



Concrete Updates

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WisDOT and WCPA

2025 WTBA Conference

January 16th, 2025

Outline

- WisDOT Spec Updates
- HTCP – Portland Cement Concrete Mix Design Certification
- Approved Products List (APL)
- Jointing
- Concrete Overlays
- WisDOT Priorities
- Concrete Pavement Inspection Training
- WCPA Conference



WisDOT Spec Updates



Specification Re-Organization

- All material-related specifications are re-organized into one Chapter (Chapter 7)
- New Location: Part 700
 - **ALL** Reorganized Specs are in Chapter 700
 - Developed based on the **2024 Standard Specification** and the **Spring 2023 CMM**
 - Pilot projects with the re-organized specs: 2025
 - Full implementation: 2027



Specification Re-Organization

- New Concrete Sections and Relevant Sections:
 - 700: Materials
 - 701: Aggregate
 - 706: Concrete Mixtures
 - 707: Hydraulic Cement
 - 708: Supplementary Cementitious Materials
 - 709: Concrete Admixtures and Curing Materials
 - 710: Reinforcement



WisDOT Standard Spec	Material Name	Pre-Project Acceptance Method	Project Acceptance Method
General Concrete			
706.1	General Concrete Requirements	--	--
706.1.1	Mixing Water	DST	--
706.1.2	Concrete Aggregate Qualities	APL, DST	--
706.1.3	Concrete Aggregate Gradations	--	DST, MTR
706.1.4	General Concrete Mixtures	--	--
706.1.5	High Early Strength Concrete	--	--
706.1.6	Small Quantities		
706.1.7	Strength Evaluation		
Concrete Categories			
706.2	Concrete Mixtures - Category I (Pavements)	--	MTR, QMP
706.3	Concrete Mixtures - Category II (Structures)	--	MTR, QMP
706.4	Concrete Mixtures - Category III (Cast-in Place Barrier)	--	MTR, QMP
706.5	Concrete Mixtures - Category IV (Base)	--	MTR, QMP
706.6	Concrete Mixtures - Category V (Bridge Deck Overlay)	--	MTR, QMP
706.7	Concrete Mixtures - Category VI (Structure Repair)	--	MTR, QMP
706.8	Concrete Mixtures - Category VII (Pavement Repair)	--	MTR, QMP
706.9	Concrete Mixtures - Category VIII (Ancillary)	--	MTR, QMP
706.10	Concrete Mixtures - Category IX (Miscellaneous)	--	MCC
Mortar, Grout and Other			
706.11	Coloring Concrete	--	FI/VI
706.12	Mortar – Hydrated Lime	--	MCC
	Mortar – Masonry Cement	--	MCC
	Mortar – Pre-packaged (Utility Mortar)	APL	--
	Grout – Neat Cement Bonding	--	--
	Grout - Riprap	--	--
706.13	Controlled Low-Strength Backfill	--	--



Specification Re-Organization

General Section Layout

7XX.1 Material Type

- **7XX.1.1 Pre-Project Requirements**

- 7XX.1.1.1 Material Property Requirements
- 7XX.1.1.2 Contractor Requirements
- 7XX.1.1.3 Department Requirements

- **7XX.1.2 Project Requirements**

- 7XX.1.2.1 Conformance
- 7XX.1.2.2 Contractor Requirements
- 7XX.1.2.3 Department Requirements
- 7XX.1.2.4 Dispute Resolution
- 7XX.1.2.5 Payment Adjustment



Manual of Test Procedures (MOTP)

- 2025 edition online
 - Published for Jan 2025 letting
 - <https://wisconsindot.gov/pages/doing-bus/eng-consultants/cnslt-rsrces/qmp/default.aspx>
- Previous and new versions will both be available on the QMP site

Manual of Test Procedures

- [Manual of Test Procedures \(2024 Edition\)](#)
- [Manual of Test Procedures \(2025 Edition\)](#)



SCAN ME

STATE OF WISCONSIN



MANUAL OF TEST PROCEDURES

2025 Edition

Effective with January 2025 letting

Text in red color found within this edition indicate substantive changes made to the previously published edition of the Manual of Test Procedures.



SAM Testing Still on...Pause

- SAM field testing is paused since 2024
 - No longer required to run SAM test in the field
 - Still needed for trial batching Class I Mix Designs
- SAM testing on older contracts is STILL required
 - 2023 and older lets
 - Concerns about Type IL cements and SAM
- Keep SAM Meters but don't purchase new meters
 - QC/QV Air Content tests can use SAM

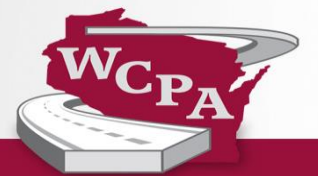


High Performance Concrete (HPC) SPV

- Important to track ownership of aggregate sources
- Updated SPV template for HPC masonry and pavements: 2025
 - Update testing requirement (LA wear, soundness, freeze-thaw, etc.) based on project location
 - Aggregate source sample testing needed before start of the project (5-6 weeks) then annually
 - Only lightweight pieces tested every 10,000 CY
 - **New composite PWL equations along with F- and t-tests**



IRI Ride SPV



Summary of the IRI Ride SPV Pilot Project (I-41)

Key Changes in the SPV Pilot Specification:

Incentive and Disincentive Adjustments:

- **Maximum Incentive/Mile** increases significantly from **\$5,280** under the current spec to **\$21,120** in the SPV pilot spec.
- **Maximum Disincentive/Mile** rises from **\$5,280** to **\$19,800**.

Max IRI Threshold:

- The maximum IRI allowed is **80 in/mile** under the SPV pilot spec.

Naming Protocol for Profile Runs

- Defined recommended protocol for naming profile runs.



