



*Checklist for the Concrete
Pre-Construction Conference*

Introduction

Pre-construction meetings are of prime importance in planning concrete construction work because many potential problems can be avoided at the right time – before the start of the project when the cost impact is relatively low.

In 1999, the National Ready Mixed Concrete Association (NRMCA) and the American Society of Concrete Contractors (ASCC) joined in a partnership to enhance the quality of concrete construction. This checklist is one of the ongoing initiatives of the partnership.

NRMCA and ASCC recognize the benefits resulting from participating in these pre-construction meetings and have prepared this **Checklist for the Concrete Pre-construction Conference** to assist the decision makers and participants on a project - representing the owner, specifier, general contractor, concrete contractor, concrete producer, other material suppliers and testing agency – in planning quality concrete construction work.

The checklist allocates responsibilities and establishes procedures related to concrete construction – subgrade preparation, forming, concrete mixture proportioning (mix design), necessary equipment, ordering and scheduling materials and operations, placing, consolidating, finishing, jointing, curing and protection, testing and acceptance as well safety and environmental issues.

The checklist covers some of the issues that need to be discussed at a pre-construction meeting and is not intended to be all-inclusive.

Sample Checklist for the Concrete Pre-Construction Conference

A. Project Information

1. Project Name _____
2. Location _____
3. Project start date _____
4. Project completion date _____
5. Project participants

| | | |
|-----------------------------|----------|-------|
| Owner: | Contact: | |
| Email: | Phone: | Cell: |
| Architect: | Contact: | |
| Email: | Phone: | Cell: |
| Structural Engineer: | Contact: | |
| Email: | Phone: | Cell: |
| CM or GC: | Contact: | |
| Email: | Phone: | Cell: |
| Concrete Contractor: | Contact: | |
| Email: | Phone: | Cell: |
| Concrete Producer: | Contact: | |
| Email: | Phone: | Cell: |
| Admix Supplier: | Contact: | |
| Email: | Phone: | Cell: |
| Pump Contractor: | Contact: | |
| Email: | Phone: | Cell: |
| Concrete Finisher: | Contact: | |
| Email: | Phone: | Cell: |
| Testing Laboratory: | Contact: | |
| Email: | Phone: | Cell: |
| Inspection Agency: | Contact: | |
| Email: | Phone: | Cell: |
| Other: | Contac: | |
| Email: | Phone: | Cell: |

6. Background information about the project: _____

7. Unique features of the project:

8. Distribution of completed checklist:

Project Participants:

Others:

B. Construction Process

1. Review notes and changes on drawings that may affect construction process:

2. Sequence of construction and milestones dates:

a. Foundations:

b. Walls

c. Structural Slabs

d. Slab-on-grade interior

e. Slab-on-grade exterior

3. Construction/Acceptance of base/subgrade, compaction, elevation. Responsibility for:

a. Providing base and subgrade elevations to contractors

b. Stability of the base and/or subgrade under construction traffic

c. Protecting the base and/or subgrade from water damage

d. Compacting and final grading of the base and subgrade after all plumbing installations are complete

e. Location of electrical lines (conduit)

In subgrade trenched and backfilled with rock

In rock subgrade

Protection from truck traffic if required

4. Responsibility for site access roads and their maintenance

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5. Responsibility for available space for pumping operations if required _____
 Access for two trucks to pump, one on each side _____
 Staging area for testing and slump adjustment _____
6. Person responsible for directing trucks to pump or placement area _____
7. Responsible for directing/backing up trucks _____
8. Responsibility for power, lighting, water and water pressure during placing and finishing _____
9. Responsibility for controlling the ambient temperatures (subgrade, forms and air) _____

10. Forms

- a. Form sizes, types _____
- b. Lifting equipment required _____
- c. Form materials, accessories _____
- d. Review location of reinforcement, embedded items, waterstops, drains, openings, openings for frames, etc. _____

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- e. Scheduling form erection and removal correlated to reinforcing and concreting operations _____

f. Responsibility for installation and inspection

- i. Reinforcement _____
- ii. Embedded items _____
- iii. Waterstops _____
- iv. Drains _____
- v. Opening Frames _____

g. Responsibility for form inspections

- i. Preliminary – prior to rebar placement _____
- ii. Semifinal – with rebars, embedded items, waterstops and drains _____

Note: Reinforcement inspection must include

- Location and spacing to allow access for vibration equipment and proper coverage
- Spacing of reinforcement in relation to aggregate size

