# SIRIUS OBSERVATORIES

## COLLEGE MODEL : 5.0 METRE (22') DIAMETER

## DESIGN REQUIREMENTS : AUST. & N.Z.

STRUCTURE IS COMPLIANT WITH THE REQUIREMENTS OF PART B1 OR THE BUILDING CODE OF AUSTRALIA AND THE NEW ZEALAND BUILDING CODE.
DESIGN IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUSTRALIAN AND NEW ZEALAND STANDARD AS/NZS 1170, SPECIFICALLY IN THE FOLLOWING PARTS:
PART 0 – STRUCTUAL DESIGN ACTIONS – GENERAL PRINCIPLES (AS/NZS 1170.0),
PART 1 – PERMANENT, IMPOSED, AND OTHER ACTIONS (AS/NZS 1170.1), AND
PART 2 – WIND ACTIONS (AS/NZS 1170.2).
ALTHOUGH NOT APPLICABLE FOR THIS LOCATION, DESIGN COULD BE SUITABLE FOR COMPLIANCE WITH PART 3 – SNOW LOADS AND PART 4 – EARTHQUAKE LOADS.
LIVE LOAD – AS/NZS 1170.1, 0.5 KILOPASCALS (kpa) ON A NON–TRAFFICABLE ROOF
WIND LOAD – AS/NZS 1170.2, FOR A LEVEL 1 SITE IMPORTANCE, WITH AN ANNUAL PROBABILITY OF EXCEEDENCE OF 1/100, THE REGIONAL WIND SPEED ($V_{100}$) = 56 METRES PER SECOND, REGION C, CYCLONIC, IN TERRAIN CATEGORY 2.

## DESIGN REQUIREMENTS : U.S.A.

THIS BUILDING CONFORMS TO THE DESIGN REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE (IBC 2000).
THE AMERICAN SOCIETY FOR CIVIL ENGIEERS MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE 7–98) AND OTHER GENERAL STRUCTUAL ENGINEERING PRINCIPLES AND REFERENCES. THIS OBSERVATORY BUILDING IS SUITABLE FOR AT LEAST THE FOLLOWING STRUCTUAL DESIGN CRITERIA :

- ROOF LIVE LOAD : 10 POUNDS PER SQUARE FOOT (LBS/FT.2).
- GROUND SNOW LOAD : 100 LBS/FT.2.
- BASIC WIND SPEED (3–SECOND GUST) : 90 MILES PER HOUR EXPOSURE CATEGORY B.
- SEISMIC USE GROUP : I.
- SEISMIC SITE CLASS : D.
- SEISMIC DESIGN CATEGORY : E.

## HOLDING DOWN ANCHORS (FASTENERS) :

INSTALL CONCRETE ANCHOR BOLTS IN ACCORDANCE WITH THE INTERNATIONAL CONFERENCE OF BUILDING EVALUATION REPORT 1372 (ICBO ER–1372).
(NO SPECIAL INSPECTION REQUIREMENTS)

| | |
|---|---|
| CONCRETE ANCHOR : | RAMSET/RED HEAD TRUBOLT WEDGE. |
| MINIMUM ANCHOR SIZE : | 1/2 INCH DIAMETER. (M12–12.7MM) |
| MINIMUM EDGE DISTANCE FROM CONCRETE : | 3–15/16 INCHES. (100mm) |
| MINIMUM EMBEDMENT DEPTH : | 2–1/4 INCHES (57mm) |
| MINIMUM CONCRETE STRENGTH : | 2500 POUNDS PER SQUARE INCH (PSI) |

## GENERAL NOTES :

INSTALL OBSERVATORY IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.

## MATERIALS SPECIFICATIONS :

OBSERVATORY IS CONSTRUCTED USING FIBREGLASS MATERIALS CONFORMING TO THE FOLLOWING MATERIAL AND PERFORMANCE SPECIFICATIONS :

| LAMINATE | LOCATION | ROVING OR CHOPPED STRAND MAT (CSM) | | | FIBRECORE OR FOAM CORE | | | THICKNESS INCLUDING GELCOAT | | ELASTIC MODULUS | | TENSILE STRESS | | COMPRESSIVE STRESS | | FLEXURAL STRESS | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LAYERS | OZ/FT2 | GM–M2 | LAYERS | INCHES | MM. | INCHES | MM. | KSI | GPA | KSI | MPA | KSI | MPA | KSI | MPA |
| A | DOME & WALL PANEL | 5 | 1–1/2 | 300 | | N/A | | 0.15 | 3.9 | 800 | 5.8 | 11 | 79 | 16 | 108 | 14 | 95 |
| B | JOIN LAMINATE | 8 | 1–1/2 | 300 | | N/A | | 0.24 | 6.0 | 900 | 6.1 | 12 | 83 | 16 | 112 | 13 | 91 |
| C | DOME STIFFENER | 5 | 1–1/2 | 300 | 1 | 0.16 | 4 | 0.39 | 10.0 | 700 | 5.1 | 8 | 53 | 8 | 56 | 13 | 89 |
| D | | 10 | 1–1/2 | 300 | | N/A | | 0.29 | 7.4 | 900 | 6.0 | 12 | 64 | 17 | 114 | 13 | 90 |
| E | FOAM BEAM | 11 | 1–1/2 | 300 | 1 | 1.57 | 40 | 1.89 | 43.1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

## LEGEND :

| | |
|---|---|
| KSI | KIPS PER SQUARE INCH |
| OZ/FT2 | OUNCES PER SQUARE FOOT |
| GM/M2 | GRAMS PER SQUARE METRE |
| MM. | MILLIMETRES |
| MPA. | MEGAPASCALS |
| GPA. | GIGAPASCALS |

## LIST OF DRAWINGS :



SCALE :
CHECKED :

PROJECT :
STANDARD ASSEMBLY DETAILS :
COLLEGE MODEL
ASTRONOMICAL OBSERVATORY.
DATE : FEBRUARY 2008


SIRIUS OBSERVATORIES AUSTRALIA PTY. LTD.
21 HUNTINGTON STREET CLONTARF QLD. 4019 AUSTRALIA
PHONE (61)7 32842111 FAX (61)7 2384 4827.
EMAIL – info@siriusobservatories.com

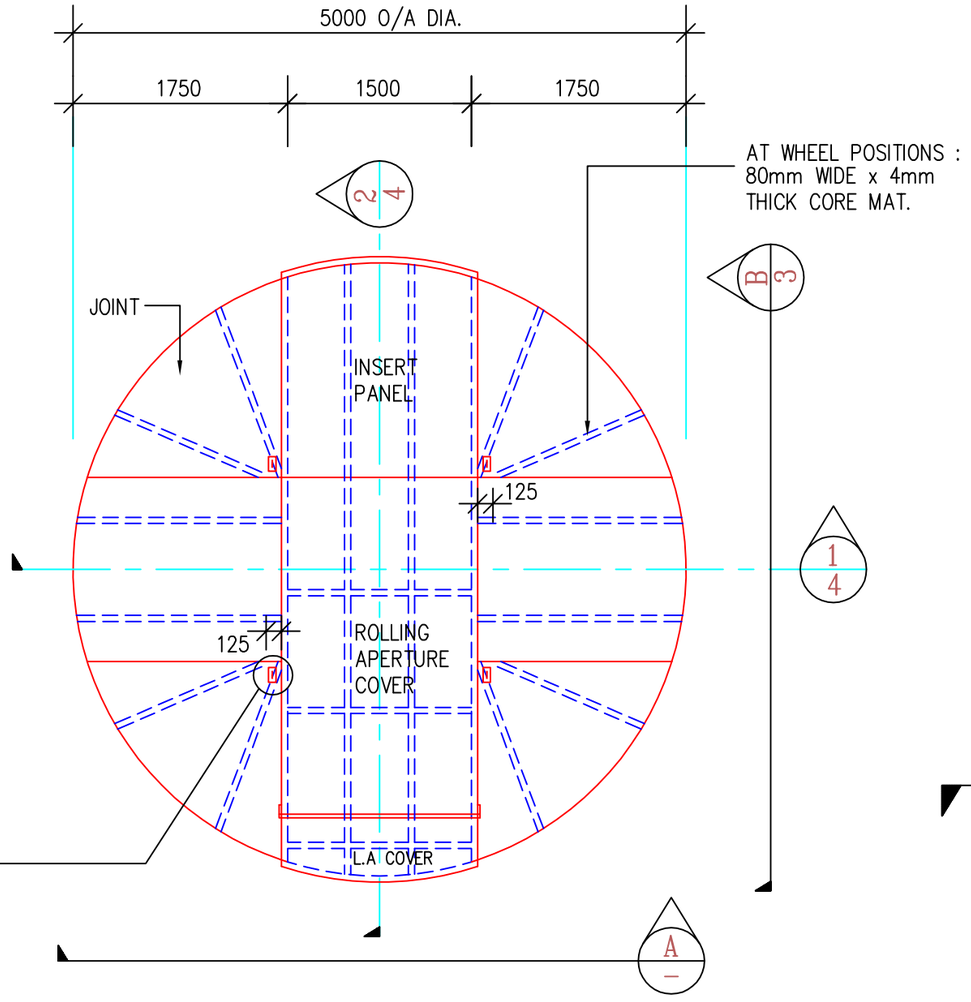

CLIENT :

