METHOD OF STATEMENT SUBMITTAL (MOS)

Project Name:	**Harrow School-Abu Dhabi**	**Project No:**	**2419 / AD353**
Client:	**Taaleem Management LLC**	**Location:**	**Abu Dhabi**
Consultant:	**Al Suweidi Engineering Consultants LLC**	**Submittal No:**	**AS-AD353-MOS-023-R0**
Contractor:	**Al Hikma Building Contracting LLC**	**Date :**	**27-Jan-26**

Submittal Description:	**METHOD OF STATEMENT & RISK ASSESSMENT FOR PRODUCTION, STORAGE & DELIVERY OF PRECAST ELEMENTS**
Discipline:	**Civil** ☒ **Architecture** ☐ **Mechanical** ☐ **Electrical** ☐ **Other** ☐

1Attachments:

1- Purpose:
2- Scope:
3- Legislation and code of practice
4- References:
5- Definitions:
6- Resources:
6.1 Materials and their approval
6.2 Subcontractor approval
6.3 Shop drawings approval
6.4 Equipment
6.5 Human Resource
7- Safety Precautions:
8- Detailed Construction Methodology
9- Construction Programme:
10- Inspection and Testing:
11- Related Forms:
12- Attachments:

Contractor (Name & Sign): **Date : 27**

Discipline Engineer:	**QA/QC:**	**Sustainability:**	**Project Manager:**
	Mr. Moustafa		**Mr. Jiries Hani**

Comments By Consultant:

A = Approved ☐ B = Approved with Comments ☑ C= Revise & Resubmit ☐ D = Rejected ☐

1. According to the project specification, the Contractor shall supervise and coordinate all phases of the structural precast concrete production process and is responsible for the complete manufacturing process. Thus, this MSRA is considered for information only.
3. The Contractor shall maintain and submit a daily precast production and planning tracker to facilitate the Engineer's random inspections and quality control verification.
4. A MIR shall be submitted upon precast element delivery at the site with all supporting documents (concrete delivery notes, MEP clearance, photos, test results, etc)
5. The release model agent is not explicit about when to be used.
6. Obtain written confirmation from the concrete supplier approving the use of Epsilone PC 410, with the dosage clearly stated as L/m³ or % of total cementitious content.

HSE comments:

1. All project staff, drivers, riggers, and lifting teams must be properly inducted, trained, and declared competent before starting any activity.
2. Submit valid third-party certificates for all lifting equipment including cranes, shackles, slings, spreader beams, and lifting accessories prior to start lifting.
3. A detailed Lifting Plan and approved Risk Assessment must be provided for all loading and offloading of precast elements.
4. Only certified riggers and banksmen shall be allowed to carry out lifting and guiding operations.
5. Precast elements must be properly secured during storage and transportation to prevent collapse, shifting, or falling.
6. Ensure stable ground conditions and safe stacking arrangements with suitable supports, spacers, and exclusion zones in the storage yard.
7. Implement strict exclusion zones during lifting, loading, and offloading activities with barriers and warning signage.
8. All delivery vehicles and trailers must be inspected and certified, and loads must be restrained using approved tie-down systems.
9. Emergency response arrangements must be clearly defined for incidents such as load collapse, vehicle accidents, or lifting failure.
10. Weather conditions (high wind, poor visibility, rain) must be monitored, and lifting operations stopped when unsafe.
13. If storing any precast wall elements on-site, only store them in third-party certified storage racks.

CLIENTS Comments:

1. UPC representative shall attend the pre start meeting arranged by the Main Contractor to formally review and confirm full compliance with all safety requirements, controls, procedures, and responsibilities prior to commencement of any precast works.

Senior Engineer (Name & Sign): Eng. Ali Nazir / Eng. Hussam 02/06/2026

Resident Engineer/PM (Name & Sign) Mohammad Al Kubba **Date:** 02/06/2026

AL SUWEDI
السويدي للاستشارات الهندسية ذ.م.م
AL SUWEIDI ENGINEERING CONSULTANTS L.L.C.
APPROVED AS NOTED

United Precast Concrete

August 16th, 2025

Ref: UPC/PM/ISD/SNI/251012-4384B

M/s. Al Hikma Building Cont. LLC.
P. O. Box: 86609
Dubai, U.A.E.

Tel: 04-236 4242

Fax: 04-236 4141

Attn: Mr. Jan Kuhn – Project Manager (Mob: 050 4061077)
Email: jan.kuhn@hbc.ae,

Proj: Proposed Precast Concrete Elements for Abu Dhabi Harrow School on plot no. P13 at Al Saadiyat Island, Abu Dhabi – UAE.

Subj: MSRA for Production, Storage & Delivery of Precast Elements – Rev. 00

Dear Sir,

With reference to the above mentioned project and subject, please find enclosed herewith the Method Statement and Risk Assessment for Production, Storage & Delivery of Precast Concrete Elements – Rev. 00 (Ref.: UPC/251012/MS-01).

This is for your information, review and approval.

Thanking you and assuring you of our best intention at all times.

Yours faithfully,
for ***UNITED PRECAST CONCRETE DUBAI L.L.C.***

Samaan Afranji
Project Manager
(Mob: 050 899 9361 or e-mail: sni@upcdubai.com)

CC: BGM/ISD/SCJ/LMR/SSH

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Harrow School-Abu Dhabi

REVISION RECORD

1. This cover page is a record of all revisions of the document identified above by number and title.
2. UPC has the full right to modify, amend or change Method Statement and supporting documents as required or as deemed necessary.

Rev. No.	Date	Prepared by	Signature	Reviewed by	Signature	Description of Revisions
0	14.08.2025	LMR		SCJ		For Approval



CLIENT:	CONSULTANT:	MAIN-CONTRACTOR:
TAALEEM MANAGEMENT LLC	AL SUWEIDI ENGINEERING CONSULTANTS LLC	AL HIKMA BUILDING CONTRACTING LLC

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1.0 PURPOSE

To define the method of production, storage and delivery of precast concrete elements.

2.0 SCOPE OF WORK

Production, storage and delivery of precast concrete elements. (Hollow core slab, Insulated Panels, Load Bearing Panels, Rectangular Columns, T – slabs, pre stressed beams, Precast beam, Stair Case, Non-Load Bearing Panels, circular columns, Parapet, seating unit, solid slabs & Boundary walls)

3.0 REFERENCE

Contract drawing

4.0 PERSONEL RESPONSIBLE

Prepare and update	:	QA / QC Manager (UPC)
Approval	:	Al Suweidi Engineering Consultants LLC
Implementation	:	Production Manager, Project Manager (UPC)

5.0 PROCEDURE

5.1 Production Planning

Production planning engineer prepares the daily production plan in accordance with the project schedule and site requirements.

5.2 Casting

A. Casting of Hollow core Slabs.

i. The reinforcement used in hollow core slabs is pre-stressing strands complying with ASTM A416/A416M.

ii. Prior to casting, the strands are stressed to approximately 70% of their breaking load over the full length of the casting bed.

iii. The quality control inspector ensures that the [illegible] done according to the relevant stressing sheet.

iv. The casting of hollow core slab is done with an extruder machine. The casting takes place while the machine is moving down on a long casting bed of 1.2m width.

v. While moving the machine receives a semi dry concrete and transforms in to the shape of hollow core slab.

vi. Larger opening & exposing of strands, if required (as per design) are made on the wet concrete.

vii. Immediately after casting, the slab is covered with insulation sheets for effective curing. Cover shall not be removed before slabs are ready for cutting.

viii. The slabs are left on the bed until the concrete has achieved sufficient strength for transferring the pre-stressing force.

ix. Once the concrete has achieved the required strength the slabs will be cut with a diamond tipped cutting saw as per the cutting list and removed from the bed. Slabs get watered while cutting in order to cool the cutting blade.

x. After cutting, the slabs are lifted from the bed and while suspended from the crane slabs will be inspected for cracks, wire slippage and any other irregularities

xi. Part slab cutting is made in the cutting yard.

xii. Small cut outs, core drilling etc. will be done in the cutting yard if it is specified in UPC's scope of work.

xiii. The production foreman ensures that all the slabs are marked in accordance with the cutting list before sending it for curing in the storage area.

xiv. After marking, the ends of the strands are coated with paint for protection against corrosion.

xv. The slabs will be then taken to the stockyard and stacked one above the other horizontally, separated with soft timber

B. Casting of Load Bearing Panels, Rectangular Columns, Precast beam, Stair Case, Non-Load Bearing Panels, circular columns, Parapet, seating unit, solid slabs & Boundary walls.

i. When the mould is ready for casting, the QC inspector inspects the mould against the approved mould drawing.

ii. The reinforcements are checked against the reinforcement drawing.

iii. The prepared reinforcement is placed in position.

iv. Cast-in-parts (if any, as shown in the drawing) are fixed in position ie. Lifting anchors/sockets/ropes/dowels/electrical boxes/recesses etc.

v. Concrete is poured in the mould; sufficient vibration is given using vibrators.

vi. Finish the surface with power floater and/or with hand trowel.

vii. After the surface finishing, the element will be c[illegible] thene sheet.

viii. When the concrete has achieved the minimum required strength, the element will be demoulded

ix. Element will be then marked with element number, project number and casting date and transferred to the stockyard.

x. Any final touch up required will be done during the curing period.

C. Casting of Insulated Panels.

i. When the mould is ready for casting the QC inspector inspects the mould against the approved mould drawing.

ii. The reinforcements are checked against the reinforcement drawing.

iii. The prepared reinforcement (mesh) will be placed in the mould with the stainless steel connector pins projected upwards

iv. Pour the external layer concrete to the mould (thickness as specified in the drawing) and provide sufficient vibration using table vibrators.

v. Insulation is cut into the required size and place according to the drawing and stainless steel connector pins are pushed through the insulation.

vi. Top layer reinforcement is placed on top of insulation (spacers to be used as necessary) and tied to the bottom reinforcement with stainless steel pins.

vii. Cast-in-parts (if any are available as per the drawing) are fixed in position ie. Electric boxes, recesses etc.

viii. QC inspector checks the reinforcements and cast-in-parts according to the drawing.

ix. Top layer concrete is poured on top of the insulation and the reinforcement sufficient vibration is provided using poker vibrators.

x. Finish the top concrete surface using power floater.

xi. After the surface finishing, the element will be covered with polythene sheet.

xii. When the concrete has achieved the minimum required strength, sides are removed, brackets are fixed and the table is tilted.

xiii. The element is then placed in the stockyard curing area with proper support, covered with polythene sheet and water cured for 5 days including the day of casting and delivery. Any final finishing required will be done during the curing period.

xiv. Quality Control Inspector performs the final inspection, verifies the geometry, cast-in-parts, finishing of the element etc. and upon satisfactory compliance, signs on the element for release.

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D. Casting of T – slabs, pre stressed beams.

i. Beams and slabs are produced in steel moulds the base is made in full length of the casting bed and the side shuttering is moved down along the line of casting of each individual beam & Slab.

ii. The mould will be built according to the approved shop drawing.

iii. Prior to casting, the strands are stressed to approximately 70% of its breaking load over the full length of the casting bed.

iv. The Quality control inspector ensures that the stressing is done according to the relevant stressing sheet.

v. Prepare the reinforcement according to the reinforcement drawing.

vi. Place the prepared reinforcement in the mould.

vii. The quality control inspector inspects the mould and reinforcement.

viii. Prepare the approved concrete mix and transported to the place of casting.

ix. Concrete is poured in the mould; sufficient vibration is given using vibrators.

x. The surface finishing will be done as per the drawing.

xi. After casting, the elements will be covered with polythene sheet.

xii. The side moulds will be removed after the concrete is set, and fixed to the adjacent beam position (if any) and it will be cast in the same way until all beams on the same bed are cast.

xiii. Pre-stressing strands will be cut only after the concrete on the last cast beam has attained the required strength, which enables the concrete to take the pre-stressing force.

xiv. Elements will be marked with element number, and casting date; then transferred to the stockyard.

xv. After de-shuttering, the beams and slabs are water cured for 50 days including the day of casting and delivery.

6. INSPECTION & TESTING

6.1 RECEIVING INSPECTION OF RAW MATERIALS

The receiving inspection of all the raw materials used for the production of precast concrete elements is as follows.

Cement: Cement is received with test certificate and delivery order. Cement will be visually inspected for color and quantity. Once in six months, the cement will be tested in an independent laboratory for physical and chemical parameters.

Aggregates: All the aggregates are received with delivery note. Visual checks will be conducted for each size of aggregates on receipt.

- Once in a week sieve analysis (in-house) will be carried out on all aggregates.
- Once in four months, the following tests will be carried out through an independent material testing laboratory
  Grading test including "passing 75 microns",
  Sulphate content.
  Chloride content.
  Clay lumps
  Friable Particles
  Specific gravity
  Water absorption
  Bulk Density
  Flakiness index
  Elongation index
  Aggregate crushing value.
  $MgSO_4$ Soundness
  Light Weight pieces
  Potential Alkali Reactivity
  Organic Impurities

Water: The water used to make concrete will be confirming to BS 3148. The chemical analysis of water sample will be done through an independent laboratory once in six months.

Reinforcements: The reinforcements used in precast concrete elements will be confirming to the requirements of BS 4449. Reinforcements will be received with delivery note. Visual inspection for rust, possible damages, verification of mill certificate etc. will be done on receipt.

Strands: The steel strands, used for pre-stressing, are received with delivery note and mill certificates.

GGBS: Every delivery of GGBS is received with delivery note and manufacturer's test certificate

Micro silica: Every delivery of micro silica is received with delivery note and manufacturer's test certificate.

6.2 INSPECTION/TEST OF CONCRETE MIXES AND CUBES

6.2.1 Hollow core Slabs

For each concrete mix, one test sample will be taken per day for every 50m^3 of concrete consumption or part of it. One test sample consists of 3 cubes. One cube will be tested for 7 day's and the other 2 cubes will be tested for 28 day's compressive strength in UPC Laboratory as per BS 1881 Part 116. The test results will be recorded in the form ***8.10.5.1 Concrete test data.*** Two extra cubes will be made to check the demoulding strength for each casting bed to decide whether the concrete has developed sufficient strength for transferring the pre-stressing force.

Since the w/c ratio of hollow core slab mix is very less, the following procedure shall be applied to make the cubes: - Collect the fresh concrete sample from the delivery bucket/extruder machine to a wheelbarrow and add a little plasticizer – Epsilone PC 410 (approximately 100ml in 60kg of fresh concrete – however this shall be within the maximum limits specified in the manufacturer's data sheet) into it and mix it in a small mixer for about 2 minutes. Since the concrete is semi-dry, the expected slump is zero.

6.2.2 Precast concrete elements other than hollow core slabs.

The sampling of fresh concrete is as follows.

- 1 test sample per day for each design mix, for concrete consumption up to 50m^3.
- 2 test samples per day for each design mix, for concrete consumption more than 50m^3.

Slump test will be done on every sampling of fresh concrete.

One test sample consists of 3 cubes. One cube will be tested for 7 day's and the other 2 cubes will be tested for 28 day's compressive strength in UPC Laboratory as per BS 1881 Part 116. The test results will be recorded in the form ***8.10.5.1 Concrete Test Data.***

6.3 INSPECTION BEFORE CASTING

6.3.1 Pre-stressing of strands

The strands used for the pre-stressing of hollow core slabs, pre stressed beam, pre stressed slab and T Slab will be comply with ASTM standard "ASTM A416/A416M."

Prior to casting, the strands are stressed to approximately 70% (as shown in the stressing sheet) of their breaking load over the full length of the casting bed. Strand guides in the extruder machine secure the exact positions of the strands for hollow core slabs.

The strand pattern for each bed is inspected against the specif[illegible]cutting list and the observations are recorded in forms ***8.4.5.1 Pre-stressing and casting of be[illegible].1.x Pre-stressing and Casting of HCS*** (**x** is the identity of individual stressing sheet)

6.3.2 Inspection of mould fabrication

As a daily routine the Quality Controller checks the casting planning for moulds to be inspected. Inspection will be carried out when mould fabrication is finished. The observations of the inspections are registered in **8.10.7.7 Pre-pour inspection check sheet – precast elements**

6.3.3 Inspection of reinforcement and mould ready for casting

All reinforcements and moulds shall be inspected. All the observations will be registered in **8.10.7.7 Pre-pour inspection check sheet – precast elements**

6.4 INSPECTION DURING CASTING

6.4.1 Hollow core slabs

The Production Foreman supervises the casting of the hollow core slabs and checks the following.

