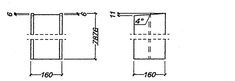
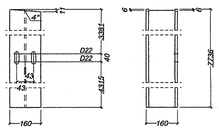


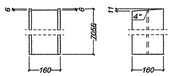
2 x Pos. 101

HEB16C..7876 - S235JR



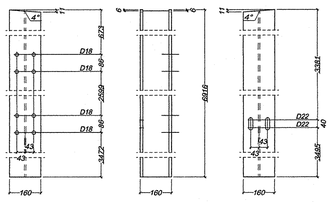
1 x Pos. 102

HEB16C..7736 - S235JR



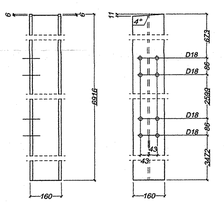
1 x Pos. 103

HEB16C..7056 - S235JR



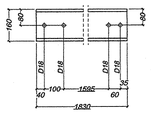
1 x Pos. 104

HEB16C..6916 - S235JR



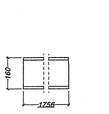
1 x Pos. 105

HEB16C..6916 - S235JR



9 x Pos. 106

HEB16C..1830 - S235JR

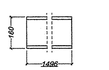


8 x Pos. 107

HEB16C..1756 - S235JR

1 x Pos. 108

HEB16C..1756 - S235JR



9 x Pos. 109

HEB16C..1496 - S235JR

1 x Pos. 110

HEA16C..8157 - S235JR

1 x Pos. 113

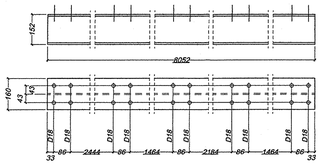
HEA16C..8005 - S235JR

1 x Pos. 114

HEA16C..8005 - S235JR

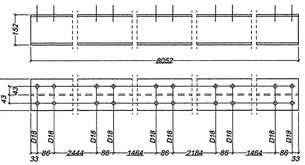
1 x Pos. 115

HEA16C..8005 - S235JR



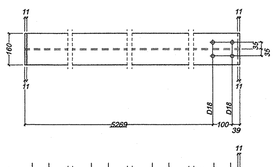
1 x Pos. 111

HEA16C..8052 - S235JR



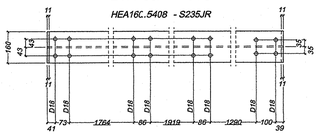
1 x Pos. 112

HEA16C..8052 - S235JR



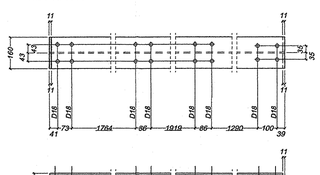
2 x Pos. 116

HEA16C..5408 - S235JR



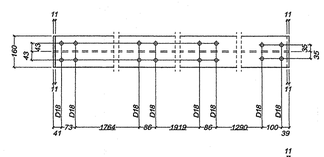
1 x Pos. 117

HEA16C..5398 - S235JR



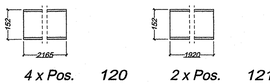
1 x Pos. 118

HEA16C..5398 - S235JR



1 x Pos. 119

HEA16C..5398 - S235JR

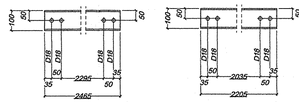


4 x Pos. 120

HEA16C..2165 - S235JR

2 x Pos. 121

HEA16C..1920 - S235JR

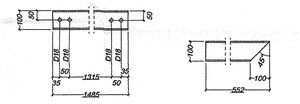


2 x Pos. 122

IPE100..2465 - S235JR

2 x Pos. 123

IPE100..2205 - S235JR

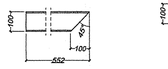


4 x Pos. 124

IPE100..1485 - S235JR

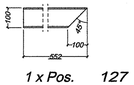
1 x Pos. 125

IPE100..552 - S235JR



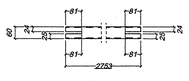
3 x Pos. 126

IPE100..552 - S235JR



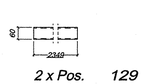
1 x Pos. 127

IPE100..552 - S235JR



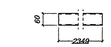
1 x Pos. 128

MSH60*4..2753 - S235JR



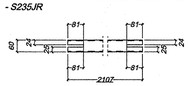
2 x Pos. 129

MSH60*4..2349 - S235JR



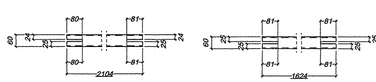
2 x Pos. 130

MSH60*4..2349 - S235JR



1 x Pos. 131

MSH60*4..2107 - S235JR

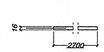


1 x Pos. 132

