

Total specification of Steel structure

Specification Note: The project was designed based on China's current construction-related norms and protocols. Owners are requested to bring this design to the architectural design department of the local government for auditions. Only after been vetted and approved, before the construction.

A. design consignment

- Based on China's current norms and protocols.
 - <Code for design of steel structures>(GB50017-2003)
 - <Loading code for design of building structures>(GB5009-2001)
 - <Technical code for design of cold-formed thin-wall steel structures>(GB50018-2002)
 - <Steel Structure Construction Quality Acceptance of norms>(GB50205-2001)
 - <Unified standard for design of building structures>(GBJ89-94)
 - <Code for seismic design of buildings>(GB50011-2001)
 - <High-strength bolts connecting of steel structure design, construction and acceptance of order>(JGJ82-91)
 - <Carbon construction steel>(GB/T700-98)
 - <Specification for welding of steel structure buildings>(JGJ81-2002)
 - <Code for design of concrete structures>(GB50010-2002)
 - <Code for design of building foundations>(GB50007-2002)

B. The designed elevation of this project is: ± 0.000, the relative positions determined at the site.

C. summary of Structure design:

- The project developed by using of Tongji University's 303S Steel structure calculation software for structural calculations.
- The safety rating of this project is Grade 2, and the reasonable life span of this project is 25 years.
- The basis of a separate design
 - Roof constant load: 0.2 KN/m²
 - Roof live load: 0.5 KN/m²
 - Wind load: 0.5 KN/m²
 - Snow load: 0.5 KN/m²
 - Floor constant load: 3.0 KN/m²
 - Floor live load: 2.0 KN/m²

D. Material

- Main components' material of Steel frame beam, pillar is Q235. Its material chemical composition and mechanical properties should be in line with national standards (GB/T700-98)
 - Purify use cold-formed steel with quality standard<General Cold forming sectional steel>(GB6723-98).
- welding rod:
 - Q235B steel weld by hand, adapt E43XX style welding rod, the function<carbon steel covered electrode>(GB/T5117-95). Adapt automatic or semi-automatic use <Welded wires>(GB1300-77) with H08 or H08A Wire with the manganese-based or high-manganese-based flux.
 - Q235B steel weld by hand, adapt E50XX style welding rod. Adapt automatic or semi-automatic use<Welded wires>(GB1300-77) with H08MA wire with the manganese-based or high-manganese-based flux.

3.Check rough bolts and washers adapt(GB700-98) with Q235 steel, the heat treatment, Productive and technical requirements will be in line with(GB5780-86), (GB41-86), (GB95-95).

4.The 0.9 grade high-strength bolt adopt the big orthoheagonal bolt, its function will consistent with national standard <alloj structure steel-technical requirements>(GB907-92) with 20MnTB steel or 40B steel or with consistent with national standard<High-strength steel with large hexagon head bolts, large hexagon head nuts, washers and technological conditions>(GB1231-91)with 35SiB steel, the pre-pull of high-strength bolt is: M 63=100KN M20P=65KN.

E. Manufacture of Structure:

- Steel structure should be in strict accordance with<GB50205-01> All components is crucial to enlarge !; sample to check. After size correct, then progressive Blanking, will be pre-assembly inspection before delivery. Girders production arch camber should be appropriate to reduce the actual beam deflection.
- Steel processing should be carried out before the correction, to make it straight.
- welding requirements:
 - Component commissure plate and column, the connectors of end-plate and beam department weld and column flange: The Butt Weld of vertical shield should be adopted through the complete fusion weld and quality should be consistent with the 2grade weld quality requirements. Others as per 3grade welded quality demand.
 - When welding, should choose a reasonable welding sequence to reduce the steel produced in the welding stress and welding distortion, or Pretreat hammering and overall tempering and other methods to achieve the same purpose.
 - When welding of frame beam, pile, The flange and the vertical shield that the location of seams staggered more than 250mm.
 - Where the drawing do not indicate the lag of a fillet weld, The footö of its size H welding thin pieces of equal thickness, the weld length equal to the length of component overlap, and are full welding.


F. Installation of structure:

- Before with pre-installation component to conduct a comprehensive inspection, such as the qty of component, length, perpendicularity, joint installed between the bolt hole size with the design requirements.
- When fitting should take appropriate measures to prevent excessive bending deformation.
- After fitting the structure in place, should be fastened, firmly support and other components connected to guarantee the stability of components.
- All of the structure fitting must be in the lower part of the structure in place, correction and fastened support component, then would be required.
- Construction requirements of High-strength bolt:
 - High-strength bolt hole should be adapted drilled hole.
 - Before installation, match with the bolts and nuts, and nut with a small amount of mineral oil.
 - In the high-strength bolts connecting the framework of the contact elements to deal with the use of sandblasting, anti-slip coefficient $\mu \geq 0.45$, may not paint or defaced.

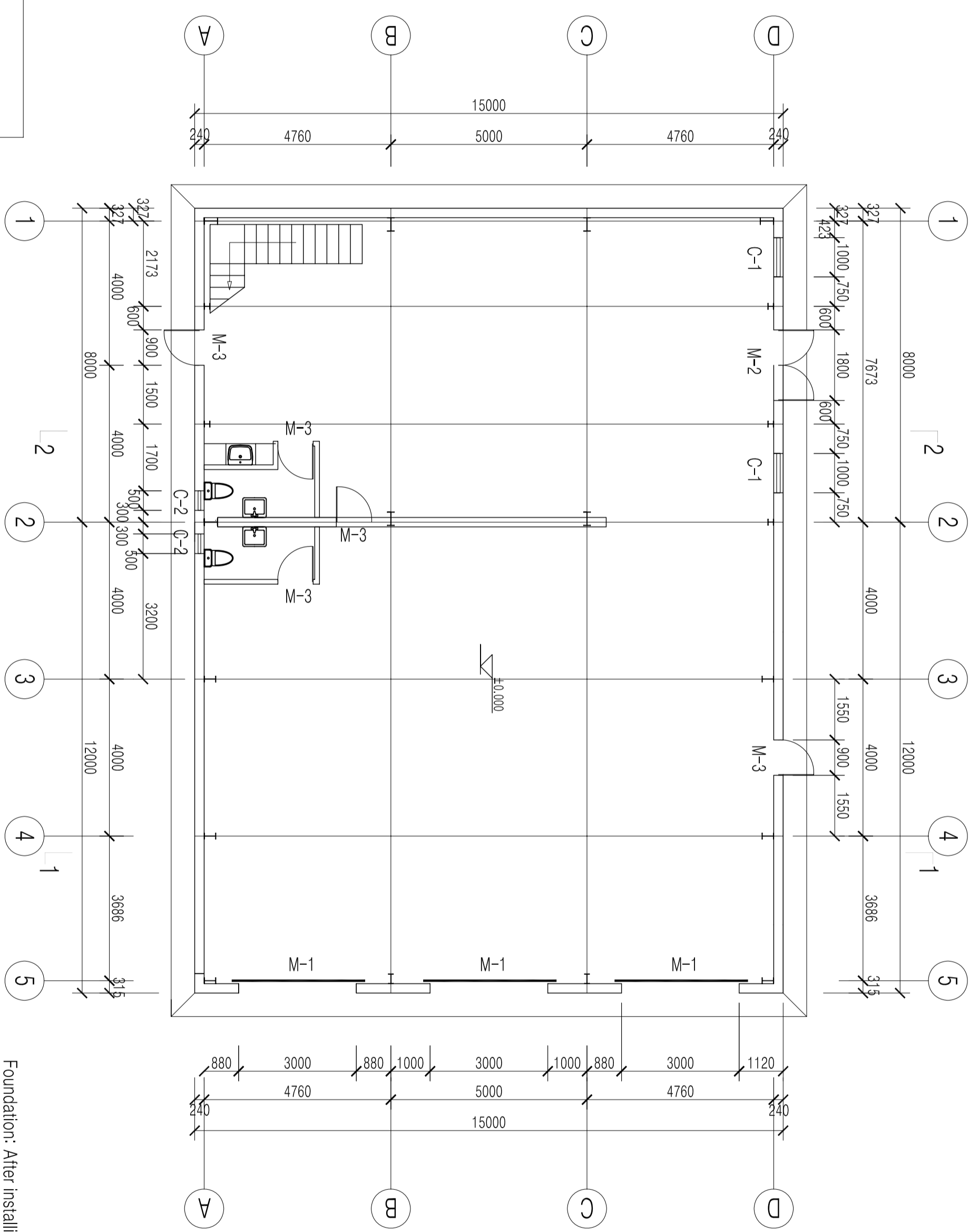
G. Descaling and paint of steel structure:

- Before coating of the components, must deal with surface shot blasting and descaling, the descaling grade is Sa2.5.
- The first painting with red lead paint, surface is alkyl'd ready mixed paint.
- Steel structure in the use of process should be conducted every three years paint maintenance, and timely maintenance of local paint.
- This note as a general steel plant, if the production of corrosive gases or high temperature and humidity should be dealt with separately, current national norms and protocols relating to the construction.

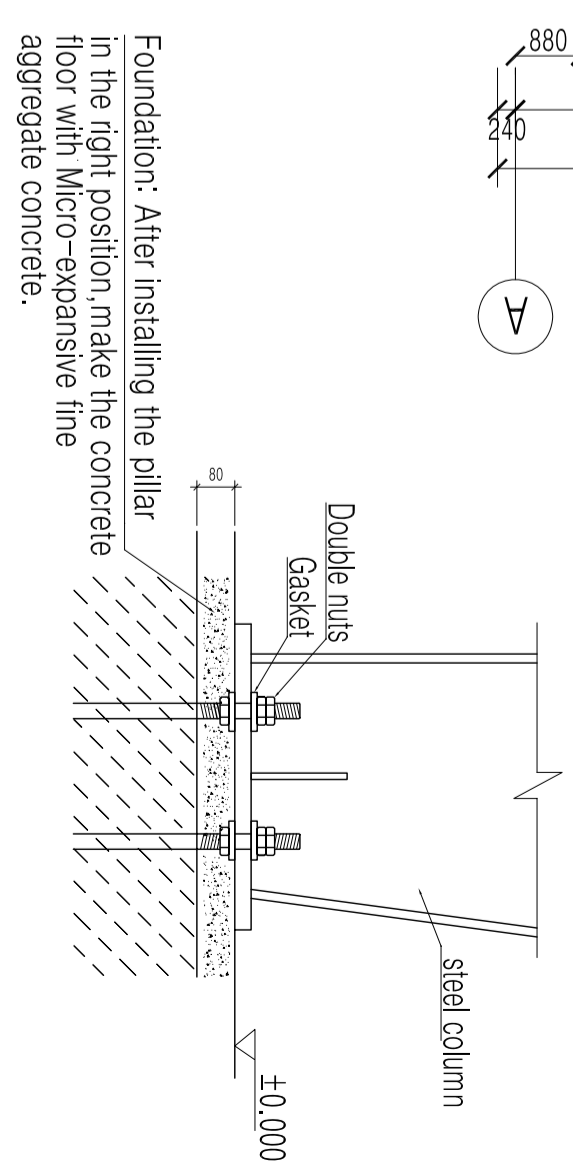
H. If there is anything else not in this specification, please be strict in accordance with

		Hangzhou Putian Steel Structure Co., Ltd	
Project name	工程名称	Item	图纸名称
20x1 5x6m		Total specification of Steel structure	
Project No.	工程编号	designer	设计师
PTZLL1			
Category	设计阶段	Date	日期
Proposal		2012.03.07	
Page	图号	Proportion	比例
01		1:250	

List			
Item	No.	Description	Specification(mm)
Door	M-1	Electrical roll-up shutter door	3000*4000
Door	M-2	Vertical hinged door	1800*2000
Door	M-3	Vertical hinged door	900*2000
Window	C-1	PVC sliding window	1000*1000
Window	C-2	PVC sliding window	500*1000



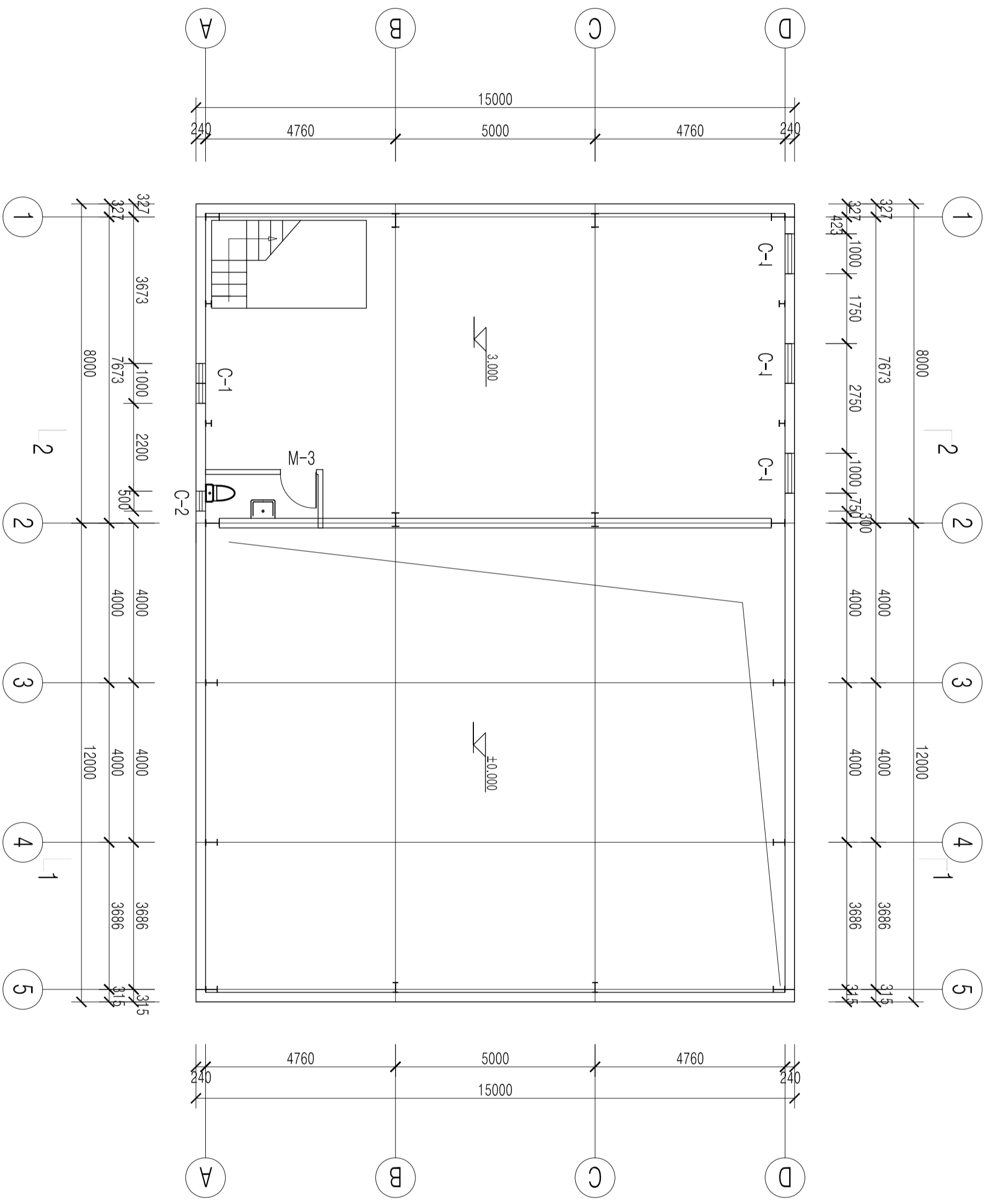
Layout plan for
the Ground floor
1:100




Pinth Detail

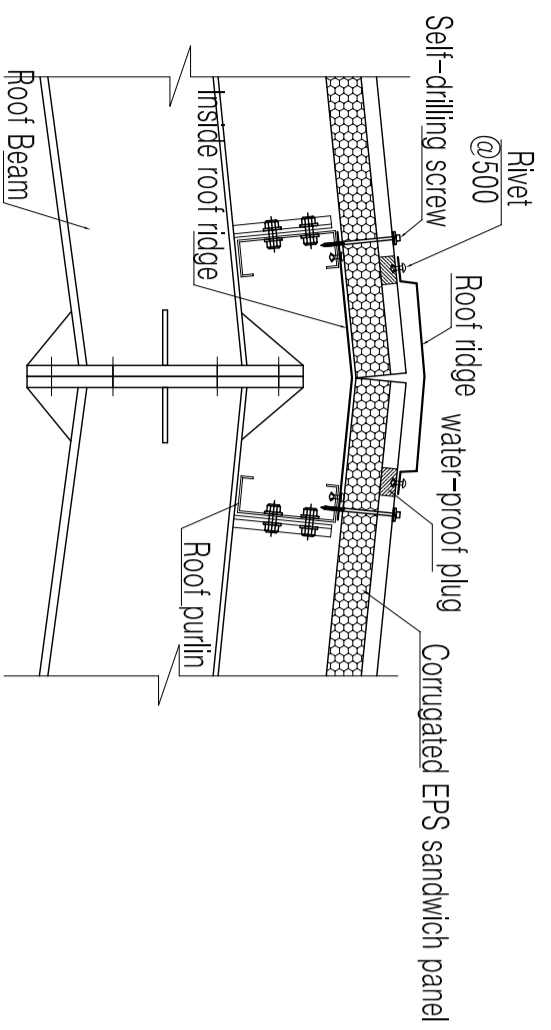
		Hangzhou Putian Steel Structure Co., Ltd	
Project name 工程名称	20x15x6m	Item 图纸名称	Layout plan for the Ground floor
Project No. 工程编号	PTZL1	Designer 设计人	
Category 类别	Proposal	Date 日期	2012.03.07
Page 页号	02	Scale 比例	1:100