- The concrete being used is acceptable (if the concrete is too dry, it will cause drag marks and if it is too wet, it will cause excessive sagging).
- Cast concrete is covered with insulation sheets for effective curing from the time of casting.

The Production Foreman records the starting and finishing time of casting on form ***D.150.5.1.x Prestressing and casting of HCS. (Sample form)***

6.4.2 Precast elements other than Hollow core.

The Production Foreman monitors the casting to ensure proper placing, distribution and vibration. The slump and consistency of the concrete shall be suitable for the specific precast element. Laboratory Foreman does the sampling and testing.

6.5 FINAL INSPECTION AFTER CASTING

6.5.1 Hollow core slabs

After casting, the slabs will be left covered on the casting bed until the concrete has developed sufficient strength (as specified in relevant stressing form *D.150.5.1.x*) for transferring the prestressing forces to concrete. The extra cube cast will be tested in UPC Laboratory to ensure that the concrete has achieved the minimum required strength for cutting the strands.

There after the hollow core slabs will be cut with a diamond tipped cutting saw as per the cutting list & drawing and will be removed from the bed for further processing. After cutting, slabs will be marked in accordance with the cutting list and the production drawings i.e.:

- Project code & element number
- Bed number on which the element is cast
- Date of casting

After marking, the ends of the strands are coated with paint for pr[illegible] corrosion. Before taking the slabs to the storage yard for curing, the Quality Control Inspector inspects

The Quality Control Inspector inspects the slabs as specified in form ***8.10.8.1 Post pour inspection –HCS.*** After inspection, slabs that are conforming to all the requirements will be marked with green paint. At the time of loading, visual checks will be done and recorded in the form ***8.10.9.5 Final inspection before delivery –HCS*** to ensure that only crack free slabs are delivered.

6.5.2 Precast elements other than Hollow core slabs.

Final inspection is carried out on all elements. Quality Controller is responsible for the final inspection before the precast components are released for delivery.

Inspection results will be registered in ***8.10.9.9 Final inspection after casting of precast elements.*** When the Quality Controller is satisfied with the element, he marks the precast element "OK" and signs on it.

7.0 CURING.

7.1 Hollow core slabs

i. Immediately after casting, the hollow core slabs are covered with an insulation sheet for effective curing.

ii. The slabs will be placed in stock area in stacks, covered with polythene sheet.

iii. The hollow core slabs are water cured for 5 days including the day of casting and delivery.

7.2 Precast elements other than Hollow core slabs.

i. After casting and surface finishing, the elements will be covered with polythene sheet.

ii. After the elements are stacked in the stockyard it will be covered with polythene sheet.

iii. The elements will be water cured for 5 days including the day of casting and delivery.

8.0 LOADING AND DELIVERY

Once the curing period is completed, according to the loading sequence and as per the site requirements the elements will be loaded. (panels on 'A' frame trailers) & Hollow core slab, Rectangular Columns, T – slabs, pre stressed beams, Precast beam, Stair Case, circular columns, Parapet, seating unit & solid slabs walls on flat bed trailers with overhead cranes using certified chain slings.

Wooden supports will be provided for the proper seating of the elements on the trailer. All the elements on the trailer are secured with chain slings tightened to the trailer hooks. The tightened chains coming in contact with the elements will be protected to avoid damages. The loading foreman ensures that the elements loaded are in accordance with the erection sequence and also in a safe manner. The trailer driver rechecks the load for safety conditions and follows the traffic rules and regulations.

The driver will be provided with the site route map and the delivery notes. After reaching the site, driver contacts the UPC site-in-charge. Thereafter it is the responsibility of the UPC site in-charge to take care of load for offloading. It is the responsibility of the main contractor to provide proper, safe access for the trailer to the site premises.

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9.0 ATTACHMENT

- QC Forms
- Risk Assessment

QC FORMS


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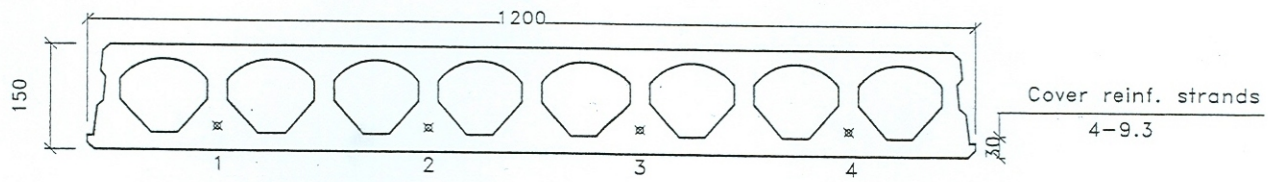
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D.150.5.1 Prestressing and Casting of HCS

Bed No:		HCS Typ:	150	Casting Date:	
Bench No:		Strand Pat:	4 x 9.3	Done by:	

Section

BAY 5



⊕ -One 7 wire strand d=12.5mm

⊠ -One 7 wire strand d=9.3mm

Prestressing Details

Strand No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Strand Dia. mm	9.3	9.3	9.3	9.3																		
Bin No.																						
Initial Prestr. KN																						
Final Prestr. KN	65	65	65																			
Elongation mm																						

SAMPLE

Limits of elongation

Strand dia.	In. prestr	Final pres.	Average el.	Min elong.	Max elong.
12.5			0	0	0
12.5			0	0	0
9.3		65	934	906	1004
9.3			0	0	0
9.3			0	0	0
9.3			0	0	0
			0	0	0

Strand identification

Bin No.	Origin	Coil number

De-stressing details

Casting			Strand Cutting/De-stressing		Concrete Cube Strength (N/mm2)*		
Date	Time		Date	Time	1st Cube	2nd Cube	Requirement
	Start						40
	Finish						

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*Note: If the 1st Cube achieves the required strength, ignore the 2nd cube test

Remarks:

Checked:

8 July 2009

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8.4.5.1 PRESTRESSING AND CASTING OF BEAMS

Project Name:		Project No.	
Bed No:	Strand Pattern:	Done by:	
Bay (L = m)	Stressing Date:	Beam ID	Casting Date
Section (Refer the beam drawings for the detailed section and dimensions):			

Control of Strand Elongation by prestressing (Random 10 numbers can be selected)

Strand No:										
Strand Dia.(mm):										
Coil Bin No										
Initial prestress kN										
Final Prestress kN										
Elongation										

Note: Elongation will be checked for all strands, recording will be done for any 10 numbers randomly selected

Limits of elongation

Strand diameter (mm)	Initial Prestress (kN)	Final Prestress (kN)	Average Elongation (mm)	Min. Elongation (mm)	Max. Elongation (mm)

Strand Identification

Coil Bin no.	Origin / Source of strands	Coil Number
1		
2		
5		
6		

Control of Concrete Strength for Transferring (Last beam on the bed)

Casting date and time	Strength Transf. Date / Time	Cube Strength (N/mm2)	Min. Requirement (N/mm2)
			45

Remarks:

Checked By: **Date:**

SAMPLE

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8.10.7.7 PRE-POUR INSPECTION CHECK SHEET- PRECAST ELEMENTS

JOB No :						DATE :
DESCRIPTION	ELEMENTS					REMARKS
	1	2	3	4	5	
ELEMENT REFERENCE						
FABRICATION DRAWING REF.						

1 MOULD CHECK						
* LENGTH						
* WIDTH						
* DIAGONAL						
* THICKNESS						
DEFLECTION						
STRAIGHTNESS						
EDGES						
CHAMPHERS						
WATER TIGHTNESS						
CUT OUTS						
MOULD RELEASE AGENT						
2 STEEL REINFORCEMENT CHECKING						
BARS SIZES&LENGHTS						
BAR SPACINGS						
BENDS						
LAP SPLICES						
NOS.						
GEOMETRY						
3 CAST IN FITTINGS						
SOCKETS						
DOWEL HOLES / GROUT TUBES						
SLEEVES						
LIFTINGS						
BOLTS / THREADED BARS						
HALFEN CHANNEL						
PLATES						
CORBELS						
ELECTRIC BOX						
CONDUITS						
GROOVES						
COVERS						
PRE POUR CHECK (OK / NOT OK)						
4 CONCRETING CHECKS						
MIX NO.						
VIBRATION						
SURFACE TROWELING						
CHECKED RESULTS (OK / NOT OK)						

SAMPLE

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For UPC

NAME: : .....

SIGNATURE : .....

DATE: : .....

* write measured dimension
Put '√ ' mark on item verified & found 'OK'
Item Not Applicable shall be marked as "NA"

Tolerance as per PCI MNL-135-00

HBC

8.10.5.1 CONCRETE TEST DATA

FACTORY	DXB	AUH

Casting date:		Cube crushing date:					Cube crushing date:				
		7 DAYS					28 DAYS				
Test no.	Mix no.	Cube weight (g)	Volume (cc)	Density (kg/m³)	Max. load (kN)	Comp. strength (N/mm²)	Cube weight (g)	Volume (cc)	Density (kg/m³)	Max. load (kN)	Comp. strength (N/mm²)

Remarks:	Tested by:		Tested by:	
	Verified by:		Verified by:	

SAMPLE

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09.02.2022

8.10.9.9 FINAL INSPECTION AFTER CASTING OF PRECAST ELEMENTS

DESCRIPTION	ELEMENTS					REMARKS
	1	2	3	4	5	
ELEMENT REFERENCE						
FABRICATION DRAWING REF.						
DATE OF INSPECTION						
DATE OF CASTING						
1 DEMOULDING						
NO DAMAGE						
2 STORAGE / CURING						
ELEMENT "ID" WRITTEN CORRECTLY						
STACKING DONE PROPERLY						
COVERED WITH HESSAIN / POLYTHENE						
WATER CURING DONE CORRECTLY						
3 DIAMENSIONAL CHECK						
LENGTH						
WIDTH						
HEIGHT/ THICKNESS						
CUT OUT/ OPENING SIZE & LOCATION						
FLATNESS						
STRAIGHTNESS						
4 SURFACE FINISH						
NO HONEY COMB						
5 INSERTS-LIFTINGS / EMBEDED ITEMS						
LIFTING						
ELECTRICAL BOXES						
DOWEL BARS						
DOWEL HOLES / GROUT TUBES						
6 FINAL INSPECTION						
ALL INSPECTION CONDUCTED						

SAMPLE

شركة يونايتد بريكاست كونكريت - ديبي (ذ.م.م)
P.O.Box 52900 United Precast Concrete Tel:04-3474440
UNITED PRECAST CONCRETE-DUBAI (L.L.C.)

For UPC

NAME: : .....

SIGNATURE : .....

DATE: : .....

Tolerance as per PCI MNL-135-00

Put '√ ' mark on item verified & found 'OK'

United Precast Concrete

8.10.8.1 Q.C. FINAL INSPECTION REPORT - HOLLOWCORE PRODUCTION

Casting Date: 06-Jan-2021

UPC-204
06-Jan-2021 9:03:52AM
QCASST

Program : 10003953 Project No. 1911122 - Al Raha Intl.School,PH-2 at AUH

Sl No	Er.Section	Slab No	Code	Er.Seq	Length	Width	Thick	CutOut / MEP	Part Slab	Core Filling	Finish	Hacking	Strands				Rev	Remarks
													Cover	Size	Number	Slippage		
1	BD-020301	2203	QSL	70	3,364	1,197	200	*									0	
2	BD-020301	2204	QSL	71	3,207	1,197	200	*									0	
3	BD-020301	2205	QSL	72	3,049	1,197	200	*									0	
4	BD-020301	2206	QSL	73	2,891	1,197	200	*									0	
5	BD-020301	2207	QSL	74	2,835	1,197	200	*									0	
6	BD-020301	2208	QSL	75	2,677	870	200	*									0	
7	BD-020301	2223	QSL	96	5,991	1,197	200	*									0	
8	BD-020301	2224	QSL	97	5,991	1,197	200	*									0	
9	BD-020301	2225	QSL	98	5,991	840	200	*									0	
10	BD-020301	2226	QSL	99	5,991	1,197	200	*									0	
11	BD-020301	2227	QSL	100	5,991	1,197	200	*									0	
12	BE-030201	3141	QRC	85	5,991	880	200	*									0	
13	BE-030201	3142	QRC	86	5,991	1,197	200	*									0	
14	BE-030301	3235	QSO	71	5,991	1,197	200	*									0	
15	BE-030301	3236	QSO	72	5,991	1,197	200	*									0	
16	BE-030301	3237	QSO	73	5,991	840	200	*									0	
17	BE-030301	3238	QSO	74	5,991	1,197	200	*									0	
18	BE-030301	3239	QSO	75	5,991	1,197	200	*									0	
19	BF-040201	4261	QRF	220	3,615	1,197	200										0	
20	BF-040201	4261	QRF	219	3,615	1,197	200										0	
21	BF-040201	4263	QRF	218	3,615	1,197	200	*									0	
22	BF-040201	4264	QRF	221	3,615	900	200										0	
23	BG-050101	5039	QQI	121	5,991	1,197	200	*									0	

SAMPLE

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P.O.Box 52900 Tel:04-3474440
UNITED PRECAST CONCRETE DUBAI (L.L.C.)

Checked By :
Q.C inspector : _____

Verified By :
Q.C Engineer : _____

United Precast Concrete

8.10.9.5 FINAL INSPECTION BEFORE DELIVERY - HCS

Factory : 204

Delivery Order No. 229262	Delivery Date : 06-Jan-2021	Project No. 202040 - HCS FOR MOSQUE-JAMA DUBAI - U.A.E

Sl No	Slab No.	No of pcs	Code	Er.Seq	Casting Date	Surface Finish	Bottom Chamfer Finishing / Straighten	Shear Key Straight	Opening Size & Shape	Chipping Edges / Broken Edges	Cracks	Curing	Remarks
1	202040-1001	1	QRV	1	Dec 21								
2	202040-1031	1	QRV	32	Dec 22								
3	202040-1032	1	QRV	33	Dec 22								
4	202040-1033	1	QRV	34	Dec 22								
5	202040-1034	1	QRV	35	Dec 22								
6	202040-1035	1	QRV	36	Dec 22								
7	202040-1036	1	QRV	37	Dec 22								
8	202040-1037	1	QRV	38	Dec 22								
9	202040-1038	1	QRV	39	Dec 22								
10	202040-1039	1	QRV	40	Dec 23								
11	202040-1040	1	QRV	41	Dec 22								
12	202040-1041	1	QRV	42	Dec 22								

SAMPLE



Checked By :

Q.C inspector : _____

Verified By :

Q.C Engineer : _____

RISK ASSESSMENT





TASK DESCRIPTION: PRODUCTION, STORAGE AND DELIVERY OF PRECAST CONCRETE ELEMENTS	**RA No**	UPC/PROD/251012/RA-01
TASK SITE LOCATION: 251012- LGF+G+2+R Abu Dhabi Harrow School, Plot no. P13 at Saadiyat Island, AUH - UAE	**RA Rev No.**	00
PERSONAL PROTECTIVE EQUIPMENT REQUIRED: Hard Hat, Dust Mask, Ear Plug, Coverall, Hand Gloves, Safety Harness & Safety Shoe etc.	**DATE**	14-08-2025

RISK/LOSS POTENTIAL ASSESSMENT MATRIX

SEVERITY of occurrence	PROBABILITY OF RECURRANCE					
	Severity Rating	Almost Certain 1 or more times a week	Very Likely Once per month	Likely Once per year	Unlikely Once every 10 years	Very Unlikely Once in a lifetime/ 100 years
Catastrophic Multiple Fatalities / Environmental release with detrimental effects requiring external emergency services	5	High 25	High 20	High 15	Med 10	Low 5
Major Single Fatality/Multiple LTI's/ Major Illness or Injury, disability	4	High 20	High 16	High 12	Med 8	Low 4
Moderate Single LTI/ Serious but non-permanent injury or ill health, Work days lost	3	High 15	High 12	Med 9	Med 6	Low 3
Minor Medical attention needed. No work restrictions	2	Med 10	Med 8	Med 6	Low 4	Low 2
Negligible Minor cuts & bruises or sickness	1	Low 5	Low 4	Low 3	Low 2	Low 1
Probability Rating		5	4	3	2	1

