



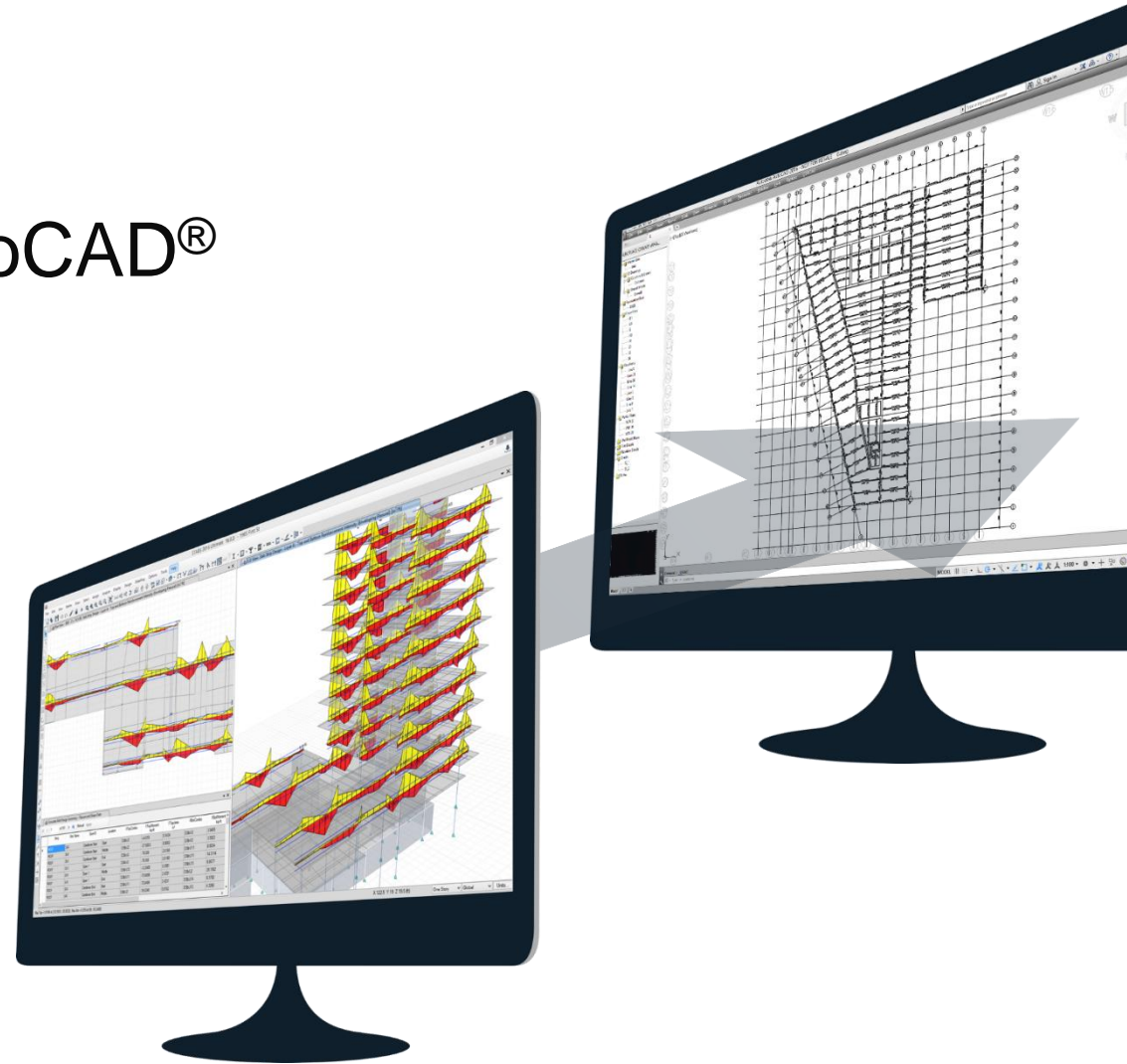
CSiXCAD

DRAWING GENERATION PLUGIN  
FOR AUTOCAD® AND BRICSCAD

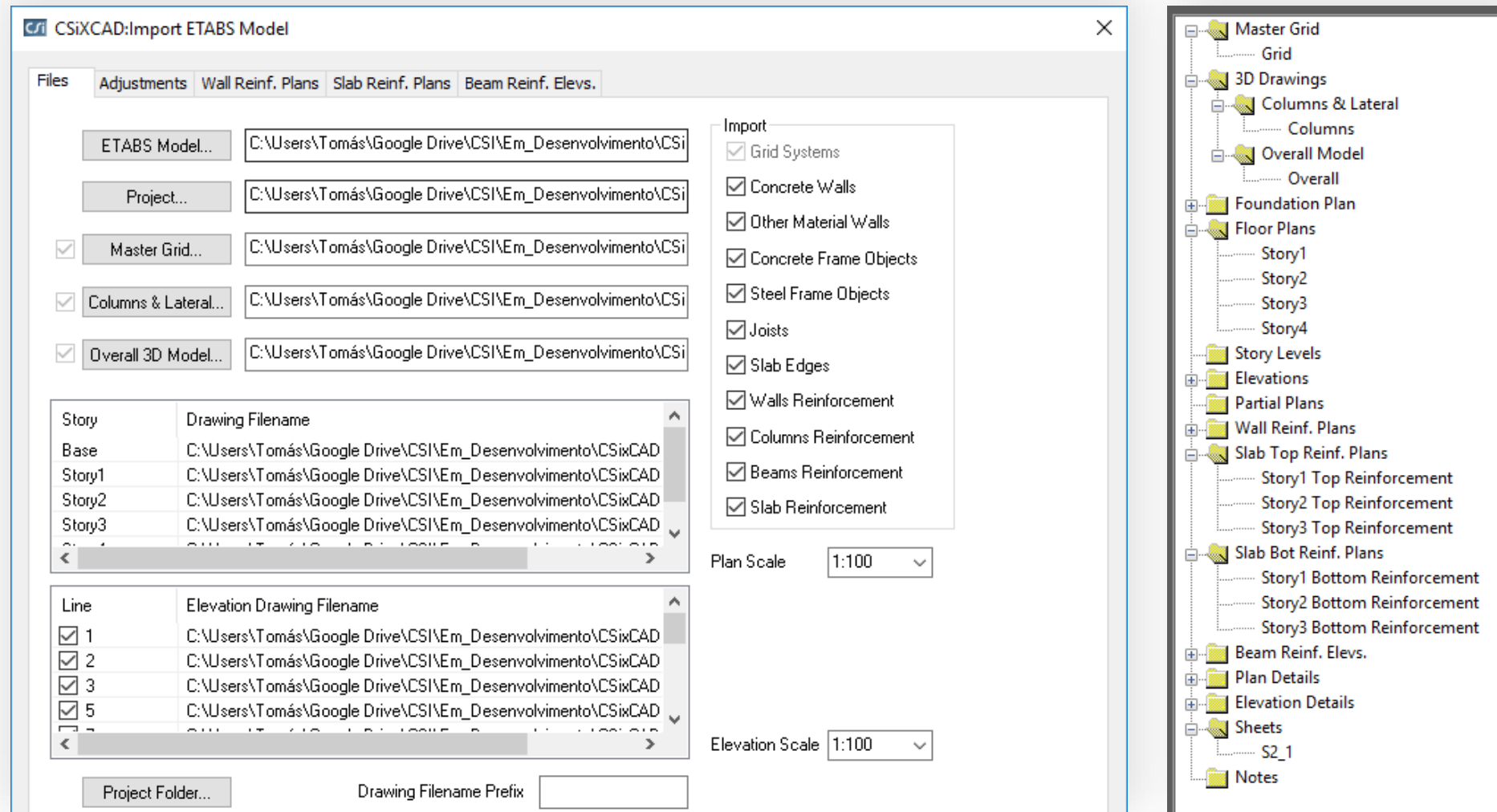
## Take your ETABS model straight to AutoCAD®

CSiXCAD is an add-on to Autodesk® AutoCAD® that directly interacts with ETABS models.

**This tool provides a bridge between engineers using ETABS and draftsmen using AutoCAD®.**



A key feature of CSiXCAD is the absence of duplicate data across drawings.

