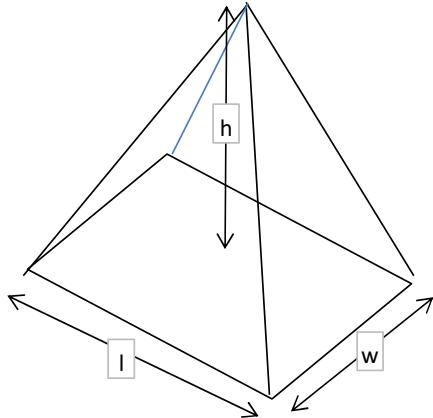


Subject

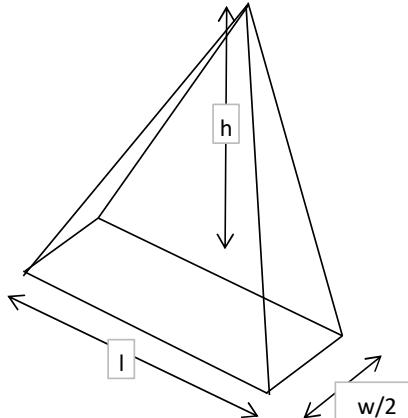
**for a rectangular pyramid**

$$\text{Volume} = (l * w * h) / 3$$



**for half a rectangular pyramid**

$$\text{Volume} = (l * (w/2) * h) / 3$$



**Hip to gable volume = prism comprising gable side face, less half pyramid**

**Triangular Prism Volume Proposed (including existing pitch):**

Gable external height	2.76	m
Gable base external length (overall house depth)	8.55	m
Prism length (distance from gable wall to original ridge)	3.99	m
<u>Volume of triangular prism = 0.5*h*b*l</u>	<u>47.08</u>	<u>m<sup>3</sup></u>

**Half Rectangular Pyramid Volume (volume of existing pitch):**

w/2 i.e. distance from gable wall to original ridge	3.99	m
l (i.e. 2 x gable base)	8.55	m
h (same as height of gable)	2.76	m
<u>Volume</u>	<u>31.38534</u>	<u>m<sup>3</sup></u>

**Net additional volume required for hip to gable** **15.69267** **m<sup>3</sup>**

Volume available for dormer (50m <sup>3</sup> allowance)	34.31	m <sup>3</sup>
Dormer area = height x dormer depth / 2	5.48	m <sup>2</sup>
Max Dormer width	6.26	m

(6.035m proposed)