



# Tutorial TecnoMETAL



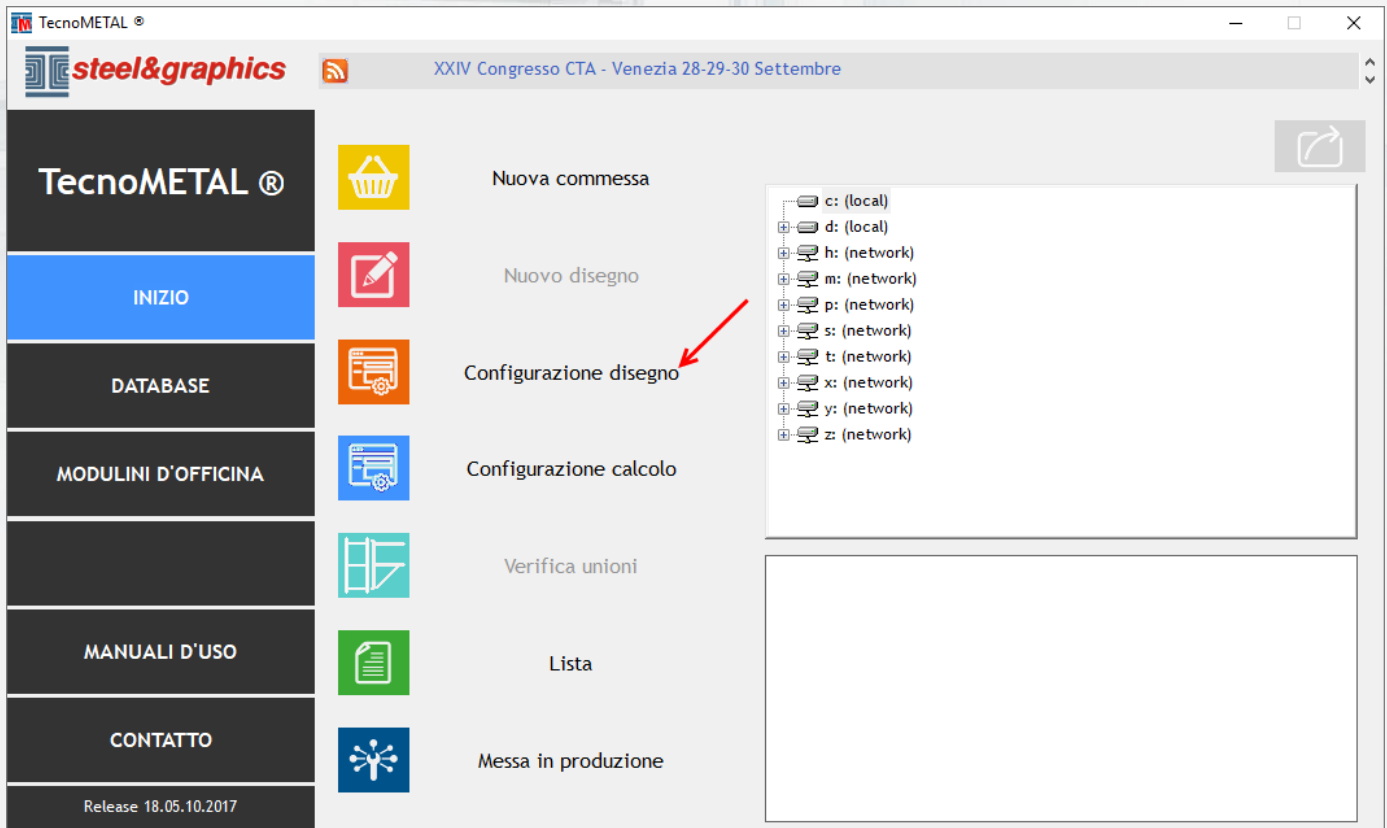
## Lesson 1 Structure modeling with TecnoMETAL

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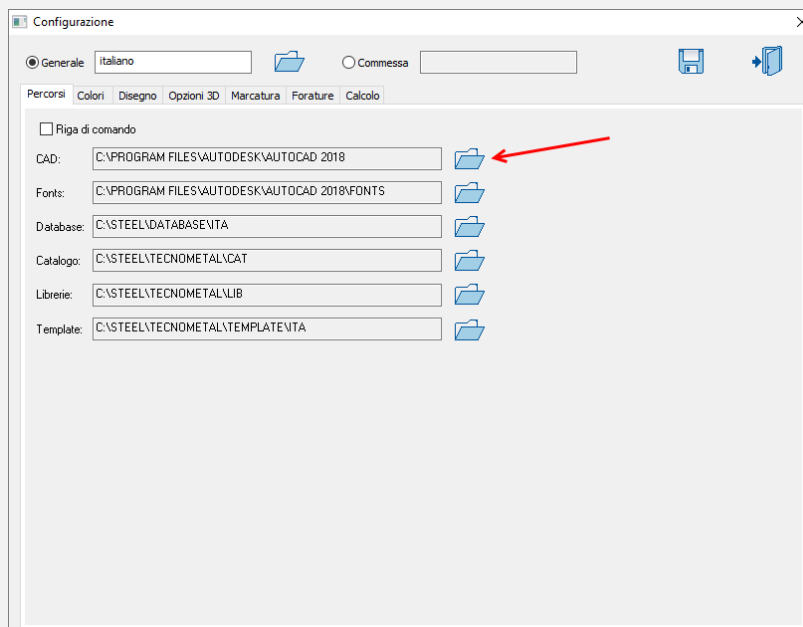


## First steps to create a work with TecnoMETAL

Click the TecnoMETAL icon on your desktop to open the integrated environment, that allows you to manage jobs depending on the nature of the file and folders processing.



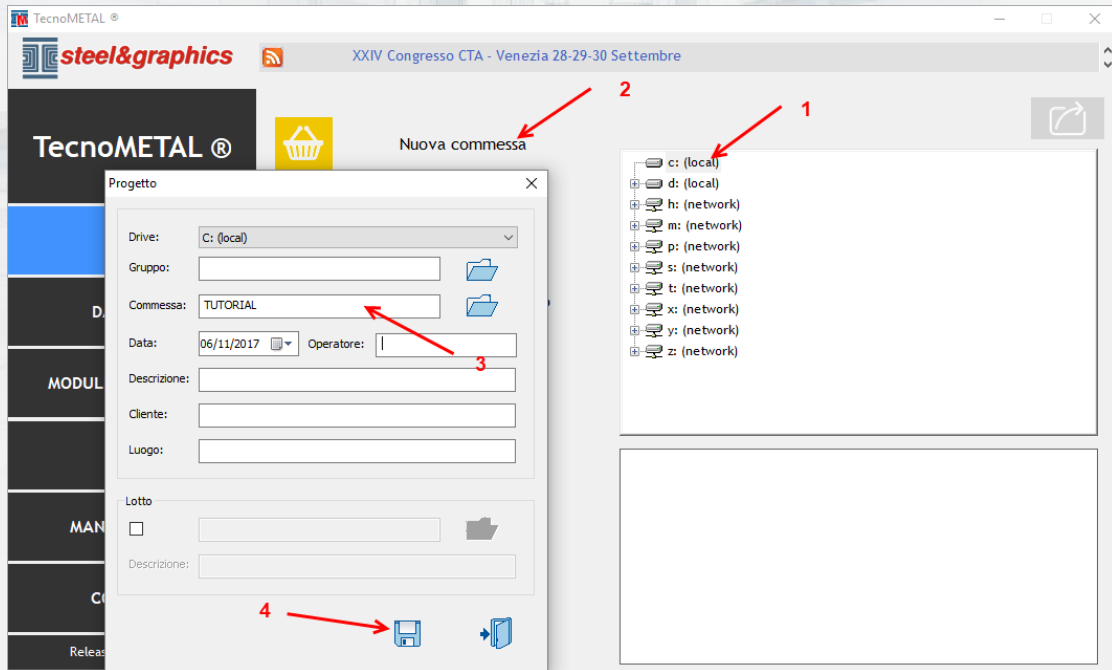
Verify the CAD directory in the drawing configuration:



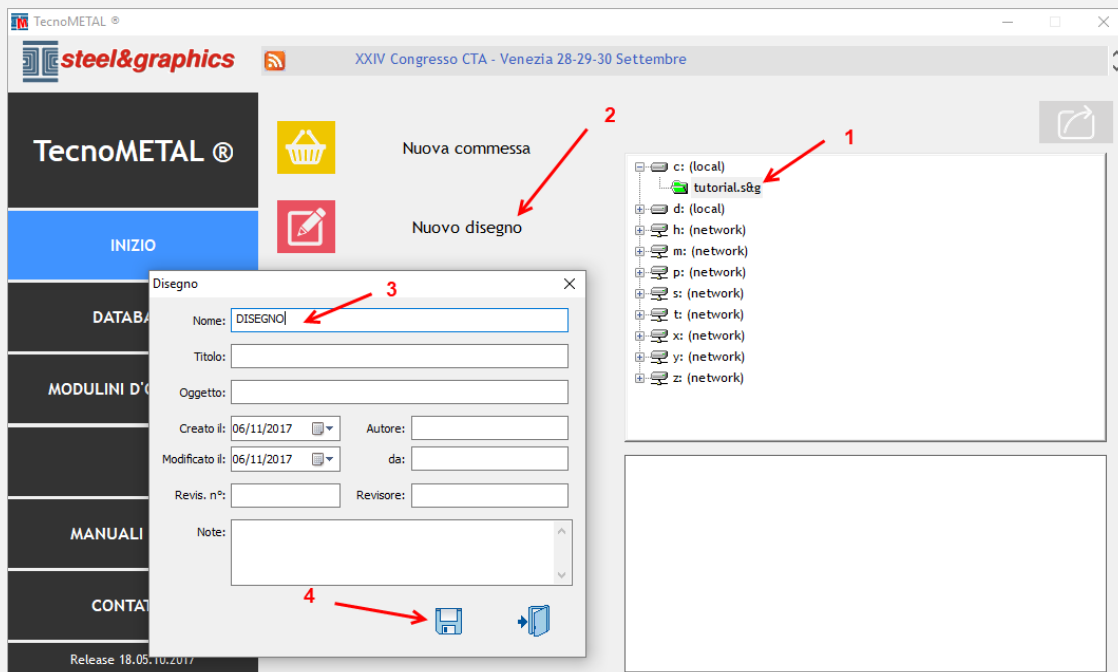


## Create a new Job (Required)

To create a new Work Order, select the disk (1), click on the New Job (2), enter the name (3) and save (4).



Select the created job (1), click on the New Drawing (2), enter the name (3) and save (4).

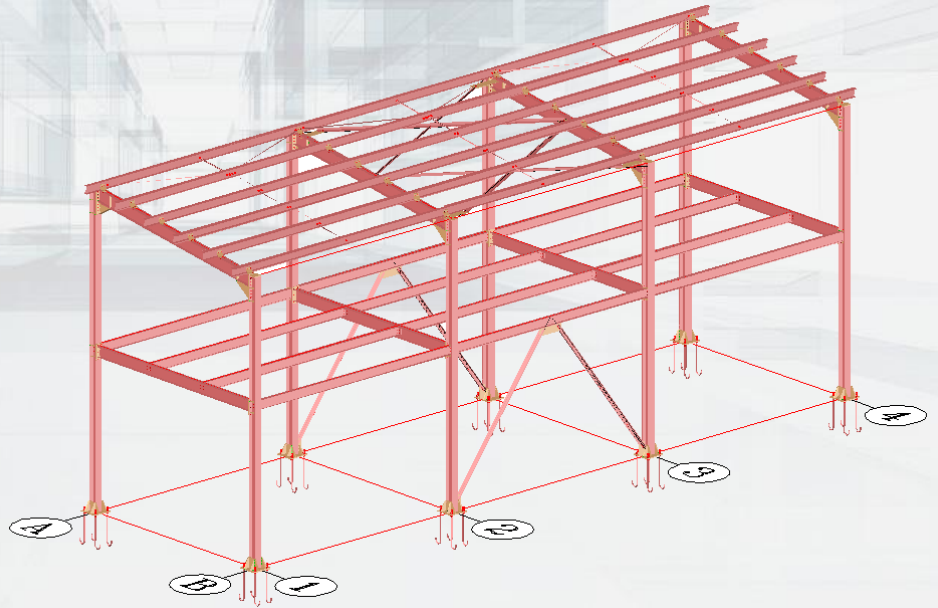


The CAD will be opened with loaded TecnoMETAL menu.

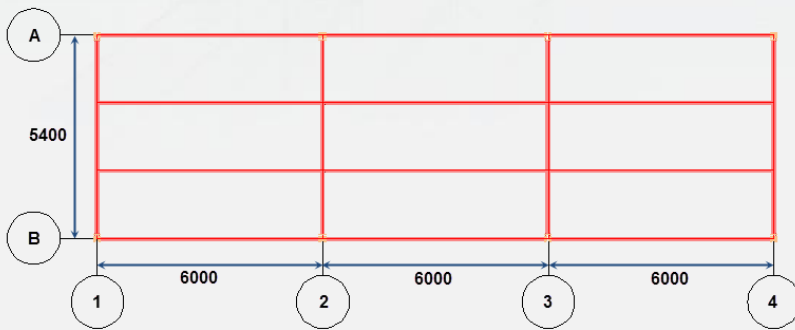


# Structure Design

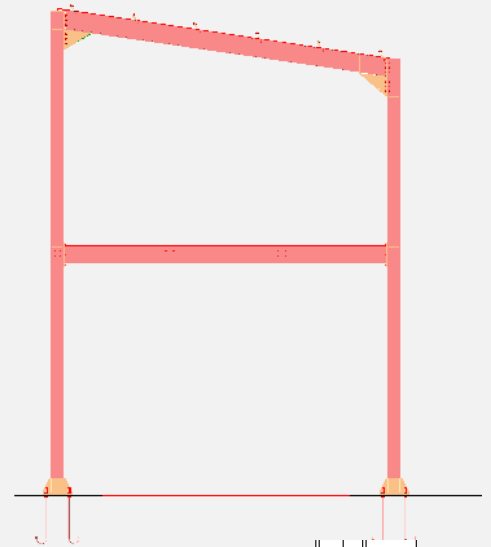
This is the structure to realize



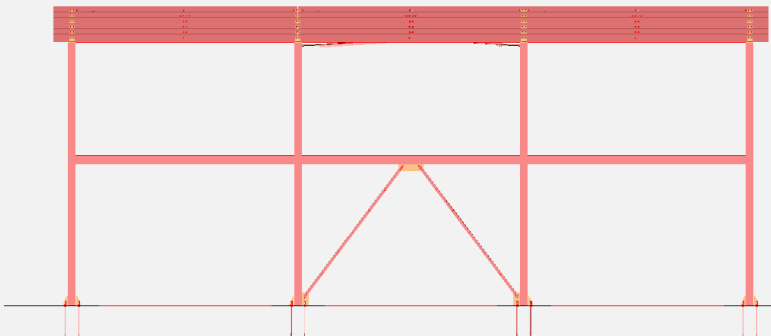
PLAN H4000



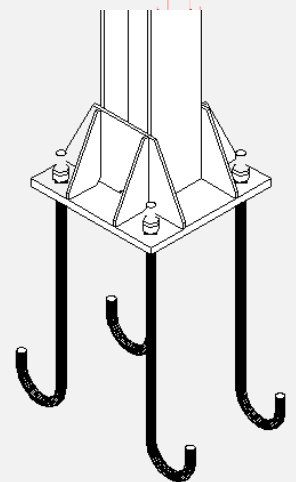
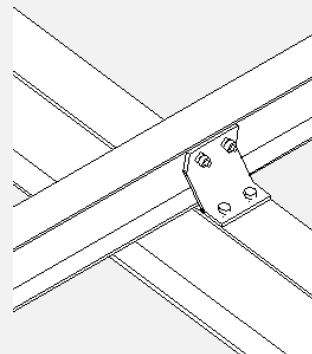
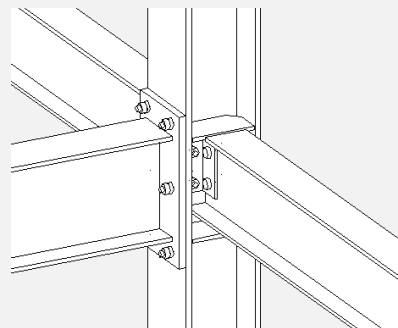
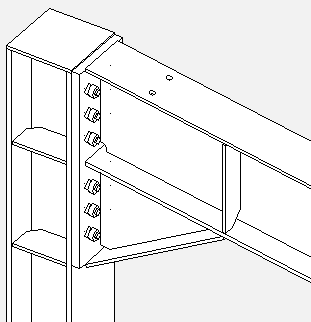
FRONTAL VIEW



