NRMCA Quality Benchmark Report

2025

FEBRUARY, 2026

NATIONAL READY MIXED CONCRETE ASSOCIATION
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2025 NRMCA Quality Benchmark Report

Introduction

The NRMCA Quality Benchmark Report is published annually based on information from the Quality Award applications received in May-June of each year. Results of 2025 benchmark statistics are compiled from the 2025 award application and included with more recent years to illustrate trends. Award applications are completed by NRMCA member company ready mixed concrete producers, representing the whole company or a division of the company. This report is supported by the NRMCA Research Engineering and Standards Committee.

This report establishes benchmarks for various aspects of a company's quality management system. The weighted average reported is determined by multiplying the percent of each company's production relative to the total and the individual company's statistic.

For this survey, respondents were asked to use data from the most recent fiscal year. Respondents were asked to avoid guessing and not to respond to questions where information was not available. There were a total of 49 Award applicants in the 2025 compared to 51 participants in 2024.

1. Annual Concrete Volume (cubic yards)

The applicant participants produced a cumulative 52 million cubic yards representing approximately 14% of estimated ready mixed concrete produced in the US in 2024 (assuming the year of the represented data). Entity with the smallest volume produced 121,000 yd^3 while the entity with the largest volume produced 5.7 million yd^3. Of the 49, 28 had annual production exceeding 500,000 yd^3. The breakdown of the company annual concrete volume for this and previous surveys is as follows:

Annual Concrete Volume, yd^3	**Number of Respondents**					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
≤ 100,000	0	1	1	2	1	1
100,00 to 250,000	3	8	8	7	8	8
250,000 to 500,000	12	10	7	7	8	9
500,000 to 1 Million	13	14	12	11	10	8
1 to 3 Million	12	14	17	17	16	14
> 3 Million	3	4	2	3	2	2
Total Respondents	**49**	**51**	**47**	**47**	**45**	**42**
Survey Total, million yd^3	**52.2**	**59.6**	**57.5**	**59.5**	**55.2**	**51.6**

2. Provide information on two most common concrete mixtures with Specified Strength ≤ 5000 psi for the last fiscal year

Specifications should not include any one of the following requirements - Max w/cm or minimum cementitious factor or fixed over-design value such as 1200 psi or early-age strengths

	Weighted Average					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
Standard deviation (S), psi	471	522	507	487	467	432
Avg. Specified strength, psi	3897	3902	3838	3879	3698	3632
Strength increment, %	36%	36%	34%	34%	34%	33%
Mixtures that are air entrained, %	49%	39%	33%	38%	38%	38%

ACI PRC-214 includes a rating indicating production standard deviation of 500-600 psi and 400-500 psi would qualify as a good and very good standard of concrete control for general construction testing, respectively. Standard deviation of strength test results of air-entrained concrete is typically higher than of non-air-entrained concrete.

Strength increment, also referred to as overdesign, represents the difference between the average strength and the specified strength. The weighted average strength increment is 36% representing approximately 1420 psi greater than the weighted average specified strength. Based on the weighted average standard deviation, the overdesign required in accordance with ACI 301 is 631 psi.

To avoid specification requirements that result in a higher average strength, respondents were requested not to include mixtures that were controlled by specified maximum w/cm, minimum cementitious content, those that require a fixed strength increment greater than specified strength, or an early-age strength requirement. Assuming a conservative cement efficiency factor (cementitious material content ÷ average strength) of 8 psi/lb the actual strength increment in excess of that required by ACI 301 (1420 – 631 = 789 psi) represents excess cementitious material content of approximately 99 lb/yd^3.

3. Concrete rejected at jobsite as a percent of production

Report percent based on total volume or loads associated with quality, specification requirements, or delivery requirements. Include rejected loads due to non compliance with slump, air content, temperature, density, delivery time or revolution limits. Include loads rejected due to quality issues that were beneficially reused. Do not include concrete returned due to ordering excess quantities.

The weighted average of concrete rejected at the jobsite is calculated as 0.68% of the production compared to 0.31% reported in the 2024 report. The distribution of responses was as follows:

Percent Concrete Rejected	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
> 0 to 0.1	31	43	38	47	47	36
> 0.1 to 0.5	31	41	38	34	40	45
> 0.5 to 1.0	20	4	13	9	7	14
> 1.0	6	4	4	4	2	0
Did not respond	12	8	6	6	4	5

Reported percentage varied from 0.002% to 2.0%. This estimate should not include quantities returned due to excess ordered that is returned to the plant.

