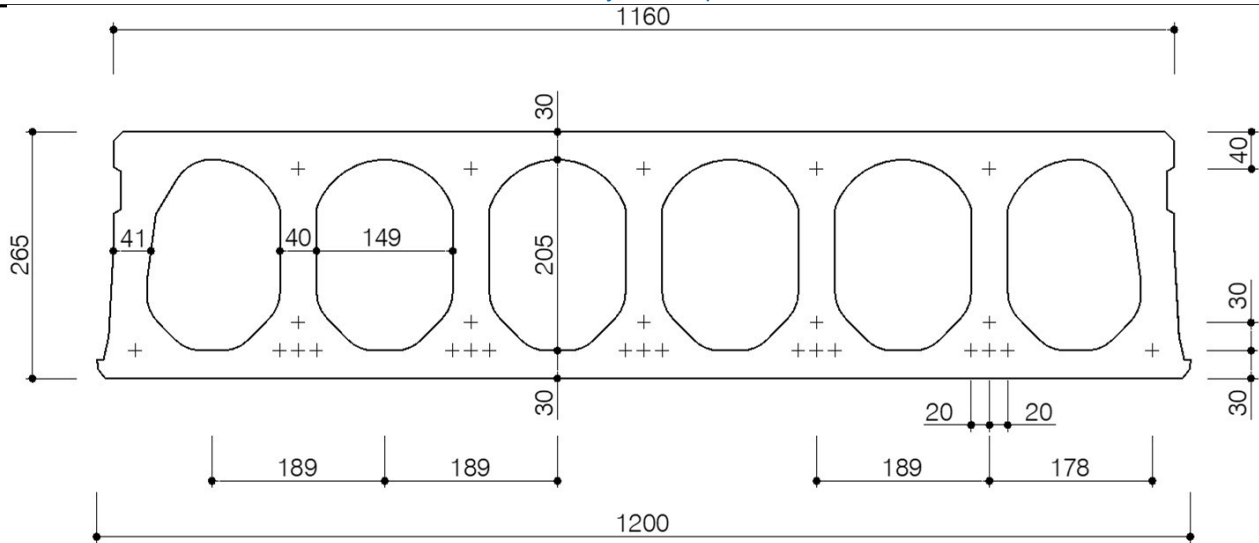


PRESTRESSED HOLLOW CORE SLAB H=265 6 holes

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 (mm²)	M _{rd} (kNm/1,2m) (Lev. 30mm)	Service Load (kN/m²)											
				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	7 3/8"	364	137,6	11,29	10,27	9,48	8,85	8,34	7,90	7,53	7,20	6,91	6,66	6,22	5,86
S2	9 3/8"	468	175,3	12,74	11,59	10,70	9,99	9,41	8,91	8,49	8,12	7,80	7,51	7,02	6,62
S3	12 3/8"	624	226,4	14,48	13,17	12,16	11,36	10,69	10,13	9,65	9,23	8,86	8,54	7,98	7,31
S4	12 3/8" + 3 3/8" + 2 3/8"t	884	264,4	14,93	14,10	13,14	12,27	11,55	10,95	10,43	9,98	9,58	9,23	8,62	7,86
S5	6 1/2" + 6 3/8" + 5 3/8" + 4 3/8"t	1338	351,9	15,00	14,71	13,95	13,31	12,77	12,28	11,90	11,51	11,05	10,64	9,44	8,40