Summary of the IRI Ride SPV Pilot Project (I-41)

Quality Management Plan (QMP) Enhanced Requirements:

The contractor's Quality Management Plan (QMP), must be submitted to the engineer in writing no later than **10 business days before paving begins.**

Key modifications include:

Concrete Placement Process: Describe the method of transferring concrete from the truck to the paver, emphasizing how this ensures a smooth ride.

Dowel Bar Inserter (DBI) Impact: If using a DBI, explain measures to prevent negative impacts on ride smoothness.

Ride Quality Monitoring and Testing: Outline methods and timing for monitoring and testing ride quality during the placement process.

Profile Run Details: Define the segment locations for each profile run used in testing.

10.2 QMP Ride for PCC Riding Surfaces.

A Description

Replace standard specification 740 QMP Ride with the following special provision.

- (1) This special provision describes profiling requirements with a non-contact profiler, locating areas of localized roughness and determining the International Roughness Index (IRI) for each wheel path.

B Pre-Project Requirements

- (1) The Profiler APL is located at: <https://wisconsin.gov/pages/doing-business/eng-consultants/cnslt-rsrcs/tools/appr-prod/default.aspx>
- (2) Re-certify profiler if changes or repairs are made to the device that affect data collection or analysis, including repairs made to the profiler components or software.

B.1 Material Conformance

- (1) Use profiler equipment that conforms to the following:

Table 1: Profiler Conformance

Equipment Name	Conformance
Inertial Profiler	AASHTO M328
Annual Certification of Profiler (Standard Practice for Certification of Inertial Profiling Systems)	AASHTO R56
Daily Calibration of Profiler	AASHTO R57

B.2 Contractor Requirement

- (1) Furnish profiler equipment from the current APL at the time of project testing.
- (2) Enter the equipment-specific department-approved filter settings and parameters given in the approved profilers list at: <https://wisconsin.gov/Pages/doing-business/eng-consultants/cnslt-rsrcs/qmp/default.aspx>

B.3 Department Requirement

- (1) The Department will certify all profilers conforming to Table 1: Profiler Conformance.

C Project Requirements

C.1 Material Conformance

Table 2: Category Definition

Category Name	Description
PCC	Concrete pavements

Table 3: Profile Segment Conformance

Profile	ProVAL Analysis	Length	Category
IRI	Smoothness Assurance - Fixed Interval (IRI)	500 feet (1 segment)	PCC
Localized Roughness	Smoothness Assurance - Short Continuous (IRI)	25 feet	PCC & Posted Vehicle Speed > 45 mph

Summary of the IRI Ride SPV Pilot Project (I-41) ...what does this mean for me?

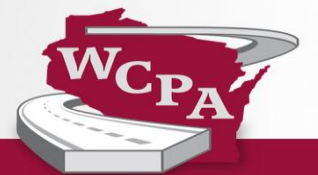
Implications for Future Projects:

- This pilot serves as a testing ground for a potential statewide rollout of the new specification. Contractors and stakeholders are advised to monitor the outcomes closely, as adoption on a broader scale will have significant impacts on project management, cost structures, and incentive/disincentive mechanisms.

Summary Table of Pay Differences:

	Current Spec	Proposed Spec
Segments in 1 mile	10.56	10.56
Max Incentive/Mile	\$5,280	\$21,120
Max Disincentive/Mile	-\$5,280	-\$19,800

Note: Pay calculations reflect stricter requirements and increase financial stakes in meeting or exceeding ride quality standards



HTCP – Portland Cement Concrete Mix Design Certification (PCC – MDC)



HTCP – PCC MDC

- Developed to train WisDOT and industry consultants that approves a concrete mix design
 - Appropriate steps of how to review a WisDOT Concrete Mix Design submittal and ensure its accuracy before signing off
 - Know where to locate all correct documentation that make up a mix design submittal and understand the WisDOT Specs
 - Maintain records in an organized manner of the reviewed and approved mix designs
- Certification will be required with the November 2026 letting

CONCRETE MIXTURE DESIGN - OPTIMIZED AGGREGATE GRADATION						Wisconsin Department of Transportation	
012221 08/2022							
SECTION A - Project Information							
Construction Project ID(s)		Contract ID	Highway	County			
Project Title			Project Limits				
Prime Contractor			Project Engineer / Company				
SECTION B - Concrete Contractor Information							
Concrete Paving Company						Telephone Number	
Main Address			City	State	Zip Code		
SECTION C - Concrete Supplier Information							
Concrete Supplier Company						Telephone Number	
Main Address			City	State	Zip Code		
SECTION D - Concrete Mix Information							
Contractor Mix ID		Mix Grade	MRS Mix # (132 Prefix)	Date (mm/dd/yyyy)			
Mix to be used on following bid items:							
Bid Item No.	Description						
Concrete Plant Name (Location)						Plant Type	
Address			City	State	Zip Code		
SECTION E - High Early Strength (HES) Mix Modification (If Needed)							
HES Contractor Mix ID	HES Modification (Select One)	Additional Cement (lbs/cy)		Placement Method	HES Check		
	<input type="checkbox"/> Type II Cement <input type="checkbox"/> Additional Cement						
SECTION F - Mix Design Certification							
I certify that this mix design meets WisDOT specification requirements. The design is based on the documented material sources, types and proportions documented during the trial batching process and is only valid for these constituents and proportions. Any change in a constituent type or source will require reevaluation of the mix design by a certified mix designer. **Disclaimer: This mix design is to be used by the parties indicated on this certification for construction purposes. This mix design does not guarantee the results in the field due to the variability of construction operations.							
Mix Designer Name (Print)			Signature (wet or digital)			HCP #	Date (mm/dd/yyyy)
Company Name			Email			Telephone Number	
Address			City	State	Zip Code		
SECTION G - Project Staff Review							
I certify that I have reviewed the mix design. All the sources listed in this mix design are approved per WisDOT specifications or written approval of the department. I have confirmed the sources in this mix design are accurate with the Contractor's submitted Quality Control Plan. I acknowledge that any source change from this mix design requires reevaluation by a certified mix designer.							
Project Engineer Name (Print)			Signature (Wet or Digital)			Date (mm/dd/yyyy)	
Company Name			Email			Telephone Number	
Address			City	State	Zip Code		



HTCP – PCC MDC

Portland Cement Concrete Mix Design Certification (PCC-MDC)



Course Prerequisites: None

This course requires 8 hours of classroom attendance. This course steps through the review and approval process of a Portland Cement Concrete mix design and the documentation required with a mix design to the Wisconsin Department of Transportation. The course content will review fundamentals of concrete, step through a checklist of documents and specifications tied to reviewing and approving the concrete mix design. Upon successful completion of this course, you will earn 0.8 Continuing Education Units (CEUs).

