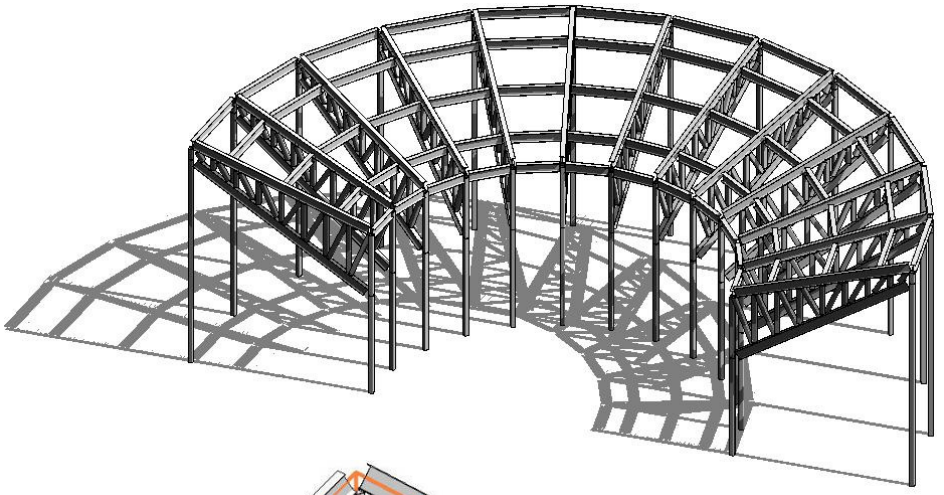
What's New in Autodesk® Revit® Structure 4

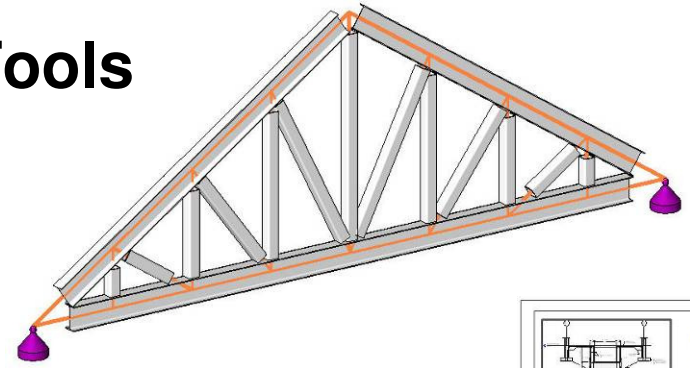
Autodesk®

Release Themes
Autodesk Revit Structure 4

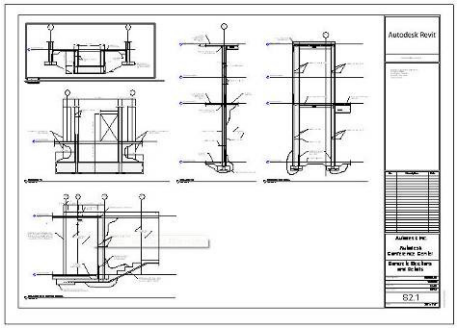
Improved Modeling



Advanced Analytical Tools



Reinforced Concrete Documentation



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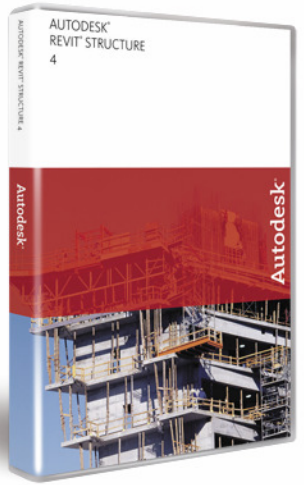
Top New Features
Autodesk Revit Structure 4

- **Modeling**
  - Modeling enhancements for trusses
  - TrussWizard for truss creation (Subscription)
  - Beam System creation and layout improvements
  - New Pre-cast Concrete and Steel Content



- **Analytical Tools**
  - Boundary Condition elements
  - “Auto-detect” setting for analytical model

- **Reinforced Concrete Documentation**
  - Improvements to concrete drawings
  - Improvements to reinforcement detailing

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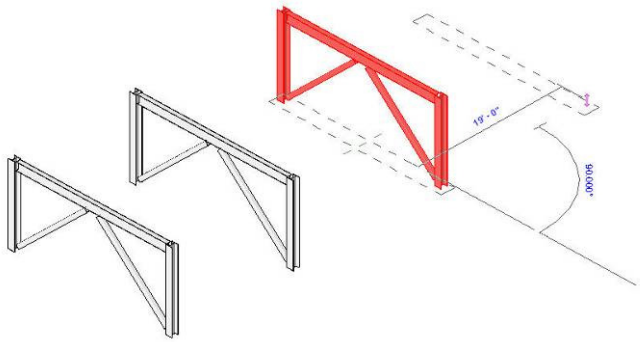
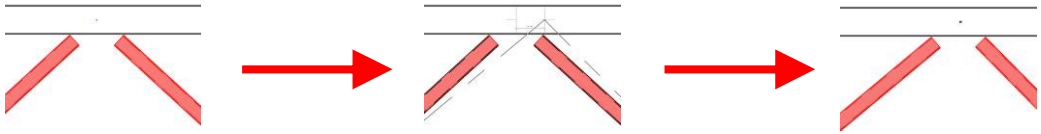
Higher Efficiency with Modeling Improvements

