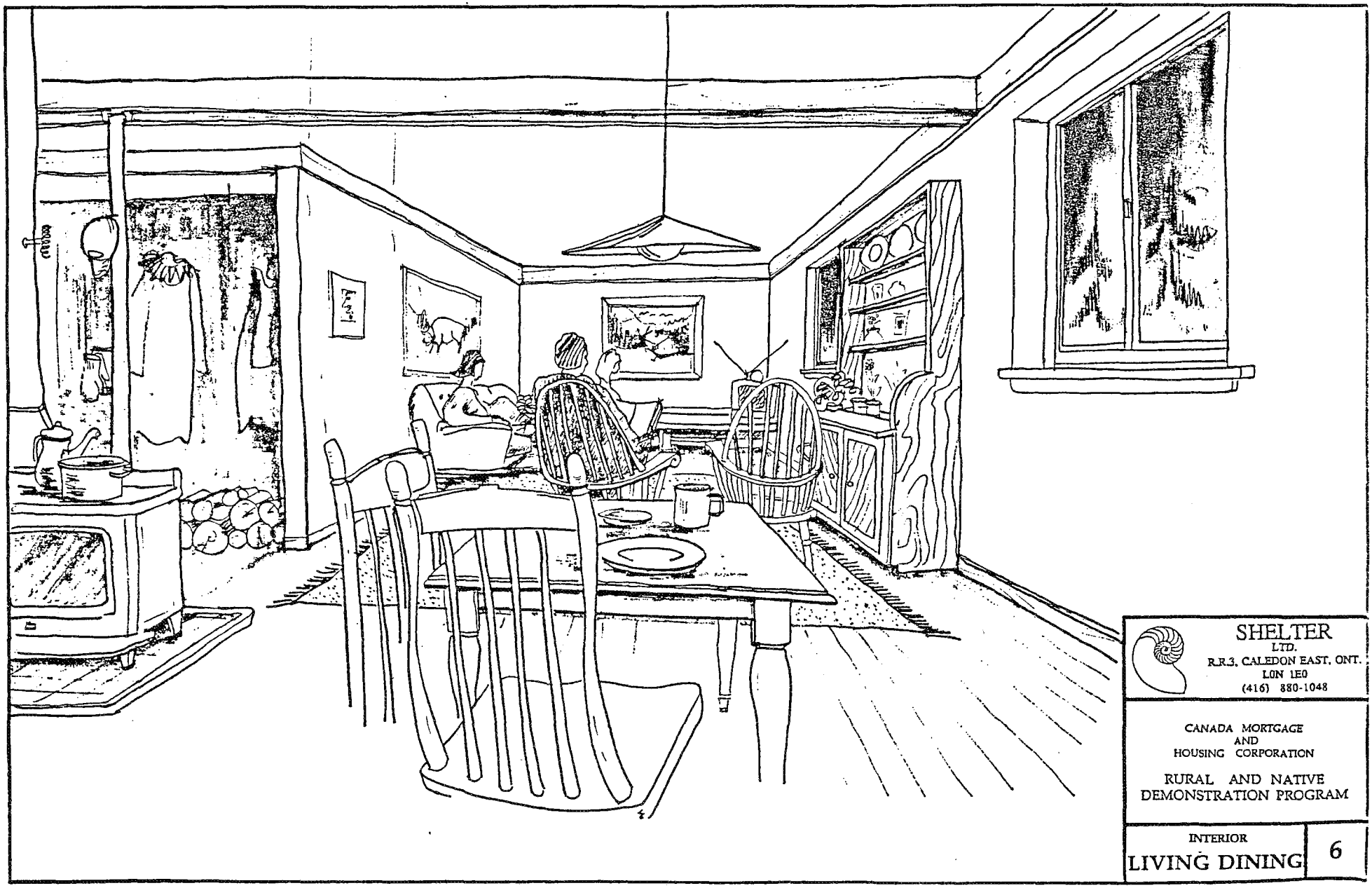
SITE SELECTION | 5



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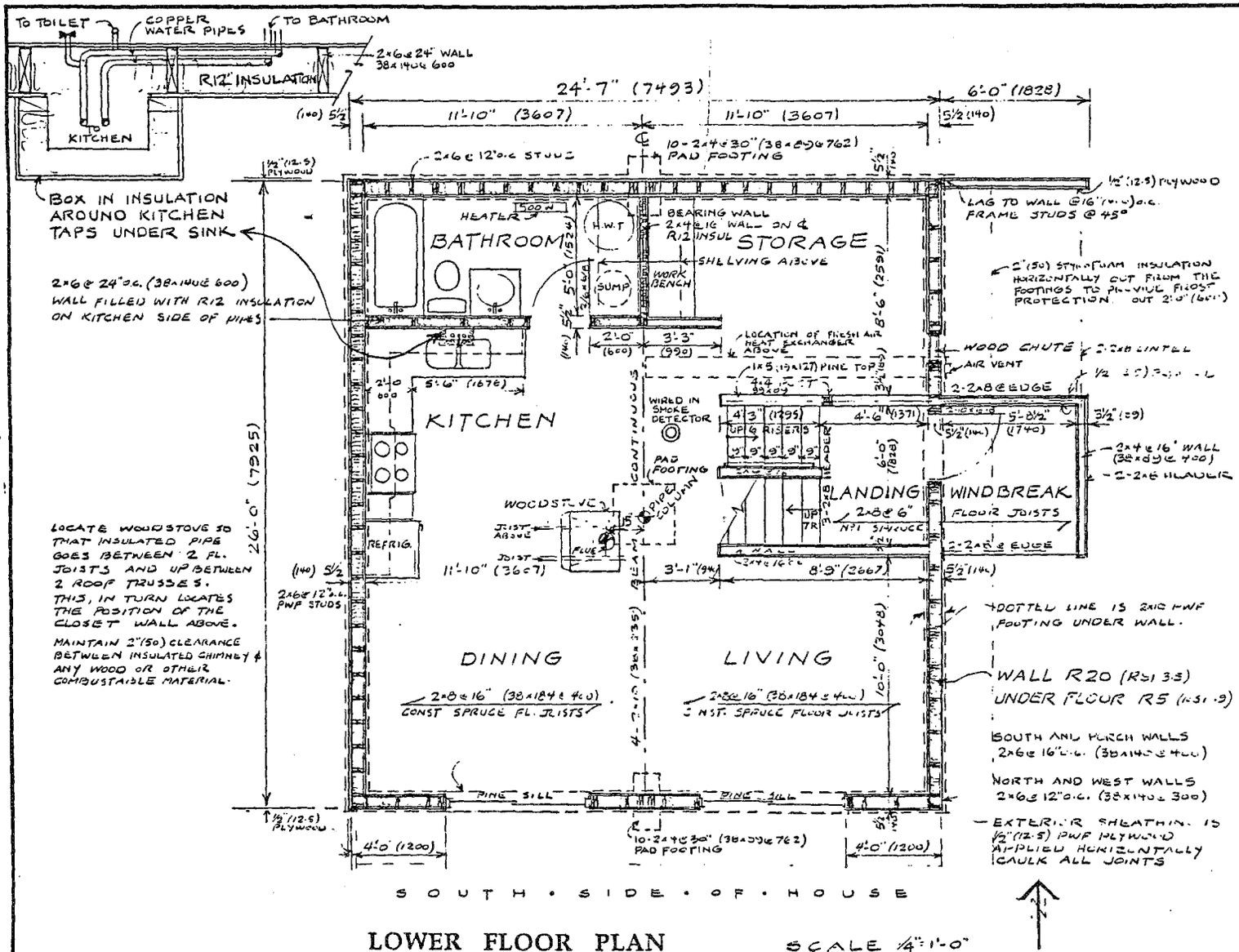
INTERIOR

LIVING DINING

6



LOWER FLOOR PLAN

SCALE ¼" : 1'-0"

NOTES

1: All dimensions are to rough framing and do not include siding or interior panelling.

2: Preservative treatment for pressure treated wood (PWF) in lower level to conform to C.S.A. 080-15-1974 and part 4 of N.B.C. 1980.

3: All PWF cuts to be treated on site with 2 coatings of end-cut solution- Copper Napthalate to meet C.S.A. 080-201-M.

4: Nails below grade to be stainless steel ASI Type 304 or 316. Above grade to be hot dipped galvanized.

5: Do not backfill until upper floor and lower floor are both in place.

6: Care must be taken when backfilling to avoid large rocks or other debris so that 10 mil polyethylene sheet is not torn.
If large stones are unavoidable, cover polyethylene with tentest before backfilling .

Drawings are dimensioned in feet and inches, followed by (metric in brackets).

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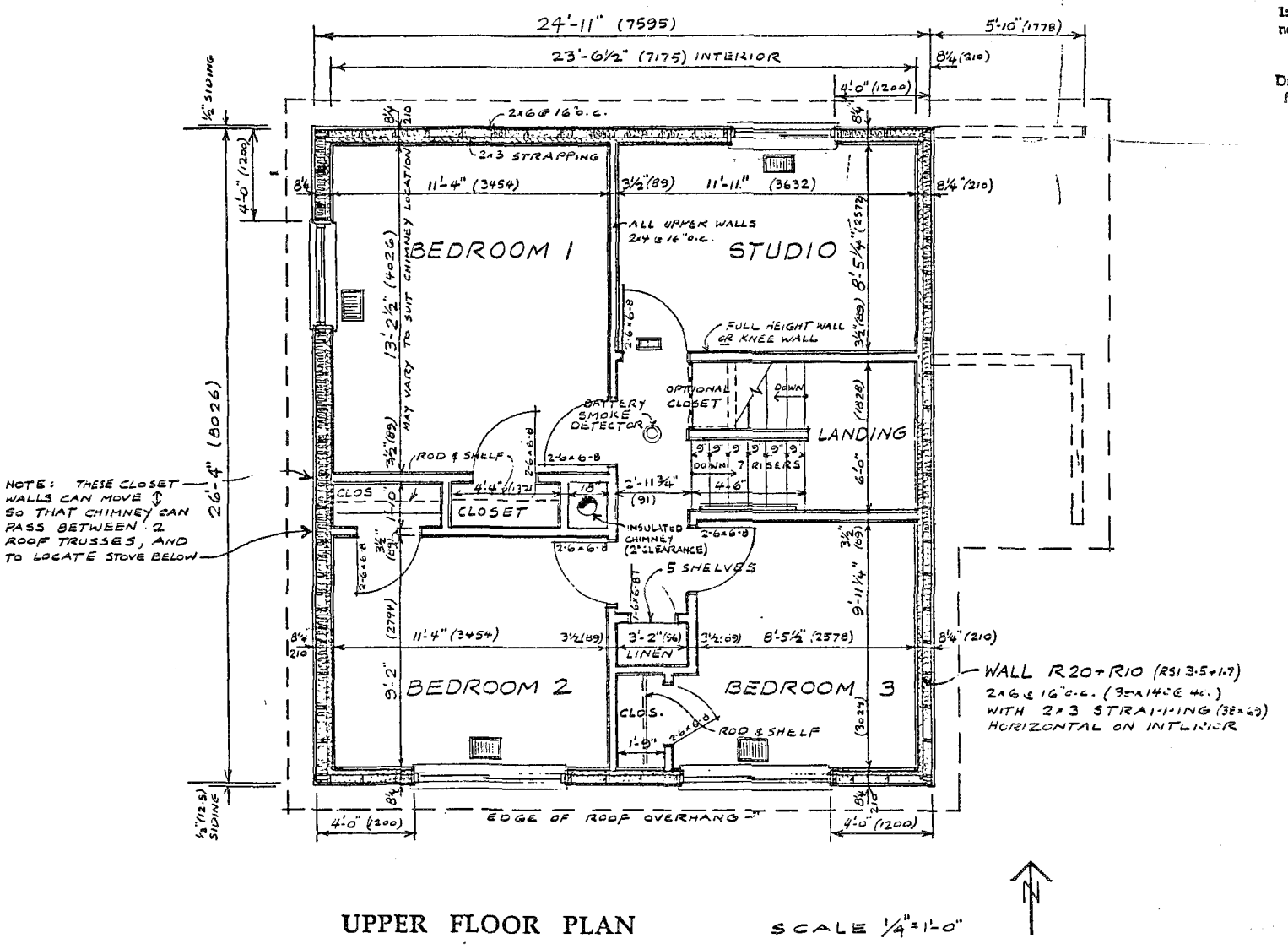
LOWER FLOOR PLAN 7



UPPER FLOOR PLAN

SCALE ¼"=1'-0"

NOTES

1: All dimensions are to rough framing and do not include siding or interior panelling.

Drawings are dimensioned in feet and inches, followed by (metric in brackets).

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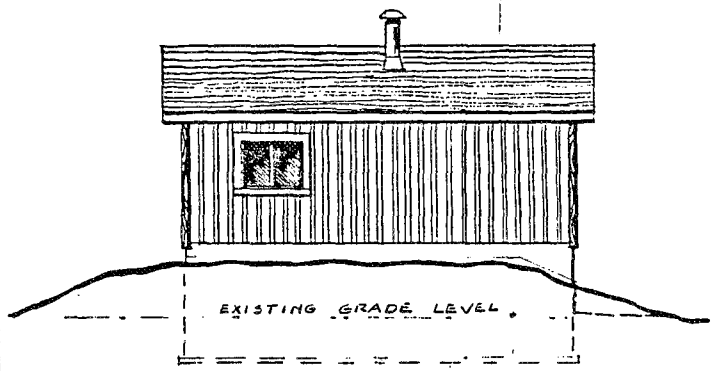
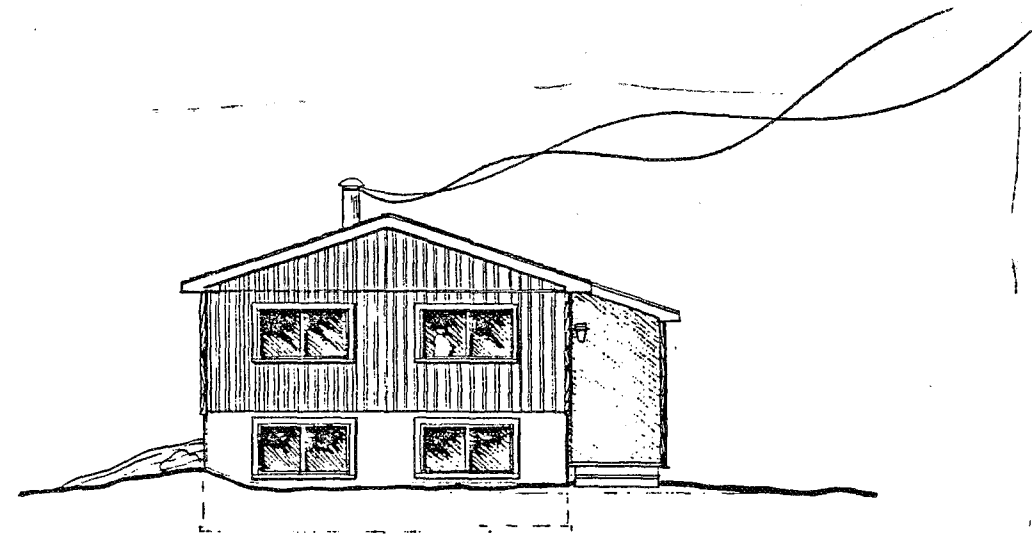
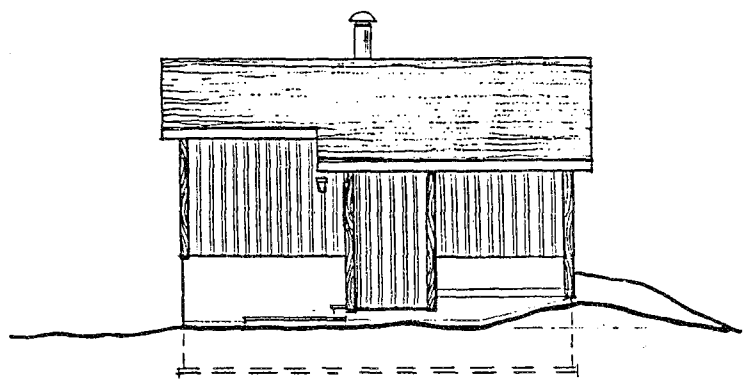
UPPER FLOOR PLAN | 8



