2008 Technical Data Guide For Precast, Prestressed Concrete Hollow-core Plank

Oldcastle Precast®
Building Systems

ELEMATIC® Hollow-core Plank

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Introduction

The purpose of this technical data is to provide assistance in selecting and detailing precast concrete hollow-core plank manufactured by Oldcastle Precast, Inc.

The load tables presented herein are intended as a guide only. Final design is determined by our engineering department based on information presented in the final plans and specifications. To ensure the optimum selection for your application, please contact us for assistance.

Although care has been taken to provide the most accurate data possible, **Oldcastle Precast, Inc.** does not assume responsibility for errors and omissions.

The Manufacturing Process

Elematic® is a machine extruded, precast, prestressed hollow-core plank. The planks are manufactured on 500-foot-long beds in standard widths of 48 inches and thickness of 6, 8, 10, 12 and 16 inches. High strength prestressing strands are cast into the planks at the spacing and location required for the given span, loading and fire cover conditions. The planks are cut to length for each project using a diamond-blade saw. After the planks are cut, they are removed from the casting beds and placed into storage.

All Elematic® materials equal or exceed the requirements of applicable ASTM specifications. The concrete mix is designed to have release strength of 3,000 psi or 3,500 psi, and a 28-day compressive strength of 5,000 psi. The prestressing strands are uncoated, seven wire, low relaxation with a minimum ultimate strength of 270 ksi.

Load Table Design Criteria

The tables herein list allowable live loads in pounds per square foot for uniformly distributed loading. Non-uniform loading conditions resulting from point loads, line loads, openings and cantilevers require special design consideration.

The allowable load is usually governed by the ultimate capacity of the section. As a design aid, the ultimate moment capacities in governing criterion for short spans may be the horizontal shear stress between the plank and the topping.

Allowable live loads for long-span, heavily reinforced sections are limited to loads that result in a bottom-tension stress equal to the cracking stress. Loads beyond this limit may result in deflections that exceed the allowable value set forth in the ACI code.

The load tables are based on a plank concrete strength of 5,000 psi. Tables for topped sections are based on a topping strength of 3,500 psi and minimum thickness of 2 inches.

Maximum spans and loads shown are not absolutes. Longer spans or heavier loads may be achieved under certain conditions or different criteria than assumed in the tables. Contact us if you need assistance.

Plank Design Considerations

The following items will affect the selection of appropriate plank sizes and should be carefully reviewed by the Architect/Engineer while developing the plans and specifications for a project:

Fire Rating

- The fire rating requirement should be clearly specified in the contract documents.

Loading Conditions

- Specify all uniform loading requirements on structural plans.
- Identify line and point loads resulting from bearing walls, masonry walls, face brick, columns, mechanical equipment, etc.
- Identify diaphragm forces and lateral loads resulting from wind or earth pressures.
- Review roof plans for vertical protrusions such as parapets, penthouses and adjacent buildings that could require designing for snow drift loads.
- Plank supporting stairs require special loading considerations.
- Large openings or closely spaced groups of smaller openings will reduce the plank load carrying capacity.

Topping

- Specify whether or not concrete topping is to be composite. Composite action requires the topping to be bonded to the top surface of the plank. Topping separated by a vapor barrier or insulation is non-composite and must be considered a superimposed load.
- Large cambers resulting from long spans and/or heavy loads will affect the quantity of topping, assuming a level floor is required. Two inches of composite topping at mid span is minimal, and additional thickness at the ends of the plank may be required to maintain level floor elevations.

Camber

- Camber is inherent in all prestressed products. It is the result of the eccentric prestress force required to resist design loads, and cannot be designed in, out, or to an exact number. The amount of camber will depend upon the span, design loads and thickness of plank. Planks stored in the yard for more than 6 weeks, usually due to construction schedule changes, will experience more camber growth.
- Adjacent plank of dissimilar length, strand pattern or with openings will have inherent camber differences.

Fire Rating

Fire rating specifications are as important as all other design parameters. Plank rating requirements are determined by the Architect or Engineer of Record, who is also responsible for establishing the fire rating criteria for the total project.

Three methods generally used in the Northeast for determining hollow-core plank fire-resistive ratings are:

1. 2006 International Building Code
2. Rational analysis as defined by PCI MNL 124, *"Design for Fire Resistance of Precast Concrete"*
3. Underwriters Laboratories Fire Resistive Ratings
4. MEA product approval (New York City only)

International Building Code "IBC" Fire Rating

The IBC code prescribes fire ratings to any hollow-core plank section. Since 2000, the IBC code has replaced the BOCA, SBC and UBC model codes in many states. The two criteria that are measured to determine the fire rating are:

1. Equivalent concrete thickness – 4.6" inches is required for 2 hrs
2. Bottom strand cover – ¾" cover is required for 2 hrs (restrained condition)

Underwriters Laboratories Fire Resistive Ratings

Prior to codes including prescriptive fire-endurance rating methods, fire tests provided the primary source of ratings classifications. While some plank sections were fire tested, others can be evaluated by UL to qualify for existing UL numbers.

The table below lists the UL ratings available with Elematic® plank. Note that these ratings are dependent upon whether or not the ends of the planks are restrained. Determination of the restraint must be made by the Architect or the Engineer of Record, as it is primarily a function of the support structure.

UL Number	Rating (Hour)		Plank Thickness (inch)	Topping Thickness (inch)
	Restrained	Unrestrained		
J994	1½	1½	8,10,12	0
J994	2	1½	8,10,12	½ Gypcrete
J994	3	1½	8,10,12	2 1/8 Topping
J994	4	1½	8,10,12	3 1/8 Topping

Fire Ratings by Rational Analysis

PCI MNL 124 defines the "rational analysis" method for determining the fire rating of precast, prestressed members. It is useful to use when a fire rating cannot be obtained by either of the two previous methods. Actual practice has shown that this method is very conservative and that the span of the hollow-core plank will have to be reduced (approx. 10% to 20%) to achieve the same fire rating from both IBC and UL.

In using this method, the reduced strength of the prestressed strands at elevated temperatures is determined and the resulting moment capacities are compared to that required for service loads. Strand temperatures are based on the amount of concrete cover and the standard fire exposure as defined by the time-temperature relationship specified in ASTM E119. Fire ratings will also be improved if the plank assembly is restrained against thermal expansion. It should be noted that the only universally accepted definition of full restraint is an interior bay of a multi-bay building.

Sound Ratings

The following tables contain values for the Sound Transmission Class (STC) and the Impact Insulations Class (IIC) of various floor systems utilizing Elematic® hollow-core plank.

Sound Transmission Class (STC)

The values for the Sound Transmission Class were determined by tests which were in accordance with ASTM E90. The STC is a measure (in decibels) of the ease at which air-borne sound is transmitted through a floor system. The larger the value of the STC for a given system, the greater the sound insulation.

Sound Transmission Class (STC)	
6" Elematic®	49
6" Elematic® + 2" Topping	53
8" Elematic®	51
8" Elematic® + 2" Topping	54
H8" Heavy Elematic®	51
H8" Heavy Elematic® + 2" Topping	55
10" Elematic®	52
10" Elematic® + 2" Topping	56
12" Elematic®	54
12" Elematic® + 2" Topping	57
16" Elematic®	56
16" Elematic® + 2" Topping	59

Impact Insulation Class (IIC)

The values for the Impact Insulation Class (IIC) were determined by tests which were in accordance with ASTM ES492. The Impact Insulation Class is the resistance to impact noise transmission and is highly dependent on the floor surface and structural connection details. As with the STC, the higher IIC values are more desirable.

Impact Insulation Class (IIC)	
Types of Floor Systems	**Rating**
8" Hollow-core Plank	28
8" Hollow-core Plank + ½" wood block flooring adhered directly	47
8" Hollow-core Plank + 0.058" vinyl tile	50
8" Hollow-core Plank + quarry tile w/reinforced mortar bed with 0.4" nylon and carbon black spinneret matting.	54
8" Hollow-core Plank + pad & carpet	73
Add Acoustical Ceiling	+6

SPECIFICATIONS FOR PRECAST, PRESTRESSED HOLLOW-CORE PLANK
SECTION 03400

1. GENERAL

1.01 Description

A. Work Included:

1. These specifications cover manufacture, transportation and erection of precast, prestressed, concrete, hollow-core plank, including grouting of joints between adjacent units.

B. Related Work Specified Elsewhere:

2. Cast-in-Place Concrete: Section_____
3. Architectural Precast Concrete: Section_____
4. Precast Structural Concrete: Section _____
5. Underlayments (Floor and/or Roof Leveling): Section_____
6. Caulking and Sealants: Section _____
7. Small Holes for Mechanical/Plumbing: Section _____
8. Cast-in-Place Embedments: Section_____
9. Steel Bearing Lintels: Section _____
10. Insulation in Plank Cores: Section _____

1.02 Quality Assurance

A. Manufacturer Qualifications: The precast concrete manufacturing plant shall be certified by the Prestressed Concrete Institute (PCI) Plant Certification Program prior to the start of production. Manufacturer shall be certified in category C2.

The manufacturer shall retain a registered structural engineer to certify that manufacturing is in accordance with design requirements; or

The manufacturer shall, at his expense, meet the following requirements:

1. The basis of inspection shall be the Prestressed Concrete Institute's *"Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products"*, MNL-116, and the criteria for acceptance shall be the same as the Plant Certification Program.

B. Erector Qualifications: PCI Qualified and regularly engaged for at least 5 years in the erection of precast structural concrete similar to the requirements of this project. Retain aregistered structural engineer to certify that erection is in accordance with designrequirements.

C. Welder Qualifications: In accordance with AWS D1.1.

D. Testing: In general compliance with applicable provisions of Prestressed Concrete Institute MNL-116, *"Manual for Quality Control for Plants and Production of Precast Prestressed Concrete Products"*.

E. Requirements of Regulatory Agencies: All local codes plus the following specifications, standards and codes are a part of these specifications:

1. ACI 318 – Building Code Requirements for Reinforced Concrete;
2. AWS D1.1 – Structural Welding Code-Steel;
3. AWS D1.4 – Structural Welding Code-Reinforcing Steel;
4. ASTM Specifications – As referred to in Part 2-Products, of this Specification.

1.03 Submittals and Design

A. Shop Drawings:

1. Erection Drawings
   a. Plans locating and defining all hollow-core planks furnished by the manufacturer, with all major openings shown.
   b. Sections and details showing connections, weld plates, edge conditions and support conditions of the hollowcore plank units.
   c. All dead, live and other applicable loads used in the design.
   d. Fire rating.

B. Approvals:

1. Submit _____ copies of erection drawings for approval prior to fabrication. Fabrication not to proceed prior to receipt of approved drawings.

C. Product Design Criteria:

1. Loadings for design
   a. Initial handling and erection stresses.
   b. All dead and live loads as specified on the contract documents.
   c. All other loads specified for hollow-core plank where applicable.
2. Fire rating shall be _____ hour(s).
3. Design steel plank support headers when such headers are determined necessary by the manufacturer's engineer.
4. Design calculations shall be performed by an engineer, registered in the state that the project is located in, and experienced in precast prestressed concrete design. Design calculations to be submitted for approval upon request.
5. Design shall be in accordance with ACI 318 and applicable codes.

D. Permissible Design Deviations:

1. Design deviations will be permitted only after the Architect/Engineer's written approval of the manufacturer's proposed design supported by complete design calculations and drawings.
2. Design deviations shall provide an installation equivalent to the basic intent without incurring additional cost to the owner.

