AJ

SPECIFICATION

09.08

FACTORY VISIT

SAS INTERNATIONAL CHILLED PANELS FACTORY

Location Bridgend, Wales
Website www.sasint.co.uk

SAS INTERNATIONAL CHILLED PANELS FACTORY

Factory location Bridgend, Wales
Website www.sasint.co.uk
Telephone +44 (0) 118 929 0900

If SAS had a slogan it would be 'If you want something done, do it yourself'. A programme of continuous improvement to systems plus huge machinery investment means the company's plant in Bridgend, South Wales, is almost entirely free from third-party processing, so lead times on bespoke panels can be just two weeks.

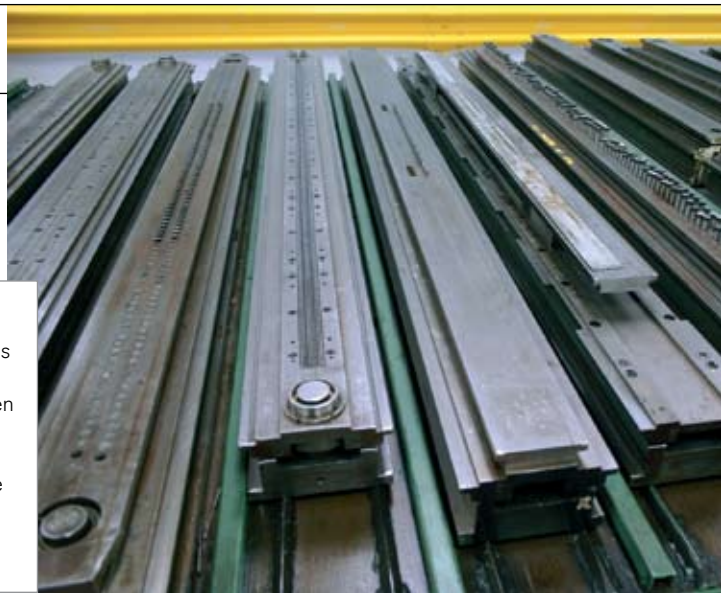
Chilled panels look like ordinary metal ceiling panels, but the cold water flowing in a network of copper pipes fixed behind them provides 45-60W/m^2 of radiant and convective cooling – without the noise associated with standard air conditioning. Both clients and architects are driving their specification, as the recyclable steel tiles help to achieve BREEAM Excellent standards. Water passes through the pipes at 14-17ºC, as opposed to the refrigerant-dependent 6ºC of air conditioning. According to SAS, chilled ceilings have the lowest life-cycle cost of all cooling systems.

The perforations in the panel provide acoustic absorption or attenuation with additional insulation possible within the thickness of the tile. Integration of luminaires and air diffusion is achieved through preformed apertures. The resultant shallow 100mm ceiling void means they can be installed in new-build and refurbishment projects.

SAS is a privately owned business and celebrates its 40th birthday this year. The Bridgend factory also produces standard and bespoke metal ceiling systems, modular tiles, radiant panels and a new venture – prefabricated corridor service units. Containing all service ducts and wiring within a steel frame and insulated plasterboard unit, is the first is being installed in the Royal London Hospital. The Bridgend plant, with the company's outposts in Oldbury in the West Midlands and Maybole in Scotland, has 45,000m^2 of manufacturing facilities. Operating round the clock, the Bridgend factory produces up to 40,000 m^2 of tiles per week – enough to tile two Gherkins.
Kaye Alexander

1 METAL CUTTING
SAS buys steel and aluminium directly from the mill, on large parent coils in a variety of gauges and widths, which are then fed onto the splitting line and cut to the right dimensions for the order. This makes the factory independent of middle men, reducing cost and lead times.

2 PERFORATION
Steel is used for chilled panels and the coil is fed into one of four perforating lines. Here the holes are punched out. The diameter and distribution of the holes are determined by the acoustic requirements of the project and by the client specification.



3 PATTERNING

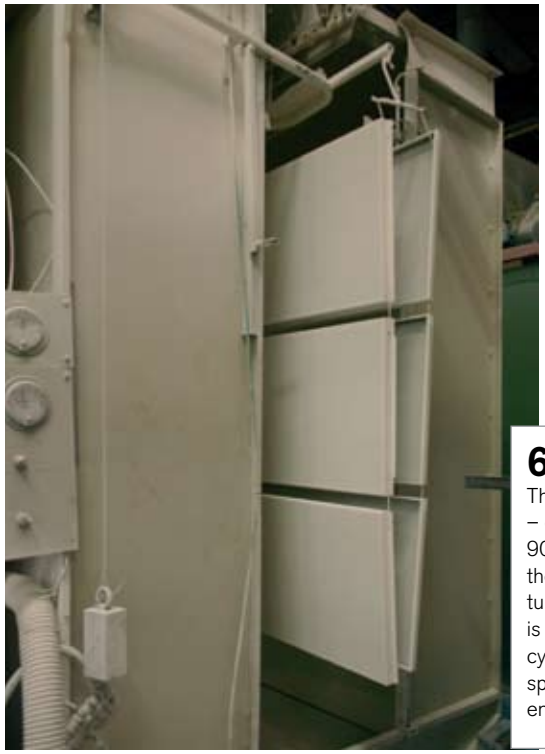
SAS has a 'library' of template tools for different perforation patterns, which are interchangeable between the machines. The newest perforating machine, number four, has the capacity of the other three put together, because it can perforate more holes in a single action at once.

