

COLUMN DETAILS
C1 = LENGTH 450 X WIDTH 450 X HEIGHT 2000
C2 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C3 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C4 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C5 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C6 = LENGTH 450 X WIDTH 450 X HEIGHT 2000
C7 = LENGTH 450 X WIDTH 450 X HEIGHT 9300

WALL DETAILS
W1 = LENGTH 8150 X WIDTH 250 X HEIGHT 9300
W2 = LENGTH 2100 X WIDTH 250 X HEIGHT 5600

COLUMN AND BEAM LAYOUT PLAN UPTO GROUND FLOOR LEVEL

- Notes
1. All dimensions are in meters unless specified otherwise.
 2. All relative levels are in meters unless specified otherwise.
 3. All dimensions measure unfinished surfaces unless specified otherwise.
 4. All dimensions are to be read and not scaled off.
 5. Any discrepancy in drawing is to be brought to the immediate notice of the Client/Supervising Engineer.
 6. Minor adjustments need to be carried out on site to match with existing structure.
 7. Verify dimensioning, take real measurements.
 8. All construction changes on the site to be agreed with the Client/Supervising Engineer.

Client
Ministry of Information and Communications
Department of Air Transport

Aviation Planners & Engineers
Leading Edge Aviation Planning Professionals

Civil Engineering Consultant
Gyaltshen Consultancy

Project Title
BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title
Column and beam layout plan GF

Scale
1 : 200 @ A3

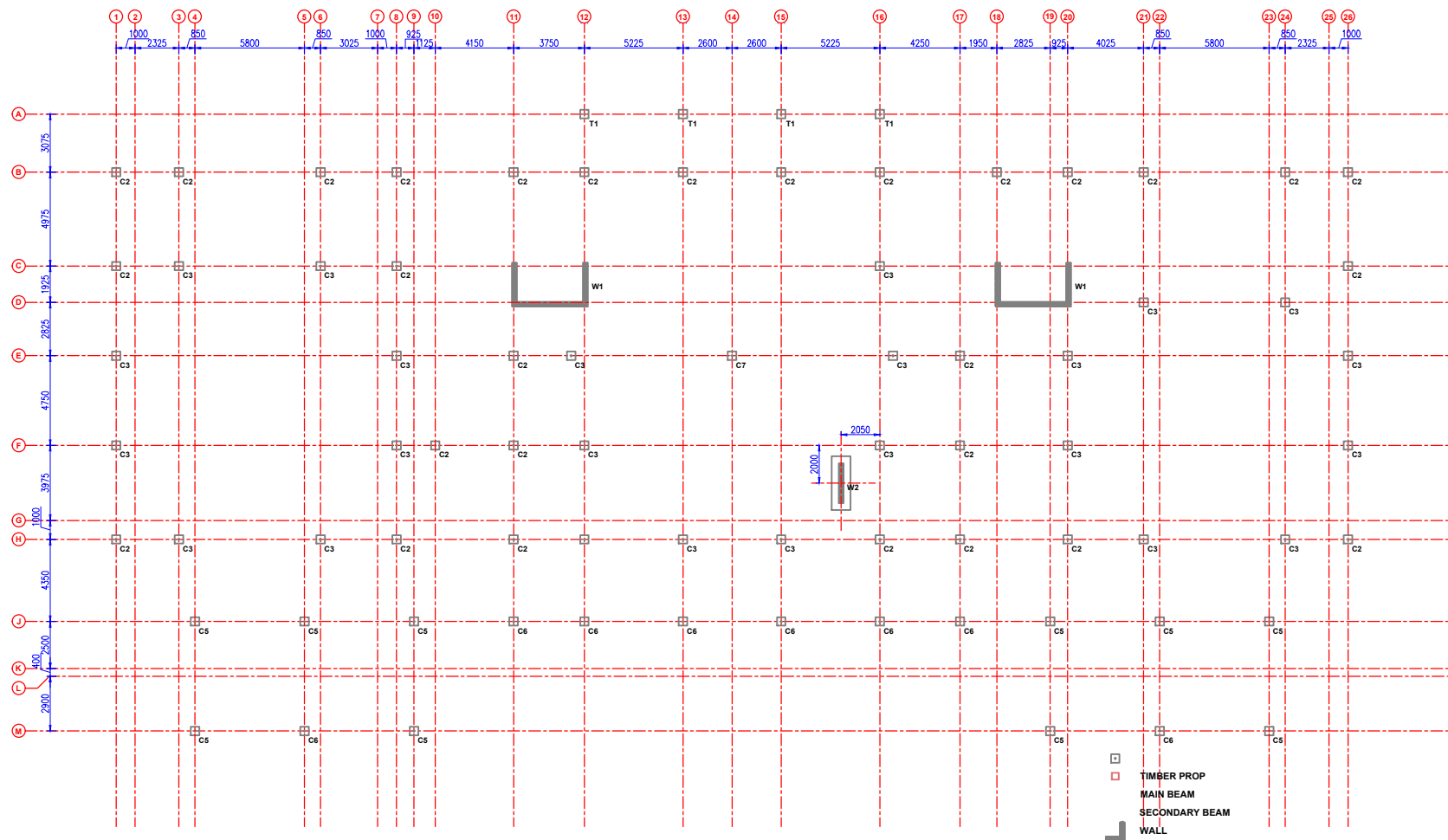
Date
December 2016

Drawn By
S Tobgay, P Dorji & A Pradhan

Drawing Number
STR - 100

Rev No.
R0

LEAPP Project Code
12246



COLUMN LAYOUT PLAN UPTO FIRST FLOOR FLOOR LEVEL

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Civil Engineering Consultant

Gyaltshen Consultancy

Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
 GELEPHU AIRPORT SECURITY QUARTERS