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 1.00kN/m² as Dead Load

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

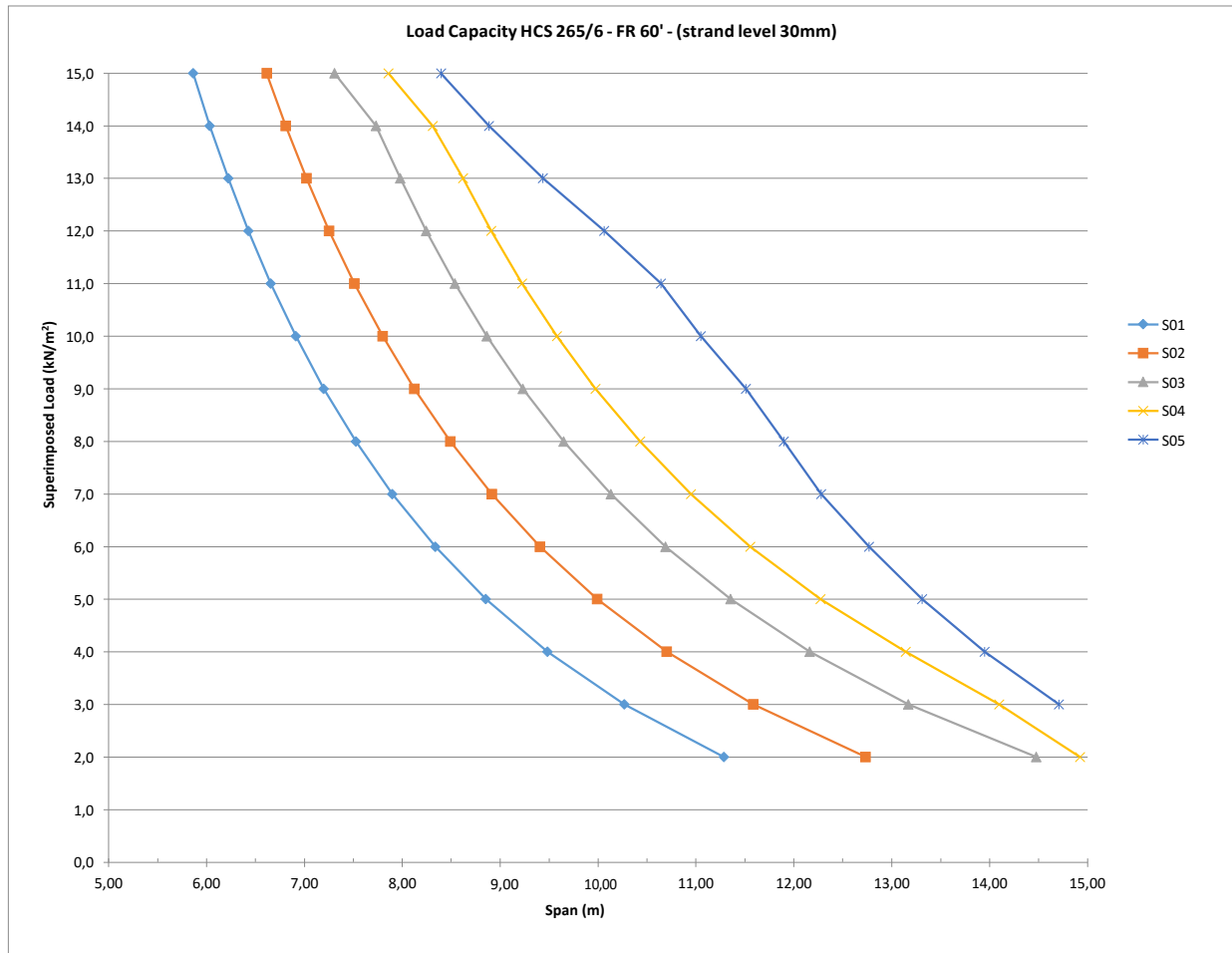
Inertial properties of cross section and material specifications

Cross section area	1,542E+05	mm ²	Strenght of concrete at 28 days	45	MPa
Second moment of inertia	1,382E+09	mm ⁴	Strenght of concrete at transfer	30	MPa
Centroid from bottom of slab	131,56	mm	Concrete density	2.400	kg/m ³
Section modulus, top part	1,036E+07	mm ³	Ultimate strength of steel	1.860	MPa
Section modulus, bottom part	1,051E+07	mm ³	Jacking stress of steel	1.302	MPa
Total webs width	278,86	mm	Strand type	low relax.	
Self weight of slab	3,03	kN/m ²	Grout required for shear key	8,489E-03	m ³ /m ²

Resistance to fire - Bending Moment M_{rd} (kNm/1.2m)