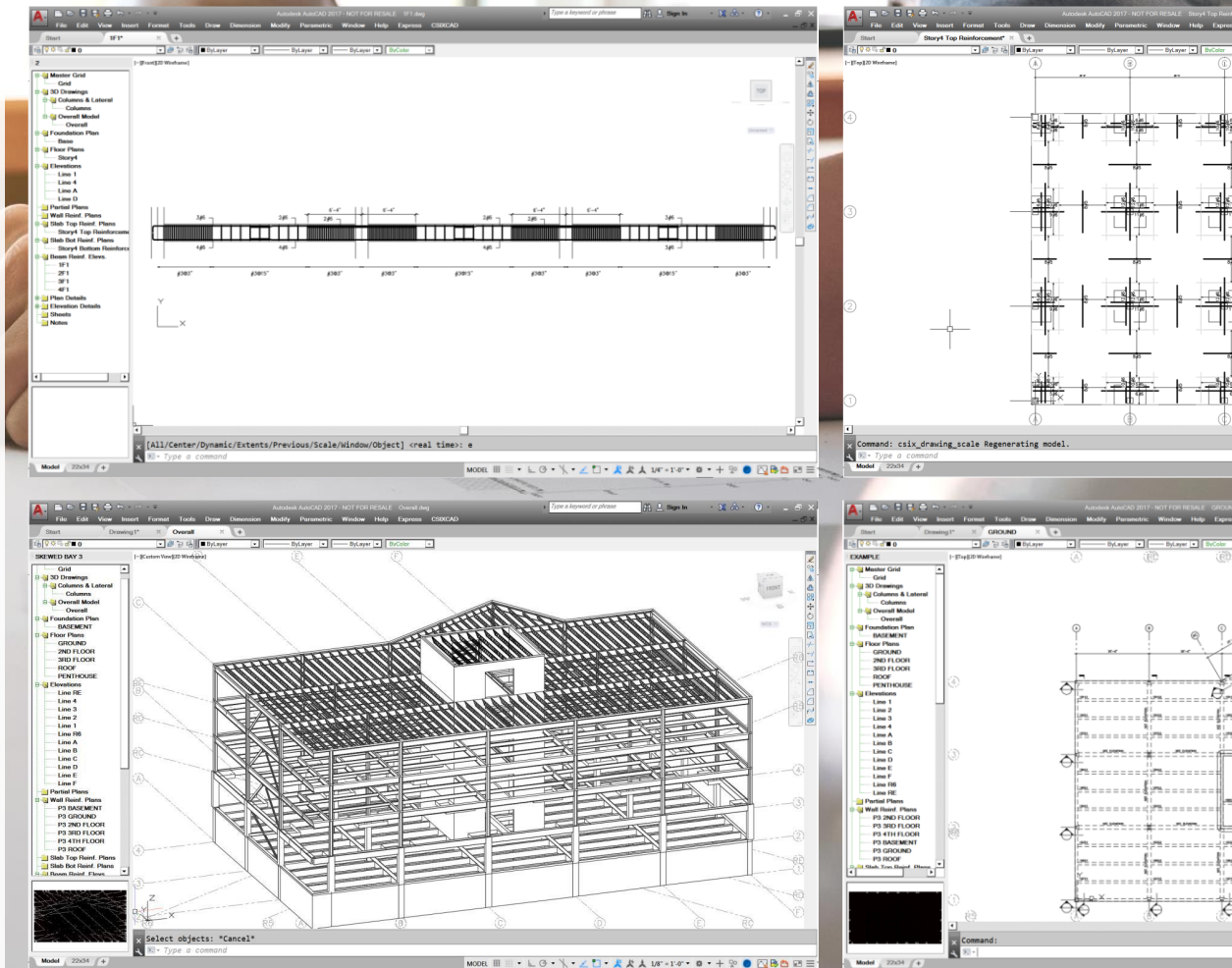




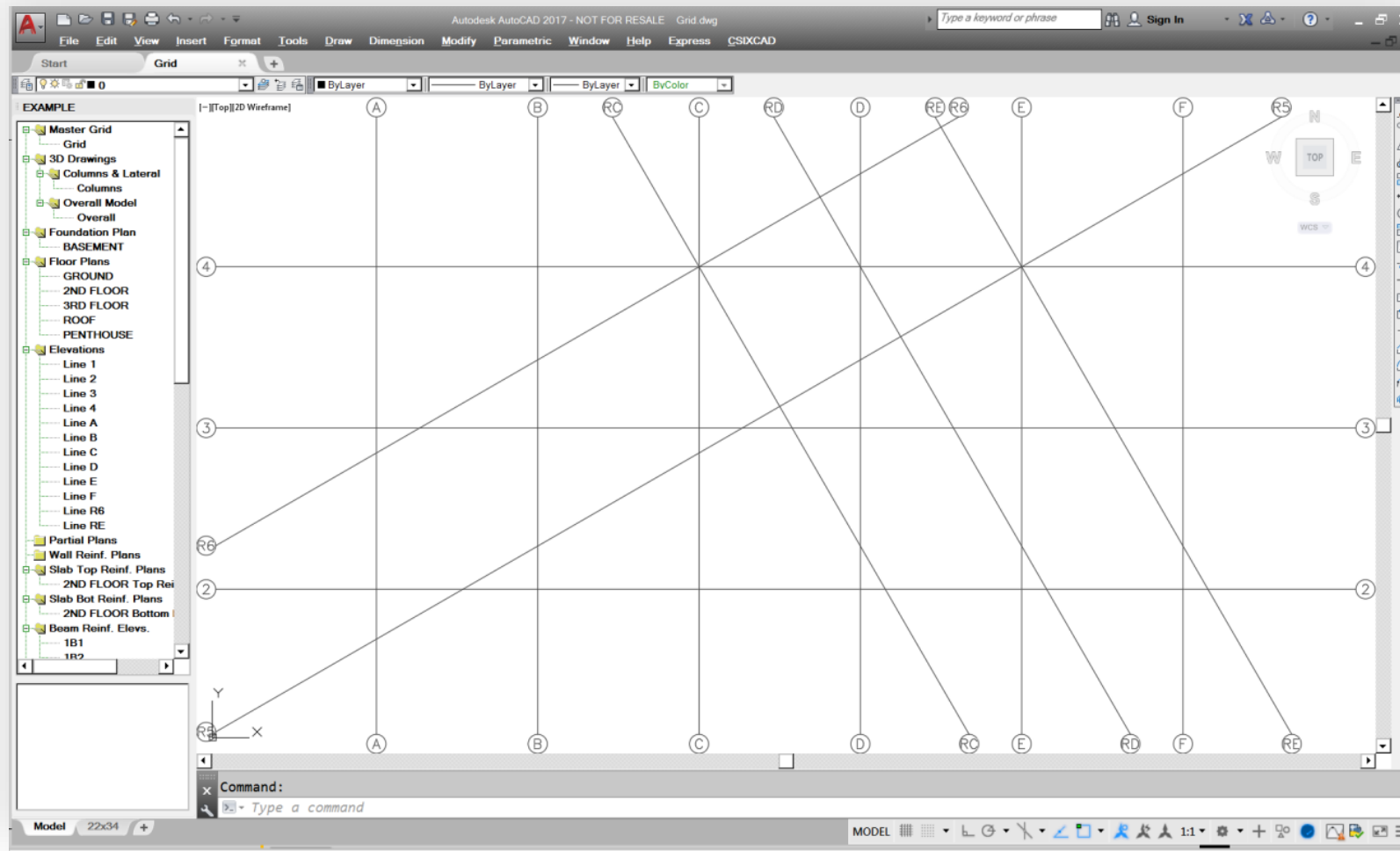
# PROJECT ORGANIZATION

## A CSiXCAD PROJECT CONSISTS OF THE FOLLOWING:

- Master Grid drawing
- Columns & Lateral drawing
- Floor plans, depicting unique stories and typical stories
- Overall drawing
- Elevations
- Wall reinforcement plans
- Slab reinforcement plans
- Concrete beam reinforcement elevations
- Partial plans, details, sheets and a project file

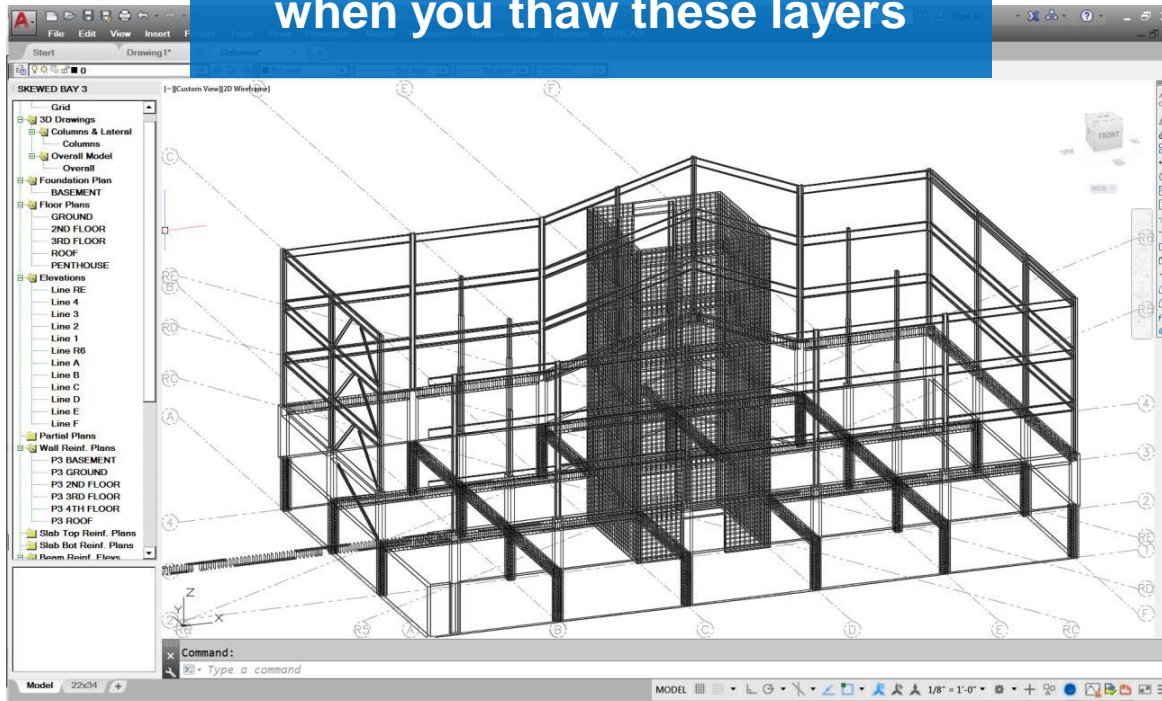


This drawing is inserted as an AutoCAD Xref in all floor plan, partial plan, and elevation drawings.  
**This guarantees grid line alignment remains consistent in all drawings throughout the project.**

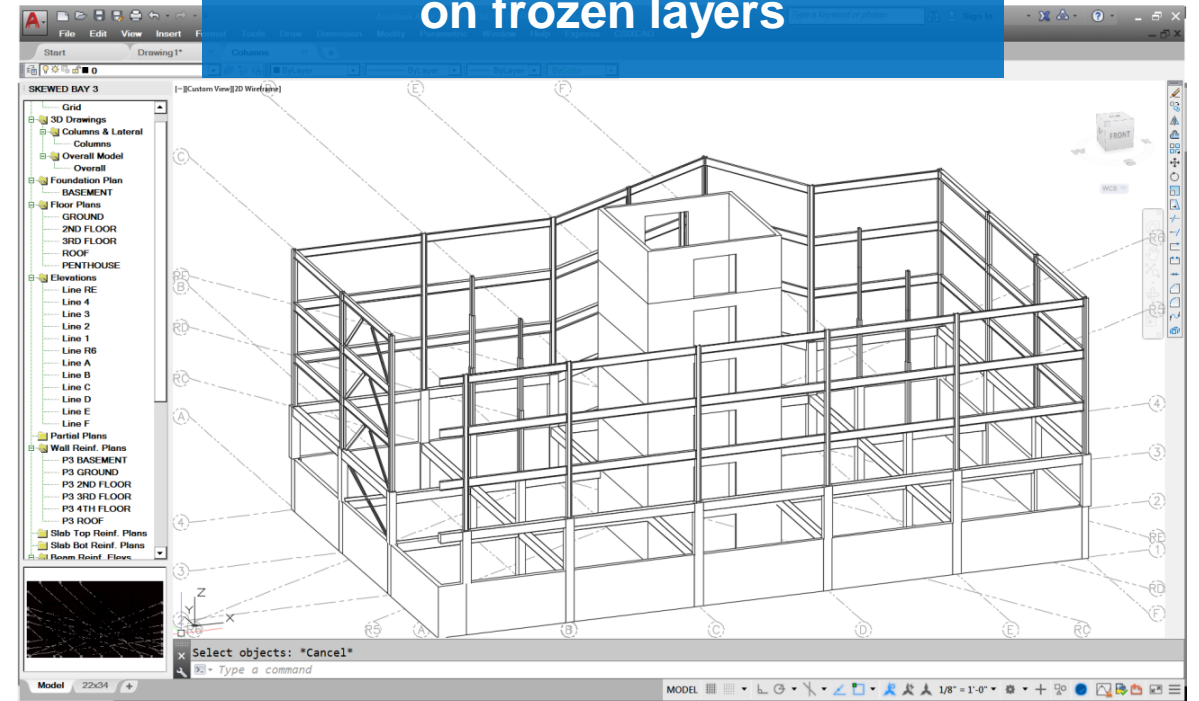


The Columns & Lateral drawing contains all the structural members that may change design from story to story, even across similar stories, and therefore cannot be defined in typical floor plans: columns, walls, braces, and beams that contribute to the lateral loads resistance of the building.

Reinforcement becomes visible when you thaw these layers



Reinforcement is drawn on frozen layers

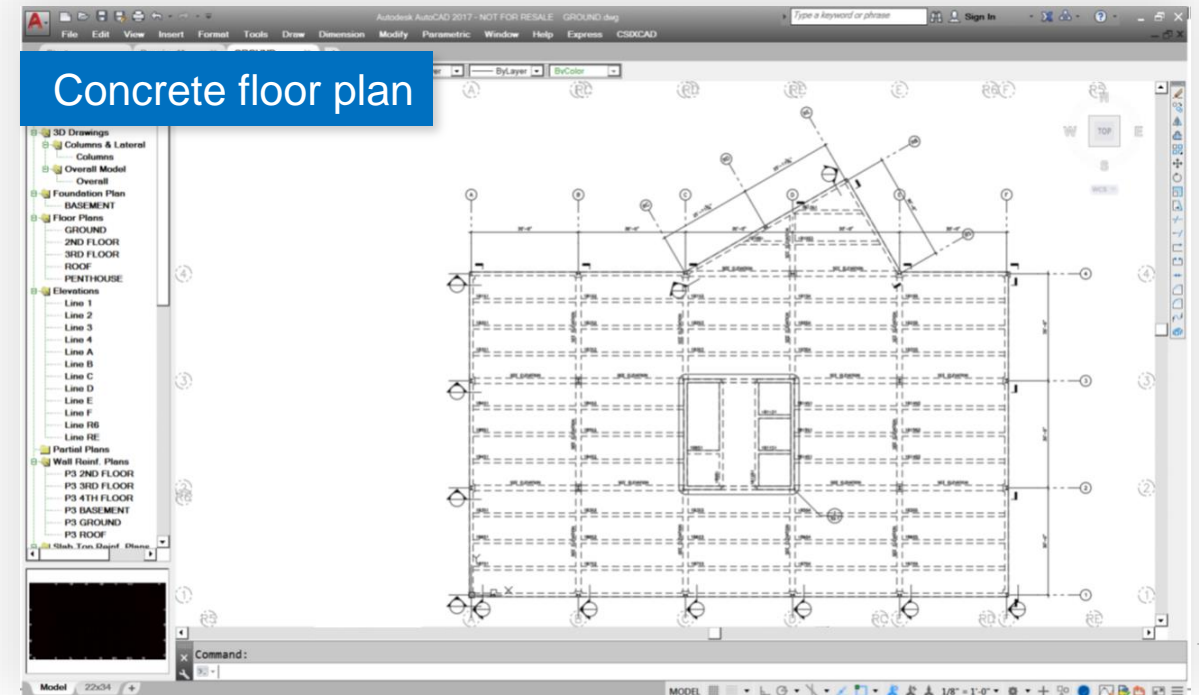
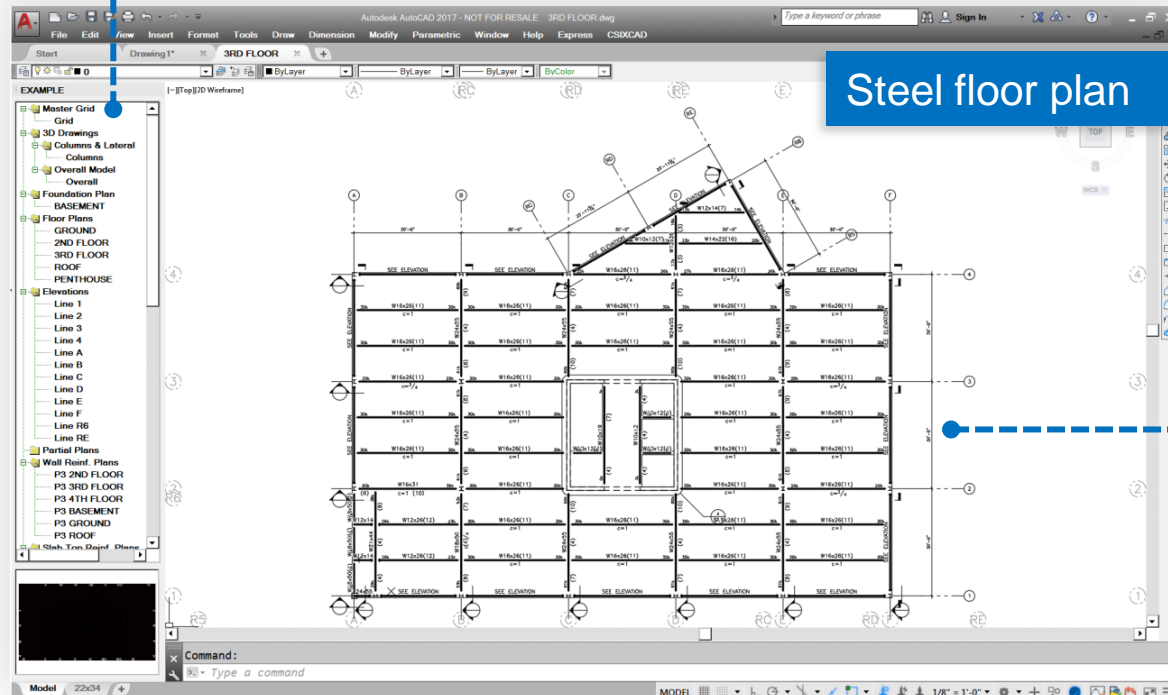




When creating a new project, CSiXCAD draws typical floor plans for the ETABS master stories and unique floor plans for the ETABS stories that are not declared similar to some other story.