List			
Item	No.	Description	Specification(mm)
Door	M-3	Vertical hinged door	900*2000
Window	C-1	PVC sliding window	1000*1000
Window	C-2	PVC sliding window	500*1000

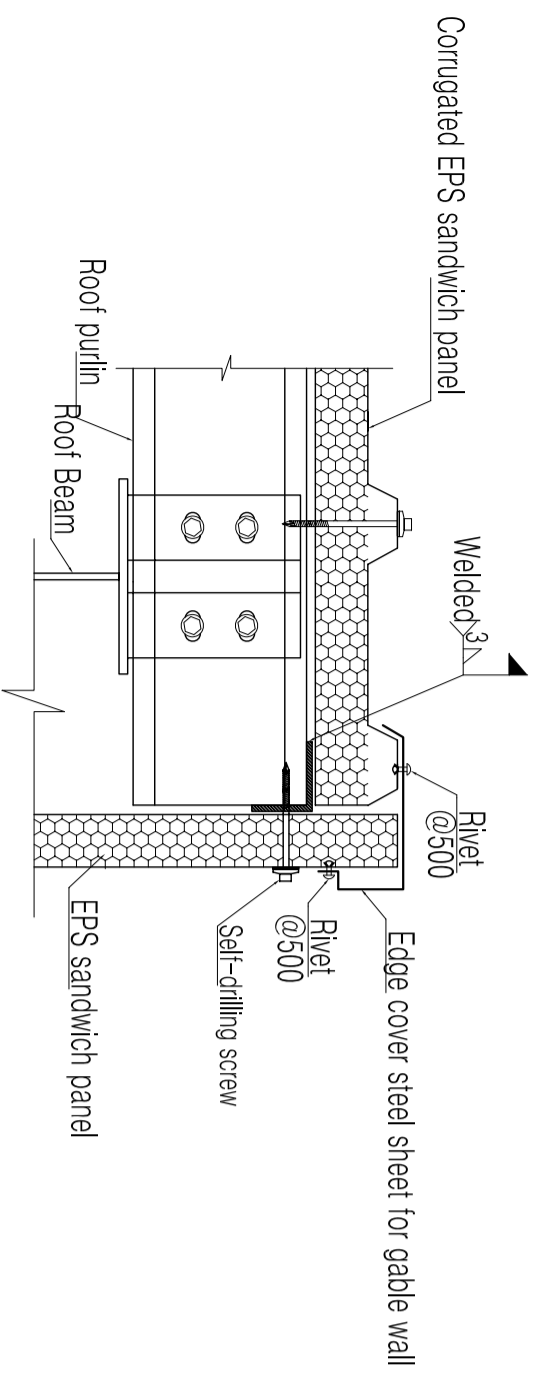


Layout plan for 1:100
the First floor

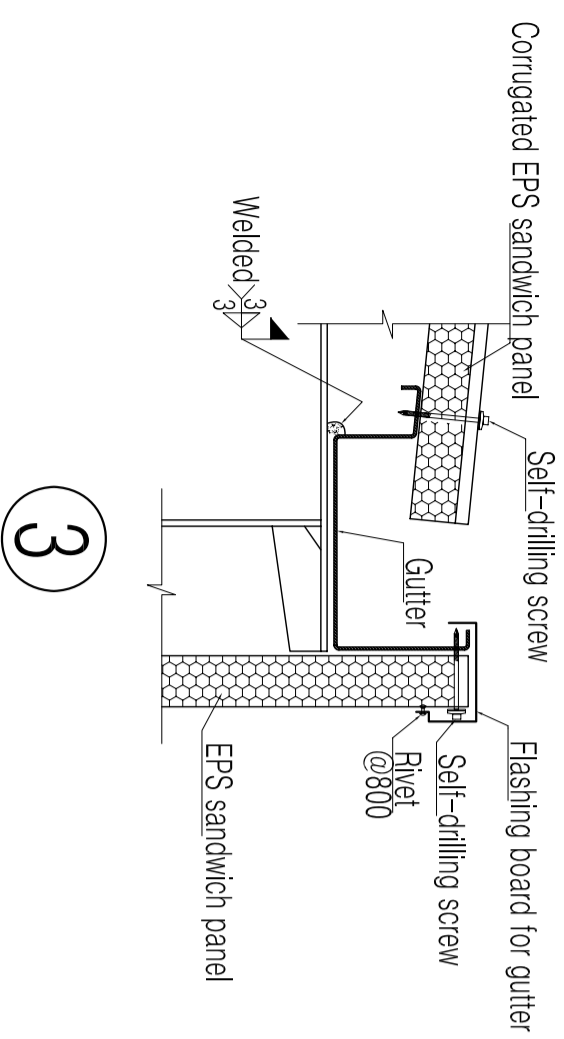
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Project name 工程名称	20x15x6m	Item 图纸名称	Layout plan for the First floor
Project No. 工程编号	PTZL1	Designer 设计人	
Category 设计阶段	Proposal	Date 日期	2012.03.07
Page 图号	02	Proportion 比例	1:100



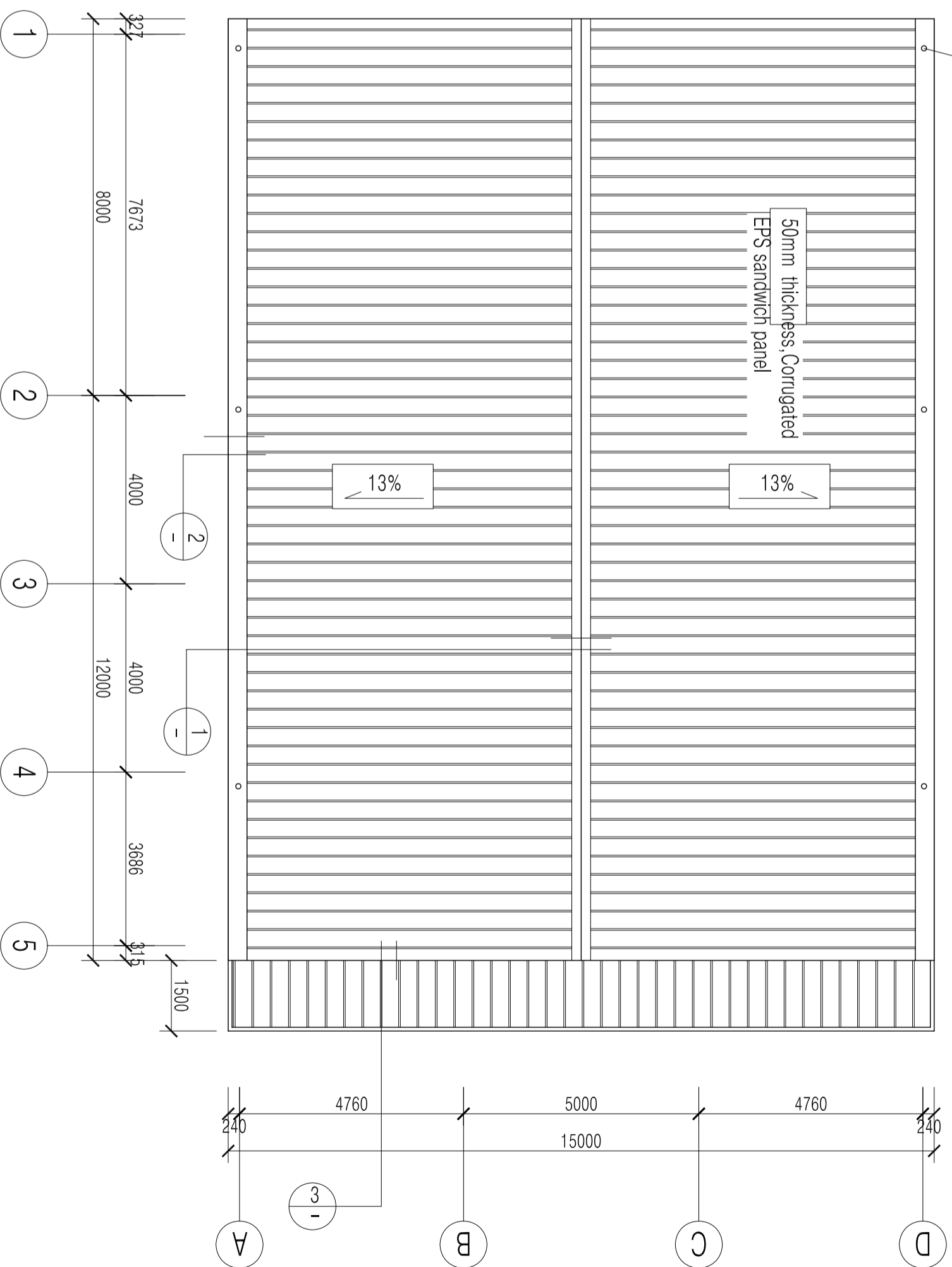
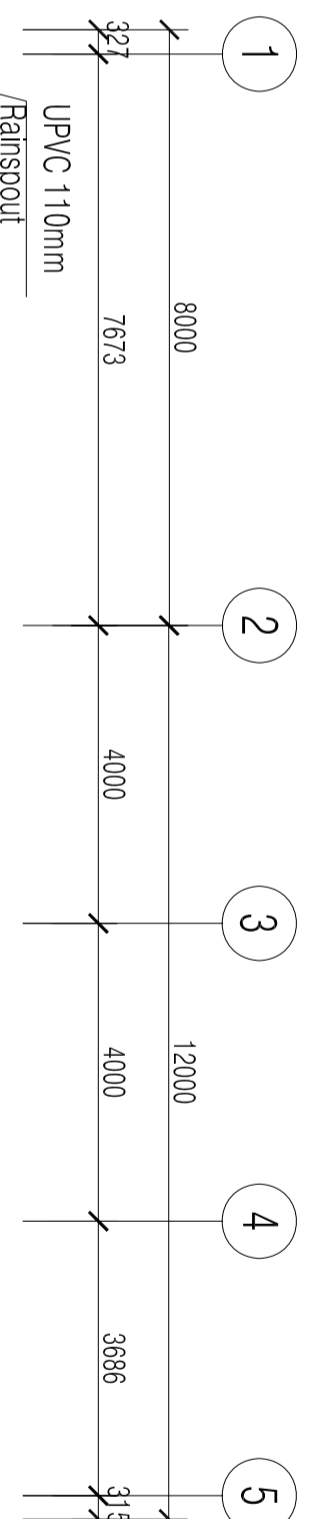
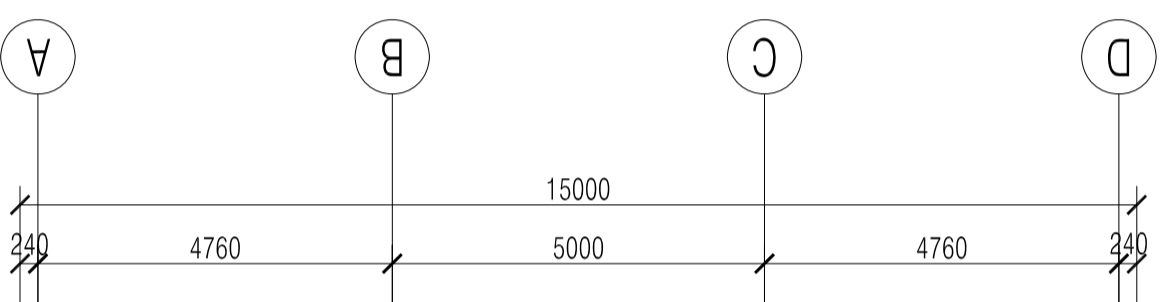
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2

