

**Instructions:** The form must be completed by the City of Houston Approved Special Inspection Agency.

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

Plant Address: \_\_\_\_\_

Fabricator's Representative Name: \_\_\_\_\_ Title: \_\_\_\_\_

Fabricator's Representative E-Mail Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

**SPECIAL INSPECTION AGENCY:** \_\_\_\_\_

Agency's Number: \_\_\_\_\_ Time In: \_\_\_\_\_ Time Out: \_\_\_\_\_

Inspector Name: \_\_\_\_\_ Phone Number: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

### COMMENTS PERTAINING THIS AUDIT

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### INSPECTOR RECOMMENDATIONS

- NEW CERTIFICATION AS CERTIFIED FABRICATOR OF \_\_\_\_\_
- RENEWAL OF CERTIFICATION
- APPROVED UPON CORRECTION OF FINDINGS
- DISAPPROVAL

**SPECIAL INSPECTOR SIGNATURE:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**COMPLETE, SIGN, SEAL & DATE THIS FORM AND MAIL OR EMAIL TO THE CITY OF HOUSTON:**

Building Code Enforcement – Code Development, 1002 Washington Ave., Houston, Texas 77002

Email: [code.development@houstontx.gov](mailto:code.development@houstontx.gov)

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

| A   | GENERAL REQUIREMENTS                                                                                                                                                           | COMPLIANCE                                               | COMMENTS |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| A-1 | Is the Quality Control Manual fully documented and up to date?                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| A-2 | Is the Quality Control Manual reviewed at least annually? Provide last review date: _____                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| A-3 | Are there any revisions to the Quality Control Manual? Provide the latest revision date: _____                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| A-4 | Are there any key personnel changes since the last inspection?                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| A-5 | Are the annual inspections performed as required? Provide last inspection date: _____                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B   | ENGINEERING                                                                                                                                                                    | COMPLIANCE                                               | COMMENTS |
| B-1 | The fabricator can demonstrate that there is either an in-house or an outside licensed engineer to perform necessary designs and/or to consult on technical questions.         | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-2 | The fabricator can demonstrate that there is an in-house or outside special process consultant for each special process performed.                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-3 | The contract documents are reviewed to assure that all materials and processes are specified or indicated in the drawings or specifications.                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-4 | The fabricator reviews the contract documents and structural/architectural drawings for correctness.                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-5 | The fabricator has a process to review corrections and the complex design problems encountered in the fabrication process.                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-6 | The fabricator has personnel with adequate knowledge to provide answers to technical questions.                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| B-7 | The fabricator has personnel with adequate knowledge of applicable material specifications.                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| C   | DRAFTING                                                                                                                                                                       | COMPLIANCE                                               | COMMENTS |
| C-1 | Shop drawings are properly prepared.                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| C-2 | The fabricator has personnel capable of supervising, evaluating, and coordinating shop drawing preparation and all shop drawings are reviewed for correctness.                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| C-3 | The fabricator has an in-house capability of providing special details for the shop/plant to solve fabrication problems.                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| C-4 | The shop drawings indicate materials to be utilized in the final structure.                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| D   | DRAWING CONTROL                                                                                                                                                                | COMPLIANCE                                               | COMMENTS |
| D-1 | The fabricator can verify control of design drawings as follows:<br><input type="checkbox"/> receipt<br><input type="checkbox"/> on file<br><input type="checkbox"/> revisions | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| D-2 | The fabricator can verify control of specifications and addendums.                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |

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Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| D-3      | The fabricator can demonstrate control of shop drawings:<br><input type="checkbox"/> receipt<br><input type="checkbox"/> on file                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| D-4      | The Quality Control Manual traces each phase from drawing preparation, to shop drawing, receipt, submittals for approval, approval, resubmittals and date sent to shop/plant for fabrication. | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| D-5      | The fabricator can demonstrate control of revisions to shop drawings.                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| D-6      | The fabricator can demonstrate control of obsolete shop drawings.                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| D-7      | The drawing control system used is the one described in the Quality Control Manual.                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>E</b> | <b>WORK ORDER – JOB CONTROL</b>                                                                                                                                                               | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| E-1      | The fabricator has established a job control number/identification system for all work accepted.                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| E-2      | All correspondence received is marked with its job identification mark.                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| E-3      | Job correspondence is filed with the job files for that work.                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| E-4      | All correspondence received is:<br><input type="checkbox"/> stamped received<br><input type="checkbox"/> dated & initialed                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>F</b> | <b>MATERIAL PROCUREMENT</b>                                                                                                                                                                   | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| F-1      | Materials are procured by a purchase order or some other type of form that provides verification and documentation of the order.                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-2      | All materials are ordered or procured to acceptable standards and/or specifications.                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-3      | The material specifications are indicated/documentated on the purchase order/form used for materials procurement.                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-4      | The procurement document states how the material shall be marked/identified.                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-5      | The fabricator requires suppliers to furnish material certification reports on the procurement document.                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-6      | The fabricator has documented the review of the quality status of suppliers on a regular basis.                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| F-7      | The QA/QC manager has visited and/or reviewed subcontractors' fabrication and/or Quality Control System Program operations on a random basis where applicable.                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>G</b> | <b>RECEIVING MATERIAL</b>                                                                                                                                                                     | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| G-1      | The fabricator is using a formal method for receiving materials/subassemblies.                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| G-2      | The fabricator inspects all incoming materials arriving at the facility.                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| G-3      | The fabricator has a material identification system to assure control of materials of different grades/sizes (as applicable).                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| G-4      | Receiving inspections are documented.                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

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Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| G-5      | The receiving inspector understands the company system for: <ul style="list-style-type: none"> <li><input type="checkbox"/> receiving materials</li> <li><input type="checkbox"/> receiving subassemblies</li> <li><input type="checkbox"/> acceptance/rejection of nonconforming materials and/or subassemblies</li> <li><input type="checkbox"/> means of handling correctable nonconformities observed during the receiving inspection</li> </ul>                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| G-6      | Receiving inspector confirms: <ul style="list-style-type: none"> <li><input type="checkbox"/> quantity of materials</li> <li><input type="checkbox"/> size of material</li> <li><input type="checkbox"/> grade of material</li> <li><input type="checkbox"/> length of material</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>H</b> | <b>HANDLING &amp; STORAGE EQUIPMENT, FACILITIES AND PROCEDURES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| H-1      | The fabricator has adequate facilities, equipment and illustrated drawings or instructions available to indicate the proper way to: <ul style="list-style-type: none"> <li><input type="checkbox"/> handle materials in the yard</li> <li><input type="checkbox"/> handle materials in the plant</li> <li><input type="checkbox"/> store materials/subassemblies</li> <li><input type="checkbox"/> provide correct bracing/blocking for materials/subassemblies</li> <li><input type="checkbox"/> prevent material/subassembly deterioration</li> <li><input type="checkbox"/> provide correct storage for fabricated products</li> <li><input type="checkbox"/> handle fabricated products</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| H-2      | The fabricator is utilizing an adequate control process for stocked/stored materials.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>I</b> | <b>NORMAL AND SPECIAL PROCESSES CONTROL</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| I-1      | The fabricator controls normal and special production/work processes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-2      | Acceptance standards are readily available or posted near workstations for review by production personnel and inspection personnel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-3      | Sufficient work instructions are available to production personnel at each workstation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-4      | Fabricator utilizes established qualification standards for special work processes (such as testing samples).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-5      | Qualifications for personnel performing special work processes are available or posted and maintained up-to-date, readily available to production supervisors and quality control personnel.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-6      | Special process personnel have been assigned identification symbols to identify work performed by them.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-7      | The assigned identification symbols for special process personnel are readily available or have been posted for use by Quality Control inspectors.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-8      | Special process personnel identify work they performed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-9      | Key inspections by production personnel are documented.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-10     | All inspections are documented.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

