

ALL DIMENSIONS ARE
IN MILLIMETRES ☒ ☐
IN INCHES
UNLESS OTHERWISE
NOTED.

Project title	:	Brahmaputra Petrochemical Complex Project
Location	:	Lepetaka, Dibrugarh, Assam, India
Owner	:	Brahmaputra Cracker and Polymer Ltd. (BCPL)
Owner Ref.	:	—
Customer	:	Engineers India Limited
Customer Ref.	:	BPCL—BPCP
UNIT	:	Ethylene Cracker Unit
Heater	:	4 Gas / Naphtha Cracking Furnaces
Item	:	113—FF—101 Thru 113—FF—104
LHT Ref.	:	62559
Attached	:	AS PER SHEET—2

DISTRIBUTION BOX

CLI	FA/e
KHT	FA/e
PJHB	FI/e
AT	FI/h/A
JP	FI/e
omprak	FI/e

0	11-20 09	ISSUED FOR BDEP	KSG	OPS	AT			ghh	pjh
REV.	DATE	DESCRIPTION	DRAWN BY	CHECK BY	ENG.	LEAD ENG.	THERM. ENG.	MECH. WANG.	PROG. MANC.

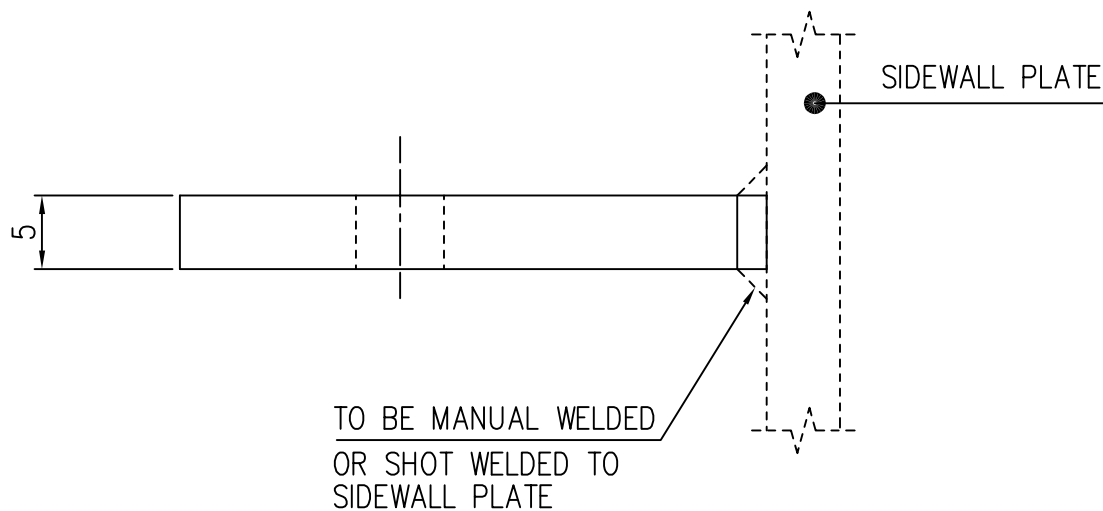
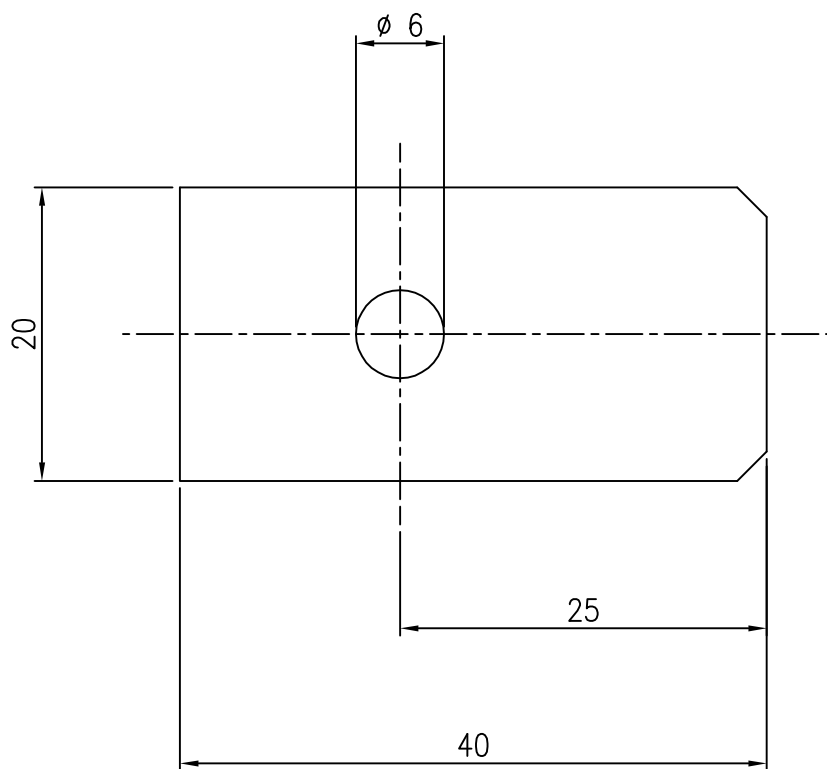


