

Questions and Answers from Tech Tuesday Webinar on *Jointing Concrete Pavements* April 14, 2026

Q1 - What is your opinion on cracking that has developed in concrete pavement in areas where traffic detection loops were installed? - I can provide a follow-up email with additional details.

Q5 - How are traffic loops installed to minimize cracking?

ANSWER: Further details about any observed cracking would be appreciated. You're welcome to contact CP Tech Center here: <https://www.cptechcenter.org/contact/>

Surveying the location of the loops prior to paving and adjusting transverse joints to ensure the loops are mid-panel is likely best to ensure that the joints aren't negatively interacting with the cuts for the induction loops. The continuous movement of the joint is one of the things that can quickly start impacting and degrading the cuts for the loop if they are crossing or are too close together. For more information on traffic detection loops in concrete pavements, FHWA has a chapter on sensor installation techniques in its Traffic Detector Handbook, which can be found here: <https://www.fhwa.dot.gov/publications/research/operations/its/06139/chapt5b.cfm>

Q2 - Does the Use of C-595 Cements require adjustment for joint spacing? Or the joint cutting time?

ANSWER: The use of ASTM C595 blended cements (compared to traditional ASTM C150 cements) should not require any adjustments to standard guidelines for joint spacing. However, material changes (such as cements or moving towards optimized gradations) can impact shrinkage of a mixture which can impact joint activation. With current recommendations for joint spacing (such as a 15 ft maximum), this can lead to some joints not activating immediately, but should not cause a performance issue. Blended cements do have varying set times, which impacts the sawing window and the timing of sawing operations. The set time for a given blended cement could be faster or slower than a given C150 cement, depending on factors such as fineness and chemical composition.

Q3 - Are you aware of any tolerances for raveling used in standard construction specifications?

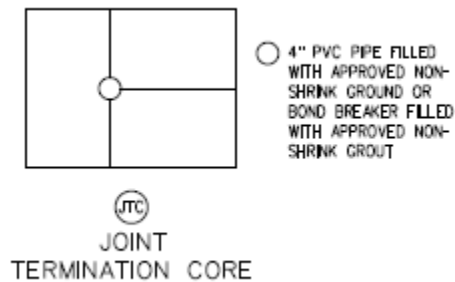
ANSWER: We're not familiar with tolerances or measurements used to establish acceptable thresholds for raveling. Many specifications use language such as "avoid excessive raveling," leaving it to the owner/agency or to inspectors to determine what degree of raveling is acceptable. On airfield projects, if raveling is significant enough that it remains visible after the second reservoir cut, it may require repair.

Q4 - What tends to be the state of the practice in regards to pavement cures and applying penetrating sealers at joints? Is a dissipating cure used, or is the white pig removed prior to applying the penetrating sealer?

ANSWER: We recommend following manufacturers' recommendations with respect to the compatibility of penetrating surface sealers with different types of curing compounds and the proper application timing, as there can be a lot of variation between different types of products. We're familiar with many penetrating sealers that can be applied to pavements that are cured with white pigmented curing compound, although the recommended timing can vary quite a bit depending on the product (e.g. 3 to 28 days after placement).

Q4 - Do you have a detail or specifications for the stress relief core?

ANSWER: An example detail of this can be found on sheet 5 (see below) of Colorado DOT's standard joint details:
https://www.codot.gov/business/designsupport/mstandards/assets/m-412-1-concrete-pavement-joints_ada-1.pdf



Q6 - Are there any variables that can help decide whether to joint a roundabout as pave-through vs. isolated circle?

ANSWER: Some of the major considerations for selecting a pave through design vs. an isolated circle design are construction staging and method of construction. For example, if a contractor plans to employ slipform paving on a project that includes the roundabout, it may prove most efficient for them to continuously pave in one direction of traffic from the approach legs through the roundabout and back out without interruption. A pave through jointing design would facilitate that paving approach. That said, paving machines are also capable of paving the circulatory roadway by itself, depending on the geometry of the roundabout and the size and configuration of the paving machine. It can be helpful to work with the contractor to identify whether a particular jointing design would allow for more efficient construction than the other.

Q7 - Do we dowel for parking lot in transverse Joint?

