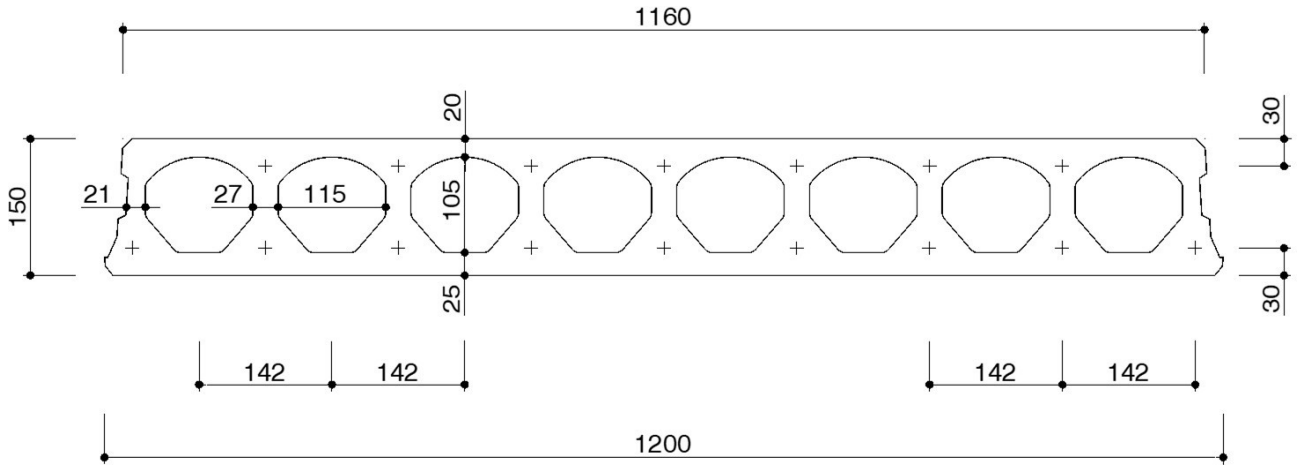
## PRESTRESSED HOLLOW CORE SLAB H=150 8 holes

### Slab Geometry and strand positions




**Load table - Maximum Span (m) (see Bearing Capacity Diagram on next page)**

| Strand Pattern Code | Strand Pattern Descrip. | Steel Area ($mm^2$) | $M_{rd}$ (kNm/1,2m) | Service Load ($kN/m^2$) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 2,0 | 3,0 | 4,0 | 5,0 | 6,0 | 7,0 | 8,0 | 9,0 | 10,0 | 11,0 | 13,0 | 15,0 |
| S1 | 5 3/8" | 260,0 | 46,88 | 7,58 | 6,71 | 6,08 | 5,61 | 5,23 | 4,91 | 4,65 | 4,43 | 4,23 | 4,06 | 3,75 | 3,33 |
| S2 | 7 3/8" | 364,0 | 62,54 | 8,48 | 7,75 | 7,03 | 6,47 | 6,03 | 5,67 | 5,37 | 5,11 | 4,84 | 4,47 | 3,89 | 3,45 |
| S3 | 9 3/8" | 468,0 | 77,38 | 8,82 | 8,23 | 7,77 | 7,20 | 6,71 | 6,31 | 5,97 | 5,45 | 5,00 | 4,62 | 4,01 | 3,55 |
| S4 | 7 3/8" + 2 1/2" | 550,0 | 88,38 | 9,04 | 8,42 | 7,95 | 7,55 | 7,17 | 6,73 | 6,05 | 5,50 | 5,04 | 4,65 | 4,04 | 3,58 |
| S5 | 5 3/8" + 4 1/2" | 632,0 | 98,63 | 9,22 | 8,59 | 8,10 | 7,69 | 7,35 | 6,79 | 6,09 | 5,54 | 5,07 | 4,69 | 4,07 | 3,61 |
| S6 | 2 3/8" + 7 1/2" | 755,0 | 112,17 | | | | | 7,45 | 6,86 | 6,16 | 5,59 | 5,13 | 4,73 | 4,11 | 3,64 |

The values of load and span in the above table may be increased in the following cases:

- Cast in situ topping that creates a composite section
- Part or all of the hollow cores are filled with concrete according to needs
- Partially restrained or continuous floor
- The superimposed service load comprises a value of 1.00$kN/m^2$ as Dead Load

NOTE: the destination of use considered for this type of slab is: **housing**

### Inertial properties of cross section and material specifications

| | | | | | |
|---|---|---|---|---|---|
| Cross section area | 9,739E+04 | $mm^2$ | | Strenght of concrete at 28 days | 45 MPa |
| Second moment of inertia | 2,728E+08 | $mm^4$ | | Strenght of concrete at transfer | 30 MPa |
| Centroid from bottom of slab | 71,65 | mm | | Concrete density | 2.400 $kg/m^3$ |
| Section modulus, top part | 3,482E+06 | $mm^3$ | | Ultimate strength of steel | 1.860 MPa |
| Section modulus, bottom part | 3,808E+06 | $mm^3$ | | Jacking stress of steel | 1.302 MPa |
| Total webs width | 230,83 | mm | | Strand type | low relax. |
| Self weight of slab | 1,91 | $kN/m^2$ | | Grout required for shear key | 4,263E-03 $m^3/m^2$ |