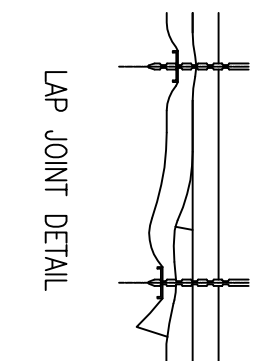
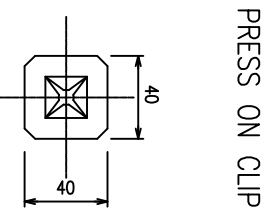
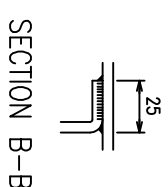
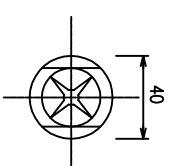
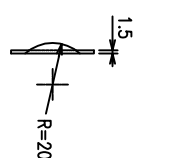
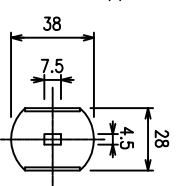
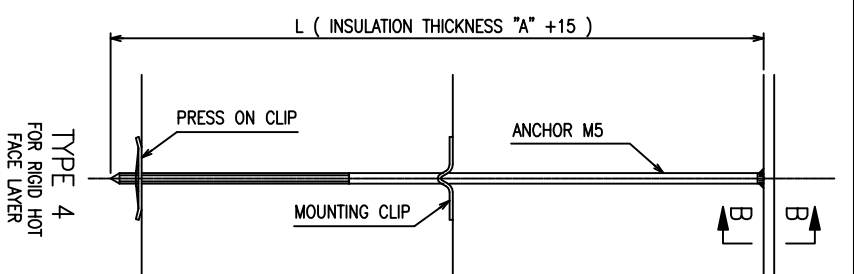
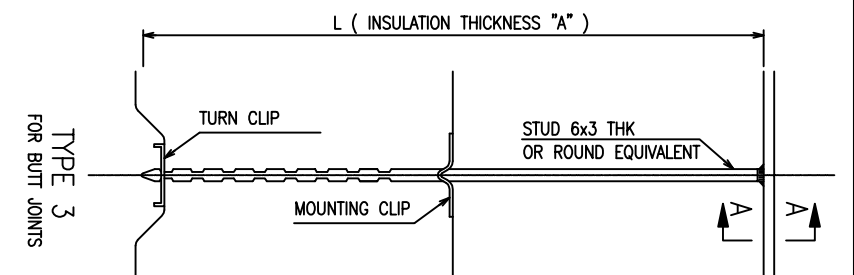
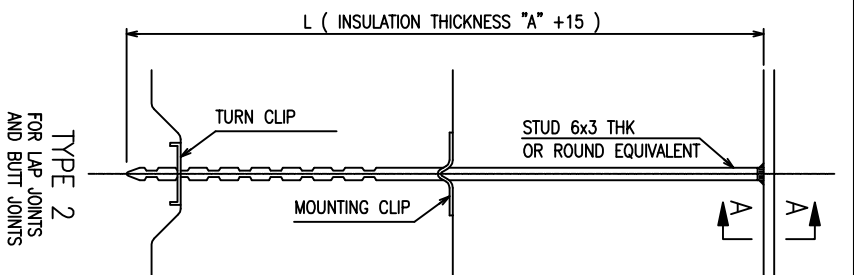
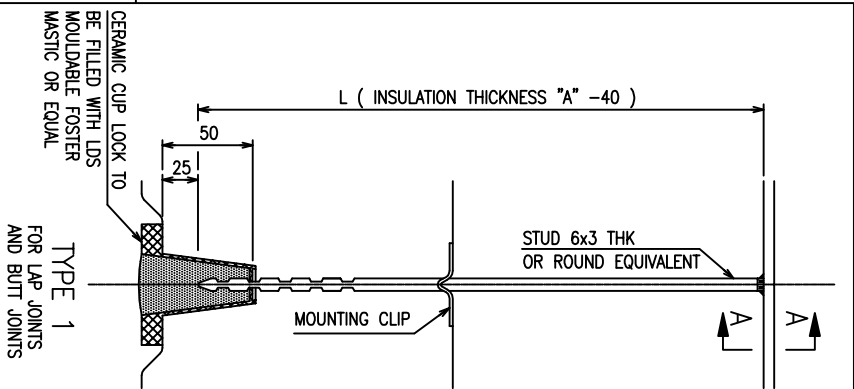
Lummus Technology Heat Transfer
Bloomfield, N.J.

