

## TECHNICAL SPECIFICATION



**COLTMAN**  
PRECAST CONCRETE



**Ibstock**  
At the heart of building

## COLTMAN FLOORS & ROOFS

Coltman's floor and roof slabs are manufactured as individual prestressed concrete units, typically 1200mm wide, placed side by side with a cast insitu grouted joint to form a completed floor slab. Narrower units may be used for non standard bay widths. The units are most commonly designed as simply supported, one-way spanning slabs, but cantilevers and continuous slabs may be specified. Where it is necessary to tie individual spans together, short slots are formed in the ends of units to permit the placement of cast insitu rebars as structural ties. In this case the precast units provide horizontal diaphragm action to transmit wind and sway forces to the stabilising parts of the building.

The cross-sectional profile of the units is either solid, of depths ranging from 75 to 200mm, or with pre-formed longitudinal voids, known as 'hollow core units' of depths ranging from 150 to 250mm.

The units can be designed to act alone, or compositely with a cast insitu topping, containing a steel mesh, typically 50 to 100mm in depth (see page 6 for further details).



The units are designed according to Eurocode 2 and the UK National Annex Documents (NAD); BS EN 1992, Part 1-1<sup>[1]</sup> for structural strength, Part 1-2<sup>[2]</sup> for fire resistance, and BS 8500-1<sup>[3]</sup> for durability. The units are designed to comply with the serviceability requirements of BS EN 1992-1-1<sup>[1]</sup> for tensile stress, cracking and deflection.

Service loads and ultimate load combinations are defined according to Eurocodes 1 and 0 and their UK NAD: BS EN 1991, Part 1<sup>[4]</sup> and BS EN 1990<sup>[5]</sup>, respectively.

The standard fire resistance is typically 60 minutes, but 90 and 120 minutes is possible for the greater depths (see page 6 for further details).

The design life of the units is 50 years. The durability of the units satisfies exposure classes from XC1 (internal), XC3 (external) to XD1 (airborne chlorides)[3]. Certain aspects of the design and profile of the units conform with the European Product Standard BS EN 1168<sup>[6]</sup>. The natural frequency and thermal resistance of the units (or composite slab) is available on request.

The units are manufactured with concrete having a characteristic compressive cube strength of 55 N/mm<sup>2</sup> at 28 days. The design cylinder strength<sup>[7]</sup>  $f_{ck} = 45 \text{ N/mm}^2$ . Concrete production conforms to BS

EN 206-1<sup>[7]</sup>. The units are prestressed in the longitudinal direction only using pretensioning wire, which is stress relieved and treated for low relaxation.

The units are manufactured by a machine using the long-line slip form technique on heated steel beds within a factory environment. After the concrete achieves a compressive cube strength of at least 30 N/mm<sup>2</sup> the wires are detensioned and the casting is sawn to the length of individual units whilst on the manufacturing bed. Units are supplied as standard with plain sawn ends and if required with slots or top-opened cores.

Cross sectional and length tolerances are within the limits set out in BS EN 1168<sup>[6]</sup> and are subject to stringent quality control checks.

Coltman's floor and roof units, and composite slabs, can also be designed and constructed according to BS 8110<sup>[8]</sup> (see page 7 for more details). Apart from the recommendations given in Eurocodes 0, 1 and 2, all other information in this document also applies to design carried out to BS8110.



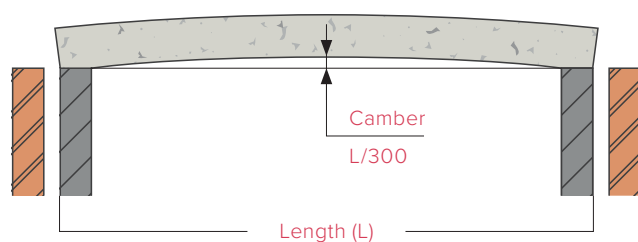
## CAMBER

Pre-stressed units have an inherent upward camber and due allowance should be made in any finishes to cater for this particularly where rigid insulation board, floating timber floor or waterproof membrane is to be placed onto the top of the floor unit. In these situations a levelling screed will need to be applied by the Principal Contractor prior to the laying of the finish.

Differential camber between adjacent units is not specified in the Eurocodes or Product Standards. However, the recommendations given in BS 8110, Part 1<sup>[8]</sup> are specified, except for areas of floor where the adjacent spans of the units are of different lengths or where large holes are to be formed within the middle third of the unit.