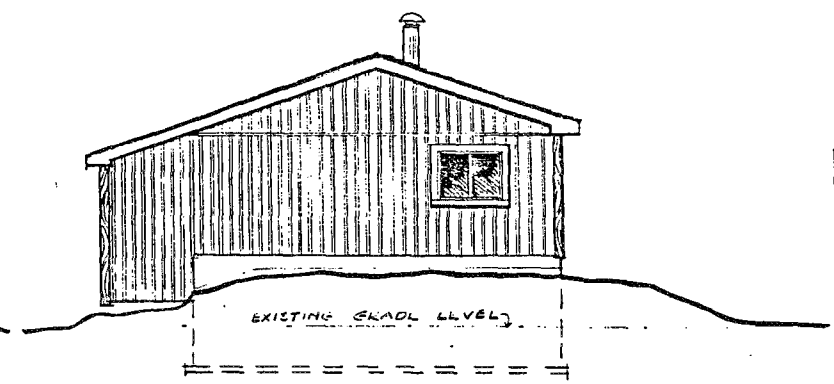
WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION



NORTH ELEVATION

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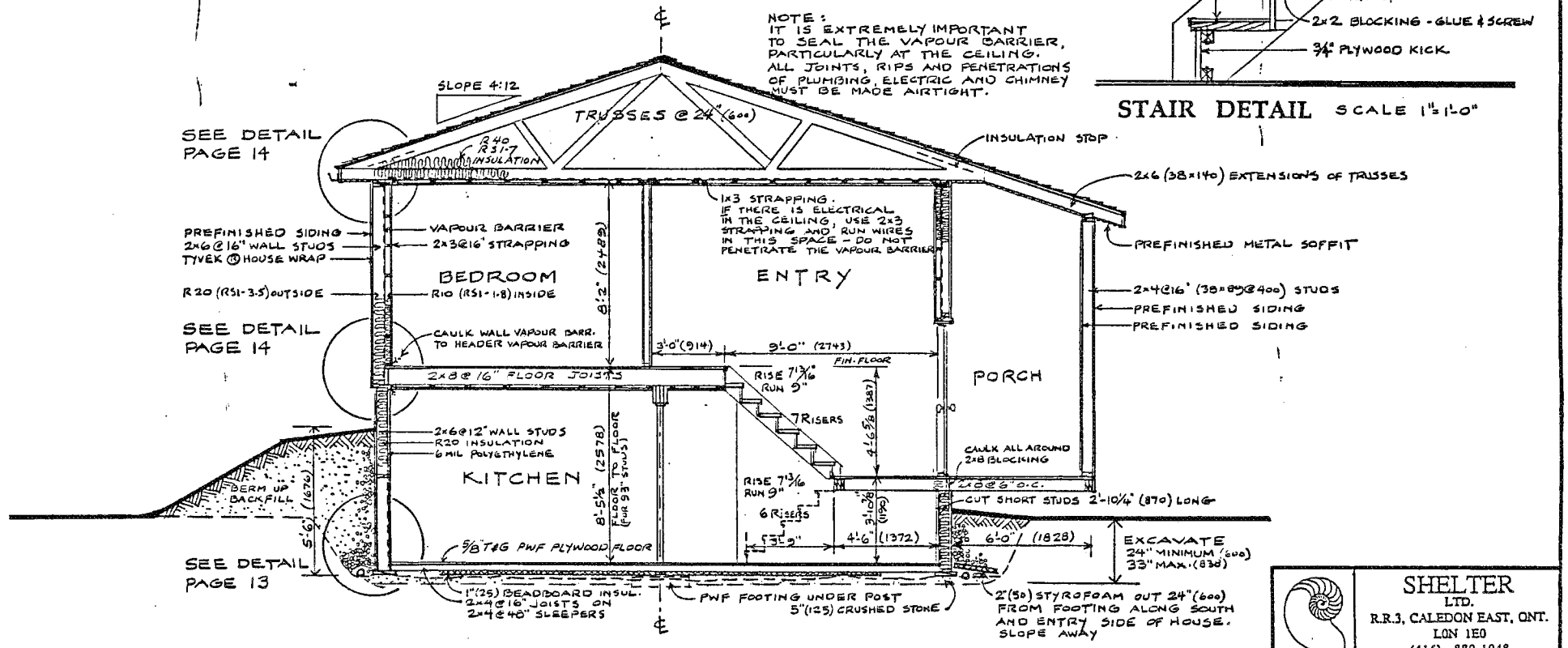
ELEVATIONS | 9



STAIR DETAIL SCALE 1" = 1'-0"

CROSS SECTION

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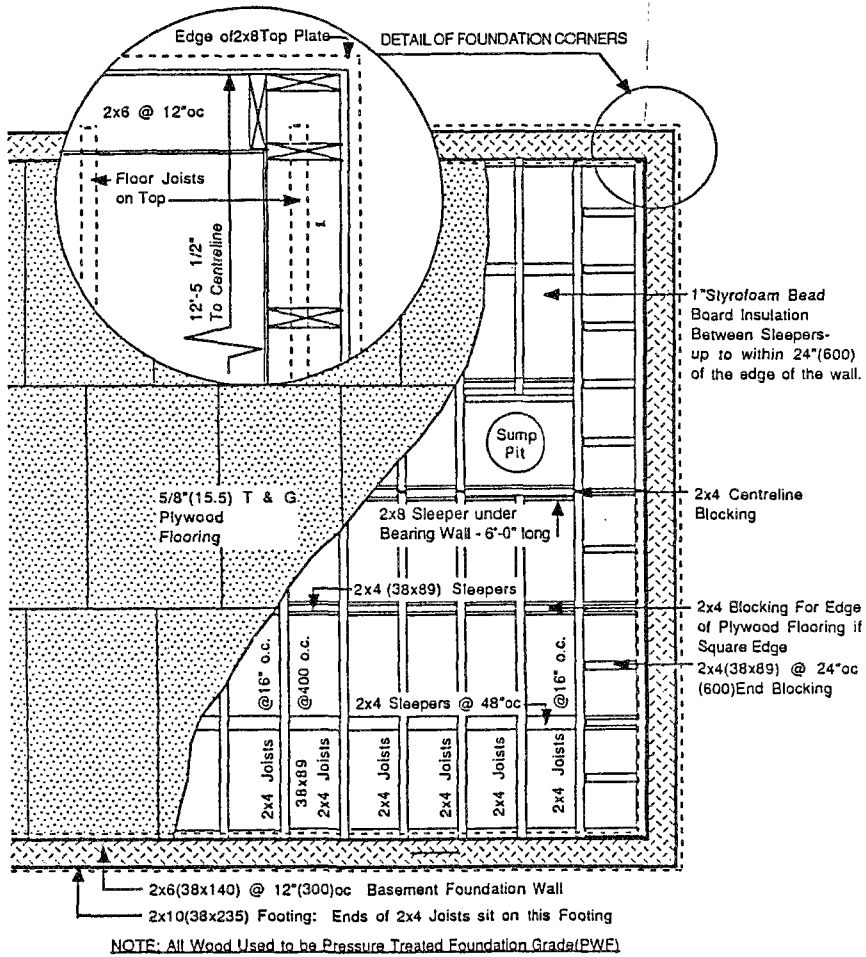
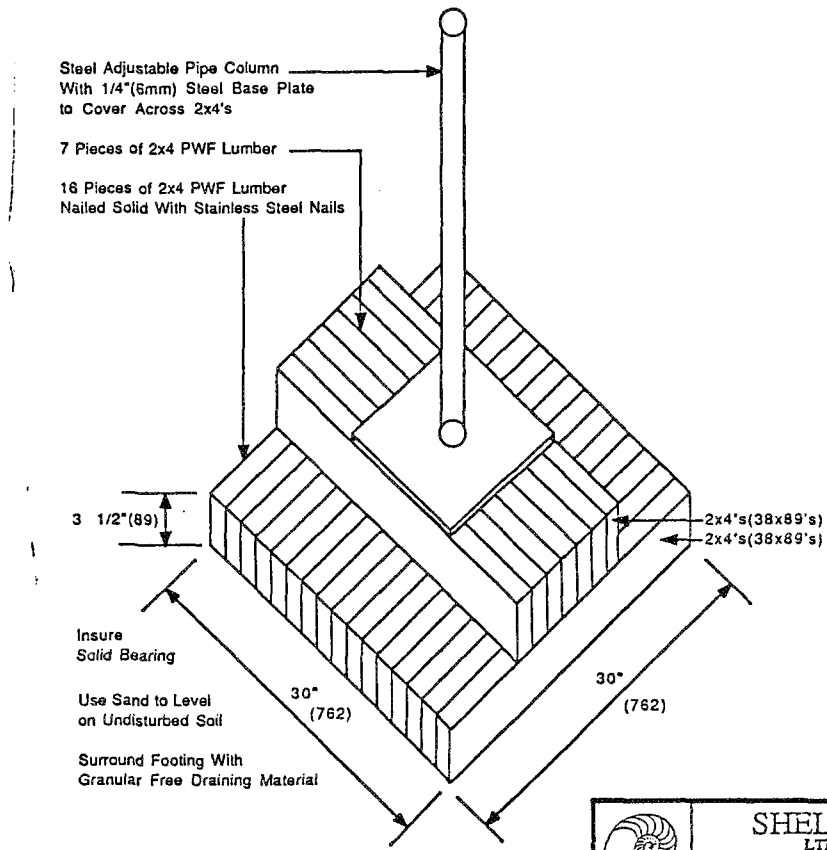
CROSS SECTION 10



NOTE: All Wood Used to be Pressure Treated Foundation Grade(PWF)

LOWER LEVEL FLOOR STRUCTURE

SCALE 1/4"=1'-0"



PAD FOOTING AT BASEMENT COLUMN

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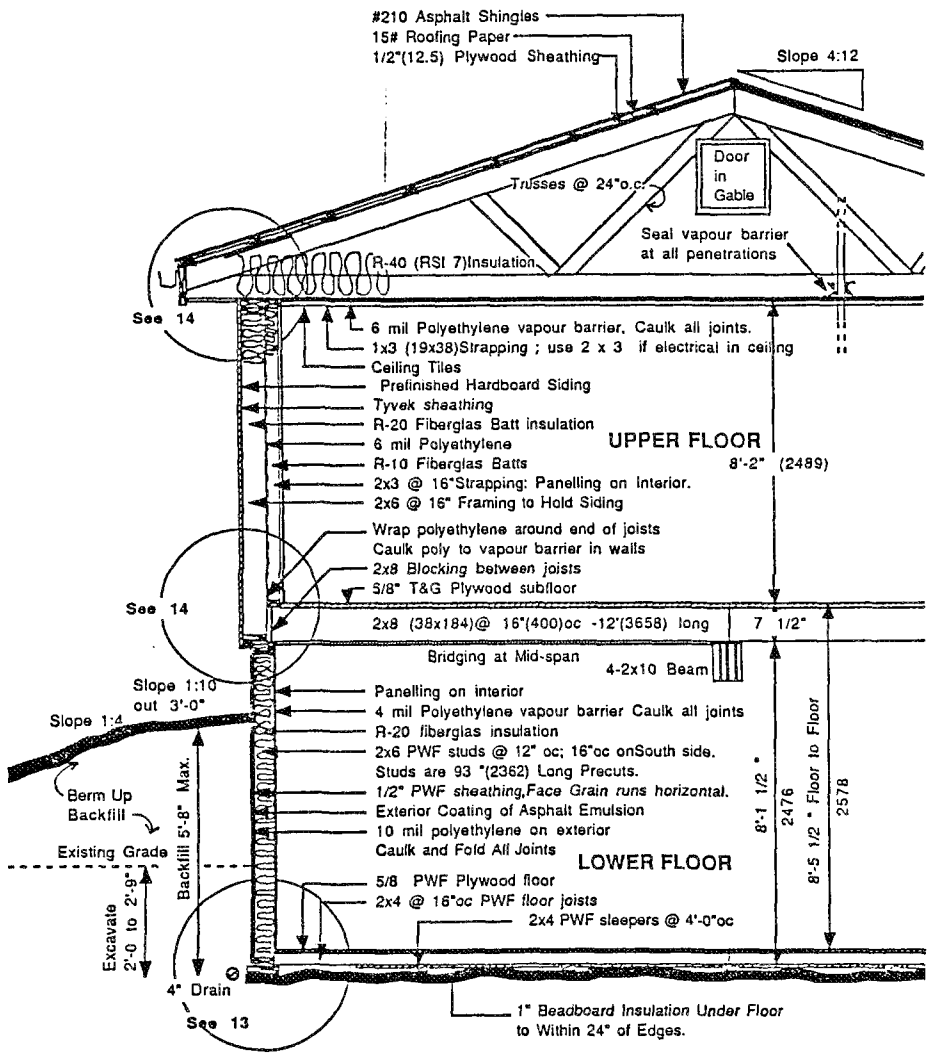
LOWER FLOOR | 11



