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<td>2.</td>
<td>Minimum soil bearing capacity: 1500 psi</td>
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<td>3.</td>
<td>Minimum roof live load: 20 psf</td>
</tr>
<tr>
<td>4.</td>
<td>Minimum roof dead load: 10 psf</td>
</tr>
<tr>
<td>5.</td>
<td>Minimum floor live load: 40 psf</td>
</tr>
<tr>
<td>6.</td>
<td>Minimum floor dead load: 30 psf</td>
</tr>
<tr>
<td>7.</td>
<td>Minimum floor bedroom: 30 psf</td>
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<tr>
<td>8.</td>
<td>Minimum floor: 10 psf</td>
</tr>
<tr>
<td>9.</td>
<td>Minimum floor joist layouts</td>
</tr>
<tr>
<td>10.</td>
<td>Electrical layout</td>
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<tr>
<td>11.</td>
<td>Mechanical layout</td>
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<tr>
<td>12.</td>
<td>Roof plan</td>
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<td>13.</td>
<td>Wall sections</td>
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<td>14.</td>
<td>Stair design</td>
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</table>
Light And Ventilation Requirements for Habitable Spaces

RCO Section R303

R303.1 Habitable Rooms

All habitable rooms shall be provided with aggregate glazing area of not less than 8% of the floor area square footage of such rooms. One-half of the required area of glazing shall be operable. (4%)

Exception #1

The glazed areas shall not be required when the room has an artificial light source that is a permanent part of the dwelling, such as ceiling lights. Plugging in a lamp does not qualify.

Exception #2a

Ventilation - The glazed areas need not be operable to meet the 4% requirement when the mechanical ventilation system installed is capable of supplying outdoor ventilation of 15 cubic feet per minute per occupant.

Exception #2b

Install a minimum of 6 inch make-up air to the HVAC system or provide calculations from your HVAC contractor.

Plan requirements

Provide on your plans a Light and Ventilation schedule similar to the one shown below or use the example below. Show the items listed:

1. Room Name  
2. Room Sq. Ft.  
3. Window Type  
4. Required Glazing Sq. Ft.  
5. Actual Glazing Sq. Ft.  
6. Required Vent Openings  
7. Actual Vent Openings  
8. Tempered Glazing  

Example

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CHAPTER 4
RESIDENTIAL ENERGY EFFICIENCY

This chapter has been revised in its entirety; there will be no marginal markings.

SECTION 401
GENERAL

401.1 Scope. This chapter applies to residential buildings.

401.2 Compliance. Projects shall comply with Sections 401, 402.4, 402.5, 402.6 and 403 (referred to as the mandatory provisions) and either:

1. Sections 402.1 through 402.3 (prescriptive); or

2. Section 404 (performance).

401.3 Certificate. A permanent certificate shall be posted on or in the electrical distribution panel. The certificate shall be completed by the builder or registered design professional. The certificate shall list the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, basement wall, crawlspace wall and/or floor) and ducts outside conditioned spaces; U-factors for fenestration; and the solar heat gain coefficient (SHGC) of fenestration. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the type and efficiency of heating, cooling and service water heating equipment.

SECTION 402
BUILDING THERMAL ENVESCOPE

402.1 General. (Prescriptive).

402.1.1 Insulation and fenestration criteria. The building thermal envelope shall meet the requirements of Table 402.1.1 based on the climate zone specified in Chapter 3.

402.1.2 R-value computation. Insulation material used in layers, such as framing cavity insulation and insulating sheathing, shall be summed to compute the component R-value. The manufacturer’s settled R-value shall be used for blown insulation. Computed R-values shall not include an R-value for other building materials or air films.

402.1.3 U-factor alternative. An assembly with a U-factor equal to or less than that specified in Table 402.1.3 shall be permitted as an alternative to the R-value in Table 402.1.1.

Exception: For mass walls not meeting the criterion for insulation location in Section 402.2.3, the U-factor shall be permitted to be:

1. U-factor of 0.17 in Climate Zone 1.
2. U-factor of 0.14 in Climate Zone 2.
3. U-factor of 0.12 in Climate Zone 3.

<table>
<thead>
<tr>
<th>CLIMATE ZONE</th>
<th>FENESTRATION U-FACTOR</th>
<th>SKYLIGHT\a U-FACTOR</th>
<th>GLAZED FENESTRATION</th>
<th>CEILING R-VALUE</th>
<th>WOOD FRAME WALL R-VALUE</th>
<th>MASS WALL R-VALUE</th>
<th>FLOOR R-VALUE</th>
<th>BASEMENT WALL R-VALUE</th>
<th>SLAB R-VALUE &amp; DEPTH</th>
<th>CRAWL SPACE WALL R-VALUE</th>
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<td>0.60</td>
<td>NR</td>
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<td>19</td>
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<td>10, 2 ft</td>
<td>10 / 13</td>
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<tr>
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<td>0.60</td>
<td>NR</td>
<td>38</td>
<td>19 or 13 + 5\a</td>
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<td>10 / 13</td>
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<tr>
<td>6</td>
<td>0.35</td>
<td>0.60</td>
<td>NR</td>
<td>49</td>
<td>19 or 13 + 5\a</td>
<td>15</td>
<td>30\f</td>
<td>10 / 13</td>
<td>10, 4 ft</td>
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<td>30\f</td>
<td>10 / 13</td>
<td>10, 4 ft</td>
<td>10 / 13</td>
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</table>

For SI: 1 ft = 304.8 mm

a. R-values are minimums. U-factors and SHGC are maximums. R-19 shall be permitted to be replaced into a 2 × 6 cavity.
b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glass fenestration.
c. The first R-value applies to continuous insulation, the second to framing cavity insulation; either insulation meets the requirement.
d. R-5 shall be added to the required slab edge R-values for heated slabs.
e. There are no SHGC requirements in the Marine zone.
f. Or insulation sufficient to fill the framing cavity, R-19 minimum.
g. "13 + 5" means R-13 cavity insulation plus R-5 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2.