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S. No	Task Step	Hazard Details	Consequence Details	P	S	Risk Rank	Current Control Measures	Legal Req.	P	S	Risk Rank	Additional Control Measures
1.	**Initial arrangements of works**	• Lack of information, instruction and trainings of the employees involved in task. • Lack of supervision for the task. • Noncompliance with permit to work system and Standard Operating Procedures • Non adherence to general safety rules and personnel protective equipment's. (PPEs)	▪ Overloading may lead to toppling of equipment Permanent disability ▪ Permanent partial disability ▪ Work interruption by the relevant authority in case of incident ▪ Financial loss, compensation fines, legal actions, financial penalty by local authority ▪ Damaged to assets	2	3	6	▪ HSE induction needs to be attended by all the new workers and staff involved in the factory works prior start of the activity. ▪ Pre job safety tool box meeting and Daily activity Briefing with operatives shall be ensured prior the task by respective foreman. ▪ System shall be implemented and ensured for the task on daily basis ▪ Warning and hazard signs shall be displayed in the area to warn others in the area. ▪ Required PPEs shall be provided to operatives involves in the task. I.e., Hand gloves, eye protection, hard hat, steel toe safety shoes etc. ▪ Ensure safe access and egress to the work location. ▪ Ensure the segregation of pedestrian and moving plants in the working area. ▪ Ensure that all the plant and equipment's are 3rd party certified by EIAC / ENAS approved agencies. ▪ Ensure supervision for the task to be execute in safe manner. ▪ Implement and comply with all safety procedures, safety measures related to the nature of works that are being carried out in accordance to Factory HSE requirements. ▪ Ensure the provision of right resources for the task. Such as competent operators, certified lifting gears and accessories, Safe power tools and equipment's etc. ▪ assessment & Method Statement briefing, mply with the requirements of Dubai municipality requirements.	ADOSH SF COP 2.0,11.0, 14.0, 17.0, 21.0, 22.0, 25.0, 33.0, 35.0, 42.0, 44.0,	1	3	3	▪ Inspections and daily checklist ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks
2.	**Vehicle movement (Inside factory)**	• Hitting existing facilities and assets • Vehicle movements • Hit by Materials • Fall of Equipment & Materials from Transport • Slip, Trip & Fall. • Machine breakdown	▪ Pedestrian conflict with adjacent live traffic routes. ▪ Fatality ▪ Personnel injury ▪ Asset damage ▪ Environment Impact ▪ Ill-health ▪ Traffic incident due to incorrect traffic	4	4	16	▪ Ensure that sufficient access provided for the movement/ maneuvering of the trailer. ▪ Use safe site access provided by the Company. ▪ Follow site speed limits. ▪ Follow the factory traffic rules and regulations. ▪ Do not maneuver the trailer close to the excavation. ▪ Driver must not use the mobile / ear phone while operating vehicle. ▪ Trailers to bring close to the loading and offloading area, surrounding of the trailers to be cordoned off. ▪ Banks man shall guide the trailer to the right position. ▪ Trailer driver to be alert and following instructions while reversing.	ADOSH SF COP 25.0, 33.1, 44.0,	1	4	4	▪ Inspections and daily checklist ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks

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		• Hydraulic fluid spill • Unsecured elements • Improper access & egress • Moving beside the excavations • Abrupt turns	management. ▪ Uncontrolled entry by unauthorized personnel into work areas. ▪ Objects falling from site plant onto public and site roads.				▪ Ensure the routes the site is clear of obstacles for easy access and egress of vehicle / movement / maneuvering. ▪ Prior to leaving the vehicle, the driver shall ensure that the engine has been switched off and hand brake applied. ▪ The driver shall wear all mandatory PPEs. ▪ Trailer drivers & operators shall accompany from main entrance by the UPC concerned person at the final stage. ▪ Reverse Alarm of the vehicles (trailers, site transportation vehicles) shall have audible alarms and the back lights must be on. ▪ Tool Box Talk and Daily Activity Briefing have to be conducted to all employees at site ▪ Banks man shall be provided while reversing or parking the trailer ▪ Do not park the trailer at the access. Park in designated parking area provided at site. ▪ All the drivers shall be clearly instructed regarding the site routes and parking areas inside the site during his induction. ▪ Equipment to be well maintained and inspected frequently as per manufacturer's recommendations ▪ All supervision to monitor operation					
3.	**Manual Handling**	▪ Adopting unsafe posture for the work which could result in back injury or muscular pains. ▪ Untidy or uneven ground condition which could result in slip trips and falls. ▪ Lack of right resources for handling of heavy materials i.e. manual pallet trucks, wheel barrows, plants etc. ▪ Unsafe stacking	▪ Pinch points during stacking of materials which could result in hands and finger injuries. • Crush Injuries • Muscular Skeletal disorder ▪ Lower/ upper back pain	3	3	9	▪ Consider the volume and shape of the objects while deciding the number of persons to be used ▪ Use kinetic method of material handling (feet apart, straight back, chin in fan grip and hold weight close to body). Repeat the same procured while unloading. ▪ Avoid repeated bending and resting of the back ▪ Persons shall not be allowed to lift more than 25 kg. ▪ Wherever possible give preference to Mechanical lifting aids. ▪ Keep hand/ legs clear of the rollers while moving heavy objects using rollers, use push sticker (where ever possible) ▪ Inspect the material to be lifted for sharp corners, firmness /rigidity of the packing ▪ Keep the unloading point clear and keep packing ready they're before attempting the lifting operations ▪ Survey the root for any obstructions/ slipping hazardous. ▪ Don't carry too bulky materials which will obstruct the eye site.	ADOSH SF COP 2.0, 8.0, 14.0, 17.0	1	3	3	▪ Inspections and daily checklist ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks

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		too high, leaning loads. • Unstable stacking of materials					▪ Use handling accessories (hooks, handles, etc.) appropriately designed for handling respective materials. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot. ▪ The size and shape of the load must be considered together with any lifting points which may be available. ▪ All supervisor to monitor operation					
4.	**Lifting Activity by using Overhead Cranes –** • **Lifting and placing reinforcement bundle** • **Lifting of Mold side** • **Lifting of Reinforcement Mesh.** • **Loading and offloading of panels onto the trailer and** **Shifting of Panels and Materials inside the bay.**	▪ Not certified / competent operator / rigger is used. ▪ Entrapment of employee's body parts ▪ Use of defective lifting gears and accessories. ▪ Poor rigging practices such as not maintained the load Center of gravity, failure to stabilize the loads during lifting operation. ▪ Lack of tag lines to control the movement of load. ▪ Working under the suspend loads	▪ Hitting and collision with the plants and vehicles that may result to property damaged, serious injury or fatality ▪ Collapse of the ground ▪ Delay of work and uncontrolled activity due to inadequate supervision. ▪ Obstructions to other usual movements / services operating in the area. ▪ Vehicle collision that may result to damage of property and serious injury to the people within the vicinity	3	4	12	▪ Overhead crane shall have third party inspection certificate. ▪ 3rd Party certified riggers and lifting gears and accessories shall be ensured and used only. ▪ Lifting supervisor for the task to coordinate lifting operations shall be assigned. ▪ Pre-Job tool box talks with the lifting team shall be conducted on daily basis ▪ Risk assessment communication with the team prior the task. ▪ A Pre-Lift Check to be practiced ▪ Ensure Close supervision during the task. ▪ All operatives to wear gloves to avoid cuts, abrasions and protect from nip points. ▪ Daily check list shall be done before start the lifting activity. ▪ Ensure that all lifting gears and equipment weekly checklist and monthly inspection done by maintenance section and colour Coding shall be done. ▪ Ensure that no body is under the suspended load. ▪ If space need to be created for the webbing sling between bundles as a result of bundles moving during transport, ensure that dunnage is to be installed in a safe manner. ▪ The tie wire of the reinforcement bundle shall not be used as lifting point for hook and lift. Chain sling shall be wrapped and lifted to insert the wooden dunnage under the bundle. ▪ Ensure a visual inspection is done on the condition of the tie wire with regard to the tying and diameter (minimum 4mm) ▪ Bundle to be raised approximately 20mm more than the diameter of the dunnage to be installed. ▪ Ensure dunnage is of the right material to handle the load (Above 100 kg Steel Rod to be used). ▪ Ensure dunnage is of sufficient length (Approximately 0.5meter to protrude from the bundle being raised)	ADOSH SF COP 2.0, 8.0, 11.0, 17.0, 21.0,22.0, 23.0, 33.0, 34.0, 36.0, 37.0, 42.0, 44.0,	1	4	5	▪ Inspections and daily checklist ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks

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							▪ Once initial lift is done ensure dunnage is secured into position. Apply the same process on the other end of the bundle. ▪ Webbing sling to be wrapped around the bundle ensuring a minimum 0.5m of the bundle is extended past the lifting points. ▪ Do not use reinforcement bundle tie wire as lifting point for final lift. ▪ Apply choker hitch to lift steel bundle. ▪ Tag line shall be used to control the load. ▪ The panels shall be hooked to the lifting points and make sure the safety latch is closed prior to lift. ▪ The swing radius area shall be barricaded with relevant signage to avoid unauthorized entry. ▪ Safe working load shall never exceed. ▪ Wind speed to be monitored and all lifting activity shall be suspended if wind speed exceeds of 38 Km/h. ▪ When handling all load, a tag line shall be used to direct the load into position and prevent it spinning ▪ EIAC approved 3rd party Trained and competent riggers shall be deployed for rigging. ▪ All communication and signaling to the operators shall be performed by one competent rigger. ▪ Every signal given for the movement or stopping of a lifting appliance shall be clear and distinct and such that the person to whom it is given is able to hear or see it easily. ▪ Tag line shall be tied to all the precast elements panels, pts to control unpredictable movement while shifting					
5.	**Storage of reinforcement bars**	▪ Entrapment of body parts under steel bundle ▪ Poor Stacking methods such as not, failure to stabilize the steel bundles on the racks ▪ Stocking on uneven ground ▪ Collapse of bundle ▪ Pinch points during stacking of materials which	▪ poor storage causing increased trip, manual-handling risks ▪ spillages of goods causing environmental damage or increasing the risk of slips and trips occurring ▪ Contamination or danger caused by storing	3	4	12	▪ Ensure that the reinforcement bars kept away from the access. ▪ Ensure that steel bundle stacked with adequate dunnage. ▪ The bars shall be segregated as per the profile of the bars and stored in racks to avoid sliding of bars. ▪ Display warning signages for the lifting activities ▪ Tool Box Talk shall be given to workers. ▪ Always follow the set procedure to perform the task safely. ▪ Ensure storage of materials is stored as per method statement ▪ Ensure all materials are stored in the right and appropriate location	ADOSH SF COP 2.0, 8.0, 17.0, 21.0, 22.0, 34.0, 42.0,	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks

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		could result in hands and finger injuries. ▪ Unsafe stacking too high, leaning loads.	inappropriate materials together.									
6.	**Releasing steel bundle binding wire**	▪ Sudden Release of wire during cutting ▪ Unbinding steel bundle ▪ Failed to use right tool for the job.	Unpredictable movement of the wire during releasing.	3	3	9	▪ Ensure bundle shall be properly secured without having any loose or projected rebars out of the bundle. ▪ Employees shall take care while releasing steel bundle. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot. ▪ Follow Safe Working Procedures	ADOSH SF COP 2.0, 8.0, 17.0, 21.0, 22.0, 34.0, 42.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks
7.	**Cutting of steel into desired length – using cutting machine**	▪ Electric shock ▪ Moving tool bits ▪ Sudden movement of the tool, ▪ Hitting a hidden reinforcement and twisting. ▪ Flying particles from the tool. ▪ Flying dust. ▪ Vibration. ▪ Trailing cables hazard	▪ short circuit resulting in fire accidents ▪ exposure to live wire resulting in electric shock and burns ▪ fire or explosion where electricity could be the source of ignition in a potentially flammable or explosive atmosphere ▪ Entrapment of hands due to moving parts of the machine	4	4		▪ Workers shall be trained in the correct and safe use of power tools. ▪ User check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensue Emergency switch for the machine use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or maintenance. ▪ Tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage. ▪ Locate and ensure you are familiar with all machine operations and controls. ▪ Ensure all guards are fitted, secure and functional. Do not operate if guards are missing or faulty. Working parts shall be lubricated and free of rust and dirt. ▪ Ensure workspaces and walkways to have no slip/trip hazards are present. ▪ Be aware of other people in the area. Ensure the area is clear before using equipment. ▪ Ensure cutting table is clear of scrap and tools. Only one person may operate this machine at a time. ▪ Use correct lifting procedures when handling heavy material.	ADOSH SF COP 2.0, 8.0, 15.0, 17.0, 21.0,22.0, 36.0, 42.0,	1	4	4	▪ Leave the work area in a safe, clean and tidy state. ▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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							▪ Take care during the initial feeding of the work piece into the machine. ▪ The work piece shall always be held sufficiently far back from the edge being fed into the guillotine. ▪ Ensure fingers and limbs are clear before operating the guillotine. ▪ Hold material firmly to prevent inaccurate cutting due to creep. ▪ When cutting, ensure your feet are positioned away from the lever to avoid unintentional contact with the foot operated lever. ▪ Never use equipment with frayed cords, damaged insulation or broken plugs. ▪ Cutting machine shall be properly grounded or of the type of double insulation. ▪ Ensure tools are properly grounded or double-insulated. ▪ Do not use electrical equipment in wet conditions or damp locations unless the equipment is connected to a GFCI (Ground Fault Circuit Interrupter). ▪ Do not clean tools with flammable or toxic solvents. ▪ Ensure that electrical circuit is connected with ELCB. ▪ Ensure that cutting machine's electrical cables and accessories are in good condition. ▪ Tool Box Talk shall be given to workers. ▪ Post warning signs. ▪ Joint PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot.					
8.	**Bar Bending Activity Using table bending machine and twin Master**	▪ Electric shock ▪ Moving tool bits ▪ Sudden movement of the tool, ▪ Hitting a hidden reinforcement and twisting. ▪ Flying particles from the tool. ▪ Trailing cables/ tripping hazard.	▪ short circuit resulting in fire accidents ▪ exposure to live wire resulting in electric shock and burns ▪ fire or explosion where electricity could be the source of ignition in a potentially flammable or explosive atmosphere ▪ Entrapment of hands due to	4	4	16	▪ Workers shall be trained in the correct and safe use of machine. ▪ [illegible] check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensue Emergency switch for the machine use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or maintenance. ▪ All tools and equipment's shall be inspected and color	ADOSH SF COP 2.0, 8.0, 15.0, 17.0, 21.0,22.0, 36.0, 42.0,	**1**	**4**	**4**	▪ Move small piece bend type into an auto bender (don't use table bender) ▪ Bend one bar at a time versus several bars ▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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			moving parts of the machine				coded by the competent person/electrician to ensure that it is in good condition without any physical damage. ▪ Always do pre- use inspection of the tools, equipment and machines to be used for damage. ▪ Bar bending machine shall be handled only by competent bar bender operator ▪ Bar bender Operator shall not wear loose clothing or jewelry. ▪ Never work under the influence of any drugs/ alcohol. ▪ Ensure that electrical circuit is connected with ELCB. ▪ Ensure that bar bending machine's electrical cables and accessories are insulated. ▪ Tool Box Talk shall be given to workers ▪ Post warning signs. ▪ Always follow the set procedure to perform the task safely. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot.					
9.	**Steel Fixing**	▪ Manual handling ▪ Sharp edges ▪ Slip and trip ▪ Collapse of structure ▪ Fall from height ▪ Lack of training ▪ Lack of supervision ▪ Specific PPE not provided ▪ Safe working platform not provided. ▪ Poor housekeeping ▪ Constant stooping, awkward posture and gripping	▪ Back injury ▪ Tendon and ligament injuries ▪ Muscle injuries ▪ Hernias ▪ Work Related Upper Limb Disorders ▪ Cuts, dislocation and broken bones	3	3	9	▪ Safe working platform to be provided. ▪ Safe access and egress to be provided. ▪ Housekeeping to be maintained. ▪ Activity to be monitored and supervised. ▪ Reinforced steel bar to be fixed rigidly and accurately in place. ▪ Reinforcement placing will be inspected and approved prior to erection of formworks ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot. ▪ Training to be provided prior to start of work. (TBT, hazards and control measures) ▪ Steel fixing procedure as per Method Statement to be followed.	ADOSH SF COP 2.0, 8.0, 14.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks
10.	**Electric Welding Works for fabrication of steel Molds**	▪ Contact with Hot Surface ▪ Fire, ▪ Electrocution ▪ Lack of training ▪ Inhalation of Smoke.	▪ Eye Irritation or Inflammation ▪ Occupational Asthma ▪ Headaches and Dizziness ▪ Skin Irritation	4	4	6	▪ Before any welding commences the welder shall check for potential burn hazardous to himself or others, material or equipment. ▪ Competent person shall be allowed to perform welding activity. ▪ 3rd party certified and experienced fire watcher shall be deployed at the task executing area.	ADOSH SF COP 2.0, 8.0, 15.0, 17.0, 21.0,22.0, 28.0, 36.0, 42.0,	**1**	**4**	**4**	▪ Inspections ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box

