

NCC State Reports Spring 2018 - Types of Reinforcement, Mass Concrete and Self Consolidating Concrete

Monday, April 09, 2018

33

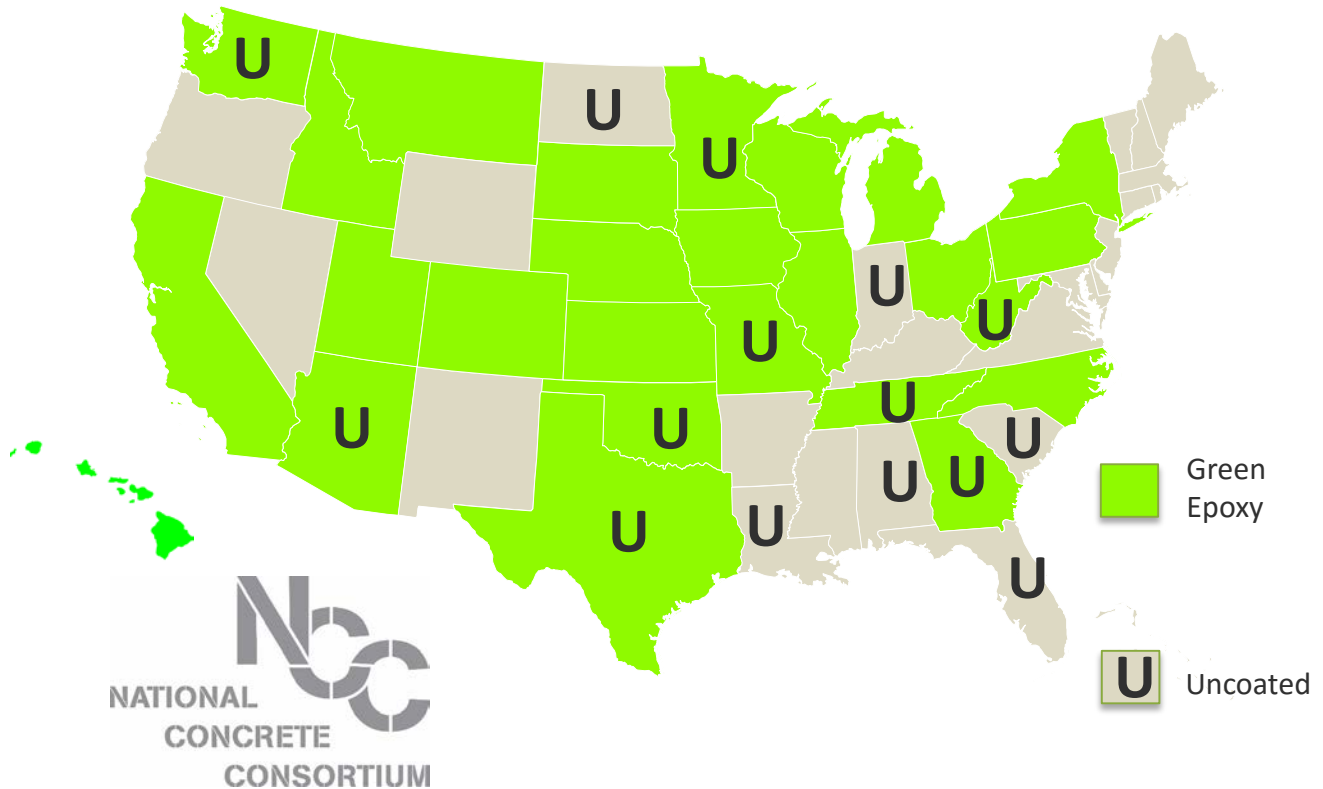
Total Responses

Date Created: Tuesday, January 16, 2018

Complete Responses: 33

Q2: What type of reinforcement does your DOT install in structures (excluding bridge decks) - Select all that apply?