Drawing Title

Column layout plan upto FF

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

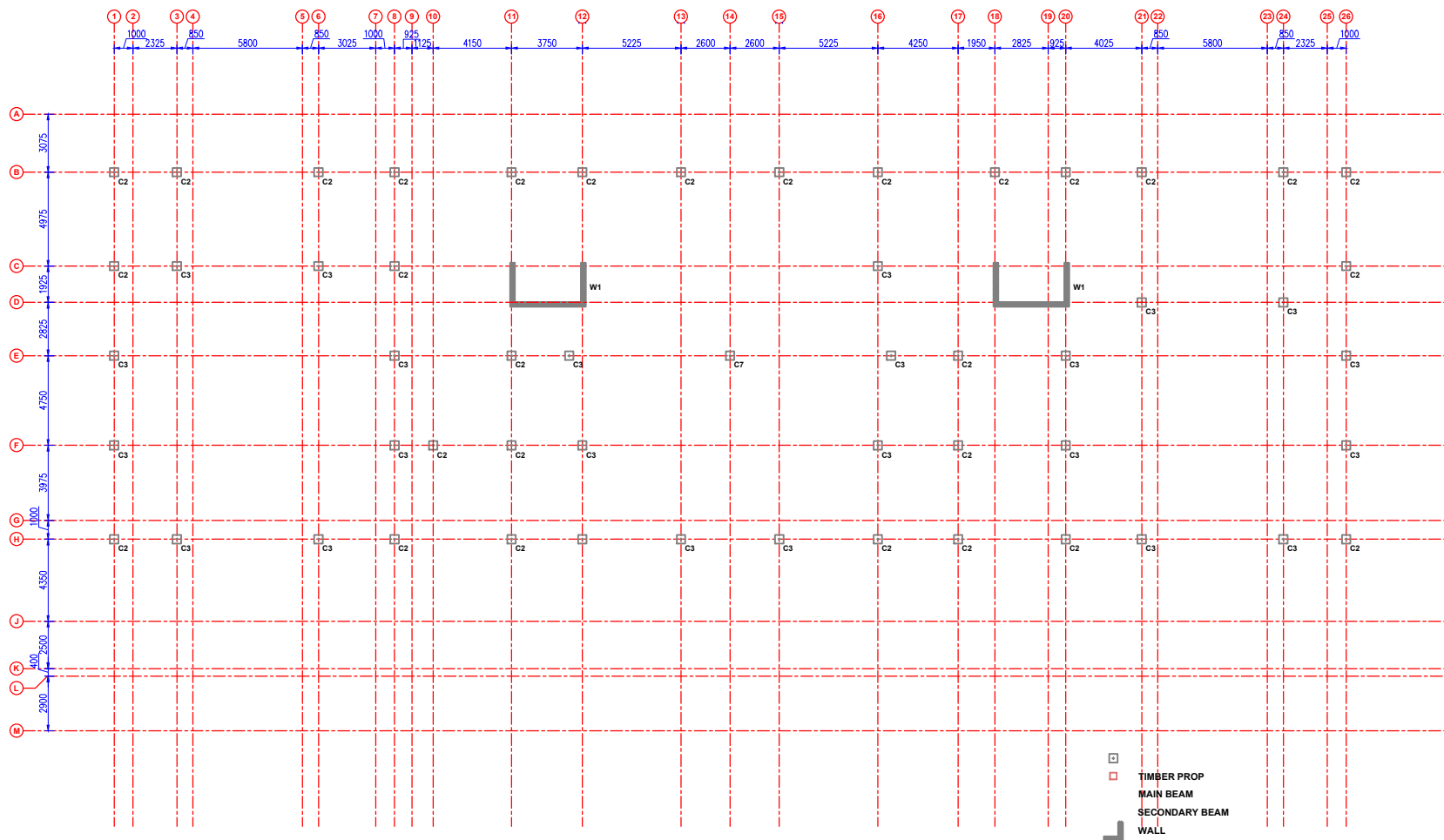
STR - 100

LEAPP Project Code

12246

Rev No.

R0



COLUMN LAYOUT PLAN UPTO FIRST FLOOR FLOOR LEVEL

COLUMN DETAILS

C1 = LENGTH 450 X WIDTH 450 X HEIGHT 2000
C2 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C3 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C4 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C5 = LENGTH 450 X WIDTH 450 X HEIGHT 9300
C6 = LENGTH 450 X WIDTH 450 X HEIGHT 2000
C7 = LENGTH 450 X WIDTH 450 X HEIGHT 9300

WALL DETAILS

W1 = LENGTH 8150 X WIDTH 250 X HEIGHT 9300
W2 = LENGTH 2100 X WIDTH 250 X HEIGHT 5600

Notes

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Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUARTERS

Drawing Title

Column layout plan FF

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

STR - 100

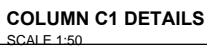
LEAPP Project Code

12246

Rev No.

R0

1. THE HOOKS SHALL ENGAGE PERIPHERAL LONGITUDINAL BARS.
2. NOT MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ONE SECTION.
3. HOOKS SHALL BE STRICTLY 100 MM LONG.
4. IN AN EXTERNAL JOINT, BOTH THE TOP AND THE BOTTOM BARS OF THE BEAM SHALL BE PROVIDED WITH ANCHORAGE LENGTH, BEYOND INNER FACE OF THE COLUMN, EQUAL TO THE DEVELOPMENT LENGTH IN TENSION PLUS 10 TIMES THE BAR DIAMETER I.E ($L_d + 10\phi$).
5. IN AN INTERNAL JOINT, BOTH FACE BARS OF THE BEAMS MUST BE TAKEN CONTINUOUSLY THROUGH THE COLUMN.
6. COLUMN STIRRUPS MUST BE CONTINUOUS THROUGH BEAM COLUMN JOINT.
7. SPECIAL CONFINING REINFORCEMENT OF $10\phi @ 100\text{mm}$ C/C SHALL CONTINUE UP TO 450MM ON EITHER SIDE FROM THE FACE OF THE SUPPORT.
8. THE MAIN REINFORCEMENT OF COLUMNS SHALL BE STRAIGHT WITHOUT KINKS OR CRANK.
9. THE SPLICE IN THE COLUMN SHALL BE AWAY FROM THE SUPPORT BY $H/4$ & THE SPLICE LENGTH SHALL BE THE DEVELOPMENT LENGTH(L_d) OR 47ϕ DIAMETER, STIRRUPS ARE SPACED NOT MORE THAN 100 mm C/C.
10. COLUMNS SUPPORTING STAIRCASE SHALL BE PROVIDED WITH STIRRUPS OF $10\phi @ 100 \text{ mm/C}$ THROUGHOUT.
11. SPLICING AT GROUND FLOOR LEVEL IS PROHIBITED.
12. COVER = 40 mm

