

Chapter 8

CONSTRUCTION PHASE GUIDELINES

INTRODUCTION

1. The continuing involvement of the Project Manager (PM) and Consultant/Designer during the Construction Phase assures OGS D&C and our Client Agencies that the completed project reflects the design intent and that the quality of materials and workmanship is to the acceptable standard as set forth in the contract documents.
2. Roles, expectations, and responsibilities need to be clearly identified and communicated amongst the Consultant/Designer, PM, and Director's Representative (Engineer-In-Charge) during this phase. Most often, this phase is somewhat challenging due to the perceived transfer of project ownership from the PM / Consultant/Designer to the Engineer-In-Charge. The Pre-Construction Meeting ensures that the project transition to the Construction Phase is properly executed. Refer to the DPM Design / Construction Pre-Construction Meeting in Chapter 7.6 Meetings section B of the Bid Phase Guidelines.
3. The PM and Consultant/Designer have the responsibility to provide the necessary contract administration support services and resources to the Engineer-In-Charge during this phase to ensure a timely completion of the project. The number and intervals of site visits should be commensurate with the project schedule and complexity. Consideration should also include specific pre-installation meetings, benchmarks and mock-up reviews. See Construction Observation Site Visits and Reports in this chapter.
4. Effective communication amongst the Project Team is essential to the successful completion of a project. It is recommended that the Project Team use online meeting services via the internet in real time to share desktops and visually view project documents when appropriate. The use of an Electronic Web-Based Construction Collaboration System (submittals website) will be used to assist in the management of the project team (including Contractors, Consultants and Client) during this phase for the shop drawing submittal process and other forms of construction communications and documentation including but not limited to Requests for Information, Information Bulletins, meeting minutes, testing reports, schedules, contract documents, SWPPP reports, etc.

SUMMARY of the PM RESPONSIBILITIES

- P1** Primary responsibility for coordination with Client on scope changes during construction.
- P2** Initiation and approval responsibility for all changes to Consultant/Designer scope of services, including responsibility to issue/approve all work assignments.
- P3** Ensure that the Pre-Construction Teleconference Meeting is held prior to construction start. The PM/EIC should invite Consultant/Designers to participate.
- P4** Ensure that communications are occurring at an appropriate frequency to support the project and that they are maintained between the Consultant/Designers, PM, EIC and field staff. See Chapter 10.3 Communications Guide.
- P5** Ensure that Consultant understands their role and responsibilities for this phase.
- P6** Submittals:
- a.** Ensure that the Schedule of Submittals (SOS) Excel version is emailed to Submittals Exchange® along with the project team directory.
 - b.** Ensure the website submittal log includes submittals that are added or deleted by addenda.
 - c.** Ensure that the submittals system log on the website is maintained and updated in collaboration with the consultant, EIC, and Contractor.
 - d.** Ensure submittals are being submitted by Contractor and are reviewed and processed by the Consultant/Designer in a timely manner.
 - e.** Discuss submittal re-evaluation fees with the Consultant/Designer / EIC and request approval for enforcement provision from the Director of Construction's Office when necessary.
- P7** Ensure Consultant/Designer RFIs & IBs are being processed in a timely manner.
- P8** Ensure all Consultant/Designer site visits have an associated [Design Observation Report BDC 151](#) and that the EIC is responding to deficiencies.
- P9** Ensure that [BDC 49 Contract Document Deviation Request Form](#) is used when Contractor substitutions / deviations are proposed and provide assistance in the review process.
- P10** Assist in the review of Field Orders and Change Orders.
- P11** Assist in the interpretation of contract documents.
- P12** Best Practice: Complete a Consultant evaluation for this phase.
- P13** Ensure that the submittals website closeout data is provided on a searchable database (CD, DVD or downloadable file) and a copy is provided to Consultant. Ensure archive data is uploaded into the project Construction / Submittals folder by BU6 CADD Unit.
- P14** Review the contents within this chapter for more detail.
- P15** Best Practice: Complete a Consultant Evaluation in DCNet.