SHEET 1 OF 13

SCALE:	NONE	BA62559STD0005	0
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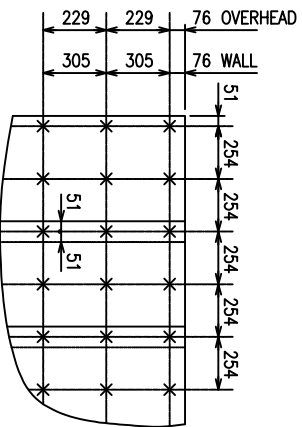
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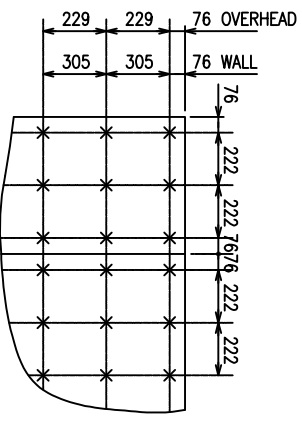
NOTES

- 1 FOR MATERIAL SPECIFICATION REFER GA DWG & DATA SHEET.
- 2 WELD AREA TO BE CLEAN OF ALL GREASE, PAINT, LOOSE MILL SCALE, RUST OR DIRT. GUN OR MANUAL WELDING METHODS MAY BE USED AT THE FABRICATORS PREFERENCE. WELDING RODS USED FOR MANUAL WELDING TO BE EQUIVALENT TO THE ANCHOR MATERIAL. CERAMIC FERRULES USED FOR GUN WELDING TO BE REMOVED AFTER WELDING. GUN TYPE ANCHORS MAY BE APPLIED FOR MANUAL WELDING IF PREFERRED
- 3 THE FIRST FEW WELDS TO BE TESTED BY BENDING THE ANCHORS OVER. THE ANCHORS SHOULD BEND WITHOUT BREAKING THE WELD. SUBSEQUENTLY THE WELD QUALITY TO BE TESTED BY RANDOM STRIKING APPROX 10% WITH A 0.5KG BALL HAMMER. A CLEAR METALLIC RING WILL INDICATE GOOD WELDING. IF FAULTY WELDING IS FOUND THEN ALL ANCHORS TO BE TESTED AND FAULTY WELDING REPAIRED.

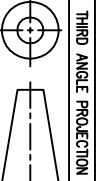
STUD PATTERN LAP JOINTS



STUD PATTERN BUTT JOINTS



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REV.	DATE	DESCRIPTION	DESIGNER	CHECKED	APPROVED	DATE
4	08-09-04	UPDATE FOR DRAWING BORDER	HLB	HLB		
3	08-04-22	APPROVED FOR CONSTRUCTION	HJO	HJO		



