

Rosslare Case Study

Passive House Cost Analysis

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NOTES:

REVISION'S

"A" DATE 12-05-2010

"B" DATE 01-04-2010

10 AC Proposed 6 no new fully serviced dwelling houses at Grange Little and Walselough Roosters Co W
100% Clearance Property Developments Ltd
Seamus Mullins & Co.



House shaded blue to be demolished

Proposed masonry boundary wall with cock and hen style capping
All sewage and surface water and water supply to be connected to infra mains as previously granted under planning ref nos 20080060 20080676 and 20084077.

Areas of site edged in red 5116 sq Mtrs. 520 Hac approx.

Areas of site edged in red 5116 sq Mtrs. 520 Hac approx.

Areas calculated for private garden spaces shaded

Total area of greenspace 10% highlighted as

225MM THICK BLOCK WALL, 2M HIGH CAPPED AND RENDERED TO INNER FACE(SHOWN IN BLUE)

325MM THICK MASONRY FACED BLOCK WALL, 1.5M HIGH WITH COCK AND HEN CAPPING AND RENDERED TON INNER FACE(SHOWN IN YELLOW)

TIMBER POST AND PANEL TO SIDE DIVISION OF PROPERTY (SHOWN IN BROWN)

SITE LAYOUT GRANGE LOUGH.