### Resistance to fire - Bending Moment $M_{rdf}$ (kNm/1.2m)

| Strand position (mm) | Exposure duration | S1 | S2 | S3 | S4 | S5 | S6 |
|---|---|---|---|---|---|---|---|
| 30 | 60 | 28,60 | 39,74 | 50,68 | 59,18 | 67,57 | 79,94 |
| 35 | 90 | 21,35 | 29,71 | 37,95 | 44,37 | 50,72 | 60,12 |

***NOTE: THESE TABLES ARE INTENDED FOR GENERAL DESCRIPTIVE PURPOSE ONLY***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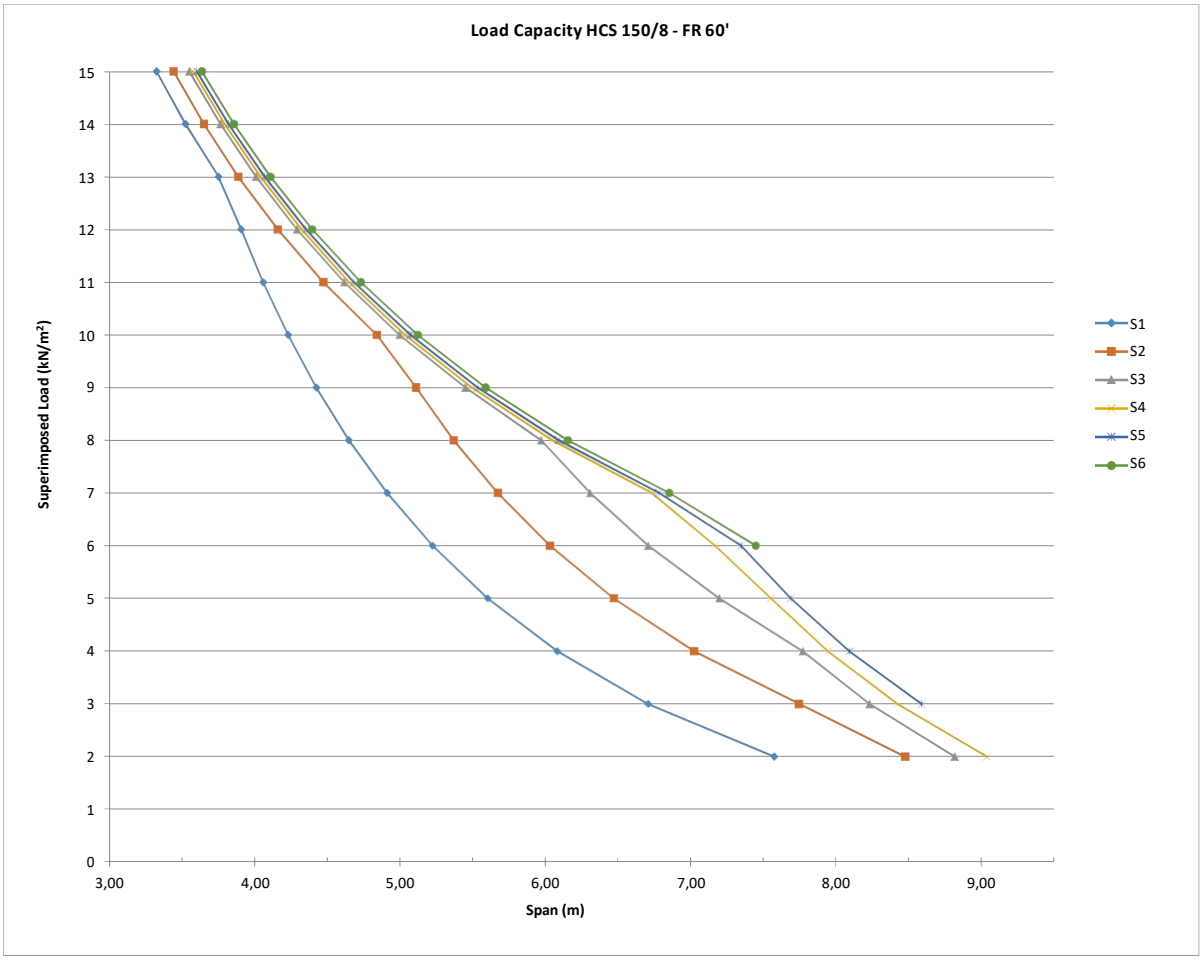


Bearing Capacity Diagram

## Advantages

• Broad range of application in commercial, industrial and residential buildings;

• Large spans can be covered with slender elements able to withstand high overloads.

• Low water/cement ratio in the concrete used grants the elements a high rigidity also with high slenderness (up to 1/42) and thus reduces deformations to the minimum even with simply supported structural scheme;

• Possibility to use the elements with different supporting structures such as concrete block walls, steel beams, insitu cast beams, precast beams, etc.;

• It is possible to have a continuous reinforcement link between elements against negative moments allowing therefore optimal static conditions even in seismic areas;

• Self supporting capacity at construction phase: this allows to avoid the use of props during erection. It is possible to load the floors immediately upon laying even without structural cast in situ topping;

• Reduced amount of concrete for shear keys between slabs;

• In case of thin elements it is possible to use them as walls thanks to the male/female notch, these elements also can have exposed aggregate surface finishing of different colors;

• It is possible to produce slabs with increased thickness of the bottom which allows higher resistance to fire;

• Simple and fast erection (3-4 workers can install up to 500/600 $m^2$ of floor per day);

• Maximum durability against carbonation obtained by means of the production technology which grants a homogeneous compacting of the concrete and therefore maximum impermeability and high mechanical strength;

• Large daily quantities produced with constant and controlled quality;

• High quality finishing of the elements and particularly the soffit which, most of times, only requires coating or painting.

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