LATERAL VIEW



JOINTS

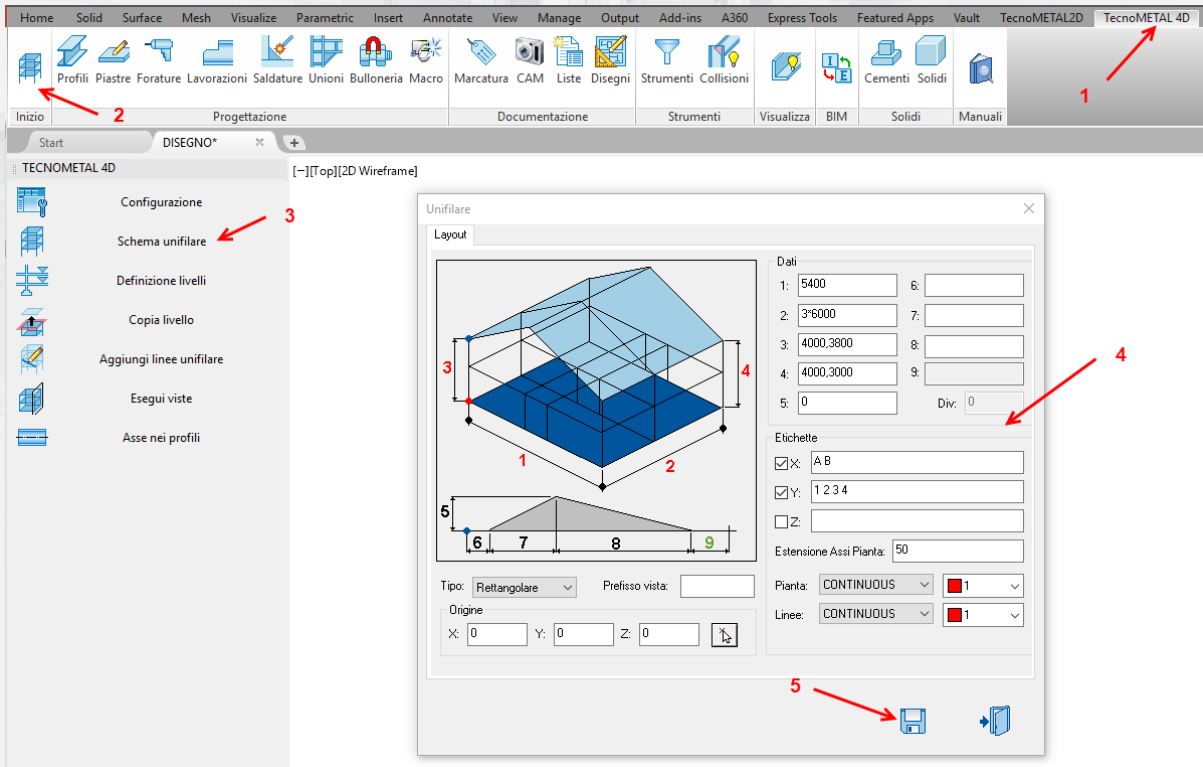






## Wireframe Creation

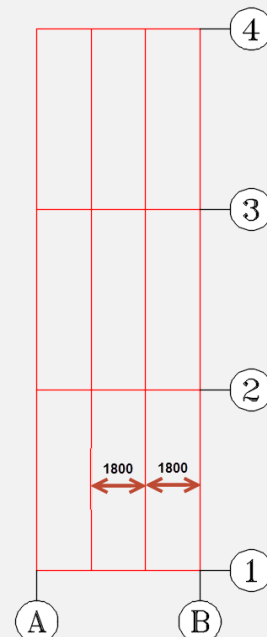
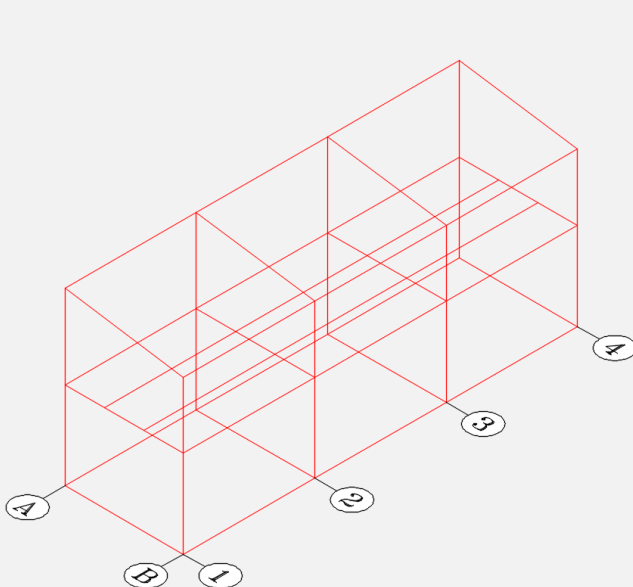
Select TecnoMETAL 4D menu (1) – Beginning (2) – Wireframe (3), enter the data as indicated on the image (4) and save (5).



The wireframe is drawn automatically, if you are unable to visualize it on CAD change to the ISOMETRIC SE view.

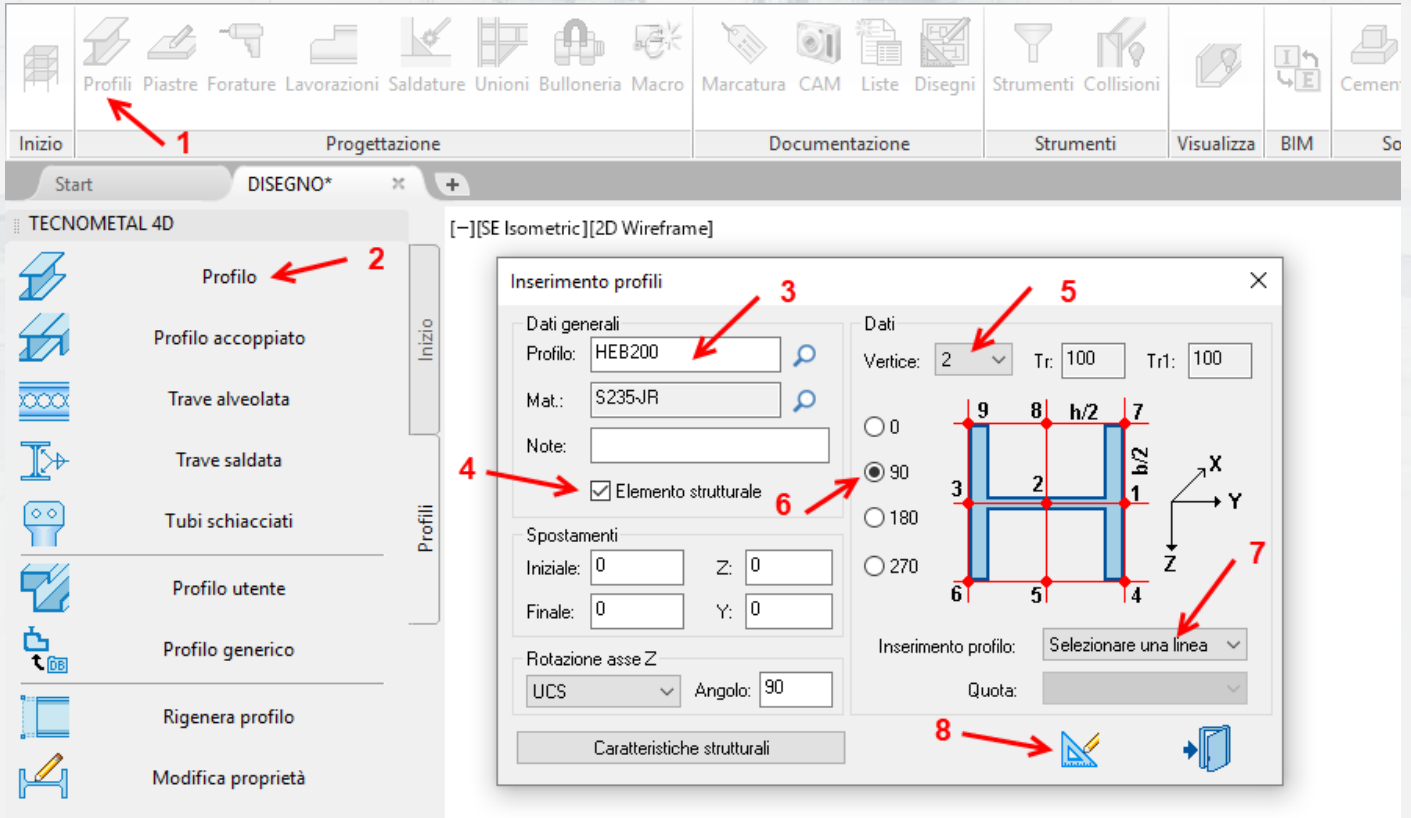
We insert the lines inside the wireframe on the first floor that will allow us to insert secondary profiles.

To do this we use the CAD OFFSET command with a distance of 1800.

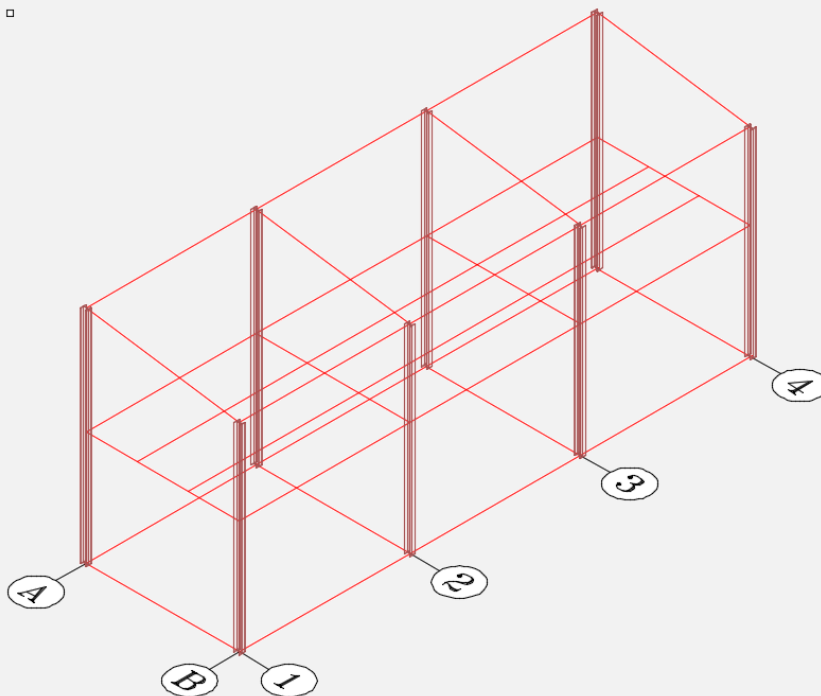




**COLUMNS INSERTION:** Select the command "Profiles" (1) and the "Profile" (2), enter the data (3, 4, 5, 6, 7), confirm with the Drawing button (8). Select all the vertical lines of the columns.