E. Test Reports: Test reports on concrete and other materials shall be submitted upon request.

2. PRODUCTS

2.01 Materials

A. Portland Cement:

1. ASTM C150 – Type I or III.

B. Admixtures:

1. Water Reducing, Retarding, Accelerating, High-Range Water Reducing Admixtures: ASTM C494

C. Aggregates:

1. ASTM C33 or C330

D. Water: Potable or free from foreign materials in amounts harmful to concrete and embedded steel.

E. Reinforcing Steel:

1. Bars:
   Deformed Billet Steel: ASTM A615
   Deformed Rail Steel: ASTM A616
   Deformed Axle Steel: ASTM A617
   Deformed Low Alloy Steel: ASTM A706
2. Wire: Cold Drawn Steel: ASTM A82.

F. Prestressing Strand:

1. Uncoated, 7-Wire, Low Lax strand: ASTM A416 (including supplement) – Grade 250K or 270K.

G. Welded Studs: In accordance with AWS D1.1.

H. Structural Steel Plates and Shapes: ASTM A36.

I. Grout:

1. Cement grout: Grout shall be a mixture of not less than one part portland cement to three parts fine sand, and the consistency shall be such that joints can be completely filled but without seepage over adjacent surfaces. The grout shall achieve a minimum 28-day compressive strength of 2,000 psi. Any grout that seeps from the joint shall be completely removed before it hardens.

J. Bearings Strips:

1. Plastic: Multi-monomer plastic strips shall be non-leaching and support construction loads with no visible overall expansion.

2.02 Concrete Mixes

A. 28-day compressive strength: Minimum of 5,000 psi

B. Release strength: Minimum of 3,000 psi

C. Use of calcium chloride or admixtures containing chlorides is not permitted.

2.03 Manufacture

A. Hollow-core plank shall be machine cast in 48-inch widths under the trade name **Elematic**® as manufactured by Oldcastle Precast Building Systems.

B. Manufacturing procedures and tolerances shall be in general compliance with PCI MNL 116.

C. Openings: Manufacturer shall provide for rectangular openings 10 inches or larger on all sides and as clearly shown on the architectural and structural drawings. They shall be located by the trade requiring them and then field cut. Round and small openings (less than 10 inches) shall be drilled or cut by the respective trades after grouting. Openings requiring cutting of prestressing strand shall be approved by the precast plank manufacturer before drilling or cutting.

D. Finishes: Bottom surface shall be flat and uniform as resulting from an extrusion process, without major chips, spalls and imperfections. Top surface shall be machine troweled.

E. Patching: Will be acceptable providing the structural adequacy of the hollow core unit is not impaired.

3. EXECUTION

3.01 Product Delivery, Storage and Handling

A. Delivery and Handling:

1. Hollow-core plank shall be lifted and supported during manufacturing, stockpiling, transporting and erection operations only at the lifting or supporting points designated by the manufacturer.
2. Transportation, site handling and erection shall be performed by qualified personnel with acceptable equipment and methods.

B. Storage:

1. Store all units off ground on firm, level surfaces with dunnage placed at bearing points.
2. Place stored units so that identification marks are discernible.
3. Separate stacked units by dunnage across full width of each plank.

3.02 Erection

A. Site Access: Erection access suitable for cranes and trucks to move unassisted from public roads to all crane working areas as required by erector, or otherwise indicated herein, will be provided and maintained by the general contractor. Obstructing wires shall be shielded or removed and, when applicable, snow removal and winter heat will be provided by the general contractor.

B. Preparation: The general contractor shall be responsible for:

1. Providing true, level, bearing surfaces on all field-placed bearing walls and other fieldplaced supporting members. Masonry wall bearing surfaces shall be bond beams with properly filled and cured concrete.
2. All pipes, stacks, conduits and other such items shall be stubbed off at a level lower than the bearing plane until after the plank are set. Masonry, concrete or steel shall not be installed above plank-bearing surface until after the plank is in place.

C. Installation: Installation of hollow-core slab units shall be performed by the manufacturer. Members shall be lifted with slings at points determined by the manufacturer. Bearing strips shall be set where required. Grout keys shall be filled. Openings shall be field cut only after grout has cured, unless authorized by the manufacturer's engineer.

D. Alignment: Members shall be properly aligned. Variations between adjacent members shall be reasonably leveled out by jacking, bolting or any other feasible method as recommended by the manufacturer.

3.03 Field Welding

A. Field welding is to be done by qualified welders using equipment and materials compatible to the base material.

3.04 Attachments and Small Holes

A. Subject to approval of the Architect/Engineer, hollow-core plank units may be drilled or "shot" provided no contact is made with the prestressing steel. Round holes and those less than 8 inches on any side shall be drilled or cut by the respective trades. Should spalling occur, it shall be repaired by the trade doing the drilling, shooting or cutting.

3.05 Clean up

A. Remove rubbish and debris resulting from hollow-core plank work from premises upon completion.

3.06 Safety

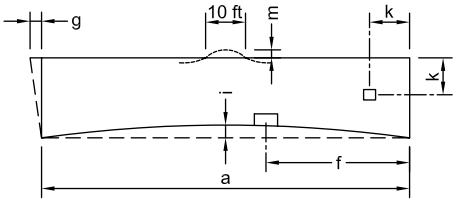
A. The general contractor will provide and maintain all safety barricades, rebar caps and opening covers required for plank in accordance with current industry safety standards.

Production and Erection Tolerances: (Reprinted from *PCI Manual for the Design of Hollow-core Slabs*)

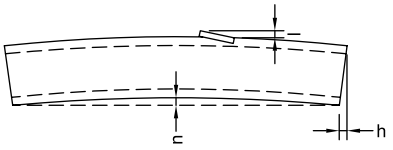
Product Tolerances: Hollow-core Slabs

a = Length ..... ±1/2 in.
b = Width ..... ±1/4 in.
c = Depth ..... ±1/4 in.
d_t = Top flange thickness
Top flange area defined by the actual measured values of average d_t x b shall not be less than 85% of the nominal area calculated by d_t nominal x b nominal.
d_b = Bottom flange thickness
Bottom flange area defined by the actual measured values of average d_b x b shall not be less than 85% of the nominal area calculated by d_b nominal x b nominal.
e = Web thickness
The total cumulative web thickness defined by the actual measured value of e shall not be less than 85% of the nominal cumulative width calculated by $\sum$e nominal.

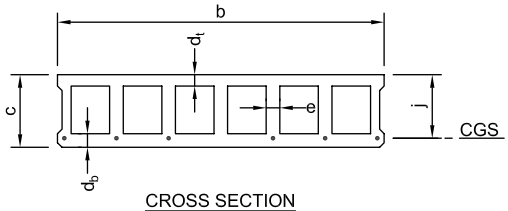
f = Blockout location ..... ±2 in.
g = Flange angle ..... 1/4 in. per 12 in., 1/2 in. max
h = Variation from specified end squareness or skew ..... ±1/2 in.
i = Sweep (variation from straight line parallel to centerline of member) ..... ±3/8 in.
j = Center of gravity of strand group
The CG of the strand group relative to the top of the plank shall be within ±1/4 in. of the nominal strand group CG. The position of any individual strand shall be with ±1/2 in. of nominal vertical position and ±3/4 in. of nominal horizontal position and shall have a minimum cover of ±3/4 in.
k = Position of plates ..... ±2 in.
l = Tipping and flushness of plates ..... ±1/4 in.
m = Local smoothness ..... ±1/4 in. in 10 ft.
(does not apply to top deck surface left rough to receive a topping or to visually concealed surfaces)
Plank weight: Excess concrete material in the plank internal features is within tolerance as long as the measured weight of the individual plank does not exceed 110% of the nominal published unit weight used in the load capacity calucation.
n = Applications requiring close control of differential camber between adjacent membes of the same design should be discussed in detail withthe producer to determine applicable tolerances.



PLAN



ELEVATION

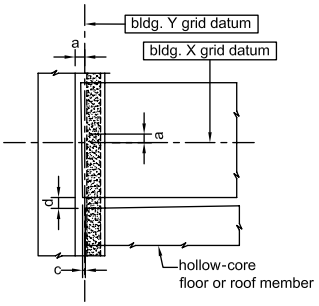


CROSS SECTION

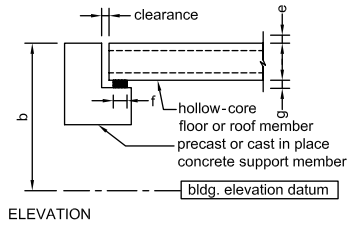
Erection Tolerances: Hollow-core Floor & Roof Members

a = Plan location from building grid datum ..... ±1 in.
a_1 = Plan location from centerline of steel[1] ..... ±1 in.
b = Top elevation from nonminal elevation at member ends
Covered with topping ..... ±3/4 in.
Untopped floor ..... ±1/4 in.
Untopped roof ..... ±3/4 in.
c = Maximum jog in alighment of matching edges
(both topped and untopped construction) ..... ±1 in.
d = Joint width
0 to 40 ft. member length ..... ±1/2 in.
41 to 60 ft. member length ..... ±3/4 in.
61 ft. plus ..... ±1 in.
e = Differential top elevation as erected
Covered with topping ..... 3/4 in.
Untopped floor ..... 1/4 in.
Untopped roof[2] ..... 3/4 in.
f = Bearing length[3] (span direction) ..... ±3/4 in.
g = Differential bottom elevation of exposed hollow-core slabs[4] ..... 1/4 in.

[1]For precast concrete erected on a steel frame building, this tolerance takes takes precedence over tolerance on dimension "a".
[2]It may be necessary to father the edges to ±1/4 in. to properly apply some roof membranes.
[3]This is a setting tolerance and should not be confused with structural performance requirements set by the architect/engineer.
[4]Untopped installation will require a larger tolerance here.

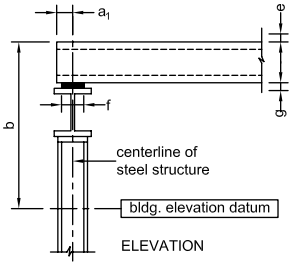


PLAN



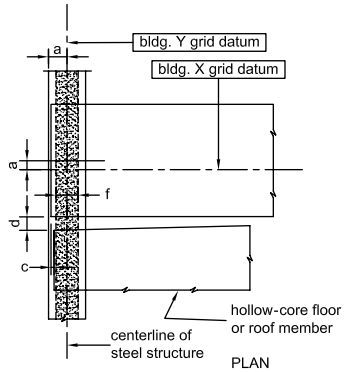
ELEVATION

Precast element to precast or
cast-in-place concrete or masonry



ELEVATION

Precast element to structural steel



PLAN

ELEMATIC® Hollow-core Plank

E6" x 48" SECTION
WITH NO TOPPING

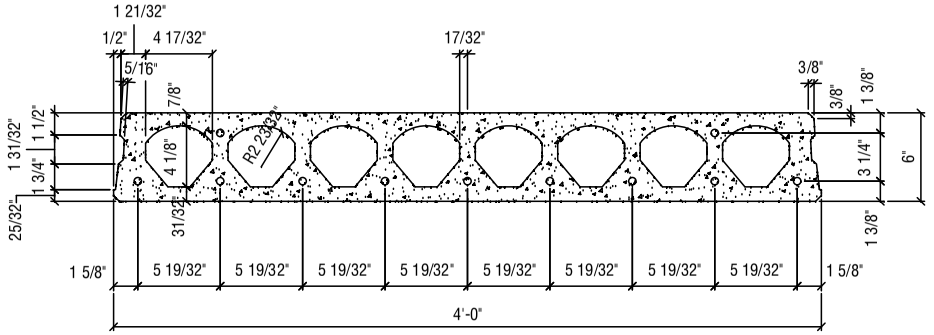
Oldcastle Precast® Building Systems

UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
20_06704	4-7/16"ϕ	0.460	39.96	304	271	245	219	191	167	147	130	116	104	91	79	68												8.58
20_06705	5-7/16"ϕ	0.575	48.76	314	280	253	229	210	186	164	145	129	116	104	94	84	74											8.58
20_06706	6-7/16"ϕ	0.690	57.12	324	289	261	237	217	199	180	159	142	127	114	103	94	85	77										8.58
20_06707	7-7/16"ϕ	0.805	64.64	334	298	269	244	224	206	190	172	154	138	124	112	101	92	84										8.58
* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE																												