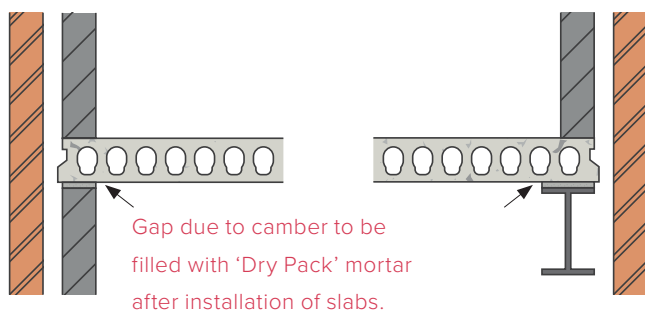
Consideration must also be given to both floor and ceiling finishes where floor spans are perpendicular as steps will occur between units.

The camber of Coltman units will generally comply with the recommendations of BS EN 1992-1-1<sup>[1]</sup> and are predicted to be approximately 1/300 of the span.

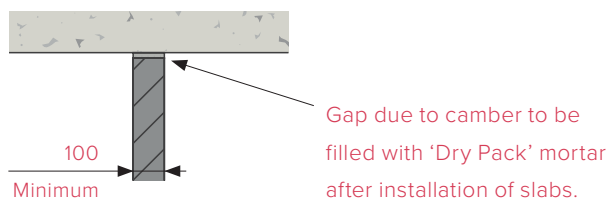


The gap between the top of the wall/steel beam and the soffit of the floor unit due to camber is to be filled solid with mortar by the Principal Contractor before construction above the slab proceeds.

## SIDE BEARINGS



## INTERNAL LOAD BEARING WALL



## SUPPORTS

The design of structural bearings on steelwork, concrete or load bearing masonry is according to BS EN 1992-1-1<sup>[1]</sup>. This includes the required bearing length, allowing for manufacturing and construction tolerances, and the ultimate bearing strength. The design bearing length on steelwork is 75mm, precast concrete is 80mm, and cast insitu concrete and masonry is 100mm.

The precast units are positioned directly onto bearings without the need for mortar or elastomeric strips, unless the Principal Contractor considers that the levels of the bearing require a bedding material.

Structural supporting walls for Coltman units are to rise from proper foundations and the adequacy of all bearings is the responsibility of the Principal Contractor.

The stability of the supporting structure must not be adversely affected by the installation of the precast concrete units.

When designing bearings consideration must be given to the standard method of fixing precast concrete units, particularly the

operation of final alignment. Construction loading arrangement/forces may be more onerous than the final working condition.

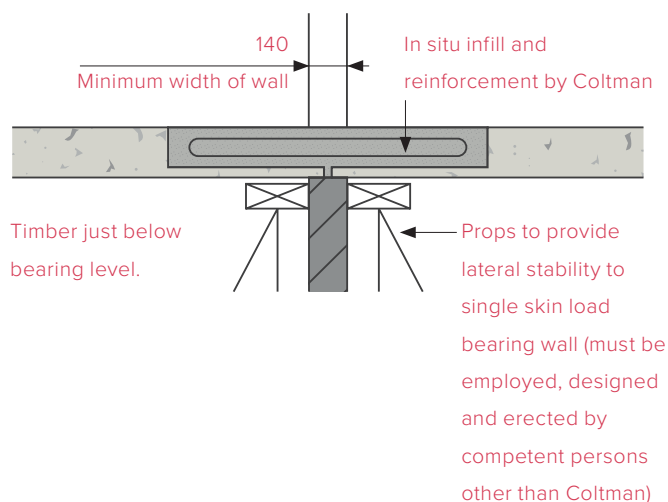
Where masonry supports are provided the Principal Contractor should ensure that the mortar is fully cured before the floor units are placed into position. This is particularly relevant where retarded mortars are being used. A curing period of 3 to 7 days should be allowed for traditional mortars and advice of curing times should be confirmed with manufacturer where retarded mortars are used. Accurate and level structural seating shall be prepared by the Principal Contractor.

Lightweight blocks are not suitable to provide bearings for precast concrete units and their use in this situation should be avoided. Where steel sections are to be utilised within masonry structures suitable arrangements must be made to fix the steel beams down to padstones to prevent movement and rotation during installation. If this is not practical, temporary props are to be provided to ensure stability. In certain instances it may be necessary to utilise both a bolted fixing and propping particularly where eccentric loads are to be placed on a support beam.

Where precast units are supported on a cavity wall the outer leaf of the wall must be built up to within 225mm of the bearing level to maintain stability.