Improved Modeling

- **Improvements to manually modeling trusses**
  - Copy/move/rotate braces out of plane



  - Move beams, braces and walls by common point
    - Right-click on element to “Select Joined Elements”



  - Trim/extend brace elements

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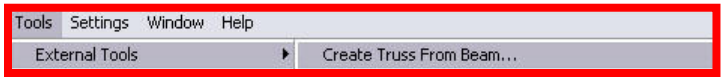
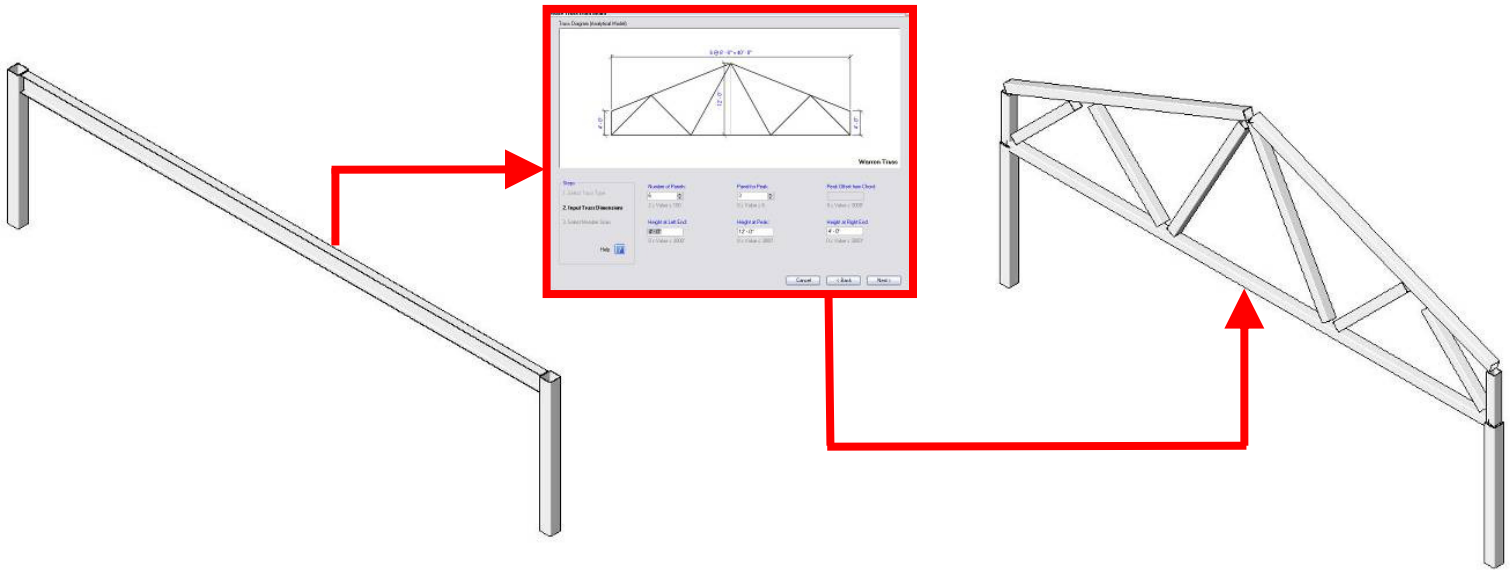
Improved Modeling

- **Improvements to modeling trusses**
  - **TrussWizard for modeling trusses (Subscription Customers Only)**
    - Creates truss using structural beam elements for truss chords and structural brace elements for truss web members