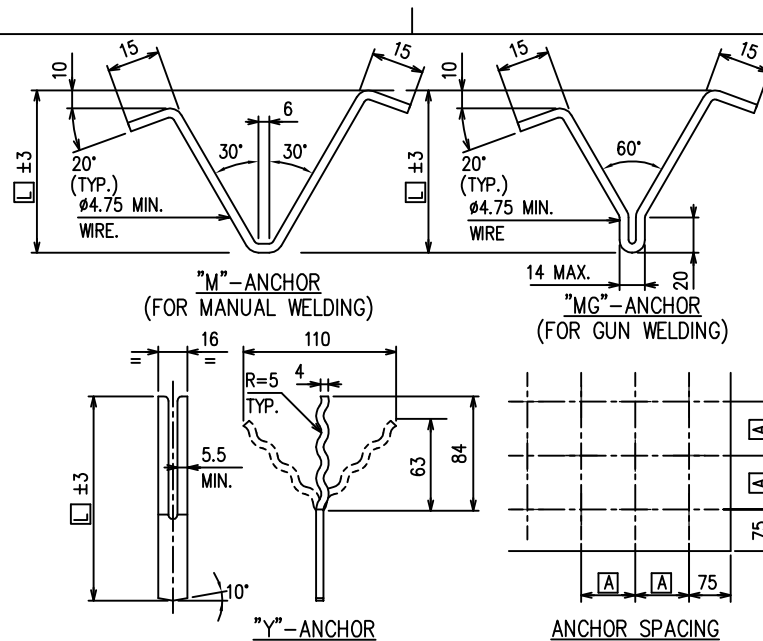
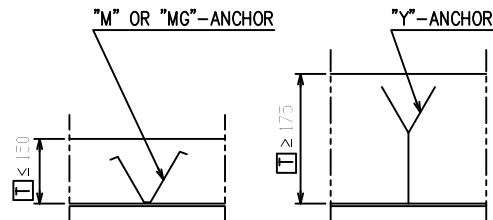
CERAMIC FIBRE
FIXING STUDS

SCALE
1:1

SASBA-4046

4

LINING THICKNESS [T]	ANCHOR LENGTH [L]		SPACING [A]	
	"M" / "MG"	"Y"	VERT WALLS	OVER HEAD
50	37	—	150	115
65	50	—	200	150
75	55	—	225	150
90	65	—	250	180
100	75	—	300	200
125	100	—	300	225
150	125	—	300	225
175 & OVER	—	[T]	300	225

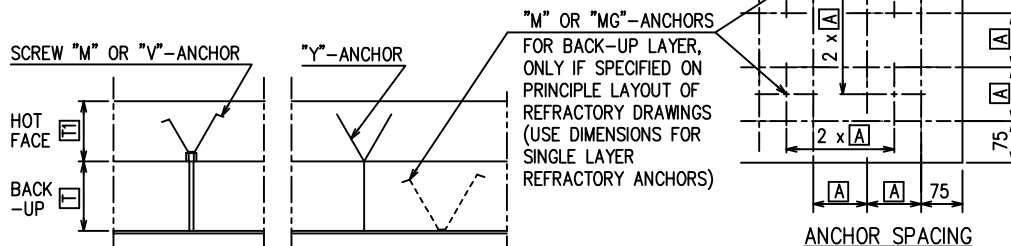
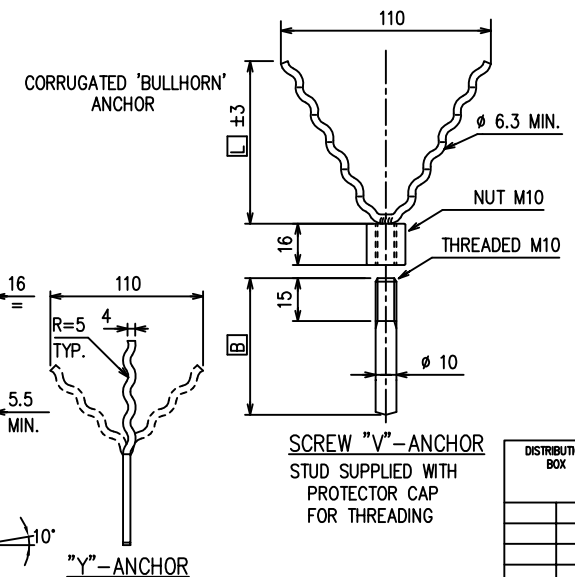
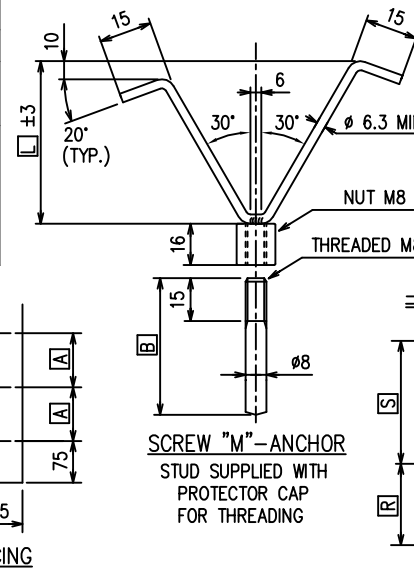