MSH60*4..2104 - S235JR

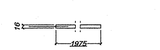
1 x Pos. 133

MSH60*4..1624 - S235JR



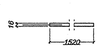
4 x Pos. 134

RUND1t..2700



8 x Pos. 135

RUND1t..1975



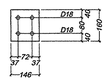
4 x Pos. 136

RUND1t..1520

18 x Pos. 137

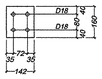
RUND1t..200 - STAHL

Pręt. gwint. 8.8



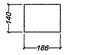
36 x Pos. 138

BL2*146..160



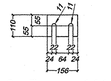
12 x Pos. 139

BL2*142..160



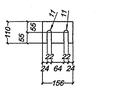
2 x Pos. 140

FL140*4C..186 - S235JR



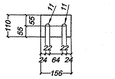
2 x Pos. 141

BL4*110..156 - S235JR



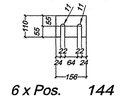
2 x Pos. 142

BL8*110..156 - S235JR



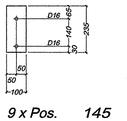
4 x Pos. 143

BL2*110..156 - S235JR



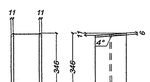
6 x Pos. 144

BL1*110..156 - S235JR



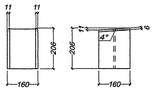
9 x Pos. 145

FL100*10..235 - S235JR



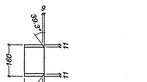
2 x Pos. 1001

HEB16C..346 - S235JR



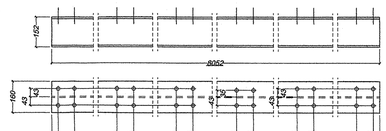
2 x Pos. 1002

HEB16C..206 - S235JR



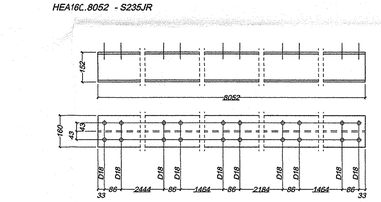
9 x Pos. 1003

HEB16C..104 - S235JR



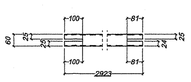
1 x Pos. 1004

HEA16C..8052 - S235JR



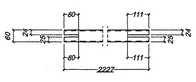
1 x Pos. 1005

HEA16C..8052 - S235JR



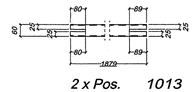
1 x Pos. 1009

MSH60*4..2923 - S235JR



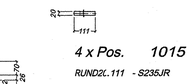
2 x Pos. 1011

MSH60*4..2227 - S235JR



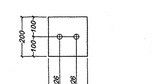
2 x Pos. 1013

MSH60*4..1879 - S235JR



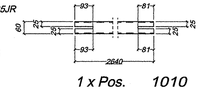
4 x Pos. 1015

RUND2L..111 - S235JR



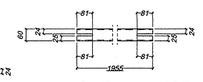
4 x Pos. 1017

BL20*20C..200 - S235JR



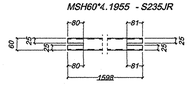
1 x Pos. 1010

MSH60*4..2640 - S235JR



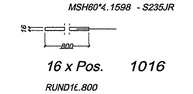
2 x Pos. 1012

MSH60*4..1955 - S235JR



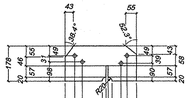
2 x Pos. 1014

MSH60*4..1598 - S235JR



16 x Pos. 1016

RUND1t..800



1 x Pos. 1019

BL10*17E..367 - S235JR

4 x Pos. 1006

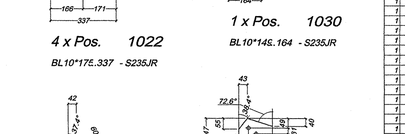
HEA16L..338 - S235JR

8 x Pos. 1007

HEA16C..215 - S235JR

