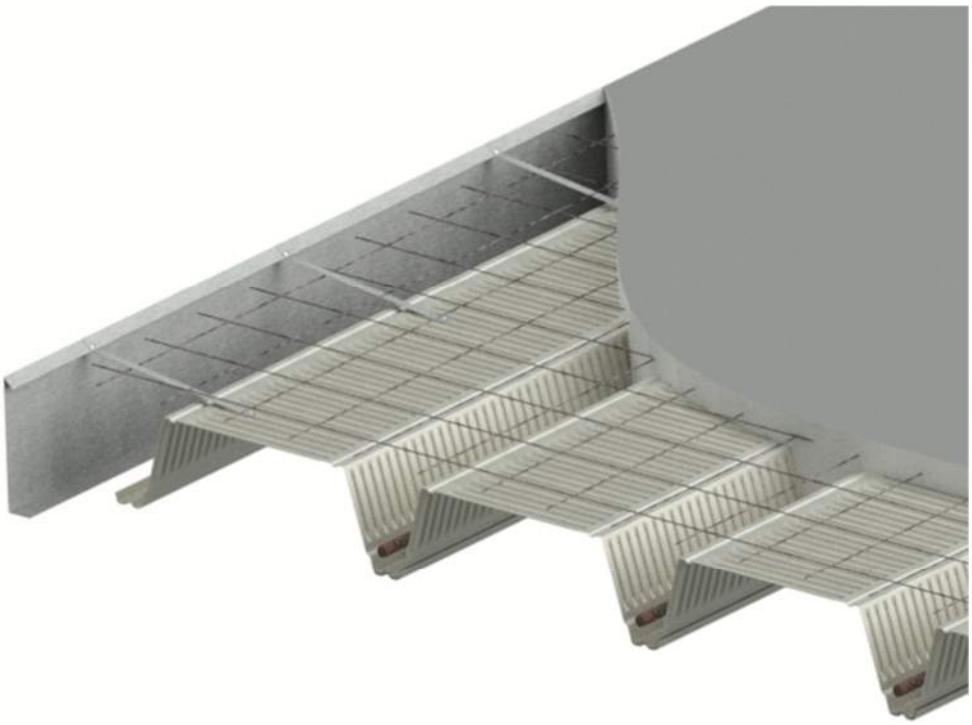
BAILEY®
METAL PRODUCTS LIMITED

ComSlab®
INSTALLATION MANUAL



CLASSIFIED UL

ULC LISTED

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1. INTRODUCTION

ComSlab® - A Long Span Composite Floor System.

ComSlab® is a combination of deep steel decking and a concrete cover slab that have cured together and bonded structurally as one element. The ComSlab® system from Bailey incorporates deep profile galvanized metal deck, standard concrete and single bar reinforcement to produce structurally efficient floor systems suitable for a wide range of building applications.

ComSlab® is manufactured under UL & ULC classification and listed in UL & ULC directories for 1 & 2 Hour Rated Design Assemblies.

This manual is intended to serve as an aide and basic guide of recommended techniques for the safe and proper installation of the ComSlab® Composite Floor System. It is not intended to supersede local building codes and project specific design. Installation must be performed in compliance with local code requirements and safety standards. Every actual installation must be done in accordance with contract documents, specifications and appropriate installation drawings. Therefore, while the information in this manual has been prepared in accordance with generally recognized engineering principles and accepted construction practices, the guidelines are intended as recommended techniques to be followed and can only be used to the extent that they do not conflict with applicable codes, contract documents and direction of the engineer of record. In the event of any conflict between this manual and any legal regulations, such regulations shall apply and this manual shall only supplement as applicable.

2. SAFETY

This installation manual is intended to serve as an aide and basic guide of recommended techniques for the proper sequence and placement of ComSlab® components. This manual is not intended to prescribe safety procedures.

Safe erection practices may be defined and made mandatory by federal, provincial, state and/or local regulations, as well as good construction practices. Serious injury can result from failure to familiarize and comply with all applicable safety requirements.
Maintaining a clean, tidy and organized project site is recognized as being an important factor towards safety and successful project completion.

2.1 WORKING WITH COMSLAB® DECK

2.1.1 PLACING COMSLAB® DECK ON STRUCTURE

Do not set bundles of decking on the structure without first verifying that the structure has sufficient strength and stability to safely support the concentrated weight of the panels and the weight of the installation crew.

2.1.2 ComSlab® AS A WORKING PLATFORM

To ensure the working platform is safe and to prevent deck damage, the ComSlab® panels should be attached to the end bearing closures and the side lap washers connected as soon as possible. The platform can be extended in any convenient direction. However, specific job requirements need to be considered to determine ComSlab® panel erection starting points and erection progression.
Other trades should not be present on the working platform or the area immediately below the working platform during the erection process. Care should also be taken when cutting bundle straps to prevent any items dropping onto personnel or equipment. Workers should be instructed on all aspects of ComSlab® Composite Floor System safety before any ComSlab® panels are installed.

