

Multipurpose Hall, K Villimale School

Architectural Detail Drawings

Ministry of Education, Maldives

Date: Sunday, July 31, 2022
Project Number: EP/PRJ/2022/29



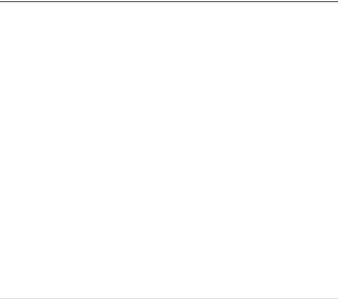
| Sheet Index | | | | | |
|-------------|---------------------------|----------|--------------------------|-------------------------------------|--------|
| Layout ID | Layout Name | Revision | Issued | Published | Remark |
| | Contents | | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Cover Arch | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.01.1 | Location Plan & Site Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.02.1 | Ground Floor Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.02.2 | 1st Floor Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.02.3 | Roof Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.03.1 | Section S1 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.04.1 | Elevation E1 & E2 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.04.2 | Elevation E3 & E4 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.05.1 | Door Window Schedule | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.05.2 | Door Window Schedule | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.05.3 | Door Window Schedule | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.05.4 | Door Window Schedule | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| A.05.5 | Ventilation Schedule | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |



Location Plan
1:300.45



Overview :



Legend :

Notes :

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| # | REVISION | BY | APP | DATE |

Project :
Multipurpose Hall, K Villimale
School

Client :
Ministry of Education, Maldives

Prepared by



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| DRAWN: F. Ihudha Amir | APPROVED: Ihsaan Waheed |

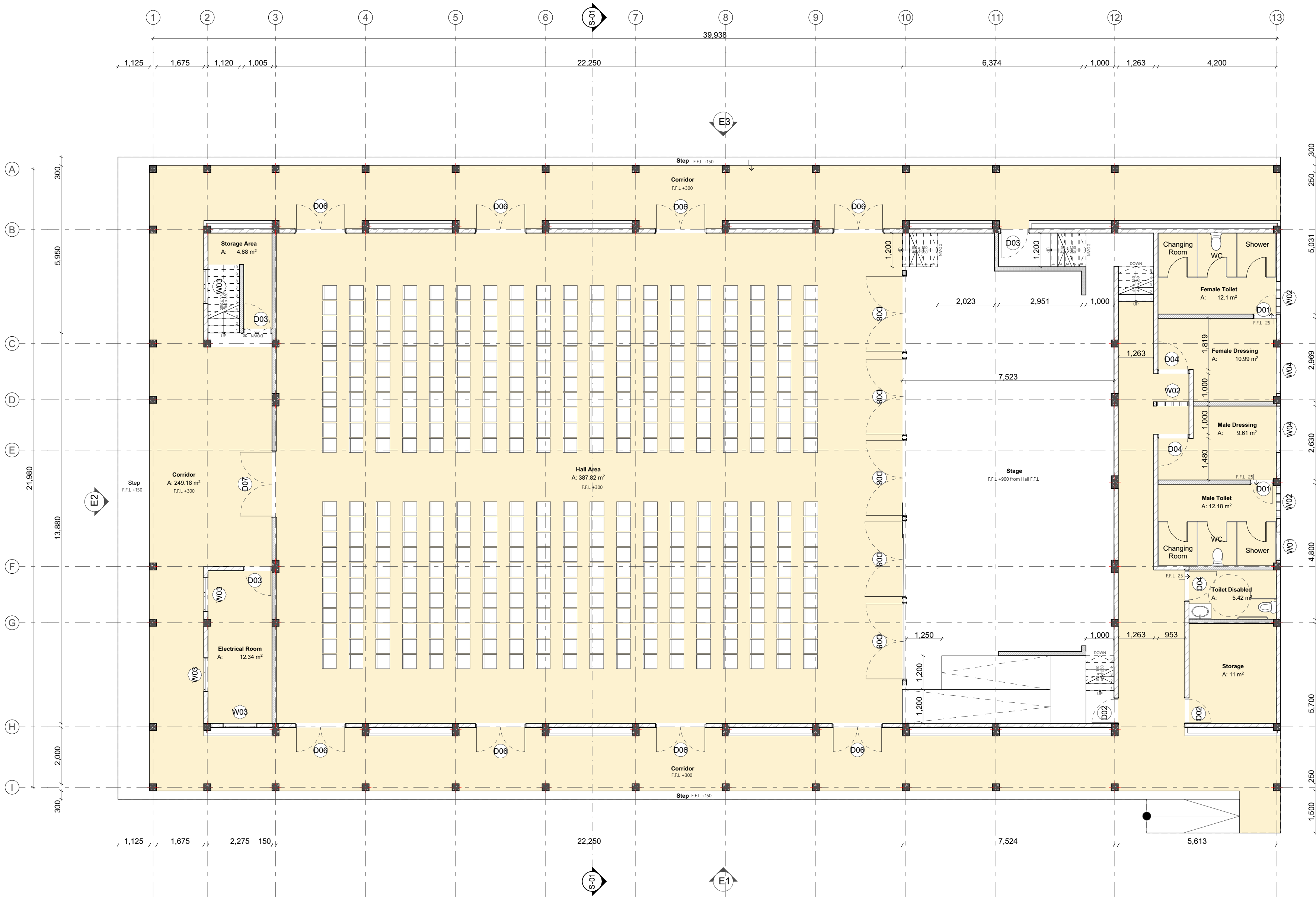
Page Title
Location Plan & Site Plan

Scale : 1:300.45

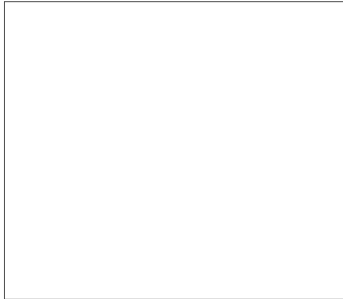
Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No : **Pg** : A.01.1



Overview :



Legend :

Notes :

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Page Title

Ground Floor Plan

Scale : 1:100, 1:1

Doc No : EP/BLD-AR/2022/29/AR-101/03

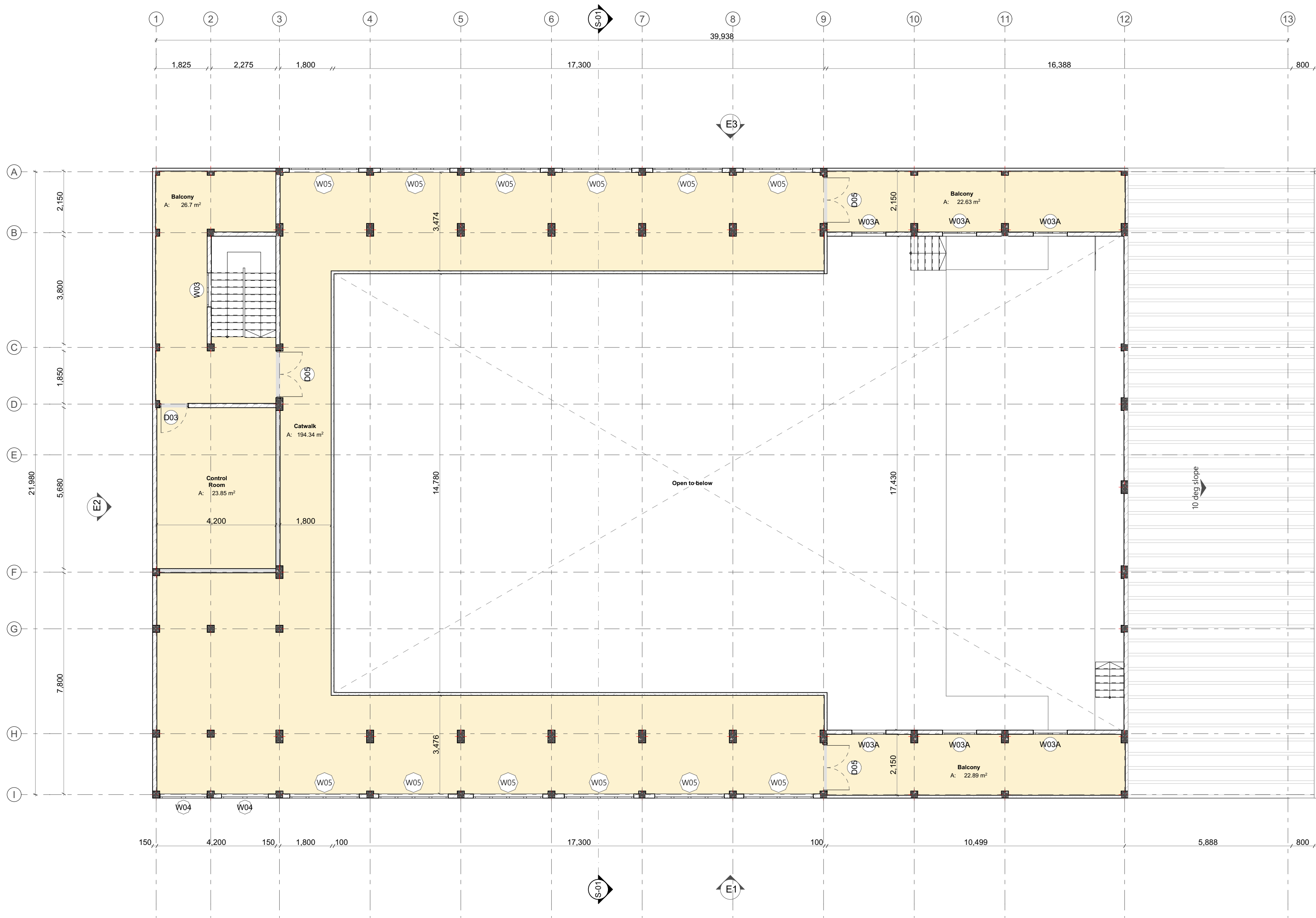
Date : Sunday, July 31, 2022

Rev No :

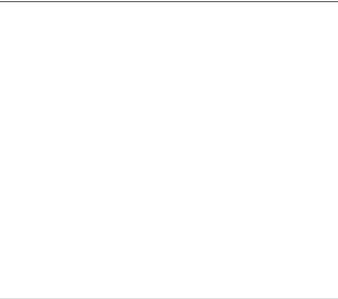
Pg : A.02.1

| Wall Legend | |
|-----------------|--|
| 2D Plan Preview | Description |
| | 100mm Thick RC parapet wall |
| | 100mm Thick solid masonry block exterior wall with 16mm plaster on both sides finished with smoothed putty and white gloss paint |
| | 150mm Thick solid masonry block exterior wall with 16mm plaster on both sides finished with smoothed putty and white gloss paint |
| | 150mm Thick solid masonry block interior wall with 16mm plaster on both sides finished with smoothed putty and white gloss paint |

| Zone schedule | | | | | | |
|--------------------|-----------------|------------|-------------|---|---------------|---|
| Home Story | Zone Name | Area (sqm) | Floor Level | Floor Finishes | Ceiling Level | Ceiling Finishes |
| Ground Floor Level | | | | | | |
| | Corridor | 249.18 | +275 | Self leveling cement floor screed with epoxy floor paint finish | +3475 | Exposed slab soffit to be finished with ground smooth finish in selected paint |
| | Electrical Room | 12.34 | +300 | Self leveling cement floor screed with epoxy floor paint finish | +3475 | Exposed slab soffit to be finished with ground smooth finish in selected paint |
| | Female Dressing | 10.99 | +300 | 300 X 300mm Homogenous non-slip tiles over 50mm screed | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |
| | Female Toilet | 12.10 | +275 | 300 X 300mm Homogenous non-slip tiles over 50mm screed | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |
| | Hall Area | 387.82 | +300 | Self leveling cement floor screed with epoxy floor paint finish | +7151 | Suspended acoustic ceiling system with aluminium framing |
| | Male Dressing | 9.61 | +300 | 300 X 300mm Homogenous non-slip tiles over 50mm screed | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |
| | Male Toilet | 12.18 | +275 | 300 X 300mm Homogenous non-slip tiles over 50mm screed | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |
| | Storage | 11.00 | +300 | Self leveling cement floor screed with epoxy floor paint finish | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |
| | Storage Area | 4.88 | +300 | Self leveling cement floor screed with epoxy floor paint finish | +3475 | Exposed slab soffit to be finished with ground smooth finish in selected paint |
| | Toilet Disabled | 5.42 | +275 | 300 X 300mm Homogenous non-slip tiles over 50mm screed | +2600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint |



Overview :



Legend :

Notes :

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Page Title
1st Floor Plan

Scale : 1:100, 1:1

Doc No : EP/BLD-AR/2022/29/AR-T01/03

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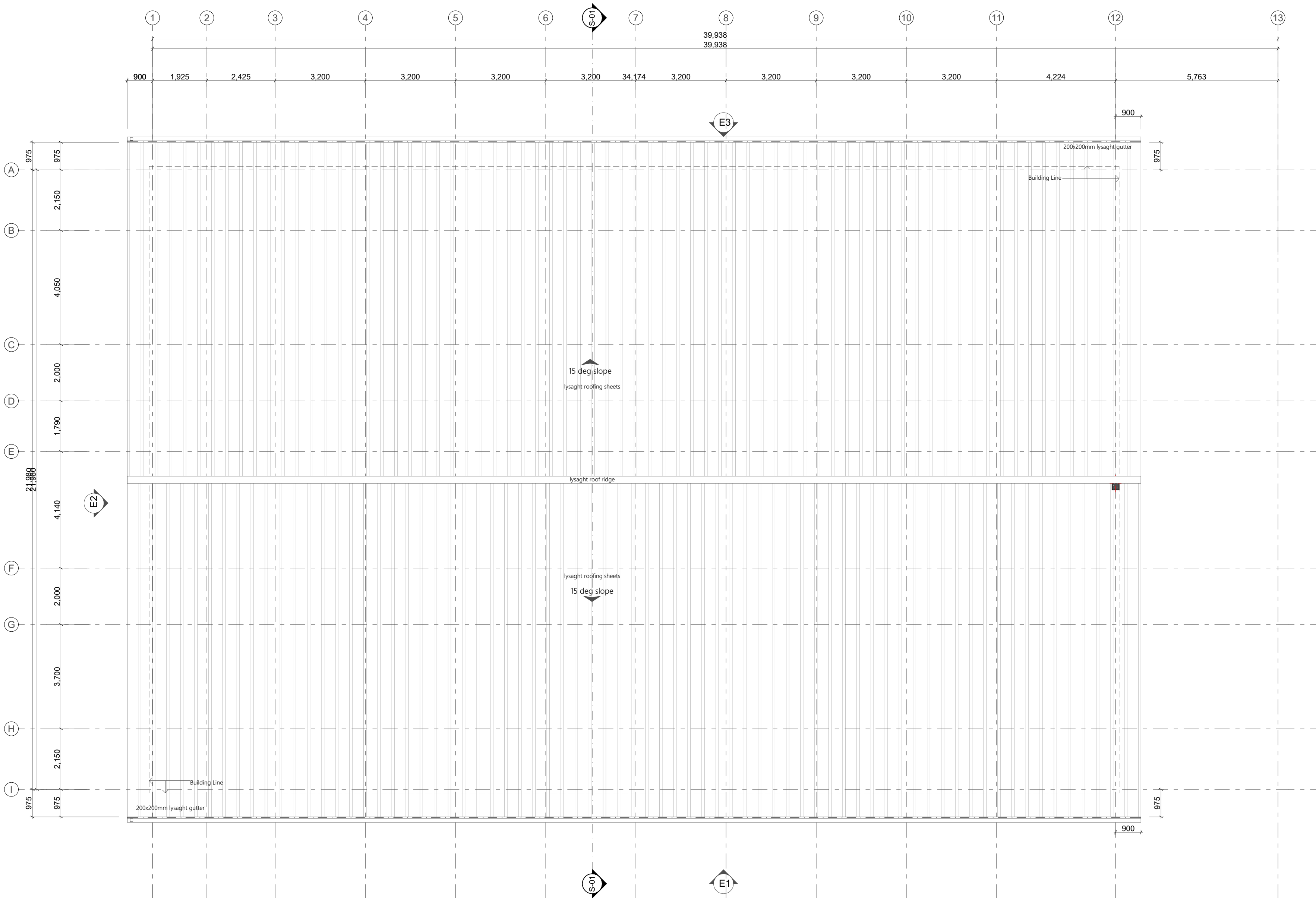
Rev No :

Pg : A.02.2

First Floor Level
1:100

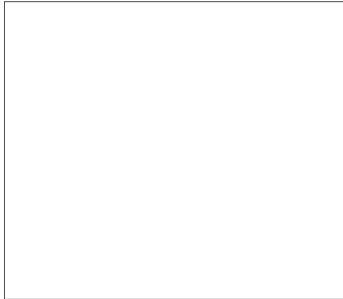
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| Zone schedule | | | | | | | |
|---------------|--------------|------------|-------------|--|---------------|---|---|
| Home Story | Zone Name | Area (sqm) | Floor Level | Floor Finishes | Ceiling Level | Ceiling Finishes | Wall Finishes |
| | Balcony | 72.22 | +3650 | Self Levelling cement floor screed with bituminous waterproofing agent | +6600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint | 16mm plaster, applied with ground smooth finished with selected paint |
| | Catwalk | 194.34 | +3650 | Self Levelling cement floor screed with bituminous waterproofing agent | +6600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint | 16mm plaster, applied with ground smooth finished with selected paint |
| | Control Room | 23.85 | +3650 | Self Levelling cement floor screed with bituminous waterproofing agent | +6600 | Cementboard ceiling fixed to timber frames, with ground smooth finish in selected paint | 16mm plaster, applied with ground smooth finished with selected paint |



Roof Beam Level
1:100

Overview :



Legend :

Notes :

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Page Title
Roof Plan

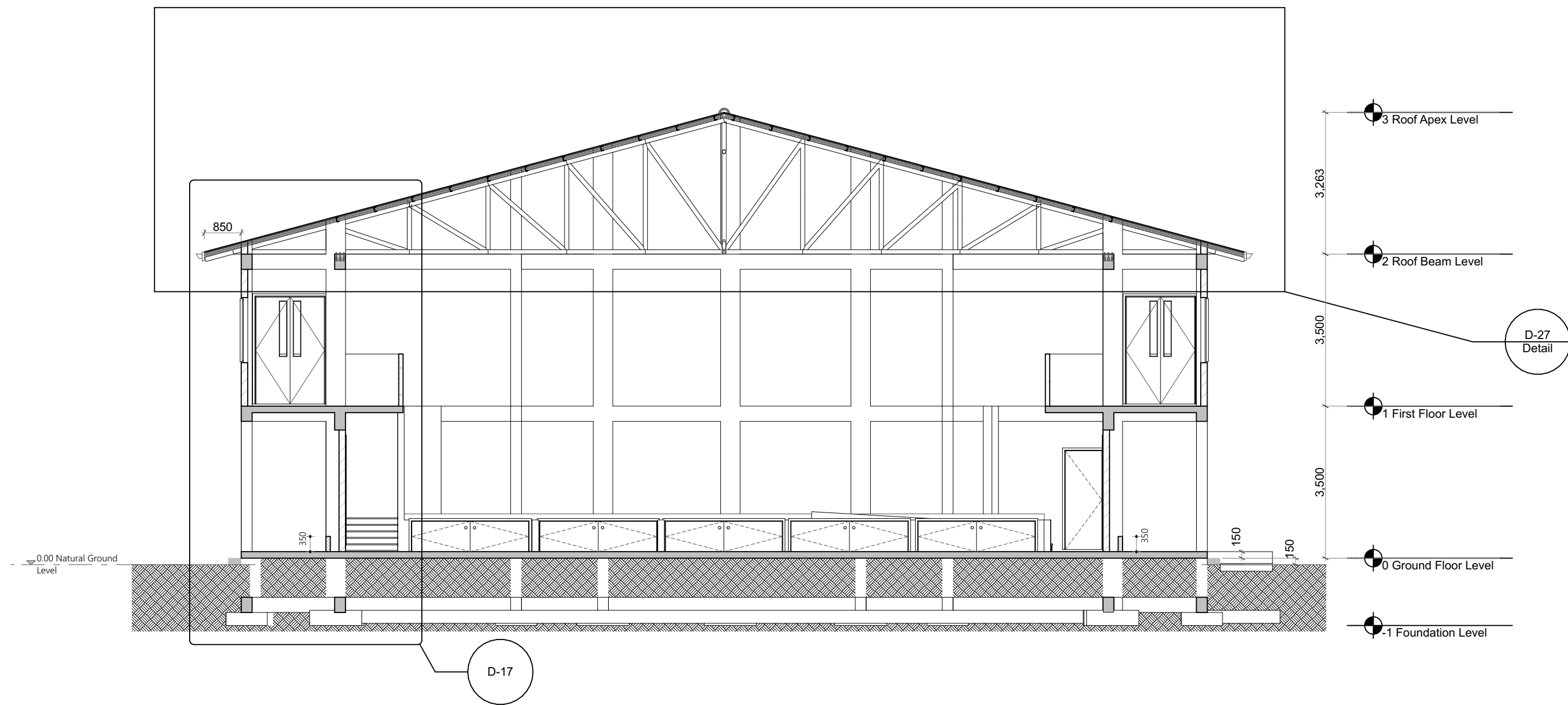
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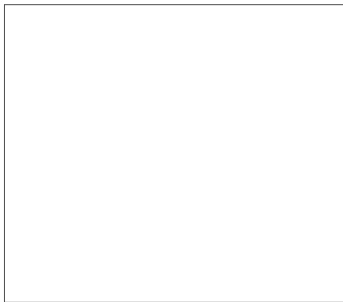
Rev No :

