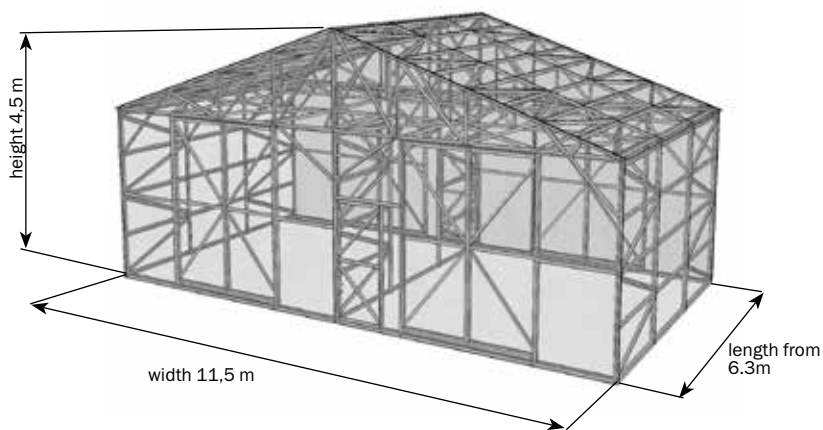




ASTER greenfinger

Technical manual



Technical certificate

p. 2-11

Assembly manual

p. 12-35



Perform assembling and operation of the greenhouse in strict accordance with the manual and operating rules stated in the technical certificate. Please keep this technical certificate for further reference.

Description

The "FERMER" greenhouse is designed and manufactured in accordance with SNiP 2.10.04-85 and generally intended for industrial cultivation of crops at farms and peasant holdings.

Width of the greenhouse is 11.5m. Area of covered ground depends on the length of the greenhouse and for minimal length of 6.3 m is 72.5 m². Height of the installed frame is 4.5 m.

The frame of the greenhouse is made of galvanized iron 1 mm thick and is to be assembled with screws, nuts and washers.

The greenhouse is fixed on the ground without foundation by digging special frame endings or on a fundament using cleater angles. The type of fixing is determined by a buyer. The design of the greenhouse is optimized to the material consumption and withstands snow loads 240 kg/m². The greenhouse may be completed with covering on buyer's request.

Number of small windows is conformed to a buyer.

Table 1 COMPLETING WITH PACKAGES, PCS

L length of a green house, m	N - number of greenhouse sections, excluding	FRAME (BASE LENGTH 6.3 M)									INSERT (2.1 M FRAME ELONGATION)				
		1 FARMER PACKAGE	2 FARMER PACKAGE	3 FARMER PACKAGE							1 INSERT PACKAGE				
4,2	0														0
6,3	1														1
8,5	2														2
10,6	3														3
12,7	4														4
14,9	5	3	1	3	2	2	2	4	2	1	1				5
17,0	6														6
19,1	7														7
21,2	8														8
23,4	9														9
2,1(N+2)															N

Table 2

PARAMETERS OF PACKAGES

content	dimensions, mm	weight, no more
FRAME (BASE LENGTH 6.3 M)		
1 FARMER PACKAGE		
2 FARMER PACKAGE		
3 FARMER PACKAGE		
INSERT (2.1 M FRAME ELONGATION)		
	3000x85x60	9,5
2 INSERT PACKAGE (	2470x85x60	6,0
3 INSERT PACKAGE (	1865x85x60	5,0
4 INSERT PACKAGE (	2080x85x105	30,0
5 INSERT PACKAGE (	120x120x50	4,6
6 INSERT PACKAGE (	2156x126x45	5,0

Table 3 DETAILED PARTS LIST "FRAME" (6.3 M)

marking	name	quantity (pcs)	length (m)
1		8	3,60
1в		8	2,82
2п		8	3,66
2		31	2,08
2н		2	2,08
2в		8	2,82
3		24	0,29
3п		4	5,16
3л		4	5,07
3в		24	1,35

























Table 3 DETAILED PARTS LIST "FRAME" (6.3 M)			
marking	name	quantity (pcs)	length (m)
4		8	5,92
4В		16	1,86
5В		8	1,39
6		4	1,52
6Т		4	1,52
6В		8	1,39
7		4	1,14
7Т		4	1,14
8		4	0,76
8Т		4	0,76
9		4	0,56
9Т		4	0,56
10		4	1,98
10Т		4	1,98
П-10		2	1,01
11		4	1,75
11Т		4	1,75
12		4	1,43
12Т		4	1,43
12дл		2	1,88
12дп		2	1,88
П-12д		2	1,89
П-12дп		2	1,88
13		62	1,99

























Table 3 DETAILED PARTS LIST "FRAME" (6.3 M)			
marking	name	quantity (pcs)	length (m)
13н		4	1,99
13д		4	0,95
13дн		2	0,95
П-13дн		2	0,95
14		16	1,99
14д		4	1,23
15		56	2,05
16-1		8	2,30
16-2		4	3,21
16-к		8	0,08
17		8	5,68
18		8	3,67
19		4	2,74
П-20		8	2,68
П-21		8	2,91
22		4	1,18
22Т		4	1,18
23		4	1,48
24		2	1,96
25		8	0,24
26		16	0,09
27		4	5,60
27н		4	5,60
28		16	0,19

























Table 3 DETAILED PARTS LIST "FRAME" (6.3 M)			
marking	name	quantity (pcs)	length (m)
29		12	1,48
30		4	0,71
	bracket 	16	
	roller 	16	
	finger 	16	
	hasp 	4	
	ridge 	1	
	outermost ridge 	2	
	washer 6x32 	904	
	angle 	598	
	bolt M6x14 	1076	
	bolt M6x20 	186	
	bolt M10 	448	
	screw M6x10 	628	
	screw M6x16 	480	
	nut M6 	2370	
	nut M10 	448	
	hanger 	6	
	door hinge 	4	
	straight lug 	12	
	pull 	10	
	self-driving screw 4,8x22 	574	
	self-driving screw 4,8x25 	128	
	washer 6 	1648	





Table 3 DETAILED PARTS LIST "FRAME" (6.3 M)			
marking	name	quantity (pcs)	length (m)
	washer 10 	448	
	penofol 	L=70 m	
	top seal 	L=48,6 m	
	door seal 	L=7 m	


























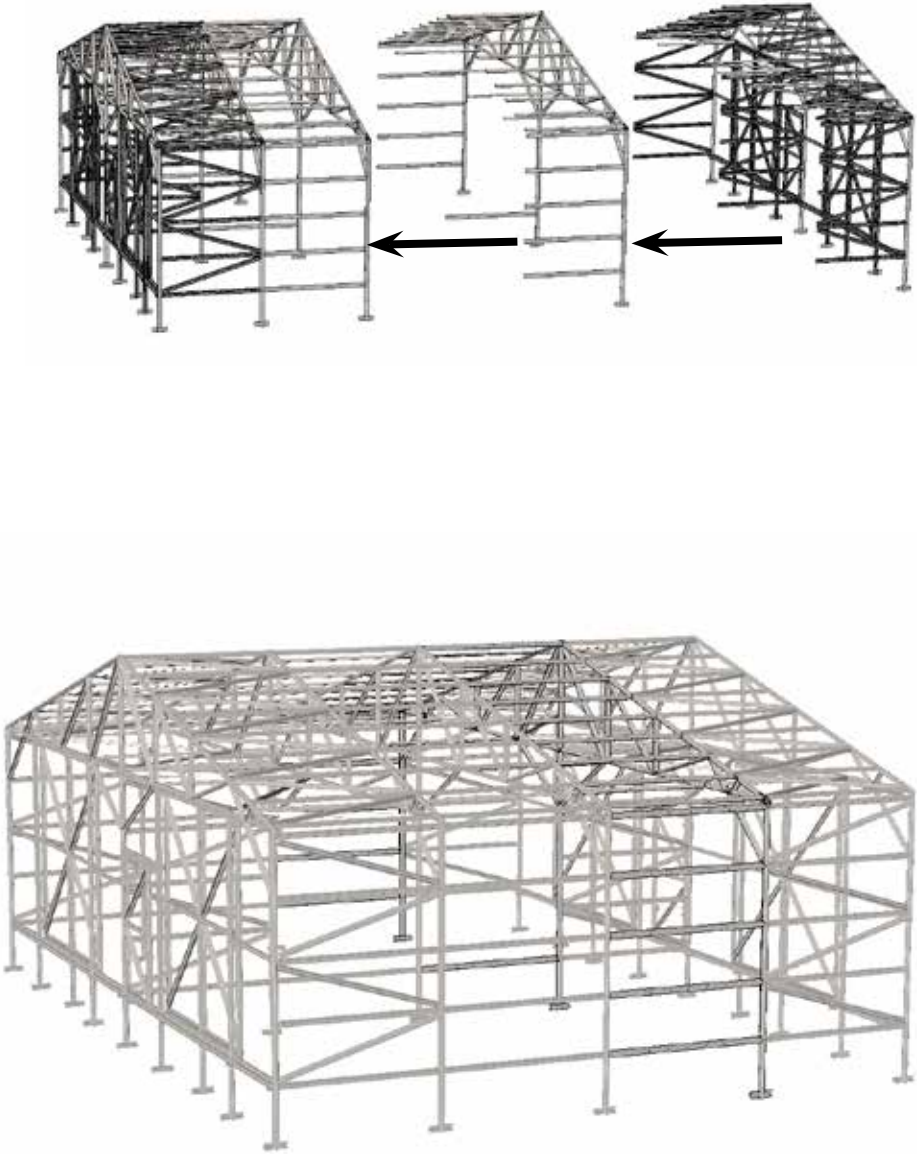
Table 4 DETAILED PARTS LIST "INSERT"			
marking	name	quantity (pcs)	length (m)
1		2	3,60
2п		2	3,66
2		31	2,08
2н		2	2,08
3		3	0,29
3п		1	5,16
3л		1	5,07
4		2	5,92
5		2	5,68
6		2	1,52
7		2	1,14
8		2	0,76
9		2	0,56
10		2	1,98