TrussWizard



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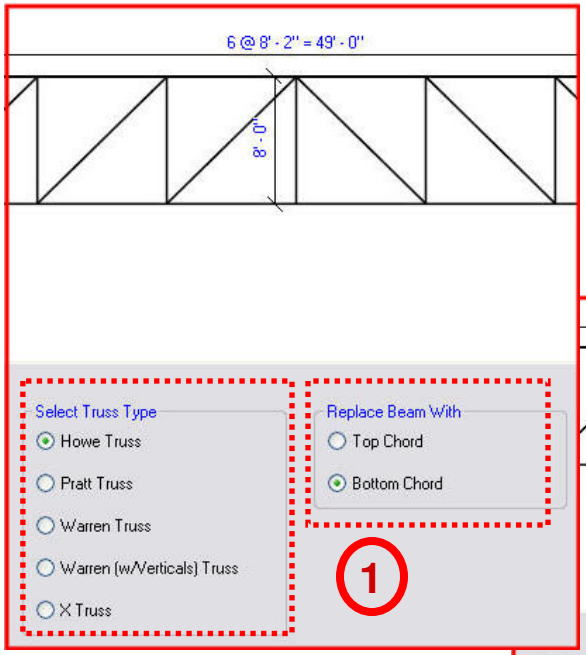
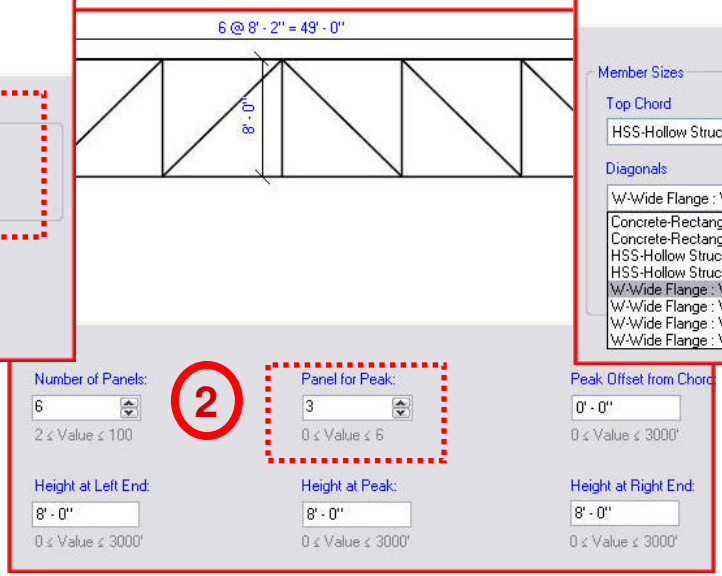
Improved Modeling

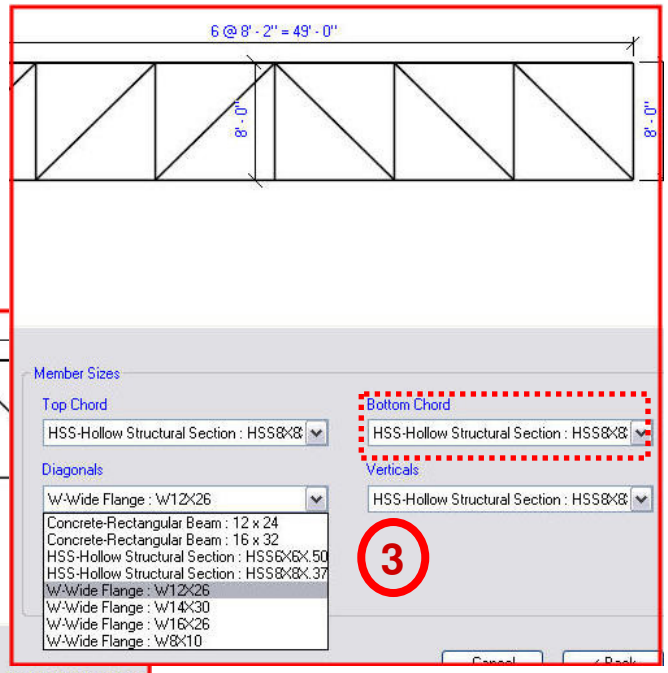
- **Improvements to modeling trusses**
  - **TrussWizard for modeling trusses**



Step 1: Select Truss Type and Truss insertion

Step 2: Specify Truss dimensions





Step 3: Specify Truss member sizes

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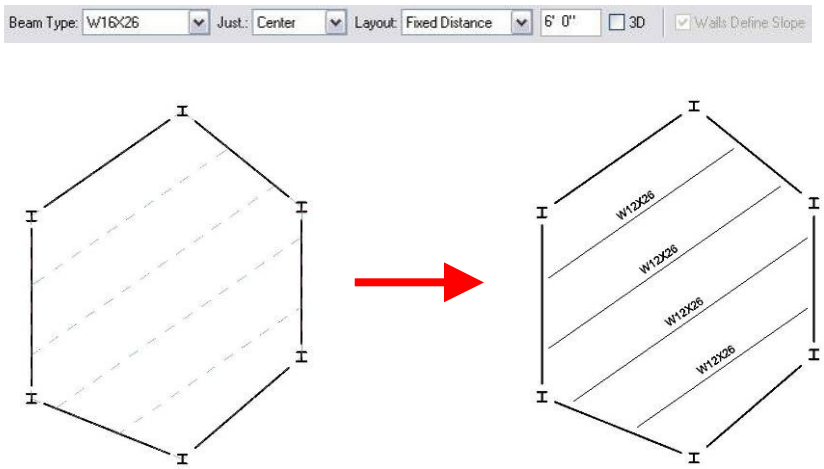
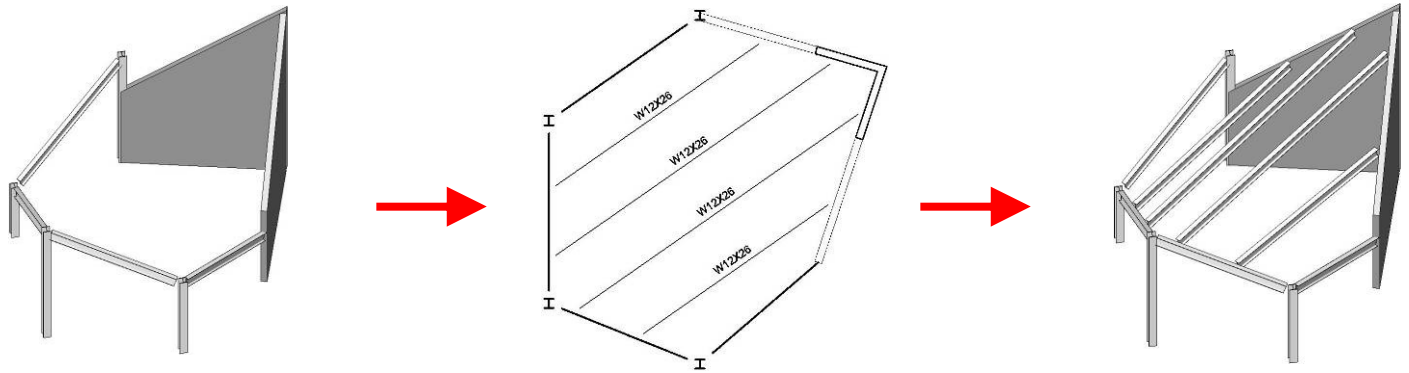
Improved Modeling

