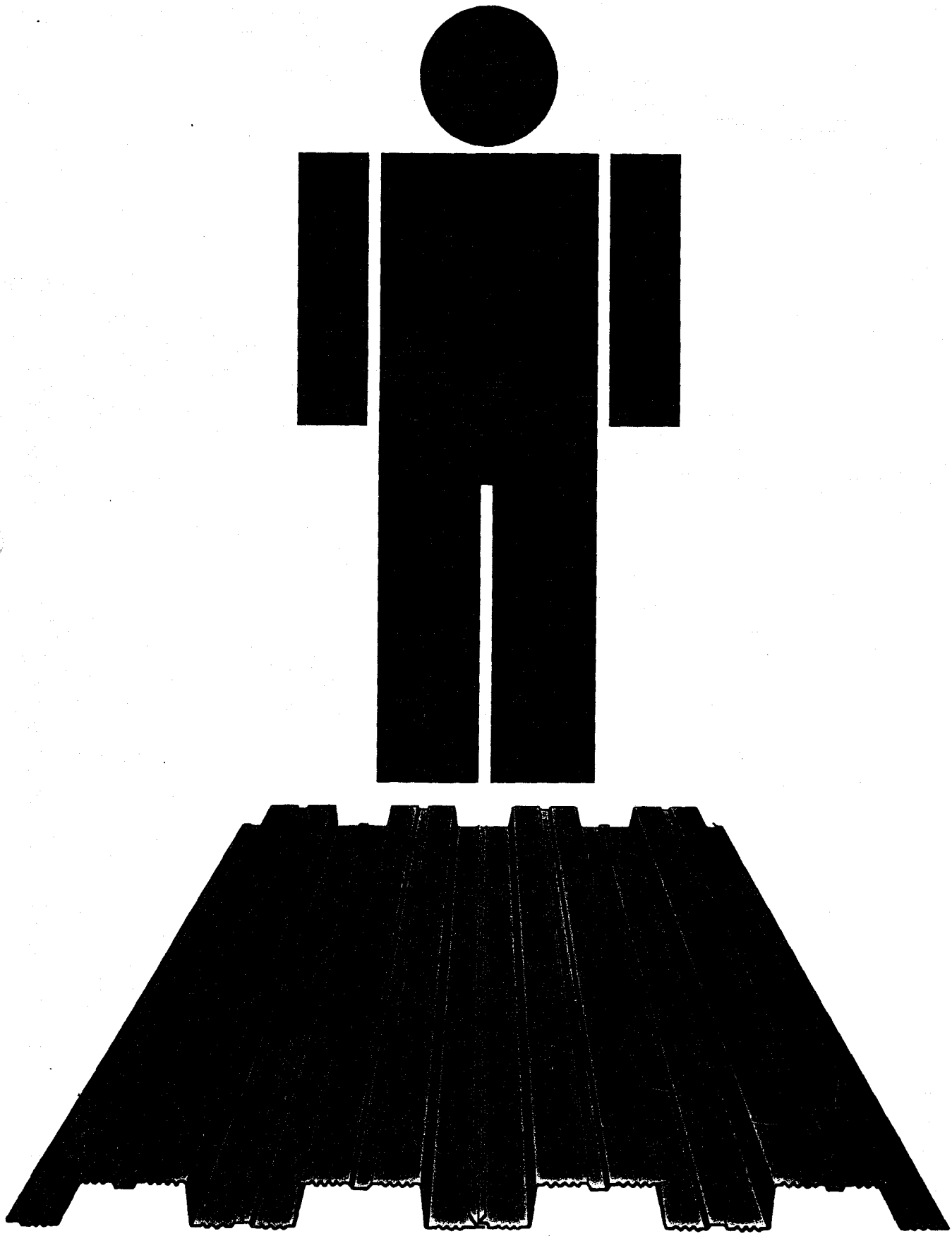
Inryco® Floor Systems
Catalog 21-1

INLAND RYERSON



Inland-Ryerson Construction Products Company

1973

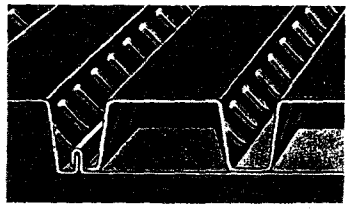
5 METAL DECKING

cellular, ribbed & fluted

Inryco® Hi-Bond® Celluflor® and Floor Deck

Hi-Bond Exclusive

Ten years of extensive use in projects of all kinds and sizes have proven the successful performance of Inryco Hi-Bond deck, which eliminates the need for positive reinforcing bars, reducing material costs.



Introduced in 1961, the Hi-Bond lug made it possible for the first time to select a floor deck specifically designed to give composite slab action. Hi-Bond is now standard on all Inryco Celluflor and non-cellular Inryco floor deck products.

The lugs are formed into the web of each rib of the deck (see illustration), providing a dual-action positive lateral and vertical mechanical bond between the deck and concrete—an effective composite design.

Many Savings Possible

Besides the important savings inherent in composite design itself, Inryco floor decks make possible other opportunities to reduce costs.

New Types 3" V and NF$_V$ Celluflor, for instance, make possible even greater composite slab design savings because of their V-lock joint, which serves as an integral shear connector. Also, these 3" deep products are the first specifically designed and engineered for composite beam design, with wide ribs to receive shear connectors.

New 2" Type V Deck fills the design gap between 1½" and 3" decks. It is the most economical section for the 8' to 12' span range. (See page 16.)

Recent UL ratings on lighter gage cellular panels have also made possible a reduction in material costs. Raceway requirements now permit the use of 20 gage steel for both fluted and flat plates of cellular deck, provided cells are covered by a minimum of 1½" of concrete. This is a distinct economy over the former requirement: 18/16 gage covered by 2½" of concrete.

UL rated floor systems often save the **cost of applied fire-proofing.** Many building codes have 2 hour floor requirements. Inryco engineers conducted fire tests to earn the Underwriters' Laboratories' two and three hour fire ratings without fireproofing, thereby saving time and materials.

And, of course, there are the **traditional savings** in the use of steel deck over other types of construction: the elimination of temporary forms and shoring, the immediate use of the deck as a safe work platform for all trades, and the savings in labor because things move faster.

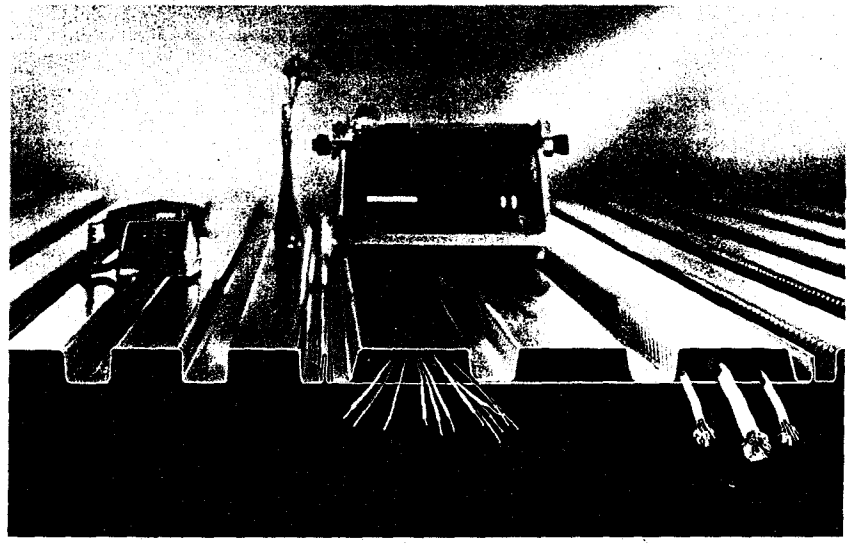
Composite Design Assistance

Because of Inland-Ryerson's early involvement in composite beam design in the past decade, our engineers are highly skilled in many technical phases of it. This know-how is available to designers without charge through our sales engineers. Also available is a newly revised edition of the Inryco Composite Beam Design Manual.

In-Floor Electrification

Inryco Celluflor's most common use is to accommodate electrical power and communications circuits. It has been thoroughly tested and approved by Underwriters' Laboratories, Inc., for safe electrical use and carries the UL label service for your assurance.

All types of Celluflor permit in-floor electrification within inches of virtually any location. It is a simple matter to reach a wired cell and the installation of floor outlets is quick and inexpensive.



Savings Through Blends

Many times the electrical requirements of a building, both present and future, do not justify the use of a totally electrified floor. Instead, it may be adequate to provide only partial electrification.

Because they are fully compatible in both depth and side lock conditions, Inryco Celluflor and non-cellular Inryco floor decks can be used in economical blends that provide electrification cell patterns in a wide variety of combinations to meet virtually any design module the architect has decided to use.

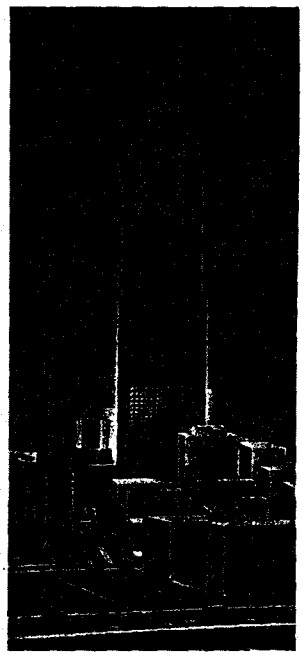
Savings in Cell Capacity

Inryco 1⅝" NF and NF_V Celluflors offer 66% more cell capacity than standard profile 1½" cellular decks, allowing important savings in future electrical service expansion. And because cells are wider, they permit 4" hand holes needed to accommodate large diameter cables.

Savings with Pre-set Inserts

Significant savings in electrification are made possible by the use of pre-set inserts. These are described in detail on pages 4 and 5.

Recent major projects using Inryco decks



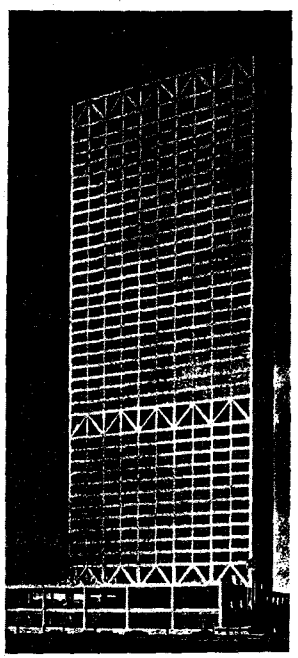
SEARS TOWER,
Chicago, Illinois

World's tallest structure, 110 stories. 3.7 million sq. ft. of Inryco 3"V and 3"NF_V deck.

Owner: Sears, Roebuck and Company, Chicago.

Architects/Engineers: Skidmore, Owings & Merrill, Chicago.

Gen. Contractor: Diesel Construction Co., Chicago.



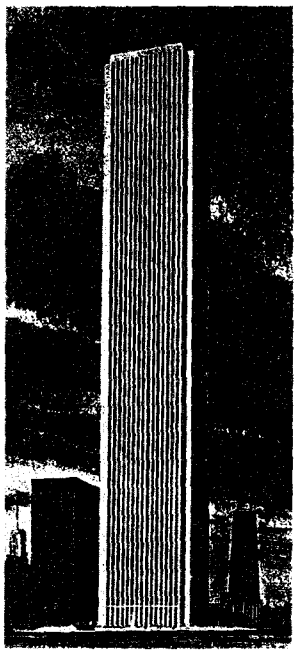
FIRST WISCONSIN CENTER, Milwaukee, Wis.

42 stories, largest in the state. 1.2 million sq. ft. of Inryco 3"V and 3"NF_V deck.

Owner: First Wisconsin National Bank of Milwaukee.

Architects/Engineers: Skidmore, Owings & Merrill, Chicago; Fitzhugh Scott Architects, Inc., Milwaukee.

Managing Contractor: Carl A. Morse, Inc., Chicago.



STANDARD OIL BUILDING, Chicago, Ill.

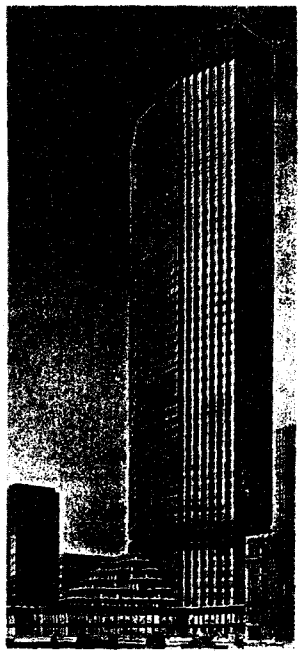
80 stories, fourth tallest building in the world. 2.5 million sq. ft. of Inryco B and BF deck.

Owner: Standard Oil Co. (Indiana), Chicago.

Architects: Edward Durell Stone & Associates, New York; Perkins & Will, Chicago

Engineers: P. & W. Engineers, Inc.

Gen. Contractor: Turner Construction Co., Chicago.



IDS CENTER,
Minneapolis, Minn.

57 stories, towers over the Northwest. 1.4 million sq. ft. of Inryco 3"N and 3"NF deck.

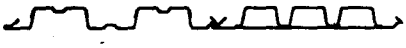
Owner: Investors Diversified Services, Inc., Minneapolis.

Architects: Philip Johnson/John Burgee, New York; Edward F. Baker Associates, Inc., Minneapolis.

Structural Engineer: Severud, Perrone, Sturm, Conlin & Bandel, New York.

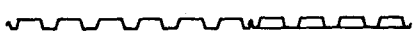
Gen. Contractor: Turner Construction Co., Minneapolis.

Blend used in Sears Tower and First Wisconsin Center. (5' Module)



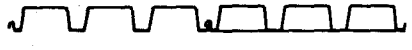
3" V deck (32") — 3" NF_V Celluflor (28")

Blend used in Standard Oil Building. (5' Module)



1½" B deck (36") — 1½" BF Celluflor (24")

Blend used in IDS Center. (4' Module)



3" N deck (24") — 3" NF Celluflor (24")