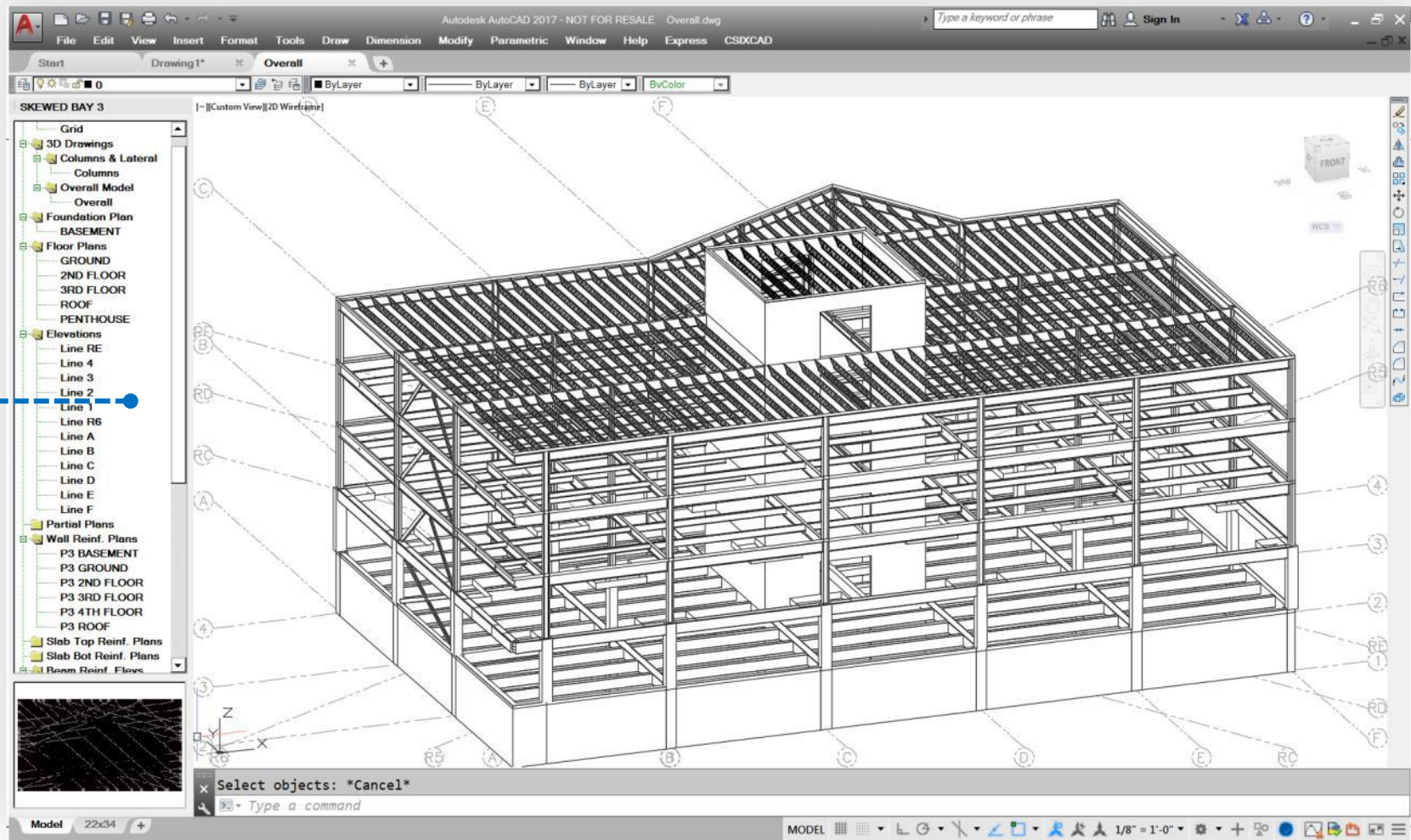
Occasionally there will be singular stories that are declared similar to master stories but actually differ from them. CSiXCAD detects these singular stories and draws additional floor plans for them.

Steel floor plans show member sizes, shear studs, camber, and end reactions.



The Overall drawing is an assembly of AutoCAD Xrefs: the Columns & Lateral drawing and the various floor plan drawings at the z-elevations of the story levels where they occur.

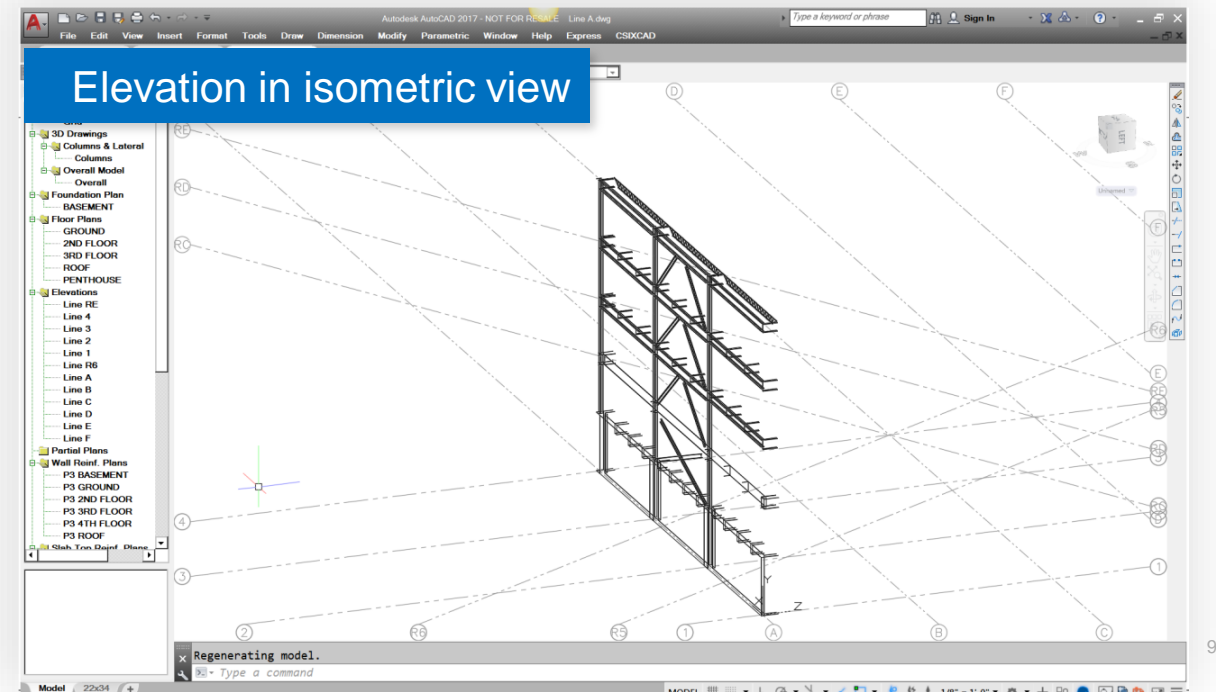
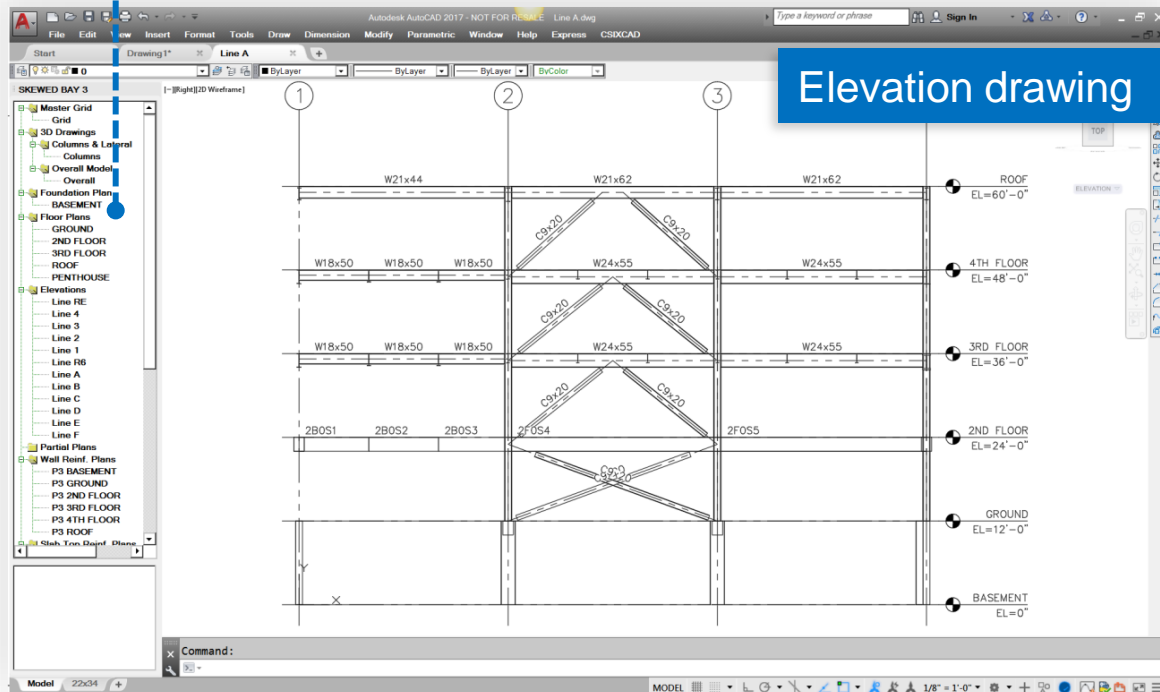
Any changes you make in the Columns & Lateral drawing and the floor plans are reflected in the Overall drawing.

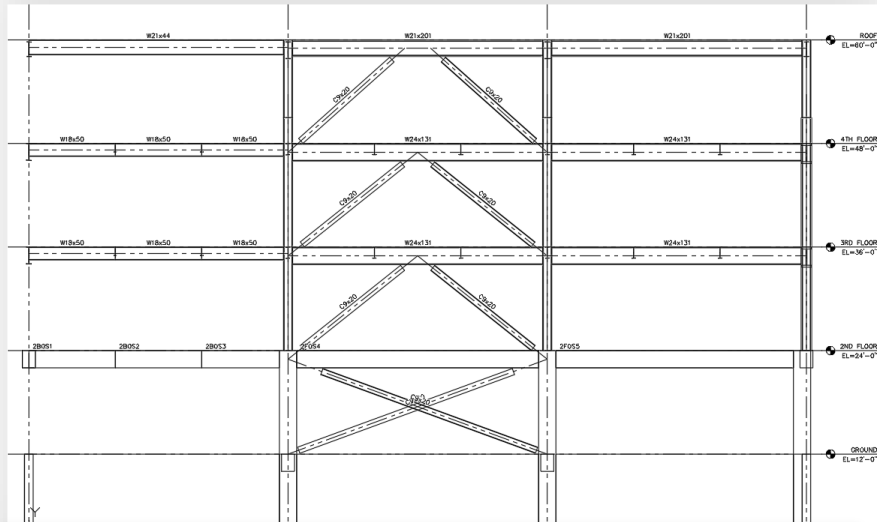




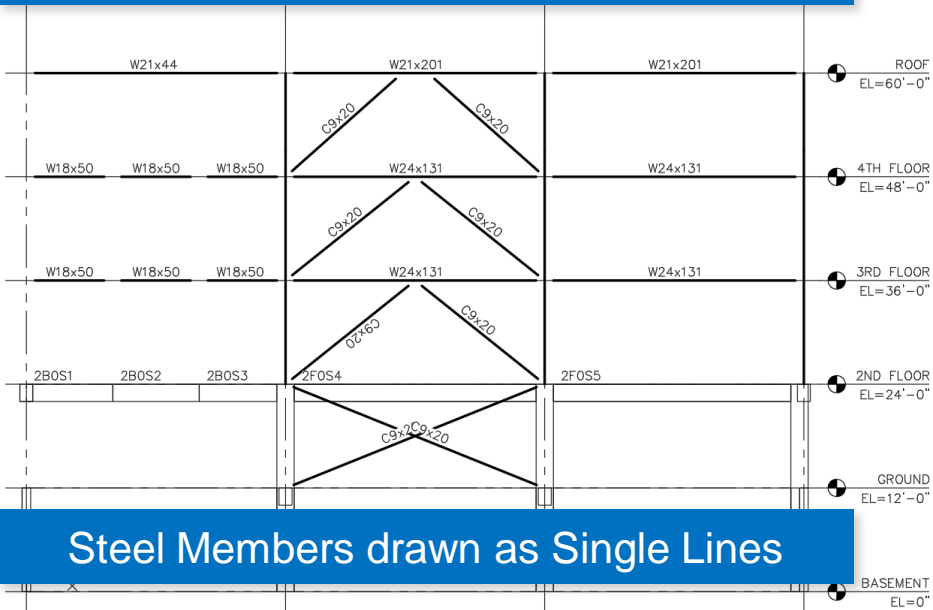
CSiXCAD identifies automatically the grid lines along which walls, lateral beams, and braces are located, and lets you select which of these grid lines to draw elevations for.

The user can also create additional elevations at other locations and change the depth of the slice.