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			▪ Ingestion ▪ Inhalation Electrocution				▪ To reduce the risk of the fire within the work site, particular attention housekeeping around welding operation must be done. ▪ For reducing the effort radian heat hot flux suitable fire-resistant apron, sleeves, leg guard, gloves etc. shall be used. ▪ The area of work shall be barricaded to avoid unauthorized entry. ▪ Adequate signage's shall be placed. ▪ Sufficient fire extinguisher (DCP) and fire blanket shall be placed. ▪ All welding machine shall be earthed. ▪ Welding machine shall be inspected periodically ▪ 5-point PPE must be worn hard hat, high vest, Welding face shield, hand gloves &safety boot. ▪ Workers shall be trained in the correct and safe use of machine. ▪ User check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or maintenance. ▪ Tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage.					talks
11.	**Gas Cutting activity using Oxygen and Acetylene for fabrication of steel molds**	▪ Gas Leak. ▪ Incorrect storage, ▪ Faulty equipment/ connections, ▪ High pressure fluid ejection ▪ Fall of cylinders Crushing	▪ Eye Irritation or Inflammation ▪ Occupational Asthma ▪ Headaches and Dizziness ▪ Inhalation	3	4	12	▪ When in use cylinders should be kept out of direct sun light as far as possible. ▪ Regular Tool balks talks briefing shall be conducted. ▪ The cylinder storage should have amble ventilation, secure gate / chains and provide shaded storage of all cylinder ▪ Empty cylinder should be treated in the same manner as full or partially full cylinders, and the valves maintained full and empty cylinder racks or area within each component of the store must be clearly marked. ▪ Cylinders must not be dropped or allowed to come into contact possibly with one another or with any hard	ADOSH SF COP 2.0, 8.0, 15.0, 17.0, 21.0,22.0, 36.0, 42.0,49.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Specific Training ▪ Task Briefing and Tool Box talks ▪

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							object ▪ When loading and unloading cylinders shall lifted carefully in a basket by avoiding to fall or slide. ▪ Neck cap shall not be removed under any circumstance. ▪ When transporting cylinder must be strapped in properly, cylinder lifting basket and held securely well transported in vehicle. ▪ Cylinders must be stored and used in an upright position ▪ When in use at the work place cylinders must be kept secured and prevented from falling or being knocked over cylinder shall keep in a purpose designed basket or trolley system ▪ A regulator must be used to maintain the outlet pressure at a correct and uniform value ▪ oxygen and flammable gas cylinders must not be used without fitted check valves and flash back arrestors ▪ Cylinders with damaged threads or values must immediately be labelled defective and return to the supplier ▪ Trained and competent person shall be allowed to commence activity. ▪ Fire Extinguishing Media shall be available at hot work area.					
12.	**Use of electrically operated tools for the task Portable Grinders Drill machines**	▪ Electric shock ▪ Moving tool bits ▪ Sudden movement of the tool, ▪ Hitting a hidden reinforcement and twisting. ▪ Flying particles from the tool. ▪ Flying dust. ▪ Vibration. ▪ Trailing cables/Hoses, tripping hazard. ▪ Fire ▪ Lack of color coding and inspection of power tools by	▪ electric shock and burns from contact with live parts ▪ injury from exposure to arcing fire from faulty electrical equipment	4	4	16	▪ Workers shall be trained in the correct and safe use of power tools. ▪ User check shall be ensured for the power tools prior the use. ▪ Ensure that all the safety guards are in place for angle grinders. ▪ Never use grinders without safety guards. ▪ Ensue dead man switch for the power tools in use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, remove combustible materials prior use of angle grinders to prevent fire occurrence. ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or changing grinding disc strictly. ▪ All tools and equipment's shall be inspected and color	ADOSH SF COP 2.0, 8.0, 14.0, 15.0, 17.0, 21.0,22.0, 28.0 35.0, 42.0,47.0	1	4	4	▪ Weekly Checklist shall be maintained ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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		competent person. ▪ Lack information instruction, and supervision in the safe use of power tools.					coded by the competent person/electrician to ensure that it is in good condition without any physical damage. ▪ Never operate the power tools with wet hands. ▪ Pre-use inspection of the tool and electric cables shall be carried out by the operative. ▪ Double insulated tools shall be used to prevent electric shock. ▪ Serviceable, inspected fire extinguisher to be kept near the working area. ▪ Adequate PPEs like face shields and eye protection, ear plugs shall be worn by the workers for the task. ▪ Cable management shall be carried out to prevent slips, trips and falls. ▪ All the electrical equipment's shall be PAT tested and certified ▪ All power tools shall be connected with 30 m/Amps trip load ELCB. ▪ Permit to work system shall be ensured and strictly implemented for the task. ▪ Ensure that grinding and cutting disc is free from crack. ▪ Ensure that Cutting/grinding disc RPM is matching with machine's RPM. ▪ Ensure that the safety guard provided on cutting and grinding machine. ▪ Unguarded power tools shall not use. ▪ Ensure that the Equipment's is in in good condition without any defects. ▪ Ensure good housekeeping in the area, remove combustible materials prior use of angle grinders to prevent fire occurrence. ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or changing grinding disc strictly. ▪ All tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage. ▪ Never operate the power tools with wet hands					
13.	**Hammering and straightening mold side using hammer**	▪ Breakage of hammer ▪ slip of hammer	▪ Can cause other employees to hit by hammer ▪ Inadequate position while hammering	3	3	9	▪ Always do pre-use inspection of the tools to be used for damage. ▪ Ensure mold side has been secured in desired position by a U clamp or bolted on the table to prevent movement. ▪ Employee shall hold the hammer firmly to prevent slip. ▪ Strike the hammer deliberately and accurately to avoid	ADOSH SF COP 2.0, 8.0, 14.0, 17.0, 21.0,22.0, 28.0,	**1**	**3**	**3**	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

							any mishit. ▪ Do not handle hammer with oily or wet hands. ▪ Ensure not to position any body part near the point of impact. ▪ Ensure that good quality hammers ▪ Does not use hammer if the handle has even a minor crack. ▪ The head shall have no unevenness, burring, chipped or worn edges or excessive wear. ▪ Always grip the handle tightly near the end of its length to provide maximum sticking force. ▪ Ensure that hammer is free from damage and mushroom head. ▪ Weekly Tool Box Talk shall be given to workers prior to commencement of work. ▪ Daily task safety instructions shall be given to the worker. ▪ Follow Safe procedures	42.0,47.0			
14.	**Wood Cutting machine**	▪ Contact with rotating parts. ▪ Entanglement, ▪ Untrained operations, Noise, ▪ Poorly maintained equipment. ▪ Dust emission	▪ Injuries from impact or entanglement with moving tool bits. ▪ Personal injury. ▪ Crush injuries. ▪ Damage of plant and equipment. ▪ Electric Shock	4	4	16	▪ . ▪ Circular saws shall be inspected at the start of every work shift and periodically by qualified personnel to be altered whenever defected or removed for repair and to maintain sharpness of the cutting edge. ▪ The manufacturer's recommended safe operating speed shall not be exceeded ▪ Every machine not be left unattended. Shut down the power after completion of task and close the saw guard. ▪ Cleaning or adjustment of machinery while in motion shall be prohibited. ▪ Beds shall be free of nails, or any other metal materials which might interfere with the blade movement. ▪ Feeding devices and moveable tables shall be so adequately mounted as to prevent any side thrust out of their places during operation. ▪ Portable saw blade guard shall be so constructed as to have firm and secure bearing to prevent removal while the saw is in motion. ▪ Use push stick to feed the wood into the machine. ▪ Keep the work area free from obstacles. ▪ Provide riving knife and crown guard to cover the table. ▪ Blade guard below the table shall not be removed. ▪ Emergency stop switch shall be provided. ▪ Faulty guard or machine report to maintenance for repair	ADOSH SF COP 2.0, 8.0, 14.0, 15.0, 17.0, 21.0,22.0, 28.0 35.0, 42.0,47.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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							▪ The dust emitted from the saw shall be extracted through dust extracting system fixed to the machine and collected in the bags. ▪ Sawdust and flammable materials shall not be accumulated in the site and the workshop shall be cleaned periodically. ▪ Workers shall be trained in the correct and safe use of machine. ▪ User check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensue Emergency switch for the machine use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs or maintenance ▪ All tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage ▪ 5 point PPE must be worn hard hat, safety goggles, dust mask, hand gloves &safety boot.					
15.	**Mold fixing on the table**	▪ Manual handling ▪ Placing mold side at the edge of table ▪ Cleaning mold side –Mold side not fixed on the table ▪ Inadequate Work Procedures ▪ Inadequate work practices	▪ Back injury ▪ Tendon and ligament injuries ▪ Muscle injuries ▪ Hernias ▪ Work Related Upper Limb Disorders ▪ Cuts, dislocation and broken bones	3	3	9	▪ Ensure that workplace is clean and well maintained. ▪ Always do pre -use inspection of the tools, equipment and machines to be used for damage. ▪ Ensure no mold side left suspended when crane not in use. ▪ If it is required to lift manually, use adequate employees to lift the mold. ▪ Do not try to push or pull heavy loads. ▪ Use trolleys to move the loads if cranes are not available. ▪ A worker shall not carry a load that weighs more than 25 kg. ▪ After placing ensure that mold side fixed safely on the table. ▪ Do not keep the mold freely at the edge of the table ▪ While placing mold side on the table, employees have to ensure that their body parts are not entrapped in between table and mold.	ADOSH SF COP 2.0, 8.0, 14.0, 17.0, 21.0,22.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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							▪ To prevent accident prior to cleaning mold side, ensure that mold side fixed on the table. ▪ Tool Box Talk shall be given to workers prior to commencement of work. ▪ Follow Safe procedures ▪ Warning signs shall be posted.						
16.	**Formworks**	▪ Manual handling ▪ Sharp edges ▪ Slip and trip ▪ Fall from height ▪ Fall of material ▪ Protruding nails ▪ Collapse of structure ▪ Sharp blade ▪ Hit by flying object	▪ Back injury ▪ Tendon and ligament injuries ▪ Muscle injuries ▪ Hernias ▪ Work Related Upper Limb Disorders ▪ Cuts, dislocation and broken bones	3	3	9	▪ Training to be provided prior to start of work. (TBT, manual handling, hazards) ▪ Safe working platform to be provided ▪ Safe access to be provided ▪ Maintained housekeeping in work area ▪ De-nailed used materials ply's and wooden shutters ▪ Develop and communicate clear and detailed procedures for formwork assembly, installation, adjustment, and dismantling. ▪ Provide comprehensive training to workers involved in formwork activities, ensuring they are knowledgeable about safe practices, hazards, and emergency procedures. ▪ Ensure safe and unobstructed access and egress routes to and from formwork areas, including the use of ladders. ▪ Maintain a clean and organized work area, promptly removing debris, waste, or unused materials to minimize tripping hazards. ▪ Inspections and maintenance: Regularly inspect formwork components, including supports, braces, and connections, to identify any damage, deterioration, or potential hazards. ▪ Provide appropriate PPE, including hard hats, safety boots, gloves, and eye protection, to workers as required	ADOSH SF COP 2.0, 8.0, 14.0, 17.0, 21.0,22.0,				▪ Inspections ▪ Continuous Monitoring ▪ Training
17	**Laying strands on the pre-stressed beam casting bed**	▪ Hit by ▪ Compressed energy, ▪ Manual handling	▪ Moderate injury ▪ Back injuries	3	3	9	▪ Only authorized personnel should perform this job. ▪ Maintain a safe distance from uncoiling strand coil. ▪ Lone working should not be allowed. ▪ At least 2 workers should pull the strand. ▪ Make sure to allocate adequate man power for pulling the strands ▪ Secure the strands at other end after completion of strand pulling. ▪ All the workers involved in strand pulling shall have adequate communication while dragging the strand in-between the prestressed beam mold . ▪ Foreman shall guide the strand pulling activity. He should have a whistle and communicate with all the	ADOSH SF COP 2.0, 8.0,14.0,17.0,22.0	1	3	3	▪ Continuous Monitoring

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							strand pulling workers to have proper coordination while pulling. ▪ Job rotation shall be done adequate breaks shall be given to the workers involved in strand pulling activity. ▪ Barricade the area and post warning signs. ▪ Always follow the set procedures.					
18.	**Strand Stressing activity for pre-stressed beams**	▪ Breakage of strand	▪ serious injuries to workers	3	3	9	▪ Only trained personnel should perform this activity. ▪ Inspect the lying strands for kink and rust. ▪ Never use a damaged strand. ▪ Before starting strand, stressing activates warning alarm to alert the persons. ▪ Provide protective screen to contain the strand in case of breakage. ▪ Ensure the strand locks are free from dirt and damage. ▪ Do not stand behind the strands end while stressing. ▪ Ensure that nobody crossing casting bed while stressing the strand. ▪ Adequate supervision must be ensured. ▪ Worker working around should maintain a distance of at least 3 meters at all times. ▪ Foreman should monitor the area while stressing to ensure that everyone is at safe distance. ▪ All the activities that can damage the strands should be stopped. ▪ Barricade the area and Warning signs must be posted. ▪ Tool Box Talk should be conducted to employees in hollow core section.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0,	1	3	3	• Inspections • Continuous Monitoring ▪ Training
19.	**De-stressing of strand for pre-stressed beams**	▪ Breakage of the cutting wheel, ▪ tension	• Moderate injury • Cuts, entry of particles ▪ Damage to property	3	3	9	▪ Always do pre-use inspection of tools. ▪ Never use a damaged blade for cutting strands. ▪ Never use a grinding blade for cutting. ▪ Always cut one wire at a time from strand. ▪ Clear the area before cutting the strands. ▪ Always wear PPE i.e hard hat with full face shield, safety shoes, and gloves. ▪ Barricade the area and post warning signs. ▪ Conduct a toolbox talk prior to commencement of work.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0,	1	3	3	• Inspections • Checklists • Continuous Monitoring • Training ▪
20.	**Batching Plant Operation**	▪ Moving concrete shuttle ▪ Inadequate Operation of Shuttles at workplace. ▪ Lack of Communication between the	▪ Shuttle collision with stationary object may leads to property damage ▪ Personal injuries • Fatality etc.	4	4	16	▪ Make sure that the batching plant staff are competent. ▪ Make sure that the shuttle shall be suspended and power shall be shut down prior to start maintenance. ▪ The batching machine operator shall be intimated prior to the maintenance of shuttle. ▪ Maintenance shall make sure that after all the power shut down completed, and after all the precautions taken, they shall start the work. ▪ Make sure no TILT tables are lifted with projecting	DM-COP-CH-11,21,22,06, 4	**1**	**3**	**3**	▪ Inspections ▪ Clean after the end of shift. ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box

		casting machine operator and batching plant operator ▪ Lack of LOTO during maintenance ▪ Mechanical failure					rebars and extra design fabricated to the existing casting table that will obstruct the safe movement of shuttle. ▪ In case of any such casting tables are lifted for demolding instruct the batching plant operator to shut the shuttle at that location until demolding is completed. ▪ Make sure that the shuttle movement area shall not be obstructed with any object that may cause collision to the shuttle ▪ Make sure 1M clearance shall be available far from the shuttle movement area ▪ Make sure that the track of the shuttle shall be cleared from spilled concrete which may lead to derail of the shuttle. ▪ Regularly clean the spilled concrete from the tracks. ▪ Adequate communication shall be maintained between the casting machine operator and batching plant operator. ▪ In case of any mechanical error immediately instruct the maintenance department. ▪ Continuously communicate with the batching plant operator through tele-radio and instruct if the workplace having any hazards of obstructing the shuttles coming from the batching plant. ▪ The batching plat operator have continuous surveillance over the bays and shuttle movement areas and identify hazards ▪ Never stand under shuttle concrete transferring area or cleaning area. ▪ Put up signs and barriers and position people at key points if they are needed to keep other people out ▪ Lock out Tag out procedure shall be followed prior to start maintenance. ▪ Appropriate fire Extinguisher media shall be placed at batching plant ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot.					talks
21.	**Working inside concrete shuttle movement area**	▪ Moving concrete shuttle ▪ Fall of materials from height	▪ Back injury ▪ Tendon and ligament injuries ▪ Muscle injuries ▪ Hernias ▪ Work Related Upper Limb Disorders	4	4	16	▪ Ensure that workplace is clean and well maintained. ▪ Stop concrete shuttle prior to doing any work in concrete shuttle movement area. ▪ Make sure the plant operator is informed. ▪ Adequate communication between the casting machine operator and the shuttle movement operator while casting. ▪ Ensure that all the power sources of the plant are	ADOSH SF COP 1.0,2.0, 8.0,14.0, 15.0, 17.0,22.0, 36.0,47.0	**1**	**3**	**3**	▪ Inspections ▪ Clean after the end of shift. ▪ Continuous Monitoring ▪ Training ▪ Task Briefing