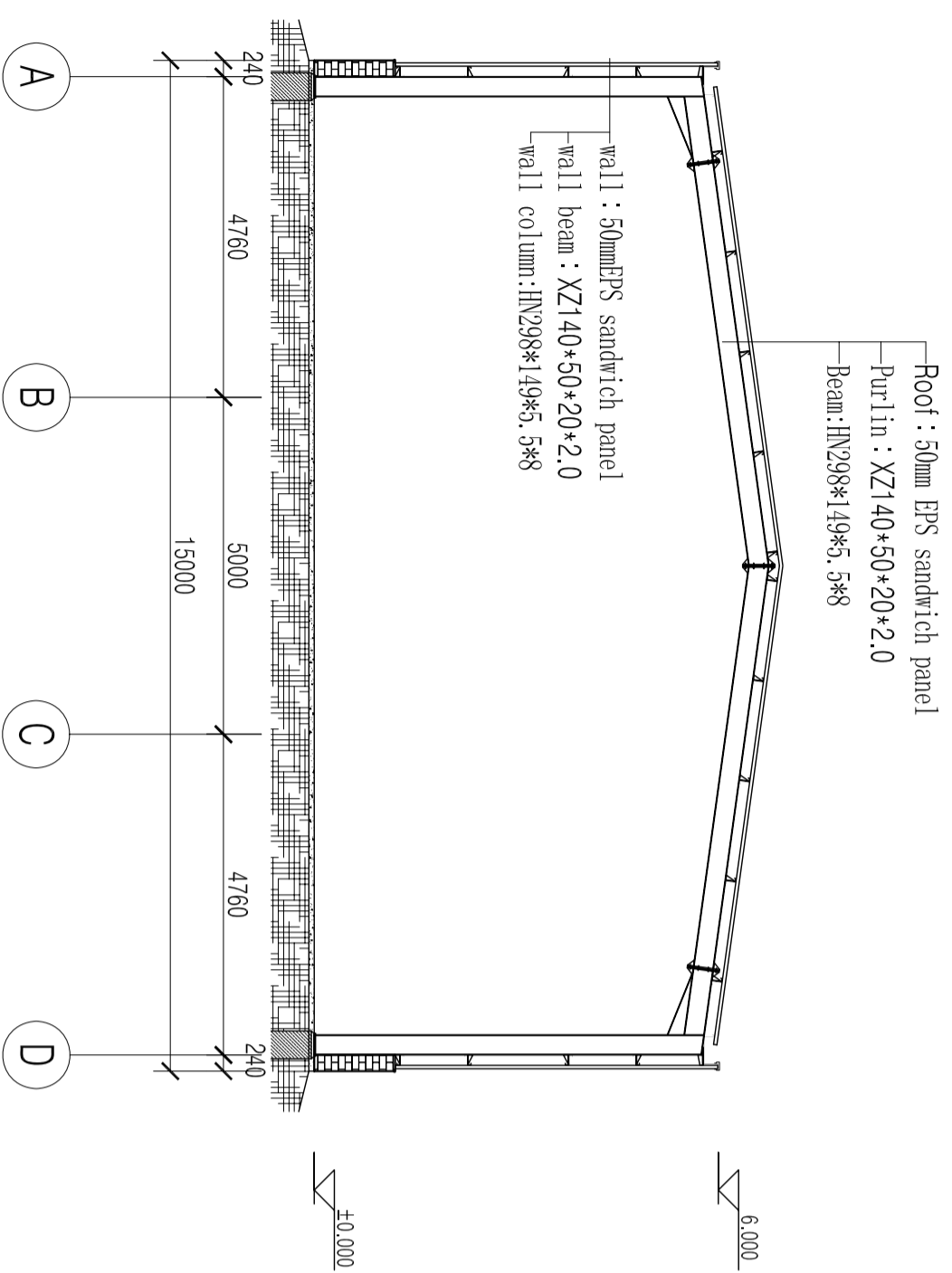


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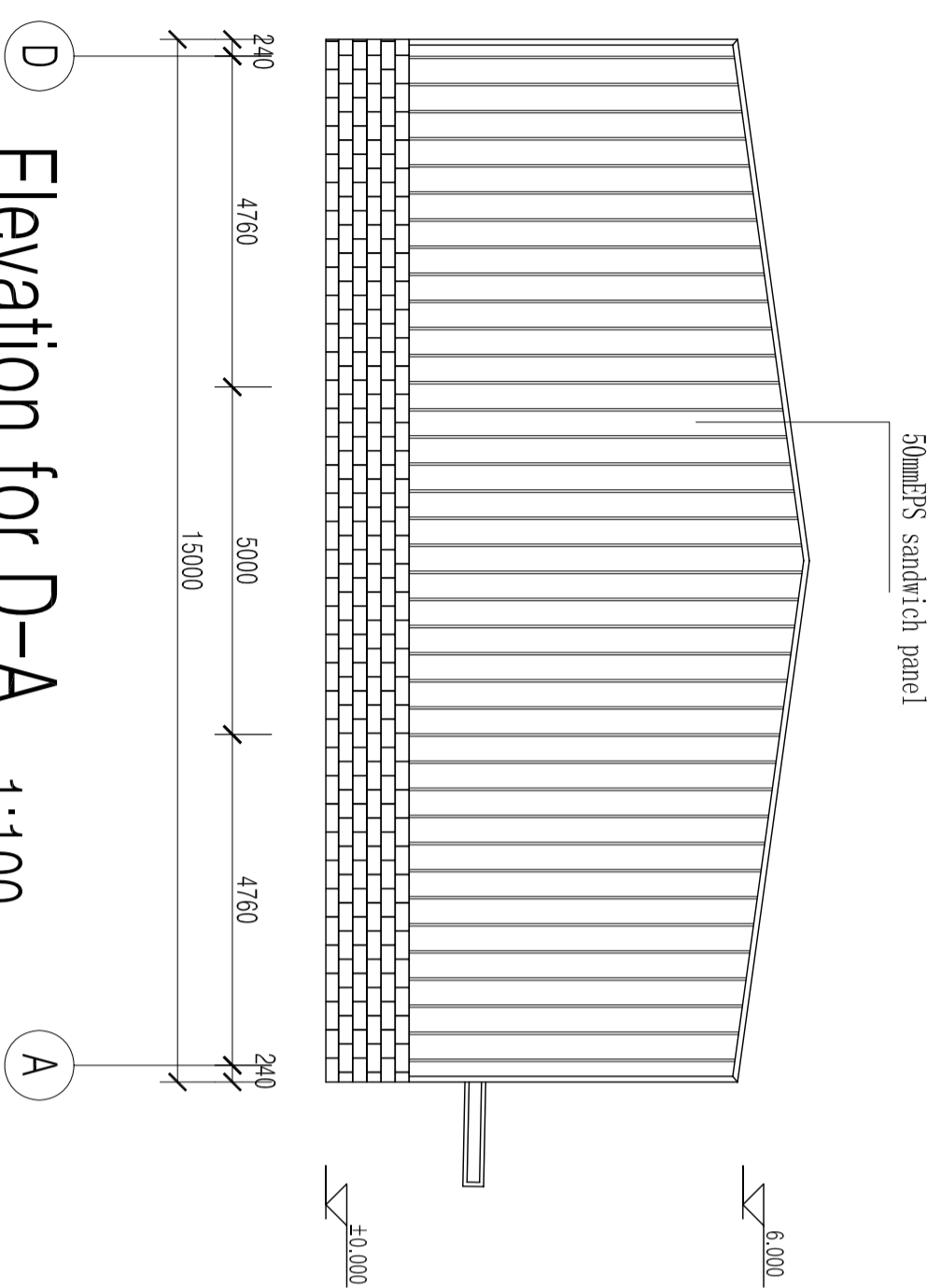


Layout for roof plan 1:100

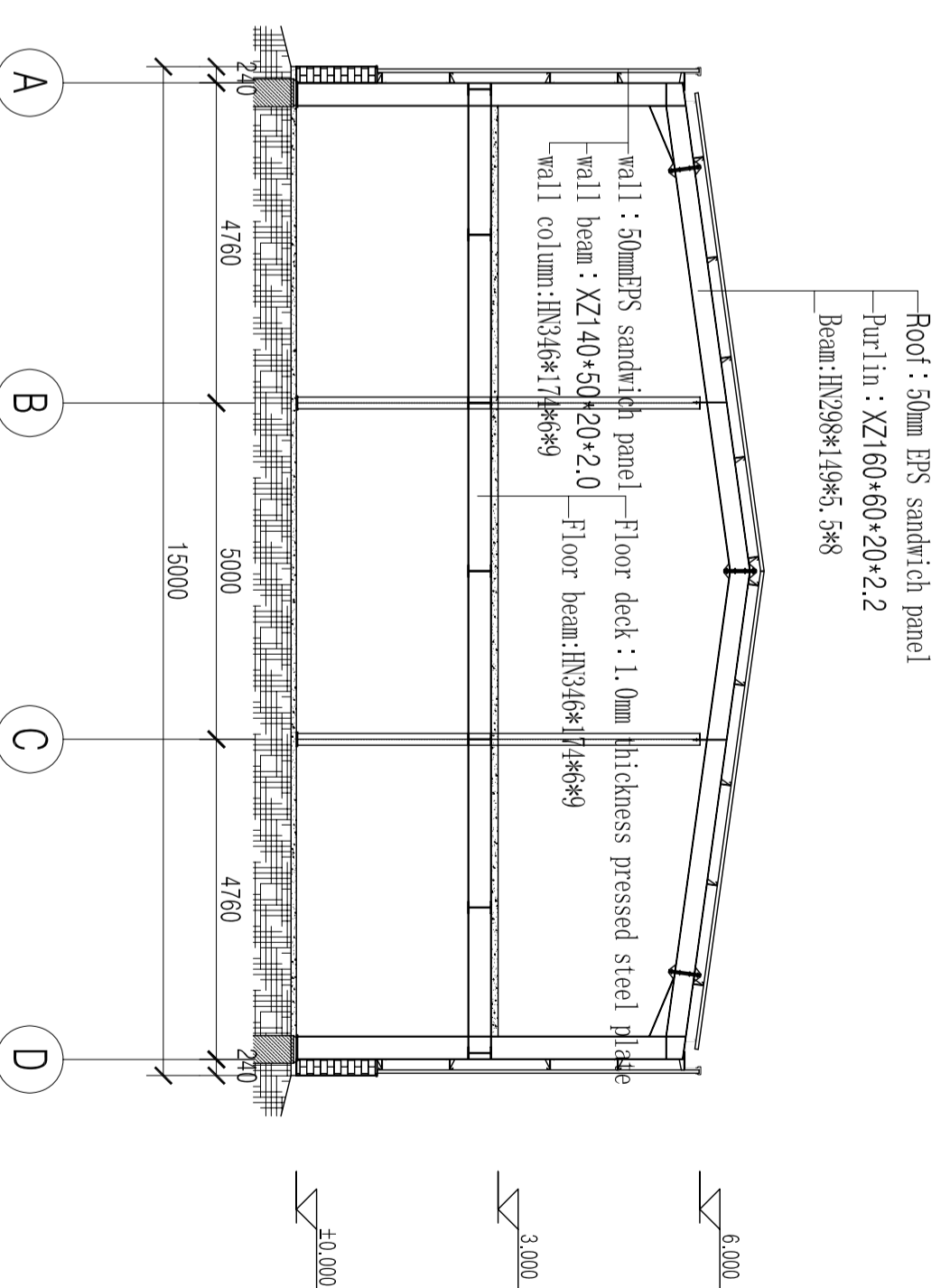
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Project name	工程名称	Item	图名
20x15x6m	20x15x6m	Layout for roof plan	Layout for roof plan
Project No.	工程编号	Designer	设计人
PTZL1	PTZL1		
Category	类别	Date	日期
Proposal	Proposal	2012.03.07	2012.03.07
Page	图号	Revision	比例
02	02		1:100



