**IAS – PCI BLA**

**FABRICATOR INSPECTION PROGRAM**

**MANUAL REVIEW CHECKLIST FOR REINFORCED AND PRECAST/PRESTRESSED CONCRETE**

The purpose of this checklist is to provide a cross-reference from the PCI-certified plant’s Quality System Manual (QSM) to the applicable requirements of IAS AC157. It is also used by the IAS assessor to document compliance of the PCI-certified plant’s (fabricator’s) QSM to the requirements of AC157.

**Instructions to the PCI Plant (Fabricator):**

1. Provide the following information related to the plant:

FA No.: FA- (Check here if the plant is not yet IAS AC157 accredited.)

PCI Certificate Number:

Fabricator Name / Company Name:

Fabrication Facility Physical Address: Street, City, State, Zip Code (This is the address that will be reflected on the certificate of accreditation)

Telephone:

PCI Certification Category(ies):

Fabricator Contact: Contact’s Name, Title:

Contact’s Email Address:

Inspection Agency Name and AA No.: RBA Audit, LLC, AA-703

Manual Date (Date of Original Manual Issue):

Latest Revision Date (Date and Revision No.):

1. For each AC157 Requirement, list the applicable section or page number from the plant’s QSM that addresses this requirement. To assist in locating these, the relevant section from PCI’s QSM-1, *Preparation Guidelines for a Quality System Manual of a PCI-certified Plant*, has been noted. Where applicable, reference can be made to a standard requirement being met on the PCI website or in another document, such as PCI Policy 20, PCI Plant Certification Program. Please note that rows with gray shading do not require a reference.
2. If an AC157 requirement is not covered in the plant QSM, an additional provision will need to be added to the plant QSM. Any additional provisions can be added within the current structure of the manual or can be added as a separate AC157 Appendix. As always, the updated QSM will also need to be submitted to PCI for review and approval.

**Instructions to the IAS Assessor:**

1. Provide the following information related to the assessor:

Assessed / Reviewed by: Assessor’s Name:

Assessment Date (Month Day, Year):

Reviewed by:

Date (Month, Day, Year):

1. For initial review of the manual: Use this checklist to review the fabricator’s quality manual for compliance with AC157. Reference the section or page number of the manual relevant to the AC157 requirement in the column headed “QC Manual Compliance”. If the section is acceptably covered in the manual, indicate “Y.” If the section is not addressed in full or not addressed at all, indicate “N” and fill in the Assessor Comments column to substantiate the finding. The assessor should note in the comments column any relevant observations.
2. For on-site assessments: Use this checklist to assess the implementation of the fabricator’s quality system. If the procedure or process has been implemented as noted in the manual, please indicate “Y.” If the process, as described in the manual, has not been implemented, or if the results after implementation are different from those indicated in the manual then indicate “N.” The assessor is encouraged to note in the comments column any relevant observations.
3. IMPORTANT: For sections marked with an asterisk (\*) in the Assessor Comments Column, the assessor must document or make a note of the objective evidence reviewed with respect to that section or clause of the standard.
4. Sections of this checklist should not be left blank without some explanatory comments by the assessor. Likewise, sections marked “N/A” must be explained and any changes to original comments or sections cited must be initialed by the assessor and dated.

**NOTE:** Sections of this checklist should not be left blank without some explanatory comments by the assessor. Likewise, sections marked “N/A” must be explained and any changes to original comments or sections cited must be initialed by the assessor and dated.