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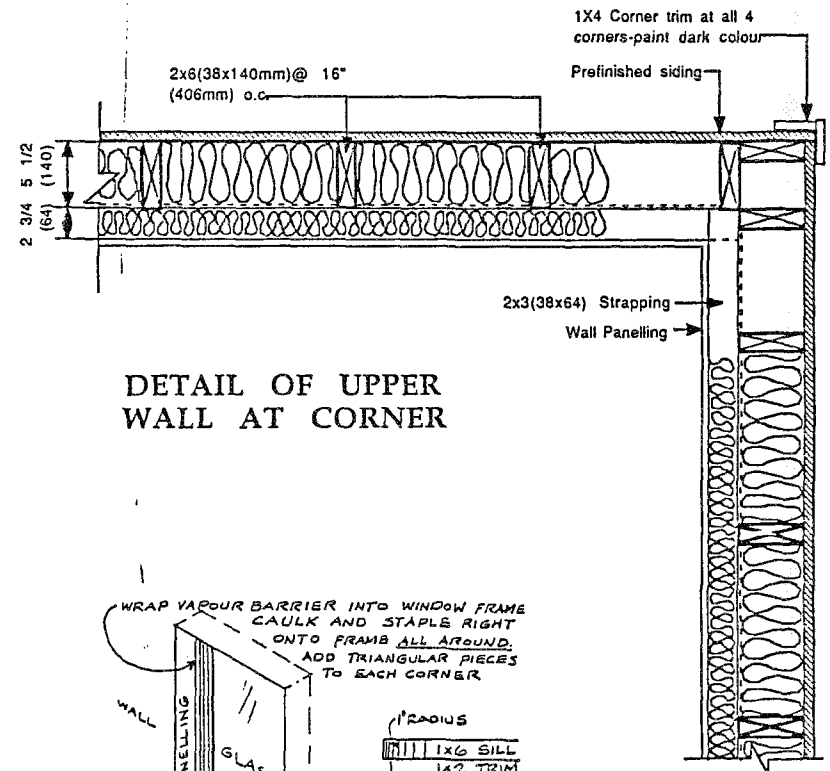
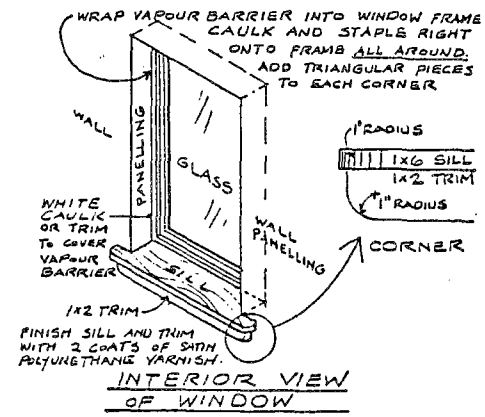


DETAIL OF UPPER WALL AT CORNER



INTERIOR VIEW OF WINDOW

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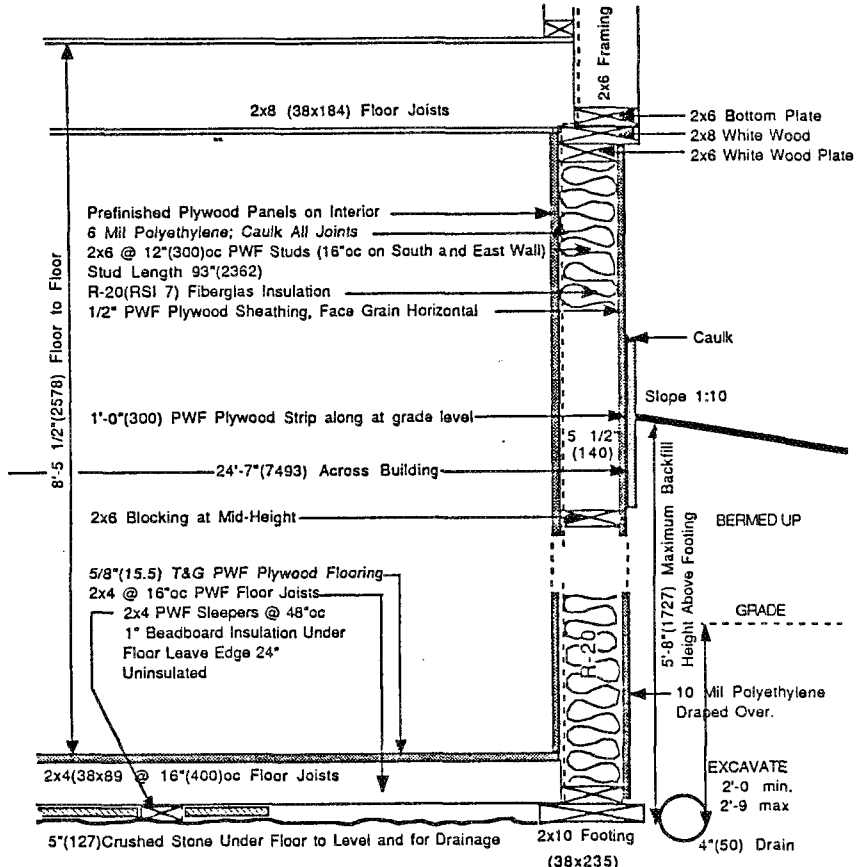
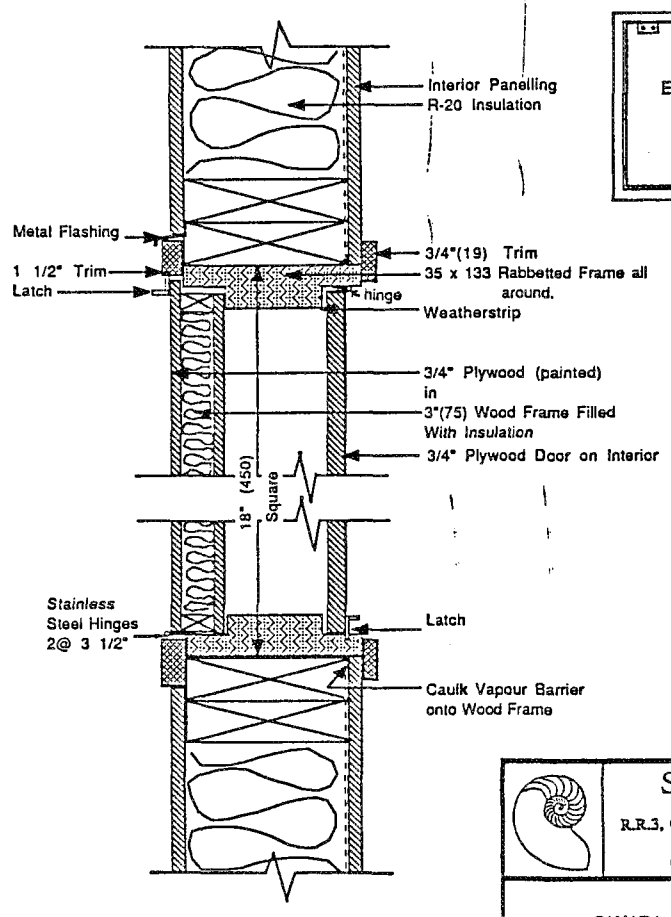
RURAL AND NATIVE DEMONSTRATION PROGRAM

WALL DETAILS 12

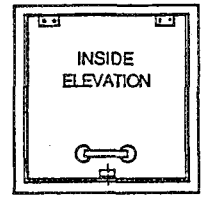


WALL SECTION AT LOWER LEVEL



WOOD CHUTE DETAIL

SCALE 3"=1'-0"



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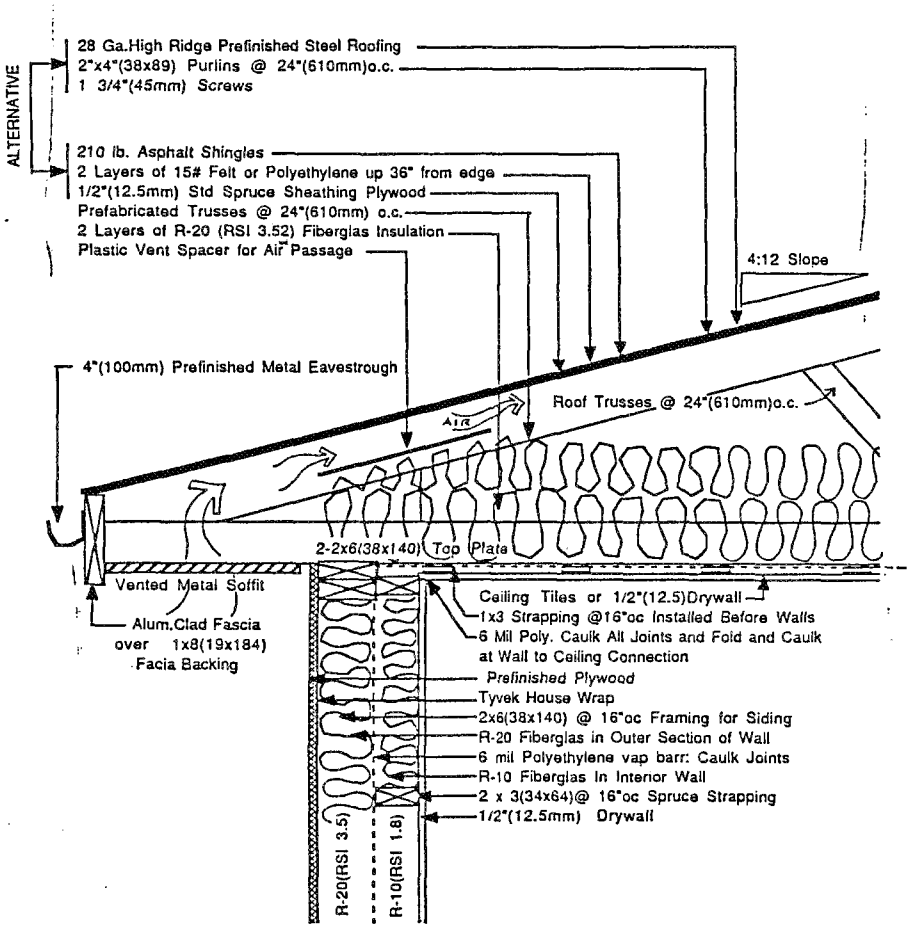
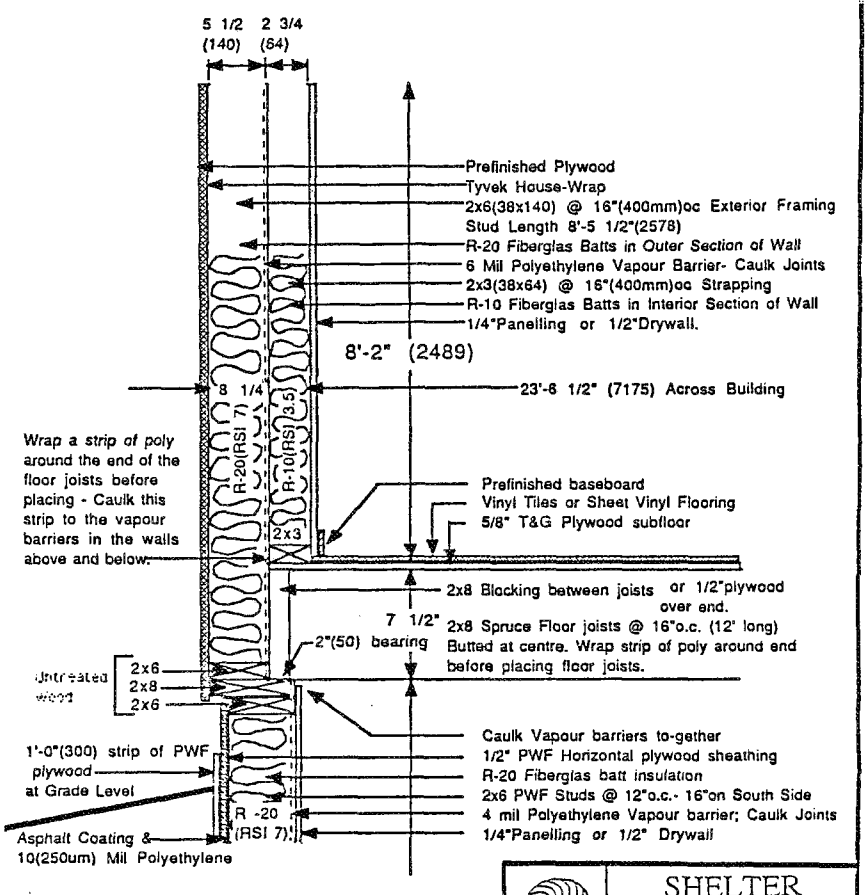
DETAILS LOWER WALLS

13



SIDE WALL SECTION AT ROOF



SIDE WALL SECTION AT FLOOR

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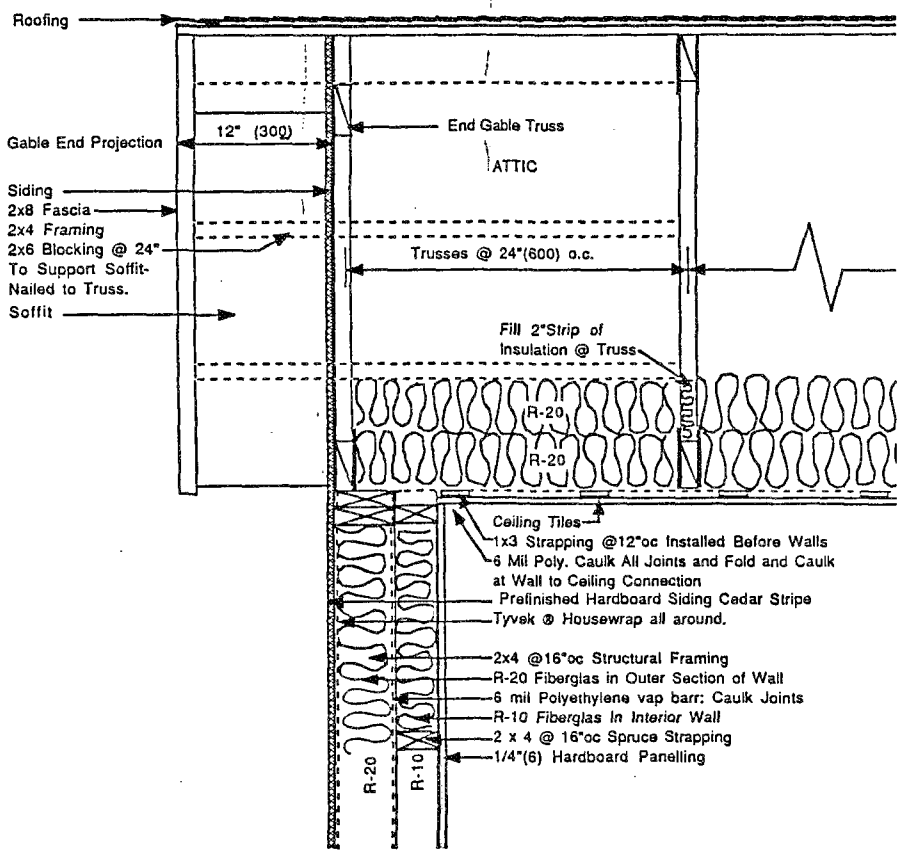
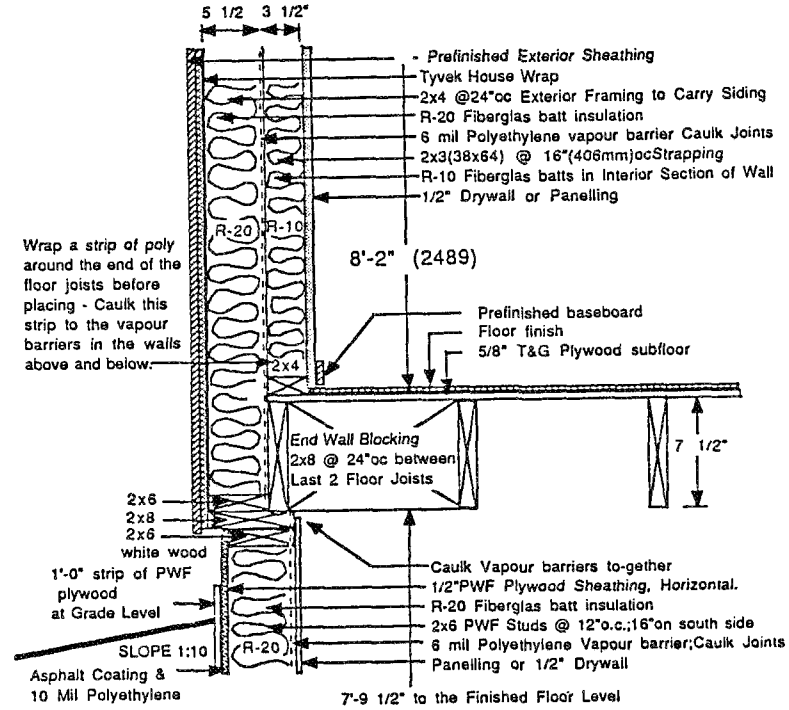
DETAILS SIDE WALL