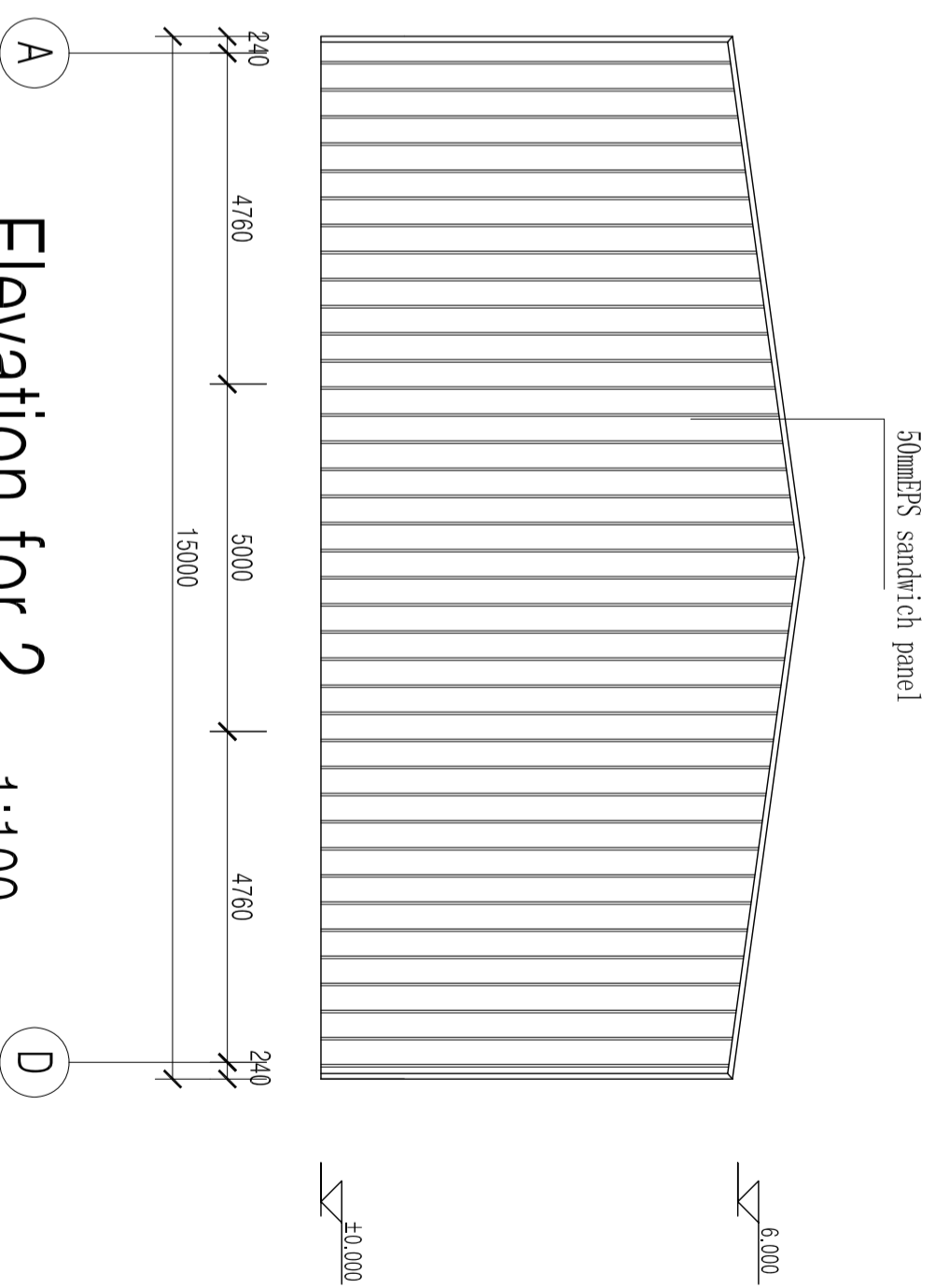
Cross-section 1-1
1:100




Elevation for D-A axis
1:100

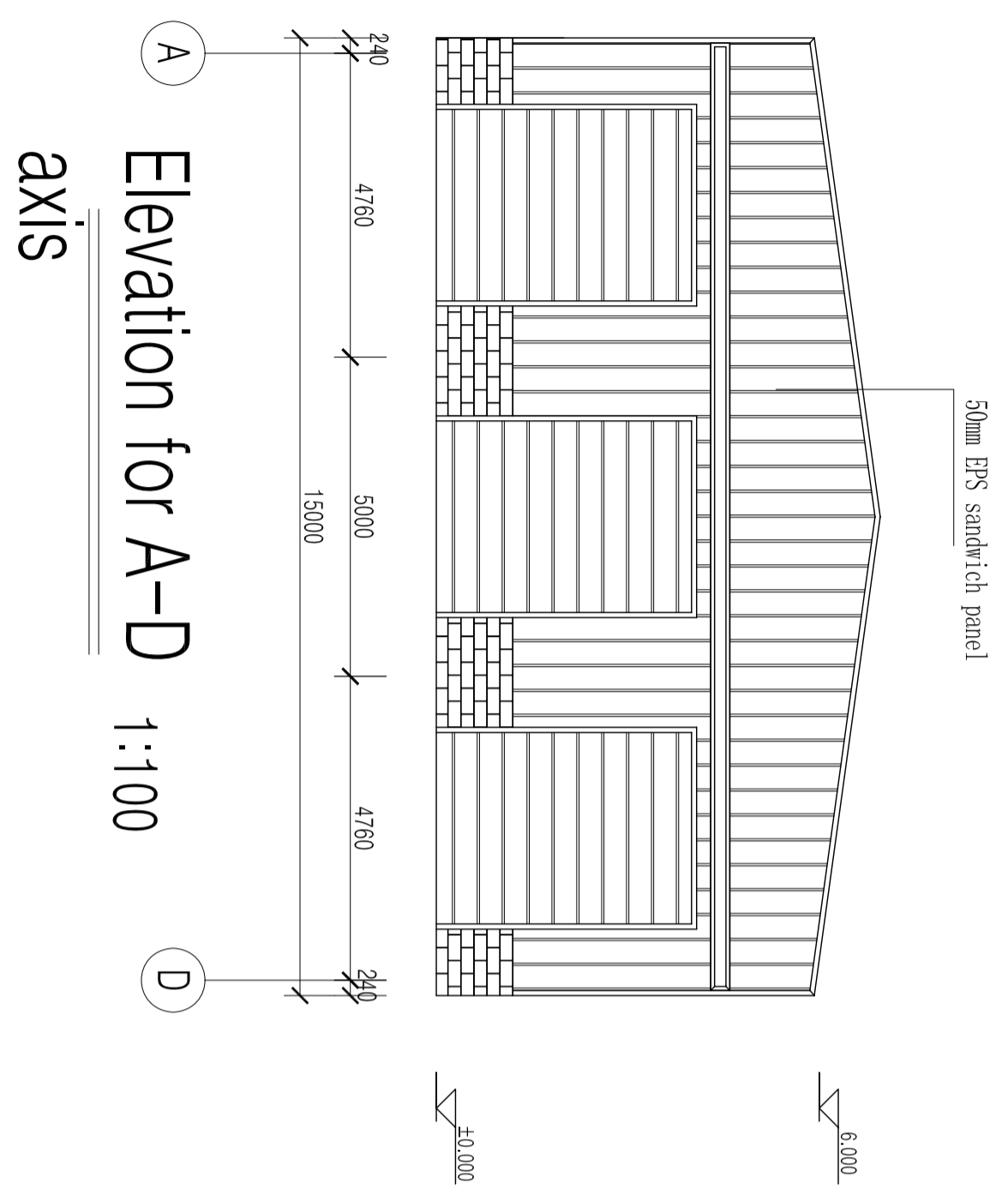


Cross-section 2-2
1:100

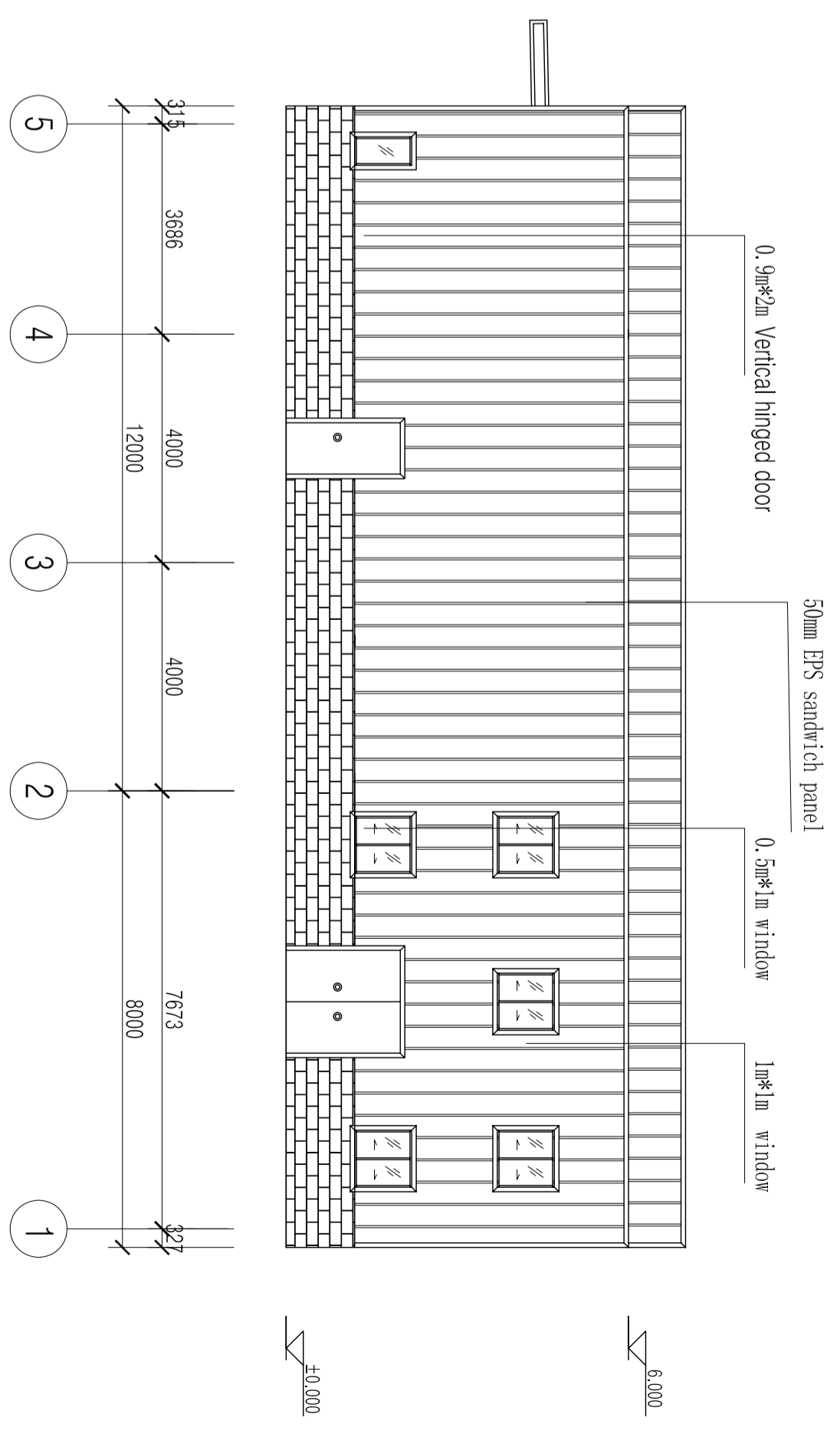


Elevation for 2 axis
1:100

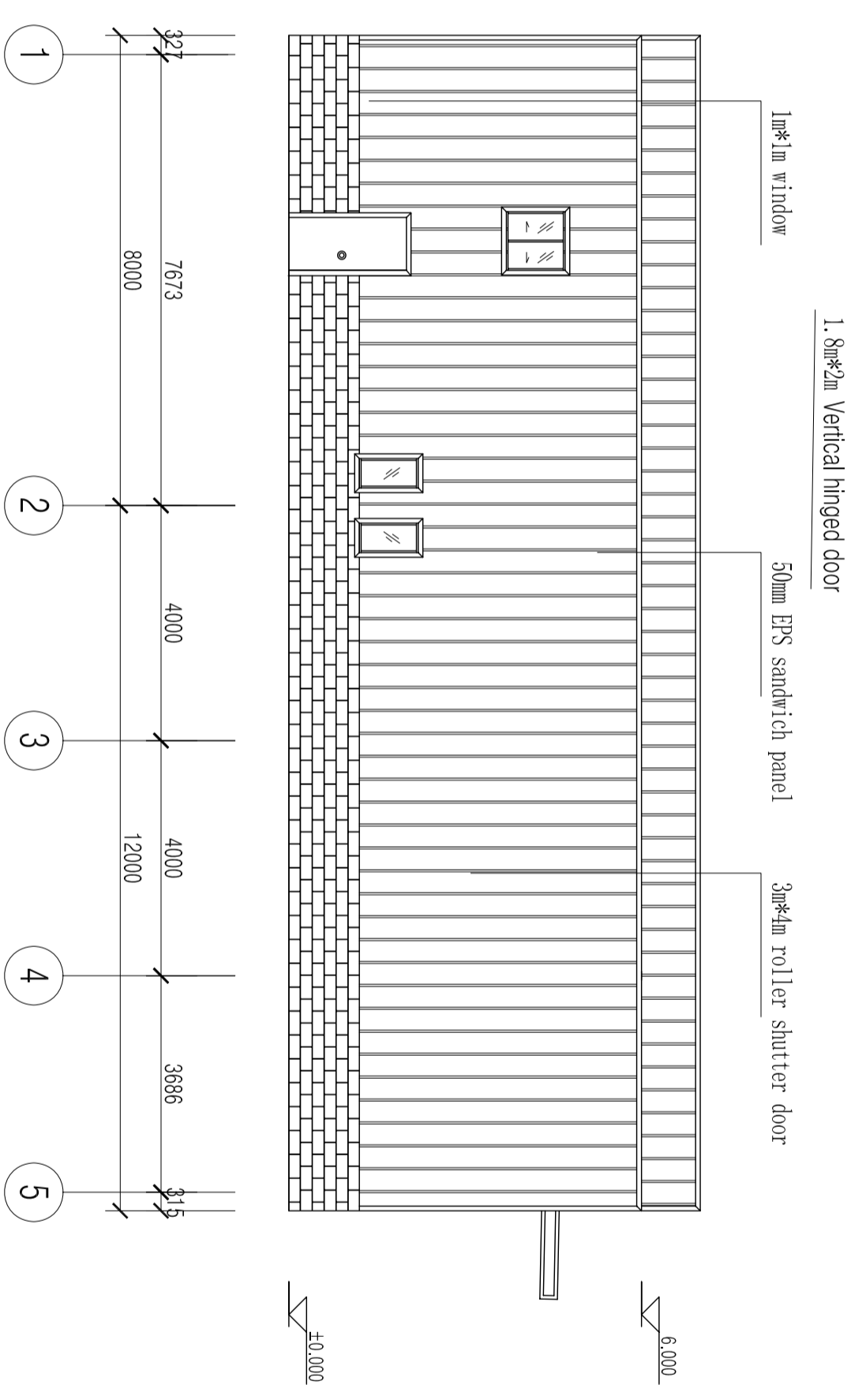
 Hangzhou Putian Steel Structure Co., Ltd		Project name 工程名称 20x15x6m	
Item 图名 Elevation/Cross-section		Project No. 工程编号 PTZL1	
Designer 设计人 Date 日期 2012.03.07		Category 设计阶段 Proposal	
Page 图号 02		Proportion 比例 1:100	



Elevation for A-D
axis
1:100



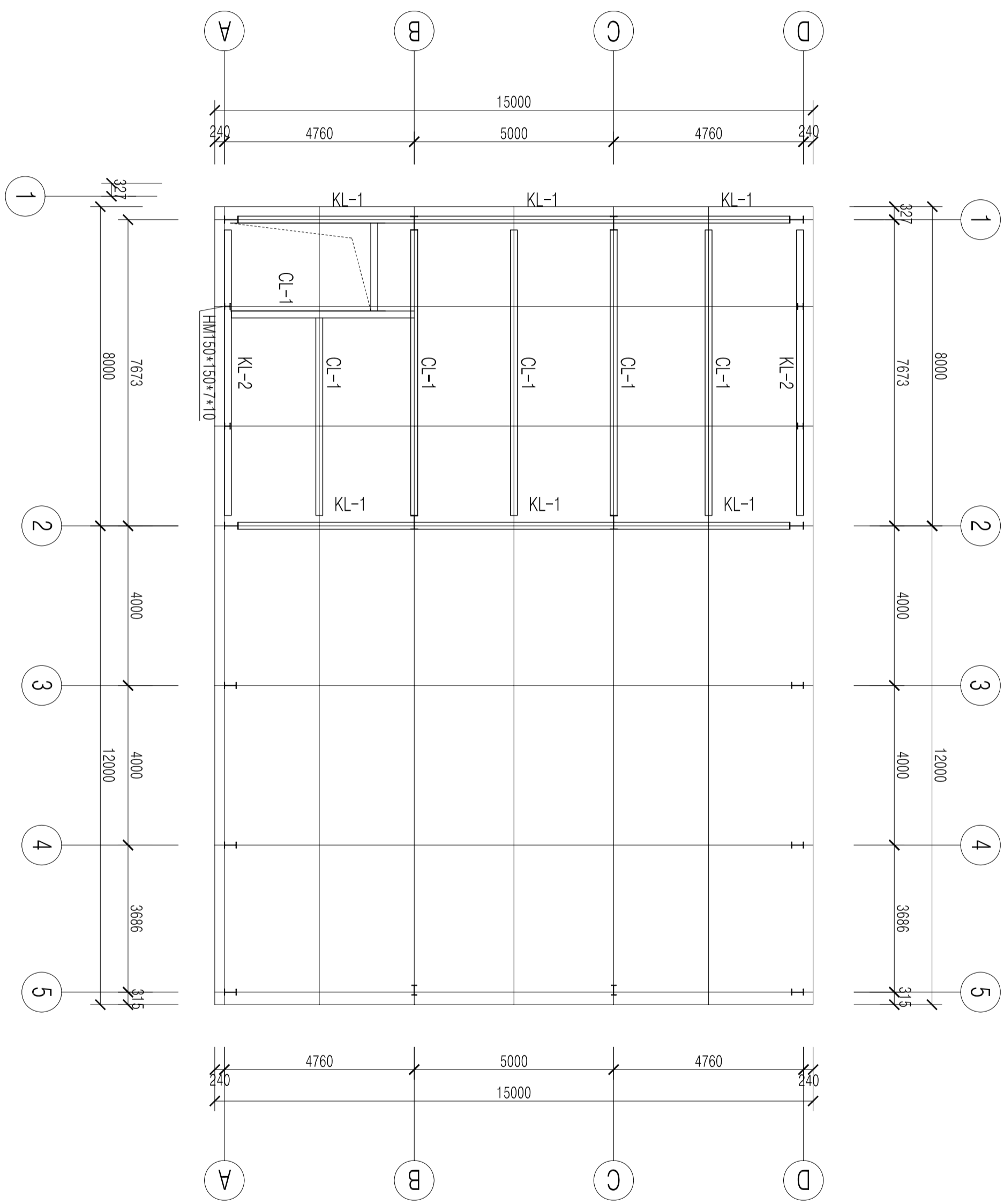
Elevation for 5-1
axis
1:100



Elevation for 1-5
axis
1:100

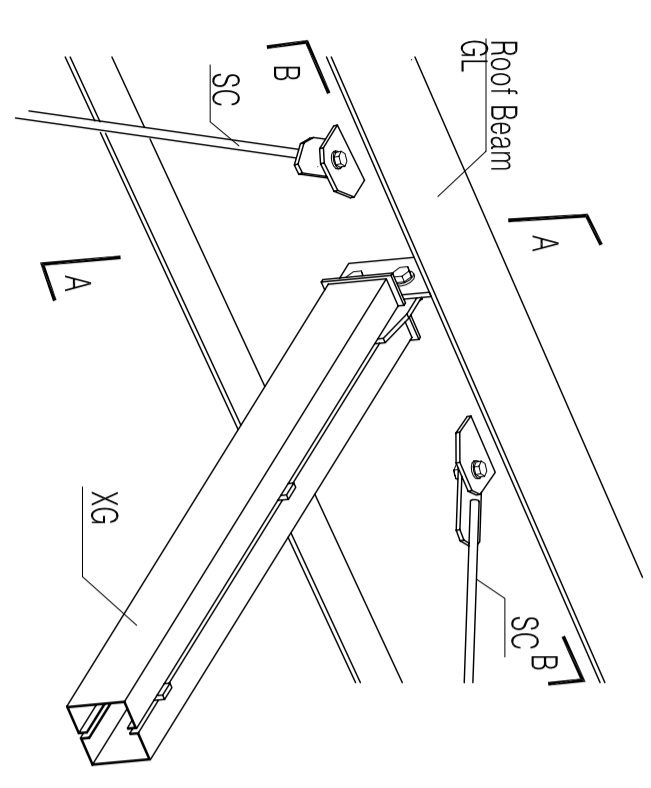
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Project name 工程名称	Item 项名称	Project No. 工程编号	Designer 设计人
20x15x6m	Elevation	PTZL1	2012.03.07
		Category 设计阶段	Date 日期
		Proposal	2012.03.07
			2012.03.07
		Page 图号	02
		Proportion 比例	1:100