- **Improvements to Beam Systems**
  - **One-click Beam System**



  - **Non-planar Beam Systems**



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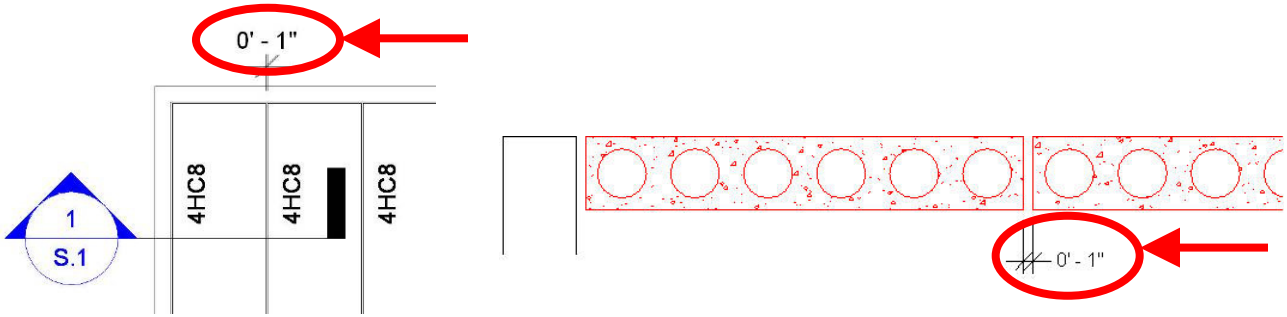
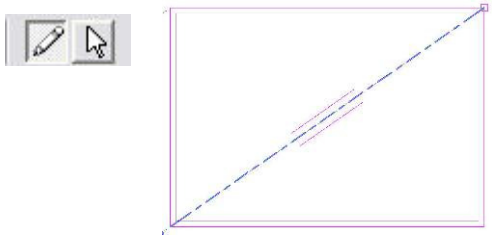
Improved Modeling

- **Improvements to Beam Systems**
  - **“Clear Spacing” layout rule**
    - Establish spacing between the exterior edges of framing elements



  - **Beam System direction tool improvements**
    - Specify Beam System direction with a sketch line between any two points