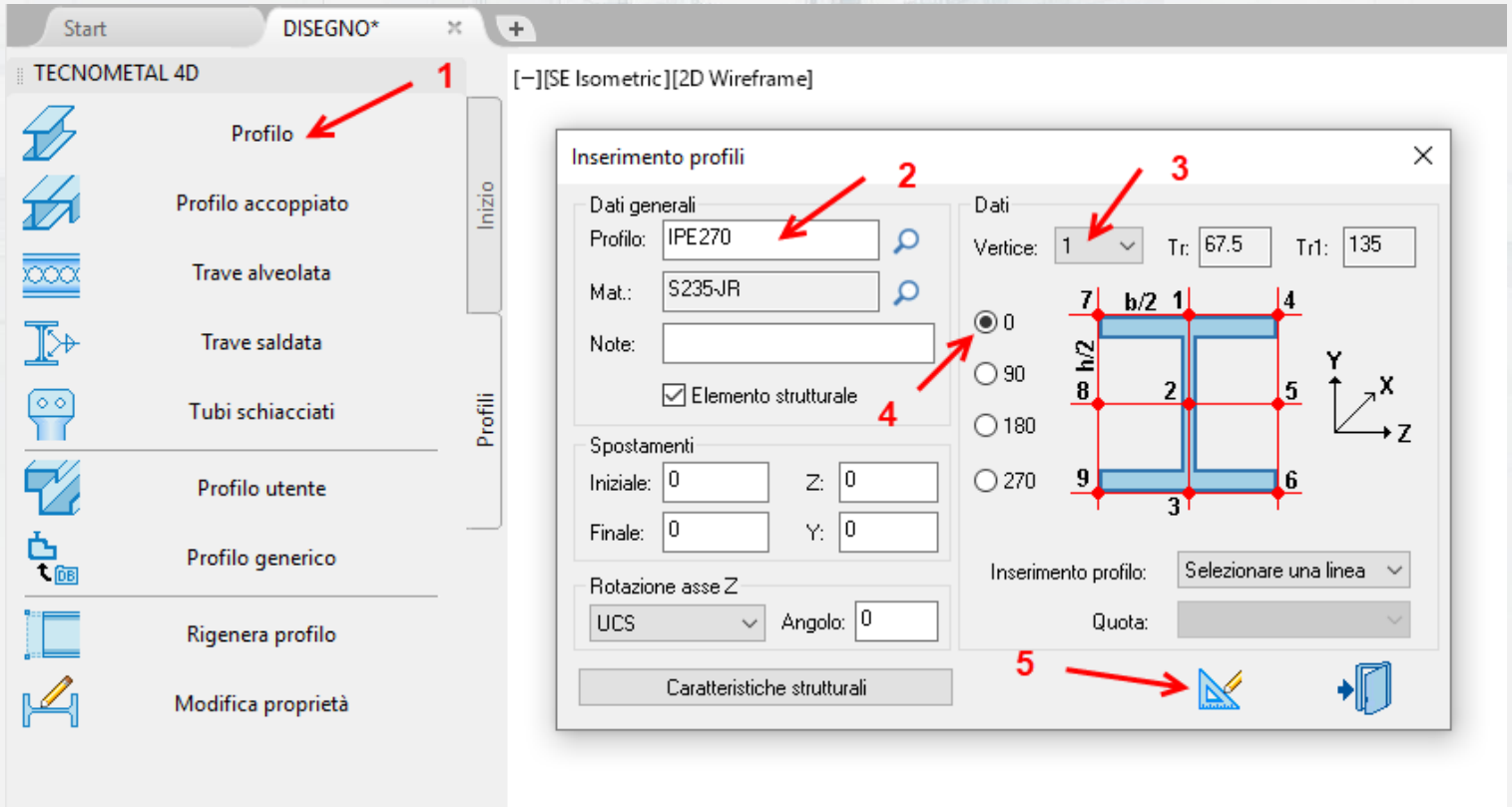


**FINAL RESULT**

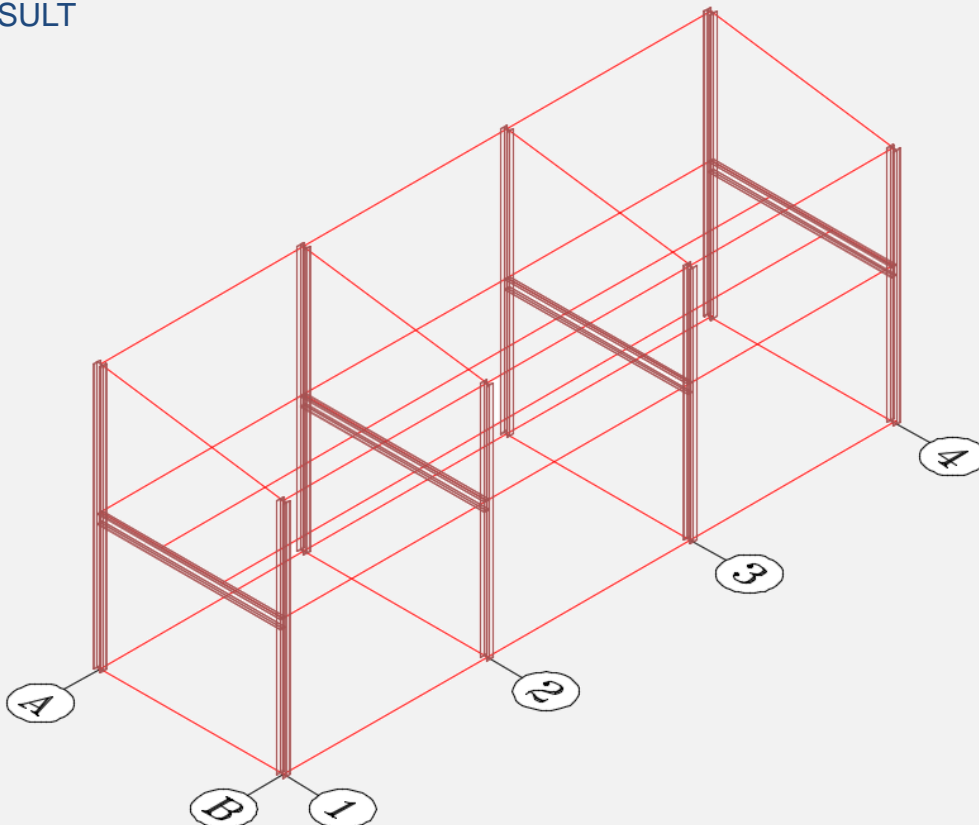




**MAIN BEAM INSERTION ON PLAN:** select the command **PROFILES** (1), enter the name of the profile (2), select the vertex (3) and the rotation (4), confirm by clicking the **Drawing** button. Select the lines (A-B of the first plan).

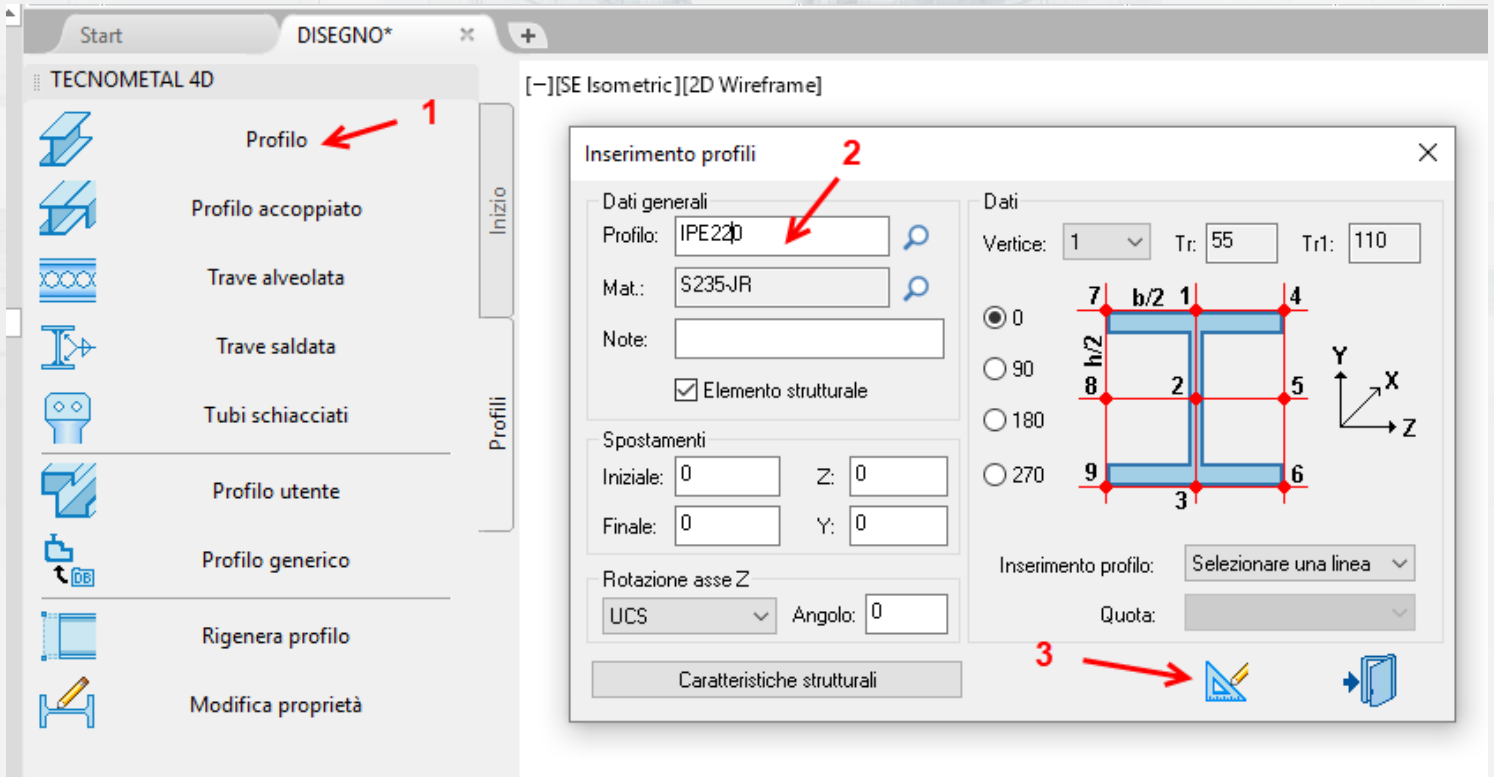


## FINAL RESULT

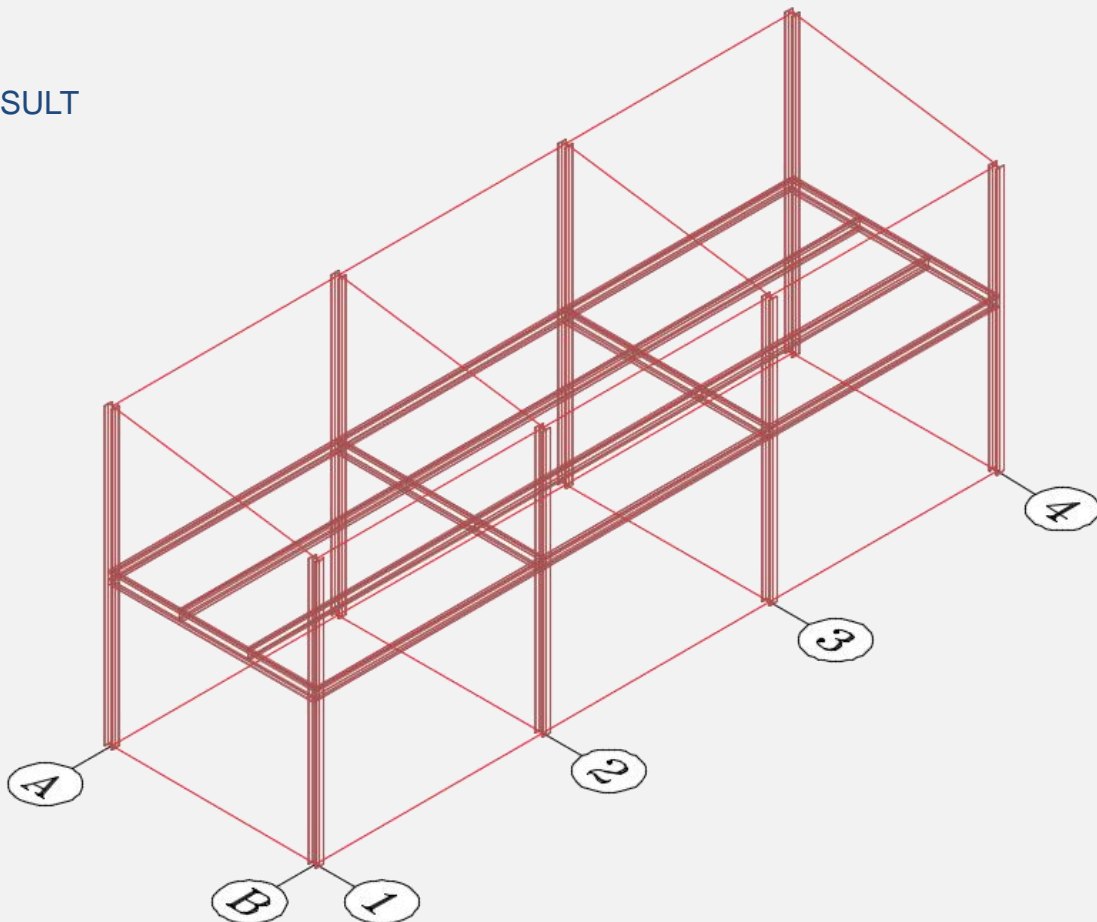




**SECONDARY BEAM INSERTION ON PLAN:** select the command **PROFILES** (1), enter the name of the profile (2), confirm by clicking the **Drawing** button (3). Select the lines (1-2 2-3 3-4 of the first plan).