Pg : A.02.3



Section S01
1:100

Overview :



Legend :

Notes :

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Page Title
Section S1

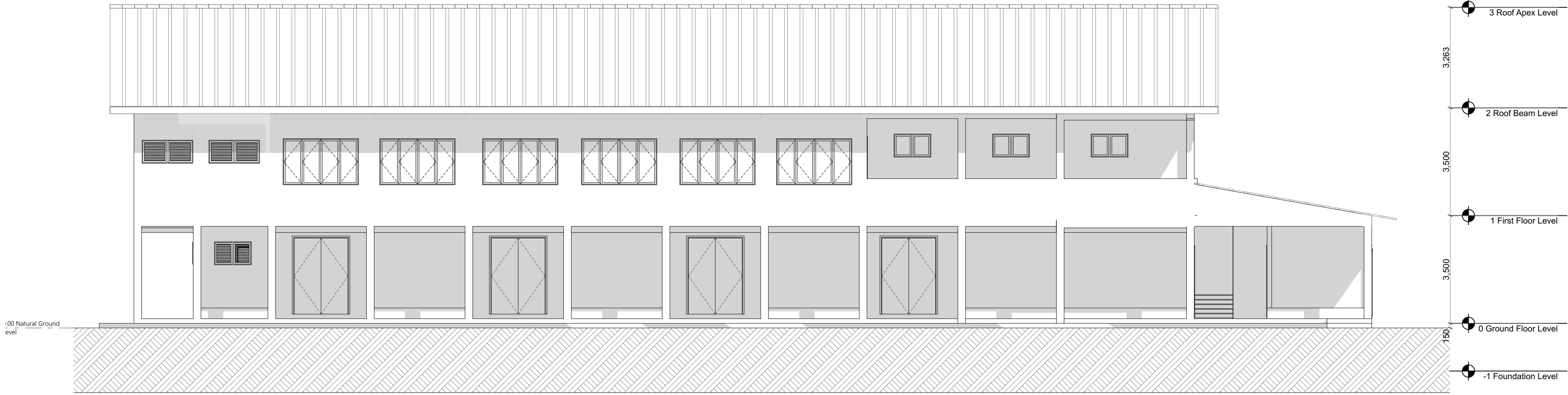
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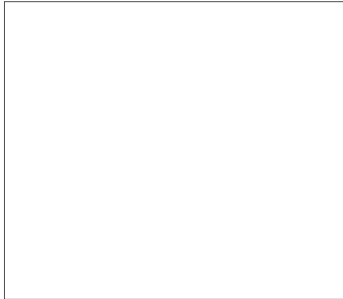
Rev No :

Pg : A.03.1

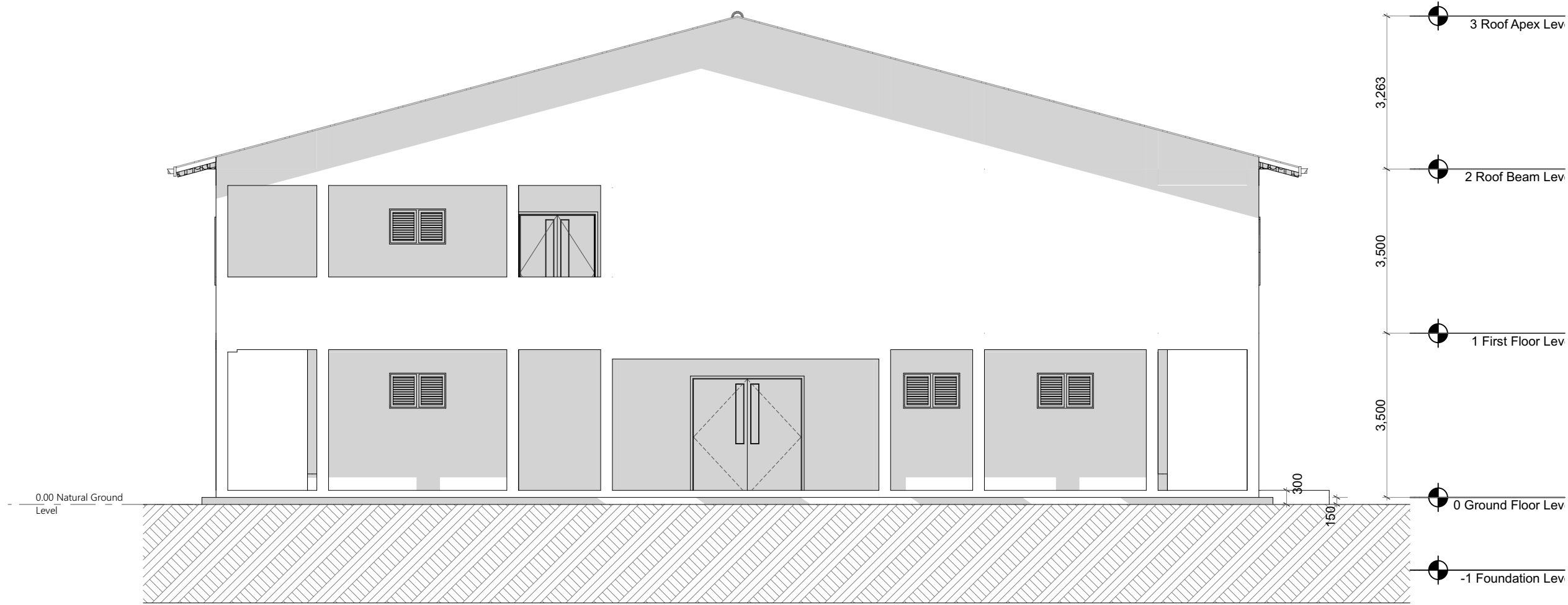


Elevation E1
1:100

Overview :



Legend :



Elevation E2
1:100

Notes :

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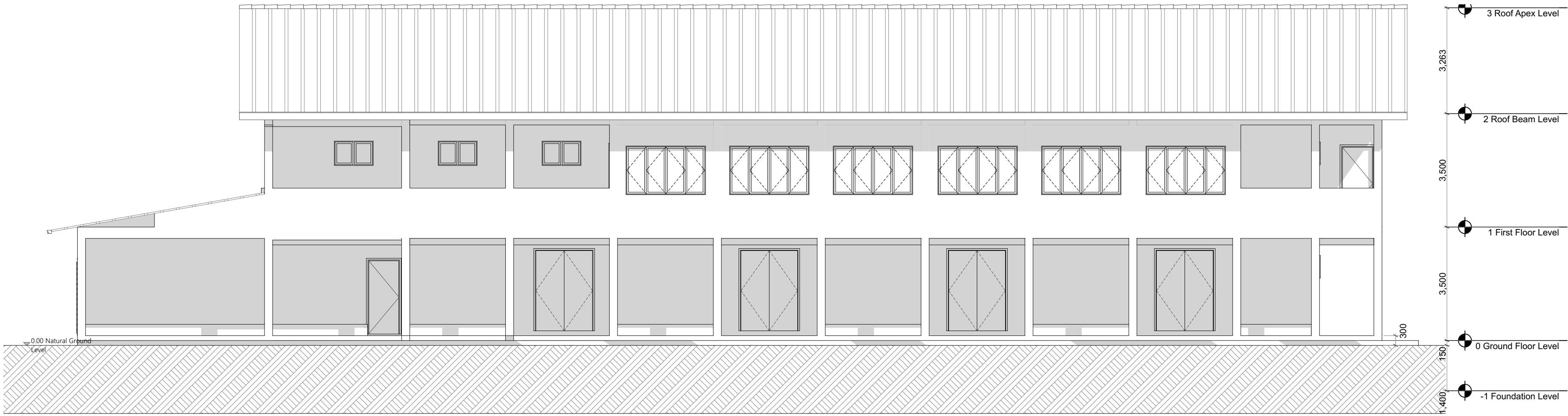
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Elevation E1 & E2

Scale : 1:100

Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No : **Pg :** A.04.1

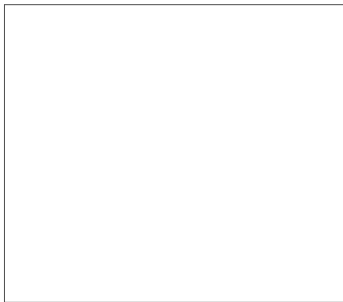


Elevation E3



Elevation E4

Overview :



Legend :

Notes :

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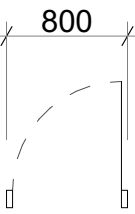

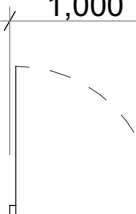


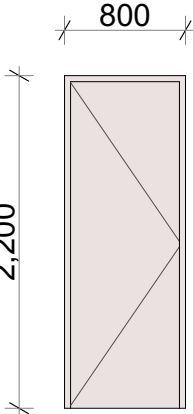
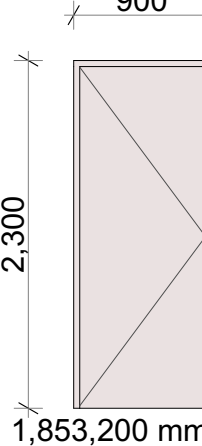
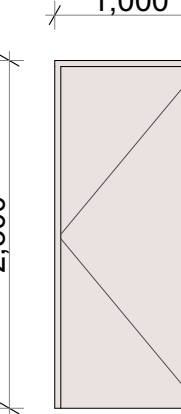
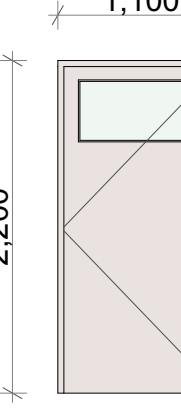
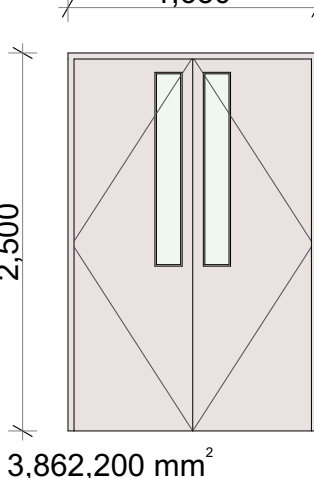
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Elevation E3 & E4

Scale : 1:100

Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No : Pg : A.04.2

| All Openings Schedule | | | | | |
|---|--|--|--|--|--|
| Element ID | D01 | D02 | D03 | D04 | D05 |
| Quantity | 2 | 2 | 4 | 3 | 3 |
| W x H Size | 800×2,200 | 900×2,300 | 1,000×2,300 | 1,100×2,200 | 1,650×2,500 |
| Head Height | 2,400 | 2,500 | 2,500 | 2,500 | 2,550 |
| Sill Height | 200 | 200 | 200 | 300 | 50 |
| 2D Symbol |  |  |  |  |  |
| View from Side Opposite to Opening Side |  |  |  |  |  |
| Frame | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish |
| Glass | (No Glazing) | (No Glazing) | (No Glazing) | Clear Glass | Clear Glass |
| Leaf | Powder Coated Aluminium cladding sheet of selected colour finish | Powder Coated Aluminium cladding sheet of selected colour finish | Powder Coated Aluminium cladding sheet of selected colour finish | Powder Coated Aluminium cladding sheet of selected colour finish | Powder Coated Aluminium cladding sheet of selected colour finish |

Door and Window Notes

Dimensions shown on DWG indicate effective openings of frame

All frame depth are 100mm
All door panel thicknesses are 35mm
All window manel thickness are 25mm
All frame edges shall be trimmed 3mm

All wooden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12 X 12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of all functions of the units

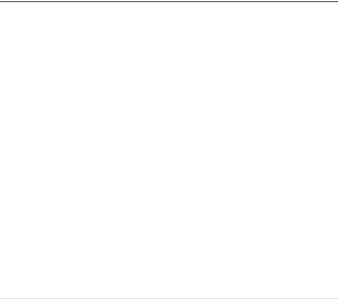
Hinges shall confirm to

- Door size more than 700X900mm
WD: 125mm X 2 sets
SD: 150mm X 3 sets
- Door size less than 700 X 1900mm
WD: 100mm X 2 sets
SD: 125mm X 2 sets

Locks shall be cylindrical with master key sets

Door knobs shall be 1000mm above FFL

Overview :



Legend :

Notes :

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Page Title
Door Window Schedule

Scale : 1:10, 2:1

Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No :

Pg : A.05.1

| All Openings Schedule | | | | |
|---|--|--|----------------------|---|
| Element ID | D06 | D07 | D08 | W01 |
| Quantity | 8 | 1 | 5 | 1 |
| W x H Size | 1,800×2,500 | 2,350×2,500 | 2,740×725 | 1,000×2,200 |
| Head Height | 2,800 | 2,550 | 875 | 2,400 |
| Sill Height | 300 | 50 | 150 | 200 |
| 2D Symbol | | | | |
| View from Side Opposite to Opening Side | | | | |
| Frame | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish | Hard Wood Solid Core | Powder Coated Aluminium of selected colour finish |
| Glass | (No Glazing) | Clear Glass | (No Glazing) | (No Glazing) |
| Leaf | Powder Coated Aluminium cladding sheet of selected colour finish | Powder Coated Aluminium cladding sheet of selected colour finish | Hard Wood Solid Core | --- |

Door and Window Notes

Dimensions shown on DWG indicate effective openings of frame

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All door panel thicknesses are 35mm
All window manel thickness are 25mm
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All wooden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12 X 12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of all functions of the units

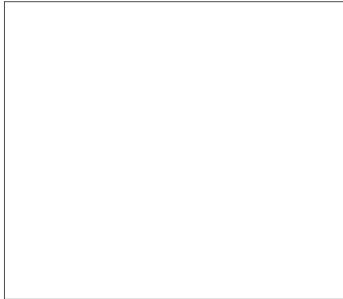
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Overview :



Legend :

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Page Title

Door Window Schedule

Scale : 1:10, 2:1

Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No :

Pg : A.05.2

| All Openings Schedule | | | | |
|---|------------------------------------|---|---|---|
| Element ID | W02 | W03 | W03A | W04 |
| Quantity | 3 | 5 | 6 | 4 |
| W x H Size | 1,160×2,600 | 1,200×750 | 1,200×750 | 1,650×750 |
| Head Height | 2,650 | 2,650 | 2,650 | 2,450 |
| Sill Height | 50 | 1,900 | 1,900 | 1,700 |
| 2D Symbol | | | | |
| View from Side Opposite to Opening Side | | | | |
| Frame | Powder coated Aluminum (60 micron) | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish | Powder Coated Aluminium of selected colour finish |
| Glass | --- | (No Glazing) | Clear Glass | (No Glazing) |
| Leaf | --- | --- | --- | --- |

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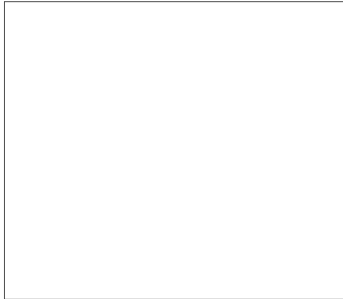
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Prepared by



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Page Title

Door Window Schedule

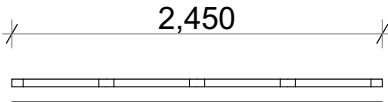
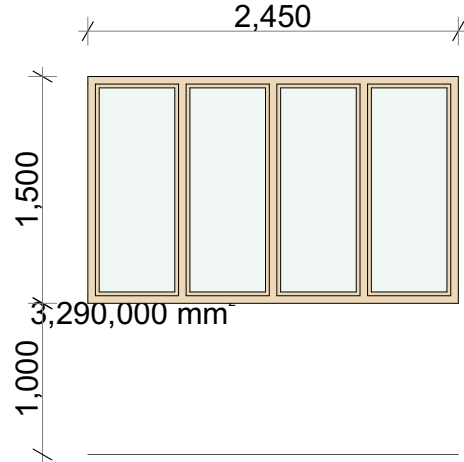
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Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No :

Pg : A.05.3

| All Openings Schedule | |
|---|---|
| Element ID | W05 |
| Quantity | 12 |
| W x H Size | 2,450×1,500 |
| Head Height | 2,500 |
| Sill Height | 1,000 |
| 2D Symbol |  |
| View from Side Opposite to Opening Side |  |
| Frame | Wood - Pine Grained Horizontal |
| Glass | Clear Glass |
| Leaf | --- |

Door and Window Notes

Dimensions shown on DWG indicate effective openings of frame

All frame depth are 100mm
All door panel thicknesses are 35mm
All window manel thickness are 25mm
All frame edges shall be trimmed 3mm

All wooden components should be wood stained finish

All glazing should be of 6mm unless specified

External units must comply the following weather conditions:-
Wind pressure: 200 kg/sqm
Water tightness: 25 kg/sqm

All external frames / wall joints must be sealed with silicon sealant and the wedges trimmed with 12 X 12mm hardwood beading fixed to frames by brass nails

All hardware should be provided for the performance of all functions of the units

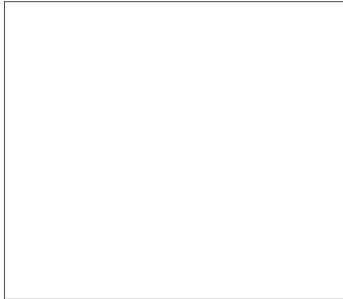
Hinges shall confirm to

- Door size more than 700X900mm
WD: 125mm X 2 sets
SD: 150mm X 3 sets
- Door size less than 700 X 1900mm
WD: 100mm X 2 sets
SD: 125mm X 2 sets

Locks shall be cylindrical with master key sets

Door knobs shall be 1000mm above FFL

Overview :



Legend :

Notes :

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| # | REVISION | BY | APP DATE |

Project :

Multipurpose Hall, K Villimale School

Client :

Ministry of Education, Maldives

Prepared by



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Door Window Schedule

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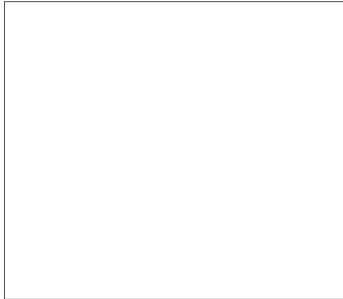
Date : Sunday, July 31, 2022

Rev No :

Pg : A.05.4

| Ventilation Schedule | | | | | | |
|----------------------|---------------------|------------|-------------------------------------|------------------|------------------|-----------|
| Home Story | Zone Name | Area (sqm) | Opening | Required Opening | Designed Opening | Opening % |
| Ground Floor | Hall | 387.82 | D6X8, D7, W05X12, W04X2, D5X2, W3AX | 38.782 | 84 | 21.66 |
| | Electrical Room | 12.34 | W03.X.3 | 1.234 | 3 | 24.31 |
| | Storage Area | 4.88 | | Mechanical | | |
| | Storage | 11 | D02 | 1.1 | 2 | 18.18 |
| | Toilet for disabled | 5.62 | | Mechanical | | |
| | Male Toilet | 12.18 | W02, W01 | 1.218 | 5 | 41.05 |
| | Male Dressing | 9.61 | W04 | 0.961 | 1 | 10.41 |
| | Female Toilet | 12.1 | W02 | 1.21 | 3 | 24.79 |
| | Female Dressing | 10.99 | W04 | 1.099 | 1 | 9.10 |
| | Catwalk | 208.68 | W05X12, W04X2, D5X2 | 20.868 | 46 | 22.45 |
| First Floor | Control Room | 23.85 | | Mechanical | | |

Overview :



Legend :

Notes :

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Page Title

Ventilation Schedule

Scale : 1:20

Doc No : EP/BLD-AR/2022/29/AR-T01/03

Date : Sunday, July 31, 2022

Rev No :

Pg : A.05.5

Multipurpose Hall, K Villimale School

Structural Detail Drawings

Ministry of Education, Maldives

Date: Sunday, July 31, 2022

Project Number: EP/PRJ/2022/29



| Sheet Index | | | | | |
|-------------|---------------------------------------|----------|--------------------------|-------------------------------------|--------|
| Layout ID | Layout Name | Revision | Issued | Published | Remark |
| B.01.1 | Cover Structural | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.2 | General Notes 01 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.3 | General Notes 02 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.4 | General Notes 03 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.5 | Column Setting out Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.6 | Foundation Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.7 | 1st Floor Beam Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.8 | 1st Floor Slab Reinforcement Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.9 | Roof Beam Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.10 | Truss Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| B.01.11 | Roof Framing Plan | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.1 | Structural Details 1 | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.2 | Opening Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.3 | Typical Wall Construction Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.4 | Main Stair Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.5 | Planter Box Details | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.6 | Stage Details | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.7 | Stage Section Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.8 | Top to Bottom Detail & Balcony Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.9 | Truss Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| C.01.10 | Ramp Detail | | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |

1. General notes

1.1.Do not scale the drawingsAll dimensions shall be read from the drawing or computerElevations are in millimeters, distances and reinforcement bar sizes are in millimeters

1.2. In the interpretation of these drawingsindicated dimensions shall govern and distances or sizes shall not be scaled for construction purposes

1.3. The contractor shall coordinate with the arse, ee and other utility and equipment plans for the exact size number and locations of all sleeves or openings through floor slabbeams and walls Any discrepancies or conflict in the setting out lines, levels, details, locations, sizes, reinforcement etc Of the structural member shall be brought to the attention of the engineer prior to commencement of work

1.4. All reinforced concrete work shall be done in accordance with the british structural code ~~BS8100~~ or ec-en2 building code

1.5. All structural steel work shall be done in accordance with the british structural code ~~BS5950~~ parts 1 to 9 and ec-en3 in so far as they do not conflict with the local building code requirements

1.6. All slabs, beams and other structural elements which are not indicateddetailed, designated or inadvertently omitted but are necessary to be coordinated with architectural and other allied engineering plans as well as to complete the structural works in accordance with the intent of the plans and specifications shall be brought up during pre-bids/meetings/negotiations It is understood that the contractor has provided and included all these items in his bid.

