

# **NCC State Reports Fall 2018 - QC/QA State Practices, Tolerances, Quality Plans, Plant Certification, E-construction and PEM Status**

September 18, 2018

Modified October 20, 2018



# Disclaimer

All data presented herein is based upon the information provided in the survey and the interpretations of the information by the presenter.

# 33

Total Responses

Date Created: Thursday, July 26, 2018

Complete Responses: 33

**Refer to the NC2 website for each DOT's response**

## Q2: Please provide a link to your Agency's Schedule of Materials Testing for the Agency and the Contractor.

AL	<a href="http://www.dot.state.al.us/mtweb/Testing/testing_manual/AST_index.html">http://www.dot.state.al.us/mtweb/Testing/testing_manual/AST_index.html</a>
CA	Construction Manual: <a href="http://www.dot.ca.gov/hq/construc/constmanual/">http://www.dot.ca.gov/hq/construc/constmanual/</a> Construction Contract Standards: <a href="https://des.onramp.dot.ca.gov/office-engineer/construction-contract-standards">https://des.onramp.dot.ca.gov/office-engineer/construction-contract-standards</a>
CO	Agency Schedule: <a href="https://www.codot.gov/business/designsupport/matgeo/manuals/2018-fmm/intro-docs/07-0a-schedule-18.pdf/view">https://www.codot.gov/business/designsupport/matgeo/manuals/2018-fmm/intro-docs/07-0a-schedule-18.pdf/view</a>
CO	Contractor Schedule in 106.06 here: <a href="https://www.codot.gov/business/designsupport/cdot-construction-specifications/2017-construction-standard-specs/2017-specs-book/division-100-2017-final.pdf/view">https://www.codot.gov/business/designsupport/cdot-construction-specifications/2017-construction-standard-specs/2017-specs-book/division-100-2017-final.pdf/view</a>
FL	Concrete Pavement-Section 350 <a href="http://www.fdot.gov/programmanagement/Implemented/SpecBooks/July2018/Files/350-718.pdf">http://www.fdot.gov/programmanagement/Implemented/SpecBooks/July2018/Files/350-718.pdf</a> Structural Concrete-Section 346 <a href="http://www.fdot.gov/programmanagement/Implemented/SpecBooks/July2018/Files/346-718.pdf">http://www.fdot.gov/programmanagement/Implemented/SpecBooks/July2018/Files/346-718.pdf</a>
GA	<a href="http://www.dot.ga.gov/PS/Business/Source/STI">http://www.dot.ga.gov/PS/Business/Source/STI</a>
IA	<a href="https://www.iowadot.gov/erl/current/IM/content/204ae.htm">https://www.iowadot.gov/erl/current/IM/content/204ae.htm</a>
IA	<a href="https://www.iowadot.gov/erl/current/IM/content/204ah.htm">https://www.iowadot.gov/erl/current/IM/content/204ah.htm</a>
ID	<a href="https://apps.itd.idaho.gov/apps/manuals/QAm/QA_MTR_Tables.pdf">https://apps.itd.idaho.gov/apps/manuals/QAm/QA_MTR_Tables.pdf</a>
IL & IL Toll	Refer to Check Sheet #25 in <a href="http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&amp;-Handbooks/Highways/Construction/Supplemental-Standards-Specifications/2018%20Supplemental%20Specifications.pdf">http://www.idot.illinois.gov/Assets/uploads/files/Doing-Business/Manuals-Guides-&amp;-Handbooks/Highways/Construction/Supplemental-Standards-Specifications/2018%20Supplemental%20Specifications.pdf</a>

## Q2: Please provide a link to your Agency's Schedule of Materials Testing for the Agency and the Contractor.

IN	<a href="https://www.in.gov/indot/files/FreqOfSamplingAndTesting.pdf">https://www.in.gov/indot/files/FreqOfSamplingAndTesting.pdf</a>
KS	<a href="http://www.ksdot.org/burconsmain/Connections/ConstManual/index.asp">http://www.ksdot.org/burconsmain/Connections/ConstManual/index.asp</a> Part V - Materials (2018)
LA	Respondent Skipped This Question
MI	Link to MDOT's Material Source Guide (chapter 7): <a href="https://www.michigan.gov/mdot/0,4616,7-151-9622_11044_11367-207980--,00.html">https://www.michigan.gov/mdot/0,4616,7-151-9622_11044_11367-207980--,00.html</a> Special Provision for Concrete Paving (select "Special Provisions-Frequently Used (2012)" then click View/Print Documents then scroll down to 12Sp-604B-10 and select): <a href="https://mdotcf.state.mi.us/public/dessssp/spss/gotoview.cfm?ds=27">https://mdotcf.state.mi.us/public/dessssp/spss/gotoview.cfm?ds=27</a>
MN	<a href="http://www.dot.state.mn.us/materials/labdocs/2018%20SMC%20for%202018%20Spec%20Book%20(Rev).pdf">http://www.dot.state.mn.us/materials/labdocs/2018%20SMC%20for%202018%20Spec%20Book%20(Rev).pdf</a>
MO	Section 501 - Concrete Section 502 - PCCP <a href="http://www.modot.org/business/standards_and_specs/2018%20Missouri%20Standards%20Specific%20-%20MHTC%20(July%202018).pdf">http://www.modot.org/business/standards_and_specs/2018%20Missouri%20Standards%20Specific%20-%20MHTC%20(July%202018).pdf</a>
MT	<a href="https://www.mdt.mt.gov/other/webdata/external/materials/materials_manual/601.pdf">https://www.mdt.mt.gov/other/webdata/external/materials/materials_manual/601.pdf</a>
NC	<a href="https://apps.ncdot.gov/vendor/approvedproducts/MinimumSamplingGuide.aspx">https://apps.ncdot.gov/vendor/approvedproducts/MinimumSamplingGuide.aspx</a>
ND	<a href="http://www.dot.nd.gov/manuals/materials/testingmanual/section500.pdf">http://www.dot.nd.gov/manuals/materials/testingmanual/section500.pdf</a>
NE	<a href="https://dot.nebraska.gov/media/11511/sampguide07-01-2018.pdf">https://dot.nebraska.gov/media/11511/sampguide07-01-2018.pdf</a>
NV	<a href="https://www.nevadadot.com/doing-business/about-ndot/ndot-divisions/operations/construction/materials-sampling-and-testing-frequencies">https://www.nevadadot.com/doing-business/about-ndot/ndot-divisions/operations/construction/materials-sampling-and-testing-frequencies</a>

## Q2: Please provide a link to your Agency's Schedule of Materials Testing for the Agency and the Contractor.

<b>NY</b>	<a href="https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals">https://www.dot.ny.gov/divisions/engineering/technical-services/materials-bureau/forms-manuals</a>
<b>OH</b>	<a href="http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/2016-Sampling-and-Testing-Manual/Pages/default.aspx">http://www.dot.state.oh.us/Divisions/ConstructionMgt/Materials/2016-Sampling-and-Testing-Manual/Pages/default.aspx</a>
<b>OK</b>	<a href="http://www.odot.org/materials/pdfs-accept/2009FAST.pdf">http://www.odot.org/materials/pdfs-accept/2009FAST.pdf</a>
<b>PA</b>	Not in one place. Spread throughout specifications.
<b>RI</b>	<a href="http://www.dot.ri.gov/about/who/materials.php#master">http://www.dot.ri.gov/about/who/materials.php#master</a>
<b>SC</b>	<a href="https://www.scdot.org/business/pdf/materials-research/QAST.pdf">https://www.scdot.org/business/pdf/materials-research/QAST.pdf</a>
<b>SD</b>	<a href="http://www.sddot.com/resources/Manuals/matlsmanual/(007)MSTR.pdf">http://www.sddot.com/resources/Manuals/matlsmanual/(007)MSTR.pdf</a>
<b>TN</b>	<a href="https://www.tn.gov/content/dam/tn/tdot/hq-materials-tests/standard-operating-procedures/1-1_SOP_July-12-17.pdf">https://www.tn.gov/content/dam/tn/tdot/hq-materials-tests/standard-operating-procedures/1-1_SOP_July-12-17.pdf</a>
<b>TX</b>	<a href="https://www.txdot.gov/inside-txdot/division/construction/guide-schedule.html">https://www.txdot.gov/inside-txdot/division/construction/guide-schedule.html</a>
<b>UT</b>	<a href="https://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1397">https://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:1397,</a>
<b>WA</b>	<a href="http://www.wsdot.wa.gov/publications/manuals/fulltext/M41-01/Chapter9.pdf">http://www.wsdot.wa.gov/publications/manuals/fulltext/M41-01/Chapter9.pdf</a> Page 9-36 through 9-38
<b>WI</b>	<a href="https://wisconsin.dot.gov/rdwy/stndspec/ss-07-00.pdf">https://wisconsin.dot.gov/rdwy/stndspec/ss-07-00.pdf</a>
<b>WV</b>	See attachment 1 in the attached link. Agency testing is performed at 10% frequency of Contractor testing. <a href="https://transportation.wv.gov/highways/mcst/Material%20Procedures/M6010350.pdf">https://transportation.wv.gov/highways/mcst/Material%20Procedures/M6010350.pdf</a>