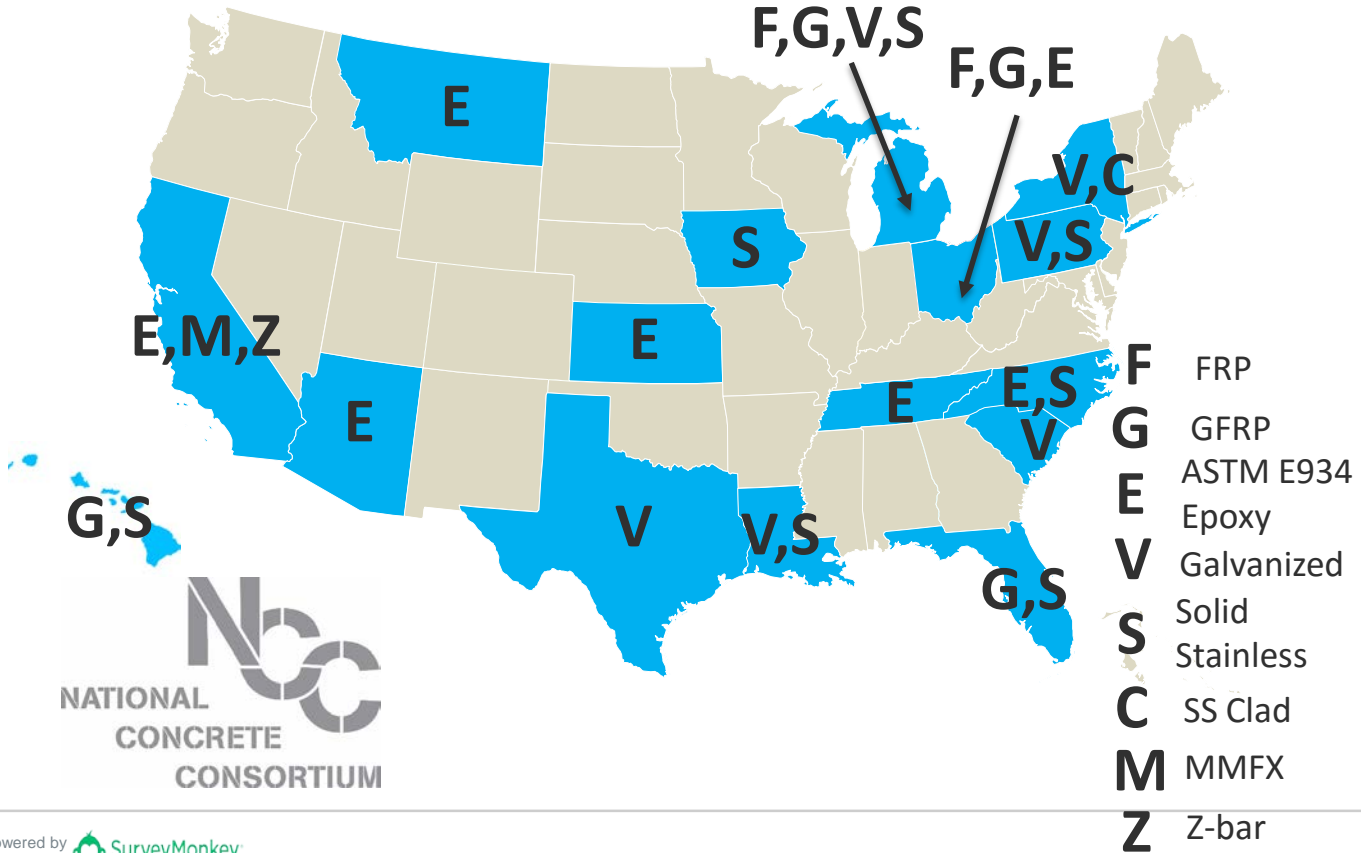
Answered: 33 Skipped: 0



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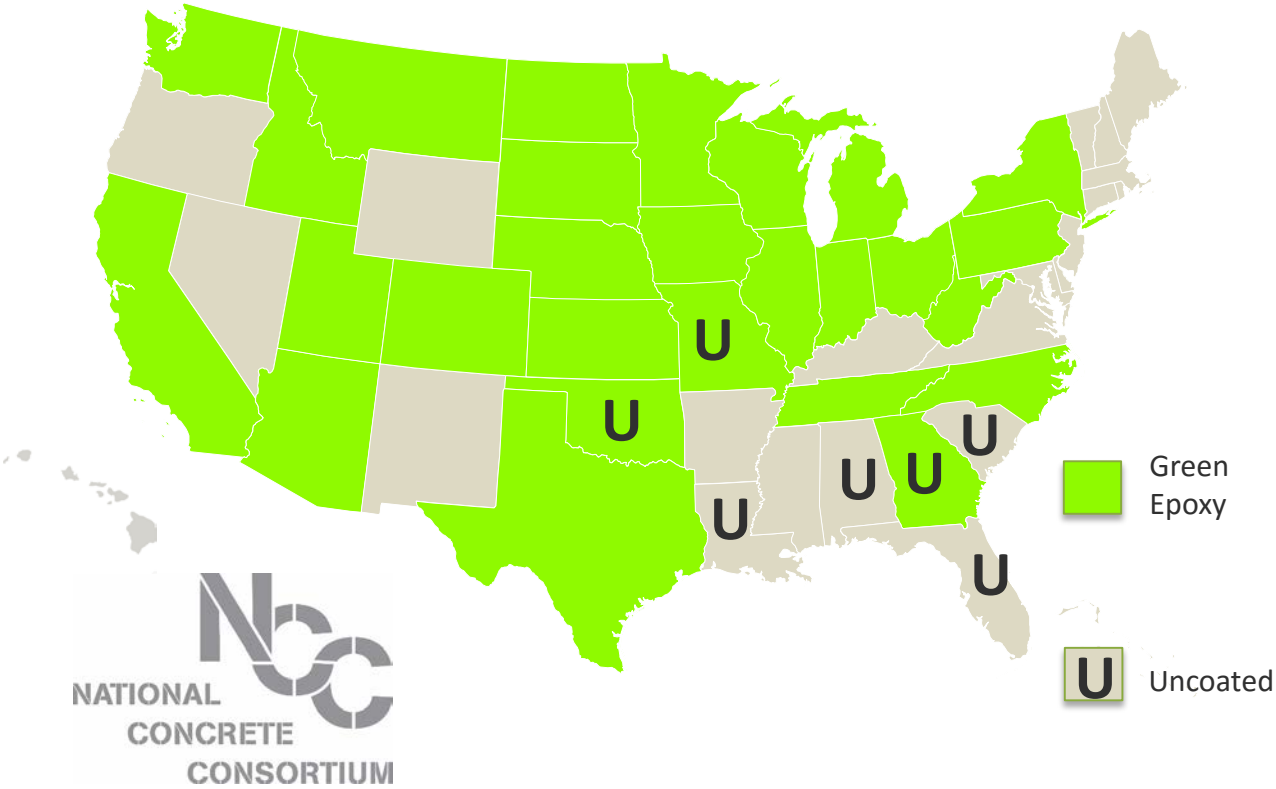
Q2: What type of reinforcement does your DOT install in structures (excluding bridge decks) - Select all that apply?

Answered: 33 Skipped: 0



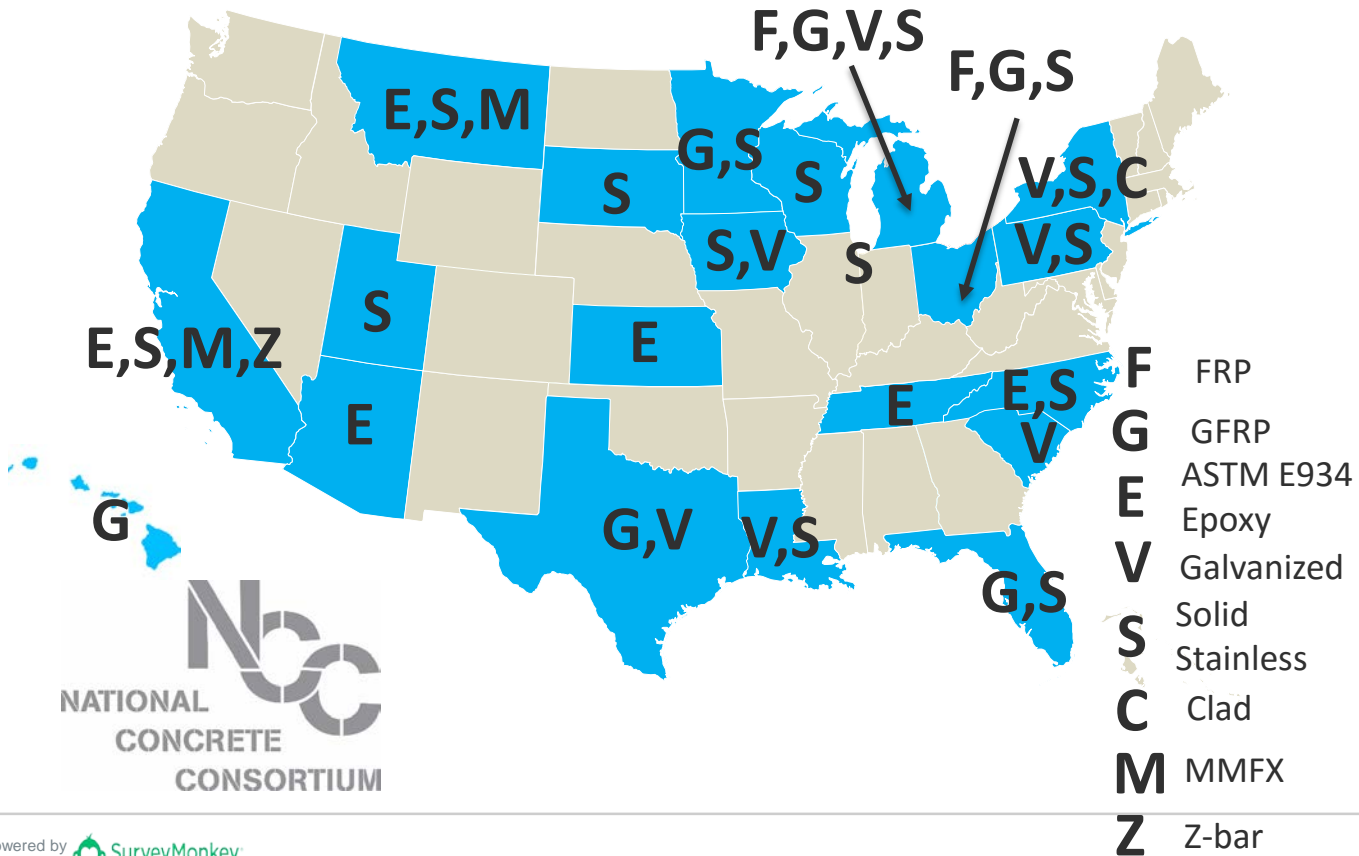
Q3: What type of reinforcement does your DOT install in bridge decks (Select all that apply)?

