digipara® liftdesigner

Shaft Groups & High Rise

EL2

Recommendation

ONLINE TRAINING

Are you an attendee in a DigiPara Liftdesigner online training module?

We recommend to print these out in advance so that you have a handout for your own editing and for your notes during your training.

Agenda

BASIC FUNCTIONS

EL2.1 Shaft Groups

- General information
  - Associated functions and hints
- Create simple shaft groups
  - Copy existing and create new shafts within a group
- Extended floor levels list
  - Setting different entrances, shaft head and pit situations
- Group shaft wall opening & shaft positions
  - Removing the automatically create wall opening for shaft groups and move the shaft position
- Separator beam
  - Insertion and adjustment of separator beam directly on the rail bracket

Agenda

PERFORMANCE SETTINGS

EL2.2 Performance optimization

- General information
  - Ways to optimize performance when working on DigiPara Liftdesigner projects
- Sloppy Mode
  - Hide unneeded geometry during the project process and simultaneously specify the drawing elements to be updated
- Performance Profiler
  - Detailed overview of time-intensive processes during project processing

Agenda

HIGH RISE ELEVATOR

EL2.3 Double Deck

- Recommended workflow
  - General information and tips when creating large elevator groups in the High Rise design area

EL2.4 Face to Face

- Shaft group positioning & alignment
  - Automatic or individual positioning of shaft group elevators
- Machine room settings
  - Configuration of the machine room size and position
- Building floor level settings
  - Removing or setting building floors and sizes

Agenda

VIEW FRAMES & SHEET TEMPLATES

EL2.5 Sheet templates for shaft groups

- General information
  - Recommended structure of drawing sheet templates for shaft groups
- View frame configuration options
  - View frame examples for shaft groups and associated settings
- Shaft Group Dimensions & Annotations
  - Dimension & annotation examples for shaft groups and associated settings via view frame overwrites

EL2.6 Summary

- Custom Q&A’s

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EL2.1

Shaft Groups

SHAFT GROUPS

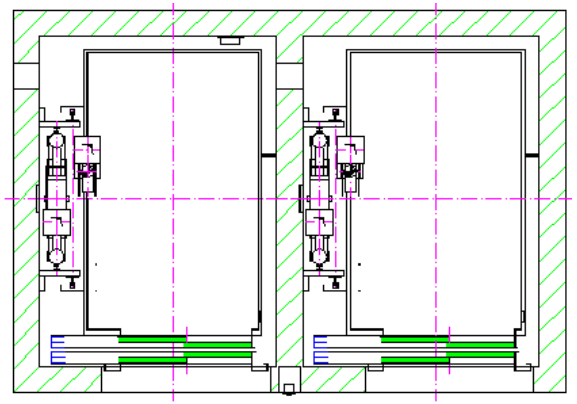
MARCH 27, 2025,

General information

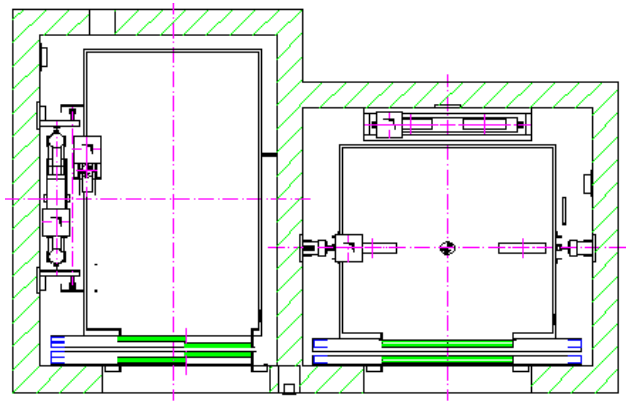
EL2.1 SHAFT GROUPS

Group elevators can be created via a shaft copying operation or via the group shaft wizard (similar to the standard shaft wizard)

- **Shaft copying operation**
  for identical elevators



- **Group shaft wizard**
  for different elevators

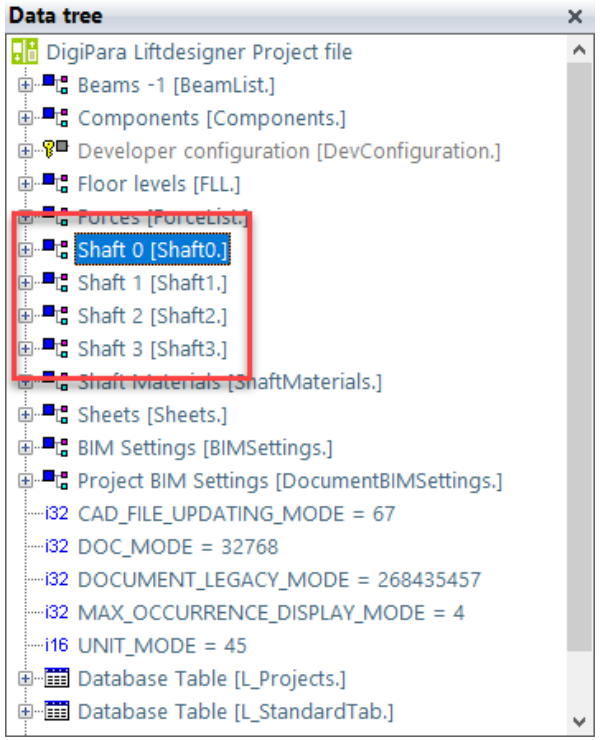


General information

EL2.1 SHAFT GROUPS

The copied/added shaft, including all shaft components, is completely independent of the source shaft object

- There are no links or references between each other

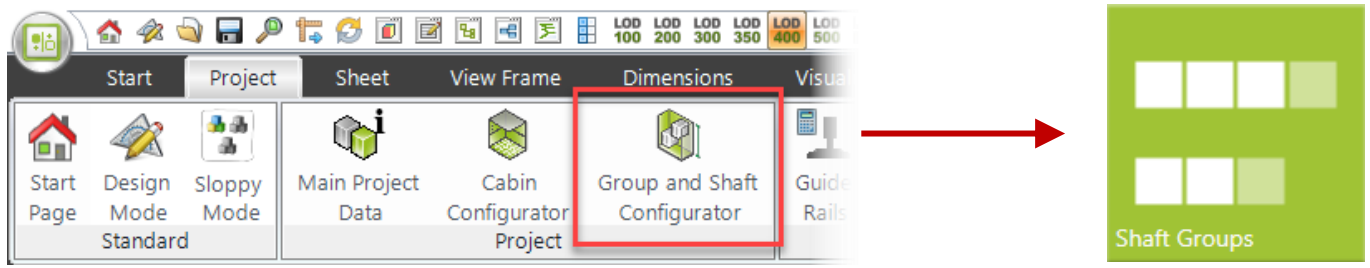


Create shaft groups via:

- Ctrl. C / Ctrl. V on keyboard after selecting the shaft geometry
  - for a quick copy operation

cross-project possible

- via Group and Shaft Configurator
  - copy and create different elevators



Create Simple Shaft Groups

Practical example

EL2.1 SHAFT GROUPS

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Shaft Wizard

- 5 floors
- Typical floor to floor distance 3000 mm
  - Consider travel – no
  - Create building floor levels - no
- Traction elevator 1:1
- 13 persons / 1000 kg, 1 m/s
- Machine room
  - top
- Car roping
  - 2 pulleys below
  - without CW safety gear
- Counterweight roping, right
  - 1 pulley top
- Sheet templates
  - Not necessary

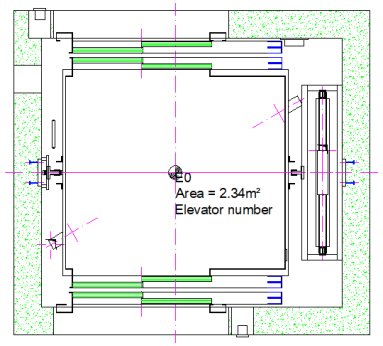
Further specifications

- Car size
  - Car width: 1600 mm
  - Car depth: 1400 mm
- Entrances
  - Front: all floors
  - Rear: first and last level
- Individual floor to floor distance
  - Pit: 1200 mm
  - E1: 2900 mm
  - E2: 3000 mm
  - E3: 3000 mm
  - E4: 3800 mm
- Save the project under the following file name: LDTrainingSampleGroups.ld3

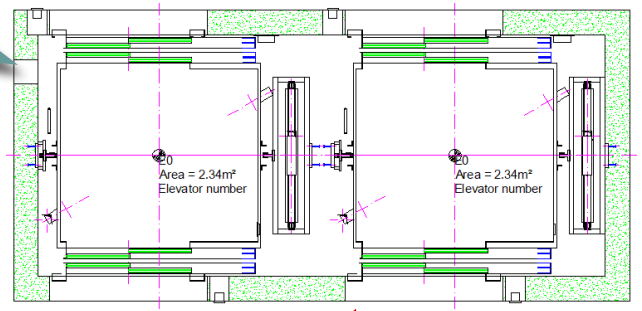
Create simple shaft groups

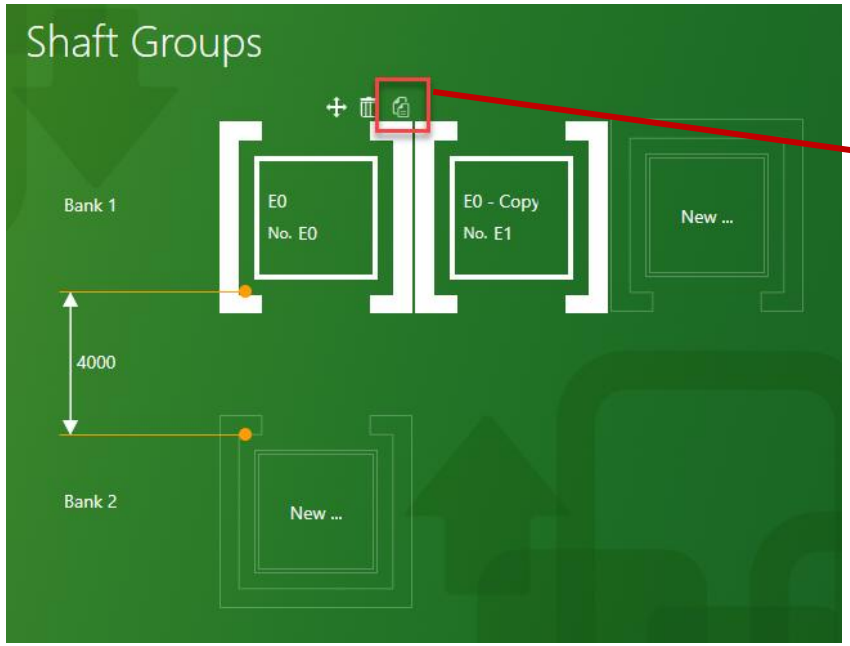
EL2.1 SHAFT GROUPS

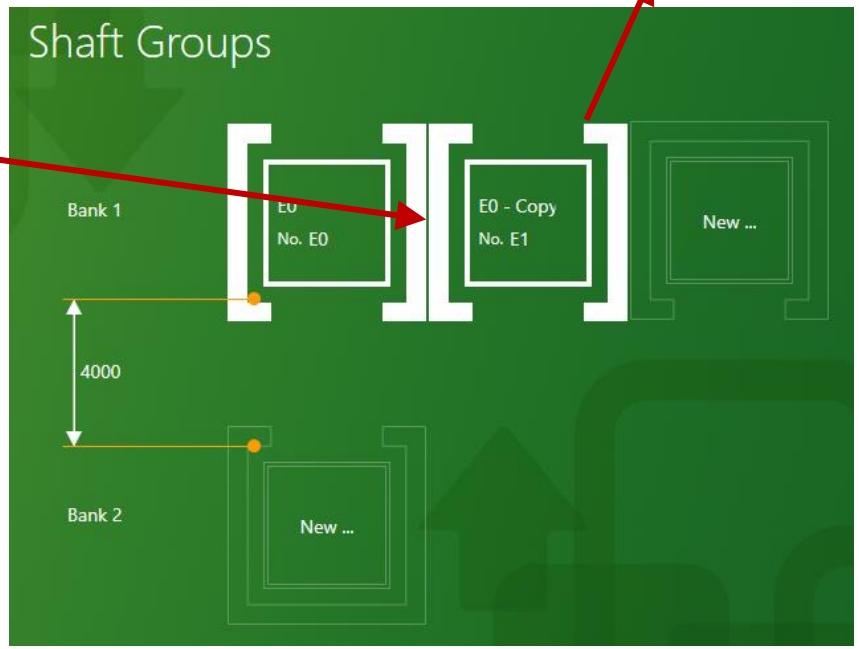
Create identical elevators via a shaft copy operation



Shaft groups can be edited separately







Remove elevators from group

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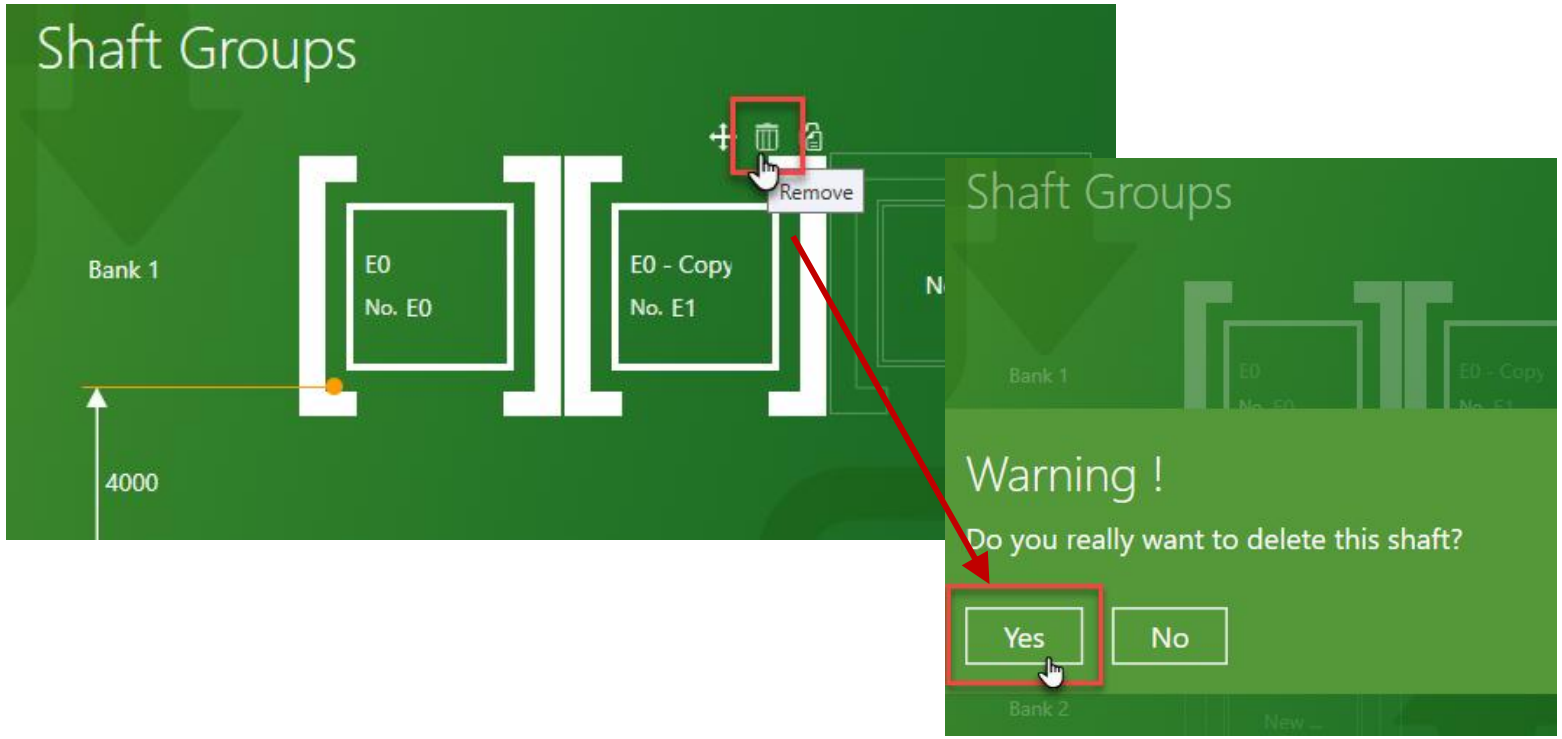
Removing elevators from a shaft group via the delete icon

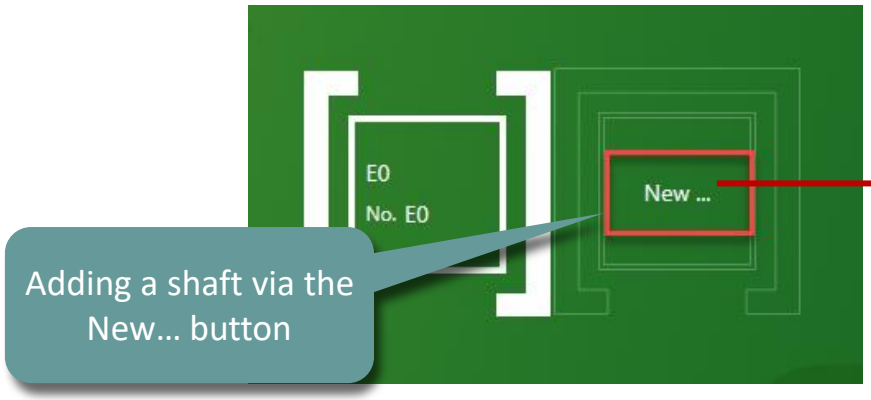
- in the Group and Shaft Configurator

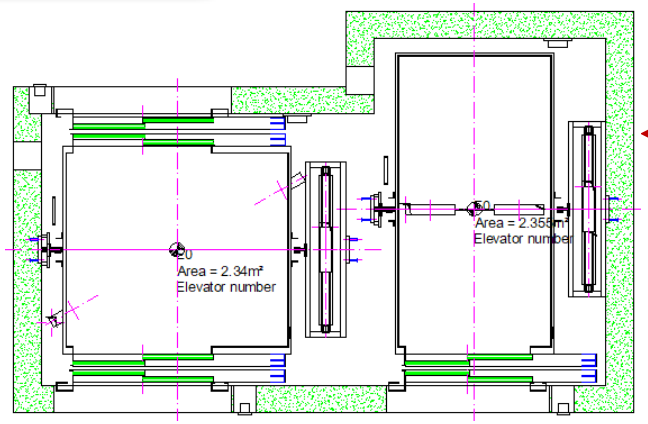


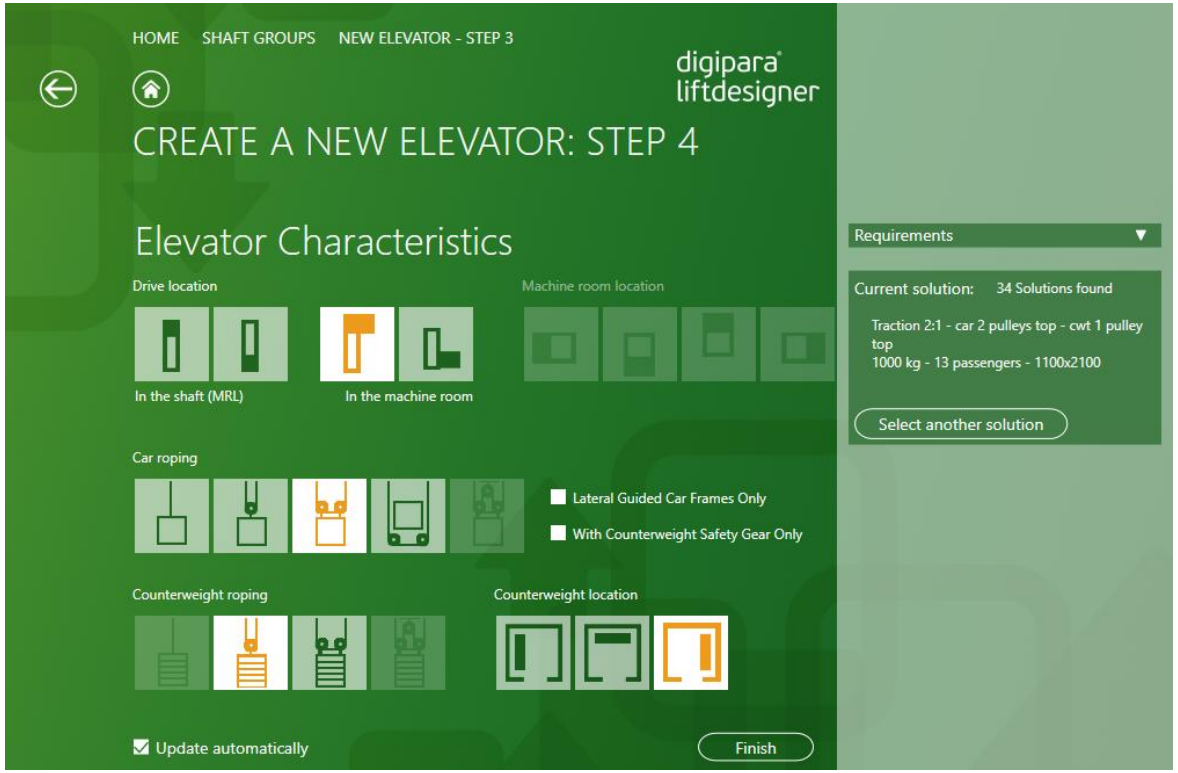
Create simple shaft groups

EL2.1 SHAFT GROUPS

Create individual elevators via the group Shaft Wizard





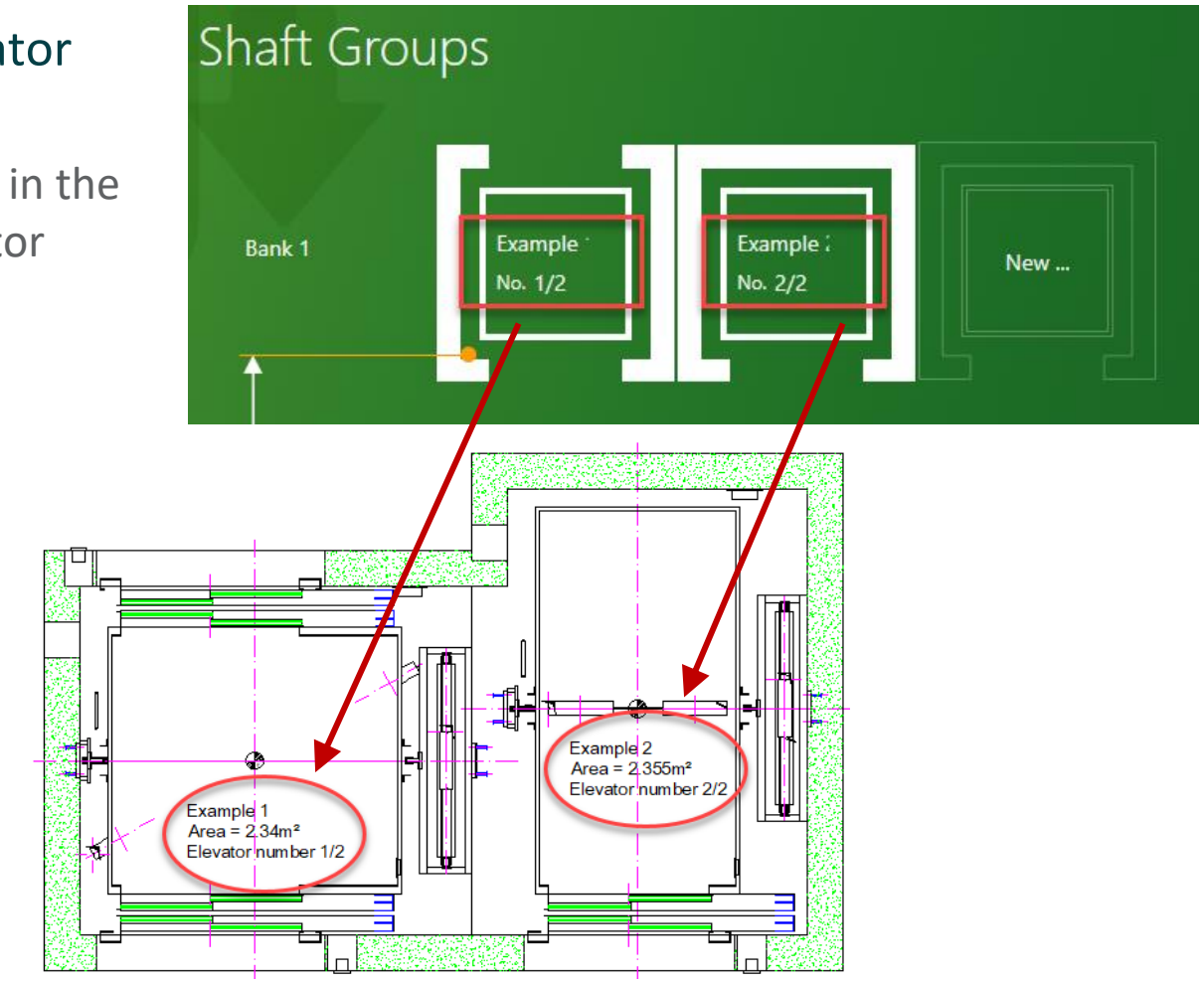


Create simple shaft groups

EL2.1 SHAFT GROUPS

Customize the existing elevator descriptions on the drawing

- via referenced descriptions in the Group and Shaft Configurator



Extended Floor Levels List

Extended floor levels list

EL2.1 SHAFT GROUPS

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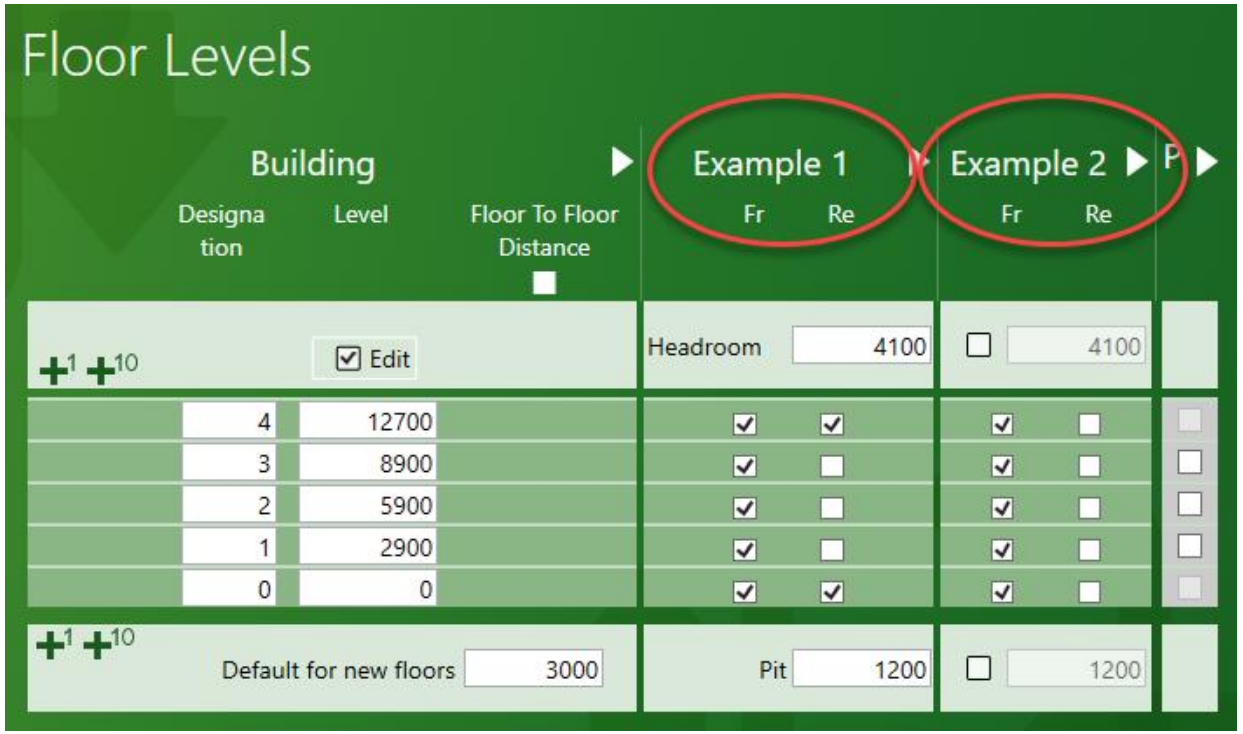
The Floor Levels list expands automatically with each new added elevator to the group