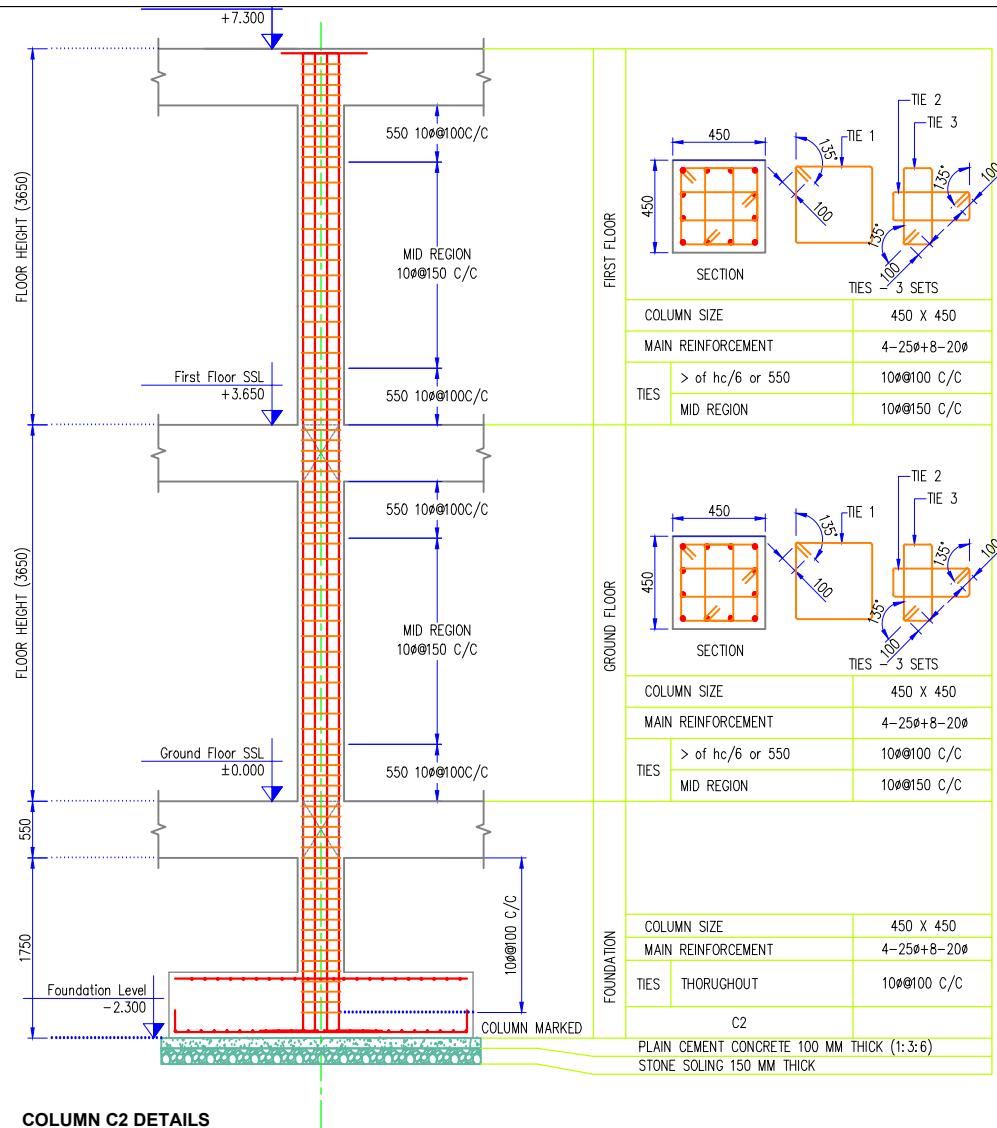


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BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

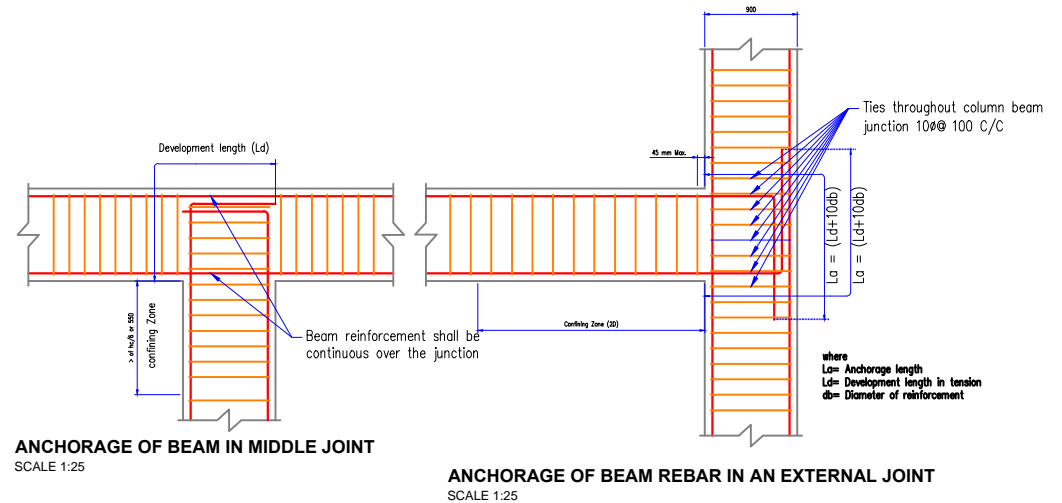
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**ROYAL GOVERNMENT OF BHUTAN
DEPARTMENT OF AIR TRANSPORT**