List			
Item	No.	Specification	Material
Beam	KL-1	HN:346*174*6*9	Q235
	KL-2	HN:298*149*6*8	Q235
	CL-1	HN:346*174*6*9	Q235

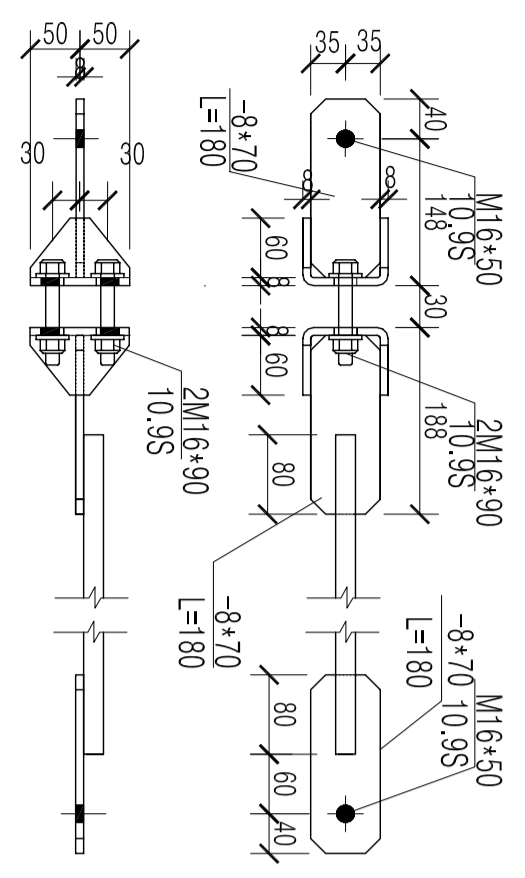
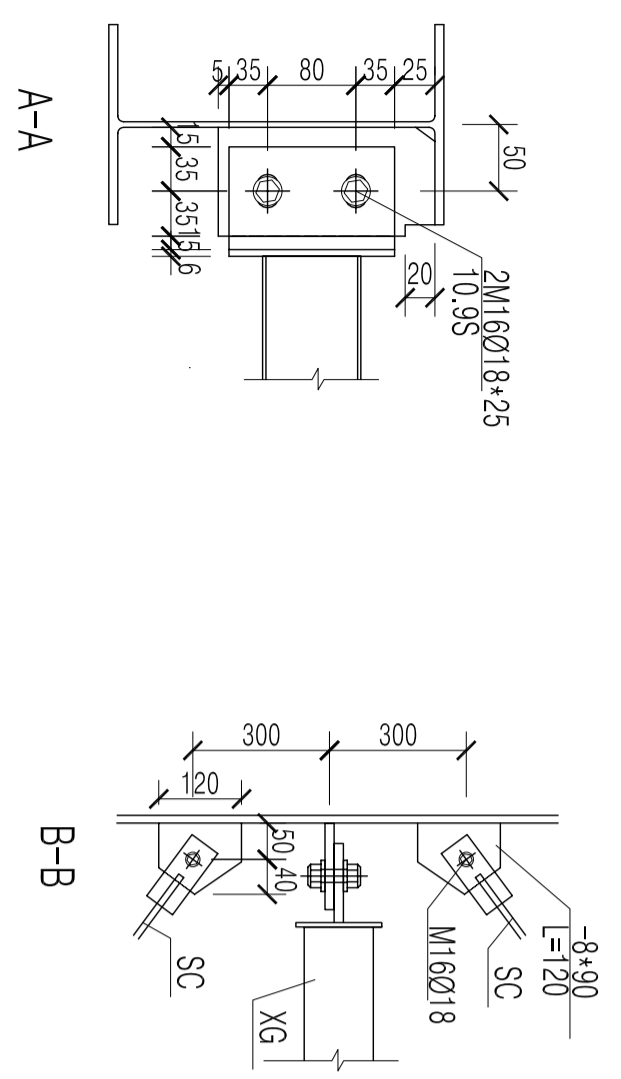


Layout for floor 1:100
beam plan

		Hangzhou Putian Steel Structure Co., Ltd	
Project name 工程名称	Item 图名	Project No. 工程编号	Designer 设计人
20x15x6m	Layout for floor beam plan	PTZL1	
		Category 设计阶段	Date 日期
		Proposal	2012.03.07
			Figure No. 图号
			02
			Scale 比例
			1:100



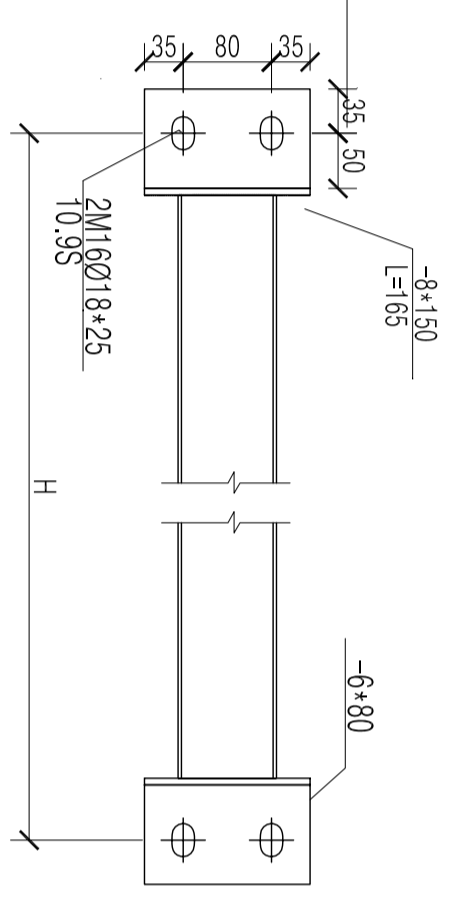
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Details for SC

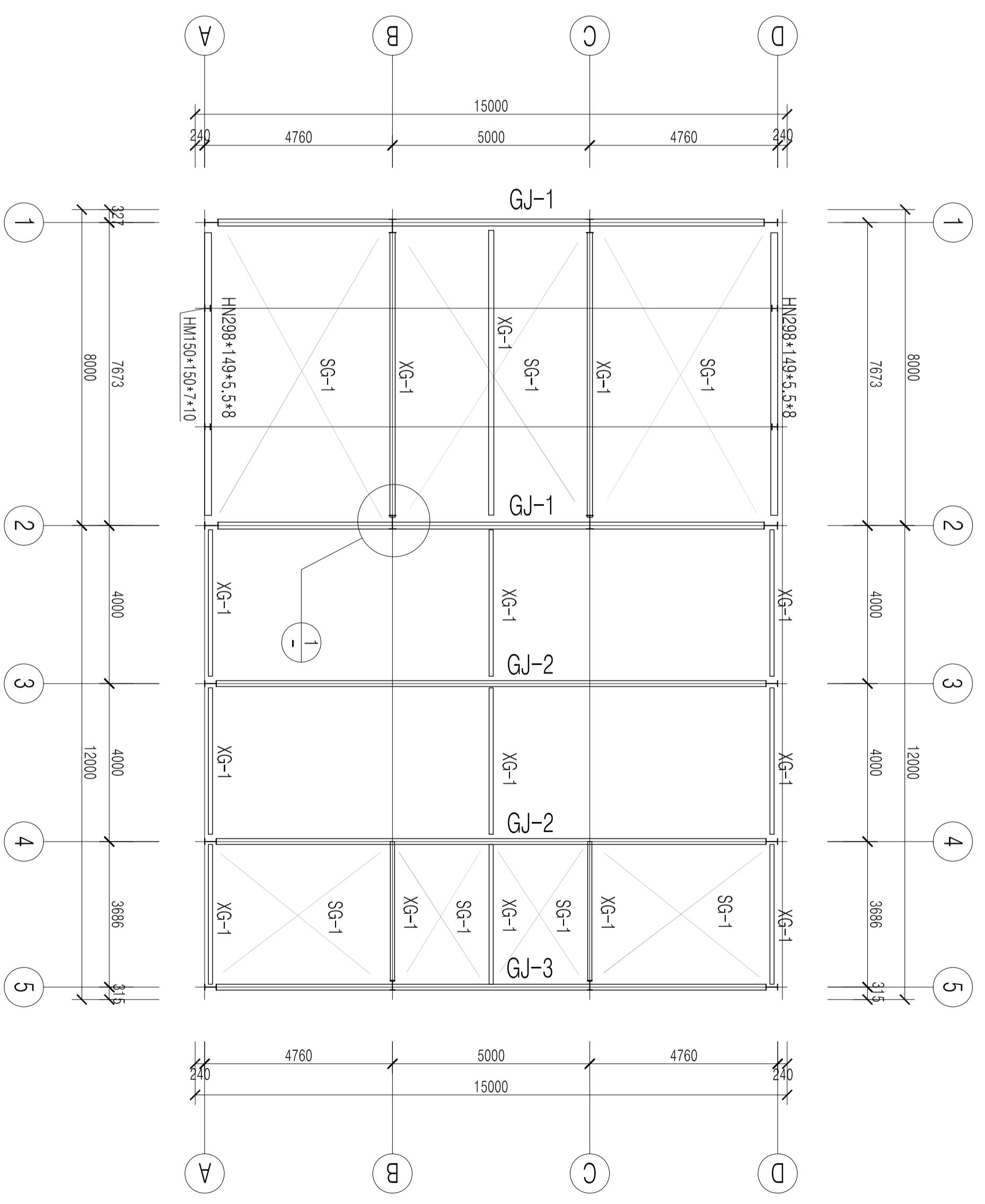
No.	Specification (mm)	Material
XG-1	2C160*60*20*2.3	Q235
SC-1	Ø16	Q235
ZC-1	Ø20	Q235

List

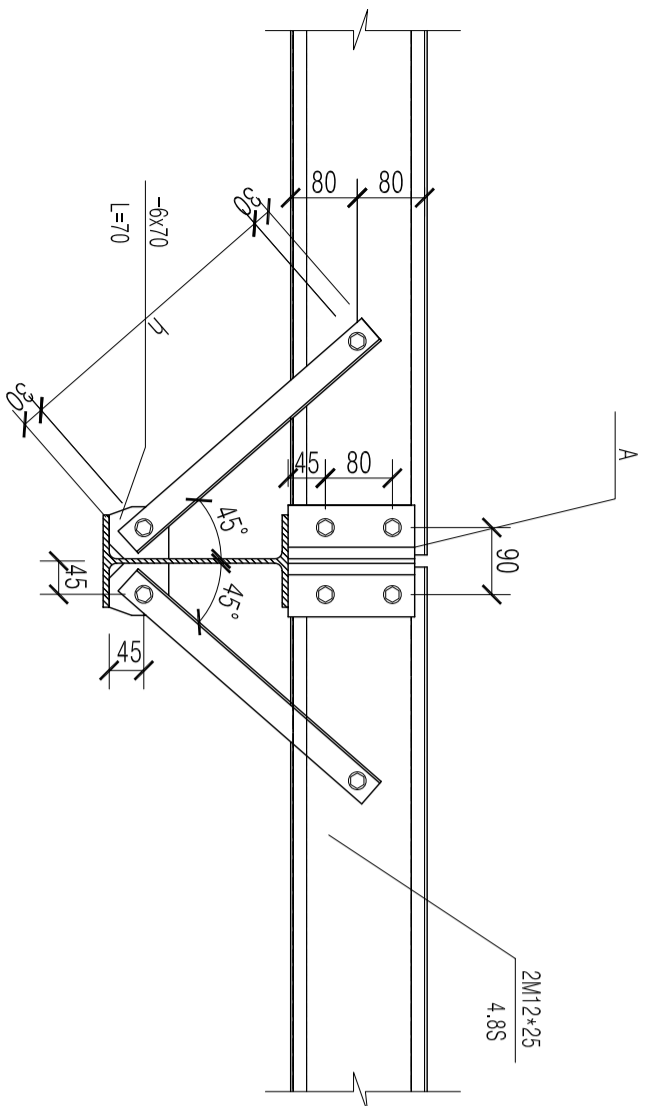


Details for Rigid tie bars

Layout for roof steel structure plan 1:100

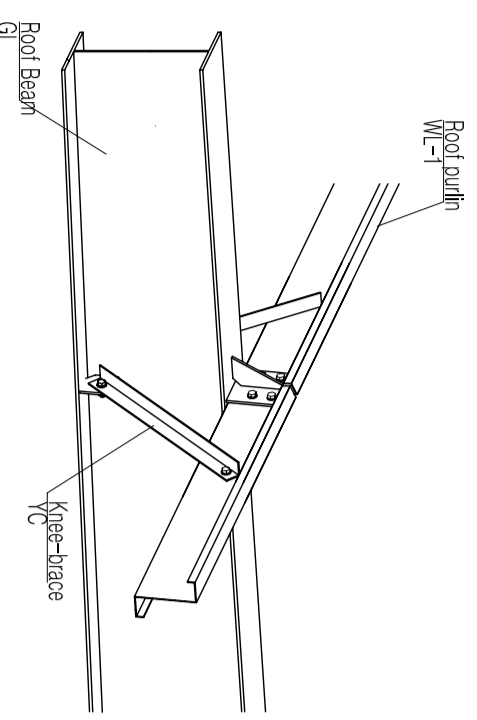


		Hangzhou Putian Steel Structure Co., Ltd	
Project name	工程名称	Item	图名
20x15x6m	20x15x6m	layout for roof steel structure plan	layout for roof steel structure plan
Project No.	工程编号	Category	设计阶段
PTZL1	PTZL1	Proposal	Proposal
Designer	设计人	Date	日期
		2012.03.07	
Page	图号	Revision	比例
02	02		1:100