Strand position (mm)	Exposure duration	S1	S2	S3	S4	S5
30	60	90,5	115,9	153,5	204,7	291,9
35	90	72,7	93,2	123,6	167,8	240,6
40 (S1, S2; S3; S4) / 35 (S5)	120	64,5	82,6	109,6	147,7	184,3
45 (S1, S2; S3; S4) / 40 (S5)	180	45,4	58,2	77,4	106,9	106,9

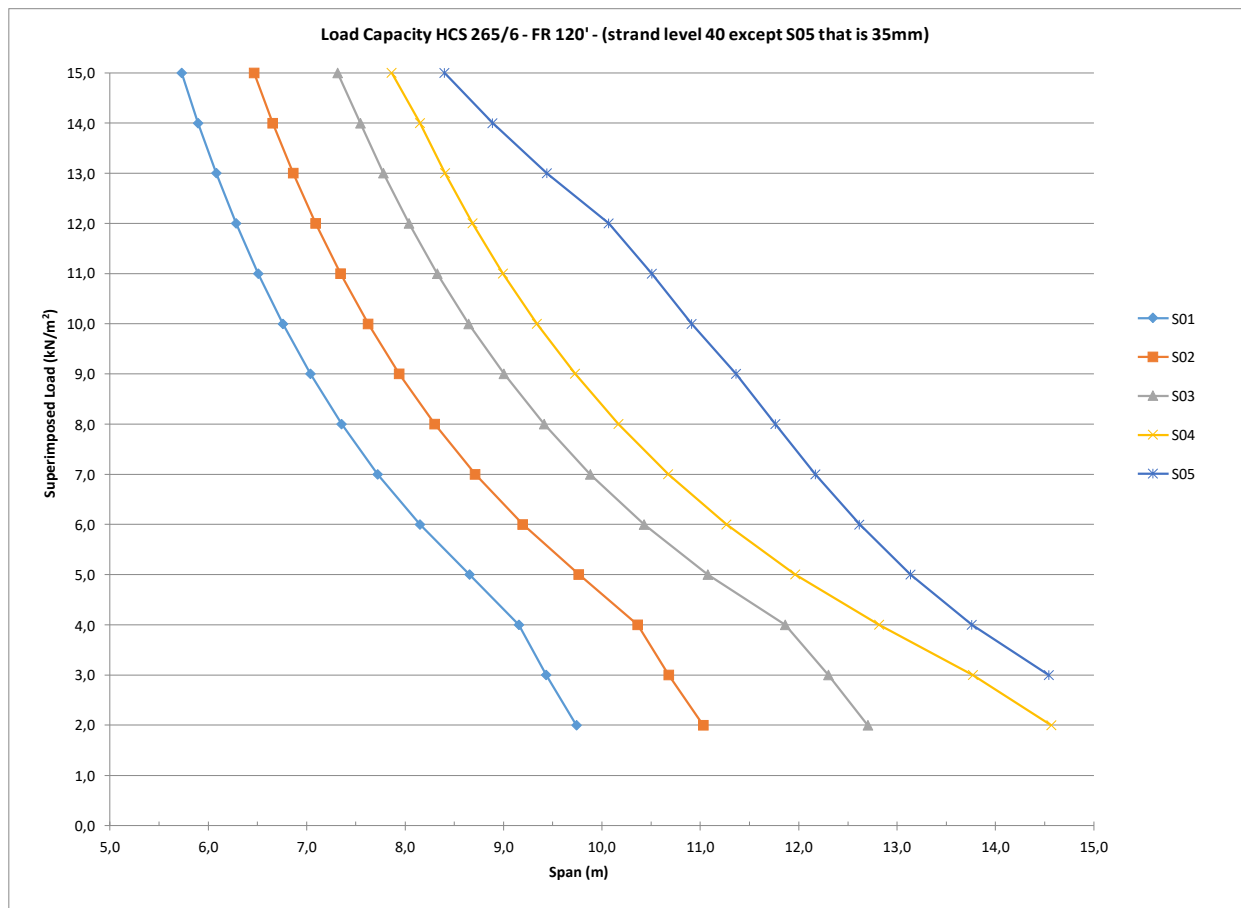
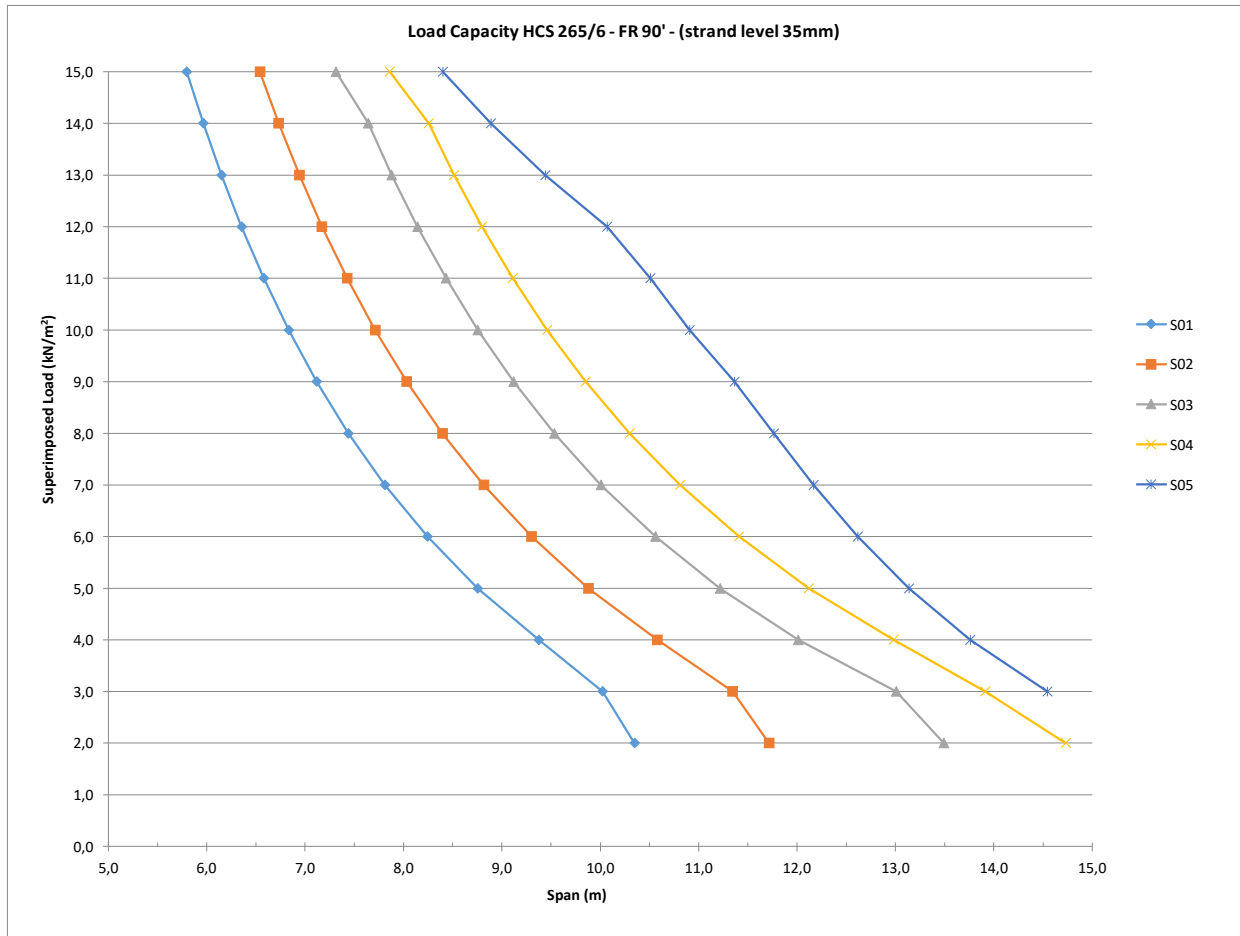
NOTE: THESE TABLES ARE INTENDED FOR GENERAL DESCRIPTIVE PURPOSE ONLY