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Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| I-11     | The fabricator can demonstrate the system utilized for:<br><input type="checkbox"/> minor repairs<br><input type="checkbox"/> major repairs<br><input type="checkbox"/> documentation of re-inspection of repairs                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-12     | The fabricator can demonstrate a system for rejection and disposal of non-repairable nonconformities.                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-13     | The fabricator can demonstrate that surveillance of stored fabricated products is performed on a routine scheduled basis.                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| I-14     | Fabricated products are stored on a hard compacted well drained surface.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>J</b> | <b>EQUIPMENT CONTROL &amp; MAINTENANCE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| J-1      | The fabricator can demonstrate that each piece of equipment in the plant:<br><input type="checkbox"/> is acceptable or not acceptable for use<br><input type="checkbox"/> is documented on the equipment<br><input type="checkbox"/> is on a maintenance program<br><input type="checkbox"/> is listed on a maintenance log<br><input type="checkbox"/> has been calibrated within an acceptable established time frame where applicable<br><input type="checkbox"/> is listed, when appropriate, in a calibration log when actively utilized | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>K</b> | <b>AUDITS/REVIEWS OF THE QUALITY PROGRAM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| K-1      | Verification was presented to demonstrate that management has reviewed the Quality Control System within the last twelve (12) months.                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| K-2      | Management has taken steps to measure the effectiveness of the quality program.                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| K-3      | The QA/QC manager has shown documentation that each Quality Control Manual was reviewed to assure it is complete and up to date within the last six (6) months.                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| K-4      | The fabricator has established a record retention system and is retaining job records for a minimum of two (2) years after construction completion.                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>L</b> | <b>QUALITY CONTROL PERSONNEL/INSPECTORS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| L-1      | Quality control inspectors were available in the plant at the time of this inspection excluding QC manager (applicable when appropriate).                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-2      | The quality control personnel have immediate access to the specifications, addendums to specifications, or to the engineer for answering key questions.                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-3      | The quality control personnel have immediate access to the technical library and other pertinent information.                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-4      | The quality control personnel inform line production supervisory personnel when nonconforming work is observed.                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-5      | The quality control personnel are conversant with qualifications of special process requirements.                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| L-6      | The quality control personnel have immediate access to approved procedures for special processes.                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-7      | The quality control personnel are conversant with qualifications of special process personnel.                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-8      | The quality control personnel verify equipment is checked for acceptable performance.                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-9      | The quality control personnel verify that production equipment is calibrated.                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-10     | The quality control personnel can verify documentation of equipment maintenance and repairs.                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-11     | Non-conforming tools and equipment are red tagged to prevent their use in production.                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-12     | The quality control personnel are equipped to properly perform assigned tasks.<br><input type="checkbox"/> tapeline<br><input type="checkbox"/> calipers<br><input type="checkbox"/> tag system                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-13     | The quality control personnel understand their responsibility to management.                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| L-14     | The quality control personnel have sufficient authority to perform their assignments.                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>M</b> | <b>ADDITIONAL COMMENTS</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
|          | It is evident by this inspection and the review of the Quality Control System and its operation that currently:                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-1      | All employees are aware of the Quality Control System.                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-2      | Employees are familiar with the Quality Control System as it may pertain to them.                                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-3      | Management has taken an active role in the Quality Control System.                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-4      | The following key functions are performed by personnel fully aware of and acquainted with the Quality Control System:<br><input type="checkbox"/> sales <input type="checkbox"/> purchasing <input type="checkbox"/> other _____<br><input type="checkbox"/> engineering <input type="checkbox"/> production<br><input type="checkbox"/> drafting <input type="checkbox"/> quality control | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-5      | The fabricator has completely separated production and QA/QC activities.                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-6      | The fabricator QA/QC program is functioning in each of the key areas without significant omissions, inconsistencies and/or non-compliance with the established program.                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-7      | The fabricator appears to have sufficient procedure/work instructions to assure all products are fabricated to conform to the contract documents and code requirements.                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| M-8      | The fabricator has an adequately documented Quality Assurance Program.                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

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Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

| N   | CONCRETING OPERATION                                                                                                                                                                                                                                                                                                                                                                                                                                                         | COMPLIANCE                                               | COMMENTS |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| N-1 | All storage areas and stockpiles have been assigned identification marks, and such identification is posted:<br><input type="checkbox"/> in a selected location in the plant/shop or office<br><input type="checkbox"/> in the storage areas and special selected locations in the yard                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| N-2 | The fabricator has demonstrated by exhibiting documentation that aggregate gradations are:<br><input type="checkbox"/> received material test reports with purchased material at time of delivery from suppliers<br><input type="checkbox"/> performed at least once a week on coarse and fine aggregate<br><input type="checkbox"/> performed for each 400 cubic yards of fine aggregate<br><input type="checkbox"/> performed for each 800 cubic yards of coarse aggregate | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| N-3 | The fabricator has demonstrated that moisture in aggregate is determined:<br><input type="checkbox"/> continuously for fine aggregates<br><input type="checkbox"/> at least twice a day and/or any time a change in moisture content becomes obvious                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| N-4 | Aggregates are stored on at least a hard compacted well drained surface. If contamination cannot be avoided, the area should be paved.                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |

**For questions No. 5-33, the Quality Control Inspector has demonstrated by inspection records that:**

|      |                                                                                                                                    |                                                          |  |
|------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| N-5  | Bean type scales have been checked at zero loads with bins empty each time the mix is changed.                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-6  | Scales have been checked at least once during each day's operation.                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-7  | Scales have been calibrated within the last six months.                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-8  | The device for measuring water is accurate within one percent of the quantity required by the batch (Checked by weight or volume). | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-9  | Measuring tanks for water have outside taps/valve and have been calibrated and are routinely checked.                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-10 | Liquid admixture dispensers are routinely checked to verify calibrations.                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-11 | Liquid admixture dispensers have diversion tap/valve to verify measured dosage.                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-12 | Entrained air measurements taken during production operations are maintained with $\pm 2$ percentage points.                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-13 | Coarse aggregate stockpiles are periodically purged of excess fines which tend to accumulate near their bases.                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-14 | Coarse aggregate, as delivered to the batching bins, is within specified gradation limits.                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-15 | Mixers are checked daily for changes in condition due to accumulation of hardened concrete or mortar, or wear of blades.           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

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|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| N-16 | Acceptance standards are available for:<br><input type="checkbox"/> blade condition<br><input type="checkbox"/> speed and rotation of mixer drum<br><input type="checkbox"/> cleanliness<br><input type="checkbox"/> minimum mixing times                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-17 | The stationary mixers are operated within the allowable specified times.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-18 | The cement weighing bin is free of caked and/or hardened cement.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-19 | The weighing, batching and mixing operations are observed and recorded to be satisfactory.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-20 | The fine aggregate variation in fineness modulus does not exceed $\pm 0.20$ from the average value assumed for the mix design.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-21 | The fineness modulus for the mix design is a known quantity.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-22 | Acceptance test reports are available for the aggregates as follows:<br><input type="checkbox"/> test for organic impurities in sands<br><input type="checkbox"/> test for resistance to abrasion of small size coarse aggregate by use of the Los Angeles machine<br><input type="checkbox"/> test for clay lumps and friable particles in aggregates<br><input type="checkbox"/> test for resistance to abrasion for large size coarse aggregate by use of the Los Angeles machine<br><input type="checkbox"/> test for potential reactivity of aggregates<br><input type="checkbox"/> test for potential volume change<br><input type="checkbox"/> test for concrete resistance to rapid freezing and thawing<br><input type="checkbox"/> other | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-23 | Water in tanks for curing concrete compression test specimens is maintained at $73.4^{\circ}\text{F} \pm 3^{\circ}$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-24 | The frequency of casting compression test specimens is not less than two test cylinders per bed to verify strength at time of stress transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-25 | A minimum of two cylinders are taken per day for each 50 cubic yards of concrete or fraction thereof for each mix design for 28-day strength (or earlier age strength if specified).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-26 | For small individual bed placements, a minimum of two test cylinders for each 20 cubic yards or fraction thereof are taken to specify handling strength or strength at stress transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-27 | Test specimens are taken during latter half of casting when specimens are utilized to determine strength at stress transfer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-28 | A correlation has been established and used to transpose concrete strengths determined by specimens smaller than the standard six (6) inch diameter by twelve (12) inch long cylinder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-29 | A graph of this correlation is posted near the testing machine.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-30 | Calibration curves/tables for the compression testing machine are posted near the testing machine.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-31 | The personnel operating the testing equipment understand the load per unit area applied to the test specimen as detailed in the ASTM specifications. (20 to 50 psi/sec).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

|      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                          |  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| N-32 | <p>The personnel operating the testing equipment and the quality control personnel can confirm by documentation that the rate of applied load is verified on a scheduled routine basis.</p> <p>3"Ø × 6" long min. 140 lbs/sec (8400 lbs./min), max. 354 lbs/sec (21240 lbs/min)</p> <p>4"Ø × 8" long min. 251 lbs/sec (15060 lbs/min), max. 629 lbs/sec (37740 lbs/min)</p> <p>6"Ø × 12" long min. 565 lbs/sec (33900 lbs/min), max. 1413 lbs/sec (84780 lbs/min)</p> | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| N-33 | <p>Maximum size aggregate for the test specimens utilized is 1/3 of the diameter of the test specimen.</p> <p>3" diameter = 1" max sized aggregate<br/>           4" diameter = 1.33" max 1" nominal<br/>           6" diameter = 2" max sized aggregate</p>                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

### Does the fabricator manufacture prestressed/post-tensioned concrete?

- No. **STOP** ● and proceed to page 19 and sign the form.  
 Yes. Complete Section O. Pretensioning Systems (Pages 8-19)

