GRAPHICAL COLUMN SCHEDULES
Making them work for you

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TALK OUTLINE

• Facts about Graphical Column Schedules
• Main Types of Column Schedules used
• Scheduling Uncommon Columns
• Excluding Certain Columns
• Schedule Presentation
• Using the GCS for Steel Columns
• Tips and Tricks
EMBRACE NEW WAYS TO DOCUMENT
THE FACTS ABOUT GRAPHICAL COLUMN SCHEDULES

- **Unique to Revit Structure** - not many enhancements in recent years

- GCS are a system family

- **Architectural Columns will not display in the GCS** - only Structural Columns

- All Columns displayed in the GCS are viewed from the South

- Revit creates the GCS as soon as you model your 1st Structural Column (Provided the column has a grid reference)

- The GCS references all columns by grid locations

- **Symbols cannot be inserted on the GCS** - Drawing sheet only

- Section Marks / Call outs cannot be used on the GCS

- Structural Columns are the only model elements that will display in the GCS

- Structural Columns in Linked Revit Models will not display in the GCS
## TYPE OF GRAPHICAL COLUMN SCHEDULES

### TYPE A)

The Traditional Type from the Board / CAD days
Individually (Unique) Numbered Columns

<table>
<thead>
<tr>
<th>LEVEL 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>16000</td>
<td></td>
</tr>
<tr>
<td>COLUMN No.</td>
<td>C1</td>
</tr>
<tr>
<td>COLUMN TYPE</td>
<td>A</td>
</tr>
<tr>
<td>VERT. REINF. LIGS</td>
<td>4N24</td>
</tr>
<tr>
<td>STRENGTH</td>
<td>40MPa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LEVEL 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14000</td>
<td></td>
</tr>
<tr>
<td>COLUMN No.</td>
<td>C1</td>
</tr>
<tr>
<td>COLUMN TYPE</td>
<td>A</td>
</tr>
<tr>
<td>VERT. REINF. LIGS</td>
<td>4N24</td>
</tr>
<tr>
<td>STRENGTH</td>
<td>40MPa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GROUND LEVEL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>REFER COLUMN TO FTG DETAIL FOR STARTER BARS</td>
<td>REFER COLUMN TO FTG DETAIL FOR STARTER BARS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Column Locations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G-6</td>
<td>G-7</td>
</tr>
</tbody>
</table>
TYPES OF GRAPHICAL COLUMN SCHEDULES

TYPE B)
Columns grouped into types - works best with Revit
TYPE B)

Use Material Tags for different concrete strengths. Create a new material and set the Description name in the material applied to the column or Use a filter
TYPE B)

Spot Levels, Slopes and Co-ordinates can be used on the GCS
TYPE B)

Use Column Transition tags to reference to Detail
SCHEDULING UNCOMMON COLUMNS

- **Slanted Columns** – does not appear in the GCS

  Two ways around this:

  1) Model a dummy Column

  2) Model Column with ‘Cut by Face’
1) Create a dummy column family and insert at slanted column location

In the dummy column family, set visibility settings to not view in course detail so it can be hidden in the GCS

Create Reference tag to refer to slanted column detail and tag the dummy column in the GCS
SCHEDULING UNCOMMON COLUMNS

2) Create your slanted column family to be wide enough so you can create the desired slant by using “cut by face”

*Note:* This option is no good for design output as it will be analytically wrong
SCHEDULING UNCOMMON COLUMNS

- **Tapered Columns** – Will display in the GCS based on the analytical positioning

**Note**: Material Tags won’t work on Tapered Columns
EXCLUDING CERTAIN COLUMNS FROM YOUR GCS

E.g. Existing Columns

5 ways to do this -

1) Create new column family and set the Structural Material Type to “Other” or “Precast”. Then in the GCS turn off that Material Type.
**EXCLUDING CERTAIN COLUMNS FROM YOUR GCS**

2) Create a filter and select the Columns you want to exclude

![Filter Name Window](image1)

3) Adjust your phasing to not display certain Columns

![Identity Data Table](image2)
EXCLUDING CERTAIN COLUMNS FROM YOUR GCS

4) Select the Column you don’t want to display and make it Slanted (even though it is still 90 degrees)

![Column Style Settings](image)

5) Right Click the Column, and “Hide in view”
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- Grid Lines

Visibility/Graphic Overrides for Graphical Column Schedule: OFFICE BLOCK COLUMN SCHEDULE

- Model Categories
- Annotation Categories
- Imported Categories
- Filters

If a category is unchecked, it will not be visible.