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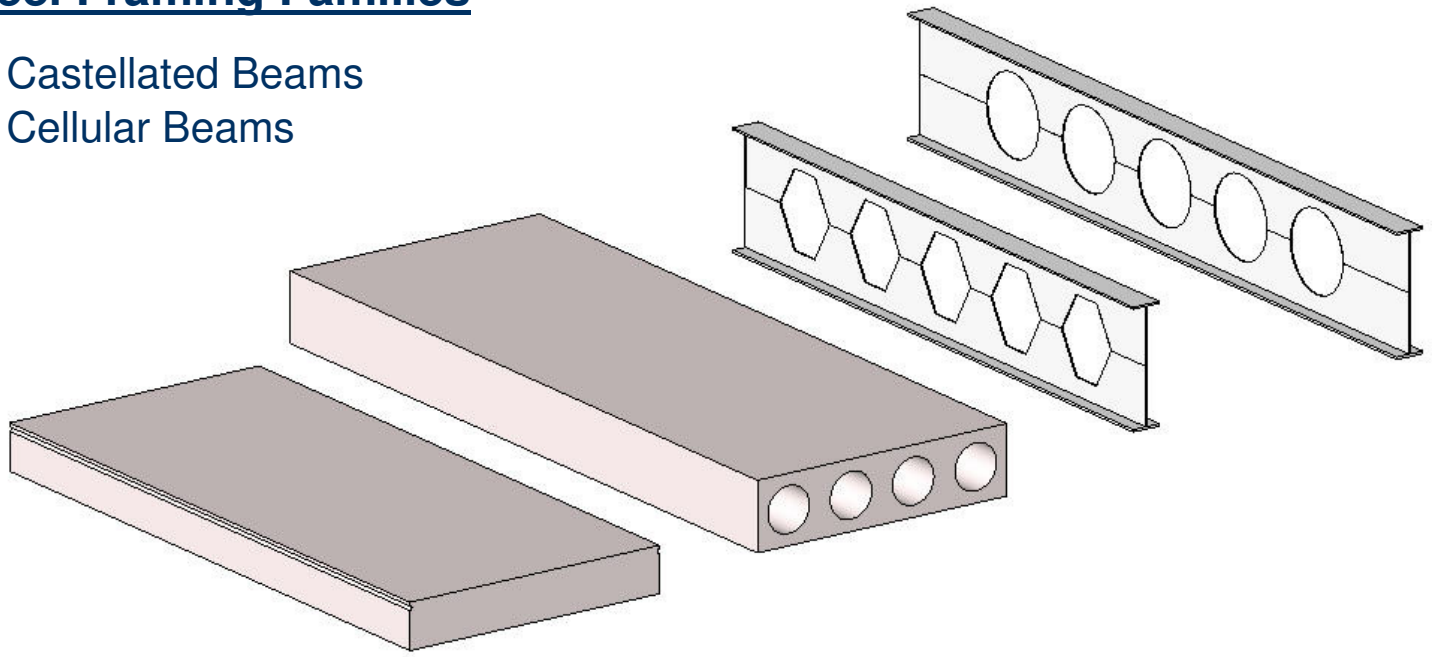
Improved Modeling

- **New Structural Content**
  - **Precast Concrete Framing Families**
    - Precast - Solid Concrete Plank
    - Precast - Hollow Core Concrete Plank
  - **Steel Framing Families**
    - Castellated Beams
    - Cellular Beams



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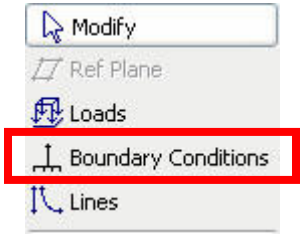
Advanced Analytical Tools

Advanced Analytical Tools

- **Boundary Conditions Elements**
  - Elements to model how the structure is attached to its points of support
  - Point Boundary
    - Only structural beam, column and brace ends are available for point restraint
  - Line Boundary
    - Line restraint is limited to the individual analytical lines for structural beams, walls, wall foundations, slabs and slab foundations
  - Area Boundary
    - Area restraint applies to analytical lines for structural slabs, walls and foundation slabs



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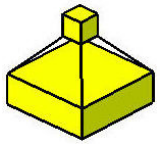
Advanced Analytical Tools

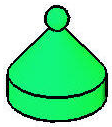
- **Boundary Conditions Elements**

- Fixed



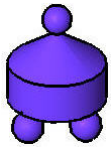
	Translation in			Rotation about		
Preset Name:	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

- Pinned



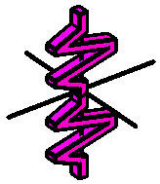
	Translation in			Rotation about		
Preset Name:	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
Pinned	Fixed	Fixed	Fixed	Released	Released	Released

- Roller



	Translation in			Rotation about		
Preset Name:	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
Roller	Released	Released	Fixed	Released	Released	Released

- User Defined



	Translation in			Rotation about		
Preset Name:	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
User-Defined	Released	Released	Spring	Released	Released	Released

- Boundary Conditions restraints are in Global Coordinates

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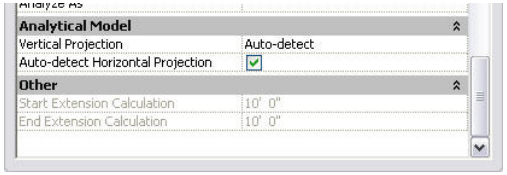
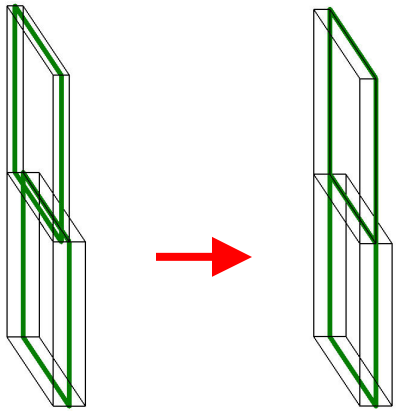
Advanced Analytical Tools

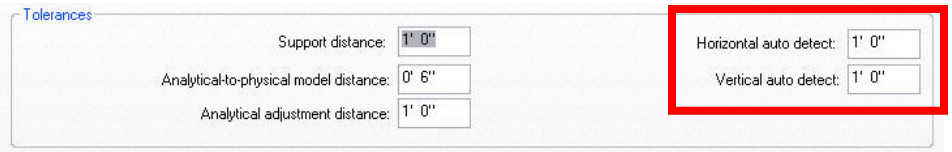
- **Automatic Adjustment of Analytical Model**
  - "Auto-detect" parameter for analytical projection
    - Beams
    - Columns
    - Walls
    - Slabs