- ### NOTES:
- 1 ANCHORS FOR GUN WELDING TO BE SUPPLIED WITH WELD FERRULES. ALL BENDS TO BE FREE OF TOOL MARKS.
 - 2 "Y"-ANCHOR TINES TO BE SPREAD OUT AFTER WELDING (& CASTING OF BACK-UP LAYER IF APPLICABLE)
 - 3 FOR MATERIAL SPECIFICATION REFER GA DWG & DATA SHEET.
 - 4 SPACING TOLERANCE IS 12 MM IN ANY DIRECTION OF THE SPECIFIED CENTERS. CHALK TYPE MARKING TO BE USED IN LAYING OUT THE CENTERS. WAX TYPE CRAYONS ARE NOT TO BE USED. CENTER PUNCH MARKS MAY BE USED TO LOCATE ANCHOR LOCATIONS.
 - 5 WELD AREA TO BE CLEAN OF ALL GREASE, PAINT, LOOSE MILL SCALE, RUST OR DIRT. GUN OR MANUAL WELDING METHODS MAY BE USED AT THE FABRICATORS PREFERENCE. WELDING RODS USED IN MANUAL WELDING TO BE EQUIVALENT TO THE ANCHOR MATERIAL. CERAMIC FERRULES USED IN GUN WELDING TO BE REMOVED AFTER WELDING. GUN TYPE ANCHORS MAY BE APPLIED BY MANUAL WELDING IF PREFERRED.
 - 6 THE FIRST FEW WELDS TO BE TESTED BY BENDING THE ANCHORS OVER. THE ANCHORS SHOULD BEND WITHOUT BREAKING THE WELD. SUBSEQUENTLY THE WELD QUALITY TO BE TESTED BY STRIKING MODERATELY AT RANDOM ABOUT 10% OF WELDED ANCHORS USING A 0.5 KG BALL HAMMER. A CLEAR METALLIC SOUND SHALL INDICATE GOOD WELDING IF FAULTY WELDING IS FOUND THEN ALL ANCHORS TO BE TESTED AS DESCRIBED ABOVE AND FAULTY WELDS REPAIRED.
 - 7 FOR T AND T1 THICKNESS REFER GA DWG1100.
 - 8 ANCHOR SPACING "A" SHALL BE BASED ON HOT-FACE LAYER.

SPACING	115	150	180	200	225	250	300
ANCHORS/m ²	75.7	44.5	30.9	25.0	19.7	16.0	11.1

HOT-FACE THICKNESS [T1]	ANCHOR LENGTH		SPACING [A]	
	SCREW "M"/"V" [L]	"Y" [S]	VERT WALLS	OVER HEAD
75	40	75	225	150
90	50	90	250	180
100	60	100	300	200
125	85	125	300	225
150 & OVER	[T1]-40	[T1]	300	225

BACK-UP	ANCHOR LENGTH	
THICKNESS	SCREW "M" / "V"	"Y"
[T]	[B]	[R]
50	65	[T]
75	90	[T]
100	115	[T]
125	140	[T]
150 & OVER	[T] +15	[T]



13	09-02-13	ADDED NOTE 8				MBIR	HJO	HJO		/
REV.	DATE	DESCRIPTION	DESIGNER	CHECKER	SUPERVISOR	PROJ. ENG.	THERM. ENG.	MICRO DATA		