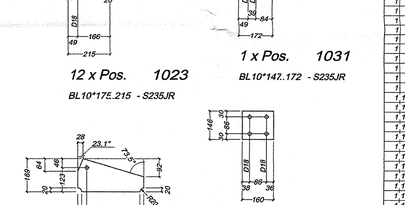
5 x Pos. 1008

IPE100..439 - S235JR



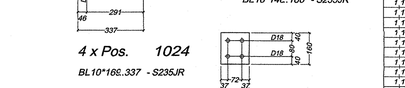
4 x Pos. 1022

BL10*17E..337 - S235JR



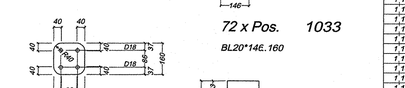
12 x Pos. 1023

BL10*17E..215 - S235JR



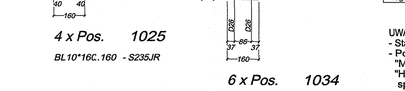
4 x Pos. 1024

BL10*16S..337 - S235JR



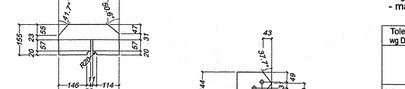
4 x Pos. 1025

BL10*16C..160 - S235JR



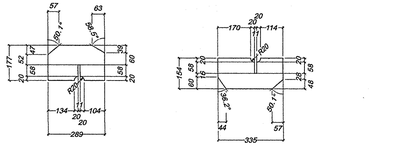
2 x Pos. 1026

BL10*15S..311 - S235JR



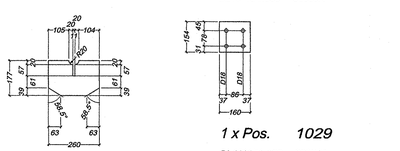
1 x Pos. 1027

BL10*15S..279 - S235JR



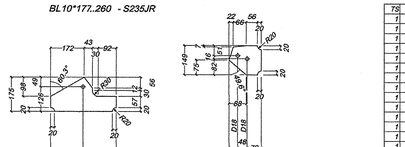
2 x Pos. 1020

BL10*177..289 - S235JR



1 x Pos. 1021

BL10*177..260 - S235JR



4 x Pos. 1034

BL20*14E..160

6 x Pos. 1035

BL10*144..175 - S235JR

1 x Pos. 1028

BL10*154..335 - S235JR

1 x Pos. 1029

BL10*154..160 - S235JR

1 x Pos. 1030

BL10*14S..164 - S235JR

1 x Pos. 1031

BL10*144..172 - S235JR

6 x Pos. 1032

BL10*14E..160 - S235JR

72 x Pos. 1033

BL20*14E..160

6 x Pos. 1034

BL20*14E..160

3 x Pos. 1035

BL10*144..175 - S235JR

TS	Poz.	Sztuk	Nazwa	Profil	Material	Długość	Waga	Waga całkowita
1	101	2		HEB160	S235JR	7876	335.53	671.05
1	102	1		HEB160	S235JR	7736	329.56	329.56
1	103	1		HEB160	S235JR	7056	300.59	300.59
1	104	1		HEB160	S235JR	6916	294.63	294.63
1	105	1		HEB160	S235JR	6916	294.63	294.63
1	106	9		HEB160	S235JR	1830	77.96	701.62
1	107	8		HEB160	S235JR	1756	74.81	598.44
1	108	1		HEB160	S235JR	1756	74.81	74.81
1	109	9		HEB160	S235JR	1496	63.73	573.57
1	110	1		HEA160	S235JR	8157	247.98	247.98
1	111	1		HEA160	S235JR	8052	244.78	244.78
1	112	1		HEA160	S235JR	8052	244.78	244.78
1	113	1		HEA160	S235JR	8004.5	243.34	243.34
1	114	1		HEA160	S235JR	8004.5	243.34	243.34
1	115	1		HEA160	S235JR	8004.5	243.34	243.34
1	116	2		HEA160	S235JR	5408	164.40	328.80
1	117	1		HEA160	S235JR	5398	164.10	164.10
1	118	1		HEA160	S235JR	5398	164.10	164.10
1	119	1		HEA160	S235JR	5398	164.10	164.10
1	120	4		HEA160	S235JR	2165	65.81	263.24
1	121	2		HEA160	S235JR	1918.5	58.36	116.71
1	122	2		IPE100	S235JR	2465	19.97	39.93
1	123	2		IPE100	S235JR	2205	17.86	35.73
1	124	4		IPE100	S235JR	1485	12.03	48.11
1	125	1		IPE100	S235JR	552	4.47	4.47
1	126	3		IPE100	S235JR	552	4.47	13.41
1	127	1		IPE100	S235JR	552	4.47	4.47