Answered: 33 Skipped: 0



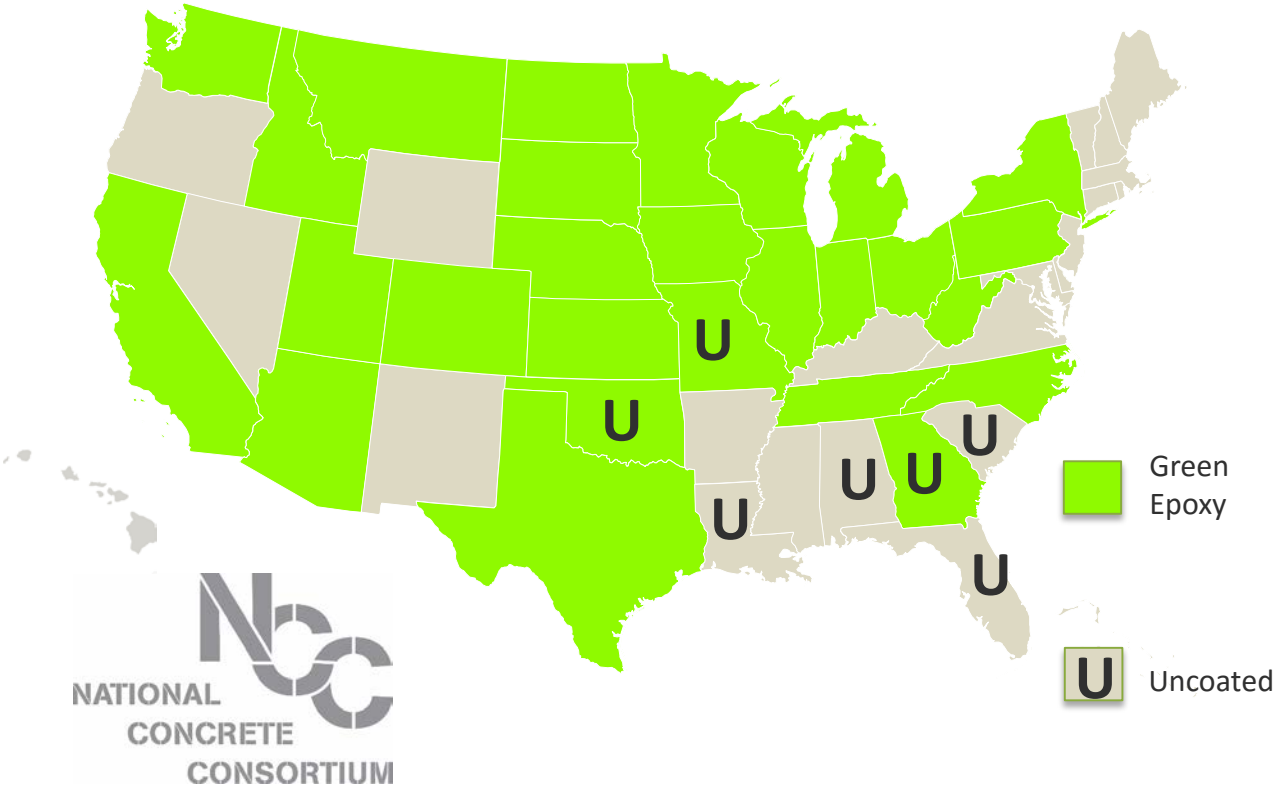
Q3: What type of reinforcement does your DOT install in bridge decks (Select all that apply)?

Answered: 33 Skipped: 0



Q4: What type of reinforcement does your DOT install in pavements (Select all that apply)?