- Show model categories in this view

Visibility | Projection/Finish | Cut | Halftone | Transparent | Detail Level
---|---|---|---|---|---
- | | | | | |
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- Grid Lines
Graphical Column Schedule Appearance

- Schedule Setout

Project Levels are set to scale as per the project.
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- Schedule Setout

**Vertical Heights**

- Above Top Level: 15.0000 mr
- Below Bottom Level: 30.0000 mr
- Between Segments: 15.0000 mr
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- **Schedule Setout**

Refer Roof Framing Plan for Rafter Sizes over Columns

<table>
<thead>
<tr>
<th>Column Locations</th>
<th>Group Similar Locations</th>
<th>Grid Appearance</th>
<th>Include Off-Grid Columns</th>
<th>Off-Grid Units Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td></td>
<td>Edit</td>
<td></td>
<td>1230 [mm]</td>
</tr>
</tbody>
</table>

**Properties**

- **Viewport**: SKM_VIEW_TITLE
- **View Scale**: 1:100
- **Scale Value**: 1:100
- **Detail Level**: Coarse
- **Visibility/Graphics Overrides**
- **Visual Style**: Hidden Line
- **Discipline**: Structural
- **Sub-Discipline**
- **Total Column Locations**: 24
- **Column Locations per Segment**: 1
- **Group Similar Locations**: 20
- **Grid Appearance**: Edit
- **Include Off-Grid Columns**: Yes
- **Off-Grid Units Format**: 1230 [mm]
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- Text - View Dependent - Levels reference Project Browser.
GRAPHICAL COLUMN SCHEDULE APPEARANCE

• Schedule Setout – Multiple Schedules on the same project
GROUPING SIMILAR COLUMNS TO SAVE ROOM OR IF VERY FEW COLUMN TYPES ON PROJECT
GRAPHICAL COLUMN SCHEDULE APPEARANCE

- Tags

![Image of Visibility/Graphic Overrides dialog box]

<table>
<thead>
<tr>
<th>Visibility</th>
<th>Projection/Surface Lines</th>
<th>Halftone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spot Slopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stair Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Annotations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Area Reinforcement Symbols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Area Reinforcement Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Beam System Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Column Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Connection Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Foundation Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Framing Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Path Reinforcement Symbols</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Path Reinforcement Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Rebar Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Stiffener Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural Truss Tags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Title Blocks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Reference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>View Titles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Non-overridden categories are drawn according to Object Style settings.

- Show categories from all disciplines

- OK
- Cancel
- Apply
- Help
**GRAPHICAL COLUMN SCHEDULE APPEARANCE**

- Columns – Detail level and Visual Style – Don’t forget to save a view template!
SCHEDULING STEEL COLUMNS AND BASE PLATES

- Is there a need? Create Column splice and base plate symbols
Create a new symbol using the “Generic Annotation” family template and set family category to “Connection Symbols”.

Base plate symbols - simply click on column and check “Base Plate Symbol”.

<table>
<thead>
<tr>
<th>LEVEL 1</th>
<th>14000</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUND LEVEL</td>
<td>BP1</td>
</tr>
<tr>
<td>10000</td>
<td></td>
</tr>
<tr>
<td>Column Locations</td>
<td>L-12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Materials and Finishes</th>
<th>Column Material</th>
<th>SKM_STEEL_350 MPa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Connection</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Base Connection</td>
<td>Base Plate Symbol</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Beams and Braces</th>
<th>Column Top</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column Base</td>
<td></td>
</tr>
</tbody>
</table>
SCHEDULING STEEL COLUMNS AND BASE PLATES

Load new connection type in "Structural Settings under "Symbolic Representation Settings"
SCHEDULING STEEL COLUMNS AND BASE PLATES
Checking Column Offsets and Double ups on Columns

Offset Columns creating a new location mark. Part of Columns under and over must cross grid intersection.
TIPS AND TRICKS

Apply Design Options to the GCS in the early stages of the project for a quick comparison.
TIPS AND TRICKS

Provide a Key Plan for easy reference to your GCS

Walls appearing in your GCS?
- disconnect analytical lines
TIPS AND TRICKS

• Don’t set your GCS detail level to Wireframe when tagging
• Hidden levels do not have to be an assigned Structural Plan
• Create a view template for your GCS for consistency
• Use colours and materials to differentiate your columns
SUMMARY

Time is money - eliminate the manual cross checking. At the end of the day, we have to make money for the company.

Losing 10% in presentation to gain 80% in efficiency is worth it.
Questions?