| O     | PRESTRESSED SYSTEMS (IF APPLICABLE)                                                                                                                                                                                                                                                                                                                                                                               |                                                          |          |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| O-1   | CALCULATIONS                                                                                                                                                                                                                                                                                                                                                                                                      | COMPLIANCE                                               | COMMENTS |
| O-1.1 | Fabricator can define modulus of elasticity and understands that it is the ratio of unit axial stress to unit axial deformation or strain (y/x, the slope of the stress/strain line is called the modulus of elasticity).                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-1.2 | Stress-strain relationship for the strands utilized is known within close limits to compute elongations resulting from tensioning.                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-1.3 | The modulus of elasticity is determined for the strands by: <ul style="list-style-type: none"> <li><input type="checkbox"/> stress-strain curves furnished by the supplier</li> <li><input type="checkbox"/> a modulus of elasticity is indicated on the ticket supplied with each coil of material</li> <li><input type="checkbox"/> an average modulus of elasticity is maintained by the fabricator</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-1.4 | Fabricator verifies that the average value used for modulus of elasticity is within the tolerance limits specified when compared with the value given on each individual coil (5% maximum variance allowed).                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-1.5 | Personnel responsible for performing the tensioning calculations for each bed setup understand the tensioning operations and each of the correction factors that must be considered to ensure the proper tensioning force can be applied and measured.                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| O-1.6      | Losses that are incidental to the tensioning operations are compensated for in computing elongations for each casting bed.                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-1.7      | These losses have been adequately listed and measured for use in the required calculations.                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-1.8      | Calculations for elongations and gauge readings include the following correction factors:<br><input type="checkbox"/> friction allowances<br><input type="checkbox"/> strand slippage allowances<br><input type="checkbox"/> movement of abutments<br><input type="checkbox"/> gaging system calibration corrections<br><input type="checkbox"/> temperature correction factors<br><input type="checkbox"/> bed shortening if under load<br><input type="checkbox"/> other compensations for setup | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-1.9      | Calibration records for all tensioning systems in use are on hand for use in preparing theoretical tensioning values.                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-1.10     | Personnel involved in preparing tensioning calculations have a copy of the calibration records for reference.                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-1.11     | The quality assurance inspector understands each of the correction calculations, including when and how they should be applied, to assure the proper tensioning force is applied.                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-2</b> | <b>UNDERSTANDING, ESTABLISHING AND CONTROLLING LOSSES IN EACH SYSTEM</b>                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-2.1      | Losses that are incidental to the tensioning operations vary between casting beds and have been evaluated for each bed.                                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.2      | Production field supervisors are able to list the correction factors applied to each tensioning/stressing setup used.                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.3      | Quality assurance inspectors understand the correction factors applied to each tensioning/stressing setup used.                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.4      | Production field supervisors understand the corrections that may be required to gauge readings.                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.5      | Production field supervisors understand when bed shortening corrections must be included.                                                                                                                                                                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.6      | Strand slippage occurs when stressing forces are transferred from jacks to abutments.                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.7      | Anchorage movement has been measured for each typical and special strand pattern and group of tensioning forces utilized in production.                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.8      | Production field supervisors understand the standards established for chuck replacement to reduce excessive strand slippage.                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.9      | Elongation measurements take into account all operational losses in the tensioning system.                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.10     | Anchoring losses in single strand tensioning are automatically compensated for since elongations are measured after chuck seating.                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.11     | Fabricator has determined the frictional losses in the multi-strand jacking system for each strand pattern, as well as each sized strand utilized and for all variations used in the production process.                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| O-2.12     | Fabricator has established a third method of force verification on a multi-strand tensioning system in case the first two methods do not agree within the established allowable limits.                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.13     | Dead-end slippage is taken care of as the strand seats itself in the dead-end chuck on application of initial load. Some additional seating will typically occur during the application of final load and will show up as an added elongation in the final measurement unless some corrections to the system have been made. How is this handled by this fabricator? Answer:<br>_____<br>_____ | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.14     | Splice chucks introduce slippage characteristics similar to that which occurs when the strand is seated in its anchorage system. Are the strands marked on each side of the splice to confirm the assumed slippage to assure the values used in calculations are accurate?                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.15     | Fabricator has established acceptance/rejection standards in the Quality Control Program for worn or distorted grips/jaws.                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.16     | Fabricator understands that for strands stressed to 175,000 psi, a temperature variation of 10°F results in a stress variation of one (1) percent.                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.17     | Fabricator understands that raising the temperature decreases the stress force while reducing the temperature increases the stress force.                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.18     | Temperature corrections have been checked to determine effects on:<br><input type="checkbox"/> self-stress forms<br><input type="checkbox"/> each casting bed                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.19     | In a 400-foot form during a heat curing cycle from 50°F to 140°F, the form should have a change in length of approximately three inches. How is differential movement controlled between forms and members cast? Answer:<br>_____<br>_____                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.20     | Fabricator has established a standard procedure which sets the frequency for confirming the values utilized. Are calculations revised to bring the assumed and actual measurements within acceptable agreement?                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.21     | Personnel have a good understanding of the losses that may occur in each of the systems they use.                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-2.22     | An adequate Quality Control Program has been established to review and document each tensioning operation.                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-3</b> | <b>GAUGES</b>                                                                                                                                                                                                                                                                                                                                                                                  | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-3.1      | Gauges are mounted at or near working eye level.                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| O-3.2  | Gauges are positioned so readings can be obtained without parallax.                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.3  | Gauges have indicating dials at least six (6) inches in diameter.                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.4  | Dials are gauged to indicate pounds of jacking force.                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.5  | Gauge used to measure initial load is working within its rated range.                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.6  | Gauges have a full range equal to, not less than 1.5 to 2 times the normal working range.                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.7  | Loads to be gauged are not less than one quarter (1/4) of the total graduated capacity of the gauge used, unless calibration data gives accuracy over a wider range.                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.8  | Loads to be gauged are not more than three-fourths (3/4) of the total gauge graduated capacity, unless calibration data gives accuracy over a wider range.                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.9  | Devices for measuring the stressing load have an accuracy of reading within two (2) percent.                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.10 | Gauges have a sticker indicating the date of last calibration.                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.11 | Calibration sticker indicates the agency that performed the calibration.                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.12 | Calibration records include method of calibration and a curve showing the full range of calibration with gauge readings plotted against actual loads.                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.13 | Calibration of load measuring devices is performed by an approved testing laboratory, calibration service or registered professional engineer.                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.14 | Gauges are calibrated for the jacks and pumps with which they are used.                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.15 | Production gauges calibrated by an outside agency shall have a recalibration frequency not exceeding twelve (12) month intervals.                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.16 | Fabricator uses a "master gauge" for ongoing calibration of the system after initial calibration as a total system.                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.17 | The master gauge was calibrated by an approved agency within the last six months.                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.18 | Intervals for in-house calibrations to a master gauge do not exceed six months.                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.19 | Forms used to procure materials are illustrated in the Quality Control Manual.                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-3.20 | Fabricator has: <ul style="list-style-type: none"> <li><input type="checkbox"/> adequate equipment to gauge the applied loads</li> <li><input type="checkbox"/> personnel with adequate understanding of the system used</li> <li><input type="checkbox"/> the capability to perform this function satisfactorily</li> <li><input type="checkbox"/> adequate QA system to review and document system</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

