भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(सार्वजनिक क्षेत्र का उपक्रम)
Bharat Heavy Electricals Limited
(A Public Sector Undertaking)

पावर सेक्टर- पश्चिमी क्षेत्र Power Sector-Western Region
श्रीमोहिनी काम्पलेक्स, 345 किंग्सवे, नागपूर Shreemohini complex, 345 Kingsway Nagpur - 440 001
फोन / Phone 0712- 2858600, फैक्स FAX: 0712-2858699 www.bhelpswr.co.in
BHEL PAN: AAACB4146P

Ref: BHE/PW/PUR/KHARACH CA/2742/Corg-01 **Date: 30-03-2023**

To
ALL BIDDERS,

Sub: Corrigendum: Vol I TCC Annexure –I to IX

JOB: WORK FOR CAPACITY ENHANCEMENT OF 100TPH AFBC BOILER UNIT # 1 AT BIRLA CELLULOSIC PLANT KHARACH, KOSAMBA GUAJARAT.
Reference:

1) E-Tender Specification Number: E-Tender Specification No**: BHE/PW/PUR/KHARACH CA/2742**

Bidders to kindly take note of the following:

==========

AA) Additional Clause in Annexure -12 IMPORTANT INFORMATION:

Vol I TCC	Vol I TCC
Additional documents	Appendix -1 to IX to be attached separately)

==========

All other Terms and conditions of the Tender Specification shall remain unaltered unless expressly amended by BHEL in writing. Bidders are requested to submit as a part of their offer, a copy of this corrigendum duly Digitally countersigned by the authorized signatory as a token of Bidder's unqualified acceptance of this corrigendum.

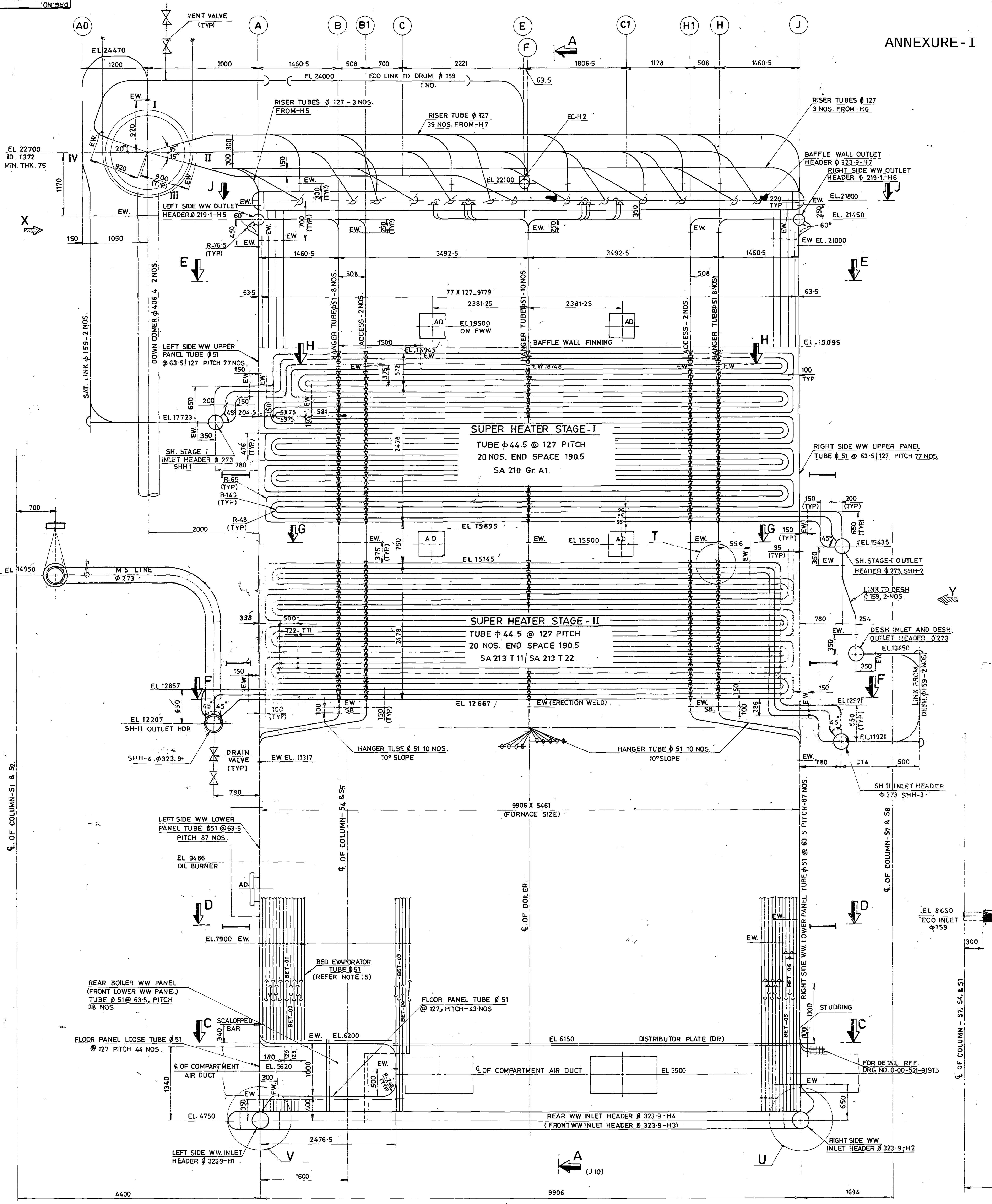
BIDDERS MAY PLEASE NOTE THAT SUBJECT TENDER IS E-TENDER AND THE OFFER IS TO BE SUBMITTED ONLY IN E-PROCUREMENT PORTAL→ **https://eprocurebhel.co.in**

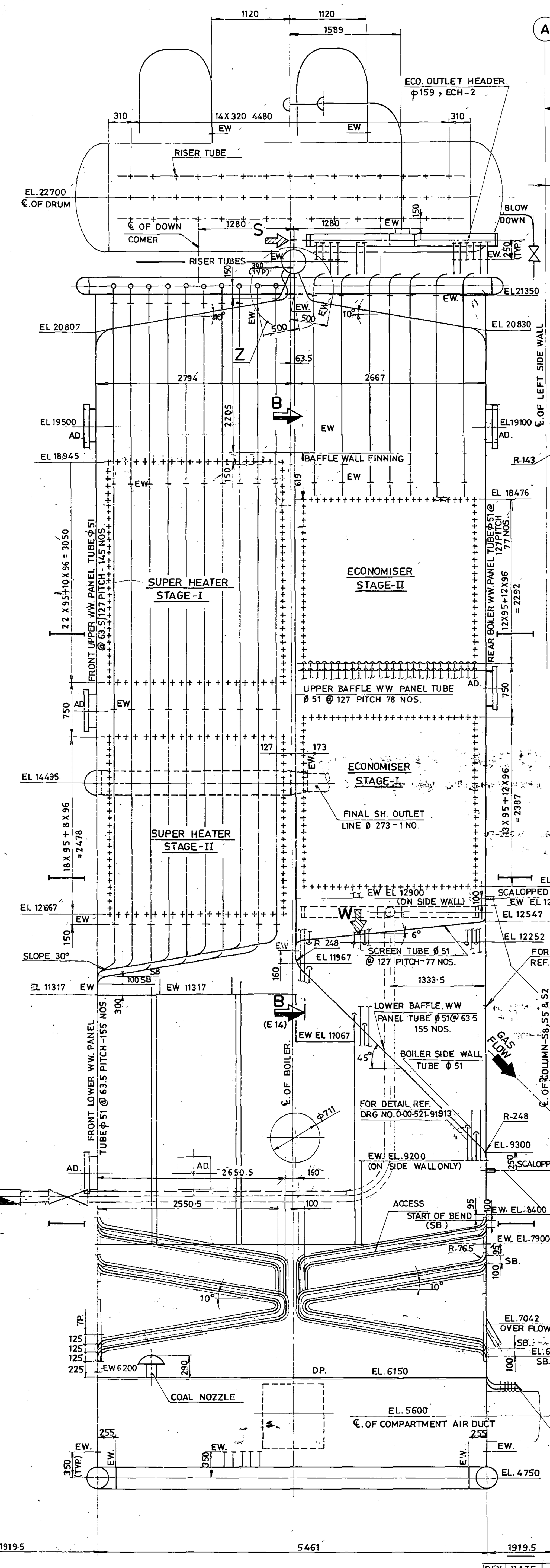
BIDDERS WHO HAVE ALREADY SUBMITTED THEIR OFFERS PRIOR TO ISSUANCE OF THIS CORRIGENDUM IN E-TENDER PORTAL ARE REQUIRED TO RE-SUBMIT THEIR OFFER AFTER TAKING COGNIZANCE OF THIS CORRIGENDUM.

Thanking you,
Yours faithfully,

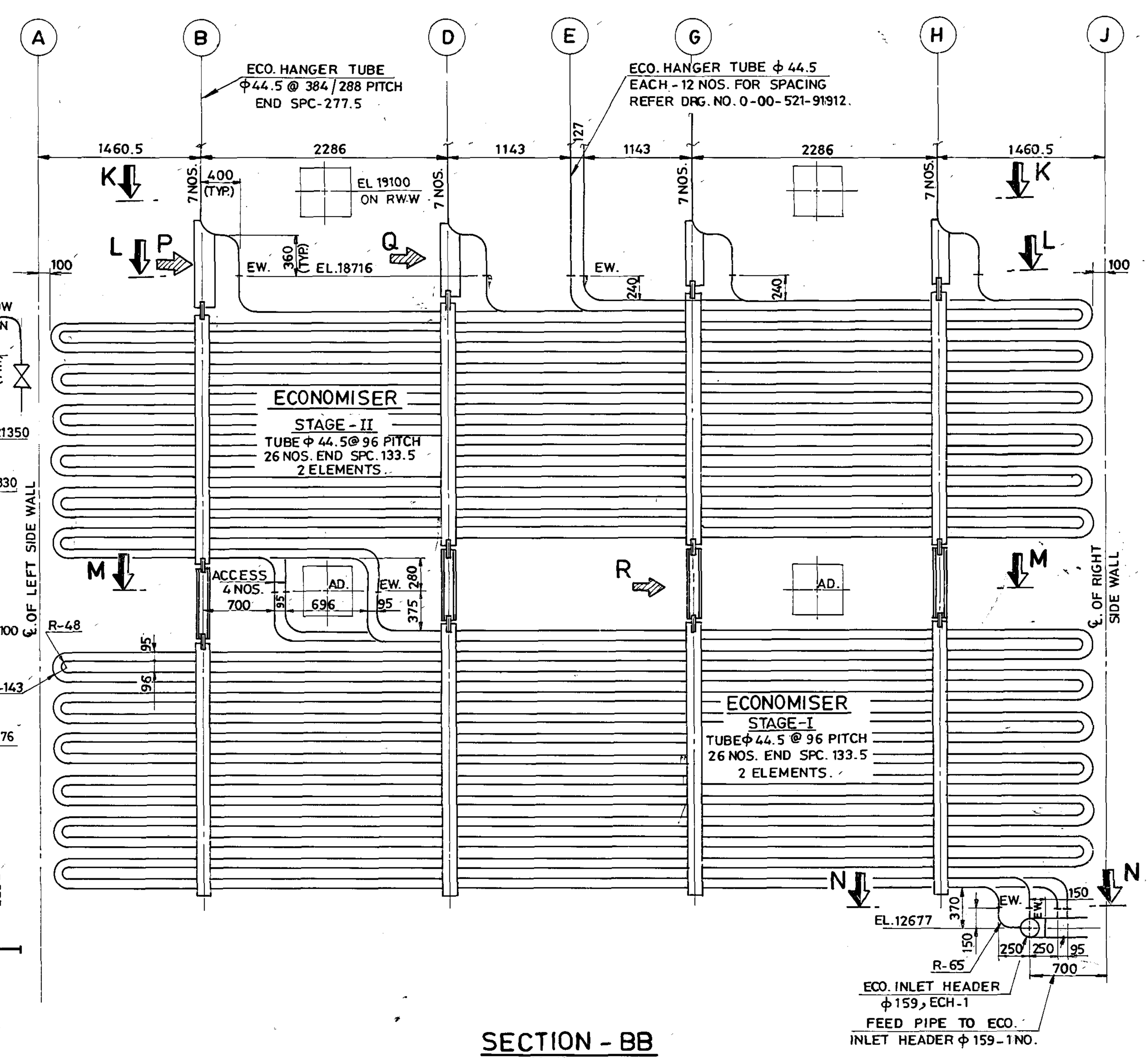
GM (Purchase)

ANNEXURE-I





SECTION-AA
(J6)



SECTION - BB
(G,10)

SI. NO	DESCRIPTION	REFERENCE DRG. NO.	SIZE (OD X THK) / MATL. SPECN	DGN. PR Kg/Cm²	DGN. TEMP °C
09	HANGER TUBE	3-07-224-81574 TO 3-07-224-81586	ϕ51 X 4.5 SA 210 Gr.A1	82	324
08	SH DESH LINK	1-12-852-80299	ϕ273 X 16 SA 106 Gr.B	79.5	390
07	COILS	2-07-220-81185 TO 2-07-220-81194	ϕ51X5.1(5098) ϕ51 X 5.2(5099) SA 210 Gr.A1	84	326
		2-07-220-80886 TO 80891 2-07-220-80894 To 80917 3-07-220-81564 TO 81566	ϕ 51 X 5.1 SA 210 Gr.A1	84	326
		1-19-114-80335 To 80343 1-19-104-80345 To 80352	ϕ 44.5 X 4 SA 210 Gr.A1	85.5	275
		1-11-235-80123, 80124, 80170, 80171		82	429
		1-11-236-80125	ϕ 44.5 X 4 & 44.5 X 4.5 SA 213 T11 & SA 213 T 22	79	524/550
		1-11-236-80126	ϕ 44.5 X 4.5 & 44.5 X 4 SA 213 T 22 & SA 213 T11	79	524/550
		1-19-851-80353 1-19-850-80355 1-12-850-80306	ϕ 159 X 10 SA 106 Gr.B	85.5 85.5 82	264 196 296
06	LINKS	1-12-851-80311	ϕ 273 X 14.2 SA 335 P22	76	490
05	DRUM	0-04-114-80196 1-04-114-80243 2-04-114-80344	& PL 75 X 2281 X 5100 SA 299	82	324.2
04	DOWNCOMER	1-07-101-80219 2-07-101-80980 To 80984 3-07-101-81602 To 81604 3-07-101-81603 3-07-101-81605	ϕ 406.4 X 20 SA 106 Gr. B ϕ 323.9 X 20 SA 106 Gr.B	84	326
03	RISERS	2-07-201-80918 To 80938, 80939 2-07-201-80940 To 80962	ϕ 127 X 8 SA 106 Gr.B	82	324
02	HEADERS	1-05-251-80108 1-05-251-80109	ϕ 219.1 X 28 SA 106 Gr.C	82 82	324 324
		1-05-159-80119 1-05-158-80118 1-05-137-80143 0-05-216-80005 1-05-147-80144	ϕ 323.9 X 36 SA 106 Gr.C	84 84 84 82 84	326 326 326 324 326
		1-12-900-80296	ϕ 273 X 16 SA 106 Gr. B	79.5	390
		2-19-702-80166	ϕ 159 X 16 SA 106 Gr.C	85.5	264
		2-19-701-80165	ϕ 159 X 16 SA 106 Gr.C	85.5	196
		1-10-236-80047	ϕ 323.9 X 32 SA 335 P12	76	490
		1-10-136-80049 1-10-235-80048 1-10-135-80046	ϕ 273 X 30 SA 106 Gr. C	79 79.5 82	326 390 296
01	PANELS	2-06-089-80476 To 80477 2-06-189-80478 & 479 2-06-090-80502 To 80503		84	323
		2-06-094-80513 To 80514 2-06-190-80504 To 80505 2-06-193-80510 To 80511 2-06-194-80515 1-06-613-80149 To 80156 1-06-631-80142 To 80148 2-06-637-80518 To 80525 2-06-649-80516 To 80517 2-07-212-81022 To 81042, 81043 3-07-212-81656 To 81662 -81669 To 81677, 81680 To 81681	ϕ 51 X 4.5 SA 210 Gr. A1	84	323
		2-07-223-80963 To 80968 3-07-223-81567 To 81568		84	326
		2-07-224-80969 To 80978 3-07-224-81625 To 81629		82	324
		2-06-093-80512 2-06-618-80489 To 80494	ϕ 51 X 4.5 SA 210 Gr. A1	84	323
		2-06-617-80483 To 80488 1-06-649-80123 To 80128	ϕ 51 X 4 SA 192	84	323
		2-19-802-80162 To 80164 3-19-802-80395 To 80399, 80400 4-19-802-81196	ϕ 44.5 X 4.5 SA 210 Gr. A1	85.5	275

REF. DRG. NOS:-

1.a 0-00-521-91911 : PPA. SECTIONAL PLAN VIEWS & DETAIL.
1 b 0 00 521 92060 BED EVAPORATOR TUBES (REVISED)
2. 0-00-521-91912 : PPA. SH. & ECO. PLAN VIEWS.
3. 0-00-521-91913 : PPA. PANEL ARRANGEMENTS.
4. 0-00-521-91914 : PPA. PANEL OPENING DETAILS.
5. 0-00-521-91915 : PPA. FURNACE BOTTOM ARRANGEMENT & DETAILS.
6. 0-00-521-91916 : PPA. DOWN COMERS & SUPPLY PIPES ARRANGEMENT.
7. 0-00-521-91917 : PPA. RISER TUBE & ECO. LINK DETAIL.
8. 0-00-521-91918 ; PPA. EXPANSION MOVEMENT DIAGRAM.
9. 1-00-521-91709 ; PPA. CEILING LOADING PLAN.
10. 1-00-521-91714 ; PPA. SAT. LINK & DESH. LINK ARRANGEMENT.

NOTES:-

1. STUDDING
   a) FURNACE FRONT, LEFT AND RIGHT SIDE WATER WALLS ARE TO BE STUDDED AND REFRACTORY LINED UPTO 5150 FROM DISTRIBUTOR PLATE.
   b) FURNACE REAR WATER WALL HAS TO BE STUDDED AND REFRACTORY LINED UPTO 3100mm FROM DISTRIBUTOR PLATE.
   c) BED EVAPORATOR TUBES ARE TO BE STUDDED BOTTOM PORTION ONLY (NOT ALL ROUND)
2. HALF SHIELDS ARE TO BE PROVIDED ON SURFACES FACING THE GAS FLOW OF THE FOLLOWING.
   a). BOTTOM ROW OF SUPER HEATER STAGE-II.
   b). SUPER HEATER HANGER TUBES, ABOVE SUPER HEATER STAGE-I.
   c). SCREEN TUBES FORMED FROM BAFFLE WALL PANEL.
   d). ECONOMISER HANGERS AND ITS BENDS.
   e). SCREEN TUBES BELOW THE ECONOMISER.
3. CASETTE BAFFLES ARE TO BE PROVIDED ON ECONOMISER ASSEMBLIES.
4. TYPICAL BEDEVAPORATOR TUBES ARRANGEMENT ONLY IS SHOWN FOR FURTHER MARK NOS. AND DETAILS REFER DRG. NO. 0-00-521-91911, 0-00-521-91915 & 0-00-521-92060
5. REFER DRAWING NUMBER
   a). 0-00-521-91911 : FOR SECTIONS-DD, EE, FF, JJ, VIEW-W & DETAIL-Z.
   b). 0-00-521-91912 : FOR SECTIONS-GG, HH, KK, LL, MM, NN VIEW-P, Q, R, S AND DETAIL-T.
   c). 0-00-521-91915 : FOR SECTION-CC AND DETAIL-U, V.
   d). 1-00-521-91714 : FOR VIEW-X AND Y.
6. DESIGN, MANUFACTURING AND INSPECTION AS PER IBR.

BRIEF DESCRIPTION OF BOILER

TOP SUPPORTED, SINGLE DRUM, NON REHEAT, NATURAL CIRCULATION, ATMOSPHERIC FLUIDISED BED & SEMI OUT DOOR UNIT.

BOILER PARAMETERS:

1. BOILER DESIGN PRESSURE : 82 Kg/Cm²(G)
2. BOILER DESIGN TEMPERATURE : 324°C. (296+28)
3. SH. OUTLET PRESSURE : 65 Kg/Cm²(G)
4. SH. OUTLET TEMPERATURE : 485°C.
5. HYDRAULIC TEST PR. AT SITE : 123 Kg/Cm²(G)

HEATING SURFACE AREA (M²)

1. ECONOMISER : 1897.04
2. WATER WALL : 1026.49
3. BED EVAPORATOR : 311.01
4. HANGER TUBES : 82.01
5. SUPER HEATERS : 1661.84

TOTAL : 4978.39

REV	DATE	ALTD		DESCRIPTION
04	6.12.96	CHD & APPD		DRUM DRG. NO. CORRECTED. PR-PARTS DRG NOS UPDATED SERIAL NO: 08 & 09 ADDED.
03	20.07.96	CHD & APPD	ATR VP	ADDL HEATING SURFACE AREA ADDED IN SH1-SH II HDRS RELOCATED FOR COUNTER FLOW. MS, BFD BD, DRAIN & VENT VALVE SHOWN. BAFFLE WALL FINNING EW CHANGED FROM 18926 TO 19095 AD LOCATION CHANGED FROM 19100 TO 19500 ON FRONT WALL SH. COILS DETAILS REVISED
02	1.5.96	CHD & APPD	MR VP	APPLICABLE PR-PARTS DRAWING ADDED.
01	24.05.95	CHD & APPD	ATR VP	BRIEF DESCRIPTION OF THE BOILER. NOTE. 7. ADDED. TYPE OF BOILER ADDED.

CUSTOMER NO. 5098, 5099

CUSTOMER: M/S. BIRLA CELLULOSIC
TYPE OF BOILER: WATER TUBE BOILER
PROJECT: BC-AFBC BOILER - KHARACH
2X100 T/H., 65 KG/CM²(G), 485°C.

BHARAT HEAVY ELECTRICALS LIMITED
BOILER PLANT UNIT, TIRUCHIRAPALLI - 620 014.

DRAWN	C.T.S.	
CHECKED	V.P.	
APPROVED	R.A.	
DATE		18.03.95

ALL DIMENSIONS IN MILLIMETRE. SCALE N.T.S.

