TECH-LINE

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Longitudinal (Strong Direction) Splice Options for Full and Partial Depth Grid Reinforced Concrete Decks

There are three suggested longitudinal (strong direction) panel splice connection details that take place over a support. All three are suitable for cast-in-place and precast construction and can be adapted for staged construction. Full depth grid reinforced concrete decks are shown for all three connections, but similar details are applicable to the partial depth decks as well.

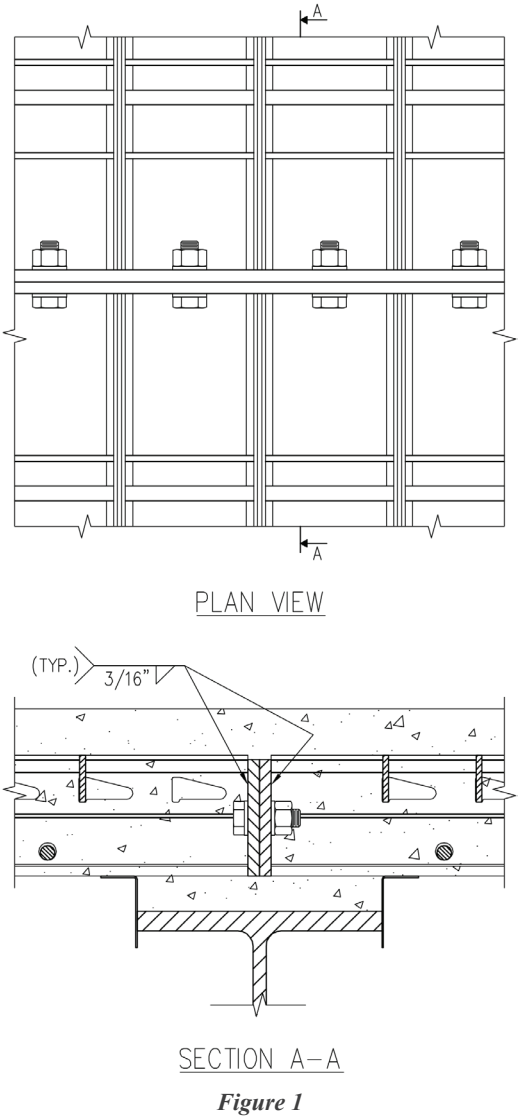

Figure 1

Bolted Splice Connection

The bolted splice connection utilizes full height splice plates shop welded to the end of each panel with a 3/16" fillet on one side of every main bar (*See Figure 1*) and supplemental bar if applicable. To accommodate tolerances and field fit-up, slotted and/or oversize holes are used for the bolted connection. High strength bolts, washers and nuts between each main bar are used to connect the panels.

For staged construction (not shown), the nut (without a washer) can be welded to the splice plate of what would be considered the stage 1 panel. Nut caps in conjunction with temporary bolts should be installed to ensure bolt stick-through after the stage 1 concrete is placed. With the bolt as the turned element, the stage 2 panel can then be bolted to the stage 1 panel.

Welded Splice Connection

The welded splice connection uses only one full height splice plate that is shop welded with a 3/16" fillet on one side of every main bar (*See Figure 2*) and supplemental bar if applicable. The main bars of the spliced panel are set in line with the main bars of the first panel and then field welded with a 3/16" fillet on one side and along the entire height of the main bar and supplemental bar.