Portland Cement Concrete Mix Design Certification	Class	1/29/2025	1/29/2025	8:00 AM - 5:00 PM	WisDOT - Bureau of Technical Services Madison, WI	1	1/20/2025
Portland Cement Concrete Mix Design Certification	Class	2/4/2025	2/4/2025	8:00 AM - 5:00 PM	WisDOT - NWR Eau Claire Eau Claire, WI	5	1/24/2025
Portland Cement Concrete Mix Design Certification	Class	2/17/2025	2/17/2025	8:00 AM - 5:00 PM	WisDOT - NER Green Bay Green Bay, WI	10	2/6/2025
Portland Cement Concrete Mix Design Certification	Class	3/13/2025	3/13/2025	8:00 AM - 5:00 PM	WisDOT - NCR Wisconsin Rapids Wisconsin Rapids, WI	10	3/4/2025



Approved Products List (APL)



Approved Products List (APL)

- APL website will be updated in the upcoming months for concrete related products
 - Horizontal Rapid Set Concrete Patch Material
 - Vertical and Overhead Rapid Set Concrete Patch Material (**new category**)
 - Concrete Admixtures
 - Non-Shrink Grout
 - Cement
 - Fly Ash
- <https://wisconsindot.gov/pages/doing-bus/eng-consultants/cnslt-rsrces/tools/appr-prod/default.aspx>



Approved Products List (APL)

- Move from “Prequalified Products” to “Qualified/Approved Products”

Prequalified Products

Utilize the following prequalified approved products that were **active on the bid closing date**, per the requirements of Standard Specification 101.2. Archived lists are available by sending an email to DOTProductSubmittal@dot.wi.gov. Include letting date and name of approved product list(s) required.

Portland Cement Concrete

- Concrete admixtures
- Portland cement suppliers
- Class F Fly Ash
- Cure and seal compound - non-traffic structural masonry
- Rapid set concrete repair materials
- Non-shrink grout
- High Performance Dowel Bars

- Deadlines for approval of each product are specified along with WisDOT requirements
- Potential automated process for each APL using DocuSign
- Standard Spec sections 416 and 509 to be updated for Nov 2026 lets



Approved Products List (APL) Example Process



Wisconsin Department of Transportation
Division of Transportation System Development
Bureau of Technical Services
3502 Kinsman Boulevard
Madison, WI 53704

Approved Product List Application Process for Horizontal Rapid Set Concrete Patch Material

Wisconsin Department of Transportation (WisDOT) requires horizontal rapid set concrete patch materials used in concrete projects from the approved product list (APL). This APL approval process covers materials with cementitious, polymer-modified cementitious, and fully polymeric continuous phase components. Products on this list are not to be used for full-depth repairs for structural applications.

Approval Process

- To apply for WisDOT's APL process for horizontal rapid set concrete patch material, the manufacturer/supplier must submit the required information listed below for WisDOT's review:
 - Safety Data Sheet
 - Technical Data Sheet
 - American Association of State Highway and Transportation Officials (AASHTO) Product Evaluation & Audit Solutions (formerly NTPEP) or any accredited (AASHTO or Cement and Concrete Reference Laboratory (CCRL)) independent laboratory test data showing the rapid set concrete set concrete patch material has met or exceeded the requirements in outlined in the material property requirements section.
 - Horizontal rapid set concrete set concrete patch materials will be evaluated with the aggregates included in the samples (extended form). The tests must be conducted with coarse and fine aggregates added per the manufacturer's recommendations for each material.
 - If submitting an independent laboratory test data, include the AASHTO/CCRL certification of the testing laboratory.
 - Manufacturer's installation instructions including surface preparation, bonding, and curing requirements for the product seeking approval.
 - Primary point of contact for the submitted product including name, email address, phone number, and mailing address.
- The submitted test data must be less than five years old. Submit the above required information to DOTProductSubmittal@dot.wi.gov.
- By applying, the manufacturer/supplier certifies that they have reviewed the standards/requirements, and their product meets the requirements. WisDOT may reject an APL submittal without further review if WisDOT determines that the product does not meet standards/requirements.
- Applications will be reviewed within 4 weeks of submittal and when the review is completed, manufacturers/suppliers will be notified. Approved products will be listed on the department's APL.

Material Property Requirements

Cementitious and Polymer-modified Cementitious Materials

- The Cementitious and Polymer-modified Cementitious rapid set concrete patch material must meet the testing requirements as specified in Table 1.

Table 1. Cementitious and Polymer-Modified Cementitious Material Test Requirements

Test	ASTM/AASHTO Standard	Age/Procedure	Minimum Requirements
Compressive Strength (psi)	ASTM C39/ AASHTO T22	3 hours	≥ 2,000
		24 hours	≥ 5,000
Freeze-Thaw Durability	ASTM C666/ AASHTO T161	Procedure A, Durability Factor	90% at 300 cycles
Length Change (%)	ASTM C157/ AASHTO T160	Water and air, 28 days	Maximum +/- 0.15
Bond Strength in Direct Tension (psi)	ASTM C1583	28 days	≥ 300
Initial Set Time (min)	ASTM C403	Initial set (500 psi) time	≥ 15
Rapid Chloride Permeability (Coulombs)	ASTM C1202	28 days	≤ 2,500

Fully Polymeric Materials

- The Fully Polymeric rapid set concrete patch material must meet the testing requirements as specified in Table 2.