TITLE: PPA. SECTIONAL ELEVATION

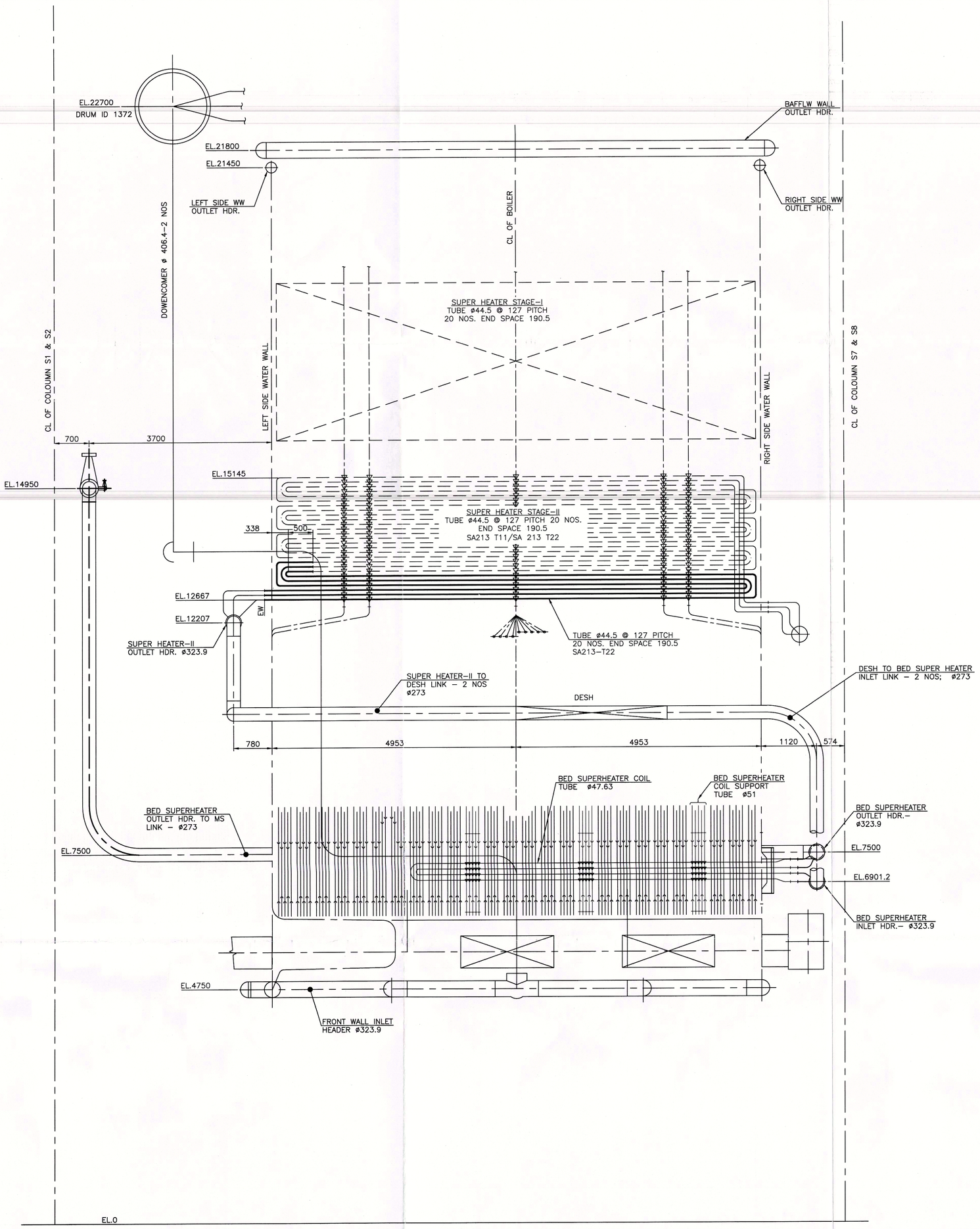
DRG. NO. 0-00-521-91910 REV. 04

EC 001

DRAWING No. 0-00-521-38212

FIRST ANGLE PROJECTION (ALL DIMENSIONS IN MILLIMETRES)

COMPUTER FILE NAME :



SECTIONAL SIDE ELEVATION

SCOPE COVERED UNDER R&M BOILER

SL. No.	DESCRIPTION	NO. OF OPENING	TUBE SIZE	MATERIAL	DESIGN PRESSURE	DESIGN TEMP.	DRG. NO.
01	BED SUPER HEATER	–	ø47.63X6.3	SA213–T91	76 Kg/sq.cm	605°	0–00–521–35210
02	SUPER HEATER–II LAST COIL REPLACEMENT	–	ø44.5X4.5	SA213–T22	79 Kg/sq.cm	550°	0–00–521–35211

PROPOSED CHANGES :

1. IN SUPER HEATER STAGE–II BOTTOM LOOP REPLACED WITH NEW COIL.
2. NEW BED SUPER HEATER COIL ARRANGEMENT PROVIDED IN BETWEEN BED EVAPORATORS.
3. TO SUPPORT THE NEW BED SUPER HEATER COIL BED EVAPORATOR TUBES ARE MODIFIED IN THE SUPPORT LOCATION.
4. NEW LINKS ARE ROUTED FROM SUPER HEATER–II OUTLET HEADER TO BED SUPER HEATER INLET HEADER WITH DESH.
5. NEW LINKS ARE ROUTED FROM BED SUPER HEATER OUTLET HEADER TO EXISTING MAIN STEAM LINE.

ADDITIONAL HEATING SURFACE AREA APPLICABLE FOR BED SUPER HEATER PER BOILER

BED SUPER HEATER : 90 sq.m

BOILER DESCRIPTION:–

TOP SUPPORTED, SINGLE DRUM, NON REHEAT, NATURAL CIRCULATION ATOMSPHERIC FLUUIDISED BED & SEMI OUT DOOR UNIT.

BOILER REGISTRY NOS.	
Unit No.1	BLR–1– GT–3850
Unit No.2	BLR–2– GT–3763

ANNEXURE-II

BIRLA CELLULOSIC (PLANT OF GRASIM INDUSTRIES LTD.) AUTHORISED SIGNATORY

(B. H. Patel) Competent Person By Director of Boilers Gujarat State, Vadodara.

29 AUG 2019

APPROVED

(A. M. SHAH) INSPECTING AUTHORITY DIRECTOR OF BOILERS GUJARAT STATE

REV	DATE	ALTD
01		CHD
		APPD

CAUTION: THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTERESTS OF THE COMPANY.

CUSTOMER No. 4402, 4403

CUSTOMER: M/S BIRLA CELLULOSIC

PROJECT: BC- AFBC BOILER - KHARACH, 2 x 100 T/H ; 65 Kg / Cm² (g); 485°C

BHARAT HEAVY ELECTRICALS LTD., BOILER PLANT UNIT, TIRUCHIRAPALLI–620 014.

361–245/A

DRAWN	K.PALANIAPPAN
CHECKED	M.HARIDASAN
APPROVED	M.HARIDASAN
DATE	14.05.2019
ALL DIMENSIONS ARE IN MILLIMETRES	
SCALE NTS	

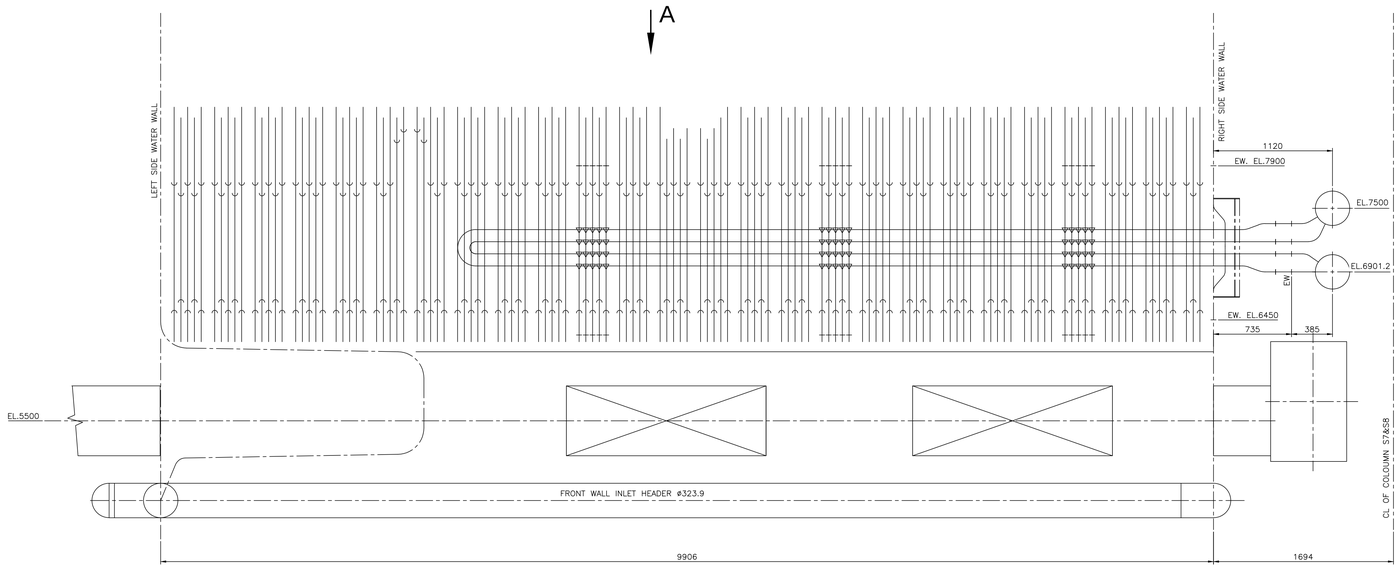
TITLE: BOILER PRESSURE PARTS ARRANGEMENT

DRG No. 0–00–521–35212

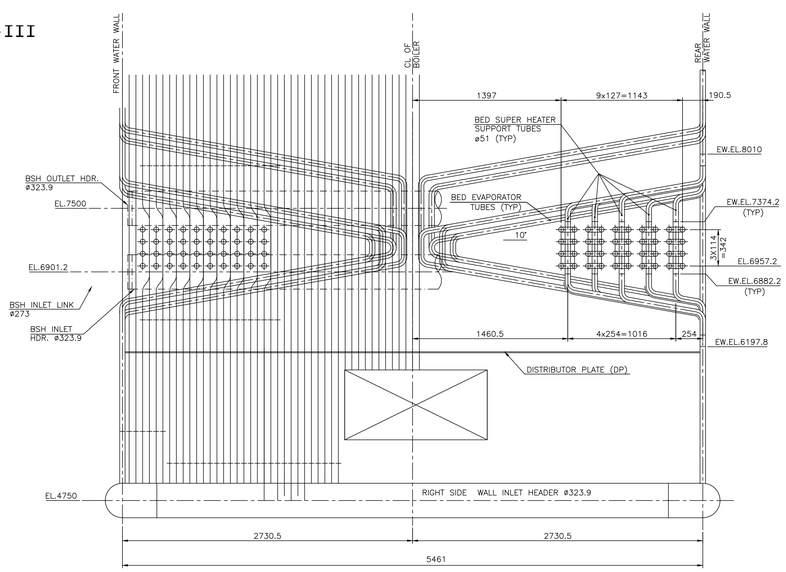
REV. 00

A0 SIZE

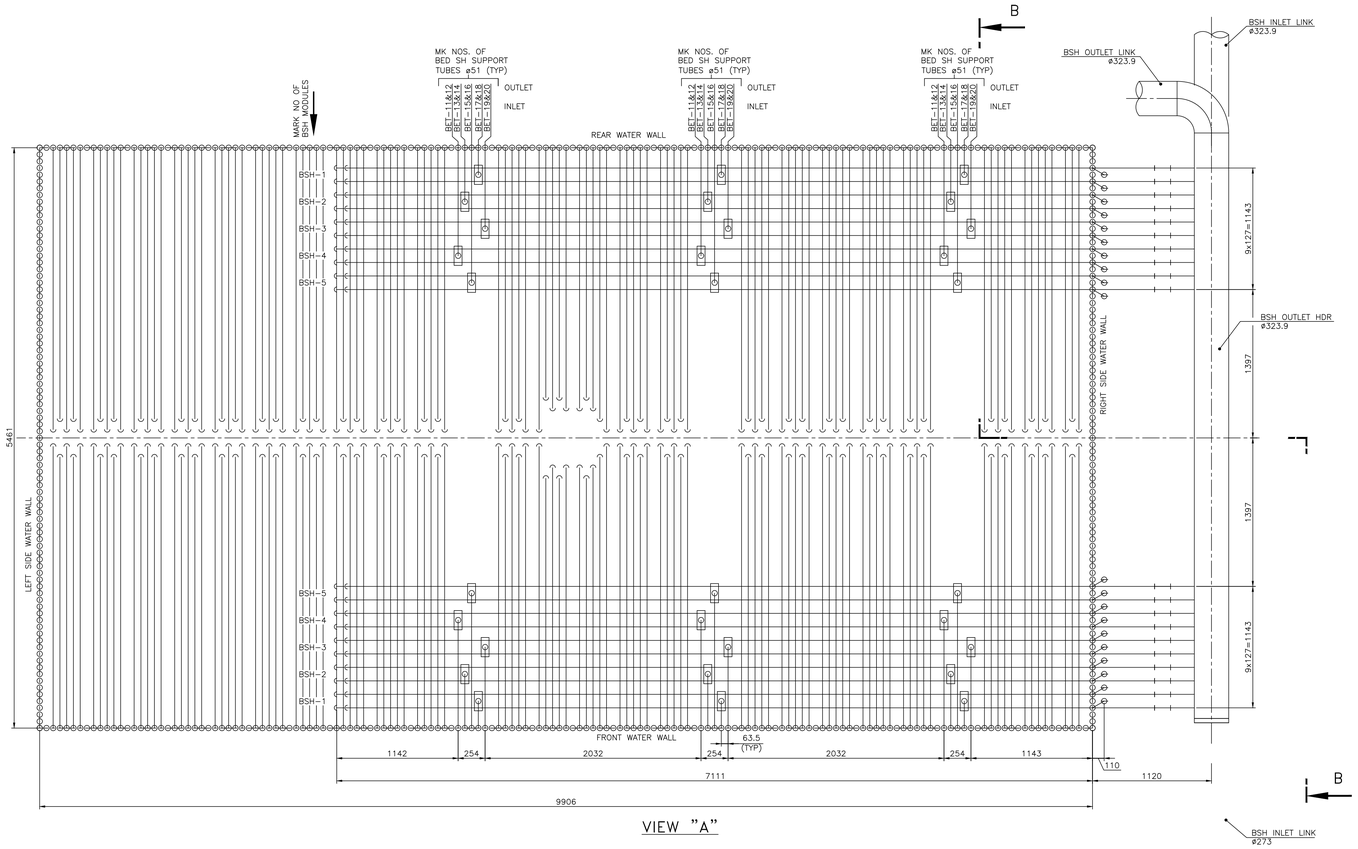
ANNEXIRE-III



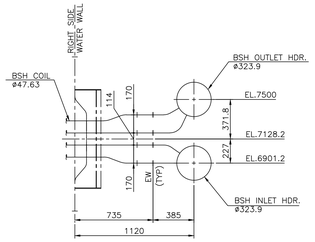
FRONT ELEVATION VIEW OF BED SUPER HEATER COIL



SECTION "B–B"



VIEW "A"



BED SH. INLET AND OUTLET HDR. DETAIL

NOTES:

1. STUDDING IS TO BE DONE ON BOTTOM ROW OF BED SH. TUBES. FOR DETAILS OF STUDDING DRAWING NO.: TP-3-1-000-00561 SHALL BE REFERRED.
2. MODIFIED BED EVAPORATOR TUBES ARE TO BE STUDDED BOTTOM PORTION ONLY (NOT ALL ROUND)

REFERENCE DRAWINGS:

1. PPA-SECTIONAL ELEVATION – 0-00-521-91910
2. PPA-FURNACE BOTTOM ARRANGEMENT AND DETAILS – – – – – – – – – – – 0-00-521-91915
3. PPA-BED EVAPORATOR TUBES (REVISED) – – – – – – – – – – – – – – – 0-00-521-92060
4. PPA-SUPER HEATER –II, BED SH. INLET AND OUTLET LINK ARRANGEMENT – – 0-00-521-35211

REV	DATE		
01	07.05.19	ALTD	K.PALANIAPPAN
		CHD	M.HARIDASAN
		APPD	M.HARIDASAN

1. BSH INLET AND OULET LINK SIZE CHANGED.
2. DRG UPDATED.

CUSTOMER No. 4402, 4403

CUSTOMER: M/S BIRLA CELLULOSIC

PROJECT: BC- AFBC BOILER - KHARACH, 2 x 100 T/H ; 65 Kg / Cm² (g); 485°C

BHARAT HEAVY ELECTRICALS LTD., BOILER PLANT UNIT, TIRUCHIRAPALLI-620 014.

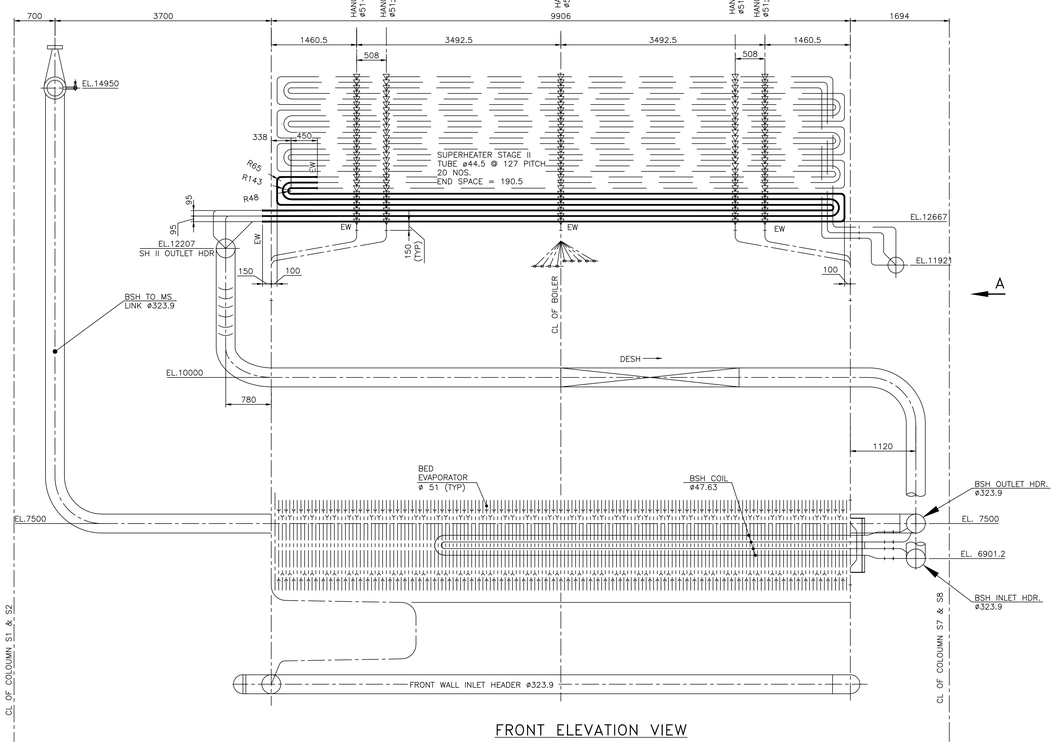
361-245/A

DRAWN	K.PALANIAPPAN
CHECKED	M.HARIDASAN
APPROVED	M.HARIDASAN
DATE	07.05.2019
ALL DIMENSIONS ARE IN MILLIMETRES	SCALE NTS

TITLE: PPA-BED SUPER HEATER ARRANGEMENT

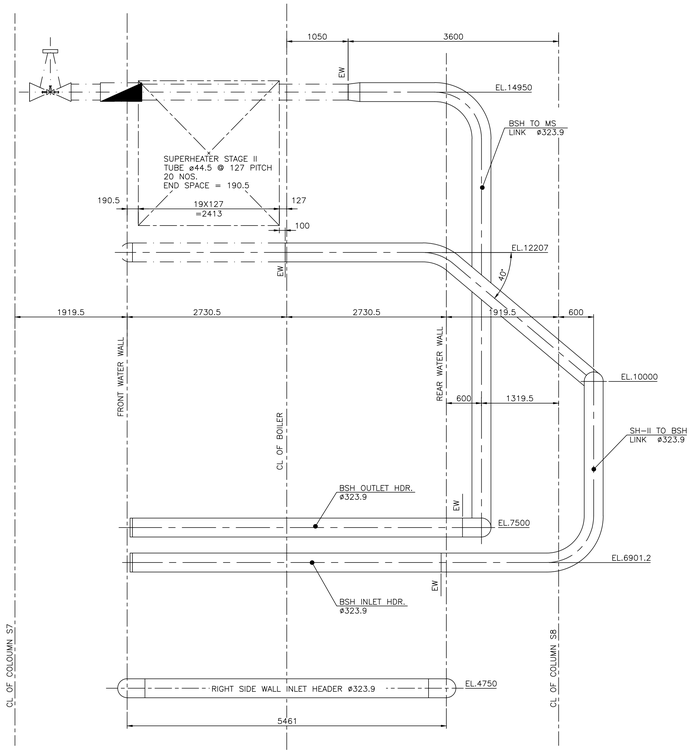
DRG No. 0-00-521-35210 REV. 01

AO SIZE

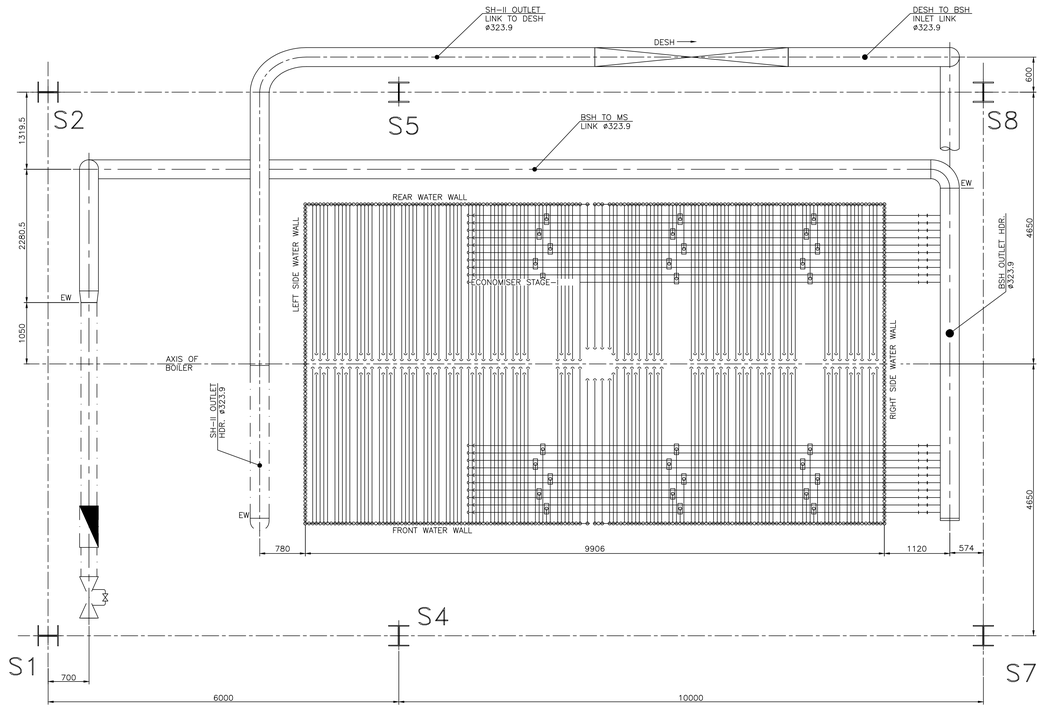


FRONT ELEVATION VIEW

ANNEXURE-IV



VIEW "A"



REFERENCE DRAWINGS:

1. PPA-SECTIONAL ELEVATION - - - - - - - - - - - - - - - - 0-00-521-91910
2. PPA-BED EVAPORATOR TUBES (REVISED) - - - - - - - - - - 0-00-521-92060
3. PPA-BED SUPER HEATER ARRANGEMENT- - - - - - - - - - - 0-00-521-35210

REV	DATE		
01	30.05.19	ALTD	K.PALANIAPPAN
		CHD	M.HARIDASAN
		APPD	M.HARIDASAN

AS PER BPP TRANSMITTAL AND LAYOUT INPUT LINKS ARE REROUTED.