TITLE :
TITLE SHEET

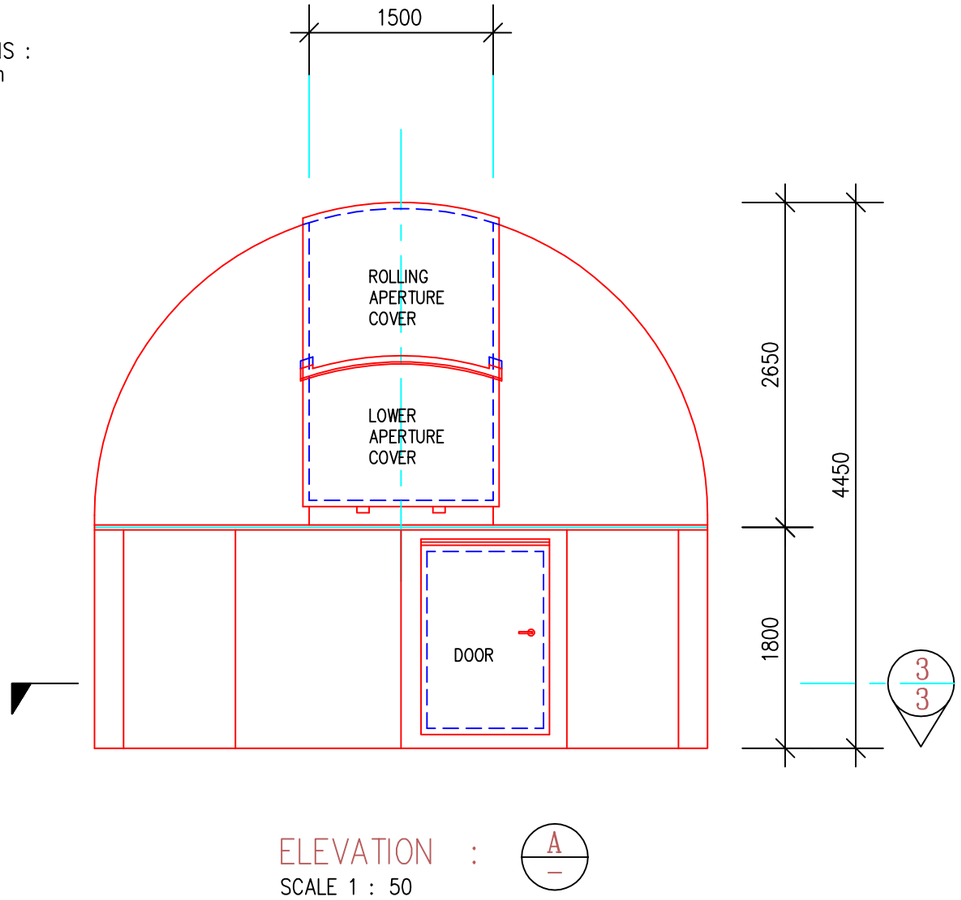
MODEL :
COLLEGE



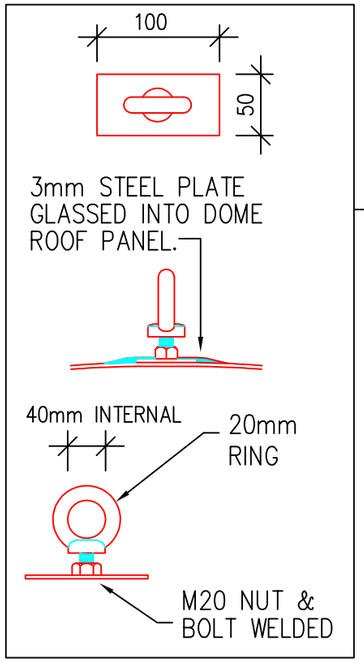
SHEET : 1




PLAN : DOME
SCALE 1 : 50




ELEVATION : A/—
SCALE 1 : 50




LIFTING RING DETAIL : (4 OFF)

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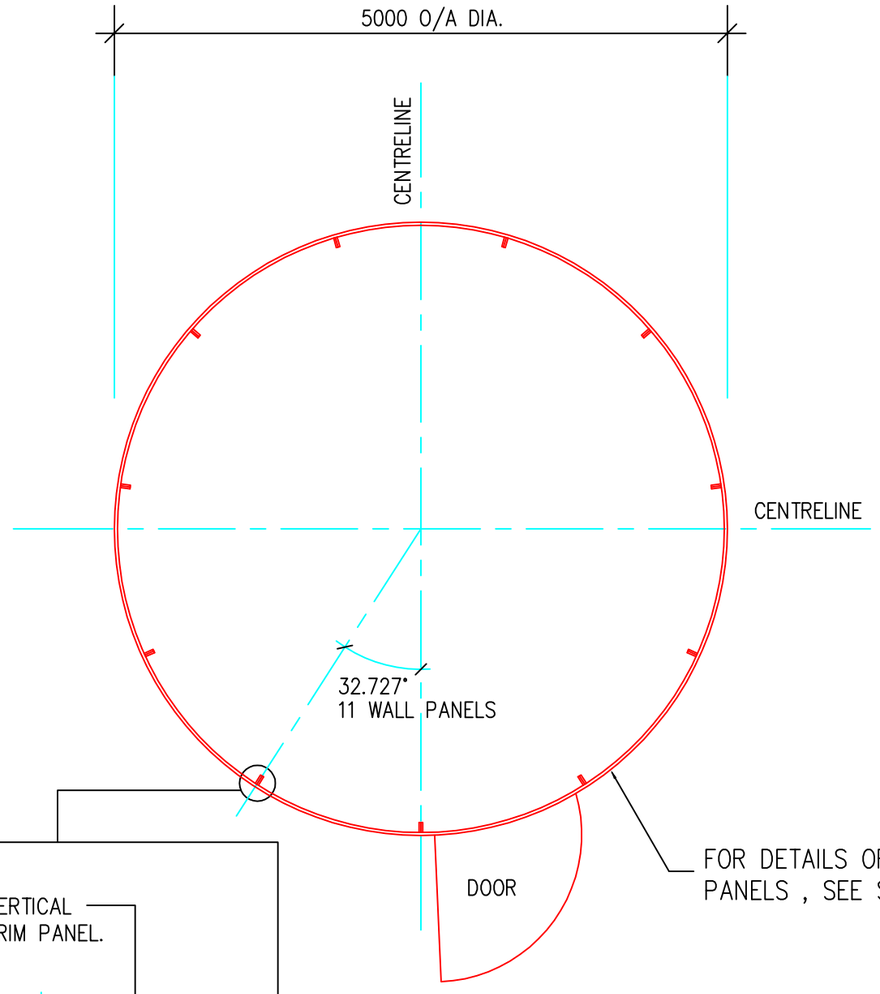
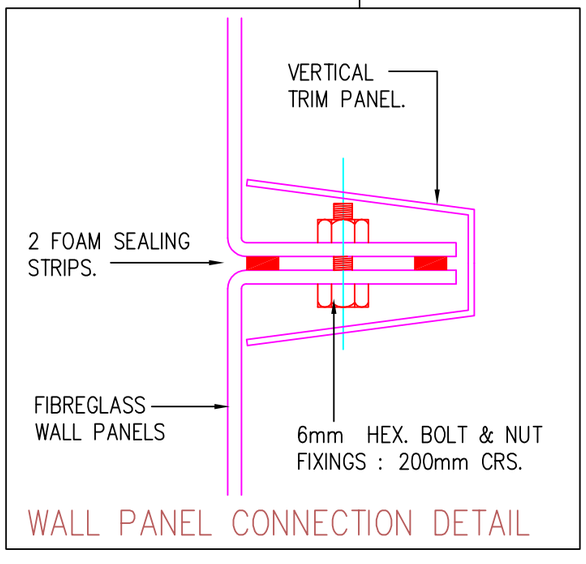
| | | | | |
|---|---|---|---|---|
| SCALE : AS NOTED | CHECKED : | PROJECT : STANDARD ASSEMBLY DETAILS : COLLEGE MODEL ASTRONOMICAL OBSERVATORY. DATE : FEBRUARY 2008 | SIRIUS OBSERVATORIES AUSTRALIA PTY. LTD. 21 HUNTINGTON STREET CLONTARF QLD. 4019 AUSTRALIA PHONE (61)7 32842111 FAX (61)7 2384 4827. EMAIL – info@siriusobservatories.com | CLIENT : / TITLE : DOME PLAN & ELEVATION | MODEL : COLLEGE / © COPYRIGHT / SHEET : 2 |