- Shaft head and pit as well as floor distances are taken over from the initial shaft by default

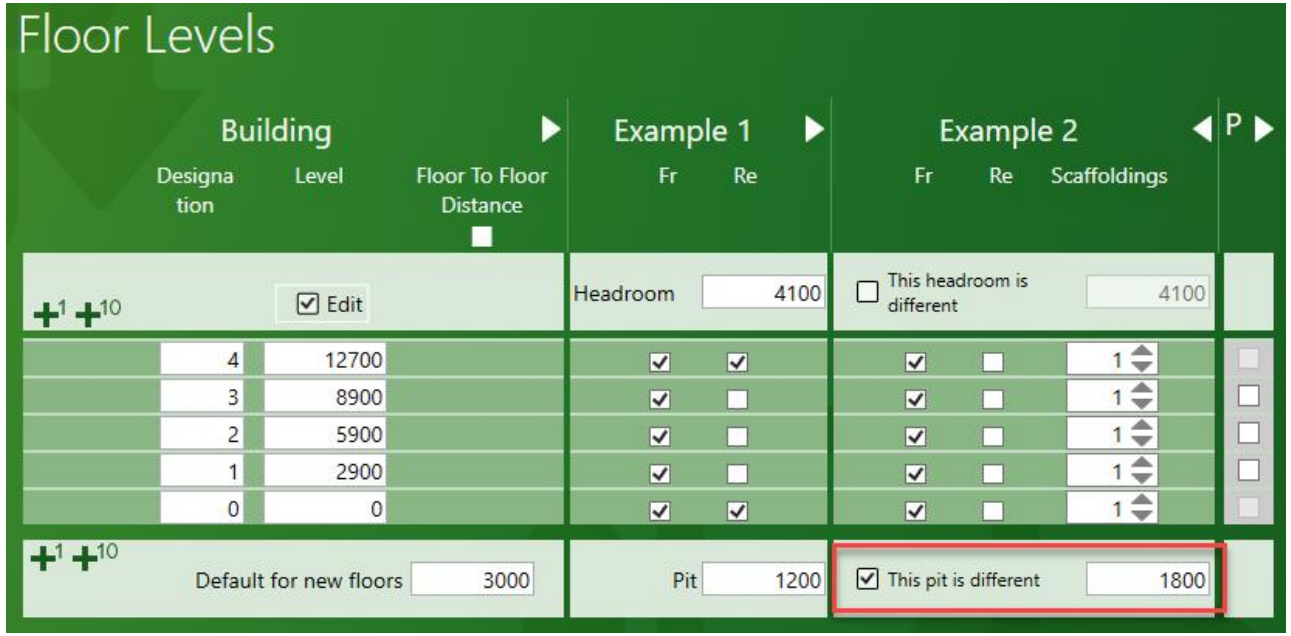


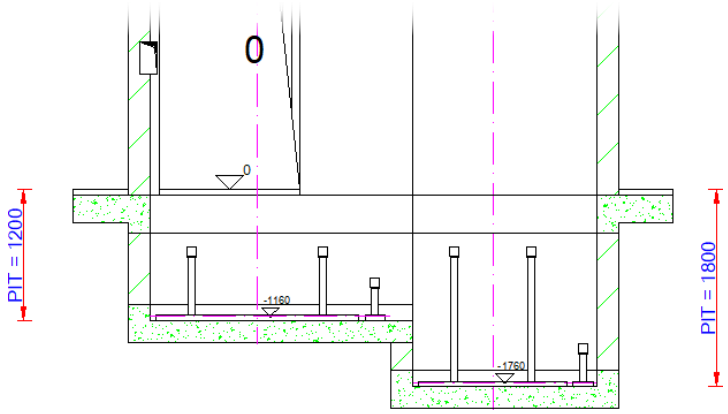
Extended floor levels list

EL2.1 SHAFT GROUPS

Each shaft is separately editable

- e.g. shaft pit
  - For individual modification, the corresponding check mark must be set for activation



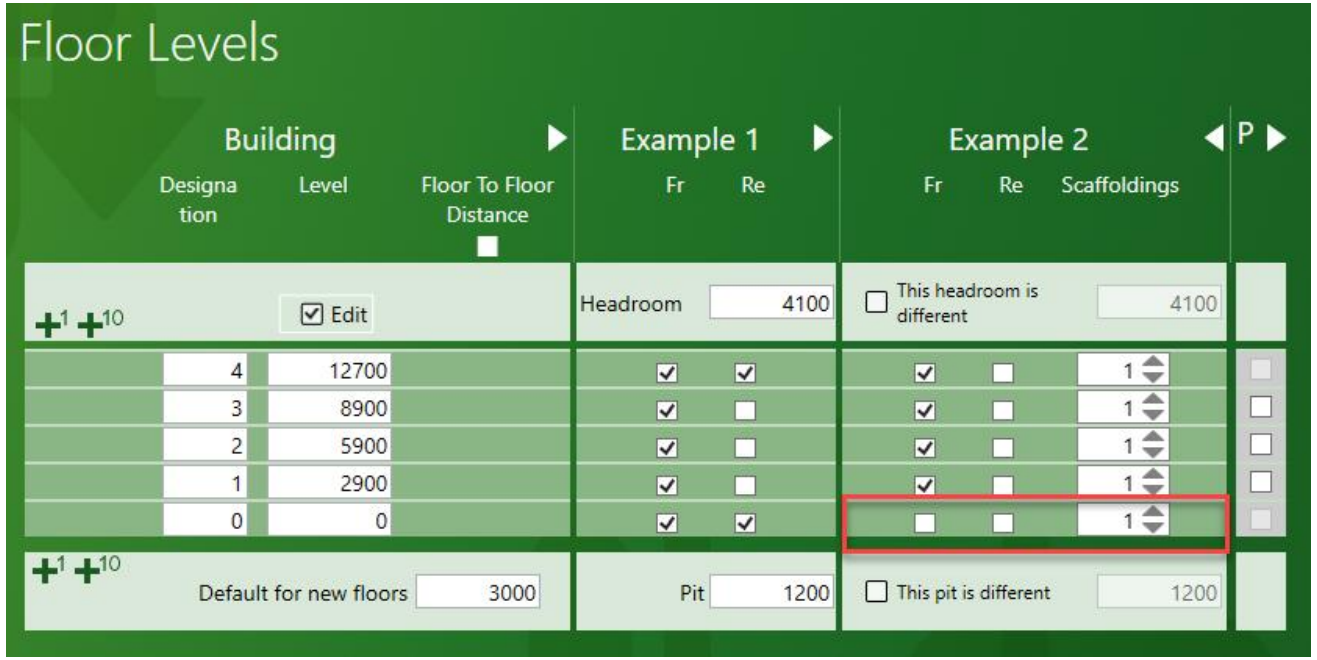


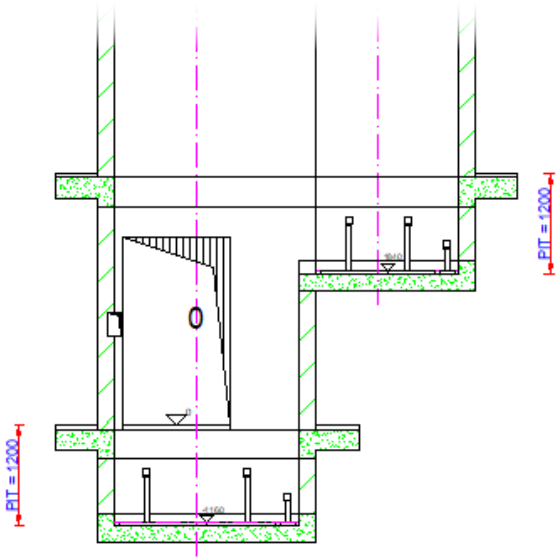
Extended floor levels list

EL2.1 SHAFT GROUPS

Each shaft is separately editable

- e.g. floor level count
  - by deactivating the entrances





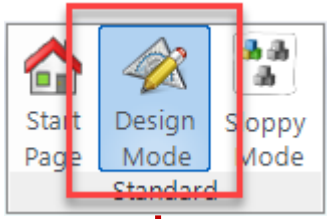
Group Shaft Wall Opening

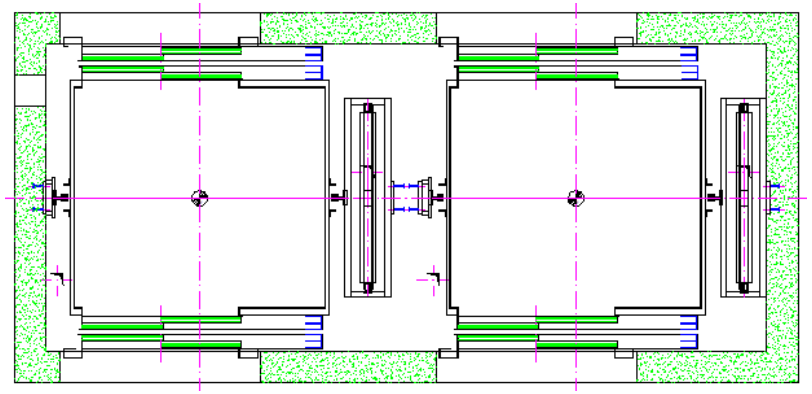
Group shaft wall opening

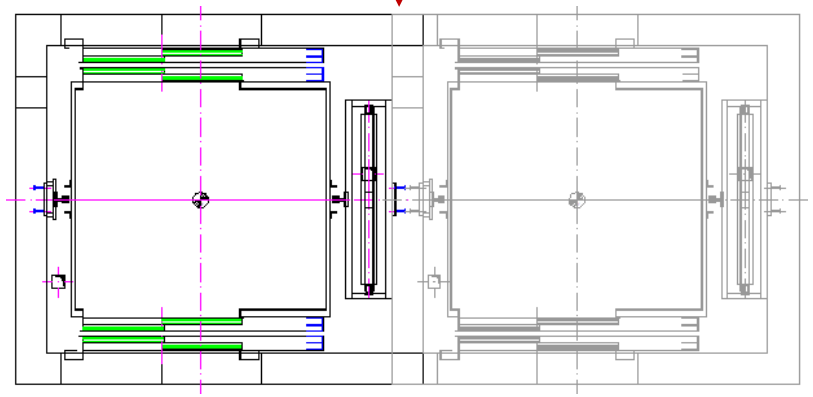
EL2.1 SHAFT GROUPS

Automatically gets created when adding a new elevator to the group

- visible in Design Mode



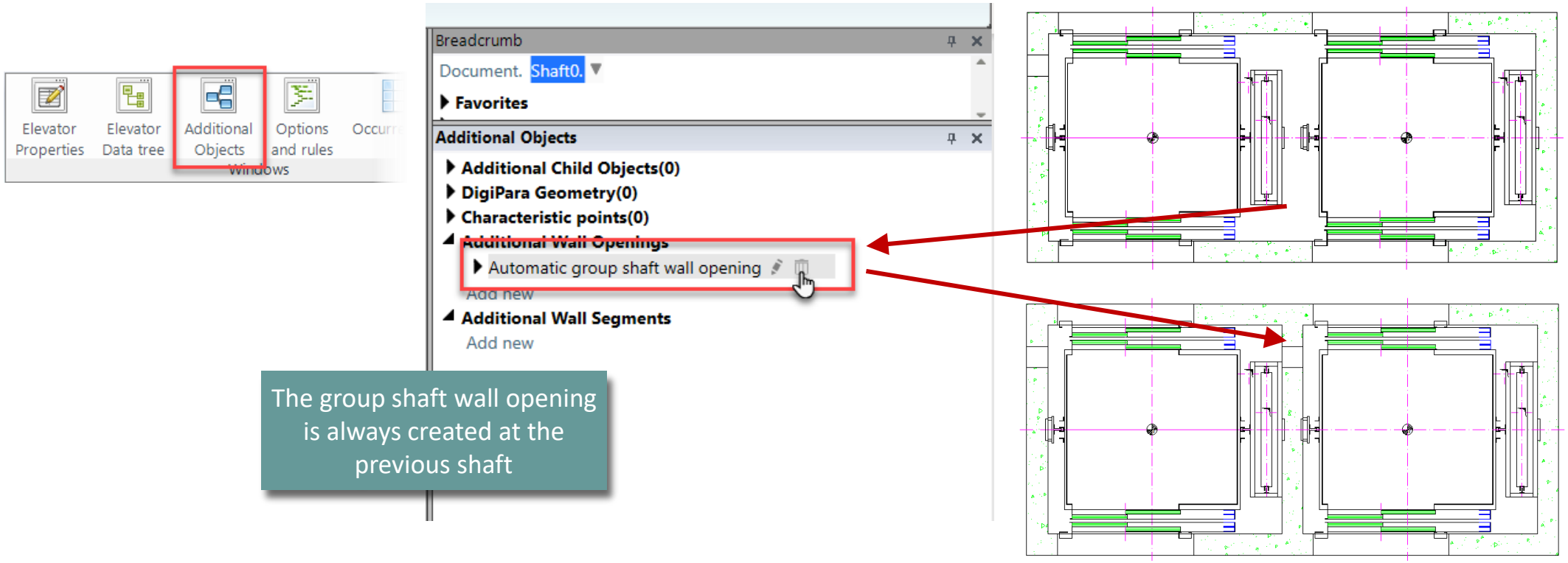




Group shaft wall opening

EL2.1 SHAFT GROUPS

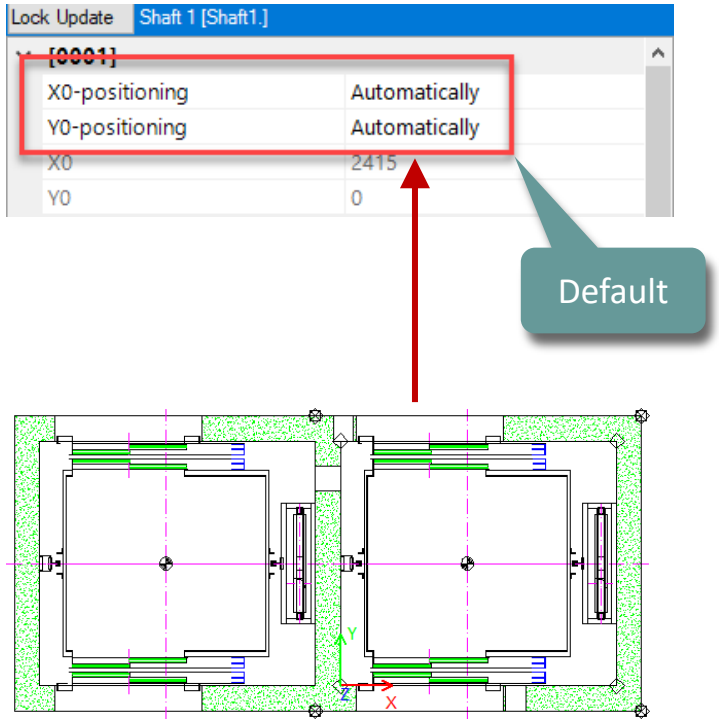
Removing the wall opening via the Additional Objects docking window