| O-4    | CONTROL OF JACKING FORCES                                                                                                                                                                                                                                                                                                                                                                     | COMPLIANCE                                               | COMMENTS |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| O-4.1  | Hydraulic gauges have an appropriate bypass system, valve snubbers and fittings to ensure gauge readings will remain steady until jacking load is released.                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.2  | Direct measurement of jacking force is accomplished by use of: <ul style="list-style-type: none"> <li><input type="checkbox"/> a pressure gauge</li> <li><input type="checkbox"/> a dynamometer</li> <li><input type="checkbox"/> a load cell</li> <li><input type="checkbox"/> the force computed from actual elongation of the strand based on the physical properties of strand</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.3  | Jacking force is controlled by a manual pressure cutoff.                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.4  | Jacking force is controlled by an automatic pressure cutoff.                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.5  | Manual cutoff is such that rate of load application can stop jack within specified load tolerances.                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.6  | The automatic cutoff system utilized allows minor adjustment of jacking load.                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.7  | Verification of accuracy of automatic cutoff is made at the beginning of each day's production run.                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.8  | This verification is made by running to the desired cutoff load.                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.9  | Verification of accuracy of automatic cutoff is made at any time improper results are suspected.                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.10 | Other methods of determining the stressing force used by this fabricator are: <ul style="list-style-type: none"> <li><input type="checkbox"/> dynamometers</li> <li><input type="checkbox"/> load cells</li> <li><input type="checkbox"/> dead weight tensioning systems</li> </ul>                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.11 | Dead weight tensioning systems have a dynamometer or load cell to monitor the load to the system.                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.12 | Dynamometers are connected in tension in the stressing system.                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-4.13 | Load cells are connected to ensure the stressing action puts a compressive force on the sensing element.                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-5    | CHUCKS/ANCHORAGE SYSTEMS                                                                                                                                                                                                                                                                                                                                                                      | COMPLIANCE                                               | COMMENTS |
| O-5.1  | Strand chucks for pretensioning are capable of anchoring the strand positively without slippage after seating.                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-5.2  | Lengths of grips and configuration of serrations are such as to insure against strand failure within the grips at stresses less than 100% of ultimate strength.                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-5.3  | Steel cases for strand chucks are proof tested by the manufacturer to at least 100% of the ultimate strength of the strand.                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-5.4  | Strand chucks consist of a barrel, grooved jaws with an O-ring pulling them together, and a spring-equipped cap.                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| O-5.5      | Strand chucks and splice chucks are capable of positively anchoring the stressing loads with a minimum of differential slippage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.6      | Chucks are used as complete units.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.7      | Components from different chuck manufacturers are not interchanged.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.8      | Strand chucks are assembled of compatible elements to avoid improper fit and seating on strands.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.9      | Strand chucks designed with spring-equipped caps are actually used with such caps.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.10     | Fabricator has established acceptance/rejection standards in his Quality Control Manual for worn or distorted grips/jaws.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.11     | Fabricator has established excessive slippage standards for discarding grips/jaws.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.12     | Strand chucks/vises are inspected using a 3-power magnifying glass.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.13     | Strand chuck components are cleaned and inspected between each use.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.14     | Strand chuck components are lubricated as necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.15     | Barrels, jaws or caps that become visibly worn, cracked or distorted, or which allow excessive slippage are discarded.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.16     | Care is taken to ensure the proper sized components are used when inspecting and on reassembly of strand chucks and splice chucks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.17     | Fabricator's inspector personnel are acquainted with the acceptance/rejection standards established by the fabricator for strand chuck components.                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.18     | Fabricator has the equipment to assess strand chuck components adequately.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.19     | Fabricator has the personnel with sufficient expertise to assess strand chuck components adequately.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-5.20     | Fabricator's Quality Assurance Program is adequate to ensure that the assessment of strand chuck components is properly performed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-6</b> | <b>STRAND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-6.1      | <p>Fabricator's Quality Assurance Program requires that prestressing tendons conform to the following specifications:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> uncoated, stress-relieved strand conforming to ASTM A-416, Grade 250</li> <li><input type="checkbox"/> uncoated, stress-relieved strand conforming to ASTM A-416, Grade 270</li> <li><input type="checkbox"/> uncoated, low relaxation strand conforming to ASTM A-416, Supplement Grade 250</li> <li><input type="checkbox"/> uncoated, low relaxation strand conforming to ASTM A-416, Grade 270</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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|            | <input type="checkbox"/> coated, stress relieved strand (A-416, Grade 270) coated in accordance with ASTM method G-12 tested in accordance with ASTM A370                                                                                                                                                                                                       |                                                          |                 |
| O-6.2      | Each shipment of tendons is accompanied by a mill certificate indicating it has been manufactured and tested in accordance with the applicable ASTM specifications.                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.3      | When mill certificates are not furnished with a shipment of strand, it is replaced by a certified test report furnished with every 20 tons or part thereof to provide documentation of compliance with the applicable ASTM specifications.                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.4      | When a stress-strain curve is furnished, it shall be certified as representative of the material delivered.                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.5      | When the fabricator uses an average modulus of elasticity in computing elongations the quality program allows no more than a 2.5 percent variation between the average modulus and the actual modulus of the strand being used.                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.6      | Strand is furnished: <ul style="list-style-type: none"> <li><input type="checkbox"/> in reel-less packs or</li> <li><input type="checkbox"/> on reels</li> </ul>                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.7      | Fabricator stores prestressing steel under cover as a means of minimizing corrosion.                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.8      | Fabricator inspects and documents inspections of the prestressing steel for: <ul style="list-style-type: none"> <li><input type="checkbox"/> deeply etched corrosion</li> <li><input type="checkbox"/> deep pits caused by corrosion</li> <li><input type="checkbox"/> any pits and etches that may cause strand failure during stressing operations</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.9      | Storage of prestressing steel is such that it is not close to galvanic causing agents or battery acid. This includes dissimilar metals adjacent to an ionized medium common to both metals.                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-6.10     | Quality Assurance Program is adequately performed in confirming requirements are met.                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-7</b> | <b>STRINGING THE STRAND</b>                                                                                                                                                                                                                                                                                                                                     | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-7.1      | Forms are inspected for accuracy prior to stringing the strands.                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.2      | Forms are inspected for cleanliness prior to stringing the strands.                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.3      | Strands are pulled from: <ul style="list-style-type: none"> <li><input type="checkbox"/> a coil</li> <li><input type="checkbox"/> a reel-less pack</li> <li><input type="checkbox"/> a reel</li> </ul>                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.4      | Stringing is done in: <ul style="list-style-type: none"> <li><input type="checkbox"/> single strands</li> <li><input type="checkbox"/> multiple strands</li> <li><input type="checkbox"/> single and multiple strands</li> </ul>                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.5      | Fabricator is capable of identifying a particular strand to a particular load recording device.                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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| O-7.6  | Fabricator has established a procedure to assure that strands are pulled from the correct side of the pack as identified by the manufacturer.                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.7  | The strand rotates each time a revolution is pulled from the coil.                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.8  | Provisions have been made to relieve the rotations to ensure the measured elongations are not affected.                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.9  | The stringing procedure requires that tendons be protected during handling and/or moving.                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.10 | When moving or handling tendons, handling devices are required to be attached to the flanges of reels or coils.                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.11 | The stringing procedure requires that approved swivel grips or other approved methods be used to assure control of strands being strung.                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.12 | The stringing procedure requires that sharp hand tools are not carelessly used, which may cause mechanical damage to the tendons.                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.13 | The procedure in the fabricator's Quality Control System for pulling strand makes a point to assure the strand does not kink.                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.14 | Personnel pay close attention for notches and/or nicks in the strand/wire.                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.15 | The procedure for pulling strands requires that the strand is checked for nicks.                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.16 | The fabricator's quality control program requires that tendons that are corrosion pitted be discarded.                