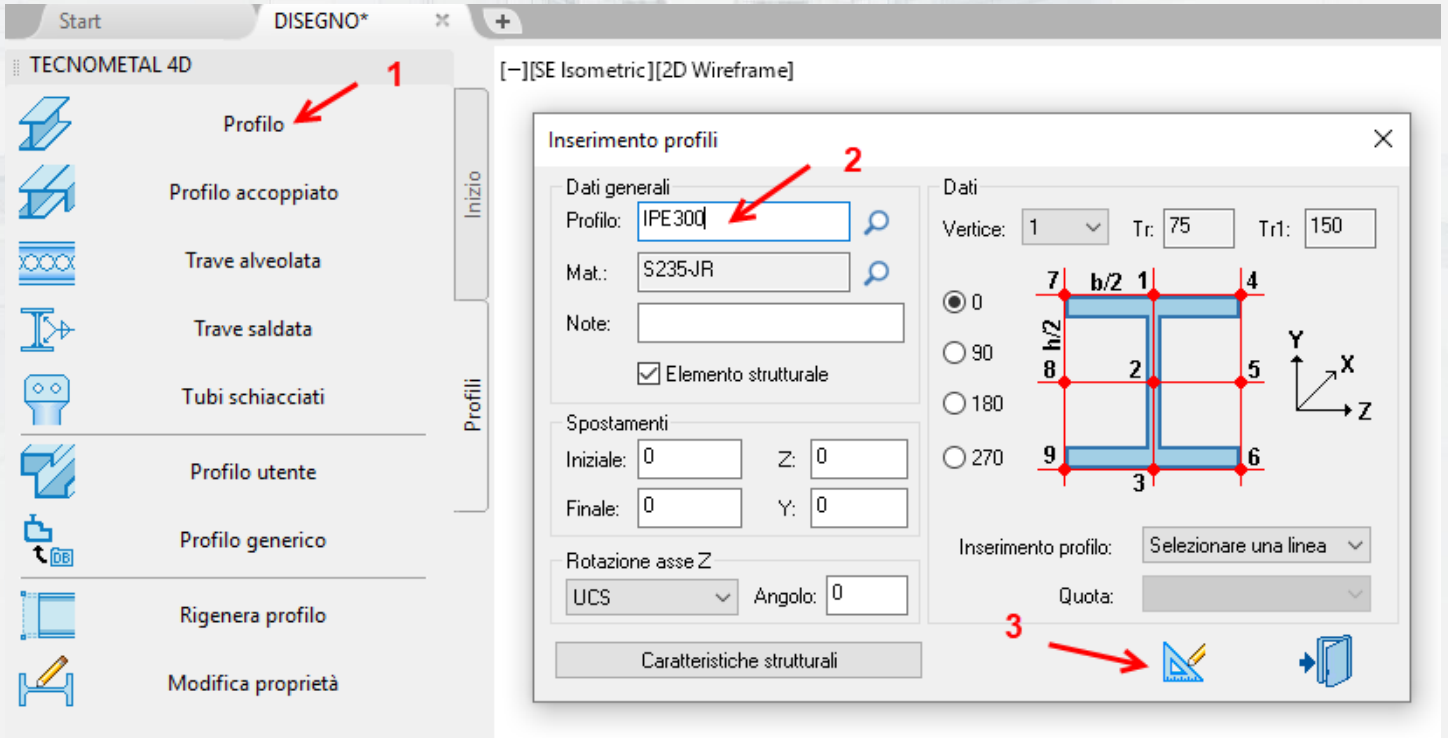
**FINAL RESULT**



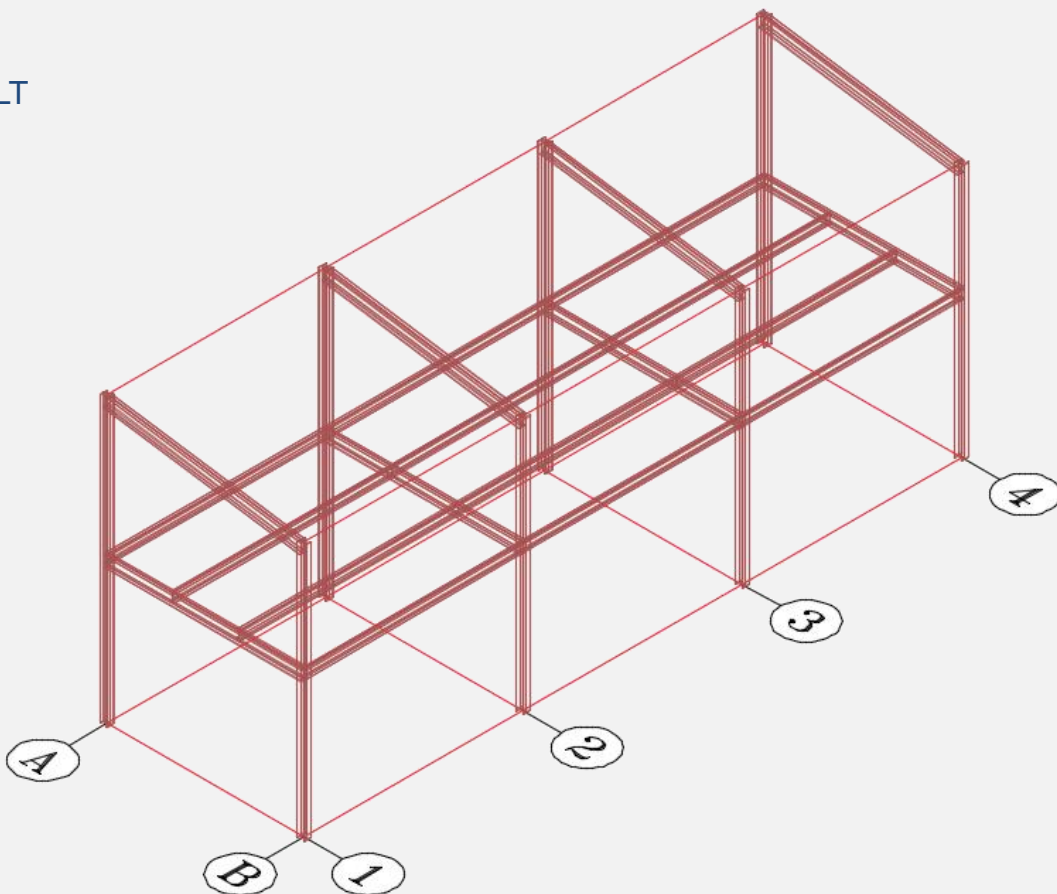




**BEAMS INSERTION ON ROOF:** select the command **PROFILES** (1), enter the name of the profile (2), confirm by clicking the **Drawing** button (3). Select the lines (A-B of the roof).



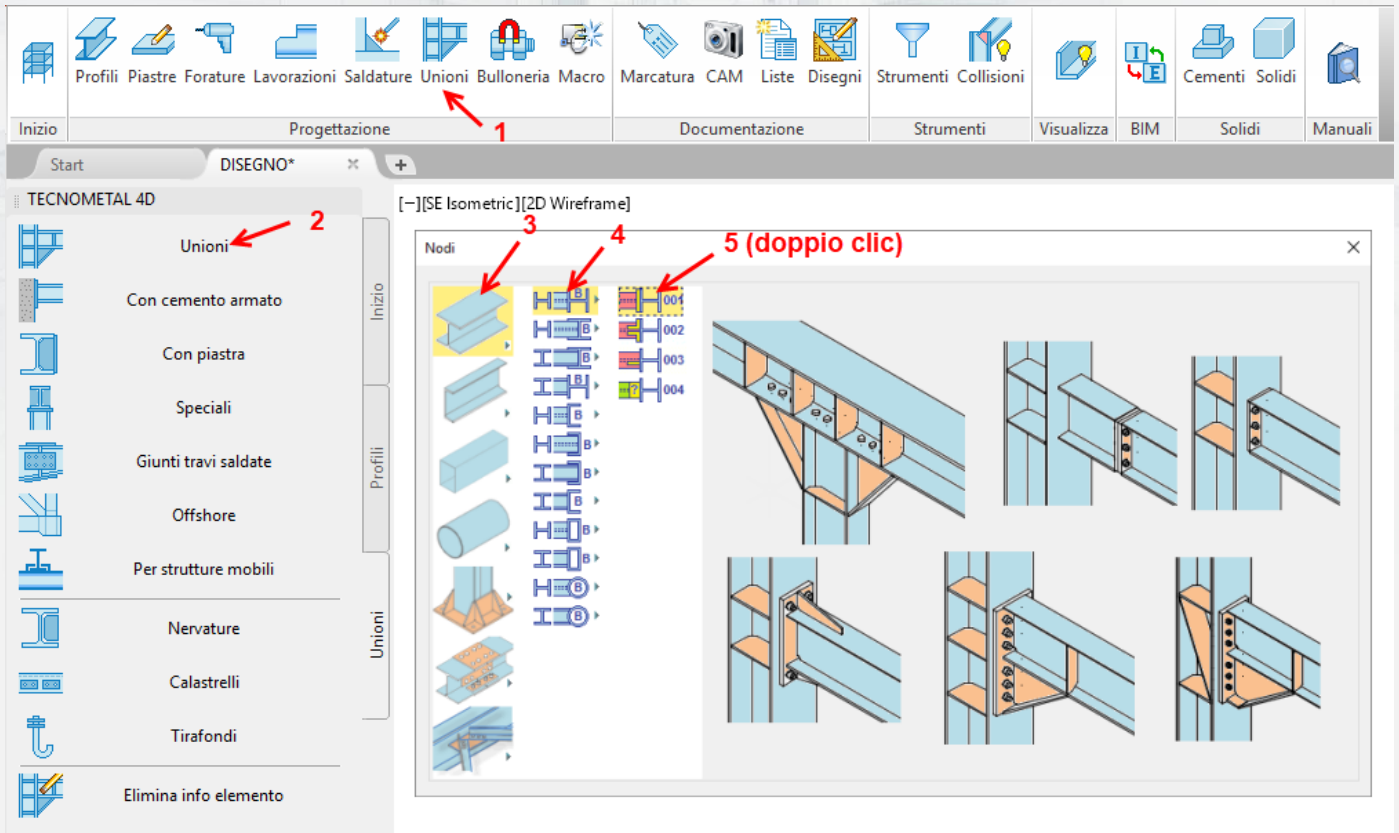
**FINAL RESULT**



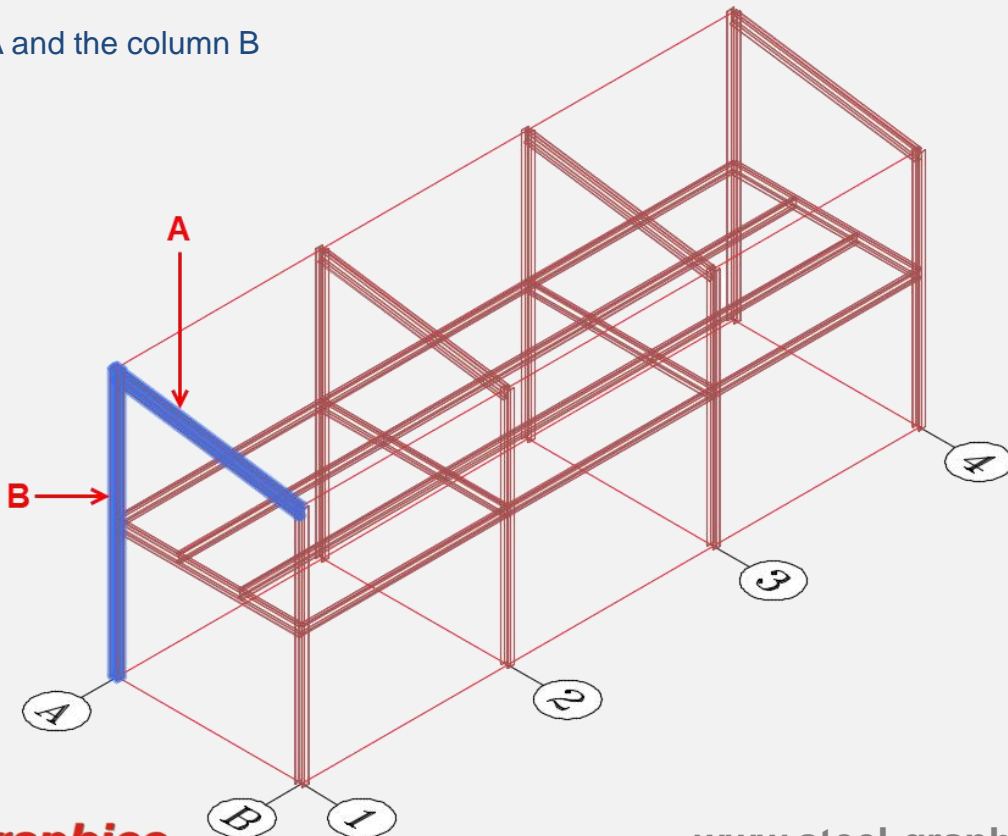


## Connections and roof beams insertion

From the TecnoMETAL menu select CONNECTIONS (1) (2), select H profiles connection (3), select the type (4) and with the double click select the flange (5, 001 type)



Select the beam A and the column B





Select the type (1) UE-HEB300/12-30/35 Change the data values(2= -5) (4= 200) (5= 60) (6= 180,2\*120) (7= 150) (8= 100) and DM1 and select the bolt 30.

**Connections**

Dati profili  
Prof A: IPE300 Mat A: S235JR  
Prof B: HEB200 Mat B: S235JR

Gestione unione  
 Crea un Nuovo Gruppo  
Tipo: U3-HEB300/12-30/35 .. 1

Flangia Ginocchio Rinforzi Sald. F Sald. G Sald. R Sollecitazioni

Materiale AISI304

|   |     |    |             |    |   |    |       |      |    |
|---|-----|----|-------------|----|---|----|-------|------|----|
| 1 | 35  | 6  | 180,120,120 | 11 | 0 | 16 | 0     | Dm1  | 30 |
| 2 | -5  | 7  | 150         | 12 | 0 | 17 | 0     | Dm2  | 0  |
| 3 | 0   | 8  | 100         | 13 | 0 | 18 | 0     | Tip1 | SB |
| 4 | 200 | 9  | 0           | 14 | 0 | H  | 630.0 | Tip2 | SB |
| 5 | 60  | 10 | 0           | 15 | 0 | 20 | 0     |      |    |

OK

In "Stiffeners" screen, select type 7, in Type line enter TUTORIAL, click the Save button and press OK.

**Connections**

Dati profili  
Prof A: IPE300 Mat A: S235JR  
Prof B: HEB200 Mat B: S235JR

Gestione unione  
 Crea un Nuovo Gruppo  
Tipo: TUTORIAL .. 1

Flangia Ginocchio Rinforzi Sald. F Sald. G Sald. R Sollecitazioni

Materiale AISI304 Pos. Destra

|   |    |    |   |    |   |
|---|----|----|---|----|---|
| 1 | 20 | 6  | 0 | 11 | 0 |
| 2 | 0  | 7  | 0 | 12 | 0 |
| 3 | 20 | 8  | 0 | 13 | 0 |
| 4 | 1  | 9  | 0 | 14 | 0 |
| 5 | 30 | 10 | 0 | 15 | 0 |