**Notes:**

| **AC157 Section** | **AC157 Requirement**  **(QSM-1 Section/Other Comments)** | **Applicable QSM Section** | **Compliance (Y, N, NA)** | **Assessor Comments CAR or Concern Tips and Recommendation** |
| --- | --- | --- | --- | --- |
| 4.3 | Required Data The following information shall be included in the management system submittal: |  |  |  |
| 4.3.1 | The name, street address and telephone number of the fabrication facility.  [This is typically found on the signature page or document cover.] |  |  |  |
| 4.3.2 | A floor plan of the fabrication facility.  [QSM-1 Section 7 (Process Control), under Production Planning)] |  |  |  |
| 4.3.3 | A list of major production equipment, keyed to the floor plan. |  |  |  |
| 4.3.4 | A list of typical items fabricated.  [This is not specifically required by QSM-1, but many plants list their products in Section 1 (Introduction) or Section 7 (Process Control). If the list is contained in the QSM, then list the applicable section. Otherwise, note that the list is maintained in the directory of certified plants on the PCI website.] |  |  |  |
| 4.3.5 | The name and required qualifications of the quality control manager (QCM).  [Although the QSM will include an organizational chart in section 1.B.2.a., it will not typically include names. There must be a list of names that includes the QCM, the QC inspectors, and the QC technicians. This list does not have to be in the QSM.] | This information is usually found in the quality manual. |  |  |
| 4.3.6 | The names and the required qualifications of the quality control inspectors.  [Although the QSM will include an organizational chart in section 1.B.2.a., it will not typically include names. There must be a list of names that includes the QCM, the QC inspectors, and the QC technicians. This list does not have to be in the QSM.] |  |  |  |
| 4.3.7 | The names and the required qualifications of the quality control technicians.  [Although the QSM will include an organizational chart in section 1.B.2.a., it will not typically include names. There must be a list of names that includes the QCM, the QC inspectors, and the QC technicians. This list does not have to be in the QSM.] | Onsite assessor does not need to look at this. This is still part of the manual review process. |  |  |
| 4.3.8 | An organizational chart for the fabricator. This chart must show the relationships among the management, quality control manager, quality control inspector, and quality control technicians.  [QSM-1 Section 1.B.1.a (Organizational Chart)] |  |  |  |
| 4.3.9 | A list of approved vendors, including any testing agencies.  [QSM-1 Section 4 (Control of Suppliers). The list does not need to be included in the QSM. If not included, it must be referenced in the QSM, and it will be required during the audit.] |  |  |  |
| 4.3.10 | A list of test and measuring equipment used for the quality functions of the fabricator.  [QSM-1 Section 9 (Inspection, Measuring and Test Equipment). The list may also be in an appendix.] |  |  |  |
| 4.3.11 | An example of each form and report utilized in the management system including the daily production log.  [The requirement for these forms is noted in several sections. They are typically in an appendix.] |  |  |  |
| 4.3.12 | An example of the data sheet/checklist used in contract review.  [The QSM should describe how contracts are reviewed. This process must be documented with an appropriate checklist.] |  |  |  |
| 4.4 | Required Statements The following statements shall be provided in the management system submittal: |  |  |  |
| 4.4.1 | A policy statement that includes the following elements: |  |  |  |
| 4.4.1.1 | All activities of the organization shall be directed in such a manner as to ensure that the quality requirements of these criteria will be met.  [QSM-1 Section 1.A.1 (Quality Policy Statement)]  [AC157 will need to be listed as one of the quality standards if it is not already listed in the plant’s QSM.] |  |  |  |