4 FOLDING

The flat panels are folded in one of four different types of line, the automated machines producing 600 tiles an hour. The newest machine is computer programmed and can adapt to new panel dimensions of any shape in a matter of minutes, and folds without scratching any pre-coat.

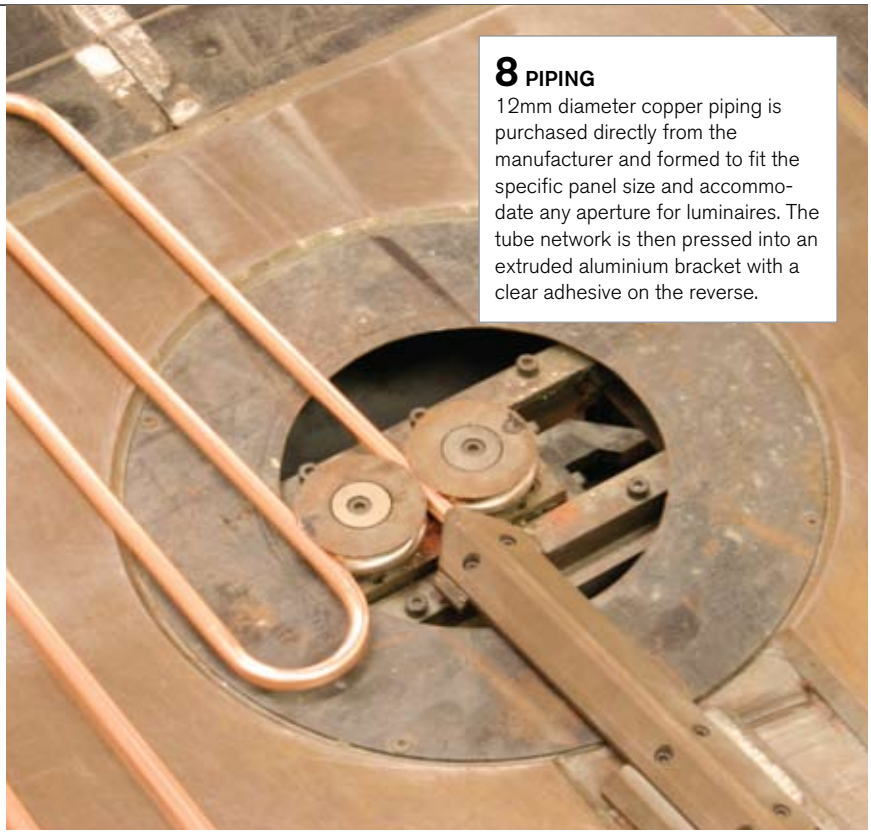
5 HOOKS

Each hook used to hang the tiles on to the powder-coating conveyor can only be used once, as they need to act as earth points. Up to 240,000 hooks a week are needed and by making them in-house, SAS saves 1p per hook and the staff time previously spent untangling them.



6 POWDER COATING

There are two powder-coating lines – one for colour and one for RAL 9010 white. The powder is fed to the charged spray guns in air via tubes and once coated, the powder is cured in a 250°C oven. A dual cyclone recycles powder from the spray chamber, sorting particles big enough to carry a charge.



8 PIPING
12mm diameter copper piping is purchased directly from the manufacturer and formed to fit the specific panel size and accommodate any aperture for luminaires. The tube network is then pressed into an extruded aluminium bracket with a clear adhesive on the reverse.

7 ADDING TISSUE
A thin black tissue is applied to the inside surface of the tile. This is heated to activate the adhesive and then ironed into the corners. This tissue prevents any shadowing caused by the network of copper pipes required for chilled panels.

9 BONDING
The tubing and panel are stuck together in a vacuum press. The press' base is heated and a membrane is sucked tightly over the panel profile, exerting even pressure to ensure an excellent bond.

10 INSULATING
SAS makes its own insulation pads in-house. This involves sticking large blocks of Rockwool insulation together, cutting it into pads and wrapping it in foil with heat-sealed edges. These are added to the back of the chilled panel and a metal or plasterboard backing is placed on top.

11 PACKING
Finished panels are wrapped in polythene and packed – usually in one of the wooden crates produced by the on-site carpenters.