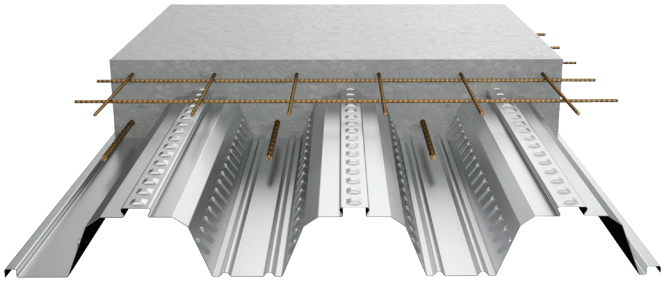
Cofraplus® 80

Composite floors decking with trapezoidal section

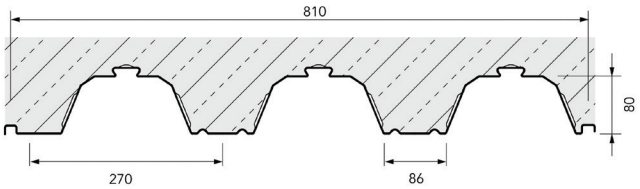
With its embossments and its dovetail geometry, Cofraplus® 80 is a performant composite slab solution, ideal alternative to precast slab.
Its lightness, its stackable design and its flexibility offers numerous of advantages not only from a mechanical point of view but also logistical and economical as well.
Cofraplus® 80 is compatible with all structural materials. Its specific accessories allow suspended options such as ceiling or ducts without any drillings.



Fire resistant

Long span

Economic



CE marking according to EN 1090-1

Characteristics of the base material		Norms
Steel grade	S 350 GD	EN 10346
Corrosion protection	Galvanised steel ZM 175	ETPM ZMevolution® or AbZ Z-30.11-61

Characteristics	Nominal thickness of the profile sheet [mm]			
	0,75	0,88	1,00	1,25
Weight [kg / m²]	10,66	12,11	13,69	15,14
Cross section A_p: [mm² / m]	1 296	1 481	1 682	1 867
Effective inertia I_{eff} [cm⁴ / m]	141,58	158,79	177,43	194,64
Height of neutral axis [mm]	48,02	48,02	48,02	48,02
Modulus of inertia [cm³ / m]	29, 84	33,07	36,95	40,53

Nominal concrete consumption

	Thickness of the slab [cm]												
	13	14	15	16	17	18	19	20	21	22	24	26	28
Concrete volume [l / m²]	85	95	105	115	125	135	145	155	165	175	195	215	235
Theoretical weight* of the composite slab [kg / m²]	213	238	263	288	313	338	363	388	413	438	488	538	588

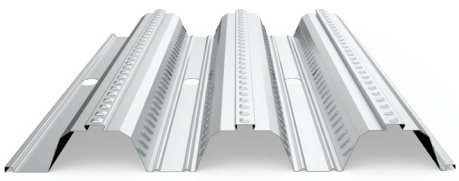
Concrete density 2500 kg / m³
Maximum recommended slab thickness d = 20 cm
*Additional weight du to pounding effect is not included

Able to reach spans:
- **Up to 4,5 m without props**
- **Up to 6,5 m with props**

Reduces by 15% the CO2 emission and 30% lighter compared to a precast solution.
Flexible, sustainable and easy to install, Cofraplus® 80 is adapted to every kind of modern construction project.

Cofraplus® 80P:

Pre-punched version, compatible with shear connectors, welded in advance or in shop to the composite beams.



Fire resistance

	REI [min]			
	30	60	90	120
Thickness of the slab [cm]	14	14	15	17

REI: fire protection rating of the raw composite slab
The minimum thickness is required to comply with the temperature criterion (I) on the non- fire exposed side.

According EN 1994-1-2 §4.3.2, Cofraplus® 80 composite floors are rated REI 30 even without specific reinforcement in the ribs.
For higher fire resistance classes, additional reinforcement bars are required. These are positioned in the ribs of the profile.
Their section is determined by using Cofra®5.

Sound insulation

The acoustic behaviour of a raw composite slab is determined by its mass.
Values calculated by modelling – study report CSTB No. AC15-26054708

	Thickness of the slab [cm]									
	13	14	15	16	18	20	22	24	26	28
R_w [dB]	48	49	50	50	52	53	54	55	56	57
(C; Ctr) [dB]	(-2; -6)	(-2; -6)	(-2; -7)	(-1; -6)	(-2; -7)	(-2; -7)	(-1; -7)	(-1; -7)	(-1; -7)	(-1; -7)

Structural performance

Load / Span table

Design is made according to the Eurocodes.
The value provided in each cell of the table loads is the maximum live load capacity Q (kN / m²), with no safety factor. The self weight of the slab is already included.
The color of each cell give information about the required steel thickness.
A calculation using Cofra® 5 optimises these values according to the project requirements.