1.7. The contractor shall produce shop drawings and schedules as required for completion of the works and record drawings of the asbuilt and builder works for the consultants approval.

1.8. Contractor shall do full coordination between structuralarchitectural and mep drawings in wet areas to allow for drainage pipes

1.9. All discrepancies shall be brought to the attention of the consultant engineer proceeding with the work on site

1.10. All materials to be used in conjunctions shall comply with the requirements of the specified codesstandards and ordinance of relevant building authorities unless noted otherwise in the project specification ~~and~~ drawings

1.11. All dimensions and levels shown on the drawings shall be verified by the contractorAny discrepancies shall be brought to consultants attention prior to construction

1.12. The contractor shall ensure that during constructionno part of the structure is overstressed by excessive construction loads until their completionTemporary bracing and propping to be provided were required

1.13. Once the excavation is done to a specified depththe bearing capacity of the soil shall be confirmed by relevant test, if the value is less than the design bearing capacity the engineer is to be informed immediately

1.14. The contractor shall submit a method statement for all elements of work and shall not proceed until consultant written approval is given The method statement shall provide the contractor's preferable options where such options are available.

1.15. The contractor shall comply with all requirements of the local regulations and requirements of all concerned authorities

1.16. Quality of concrete finish for all nonplastered columns and beams is to be in accordance with fair faced concrete as reflected on the architectural drawings and specifications

1.17. Any structural requirements specified by relevant authoritieswhich are not covered in notes and specifications are assumed to be duly considered by the contractor

1.18. All typical details and notes shown on drawings shall apply unless noted otherwiseTypical detail may not necessary be indicated on the plans but shall still apply as shown or described in the details where particular details are noted on the drawings the specified details shall be used

1.19. The design life of the structure of this project shall maintain a minimum ~~30~~ years life period The primary structural components are to be designed and detailed to satisfy this requirementConcrete mix supplier shall submit a life cycle analysis which reflect ~~at~~ 60 years design life without maintenanceinspection and repair requirement during this period

2. Concrete

2.1. All concrete works shall conform to the bs8110 or ec-en, a grade of c25/30 indicates that concrete shall have a fcu compressive strength of 30n/mm2 established from test cubes at 28 days equivalent to a compressive strength of 25n/mm2 established from cylinder tests at 28 days.
concrete mix design shall comply with bs8500-1:2006 as follows:

| Mix Number | 1 | 2 | 3 | 4 |
|----------------------------|---------|---------|---------|----------|
| Grade | C30/37 | C25/30 | C25/30 | C16/20 |
| Min cement content (kg/m³) | 380 | 340 | 340 | 300 |
| Cement Type | SRC | SRC/OPC | OPC | SRC/OPC |
| Max free W/C ratio | 0.4 | 0.45 | 0.45 | 0.55 |
| Slump | 75 ± 25 | 75 ± 25 | 75 ± 25 | 100 ± 25 |
| Aggregate | 20 | 20 | 20 | 20 |

mix 1 - used in reinforced concrete works for structures at sea/exposed to sea, water retaining structures and tank structures.

mix 2 - used in reinforced concrete works for ground level and below (sub-structure) or any reinforced concrete works in contact with soil or water.

mix 3 - used in reinforced concrete works above ground flr lvl (superstructure) for horizontal members (beams/slabs) and vertical members (columns/walls).

mix 4 - used for plain concrete blinding and mass fill.

2.2. Contractor shall implement a trial mix in accordance with the project specifications & authority requirements. Trial mix results shall be submitted for engineer's review & approval prior to commencing concreting.

2.3. Contractor shall submit the details of additives, plasticizers, micro silica, curing compounds, waterproofing agents, etc. Application should follow strictly the manufacturer recommendation. It is contractors responsibility to ensure that all constituents of concrete are compatible to each other.

2.4. Maximum percentage (by weight) of salt contents permissible in aggregates used for concrete, hollow blocks & hourdi blocks, etc, shall be as follows:
a) acid soluble chlorides in aggregate - (fine 0.03%, coarse 0.02%)
b) acid soluble sulphate in aggregate - (fine 0.3%, coarse 0.2%)

2.5. Concrete shall be cured by an approved means in accordance with the specifications.

2.6. Aggregates shall be from approved source and in accordance with the specifications.

2.7. Openings, sleeves:
a) no holes, sleeves or penetrations be placed vertically or horizontally through beams unless approved by the engineer.
b) no holes to be made in slabs unless approved by the engineer.

2.8. Construction joints:
a) the contractor shall submit to the engineer for approval a plan marked up showing the location of all construction joints
b) horizontal construction joints shall not be made in beams, unless approved by the consultant or engineers.
c) vertical construction joints may be located at midspan of slabs or beams after reviewed and approved by the engineers
d) contractor shall submit shear friction and the additional required reinforcement calculation of construction joint
at any location for engineers review and approval.

3. Reinforcement

3.1. The reinforcement used in the reinforced concrete shall be round, deformed type 2 bars marked as (t) to indicate high yield strength of 460n/mm2 to bs4449 or type 500b to ec-en. The carbon equivalent of rebars should not exceed 0.51 for grade 460.

3.2. Reinforcement details shown are indicative. The contractor shall prepare detailed shop drawings & full bar schedules in accordance with the design drawings and shall be cut and bent in accordance with bs 8666 and aci 315-09 for the engineer's approval at least four weeks prior to commencement of reinforced concrete work and after coordinating with all concerned parties.

3.3. Lap lengths and anchorage lengths of reinforcement shall be as per bs 8110 and ec-en. Additional lapping if required to be provided with engineer's approval. The minimum lap length of reinforcement shall be the maximum of (45 bar dia in general and 50 dia for tension) or the values of the table a.

Table a : schedule of lap splices

| Bar dia | lap splices length (mm) |
|---------|-------------------------|
| 10 | 500 |
| 12 | 600 |
| 16 | 800 |
| 20 | 1000 |
| 25 | 1250 |

3.4. Spacer bars in beams shall be a minimum t25 or the size of bar if greater at 1000mm c/c; chairs in slabs shall be a minimum t12@1000mm c/c; and minimum ties in walls shall be t8@1000mm c/c.

3.5. Clear cover to reinforcement including links, stirrups, and ties shall be as follows:

- A) structure in contact with ground
- Footings = 55mm
 - Wall and column = 50mm
 - Ground beam = 50mm
 - Slab at ground level = 50mm
- B) super structure
- Columns = 40mm
 - Beams = 35mm
 - Slabs = 30mm
 - Walls = 40mm
- All concrete elements in contact with water/splash zone = 50mm

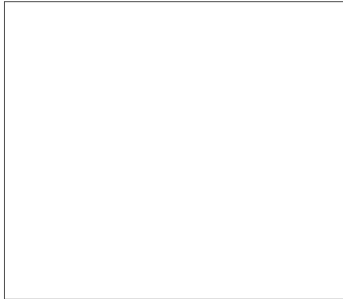
3.6. Reinforcement bars to be cut, bent or adjusted to clear all openings and interfering structures to suit at site to the approval of the consultant or engineer.

3.7. For holes in slabs up to 300x300 sq., reinforcement is to be cut and replacement bars fixed adjacent to the hole extending 50x bar diameter beyond the hole.

4. Fire resistance

4.1. All structural concrete members between units on boundaries are designed to maintain fire resistance of 2 hours.

Overview :



Legend :

Notes :

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Page Title
General Notes 01

Scale : 1:100

Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

Rev No : **Pg** : B.01.2

5. Cracking

5.1. The cracking of the structural concrete in general is restricted to 0.30mm.

6. Earthwork & foundations

6.1. Foundation detail design is based on the assumed safe allowable bearing capacity has been taken as 150kpa. The actual requirement for the foundation design is to be verified based on final geotechnical report for the project

6.2. Excavations for foundations down to formation level shall be carried out by mechanical means, except for the last 100mm of excavation which is to be carried out by manual methods and recommended by geotechnical consultant.

6.3. The formation level of foundation is to be inspected and approved by the geotechnical engineer before commencement of the work.

6.4. Engineering fill (unless specified otherwise as a higher quality material) shall be selected well graded granular material approved by the engineer with a minimum soaked cbr of 15% compacted not exceeding 250mm in layers to 95% maximum dry density as per geotechnical investigation report recommendations in accordance with the specification. However, a minimum cover of 250mm back fill material shall be provided at the top of foundations below the blinding to cast against.

6.5. Efficient site drainage during and after construction of the project should be provided by the contractor.

6.6. Site inspection by a qualified engineer should be carried out after completion of the excavation works and after preparation of the proposed foundation level to ensure that the contact surface is free from any loose/soft layer and properly prepared for the foundation.

7. Concrete workmanship

7.1. All concrete without plaster shall be fair finish unless noted otherwise.

7.2. All concrete surface to have plaster are to be hacked to have an adequate surface key

7.3. All concrete is to be cured by an approved method-water pounding or curing compound.

7.4. All types of construction joints in concrete shall be at a specified locations and approved by the engineers.

7.5. All substructure concrete works shall be protected with water proofing as per standard details & specifications.

7.6. All concrete shall be compacted using a mechanical vibration process.

7.7. 25x25mm chamfers to external corners and edges shall be provided in accordance with specifications and directed by the engineer.

8. Structural steel

8.1. All structural steel works shall be in accordance with bs 5950 parts 1 to 9 or ec-en3.

8.2. Maximum dimension of holes shall be in accordance with bs 5950 : part 1 : 2000 table 35, unless indicated otherwise.

8.3. The contractor shall provide whatever temporary ties or bracing necessary for a safe and proper erection of the steel structures.

8.4. Welding shall comply with bs en 1011-1: 2009, bs en 1011-2 : 2001 and bs bs en 1011-8 : 2004.

8.5. Contractor shall do a detailed design for aluminum shades and to submit full design calculations and detailed shop drawings for all steel sections and connections to the engineer for approval prior to commencement of fabrication.

8.6. All rolled products and plates shall conform to bs en 10025-2. Cold form welded structural hollow sections shall conform to bs en 10219-1. Hot finish hollow sections shall conform to bs 10210-1 unless noted otherwise on drawings.

8.7. All connections shall be made with minimum 2nos. Galvanized grade 8.8 to bs 3692 with a minimum diameter of 20mm and minimum yield strength of 627mpa and minimum ultimate strength of 765mpa and electrodes to bsd 639, unless noted otherwise.

8.8. Unless noted otherwise on the drawings all connections shall be in accordance with the following minimum requirements:
A) all welds shall be at least 6mm continuous fillet welds all around.
B) all structural bolted connections should be galvanized minimum 85 micron and with a minimum of 2 bolts per connection. Purlin bolts shall be in accordance with the suppliers recommendations.
C) all gusset plates shall be at least 4mm thick.
D) all cap plates shall be at least 4mm thick.
E) all base plates shall be at least 4mm thick.

8.9. As minimum all structural steel members shall be shot blasted to sa 2.5, galvanized, primed & painted as below unless noted otherwise:
A) hot galvanization (dft 200micron)
B) primer coat to contain 2 coats of zinc rich epoxy primer (dft 75 micron)
C) top coat to contain 2 coats of polyurethane enamel paint (dft 125 micron)

8.10. All structural steel work shall be corrosion protected in accordance with the structural specifications.

8.11. All steel should conform to the following:
A) shs, rhs and chs sections bsen 10210 s275 fy=275mpa
B) all angles and channels u.n.o bsen 10025 s275 fy=275mpa

8.12. All steel columns to be central on grids or equally spaced between grids unless noted otherwise.

8.13. All steel beams to be central on grids or equally spaced between grids unless noted otherwise.

8.14. All steel dimensions are to center line of section unless noted otherwise.

8.15. All bracing is to be set out on the centroids of bracing members and on the center line of beams and columns unless noted otherwise.

8.16. Where bracing is shown offset from center of members the contractor shall design and provide all necessary stiffeners.

8.17. Contractor to provide all leader railing as required to support free edges not trimmed with cold formed or mild steel work. To be provided in accordance with architect's drawings.

8.18. Location of any connections, splices not shown in the drawings shall be submitted with design for engineer's approval. No splices shall be made unless shown in the drawings and as approved by the engineers.

8.19. Contractor shall do a full coordination between architecture and structural drawings for the steel support for shade elements, locations and sizing connections with structural concrete elements and sections. Care shall be taken to prevent dissimilar metal corrosion.

9. Masonry blocks

9.1. Design and construction of all blocks shall comply with bs 5628 : parts 1,2 & 3 : 1992 or en-ec6. The contractor shall submit a construction method statement prior to commencing the works.

9.2. Wall ties in accordance with bs 1248 - cp 121 part 1,73.

9.3. All block wall joints to manufacturers specifications.

9.4. All block work walls are to be considered as non-load bearing partitions unless noted otherwise in drawings.

9.5. Block walls shall be reinforced horizontally and vertically as per manufacturers requirements.

9.6. Masonry wall mechanical properties
young's modulus = 3.5e+006 kn/m2
poisson's ratio = 0.25
density = 20kn/m3
min.compressive strength = 3.5 mpa

10. Design & loading

10.1. Consultant design
design and construction of reinforced concrete structural members, shall be in accordance with bs8110 & ec-en2 and the structural steel members to bs 5950 & ec-en3.

10.2. Contractor design
the contractor is responsible for the design of all temporary works. (shoring for excavation, signage... Etc) and the following items of permanent secondary works. (subjected to engineers review and approval)
a) precast concrete elements
b) architectural facade and support steelwork
c) non load bearing feature columns
d) all secondary steel works
e) structural steelwork connections
f) structural support for mep services
g) shade structures
h) balustrade and crash barrier
i) structural glass
j) interior signage

the design of the primary structure is considering the interfaces with these structures) loading reactions, opening...etc.) And were detailed to accommodate these elements into the design.
the contractor shall submit a full detail design for the wall and boundary wall foundation, also the contractor to do full coordination between the structural foundation for villas (including the water tanks, and the boundary wall for clashes, the contractor shall produce shop drawings for the boundary walls for engineer's approval.

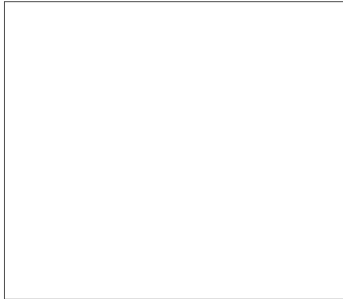
10.3. Loading
a) superimposed (dead loads & live loads) as per bs 6399 or en-ec1.
b) self-weight & densities as per bs 648 or en-ec1.
c) wind loads as per bs 6399 or en-ec1 (mean wind speed = 25m/s).

11. Timber

11.1. All timbers shall be in accordance with bs 5268 or ec-en5

11.2. All timber members sizes are indicative. Contractor shall coordinate with supplier and submit detail designs for all prefab timber structure for approval.

Overview :



Legend :

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General Notes 02

Scale : 1:100

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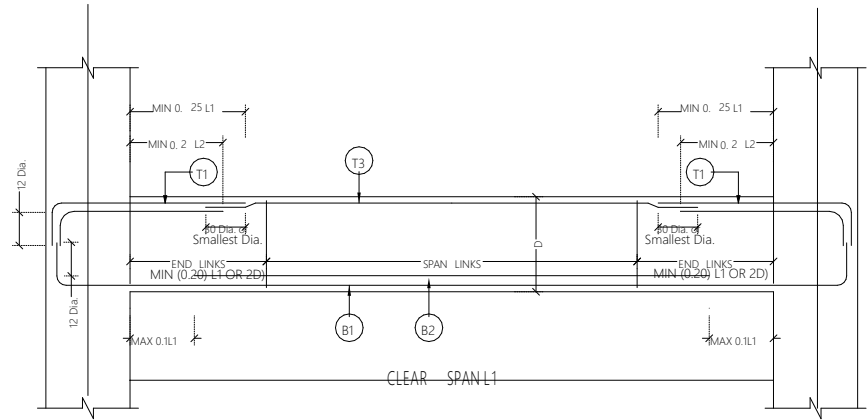
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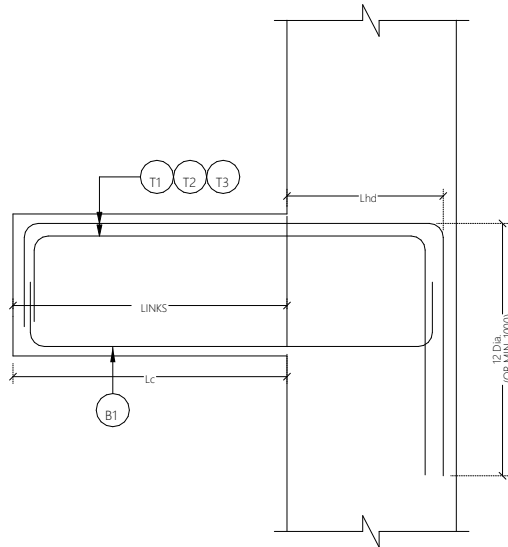
1. First stirrups location shall be s/2 from the face of the column/ support.
2. Place one b bar in each bottom corner and one t bar in each top corner of the stirrup cage.
3. Condition shown is at columns. Where beams and girder intersect, use typical interior girder section.
4. All bottom bars and top bars shall be placed in one layer unless two layers are noted in the beam schedule. Where to layers are noted provide 25 mm clear between layers. If two layers are noted place bar b1 above bar b and bar t above t1.
5. Length of exterior top bars are given only when straight bar occurs otherwise hooked bars are required.
6. Where a member is supported by a column, but has another member running perpendicular to it at the same column, the first stirrup spacing shall start from the face of the column and not from the face of the transverse beam.
7. Top & bottom reinforcement lapping of both main rebars can be ignored if the main rebars at left and right side of lapping location are identical.
8. For 'column width less or equal 2m l*='column width'/2. For 'column width' greater than 2m, l*=1m

Supplementary abbreviations

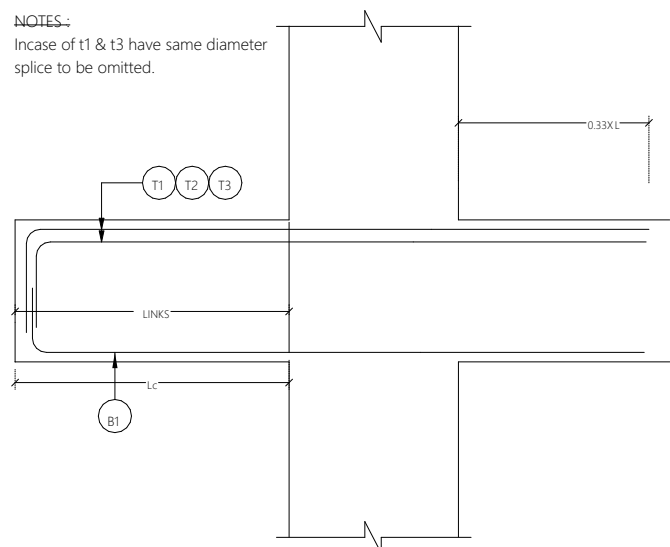
- B1 - continuous bottom bars.
B2 - additional bottom bars
CE - cantilevered end
D - depth of member, mm
EE - each end
EF - each face
FL - full length
EW - each way
H - aci standard hook
ITB - interior top bar
LE - left end
LG - length
P - paired stirrups
RE - right end
REM - remainder
S - side bars
T1 - top bars at internal supports
T2 - top bars at mid-span
T3 - top bars at end support
W - width of member, mm



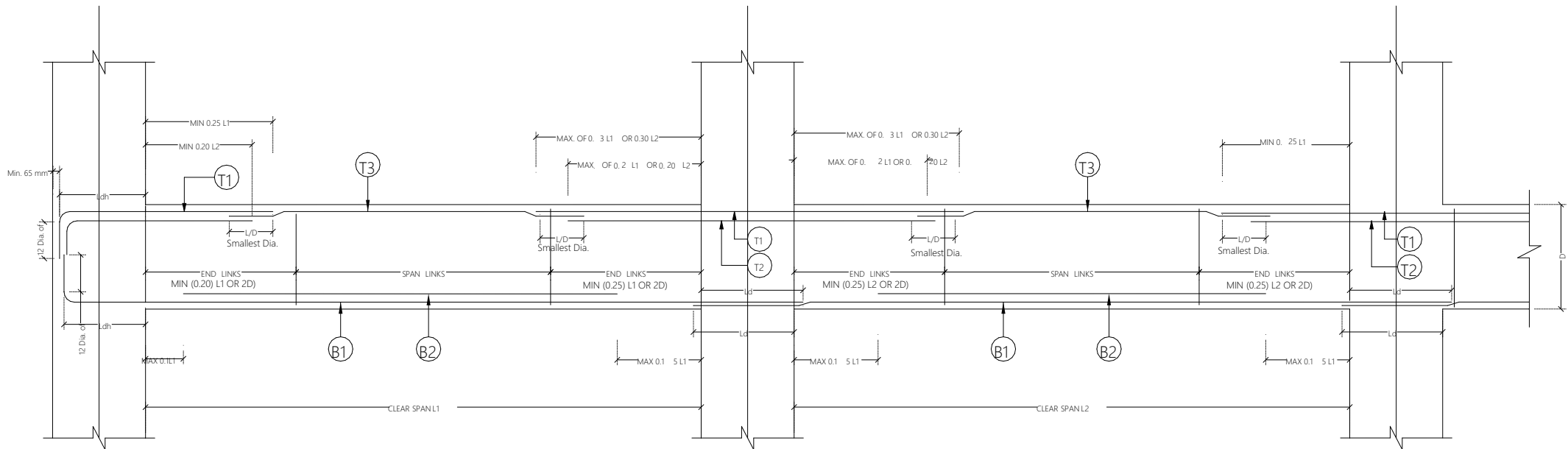
SIMPLE BEAM DETAILS
NTS



TYPICAL CANTELEVER BEAM FROM COLUMN
NTS

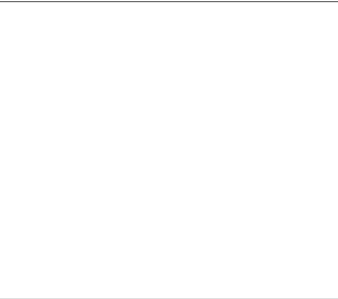


TYPICAL CANTELEVER BEAM CONTINUOUS
NTS



CONTINUOUS BEAM DETAILS
NTS

Overview :



