RC Slab and Beam Design

- Featuring -

ADAPT-BUILDER EX™ v3

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www.adaptsoft.com
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Modeling of geometry and loading

Plan View Showing Sections and Dimensions

Isometric View of Modeled Slab System

Applied Loading (SDL 1.0 kPa & LL 3.0 kPa)
Setting of design parameters

Design Code

Analysis / Design Options
3D FEM Analysis

Quadrilateral 3D FEM Mesh

Load Combinations
3D FEM Analysis using ADAPT-Floor Pro

3D FEM Solution

Un-Cracked Service Deflection
(6.04 mm max)

Un-Cracked Long-Term Deflection
(14.8 mm max)

Cracked Long-Term Deflection (50.1 mm max)
Without Added Mesh Reinforcement
Cracking analysis without added mesh reinforcement

Reduced Stiffness Ratio after Cracking (leff / Ig about X-X )

Reduced Stiffness Ratio after Cracking (leff / Ig about Y-Y )
Definition of base mesh reinforcement

8mm @ 150 mm o.c.
Mesh Reinforcement Top & Bottom in Slabs
Cracking analysis with added mesh reinforcement

Long-Term Cracked Deflection With T12 @ 150mm o.c. T&B (46.9 mm max)

Reduced Stiffness Ratio after Cracking (Ieff / Ig about X-X)
Definition of support lines

Support Lines & Tributaries in X-Direction

Support Lines & Tributaries in Y-Direction
Automatically Generated Design Sections & Calculated Moments

X-Direction

Y-Direction
Reinforcement design for column / middle strips

Envelope of Reinforcement Required for Selected Middle Strip
Reinforcement design for column / middle strips

Envelope of Reinforcement Required for Selected Column Strip
Reinforcement design for beams

Envelope of Reinforcement Required for Selected Beam
Top reinforcement placed in slab
Bottom reinforcement placed in slab
Punching shear stress check
Punching shear stress check
Complete Solution for Slabs & Beams

ADAPT-Builder EX v3  Concrete Design Suite

Import  Model  Analyze & Design  Create Structural Drawings

Geometry & Loading Models

• Revit® Structure®
• AutoCAD®
• ETABS®
• Staad.Pro®

ADAPT-Modeler
True 3D Concrete Modeling Environment

→ ADAPT-RC
(Equivalent Frame Method)

→ ADAPT-PT
(Equivalent Frame Method)

→ ADAPT-Floor Pro
(3D FEM Analysis)

→ ADAPT-MAT
(3D FEM Analysis)

→ ADAPT-SOG
(3D FEM Analysis)

→ Advanced DRD™
Rebar Module

→ PT Shop Drawing Module

Structural drawings
(PT & Rebar)

• Revit® Structure®
• AutoCAD®

Your Partner in Concrete Design