CUSTOMER No. 4402, 4403

CUSTOMER: M/S BIRLA CELLULOSIC

PROJECT: BC- AFBC BOILER - KHARACH,
2 x 100 T/H ; 65 Kg / Cm^2 (g); 485°C

BHARAT HEAVY ELECTRICALS LTD.,
BOILER PLANT UNIT, TIRUCHIRAPALLI-620 014.
361-245/A

DRAWN	K.PALANIAPPAN
CHECKED	M.HARIDASAN
APPROVED	M.HARIDASAN
DATE	07.05.2019
ALL DIMENSIONS ARE IN MILLIMETRES	SCALE NTS

TITLE: PPA-SUPER HEATER -II, BED SH. INLET AND OUTLET LINK ARRANGEMENT

DRG No. 0-00-521-35211 | REV. 01

A0 SIZE

ANNEXURE - V

Penalty matrix (Annexure G)

Guideline for Penalty/ equivalent Suspension

Sn	Violation type	Sub type	Penalty	Suspension/ Termination
1	Fatal incident	Supervisor/ contractor responsible for LTI incident	Rs. 500,000	As per management decision
2	Major/ catastrophic incident (safety/ environment)	Operation/ system failure, inadequate maintenance leading to Major fire/ explosion, catastrophic incident, process up-set, force-shutdown (breakdown), bursting of plant/ pipeline/ reactor/ vessels, collapse of crane/ derrick/ hoist/ floor/ gallery/ roof/ bridge/ tunnel/ chimney/ wall/ building or any other structure	Rs. 100, 000	As per management decision
3	LTI incident	Supervisor/ contractor responsible for LTI incident	Rs. 50, 000	As per management decision
4	Non-compliance of Life Saving Rules	Violation of Life Saving Rule	Rs. 50,000	As per management decision
5	Non-reporting of incidences	Non-reporting of incidences	Rs. 20,000	2 days
6	Non-compliance of JSA/ SOP/ SMP/ PTW	Violation to safety measures defined in JSA, SOP, SMP and PTW	Rs. 20,000	As per management decision
7	Non-compliance of standard/ procedure requirement	Violation of safety standard such as non-compliance of LOTOTO, stand by persons, fire watchers, ground monitoring before excavation, non-use of secondary protection (e.g safety net), inadequate/ absence of machine guarding, use of substandard/ makeshift ladder, scaffold, Use of untested/ substandard/ damaged equipment, lifting tools & tackles, carrying load with the use of hydra, No use or substandard use of ELCB, unlicensed electrician deployment, substandard electrical equipment, bypassing	Rs. 20,000	2 days

Penalty matrix (Annexure G)

Guideline for Penalty/ equivalent Suspension

		emergency- safety equipment, process interlock without authorization etc. • List is neither exhaustive for standard/ procedure violations/ unsafe acts nor limited up to as above identified		
8	Use of substandard tools & equipment	Use, deployment of substandard/ makeshift/ damaged/ worn out tools and equipment	Rs. 10,000	1 day
9	Non-compliance of site specific rules	Violation of site specific rules for e.g. use of mobile phone at restricted areas, smoking, intoxication, sleeping, poor housekeeping, blocking access/ approach to emergency/ safety equipment, horseplay, violation of hold hand rail, shirt-in, loose clothing etc.	Rs. 10,000	1 day
10	Violation of critical/ lifesaving PPEs	Violation in use of critical/ lifesaving PPEs such as Full body harness with double lanyard with shock absorber, Arc flash suit, Fire proximity suit, Self-contained breathing apparatus, On-line air respirators, Gas cartridge mask etc.	Rs. 20,000/ per case	2 days
11	Unauthorized entry	Entry without gate pass, authorization, in restricted zone,	Rs. 10,000/ per case	1 day
12	Violation of mandatory PPEs	Violation in use of mandatory PPEs such as Safety helmet, safety shoes, safety goggles, reflective jackets/ vest etc or use of torn PPE's	Rs. 1000/ per PPE	--
13	Violation of Job/ Area specific PPEs	Violation in use of Job/ Area specific PPEs such as earplug during breaking, drilling, work near blower area, no use of face shield during grinding,	Rs. 1000/ per PPEs	--
14	**Road safety violations**			
(i)		Vehicle over speeding inside the plant premises	Rs. 1000/ per case	
(ii)		Vehicle not following Circulation Plan	Rs. 1000/ per case	
(iii)		Vehicle driver after consumption of Alcohol	• Driver details will be	

Penalty matrix (Annexure G)

Guideline for Penalty/ equivalent Suspension

			recorded at the security gate • Driver will be suspended for the next 7 days. Day 1 will start from same day • Entry to be restricted. • Penalty of 5000/-
(iv)		Vehicle parked without wheel stopper	Rs. 500/ per case
(v)		Driver violating mandatory PPEs (Safety Helmet, Safety Shoes, Reflective Jacket)	Rs. 500/ per case
(vi)		Driver/operator using mobile phone while driving	Rs. 500/ per case
(vii)		Driver/operator smoking inside the plant	Rs. 500/ per case
(viii)		Driver/operator driving with invalid license	Entry restricted 5000/- penalty
(ix)		Vehicle driving by unauthorized person	Rs. 5000/-
(x)		Driver uncovering and covering tarpaulin, closing and opening lid- at other than its designate place	Rs. 5000/ per case
(xi)		Damage to company's property	Rs.10,000/- and cost of equipment / repairing
(xii)		Rash driving / operation	Rs. 1000/ per case
(xiii)		Vehicle operation by physically challenged person	Rs. 1000/ per case
(xiv)		Seat Belt not used while driving	Rs. 1000/ per case
(xvi)		Parking of vehicle in No parking Zone / area	Rs. 1000/ per case
(xvii)		Sleeping / Napping near/around/under/ in the vehicle	Rs. 1000/ per case
(xviii)		Violation of site specific instructions / displayed norms etc.	Rs. 1000/ per case
(xix)		Performing maintenance of any vehicle inside the plant where he is not authorized	Rs. 5000/ per case

Penalty matrix (Annexure G)

Guideline for Penalty/ equivalent Suspension

(xx)		Pushing vehicle in unsafe way	Rs. 1000/ per case
Other penalty			
1		Vehicle not maintained as per OEM guidelines and record, history not maintained accordingly	5000/- per case
2		Not carrying out periodical inspection of lifting tools /tackles/ forklift by competent person and none availability of records as per Factories Act 1948.	5000/- per case
3		Tools like portable grinder , welding machine etc. are not certified and tagged as per periodicity	2000 /- per case
4		Violations other than above like any unsafe condition, unsafe act having potential severity of 3, 4, or 5 as per CSM procedure of BC.	5000/- per case

Birla Cellulosic - Kharach Grasim Industries Limited			
Contractor Safety Plan			
Document Number: P&F/CSP/01/2018	Revision No.:	Effective Date:	Page: 1/

Contractor Safety Plan

Birla Cellulosic– Kharach

Prepared by:	Reviewed by :	Approved by:

TABLE OF CONTENTS

23	**Barricades & display signs**	
24	**Electrical Installation**	
24.1	**Fuses**	
24.2	**Electrical work**	
25	**Manual lifting & handling**	
26	**Excavation**	
26.1	**Caution & barricading for Excavation**	
27	**Concrete vibrators**	
28	**Hot work**	
28.1	**Welding M/c**	
28.2	**Welding activity**	
28.3	**Gas cutting**	
28.4	**Compressed gas Cylinders**	
29	**Work at height**	
29.1	**Fall Protection**	
29.2	**Ladders**	
30	**First aid box**	
31	**Scaffold general guideline**	
31.1	**Scaffold qualification**	
31.2	**Safe erection of scaffold**	
31.3	**Types of scaffolds**	
31.3.1	**Independent tied scaffold**	
31.3.2	**Mobile scaffold**	
31.4	**Scaffolding Inspection**	
32	**Confined space**	

33	Crane	
34	LOTOTO	
35	Construction site safety rules	
36	Incident reporting	
37	Floor Hole covering policy	
38	Fire protection	
39	Emergency Procedure	
40	Other terms & condition	
41	Plan for general inspection	
42	Housekeeping Guideline	
43	Prohibition of Photography	
44	Prohibition of mobile Phone in plant premises	
45	Penalties	
46	Audit & inspections	
	FORMS & CHECKLIST	
1	Crane Inspection checklist	
2	Certification of understanding safety requirements	
3	Accident / Incident / NMC reporting	
4	Job safety analysis & Take-2	
5	Checklist for chain pulley block inspection	
6	Checklist for rigging equipment	
7	Full body safety harness checklist	
8	Self declaration of Vehicles by contractor	
9	Commitment letter for driver	
10	Excavation safety checklist	

1.0 INTRODUCTION :

Birla Cellulosic – Kharach , as a principle employer, Endeavour to care for the health, safety of all personnel and try to ensure minimum degradation of environment by our acts. We remain attached to our commitments and ensure that all who get associated with us follow the laid down guide lines described by us as well as the Government. As a minimum (boundary is not defined and contractor may inculcate improved acceptable methodology to achieve even further better results), we demand the compliance of following contract Safety Rules from all our contractors.

We declare this as a move to achieve “Zero Fatality, Zero Injuries & Zero Excuses” with the "Goal of Zero Harm", where we will ensure that our societal responsibility is fulfilled without any reservations.

This document intends to be part of each of our tender document so that bidders understand the safety expectation of the company. The plan outlines basic safety expectations from designers, suppliers, commissioning agent, Contractor / executer fabricators and all our consulting engineers. This document describes the minimum requirement.

Contracting partners are advised to go through the company safety expectations and should get ready for meeting the expectations. Any explanation if sought can be clarified as part of Contract Awarding Process.

2.0 COMMUNICATION PLAN FOR THIS DOCUMENT

This document intends to be part of each of our tender document so that bidders understand the safety expectation of the company. The plan outlines basic safety expectations from designers, suppliers, commissioning agent, Contractor / executer fabricators and all our consulting engineers. This document describes the minimum requirements and is supplemented with our “Contract Safety Management” which outlines our corporate level safety standards and practices. This manual does not supersedes any legal bindings / requirement which in any case needs to be complied with, as being good corporate citizen, we do not expect any violation on legal requirements.

Contracting partners are advised to go through the company safety expectations and should get ready for meeting the expectations. Any explanation if sought can be clarified as part of Contract Awarding Process.

3.0 LIFE SAVING RULES

.

Aditya Birla, Pulp & Fiber business has established mandatory Life Saving rules to create positive safety culture and achieve our goal of "Zero Harm". Unit shall implement appropriate recognition and consequence management process to ensure compliance.

1. All incidents shall be reported, investigated and recommendations must be acted upon in a time bound manner.

2. All operations must be carried out within Safe operational limit(s) and complying with Job Specific Personal protective equipment requirement.

3. Work with a valid work permit when required. Prior Risk assessment, Job Safety Analysis (JSA) shall be necessary for all activities covered under site's Permit to Work (PTW) system.

4. Use energy isolation process (LOTOTO) prior to commencing any maintenance or servicing work in which unexpected energization or startup of the machines or equipment, or release of stored energy may occur.

5. Obtain written authorization before entering into a Confined space.

6. Secure against a fall while ascending, descending or working at height equal to 1.8 meter or more.

7. Obtain written authorization before disabling safety critical equipment.

8. Obtain authorization on written lift plan before lifting material to ensure safety and prevention of people movement under suspended loads.

9. Wearing a seat belt (in 4 wheelers irrespective of seat position) or a crash helmet (in case of 2 wheelers) is compulsory for all; at any time a vehicle engine is running; and

10. Driving under alcoholic or intoxicated conditions, over speeding, use of mobile phone while driving is prohibited.

The above rules are mandatory. Additional rules may be framed by respective Units based on the nature and scale of the risks of their activities and services.

4.0 SAFETY POLICY

A safety policy is a written statement by an employer stating the company's commitment for the protection of the health and safety of employees and to the public. It is an endorsed commitment by management to its employees regarding their health and safety. You need to fulfill the requirement of Safety and Health Policy in effective manner.

ADITYA BIRLA
GRASIM
PULP & FIBER BUSINESS

SAFETY POLICY

Aditya Birla, Pulp & Fibre business and associated Group Companies recognizes that a safe workplace and safety conscious personnel are the core of sustainable development. We are committed to continually improve safety practices, performance and protect our employees including contractor employees, business partners, service providers, visitors and society at large from any harm.

We shall endeavor to:

- Work with the fundamental belief that all injuries and acute occupational illness can and must be prevented. Working safely is a condition of employment.
- Maintain positive legal compliance to work place safety regulations and other requirements,
- Provide a safe work place by identifying, assessing, and reducing risks to as low as reasonably practicable (ALARP) from process, machinery, infrastructure and human behaviour;
- Achieve continual improvement in our safety performance by setting Objectives/ targets, developing, deploying and maintaining standards and systems;
- Develop the will, knowledge and skill among employees, contractor employees and partners to demonstrate their involvement, responsiveness and accountability to achieve sound safety practices & performance.
- Continue to strengthen our systems and procedures for preventing and mitigating any potential emergency situations.
- Continue to measure, monitor and benchmark our safety practices and performance and publish a report for general communication.
- Conduct regular assurance programs and take timely actions on audit findings/ observations to ensure continued compliance to system requirements.
- Report and investigate all incidents for learning and to prevent reoccurrence.

Managing Director
Pulp & Fibre Business

5.0 Health Policy

ADITYA BIRLA

GRASIM

PULP & FIBER BUSINESS

HEALTH POLICY

Aditya Birla, Pulp & Fibre business and associated Group companies recognises that healthy and productive personnel are at the center of sustainable development and occupational health is an important means for social and economic productivity of people, companies, communities and nations. We are committed to the prevention of occupational diseases and the protection of health and well-being of our employees, contractor employees, agency staff, visitors and society at large.

We shall endeavour to:

- Maintaining positive legal compliance to applicable health regulations;
- Ensuring access to basic occupational health services and providing competent and adequate resources including personal protective equipment;
- Identifying process exposure & other occupational health hazards and assessing & managing occupational health risks to as low as practicable at all facilities;
- Proactively addressing occupational and community health issues during the planning phase of acquisitions, mergers and new projects;
- Pursuing excellence through continual improvement of infrastructure and business processes, promoting best work practices and innovations to minimize exposure hazards to health;
- Ensuring adequate emergency response capability in case of medical emergency;
- Measuring, monitoring and benchmarking of health surveillance, sickness, absenteeism, rehabilitation & recovery programmes as required;
- Safeguarding medical confidentiality; and
- Fostering awareness through health education & training and health promotional activities.

Managing Director
Pulp & Fibre Business

6.0 SITE SPECIFIC SAFETY RULES

A site-specific safety rule is designed by keeping the specific hazards that are most common in the work place in mind. As with the changing work place, the nature of hazards also changes.

Site specific safety Rules

Life of our employees and business associates are of paramount importance for us .in line with our safety principles, safety policy, we have our site specific safety rules .it must be adhered by all .These are as follows .

1. To take adequate training on related safety standards before starting any work.
2. To comply with all relevant standard in totality while performing any work.
3. Do not enter in plant premises without valid gate pass.
4. To obtain permit, and understand HIRA/JSA before starting work.
5. To use all required PPEs (Mandatory as well as job specific) while carrying out any work & to use all minimum PPE's while in the factory area.
6. To report any unsafe act / condition /near miss/ Incidents immediately.
7. Putting hard barrication on excavation & other working area.
8. Do not enter into any barricaded area without authorization.
9. Do not climb on any ladder which is not properly secured.
10. Use fall arresting and fall restraint devices whenever there is potential of fall especially above 1.8 M height.
11. Restrict use of Red Tag/Unapproved / Incomplete scaffolding for any other purpose except scaffolding erection.
12. Ensure all electrical outputs are separately connected with 30 mA ELCB.
13. Shifting of any materials by using any kind of hydra, crane is strictly prohibited.
14. Do not walk under a suspended a load.
15. Wear your seat belt for while driving or sitting in a motor vehicle .
16. While driving do not use your phone and do not exceed speed limits
17. Obtain authorization before entering a confined space.
18. Do not touch any moving parts of machinery.
19. Not to work any kind of maintenance /jamming removal work on any energized equipment.
20. To use right tools in work &work in correct way .

21. Obtain authorization before overriding or disabling safety critical equipment .
22. No alcohol or drug while working .
23. Wearing of crash helmet for both while riding
24. Speed limit inside the plant premises for vehicles is 20 Km/H

Note : Breach of any of the SSSR (Site specific safety Rules) lead to strict disciplinary action .

7.0 GATE PASSES FOR ENTRY & SAFETY TRAINING

1. Contractor must go in sequence like- Approval of respective HOD, Respective Section Head for trade/skill test ----Personnel dept ----security dept for temporary entry in the plant, Medical examination ----- then attend the Site Safety Orientation training, for entry gate pass process.
2. A Gate Pass with individual photograph, Name with other required information will be issued to all Contractor employees assigned to work on BC site by personnel and IR department.
3. Training passport and training record of individual shall be maintained by contractor and will produce as and when demand by BC officials.
4. Contractor shall ensure that his workmen are getting job specific training before deploying their workmen for the job and records are maintained for each individual.
5. Contractor shall ensure that all other training/ Safety training organized by BC time to time shall be attended by site crew.
6. Contractor shall ensure that specific training like defensive driving and skill assessment of operators of fork lift / other vehicles from competent agency are taken before deploying them on the job at site and records are submitted to concern department. No new entry shall be allowed prior approval of user department.

8.0 MEDICAL CHECK-UP:

Contractor shall arrange for medical check-up of all his employees before employment and should be medically fit as per our guideline.

Eye sight of the employees in the following category shall be examined every six months if age is more than 40 years and shall be examined in every twelve months if age is within 40 years.

- Crane operators
- LMV/HMV drivers (Includes fork lift, jcb , tractors, truck , dumper etc)
- Heavy earthmoving equipment operators
- Other (as decided by BC management)

You shall ensure that your employees have under gone the required initial (before issuing the entry gate pass) and periodical medical check up as per requirement of BC. You have to ensure that periodical Medical check up is completed before renewal of gate entry pass.

All the drivers / operators engaged for vehicle operation shall undergo eye testing and examination and vision test by qualified ophthalmologist once in 6 month. Report of such medical examination shall be submitted to personnel and IR department and hospital for record. Contractor shall also maintained records of medical examinations.

9.0 CONTRACTORS SITE INCHARGE/ SUPERVISIORS & GENERAL STAFF

Contractor or his site incharge and supervisors, general staff, in charge of job at our site are responsible for the safe performance of the work of those they supervise. They must set an example for their fellow employees by being familiar with applicable sections of the Site / Project safety , health and environment Program and ensuring that all site activities are performed with safety as the primary objective. Each Supervisor or job incharge is responsible and will be held accountable

Contractor Site incharge is responsible, and will be held accountable, for the safety of their work crews and for ensuring that all equipment, materials, tools and procedures remain in compliance with job site requirements, including:

Holding supervisors accountable for safety and actively promote safe work performance on the part of all employees.

Participate in and cooperate with all safety program requirements to be implemented in order to meet safety objectives of BC.

Provide timely reporting of safety performance and incidents

Maintain information regarding training and education in safety required by such programs. Stopping unsafe work (acts and/or conditions) immediately until corrective action can be taken.

Each supervisor will proactively participate in the safety program by observing, correcting unsafe acts, and recording these observations.

10.0 CONTRACTOR SITE SAFETY OFFICER /SUPERVISIOR

You shall provide one competent full time qualified safety Officer at site, Safety officers & safety steward minimum qualification and experienced as per below mention criteria .

Deployment of Safety Officer & Safety Stewards	
Sr.No	Description
1	Deployment of **safety officer** at site for the manpower strength up to 100 nos. One for every 100 numbers. Educational Qualification: B.Sc./Diploma in any discipline + 2 years of experience in safety and 1 year full time diploma in industrial safety from recognized institute.
2	Deployment of **safety steward** at site for One for every 40 numbers. Educational Qualification: ITI + 2 years of experience or (10+2) + 3 years of experience in safety and Part time or full time diploma in industrial safety from recognized institute.

However In case, work is carried out in all three shifts with a work force of 40 or more in each shift, contractor must provide one safety supervisor in each shift.

The BC safety team will carry out the selection procedure based on above criteria before deploying.

Contractor/Subcontractor safety steward / Officer will work with BC safety team on matters related to Safety and take participation all safety related programs and aspects.

11.0. TOOL BOX MEETING

Contractor shall ensure Daily Tool Box Talk with workmen first thing in the morning, prior to start of work. It is also intended that the contractor supervisor/foremen / site Incharge include safety planning / JSA as the first topic of discussion during daily work planning meetings with their crews. Any near miss, incidents, accident case happened at site or happened in similar nature of job should be discussed in the meeting. Contractor shall ensure that all the recommendation arises out of learning from any incidents are implemented at his ownership area also within reasonable time.

