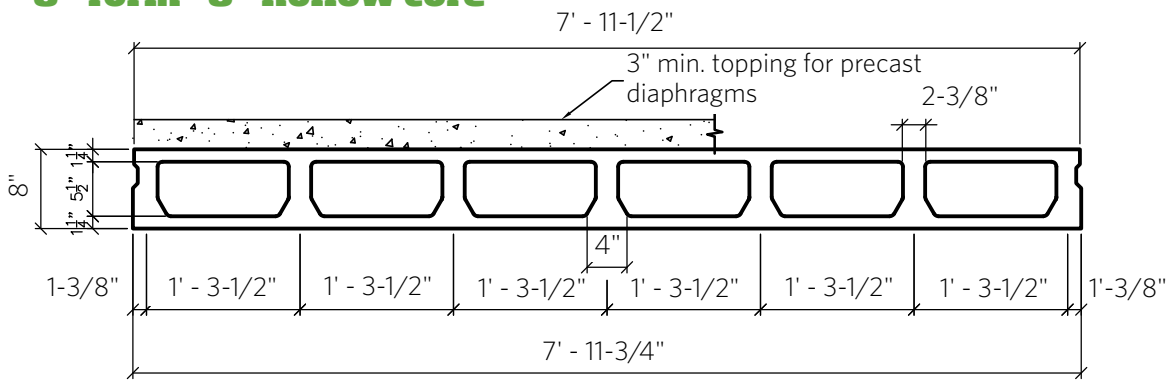
CONTECH®
ENGINEERED SOLUTIONS

PRESTRESSED RESIDENTIAL SOLUTIONS

EXPAND YOUR LIVING SPACE
WITH PRECAST SUSPENDED FLOORS.

Usable Space Right Under Your Garage

8" form - 8" hollow core



section properties

without topping

A (in^2)	I (in^4)	Y_b (in)	Y_t (in)	S_b (in^3)	S_t (in^3)	W (plf)	W (psf)
338	3063	3.92	4.08	781	751	520*	65*

Precast f'_c = 5000 psi f'_{ci} = 3500 psi

with 4-1/2" topping

A (in^2)	I (in^4)	Y_b (in)	Y_t (in)	S_b (in^3)	S_t (in^3)	W (plf)	W (psf)
671	10314	7.08	5.42	1457	1903	970	121

Topping f'_c = 3000 psi

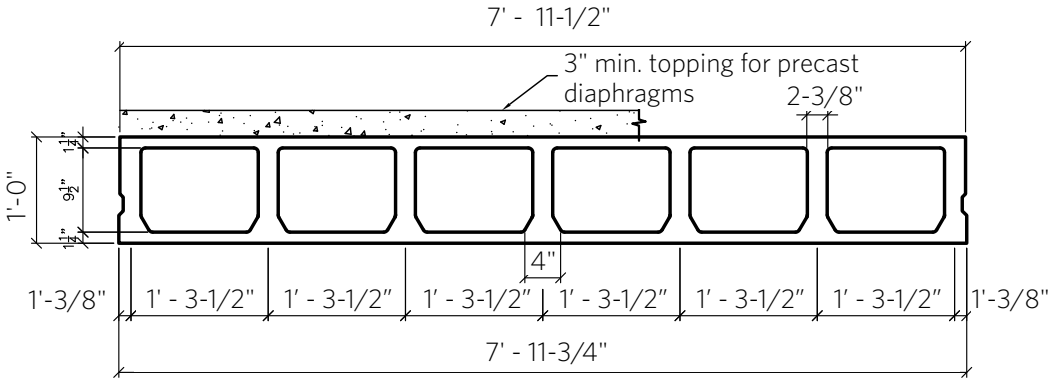
* Based on form fluctuations and residual gravel remaining in cells

maximum safe superimposed live load (psf)

with 4-1/2" topping

Span (ft) / Depth (in)	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
12 ½	620	460	360	290	240	200	170	145	125	105	90	80	65	55	40

12" form - 8" hollow core



section properties

without topping

A (in^2)	I (in^4)	Y_b (in)	Y_t (in)	S_b (in^3)	S_t (in^3)	W (plf)	W (psf)
403	8320.9	5.87	6.13	1417	1358	616*	77*