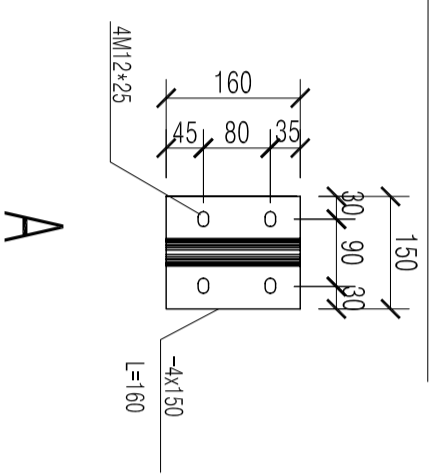


1

Details for the connection of purlin and knee-brace

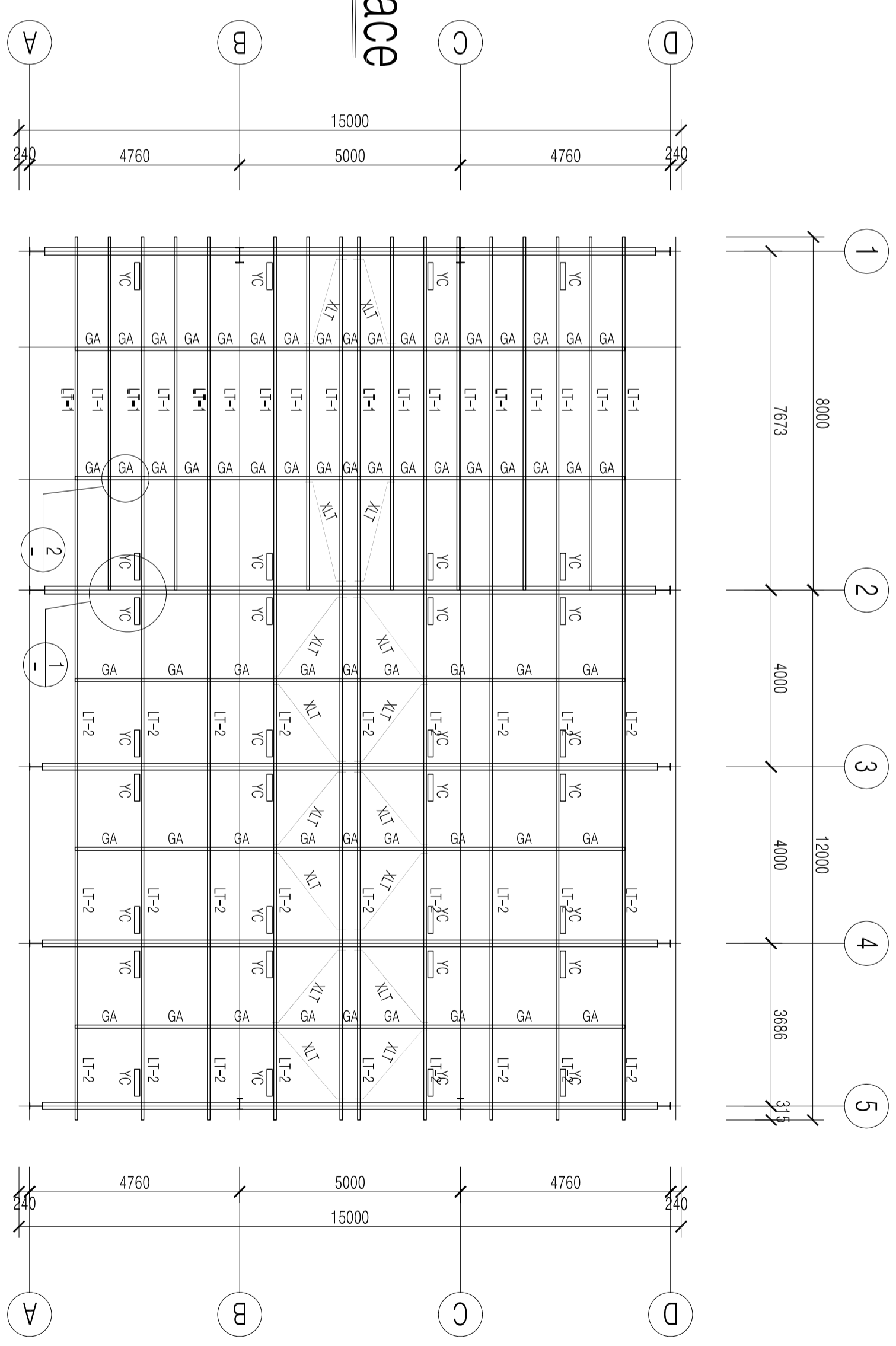


3D-View for purlins and knee brace

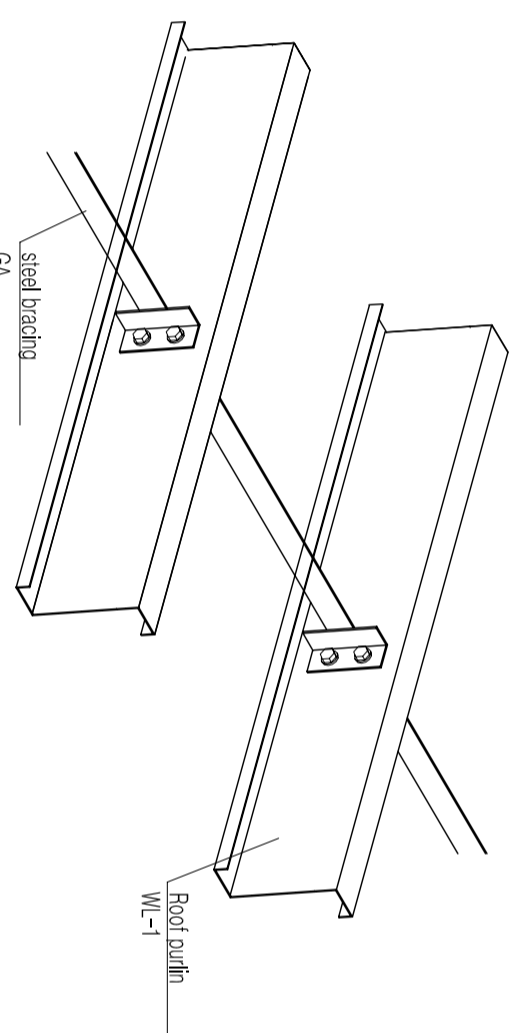


A

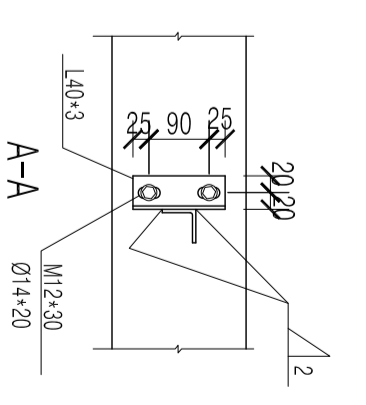
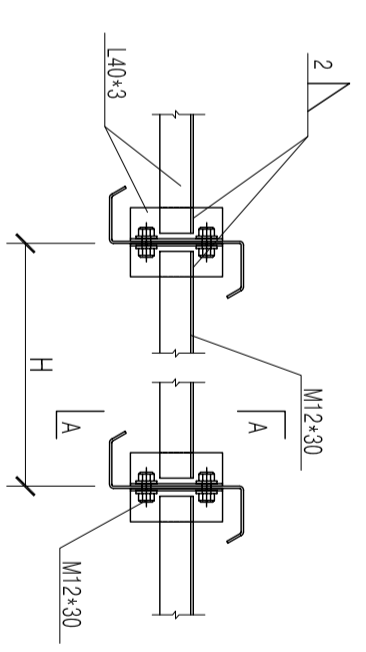
List			
Item	No.	Specification	material
Purlin	LT-1	Z160*60*20*2.3	Q235 galvanized
	LT-2	Z140*50*20*2.0	Q235 galvanized
Supporting system	GA	L40*3	Q235
	YC	L40*3	Q235
	XLT	Ø12	Q235



Layout for roof purlin plan 1:100

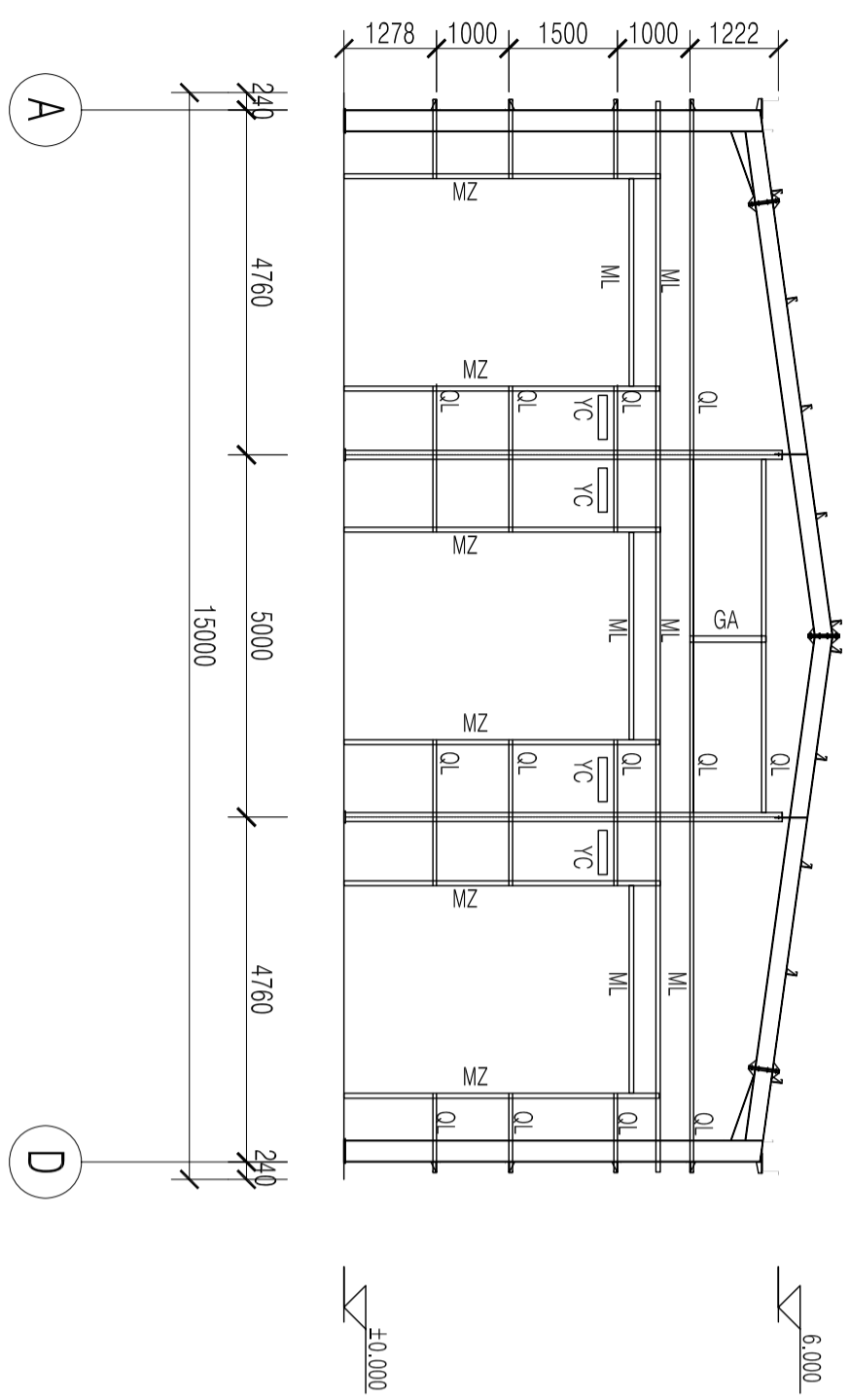


3D-View for purlins' rigid supporting system

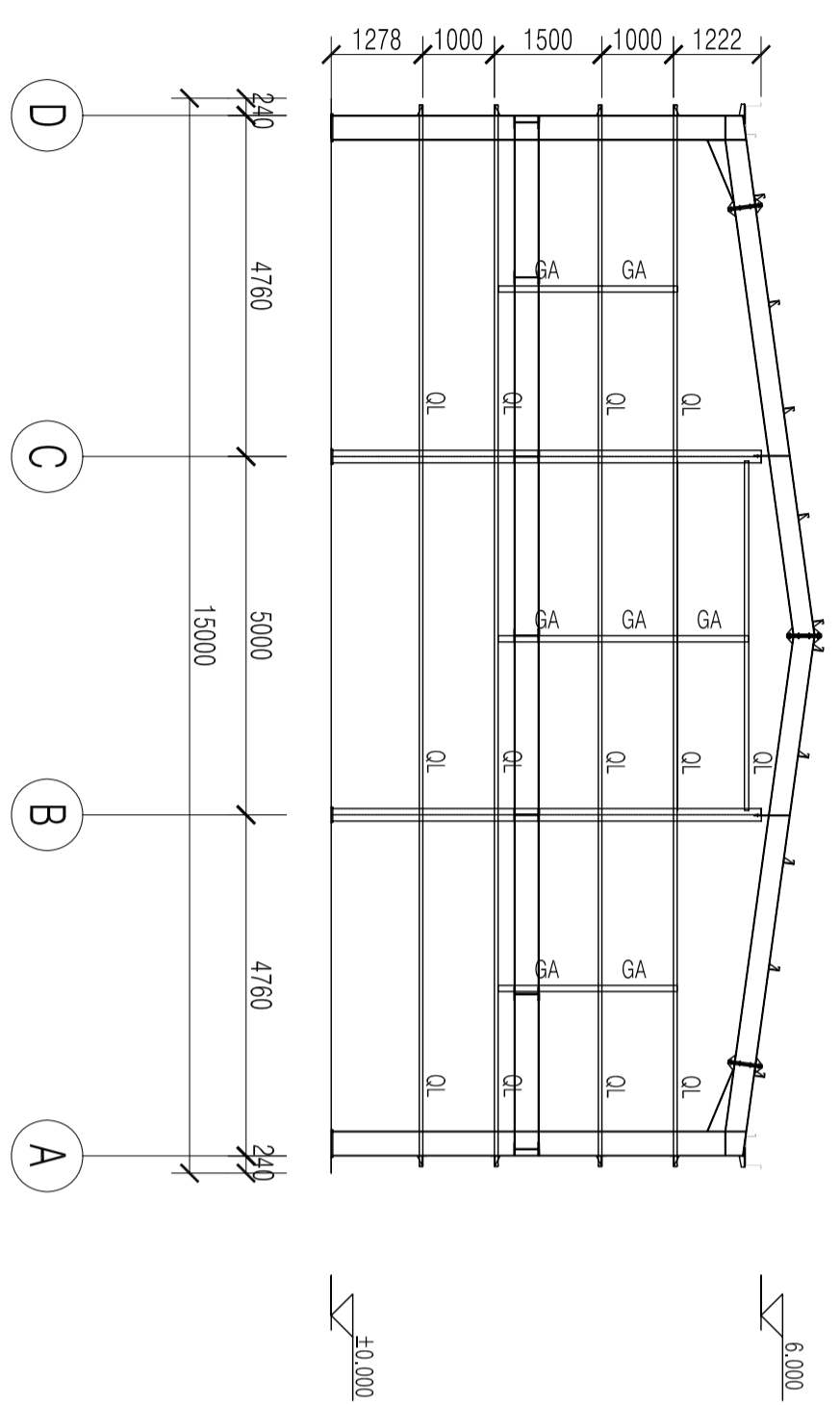


Details for purlins' rigid supporting system

		Hangzhou Putian Steel Structure Co., Ltd	
Project name 工程名称	20x15x6m	Item 项名称	Layout for roof purlin plan
Project No. 工程编号	PTZL1	Designer 设计人	
Category 类别	Proposal	Date 日期	2012.03.07
Revision 修改线		Page 图号	02
		Proportion 比例	1:100