14



END WALL SECTION
AT ROOF



END WALL SECTION
AT FLOOR

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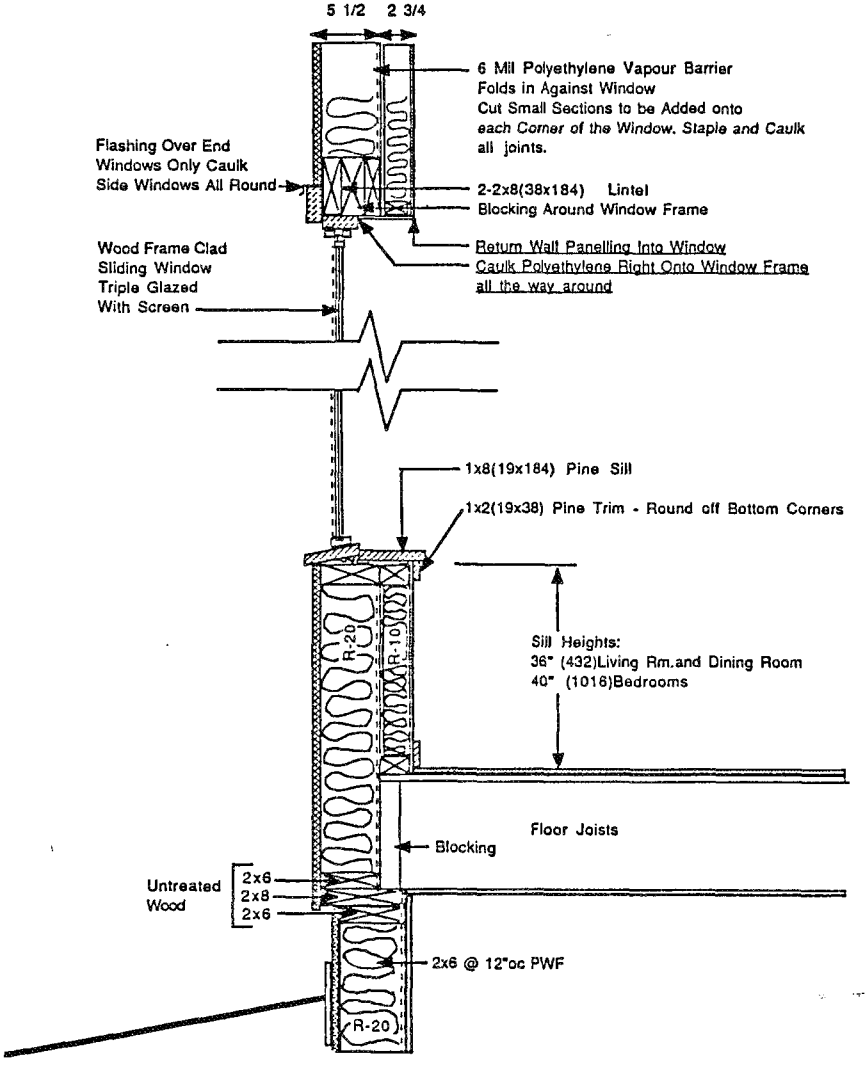
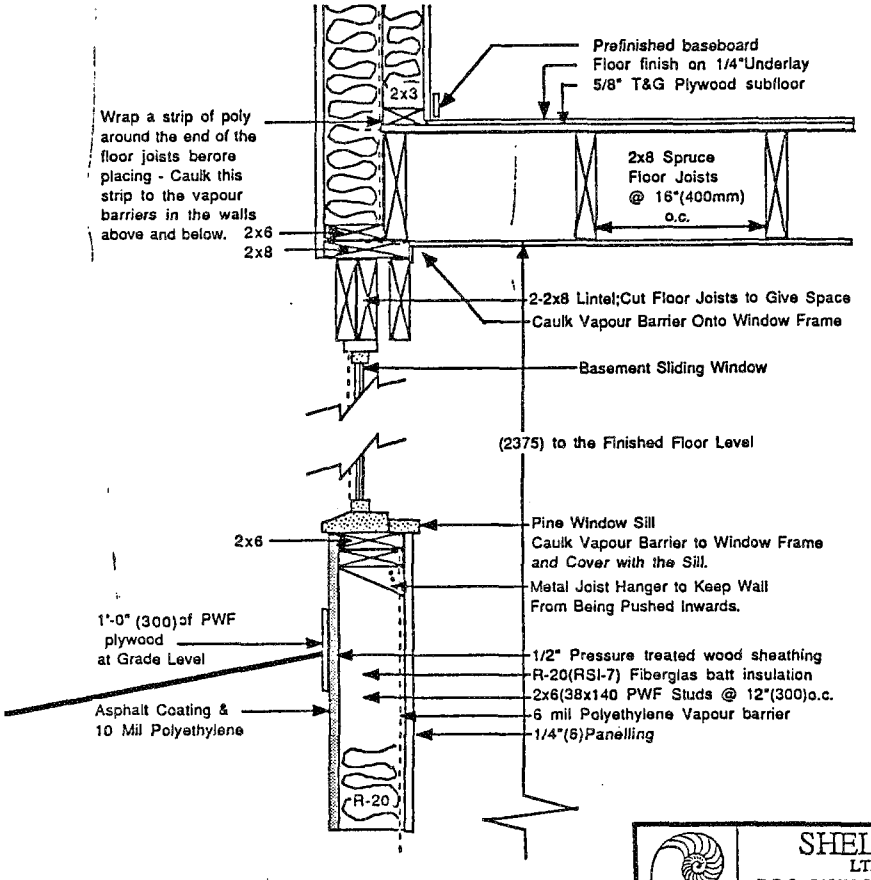
DETAILS
END WALL

15



WINDOW SECTION



SECTION AT
BASEMENT WINDOW

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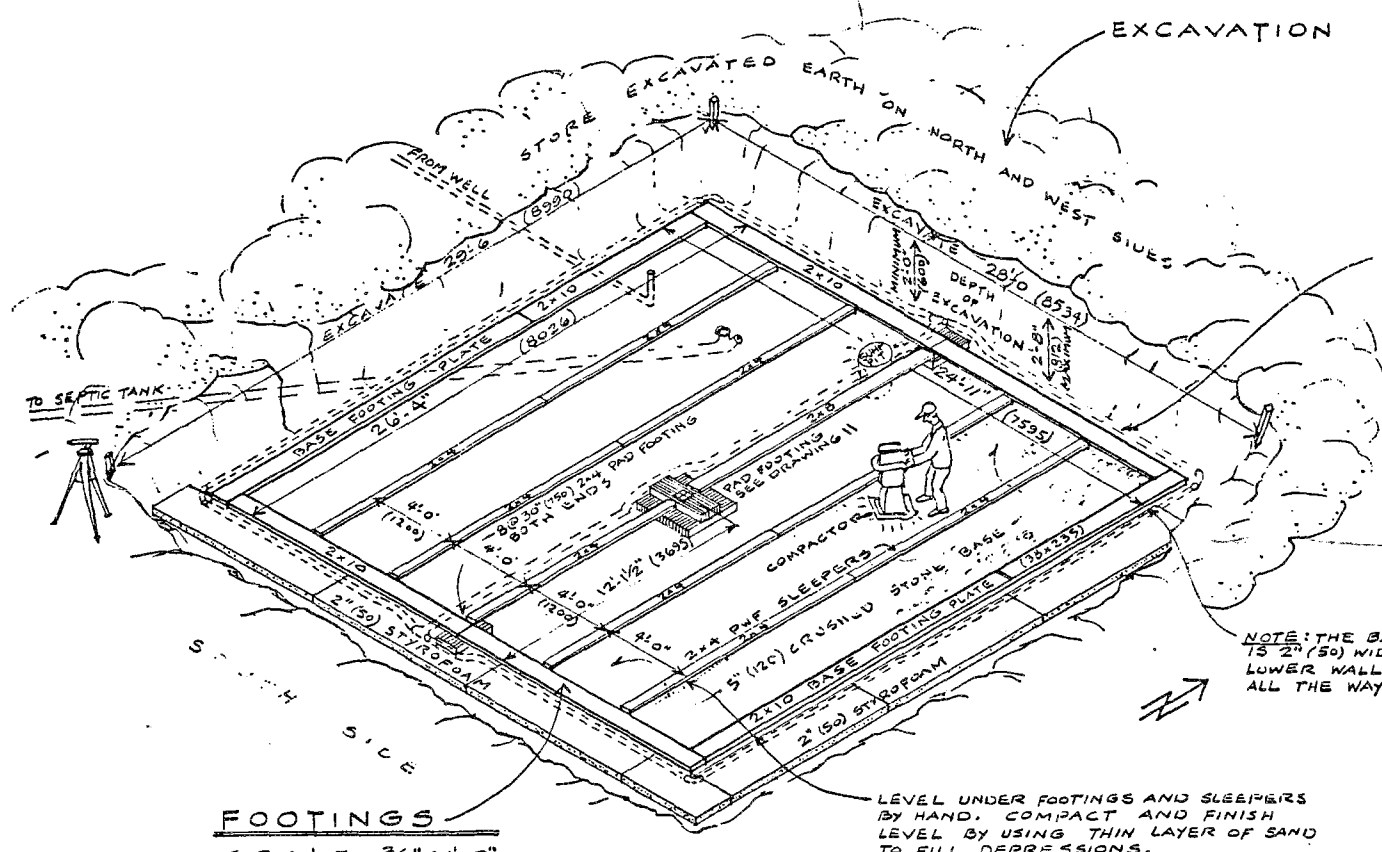
WINDOW SECTION | 16

SEQUENCE

1: Excavate 28' x 29'-6" x 2'-8" deep. Store earth on north and west sides.
2: Fill with 5" crushed stone. Lay in 4" drain pipe and service lines.
3: Compact base with compactor (level).
4: Level under base plate and sleepers.
5: Lay base plates 24'-11" x 26'-4".
6: Lay sleepers just before floor goes in.

MATERIALS

11 Cu.Yds.	Crushed stone (8.4 m^3)
2 Pc.	2 x 10-10' PWF Footing
2 Pc.	2 x 10-16' PWF "
4Pc.	2 x 10-12' PWF "
10 Pc.	2 x 4-12' PWF Sleeper
1 Pc.	2' Ø Plastic sump pit
130'	4" Ø Drain pipe
4 Pc.	4"- 90° Connectors
2 Pc.	4" - T Connectors
7 Shts.	2" x 2' x 8' Styrofoam insulation
1 Litre	End cut solution
5 Pc.	2 x 4 -16' PWF Pad footings



FOOTINGS
SCALE 3/16" = 1'-0"

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RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION
EXCAVATION FOOTINGS

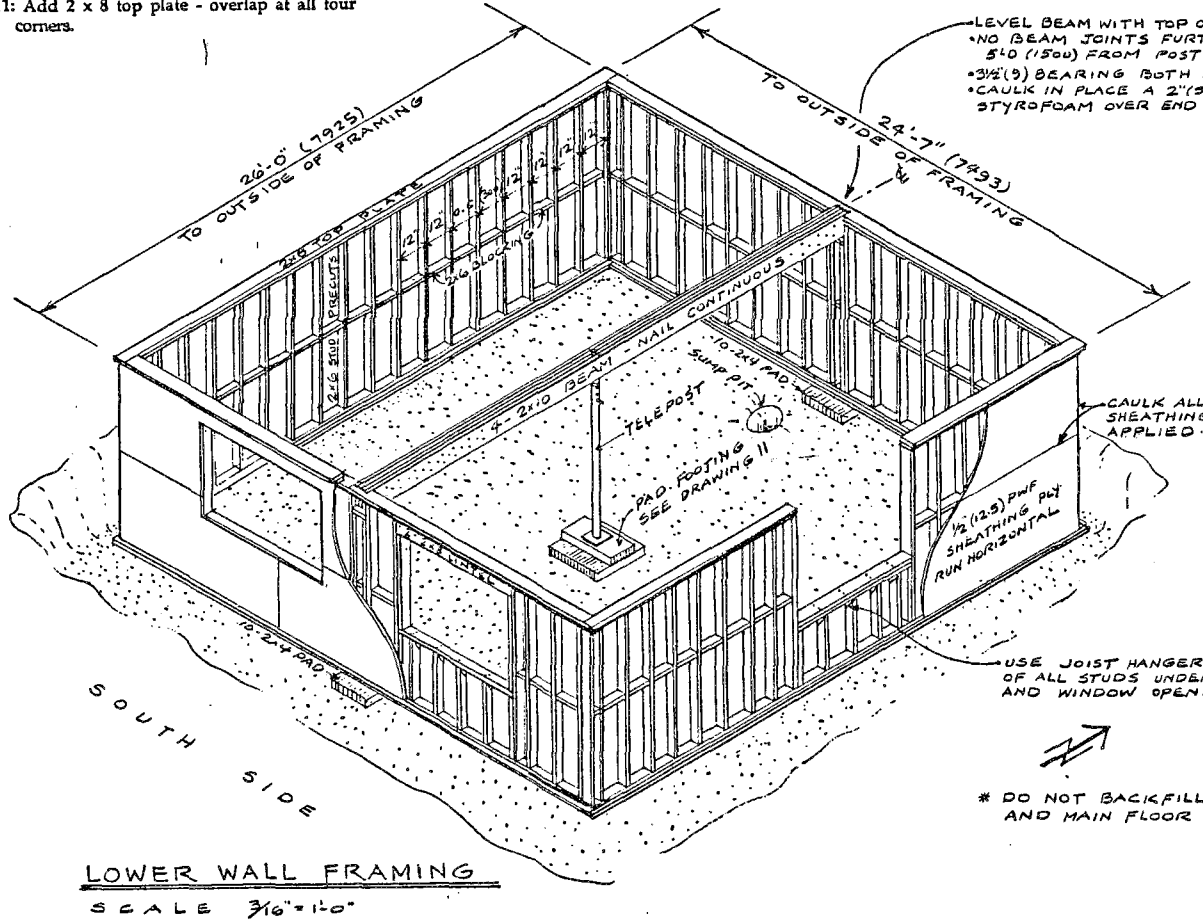
17

SEQUENCE

7: Frame the 26'-0" on the basement floor, add sheathing and tip up. Brace temporarily.
NOTE: Caulk along all joints in the exterior sheathing plywood. Nail plywood using stainless steal nails below grade and galvanized nails in all areas that will be above grade.
8: Build the north and south walls and tip up. Tie in corners.
9: Add telepost
10: Build centre beam and set in place.
11: Add 2 x 8 top plate - overlap at all four corners.