- iii. Final – before placing concrete _____

11. Vapor retarder or vapor barrier membrane

- a. Type of membrane _____
- b. Location of membrane relative to subgrade _____
- c. Effect of curling _____
- d. Effect on bonding of applied floor coverings _____

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- e. Basis of acceptance for installation of moisture sensitive flooring materials (wood, carpet, tiles) on the slab
 - i. Moisture emission requirements for flooring materials to be installed _____

 - ii. Responsibility for
 - Testing and reporting of the test results _____
 - Acceptance of the slab _____

12. Placing Concrete: equipment and procedures

- a. Deposit from truck _____

- b. Buggy _____

- c. Belt conveyor _____

- d. Bucket placement _____

- e. Pumping _____

- f. Other _____

13. Consolidation of concrete: equipment and procedures

- a. Vibrators _____

- b. Vibratory screeds (surface vibrators) _____

- c. Back up equipment _____
- d. Power source _____
- e. Other _____

14. Responsibility for inspection of placing and consolidation of concrete

15. Ventilation in enclosed spaces

- a. Type of test required _____
- b. Responsibility for ventilation:
 - i. During placement _____
 - ii. During finishing _____

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16. Strike off technique

- Hand strike off _____
- Vibratory screed _____
- Laser screed _____
- Other _____

17. Finishing

a. Types of finishes

- Area 1 _____
- Area 2 _____
- Area 3 _____
- Area 4 _____

b. Special materials for finishes _____

- Dry-shake hardener
 - Rate of application _____
 - Procedure to install _____

c. Tools and equipment required _____

d. Back up tools and equipment required _____

18. Specified tolerances for _____

a. Vertical concrete surfaces:

- Plumbness _____
- Dimensions _____
- Thickness _____
- Texture _____
- Color _____

• Acceptable variances _____

- Surface defects _____
- Others _____

Note: Refer to ASCC Guide for Surface Finish of Formed Concrete

b. Slabs-on-grade and floors

- Flatness/levelness _____
- Dimensions _____
- Thickness _____

• How it will be determined _____

- Texture _____
- Color _____

• Acceptable variances _____

- Surface defects _____
- Joint spacing _____
- Others _____

c. Elevated slabs

- Flatness/levelness _____
- Dimensions _____
- Thickness _____

• How it will be determined _____

- Texture _____
- Color _____

• Acceptable variances _____

- Surface defects _____
- Others _____

d. Procedures for measuring tolerances (when and how) _____

e. Review specifications for possible conflict between the concrete installer and other trades

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- f. Review specifications for conflict between the surface profile provided by the concrete installer and the surface profile required by installer of finish material

g. Responsibility

- i. Reporting F-numbers to concrete contractor _____
- ii. Accepting floors _____
- iii. Measuring tolerances _____
- iv. Repairing "air or bug holes" in vertical surfaces _____
- v. Removing curing compounds prior to applicaion of sealers _____

19. Jointing

a. Review/verification of contraction, isolation, expansion and construction joint layout plans

- Structures (walls) Yes No

Comments (number, location, spacing, details) _____

- Slabs-on-grade Yes No

Comments (number, location, spacing, details) _____

b. Type of joints contraction isolation expansion

1. Formed joints _____

2. Tooled joints _____

3. Early entry saw-cut

- Timing _____
- Depth of cut _____
- Joint spacing _____
- Equipment _____

4. Conventional saw-cut

- Timing _____
- Depth of cut _____
- Joint spacing _____
- Equipment _____

c. Slabs-on-grade

- i. Joints Yes No

- ii. Reinforcement Yes No

- Position of reinforcement in slab _____
- Method of supporting reinforcement at specified elevation _____
- Termination at joints _____

iii. Load transfer devices (e.g. dowel bars)

- Type, size and location _____
- Check for specified alignment _____

iv. Define unacceptable cracks (see surface defects in tolerances) _____

v. Method of repair of unacceptable cracks _____

vi. Responsibility for repair of unacceptable cracks _____

vii. Sealing (Filling) Joints Yes No

- Epoxy Joint filler Yes No
- Elastomeric sealant Yes No
- Timing (review product directions and ACI Guidelines) _____

• Depth of filling _____

• Procedure (flush or a slightly crowned for epoxy joint or concave for elastomeric sealant)

