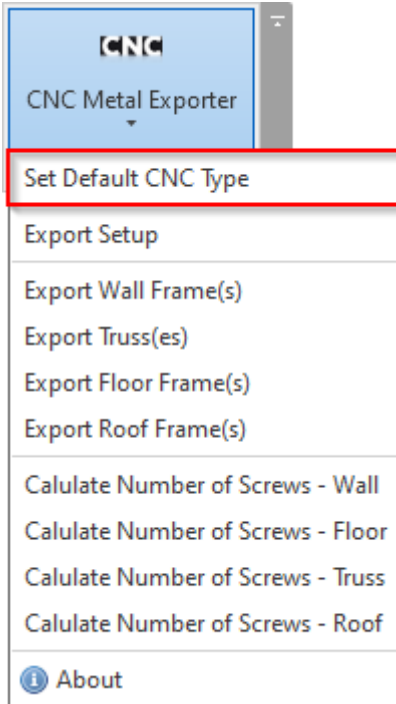# FEATURES

Modified on: Thu, 19 Aug, 2021 at 6:59 PM

Set Default CNC Type
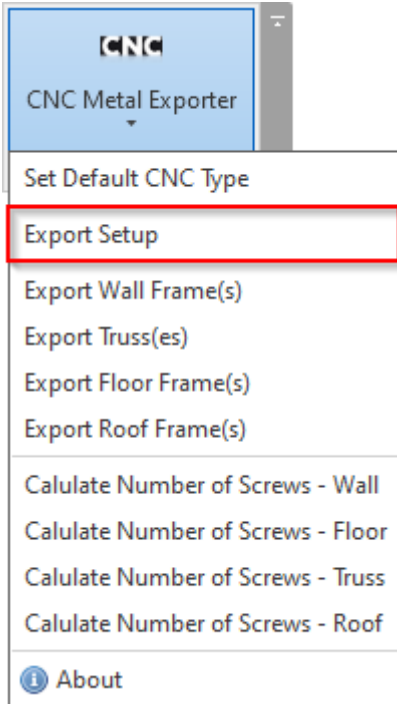

Set Default CNC Type – default configurations for exporting to the most popular CNC machines: **Howick**, **Metroll**, **Pinnacle**, **Royal C.N.C.**, **(https://agacad.com/products/bim-solutions/metal-framing-cnc-exporters/overview#howick)**and **Scottsdale**. You can modify them or create new ones. Configuration names can be written to the wall, floor, roof, or truss types in the project. In such cases, different elements may be exported to different CNC machines or using different settings.
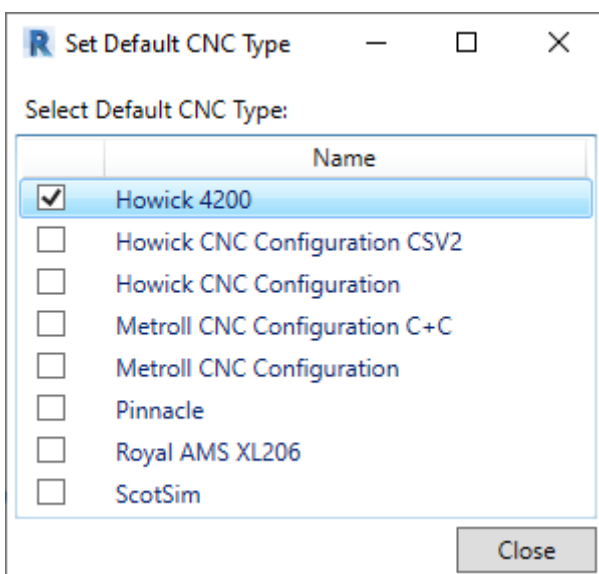
Note: these configurations are just sample configurations, where users can modify it according to different machines including profile sizes, commands etc.

Read more >> (https://agacad.freshdesk.com/support/solutions/articles/44002138511-set-new-of-modify-cnc-type).

Export Setup

Export Setup – common export settings where you can predefine the exported file location. An additional setting lets you instruct that labels be printed on the reverse side of the frame, if needed. Also it allows to inverse commands in the exported CNC file.

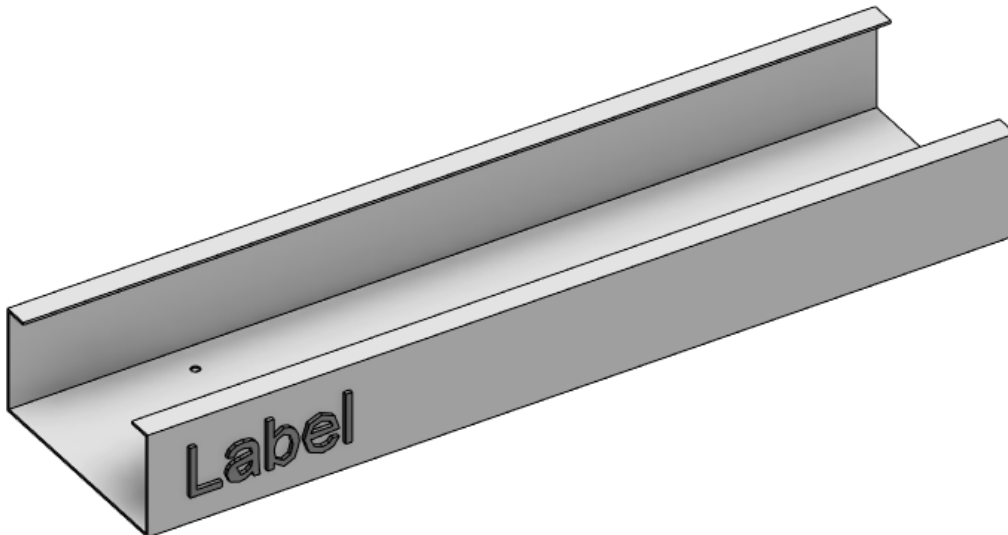*Note: setup setting can be different depending on selected CNC machine.*