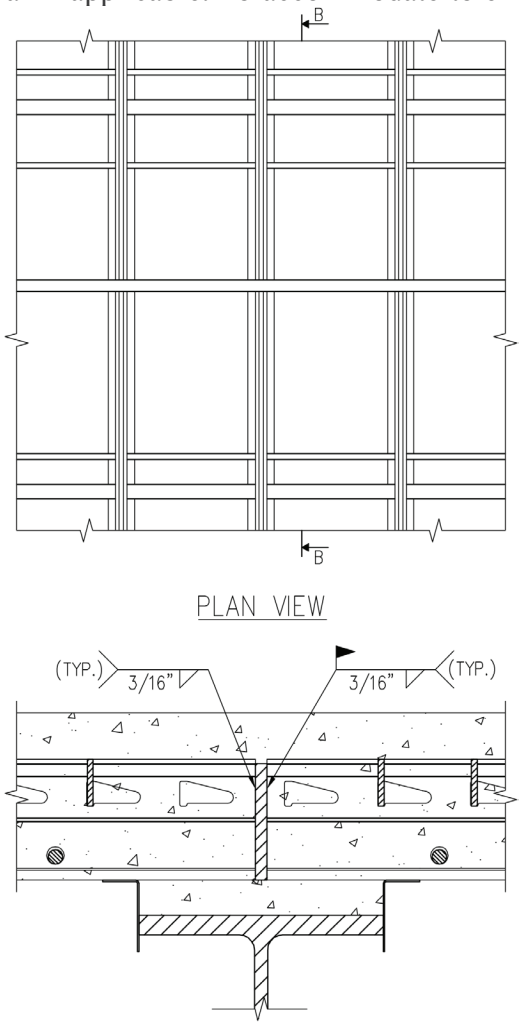

Figure 2

Rebar Splice Connection

The rebar splice connection employs rebar designed to develop the capacity of the continuous grid reinforced concrete deck in negative bending (*See Figure 3*) utilizing the rebar for tensile forces and available concrete for the compressive bending forces. The splice rebar must develop into both sides of the splice.

The tops of cross bars for these grid styles match the top of the main bars and supplemental bars. However, in the area of the splice rebar only, a shorter cross bar with readily available dimensions is fabricated with the grid so that the top of the rebar is flush with the top of the grid or slightly above it. For instance, normal cross bar height for a 5-3/16 main bar is 1/4" by 2" tall. If a #5 splice rebar is required, use a 1/4" by 1-1/2" cross bar (because 1/4" by 1-3/8" cross bar is not readily available) under the rebar which leaves the rebar 1/8" higher than the main bar.

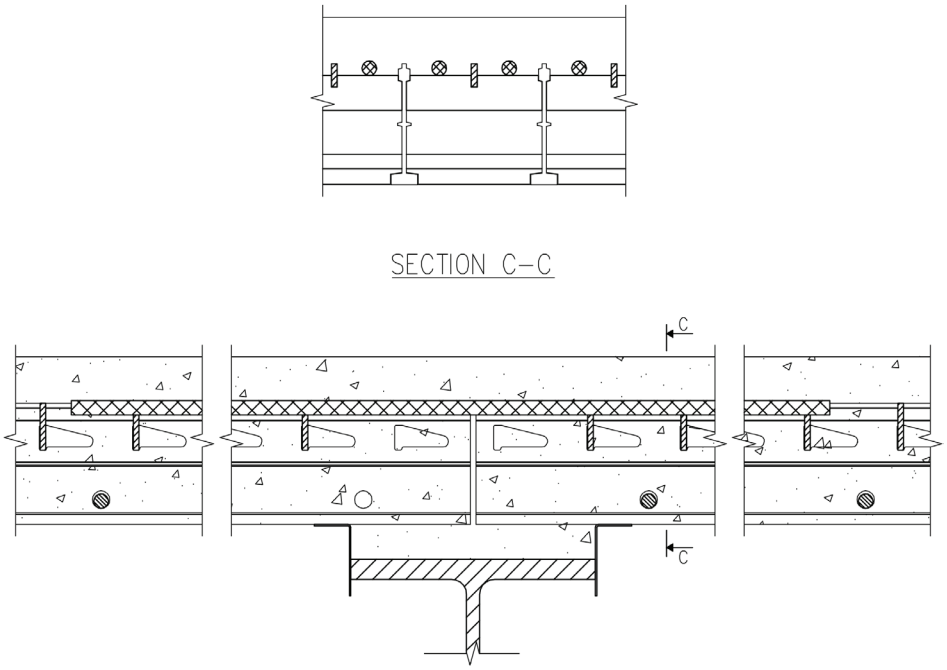

Figure 3

For staged construction, the splice can be accomplished by using a female end rebar dowel developed into the stage 1 panel with the end of the mechanical coupler flush with the edge of the stage 1 concrete. After the stage 2 panel is placed, a male end rebar dowel is mated with the female coupler and developed into the stage 2 panel. The detail for this splice is nearly identical to the detail for staged construction splice for Exodermic® panels discussed in *Tech-Line #9*.

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