Installed Insulation Density Calculation

a) Wall width or length in inches = (feet x 12 inches/foot) = \( a \) in

b) Wall height in inches = \( b \) in

c) Gross wall square inches = \( a \times b \) = \( c \) in\(^2\)

d) Square inches of windows and doors in wall =
   - Multiply opening width by opening height (use space below for drawings)
   \( d \) in\(^2\)

e) Net wall in square inches = \( c - d \) = \( e \) in\(^2\)

f) Wall depth in inches = \( f \) in

g) Net wall cavity cubic feet to be insulated = \( \frac{\text{in}^3}{1728 \text{ in}^3 / \text{ft}^3} = \frac{e \times f}{1728} = g \) ft\(^3\)

h) Net wall cavity cubic feet adjusted for framing = \( g \times 0.85 = h \) ft\(^3\)

i) Pounds of insulation installed in cavity (see line “h”) = \( i \) lbs

j) Pounds per cubic foot of insulation = \( \frac{\text{Pounds of insulation}}{\text{Cubic feet to be insulated}} = \frac{i}{h} = j \) lbs/ft\(^3\)

<table>
<thead>
<tr>
<th>Insulation</th>
<th>Wall</th>
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<tbody>
<tr>
<td></td>
<td>Dense Pack</td>
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<tr>
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<td>3.25 – 3.75</td>
<td>Man. Recommendations</td>
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</table>
| Fiberglass       | 1.6        | N/A                     | 1.6

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Installed Insulation Density Calculation

**Example**

a) Wall width or length in inches = (feet x 12 inches/foot) =  
   
a) 240 in

b) Wall height in inches =  
   
b) 96 in

c) Gross wall square inches = \( a \times b = \)  
   
c) 23,040 in\(^2\)

d) Square inches of windows and doors in wall =  
   - Multiply opening width by opening height (use space below for drawings)

- Gross wall is 20'-0" x 8'-0" (23,040 in\(^2\))

- Total square inches of all openings =

   d) 8,064 in\(^2\)

e) Net wall in square inches = \( c - d = \)  

   e) 14,976 in\(^2\)

f) Wall depth in inches =

   f) 3.5 in

g) Net wall cavity cubic feet to be insulated =  
   \[
   \frac{\text{in}^3}{1728 \text{in}^3 / \text{ft}^3} = \frac{e \times f}{1728} = \]

   g) 30.33 ft\(^3\)

h) Net wall cavity cubic feet adjusted for framing = \( g \times 0.85 = \)  

   h) 25.8 ft\(^3\)

i) Pounds of insulation installed in cavity (see line “h”) =

   i) 90 lbs

j) Pounds per cubic foot of insulation =  
   \[
   \frac{\text{Pounds of insulation}}{\text{Cubic feet to be insulated}} = \frac{i}{h} = \]

   j) 3.5 lbs/ft\(^3\)

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Required Bags of Insulation for Specified Density

a) Wall width or length in inches = (feet x 12 inches/foot) =  

b) Wall height in inches =  

c) Gross wall square inches = $a \times b =$  

d) Square inches of windows and doors in wall =  
- Multiply opening width by opening height (use space below for drawings)  

- Total square inches of all openings =  

e) Net wall in square inches = $c - d =$  

f) Wall depth in inches =  

g) Net wall cavity cubic feet to be insulated = $\frac{\text{in}^3}{1728 \text{in}^3/\text{ft}^3} = \frac{e \times f}{1728} =$  

h) Net wall cavity cubic feet adjusted for framing = $g \times 0.85 =$  

i) Insulation density required (see table below) =  

j) Pounds of insulation required = $\text{Ft}^3$ of wall $\times$ density = $i \times h =$  

k) Pounds per bag of insulation =  

l) Bags of insulation required = $\frac{\text{Lbs of insulation required}}{\text{Lbs per bag of insulation}} = \frac{j}{k}$

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Required Bags of Insulation for Specified Density

Example

a) Wall width or length in inches = (feet x 12 inches/foot) = a) 240 in

b) Wall height in inches = b) 96 in

c) Gross wall square inches = $a \times b = c) 23,040 \text{ in}^2$

d) Square inches of windows and doors in wall =

- Multiply opening width by opening height (use space below for drawings)

<table>
<thead>
<tr>
<th>Door 36” x 80” (2,880 in²)</th>
<th>Window 36” x 48” (1,728 in²)</th>
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<tbody>
<tr>
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<td>Gross wall is 20’-0” x 8’-0” (23,040 in²)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Total square inches of all openings =

d) 8,064 in²
e) 14,976 in²

f) 3.5 in

g) Net wall cavity cubic feet to be insulated =

$$\frac{\text{in}^3}{1728 \text{ in}^3 / \text{ft}^3} = \frac{e \times f}{1728} =$$

h) Net wall cavity cubic feet adjusted for framing = $g \times 0.85 =$

i) Insulation density required (see table below) =

j) Pounds of insulation required = $\text{Ft}^3 \times \text{wall} \times \text{density} = i \times h =$

k) Pounds per bag of insulation =

l) Bags of insulation required =

$$\frac{\text{Lbs of insulation required}}{\text{Lbs per bag of insulation}} = \frac{j}{k}$$

Recommended Insulation Density, lbs/ft³

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