The predefined export file location may be the same where the Revit project file is located or any other custom location:
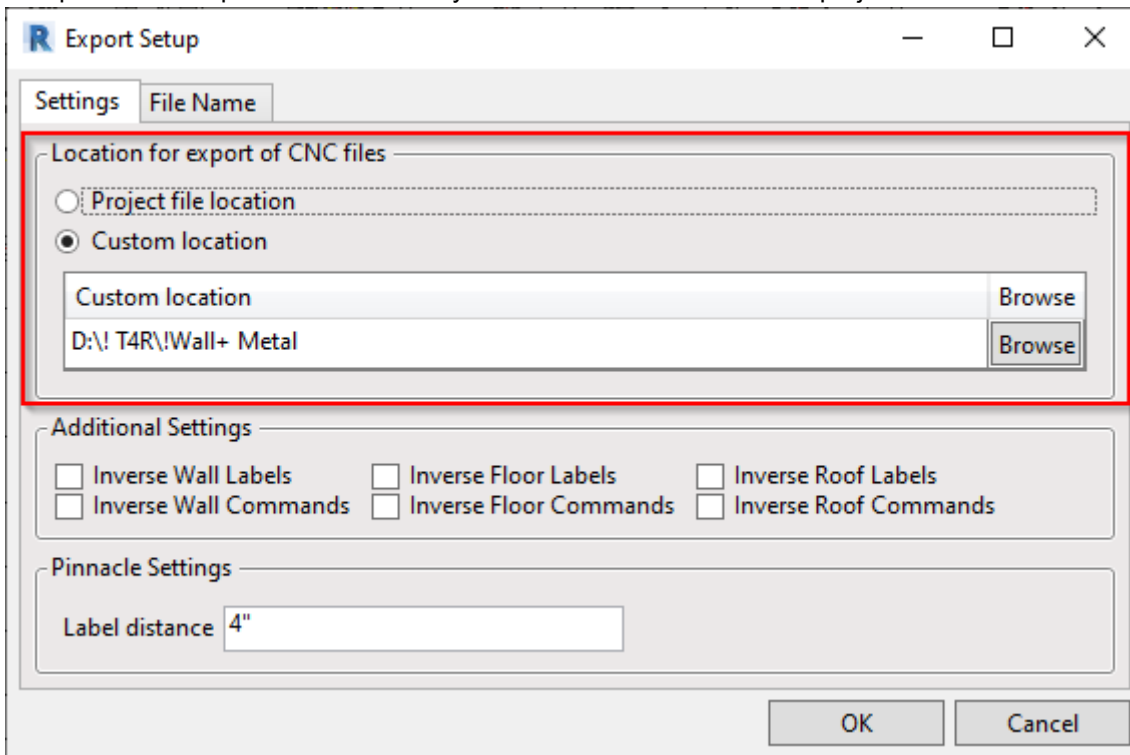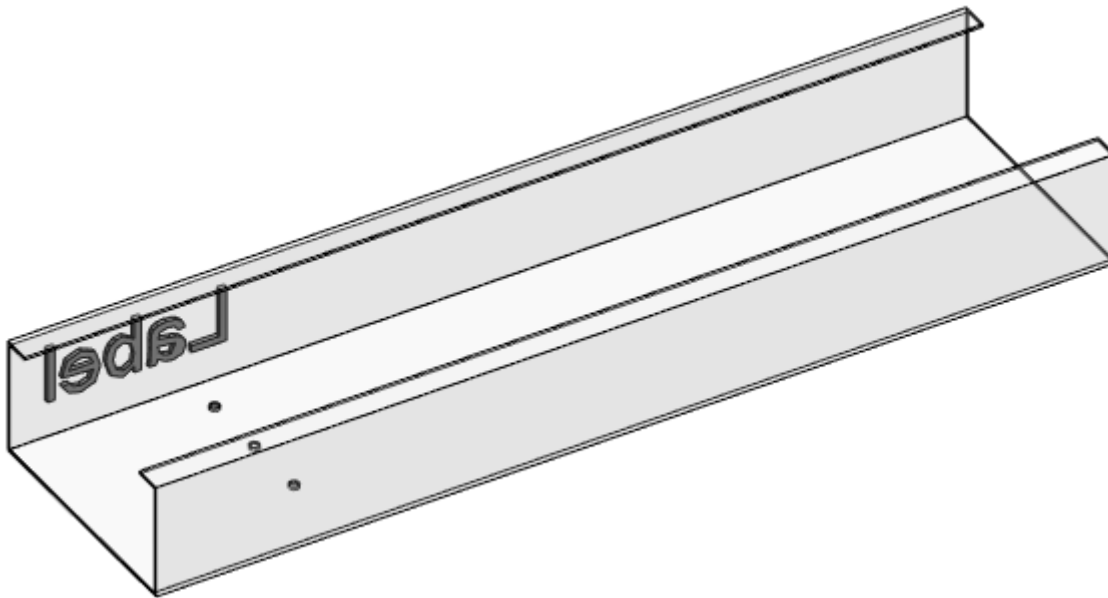

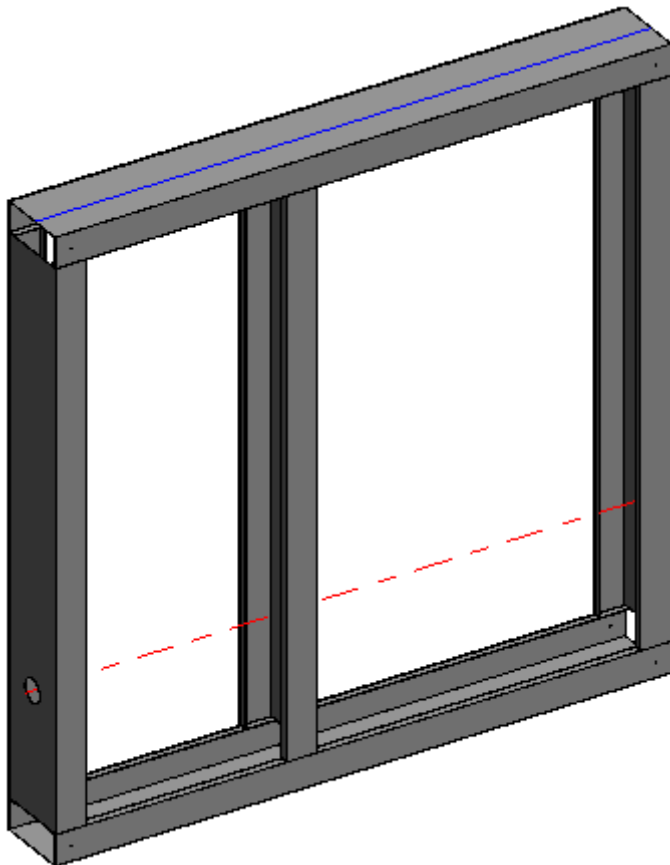**Inverse Wall, Floor, Roof Labels** – labels may be printed on the reverse side of the frame.
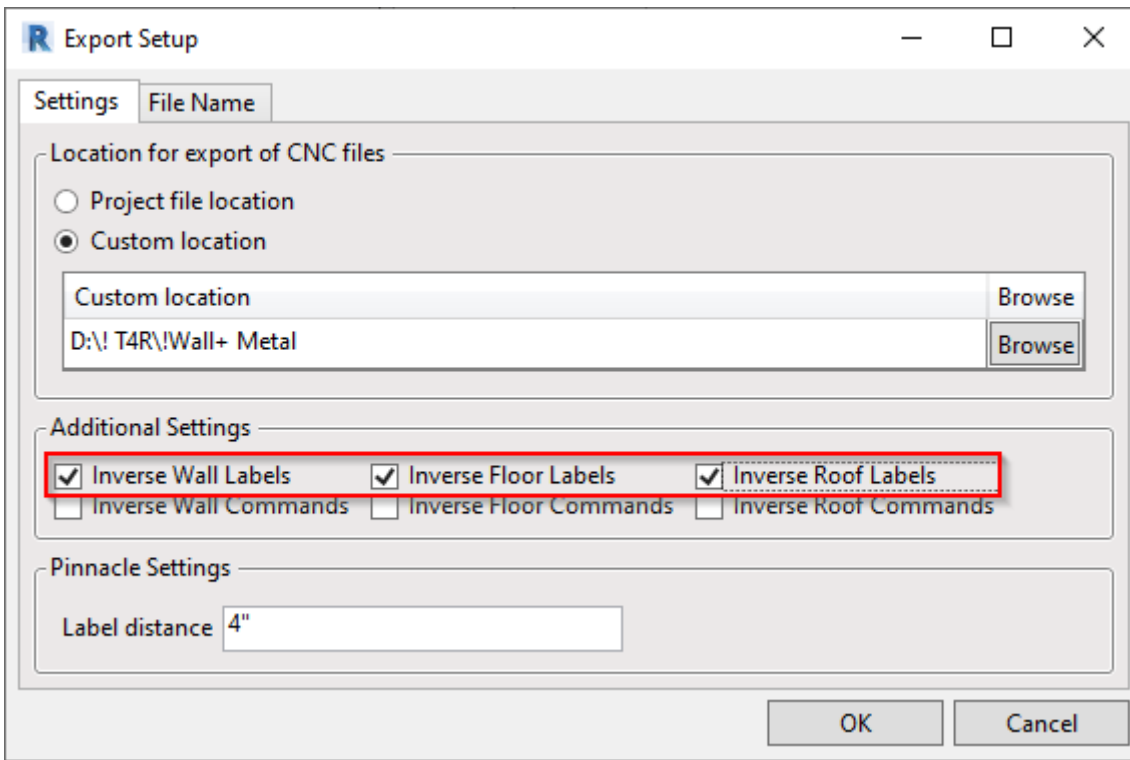
Example with a label:

Inversed label:

Let's make one more example when a simple frame is exported:

Inverse Labels is switched OFF:

```
Wall_W-1-1.50.csv
1    UNIT;MILLIMETRE
2    VERSION,2.0
3    PROFILE;my profile
4    FRAMESET;W-1;0001
5    COMPONENT;BP-1;LABEL_INV;1;1000.00;C;120.00;50.80;1.50;none,0.00,25.40,1000.00,25.40;LIP_CUT;19.50;LIP_CUT;600.00;LIP_CUT;980.50
6    COMPONENT;TP-1;LABEL_NRM;1;1000.00;C;120.00;50.80;1.50;none,0.00,974.60,1000.00,974.60;LIP_CUT;19.50;LIP_CUT;600.00;LIP_CUT;980.50
7    COMPONENT;SS-1;LABEL_NRM;1;898.40;C;120.00;50.80;1.50;none,25.40,50.80,25.40,949.20;SWAGE;27.50;SWAGE;870.90
8    COMPONENT;SS-1;LABEL_INV;1;898.40;C;120.00;50.80;1.50;none,974.60,50.80,974.60,949.20;SWAGE;27.50;SWAGE;870.90
9    COMPONENT;VS-1;LABEL_NRM;1;898.40;C;120.00;50.80;1.50;none,600.00,50.80,600.00,949.20;SWAGE;27.50;SWAGE;870.90
```

Inverse Labels is switched ON:

```
 Wall_W-1.50.csv
1   UNIT;MILLIMETRE
2   VERSION,2.0
3   PROFILE;my profile
4   FRAMESET;W-1;0001
5   COMPONENT;BP-1;LABEL_NRM;1;1000.00;C;120.00;50.80;1.50;none,0.00,25.40,1000.00,25.40;LIP_CUT;19.50;LIP_CUT;600.00;LIP_CUT;980.50
6   COMPONENT;TP-1;LABEL_INV;1;1000.00;C;120.00;50.80;1.50;none,0.00,974.60,1000.00,974.60;LIP_CUT;19.50;LIP_CUT;600.00;LIP_CUT;980.50
7   COMPONENT;SS-1;LABEL_INV;1;898.40;C;120.00;50.80;1.50;none,25.40,50.80,25.40,949.20;SWAGE;27.50;SWAGE;870.90
8   COMPONENT;SS-1;LABEL_NRM;1;898.40;C;120.00;50.80;1.50;none,974.60,50.80,974.60,949.20;SWAGE;27.50;SWAGE;870.90
9   COMPONENT;VS-1;LABEL_INV;1;898.40;C;120.00;50.80;1.50;none,600.00,50.80,600.00,949.20;SWAGE;27.50;SWAGE;870.90
```
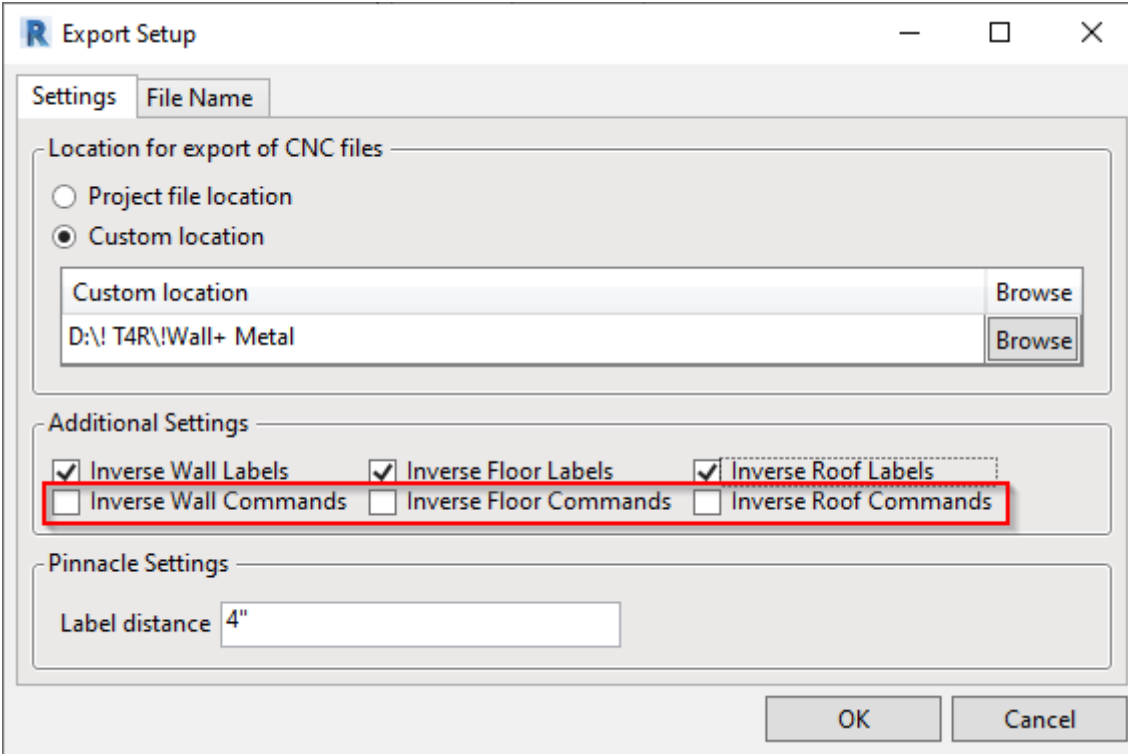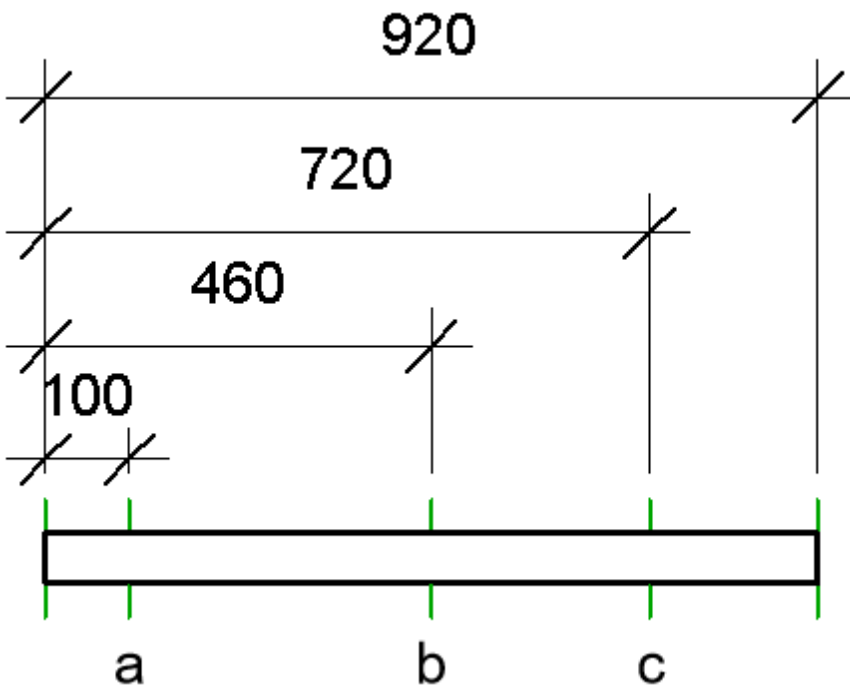
Inverse Wall, Floor, Roof Commands – inverses commands in the exported CNC file.


Example: here is a beam with commands a, b and c:

*If **Inverse Wall, Floor, Roof Commands** is switched OFF then the order in CNC file is:*
Beam Mark, beam length, command a 100, command b 460, command c 720.

*If **Inverse Wall, Floor, Roof Commands** is switched ON then the order in CNC file is:*
Beam Mark, beam length, command c 200, command b 460, command a 820.