MATERIALS

12 Pc.	2 x 6-16' PWF Bottom plate, Blocking
4 Pc.	2 x 6-10' PWF Bottom plate, Blocking
110 Pc.	2 x 6-93" Precut PWF studs
4 Pc.	2 x 6-16' Construction spruce Top plate
4 Pc.	2 x 6-10' Construction spruce Top plate
2 Pc.	2 x 10-16' Construction spruce Main beam
6 Pc.	2 x 10-12' Construction spruce Main beam
19 Pc.	1/2" x 4 x 8 PWF Plywood Exterior sheathing
18 Pc.	Joist hangers
4 Pc.	2 x 8-16' Construction spruce Top plate
4 Pc.	2 x 8-10' Construction spruce Top plate
25 Lb.	3 1/2" Stainless steel nails
25 Lb.	2" Galvanized nails for use above grade
25 Lb.	3 1/2" Galvanized nails - above grade
12 Tubes	Caulking-Tremco Mono
1 Roll	10 Mil polyethylene- 10' wide roll
1 Pc.	5'to 8' Adjustable post



LOWER WALL FRAMING

SCALE 3/16"=1'-0"

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CANADA MORTGAGE AND HOUSING CORPORATION

RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION

LOWER WALLS

18

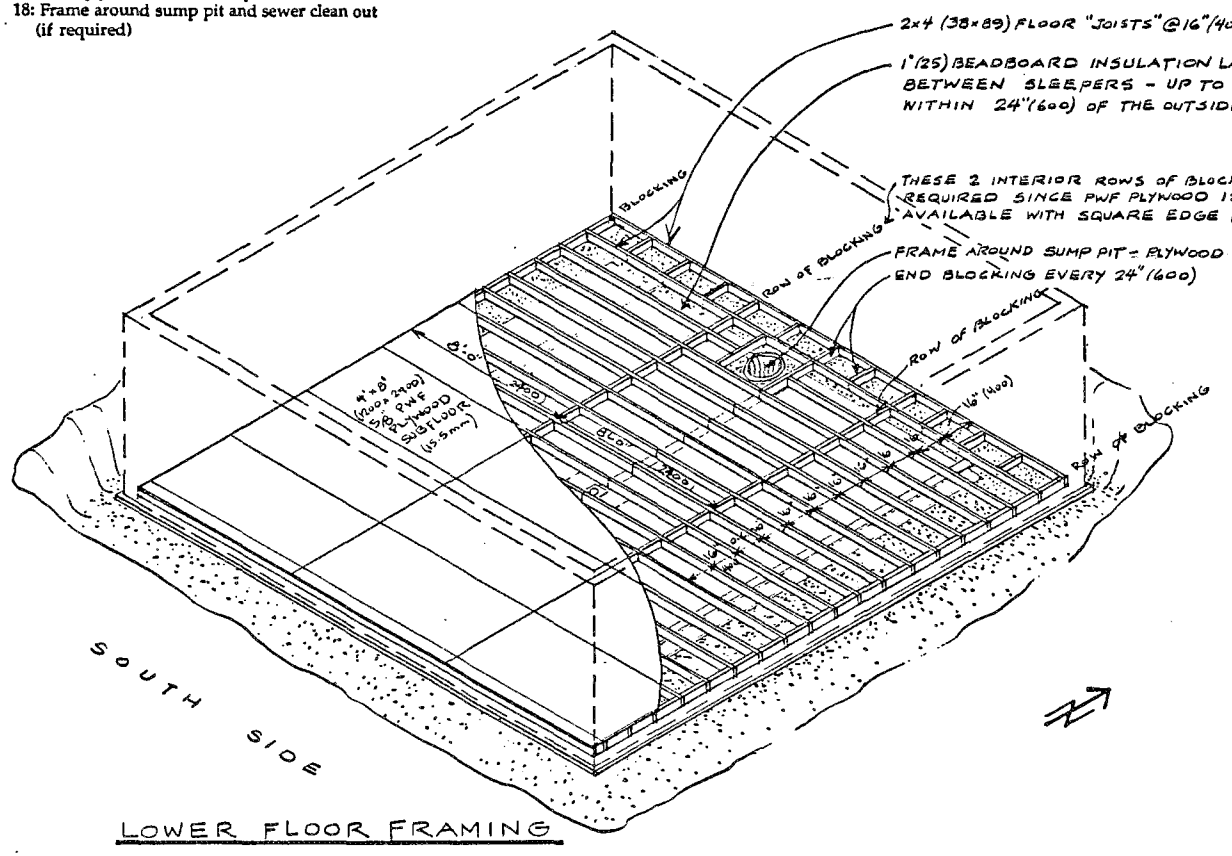
SEQUENCE

12: Insert 1" styrofoam between sleepers - to up to 24" within the exterior wall.
13: Lay 2 x 4 floor joists @ 16" o.c. starting against an end wall
14: Add 2 x 4 blocking along both edges, in between the studs.
15: Add two rows blocking to rest under the edges of flooring plywood. NOTE: PWF is only available in square edge.
16: Lay 5/8" x 4 x 8 PWF flooring plywood over floor framing. Nail using 2" stainless steel nails @ 6" o.c..
17: Make plywood box for sump cover.
18: Frame around sump pit and sewer clean out (if required)

MATERIALS

60 Pc.	2 x 4-12' PWF Joists and blocking
19 Pc.	5/8" x 4 x 8 Plywood
11 Sht.	1" x 4 x 8 Styrofoam insulation
	3 1/2" Stainless steel nails
	2" Stainless steel nails

NOTE: All wood used in this floor framing must be pressure treated foundation grade (PWF) pine. This floor and the upper floor must be completed before backfilling.



LOWER FLOOR FRAMING

SCALE 3/16" = 1'-0

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RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION
LOWER FLOOR

19

SEQUENCE

19: Lay 2 x 8 joists @ 16" o.c. between side walls and centre beam.

20: Frame around stair opening and Flue opening. Keep 2" clearence for insulated chimney pipe. If insulated chimney is 6" 2100° (10" wide) this means a minimum hole of 14" x 14".

21: Add side and end blocking. Add blocking along edge of main wall and caulk all around on both sides.

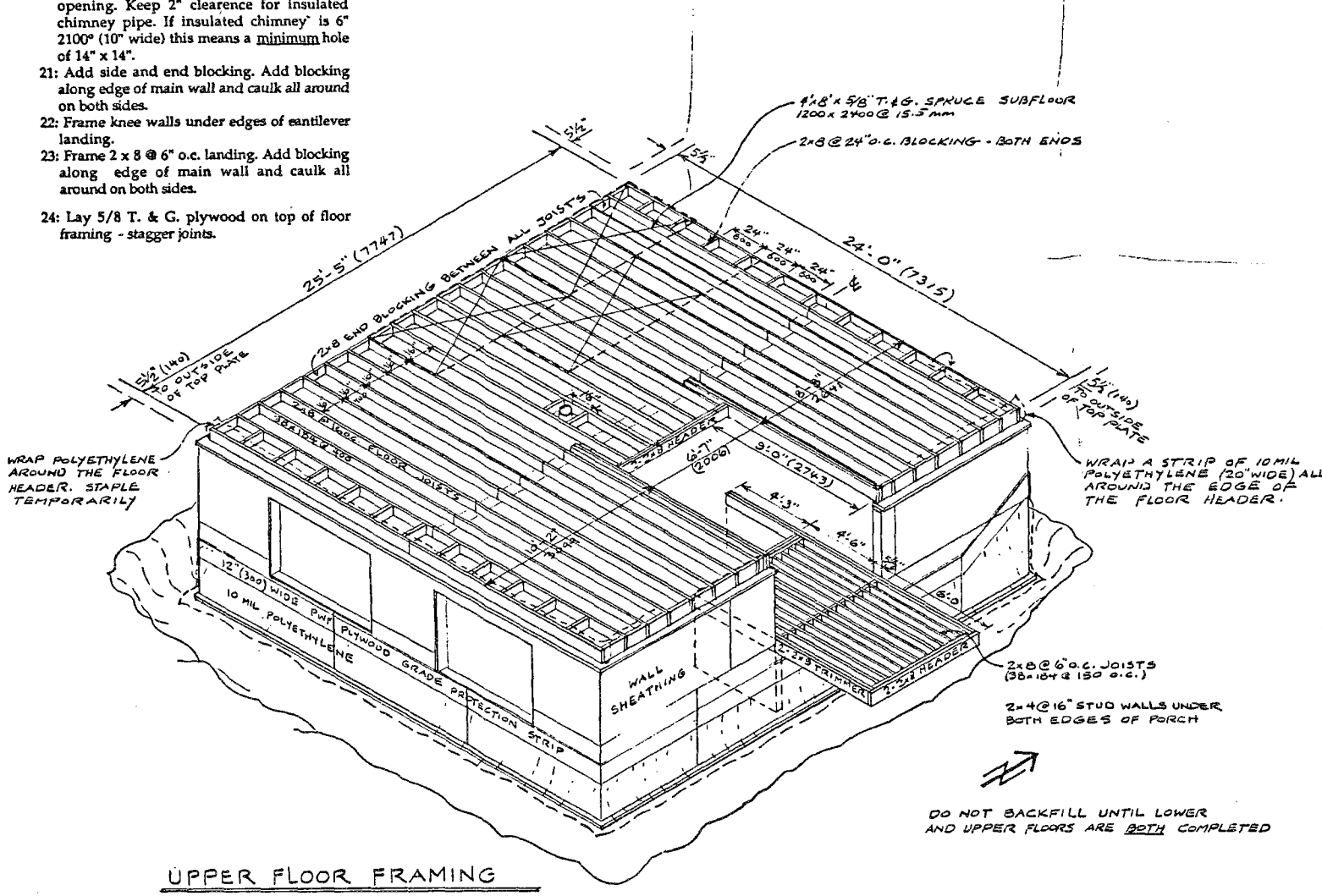
22: Frame knee walls under edges of cantilever landing.

23: Frame 2 x 8 @ 6" o.c. landing. Add blocking along edge of main wall and caulk all around on both sides.

24: Lay 5/8 T. & G. plywood on top of floor framing - stagger joints.

MATERIALS

50 Pc.	2 x 8-12' Construction spruce
20 Pc.	2 x 8-16'Construction spruce
9 Pc.	2 x 4-16'Construction spruce
19 Sht.	5/8" x 4 x 8 T. & G. Std. Spruce
4 Sht.	1/2" x 4 x 8 PWF Plywood
25 Lb.	2 1/2" Ardox nails



UPPER FLOOR FRAMING

SCALE 3/16" = 1'-0"

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RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION

UPPER FLOOR

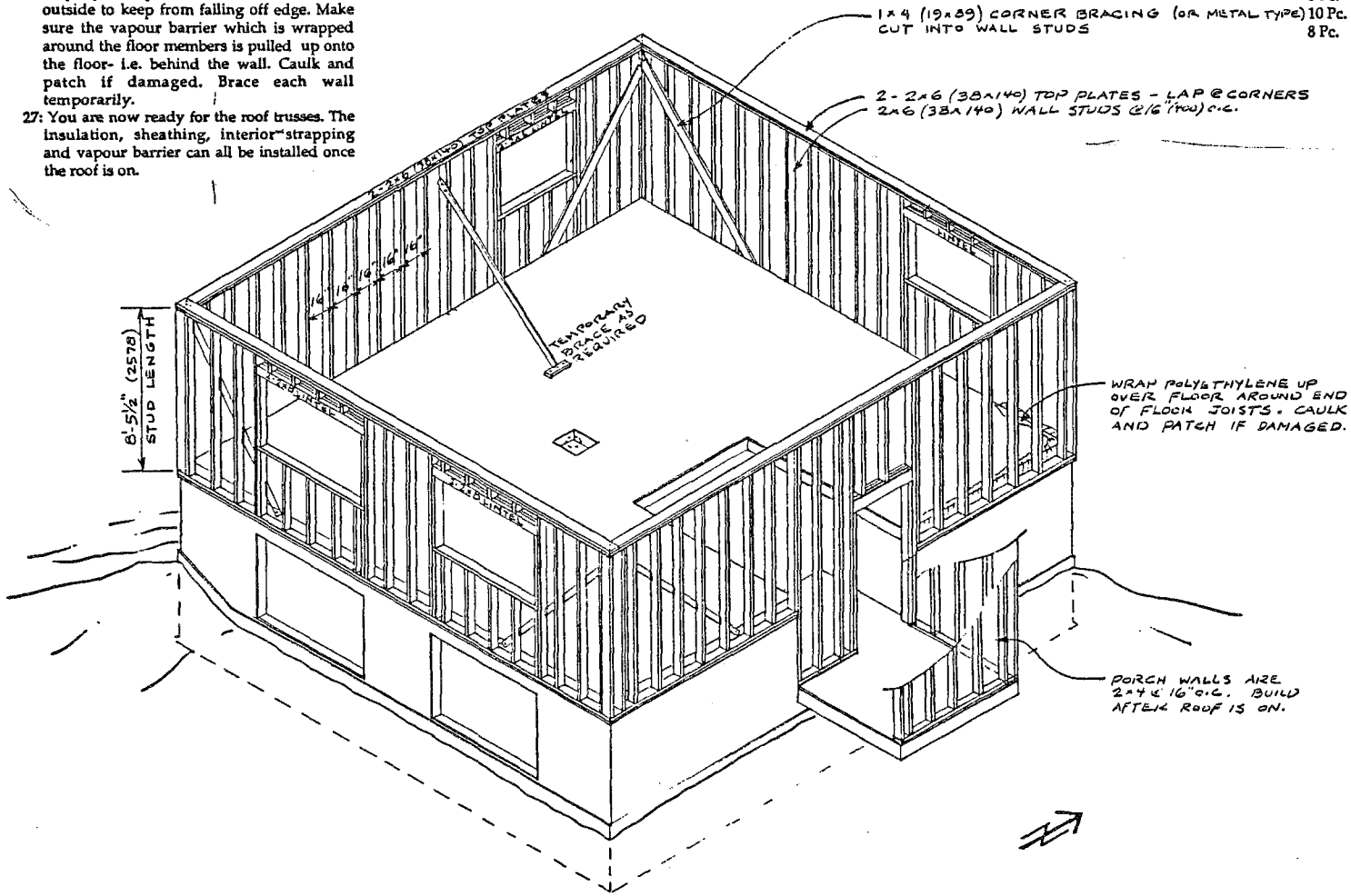
20

SEQUENCE

25: Assemble each wall (and corner bracing) on the floor.
26: Tip up into position - hold bottom from outside to keep from falling off edge. Make sure the vapour barrier which is wrapped around the floor members is pulled up onto the floor- i.e. behind the wall. Caulk and patch if damaged. Brace each wall temporarily.
27: You are now ready for the roof trusses. The insulation, sheathing, interior strapping and vapour barrier can all be installed once the roof is on.