## Q3&4: Concrete Paving: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
<b>AL</b>	1 per 528 lf	1 per 100 cy	1 per 528 lf	1 per 100 cy	1 per 528 lf	-
<b>CA</b>	1 per day	1 per hour	-	kellyball 1 per 4 hours	-	-
<b>CO</b>	1 per 5000 sy	1 per 2500 sy	1 per 5000 sy	1 per 2500 sy	1 per 5000 sy	1 per 10000 sy
<b>FL</b>	1 per 8000 sy [1 per 4 lots]	1 per 2000 sy	1 per 8000 sy [1 per 4 lots]	1 per 2000 sy	1 per 8000 sy [1 per 4 lots]	1 per 2000 sy
<b>GA</b>	with cylinders	3 per day min	with cylinders	3 per day min	3 sets of 4 per 5334 sy	-
<b>IA</b>	1 per 700 cy	1 per 350 cy (typ 100 cy)	-	-	-	-
<b>ID</b>	1 per 300 cy	-	1 per 300 cy	-	3 sets/day	-
<b>IL &amp; IL Toll</b>	split 1st 3 QC then minimum 20% of QC	1 per 100 cy min 1/day	split 1st 3 QC then minimum 20% of QC	1 per 500 cy min 1/day	split 1st 3 QC then minimum 20% of QC	1 per 1250 cy
<b>KS</b>	1 per day	1 per 500 cy or 2 hr or 4 hr	1 per day	1 per 500 cy	1 set of 3 per week for opening	1 set of 3 per opening
<b>LA</b>	1 per 1/2 day	2 per 1/2 day	1 per 1/2 day	2 per 1/2 day	5 cores/lot	-

### Q3&4: Concrete Paving: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
MI	1 per day	5 subplot tests per lot (1 day) Typically 1 per 50 – 100 cy	1 per day	5 subplot tests per lot (1 day) Typically 1 per 50 – 100 cy	1 per day	5 subplot tests per lot (1 day) Typically 1 per 50 – 100 cy
MN	1 correlation per day and 1 before/after consolidation	1 per 300 cy	-	-	-	-
MO	1 per day	1 per 500 cy	1 per day	1 per 500 cy	1 per lot (day)	1 core/sublot
MT	1 per 24 cy	-	1 per 24 cy	-	2 sets/1000 cy	-
NC	1 per 1333.3 sy	-	1 per 1333.3 sy	-	1 per 1333.3 sy	-
ND	1 per 2000 sy	-	1 per 2000 sy	-	maturity	-
NE	1st load then 1 per 300 cy	-	-	-	4 per day	-
NV	1 per 200 cy	1 per 100 cy	1 per 500 cy	1 per 100 cy	1 per 200 cy	-
NY	1 per 50 cy	-	1 per 50 cy	-	-	-

### Q3&4: Concrete Paving: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
<b>OH</b>	1st 3 trucks, then 1 per 500 cy	1st 3 truck then every 50 cy	1 per 500 cy	1 per 50 cy	Core	1 per subplot
<b>OK</b>	1 per 625 cy	-	1 per 625 cy	-	1 per 625 cy	-
<b>PA</b>	1 per 1400 sy	1 per 1400 sy	1 per 1400 sy	1 per 1400 sy	1 per 1400 sy	1 per 1400 sy
<b>RI</b>	2x between 20 & 100, 3x between 20 & 150	-	2x between 20 & 100, 3x between 20 & 150	-	2x between 20 & 100, 3x between 20 & 150	-
<b>SC</b>	4 per day	-	4 per day	-	1500 cy/1 day	-
<b>SD</b>	1 per 2 hrs	-	1 per 2 hrs	-	1 per 1500 cy	-
<b>TN</b>	1 per 400 cy	1st load, then random and split with Agency	1 per 400 cy	1st load, then random and split with Agency	1 per 400 cy	early breaks same as agency
<b>TX</b>	1 per 30000 sy	1 per 3000 sy	1 per 30000 sy	1 per 3000 sy	1 per 30000 sy	1 per 3000 sy
<b>UT</b>	1 per 800 cy	-	1 per 800 cy	-	1 per 2600 sy	-
<b>WA</b>	1 per 500 cy	-	-	-	1 per 500 cy	-
<b>WI</b>	1 per 5 QC	1 per 250 cy after startup	-	-	1 per 5 QC	1 set per 250 cy
<b>WV</b>	10% contractor frequency	1 per 500 cy	10% contractor frequency	1 per 500 cy	10% contractor frequency	1 per 350 cy



### Q3&4: Concrete Paving: What frequency are the following tests performed?

	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
<b>AL</b>	-	-	Producer: Before batching then as often as necessary	Producer: 1 per 500 cy/week
<b>CA</b>	-	1 per day	1 per 600 cy/1 per day min	2 per day
<b>CO</b>	-	-	-	3 per day if optimizing
<b>FL</b>	-	[Concrete Producer] 2 hours prior to batching then every 4 hours during continuous batching	-	[Concrete Producer] 1 per 90 Days
<b>GA</b>	-	1 per day	1 per week or 1500 tons	-
<b>IA</b>	-	2 per day	sample 1 per day test 2 per week	1 per 1500 cy
<b>ID</b>	1 per 1000 cy	-	1 per 1000 cy	-
<b>IL &amp; IL Toll</b>	-	CA as needed FA daily or 1 per week with moisture sensor	split 1st QC then 10% of contractor	1 per 2500 cy min 1/week
<b>IN</b>	-	-	-	-
<b>KS</b>	1 per week	1 per 1/2 day	1 per project	1 per 500 tons of combined
<b>LA</b>	-	1 per day/plant	acceptance 1 per lot verification 1 per 1000 cy	2 per day/plant

### Q3&4: Concrete Paving: What frequency are the following tests performed?

	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
MI	-	NRMCA requirements	PWL - 1 per 5000 tons of CA Non-PWL - 1 per 1000 tons for a non-qualified source 1 per 10000 tons for prequalified source.	PWL - 1 per day when on-site batch plant and 1 per week if commercial plant with pre-qualified aggregate Non-PWL - 1 per 1000 tons for a non-qualified source and 1 per 10,000 tons for prequalified source.
MN	1 per 1000 cy or 4 hrs (1st in 250 cy)	startup as needed	1st 4 QC then 1 per day	1 per 1500 cy or 1 per 1/2 day greater
MO	-	-	1 per project	1 per 2000 cy
MT	-	-	1 per 1000 cy	-
NC	-	-	-	-
ND	1 per 50000 sy rural 1 per 15000 sy urban	-	2 per 50000 sy rural 1 per 15000 sy urban	-
NE	-	1 per 1/3 day	For Verification Ledge Rock: 1 per 3000 ton. Fine aggregate: 1 per 6000 ton	Ledge Rock – 1 per 1000 ton. Min. 1 per project Fine aggregate- 1 per 2000 ton
NV	1 per day	1 per 100 cy	1 per 7000 sy	1 per 100 cy

### Q3&4: Concrete Paving: What frequency are the following tests performed?

	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
<b>NY</b>	daily, start of production	-	daily, start of production	-
<b>OH</b>	-	1 per ½ day, not less than 2 per day If varies by more than 1% during day, increase testing	-	Daily
<b>OK</b>	-	-	1 per 625 cy	-
<b>PA</b>	-	Beginning of day, then every 4 hrs	-	1 every day delivered
<b>RI</b>	1 per 150 cy	-	1 per 150 cy	-
<b>SC</b>	-	-	1 per 500 ton/1 per 2000 ton large project	-
<b>SD</b>	1 per 2 hrs (If moisture sensors 1 per 5000 cy or 1 per 5 days)	-	1 per 1000 cy	-
<b>TN</b>	-	Twice a day (am & pm)	-	1 per wk or every 500 cy
<b>TX</b>	min 2x per week	-	as needed	1 per 1000 cy
<b>UT</b>	1 per day	-	1 per day	-
<b>WA</b>	-	-	1 per 2000 cy	-
<b>WI</b>	-	1 per day	1 in 5 QC	-
<b>WV</b>	-	daily	10% of contractor	1 per day

