# MY HOME CONSTRUCTIONS (P) Ltd.

Block -1, 1st floor, My Home Hub,
Madhapur, Hyderabad - 500 081.

# PRECAST PLANT FUNCTIONAL PROCEDURE

| **Document No:** MHCPL-FP-PP | | **Rev-**01, **Revision Date:** 15-04-2025 | |
|---|---|---|---|
| **Prepared by** | **Reviewed by** | **Approved by** | **Issued By** |
| | | | |
| | Head- PP | Director(P) | MR |
| Date: | Date: | Date: | Date: |

## Table contents

## 1. Revision history

| Date | Rev No | Reason for Change | Prepared | Approved |
|---|---|---|---|---|
| 01-07-2019 | 00 | Initial release of functional procedure by ISO 9001:2015, ISO 14001:2015 & ISO 45001:2018 | Head-PP | Projects(P) |
| 10-10-2022 | 01 | Inspection procedure update | Head-PP | Projects(P) |
| 15-04-2025 | 02 | Regular Review and added & table of contents and a list of procedure elements & added Method statement for Curing & Recast Procedure, | Head-PP | Projects(P) |

## 2. List of Functional Procedures

| Sl. NO | Name of the procedure | Documents No | Rev No | Effective date |
|---|---|---|---|---|
| 1 | Method Statement of Hollow Core Slab Production. | IMS/PC/QA/QC/MS//HCS/01/22 | 01 | 10.10.2022 |
| 2 | Method Statement of Precast Element Production. | IMS/PC/QA/QC/MS/NPS/01/22 | 01 | 10.10.2022 |
| 3 | Method Statement of Pre-Stressed Element Production. | IMS/PC/QA/QC/MS/PS/01/22 | 01 | 10.10.2022 |
| 4 | Method Statement for curing of Precast & Prestressed elements. | IMS/PC/QAQC/MS/CUR/01/23 | 02 | 15.04.2025 |
| 5 | Method Statement for Recast Procedure. | IMS/PC/QAQC/RP/01/24 | 02 | 15.04.2025 |

## 3. Purpose:

To establish, measure, analyze, improve, and control the process of off-site manufacturing, transportation, and installation of the precast concrete elements.

## 4. Scope:

This process applies to all the products and services of the precast plant.

## 5. Responsibilities:

Primary : A V P
Secondary : Sr. DGM

## 6. Activities

**METHOD STATEMENT OF HOLLOW CORE SLAB PRODUCTION**

**INSPECTION TEST PLAN OF HCS WITH PROCEDURE**

| SL No. | Activity | Frequency & Inspection | Inspection Form Document No. | Remarks |
|---|---|---|---|---|
| 1 | Bed Cleaning | Every Element | | |
| 2 | Application of Form Release Agent | Every Element | | |
| 3 | Inserting all MEP, Connections & Inserts | Every Element | | |
| 4 | Raise Request for Pre-pour & Stressing Inspection Approval | Every Element | PC/RFI/PREP/01/22 | |
| 5 | Checking of Stressing and Elongation | Every Element | PC/ELON/HCS/01/22 | |
| 6 | Pre-Pour Check | Every Element | PC/PREP/HCS/01/22 | |
| 7 | Concreting and Initial Curing & Stripping Strength gaining - (Cube Register) | Every Element | PC/LAB/CR/01/22 | |
| 8 | De-tensioning, Strand Cutting & Zinc coating at visible strands | Every Element | | |
| 9 | Post-Pour check | Every Element | PC/POSP/HCS/01/22 | |
| 10 | Stacking at Stock-Yard | Every Element | | |
| 11 | Curing and Final Strength gaining- (Cube Register) | Every Element | PC/LAB/CR/01/22 | |

| | | | | |
|---|---|---|---|---|
| 12 | Raises Request for Pre-delivery check Inspection Approval | Every Element | PC/RFI/PRED/01/22 | |
| 13 | Pre-Delivery Check | Every Element | PC/PRED/HCS/01/22 | |
| 14 | Shipping | Every Element | | |