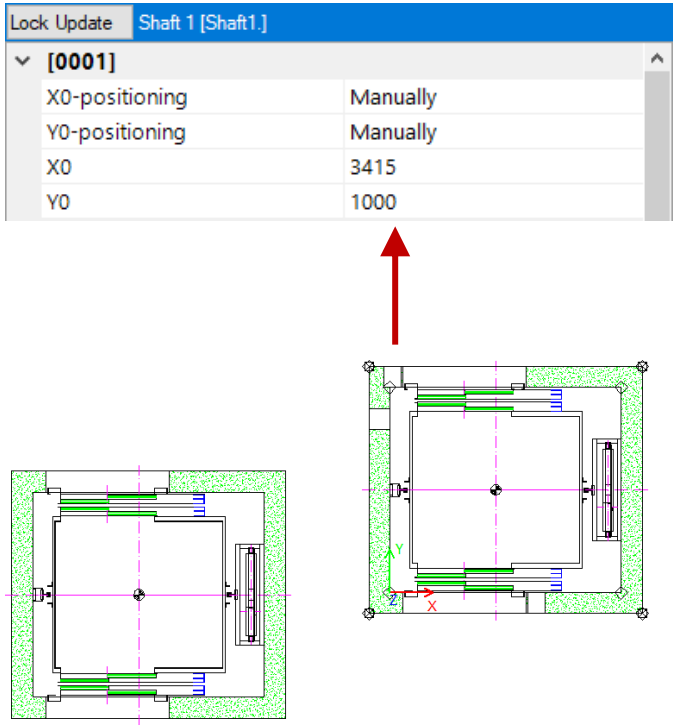


Group shaft wall opening & shaft positions

EL2.1 SHAFT GROUPS

Moving the shafts through the coordinate system in the corresponding Properties

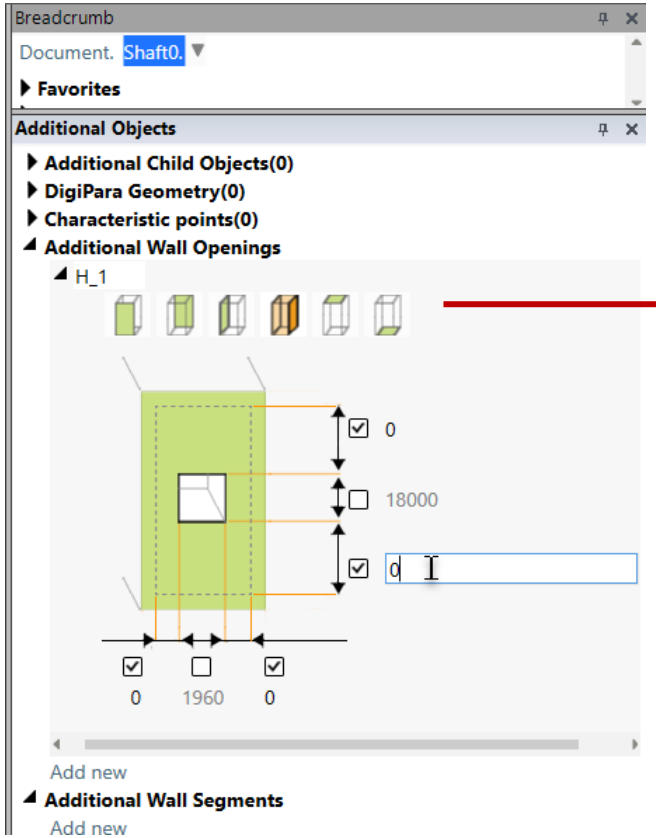


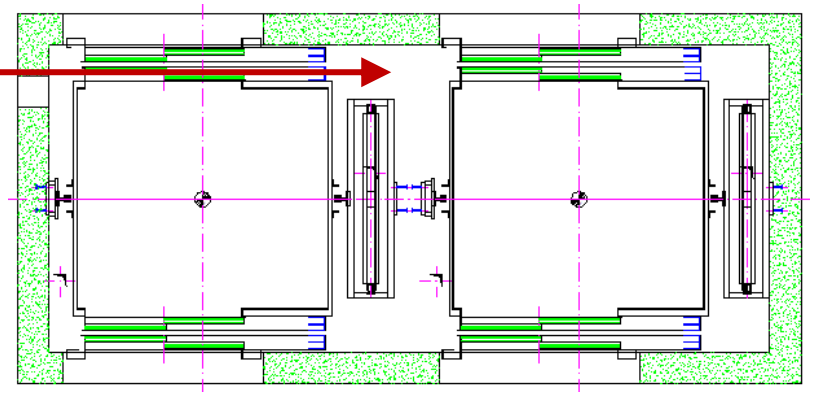


Group shaft wall opening

EL2.1 SHAFT GROUPS

Adding a wall opening via the Additional Objects docking window





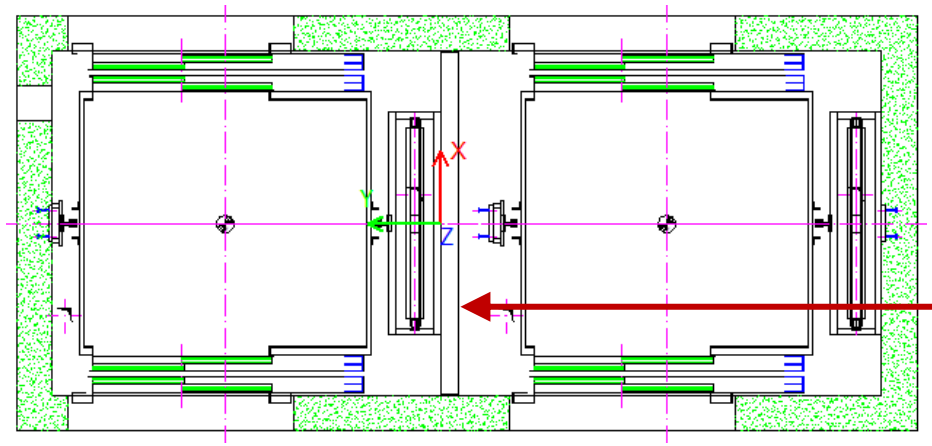
Separator Beam

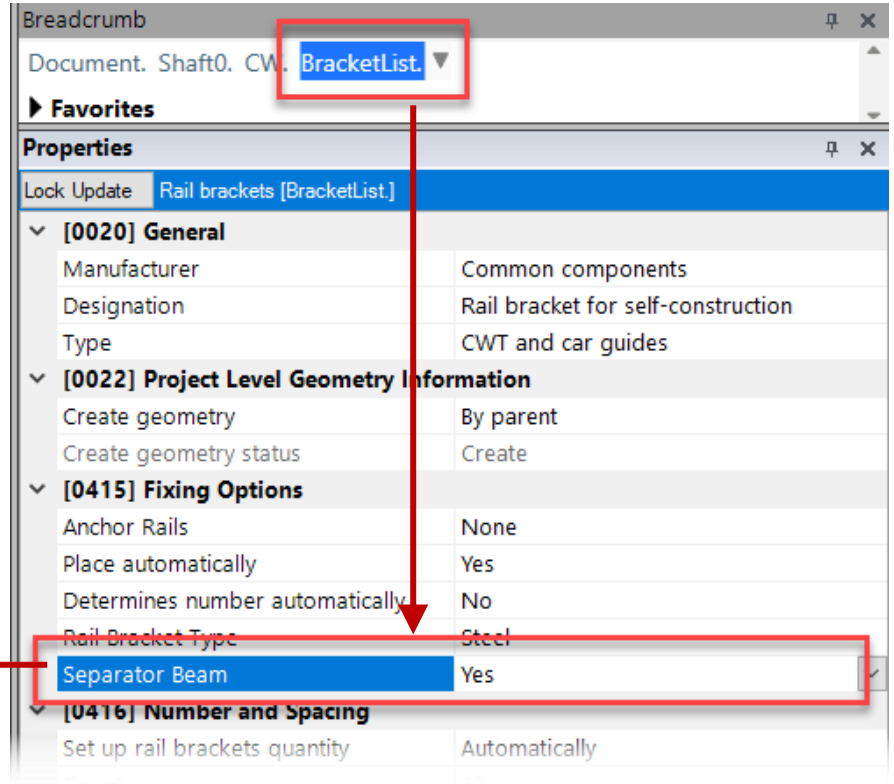
Separator beam

EL2.1 SHAFT GROUPS

Activating via the BracketList. Fixing Options

- Separator Beam: Yes



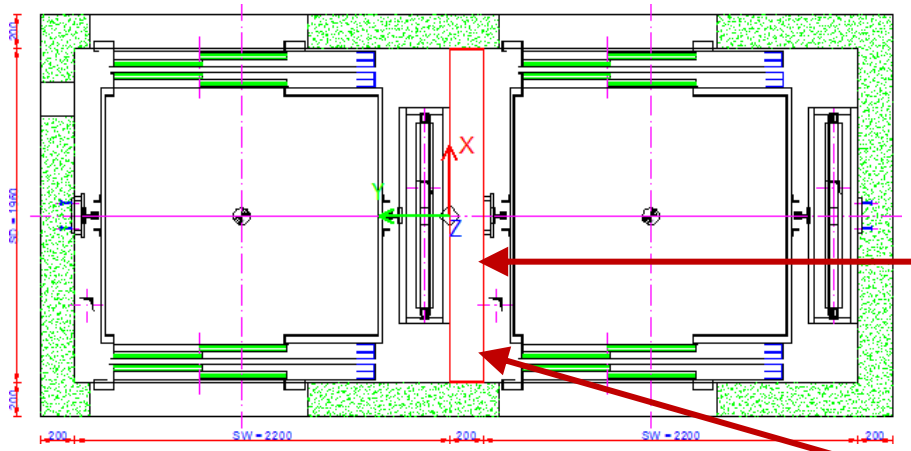


Separator beam

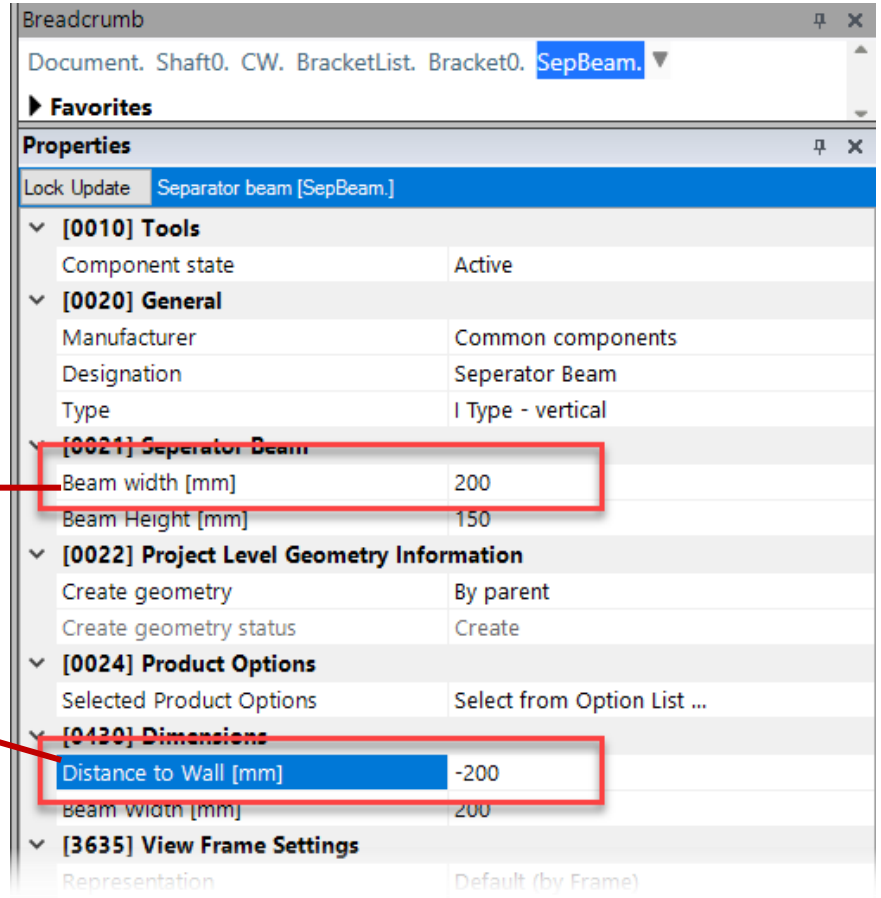
EL2.1 SHAFT GROUPS

Adapting the position

- via Distance to Wall



Pay attention to the wall thickness of the shaft!



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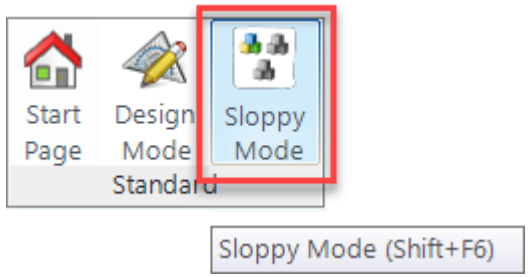
EL2.2

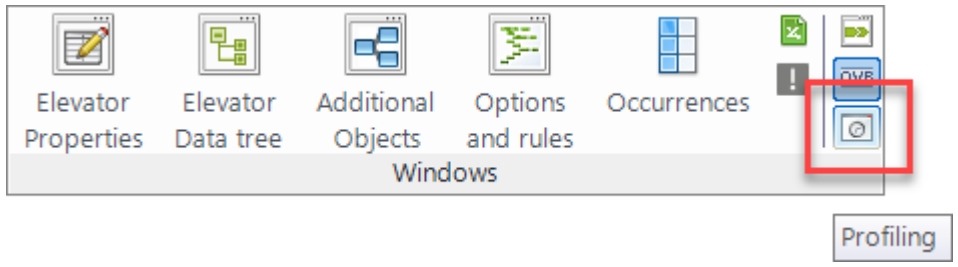
Performance optimization

DigiPara Liftdesigner functions for optimizing and monitoring performance

- Recommended for frequent project adjustments within large elevators/elevator groups
  - To speed up the workflow in the DigiPara Liftdesigner project
  - Sloppy Mode (User)



  - Performance Profiler (Developer)



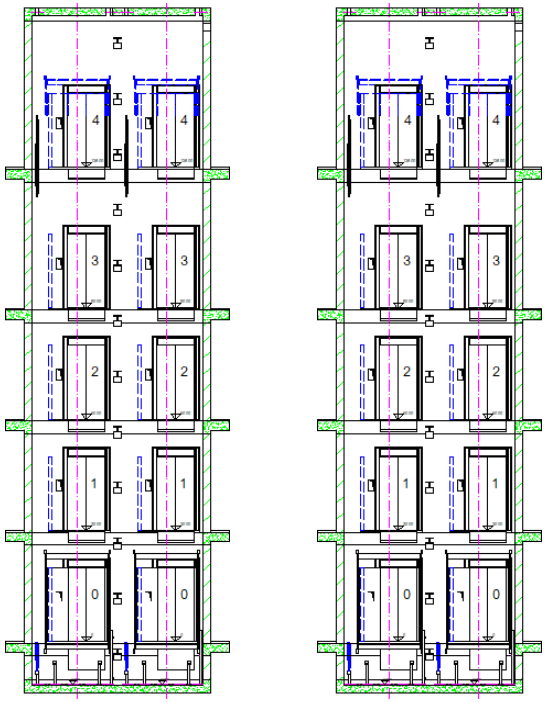
Sloppy Mode

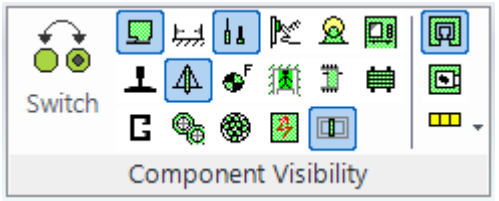
Sloppy Mode

EL2.2 PERFORMANCE OPTIMIZATION

Practical example: Preparation steps

- Create two identical sections: View from Front
  - Hiding unneeded Component Visibility



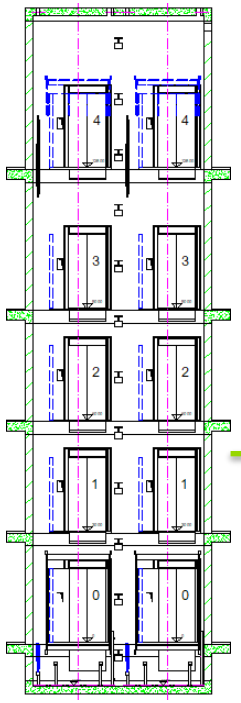


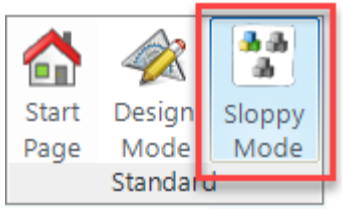
Sloppy Mode

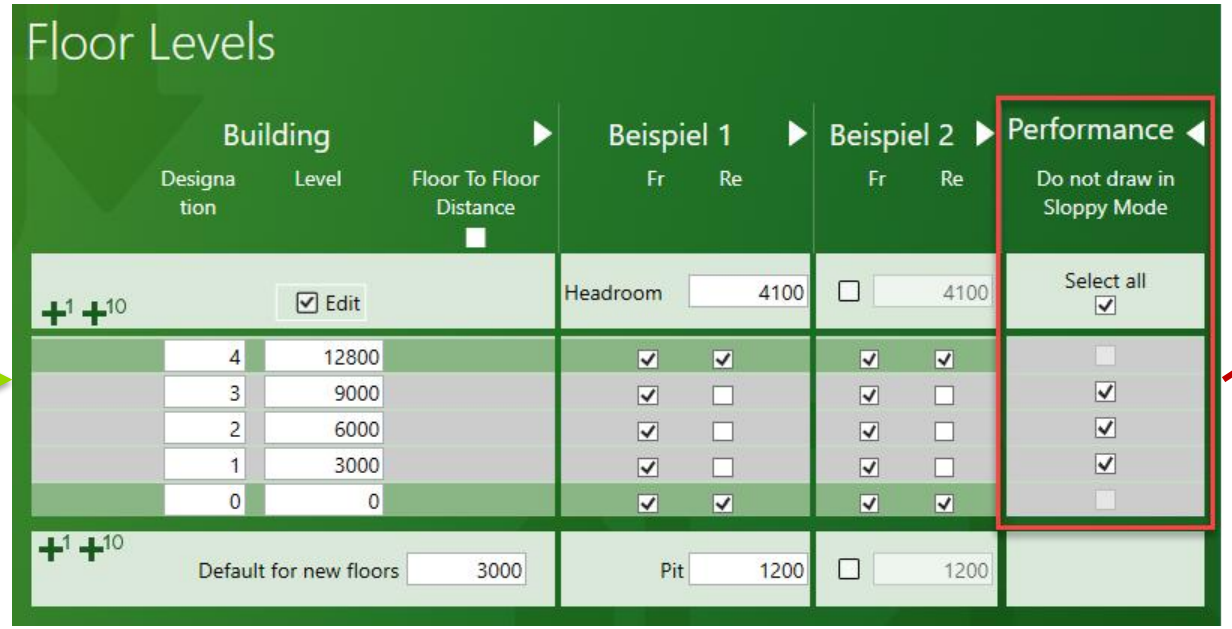
EL2.2 PERFORMANCE OPTIMIZATION

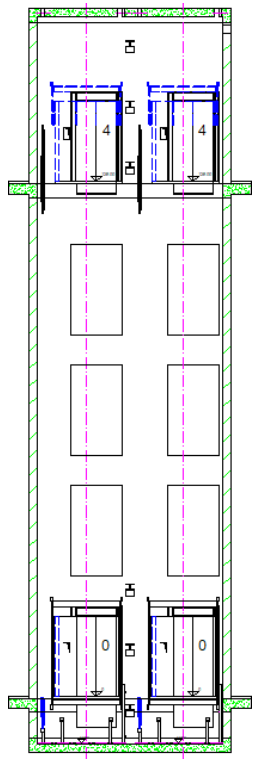
Hide unneeded geometries on selected floors

- via the Floor Levels list
  - Adjustments are updated in the project after the Sloppy Mode is switched on







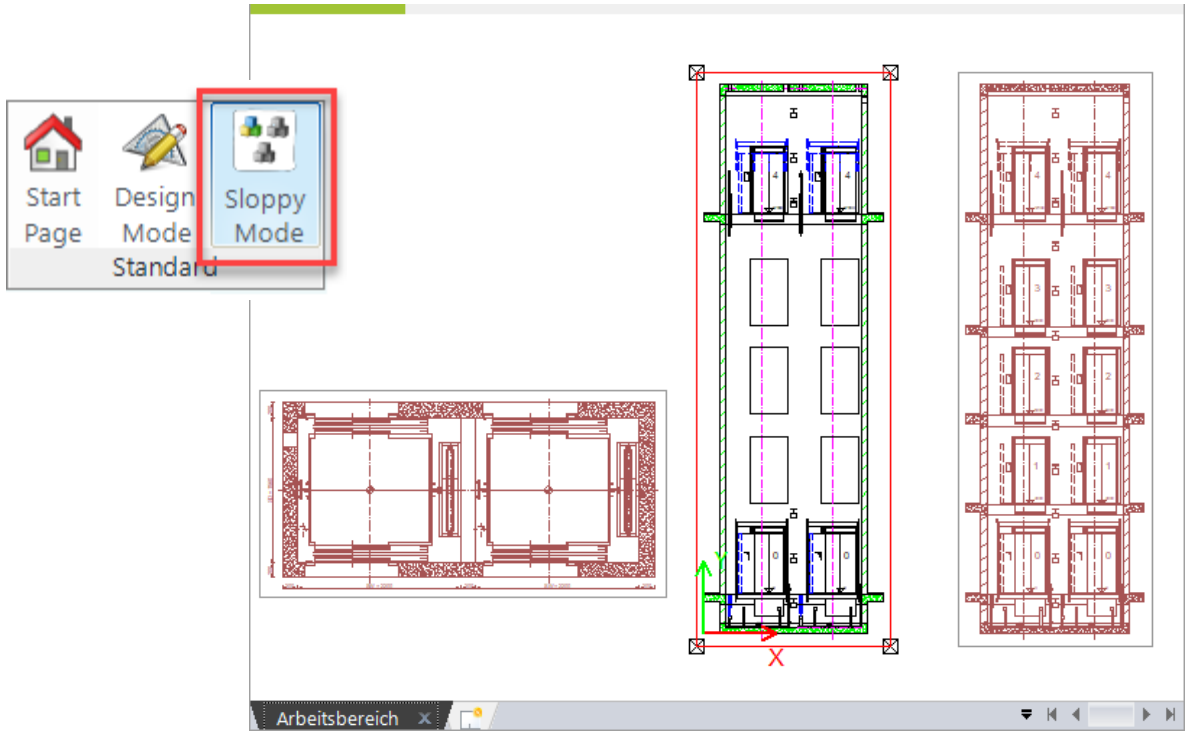


Sloppy Mode

EL2.2 PERFORMANCE OPTIMIZATION

Adjustments are immediately visible only in the active view frame

- The time of updating additional view frames can be set individually by simply selecting them on the drawing



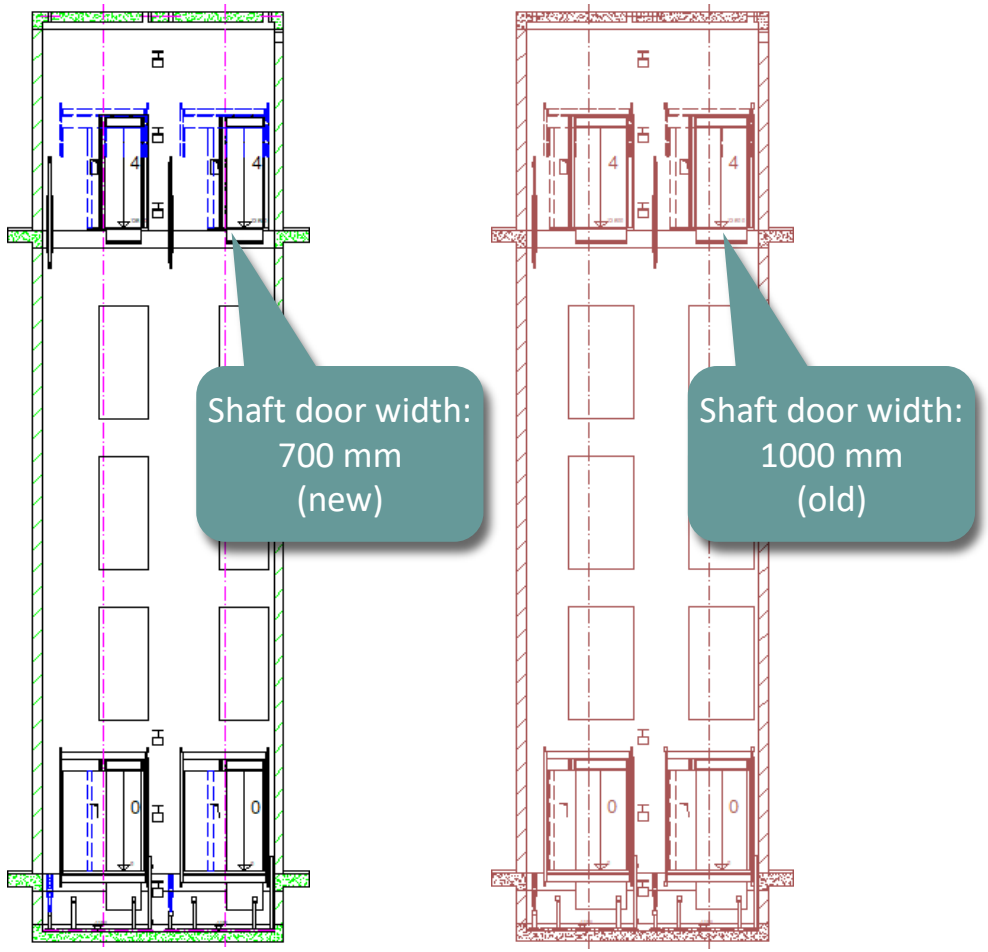
Sloppy Mode

EL2.2 PERFORMANCE OPTIMIZATION

Working in Sloppy Mode

- Red highlighted view frames on the drawing are not updated at the same time after project changes

- Adjustments to list objects, e.g. new landing door widths, are automatically synchronized on each floor even in Sloppy Mode

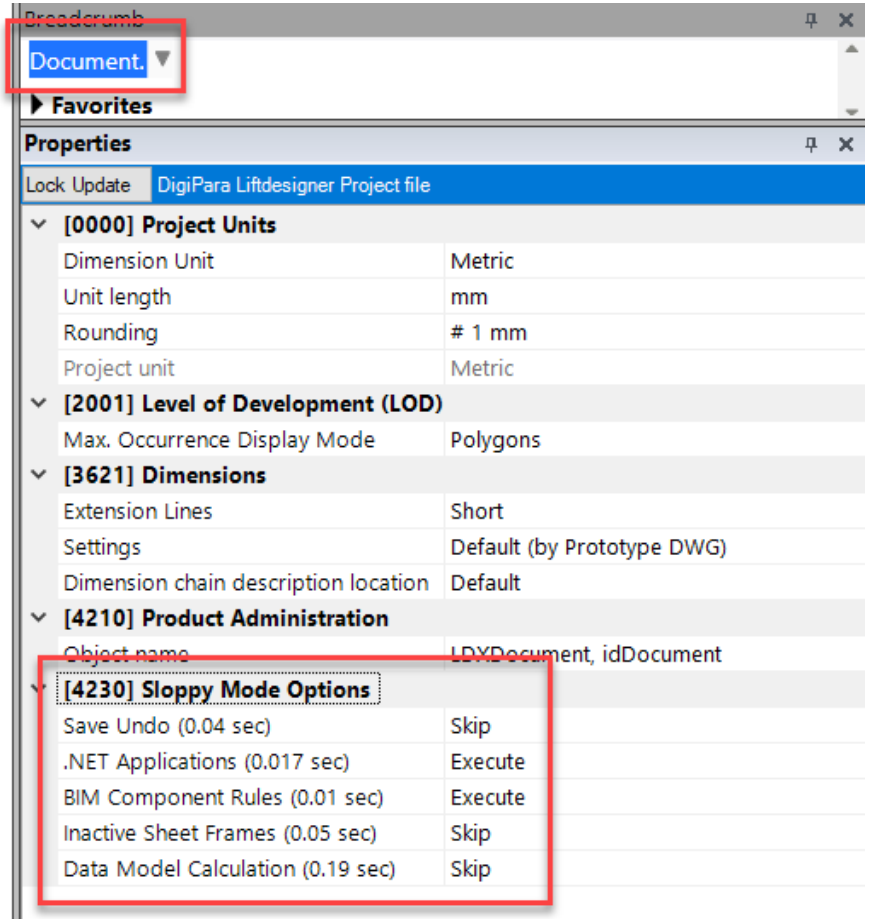


Sloppy Mode

EL2.2 PERFORMANCE OPTIMIZATION

Sloppy Mode Options

- Specifying the functions to be executed in Sloppy Mode
  - by the Properties on the Document