2.1.3 CONCENTRATED LOADS DURING CONSTRUCTION

Composite steel deck is designed primarily to support uniformly distributed load. Care should be taken to avoid excessive concentration of loads during concrete placement and temporary storage of materials for sub-trades. Point loads that occur in concentrated areas, prior to the pouring of concrete, can be caused by heavy equipment, ladders or platform feet, etc., and may cause panel deformation or even panel failure leading to the possibility of personal injury. It should also be noted that ComSlab® deck bundles, and bundles of reinforcement bar, should be placed perpendicular to panel direction to avoid unnecessary concentrated loads.

2.1.4 SLICK SURFACES

The surfaces of ComSlab® panels, despite the inclusion of embossments and other proprietary features, can become very slippery when wet or covered with snow or ice. Even blowing sand or heavy dust can make the panel surfaces difficult to walk on.

ComSlab® panels are coated with a water-based lubricant to assist in the manufacturing process. Although designed to evaporate or wash away, the lubricant on newly un-bundled panels can be slick, especially during periods of light rain or dew.

Caution must be exercised under wet conditions to prevent slipping and falling. If workers must be working with the panels during these conditions, non-slip footwear is required.

2.1.5 ELECTRICAL CONDUCTANCE

Metal panels are excellent electrical conductors. One potential cause for injury is the contact of metal panels with power lines during handling and erection. The location of all power lines must be noted and, if possible, flagged. The erection process must be routed to avoid accidental contact with all power lines and high voltage services and equipment. All tools and power chords must be properly insulated and grounded and the use of approved ground fault circuit breakers is recommended.

2.1.6 SHARP EDGES

Some edges of the ComSlab® panels and trims can be razor sharp and can cause serious injuries if protective hand gear is not worn. Proper care should be taken so others are not injured when moving panels and trims.

2.17 SECURING MATERIALS

All ComSlab® panels, after being laid and aligned, shall be properly secured in place prior to leaving the jobsite at the end of each working day. All loose bundles of panels and trims should be secured at the completion of each working day.

2.1.8HANDLING MATERIALS IN STRONG WINDS

Do not attempt to move panels in strong winds. Wind pressure can easily cause a person to lose their balance and fall. Wind lift on a panel can be greater than the weight of the person carrying the panel.

2.1.9SAFETY BARRIERS

Assuming workers are appropriately tied off during panel installation, safety barriers would not be required. Barriers are normally required afterwards including at the time of concrete placement. Proper care should be taken with respect to providing safety barriers at all floor perimeters, openings and discontinued areas due to incomplete construction.

2.1.10 ALERTNESS

Most ComSlab® installations are done on an elevated structure and the danger of falling is always present. Falls may occur at any time and at any location. Alertness is essential. Ladders should be securely tied to the structural frame or the scaffolding. Stairs, if available, should be rigidly attached to the building frame.

3. TOOLS AND EQUIPMENT

Tools that will often be required include:

- Circular saw (typically gas powered) with abrasive blade suitable for cutting sheet steel
- Screw guns intended for self-drilling and/or self-tapping screws
- Hex socket heads, 5/16” and 3/8” magnetic
- Socket extension, 6 inches
- Drill motor, 3/8”
- Drill bits to suit substrate
- Guns to suit any shot-fired pins being used
- Steel measuring tapes, 12', 50', 100'
- Brooms
- Utility knife
- Power source and extension cords
- Laser Level (with leveling, point to point)
- Alignment Laser Tool
- Ladders
- Scaffolds
- Safety equipment as required by all applicable regulations.

3. TOOLS AND EQUIPMENT (continued from pg. 4)

Additionally, hoisting equipment is necessary to unload and position the ComSlab® panels for site storage and erection. The equipment must have sufficient capacity and reach to place the material where it will be required for efficient erection.

4. MATERIAL RECEIVING

There must be proper access to the structure for the deck delivery. The access must be adequate to support the lifting equipment and the delivery trucks. Lifting equipment must be capable of safely lifting the deck bundles and have sufficient reach to properly place the bundles onto the structure.
Material should be checked as it is received. Bundles should be counted and the tags checked. The Bill of Lading should be checked to verify trailer contents. Small packages are sometimes carried in the trailer side boxes. Check to see if all items are present.

Any material shortages or damage at the time of delivery should be noted and clearly marked on the Bill of Lading prior to signing. Notify Bailey Metal Products Limited immediately of any conflicts.

