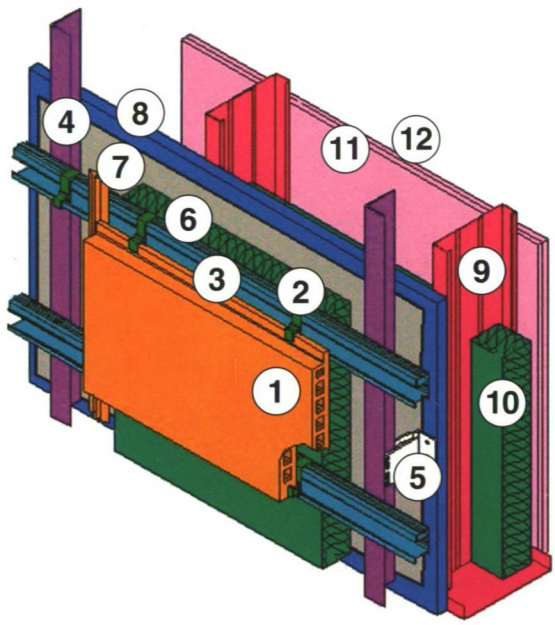
ASF SUPPORTING TERRACOTTA TILES ON HORIZONTAL RAILS

DATA SHEET: TH01

1 Terracotta tile
2 System tile clip
3 Horizontal tile rail at tile centres
4 Vertical Aluminium angles
5 Aluminium angle brackets
6 Rainscreen insulation
7 Waterproof, vapour permeable, membrane
8 Cement particle board for acoustic performance
9 Galvanised Ayrshire Steel Framing stud
10 Mineral fibre insulation to suit fire, thermal and acoustic requirements
11 Plasterboard including vapour barrier
12 Plasterboard to fire and acoustic requirements



- Ayrshire Steel Framing is used to form the inner leaf of the external wall of a concrete, or a hot rolled steel framed building. It rapidly forms a dry enclosure, so that internal fit out can begin earlier. This is normally as soon as the slab over the next floor is finished. The erection of the outer leaf can therefore be taken off the critical path.
- Fast track steel framing can be erected in all weathers, unlike masonry solutions. The minimum reduction in programme is therefore equal to the number of frosty and rainy days during construction of the buildings' fabric. In practice the actual speed of erection is also greater than for blockwork.
- The studs act as integral wind posts to laterally support the outer skin. The system is designed, using condensation risk analysis, so that the studs are warm and dry. This ensures long life without the expense of using stainless steel.
- With minimal wall thickness, the studs also provide space for wiring and plumbing, support for dry lining, and zones for enough insulation to match and exceed the recommended "Part L" "U" factor requirements for 2002 and beyond. Maximum thermal efficiency will lead to reduced energy bills, and also a more cost effective heating installation.
- The low weight of the system leads to easy handling, and to reduced frame and foundation costs, if designed in soon enough.
- In commercial and multi-residential applications, (built in hot rolled steel or concrete framing), floor to soffit heights are usually less than column to column spans. It is therefore more economical to use vertical support steelwork.
- A large variation in floor to soffit height can be expected within normal building tolerances. Ayrshire Steel Framing is carefully designed to allow the prefabricated components to be altered to fit.
- **Installation from prefabricated panels**
  If Ayrshire Steel Framing is to be placed outside the slab, the accuracy of the framing elements simplifies construction. In this situation prefabricated panels can speed erection on site. Partnering is advisable because final panel design needs to be started earlier than normal, to allow time for prefabrication. Savings accrue from the reduction in programme time, with factory quality as an added bonus.

  The need to line up terracotta tiles very accurately at panel edges can be overcome with sightline breaking flashings between panels; or by mounting the tiles after the fitting of the prefabricated panels has made the building watertight.

System Performance

Typical Figures are:

Thermal 'U' value

0.3 to 0.15 w/m^{2}k

Sound Insulation

48 - 57 RwdB

Fire Resistance

30mins to 120mins

Wind Loads

Integral wind posts to suit

These figures are based on various combinations of vertical steel studs, drywall boards, insulation and external cladding.

Method of Construction:

Use individual prefabricated components screwed together in-situ, or factory assembled bare or clad panels for speed, accuracy, and quality.

Your choice will be influenced by cost, specific application, and site conditions. Generally, walls spanning between floors are built in-situ from individual components, and incorporate a deflection head detail.

Walls outboard of the floor slab can be built either as above, but without a deflection head, or from prefabricated panels, which are available from us on a longer leadtime.

Stud options range from 70 mm to 340 mm deep, in 390 N/mm^2 material, with service slots @ 610 centres for a speedy first fix.

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For Design software to choose the most cost effective stud for the job, ask for our AyrSuite Professional CD. Visit www.ayrshire.co.uk to order the CD or associated literature.

Imperial College, Hammersmith Hospital

The Terracotta tile system is supported on slab-to-soffit spanning Ayrshire Steel Framing.

Mullions, with an insulated flashing, are used to support lintels to frame individual windows. The line of the tiles is brought forward to give the external appearance of slot windows without the need for much more expensive (and slower to construct) secondary hot rolled steelwork.

All the elements of the wall were installed by a single subcontractor, giving the main contractor a "one stop shop".

Hammersmith Hospital

Next to the Imperial College building is the new Hammersmith Hospital. Although by a different architect for a different client, it also uses Ayrshire Steel Framing to support a brick and stone outer leaf. The long construction times, and wide ranging fit out required for hospital buildings make them ideal candidates for the use of a rapid dry enveloping system.

The Ayrshire Steel Framing system was finished some 12 weeks earlier than the prefabricated glass curtain wall seen at the far end of the building. This illustrates the speed at which the Ayrshire Steel Framing system can be taken from concept to erection.

The aluminium rain screen seen above the Terracotta tiles was also fixed to the ASF.

Milton Keynes Theatre

Ayrshire Steel Framing is capable of use where tight tolerances are required. In this application the horizontal rails were fixed directly through a breather membrane to the thermal sheathing, so requiring accurate line and level. This ensured a pleasing aesthetic appearance.

Normally, when the tiles are continuous up several storeys, vertical rails are required behind the horizontal ones to support the tiles in front of the slab edge and / or hot rolled edge beam. A movement joint for vertical expansion of the aluminium rail, is then necessary.