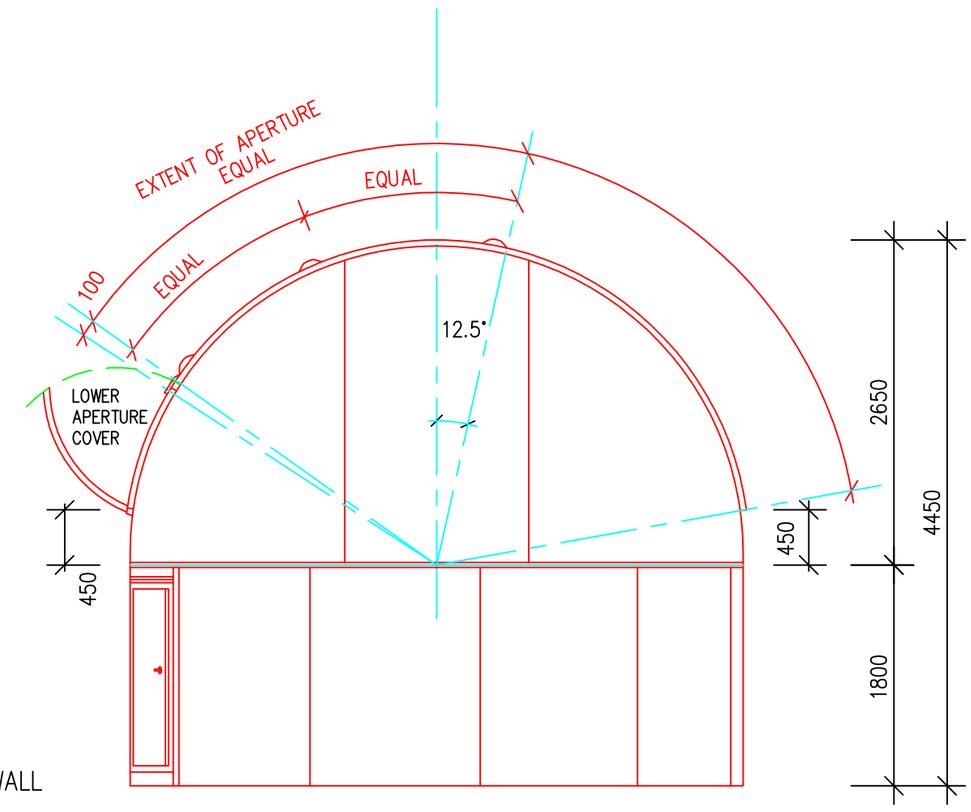



WALL PANEL PLAN : (11 OFF) 3/2

SCALE 1 : 50




WALL PANEL CONNECTION DETAIL




ELEVATION : B/2

SCALE 1 : 50



SCALE : AS NOTED | CHECKED :

PROJECT :
STANDARD ASSEMBLY DETAILS : COLLEGE MODEL ASTRONOMICAL OBSERVATORY.

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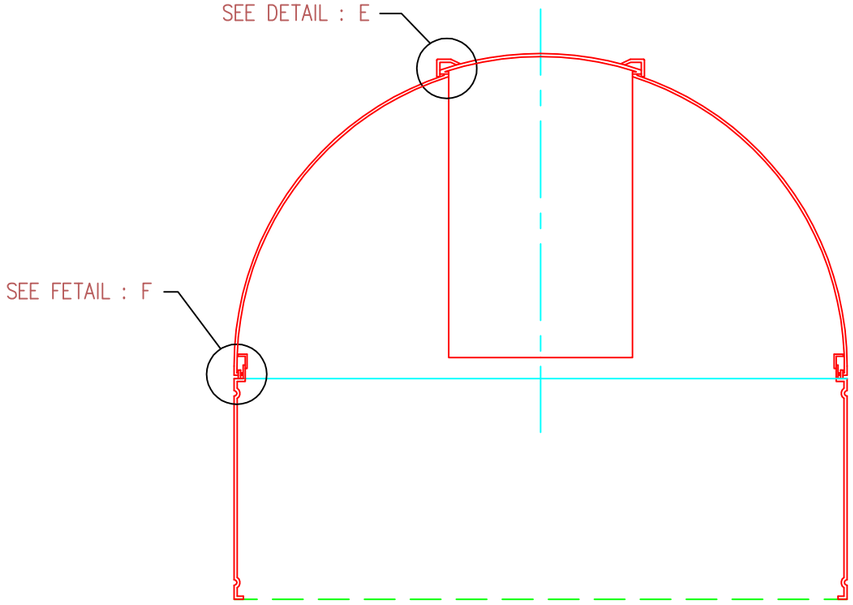
CLIENT :