12.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

This procedure outlines the guidelines pertaining to the issue and use of personal protective equipment (PPE), including safety shoes, Safety helmet, gloves, hearing protection, eye protection and other job required safety appliances.

No workman shall be allowed inside the plant/ factory premises without mandatory PPE's.

At the entire plant site, following is the list of mandatory PPEs,

a. Safety helmet

b. Safety Shoe

c. Reflective Jacket.

d. Safety goggle

Contractor shall provide and ensure following PPE are always kept by work crew at site for use as and when required.

a. Hand gloves
b. Ear Plugs
c. Dust mask

Contractor will provide all required personal protective equipment (PPE), free of charge, to all of their employees including but not limited to the following – Eye/face protection, safety footwear, proper gloves, full body double lanyard safety harnesses, hearing protection and safety helmets etc. Birla Cellulosic –Kharach reserves the right to levy a penalty on the contractor for non- compliances as per penalty matrix. However in case

the contractor cannot provide the PPE, it will be provided by BC-Kharach and back charge the contractor 1.20 times the cost of the same. Other job specific PPE's shall be ensure and enforced the use as per job requirement.

Note : All PPE shall conform to applicable BIS/DGMS/DIN/CE specification and maintained in good condition.

S.No.	Types of PPE's	To be provided to	PPE Description / Specification
1	Safety helmet **Blue** colour	All Workmen in plant and colony	Safety Helmet,-Yellow, Karam / concord / Honey well Make,Model- confirm To Bis Specn No.is 2925-1984, EN 397, CLI, DGMS Having Ratchet Adjustment Head Bend ,Well balanced light weight Shell with new eight - point connecting head attachment, Material: High Density Polyethylene (HDPE) shell or fiber
2	Safety helmet with attached welding shield	Welders	Safety Helmet, Attachable Welding Shield With Glass Make Karam Model No. ES 71 ,Confirm To En175, 166 And ANSIZ87.1. With blue Colour Helmet Should Confirm To Bis Specn No.is 2925-1984,EN 397, CLI, DGMS Having Ratchet Adjustment Head Bend
3	Safety helmet with face shield	All workmen who are engaged in Grinder/ Gas Cutter	Safety Helmet, Attachable Shield With visor Make Karam Model No. ES 51 .With Yellow Colour Helmet Should Confirm To Bis Specn No.is 2925-1984,EN 397, CLI, DGMS Having Ratchet Adjustment Head Bend
4	Full body safety harness	To all workmen deputed Above 1.8 Mtr. Height	Safety harness Full Body With Two Front Textile Loops And Broad Chest Strap Retainer .designed Buckles With Better Rounded Contours Which Ensure 100% Safe Locking.attached With Karabiner & Double Polyamide Rope Lanyard 12mm Dia With 2hook Bond Pn-131.i.e Steel Scaffold Hook,self Closing Auto Locking (50mmopening)make-karam Pn-22 K With double Pn-206."ce" Marked Confirming To En: 361:2002,.en-362:2004,en:354:2002.with Certificate Of Test , Exam And Inspection By Competent Person Under Factory Act 1948 It should be fitted with energy absorber.

5	Dust mask	Welding/ Gas Cutting/ Grinding/ House Keeping & Dusty Area.	Dust Mask Vinus Make Model- 410slv With Exhalation Valve Grey / White Color.en149:2001, Grade -ffp1.
6	Ear plug	For all workmen engaged in Grinding, Breaker Operator & Noisy Area	Ear Plug, ANSI / EN approved , IS 9167 - 1079 for 31 DB, Make- M/s Karam, Corded ReusableEar Plug, Model No. EP-04
7	Safety glass for general use	For all workmen	Safety Glasses, Clear glass, EN 166 , ANSI Z87.1 - 2003 for high impact, Make- Karam, Model No. ES-005(Clear)
	Safety splash goggle	For Chemical handling	Safety glass
8	Gas cutting goggel	Gas Cutter	Glass Safety, Karam Make Es-003 Eye Wear, For Gas Cutters Goggles M/s P.n.safetech
9	PVS appron for chemical	For Chemical Handling	PVC Apron for Chemical Handling, EN 14605 (Type 3 & 4) , IS 4501 - 1981, Make-Micr chem/ KARAM
10	Rope grab fall arrestors with rope	Work Above 1.8 Mtr.	Fall Arrester With Hook Pn 112 (c),for Rope. "ce" Marked Conforming To En-353-2:2002 Make Karam Pn-2000a
11	Retractable fall arrestors	Work Above 1.8 Mtr.	Retractable Type Fall Arrester, CE CERTIFIED, Confirms to EN 360, Make- Karam/ Unicare
12	Safety net	For the safety of workmen working at height	Safety Net, Make- Unicare, Karam, IS approved, IS 11057 - 1984, Double Twine safety net of 1 mm polypropelene rope with a mesh of size 20 mm x 20 mm and border rope of 12 mm polypropelene rope and at the intervals of 1.5 mtrs with tying arrangements.
13	Cotton hand gloves	For all workmen engaged in handling of material	Hand Gloves, Kilimanjaro Pd Kgb-001-r-xl, Code-461815042452, Seamless Knitted Esteron. Glove,cotton Plating And Pvc Dots On The Palm Side.a Length Of 25.4cm,minimum Weight Of 80 Gm/pair,certified As Per European Council Directive 89/686/eec And Have "ce" Marking, Make- Atlas
14	Leather welding hand	For all welders	Welding Handgloves, Leather, CE Approved to EN 388 (3,2,4,3) EN 407 (4,1,3,X,4,X) make- Ansell Atlas/ Honeywell/ midas

	gloves full sleeves		
15	Cut resistance hand gloves	For workmen handling the metal and sharp edge material	Hand Gloves, Ruby Nitrile Ghe- 001-r-l, Code-461815042455, Seamless Knitted 13g Nylon Or Synthetic Glove Dipped With Acrylonitrile-butadiene Rubber Which Provides Excellent Dexterity, En388, “ce” Mark, make- Ansell Atlas/ Honeywell/ midas
16	Fluorescent Jacket	FOR ALL	Reflective Safety Vaste (Flouroscent Orange) , Make- M/s Leslico, M/s Karam/, Reflectosafe
17	Heat resistance hand gloves	For workmen enh\gged in hot material handling	Kevlar Handgloves Approving Agency – Ce Approved To En 388 (2,5,4,x), En 407 (4,2,4,x,1,x) Make – Joseph Leslie & Co
18	Welders Dangari	Dangri for welders	As per BC standard
19	Chemical Splash Goggle	During Chemical handling	Safety Glasses, Clear glass, EN 166 , ANSI Z87.1 - 2003 for high impact, Make- Karam, Model No. ES-005(Clear)
20	Gum boot	For workmen engaged in dust / conceret/ raw material handling, loading and unloading/ working in wet condition	PVC - Gum boot with steel toe ISI marked IS : 12254:1993 & DGMS approved, Make- Karam/ Armour /liberty or equivalent
21	Safety Helmet (blue)	For electricians	Safety Helmet,-blue, Karam / Honey well Make,Model- PN-521, confirm To Bis Specn No.is 2925-1984, EN 397, CLI, DGMS Having Ratchet Adjustment Head Bend ,Well balanced light weight Shell with new eight - point connecting head attachment, Material: High Density Polyethylene (HDPE) shell or equivalent. Test certification for min 22 kv is must.
22	Electrical Hand gloves	For electricians	Electrical Hand gloves - up tp 500 V - Class - 00 , (Class - 04 - 40 KVA), Model- EN 60903, Make- Atlas
23	Safety Shoes	For all workmen entering inside the plant and colony	Safety Shoes, ISI marked , , IS: 15298 : 2002 & DGMS approved , EN 345, PU sole made with PUF technology, Oil, Heat resistance , Excellent chemical oil resistance, Anti skid sole , with ISI marked steel toe, Make- / Liberty / Armour/ Karam, High ankle safety shoes.

24	Electrical resistance safety shoes	For Electrical workmen	Electrical Safety Shoes, ISI marked , IS: 15298 : 2002 & DGMS approved , EN 345, For prevention against Electrical shock proof - 31 KVA resistance proof, Make- Armour/ Karam/ Liberty
25	Gas mask / Escape mask	While chemical handling	Venus / Honeywell make for relevant hazards

Note : Sikh community must wear the turban (more than 5 feet) or else safety helmet is mandatory.

13.0 STATUTORY REQUIRMENT As Per Factory Act 1948 .

1. All the lifting equipment's, lifting tools & tackles i.e Chain blocks, wire rope , D-shackles ,crane & hydra, forklift ,etc shall be load tested by competent person once in a year.
2. All the lifts & hoists, EOT crane etc shall be inspected by competent person in every six months and after every alteration.

Note : Testing certificate of the lifting tools &tackles shall be submit to owner department before first use at site and then periodically needs to be submitted.

14.0 RISK ASSESSMENT & PERMIT TO WORK SYSTEM

- Risk assessment shall be carried out by your team before commencing the job / activity.
- You shall communicate the assessed risk and its remedial measures to your workmen before engaging on the job and provide a copy to concern department.
- Accordingly to the outcome of the risk assessment and suggested control measures are to be strictly followed & bound by you and your workmen for its successful implementation.
- Role, responsibility and accountability shall be fixed before commencing the job / activity.
- All routine & non-routine contract jobs shall be carried out in full compliance with the **BC Work permit system**.

- Contractor supervisor/ in charge shall be equally responsible for ensuring compliance of clauses of Work Permit system, single point lesson, SOPs, and signage / warnings displayed at appropriate locations.
- Exclusions from the WORK PERMIT system are limited only to routine jobs like canteen, gardening, security, street sweeping, and manual loading / unloading into vehicle and any other which has been identified by the concerned department.
- Before commencing the job, the contractor shall ensure that all SOP's are developed and communicated to site crew in case of routine jobs and for non routines job PTW and JSA shall be followed and implemented as per BC work permit system.
- All contract employees shall use personal protective equipment (PPE) according to the risk assessment.
- Contractor's supervisor shall review safety aspect for the on going job/ activity on daily basis.

15.0 HAND TOOLS & POWER TOOLS

Inspection of tools and equipment used by contractors is required, whether the tool or equipment is contractor-owned or rented. For most tools, such as wrenches, hammers and powered-hand tools, a "before use" inspection by a 3rd party and inspection of certificate submit to respective HOD/SH and safety department after which it will be validated by our internal team by pasting the sticker. This includes electrically-powered hand-tools and electrical cords when used in conjunction with ELCB. Some of following condition to be ensure that use of the portable hand tools at site.

1 .It is the responsibility of the person using the tool or equipment to ensure that it is safe to use and has been inspected.
2. Electric power-operated tools shall be of the approved double insulated type, or grounded in accordance with good electrical practice
2. Hand and power tools must be maintained in a safe condition, whether furnished by the contractor or by the employee.
3. When power-operated tools i.e portable hand grinder are designed to accommodate guards, they must be equipped with appropriate guards when in use. Belts, gears, shafts,

pulleys, sprockets, spindles, drums, flywheels, chains and other moving parts of equipment must be guarded if the parts are exposed to contact by employees.

4. Hand –held powered tools shall be equipped with a momentary contact "ON-OFF" control switch.

5. Safety guards shall never be removed when a tool is being used.

7. Hand tools shall be replaced or repaired when found defective.

8. All electrical installations should be connected with ELCB of sensitivity rating of 30 mA as safety measure.

For more details the ABG guide note on Portable hand and Power Tools (ABG/SUST/ GN/ 35) is applicable and need to be followed at BC.

Note : All electrical equipment including hand tools, portable electrical tools, welding machine must be inspected and by 3rd party and certificate of all portable hand tools submit to Department and safety before first use at site.

15.1 JOB MADE TOOLS

Tools made on the job are strictly forbidden. Contractors must provide their employees with tools that are manufactured to meet standard product safety commission requirements. In the unlikely event a special tool must be used, the reason will be identified in written and agreed to by BC- Kharach owner department prior to use. Agreements will be based on a design presented by the contractor. Only fiber handle hammers are allowed to use at site.

16.0 HOIST, LIFT,LIFTING MACHINE,LIFTING TOOLS&TACKLES AND OTHER

It is the responsibility of contractor to ensure that:

- All lifting machines, tools and tackles, wire ropes, slings, chains, shackles, cranes, pulley blocks, shall be of good condition and shall be tested by Local Government Approved Competent Person (Govt. Approved Competent Person).
- Test certificates shall be maintained by the Contractor.
- All such equipment's shall be provided with identification plate and safe working load. Inspection, examination and certification (from the Govt. Approved Competent Person) is must once in a year.

- Copy of all test certificates should be submitted to executing department BC-Kharach as early as possible after test is over. One copy should be available with the equipment as ready reference.
- BC-Kharach reserves the right to accept / reject the test certificate with valid justification. No tools & tackles, equipment, which require the test certificate as per statutory requirement, shall not be allowed to use unless obtain prior approval from BC-Kharach in writing.
- Attempt of any modification or tampering of any component of lifting machines, tools and tackles, wire ropes, slings, chains, shackles, cranes, pulley blocks, etc. may affect the internality of the said lifting appliances and hence the safe working limit may be limited. Use of such lifting appliances is prohibited unless certified by Govt. Approved Competent Person in such condition and / obtain prior approval from BC-Kharach in written.
- Contractor has to ensure the maintenance of all such lifting tools and tackles by OEM and records of all maintenance of individual equipment's shall be maintained.
- All such records shall be produced as and when demand by BC officials.

Note : Contractor shall ensure that all the lifting tools and tackles ,machineries, electrical portable tools prior to taking at the site must be inspected and approved by BC- Kharach electrical / workshop team and shall provide identification no. and tag on the inspected materials.

17.0 MATERIALS HANDLING EQUIPMENT

Contractor shall ensure that all mobile lifting equipment like cranes, hydra used by them at site has valid documents- registration, insurance , test certificates by competent person , PUC, and Fitness certificate obtained from competent person. The SWL, Date of Testing & Due Date for Testing clearly marked on the body. The crane operator shall have valid driving license. The requirements are given in **Material lifting operation (Crane & Hoists) ABG/SUST/TS/32 is applicable which need to be followed. The vehicles roadworthiness checklist attached for Hydra / crane will be applicable before allowing any crane / hydra , tractor , truck etc inside the plant.**

18.0 MATERIALS SHIFTING THROUGH FORKLIFT

Contractor shall ensure that materials shifting equipment like Forklift used by them at site has valid documents- registration , insurance , test certificates by competent person , PUC, and Fitness certificate obtained from competent person. The SWL, and other information clearly marked on the body. The Forklift operator shall have valid driving license. **All the requirements given in Forklift safe operation in mention in Forklift Safety Standard – ABG/P & FB/ SHE/FS/2013 is applicable and to be followed** .Forklift must be inspected on monthly basis ,as per given Annexure –D (Forklift Inspection checklist) and maintain record of inspection.

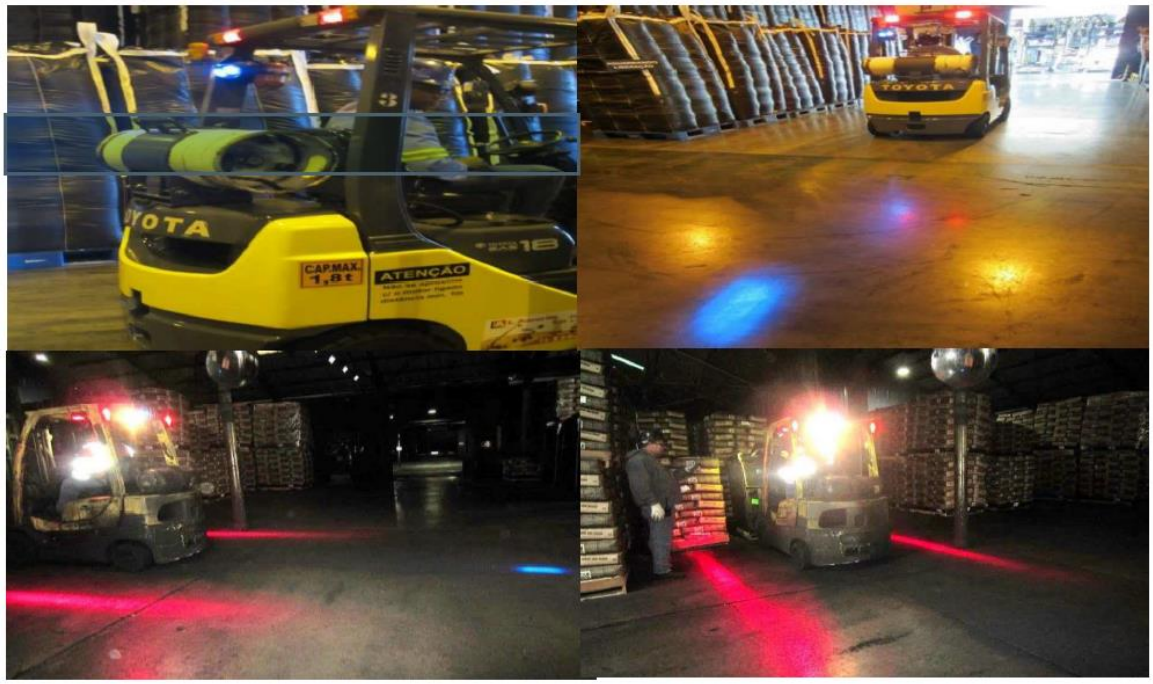
Contractor shall ensure maintenance of all vehicles as per OEM guidelines / checklist and maintained the records of the same. Contractor shall get all these check, inspected and validated by OEM periodically.

Contractor shall also ensure road worthiness inspection and validation by OEM and obtained certificate every six month. The copy of certificate shall be submitted to user department.

Contractor shall ensure display of drivers/operators authorization certificate with necessary details like photo, driving license details, vehicle, contractor name and authorized by etc. with each type of vehicles.

Contractor shall also ensure following if required by management

1) Fork-lift Rear View Camera Monitor System.
2) Forklifts installed with Fluorescence lights to warn pedestrian of safe distance during its operation. photograph attached.



19.0 USE OF VEHICLES INCLUDING TRUCKS/ TRACTOR / JEEPS ETC

Any motor vehicle without a valid license issued by the Regional Transport Office (RTO), insurance and adequate road worthiness will not be allowed into the site. In general term, road worthiness means vehicles less than 10 years old, good tyre, engine condition, working front and back lights, horn and reverse horn, both side mirrors, registration number clearly visible, good condition of Dallah, First aid box, good brake system etc.

The drivers must have valid driving license. Personnel are forbidden to ride on tractor, Hydra, Mobile crane, fork lift etc.

Drivers must wear their seat belts. No mobile equipment shall back up without the assistance of a spotter/flagman wearing orange colour fluorescent jacket, helmet and safety shoes.

Vehicular traffic shall not exceed the posted speed limit. The speed limit in the site is max. 20 km/h. You shall comply the other requirement of safety if required by respective HOD or Safety Department.

Separate vehicles roadworthiness safety checklist of each type of vehicle is given for monthly inspection which is to be ensure before deploying any vehicles.

Annexure –A (Road worthiness Checklist of vehicles)

The detailed road safety standard / Procedure (GIL/P&F/TSSC) of BC shall be complied.

20.0 FACILITY FOR CHARGING BATTERY

It is the responsibility of contractor to ensure that:

- There must be adequate ventilation to keep explosive atmospheres less than 5 % of the Lower Explosive Limit (LEL) in the charging area.
- Facilities for quick drenching or flushing of the eyes and body must be provided at or near (within 10 seconds) the charging area (approved emergency eyewash and safety shower).
- Flame Proof light to be provided and ensure integrity of light.
- To be Ensure that following tools in good condition which is take use for check battery charging condition.

  a) Hygrometer

  b) Temperature meter

  c) Gas Explosive meter for measure Hydrogen gas and ensure timely calibration of explosive meter by 3rd party as per manufacture recommendation. Contractor shall ensure and maintain the record of gas test in twice a shift. If atmosphere is more than 5% of LEL , immediate corrective actions like ventilation and suspension of any hot work will have to be ensure.
- Battery Charging plug , socket and cable as per manufacture guide line and maintain in good condition .
- Appropriate PPE's to be provided employees for safe charging operation
- Safe system to be placed there for shifting charging / discharging battery from charging point to forklift or forklift to charging station .
- Smoking and other ignition sources must be prohibited in the charging area. "No Smoking" signs must be posted.
- Any additional safety requirements or operating procedures specified by the manufacturer of the forklift, battery or charging system must be followed.

- Battery systems shall be isolated by elevation, barriers, or enclosures to preclude accidental contact with energized terminals, conductors, cases, or support structures;

- Battery systems shall be provided with overcurrent protection devices;
- A means of partitioning or 'sectionalizing' battery systems shall be provided to allow multiple or single batteries to be disconnected;
- Safety devices shall be designed to withstand the mechanical forces caused by the large currents;
- Suitable grounding shall be provided;
- Provisions shall be made to contain possible spills of electrolyte;
- Battery room shall be properly ventilated to maintain the room temperature as per Original Equipment Manufacturer (OEM) recommendations;
- Battery room shall be well kept, free from explosive and shall have explosion proof lighting, exhaust fan and acid registrant floors;
- Battery terminals shall be protected against corrosion & insulate to avoid short circuit; and
- Ensure battery charging as per OEM recommendations.
- Ensure all the crew engaged for handling of battery or its operation are skilled, trained and experienced.

21.0 SULPHUR FEEDING & UNLOADING THROUGH JCB

Contractor shall ensure that sulphur feeding and unloading by JCB used by them at site has valid documents- registration , insurance , , PUC, and Fitness certificate obtained from competent person.. The JCB operator shall have valid driving license. JCB must be inspected monthly basis, as per given **Annexure–E (JCB Inspection checklist)** and maintain recorded of inspection.

Contractor shall ensure maintenance of all vehicles as per OEM guidelines / checklist and maintained the records of the same. Contractor shall get all these check, inspected and validated by OEM periodically.

Contractor shall also ensure road worthiness inspection and validation by OEM and obtained certificate every six month. The copy of certificate shall be submitted to user department.

However the detailed requirements for Heavy vehicle) in mention in Transport and Road Safety standard – GIL/ P&F/ TSSC is applicable which need to be followed.

22.0 DIESEL DRUM STORAGE AND TRANSPORTATION

- Contractor shall ensure that filled diesel drum not transported in JCB Bucket use proper trolley or vehicle for safe transportation of diesel drum .
- No storage of fuel is permitted inside the campus.
- Contractor shall ensure that no spillage of fuel or oil which can be reason of caught fire.