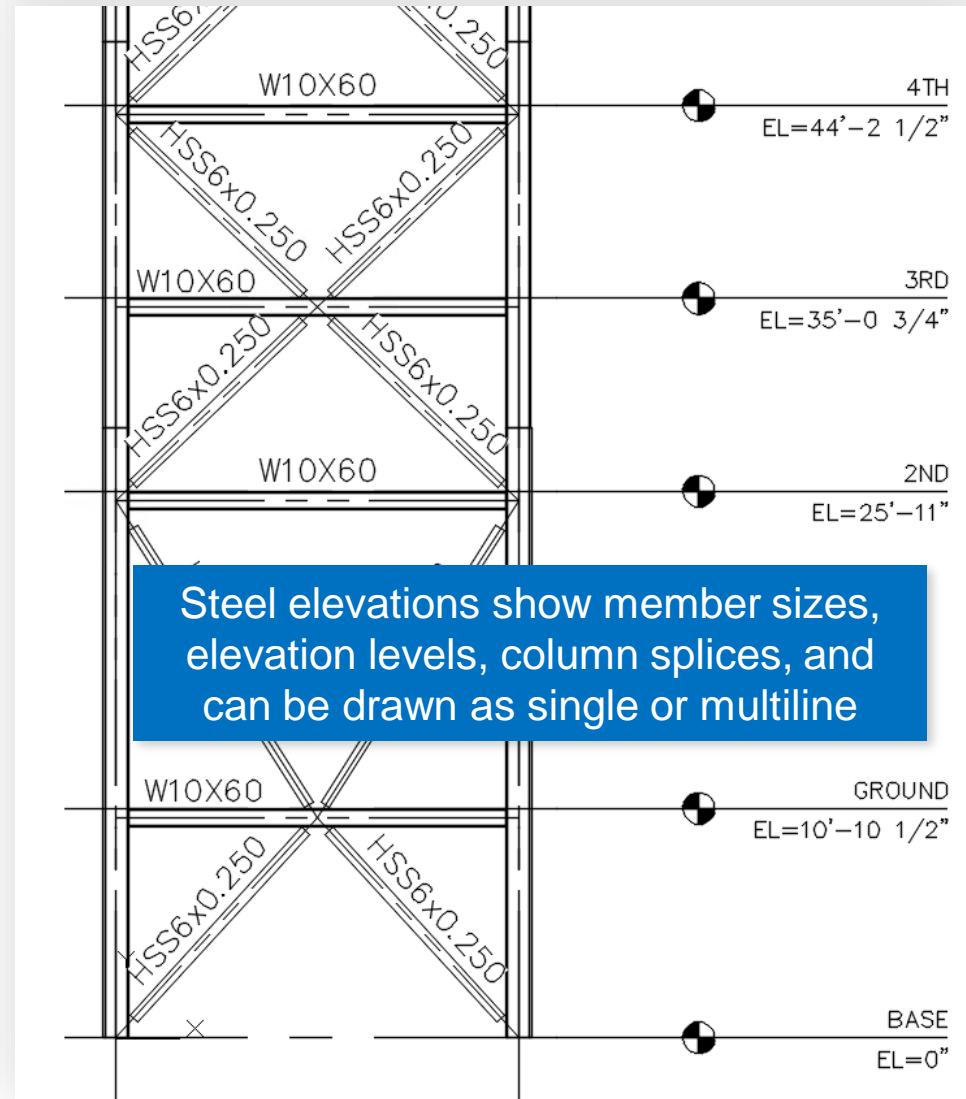




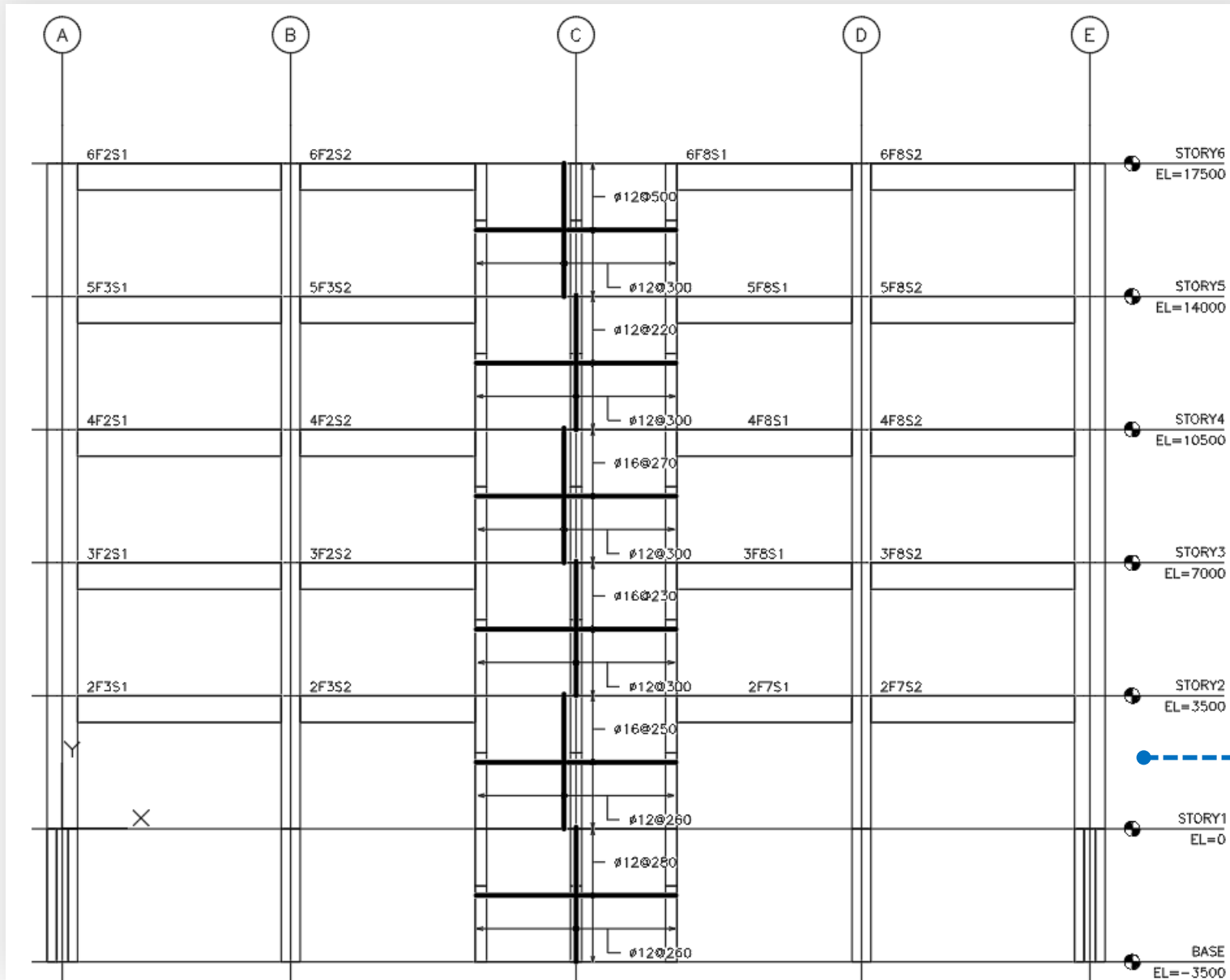
Steel Members drawn as Multilines



Steel Members drawn as Single Lines



Steel elevations show member sizes, elevation levels, column splices, and can be drawn as single or multiline



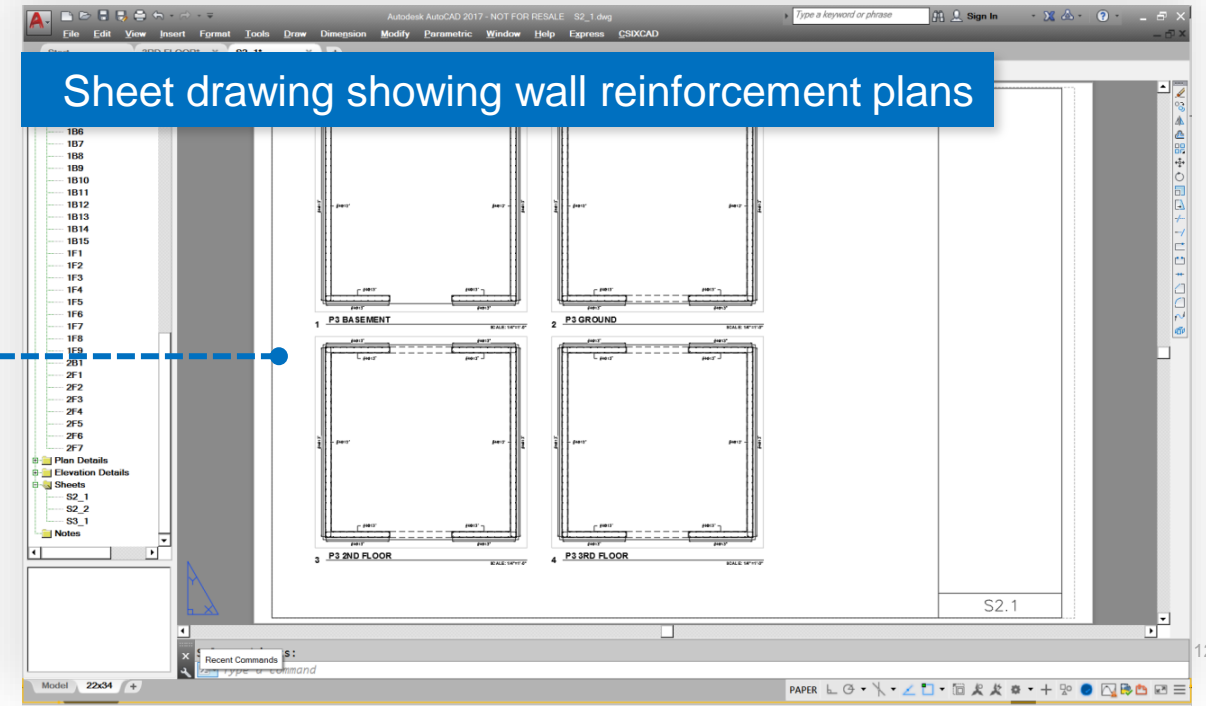
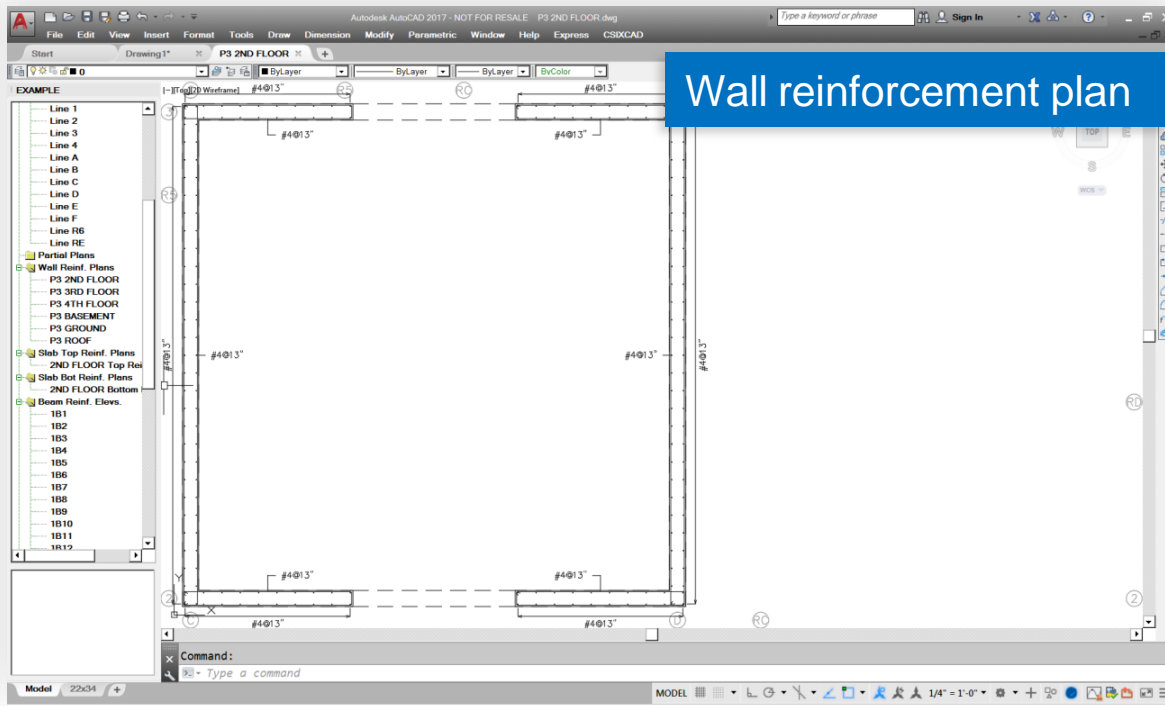
Concrete elevations show frame members and walls, including horizontal and vertical wall reinforcement information.

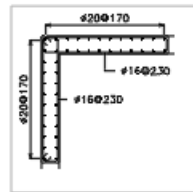


# WALL REINFORCEMENT PLANS

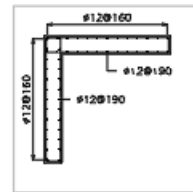
Concrete wall reinforcement plans show the wall layout and callouts for the horizontal and vertical reinforcement.

Wall reinforcement plans are automatically generated and automatically laid out on sheets when an ETABS model featuring walls is imported.