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.17 | The fabricator's quality control program allows the use of tendons with a light coating of surface rust.                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.18 | Fabricator has established a definite sequence of stringing and tensioning strands to avoid possible entanglement of strands.                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.19 | Personnel (stringing the strands) are familiar with the established procedure and with the identification system used by the manufacturer of the strand. Each strand can be identified as to its location within the member cast. | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.20 | Fabricator requires that strand be cut with shears or an abrasive grinder during the stringing operations                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.21 | When stringing strand, each piece of strand is cut between the strand vise and the coil or reel.                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.22 | Personnel stringing strand makes sure that strand that has been gripped previously by strand chucks does not occur within lengths of strand to be stressed.                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.23 | Strand lengths spliced together are required to have the same lay of wire to avoid unraveling.                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.24 | Strand splices are not allowed to fall within a member unless they are the type that will develop the full ultimate strength of the wire.                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-7.25 | Either all wire is spliced, or no wire is spliced, because multiple strand tensioning prevents correcting single strand differential slippage normal for spliced wire.                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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| O-7.26     | The Quality Control Program does not allow stringing of strand previously gripped by strand chucks within lengths of the strand that are to be stressed.                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.27     | Personnel are aware that local stress concentration occurs at nicks and notches.                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.28     | Personnel understand that these nicks/notches may sometimes cause failure during strand stressing operations.                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.29     | Personnel understand that nicks/notches lower the fatigue and ultimate strength of the strand.                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.30     | Personnel pay close attention to ensure that strand chucks do not nick or notch the strand/wire.                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.31     | The strand chucks are checked to ensure they are properly seated.                                                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.32     | The strand chucks are checked to assure the vice system is in the line of the pull.                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.33     | Fabricator ensures the strand grips and anchor plates are set normal to the line of pull.                                                                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.34     | Fabricator has adequate procedures to properly perform this work function.                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.35     | Personnel have adequate knowledge to perform this work function.                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-7.36     | Quality Control Program adequately reviews this work function.                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-8</b> | <b>THE TENSIONING OPERATIONS</b>                                                                                                                                                                                                                                                                                           | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-8.1      | The quality control inspector reviews the theoretical calculations before the stressing operations are started.                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.2      | The production manager/quality control inspector determines the elongation measurement that will be used to confirm the actual measured elongation before stressing operations are started.                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.3      | The production manager/quality control inspector determines the actual gauge reading that should show on the dial gauge when the correct elongation is attained before stressing operations are started.                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.4      | Production personnel, responsible for performing the tensioning operations, understand each correction factor that must be considered, and how each correction is applied in order to ensure the proper tensioning force has been applied, and the elongation measurements are modified to verify the correct end results. | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.5      | The quality control inspector understands each correction factor that must be considered in order to ensure the proper tensioning force has been applied.                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.6      | Personnel understand how the force generated by friction in the system affects: <ul style="list-style-type: none"> <li><input type="checkbox"/> the gauge reading</li> <li><input type="checkbox"/> the elongation measurements</li> </ul>                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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| O-8.7  | Personnel understand how the strand slippage developed in the system affects: <ul style="list-style-type: none"> <li><input type="checkbox"/> the gauge reading</li> <li><input type="checkbox"/> the elongation measurements</li> </ul>                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.8  | Personnel understand how the elastic movement of the abutments affects the measuring system as to: <ul style="list-style-type: none"> <li><input type="checkbox"/> the gauge reading</li> <li><input type="checkbox"/> the elongation measurements</li> </ul>                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.9  | Personnel understand how casting beds, which can resist the prestressing forces without auxiliary assistance, affect the measuring system when under load.                                                                                                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.10 | Personnel understand how the gauging system calibration affects the gauge readings and how corrections are made.                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.11 | Personnel understand the effects of the temperature from sun heat on the strand and on the forms and if temperature correction factors should be introduced into the system.                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.12 | Personnel understand how temperature affects the tension force in the tendons: <ul style="list-style-type: none"> <li><input type="checkbox"/> an increase in temperature will increase/decrease the tension force</li> <li><input type="checkbox"/> a decrease in temperature will increase/decrease the tension force</li> </ul>                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.13 | Personnel understand how temperature affects the prestress tensioning force and how temperature corrections are used to reach the proper force.                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.14 | Personnel responsible for the stressing operations understand the effects of inaccurate and variable stressing result in three principal types of problems: <ul style="list-style-type: none"> <li><input type="checkbox"/> differential camber</li> <li><input type="checkbox"/> misalignment of members</li> <li><input type="checkbox"/> reduction of cracking moment</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.15 | Stresses induced in the tendons are determined by: <ul style="list-style-type: none"> <li><input type="checkbox"/> measurement of elongation</li> <li><input type="checkbox"/> direct measurement of jacking force</li> </ul>                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.16 | Personnel responsible for the stressing operations make two independent determinations of the prestress applied as followed: <ul style="list-style-type: none"> <li><input type="checkbox"/> measurement of elongation</li> <li><input type="checkbox"/> pressure gauge, dynamometer, load cell (a gauging system)</li> </ul>                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.17 | The two independent determinations of the prestress applied compared to each other and to theoretical values within a tolerance of five percent (5%).                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.18 | The fabricator uses: <ul style="list-style-type: none"> <li><input type="checkbox"/> single strand stressing</li> <li><input type="checkbox"/> multiple strand stressing</li> <li><input type="checkbox"/> both, single strand and multiple strand stressing</li> </ul>                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.19 | Only calibrated jacks that have current calibrations are used for tensioning strands.                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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| O-8.20 | The procedure states that tensioning should not be performed on strands that have been nicked.                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.21 | The procedure requires that any strand with a broken wire not be tensioned.                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.22 | Pretensioning load is applied in two increments.                                                                                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.23 | After strands are positioned, an initial tensioning force between five and twenty-five percent (5%-25%) of the final force is applied.                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.24 | Initial load is measured with a tolerance of +100 pounds when equal to/or less than 10% of final load, and with a tolerance of +200 pounds when more than 10% of final load.                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.25 | Initial load is used to straighten, eliminate slack and provide a starting reference for elongation measurement.                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.26 | Initial elongation measurements are not made on application of initial tensioning force.                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.27 | Fabricator understands that the reference points for measuring elongation are established after an initial tension force has been applied.                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.28 | The location of reference points for measuring elongations will vary with:<br><input type="checkbox"/> the type and physical characteristics of the equipment used<br><input type="checkbox"/> the different methods of tensioning the tendons                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.29 | Each of the two independent determinations of the prestress applied indicate three separately related items:<br><input type="checkbox"/> the prestress force is indicated by the gauging system<br><input type="checkbox"/> the correct size of tendon has been used, and the operational losses are within the acceptable tolerance as indicated by the elongation measurement<br><input type="checkbox"/> elongations verify the possible accuracy of the gauging system | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.30 | In single strand tensioning, the initial and final loads are applied in immediate succession on each strand.                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.31 | Rotation of the jacking ram is limited to not more than one revolution per 100 feet of exposed strand.                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.32 | In single strand tensioning, the initial load is applied and held momentarily while reference marks are made for elongation and slippage measurement; then load is increased to its full value, the strand is seated, and elongation measurements are made.                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.33 | Final tensioning is measured by gauging and cross checking with elongation measurements.                                                                                                                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.34 | Accuracy of measurement of elongations should be to the nearest 1/4 inch, this corresponds to an error of + 1/8 inch.                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-8.35 | When the forces determined by elongation measurement differ from that obtained by the gauging system, the procedure indicated below is followed:<br><input type="checkbox"/> 5% or under, operations will continue<br><input type="checkbox"/> more than 5%, tensioning operation is suspended, and the source of error is determined before proceeding further                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