MATERIALS

80 Pc.	2 x 6-10' Const. Spruce Studs precut to 8'-5 1/2"
35 Pc.	2 x 6-16' Const. Spruce - Plates
8 Pc.	2 x 4-16' Const. Spruce - Porch walls
10 Pc.	2 x 4-8' Const. Spruce - Porch walls
8 Pc.	1 x 4-12' Number 3 spruce Corner braces



UPPER WALL FRAMING
SCALE 3/16"=1'-0"

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RURAL AND NATIVE DEMONSTRATION PROGRAM

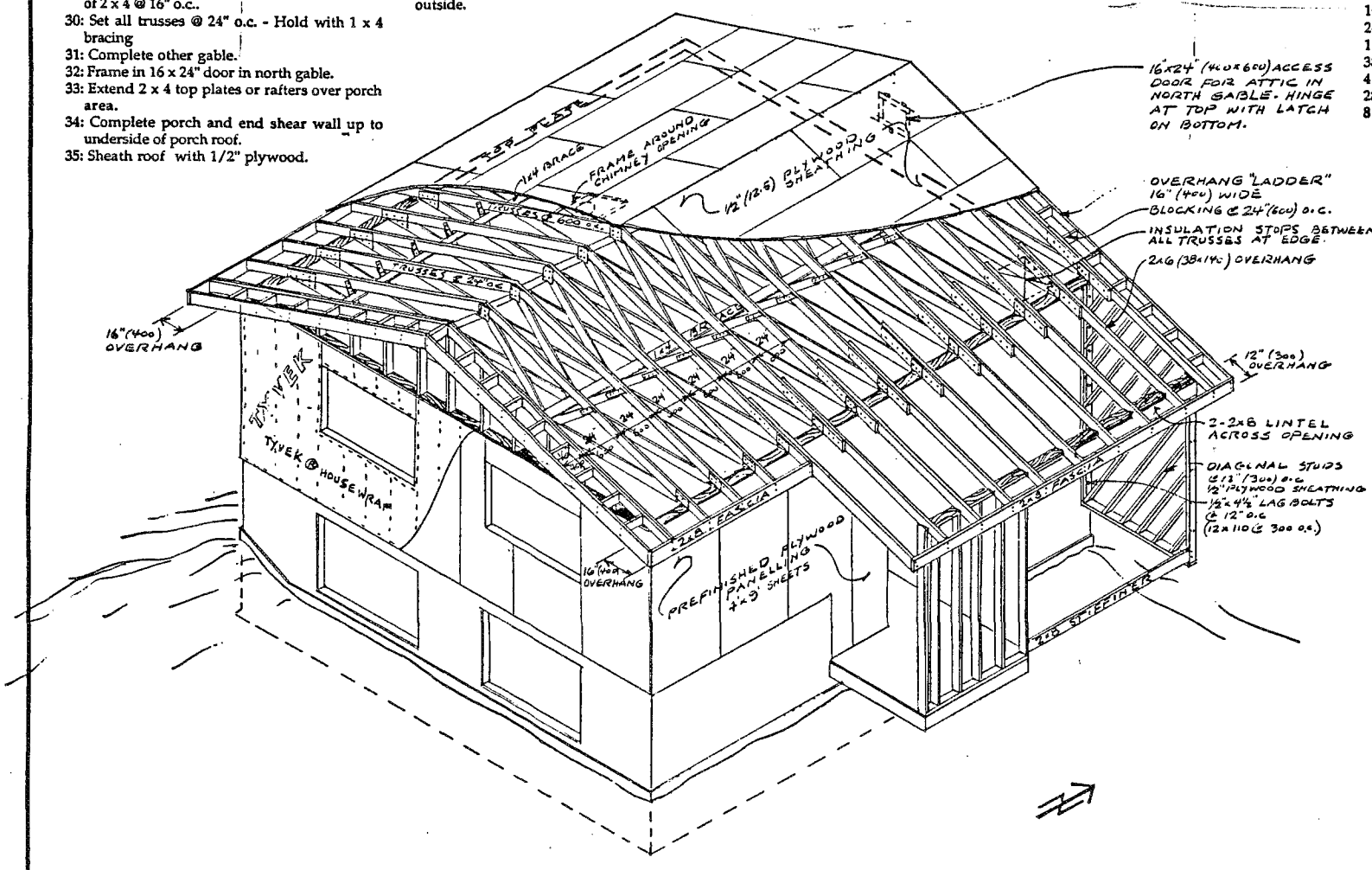
CONSTRUCTION
UPPER WALLS

SEQUENCE

28: Set all trusses up on top plate of bearing walls.
29: Set up one end gable or build end gable wall of 2 x 4 @ 16" o.c..
30: Set all trusses @ 24" o.c. - Hold with 1 x 4 bracing
31: Complete other gable.
32: Frame in 16 x 24" door in north gable.
33: Extend 2 x 4 top plates or rafters over porch area.
34: Complete porch and end shear wall up to underside of porch roof.
35: Sheath roof with 1/2" plywood.
36: Walls can now be covered with Tyvek ® and exterior sheathing. Use 4 x 8 sheathing on ends, 4 x 9 on sides. Put drop flashing in all horizontal joints. If weather is good, insulation can be put into walls from the outside.

MATERIALS

13 Pc.	24' x 11" Roof trusses
2 Pc.	Gable ends
4 Pc.	1 x 4-16' Spruce -Bracing
10 Pc.	2 x 4-16' Spruce for gable ladders
26 Pc.	Insulation stops
1 Roll	Tyvek® House wrap
38 Sht.	1/2" x 4 x 8 Exterior plywood panelling
4 Pc.	1 x 4-16' Number 3 spruce -Corner trim
28 Sht.	1/2" x 4 x 8 Plywood- roof sheathing
8 Pc.	1/2" x 4 1/2" Lag bolts



ROOF FRAMING
SCALE 3/16" = 1'-0"

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CANADA MORTGAGE AND HOUSING CORPORATION

RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION
ROOF TRUSSES

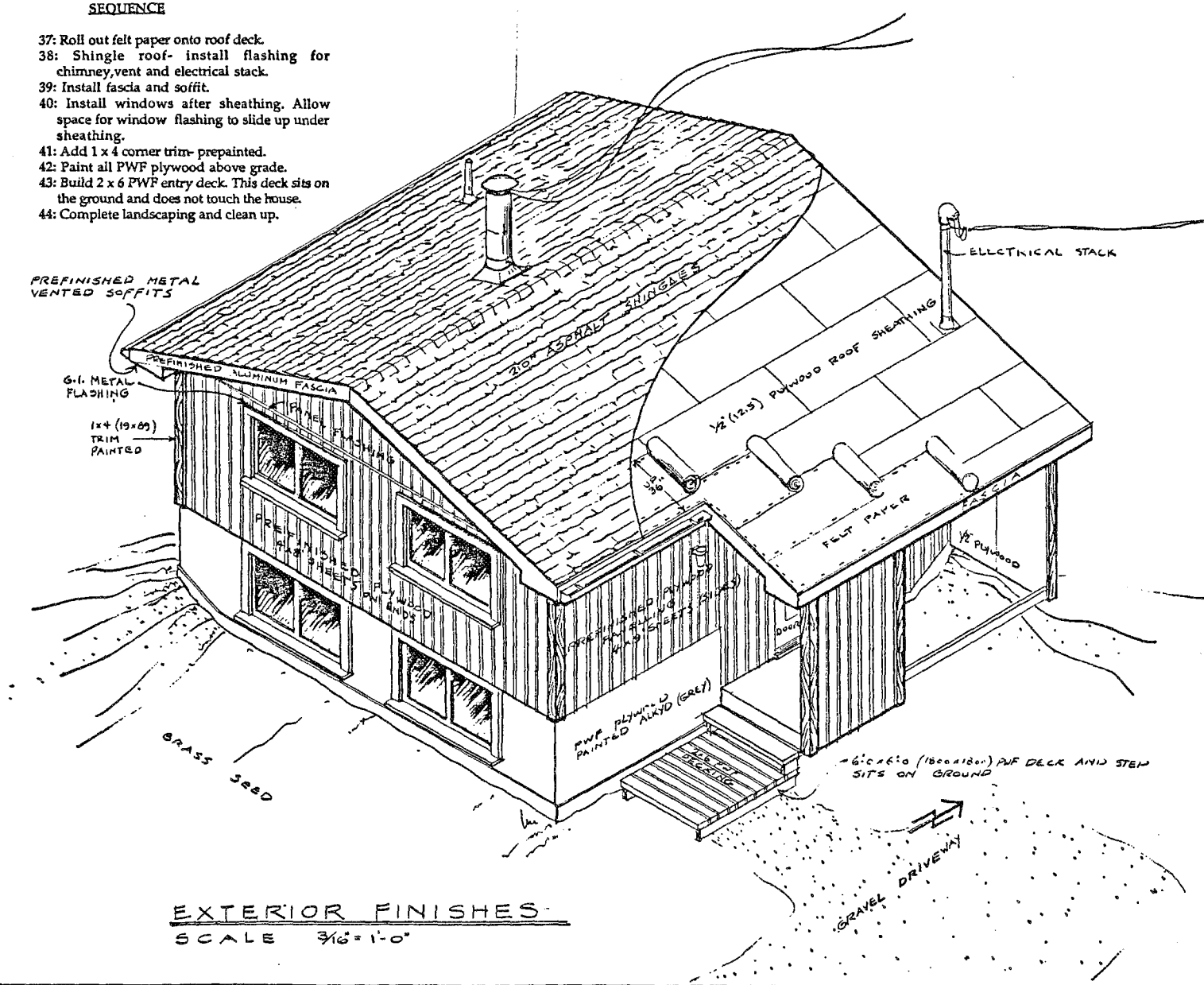
22

SEQUENCE

37: Roll out felt paper onto roof deck.
38: Shingle roof- install flashing for chimney,vent and electrical stack.
39: Install fascia and soffit.
40: Install windows after sheathing. Allow space for window flashing to slide up under sheathing.
41: Add 1 x 4 corner trim- prepainted.
42: Paint all PWF plywood above grade.
43: Build 2 x 6 PWF entry deck. This deck sits on the ground and does not touch the house.
44: Complete landscaping and clean up.

MATERIALS

4 Rolls	#15 Felt paper
9 sq.	Asphalt shingles
Flashing for chimney, stack and vent	
15 Pc.	Prefinished flashing (dark)
15 Pc.	Prefinished soffit (white)
7 Pc.	2 x 6-16' PWF for deck



EXTERIOR FINISHES
SCALE 3/16" = 1'-0"

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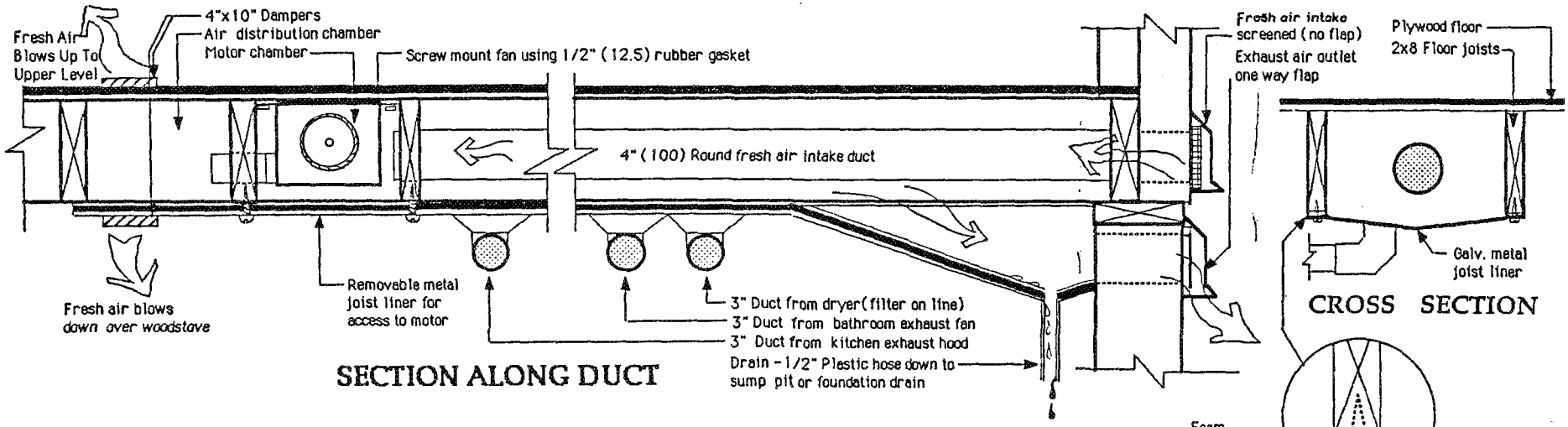
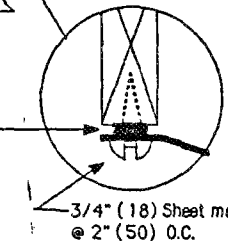
RURAL AND NATIVE DEMONSTRATION PROGRAM

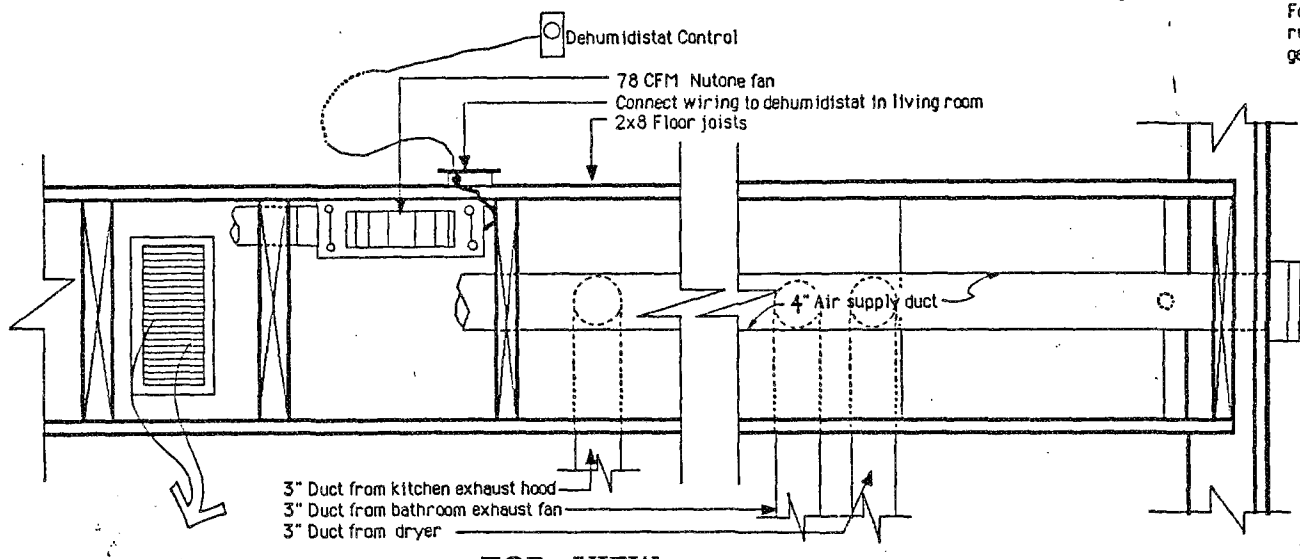
CONSTRUCTION
EXTERIOR



SECTION ALONG DUCT

CROSS SECTION





TOP VIEW

FRESH AIR HEAT EXCHANGER

SCALE 1 1/2" = 1'-0"