Table 2. Fully Polymeric Material Test Requirements

Test	ASTM/AASHTO Standard	Age/Procedure	Minimum Requirements
Compressive Strength (psi)	ASTM C579	3 hours	≥ 2,000
		24 hours	≥ 5,000
Freeze-Thaw Durability	ASTM C666/AASHTO T161	Procedure A, Durability Factor	90% at 300 cycles
Linear Shrinkage	ASTM C531	Maximum linear length change at 7 days (%)	Maximum +/- 0.10
Coefficient of Thermal Expansion (CTE)		Coefficient of Thermal Expansion	2x10 ⁻⁶ to 8x10 ⁻⁶
Bond Strength in Direct Tension (psi)	ASTM C1583	28 days	≥ 300
Initial Set Time (min)	ASTM C403	Initial set (500 psi) time	Minimum 15
Rapid Chloride Permeability (Coulombs)	ASTM C1202	28 days	≤ 2,500

Compliance

- To remain on the WisDOT APL, the manufacturer/supplier must reapply every 5 years.
- The department may request re-compliance at any time.

Non-Compliance

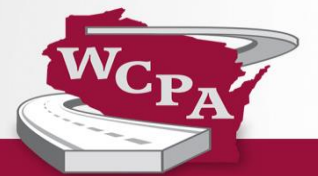
- WisDOT will continue to regard this approval valid for 5 years unless/until any of the following conditions arise:
 - If the manufacturer/supplier changes the product physical or chemical properties without notifying WisDOT.
 - The product samples audited/tested by WisDOT do not meet the requirements as specified in this document.
- Manufacturers/suppliers are required as a condition of approval to inform WisDOT of any of the above conditions as soon as they become aware of them.

Correspondence

If the name and/or address of the contact person in your company for this correspondence have changed, or if you have questions or need further information, please contact us via email DOTProductSubmittal@dot.wi.gov.



Jointing



Concrete Jointing

Concrete Jointing Overview

The need for jointing and joints natural development.

- Discussion of **various joint types**, including:
 - **Contraction Joints**
 - **Expansion Joints**
 - **Construction Joints**



ACPA Jointing Methods

- Overview of **American Concrete Pavement Association (ACPA)** jointing guidelines.
- Emphasis on proper layout and methods for intersections.

Concrete Jointing Overview

Why Are Joints Necessary?

Concrete Cracks:

- As concrete dries and hardens, it is prone to cracking.

Purpose of Joints:

- Joints are used to **control where cracks occur**, ensuring they form in predetermined locations for structural integrity and aesthetics.

Why Does Concrete Crack After Placement?

Drying Shrinkage:

- As concrete loses moisture, it shrinks, causing internal stress.

Temperature and Moisture Changes:

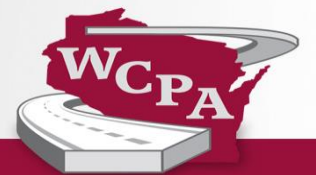
- **Ambient Contraction:** Cracks caused by overall contraction due to cooling.
- **Gradient Curling:** Cracks due to uneven temperature within the slab.

Subbase Restraint:

- Friction/bond between the slab and subbase creates stress as the slab moves.

First Applied Loads:

- Cracks may develop under the stress of initial loads applied to the surface.



Concrete Jointing Overview - Contraction Joints

Purpose of Contraction Joints

Temperature Stress:

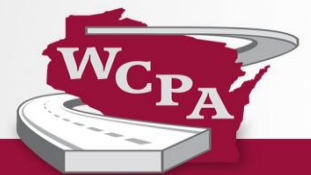
- Controls cracking due to thermal expansion and contraction.

Moisture Stress:

- Manages stress caused by uneven drying and shrinking.

Loading Stress:

- Distributes stresses from traffic and other loads.



Concrete Jointing Overview - Construction Joints (Headers)

What Are Header Joints?

- Also known as **transverse construction joints**, they are placed at the end of a paving section.
- Typically used when paving is stopped for the **end of a day's run** or due to **significant delays**.

Key Characteristics

Construction Options:

- Can be **formed** or **sawed**, depending on the situation.

Unplanned Placement:

- Header joints are not typically accounted for during initial layout planning.

Best Practices

Align with Existing Joints:

- When adjacent to previously placed pavement, it's best to **match the header joint** with an existing transverse joint to maintain continuity and prevent misalignment.



Concrete Jointing Overview

Develop a Jointing Plan

Importance:

- A well-thought-out jointing plan minimizes cracking and ensures pavement performance.

Key Step:

- Plan based on traffic patterns, pavement thickness, and geometry.

Use a Bird's Eye View

Perspective:

- Visualize the intersection layout from above to ensure proper joint alignment and continuity.

Follow ACPA's Method

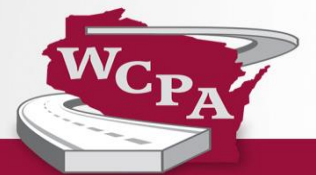
Standard Guidelines:

- The **American Concrete Pavement Association (ACPA)** provides proven methodologies for jointing intersections effectively.

Be Practical

Adapt to Site Conditions:

- Balance technical requirements with on-site realities, such as utility locations and constructability.



Concrete Jointing Overview

Contractor Responsibilities

Joint Layout Design:

- The contractor is responsible for developing the joint layout and submitting for engineer review.