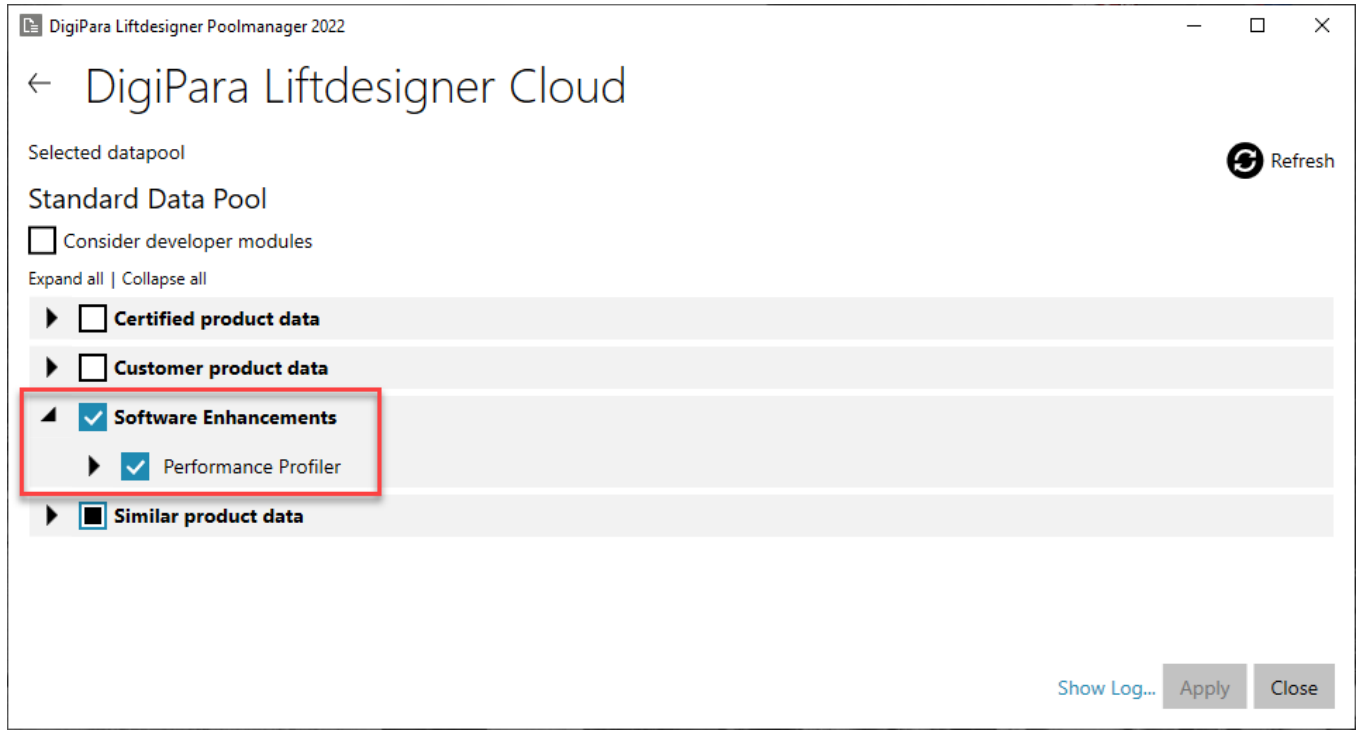
Performance Profiler

Performance Profiler

EL2.2 PERFORMANCE OPTIMIZATION

Software extensions must be installed via the DigiPara Liftdesigner Cloud first

- DigiPara Liftdesigner applications must be closed in advance



Performance Profiler

EL2.2 PERFORMANCE OPTIMIZATION

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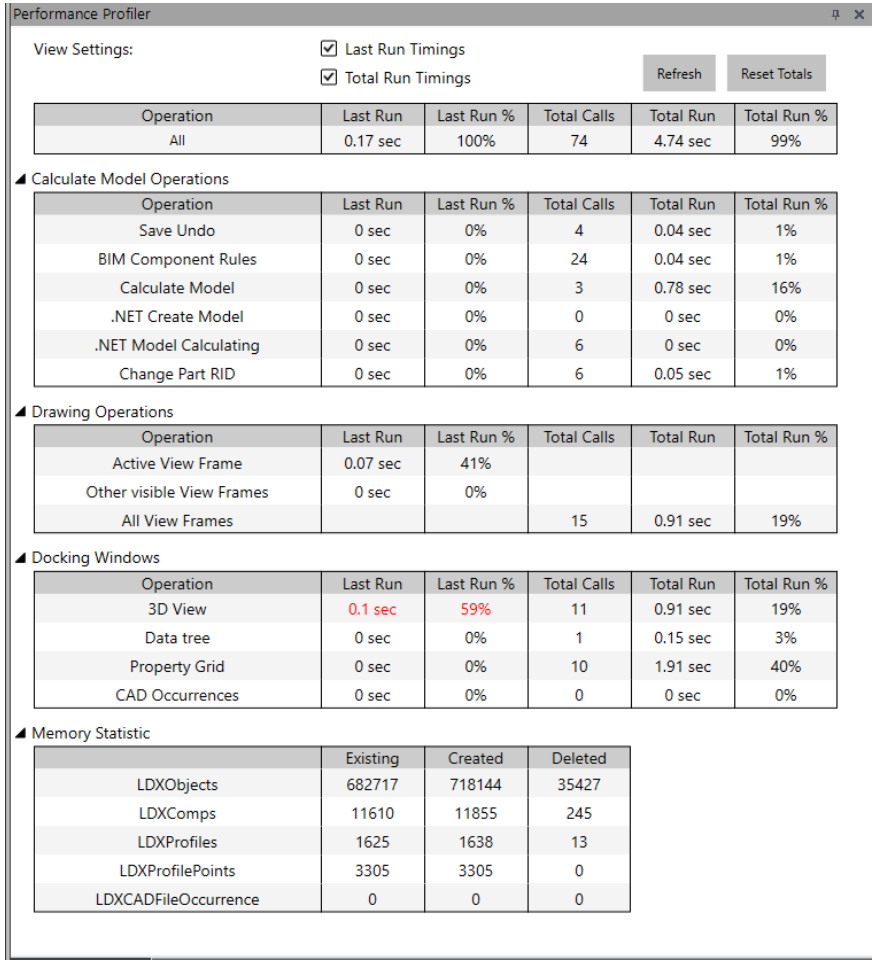
Overview of runtimes of various operations & processes

- in DigiPara Liftdesigner
  - Recommended for developers



Operation	Last Run	Last Run %	Total Calls	Total Run	Total Run %
All	0.17 sec	100%	74	4.74 sec	99%

Operation	Last Run	Last Run %	Total Calls	Total Run	Total Run %
Save Undo	0 sec	0%	4	0.04 sec	1%
BIM Component Rules	0 sec	0%	24	0.04 sec	1%
Calculate Model	0 sec	0%	3	0.78 sec	16%
.NET Create Model	0 sec	0%	0	0 sec	0%
.NET Model Calculating	0 sec	0%	6	0 sec	0%
Change Part RID	0 sec	0%	6	0.05 sec	1%

Operation	Last Run	Last Run %	Total Calls	Total Run	Total Run %
Active View Frame	0.07 sec	41%			
Other visible View Frames	0 sec	0%			
All View Frames			15	0.91 sec	19%

Operation	Last Run	Last Run %	Total Calls	Total Run	Total Run %
3D View	0.1 sec	59%	11	0.91 sec	19%
Data tree	0 sec	0%	1	0.15 sec	3%
Property Grid	0 sec	0%	10	1.91 sec	40%
CAD Occurrences	0 sec	0%	0	0 sec	0%

	Existing	Created	Deleted
LDXObjects	682717	718144	35427
LDXComps	11610	11855	245
LDXProfiles	1625	1638	13
LDXProfilePoints	3305	3305	0
LDXCADFileOccurrence	0	0	0

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Let‘s have a break!

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EL2.3

Double Deck

Recommended workflow

EL2.3 DOUBLE DECK

General information and tips when creating large and complex elevator groups

- Step 1: Create a project with few floors
- Step 2: Exchange basic components
- Step 3: Modify necessary parameters
- Step 4: Adapt car and counterweight position
- Step 5: Add shaft groups
- Step 6: Separator beam / Shaft wall
- Step 7: Adapt and position related components
- Step 8: Use Sloppy-Mode
- Step 9: Increase the number of floors

Practical example

EL2.3 DOUBLE DECK

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Shaft Wizard

- 5 floors
- Typical floor to floor distance 3000 mm
  - Consider travel – no
- Traction elevator 1:1
- 24 persons / 1800 kg
- Maschine room
  - top
- Car roping
  - top (w/o pulley)
  - with CW safety gear
- Counterweight roping, rear
  - top (w/o pulley)
- Sheet templates
  - Not necessary

Further specifications

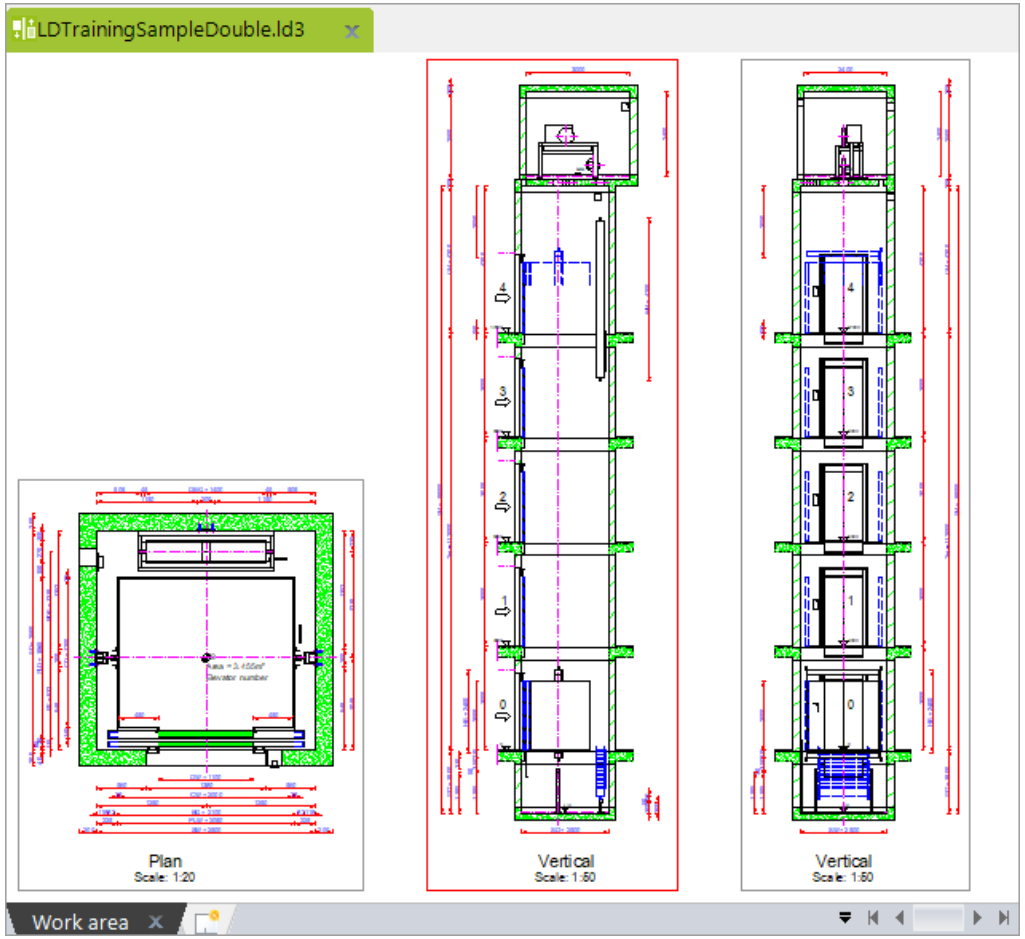
- Car size
  - Car width: 2000 mm / Car depth: 1700 mm
- Counterweight size
  - Thickness: 270 mm / Height: 4500 mm
  - Distance between guides: 1450 mm
- Shaft size
  - Shaft width: 2500 mm / Shaft depth: 2500 mm
- Entrances
  - Front: all floors
- Speed
  - 6 m/s
- Adjust the rail bracket geometry
- Save the project under the following file name: LDTrainingSampleDouble.ld3

Recommended workflow: Step 1

EL2.3 DOUBLE DECK

Create a project with few floors

- Preparation steps:
  - Plan view
  - Section view from Left
  - Section view from Front

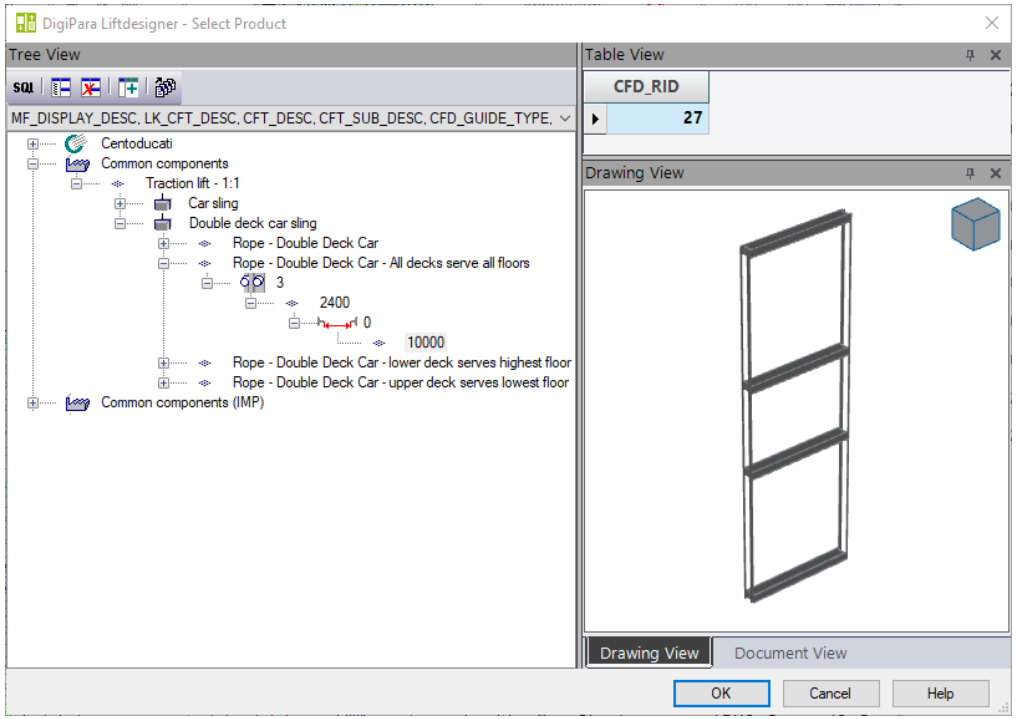


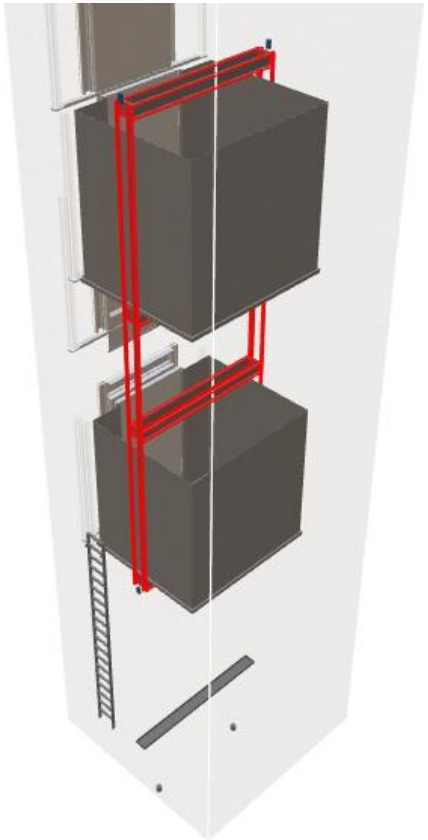
Recommended workflow: Step 2

EL2.3 DOUBLE DECK

Exchange basic components

- Car frame
  - Double deck car sling – All decks serve all floors



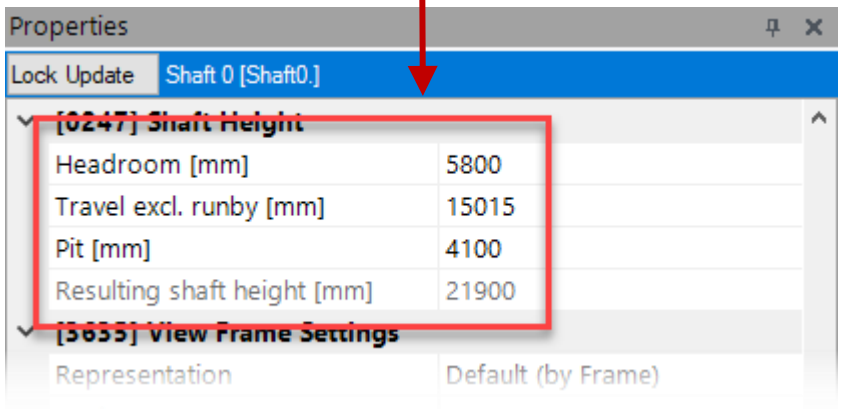


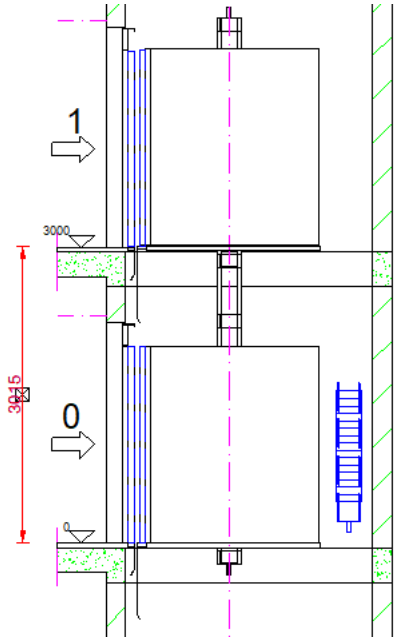
Recommended workflow: Step 3

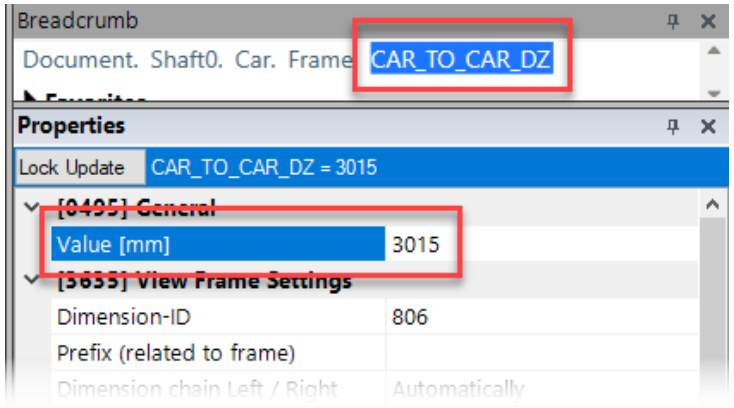
EL2.3 DOUBLE DECK

Modify necessary parameters

- Distance between cars: 3015 mm
- Shaft head: 5800 mm / shaft pit: 4100 mm





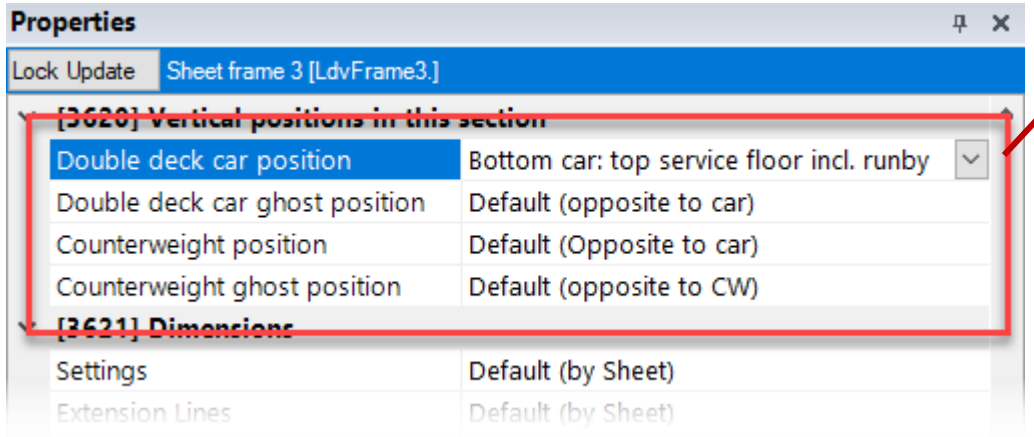


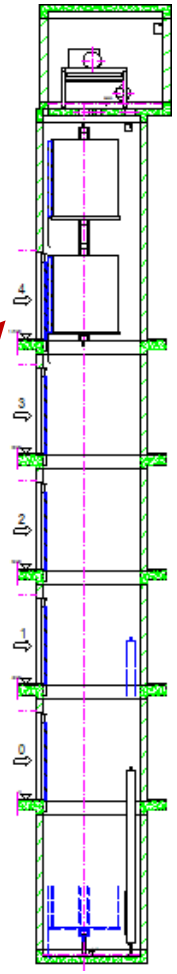
Recommended workflow: Step 4

EL2.3 DOUBLE DECK

Adapt car and counterweight position

- in the view frame Properties
  - The positioning of car and counterweight on the drawing is recommended before increasing the number of floors and creating group shafts, in order to keep the calculation power as low as possible when updating



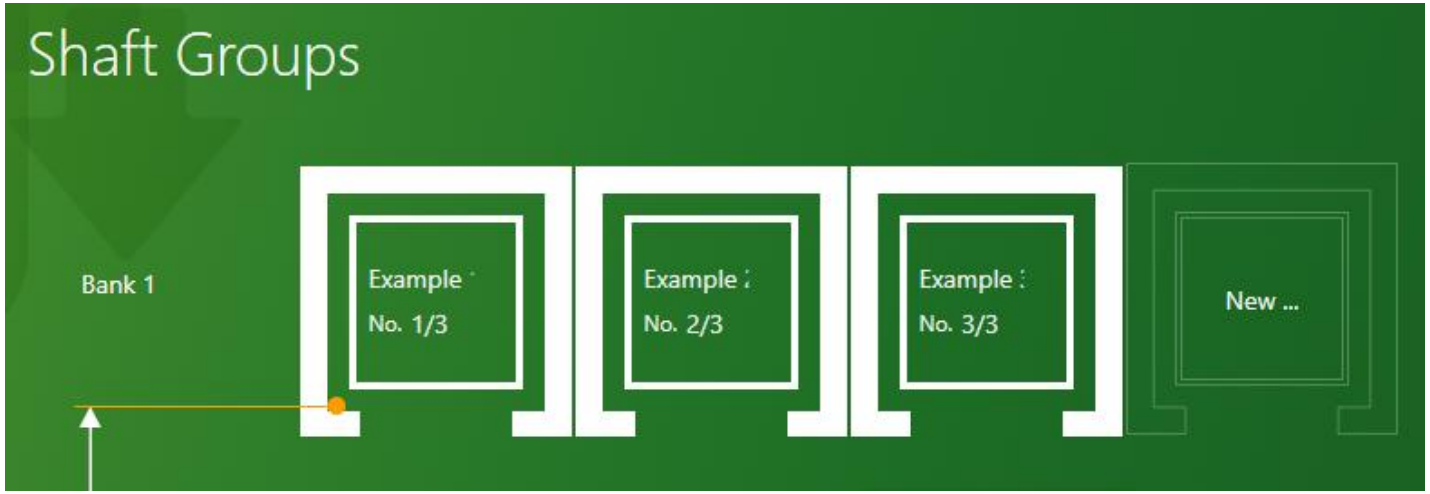


Recommended workflow: Step 5

EL2.3 DOUBLE DECK

Add shaft groups

- by copy operation

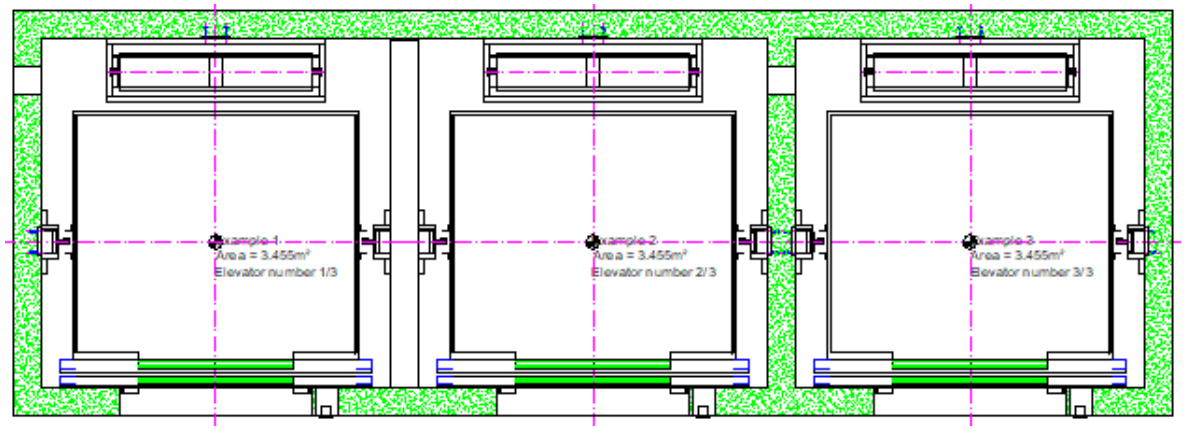


Recommended workflow: Step 6

EL2.3 DOUBLE DECK

Separator beam / Shaft wall

- Add separator beams for the first shaft
- Remove the group shaft wall opening from the second shaft