| 4.4.1.2 | The elements of the quality assurance program will be made known to all responsible personnel.  [QSM-1 Section 1.A.2 (Quality System Awareness)] |  |  |  |
| 4.4.2 | The quality system shall, at a minimum, be reviewed annually.  [QSM-1 Section 15.B (Internal Audit)] |  |  |  |
| 4.4.3 | IAS will be notified, in writing, prior to any cancellation of the inspection agreement with the inspection agency. |  |  | Accreditation to AC157 under this agreement with IAS requires that the plant be certified by PCI. Any change in certification status will be communicated by PCI to IAS; therefore, this requirement is not required in the plant QSM. |
| 4.4.4 | Copies of reports of inspections conducted by the inspection agency, if they note major quality control variations, will to be forwarded to IAS by the fabricator within 10 days of the major deficiency(s) being reported.  [Covered in the Defect Alert Process in PCI Policy 20.] | PCI Policy 20, Section 20.10.4 |  |  |
| 4.4.5 | The fabricator will notify the inspection agency when the fabrication facility is to be closed for extended time periods other than for normally scheduled periods for maintenance or vacations. IAS and the agency will be notified prior to resumption of operations.  [Covered in the Shutdown Notice Process in PCI Policy 20.] | PCI Policy 20, section 20.9.8. |  |  |
| 4.4.6 | IAS will be notified in writing if unannounced follow-up inspections have not been conducted by the inspection agency.  [Covered in PCI Policy 20.8.] |  |  |  |
| 4.4.7 | The fabricator will promptly investigate and respond to IAS or a building official when apprised of complaints regarding the noncompliance of finished product with stated specifications.  [Covered in PCI Policy 20.8.10.] |  |  |  |
| 4.5 | Required Written Procedures The fabricator shall submit written procedures for the following: |  |  |  |
| 4.5.1 | Contract Review: Review of new work to ensure the needed resources exist to fulfill the contract requirements.  [The QSM should describe how contracts are reviewed. This process must be documented with an appropriate checklist.] |  |  |  |
| 4.5.2 | Document Control: Control of documents and data relating to the quality functions of the fabricator. Controls must include the following: |  |  |  |
| 4.5.2.1 | A means of document approval.  [QSM-1 Section 3 (Document Control)] |  |  |  |
| 4.5.2.2 | A means to ensure that only current, approved documents are used.  [QSM-1 Section 3 (Document Control)] |  |  |  |
| 4.5.2.3 | A means of ensuring that documents are available at all locations where necessary for the proper functioning of the quality system.  [QSM-1 Section 3 (Document Control)] |  |  |  |
| 4.5.3 | Purchasing: Determining that purchased products will conform to specified requirements.  [QSM-1 Section 4 (Control of Suppliers)] |  |  |  |
| 4.5.4 | Subcontracting: Evaluating subcontractors for their ability to meet subcontract requirements and the conditions of these criteria. When subcontracting is performed, such work shall be conducted in the shop of an IAS-accredited fabricator inspection program.  [PCI Policy 20, section 20.5.4 requires the producer to only subcontract to other PCI-certified plants. The QSM must include a provision committing to only subcontract fabrication to other IAS-accredited fabricators, if the project requires AC157 accreditation.] |  |  |  |
| 4.5.5 | Product Traceability: Traceability of the finished product to:  4.5.5.1 - Incoming raw materials. 4.5.5.2 - Responsible quality control personnel. 4.5.5.3 - Plans and specifications. 4.5.5.4 - Quality records.  [QSM-1 Section 5 (Product Identification and Traceability)] |  |  |  |
| 4.5.6 | Process Control  [QSM-1 Section 7 (Process Control)] |  |  |  |
| 4.5.6.1 | Placement of Reinforcing Steel |  |  |  |
| 4.5.6.1.1 | Method to ensure reinforcing steel is free of contamination | MNL 116-21, Section 5.1.2 (Storage of Reinforcing Steel) |  |  |
| 4.5.6.1.2 | Method of splicing and tying. | MNL 116-21, Section 5.1.3 (Fabrication of Reinforcing Steel) |  |  |