## DUAL BEARING

In locations where the precast concrete units are to be supported on walls less than 190mm thick then temporary props or other means of bearing enhancement must be employed, designed and erected by competent persons. Props and timber runners are to be positioned at bearing level to give lateral support to the wall during installation.

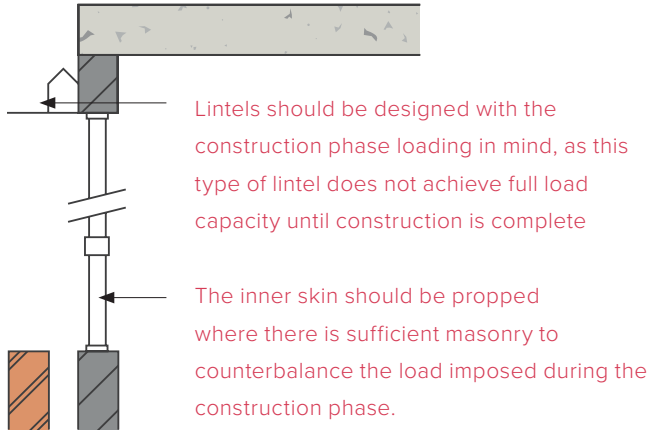


THIS PROPPING METHOD IS FOR GUIDANCE ONLY



## PROPPING

Consideration must also be given to the design and stability of lintels during the construction phase. It may be necessary dependent on type of lintels to prop the inner skin until the construction is complete.



The foregoing comments apply equally to other types of structures with particular attention being required in the case of isolated piers and walls or toothed walls where temporary means of support may be required.

In all instances the temporary supports/propping should be designed by a competent person and must be in position prior to the installation of the precast concrete units.

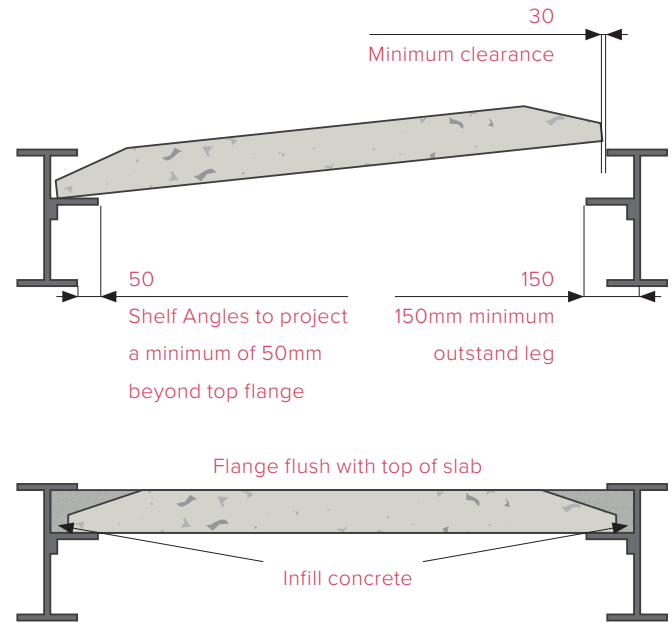
Where precast concrete units are to be fixed within a steel frame building it is essential that sufficient structural steelwork, sheeting rails, purlins, bracings, etc., are omitted to allow for our standard fixing procedures.

Additional steel supports may be required where floor units are required to notch around columns, particularly around the perimeter of the building.

Any material placed between the structural seating and the unit soffit may result in a variation to our estimate.

## STEEL SHELF ANGLE BEARING

Where precast concrete units are supported on steel shelf angles then the outstanding leg of the angle should not be less than 150mm and should project a minimum of 50mm beyond the top flange of the beam.



Contact Coltman Technical Department at an early stage if any variation to this detail is to be considered.

## FIXING

Coltman installation crew are fully experienced and trained to handle and place precast concrete in accordance with the Code of Practice for the Safe Installation of Precast Concrete Flooring and associated components<sup>[9]</sup>.

Where erection is to be carried out by others than Coltman it is the responsibility of the Principal Contractor to ensure that the fixing crew is competent and capable of carrying out the work in accordance with the Code of Practice for the Safe Installation of Precast Concrete Flooring and associated components<sup>[9]</sup>. Copies of this code are available upon request.

Layout drawings are prepared for use during site erection and these should be followed carefully and accurately.

## GROUTING

When fixing we include for filling the joints between units with Grade C20/25 concrete, but not for screed or other finishes.