DIRECTOR'S REPRESENTATIVE (EIC) ROLE

The Director's Representative role is typically filled by the Engineer-In-Charge (EIC). The EIC has the direct responsibility for obtaining from the Contractors all that is represented by the plans and specifications and for ensuring that all requirements of the Contract are fulfilled before the corresponding payments are made by the State. The duties required to perform this function can be generally described as Construction Management services including interface with the Consultant/Designers, inspections, scheduling the work of prime Contractors, project reporting (bi-weekly), cost accounting, Contractor coordination, payment application review, processing field and change orders, project meetings, project closeout, review of Contractor as-built drawings, operations and maintenance manuals and warranties, and claims mitigation. The EIC's role and responsibilities are defined in detail in the Construction Procedures Manual.

SUMMARY of CONSULTANT/DESIGNER RESPONSIBILITIES

- C1** Attend the Design and Construction Pre Construction Teleconference Meeting.
- C2** Frequent communication with PM/EIC appropriate for the type of project.
- C3** Ongoing coordination of all the design disciplines.
- C4** Submittals:
 - a.** Notify the PM and EIC when the SOS is modified by addendum.
 - b.** Interface with an electronic submittals web based collaboration system (submittals website). Manage the submittals system log in collaboration with the PM, EIC, and the Contractor.
 - c.** Review of submissions within 5 – 10 business days of receipt.
 - d.** Thorough review submittals for compliance with the contract documents.
 - e.** Monitor the quality of submittals. Notify PM/EIC when submittal quality is incomplete and not acceptable for review. Promptly return submittal as Return for Correction. Discuss enforcement of the Contractor submittal re-evaluation fee with the PM/TL/EIC when necessary.
 - f.** Notify the PM/EIC on Contractor material or proposed product substitutions, deviations and detail changes. Contractor shall use BDC 49 Contract Document Deviation Request Form for these types of changes.
 - g.** Notify the PM/EIC if long lead items and critical submittals are not submitted by the Contractor in a timely manner and per the submittal schedule.
 - h.** Do not add scope to the submittals without prior discussion with the PM/EIC. If marked revisions are made to shops / product data and scope is added to the contract then the shops / product data revisions need to be supplemented with a complimentary IB.
- C5** Answer Request for Information (RFI's) within 5 business days.
- C6** Issue Information Bulletins (IB's) in a timely manner as to not impact the construction schedule.
- C7** Notify the PM/EIC promptly of any scope changes.
- C8** Attend important pre-installation meetings, mock-up reviews and other significant meetings.

- C9** Site Visits (as approved by the PM):
 - a. Meet with EIC and tour project site.
 - b. Review work for contract compliance, design intent, quality of workmanship, and material acceptance.
 - c. Use [Design Observation Report BDC 151](#) for ALL site visits and reports. Note deficiencies in the report. A report is also required to be submitted when there are no deficiencies found.
 - d. Notify the PM when deficiency responses are not provided by the EIC in a timely manner.
 - e. Discuss / request additional site visits when deemed appropriate for project and quality concerns.
- C10** Review of Field Orders and Change Orders (when requested by PM/EIC).
- C11** Interpretation of Contract Documents (when requested by PM/EIC).
- C12** Review the information within this chapter and ensure that sub-consultants have a clear understanding of the project phase requirements.
- C13** Review the contents within this chapter for more detail.
- C14** Review special inspection deficiencies that cannot be resolved by repairs or replacement. This may require the revision of details or certification that the material or installation meets the intended purpose.

COMMUNICATIONS

1. The PM and the EIC shall maintain open lines of communications for the duration of the project. They shall include applicable Client Representatives, Consultant/Designers, Contractors and Facility Representatives as required.
2. Project Team Communications Protocol:
 - a. All important communications shall be in writing, or if given verbally should be confirmed in writing.
 - b. All communications to and from sub-Contractors and suppliers shall be through the EIC and Contractor.
 - c. All communications with the Consultant's sub-consultants shall be through the Prime Consultant.

DESIGN DISCIPLINES COORDINATION

1. Project coordination is an ongoing effort between the architectural and engineering Consultant/Designers and shall continue through the Construction Phase. Consultant/Designers shall review and cross check documents with required submittals and RFIs prepared by the Contractor. Coordinate submittal information with related design disciplines.