"Auto-detect" - **OFF** "Auto-detect" - **ON**

  - Two new user-defined tolerances
    - Horizontal auto-detect
    - Vertical auto-detect



  - "Auto-detect" projection is default

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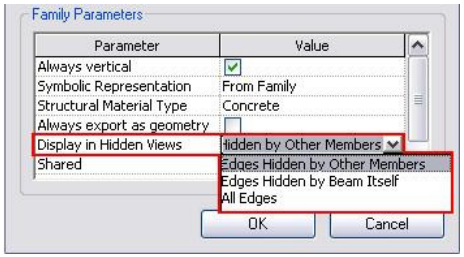
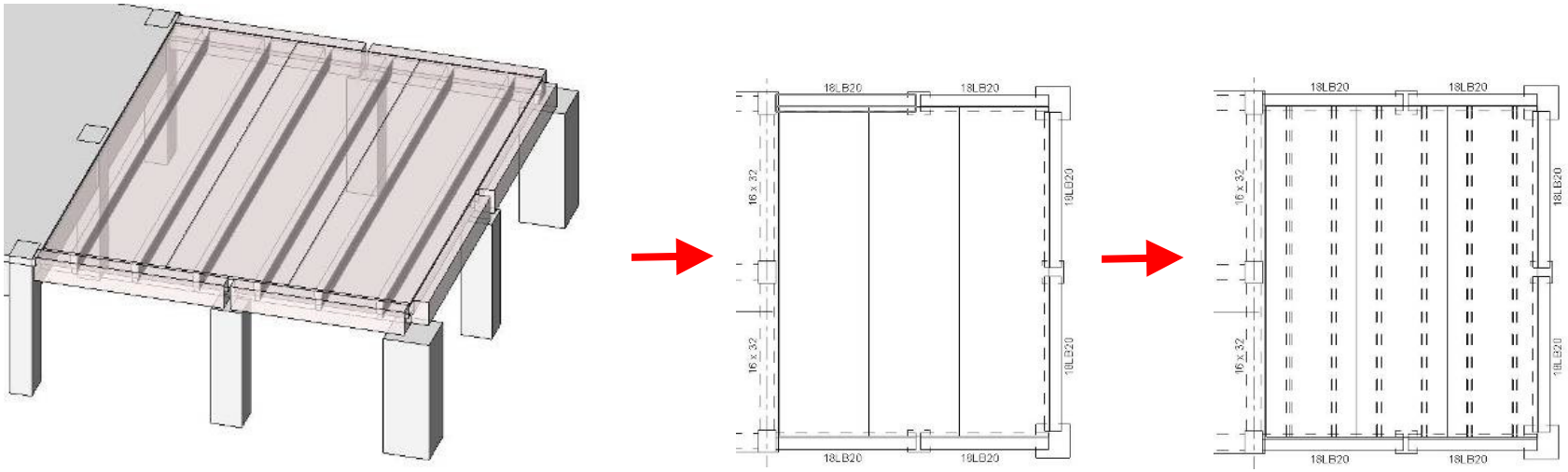
Reinforced Concrete Documentation

Reinforced Concrete Documentation

- **Improvements to Concrete Element Display**
  - **Display options for hidden non-rectangular concrete beams**
    - "Edges Hidden by Other Members"
    - "Edges Hidden by Beam/Column Itself"
    - "All Edges"





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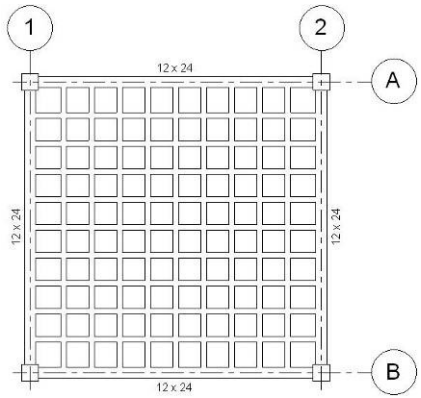
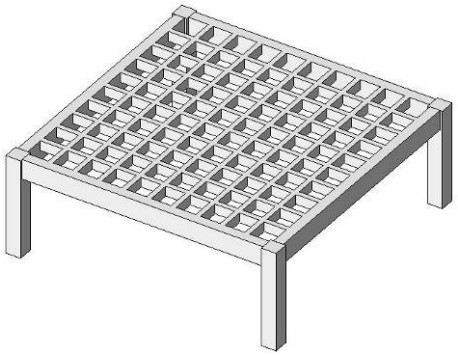
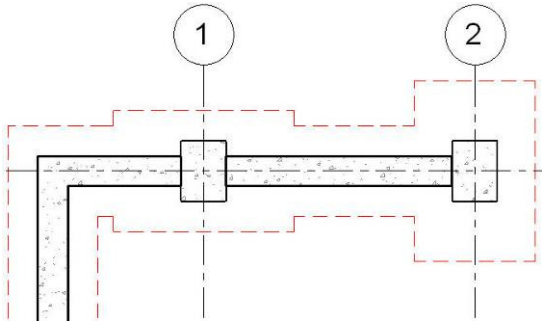
Reinforced Concrete Documentation