23.0 BARRICADES & DISPLAY OF SIGNS

You shall ensure that all the barricades used for different purpose of barricading the site during various work like lowering or lifting the material, height work , excavation activities, hot work etc. shall be of as per the BC standard and procedure. The warning signs for the hazards shall be displayed at site to warn the workmen or other department employees. You shall consult our departmental engineers/ authorities before selecting the type of barricading use in plant and colony

Indicative barricade: Barricading tape must be at two levels i.e. 21 inches and 42 inches height from the ground. These barricades shall be installed in such a way to prevent sagging of the rope in between the vertical members.

If barricades or portions of barricades are removed for work, they shall be replaced as soon as practicable. A person shall be deployed to warn the people until barricades are replaced

24.0 ELECTRICAL INSTALLATIONS

It is the responsibility of contractor to ensure that:

- Electrical appliances and outlets should be marked clearly to indicate their purpose and voltage and must be approved by Electrical department.
- All electrical appliances should be only heavy-duty industrial type only.

- Bare conductors or other bare current carrying parts of equipment should not be permitted unless adequate precautions are taken to prevent direct or indirect contact e.g., fencing, screening or positioning.
- All cables running should be done overhead & minimum clearance is above 3 meters.
- Lamps and lamps fittings or general lighting should be installed not less than 3 meters above the ground or floor wherever practicable. • Since electrical fittings are easily damaged by the rough work and severe conditions prevailing on sites, fittings should be of weatherproof type.
- Flexible cable used for portable apparatus should have an earthing conductor.
- All wiring should be supported on proper insulated supports and not looped / twisted over nails etc.
- Overhead lines should be carried out on support of adequate strength and at a height that prevents contact with persons or equipment passing underneath.
- Flexible cables should not be used to lift a portable tool.
- Motors, switchgears and distribution apparatus should be protected against dripping and splashing water, particularly in pump rooms.
- Hand lamp should be equipped with a strong cover.
- Portable hand lamps holders should have all current carrying parts enclosed with an insulated handle.
- All electrical equipment should be inspected before it is used to ensure that it is suitable for its proposed use.
- All conductors and equipment should be considered to be live unless there is certain proof to the contrary.
- Temporary connections are to be given as per standard practice and should be disconnected after completing he work for which it is laid.
- Hand lamps for use in confined space should be energized by 24 Volts supply.
- All electrical installations should be connected with ELCB of sensitivity rating of 30 mA as safety measure.
- All extension boards being used by contractor should have rated capacity as per use and fitted with ELCB.

24.1 FUSES

For proper safety, connect HRC fuses to the live conductor of the circuit. The heating effect of an electric current can melt the fuse and thus open the circuit. The fuse rating

should not exceed twice the normal load current of the tool as indicated in the rating plate. Most of the fault that occurs in plugs and fuses are due to overloading, short circuiting and faulty earthing.

24.2 ELECTRICAL WORKS

All works connected with electricity operated equipment and a licensed electrician only should do electric operated equipment and electric power supply.

• All electric work, installation, power distribution, etc., should be as per approved code and statutory regulations.
• Motors, gears, transmission electric wiring and other dangerous part of electrically operated equipment should have safe guards for preventing free access of workers to such parts.
• No worker should be allowed to work near any part of electric power circuit that may be contacted in the course of his work by the worker or by his tool, inadvertently.
• Workers employed on or near energized electrical installations should use insulating mats and tools and wear non-conductive shoes, gloves, etc.
• All electrical supply should be considered live and precautions should be taken unless it is checked.
• Proper warning signs should be displayed wherever live circuits exist near work area.
• Temporary electrical connections should be taken only after getting written permission from GIL Elect. Dept. A single line diagram mentioning the location of electrical installations should be submitted for approval purpose.

- All electrical equipment should be earthed properly.

• All the temporary electrical connection cables should be routed properly and should not cause tripping hazard.
• All temporary connections should be removed and power switched off when the day's work is over and also when no operating personnel is present near the equipment.
• Working spaces, walkways and similar areas should be kept clear of wires and cables.
• No joints in the cable line should be used normally. In case of absolute necessary, joints kits should be used & it must be approved by GIL.

25.0 MANUAL LIFTING AND HANDLING:

Figure: Manual handling

Correct manual lifting and handling can do a lot to prevent the strains and backache, which account for a very high proportion of all industrial injuries. Following instruction should be kept in mind during manual material handling and should be informed to the workers through training:

• Assess the weight of the load and get help if it is beyond one's capacity. Where appropriate, use the mechanical aid providers.
• Size up the job – remove any obstructions; note any snags and make sure there is a clear space where the load has to be set down. Ensure the load is seen over when carrying it.
• Lock out for any splinters, projecting nails or sharp edges or wire. Wear gloves where appropriate.
• Stand to close the object and with the feet 8 to 12 inches apart, one foot in advance of the other, pointing in the direction intended to move
• Put the chin in – avoid moving the heads backwards or forwards.
• Bend the knees to a crouch position, keeping the back straight (not necessarily vertical). Get a firm grip at opposite corners of the load with the palm of the hand and the roots of the fingers, arms as close to the body as possible
• Lift with the thigh muscles by looking up and straightening the legs.

Apply the above principles to any movement of the loads such as pushing, digging, shoveling and so on.
• Use the reverse procedures when setting down the legs.

Following things should be avoided during manual material handling and it should be intimated to the workers through training:

- Change of grip while carrying.
- Twist the back while working.
- Carry on if strained. Stop work and report to supervisor.

26.0 EXCAVATION

Ground disturbances can be defined as activities which are carried out to disturb the ground (e.g. excavating, digging and clearing, etc.), whilst excavations can be defined as any man-made cut, cavity, trench or depression in the Earth's surface formed by earth removal. Excavations are needed for construction of buildings, plant structures, underground establishments, trenches for the laying of pipelines, etc. There are many potential hazards which can be encountered while undertaking excavations, such as caving-in, falling loads and hazardous atmospheres. There are many examples of multiple fatalities due to poor management control over such activities

Contractor involved in excavation activities shall comply with all applicable requirements contained in this **GUIDE NOTE (ABG/SUST/GN/30)**and with the site permit to work.

General Requirements for Excavation Activity: Contractor shall ensure that:

- No ground disturbance or excavation work is started without obtaining a valid permit to work from the concerned responsible person.
- All excavations are carried out based on the type of soil, topography, and consideration of other site conditions near the work site .
- All surface obstructions located around the excavation area shall be cleared to ensure the absence of any unsafe conditions
- The estimated location of utility installations such as sewer, telephone, fuel, electric, water lines or any other underground installations that reasonably may be expected to be encountered during excavation work shall be determined prior to commencement of an excavation
- The sides of an excavation shall be periodically inspected during the course of the excavation, especially after every rain, storm or other hazard-increasing occurrence; if necessary, protection against slides and cave-ins shall be increased.
- No person shall work in any excavation, shaft or earthwork, unless all timbering and plant used therein has been inspected by a competent person before the work is started.
- Workmen's shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by that water accumulation

- A lone worker shall not be permitted in trenches unless there is at least one worker on the ground on duty close by
- Open sides of excavations where a person may fall shall be guarded by adequate barricades, and suitable warning signs shall be put up at conspicuous position .
- Areas around the swing radius of digging equipment shall be cordoned off and barriers moved with the progress of the work
- Employees shall be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection shall be provided by placing and keeping such materials or equipment at least 1 meter (3.3 feet) from the edge of excavations
- The excavated materials should be kept minimum 1 meter away from the trench. A provision of clearance of a width not less than one third of the final depth of excavations is advised. It is always better to provide substantial toe board to prevent 'roll back' into the trench.
- Re-route traffic and allow only the heavy construction equipment required near the excavation; the movement of a vehicle should be 1 metres (3.3 feet) away from the edge or 1.5 times the depth of the excavation, whichever is greater
- Use benching for the excavation; however all excavations >1.5 metres (5 feet) shall require shoring or sloping
- All loose stones, projecting lumps or earth should be removed from the trenches
- Ladder or pathway should be provided in every 15m length of excavated area for easy access of the workmen. Care should be taken to keep free from the accumulation of mud, sand, and gravels on the

steps of ladder. Ladders should be strong enough to withstand the load.

- Adequate warning signs should be displayed in local language and English at all sides of excavated pit. Adequate illumination should be provided at site irrespective of construction activities being carried out day and night.
- No workers should be allowed to take rest in the shade or undercut of the trench
- The excavation work should be inspected by a qualified engineer once a week and after every spell of rain or storm
- Barrication should be provided for any excavation / depression. All the excavations more than 1-meter depth should be provided with hard barrication made of pipe.
- If the excavation is 1.2 metres (4 feet) or more deep, it shall be provided with a standard ladder to facilitate safe entry and exit .The height of the ladder shall extend up to 1 metre (3.3 feet) from the top of the ground surface. The ladder must be secured .
- Trenches 1.2 metres (4 feet) or more in depth must have ladders spaced so that an employee's lateral travel to a ladder does not exceed 7.62 metres (25 feet).
- Ensure proper passage over the excavation for by-passers to move from one bank side to the other with a minimum 2 MS gratings placed on horizontal members with a guard rail.

26.1 CAUTION & BARRICADING FOR EXCAVATION

Contractor shall ensure that appropriate caution and barricading is provided in the excavation area to prevent people falling in, depending upon the

duration of work and the site conditions. Barricading (a self-supporting physical structure) is an important safety barrier for a work area where excavation work is taking place.

- No trench, ditch or other excavation shall be left overnight without barricades. Suitable warning signs, such as fluorescent warning tape, flashing RED lights, shall be provided to warn the persons at night.
- Indicative Barricades (for depth of less than 1.0 metre) : These barricades must be 6 feet away from the edge of the excavation (plastic tape & sign board). Barricading tape must be at two levels i.e. 21 inches and 42 inches height from the ground. These barricades shall be installed in such a way to prevent sagging of the rope in between the vertical members.
- Protective Barricades (for depth in excess of 1.0 metre) : These barricades, which may be installed closer than 1.8 metre (6 feet) from the edge of the excavation, must be a hard barricade which can withstand 100 kg load/thrust. A hard barricade shall have horizontal members at 21 inches and 42 inches respectively from the ground with adequate vertical supports.
- If barricades or portions of barricades are removed for work, they shall be replaced as soon as practicable. A person shall be deployed to warn the people until barricades are replaced

Note : ***For detailed procedure refer doc: Guide Note – Ground Disturbance & excavation ABG/SUST/GN/30***

27.0 CONCRETE VIBRATORS :

The vibration frequency of the vibrator is likely to strain mussels of the operator if handled for a long period. Shock absorbing handle should be

fitted to the vibrators. The poker should be completely inside the concrete when the vibrator is started. Excessive bending of the flexible hose should be avoided. Electrically operated vibrators should be protected against overloads by a suitable overload relay and it should be effectively earthed. Low voltage vibrator with step down transformer is preferable

28.0 HOT WORK

"Hot Work" is a general term referring to grinding, welding, thermal or oxygen cutting or heating, and other related heat-producing or spark-producing operations. This standard specifies precautions to be taken prior to and during hot work at P&FB unit (including welding and cutting) to prevent the possibility of fire or explosion, which may result in harm to persons or the property

Hot work permits shall be required for carrying out such job in non-designated areas & prohibited areas (in exceptional cases).

The detailed guidelines as per Hot work standard **(ABG/P&FB/SHE/HW/2010.00)** is applicable and shall be followed.

28.1 WELDING MACHINE

As far as possible D.C. Generator sets / Rectifiers should be used in preference to A.C. Transformer sets.

- The contractor shall get welding sets certified by the Owner's Elec. Engineer before start of work and shall obtain a certificate valid for a period of Six months renewable after every Six months.
- A copy of the certificate shall be displayed on respective welding sets.

- The length of supply cable to welding set shall not exceed 8 Meters and the body of the welding set shall be properly earthed.
- Fire extinguisher shall always be carried with each welding set, preferably a dry chemical powder type

28.2 WELDING ACTIVITIES

Contractor shall ensure that:

- Do not begin work in any operating area without first obtaining work permits authorized by the area owner

- Installed and inspect all electrically connected welding machine power sources at each new installation to ensure that the integrity of the conductor and their terminations are sufficient. The electrical connection taken for the welding machine is through ELCB of 30 ma or less.
- Ensure that each electric welding machine is supplied from a properly sized industrial switch with properly sized over current protection and cable. Double earthing to be ensured.
- Where power is supplied by a plug and receptacle, the supply side of the connection is a female connector interlocked to make it impossible to disconnect the plug when the main disconnect is on (energized).
- Make sure welding lead connection points on the welding machine have guards to avoid accidental contact with exposed terminals.
- Install two leads to the work location. Do not use building steel or pipelines as the return path for the welding current. When welding to building steel

or pipelines, connect the return lead to the same steel part where welding is to proceed.

- All the welding machine cables / lead should be properly lugged and good condition. The machine should be earthed properly.
- Keep the welding cables, holder in good conditions. Power supply cable shall not be more than 8 M in length, and should be without joints.
- Transformer type welding machine is not permitted. You must use only welding rectifier.
- Double earthing on welding machine fitted with ELCB is must.
- When not in use, power supply to the holder and electrode must be turned off.
- The helper engaged with the welding activity should also have proper eye protection. Holding a piece of broken colored glass is not permitted.
- The welder shall wear good quality insulated leather hand gloves and use proper welding shields/ for eye protection.
- Prevent flames, sparks, molten slag, and hot metal from coming in contact with combustible materials and debris. Move all combustible materials within the area to a safe distance. If, because of excessive weight or bulk, the material cannot be moved, protect it with a fire-retardant material or wet it down.
- After completing the job or before leaving the area, check the immediate work area for signs of fire

28.3 GAS CUTTING :

Safety procedures for Gas cutting have been elaborated below:
Gas cylinders used in Gas cutting shall follow all safety procedures mentioned for oxygen / acetylene gas cylinders.

- You shall ensure that all the cylinders shall be handled in trolley with properly tied arrangement with cylinder cap while use and handle. The hose of gas cutting set shall be blue (For oxygen) and Red (for DA) colour and approved as per the Indian standard IS 447.
- Other accessories like regulator, pressure gauge, torch shall be as approved by respective department. No joints shall be permitted on gas hose. Flash back arrestor of approved quality shall be provided at cylinder and torch side.
- When handling cylinders, ensure hands, clothes, gloves, etc. are free from oil, dirt, grit and grease. Under no circumstances oil shall be allowed to contaminate a cylinder containing oxygen.
- All gas and oxygen regulators shall be fitted with flashback arresters, being non-return valves designed to prevent an explosive mix developing in either cylinder, they are must before use.
- Prior to use, all equipment shall be thoroughly checked to ensure tight connections, condition of hoses and gauge.
- The Cutter shall wear good quality insulated leather hand gloves and use proper cutting shields/ cutting goggle for eye protection.
- The helper engaged with the gas cutting should also have proper eye protection. Holding a piece of broken colored glass is not permitted.
- Contain sparks or hot slag produced from overhead work by using fire blankets, metal catch pans, or other appropriate means.

- Contractor shall ensure that each gas cutting set is equipped with one approved DCP type fire extinguisher of 5 kg capacity. This extinguisher must be inspected on monthly basis and records shall be maintained.
- Contractor shall carry out periodical inspection of all gas cutting accessories like torch, flash back arrestor, gas tube, regulator etc. on quarterly basis and records shall be maintained.
- After completing the job or before leaving the area, check the immediate work area for signs of fire

Note: For detailed procedure refer doc: ABG /P&FB/SHE/HW/2010.00 (Hot Work Standard)

28.4 COMPRESSED GAS CYLINDERS

Contractor shall ensure that necessary arrangement is made and proper precautions are taken while transporting, handling and using the compressed gas cylinders- Cylinders are transported with their cap ON and over proper trucks/ trolleys, Cylinders are not dropped but lowered down from transport with its head top, Cylinders are moved, properly secured to carts or trolleys designed to carry the cylinders. Cylinders are connected through regulator, Non Return Valve (flash back arrestor), pressure gauges and not used directly, Color code for each type hose pipe to be followed i.e. Blue for Oxygen & Red for D.A gas. Empty or full compressed gas cylinders.

1. All compressed gas cylinders stacked under shed but with proper ventilations. Keeping compressed gas cylinders under direct sunlight is prohibited; All gas cylinders must be stored vertically, tied or chained in a

stable fashion. All gas cylinders must have caps or suitable protection for the cylinder valves.

2. Empty & full cylinders shall be stacked separately at least 7 mtrs. apart with displaying suitable board indicating “Empty” & “Full”
3. Provide boards “Use no oil and grease” at full Oxygen cylinder storage place and “No Fire” at “Acetylene” or LPG cylinder storage,
4. All corrosive chemical/ oxidizing substances/ radioactive material and other hazardous chemicals stored by contractors require “Material safety data Sheet” (MSDS) to be displayed near storage and proper care shall be taken to store those substances as per the MSDS.
5. A fire watcher, trained in firefighting is must for all hot work.

Contractor shall maintain the records of inspection of all gas cutting accessories on monthly basis including but not limited to torch, hose pipe, clamps, regulator, flash back arrestor, trolley etc.

For more details Hot work standard of BC shall be applicable.

29.0 WORK AT HEIGHT

All contractors will follow the fall Protection procedure that requires 100% fall protection when working 1.8 meter or above. Pre-task planning shall be used to identify proper methods to comply with the 100% fall protection (e.g. double lanyards, Fall arrestor, safety netting etc.). Contractor shall inspect safety harness fortnightly and maintain the records.
Damaged Safety harnesses shall be discarded once noticed. Contractor shall follow inspection format as per standard of BC.
The detailed requirement is given in WORK AT HEIGHT STANDARD **–ABG /P&FB/SHE/WH/2005.00 which is applicable and followed.**

29.1 FALL PROTECTION

All contractors will follow the Fall Protection Policy that requires 100% fall protection when working 6 feet or more above the next work level. Pre-task planning shall be used to identify proper methods to comply with the 100% fall protection policy (e.g. double lanyards, Fall arrestor, safety netting etc.). Contractor shall inspect safety harness fortnightly and maintain the records.

29.2 LADDERS

The following are general requirements for ladders:

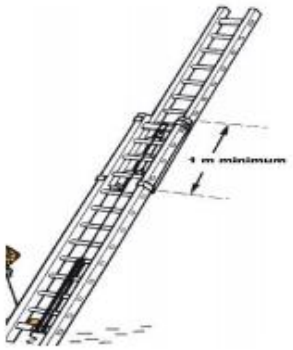
1. Only commercially available manufactured approved ladders of metal / aluminum / fiber glass are allowed to be used in BC site. Do not use metal ladders around electrical services or welding.
2. The user shall inspect every ladder before using it. Remove from service any ladder found defective.
3. Painted ladders are not permitted.
4. If it is necessary to place a ladder in or behind a doorway, barricade the work area and post warning signs on both sides of the door.
5. While ascending and descending a ladder, hold on with both hands. Use a hand line to raise or lower materials.
6. Ladders must either support 136 kgs or meet local requirements, whichever is more stringent.

7. Keep both feet on the ladder steps or rungs. Do not reach out too far; keep your belt-buckle area inside the side rails of the ladder. Do not place one foot on a line or piece of equipment and the other on a ladder step or rung. Change the position of the ladder as often as necessary to keep within reach of the work.
8. Face a ladder when working from it. When it is not possible to work facing a ladder or when performing some tasks requiring both hands, fall protection should be worn and properly anchored.
9. More than one person on a ladder is not allowed unless the ladder is designed to support more than one person. Never exceed the rated capacity of the ladder.
10. Metal ladders shall not be used by persons performing electric welding or working near energized electric lines or services.
11. If it is necessary to use a ladder on top of a scaffold or close to the edge of an elevated platform, roof, or floor opening, tie off the ladder and utilize fall protection.
12. Extend at least 1m above any landing place beyond the highest rung from which a person may be working or have a nearby handhold of equivalent height.
13. Under no circumstances should chairs or other furniture be used as ladders.
14. All ladders shall be inspected by a qualified person.

Types of Ladders:

Standing ladders: Single stage ladders up to 5 meters or 6 meters in length.

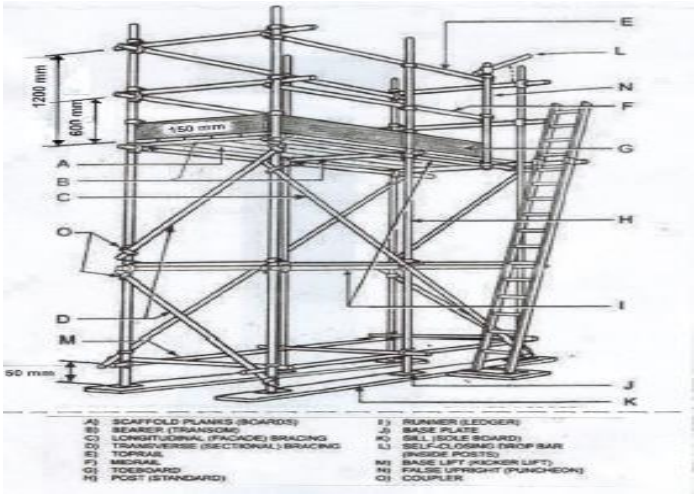
Extension ladders: Consist of two or three sections coupled together and extended by sliding over or inside each other. Longer multistage ladders are extended by means of a rope and pulley. A three-section ladder, fully extended, may reach over 16 meters.



Step ladders: These are of various types, have flat rectangular treads and are usually free standing.

30.0 FIRST AID BOXES :

You shall ensure a first aid boxes in your office clearly identified and contains suitable first-aid materials as per factories act 1948 and rules made thereunder and nothing else. First Aid Box should be checked weekly once to ensure they are fully stocked and all items are in a usable condition. Sufficient quantities of each item should always be available in first aid box. The contents shall be kept in consultation with our medical officer and maintained record of First aid box and inspection.



31.0 SCAFFOLDING GENERAL GUIDELINE

- Scaffolds are intended to provide safe working positions at elevations. To eliminate fall exposures, scaffolds must have complete handrails, mid-rails, and platform. Do not use fall arrest equipment as a substitute for handrails, mid-rails, or a complete platform
- To be ensure that Scaffold shall be erected as per Scaffolding Management –**ABG/SUST/TS/31** . Every scaffold and every part thereof including supports shall be of good construction, suitable and sound

material and having adequate strength for the purpose for which it shall be is used.