• Responsibility for future touch up _____

20. Curing and Sealing

a. Curing methods _____

b. Curing periods _____

c. Responsibility for curing floors placed prior to erection of roof, walls _____

d. Temperature Control Yes No

- Specify _____
- If temporary heaters are used, responsibility for venting to prevent concrete dusting

e. Excessive evaporation control

Specify _____

f. Evaporation retarder Yes No

Specify _____

g. Fogging Yes No

Specify _____

h. Other _____

i. Responsibility for inspection of curing operations/timing

j. Responsibility for removing curing compounds

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- k. Applying sealers _____
• Types _____
• Locations _____

21. Protection of concrete

- a. Roof and Walls Yes No
Specify _____

- b. Floors coverings Yes No
Specify _____

- c. Floor Protection Yes No
i. Specify age/strength of floor prior to the use of floor by:

- Foot traffic _____
- Pneumatic tire traffic _____
- Hard wheel traffic _____
- Construction traffic _____

ii. Specify age/strength of floor when

- Equipment is installed _____
- Racks are erected _____

22. Responsibility for storage areas and site security

23. Form removal

- a. What is the minimum strength requirement for form removal? _____ psi.

- b. What formal report is required before form removal? _____

- c. Type of field or in-place strength tests if used and evaluation criteria? _____

- d. Name(s) of personnel authorized to approve form removal _____

24. Procedures for hot weather concreting

25. Procedures for cold weather concreting

C. Concrete Materials and Required Mixture Proportioning (Mix Design)

1. Concrete Mixtures (Mix Design)

| List of Mixture (Mix Design) Designations | Mixture (Mix Design) Codes | Location | Approximate Volumes |
|---|----------------------------|----------|---------------------|
| | | | |
| | | | |
| | | | |
| | | | |

2. Mixtures (Mix designs) acceptance

a. Have mixtures (mix designs) been approved Yes No

b. Responsibility for mixture (mix design) approval

Comments: _____

c. Copies of the approved mixtures (mix designs) provided to

- Owner Yes No
- Architect Yes No
- Structural engineer Yes No
- Construction manager or general contractor Yes No
- Concrete contractor Yes No
- Concrete Pumping contractor Yes No
- Concrete finisher Yes No
- Testing laboratory Yes No
- Inspection agency Yes No

3. Additional mixtures (mix designs) required Yes No

- Specify _____
- Approved Yes No

4. Consideration for aggregates

a. Gradation _____

b. Sand requirements _____

5. Pumped concrete Yes No

6. High early strength Yes No

- Strength required _____ psi at age _____

7. Lightweight concrete Yes No

8. Other _____ Yes No

Comments: _____

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- Are adjustments to air content allowed on the jobsite Yes No

Comments: _____

- Air-entrained lightweight concrete for interior slabs

Comments: _____

- Other requirements: _____

Comments: _____

13. Project specification requirements for slump limits

- Conventional concrete Max _____ Min _____

- Pumped concrete Max _____ Min _____

Comments: _____

- Plasticized concrete Max _____ Min _____

Comments: _____

- Other: _____ Max _____ Min _____

Comments: _____

14. Jobsite slump adjustments

a. Responsibility for:

i. Making/Permitting jobsite slump adjustments _____

ii. Recording of adjusted batch _____

b. Materials permitted to adjust the slump

Water _____

Mid-range water reducer _____

High-range water reducer _____

c. Procedure to be followed and limitations that apply to jobsite slump adjustment (maximum amount, Subsequent mixing, sampling of the load) _____

15. Project specification requirements for temperature

a. Required temperature of concrete as delivered: Max _____ °C/°F Min _____ °C/°F

b. Responsible person for requiring and approving special measures to meet concrete temperatures such as hot water, heated aggregate, cold water, ice, liquid nitrogen _____

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c. Outline procedure to be followed and limitations that apply for measurement of concrete temperature and acceptance of concrete at the jobsite: _____

