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

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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

__________________________________________________________________________
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.
   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
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
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
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 application 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
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)

<table>
<thead>
<tr>
<th>List of Mixture (Mix Design) Designations</th>
<th>Mixture (Mix Design) Codes</th>
<th>Location</th>
<th>Approximate Volumes</th>
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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: __________________________________________________________

__________________________________________________________
9. Concrete batch plant
   - Central-mixed
   - Shrink-mixed
   - Truck-mixed
   
a. Primary plant: ____________________ Backup plant: ____________________

b. NRMCA Production Facility Certification Required ☐ Yes ☐ No

c. Inspection requirements
   - Full time
   - Part time
   - Not required

d. Revolutions or time limits for mixing concrete ______________________
   
   Note: Refer to ASTM C94

10. Review project specifications for conflicts in performance requirements (compressive/flexural strength, durability, shrinkage, curling and water-cementitious materials ratio, water content, slump, air content)

11. Other value-added ingredient materials required
   - Mid range water reducing admixture ☐ Yes ☐ No
   - High range water reducing admixture ☐ Yes ☐ No
   - Non-chloride accelerator ☐ Yes ☐ No
   - Corrosion inhibitors ☐ Yes ☐ No
   - Fly Ash ASTM Class C ☐ Yes ☐ No
   - Fly Ash ASTM Class F ☐ Yes ☐ No
   - GGBF Slag ☐ Yes ☐ No
   - Silica fume ☐ Yes ☐ No
   - Type K cement ☐ Yes ☐ No
   - Component expansion admixture ☐ Yes ☐ No
   - Fibers ☐ Yes ☐ No
   - Color ☐ Yes ☐ No
   - Other ______________________ ☐ Yes ☐ No

   Comments (specify type and quantity of ingredient, etc.)

12. Project specification requirements for air content
   - Normal weight air-entrained concrete (not recommended if floors require a machine troweled finish
   - But recommended for all exterior work)
   
   Comments: ______________________

Note 1: Batching all ingredient materials at the plant ensures best quality control of concrete. Jobsite modifications to mixture should be communicated to the concrete producer.

Note 2: Add appendices for requirements of ingredient materials
NRMCA/ASCC Concrete Pre-Construction Checklist

☐ Are adjustments to air content allowed on the jobsite
  Comments: 

☐ Air-entrained lightweight concrete for interior slabs
  Comments: 

☐ Other requirements: 
  Comments: 

13. Project specification requirements for slump limits
☐ Conventional concrete
   Max: 
   Min: 
   Comments: 

☐ 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 

Page 12
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 ±_____
   - Slump ______________________________
   - Air content ______________________________
   - Pumping operations ______________________________

18. Architectural Concrete
   a. Finish details
      - 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
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
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
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

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<td>Fire Department</td>
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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.