

GUSSET & SHIM PLATES DIMENSIONS: a*b(HORIZONTAL*VERTICAL)

BEAM	IPE 100	IPE 140	IPE 180	IPE 200	IPE 240	IPE 300	IPE 360	IPE 400	IPE 450	IPE 500	IPE 600
WELDINGS THICKNESS "w"	6	6	7	7	8	10	10	10	10	10	10
GUSSET PLATE THICKNESS "t"	10	10	10	10	10	15	15	15	15	15	15
REQUIRED BOLTS	1 + 1 M 12	2 + 2 M 12	2 + 2 M 12	2 + 2 M 14	2 + 2 M 16	2 + 2 M 18	2 + 2 M 22	3 + 3 M 20	3 + 3 M 22	3 + 3 M 24	3 + 3 M 27
COLUMN FLANGE	HEA 100	90x50	90x80	90x80	/	/	/	/	/	/	/
	HEA 140	/	/	/	100x100	/	/	/	/	/	/
	HEA 160	100x50	100x80	100x80	05x100	115x110	/	/	/	/	/
	HEA 180	/	/	/	/	/	125x130	/	/	/	/
	HEA 220	/	/	/	115x100	120x110	130x130	150x170	/	/	/
	HEA 260	115x50	115x80	115x80	125x100	135x110	145x130	160x170	150x200	/	/
	HEA 300	125x50	125x80	125x80	135x100	140x110	150x130	170x170	160x200	170x250	/
	HEA 340	/	/	/	/	145x110	/	/	/	/	180x300
	HEA 400	/	/	/	/	/	155x130	165x200	/	/	195x430
	HEA 500	/	/	/	/	/	/	/	/	/	/
	HEB 450	130x50	130x80	130x80	140x100	/	175x170	175x250	185x300	200x430	/
	HEB 500	/	/	/	/	/	/	/	/	/	/

M	Ø	d	c
DIA. BOLTS	DIA. HOLES	DISTANCE FROM TOP/BOTTOM EDGE OF PLATE	DISTANCE FROM LEFT/RIGHT EDGE OF PLATE
12	13	25	18
14	15	28	21
16	17	32	24
18	19	36	27
20	21.5	40	30
22	23.5	44	33
24	25.5	48	36
27	28.5	54	41

NOTES

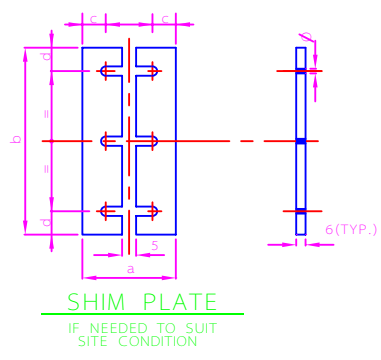
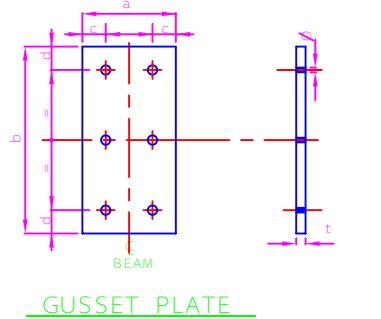
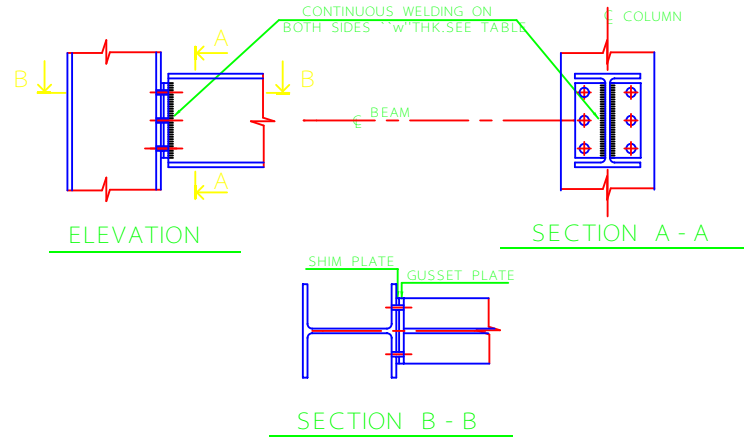
- ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
- ALL WELDS SHALL BE DONE AT SHOP.
- WELDS SHALL BE AS PER AWS D1.1
- HIGH STRENGTH BEARING TYPE BOLTS SHALL BE IN ACCORDANCE WITH ASTM A325 TYPE 1 OR EQUIVALENT APPROVED BY AUTHORIZED REPRESENTATIVE OF OWNER.
- NUTS AND WASHERS SPECIFICATION FOR ASTM A325 BOLT SHALL BE ASTM A563 DH AND ASTM F436 RESPECTIVELY.
- STRUCTURAL MATERIAL SHALL BE DIN ST 37 OR EQUIVALENT.
- DESIGN PROCEDURE TO BE IN ACCORDANCE WITH AISC MANUAL AND MATERIALS TO BE IN ACCORDANCE WITH DIN STANDARDS.