Answered: 33 Skipped: 0

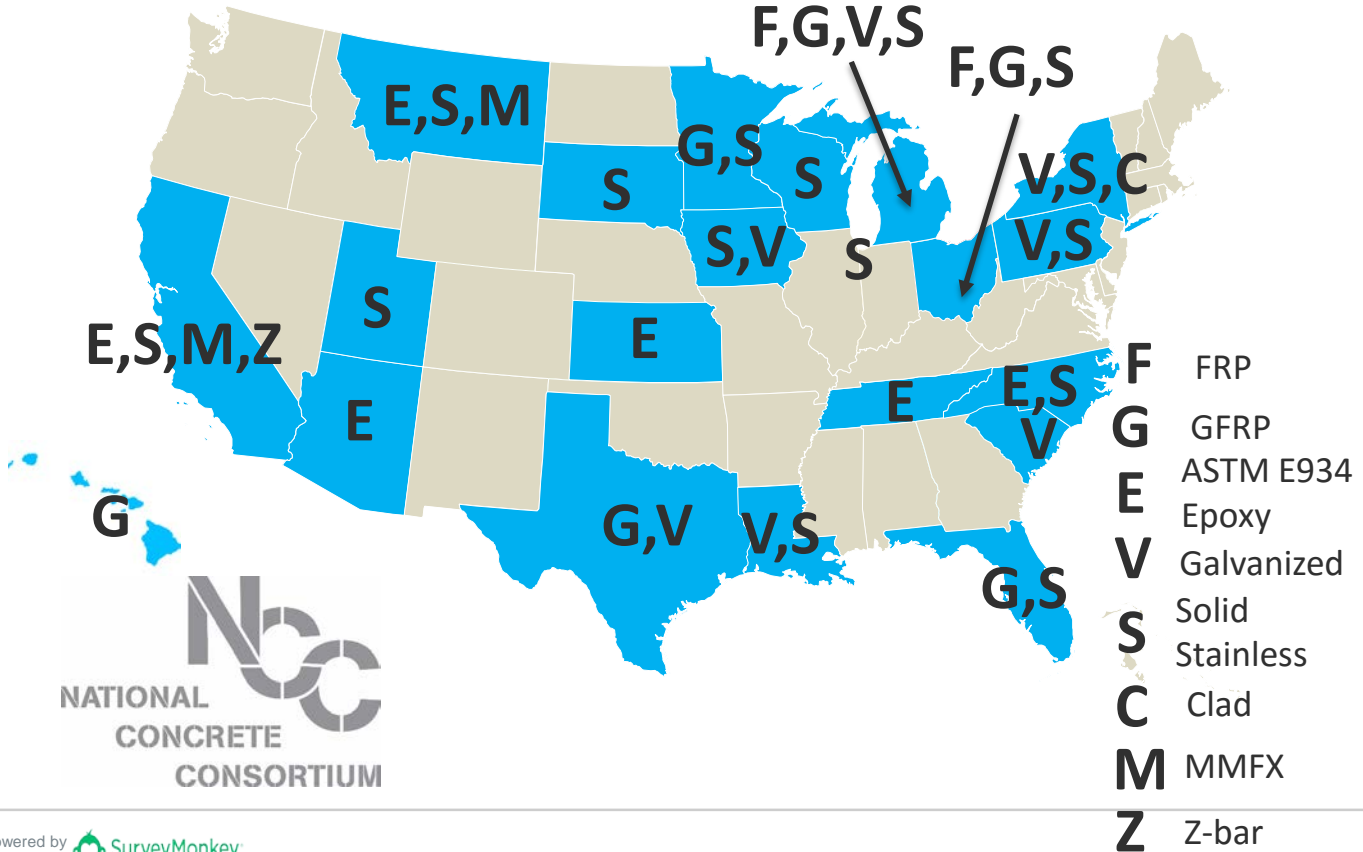


 Green Epoxy

 Uncoated

Q4: What type of reinforcement does your DOT install in pavements (Select all that apply)?

Answered: 33 Skipped: 0



Q5: What criteria determine the type of reinforcement specified? For Structures (excluding Bridge Decks)

Answered: 33 Skipped: 0

Criteria	Agency
Corrosion	TX, CA, HI, NC, LA, PA
Location/Traffic Volume	NY, OK
Deicing	MO
Cost	MO
Seismic	SC
Exposure to Elements	TN
Environmental	FL

Q5: What criteria determine the type of reinforcement specified? For Bridge Decks

Answered: 33 Skipped: 0

Criteria	Agency
Corrosion	TX, CA, NC, LA, PA
Location/Traffic Volume	SD, GA, WI, AZ, PA, OK
Deicing	MO
Cost	MN, MO, KS, PA
Seismic	SC
Exposure to Elements	TN, MN
Environmental	FL
Concrete Cover	HI

Q5: What criteria determine the type of reinforcement specified? For Pavements

Answered: 33 Skipped: 0

Criteria	Agency
Corrosion	PA
Location/Traffic Volume	MN, IN, CA, WI, PA
Cost	MO
District Choice	IL

Illinois Tollway – Uses GFRP on toll roads for high speed scanners

Q6: Please provide the your approved/qualified lists for the following, if applicable.

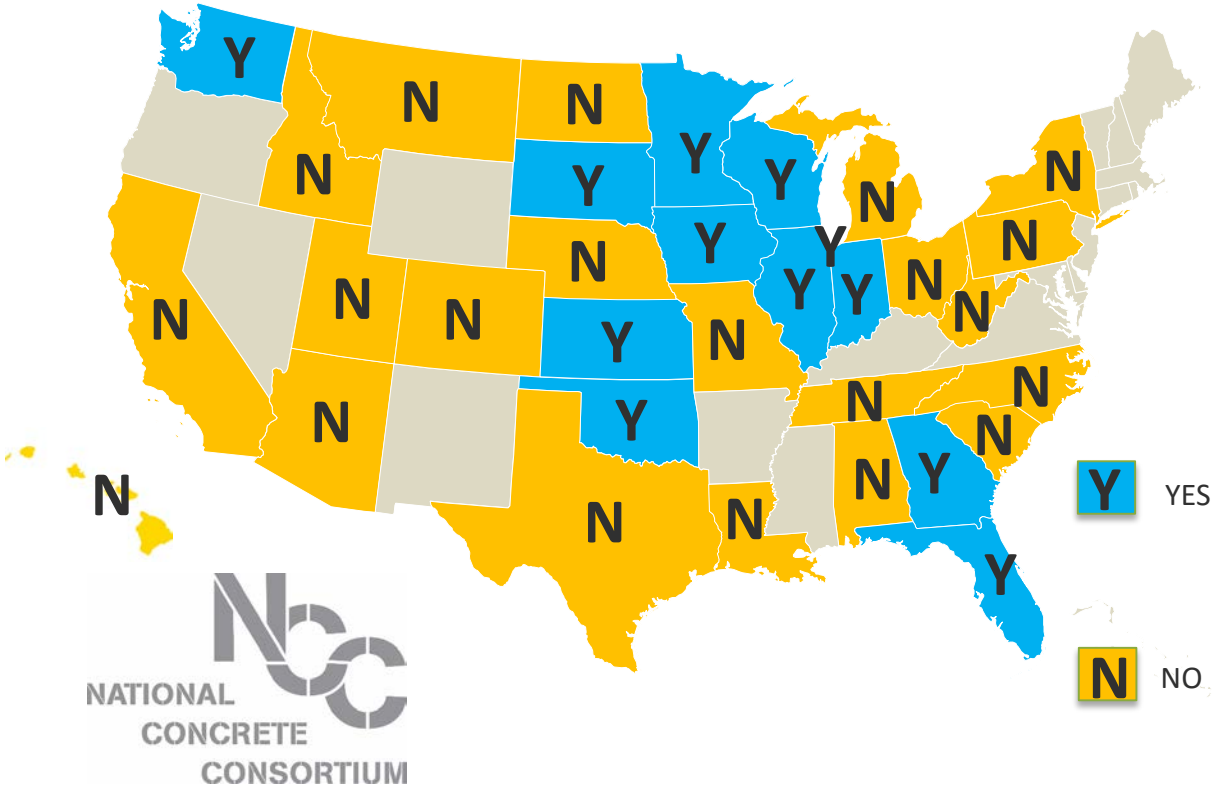
Answered: 32 Skipped: 1

SEE INDIVIDUAL STATE RESPONSES FOR:

- Reinforcement Bars
- Dowel Bars
- Epoxy Coaters
- Galvanizers
- Other (Epoxy Coating/Powder)
- Other (Welded Wire Reinforcement)
- Other (Steel Splices)
- Other (Solid Stainless Steel)

Q7: Is there any research on reinforcement being performed/sponsored by your DOT?

Answered: 32 Skipped: 1



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Answered: 32 Skipped: 1

Minnesota - Currently have small project in progress to survey bridge decks built in 1970's using galvanized bars. Also comparing performance of decks with top mat epoxy/bottom mat black to decks with epoxy top and bottom mat. Also studying GFRP bars in 2 deck installations.