Table 4 DETAILED PARTS LIST "INSERT"			
marking	name	quantity (pcs)	length (m)
11		2	1,75
12		2	1,43
22		2	1,18
25		2	0,24
26		4	0,09
	ridge 	1	
	washer 6x32 	92	
	bolt M6x14 	100	
	bolt M6x20 	62	
	bolt M10 	112	
	screw M6x16 	166	
	nut M6 	288	
	nut M10 	112	
	self-driving screw 4,8x25 	32	
	washer 6 	276	
	washer 10 	112	

General view of extending the greenhouse by inserts



WARRANTY LIABILITIES

1. The manufacturer bears responsibility for the greenhouse frame complete setup.
2. The manufacturer bears responsibility for the greenhouse assemblability in accordance with the manual.
3. The manufacturer bears responsibility for the greenhouse durability under specified magnitude of atmospheric actions.
4. Claim presentation period is 12 months from the date of purchase.

Warranty conditions

Warranty liabilities do not apply to cases of:

1. Greenhouse installation with violation of requirements of the manual.
2. Violation of the rules of operation.
3. Inappropriate use of the greenhouse.
4. Floods, hurricanes and other natural disasters.

Date of manufacture:

Manufacturer: RVM Group,
Minsk, Belarus.

The manufacturer bears responsibility for quality of products in accordance with RF CC. The manufacturer reserves the right for greenhouse engineering design changes.

RULES OF OPERATION



It is not allowed to install the greenhouse without fastening on the ground because of the large sail area of the greenhouse and the possibility of floating away the unfastened greenhouse.

The greenhouse should be serviced in the winter period. The greenhouse has durability under the action of snow loads way more than is required for greenhouses, but less for some snow areas in comparison with the general construction standards. According to SNiP 2.10.04-85 «Greenhouses and seedbeds» «weight of snow blanket on 1 m² of horizontal surface of the ground in design of static greenhouses...» should be taken from 10 to 40 kg/m² depending on a snow region. This is much less than the general construction standards for snow load, because it is assumed that on the current greenhouses a snowcap is not preserved until the next snowfall. According to the results of strength tests the limits of durability of the greenhouse frame are revealed: destroying snow load is 240 kg/m², permissible load (with safety coefficient 1.4) – 180 kg/m². This durability is sufficient for most regions of Russia. If the greenhouse is not heated in winter, or it is supposed to use the greenhouse as an unheated housing, awning, warehouse, etc., it is necessary to control the snowcap (to shift the snow down with a wooden or plastic scraper, installed on a pole). For these variants of operation it is possible to supply reinforced frames with a reduced interval between the power arcs under the snow load specified by the customer.

Do not allow damage to the frame, and if it happened, then hold timely repairs.

Cleaning and washing of polycarbonate sheets.

1. Rinse sheet with warm water.
2. To remove dirt, wash it with mild soap solution or domestic detergent using a soft cloth or sponge.
3. To remove water, rinse the sheet with cold water and wipe it with a soft cloth.



Never use abrasives or high-alkali detergents for cleaning polycarbonate sheets. Dry wiping damages covering layer of the covering and shortens its service life. Never rub surface of polycarbonate sheets with a brush, metalized fabric or other abrasive materials.



Do not use sulphur cartridges for disinfecting greenhouse against fungal and bacterial agents in order to prevent corrosion (darkening) of the frame.

“FERMER” GREENHOUSE INSTALLATION MANUAL

Intro

1. General view of the frame is shown in Fig.1, with tambour – fig.1a (Tambour is sold separately by customer's request). The frame is assembled from the shaped numbered parts. Middle flanges of the frame are facing the cladding.

2. Indices:

м - small;

б - big;

к - end (of the greenhouse length);

н - lower;

ц - center;

в - door;

п - right;

л - left;

п - band;

→ arrow is showing the direction of installing according to diagrams in the manual.



Some parts have remaining free holes which is the result of the parts uniformity.



Do not violate instructions! Do not install the bolts and nuts without washers - this may reduce the strength of the frame

Vocabulary:

3. **Left side** - on the left, from the position outside the greenhouse, before the gates.
Right side - on the right, from the position outside the greenhouse, before the gates.

4. Assembling nodes are marked with letters and shown in figures. The greenhouse assembly is carried out using M6 bolts, nuts, washers, self tappers etc. The joints are performed by the part overlay and with fastening on holes. Bolts, nuts and washers shall be put in all the points specified in the instruction.

5. Assembling the greenhouse is presented in stages, at each stage assembling nodes are shown as «before» and «after.» There are no nuts and washers installed from the inner side of the section shown in node figures.

6. During assembly, be careful not to damage the parts, because until they assembled fully, they do not have sufficient rigidity.

Use additional tools for assembly:

-wrench 10;

-screwdriver;

-drill with a 6,5 bit;

-stepladder height of 3m;

-power jigsaw;