5. STORAGE AND PROTECTION

If ground storage is required, the ComSlab® bundles should be stored off the ground with one end elevated to provide drainage. Long panel bundles should also be blocked to provide sagging. Bundles should be protected against condensation with a ventilated water- proof covering. Bundles should be stacked so that there is no danger of tipping, sliding, rolling, shifting or material damage.

Bundles should be checked for tightness so wind cannot work the panels apart. Tightness should be periodically checked and additional securement should be used as necessary. Bundles should be stored away from chemically corrosive substances (salt, cement, fertilizer), away from materials that could contaminate the surface (diesel fuel, oil, paint, grease) and away from areas of heavy site traffic.

Please note, when storing panels on the structure itself, the structural frame must be properly braced to receive these bundles. ComSlab® accessories should be stored in a secure area, protected from damage, weather and theft.

6. HOISTING COMSLAB® PANELS

All ComSlab® panels being hoisted to the working level shall be adequately banded and carefully slung employing steel wire rope and a choker type sling or multi-lift beams so that shifting and excessive tipping will not occur and so the lifting device will not damage the ComSlab® panels. All bundles should be tag-lined during the ascent of the hoisting operation. Bundles should be placed as to avoid overloading the supporting structure. All lifting equipment must be adequate for the job. Workers should be instructed to keep the load in sight until it is safely placed on the structure. The bundles should be landed in proper position and orientation for convenient installation. Bundles which have been unbanded must be secured to prevent individual panels from being blown off the structure. Do not stand under loads being hoisted. Use proper hand signals to crane operators. Make sure bundles are secure before cutting bands.

7. SITE TIDINESS

Keeping a litter free workplace is recognized as being an important factor in jobsite safety and successful job completion. All ComSlab® steel panel cuttings, strapping, packaging material and other debris pertaining to composite steel deck should be removed from the floor area each working day and disposed of in a suitable manner; preferably for recycling. Keeping the ComSlab® panels free of debris and other foreign material will ensure the panels are safe to walk on. It should be noted, when installing clean galvanized steel ComSlab® panels on sunny days, sunglasses and sunburn protection are recommended.

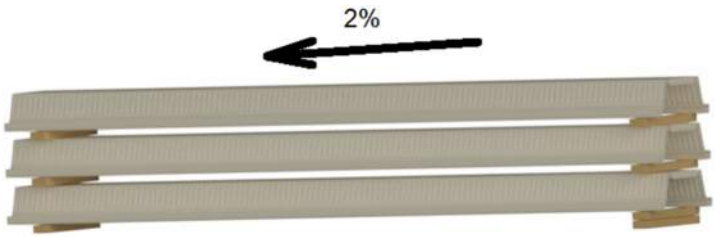
8. COMSLAB® INSTALLATION

8.1 UNLOADING

ComSlab® deck panels will arrive in bundles with a maximum weight of 3,000 lbs. per bundle. A crane or forklift are the suggested equipment for safe unloading.

8.2 STORAGE

Store ComSlab® bundles at a maximum of 3 bundles high and at a suggested slope of 2%.

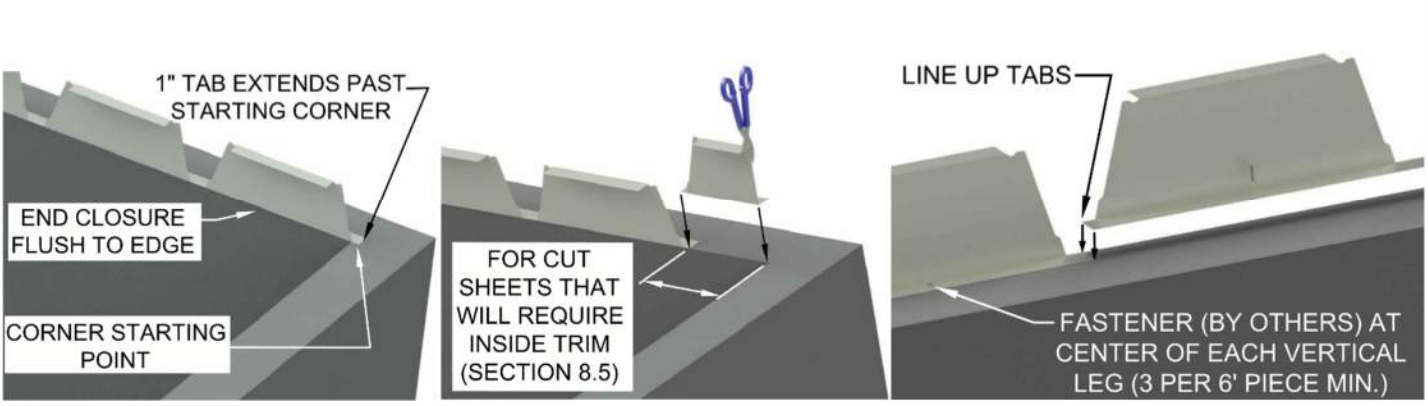


8.3 DRAWING REFERENCE

Only use the latest issue drawings marked "**FOR CONSTRUCTION**".