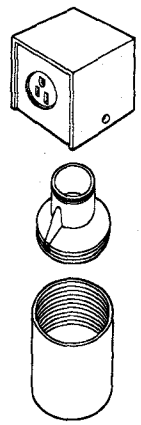
Inryco Pre-set Inserts

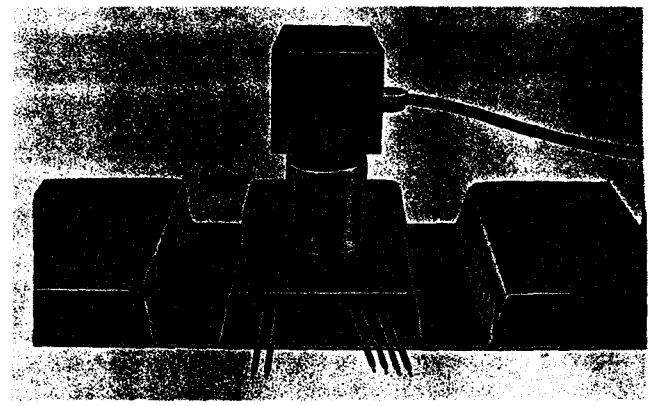
SERIES 500

SINGLE PRE-SET
OR AFTER-SET

Surface mounted fittings

Power or telephone



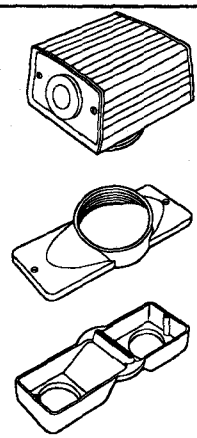


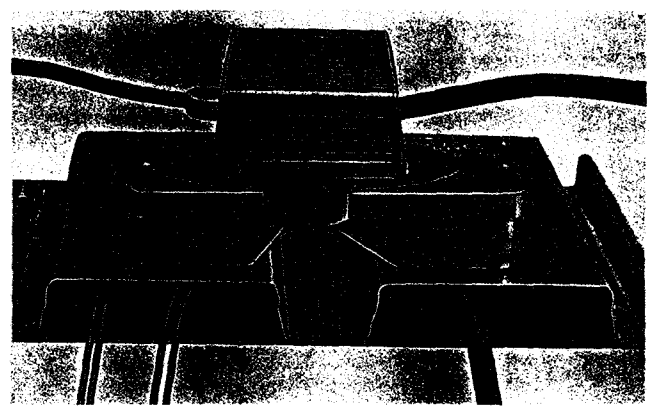
SERIES 1000

DUAL PRE-SET

Surface mounted fittings

Power and/or telephone



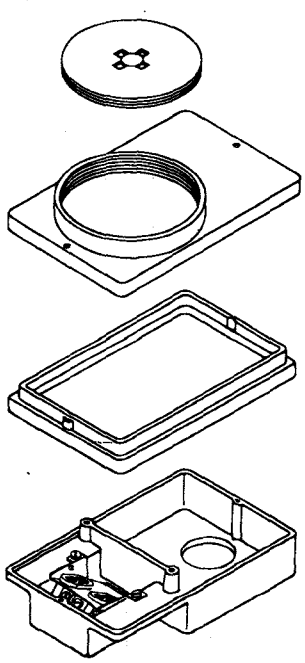


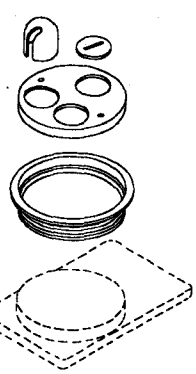
SERIES 2000

DUAL PRE-SET

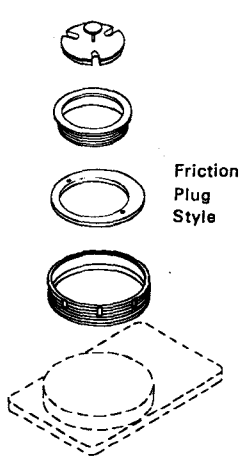
Flush floor fittings

Power and/or telephone

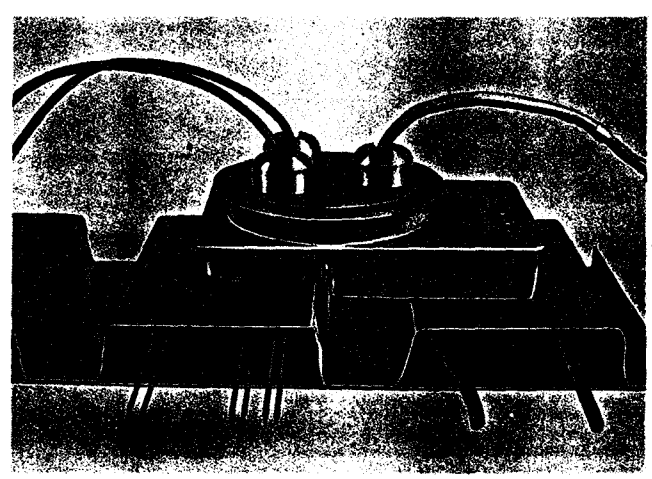


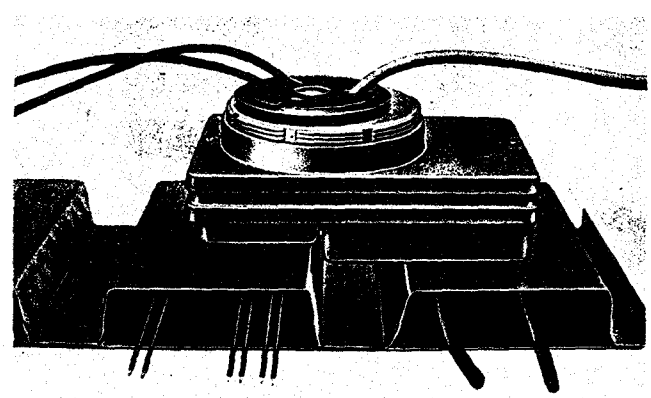


Dome Style

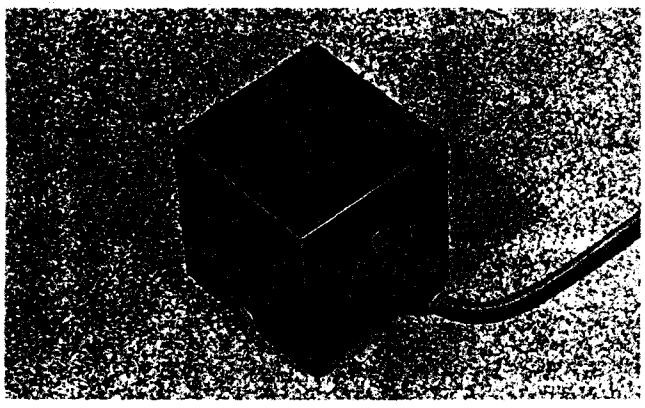


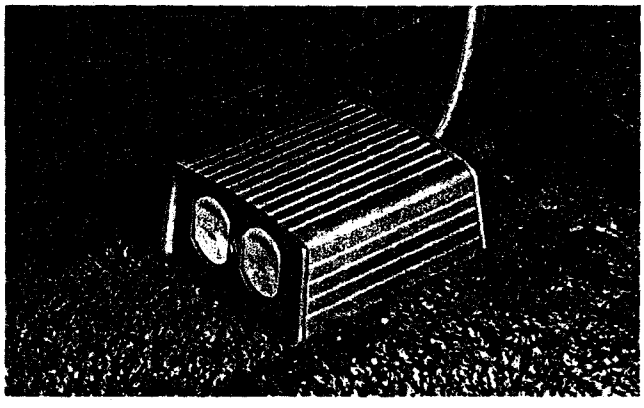
Friction Plug Style

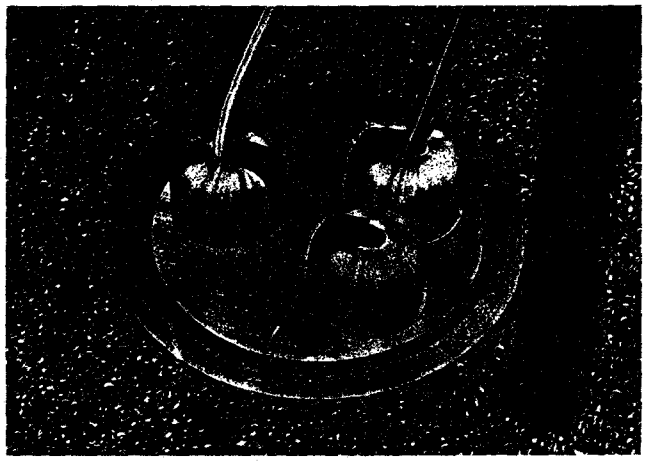


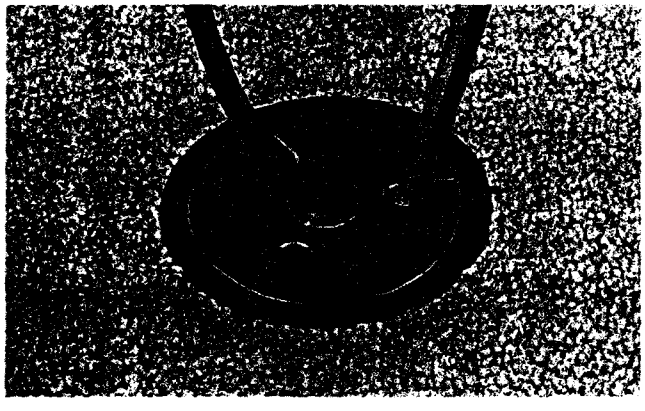


INRYCO FLOOR SYSTEMS









One of the most costly operations in the electrification of a finished floor is the coring of concrete to reach cells for the installation of outlets. It has been estimated that the placement of a single such "afterset" costs as much as $40.00 in labor and equipment. Telephone company statistics say that the average office telephone is moved every 10 months — or 1.2 moves per year — and that 4.2 to 6.0 phones are installed per 1,000 sq. ft. in the average usable office space.

If 100 phones were to be provided for, in a space 100 x 200 ft., the cost of original afterset locations would be 100 x $40.00, or $4,000.00. In three years, these same phones could be moved 1.2 times per year — or a total of 360 moves. Using aftersets, this would total $14,400. Added to the cost of the original layout, it would total $18,400 in 3 years. *And this would only accommodate telephone service.* The drilling and coring of 100 aftersets for power outlets would duplicate the cost.

If Inryco Pre-set inserts were used, the cost per location would be only about $6.00 *for a dual insert that provides both telephone and power service!* Furthermore, for only $4,500 — which is little more than the original cost of 100 aftersets @ $4,000 — pre-set dual inserts could be installed on a *5 ft. x 5 ft. module* through the entire space — *totaling 750 telephone/power outlets in all!*

This shows how dramatic savings can be when Inryco Pre-set inserts are designed into the original system.

Pre-set inserts are installed on a specified module prior to the pouring of concrete. In a typical installation, only a specified number of these inserts would be considered "active" at the outset, using flush or surface mounted service fittings.

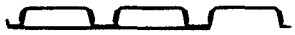
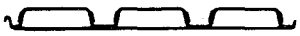
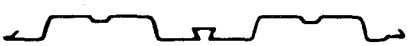
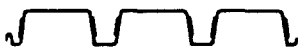
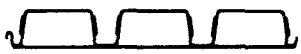
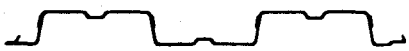
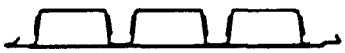
Another quantity of pre-sets might be considered "idle," but likely to be activated in the near future. These would be given brass or bronze cover plates adaptable to either carpet or tile. Similarly, after an outlet is no longer needed at a given location, the service fitting can be removed and an "idle" cover plate installed.

The ease and simplicity with which outlet changes can be made — together with the substantial savings that are possible — make Inryco Pre-set Inserts and service fittings a valuable element in the design of any floor system.

See the suggested specifications on page 27. The electrical contractor should field install the pre-sets and service fittings, retaining his responsibility for the project's electrical and communications integrity. More information, in detail, is available from your Inland-Ryerson Sales Engineer.

Factory-punched holes are available for all Inryco decks. Contact your Inland-Ryerson sales engineer for complete information.

Floor Deck Selection Charts

1½" SECTIONS	Deck Type	Deck Depth	Max. Length	Approx. Dead Load†	Concrete Usage Per Sq.‡	Cell Space	Cell Area Sq. In.	Max. Hand Hole	Hanger Tab System	Economical Span
	S	1½"	32'	41	.95	6"	*	*	Integral	6'-12'
	1⅝"NFs	1⅝"	45'	42	.93	8"	8.93	4"	Integral	6'-12'
	B	1½"	32'	41	.95	6"	*	*	Lip or Integral	6'-12'
	1⅝" NF	1⅝"	45'	42	.93	8"	8.93	4"	Lip or Integral	6'-12'
	BF	1½"	32'	43	.95	6"	5.63	3"	Lip or Integral	6'-12'
	SR	1½"	32'	45	1.05	6"	*	*	Integral	6'-12'
2" SECTIONS										
	2" V	2"	45'	43	1.05	16"	*	*	Key	8'-12'
3" SECTIONS										
	N	3"	45'	45	1.05	8"	*	*	Lip or Integral	8'-14'
	3" NF	3"	45'	47	1.05	8"	17.25	4"	Lip or Integral	8'-14'
	3" V	3"	45'	51	1.20	16"	*	*	Integral	10'-16'
	3" NF$_V$	3"	45'	51	1.20	8"	17.25	4"	Pull-Down	10'-16'

Inland-Ryerson Construction Products Company reserves the right to change the design or details of its products without notice. Specific information for job details and drawings should be obtained from your Inland-Ryerson Sales Engineer.

† Based on 2½" regular weight concrete cover.

‡ Based on 2½" concrete cover — add or deduct .15 cy./sq. for each ½" variance.

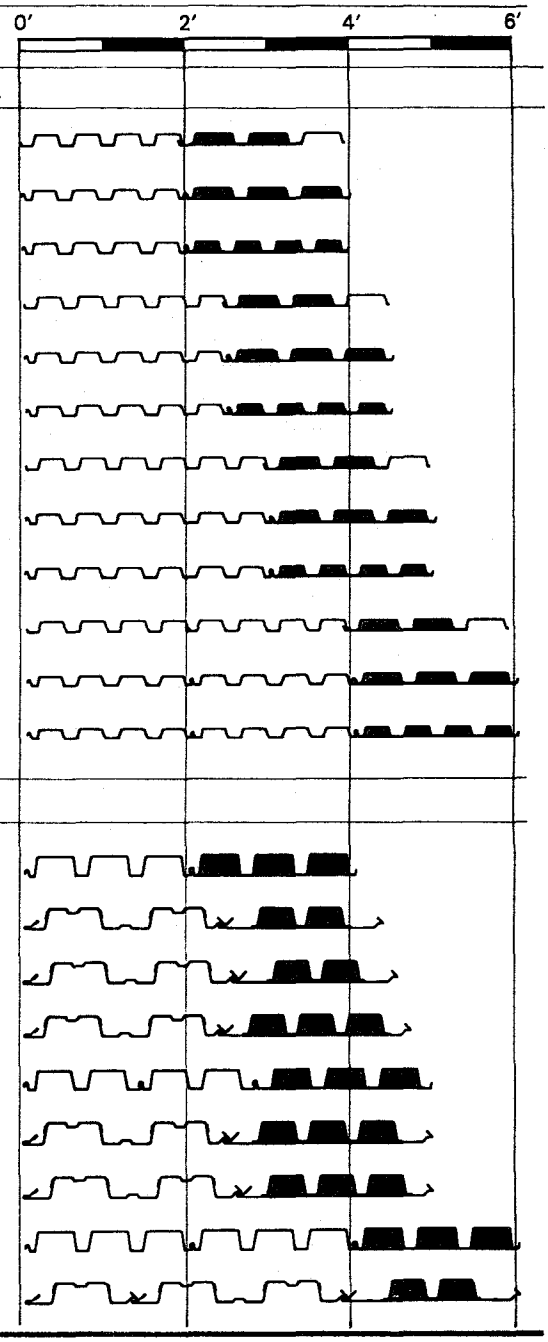
* Not cellular — cannot be electrified.

Composite Beam	Coverage Width	Blends With
Yes	30" Standard 24", 36" Avail.	1⅝" NFs
Yes	24"	S
Yes	30" Standard 24", 36" Avail.	BF, 1⅝" NF
Yes	24"	B
Yes	24"	B
Yes	30" Standard 24", 36" Avail.	None
Yes	32" Standard 30", 16" Avail.	None
No	24" Standard 17 3/16" Avail.	3" NF
No	24" Standard 25⅝" Avail.	N
Yes	32" Standard 30", 16" Avail.	NF_v
Yes	28" Standard 30" Avail.	V

Typical Blends Possible**

USING CELLUFLOR AND NON-CELLULAR INRYCO FLOOR DECKS

Module	Blend
BLENDS OF 1½" PROFILES:	
4'-0"	24"S/24"1⅝NFs
4'-0"	24"B/24"1⅝NF
4'-0"	24"B/24"BF
4'-6"	30"S/24"1⅝NFs
4'-6"	30"B/24"1⅝NF
4'-6"	30"B/24"BF
5'-0"	36"S/24"1⅝NFs
5'-0"	36"B/24"1⅝NF
5'-0"	36"B/24"BF
6'-0"	24"S/24"S/24"1⅝NFs
6'-0"	24"B/24"B/24"1⅝NF
6'-0"	24"B/24"B/24"BF
BLENDS OF 3" PROFILES:	
4'-0"	24"N/24"3NF
4'-6"	30"V/24"NF_v
4'-8"	32"V/24"NF_v
4'-10"	30"V/28"NF_v
5'-0"	17"N/17"N/26"3NF
5'-0"	30"V/30"NF_v
5'-0"	32"V/28"NF_v
6'-0"	24"N/24"N/24"3NF
6'-0"	16"3V/32"3V/24"3NF_v



**Many more blends are possible. Contact your Inryco sales engineer.

FOR MORE INFORMATION

Additional data on Inryco Floor Decks can be found on the pages following. However, further detailed information, including composite design and test data, can be obtained at any time from your Inland-Ryerson Sales Engineer. District Sales offices are listed on the back cover of this catalog.

Fire Ratings of Inryco Floor Systems

Inryco Hi-Bond Floor Systems are fire-rated by Underwriters' Laboratories, Inc., and Inryco Celluflor is UL approved as cellular metal raceway. Complete information can be found in the 1972 UL Fire Resistance Index. A comparison of ratings in the same book will show that Inland-Ryerson has the most comprehensive and complete classification of fire-rated floor assemblies.

Provided the Celluflor is covered by a minimum of 1½" of concrete, both the fluted section and the flat plate may be made of 20 gage steel.

The chart below shows a brief synopsis of some of the tests. For specific information regarding the construction features, the UL Fire Resistance Index should be consulted, since minor changes can significantly affect the performance of a floor assembly under fire exposure.

FIRE-RATED FLOOR ASSEMBLIES

Restrained Assembly Rating	Concrete Cover†	U.L. Fire Resistance Index Reference		Inryco Floor Deck Covered
		New	Replaces	
Acoustical Tile and Panel Material				
3	Reg. 2½"	D 002	UL 211-3	B, N, BF, BB, NF
2	Reg. 2½"	D 001	UL 70-2	B, BF, N, NF
Cementitious Mixture Directly Applied				
3	Reg. 2½"	D 701*	UL 21-3	B, BR, BF, BB
3	Reg. 2½"	D 708*	UL 205-3	B, BR, BF, N, NF
3	Reg. 2½"	D 724*	UL 70-3	B, BR, BF, N, NR, NF, HF
2	Reg. 2½"	D 722*	UL 257-2	B, BF, N, NF, NFv, S
2	Reg. 2½"	D 704*	UL 248-2	B, BB, BF, N, NF, S
Sprayed Fiber Directly Applied				
3	Reg. 2½"	D 816*	UL 62-3	B, BF, S, N, NF, HF
3	Reg. 2½"	D 831*††	UL 89-3	B, BF, S, N, NF
2	Reg. 2½"	D 808*††	UL 271-2	B, BF, S, N, NF
2	Reg. 2½"	D 842*	UL 215-2	B, BF, S, N, NF
2	Lt. wt. 2½"	D 847*††	None	3V, 3NFv
Unprotected Steel Floor				
3	Lt. wt. 4 3/16"	D 902	UL 225-3	B, BF, N, NF, NFv, 2V, 3V
2	Lt. wt. 3¼"	D 840	UL 267-2	B, BF, S, N, NF, NFv, 2V, 3V, SR, BR
2	Lt. wt. 3¼"	D 906	None	3V, 3NFv
2	Lt. wt. 3¼"	D 826*	UL 295-2	B, BF, N, NF, NFv, 3V, S, SR, BR
2	Reg. 4½"	D 902	UL 300-2	B, BF, N, NF, NFv, 2V, 3V, S, SR, BR
1½	Reg. 4"	D 902	UL 32-1½	B, BF, N, NF, NFv, 2V, 3V, S, SR, BR
1	Reg. 3"	D 902	UL 59-1	B, BF, N, NF, NFv, 2V, 3V, S, SR, BR

*Indicates header or trench header duct.

†Concrete cover depth is that thickness over top of deck.