- A Safe and convenient means of access should be provided to all platform level of scaffolds
- Bamboo/bally components are not permitted on BC-KHARACH site.
- Railings and toe boards should be provided on the platform. The mid rail and Top rail shall be at height 525mm and 1050mm respectively and toe boards (150mm) should be securely attached to the platform.
- Scaffolds shall be designed to support at least 4 times the anticipated weight of men and material.
- Landing platform should be provided at every 9 meter of height.
- Minimum height of first horizontal member (Ledger) of scaffolds from the Ground/Kicker lift member shall be 2.2 meters refer table no. When scaffold is more than 6 meter height or carrying heavy load, kicker lift should be provided at 150 mm from the ground level.
- Sole plates must be provided below the base plates where uneven place.
- Scaffold boards and masonry blocks are not use in place of base plate.
- When the height of a scaffold exceeds three times the smallest width of the base, secure it to the building or structure at every other lift and every 9 meters horizontally. The scaffold should be secured by both ties and braces to prevent movement Equip scaffold working platforms with handrails approximately one meter high, mid rails, and toe boards, all secured rigidly. Working platforms should be Complete in all respects, such as toe guards, railings, etc.
- Scaffold Inspection Tag, Boards, identifying that the scaffold is “Safe for Use” (in GREEN) or “Scaffolds under Construction” (in RED) must be attached to all scaffolds. Scaffold tags must be signed and dated. Scaffolds to be approved by authorized Scaffolder before use .

- Begin the dismantling of the scaffold at the top of the scaffold. Remove the guardrail and posts first using the necessary tools. Lower dismantled components in an orderly manner. Do not throw off of scaffold. Pass the components down from person to person in a daisy chain formation.

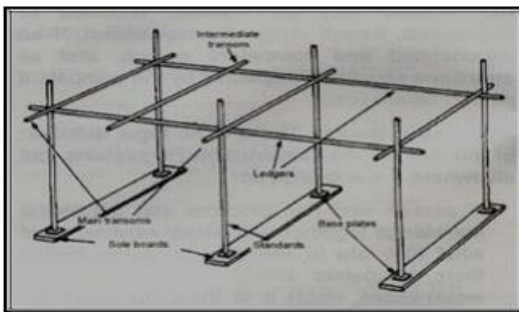
Note: Scaffold erection & dismantling work shall be carried out with appropriate permit

31.1 SCAFFOLDERS QUALIFICATION

All scaffolders are to be qualified to erect any scaffolding/false work and hold where applicable recognized certification. Copies of all scaffolder's certificates/cards shall be maintained at the site office for monitoring purposes.

31.2 SAFE ERECTION OF SCAFFOLDS

The foundations must be of adequate strength to support and disperse the load. On hard surfaces, such as steel and concrete of sufficient strength and thickness, standards may be placed directly onto the surface, although it is generally preferable to use a base plate, which conforms to the relevant IS and is 150mm by 150mm.



On other surfaces, the load should be spread by using base plates and sole plates. The soil or ground beneath the sole plate should be level and compacted.

When a sole plate is used on hard ground, the area beneath any one standard should be at least 1000 cm 2 , with a minimum dimension of 220cm. If a timber sole plate is used, it must be not less than 35mm thick. On soft or disturbed ground, the sole plate area should not be less than 1700cm2 .
Sole plate dimensions should be as follows On hard ground – 450mm x 225mm x 35mm
On soft ground – 760mm x 225 x 35mm
Bricks, thermal blocks and scraps of odd timber must not be used as sole plates.

On sloping ground, steps should be cut into the ground to accept base plates or sole plates. If the slope exceeds 1:10, an engineer should check that the ground has sufficient stability.

31.3 TYPES OF SCAFFOLD:

31.3.1 Independent Tied Scaffold

This type of scaffold is not completely independent of the building. The scaffold structure carries its own weight and all applied loads – men, materials and wind loads – are transferred down to the ground, but it shall be tied to the building to obtain stability and to prevent any possible movement of the scaffold towards or away from the building. The Independent tied scaffold has two vertical rows of standards: an inner row about 325mm from the building, to allow the use of one 225mm wide board and give working clearance near the wall, and an outer row, in line with the inner standards. Joints in adjacent standards should not occur in the same lift.

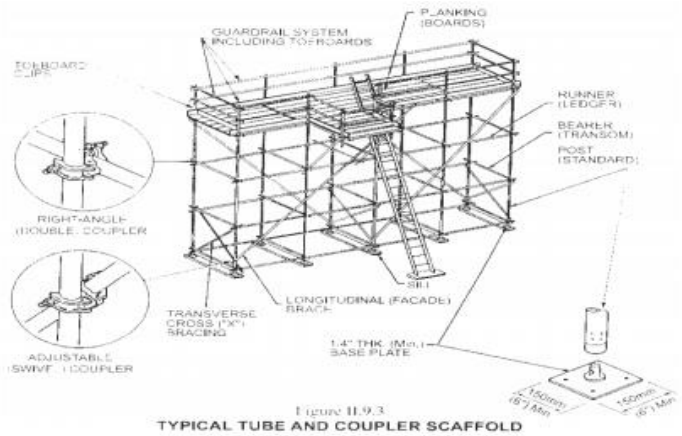
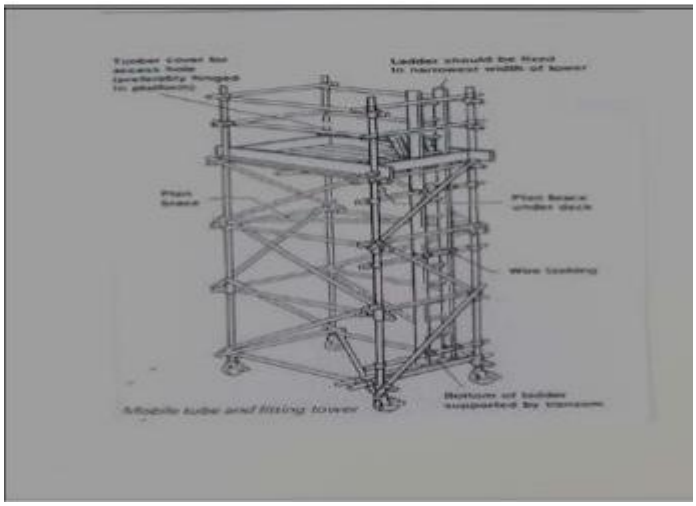


Figure II.9.3
TYPICAL TUBE AND COUPLER SCAFFOLD

31.3.2 Mobile Scaffold

Only qualified persons are permitted to erect and inspect aluminum tower scaffolds. Before using a tower, all components should be checked to see that they are in good condition and are for the same model of tower. Check that the ground is firm and leveled and take any necessary precautions against collision of persons or vehicles i.e., barriers and/or signage.



Castors should be checked to see that in each case the castor housing and wheel/tyre is not damaged, that the wheel rotates effectively, that the castor swivel rotates effectively and that the brake functions properly.

Adjustable legs should be checked to see that they are not bent, or the threads damaged. All threads should be clean and free from debris. The device fitted to stop the leg falling out of the frame should be checked to see if it working correctly.

Adjustable legs should be checked to see that they are not bent, or the threads damaged. All threads should be clean and free from debris. The device fitted to stop the leg falling out of the frame should be checked to see if it working correctly.

Frames should be checked to see that the members are straight and undamaged. They should be free of extraneous material such as concrete. Spigots should be straight and parallel with the axis of the column tube and the device for locking frames together should be checked to see that it is functioning correctly. Platforms should be checked to see that they are undamaged and that the frames are square and true. Plywood decks should not be split or warped and should be firmly fixed to the frames. Where toe boards incorporate clips or fittings these should be undamaged and firmly fixed to the toe board. Ancillary parts, such as outriggers and stabilisers, should be checked for damage and effective functioning of hooks and couplers/

31.4 SCAFFOLD INSPECTION: Periodic inspections must be carried out and recorded by a competent person. All scaffolds and ladder access must be inspected and recorded.

Before being taken into use for the first time; and

- After any substantial addition, dismantling or other alteration; and
- After any event likely to have affected its strength or stability; and
- At regular intervals not exceeding 7 days since the last inspection.
- All scaffolding material shall be offered for inspection to GIL or agency deployed by GIL prior to taken into use.
- Scaffolding standards shall be provided with color band once approved to use by GIL or deployed agency.

• Colour band shall be provided on scaffolding standard for each year (Blue for 2017-18) & Red for 2018-19.

- Rejected scaffold material shall be provided with Yellow color band.
- Contractor shall maintain different storage racks/yards for scaffolding materials as below:
    - Receipt: Material received for project
    - Issue: Material inspected and permitted to issue
    - Reject: Material rejected during inspection/site

Note : Use of suspended type platform is forbidden unless obtain written approval from BC – FH (T). The design needs to be submitted to BC –FH(T), in well in advance, and certification may be required.

32.0 CONFINED SPACE

Working inside the confined space without any precautions may result in serious consequences

Confined Space Permit is required. Contractors shall strictly adhere to the following-

1. Prepare safe entry procedure and obtain work permits,
2. Ensure proper ventilation
3. Carry out checks of oxygen levels & presence of toxic/ flammable gasses,
4. Carry out atmosphere tests shall be consistent with the hazards identified in the risk assessment and ensure the following prior to entry:
    - Oxygen reading: ≥ 19.5 % Vol. to ≤ 23.5 % Vol.
    - Flammable gases and vapors reading: ≤ 5% LEL
    - Toxic gases and vapors reading: ≤ PEL values .

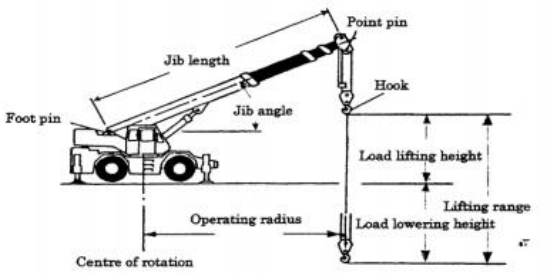
- Airborne combustible dust at a concentration that meets or exceeds its LFL.

5. While using illumination, ensure use of only 24 volt electric supply.
6. Check and monitor the oxygen contents in confined space,
7. Use all relevant PPE.

After completion of confined space work, ensure all persons are out from the confined space. To ensure this head count of the men entering should be maintained in a register (duly signed by the site supervisor) and shall be verified while they come out at the end of the job.

All requirements for Confined Space in details is mentioned in Confined Space Entry Standard – ABG/P&FB/SHE/CSE/2009 Which need to be followed.

33.0 CRANE



Manufacturer's recommendations on operating conditions shall be followed by the CONTRACTOR. Rated load capacities and recommended operating speeds and special hazard warnings or instructions must be conspicuously posted on all equipment visible to the operator while he is at his control station. A boom angle indicator and a load - indicating device in good working order must be provided for cranes and derricks. Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standards for the type of crane in use. Accessible areas within the swing radius of the rear of the rotating superstructure of a crane must be barricaded to prevent any person from being struck or crushed by the crane. In operating boom equipment, safe clearance shall be maintained at all times to electrical distribution and transmission lines. For lines rated 50kV or below, minimum clearance is 10ft, whereas for loads rated 50kV, minimum

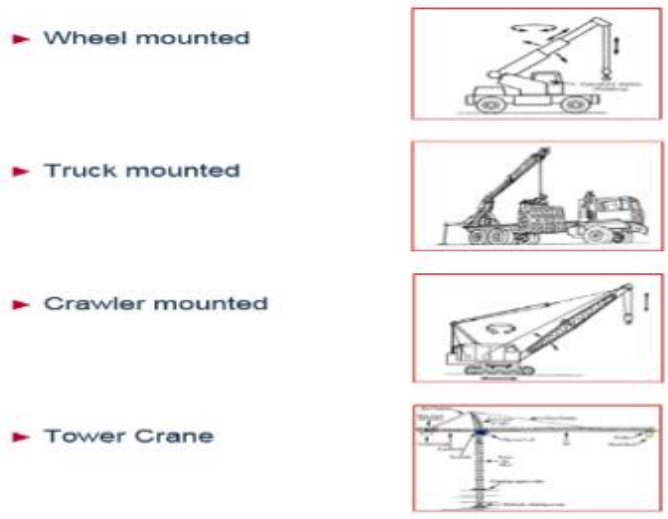
clearance shall be 10ft. + 0.4 in per each kV over 50- or use twice the length of the line insulator, but never less than 10ft.

Operator shall carry out daily inspection of crane and shall follow inspection format Doc No: GL/19 – Crane operator's daily inspection checklist.

Contractor to maintain daily inspection checklist.

Following points with respect to crane handling shall be followed by Contractor:

- No tandem lifting is allowed, if required concerned FH Tech has to approve the lift plan.
- Old version hydra is not allowed, only K / F series Hydra cranes is allowed.
- Shifting of load with K / F series Hydra cranes is not allowed.
- All cranes must be fitted with SLI, anti to blocking device and other safety device and must be in working condition. Crane being used by Contractor shall not have age more than 10 years.
- Before deputed crane / Hydra at site to be ensure that Crane must be comply **Crane road worthiness Checklist**. (crane checklist **)** also given for your reference .



34.0 LOTOTO (Lock Out /Tag Out & Try out) Procedure :

Contractors must have a lockout / tag-out procedure in place. All lockouts / tag-outs will be accomplished under a Permit to Work System except those required for servicing and maintaining construction equipment under control of the contractor. Equipment that

could present a hazard to personnel by inadvertently activating during installation, repair, alteration, cleaning, or inspection work must be made inoperable and free of stored energy and materials prior to the start of work. Such equipment includes circuit breakers, compressors, conveyors, elevators, machine tools, pipelines, pumps, valves, and similar equipment. The equipment must be secured by locking and tagging

All lockouts/tagouts conducted as part of commissioning and start-up activities must be approved by the Project Management team/HOD on-site. Contractor shall use the TAG design is approved by GIL project management team, and ensure that tags are displayed in place till it is required. Tag identification number should be noted in permit.

All requirements for LOTOTO in details is mentioned in LOTOTO –Which need to be followed.

35.0 CONSTRUCTION SITE SAFETY RULES :

The following Basis Rules summaries those items that are to be obeyed by anyone entering and working operating on site.

- All worker should be deployed at job site after completion of safety induction training and provide of mandatory PPEs.

• Photo ID Cards must be issued to all level of Site Personnel employed by Contractor.
• Deployment of Child Labor is strictly prohibited.
• Night shift workers must be new gang and day shift workers must not continue beyond 12 (twelve) hours a day.
• All works shall be carried out under strict supervision, No supervision- No work.
• Good task lighting must be provided by the respective Contractor.
• It is forbidden to bring onsite firearms or unauthorized explosives.
• It is forbidden to possess or consume alcohol, drugs or other intoxicants on site, or to be under the influence such that safety at work is jeopardy.
Safety devices must not be interfered with and can only be attended to or bypassed with proper authorization.
• It is prohibited to indulge in horseplay, fighting or malicious damage.
• In addition to normal emergency procedures, all incidents, injuries, etc. must be notified to line manager and the site office contact, as necessary. Potential serious occurrences, i.e., near misses, must also be reported to the line management representative as per specified format.

• Approved safety helmets, safety goggles and foot protection must be worn at all times. Footwear with exposed steel studs or toecaps must not be worn.
• Shoulder pads to be provided to reduce the contact stresses with material carrying & also provide construction safety helmet.
• The rules applying to the wearing of breathing apparatus must be strictly complied with the equipment worn only trained personnel.
• Drivers of all vehicles must obey the road signs and traffic rules. Seat belts must be worn where fitted.
• Permit conditions and other written work instructions must be followed.
• Road closure and barricade notices must be obeyed.
• Except operator no person shall be allowed inside the operator's cabin while movement of the vehicle i.e. hydra, crane, excavator etc.
• Road blockage permit shall be taken from area in charge before blocking the road and during marching the crane on the road. The road blockage shall be informed to medical, fire and security department.

• The respective Contractors must provide eating place and separate resting place.
Bar cap to be ensured on all exposed bars at site. All the excavated pit must have safe access with hand railing both side with a step type arrangement free from vehicle movement.
• Contractor shall submit self-certification of vehicles to Grasim on a Quarterly basis for every vehicle. Copy of checklist should be available with the vehicle.

35.1 **Winch machine**

- Following practices are recommended

  - Winch break in working condition
  - People not to stand under the weights when they are lifted and cardon off the area
  - Oil level in winch is up to the level
  - Emergency stop button available with trained operator.
  - Sufficient signaling people availability.
  - Minimum 3 bull dog clips for rope connections

Stairs

- During construction, provide temporary stairs on structures that are two or more floors or more than 20 feet high until permanent stairways are in place.

- Keep stairways free of hazardous objects. Do not allow debris and loose material to accumulate on stairways. Storage of combustibles under stairways is NOT allowed.

Repairs / Painting at Roof / Removing AC sheet roofing

- Before attempting the actual removal, assess weather condition (strong heavy winds), accessibility & strength of the sheets. In any case workmen should not be allowed to walk or stand on the AC sheet.

- A firm ladder or access should be provided to climb to the roof. Provision of guide rope should also be there to anchor safety belts.

- A crawling ladder specifically designed for such jobs (supported from the ridge) should be used on the AC roof for the workmen to stand and remove the sheets.

- Only experienced workmen should be engaged. They should never step on unsupported portion of the sheets. The workmen should use safety belt with double rope system. The other end should be tied to a firm support. At times it may be necessary to use two ropes for tying at support. While changing the position the workmen should ensure his stability (at least by one rope)

- It is advisable to use a safety net below the workmen's position whenever possible.

- Area below work space to be cordoned off with a caution board to prevent movement of other workmen.

Rigging

- Rigging includes but is not limited to: wire rope, chain sling, polyester, kevlar and nylon slings as well as come-a longs, chain falls, shackles, hooks, spreader bars, coupling, socket, clamp, shackle swivel and other load bearing hoisting attachments. Components of cranes and hoists are not included.

- Rigging operation shall be carried out In the presence of one or more skilled riggers under close supervision. Experienced Rigger & signalman with reflecting Safety vest is necessary .

- The safe working loads of rigging shall be based on a 5 to 1 safety factor. Any rigging components used for hoisting personnel shall be based on a 10 to 1 safety factor.

- Working loads on rigging shall not exceed the safe limits established by the manufacturer. Any rigging fabricated by an employer such as spreader bars, links, lifting beams must be designed and certified by a professional engineer.

- Wire ropes / Synthetic fiber slings shall be inspected regularly. Those found damaged or not meeting standards shall be considered unserviceable and shall be permanently removed from service. Should have a valid test certificate, to be revived every year by the competent person.

  All the lifting machines & tackles are to be periodically examined & tested by the competent person once in every year. The test certificates must be submitted to relevant Site/Project In charge/Safety Officer.

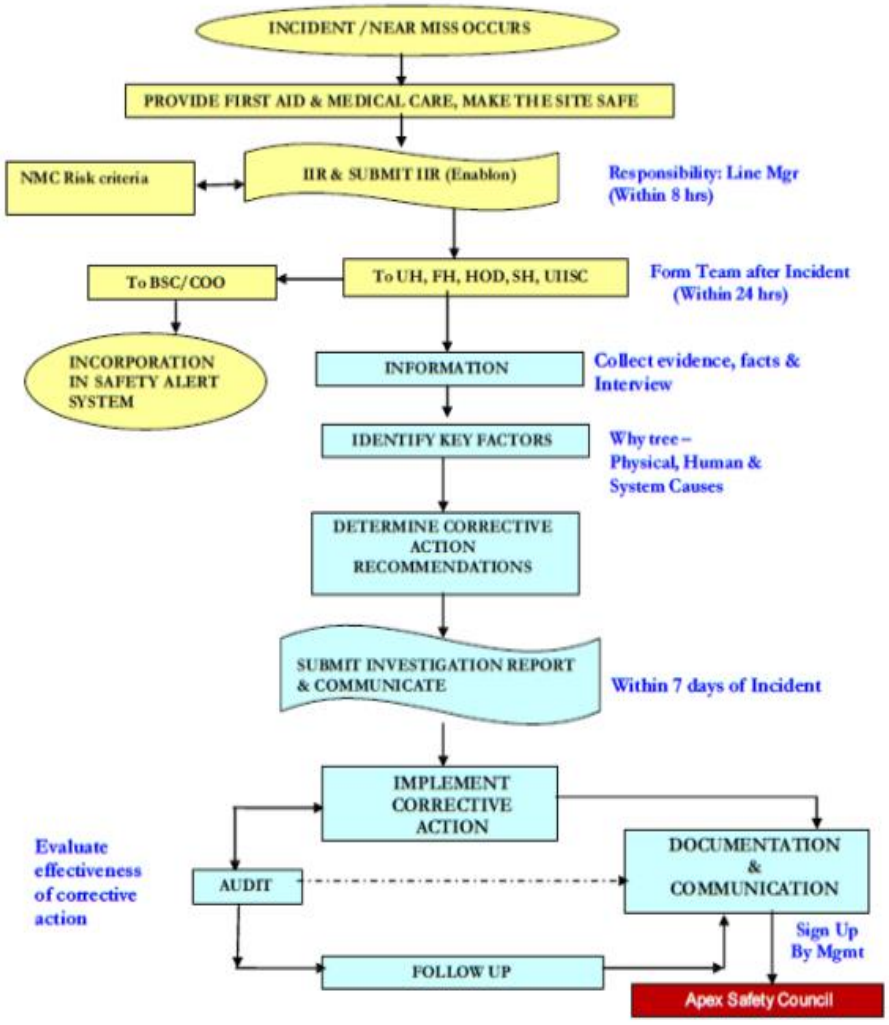
PERMIT TO WORK FOR WINCH MACHINE

JOB SUPERVISOR OF CONTRACTOR OR DEPARTMENT ……
CONTROLING DEPT. ……
WORK AREA EQUIPMENT STARTING TIME & DT ……..
WORK DETAILS
.....
.....
.....
.....
EXPECTED DATE OF JOB COMPETION:.....
POINT TO CHECK BEFORE STARTING THE JOB
1. Persons engaged for operating are experienced and suitable for the job?
2. Necessary instructions for safe job execution given?
3. Work platform/scaffold of sound construction provided at top for unloading the material from bucket?
4. Safe arrangement for hooking the safety belt is ensured at unloading point ?
5. Area around the bucket traveling structure is fenced and shaded to safe guard the workmen from falling material?
6. Electrical connections and starter etc. provided for winch machine are safe?
7. The bucket traveling structure is adequately braced with strong fasteners?
8. Area supervisor should available at all time when winch m/c run.

