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ATSPACE

DELIVERING BEYOND COMPLIANCE

22 Plot
Development
—

SAP Comprehensive Case Study

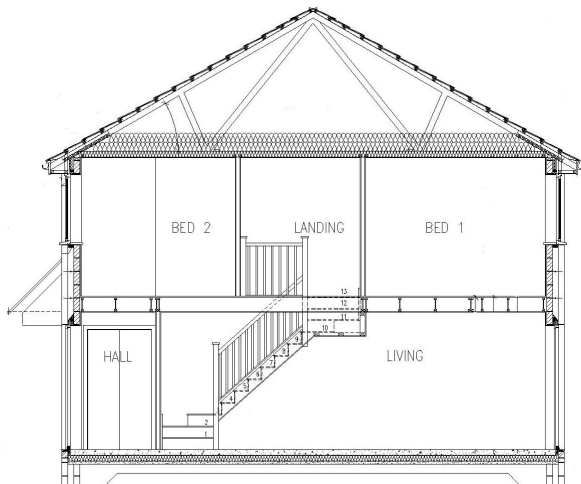


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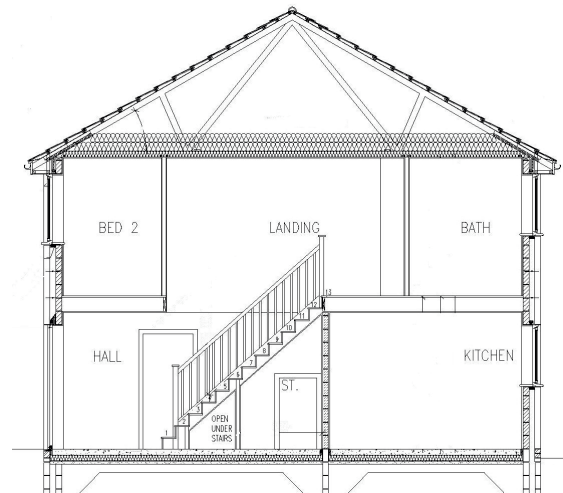
Dwelling Details

22x Detached & Semi-detached Dwellings

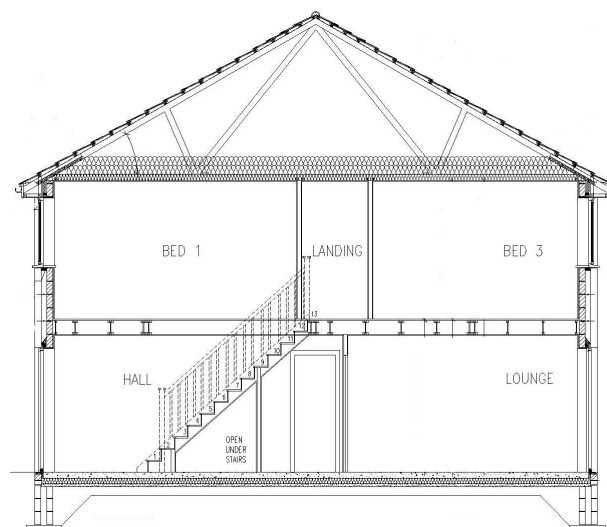
- 2, 3 & 4 bedroom properties
- Brick and block construction
- Gas heating
- Aim: achieve a cost saving per type across the site



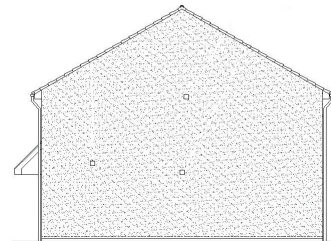
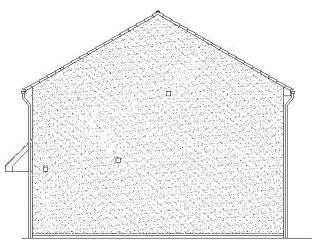
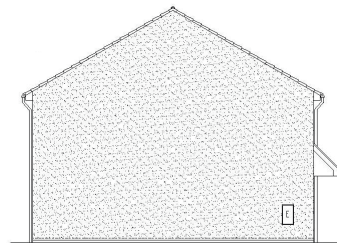
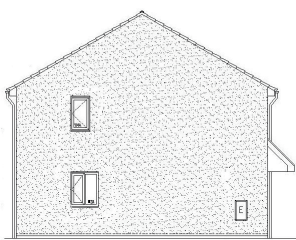
2 Bedroom