-knife

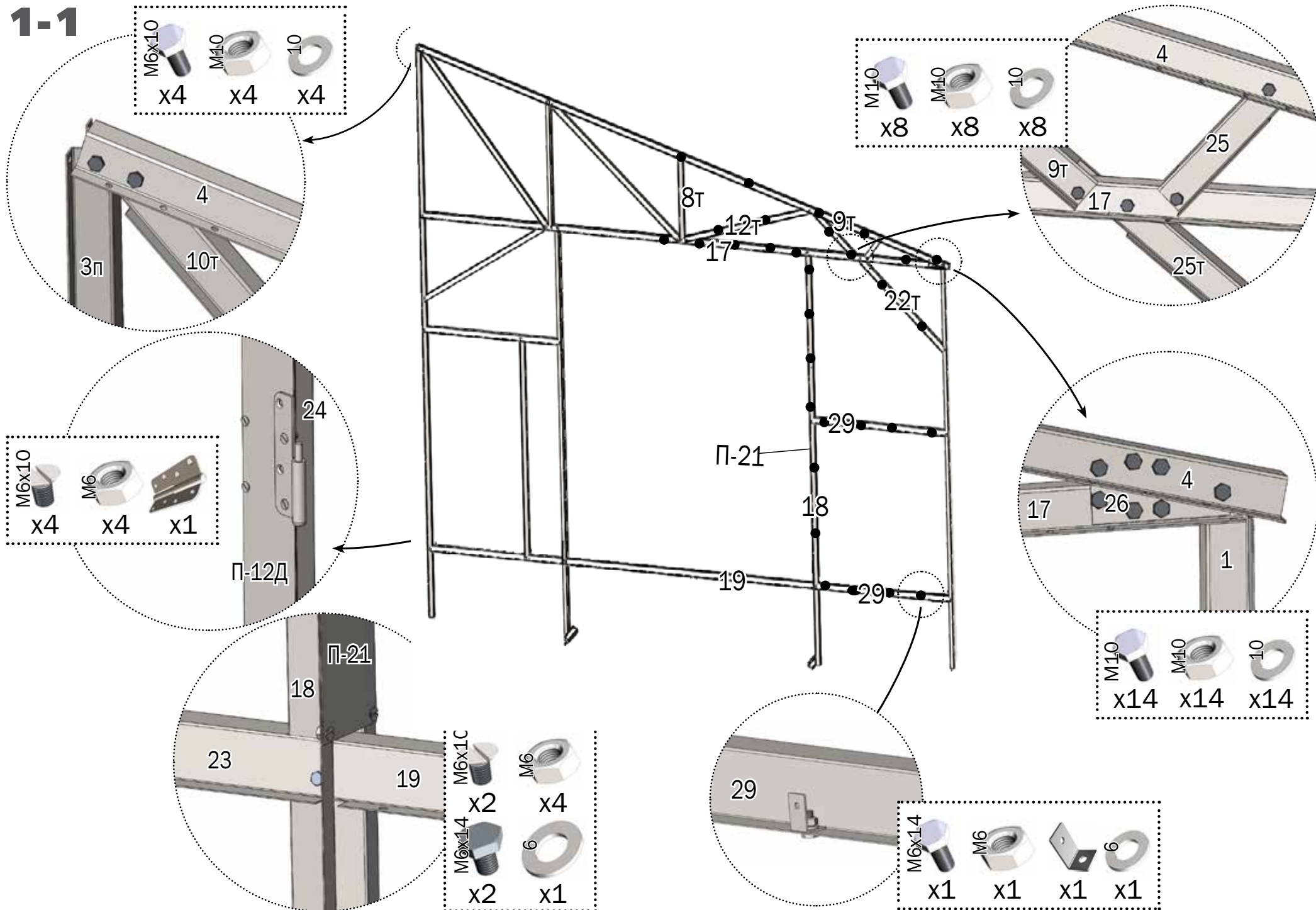


Be careful while assembling! Parts have sharp angles. Avoid hand cuts! Work in protective gloves.

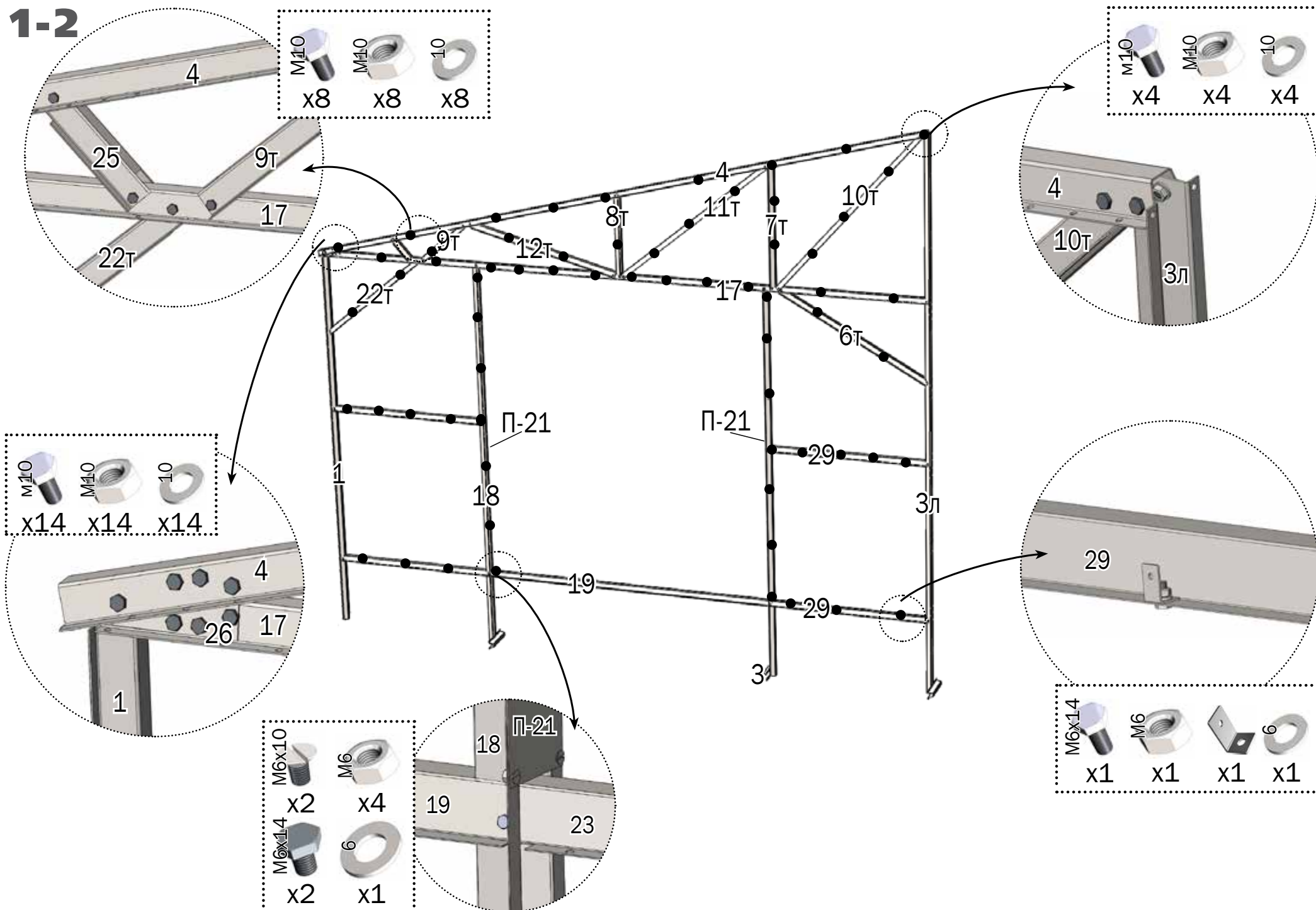
INSTALLATION SEQUENCE

Stage	name	page
1	End wall assembly	14-17
2	Installation of runners on the end wall	18-19
3	Power strainer assembly	20-21
4	End section assembly; end section assembly; Installation of longitudinal stiffness side braces on the end section.	22-23
5	End section installation	24
6	Extension of the frame length by the insert	25
7	Second end section assembly	26
8	Attaching the second end section to the frame	27
9-10	Doors and gate assembly	28-29
11-13	Installation of covering and seals	30-34