Legend :

Notes :

| # | REVISION | BY | APP | DATE |
|---|----------|----|-----|------|
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Project :
Multipurpose Hall, K Villimale School

Client :
Ministry of Education, Maldives

Prepared by



T: +960 333 3528, E: info@epochassociates,
W: www.epochassociates, A/G.Rosary West, 3rd
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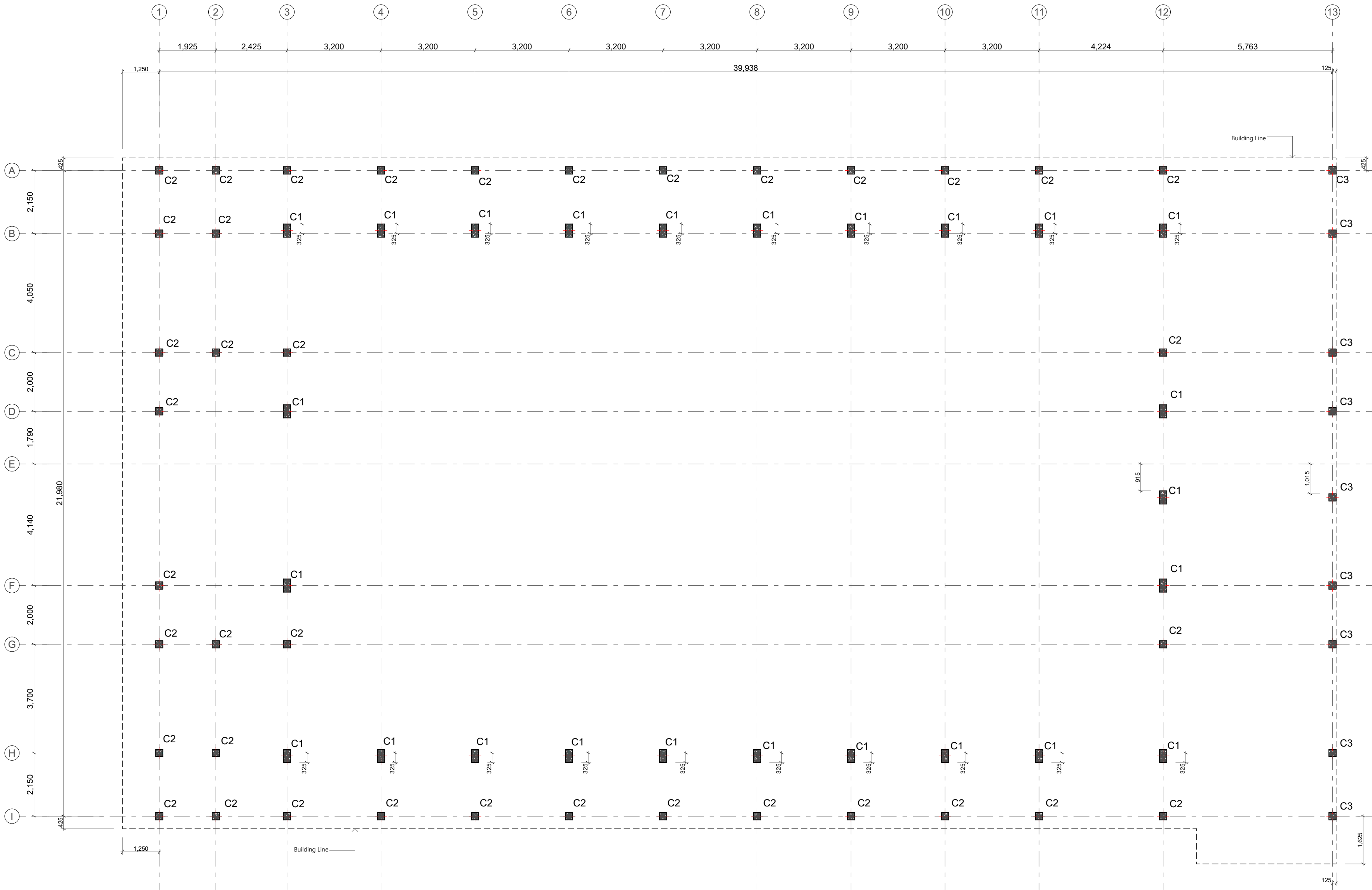
Page Title
General Notes 03

Scale : 1:100

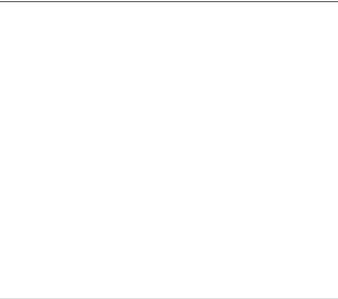
Doc No : EP/BLD-ST/2022/29/ST-T01/03

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Rev No : **Pg :** B.01.4



Overview :



Legend :

Notes :

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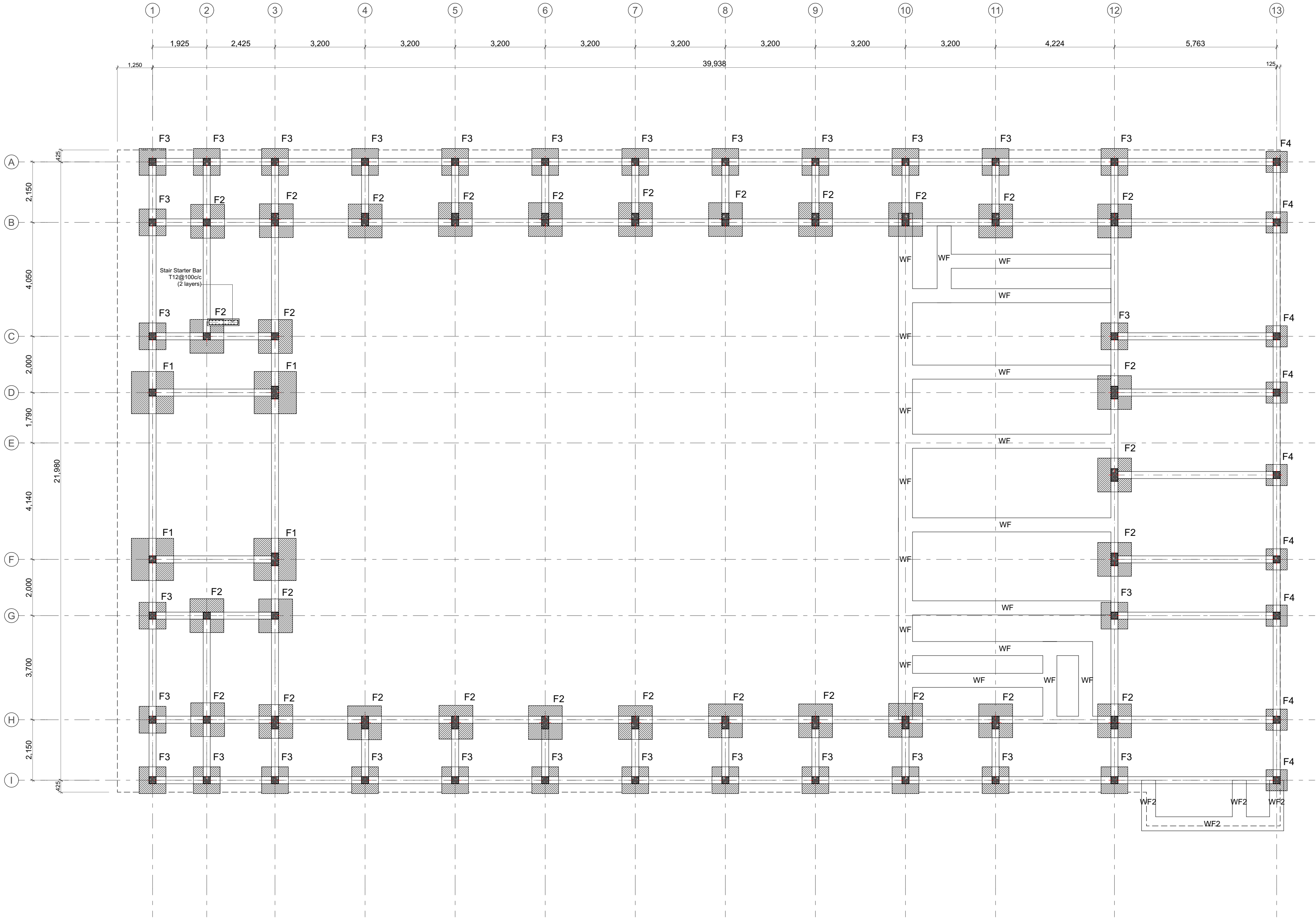
Page Title
Column Setting out Plan

Scale : 1:100

Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

Rev No : Pg : B.01.5



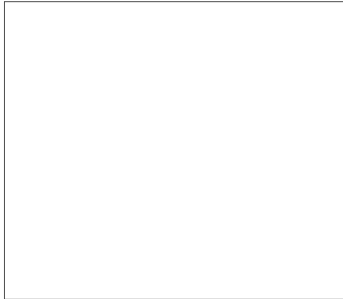
Foundation Notes:

| | Dimensions | Reinforcement | Foundation Depth |
|----|---------------|---------------------|------------------|
| F1 | 1500X1500X350 | T12@ 125C/C B/W (b) | 1250mm |
| F2 | 1200X1200X350 | T12@ 125C/C B/W (b) | 1250mm |
| F3 | 950X950X300 | T12@150C/C B/W (b) | 1200mm |
| F4 | 750X750X300 | T10@150C/C B/W (b) | 1200mm |

All tie beams are 'TB' (unless stated)
Ground Slab = 100mm thick RC slab on fill reinforced with T10@200C/C (B/W)

All Footings are to be laid on top of 50mm thick lean concrete
Add waterproofing admixture and apply waterproofing to all substructure (below ground elements)

Overview :



Legend :

Notes :

| # | REVISION | BY | APP | DATE |
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Page Title
Foundation Plan

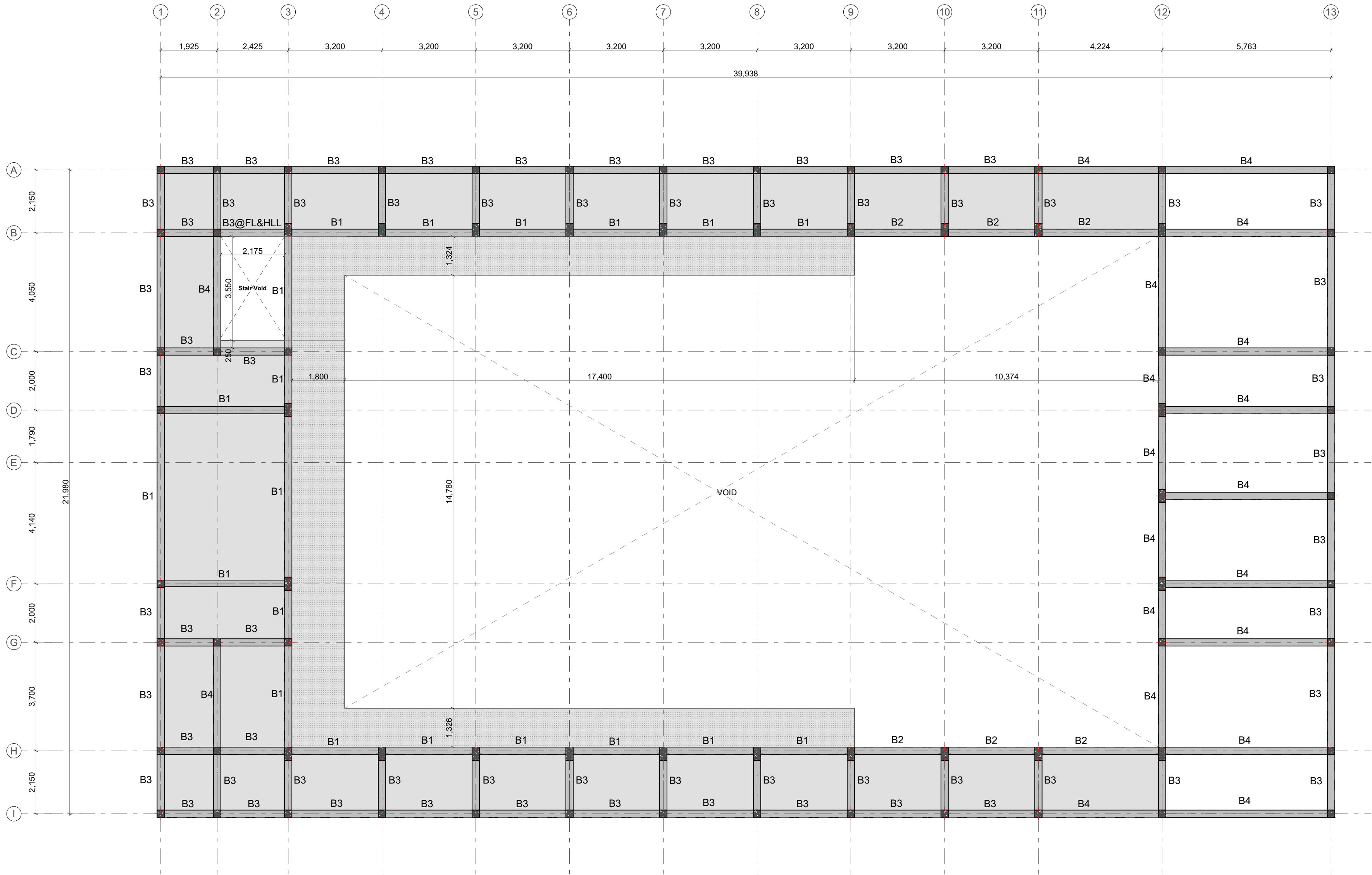
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

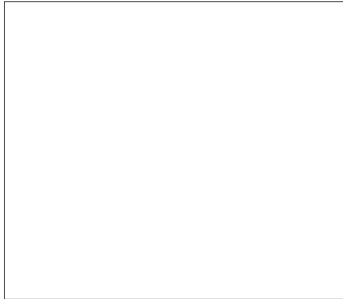
Date : Sunday, July 31, 2022

Rev No : **Pg :** B.01.6

Foundation Plan
1:100



Overview :



Legend :

Notes :

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Page Title
1st Floor Beam Plan

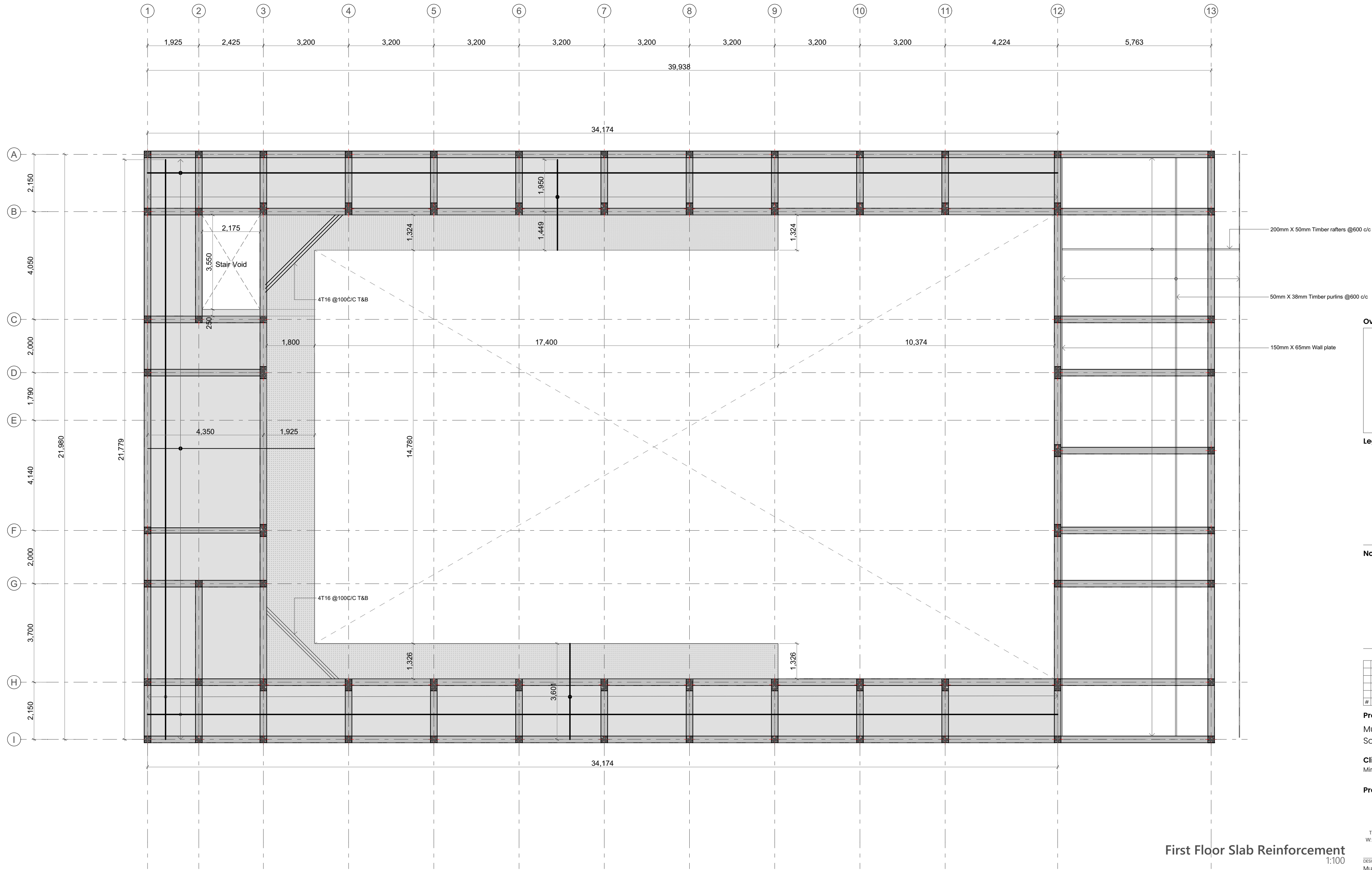
Scale : 1:100

Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

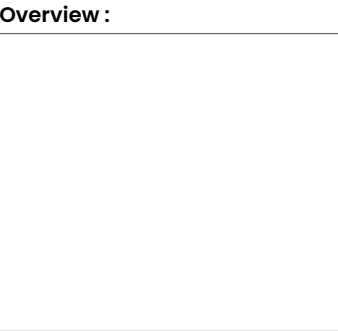
Rev No : Pg : B.01.7

First Floor Beam Plan
1:100



Notes:

- Slab Thickness: 185mm
- Slab Thickness: 150mm
- Bottom Reinforcement: T10@150C/C B/W (Not shown)
- Top Reinforcement: T12@100C/C (As shown, unless specified)
- Distribution steel: T12@100C/C (Unless specified)
- Reinforcement discontinuous at voids



Legend :

Notes :

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Page Title
1st Floor Slab Reinforcement Plan