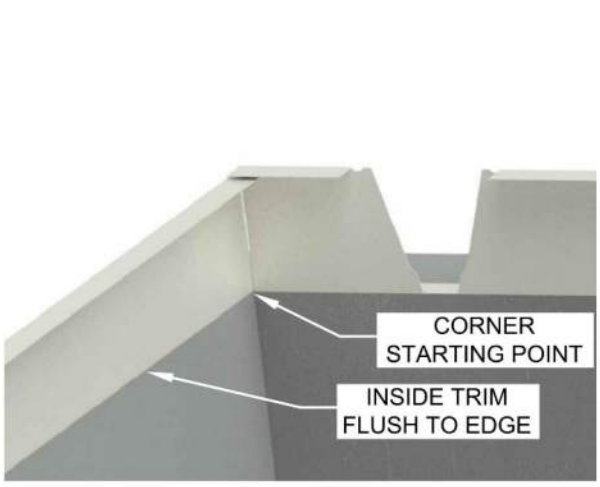
8.4 END CLOSURES

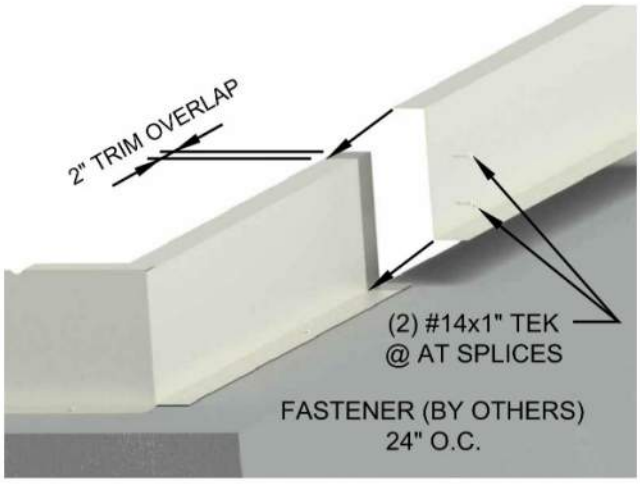
End Closures (EC-#)* shall be fastened to the support structure at maximum of 24" O.C. using shot-fired pins, self-drilling fasteners (depending on the structural frame type) or as specified by the engineer of record. Fasteners to the bearing to be designed and provided by others.



8.5 INSIDE TRIMS

For cut deck conditions, and at all other locations NOT closed by End Closure (EC-#)*, place Inside Trim (IT-#)* flush to edge of the inside bearing, starting at inside corner as shown below. Inside Trim Closure shall be fastened to the support structure at maximum of 24" O.C. using shot-fired pins, self-drilling fasteners (depending on the structural frame type) or as specified by the engineer of record. Fasteners to the bearing to be designed and provided by others.





* Accessory provided by ComSlab®

8.6 PLACING OF COMSLAB® DECK

Install ComSlab® deck panels (male to female overlap) and fasten at 13¾" on center (use the pre-punched holes) with Side-lap Washers* and #14x1" TEK Screws*.

1) Locate ComSlab® bundle with the tag indicating the correct floor, bay and piece mark (Reference latest set of ComSlab® plans tag information).

DESIGN THICKNESS

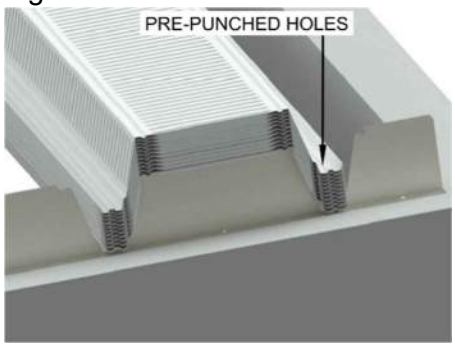
0.0375" ☐
0.0435" ☐
0.0495" ☐

TAG EXAMPLE

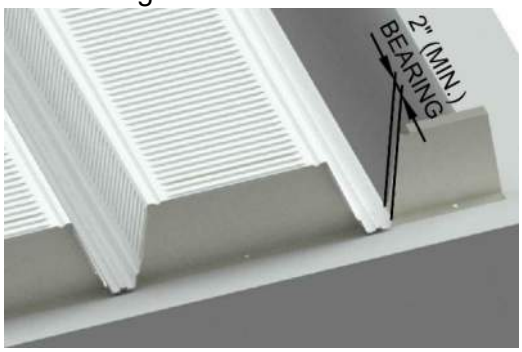
Floor-Bay Locations	Qty. @ Length
G-1	1 @ 5' 0"

2) Hoist bundles with a minimum of 2 steel chokers.