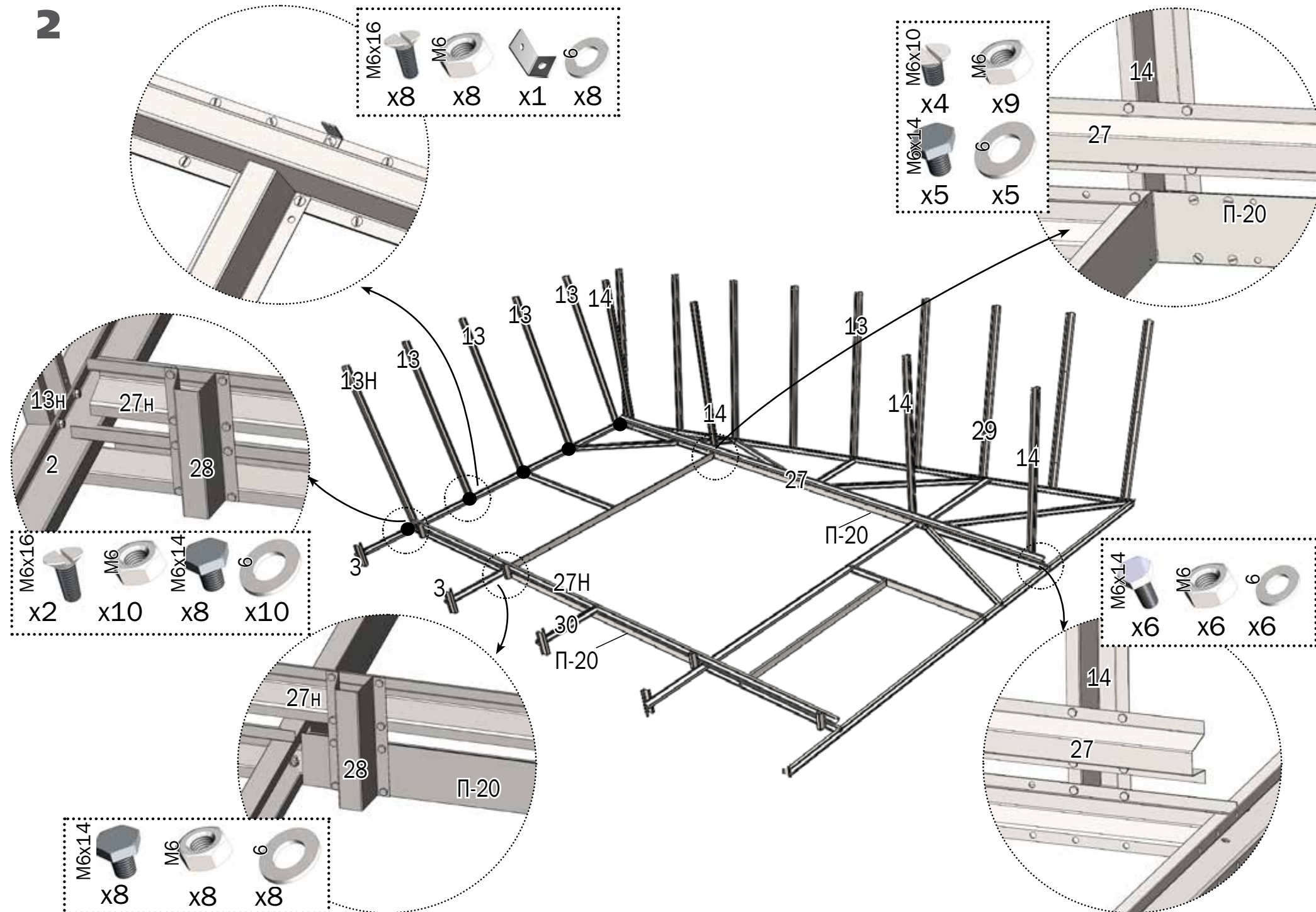
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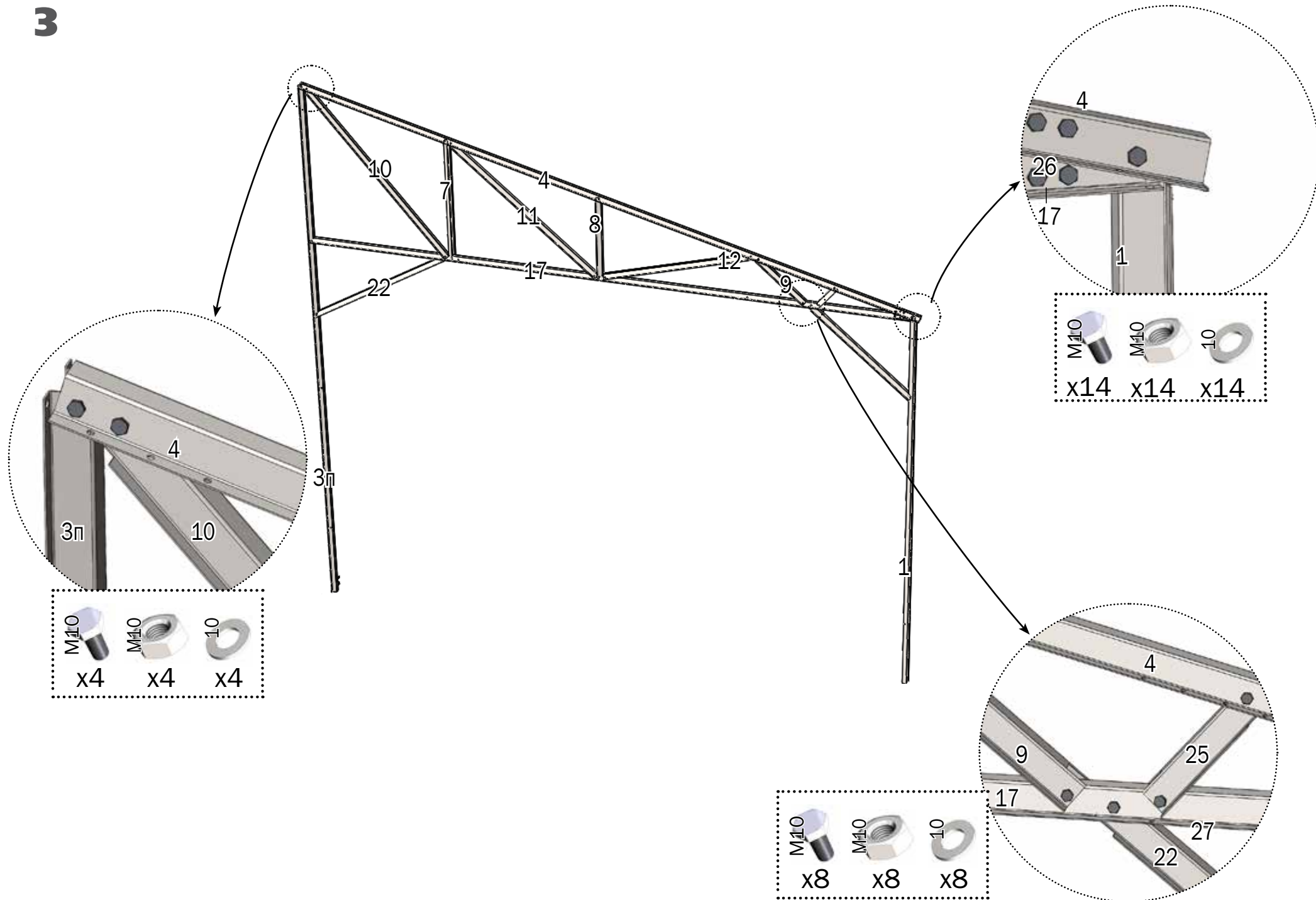