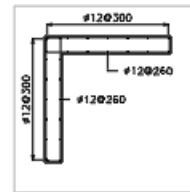




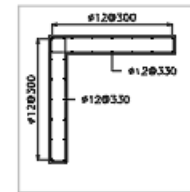
**1** P14 Story1  
SCALE: 1:50



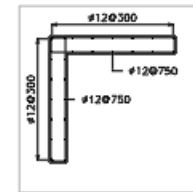
**2** P14 Story2  
SCALE: 1:50



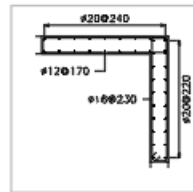
**3** P14 Story3  
SCALE: 1:50



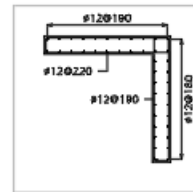
**4** P14 Story4  
SCALE: 1:50



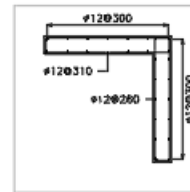
**5** P14 Story5  
SCALE: 1:50



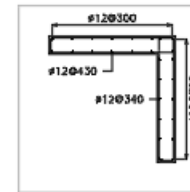
**6** P16 Story1  
SCALE: 1:50



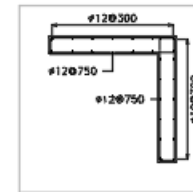
**7** P16 Story2  
SCALE: 1:50



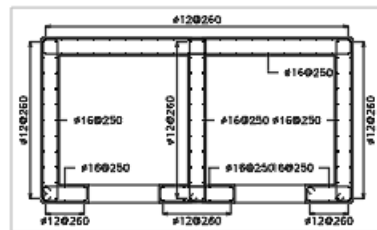
**8** P16 Story3  
SCALE: 1:50



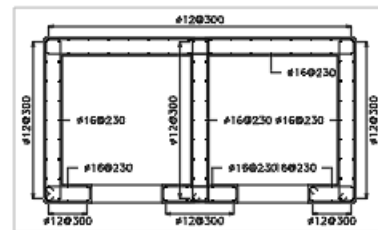
**9** P16 Story4  
SCALE: 1:50



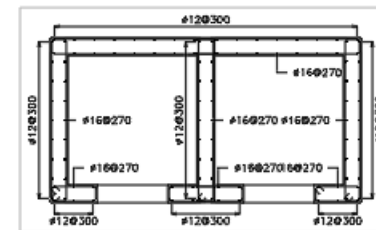
**10** P16 Story5  
SCALE: 1:50



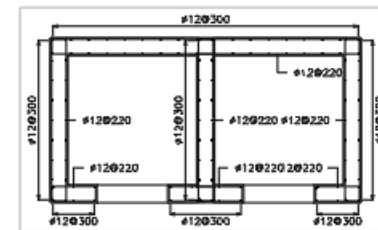
**11** P1 Story1  
SCALE: 1:50



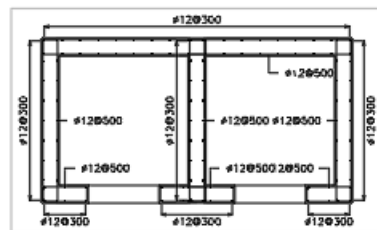
**12** P1 Story2  
SCALE: 1:50



**13** P1 Story3  
SCALE: 1:50



**14** P1 Story4  
SCALE: 1:50



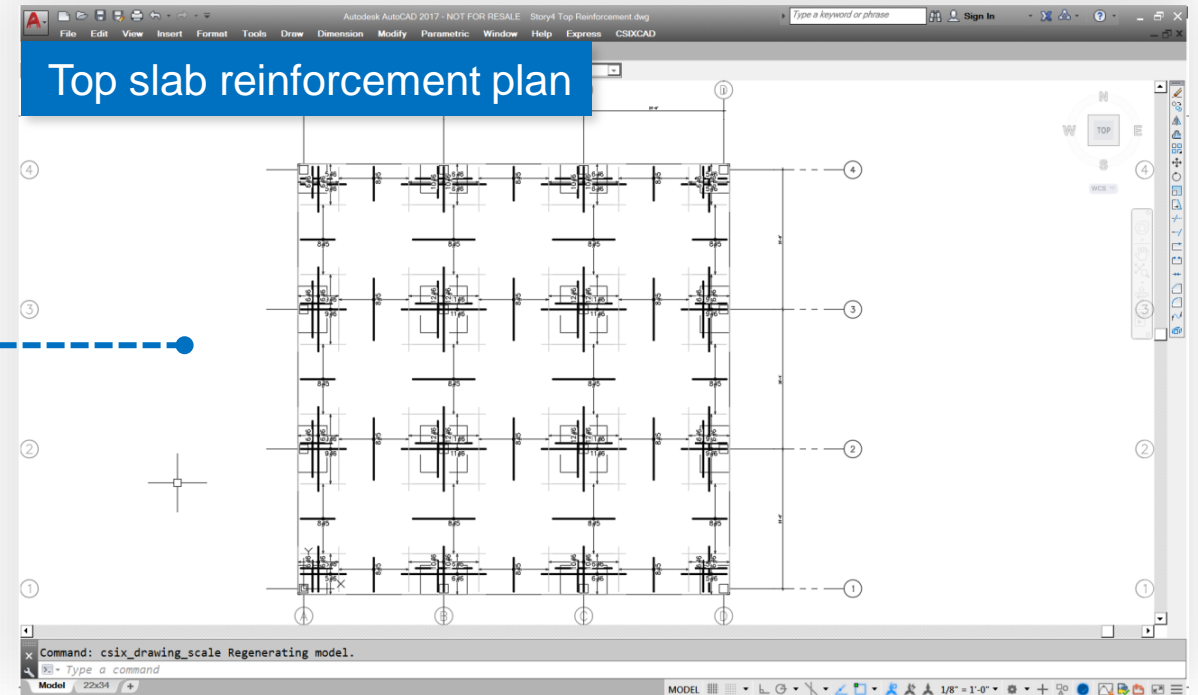
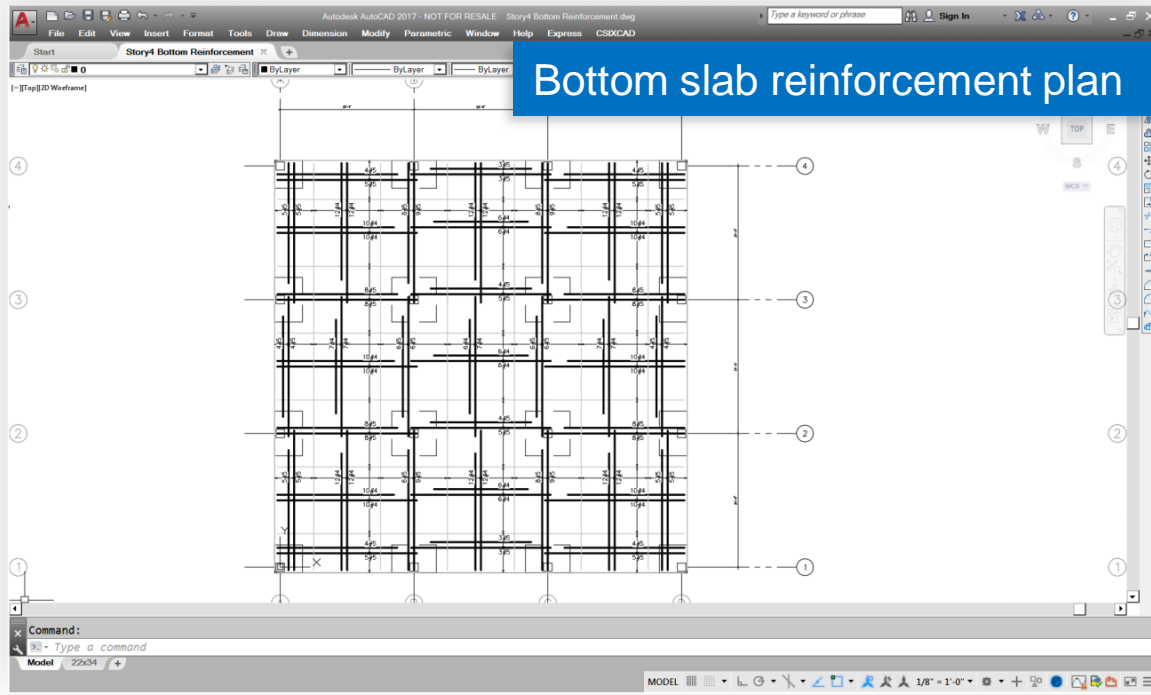
**15** P1 Story5  
SCALE: 1:50

If you import an ETABS model which contains concrete walls, CSiXCAD will by default generate partial plans calling out the wall reinforcement, as well as a series of sheets showing these partial plans.

# SLAB REINFORCEMENT PLANS

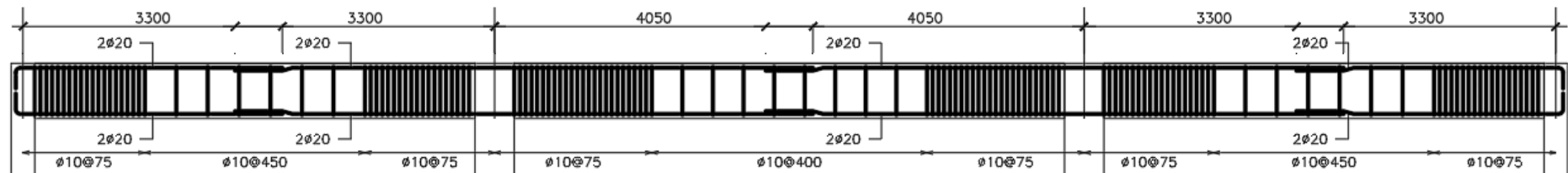
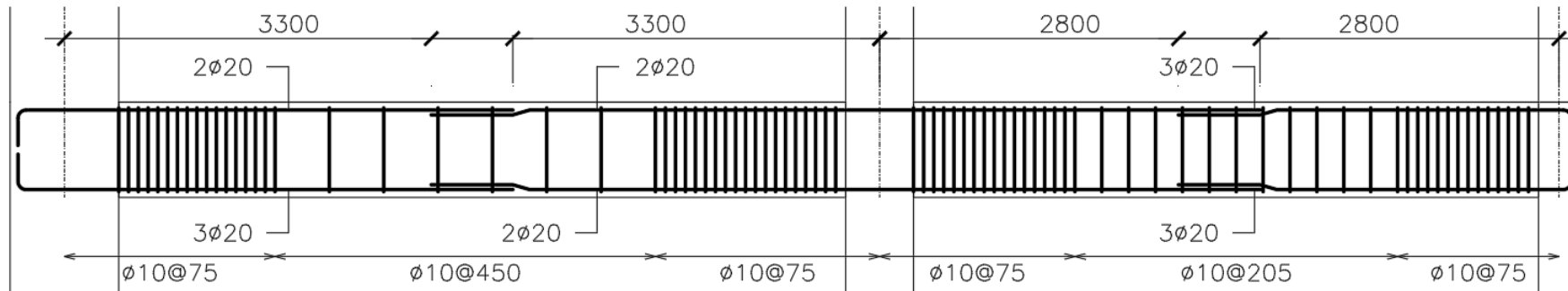
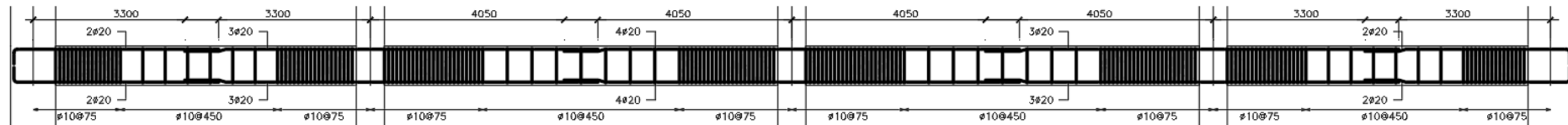
For every unique or typical story level with a reinforced concrete slab, there are separate slab reinforcement plans for the top and the bottom reinforcement.

The user can choose the story levels for which slab reinforcement plans will be generated.



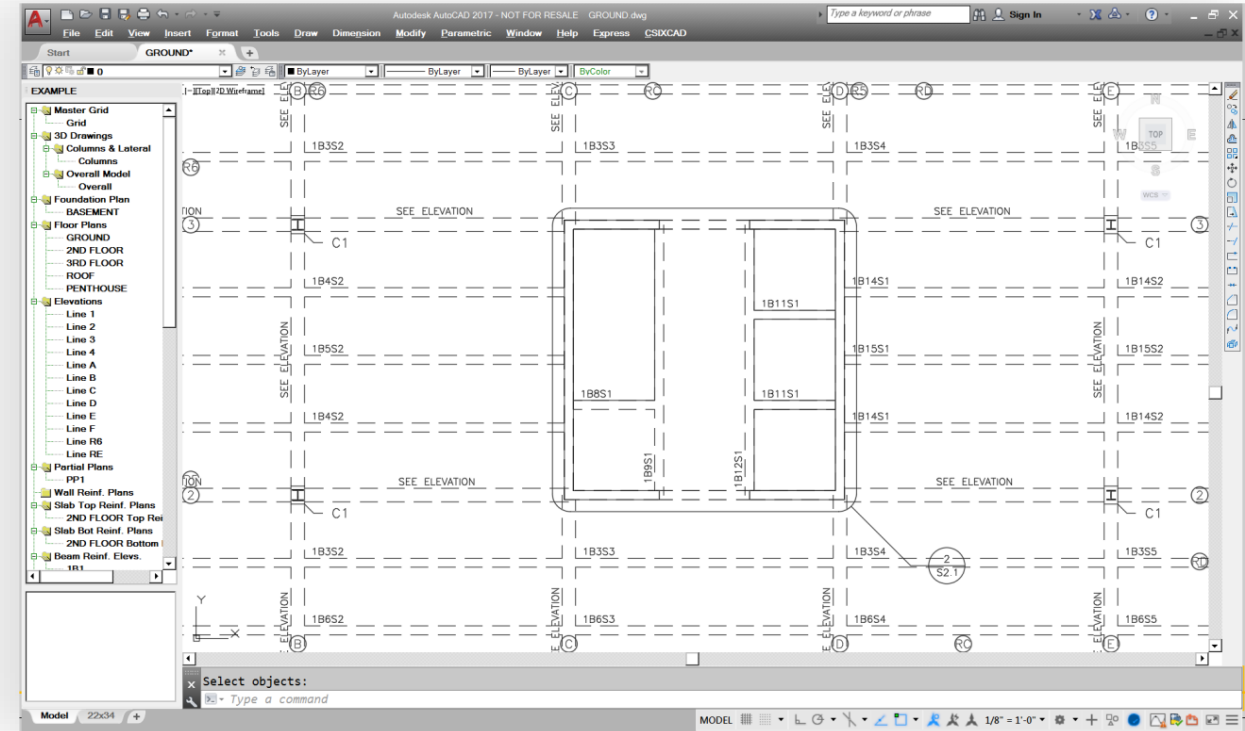


Concrete beam reinforcement elevations are elevation drawings documenting the reinforcement of concrete beams.



