



CONSTRUCTION
INDUSTRY COUNCIL
建造業議會

Bar Bender and Fixer Trade Test Mock Practical Test Paper

此文件關於鋼筋屈紮工工藝測試考題。如有需要索取此文件的中文版本，請致電 2100 9000 與香港建造業工藝測試中心聯絡。

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Enquiries

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Trade Test for Construction Craftsmen

Test Paper A :	
Bar Cutting & Bending	25%
Bar Fixing	75%

Trade : Bar Bender & Fixer

Grade : Skilled worker

- Test Content : 1. Cutting and bending of reinforcement (25 marks)
- i) Cut and bend reinforcement bars which are \varnothing 16mm or above with the provided cutting and bending machine.
 - ii) Cut reinforcement bars which are \varnothing 10 mm or below with the cutting machine and bend with stirrup bending machine.
2. Fixing of reinforcement structure according to drawings (75 marks)
provided
- i) W1 & W2 wall
 - ii) C1 & C2 column
 - iii) B1 & B2 beam
 - iv) S1 slab

Duration : 6 Hours (Not including lunch time)

- Notes :
- (1) Candidate should read the attached "Notes to Candidates" before commencement of work.
 - (2) Candidate will be marked as fail if he / she does not carry out safety precautions during the test.
 - (3) The test paper consists of 10 pages. Total mark is 100. Passing mark is 60.

Note to Candidate

1. Candidates should read the test papers carefully and ask the invigilator for any queries.
2. Candidates should study the drawings and specifications attached to the test paper, if any, before the test begins.
3. Candidates should carry out the test according to test papers, working drawings and specifications provided.
4. Candidates shall bring their own safety shoes, other safety equipment will be provided by trade testing centre. Candidates must take all necessary safety precautions to ensure work safety.
5. All tools and materials required by the test will be provided by trade testing centre, candidates should check and ensure their adequacy and quality. Candidates shall use the tools and materials properly based on trade practice. All the tools must be returned to trade testing centre after the test. The candidates may ask the invigilator for any problems.
6. Candidates are required to handle and move the tools and materials for use in the test, and to carry out associated works.
7. Invigilator will take record photos periodically during the test.
8. Candidates are not allowed to take any photo or video with cameras or mobile phones.
9. Candidates are not allowed to use their mobile phones during the trade tests, except for emergency situation.
10. The marking scheme is based on the following criteria :
 - a. Understanding of drawing and specification
 - b. Preparation works before commencement of test
 - c. Working procedures
 - d. Accuracy and quality of works
 - e. Progress of works
 - f. Proper handling and use of materials
 - g. Proper use of tools and equipment
 - h. Safety precautions
 - i. Considerate of other trades
 - j. House keeping after completion of test
11. All candidates must stop when time is up.
12. Candidates are required to return the test paper to invigilator after the test.
13. Offering bribe to invigilator is an offence in law and trade testing centre will report to the ICAC for any such case.

In the event that the candidate fails to take any necessary safety precautions and / or works in any dangerous situations, he / she will be assessed failed

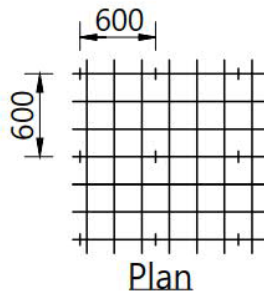
Construction Summary

Spacer

Slab & Staircase : -

Bottom Steel-Use plastic spacer, at max. allowable 600 mm in both directions.

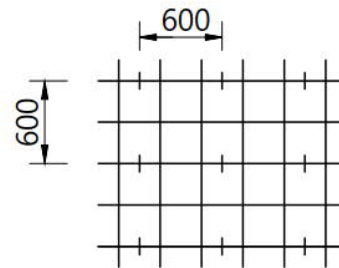
Top Steel- Use steel chairs, at max. allowable 600mm spacing in both directions.



Plan

Wall : -

Use ring type plastic spacers, clipped on horizontal bars. Spacing 600, horizontally and vertically, for each wall face.



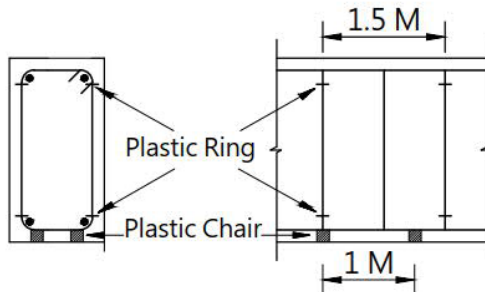
Elevation

Beams :-

Bottom & Side spacer- main bar $D \leq 25$: -

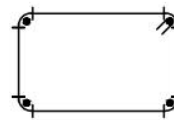
Bottom spacer- Use plastic chair type spacer, 2 Nos. per set, 1 set per 1M run of beam.

Side spacer-Use plastic ring type spacer, clipped on stirrups, 4 Nos. per set per 1.5M run of beam.