NOTE:-

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- THE MAIN REINFORCEMENT OF COLUMNS SHALL BE STRAIGHT WITHOUT KINKS OR CRANK.
- THE SPLICE IN THE COLUMN SHALL BE AWAY FROM THE SUPPORT BY H/4 & THE SPLICE LENGTH SHALL BE THE DEVELOPMENT LENGTH(L_d) OR 47 \times DIAMETER, STIRRUPS ARE SPACED NOT MORE THAN 100 mm C/C.
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Leading Edge Aviation Planning Professionals

Civil Engineering Consultant

Gyaltshen Consultancy

Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title

Column C2 details

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

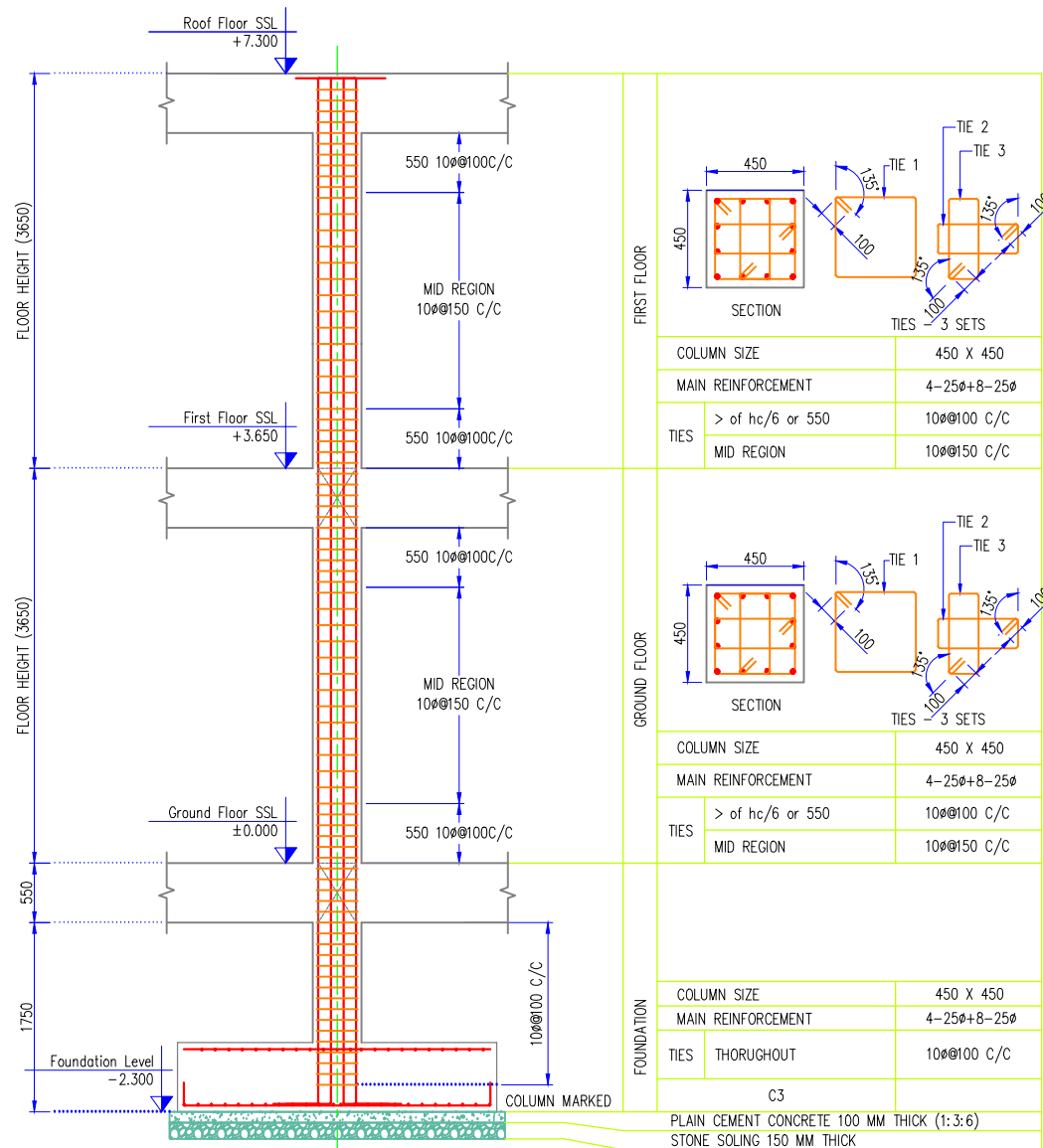
STR - 100

Rev No.

R0

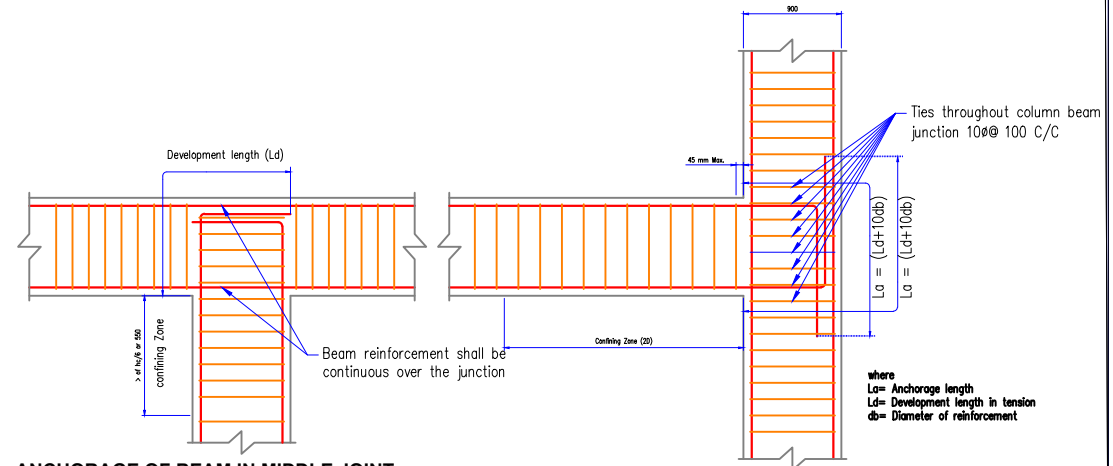
LEAPP Project Code

12246



NOTE:-

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10. COLUMNS SUPPORTING STAIRCASE SHALL BE PROVIDED WITH STIRRUPS OF 10φ@100 mmC/C THROUGHOUT.
11. SPLICING AT GROUND FLOOR LEVEL IS PROHIBITED.
12. COVER = 40 mm