*Let's make one more example when a simple frame is exported:*
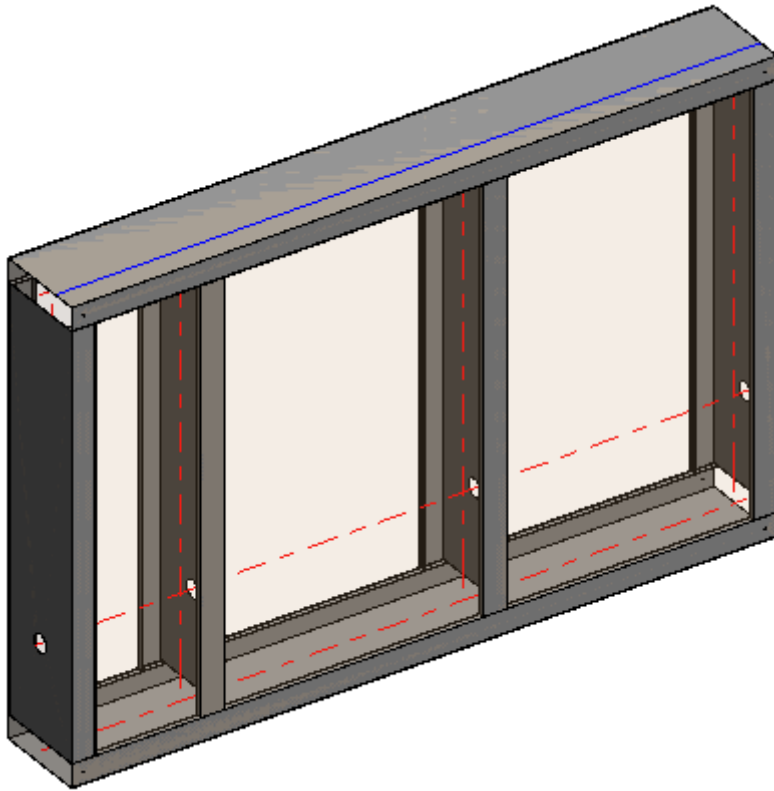
Inverse Wall, Floor, Roof Commands *is switched OFF and then switched ON:*

```
UNIT,MILLIMETRE
PROFILE,DEFAULT_PROFILE
FRAMESET,W-1,0001
COMPONENT,BP-1,LABEL_NRM,1,1500.00,LIP_CUT,23.00,FLANGE1,25.40,FLANGE1,600.00,LIP_CUT,600.00,FLANGE1,1200.00,LIP_CUT,1200.00,FLANGE1,1474.60,LIP_CUT,1477.00
COMPONENT,TP-1,LABEL_INV,1,1500.00,LIP_CUT,23.00,FLANGE1,25.40,FLANGE1,600.00,LIP_CUT,600.00,FLANGE1,1200.00,LIP_CUT,1200.00,FLANGE1,1474.60,LIP_CUT,1477.00
COMPONENT,SS-1,LABEL_INV,1,898.40,FLANGE1,25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,923.80
COMPONENT,SS-1,LABEL_NRM,1,898.40,FLANGE1,25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,923.80
COMPONENT,VS-1,LABEL_INV,1,898.40,FLANGE1,25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,923.80
COMPONENT,VS-1,LABEL_INV,1,898.40,FLANGE1,25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,923.80
```

```
UNIT,MILLIMETRE
PROFILE,DEFAULT_PROFILE
FRAMESET,W-1,0001
COMPONENT,BP-1,LABEL_NRM,1,1500.00,LIP_CUT,23.00,FLANGE1,25.40,LIP_CUT,300.00,FLANGE1,300.00,LIP_CUT,900.00,FLANGE1,900.00,FLANGE1,1474.60,LIP_CUT,1477.00
COMPONENT,TP-1,LABEL_INV,1,1500.00,LIP_CUT,23.00,FLANGE1,25.40,LIP_CUT,300.00,FLANGE1,300.00,LIP_CUT,900.00,FLANGE1,900.00,FLANGE1,1474.60,LIP_CUT,1477.00
COMPONENT,SS-1,LABEL_INV,1,898.40,FLANGE1,-25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,873.00
COMPONENT,SS-1,LABEL_NRM,1,898.40,FLANGE1,-25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,873.00
COMPONENT,VS-1,LABEL_INV,1,898.40,FLANGE1,-25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,873.00
COMPONENT,VS-1,LABEL_INV,1,898.40,FLANGE1,-25.40,SWAGE,27.50,SWAGE,870.90,FLANGE1,873.00
```

