

# Headroom calculations Page 1

square footage, full  $7\frac{1}{2}'$  Headroom:

upper level:

LR:	$160\frac{1}{2}'' \times 301'' = 48,310 \text{ in}^2$
Hall	$36'' \times 282'' = 10,152 \text{ in}^2$
BR	$146'' \times 119\frac{1}{2}'' = 17,447 \text{ in}^2$
office	$136\frac{1}{2}'' \times 119\frac{1}{2}'' = 16,312 \text{ in}^2$
kitchen	$128'' \times 160\frac{1}{2}'' = 20,544 \text{ in}^2$
upper level - total headroom	<u><math>= 112,765 \text{ in}^2</math></u>

Lower level:

$$268\frac{1}{2} \times 112\frac{1}{2} = 30,206 \text{ in}^2$$

stairs  $45 \times 20\frac{1}{2} = 922$

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$$29,284 \text{ in}^2 \text{ net}$$

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total full headroom =

$112,765$
<u><math>29,284</math></u>
$142,049$

no headroom area:

Dining, Parking lot side:  $112\frac{1}{2} \times 78'' = 8,775 \text{ in}^2$

knee wall, linear ~~free~~ length:

$301$
$301$
$146$
$136$
<u><math>282</math></u>
$1166 \text{ in}$

# Headroom calculations

## Page 2

$$\begin{array}{r} 142,049 \text{ in}^2 = \text{full headroom} \\ - 8,775 \text{ in}^2 \quad \text{Lower level} \\ \hline 133,274 \text{ in}^2 \quad \text{available} \end{array}$$

Linear length of kneewall = 1166 in  
max setback of kneewall is:

$$\frac{133,274 \text{ in}^2}{1166 \text{ in}} = 114'' = 9\frac{1}{2}'$$

Edge of building is 120" from  
end of headroom area

$$\begin{array}{r} 120 \\ - 114 \\ \hline 6 \end{array}$$

therefore:

kneewall is placed 6" from  
outer edge of building

kneewall will actually be placed  
well ~~inside~~ inside of this limit.