††These rating are available with *Asbestos Free Spray.*

Recommended temperature and shrinkage reinforcing, non-continuous spans

TYPES B, BR, S, SR, BF, 1⅝"NF, 1⅝"NFs, 2"V

Slab t	4"	4½"	4¾"	5"	5¼"	5¾"
Span	Reinforcing					
to 8'3"	6x6-10/10	6x6-10/10	6x6-10/10	6x6-8/8	6x6-8/8	6x6-8/8
8'3" to 10'0"	6x6-8/8	6x6-8/8	6x6-8/8	6x6-6/6	6x6-6/6	6x6-6/6
10'0" to 12'0"	6x6-6/6	6x6-6/6	6x6-6/6	6x6-6/6	6x6-6/6	6x6-6/6

TYPES N, 3"NF, 3"NFv, 3"V

Slab t	5"	5½"	6"	6¼"	6½"	7"
Span	Reinforcing					
to 10'0"	6x6-10/10	6x6-10/10	6x6-10/10	6x6-10/10	6x6-8/8	6x6-8/8
10'0" to 16'0"	6x6-8/8	6x6-8/8	6x6-8/8	6x6-8/8	6x6-6/6	6x6-6/6

Finishes Available

HI-BOND CELLUFLOR

Types BF, NF, NFs and NFv Inryco Celluflor are only available in Galvanized Steel, since all UL labeled cellular metal raceways must be galvanized. The top fluted sections are Ti-Co Galvanized Light Commercial Coat (¾ oz. nominal) and flat plates are Ti-Co Galvanized Paintite A (½ oz. nominal) needing no special preparation prior to field painting.

HI-BOND FLOOR DECK

(Non-Cellular)

Inryco Types B, S, N, V and SR Hi-Bond are available either Phosphatized/Painted or Galvanized.

Phosphatized/Painted is the standard floor finish — cold-rolled steel, phosphate treated on the upper surface, painted with Duoprimer on the underside. Both paint coats are thermosetting, hence do not become soft and flow when subjected to heat, which permits their use in both fire-proofed and "exposed" UL fire-rated floor assemblies.

Regarding the upper surface in contact with the concrete, while the phosphate/iron alloy serves as a corrosion deterrent, it is expected that during the normal construction phase, some rusting will occur. In the absence of running water or extreme atmospheric conditions, no significant loss of steel section results.

The "rough" surface of Phosphatized/Painted Hi-Bond makes an ideal work platform, even when wet. It is also superior to other finishes for field welding — both the arc welding of deck to structural steel, and the welding of studs through the decking.

Phosphatized/Painted is the standard finish, red oxide in color, and recommended for the majority of applications; that is, interiors where excessive moisture is of no concern and where the underside of the deck is protected by fire-proofing, paint, or a suspended ceiling, or where the red oxide color is unobjectionable, such as in industrial uses.

Galvanized Hi-Bond is also available — Ti-Co Galvanized Paintite A (½ oz. nominal) needing no special preparation prior to field painting. This finish is recommended for exterior applications, or those interior applications where excessive moisture may be present.

Hanger Tabs

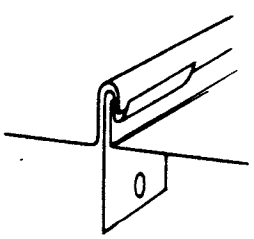
Inryco Lip Hanger Tabs are available for all decks with male/female side joints. The hanger tab is installed during deck erection, hooked over the male leg before the female leg of the next panel is placed over it. Because of its unique design, the hanger tab can be seen and moved from above after erection before concrete is poured. The tab protrudes from the underside and there is no chance of it being covered up by a later application of fire-proofing. Allowable load per tab: 100 pounds.

Inryco Integral Hanger Tabs are also available, prepunched in the factory and ready for use at the job with no extra field labor or materials needed.

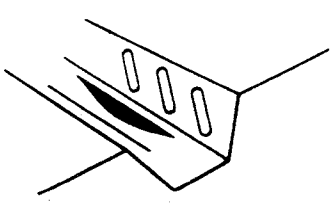
Integral Tabs are available in 18 and 16 gage steel sections with Deck Types B, S, SR, N, V, BF, 1⅝" and 3" NF. The limiting load on any hanger is 100 lbs., with a minimum size of #8 hanger wire. (Care must be taken in the activation of the hanger loop, and *under no circumstances should a tab be used which has been damaged.* Concrete drippage may occur through the tab and concrete will have to be cleared from the loop when activating the tabs on the fluted sections.) For fluted decks with Integral Hanger Tabs, Non-Composite Section Properties should be reduced by 10%.

Inryco Type NF$_V$ Pull-Down Hanger Tabs are formed into the bottom lip of Type NF$_V$ Celluflor only. This tab, in effect, becomes a "pig-tail" embedded in the concrete, and only those tabs to be used need be activated. Allowable load per tab: 250 lbs.

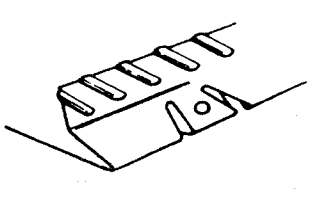
Inryco Key-type Hanger Tabs fit into trapezoidal shaped ribs of 2" Type V Floor Deck only. Key tabs can be inserted at any longitudinal spacing, and at any time during the life of the building. When inserted during construction, key tabs will not cause concrete spillage. Available in gages from 20 to 16. Allowable load per tab: 150 lbs.



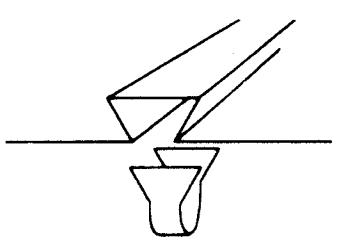
Lip Tab
(Accessory)



Integral Tab

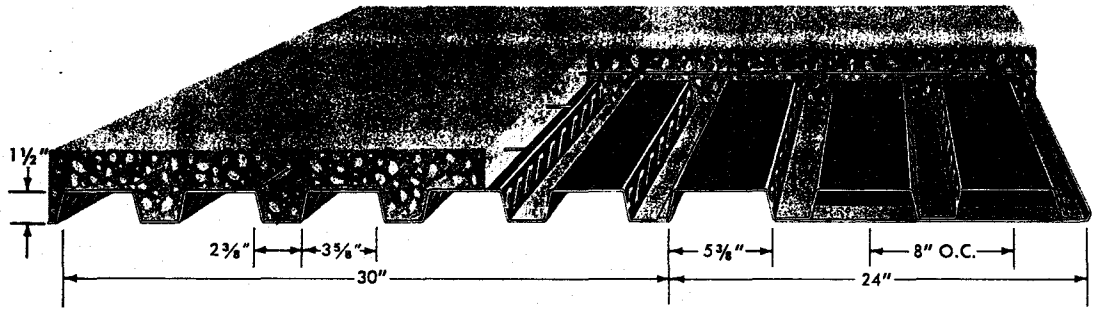


Type NFv
Pull-Down Tab



"Key" Hanger Tab
(Accessory)

Types S and 1⅝"NF$_S$



This new NF$_S$ deck has an "S" type lock that makes it compatible with 1½" Type S non-cellular deck. A blend of these two provides 2 large cells for electrical services on many modules.

ALLOWABLE SUPERIMPOSED LOADS

Type S

Hi-Bond Floor Deck with Regular Concrete

REGULAR Slab(in.) 4 Mr(ft. lbs.) 1600 Vr(lbs.) 600 Wt.(pfs.) 41				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	200	200	200
	6-6	—	185	185
	7-0	—	—	171
20	6-6	185	185	185
	7-0	171	171	171
	7-6	—	160	160
	8-0	—	—	150
18	7-6	160	160	160
	8-0	150	150	150
	8-6	141	141	141
	9-0	—	133	133
	9-6	—	—	126
16	9-0	133	133	133
	9-6	126	126	126
	10-0	—	120	120
	10-6	—	—	114

REGULAR Slab(in.) 5 Mr(ft. lbs.) 2000 Vr(lbs.) 800 Wt.(psf.) 53				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	—	200	200
	6-6	—	—	200
20	6-0	200	200	200
	6-6	200	200	200
	7-0	—	200	200
	7-6	—	—	200
18	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	—	188
16	8-0	200	200	200
	8-6	188	188	188
	9-0	—	178	178
	9-6	—	—	168
	—	—	—	—
	—	—	—	—

REGULAR Slab(in.) 6 Mr(ft. lbs.) 2400 Vr(lbs.) 1000 Wt.(psf.) 65				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	—	—	200
20	6-0	200	200	200
	6-6	—	200	200
18	6-6	200	200	200
	7-0	200	200	200
	7-6	—	200	200
	8-0	—	—	200
16	7-6	200	200	200
	8-0	200	200	200
	8-6	—	200	200
	9-0	—	—	200
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Type S

Hi-Bond Floor Deck with Lightweight Concrete

LIGHTWEIGHT Slab(in.) 4 Mr(ft. lbs.) 1600 Vr(lbs.) 600 Wt.(psf.) 30				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	200	200	200
	6-6	185	185	185
	7-0	171	171	171
	7-6	—	160	160
	8-0	—	—	150
20	7-6	160	160	160
	8-0	150	150	150
	8-6	—	141	141
	9-0	—	—	133
18	8-6	141	141	141
	9-0	133	133	133
	9-6	—	126	126
	10-0	—	120	120
	10-6	—	—	114
16	9-6	126	126	126
	10-0	120	120	120
	10-6	114	114	114
	11-0	—	106	106
	11-6	—	—	97
	12-0	—	—	89

LIGHTWEIGHT Slab(in.) 4¾ Mr(ft. lbs.) 1900 Vr(lbs.) 750 Wt.(psf.) 36				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	200	200	200
	6-6	200	200	200
	7-0	—	200	200
	7-6	—	—	200
20	7-0	200	200	200
	7-6	200	200	200
	8-0	—	187	187
	8-6	—	—	176
18	8-0	187	187	187
	8-6	176	176	176
	9-0	—	167	167
	9-6	—	158	158
	10-0	—	—	150
16	9-0	167	167	167
	9-6	158	158	158
	10-0	—	150	150
	10-6	—	138	138
	11-0	—	—	126
	—	—	—	—
	—	—	—	—

LIGHTWEIGHT Slab(in.) 5¾ Mr(ft. lbs.) 2300 Vr(lbs.) 950 Wt.(psf.) 44				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
22	6-0	200	200	200
	6-6	—	200	200
	7-0	—	—	200
20	6-6	200	200	200
	7-0	200	200	200
	7-6	—	200	200
	8-0	—	—	200
18	7-6	200	200	200
	8-0	200	200	200
	8-6	—	200	200
	9-0	—	200	200
16	8-6	200	200	200
	9-0	200	200	200
	9-6	—	200	200
	10-0	—	184	184
	10-6	—	—	167
	—	—	—	—
	—	—	—	—
	—	—	—	—

SECTION PROPERTIES

Type S Floor Deck

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
22	1.80	0.16	0.19	0.20	0.20	0.51	0.91
20	2.15	0.21	0.25	0.25	0.25	0.61	0.91
18	2.85	0.31	0.34	0.35	0.34	0.82	0.92
16	3.55	0.40	0.44	0.44	0.44	1.01	0.92

Type 1⅝" NFs Celluflor

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
20-20	3.00	0.35	0.26	0.36	0.63	0.90	0.72
18-20	3.60	0.47	0.40	0.44	0.72	1.08	0.80
18-18	4.35	0.53	0.41	0.55	0.86	1.20	0.74
16-18	5.00	0.66	0.57	0.62	0.95	1.38	0.80

ALLOWABLE SUPERIMPOSED LOADS

Type 1⅝" NFs
Hi-Bond Celluflor with Regular Concrete

REGULAR
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 38

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	—	187	187
	8-0	—	175	175
	8-6	—	165	165
18-20	7-6	187	187	187
	8-0	175	175	175
	8-6	165	165	165
	9-0	156	156	156
	9-6	—	142	142
	10-0	—	128	128
	10-6	—	—	116
18-18	9-0	156	156	156
	9-6	—	142	142
	10-0	—	128	128
	10-6	—	116	116
16-18	10-6	116	116	116
	11-0	106	106	106
	11-6	—	97	97
	12-0	—	89	89

REGULAR
Slab(in.) 5
Mr(ft. lbs.) 2000
Vr(lbs.) 900
Wt.(psf.) 50

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	—	200	200
	7-6	—	200	200
18-20	7-0	200	200	200
	7-6	200	200	200
	8-0	200	200	200
	8-6	—	200	200
	9-0	—	198	198
	9-6	—	—	177
18-18	8-6	200	200	200
	9-0	—	198	198
	9-6	—	177	177
	10-0	—	160	160
16-18	9-0	198	198	198
	9-6	177	177	177
	10-0	160	160	160
	10-6	—	145	145
	11-0	—	132	132
	11-6	—	—	121
	—	—	—	—

REGULAR
Slab(in.) 6
Mr(ft. lbs.) 2400
Vr(lbs.) 1100
Wt.(psf.) 62

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	—	200	200
	7-0	—	200	200
18-20	6-6	200	200	200
	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	—	200
18-18	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	200	200
16-18	9-0	200	200	200
	9-6	—	200	200
	10-0	—	192	192
	10-6	—	—	174
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Type 1⅝" NFs
Hi-Bond Celluflor with Lightweight Concrete

LIGHTWEIGHT
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 31

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	187	187	187
	8-0	175	175	175
	8-6	—	165	165
	9-0	—	156	156
	9-6	—	142	142
18-20	8-6	165	165	165
	9-0	156	156	156
	9-6	142	142	142
	10-0	128	128	128
	10-6	—	116	116
	11-0	—	106	106
	11-6	—	—	97
18-18	10-0	128	128	128
	10-6	—	116	116
	11-0	—	106	106
	11-6	—	97	97
	12-0	—	89	89
16-18	11-6	97	97	97
	12-0	89	89	89

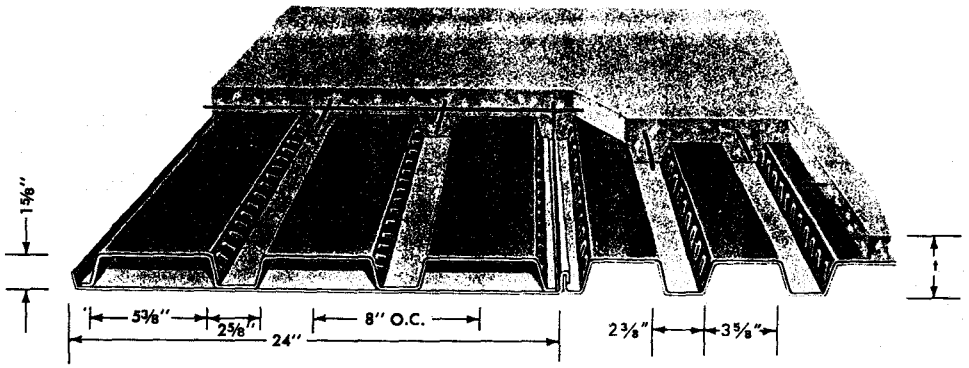
LIGHTWEIGHT
Slab(in.) 4¾
Mr(ft. lbs.) 1900
Vr(lbs.) 850
Wt.(psf.) 37

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	188	188
18-20	8-0	200	200	200
	8-6	200	200	200
	9-0	188	188	188
	9-6	168	168	168
	10-0	—	152	152
	10-6	—	138	138
	11-0	—	—	126
18-18	9-6	168	168	168
	10-0	—	152	152
	10-6	—	138	138
	11-0	—	126	126
16-18	11-0	126	126	126
	11-6	—	115	115
	12-0	—	106	106
	—	—	—	—

LIGHTWEIGHT
Slab(in.) 5¾
Mr(ft. lbs.) 2300
Vr(lbs.) 1050
Wt.(psf.) 45

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	—	200	200
	8-0	—	200	200
18-20	7-6	200	200	200
	8-0	200	200	200
	8-6	200	200	200
	9-0	—	200	200
	9-6	—	200	200
	10-0	—	—	184
18-18	9-0	200	200	200
	9-6	—	200	200
	10-0	—	184	184
	10-6	—	167	167
16-18	10-6	167	167	167
	11-0	—	152	152
	11-6	—	139	139
	12-0	—	—	128
	—	—	—	—
	—	—	—	—
	—	—	—	—

Types B, BF and 1⅝"NF



Available with the male-female side lap system, Types B, BF and 1⅝" NF can be blended for economical flexibility in the matching of cell patterns to various modules. Type 1⅝" NF offers 66% greater cell capacity and permits 4" hand holes in top surface.