## 7. PROCEDURE

1. Hollow Core slab will invariably be produced in fixed flat moulds set up on permanently installed Hollow-core slab beds.
2. All materials to be incorporated into this work shall be approved before commencement of production.
3. Moulds are thoroughly cleaned; the approved form release agent shall then be applied evenly to the hollow-core bed.
4. Regularly attaching the wooden Dunnage to the bed prevents the strands from directly contacting the mould release agents on the bed.
5. The size and required number of strands are pulled from the cage to the passive end with a strand laying machine- "Bed-Master". The size and number of strands are indicated in the casting program of the hollow-core slab.
6. After laying strands into the bed, the Production Forman raises the inspection request to verify the Stressing Operation & Pre-Pour Check. (Doc. No. - PC/RFI/PREP/01/22)
7. Stressing is carried out using the multi strand stressing technique. The strands are stressed to the level required by the design as indicated in the shop drawings or design calculations and secured by the wedges and anchor barrels at the jacking/ active end and, by grips at the passive end.
8. Elongation of the strand shall be within ±5% of the calculated elongation. In the event that elongation exceeds the tolerance consent shall be taken from the structural engineer to proceed further.
9. Stressing will be verified & approved as per the actual design calculations with Stressing checklist. (Doc. No. – PC/ELON/HCS/01/22)
10. Pre-pour will be approved by the authorized quality inspectors with a Pre-pour checklist. (Doc. No. – PC/PREP/HCS/01/22)
11. A concrete order shall be raised by the QC to the batching plant indicating the approved mix code and quantity required by the Concrete requisition slip. (Doc. No.: - PC/CRS/01/22)

12. The concrete will be produced in the regularly calibrated in-house batching plants.
13. Chilled water and ice will be used to ensure the temperature of fresh concrete will be within the maximum 32 degrees centigrade limit.
14. Concrete is discharged to the extruder hopper from the concrete shuttle.
15. Concrete is extruded through the casting machine. The operator keeps checking the height of the slab every 5 meters and also check for any visible deformations.
16. Marking of Opening and Cutting length as per the required location and making the opening/ recess when the concrete is still in green condition. Removing the chipped concrete immediately and ensuring that the strands are not disturbed while making the opening.
17. Concrete is sampled from each bed. A minimum of 1 set of cubes cured in similar conditions with the elements shall be made to assess the de-tensioning/stripping time in addition to these 3 sets of standard cubes for 7th (1 set) and 28th (1 set) day compression testing and maintain the concrete cube register. One set of cubes will be reserved for later testing if required. (Doc. No.- PC/LAB/CR/01/22) Upon attaining the required de-tensioning strength, de-tensioning of the strand is carried out by releasing the jack pressure.
18. Cutting of the slabs will be performed by a circular saw cutting machine at the marked location as per the element shop drawing
19. Elements are marked with their unique identification number and erection marks as per given in the drawings and corrosion protection of strands then removed from the beds and transferred to the stacking area using the overhead cranes. Lifting and stacking arrangements will be in accordance with the standard method and based on the recommendations of the structural designer.
20. Post- Pour check will be carried out to ensure the dimensions, opening, and recess with respect to the production shop drawing. (Doc. No.- PC/POSP/HCS/01/22)
21. Any surface imperfections and blemishes to the units, such as those outlined in PCI MNL 117-77 will be repaired and finished to the required standard using approved proprietary repair materials as described in section 10 of this document. (Doc. No.:- PC/MS/REP/01/22).
22. Prior to delivery of each unit, Delivery Forman raised the inspection request to verify the Pre-delivery inspection. (Doc. No.:- PC/RFI/PRED/01/22)
23. Pre-delivery check is inspected by the QC Department in detail to ensure standard conformity with respect to; Structural Integrity, Dimensions, Twist and plane-ness, Locations of cast-in items, Aesthetics/Surface appearance, and production shop drawings, etc. before they will be delivered to their respective sites. (Doc. No.:- PC/PRED/HCS/01/22)