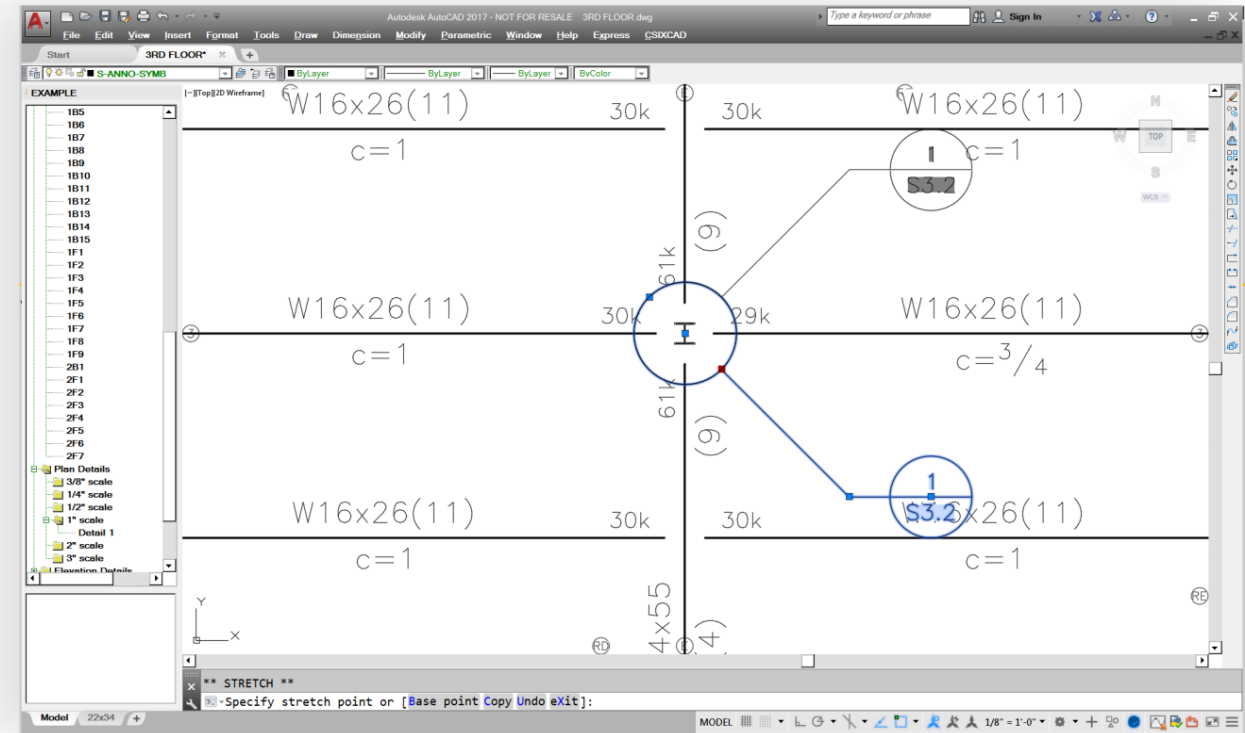
are drawings showing an enlarged area of a floor plan.

are drawings showing an enlarged area of a floor plan.



# Details

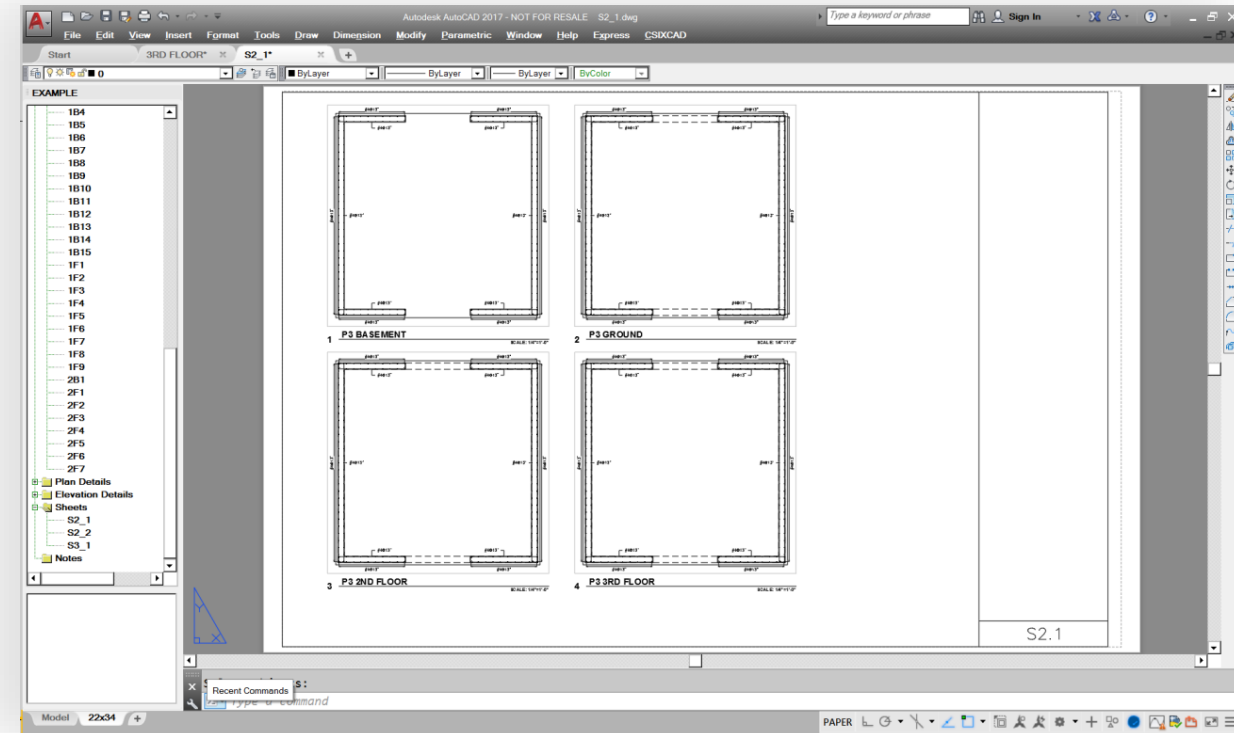
are drawings pulled from a library or drawn using native AutoCAD objects and which will be shown on sheets and cross-referenced on plans and elevations.





## Sheets

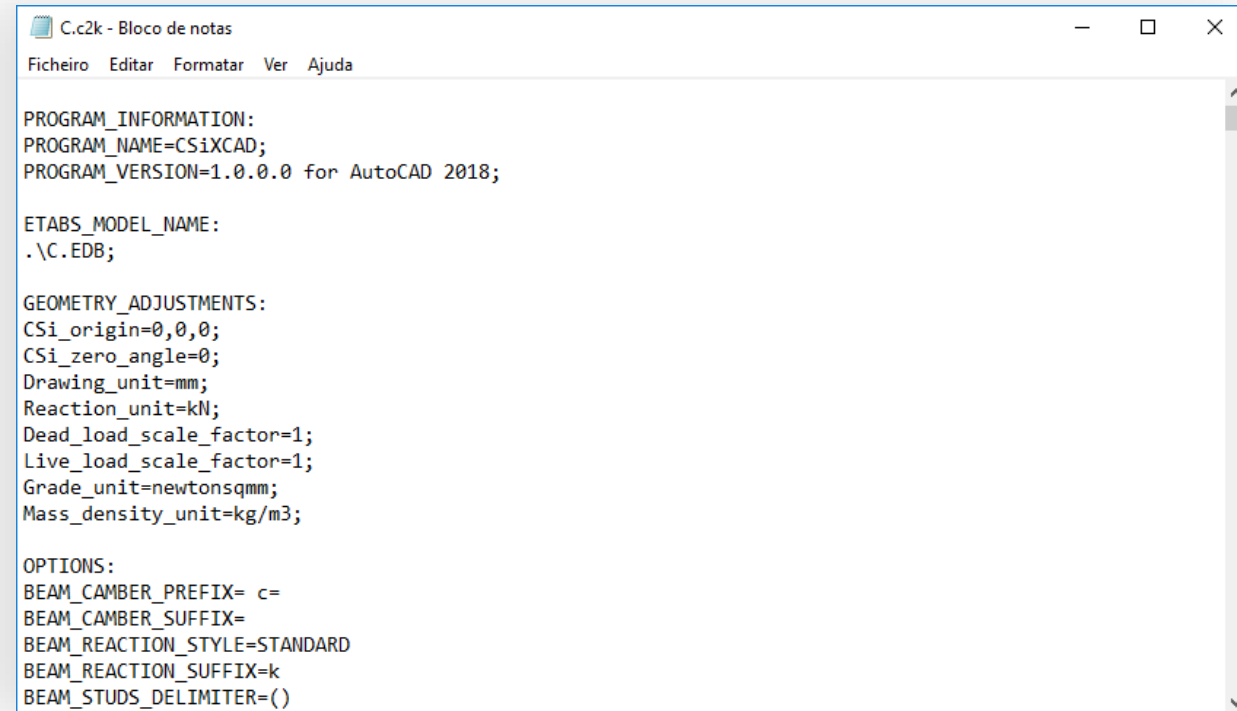
are drawings that show one or more other drawings – plans, elevations, or details – arranged in “viewports” in AutoCAD “paper space”.



## Project File

is a text file that lists the following information:

- filename of the imported ETABS model
- filenames of the project drawings
- any adjustments made when the model was imported
- the extents, scale, z-elevations, and ETABS story type of each of the plans
- the extents, view direction, scale, and ETABS grid line id of each of the elevations
- the values of all the CSiXCAD settings
- the filenames of the property libraries in use in ETABS
- the grades of steel and concrete in use in ETABS
- the rebar sizes defined in ETABS



```
C:\c2k - Bloco de notas
Ficheiro  Editar  Formatar  Ver  Ajuda

PROGRAM_INFORMATION:
PROGRAM_NAME=CSiXCAD;
PROGRAM_VERSION=1.0.0.0 for AutoCAD 2018;

ETABS_MODEL_NAME:
.\C.EDB;

GEOMETRY_ADJUSTMENTS:
CSi_origin=0,0,0;
CSi_zero_angle=0;
Drawing_unit=mm;
Reaction_unit=kN;
Dead_load_scale_factor=1;
Live_load_scale_factor=1;
Grade_unit=newtonsqmm;
Mass_density_unit=kg/m3;

OPTIONS:
BEAM_CAMBER_PREFIX= c=
BEAM_CAMBER_SUFFIX=
BEAM_REACTION_STYLE=STANDARD
BEAM_REACTION_SUFFIX=k
BEAM_STUDS_DELIMITER=()
```

CSiXCAD's objects know their section size and other details, making a smart model that can sync with ETABS design data.

# The Change Design

command displays one of the following forms, depending on the type of member or reinforcement object you select:

- Change Steel Section
- Change Steel Gravity Beam Design
- Change Concrete Column Design
- Change Concrete Beam Design
- Edit Joist form if you select a joist
- Edit Wall Reinforcement form
- Edit Slab Reinforcement

CSiXAutoCAD: Change Beam Design

Tree View:

- HP
- M
- S
- W
  - W4
  - W5
  - W6
  - W8
  - W10
  - W12
    - W12x14
    - W12x16
    - W12x19
    - W12x22
    - W12x26
    - W12x30
    - W12x35
    - W12x40
    - W12x45
    - W12x50

Preview:

Studs: 11

Rotation: 0.00 ☐ Mirrored

Grade: 50.0 Camber: 1"

Reactions: Start: 29.5k End: 29.5k

Buttons: OK, Cancel

# CHANGE STEEL SECTION

If you select a steel column, a steel lateral beam, a steel cantilever beam, or a brace, the Change Steel Section form is displayed.

CSiXCAD:Change Steel Section

Section Profile

- HP
- M
- S
- W
  - W4
  - W5
  - W6
  - W8
  - W10
    - W10x12
    - W10x15
    - W10x17
    - W10x19
    - W10x22
    - W10x26
    - W10x30
    - W10x33**
    - W10x39
    - W10x45

Cardinal Point

☐ Mirrored

Rotation: 120.00

Material: A992Fy50

OK Cancel

If you select a steel gravity span beam, the Change Steel Gravity Beam Design form is displayed.