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Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title

Column C3 details

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

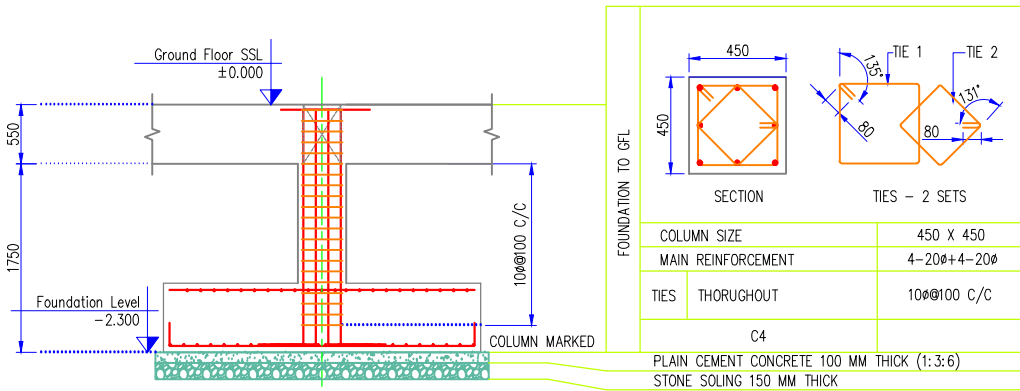
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LEAPP Project Code

12246

Rev No.

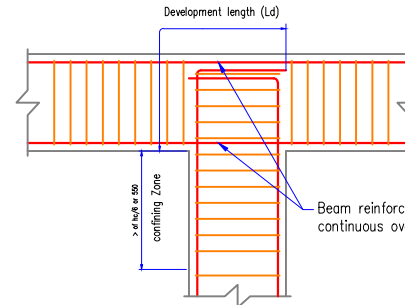
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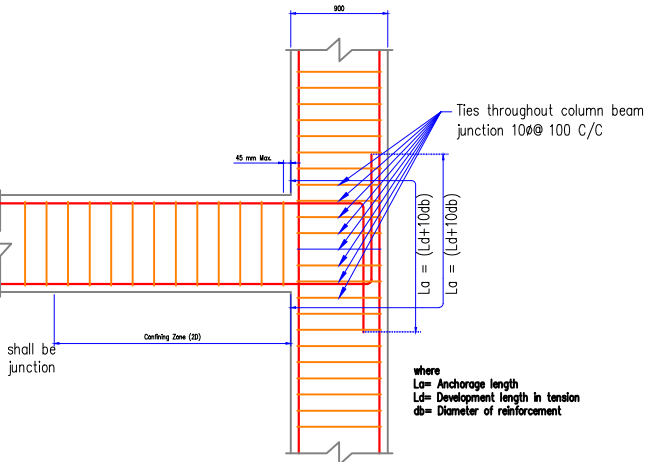
COLUMN C4 DETAILS
SCALE 1:50

NOTE:-

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2. NOT MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ONE SECTION.
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6. COLUMN STIRRUPS MUST BE CONTINUOUS THROUGH BEAM COLUMN JOINT.
7. SPECIAL CONFINING REINFORCEMENT OF 10#@ 100MM C/C SHALL CONTINUE UP TO 450MM ON EITHER SIDE FROM THE FACE OF THE SUPPORT.
8. THE MAIN REINFORCEMENT OF COLUMNS SHALL BE STRAIGHT WITHOUT KINKS OR CRANK.
9. THE SPLICE IN THE COLUMN SHALL BE AWAY FROM THE SUPPORT BY H/4 & THE SPLICE LENGTH SHALL BE THE DEVELOPMENT LENGTH(L_d) OR 47xDIAMETER, STIRRUPS ARE SPACED NOT MORE THAN 100 mm C/C.
10. COLUMNS SUPPORTING STAIRCASE SHALL BE PROVIDED WITH STIRRUPS OF 10#@100 mmC/C THROUGHOUT.
11. SPLICING AT GROUND FLOOR LEVEL IS PROHIBITED.
12. COVER = 40 mm



ANCHORAGE OF BEAM IN MIDDLE JOINT
SCALE 1:25



ANCHORAGE OF BEAM REBAR IN AN EXTERNAL JOINT
SCALE 1:25

Notes

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**ROYAL GOVERNMENT OF BHUTAN
DEPARTMENT OF AIR TRANSPORT**

Client

Ministry of Information and Communications
Department of Air Transport

Aviation Planners & Engineers

Leading Edge Aviation Planning Professionals

Civil Engineering Consultant

Gyaltshen Consultancy

Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title

Column C4 details

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

STR - 100

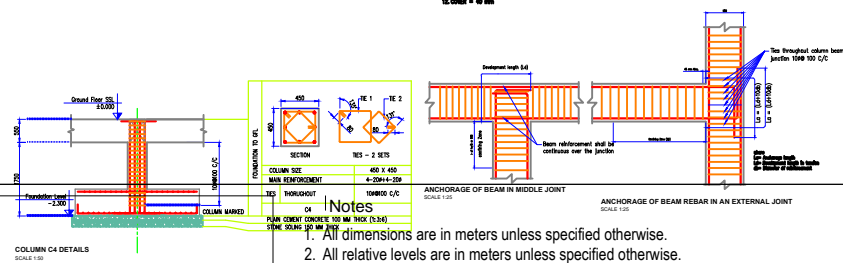
LEAPP Project Code

12246

Rev No.