| METHOD STATEMENT OF PRECAST ELEMENT PRODUCTION | | | | |
|---|---|---|---|---|
| INSPECTION TEST PLAN OF PRECAST PRODUCTION UNITS- SOLID WALL, SOLID SLABS, STAIRCASE, BEAM, COLUMN, ETC | | | | |
| **SL No.** | **Activity** | **Frequency & Inspection** | **Inspection Form Document No.** | **Remarks** |
| 1 | Preparing a reinforcement cage | Every Element | | |
| 2 | Raise a Request for Reinforcement check | Every Element | PC/RFI/REIN/01/22 | |
| 3 | Reinforcement Inspections | Every Element | PC/REIN/01/22 | |
| 4 | Bed Cleaning | Every Element | | |
| 5 | Application of Form Release Agent | Every Element | | |
| 6 | Placing of Reinforcements | Every Element | | |
| 7 | Inserting all MEP, Connections & Inserts | Every Element | | |
| 8 | Raise a Request for Pre-pour check | Every Element | PC/RFI/PREP/01/22 | |
| 9 | Pre-Pour Check | Every Element | PC/PREP/NPS/01/22 | |
| 10 | Concreting and Initial Curing & Stripping Strength gaining - (Cube Register) | Every Element | PC/LAB/CR/01/22 | |
| 11 | Post-Pour check | Every Element | PC/POSP/01/22 | |
| 12 | Stacking at Stock-Yard | Every Element | | |
| 13 | Curing and Final Strength gaining - (Cube Register) | Every Element | PC/LAB/CR/01/22 | |
| 14 | Raise a Request for Pre-delivery check | Every Element | PC/RFI/PRED/01/22 | |
| 15 | Pre-Delivery Check | Every Element | PC/PRED/NPS/01/22 | |
| 16 | Shipping | Every Element | | |

1. Precast units will invariably be produced in custom made moulds set up horizontally or vertically on the casting beds.
2. All materials to be incorporated into this work shall be complying with relevant IS Standards
3. Mould side forms/shutters are fixed on to the table using appropriate fastening systems in accordance with the latest revision approved shop drawings.
4. After fabrication and set-up, the moulds are checked by the in-house QC Inspector for any obvious defects.
5. Formers for any service openings or electrical conduit boxes are marked and fixed In-place on the bed after they have been liaised and coordinated with the final approved MEP drawings.
6. Reinforcement for the precast element is made as finished units from the in-house cut, bend, and fix facility. Upon completion of fabrication of the reinforcement cage, an Inspection Request is raised to

the QC department to confirm compliance with the latest reinforcement drawing. (Doc. No.:- PC/RFI/REIN/01/22).