4. Concrete with internal quality issues discovered before the load was delivered as a percent of production

Internal quality issues could be due to dispatch/batching errors (incorrect order batched, the wrong mix batched, incorrect batch weights, etc.), truck breakdown, driver lost, or traffic delays.

The weighted average of concrete volume lost due to internal quality issues was calculated as 1.3% of production compared to 0.73% in the 2024 report.

Percent Concrete with Internal Quality Issues	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
> 0 to 0.1	20	27	36	43	29	31
> 0.1 to 0.5	29	41	26	28	42	36
> 0.5 to 1.0	20	8	9	4	7	10
> 1.0	10	8	13	9	7	7
Did not respond	20	27	36	43	29	31

5. Cost to a company to resolve customer problems, in $ per yd^3 produced.

Include all backcharges/credit paid to a third party due to a concrete quality such as finishability, ability to pump, setting time, strength, cracking, scaling, color, remove and replace etc. For example, if the company produced a total of 20,000 yd^3 of concrete and the total cost paid out for the above reasons was $20,000 the cost should be calculated and reported as $1/yd^3.

The weighted average cost to resolve customer problems was calculated as $0.25/yd^3 compared to $0.25/yd^3 in 2024. The reported statistic varied from $0.0 to $0.93/yd^3. The distribution of responses was as follows:

Cost to Company. $/yd^3	**Percent of Respondents**					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
0.0	4	0	0	0	7	7
> 0 to 0.2	49	51	64	62	62	60
> 0.2 to 0.5	16	20	9	23	20	17
> 0.5 to 1.0	18	12	9	4	2	10
> 1.0	0	4	6	4	0	0
Did not respond	12	14	13	6	9	7

6. The number of claims made related to quality in the last 12 months per 100,000 yd^3 of production.

List the number of customer claims related to product quality that were validated as real quality deficiencies in the last 12 months.

The weighted average number of claims related to quality was calculated as 1.22, compared to 0.89 reported in 2024. The distribution of responses was as follows:

No. of claims per 100,000 yd^3	**Percent of Respondents**					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
0.0	2	0	4	9	9	5
> 0.0 to 0.5	24	37	30	34	31	29
> 0.5 to 1.0	27	16	21	11	16	10
> 1.0 to 2.0	22	18	15	23	18	29
> 2.0 to 3.5	8	10	4	0	13	12
>3.5	4	6	11	11	7	12
Did not respond	12	14	15	13	7	5

7. Frequency of internal quality audits to verify conformance to Company's quality manual.

Frequency of Audit	**Percent of Respondents**					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
None	4	6	4	2	0	2
Annually	90	92	94	87	89	91
> Annually	6	2	2	11	9	7
Did not respond	0	0	0	0	2	0

8. What is the process to act on customer feedback to address company quality?

Customer Feedback Process	**Percent of Respondents**				
	2025	**2024**	**2023**	**2022**	**2021**
Update the quality manual and communicate corrective action or Identify root cause for corrective action	100	100	100	100	100
Did not respond	0	0	0	0	0

9. Number of field and laboratory technicians per 100,000 yd³ of annual production

The weighted average was calculated as one field/laboratory technician for 119,000 yd³ compared to one technician for 125,000 yd³ reported in 2024. The weighted average for respondents with production less than 500,000 yd³ was one technician for 74,000 yd³ compared to one technician for 57,000 yd³ reported in 2024. The distribution of responses was as follows:

No. of field/lab techs / 100,000 yd³	Concrete volume per technician, yd³	Percent of Respondents					
		2025	2024	2023	2022	2021	2020
≤ 0.5	≥ 200,000	10	14	19	19	16	26
> 0.5 to 1.0	< 200,000 to 100,000	45	45	36	49	44	38
> 1.0 to 2.0	< 100,000 to 50,000	33	31	34	19	29	24
> 2	< 50,000	12	10	9	13	11	12
Did not respond		0	0	0	2	2	0

10. Number of technical managers for every 100,000 yd³ of annual production

The weighted average was calculated as one technical manager with responsibility for 431,000 yd³ compared to one manager for 414,000 yd³ in 2024. The weighted average for respondents with production less than 500,000 yd³ was one technical manager with responsibility for196,000 yd³ compared to one individual for 183,000 yd³ in 2024. The distribution of responses was as follows:

No. of technical managers per 100,000 yd³	Concrete volume per technical manager, yd³	Percent of Respondents					
		2025	2024	2023	2022	2021	2020
≤ 0.167	≥ 600,000	20	20	26	30	24	36
> 0.167 to 0.250	< 600,000 to 400,000	20	25	23	26	29	24
> 0.250 to 0.500	< 400,000 to 200,000	39	39	34	23	24	17
> 0.500 to 1.000	< 200,000 to 100,000	16	10	11	13	16	14
> 1.000	< 100,000	4	6	4	9	7	10
Did not respond		0	0	2	0	0	0

11. Percent of lab and field technicians with ACI certification or equivalent

Percent of technicians with ACI certification	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
< 60	0	2	0	0	2	2
60 to 90	0	12	13	9	9	10
> 60	4	0	0	NA	NA	NA
> 90	96	86	87	91	89	88
Did not respond	0	0	0	0	0	0

12. Number of hours of technical continuing education supported or required by company and documented for technical service and QC personnel

This question was asked for the first time in 2022.

Education Hours	Percent of Respondents			
	2025	2024	2023	2022
None	0	2	4	13
< 8 hr	10	12	9	15
> 8 hr	90	86	87	72
Did not respond	0	0	0	0

13. Quality costs, in $ / yd³ produced

Include lab costs, all overhead, and all quality control staff salaries including corporate-level technical managers. Do not include back charges or penalties

The weighted average of quality costs was calculated as $1.45/yd³ compared to $1.24/yd³ in 2024. The breakdown was as follows:

Quality Cost to Company. $/yd³	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
0.00	0	0	0	0	0	0
≤ 0.75	4	10	15	15	18	17
> 0.75 to 1.25	20	35	38	40	40	43
> 1.25 to 1.75	39	25	17	17	11	17
> 1.75	29	24	17	15	22	19
Did not respond	8	6	13	13	9	5

14. Percent of production facilities that are inspected or certified – NRMCA, state highway department, or other

The breakdown was as follows:

Percent of Plants	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
< 60	0	2	2	4	0	2
60 to 90	4	6	9	6	4	10
> 90	96	92	89	89	96	88
Did not respond	0	0	0	0	0	0

15. Number of company laboratory facilities possessing at least one strength testing machine

The weighted average was calculated as 1 laboratory with at least one strength testing machine per 380,000 yd³ of production compared to 1 lab per 397,000 yd³ reported in 2024. The weighted average for respondents with production less than 500,000 yd³ was one lab for 132,000 yd³, compared to one lab for 133,000 yd³ in 2024.

No. of labs per 100,000 yd³	Concrete volume per one lab, yd³	Percent of Respondents					
		2025	2024	2023	2022	2021	2020
0.0	NA	0	0	0	0	0	2
> 0.0 to 0.2	≥ 500,000	33	33	38	38	33	31
> 0.2 to 0.4	< 500,000 to 250,000	29	39	26	26	24	29
> 0.4 to 0.6	< 250,000 to 167,000	16	8	15	11	16	12
> 0.6	< 167,000	22	20	19	26	24	26
Did not respond		0	0	0	2	0	0

16. Is the company's central laboratory(ies) inspected by a third party (such as CCRL) or does it participate in a proficiency sample testing program with other labs involved?

The breakdown was as follows:

Percent of Inspected Labs	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
Yes	71	69	72	68	73	71
No	29	31	28	32	27	29
Did not respond	0	0	0	0	0	0

17. Frequency of measuring aggregate moisture content (plants or aggregate types not using moisture probes)

The breakdown was as follows:

Frequency of Aggregate Moisture Measurement	Percent of Respondents					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
At least daily	86	80	81	79	84	86
Weekly	12	10	13	19	9	10
> Weekly	2	8	6	2	7	2
Did not respond	0	2	0	0	0	2

18. Frequency of calibration of moisture probes per plant (plants or aggregate types using moisture probes)

The breakdown was as follows:

Frequency of calibrating moisture probes	Percent of Respondents					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
Weekly	55	57	60	62	60	62
Monthly	20	20	21	17	20	24
Quarterly or greater	6	8	6	9	11	5
Did not respond	18	16	13	13	9	10

19. Frequency of aggregate grading tests per plant

The breakdown was as follows:

Frequency of measuring aggregate grading	Percent of Respondents					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
Use agg supplier's data	16	22	30	28	29	19
Weekly	41	39	32	26	20	24
Monthly	33	25	28	34	44	45
Quarterly or Greater	10	14	11	13	7	12
Did not respond	0	0	0	0	0	0

20. Frequency at which cementitious materials are out of tolerance (ASTM C94) for loads > 4 yd^3 (% of total)

This questions requests the information on *frequency* when batching cementitious materials is out of tolerance. #23 requests the average quantity by which batched cementitious materials differ from the target quantity.