CSiXCAD:Change Steel Gravity Beam Design

Section Profile

- HP
- M
- S
- W
  - W4
  - W5
  - W6
  - W8
  - W10
  - W12
  - W14
  - W16
  - W18
    - W18x35
    - W18x40
    - W18x46
    - W18x50**
    - W18x55
    - W18x60
    - W18x65
    - W18x71
    - W18x76

Rotation: 0.00

☐ Mirrored

Material: A992Fy50

Camber: 3/4"

Reactions

Start: 52.4k End: 52.4k

Studs
9

OK Cancel



# CHANGE CONCRETE COLUMN / BEAM DESIGN

If you select a concrete beam, the Change Concrete Beam Design form is displayed.

CSi XCAD:Change Concrete Beam Design

Width: 300.0000  
Depth: 700.0000

Materials  
f<sub>c</sub>: C30/37  
F<sub>y</sub>: A500

Top Reinforcement

Loc.	Qty	Size	Start	End
C	2	20	-3300	4050
C	3	20	3450	11550

Bottom Reinforcement

Loc.	Qty	Size	Start	End
J	2	20	-3300	4050
J	3	20	3450	11550

Shear Reinforcement

Size	Spacing	End
10	75	2000
10	450	5500
10	75	7500

☐ Retain Beam Mark

OK Cancel

If you select a concrete column, the Change Concrete Column Design form is displayed.

CSi XCAD:Change Concrete Column Design

Dimensions  
Width: 300.0000 ☐ Circular  
Depth: 800.0000

Materials  
f<sub>c</sub>: C30/37  
F<sub>y</sub>: A500

Long. Reinforcement

Top Bars	Side Bars	Bar size
2	4	20

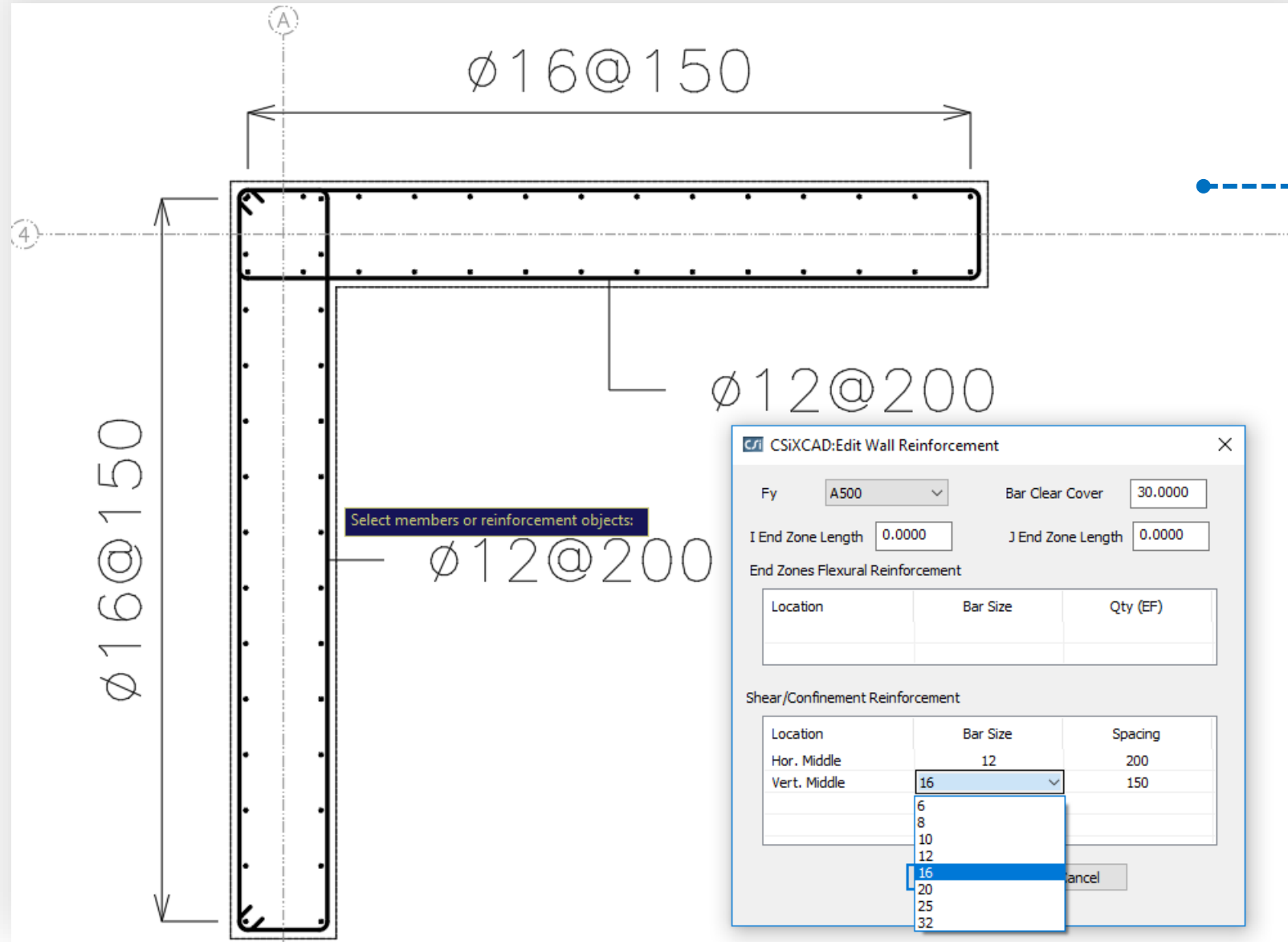
Shear Reinforcement

Size	Spacing	End

Shear Legs  
Major Axis: 2 Minor Axis: 4

OK Cancel

# EDIT WALL REINFORCEMENT



If you select a wall reinforcement object, the Edit Wall Reinforcement form is displayed.

CSI XCAD:Edit Wall Reinforcement

Fy: A500 Bar Clear Cover: 30.0000

I End Zone Length: 0.0000 J End Zone Length: 0.0000

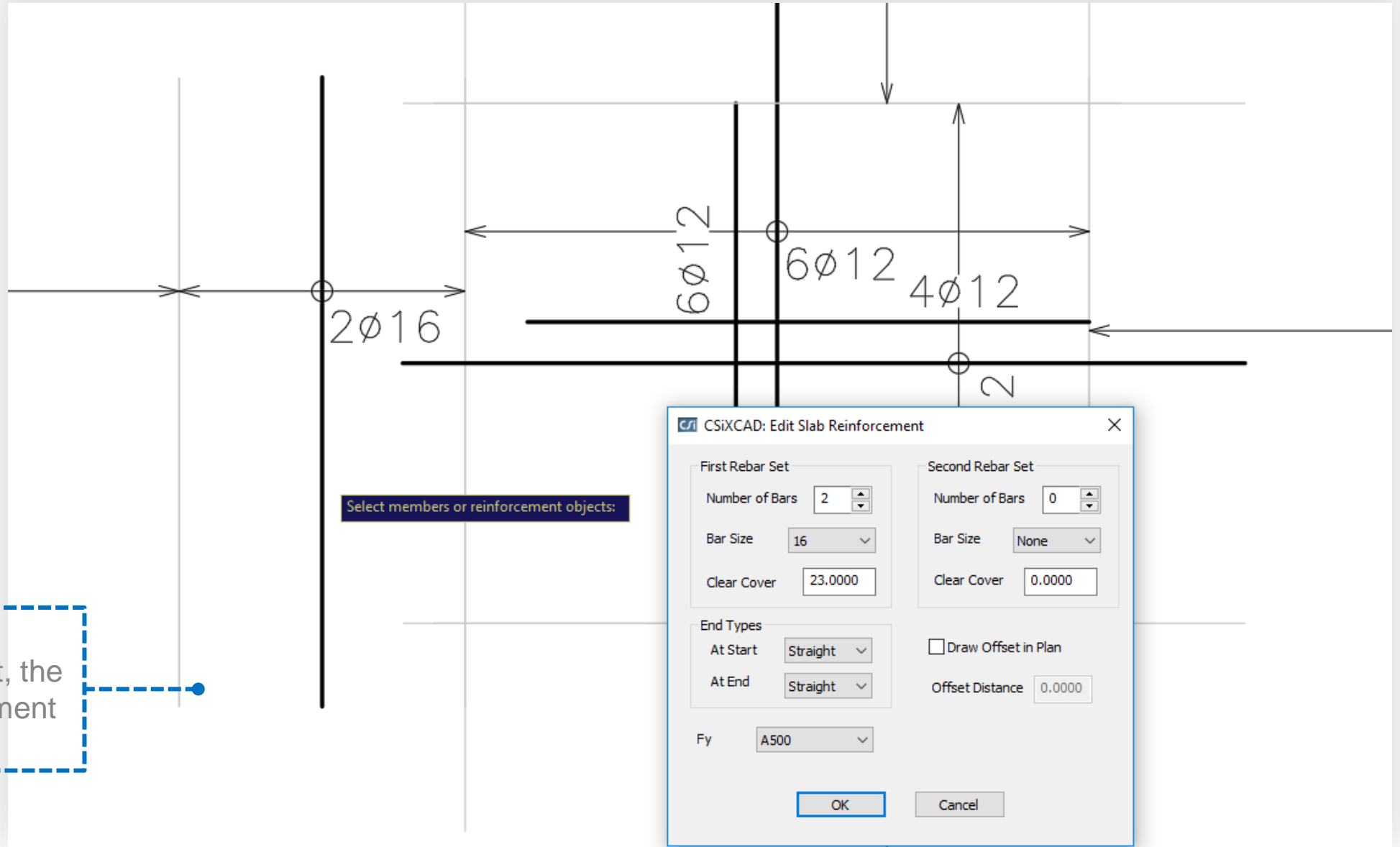
End Zones Flexural Reinforcement

Location	Bar Size	Qty (EF)

Shear/Confinement Reinforcement

Location	Bar Size	Spacing
Hor. Middle	12	200
Vert. Middle	16	150

Cancel



If you select a slab reinforcement object, the Edit Slab Reinforcement form is displayed:

## Match Design

Lets you select any number of columns, beams, or braces and make their cross-sections identical.

## Match Rebars

- Match Rebars – makes all reinforcement of all columns or beams you select identical to that of the first column or beam you selected
- Match Longitudinal Rebars – makes the longitudinal reinforcement of all columns or beams identical to that of the first column or beam you selected
- Match Top – only works with beams and makes their top reinforcement identical to that of the first beam you selected
- Match Bottom – only works with beams and makes their bottom reinforcement identical to that of the first beam you selected
- Match Shear – makes the shear reinforcement of all columns or beams identical to that of the first column or beam you selected.

## Compare Rebars

Lets you select two columns or two beams, and compare their reinforcement.



## **Reimport from ETABS**

Updates the drawings in an existing CSiXCAD project to reflect the latest ETABS model data:

- If you moved an object or changed its design in CSiXCAD after it was imported, and it has not moved or changed design in ETABS since the last import, then the object stays where you put it and retains the design you selected.
- If you moved an object or changed its design in CSiXCAD after it was imported, but it has also moved or changed design in ETABS since the last import, then the object is updated to reflect the new ETABS location and design.

## **Resurrect ETABS Members**

When you erase objects which were imported from an ETABS model and then reimport that model, the erased objects are not reimported. Using Resurrect command, will bring back these objects the next time you reimport the model.

## **Changes during Last Import**

## **Compare to ETABS**

[–][Front][2D Wireframe]

Beam reinforcement elevation

FRONT

Concrete beam 2F8S1 ETABS unique name : 133 Top reinf. From 4 to 3 20.  
Concrete beam 2F8S1 ETABS unique name : 133 Bottom reinf. From 4 to 3 20.  
Concrete beam 3F6S1 ETABS unique name : 137 Top reinf. From 4 to 3 20.  
Concrete beam 3F6S1 ETABS unique name : 137 Bottom reinf. From 4 to 3 20.

Lists the changes that were made to the current drawing during the last import. Clicking on an item in the form re-centers the view on the object that has changed and highlights it in red.