36.0 INCIDENT REPORTING:

All incidents must be reported promptly (within a shift) so that an appropriate response can be made. Initial reports should be brief and limited to a brief outline of the known facts (date, time, place, what happened, and immediate actions taken). From these initial reports, the unit can identify incidents that require comprehensive investigation. Unit that follow the procedures and promote an atmosphere of learning, openness and trust in reporting incidents can probably expect an increase in the number of such reports..

Incident Investigation Flow Chart



37.0 FLOOR HOLE COVER POLICY

The floor holes are bound to generate due to openings left for ducts, chutes, cyclones cable routing etc during the construction of multi-floor structure, hence these holes are to be temporarily closed with required strengthened plate to prevent the fall of persons, tools & tackles, materials etc. This plate is to be fixed rigidly to avoid the movement of plate by wind, push by person etc. Hence, separate procedures are to defined for different size/dimension of the openings. The purpose of guarding & covering floor holes / openings is to establish system to ensure availability of safe work condition for employees and supervisors working around floor or roof openings / holes. Floor openings

and floor holes must be safely protected. For more details , height work standard to be refered.

Types of Protection

a) Stairway floor openings must be protected with a railing that protects all open sides except the stairway entrance side. They can be protected with a hinged cover and movable railing. However, where movement across is frequently used and stairway floor opening prevents installation of a fixed railing, this removable railing must protect all open sides except the stairway entrance side.

b) Temporary floor openings must be protected by chequered plate of size 5mm with the angle/channel welded at the bottom to prevent from slide. However, specific cover specification shall vary based on hole sizes as outlined below, examples are as below:

- Conveyor discharge
- HT cable riser
- Utility pipe opening

C)Ladder way floor openings or platforms shall be guarded by standard railings with standard toe boards (Top rail at 1050 mm, mid rail at 525 mm and toe board minimum 150mm) on all exposed sides, except at the entrance to the opening, with the passage through the railing either provided by a swinging gate or so offset that a person cannot walk directly into the opening.

d) Hatchways and chute floor openings shall be protected by a hinged cover of standard strength and construction and a standard railing with only one exposed side. When the opening is not in use, the cover shall be closed or the exposed side shall be guarded at both top and intermediate positions by removable standard railings; or a removable standard railing with toe board on not more than two sides of the opening and fixed standard railings with toe boards on all other exposed sides. DOC NO. : HSE/GIL/01 REV NO : 00 DATE : 22.03.2018 Page 61 of 128 The removable railing shall be kept in place when the opening is not in use and shall be hinged or otherwise mounted so as to be conveniently replaceable.

e) Pits and trap door floor openings shall be protected by floor opening covers of standard strength and construction.

f) Manhole floor openings shall be protected by standard covers which need not be hinged in place.

g) Tools and material must be prevented from falling through a floor hole with a cover that leaves an opening no more than 25mm wide and is securely held in place.

h) Holes at the wall - During the construction of the architectural building, holes at the side of opening at wall are to temporarily closed by fixing handrails approximately 1-meter high, mid rails, and toe boards, all secured rigidly by the civil agency.

i) In case of unprotected holes, open sided floors, open side wall hole, either temporary barricading of the area or posting of guards shall be done to prevent any unauthorized entry into the area. All concerned personnel shall be notified to proceed into the area with the required PPE's as per the SHE manual.

Floor Hole Cover Protocol

Hole Cover Specification		
Type	**Size**	**Specification for cover**
Round	25mm – 200mm	Round MS plate 5mm thick dia minimum 100 mm more than hole size, vertical angle => floor size welded at bottom side.
Round	200mm – 2mt	Round MS plate 5mm thick dia minimum 250 mm more than hole size, 15-50 mm angle frame welded at bottom side.
Round	2mt and above	Round MS plate 6mm thick dia minimum 300-500 mm more than hole size, 300 mm angle / beam frame welded at bottom side.
Square	Upto 100 mm	MS plate 5mm thick and plates should be minimum 100mm more than actual size of the hole vertical angle => floor size welded at bottom side.
Square	100mm – 2mt	MS plate 5mm thick and plates should be minimum 250mm more than actual size of the hole vertical angle => floor size welded at bottom side.
Square	2mt and above	MS plate 6mm thick & plates should be minimum 300 to 500mm more than actual size of the hole vertical angle => floor size welded at bottom side.
Note: On top of the cover plate, "Hole Cover – Do Not Remove"		

38.0 FIRE PROTECTION/FIRST-AID FIRE FIGHTING

The contractors shall plan and chalk out the measures for the elimination of possible conditions, which may lead to fire. The contractors shall provide adequate number of well-maintained fire extinguishers, at each work area and with all hot works in progress.

The contractor shall ensure that workmen are trained in the use of fire extinguishers, understands the basics of Fire-fighting and train the workmen to become familiar with such Fire Fighting Procedures. A qualified person shall periodically inspect all fire extinguishers. Fire extinguishers should be located in easily approachable designated areas and clearly identified.

Containers of flammable materials, oily rags, waste etc. must not be left lying around or allowed to accumulate. Covered metal skips should be used for disposal of flammable waste. If welding / cutting operations are to be carried out, non-flammable screens and blankets shall be used to confine sparks hot metal or slag. A fire extinguisher should also be readily available. Chemicals and other such goods should be stored in stable racks properly labeled. Mutually reactive chemicals should be kept away from each other. Storage place should have proper ventilation.

39.0 EMERGENCY PROCEDURES

The following will be considered to establish emergency procedures.

- Make a list of available emergency services and confirm their communication channels.
- Ensure that supervisors clearly understand their responsibility and role in the site emergency procedures.
- Designate first aid and provide medical supplies and other material and equipment that may be required for emergency use.
- Set up emergency response teams.
- Determine emergency evacuation routes for work areas and construction site.
- Make sure that all personnel clearly understand emergency warning siren signals or other warning signals used by owner or other authorities.
- Designate a supervisor to conduct a head count and give instructions to evacuees as necessary.
- Post-emergency information for each work area on the site.
- Conduct emergency response mock drill periodically once at least in three months.

40.0 Other Terms and Conditions

General terms & conditions regarding health, safety & environment are given in this document. In addition to this Contractor has to follow the provisions of following Acts / Rules:

a) The Contract Labor (Regulation-Abolition) Act, 1970.

b) The Indian Electricity Act, 1910 & Rules
c) The Employees State Insurance Act, 1948 & Rules
d) The Indian Explosives Act 1884 amended 1985& Rules
e) The Motor Vehicle Act, 1988
f) The Workmen Compensation Act, 1923 & Rules
g) The Factories Act -1948 and Gujarat Factories Rule, 1963.
h) The Industrial Dispute Act, 1947
i) The Child Labor (Prohibition & Regulation) Act, 1986
j) The Gas Cylinder Rules, 1981.
k) The Static & Mobile Pressure Vessels (unfired) Rules, 1981
l) The Building and other Construction worker (Regulation of Employment and conditions of service) Act, 1996 and Model rule frame there under, 1998

41.0 PLAN FOR GENERAL INSPECTION (To be carried out Daily/Weekly/monthly/Quarterly)

Sl. No.	Type of Inspection	Frequency	Scope Inspected By [Contractor]
1	PPE	*Weekly*	*100%*
2	Excavation	Weekly	*100%*
3	Lifting Tools & Tackles	Weekly	*100%*
4	Hoists	Weekly	*100%*
5	Electrical installation & connection	Weekly/new connection & modification	*100%*
6	Ladder	Weekly	*100%*
7	Hot Work	Daily	*100%*
8	Gas cutting sets	Weekly	*100%*
9	Housekeeping	Daily	*100%*
10	Plant & Equipment	Weekly	*100%*
11	Construction Equipment	Fortnightly and / prior to first use	*100%*
12	Fire Protection Equipment & Safety Harness	Fortnightly	*100%*
12	Scaffolding material	Weekly/new	*100%*
13	Scaffolding, Staging & Formwork	Weekly and / for all new erection & modification	*100%*
14	Man basket	Weekly	*100%*
15	Storage of Material	Weekly	*100%*

Contractor must submit the schedule of each inspection mentioning the date and time for each month, to the GIL for approval, within first 3 days of each calendar month. First priority must be given to attend the shortfalls (if, find out during inspection) within the specified time.The above table is just for example which can be expanded depend on the nature of job and equipment used at site. GIL team will carry out inspection and audit on random basis.

42.0 House-keeping guidelines

General guidelines

- Aisle ways, clearly defined Walkways, and Stairways
- Keep clean, unobstructed pathway free of tripping hazards.
- Do not permit storage of materials, equipment in aisle ways, under stairways.
- Post signs or barricades to warn tripping or slipping hazards.
- Maintain adequate lighting.
- Pathways marked /First Aid/ FE points
- No loose material at height – keep it in cage /box

Storage Areas

- Clearly identify purpose of area and define boundary by barricades.
- Provide area of adequate size. Do not store excess materials or equipment.
- Store in a neat, safe, orderly fashion with proper labeling.

Trash removal plan All Contractor Employees must do their part on a daily basis to keep job sites clean

. The debris from the site shall be accumulated and dumped at the designated disposal area on a daily basis. Collection bins shall be cleared once a week to identify dump area.

Note: To be ensure that outside sweeping through wooden handle broom only .

43.0 Prohibition of Photography Taking:

Photograph taking on the BC-KHARACH site is not permitted unless prior approval is given by the respective FH.

44.0 Prohibition Of Mobile Phone In Side Plant Premises:

Mobile phone on the BC-KHARACH site is not permitted unless prior approval is given by the site management.

45.0 PENALTIES

In case of Safety violations with any of the above terms and conditions or violations in the safety instruction or safety requirement as informed to you time to time by BC management, your contract shall be liable for termination or penalty as per penalty matrix (Annexure G) append to this document. Amount of penalty will be decided by the BC Management based on significance/severity of the offence/safety violation if not listed in penalty clauses.

annexure G penalty matrix.docx

46.0 AUDITS & INSPECTIONS:

At a minimum,
Contractor shall implement the following core audit inspection programs:

- Safety Management by Walking around Contractor project management will participate in the Employer Safety Management by Walking Around Program, which includes EHS performance reviews conducted by all project supervisors (non-EHS) a minimum of once (1) per work.

- **CFSA** – Contractor Field Safety Audit Contractor will be required to conduct CFSA – (Contractor Field Safety Audit) that meet Project Manager/Employer leading indicator requirements. Contractor shall conduct periodic compliance audits (and any applicable subcontractors) to ensure core compliance with all applicable laws and defined Employer performance requirements. **Contractor shall follow checklist Doc No. GIL/29 – Contractor Field Safety Audit format.**

- **Weekly Contractor Field Audits：**

The Weekly Contractor Field Audit Observations shall be documented and their severity rated, based on severity on 0 to 5 scale:

'0' is best: No Violation –
-Severity 1: Untidy, doesn't meet standards. –
Severity 2: Untidy, blocks access. Sets a bad example.
- Severity 3: Rules and Procedure violation.
- Severity 4: Serious hazard can cause serious injury if not corrected.
- Severity 5: Imminent Danger, stop work and correct immediately, will cause serious injury or fatality. (the worst severity)

Hence, Severity varies from 0 to 5

- Severity Index = (Numbers of Violations * Severity) / Total number of violations
- Severity based audit must be done weekly and reported in weekly meeting indicating average
Severity and number of violation in severity 4s and 5s.

This methodology is to provide status of safety violation in terms of management terms and methodology encourages participation between BC- Project and the Contractors Line Supervisor.
The BC Project Construction Manager will schedule and lead the audit weekly. Safety department shall conduct independent CFSA for an area and prepare the weekly report. All deviations shall be rectified within the agreed period. Reports will be completed by the contractor's representative and submitted to the Project Head/Construction Manager and BC- safety department. The BC Safety Manager, Contractor Safety Managers/Supervisors and CSM leader will review the Weekly Contractor Field Audit trends during the Meeting of the Contractor Safety Committee to determine corrective actions to be taken to prevent further occurrence and provide continuous improvement initiatives for contractor safety performance.

Annexure

(Contractor and his representative need to sign this certificate if contract is awarded)

Certification of Understanding Safety Requirements

Reference:

1. Contractor Award Meeting / Discussions on dated…….
2. Contractor Safety Plan - Document No: P&F/CSM/01/2018
3. Tender Enquiry - Document No: ……..
4. Attached documents in mail:

With reference to above, we hereby certify that we have fully understood Birla cellulosic, Kharach Safety expectations for the contract. Whereby certify that we will work to ensure complete compliance to Safety requirement as per plan, conduct audit and verify adherence to the Safety requirements and referred documents.
We have also understood consequences for violation to requirement and we will take care so that such violation does not occur at all.

Contracting Partner/s

(1)Name: (2) Name:

Signature…… Signature……

Date …… Date ……

Name of Department:

Crane Reg No:

Crane Inspection Date:

Name of Agency / Contractor :

Sr. No	Vehicle Identification Number	OK	NOT OK	NA	REMARKS
	SAFETY DEPT CHECKS				
1	Crane manufacturing year (Not more than 10 years)				
2	Head lights / rear lights / break light condition				
3	Tyre condition (Crack , cut , air pressure etc)				
4	Condition of Battery and self start (5-7 seconds)				
5	Front / Reverse horn & Rear view mirrors				
6	Warning sign / SWL/ Operating instruction display				
7	Operators Fitness - Certificate of eye sight from ophthalmologist)				
8	Fire Extinguisher in operators cabin (DCP Type)				
9	Form No.10 (For hydra / crane /sling/ lifting tools etc)				
10	PUC				
11	RTO Registeration				
12	RTO fitness				
13	Insurance				
14	Spark arrestors properly fixed				
15	Operators valid liscence (Heavy duty / HMV)				
16	Age of the operator should be not less than 24 Years				

Prepared by:	Reviewed by :	Approved by:

17	Out riggers pads are proper				
18	Hook should be in one plane(Not twisted)				
19	Wear on hook throat should not be more than 10%				
USER DEPT CHECKS					
20	Out riggers fully extendible / condition				
21	Guards on other moving and rotating parts				
22	Provision of Load chart for Hydra & SLI for crane				
23	Hook and Hook Latch condition				
24	Over-Hoist Limit Switch				
25	Boom-Limit Switch				
26	Boom Angle indicator				
27	Boom-Limit cut-off switch				
28	Over load limit switch				
29	Condition of boom & Ropes				
30	Size and condition of the sling(s) / Other tools & Tackles				
31	Swing, Hoist & boom Brake & Lock condition				
32	Is operator knowledgeable on operation?				
33	Is level gauge installed? Only for crane				
34	Leakage in hydraulic cylinder /hose				

35	The wire rope keepers are in good condition				
36	Check hydraulic oil level of tank				
37	Dead end of the wire rope is secured properly				
	Department Representative Name and Signature			**Safety Representative Name and Signature**	
Note:	1) Safety Dept will check the adherence of Point no:1 to 19 & User dept will check the adherence of Point no: 21 to 37				
	2) After safety check at Gate:01 as per checklist, the safety dept will handover the check sheet to user dept for further check.				
	3) After check user dept to send this checklist to safety dept for record keeping.				

ACCIDENT / INCIDENT / NEAR MISS REPORT

Title : Incident Investigation Procedure	Document Number: ABG/ P&FB/ SHE/ IIP/3002.00 Issue Date: 31.03.2015

Annexure - 1: Initial Incident Report Form

Form # ABG/P&FB/SHE 4002.00 **Effective Date: 31.03.2015**

INITIAL INCIDENT REPORT					
Unit :		**Department :**		**Location :**	
Date :		**Time :**			

Description of Incident : What happened: (Provide a short summary of Incident facts known at present (eg. status of personnel or equipment, name of material and approximate quantity involved, and the potential severity of outcomes) including Off- Unit and/or On-Unit impacts:

People	No. of injuries	No. of fatalities	Description / Details
Employee			
Contractor			
Third Party			

Immediate action taken :
What assistance has been requested :
External agencies involved (e.g., Fire brigade, Local Police etc.,) :
News media coverage :

Reported By : (Name & Designation)	**Date & Time of reporting :**

Note: In case of any Distribution related incident same Form should be used.

Format -Job Safety Analysis & Take -2

JOB SAFETY ANALYSIS

Job Safety Analysis					Document No.: ABG/P&FB/SHE/G-2/00
JSA No.:	Job Description:				Reviewed by:
Date:	Job Location:				Approved by:
Signature					
Team Member Name					
Sequence of Basic Job Steps		Potential Hazards	Safeguardicontrols to be put in place		Responsibility

BACK PAGE

TOOL BOX TALK (TAKE 2) Document No.: ABG/P&FB/SHE/G-2/00

T = Talk: Have I talked with everyone involved with this job?

A = Action: Do I know the proper actios I need to follow to do this job safety?

K = Knowledge: Do I have the proper knowledge to do this job safety?

E = Equipment: Do I have the proper equipment, including the proper personal protective equipment, to do this job safety?

Date of Work Performed:		Location of Work:	
Type of Work Performed:			
Employess performing work:			
1		5	
2		6	
3		7	
4		8	
Contractor	Name:	Company Supervisior	Name:
	Sign:		Sign:

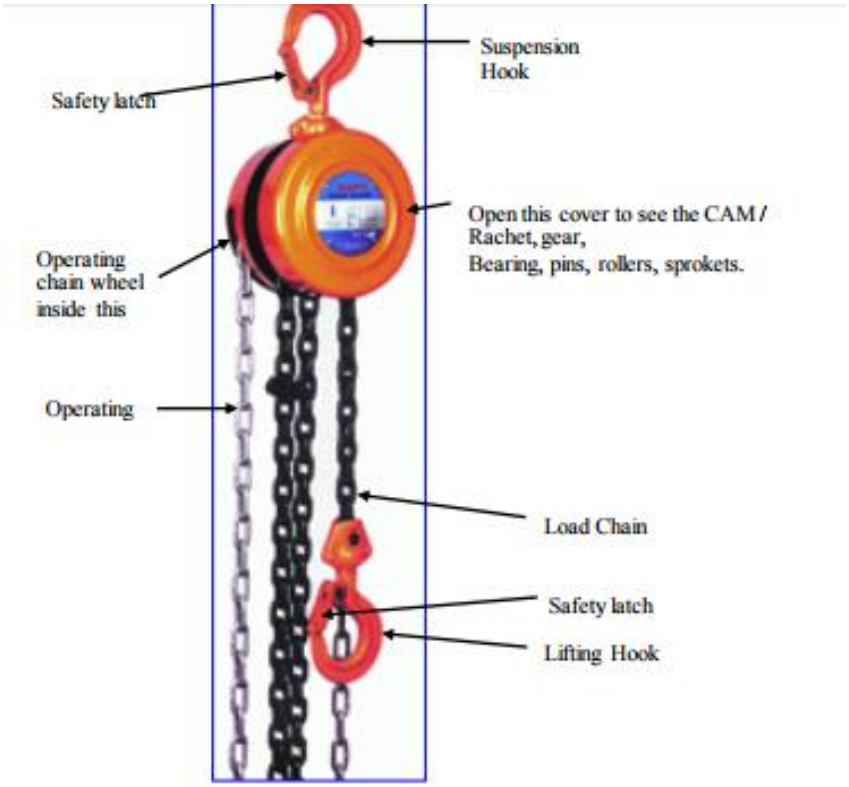
CHECKLIST FOR CHAIN PULLEY BLOCK INSPECTION

SL. NO.: GL / 11 DATE ----------

Parameters of Inspection	Yes	No
Is the load test certificate available for the particular equipment?	Yes ☐	No ☐
Is the Tag with the SWL and Sl No. imprinted fixed on the Chain Pulley block?	Yes ☐	No ☐
External Features:		
Physical condition of the outer shell, whether corroded, rusted, cracked etc. ok?	Yes ☐	No ☐
Condition of the Load chain ok? (check each link of the chain)	Yes ☐	No ☐
Are they free from rust?	Yes ☐	No ☐
Is the device free from cracks, depression, signs of weakening, kinks, distortion? (The chain is rejected even a single link is damaged.)	Yes ☐	No ☐
Check the gears:	Yes ☐	No ☐
Condition of the operating chain ok?	Yes ☐	No ☐
Condition of the lifting hook ok?	Yes ☐	No ☐
Are securing means of the hook in ok condition?	Yes ☐	No ☐
Is the Throat Opening ok? (Reject if distortion causing an increase in throat opening exceed 15 %)	Yes ☐	No ☐
Free from any signs of Wear or rusting? (Reject if any wear exceeding 10 percent of the original section dimension of the hook or its load pin.)	Yes ☐	No ☐
Free from any Deformation. (Reject if any bending or twisting exceed 10 degrees from the plane of the unbent hook.)	Yes ☐	No ☐
Free from cracks, depression, signs of weakening?	Yes ☐	No ☐
Is the hook Safety latch available and is in operating condition?	Yes ☐	No ☐
Are the suspension hook / lug in good condition?	Yes ☐	No ☐
Are all the split pins for all locking pin / nut bolt in place?	Yes ☐	No ☐
Internal Features: (Remove the outer cover but do not dismantle the components inside)		
Physical condition of the inner shell, free from corrosion, rust, crack etc.?	Yes ☐	No ☐
Check the gears:		
Are they placed well in their original position?	Yes ☐	No ☐
Are the gears physically in good condition?	Yes ☐	No ☐
Are the Bearings, Pins, and Rollers in good repair?	Yes ☐	No ☐
Is the Operation chain wheel ok?	Yes ☐	No ☐
Load sproket, idler sproket, in acceptable condition?	Yes ☐	No ☐
Are the CAM / Rachet in good repair? (Do not dismantle the same).	Yes ☐	No ☐
Are the nuts, bolts are properly placed and fits well in place?	Yes ☐	No ☐

Inspected By: Sign Date

Chain Pulley Block



CHECKLIST FOR RIGGING EQUIPMENT

SL. NO.: GL / 16 DATE ----------

Does the contractor have an inspection program for rigging equipment?	Yes ☐	No ☐
Is there documentation by contractors for all rigging equipment?	Yes ☐	No ☐
Is defective-rigging equipment tagged and removed from service?	Yes ☐	No ☐
Is rigging equipment protected from mud, dirt and chemical exposures?	Yes ☐	No ☐
Are rigging and lifting devices properly designed and installed for the task?	Yes ☐	No ☐
Are softeners used to protect from damage?	Yes ☐	No ☐
Are chain-falls and maxpullers prevented from being used as slings?	Yes ☐	No ☐
Are employees prevented from walking under loads?	Yes ☐	No ☐
Are containers covered and spillage prevented?	Yes ☐	No ☐
Is a competent person assigned to all rigging activities?	Yes ☐	No ☐
Are lifting beams stamped with the capacity of the beam?	Yes ☐	No ☐
Wire Rope Slings		
Are SWL marked and Test Certificate available?	Yes ☐	No ☐
Is the sling stored properly?	Yes ☐	No ☐
Is it free from rusting, abrasion, cut marks, pressing, denting, bird caging, twist, kinks or core protrusion?	Yes ☐	No ☐
Is the sling free from wires broken or number of broken wires less than acceptable standard (i.e. <6 wires in a lay or 3 wires in a strand)	Yes ☐	No ☐
Is the sling dia. uniform throughout the length? (Reject for >10% or more reduction).	Yes ☐	No ☐
Is the sling mechanically spliced? (hand spliced or wire rope clamps not allowed)	Yes ☐	No ☐
Belt Sling		
Is the belt sling tested and certified and SWL marked conspicuously?	Yes ☐	No ☐
Is it free from exposure to corrosive, cuts, burn, and abrasion?	Yes ☐	No ☐
Free from any scratch, cut up to 1/10th of the belt width at any place?	Yes ☐	No ☐
All sewn joints intact and no where it is separated?	Yes ☐	No ☐
Dee or Bow Shackle		
Is the tackle tested and certified and SWL marked on its body?	Yes ☐	No ☐
Free from any crack, dent, distortion or weld mark, wear / tear?	Yes ☐	No ☐
Is the pin in good shape and not distorted. Not replaced with any other materials like Nut Bolt etc.?	Yes ☐	No ☐
Are the eyes in a straight alignment and the threads in good condition?	Yes ☐	No ☐

The checklist has been completed in respect of the work identified
Checked By [Contractor]

FULL BODY HARNESS INSPECTION CHECKLIST
(Fortnightly Inspection)

SL. NO.: GL / 18 DATE ----------

Instructions:
1. All parts of the body harness and its attachments must be inspected for wear and damage.
2. This □ symbol is for YES or OK. This *x* symbol is for NO or REPLACE.
3. Inspect and document monthly
4. Maintain the completed inspection report so that it is readily available for review.