Column : -

Use plastic ring type spacer, clipped on binder.



Rectangular column
8Nos. per set



Circular column
6Nos. per set

For longitudinal bars

$D \leq 20$, one set at 1 M max. spacing

$D > 20$, one set at 1.25M max. spacing

Securing of Reinforcement

Slab & Staircase : -

- # Secure all edge intersections of panels
- # Secure every alternate intersections inside the panels, or closer.

Beam stirrups & Column binders : -

- # Secure longitudinal bars at corners, hooks & bends of stirrups & binders at all intersections.
- # Secure longitudinal bars other than above at alternate intersection with stirrups & binders, or closer.

Wall reinforcement : -

- # Secure the top horizontal bar below floor level of each lift at all intersection with vertical bars.
- # Secure other bars at alternate intersections, or closer.

Cantilever slab & Canopy reinforcement:-

- # Secure all intersections.

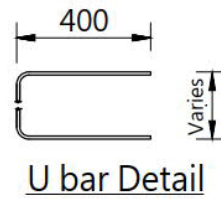
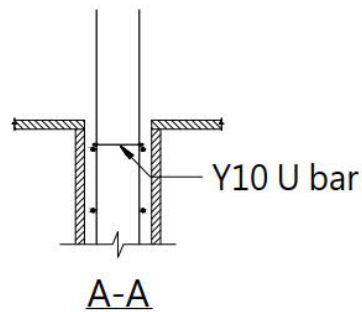
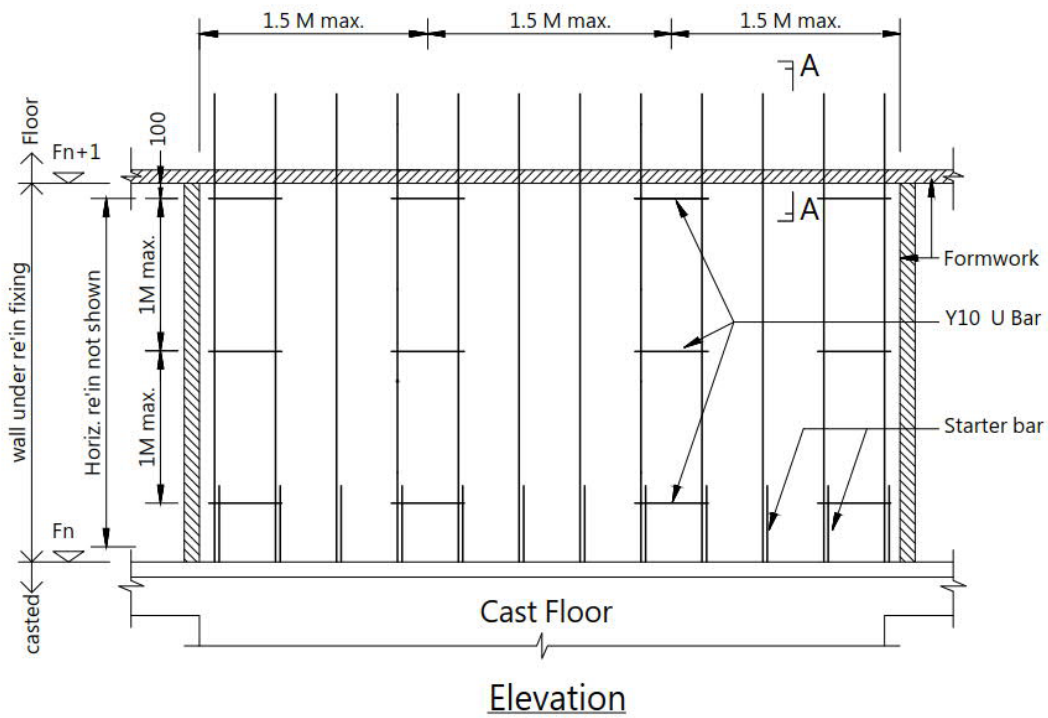
Steel bar lapping : -

- # At least two secure points.

Not to Scale
All Dimensions are in mm

Construction Summary

Fixing of wall reinforcement : -



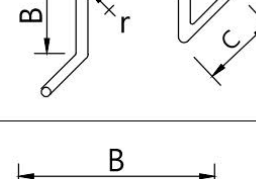

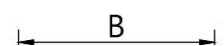
Mechanical operation : -

During the operation of the machine, the hand cannot enter or stay in the red area.