GIVEN EXAMPLE:

CONNECTION OF IPE - 240 BEAM TO HEA - 160 COLUMN.

WELDING THICKNESS OF GUSSET PLATE TO WEB OF IPE - 140 : 8

THICKNESS OF GUSSET PLATE : 10
No. AND DIA. OF REQ'D BOLTS : 2+2 M16
DIMENSIONS OF GUSSET (AND SHIM) PLATE a*b=115x110



REV	DESCRIPTION	DATE
C		
B		
A		

IRANIAN PETROLEUM STANDARDS

NO REVISION PERMITTED UNLESS APPROVED BY STANDARD ORGANIZATION

STRUCTURAL STEEL CONNECTIONS
SHEAR CONNECTION
BEAM TO COLUMN FLANGE

DATE	DRAWING No.	SHEET	REV.
	IPS - D - CE - 101	1/6	

GUSSET & SHIM PLATES DIMENSIONS: a*b(HORIZONTAL*VERTICAL)

BEAM	HEA100	HEA140	HEA160	HEA180	HEA220	HEA260	HEA300	HEA340	HEA400	HEA500
WELDINGS THICKNESS "w"	7	6	6	8	8	10	10	10	10	10
GUSSET PLATE THICKNESS "t"	10	10	10	10	10	15	15	15	15	15
REQUIRED BOLTS	1 + 1 M 12	2 + 2 M 12	2 + 2 M 14	2 + 2 M 14	2 + 2 M 18	2 + 2 M 20	2 + 2 M 20	3 + 3 M 20	3 + 3 M 22	3 + 3 M 27
COLUMN FLANGE	HEA100	90x50	/	/	/	/	/	/	/	/
	HEA140	90x80	/	/	/	/	/	/	/	/
	HEA160	100x50	100x80	105x100	/	/	/	/	/	/
	HEA180	/	/	105x100	/	/	/	/	/	/
	HEA220	/	/	115x100	115x100	130x130	/	/	/	/
	HEA260	115x50	115x80	125x100	125x100	145x130	150x140	/	/	/
	HEA300	125x50	125x80	135x100	135x100	150x130	160x140	160x160	/	/
	HEA340	/	/	/	/	/	/	160x240	/	/
	HEA400	/	/	/	/	155x130	165x140	165x160	165x240	170x280
	HEA500	/	/	/	/	/	/	/	/	195x380
HEB450	130x50	130x80	140x100	140x100	/	/	/	175x280	200x380	
HEB500	/	/	/	/	/	/	/	/	/	

M	Ø	d	c
DIA. BOLTS	DIA. HOLES	DISTANCE FROM TOP/BOTTOM EDGE OF PLATE	DISTANCE FROM LEFT/RIGHT EDGE OF PLATE
12	13	25	18
14	15	28	21
16	17	32	24
18	19	36	27
20	21.5	40	30
22	23.5	44	33
24	25.5	48	36
27	28.5	54	41

