EFCOG Best Practice #64
Rebar and Dowel Placement

Facility: Los Alamos National Laboratory, West Valley Demonstration Project

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Brief Description of Best Practice: Successful efforts to prevent reoccurrence include: engineered checklists, training and in-place evaluation. Implementation for each of the three phases is described below:

1. Procurement/Storage
    a. Checklists are utilized to verify procurement requests prior to purchase. Targeted mistakes include proper size, proper grade, validated fabrication drawings, epoxy coating requirement.
    b. Training and clearly written inspection acceptance criteria are provided to inspection personnel for proper receipt inspection and handling and storage of rebar. Targeted mistakes include commingling of safety significant/safety class and commercial grade, improper material, excessive rust and improper use of dunnage.
2. Rebar Placement
    a. Work Plan development utilizes a validation process for technical specifications and shop drawing generation.
    b. Shop drawing development and constructability reviews.
    c. Pre-Activity training for all craft and supervision focuses on requirements and inspection acceptance criteria.
    d. Routine inspections utilizing tailored checklist ensure early detection of improper practices. Targeted mistakes include inadequate concrete coverage, improper lap/splice length and inadequate tie percentage.
    e. Self-mandated hold points prior to commencement of the pour ensures that formwork, rebar placement and inserts are dimensionally correct.
3. Insert / Dowel Placement
    a. All shop drawings or transfer of dimensions requires a two-party verification of dimensions.
    b. Likewise, actual placement is verified and documented as a part of the pre-pour checklist.

Why the best practice was used: Improper rebar, dowel and insert placement results in increased production cost due to rework/remediation efforts and potential schedule impact. Errors have been categorized into three phases: procurement/storage, rebar placement, and insert/dowel placement.

What are the benefits of the best practice: To reduce cost or schedule overruns due to unacceptable products getting through receipt inspections, improper coverage, lap splicing, spacing, or dowel and insert placement.

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What problems/issues were associated with the best practice: Discovering these type issues to late in the process to prevent rework.

How the success of the Best Practice was measured: Less work delays, fewer nonconforming conditions generated due to improper or unknown material issues or placement and spacing requirements. Changes in clearly defining the acceptance criteria and work planning documents increase field placement and final inspection processes.

Description of process experience using the Best Practice: Increased confidence in material received and used during construction. Raised awareness of where in the construction to address potential problems that could cause delays due to rework to achieve final inspection and approval to poor concrete. Customer satisfaction that the finished product will function as required.