TITLE : PLAN & ELEVATION

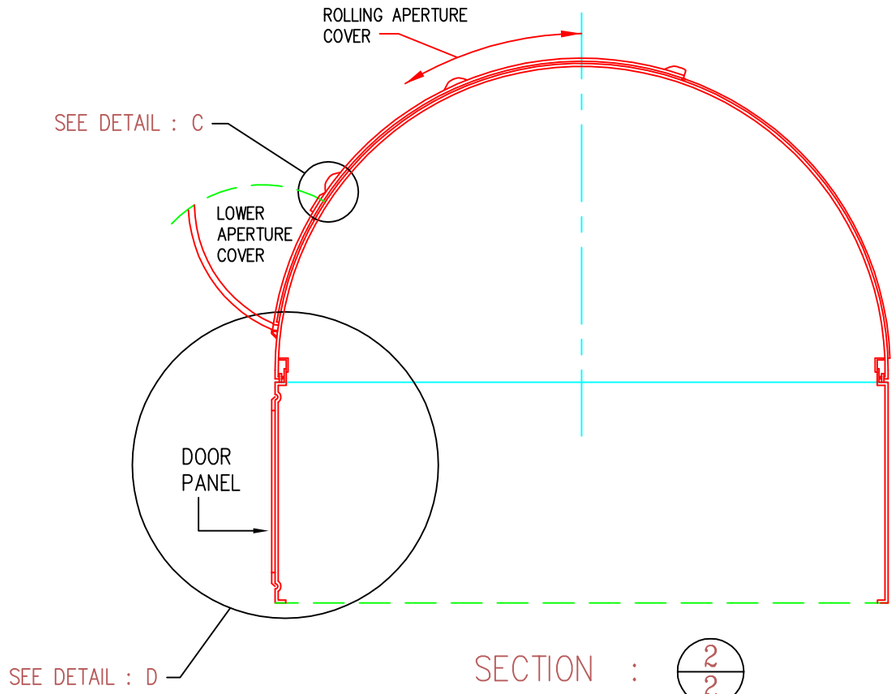
MODEL : COLLEGE



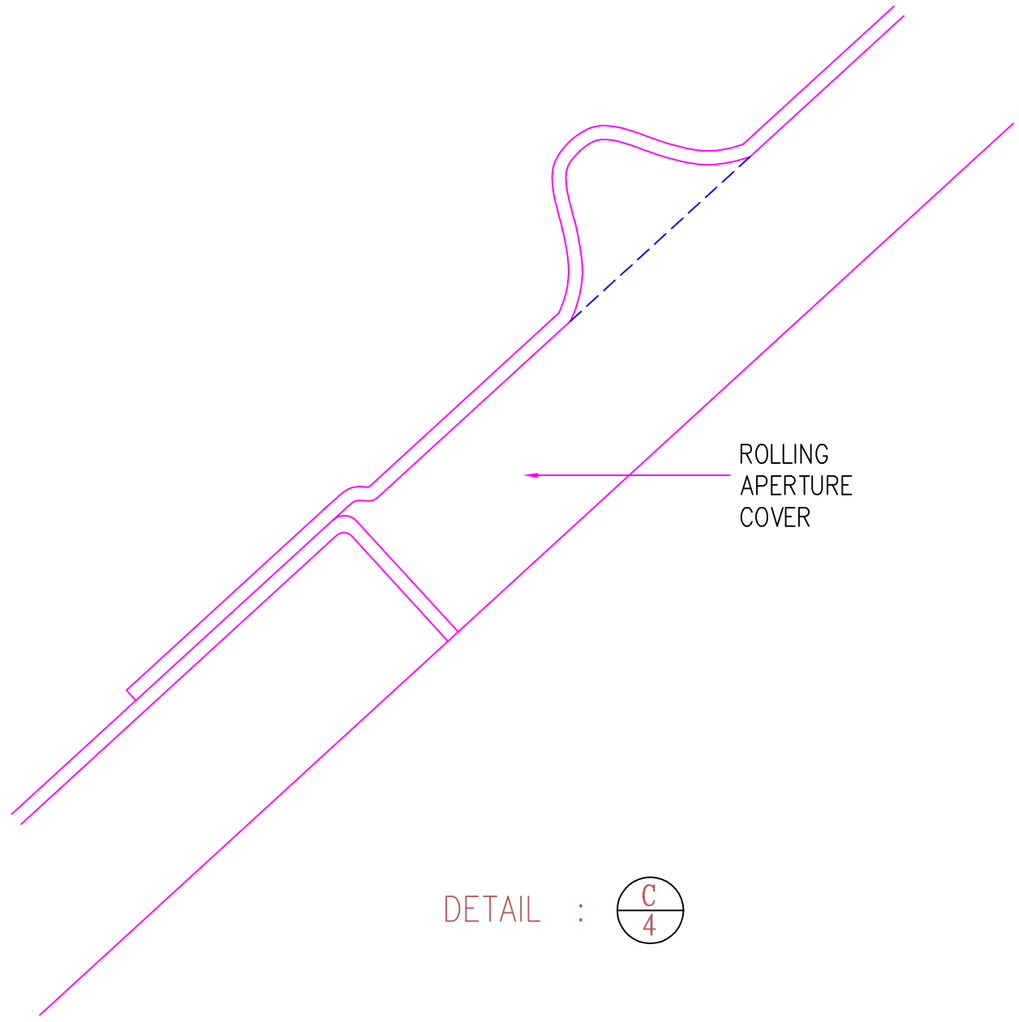
SHEET : 3




SECTION : 1/2
SCALE 1 : 50




SECTION : 2/2
SCALE 1 : 50




DETAIL : C/4



SCALE : AS NOTED | CHECKED :

PROJECT :
STANDARD ASSEMBLY DETAILS :
COLLEGE MODEL
ASTRONOMICAL OBSERVATORY.

DATE : FEBRUARY 2008

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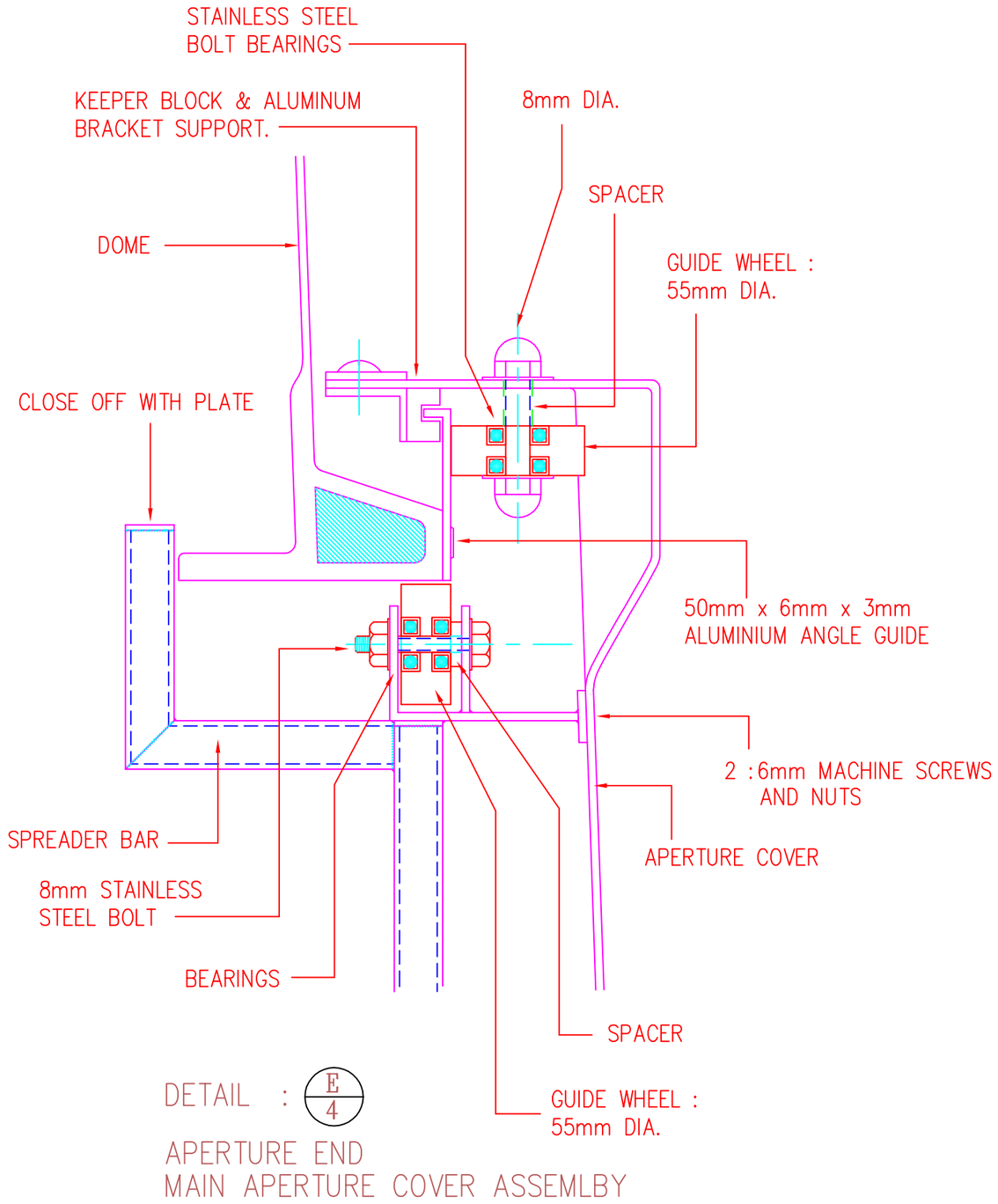
CLIENT :