SUBMITTAL REVIEW PROCESS

1. The submittal review process includes the preparation, receipt, review, and appropriate action on shop drawings, product data, samples, mock-ups, and other submittals required by the Contract Documents on a thorough and timely basis so as not to impact the construction schedule.
2. The submittal process and associated reviews are administered by Submittals Exchange® a web based submittals tool specified in 013300 Submittals.
3. Submittals Exchange® uses the Excel SOS (included in the Project Manual Appendix as a pdf document) to generate the project submittal log. Notify the EIC to update the web submittal log when addendum modifies the SOS.
4. Submittals are prepared by the Contractor and include shop drawings, product literature, or actual samples of specific products to be installed; reports from independent testing agencies; operating instructions; maintenance manuals for installed equipment; and warranties from product suppliers and equipment manufacturers. The Contractor shall review each submittal for its appropriateness and suitability for the product, and the submittal shall note that this review has been conducted. See Article 4.2 of the General Conditions. If submittals come in from the Contractor without apparent thorough review, they should be returned to the Contractor with a statement such as:
“There appear to be significant discrepancies between the contract documents and this shop drawing. You are advised to recheck the submitted data for contract compliance and resubmit.”
5. The intent of Article 4.7 of the General Conditions and Specification 013300 item 1.07 Re-evaluation Fee (\$250) is to ensure that the Contractor, Sub-Contractor or Manufacturer has done due diligence in the submittal preparation with respect to appropriate content and completeness. The number of resubmissions that are deemed an acceptable number is determined by the Consultant/Designer and PM. Resubmissions that do not address previous red-lined comments is a good example of a submission that should be rejected and the re-evaluation fee invoked. The re-evaluation fee is a useful tool to be used by the Consultant/Designer to send notice to a non-performing Contractor, sub-Contractor, vendor or supplier that their proper preparation and review of submittals is important to the project. The re-evaluation fee process is implemented when the EIC/PM requests review and approval by the Assistant Director of Construction.
6. The intent of Article 4.3 of the General Conditions regarding submittal substitutions and deviations requires Contractors to submit in separate writing proposals for contract change prior to or at the time of submittal submission according to the SOS to allow the Consultant/Designer, PM, EIC and the Director sufficient time to review.
 - a. Contractors are required to formally notify the Director in writing using BDC 49 Contract Document Deviation Request Form for submittal deviations, proposed substitutions, detail modifications and phasing changes from the contract documents.

Submittal Actions

Approved:

The submitted material is acceptable as received.

Approved as Noted:

The submitted material is acceptable pending compliance with noted changes. Generally the changes must be minor in nature. Submittals requiring significant changes, especially changes that can be reasonably expected to increase the Contractor's costs, should not be approved with notes.

Disapproved:

If the submitted material cannot reasonably be expected to be found acceptable for installation on the project, the submittal should be disapproved. If disapproved material is resubmitted by the Contractor, disposition should be discussed with the Team Leader and EIC prior to review.

Returned for Correction:

If the submitted material can reasonably be expected to be acceptable for installation on the project, but significant changes are required, the submittal should be returned for correction. The notes should specifically state the necessary changes and should include all required changes.

No Action or Acknowledged:

This action is seldom used but is available for the following situations:

The submitted material does not require approval. Examples include submission of quality control certificates and certifications, warranties, test reports, and design calculations. In these cases, the Designer must acknowledge receipt on a transmittal that is returned to the Contractor.

The submitted material was inadvertently sent to the wrong address. An example is product color samples that should have been sent directly to the EIC.

The submittal is incomplete and cannot be reviewed until additional material is received. In this case, the Designer must indicate this requirement on a submittal that is returned to the Contractor.

Multi-Action:

Where the submittal is marked "Multi-Action", separate dispositions are made for the items submitted, see the review comments for the disposition of each item submitted.

11. Submittal Review Timeframe and Record Keeping

- a. In general, submittals should be reviewed and acted on within five (5) to ten (10) business days of receipt. Best Practice: Consultant/Designer or EIC is to review submittal for completeness when the submittal is received. If incomplete, submittal shall be promptly marked Returned for Correction.
- b. Consultant/Designers may maintain their own master file of submittals.
- c. Consultant/Designer shall attend mock-up reviews and evaluations conducted at the project site.
- d. Consultant/Designer shall issue separate instructions using the submittals website - **Information Bulletins (IB's)** for red-lined shop drawings that indicate necessary revisions that change the contract documents. Notify the

- PM/EIC when this occurs. IB's will be incorporated into Order on Contract (Change Order) by the EIC.
- e. Consultant/Designer shall review laboratory submittals, reports on materials and equipment, issuing instructions for special inspections, performance testing and testing of work.
 - f. The project team needs to determine who the final reviewer is to release submittals in SubmittalsExchange®.
12. If a submitted product is determined not to be an “or equal” but is acceptable for use on the project, the Consultant/Designer shall notify the PM and EIC. A BDC 49 Contract Deviation Request Form will need to be filled out by the Contractor and reviewed by the project team who may or may not allow its use on a project.