R0

Reinforced concrete beam
400 x 100 C/C



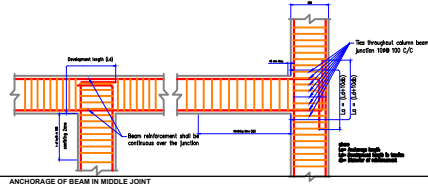
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ROYAL GOVERNMENT OF BHUTAN
DEPARTMENT OF AIR TRANSPORT

NOTES:-

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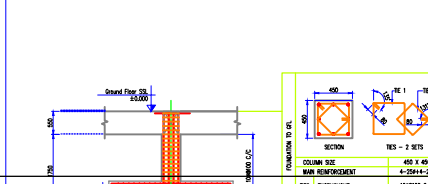
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Project Title
BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

NOTES:-

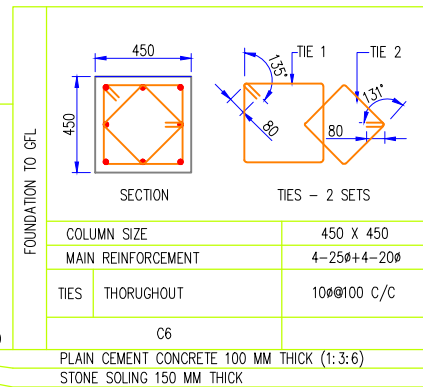
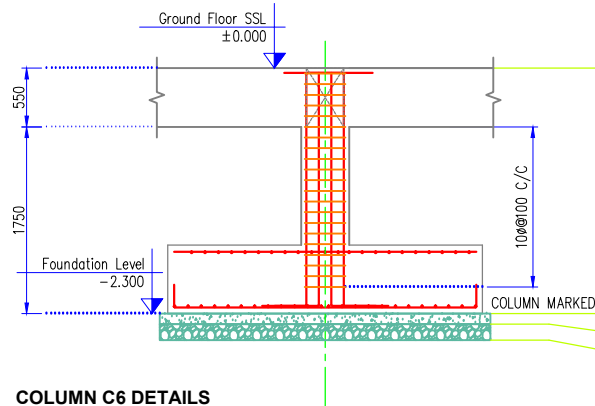
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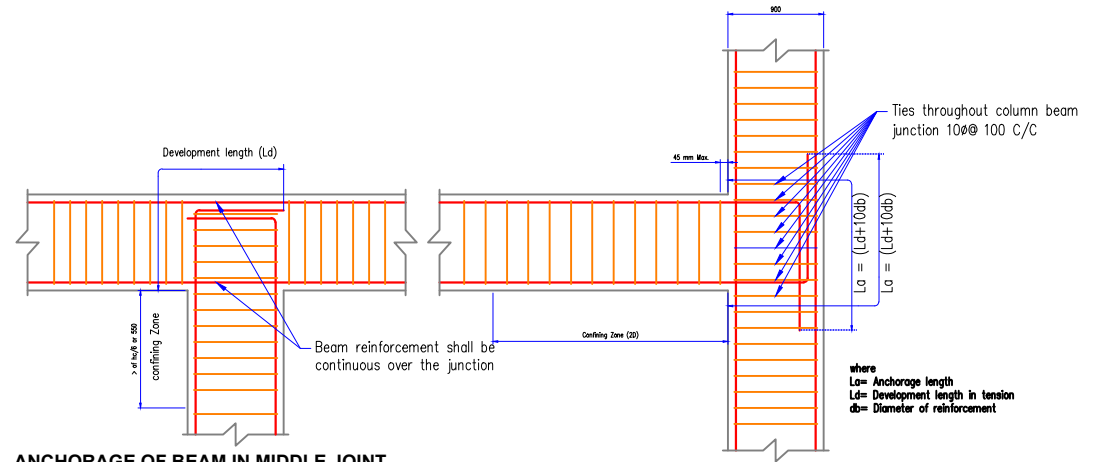
Drawing Title
Column C5 details
Scale
1 : 200 @ A3
Date
December 2016
Drawn By
S Tobgay, P Dorji & A Pradhan
Drawing Number
STR - 100
Rev No.
R0
LEAPP Project Code
12246



COLUMN C6 DETAILS
SCALE 1:50

NOTE:-

1. THE HOOKS SHALL ENGAGE PERIPHERAL LONGITUDINAL BARS.
2. NOT MORE THAN 50% OF THE BARS SHALL BE SPLICED AT ONE SECTION.
3. HOOKS SHALL BE STRICTLY 100 MM LONG.
4. IN AN EXTERNAL JOINT, BOTH THE TOP AND THE BOTTOM BARS OF THE BEAM SHALL BE PROVIDED WITH ANCHORAGE LENGTH, BEYOND INNER FACE OF THE COLUMN, EQUAL TO THE DEVELOPMENT LENGTH IN TENSION PLUS 10 TIMES THE BAR DIAMETER I.E ($L_d + 10\phi$).
5. IN AN INTERNAL JOINT, BOTH FACE BARS OF THE BEAMS SHALL BE TAKEN CONTINUOUSLY THROUGH THE COLUMN.
6. COLUMN STIRRUPS MUST BE CONTINUOUS THROUGH BEAM COLUMN JOINT.
7. SPECIAL CONFINING REINFORCEMENT OF 10mm diameter stirrups at 100mm C/C SHALL CONTINUE UP TO 450MM ON EITHER SIDE FROM THE FACE OF THE SUPPORT.
8. THE MAIN REINFORCEMENT OF COLUMNS SHALL BE STRAIGHT WITHOUT KINKS OR CRANK.
9. THE SPLICE IN THE COLUMN SHALL BE AWAY FROM THE SUPPORT BY $H/4$ & THE SPLICE LENGTH SHALL BE THE DEVELOPMENT LENGTH(L_d) OR 47xDIAMETER, STIRRUPS ARE SPACED NOT MORE THAN 100 mm C/C.
10. COLUMNS SUPPORTING STAIRCASE SHALL BE PROVIDED WITH STIRRUPS OF 10mm diameter stirrups at 100mm C/C THROUGHOUT.
11. SPLICING AT GROUND FLOOR LEVEL IS PROHIBITED.
12. COVER = 40 mm