Factors Influencing Joint Layout

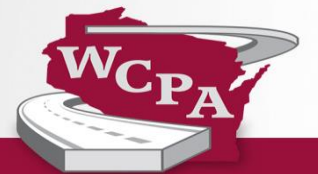
Key Considerations for Designers:

- **Staging:** Construction phases and access requirements.
- **Equipment:** Types and capabilities of paving equipment.
- **Project Limits:** Boundaries and constraints of the project.
- **Traffic Flow:** Anticipated usage and load distribution.
- **Utilities:** Joints must align with existing utilities such as manholes, inlets, and water boxes.
- **Intersection Complexity:** Number of lanes, turn lanes, and transitions.
- **Pavement Width and Thickness:** Determines spacing and types of joints.
- **Matching Existing Joints:** Ensure new joints match existing joints.

Understanding the Jointing Plan

Importance of Clarity:

- Clear understanding of the jointing plan is necessary to **evaluate feasibility** and ensure compliance.



Concrete Jointing Overview

Basic Rules for Concrete Joint Layout

Match Existing Joints or Cracks

- **Alignment:** Ensure new joints align with existing ones in both **location** and **type** to maintain structural continuity.

Place Joints to Meet In-Pavement Structures

- **Consider Utilities:** Account for manholes, inlets, water boxes, or other structures when planning joint locations.

Use Isolation Joints Where Needed

- **Purpose:** Isolate slabs from fixed structures to prevent stress transfer and potential cracking.

Apply Maximum Joint Spacing Practically

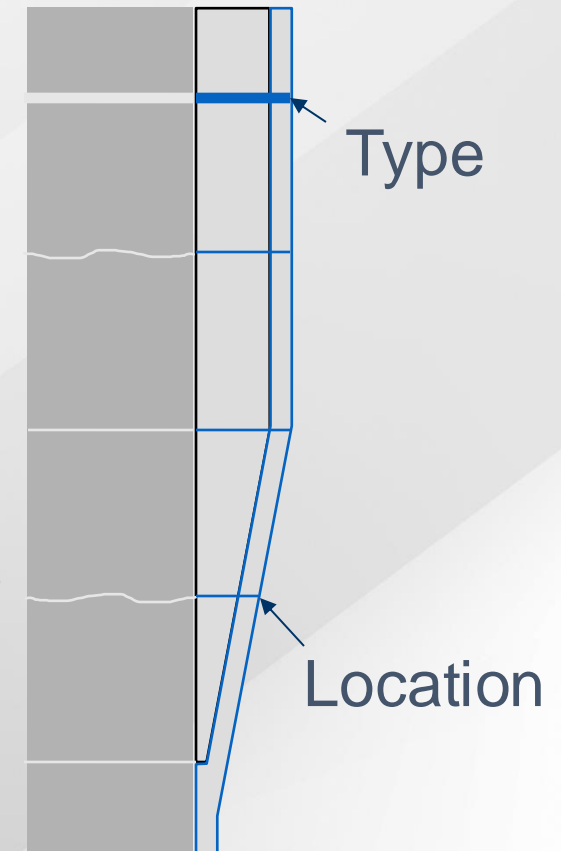
- **Flexibility:** While adhering to guidelines, adjust for field conditions to ensure effectiveness and constructability.

Prepare a Jointing Plan Before Paving (Required)

- **Advance Planning:** A clear plan minimizes on-site confusion and reduces potential errors during paving operations.

Allow for Practical Adjustments in the Field

- **Adaptability:** Be prepared to make necessary modifications based on unforeseen site conditions or challenges.



Concrete Jointing Overview



Basic Rules for Concrete Joint Layout

Joint Spacing:

Granular Subbase:

- Use spacing of **2 x T** (T = pavement thickness).

Wisconsin Empirical Performance:

- Limits joint spacing to a maximum of **15 feet** based on proven performance.

Things to Avoid:

Narrow Slabs:

- Avoid slabs less than **2 feet wide**.

Overly Wide Slabs:

- Avoid slabs greater than **15 feet wide**.

Sharp Angles:

- Avoid joint angles exceeding **60°** (aim for **90°** whenever possible).

Curved Joints:

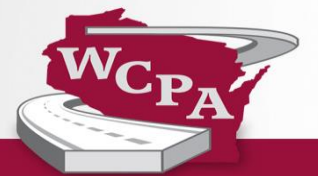
- Use **dog-leg joints** through curve radius points for better stability.

Interior Corners:

- Avoid creating interior corners, which lead to stress concentration.

Odd Shapes:

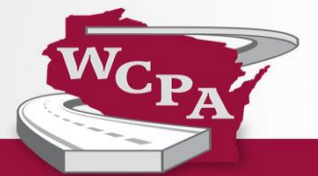
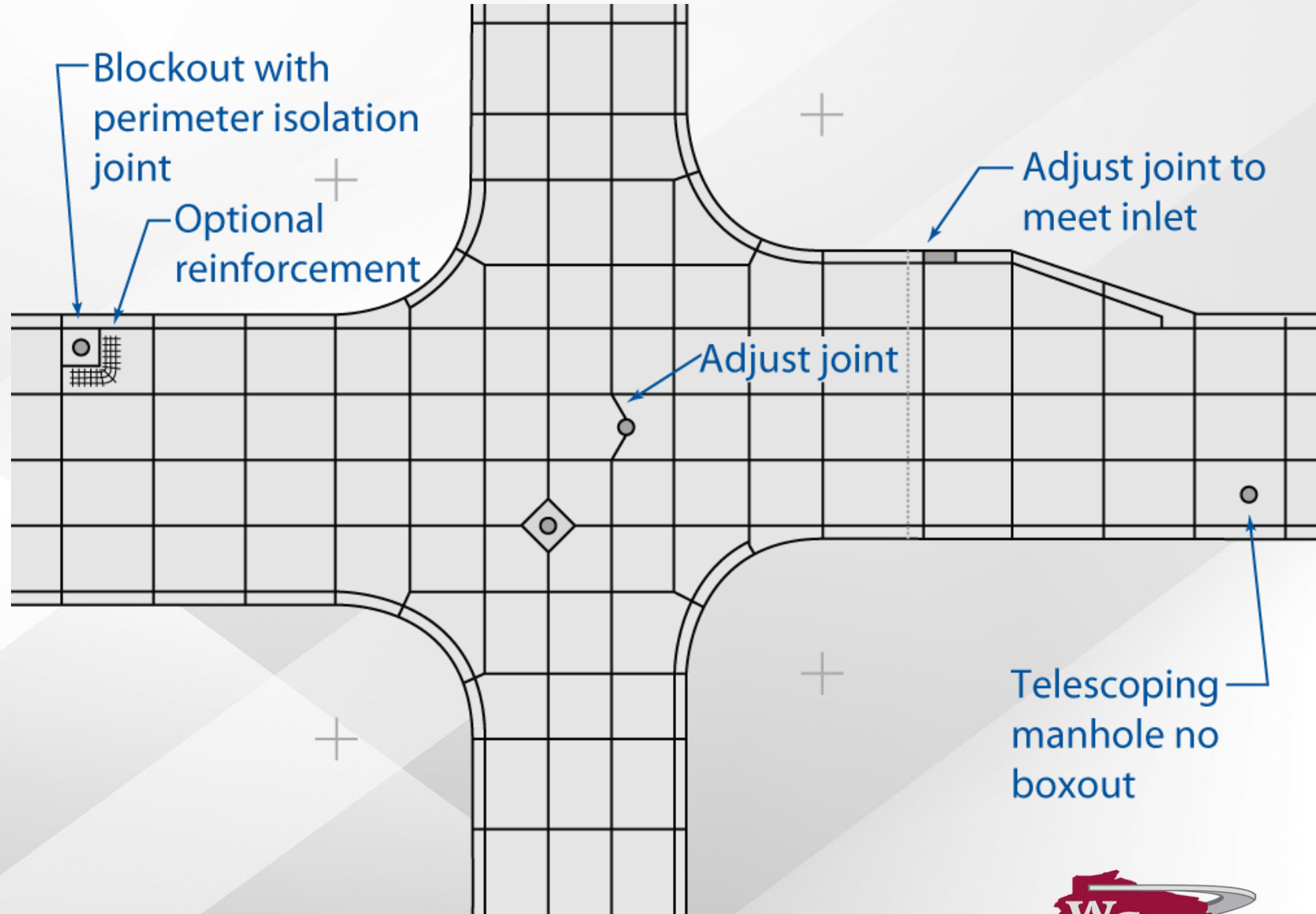
- Maintain **square or rectangular shapes** to ensure uniform stress distribution.



ACPA Jointing Method

Spacing Recommendations
ACPA's 10 Step Method

Training Available – Please ask



Concrete Overlays



GUIDE TO CONCRETE OVERLAYS

FOURTH EDITION



IOWA STATE UNIVERSITY
Institute for Transportation

OCTOBER 2021

National Concrete Pavement
Technology Center



Concrete Overlays

WisDOT's Balanced Pavement Network

- Pilot projects selected for 2025 and 2026 paving season

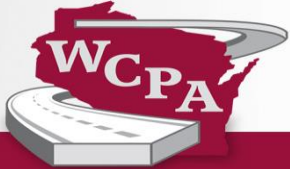
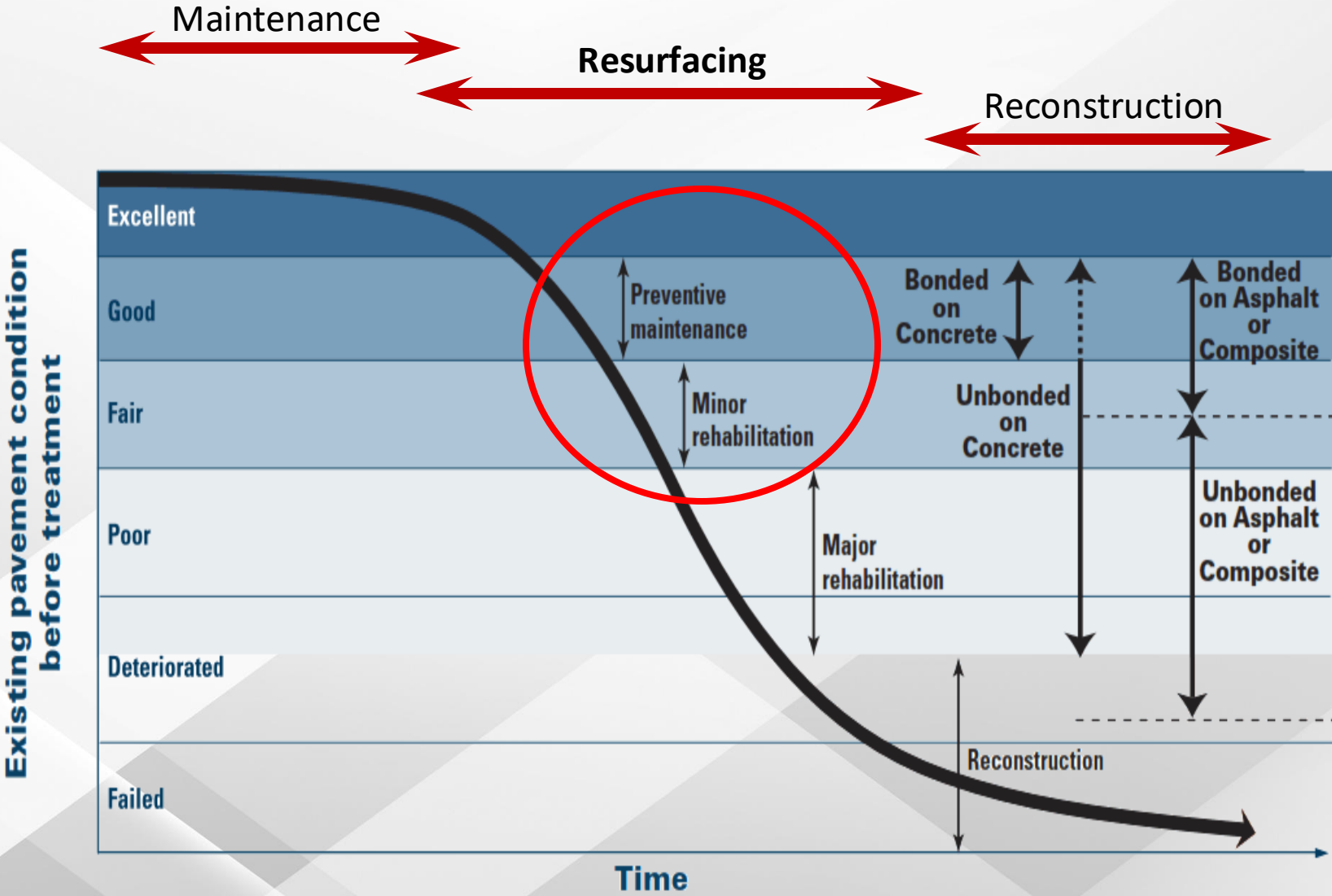
Overlay Design Process