General Conditions Submittal and “Or Equal” Excerpts
<p>Article 4.2 <i>The Contractor shall approve all submittals before submitting them. By such approval, the Contractor represents that it has determined and verified field measurements, field construction criteria, materials, catalog numbers, and similar data that it has checked and coordinated shop drawings, product data and samples with the requirements of the Contract Documents and that it has verified the completeness, correctness, and accuracy of the submittal.</i></p> <p>Article 4.3 <i>The Director’s approval of shop drawings, product data and samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract Documents unless the Contractor has informed the Director of the deviation in a separate writing at the time of submission and received written approval of the specific deviations. The Director’s approval shall not relieve the Contractor from the responsibility for errors or omissions in the shop drawings, product data or samples.</i></p> <p>Article 5.2 <i>Except where specifically provided otherwise, whenever any product is specified by brand name, i.e., manufacturer’s or supplier’s name or trade name and catalog or model number or name, the intent is not to limit competition but to establish a standard of quality which the Director has determined is necessary. The words “or equal” shall be deemed inserted in each instance. The Contractor may use any product equal to that named in the Contract Documents which is approved by the Director and which meets the requirements of the Contract Documents providing the Contractor gives timely notice of the Contractor’s intent in accordance with the submittal and scheduling requirements of Division 1 - General Requirements.</i></p> <p>Article 5.3 <i>The Contractor shall have the burden of proving at the Contractor’s own cost and expense, to the satisfaction of the Director, that the proposed product is equal to the named product. The Director may establish criteria for product approval. The Director shall determine with absolute discretion whether a proposed product is to be approved.</i></p> <p>Article 5.4 <i>If the Contractor fails to comply with the provisions of this Article, or if the Director determines that the proposed product is not equal to that named, the Contractor shall supply the product named.</i></p> <p>This section allows the Designer to direct the Contractor to provide the named product if the Contractor has failed to prove that a substitute product is equal. This provision prevents</p>

repetitive shopping for Contractor implied equal products. Use of this provision and number of submittals varies from project to project and is based on Contractor's lack of performance.

13. See [Deviations vs. Or Equal](#) link for more information on deviation and "or equal" definitions and examples.
14. Submittal / Document Closeout:
 - a. The EIC will turn over his/her hard copy record set of submittals / documents to the facility representative at project completion.
 - b. The EIC shall request Contractor to provide a navigable CD, DVD, USB flash drive, or downloadable link of project data contained on the submittal website.
 - c. The EIC/PM to provide the archived data to the Consultant/Designer at project completion.
 - d. The archived data will be uploaded into the Construction / Submittals project folder in DCNet by BU6 CADD Unit.

REQUESTS FOR INFORMATION (RFIs)

1. RFIs provide a systematic control of the collection, analysis, review and resolution of Contractor technical questions about the plans and specifications arising during the construction phase.
2. The EIC will encourage the Contractor to compose well-written requests, complete with appropriate references to specifications, drawings and details, to facilitate timely and accurate Consultant/Designer responses while avoiding the potential confusion of verbal communications.
3. The Consultant/Designer shall respond to Contractor RFIs on a timely basis (within 5 business days of receipt) to prevent a delay in the construction schedule.
4. RFIs shall be issued by the Contractor using the submittals website (BDC 22 RFI form) to facilitate legibility and timeliness of questions and responses. Contractor should submit RFIs with all related backup sketches and documentation.
5. The EIC may answer RFIs when input from the Consultant/Designer is not deemed necessary. The EIC shall notify the PM and Consultant/Designers of their responses. Consultant/Designers shall review the EIC response to RFIs prior to the EIC issuing the answered RFI to the Contractor.
6. Changes to the contract should not be made in a response to an RFI. An Information Bulletin should be generated by Consultant/Designer and sent to the EIC to facilitate issuing a Field Order or Change Order.
7. The Consultant/Designer should not respond to an RFI if it is initiated by the EIC or field staff' to answer their project related questions using the Web Collaboration site. These types of questions and communication should take place using the telephone or email. DCNet may be used by field staff to track their project

questions. However, it should be noted that Consultant/Designers do not have access to DCNet.