## MAKE UP

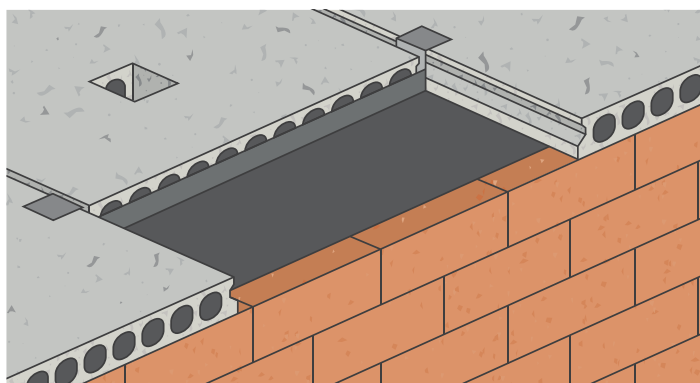
Each area of flooring is set out using standard units and may incorporate reduced width units or insitu concrete strips to make up. Any strips should be cast insitu during site erection, unless otherwise specified. Stripping and disposal of formwork to be carried out by others at no cost to Coltman.

Our estimate does not include for any insitu strips that may be required adjacent to steel beams, or to the edge of any bay of units, or for making good around pipes, stanchions or making up faces of large openings.

## HOLES & SERVICE DUCTS

Small holes up to 50mm dia can be drilled on site on the centre lines of the hollow cores, care being taken to avoid cutting or exposing reinforcement. The spacing of these holes should be limited to 400mm centres in each direction.

Larger holes can be formed during manufacture, dependent upon design criteria. The edge of the hole may be located at 70mm plus increments of 100mm from the side of the unit.



Holes for large services, flues, soil and vent pipes and the like may be formed during manufacture. Small holes may be drilled on site through the cores of the units.

Metal straps are used to trim larger duct openings subject to design criteria and should be fire protected by the Principal Contractor.

## SCREED

A non-structural sand and cement or granolithic screed is normally laid by the Principal Contractor over the floor (before plastering the soffit) to provide a level surface for finishes. A minimum screed thickness of 40mm is suggested with due allowance being made for the camber of units. It is strongly recommended that a light two-way reinforcing fabric (steel mesh) is incorporated in the screed. Anti-crack reinforcement in the screed should always be provided by the Principal Contractor over supporting beams and walls.

## SOFFIT

Soffits of Coltman units are suitable for the application of plaster finishes. Small surface blemishes may be expected but the surface will be free from large voids. Stopping off of air holes and rubbing down of any casting bed marks are not included within our offer.

The Principal Contractor is responsible for ascertaining the suitability of our floor units, by inspection at our factory if an exposed soffit is required or if the soffit is to receive direct decoration.

The visual effect of differential camber as previously described should be considered when an exposed soffit finish or direct decoration is to be utilised.

The application of plaster should be carried out in accordance with the recommendations of British Gypsum. We do not recommend direct

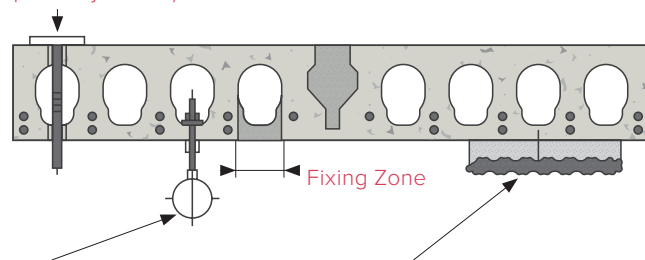
plastering to units exceeding 7.0m span.

The application of Artex to the soffits of our units should be carried out in accordance with the Artex specification, which is available from us upon request.

Units with closed ends may accumulate water within the cores due to exposure to weather or from subsequent building operations. The Principal Contractor should drill 'weep' holes to release any trapped water or keep the weep holes clear where they are provided by Coltman. The Principal Contractor should be satisfied that all trapped water has been released prior to the application of finishes.

## CEILING FIXTURES

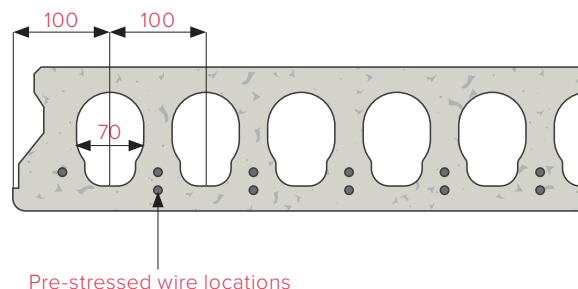
Recommended type of fixing for heavier loads. (Fire protection may be required by others)



Toggle or similar type fittings may be made into the areas directly below the cores.