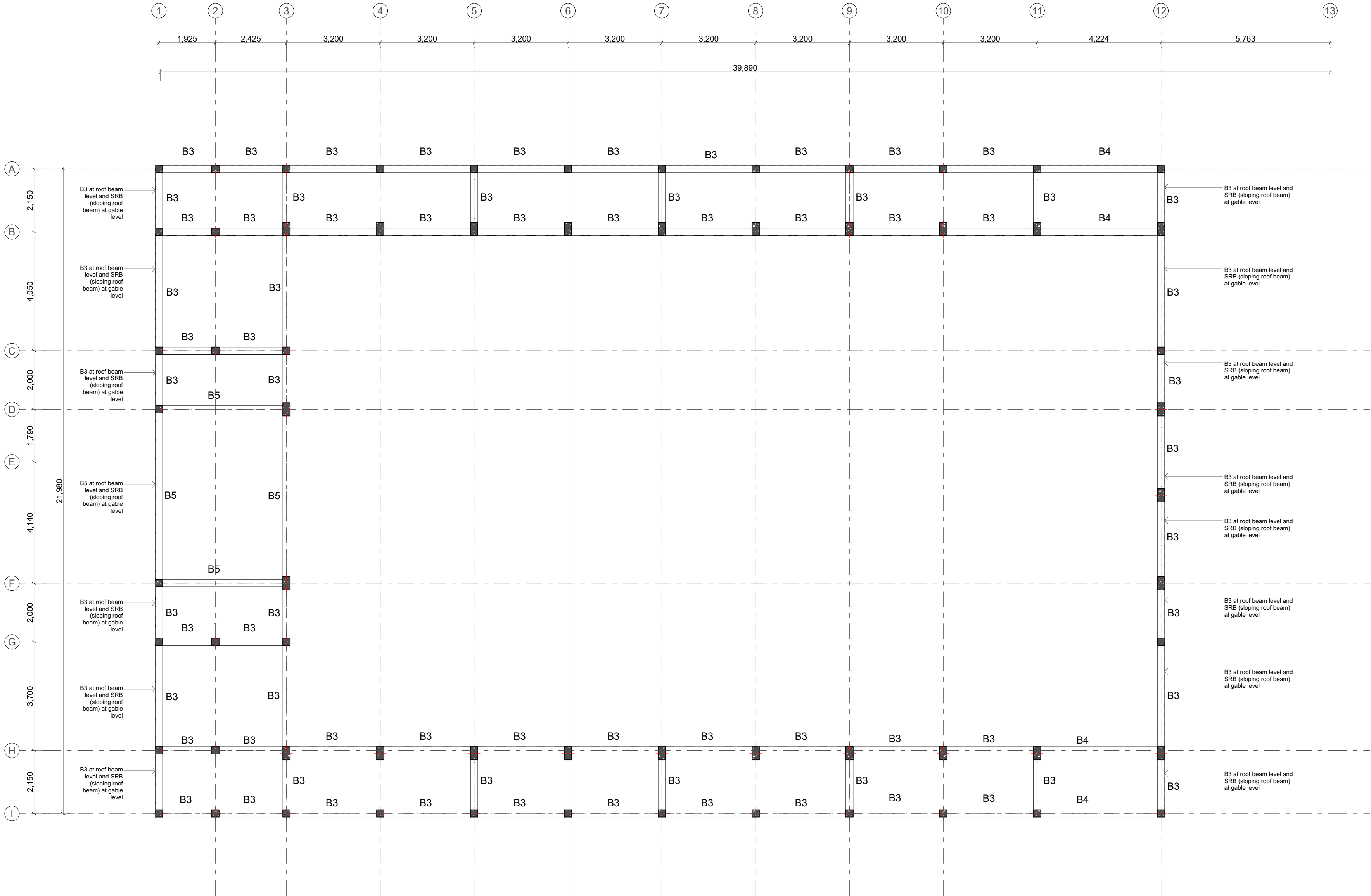
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

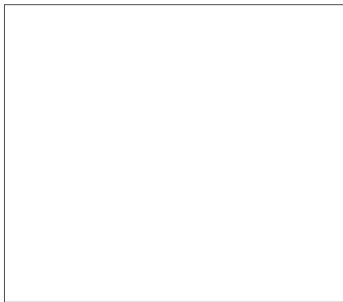
Rev No : **Pg :** B.01.8

First Floor Slab Reinforcement
1:100



Roof Beam Plan
1:100

Overview :



Legend :

Notes :

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Page Title
Roof Beam Plan

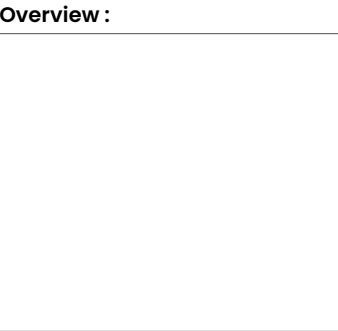
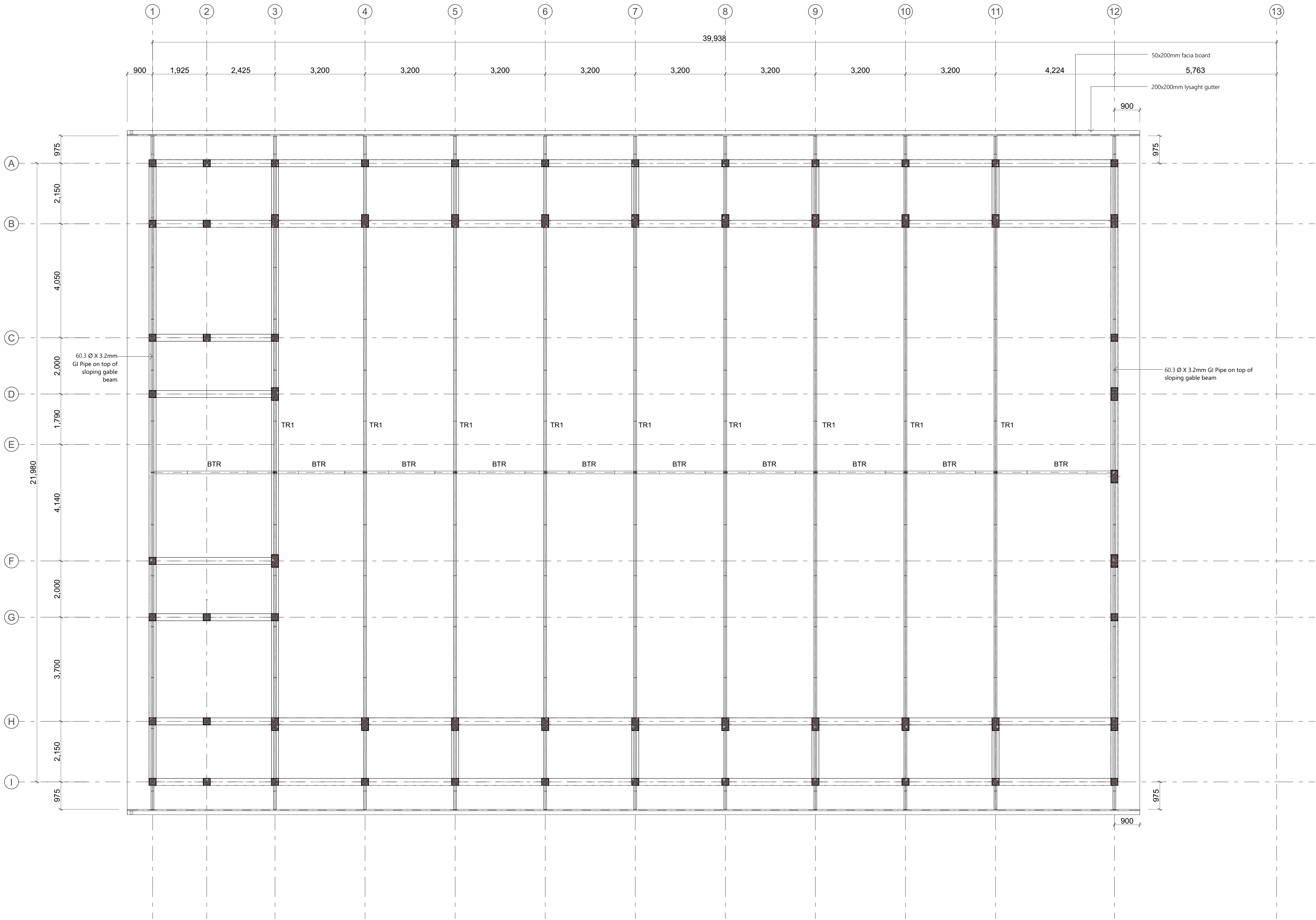
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

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Rev No :

Pg : B.01.9



Legend :

Notes :

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Page Title
Truss Plan

Scale : 1:100

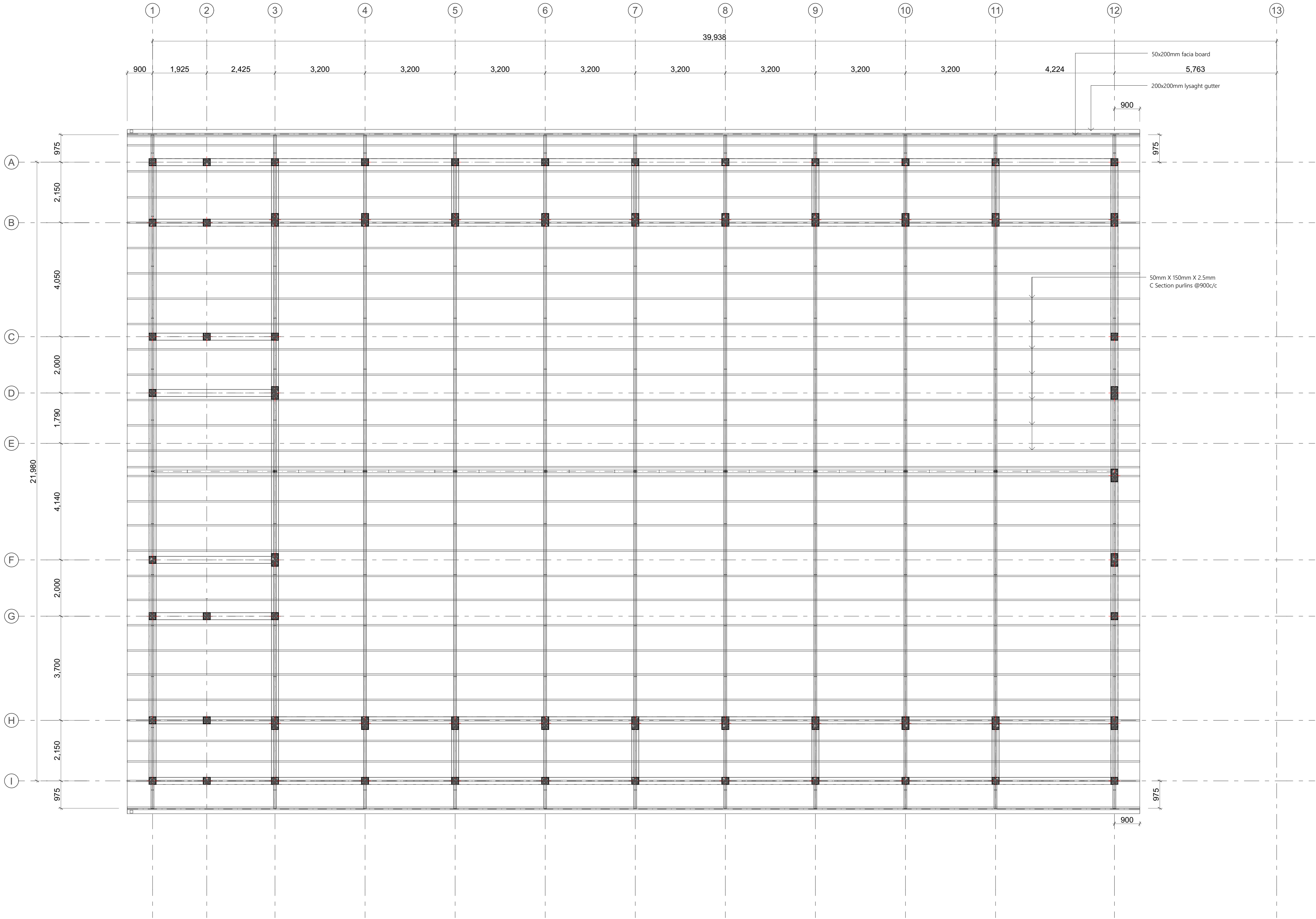
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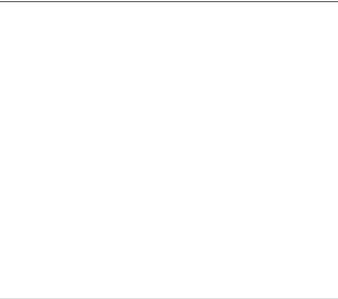
Rev No :

Pg : B.01.10

Truss Plan
1:100



Overview :



Legend :

Notes :

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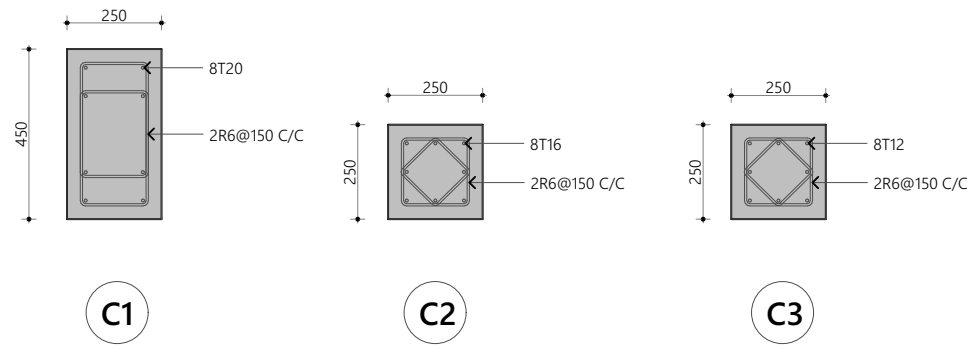
Page Title
Roof Framing Plan

Scale : 1:100

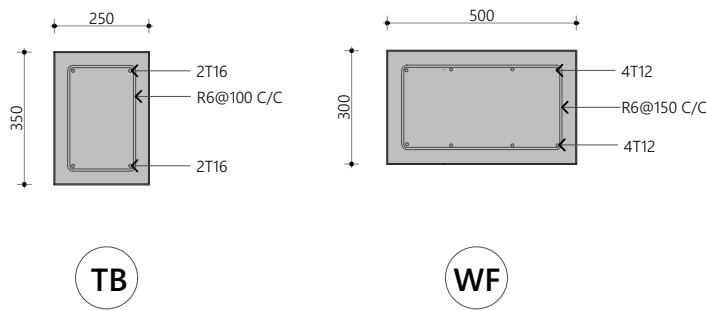
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Date : Sunday, July 31, 2022

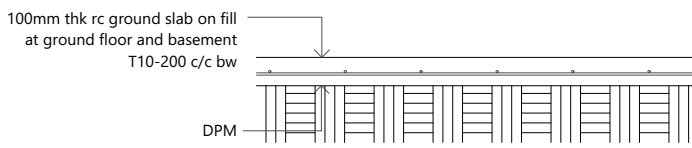
Rev No : Pg : B.01.11



Column Details
1:20

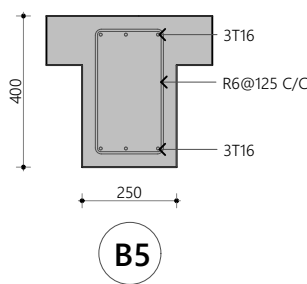
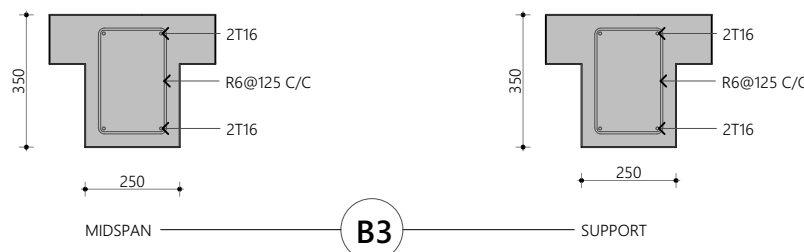
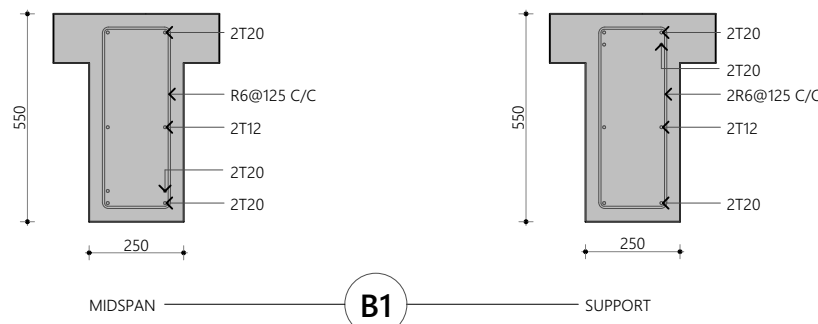


Tie Beam Details
1:20



NOTE:
All cover blocks shall be casted using grade C25/30 concrete with 5-10mm aggregates
For slab, rebar spacer chairs spacing shall be minimum 1m spacing or 1no. per 1 sqm

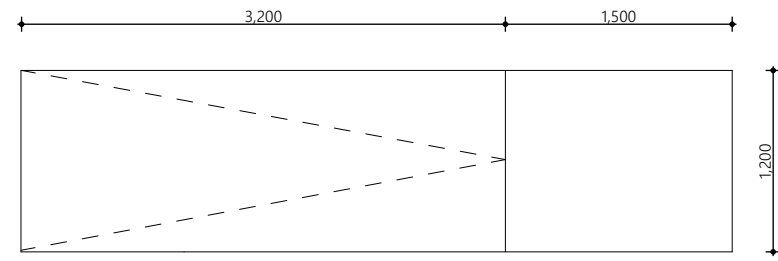
Typical Ground Slab Construction Detail
1:20



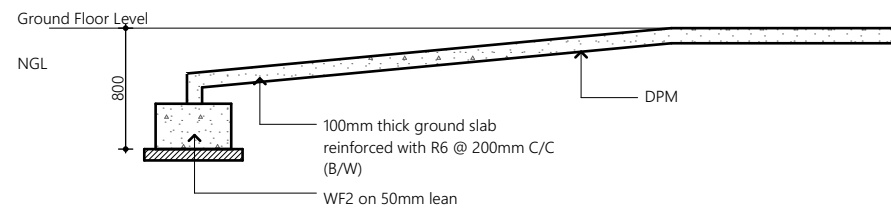
SRB

(Sloping roof beam cast on top of wall at gable level)

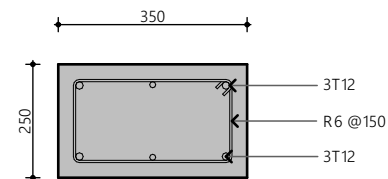
Beam Details
1:20



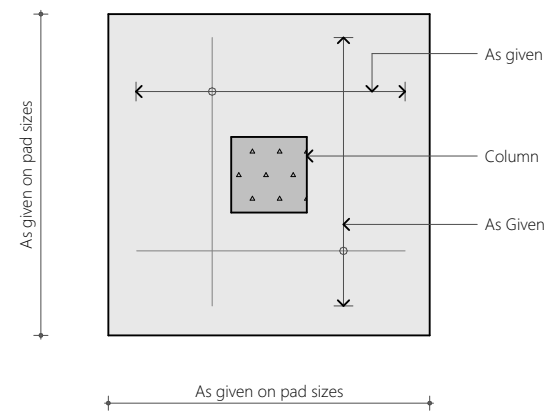
Ground Floor Ramp Plan View



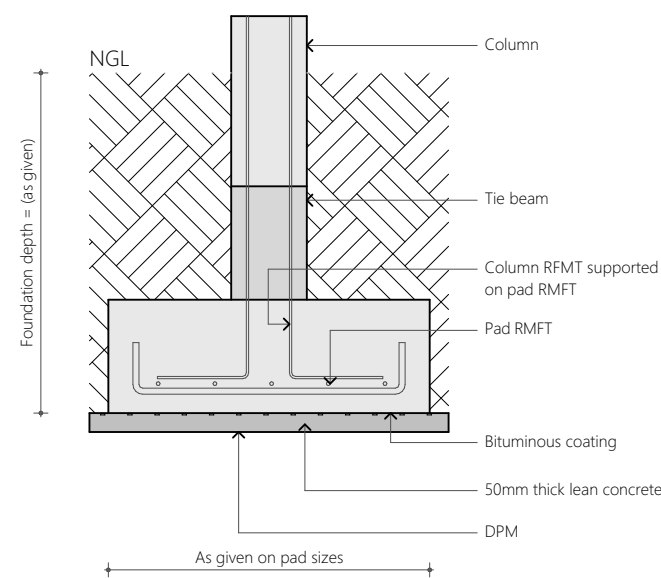
Ground Floor Ramp Elevation View



Wall Footing (WF2) Detail
Scale = 1:20



Plan View



Sectional View

Typical Footing Detail
1:20

Overview :



Legend :

Notes :

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Project :

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Page Title

Structural Details 1

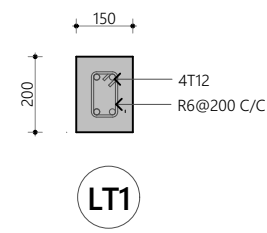
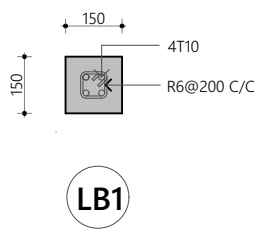
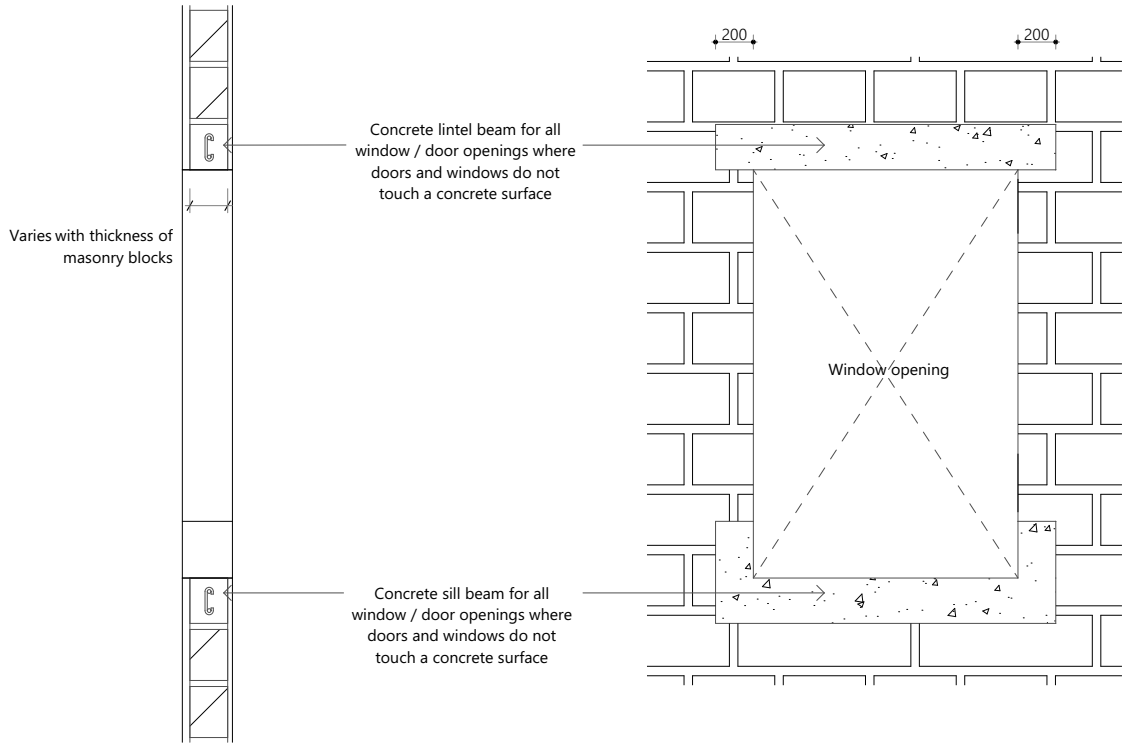
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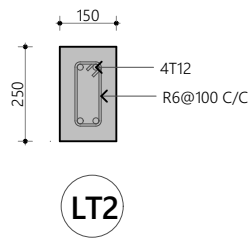
Date : Sunday, July 31, 2022