Working off the ground : -

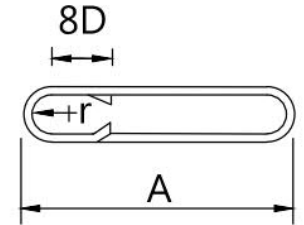
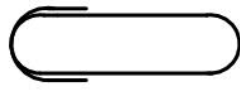
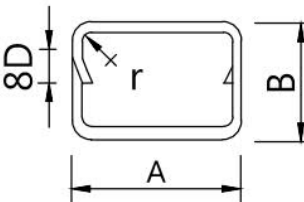

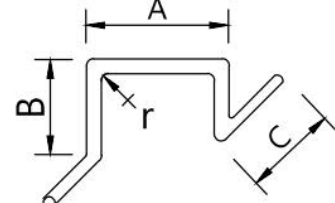
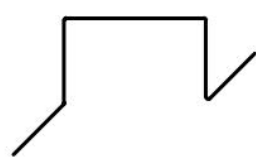
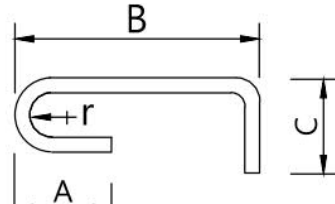
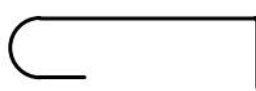
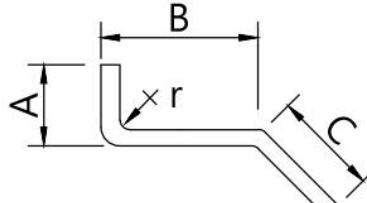
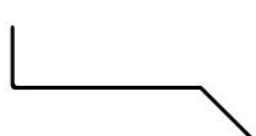
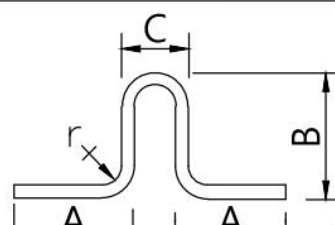

Candidates must use and transport the ladder provided by the workshop correctly.

Not to Scale
All Dimensions are in mm

03	or Y12		B = 200 C = 200	
		Chair		
				

1. Cutting & Bending of Reinforcement

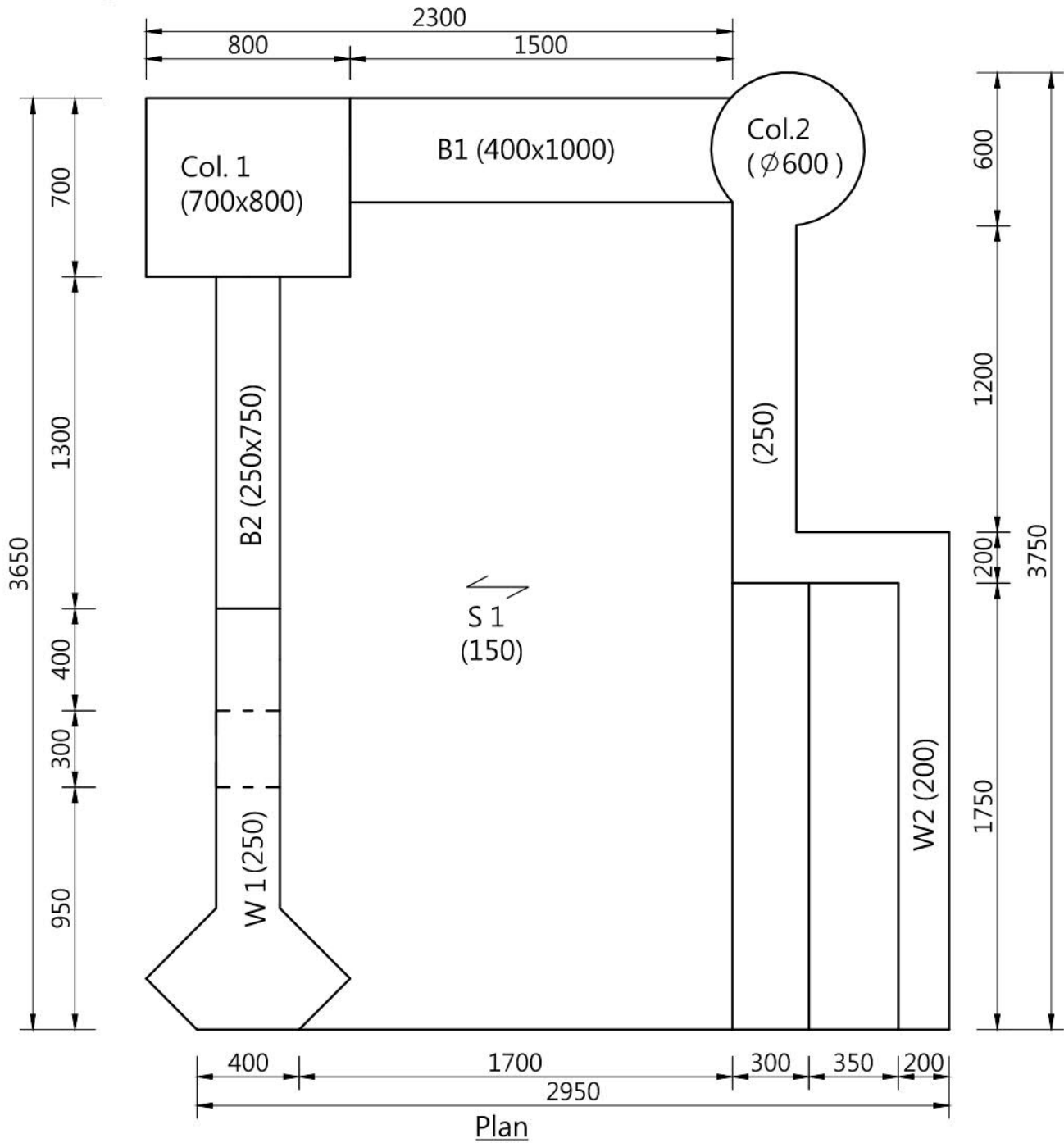
Candidates can be distributed for each of Y16/Y20 and Y10/Y12, 4 meters long, and the following materials are cut as required.