INFORMATION BULLETINS (IBs)

1. IBs describe work to be added, deleted or modified by the Consultant/Designer.
2. IBs include the preparation, reproduction and distribution of supplemental drawings, specifications, and interpretations in response to the following:
 - a. Some Contractor RFIs
 - b. Owner changes and modifications
 - c. Consultant/Designer clarification of the Contract Documents
 - d. Resolution of design problems due to errors, omissions and field conditions
 - e. Bidder Questions that were not answered by an addendum (not significant cost impact and not wishing to delay bids) requiring clarification during the construction phase.
3. IBs addressing scope changes requested by the Client Representative, facility representative, or EIC shall not be developed or issued without written approval of the OGS TL/PM.
 - a. The PM shall approve any additional compensation for the development of IB's for Consultant projects. IBs generated by RFIs, design clarifications, errors, omissions, and field conditions easily ascertainable at the time of design shall not be considered for additional compensation.
4. Consultant/Designer IBs should be issued using form [BDC 23 - Information Bulletin](#) located on the submittals website. The IB form and associated drawings should be bundled into a single file when attachments are included. Complete the form in its entirety. The IB form includes a justification pick list. This list is intended to explain why an IB was issued. Justifications reasons are the following:
 - a. **Program Change** - Client or agency change modifying contract documents.
 - b. **Omission** - a change that modifies the contract documents in order to meet applicable laws, rules, or regulations, or to address a request or program need that was known and should have been included in the contract documents.
 - c. **Design Error** - a change to correct a defect in the contract documents.
 - d. **Contractor Error** - a design change to correct a defect by the Contractor or construction process.
 - e. **Field Error** - a change to correct a defect created by construction staff.
 - f. **Field Condition** - a change that modifies the contract documents as a result of an unforeseen physical job site condition that could not have been determined by normal site investigations or visits.
 - g. **Document Clarification** - more detail and description provided to clarify the design intent or further resolution of details.
 - h. **Materials / Methods substitution** - a change that substitutes a material or method for a specified material or method, when such substituted material or method is not equal to the specified material or method but is acceptable for use on the project.

5. IBs that change the Contract value or time of completion will generate a Change Order initiated by the EIC.
6. IBs shall be clearly written to describe the added scope and scope that is to be deleted. Defining added scope and deleted scope will assist the EIC in the initiation of Orders on Contract (Field Orders and Change Orders).
7. Record Drawings (optional service): The electronic set of Contract Drawings should be revised accordingly and should include a systematic method of noting IBs, revision numbers and dates. At the completion of the project construction, Consultants shall turn over the electronic record set of drawings on a CD in .pdf format.

MEETINGS

1. **Pre-Installations Meetings:**
 - a. The purpose of these meetings is to coordinate the efforts of all concerned parties with other construction activities and preparations for particular activity under consideration through direct discussion.
 - b. These meetings are generally noted by the Consultant/Designer within each specific specification section. If necessary, the EIC, PM, or the Consultant/Designer may request additional pre-installation meetings after contract award.
 - c. The meeting and agenda should be scheduled and distributed by the EIC prior to the start of work and should be attended by the following:
 - 1) PM and/or the Consultant/Designer
 - 2) EIC, OGS Area Supervisor, and Inspectors
 - 3) Contractor's Superintendent / Foreman
 - 4) Sub-Contractor's Superintendent / Foreman
 - 5) Material and/or Equipment Manufacturer's Representatives
 - d. Review requirements as applicable for the following:
 - 1) Contract documents
 - 2) Options
 - 3) Related field or change orders
 - 4) Related work specified elsewhere
 - 5) Execution
 - 6) Purchases
 - 7) Deliveries, storage, and handling
 - 8) Submittals, products, and mock-ups
 - 9) Possible conflicts and compatibility problems
 - 10) Schedule
 - 11) Weather limitations
 - 12) Manufacturer's recommendations
 - 13) Warranty requirements
 - 14) Compatibility of materials
 - 15) Acceptance of substrates
 - 16) Quality Assurance