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank is 45 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 173 $in.^2$

f'pu = 270, 000 psi I = 719 $in.^4$ bw = 10.0 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

E6" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

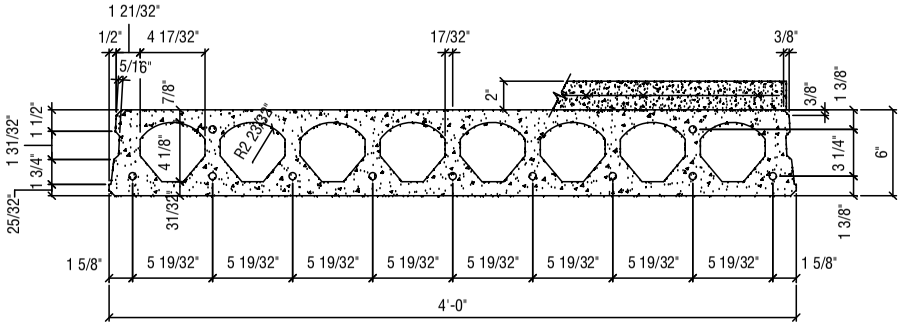
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
20_06704T	4-7/16"ϕ	0.460	57.36	404	360	323	293	267	232	201	176	155	128	105	85	68												12.30
20_06705T	5-7/16"ϕ	0.575	70.00	412	367	330	299	273	250	228	199	175	155	136	114	95	78											12.30
20_06706T	6-7/16"ϕ	0.690	82.16	420	374	336	305	278	255	235	218	195	172	153	136	119	100	84	69									12.30
20_06707T	7-7/16"ϕ	0.805	91.84	428	381	343	311	284	260	240	222	207	189	168	150	134	120	103	87									12.30

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank & 2" topping is 45+25 = 70 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 173 in.^{2}

f'pu = 270,000 psi Ic = 1,580 in.^{4} bw = 10.0 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

E8" x 48" SECTION
WITH NO TOPPING

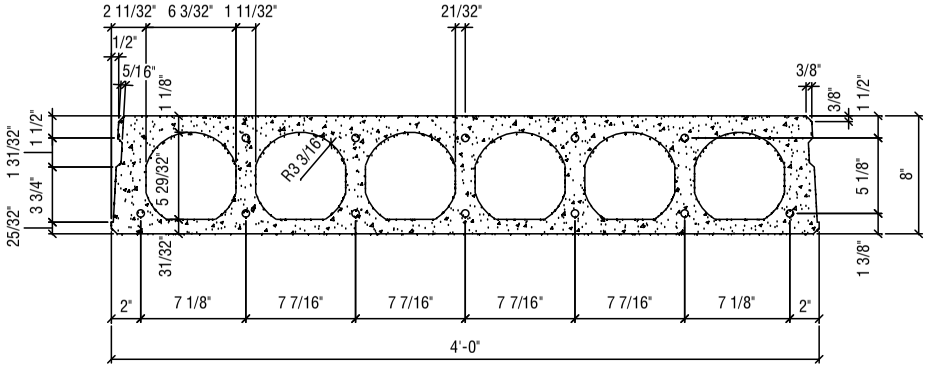
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
20_08704	4-7/16"ϕ	0.460	58.88	196	386	348	316	289	260	230	204	182	163	143	126	112	99	87	77	68								12.30
20_08705	5-7/16"ϕ	0.575	72.52	446	398	359	326	298	275	254	226	202	182	164	148	135	123	112	103	91	81	71						12.30
20_08706	6-7/16"ϕ	0.690	85.44	460	411	370	337	308	283	262	243	221	199	179	163	148	135	123	113	104	96	86	77	69				12.30
20_08707	7-7/16"ϕ	0.805	98.04	473	423	381	347	317	292	270	251	234	215	194	176	160	146	133	122	112	104	96	88	80	72			12.30
20_08806	6-1/2"ϕ	0.918	109.96	473	423	381	347	317	292	270	251	234	219	205	188	171	156	143	131	121	111	103	95	88	81			12.30

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank is 54 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 207 in.^{2}

f'pu = 270, 000 psi I = 1,580 in.^{4} bw = 10.0 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

E8" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

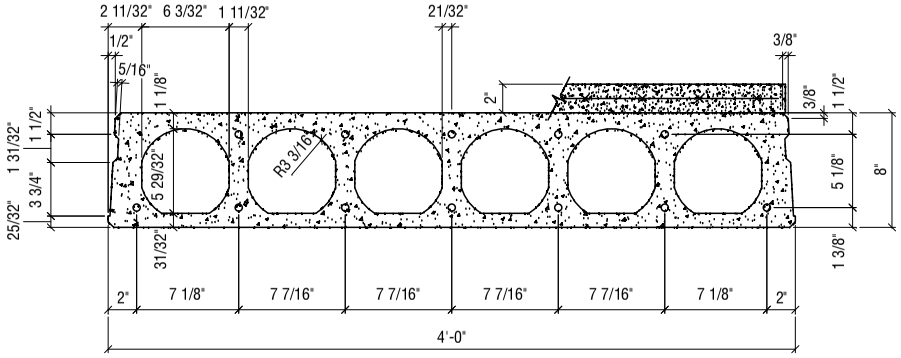
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
20_08704T	4-7/16"ϕ	0.460	76.28	243	213	436	395	361	331	301	265	234	205	179	157	138	119	100	83	68								16.01
20_08705T	5-7/16"ϕ	0.575	93.72	248	495	445	403	368	338	312	289	263	234	209	188	170	152	131	112	95	80	67						16.01
20_08706T	6-7/16"ϕ	0.690	110.36	566	504	453	411	375	345	318	295	274	256	232	208	187	169	153	139	121	104	90	76					16.01
20_08707T	7-7/16"ϕ	0.805	126.48	577	514	462	419	383	352	325	301	280	261	245	227	205	185	168	152	139	125	109	95	82	71			16.01
20_08806T	6-1/2"ϕ	0.918	141.92	577	514	462	419	383	351	324	301	280	261	245	230	216	200	182	165	150	137	125	112	98	86	74		16.01

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank & 2" topping is 54+25 = 79 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 207 in.^{2}

f'pu = 270,000 psi Ic = 3,072 in.^{4} bw = 10.0 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

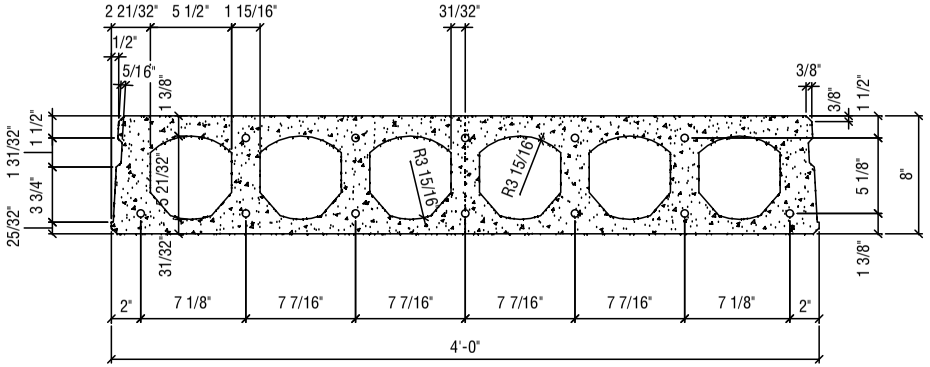
H8" x 48" SECTION
WITH NO TOPPING

UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
30_08704	4-7/16"ϕ	0.460	58.88	222	421	367	324	289	259	234	210	182	159	139	122	107	94	83	73									16.93
30_08705	5-7/16"ϕ	0.575	72.52	609	526	461	408	364	323	287	257	230	206	181	160	142	126	111	98	86	75							16.93
30_08706	6-7/16"ϕ	0.690	85.44	633	566	511	456	398	350	310	277	249	225	204	186	165	147	130	116	103	92	81	72					16.93
30_08707	7-7/16"ϕ	0.805	98.04	650	581	525	478	427	376	333	297	267	241	219	199	182	166	148	132	118	106	95	85	76	68			16.93
30_08806	6-1/2"ϕ	0.918	110.12	649	581	525	478	438	400	354	316	284	256	232	211	193	177	163	148	133	120	108	97	87	78			16.93
* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE																												

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank is 60 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 230 in.^{2}

f'pu = 270, 000 psi I = 1,667 in.^{4} bw = 13.77 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

H8" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

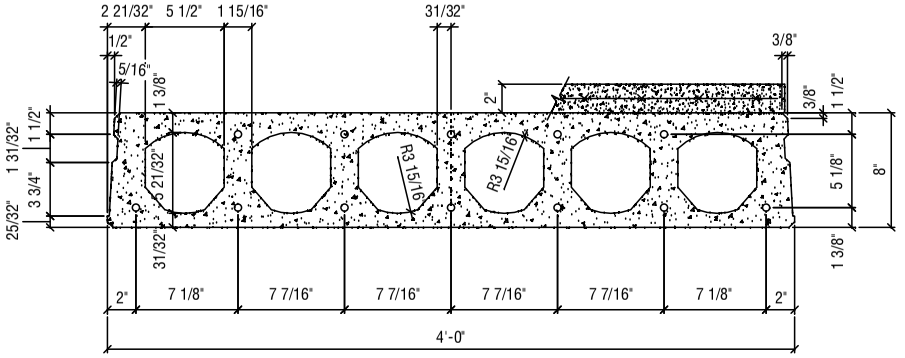
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
30_08704T	4-7/16"ϕ	0.460	76.28	283	239	472	416	370	331	299	266	231	200	175	152	133	112	93	76									22.04
30_08705T	5-7/16"ϕ	0.575	93.76	356	678	593	524	467	420	379	337	298	261	229	199	171	146	124	105	88	72							22.04
30_08706T	6-7/16"ϕ	0.690	110.36	789	704	635	577	528	469	413	367	327	294	265	234	204	177	153	133	114	97	82	68					22.04
30_08707T	7-7/16"ϕ	0.805	126.52	802	716	646	587	538	495	446	396	353	317	285	258	234	205	180	157	137	119	103	89	75				22.04
30_08806T	6-1/2"ϕ	0.918	141.92	802	716	646	587	538	495	458	423	377	339	305	276	251	228	204	180	158	139	122	106	92	80			22.04

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank & 2" topping is 60+25 = 85 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 230 in.^{2}

f'pu = 270,000 psi Ic = 3,143 in.^{4} bw = 13.77 in.

ELEMATIC® Hollow-core Plank

E10" x 48" SECTION
WITH NO TOPPING

Oldcastle Precast® Building Systems

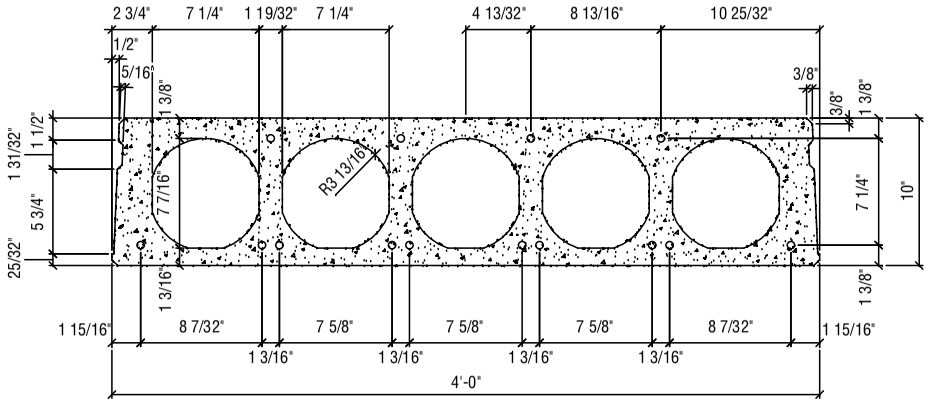
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
20_10706	6-7/16"ϕ	0.690	114.12	371	343	318	297	277	251	228	207	189	173	159	146	135	124	115	105	94	85	76						16.01
20_10708	8-7/16"ϕ	0.920	147.92	392	363	337	314	294	276	259	240	219	201	185	170	157	145	134	125	116	108	100	93	85	77	70		16.01
20_10710	10-7/16"ϕ	1.150	180.08	413	383	355	332	310	291	274	259	245	225	207	191	177	164	152	141	131	122	114	106	99	93	87	82	16.01

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank is 67 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 257 in.^{2}

f'pu = 270,000 psi I = 3,080 in.^{4} bw = 10.0 in.