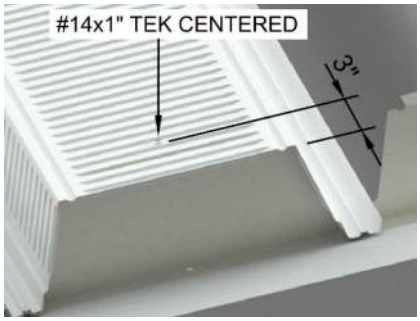
3) Starting at the first full available deck space, lay bundles of deck so that pre-punched holes to be parallel to, and nearest to the bearing surface.



4) Maintain a minimum of 2" end bearing at each end of deck.

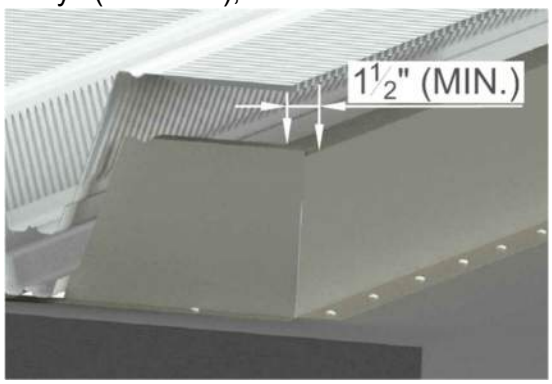


5) After each deck is properly placed, fasten deck to end closure at each end using (1) #14x1" TEK Screw* as shown below.



* Accessory provided by ComSlab®

6) At cut deck edges at ends of bays (or similar), maintain a minimum of 1½" bearing on inside trim (IT-#)*.



8.7 FASTENING THE COMSLAB® DECK

a) Using the same fasteners (by others) used to fasten the End Closure (EC-#)*, fasten the ComSlab® decks through the End Closure to the bearing surface at both ends of the deck.

b) Where ComSlab® deck rests (min. 2") directly on the parallel bearing surface, fasten the deck at 24" O.C. to continuous support with self-drilling fasteners or shot-fired pins, or as specified by the engineer of record. Fasteners to the bearing to be designed and provided by others.

* Accessory provided by ComSlab®

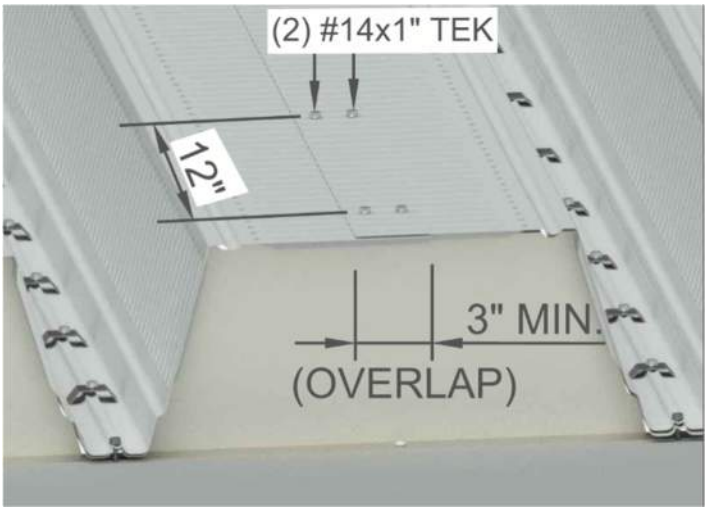
c) Fasten overlapping joints at 13¾" on center at pre-punched holes with Side-lap Washers* and #14x1" TEK Screws*. Distance from first fastener at bearing to first pre-punched hole may vary, but must not exceed 13¾".

d) Starting at the first and last Side-lap Washers*, install Rebar Chairs* at 42" O.C. (max.)

* Accessory provided by ComSlab®

8.8 STITCHES

Where stitches are required at spliced ComSlab® deck pieces, overlap the deck a minimum of 3”, and fasten with (2) #14x1” TEK screws* side by side at 12” O.C.