- **Improvements to Concrete Element Display**
  - **Improved concrete joins and cleanups (No UI)**
  - **Automatic joins for some concrete structural elements (No UI)**
    - Beam intersecting Beam
    - Beam intersecting Foundation (at same elevation)
    - Beam intersecting Column
    - Foundation intersecting Foundation (at same elevation)







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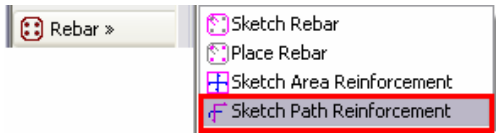
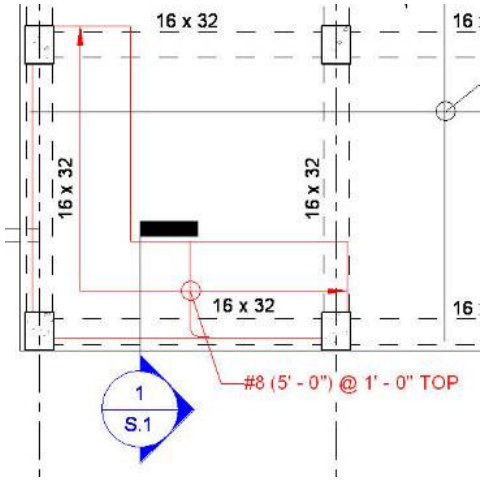
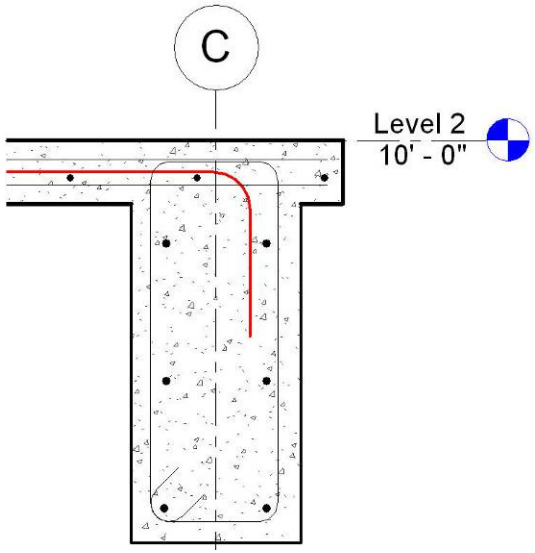
Reinforced Concrete Documentation

- **Improvements to Concrete Reinforcement Elements**
  - **Sketch Path Reinforcement**
    - Layout large number of bars around boundary of a region
    - Hosted by Structural Wall or Floor
    - Parameters: Layout Rule, Location, Spacing, Bar Type, Length, Hook Type and Orientation
    - Alternating bars







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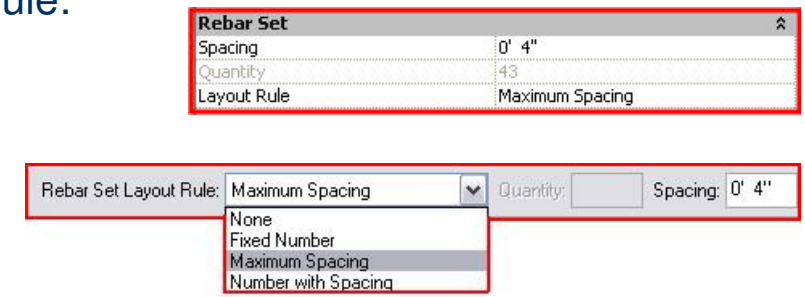
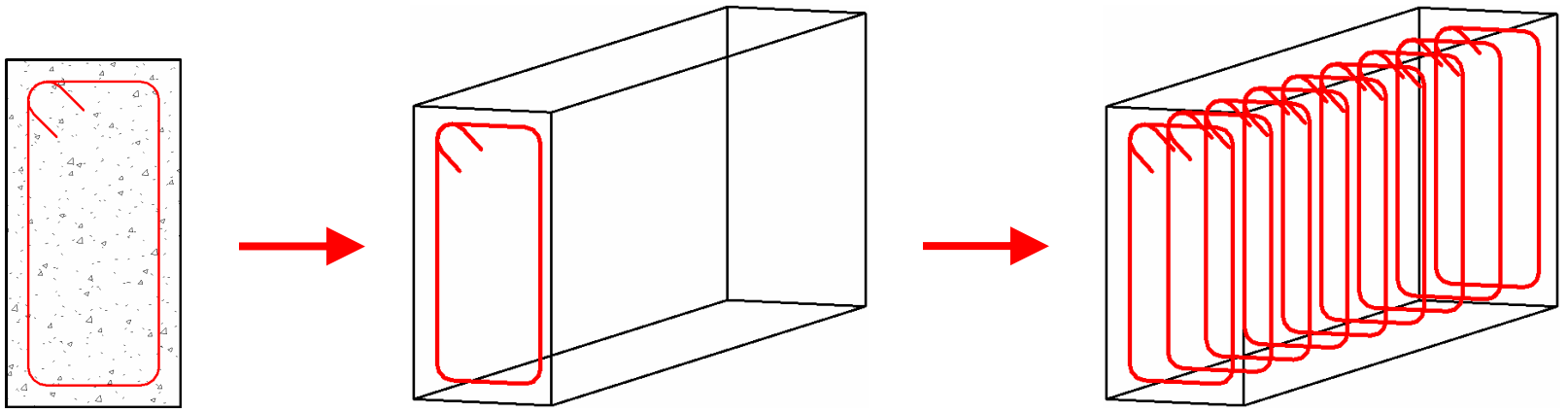
Reinforced Concrete Documentation