ELEMATIC® Hollow-core Plank

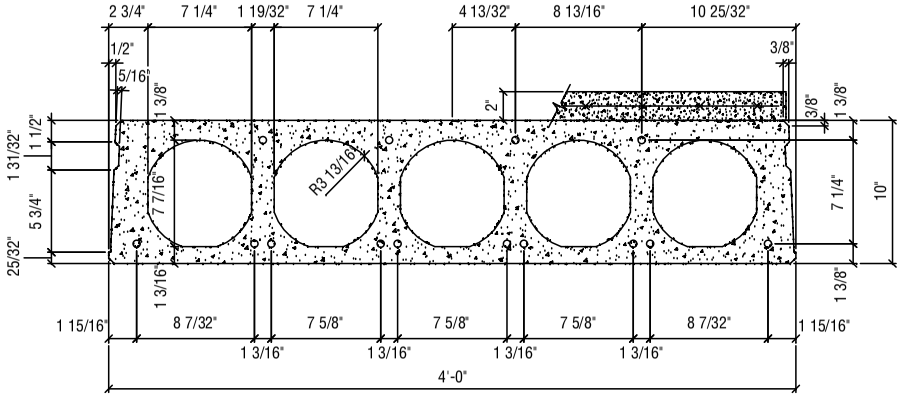
Oldcastle Precast® Building Systems

E10" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																								ϕ Vcw in Kips per Unit
				15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	
20_10706T	6-7/16"ϕ	0.690	138.96	431	398	369	343	320	300	279	252	228	208	189	172	158	141	123	107	93	79	67						19.72
20_10708T	8-7/16"ϕ	0.920	179.64	448	414	384	357	333	312	293	276	260	245	223	204	187	172	158	145	134	120	107	95	83	72			19.72
20_10710T	10-7/16"ϕ	1.150	218.44	465	429	398	371	346	324	305	287	271	256	243	231	214	197	181	167	154	143	132	122	112	101	90	80	19.72

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING



Grouted weight of plank & 2" topping is 67+25 = 92 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 257 in.^{2}

f'pu = 270,000 psi Ic = 5,238 in.^{4} bw = 10.0 in.

NOTES

1. Design Standard: ACI 318-2005
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4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".

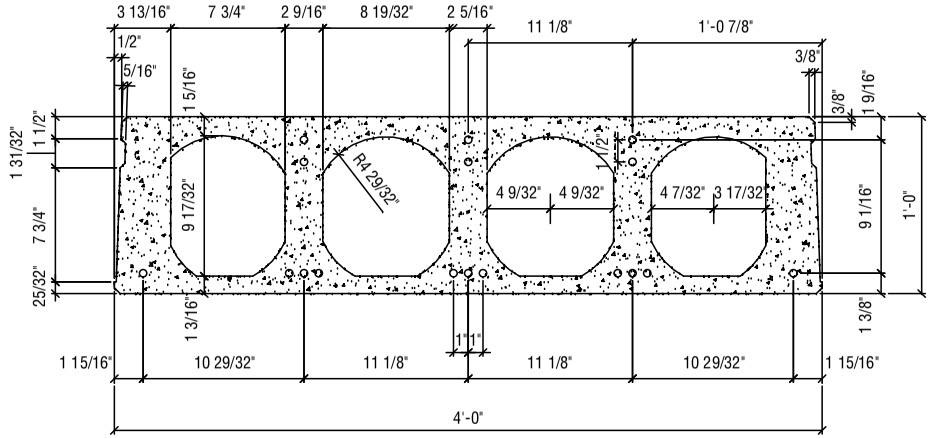
ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

E12" x 48" SECTION
WITH NO TOPPING

UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																										ϕ Vcw in Kips per Unit
				20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	
20_12706	6-7/16"ϕ	0.690	142.08	377	343	307	276	248	224	203	184	167	151	137	125	113	103	94	85	76										28.10
20_12707	7-7/16"ϕ	0.805	164.52	403	367	337	311	286	266	244	222	202	183	166	151	138	125	113	102	92	83	75								28.10
20_12708	8-7/16"ϕ	0.920	186.08	427	390	357	328	303	281	260	243	224	204	186	170	155	142	129	118	108	98	89	81	73						28.10
20_12709	9-7/16"ϕ	1.035	206.92	451	412	377	346	320	295	274	256	238	223	205	187	172	157	144	132	121	111	102	93	85	78	70				28.10
20_12807	7-1/2"ϕ	1.071	213.36	459	419	384	353	326	301	279	259	242	226	211	193	177	163	149	137	126	115	106	97	89	81	74				28.10
20_12808	8-1/2"ϕ	1.224	240.36	489	446	409	376	346	320	297	276	257	240	224	211	197	182	168	155	143	131	121	112	103	95	87	80	73		28.10
* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE																														



Grouted weight of plank is 80 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 307 in.^{2}

f'pu = 270,000 psi I = 5,246 in.^{4} bw = 14.25 in.

NOTES

1. Design Standard: ACI 318-2005
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3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".

ELEMATIC® Hollow-core Plank

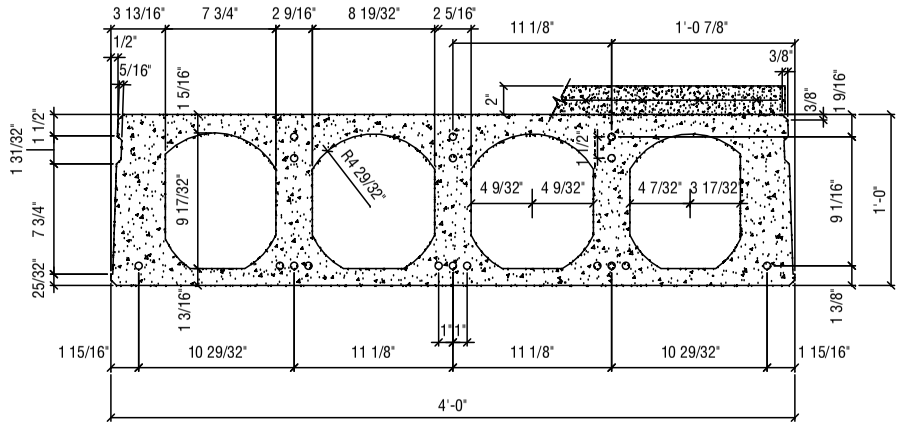
Oldcastle Precast® Building Systems

E12" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																											ϕ Vcw in Kips per Unit
				20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	
20_12706T	6-7/16"ϕ	0.690	167.28	444	395	353	317	284	256	231	208	188	170	154	136	120	104	90	78											33.39
20_12707T	7-7/16"ϕ	0.805	192.96	487	444	404	371	340	307	278	252	229	206	184	164	146	129	114	100	87	75									33.39
20_12708T	8-7/16"ϕ	0.920	217.56	519	472	431	395	362	334	310	286	259	233	210	189	170	153	137	122	108	95	83	72							33.39
20_12709T	9-7/16"ϕ	1.035	241.64	550	500	456	418	384	354	327	302	281	259	234	212	192	173	156	141	127	114	101	89	78						33.39
20_12807T	7-1/2"ϕ	1.071	249.08	560	510	465	426	391	361	333	309	286	266	243	220	190	180	163	147	133	119	107	95	84	73					33.39
20_12808T	8-1/2"ϕ	1.224	280.20	568	533	497	455	418	385	356	329	306	285	265	248	226	206	188	170	155	141	127	115	104	93	83	73			33.39

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING



Grouted weight of plank & 2" topping is 80+25 = 105 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 307 in.^{2}

f'pu = 270,000 psi Ic = 8,393 in.^{4} bw = 14.25 in.

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".

ELEMATIC® Hollow-core Plank

E16" x 48" SECTION
WITH NO TOPPING

Oldcastle Precast® Building Systems

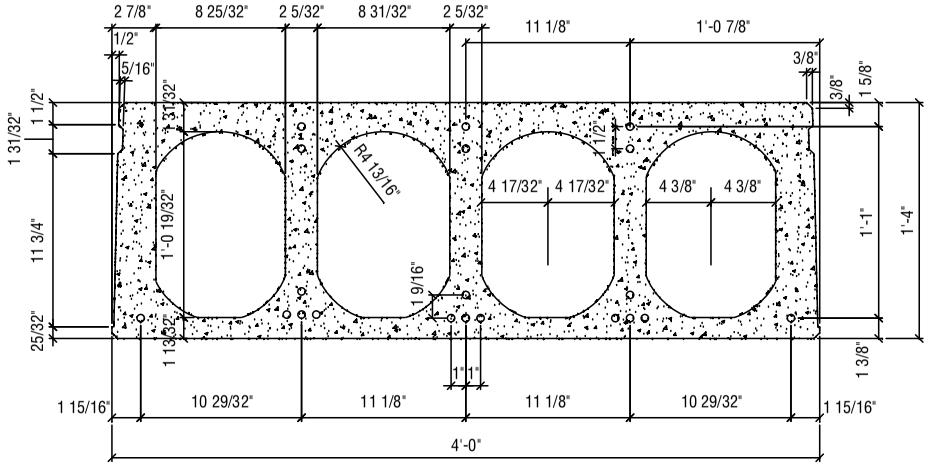
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																											ϕ Vcw in Kips per Unit
				29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
20_16708	8-7/16"ϕ	0.920	261.12	281	263	246	230	216	203	191	179	166	153	141	130	119	109	99	91	82	75										30.67
20_16709	9-7/16"ϕ	1.035	292.16	298	279	260	244	229	215	202	190	180	169	158	146	135	125	115	106	97	89	81	74								30.67
20_16808	8-1/2"ϕ	1.224	341.84	325	304	284	266	250	235	221	208	196	185	175	165	156	148	138	128	119	110	102	95	87	80	73					30.67
20_16809	9-1/2"ϕ	1.377	379.44	345	322	302	283	266	250	235	221	209	197	186	176	167	158	150	142	134	125	116	108	101	94	87	81	75			30.67
20_16810	10-1/2"ϕ	1.530	416.12	363	339	318	298	280	263	248	234	221	209	197	187	177	168	159	151	143	136	129	121	113	106	99	92	86	80	75	30.67
20_16811	11-1/2"ϕ	1.683	452.04	380	355	333	312	293	276	260	245	232	219	207	196	186	176	167	159	151	144	136	130	124	117	110	103	96	90	84	30.67

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS IN PLACE

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".



Grouted weight of plank is 95 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 365 in.^{2}

f'pu = 270,000 psi I = 11,339 in.^{4} bw = 11.3 in.