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
<b>AL</b>	1 per 50 cy	Producer 1 per 100 cy	1 per 50 cy	Producer 1 per 100 cy	1 per 50 cy	None
<b>CA</b>	4 hrs or 1 per 30 cy in F-T area	-	-	-	1 per 300 cy	-
<b>CO</b>	1 per 100 cy	1 per 50 cy	1 per 100 cy	As needed	1 per 100 cy	-
<b>FL</b>	1 per 4 lots (200 cy or day production)	1 per lot (50 cy or day production)	1 per 4 lots (200 cy or day production)	1 per lot (50 cy or day production)	1 per 4 lots (200 cy or day production)	1 per lot (50 cy or day production)
<b>GA</b>	1 per 50 cy per structure	-	1 per 50 cy per structure	-	1 per 50 cy per structure	-
<b>IA</b>	1 per 30 cy	-	1 per 30 cy	-	1/deck, 1/sub + deck HPC	-
<b>ID</b>	1st truck, each 50 cy, after 100 cy, each 100	-	1st truck, each 50 cy, after 100 cy, each 100	-	1 per 100 cy min 1/day	-
<b>IL &amp; IL Toll</b>	Split 1st 3 QC then minimum 20% of QC	1 per 50 cy min 1/day test every truck decks, approach, substructure	Split 1st 3 QC then minimum 20% of QC	1 per 50 cy min 1 day	split 1st 3 QC then minimum 20% of QC	1 per 250 cy Min 1/day

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
<b>IN</b>	1 per 50 cy	-	1 per 100 cy	-	-	-
<b>KS</b>	As needed 1 per 50 cy	-	As needed 1 per 50 cy	-	2 sets of 3 per pour, 1 set 3 per 100	-
<b>LA</b>	1 per lot	2 per lot	1 per lot	2 per lot	3 cyl/batch 2 batch/lot	-
<b>MI</b>	Same rules as compressive strength. Plastic air content is performed every time a cylinder set is cast. Min 1 per day.	Based off the Contractor's QC plan which is approved by the project Engineer. Typically, QC will test at a minimum, when QA tests.	Same rules as compressive strength. Slump is performed every time a cylinder set is cast. Min. 1 per day.	Based off the Contractor's QC plan which is approved by the project Engineer. Typically, QC will test at a minimum, when QA tests.	Determined by the Engineer. A lot may be a day's production, individual concrete structural elements or any combination provided same JMF. Each lot divided into sublots of approximately equal size. Min subplot is 1 per lot Max sublots based on the anticipated total quantity of concrete to be placed and site conditions. Min. 1 subplot per day	Based off the Contractor's QC plan which is approved by the project Engineer. Typically, QC will test at a minimum, when QA tests.

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
<b>MN</b>	1 per 100 cy structural, 1 per 300 cy general	-	1 per 100 cy structural, 1 per 300 cy general, none for slipform		1 per 100 cy structural, 1 per 300 cy general	
<b>MO</b>	1 per day	1 per 100 cy	1 per day	1 per 100 cy	1 per day	1 per 500 cy
<b>MT</b>	1 per 24 cy + cyl	-	1 per 24 cy + cyl		min 2 sets/2000 cy or each day	
<b>NC</b>	1st load and 1 per lot (100 cy)	-	1st load and 1 per lot (100 cy)		1st load and 1 per lot (100 cy)	
<b>ND</b>	1st load, then 1 per 25 cy	-	1st load, then 1 per 25 cy		1st load, then 1 per 25 cy	
<b>NE</b>	1 <sup>st</sup> load, then 1 per 1/3 day's production or sufficient number for proper control. Bridge Deck - Air content shall be taken in front of the paver on the deck.	-	Minimum of one test for each day's operation or sufficient number for proper control. Except for patching.	-	1 set of four cylinders for ≤ 100 cy For >100 cy, 3 sets of four cylinders representative of each 1/3 day's production.	-
<b>NV</b>	1 per 100 cy	1 per 50 cy	1 per 100 cy	1 per 50 cy	1 per 100 cy	-
<b>NY</b>	1 per 50 cy	-	1 per 50 cy		1 per 200 cy	

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Plastic Air Content		Slump		Compressive Strength	
	Agency	Contractor	Agency	Contractor	Agency	Contractor
OH	1st 3 trucks every 500 cy thereafter	1st 3 trucks every 50 cy thereafter	1 per 500 cy	1 per 50 cy	6 per 500 cy (3QC and 3QA)	1 set per 50 cy
OK	35 cy	-	35 cy		70 cy	
PA	Beg. of project then 1 every 10th	min 1st 3 loads & every 5th load after	Beg. of project then 1 every 10th	min 1st 3 loads & every 5th load after	Beg. of project then 1 every 10th	min 1st 3 loads & every 5th load after
RI	2x between 20 & 100, 3x between 20 & 150	Per contract	2x between 20 & 100, 3x between 20 & 150	Per contract	2x between 20 & 100, 3x between 20 & 150	Per contract
SC	50 cy min 1/structure	-	50 cy min 1/structure	-	50 cy min 1/structure	-
SD	1 per 2 hrs or 1 per hr deck + cyl	-	1 per 2 hrs or 1 per hr deck + cyl	-	1 per 200 cy general, 1 per 100 cy bridge	-
TN	1 per 100 cy or 1 per 50 cy decks	initial then w/agency	1 per 100 cy or 1 per 50 cy decks	At plant	1 per 100 cy or 1 per 50 cy decks	w/agency
TX	1 per 240 cy	-	1 per 240 cy		1 per 60 cy	
UT	-	-	-		-	
WA	1 per 10 trucks	-	1 per 10 trucks		1 per 10 trucks	
WV	10% of Contractor	1 per 100 cy min 1 per 1/2 day except decks 1 per batch	10% of Contractor	1 per 1/2 day, bridge 1st & every 5th	10% of Contractor	1 per 100 cy

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
<b>AL</b>	-	before batching	-	1 per 500 cy
<b>CA</b>	-	-	1 per 600 cy or 1/day min	-
<b>CO</b>	-	-	-	-
<b>FL</b>	-	[Concrete Producer] 2 hours prior to batching then every 4 hours during continuous batching	-	[Concrete Producer] 1 per 90 Days
<b>GA</b>	-	1 per day	monthly	-
<b>IA</b>	-	1 deck or 1 per week	1 per week, test 20%	1 deck or 1 per week
<b>ID</b>	1 per 500 cy	-	1 per 500 cy	-
<b>IL &amp; IL Toll</b>	-	CA as needed, FA daily, 1 per week with moisture sensor	1st QC then min 10% of QC	1 per 2500 cy or min 1 per week or 1 per day during deck pour unless no new material received
<b>IN</b>	-	-	-	-
<b>KS</b>	Min 1 test in AM and 1 test in PM	-	1 per project	-



