

Appendix B

Forms

INDIANA DEPARTMENT OF HIGHWAYS
 CONCRETE PLANT INSPECTOR'S DAILY CHECK LIST

DISTRIBUTION: Project Engineer

BATCH WEIGHTS
 ADMIXTURE: TYPE _____ Amt. _____ oz
 CA _____ lb. FA _____ lb. C _____ lb.
 MAXIMUM WATER PER CYD. _____ gal.

CONTRACT NO. _____ PROJECT NO _____ DATE _____

PLANT NAME _____ LOCATION _____

	YES	NO
1. Has the plant been approved by Div. of Materials & Tests?	_____	_____
2. Are heating facilities available if required?	_____	_____
3. Are sufficient approved materials available for the pour?	_____	_____
4. Are aggregates stockpiled properly and separately?	_____	_____
5. Are aggregates maintained separately in the bins?	_____	_____
6. Are aggregates free of contamination?	_____	_____
7. Has aggregate had 12 hour drainage?	_____	_____
8. Is the cement storage weather tight?	_____	_____
9. Are records of cement shipments being kept?	_____	_____
10. Is there an adequate cement sampling port available?	_____	_____
11. Are there sufficient material samples to comply with Frequency Requirements?	_____	_____
12. Does the mixer have manufacturer information plate attached?	_____	_____
13. Is the mixer being used at or below rated capacity?	_____	_____
14. Is the mixer timer working properly and at the required setting?	_____	_____
15. Is the air entraining admixture dispenser working properly and accurately?	_____	_____
16. Are other chemical admixture dispensers working properly and accurately?	_____	_____
17. Have batch weights been checked by the Project Engineer or Supervisor?	_____	_____
18. Are (10) 50 pound test weights available for checking scales?	_____	_____
19. Have the scales been checked twice daily during operation for cleanliness, material buildup and "no load" balance?	_____	_____
20. Is the cement handled to avoid spillage after weighing?	_____	_____
21. Are accurate records of all batches weighed being kept?	_____	_____
22. Is the project being furnished a record of any batch changes on the individual concrete load when the change occurs?	_____	_____

YES NO

23. Do all trucks have working revolution counters?
Any truck that does not have a properly working revolution counter will not be used.

24. Do all trucks have manufacturer's information plates?
Manufacturer's tags must be in place before truck can be used. Drum revolution shall be checked for compliance with manufacturer's recommendations.

25. Is general condition of truck good?
Trucks shall be checked for water storage (capacity, leaky valves, etc.), old concrete buildup, and general condition?

26. Are trucks being used at or below rated capacity?

27. Is truck free of concrete and wash water from previous loads?

NOTE: If "NO" is checked for any of the above items, list under REMARKS the action taken to correct the situation. Any question that does not apply to the type of mixer used shall be marked DNA.

TRUCKS USED FOR POUR

**CONCRETE POUR CHANGES
(CENTRAL MIX & TRANSIT MIX)**

Truck Number	Mfgr's Tags	Rev. Counter	General Cond.	Truck Number	Mfgr's Tags	Time	Total Yds. This Date	Change Made
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

REMARKS:

SIGNED: _____

Water/Cement
Ratio Test

To perform a Water/Cement Ratio Test, a sample of each of the aggregates is obtained from the concrete plant immediately before the pouring starts. The amount of free water in the aggregates is found by drying out each sample to determine the percent of moisture. This percentage is applied to the total batch weight of the water. Each aggregate absorbs a certain amount of moisture which has little effect on the cement. For this reason, we subtract the percent of absorption from the total water in the aggregates to find the actual total of free water in the aggregates.

The weight of the free water in the aggregates is added to the weight of the water mixed into the concrete at the plant to arrive at the total free water in the concrete. This total is divided by the weight of the cement to get the water/cement ratio.

The water cement ratio is reported on Form IT 628. The example below is a condensed version of the calculations shown on the sample Form IT 628 located on page B-24.

Example:	Water in the aggregates	99.9 lbs
	Water added at the plant	158.3 lbs
	Sub total	258.2 lbs
	Less Percent of Absorption	<49.8 lbs
	Total Free Water	208.4 lbs
	Total Free Water	208.4 lbs
	_____ = _____ =	0.370 lbs/lb
	Total Cement	564.0 lbs

This water/cement ratio of 0.370 is well below 0.487 and no correction will be required. If our ratio had exceeded the maximum of 0.487, an additional amount of cement would have been required during the remainder of the current operation.