Expanding bolt type fixings are not recommended.

Tapcon or similar fixings may be drilled into the area's directly below the cores to provide fixings for batton and plasterboard ceilings.



Pre-stressed wire locations

1. Shot fired fixings are not permitted
2. Service and ceiling loads must not exceed those shown on the slab general arrangement drawings
3. Fire protection may be required where a fixing penetrates the floor slab
4. The adequacy of the fixing is the responsibility of others





## ▲ FIRE RESISTANCE

Coltman units are designed in accordance with BS EN 1992, Part 1-2 and the UK NAD<sup>[2]</sup> to provide a load bearing, integrity and insulation fire resistance classes REI 60, REI 90 and REI 120 (i.e. 60, 90 and 120 minutes fire resistance). The fire resistance may be enhanced further by the application of appropriate finishes.

## ▲ SOUND INSULATION

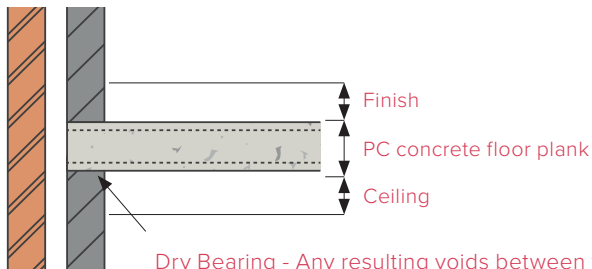
See Building Regulations Approved Document E<sup>[10]</sup> and Robust Details Part E, Resistance to the Passage of Sound<sup>[11]</sup>.

The thermal transmittance, RT value ( $\text{m}^2 \text{ } ^\circ\text{K/W}$ ) of the units, may be provided on request, and shall be according to BS EN ISO 6946<sup>[12]</sup>.

Where the precast concrete units are forming a floor which is separating individual dwellings, the following points should be considered:

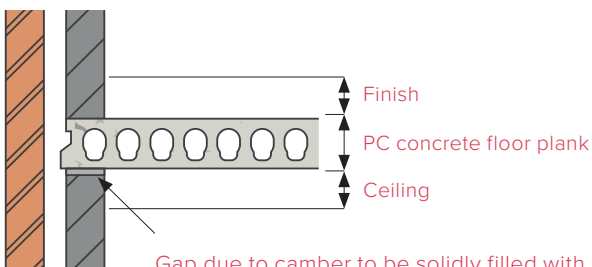
It is important that the project Architect ensures the precast floor depth and average density is compatible with the intended floor and ceiling finish, if full compliance with Building Regulations Part E<sup>[10]</sup> and or Robust Details Ltd publication: Robust Details Part E, Resistance to the Passage Of Sound<sup>[11]</sup> is to be achieved.

## ▲ TYPICAL END BEARING



Dry Bearing - Any resulting voids between the top of the inner leaf and the underside of the plank to be filled with a flexible sealant (sealant provided and installed by General Contractor).

## ▲ TYPICAL SIDE BEARING



Gap due to camber to be solidly filled with mortar before the construction above slab proceeds. Where the gap becomes too small to be filled with mortar it should be filled with a flexible sealant (mortar and sealant provided and installed by the General Contractor)

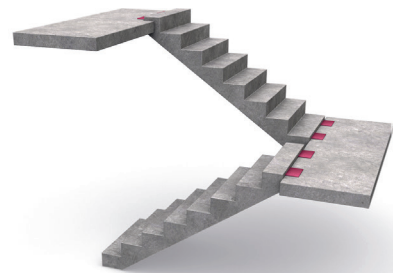
## ▲ COMPOSITE

Coltman units may be designed and constructed as composite slabs with the addition of a structural cast in situ topping, containing a steel mesh, typically 50 to 75mm in depth for hollow core units or up to 125mm for solid units. Interface shear loops or dowels (typically 10 or 12mm diameter) may be required to be placed in the longitudinal joints between units, projecting into the topping. Steel mesh, typically A142, is positioned at the mid-depth of the topping. The concrete topping should be placed in accordance with BS 8204 Parts 1 and 2<sup>[13]</sup>. A structural topping specification is available from our Technical Department upon request.