| 4.5.6.1.3 | Method of applying initial load in prestressing operations to straighten the individual strands and eliminate slack. | MNL 116-21, Section 5.2.2 (Tensioning of Tendons) and 5.3.8 (initial Tensioning) |  |  |
| 4.5.6.1.4 | Method of applying final load in prestressing operations. | MNL 116-21, Section 5.3.12 (Final Tensioning of Straight Strands) and 5.3.13 (Final Tensioning of Harped Strands) |  |  |
| 4.5.6.1.5 | Method of determining stresses and elongation in prestressing operations. | MNL 116-21, Section 5.3.9 (Measurement of Elongation) and 5.3.10 (Elongation Calculation and Corrections) |  |  |
| 4.5.6.1.6 | Method of determining compressive strength of the reinforced concrete product prior to detensioning. | MNL 116-21, Section 5.3.16 (Detensioning) |  |  |
| 4.5.6.1.7 | Method of detensioning to ensure the following: .1 - That sudden shock or loading is minimized. .2 - That eccentricity about the vertical axis of the member is limited. | MNL 116-21, Section 5.3.16 (Detensioning) |  |  |
| 4.5.6.2 | Concrete Mixtures |  |  |  |
| 4.5.6.2.1 | Identify the individual who is responsible for the method of designing and verifying the concrete mix. | MNL 116-21 and MNL 117-13 Section 1.3.2 (Engineering) require that the fabrication plant shall have available the services of a registered professional engineer experienced in the design of precast concrete. |  |  |
| 4.5.6.2.2 | How the mix will be verified before it is used. This verification must ensure the batching, mixing equipment, construction methods and curing environment are representative of actions performed at the fabrication facility. | MNL 116-21, Section 4.1 (Mixture Proportioning) |  |  |
| 4.5.6.3 | Batching and Mixing  4.5.6.3.1.      Method of proportioning the components of the design mix. 4.5.6.3.2.      Method used to mix the components of the design mix to ensure a uniform consistency. | MNL 116-21, Section 4.1.2 (Qualification of Concrete Mixtures) and associated Commentary. Section 4.6 (Batching and Mixing Operations) |  |  |
| 4.5.6.4 | Placing Concrete  4.5.6.4.1.      Method of transporting the concrete from the mixer to the forms. 4.5.6.4.2.      Method of placing the concrete to avoid separation of the coarse aggregate from the mix. 4.5.6.4.3.      Method of consolidation of the concrete. 4.5.6.4.4.      Method to make sure density of the concrete strength test specimens are representative of the reinforced concrete product. | MNL 116-21, Section 4.7 (Requirements for Transporting and Placing of Concrete) |  |  |
| 4.5.6.5 | Curing Concrete  4.5.6.5.1.      Method of curing the reinforced concrete product. 4.5.6.5.2.      Method of curing the concrete strength test specimens. | MNL 116-21, Section 4.9 (Requirements for Curing Concrete)  MNL 116-21, Section 6.2.3.2 (Concrete Strength) |  |  |
| 4.5.6.6 | Finishing  4.5.6.6.1.      Method of finishing unformed surfaces. 4.5.6.6.2.      Method of finishing surfaces of composite members. 4.5.6.6.3.      Method of finishing formed surfaces. 4.5.6.6.4.      Method of patching minor defects. | MNL 116-21  Section 2.8.11 (Unformed Surface Finishes)  Section 2.8 (Surface Finishes)  Section 2.8.2 (As-Cast Formed Surface Finishes) Section 2.9 (Repairs) |  |  |
| 4.5.7 | Inspection and Testing |  |  |  |
| 4.5.7.1 | Inspection of Incoming Raw Materials: Inspection method used to ensure that all incoming raw materials comply with the specifications before they are placed into service. | MNL 116-21 Section 6.2.2 (Acceptance testing of Materials) |  |  |
| 4.5.7.2 | Inspection of Production Methods  [QSM-1 Section 8 (Inspection and Testing)] |  |  |  |
| 4.5.7.2.1 | Inspection frequency and method used to ensure proper placement of reinforcing steel.  [QSM-1 Section 8 (Inspection and Testing)] |  |  |  |
| 4.5.7.2.2 | Inspection frequency and method used to ensure reinforcing steel is not contaminated.  [QSM-1 Section 8 (Inspection and Testing)] |  |  |  |
| 4.5.7.2.3 | Inspection method to verify proper stressing and elongation of strands [reinforcing steel] | MNL 116-21 Section 5.3.8 to 5.3.13 |  |  |