			• Cuts, dislocation and broken bones • Failed to shut down the shuttle while doing maintenance ▪ Person working under the shuttle while ongoing maintenance				switched off and isolated. ▪ Barricade the area and post warning signs. ▪ Tool Box Talk shall be given to workers prior to commencement of work. ▪ Safe working procedure for shifting of materials to be followed • LOTO shall be followed while working inside shuttle					and Tool Box talks
22.	**Pouring concrete using concrete bucket/Casting Machine**	▪ Concrete Bucket/Casting machine may hit the workers ▪ Checking casting machine concrete level -Working at height ▪ Cleaning casting machine bucket - slippery area	• Failed to shut down the Casting machine while doing maintenance • Person working under the shuttle while ongoing maintenance	4	4	16	▪ Concrete bucket operator shall alert the person working on the table. ▪ Concrete bucket lifting point shall be inspected prior start the activity ▪ Casting machine operator must have valid third-party certificate. ▪ Make sure warning systems of the cranes such as flashing lights and alarms are working properly. ▪ Employee standing on the casting machine shall wear safety harness. ▪ Operatives must ensure to wear full body harness while working at height of 2 m and the lanyard hook properly secured to rigid post strong enough to support weight of persons working. ▪ Platform is kept neat, tidy and free of loose materials/tools. Spillage shall be cleaned up immediately using absorbent materials and any slippery surfaces cleaned and degreased. ▪ Do not climb on moving crane. ▪ Ensure that work place is well lit. ▪ Prior to cleaning casting machine shall brought at the working platform. ▪ Person standing on the working platform shall wear safety harness and anchor it on guard rail. ▪ Operatives must ensure to wear full body harness while working at height of 2 m and the lanyard hook properly secured to rigid post strong enough to support weight of persons working ▪ Person cleaning casting machine shall not step on to the slippery area, if it is required to enter inside that area; clean the slippery substance prior to entry and make sure that the area is free from slippery substance. ▪ Platform is kept neat, tidy and free of loose materials/tools. Spillage shall be cleaned up	ADOSH SF COP 1.0,2.0, 8.0,14.0, 15.0, 17.0,22.0, 36.0,47.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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							immediately using absorbent materials and any slippery surfaces cleaned and degreased. ▪ Tool Box Talk shall be given to workers prior to commencement of work.					
23.	**Concrete Pours**	▪ manual handling techniques ▪ Using defective plant /equipment ▪ Falling materials. ▪ Concrete Burns	▪ Skin Irritation ▪ Ingestion ▪ Inhalation ▪ Asphyxiation ▪ Burns Toxicities	3	3	9	▪ Comply DM Chapter 10. Concrete and masonry OSHAD cop 38 ▪ Plant and equipment used during concrete placing will be operated by trained and authorized personnel under close supervision. ▪ All plant and equipment will carry current certification and be maintained in a safe condition ▪ Defective plant/equipment will be removed from service and effective remedial actions taken. ▪ Approved plant/equipment will be used ▪ Slinging and lifting operations will be carried out by trained personnel. ▪ Unauthorized personnel will be prohibited from entering areas where concrete placing activities are being undertaken ▪ Access across re-bar fixing will be maintained with timber boarding to provide a safe access and place of work. ▪ Initially, you should remove any clothing which has gotten wet concrete on it for rinsing and cleaning. Next, wash the affected area of skin thoroughly with cool, clean water. ▪ If large area of skin or your eyes have come into contact with wet concrete, you should seek medical attention immediately. ▪ During employees are wearing suitable clothing and protective items. When working with wet concrete, safety goggles, waterproof gloves, coveralls and rubber boots should be worn. ▪ Safe working procedure for pouring concrete. ▪ Emergency Eye Wash Station shall be marked and displayed with signages.	ADOSH SF COP 1.0,2.0, 8.0,14.0, 15.0, 17.0,22.0, 36.0,47.0	**1**	**3**	**3**	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks
24.	**Concrete Vibrator (Poker)**	▪ Incorrect operation of machine ▪ Mechanical failure ▪ Vibrational - Hand / Arm Vibration ▪ Noise	▪ Personal injury. ▪ HAVS ▪ Hearing loss. ▪ Electric Shock ▪ Skin Irritation ▪ Burns ▪ Toxicities	4	4	16	▪ Operator to be trained in correct use of concrete poker. ▪ Poker machine to be used in compliance with manufacture instructions. ▪ Ensure not to bend the flexible drive through tight angles, for example over shutters. ▪ Always move and withdraw the vibrating head steadily this will avoid creating voids. ▪ Do not touch the vibrating part of the poker while in operation.	ADOSH SF COP 1.0,2.0, 3.1, 8.0,14.0, 15.0, 17.0,22.0, 35.0,47.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

							▪ Do not lay the vibrating poker on a hard surface while it is still vibrating. it will cause damage to the surface and poker. ▪ Do not engage or disengage the flexible drive coupling while engine is running. ▪ Stop the equipment if leaving unattended. ▪ Poker vibrator must be washed clean as soon as the work is finished before any concrete hardens. ▪ If the equipment does not work properly immediately return to the maintenance. ▪ Preventive and periodic maintenance shall be done ▪ Job rotation policy shall be followed to protect against HAVS and Noise ▪ Conduct periodic maintenance to ensure smoother operations and less vibrations ▪ Protect other people from the noise. Warn others to keep away. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boots. ▪ Workers shall be trained in the correct and safe use of machine. ▪ User check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensue Emergency switch for the machine use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs. ▪ All tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage.					
25.	**Concrete trowel / Floating machine**	▪ improper electrical connections ▪ Inadequate Access and Egress at work place – Slip Trips ▪ Vibrational -	▪ Personal injury. ▪ HAVS ▪ Hearing loss. ▪ Electric Shock ▪ Skin Irritation ▪ Burns Toxicities	4	4	16	▪ Operator to be trained in correct use of concrete floating machine. ▪ Floating machine to be used in compliance with manufacture instructions ▪ Ensure operators hands and body parts are kept clear during operation and maintenance. ▪ Ensure appropriate guarding is installed and in good working order prior to use.	ADOSH SF COP 1.0,2.0, 8.0,14.0, 15.0, 17.0,22.0, 35.0,47.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

		Hand / Arm Vibration ▪ Working on height on top of the mold. ▪ Incorrect operation of machine					▪ Ensure the blades are appropriately installed. ▪ Always do pre- use inspection of the tools and equipment to be used for damage. ▪ Never use machine with frayed cords, damaged insulation or broken plugs. ▪ Always use appropriate insulated rubber gloves. ▪ Ensure tools are properly grounded or double-insulated. ▪ Do not clean machine with flammable or toxic solvents. ▪ Ensure that electrical circuit is connected with ELCB. ▪ Ensure that floater machine's electrical cables and accessories are in good condition. ▪ Ensure appropriate cleaning and housekeeping practices are maintained to minimize the risk of slips, trips and falls from the casting tilt table. ▪ Job rotation policy shall be followed to protect against HAVS. ▪ Conduct periodic maintenance to ensure smoother operations and less vibrations ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boots. ▪ Always follow the set procedure to perform the task safely. ▪ Workers shall be trained in the correct and safe use of machine. ▪ User check shall be ensured for the Machine prior the use. ▪ Ensure that all the safety guards are in place ▪ Never use machine without safety guards. ▪ Ensue Emergency switch for the machine use. ▪ Ensure that electrical cables and sockets are in good condition without damage. ▪ Ensure that all the electrically operated tools are in good condition without any defects. ▪ Ensure good housekeeping in the area, ▪ Damaged electrical cables and sockets shall not be used. ▪ Ensure Power supply to be cut off while repairs changing. ▪ All tools and equipment's shall be inspected and color coded by the competent person/electrician to ensure that it is in good condition without any physical damage.					
26.	**De-molding of precast elements**	▪ Chance of fall down of panels due to failure of crane or lifting	▪ Slip of crow bar – may lead to ▪ Personnel Injury	3	4	12	▪ Ensure that workplace is clean and well lit. ▪ Overhead crane must have valid third-party inspection certificate. ▪ Before lifting ensure that the panel has been clamped	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0,	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Daily and

		gears ▪ De-molding precast element using crow bar ▪ Inadequate handling of crow bar ▪ Suspended load ▪ De activating the magnet from mold side.					safely on to the table. ▪ Chain sling and lifting beam SWL are clearly mentioned ▪ Crane operator must check element weight before start the tilting activity ▪ Proper supervision shall be carried out during de-molding. ▪ While removing side molds make sure that there are enough places for the movement of workers in case of emergency. ▪ Tool Box Talk shall be given to workers prior to commencement of work. ▪ 5 Point PPE (Safety shoes, hard hat and hand gloves, reflective strapped coverall, and dust mask). ▪ Follow Safe procedures while lifting and shifting	34.0,36.0				Weekly Checklist shall be done by operator and technician ▪ Specific Training ▪ Task Briefing and Tool Box talks
27.	**Lifting of precast elements from the casting/Tilt table**	▪ Chance of fall down of table / panels due to failure of crane or lifting gears ▪ Unauthorized entry or Working under the casting table during the lift. ▪ Lack of coulter pin ▪ Inadequate locking system. ▪ Inadequate securing of panel	▪ Hitting and collision with the plants and vehicles that may result to property damaged, serious injury or fatality ▪ Delay of work and uncontrolled activity due to inadequate supervision. ▪ Breaking of lifting tackles ▪ Injury to the people while lifting and moving the load being lifted	3	4	12	▪ The crane operator shall verify the weight of the precast panel and select adequate lifting gears etc. ▪ The Element shall be secured with chain prior to Tilt the table ▪ Make sure that the element is demolded properly, ▪ All the shutters molds used plys,and other materials shall be removed from the table prior to lifting. ▪ Exclusive zone shall be created and no one shall be allowed to work under the table in any circumstances. ▪ Barricade the area to avoid unauthorized entry. ▪ Make sure to lock the table from the bottom after the tilt. ▪ The table coulter pins shall be checked prior to the lift. ▪ Inform maintenance department in case of ant defect in the tilting or casting table. ▪ Daily activity briefing and Tool box talks shall be conducted. ▪ Follow Safe procedures while tilting of table. ▪ Exclusive zone shall be done during lifting tables	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 34.0,36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks
28.	**Stacking of precast element**	▪ Entrapment of body parts under elements ▪ Stocking on uneven ground ▪ Collapse of Elements ▪ Pinch points during stacking of	▪ Poor Stacking methods such as not, failure to stabilize the elements on the racks ▪ Stacking above the limit may lead to collapse	3	4	12	▪ Pre-Job tool box talks with the lifting team shall be conducted on daily basis ▪ Risk assessment communication with the team prior the task. ▪ A Pre-Lift Check to be practiced checking the accurate Boom length and Radius if applicable ▪ Ensure Close supervision during the task. ▪ All operatives to wear gloves to avoid cuts, abrasions and protect from nip points.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 34.0,36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks

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		materials which could result in hands and finger injuries. ▪ Unsafe stacking too high, leaning loads.	of the elements				▪ Do not use damaged lifting equipment. ▪ Do not suspend loads over workers. ▪ Make sure the stacking area ground is well compacted. ▪ Make sure there is sufficient space for stacking the element safely. ▪ Do not use damaged timber or shelves for resting the element on ground. ▪ Do not stack elements up to unsafe heights. ▪ Do not rest heavy elements onto light weight loads. ▪ Racking systems, frames and supports shall be designed by an engineer for the shape, size and weight of the concrete element ▪ Precast element stacked with adequate dunnage. ▪ Ensure that panel stacked safely on rack, in upright position and wedges has been provided. ▪ Tool Box Talk shall be given to workers prior to commencement of work. ▪ Person working at height shall wear safety harness and anchor it on life line. ▪ Guard rails shall be installed if possible. ▪ Use platform if possible. ▪ Do not work near the edge. ▪ Do not walk on wet or oily surface. ▪ Maintain housekeeping at all times. ▪ Do not stack material or keep tools in the movement area ▪ Daily activity briefing shall be done prior to commencement of work. ▪ 5 point PPE must be worn hard hat, safety goggles, dust mask, hand gloves &safety boot					
29.	**Lifting and Transportation of Precast Elements**	▪ Vehicle movement in black top roads ▪ Unsecured elements ▪ Vehicles moving near by	• Pedestrian conflict with adjacent live traffic routes. • Fatality • Personnel injury • Asset damage • Environment Impact • Ill-health • Traffic incident due to incorrect traffic management.	3	4	12	▪ Make sure warning systems of the cranes such as flashing lights and alarms are working properly. ▪ Barricade the area and post warning signs. ▪ Only trained and authorized personnel should perform the task. ▪ Do not work under influence of drugs or alcohol. ▪ Always do pre- use inspection of the lifting equipment, truck and the trailer. ▪ Make sure lifting equipment is suitable for the load to be lifted. ▪ Always use certified (third party) lifting equipment. ▪ Do not temper safe working load limit indicators of the cranes. ▪ Make sure workers are using PPE. ▪ Prior to lifting ensure that crane and lifting gears are in	ADOSH SF COP 2.0, 8.0,14.0,15.0, 17.0,22.0, 34.0,36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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			• Uncontrolled entry by unauthorized personnel into work areas. • Objects falling from site plant onto public and site roads.				good condition and it has adequate SWL to lift precast element. ▪ Ensure that nobody is under the suspended load. ▪ Ensure that employees body parts away from the entrapment area (not in between precast element and lifting gears). ▪ Prior to precast element ensure that adequate dunnage provided to place precast element. ▪ Do not place any of your body part between the panel and the trailer. ▪ Prior to placing precast element crane operator should ensure that employees release their hands under the precast element. ▪ Banks man should keep an eye on the load and the workers around and signal the crane operator accordingly. ▪ Equipment to be well maintained and inspected frequently as per manufacturer's recommendations ▪ Employees loading precast element should wear coverall, safety helmet, safety shoes and hand gloves. ▪ Warning signs should be posted. ▪ Before loading precast element ensure that trailer tyre is provided with tyre stopper. ▪ Ensure trailer jacks are properly installed. ▪ Ensure to provide additional base support on loading side of the trailer to keep it balanced during heavy loading. ▪ Stack counter weight on one side of the trailer (if required) to keep it balanced. ▪ Ensure to evenly distribute the weight on trailer. ▪ Do not over load the trailer. ▪ All supervision to monitor operation ▪ 3rd Party certified riggers and lifting gears and accessories shall be ensured and used only. ▪ Daily activity Briefing and Tool box talks shall be conducted on daily basis. ▪ Risk assessment communication with the team. ▪ Separate Racks for various profiles of steel. ▪ Always follow the procedure. ▪ Make sure workplace is clean and well lit					
30.	**Using ladder for slinging and De-slinging of precast element**	▪ Work at height ▪ Slippery surface ▪ Defective ladder ▪ Placing on the improper area.	• Landing on the wrong body part or surface. Can cause Spinal,	3	4	12	▪ Ensure that the ladder is free from damage and none-slip pad fixed. ▪ Somebody should hold, while people standing on the ladder. ▪ Person climbing on the ladder should maintain three-	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 23.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing

		▪ Slippery hand & leg protections	head, or neck injuries • can leave the worker severely disabled or lead to death • Falls can cause broken bones, like wrist, arm, ankle, and hip fractures				point contact. ▪ Always face the ladder while ascending and descending. ▪ Ladder should extend 1 meter from the top. ▪ Do not tie ladders ▪ Do not overreach ▪ Do not carry loads on the ladder ▪ 4:1 ratio should maintain while installing the ladder ▪ Regular inspections to the ladder as per the standard. ▪ Two lanyards hook full body harness to be used by the worker climbing the ladder ▪ The safety harness shall be hooked to the fall arrestor which was installed to the overhead / mobile crane hook while climbing. ▪ Do not remove both hooks at same time. Always ensure one hook is connected with the anchor point. ▪ Ensure Inspections of ladder to identify any defects or spillage of any slippery substance. ▪ Ensure training on working at heights ▪ Ensure hand gloves & safety shoe were not wet or free grease and oil. ▪ Ensure that Tool box talk conducted all employees.					and Tool Box talks
31	**Lifting and storage of Strand coils in rack**	▪ Entrapment of body parts under steel bundle ▪ Poor Stacking methods such as not, failure to stabilize the steel bundles on the racks ▪ Stocking on uneven ground ▪ Collapse of bundle ▪ Pinch points during stacking of materials which could result in hands and finger injuries. ▪ Unsafe stacking too high, leaning loads.	Major Injury, Fatality and damage to property, amputation	3	3	9	▪ Always do pre-use inspection of the lifting equipment. ▪ Always use web sling to lift strand coils. ▪ Ensure that the overhead crane is in good condition. ▪ Overhead crane has third party inspection certificate. ▪ Crane operator is competent and trained. ▪ Ensure that lifting gears has third party inspection certificate. ▪ Ensure that nobody is under the suspended load. ▪ Do not swing the load. ▪ Ensure that pathway of the crane is clear for safe movement of the load. ▪ Do not put any of your body part inside the coil rack. ▪ Ensure that rack is adjusted according to the size of the coil. ▪ Ensure that rack is rests on hard and level surface. ▪ Ensure that crane operator and slinger is wearing hard hat, safety shoes and hand gloves. ▪ Tool Box Talk should be given to workers who are exposed to the hazard. ▪ Never work under the influence of any drugs. ▪ Barricade the area and Post warning signs. ▪ Always follow the set procedure to perform the task safely.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 34.0,36.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Task Briefing and Tool Box talks

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32	**Cleaning or Application of mold oil on HCS bed**	▪ Skin contact inhalation, slip and fall, spills, flammable	Breathing problems, allergy, moderate injury, Soil pollution, Fire, explosion	3	4	12	▪ Only authorized personnel should perform this task. ▪ Always wear PPE i.e gloves, mask, goggles and safety shoes. ▪ Do not walk on the bed once the oil is applied. ▪ Use barrier creams before the application of oil. ▪ Ensure MSDS is available for the oil being used. ▪ Do not cross the HCS beds to move inside the bay once oil is applied. ▪ Ensure spill kits are available and spill emergency plan is communicated to all workers. ▪ Ensure no hot work is carried out during the application of mold oil. ▪ Smoking should be prohibited. ▪ Ensure details of fire fighters and first aiders are proved at visible location. ▪ Ensure suitable and sufficient fire extinguishers are available. ▪ Barricade the area and post warning signs. ▪ Always follow the set procedures.	ADOSH SF COP 1.0, 2.0, 8.0, 14.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Task Briefing and Tool Box talks
33.	**Laying strands on the HCS bed using dispenser machine**	▪ Hit by	▪ Moderate injury	3	3	9	▪ Only trained and certified person should operate the dispenser machine. ▪ Always do pre-use inspection of the machine. ▪ Make sure the path of machine is clear of obstructions. ▪ Sound warning alarm while machine is operating. ▪ Ensure that emergency stop buttons are visible and identified on the machine. ▪ Ensure that machine is switched off before inserting and releasing strands ▪ Barricade the area and post warning signs. ▪ Always follow the set procedures.	ADOSH SF COP 2.0, 8.0,14.0,17. 0,22.0	1	3	3	▪ Continuous Monitoring
		▪ Compressed energy, ▪ Manual handling	▪ Moderate injury ▪ Back injuries	3	3	9	▪ Only authorized personnel should perform this job. ▪ Maintain a safe distance from uncoiling strand coil. ▪ Lone working should not be allowed. ▪ At least 2 workers should pull the strand. ▪ Secure the strands in the dispenser machine for lying onto the bed. ▪ Ensure that HCS bed is clear of obstructions. ▪ Barricade the area and post warning signs.	ADOSH SF COP 2.0,7.0, 8.0 ,49.0	1	3	3	▪ Continuous Monitoring
34.	**Strand Stressing activity for HCS,**	▪ Breakage of strand	▪ serious injuries to workers	3	3	9	▪ Only trained personnel should perform this activity. ▪ Inspect the lying strands for kink and rust. ▪ Never use a damaged strand. ▪ Before starting strand, stressing activates warning alarm to alert the persons. ▪ Provide protective screen to contain the strand in case of breakage.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training

							▪ Ensure the strand locks are free from dirt and damage. ▪ Do not stand behind the strands end while stressing. ▪ Ensure that nobody crossing HCS bed while stressing the strand. ▪ Adequate supervision must be ensured. ▪ Worker working around should maintain a distance of at least 3 meters at all times. ▪ Foreman should monitor the area while stressing to ensure that everyone is at safe distance. ▪ All the activities that can damage the strands should be stopped. ▪ Barricade the area and Warning signs must be posted. ▪ Tool Box Talk should be conducted to employees in hollow core section.					
35.	**Laying Concrete**	▪ Irritant	▪ Allergic, abrasive to bare skin- in contact with concrete, second- or third-degree chemical burns	**3**	**3**	**9**	▪ Worker shall use skin barrier cream, prior to concrete pouring. ▪ Sufficient lighting must be provided. ▪ Always use adequate PPEs. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 1.0, 2.0, 8.0, 36.0,47.0	**1**	**3**	**3**	▪ Inspections ▪ Continuous Monitoring ▪ Training
36.	**Curing of HCS on casting bed**	▪ Covered with plastic sheet ▪ Trip and fall	▪ Moderate injury ▪ Fracture, bruises, cuts	3	3	9	▪ Ensure that all cutout sections of the HCS are marked. ▪ No person should be allowed to walk on the HCS while it is covered with plastic sheet. ▪ Post warning signs.	ADOSH SF COP , 2.0, 8.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪
37.	**De-stressing of strands**	▪ Breakage of the cutting wheel, ▪ tension	▪ Moderate injury ▪ Cuts, entry of particles ▪ Damage to property	3	3	9	▪ Always do pre-use inspection of tools. ▪ Never use a damaged blade for cutting strands. ▪ Never use a grinding blade for cutting. ▪ Always cut one wire at a time from strand. ▪ Clear the area before cutting the strands. ▪ Ensure that guard is installed on the cutting machine. ▪ Always wear PPE i.e hard hat with full face shield, safety glasses, and gloves. ▪ Barricade the area and post warning signs. ▪ Conduct a toolbox talk prior to commencement of work.	DM-COP-CH-15,4,6,10	1	3	3	▪ Inspections ▪ Checklists ▪ Continuous Monitoring ▪ Training
38	**Cutting HCS using cutting machine**	▪ high speed Saw	▪ Exposed to saw – Injury to persons	3	4	12	▪ Always do pre use inspection of machine ▪ Only trained operator shall perform the job. ▪ Barricade the area and post warning signs. ▪ Restrict the entry of unauthorized personnel. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪ Task Briefing and Tool Box talks
		▪ Noise	▪ Noise induced permanent or temporary	3	3	9	▪ Only trained and certified operator should operate the machine. ▪ Machine should be third party certified.	ADOSH SF COP 2.0,3.0, 8.0,	1	3	3	▪ Job rotation ▪ Install noise reducing

			hearing loss, mood swings				▪ Cutting machine operator should wear ear muff/ear plug to prevent noise induced hearing loss. ▪ Job rotation should be introduced to reduce exposure to noise. ▪ Noise reduction parts should be installed to the machine if possible. ▪ Cutting blade should be replaced regularly or according to the manufacturer's recommendation					parts. ▪ Routine maintenance
		▪ Movement of cutting machine on the rail	▪ Fall down of cutting machine – personnel injury and property damage	3	3	9	▪ Ensure that cutting machine rail is in level. ▪ Ensure that cutting machine motor is working properly. ▪ Ensure that coiling and uncoiling of electrical wire and water hose safely without any obstruction. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,15.0, 36.0,47.0	1	3	3	▪ Inspections ▪ Continuous Monitoring
		▪ Electricity	▪ Electrical shock, electrocution ▪ Fire	4	4	16	▪ Never use machine with frayed cords, damaged insulation or broken plugs. ▪ Do not use cutting machine in wet conditions or damp locations unless it is connected to a GFCI (Ground Fault Circuit Interrupter). ▪ Do not clean tools with flammable or toxic solvents. ▪ Ensure that electrical circuit is connected with ELCB. ▪ Ensure that cutting machine's electrical cables and accessories are in good condition. ▪ All tools to be tagged and checked. ▪ Tool Box Talk should be given to workers who are exposed to the hazard. ▪ Post warning signs. ▪ Always follow the set procedure to perform the task safely	ADOSH SF COP 15.0	1	4	4	▪ Inspections ▪ Checklists ▪ Continuous Monitoring ▪ Training
39.	**De-molding of Hollow core slabs**	▪ Fall down of HCS	▪ Severe injury to persons and property damage.	3	4	12	▪ Over head crane must have valid third-party inspection certificate. ▪ Crane operator must be trained to operate Over head crane. ▪ When Hollow core slab is being transported through the Bay make sure that the path of the HCS load is clear. ▪ Crane operator shall alert the workers to keep away from the load. ▪ Make sure the Lifting scissors, lifting beams are adequate used and defects shall be immediately ▪ The workers who are working inside the lifting area shall wear proper PPEs. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,14.0,17.0,22.0,34.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪
40	**Mold fixing for T**	▪ Manual handling ▪ Placing mold side	▪ Back injury ▪ Tendon and	3	3	9	▪ Ensure that workplace is clean and well maintained. ▪ Always do pre -use inspection of the tools, equipment	ADOSH SF COP 2.0,	1	3	3	▪ Inspections ▪ Continuous

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	slabs	at the edge of table ▪ Cleaning mold side –Mold side not fixed on the table ▪ Inadequate Work Procedures ▪ Inadequate work practices	ligament injuries ▪ Muscle injuries ▪ Hernias ▪ Work Related Upper Limb Disorders ▪ Cuts, dislocation and broken bones				and machines to be used for damage. ▪ Ensure no mold side left suspended when crane not in use. ▪ If it is required to lift manually, use adequate employees to lift the mold. ▪ Do not try to push or pull heavy loads. ▪ Use trolleys to move the loads if cranes are not available. ▪ A worker shall not carry a load that weighs more than 25 kg. ▪ After placing ensure that mold side fixed safely on the table. ▪ Do not keep the mold freely at the edge of the table ▪ While placing mold side on the table, employees have to ensure that their body parts are not entrapped in between table and mold. ▪ To prevent accident prior to cleaning mold side, ensure that mold side fixed on the table. ▪ Tool Box Talk shall be given to workers prior to commencement of work. ▪ Follow Safe procedures ▪ Warning signs shall be posted.	8.0,14.0, 17.0,22.0, 34.0 ,			Monitoring ▪ Training ▪
41	**Cleaning or Application of mold oil on T slabs on casting bed**	▪ Skin contact inhalation, slip and fall, spills, flammable	▪ Breathing problems, allergy, moderate injury, ▪ Soil pollution, ▪ Fire, explosion	3	3	9	▪ Only authorized personnel should perform this task. ▪ Always wear PPE i.e gloves, mask, goggles and safety shoes. ▪ Do not walk on the bed once the oil is applied. ▪ Make sure the workers shall properly use the spraying can and the oil shall be kept properly and if there are any leakages replace with new one. ▪ Ensure MSDS is available for the oil being used. ▪ Ensure spill kits are available and spill emergency plan is communicated to all workers. ▪ Ensure no hot work is carried out during the application of mold oil. ▪ Smoking should be prohibited. ▪ Ensure details of fire fighters and first aiders are proved at visible location. ▪ Ensure suitable and sufficient fire extinguishers are available. ▪ Barricade the area and post warning signs. ▪ Always follow the set procedures.	ADOSH SF COP 2.0, 8.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪
42	**Laying strands on the T slabs on casting bed**	▪ Hit by ▪ Compressed energy, ▪ Manual handling	▪ Moderate injury ▪ Back injuries				▪ Only authorized personnel should perform this job. ▪ Maintain a safe distance from uncoiling strand coil. ▪ Lone working should not be allowed. ▪ At least 2 workers should pull the strand.	ADOSH SF COP 2.0, 8.0,14.0,17. 0,22.0				▪ Inspections ▪ Continuous Monitoring ▪ Training

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							▪ Make sure to allocate adequate man power for pulling the strands ▪ Secure the strands at other end after completion of strand pulling. ▪ All the workers involved in strand pulling shall have adequate communication while dragging the strand in-between the pre stressed beam mould. ▪ Foreman shall guide the strand pulling activity. He should have a whistle and communicate with all the strand pulling workers to have proper coordination while pulling. ▪ Job rotation shall be done adequate breaks shall be given to the workers involved in strand pulling activity. ▪ Barricade the area and post warning signs. ▪ Always follow the set procedures.					▪
43	**Strand Stressing activity for T slabs**	▪ Breakage of strand ▪ Uncontrolled movement of broken strand. ▪ Hit with people or structures	▪ Major or minor injuries ▪ Partial or permanent disability. ▪ Property damage	**3**	**4**	**12**	▪ Inspect the lying strands for kink and rust. ▪ Never use a damaged strand. ▪ Before starting strand, stressing activates warning alarm to alert the persons. ▪ Provide protective screen to contain the strand in case of breakage. ▪ Ensure the strand locks are free from dirt and damage. ▪ Do not stand behind the strands end while stressing. ▪ Ensure that nobody crossing casting bed while stressing the strand. ▪ Ensure that nobody crossing HCS bed while stressing the strand. ▪ Adequate supervision must be ensured. ▪ Worker working around should maintain a distance of at least 3 meters at all times. ▪ Foreman should monitor the area while stressing to ensure that everyone is at safe distance. ▪ All the activities that can damage the strands should be stopped. ▪ Barricade the area and Warning signs must be posted. ▪ Tool Box Talk should be conducted to employees in hollow core section.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0,47.0	**1**	**4**	**4**	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪
44	**De-stressing of strands**	▪ Breakage of tensioned strand. ▪ Breakage of cutting wheel while cutting the strand. ▪ Flying objects	▪ Major or minor injuries ▪ Eye injuries. ▪ Amputation ▪ Damage to property	3	3	9	▪ Always do pre-use inspection of tools. ▪ Never use a damaged blade for cutting strands. ▪ Never use a grinding blade for cutting. ▪ Always cut one wire at a time from strand. ▪ Clear the area before cutting the strands. ▪ Ensure that guard is installed on the cutting machine. ▪ Always wear PPE i.e hard hat with full face shield, safety shoes, and gloves.	ADOSH SF COP 2.0, 8.0,14.0,15. 0, 17.0,22.0, 36.0,47.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪

							▪ Barricade the area and post warning signs. ▪ Conduct a toolbox talk prior to commencement of work.					
45	**De-molding of Hollow core slabs & T slabs**	▪ Fall of Elements during lifting. ▪ Crane breakdown ▪ Malfunctioning of crane ▪ Hit with nearby objects ▪ Uncontrolled movement during lifting.	▪ Major or minor injuries ▪ Partial or permanent disabilities ▪ Property damage.	4	3	12	▪ Overhead crane must have valid third-party inspection certificate. ▪ Operator must be TP certified to operate Over head crane. ▪ When precast elements are being transported through the Bay make sure that the path of the load is clear. ▪ Crane operator shall alert the workers to keep away from the load. ▪ Make sure the Lifting scissors, lifting beams are adequate used and defects shall be immediately ▪ The workers who are working inside the lifting area shall wear proper PPEs. ▪ Periodic maintenance of the crane must be ensured. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,14.0,17. 0,22.0, 34.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training ▪
46.	**Use of Mobile Trolley for shifting panels and elements**	▪ Material collapse of precast panels or elements ▪ Failed to secure the element on the trolley A frame, or panel rack, ▪ Mechanical Failure.	▪ Fire &Explosion ▪ Personnel injuries, ▪ Material damage,		**3**		▪ Prior operating the trolley pre use inspection must be done by the operator ▪ Inspect all the emergency buttons beacon lights and trolley brakes are working or not ▪ Never exceed the SWL of the trolley. ▪ Trolley tracks must be kept free of materials, electrical cables at all time and obstructions shall be cleared. ▪ Never stack the material close to trolley track and access for the operator must be given. ▪ LEAC/EN/AS approved third party certification must be issued by competent person after inspection every 6 months. ▪ The panels kept on the trolley shall be secured to the panel rack fixed to the trolley with steel pins and wooden wedges to avoid collapse of the panel while shifting. ▪ While the person standing on the rack platform to insert the steel pin make sure he is wearing safety harness and hooked to the guard rail provided. ▪ While a panel is loaded on an A frame trolley make sure that the panel is secured with chains. ▪ Make sure the weight is distributed on both sides of the trolley to avoid toppling of mobile trolley. ▪ Trolley power cable shall be protected against running over by vehicles and other equipment's. ▪ Never use the mobile trolley during rain and immediately after the cables are in wet condition. ▪ The power shall be shut down during rain.	ADOSH SF COP 2.0, 8.0,14.0,17. 0,22.0, 36.0,	**1**	**3**	**3**	▪ Regular work inspection by qualified persons ▪ Supervisor/ Foreman. ▪ Regular Equipment / machinery inspection by qualified persons. ▪ Periodic maintenance by Maintenance department.