Precast f'_c = 5000 psi f'_{ci} = 3500 psi

with 4-1/2" topping

A (in^2)	I (in^4)	Y_b (in)	Y_t (in)	S_b (in^3)	S_t (in^3)	W (plf)	W (psf)
739	21742	9.66	6.84	2251	3179	1066	133

Topping f'_c = 3000 psi

* Based on form fluctuations and residual gravel remaining in cells

maximum safe superimposed live load (psf)

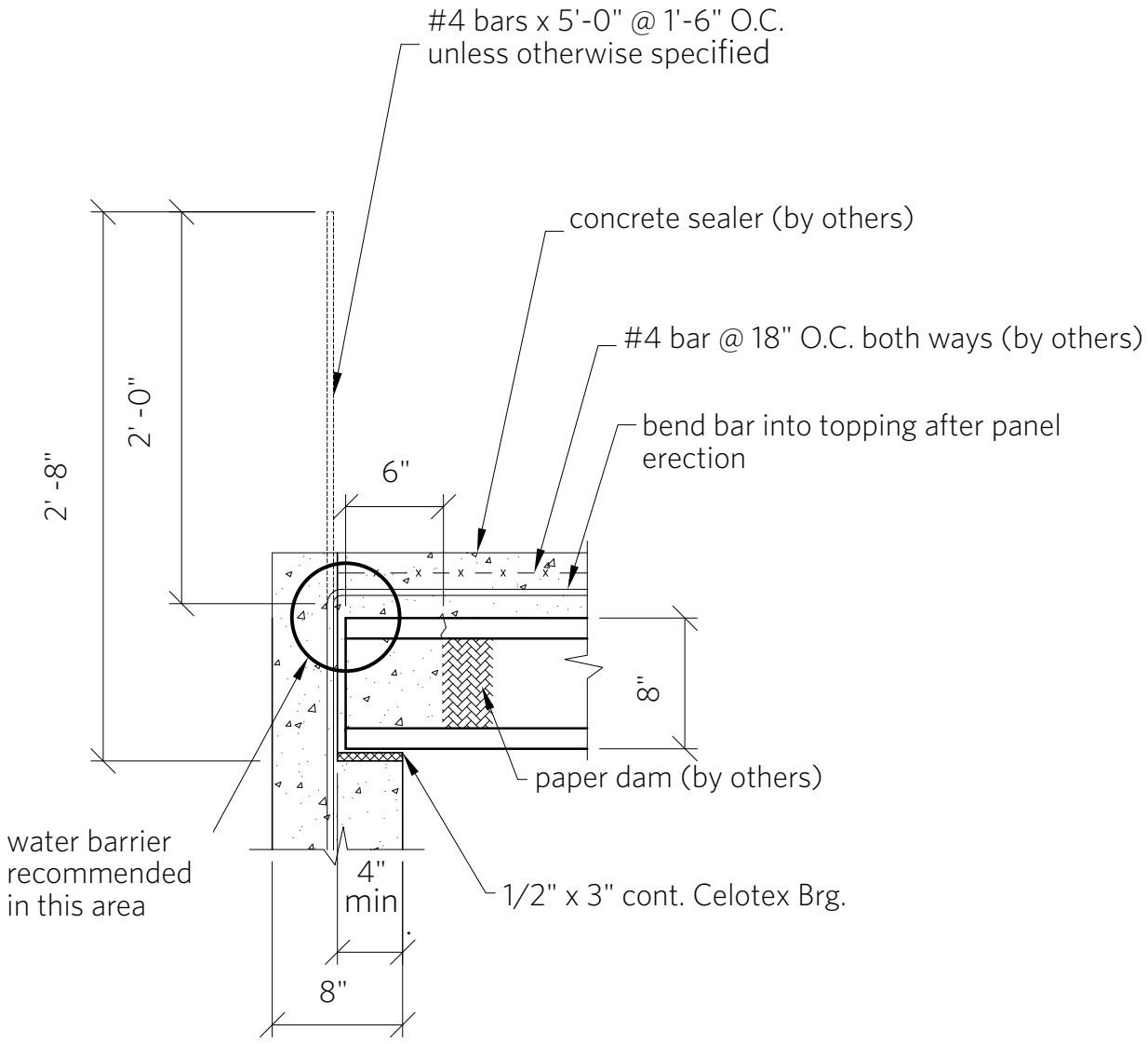
with 4-1/2" topping

Span (ft) / Depth (in)	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46
16 ½	325	280	240	210	185	165	145	130	115	100	80	55	65	45	---