| 4.5.7.2.4 | Inspection frequency and methods used to ensure proper concrete mix design, including:  4.5.7.2.4.1.  Sieve analysis and unit weight of aggregates. 4.5.7.2.4.2.  Moisture content of aggregates. 4.5.7.2.4.3.  Slump of concrete. 4.5.7.2.4.4.  Air content. 4.5.7.2.4.5.  Unit weight of concrete. 4.5.7.2.4.6.  Temperature of concrete during placement. 4.5.7.2.4.7.  Ambient temperature during placement. 4.5.7.2.4.8.  Compressive strength. | MNL 116-21 Section 6.2.3 (Production Testing) |  |  |
| 4.5.7.2.5 | Inspection method used to ensure proper curing conditions of the reinforced concrete product. | MNL 116-21 Section 4.9.5 Initial Curing of Concrete) and 4.9.6 (Curing by Moisture Retention Without Supplemental Heat) |  |  |
| 4.5.8 | Control of Inspection, Measuring and Test Equipment  [QSM-1 Section 9 (Inspection, Measuring and Test Equipment)] |  |  |  |
| 4.5.8.1 | Control Procedures |  |  |  |
| 4.5.8.1.1 | Procedures used for the calibration of measuring and test equipment.  [QSM-1 Section 9 (Inspection, Measuring and Test Equipment)] |  |  |  |
| 4.5.8.1.2 | Procedures to ensure the traceability of calibration records to nationally recognized standards.  [QSM-1 Section 9 (Inspection, Measuring and Test Equipment)] |  |  |  |
| 4.5.8.2 | Control of Nonconforming Products |  |  |  |
| 4.5.8.2.1 | 4.5.8.2.1.      Method of identifying nonconforming products.  [QSM-1 Section 10 (Inspection and Testing Status] and Section 11 (Control of Nonconforming Product)] |  |  |  |
| 4.5.8.2.2 | Method of assigning the disposition of nonconforming products.  [QSM-1 Section 11 (Control of Nonconforming Product)] |  |  |  |
| 4.5.9 | Corrective Action: Investigating, documenting and correcting nonconformance.  [QSM-1 Section 12 (Corrective Action)] |  |  |  |
| 4.5.10 | Handling and Storage: Identifying and storing incoming materials and finished products.  [QSM-1 Section 7 (Process Control), Section 8 (Inspection and Testing) and/or Section 13 (Handling, Storage, Loading and Delivery)] |  |  |  |
| 4.5.11 | Internal Audits: The frequency, method of documentation and the content of internal audits to determine the effectiveness of the management system.  [QSM-1 Section 15.b (Internal Audit)] |  |  |  |
| 4.5.12 | Control of Quality Records: Methods for storing, maintaining and accessing the following quality control records for a minimum of two years:  4.5.12.1.       In-house quality inspection reports, forms, checklists.  4.5.12.2.       Mill test reports and certificates of compliance from vendors for incoming raw materials.  4.5.12.3.       Copies of inspection reports by the inspection agency.  4.5.12.4.       Records of internal audits.  4.5.12.5.       Training records.  4.5.12.6.       Evaluations of vendors and subcontractors.  [QSM-1 Section 14 (Quality Records)] |  |  |  |
| 4.5.13 | Training  4.5.13.1.       Procedure for training all personnel who have an effect on the quality of the finished product. 4.5.13.2.       Procedure for maintaining current personnel qualifications.  [QSM-1 Section 16 (Training)] |  |  |  |
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|  | ADDITIONAL REQUIREMENTS |  |  |  |
|  | Use of IAS Logo: |  |  |  |
|  |  |  |  |  |
|  | The “IAS Accredited” logo shall be used by a fabricator only for those fabrications included in the IAS current scope of accreditation. | Instructions for the use of the logo will accompany the accreditation certificate, when issued. |  |  |
|  | The “IAS Accredited” logo shall be used by an IAS accredited fabricator inspection program only under the name in which it holds the IAS accreditation. |  |  |  |
|  | The “IAS Accredited” logo shall only be used in full and there shall be no distortion in the format or shape of the logo when used by the fabricator in their materials. |  |  |  |
|  | All accredited fabricator inspection programs may include statements concerning their accreditation in all of their marketing and advertising materials. However, they shall not engage themselves in any kind of misrepresentation of their accreditation status in any of their materials. |  |  |  |