ELEMATIC® Hollow-core Plank

Oldcastle Precast® Building Systems

E16" x 48" SECTION
WITH 2" TOPPING (3500 PSI)

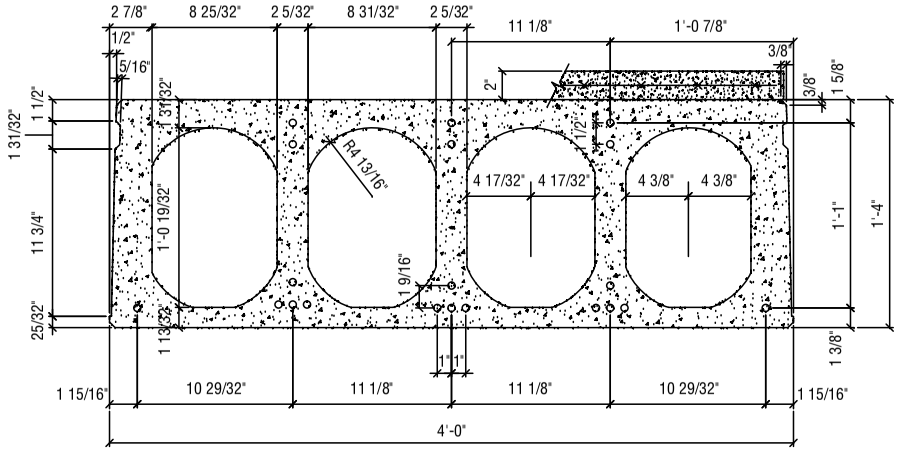
UNIFORMLY DISTRIBUTED SUPERIMPOSED* LOAD IN LBS. PER SQ. FT.

Standard Designation	7-Wire 270 Lolax P/S Strand Combination	P/S Strand Area Sq. In.	Ultimate Bending Moment, ϕ Mn Kip-Ft. per Unit	SIMPLE SPAN IN FEET																											ϕ Vcw in Kips per Unit
				29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	
20_16708T	8-7/16"ϕ	0.920	293.52	318	295	275	256	240	224	209	191	173	156	141	127	114	101	90	80	70											34.87
20_16709T	9-7/16"ϕ	1.035	327.52	338	314	293	273	255	238	224	209	196	179	164	149	135	122	110	98	87	77										34.87
20_16808T	8-1/2"ϕ	1.224	380.72	370	345	322	300	281	263	246	231	217	203	192	180	166	152	140	128	117	106	95	85	76							34.87
20-16809T	9-1/2"ϕ	1.377	422.84	394	367	343	320	300	281	263	247	232	218	205	193	182	172	160	147	136	125	114	105	96	86	77					34.87
20_16810T	10-1/2"ϕ	1.530	464.12	408	388	362	339	317	297	279	262	247	232	218	206	194	183	173	163	154	142	131	121	111	102	94	86	78			34.87
20_16811T	11-1/2"ϕ	1.683	504.56	418	400	381	356	334	313	294	276	260	245	231	218	205	194	183	173	164	155	146	136	126	116	107	99	91	83	76	34.87

* INCLUDES THE LIVE LOAD PLUS ANY DEAD LOAD THAT IS ADDITIONAL TO THE WEIGHT OF THE BARE GROUTED PLANKS & TOPPING

NOTES

1. Design Standard: ACI 318-2005
2. For complete and detailed calculations consult Oldcastle Precast.
3. For longer spans, heavier loads, or special conditions, consult Oldcastle Precast.
4. The table indicates maximum safe loads. Camber and deflection must always be investigated by the architect, and/or engineer for the contemplated loading and span so that these factors are compatible with the contiguous materials in the proposed structure.
5. Values to the left and below the heavy stepped line are controlled by shear.
6. Shaded region indicates expected camber greater than 1".

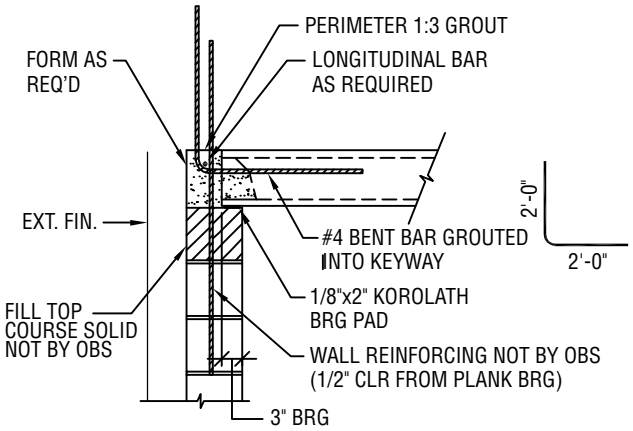


Grouted weight of plank & 2" topping is 95+25 = 120 lbs. per sq. ft.

f'c = 5,000 psi f'ci = 3,000 psi Area = 365 in.^{2}

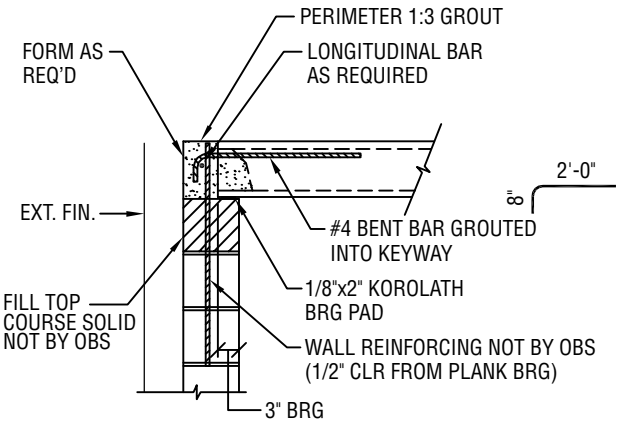
f'pu = 270,000 psi Ic = 16,348 in.^{4} bw = 11.3 in.

Elematic® Hollow-core Plank Details



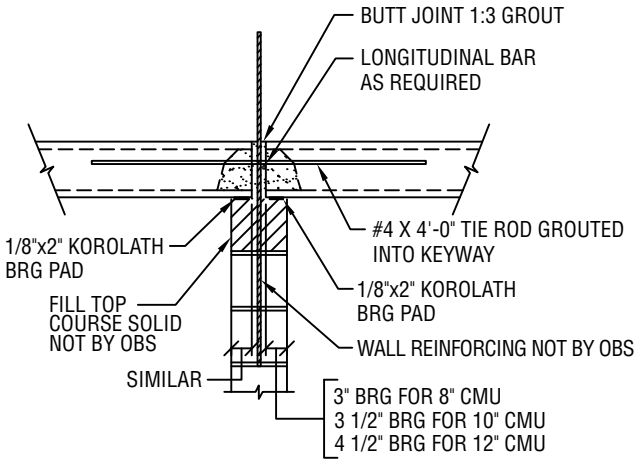
REFER TO AN-1.0 REGARDING BRICK RELIEVING ANGLE DETAILS

E1.0 Exterior Bearing (Typ. Flr.)

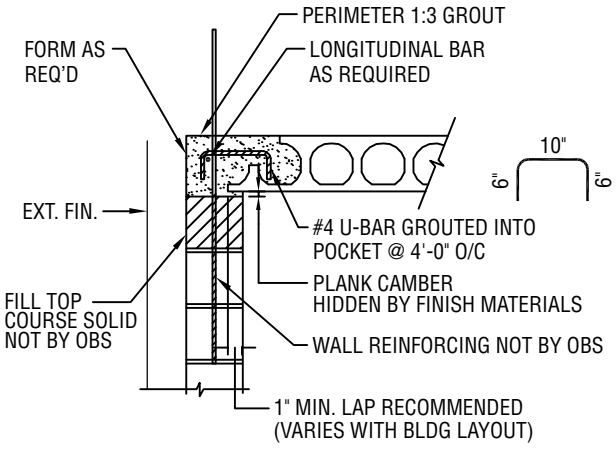


REFER TO AN-1.0 REGARDING BRICK RELIEVING ANGLE DETAILS

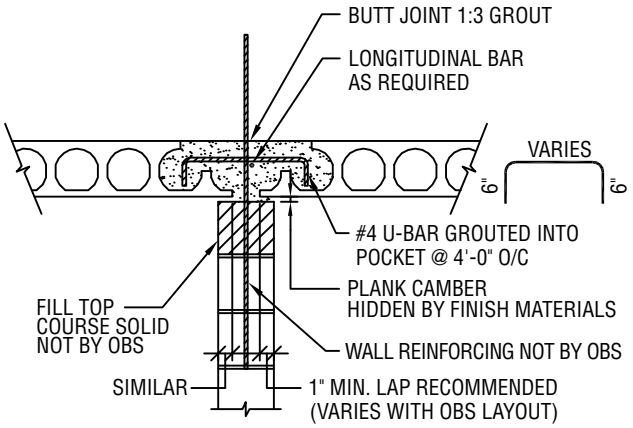
E2.0 Exterior Bearing (Roof)



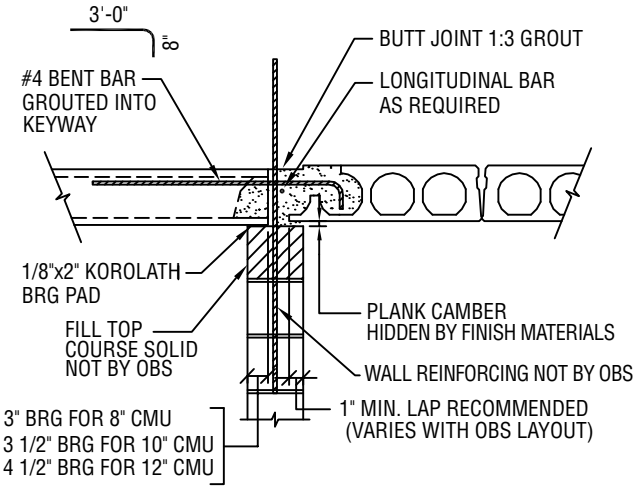
E3.0 Interior Bearing



E4.0 Exterior Side Lap

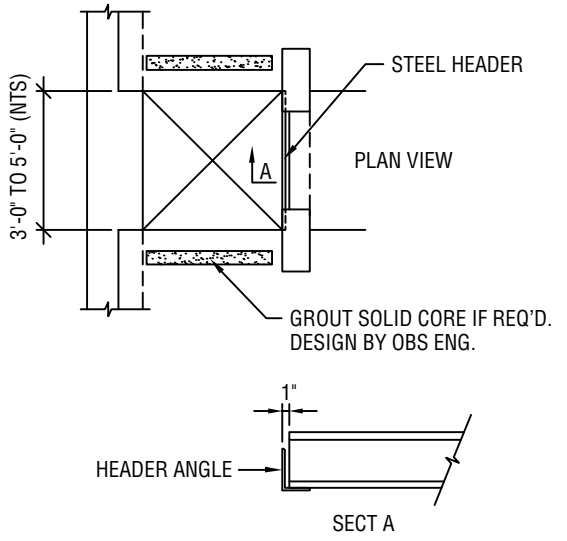


E5.0 Interior Shear Wall

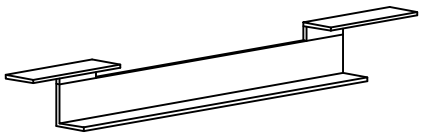


E6.0 Interior Change of Direction

Elematic® Hollow-core Plank Details



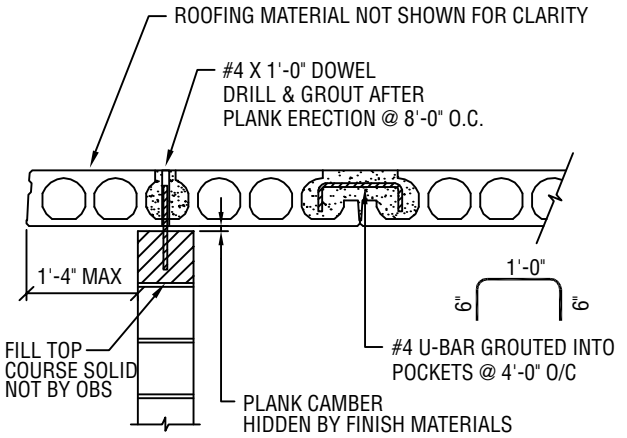
E7.0 Header Support at Large Opening



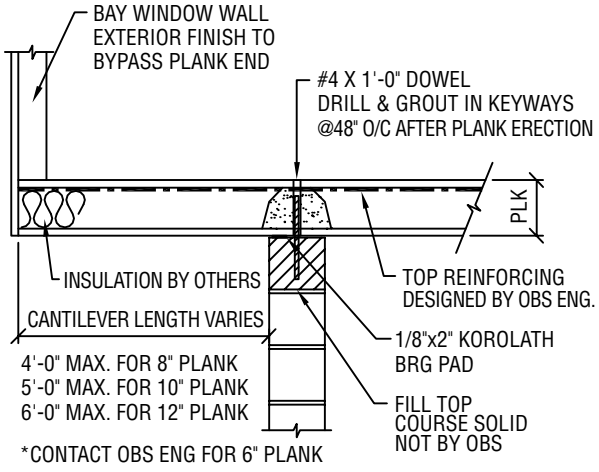
THIS END SUPPORTED
ON CMU BRG WALL
(RECESS FOR ANGLE THK)