If you would like to inverse labels or commands <u>only for some element types</u> or <u>individual elements</u>, add a Yes/No Instance or Type parameter to your families (or create a Project parameter).
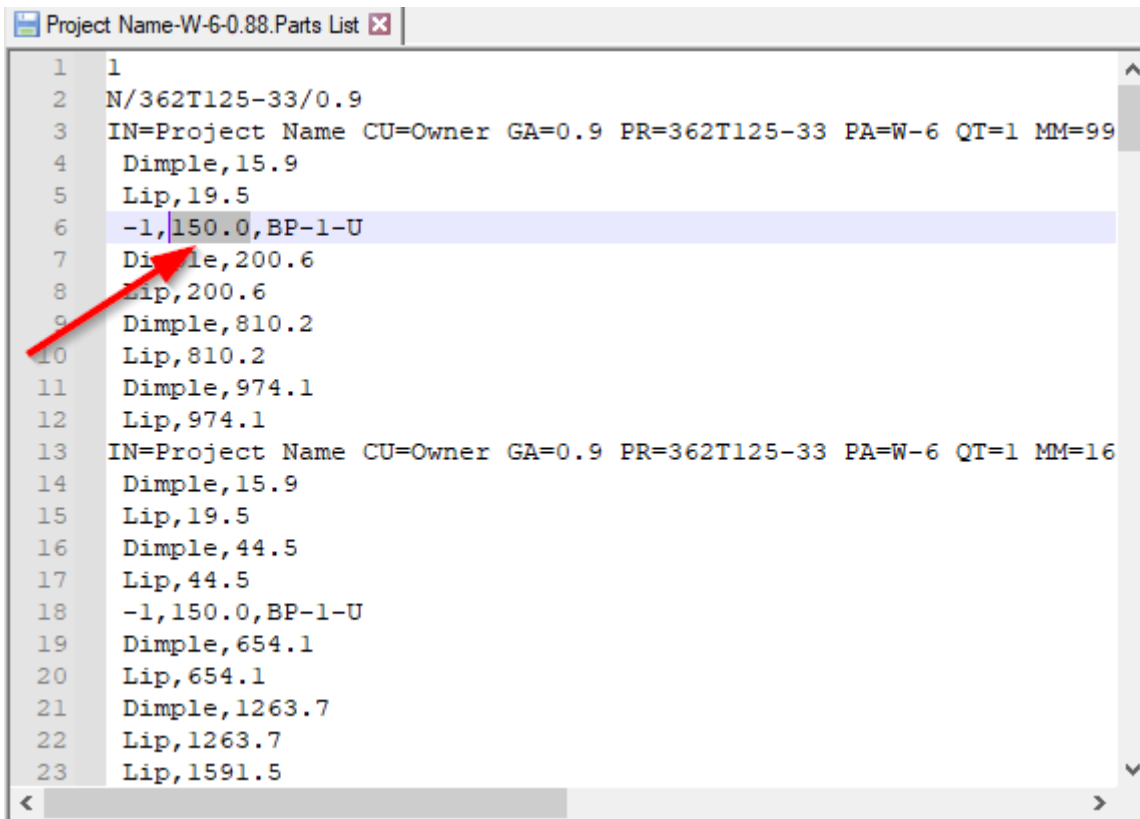
Parameter name – "Inverse Label" for labels, "Inverse Commands" for command reverse.
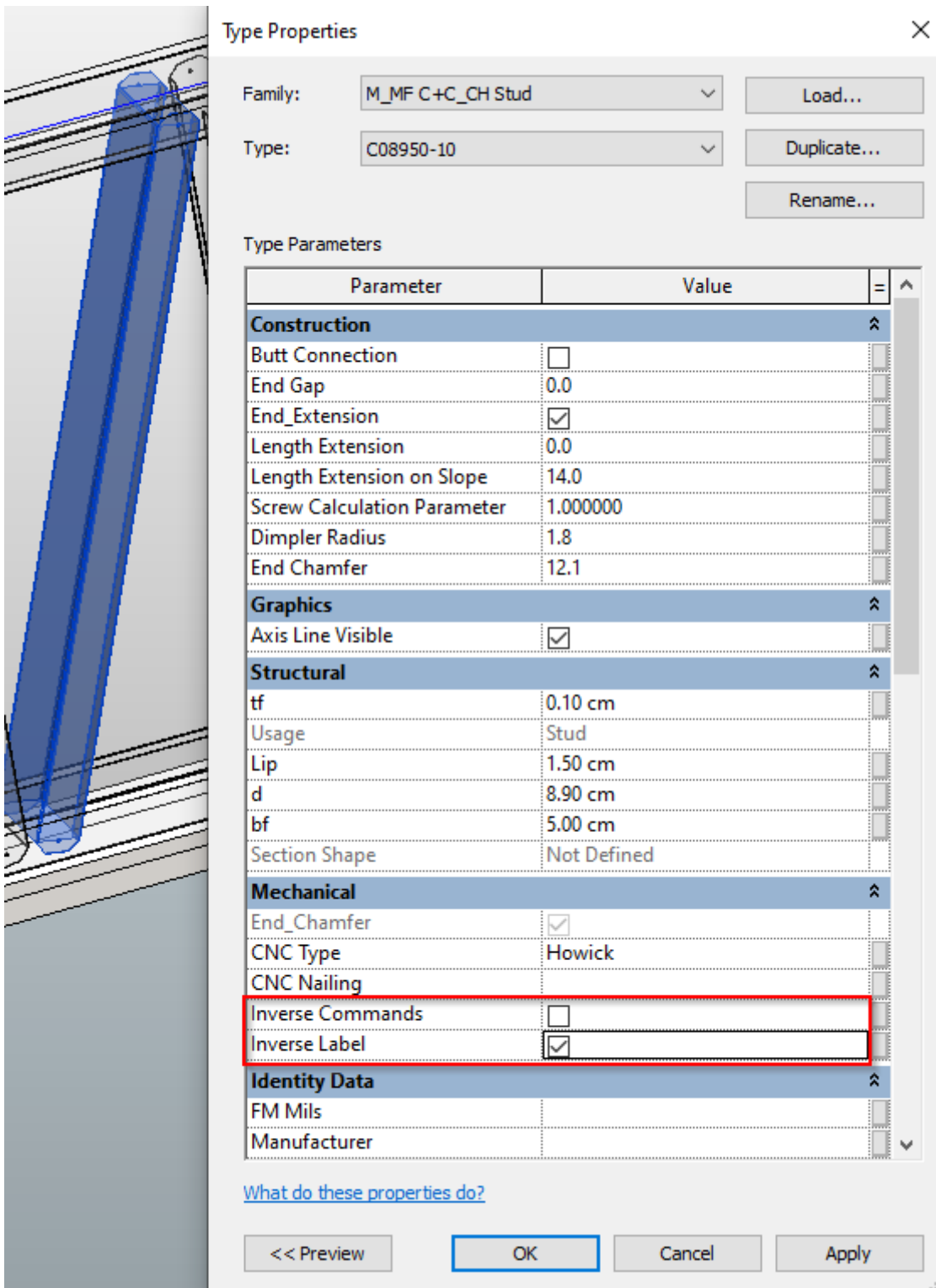
Label distance *(Special feature for Pinnacle machine)* – define distance from the frame beginning till the label (mark).
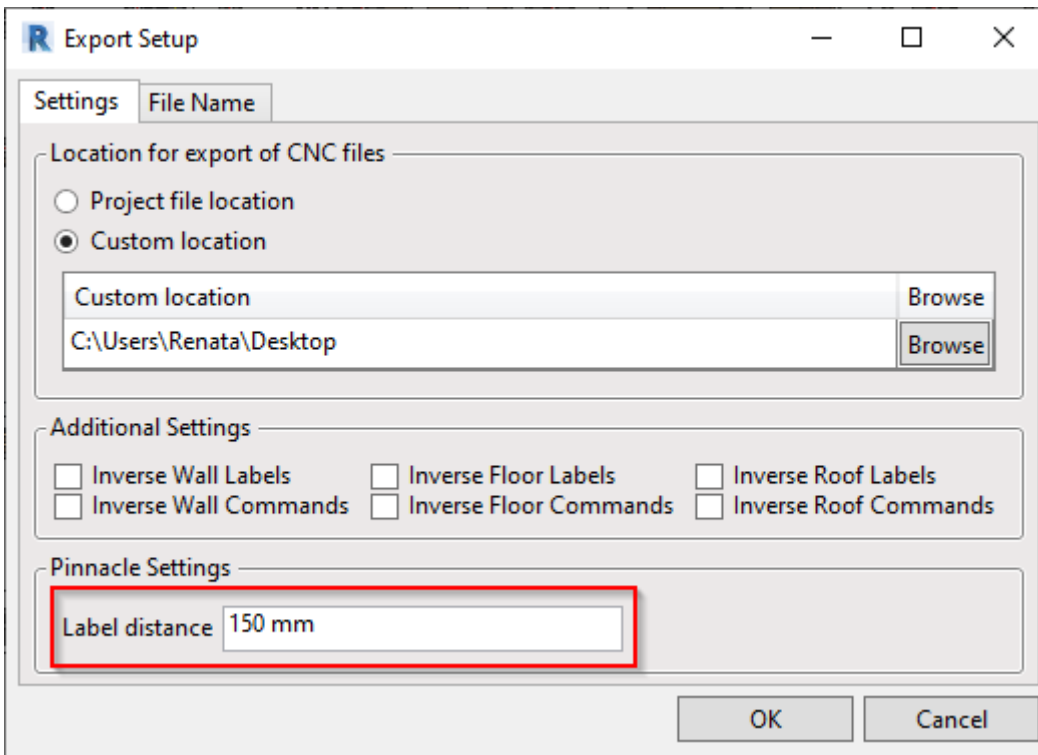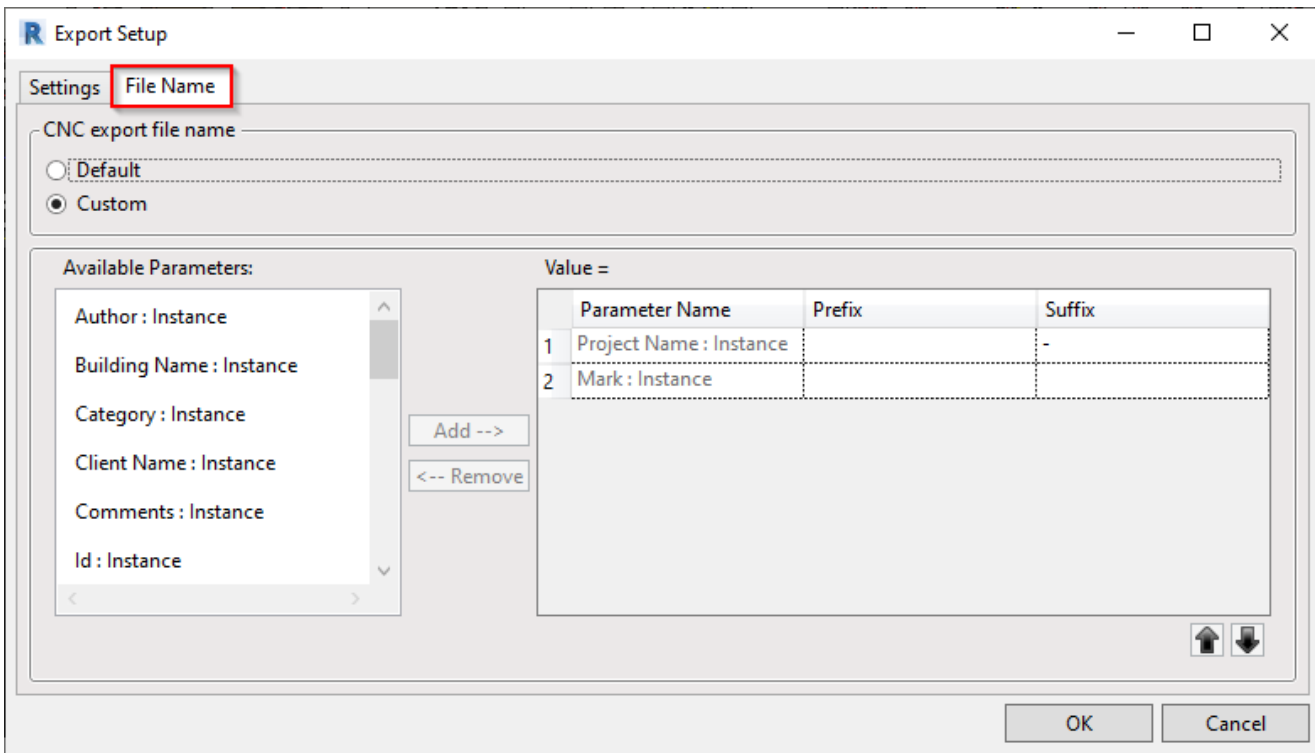
Result in the file:

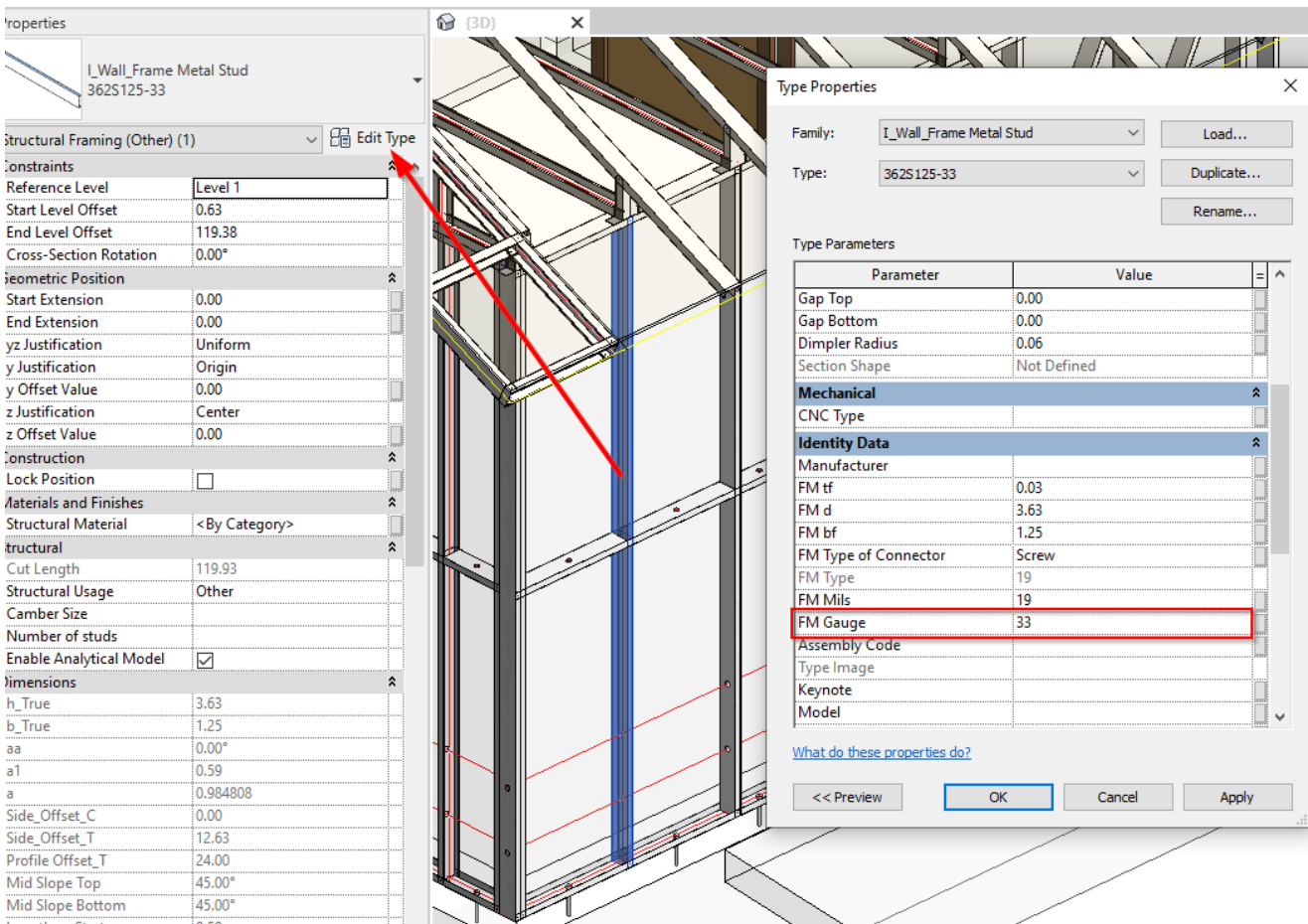**File Name** (*Special feature for Pinnacle machine*) – define exported file name. Under Available Parameters you will see possible parameters from project and element. The last value of naming is **FM Gauge** value by default.

**FM Gauge** is type parameter in the frame element which shows metal thickness.

Example, file name includes Project Name (Hotel Verona) + wall Mark number (W-6) + FM Gauge value (33):

· Imperial_Demo_Wall_Truss_Metal_Framing_2015_14_11_27_Walls_2021 08 11 21 31

Name	Date modified	Type
Hotel Verona-W-6-33.Parts List	2021-08-11 21:31	File

Export Wall Frame(s), Truss(es), Floor Frame(s), Roof Frame(s)
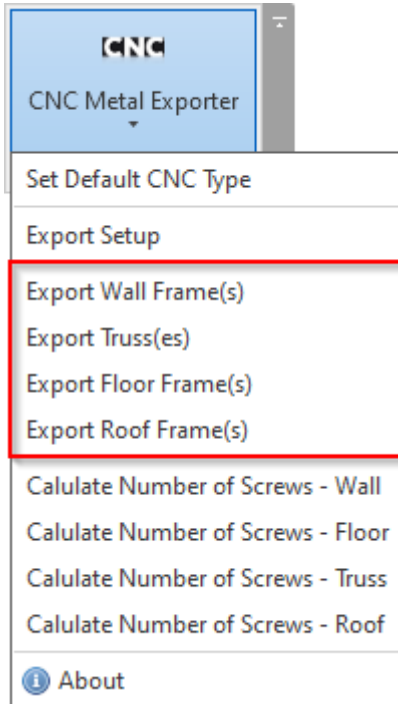
Export Wall Frame(s), Truss(es), Floor Frame(s), Roof Frame(s) – exports selected wall, floor, truss, or roof frames to the predefined CNC machine. **CNC Metal Exporter** must be used in tandem with AGACAD Metal Framing BIM software (https://agacad.com/products/bim-solutions/metal-framing-professional-suite), which creates framing elements with all the necessary geometry and information data inside the Revit project.