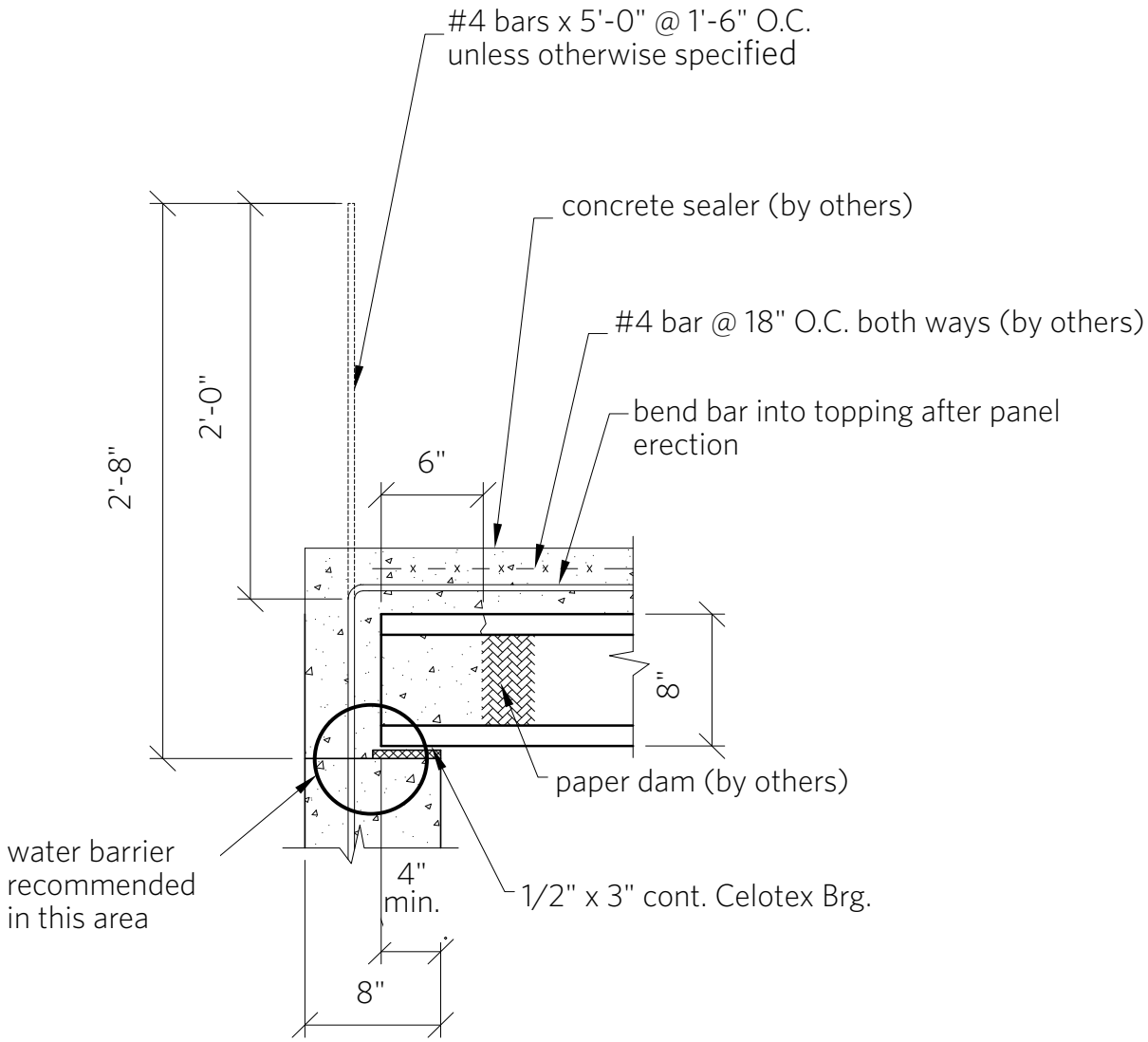
Indicates that temporary shoring is required during placement of topping.