Month	Harness Sr. No.	Harness Webbing	All Stitching	Rivets & Eyelets	D-Ring(s) & Buckle(s)	Lanyard & Deceleration Device	Hook Safety Latch	Inspection & certification tag
Jan								
Feb								
Mar								
Apr								
May								
June								
July								
Aug								
Sept								
Oct								
Nov								
Dec								

SELF DECLARATION OF VEHICLES BY CONTRACTOR

SL. NO.: GL / 22 DATE ----------

Self-Certification of Vehicle

(One copy to be submitted to Grasim on a Quarterly basis for every vehicle. Copy of this cheddist should be available with the vehicle)

Lubrication		
1	Engine Oil replacement – every 5000 KM	
2	Replace Air Cleaner Oil	
3	Replace transmission oil level	
4	Replace differential oil level	
5	Check power steering oil level	
6	Replace brake fluid	
7	Lubricate propeller shaft U-joints	
8	Lubricate steering linkages	
9	Lubricate Front & rear spring pins	
10	Lubricate kingpins	
11	Lubricate steering shaft lubrication	
12	Lubricate accelerator cable ball end	
13	Lubricate gearshift level pin	
14	Lubricate parking brake rachet bar	
Inspection & Maintenance		
1	Replace Oil filter element & bypass filter	
2	Check & Adjust V-belt tension	
3	Check fuel feed pump gauze filter	
4	Check Engine operating condition	
5	Check & adjust valve clearance	
6	Discharge water from water separator	
7	Check radiator cap condition	
8	Check tightness of radiator hoses	
9	Check condition of all rubber hoses(e.g. air intake, alternator, turbocharger Inter cooler etc)	
10	Check & tighten starter motor mounting	
11	Check & tighten engine & radiator mountings. Radiator hose connections, fuel filter mounting bolts	
12	Check & adjust front wheel alignment	
13	Check steering system	
14	Check Front & rear suspension "U" bolt	
15	Check master vacuum valve function	
16	Tighten propeller shaft bolts	
17	Check dutch pedal play	
18	Check service brake operation	
19	Check parking brake operation	
20	Check front & rear wheel nuts	
21	Check wheels & tyres	
22	Check front & rear wheel bearing play & damage	
23	Carry out tyre rotation	
24	Check battery electrolyte level	
25	Check switch function	
26	Check lamp & instrument function	
27	Check water, oil & fuel leaks	

lifting

Signature of Authorized Supervisor
Name :

Designation :
Date :

Signature of project In charge(contractor)
Name :

Designation :
Date :

COMMITMENT LETTER FOR DRIVER

SL. NO.: GL / 23 DATE ----------

I hereby assure you that I have neither consumed alcohol nor I am carrying it. I am also declaring that I am not carrying any explosive materials, flammable materials like kerosene, petroleum products. I will follow all the factory rules and regulations as defined and also the written and verbal instructions given. I will pledge to follow them without fail.

- I will drive the vehicle as per permissible speed limits in the factory.
- I will not cook the food in the factory.
- I will follow all the road safety signage's and instructions on the road.
- I will not do over taking inside the factory.
- I will provide the stopper to the vehicle, once it is parked.
- I will not allow the cleaner to peep / get down / get into from the running vehicle.
- I will not park the vehicle on the slope/down.
- I will not take rest below or near by the vehicle and ensure the same for the helper
- I will not park the vehicle at any **"No Parking"** area.
- I will use the reverse horn while reversing.
- I will enter the factory with safety shoes high visibility reflective jacket and helmet.
- I will not leave the vehicle while inside the factory area.
- I will use the parking lights in the night inside the factory.
- I will not repair my vehicle or do maintenance at site.
- I will immediately go out after loading or unloading of vehicle.
- I will keep all my documents such as driving license, registration certificate, pollution control certificate etc., ready and will produce on demand.
- I will not do or involve in any fight etc.,
- I will ensure my safety, safety of vehicle and safety of others in the factory.
- I will drive the vehicles with headlights on during night and poor visibility.

I ..... Driving License No. .....will follow all the instructions. I will pledge to follow all the above instructions, in case if I do not follow any rules and regulations you may initiate appropriate actions on me/my Transporter.

Date: .....
Time .....

Driver's Signature: .....

This will be taken every 6 months from all drivers in local languages or Hindi.

EXCAVATION SAFETY CHECK LIST-SLOPED & BENCHED			
LOCATION OF EXCAVATION:		AREA:	EXCAVATION NO.
COMPANY/DEPARTMENT:		ACTIVITY:	
COMPETENT PERSON:		ID Badge #	

Sr. No.	Items	Yes	No	N/A	REMARKS / ACTION
1.	Whether soil stability is checked?				
2.	Whether proper shoring for the excavation is provided to prevent cave-in?				
3.	Whether proper precautions have been taken if the excavation is adjoining to heavy structure like building, street and roadways?				
4.	Whether barricading of 1m height with glowing caution board is provided for excavation beyond 1.5m depth?				
5.	Whether excavating earth is placed beyond 1m of the edge of the trench?				
6.	Whether heavy vehicle movement is restricted to come too close to the excavating area?				
7.	Whether necessary precaution is taken for underground pipes, sewers, cables by contractors?				
8.	Whether excavation work permit is taken?				
9.	Whether extra precaution is taken for bailing out water properly while excavating?				
10.	During rains whether the excavation is done with extra precaution to prevent caving in?				
11.	Whether two separate entry/ exit points with necessary ladders / steps, as per requirement, have been provided?				
12.	Whether one person is available at all the time to communicate any hazards noticed with workers working in deep trenches or excavation?				

13.	Whether necessary precautions like regular gas testing are being taken in areas having hydrocarbons and LPG so that no gas accumulation takes place in the trenches.				
14.	Whether adequate precaustions for storage, handling & carrying of explosive material and execution of blasting operation is followed?				
15.	Whether in case of mechanised excavation, caution board is provided for do's and don'ts like 'Nobody to enter' within one meter of the extreme reach?				
16.	Whether the following are inspected during excavation work: - a) Boulder formation encountered b) Collapsing / development of cracks of sides c) Marked damage to support d) Unexpected fall of ground e) Inspection of site after each blast.				
17.	Whether specific protection for workers after rain storms or other adverse environmental conditions considered?				
18.	Whether machinery correctly postioned, not a danger to himself or others in the excavation?				
19.	Whether adequate and appropriate PPEs have been provided to all the employees engaged in Excavation work.				
20.	Others				

ANNEXURE-VII

CSM Procedure for 3 Gate process

Please find below details of the process followed for entry of Contract labor into system till gate pass is issued:

1. IR Control: Entry of workman at IR office for IR compliance.
2. Medical Control: Medical Checkup
3. Safety Control: General Safety plus job specific Training, with issue of Safety card

DAY-1

1.0 The contractor has to submit the following:

a. Work Order Copy
b. Labour License (if total labour with the contractor is more than 19, on any day in last 12 months)
c. ESIC Code Copy
d. PF Code Copy
e. GST Number
f. Inter-State Migrant Labour License
g. PAN Number/ Identity Card
h. Half-yearly and Annual Returns

(A) Application for new gate pass with following documents attached for each labor:

a. Worker detail form
b. Letter of Permission for Labor on the letterhead of Contractor / Firm in whose name the Work Order has been issued.
c. Appointment letter of CL* (Form No. 14), Letter of termination (Form No. 18) as per CLRA
d. Date of Birth proof & Aadhar Card (mandatory) / Voter ID/ PAN proof for each contract labor
e. Copy of bank passbook for each contract labor.
f. Copy of ESIC no. with family photo attached.
g. UAN Number
h. GPA Policy (Group Insurance Policy where sum insured is Rs. 10 lacs)
i. Medical Test report attested by OHC doctor

(B) Application for employment from CL addressed to contractor with name and signature.
Annexures /Formats for each of the above is prepared

*The Appointment Letter mentioned – Should have

a) Name of labor
b) Signature of Labor
c) PF/Bonus %
d) Contractor Seal/Sign

2.0 The medical reports involve the following check – ups:

Every contractor shall get a medical examination done each of worker employed by him. A list of medical tests needed is given below:

Health Check (Contractor Employee and Supervisor)

A. For Non Hazardous Area:

- Sugar
- Blood Pressure
- Blood Group
- Audiometric Test
- Colour Blindness
- X-ray
- ECG, if required in case of age more than 50 years
- Acrophobia Test (to be conducted for all at OHC)

B. For Fume / Gas Area:

- Tests under Non Hazardous
- Lipid Profile, if required
- Lungs Function Test
- CNS (Central Nervous System) Examination
- Ophthalmic Examination

Please note: For contract workers coming from Outside BC, the contractor has to ensure that the above mentioned tests are previously done from a registered hospital, and get the reports attested by the doctor at OHC (Occupational Health Centre), Grasim Industries Limited, BC.

For contract workers coming from within BC, the contractor has to ensure that the above mentioned tests are done from Jan Seva Hospital, Grasim Industries Limited, BC and get the reports attested by the doctor at OHC (Occupational Health Centre).

(This provision has been added to effectively reduce the time taken at this gate, while maintaining the robust medical examination standards followed in BC)

DAY-2

3.0 General Safety plus job specific Training, with the issue of Safety training card

Safety training is conducted by Safety department as per Safety Training Protocol for both contract workman and Supervisor. A Safety Card is to be issued to each contract workmen by safety department.

After completing all 3 gates, the IR will put its stamp on the Employee Card, followed by Safety stamp/seal by safety department.

Security role & responsibility: -

Security will check attendance card of all contract labours before gate entry: -

- Check Photo matching.
- Check validity of attendance card, IR and Safety Stamp
- Check security signature
- Check Safety Card and training conducted

Surprise check of attendance card in side plant area.

Defaulters will be suspended & contractor will be penalised.

Purchase Department role & responsibility: -

Every work order mentions:

"YOU WILL HAVE KICK OFF MEETING WITH IR TEAM BEFORE STARTING THE JOB IN THE PLANT. THIS IS MANDATORY AND HAS TO BE STRICTLY FOLLOWED"

Purchase/MMD has to ensure that this kick-off meeting of every new contractor takes place with the IR department at the time when Work Order is released.

This will ensure that the Contractor understands all documents that need to be submitted for compliance, as well as Medical tests can be completed well in advance of actual deployment date. This will enable efficient and effective compliance of each of 3 gates with minimum time consumption.

**Kindly read the Responsibility table on next page, for greater clarity and smooth process flow.

Responsibility Matrix**

	Process	Actions	Responsibility
Gate 1: IR Control	- IR kick-off meeting - Check Contractor documents - Check individual worker documents - Issue Employee cards and biometric cards - IR Induction (after medical test and safety induction is complete)	- Requirement of **IR Kick-off meeting** to be communicated to contractor at time of issue of work order - IR Kick-off meeting to be held **at least 2 weeks before date of deployment** - Every type of work order to include the **number of manpower requirement commensurate with the work order amount.**	• Purchase/ MMD Department
		- All documents compliances - IR Induction	• IR Department • All document compliances to be documented in Purchase Order by MMD. • List of IR compliances to be provided by IR department
		- Issue Employee Cards	• IR Department, Safety Department
Gate 2: Medical Control	- Medical examination - Certification by OHC doctor	- Contract workers from outside "BC" to get medical tests done from recognized tests from outside and get certified from OHC	• Documented by MMD in Purchase Order • List of Medical Tests provided by IR • Re-iterated in IR Kick off meeting by IR department
		- Availability of OHC doctor at OHC for: **(8:30 a.m - 9:30 a.m.** and **2:30 p.m.- 3:30 p.m.)** o Medical test certification o Acrophobia test	Safety Department
Gate 3: Safety Control	- Safety Training - Safety Card issue - Safety stamp on employee card	- Daily schedule and conducting Safety Training between 10 am – 11 am everyday - Issue of Safety Card - Safety Stamp on Employee Card (**immediately after Safety training session**)	Safety Department

Kindly note: All emergency requirements, not following the above schedule to be communicated by concerned Functional Heads, duly approved by Unit Head.

ANNEXURE-4

SOP / SAFETY / Tools / 12.06.2018

GUIDELINES FOR INSPECTION CONTROL OF PORTABLE EQUIPMENTS TOOLS

1. OBJECTIVE -

The main purpose of this document is to ensure a healthy and safe working while using Portable electrical equipments.

Portable electrical equipments are being used for maintenance and operation. Safety with each and every machine is equally important and to be strictly adhered to. Many more accidents have occurred around the world due to improper handling

2. SCOPE -

This procedure is applicable for all portable electrical equipments which are being used at Birla Cellulosic.

3.0 PROCEDURE

3.1 Testing/inspection of Portable Electrical equipments,

In Birla Cellulosic various departments & contract owners owned or manage to bring portable Electrical equipment's as list below. All such equipment's are required to be inspected before taking them in use first time and also periodically as given in this procedure.

1. Welding machine.
2. Grinding machine
3. Drilling machine
4. Air blower
5. Hand lamp
6. Extension board
7. Vacuum cleaner.
8. Hydro jetting machine
9. Transformer oil filtration machine, bearing heater, battery testing kit, etc.
10. Vibrator machine
11. Jack hammer
12. Other portable equipment operated by electrical power.

(A) Portable Electrical Work Equipments owned by Birla Cellulosic or Contractors:

a. Whenever any portable electrical equipment is brought inside the company premises user department has to ensure its inspection and tagging by the inspection team.

b. Periodic inspection of all such equipments to be carried out at every 6 months by inspection team.

c. User/Owner department shall arrange to send the equipment centrally at workshop. Workshop team will arrange to call the inspection team for inspection and tagging.

d. User/Owner dept should intimate the inspection team well in advance if any new equipment is to be inspected.

e. After inspection, stickers/ Tag to be pasted dully signed with date of inspection and its next due date / validity by inspection team.

f. Record to be maintained of inspected tools by inspection team.

g. The permit acceptor shall ensure that all the portable electrical equipments are having valid inspection sticker certified by inspected team before allotting any job.

h. For work orders given to the contractor where Owner dept is not directly coordinating. Purchase dept. to ensure that any equipment brought by concerned contractor is inspected by the inspection team prior to start use at site. This shall be incorporated in purchase order itself.

i. For all existing portable electrical tools (Contractor as well as company owned) those are pending for inspection can be brought to work shop on every Saturday between 10.00 to 12.00 hours.

j. In case of tools which is not found inspected / tagged during any point of time ,will be subjected to progressive consequence management.

For Hand hold tools **(Not operated by electrical power)**

k. Other hand hold tools **(Not operated by electrical power)** like chisel , hammer , screw driver, bari, plier, wrench & ring spanner, pan etc. shall be checked by maintenance team of owner department for their correctness and use on quarterly basis. Records of such inspection (found ok V/s Reject) shall be maintained by maintenance team for such inspection for each tool. However all such hand tools are subjected to inspection before each use.

l. The tools those are owned by contractor needs to be inspected for their correctness and use by permit acceptor / use department before deploying and allowing them on job every time.

Inspection Team:

1) **Sandeep Pareek / Shivshankar Sharma- Engg / Workshop**
2) **Manish Patel – Safety**
3) **Umesh Dubey- Electrical**

ANNEXURE-IX

ERECTION WELDING SCHEDULE

PG NO : 12

CUST No : 4402,4403
PG NAME : Superheater System
PROJECT : Grasim Kharach Unit 1
SYSTEM DESCRIPTION : Superheater System
WELDING CODE : IBR / ASME
PRESSURE PARTS/~~NON PRESSURE PARTS~~
CUST DOC NO : - **CUST DOC REV : -**

SL. NO	DRG NO. FOR WELD LOCATION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC				WPS NO/REV NO.	MIN. PRE HEAT TEMP. in °C	PWHT TEMP. in °C	NDT METHOD/ QUANTUM	* REF-.		REMARKS	REV
								GTAW	SMAW										
				SIZE	THICK		Qty in Nos.	Qty in gms	Qty in Nos.					TIME in mins		SPEC. NO	ACC NORM REF.		
									Ø2.5	Ø3.15	Ø4.0								
1	1-12-851-02042 0-00-521-35211	PIPE + REDUCER	SA335P22 + SA335P22	273	14	GTAW + SMAW	12.25 ▽▽	ER90S-B3	E9018-B3			1014/03	150	680-720	100% RT				
							1	111	20	39	-			60					
2	1-12-851-02042	PIPE + PIPE	SA335P22 + SA335P22	323.9	28	GTAW + SMAW	24.50 ▽▽	ER90S-B3	E9018-B3			1014/03	150	680-720	100% RT				
							3	367	70	115	164			70					
3	0-12-852-03352 0-00-521-35211	SH-II OUTLET HEADER + LINK PIPE	SA335P12 + SA335P22	323.9	28	GTAW + SMAW	24.50 ▽▽	ER80S-B2	E8018-B2			1012/04	150	680-720	100% RT				
							1	123	24	39	55			70					
4	0-12-852-03352	PIPE + PIPE	SA335P22 + SA335P22	323.9	28	GTAW + SMAW	24.50 ▽▽	ER90S-B3	E9018-B3			1014/03	150	680-720	100% RT				
							5	611	117	191	272			70					
5	0-00-521-35210	BET TUBE + TUBE	SA210GRA1 + SA210GRA1	51	5.2	GTAW + SMAW	5.2 ▽	ER70S-A1	E7018-1			1003/04	20	Nil	20% RT subject to min 2 weld/ welder/ shift				
							180	2243	1195	-	-								

PREPARED	CHECKED (W.T.C)	APPROVED	DATE	DOC NO.	REV NO :	PAGE NO.
RUDRABHATLA SAIKUMAR	**LAKAVATH PRAVEEN KUMAR**	**NIRMAL RAJ N**	**28-12-2020**	**4402-12-SH-EWS**	**0**	**1/2**

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* REFER NDE MANUAL No.PS:CMX:002 REV.No.01/12-98
* ALSO REFER QUALITY GUIDELINE NO: SIP:PP:29 / LATEST REV.

ERECTION WELDING SCHEDULE

CUST No : 4402,4403
PROJECT : Grasim Kharach Unit 1
WELDING CODE : IBR / ASME
PRESSURE PARTS/~~NON PRESSURE PARTS~~

PG NO : 12
PG NAME : Superheater System
SYSTEM DESCRIPTION : Superheater System
CUST DOC NO : - **CUST DOC REV : -**

SL. NO	DRG NO. FOR WELD LOCATION & IDENTIFICATION MARK	DESCRIPTION OF PARTS TO BE WELDED	MATERIAL SPEC.	DIMENSIONS		PROCESS OF WELDING	TYPE OF WELD	ELECTRODE FILLER SPEC				WPS NO/REV NO.	MIN. PRE HEAT TEMP.	PWHT TEMP. in	NDT METHOD/ QUANTUM	* REF-.		REMARKS	REV
								GTAW	SMAW										
				SIZE	THICK		Qty in Nos.	Qty in gms	Qty in Nos.					TIME in mins		SPEC. NO	ACC NORM		
									Ø2.5	Ø3.15	Ø4.0								
6	0-00-521-35210	WW BENT TUBE + TUBE	SA210GRA1 + SA210GRA1	51	5.2	GTAW + SMAW	5.2 ▽	ER70S-A1	E7018-1			1003/04	20	Nil	20% RT subject to min 2 weld/ welder/ shift				
							80	997	532	-	-								
7	0-00-521-35211	BSH TUBE + TUBE	SA213T22 + SA213T22	47.63	6.3	GTAW + SMAW	6.3 ▽	ER90S-B3	E9018-B3			1013/02	150	Nil	20% RT subject to min 2 weld/ welder/ shift				
							80	859	695	-	-								
8	0-00-521-35211	HPSH-II TUBE + TUBE	SA213T22 + SA213T22	44.5	4.5	GTAW + SMAW	4.5 ▽	ER90S-B3	E9018-B3			1013/02	150	Nil	20% RT subject to min 2 weld/ welder/ shift				
							120	1306	545	-	-								
9	0-00-521-35211	HPSH-II HANGER TUBE + TUBE	SA210GRA1 + SA210GRA1	51	5.2	GTAW + SMAW	5.2 ▽	ER70S-A1	E7018-1			1003/04	20	Nil	20% RT subject to min 2 weld/ welder/ shift				
							60	748	399	-	-								

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RUDRABHATLA SAIKUMAR	LAKAVATH PRAVEEN KUMAR	NIRMAL RAJ N	28-12-2020	4402-12-SH-EWS	0	2/2

* REFER NDE MANUAL No.PS:CMX:002 REV.No.01/12-98
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