- 17) Temporary facilities and controls
 - 18) Space and access limitations
 - 19) Regulations of authorities having jurisdiction
 - 20) Testing and inspecting requirements (including Special Inspections)
 - 21) Required performance results
 - 22) Protection of construction
 - 23) Personnel
 - 24) Safety
- e. OGS D&C has pre-developed agendas for the below noted Specification sections. Consultant/Designers may supplement these agendas or add pre-developed agendas for other Specification sections as deemed necessary. Coordinate with the EIC.
 - 1) CAST IN PLACE CONCRETE
 - 2) FIRESTOPPING
 - 3) MASONRY
 - 4) STRUCTURAL STEEL – FABRICATION
 - 5) STRUCTURAL STEEL – ERECTION
 - f. The results of the meeting should clarify details and specifications, resolve difference of opinion, document any changes, and note the need for additional information that may be required to complete the activity successfully.
 - g. The PM / Consultant/Designer shall record minutes of the meeting to supplement the EIC minutes.
2. **Teleconference Meetings:**
 - a. The Consultant/Designer will participate in periodic teleconference call meetings as required by the project.
 - b. The Consultant/Designer will participate in regularly scheduled teleconference calls as deemed appropriate by the TL / PM, and EIC. These meetings would typically review job progress, establish priorities, define quality of work, identify and resolve problems which impede planned progress, and review outstanding submittals, RFI's, upcoming IB's, and Field Orders and Change Orders.
 - c. The EIC may be asked to record and distribute meeting minutes.
3. **Special Meetings:**
 - a. Attendance at special meetings called for the purpose of coordination of specific information or resolving special problems related to the project shall be organized by the PM or EIC.
4. **Contractor Meetings:**
 - a. The Consultant/Designer should be copied on the meeting minutes when the EIC conducts regularly scheduled Contractor meetings. These meeting minutes should be uploaded and posted to the submittals website. The use of the submittals website should be discussed at the Design and Construction Pre Construction Meeting.

CONSTRUCTION OBSERVATION SITE VISITS AND REPORTS

1. Project visits by the Consultant/Designer promote compliance and verification with contract documents and help keep the construction work running smoothly.
2. Frequency of site visits by the Consultant/Designer to satisfy the project needs are to be determined by the TL / PM, EIC and input by the Consultant/Designer according to the following variables:
 - a. The size and complexity of the project
 - b. The stage of construction
 - c. The level of Contractor performance
 - d. Critical inspections and frequency
 - e. Importance of construction activity (ex. large scope / high risk, pre-installation meetings, significant pre-activity meetings)
 - f. Mock-ups (BDC 384) and benchmark (BDC 381) reviews.

Best Practice: Provide a Design Site Visit Matrix identifying appropriate design discipline and key milestones for site visits. See example below.

Design Site Visit Matrix for PN 42503 (Consultant and OGS Design)								
Construction Milestone	Architectural Consultant	Structural Consultant	HVAC Consultant	Electric Consultant	Plumbing Consultant	Physical Security - OGS	Structural - OGS	Electronic Security - OGS
Before slab pour	X		X	X	X			
95% steel frame		X						
Pre-Install masonry meeting	X						X	
Masonry mock-up	X						X	
Pre-Install 11190 meeting	X					X		
Above Ceiling (prior to enclosure)			X	X	X			
Masonry – cmu	X							
Masonry – brick	X							
Misc. steel (visit pens at 60% complete)	X					X		
Door benchmark inspection	X							
Misc. steel (visit pens at 90% complete)	X		X	X	X	X		X
Final Punchlist	X		X	X	X	X		X

3. The OGS TL and PM shall seek input from the Consultant/Designer and EIC in determining number, duration, milestones, or frequency of site visits (usually specified by man days).
 - a. The number of site visits shall be included in the Consultant Scope of Services for the Construction Phase. The number of visits in the Scope of Services can be modified as necessary.

10. Mock-up and Benchmark inspections have associated BDC forms that should be used for review comments and acceptance. Coordinate these reviews with the EIC.
 - a. BDC 381 – Benchmark Inspections
 - b. BDC 384 – Mock-Up Inspections

SPECIAL INSPECTIONS & TESTING

1. The [BDC 406 - Summary of Special Inspections](#) lists the general construction categories of special inspections required by code for the construction phase. [The BDC 406.1 - Statement of Special Inspections](#) lists the specific inspections of each construction category, frequency and reference standards.