4 Bedroom

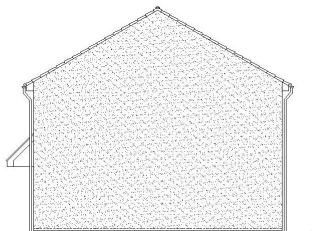
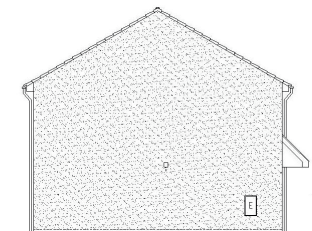


3 Bedroom



2 Bedroom

3 Bedroom



4 Bedroom

2 Bed Dwelling

Initial SAP Result Client Specification

- EPC Rating 82 B
 - CO₂ Emissions – 1,325 kg/year
 - +3.44% Under Compliance
 - Dwelling Emissions Rate (DER) – 19.24 kgCO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 52.2 kWh/m²/year
 - This type failed against compliance
-

Proposed SAP Result With Cost Saving Changes

- EPC Rating 82 B
 - CO₂ Emissions – 1,265 kg/year
 - -1.77% Under Compliance
 - Dwelling Emissions Rate (DER) – 18.27 kg/CO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 52.0 kWh/m²/year
-

3 Bed Dwelling

Initial SAP Result

Client Specification

- EPC Rating 83 B
 - CO₂ Emissions – 1,639 kg/year
 - -1.06% Under Compliance
 - Dwelling Emissions Rate (DER) – 17.73 kgCO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 53.4 kWh/m²/year
-

Proposed SAP Result

With Cost Saving Changes

- EPC Rating 83 B
 - CO₂ Emissions – 1,630 kg/year
 - -2.23% Under Compliance
 - Dwelling Emissions Rate (DER) – 17.52 kg/CO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 52.9 kWh/m²/year
-

4 Bed Dwelling

Initial SAP Result Client Specification

- EPC Rating 84 B
 - CO₂ Emissions – 2,147 kg/year
 - -2.50% Under Compliance
 - Dwelling Emissions Rate (DER) – 15.24 kgCO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 52.3 kWh/m²/year
-

Proposed SAP Result With Cost Saving Changes

- EPC Rating 84 B
 - CO₂ Emissions – 2,135 kg/year
 - -3.33% Under Compliance
 - Dwelling Emissions Rate (DER) – 15.11 kg/CO₂/m²/year
 - Dwelling Fabric Energy Efficiency (DFEE) – 52.0 kWh/m²/year
-

Our Cost Saving Changes

What We Changed

- Floor construction from slab on ground to beam and block
 - This allowed us to specify 10mm less insulation
 - It also reduced the thermal mass of the dwelling reducing the CO₂ used and fabric efficiency
 - Also used a cheaper equivalent of insulation for the floors and walls
 - In the 2 beds we also specified a cheaper boiler which would achieve compliance
-

Comparison of Results

2 Bedroom

Initial

EPC Rating 82 B

CO₂ Emissions – 1,269 kg/year

-0.43% Under Compliance

Dwelling Emissions Rate (DER) – 18.52 kgCO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 52.2 kWh/m²/year

Proposed

EPC Rating 82 B

CO₂ Emissions – 1,265 kg/year

-1.77% Under Compliance

Dwelling Emissions Rate (DER) – 18.27 kg/CO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 52.0 kWh/m²/year

3 Bedroom

Initial

EPC Rating 83 B

CO₂ Emissions – 1,639 kg/year

-1.06% Under Compliance

Dwelling Emissions Rate (DER) – 17.73 kgCO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 53.4 kWh/m²/year

Proposed

EPC Rating 83 B

CO₂ Emissions – 1,630 kg/year

-2.23% Under Compliance

Dwelling Emissions Rate (DER) – 17.52 kg/CO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 52.9 kWh/m²/year

4 Bedroom

Initial

EPC Rating 84 B

CCO₂ Emissions – 2,147 kg/year

-2.50% Under Compliance

Dwelling Emissions Rate (DER) – 15.24 kgCCO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 52.3 kWh/m²/year

Proposed

EPC Rating 84 B

CO₂ Emissions – 2,135 kg/year

-3.33% Under Compliance

Dwelling Emissions Rate (DER) – 15.11 kg/CO₂/m²/year

Dwelling Fabric Energy Efficiency (DFEE) – 52.0 kWh/m²/year

Cost Comparison

Initial

Floor Insulation – £1,600

Wall Insulation – £2,700

Boiler – £1,100

AVERAGE TOTAL £5,400

Proposed

Floor Insulation – £1,350

Wall Insulation – £2,100

Boiler – £800 (2 Beds Only)

AVERAGE TOTAL £4,550

What We Achieved
Savings Made

£850 per plot

£18,700 across the site