TITLE : SECTIONS

MODEL : COLLEGE

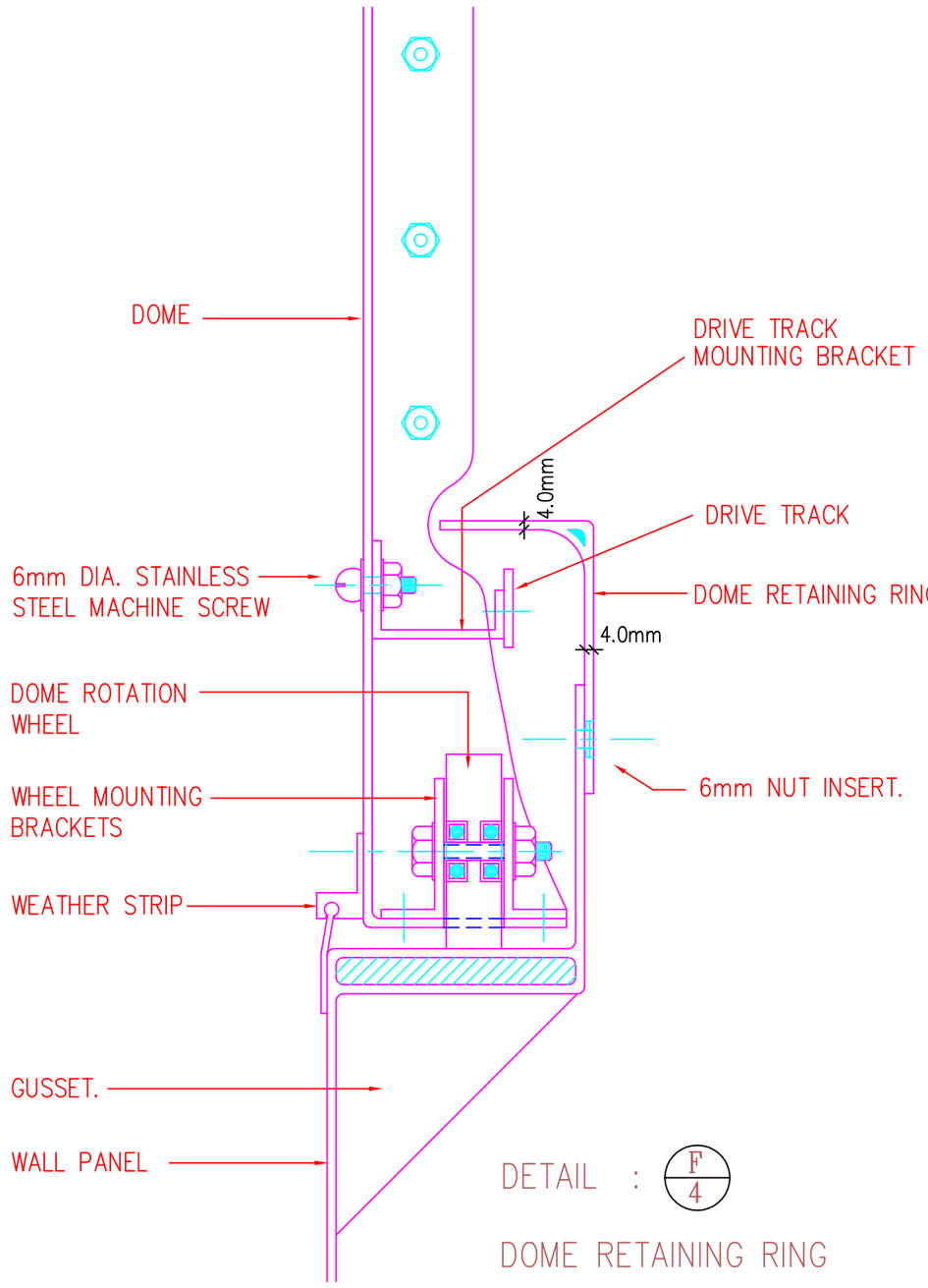


SHEET : 4




DETAIL : E/4

APERTURE END
MAIN APERTURE COVER ASSEMLBY




DETAIL : F/4

DOME RETAINING RING

| | | | | |
|---|---|---|---|---|
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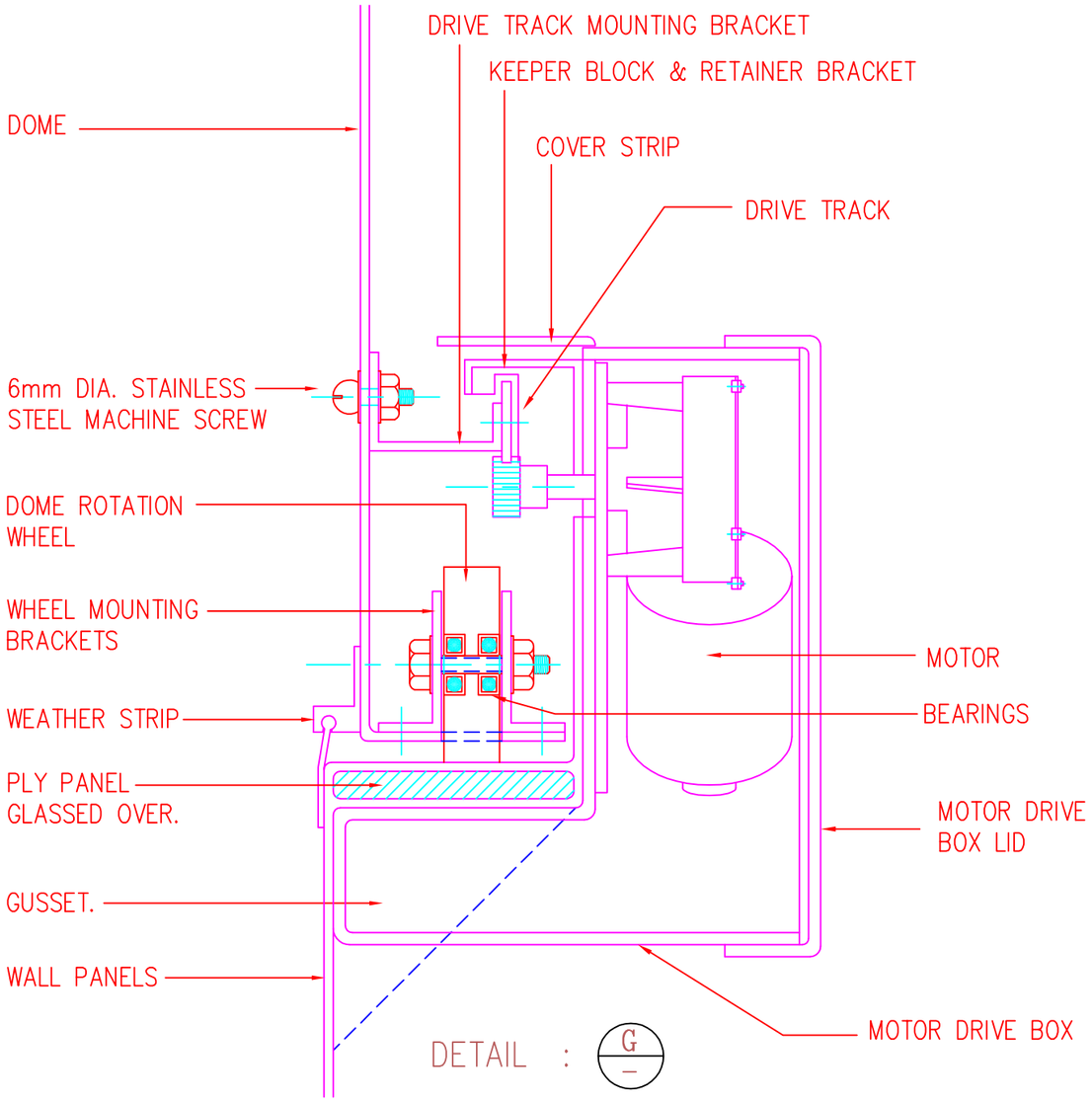
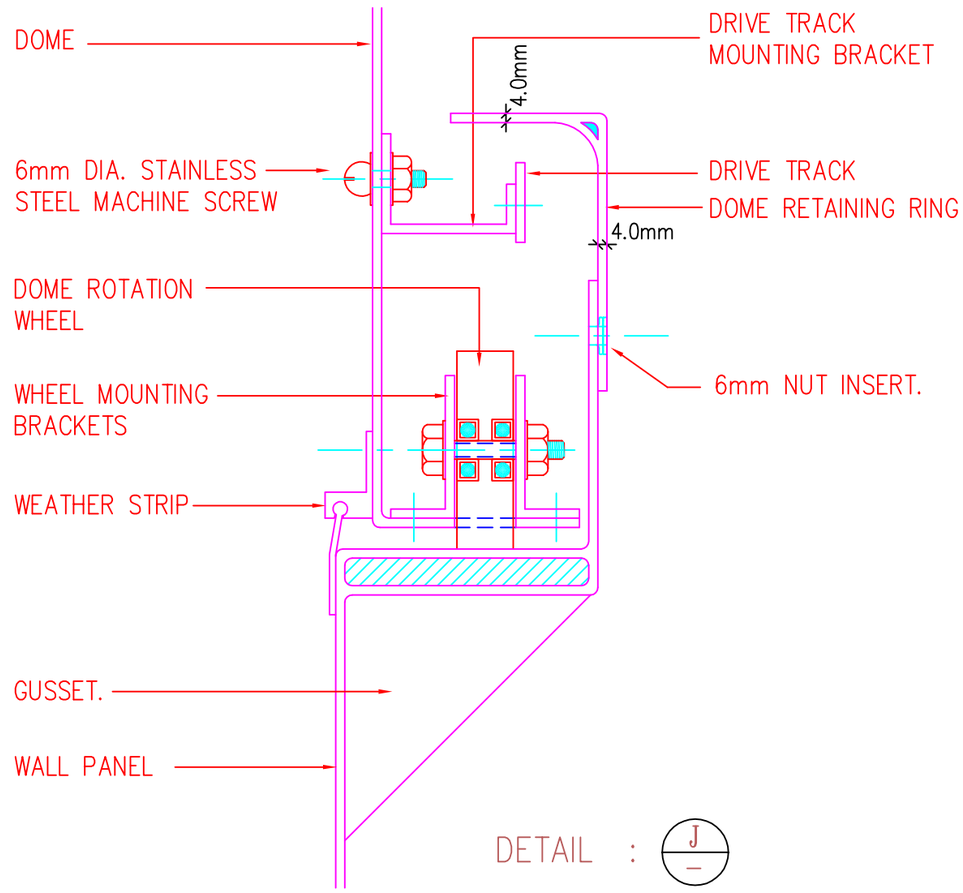