- Pavement Evaluation
- Determine Overlay Type
- Determine Design Life and Traffic
- Use Pavement Design Software ([PavementDesigner.org](https://www.PavementDesigner.org))
- Consider Additional Design Features
- Consider Construction Process
- Create Construction Documents



Guide to Concrete Overlays

Concrete Overlays – Evaluation Informs Design

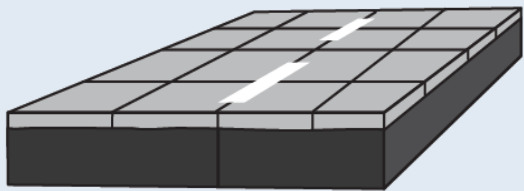


Overlay Type Selection

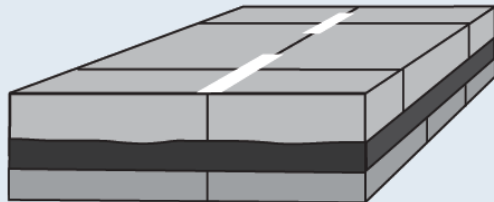
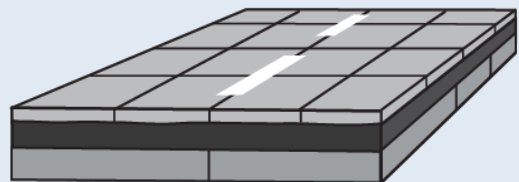
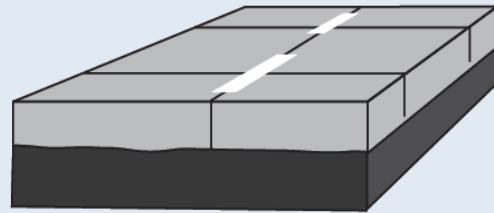
Concrete on Asphalt

Concrete on asphalt (COA) overlays can be designed to address a broad range of existing pavement conditions on both composite and full-depth asphalt pavements. Both bonded (COA-B) and unbonded (COA-U) options enable designs to cost-effectively match the condition of the existing asphalt—from deteriorated to good—as well as geometric parameters.

COA-B (Full Depth and Composite)



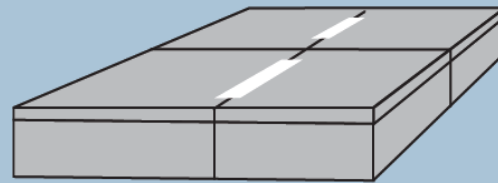
COA-U (Full Depth and Composite)



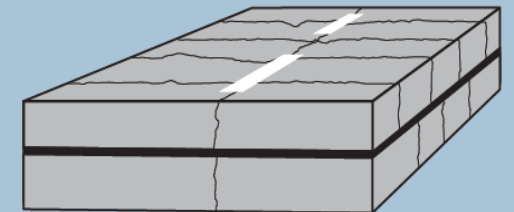
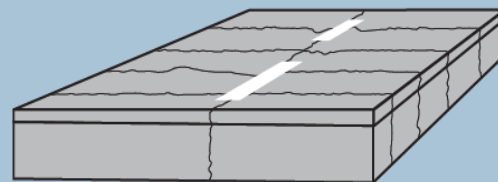
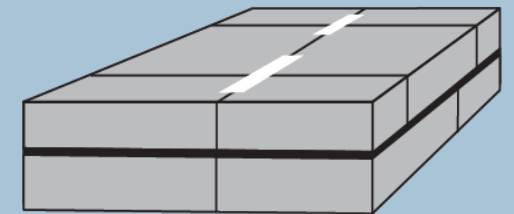
Concrete on Concrete

Concrete on concrete (COC) overlays can be designed for applications on both existing jointed plain concrete pavement (JPCP) and continuously reinforced concrete pavement (CRCP). The predominance of COC overlay designs are unbonded (COC-U) systems; however, bonded (COC-B) applications can be successful, provided the existing pavement is in good condition.