Item	Type	Specification	Length	Style
01	Y10 or Y12	 Mono Link	A = 450	
02	Y10 or Y12	 Torsional Link	A = 180 B = 270	
03	Y10 or Y12	 Chair	A = 200 B = 200 C = 200	
04	Y16 or Y20	 Hook & Right Angle	A = 250 B = 620 C = 250	
05	Y16 or Y20	 175 ~ 225 Staircase	A = 250 B = 620 C = 250	
06	Y16 or Y20	 Lifting Hook	A = 500 B = 300 C = 165	

Not to Scale
All Dimensions are in mm

r = Bending axial radius Y20 or under, r = 3D

2. Fixing of Reinforcement



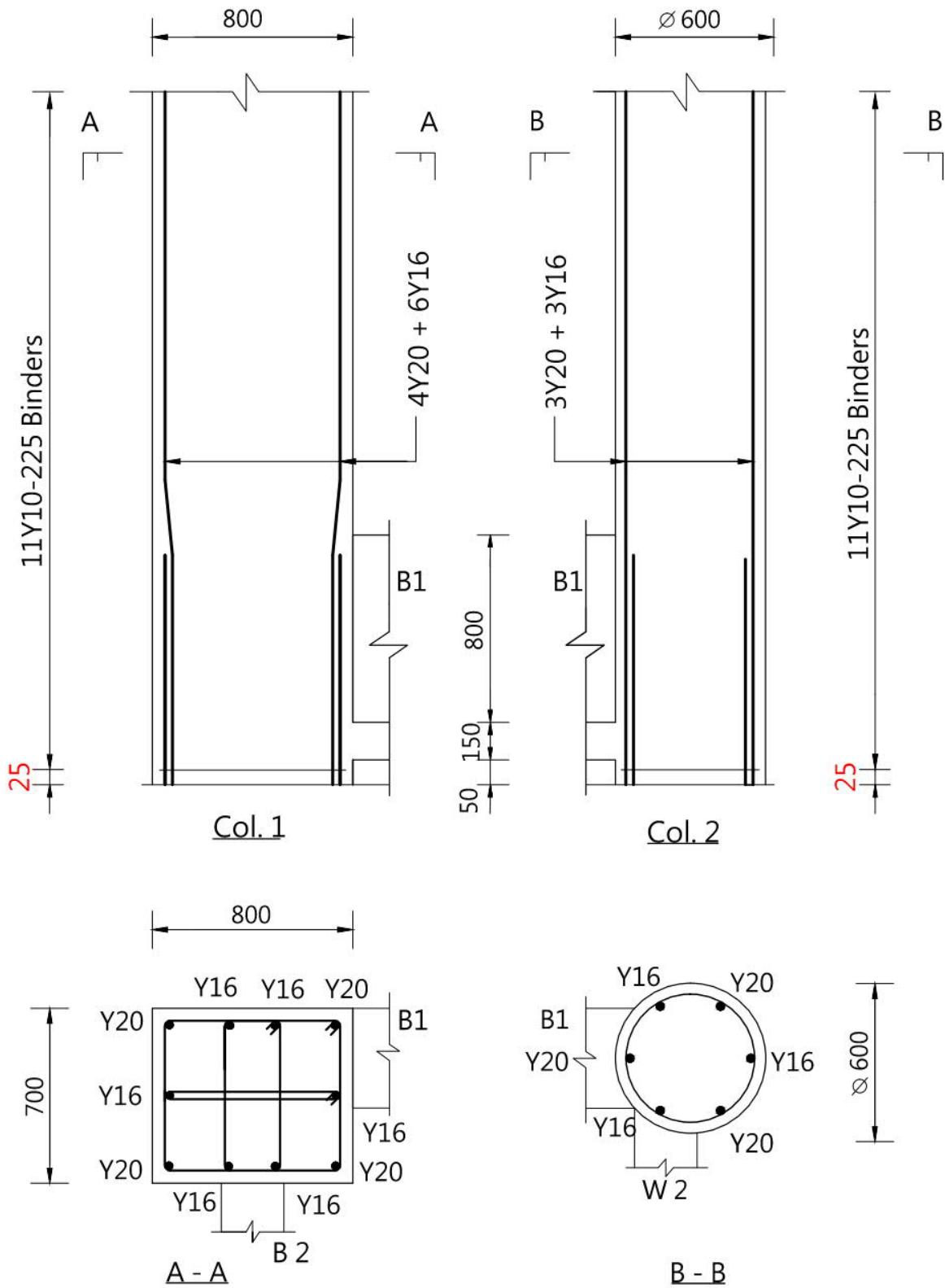
Outer Most Conc Cover	
Beam	40
Column	40
Wall	25
Slab	25

Unless stated, all the lapping & anchorage length to be 42xbar diameter (smallest bar size).