## Q5&6: Structural Concrete: What frequency are the following tests performed?

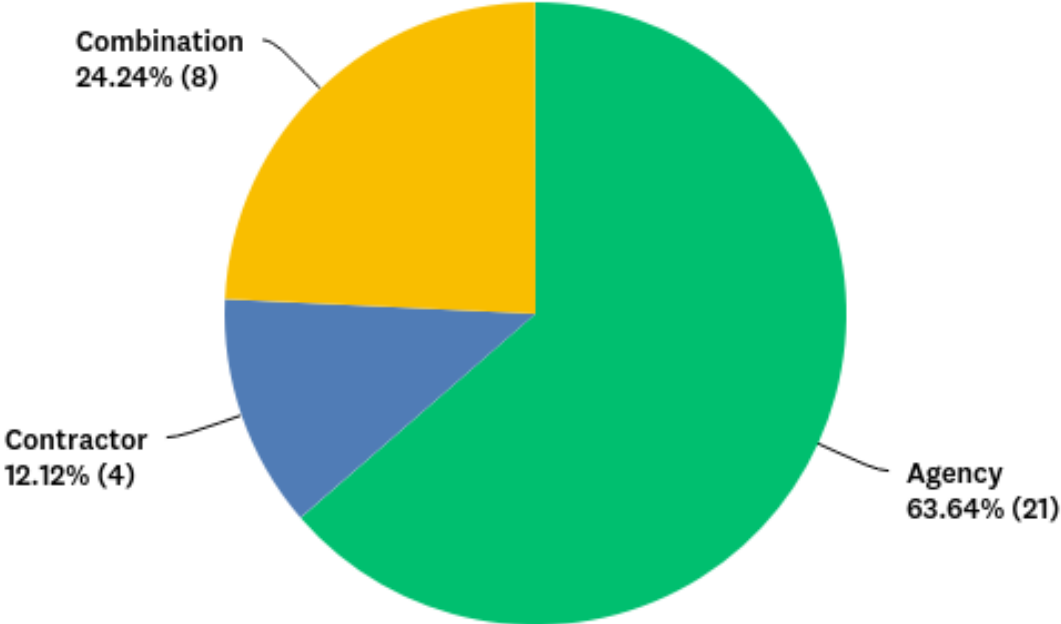
	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
<b>LA</b>	-	1 per lot	Acceptance 1 every 5 or 1 per 400 cy, Verification 1 per 1000 cy	1 per lot
<b>MI</b>	-	NRMCA	For optimized - 1 per 5000 tons of CA Non-PWL - 1 per 1000 tons for a non- prequalified source 1 per 10000 tons for prequalified source.	.For optimized - 1 per day when on-site batch plant and 1 per week if commercial plant with pre-qualified aggregate Non-PWL - 1 per 1000 tons for a non-prequalified source and 1 per 10,000 tons for prequalified source.
<b>MN</b>	-	1 per 4 hrs	> 25 cy, 1 or 2 days, 1 per week, 3 or more days, 2 per week	
<b>MO</b>	-	as needed	min 1 per project	1 per 500 cy
<b>MT</b>	-	-	1 per 1000 cy	-
<b>NC</b>	-	-	-	-
<b>ND</b>	1 per day per placement	-	1 per 250 cy	-
<b>NE</b>	-	1 per 1/3 day	For Verification Ledge Rock: 1 per 3000 ton. Fine aggregate: 1 per 6000 ton	Ledge Rock – 1 per 1,000 ton. Min. 1 per project Fine aggregate- 1 per 2000 ton
<b>NV</b>	1 per day	1 per 100 cy	1 per 300 cy	1 per 300 cy

## Q5&6: Structural Concrete: What frequency are the following tests performed?

	Moisture Content		Gradation	
	Agency	Contractor	Agency	Contractor
NY	Daily prior to production	-	Daily prior to production	-
OH	-	1 per day	-	-
OK	-	-	1 per 500 tons	-
PA	-	Beginning of day, then every 4 hrs	-	1 every day delivered
RI	1 per 150 cy	Per contract	1 per 150 cy	Per contract
SC	-	-	1 per 500 tons, 1 per 2000 tons lg projects	-
SD	1 per 2 hrs (If moisture sensors 1 per 5000 cy or 1 per 5 days)	-	1 per 200 cy	-
TN	-	Twice a day (am & pm)	-	1 per wk or every 500 cy
TX	As necessary	-	1 per 1000 cy	-
UT	1 test per stockpile/week	-	1 test per stockpile/week	-
WA	-	-	1 per 1000 cy	-
WV	-	Daily	10% of contractor	1 per 50 cy, not more than 1 per day until 400 cy produced

# Q7: Whose test results are used for Acceptance?

Answered: 33 Skipped: 0





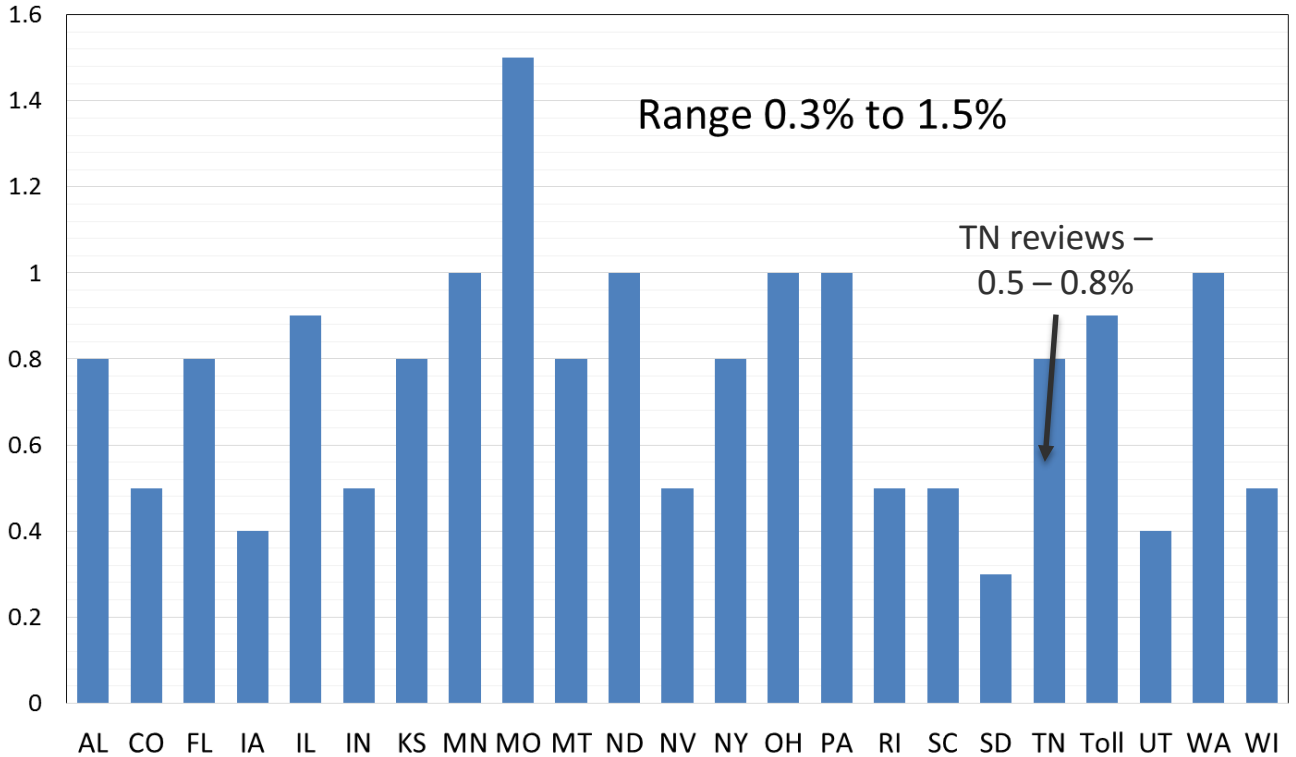
# Q8: Tolerances: What are your Agency's allowable testing tolerances between 2 tests and 2 different pieces of equipment from the same sample?

## Plastic Air Content

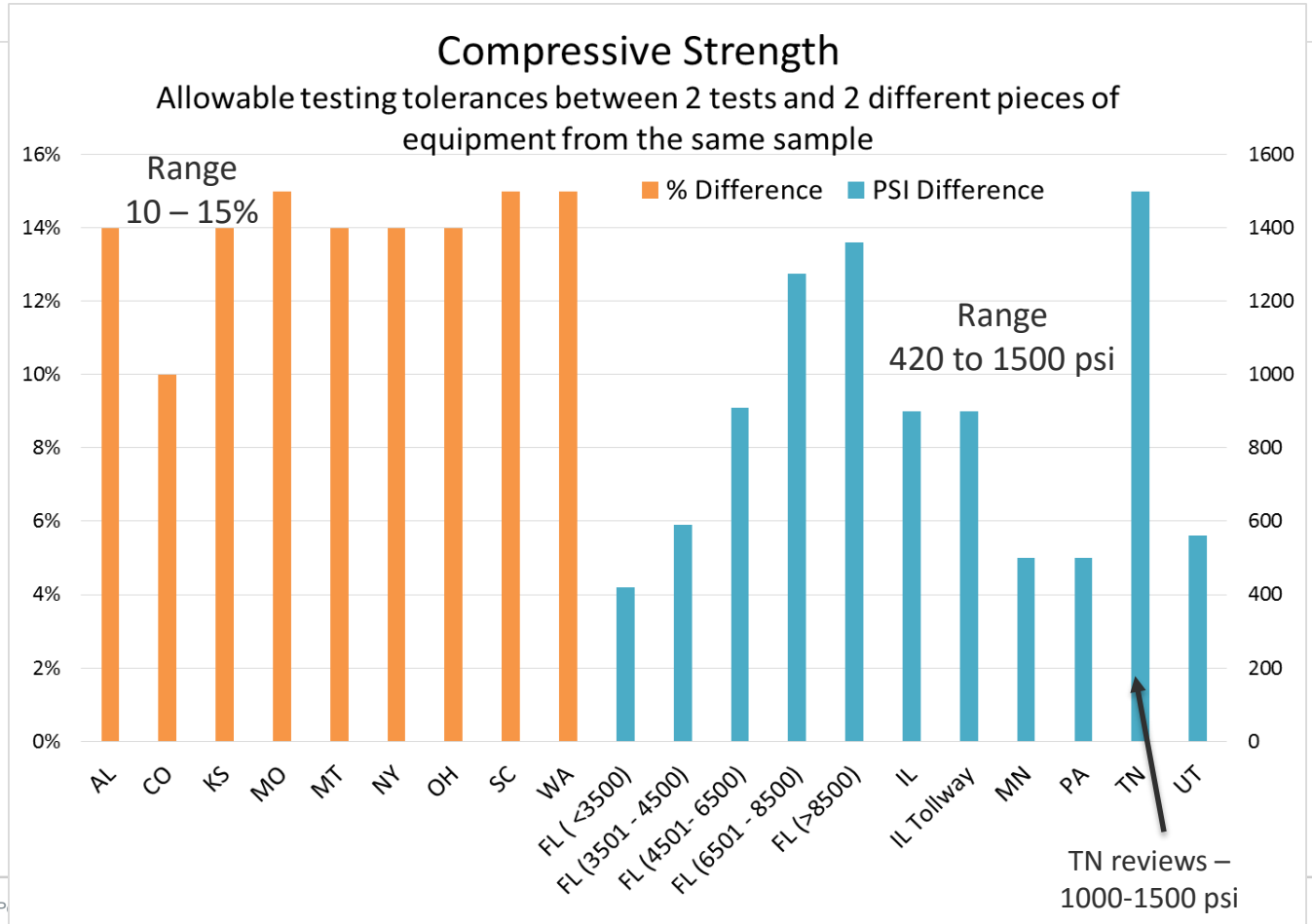
Allowable testing tolerances between 2 tests and 2 different pieces of equipment from the same sample