DETAIL : G

DOME ROTATION MECHANISM ASSEMBLY




DETAIL : J

DOME ROTATION

| | | | | |
|---|---|---|---|---|
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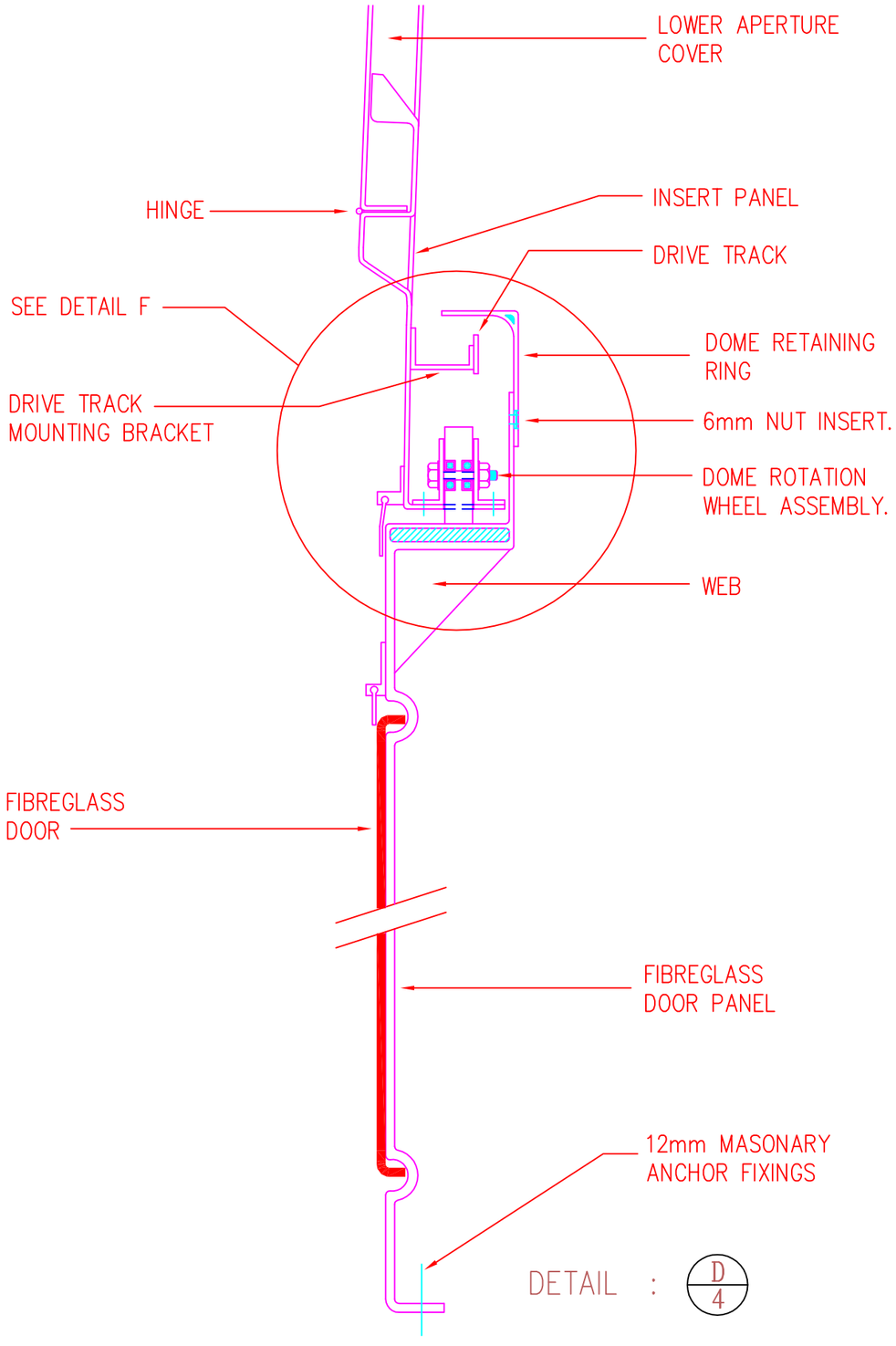