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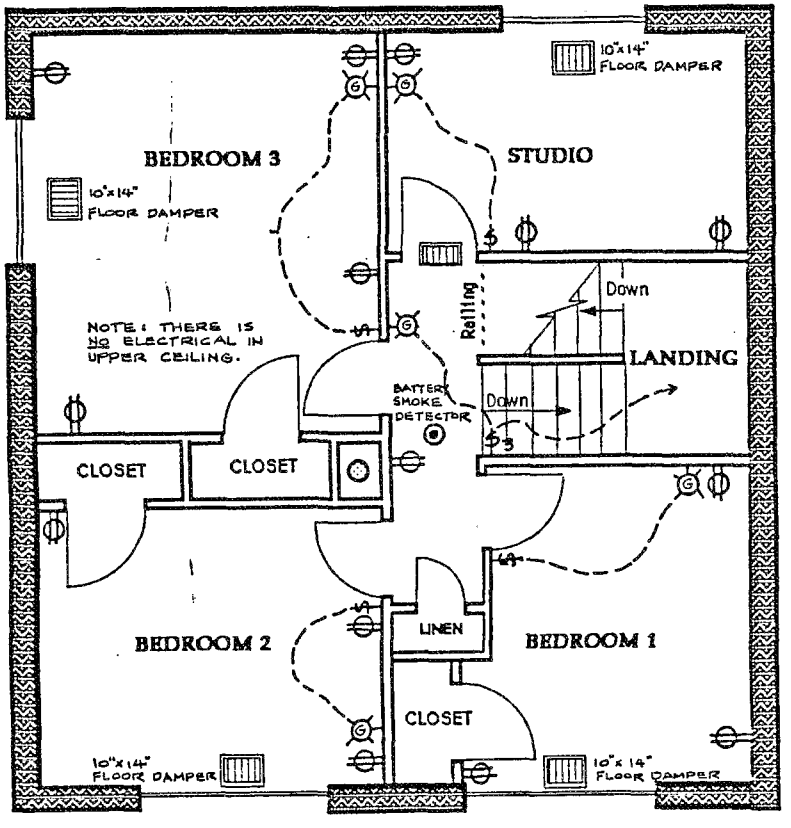
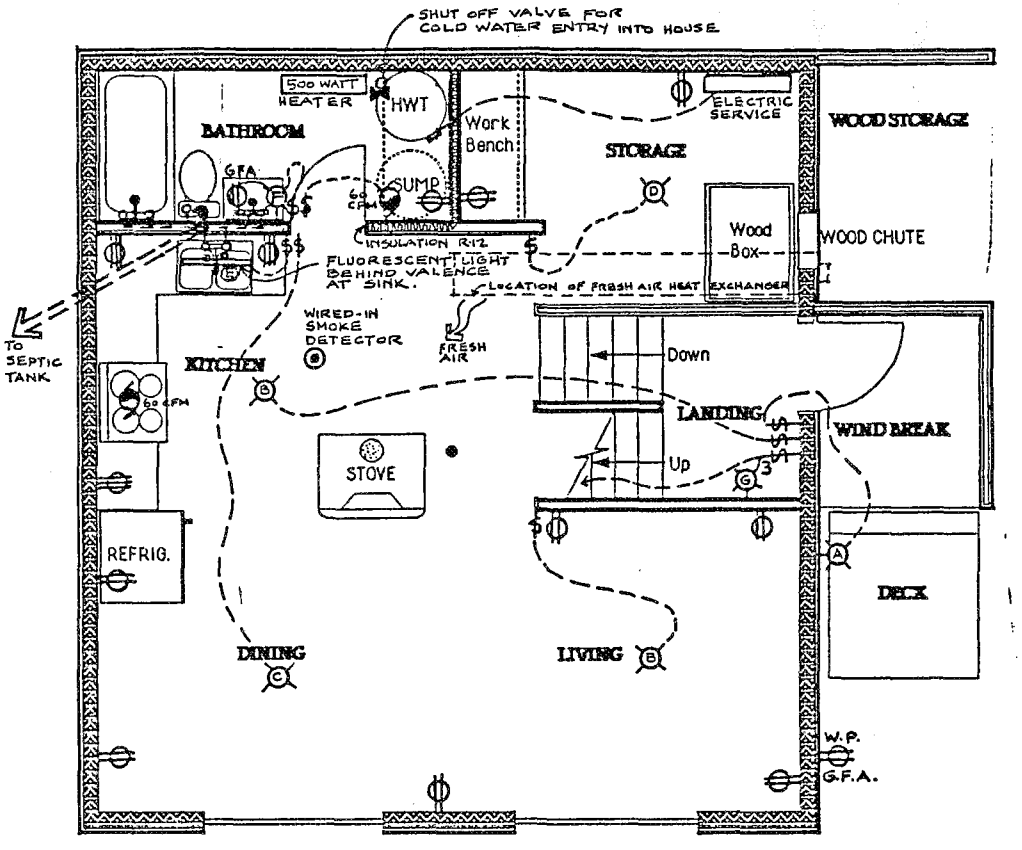
RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION
FRESH AIR DUCT

25



UPPER FLOOR PLAN SCALE 1/4" = 1'-0"



LOWER FLOOR PLAN

- FOR LIGHT FIXTURE SCHEDULE SEE PAGE 26
- WATER LINES IN BATHROOM WALLS TO BE ON THE WARM (BATHROOM) SIDE OF INSULATION IN WALL.

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CANADA MORTGAGE AND HOUSING CORPORATION

RURAL AND NATIVE DEMONSTRATION PROGRAM

MECHANICAL ELECTRICAL

LIGHTING FIXTURE SCHEDULE

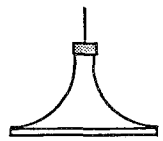
A

EXTERIOR CAST ALUMINUM
Columbia 9201
Robinson Lighting 9201-COL
Note: For High Damage areas a Wire Cover or Lexan Glass are available.

B

8" Diam. CEILING FIXTURE
Columbia 3428
Robinson SC 320-SPAN

C

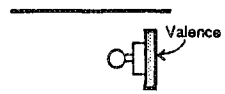


16" Diam. PENDANT SHADE LAMP
Robinson Lighting AC2866-ART

D

PORCELAIN LAMP FIXTURE

E



4'-0" LONG FLUORESCENT
Mounted on Valence

F

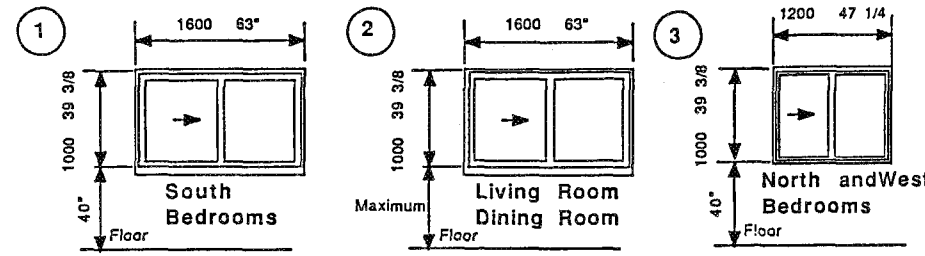
2 LAMP BATHROOM
Columbia 4507
Robinson AC5065-ART

G

WALL MOUNTED FIXTURE
Columbia A-311 or A-320

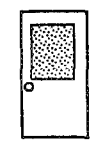
WINDOW SCHEDULE

Loewen "Wood Slider" windows for 2"x6" wall or approved equivalent.
Triple Glazed with screen; Perma-Guard or Clad finish. Include Jamb Extensions
All measurements are outside measurements of unit. For R.O. add 3/4"(20mm)



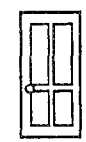
DOOR SCHEDULE

A



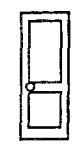
2'-8"x6'-8" PRE-HUNG INSULATED METAL DOOR
Insulated Metal Frame, Weatherstripped.
Hardware: Lock Set Weiser Series A; Troy Style

B

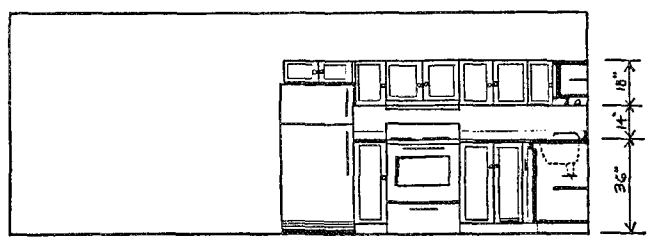


2'-6"x6'-8"x1 3/8"HOLLOW CORE SLAB DOOR
Prehung Acceptable.
Hardware: 1 Pair of Butt Hinges
Passage Set: Weiser Series A; Troy Style

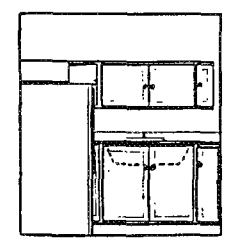
C



1'-6"x6'-8"x1 3/8"HOLLOW CORE SLAB DOOR
Hardware; 1 Pair if Butt Hinges
Friction Latch and Dummy Knob.



KITCHEN ELEVATIONS



SCALE 1/4"=1'- 0"

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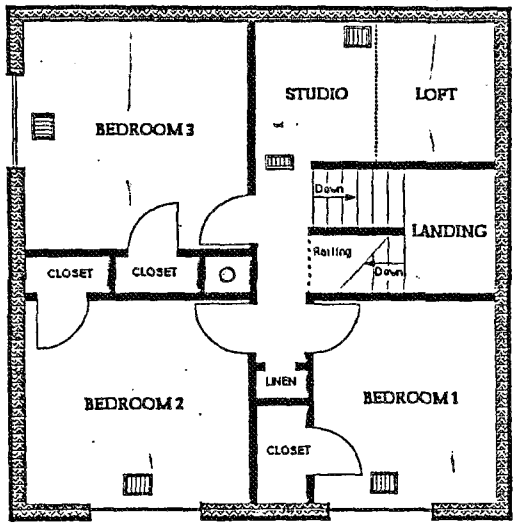
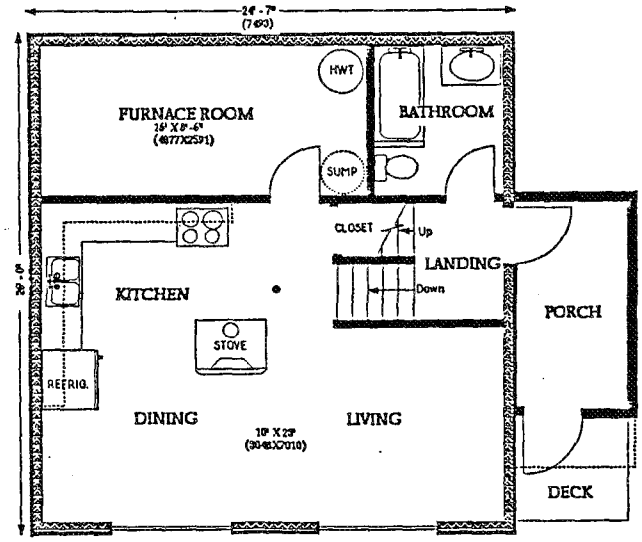
CANADA MORTGAGE AND HOUSING CORPORATION

RURAL AND NATIVE DEMONSTRATION PROGRAM

CONSTRUCTION
INTERIOR FINISHES



OPTIONAL UPPER FLOOR PLAN



OPTIONAL LOWER FLOOR PLAN

MATERIAL OPTIONS

1: LOWER LEVEL WALLS: (Treated wood shown) A poured concrete lower level and floor could be used perhaps for reasons of tradition or personal preference. This is more expensive (including insulation) than treated wood, particularly in isolated communities,

2: ROOFING: (Asphalt shingles shown) Prepainted steel roofing can be screwed on over 1"x3" strapping. Although more expensive to purchase, it installs quicker and is lighter, therefore less expensive when air shipping is included in isolated locations.

3: SIDING: (Prefinished plywood shown) Aluminum siding could be substituted. In areas where local rough-cut air dried lumber is available, a very attractive siding is vertical board and batten. The boards are nailed vertically (add 2 rows of blocking equally spaced on the exterior wall) and the joints covered with 1"x2" battens. This wood can be stained or left natural grey and the trim painted a contrasting dark or white colour.

4: STRUCTURE: (Frame shown) The interior structure of the walls and floor can be done in a "post and beam" style. This means 6"x6" columns and 2"x6" plank flooring and is suitable for using locally sawn timber. Another advantage is that the appearance is quite attractive.

5: HEATING: (Wood stove shown) The wood heating could be used as a backup if electric baseboard or a forced air furnace is used. If a furnace is used, then the optional floor layout may be a more suitable design.

DESIGN OPTION

THIS OPTIONAL DESIGN IS PRESENTED TO SHOW HOW A FURNACE AND STORAGE ROOM CAN BE INCLUDED ON THE LOWER LEVEL WITH THE BATHROOM MORE CENTRALLY LOCATED OFF THE LANDING. THE "ROOF" OF THE BATHROOM IS A SLEEPING LOFT AND THERE IS A STORAGE SPACE UNDERNEATH. THE FORCED AIR OR ELECTRIC HEATING IS BACKED UP WITH THE WOODSTOVE. THE WINDBREAK IS DESIGNED AS AN ENCLOSED PORCH, WHICH MUST HAVE A SMALL HEAT SOURCE TO PREVENT FROSTING UP.