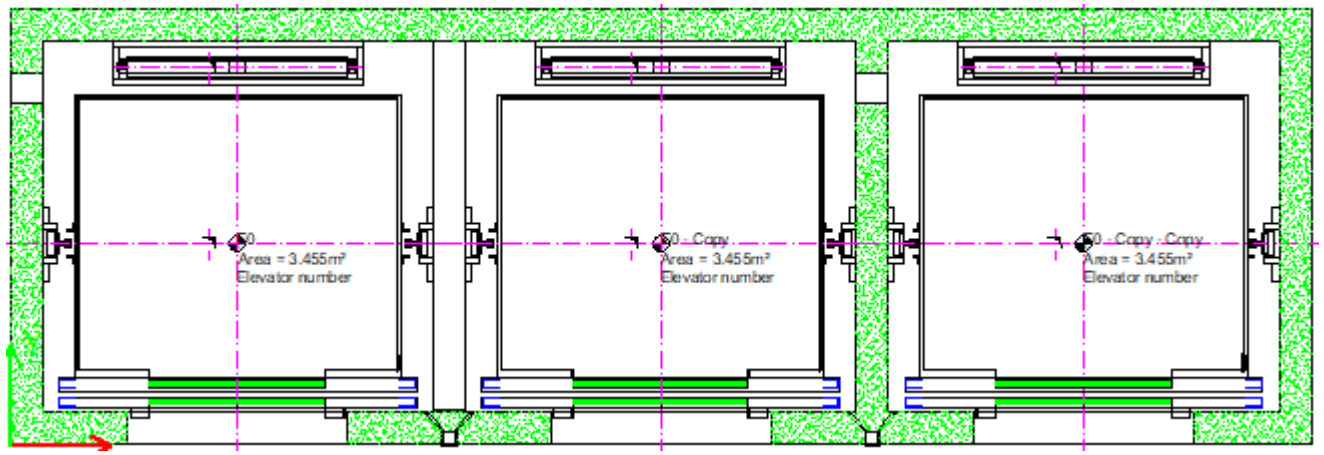


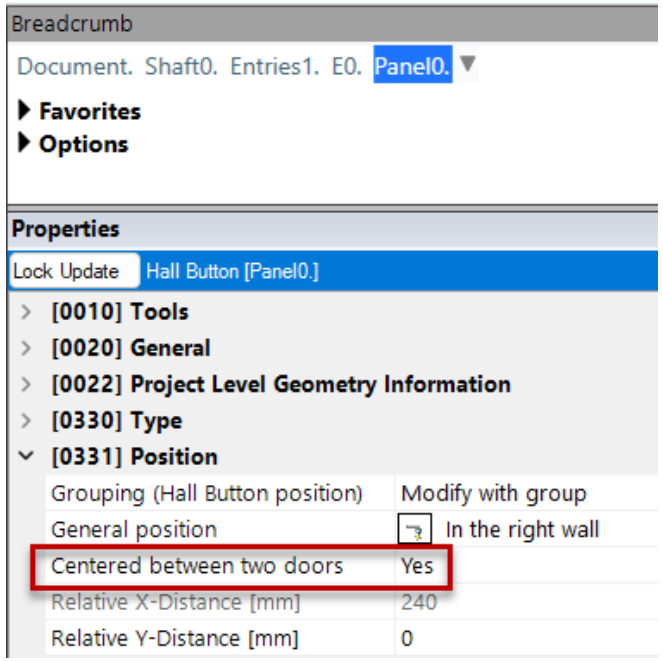
Recommended workflow: Step 7

EL2.3 DOUBLE DECK

Centered Hall Buttons

- One panel for two doors
  - Set Centered between two door to Yes





Recommended workflow: Step 7

EL2.3 DOUBLE DECK

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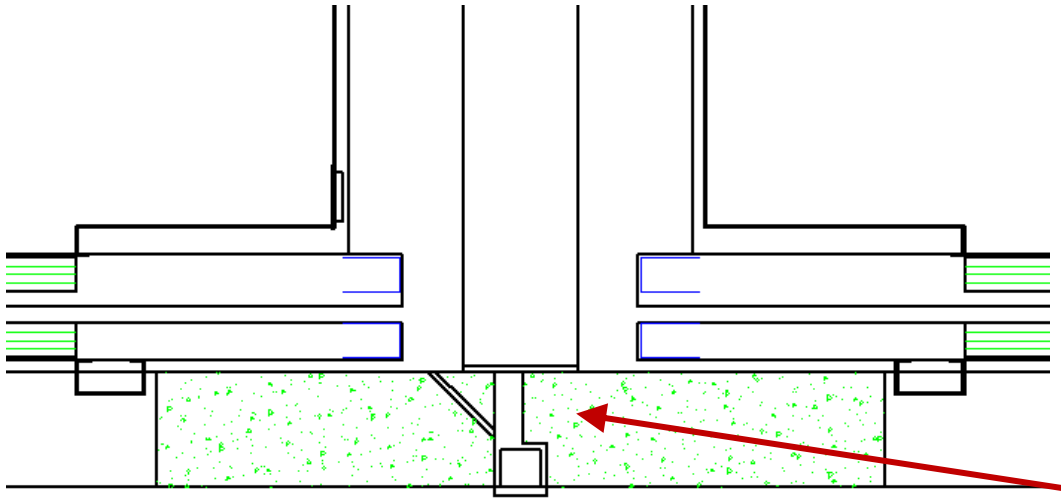
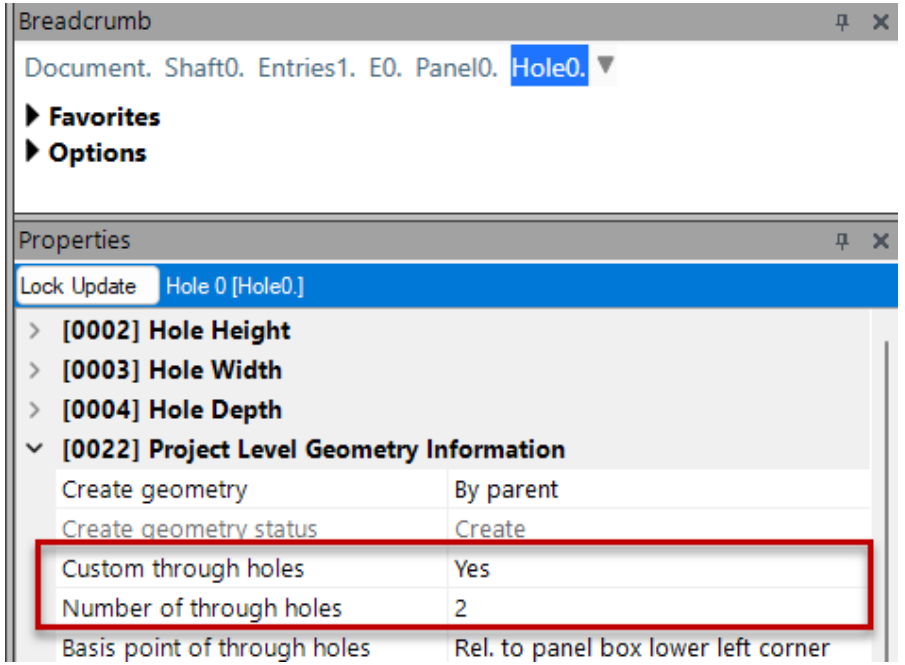
Inclined through holes in shaft groups

- By adding a second through hole



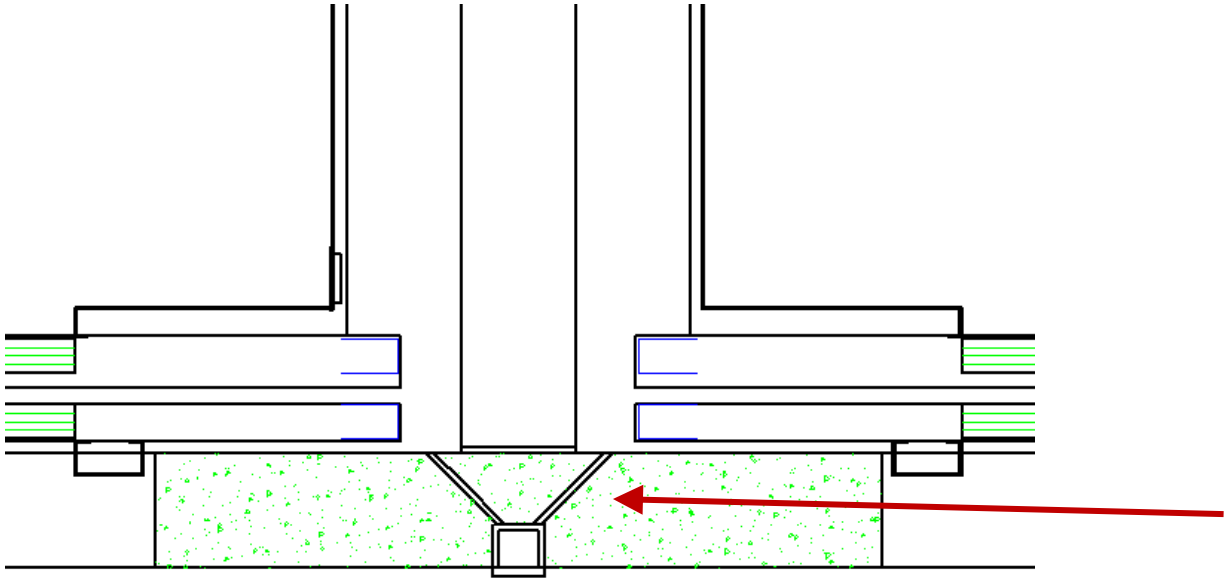


Recommended workflow: Step 7

EL2.3 DOUBLE DECK

Inclined through holes in shaft groups

- Customize size, position and angle of each through hole separately



Breadcrumb

Document. Shaft0. Entries1. E0. Panel0. Hole0.

Favorites

Options

Properties

Lock Update | Hole 0 [Hole0.]

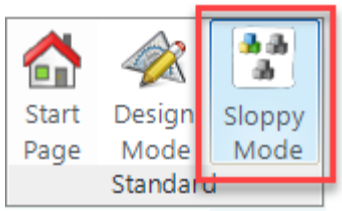
[0002] Hole Height	
[0003] Hole Width	
[0004] Hole Depth	
[0022] Project Level Geometry Information	
[0070] Through Hole 1 Position	
X0 [mm] (1)	10
Z0 [mm] (1)	0
Angle (1)	-40
[0071] Through Hole 1 Size	
DX [mm] (1)	10
DZ [mm] (1)	50
Shape (1)	Cylindrical
[0072] Through Hole 2 Position	
X0 [mm]	70
Z0 [mm]	10
Angle	40
[0073] Through Hole 2 Size	
DX [mm]	10
DZ [mm]	10
Shape	Cylindrical

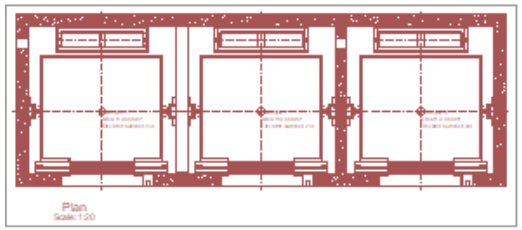
Recommended workflow: Step 8

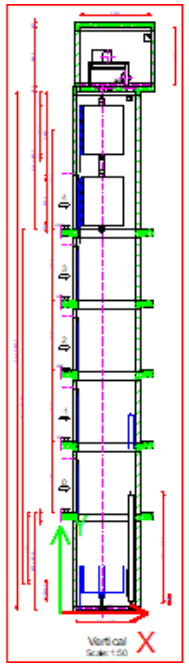
EL2.3 DOUBLE DECK

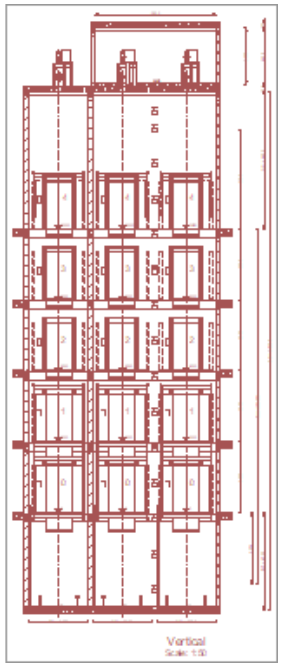
Use Sloppy-Mode

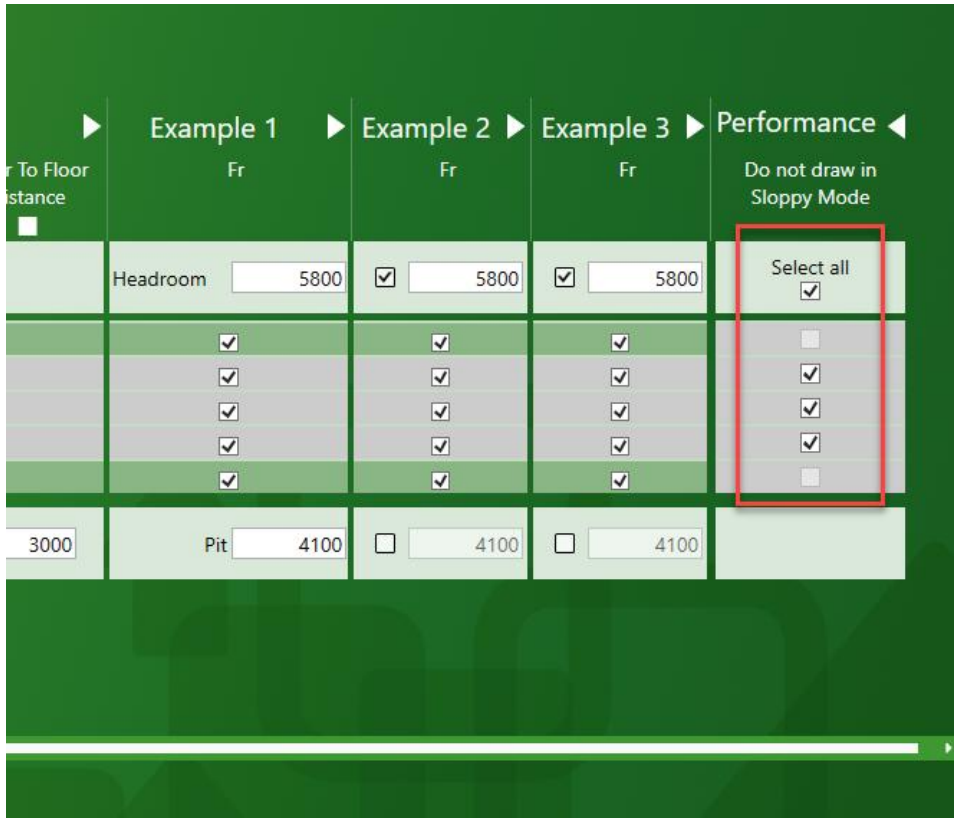
- for faster project processing











Recommended workflow: Step 9

EL2.3 DOUBLE DECK

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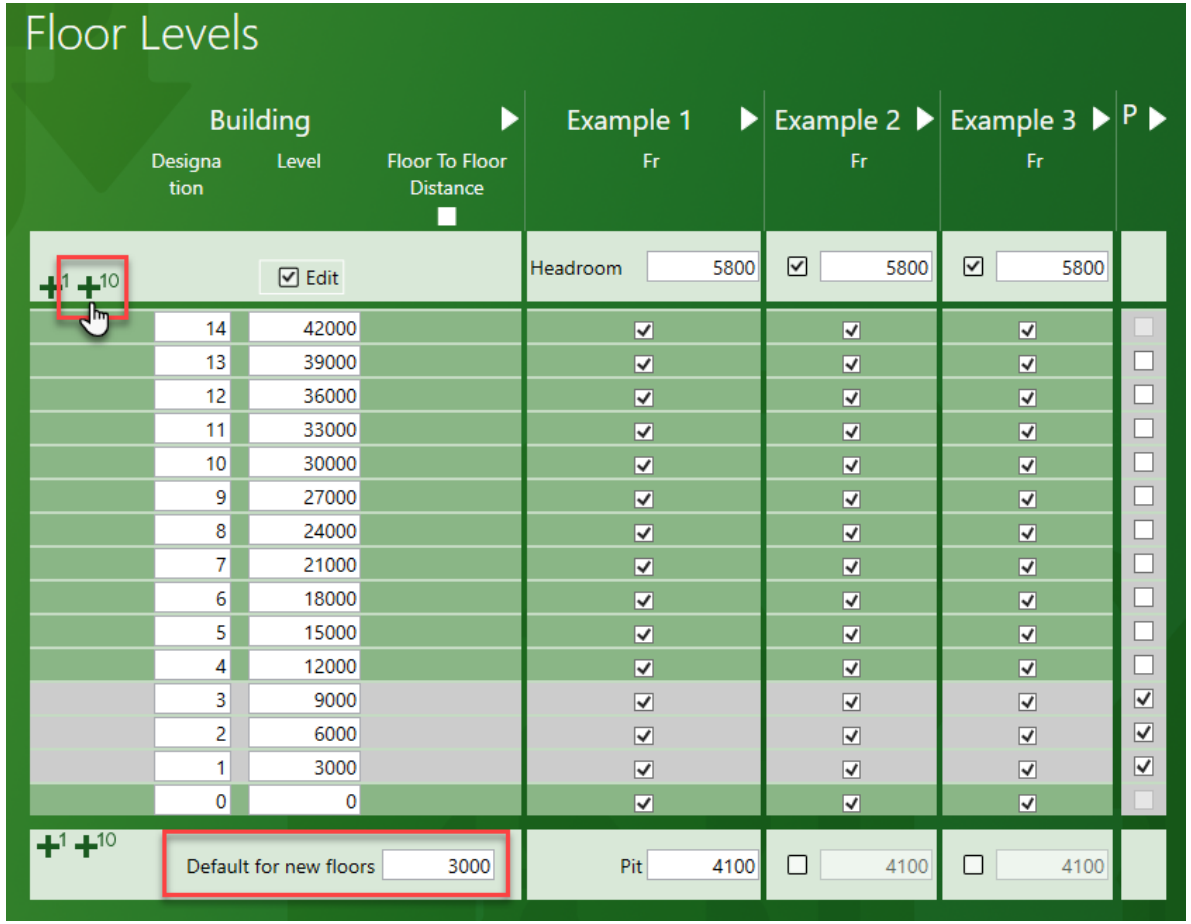
Increase the number of floors

- +10 for a faster creation of several floors for all shafts



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EL2.4

Face to Face

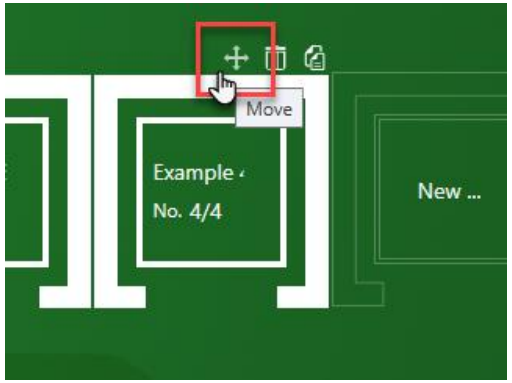
Shaft Group Positioning & Alignment

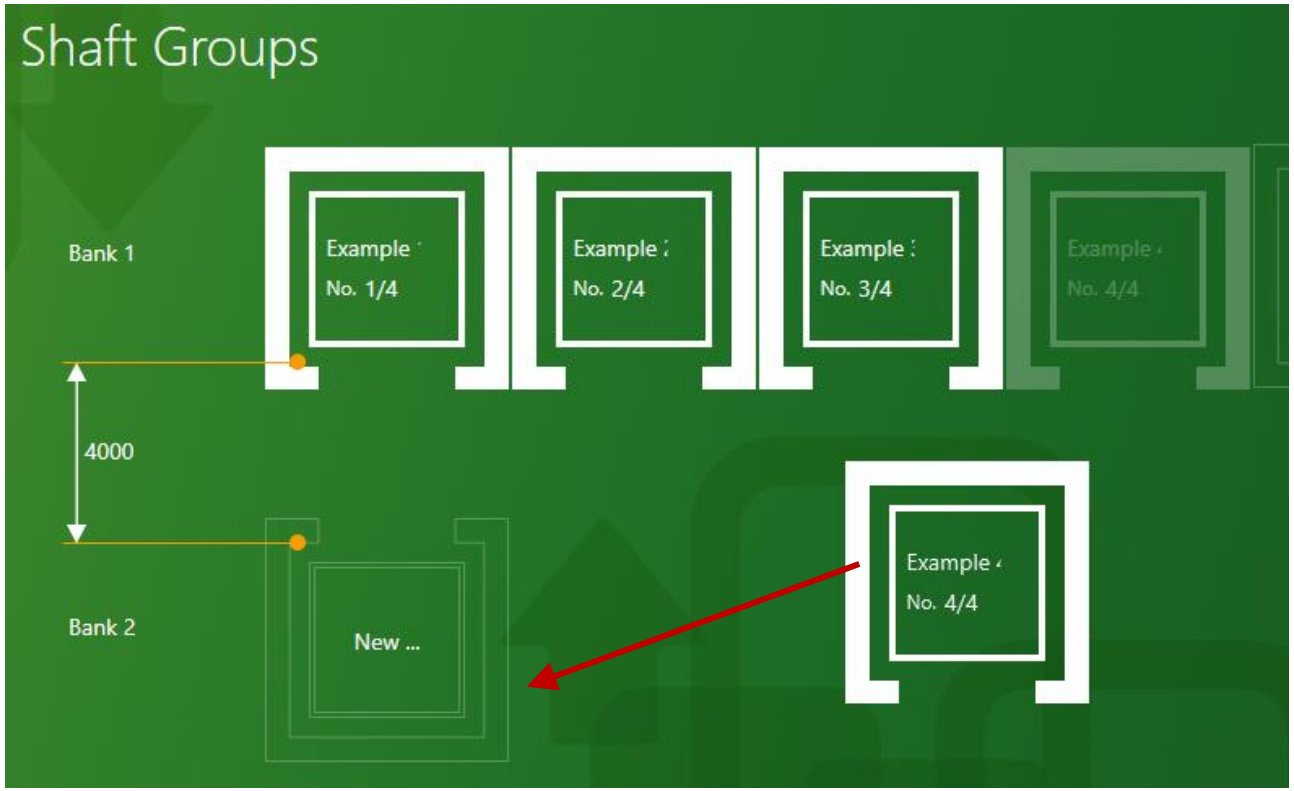
Shaft positioning

EL2.4 FACE TO FACE

Changing the position of an existing shaft

- hold the left mouse button and drag the new shaft to the new position





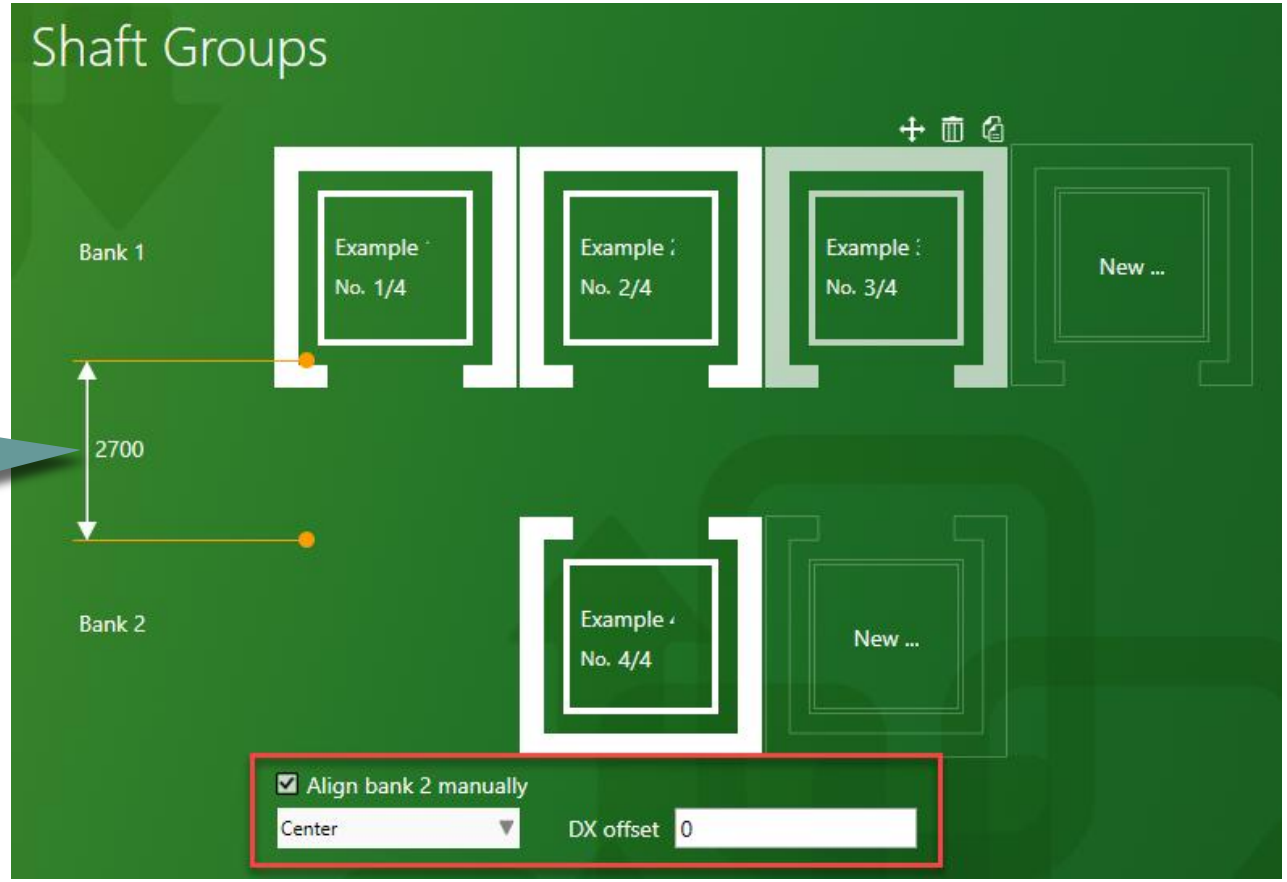
Shaft group alignment

EL2.4 FACE TO FACE

Adjusting the alignment to each other

- Alignment options
  - Left
  - Center
  - Right
  - Offset

The distance between the shaft groups can be edited at any time



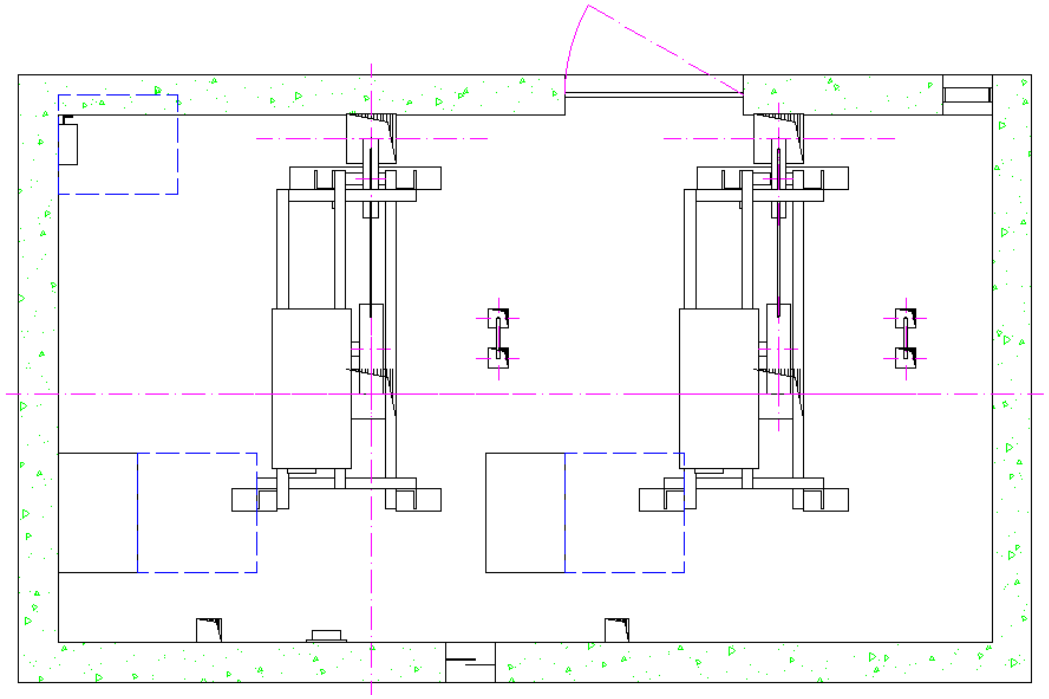
Machine Room Settings

General information

EL2.4 FACE TO FACE

When adding another elevator to the group

- the machine rooms are automatically combined
- duplicate or unneeded components are automatically removed:
  - Second machine room door
  - Second ventilation window
  - etc.