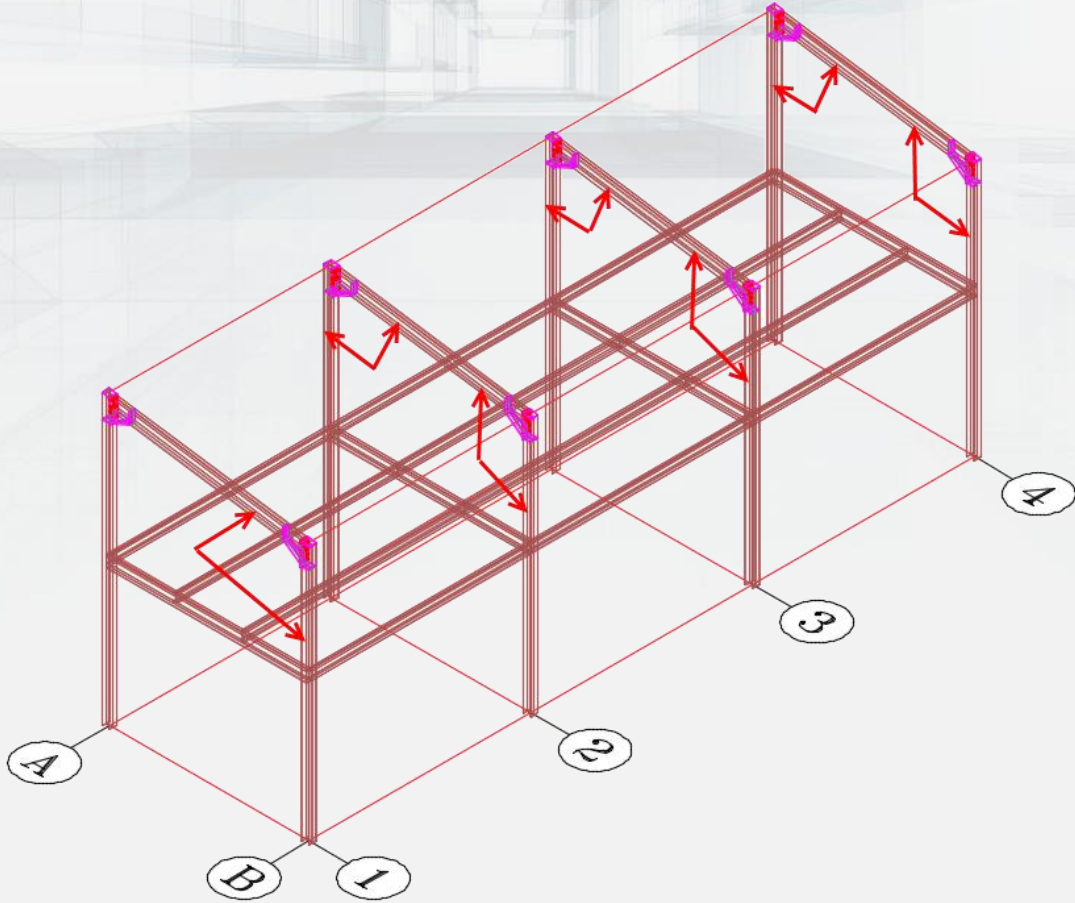
OK Annulla Applica



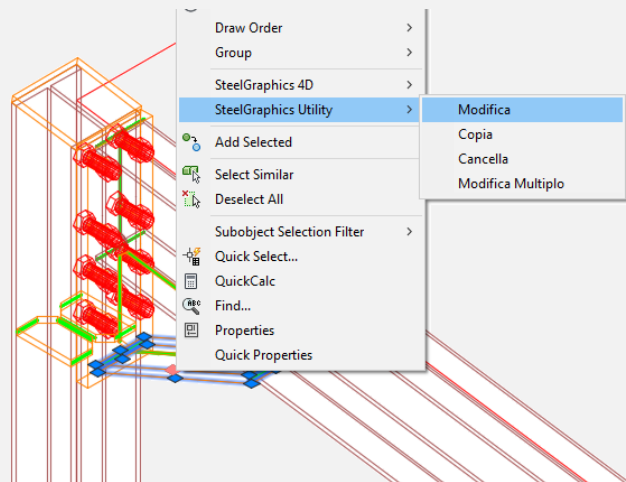
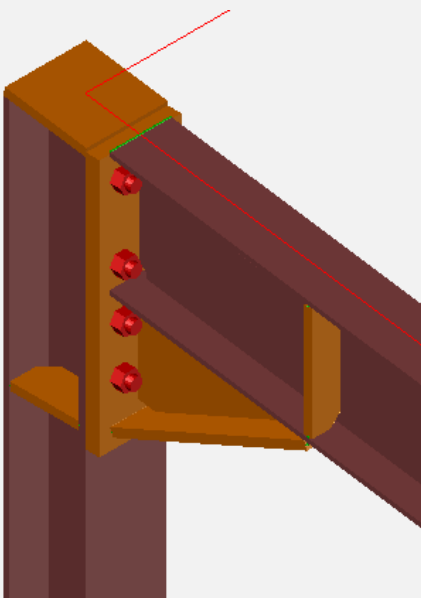


The command remains active to allow you to insert additional connections, so select other beams and columns.

**Attention:** always select first the beam and then the column for each connection. At the end press ESC to exit.



Selecting any element of the connection with the right mouse button it is possible to Modify, Copy, Delete or Modify Multiple similar connections in the model.



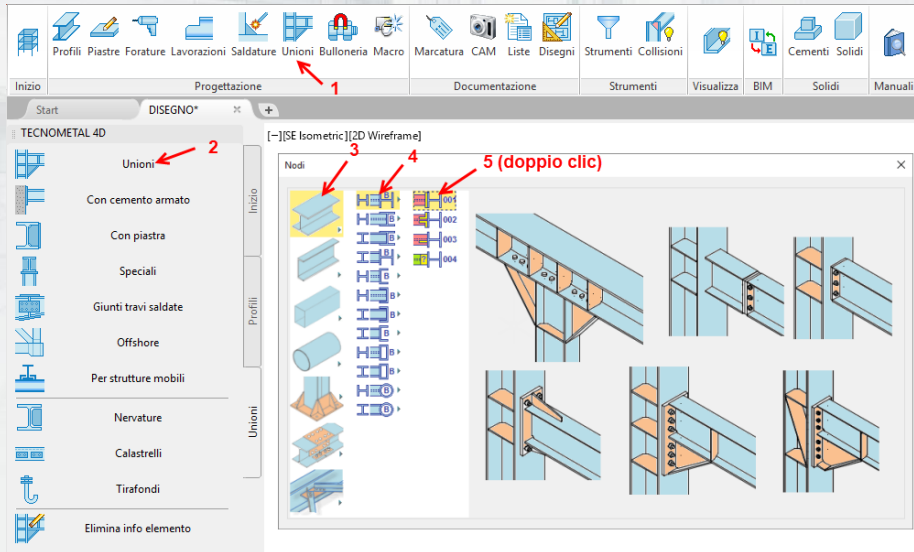




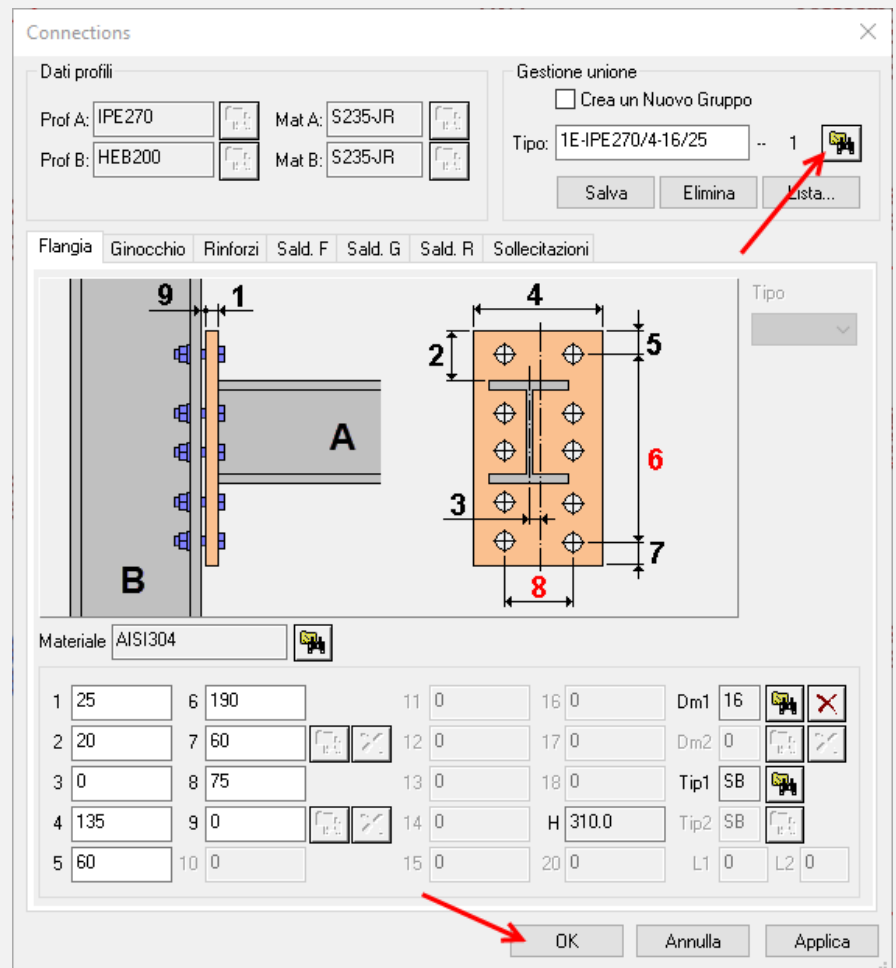
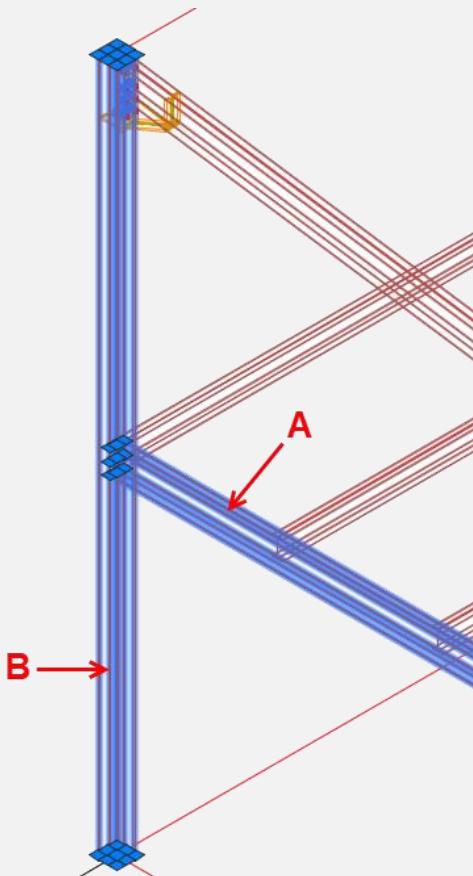
Now repeat the same procedure to insert other connections:

## Connections insertion – connection IPE270-HEB200

The procedure is similar to the previous one:

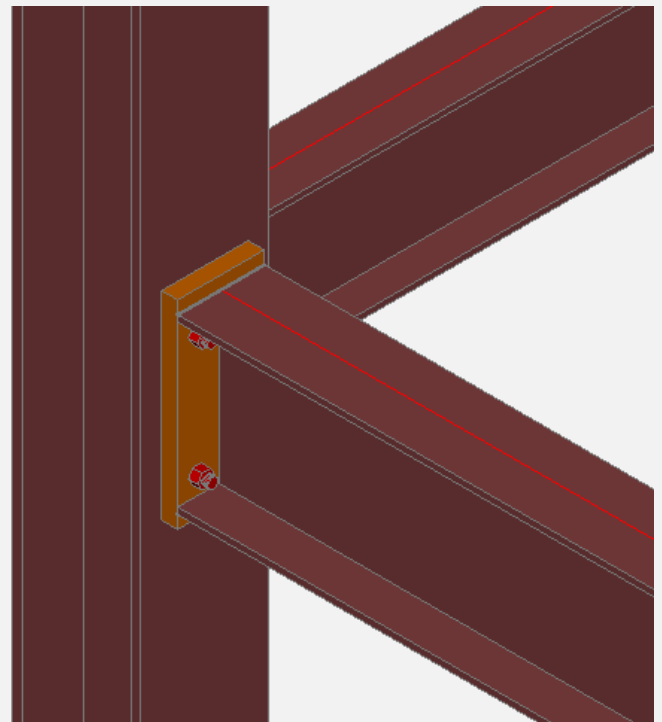
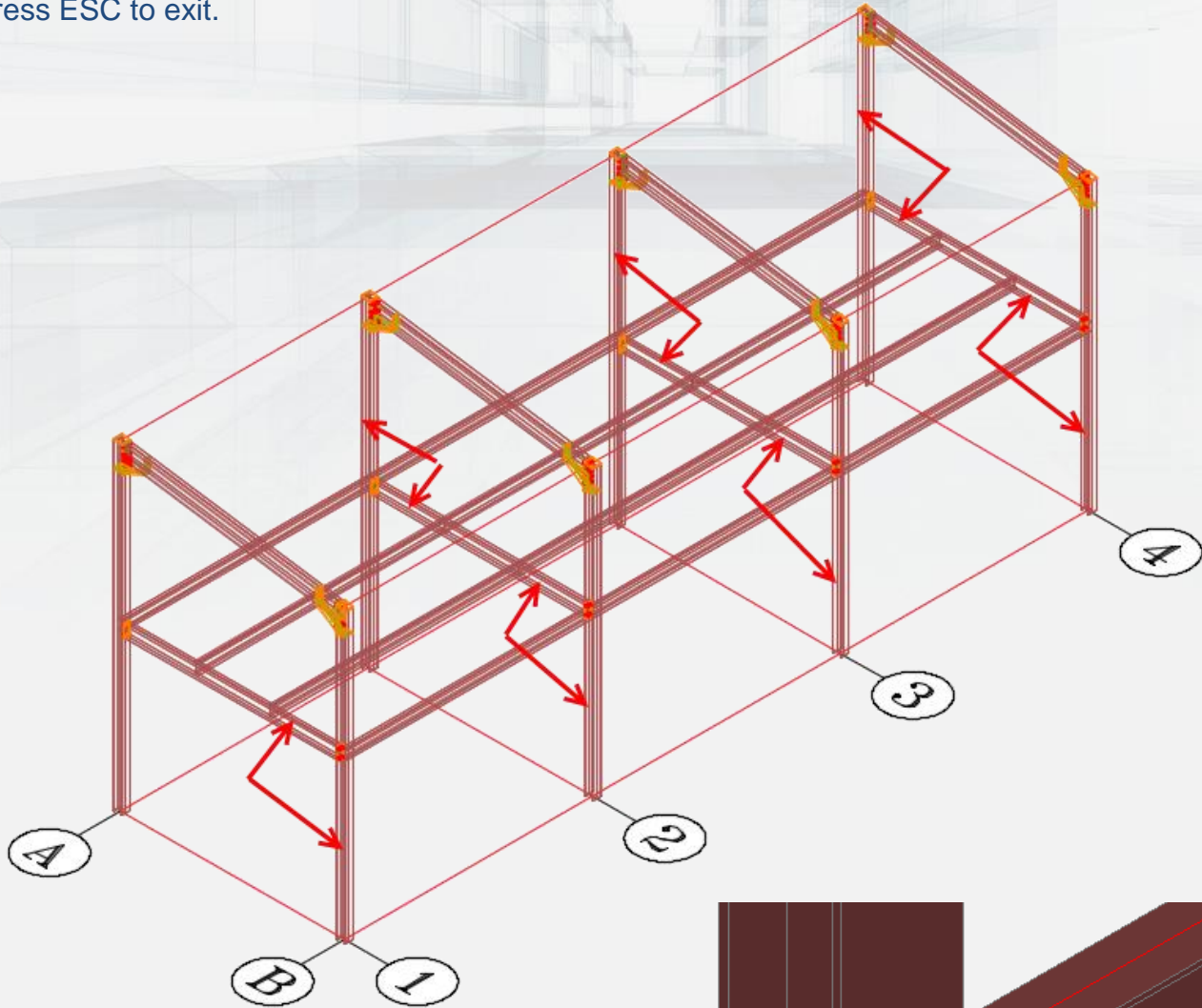


You are prompted to select the beam and the column, the data entry screen will be opened (select the type 1°-IPE270/4-16/25):





The command remains active to allow you to insert additional connection, so select the other beams and columns. **Attention:** always select first the beam and then the column for each connection. Press ESC to exit.