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RURAL AND NATIVE
DEMONSTRATION PROGRAM

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
	LOWER LEVEL			
4 Pc.	2x10-12' PWF Pine (sill plate)			
3 Pc.	2x10-10' PWF Pine (sill plate)			
11 Cu.Yd.	Crushed Stone (8.4cubic meters)			
2 Pc.	2x10-16' PWF Pine (sill base plate)			
110 Pc.	2x6-93" PWF Pine (studs)			
4 Pc.	2x6-10' PWF Pine (bottom wall plate)			
4 Pc.	2x6-16' PWF Pine (bottom wall plate)			
8 Pc.	2x6-16' PWF Pine (blocking and midspan)			
4 Pc.	2x6-10' Construction Spruce (1st top plate)			
4 Pc.	2x6-16' Construction Spruce (1st top plate)			
8 Pc.	2x8-14' Const. Spruce (top plate and ledge)			
9 Pc.	2x4-12' PWF Pine (pad for telepost)			
3 Pc.	2x8-16' Const. Spruce (window lintels)			
27 Sht.	4x8-1/2" PWF Plywood (o/s wall&gd strip)			
10 Bdle.	R20-11" Insulation (76.7 sq.ft.)			
1 Roll	10 mil Poly 10'x100'(for joints in exterior ply)			
12 tubes	Mono Caulking (dark colour)(or equal)			
1 Roll	4 mil Poly (1500 sq.ft.)			
1 Litre	Cuprinol end cut treatment			
25 Lb.	2 1/2" Stainless steel nails(below grade)			
25 Lb.	3 1/2" Stainless steel nails(below grade)			
18 Pc.	Single joist hangers			
130 L.Ft.	4" Perforated pipe-weeping tile			
7 Sht.	2'x8'-2" SM Board insulation			
4 Pc.	Corners for 4" Weeping tile			
2 Pc.	Tees for 4" Weeping tile			
3 Pc.	Pipe joiners for 4" weeping tile			
1 Pc.	Polyethelene sump pit c/w cover			
100 L.Ft.	Matt covering for 4" weeping tile line			
25 Lb.	2 1/2" Hot dip galvanized nails(above grade)			
25 Lb.	3 1/2" Hot dip galvanized nails(above grade)			
	LOWER FLOOR			
60 Pc.	2x4-12' PWF Pine (sleepers and grd.fl.joist)			
11 Sht.	4x8-1" Plastispan (bead board insulation)			
19 Sht.	4x8-5/8" PWF Plywood (lower floor)			
	UPPER FLOOR			
2 Pc.	2x10-16' Construction Spruce KD			
6 Pc.	2x10-12' Construction Spruce KD			
50 Pc.	2x8-12' Construction Spruce KD			
20 Pc.	2x8-16' Construction Spruce KD			
18 Sht.	4x8-5/8" T&G Std. Spruce(upper floor)			
25 Lb.	2 1/2" Ardox nails			
1 Pc.	Teleposts 5'-8'			
1 Ctn.	3 1/2" Ardox nails(50Lb./carton)			
	UPPER WALLS			
6 Pc.	2x4-12' Const. Spruce KD (studs@landing)			
22 Pc.	2x4-10' Const. Spruce KD (for porch)			
8 Pc.	1x4-12' Number 3 Spruce (corner braces)			
5 Pc.	2x8-14' Consruction Spruce (lintel)			

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
80 Pc.	2x6-10' Construction Spruce KD (studs)			
	PRECUT to 8'-5 1/2"			
120 Pc.	2x3-14' Const. Spruce KD (strapping)			
35 Pc.	2x6-16' Const. Spruce KD (bottom plate)			
8 Bdle.	R10-15" Fiberglass (105 sq. ft.)(walls)			
17 Bdle.	R20-15" Fiberglass (50 sq. ft.)(walls)			
1 Roll	1000 sq. ft. 6 mil Poly 100"-o/s walls			
1/2 Roll	1500 sq. ft. 6 mil Poly 120" ceiling			
12 Tubes	Acoustical Caulking for vapour barrier			
3 Ctn.	3 1/2" Ardox nails (50#box)			
1 Ctn.	2 1/2" Ardox nails (50#box)			
8 Pc.	1/2"x4 1/2" Lag bolts			
10 Pc.	2x4-8' Const. Spruce (porch)			
12 Pc.	2x6-10' Const. Spruce (top cord)			
	ROOF STRUCTURE			
13 Pc.	24'x11" Trusses			
2 Pc.	24'-11" Gable Ends			
4 Pc.	1x4-16' Number 3 Spruce			
10 Pc.	2x4-16' Const. Spruce (gable ladders)			
26 Pc.	Insulation stops			
8 Pc.	2x6-10' (porch roof)			
	ROOFING			
28 Sht.	1/2"x4x8 Spruce sheathing			
4 Rolls	15 Lb. Felt paper			
9 sq.	210# Asphalt shingles- mid tone brown			
50 Lb.	1 3/4" Shingle nails			
	FASCIA			
4 Pc.	1x8-16' Select Spruce (Fascia Eaves)			
2 Pc.	1x8-10' Select Spruce (Fascia gable)			
4 Pc.	1x8-16' Select Spruce (Fascia gable)			
15 Pc.	Prefinished 8" Fascia (10')(dark colour)			
15 Pc.	J-Channel 10'			
15 Pc.	Prefinished soffit 18x10' Perforated(white)			
1 Pkg.	Soffit nails			
	WINDOWS AND DOORS			
2 Pc.	1 1/2x1 1/2 Hinges			
1 Pc.	Bolt latch for gable hatch			
2 Pc.	WS1210 Wood slider 113mm Triple P.G.			
4 Pc.	WS1810 Wood slider 113mm Triple P.G.			
1 Pc.	2/8x6/8 #100 Insul. Steel Door 113mm			
	opens outwards-triple gl. lite			
1 Pc.	A101B Weiser entry lockset included in price of door			
3 Lb.	3 1/2" Galvanized finishing nails			
	SIDING			
3/4 Roll	Tyvek paper 9'-150'			
38 Sht.	4x8 ChamplainCedarstripe siding prefinished			
5 Pc.	8' Prefinished window flashing			
13 Pc.	8' Galvanized panel flashing			
4 Tubes	Matching caulking to touch up siding			
15 Pc.	1x4-10' Number 2 Spruce for corners			
10 Lb.	2 1/4' O.H. Siding nails			
4 Lt.	Alkyd paint (grey)			

NOTES

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CANADA MORTGAGE AND HOUSING CORPORATION

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MATERIAL LIST 1 OF 3

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
	INTERIOR PARTITIONS			
35 Pc.	2x4-16' Const. Spruce (plates and framing at stairwell)			
130 Pc.	2x4-92 5/8" Spruce studs (16" oc)			
2 Pc.	2x6-10' Spruce (plates)			
10 Pc.	2x6-92 5/8" Spruce studs (studs)			
100 Pc.	1x3-12' Number 3 Spruce strapping			
19 Bdle.	R20-23" F.F.Insulation			
	INTERIOR FINISHES			
45 Sht.	4x8-White Oak Citation (interior panelling)			
45 Sht.	4x8-Red Oak Citation			
10 Sht.	4x8-Antique Stockade Citation			
3 Sht.	4x8-1/4" G1S Firply (behind tub)			
80 Sht.	4x8-1/4" S1S Poplar (underlay)			
19 Ctn.	12x12 T&G Ceiling tile			
27 Ctn.	12x12 .080V/A Tile			
4 Gal.	V/A Tile adhesive			
1 Item	9" Lino spreader			
3 Pc.	12"-8' Prefinished shelving Wascana Oak			
2Pc.	Adjustable closet rods 30"-48"			
1 Pc.	Adjustable closet rod 48"-72"			
25 Lb.	1 1/4" Ringed flooring nails			
32 L.Ft.	Window sill extension-9" WallPine. Included in price of windows			
8 Pc.	2/6x6/8 Prefinished doors c/w casing light Oak colour			
1 Pc.	1/6x6/8 Prefinished door (liner)			
8 Pc.	A101B Weiser 9/26D Included in price of door			
70 Pc.	8' Vinyl Baseboard			
50 Pc.	8' i/s Corners			
25 Pc.	8' o/s Corners moulding			
5 Pc.	7' Casing			
8 Pc.	Spring door stops			
1 Pc.	1x5-12' "D" Pine			
3 Pc.	1x6-12' "D" Pine (window sils)			
2 Pc.	6' Fir handrail			
4 Pc.	Handrail brackets			
2 Pc.	2x10-16' Select Spruce KD (stairs)			
3 Pc.	2x10-12' Select Spruce KD (stairs)			
3 Pc.	12' Vinyl stair nosing Brown (tile lip)			
15 Pkg.	Color nails (for panelling)			
1/2 Box	#8-1 1/2 Wood screws			
1 Box	1/4" Staples T-50 Arrow (5M)			
2 Box	9/16" Staples T-50 Arrow (5M)			
1 Pc.	Battery operated smoke detector			
2 Pc.	3" Paint brush			
1 Roll	Duct tape			
2 Pc.	Caulking gun			
4 Pc.	10"x14" floor grille c/w damper			
	FIXTURES AND PLUMBING			
1 Pc.	Medicine cabinet Surface Mount			
1 Pc.	White toilet Briggs (or equal)			

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
1 Pc.	White Bathtub Salem (or equal)			
1 Pc.	24" Vanity			
1 Pc.	Double stainless steel kitchen sink			
1 Pc.	Toilet seat (white enamel wood)			
1 Pc.	Toilet tissue dispenser (9408)			
1 Pc.	5' Shower rod			
1 Pc.	Sump pump (1/3 H.P.) Submersible			
1 Pc.	Length of 1 1/2" ABS pipe for sump			
4 Pc.	90 Degree-1 1/2" ABS pipe for sump			
1 Pc.	Set Peerless kitchen taps #9517(or equal)			
1 Pc.	Set Peerless vanity taps #9607(or equal)			
1 Pc.	Set Peerless bathtub c/w shower head#9740			
1 Pc.	24" Towel bar 9400-24			
1 Pc.	I-111 Bathtub kit (tub surround)(or equal)			
2 Tubes	Adhesive panel			
1 Tube	Bathtub caulking			
3 Lengths	3" ABS pipe			
1 Pc.	3x3 YS ABS			
2 Pc.	3x45 Degrees ABS			
2 Pc.	3" FTG CO ABS			
2 Pc.	3x1 1/2 YS ABS			
2 Pc.	1 1/2 YS ABS			
2 Pc.	1 1/2 FTG CO			
1 Pc.	1 1/2 Double TYS			
1 Pc.	3x45 Degrees STR			
1 Pc.	3x3x1 1/2 L-H SOTYS			
4 Pc.	3x90 Degrees ABS			
1 Pc.	4x3 Floor flangr w/Test plate			
3 Pc.	3x1 1/2 TYS			
1 Pc.	1 1/2 TYS			
1 Pc.	1 1/2 Line Co			
1 Pc.	1 1/2x16 ABS waste end outlet			
5 Pc.	1 1/2x45 Degrees ABS			
3 Pc.	1 1/2x90 Degrees ABS			
1 Lengths	1 1/2x12' ABS pipe			
1 Pc.	3" ABS coupling			
2 Pc.	1 1/2 ABS Coupling			
1 Litre	ABS Cement			
1 Pc.	Wax seal			
1 Pr.	Buck bolt			
3 Lengths	1/2 Type M Copper 12'			
20 Pc.	1/2x90 Degrees C elbows			
5 Pc.	1/2x1/2 C tees			
3 Pc.	1/2 C couplings			
7 Pc.	#19 Chrome cordator			
4 Pc.	3/8x12 Basin tubes			
1 Pc.	3/8x12 Closet tube			
4 Pc.	3/8 Spon flanges			
6 Pc.	1/2 MIP Adaptor			
6 Pc.	1/2 FIP Adaptor			
3 Pc.	1/2x90 Degrees FIP Wing buck			
3 Pc.	1/2" Sedament faucet			

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MATERIAL LIST 2 OF 3

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
1 Pc.	1/2 C Stop & drain			
10 Pc.	1/2" Copper clips			
1 Pc.	#22 Watt relief valve			
1 Roll	50/50 Solder for copper pipe			
1 Tube	#202 Solder paste			
	FRESH AIR DUCT			
6 Pc.	4"-30" Galvanized pipe			
2 Pc.	18"x8' Flat galvanized sheet			
2 Pc.	60 CFM Nutone exhaust fan (or equal)			
12 Pc.	3"-30" Galvanized pipe			
6 Pc.	90 Degrees-3" Elbows adjustable			
1 Pc.	o/s Vent 4" c/w damper			
1 Pc.	o/s Vent 4" c/w screen only			
2 Pc.	4"x10" floor damper			
1 Pc.	Dehumidistat			
30 Lin.Ft.	1/8" foam gasket			
1 Box	5/8" sheet metal screws			
10 Lin.Ft.	1/2" plastic hose			
	ELECTRICAL			
2 Pc.	5/8x10' Ground rod and clamps			
1 Pc.	100A 4J O/H Meter socket			
1 Pc.	2510x10' Service mast with clips			
1 Pc.	2518u Insulator			
1 Pc.	2506NB Roof flange			
1 Pc.	2525-MS Bottom adaptor			
2 Pc.	2504 Clamps			
1 Pc.	2516-L Clamp			
1 Pc.	2521-100A Service head			
1 Pc.	#BE 112-24 Main panel			
1 Pc.	#NA-220 2 Pole circuit breaker			
8 Pc.	#NC015 1 Pole circuit breaker			
2 Pc.	1 1/4 LBA PVC			
1 Pc.	Ground fault receptacle			
2 Pc.	1 1/4 PVC TA' Connectors			
2 Pc.	1 1/4 Bushings			
2 Pc.	1 1/4 Insulated ground bushings			
1 Pc.	6'x1 1/4" PVC conduit			
300 L.M.	14/2 NMD-7 Wire			
100 L.M.	14/3 NMD-7 Wire			
60 Pc.	#4040 Connectors			
2 Pc.	1 1/4 locknuts			
50 Pc.	#33 Marrettes			
18 Pc.	#54151L Octagon outlet boxes			
33 Pc.	#1104-LH Rect. outlet boxes			
1 Box	1"x #8 Wood screws			
10 Pc.	1421-002 Switches			
1 Pc.	3-Way switches			
21 Pc.	1215-050 Duplex recepticle			
21 Pc.	Recepticle covers			
10 Pc.	85003 Switch plate covers			
3 Pc.	85009 Switch plates (2-Gang)			
1 Lb.	Duct seal			

QUANTITY	MATERIAL DESCRIPTION	UNIT PRICE	BID #	CHECK REC'D
1 Pc.	4941-805 o/s Waterproof covers			
2 Pc.	#56111 Pancake boxes			
500 Pc.	L/NS-1 Romex Staples			
20 L.M.	#6 RW-90 Black wire			
10 L.M.	#6 RW-90 White wire			
10 L.M.	#6 Bare Copper wire			
5 Pc.	A 320 Columbia (bedrooms)(or equal)			
1 Pc.	P5511 Progress (or equal)			
4 Pc.	5118302 Columbia (or equal)			
1 Pc.	P4511-30 (dining) (or equal)			
1 Pc.	4710 Columbia (or equal)			
4 Pc.	2152 Columbia (or equal)			
1Pc.	Electric wired in smoke detector			
	Total Electrical			
	EAVESTROUGH			
6 Pc.	10' Eavestrough, Prefinished metal			
2 Pc.	10' Downspout, Prefinished metal			
2 Pc.	Centre drops			
4 Pc.	End caps 1/2-RH 1/2-LH			
6 Pc.	75 Degrees Elbows			
4 Pc.	Slip joint connectors			
4 Pc.	Downpipe straps			
30 Pc.	Spikes & Ferrules			
	WOOD STOVE			
1 Unit	Wood Stove eg. Heritage Cartier II (or equal)			
1 Unit	Chimney Package			
3 Pc.	Black pipe			
1 Pc.	Stove board for under stove			
	KITCHEN			
1 Assembly	Kitchen cabinet assembly (allowance)			
1 Pc.	30" Exhaust hood with fan			
		TOTAL:		

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