8.9 REBAR RIB REINFORCEMENT

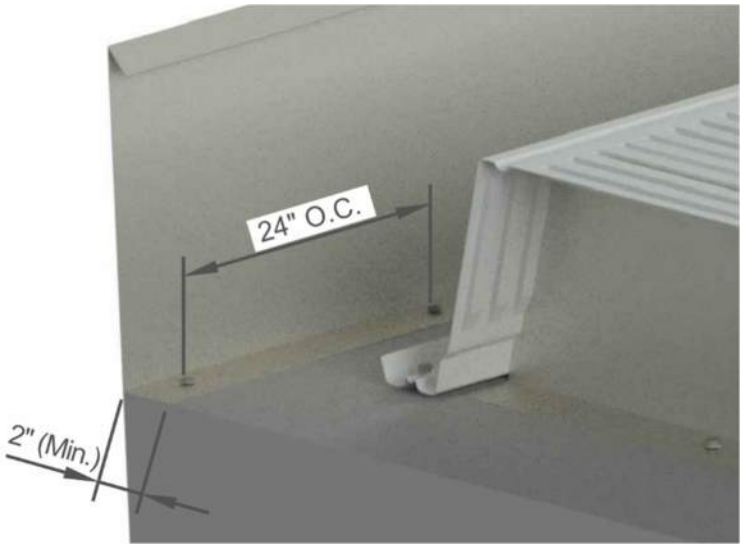
Rebar shall be placed on Rebar Support Chairs* to ensure the minimum spacing from the bottom flange to the underside of the reinforcing bars. Rebars shall be tied down periodically to the Rebar Support Chairs* with 0.0476” diameter tie wire.

* Accessory provided by ComSlab®

8.10 PERIMETER TRIM

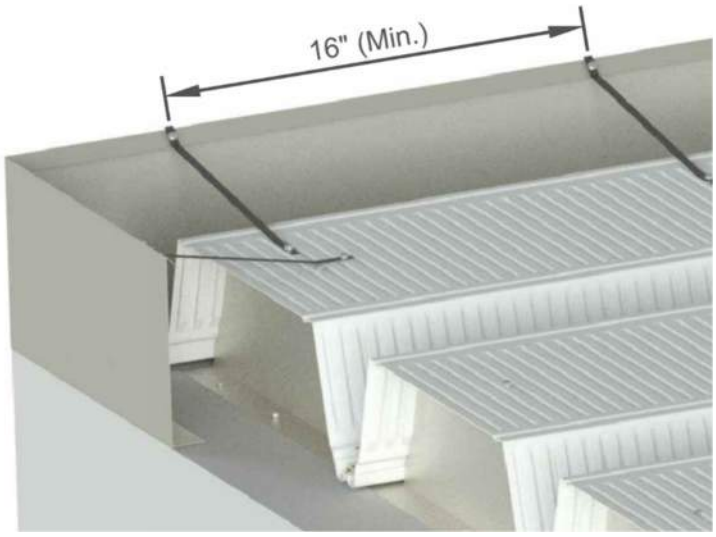
Reference ComSlab drawings to ensure use of correct Perimeter Trim size and bearing position at each location. Perimeter Trims (PT- #)* are fastened to the support structure at 24" O.C. to continuous support with self-drilling fasteners or shot-fired pins, or as specified by the engineer of record. Fasteners to the bearing to be designed and provided by others.

Note: If Special Section (SS- #)* Perimeter Trim is required for short cantilever conditions, maintain a 2" minimum bearing on structural surface.



8.11 RESTRAINT STRAPS

Restraining Straps* are required at approximately 16" O.C., and attach to the top of the Perimeter Trim (PT- # / SS- #)* and the top of the ComSlab® Deck using either #8 wafer head fasteners* (pop rivets or self-drilling fasteners (both by others) may also be used). The Restraint Strap can be adjusted to suit the pitch and alignment of the perimeter design.



* Accessory provided by ComSlab®

8.12 MESH PLACEMENT

Reinforcing mesh per engineer of record should be placed above the top of the steel decking and positioned towards the top of the slab or as specified by the engineer of record.

8.13 TEMPORARY SUPPORTS (SHORING)

Where the design span exceeds the maximum unshored span of ComSlab®, the wet concrete weight and construction loads shall be supported by adding temporary supports (shoring) by others, as designed by the engineer of record or shoring engineer. Where temporary supports are required, it is important that:

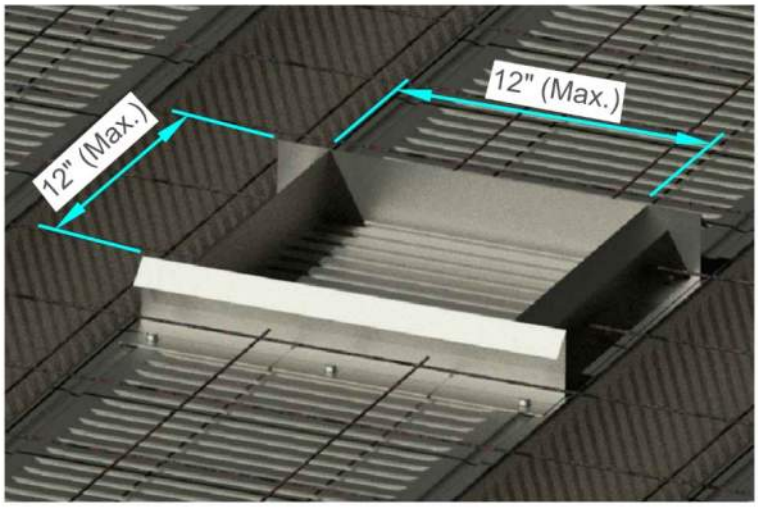
- Beams and the support structure have adequate strength to support the construction loads as designed and specified by the engineer of record or shoring engineer.
- Shoring is normally placed at midspan or at other suitable intervals, as required.
- Shoring beams shall provide a minimum bearing width of 4”.
- The shoring structure shall remain in place until the concrete has reached 75% of its design strength, or as specified by the engineer of record.
- Refer to the engineer of record or shoring engineer for proper shoring for each project and condition.