Calculations based on moment and shear capacity, deflection (L/240), stresses and using (12) 1/2" Ø 270 ksi strand.

Shelf Bearing Detail

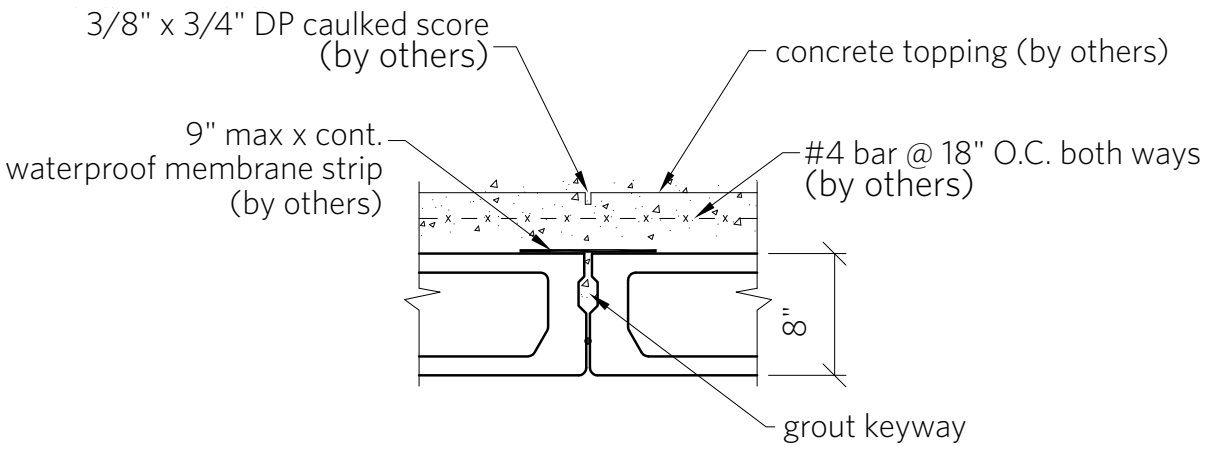


Top of Foundation | Bearing Detail

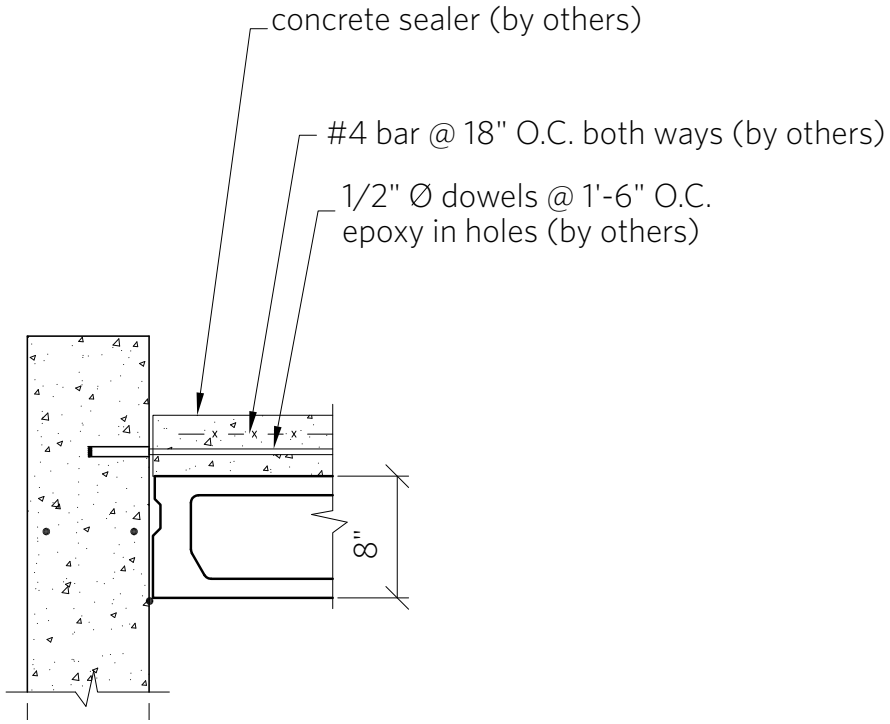


Joint Detail & Inside Wall Non-Bearing Detail

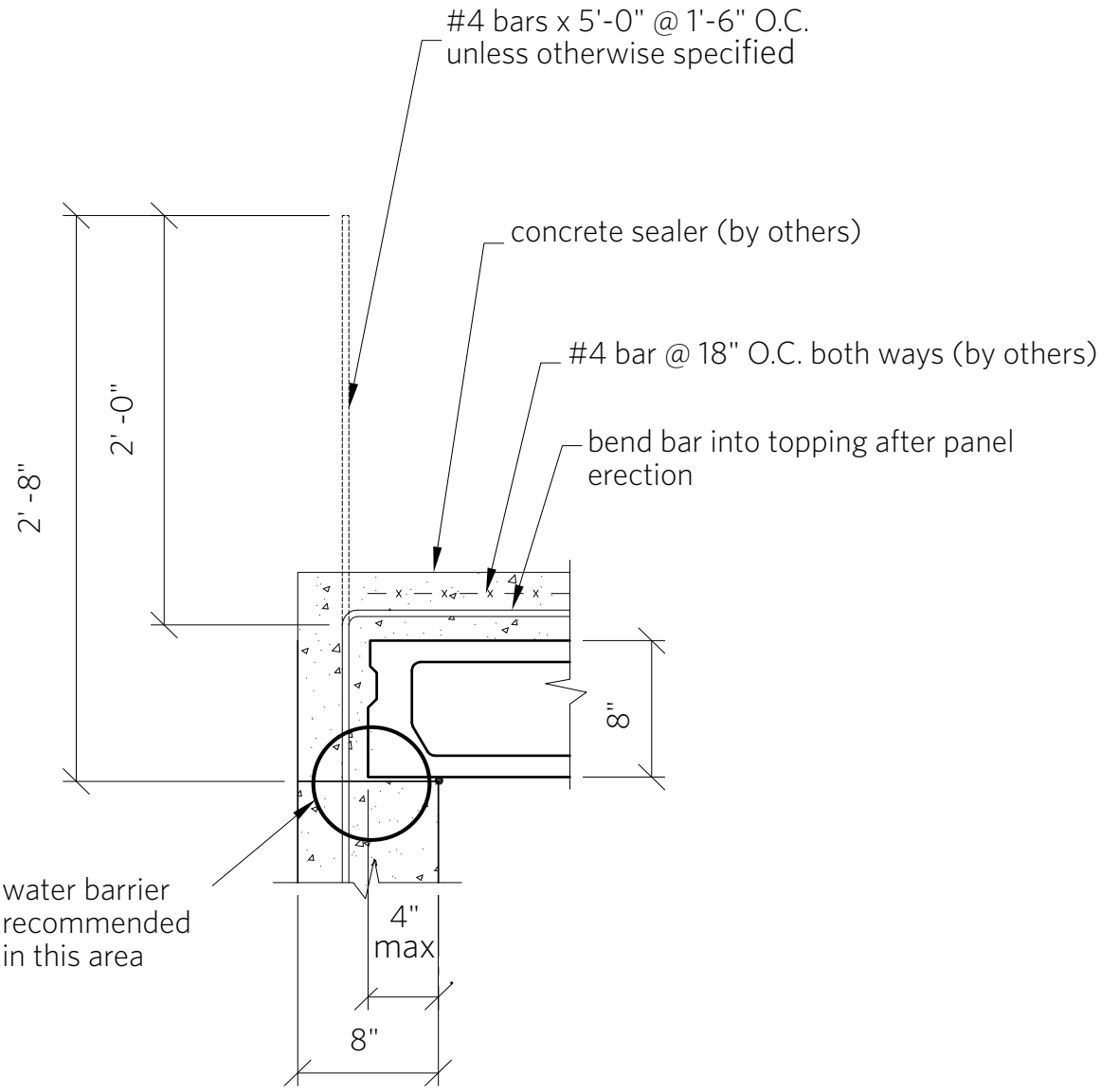
joint detail



inside of wall non-bearing detail

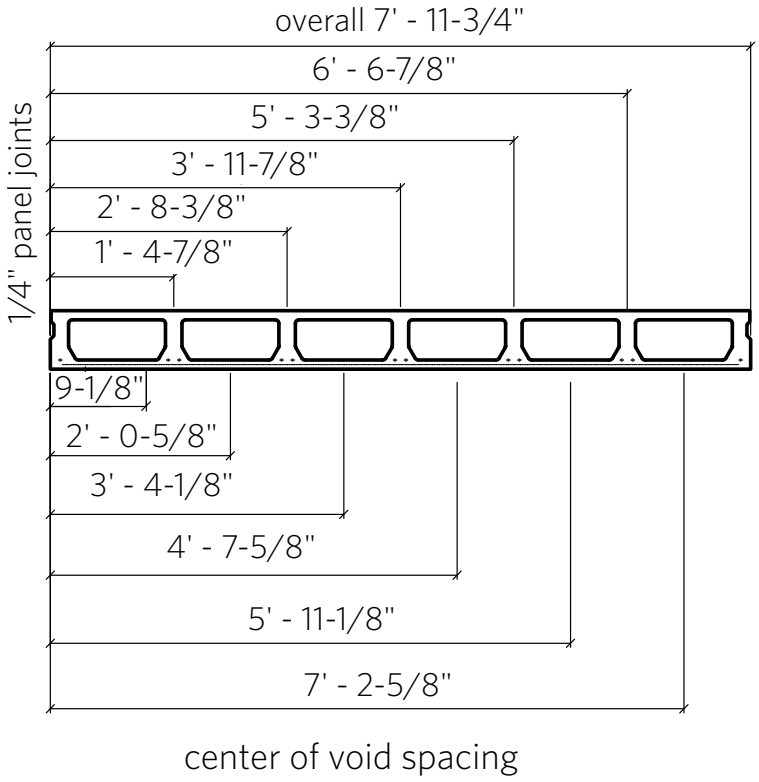


Foundation Non-Bearing Detail



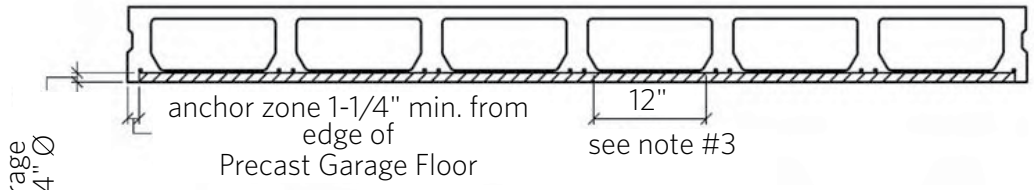
Spacing and Attachment Guidelines

center of web and stem spacing



center of void spacing

drop in hanger installation guidelines 8" & 12"



anchor into Precast Garage Floor 1" max zone for 1/4" Ø drop in anchor