PLANK THK	HEADER ANGLE	EAR PLATE
ELEMATIC 6"	L 4"x4"x3/8"	PLT 4"x1/2" X 1'-1"
ELEMATIC 8"	L 6"x4"x3/8"	PLT 4"x1/2" X 1'-1"
ELEMATIC 10"	L 7"x4"x1/2"	PLT 4"x5/8" X 1'-1"
ELEMATIC 12"	L 8"x4"x1/2"	PLT 4"x3/4" X 1'-1"

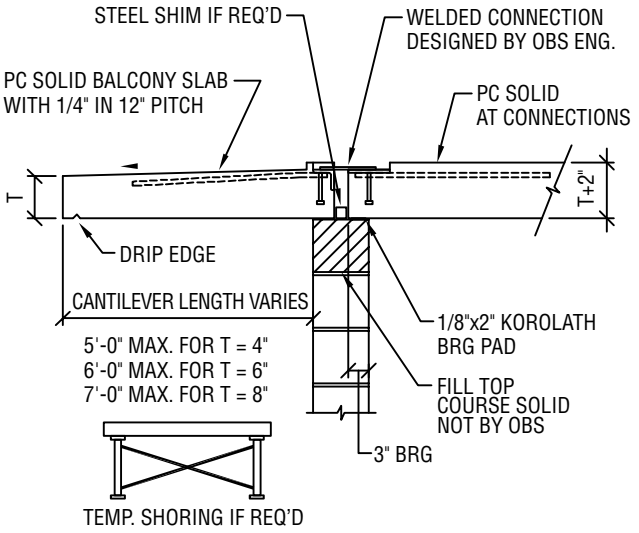
E8.0 Plank Header Types



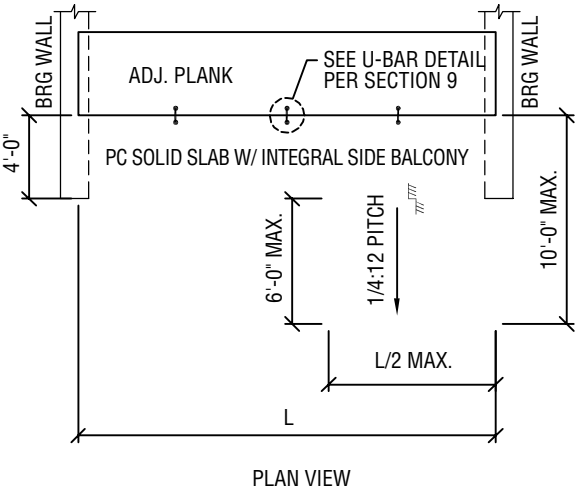
E9.0 Small Side Plank Roof Overhang



E10.0 Cantilever Plank for Bay Windows

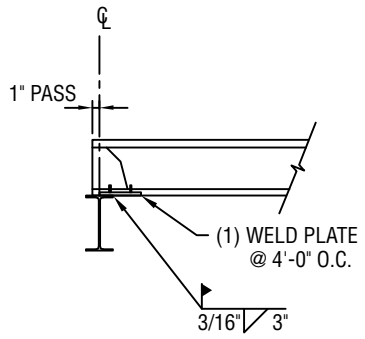


E11.0 Cantilever Solid Slab Balconies



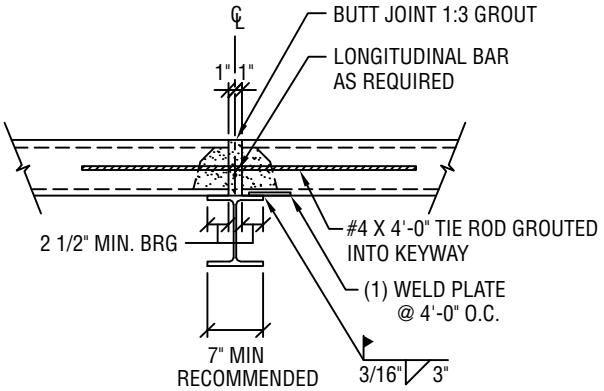
E12.0 Side Cantilever Balconies

Elematic® Hollow-core Plank Details



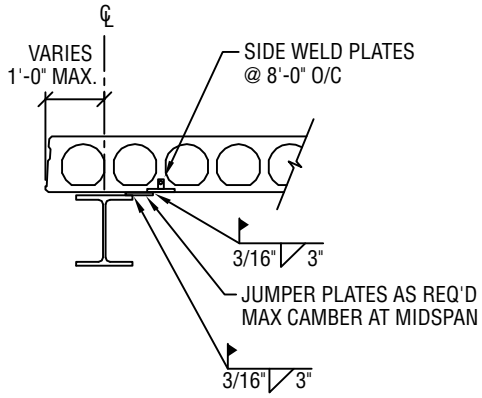
NOTE: DO NOT WELD BOTH ENDS OF THE SAME PLANK IF RESTRAINT IS EXCESSIVE. WELDING ALTERNATING PLANKS WILL STILL PROVIDE LATERAL BEAM BRACING.

E13.0 End Bearing on Steel

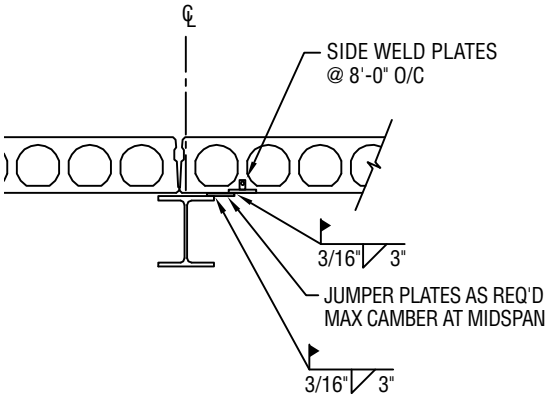


NOTE: DO NOT WELD BOTH ENDS OF THE SAME PLANK IF RESTRAINT IS EXCESSIVE. WELDING ALTERNATING PLANKS WILL STILL PROVIDE LATERAL BEAM BRACING.

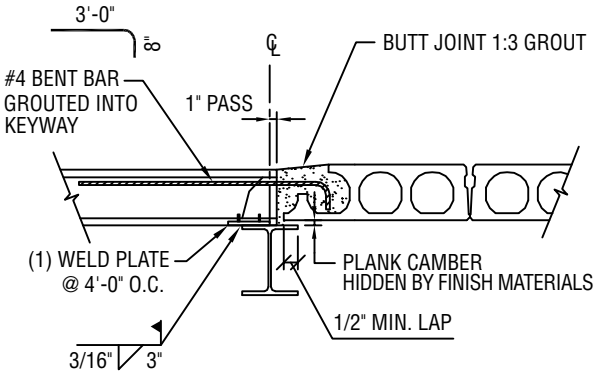
E14.0 Interior Bearing on Steel



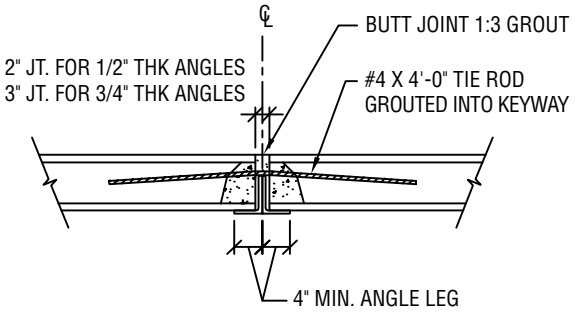
E15.0 Exterior Side Lap on Steel



E16.0 Interior Side Lap on Steel

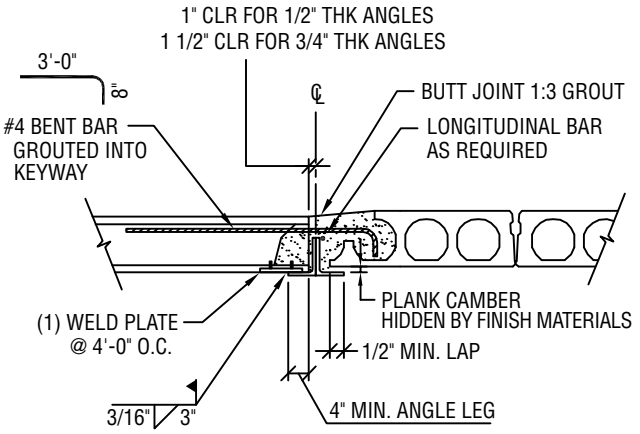


E17.0 Interior Change of Direction

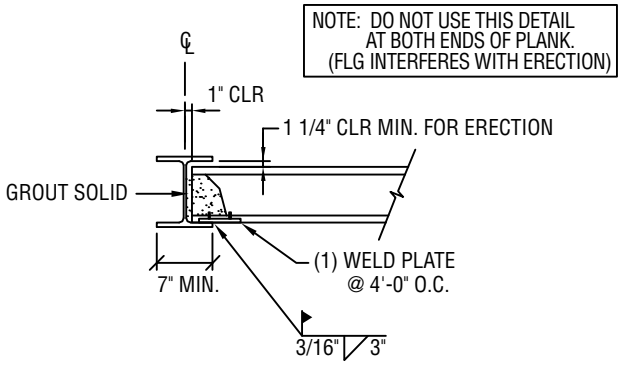


E18.0 Angle Support at Corridors

Elematic® Hollow-core Plank Details

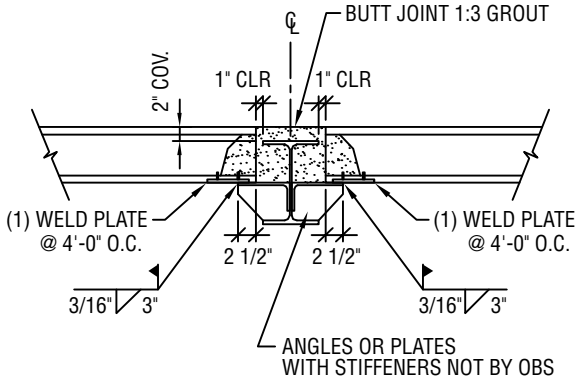


E19.0 Change of Direction on Angles



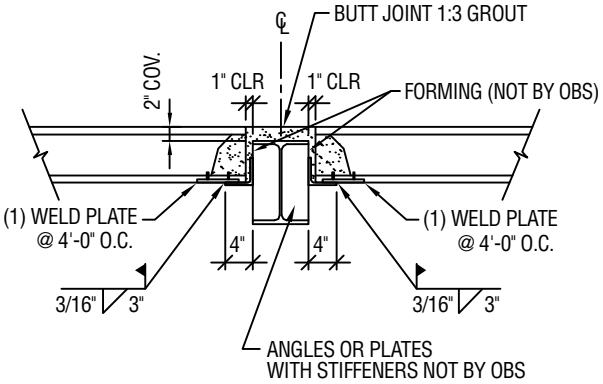
NOTE: DO NOT WELD BOTH ENDS OF THE SAME PLANK IF RESTRAINT IS EXCESSIVE. WELDING ALTERNATING PLANKS WILL STILL PROVIDE LATERAL BEAM BRACING.

