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Structural Insulated Panels

Build It Green – Structural Insulated Panels

Cost Comparison Study



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Structural Insulated Panels

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Structural Insulated Panels

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Structural Insulated Panels

1.0 Summary

The below cost comparison study has been calculated from actual build costs for the same 4 bedroom 103m² house type using the following construction types; Masonry, Timber Frame and Structural Insulated Panels.

All three construction types have been specified to a comparable insulation specification although the Structural Insulated Panels inherently achieve the highest u-values within its class.

The cost figures used within each cost analysis have been taken from current market prices at the issue date of this document and could be subject to variation.

In our study we also identified other savings when constructing with Structural Insulated Panels, in the following areas:

- Reduced foundation design
- Down Graded Heating System
- Less waste through damage or theft
- Extra floor area
- Reduced project and finance / funding costs



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2.0 Exclusions

The study did not include any of the following works:

- **External Works**
 - Substructure
 - Wall Cladding
 - Windows and Doors
 - Entrance Canopies
 - Structural Steel Work
 - Roof Covering
 - Rainwater Goods
 - Sundries

- **Internal Works**
 - 1st & 2nd Fix Carpentry
 - Mechanical & Plumbing
 - Electrical
 - Windows and doors
 - Kitchens & Bathrooms
 - Ceramics
 - Floor Coverings & Treatments
 - Floor ceilings
 - Internal Wall Finishes
 - Structural Steel Work
 - Painting & Decorating
 - Sundries

3.0	Masonry - Cost Analysis
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Construction Type: Masonry

Description: 1 off 2 Storey House, 4 Bed (103m²)

Build Programme: 4 - Weeks (Superstructure only)

Ref	Description	Quantity	Units	Rate	Value:
PRELIMINARIES					
<u>SITE STAFF</u>					
A	Site Manager	4	Weeks	£700.00	£2,800.00
B	Safety Officer	4	Visits	£70.00	£280.00
C	General Attendance Labourer	4	Weeks	£350.00	£1,400.00
<u>SITE ACCOMMODATION</u>					
D	Site Manager's Office	4	Weeks	£35.00	£140.00
E	Mess	4	Weeks	£30.00	£120.00
F	Secure cabins	4	Weeks	£12.00	£48.00
G	Sanitary Accommodation	4	Weeks	£35.00	£140.00
<u>PROVISION OF TEMPORARY SERVICES</u>					
H	Electrical Service to site Accommodation		Item	£200.00	£200.00
I	Telephone Connection		Item	£200.00	£200.00
J	Water Service		Item	N/A	
<u>MISCELLANEOUS CONSUMABLES</u>					
K	Name Board		Item	£250.00	£250.00
L	Telephone Rental	1	qtrs	£70.00	£70.00
M	Telephone Calls	4	Weeks	£20.00	£80.00
N	Water	4	Weeks	£10.00	£40.00
O	Electricity	4	Weeks	£20.00	£80.00
<u>SITE SECURITY</u>					
P	Fencing	4	Weeks	£20.00	£80.00
<u>PLANT & TRANSPORT</u>					
Q	Small Plant	4	Weeks	£65.00	£260.00
R	Crane for Trusses	2	nr	£400.00	£800.00

S	Fork lift	4	Weeks	£175.00	£700.00
T	Site Managers Car	4	Weeks	£150.00	£600.00

SCAFFOLDING & ACCESS

U	Scaffold to external elevation	250	m2	£18.00	£4,500.00
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SITE TRANSPORT SERVICES

V	Delivery / Removal of Accommodation Units	2	nr	£60.00	£120.00
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CLEANING SITE AND CLEARING RUBBISH

W	<u>Skips</u>	20	nr	£110.00	£2,200.00
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X	<u>Cleaning units on completion</u>	8	nr	£125.00	£1,000.00
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SUPERSTRUCTURE

MASONRY

A	140mm Celcon 4N blocks to inner leaf of cavity wall	237	m2	£32.34	£7,664.58
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B	95mm Celetex or similar insulation built in to cavity wall	237	m2	£12.68	£3,005.16
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C	70mm Celetex or similar insulation built to inner leaf blocks	237	m2	£7.80	£1,848.60
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D	100mm Lightweight Blockwork to internal partitions, GF	93.6	m2	£23.64	£2,212.70
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E	100 X 215mm PCCLintel 1350mm long	4	nr	£26.16	£104.64
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CARPENTRY