- **Improvements to Concrete Reinforcement Elements**
  - **Creation of Rebar Sets**
    - One rebar can represent a set of evenly placed identical bars
    - Select Rebar and determine layout rule:
      - Fixed number
      - Maximum spacing
      - Number with spacing





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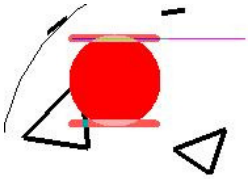
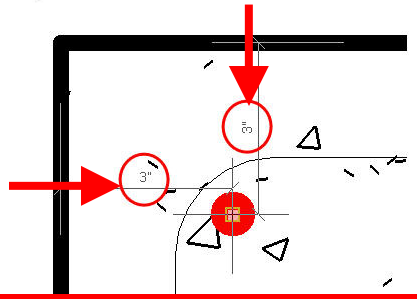
Reinforced Concrete Documentation

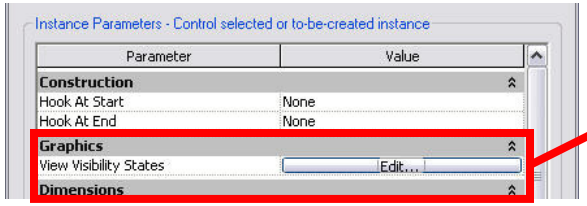
- **Improvements to Concrete Reinforcement Elements**
  - **Snap point for rebar edges**
    - Four additional references tangent to bar perimeter in Fine View

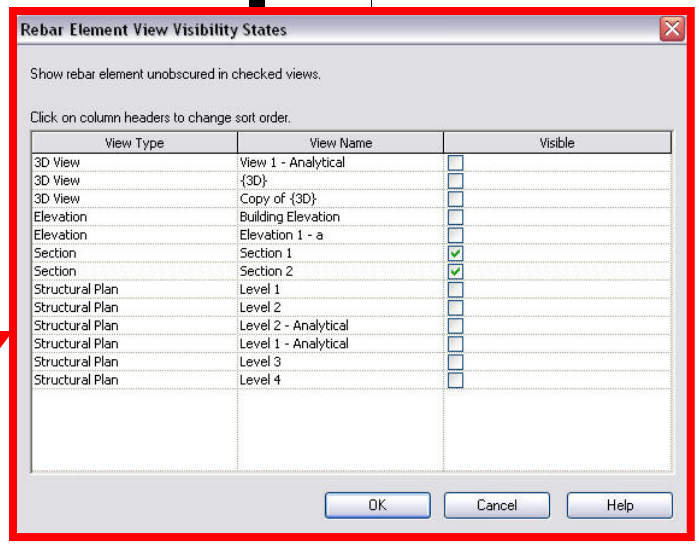


  - **Temp dimensions for placed reinforcement**
    - Snaps and rounds temporary dimensions when placing rebar



  - **Rebar element visibility control**
    - Specify which views rebar elements are unobscured in





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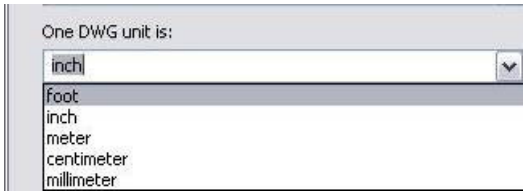
Revit Platform Improvements

Revit Platform Improvements

- **Interoperability**
  - **Option to set DWG™ units when exporting to DWG**



  - **Import and export of images to PNG-format**

- **Documentation**
  - **Revision Tag visibility – three options:**
    - Cloud and Tag
    - Tag
    - None

  - **Control of Elevation Tag visibility based on view scale**

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What's New in Revit API ?

What's new in Revit 9.1 API

.NET based API only

- API based on .NET 2.0 Framework (MS DevStudio 2005)

Application Integration

- Integrated Journaling and Regression testing
- Performance improvements using Suspend update

Element Creation:

- Numerical Units type
- Model Lines
- Material Class
- Openings

Revit Building 9.1

- Expanded support for Rooms and Room tagging

Revit Structure 4

- Boundary Conditions
- Beam Systems
- Path Reinforcement and Reinforcement sets

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