SECTION 03 08 00

**COMMISSIONING OF CONCRETE**

**BASED ON DFD MASTER SPECIFICATION DATED 03/01/14**

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

**P A R T 1 ‑ G E N E R A L**

**SCOPE**

This section includes commissioning forms for construction verification and functional performance testing. Included are the following topics:

PART 1 - GENERAL

Scope

Related Work

Reference

Submittals

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

Commissioning Forms

CV-03 30 00 Cast in Place Concrete

CV-03 40 00 Pre-Cast Concrete

**RELATED WORK**

Section 01 91 01 or 01 91 02 – Commissioning Process

**REFERENCE**

Applicable provisions of Division 1 shall govern work under this section.

**SUBMITTALS**

Reference the General Conditions of the Contract for submittal requirements.

Reference Section 01 91 01 or 01 91 02 Commissioning Process for Construction Verification Checklist and Functional Performance Test submittal requirements.

**P A R T 2 – P RO D U C T S**

(Not Used)

**P A R T 3 – E X E C U T I O N**

**COMMISSIONING FORMS**

Commissioning forms are to be filled in as work progresses by the individuals responsible for installation and shall be completed for each installation phase.

Provide a description of the work completed since the last entry, the percentage of the total work completed for the system for that area and the step of installation or finalization.

Circle Yes or No for each commissioning form item. If the information requested for an item does not apply to the given stage of installation for the system, list it as “N/A”. Explain all discrepancies, negative responses or N/A responses in the negative responses section.

Once the work is 100% complete and the responses to each item are complete and resolved for a given commissioning forms group, mark as complete, initial and date in the spaces provided.

Provide copies of the commissioning forms to the commissioning agent 2 days prior to construction progress meetings.

***Edit the individual construction verification checklists and provide additional checklists as needed to reflect the verification requirements of assemblies, components, equipment and systems to be commissioned on this project. Include edited checklists with final review documents; no submission is required at preliminary review.***

**CV-03 30 00 – Cast in Place Concrete**

**Identification/Tag: \_\_\_\_\_\_**

**Location:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A) PRE-POURING CHECKS**

| **Date** | **Description of Work Performed** | **%****Complete** | **Initials** | **Questions (See details below)** |
| --- | --- | --- | --- | --- |
| **1)** | **2)** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
| **❑ CHECKLIST GROUP COMPLETE** | **INITIALS:** |   | **DATE:** |   |

**Question Details**

1. Shop drawings, product data and samples have been submitted and approved.
2. All materials are as designed, specified, and approved.

**Negative Responses**

| **Group/Item** | **Date****Found** | **Found****By** | **Location** | **Reason for Negative Response** | **Resolved** | **Date****Resolved** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |

**B) POURING CHECKS**

| **Date** | **Description of Work Performed** | **%****Complete** | **Initials** | **Questions (See details below)** |
| --- | --- | --- | --- | --- |
| **1)** | **2)** | **3)** | **4)** | **5)** | **6)** | **7)** | **8)** | **9)** | **10)** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
| **❑ CHECKLIST GROUP COMPLETE** | **INITIALS:** |   | **DATE:** |   |

**Question Details**

1. Reinforcement sized correctly, placed as designed and supported properly.
2. Forms are clean and are placed, plumb, true and square.
3. Forms are properly shored and braced and maintained in accordance with ACI 301 to support loads that might be applied until concrete structure can support such loads.
4. Anchor bolts and other embedded items are accurately located to elevations required.
5. Granular fill is of proper gradation and base is placed level, compacted and true.
6. Level of compaction is verified by a qualified testing agency and approved.
7. Concrete is placed in suitable weather and temperature conditions. If required, cold/hot weather placement requirements are performed in accordance with ACI.
8. Qualified testing agency has verified proper slump, air content, water cement ratio and air temperature is as specified at each frequency specified.
9. Compressive test cylinders were cast at time of placement and compressive strength testing by qualified testing agency has been performed, in the specified intervals and the compressive-strength test values are at or above those specified.
10. Construction joints are properly located and, for slabs on grade, contraction joints are installed or sawed in the appropriate time interval, in locations indicated at the proper width and depth.

**Negative Responses**

| **Group/Item** | **Date****Found** | **Found****By** | **Location** | **Reason for Negative Response** | **Resolved** | **Date****Resolved** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |

**C) POST POURING CHECKS**

| **Date** | **Description of Work Performed** | **%****Complete** | **Initials** | **Questions (See details below)** |
| --- | --- | --- | --- | --- |
| **1)** | **2)** | **3)** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |
| **❑ CHECKLIST GROUP COMPLETE** | **INITIALS:** |   | **DATE:** |   |

**Question Details**

1. Type of finish specified has been applied and approved by architect.
2. Curing measures were undertaken and the concrete is properly cured as specified.
3. Defective areas including but not limited to spalls, pop-outs, honeycombs, rock pockets and cracks are properly repaired and patched.

**Negative Responses**

| **Group/Item** | **Date****Found** | **Found****By** | **Location** | **Reason for Negative Response** | **Resolved** | **Date****Resolved** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |

**CV-03 40 00 – Pre-Cast Concrete**

**Identification/Tag: \_\_\_\_\_\_**

**Location:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**A) PRE-INSTALLATION CHECKS**

| **Date** | **Description of Work Performed** | **%****Complete** | **Initials** | **Questions (See details below)** |
| --- | --- | --- | --- | --- |
| **1)** | **2)** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
|  |  |  |  | **YES****NO** | **YES****NO** |  |  |  |  |  |  |  |  |
| **❑ CHECKLIST GROUP COMPLETE** | **INITIALS:** |   | **DATE:** |   |

**Question Details**

1. Shop drawings, product data and samples have been submitted and approved.
2. All materials are as designed, specified, and approved.

**Negative Responses**

| **Group/Item** | **Date****Found** | **Found****By** | **Location** | **Reason for Negative Response** | **Resolved** | **Date****Resolved** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |

**B) INSTALLATION CHECKS**

| **Date** | **Description of Work Performed** | **%****Complete** | **Initials** | **Questions (See details below)** |
| --- | --- | --- | --- | --- |
| **1)** | **2)** | **3)** | **4)** | **5)** | **6)** | **7)** | **8)** | **9)** | **10)** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
|  |  |  |  | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** | **YES****NO** |
| **❑ CHECKLIST GROUP COMPLETE** | **INITIALS:** |   | **DATE:** |   |

**Question Details**

1. Supporting structural frame or foundation and other conditions are in compliance with requirements for installation tolerances, and true and level bearing surfaces and other conditions affecting performance are adequate.
2. Panel imbeds are secure and in correct locations to connect precast units to supporting members and backup materials.
3. Panels match approved samples, are undamaged and are free of joint marks, grain and other obvious defects.
4. Panel shape) and profiles are as designed and approved.
5. Panels installed flush, level, plumb and true to line.
6. All edges and openings are clean and free of obstructions.
7. Flashing, drains and weeps installed or can be installed as designed.
8. Extraneous imbeds from fabrication, delivery or installation removed.
9. Repairs or replacement of units have been made where inspections indicate that the work does not comply with specified requirements.
10. Exposed surfaces have been cleaned.

**Negative Responses**

| **Group/Item** | **Date****Found** | **Found****By** | **Location** | **Reason for Negative Response** | **Resolved** | **Date****Resolved** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |
|  |  |  |  |  | **YES / NO** |  |  |