ALLOWABLE SUPERIMPOSED LOADS

Type B

Hi-Bond Floor Deck with Regular Concrete

REGULAR
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 41

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	200	200	200
	6-6	200	200	200
	7-0	—	200	200
	7-6	—	—	185
20	7-0	200	200	200
	7-6	187	187	187
	8-0	—	175	175
	8-6	—	—	165
18	8-0	175	175	175
	8-6	165	165	165
	9-0	156	156	156
	9-6	—	142	142
	10-0	—	—	128
16	9-6	142	142	142
	10-0	—	128	128
	10-6	—	116	116
	11-0	—	106	106
	11-6	—	—	97

REGULAR
Slab(in.) 5
Mr(ft. lbs.) 2000
Vr(lbs.) 900
Wt.(psf.) 53

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	200	200	200
	6-6	—	200	200
20	6-6	200	200	200
	7-0	—	200	200
	7-6	—	—	200
18	7-0	200	200	200
	7-6	200	200	200
	8-0	200	200	200
	8-6	—	200	200
	9-0	—	198	198
16	8-6	200	200	200
	9-0	198	198	198
	9-6	—	177	177
	10-0	—	160	160
	10-6	—	—	145
	—	—	—	—
	—	—	—	—
	—	—	—	—

REGULAR
Slab(in.) 6
Mr(ft. lbs.) 2400
Vr(lbs.) 1100
Wt.(psf.) 65

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	—	200	200
20	6-0	200	200	200
	6-6	—	200	200
	7-0	—	—	200
18	6-6	200	200	200
	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	—	200
16	8-0	200	200	200
	8-6	—	200	200
	9-0	—	200	200
	9-6	—	—	200
	—	—	—	—
	—	—	—	—
	—	—	—	—

Type B

Hi-Bond Floor Deck with Lightweight Concrete

LIGHTWEIGHT
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 30

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	—	187	187
	8-0	—	—	175
20	7-6	187	187	187
	8-0	175	175	175
	8-6	—	165	165
	9-0	—	—	156
18	8-6	165	165	165
	9-0	156	156	156
	9-6	142	142	142
	10-0	128	128	128
	10-6	—	116	116
	11-0	—	—	106
16	10-6	116	116	116
	11-0	—	106	106
	11-6	—	97	97
	12-0	—	89	89

LIGHTWEIGHT
Slab(in.) 4¾
Mr(ft. lbs.) 1900
Vr(lbs.) 850
Wt.(psf.) 36

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	—	—	200
20	7-6	200	200	200
	8-0	—	200	200
	8-6	—	—	200
18	8-0	200	200	200
	8-6	200	200	200
	9-0	188	188	188
	9-6	—	168	168
	10-0	—	152	152
	10-6	—	—	138
16	9-6	168	168	168
	10-0	152	152	152
	10-6	—	138	138
	11-0	—	126	126
	11-6	—	115	115
	12-0	—	—	106

LIGHTWEIGHT
Slab(in.) 5¾
Mr(ft. lbs.) 2300
Vr(lbs.) 1050
Wt.(psf.) 44

GAGE	SPAN (ft.-in.)	CONDITION S	CONDITION D	CONDITION T
22	6-0	200	200	200
	6-6	200	200	200
	7-0	—	—	200
20	7-0	200	200	200
	7-6	—	200	200
	8-0	—	—	200
18	7-6	200	200	200
	8-0	200	200	200
	8-6	200	200	200
	9-0	—	200	200
	9-6	—	200	200
	10-0	—	—	184
16	9-0	200	200	200
	9-6	200	200	200
	10-0	—	184	184
	10-6	—	167	167
	11-0	—	—	152
	—	—	—	—
	—	—	—	—

SECTION PROPERTIES Types B and BF

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
TYPE B							
22	1.95	0.18	0.21	0.21	0.21	0.55	0.87
20	2.35	0.24	0.27	0.27	0.27	0.65	0.87
18	3.35	0.34	0.40	0.40	0.40	0.86	0.88
16	4.15	0.44	0.50	0.50	0.50	1.07	0.88
TYPE BF							
20-20	3.80	0.38	0.31	0.43	0.75	1.07	0.57
18-20	4.40	0.49	0.46	0.53	0.85	1.26	0.64
18-18	4.95	0.55	0.48	0.58	1.01	1.42	0.58
16-18	5.80	0.67	0.65	0.71	1.17	1.62	0.64

SECTION PROPERTIES Type 1⅝" NF

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
20-20	3.60	0.38	0.27	0.37	0.75	1.04	0.66
18-20	4.25	0.50	0.41	0.45	0.85	1.22	0.74
18-18	4.80	0.57	0.43	0.57	1.02	1.38	0.67
16-18	5.70	0.70	0.59	0.64	1.12	1.56	0.73

ALLOWABLE SUPERIMPOSED LOADS

Types 1⅝"NF and BF

Hi-Bond Celluflor with Regular Concrete

REGULAR
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 42

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	187	187	187
	8-0	—	175	175
	8-6	—	165	165
18-20	8-0	175	175	175
	8-6	165	165	165
	9-0	156	156	156
	9-6	—	142	142
	10-0	—	128	128
	10-6	—	—	116
18-18	9-0	156	156	156
	9-6	—	142	142
	10-0	—	128	128
	10-6	—	116	116
16-18	9-6	142	142	142
	10-0	128	128	128
	10-6	116	116	116
	11-0	106	106	106
	11-6	—	97	97
	12-0	—	89	89

REGULAR
Slab(in.) 5
Mr.(ft. lbs.) 2000
Vr(lbs.) 900
Wt.(psf.) 54

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	—	200	200
	7-6	—	200	200
	8-0	—	200	200
18-20	7-0	200	200	200
	7-6	200	200	200
	8-0	200	200	200
	8-6	—	200	200
	9-0	—	198	198
	9-6	—	177	177
18-18	8-6	200	200	200
	9-0	—	198	198
	9-6	—	177	177
	10-0	—	160	160
16-18	9-0	198	198	198
	9-6	177	177	177
	10-0	160	160	160
	10-6	—	145	145
	11-0	—	132	132
	11-6	—	—	121
	—	—	—	—

REGULAR
Slab(in.) 6
Mr(ft. lbs.) 2400
Vr(lbs.) 1100
Wt.(psf.) 66

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	—	200	200
	7-0	—	200	200
	7-6	—	200	200
18-20	6-6	200	200	200
	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	—	200
18-18	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	200	200
16-18	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	—	200	200
	10-0	—	192	192
	10-6	—	174	174
	11-0	—	—	159
	—	—	—	—

Types 1⅝"NF and BF

Hi-Bond Celluflor with Lightweight Concrete

LIGHTWEIGHT
Slab(in.) 4
Mr(ft. lbs.) 1600
Vr(lbs.) 700
Wt.(psf.) 31

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	187	187	187
	8-0	175	175	175
	8-6	—	165	165
	9-0	—	156	156
	9-6	—	142	142
18-20	8-6	165	165	165
	9-0	156	156	156
	9-6	142	142	142
	10-0	128	128	128
	10-6	—	116	116
	11-0	—	106	106
	11-6	—	97	97
18-18	10-0	128	128	128
	10-6	—	116	116
	11-0	—	106	106
	11-6	—	97	97
	12-0	—	89	89
16-18	10-6	116	116	116
	11-0	106	106	106
	11-6	97	97	97
	12-0	89	89	89

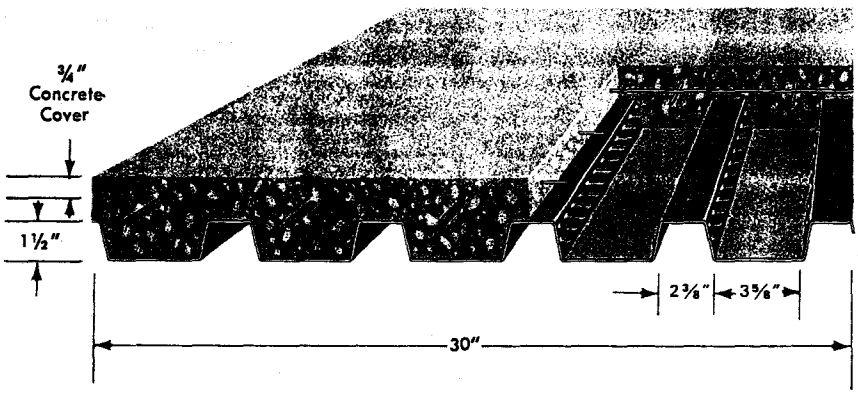
LIGHTWEIGHT
Slab(in.) 4¾
Mr.(ft. lbs.) 2000
Vr(lbs.) 900
Wt.(psf.) 37

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	200	200	200
	8-0	—	200	200
	8-6	—	200	200
	9-0	—	188	188
18-20	8-0	200	200	200
	8-6	200	200	200
	9-0	188	188	188
	9-6	168	168	168
	10-0	—	152	152
	10-6	—	138	138
	11-0	—	—	126
18-18	9-6	168	168	168
	10-0	—	152	152
	10-6	—	138	138
	11-0	—	126	126
16-18	10-0	152	152	152
	10-6	138	138	138
	11-0	126	126	126
	11-6	115	115	115
	12-0	—	106	106
	—	—	—	—

LIGHTWEIGHT
Slab(in.) 5¾
Mr(ft. lbs.) 2300
Vr(lbs.) 1050
Wt.(psf.) 45

GAGE	SPAN (ft.-in.)	CONDITION S	D	T
20-20	6-0	200	200	200
	6-6	200	200	200
	7-0	200	200	200
	7-6	—	200	200
	8-0	—	200	200
	8-6	—	200	200
18-20	7-6	200	200	200
	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	—	200	200
	10-0	—	184	184
	10-6	—	—	167
18-18	9-0	200	200	200
	9-6	—	200	200
	10-0	—	184	184
	10-6	—	167	167
16-18	9-6	200	200	200
	10-0	184	184	184
	10-6	167	167	167
	11-0	—	152	152
	11-6	—	139	139
	12-0	—	128	128
	—	—	—	—

Type SR



Recommended for continuous slab design* in industrial type floor construction, whether the Hi-Bond is shored during concrete pouring or not. When used on industrial type floors, loading conditions should be thoroughly investigated. Hi-Bond slabs are basically one way reinforced slabs, designed for uniformly

TOTAL SUPERIMPOSED LOADS FOR CONTINUOUS SPANS

Type **SR** with Regular Concrete

Concrete		REGULAR		
Slab t		4"		
Temp. Bars		#3 @ 13" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		1600	1600	1600
Vr(lbs.)		800	800	800
−Mr(ft. lbs.)		500	880	1300
Wt.(psf.)		45	45	45
GAGE	SPAN	LOAD — psf		
No Shoring:				
22	6-0	166	250	250
	6-6	142	238	238
20	7-0	122	216	228
	7-6	107	188	212
18	8-0	94	166	200
	8-6	83	146	188
	9-0	74	130	177
16	9-6	66	117	168
	10-0	60	105	156
Shoring at Midspan:				
22	7-0	77	145	145
	7-6	62	133	133
	8-0	49	122	122
	8-6	—	101	112
	9-0	—	85	103
	9-6	—	72	95
	10-0	—	60	88
	10-6	—	—	73
	11-0	—	—	63
	11-6	—	—	53
	12-0	—	—	45
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Concrete		REGULAR		
Slab t		5"		
Temp. Bars		#3 @ 12" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		2000	2000	2000
Vr(lbs.)		1000	1000	1000
−Mr(ft. lbs.)		680	1200	1760
Wt.(psf.)		57	57	57
GAGE	SPAN	LOAD — psf		
No Shoring:				
22	6-0	226	250	250
20	6-6	193	250	250
	7-0	166	250	250
18	7-6	145	250	250
	8-0	127	225	250
	8-6	113	200	236
16	9-0	100	178	222
	9-6	90	160	210
	—	—	—	—
Shoring at Midspan:				
22	6-6	136	199	199
	7-0	109	181	181
	7-6	88	165	165
	8-0	70	151	151
	8-6	56	139	139
	9-0	43	121	128
	9-6	—	103	119
	10-0	—	87	110
	10-6	—	52	102
	11-0	—	42	88
	11-6	—	—	78
	12-0	—	—	65
20	12-6	—	—	55
	13-0	—	—	47
	13-6	—	—	40
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Concrete		REGULAR		
Slab t		6"		
Temp. Bars		#3 @ 11" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		2400	2400	2400
Vr(lbs.)		1200	1200	1200
−Mr(ft. lbs.)		890	1530	2310
Wt.(psf.)		69	69	69
GAGE	SPAN	LOAD — psf		
No Shoring:				
20	6-0	250	250	250
	6-6	250	250	250
18	7-0	218	250	250
	7-6	190	250	250
16	8-0	167	250	250
	8-6	148	250	250
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
Shoring at Midspan:				
22	6-0	229	250	250
	6-6	184	239	239
	7-0	149	216	216
	7-6	121	189	189
	8-0	98	181	181
	8-6	79	167	167
	9-0	63	153	153
	9-6	49	134	141
	10-0	—	115	131
	10-6	—	71	121
	11-0	—	55	112
20	11-6	—	47	105
	12-0	—	—	91
	12-6	—	—	79
18	13-0	—	—	67
	13-6	—	—	58
	14-0	—	—	49
	14-6	—	—	41

distributed loads. When they are subjected to concentrated loads; such as those caused by wheel-load of fork-lift trucks, additional transverse reinforcing is required.

*Negative reinforcing bars ¾" below the top of the slab over supports.

SECTION PROPERTIES

Type SR

Gage	Weight (psf.)	I $(in.)^4$	S(+) $(in.)^3$	S(−) $(in.)^3$	S_s $(in.)^3$	Area $(in.)^2$	Y (in.)
22	1.80	0.18	0.20	0.19	0.32	0.51	0.62
20	2.15	0.23	0.26	0.25	0.39	0.61	0.63
18	2.85	0.32	0.35	0.34	0.51	0.81	0.63
16	3.55	0.41	0.44	0.44	0.63	1.01	0.64

TOTAL SUPERIMPOSED LOADS FOR CONTINUOUS SPANS

Type **SR** with Lightweight concrete

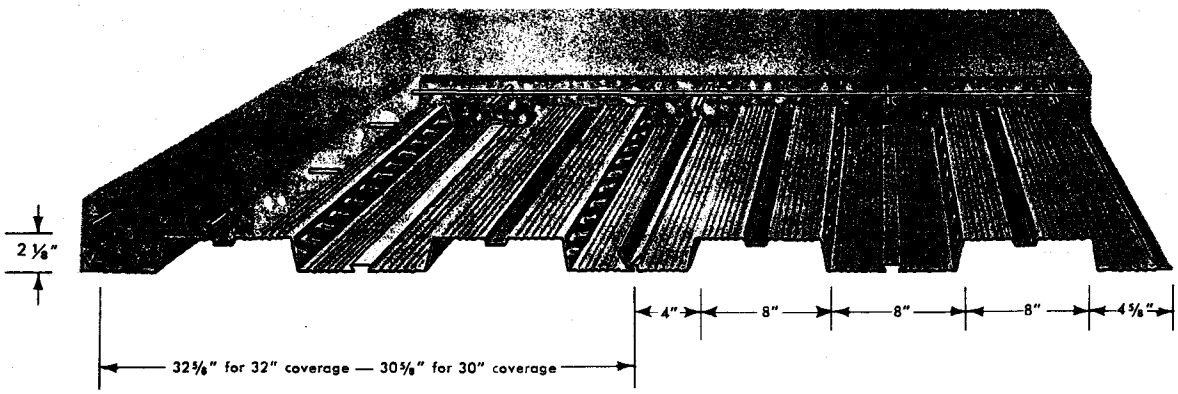
Concrete		LIGHTWEIGHT		
Slab t		4"		
Temp. Bars		#3 @ 13" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		1600	1600	1600
Vr(lbs.)		800	800	800
−Mr(ft. lbs.)		500	880	1300
Wt.(psf.)		33	33	33
GAGE	SPAN	LOAD — psf		
No Shoring:				
22	6-0	166	250	250
	6-6	142	246	246
	7-0	122	215	229
	7-6	107	188	213
20	8-0	94	165	200
	8-6	83	146	188
18	9-0	74	130	178
	9-6	66	117	168
	10-0	60	105	156
16	10-6	45	80	118
	11-0	41	73	108
	11-6	38	66	98
Shoring at Midspan:				
22	8-0	61	132	132
	8-6	50	113	123
	9-0	43	97	115
	9-6	—	84	107
	10-0	—	72	100
	10-6	—	47	85
	11-0	—	40	75
	11-6	—	—	65
	12-0	—	—	57
	12-6	—	—	50
	13-0	—	—	44
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Concrete		LIGHTWEIGHT		
Slab t		4¾"		
Temp. Bars		#3 @ 12" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		1900	1900	1900
Vr(lbs.)		950	950	950
−Mr(ft. lbs.)		630	1120	1650
Wt.(psf.)		39	39	39
GAGE	SPAN	LOAD — psf		
No Shoring:				
22	6-0	210	250	250
	6-6	179	250	250
	7-0	154	250	250
20	7-6	134	239	250
	8-0	118	210	238
18	8-6	105	186	224
	9-0	93	166	211
	9-6	84	149	200
16	10-0	76	134	190
	10-6	57	101	150
	—	—	—	—
	—	—	—	—
Shoring at Midspan:				
22	7-6	95	173	173
	8-0	79	159	159
	8-6	66	147	147
	9-0	54	127	137
	9-6	45	110	127
	10-0	—	95	119
	10-6	—	62	111
	11-0	—	53	97
	11-6	—	46	86
	12-0	—	—	76
	12-6	—	—	67
	13-0	—	—	59
	13-6	—	—	51
20	14-0	—	—	45
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

Concrete		LIGHTWEIGHT		
Slab t		5¾"		
Temp. Bars		#3 @ 11" O.C.		
Top Bars		#3 @ 12"	#4 @ 12"	#4 @ 8"
+Mr(ft. lbs.)		2300	2300	2300
Vr(lbs.)		1150	1150	1150
−Mr(ft. lbs.)		805	1430	2100
Wt.(psf.)		47	47	47
GAGE	SPAN	LOAD — psf		
No Shoring:				
22	6-0	250	250	250
	6-6	229	250	250
20	7-0	197	250	250
	7-6	172	250	250
18	8-0	151	250	250
	8-6	134	238	250
	9-0	119	212	250
16	9-6	107	190	242
	10-0	97	172	230
	—	—	—	—
	—	—	—	—
	—	—	—	—
Shoring at Midspan:				
22	7-0	150	227	227
	7-6	125	209	209
	8-0	104	193	193
	8-6	87	178	178
	9-0	72	165	165
	9-6	60	143	155
	10-0	50	125	145
	10-6	—	83	136
	11-0	—	71	127
	11-6	—	61	112
	12-0	—	52	99
	12-6	—	45	87
20	13-0	—	—	77
	13-6	—	—	68
	14-0	—	—	60
	14-6	—	—	53
18	15-0	—	—	46

NOTE: Recommended temperature reinforcing table on p. 8 may be substituted for temperature bars shown.

New! Type 2"V



The unique profile of new 2"V Deck creates ribs that have the most effective width-to-depth ratio available in floor decks at the present time.

This means higher stud values, and also makes 2"V the most economical section for the 8'-12' span range.

Ripple-like stiffening ribs in both top and bottom flanges give 2"V an added strength and rigidity on the job, plus a skid-resistant surface that helps provide a safe work platform for all trades. An extensive test program has proven that the stiffening ribs in 2"V do not adversely affect the placement or strength of headed shear connectors.

2"V Deck also has Inland-Ryerson's V-lock joint which acts as an integral shear connector, and a new trapezoidal rib into which a key hanger tab can be inserted during construction without causing spillage of concrete, or after construction at any time.