Best Practice: Use the submittals website to upload Special Inspections reports for the Consultant/Designer's review and record. Otherwise, these forms should be filed by the PM/EIC in the Construction / InspectionReports project folder. These documents should also be included in the project specifications. The EIC will need to identify who (term contract testing agency, OGS inspector or Consultant/Designer) will be doing each of the inspections. A copy of the Special Inspections reports shall be forwarded to the Consultant/Designer for the records.

2. Special Inspections are a method to notify the designer of record that materials, installations, fabrications erection or placement of components and connections are in compliance with approved documents and referenced standards. It is important that the BDC 406.1 be filled out with as much detail as possible and be reflective of the project.

Most deficiencies can be resolved by repairs or replacement of materials or procedures.

 - a. There will be deficiencies where an installation cannot be physically performed. In these instances the designer will be required to provide a revision in the design. This can be accomplished with an Information Bulletin.
 - b. In other deficiencies, the resolution to a deficient item may be a letter or email certifying that the material or construction is suitable for its intended purpose. (ex. In the case of concrete, ACT 318 gives an allowable deviation in concrete test breaks.)

In both cases, the Designer shall provide the correspondence to the Engineer-In-Charge (EIC). The EIC will pass the information on to the Special Inspection firm and save a copy for record.

REVIEW OF FIELD ORDERS & CHANGE ORDERS

1. The Consultant/Designer is to review all Orders on Contract and confirm that the scope is accurate, that the work is required as part of the project, and that the scope was not included in the Construction Documents before the Order on Contract is given to the Contractor. This review will also be conducted to ensure that changes to the contract do not adversely affect the original design intent.

- a. Best Practice: Change Orders should have TL/PM Design concurrence which is recorded in DCNet. The TL/PM shall review the Change Order for scope, cost, reason and cause. When there is disagreement between the EIC and PM on the change then resolution should advance to include the Area Supervisor and the TL.
2. The EIC checks that the quantities of materials, cost of materials and wage rates, the Contractor and sub-Contractor mark-ups, etc., are correct and negotiates or monitors that the work hours are reasonable.
3. **ORDER ON CONTRACT PROCESS**
 - a. Orders on Contract can be either Field Orders or Change Orders. Money for Field Orders is pre-approved with the project, unlike Change Orders, which require special approval. Field Order contingency allowances are included in the contract as an additional lump sum used to accommodate contingent activities, such as field conditions and errors/omissions changes to the contract. Use of Field Orders for program scope changes is not appropriate.
 - b. Order on Contract Procedure
 - 1) Whenever the EIC determines that there is a change in the project scope, he/she will issue a BDC 98 - Request for Proposal. The EIC will determine if the Order on Contract will be issued as a Field Order. A contract modification can only be accomplished as a Field Order if the following conditions are met:
Field Order contingency allowances are included in the contract
-and-
The reason for change is a field condition
-or-
The reason for change can be determined to be an error or omission in the documents.
 - 2) Field Orders that result in credits are not encouraged; however, they are accepted when the EIC's supervisor provides justification. The justification must explain why the field order meets two criteria.
 - i. The work must be the result of an error, omission or field condition.
 - ii. There must be a need to promptly implement the Field Order.
 - 3) The EIC will determine if the Order on Contract is a Change Order based on the following criteria:
 - i. Any Order on Contract that cannot be processed as a Field Order.
 - ii. The reason for change is a Client request that is a program change in scope. Program changes are to be initiated by the Client through the PM and are not field initiated. The Consultant/Designer is responsible to prepare necessary Change Order documentation through an IB.
 - The Division of Design and Division of Construction Director's approvals are required to proceed when a change request estimate is large (say over 25% of the bid price) compared to

- the rest of the project, or when the change order value is over \$50,000.
- Changes must be within the scope of the project.
 - Client written justification must explain why the change cannot be bid as a separate project.
 - Provide assistance to the Client when their justifications do not seem reasonable.
 - Seek Supervisor assistance when justifications are not reasonable.
 - Client changes will not proceed until approved by OSC.
- iii. Any change that exceeds the balance remaining in the Field Order contingency allowance.
- iv. Change results in an alteration to contract schedule.
- v. The change results in credits.
- 4) Error or Omission and field condition changes may be accomplished by either a Field Order or a Change Order. Whenever practical, the Field Order contingency allowance for the project should be used for these changes. When the balance in the contingency allowance is inadequate for the change, the change is to be accomplished by Change Order. For large value changes it may be appropriate to perform the change by use of a Change Order even though there are adequate monies remaining in the contingency allowance. EIC should review with the PM.
- c. It is the responsibility of the EIC to monitor and follow-up on all pending Change Orders until approved.