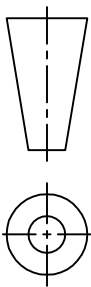
ANCHORS FOR CASTABLE REFRACTORY

13

A3-SIZE

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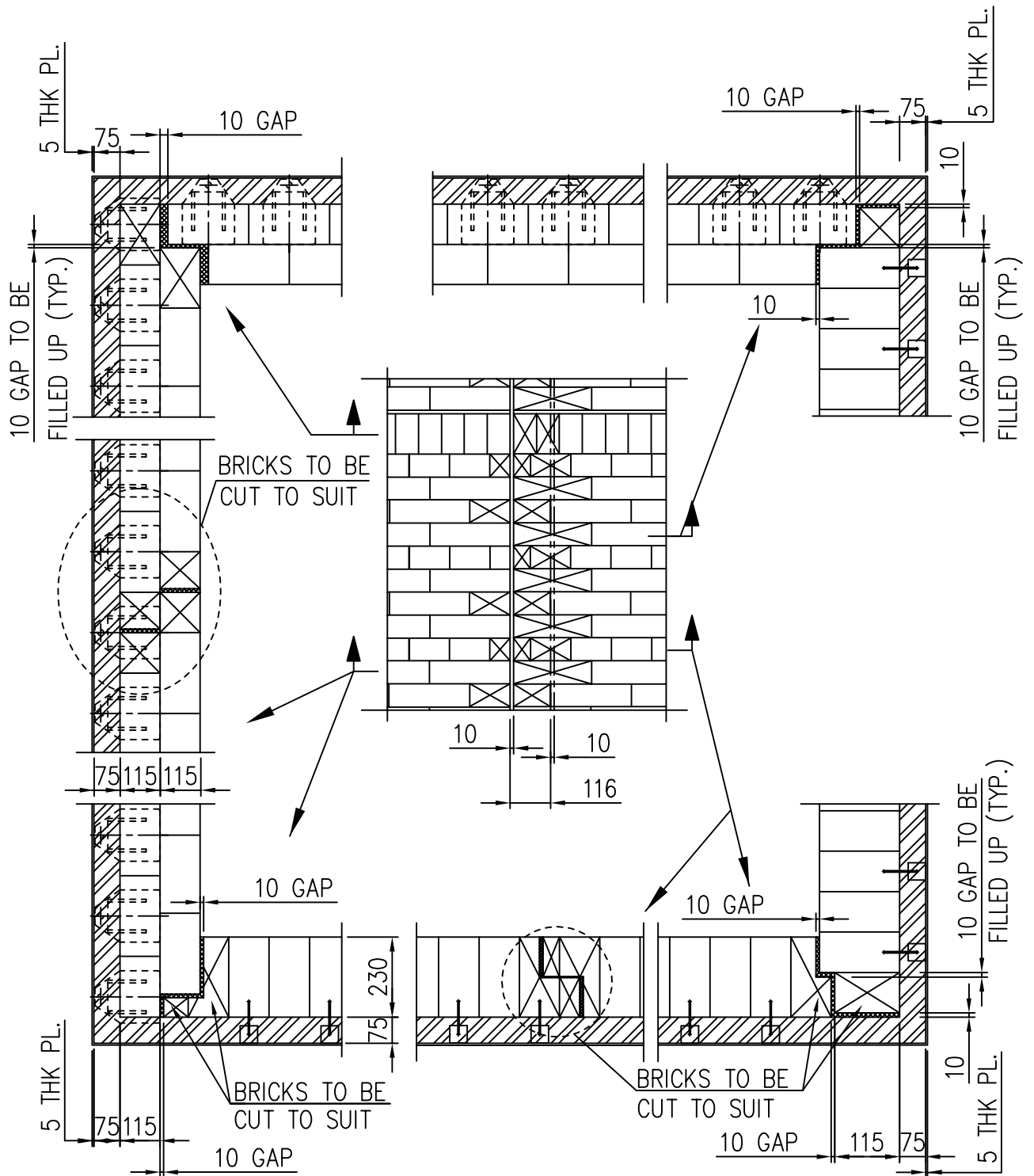
THIRD ANGLE PROJECTION



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DISTRIBUTION
BOX



TYP. EXPANSION JOINT DETAIL

NOTE-EXPANSION GAP IN RADIANT WALL BRICK LINING SHALL AT 2000mm MAXIMUM SPACING.



Lummus Technology
a CB&I company

Lummus Technology Heat Transfer
Bloomfield, N.J.