7. Reinforcement will be approved by the authorized quality inspectors with a Pre-pour Checklist and then shifted to the production yard. (Doc. No. :- PC/PREP/NPS/01/22)
8. Moulds are thoroughly cleaned; approved form release agent shall then be applied evenly to the moulds surfaces without the reinforcement assembly.
9. Reinforcement is placed in the moulds supported on spacers to give the required concrete cover.
10. Placing of all inserts, connections, screed, and protruding bars is as per the latest revision drawing and raise the request for inspection to the QC department. (Doc. No. :- PC/RFI/PREP/01/22)
11. Pre-pour check will be carried out by a quality control inspector for compliance with the latest approved shop drawing. (Doc. No. :- PC/PREP/NPS/01/22)
12. A concrete requisition order shall be raised by the Production Supervisor, vetted by QC to the batching plant indicating the approved mix code and quantity required. (Doc. No. :- PC/CRS/01/22)
13. The concrete will be produced in the in-house batching plants.
14. Concrete is placed to the moulds using a skip hoisted by an overhead crane. Compaction/Consolidation is carried out using table and poker vibrators. No vibrators are to be used when self-compacting concrete is used. Once placing and finishing are completed the entire mold shall be covered in such a way to prevent early moisture loss.
15. Concrete is sampled as stipulated by the project specification. A minimum of 1 set of cubes cured in similar conditions with the elements shall be made to assess the de-tensioning/stripping time, in addition to these 3 sets of standard cubes for 7th (1 set) and 28th (1 set) day compression testing, and maintain the concrete cube register. One set of cubes will be reserved for later testing if required. (Doc. No.- PC/LAB/CR/01/22).
16. Upon attaining the required stripping strength, form works/side shutters are removed.
17. Elements are marked with their identification number and erection marks as given in the drawings and removed from the mound.
18. Prior to transferring the element to the stockyard, the precast elements will be checked by the Quality inspector, post-Pour check. (Doc. No.:- PC/RFI/POSP/01/22)
19. Elements will be transferred to the stock yard using trolley/overhead cranes. Lifting and stacking arrangements will be in accordance with the standard method and based on the recommendations of the structural designer.
20. The Precast element will have to be water cured for a minimum of 3 days.
21. Any surface imperfections and blemishes to the units, such as those outlined in PCI MNL 117-77 will be repaired and finished to the required standard using approved proprietary repair materials. (Doc. No.:- PC/MS/REP/01/22).

22. Prior to delivery of each unit, the Delivery Foreman raised the inspection request to verify the Pre-delivery inspection. (Doc. No.:- PC/RFI/PRED/01/22)
23. Pre-delivery check is carried out by the QC Department in detail to ensure conformity (Doc. No.: PC/PRED/NPS/01/22)

| Sl. No | Activity | Frequency & Inspection | Inspection Form Document No. | Remarks |
|---|---|---|---|---|
| 1 | Preparing a reinforcement cage | Every Element | | |
| 2 | Raises a Request for Reinforcement check | Every Element | PC/RFI/REIN/01/22 | |
| 3 | Reinforcement Inspections | Every Element | IMS/PC/QAQC/REIN/001 | |
| 4 | Bed Cleaning | Every Element | | |
| 5 | Application of Form Release agent | Every Element | | |
| 6 | Placing of Reinforcements | Every Element | | |
| 7 | Inserting all MEP, Connections & Inserts | Every Element | | |
| 8 | Raise Request for Pre-pour & stressing check | Every Element | PC/RFI/PREP/01/22 | |
| 9 | Checking of Stressing and Elongation | Every Element | PC/ELON/PS/01/22 | |
| 10 | Pre-Pour Check | Every Element | PC/PREP/PS/01/22 | |
| 11 | Concreting and Initial Curing & Stripping Strength gaining - (Cube Register) | Every Element | PC/LAB/CR/01/22 | |
| 12 | De-tensioning, Strand Cutting & Zinc coating at visible strands | Every Element | | |
| 13 | Post-Pour check | Every Element | PC/POSP/01/22 | |
| 14 | Stacking at Stock-Yard | Every Element | | |
| 15 | Curing and Final Strength gaining - (Cube Register) | Every Element | PC/LAB/CR/01/22 | |
| 16 | Raise a Request for Pre-delivery check | Every Element | PC/RFI/PRED/01/22 | |
| 17 | Pre-Delivery Check | Every Element | PC/PRED/PS/01/22 | |
| 18 | Shipping | Every Element | | |