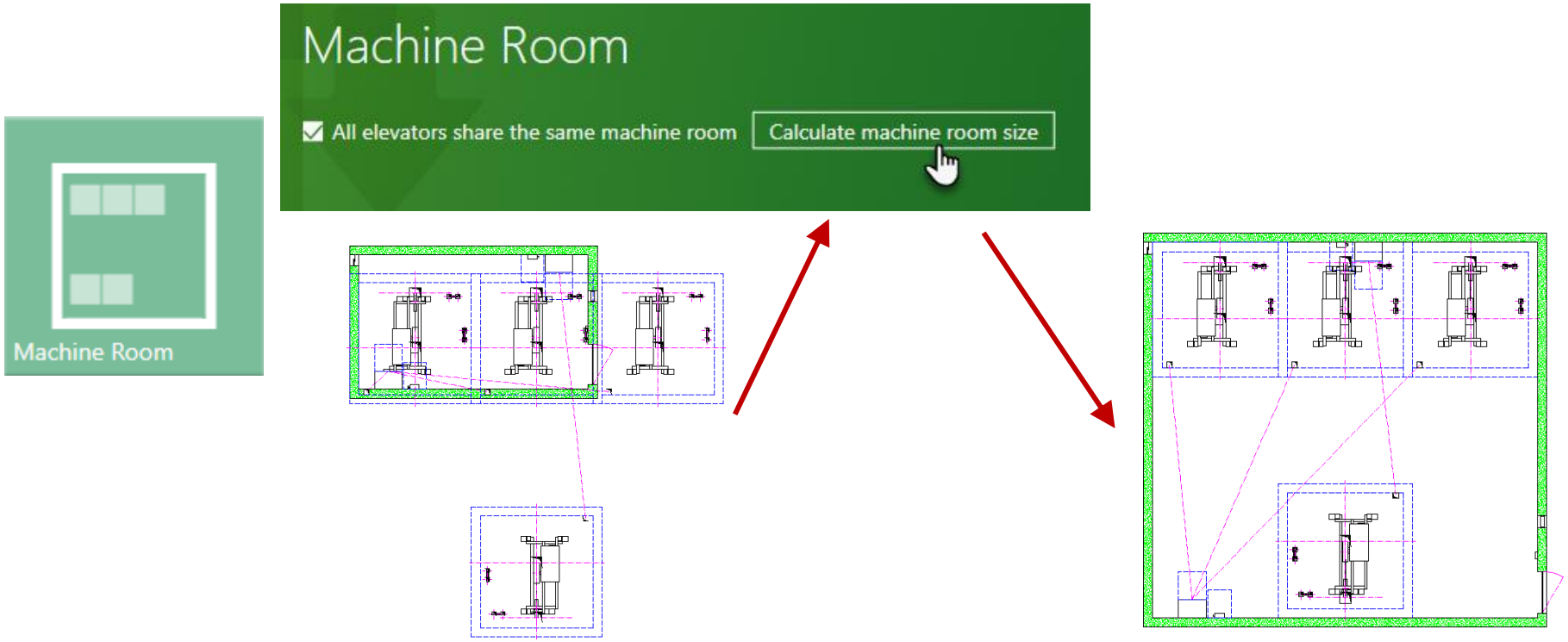


Machine room settings

EL2.4 FACE TO FACE

Configuring the machine room(s) via the Group and Shaft Configurator

- Recommendation: Calculate the machine room size after adding elevators to the group

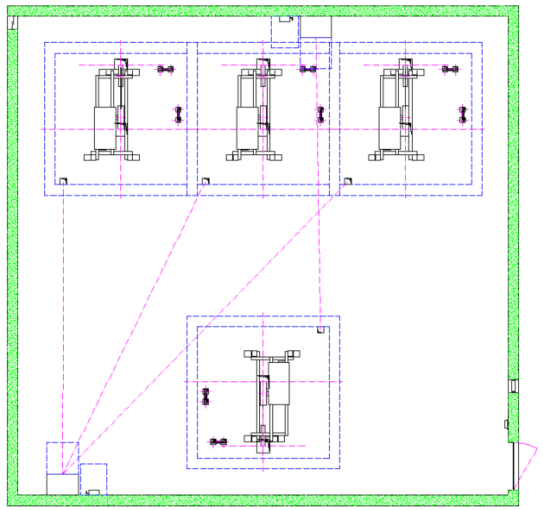


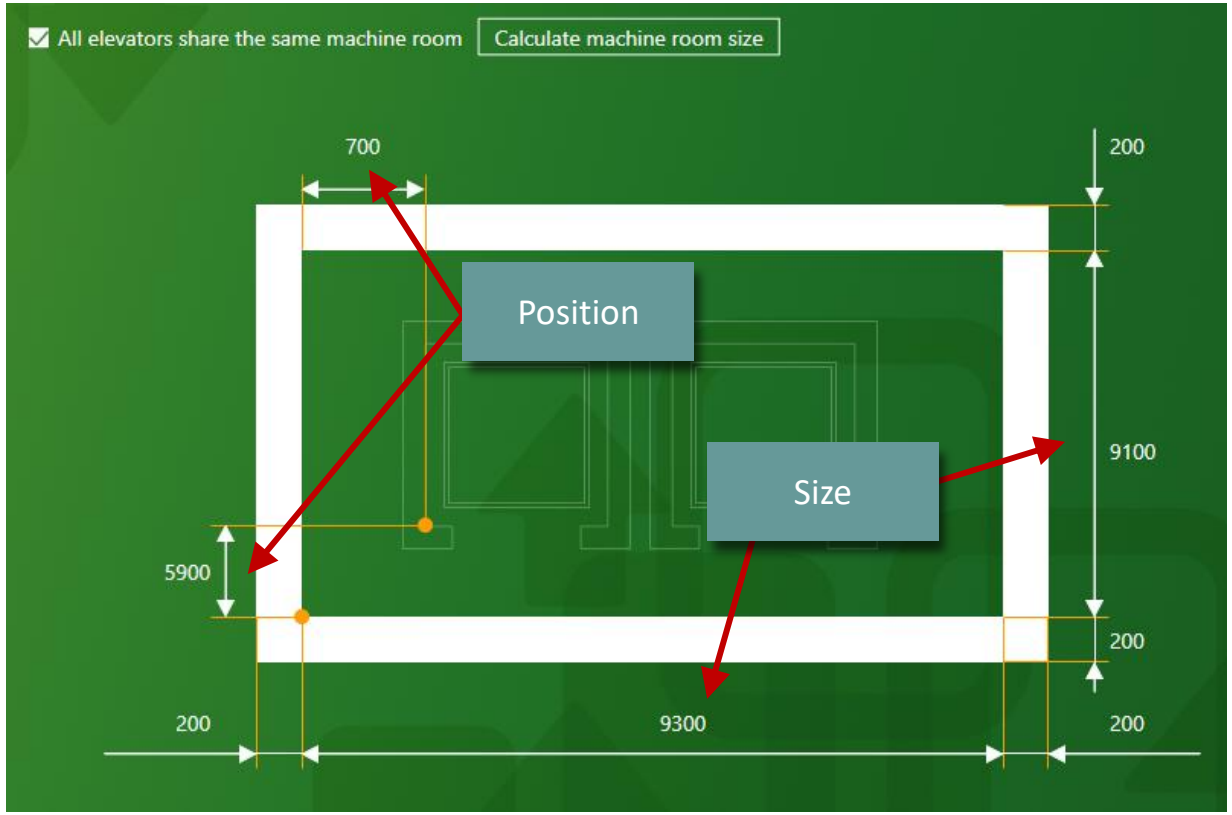
Machine room settings

EL2.4 FACE TO FACE

Adjust size and position by editing displayed values

- Reference point = Shaft base point Shaft0.



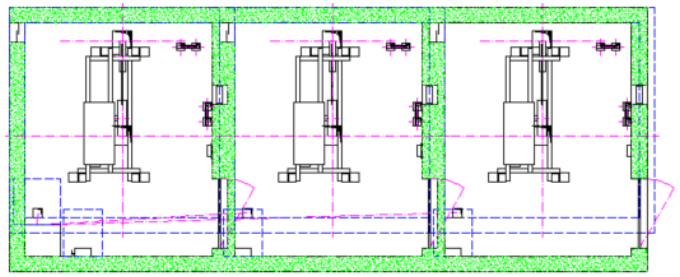


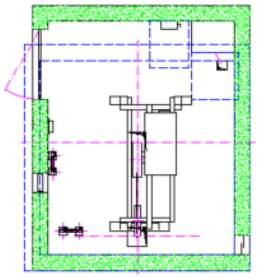
Machine room settings

EL2.4 FACE TO FACE

Separate machine rooms for each shaft

- By removing the check mark, individual machine room settings are possible for each shaft





Building Floor Level Settings

Building floor level settings

EL2.4 FACE TO FACE

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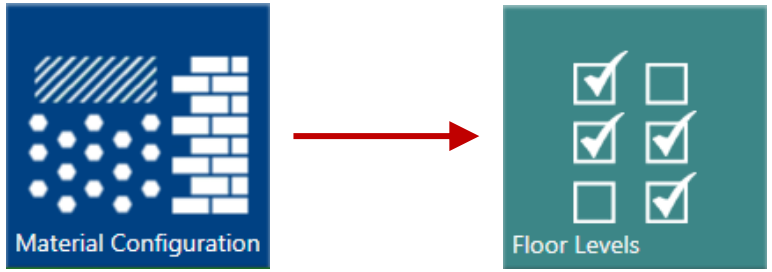
Remove or define building floors and their size via the Group and Shaft Configurator



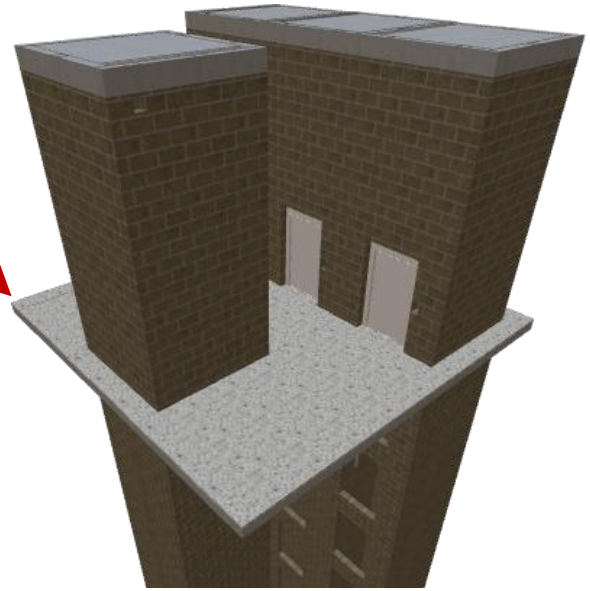
Building floor level settings

EL2.4 FACE TO FACE

Defining the floor dimensions on created building floors

Floor Levels

General			Heights			Building Floor Levels				
Use Standard	Level	Material	Material Height	Raw Floor	Floor Finish	Create	Floor Width Left	Floor Width Right	Floor Depth Front	Floor Depth Rear
Standard definition		Concrete	350	250	50	☑	500	500	500	500
☑	14 / 42000	Concrete	350	250	50	☑	500	500	500	500
☑	13 / 39000	Concrete	350	250	50	☑	500	500	500	500
☑	12 / 36000	Concrete	350	250	50	☑	500	500	500	500
☑	11 / 33000	Concrete	350	250	50	☑	500	500	500	500
☑	10 / 30000	Concrete	350	250	50	☑	500	500	500	500
☑	9 / 27000	Concrete	350	250	50	☑	500	500	500	500
☑	8 / 24000	Concrete	350	250	50	☑	500	500	500	500
☑	7 / 21000	Concrete	350	250	50	☑	500	500	500	500
☑	6 / 18000	Concrete	350	250	50	☑	500	500	500	500
☑	5 / 15000	Concrete	350	250	50	☑	500	500	500	500
☑	4 / 12000	Concrete	350	250	50	☑	500	500	500	500



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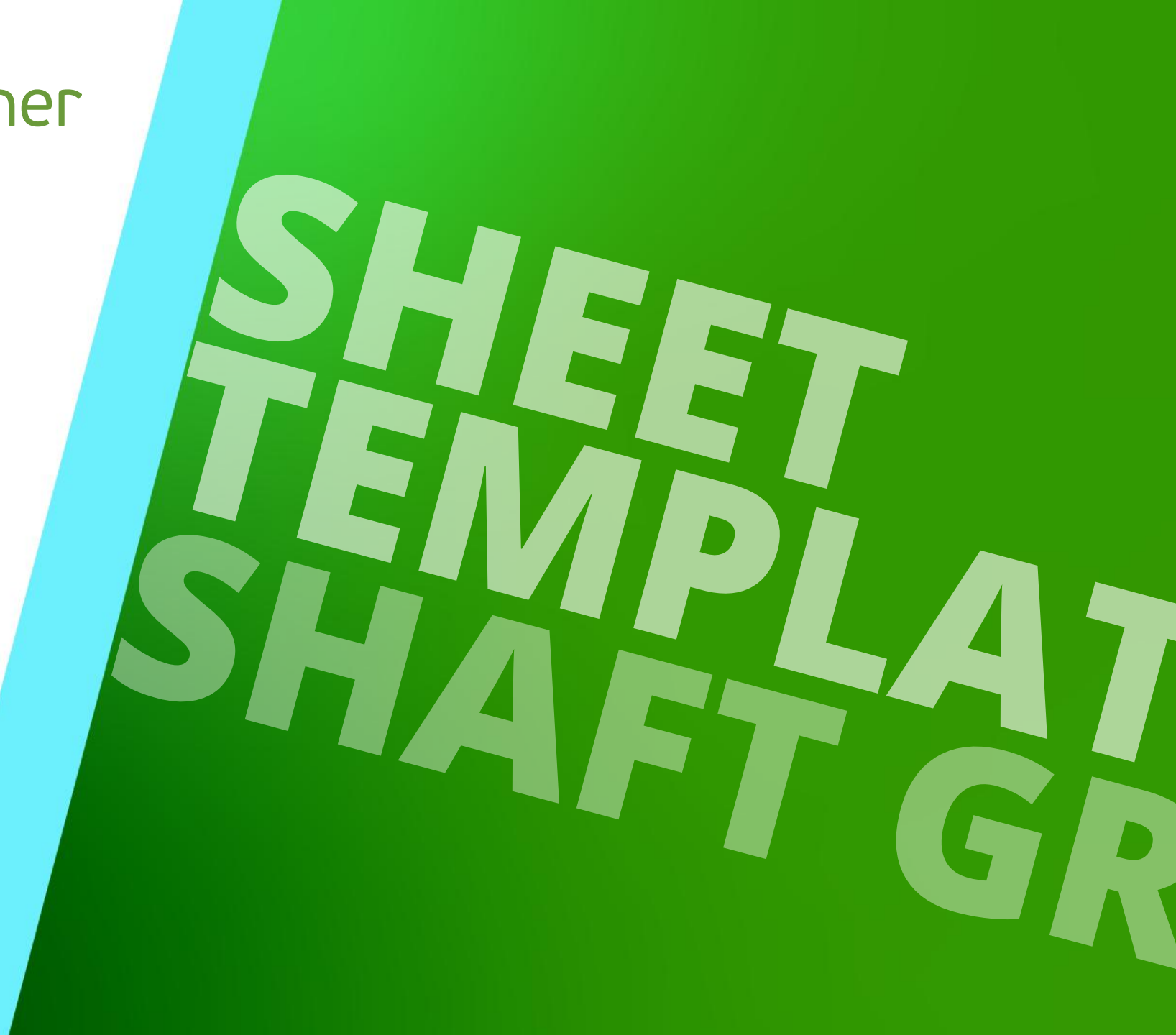
EL2.5

Sheet templates
for shaft groups



General information

EL2.5 SHEET TEMPLATES

Recommendation:

- Separate view frames for each shaft
  - Benefit:
    - Easy maintenance and management of the views as well as clear representations of the individual elevators
    - faster sheet loading times

- Use of rule based detail sections
  - Creation of flexible detail sections that adapt to the project changes at the elevator by corresponding rules, e.g. for shaft head and shaft pit representations

    - Basic knowledge: A3 – Drawing Creation Fundamentals
    - Specific use cases: B2 – Dynamic Sheet Templates (DST)

View Frame Configuration Options

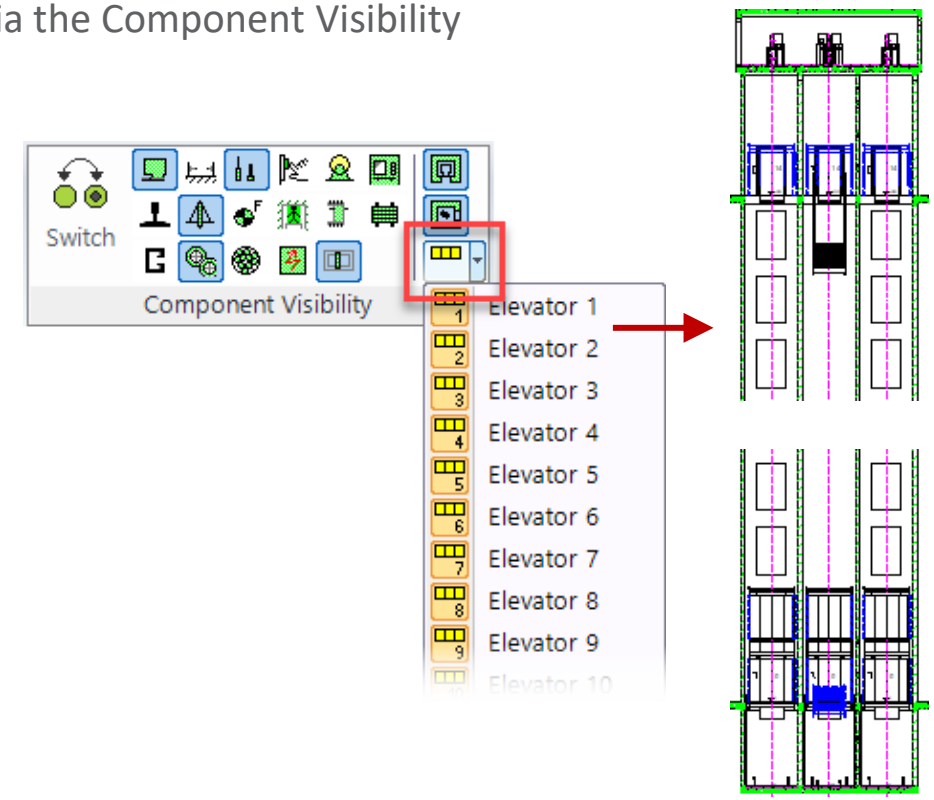
for Shaft Groups

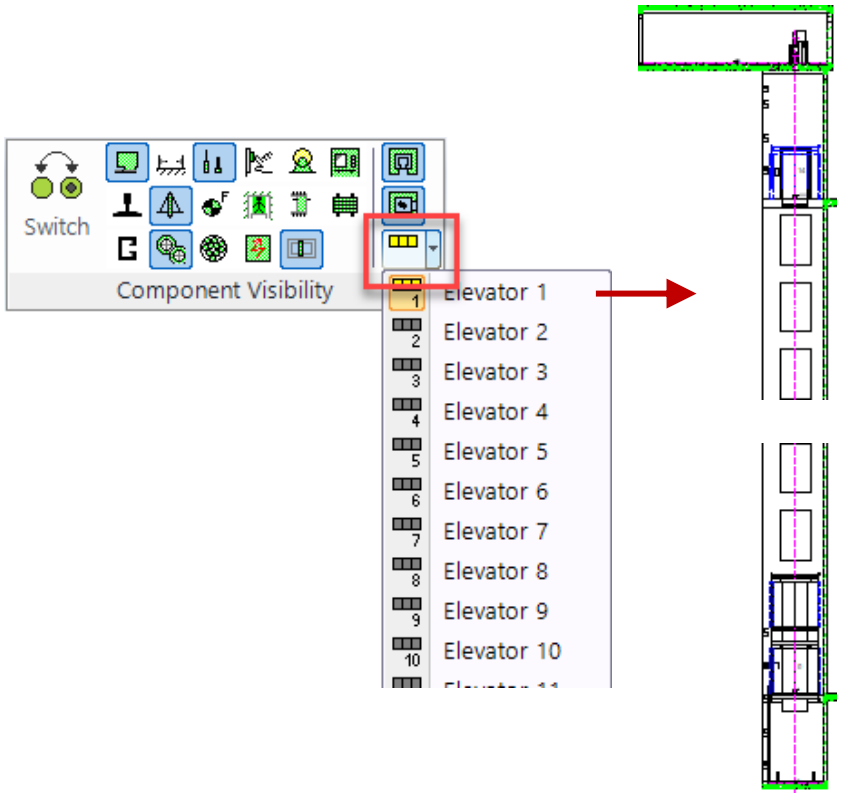
View frame configuration options

EL2.5 SHEET TEMPLATES

Functions for defining the displayed shaft

- for every single view frame
  - via the Component Visibility



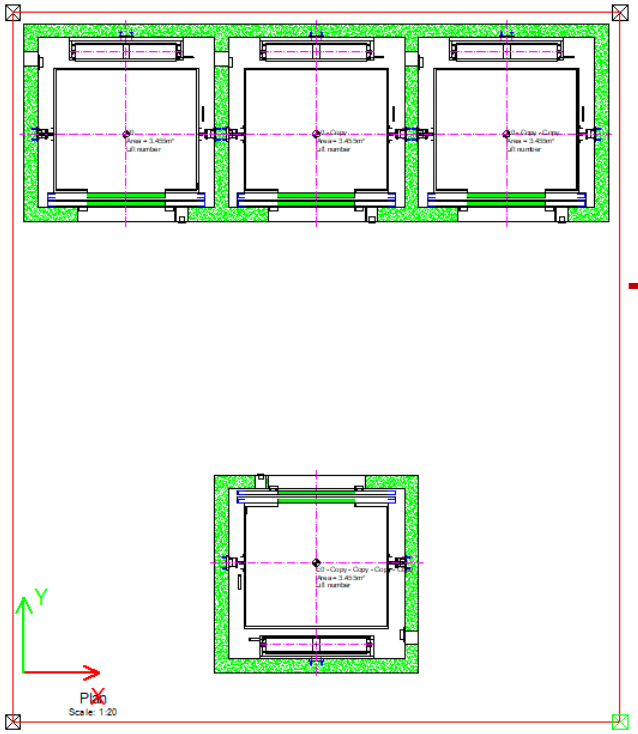


View frame configuration options

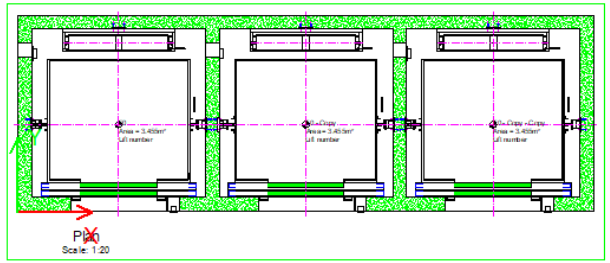
EL2.5 SHEET TEMPLATES

Switching on/off shaft groups

- for every single view frame
  - via the Visibility



Bank 1



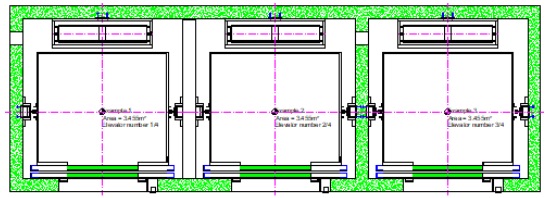
Bank 2

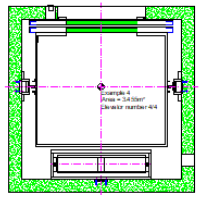
View frame configuration options

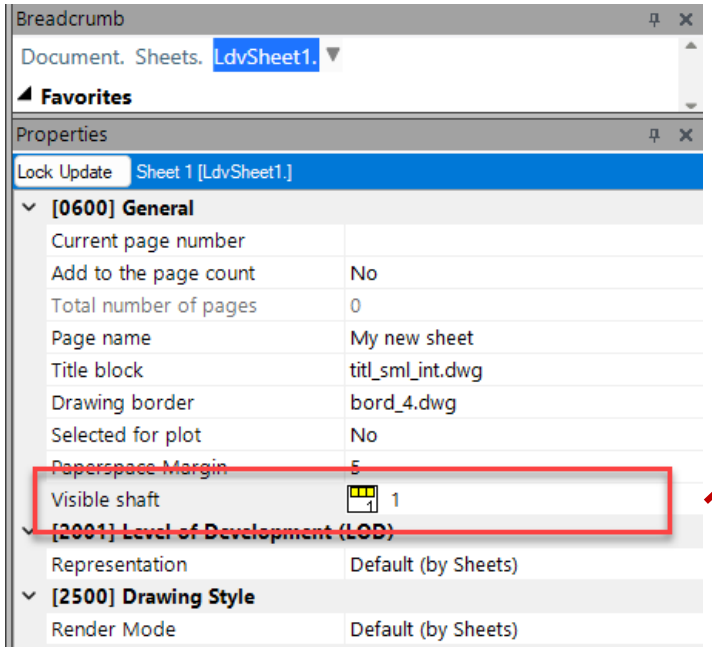
EL2.5 SHEET TEMPLATES

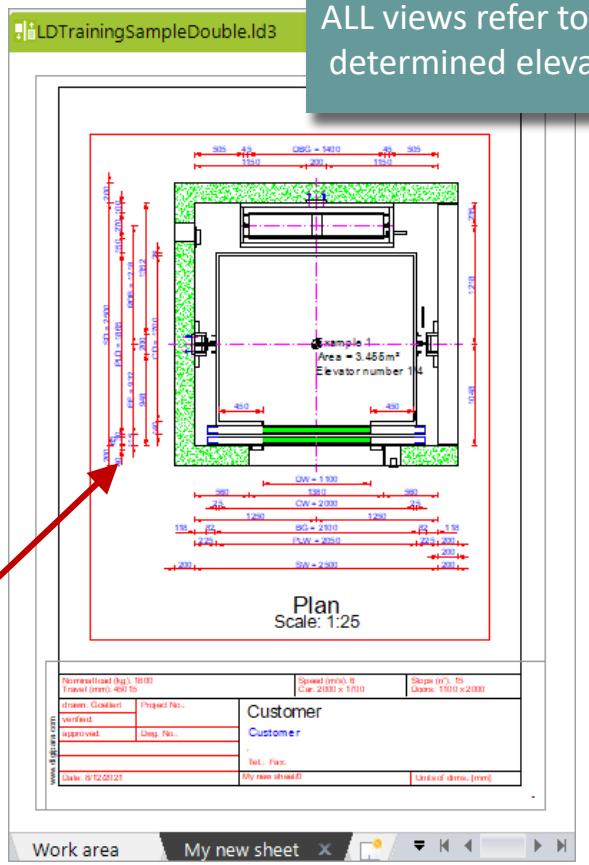
Functions for defining the displayed shaft