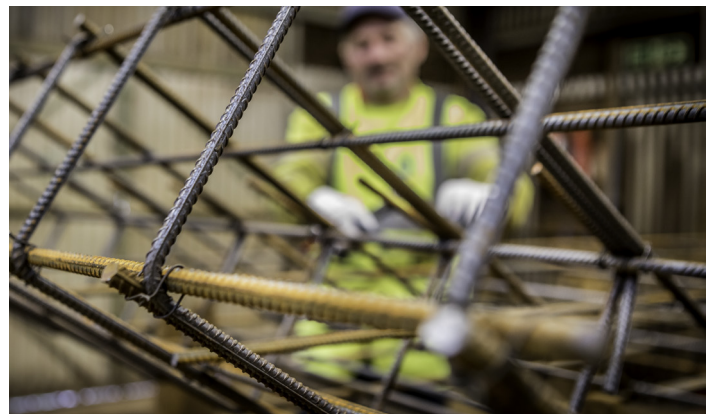
## ▲ DISPROPORTIONATE COLLAPSE

Requirements for disproportionate collapse must be specified by the Project Engineer responsible for the overall design of the structure. Where structural ties are specified, they should be designed and detailed by the Project Engineer. If the proposed ties are to be cast into details pre-formed within the precast units, the Project Engineer should check with Coltman that the proposed details are achievable.

## ▲ PRECAST CONCRETE STAIRCASES



Units comprise of high-tensile steel bar reinforced concrete stairflights and landing slabs, manufactured with concrete having a characteristic compressive cube strength of  $35 \text{ N/mm}^2$  at 28 days. The design cylinder strength<sup>[1]</sup>  $f_{ck} = 28 \text{ N/mm}^2$ . Concrete production conforms to BS EN 206-1<sup>[7]</sup>.



The design of structural bearings is according to BS EN 1992-1-1<sup>[1]</sup> allowing for manufacturing and construction tolerances, and the ultimate bearing strength. The design bearing length for landings on steelwork is 75mm, precast concrete is 100mm, and cast insitu concrete and masonry is 100mm.

The staircase units are cast from steel or high quality timber moulds. Treads, risers and strings of flights, sides and soffits of landing slabs will be as cast from the mould to produce a "plain" type finish, according to BS EN 13670 Annex F8.8<sup>[4]</sup> which at present refers to formed finishes described in NSCS-4, clause 8.6<sup>[5]</sup>. Soffits to stairflights will be trowelled smooth and tops of landing slabs left to receive screed by others.

The exposed concrete surfaces will be left suitable to receive direct finish, but further surface preparation may be required by others if a paint finish is to be applied.

As soon as the staircases have been installed they should be protected from damage by following trades. In the case of supply only contracts the Principal Contractor should satisfy himself of the quality prior to offloading. We cannot accept responsibility for damage reported to us after the staircase units have been offloaded.

Balustrade fixings can be provided in the form of pockets. However we would generally recommend that fixings for the balustrade be drilled on site by others.

All lifting pockets used during installation to be filled in by others than Coltman.

The staircase units have lifting anchors cast in during manufacture. Where installation is not being carried out by Coltman then lifting eyes need to be obtained from an approved supplier. Our Design Department will advise you of the type and number required.

The standard fire resistance for stairs and landings is 60, 90 or 120 minutes, designed as solid slabs according to BS EN 1992-1-2<sup>[2]</sup>.

## DESIGN TO BS 8110

Coltman prestressed concrete floor and roof units and composite slabs may be designed to BS 8110<sup>[8]</sup> for structural strength, serviceability, camber & deflections, erection tolerances, and fire resistance. The design cube strength  $f_{cu} = 55 \text{ N/mm}^2$ . The standard fire resistance is typically 1 hour, but 1½ and 2 hours is possible for the greater depths of units and composite slabs. The standard unit is designed to meet Class 3 serviceability requirements as defined in BS 8110. Designs to Class 1 and Class 2 are available if required

Coltman reinforced concrete stairs and landings may likewise be designed to BS8110 using  $f_{cu} = 35 \text{ N/mm}^2$ , with fire resistance of 1, 1½ or 2 hours. Moulded finishes will be type "A" finish, as described in BS 8110.

Apart from the above and the recommendations given in Eurocodes 0, 1 and 2, all other information in this document also applies to design carried out to BS8110.

## SITE DIMENSIONS

We do not allow for taking site dimensions. It is the Principal Contractor's responsibility to provide all necessary information and ensure that the dimensions on our approved drawings are compatible with the physical dimensions of the structure as built on site.

## TESTING

We shall be pleased to provide test cubes, samples of materials etc., for collection by the Principal Contractor from our works for delivering to an approved testing laboratory.

The cost of collection, delivery and testing to be borne by the Principal Contractor.

## INSPECTION OF FINISHED WORK

The Contractor should ensure that our products and workmanship are to the satisfaction of all concerned whilst our men are on site. Liability will not be accepted for defects not notified to us within three days of erection.