South Dakota - Waiting for the final report on a study done by SDSU on Tie Bar Placement Tolerances.

Georgia - Georgia Tech-HPC pile with Stainless Steel rebar. The overall purpose of this research was to determine methods which may be applied economically to mitigate corrosion of reinforcement in precast prestressed concrete piles in Georgia's marine environments

Q7: Is there any research on reinforcement being performed/sponsored by your DOT?

Answered: 32 Skipped: 1

Indiana - SPR-3422 was published in 2014. The research was conducted by the Joint Transportation Research Program and Dr. Robert Frosch at Purdue University

Iowa –

MMFX

http://www.intrans.iastate.edu/reports/corrosion_resistant_steel.pdf
df Galvanized

http://www.intrans.iastate.edu/research/documents/research-reports/galvanized_steel_bridge_w_cvr1.pdf

https://iowadot.gov/bridge/ibrc_projects/IA%2092%20Galvanized%20Bars%20WJE%20Final%20report.pdf Looking at fiberglass reinforcement also

Q7: Is there any research on reinforcement being performed/sponsored by your DOT?

Answered: 32 Skipped: 1

Illinois Tollway - The Tollway is funding a research project on CRCP. The use of non-coated longitudinal reinforcement is part of that work.

Illinois - Behavior of Epoxy Coated Textured Reinforcement Bars: The aim of this project is to study the bond and flexural behavior of a new type of epoxy coated reinforcement bar, which has a second coating provided to add texture with the intent to improve bond behavior,. The primary goals of the study are: 1) Compare the bond behavior of the new textured bars with conventional black steel rebar. 2) Determine the impact of adding texture to the surface of the epoxy coated rebars on their development length.

<https://apps.ict.illinois.edu/projects/view.asp?id=345>

Q7: Is there any research on reinforcement being performed/sponsored by your DOT?

Answered: 32 Skipped: 1

Wisconsin - A WHRP is just beginning on Textured Reinforcement

Kansas - Corrosion: Cathodic protection of existing bridge deck reinforcement

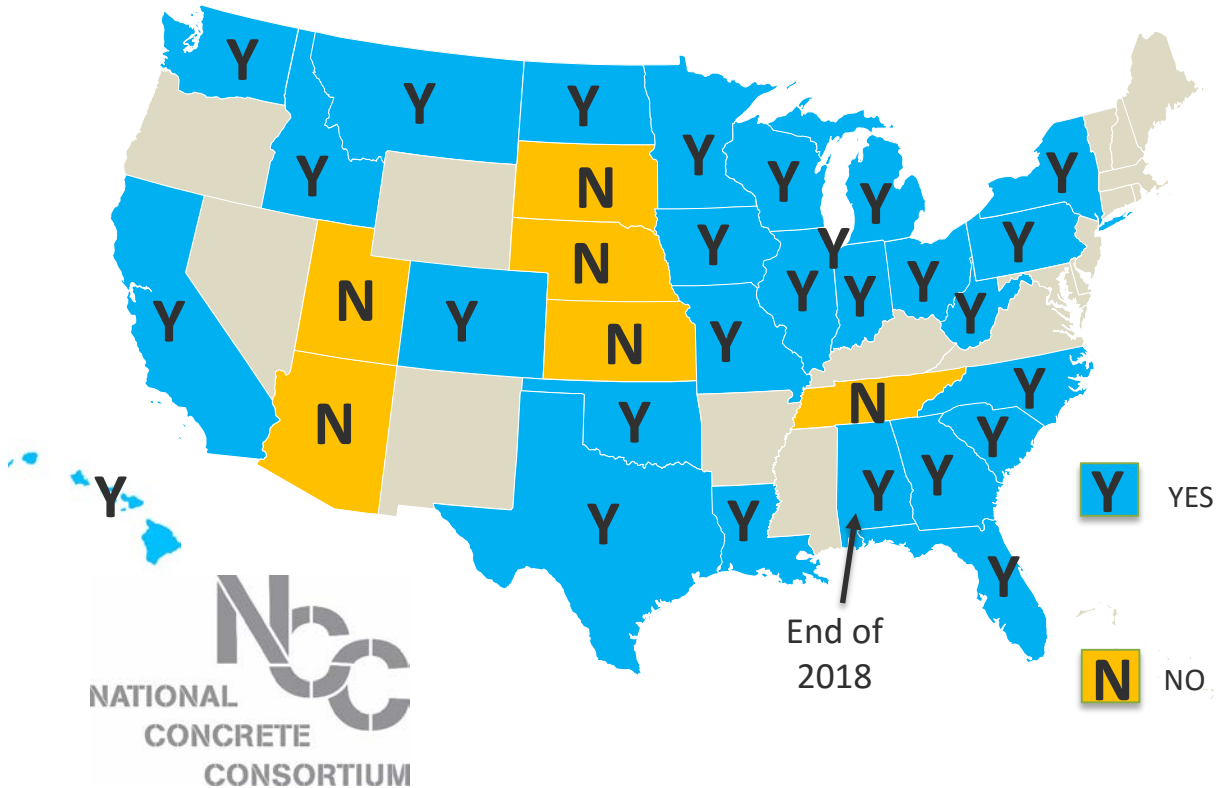
Florida - Design and use of stainless steel rebar and seven-wire strand in prestressed concrete.

Washington - WSDOT Bridge and Structures has had research interest in Grade 80 ASTM A706 rebar. We do have one pilot project that is complete using shape memory alloy bar in place of conventional rebar.