Rev No :

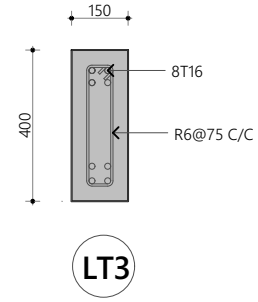
Pg : C.01.1



Lintels over all doors, windows
(that does not rise to beam level)
LT1 for windows < 1.5m



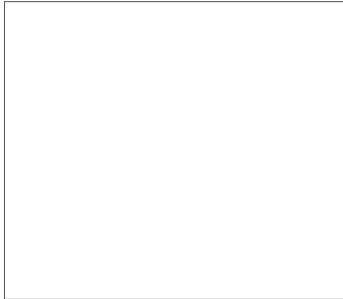
Lintels over all doors, windows
(that does not rise to beam level)
LT2 for windows > 1.5m & <3.0m



Lintels over all doors, windows
(that does not rise to beam level)
LT3 for windows > 3m & <6.0m

Sill Beam Detail
1:20

Overview :



Legend :

Notes :

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Page Title
Opening Detail

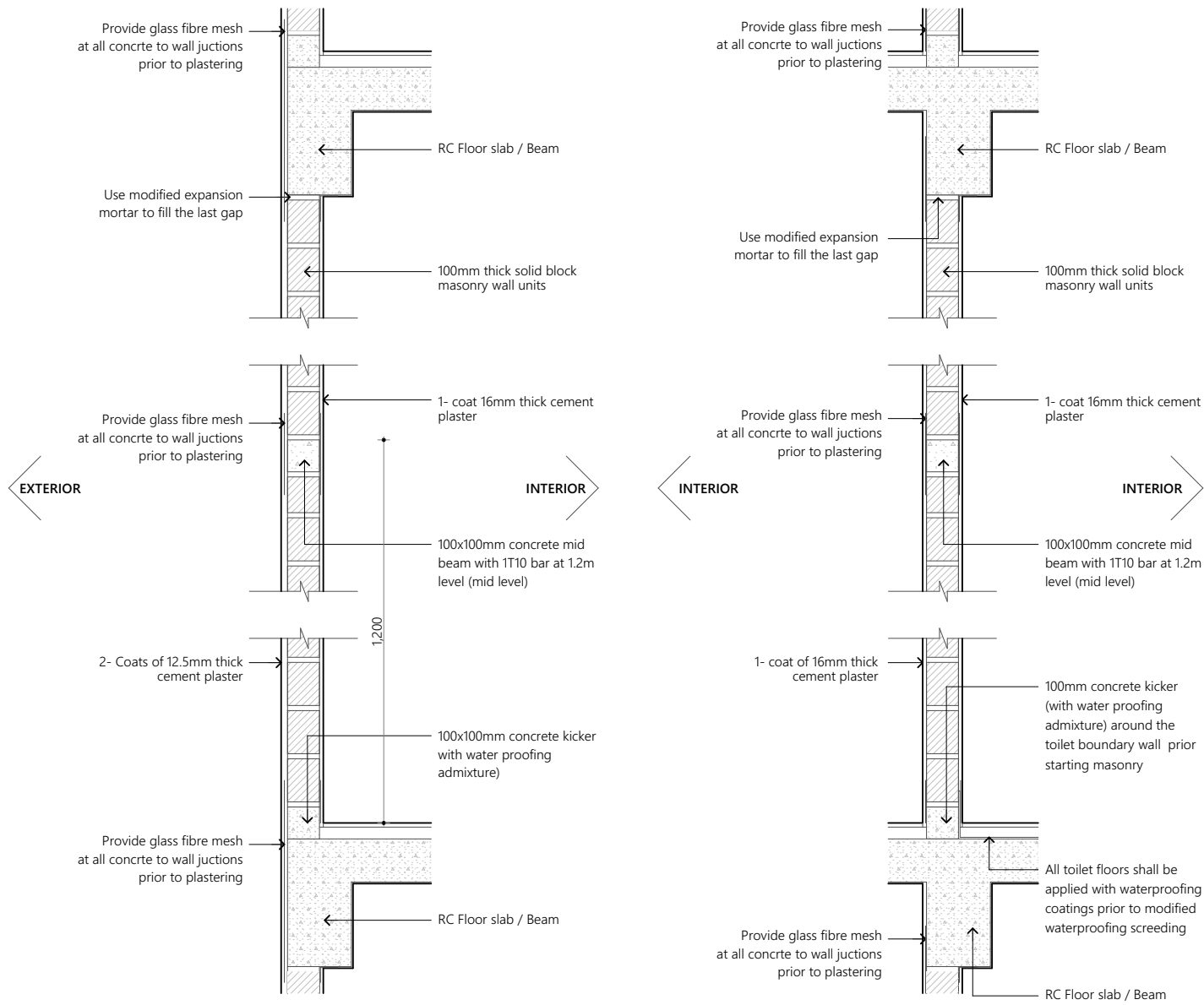
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Date : Sunday, July 31, 2022

Rev No :

Pg : C.01.2

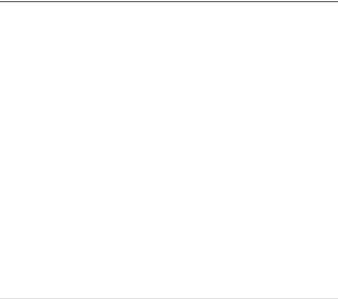


Note:

- * Concrete surfaces shall be thoroughly cleaned with water & applied with mastercast 141 or equivalent bonding mortar prior to plastering.
- * Plastering mortar mix shall be 1:4 (cement: sand) ratio.
- * Plaster mix shall be modified using fibre wool & mastercast 141 or equivalent plasticisers as per manufacturer's specification.
- * Height of placing blocks shall be maximum 1.2m per day.
- * After initial coat of plastering, water curing shall be provided for minimum 3 days & after final coat water curing shall be provided for 7 days.

1:20

Overview :



Legend :

Notes :

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Page Title

Typical Wall Construction Detail

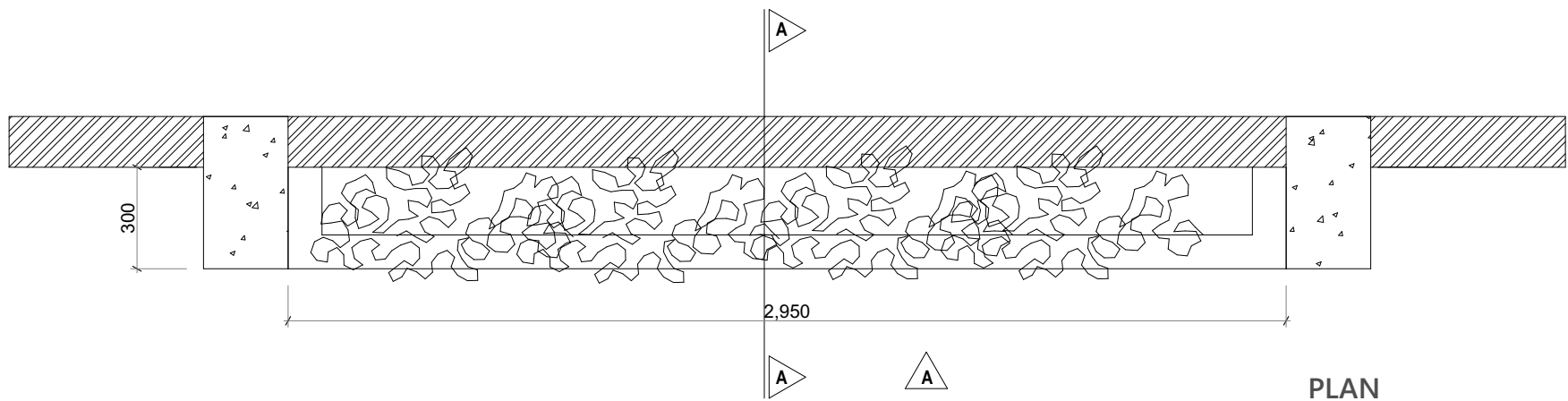
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

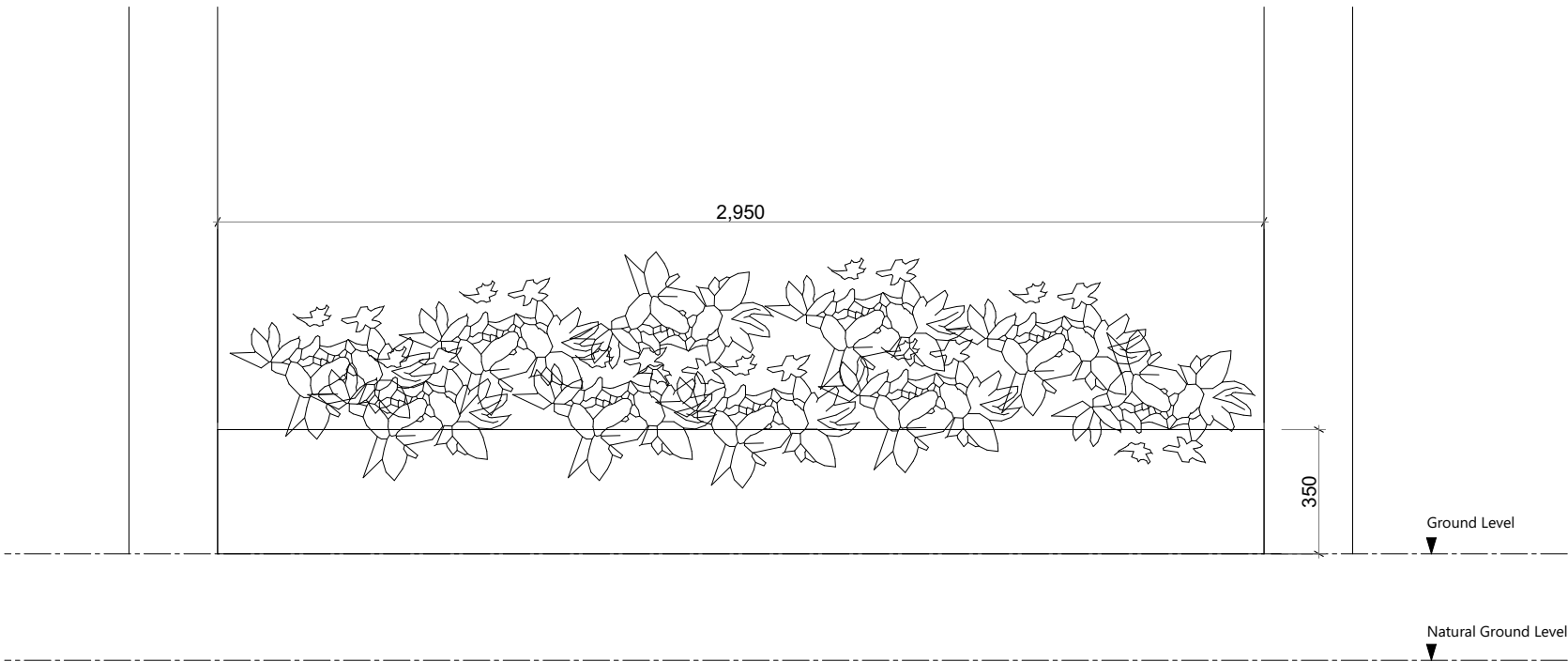
Rev No :

Pg : C.01.3



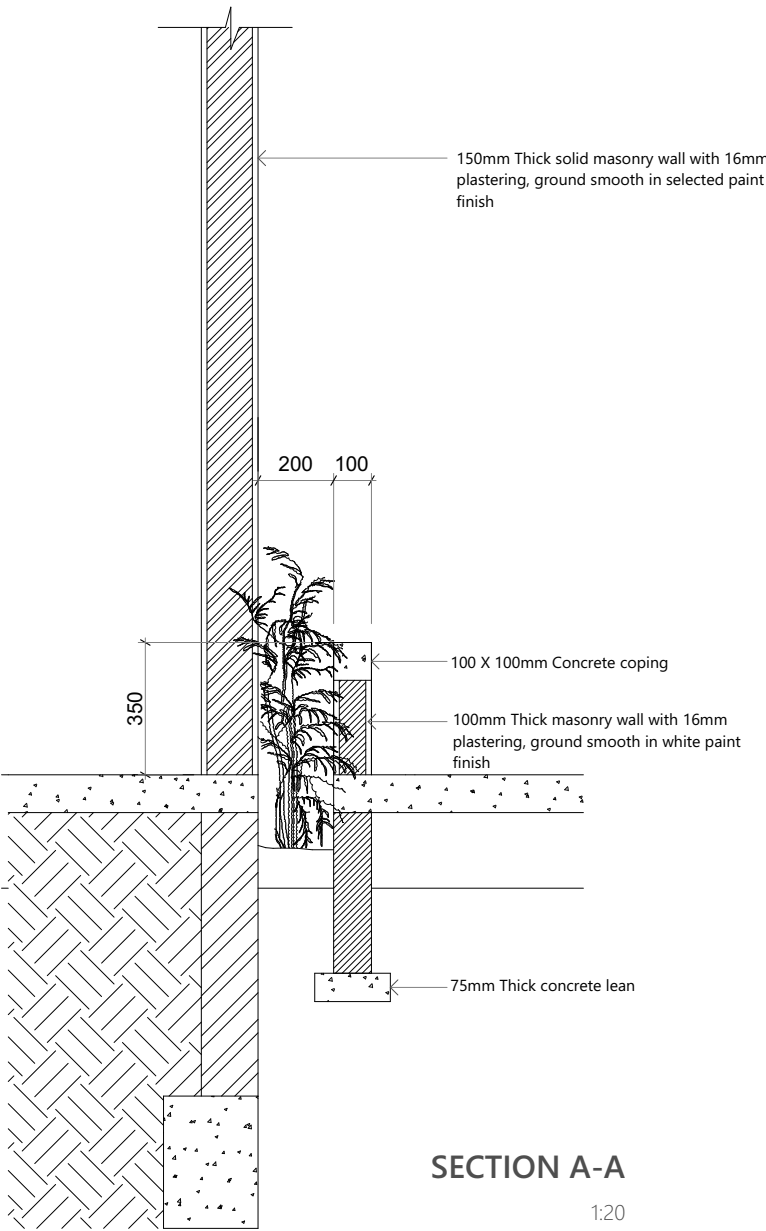
PLAN

1:20



ELEVATION A

1:20



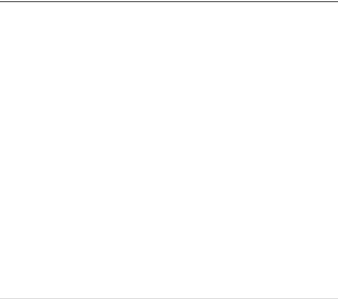
SECTION A-A

1:20

Planter Box Detail

1:20

Overview :



Legend :

Notes :

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Page Title
Planter Box Details

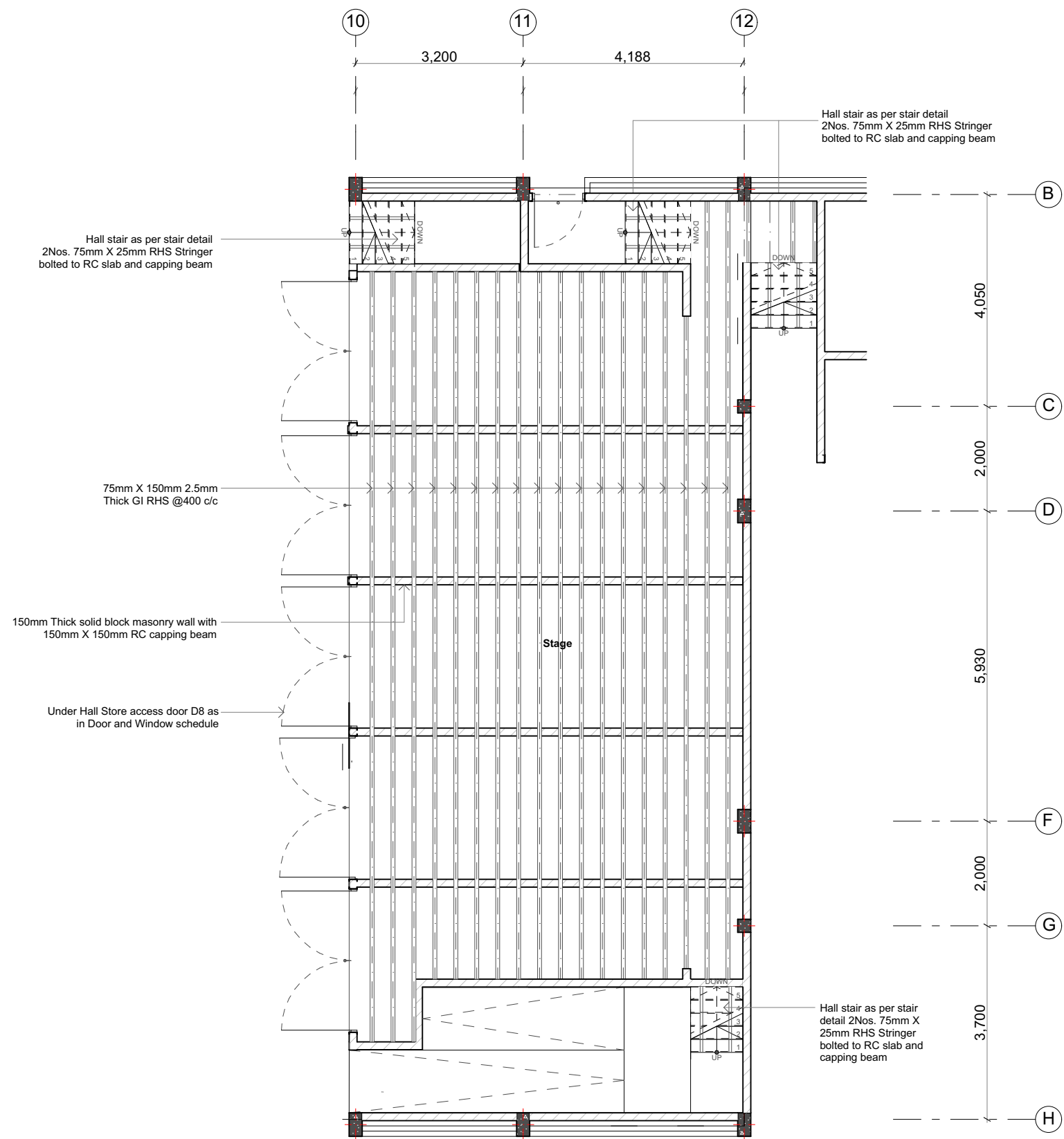
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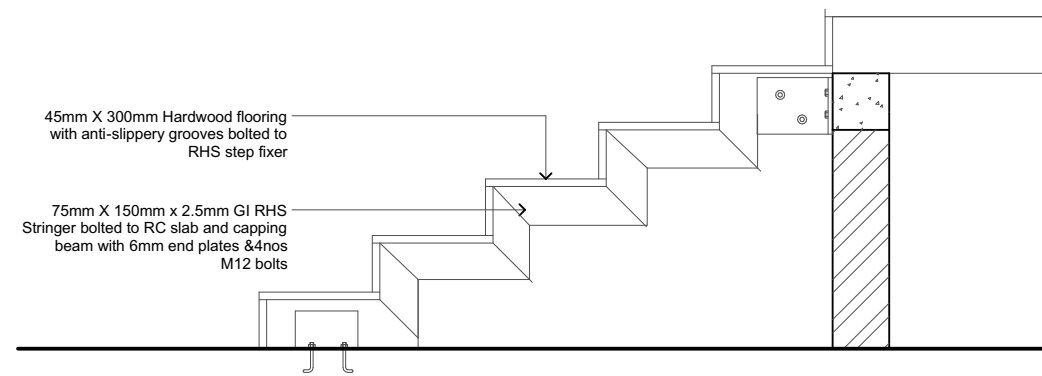
Date : Sunday, July 31, 2022