Installation procedure

1. Follow manufacturer's installation procedures. See following page for the Confast drop-in anchor procedure.
2. Anchors may be placed in shaded area all along bottom side except within 1-1/4" edge.
3. Other types of anchors may be used as long as they are placed between the webs to avoid pre-stressed cables and must be approved by the engineer of record.

Attachment Guidelines

Drop-In (DIA) Design Information — Concrete

Allowable Tension and Shear Loads for ⅜" and ½" Short Drop-In Anchor in Normal-Weight Concrete

Model No.	Rod Size (in.)	Drill Bit Dia. (in.)	Emb. Depth (in.)	Tension Critical Edge Distance (in.)	Shear Critical Edge Distance (in.)	Critical Spacing (in.)	Normal-Weight Concrete, $f'_c \geq 2500$ psi				Normal-Weight Concrete, $f'_c \geq 4{,}000$ psi			
							Tension Load		Shear Load		Tension Load		Shear Load	
							Ultimate (lb.)	Allowable (lb.)	Ultimate (lb.)	Allowable (lb.)	Ultimate (lb.)	Allowable (lb.)	Ultimate (lb.)	Allowable (lb.)
DIA37S	⅜	½	¾	4½	5¼	3	1,500	375	2,274	570	2,170	540	3,482	870
DIA50S	½	⅝	1	6	7	4	2,039	510	3,224	805	3,420	855	5,173	1,295

1. The allowable loads listed are based on a safety factor of 4.0.
2. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
3. Refer to allowable load-adjustment factors for edge distances and spacing on page 234.
4. Allowable loads may be linearly interpolated between concrete strengths.
5. The minimum concrete thickness is 1½ times the embedment depth.