## HEALTH AND SAFETY FILE INFORMATION

Coltman Precast Concrete Ltd will provide "As Installed" drawings and calculations at completion of the installation these will include any changes from the original floor layout. The Principle Contractor will be responsible for recording any amendment to the installed drawings thereafter.

## LOADINGS

The floor unit layout drawings and calculations detail the loads for which the floor has been designed. Care should be taken to ensure that during construction and during the life of the building that both the design loads are not exceeded and that additional holes are not introduced without the approval of the Coltman Design Department. No further partitions other than those shown on the Coltman drawings should be built off the floor units again without prior consultation with the Coltman Design Department.

## MAINTENANCE

There are no maintenance requirements.

## DEMOLITION

Advice on demolition should be sought from a competent person who has access to the Health & Safety file.

## COSHH ASSESSMENT

### Product

Precast concrete products consisting of Portland cement, sand, limestone and quartz aggregates. Can contain calcium silicates and quartz particles.



### Physical Appearance

Pre-stressed Floor Units: Grey solid or with longitudinal hollow cores within depth of unit.

Stair/General Precast Items: Grey solid units occasional protruding steel bearing cleats.

### Hazards

Skin irritation or dermatitis unlikely when handling the product in its solid form. Operatives should be aware of the abrasive nature of the product. During cutting, drilling and other operations where dust is created there is a risk of inhaling dust containing silica compounds and steel filings, which if inhaled can lead to long term health hazards. The airborne dust will irritate the eyes.

### Area of Use

Precast concrete flooring, stair components and other general precast concrete products for use in the construction industry.

### PPE/Precautions

Gloves, suitable for handling abrasive material. Eye protection to prevent dust or splinters getting into the eyes. Respiratory protection to be worn at all times when carrying out operations that generate dust. Selection of respirator will depend upon proximity and concentration of dust. Dust masks will normally be adequate unless working in confined spaces.

Spillage Requirements	N/A
Storage Requirements	N/A
Special First Aid	N/A

## GENERAL

The illustrations shown and details given in other parts of this brochure also constitute part of the Standard Technical Specification. For further details, please contact our Technical Department.

Our policy is one of continuous improvement, and we reserve the right to change the specification without notice.

## REFERENCES

1. BS EN 1992 Part 1-1:2004 +A3:2014, Eurocode 2, Design of Concrete Structures - General Rules and Rules for Buildings; and NA to BS EN 1992 Part 1-1:2004, UK National Annex to Eurocode 2.
2. BS EN 1992 Part 1-2:2004, Eurocode 2, Design of Concrete Structures - General Rules - Structural Fire Design; and NA to BS EN 1992 Part 1-2:2004, UK National Annex.
3. BS 8500-1:2006+A1:2012, Concrete. Complementary British Standard to BS EN 206-1. Method of specifying and guidance for the specifier.

4. BS EN 1991 Part 1-1:2002, Eurocode 1, General actions - densities, self weight and imposed loads.
5. BS EN 1990:2002, Eurocode 0, Basis of Structural Design; and NA to BS EN 1990:2002, UK National Annex.
6. BS EN 1168:2005 +A3:2011, Precast concrete products - Hollow core slabs.
7. BS EN 206-1:2000, Concrete - Specification, performance, production and conformity.
8. BS8500:1997, Structural use of concrete. Structural Use of Concrete - Part 1: Code of practice for design and construction.
9. Code of Practice for the Safe Installation of Precast Concrete Flooring and Associated Components, Precast Flooring Federation, Leicester, 2017.
10. Building Regulations, 2015, Resistance to sound: Approved Document E. Building regulation in England for the resistance to the passage of sound and sound insulation.
11. Robust Details Part E, Resistance to the Passage of Sound, Robust Details Ltd., Milton Keynes.
12. BS EN ISO 6946:2007, Building components and building elements, Thermal resistance and thermal transmittance, Calculation method.
13. BS 8204-1:2003+A1:2009 Screeds, bases and insitu floorings. Concrete bases and cementitious levelling screeds to receive floorings.
14. BS EN 13670:2009, Execution of concrete structures.
15. NSCS-4:2010, National Structural Concrete Specification Edition 4, CONSTRUCT, UK.



