

hollowcore floors



DESCRIPTION

Hollowcore is a 1200mm wide extruded, prestressed, voided slab unit with a reinforced concrete topping.

Standard unit depths are 200, 300 and 400mm. Units are cut to a customised length and may have raking ends.

Hollowcore is ideally suited for large floor spans with commercial loading.

SOUND TRANSMISSION

One of the major features of a concrete floor is the low sound transmission. The table below shows sound transmission ratings achieved by Hollowcore floors.

LIFTING AND HANDLING

Hollowcore floor slabs must be handled and supported near their ends at all times. Fabric strops, purpose made clamps or lifting forks are recommended for installation. Chains or wire strops can be used but may cause some edge damage. Safety chains must always be used under units where clamps are used.

ERECTION/END SEATING

A seating length of 75mm is recommended. Top surface of support should be packed using either damp mortar or a plastic bearing strip. Slabs must be positioned in contact with neighbouring units (unless otherwise noted). It is recommended to start placement working from the centre of the building out (where possible) as any construction tolerance can be spread over both sides of the slab area.

PROPS

End props must be provided where they are required for stability of edge loaded beams.

FIRE RESISTANCE RATING

Standard fire resistance ratings of Hollowcore units in the load span tables is 2 hours. Fire resistance ratings are unrestrained ratings and are based on minimum strand cover and equivalent concrete thickness requirements.

AIRBORNE SOUND TRANSMISSION (STC)

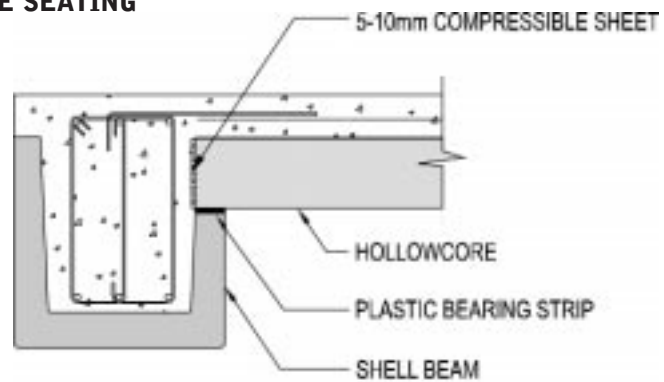
| | |
|---|------|
| 200 Hollowcore. 65mm topping, no ceiling | >55* |
| 200 Hollowcore. 50mm topping, 9.5mm Gib Board ceiling** | 58* |
| 300 Hollowcore. 65mm topping, no ceiling | >55* |
| 300 Hollowcore. 50mm topping, 9.5mm Gib Board ceiling** | 59* |
| 400 Hollowcore. 65mm topping, no ceiling | >55* |
| 400 Hollowcore. 50mm topping, 9.5mm Gib Board ceiling** | 59* |

* Values calculated by Hegley Acoustic Consultants.

** Values assume a 25mm air gap between the underside of the Hollowcore and Gib Board ceiling, and allow for 4 x 130 diameter recessed lights per 20cm² in the ceiling.



TYPICAL HOLLOWCORE SEATING





hollowcore

SHEAR CAPACITY

The shear capacity of extruded floor slabs is adequate for the uniformly distributed loads given in the load/span graphs. Concentrated loads near supports may result in high shear or strand bond stresses. Extruded slabs are not recommended for highway loadings, in truck docks or similar areas with high shear loads.

FASTENINGS AND SUSPENSIONS

Light fastenings can be fixed in the area between strands by means of different anchors, bolts and screws. No fastenings must be attached within a 30mm radius of the prestressing strands. Heavier fastenings can be attached either in the joint between slabs

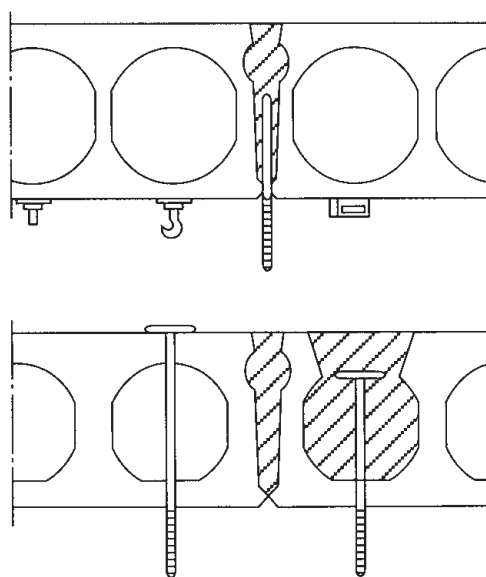
or through the slab itself. The extra load due to suspension must be taken into account in the design calculations. A suspension point can be made at the joint between slabs by anchoring a steel rod into the joint concrete using a hook or welded steel piece on the end of the rod.