Range 0.3% to 1.5%

TN reviews –  
0.5 – 0.8%



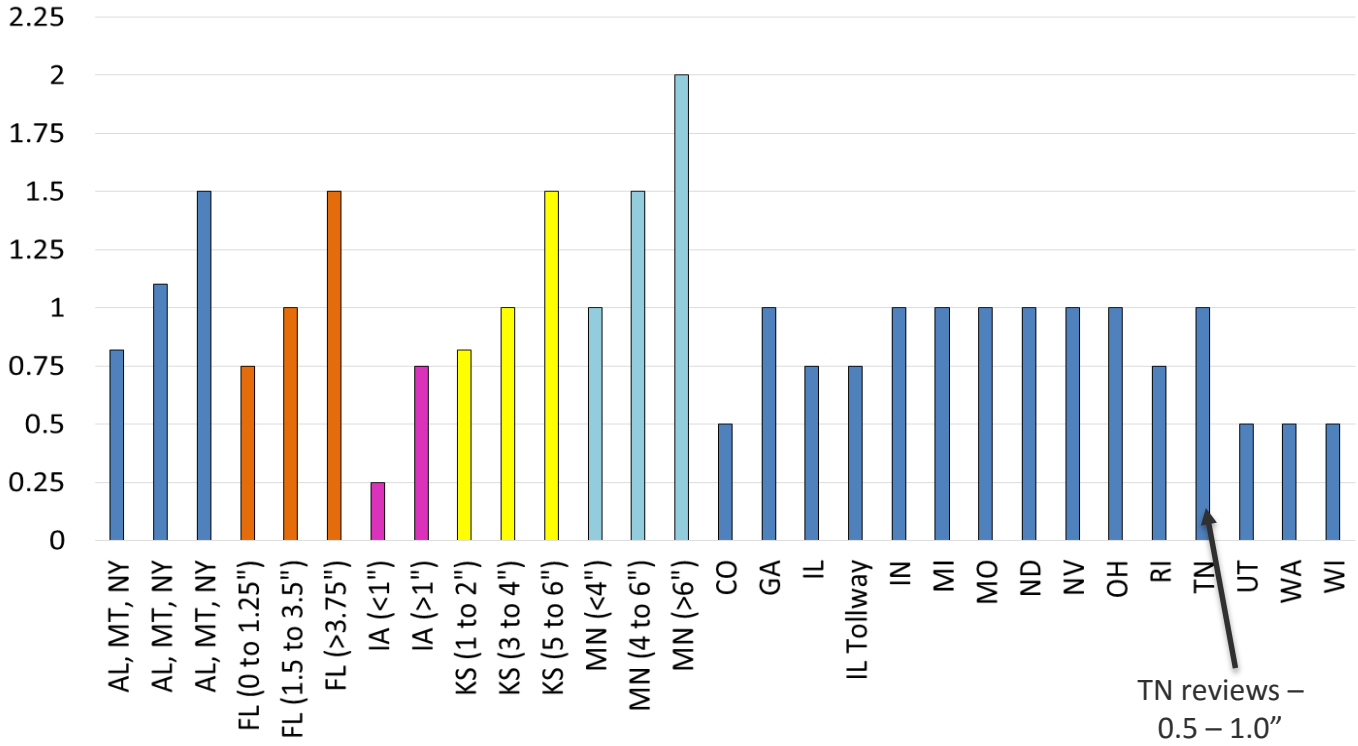
# Q8: Tolerances: What are your Agency's allowable testing tolerances between 2 tests and 2 different pieces of equipment from the same sample?



# Q8: Tolerances: What are your Agency's allowable testing tolerances between 2 tests and 2 different pieces of equipment from the same sample?

## Slump

Allowable testing tolerance between 2 tests and 2 different pieces of equipment from the same sample