COC-B (JPCP and CRCP)



COC-U (JPCP and CRCP)



Dodge County A: Successful Concrete Overlay

Project Overview:

- **Constructed:** 2007
- **Length:** 4.2 miles
- **Classification:** Major Collector
- **Serves as a bypass** for Beaver Dam
- Connects USH 151 to STH 26

Concrete Overlay Design:

- **Thickness:** 7.5 inches
- **Lifespan:** 30 years
- **Joint Spacing:** 15 feet
- **Dowel Bars:** 1-inch diameter



Dodge County A: Successful Concrete Overlay

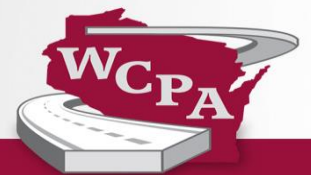


Traffic Highlights:

- **2003 ADT:** 3,400 → **2025 ADT:** 7,400
- **Growth Factor:** 4%
- **Percent Trucks:** 9%
- **Design Speed:** 60 mph

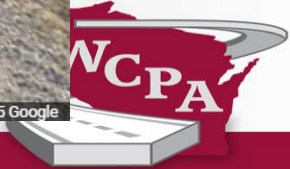
Success Factors:

- Long-lasting durability
- Cost-effective solution
- Handles growing traffic



Dodge County A: Successful Concrete Overlay

Now...18 years later!!!



WisDOT Priorities

- Specification Re-org
- Updates to standard specs and CMM
- Special Provisions
 - High Performance Concrete
 - Ride
- Task Forces
 - Fast Track
 - Concrete Strength
- Dispute Resolution Language



Concrete Pavement Inspection Training

 ~~Northwest Region (Green Bay)
Tuesday, January 14, 2025~~

• Southeast Region (Waukesha)
• Tuesday, January 21, 2025

• Southwest Region (Madison)
• Wednesday, January 22, 2025

- Collaborative Effort with WisDOT
- In-Person Training in 3 Regions each year





Thursday Conference Agenda

February 13, 2025

7:30 AM	Check - In & Exhibitor Showcase	Conference Lobby
8:30 AM	Welcome & Introductions Jackie Spoor - President, WCPA	Exhibition Hall AB
8:45 AM	WisDOT - Address from the Secretary's Office: Funding and Program Vision Scott Lawry - Deputy Secretary, WisDOT	Exhibition Hall AB
9:15 AM	WisDOT Partnership Rebecca Burkel - Administrator, Division of Transportation System Development	Exhibition Hall AB
9:45 AM	Break & Exhibitor Showcase	
10:00 AM	FHWA Updates and Implementation Strategies Robert Spragg, PhD, PE - Concrete Materials Engineer, FHWA	Exhibition Hall AB
10:45 AM	MCTC's Visit to Wisconsin Jagan Gudimetlla, PE - Technical Director of Highway Programs, FHWA	Exhibition Hall AB
11:15 AM	Dowels - Best Practices and Specifications Mark Snyder, PE - President, Pavement Engineering & Research Consultants	Exhibition Hall AB
12:00 PM	LUNCH	
12:45 PM	Celebrating Wisconsin's Award Winning Projects Leslie Ashauer, PE - Director of Engineering, WCPA	
1:15 PM	HTCP Update / QMP Award Winner Jodi Pluemer - Program Director, HTCP	

1:30 PM Break & Exhibitor Showcase

DESIGN TRACK Exhibition Hall AB		CONSTRUCTION / MUNICIPAL TRACK Salon CD
2 - 2:45 PM	Optimizing Equivalent Designs • Eric Ferrebee, PE - Senior Director of Technical Services, ACPA	Smooth Concrete Pavement • Matt Fonte - President, Fonte and Company
3 - 3:45 PM	Concrete Overlays - What We've Learned • Dan King, PhD, PE - Research Engineer, CP Tech Center • Eric Ferrebee, PE - Senior Director of Technical Services, ACPA	Iowa's Municipal Pavement Preservation Success • Greg Mulder, PE - Executive Director, ICPA
4 - 4:45 PM	FAA Specifications Updates • Sara Dalton, PE - Pavement Engineer, Colorado/Wyoming ACPA	ADAAG Guidelines & Best Practices: Warning Plates & Radial DWPs • Matthew Stec - Direct Sales Manager, Neenah Enterprises, Inc.

4:45 PM Break & Exhibitor Showcase

5:30 PM	Roundtable Discussion Updates Rebecca Burkel - Administrator, Division of Transportation System Development Jackie Spoor - President, WCPA	Exhibition Hall AB
6:00 PM	WCPA's Wisconsin Tailgate Dinner, Scholarship Recognition Jackie Spoor - President, WCPA	Exhibition Hall AB
8:00 PM	WCPA Hospitality & Networking	Exhibition Hall AB

REGISTER NOW!

WCPA Annual Conference

February 13th & 14th

Friday Conference Agenda



February 14, 2025

7:00 AM	Hot Breakfast Buffet	
7:00 AM	Check - In for New Arrivals & Exhibitor Showcase	Exhibition Hall AB
8:00 AM	Concrete - Benefits of and Beyond Conventional Use John Kevern, PhD, PE, F.ASCE, FACI, LEED AP - Senior Researcher, National Renewable Energy Laboratory	Exhibition Hall AB
9:00 AM	Sustainable Construction Practices for Contractors - Rc3 Innovations Larry Sutter, PE - Principal Engineer, Sutter Engineering, LLC	Exhibition Hall AB
9:30 AM	Carbon Footprint Reduction: IGGA Calculator & Sustainability Nick Davis, PE - Director of Technical Services, IGGA	Exhibition Hall AB
10:00 AM	Break & Exhibitor Showcase	
10:15 AM	Ethics in Construction Gretchen Bockenbauer - CM Program Coordinator, UWP Gina Blasen, PE - CM Assistant Professor, UWP	Exhibition Hall AB
11:30 AM	WisDOT Concrete & WHRP Updates: Erik Lyngdal, PE - Chief Materials Engineer, WisDOT Tirupan Mandal, PhD, PE - Concrete Materials Unit Supervisor and Research Program Chair, WisDOT	Exhibition Hall AB
12:00 PM	Adjourn	

Scan Below to Get More Info



Social Media



Hotel Map



Agenda



Save The Date

Thank you!

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