Allowable Tension and Shear Loads for ⅜" and ½" Short Drop-In Anchor in Hollow-Core Concrete Panel

Model No.	Rod Size (in.)	Drill Bit Dia. (in.)	Emb. Depth (in.)	Tension Critical Edge Distance (in.)	Shear Critical Edge Distance (in.)	Critical Spacing (in.)	Hollow Core Concrete Panel, $f'_c \geq 4{,}000$ psi			
							Tension Load		Shear Load	
							Ultimate (lb.)	Allowable (lb.)	Ultimate (lb.)	Allowable (lb.)
DIA37S	⅜	½	¾	4½	5¼	3	1,860	465	3,308	825
DIA50S	½	⅝	1	6	7	4	2,650	660	4,950	1,235

1. The allowable loads listed are based on a safety factor of 4.0.
2. Allowable loads may not be increased for short-term loading due to wind or seismic forces.
3. Refer to allowable load-adjustment factors for edge distances and spacing on page 234.
4. Allowable loads may be linearly interpolated between concrete strengths.

* See page 12 for an explanation of the load table icons.

What's Under Your Garage?

Add more than 600 square feet of usable, livable space under the garage in your new home:

- Media room
- Exercise room
- Family room
- Sports court
- Workshop
- Game room
- Crafts room
- Storage room
- RV garage
- Man cave

Join other smart homeowners who are not willing to waste usable space beneath the garage. In many cases, the cost of Precast Garage Floor is partially offset by the savings in backfilling and compaction, especially on sloped lots with walk-out basements.

When you build with Precast Garage Floor you get:

- Installation in only half a day
- A room the size of your garage, with no columns or beams
- A ceiling with smooth concrete finish

Don't miss the chance to add more than 600 square feet to your new home. Just send us the layout of your garage, and we'll take care of the rest! Delivery and installation are always included.

Call today for a free estimate! 800-338-1122.

Get the extra space you need and increase your home's value, for little effort and expense!

PCI CERTIFIED ERECTOR

PCI CERTIFIED PLANT

Attachment Guidelines

Titen® Concrete and Masonry Screw

Titen® screws are hardened screws for attaching all types of components to concrete and masonry. These fasteners are commonly used in applications such as attaching electrical boxes, light fixtures or window frames into concrete or masonry base materials.

Features

- Available in 3⁄16" and ¼" diameter sizes
- Available in hex and Phillips flat-head designs in two colors
- Drill bit included with each box

Material: Carbon steel

Coating: Zinc plated with a baked-on ceramic coating

Codes: Florida FL-2355.1

Installation

Caution: Industry studies show that hardened fasteners can experience performance problems in wet or corrosive environments. Steps must be taken to prevent inadvertent sustained loads above the listed allowable loads. Overtightening and bending moments can initiate cracks detrimental to the hardened screw's performance. Use the Simpson Strong-Tie installation tool kit. It is designed to reduce the potential for overtightening the screw.

Caution: Oversized holes in the base material will reduce or eliminate the mechanical interlock of the threads with the base material and will reduce the anchor's load capacity.

1. Drill a hole in the base material using the appropriate diameter carbide drill bit as specified in the table. Drill the hole to the specified embedment depth plus ½" to allow the thread tapping dust to settle and blow it clean using compressed air. Overhead installations need not be blown clean. Alternatively, drill the hole deep enough to accommodate embedment depth and dust from drilling and tapping.
2. Position fixture, insert screw and tighten using drill and installation tool fitted with a hex socket or phillips bit.

