

Form Panels – Industry Practice and Workmanship

For other than exposed surfaces, form panels may consist of surfaced lumber, plywood, steel, and in some cases synthetic materials, depending on the type of construction and the surface finish required. For exposed surfaces, the degree of care taken by the Contractor when building forms often determines the amount of subsequent work needed to obtain the required finished surface. Below are some acceptable industry practices:

1. Form panels that have minor damage or are damaged (damaged corners, holes, delamination, and scars) after installation, and cannot reasonably be replaced, may be repaired when using acceptable methods and materials, such as wood fillers, resin products (Bondo), and wood or cork plugs.
2. Expanding foam may be used to ensure forms are placed flush against concrete in areas around columns and abutments. Care must be taken when determining the product's expansion capabilities. Excess foam that protrudes into the concrete section must be trimmed off.
3. Acceptable materials to form the exterior girder and soffit radius sweep may include steel, polyvinyl chloride (PVC), or 1/8 inch veneer plywood sheeting. All materials must be adequately supported at the joist and throughout the spans to prevent the development of discontinuities between form panel sections during concrete placement.
4. New plywood next to old plywood will produce an unacceptable non-uniform concrete surface. One method proven successful to age the new forming material is to apply cement and water paste, allow the paste to dry, and then remove it. The dried cement paste absorbs the fresh wood sugar from the new plywood and ages the wood so that the finished concrete will have a color and texture similar to the color and texture of the seasoned plywood forms.
5. Prefabricated soffit forming panels (gang forms) are sometimes used with conventional falsework systems. These prefabricated soffit forming panels typically consist of an 8 foot wide and up to 40 foot long panel comprised of plywood nailed to 2 x 8 joists. See Figure 1. The use of prefabricated soffit panels has proven to be a reliable and efficient falsework soffit forming system.
6. When the soffit gang form panels are erected onto the falsework stringers they are typically placed with a gap between each panel. This gap aids in the erection and removal of the panel system. This gap is bridged with a form filler panel (filler strip of plywood), as illustrated in Figure 2. Figure 3 depicts a typical completed soffit that was formed with gang forms.



Figure 1. Typical Gang Form



Figure 2. Form Filler Strip of Plywood

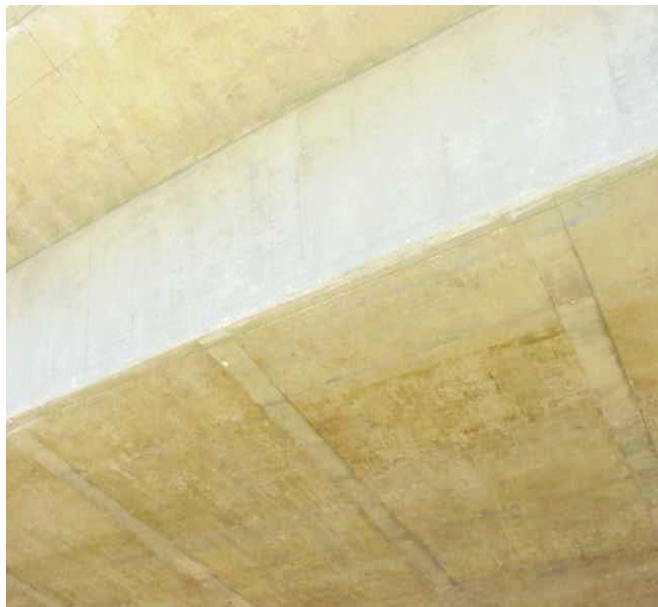


Figure 3. Typical Completed Soffit with Gang Form

7. Building paper must not be used to patch cracks or holes in [“lost deck”](#) forms. Metal or wood is acceptable, provided it does not infringe on the required deck thickness.
8. Forms must be mortar tight. Metal sheeting, plastic (visqueen), spray foam, caulking, or other materials can be acceptable for this application. Although not contractual, it is a highly recommended best practice to place plastic strips or similar material underneath the unsupported soffit plywood seams above traffic openings used by the public. See Figure 4 for an illustration of this proactive

practice.

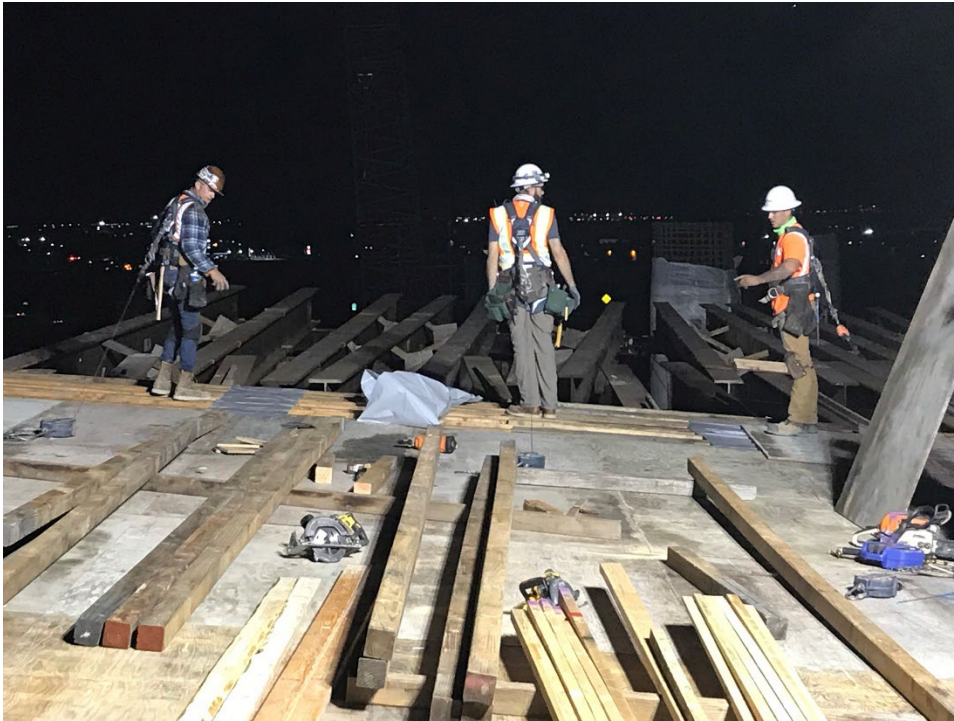


Figure 4. Plastic Placed Under Soffit Plywood Seams Over Traffic Opening.

9. Pieces of reinforcing steel may be cast into the interior faces of bridge box girder stems to support “lost deck” forms. When these pieces of reinforcing are used, they should be no larger than a no. 6 $\frac{3}{4}$ -inch-diameter bar and must be at least 1 inch clear from any permanent reinforcing.
10. Poor workmanship and materials can lead to undesirable results. Common examples of this are:
 - a. Loose form filler strips (e.g., form filler strips that are not firmly nailed to the joist).
 - b. Damaged and warped panels from overuse.
 - c. Newly placed plywood forming sheets next to seasoned sheets.
 - d. Non-uniform filler strip widths.
 - e. Non-uniform form line patterns. Skewed bridges exacerbate this.

All of the above can be successfully mitigated with the timely inspection and verification of these acceptable industry practices.