1. Pre-Stressed beams will be produced in custom made moulds set up on permanently installed pre-stressing beds.
2. All materials to be incorporated into this work shall be conforming to the relevant India Standards.
3. Mould side forms/shutters are set to the required width on the bed, and the end shutters are fitted to suit the length of the unit being cast in accordance with the latest revision approved shop drawings. The number of beams that can be cast in one bed at a time is dependent upon the lengths and strand pattern of the units.
4. After fabrication and set-up, the moulds are checked by the in-house QC Inspector for any obvious defects.
5. Formers for any service openings or electrical conduit boxes are marked and fixed In-place on the bed after they have been liaised and coordinated with the final approved MEP drawings.
6. Reinforcement for the precast element is made as finished units from the in-house cut, bend and fix facility. Upon completion of fabrication of the reinforcement cage, an Inspection Request is raised to the QC department to confirm compliance with the latest reinforcement drawing. (Doc. No.:- PC/RFI/REIN/01/22).
7. Reinforcement will be approved by the authorized quality inspectors with a Pre-pour Checklist and then shift to the production yard. (Doc. No. :- PC/PREP/NPS/01/22)
8. Moulds are thoroughly cleaned; approved form release agent shall then be applied evenly to the mould surfaces without the reinforcement assembly.
9. Reinforcement is placed in the mould supported on spacers to give the required concrete cover.
10. Pre-stressing strands are positioned and fitted in accordance with the required number and pattern shown on the approved shop drawings.
11. The strands are extended along the full length of the bed through a stressing steel beam and secured by wedges and anchor barrels at the jacking end, and by grips at the dead ends.
12. Stressing of strands takes place against the abutment fixed at either end of the bed.
13. Raise the Pre-pour & Stressing Inspection request after all the works have been completed. (Doc. No. :- C/RFI/PREP/01/22)
14. Forces applied to the strands are controlled by the calibrated pressure gauge of the jack. On completion of the stressing, a physical check on the resultant elongation of the strand is measured and recorded. Records of stressing operations are maintained in QC office.
15. Elongation of the strand shall be within ±5% of the calculated elongation. In the event when elongation exceeds the tolerance consent shall be taken from the structural engineer to proceed further.
16. Stressing is carried out using the Stressing will be verified & approved as per the actual design calculations with Stressing checklist. (Doc. No. PC/ELON/PS/01/22)
17. Pre-pour check will be carried out by the quality inspector and recorded (Doc. No.: PC/PREP/PS/01/22

18. A concrete order shall be raised by the Production Supervisor and vetted by the QC to the batching plant indicating the approved mix code and quantity required. (Doc. No. :- PC/CRS/01/22)
19. The concrete will be produced in the in-house batching plants.
20. Concrete is placed to the moulds using a skip hoisted by an overhead crane. Compaction/Consolidation is carried out using table and poker vibrators. No vibrators are to be used when self-compacting concrete is used. Once placing and finishing is completed the entire mould shall be covered
21. Concrete is sampled at a frequency as stipulated by the project specification. A minimum of 1 set of cubes cured in similar conditions with the elements shall be made to assess the strength at de-tensioning/stripping time in addition to these 3 sets of standard cubes for 7th (1 set) and 28th (1 set) day compression testing and maintain the concrete cube register. One set of cubes will be reserved for later testing if required. (Doc. No.- PC/LAB/CR/01/22).
22. Upon attaining the required de-tensioning strength, formworks/side shutters are removed and the tension in the strand will be released by cutting the strand in a pre-defined sequence.
23. The exposed area of the strand on the end of the beams is coated with zinc-based paint to protect it from rusting.
24. Elements are marked with their identification number and erection marks as given in the drawings and they are then removed from the moulds and transferred to the stacking area using the overhead cranes/trolley. Lifting and stacking arrangements will be in accordance with the standard method and based on the recommendations of the structural designer.
25. Prior to transferring to the stock yard the precast elements will be checked by the Quality inspector for compliance to the latest approved shop drawing. (Doc. No. :- PC/RFI/POSP/01/22)
26. The beams will have to be water cured for a minimum of 3 days.
27. Any surface imperfections and blemishes to the units, such as those outlined in PCI MNL 117-77 will be repaired and finished to the required standard using approved proprietary repair materials. (Doc. No.:- PC/MS/REP/01/22).
28. Prior to delivery of each unit, Delivery Forman raised the inspection request to verify the Pre-delivery inspection. (Doc. No.:- PC/RFI/PRED/01/22)
29. Pre-delivery check is inspected by the QC Department in detail to ensure standard conformity with respect to; Structural Integrity, Dimensions, Twist and plane-ness, Locations of cast-in items, Aesthetics/Surface appearance, and production shop drawings, etc. before they will be delivered to their respective sites. (Doc. No.:- PC/PRED/NPS/01/22).