Example, select a wall that has been created using **Metal Framing Wall** *(https://agacad.com/products/bim-solutions/metal-framing-wall/overview):*
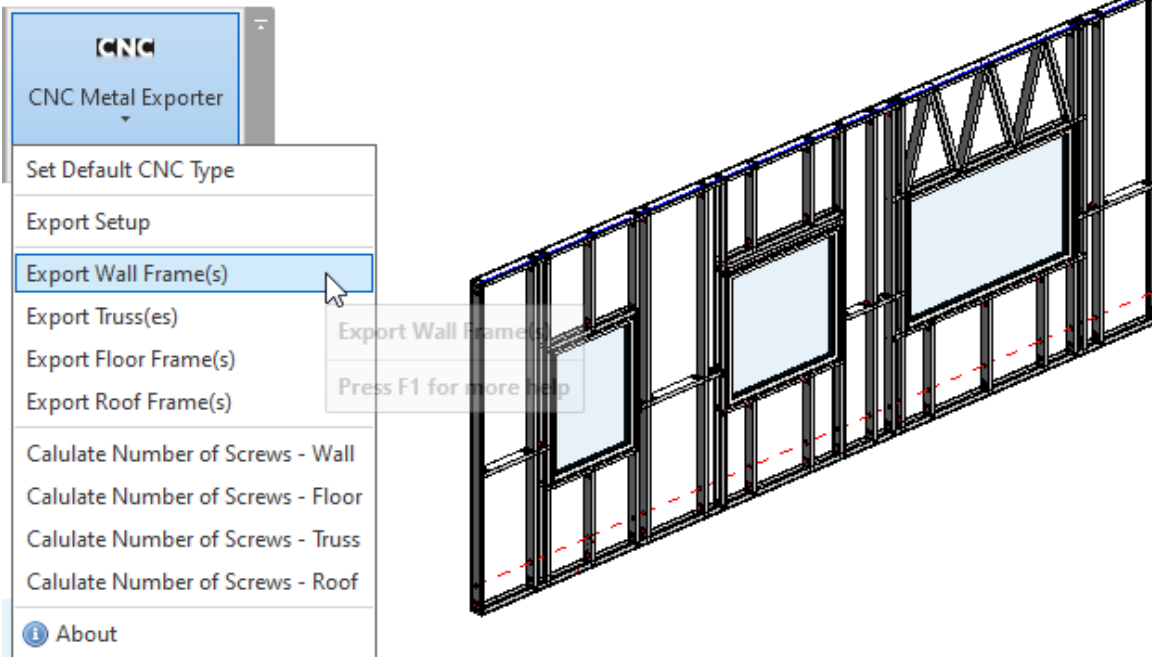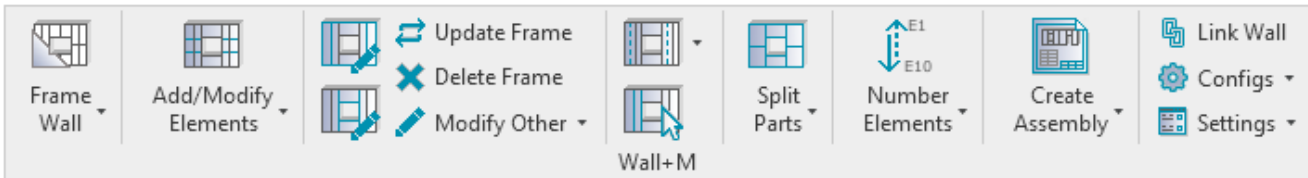
*Example, CSV file has been created with all information from the selected wall. This file can be now pushed to the CNC machine for production:*

```
📙 Wall_W-2-1.00.csv ❎
  1   UNIT;MILLIMETRE
  2   VERSION,2.0
  3   PROFILE;Profile name
  4   FRAMESET;W-2;Project Number
  5   COMPONENT;BP-1;LABEL_INV;1;7200.00;C;89.00;41.30;1.00;none,0.00,20.65,7200.00,20.
  6   COMPONENT;HP-1;LABEL_INV;1;997.60;C;89.00;41.30;1.00;none,708.70,2140.65,1706.30,2
  7   COMPONENT;HP-3;LABEL_INV;1;1261.30;C;89.00;1.00;1.00;none,2594.35,2120.50,3855.65,
  8   COMPONENT;HP-4;LABEL_INV;1;1302.60;C;89.00;41.30;1.00;none,2573.70,2230.65,3876.30
  9   COMPONENT;HP-5;LABEL_INV;1;2065.20;C;89.00;41.30;1.00;none,4384.90,2140.65,6450.10
 10   COMPONENT;SBP-1;LABEL_NRM;1;682.50;C;89.00;41.30;1.00;none,3835.00,1250.00,4517.50
 11   COMPONENT;SBP-2;LABEL_NRM;1;750.00;C;89.00;41.30;1.00;none,0.00,1250.00,750.00,125
 12   COMPONENT;SBP-3;LABEL_NRM;1;882.50;C;89.00;41.30;1.00;none,6317.50,1250.00,7200.00
 13   COMPONENT;SBP-4;LABEL_NRM;1;950.00;C;89.00;41.30;1.00;none,1665.00,1250.00,2615.00
 14   COMPONENT;SP-1;LABEL_NRM;1;997.60;C;89.00;41.30;1.00;none,708.70,879.35,1706.30,87
 15   COMPONENT;SP-2;LABEL_NRM;1;1302.60;C;89.00;41.30;1.00;none,2573.70,879.35,3876.30,
 16   COMPONENT;SP-3;LABEL_NRM;1;2065.20;C;89.00;41.30;1.00;none,4384.90,879.35,6450.10,
 17   COMPONENT;TP-1;LABEL_NRM;1;7200.00;C;89.00;41.30;1.00;none,0.00,2979.35,7200.00,25
 18   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,4820.40,1.00,4820.40,899
 19   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,5417.50,1.00,5417.50,899
 20   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,6014.60,1.00,6014.60,899
 21   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,2925.00,1.00,2925.00,899
 22   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,3525.00,1.00,3525.00,899
 23   COMPONENT;BC-1;LABEL_NRM;1;898.00;C;89.00;41.30;1.00;none,1207.50,1.00,1207.50,899
```
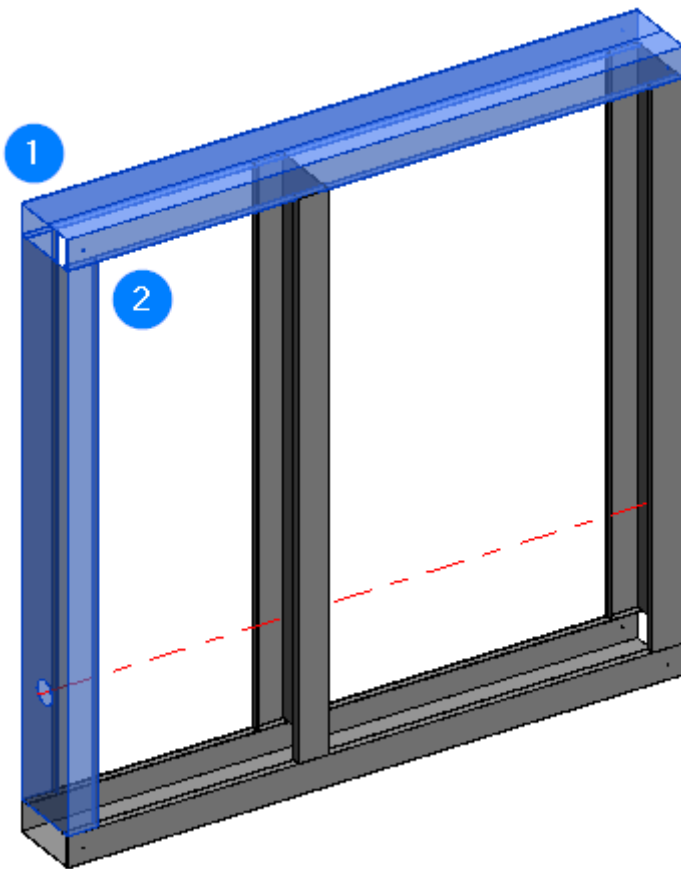
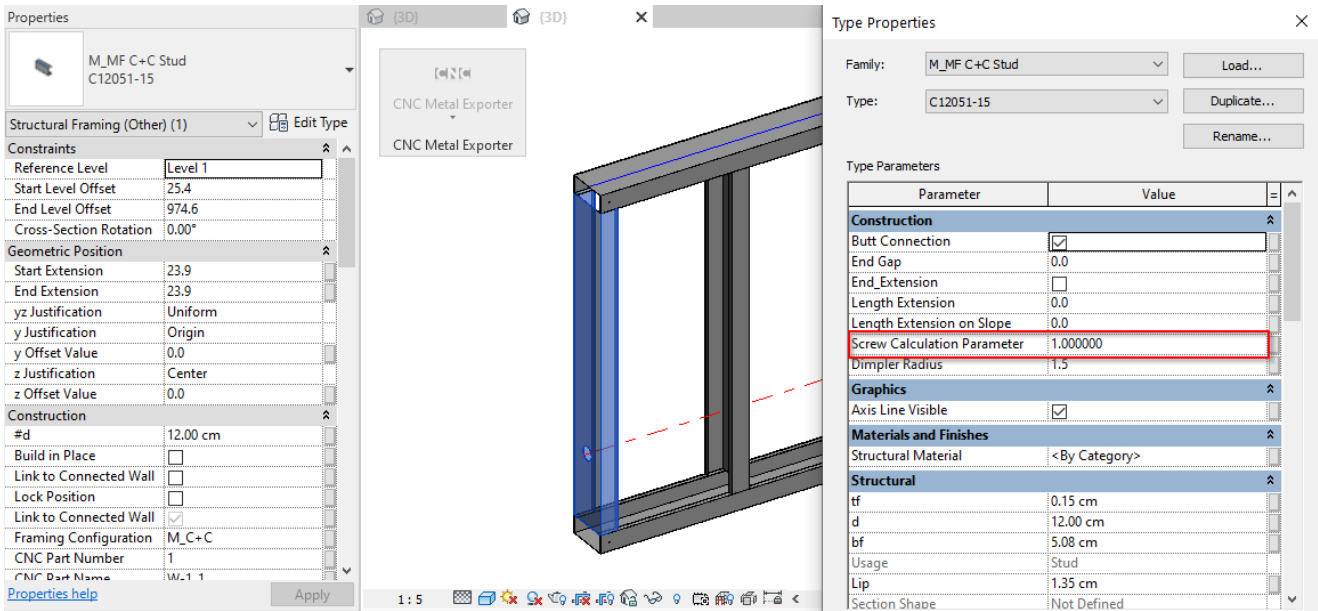## Calculate Number of Screws - Wall, Floor, Truss, Roof
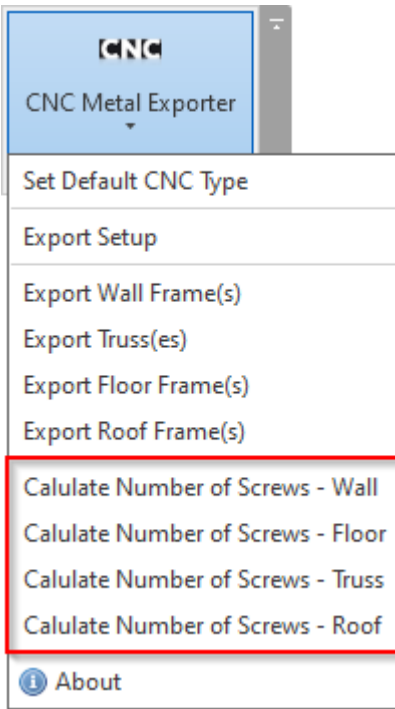
Calculate Number of Screws - Wall, Floor, Truss, Roof – calculates the number of screws needed for the selected wall, floor, truss, or roof frames.