16. Project specification requirements for concrete delivery time

ASTM C94

Other _____

17. Project specification requirements for lightweight concrete

Maximum equilibrium Density _____

Density of Fresh Concrete _____ Acceptance tolerance \pm _____

Slump _____

Air content _____

Pumping operations _____

18. Architectural Concrete

a. Finish details

Location

Exposed aggregate _____

Smooth finish _____

Rubbed finish _____

Colored _____

Imprinted _____

• Details (grouted joints, textured) _____

b. Special materials

Cement _____

Aggregates _____

Water _____

Admixtures _____

Sealers _____

Release agents _____

c. Architectural samples or mockups

Location _____

Preservation _____

Responsibility for acceptance _____

d. Repair methods _____

D. Ordering and Scheduling Concrete

1. Person (s) responsible for ordering concrete (Concrete must be ordered by mixture (mix design) code)

2. Minimum time notice required for most placements

3. Define large and specialty orders

4. Minimum notice required for large and specialty placements _____
5. Procedure for handling will call orders _____
6. Procedure for handling revised orders _____
7. Contact name(s) and phone number(s) for last-minute cancellations
 - Producer _____
 - Concrete contractor _____
 - Construction manager or general contractor _____
8. Person on jobsite responsible for reviewing delivery ticket prior to placement

9. Regular hours are between _____ A.M. and _____ P.M.
Regular workdays are _____ through _____ not including designated holidays
10. Are there any anticipated holiday and/or overtime placements? Yes No
Comments: _____
11. Delivery schedules
 - a. Location of placement _____
 - b. Anticipated placement sizes _____ cubic yards
 - c. Minimum load size _____ cubic yards
 - d. What are anticipated placement rates _____ cubic yards/hour
 - e. Approximate placements dates _____
 - f. Inclement weather plant capability _____
 - g. Responsible person for cancelling pour _____
12. Concrete delivery
 - a. Any traffic restrictions at or near the jobsite Yes No
Comments: _____
 - b. Any restriction on entrance to or exits from jobsite Yes No
Comments: _____
 - c. Other items _____

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13. Trucks

- a. Number of trucks _____
- b. Type of trucks _____
- c. Interval Schedule (Turn around time) _____

E. Environmental Aspects

- 1. Environmentally sensitive areas around the project Yes No
Comments: _____
- 2. Responsibility for providing a concrete wash out area at the jobsite

- 3. Identify location of area for truck rinse and other construction waste:

- 4. Responsibility for clean up of the wash out areas _____
- 5. Person responsible for directing trucks to the wash out area _____
- 6. Are spill response kits available on site? Yes No
Comments: _____
- 7. On site emergency contact person

- 8. Responsibility for disposal of curing compounds

- 9. Other Items

F. Quality Control/Assurance

- 1. Accreditation requirements for laboratory _____
- 2. Certification requirements for
 - a. Laboratory testing technicians Name
 - ACI Concrete Laboratory Testing Technician Grade I _____
 - ACI Concrete Laboratory Testing Technician Grade II _____
 - Equivalent _____
 - b. Field testing technicians Name
 - ACI Grade I Certified _____
 - Equivalent _____
- 3. Advance notice for scheduling testing personnel _____
- 4. Procedures for verification of specified requirements
 - Batch Records
 - Strength Tests
 - Other _____

F.1 Concrete Sampling and Testing Requirements

- 1. Sampling frequency _____
- 2. Sampling location
 - Point of discharge
 - Point of placement

Comments (agreement on sampling location):

-
- 3. Tests performed on each sample
 - Slump
 - Temperature
 - Density (unit weight)
 - Air content
 - Compressive strength
 - Flexural strength
 - Other: _____

- 4. Cylinder size for compressive strength test
 - 4 X 8 inch 6 X 12 inch
- 5. Beam size for flexural strength test
 - 6 X 6 inch Length: refer to ASTM C31
 - Other size _____

Note: If beam breaks are low, compare acceptable concrete with suspect concrete by coring

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6. Number of cylinders per sample _____
(hardened cylinder weight must be recorded on concrete strength reports)
 7. Number of beams per sample _____
 8. Number of cylinders/beams to be tested _____ Field? _____ Lab? _____
 9. At what ages are cylinders/beams to be tested? _____
 10. Number of cylinders/beams per test (minimum 2) _____
 11. Are reserve cylinders/beams required? Yes No How many? _____
 12. Frequency of yield tests and compliance checks (three-load average of unit weight) _____
-

F.2 Test Cylinder Storage and Transportation:

1. Initial curing (up to _____ hours)
 - Immersed in water-controlled temperature
 - Storage box-controlled temperature – record daily minimum and maximum temperature
 - Exposed to the environment – record daily minimum and maximum temperature

Note: In the absence of cylinder storage with daily record of minimum/maximum temperatures, cylinders shall be immersed in water immediately after molding