F	First Floor Joists and Decking	185.1	m2	£60.00	£11,106.00
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G	Celcon coursing bricks	379	nr	£0.64	£242.56
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H	75 x 47mm to studwork to internal partitions 1st floor	574.4	m	£4.01	£2,303.34
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ROOF CONSTRUCTION

I	Roof construction, in standard timber trusses	180.1	m2	£50.50	£9,095.05
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J	150 x 75mm sw plate to top of eaves and purlin beam	65	m2	£5.79	£376.35
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K	95mm Celetex or similar insulation built in to cavity wall	180.1	m2	£12.68	£2,283.67
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L	70mm Celetex or similar insulation built to inner leaf blocks	180.1	m2	£7.80	£1,404.78
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DESIGN COSTS

M	Structural Engineers design certificate for the panel component Thermal Calculations - U-Value / SAP				£1,578.00
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TOTAL PRELIMINARIES **£16,108.00**

TOTAL SUPERSTRUCTURE **£43,225.44**

TOTAL **£59,333.44**

4.0 Timber Frame - Cost Analysis

Construction Type: Timber Frame

Description: 1 off 2 Storey House, 4 Bed (103m2)

Build Programme: 3 - Weeks (Superstructure only)

Ref	Description	Quantity	Units	Rate	Value:
PRELIMINARIES					
<u>SITE STAFF</u>					
A	Site Manager	3	Weeks	£700.00	£2,100.00
B	Safety Officer	3	Visits	£70.00	£210.00
C	General Attendance Labourer	3	Weeks	£350.00	£1,050.00
<u>SITE ACCOMMODATION</u>					
D	Site Manager's Office	3	Weeks	£35.00	£105.00
E	Mess	3	Weeks	£30.00	£90.00
F	Secure cabins	3	Weeks	£12.00	£36.00
G	Sanitary Accommodation	3	Weeks	£35.00	£105.00
<u>PROVISION OF TEMPORARY SERVICES</u>					
H	Electrical Service to site Accommodation		Item	£200.00	£200.00
I	Telephone Connection		Item	£200.00	£200.00
J	Water Service		Item	N/A	
<u>MISCELLANEOUS CONSUMABLES</u>					
K	Name Board		Item	£250.00	£250.00
L	Telephone Rental	1	qtrs	£70.00	£70.00
M	Telephone Calls	3	Weeks	£20.00	£60.00
N	Water	3	Weeks	£10.00	£30.00
O	Electricity	3	Weeks	£20.00	£60.00
<u>SITE SECURITY</u>					
P	Fencing	3	Weeks	£20.00	£60.00
<u>PLANT & TRANSPORT</u>					
Q	Small Plant	3	Weeks	£65.00	£195.00

R	Crane for Trusses	2	nr	£400.00	£800.00
S	Fork lift	3	Weeks	£175.00	£525.00
T	Site Managers Car	3	Weeks	£150.00	£450.00

SCAFFOLDING & ACCESS

U	Scaffold to external elevation	250	m2	£18.00	£4,500.00
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SITE TRANSPORT SERVICES

V	Delivery / Removal of Accommodation Units	2	nr	£60.00	£120.00
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CLEANING SITE AND CLEARING RUBBISH

W	<u>Skips</u>	5	nr	£110.00	£550.00
X	<u>Cleaning units on completion</u>	1	nr	£125.00	£125.00

SUPERSTRUCTURE

TIMBER FRAME (EXTERNAL WALLS)

A	151mm (1 x 11mm OSB +140mm) Timber Stud wall at 600 centres	237	m2	£30.23	£7,164.51
B	140mm Celetex or similar insulation built in to 140mm Timber Frame	237	m2	£12.68	£3,005.16
C	70mm Celetex or similar insulation built to inner leaf Timber Frame	237	m2	£7.80	£1,848.60

CARPENTRY

D	First Floor Joists and Decking	185.1	m2	£60.00	£11,106.00
E	75 x 47mm to studwork to internal partitions 1st floor	574.4	m	£4.01	£2,303.34

ROOF CONSTRUCTION

F	Roof construction, in standard timber trusses	180.1	m2	£50.50	£9,095.05
G	150 x 75mm sw plate to top of eaves and purlin beam	65	m2	£5.79	£376.35
H	95mm Celetex or similar insulation built in to cavity wall	180.1	m2	£12.68	£2,283.67
I	70mm Celetex or similar insulation built to inner leaf blocks	180.1	m2	£7.80	£1,404.78