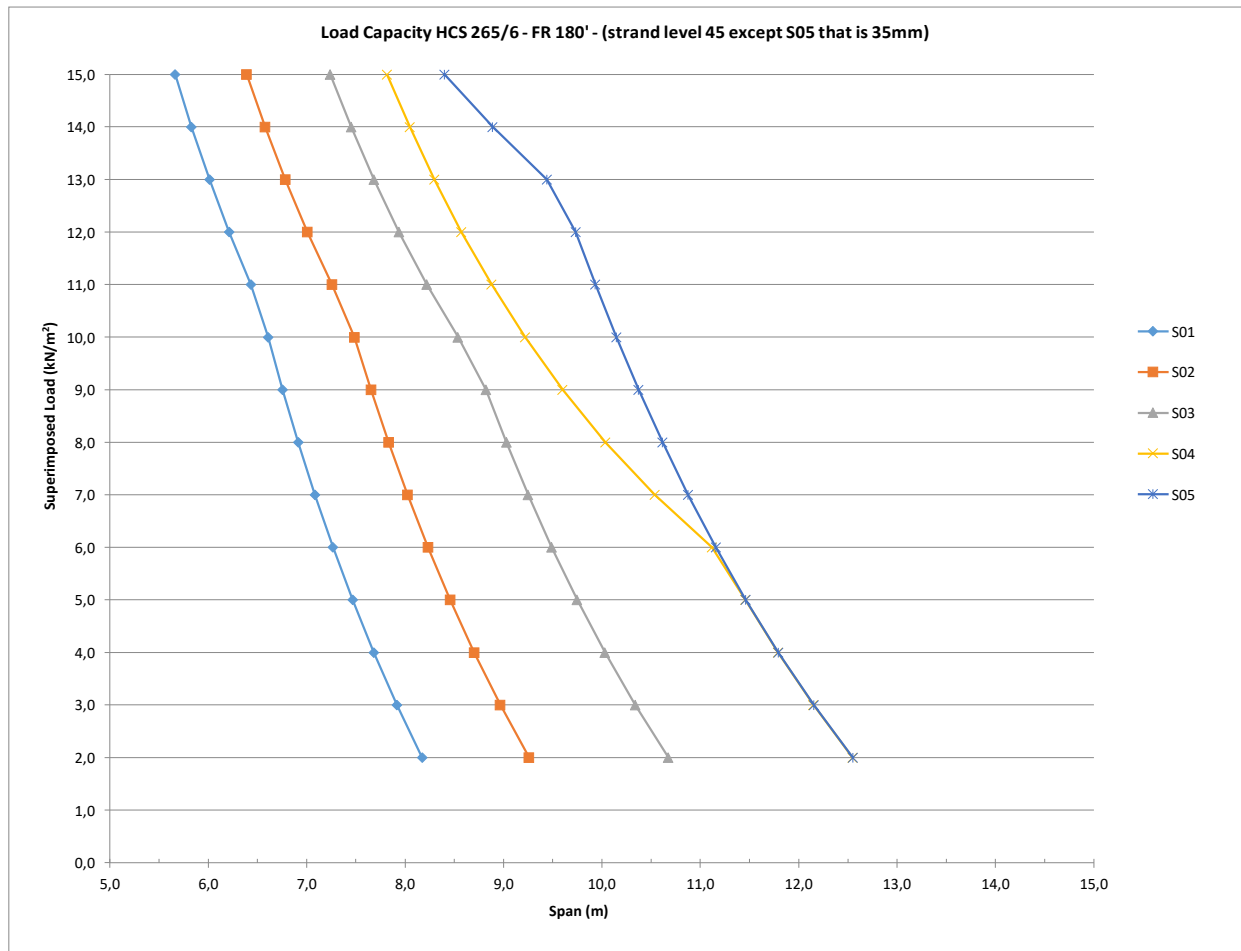


Bearing Capacity Diagram

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 m² 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.





Additional parameters for high fire rates study

- Aggregate type: granite Cement type 42.5R;
- Concrete is protected against dehydration;
- Consequence Class: CC2 (medium risk) and Exposure class: XC1;
- The shear resistance under fire event is not considered because it's strongly affected by the number of cores that are opened at the two heads and filled at site by concrete and normal reinforcement;