North Carolina - Trial on GFRP rebar

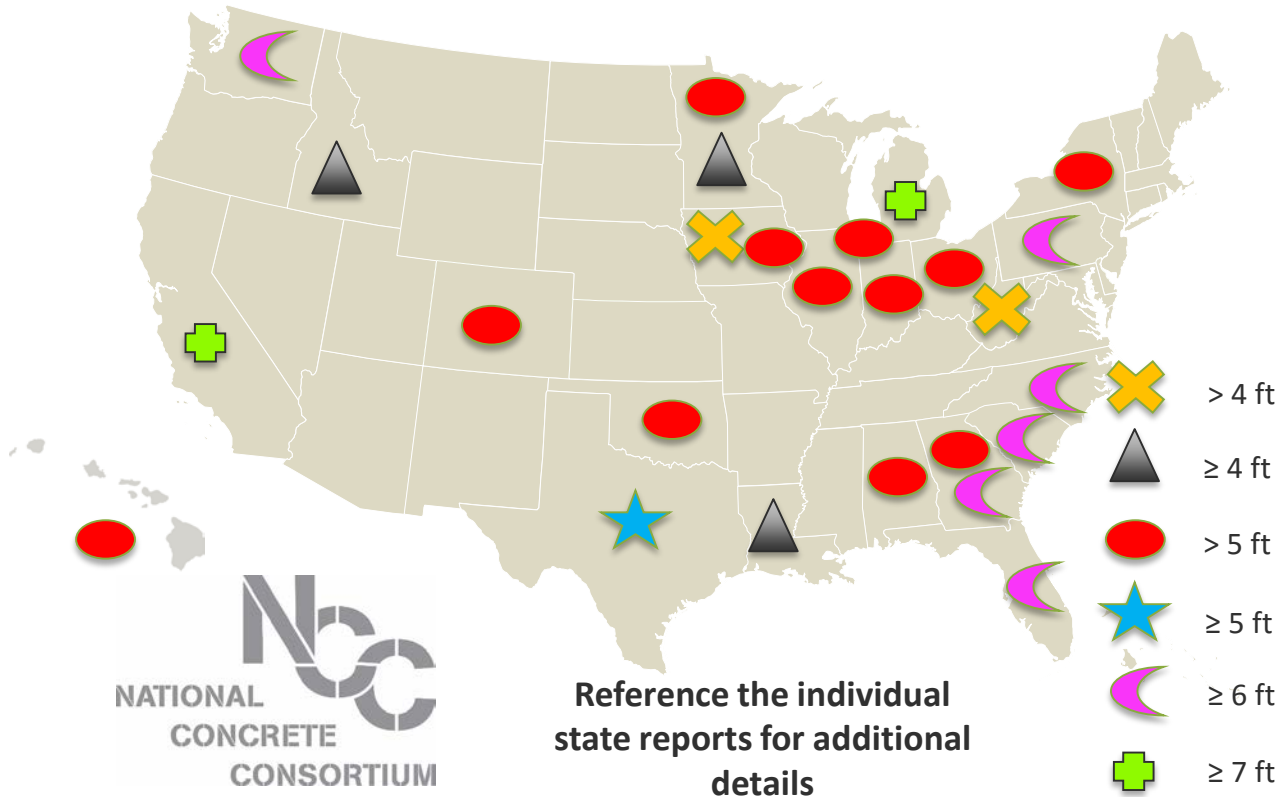
Q8: Do you use Mass Concrete?

Answered: 32 Skipped: 1



Q9: What dimensions are considered mass concrete?

Answered: 33 Skipped: 0



Q10: What are the mix design requirements for mass concrete?

Answered: 32 Skipped: 1

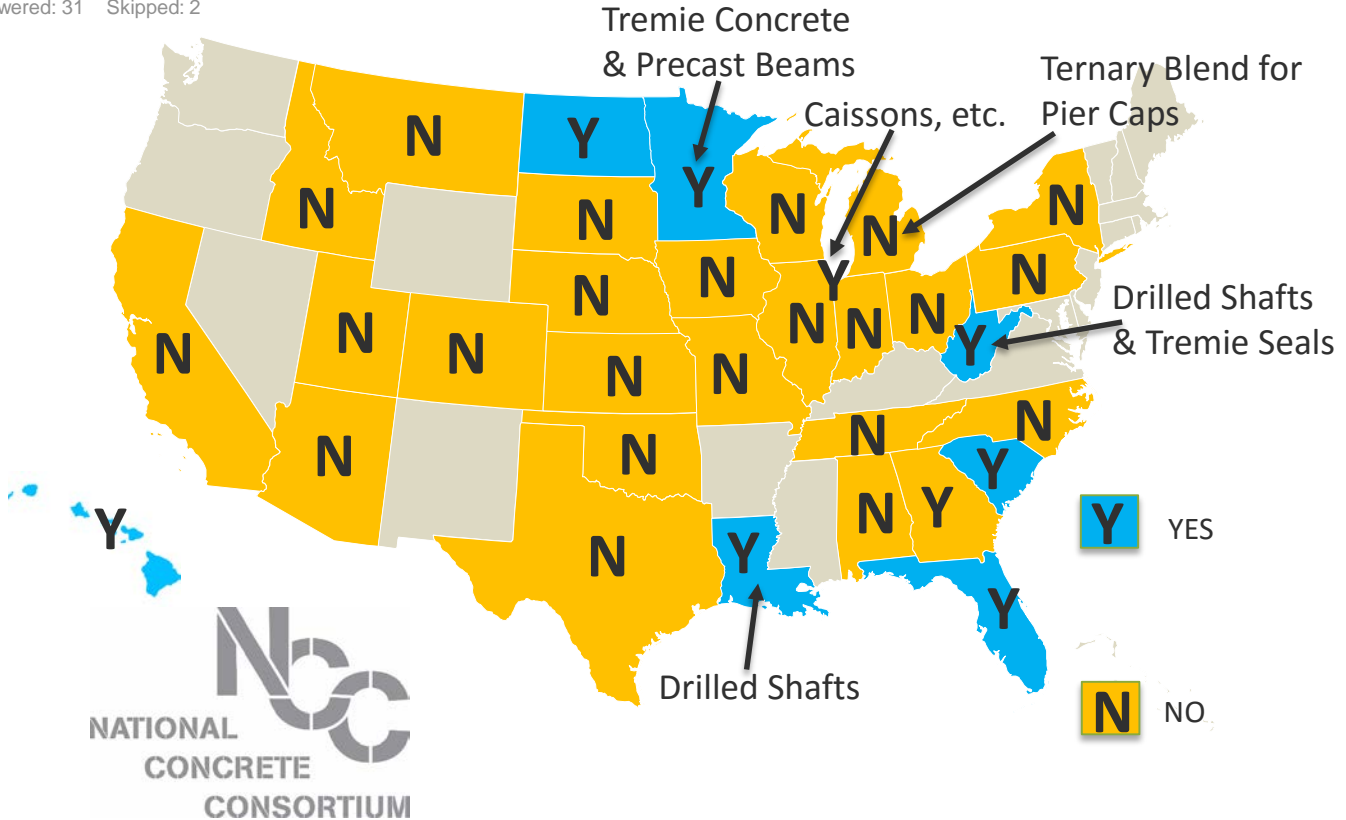
As a general rule – most of the DOT's requirements are to require a thermal control plan that meets the max temperature differential and the max temperature.

Some projects allow higher SCM replacements.

Refer to the Individual State Reports for Additional Information.