8.14 PENETRATIONS

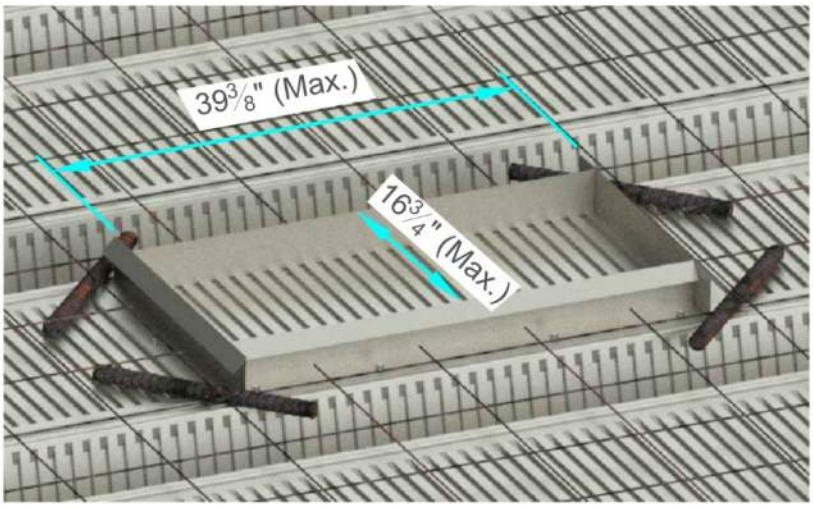
Penetrations through the floor decking shall be cut after the concrete has cured. Before placing concrete, any openings shall be boxed out with form work as specified by the engineer of record.

The following guidelines are suggested for isolated openings on top of, and parallel to deck span, or as specified by the engineer of record:

- Up to 12” square penetrations centered on the top of the profile of the deck are acceptable without additional reinforcement, other than the minimum shrinkage and temperature mesh.



- Up to 16 ¾” wide by 39-3/8” long openings possible with additional reinforcement at the top of deck without impacting rebar, and as specified by engineer.



- Openings larger than 16 ¾” require structural steel framing as specified by the engineer of record.

8.14.1 SERVICE HOLES (SLEEVES)

Sleeves shall be fastened in place before concrete placement. Cut-out of holes shall be done only after the concrete has reached 75% of its design strength, or as specified by the engineer of record.

8.15 CONCRETE PLACEMENT

Concrete shall be placed in accordance with ACI. Before starting concrete placement, the steel deck should be inspected to confirm it has been properly and completely fastened and that the deck has adequate bearing on all supports. Damaged areas must be repaired and accepted by the engineer of record prior to concrete placement. All dirt, grease and debris, which could adversely influence the composite slab performance, must be removed. All safety barriers must be in place, reinforcement bars secured and, if required, the shoring should be examined to make sure it is securely in place.

Care shall be taken to avoid concrete heaping in any area during concrete placement. Concrete should be poured from a low level to avoid impacting the deck. It should be placed uniformly over the supporting structure and spread towards the center of the deck span. If buggies are used to place the concrete, runways should be planked and the buggies should only operate on the planking. The planks should be stiff enough to transfer buggy loads without damaging the deck. Deck damage caused by riding vehicles, roll bars and other equipment, or by careless placement must be avoided.

8.16 COLUMNS AND ComSlab® DECKING

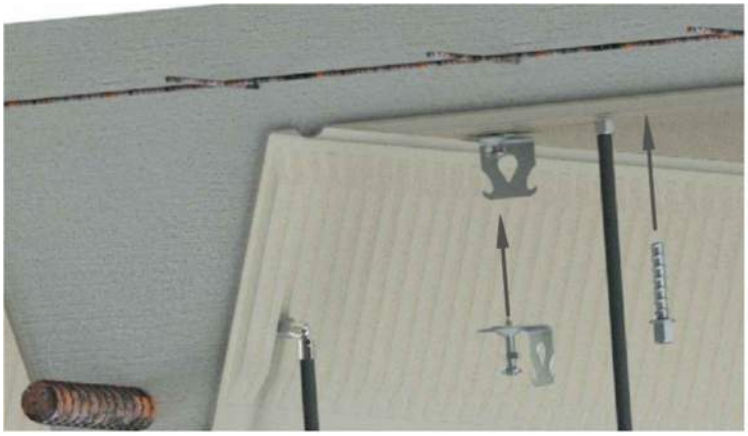
The steel deck sheeting can be cut and fitted to accommodate various column shapes to minimize grout loss. Where no supporting steel work is provided, steel angle brackets shall be provided to support the steel decking, as specified by the engineer of record.