2"V Deck is available in lengths up to 45'-0".

ALLOWABLE SUPERIMPOSED LOADS — TYPE 2"V

Regular concrete slabs.

30" Coverage

REGULAR

Slab(in.) 4½
Vr(lbs.) 1150
Mr(ft. lbs.) 3000
Wt.(psf.) 42

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	8-0	170	195	195
	8-6	—	165	165
	9-0	—	—	135
18	8-6	225	245	245
	9-0	200	220	220
	9-6	165	195	195
	10-0	140	165	165
	10-6	—	130	130
	11-0	—	—	125
	11-6	—	—	105
16	10-6	175	195	195
	11-0	155	170	170
	11-6	130	150	150
	12-0	—	135	135
	12-6	—	120	120
	13-0	—	—	105

30" Coverage

REGULAR

Slab(in.) 5
Vr(lbs.) 1250
Mr(ft. lbs.) 3200
Wt.(psf.) 48

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	8-0	—	215	215
	8-6	—	170	170
18	8-0	250	250	250
	8-6	250	250	250
	9-0	210	245	245
	9-6	180	200	200
	10-0	—	175	175
	10-6	—	150	150
	11-0	—	—	130
16	10-0	225	240	240
	10-6	190	210	210
	11-0	160	185	185
	11-6	—	165	165
	12-0	—	145	145
	12-6	—	—	120
	—	—	—	—

32" Coverage

REGULAR

Slab(in.) 4½
Vr(lbs.) 1200
Mr(ft. lbs.) 3200
Wt.(psf.) 43

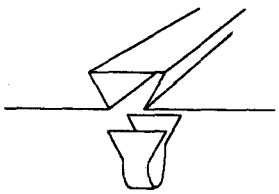
GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	8-0	176	208	208
	8-6	—	174	174
	9-0	—	—	146
18	8-6	243	250	250
	9-0	207	233	233
	9-6	176	202	202
	10-0	149	175	175
	10-6	—	152	152
	11-0	—	—	133
	11-6	—	—	115
16	10-6	187	210	210
	11-0	162	186	186
	11-6	141	165	165
	12-0	—	146	146
	12-6	—	130	130
	13-0	—	—	115

32" Coverage

REGULAR

Slab(in.) 5
Vr(lbs.) 1300
Mr(ft. lbs.) 3400
Wt.(psf.) 49

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	8-0	—	226	226
	8-6	—	187	187
18	8-0	250	250	250
	8-6	250	250	250
	9-0	223	250	250
	9-6	187	222	222
	10-0	—	191	191
	10-6	—	165	165
	11-0	—	—	142
16	10-0	234	250	250
	10-6	202	233	233
	11-0	172	205	205
	11-6	—	180	180
	12-0	—	159	159
	12-6	—	—	140
	—	—	—	—



"Key" Hanger Tab

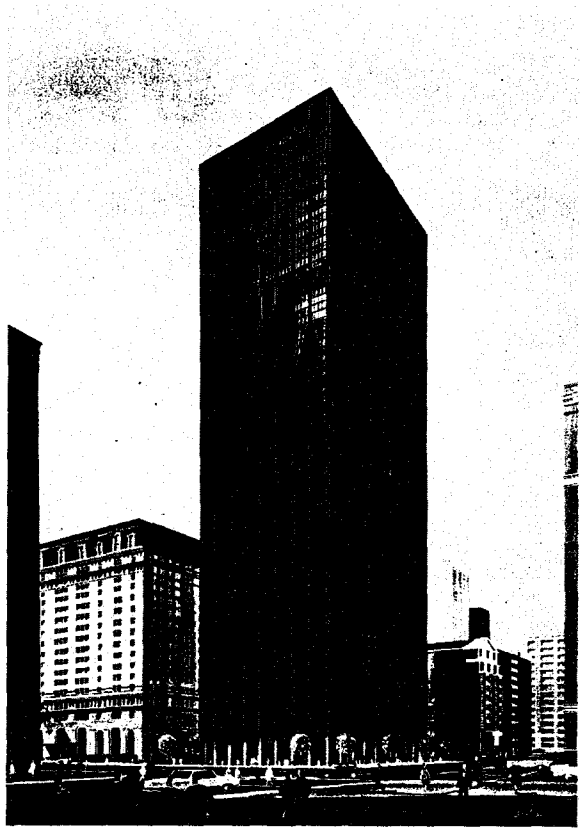
30 NORTH LASALLE
Chicago, Illinois

Owner: 30 North LaSalle Partnership & Tishman Construction Company, Chicago.

Architects-Engineers: Thomas E. Stanley, Chicago, Dallas and New York.

Agent for Construction: Tishman Construction Company, Chicago.

42 stories — 1 million square feet of 2"V Inryco Hi-Bond Floor Deck.



SECTION PROPERTIES — Type 2"V

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
30" COVERAGE							
20	2.00	0.42	0.33	0.35	0.40	0.59	1.12
18	2.60	0.62	0.52	0.50	0.55	0.79	1.13
16	3.20	0.79	0.69	0.67	0.69	0.98	1.14
32" COVERAGE							
20	1.95	0.42	0.31	0.34	0.42	0.58	1.07
18	2.55	0.61	0.50	0.50	0.57	0.77	1.08
16	3.15	0.79	0.68	0.68	0.72	0.97	1.08

ALLOWABLE SUPERIMPOSED LOADS — TYPE 2"V

Lightweight concrete slabs.

30" Coverage — LIGHTWEIGHT

Slab(in.) 4½ | Vr(lbs.) 1150 | Mr(ft. lbs.) 3000 | Wt.(psf.) 32

GAGE	SPAN (ft.-in.)	S	D	T
		CONDITION		
		LOAD		
20	8-0	195	210	210
	8-6	155	180	180
	9-0	—	150	150
	9-6	—	125	125
	10-0	—	—	110
18	9-0	210	225	225
	9-6	180	200	200
	10-0	155	175	175
	10-6	135	150	150
	11-0	115	130	130
	11-6	—	110	110
	12-0	—	—	95
16	11-0	162	162	162
	11-6	143	143	143
	12-0	124	124	124
	12-6	111	111	111
	13-0	—	98	98
	13-6	—	88	88
	14-0	—	—	78

30" Coverage — LIGHTWEIGHT

Slab(in.) 5¼ | Vr(lbs.) 1325 | Mr(ft. lbs.) 3350 | Wt.(psf.) 40

GAGE	SPAN (ft.-in.)	S	D	T
		CONDITION		
		LOAD		
20	8-0	215	240	240
	8-6	—	210	210
	9-0	—	170	170
18	8-6	250	250	250
	9-0	240	240	240
	9-6	205	220	220
	10-0	180	210	210
	10-6	—	170	170
	11-0	—	—	150
16	10-6	230	250	250
	11-0	195	210	210
	11-6	175	190	190
	12-0	—	170	170
	12-6	—	150	150
	13-0	—	—	120
	—	—	—	—
	—	—	—	—
	—	—	—	—
	—	—	—	—

32" Coverage — LIGHTWEIGHT

Slab(in.) 4½ | Vr(lbs.) 1200 | Mr(ft. lbs.) 3200 | Wt.(psf.) 33

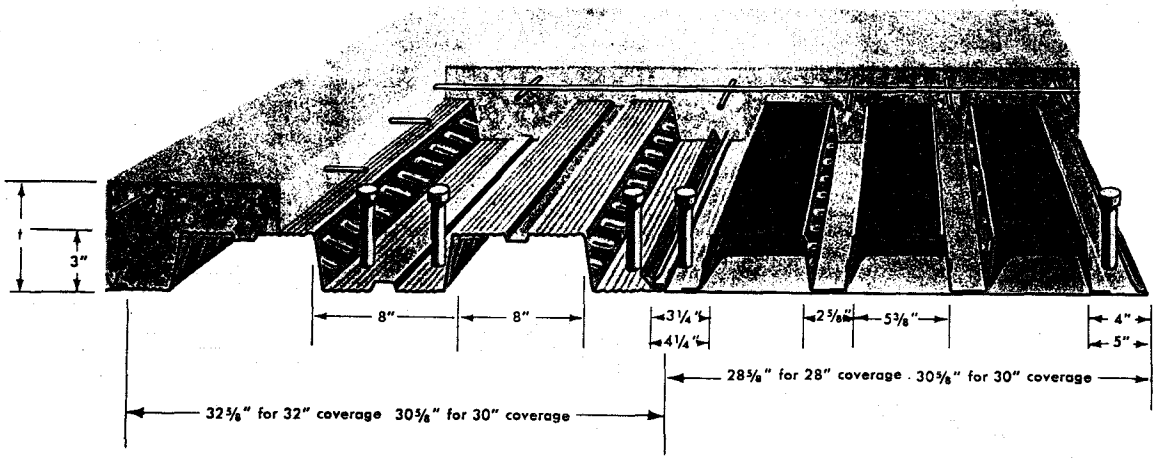
GAGE	SPAN (ft.-in.)	S	D	T
		CONDITION		
		LOAD		
20	8-0	200	220	220
	8-6	167	191	191
	9-0	—	163	163
	9-6	—	140	140
	10-0	—	—	120
18	9-0	228	229	229
	9-6	195	214	214
	10-0	169	185	185
	10-6	146	166	166
	11-0	—	144	144
	11-6	—	129	129
	12-0	—	—	111
16	11-6	158	176	176
	12-0	127	127	127
	12-6	114	114	114
	13-0	—	100	100
	13-6	—	—	90
	14-0	—	—	80
	—	—	—	—

32" Coverage — LIGHTWEIGHT

Slab(in.) 5¼ | Vr(lbs.) 1375 | Mr(ft.-lbs.) 3550 | Wt.(psf.) 41

GAGE	SPAN (ft.-in.)	S	D	T
		CONDITION		
		LOAD		
20	8-0	227	250	250
	8-6	—	223	223
	9-0	—	188	188
	9-6	—	—	158
18	8-6	250	250	250
	9-0	250	250	250
	9-6	226	250	250
	10-0	192	224	224
	10-6	—	195	195
	11-0	—	—	170
	11-6	—	—	149
16	10-6	239	250	250
	11-0	208	235	235
	11-6	182	210	210
	12-0	—	187	187
	12-6	—	166	166
	13-0	—	—	148
	13-6	—	—	132
	—	—	—	—

Types 3"V and 3"NF$_V$



SECTION PROPERTIES — 3"V

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
30" COVERAGE							
20	2.35	0.90	0.52	0.56	0.60	0.64	1.58
18	3.05	1.31	0.80	0.80	0.82	0.85	1.59
16	3.85	1.67	1.04	1.03	1.04	1.06	1.60
32" COVERAGE							
20	2.30	0.89	0.49	0.55	0.63	0.62	1.52
18	3.00	1.30	0.76	0.80	0.86	0.83	1.52
16	3.80	1.66	1.03	1.04	1.08	1.04	1.53

The profile of 3"V Deck allows more room than ordinary deck for the placement of shear connectors, making it an ideal component for composite construction. Two recent major projects using 3"V are shown on page 3 of this catalog.

A new feature of 3"V this year is the cold-rolling of ripple-like stiffening ribs into its top and bottom flanges. These miniscule ribs give 3"V added strength and rigidity on the job and provide an extremely skid-resistant surface for the added safety of

ALLOWABLE SUPERIMPOSED LOADS, TYPE 3"V

Both regular and lightweight concrete slabs.

30" Coverage

LIGHTWEIGHT
Slab(in.) 5½
Mr(ft. lbs.) 3000
Vr(lbs.) 1150
Wt.(psf.) 35

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20	10-0	165	185	185
	10-6	143	163	163
	11-0	124	144	144
	11-6	—	127	127
	12-0	—	112	112
	12-6	—	99	99
	13-0	—	—	88
18	11-6	179	181	181
	12-0	160	167	167
	12-6	143	154	154
	13-0	127	142	142
	13-6	114	130	130
	14-0	102	118	118
	14-6	—	107	107
	15-0	—	97	97
	15-6	—	—	88
16	14-6	114	114	114
	15-0	107	107	107
	15-6	100	100	100
	16-0	94	94	94

30" Coverage

LIGHTWEIGHT
Slab(in.) 6¼
Mr(ft. lbs.) 3300
Vr(lbs.) 1300
Wt.(psf.) 42

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20	10-0	181	210	210
	10-6	155	183	183
	11-0	—	160	160
	11-6	—	140	140
	12-0	—	—	122
18	11-0	218	218	218
	11-6	200	200	200
	12-0	178	183	183
	12-6	158	169	169
	13-0	139	156	156
	13-6	123	145	145
	14-0	—	131	131
	14-6	—	—	118
	15-0	—	—	107
16	14-0	135	135	135
	14-6	126	126	126
	15-0	117	117	117
	15-6	—	110	110
	16-0	—	103	103
	—	—	—	—
	—	—	—	—

32" Coverage

LIGHTWEIGHT
Slab(in.) 5½
Mr(ft. lbs.) 3200
Vr(lbs.) 1200
Wt.(psf.) 38

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20	10-0	153	176	176
	10-6	131	154	154
	11-0	—	135	135
	11-6	—	118	118
	12-0	—	—	103
18	11-0	186	204	204
	11-6	164	183	183
	12-0	145	164	164
	12-6	128	147	147
	13-0	113	132	132
	13-6	—	119	119
	14-0	—	107	107
	14-6	—	—	96
	15-0	—	—	87
16	13-6	140	140	140
	14-0	131	131	131
	14-6	118	122	122
	15-0	106	114	114
	15-6	—	107	107
	16-0	—	100	100
	—	—	—	—

32" Coverage

LIGHTWEIGHT
Slab(in.) 6¼
Mr(ft. lbs.) 3500
Vr(lbs.) 1350
Wt.(psf.) 45

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20	10-0	—	197	197
	10-6	—	171	171
	11-0	—	148	148
	11-6	—	—	128
18	10-0	250	250	250
	10-6	238	250	250
	11-0	208	231	231
	11-6	182	208	208
	12-0	159	186	186
	12-6	—	165	165
	13-0	—	148	148
	13-6	—	132	132
	14-0	—	—	117
16	12-6	179	179	179
	13-0	166	166	166
	13-6	154	154	154
	14-0	143	143	143
	14-6	127	133	133
	15-0	—	124	124
	15-6	—	117	117
	16-0	—	—	109
	—	—	—	—

workmen. Extensive testing has proven that the ribs do not adversely affect the placement or strength of headed shear connectors.

Where electrification is required, Type NF_V can be blended with Type V. Both have the same "V" lock-joint running the full length of each panel. The joint has Hi-Bond lugs formed into it, causing it to act as an integral shear connector. Hi-Bond lugs in the webs of both Types V and NF_V deck provide additional composite action.

A built-in, pull-down hanger tab for the support of suspended ceilings is formed into the lock-joint on NF_V panels. (See p. 9)

Both V and NF_V deck are available in lengths up to 45'0".

SECTION PROPERTIES — Type 3"NF_V

Gage	Weight (psf.)	I $(in.)^4$	S(+) $(in.)^3$	S(−) $(in.)^3$	S_B $(in.)^3$	Area $(in.)^2$	Y (in.)
28" COVERAGE							
20-20	3.90	1.27	0.52	0.83	1.44	1.10	1.10
20-18	4.50	1.37	0.53	0.89	1.77	1.26	0.99
18-20	4.60	1.72	0.76	0.99	1.63	1.29	1.25
16-18	6.00	2.38	1.07	1.42	2.16	1.66	1.23
30" COVERAGE							
20-20	3.80	1.21	0.48	0.78	1.42	1.05	1.08
20-18	4.30	1.30	0.50	0.83	1.74	1.22	0.86
18-20	4.40	1.64	0.72	0.93	1.59	1.24	1.22
16-18	5.90	2.28	1.00	1.33	2.11	1.59	1.20

ALLOWABLE SUPERIMPOSED LOADS, TYPE 3"NFv

Both regular and lightweight concrete slabs.