2006 INTERNATIONAL ENERGY CONSERVATION CODE®
### Second Floor
MNV 8371
Belmont "C"
12" and 16" on center

#### AAS LP Solid Shear Board
- Position the board to each floor 2'-3.5" using one 6" bar and 2 planks
- Screw depth on 3" point
- Set of 3/4" horizontal screws outside of building

### Material List

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<thead>
<tr>
<th>Type</th>
<th>QTY</th>
<th>Size</th>
<th>Width</th>
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<td>1 1/2&quot;</td>
<td>8'</td>
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<td>1 1/2&quot;</td>
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</tr>
<tr>
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<td>2</td>
<td>1 1/2&quot;</td>
<td>12'</td>
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<td>16'</td>
<td>1</td>
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<td>2</td>
<td>1 1/2&quot;</td>
<td>20'</td>
<td>1</td>
</tr>
</tbody>
</table>

### Notes
- All hangers ITT 39.5 unless noted otherwise
- Depth of beam 2'-3.5" are subject to fuel gas quality
Electrical Layout:

- All electrical to meet 2008 NEC

Rooms:
- Bed RM
- Living RM
- Kitchen
- Bath

Measurements:
- 12'-0" Height
- 5'-6" Width
Overhead Service
Residential Wiring Detail
Residential Wall Section (Crawl Space)

Manufactured trusses (provide a minimum 20 psf snow load). Provide copies of the roof truss drawings from the manufacturer.

Asphalt shingles, 15 pound felt, roof sheathing with spacer clips.

In a re-roofing application, the existing roof covering must be removed prior to the application of the new roofing material.

Ice and water barrier is required 34 inches beyond the exterior wall line.

Provide attic ventilation at a rate of one sq/ft per 300 sq/ft equally split at the ridge and eave.

Metal drip edge and fascia board.

Continuous vented soffit material.

Rigid windwash barrier must go to the underside of the truss top cord.

Headers must be sized to carry all loads.

2 x 6 DBL W/ 1/2" SPACE 2

Pan flashing is required under all exterior doors and windows.

7/16 inch wall sheathing minimum.

Siding: Vinyl siding allows for a maximum stud spacing of 16 inches on center including the gable ends. (Order the gable end rafters accordingly).

The rim joist must be insulated to a minimum R-19 (use foil faced foam or provide a sealed vapor barrier over the fiberglass insulation).

1/2 inch diameter anchor bolts with a 7 inch minimum concrete embedment. The anchor bolt shall have a 2 inch diameter by 0.125 inch thick washer tightened and countersunk 0.25 inch into the sill plate. See MSBC Table R404.1(2) for anchor bolt spacing. Not less than two bolts per sill member or exceeding 12 inches from corners. See separate table for reinforcing requirements.

Concrete and masonry foundations including usable or habitable space are required to have waterproofing applied in group II or III soil types. Damp proofing can only be applied in group I sand/gravel type soils. The block joints must be tooled on both sides of the wall.

Provide adequate frost protection, footings must be placed a minimum of 34" below finished grade.

Footings must be sized to carry all applied loads. Install two #4 rebar opt.

Continuous around the perimeter with a minimum 20 inch lap and lap properly tied. (Bars must be bent thru the corner) Support the rebar 3 inches above ground and 3 inches in from the edges.

Rafter ties, H-2.5 Clip.

Provide attic access with a rough opening not less than 22" x 30".

58 inch gypsum board over a 4 mil vapor barrier (ceiling fully sealed) and a minimum R-38 attic insulation.

R-19 wall insulation

4 mil vapor barrier (it must be sealed)

1/2 inch gypsum board.

2005 NRC electrical boxes must be installed on all walls and ceilings that contain conditioned spaces.

Treated sill plate. 2 x

3/4" T+G OSB SUBFLOOR MIN.

2 X TieST CRWL

18" minimum clearance

VENTS PER R-908.6

Provide a minimum 18"x24" crawlspace access and under floor ventilation as outlined in section R408 of the 2006 IRC.

Exposed earth must be covered with a continuous vapor retarder (6 mil minimum). Joints of the vapor retarder shall overlap by 6 inches and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches up the stem wall and shall be attached and sealed to the stem wall.

Exterior earth must be covered with a continuous vapor retarder (6 mil minimum). Joints of the vapor retarder shall overlap by 6 inches and shall be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches up the stem wall and shall be attached and sealed to the stem wall.

Provide a minimum R-5 sub-grade insulation from the top of the wall down to the top of the footing (foam plastic insulation requires a 15 minute thermal barrier be directly applied).
BASEMENT WALL SECTION

CROSS OVERS
W/ 2" PVC FORM-A-DRAIN 2" W X 6" H

8" X 16" CONCRETE STRIP T/C.

#4 BAR @ 6" O.C.

BASEMENT WALL 8" X 9" CONCRETE
FROM THE FACE OF THE WALL
FULL HEIGHT W/ 3/4" CLEARANCE

#5 VERTICAL @ 24" O.C.

#3" ANCHOR BOLT

OF EACH BASEMENT WINDOW
FULL HEIGHT AT EACH SIDE
2") PROVIDE #4 VERTICAL REIN.

EACH SIDE OF WINDOW
EXTENDING 1/0" BEYOND
BASEMENT WINDOWS
WALL REINFORCING BELOW
1") PROVIDE 2-#4 HORIZONTAL REIN.

NOTES:
STAIR DETAIL - SIDE VIEW

SCALE: 3/8" = 1'-0"