Example, this is a simple wall frame. The selected stud and top plate have a connection at two points from both sides. Each element will have one connection point:

*In some cases a connection between elements can be screwed two or more times from one side. In such cases you can modify the **Screw Calculation Parameter** in element type parameters. The default value of 1 means that elements will be screwed one time from one side. This parameter value is multiplied by the defined connections.*

Before using **Calculate Number of Screws - Wall, Floor, Truss, Roof**, *renumber elements with* **Wall+M**, **Floor+M**, **Roof+M → Number Elements**:
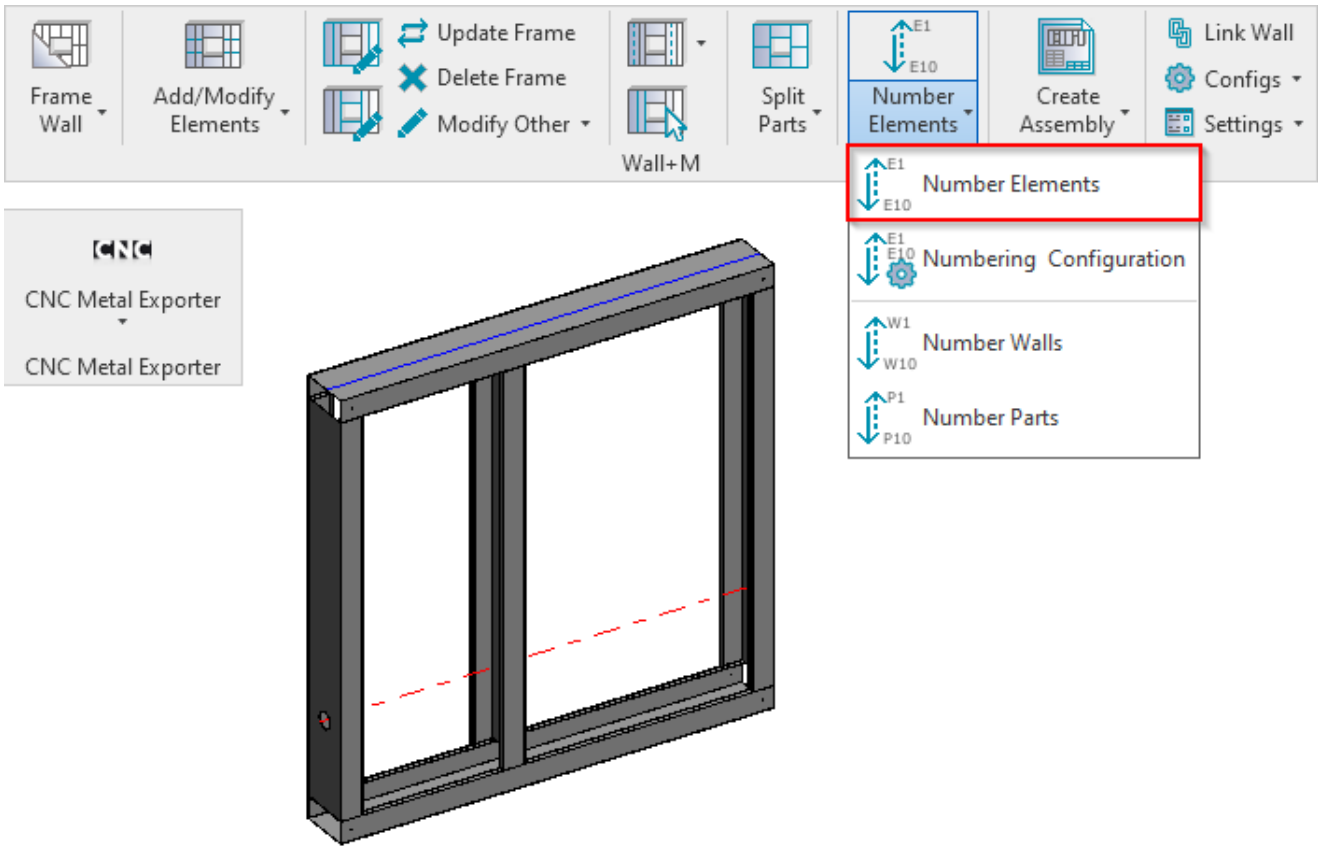
Click **Calculate Number of Screws - Wall**.

Select a frame stud or plate → Go to instance properties → Under **Identity Data**, *find* **FM Number of Connectors** *parameter with result:*

Properties	×

M_MF C+C Stud
C12051-15

Structural Framing (Other) (1)   ∨   Edit Type

Elevation at Bottom	Varies
Identity Data	
FM HostSortMark	
FM Number of Connectors	2.000000
Image	
Comments	
Mark	
FM Module Type	Stud
FM Module Mark	W-1
FM Module Preassembled	✓
Framing Member Description	Stud
Framing Member Volume	0.000 m³
Framing Member Type	Stud
Framing Member Mark	VS
FM SortMark	VS-1
Framing Member	Stud
Framing	Wall
FM HostMemberSortMark	W-1
Framing Layer	Frame

This parameter can be used in the schedules and summed for the total screw count for the whole wall:

<Wall Framing Schedule>				
A	**B**	**C**	**D**	**E**
Framing Member	FM SortMark	Count	Cut Length	FM Number of Connectors
W-1				
Bottom Plate	BP-1	1	1000	3
Service Holes	SHO-1	1	949	0
Side Stud	SS-1	2	898	4
Stud	VS-1	1	898	2
Top Plate	TP-1	1	1000	3
6				12