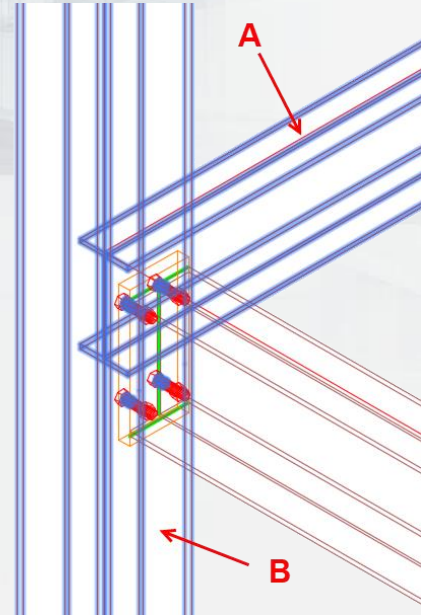
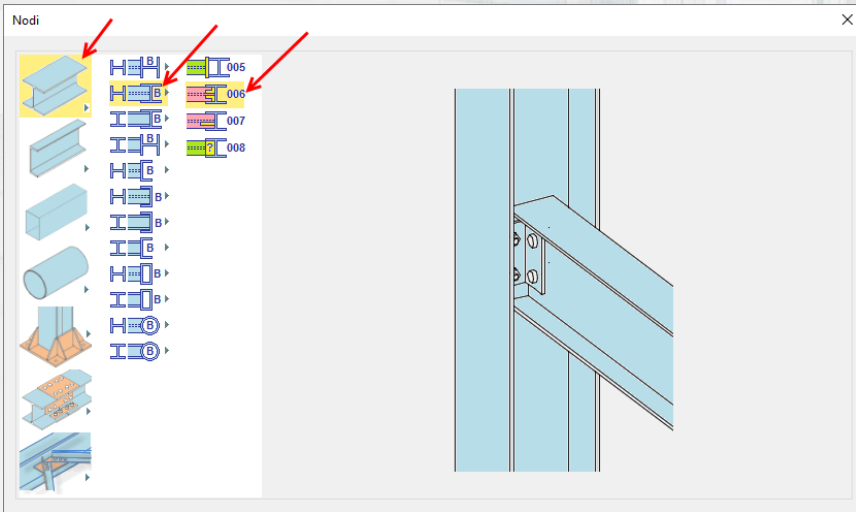




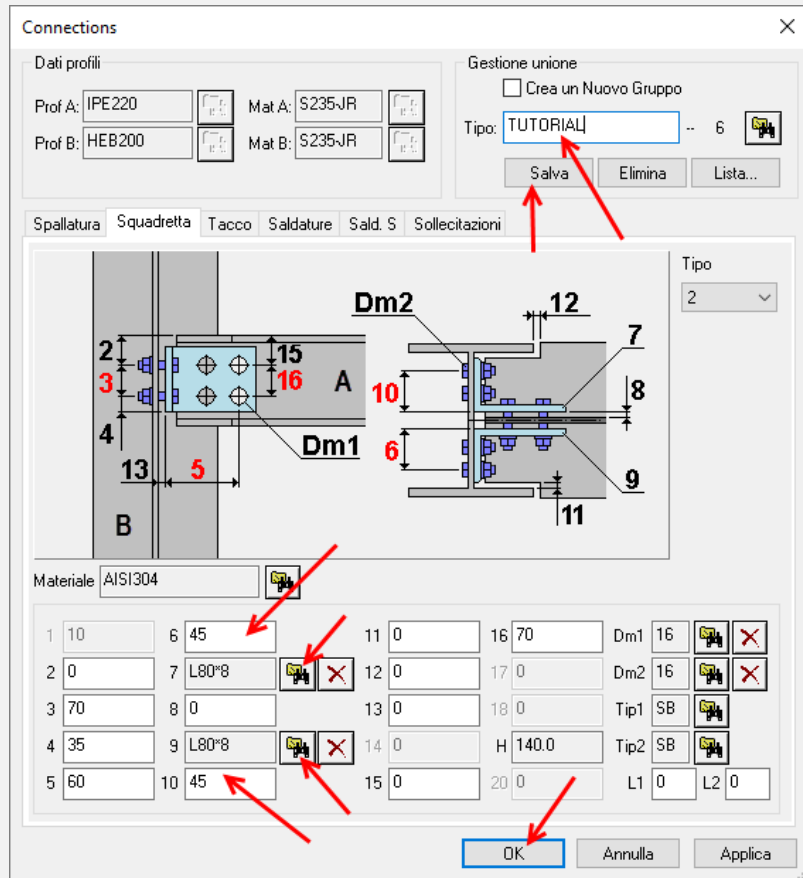
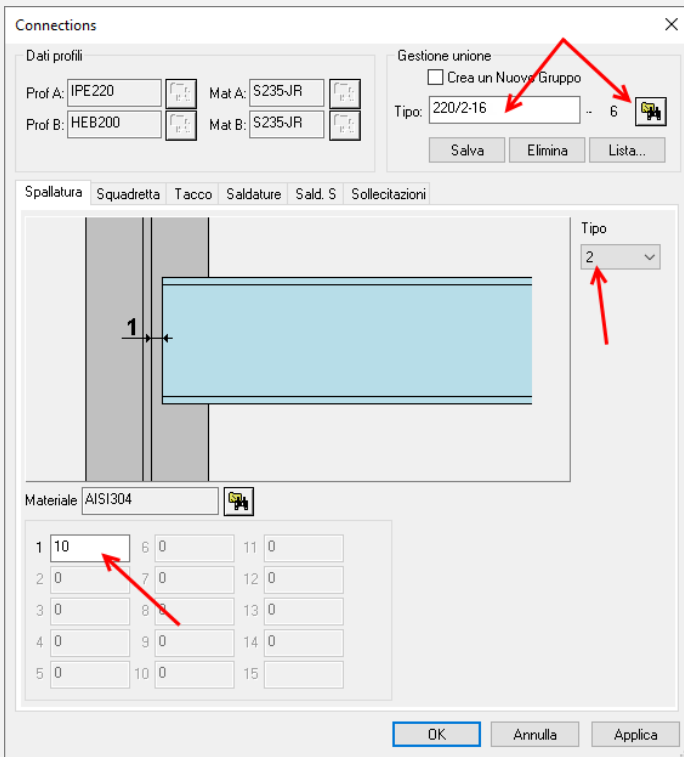
## Connections insertion – connection IPE220-HEB200

With the command "Connections" command select the connection 006 with a double-click:

Select first IPE220 and then HEB200.



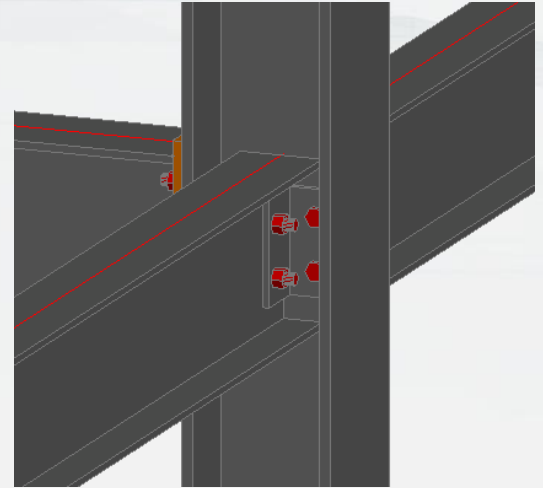
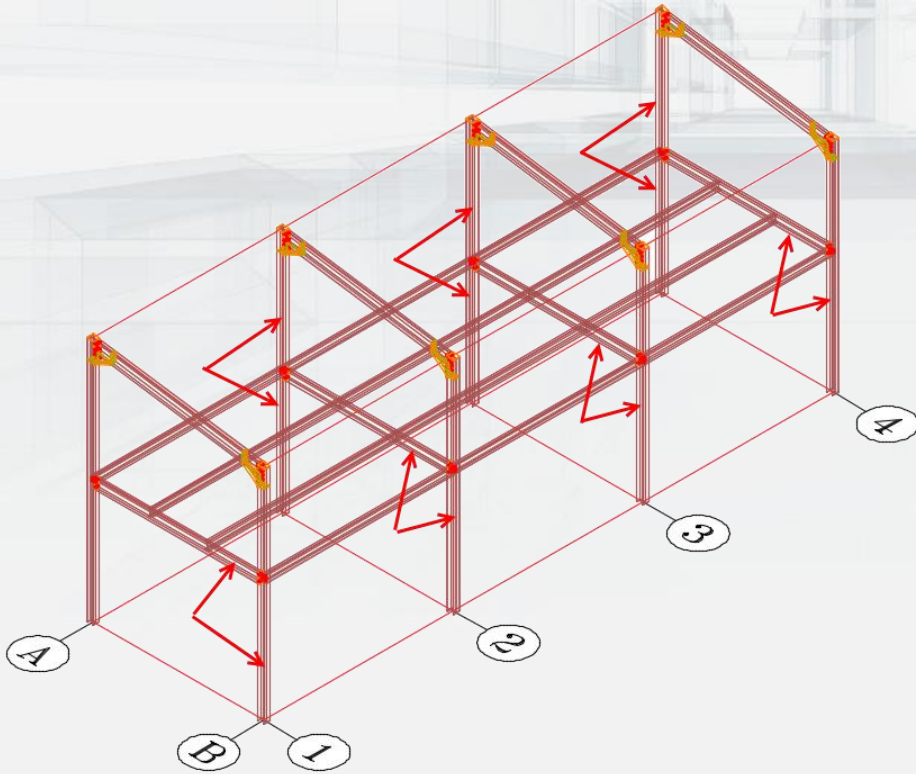
Select the type 220/2-16 and the type 2, insert the air 10. Then select the profile L80\*8 and modify the data in sections 6 and 10, enter the name TUTORIAL and with the Save button memorize the connection, then with the OK button we insert it in the model:







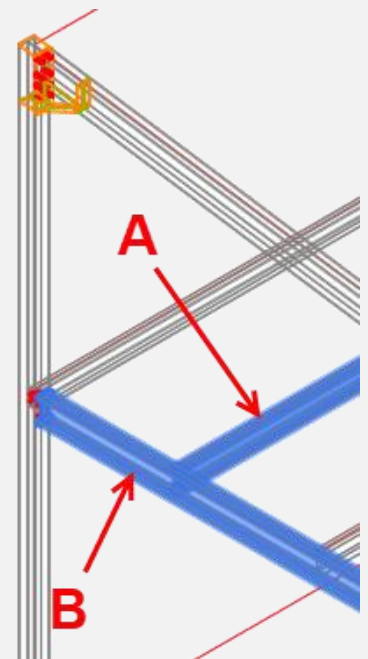
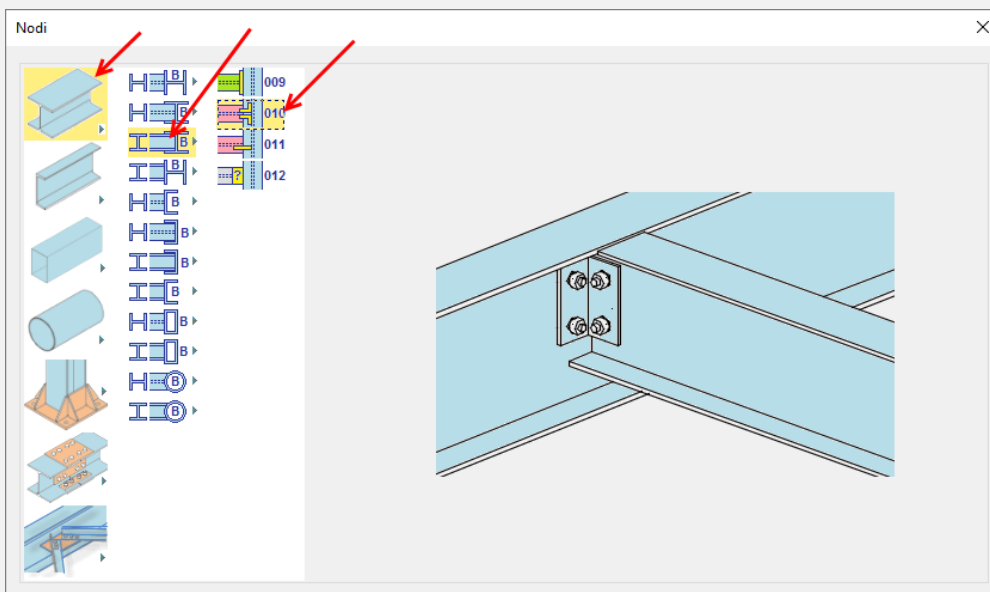
The command remains active to allow you to insert additional connection, so select the other beams and columns. **Attention:** always select first the beam and then the column for each connection. Press ESC to exit.



### Connections insertion – connection IPE220-IPE270

With the "Connections" command select the connection 010 with a double-click:

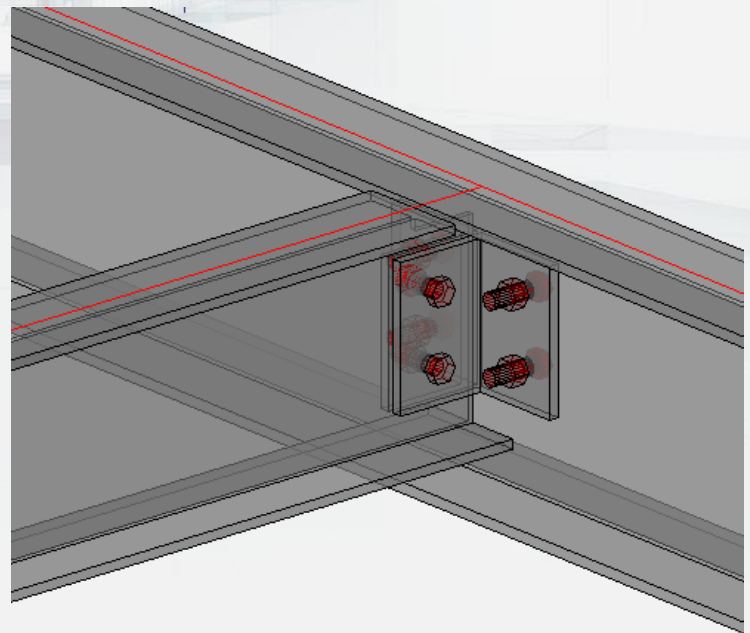
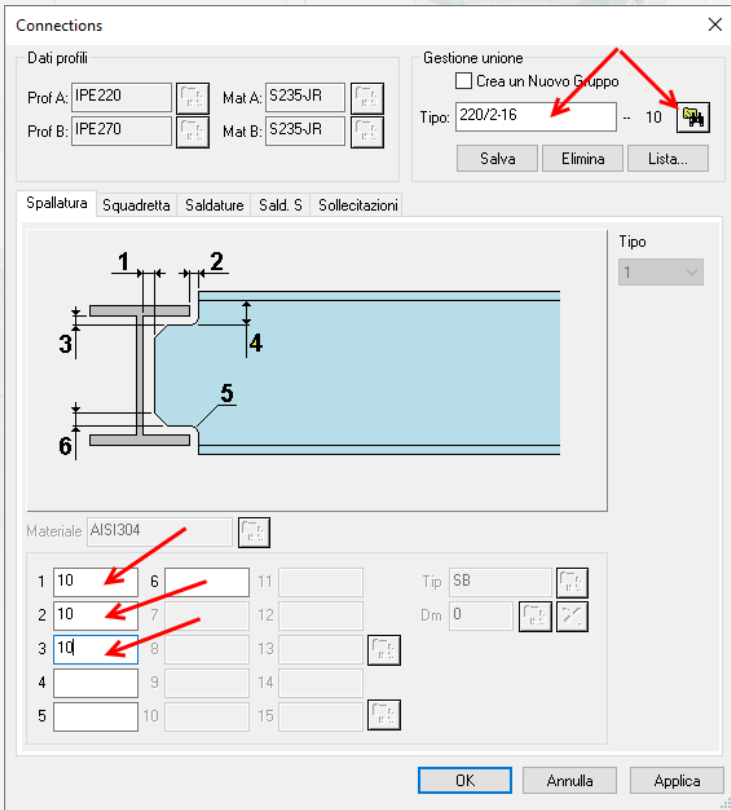
Select first IPE220 and then IPE270.