The breakdown was as follows:

Batches out of tolerance, %	Percent of Respondents					
	2025	**2024**	**2023**	**2022**	**2021**	**2020**
Not reviewed	0	2	0	0	0	0
≤ 1	53	51	51	66	64	50
1 to 3%	35	35	40	32	29	33
≥ 3	10	8	9	2	7	17
Did not respond	2	4	0	0	0	0

21. Frequency per month at which production concrete mixtures are tested by obtaining plant samples – average per plant.

Do not include testing for mix development or optimization

The breakdown was as follows:

Frequency of Plant Testing per month	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
≤ 3	10	16	40	26	16	17
4 to 10	20	24	34	30	29	29
> 10	70	61	26	45	56	55
Did not respond	0	0	0	0	0	0

22. State the number of instances in the last 12 months when an incorrect ingredient material was accepted or was later tested and was not consistent as ordered. Calculated per 100,000 yd^3.

Some examples are fly ash pumped into cement silo, incorrect aggregate size delivered, aggregate grading tested out of spec. etc.

The breakdown was as follows:

Errors per 100,000 yd^3	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
0.0	10	18	13	21	27	31
> 0.0 to 0.5	43	45	38	40	31	33
> 0.5 to 1.0	14	12	11	6	16	10
> 1.0 to 3.0	10	12	17	13	9	12
> 3.0	6	4	4	2	9	2
Did not respond	16	10	17	17	9	12

23. Cement batching accuracy. Reported as percent difference of target cementitious materials batch weight.

The breakdown was as follows:

Cement Batching Accuracy, % of target weight	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
< 0.0	4	10	13	13	16	17
0.0	2	2	4	4	0	5
> 0.0 to 0.5	24	43	47	43	40	50
> 0.5 to 1.0	39	20	17	23	22	10
> 1.0	14	8	11	4	7	10
Did not respond	16	18	9	13	16	10

24. Average time per truck between loading and leaving the plant.

Time required for mixing after batching, washdown, slump rack adjustment, etc.

The breakdown was as follows:

Average time per truck, min	Percent of Respondents				
	2025	2024	2023	2022	2021
< 7	12	16	15	19	22
7 to 12	71	71	68	66	64
> 12	8	6	9	6	7
Did not respond	8	8	9	9	7

25. What percent of loads require adjustment for slump and/or air content at the jobsite - for projects with testing/acceptance criteria?

The breakdown was as follows:

Loads requiring adjustment, %	Percent of Respondents				
	2025	2024	2023	2022	2021
< 30	78	84	83	72	62
30 to 60	14	10	13	15	22
> 60	0	0	0	0	0
Did not respond	8	6	4	13	16

26. Do you measure the yield of at least the top-selling mixture at each plant at least 1/week?

The breakdown was as follows:

Measure Yield?	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
Yes	90	78	77	81	71	64
No	10	22	23	19	27	36
Did not respond	0	0	0	0	2	0

27. How does the average measured yield compare with target yield?

The breakdown was as follows:

Measured yield compared to target yield, %	Percent of Respondents					
	2025	2024	2023	2022	2021	2020
Within 1	78	78	77	70	71	67
1 to 2	22	18	23	30	27	31
> 2	0	2	0	0	0	0
Did not respond	0	2	0	0	2	2

28. Other Aspects of the Quality Award Application

The Quality Award application is more comprehensive than the items summarized in this report. Some of the sections require applicants to include documentation to support their responses. The applications are scored based on the response and the associated validation. Applicants achieving a score of 75 or greater achieve the NRMCA Excellence in Quality Award. Some of the other aspects covered:

- The process of developing and maintaining the company's Quality Manual or Quality Management System
- Listing of at least 2 quantifiable quality objectives and documentation of such measurement relative to stated goals
- Process to address customer complaints and customer education on use of concrete
- Desired qualifications of personnel and training provided; company support of personnel to participate on local and national organizations relative to standards and product promotion
- Process used for checking the accuracy of scales, monitoring batching accuracy, control of water addition to loads, and condition of mixers
- Use of non-potable water and qualification process
- Maintenance of laboratory resources
- Process for review of specifications; performance testing on concrete; tracking of acceptance testing data; and participation on pre-construction meetings

Conclusion

This report on quality benchmarks is conducted by NRMCA's Engineering Division under the direction of the Research Engineering and Standards (RES) Committee. The goal to establish industry benchmarks that support quality initiatives in ready mixed concrete companies and for companies to evaluate if their resources are in line with typical industry practice. These benchmarks allow for continual improvement in the industry.