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|---|---|---|---|---|
| | PROJECT : STANDARD ASSEMBLY DETAILS : COLLEGE MODEL ASTRONOMICAL OBSERVATORY. | SIRIUS OBSERVATORIES AUSTRALIA PTY. LTD. | CLIENT : | MODEL : COLLEGE |
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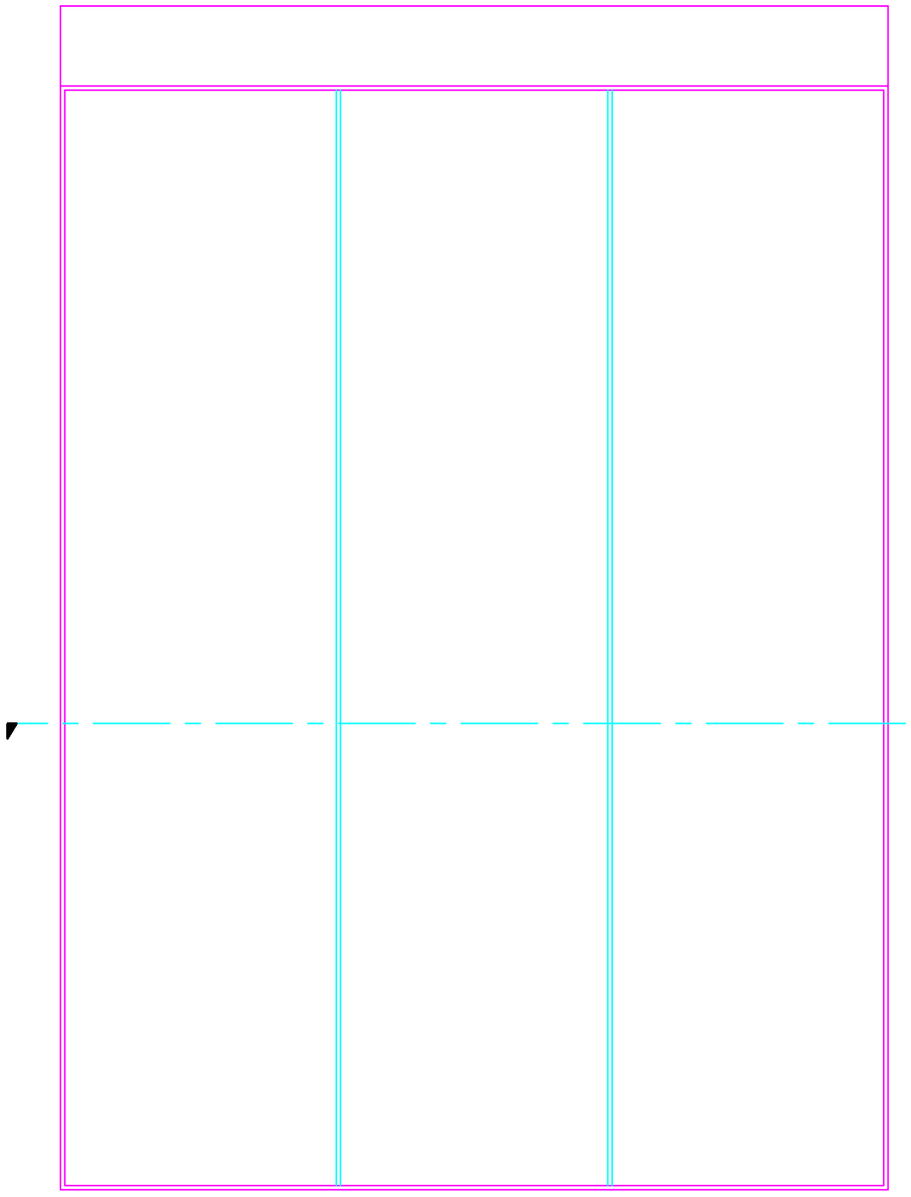
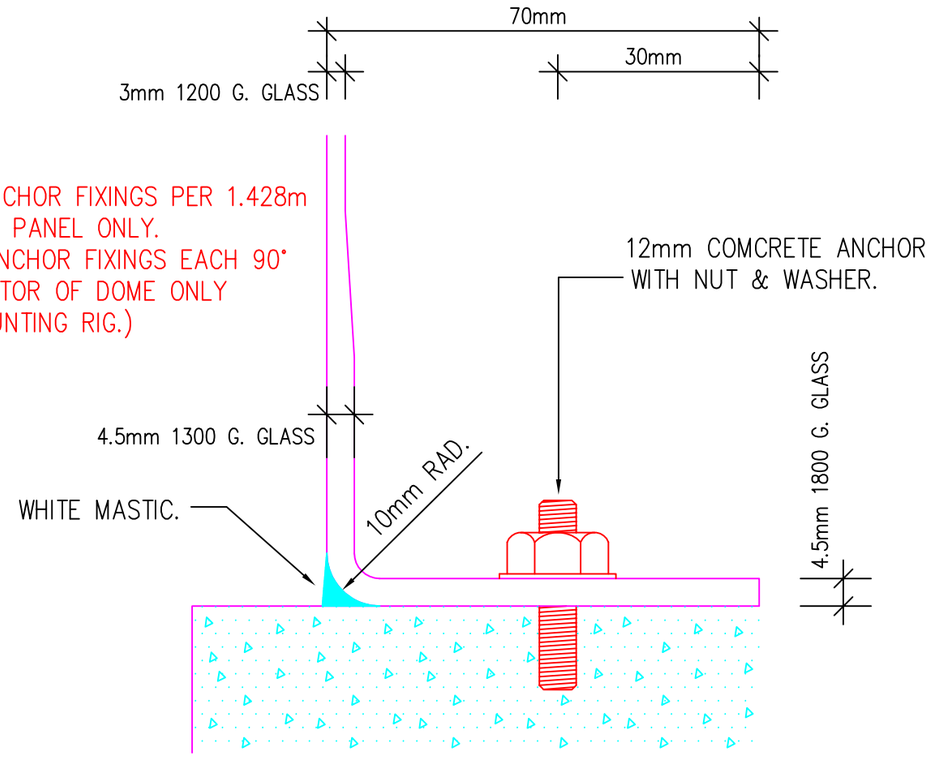


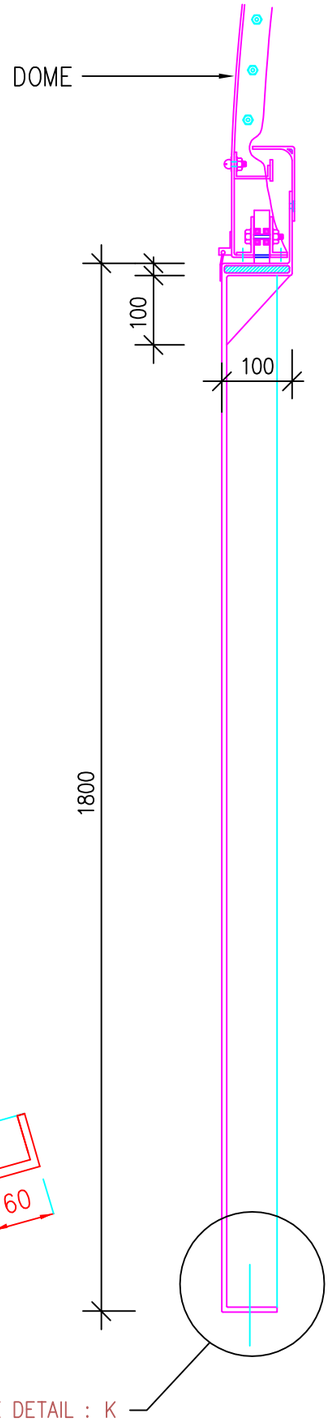
D

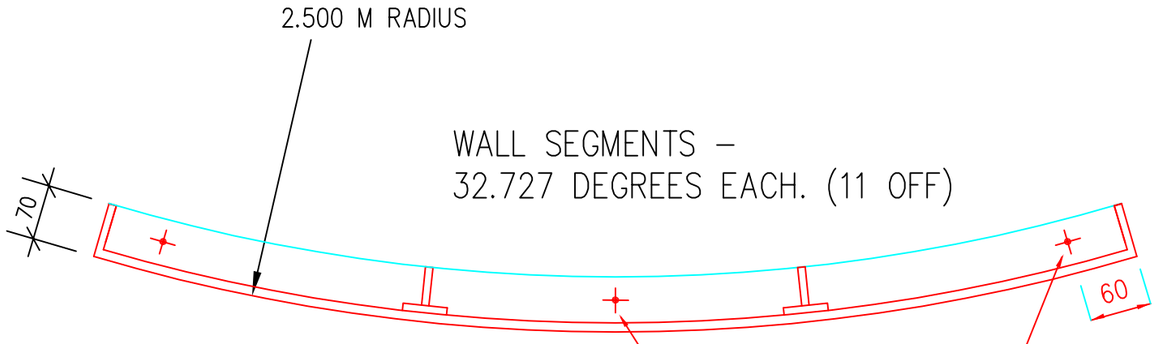
WALL PANELS : ELEVATION

NOTE : 3 ANCHOR FIXINGS PER 1.428m WALL PANEL ONLY.
(5 ANCHOR FIXINGS EACH 90° SECTOR OF DOME ONLY MOUNTING RIG.)