## METHOD STATEMENT FOR CURING OF PRECAST & PRE-STRESSED ELEMENT

## INSPECTION TEST PLAN BASED ON CONCRETE CURING STAGES

| Location | Element Type | Initial Curing | Post Stripping | Responsible person (Production) | Verified By |
|---|---|---|---|---|---|
| Hall 2 | **Wall Panels & Stair Cases** | Spray water on the finished surface immediately after final finishing using a knap sack sprayer. Cover the exposed area with air tight polythene sheet. Keep spraying water inside enclosure every 2 hours. | Wet hessian on 5 sides of the wall. Hessian to be kept wet for three days, | Production Engineer | QC Engineer |
| Hall 2 | **Solid Slabs** | Water spraying Shall start immediately after roughening of the surface. Cover the exposed area with air tight polythene sheet. Keep spraying water inside enclosure every 2 hours. | Wet hessian on 5 sides of the slab for a minimum of 3 days. | Production Engineer | QC Engineer |
| Hall 2 | **Trenches** | Finished surface shall be sprayed with water using a knap sack sprayer. Cover it with wet hessian. | All exposed area to be covered with wet hessian after stripping for 3 days. | Production Engineer | QC Engineer |

| | | | | | |
|---|---|---|---|---|---|
| Hall 2 | **NPS Beams** | Finished surface shall be sprayed with water using a knap sack sprayer. Cover it with wet hessian. | All exposed area to be covered with wet hessian after stripping for 3 days. | Production Engineer | QC Engineer |
| Hall 3 | **Columns** | Finished surface shall be sprayed with water using a knap sack sprayer. Cover the exposed area with air tight polythene sheet. Keep spraying water inside enclosure every 2 hours | Cover with wet hessian. After de-moulding cover all exposed area for 3 days with wet hessian | Production Engineer | QC Engineer |
| Hall 3 | **Prestressed Beams** | After roughening the top surface water shall be sprayed immediately with water. Top surface shall be wet until it is moved from the mould and during stacking. | In the stacked area beams shall be kept wet until it is 3 days old. | Production Engineer | QC Engineer |
| Stock Yard | **All Elements including HC slabs** | Not applicable | Curing with water sprinklers 30 seconds in every 10 minutes | Production Engineer | QC Engineer |
| **Note: Elements shall be delivered to site only after the curing regime mentioned above** | | | | | |