NOTES

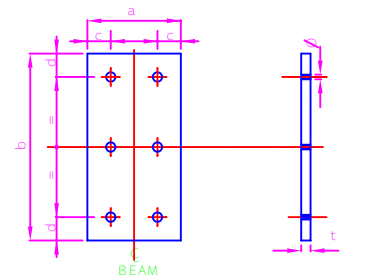
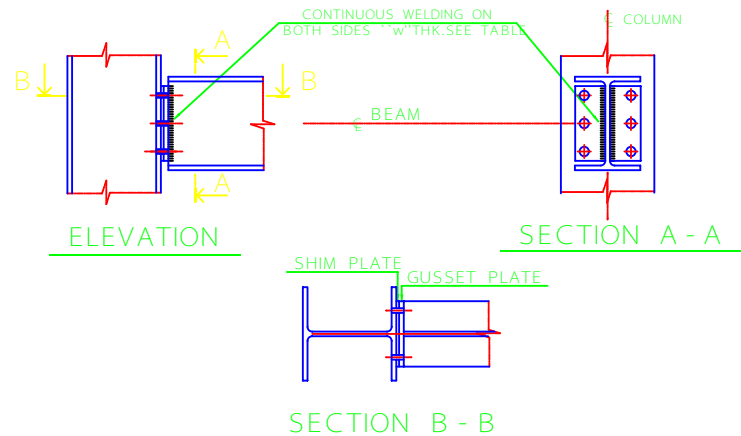
- 1 - ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
- 2 - ALL WELDS SHALL BE DONE AT SHOP.
- 3 - WELDS SHALL BE AS PER AWS D1.1
- 4 - HIGH STRENGTH BEARING TYPE BOLTS SHALL BE IN ACCORDANCE WITH ASTM A325 TYPE 1 OR EQUIVALENT APPROVED BY AUTHORIZED REPRESENTATIVE OF OWNER.
- 5 - NUTS AND WASHERS SPECIFICATION FOR ASTM A325 BOLT SHALL BE ASTM A563 DH AND ASTM F436 RESPECTIVELY.
- 6 - STRUCTURAL MATERIAL SHALL BE DIN ST 37 OR EQUIVALENT.
- 7 - DESIGN PROCEDURE TO BE IN ACCORDANCE WITH AISC MANUAL AND MATERIALS TO BE IN ACCORDANCE WITH DIN STANDARDS.

GIVEN EXAMPLE:

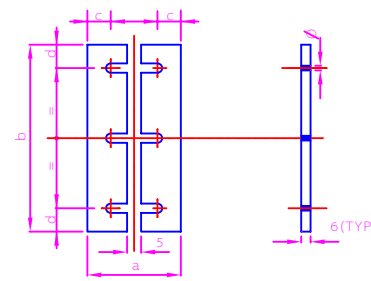
CONNECTION OF HEA - 180 BEAM TO HEA - 220 COLUMN.

WELDING THICKNESS OF GUSSET PLATE TO WEB OF HEA - 180 : 8

THICKNESS OF GUSSET PLATE : 10
No. AND DIA. OF REQ'D BOLTS : 2+2 M14
DIMENSIONS OF GUSSET (AND SHIM) PLATE a*b=115x100



GUSSET PLATE



SHIM PLATE
IF NEEDED TO SUIT SITE CONDITION

REV	DESCRIPTION	DATE
C		
B		
A		

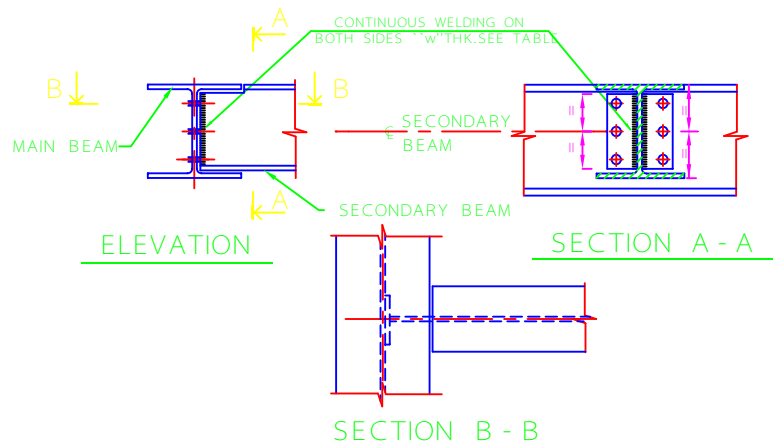
IRANIAN PETROLEUM STANDARDS
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STRUCTURAL STEEL CONNECTIONS
SHEAR CONNECTION
BEAM TO COLUMN FLANGE