- on the entire drawing sheet
  - via the drawing sheet Properties







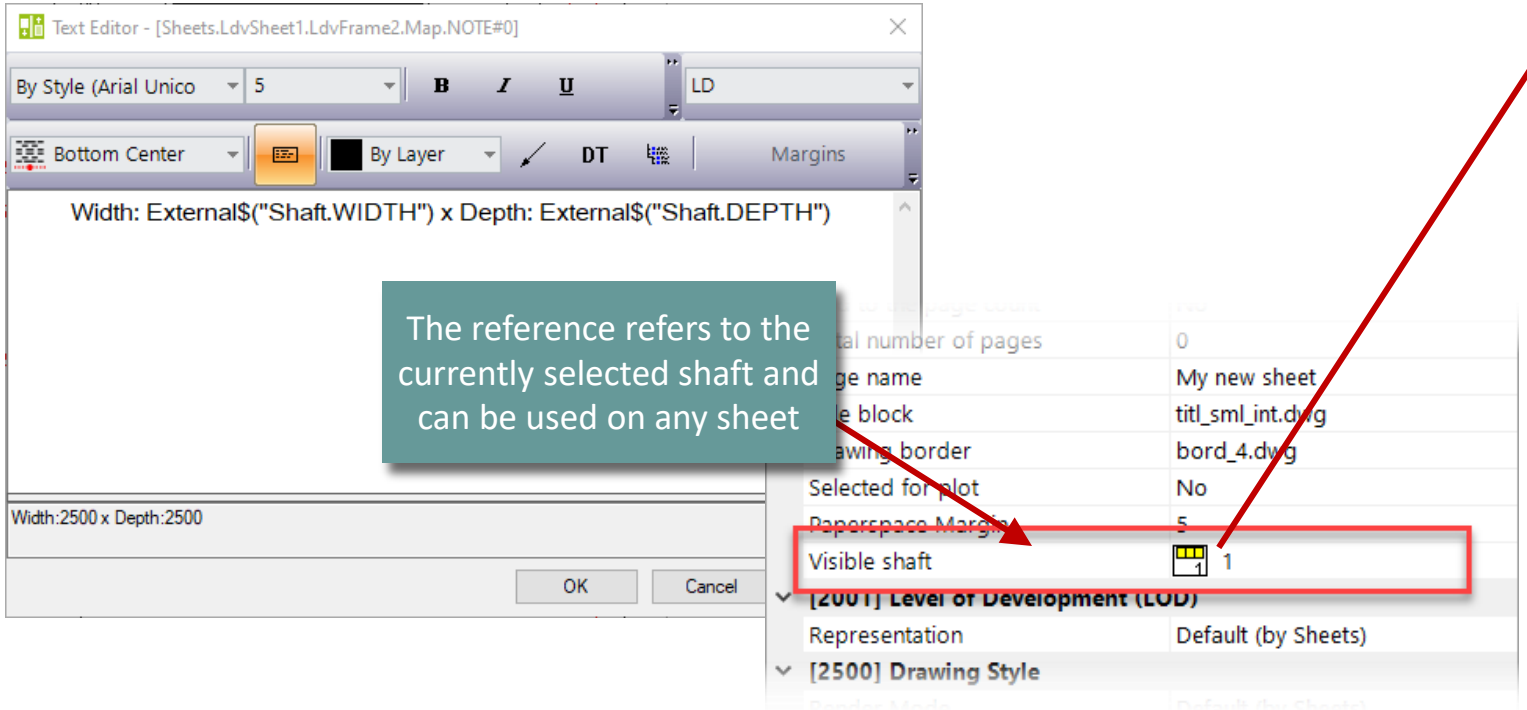


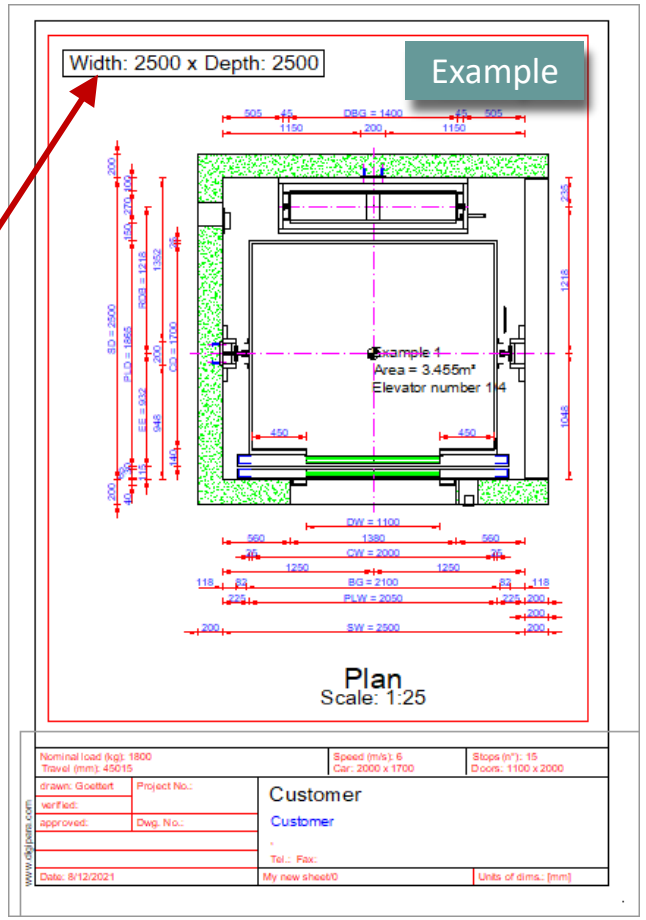
View frame configuration options

EL2.5 SHEET TEMPLATES

Deleting the shaft index from the annotations

- Practical example: **shaft size**
  - Width: External$("Shaft0.WIDTH") x Depth: External$("Shaft0.DEPTH")





Shaft Group Dimensions

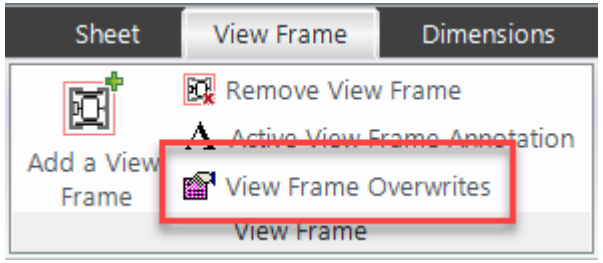
Practical Examples: Dimension Overwrites

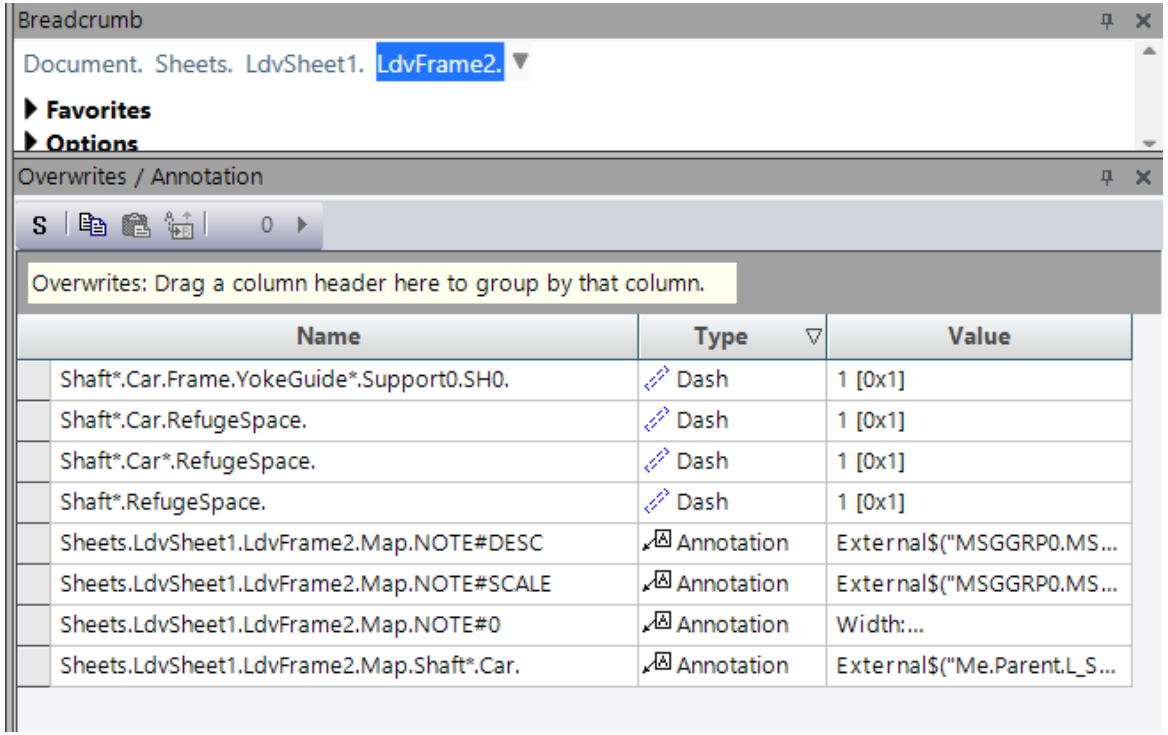
Shaft Group Dimensions

EL2.5 SHEET TEMPLATES

Preparation Step

- Extended *operations to use view frame overwrites for more dynamic view frames
  - Basic knowledge: B1 – Sheet Templates





Shaft Group Dimensions

Overwrites Docking Window

- provides a clear, organized overview of all edits made within the current view frame.
- *Operations in the overwrites make it easy to apply changes to multiple elements at once
  - be it every shaft, each entry, or even a specific one like the second-to-last.

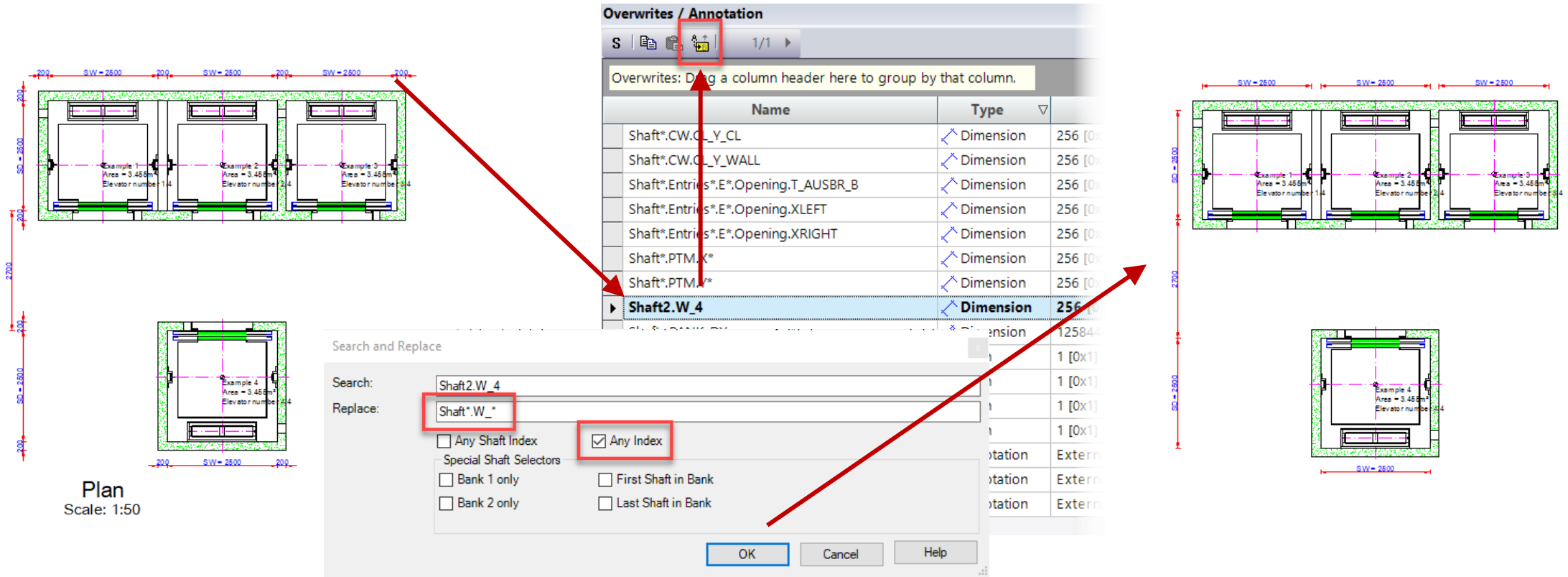
- Goal for this practice:
  - Deleting dimensions using overwrites

Shaft Group Dimensions

EL2.5 SHEET TEMPLATES

Practical example: Wall thicknesses

- Delete all unnecessary dimensions using View Frame Overwrites



Shaft Group Dimensions

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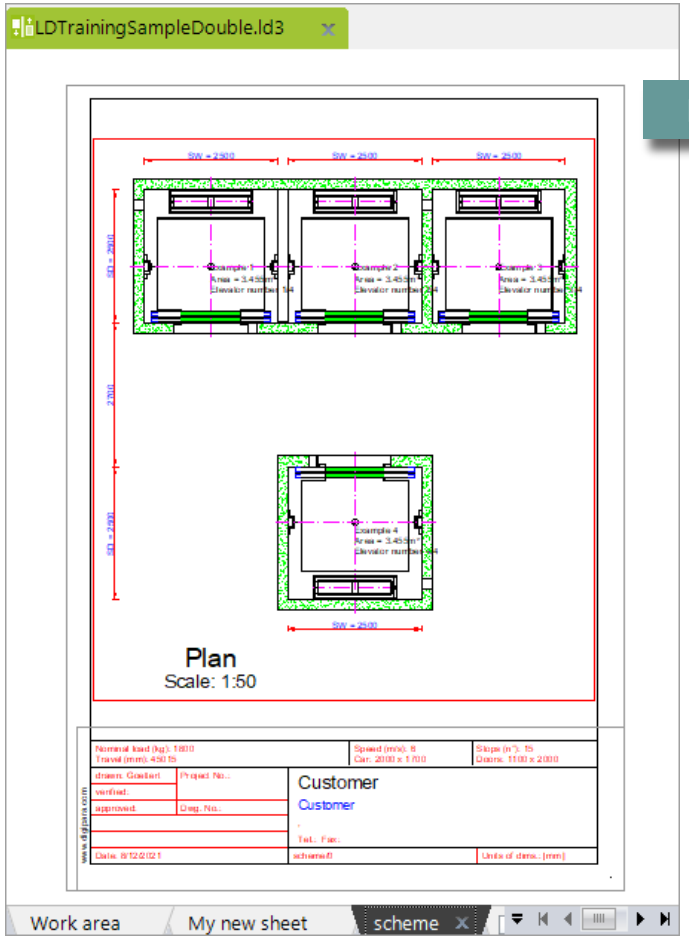
Practical example: Result

- Creating a new sheet for a schematic plan view representation
- Switch of unnecessary component and dimension groups

Properties

Lock Update | Sheet 2 [LdvSheet2.]

[0600] General	
Current page number	
Add to the page count	No
Total number of pages	0
Page name	scheme
Title block	titl_sml_int.dwg
Drawing border	bord_4.dwg
Selected for plot	No
Paperspace Margin	5
Visible shaft	All
[2001] Level of Development (LOD)	
Representation	Default (by Sheets)



Shaft Group Annotations

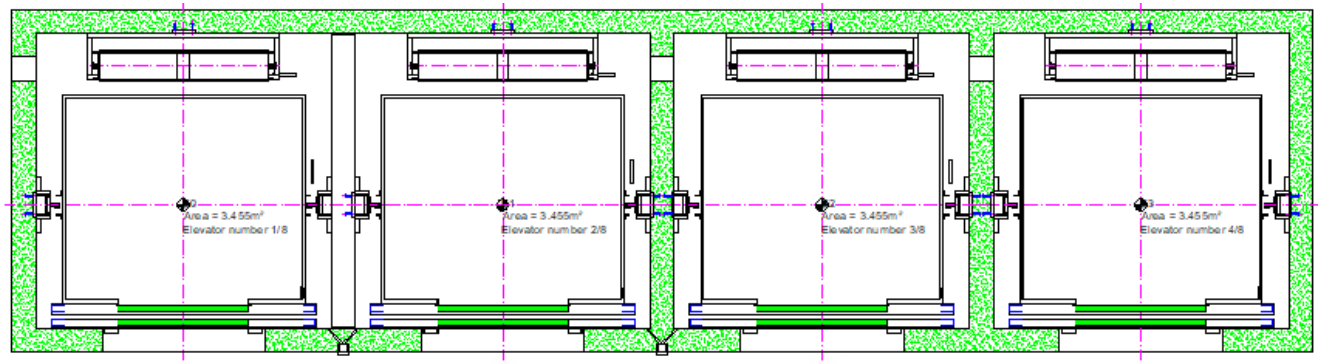
Practical Examples: Annotation Overwrites

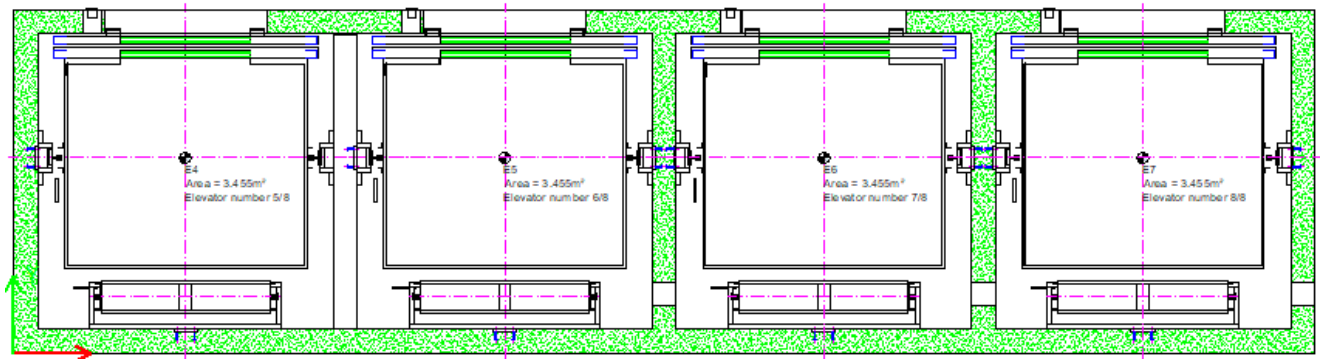
Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Preparation Step: Shaft Group 4x4

- Copy shafts and align them accordingly
- Rename the descriptions
- Add shaft walls and separator beams
- Decrease the number of floors to improve the performance (for this example)



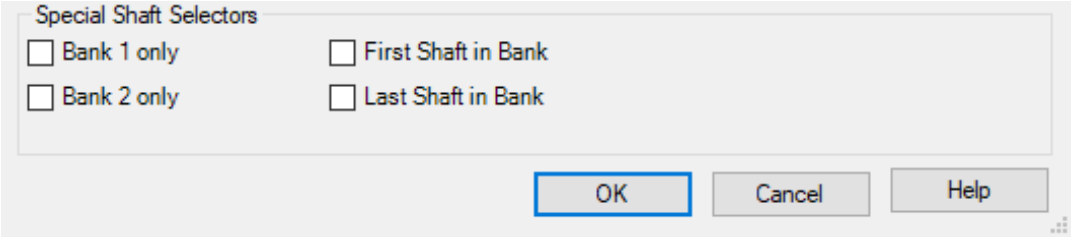


Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Annotation Overwrites in Plan Views

- Using overwrites for annotations for more dynamic view frames
- Extended *operations for plan views
- Use of the special shaft selector options now available



Shaft Group Annotations

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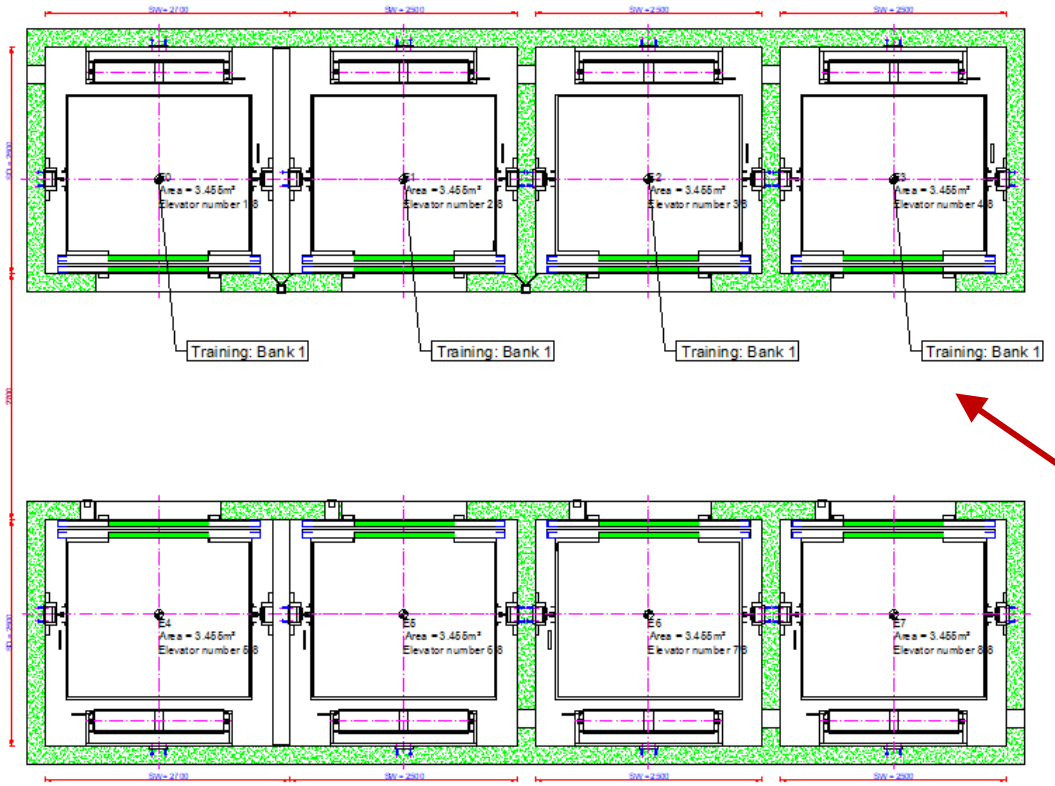
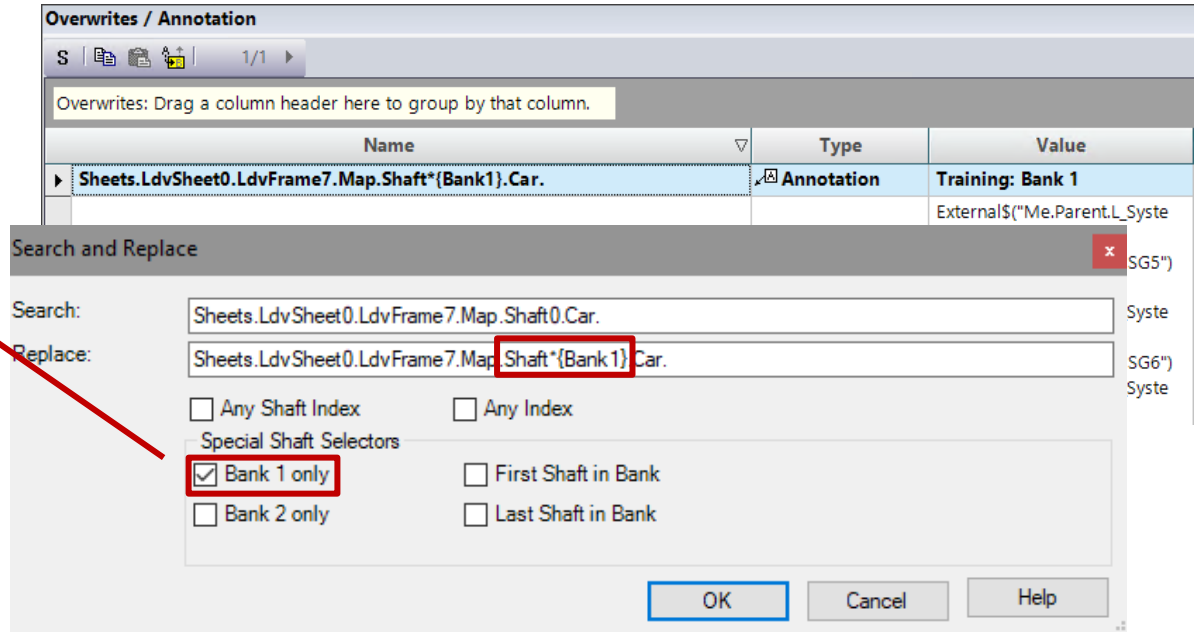
Practical Example 1: *{Bank1}

