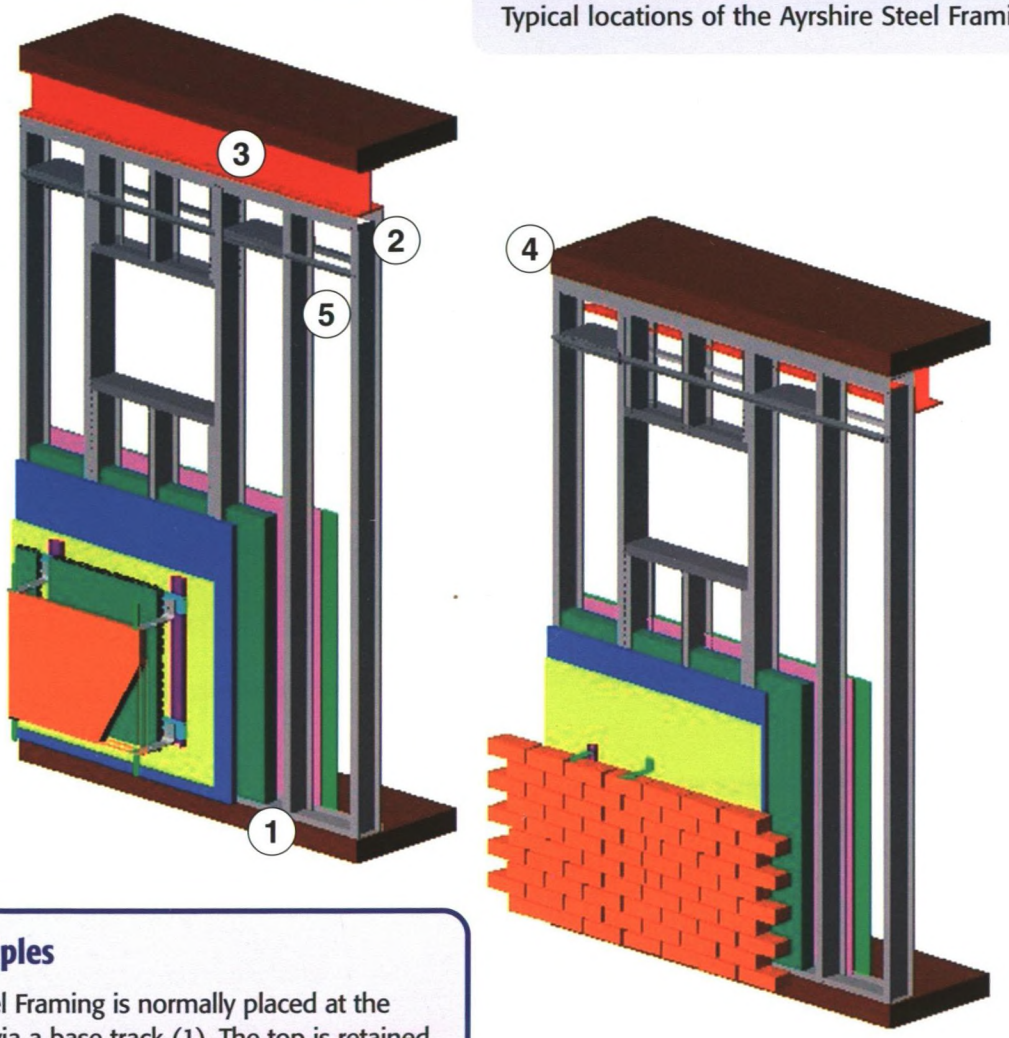
ASF SUPPORTING STONE CLADDING PANELS

DATA SHEET: SC01

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.

Rapid Dry Envelope

Typical locations of the Ayrshire Steel Framing inner leaf



General Principles

The Ayrshire Steel Framing is normally placed at the slab edge, fixed via a base track (1). The top is retained by a deflection head track (2) fixed to the underside of the hot rolled edge beam (3) or the slab (4).

The studs are cut short of the top by a few mm. This prevents the studs from carrying or transferring vertical load as the floor above deflects. The studs are not fixed to the deflection head track, but secured with VB3809 bracing and blocking running horizontally below the head track (5).

Window and door openings are simply constructed from the same stud and tracks as the full height structure.

Insulation should always be provided outside the studs, to avoid cold bridging, pattern staining and risk of condensation on the studs. (Warm frame construction)

For an extra thin wall, without reducing the cavity width, insulation can be fixed between the studs in place of some of the insulation thickness outside the studs. A condensation risk analysis should be then be carried out to ensure that the studs remain dry.

A waterproof breather membrane to the outer face allows the escape of any water vapour that penetrates the vapourcheck layer, and prevents ingress of water that has crossed the cavity .

Attention should be paid to window detailing to avoid cold bridging at the openings.

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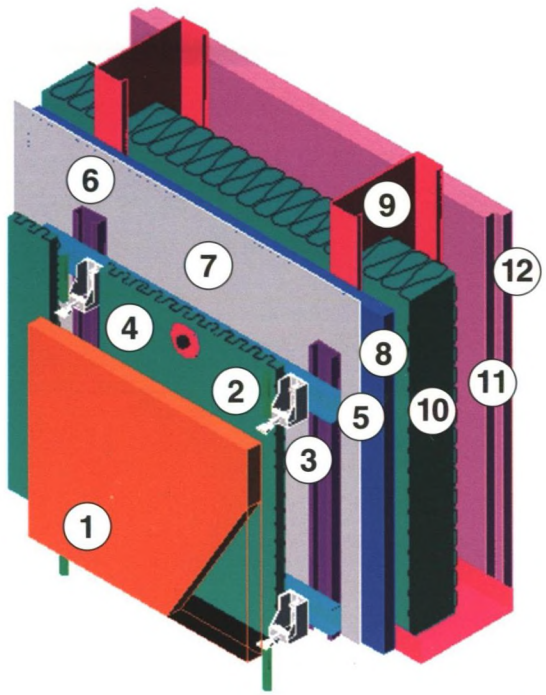
1 Masonry panel
2 Dowel pin
3 Panel support bracket
4 Rainscreen insulation
5 Horizontal stainless C channel
6 Vertical stainless C channel
7 Waterproof, vapour permeable membrane
8 Cement particle board for acoustic performance
9 Galvanised Ayrshire Steel Framing stud
10 Mineral fibre insulation to 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 stone panels very accurately can be overcome by mounting them after the fitting of the prefabricated Ayrshire Steel Framing 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 galvanised material, with service slots @ 610 centres for a speedy first fix.

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