Rev No :

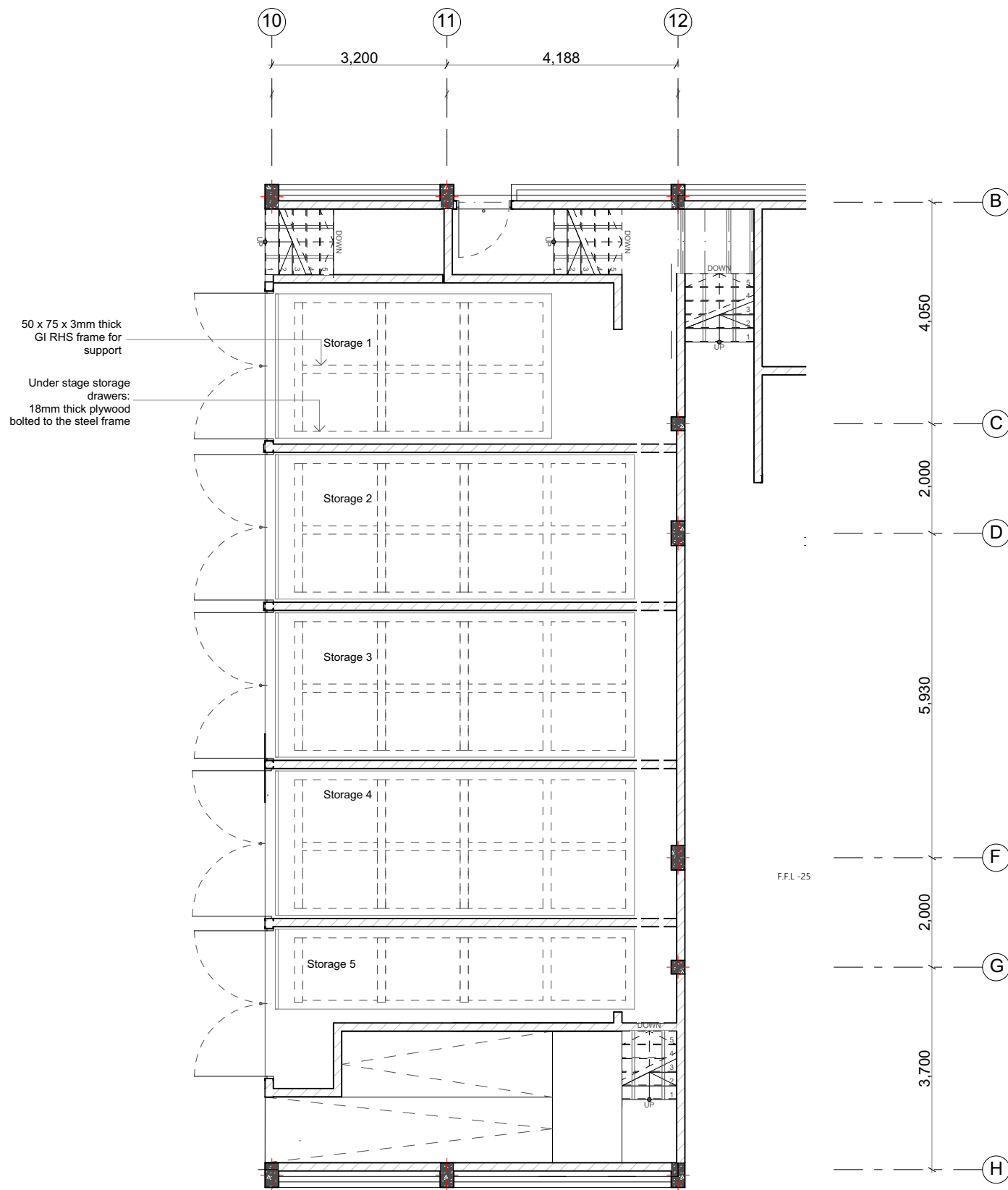
Pg : C.01.5



Stage Framing Detail
1:100



Stage Stair Detail
1:20



Stage Drawer Detail
1:100

Overview :



Legend :

Notes :

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| DESIGNER: Muaviyath A. Sathar | CHECKED: Mohamed Hassaan |
| DRAWN: F. Ihudha Amir | APPROVED: Ihsaan Waheed |

Page Title

Stage Details

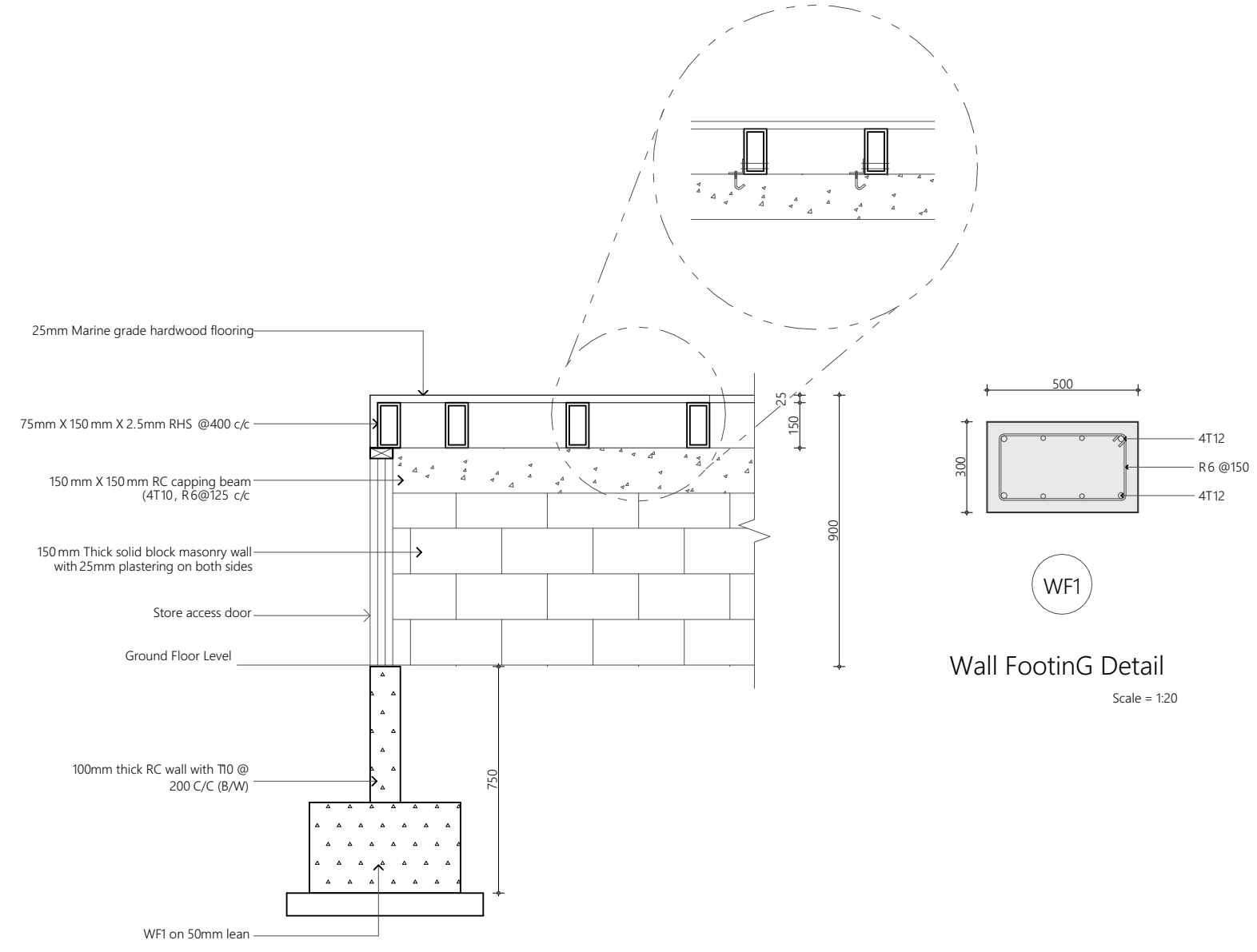
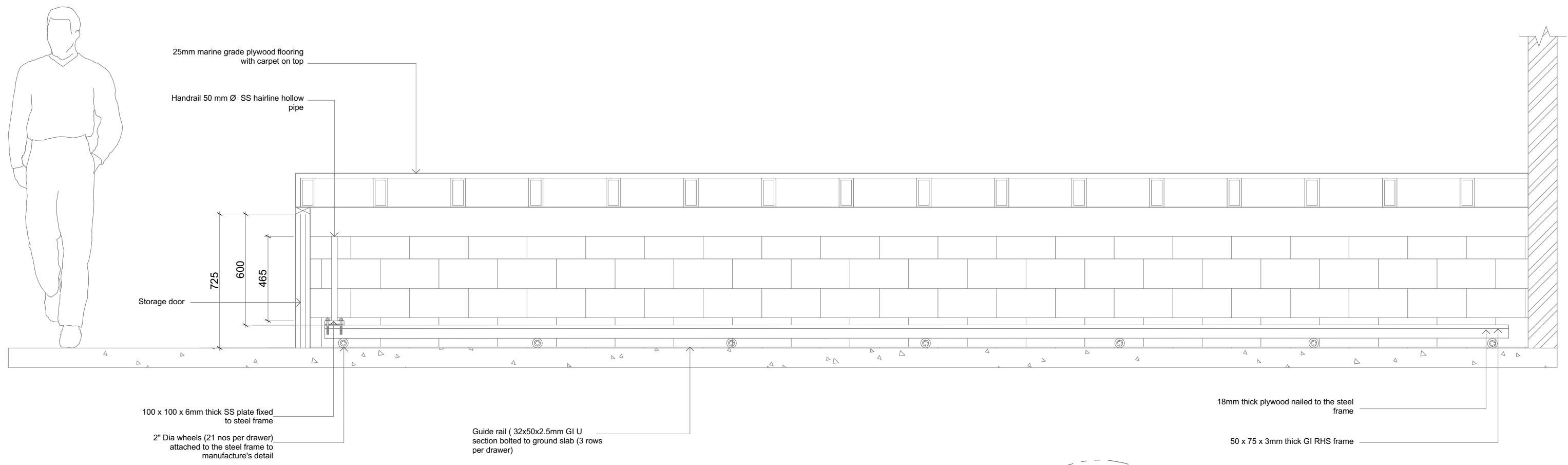
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

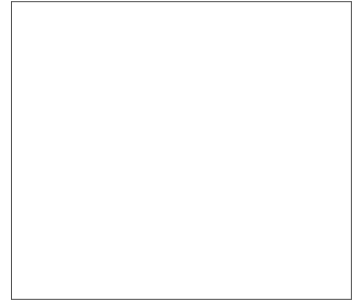
Rev No :

Pg : C.01.6



Stage Section Detail
1:100

Overview :



Legend :

Notes :

| # | REVISION | BY | APP | DATE |
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Project :
Multipurpose Hall, K Villimale School

Client :
Ministry of Education, Maldives

Prepared by



T: +960 333 3528, E: info@epoch.associates,
W: www.epoch.associates, A/G.Rosary West, 3rd
Floor, Husnuheena Magu, Male', Maldives

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| DRAWN: F. Ihudha Amir | APPROVED: Ihsaan Waheed |

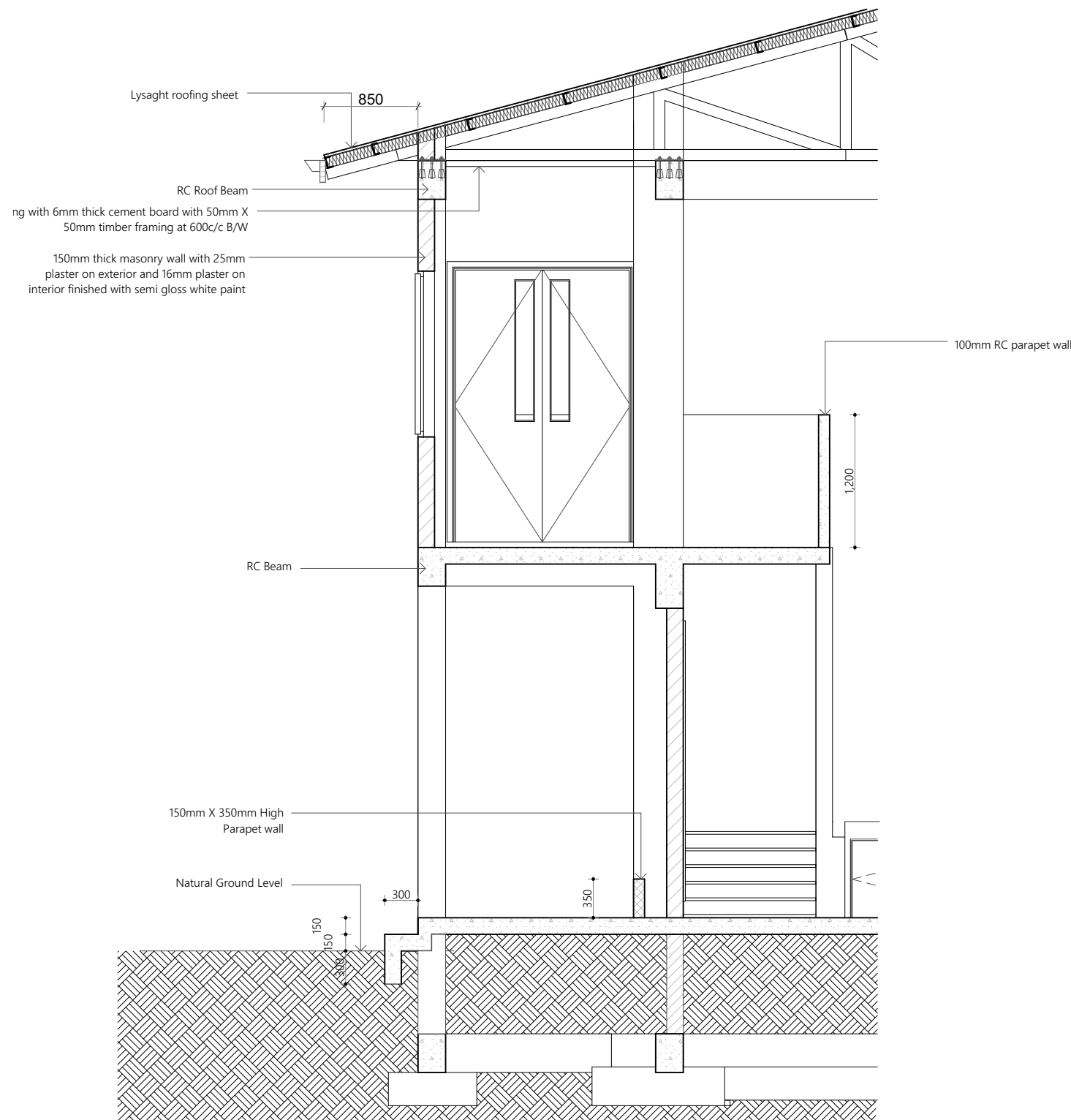
Page Title
Stage Section Detail

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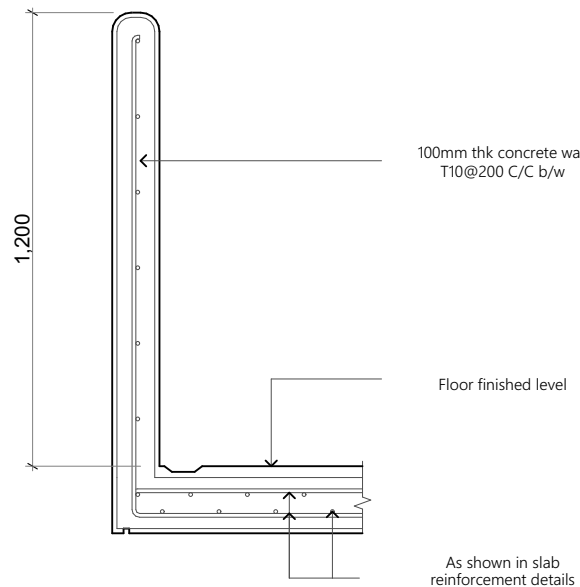
Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

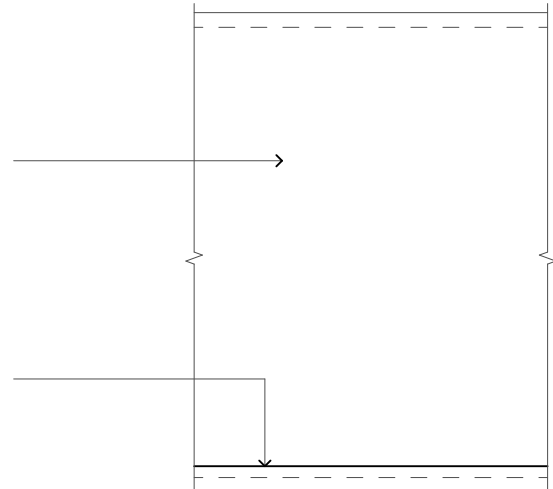
Rev No : **Pg :** C.01.7



Top to Bottom Detail
1:50



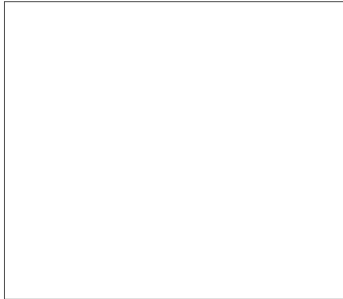
Sectional View



Elevation View

Balcony Detail
1:20

Overview :



Legend :

Notes :

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| # | REVISION | BY | APP | DATE |

Project :

Multipurpose Hall, K Villimale School

Client :

Ministry of Education, Maldives

Prepared by



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Page Title

Top to Bottom Detail & Balcony Detail

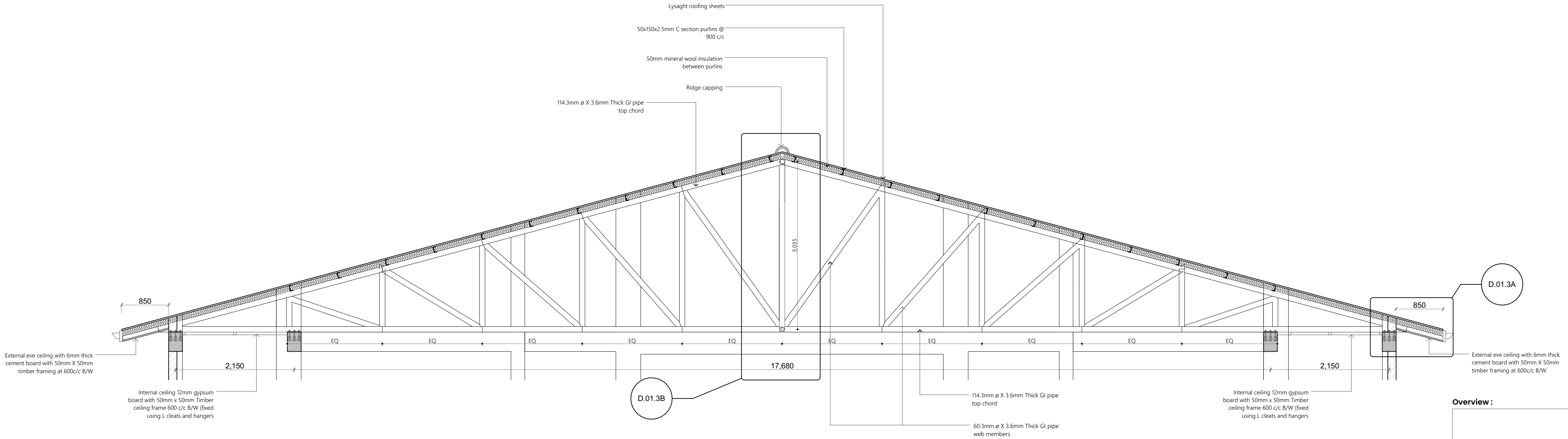
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

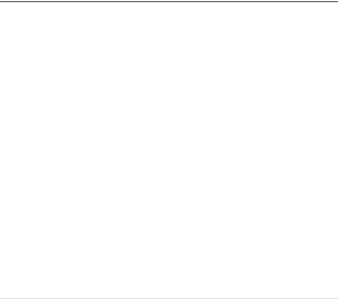
Rev No :