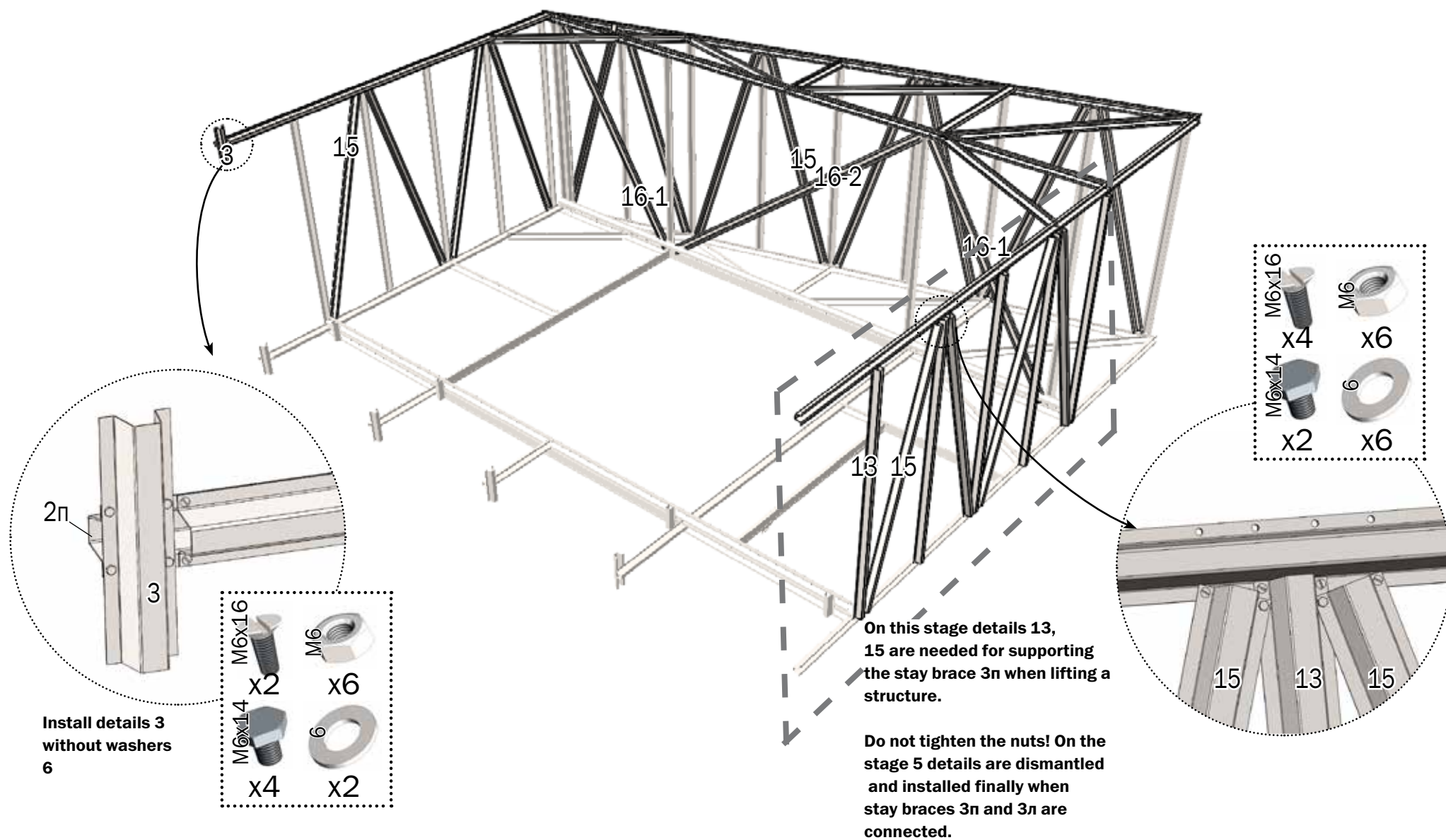
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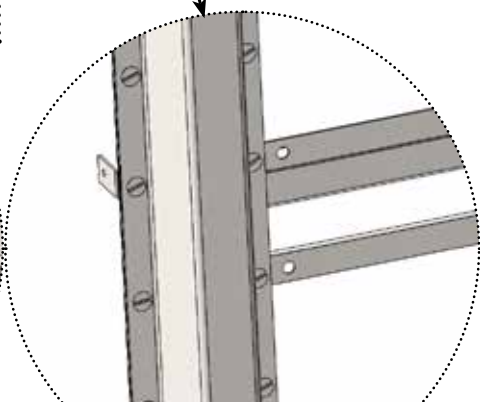
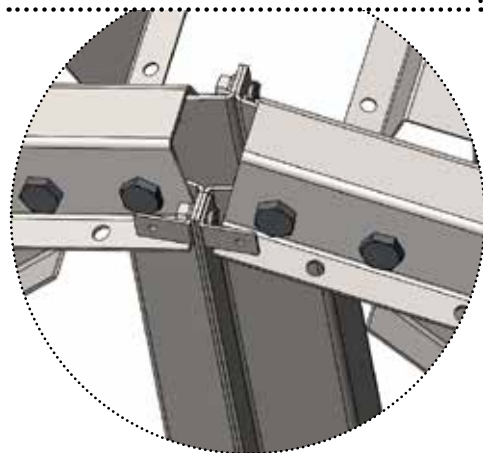
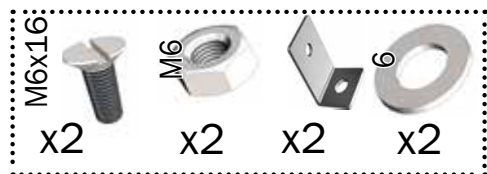
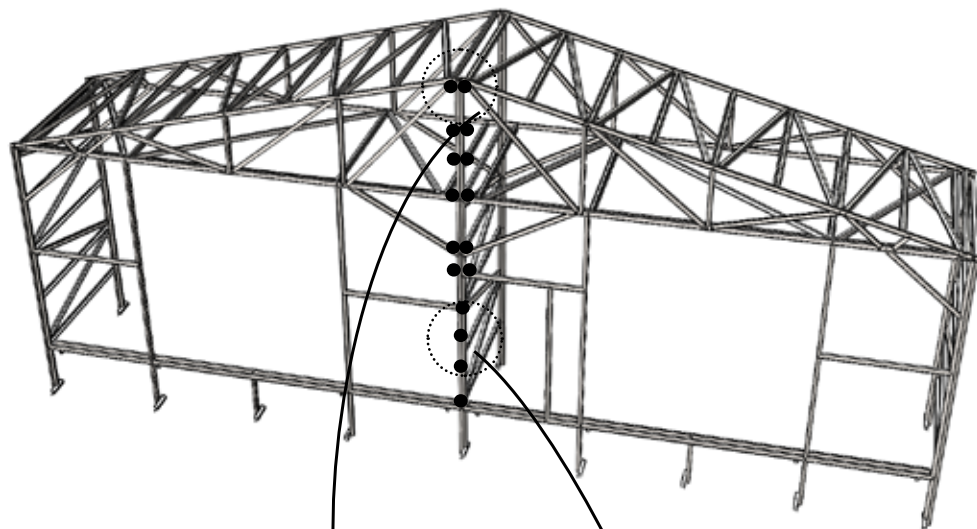
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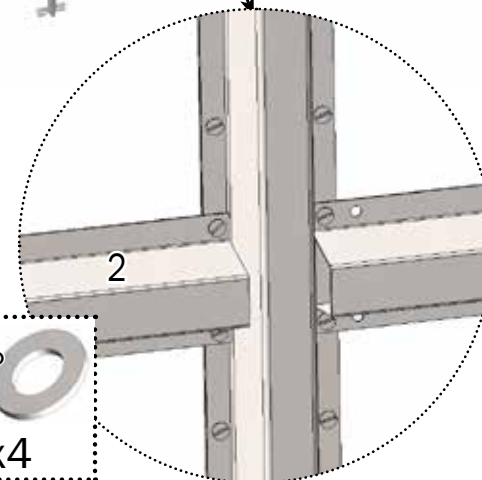
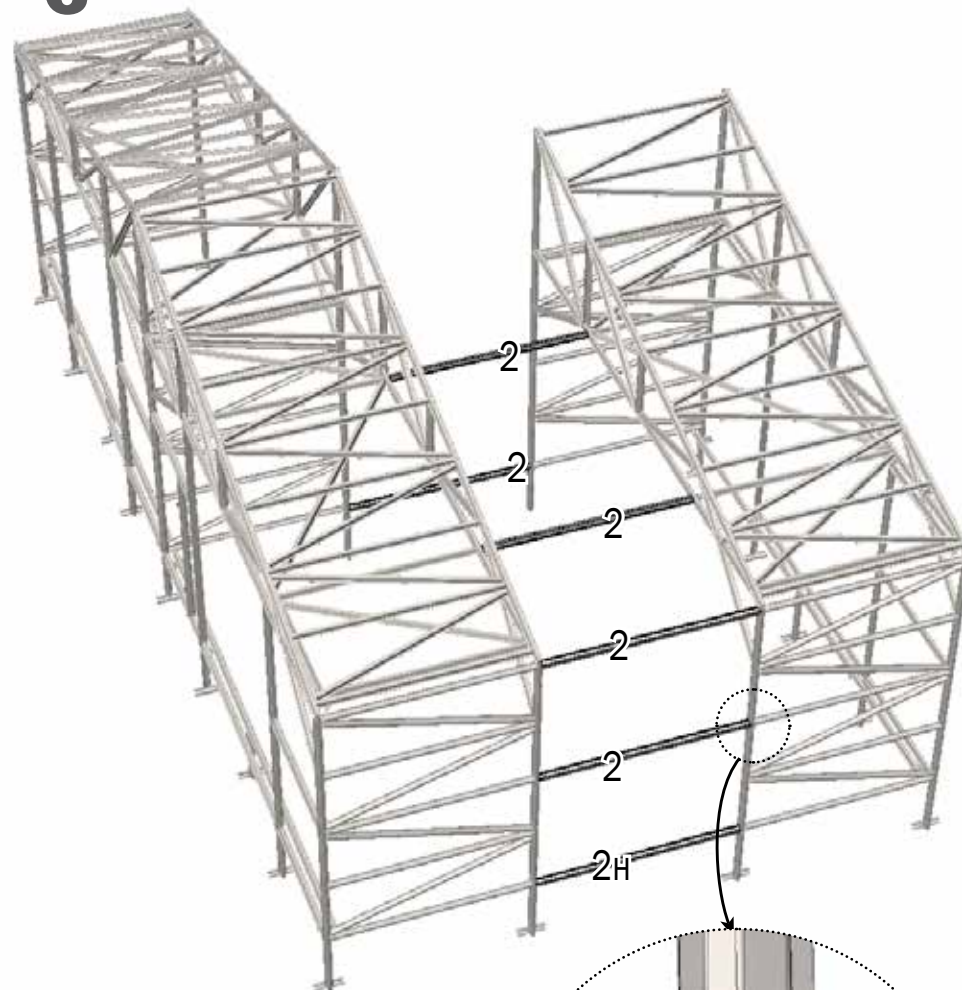