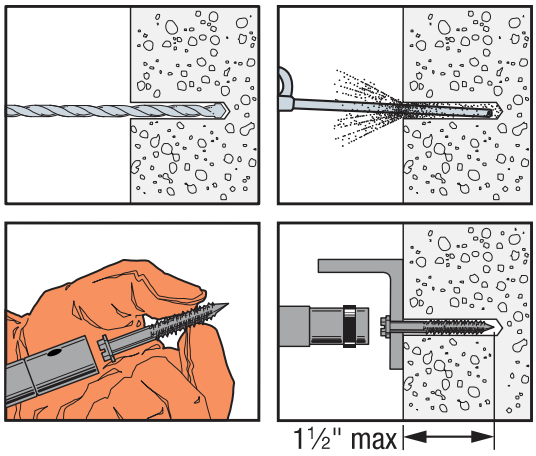
Preservative-treated wood applications: suitable for use in non-ammonia formulations of CCA, ACQ-C, ACQ-D, CA-B, BX/DOT and zinc borate. Use in dry, interior environments only.

Use caution not to damage ceramic barrier coating during installation. Recommendations are based on testing and experience at time of publication and may change. Simpson Strong-Tie cannot provide estimates on service life of screws.

Titen® Hex-Head Screw (H)

Titen® Phillips Flat-Head Screw (PF)

Installation Sequence



Titen® Phillips head screw available in white and standard blue

Installation Steps

PRECAST GARAGE FLOOR | PREPARATION

1. Email or send a layout of the area (footing & foundation) with dimensions and thickness of foundation walls.
2. A proposal will be faxed or sent to you showing the total cost, which includes; Precast Garage Floor, transportation, installation, and grouting of Precast joints. To proceed with the order, simply sign and return the "Agreement", found on the last page of the proposal.
3. Once the foundation has been poured, we "field measure" to verify the final dimensions.
4. Please allow 2 to 3 weeks from the day we field measure until installation.

FOUNDATION PREPARATION

1. Place #4 rebar in foundation extending 2'-8" above the top of foundation at 18" O.C.,or closer if required by your engineer. Keep these bars aligned 2-1/2" from outside of foundation wall. This will provide 4"- 5" clearance for the Precast Garage Floor bearing.
2. Make sure the top of foundation walls, or recessed ledge, are level and cleared of any debris, gravel, etc. so the Precast Garage Floor bearing is evenly distributed.

SITE PREPARATION

1. The site needs to be prepared to allow access for a 65-ton crane and 45' trailer and semi. A 30' X 30' area within ten feet of the foundation should be leveled and compacted to adequately assure the crane can set-up and install the Precast Garage Floor.
2. Backfill foundation walls and compact soil as noted above. Verify with your engineer before backfilling.
3. All overhead lines and other obstructions need to be moved prior to Precast Garage Floor installation.
4. Contech will send a representative to the job site to assess the site preparation and address any issues prior to installation.

AFTER PRECAST GARAGE FLOOR INSTALLATION

1. Insert paper dam into Precast Garage Floor voids at least 6" from each end. Paper dam can be any object to stop the flow of concrete into the void, i.e. newspaper.
2. Bend the #4 bars extending from top of foundation at a 3" radius over the top of the Precast Garage Floor, leaving enough clearance for the concrete topping to consolidate around the rebar.
3. Waterproof the perimeter and seams prior to placement of concrete topping!
4. Contech recommends using a reputable waterproofing contractor to assure proper waterproofing of your new Precast Garage Floor suspended concrete floor system. If you elect to do your own waterproofing, please contact us for instruction details.
5. Tie #4 rebar to bent bar at 18" O.C. each way (see details on previous pages)
6. Pour 3" of concrete topping minimum onto the Precast Garage Floor. Slope topping slab from 6" to 3" toward front of garage for proper drainage,
7. Place control joints directly above Precast Garage Floor keyway joints. These may be tooled during concrete placement, or saw cut afterwards.
8. Additional waterstops, damproofing, and sealers can be used. Consult Contech.

CONTECH®
ENGINEERED SOLUTIONS

Contech® Engineered Solutions provides innovative, cost-effective site solutions to engineers, contractors and developers on projects across North America. Our portfolio includes bridges, drainage, erosion control, retaining wall, sanitary sewer and stormwater management products.


STORMWATER SOLUTIONS


PIPE SOLUTIONS


STRUCTURE SOLUTIONS

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