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							▪ Do not push the trolley using shovel or drag with overhead crane. ▪ Any mechanical failure shall be immediately informed to the maintenance department ▪ Periodic Maintenance shall be done and record shall be maintained. ▪ Operator must be trained and competent. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot.					
47.	**Use of Chain Trolley for shifting HCS and materials**	▪ Material collapse of precast panels or elements ▪ Mechanical Failure. ▪ Chain breakage ▪ Trip hazard	▪ Fire &Explosion ▪ Personnel injuries, ▪ Material damage,	**3**	**3**	**9**	▪ Prior operating the chain trolley pre use inspection must be done by the operator ▪ Never exceed the SWL of the trolley. ▪ Never step on the moving chain ▪ Trolley tracks must be kept free of materials, electrical cables at all time and obstructions shall be cleared. ▪ Never stack the material close to trolley track and access for the operator must be given. ▪ Make sure that the HCS Slabs shall be stocked on the both trollies. ▪ Never stack the HCS over height. ▪ Make sure the persons shall not enter the chain trolley motor area. ▪ Any mechanical failure shall be immediately informed to the maintenance department ▪ Periodic Maintenance shall be done and record shall be maintained. ▪ 5-point PPE must be worn hard hat, safety goggles, high vest, hand gloves &safety boot	ADOSH SF COP 2.0, 8.0,14.0,17. 0,22.0, 36.0,	**1**	**3**	**3**	▪ Regular work inspection by qualified persons ▪ Supervisor/ Foreman. ▪ Regular Equipment / machinery inspection by qualified persons. ▪ Periodic maintenance by Maintenance department.
48	**Stacking of HCS**	▪ Fall down of HCS	▪ Serious Injury to person and property damage	**3**	**3**	**9**	▪ Ensure that HCS Stacking area is compacted well enough. ▪ Ensure adequate timber support (dunnage) has been provided to stack hollow core slabs. ▪ Warning signs must be provided in HCS stacking area. ▪ Proper access must be provided within stacking areas ▪ Ensure that HCS with same width only stacked in one stack. ▪ If site storage is required, HCS shall be stacked in a safe height. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,.0,	**1**	**3**	**3**	▪ Inspections ▪ Continuous Monitoring ▪ Training
49	**Stacking of cut Slab**	▪ Fall down of HCS	▪ Injury to persons	3	3	9	▪ Remove the cut slab from stockyard immediately after cutting Hollow core slab. if it is required to stack; stack in a safe height (reduced height) with adequate timber support ▪ Ensure that HCS with same width only stacked in one	ADOSH SF COP 2.0, 8.0,.0,	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training

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							stack. Do not stack HCS with different width. ▪ Ensure that cut slab stacked area has been cordoned off. ▪ Tool Box Talk shall be given to workers prior to commencement of work.					
50	**Loading of HCS into trailer**	▪ Movement of trailer/Suspended load	▪ Injury to persons and property damage	3	3	9	▪ Before loading HCS ensure that trailer tire is provided with tire stopper ▪ While lifting precast element ensure that nobody is under the suspended load. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,14.0,17.0,22.0, 34.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training
51	**Transportation HCS to the site**	▪ Vehicle accident	▪ Property damage and injury to public, fatality	3	4	12	▪ Ensure that vehicle has valid registration and driver has valid UAE license. ▪ Trailer driver to adhere road traffic regulations and site traffic regulations. ▪ Site traffic management and speed limit shall be strictly followed. ▪ Ensure that sufficient access compacted access available. ▪ Tool Box Talk shall be given to workers prior to commencement of work.	ADOSH SF COP 2.0, 8.0,44.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training
52	**Using Of compressed air for mold cleaning**	▪ Horse play ▪ Hose whipping ▪ Temperature ▪ Noise ▪ Vibration ▪ Fire ▪	▪ Personal Injury ▪ Bursting of hose/air receiver ▪ Equipment Damage ▪ Loss of hearing. ▪ numbness in the hand ▪ Burn injuries	**2**	**3**	**6**	▪ Compressor operator shall be competent to operate ▪ Air compressor shall be certified by EIAC/ ENAS approved 3rd third party. ▪ Before starting an air compressor, a visual check must be made to ensure the exhaust systems is adequate. ▪ Horse play should be forbidden ▪ Compressed air must not be discharged against any part of the body or used to blow dust off clothes as these practices can cause serious injury. ▪ Air compressor must be stopped when filling the fuel. ▪ Pressure relief valve shall be provided. ▪ Damaged hose pipes shall be quarantined and removed from site. ▪ Daily inspection check-list shall be maintained. ▪ Hoses joints shall be secured with whip-check to prevent whipping ▪ Never-use compressed air for cleaning purpose ▪ All the hoses shall be protected against running over by vehicles and other equipment's. ▪ High temperature alarm shall be installed. ▪ Make sure that the Water, oil, and fuel levels are satisfactory and all guards are in place. ▪ Job rotation policy shall be followed to protect against HAVS.	ADOSH SF COP 2.0, 8.0,14.0,49.0	**1**	**3**	**3**	▪ Regular work inspection by qualified persons ▪ Supervisor/ Foreman. ▪ Regular Equipment / machinery inspection by qualified persons

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							▪ Use ear plug (mandatory) ▪ Fire extinguisher will be available. ▪ Rubber part shall be placed on the handle to minimize the vibration effort. ▪ Periodic maintenance shall be done and adequate record shall be maintained ▪ Adequate fire extinguisher shall be kept in place (DCP type) ▪ In case of any oil spillage, it should be protected with dip tray and remove as per spillage procedure. ▪ Safety signage shall be displayed.					
53	**Working at height**	▪ Falling from height ▪ Falling of material ▪ Tripping Hazard ▪ Manual Handling ▪ Poor Visibility ▪ Open Edges ▪ Adverse weather conditions	▪ Landing on the wrong body part or surface. Can cause Spinal, head, or neck injuries ▪ can leave the worker severely disabled or lead to death ▪ Falls can cause broken bones, like wrist, arm, ankle, and hip fractures.	4	4	16	▪ Safe and secured working platform to be provided for work at height activities, dully inspected by the scaffolding supervisor and site engineer. ▪ Permit system in place for work at height activities. ▪ Training for working at height is mandatory for all users. ▪ Proper access/egress to the work area. ▪ Barricade and signs of area to avoid unauthorized entry ▪ Wind speed monitoring to avoid working in adverse weather conditions. ▪ Proper railing system e.g., top rail, mid rail, and toe board in place. ▪ Tools to be secured with tool lanyard. ▪ All workers to use the chin strap with hard helmet. ▪ Use Full body harness and maintain 100% tie off. ▪ Job rotation during summer season and close supervision. ▪ Ensure MSRA shall be communicated to all prior to work commencement. ▪ Ensure lifeline has anchored on rigid points ▪ Ensure to inspect life line anchorage point before the anchoring ▪ All persons working at height shall wear full body harness and anchor it on lifeline or rigid structure to prevent falls from height. ▪ Ensure the working plat form free from any substances causing slippage. ▪ Ensure all personal fall arrestor system shall be inspected prior to the use. ▪ Ensure to inspect all anchoring points for its rigidity. ▪ Ensure assigned workers trained for the use of personal fall arrestor system. ▪ Storage of materials on scaffold platform must not be practiced. ▪ Regular inspections to the scaffold as per the standard.	ADOSH SF COP 2.0, 8.0,14.0,17.0,21.0, 22.0, 23.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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							▪ Two lanyards hook full body harness to be used by all workers. ▪ Do not remove both hooks at same time. Always ensure one hook is connected with the anchor point. ▪ Adequate Housekeeping					
54	**Working at Height – Mobile scaffoldings for Precast Concrete Repairing Works**	▪ Uneven ground/floor surface ▪ Untrained workers erecting and dismantling the scaffolding ▪ Lack of inspection and tagging system ▪ Damaged and defective castor wheels ▪ Pushing or pulling the scaffolding while workers are riding on. ▪ Inadequate guard rails and toe boards	▪ Landing on the wrong body part or surface. Can cause Spinal, head, or neck injuries ▪ can leave the worker severely disabled or lead to death ▪ Falls can cause broken bones, like wrist, arm, ankle, and hip fractures.	3	4	12	▪ Competent Scaffolder to erect the scaffolding. ▪ Only a competent and certified / authorized person is allowed to inspect and fix the scaffold tag on scaffolding. ▪ Ensure the Scaffolding erected on compacted ground with specific components and Scaffold tag provided ▪ Do not overload. ▪ Do not temper the parts. ▪ Ensure the Platform is fully planked and guardrail and toe board provided. ▪ All employees working on the scaffolding should wear a safety harness and anchor it on the provided lifeline / guard rail. ▪ Ensure that access ladder is provided. ▪ Ensure that safe access and egress. ▪ The scaffolding to be inspected daily. ▪ Ensure the scaffolding is tied to the structure if the height increases 4 times the base structure. ▪ Never left loose materials on the scaffolding and all tools and materials to be secured properly. ▪ In case of heavy wind or adverse weather condition, no activities shall be carried out on the scaffolding. ▪ Ensure Tool Box talks and Daily Activity Briefing are conducted to the Employees. ▪ Green tagged scaffold shall be used for working. ▪ If noticed any modification / alteration done on Green tagged scaffold it shall be informed to HSE immediately.	ADOSH SF COP 2.0, 8.0,14.0,17.0,21.0, 22.0, 23.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training
55	**Working at Height – Use of MEWP**	▪ Working at height ▪ Falling objects ▪ Mechanical Break Down of machine. ▪ Over loading ▪ Contact with overhead obstruction during the use of MEWP ▪ Lack of supervision	▪ Landing on the wrong body part or surface. Can cause Spinal, head, or neck injuries ▪ can leave the worker severely disabled or lead to death • Falls can cause broken bones,	3	4	12	▪ Only Certified Operators shall be allowed to operate MEWP. ▪ Supervision for the work shall be ensured at all times. ▪ The operators shall use full body harness while operating MEWP Operators shall not be allowed to sit or stand on the guardrails and mid rails for extra height. ▪ Banks men with the MEWP shall be assigned to assist the operator from ground level and control the movement of other traffic in the area. ▪ Permit to work system for working at height shall be in place for the operation of MEWP. ▪ Ensure that area is fully barricaded with visible and	ADOSH SF COP 2.0, 8.0,14.0,17.0,21.0, 22.0, 23.0,36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

		▪ Lack of assigned banks man ▪ Unauthorized operation of MEWP ▪ Un Compacted ground ▪ Adverse weather condition – high wind, dense fog, sand storm, rain.	like wrist, arm, ankle, and hip fractures. ▪ Lack of preventive maintenance of the machine leads to mechanical failure.				clear signs. ▪ Ensure that no one shall be allowed to enter in the exclusion zones. Ensure that all workers have worn respective PPEs. ▪ MEWP operators shall wear full body harness at all times while use and moving of MEWP. Operators shall not be allowed to stand on the mid rails guard rails to gain extra height. ▪ Overhead obstructions prior the use of MEWP shall be taken in to considerations. ▪ Never use MEWP in congested or low height areas where the operation poses entrapment hazards. ▪ Operators shall not work outside the MEWP basket ▪ Ensure that all the tools are secured with rope while working at height. ▪ Daily inspection of the MEWP by the concern operator to be ensured. ▪ Weather condition shall be monitored and no operation of MEWP shall be conducted in case of adverse weather. Wind speed greater 12.5 m/s or poor visibility. ▪ Barricade and signs of area to avoid unauthorized entry and provide Exclusion zone for MEWP. ▪ Do not overreach / climb ▪ Secure tools on the belt ▪ Regular inspections to the working platform as per the inspection program and close supervision by the competent person. ▪ Workers to use hand lanyard for securing the hand tools.					
56	**Operation of Shovel for shifting of materials at workplace**	▪ Collision with pedestrians or vehicles. ▪ Overturning of shovel ▪ Unstable loads, ▪ Mechanical failure. ▪ Hydraulic leaks. ▪ Unauthorized operation of shovel ▪ Lack of Maintenance	▪ Hitting and collision with the plants and vehicles that may result to property damaged, serious injury or fatality ▪ Collapse of the ground ▪ Delay of work and uncontrolled activity due to inadequate	3	4	12	▪ Shovel operators must hold valid driving license and shall follow the Govt. rules and regulations as applicable. ▪ Equipment shall be certified by EIAC/ ENAS approved 3rd party. ▪ Approved trained and competent operator certificate shall be present. ▪ Follow colour coding system of site on lifting equipment's and accessories. ▪ EIAC /ENAS approved 3rd party Trained and competent banks man shall be deployed for control the movement of equipment. ▪ Be aware of all traffic, both pedestrian and vehicular, in the work vicinity. ▪ Do not operate machinery without the use of a seatbelt. ▪ Ensure persons are clear of reversing machinery.	ADOSH SF COP 2.0, 8.0,14.0,17.0,36.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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			supervision. ▪ Obstructions to other usual movements / services operating in the area. ▪ Vehicle collision that may result to damage of property and serious injury to the people within the vicinity				Ensure warning devices such as flashing light and reversing beeper are functional. ▪ Use safe lifting techniques – keep load as close as possible to the attachment carriage, assess the weight and tip point of the load before raising forks. ▪ Limit the load to the rated load capacity as shown on the load chart. ▪ Observe maximum lift height and mast tilt. Ensure loads are centered & secure. ▪ Do not lift loads over persons. When travelling with load, keep the load as low as reasonably practicable. ▪ Move slowly and cautiously when the load is raised and/or visibility hampered by load. ▪ Avoid sharp turns and heavy braking, and ensure tires pressures are at the recommended Kpa. ▪ Check height levels of doorways and overhead structures. ▪ Ensure load is at a suitable height and proceed slowly and cautiously. ▪ Check ground condition and slopes and remove all foreign objects. ▪ Keep level at all times. ▪ Always keep attachments and loads as close to ground as possible and travel with heaviest end uphill and avoid turning on slopes. ▪ Prevent slip & fall of the steel members while loading or unloading by securing load. ▪ Safe working load shall never exceed. ▪ PPM to be performed and maintain its records. ▪ Joint PPE must be worn hard hat, safety goggles, vest, hand gloves &safety boot. Do not operate shovel in case of inclement weather. ▪ The operator shall be able to observe the load continuously during lifting. When this is not possible, intermediate banks man shall be used under the direct control of Rigger coordinator to avoid the collision. ▪ Passengers must not ride on buffer, step, running board or any other insecure position while the machine is moving. ▪ The ignition key is removed and the machine is secured if left unattended ▪ Preventive maintenance shall ▪ Provision of adequate work-related signage at work area. ▪ In case of any oil spillage, it should be protected with					