It should also be noted that when fly ash is used, its weight is included in the weight of the cement when determining the water/ cement ratio.

- YEAR Last two digits of fiscal year are to be used.
- SUBMITTER Fill in submitter number. Project personnel shall use the project engineer's or supervisor's submitter number.
- TEST NO. To be assigned by the submitter. A new test number must be assigned to each report.
- CONTRACT/PO NO. Insert RM, RT, RS, TX, R, B, T, M, etc. for contracts. Should only one space be required then leave second space blank.
- PREFIX
- NUMBER Insert contract number in the right leaving blank spaces on the left.
- PLANT Fill in plant or concrete producer code number, and write the name and location in space provided.
- TYPE OF MIX Fill in type of mix code number and write description in space provided.
- SPECIFICATION Fill in applicable specification.
- GATE SAMPLED Fill in month (01 for January), day (use an 0 in front for the first nine days and Year (Last two digits of calendar year).
- PURPOSE Fill in appropriate number *which* best describes the reason for taking the sample.
- QUANTITY Fill in the quantity represented, leaving blank spaces on the left side.
- REPRESENTED Do not use fractions or decimals.
- UNITS Fill in code letter for the units of the quantity represented.
- REPORT NO. Can be used by the submitter or sampler for a separate numbering system. (Numerical only)
- SUPPLEMENTAL TO If supplement to original report fill in the Year, Submitter, 6 Test No. of original report and attach to original report.
- MATERIAL TYPE Fill in type code number and write type of material in space provided.
(02,04,06)
- SOURCE (03,05,06) Fill in source code number and write source of material in space provided.
- BASIS FOR USE* Fill in the laboratory or field test number *which* approves
NUMBER the number for use. (When not available use submitter number & sample marking).
- MATERIAL WT. Fill in weight (in pounds) used of each material to make one cubic yard
(14,15,16,17) of concrete.
- TOTAL MATERIAL. Fill in the total weight (in pounds) of material used to make one cubic
(18) yard of concrete.
- ADMIXTURE Fill in type code number and write type in space provided.
TYPE (08,10,1-7)
- PRODUCT NAME: Fill in product code number and write product name in space provided.
(09,11,1)
- OZ. OF ADMIX. Fill in ounces of admixture (added) for each 100 pounds of cement.
(19,20,21)
- TEST RESULTS Fill in the blanks with appropriate test information.
- L:INE 5 Not to be used in field.

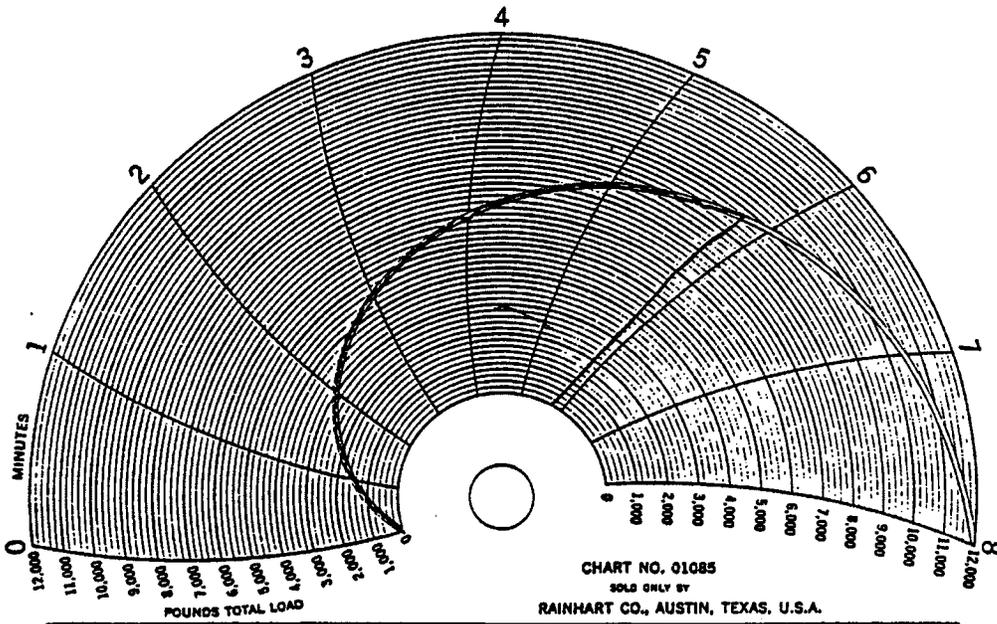


CHART NO. 01085
 SOLD ONLY BY
 RAINHART CO., AUSTIN, TEXAS, U.S.A.