1	128	1		MSH60*4	S235JR	2753	19.07	19.07
1	129	2		MSH60*4	S235JR	2349	16.27	32.54
1	130	2		MSH60*4	S235JR	2349	16.27	32.54
1	131	1		MSH60*4	S235JR	2107.5	14.59	14.59
1	132	1		MSH60*4	S235JR	2104	14.57	14.57
1	133	1		MSH60*4	S235JR	1624	11.25	11.25
1	134	4		RUND16	S235JRG2	2700	4.26	17.05
1	135	6		RUND16	S235JRG2	1975	3.12	24.94
1	136	4		RUND16	S235JRG2	1520	2.40	9.60
1	137	18	Pręt. gwint. 8.8	RUND12	STAHL	200	0.18	3.20
1	138	36		BL2*146	S235JRG2	160	0.37	13.20
1	139	12		BL2*142	S235JRG2	160	0.36	4.28
1	140	2		FL140*40	S235JR	186	8.18	16.35
1	141	2		BL4*110	S235JR	156	0.54	1.08
1	142	2		BL8*110	S235JR	156	1.08	2.16
1	143	4		BL2*110	S235JR	156	0.27	1.08
1	144	6		BL1*110	S235JR	156	0.13	0.81
1	145	9		FL100*10	S235JR	235	1.84	16.60
1	1001	2		HEB160	S235JR	346	14.75	29.50
1	1002	2		HEB160	S235JR	206	8.79	17.57
1	1003	9		HEB160	S235JR	104	4.43	39.87
1	1004	1		HEA160	S235JR	8052	244.78	244.78
1	1005	1		HEA160	S235JR	8052	244.78	244.78
1	1006	4		HEA160	S235JR	337.5	10.27	41.07
1	1007	8		HEA160	S235JR	215	6.54	52.31
1	1008	5		IPE100	S235JR	439	3.56	17.79
1	1009	1		MSH60*4	S235JR	2923	20.24	20.24
1	1010	1		MSH60*4	S235JR	2639.5	18.28	18.28
1	1011	2		MSH60*4	S235JR	2227.5	15.43	30.85
1	1012	2		MSH60*4	S235JR	1954.5	13.54	27.07
1	1013	2		MSH60*4	S235JR	1879	13.02	26.03
1	1014	2		MSH60*4	S235JR	1598.5	11.07	22.14
1	1015	4		RUND2t	S235JR	111	0.27	1.09
1	1016	16		RUND1t	S235JRG2	800	1.26	20.20
1	1017	4		BL20*20D	S235JR	200	6.28	25.12
1	1018	4		BL10*18D	S235JR	212	3.13	12.53
1	1019	1		BL10*17B	S235JR	367	5.13	5.13
1	1020	2		BL10*177	S235JR	289.5	4.02	8.04
1	1021	1		BL10*177	S235JR	260	3.62	3.62
1	1022	4		BL10*175	S235JR	337	4.64	18.54
1	1023	12		BL10*175	S235JR	214.5	2.95	35.40
1	1024	4		BL10*169	S235JR	337	4.47	17.88
1	1025	4		BL10*160	S235JR	160	2.01	8.04
1	1026	2		BL10*155	S235JR	310.5	3.78	7.56
1	1027	1		BL10*155	S235JR	278.5	3.39	3.39
1	1028	1		BL10*154	S235JR	335.5	4.05	4.05
1	1029	1		BL10*154	S235JR	160	1.94	1.94
1	1030	1		BL10*14S	S235JR	164.5	1.92	1.92
1	1031	1		BL10*147	S235JR	171.5	1.98	1.98
1	1032	6		BL10*14E	S235JR	160.5	1.84	11.03
1	1033	72		BL20*14E	S235JRG2	160	3.67	264.06
1	1034	6		BL20*14E	S235JRG2	160	3.67	22.01
1	1035	3		BL10*144	S235JR	175.5	1.98	5.95
Waga całkowita (kg)								8200.31