28" Coverage

LIGHTWEIGHT
Slab(in.) 5½
Mr(ft. lbs.) 4110
Vr(lbs.) 1350
Wt.(psf.) 40

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	10-0	250	250	250
	10-6	—	250	250
	11-0	—	245	245
	11-6	—	235	235
	12-0	—	221	221
20-18	10-0	250	250	250
	10-6	—	250	250
	11-0	—	245	245
	11-6	—	235	235
	12-0	—	225	225
18-20	10-6	250	250	250
	11-0	249	249	249
	11-6	238	238	238
	12-0	228	228	228
	12-6	203	210	210
	13-0	—	195	195
	13-6	—	180	180
	14-0	—	168	168
	14-6	—	153	153
	15-0	—	137	137
16-18	13-0	195	195	195
	13-6	180	180	180
	14-0	168	168	168
	14-6	156	156	156
	15-0	146	146	146
	15-6	—	137	137
	16-0	—	128	128

28" Coverage

LIGHTWEIGHT
Slab(in.) 6¼
Mr(ft. lbs.) 4680
Vr(lbs.) 1560
Wt.(psf) 47

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	10-0	—	250	250
	10-6	—	250	250
	11-0	—	250	250
	11-6	—	250	250
20-18	10-0	—	250	250
	10-6	—	250	250
	11-0	—	250	250
	11-6	—	250	250
18-20	10-6	250	250	250
	11-0	250	250	250
	11-6	250	250	250
	12-0	249	250	250
	12-6	—	240	240
	13-0	—	222	222
	13-6	—	205	205
	14-0	—	184	184
16-18	12-6	240	240	240
	13-0	222	222	222
	13-6	205	205	205
	14-0	191	191	191
	14-6	—	178	178
	15-0	—	166	166
	15-6	—	156	156
	16-0	—	146	146
	—	—	—	—
	—	—	—	—
	—	—	—	—

30" Coverage

LIGHTWEIGHT
Slab(in.) 5½
Mr.(ft. lbs.) 4200
Vr(lbs.) 1400
Wt.(psf) 44

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	10-0	—	250	250
	10-6	—	250	250
	11-0	—	250	250
20-18	10-0	—	250	250
	10-6	—	250	250
	11-0	—	250	250
	11-6	—	229	229
18-20	10-0	250	250	250
	10-6	250	250	250
	11-0	250	250	250
	11-6	243	243	243
	12-0	203	233	233
	12-6	—	214	214
	13-0	—	190	190
	13-6	—	169	169
	14-0	—	150	150
16-18	12-6	215	215	215
	13-0	199	199	199
	13-6	184	184	184
	14-0	171	171	171
	14-6	—	160	160
	15-0	—	149	149
	15-6	—	140	140
	16-0	—	131	131
	—	—	—	—
	—	—	—	—
	—	—	—	—

30" Coverage

LIGHTWEIGHT
Slab(in.) 6¼
Mr(ft. lbs.) 4770
Vr(lbs.) 1590
Wt.(psf) 51

CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	10-0	—	250	250
	10-6	—	250	250
20-18	10-0	—	250	250
	10-6	—	250	250
18-20	10-0	250	250	250
	10-6	250	250	250
	11-0	250	250	250
	11-6	—	250	250
	12-0	—	250	250
	12-6	—	235	235
	13-0	—	206	206
16-18	11-6	250	250	250
	12-0	250	250	250
	12-6	244	244	244
	13-0	226	226	226
	13-6	209	209	209
	14-0	—	195	195
	14-6	—	181	181
	15-0	—	170	170
	15-6	—	159	159
	—	—	—	—
	—	—	—	—
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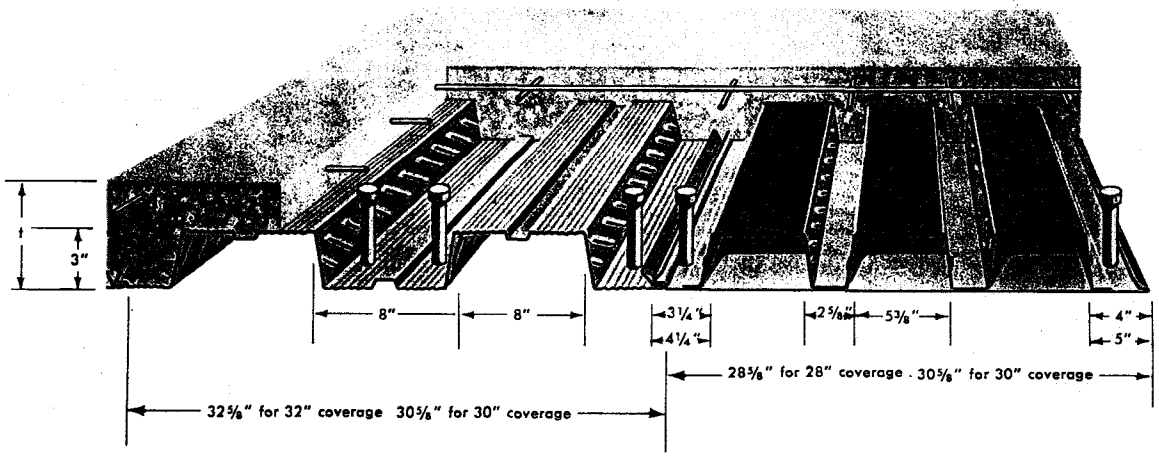
Types 3"V and 3"NF$_V$



SECTION PROPERTIES — 3"V

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
30" COVERAGE							
20	2.35	0.90	0.52	0.56	0.60	0.64	1.58
18	3.05	1.31	0.80	0.80	0.82	0.85	1.59
16	3.85	1.67	1.04	1.03	1.04	1.06	1.60
32" COVERAGE							
20	2.30	0.89	0.49	0.55	0.63	0.62	1.52
18	3.00	1.30	0.76	0.80	0.86	0.83	1.52
16	3.80	1.66	1.03	1.04	1.08	1.04	1.53

The profile of 3"V Deck allows more room than ordinary deck for the placement of shear connectors, making it an ideal component for composite construction. Two recent major projects using 3"V are shown on page 3 of this catalog.

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ALLOWABLE SUPERIMPOSED LOADS, TYPE 3"V

Both regular and lightweight concrete slabs.

30" Coverage — LIGHTWEIGHT: Slab(in.) 5½; Mr(ft. lbs.) 3000; Vr(lbs.) 1150; Wt.(psf.) 35

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	10-0	165	185	185
	10-6	143	163	163
	11-0	124	144	144
	11-6	—	127	127
	12-0	—	112	112
	12-6	—	99	99
	13-0	—	—	88
18	11-6	179	181	181
	12-0	160	167	167
	12-6	143	154	154
	13-0	127	142	142
	13-6	114	130	130
	14-0	102	118	118
	14-6	—	107	107
	15-0	—	97	97
	15-6	—	—	88
16	14-6	114	114	114
	15-0	107	107	107
	15-6	100	100	100
	16-0	94	94	94

30" Coverage — LIGHTWEIGHT: Slab(in.) 6¼; Mr(ft. lbs.) 3300; Vr(lbs.) 1300; Wt.(psf.) 42

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	10-0	181	210	210
	10-6	155	183	183
	11-0	—	160	160
	11-6	—	140	140
	12-0	—	—	122
18	11-0	218	218	218
	11-6	200	200	200
	12-0	178	183	183
	12-6	158	169	169
	13-0	139	156	156
	13-6	123	145	145
	14-0	—	131	131
	14-6	—	—	118
	15-0	—	—	107
16	14-0	135	135	135
	14-6	126	126	126
	15-0	117	117	117
	15-6	—	110	110
	16-0	—	103	103
	—	—	—	—
	—	—	—	—

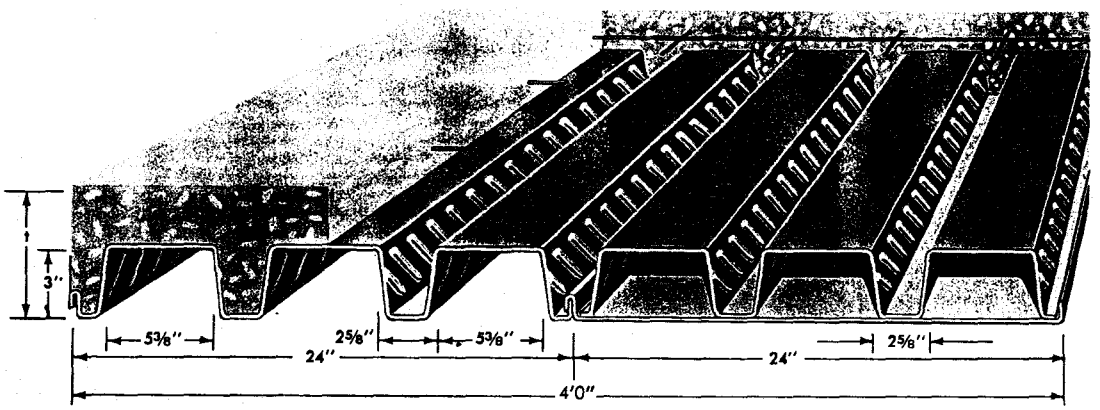
32" Coverage — LIGHTWEIGHT: Slab(in.) 5½; Mr(ft. lbs.) 3200; Vr(lbs.) 1200; Wt.(psf.) 38

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	10-0	153	176	176
	10-6	131	154	154
	11-0	—	135	135
	11-6	—	118	118
	12-0	—	—	103
18	11-0	186	204	204
	11-6	164	183	183
	12-0	145	164	164
	12-6	128	147	147
	13-0	113	132	132
	13-6	—	119	119
	14-0	—	107	107
	14-6	—	—	96
	15-0	—	—	87
16	13-6	140	140	140
	14-0	131	131	131
	14-6	118	122	122
	15-0	106	114	114
	15-6	—	107	107
	16-0	—	100	100
	—	—	—	—

32" Coverage — LIGHTWEIGHT: Slab(in.) 6¼; Mr(ft. lbs.) 3500; Vr(lbs.) 1350; Wt.(psf.) 45

GAGE	SPAN (ft.-in.)	CONDITION S	LOAD D	LOAD T
20	10-0	—	197	197
	10-6	—	171	171
	11-0	—	148	148
	11-6	—	—	128
18	10-0	250	250	250
	10-6	238	250	250
	11-0	208	231	231
	11-6	182	208	208
	12-0	159	186	186
	12-6	—	165	165
	13-0	—	148	148
	13-6	—	132	132
	14-0	—	—	117
16	12-6	179	179	179
	13-0	166	166	166
	13-6	154	154	154
	14-0	143	143	143
	14-6	127	133	133
	15-0	—	124	124
	15-6	—	117	117
	16-0	—	—	109
	—	—	—	—

Type 3"N and 3"NF Celluflor



Standard 24" wide 3" N and 3" NF panels blend to match modules in 2' increments: 4', 6', 8', etc.

Two new panel widths have been added to the 3" N Series to provide greater flexibility in the meeting of architectural modules. Blending a 25⅝" wide Type 3" NF Celluflor panel with two 17 3/16" wide Type 3" N deck panels now makes it possible to offer the ample cell capacity of 3" NF on a 5 ft. module. Still available are regular 24" panels in both types.

SECTION PROPERTIES — Type 3"N

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_s (in.)³	Area (in.)²	Y (in.)
22	2.20	0.64	0.37	0.45	0.41	0.63	1.83
20	2.65	0.81	0.48	0.56	0.50	0.76	1.83
18	3.40	1.20	0.70	0.77	0.70	1.01	1.83
16	4.20	1.62	0.91	0.97	0.91	1.26	1.84

ALLOWABLE SUPERIMPOSED LOADS, TYPE 3"N

Regular and Lightweight concrete slabs.

REGULAR — Slab(in.) 5½ — Mr(ft. lbs.) 2100 — Vr(lbs.) 900 — Wt.(psf.) 45

GAGE	SPAN (ft.-in.)	LOAD S	LOAD D	LOAD T
22	8-0	200	200	200
	8-6	—	200	200
	9-0	—	179	179
	9-6	—	151	151
20	8-6	200	200	200
	9-0	200	200	200
	9-6	178	186	186
	10-0	—	168	168
	10-6	—	152	152
	11-0	—	135	135
	11-6	—	—	116
18	10-0	168	168	168
	10-6	152	152	152
	11-0	139	139	139
	11-6	127	127	127
	12-0	—	117	117
	12-6	—	108	108
	13-0	—	99	99
	13-6	—	—	92
16	12-0	117	117	117
	12-6	108	108	108
	13-0	99	99	99
	13-6	92	92	92
	14-0	—	86	86
	—	—	—	—

REGULAR — Slab(in.) 6 — Mr(ft. lbs.) 2300 — Vr(lbs.) 1000 — Wt.(psf.) 51

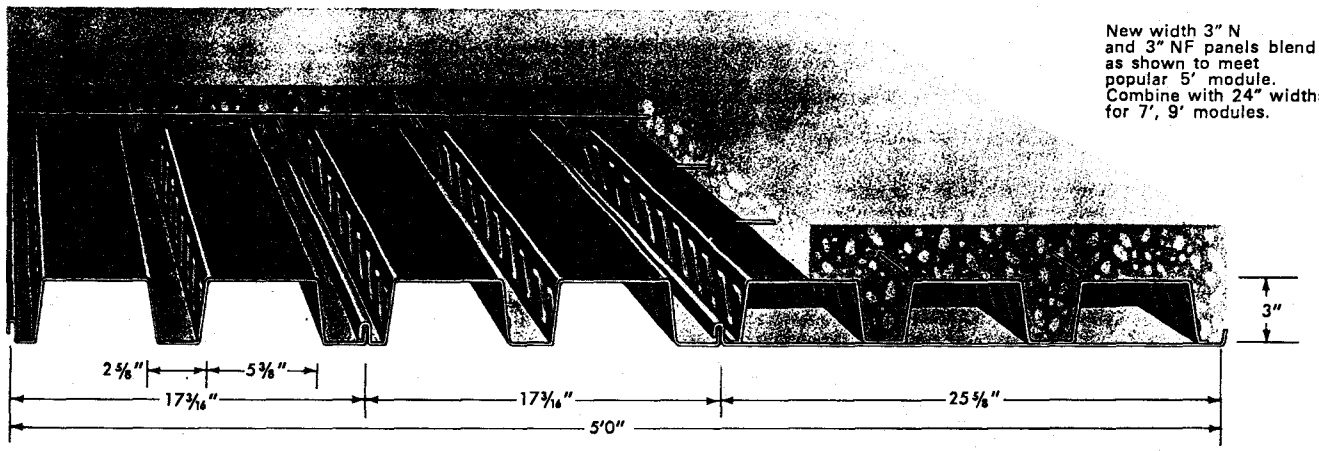
GAGE	SPAN (ft.-in.)	LOAD S	LOAD D	LOAD T
22	8-0	200	200	200
	8-6	—	200	200
	9-0	—	190	190
20	8-6	200	200	200
	9-0	200	200	200
	9-6	—	200	200
	10-0	—	184	184
	10-6	—	166	166
	11-0	—	—	142
18	9-6	200	200	200
	10-0	184	184	184
	10-6	167	167	167
	11-0	152	152	152
	11-6	—	139	139
	12-0	—	128	128
	12-6	—	118	118
	13-0	—	—	109
16	11-6	139	139	139
	12-0	128	128	128
	12-6	118	118	118
	13-0	—	109	109
	13-6	—	101	101
	14-0	—	94	94
	—	—	—	—
	—	—	—	—

LIGHTWEIGHT — Slab(in.) 5½ — Mr(ft. lbs.) 2100 — Vr(lbs.) 900 — Wt.(psf.) 32

GAGE	SPAN (ft.-in.)	LOAD S	LOAD D	LOAD T
22	8-0	200	200	200
	8-6	200	200	200
	9-0	181	200	200
	9-6	—	178	178
	10-0	—	154	154
	10-6	—	134	134
	11-0	—	—	116
20	9-6	186	186	186
	10-0	168	168	168
	10-6	152	152	152
	11-0	137	139	139
	11-6	—	127	127
	12-0	—	117	117
	12-6	—	—	108
18	11-6	127	127	127
	12-0	117	117	117
	12-6	108	108	108
	13-0	99	99	99
	13-6	—	92	92
	14-0	—	86	86
16	13-6	92	92	92
	14-0	86	86	86
	—	—	—	—
	—	—	—	—

LIGHTWEIGHT — Slab(in.) 6¼ — Mr(ft. lbs.) 2400 — Vr(lbs.) 1050 — Wt.(psf.) 38

GAGE	SPAN (ft.-in.)	LOAD S	LOAD D	LOAD T
22	8-0	200	200	200
	8-6	200	200	200
	9-0	—	200	200
	9-6	—	200	200
	10-0	—	172	172
20	9-0	200	200	200
	9-6	200	200	200
	10-0	192	192	192
	10-6	—	174	174
	11-0	—	159	159
	11-6	—	145	145
	12-0	—	—	133
18	10-6	174	174	174
	11-0	159	159	159
	11-6	145	145	145
	12-0	133	133	133
	12-6	123	123	123
	13-0	—	114	114
	13-6	—	105	105
	14-0	—	—	98
16	13-0	114	114	114
	13-6	105	105	105
	14-0	98	98	98
	—	—	—	—
	—	—	—	—



SECTION PROPERTIES — Type 3"NF

Gage	Weight (psf.)	I (in.)⁴	S(+) (in.)³	S(−) (in.)³	S_B (in.)³	Area (in.)²	Y (in.)
20-20	4.10	1.41	0.59	0.79	1.46	1.18	1.13
20-18	4.80	1.52	0.61	1.00	1.78	1.34	1.00
18-20	4.90	1.84	0.88	0.97	1.66	1.41	1.35
16-18	6.50	2.53	1.22	1.36	2.21	1.80	1.21

ALLOWABLE SUPERIMPOSED LOADS, TYPE 3" NF

Regular and Lightweight concrete slabs.

REGULAR Slab(in.) 5½ Mr(ft. lbs.) 3400 Vr(lbs.) 900 Wt.(psf.) 47				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	189	189	189
	10-0	180	180	180
	10-6	171	171	171
	11-0	—	164	164
	11-6	—	157	157
	12-0	—	150	150
20-18	10-6	171	171	171
	11-0	—	164	164
	11-6	—	157	157
	12-0	—	150	150
	12-6	—	144	144
18-20	11-0	164	164	164
	11-6	157	157	157
	12-0	150	150	150
	12-6	144	144	144
	13-0	138	138	138
	13-6	—	133	133
	14-0	—	129	129
16-18	13-6	133	133	133
	14-0	—	129	129
	—	—	—	—
	—	—	—	—

REGULAR Slab(in.) 6 Mr(ft. lbs.) 3700 Vr(lbs.) 1000 Wt. (psf.) 52				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	200	200	200
	10-0	200	200	200
	10-6	—	190	190
	11-0	—	182	182
	11-6	—	174	174
	12-0	—	167	167
20-18	10-0	200	200	200
	10-6	—	190	190
	11-0	—	182	182
	11-6	—	174	174
	12-0	—	167	167
18-20	10-6	190	190	190
	11-0	182	182	182
	11-6	174	174	174
	12-0	167	167	167
	12-6	160	160	160
	13-0	—	154	154
	13-6	—	148	148
	14-0	—	143	143
16-18	13-0	154	154	154
	13-6	148	148	148
	14-0	143	143	143

LIGHTWEIGHT Slab(in.) 5½ Mr(ft. lbs.) 3400 Vr(lbs.) 900 Wt.(psf.) 34				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	189	189	189
	10-0	180	180	180
	10-6	171	171	171
	11-0	164	164	164
	11-6	157	157	157
	12-0	—	150	150
	12-6	—	144	144
	13-0	—	138	138
	13-6	—	133	133
20-18	11-6	157	157	157
	12-0	—	150	150
	12-6	—	144	144
	13-0	—	138	138
	13-6	—	133	133
	14-0	—	129	129
18-20	12-0	150	150	150
	12-6	144	144	144
	13-0	138	138	138
	13-6	133	133	133
	14-0	129	129	129
	—	—	—	—
	—	—	—	—

LIGHTWEIGHT Slab(in.) 6¼ Mr(ft. lbs.) 3850 Vr(lbs.) 1050 Wt.(psf.) 40				
CONDITION		S	D	T
GAGE	SPAN (ft.-in.)	LOAD		
20-20	8-0	200	200	200
	8-6	200	200	200
	9-0	200	200	200
	9-6	200	200	200
	10-0	200	200	200
	10-6	200	200	200
	11-0	191	191	191
	11-6	—	183	183
	12-0	—	175	175
	12-6	—	168	168
	13-0	—	162	162
20-18	11-0	191	191	191
	11-6	—	183	183
	12-0	—	175	175
	12-6	—	168	168
	13-0	—	162	162
18-20	11-6	183	183	183
	12-0	175	175	175
	12-6	168	168	168
	13-0	162	162	162
	13-6	156	156	156
	14-0	—	150	150
16-18	14-0	150	150	150
	—	—	—	—
	—	—	—	—

Design Data

DESIGN DATA — HI-BOND COMPOSITE SLABS:
All section properties are determined in strict accord with the "Specification for the Design of Light Gage Cold-Formed Steel Structural Members."