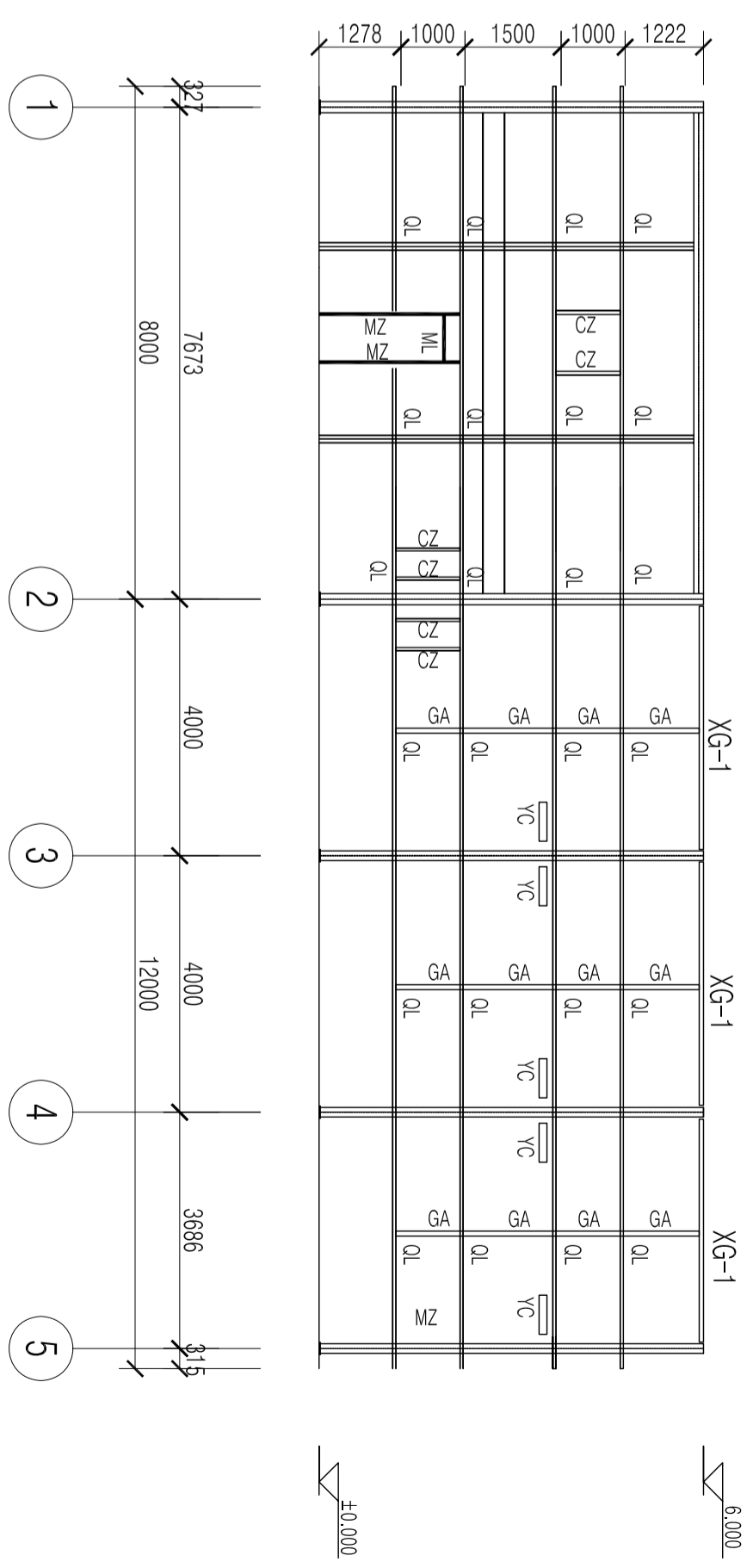


Layout for A-D axis' wall 1:100
purlin plan

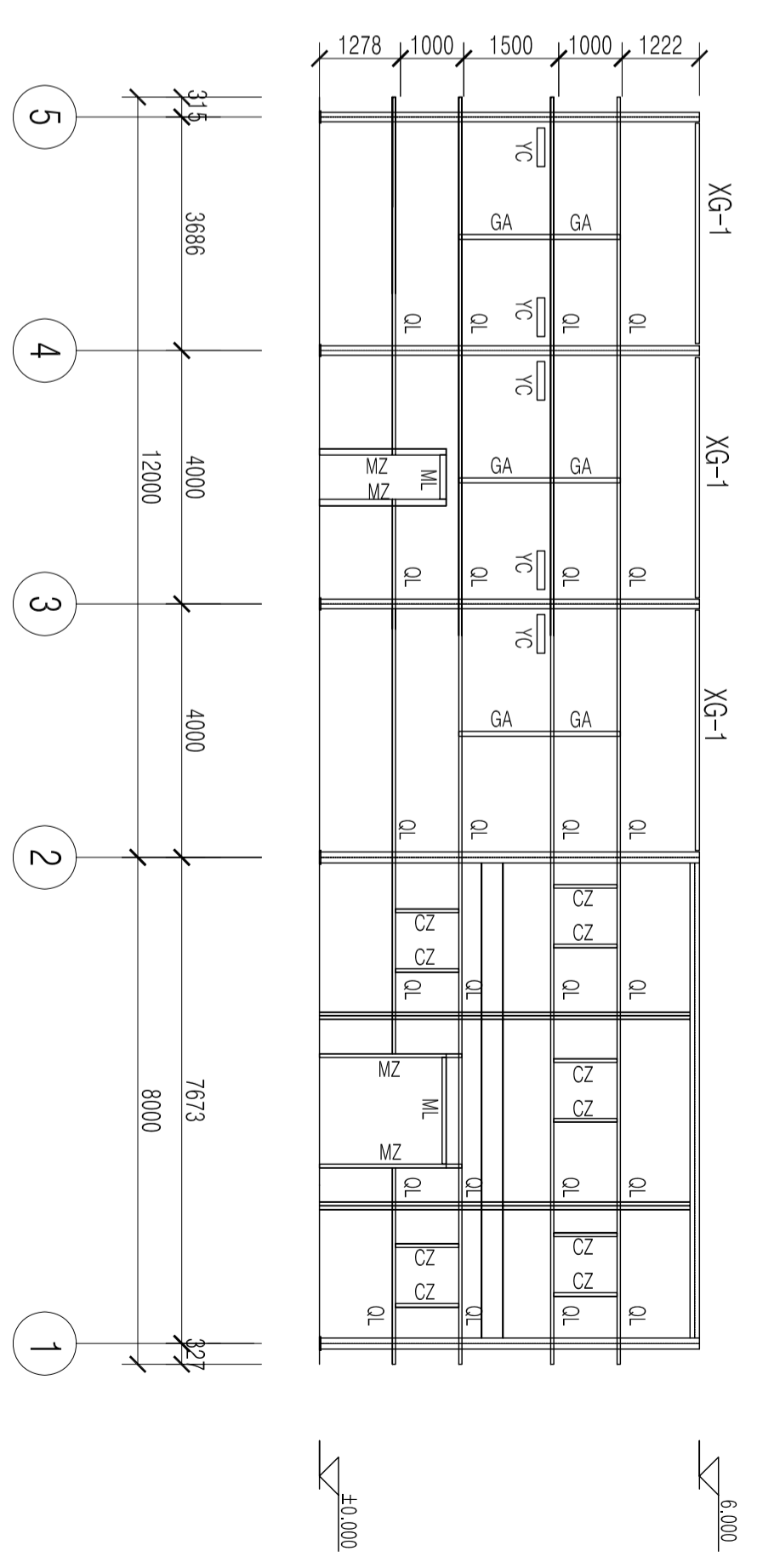


Layout for D-A axis' wall 1:100
purlin plan

List		
No.	Specification(mm)	Material
QL	Z140*50*20*2.0	Q235
YC	L40*3	Q235
CZ	C140*50*20*2.0	Q235
MZ	2C140*50*20*2.0	Q235
ML	C140*50*20*2.0	Q235

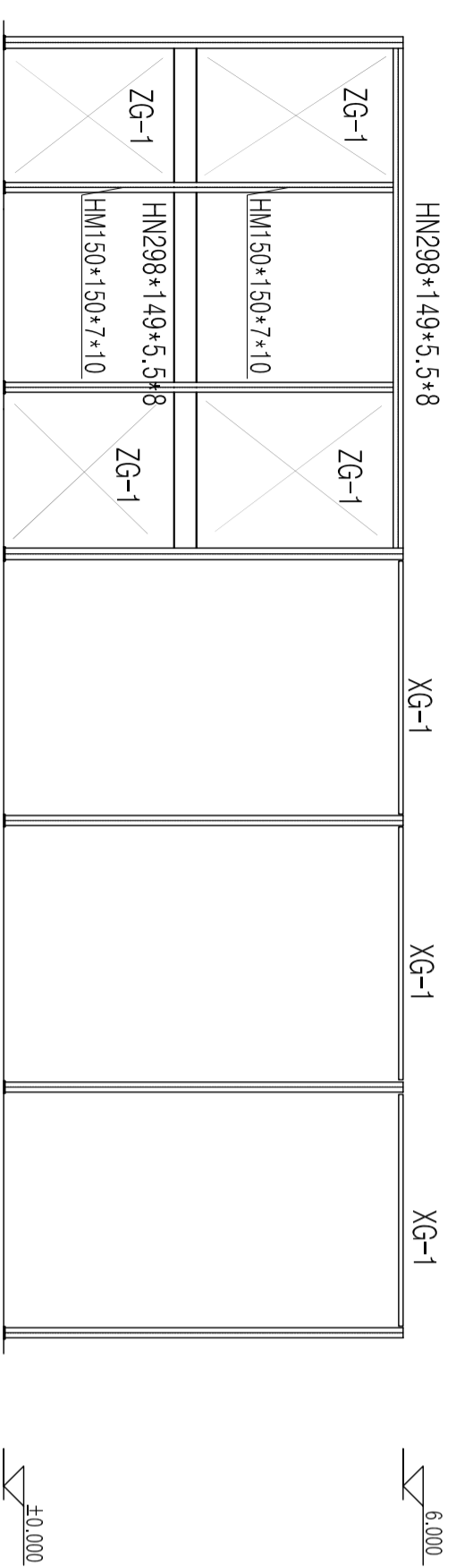


Layout for 1-5 axis' wall 1:100
purlin plan

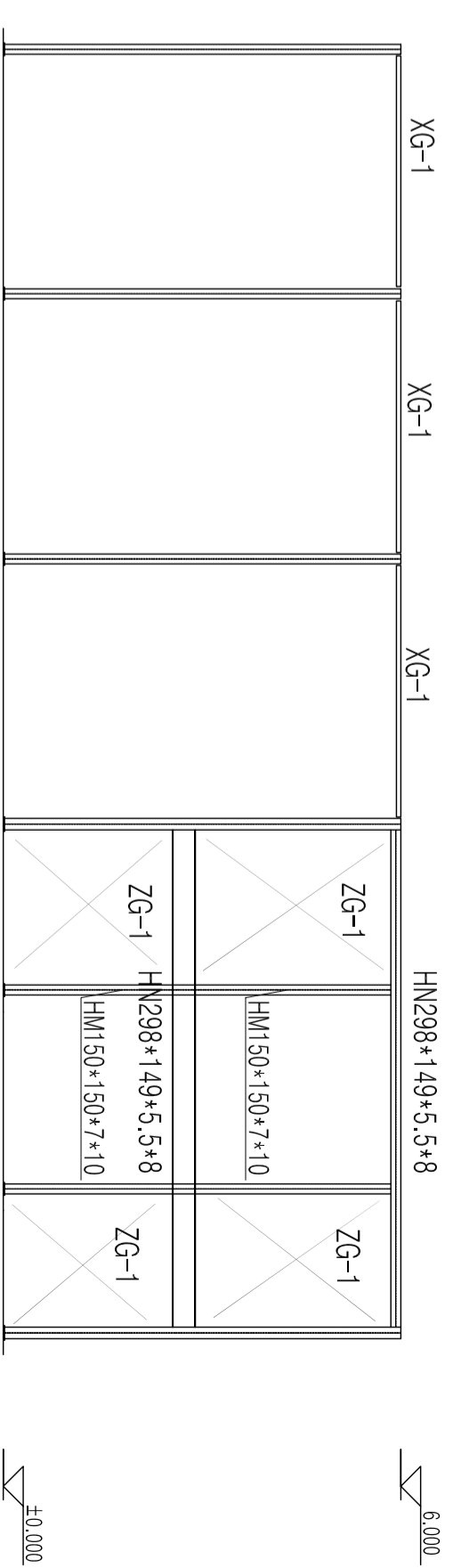


Layout for 5-1 axis' wall 1:100
purlin plan

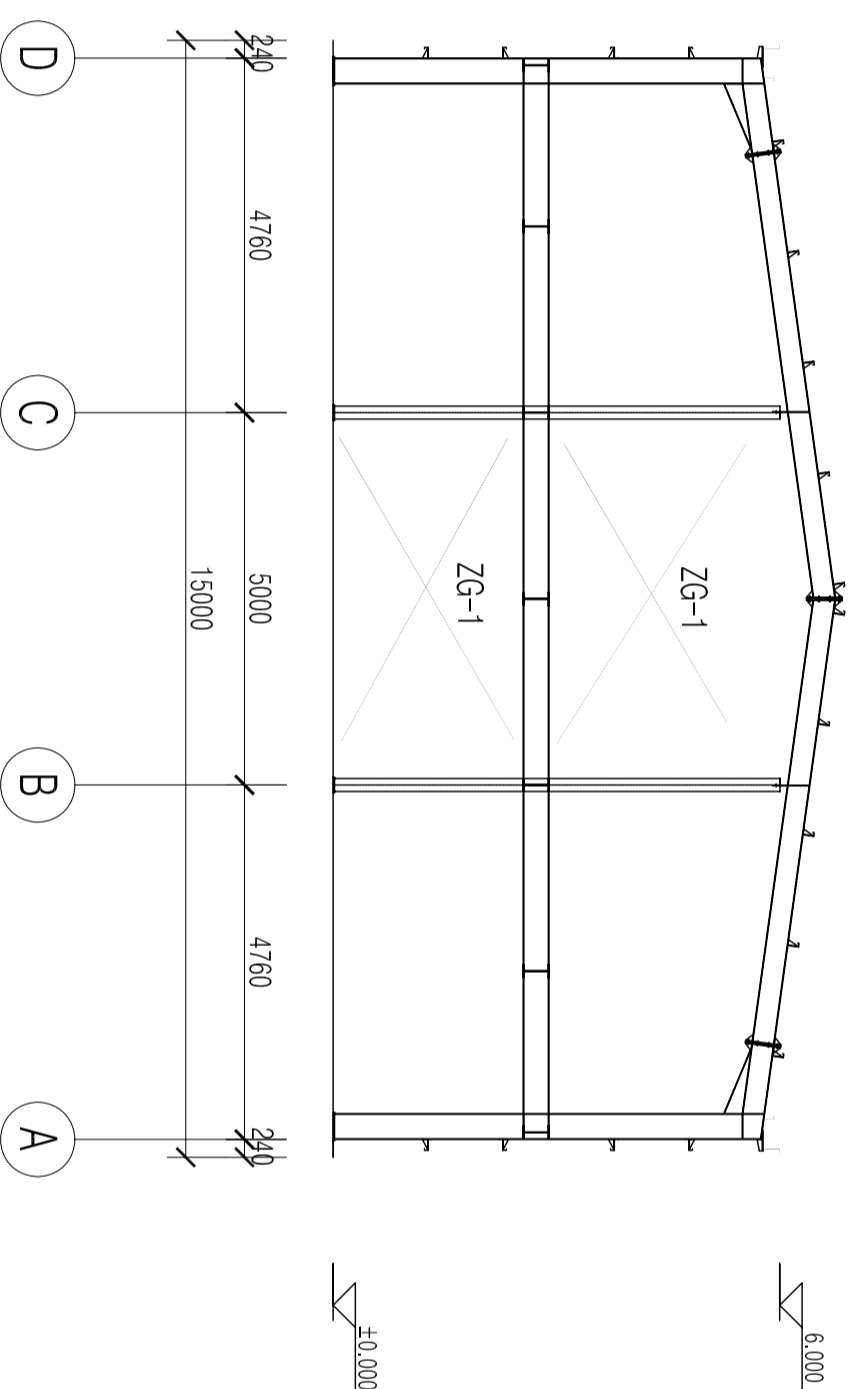
		Hangzhou Putian Steel Structure Co., Ltd	
Project name 工程名称	20x15x6m	Item 项名称	Wall purlin
Project No. 工程编号	PTZL1	Designer 设计师	
Category 设计阶段	Proposal	Date 日期	2012.03.07
Page 图号	02	Revision 比例	1:100