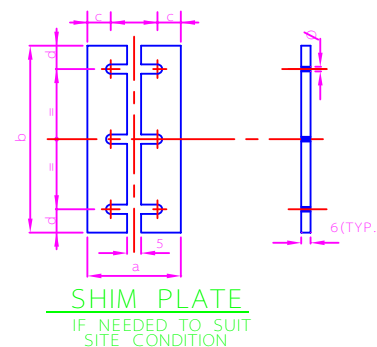
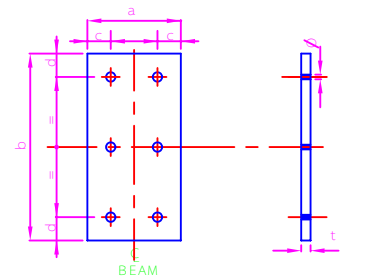
DATE	DRAWING No.	SHEET	REV.
	IPS - D - CE - 101	2	6

GUSSET & SHIM PLATES DIMENSIONS: a*b(HORIZONTAL*VERTICAL)

BEAM	HEA100	HEA140	HEA160	HEA180	HEA220	HEA260	HEA300	HEA340	HEA400	HEA500
WELDINGS THICKNESS "w"	7	6	6	8	8	10	10	10	10	10
GUSSET PLATE THICKNESS "t"	10	10	10	10	10	15	15	15	15	15
REQUIRED BOLTS	1 + 1 M 12	2 + 2 M 12	2 + 2 M 14	2 + 2 M 14	2 + 2 M 18	2 + 2 M 20	2 + 2 M 20	3 + 3 M 20	3 + 3 M 22	3 + 3 M 27
MAIN BEAM	HEA100	90x50								
	HEA140		90x80							
	HEA160			100x100						
	HEA180				100x100					
	HEA220					125x130				
	HEA260						150x140			
	HEA300							150x160		
	HEA340								150x240	
	HEA400									155x280
	HEA500									



"M"	"Ø"	"d"	"c"
DIA. BOLTS	DIA. HOLES	DISTANCE FROM TOP/BOTTOM EDGE OF PLATE	DISTANCE FROM LEFT/RIGHT EDGE OF PLATE
12	13	25	18
14	15	28	21
16	17	32	24
18	19	36	27
20	21.5	40	30
22	23.5	44	33
24	25.5	48	36
27	28.5	54	41



NOTES

- ALL DIMENSIONS SHOWN ARE IN MILLIMETERS
- ALL WELDS SHALL BE DONE AT SHOP.
- WELDS SHALL BE AS PER AWS D1.1
- HIGH STRENGTH BEARING TYPE BOLTS SHALL BE IN ACCORDANCE WITH ASTM A325 TYPE 1 OR EQUIVALENT APPROVED BY AUTHORIZED REPRESENTATIVE OF OWNER.
- NUTS AND WASHERS SPECIFICATION FOR ASTM A325 BOLT SHALL BE ASTM A563 DH AND ASTM F436 RESPECTIVELY.
- STRUCTURAL MATERIAL SHALL BE DIN ST 37 OR EQUIVALENT.
- DESIGN PROCEDURE TO BE IN ACCORDANCE WITH AISC MANUAL AND MATERIALS TO BE IN ACCORDANCE WITH DIN STANDARDS.

GIVEN EXAMPLE:

HEA 220 SECONDARY BEAM TO BE CONNECTED TO HEA 300 MIN BEAM.

WELDING THICKNESS OF GUSSET PLATE TO WEB OF HEA - 220 : 8

THICKNESS OF GUSSET PLATE t = 10
No. AND DIA. OF REQ'D BOLTS : 2+2 M18
DIMENSIONS OF GUSSET (AND SHIM) PLATE a*b = 125x130

REV	DESCRIPTION	DATE
C		
B		
A		

IRANIAN PETROLEUM STANDARDS
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STRUCTURAL STEEL CONNECTIONS
SHEAR CONNECTION
BEAM TO MAIN BEAM WEB

DATE	DRAWING No.	SHEET	REV.
	IPS - D - CE - 101	3	6

GUSSET & SHIM PLATES DIMENSIONS: a*b(HORIZONTAL*VERTICAL)