Y10	420
Y12	510
Y16	680
Y20	840
Y25	1050
Y32	1350
Y40	1680

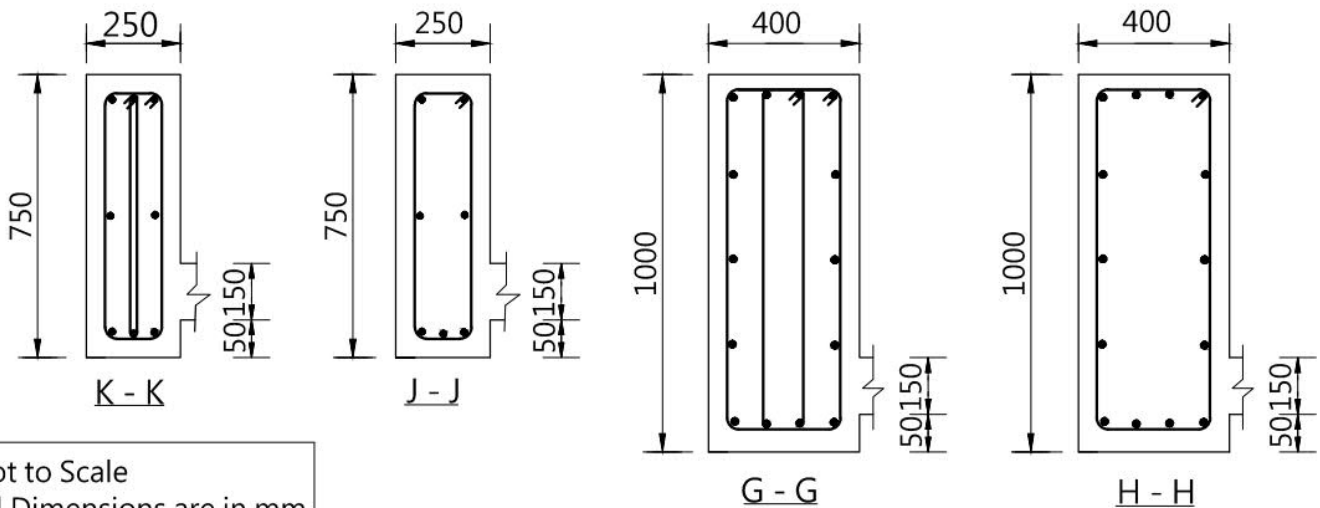