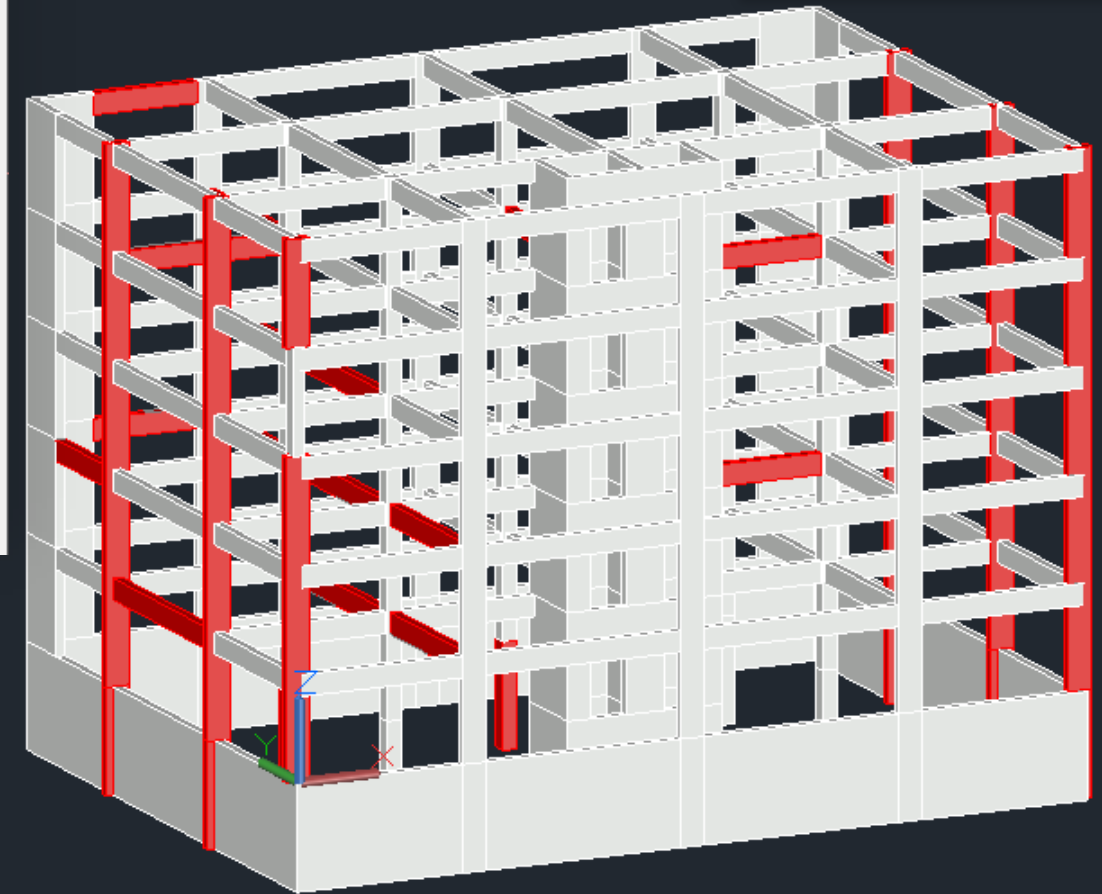
# COMPARE TO ETABS

## Columns & lateral drawing

CSiXCAD:ETABS compare

Concrete column E-3 at level Story5 ETABS unique name : 85 Rotated 90 degrees  
Concrete column A-1 at level Story5 ETABS unique name : 91 Rotated 90 degrees  
Concrete column E-1 at level Story5 ETABS unique name : 97 Rotated 90 degrees  
Concrete beam 2F8S1 ETABS unique name : 133 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs  
Concrete beam 2F7S2 ETABS unique name : 148 Shear reinforcement  
Concrete beam 2F8S2 ETABS unique name : 158 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs  
Concrete beam 3F6S1 ETABS unique name : 137 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs  
Concrete beam 3F6S3 ETABS unique name : 157 Top reinforcement 4 in ETABS vs. 3 20. Bot. reinforcement 4 in ETABS vs  
Concrete beam 3F6S2 ETABS unique name : 162 Top reinforcement 3 in ETABS vs. 4 20. 4 in ETABS vs. 3 20. Bot. reinfor  
Concrete beam 3F8S1 ETABS unique name : 232 Shear reinforcement  
Concrete beam 3F3S3 ETABS unique name : 237 Shear reinforcement  
Concrete beam 3F5S1 ETABS unique name : 242 Shear reinforcement  
Concrete beam 4F6S3 ETABS unique name : 156 Top reinforcement 4 in ETABS vs. 3 20. 2 in ETABS vs. 3 20. Bot. reinfor  
Concrete beam 4F6S2 ETABS unique name : 161 Top reinforcement 4 in ETABS vs. 3 20. Bot. reinforcement 4 in ETABS vs  
Concrete beam 5F8S3 ETABS unique name : 155 Top reinforcement 2 in ETABS vs. 3 20. Bot. reinforcement 2 in ETABS vs  
Concrete beam 5F4S1 ETABS unique name : 165 Shear reinforcement  
Concrete beam 5F1S1 ETABS unique name : 170 Shear reinforcement  
Concrete beam 5F5S1 ETABS unique name : 230 Shear reinforcement  
Concrete beam 6F5S1 ETABS unique name : 239 Shear reinforcement

Identifies differences between the data shown in the active project drawing and the data currently in the ETABS model, and lets you resolve these on a case-by-case basis by selectively importing data from ETABS.



# COMPARE TO ETABS

## Columns & lateral drawing

CSiXCAD:ETABS compare

Concrete column A-2 at level Story4 ETABS unique name : 68 Rotated 90 degrees  
Concrete column A-3 at level Story4 ETABS unique name : 74 Rotated 90 degrees  
Concrete column E-2 at level Story4 ETABS unique name : 80 Rotated 90 degrees  
Concrete column E-3 at level Story4 ETABS unique name : 86 Rotated 90 degrees  
Concrete column E-1 at level Story4 ETABS unique name : 98 Rotated 90 degrees  
Concrete column A-2 at level Story5 ETABS unique name : 67 Rotated 90 degrees  
Concrete column A-3 at level Story5 ETABS unique name : 73 Rotated 90 degrees  
Concrete column E-2 at level Story5 ETABS unique name : 79 Rotated 90 degrees  
Concrete column E-3 at level Story5 ETABS unique name : 85 Rotated 90 degrees  
Concrete column A-1 at level Story5 ETABS unique name : 91 Rotated 90 degrees  
Concrete column E-1 at level Story5 ETABS unique name : 97 Rotated 90 degrees  
Concrete beam 2F8S1 ETABS unique name : 133 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs. 4 20.  
**Concrete beam 2F7S2 ETABS unique name : 148 Shear reinforcement**  
Concrete beam 2F8S2 ETABS unique name : 158 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs. 4 20.  
Concrete beam 3F6S1 ETABS unique name : 137 Top reinforcement 3 in ETABS vs. 4 20. Bot. reinforcement 3 in ETABS vs. 4 20.  
Concrete beam 3F6S3 ETABS unique name : 157 Top reinforcement 4 in ETABS vs. 3 20. Bot. reinforcement 4 in ETABS vs. 3 20.  
Concrete beam 3F6S2 ETABS unique name : 162 Top reinforcement 3 in ETABS vs. 4 20. 4 in ETABS vs. 3 20. Bot. reinforcement 3 in ETABS vs. 4 20.  
Concrete beam 3F8S1 ETABS unique name : 232 Shear reinforcement  
Concrete beam 3F3S3 ETABS unique name : 237 Shear reinforcement  
Concrete beam 3F5S1 ETABS unique name : 242 Shear reinforcement

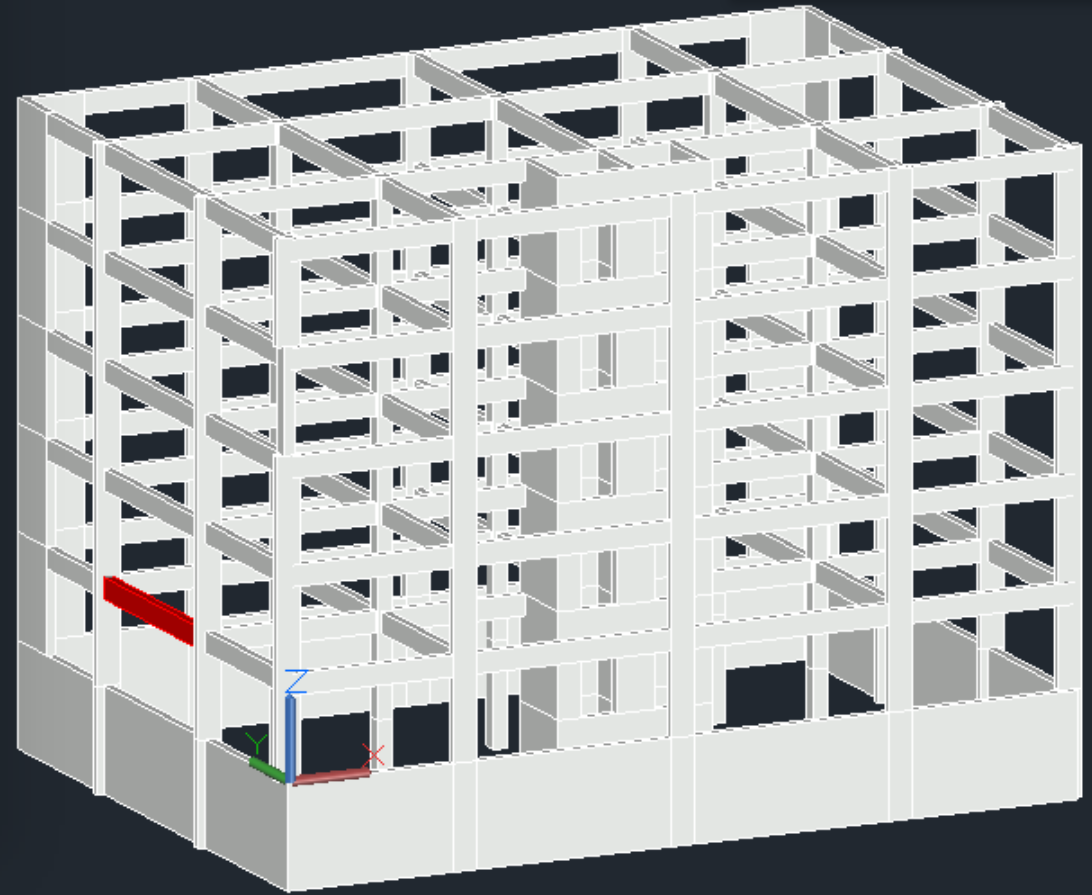
Import

Plan Location

Design

Both

thEdges]



Clicking on an item in the form re-centers the view on the object that has changed and highlights it in red.

Type a command



A comprehensive set of options allow the user to customize the drawing generation in AutoCAD® to fit their work process.

The screenshot shows the 'Project' tab of the 'CSiXCAD:Project Settings' dialog. It contains various settings for different drawing elements, organized into sections:

- Grid:** Lines Layer (S-GRID), Bubbles Layer (S-GRID-IDEN), Labels Layer (S-GRID-IDEN), Dimensions Layer (S-ANNO-DIMS).
- Levels:** Labels Layer (S-ANNO-TEXT), Linework Layer (S-ANNO-SYME).
- Slab:** Edges Layer (S-SLAB-EDGE), Openings Layer (S-SLAB-OPEN), Drop Panels (S-SLAB-BOTM).
- External References:** Layer (S-ANNO-REFR).
- Steel Members:** Columns Layer (S-COLS-PRIM), Beams Layer (S-BEAM-PRIM), Braces Layer (S-BRAC-LATL), Joists Layer (S-JOIS-PRIM).
- Centerline/Working Line Layers:** Draw on Separate Layers (unchecked), Columns (S-COLS-CNTR), Beams (S-BEAM-CNTR), Braces (S-BRAC-CNTR).
- Concrete Members:** Columns Layer (S-COLS-CONC), Walls Layer (S-WALL-CONC), Beams Layer (S-BEAM-CONC).
- Reinforcement Layers:** Walls (S-WALL-RBAR), Columns (S-COLS-RBAR), Beams (S-BEAM-RBAR), Slab A Direction (S-SLAB-RBAR), Slab B Direction (S-SLAB-RBAR), Strip A Direction (S-SLAB-STRP), Strip B Direction (S-SLAB-STRP).
- Member Labels:** Layer (S-ANNO-TEXT), Reactions (S-ANNO-TEXT), Column and Beam Schedules Layer (S-ANNO-TEXT).
- Detail and Partial Plan Callouts:** Partial Plan Layer (S-ANNO-SYME), Detail Callout Layer (S-ANNO-SYME).
- Reference Indicator Contents:** Text Layer (S-ANNO-TEXT), Linework Layer (S-ANNO-SYME), Draw Tail on (Text Layer selected, Linework Layer unselected).
- Sheets:** Module Titles (S-ANNO-TEXT), Numbers (S-ANNO-TITL), Viewports (Defpoints).
- Other Material Walls:** Layer (S-WALL-LOAD).

Buttons at the bottom: Retrieve from Project..., OK, Cancel.

The screenshot shows the 'Grid Lines' tab of the 'CSiXCAD:Project Settings' dialog. It contains settings for grid lines, columns, beams, joists, and other structural elements:

- Columns:** 3D and Multiline (Color: ByLayer, Lineweight: ByLz), Single Line Elevations (Color: ByLayer, Lineweight: 0.30, Draw Splice Marks unchecked), Single Line Plans and Elevations (Color: ByLayer, Lineweight: 0.30, Plotted End: 3.1750).
- Beams:** 3D and Multiline (Color: ByLayer, Lineweight: ByLz), Single Line Plans and Elevations (Color: ByLayer, Lineweight: 0.30, Plotted End: 3.1750).
- Joists:** 3D and Multiline (Color: ByLayer, Lineweight: ByLz), Single Line Plans and Elevations (Color: ByLayer, Lineweight: ByLz, Plan Linetype: ByLayer, Plotted End Gap: 3.1750).
- Lateral Frame Beam Connection Marks:** Draw on Plans (checked), Draw on Elevations (unchecked), Shape (Triangle), Color (ByLayer), Lineweight (0.00), Plotted Height (2.3813).
- Cantilever Beam Connection Marks:** Draw Moment Connection (checked), Shape (Triangle), Color (ByLayer), Lineweight (0.00 mm), Plotted Height (2.3813).
- Cutoff Scale for Multiline Display:** Plans (1/4"), Elevations (1/4"), Draw Centerlines (checked), Centerline Color (ByLayer), CenterLine Lwt. (ByLz), Centerline Ltype (PHANTOM2).
- Braces:** 3D and Multiline (Color: ByLayer, Lineweight: ByLz), Single Line Elevations (Color: ByLayer, Lineweight: 0.30, Draw Connections Marks unchecked, Plotted End: 3.1750).
- Plans:** Draw Braces Above on Plans (unchecked), Draw Braces Below on Plans (unchecked), Color (ByLayer), Lineweight (ByLz), Abv Linetype (Continuous), Blw Linetype (DASHED).
- Other Options:** Draw Parallel to Frame (unchecked), Angle in Plan (15.0), Frame Offset (2.3813), Trim to Set Length (unchecked), Trim Length (914.4000).
- Proxy Objects:** Single Line (selected), 3D (unselected).

Buttons at the bottom: Retrieve from Project..., OK, Cancel.