**Elements will be approved by the authorized quality inspectors with a Curing Checklist and then shift to the yard.**

**(Doc. No. :- IMS/PC/QAQC/MS/CUR/01/23 )**

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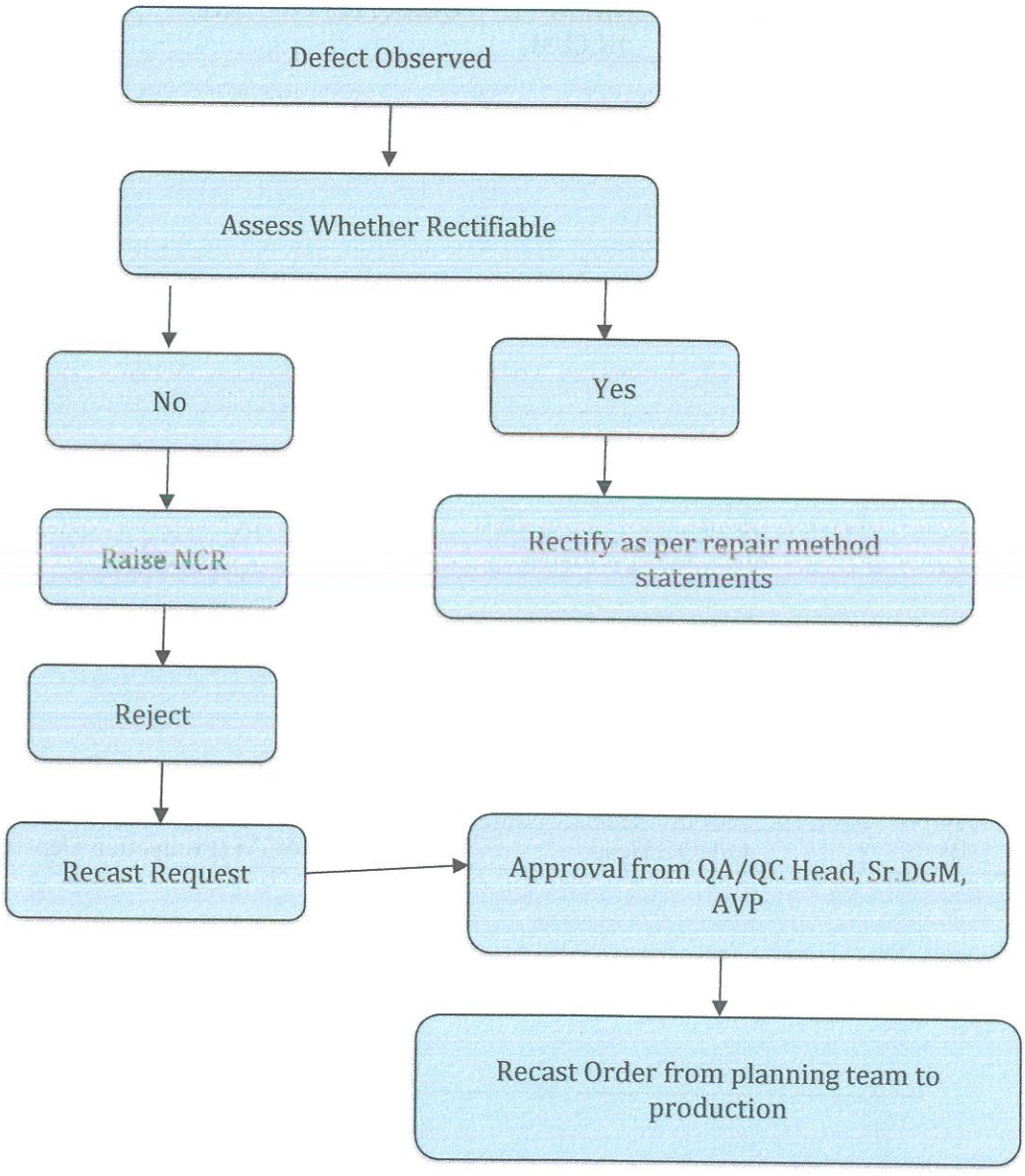
## METHOD STATEMENT FOR RECAST PROCEDURE

**APPLIES TO ALL PRECAST & PRE-STRESSED ELEMENTS THAT REQUIRE RECASTING**

This method statement applies to all precast & prestressed elements that require recasting.




**Elements shall be recast only after obtaining approval from the QA/QC Head and the AGM – Production.**
**(Doc. No. :- IMS/PC/QAQC/RP/01/24 )**

| | HYMA PRECAST PLANT | | | | | |
|---|---|---|---|---|---|---|
| | RECAST ORDER FORM | | | | | Ref No: IMS/PC/QAQC/RP/01/24 |
| **DATE & TIME** | **ELEMENT ID** | **GRADE OF CONCRETE** | **QUANTITY OF CONCRETE IN CUM** | **STEEL QUANTITY** | **REF/NCR NO.** | **REASON FOR RECAST** |
| | | | | | | |

Remarks/Comments

| Requested By | Reviewed By | Approved By | Approved By |
|---|---|---|---|
| | | QA/QC Head | AGM (Production Department) |

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