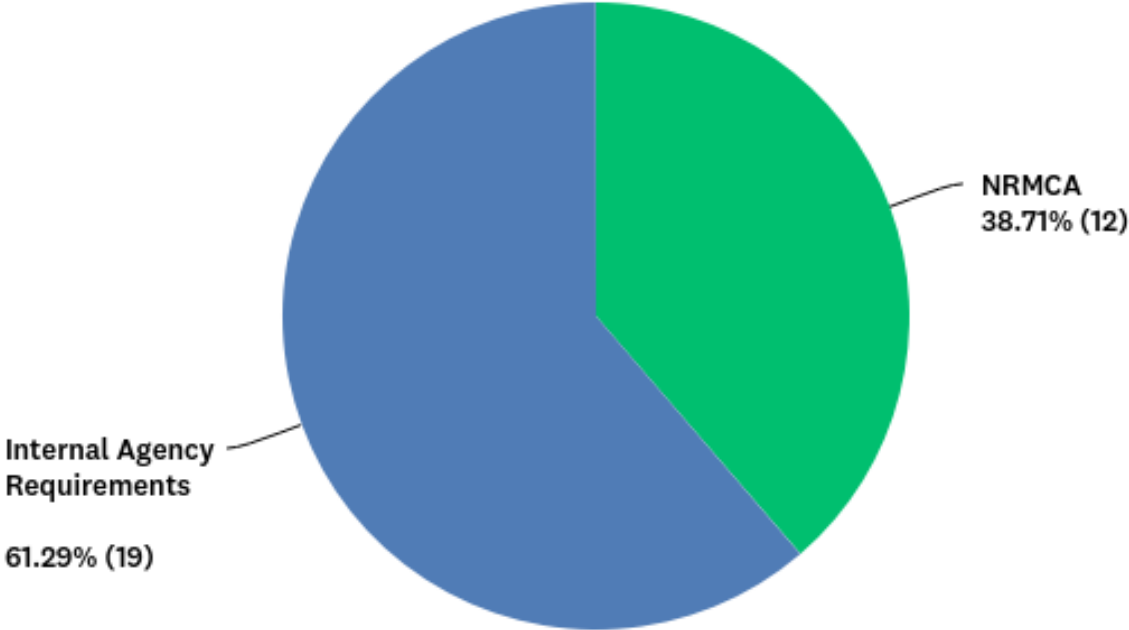






# Q10: What type of plant certification does your Agency require for ready-mix plants?

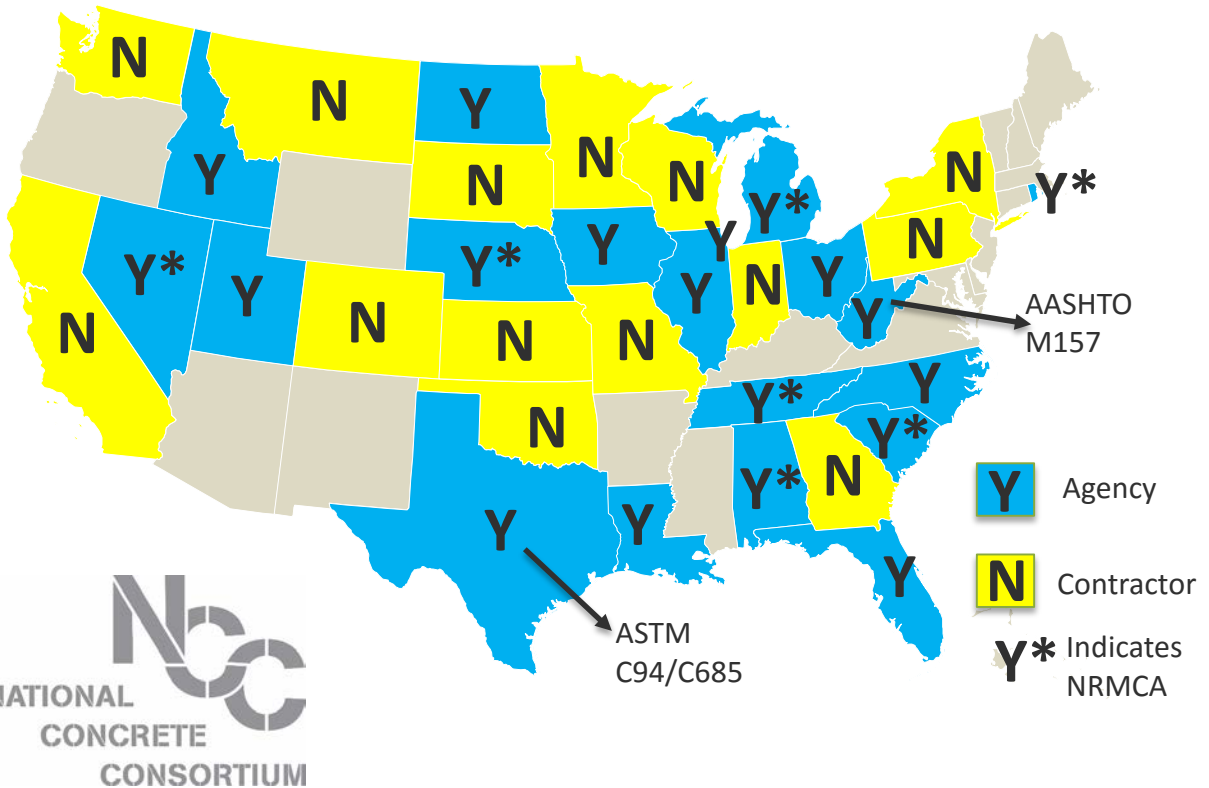
Answered: 31 Skipped: 2





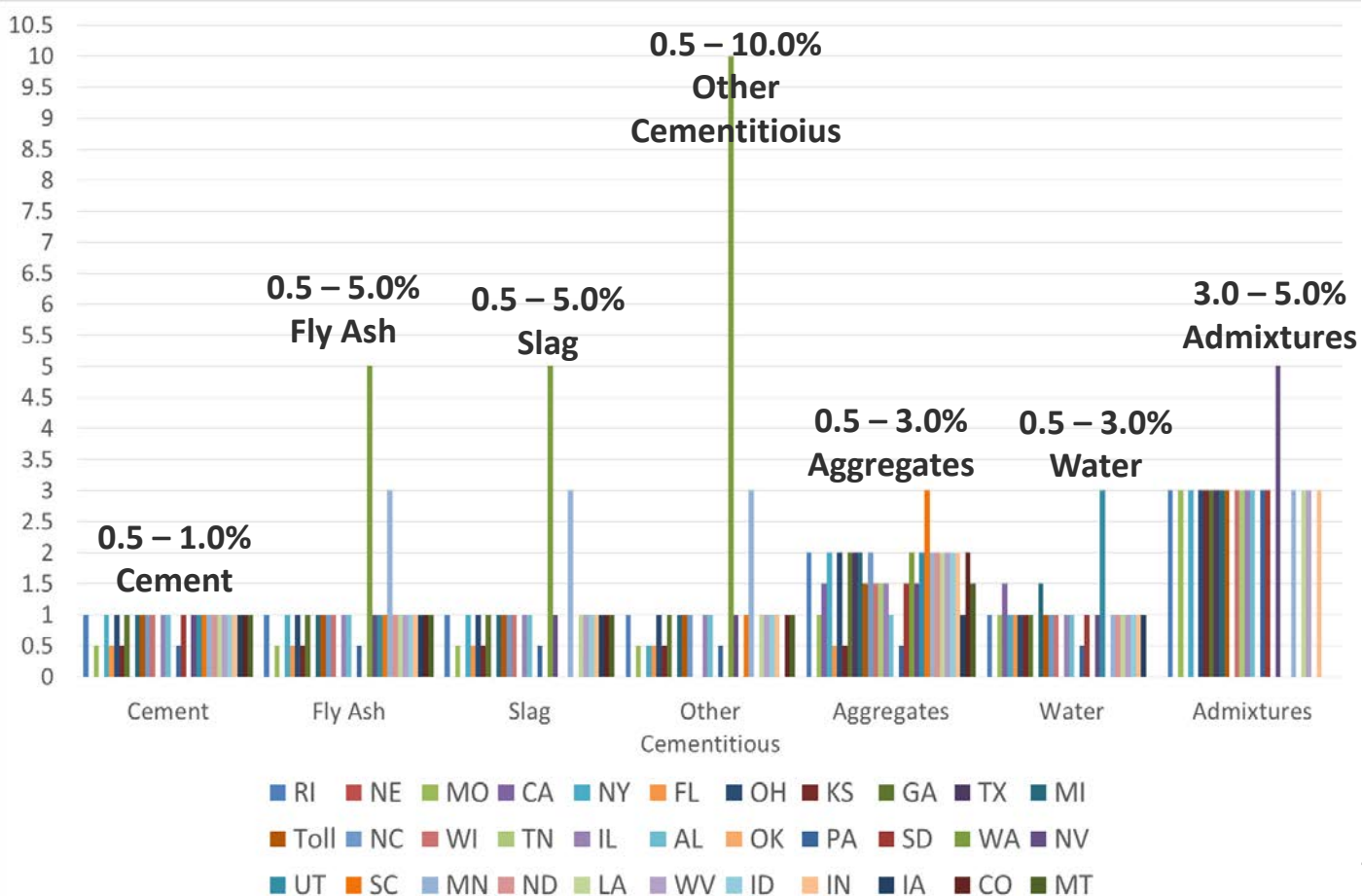
# Q11: Does your Agency require truck certification?

Answered: 33 Skipped: 0



# Q12: Tolerances: What are your Agency's batching tolerances?

Answered: 33 Skipped: 0



## Q13: What information is required to be recorded on a concrete batch ticket?

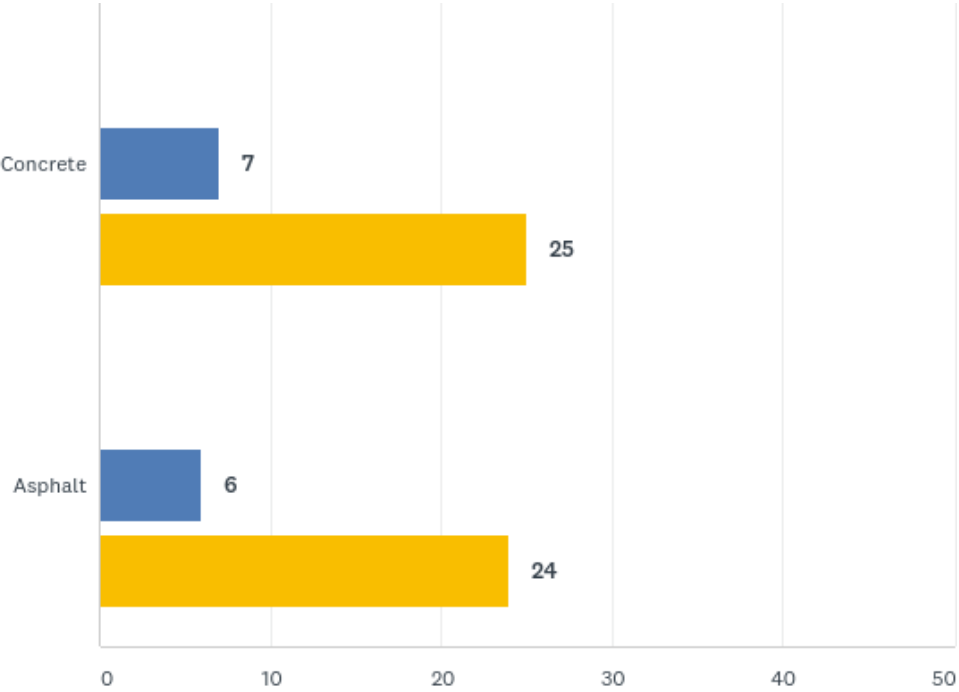
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Answered: 32 Skipped: 1

There are 32 great answers –  
feel free to explore!