Single span L

Thickness of the slab [cm]	Span [m]																				
	3,00	3,10	3,20	3,30	3,40	3,50	3,60	3,70	3,80	3,90	4,00	4,10	4,20	4,30	4,40	4,50	4,60	4,70	4,80	4,90	5,00
22	5.82	5.49	5,19	4,90	4,63	4,37	4,13	3,90	3,68	3,48	3,28	3,10	2,92	2,75	2,59	2,44	2,29	2,15	2,01	1,88	1,76
21	5.75	5.43	5,13	4,85	4,59	4,34	4,11	3,89	3,68	3,48	3,29	3,11	2,93	2,77	2,61	2,46	2,32	2,19	2,05	1,93	1,81
20	5.68	5,37	5,08	4,81	4,55	4,31	4,09	3,87	3,67	3,47	3,29	3,11	2,95	2,79	2,64	2,49	2,35	2,22	2,09	1,97	1,85
19	5.43	5,13	4,86	4,6	4,36	4,13	3,91	3,71	3,51	3,33	3,15	2,99	2,83	2,68	2,54	2,40	2,27	2,14	2,02	1,90	1,79
18	5.17	4,89	4,63	4,39	4,16	3,94	3,74	3,54	3,36	3,19	3,02	2,86	2,71	2,57	2,43	2,30	2,18	2,06	1,95	1,84	1,73
17	4.92	4,66	4,41	4,18	3,96	3,76	3,57	3,38	3,21	3,04	2,89	2,74	2,60	2,46	2,33	2,21	2,09	1,98	1,87	1,77	1,67
16	4.67	4,42	4,19	3,97	3,77	3,57	3,39	3,22	3,06	2,9	2,75	2,61	2,48	2,35	2,23	2,12	2,01	1,90	1,80	1,70	1,61
15	4.41	4,18	3,97	3,76	3,57	3,39	3,22	3,06	2,90	2,76	2,62	2,49	2,36	2,25	2,13	2,02	1,92	1,82	1,72	1,63	1,55
14	4.16	3,94	3,74	3,55	3,37	3,20	3,05	2,89	2,75	2,62	2,49	2,36	2,25	2,14	2,03	1,93	1,83	1,74	1,65	1,57	1,48
13	3.91	3,71	3,52	3,34	3,18	3,02	2,87	2,73	2,6	2,47	2,35	2,24	2,13	2,03	1,93	1,84	1,75	1,66	1,58	1,50	1,42
	Without propping											With propping									

Multiple spans L1 L2 with L1 = L2 and internal width support 100mm

Thickness of the slab [cm]	Span [m]																				
	3,00	3,10	3,20	3,30	3,40	3,50	3,60	3,70	3,80	3,90	4,00	4,10	4,20	4,30	4,40	4,50	4,60	4,70	4,80	4,90	5,00
22	7,89	7,51	7,16	6,83	6,52	6,23	5,95	5,69	5,45	5,21	4,99	4,78	4,57	4,38	4,20	4,02	3,85	3,69	3,54	3,39	3,25
21	7,75	7,38	7,04	6,72	6,42	6,14	5,87	5,61	5,37	5,15	4,93	4,72	4,53	4,34	4,16	3,99	3,83	3,67	3,52	3,38	3,24
20	7,60	7,25	12,50	6,61	6,31	6,04	5,78	5,53	5,30	5,08	4,87	4,67	4,48	4,30	4,12	3,96	3,80	3,65	3,5	3,36	3,23
19	7,25	6,91	12,04	11,56	6,02	5,76	5,52	5,28	5,06	4,85	4,65	4,46	4,28	4,11	3,94	3,79	3,63	3,49	3,35	3,22	3,09
18	6,89	6,57	11,56	11,11	10,68	10,28	5,25	5,03	4,82	4,62	4,43	4,25	4,08	3,92	3,76	3,61	3,47	3,34	3,20	3,08	2,96
17	6,54	6,24	11,07	10,64	10,23	9,85	9,48	4,78	4,58	4,40	4,22	4,05	3,88	3,73	3,58	3,44	3,31	3,18	3,06	2,94	2,82
16	6,18	5,90	5,64	9,82	9,44	9,09	8,65	8,03	4,34	4,17	4,00	3,84	3,69	3,54	3,40	3,27	3,14	3,02	2,91	2,80	2,69
15	5,83	5,57	5,32	5,09	4,87	8,24	7,82	7,25	6,73	3,94	3,78	3,63	3,49	3,35	3,22	3,10	2,98	2,87	2,76	2,65	2,55
14	5,48	5,23	5,00	4,78	4,58	4,39	5,16	4,75	4,37	4,02	3,57	3,40	3,12	2,86	2,62	2,39	2,18	1,98	1,80	1,62	1,46
13	5,12	4,90	4,68	4,48	4,29	4,11	3,94	3,78	3,87	3,56	3,27	3,00	2,75	2,52	2,30	2,10	1,91	1,73	1,57	1,41	1,26
	Without propping																			With propping	

Key	Thickness [mm]
Installation without propping	0,88
	1,00
	1,13
	1,25
With propping	0,88

Assumptions

- Concrete C25 / 30 (density: 25 kN / m³)
- Fire resistance REI30
- Deflection while pouring L / 180
- Deflection in service L / 350 if L < 3.5 m or (0.5 cm + L / 700) if L > 3.5 m
- Materials safety factors : yM=1.0, yC=1.5, yS=1.15
- Construction loads according to EN 1991-1-6 (Qca = 0,75 kN / m², Qcf = 0,75 kN / m²)