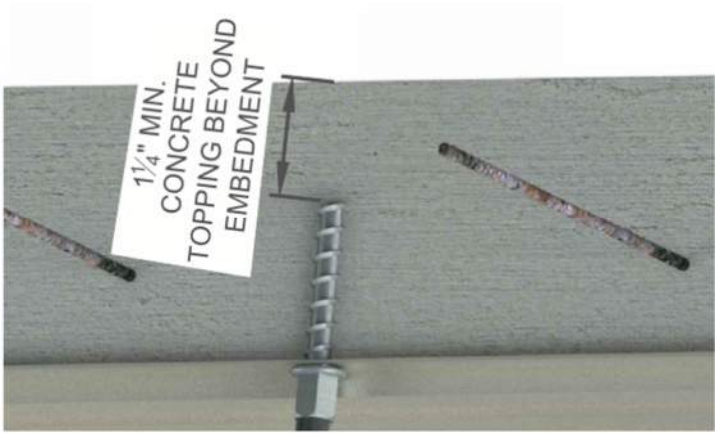
8.17 HANGER SYSTEM

The geometry of the ribs allows for the suspension of services from the profile top flange between ribs. Pre-set threaded rod hangers are easily installed before the concrete is placed. Consult your mechanical and electrical consultants, and installation contractors for accepted specifications. Follow the manufacturer's specifications for all hangers used.

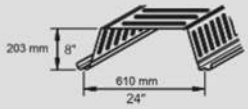
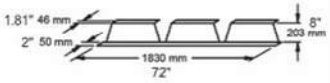
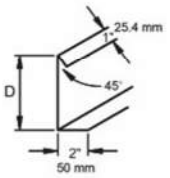
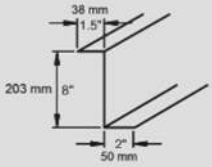
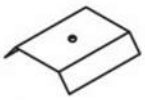
Embedment:
1¼" Maximum at rebar locations.

Recommended Hangers:
Simpson Strong-Tie Titen HD or equivalent
Hilti X-CX ALH Ceiling Fastener or equivalent





ComSlab® STEEL DECK AND ACCESSORIES

MATERIALS	THICKNESS		WEIGHT		PACKAGING
	mm	in.	SI	Imperial	Pieces
ComSlab® STEEL DECK (Z275 FINISH) 	0.953 1.257	0.0375 0.0495	12.6 kg/m² 16.6 kg/m²	2.58 lb/ft² 3.41 lb/ft²	30 pieces per bundle cut to length
90° END CLOSURES (Z275 FINISH) 	1.37	0.054	2.98 kg/m or 5.44 kg/pc	1.75 lb/ft. or 10.5 lb/pc	50 pieces per bundle
45° END CLOSURES (Z275 FINISH) 	1.37	0.054	3.5 kg/m or 6.38 kg/pc	1.71 lb/ft. or 14.5 lb/pc	50 pieces per bundle
PERIMETER TRIMS (Z275 FINISH) D = overall slab depth 	1.37	0.054	17.7 kg/pc to 20.4 kg/pc	39 lb/pc to 45 lb/pc	10 pieces per bundle 10 ft. lengths
INSIDE TRIMS (Z180 FINISH) **CORRIDOR TRIMS (Z180 FINISH)** 	0.838 1.09 1.37	0.033 0.043 0.054	9.1 kg/pc 11.3 kg/pc 13.6 kg/pc	20 lb/pc 25 lb/pc 30 lb/pc	10 pieces per bundle 10 ft. lengths
SIDE-LAP WASHERS (Z180 FINISH) 	1.09	0.043	11.3 kg per carton	25 lb per carton	500 pieces per carton
REBAR SUPPORTS (Z180 FINISH) 	0.838	0.033	20.4 kg per carton	45 lb per carton	300 pieces per carton
RESTRAINT STRAPS (Z180 FINISH) 	0.838	0.033	4.54 kg per bundle	10 lb per bundle	50 pieces per bundle
FASTENERS No.14 1/4 - 14 X 1" Hex S.D. Zinc **SCREWS** No.8 x 1/2" Wafer S.D. Zinc			1.81 kg per carton 1.81 kg per carton	4 lb per carton 4 lb per carton	300 pieces per carton 1500 pieces per carton