## COLTMAN PRE-STRESSED CONCRETE SOLID AND HOLLOW CORE SLABS

Coltman Pre-stressed Concrete Solid and Hollow Core Slabs • Imposed Live Load vs Clear Span Tables •  
Design to Eurocode EC2 • 60 Minutes Fire Resistance

Type	Depth of precast unit (mm)	Self weight including infill (kN/m <sup>2</sup> )	Allowable clear span (m) for imposed live load (kN/m <sup>2</sup> ) and floor usage									
			Domestic/Residential/Offices						Retail/Congregation		Storage	
			0.75	1.50	2.00	2.50	3.00	4.00	5.00	7.50	10.00	15.00
Solid K75	75	1.76	3.80	3.79	3.69	3.61	3.53	3.39	2.83	2.50	2.05	1.78
Solid L100	100	2.35	5.30	5.30	5.18	5.07	4.97	4.78	3.87	3.37	2.77	2.40
Solid Z150	150	3.53	7.69	7.47	7.34	7.13	6.90	6.49	5.87	5.11	4.20	3.66
Solid X200	200	4.71	9.66	9.43	9.28	9.14	8.88	8.41	7.69	6.85	5.64	4.91
Hollow Core A150	150	2.35	7.80	7.80	7.80	7.70	7.54	7.20	5.64	4.92	4.04	3.52
Hollow Core high Density D150	150	2.96	7.80	7.80	7.76	7.61	7.47	7.09	5.83	5.08	4.18	3.64
Hollow Core C200	200	2.94	10.30	10.16	9.96	9.76	9.58	9.26	7.43	6.48	5.33	4.64
Hollow Core E250	250	3.66	11.80	11.80	11.79	11.59	11.40	11.05	9.21	8.03	6.61	5.76
Data include 1.75 KN/m <sup>2</sup> for finishes												

## COLTMAN PRE-STRESSED CONCRETE COMPOSITE SOLID AND HOLLOW CORE SLABS

Coltman Pre-stressed Concrete Composite Solid and Hollow Core Slabs • Imposed Live Load vs Clear Span Tables •  
Design to Eurocode EC2 • 60 Minutes Fire Resistance

Type	Depth of precast unit (mm)	Depth of topping (mm)	Self weight including infill and topping (allowing for camber of pcu)kN/m <sup>2</sup>	Allowable clear span (m) for imposed live load (kN/m <sup>2</sup> ) and floor usage									
				Domestic/Residential/Offices						Retail/Congregation		Storage	
				0.75	1.50	2.00	2.50	3.00	4.00	5.00	7.50	10.00	15.00
Solid K75	75	75	3.67	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.79	3.43
	75	100	4.29	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.80	3.56
Solid L100	100	75	4.29	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.10	4.57	4.10
	100	100	4.91	5.30	5.30	5.30	5.30	5.30	5.30	5.30	5.12	4.90	4.53
Solid Z150	150	75	5.45	7.80	7.62	7.48	7.35	7.23	7.00	6.79	6.35	5.96	5.36
	150	100	6.08	7.56	7.40	7.30	7.20	7.10	6.92	6.76	6.40	6.09	5.59
Solid X200	200	75	6.62	9.85	9.57	9.39	9.23	9.07	8.79	8.53	7.97	7.33	6.62
	200	100	7.25	9.55	9.33	9.19	9.06	8.94	8.71	8.49	8.02	7.62	6.98
Hollow Core A150	150	50	3.72	7.80	7.80	7.80	7.80	7.80	7.63	6.87	6.32	5.37	4.68
	150	75	4.35	7.80	7.80	7.80	7.80	7.80	7.62	7.30	6.75	5.90	5.23
Hollow Core High Density D150	150	50	4.29	7.80	7.80	7.80	7.80	7.80	7.56	6.92	6.38	5.51	4.80
	150	75	4.91	7.80	7.80	7.80	7.80	7.80	7.56	7.32	6.79	6.00	5.38
Hollow Core C200	200	50	4.33	10.30	10.30	10.28	10.13	9.99	9.58	8.55	7.89	6.71	5.85
	200	75	4.96	10.30	10.30	10.30	10.14	9.92	9.53	8.93	8.29	7.27	6.41
Hollow Core E250	250	50	5.03	11.80	11.80	11.80	11.80	11.73	11.32	10.14	9.39	8.06	7.03
	250	75	5.66	11.80	11.80	11.80	11.80	11.69	11.23	10.50	9.77	8.61	7.61
Data include 1.5 KN/m <sup>2</sup> for finishes above the topping and self weight of topping													

NOTE: These tables are for guidance only. They do not allow for the effect of any service holes and consideration must be made for the effect of camber, deflection, partitions or additional finishes / services. Tables are determined for 1 hour fire slabs design to Eurocode EC2, increased fire rating and design to BS8110 can be provided by our Technicanl department on request.





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