CONTRACTOR DISPUTES / INTERPRETATIONS

1. When requested by the EIC/PM, the Consultant/Designer shall provide supportive factual information for interpretations and clarifications of the Contract Documents when Contractor disputes arise relating to the execution or progress of the Work as provided in the Contract Documents.
2. The Design and Construction internal document interpretation / resolution process would mimic the management levels for communication chain. See Chapter 10.3 [Communications Guide](#) communication chain chart.

OPTIONAL SERVICES

1. If not identified as part of the required scope of services for this phase by the OGS TL / PM, the following items are considered optional services to the standard scope described in this Chapter:
 - a. Work associated with Client Agency approved changes and unforeseen field conditions.
 - b. Drawings of Record

- 1) Drawings of Record are highly recommended for projects that have new structures, additions or significant renovations to record design modifications to the project. Drawings of Record services should be determined early on preferably at the bid phase so that Consultant/Designer can easily incorporate drawing changes into a formalized process by issuing revised full size drawings. Include any addendums as Revision No. 1 to the drawings and make distribution soon after award. Use triangle symbols with associated revision numbers and bubble indicator graphics to identify revisions.
 - 2) At substantial completion of the project, the Consultant/Designer should turn over revised electronic drawings showing revisions (addenda and information bulletins) initiated by design. See section H of this Chapter. The Consultant/Designer is NOT responsible for indicating as-built conditions reported by the Contractor, shop drawings, and changes to the specifications.
 - 3) Upon completion of the Drawings of Record, the Consultant/Designer shall provide AutoCad and PDF files and forward three (3) electronic compact disks (CD's) to the PM. The PM will then forward two (2) CD's to the EIC / Contractor to use to incorporate Contractor as-built conditions and one (1) CD to the OGS Electronic Print Room.
- c. Observation and assistance in performance tests and assist with initial operations and start-up of the project.
 - d. Preparation of manuals for both operations and maintenance requirements.
 - e. Participation in systems commissioning.
 - f. Assessment of completed projects ability to meet design intent.
 - g. Assistance in adjusting and balancing of equipment.
 - h. Assistance in operator training.
 - i. Regularly scheduled progress teleconference calls with the EIC.
 - j. Full time on-site project representation.
 - k. Construction supervision and project management.
 - l. Extended Construction Period: If the construction period has been extended beyond the substantial completion date, additional compensation may be in order. Attendance to additional on-site meetings, preparation of minutes, and site visits may constitute added compensation. No work shall start without an approved work order for these additional services.
 - m. Review of Contractor prepared as-built drawings.
 - n. Post occupancy evaluations.

P. [Construction Phase Sample Work Order](#)



Revision History:

Rev	Date	Description	Reviewed by:	Approved by:
0	10/18/11	Last revised date		
1	06/01/13	Minor changes including section L and added Revision History	Parnett	Larkin
2	08/05/13	Added submittals website information and expanded Consultant/Designer and PM roles and responsibilities and other minor revisions.	Parnett	Dostie
3	09/04/13	Minor revisions	Parnett	Parnett
4	07/17/14	Added items C14 and 2 Special Inspections & Testing	Feldman	Parnett
5	10/23/14	Minor revisions to submittals C4 b and P6 b	Parnett	Parnett
6	11/17/14	Submittal Review Process – clarification to item 4 and revision to submittal actions table. Design Discipline Coordination – clarification to item 1.	Parnett	Parnett
7	2/25/15	Minor clarification to RFI item 7 and FO/CO item 1a	Parnett	Parnett
8	3/27/15	Construction Observations added item 10 and revised item 2 f	Parnett	Parnett
9	10/17/15	Revised items related to submittals	Parnett	Parnett
10	11/25/15	Added item 11 f in Submittals	Parnett	Parnett