ANCHORAGE OF BEAM IN MIDDLE JOINT
SCALE 1:25

ANCHORAGE OF BEAM REBAR IN AN EXTERNAL JOINT
SCALE 1:25

Notes

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Civil Engineering Consultant

Gyaltshen Consultancy

Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title

Column C6 details

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

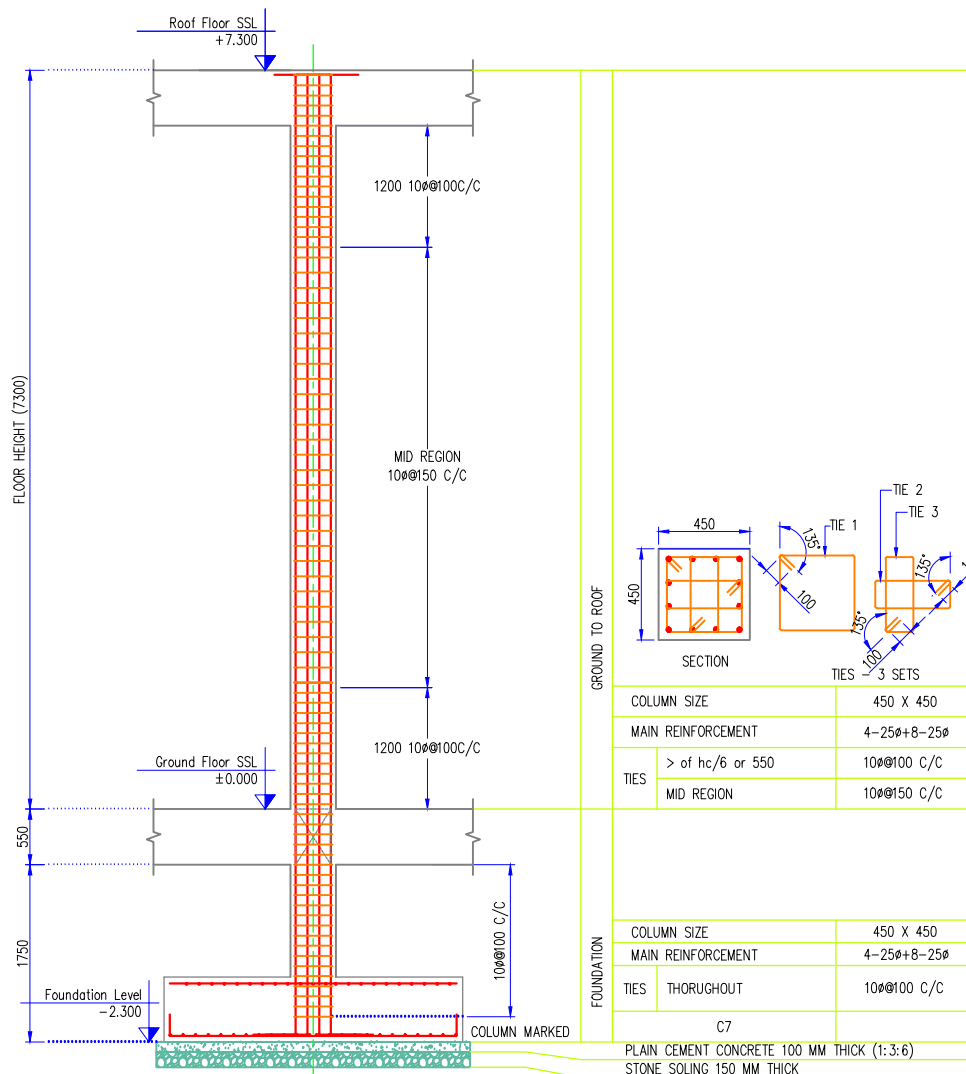
STR - 100

LEAPP Project Code

12246

Rev No.

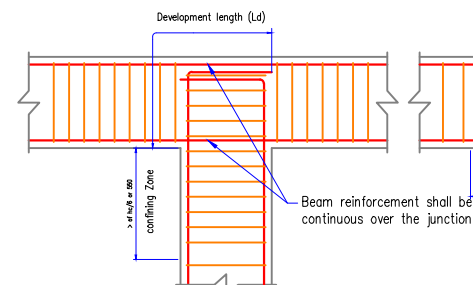
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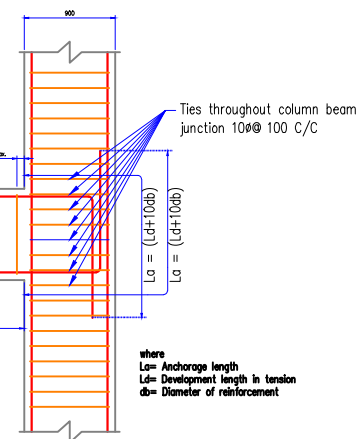
COLUMN C7 DETAILS
SCALE 1:50