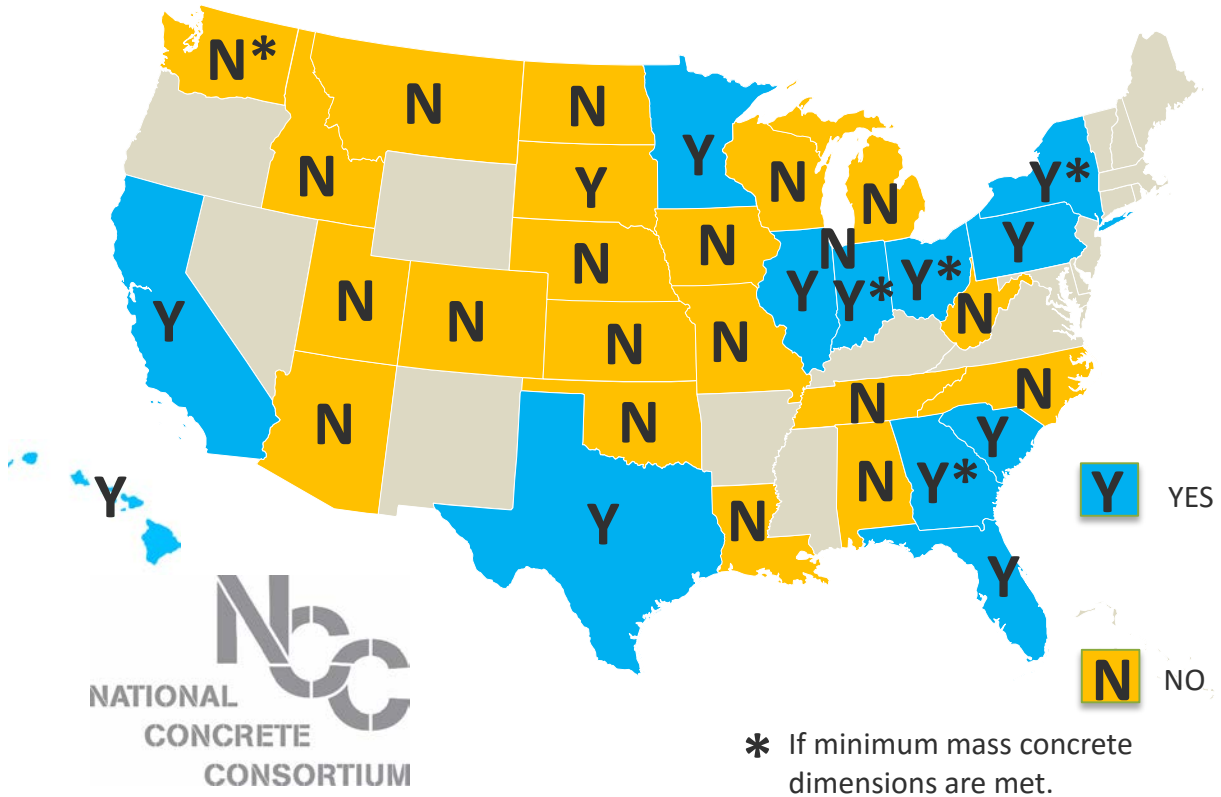
Q11: Do you have any exclusions for mass concrete?

Answered: 31 Skipped: 2



Q12: Do you consider drilled shafts mass concrete?

Answered: 33 Skipped: 0



Q13: What are the mix design requirements for drilled shafts?

Answered: 32 Skipped: 1

Some smaller coarse aggregate top size

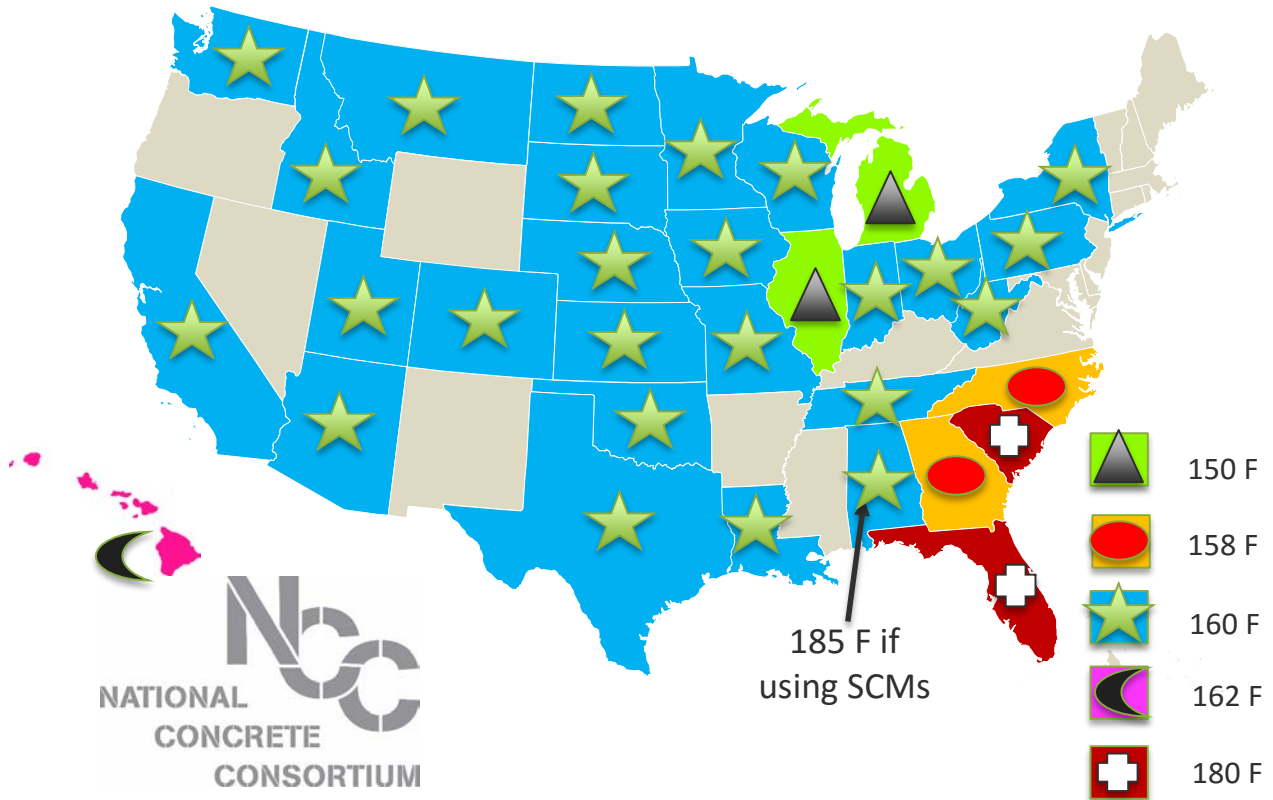
Some higher slumps allowed

Some projects allow higher SCM replacements.

Refer to the Individual State Reports for Additional Information.