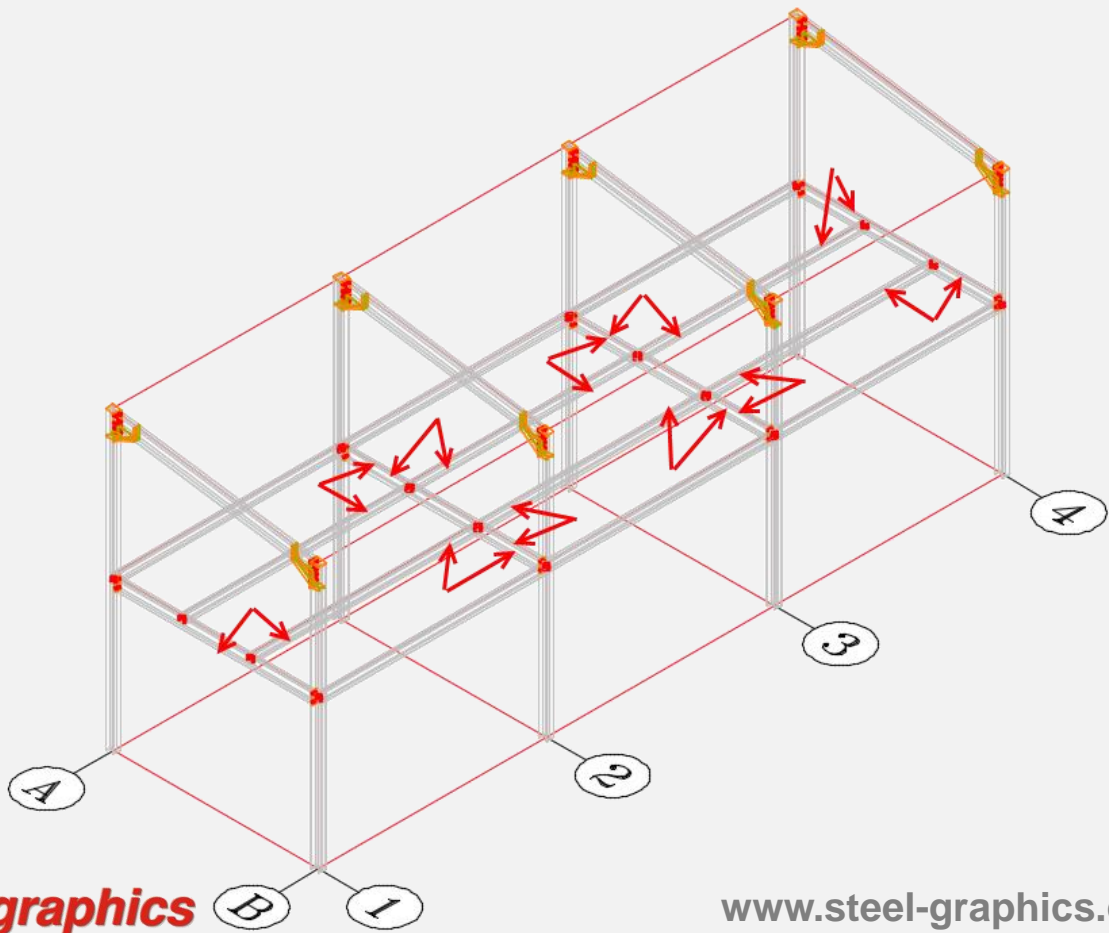




Select the connection 220/2-16 from the database, insert the air values and then press OK.



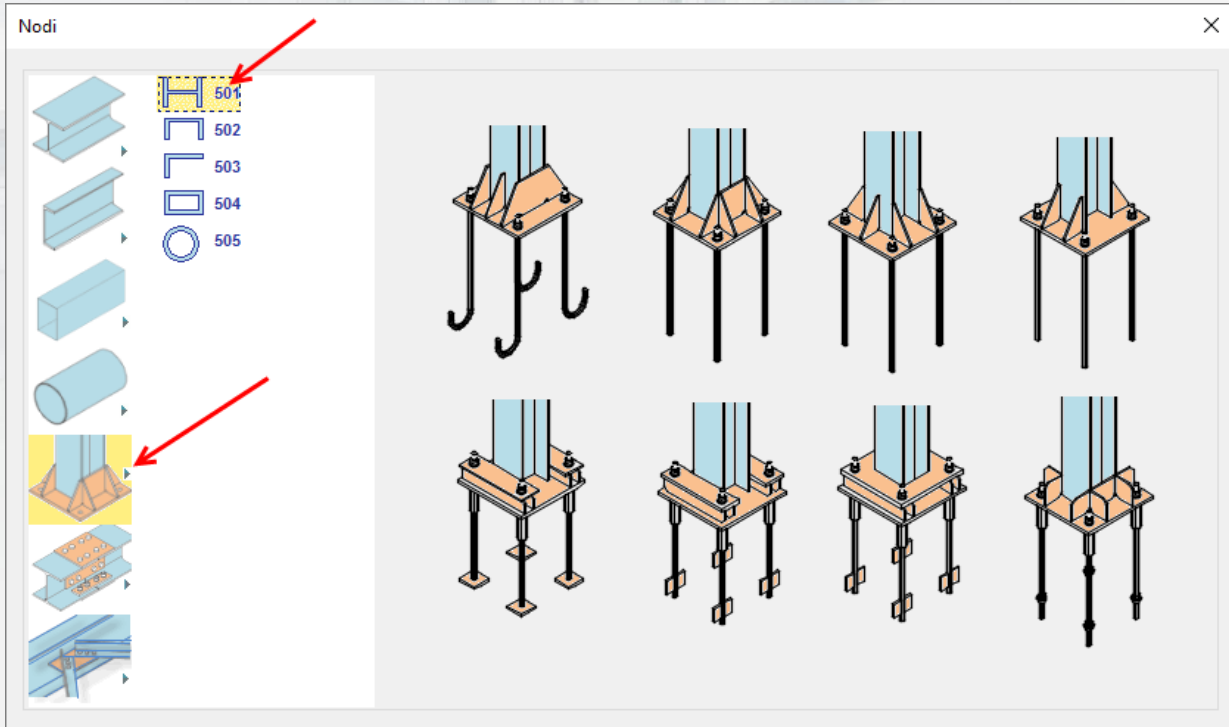
Select all elements that have the same connection (first the beam IPE220 and then the beam IPE270).



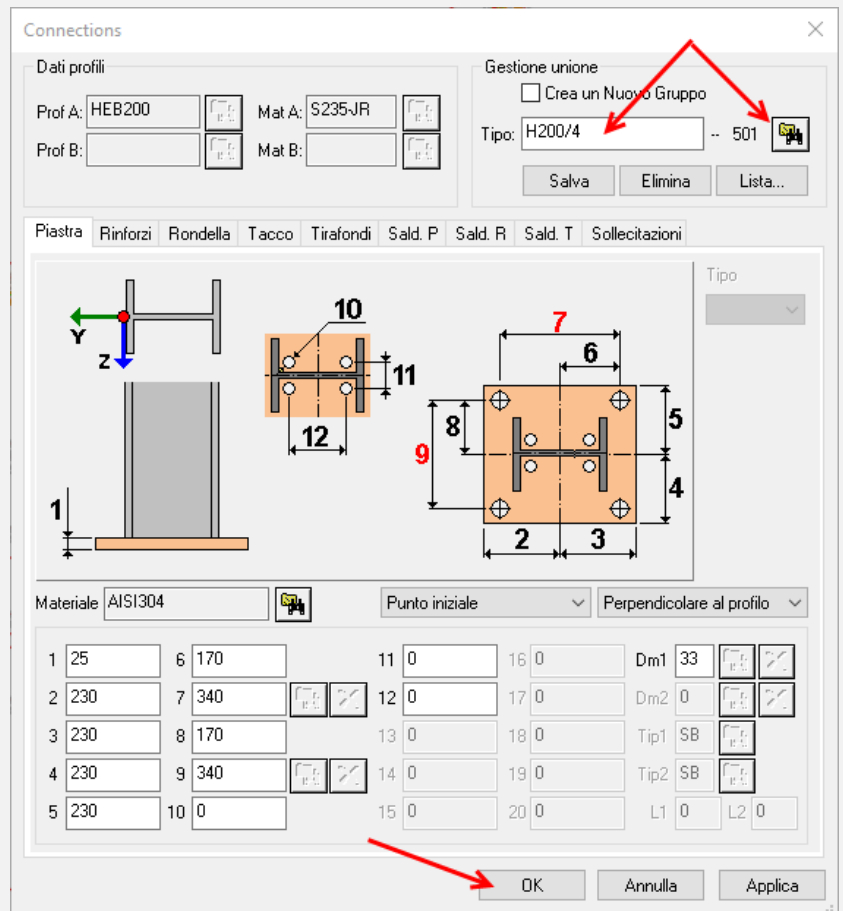
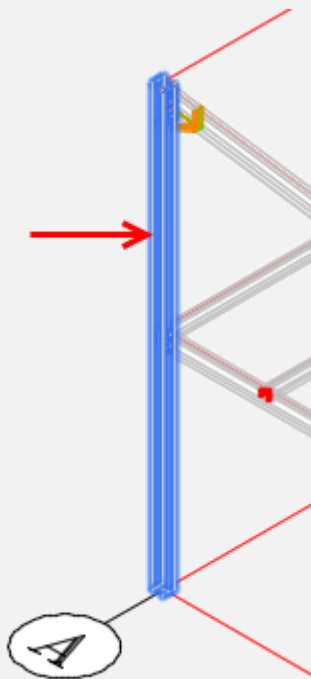


## Connections insertion – base plate

With the “Connections” command in the first column select the symbol of the base plate, in the second column select the type of H column (by double clicking), then select a column and the type H220 from the database.

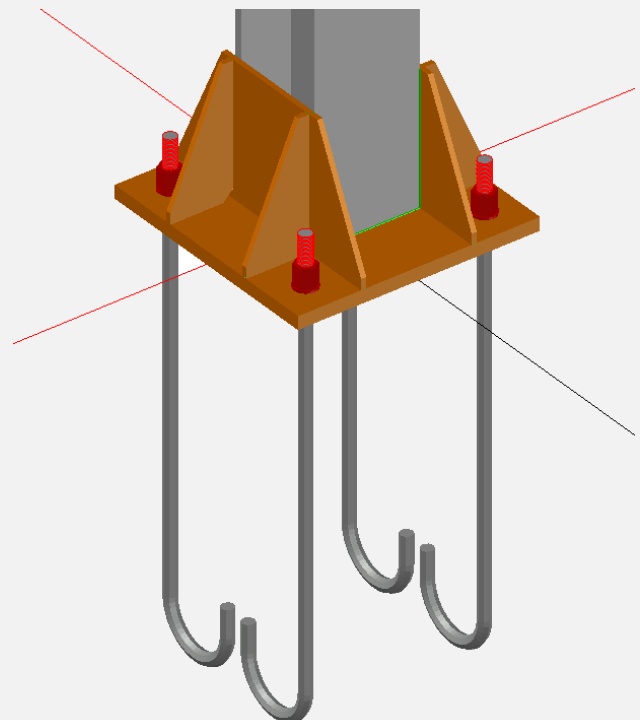
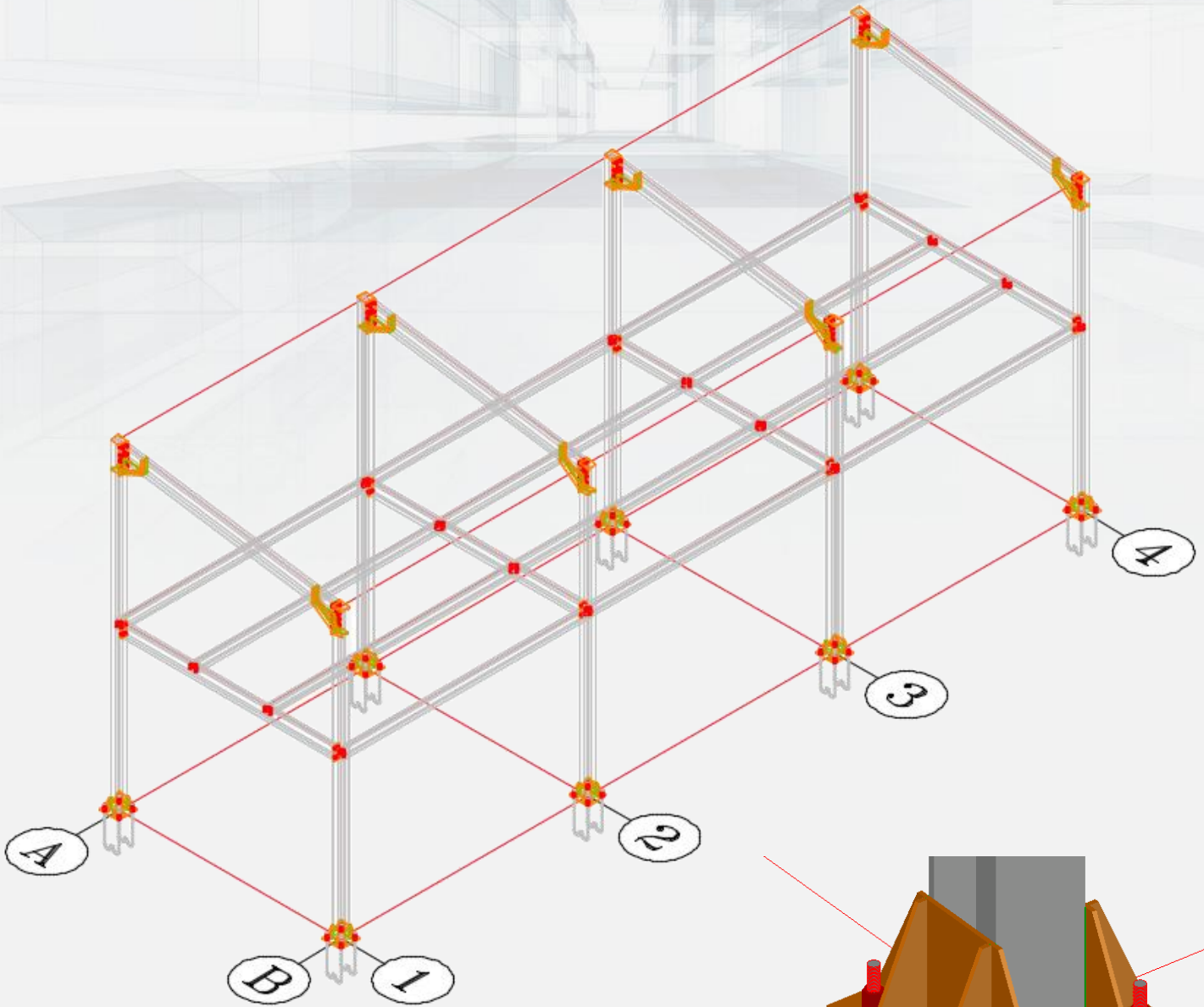


Select the first column and then select the type H200/4 from the database and press OK.