BEAM	HEA100	HEA140	HEA160	HEA180	HEA220	HEA260	HEA300	HEA340	HEA400	HEA500	
WELDINGS THICKNESS "w"	7	6	6	8	8	10	10	10	10	10	
GUSSET PLATE THICKNESS "t"	10	10	10	10	10	15	15	15	15	15	
REQUIRED BOLTS	1 + 1 M 12	2 + 2 M 12	2 + 2 M 14	2 + 2 M 14	2 + 2 M 18	2 + 2 M 20	2 + 2 M 20	3 + 3 M 20	3 + 3 M 22	3 + 3 M 27	
MAIN BEAM	IPE 140	90x50	90x80	/	/	/	/	/	/	/	
	IPE 180	/	/	100x100	/	/	/	/	/	/	
	IPE 200	/	/	/	100x100	/	/	/	/	/	
	IPE 240	/	/	/	/	125x130	/	/	/	/	
	IPE 300	/	/	/	/	/	150x140	/	/	/	
	IPE 360	/	/	/	/	/	/	150x160	/	/	
	IPE 400	/	/	/	/	/	/	/	150x240	/	
	IPE 450	/	/	/	/	/	/	/	/	155x280	
	IPE 500	/	/	/	/	/	/	/	/	/	190x380
	IPE 600	/	/	/	/	/	/	/	/	/	/

"M"	"Ø"	"d"	"c"
DIA. BOLTS	DIA. HOLES	DISTANCE FROM TOP/BOTTOM EDGE OF PLATE	DISTANCE FROM LEFT/RIGHT EDGE OF PLATE
12	13	25	18
14	15	28	21
16	17	32	24
18	19	36	27
20	21.5	40	30
22	23.5	44	33
24	25.5	48	36
27	28.5	54	41

NOTES

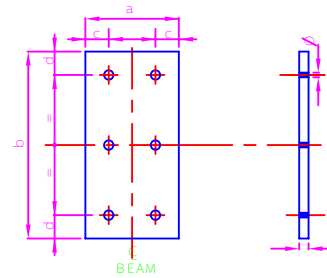
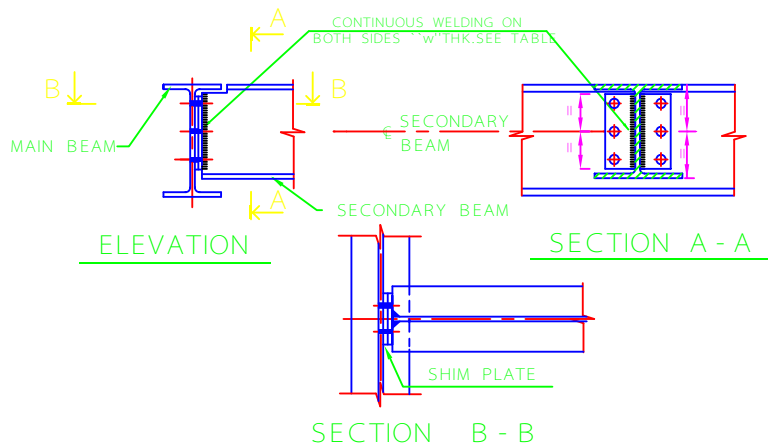
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- NUTS AND WASHERS SPECIFICATION FOR ASTM A325 BOLT SHALL BE ASTM A563 DH AND ASTM F436 RESPECTIVELY.
- STRUCTURAL MATERIAL SHALL BE A36 OR DIN ST 37.
- DESIGN PROCEDURE TO BE IN ACCORDANCE WITH AISC MANUAL AND MATERIALS TO BE IN ACCORDANCE WITH DIN STANDARDS.

GIVEN EXAMPLE:

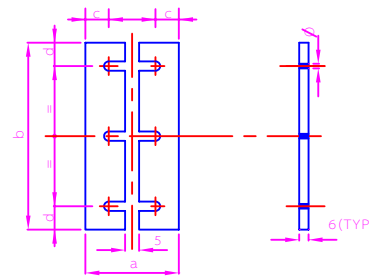
HEA 220 SECONDARY BEAM TO BE CONNECTED TO IPE 300 MAIN BEAM.