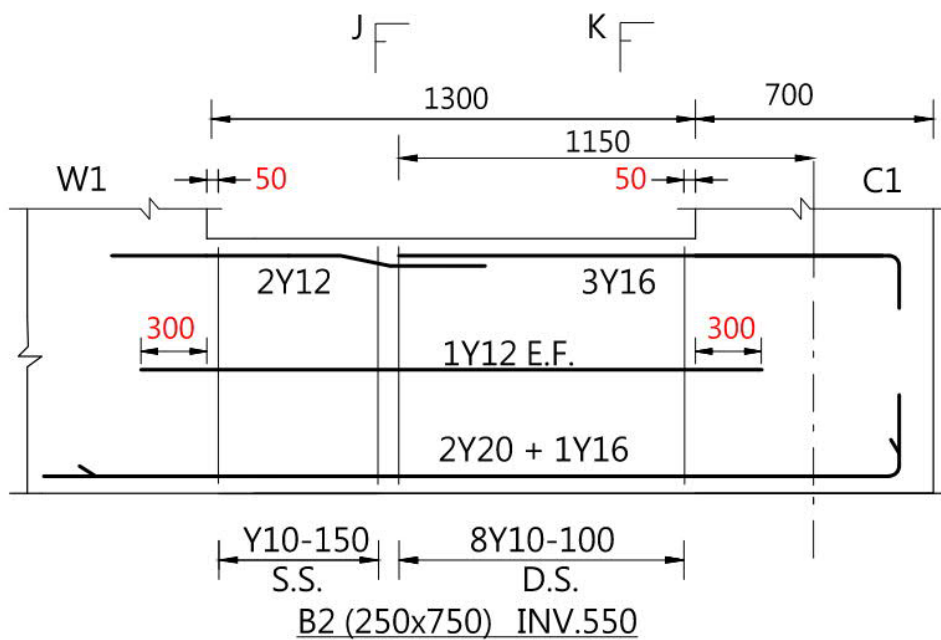
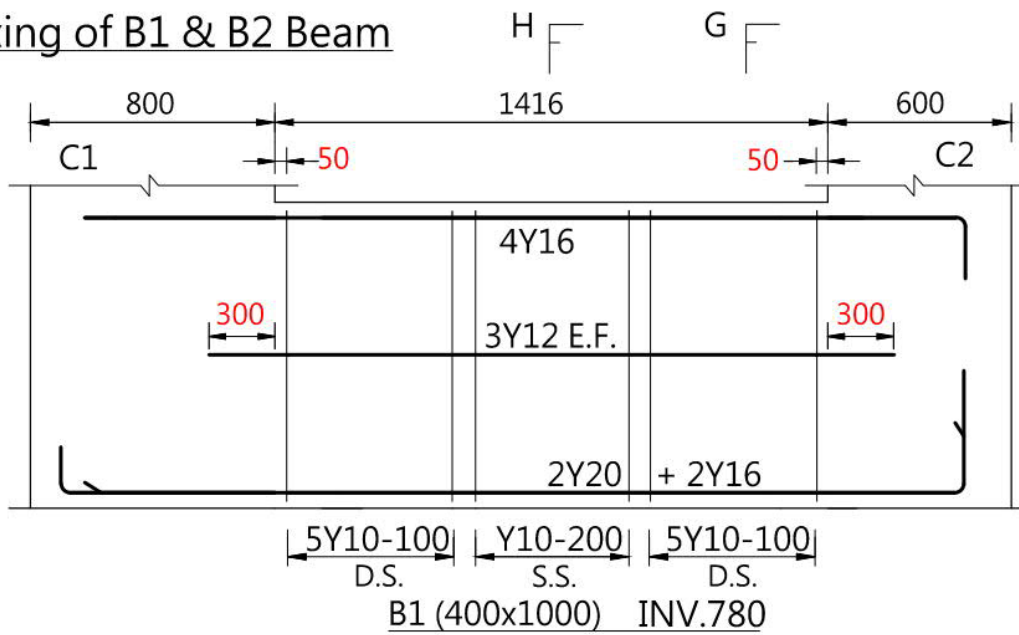
Not to Scale
All Dimensions are in mm

