Architecture & Design Scotland
Ailtearachd is Dealgadh na h-Alba

Scotland’s Housing Expo in Inverness 2010

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Scotland’s Housing Expo 2010

Exciting houses, gardens, interiors and lots of fun events.

Taighean, garraidhean is lethean-a-staigh sónraichte is tòrr thachartasan spòrsail.

KIDS GO FREE!* CLANN AN-ASGAIDH!*
Scotland’s Housing Expo 2010

- first event of its kind in Scotland: learning from the Finnish experience
- demonstration project supporting Scottish Government’s low carbon communities agenda
- role in raising aspirations and supporting business development
- demonstrated integrated approach to design of sustainable, low carbon housing
**Expo objectives**

- to showcase innovative, low carbon housing and placemaking to a wide audience and help change attitudes towards house and place design;

- to stimulate the construction industry in terms of consideration of design led housing solutions and high quality home-grown and manufactured skills, materials and products;

- to investigate and trial new ways of thinking about places, design and materials.
Section 4

4.05 North Zone (Plots 10, 14 – 21)

Local street frontage considerations
Principal building frontages must be located where shown on the framework plan L02. Plots 10 provides an important frontage interacting with the village green. Building frontages along the close behind plot 10 are important to prevent this becoming a hidden corner of the site. Home-work units (or other active uses e.g. granny-flats or studios) should be provided over the garages on plot 10, to overlook the lane and community recycling area. Equally wrap-around house frontages and home-work units (or active uses) on plots 14 and 18 should overlook the lane.

Plots 17 and 21 should have home/work units (or active uses) on the lane to their north to give a frontage, however these will not have a northern outlook in the long-term. Overlooking issues must be addressed in particular where shown on the framework plan.

Local street section considerations
Building scales and the design intent for frontages and gardens facing the public realm are shown on the public realm sections and on the framework plan.

Local boundary considerations
The predominant front garden boundaries in this zone are beech hedges. Masonry walls are to be installed by plot developers adjoining the recycling area at plots 10 and also at plots 14 and 18 on the other side of the close.

Local car parking considerations
Parking for all plots is in-curtilage with visitor parking at the avenue.

Energy efficiency theme: Carbon Neutrality
The theme for energy-efficiency for this zone is Carbon Neutrality. This should aim for zero CO2 emissions in use. The plots in this area are large and have the capacity to use a variety of techniques for limiting carbon emissions.

Materials and colour theme
The theme for external materials in this zone is ROBUST and URBAN:
- Majority masonry wall cladding/roofing (including render)
- Minoright lightweight wall cladding/roofing

The general emphasis should be on the monochrome and mute colours of natural building materials.
### A U values

The following U values are to be complied with (generally a value 20% better than shown by the technical hand books clause 6.1.2):

<table>
<thead>
<tr>
<th>Element</th>
<th>U Value W/m².K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walls</td>
<td>less than 0.20</td>
</tr>
<tr>
<td>Floors</td>
<td>less than 0.18</td>
</tr>
<tr>
<td>Roofs</td>
<td>less than 0.13</td>
</tr>
<tr>
<td>Openings</td>
<td>less than 0.15</td>
</tr>
</tbody>
</table>

### B SAP 2005 Dwelling Emissions Rate (DER)

30 kg CO²/yr.m² or 50% improvement over Target Emissions Rate (TER) whichever is the lower.

### C Air-tightness

As the U values of a building improves air infiltration rate becomes the key component of heat loss. To address this issue the following air permeability is to be achieved:

2 m³/hr.m²@ 50pa pressure.
<table>
<thead>
<tr>
<th>Zone</th>
<th>Energy theme</th>
<th>Cladding Materials</th>
<th>Colour theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Zone</td>
<td>Wood Fuel</td>
<td>ROBUST/URBAN Majority masonry / minority lightweight</td>
<td>Monochrome and mute – natural materials</td>
</tr>
<tr>
<td>West Zone</td>
<td>Solar Design</td>
<td>LIGHTWEIGHT/RURAL Minority masonry / majority lightweight</td>
<td>Colours of the landscape</td>
</tr>
<tr>
<td>North Zone</td>
<td>Carbon Neutrality</td>
<td>ROBUST/URBAN Majority masonry / minority lightweight</td>
<td>Monochrome and mute – natural materials</td>
</tr>
<tr>
<td>East Zone</td>
<td>Re-cycling</td>
<td>LIGHTWEIGHT/RURAL Minority masonry / majority lightweight</td>
<td>Colours of the landscape</td>
</tr>
</tbody>
</table>
Scotland’s Housing Expo 2010

- changed economic climate
- construction model changed to one where 4 local contractors construct houses and HHA manages finance
- tighter financial constraints on architects
- very tight construction timescale
- worst winter in 30 years
Findings

- impact of airtightness on air quality
- trickle vents inadequate to compensate
- over complicated energy systems result in occupants resorting to their own ‘solutions’ if problems are not resolved quickly
- EPCs can lead to unrealistic expectations
- provide simple user guides and advice
The devil is in the detail
Communal biomass boiler for space heating and hot water
What do the occupants think?

Contrary to what we are often led to believe the occupants – private and social report that they like living somewhere different

They either selected to buy or consider themselves ‘lucky’ to have been given the opportunity to live here.