NOTE:-

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2. NOT MORE THAN 50% OF THE BARS SHALL BE SPliced AT ONE SECTION.
3. HOOKS SHALL BE STRICTLY 100 MM LONG.
4. IN AN EXTERNAL JOINT, BOTH THE TOP AND THE BOTTOM BARS OF THE BEAM SHALL BE PROVIDED WITH ANCHORAGE LENGTH, BEYOND INNER FACE OF THE COLUMN, EQUAL TO THE DEVELOPMENT LENGTH IN TENSION PLUS 10 TIMES THE BAR DIAMETER I.E ($L_d + 10\phi$).
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6. COLUMN STIRRUPS MUST BE CONTINUOUS THROUGH BEAM COLUMN JOINT.
7. SPECIAL CONFINING REINFORCEMENT OF 10φ@ 100MM C/C SHALL CONTINUE UP TO 450MM ON EITHER SIDE FROM THE FACE OF THE SUPPORT.
8. THE MAIN REINFORCEMENT OF COLUMNS SHALL BE STRAIGHT WITHOUT KINKS OR CRANK.
9. THE SPLICE IN THE COLUMN SHALL BE AWAY FROM THE SUPPORT BY H/4 & THE SPLICE LENGTH SHALL BE THE DEVELOPMENT LENGTH(L_d) OR 47xDIAMETER, STIRRUPS ARE SPACED NOT MORE THAN 100 mm C/C.
10. COLUMNS SUPPORTING STAIRCASE SHALL BE PROVIDED WITH STIRRUPS OF 10φ@100 mmC/C THROUGHOUT.
11. SPlicing AT GROUND FLOOR LEVEL IS PROHIBITED.
12. COVER = 40 mm



ANCHORAGE OF BEAM IN MIDDLE JOINT
SCALE 1:25



ANCHORAGE OF BEAM REBAR IN AN EXTERNAL JOINT
SCALE 1:25

Notes

1. All dimensions are in meters unless specified otherwise.
2. All relative levels are in meters unless specified otherwise.
3. All dimensions measure unfinished surfaces unless specified otherwise.
4. All dimensions are to be read and not scaled off.
5. Any discrepancy in drawing is to be brought to the immediate notice of the Client/Supervising Engineer.
6. Minor adjustments need to be carried out on site to match with existing structure.
7. Verify dimensioning, take real measurements.
8. All construction changes on the site to be agreed with the Client/Supervising Engineer.

Client

Ministry of Information and Communications
Department of Air Transport

Aviation Planners & Engineers

Leading Edge Aviation Planning Professionals

Civil Engineering Consultant

Gyaltshen Consultancy

Project Title

BHUTAN DOMESTIC AIRPORT DESIGN & SUPERVISION
GELEPHU AIRPORT SECURITY QUATERS

Drawing Title

Column C7 details

Scale 1 : 200 @ A3

Date December 2016

Drawn By S Tobgay, P Dorji & A Pradhan

Drawing Number

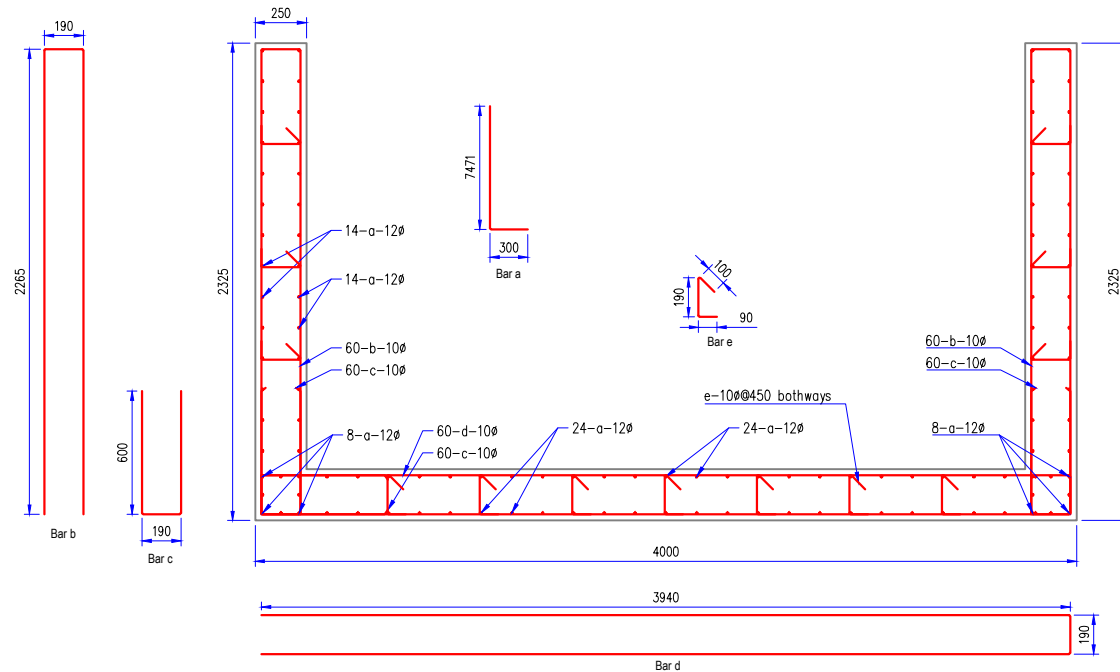
STR - 100

LEAPP Project Code

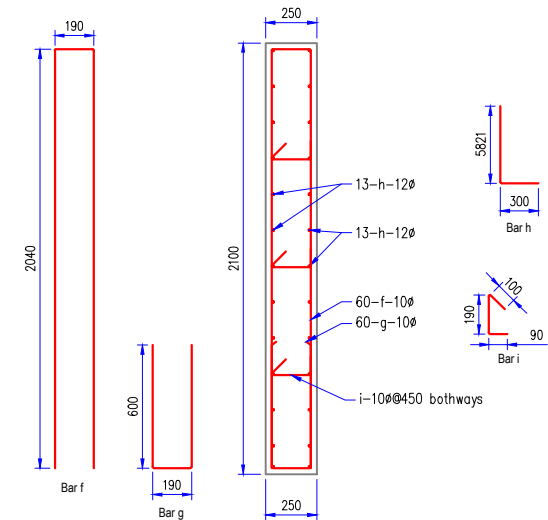
12246

Rev No.

R0



COLUMN W1 DETAILS
SCALE 1:25



COLUMN W1 DETAILS
SCALE 1:25

Notes

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