TYP. EXPANSION JOINT DETAIL FOR BRICK LINING

0 - - AS PER COVER SHEET

REV. DATE DESCRIPTION

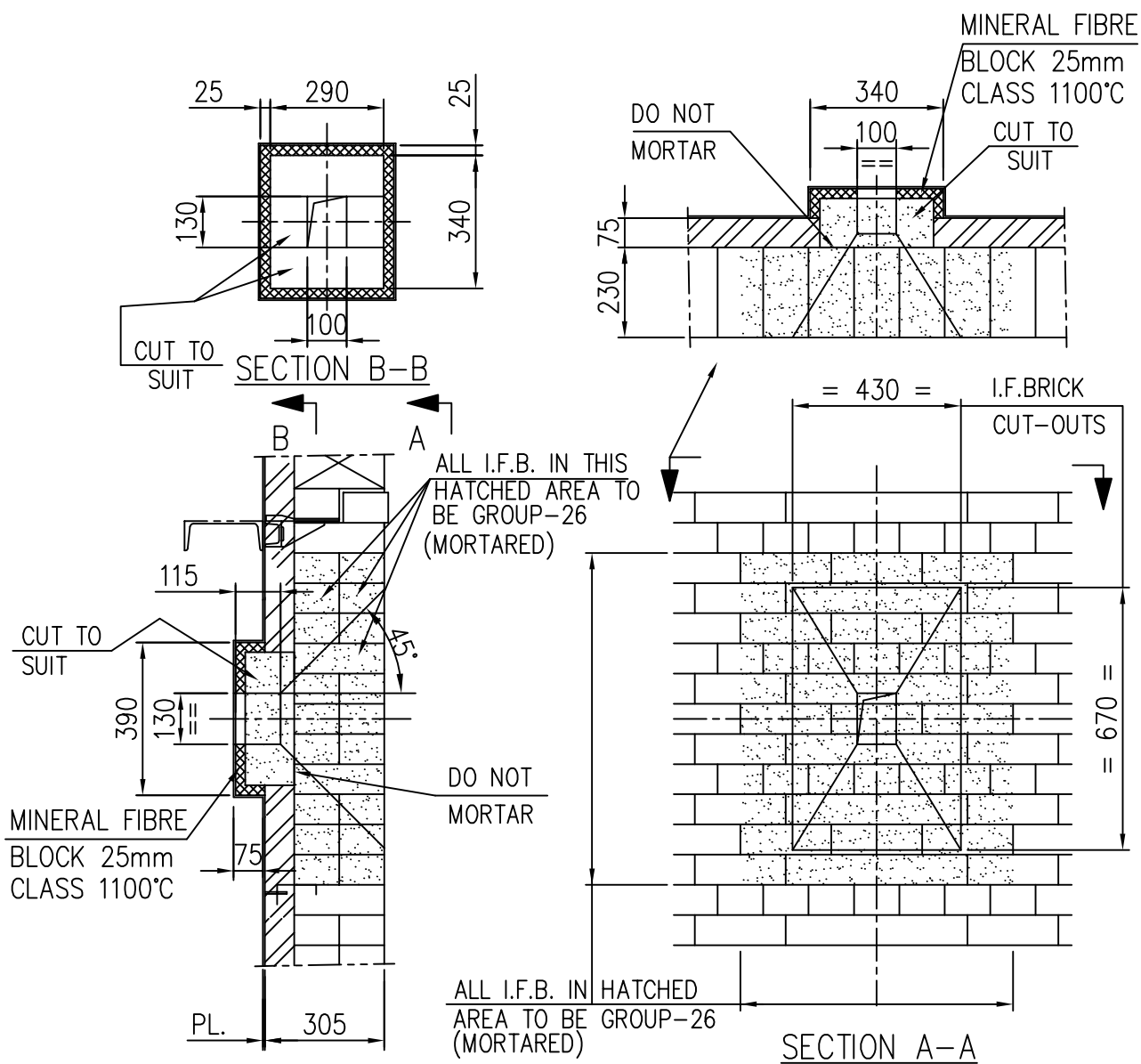
DESIG-
NER
CHECK-
KER
SUPER-
VISOR
PROJ.
ENG.
THERM.
ENG.
MGR.
DATE

SCALE:

BA62559STD0005

0

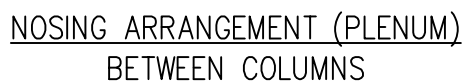
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TYPICAL ARRANGEMENT
PEEP DOOR AT BRICK LINNING

[illegible]

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0	- -		AS PER COVER SHEET								
REV.	DATE		DESCRIPTION		DISE- NER	CHEC- KER	SUPER- VISOR	PROJ. ENG.	THERM. ENG.	MICR. DATE	