# Q14: Does your Agency use or allow e-ticketing for batch tickets?

Answered: 32 Skipped: 1

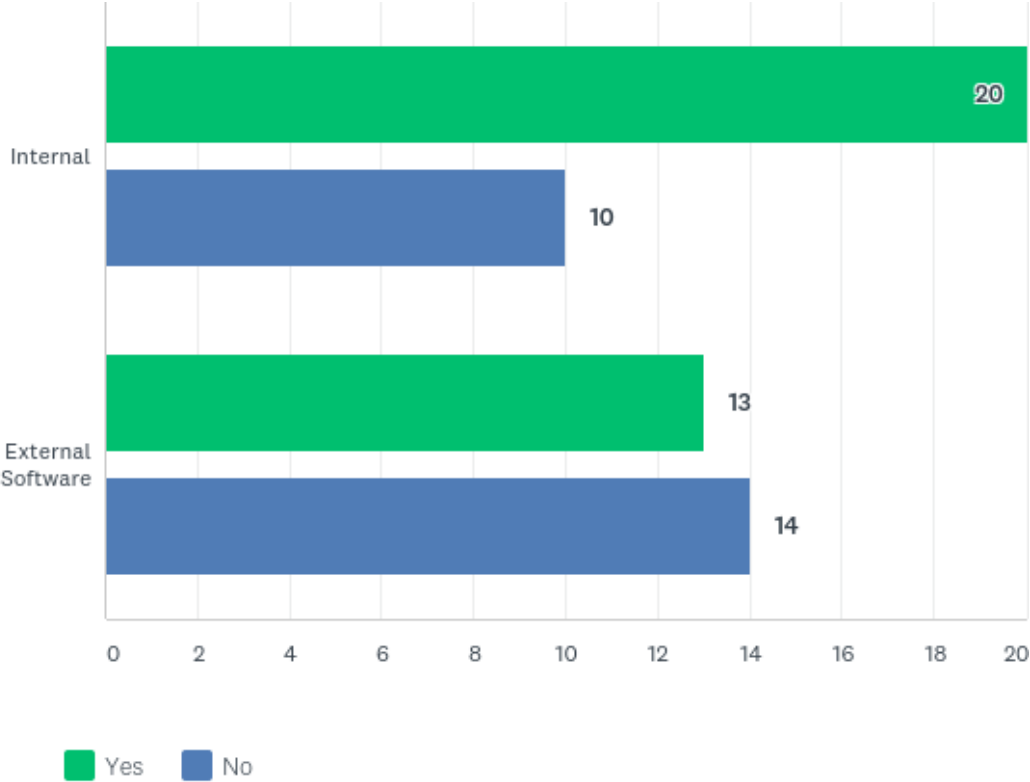


Require Allow No



# Q15: Does your Agency use e-construction software?

Answered: 32 Skipped: 1





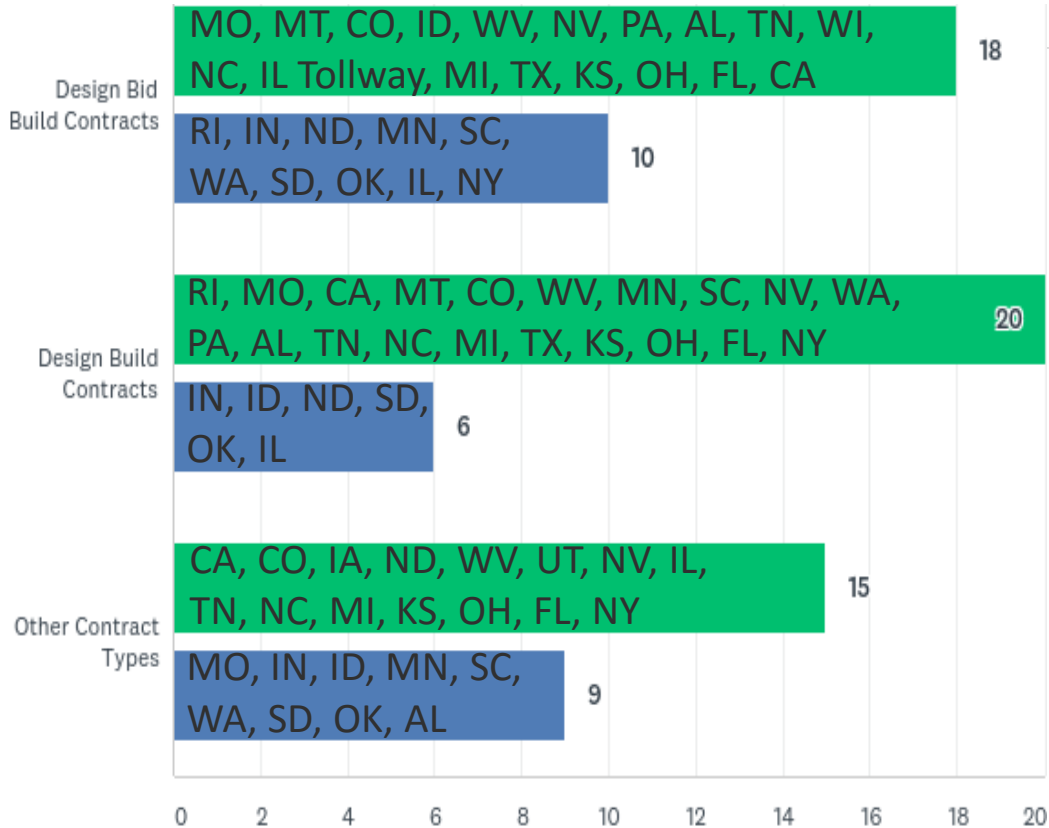
## Q15: Does your Agency use e-construction software?

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Answered: 32 Skipped: 1

- AASHTOWare – MT, WV, MN, NV, MI, OH, NE
- Bluebeam, e-builder, I-MIRS – Illinois Tollway
- CARS – ND
- GOFORMZ – OH
- Headlight – LA
- HiCAMS – NC internal
- Internal Apps - SD
- Internal Software – AL, GA, NY, MN
- Mobile Inspector – OH, MO
- OnBase – NE
- Project Solve – FL
- Projectwise – MN, IL, MI
- Sample Manager & LCP Tracker – MI internal
- Sharepoint – MN
- Site Manager – MT, CO, IN, LA, SC, OK, NY