PENETRATIONS

Small holes and recesses between strands at the position of the voids are usually made on the building site. Holes may be circular or rectangular, and up to three are permitted in the same cross section (two for 300mm and 400mm units). Holes are considered to be in the same cross-section if they are less than 750mm apart in the longitudinal slab direction.

When making holes, great care must be taken not to damage the slab. It is particularly

FASTENINGS AND SUSPENSIONS





hollowcore

important that the prestressing strands are not cut or exposed.

WATER IN CORES

Some construction practices and weather conditions can result in water being trapped in the cores. Holes may be drilled in the ends of all units to drain this water.

MATERIALS

Strand - Stress relieved
7 wire strand to BS 5896
Topping strength = 20 MPa
minimum at 28 days.
Unit strength = 42 MPa at 28
days minimum.
Hollowcore may be designed for
other uses such as wall cladding,
and retaining wall structures.

FURTHER TECHNICAL INFORMATION

Specifications for the
manufacture, transport and
erection of Hollowcore units, and
standard details for typical
situations, are available from
your nearest Stresscrete branch.
Experienced and qualified staff
will be pleased to discuss design
and fixing details. Refer general
notes on page 16.

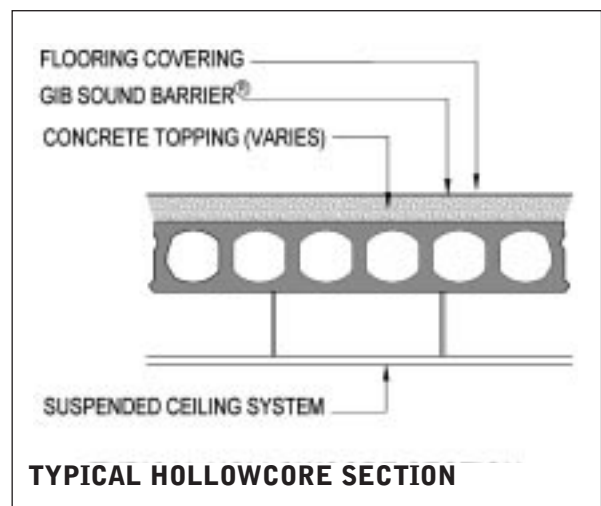


SECTION PROPERTIES 1200 WIDE MODULES

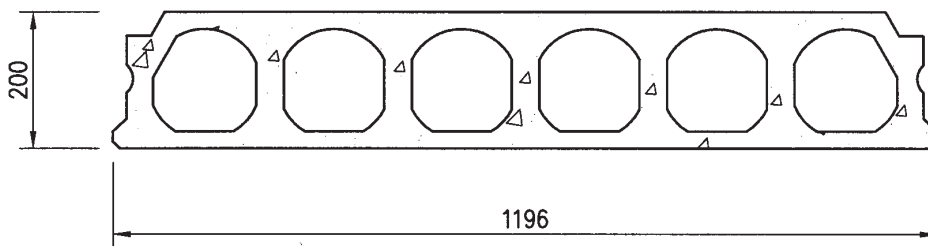
| | Depth | Mass (kg/m) | Weight (kPa) |
|--------------|-------|-------------|--------------|
| Auckland | 200 | 330 | 2.70 |
| | 300 | 450 | 3.68 |
| | 400 | 585 | 4.78 |
| Wellington | 200 | 305 | 2.50 |
| | 300 | 428 | 3.50 |
| Christchurch | 200 | 319 | 2.61 |
| | 300 | 430 | 3.52 |
| | 400 | 557 | 4.55 |

Opposite page, top: Hollis House and Lodges, Mount Maunganui.
Residents underground parking featuring Hollowcore flooring spaced with timber infills.