E20.0 End Bearing on Upset Steel



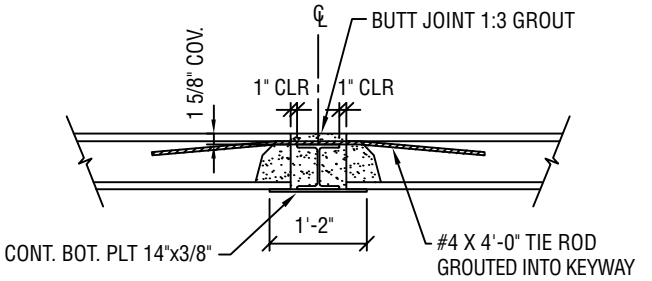
NOTE: DO NOT WELD BOTH ENDS OF THE SAME PLANK IF RESTRAINT IS EXCESSIVE. WELDING ALTERNATING PLANKS WILL STILL PROVIDE LATERAL BEAM BRACING.

E21.0 Interior Bearing on Upset Steel (1)

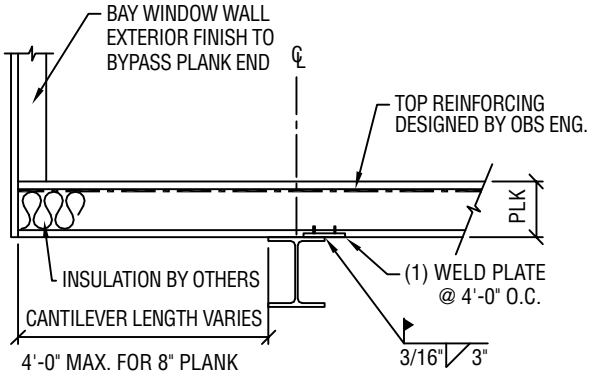


NOTE: DO NOT WELD BOTH ENDS OF THE SAME PLANK IF RESTRAINT IS EXCESSIVE. WELDING ALTERNATING PLANKS WILL STILL PROVIDE LATERAL BEAM BRACING.

E22.0 Interior Bearing on Upset Steel (2)



E23.0 Interior Bearing on Upset Steel (3)

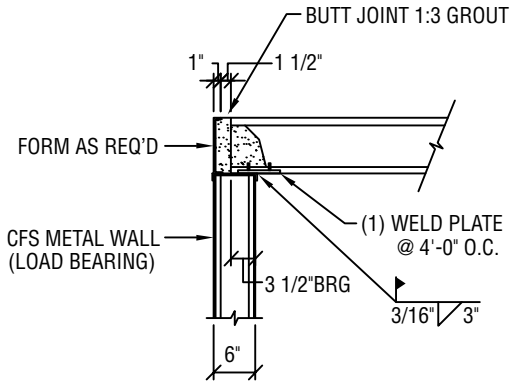


4'-0" MAX. FOR 8" PLANK
5'-0" MAX. FOR 10" PLANK
6'-0" MAX. FOR 12" PLANK

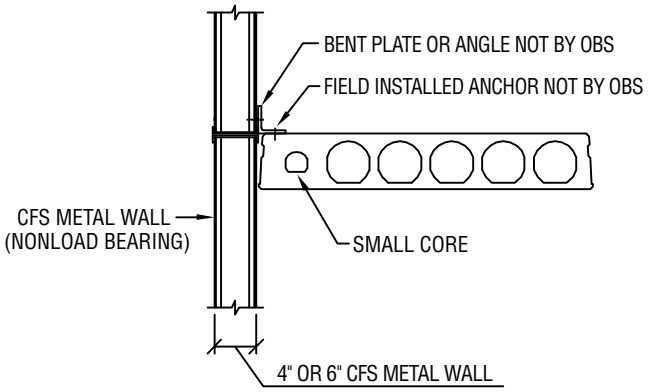
*CONTACT OBS ENG FOR 6" PLANK

E24.0 Cantilever Plank for Bay Windows

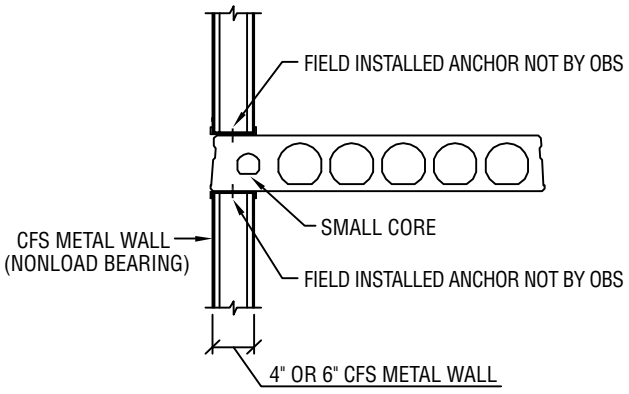
Elematic® Hollow-core Plank Details



E25.0 Exterior Bearing on Metal Stud

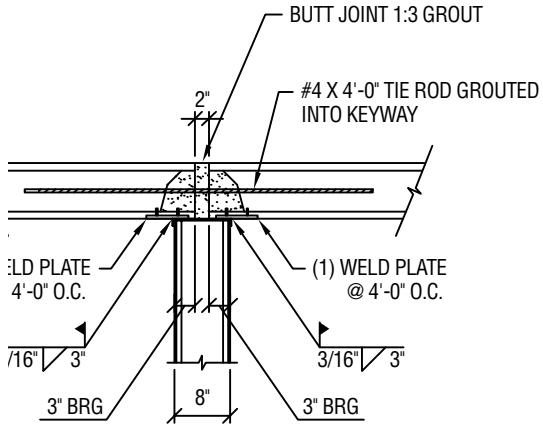


E26.0 Exterior Bypass Side on Metal Stud

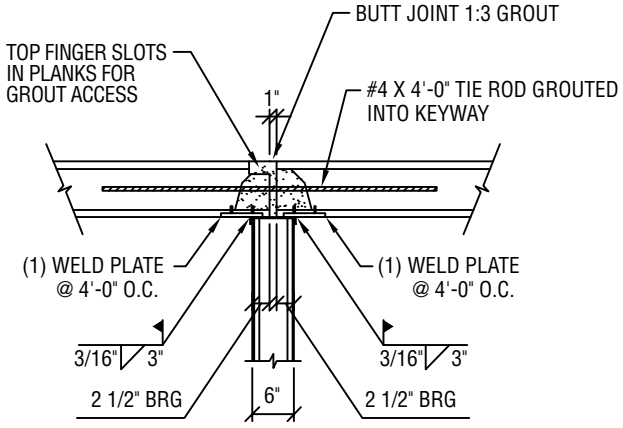


SHIMMING OF METAL STUDS REQ'D
TO ADJUST FOR PLANK CAMBER

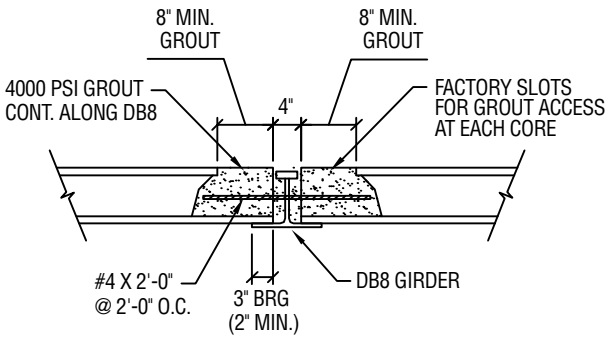
E27.0 Exterior Side Lap on Metal Stud



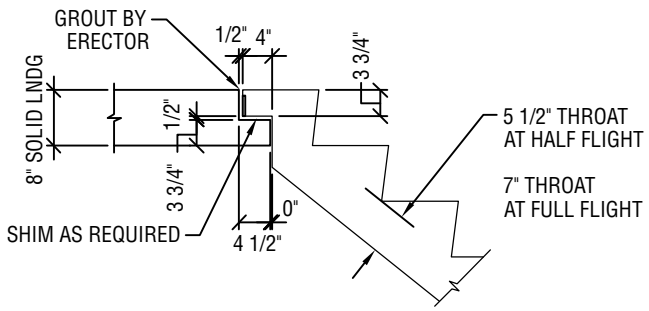
E28.0 Interior Bearing on 8" Metal Wall



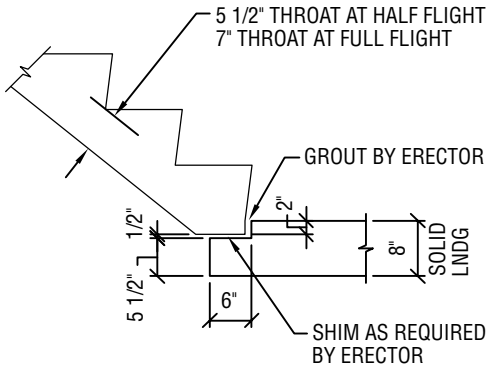
E29.0 Interior Bearing on 6" Metal Wall



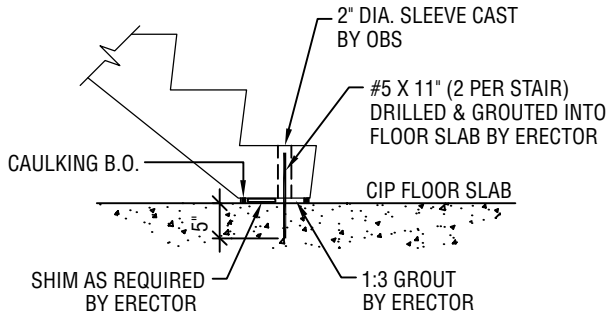
E30.0 Typ. Girder-Slab System



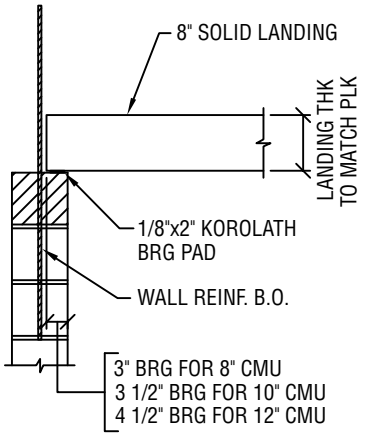
E31.0 Precast Stair Landing & Stair Down