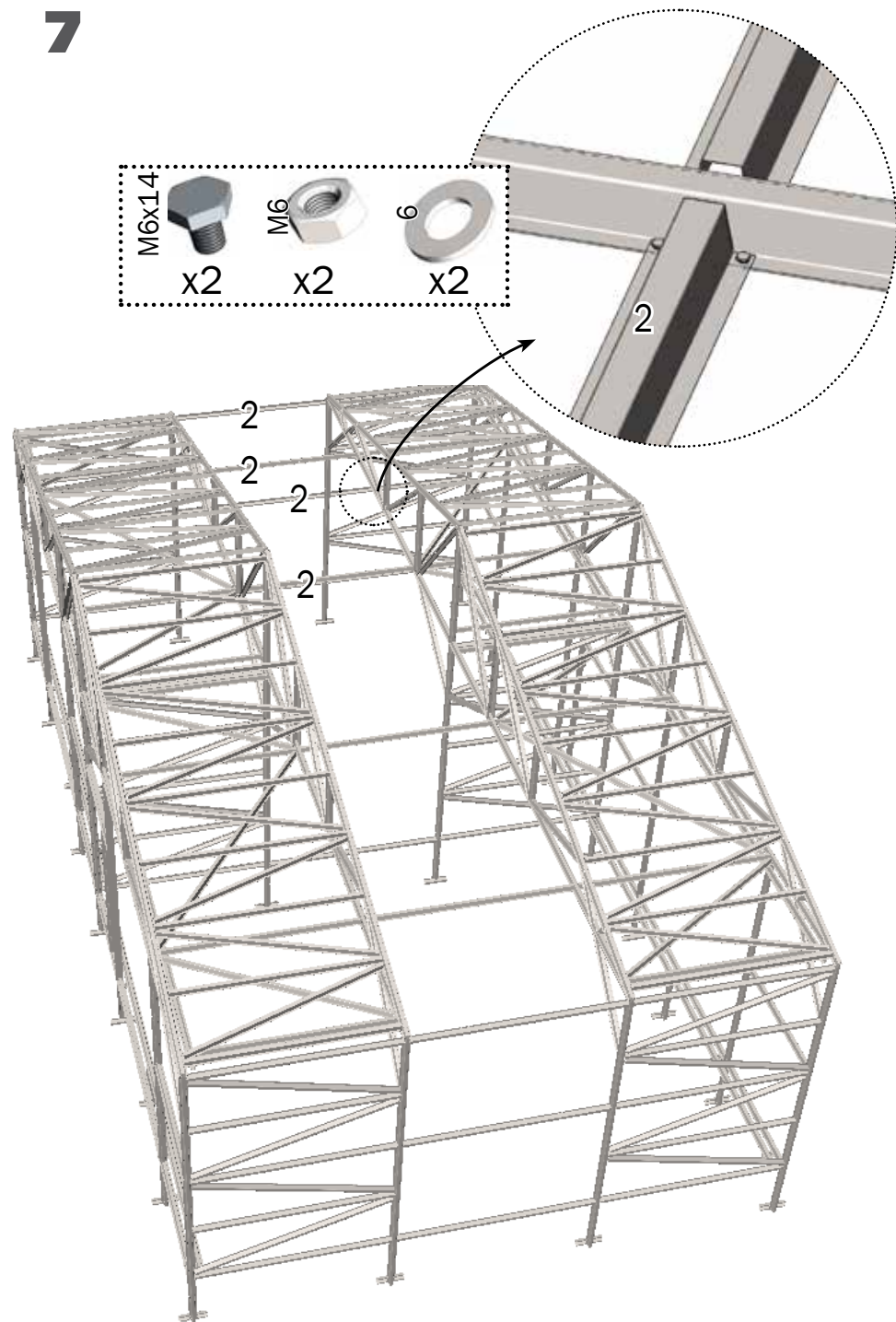
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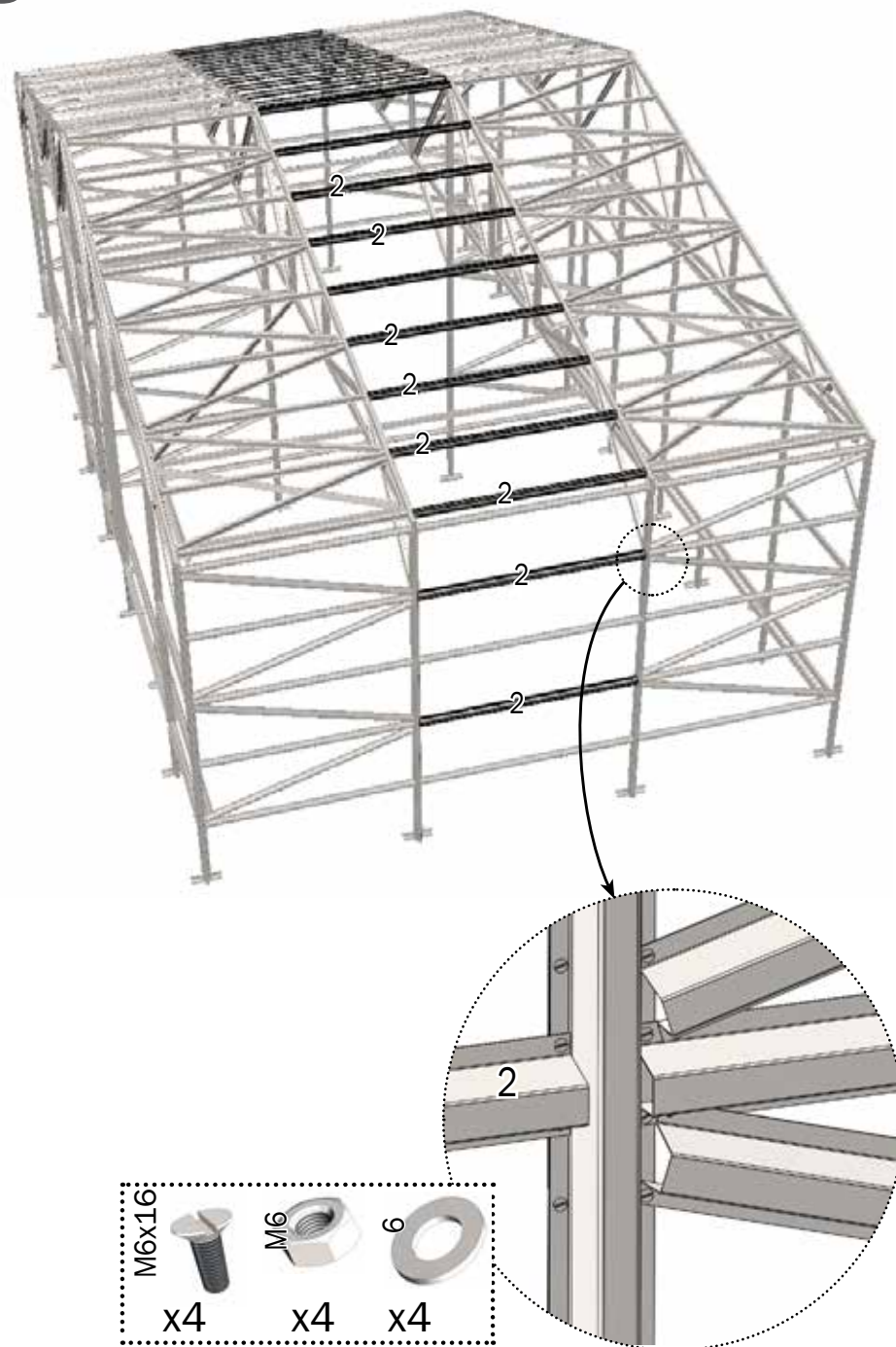
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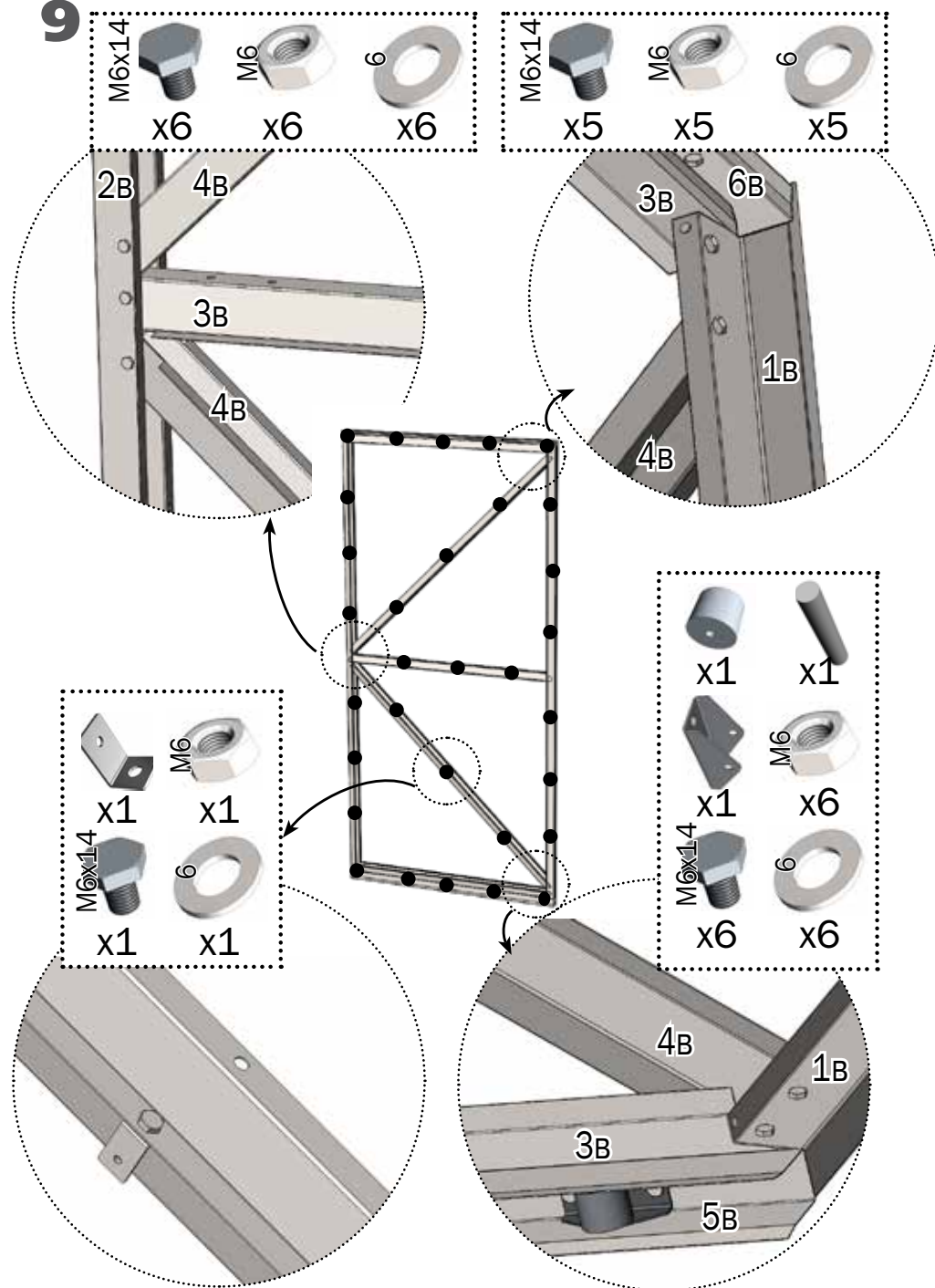
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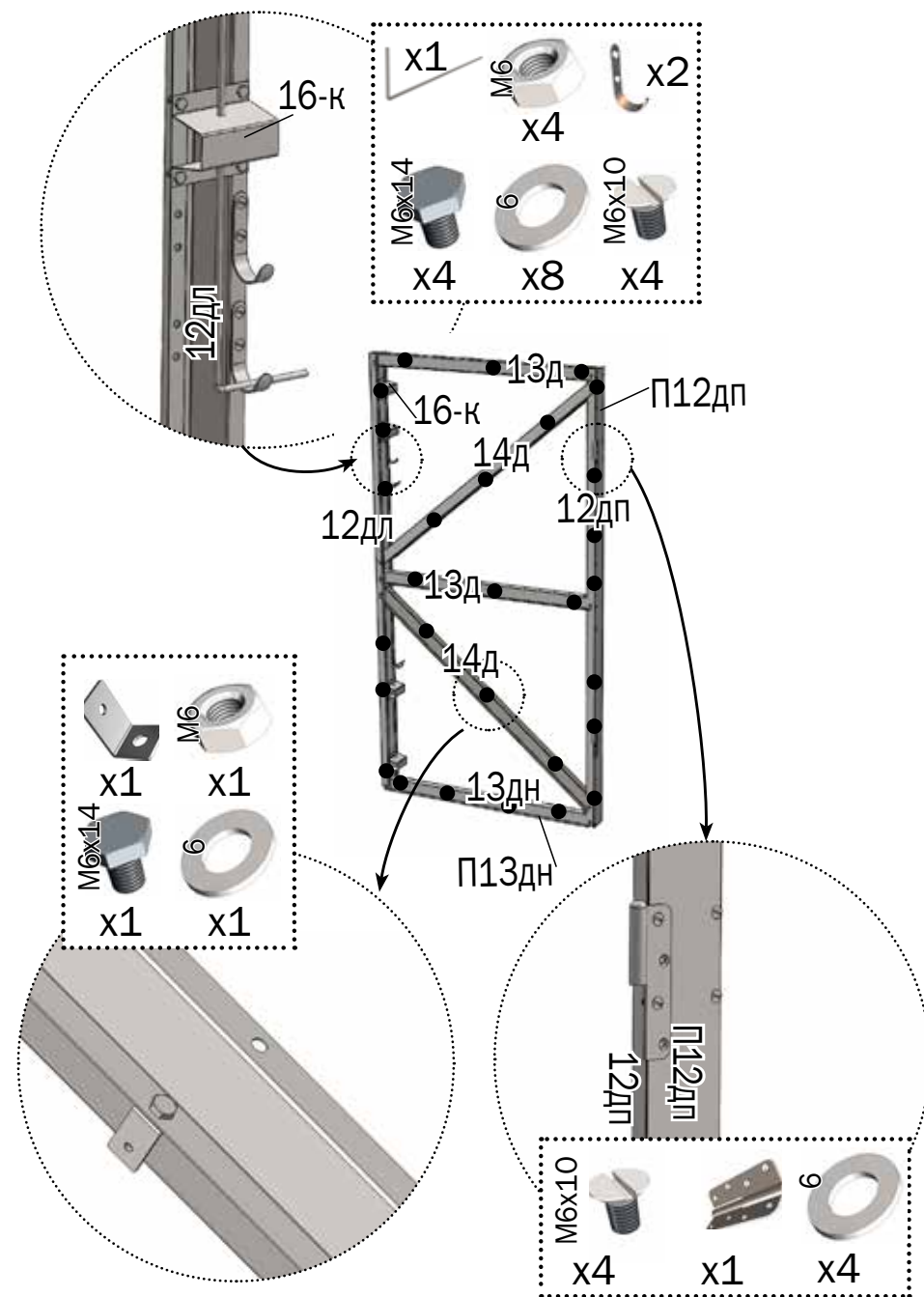