 - Storage at jobsite under conditions consistent with concrete in structure

Note: Field-cured cylinders are used to determine the appropriate time for form removal or Post-tensioning
 2. Responsibility for providing cylinder storage box _____
Note: Refer to ACI 301
 3. Responsibility for maintaining temperature in storage box between 60-80°F (16 to 27°C) during first 16-48 hours after molding _____
 4. Describe how storage box temperature will be maintained _____
 5. When will cylinders made on days preceding non-work days be transported to the laboratory? _____
 6. Describe arrangements for access to construction site on non-work days _____
 7. Responsibility for final curing as per ASTM C31 _____
-

F.3 Acceptance/Rejection of Fresh Concrete:

1. Who has the authority to reject a concrete delivery? _____
Note: A Second person may be designated as having the authority for FINAL rejection of a concrete delivery

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2. What criteria will be used to reject concrete

- Slump _____
- Air content _____
- Unit weight _____
- Temperature _____
- Time limit _____
- Other _____

3. Are re-tests allowed before rejection? Yes No

Procedure

F.4 Acceptance Criteria for Hardened Concrete

1. Review Acceptance Criteria

- ACI 301/318
- ASTM C94
- Other _____

2. Distribution of test reports (to all participants)

- Owner _____
- Architect _____
- Structural engineer _____
- Construction manager or General contractor _____
- Concrete contractor _____
- Concrete producer _____
- Admixture supplier _____
- Concrete pumping contractor _____
- Concrete finisher _____
- Testing laboratory _____
- Inspector _____
- Jobsite testing technicians _____

Note: Concrete producer and concrete contractor must receive reports directly and immediately from
The laboratory to allow timely response to any deficiencies.

3. Potential concrete deficiencies

- Target cylinder strength for earlier ages than 28 days (at 3-7 days)
-
- Procedure for timely reporting results to concrete producer and concrete contractor before the 28-day
strength tests (density, 3-7 day strength, etc.) _____
-

F.5 Testing of Hardened In-Place Concrete

1. In what situations will additional (or referee) testing be required?
 - Running average of three consecutive strength tests is less than specified – ACI 318
 - Individual strength test is 500 psi less than specified – ACI 318
 - Other _____

2. Procedure(s) to be followed for evaluation of low-strength tests
 - Evaluation of test results and testing procedures – including laboratory operations
Comments: _____

 - Non-destructive testing
 - Penetration probe in accordance with ASTM C803
 - Rebound hammer in accordance with ASTM C805
 - Other (combined method) _____

Note: Refer to ACI 228.1R

 - Evaluation of structural adequacy of questionable sections by the structural engineer

 - Core testing and evaluation in accordance with ACI 318
 - Procedure for conditioning cores prior to testing _____

 - Load testing in accordance with
 - ACI 318
 - Other _____

 - Remove and replace
Comments: _____

3. How do the project specifications handle additional testing?

If additional testing is required, _____ will notify the following parties

4. What investigative procedures will be used?

5. Who will be employed to conduct additional testing and who employs them?

6. How will the test results be evaluated?

7. Who will pay the costs of additional testing?

- Specified strength confirmed _____
- Specified strength not confirmed _____

G. Safety

1. Personal protective equipment required

- Hard hats
- Safety boots
- Eye protection
- Safety vests
- Specific protective clothing
- Respirators
- Other _____

2. Responsibility for:

- a. First aid supplies _____
- b. Providing and maintaining Material Safety Data Sheets (MSDS) at the jobsite _____
- c. Fall protection _____
- d. Safety Inspections _____
- e. Safety meetings _____

3. Emergency Contacts

| | Location | Phone |
|------------------------|----------|-------|
| Fire Department | | |
| Police | | |
| Hospital | | |
| Security | | |
| | | |
| | | |
| | | |

The National Ready Mixed Concrete Association is a trade association representing producers of ready mixed concrete and those companies that provide materials and support to the industry. The primary goal of NRMCA is to increase the professionalism of the industry. NRMCA provides its members with education, training, product promotion assistance, information on research and technology and representation before Congress and regulatory bodies.

The American Society of Concrete Contractors is a non-profit organization dedicated to enhancing the capabilities of those who build with concrete. Members of ASCC are concrete contractors, material suppliers, equipment manufacturers, and others involved in concrete and decorative concrete construction. ASCC provides a unified voice in the concrete construction industry, and offers many services including: an extensive safety program, problem solving assistance, networking opportunities, and educational materials.



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