



3D CROSS SECTION OF "TASS" FLOOR SLAB

TASS

THERMAL ACOUSTIC SLAB SYSTEM

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PRODUCT DATA SHEET

TASS THERMAL ACOUSTIC SLAB SYSTEM

INTRODUCTION

With ever increasing building costs, the requirement for rapid building and greater awareness of energy conservation as an important aspect of building design, expanded polystyrene (EPS) is becoming increasingly used in modern day construction.

TASS uses the properties of EPS – thermal and sound insulation, lightweight, accuracy in moulding and cost competitiveness as the cornerstone of a patented multi storey floor slab system.

PRODUCT DESCRIPTION

TASS is a combination of a moulded EPS block and cold rolled steel channel to form a coffer slab system for multi storey buildings.

The system comprises a priority high strength galvanized steel rib which supports the high density TASS EPS void formers.

The system is completed by the placement of reinforcing bars between the TASS blocks in both directions and reinforcing mesh above the blocks. Concrete is poured to fill the channels, encapsulate the rebar and mesh to form the structure of the floor slab.

The beams which are created by the concrete infill and rebar in the gaps between the TASS blocks creates a monolithic, two way spanning, coffer slab structure.

Easy installation of services into a TASS slab



TASS slab in progress



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SYSTEM APPLICATION

- 1) The floor slab is designed taking into account the span and imposed loading requirements by combining the variables of rebar size and configuration and concrete beam depth. The beam depth is controlled by the 4 different TASS block heights.
- 2) Support wall structures are built as normal.
- 3) Steel ribs are placed uni-directionally onto the supporting walls. These are propped at 1,6 metre intervals to support the wet concrete and construction loading.
- 4) Steel reinforcing is fitted between the TASS blocks in both directions.
- 5) Steel reinforcing mesh is placed above the blocks on EPS spacers to position the mesh near the surface of the concrete slab.
- 6) If needed, formwork is placed around the perimeter of the floor area and service ducts to confine the concrete pour.
- 7) Concrete is poured to complete the slab.
- 8) Ceilings can be either suspended or plastered with Polyplast, propriety EPS plaster system, available from Eco Building Supplies.

TASS can be used in the following application areas:

- double storey residential
- multi storey commercial buildings
- hotels
- flats, duplexes and apartment buildings
- shopping centres
- suspended ground floor slabs
- renovations

PRODUCT BENEFITS

Lightweight

All the components of TASS are lightweight and can easily be installed without cranes, lifting equipment or excessive labour.

A TASS slab is approximately 35% lighter than an equivalent thickness concrete rib and block slab – this equates to a saving of about 150kg/m² on a 255mm slab.

Compared to concrete in situ slabs the weight saving is even more significant – on a 255mm deep concrete in situ slab the weight saving is close to 320kg/m².

Quick and easy to install

As the TASS components are made to close dimensional tolerances (EPS blocks are moulded in closed moulds and the steel channels roll formed) and lightweight they can be quickly and easily positioned.

The TASS blocks can be readily cut with a handsaw when full blocks do not fit and complex shapes have to be covered.

Electrical and other services can also be cut into the EPS and run through the blocks themselves.

Fully load bearing

During the construction phase the TASS blocks can support workmen and equipment allowing full access to the working area without fear of breakages or damages. Similarly the system will support the concrete pour provided the channels are propped at the recommended intervals.

Thermal and sound insulation

EPS is used extensively as a thermal insulating material and performs this function in the slab moderating building temperatures and reducing energy costs associated with heating and cooling. TASS thermal insulation is 7 times better than an equivalent thickness in situ concrete slab.

EPS also acts as a sound barrier and in combination with the concrete slab mutes all sound waves that could potentially be transmitted through floor slabs.

The U value of a TASS 255mm slab is 0,48W/m²K vs the U value of an equivalent insitu concrete slab of 3,45W/m²K.

Fire performance

A fire retardant grade of EPS is used to manufacture the TASS blocks and as a result they do not add to any existing fire hazard and will not contribute to the development phase of a fire and will not propagate flame.

Long life

EPS is rot, rodent and termite proof and is dimensionally stable and will thus retain its thermal and sound insulating properties for the life of a building.

Cost competitive

TASS is cost competitive when comparing material cost only vs. traditional concrete systems but becomes increasingly competitive when the cost of labour, equipment requirements and time are taken into consideration.

Fewer props are needed per m² for TASS when compared to concrete systems.

Shorter supply lead times

The concrete components of traditional 'rib and block' systems all need lengthy cure periods after manufacture to reach full strength often increasing supply lead times.

The TASS EPS blocks are moulded in seconds and the ribs cold rolled and cut to size immediately.

These alternative manufacturing methods means that system supply lead times can be significantly reduced.

Versatility

The TASS system can span in two directions which makes complex designs easier to configure.

Both the TASS blocks and the steel channels can be readily cut (and welded) on site to accommodate odd shapes and openings.

Steel formwork edging can be made from various sizes of channel.

Skylights are easy to install by leaving out TASS blocks and creating edge formers from cold rolled steel sections.

PRODUCT SPECIFICATION

System Design:

The TASS floor slab meets the requirements of all major codes – SABS10100, B8110, UBC and ACI.

One of the design programmes used to analyse the system is commercially available from Prokon.

TASS block dimensions:

Sales code	Concrete usage m ³ /m ²	Block height	Width	Overall Length	Slab Depth	Span
TASS 125	0.11	125mm	450mm	800mm	180mm	5,0m
TASS 195	0.13	195mm	450mm	800mm	255mm	6,5m
TASS 280	0.15	280mm	450mm	800mm	340mm	8.5m
TASS 365	0.17	365mm	450mm	800mm	425mm	11.0m

EPS Density: 24gm/lt

Fire retardant: Yes

Thermal resistance: 'U value' of a 255mm TASS slab = 0,255W /m²K

'R value' of a 255mm TASS slab = 3.930m²K/W

Ribs: 150 x 65 x 20 x 1.2mm 350 MPa min. yield pre-galvanized cold rolled steel.

TASS can be used with prestressed concrete ribs of 65mm depth.

EPS Spacers: 35 x 40 x 40mm high density expanded polystyrene.

Plaster: Polyplast resin solution mixed with 1:10 plaster sand.