NORTH

South Elevation



North Elevation

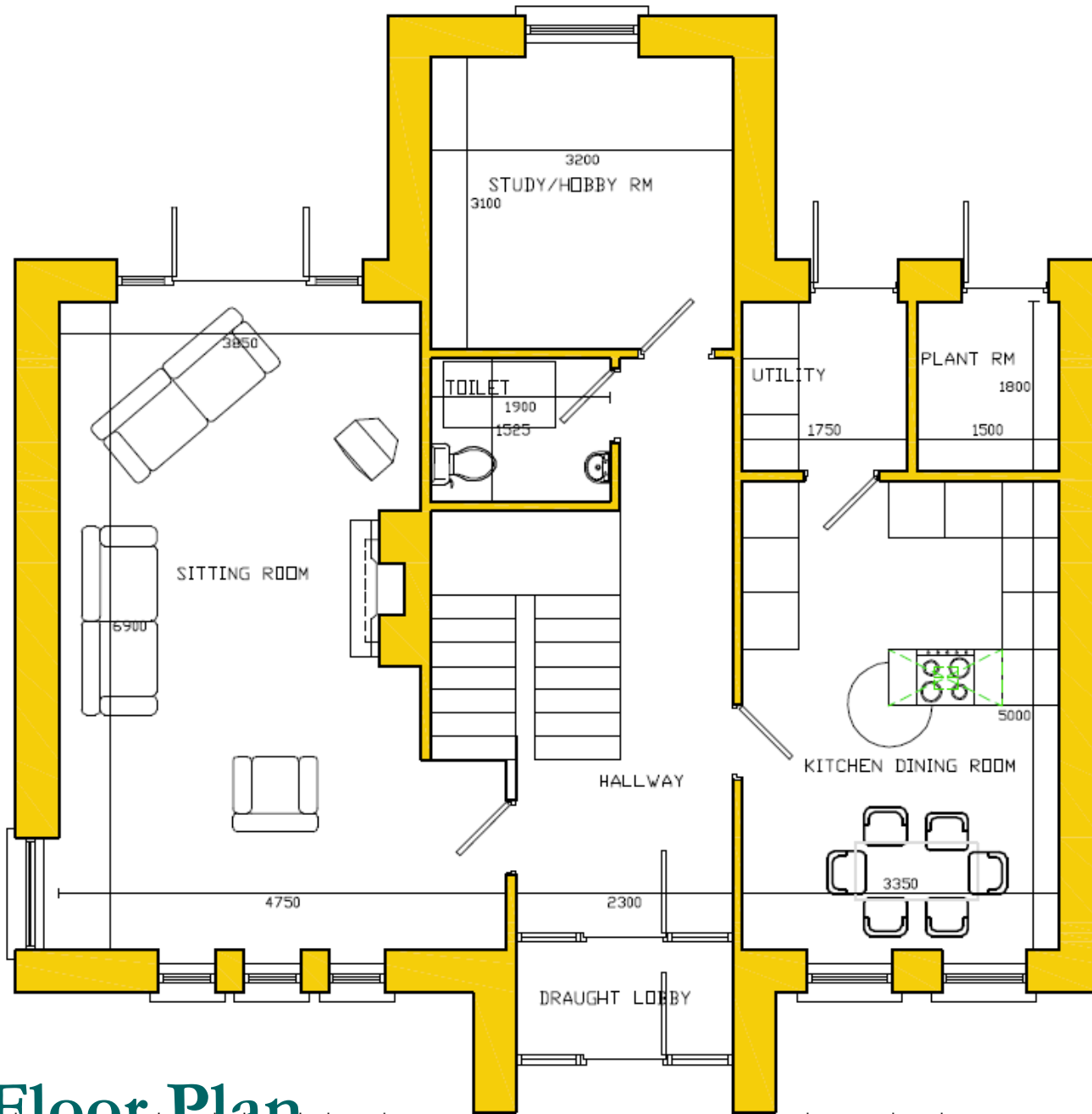


West Elevation

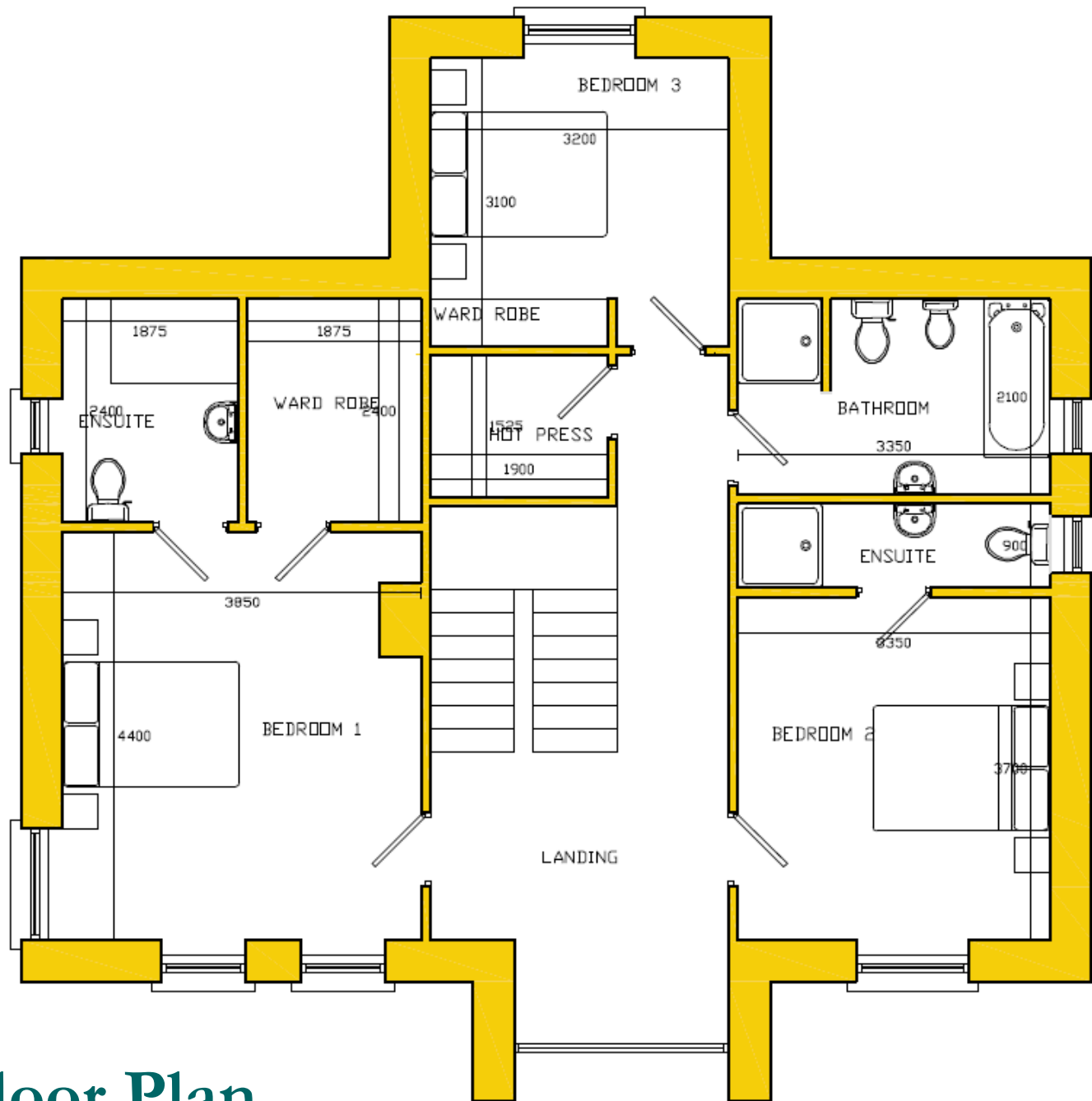


East Elevation





Ground Floor Plan



First Floor Plan

Building Description

- First dwelling of a scheme of eight houses
- Ireland's first certified passive house commercial scheme
- Irish design, manufacture, and construction
- Thermal envelope of timber frame
- Storey and a-half type dwelling with a cruciform foot print