WELDING THICKNESS OF GUSSET PLATE TO WEB OF HEA - 220 : 8

THICKNESS OF GUSSET PLATE t= 10
No. AND DIA. OF REQ'D BOLTS : 2+2 M18
DIMENSIONS OF GUSSET (AND SHIM) PLATE a*b=125x130



GUSSET PLATE



SHIM PLATE
IF NEEDED TO SUIT SITE CONDITION

REV	DESCRIPTION	DATE
C		
B		
A		

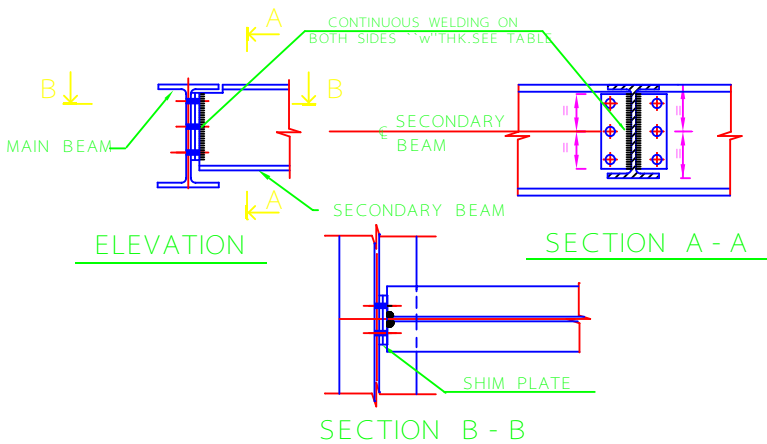
IRANIAN PETROLEUM STANDARDS
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STRUCTURAL STEEL CONNECTIONS
SHEAR CONNECTION
BEAM TO MAIN BEAM WEB

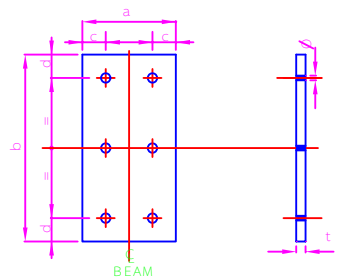
DATE	DRAWING No.	SHEET	REV.
	IPS - D - CE - 101	5	6

GUSSET & SHIM PLATES DIMENSIONS: a*b(HORIZONTAL*VERTICAL)

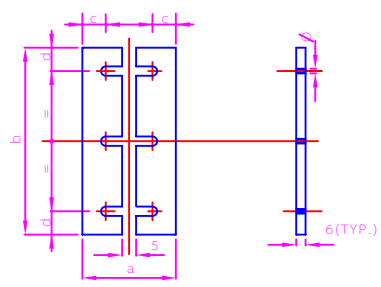
BEAM	IPE 100	IPE 140	IPE 180	IPE 200	IPE 240	IPE 300	IPE 360	IPE 400	IPE 450	IPE 500	IPE 600
WELDINGS THICKNESS	6	6	7	7	8	10	10	10	10	10	10
GUSSET PLATE THICKNESS	10	10	10	10	10	15	15	15	15	15	15
REQUIRED BOLTS	1 + 1 M 12	2 + 2 M 12	2 + 2 M 12	2 + 2 M 14	2 + 2 M 16	2 + 2 M 18	2 + 2 M 22	3 + 3 M 20	3 + 3 M 22	3 + 3 M 24	3 + 3 M 27
MAIN BEAM	IPE140	90x50	90x80								
	IPE180			90x80							
	IPE200				100x100						
	IPE240					115x110					
	IPE300						125x130				
	IPE360							150x170			
	IPE400								150x200		
	IPE450									155x250	
	IPE500										170x300
	IPE600										



M	D	d	c
		DISTANCE	
DIA. BOLTS	DIA. HOLES	FROM TOP/BOTTOM EDGE OF PLATE	FROM LEFT/RIGHT EDGE OF PLATE
12	13	25	18
14	15	28	21
16	17	32	24
18	19	36	27
20	21.5	40	30
22	23.5	44	33
24	25.5	48	36
27	28.5	54	41



GUSSET PLATE



SHIM PLATE
IF NEEDED TO SUIT SITE CONDITION

NOTES

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- ALL WELDS SHALL BE DONE AT SHOP.
- WELDS SHALL BE AS PER AWS D1.1
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- STRUCTURAL MATERIAL SHALL BE A36 OR DIN ST 37.
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GIVEN EXAMPLE:

IPE 200 SECONDARY BEAM TO BE CONNECTED TO IPE 300 MAIN BEAM.

WELDING THICKNESS OF GUSSET PLATE TO WEB OF IPE - 200 : 7

THICKNESS OF GUSSET PLATE t= 10
No. AND DIA. OF REQ'D BOLTS : 2+2 M14
DIMENSIONS OF GUSSET (AND SHIM) PLATE a*b=100x100

REV	DESCRIPTION	DATE
C		
B		
A		

IRANIAN PETROLEUM STANDARDS
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STRUCTURAL STEEL CONNECTIONS
SHEAR CONNECTION
BEAM TO MAIN BEAM WEB

DATE	DRAWING No.	SHEET	REV.
	IPS - D - CE - 101	5	6