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Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

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| O-8.36     | The procedure for tensioning strands requires that elongations are continually checked during the tensioning operations.                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.37     | When using completely open beds (only straight strands with no headers or other possible sources of friction), strand elongation may be checked on first and last strands and 10% of all others. Does this fabricator utilize this production short cut? Is it documented in the Q.C. manual?<br>Is this production shortcut utilized?                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.38     | Live end seating in single strand tensioning, considering that the chucks are in good condition with properly functioning spring caps, generally range in a strand slippage of 3/8" to 3/4". This slippage is monitored on a scheduled basis by production/quality control personnel to determine the appropriate value to be used as a correction factor in the tensioning system utilized. What is this frequency?<br>_____ | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.39     | Failure of a wire or wires in a strand in a pretensioned system is acceptable provided total area of wire failures is not more than 2% of the total tendons in any one member. Is this controlled?                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.40     | Failure of a wire or wires in a strand in a pretensioned system is acceptable provided the chief engineer assures himself the failure is not symptomatic of a more extensive condition. Is this controlled?                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.41     | Where rods under stress are used in the abutment anchoring system, the elongation of the rods is considered in the elongation calculations.                                                                                                                                                                                                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.42     | Fabricator has a copy of the PCI safety and Loss Prevention Manual.                                                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-8.43     | Each employee is familiar with the fabricator's safety program.                                                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-9</b> | <b>DRAPED STRANDS</b>                                                                                                                                                                                                                                                                                                                                                                                                         | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-9.1      | The tensioning procedure requires that draped strand tensioned with hold-downs in place use rollers and pins or other approved friction reducers at all hold down locations and at all support points.                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.2      | The tensioning procedure requires that strand tensioned in a straight line and then deflected into a draped position be deflected simultaneously or on a predetermined schedule symmetrically about the center of the bed.                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.3      | Temporary overstressing is sometimes used for final stressing of draped strands to overcome friction in the system. This overstress should not exceed 80% of the specified tensile strength of the strand. Is this controlled by the fabricator?                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.4      | Strands are not seated in the above overstress condition.                                                                                                                                                                                                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

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| O-9.5       | Suitable stress measurements are made at each anchorage at each end of a bed to verify calculated strand stresses.                                                                                                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.6       | The verification is made prior to first casting for any new design, new strand pattern, and on a random scheduled basis during production operations.                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.7       | Tension of draped strands between ends of the bed agrees within 5% of specified values.                                                                                                                                                                                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.8       | In order to control distribution of stress in several members along a bed using draped strands, the stress in separate members can be determined by measurement of elongation in a predetermined length of strand within that member. This elongation shall be measured to the nearest 1/16th of an inch. Does this fabricator control stress distribution in draped tendons?                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.9       | Fabricator has minimized the frictional forces developed in the multi-strand tensioning system by: <ul style="list-style-type: none"> <li><input type="checkbox"/> keeping the contact steel surfaces clean</li> <li><input type="checkbox"/> keeping the adjacent steel surfaces that can come in contact clean</li> <li><input type="checkbox"/> keeping the affected steel surfaces well lubricated</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-9.10      | Fabricator has: <ul style="list-style-type: none"> <li><input type="checkbox"/> the necessary equipment</li> <li><input type="checkbox"/> capable personnel</li> <li><input type="checkbox"/> the quality program necessary to accomplish this work function within the established quality requirements</li> </ul>                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-10</b> | <b>PRECONCRETING</b>                                                                                                                                                                                                                                                                                                                                                                                              | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-10.1      | Torches and welding equipment are required to be kept clear of tensioned strand or strand to be tensioned.                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.2      | The prestressing operations procedures require that no welding be done above or around the tendons.                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.3      | The prestressing operations procedures require that electric cords are kept clear of pretensioned steel because an electric arc can damage and/or cause failure of the tendon.                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.4      | Form surfaces in contact with concrete are treated with an effective release agent.                                                                                                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.5      | Fabricator exercises special care to prevent contamination of strand by form release agent, mud, grease or other coatings.                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.6      | Strands are checked to ensure they are sufficiently clean to develop high bond with the concrete.                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.7      | Fabricator uses a release agent of the type that dries to a degree after application since the stringing of the strands is done after the release agent is applied.                                                                                                                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.8      | Fabricator exercises special care to protect strands since the release agent is applied after stringing the strands.                                                                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.9      | Fabricator uses a sheet metal or similar type shield to protect strand from release agents applied after stringing strand.                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.10     | Strand is inspected after stringing to ensure it is free of contamination.                                                                                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

|             |                                                                                                                                                                                                                                                     |                                                          |                 |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------|
| O-10.11     | When contaminated strand is observed, it is cleaned with an effective solvent.                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.12     | Fabricator inspects and documents inspections of prestressing steel to assure it is free of deleterious materials such as grease, oil, wax, dirt, paint, loose, rust, other contaminants.                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.13     | Fabricator requires all prestressing steel, in members to be cast, be inspected prior to placement of concrete.                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.14     | Fabricator realizes the problem with using PVC pipe or conduit in concrete containing prestressing steel.                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-10.15     | The Quality Control Program adequately reviews this work function.                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-11</b> | <b>DRY MIX OPERATIONS</b>                                                                                                                                                                                                                           | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-11.1      | A quality control inspector is present during all detensioning operations of dry-mix, machine-cast products.                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-11.2      | Prior to release of the prestress force, reference lines are drawn across the ends of the slabs as near as possible to their "free ends" of all dry-mix, machine-cast products.                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-11.3      | All strands are marked at a measured distance from the reference mark established in O-11.2 above to determine strand slippage after detensioning of all dry-mix, machine-cast products.                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-11.4      | Minimum concrete transfer strength for dry-mix, machine-cast products is not less than 4500 psi to minimize difficulties with loss of bond.                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| <b>O-12</b> | <b>DETENSIONING</b>                                                                                                                                                                                                                                 | <b>COMPLIANCE</b>                                        | <b>COMMENTS</b> |
| O-12.1      | Detensioning stress transfer is not performed until concrete test specimens indicate acceptable specified concrete transfer strength.                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.2      | Minimum concrete transfer strength is not less than 3000 psi.                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.3      | Fabricator has indicated that concrete strength influences the following items:<br><input type="checkbox"/> camber<br><input type="checkbox"/> dimensional changes due to strains in the concrete                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.4      | Fabricator realizes that concrete transfer strength above 2500 psi is required on wet-mix concretes to minimize difficulties with loss of bond.                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.5      | Heat/steam-cured concrete is detensioned immediately following the curing period while the concrete is still moist and warm.                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.6      | Fabricator has indicated he understands the following two things occur if heat/steam cured concrete is allowed to cool and dry out:<br><input type="checkbox"/> causes cracking<br><input type="checkbox"/> causes undesirable stresses in concrete | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.7      | Fabricator has a standard system for detensioning operations.                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |
| O-12.8      | The procedures used for single strand detensioning are listed in this fabricator's Quality Control Manual.                                                                                                                                          | <input type="checkbox"/> YES <input type="checkbox"/> NO |                 |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