Building Description

- Floor area of 167m² (1,806 sq.ft.)
- Traditional design with a modern twist
- Space heat demand of 10KWh/(m²a)
- Window installed U-Value of 0.85W(m²K)
- Dwelling heat load of 1.5Kw
- Structural air tightness of less than 0.60 h⁻¹

Cost Comparison Definition

- Extra over construction cost of the Rosslare house (No. 01A) built to certified passive standards compared to building of the same dwelling to current building regulations with a good mid-range A3 BER rating, and also of timber frame construction.

Cost Comparison Definition

- No building elements other than those containing a passive aspect have been examined.
- An overheads / profit margin has not been included in the analysis.
- VAT has not been added on to the final figure.

Exclusions

- Land Cost
- Site Preliminaries
- Finishes and Fitments
- Personal Choice Items

Cost Analysis

The background is a solid teal color. In the lower half, there is a faint, semi-transparent image of two hands shaking, symbolizing agreement or partnership. The text 'Cost Analysis' is centered in the upper half in a white, serif font with a slight drop shadow.

1. Substructure

Extra Over Cost

- Additional insulation detailing at the junction of the external wall and the floor slab.
€400
(22¢ - sq.ft.)
- Increased insulation thickness under the general area of the floor slab.
€1,110
(61¢ - sq.ft.)

2. External Wall

Extra Over Cost

- Wider and heavier wall structure.
- Greater insulation thickness.
- Wider service cavity.
- Increased measures to deal with interstitial condensation, air tightness, and wind tightness.

€7,320

(€4.05 - sq.ft.)

3. Roof Structure

Extra Over Cost

- Heavier roof structure.
- Greater insulation thickness.
- Increased measures to deal with interstitial condensation, air tightness, and wind tightness.

€1,480

(82¢ - sq.ft.)

4. Windows and External Doors

Extra Over Cost

- Supply and installation.

€2,350

(€1.30 - sq.ft.)

- Builder's work in improving thermal bridging at side reveals, head, and cill level. Overcoming weatherproofing caused by the necessary repositioning of the window in the thermal envelope.

€2,400

(€1.33 - sq.ft.)

5. Space Heating System

Extra Over Cost

- No requirement to provide a full hydraulic heating system in a passive house, due to a very low space heat requirement.
- Higher specification requirement of a passive certified MHRV System.

-€1,000

(-55¢ - sq.ft.)

€510

(28¢ - sq.ft.)

6. Distribution Losses

Extra Over Cost

- Additional insulation thickness to the exhaust /fresh air ductwork between the building envelope and the MHRV unit.
€100
(6¢ - sq.ft.)
- Lagging of hot water pipework.
€420
(23¢ - sq.ft.)₁₈

7. Passive House Certification

Extra Over Cost

- Irish Passive House Academy Certification Fee. €1,500
(83¢ - sq.ft.)
- Technical advice to ensure compliance with PHPP calculations and software. €1,000
(55¢ - sq.ft.)

8. Door Blower Test

Extra Over Cost

- Passive House door blower test requires a different methodology, and the air tightness requirement is far greater than our current building standards.
- BER testing is also required for compliance purposes.

€420

(23¢ - sq.ft.)

Cost Analysis Summary

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Cost Analysis Summary

1.	Substructure	€1,510.00
2.	External Wall	€7,320.00
3.	Roof Structure	€1,480.00
4.	Windows and External Doors	€4,750.00
5.	Space Heating System	-€490.00
6.	Distribution Losses	€520.00
7.	Passive House Certification	€2,500.00
8.	Door Blower Test	€420.00
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		€18,010.00
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Conclusions

Additional costs

– v –

Benefits of passive construction

- Cost benefits
(both private and public)
- Lifestyle benefits
*(controlled air flow, warm,
draught-proof, healthier living)*

Conclusions

- Selling at a lower house price
 - v– selling at a higher house price
 - with lower running cost to the purchaser
- The learning curve:
 - how steep and how can it be paid for?

Conclusions

- Extra over cost per sq. ft. = €9.97
- Effects of the downturn on passive house building costs
- Future ideas to reduce building costs
- Problems for the auctioneer

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Passive House Cost Analysis

Thanks for your attention!

Seamus Mullins
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