In determining values for Hi-Bond slabs without shoring, they are designed as follows:

1. Before concrete has attained design strength and deck acts as form:

$$L_{max} = \sqrt{\frac{8\,(+S)\,f}{12w_c}} \quad \text{Single Span}$$

$$L_{max} = \sqrt{\frac{11\,(+S)\,f}{12w_c}} \quad \left.\begin{matrix}\\ \\ \end{matrix}\right\} \text{Double Span (smaller of the two)}$$

$$L_{max} = \sqrt{\frac{9\,(-S)\,f}{12w_c}}$$

$$L_{max} = \sqrt{\frac{11\,(+S)\,f}{12w_c}} \quad \left.\begin{matrix}\\ \\ \end{matrix}\right\} \text{Triple Span (smaller of the two)}$$

$$L_{max} = \sqrt{\frac{10\,(-S)\,f}{12w_c}}$$

Where L = clear span in feet
S = section modulus (+ or −)
f = 20,000 psi
w_c = construction load (dead weight of slab plus 20 psf)

L_{max} is also limited to an L/180 deflection with a 1" maximum. In above, A.C.I. Moment Coefficients used.

2. Using the values for moment and shear (M_r and V_r), allowable loading is then determined using the lesser value. (M_r and V_r are determined empirically, based on a safety factor of no less than 2).

$$w = \frac{8M}{L^2} \text{ or } w = \frac{2V_r}{L}$$

3. The allowable superimposed loading is further reduced if necessary so that the following design stresses are not exceeded.

$$f_s = \frac{33{,}000 - f_{DL}}{2}$$

Where f_s (psi) is the allowable steel stress in the deck, and f_{DL} (psi) is the steel stress in the bottom flange, induced by the dead weight of the slab.

f_c = 1350 psi f'_c = 3000 psi minimum

4. All superimposed loads are based on simple span design of the Hi-Bond slab. The tabulated allowable superimposed loads have been arbitrarily cut off at 200 psf and 250 psf, since Hi-Bond slabs are basically one way reinforced slabs designed for uniformly distributed loads, and loadings greater than 200 or 250 psf usually indicate heavy concentrated moving loads for which additional negative and transverse reinforcing is required.

5. Continuous span Hi-Bond slabs are designed as follows:

Unshored Hi-Bond	Shored Hi-Bond
$+M_r = \frac{w_1L^2}{10}$	$+M_r = \frac{w_2L^2}{10}$
$-M_r = \frac{w_1L^2}{12} \leqslant 10'\text{-}0''$	$-M_r = \frac{w_2L^2}{12} \leqslant 10'\text{-}0''$
$-M_r = \frac{w_1L^2}{10} > 10'\text{-}0''$	$-M_r = \frac{w_2L^2}{10} > 10'\text{-}0''$
$V_r = \frac{w_1L}{2}$	$V_r = \frac{1.2w_2L}{2}$

w_1 = Total superimposed load.
w_2 = Total superimposed load plus dead weight slab.

Openings in Hi-Bond Floors

Normally, openings in Hi-Bond floors can be classified in three broad categories. The first are those openings less than 10" wide measured at right angles to the deck span. Openings such as these require no special treatment. They can be formed prior to the concrete pour and once the concrete has attained 75% of its design strength, the deck can then be cut out.

For openings 10" to 30", the deck can be reinforced prior to the concrete pour with reinforcing bars or small channels, welded to the deck around the perimeter of the opening, to distribute the loads to the adjoining panels.

For those openings greater than 30", the most practical method generally is to supply supplemental structural framing.

Use of Header Ducts with Hi-Bond Celluflor

Either Standard Header Ducts or Trench Header Ducts can be used to deliver electrical and telephone wires to the cells of a Celluflor system. In both cases the ducts are normally installed on top of the Hi-Bond Floor Deck, thus interrupting the concrete.

For standard header ducts, 1½" deep and 3" to 6" wide, of 14 gage steel, normally no special treatment is required. The duct itself is stronger than the concrete it replaces and the load carrying capacity of the Hi-Bond slab is rarely affected.

For trench header ducts, normally 2½" to 4" deep and 9" to 36" wide, location is most important. Because they eliminate all of the concrete above the Hi-Bond deck, some means other than the composite deck/slab system must be utilized to analyze the load carrying capacity of the floor system. In general, trench header ducts should be located as close as possible to supports. The Hi-Bond deck can then be investigated non-compositely and designed to carry the loads. If trench header ducts are required at mid-span, the floor slab can be designed as a double cantilever with negative reinforcing over the adjacent supports. In cases where composite steel beams are used, the placement of the trench header duct directly over the support will interfere with the shear connectors. In this case, the beam will have to be designed non-compositely, or the trench header set to one side, the shear connectors used, and the beam designed compositely with a concrete flange on one side only.

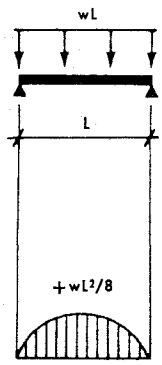
Definition of Terms

These terms are used throughout this catalog:

+S — Section modulus of steel deck, top flange in compression.
−S — Section modulus of steel deck, bottom flange in compression.
S_s — Section modulus of steel deck, to bottom flange.
I — Moment of inertia, steel deck.
A_s — Area of steel, steel deck.
L — Clear span in feet. All spans shown in load tables are clear spans.
$\bar{Y}$ — Distance from bottom flange to neutral axis of deck.
W_c — Dead load, concrete + steel deck.
V_s — Resisting shear, composite.
M_s — Resisting moment, composite.
F_y — 33,000 psi (yield stress)
f — $.6F_y$ = 20,000 psi (design stress)
w — Allowable superimposed load in psf, as shown in all tables.

DESIGN DATA — NON-COMPOSITE SLABS

All section properties are determined in strict accord with the "Specification for the Design of Light Gage Cold-Formed Steel Structural Members." Allowable loads should be determined using the following criteria:

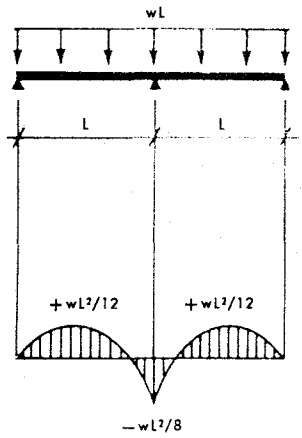


$M = wL^2/8$

$\Delta = 5wL^4/384\ EI$

For +S Reqd., Use chart S

For I Reqd., Use chart I



$+M = wL^2/12$

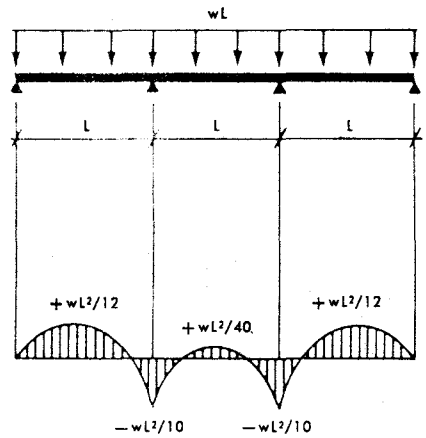
$-M = wL^2/8$

$\Delta = 3wL^4/384\ EI$

For +S Reqd., Multiply chart S by 8/12

For −S Reqd., Use chart S

For I Reqd., Multiply chart I by 3/5



$+M = wL^2/12$

$-M = wL^2/10$

$\Delta = 3wL^4/384\ EI$

For +S Reqd., Multiply chart S by 8/12

For −S Reqd., Multiply chart S by 8/10

For I Reqd., Multiply chart I by 3/5

REQUIRED SECTION PROPERTIES FOR TOTAL UNIFORM LOADS AND SIMPLE SPANS — NON-COMPOSITE DESIGN

$f_s = 20{,}000$ psi. $E = 29.5 \times 10^6$ psi.

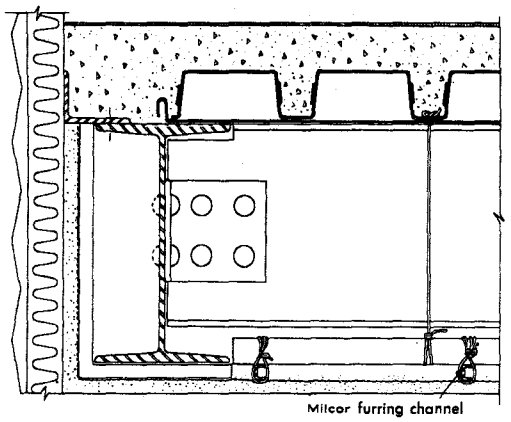
SPANS	CRITERIA		LOADS IN POUNDS PER SQUARE FOOT											
			25	50	75	100	125	150	175	200	225	250	275	300
6'-0"	L/240 —	S	.07	.14	.21	.27	.34	.42	.49	.54	.63	.68	.75	.81
	L/360 —	I	.08	.16	.24	.33	.41	.48	.56	.66	.72	.82	.90	.99
		I	.12	.25	.37	.49	.61	.74	.86	.99	1.11	1.22	1.34	1.48
7'-0"	L/240 —	S	.09	.18	.27	.37	.46	.54	.63	.74	.81	.92	1.01	1.10
	L/360 —	I	.13	.26	.39	.52	.65	.78	.91	1.05	1.17	1.30	1.43	1.57
		I	.20	.39	.59	.79	.99	1.18	1.38	1.57	1.77	1.98	2.18	2.35
8'-0"	L/240 —	S	.12	.24	.36	.48	.60	.72	.84	.96	1.08	1.20	1.32	1.44
	L/360 —	I	.20	.39	.59	.78	.98	1.18	1.38	1.56	1.77	1.96	2.16	2.34
		I	.29	.59	.88	1.17	1.46	1.76	2.05	2.34	2.64	2.92	3.21	3.52
9'-0"	L/240 —	S	.15	.31	.46	.61	.76	.92	1.07	1.22	1.38	1.52	1.67	1.83
	L/360 —	I	.28	.56	.84	1.11	1.39	1.68	1.96	2.22	2.52	2.78	3.06	3.34
		I	.42	.83	1.25	1.67	2.09	2.50	2.92	3.34	3.75	4.18	4.60	5.00
10'-0"	L/240 —	S	.19	.38	.57	.75	.94	1.14	1.33	1.50	1.71	1.88	2.07	2.25
	L/360 —	I	.38	.76	1.14	1.53	1.91	2.28	2.66	3.05	3.42	3.82	4.20	4.58
		I	.57	1.14	1.71	2.29	2.86	3.42	3.99	4.58	5.13	5.72	6.29	6.86
11'-0"	L/240 —	S	.23	.45	.68	.91	1.14	1.36	1.59	1.82	2.04	2.28	2.51	2.73
	L/360 —	I	.51	1.02	1.53	2.03	2.54	3.06	3.57	4.06	4.59	5.08	5.59	6.09
		I	.76	1.52	2.28	3.05	3.81	4.56	5.32	6.09	6.84	7.62	8.38	9.14
12'-0"	L/240 —	S	.27	.54	.81	1.08	1.35	1.62	1.89	2.16	2.43	2.70	2.97	3.24
	L/360 —	I	.66	1.32	1.98	2.64	3.30	3.96	4.62	5.27	5.94	6.60	7.26	7.91
		I	.99	1.98	2.97	3.95	4.94	5.94	6.93	7.91	8.91	9.88	10.87	11.86
13'-0"	L/240 —	S	.32	.63	.95	1.27	1.59	1.90	2.22	2.54	2.85	3.18	3.50	3.81
	L/360 —	I	.84	1.68	2.52	3.35	4.19	5.04	5.88	6.70	7.56	8.38	9.22	10.05
		I	1.26	2.51	3.77	5.03	6.29	7.54	8.80	10.06	11.31	12.58	13.84	15.08
14'-0"	L/240 —	S	.37	.74	1.11	1.47	1.84	2.22	2.59	2.94	3.33	3.68	4.05	4.41
	L/360 —	I	1.05	2.09	3.14	4.19	5.24	6.28	7.33	8.37	9.42	10.48	11.53	12.56
		I	1.57	3.14	4.71	6.28	7.85	9.42	10.99	12.55	14.13	15.70	17.27	18.83
15'-0"	L/240 —	S	.42	.85	1.27	1.69	2.11	2.54	2.96	3.38	3.81	4.22	4.64	5.07
	L/360 —	I	1.29	2.57	3.86	5.15	6.44	7.72	9.01	10.30	11.58	12.88	14.17	15.45
		I	1.93	3.86	5.79	7.72	9.65	11.58	13.51	15.44	17.37	19.30	21.23	23.17

NOTES:

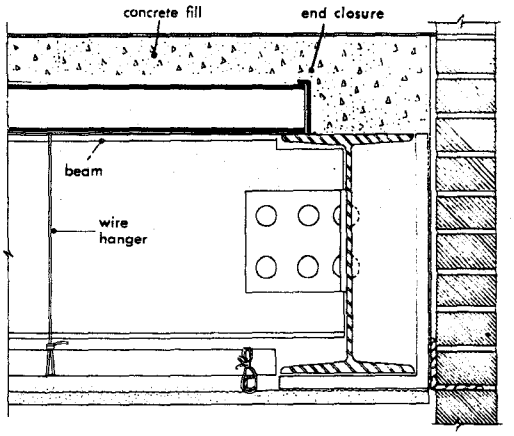
1. Chart based on $M = wL^2/8$, $\Delta = 5wL^4/384\ EI$.
2. For loads other than those shown, straight line interpolations may be made for both the S and I properties.
3. For spans other than those shown, S property must be interpolated by the square power, and I by the third power.

Construction Details

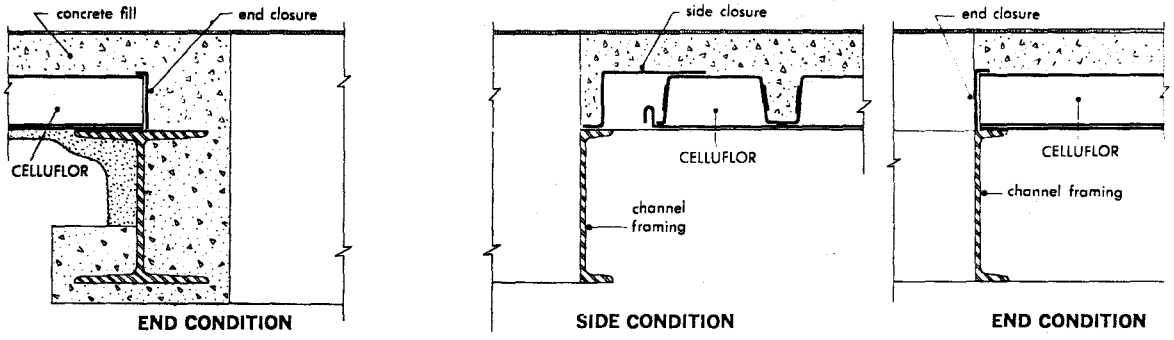
Side condition



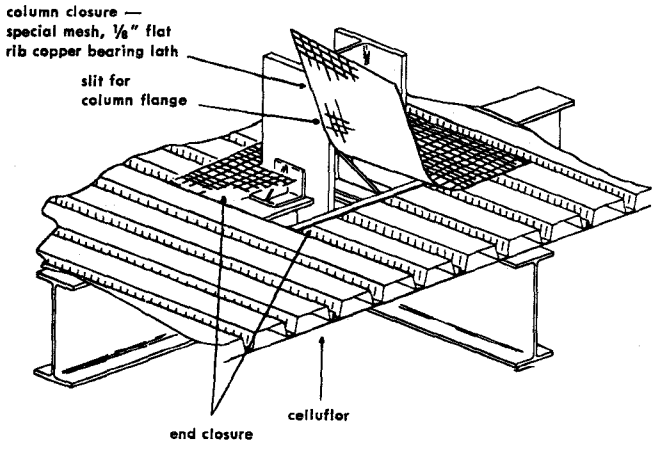
End condition



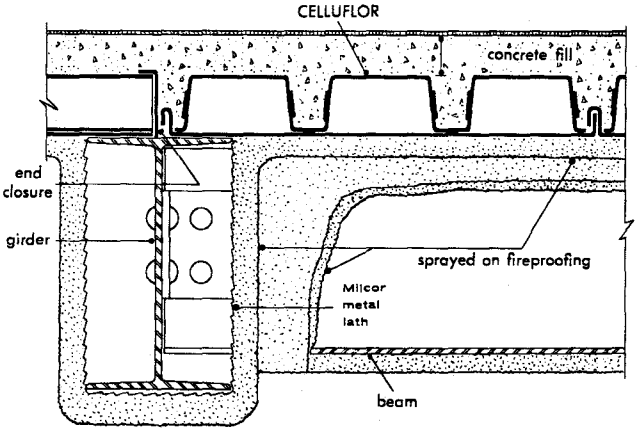
Framed openings — Pipes — Ductwork etc.