UWAGI:
- Stal S235JR,
- Połączenia śrubowe:
"M" - połączenie zwykłe,
"HVM" - połączenie sprężane, klasa śrub 10.9, sprężenie wg tab. poniżej lub wg zaleceń producenta śrub,
- stopień oczyszczenia konstrukcji Sa 2.5 wg PN ISO 8501-1:1996
- malowanie/cynkowanie wg opisu technicznego.

Tolerancja dla konstrukcji spawanych wg DIN 8570, Czesc 1 + 3/B + F, 10.87

Spawanie (W P S) wg DIN-EN 288 - 2

Wszystkie nieoznaczone spoiny wykonac jako pachwinowe ciągłe o grubosci a=3mm, ale nie wiekszej niz 0,7*t cienszego elementu.

Dla płyt czołowych o grubosci >20mm material badac na rozwarstwienie

Wymagane momenty, siły sprezające oraz wymuszone kąty nadano wg DIN 18800 Czesc 7, 05.83

Sprezenie śrub T_sr,M (Klasa 10.9) w kNm

Śruby	Wymagana siła sprezająca F_v	a) Techniki Humeli-dobrowej: Ręczny klucz dynamometryczny: Wymagany stopień sprzed.zabezp. warstwowego	b) Techniki Hajuleweg: Klucz udarowy: Wymagany stopień sprzed. zabezp. warstwowego	c) Techniki bata dinitz: Obrzynacz Dinitz-Schraub:	Śruby fundam.
		α_A %	α_A %	μ_G	U
	kN	M	M	M	
1 M12	50	105	120	85	15	80	B,C 50	180	330
2 M16	100	205	230	170	30	60	B,C,M 50	280	510
3 M20	155	430	490	175		40	100 x 8 x 170	370	345
4 M22	190	510	580	165	210	30	100 x 8 x 240	360	1 1
5 M24	225	630	720	240		20	B,C 50	180	330
6 M27	290	1000	1150	300	350	15	120 x 8 x 170	340	330
7 M30	355	1350	1550	360		10	120 x 8 x 240	210	315

*) Es ergibts sie dass aktives wertvolles ist sinzlegs sindss anzuspuegs-punt abzweis das ihr tubeleit produzierts knb.
**) Hinsichtlich mit sindss smarujacego gwint i powierzchnia zlozisku srub i materiał. Uwaga! Dla a≥3 PP wymiarowych sprawa czynna; wartosc i sukmy p.3.

PRACOWNIA ARCHITEKTURY "PROJEKT"
www.em3projekt.pl
45-058 OPOLE, UL.OZIMSKA 40
tel.077/4575814, 0501588697

OBIEKT: PRZEBUDOWA PIĘTRA BYŁEGO SZPITALA NA OŚRODEK POMOCY SPOŁECZNEJ
ADRES: GRODKÓW,UL.SZPITALNA 1 DZIAŁKA NR 189/1

TYTUŁ/ROZDZIAŁ: Konstrukcja stalowa klatki schodowej
Rysunek warsztatowy
Elementy składowe 101-145, 1001-1035

SKALA: 1:10
NR RYS.: S11

ZAKRES OPRACOWANIA	IMIĘ I NAZWISKO PROJEKTANTA	SPECJALNOŚĆ	NR UPRAWNIEŃ	DATA	PODPIS
PROJEKT	mgr inż. Jacek Goska	Konstrukcja	UAN-NW/0388/0/90/90	Kwiecień 2014 R.	
OPRACOWANIE	mgr inż. Cezary Mucha	Konstrukcja	-		
SPRAWDZENIE	mgr inż. Mariola Madej	Konstrukcja	UAN-NW/0388/0/14/00		