|         |                                                                                                                                                                                                                                                                                                                                   |                                                          |  |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| O-12.9  | The sequence normally used for cutting strands on a single strand detensioning system for any tensioning pattern is detailed in the fabricators Quality Control Manual.                                                                                                                                                           | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.10 | Fabricator has established a detensioning system to minimize:<br><input type="checkbox"/> sudden loadings<br><input type="checkbox"/> shock loadings                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.11 | Fabricator has established a detensioning system that keeps the prestressing forces nearly symmetrical about the vertical axis of the member.                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.12 | Fabricator releases single strand systems by simultaneously cutting the strand at both ends.                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.13 | This release is normally achieved by heating both ends at the same time until the metal gradually loses its strength.                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.14 | Fabricator uses production drawings which indicate detensioning schedule/procedures for all unusual shapes.                                                                                                                                                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.15 | Fabricator has a system of detensioning which establishes a procedure for:<br><input type="checkbox"/> form removal<br><input type="checkbox"/> tie release<br><input type="checkbox"/> inserts release<br><input type="checkbox"/> hold-down removal<br><input type="checkbox"/> removal of any device which restricts movements | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.16 | Production personnel understand the system for detensioning multiple strand systems.                                                                                                                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.17 | Fabricator has established a production procedure for detensioning prestressed concrete shapes using draped strands as a portion of the total reinforcement or as total reinforcement.                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.18 | Fabricator has computation of hold down forces and makes comparison with member weight calculations for all hold-down release operations.                                                                                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.19 | Fabricator has a positive system to assure no longitudinal movement of a concrete unit is allowed until hold-down devices are removed.                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.20 | Quality control inspector has computation sheet showing required hold-down forces and member weights for utilization/comparison for all hold-down release operations.                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.21 | Production/inspection personnel understand horizontal movement along the span may be detrimental until hold-down devices are removed.                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.22 | Fabricator's system establishes a method of releasing the following:<br><input type="checkbox"/> hold-down devices<br><input type="checkbox"/> bolts connected to hold-down devices.                                                                                                                                              | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.23 | Production personnel understand the hold-down system used.                                                                                                                                                                                                                                                                        | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.24 | Production personnel have a definite procedure to use for releasing hold-down devices and detensioning the strand.                                                                                                                                                                                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.25 | Some horizontal movement of the cast sections is expected, is this controlled?                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

|         |                                                                                                                                                                                                                            |                                                          |  |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--|
| O-12.26 | Fabricator's system releases hold-down prior to release of anchorage stress if the weight of the member weighs at least twice the force retained by the hold-down member.                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.27 | Fabricator's system allows release of the hold-down forces if these forces are less than 3/4 of the weight of the member and nominal reinforcing steel is carried in the top flange or slab.                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.28 | Fabricator has a special system if hold-down forces are more than 3/4 of the weight of the member.                                                                                                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.29 | Fabricator uses dead weight placed along and on top of the member to compensate for the force retained by hold-downs.                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.30 | Fabricator has a special set up to add a vertical restraint applied over the hold-down points so the hold-down can be released prior to detensioning draped strands.                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.31 | Fabricator does not allow concrete to crack to facilitate release of hold-downs and the detensioning the draped strands.                                                                                                   | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.32 | Sometimes it is necessary to release some of the draped strands in a bed to counteract vertical forces at hold-downs when hold-downs are released. Is this controlled?                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.33 | Detensioning of heavily stressed sections should be done at all points between members simultaneously to avoid damage caused by product movement or shock. Is this controlled?                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.34 | Heavily stressed sections with draped strand may require a partial release of draped strand at ends of members before releasing hold-downs to avoid top fiber cracking. Is this controlled?                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.35 | Fabricator detensions multiple strand systems by simultaneously releasing the tensioning by the use of a hydraulic dejacking system.                                                                                       | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.36 | Total force is transferred from the header by the jack and gradually released. Because of this method of detensioning, some horizontal movement is expected. Fabricators make a positive effort to minimize this movement. | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.37 | Fabricator understands that the movement mentioned above is proportional to the exposed lengths of stressed strands between members and between the last member and the fixed end.                                         | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.38 | Fabricator understands that the overstress required to loosen lock nuts or other anchoring devices at the header should not exceed the force in the strand by five percent.                                                | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.39 | This work function is properly performed.                                                                                                                                                                                  | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |
| O-12.40 | Quality Control Program adequately reviews and documents this work function.                                                                                                                                               | <input type="checkbox"/> YES <input type="checkbox"/> NO |  |

## AUDIT OF FABRICATION PRACTICES (CONCRETING & PRETENSIONING)

Fabricator's Name: \_\_\_\_\_ Fabricator's number: \_\_\_\_\_ Date: \_\_\_\_\_

| O-13   | DOCUMENTATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | COMPLIANCE                                               | COMMENTS |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------|
| O-13.1 | Calibration records for all jack equipment are available and show the following: <ul style="list-style-type: none"> <li><input type="checkbox"/> date of calibration</li> <li><input type="checkbox"/> agency performing calibration</li> <li><input type="checkbox"/> method of calibration is by: ___ providing ring<br/>___ load cell ___ testing machine</li> <li><input type="checkbox"/> a curve showing full range of calibration with gauge reading plotted against actual loads</li> </ul> | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-13.2 | Each inspection performed by production personnel is documented.                                                                                                                                                                                                                                                                                                                                                                                                                                    | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-13.3 | Each inspection performed by quality assurance personnel is documented.                                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-13.4 | Fabricator has developed a documentation system that confirms each item verified in each inspection performed.                                                                                                                                                                                                                                                                                                                                                                                      | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-13.5 | Documentation of inspections is initialed or marked by special identifying mark by each person performing an inspection.                                                                                                                                                                                                                                                                                                                                                                            | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |
| O-13.6 | The identification system utilizes: <ul style="list-style-type: none"> <li><input type="checkbox"/> special identification mark (initials, a number, a letter)</li> <li><input type="checkbox"/> special colored pen</li> <li><input type="checkbox"/> special colored see-through "highlighter pen"</li> </ul>                                                                                                                                                                                     | <input type="checkbox"/> YES <input type="checkbox"/> NO |          |

### COMMENTS

Special Inspector Name: \_\_\_\_\_

(Engineer's Seal)

Special Inspector Signature: \_\_\_\_\_

Date: \_\_\_\_\_