DETAIL : K/8

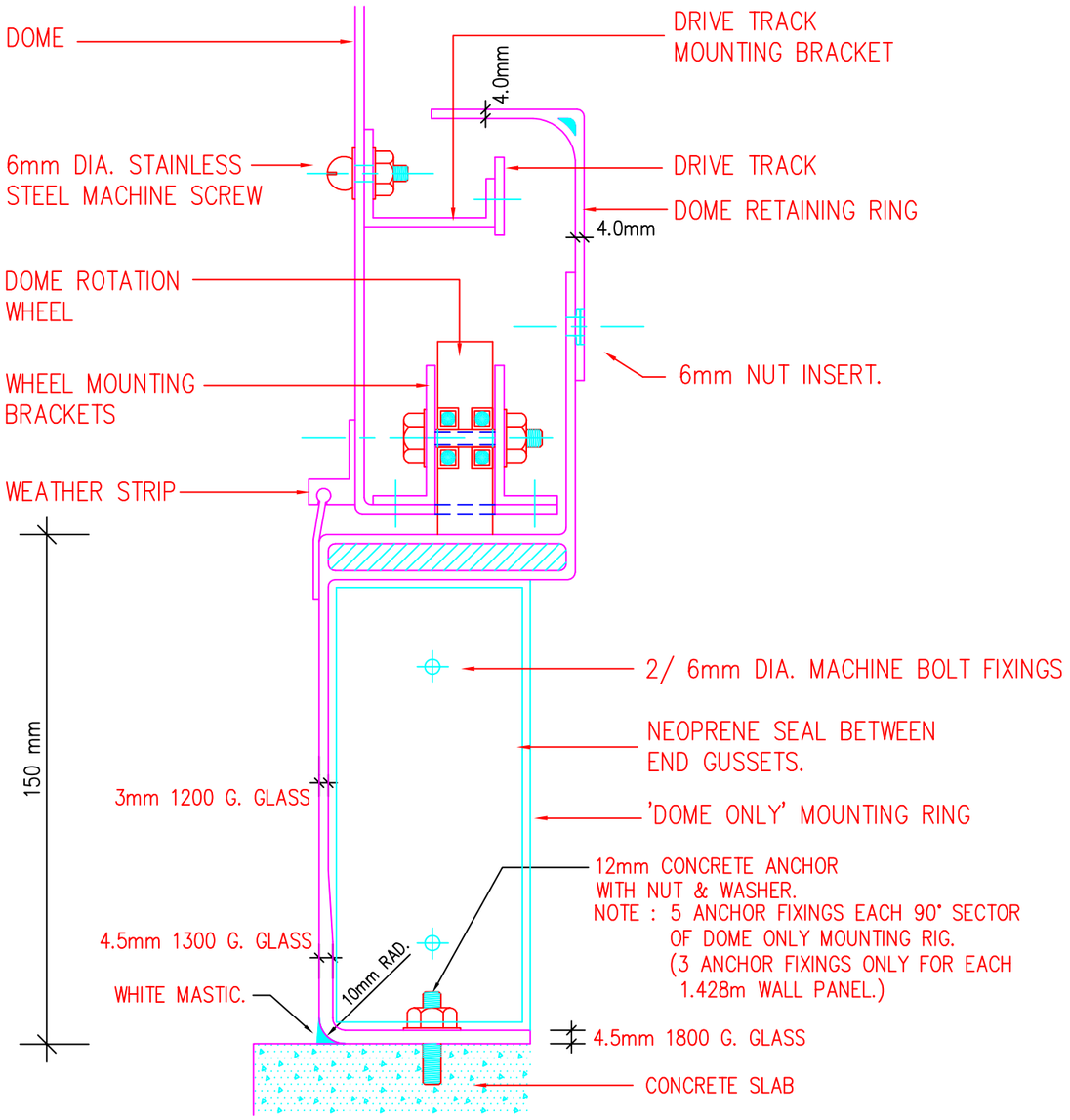



SECTION : D

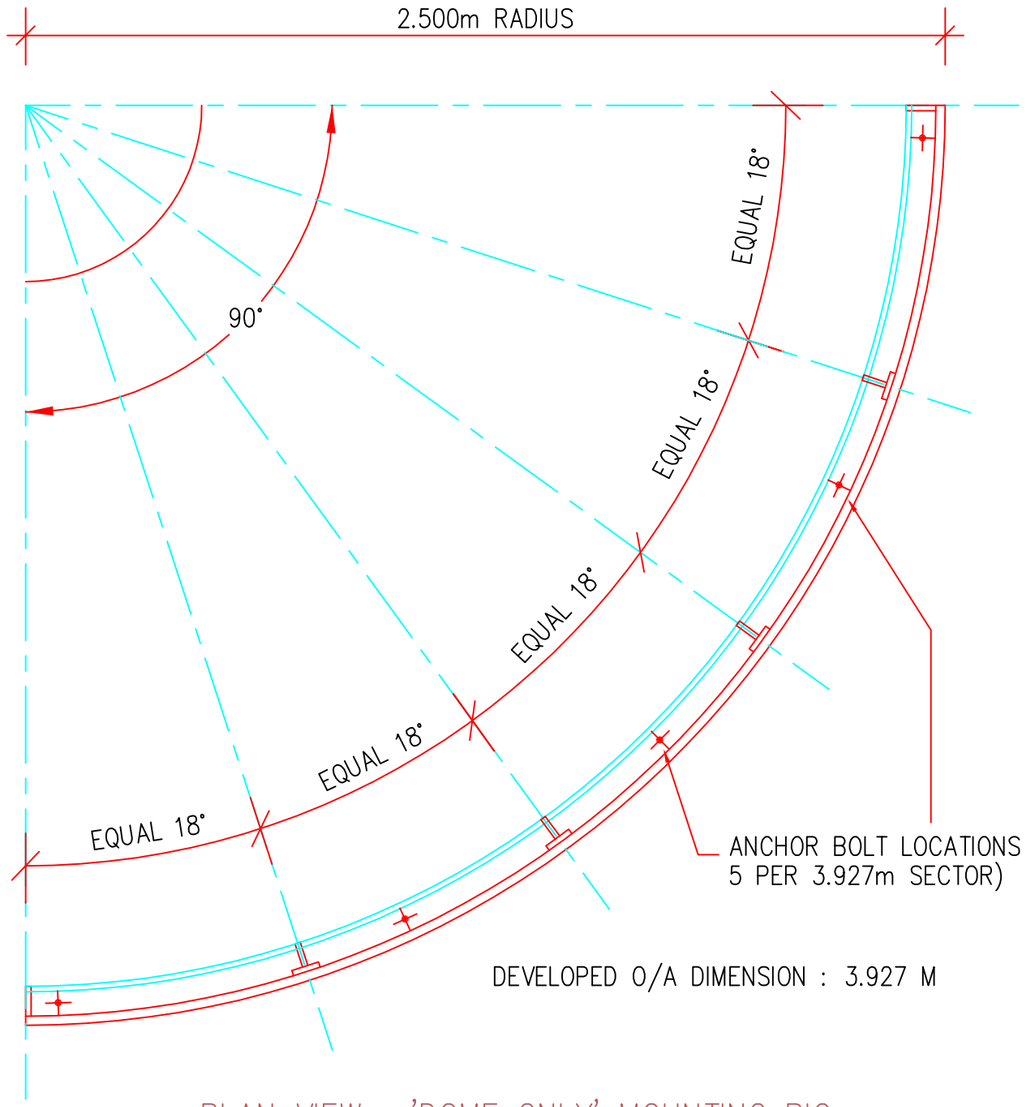
DEVELOPED O/A DIMENSION 1.428 M ON THE RADIUS

| | | | | |
|---|---|---|---|---|
| SCALE : | CHECKED : | PROJECT : STANDARD ASSEMBLY DETAILS : COLLEGE MODEL ASTRONOMICAL OBSERVATORY. DATE : FEBRUARY 2008 | SIRIUS OBSERVATORIES AUSTRALIA PTY. LTD. 21 HUNTINGTON STREET CLONTARF QLD. 4019 AUSTRALIA PHONE (61)7 32842111 FAX (61)7 2384 4827. EMAIL – info@siriusobservatories.com | CLIENT : / TITLE : WALL PANELS | MODEL : COLLEGE / © COPYRIGHT / SHEET : 8 |




DETAIL : H DOME ROTATION

'DOME ONLY' SITUATION




PLAN VIEW : 'DOME ONLY' MOUNTING RIG
5 REQUIRED.

| | | | | |
|---|---|---|---|---|
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