DESIGN COSTS

J	Structural Engineers design certificate for the panel component Panel Design drawings Thermal Calculations - U-Value / SAP				£2,709.85
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DELIVERIES / HAULAGE

K	13m Articulated HGV trailer delivered to site				£2,400.00
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TOTAL PRELIMINARIES	£11,891.00
TOTAL SUPERSTRUCTURE	£43,697.31
TOTAL	£55,588.31

5.0 Structural Insulated Panels - Cost Analysis

Construction Type: Structural Insulated Panels

Description: 1 off 2 Storey House, 4 Bed (103m²)

Build Programme: 1.8 - Weeks (Superstructure only)

Ref	Description	Quantity	Units	Rate	Value:
PRELIMINARIES					
<u>SITE STAFF</u>					
A	Site Manager	1.8	Weeks	£700.00	£1,260.00
B	Safety Officer	1.8	Visits	£70.00	£126.00
C	General Attendance Labourer	1.8	Weeks	£350.00	£630.00
<u>SITE ACCOMMODATION</u>					
D	Site Manager's Office	1.8	Weeks	£35.00	£63.00
E	Mess	1.8	Weeks	£30.00	£54.00
F	Secure cabins	1.8	Weeks	£12.00	£21.60
G	Sanitary Accommodation	1.8	Weeks	£35.00	£63.00
<u>PROVISION OF TEMPORARY SERVICES</u>					
H	Electrical Service to site Accommodation		Item	£200.00	£200.00
I	Telephone Connection		Item	£200.00	£200.00
J	Water Service		Item	N/A	
<u>MISCELLANEOUS CONSUMABLES</u>					
K	Name Board		Item	£250.00	£250.00
L	Telephone Rental	1	qtrs	£70.00	£70.00
M	Telephone Calls	1.8	Weeks	£20.00	£36.00
N	Water	1.8	Weeks	£10.00	£18.00
O	Electricity	1.8	Weeks	£20.00	£36.00
<u>SITE SECURITY</u>					
P	Fencing	1.8	Weeks	£20.00	£36.00
<u>PLANT & TRANSPORT</u>					
Q	Small Plant	1.8	Weeks	£65.00	£117.00
R	Crane for SIP Panels	1.8	Weeks	£1,250.00	£800.00

S	Fork lift	1.8	Weeks	£175.00	£315.00
T	Site Managers Car	1.8	Weeks	£150.00	£270.00

SCAFFOLDING & ACCESS

U	Scaffold to external elevation	250	m2	£18.00	£4,500.00
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SITE TRANSPORT SERVICES

V	Delivery / Removal of Accommodation Units	2	nr	£60.00	£120.00
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CLEANING SITE AND CLEARING RUBBISH

W	<u>Skips</u>	5	nr	£110.00	£550.00
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X	<u>Cleaning units on completion</u>	1	nr	£125.00	£125.00
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SUPERSTRUCTURE

STRUCTURAL INSULATED PANELS (EXTERNAL WALLS)

A	125mm (12x 11mm OSB +114mm) Polyurethane Fore Core SIP	237	m2	£55.11	£13,061.07
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CARPENTRY

B	First Floor Joists and Decking	185.1	m2	£55.11	£10,200.86
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C	75 x 47mm to studwork to internal partitions	174	m2	£25.08	£4,363.92
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STRUCTURAL INSULATED PANELS (ROOF)

D	150mm (2 x 11mm OSB +128mm) Polyurethane Fore Core SIP	180.1	m2	£70.40	£12,679.04
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DESIGN COSTS

E	Structural Engineers design certificate for the panel component Panel Design drawings Thermal Calculations - U-Value / SAP				£2,709.85
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DELIVERIES / HAULAGE

F	13m Articulated HGV trailer delivered to site				£2,400.00
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TOTAL PRELIMINARIES **£9,860.60**

TOTAL SUPERSTRUCTURE **£45,414.74**

TOTAL **£55,275.34**



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Structural Insulated Panels

6.0 Cost Comparison Table

Construction Type	Masonry	Timber Frame	Structural Insulated Panels (SIPs)
Build Programme	4-weeks	3-weeks	1.8-weeks
Total Preliminaries	£16,108.00	£11,891.00	£9,860.60
Total Superstructure	£43,225.44	£43,697.31	£45,414.74
Total	£59,333.44	£55,588.31	£55,275.34