ANSWER: If a parking lot has areas that expect to receive channelized, heavy traffic loads, yes, we can place dowel bars at transverse joints in a similar fashion to streets and roadways. Dowels can also be used at other types of parking areas that receive heavy traffic loads, and there are types of dowels capable of use for bi-directional doweling. For more information, see ACI 330.2-17: Guide for the Design and Construction of Concrete Site Paving for Industrial and Trucking Facilities.

Q8 - Is there a way to cut the dog-leg joints without over-cutting? That's always a point-of-contention with joint layouts with owners

ANSWER: Typically having some over-cutting is not an issue as it can be sealed and won't be a problem. You could start pulling up the blade as you approach the intersection, but again, a bit of over-cutting shouldn't be a major issue.

Q9 - Shouldn't we also try to limit jointing as to not overly joint the PCC?

ANSWER: Using joints efficiently is generally a good practice and can help reduce unnecessary costs. That said, there can be benefits to using a shorter transverse joint spacing design, such as reducing curling and warping stresses that could allow for a reduction in slab thickness. Those types of factors can be considered during the pavement design process.

Q10 - Isn't there a minimum spacing? I like to keep jointing between 8' to 16'.

ANSWER: There isn't necessarily a minimum joint spacing, though for example in thin concrete overlays that have smaller joint spacing patterns (e.g. 6 ft x 6 ft), we would discourage reducing joint spacing further (e.g. to 4 ft x 4 ft) to avoid having longitudinal joints fall in the wheel path of vehicles, as this has led to some poor performance in thinner overlays.

Q11 - Are there any automated systems available to draw joint layouts? To me, it seems like this is highly mathematical/geometric where rules can be set to optimize the slab layouts.

ANSWER: We're not familiar with automated systems that can be specifically used for joint layouts at this time.

Q12 - Can someone explain the difference between green and purple epoxy coatings for dowel bars? My understanding is that the purple is superior, but why - is there a material difference or coating method difference? Also, what is the rough cost difference between these dowel types?

ANSWER: The [Guide to Dowel Load Transfer Systems for Jointed Concrete Roadway Pavements](#) explains that the green epoxy is more flexible (ASTM A775) while the purple epoxy is more rigid (ASTM A934). Technically, these coatings could be made to be any color, but there is a difference in how they are applied with the A775 epoxies applied with an electrostatic spray technique and the A934 epoxies being fusion bonded. The guide goes on to say that the A934 rigid epoxies tend to have greater abrasion resistance.

The [University of Pittsburgh recently released a report](#) evaluating the corrosion of dowel bars and evaluated both types of epoxies along with some other types of dowel bars. The study did intentionally grind in a holiday through the epoxy coatings to do accelerated testing of dowel corrosion, which likely negates the additional abrasion resistance of one epoxy vs another.

The price difference tends to be minimal, but the green epoxy tends to be default as it is used in many other applications and switching over takes time (and thus usually requires a reasonable volume).

Q13 - In the dead-end joint, when adding reinforcement to prevent sympathy cracking, is the reinforcement added to the slab during paving or are you finding a way to do it during saw cut?

ANSWER: The bars should be embedded into the slab during construction, and can be placed on chairs similar to tie bars at longitudinal joints or (if possible) they can also be fastened to the underlying subbase.

Q14 - How do you determine the reinforcement to specify? Seems like industry knowledge and no one has proven to me the type of reinforcement bar to specify around structures (e.g. your photo of the catch drain with the four piece of rebar on top of welded wire fabric)

ANSWER: A number of agencies do specify certain types of rebar to use around structures in concrete pavements. For example, the Iowa SUDAS specifications manual has a number of standard drawings with reinforcement details for boxouts and other sections containing manholes. They generally use #4 bars at these locations:

<https://www.iowasudas.org/manuals/specifications-manual/#division-6-structures-for-sanitary-and-storm-sewers>

Q15 - Would you please provide a list of links to the references? The QR codes are nice but moved quickly.

Also, it would be great to see a list of minimum requirements for pavement jointing plans and details to ensure the contractor has everything he/she needs to complete the job.

ANSWER: References, links and the associated QR codes can be found in the pdf file of the slides available at the same location as these Q&A responses. If you have issues finding any of them, please reach out to the presenters.

Each agency is different in what they provide or require. Many agencies will provide a preliminary joint layout and this is typically best practice. This helps contractors know the intent and sets an expectation for all contractors bidding a job. However, in many instances, contractors may work with the engineer on a project to modify or revise the joint layout to better fit their construction process.