NOSING ARRANGEMENT (PLENUM) BETWEEN COLUMNS

SCALE:	—	BA62559STD0005	0
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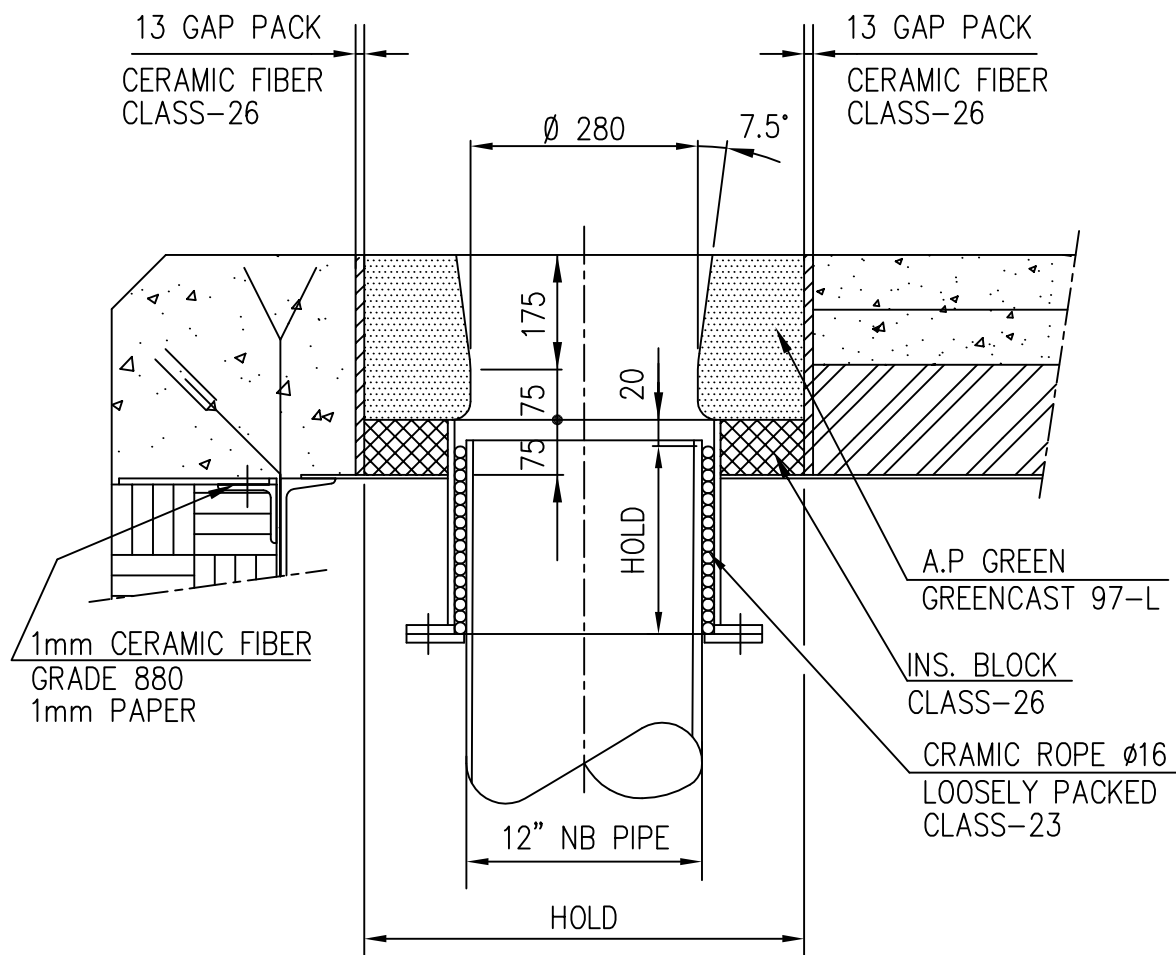
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	-	-	AS PER COVER SHEET							
REV.	DATE	DESCRIPTION			CHECKED BY	DRAWN BY	SUPERVISOR	PLOT. ENG.	THERM. ENG.	MISC. DATE

 Lummus Technology a CB&I company	Lummus Technology Heat Transfer Bloomfield, N.J.		
TYPICAL CORBEL DETAIL SHEET 12			
SCALE:	—	BA62559STD0005	0

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FLOOR REFRACTORY DET. AROUND DECOKING NOZZLE

[illegible]