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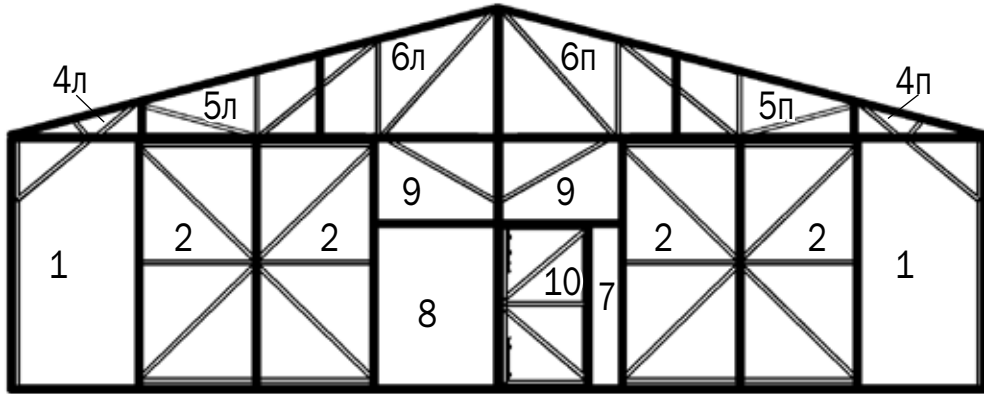
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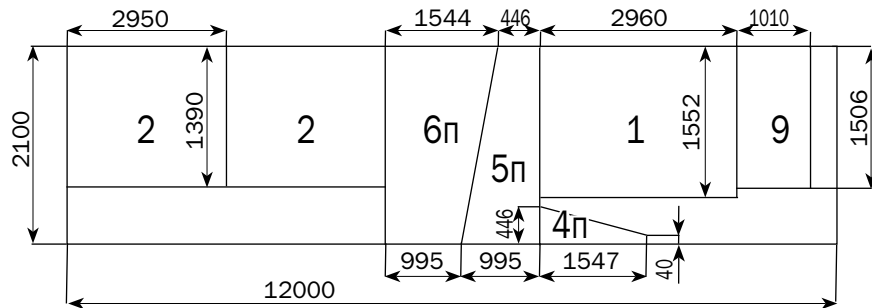
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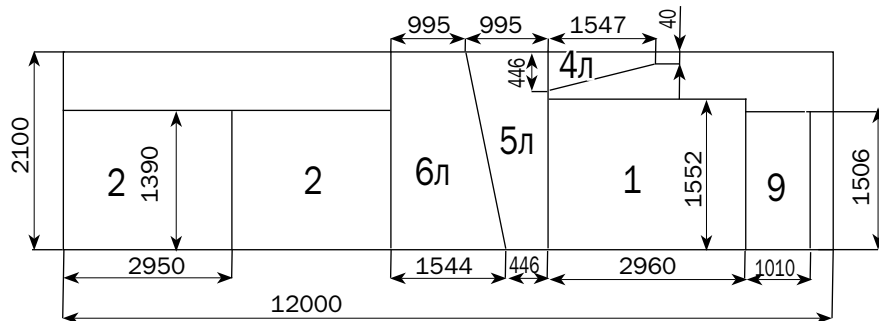
11 honeycomb polycarbonate 12000x2100x8 9 sheets



