Cathedral of Christ the Light

Structural Analysis
Overview
Foundation and Soil Description

Cathedral of Christ the Light
Structural Analysis

Arabzadeh, Hoermann, Littman
Overview

Location

Foundation and Soil Description

Reliquary Wall

Oculus Ceiling

Load-Trazing

Foundation and Soil Description

Cathedral of Christ the Light

Structural Analysis
Design Concept

Overview

Foundation and Soil Description
Reliquary Wall
Oculus Ceiling
DFL
Lateral Load Resistance
Load-Tracing
Design Concept

Overview

Foundation and Soil Description
Reliquary Wall
Oculus Ceiling
DFL
Lateral Load Resistance
Load-Tracing

Pisces Shape
Floor Plan
Ceiling Layout
Structural Features

Overview

Foundation and Soil Description

Reliquary Wall

Oculus Ceiling

DFL

Lateral Load Resistance

Load-Tracing

Oculus Ceiling - Steel Truss

Ribs - Wood (DFL)

Reliquary Wall - Concrete
Foundation & Soil
Base Isolation

Overview  Reliquary Wall  Oculus Ceiling  DFL  Lateral Load Resistance  Load-Tracing

Foundation and Soil Description
Base Isolation

Independent Foundations
36 Base Isolation Units
Reliquary Wall
Overview

Oculus Ceiling

Reliquary Wall

Oculus Ceiling

Reliquary Wall - Finished
Reliquary Wall

Primary Structure on Interior Circumference

Secondary Structure on Exterior Circumference

1. PLAZA
2. ENTRYWAY
3. BAPTISTRY
4. CENTER AISLE
5. ALTAR
6. AMBO
7. CATHEDRA
8. MARY–MOTHER OF THE CHURCH OF OAKLAND
9. CHAPEL OF THE SEASONS
10. CHAPEL OF ALL SAINTS
11. COMMUNITY ROOM
12. RECONCILIATION CHAPELS
13. CHAPEL OF THE HOLY FAMILY
14. CHAPEL OF THE SUFFERING CHRIS
15. OMEGA WINDOW
16. BLESSED SACRAMENT CHAPEL
17. STAIRS TO MAUSOLEUM
Reinforcement
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<td><strong>Mixtures:</strong> Slag &amp; Fly Ash</td>
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Cast-in-Place Concrete: formwork

Tapering | Bearing
Cast-in-Place Concrete: formwork
Cast-in-Place Concrete

Overview
Foundation and Soil Description
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Oculus Ceiling
DFL
Lateral Load Resistance
Load-Tracing

Control Joints for cracking
Reliquary Wall - Finished
Oculus Ceiling
Overview
Reliquary Wall
Oculus Ceiling
DFL
Lateral Load Resistance
Load-Tracing
Oculus Ceiling
Oculus Ceiling

Truss System resisting compression forces
Oculus Ceiling
Overview

Reliquary Wall DFL Lateral Load Resistance

Load-Transferring Foundation and Soil Description

Cathedral of Christ the Light

Structural Analysis

Oculus Ceiling
Douglas Fir Larch
Primary Structure - Ribs
Primary Structure - Ribs
Primary Structure: Connection to Oculus Ceiling
Primary Structure: Connection to Oculus Ceiling
Primary Structure: Connection to Reliquary Wall
Secondary Ribs

Similarities and Differences from Primary Ribs

Enclosure
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Secondary Structure

Cathedral of Christ the Light

Structural Analysis

DFL
System Connection

Overview Reliquary Wall Oculus Ceiling Load-Trainging Foundation and Soil Description

Cathedral of Christ the Light

Structural Analysis

DFL Lateral Load Resistance Load-Tracing
Lateral Load Resistance
Superstructure
Rods

Ties primary and secondary structure together perpendicularly.
Overview Reliquary Wall Oculus Ceiling Load-Tracing Foundation and Soil Description

Cathedral of Christ the Light

Structural Analysis

Cross Bracing (X)

Tension Cables
Louvres
Louvres
Louvres Controlling Light
Load Tracing
Applied Load
Shear

2.6 Kips

Load-Tracing

Overview  Foundation and Soil Description  Reliquary Wall  Oculus Ceiling  DFL  Lateral Load Resistance

Cathedral of Christ the Light
Structural Analysis
23.25 Kip-Ft.
Conclusion
Overview
Reliquary Wall
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Ceiling DFL
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