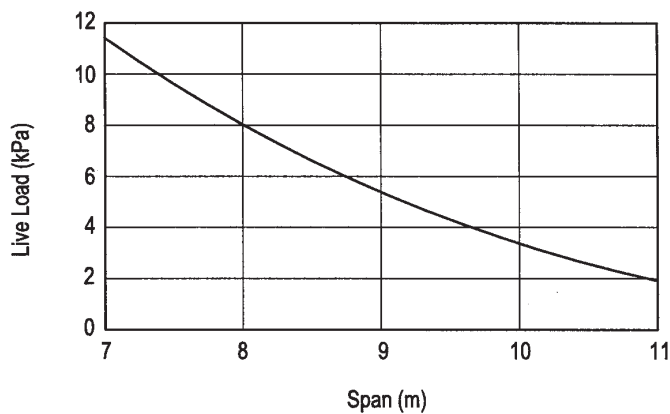
Above: Countdown supermarket, Colombo Street, Christchurch.
A 300 Hollowcore unit being placed that spans 12.5 m for a new supermarket, sits on precast beams.



200 hollowcore floors

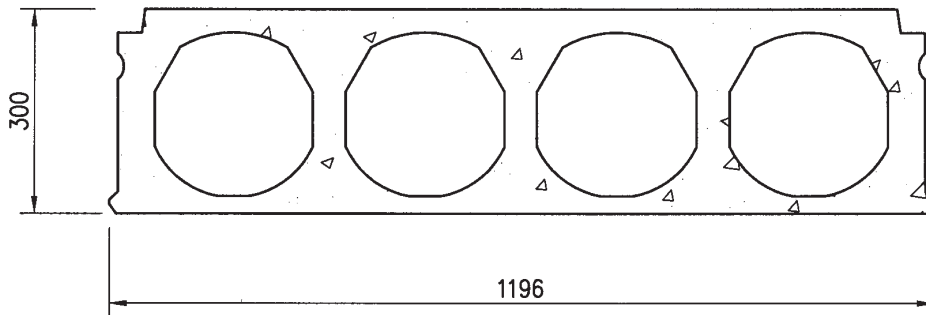


200 HOLLOWCORE LOAD/SPAN GRAPH

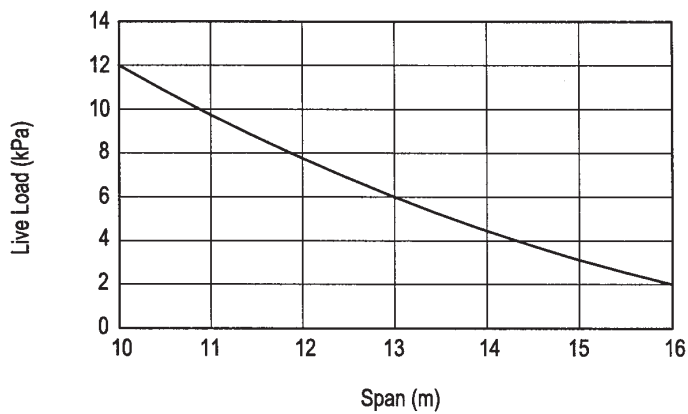


65mm Topping $f_c = 20\text{MPa}$
Simply Supported
Unpropped Units
No SDL

300 hollowcore floors

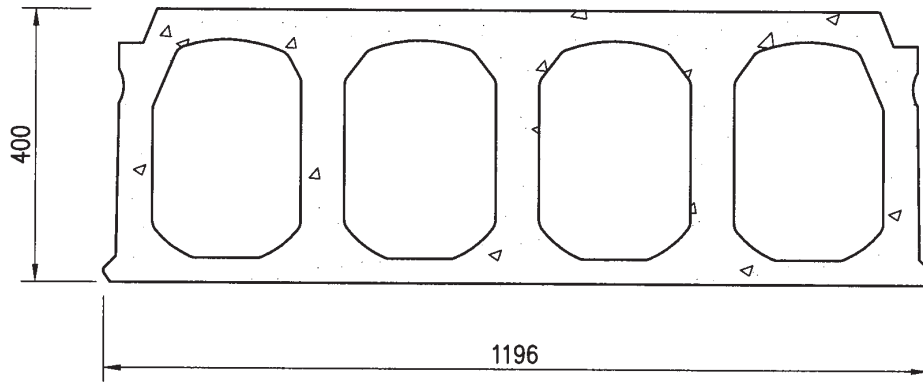


300 HOLLOWCORE LOAD/SPAN GRAPH



65mm Topping $f_c = 20\text{MPa}$
Simply Supported
Unpropped Units
No SDL

400 hollowcore floors



400 HOLLOWCORE LOAD/SPAN GRAPH