Pg : C.01.8

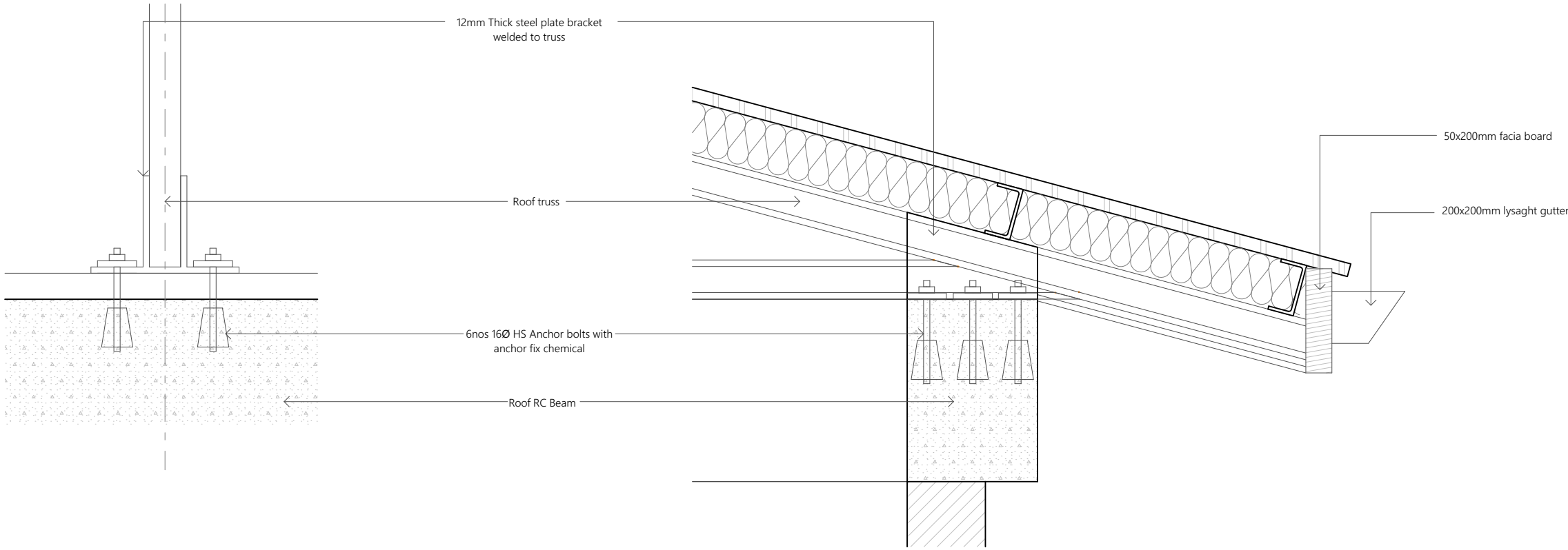


TR1 Details
1:50

Overview :



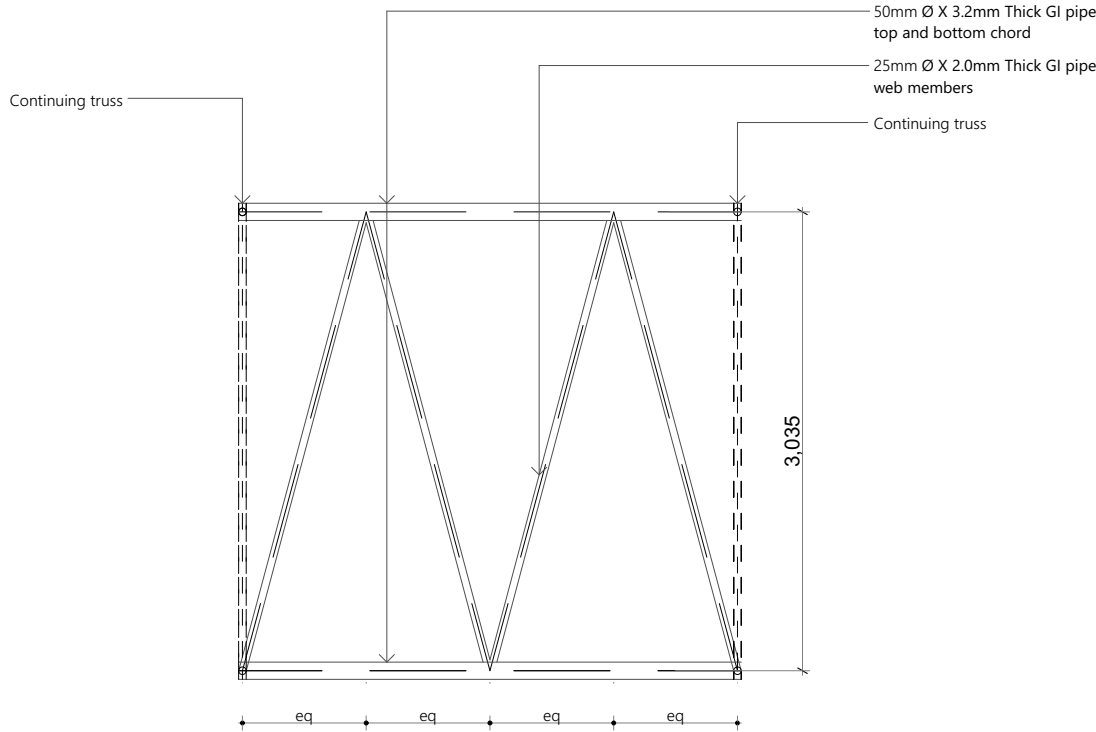
Legend :



Note:

- All the CHS shall have minimum yield stress of 275 MPa
- All welds shall be 6mm thick full perimeter fillet welds
- All truss ends shall be end capped with 6mm plates
- All truss members shall be protected with anti corrosive coatings

Detail D-01-03A
1:10



BTR-Bracing truss details
1:50

Notes :

| # | REVISION | BY | APP | DATE |
|---|----------|----|-----|------|
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Project :
Multipurpose Hall, K Villimale School

Client :
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Prepared by



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Page Title
Truss Detail

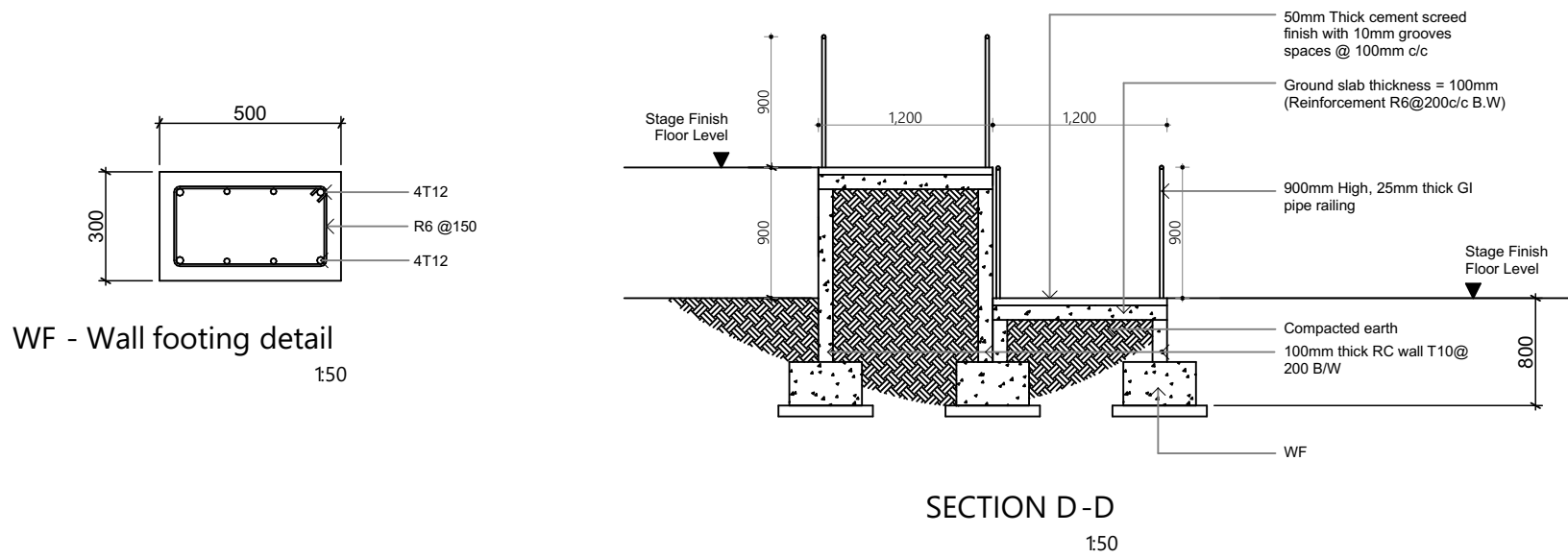
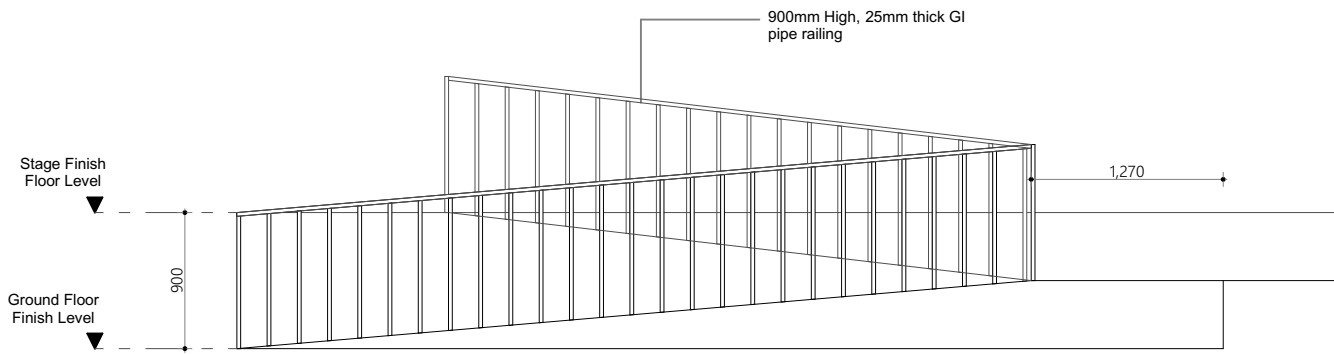
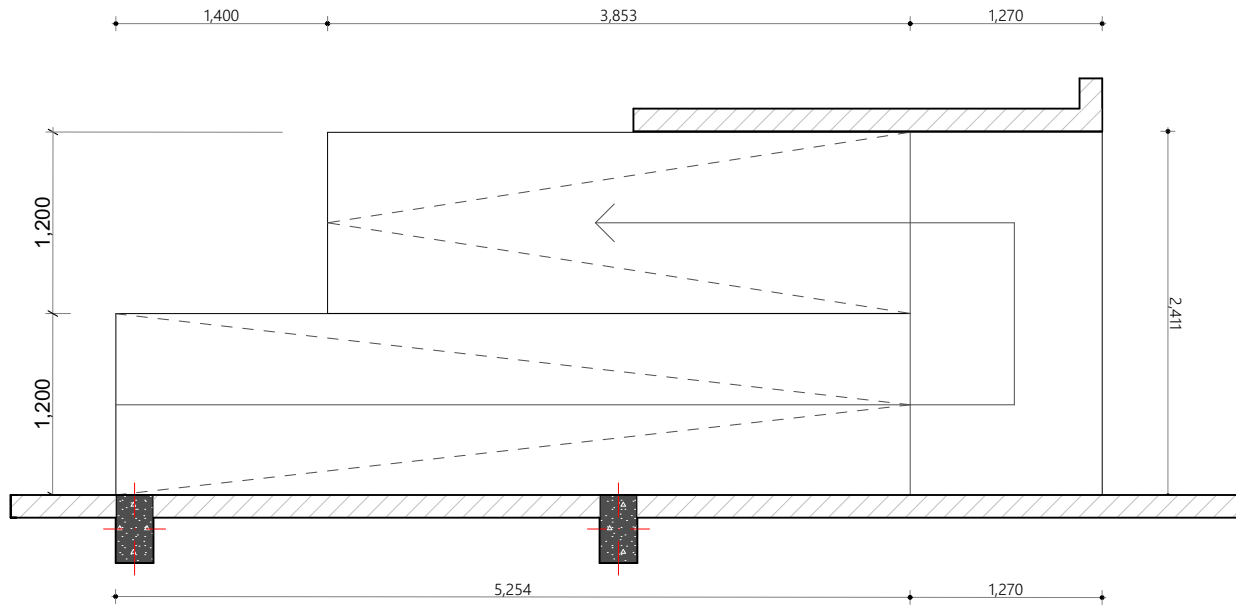
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

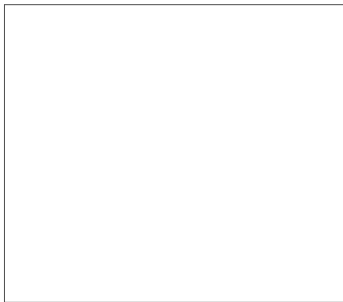
Rev No :

Pg : C.01.9



Ramp Detail
1:50

Overview :



Legend :

Notes :

| # | REVISION | BY | APP | DATE |
|---|----------|----|-----|------|
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Project :
Multipurpose Hall, K Villimale School

Client :
Ministry of Education, Maldives

Prepared by



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Page Title
Ramp Detail

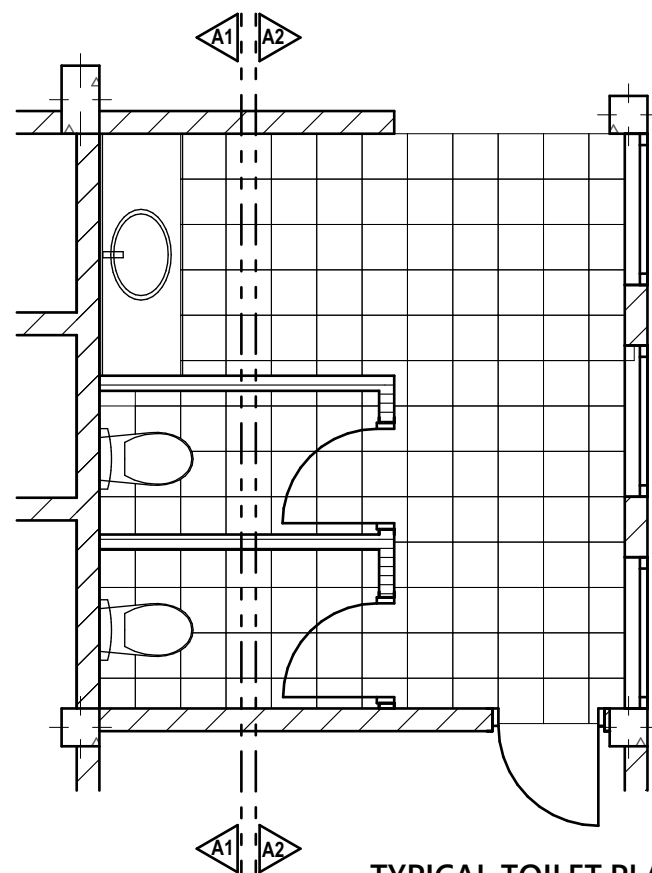
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Doc No : EP/BLD-ST/2022/29/ST-T01/03

Date : Sunday, July 31, 2022

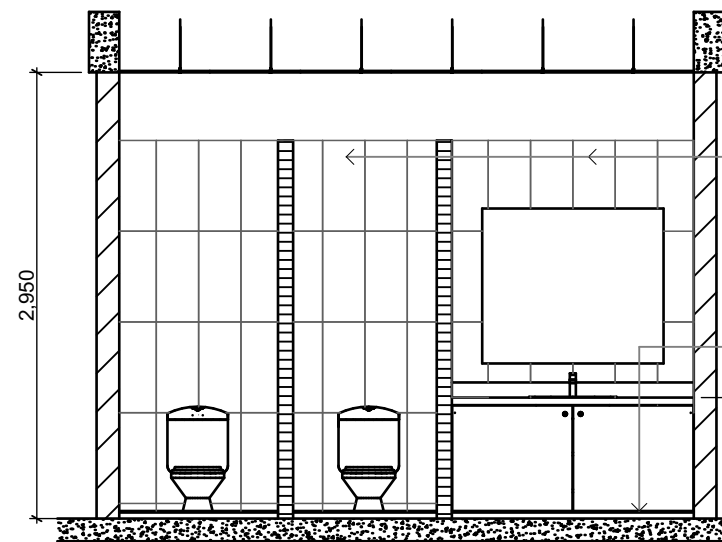
Rev No :

Pg : C.01.10



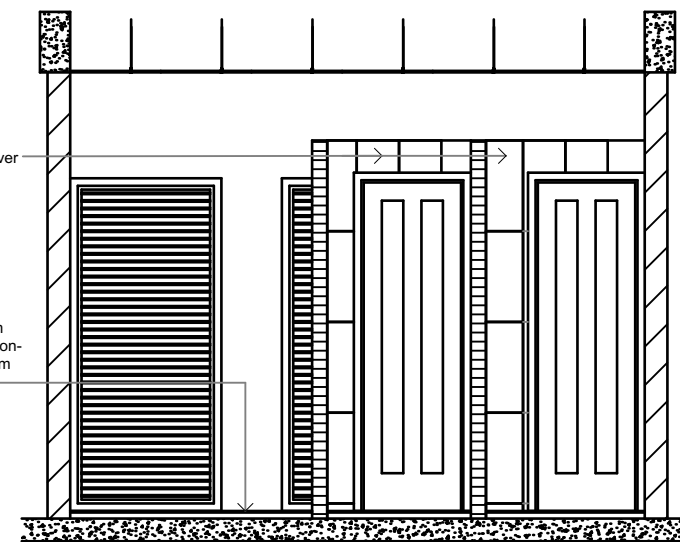
TYPICAL TOILET PLAN

1:50



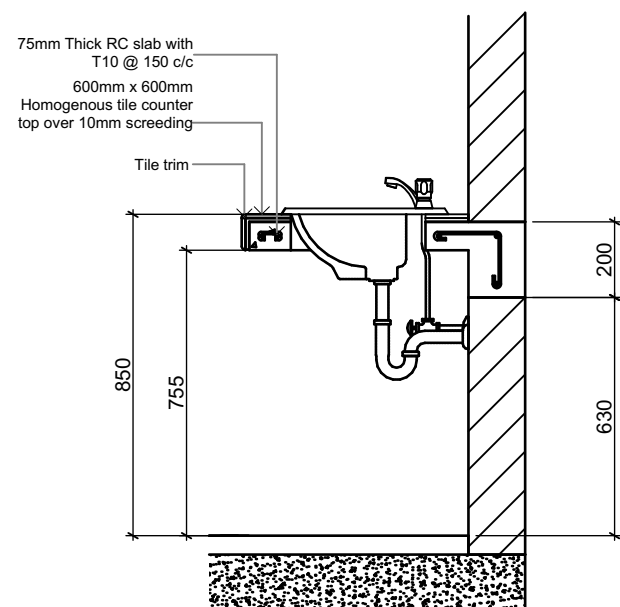
SECTION A1

1:50



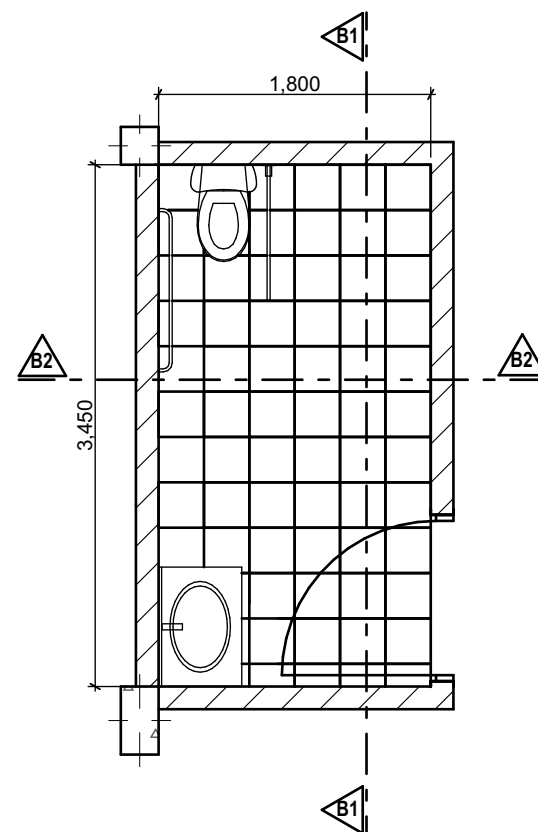
SECTION A2

1:50



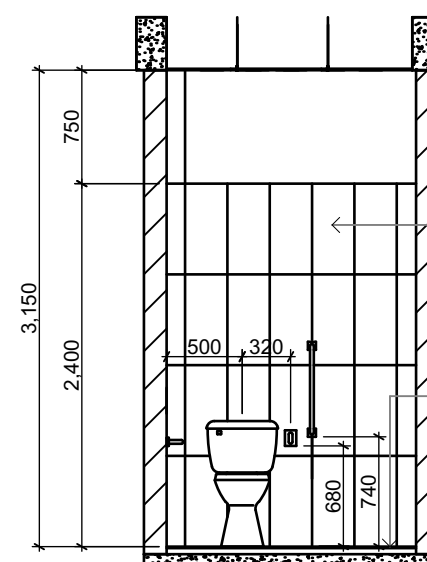
COUNTER TOP DETAILS

1:20



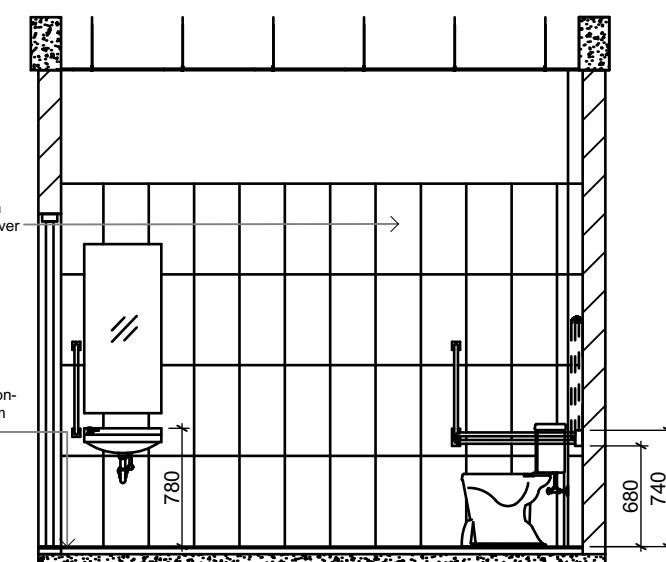
TOILET FOR PERSONS WITH
DISABILITIES DETAIL

1:50



SECTION B1

1:50



SECTION B2

1:50