2. Fixing of C1 & C2 Column



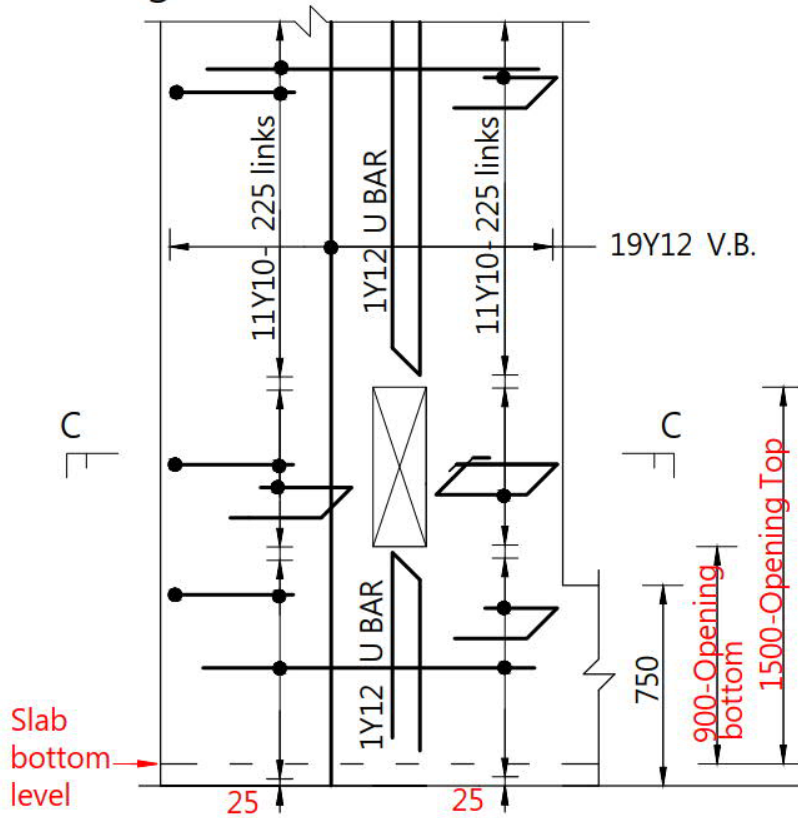
Not to Scale
All Dimensions are in mm

2. Fixing of B1 & B2 Beam



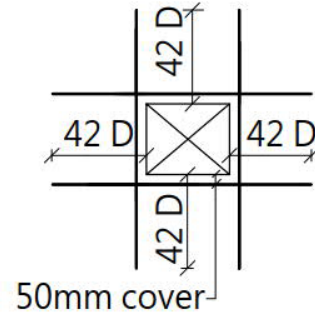
Not to Scale
All Dimensions are in mm

2. Fixing of W1 & W2 Wall

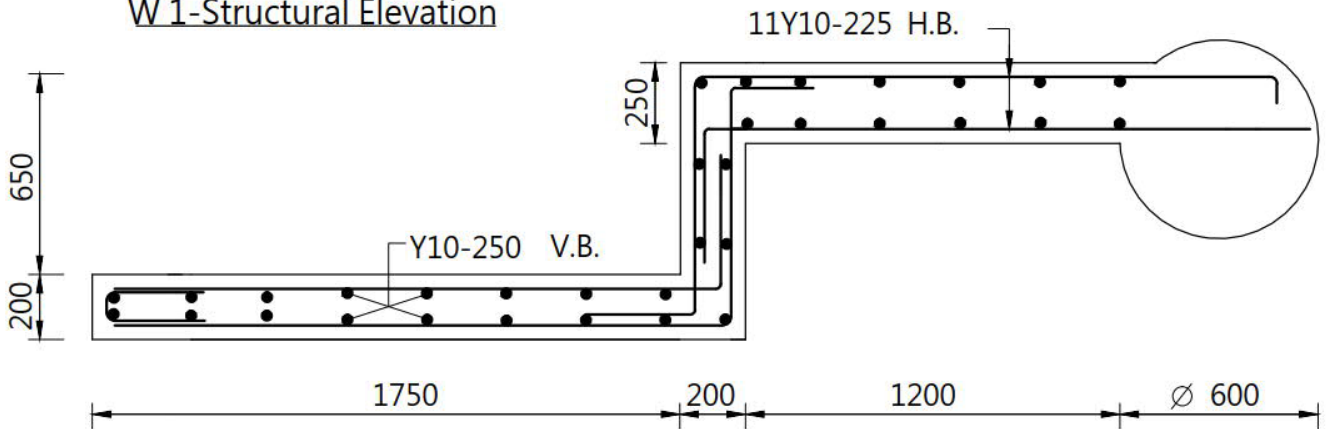


Wall opening trimming bar

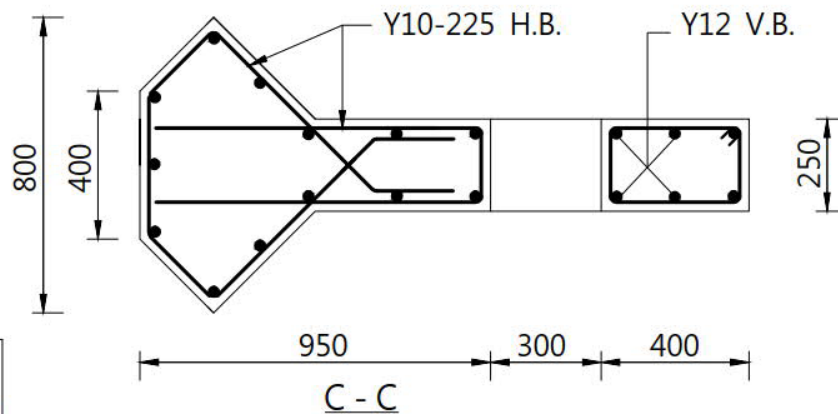
Wall tickness (mm)	Trimming bar
Under 200	8Y12
200 to 300	8Y16