- All shafts in Bank 1 with annotation



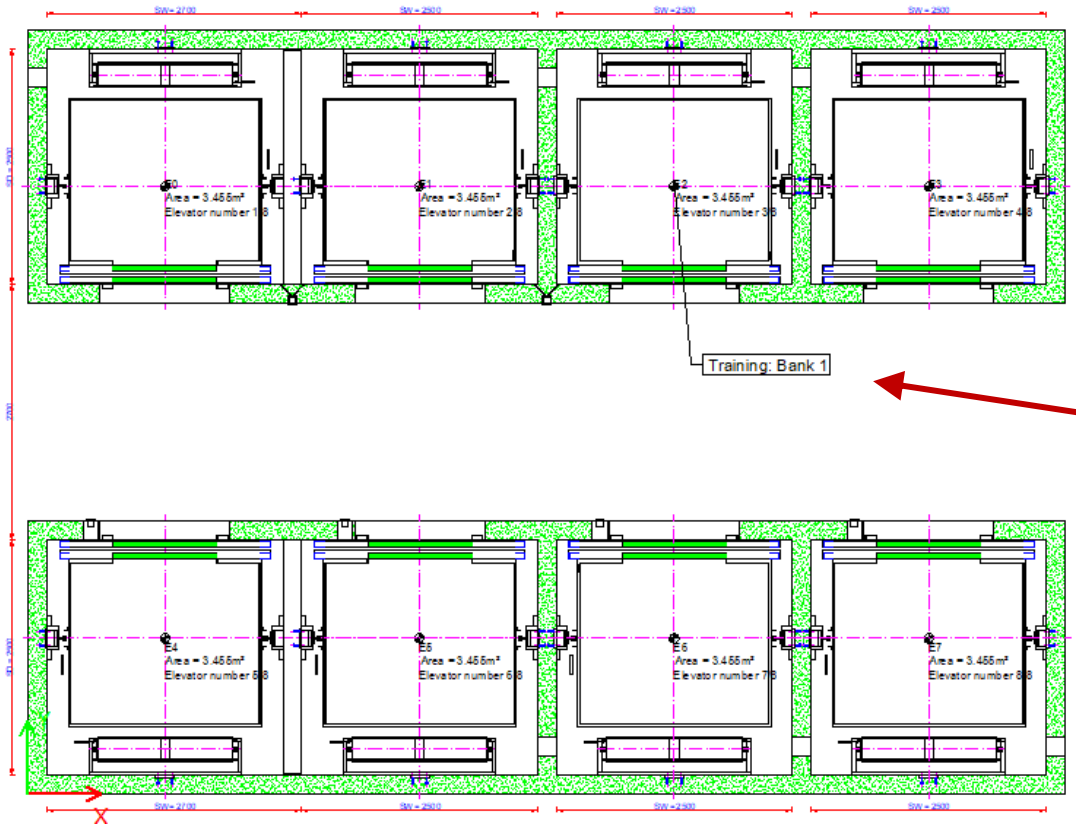


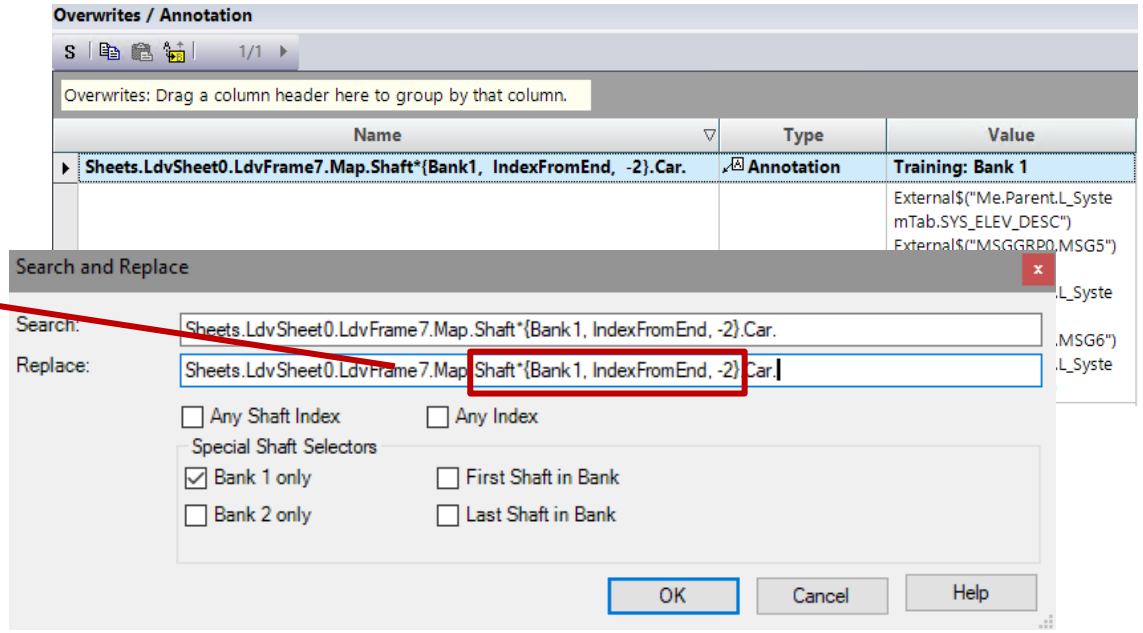
Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Practical Example 2: *{Bank1, IndexFromEnd, -2}

- Always placed at the second last shaft of Bank 1





Shaft Group Annotations

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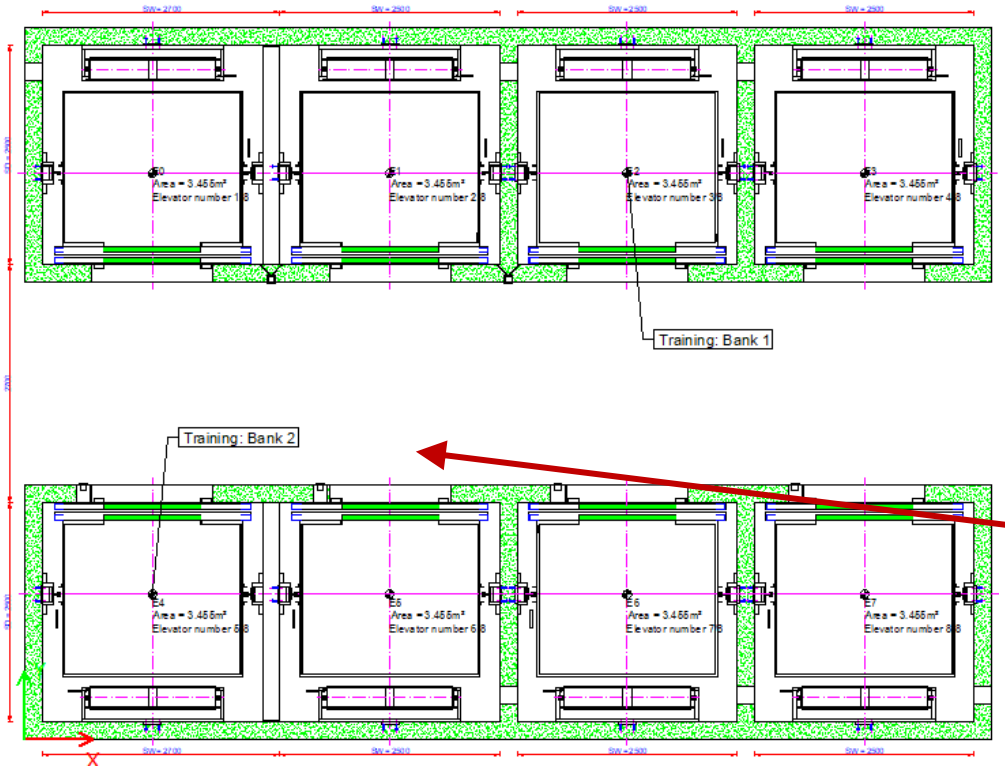
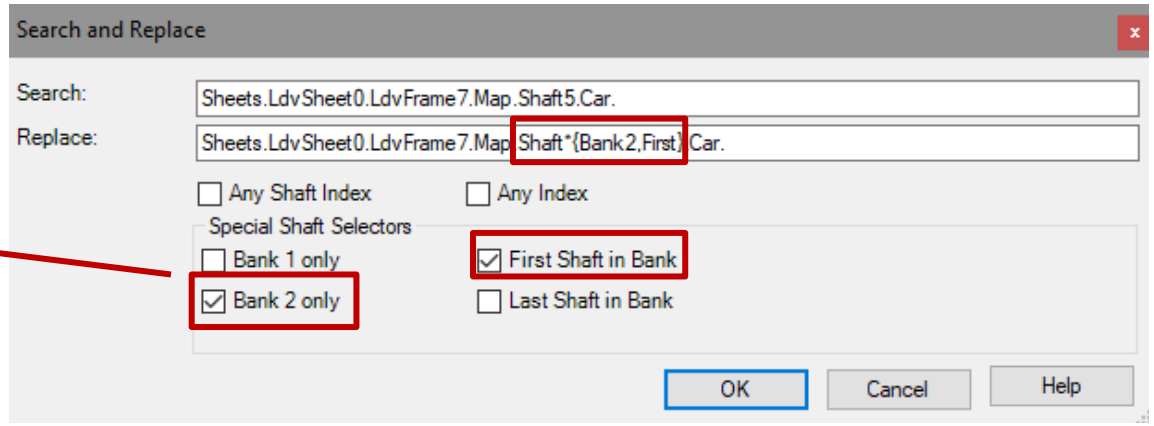
Practical Example 3: *{Bank2, First}

- second Annotation is always placed at the first shaft of Bank 2





Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Annotation Overwrites in Vertical Views

- Using overwrites for comments for more dynamic view frames

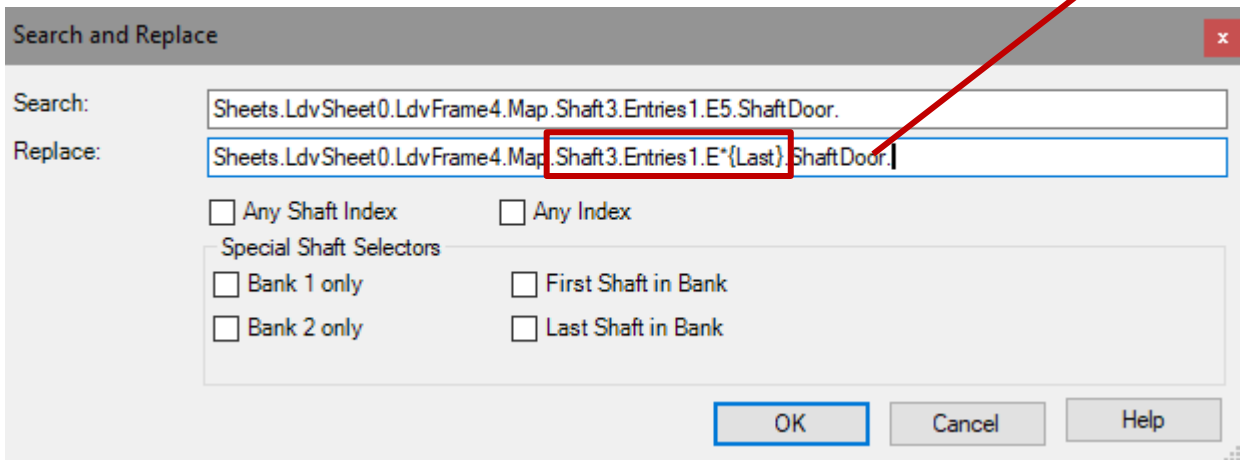
With Index	With *
Shaft0: first shaft	Shaft*: all shafts
Entries1: entrances on the front	Entries*: all entrances on all sides
E0: first floor	E*: all floors

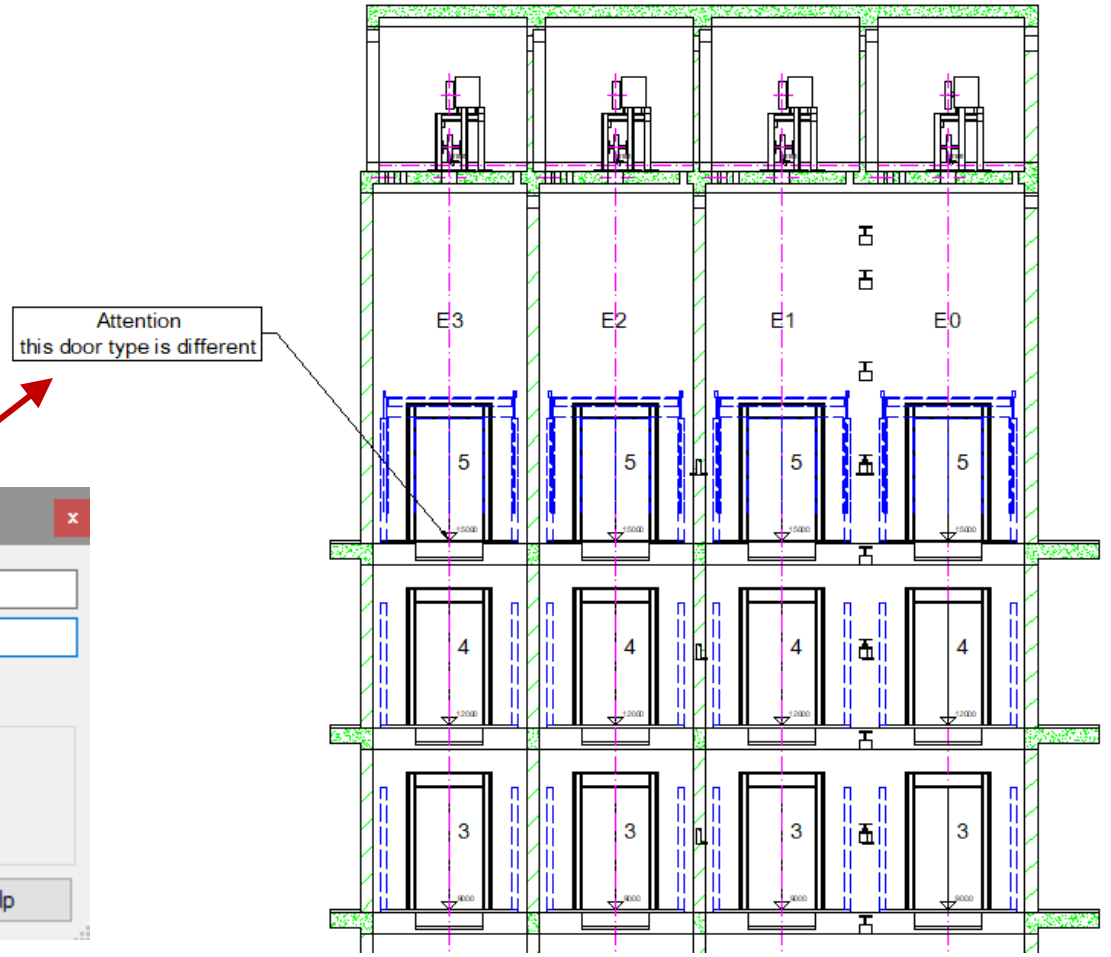
Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Practical Example 1: Shaft3.Entries1.E*{Last}

- Annotation only on 4th shaft, front, top floor





Shaft Group Annotations

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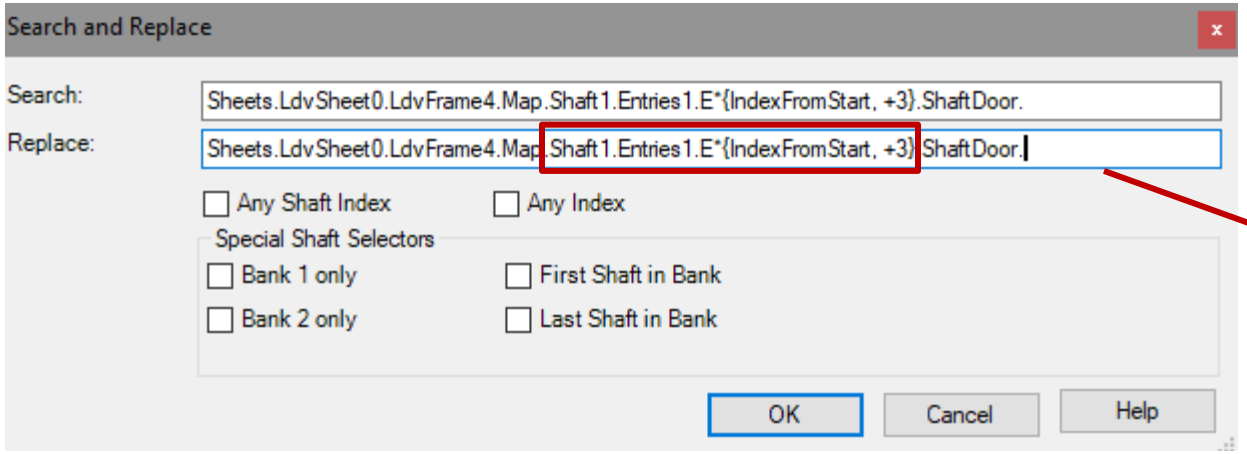
Practical Example 2: Shaft1.Entries1.E*{IndexFromStart, +3}

- Annotation only on second shaft, front, 3rd floor from start
- Index of the shaft can also be edited manually
  - e.g. Shaft3 -> Shaft1

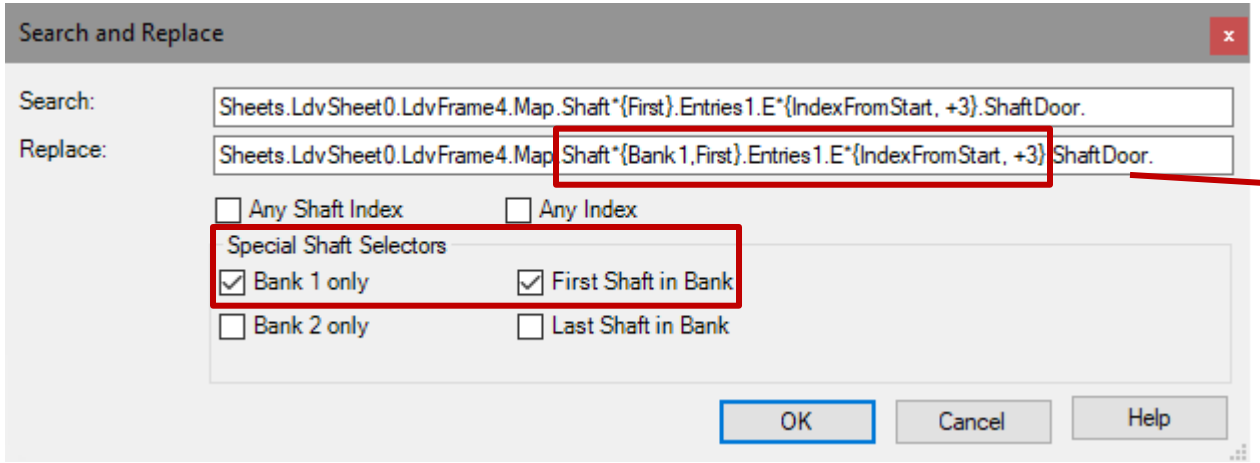


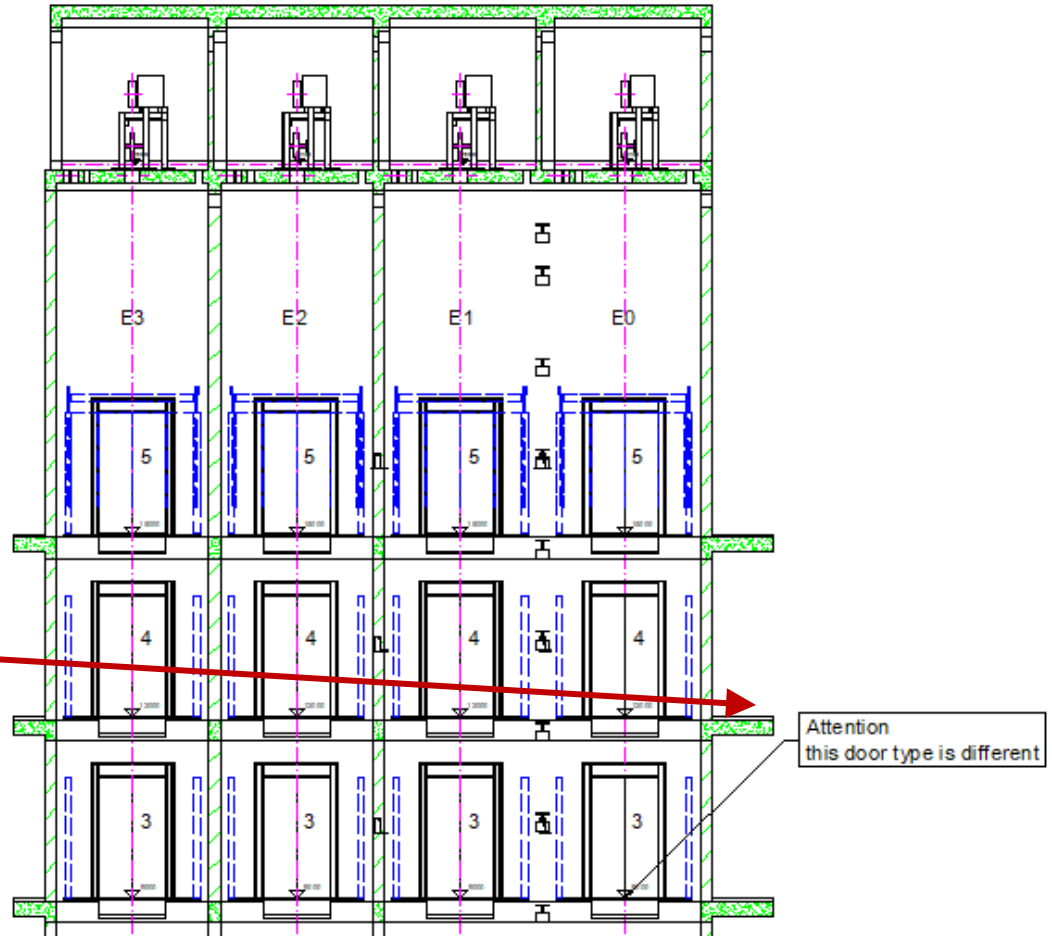
Shaft Group Annotations

EL2.5 SHEET TEMPLATES

Practical Example 3:
Shaft*{First, Bank 1}.Entries1.E*{IndexFromStart, +3}

- Annotation only on Bank 1, first shaft, front, 3rd floor from start
- Attention: In which bank do I need the annotation?
  - Imagine a colleague rotates the view frame and the second bank is visible





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EL2.6

Summary & custom Q&A‘s

Congratulations

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Your instructor will be available for individual questions after the module training.

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