Layout for 1-5 axis' wall
steel structure plan 1:100

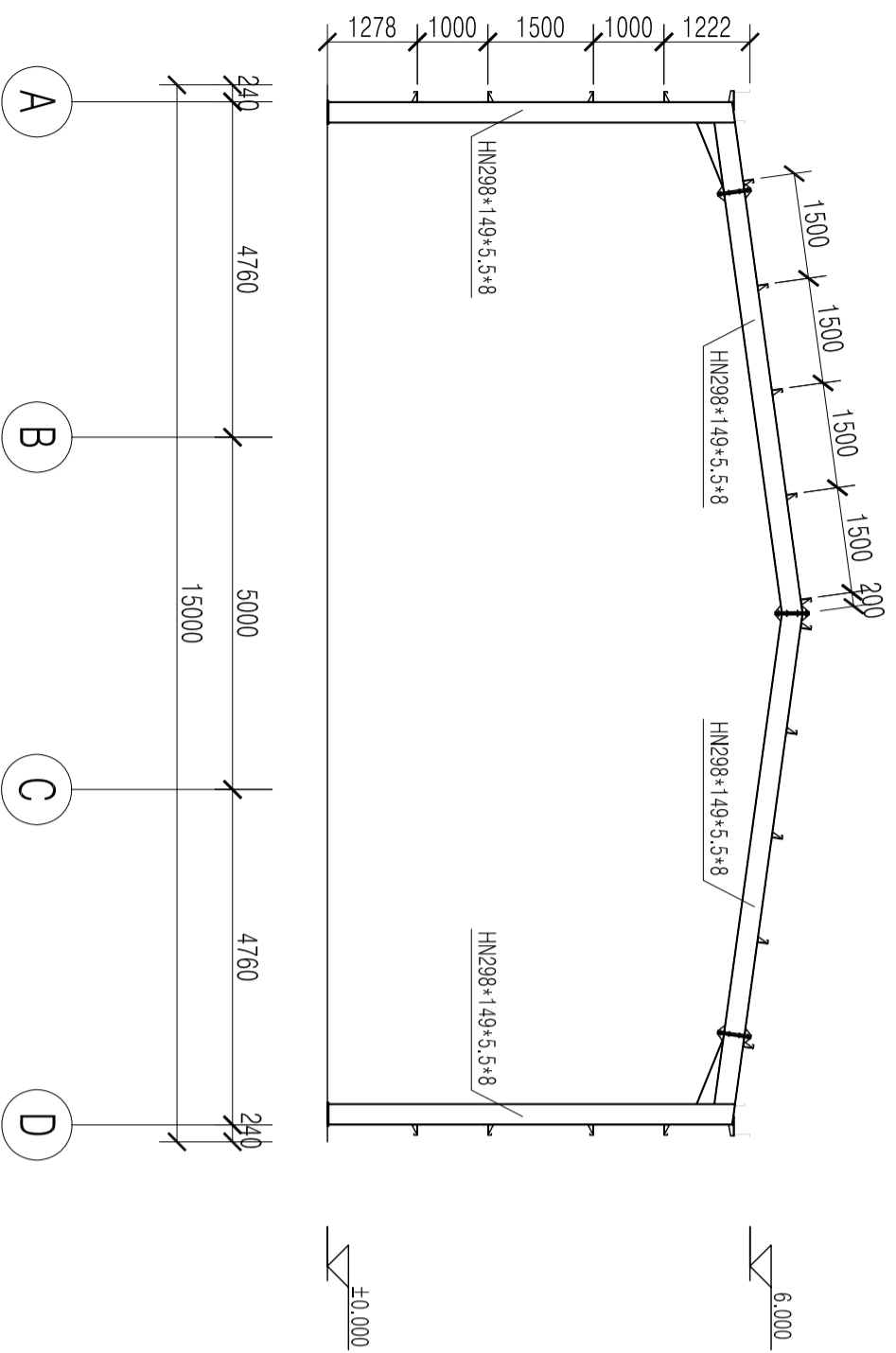


Layout for 5-1 axis' wall
steel structure plan 1:100

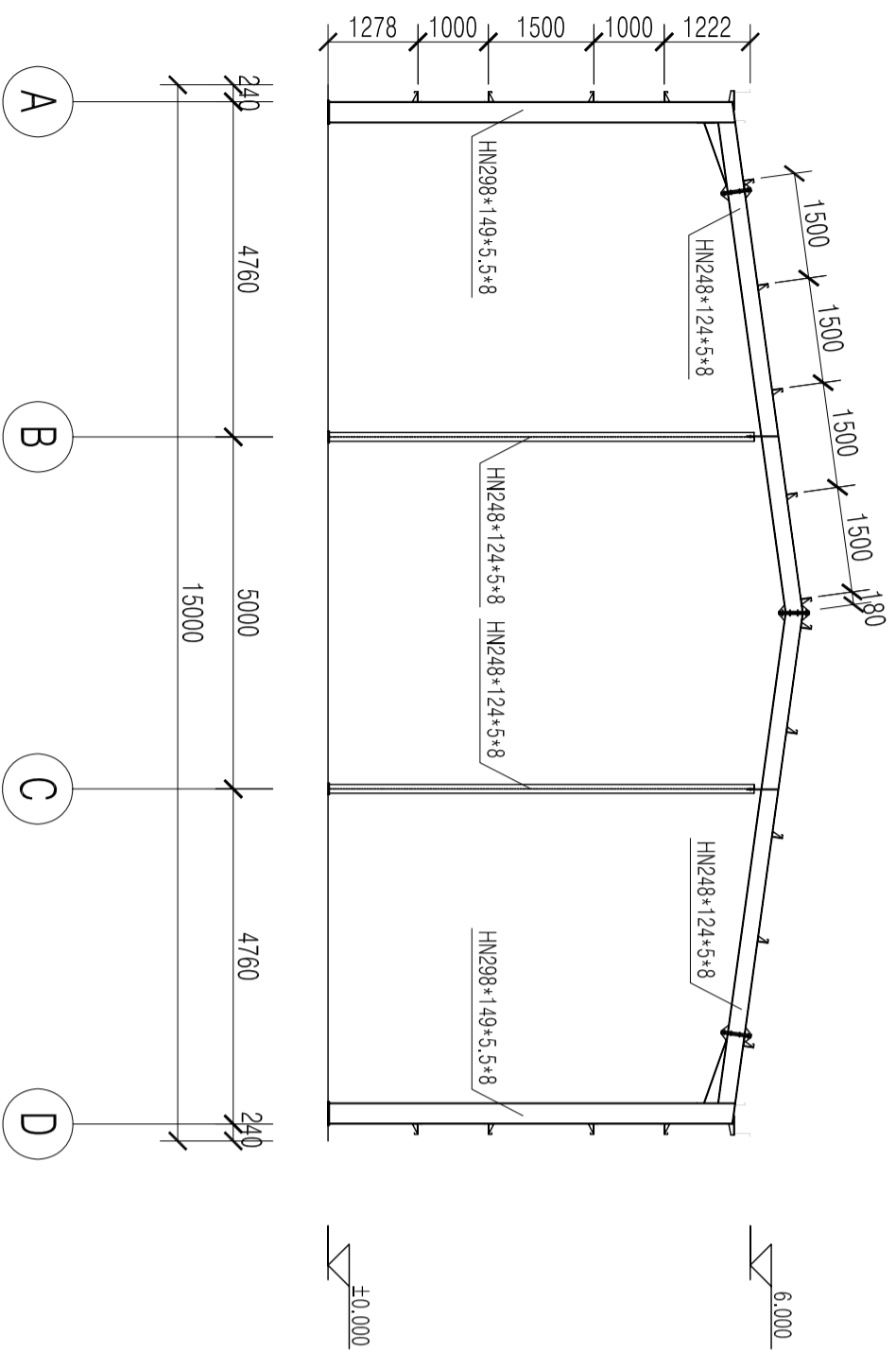


Layout for D-A axis' wall
steel structure plan 1:100

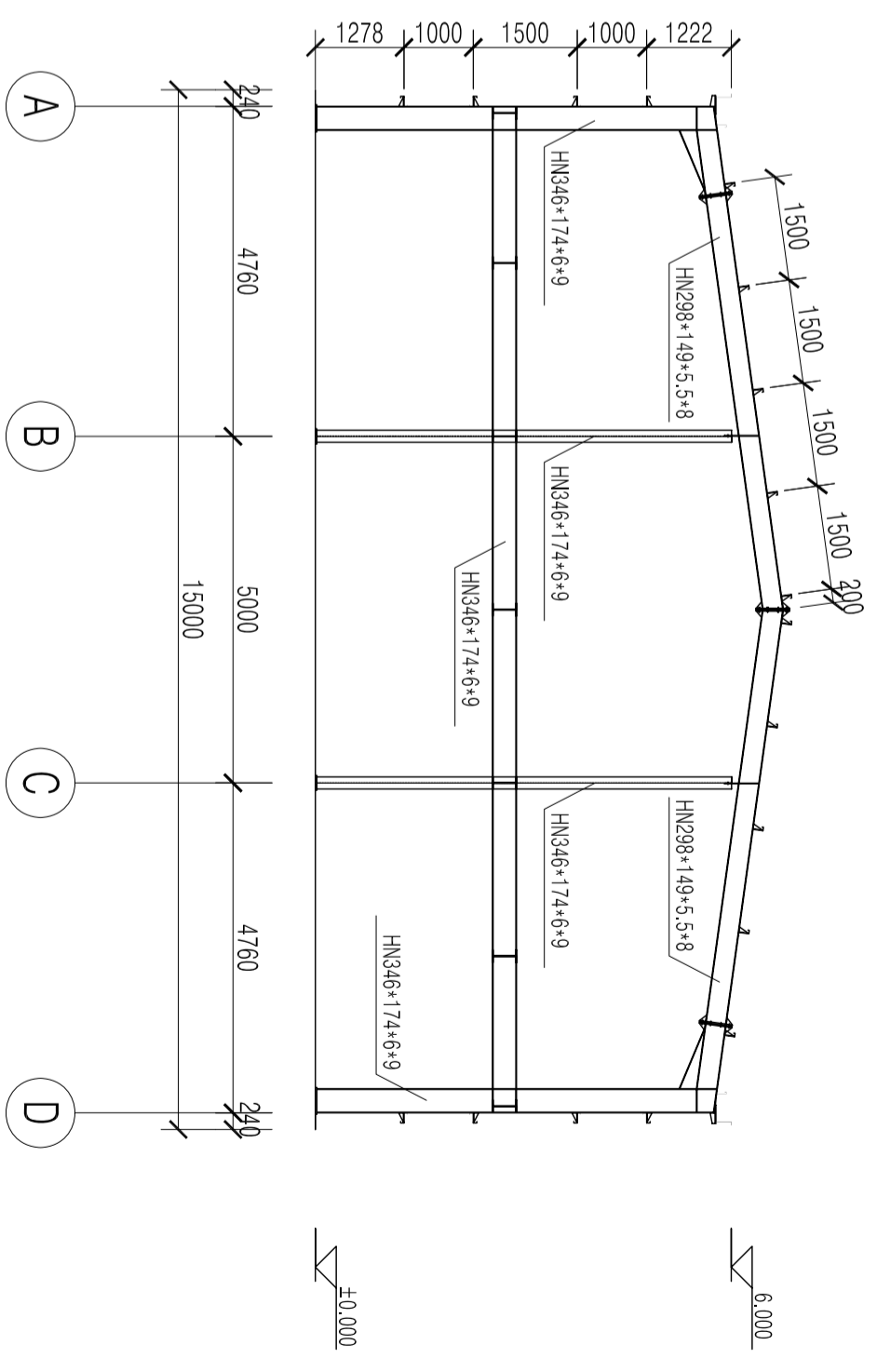
 普天钢结构 Hangzhou Putian Steel Structure Co., Ltd		Project Name 工程名称	Project No. 工程编号	Designer 设计人	Page 图号
20x15x6m		Wall steel structure plan	PTZLL1	2012.03.07	02
			Proposal	2012.03.07	1:100



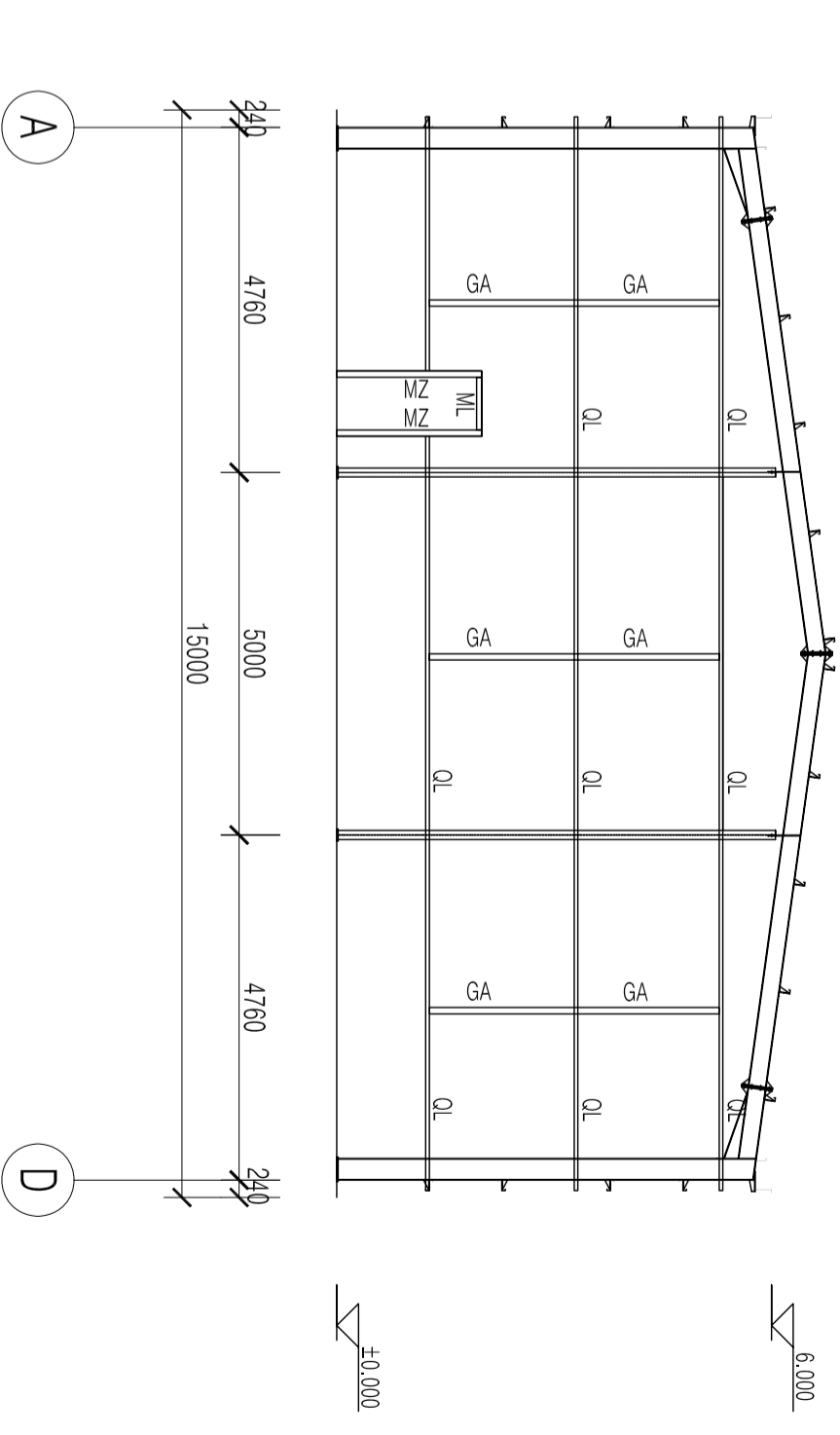
GJ-2 1:100



GJ-3 1:100



GJ-1 1:100



Layout for 2 axis wall purlin 1:100 plan

		Hangzhou Putian Steel Structure Co., Ltd	
Project name 工程名称	20x15x6m	Item 图名	GJ-1/2/3
Project No. 工程编号	PTZL1	Designer 设计人	
Category 设计阶段	Proposal	Date 日期	2012.03.07
Page 图号	02	Proportion 比例	1:100