Wet Column (Not to scale.)

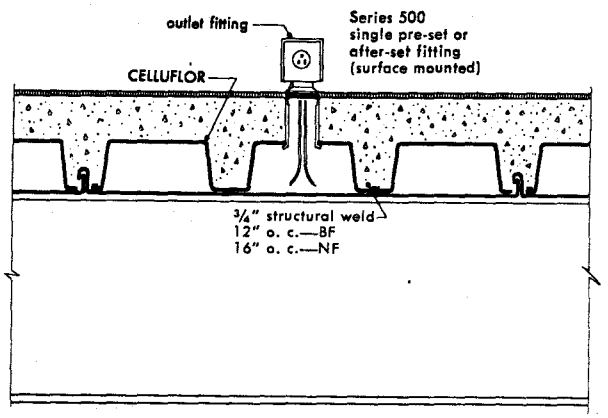


Cell direction change

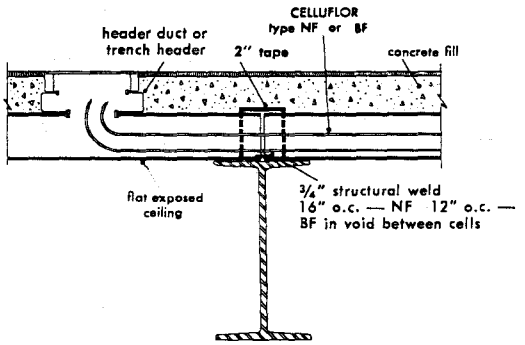


Construction Details

Electrification



Electrification



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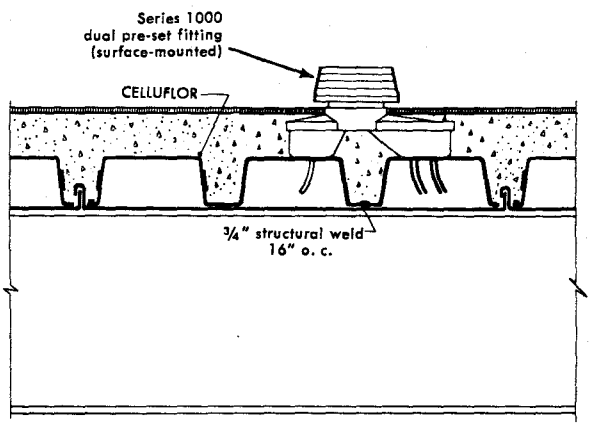

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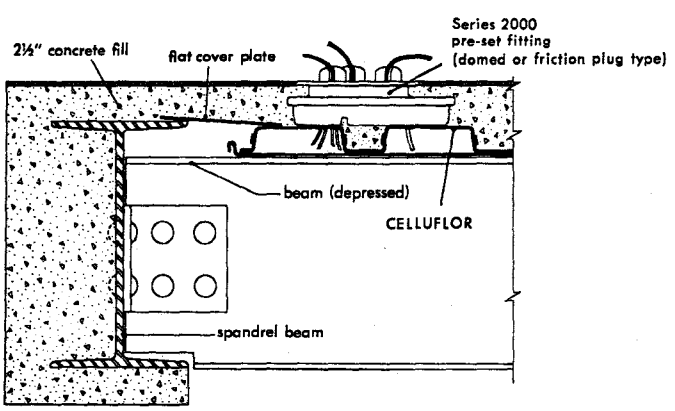
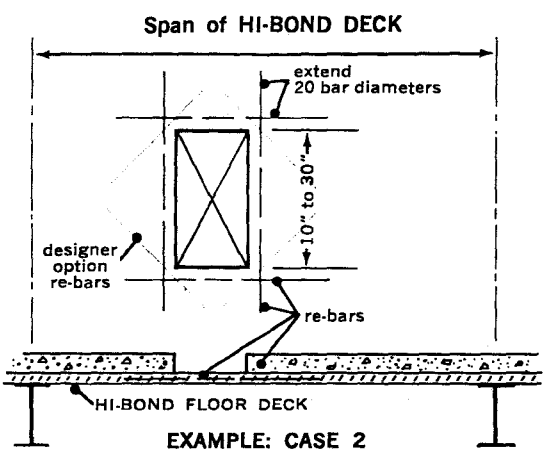


Openings in Hi-Bond Floors



Specifications

INRYCO
Celluflor and Floor Deck

1. Scope

a. Included are all steel subfloors and their accessories. For location, type, and gage of steel subfloors see structural drawings.

b. Not included under this section of the specification (work included under other sections):

(1) Structural steel columns, girders, beams, and all miscellaneous bracings or supports of any kind for the steel subfloors.

(2) All reinforcing bars and reinforcing mesh.

(3) The cutting of holes in the subfloor for the passage of all materials for other trades.

(4) The cutting or drilling required for the attachment of materials of other trades to the steel subfloor.

(5) The final placement and attachment of welding access hole covers, if required, and the taping of abutting ends of electrified panels.

(6) Electrification of the steel subfloor including headers, jump headers, outlets, and any other materials required to carry wires outside of the cellular panel cells.

(7) Concrete fill (Note: for Hi-Bond composite construction a minimum concrete strength of f'c = 3,000 psi is required. For steel subfloor construction a low water-cement ratio and proper curing techniques are recommended to control crazing or temperature relief cracks).

(8) Fireproofing on the underside of steel subfloors.

(9) Any additional holes or cutting not indicated on the erection drawings shall be checked with and authorized in writing by the general contractor, since these holes or cut areas may block vital electrical cells or may be of size or shape requiring additional structural supports.

2. Material

a. All non-cellular subfloor deck and accessory items shall be formed from carbon steel sheets conforming to ASTM A 611-70 (formerly ASTM A 245-64) with a minimum yield strength of 33,000 psi. Prior to forming, the sheets shall be given an iron phosphate treatment, and the exposed side of the deck (that side not covered by the concrete) shall be given two coats of factory baked-on enamel (phosphatized/painted).

b. All cellular subfloor deck and accessory items shall be formed from galvanized steel sheets conforming to ASTM A 446-71 with a minimum yield strength of 33,000 psi. Galvanized coating shall be in accordance with ASTM A 525-71 and Federal Specification QQ-S-775d Type I Class e. (Top fluted sections Ti-Co Galvanized Light Commercial — nominal ¾ oz.; flat plates Ti-Co Galvanized Paintite A — nominal ½ oz.).

c. (To be inserted if non-cellular subfloor deck is an exterior application, or an application where excessive moisture is present.) All non-cellular subfloor deck and accessory items shall be formed from galvanized steel sheets conforming to ASTM A 446-71 with a minimum yield strength of 33,000 psi. Galvanized coating shall be in accordance with ASTM A 525-71 and Federal Specification QQ-S-775d Type I Class e. (Ti-Co Galvanized Paintite A — nominal ½ oz.).

3. Construction

a. Steel subfloor shall conform to the Inland-Ryerson Construction Products Company's Type(s) ... as to depth, cell area, cell spacing and design. (Refer to page ... for specific characteristics of various Inland-Ryerson profiles. The designer may wish to be specific regarding these points rather than making reference to catalog data.)

b. When two sections are combined to form a cellular panel, they shall be structurally resistance welded to develop their full section properties.

c. (To be inserted if panels are to be used as electrical raceways.) Panels shall be listed and labeled by Underwriters' Laboratories, Incorporated.

d. Deformations shall be provided in all vertical webs of the steel subfloor adequate to structurally bond the overlying structural fill material. This action shall be demonstrated in tests approximating building requirements and such tests shall be made available to the structural engineer upon request.

e. (To be inserted for 2" or 3" Type V Deck.) Continuous deformations, longitudinal to the panel, shall be provided in the flanges of all deck panels.

4. Design

a. Sections and calculation of their properties shall conform to the American Iron and Steel Institute's "Specifications for the Design of Light Gage Cold-Formed Steel Structural Members."

b. (To be inserted if non-composite type subfloor is used.) Load carrying capacity shall be computed on the basis of maximum flexural stress of 20,000 psi and a maximum deflection (as caused by live load) of Span/360.

c. (To be inserted if steel subfloor and concrete are designed compositely.) Load carrying capacity shall be computed using the following criteria: 20,000 psi maximum steel flexural stress for dead load plus construction load; yield stress less flexural stress under dead load, divided by 2 for live load; 1350 psi maximum concrete flexural stress.

5. Accessories

Where required or shown on the plans:

a. Furnish sheet metal closures for open ends of all cell raceways at columns, walls, and openings shown on contract drawings.

b. Provide sheet steel cover plates (or closure tape) as required to close panel end conditions where panels change direction or abut.

c. Furnish material for column closures to close openings between panels and structural columns.

d. Provide welding hole cover, with friction fastening, to close welding access holes when required.

6. Cutting and Drilling Steel Subfloors

a. Where large predetermined openings for stairs, elevators, etc., occur, the steel subfloors shall be engineered by the manufacturer to fit these conditions as shown on structural design drawings. The reinforcing required for these openings shall be provided by others.

b. Where holes or openings 6" in diameter and larger are required in subfloors, such holes shall be made by the respective trades requiring them and openings reinforced by these trades. The designer shall determine whether these holes need to be reinforced during construction.

c. Holes smaller than 6" in diameter required for passage of other work or for attachment to the subfloors shall be made by the respective trade involved. The designer shall determine whether these holes need to be reinforced during construction.

d. Diagonal supports at columns, and any other miscellaneous supports required to carry the steel floor, shall be furnished and installed by the structural steel contractor.

7. Erection

a. The steel units shall be placed on supporting steel framework and adjusted to final position before being permanently fastened. Each unit shall be brought to proper bearing on the supporting beams. If the supporting beams are not in proper alignment or at proper level, the subcontractor shall immediately notify the general contractor who shall have corrections made.

b. Panels shall be fastened to the steel framework at ends and at intermediate supports by welds not less than ¾" diameter, spaced not more than 12" across the width of B, S, SR or BF panels and not more than 16" across the width of 1⅝" NF and NFs, 2" V, 3" N, V, NF or NFv panels.

c. End closures of the panel are to be fastened by tack welding or sheet metal screws not more than 4'0" on center.

d. Side closures of the panel are to be fastened by tack welding not more than 3'0" on center. Sheet metal screws shall not be used.

e. Cut and place column closures as indicated on erection drawings.

f. (To be inserted when panels are used as electrical raceway.) Panels shall be aligned and placed in accordance with the "Standards for Safety — Cellular Metal Floor Raceways and Fittings" published by Underwriters' Laboratories, Inc. Taping of abutting ends by the electrical contractor after inspection of the cells.

Specifications

INRYCO Preset Inserts and Service Fittings

(These items to be inserted in the Cellular Deck Specification)

1. Scope

a. Work Included:

(1) *Factory Punched Holes:* All cellular panels for use in designated areas shall be provided with factory-punched holes for installation of specified pre-set inserts as indicated on the drawings.

(2) *Pre-Set Inserts:* The Cellular deck manufacturer shall provide Pre-Set Inserts, as specified, to the general contractor for installation by the electrical contractor in areas indicated on the drawings.

(3) *Service Fittings:* The Cellular deck manufacturer shall provide service fittings, as specified, to the general contractor for installation by the electrical contractor.

b. Work Not Included: Installation or activation of any pre-set inserts, after-set inserts, or service fittings.

2. Material

a. Pre-Set Inserts.

(1) Where indicated, all pre-set inserts shall be as manufactured by Inland-Ryerson. All inserts shall provide 2½" dia. accesses into cellular raceways. Design all inserts for cold-forging of the entire circumference to the decking to guarantee a water-tight fit, continuity of ground, and to resist dislodging during placement of concrete. The insert shall have no obstructions, burrs, or rough penetrations, and shall be long enough to accommodate the depth of the slabs as indicated on the drawings. Cover caps shall be provided to prevent ingress of water and wet concrete and to support floor loads over inactive inserts.

All inserts shall be UL Approved.

(2) All inserts shall be:

(a) *Series 500*: 2½" dia. galvanized steel with a 2" NPSM screw thread to receive fittings at the floor level.

(b) *Series 1000:* Die-cast zinc alloy, ⅛" thick, with outside dimensions of 3" x 9⅜". The box shall be divided for power and signal lines, with ample room for telephone cables and amphenol connectors. The base shall be 1½" high and provide access holes 6⅛" o.c. If required, a ¾" high extension shall be provided for areas where the slab thickness is 3¼" above the deck. The top of the box shall provide a 3" dia. straight pipe thread access to the dual box and be connected to the base with drive screws.

Dividers shall be provided between the telephone and electrical portion of the box.

(c) *Series 2000:* Die-cast zinc alloy, ⅛" thick, with outside dimensions of 5¾" x 9⅛". The box shall be divided for power and signal, with ample room for telephone cables and amphenol connectors.

The base shall be 1½" high and provide access holes 6⅛" o.c. If required, a ¾" high extension shall be provided for areas where the slab thickness is 3¼" above the deck.

The top of the box shall provide a 5" dia. straight pipe thread access to the dual box and be connected to the base with drive screws. Dividers shall be provided between the telephone and electrical portion of the box.

b. Pre-Set Insert Service Fittings.

(1) Pre-set insert service fittings shall be as manufactured by Inland-Ryerson. All fittings shall be UL approved.

(2) All fittings shall be:

(a) *Series 500:* Single-service cube of anodized (or super-hard-coat anodized) aluminum with receptacle or neoprene telephone cable gasket, as required. Fittings for carpeted areas shall be designed so installation can be made by slitting only, without cutting holes in the carpet. Fittings for tile areas shall provide a water-tight bearing on the surface of the tile.

(b) *Series 1000:* Dual-service, low-profile fitting in brushed or anodized) aluminum, providing duplex grounding electrical receptacle and telephone service opening with neoprene cable gasket, as required. Fittings shall be provided with removable tops for easy access and a divider plate to separate high and low tension compartments. Blank fitting plates shall be supplied when a service fitting is used for single service.

(c) *Series 2000:* Dual-service, flush-floor fitting, to be one of following:

Security dome type: 6" dia., flush, bronze or brushed aluminum closure plate and ring, with three security domes. Threaded slugs to be provided for inactive outlets. Aluminum receptacle cover plate provided for installation within the insert box. Active-but-idle fittings to be finished with cover plate ring and closure plate, to receive carpet (or tile).

Friction plug type: 4" dia. closure ring and plug, in anodized (or super-hard-coat anodized) aluminum. Plug prepared for power and telephone and fitted snug with integral nylon retaining ring. Sloped aluminum receptacle cover plate provided for installation within the insert box. Active-but-idle fittings to be finished with blank plug.

(3) Service Fittings shall be supplied with electrical, telephone, or blank faces, as required. The number of each for initial installation shall be:

(a)_____ each Series 500 single-service cubes.

(b)_____ each Series 1000 dual-service, low profile fittings.

(c)_____ each Series 2000 dual-service, flush-floor fittings.

(These items to be inserted in the Electrical Section of the Specifications:)

1. Scope

Installation of all pre-set inserts and service fittings supplied under the metal subfloor section of the specifications.

2. Materials

Pre-Set Inserts and Fittings: shall be Inryco Series (500, 1000 or 2000) as described in the metal subfloor section of the specifications.

3. Installation

a. Pre-Set Inserts.

(1) Receive all pre-set inserts from the general contractor.

(2) Distribute and install in areas designated on the drawings, cold-forging to the metal deck in factory-punched holes, in such a manner to provide a continuous, smooth, water-tight connection for the entire circumference of the insert, and to resist a minimum of 1000 lbs. of pressure prior to pull-out.

(a) *Series 500:* Installed upon completion, insert metal cap to prevent ingress of water or concrete.

(b) *Series 1000:* Install so the larger void will be placed over the telephone raceway. Extensions, if required, and tops shall be connected to the base with drive screws or self-threading screws. Caps shall be placed prior to pouring concrete to prevent ingress of water or concrete.

(c) *Series 2000:* Install so the larger void will be placed over the telephone raceway.

Extensions, if required, and tops shall be connected to the base with drive screws or self-threading screws. Caps shall be placed prior to pouring concrete to prevent ingress of water or concrete.

b. Pre-Set Insert Service Fittings.

(1) Receive all service fittings from the general contractor.

(2) Distribute and install as follows:

(a) *Series 500:* Locate pre-set insert. Remove concrete cover and cap. Install fitting base, using carpet or tile type fitting as required. Activate and install top of fitting.

(b) *Series 1000:* Locate the pre-set insert. Remove concrete cover and cap. Install base and bring to the surface level. Place the divider plate with extension to fit into the slot provided in the pre-set insert. Activate, place top and face plates as required.

(c) *Series 2000:* Locate the pre-set insert. Remove concrete cover and cap, activate and install fittings as follows:

Security Dome: Place height adjusting trim ring and closure plate with security domes and/or threaded slugs as required.

Friction Plug: Place adjusting ring to bring to surface level. Place cover and trim ring, adjusting to surface level. Install force-fit hand hole cover.

Inland-Ryerson Construction Products Company (General Offices, Melrose Park, Illinois)
BUILDING PANELS DIVISION: P.O. Box 393, Milwaukee, Wisconsin 53201 — 414 332-4030

Sales Offices:

Atlanta, Georgia 30328, 6065 Roswell Rd., Suite 433 — 404/256-4472
Baltimore, Md. 21219, 4601 North Point Blvd. — 301/477-4000
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Portland, Oregon 97212, 4035 N.E. Sandy Blvd. — 503/282-9243
Salt Lake City, Utah 84111, 445 E. 2nd South St. — 801/364-8371
San Francisco, Calif. 94104; 465 California St. — 415/434-2855

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