# Q16: Does your Agency require Quality Plans?



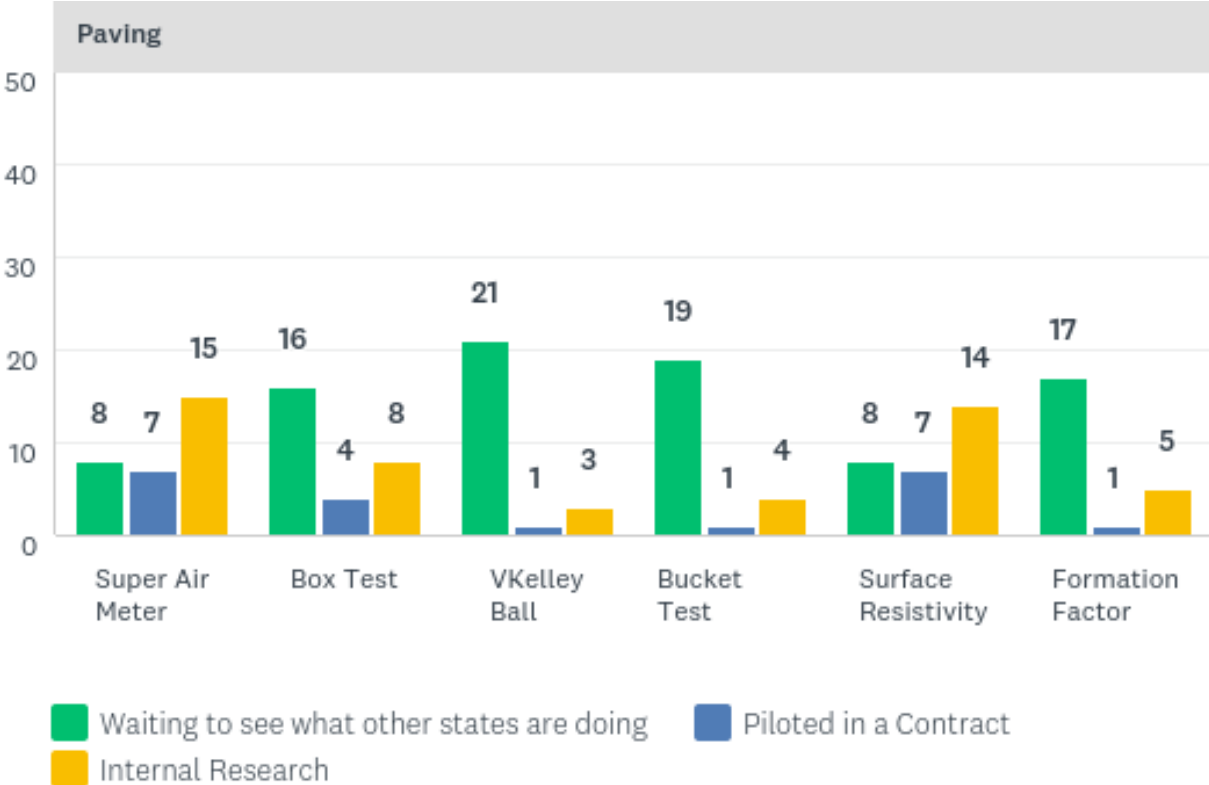
**Q17: What does your Agency require for a Contractor Quality Plan?**

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There are 27 great answers –  
feel free to explore!

# Q18: What is your Agency Status on the following PEM tests?

Answered: 31 Skipped: 2



# Q18: What is your Agency Status on the following PEM tests for PAVING?

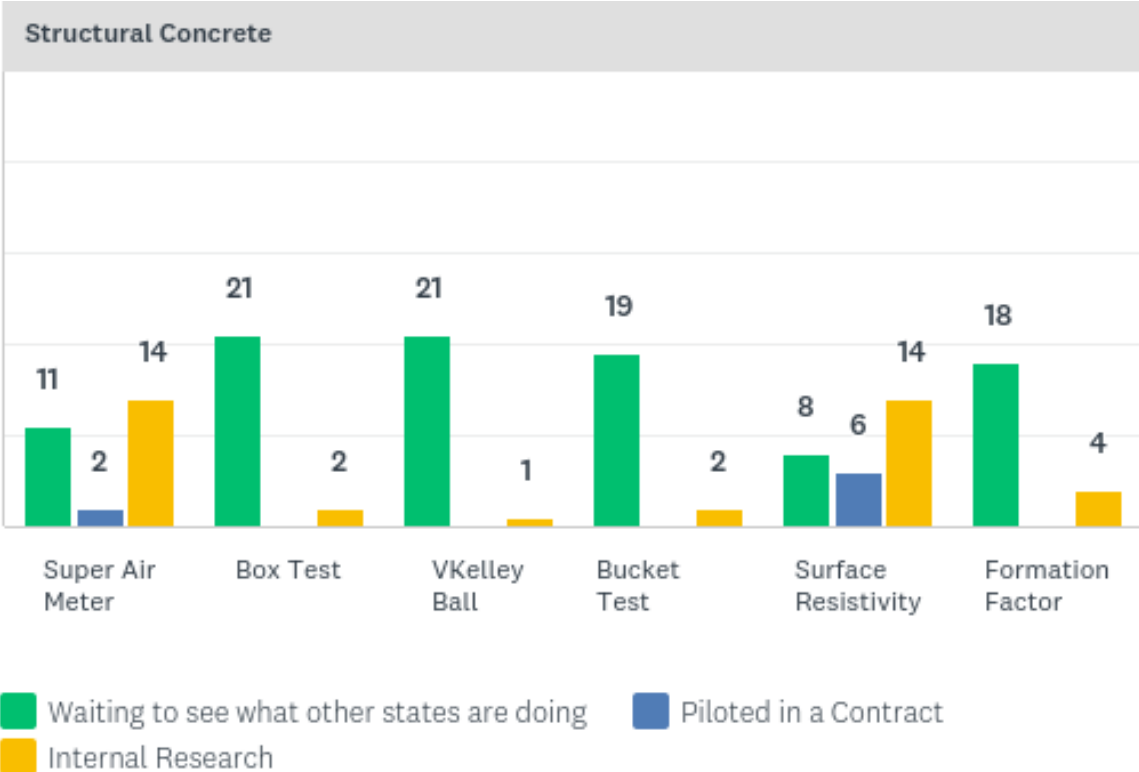
	Super Air Meter	Box Test	VKelley Ball	Bucket Test	Surface Resistivity	Formation Factor
AL			Pilot		Internal	Internal
CO	Internal					
FL		Internal	Internal	Internal		
IA	Pilot	Pilot		Pilot	Pilot	Pilot
IL	Pilot	Pilot		Internal	Internal	Internal
IL Tollway	Internal	Internal			Internal	Internal
KS	Internal		Internal		Pilot	
LA					Pilot	
MI	Pilot			Internal	Pilot	Internal
MN	Internal	Internal	Internal		Internal	
NC	Internal	Internal			Internal	
ND	Internal	Internal			Internal	

## Q18: What is your Agency Status on the following PEM tests for PAVING?

	Super Air Meter	Box Test	VKelley Ball	Bucket Test	Surface Resistivity	Formation Factor
NE	Internal	Internal			Internal	
NY	Pilot				Pilot	
OH	Internal	Internal				
OK	Internal				Internal	
PA	Internal				Internal	
RI	Pilot				Pilot	
SD	Pilot	Pilot			Internal	
TN	Internal				Internal	
TX	Internal				Internal	
UT	Internal				Pilot	
WI	Pilot	Pilot				
WV	Internal				Internal	

# Q18: What is your Agency Status on the following PEM tests?

Answered: 31 Skipped: 2



# Q18: What is your Agency Status on the following PEM tests for STRUCTURAL CONCRETE?

	Super Air Meter	Box Test	VKelley Ball	Bucket Test	Surface Resistivity	Formation Factor
AL					Internal	Internal
FL					Internal	Internal
IL	Internal			Internal	Internal	Internal
IL Tollway	Internal				Internal	Internal
KS	Internal		Internal		Pilot	
LA					Implemented	
MI	Internal			Internal	Internal	
MN					Internal	
ND	Internal	Internal			Internal	
NE	Internal	Internal			Internal	



# Q18: What is your Agency Status on the following PEM tests for STRUCTURAL CONCRETE??

	Super Air Meter	Box Test	VKelley Ball	Bucket Test	Surface Resistivity	Formation Factor
NY	Pilot				Pilot	
OH	Internal					
OK	Internal				Internal	
PA	Internal				Internal	
RI	Pilot				Pilot	
SD	Internal				Internal	
TN	Internal				Internal	
UT	Internal				Pilot	
WV	Internal				Internal	

## Q19: Any additional comments?

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Answered: 33 Skipped: 0

### Louisiana

- LADOTD has FULLY implemented surface resistivity. Your drop down boxes don't even allow for that option! LADOTD the first contracting agency in the world to have resistivity as pay item with pay penalties associated with failure to achieve minimum values.

### Florida

- Surface Resistivity currently in our Standard Specifications, required for higher classes of concrete with minimal cover in aggressive environments.

### Iowa

- Surface resistivity is used on all HPC bridge projects.

## Q19: Any additional comments?

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### Colorado

- Explanation to Question 18: SAM testing by our IA testers for a year once we receive the SAMS. Will likely switch to SAM number for air content within the next 2-3 years. We currently sample at point of discharge for air, if we switch to SAM number, it will be at point of delivery. Box test & Vkelly are mix design tools for the contractor to use. We may require one in mix design submittals, but don't see it being required. Bucket test, surface resistivity, formation factor... 90% of the concrete used in the state requires 20% or more Class F fly ash for ASR or sulfate resistance. We generally do not have a joint rot problem on our pavements because of the widespread use of fly ash. All new bridges will have a polyester overlay or an asphalt membrane and HMA wearing coarse on the decks. Older bare concrete deck bridges are being retrofitted with polyester overlays. These 3 tests may be harder to sell to our state engineers and industry as we are not seeing the problems these are meant to address. Surface resistivity could replace the rapid chloride permeability test.