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							dip tray and remove as per Spillage Procedure.					
57	**Storage of Chemicals, releasing agent Oils etc.**	▪ Damaged racks ▪ Over stacking ▪ Paint spillage ▪ Inhalation	▪ Material damage, ▪ Soil Contamination	**3**	**3**	**9**	▪ COSHH Assessment trained employee shall be deployed for storage and handling of paint. ▪ Flammable liquids are stored in designated area with proper labeling; ▪ Containers of flammable liquid shall be not kept in direct sunlight or near any sources of heat or ignition; ▪ Lids of containers are replaced after each use. ▪ As per the MSDS recommendation paint should be stored in proper temperature. ▪ Sufficient ventilation and adequate lighting should be provided. ▪ Paint cans shall be stored limited to designated COSHH storage container only. ▪ Emergency contact number shall be displayed. ▪ Spill kit shall be provided in the storage.	ADOSH SF COP 1.0, 2.0, 8.0	**1**	**3**	**3**	▪ Regular work inspection by qualified persons ▪ Supervisor/ Foreman.
58.	**Chemical handling for repairing of precast elements**	▪ Chemicals - Contact with skin ▪ Exposure to chemicals through direct contact with body, inhalation, ingestion and injection ▪ Inadequate storage and Disposal.	▪ Skin Irritation ▪ Ingestion ▪ Inhalation ▪ Asphyxiation ▪ Burns ▪ Toxicities	3	3		▪ Store chemical as minimum as possible on site. ▪ Provide safe storage area and label all types of chemicals on site. Chemicals shall be stored as per MSDS and in well-ventilated area. ▪ original packing in cool place or as recommended in MSDS ▪ Appropriate warning sign shall be posted in the storage area. ▪ Fire extinguishers should be provided at the storage area. ▪ Provide training related to proper handling of hazardous chemicals and risks related thereof. ▪ Site induction and TBT shall be given to the workforce before commencing any activity. ▪ All activities shall be carried out under the supervision of competent personnel. ▪ Weekly and monthly HSE inspection shall be carried out regularly. ▪ Competent first aider and first aid facilities to be available on site. ▪ Ensure storage of materials is stored as per method statement and technical drawing ▪ Use approved MSDS ▪ Ensure all materials are stored in the right and appropriate location ▪ Waste disposal as per Municipality requirements.	ADOSH SF COP 1.0, 2.0, 8.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training
59.	**Application of bitumen**	▪ Exposure to chemicals	▪ Skin Irritation ▪ Ingestion	3	3	9	▪ Ensure that chemical containers are labelled and MSDS is available at store area.	ADOSH SF COP 1.0, 2.0,	1	3	3	• Inspections • Continuous

		through direct contact with body, inhalation, ingestion and injection ▪ Inadequate storage and Disposal. ▪ Splashing during application	▪ Inhalation ▪ Asphyxiation ▪ Burns ▪ Toxicities				▪ Ensure that workers are wearing adequate PPE. ▪ Eye Contact irrigate immediately with copious quantities of water. ▪ Skin contact – wash immediately with copious quantities of water and remove contaminated clothing immediately. ▪ Inhalation: Ensure that workers are wearing mask. ▪ Prior to working Method statement and Risk Assessment to be explained to all workers. ▪ Proper storage facilities for chemicals with all the requirements. ▪ Bitumen mixing shall be commenced in only in designated area. ▪ Trained and competent personnel shall deploy for bitumen mixing activity. ▪ To avoid spillage of bitumen during pouring or while mixing, dip tray or plastic roll shall be placed to contain spill. ▪ Enforce the use of personal protective equipment at all time, (goggles, gloves, coverall and chemical mask). ▪ Removal of stored waste such as solvents-soaked ranges and waste bitumen rolls from within the exclusion.	8.0,14.0				Monitoring ▪ Training
60	**Storage of Polystyrene in factory**	▪ Fire	▪ Personal Injury/Property damage due to fire	3	4	12	▪ Daily activity Briefing and Tool box talks shall be conducted on daily basis. ▪ Store Polystyrene in segregated area. ▪ Do not perform any hot work near to polystyrene storage area. ▪ Ensure that fire extinguisher is available in Polystyrene storage area. ▪ Adequate Signage's shall be posted near the storage area. ▪ All the sheets shall be stocked and secured in an enclosed area to avoid flying due to wind. ▪ Adequate Housekeeping Shall be maintained.	ADOSH SF COP 1.0, 2.0, 8.0	1	4	4	▪ Inspections ▪ Continuous Monitoring
61.	**Stacking and storage of material**	▪ Material falling down, • dust	▪ Major injury ▪ Damage to property	3	4	12	▪ Ensure that aggregate is stored in safe manner in the bins as per the type of the aggregate. ▪ Ensure that aggregate is covered with plastic sheet if possible. ▪ Sprinkle water on the aggregate to damp the dust. ▪ Ensure that aggregates stored at right angle of repose to prevent sliding. ▪ Ensure that ground is well compacted and level for storage of strand coils. ▪ Do not increase the stacking height over 3 coils. ▪ Ensure strong and sufficient timber support in the base	ADOSH SF COP 2.0, 8.0	1	4	4	▪ Inspections ▪ Checklists ▪ Continuous Monitoring

							of each coil. ▪ Barricade the stacking area. ▪ Stack the coils according to the size of the strand. ▪ Post warning signs. ▪ Toolbox talk should be conducted prior to commencement of work. ▪ Awareness trainings should be conducted for workers.					
62	**Loading cement from cement tanker to Silo**	▪ Maneuvering cement tanker inside the factory ▪ Chemical hazardous to health ▪ Improper training on the MSDS ▪ Lack of PPE ▪ Dust produced during ▪ Inadequate housekeeping ▪ Removal of tanker hose while filling the cement ▪ Spillage of cement and spreading on the air ▪ Excessive Noise	▪ Hitting against vehicle and persons- damage to property, injury to workers ▪ Whipping of hose lead to personal injury ▪ Environmental pollution due to the entry of cement into atmosphere ▪ Tinnitus	3	4	12	▪ Prior to commencing the, MSDS and Risk assessment should be briefed to the operatives ▪ Ensure to aware eye wash location for the emergency action. ▪ Area should be barricaded and signs should be posted. ▪ Make sure the warning systems of the tanker such as reverse alarm are working. ▪ Tanker driver should follow flagman's instruction. ▪ Prior to starting cement tanker cement filling system, ensure that the hose fixed safely. ▪ Do not allow anybody to enter inside the cement filling area. ▪ Barricade the area and post warning signs. ▪ Prior to starting cement filling system, ensure that the hose fixed properly with the pneumatic butterfly valve with pneumatic interlock system. ▪ Do not allow anybody to enter inside the cement filling area. ▪ Ensure that all operatives are wearing all required Personal Protective Equipment (Coverall, Hard Hat, Hand Gloves, Dust Mark, Ear mufflers, Goggles and Safety Shoes). ▪ Ensure the MSDS of the Cement and chemicals are available on site. ▪ Hazardous waste to be disposed as per DM Regulations. ▪ Housekeeping to be maintained on a regular basis ▪ Wear goggles, dust masks and protective gloves. ▪ Eye & Skin contact – wash immediately with copious quantities of water and remove contaminated clothing immediately. ▪ Inhalation: Ensure that workers are wearing mask.	ADOSH SF CoP 1.0, 2.0,3.0,4.0, 8.0,	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training
63	**Operation under adverse weather conditions**	▪ Wind while working ▪ ▪ Collapse of Crane	▪ Swinging of load during lifting activity due to high winds ▪ Lack of visibility leads to collision	**3**	4	12	▪ In case of heavy wind or adverse weather condition, suspend the work and inform the authorized. ▪ Stop the work at height during high wind and rain and stay in secure place. ▪ Use tag lines to control the suspended loads. ▪ Cease all lifting operations if the wind speed exceeds	ADOSH SF CoP 2.0, 4.0, 8.0, 11.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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			of vehicles ▪				38 km / hr. ▪ Ensure do not raise the suspended loads to unnecessary heights. ▪ Monitoring of weather forecast. ▪ Maintain Exclusive Zone and consider boom swing radius.					
64	**Working in Extreme Hot Climate**	▪ Extreme Temperatures	▪ Dehydration ▪ Muscle Cramps ▪ Heat Stress ▪ Heat Exhaustion ▪ Heat Stroke ▪ Skin burns / cancers	3	4	12	▪ When possible, and where appropriate, use fans/ventilation to provide air movement for cooling. ▪ Rescue equipment shall be available on site. ▪ Schedule heavy work for cooler periods of the work shift (e.g., early mornings, cool/overcast days). ▪ Know the signs and symptoms of heat stress; use the buddy system to monitor one another for these signs/symptoms. ▪ Reduce physical exertion levels by providing extra individuals. ▪ As far as possible try for rotation of manpower ▪ Take frequent rest/water breaks in areas that are shaded or air conditioned. ▪ Cool drinking water to be available on site. ▪ Hydrants to be distributed to all workers daily. ▪ Refreshments to be provided. ▪ If someone shows signs of heat stress (exhaustion or stroke), request immediate medical attention, move the individual to a cooler area in the shade, loosen or remove restrictive or heavy clothing, provide cool drinking water, and fan and mist the person with water. ▪ Site induction and TBT shall be given to the workforce before commencing any activity. ▪ Competent first aider and first aid facilities to be available on site. ▪ Emergency response plan shall be available and emergency number shall be displayed at site. ▪ Adequate welfare facilities shall be provider. ▪ Suitable PPE shall be provided as per activity requirement and shall be worn at all times. ▪ Workers shall be given Mid-Day Break as per legal requirement. ▪ Work under shaded area, use umbrellas and take plenty of water ▪ Critical works should never be done during the heat of the temperature ▪ Provide cold drinking water, glucose and hydrant. To boost the energy of the staffs	ADOSH SF CoP 2.0, 4.0, 8.0, 11.0	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training
65	**Night works**	▪ Working against	▪ risk to workers	3	4	12	▪ Ensure the night works are planning as the last option	ADOSH SF	1	4	4	▪ Regular work

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		biological cycle ▪ Insufficient lightings ▪ Night driving ▪ Inadequate visible communications ▪ Working near live road	of being hit by moving objects or equipment's ▪ increases crash risk increased fatality				of work scheduling. ▪ Lighting arrangements shall be done properly. ▪ Dark corners shall not leave while illuminating the area. ▪ Lux meters should be available to measure the lightings at night. ▪ All access and exit ways must be illuminated adequately. ▪ All vehicles and plants should be well maintained. ▪ Ensure all vehicle/ equipment's are having good high visibility alert illumination system and head lights. ▪ All drivers and operators should maintain safe driving speeds at nights. ▪ All traffic diversions should be fitted with night time flickering lights, deviation arrow boards and revolving lights. ▪ A flag man with illuminated signaling stick should be assigned to control the local traffic during the rush hours at night. ▪ All personnel working at night shift must be provided with day time rest. ▪ All personnel should be trained in procedures to avoid hazards associated with reduced visibility. ▪ Job Rotation shall be done ▪ All personnel should wear high visibility jackets during night works. ▪ Stop all critical operations during foggy weather or poor visibility due to dust ▪ Ensure the work area illumination is lit to standard lux from 500 to 1000 lux Job Rotation shall be done	CoP- 2.0, 8.0, 17.0, 33.0,				inspection by qualified persons ▪ Supervisor/ Foreman.
66	**Housekeeping**	▪ Litters in working area ▪ Bad housekeeping and storage ▪ Lack of training ▪ Lack of supervision ▪ Trips and falls	▪ Personnel Injury ▪ Fire	3	3	9	▪ [illegible] all company employees about the importance of [illegible] housekeeping. ▪ Fix time for housekeeping in all work shifts. ▪ Implement adequate waste management programs. ▪ Waste materials have to be segregated and stored in designated areas. ▪ Waste storage skips has to be provided adequately. ▪ Waste storages have to be removed frequently using approved waste disposal methods. ▪ Handling of waste shall be done using appropriate PPES. ▪ Records of waste generation and disposal to be maintained. ▪ Hazardous wastes to be disposed of through approved waste carriers. ▪ Spilled liquids shall be wiped up immediately.	ADOSH SF CoP 2.0,8.0, 54.0	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training

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							▪ Walkways, roadways, gangways or stairways shall always be kept free from obstructions. ▪ Excessive materials should not be brought from the materials yard than is needed it gets in the ways and leads to waste. ▪ Package or other timber material should be de-nailed. ▪ Arrange cable and hoses properly to avoid trip hazard. ▪ Stored material properly at height to avoid accidental fall.					
67	**Waste Management**	▪ Improper waste disposal	▪ Illness (respiratory, skin diseases) ▪ Loosing of Environmental Habitat ▪ contamination of eco system with hazardous materials ▪ soil contamination	3	3	9	▪ Comply with DM Waste Management requirements. ▪ Implement adequate waste management facilities of factory ▪ All personnel should be adequately informed and instructed about the waste management. ▪ Good Housekeeping at site should be maintained. ▪ Temporary waste dumping areas should be available at different locations of the site. ▪ Waste segregation should be implemented and maintained. ▪ Assign authorized waste management contractors for maintaining the waste collection from factory. ▪ Follow company waste management procedures. ▪ All medical wastes should be properly disposed of. ▪ Fire Fighting System at waste segregation area ▪ Emergency contact numbers in place.	ADOSH SF **CoP- 54.0**	1	3	3	▪ Inspections ▪ Continuous Monitoring ▪ Training
68	**Emergency Communication**	▪ Emergency communication with emergency services. ▪ Workers not complying with controls	▪ Inadequate/Obstructed Access or Roads for the Emergency Vehicles ▪ Time delay in rescue, treatment of injured and fighting fire;	3	4	12	▪ All workers shall be trained in emergency action plans and types of emergencies. ▪ Regular emergency drills shall be conducted to promote ... awareness among the workers and site operators. ... supervision to monitor operation; Regular topic in ... s. ▪ HSE team along with management shall assess and decide the exact means of communication on the factory based on the location, complexity, and size of the factory. ▪ The agreed communication system shall be made up of strategically placed equipment and properly defined responsibilities. The emergency response plan posted in a conspicuous place on the factory must identify the designated equipment and the people to operate it. ▪ Emergency phone numbers and the site address/location shall be posted beside all site phones. ▪ Instructions shall be issued for the immediate notification of the Civil Defense in case of a fire emergency.	ADOSH SF Element-06	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

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							▪ A system of communication shall be established higher management to be used in the event of an incident, including lines and means of contact. This will be identified in the HSE Emergency Response Plan and sign posted in prominent areas;					
69.	**Factory Emergency Exit**	▪ Emergency site egress. ▪ Workers not complying with controls	▪ Ineffective site evacuation, staff at risk due to slow exit. ▪ Blocked exits – egress prevention. ▪ Incident due to poor exit lighting;	3	4	12	▪ All exits shall be identified in the factory Safety Evacuation plan ▪ Where stairs and exit routes of a building are under construction, exterior temporary steel stairs and exits shall be provided which lead directly to ground floor to the safety of outside the building. ▪ In case of Night work shall not be performed without adequate lighting in exits, and escape routes to safety outside the building; ▪ All supervision to monitor operation, Regular topic in TBT's	ADOSH SF Element-06	1	4	4	▪ Inspections ▪ Continuous Monitoring ▪ Training

Assessor Name	Gogul Gopinath	**Position**	Sr. HSE Officer	**Signature**	
Reviewed By	Mr. Jomon George	**Position**	HSE In-charge	**Signature**	
Approved By		**Position**		**Signature**	

Risk Assessment Date	14-8-2025	**Review Period**	1 Year	**Date of Next Review**	13-08-2026