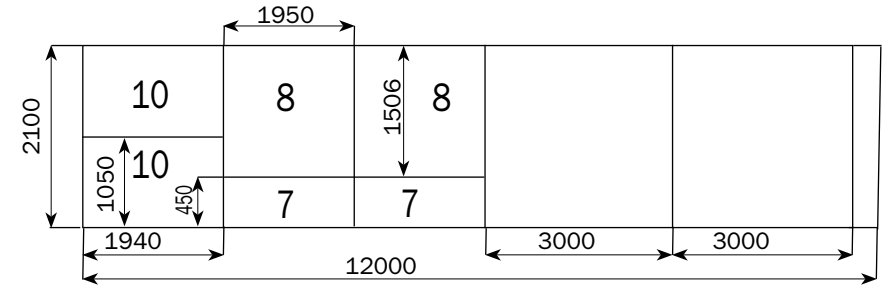
11-1 2 sheets – right end covering



11-2 2 sheets – left end covering



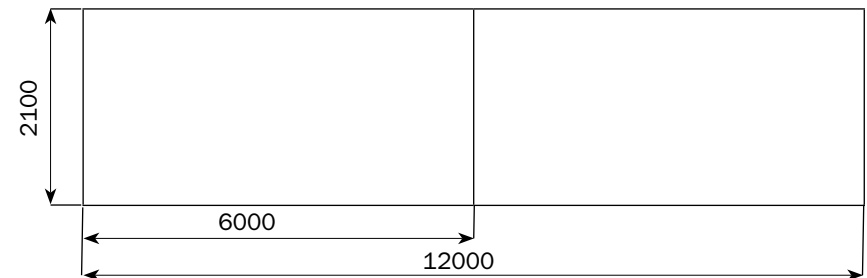
11-3 1 sheet – end covering (central part) and side covering

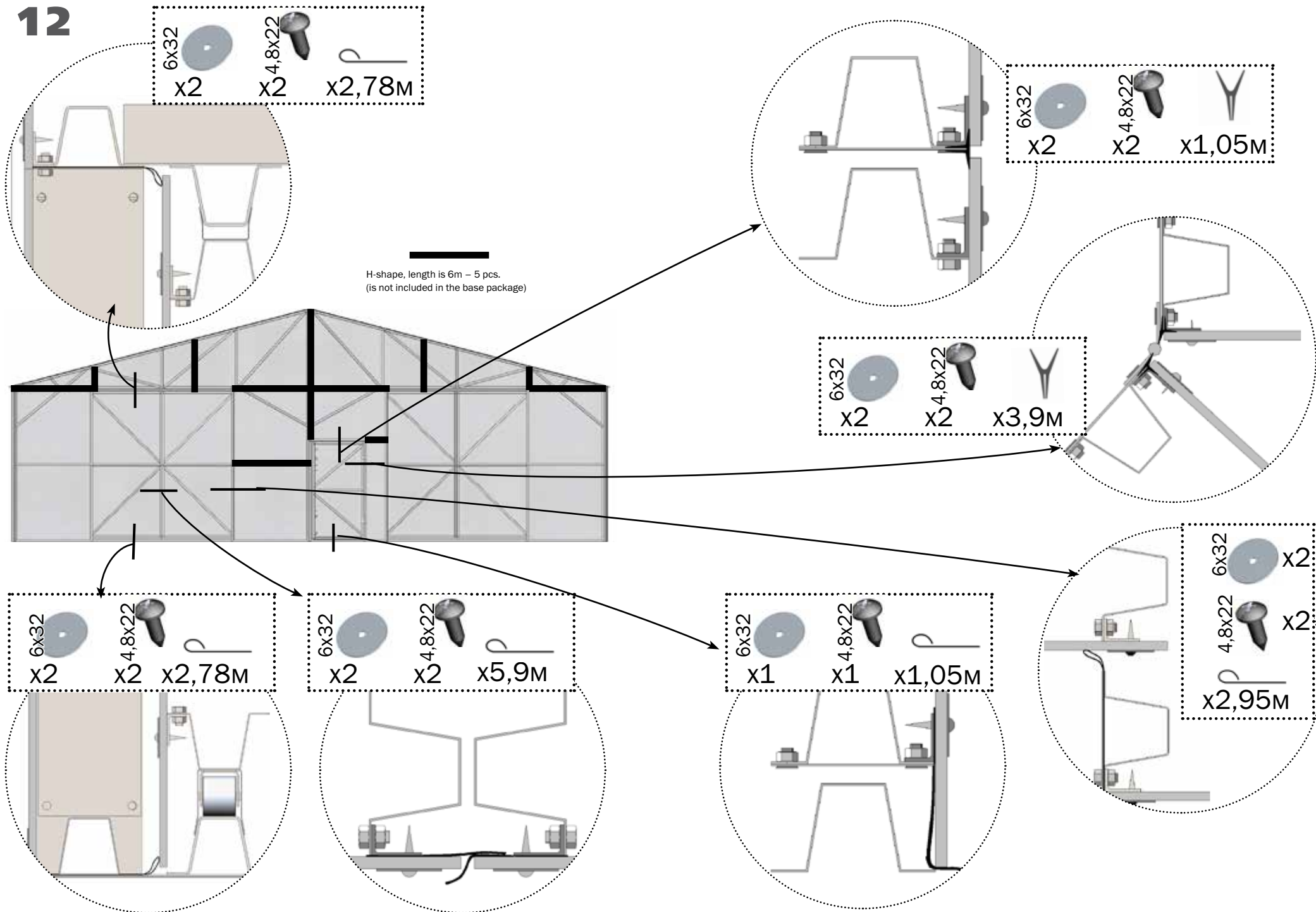


11-4 1 sheet – side covering



11-5 3 sheets – roof coating





13