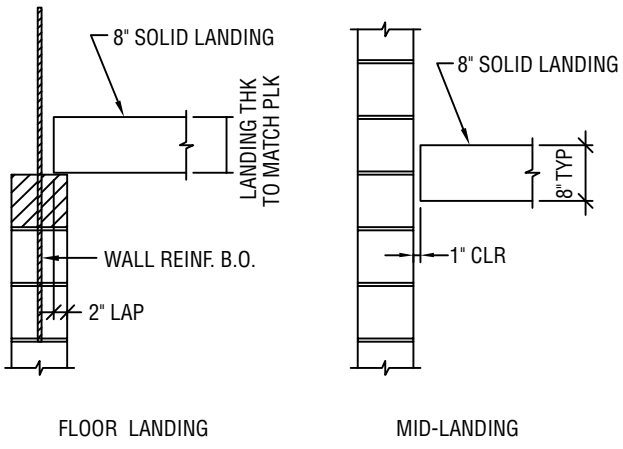
E32.0 Precast Stair Landing & Stair Up



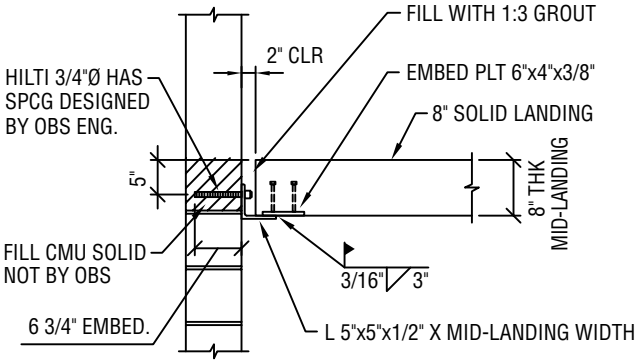
E33.0 Precast Stair at Ground Slab



E34.0 Floor Landing End Bearing

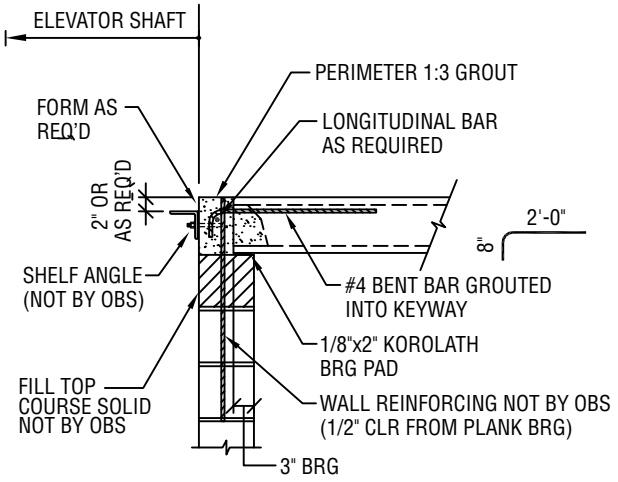


E35.0 Floor & Mid-Landing Back Side Lap

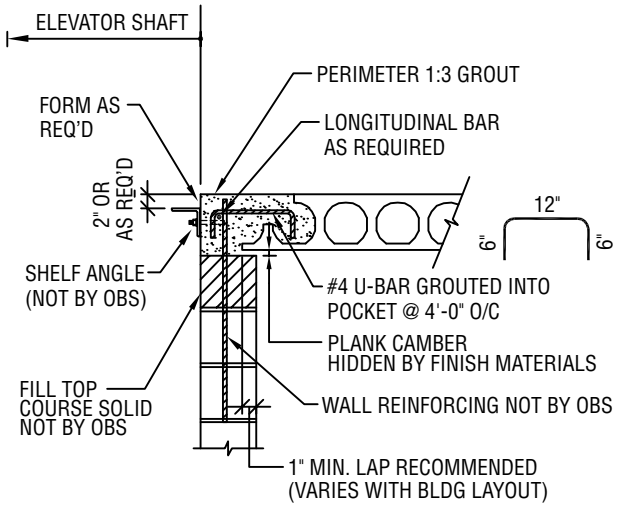


E36.0 Mid-Landing Support Angle

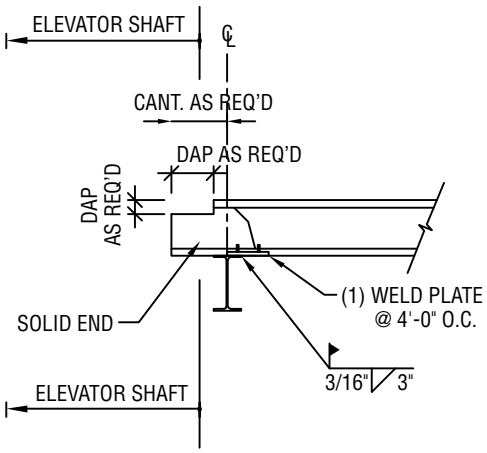
Elematic® Hollow-core Plank Details



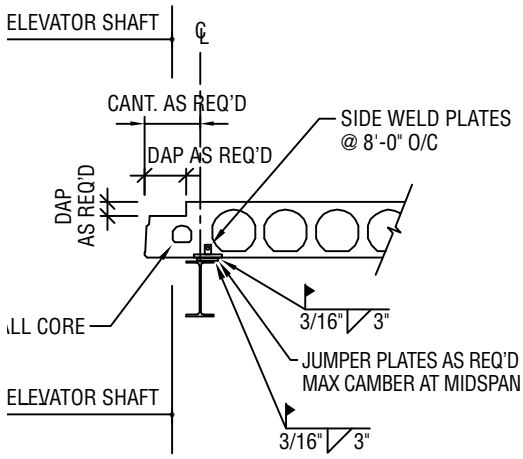
E37.0 Elevator Door Support Detail (1)



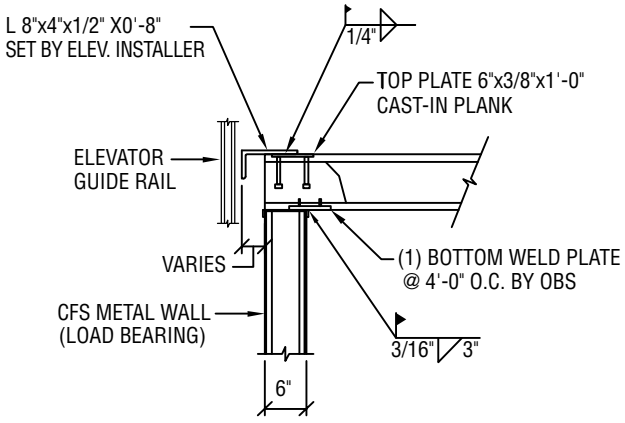
E38.0 Elevator Door Support Detail (2)



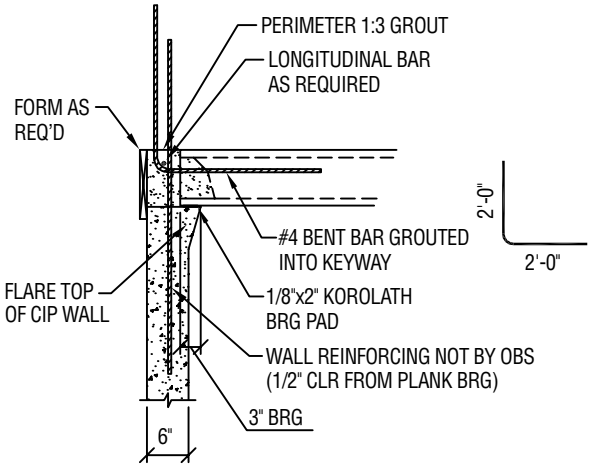
E39.0 Elevator Door Support Detail (3)



E40.0 Elevator Door Support Detail (4)

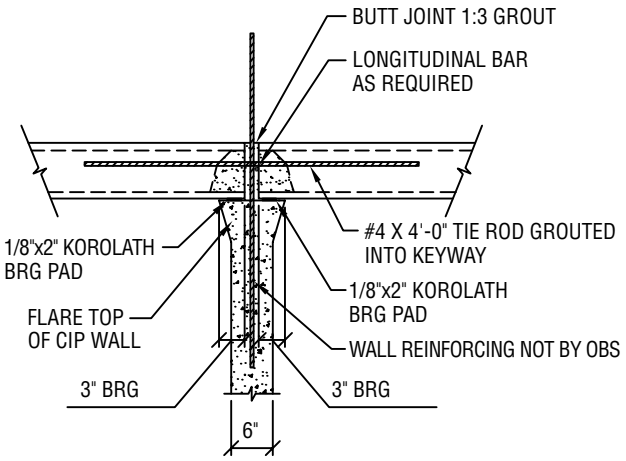


E41.0 Elevator Stud & Plank at Elevator Wall

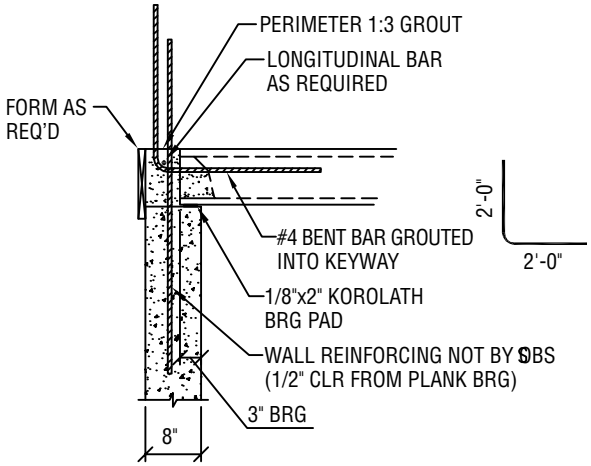


E42.0 Exterior Bearing on 6" ICF Wall

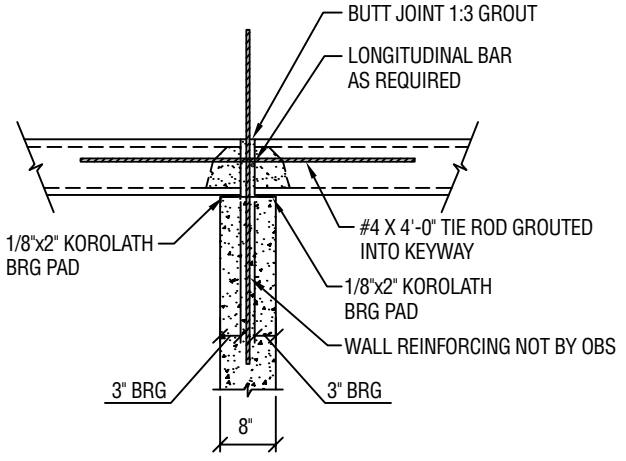
Elematic® Hollowcore Plank Details



E43.0 Interior Bearing on 6" ICF Wall



E44.0 Exterior Bearing on 8" ICF Wall



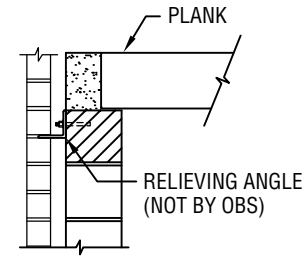
E45.0 Interior Bearing on 8" ICF Wall

OLDCASTLE BUILDING SYSTEMS (OBS) DOES NOT SUPPLY OR INSTALL BRICK RELIEVING ANGLES.

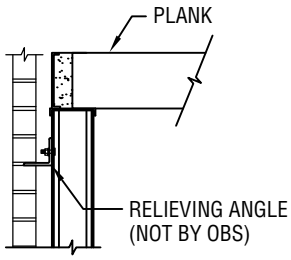
IF GROUT AND INSTALLION OF PLANK IS TO BE PERFORMED BY OBS THEN THE CONTRACTOR IS TO REFRAIN FROM INSTALLING BRICK RELIEVING ANGLES UNTILL THE WORK HAS BEEN COMPLETED. ESPECIALLY IN SITUATIONS WHERE THE ANGLE WOULD HINDER OBS FROM PERFORMING THE AGREED UPON SCOPE OF WORK.

ALL BRICK RELIEVING ANGLES SHOULD BE ANCHORED INTO THE WALL SYSTEM (SEE SECTIONS BELOW), WHICH HAS BEEN DESIGNED TO ACCOUNT FOR SUCH LOADING. DO NOT INSTALL RELIEVING ANGLES INTO GROUT OR ATTACH DIRECTLY TO THE HOLLOW-CORE (PLANK).

IF YOU NEED ADDITIONAL INFORMATION OR ASSISTANCE PLEASE CONTACT THE OLDCASTLE BUILDING SYSTEMS ENGINEERING DEPARTMENT.



TYPICAL FOR CONCRETE WALL



TYPICAL FOR METAL STUD

AN-1.0 Brick Relieving Angle

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