CONCRETE BEAM FLEXURAL STRENGTH TEST - A.S.T.M. PROCEDURE C78

CONTRACTOR Michael Const. Corp. PROJECT F-135-4(1)
 BEAM NO. 1 MADE 9-11-81 TESTED 9-16-81 AGE 5 days
 LOAD 8700 LBS., WIDTH 6 1/4 IN., DEPTH 5 1/4 IN., FACTOR .0842
 FLEXURAL STRENGTH 733 PSI., SPECIFICATION 550 PSI.
 REMARKS Approach Pavement
OK to open to traffic
 TESTING AGENCY Ind. Dept. of Highways
 TESTED BY J. R. Hedge
 CHECKED BY L. Mianick

PRINTED IN U.S.A.

FLEXURAL STRENGTH REPORT

CONT. No. _____

PROJECT No. _____

REPORT No. _____

19 _____

Source of Coarse Agg.				
Source of Fine Agg.				
Brand of Cement				
Proportions				
Cement Content (bbl's./yd. ³)				
Time of Mix				
Curing Method				
Ave. Curing Temp.				
Made at Station				
Testing Machine No				
Beam No.				
Date Made				
Date Broken				
Age at Test (days)				
"b" (width)				
"d" (depth)				
"P" (maximum load)				
"F" (factor)				
Flexural Strength psi				

COMPUTATIONS

REMARKS AND DECISION:—

COPIES TO

DIVISION OF MATERIALS & RESEARCH
DIVISION OF CNSTRUCTION
DISTRICT OFFICE
CONTRACT FILE

INDIANA DEPARTMENT OF HIGHWAYS
Water/Cement Ratio Report

Division:
v. Mat. & Research
District Engineer
Project File

Contract R-17566 Project _____ Date MAY 8, 1989
Cement Batch Wt. 564 lbs./yd.³ Max. permitted W/C 0.487 Lb./Lb.

	Weight		
	Sand	SB	Z
1. Recommended Minimum Sample Size in lbs.	3	5	8
2. Wet weight of sample (from stockpile) and container	4.20	6.35	
3. Dry weight of sample and container	4.09	6.19	
4. Amount of water (line 2) - (line 3)	0.11	0.16	
5. Weight of container	1.10	1.15	
6. Dry weight of sample (line 3) - (line 5)	2.99	5.04	
7. Percent moisture $\frac{\text{line 4}}{\text{line 6}} \times 100$	3.7	3.2	
8. Percent absorption from Division of Materials & Research	2.0	1.50	
9. Batch weights in Lb./Cu. Yd.	1165	1890	
10. Dry batch weights 1.0% moisture as decimal $\frac{\text{line 9}}{100}$	11.23	18.22	
11. Free water in aggregates $(\text{line 10}) \times \frac{(\text{line 7}) - (\text{line 8})}{100}$ if negative, water must be added to satisfy absorption requirements.	19.1	31.0	
12. Total free water in aggregates, sum of quantities on (line 11)	19.1 + 31.0		50.1
13. Water added at mixer in Lb./Cu. Yd. $19.60L \times 8.33 \frac{\text{cu. ft.}}{\text{yd.}^3}$			158.3
14. Total free water in mix (line 12) + (line 13) in Lb./Cu. Yd.			208.4
15. Water/Cement ratio Lb./Lb. $\frac{\text{line 14}}{\text{Cement Batch Wt. (Lb./Cu. Yd.)}}$ If line 15 does not exceed the specification limits, no adjustments are required. If line 15 exceeds the specification limits, the amount of water must be decreased or the amount of cement increased.		$\frac{208.4}{564}$	0.370
16. Total permitted water in Lb./Cu. Yd. (Cement Batch Wt.) x (Max. W/C)			274.7
17. Excess water in Lb./Cu. Yd. (Line 14) - (Line 16)			-66.3
18. Cement addition required $\frac{\text{Cement Batch Wt. (Lb./Cu. Yd.)}}{\text{line 16}} \times (\text{line 17})$			OKAY

REMARKS:

Signature Norma Norman Title HEA III