W 1-Structural Elevation

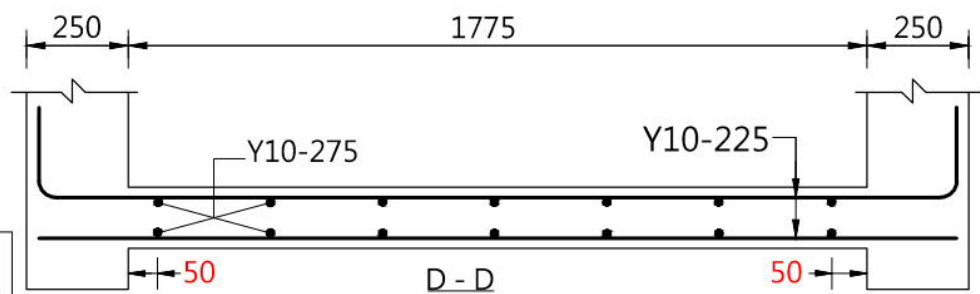
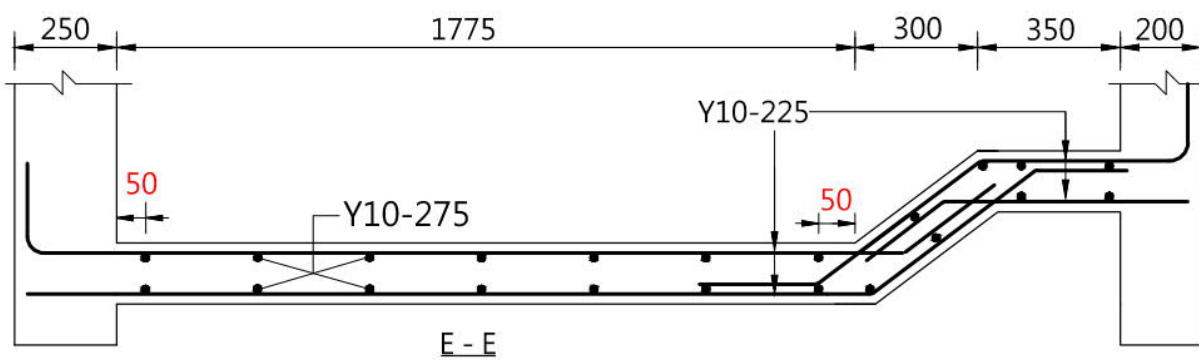
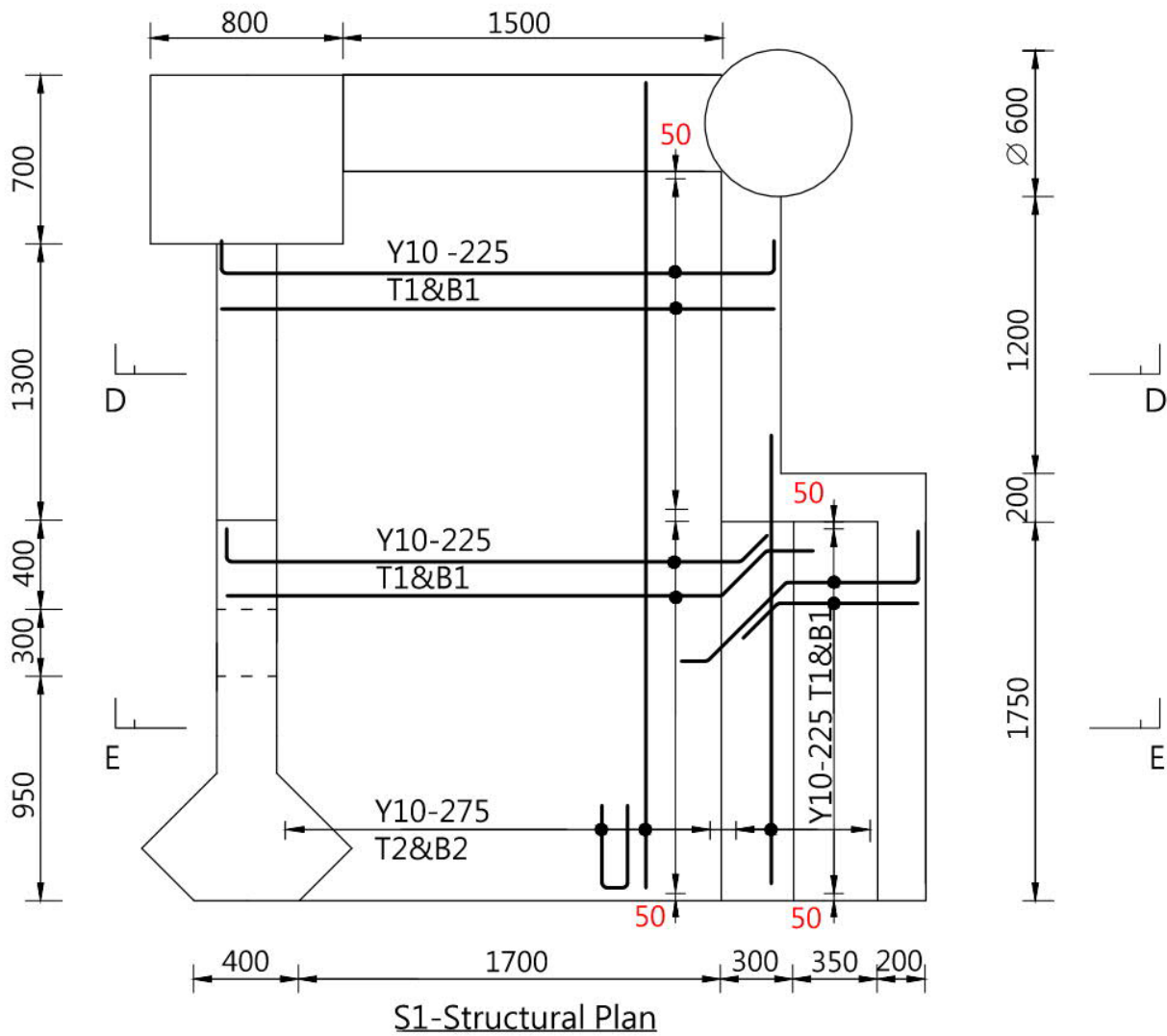


W 2-Structural Plan



Not to Scale
All Dimensions are in mm

2. Fixing of S1 Slab



Not to Scale
All Dimensions are in mm