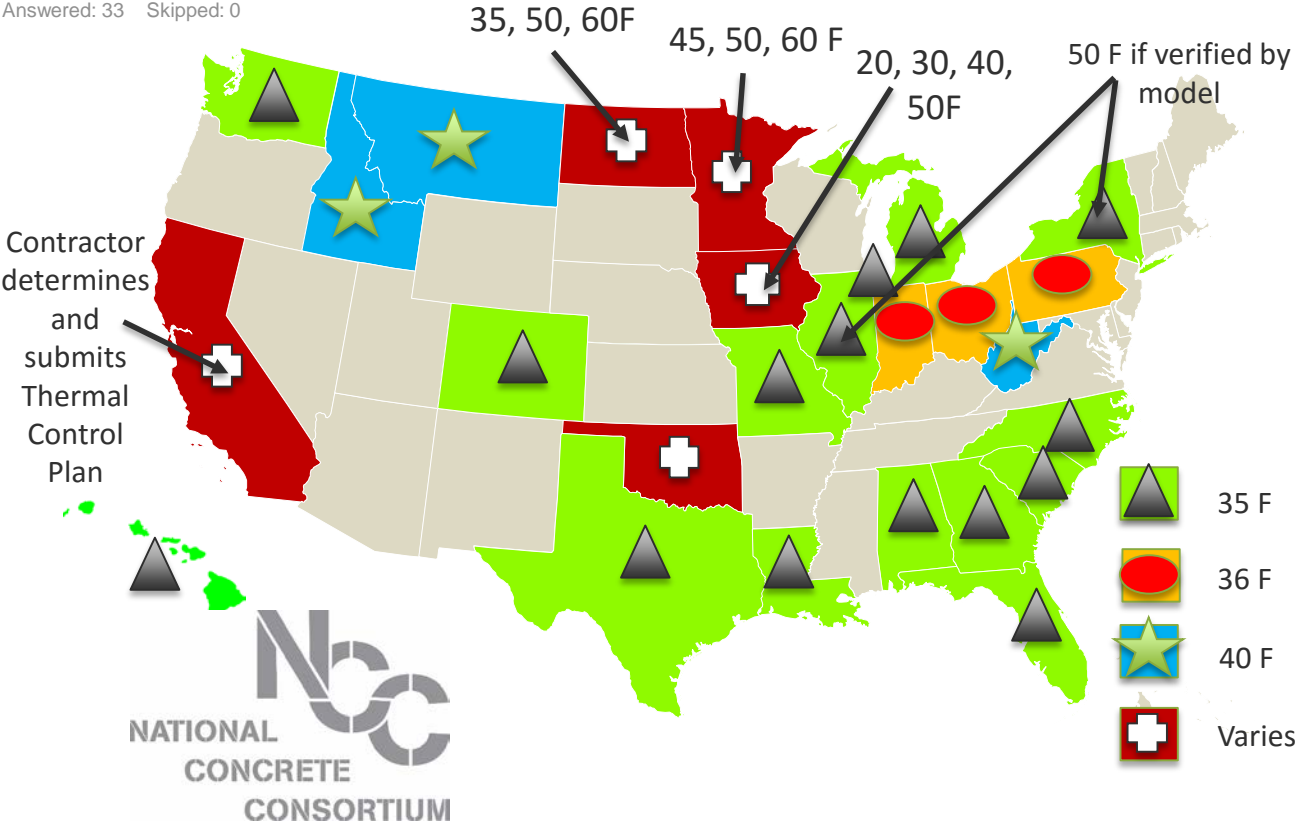
Q14: What is the maximum temperature for mass concrete?

Answered: 33 Skipped: 0



Q14: What is the maximum temperature differential for mass concrete?

Answered: 33 Skipped: 0



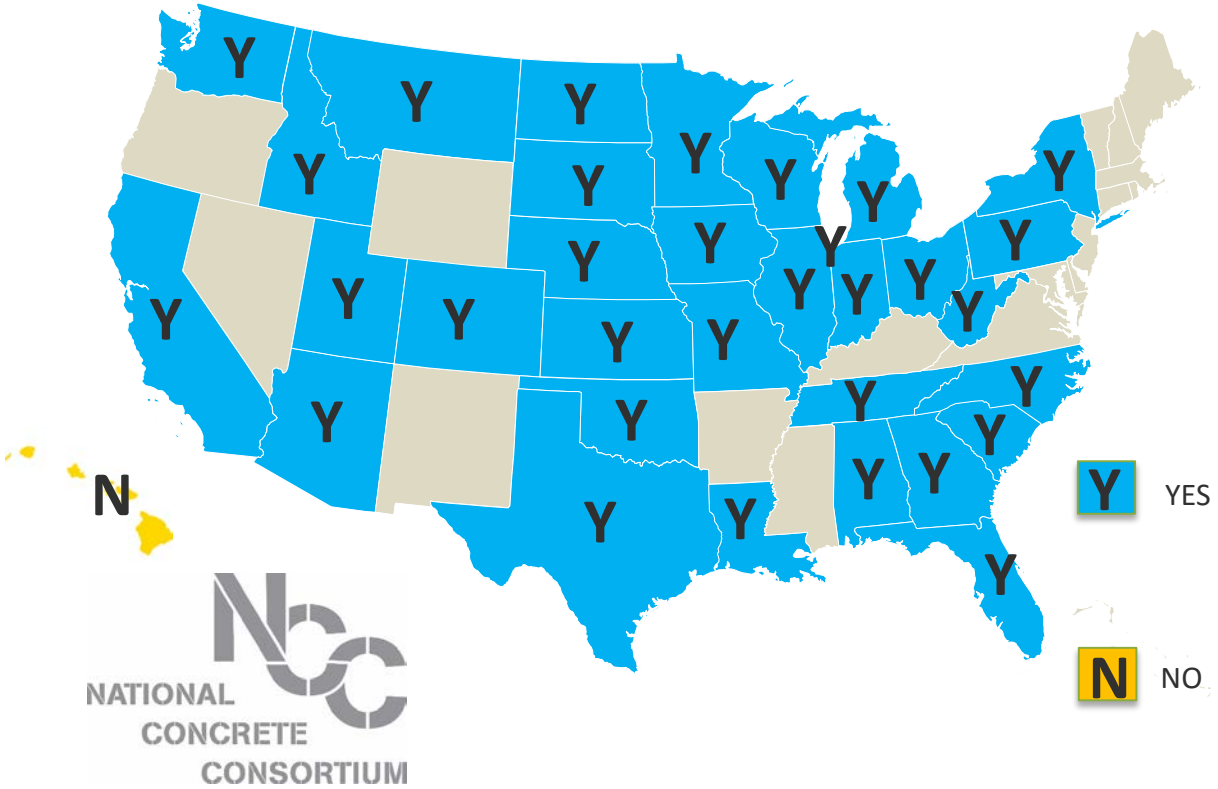
Q14: What is the maximum temperature differential for mass concrete?

Answered: 33 Skipped: 0

	20 F	30 F	35 F	40 F	45 F	50 F	60 F
IA	< 24 hrs	24-48 hr		48-72 hr		>72 hr	
IL						Up to 50 F if mathematically verified	
MN					0 - 48 hr	3 to 7 days	8 + days
ND			0 - 48 hr			2 to 7 days	8 to 14 days
NY						> 48 hrs when coarse agg has low CTE	

Q15: Do you have any experience with self consolidated concrete?

Answered: 33 Skipped: 0



Q16: Please attach a link to your specifications for the following types of concrete materials:

Answered: 32 Skipped: 1

SEE INDIVIDUAL STATE RESPONSES

- Mass Concrete
- Self Consolidating Concrete
- Drilled Shafts
- Dowel Bars
- Reinforcing Bars