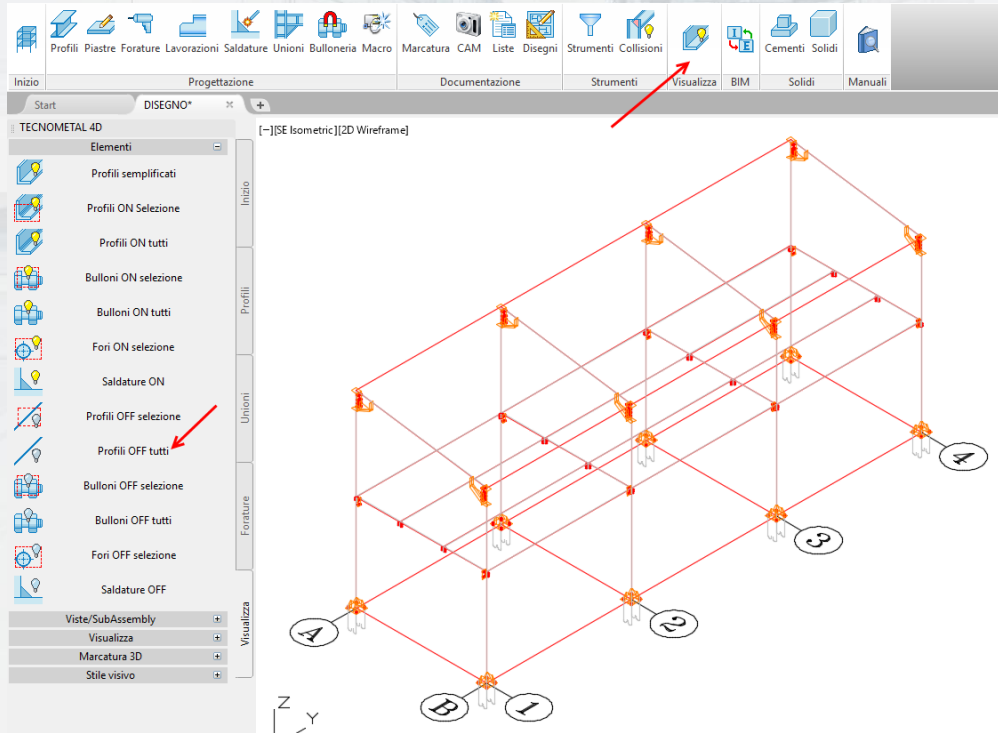


Then select all the other columns

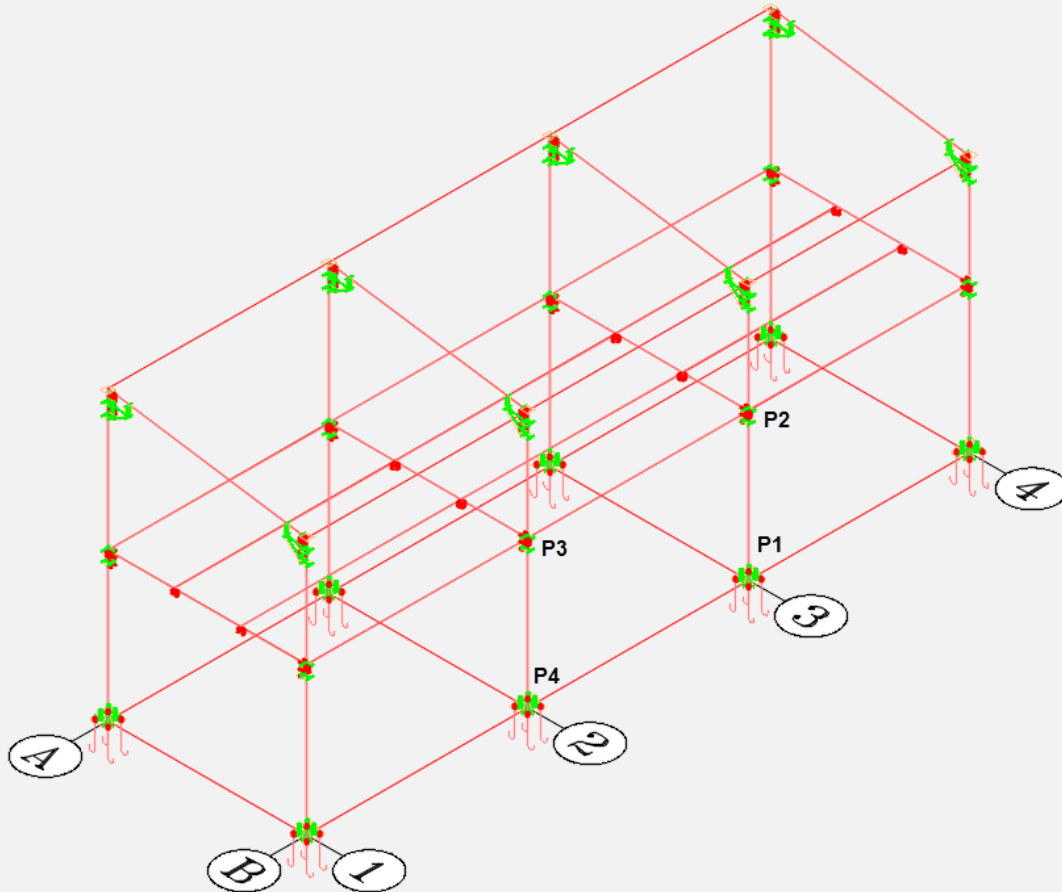




**Braces Macro** Continue the exercise by inserting a Brace using macros.  
To facilitate the selection of points, use the command "Profiles OFF All".



We will insert two braces at B3-B2 and A3-A2.







Press the button "Braces", located in Macro, and insert the data as in the picture below:

The screenshot shows the software interface with the 'Braces' button highlighted in the Macro menu. The 'Controventi' dialog box is open, displaying a 3D model of a truss structure with various parameters and options.

**File:** Nome: TUTORIAL

**Dati:**

|     |      |     |      |     |     |     |    |
|-----|------|-----|------|-----|-----|-----|----|
| A:  | 1000 | B:  | 1000 | C:  | 100 | S:  | 10 |
| U:  | 220  | L:  | 5    | D:  | 25  | R:  | 5  |
| U1: | 20   | L1: | 20   | D1: | 20  | R1: | 20 |
| U2: | 0    | L2: | 0    | D2: | 0   | R2: | 0  |
| U3: | 15   | L3: | 15   | D3: | 15  | R3: | 15 |

Part. Uguali  Smussata Sm: 15

**Calastrelli:**

|                            |       |       |   |
|----------------------------|-------|-------|---|
| Prof.:                     | L70*6 |       |   |
| Sp. piastre:               | 8     | Aria: | 1 |
| Distanza min. calastrelli: | 685.3 |       |   |

Verifica solo a trazione

**Nodo:**

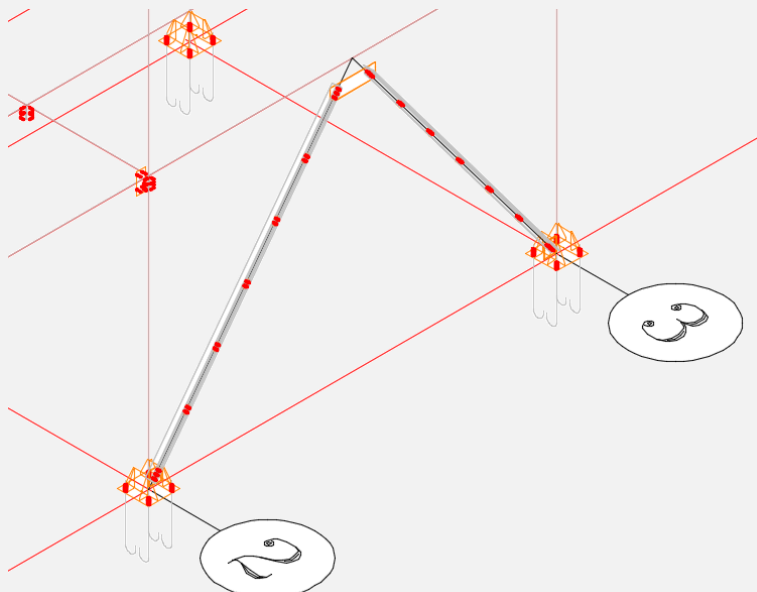
|            |           |      |   |
|------------|-----------|------|---|
| Diam.:     | 16 (5/8") | Qtà: | 3 |
| Tipologia: | A         | C:   | 0 |
|            |           | D:   | 0 |

**Calastrelli:**

|            |           |    |    |
|------------|-----------|----|----|
| Diam.:     | 16 (5/8") | C: | 0  |
| Tipologia: | A         | D: | 0  |
|            |           | E: | 50 |

**Buttons:** Sel. P1/P2/P3/P4 (1), Drawing button (2)

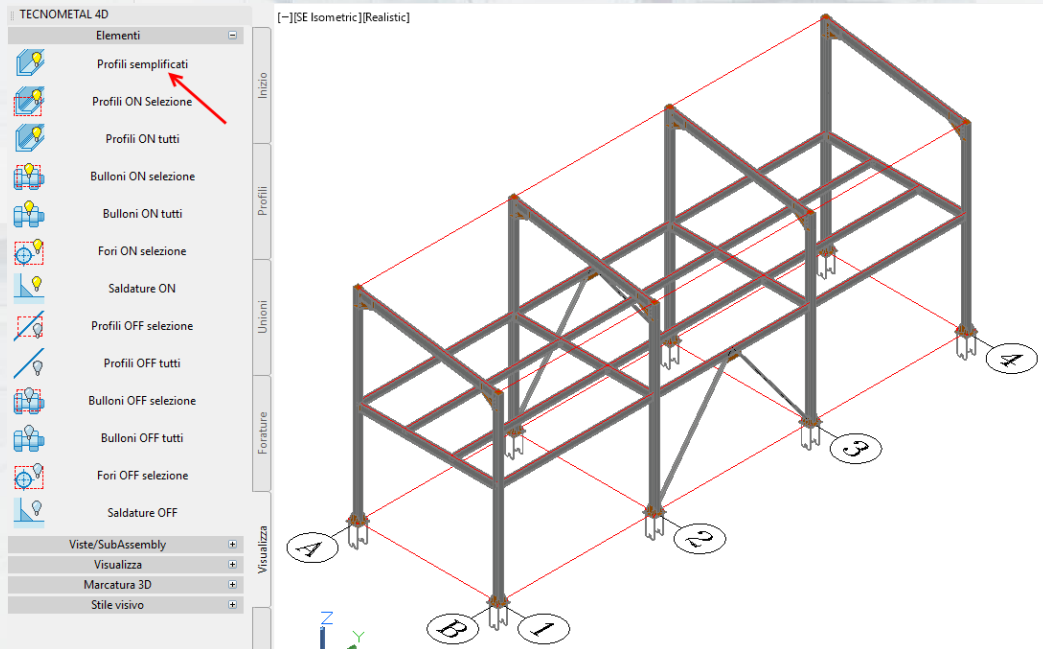
After the data insertion select (1) the points P1 P2 P3 P4 in the model as shown in the red block and then click on the Drawing button (2).



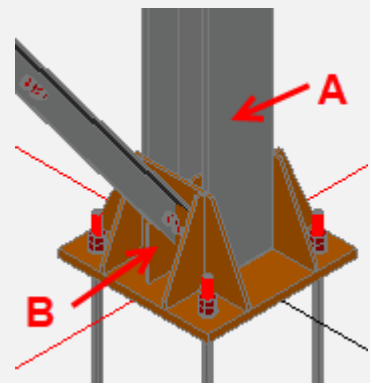
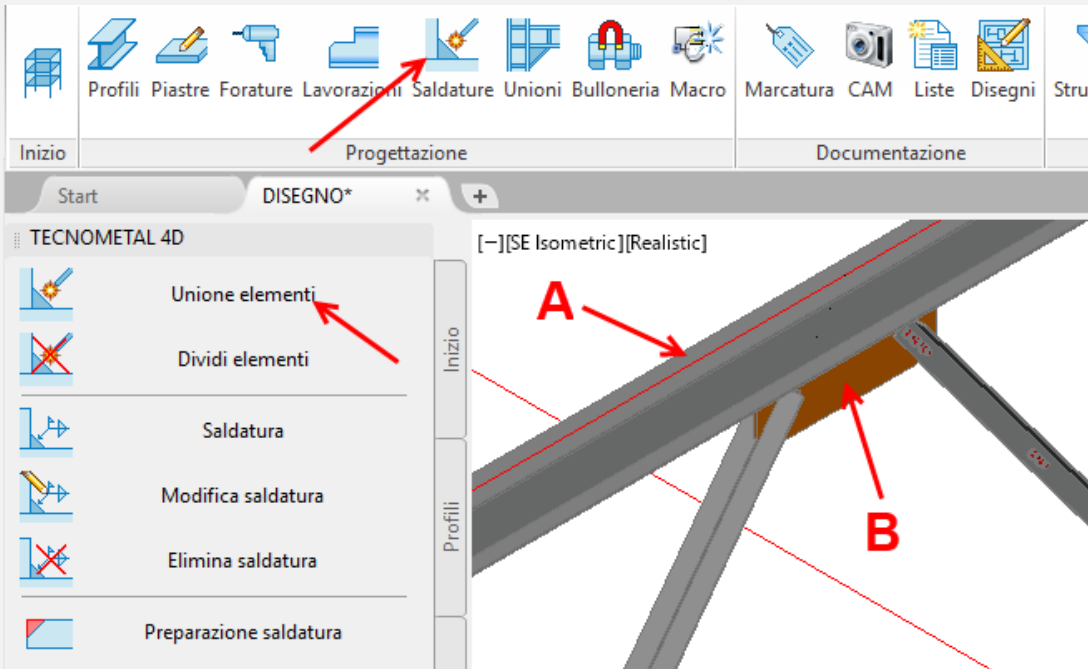
Repeat the same operation on the A line



To visualize all profiles enter in visualization and with “Simplified profiles” select all the model.

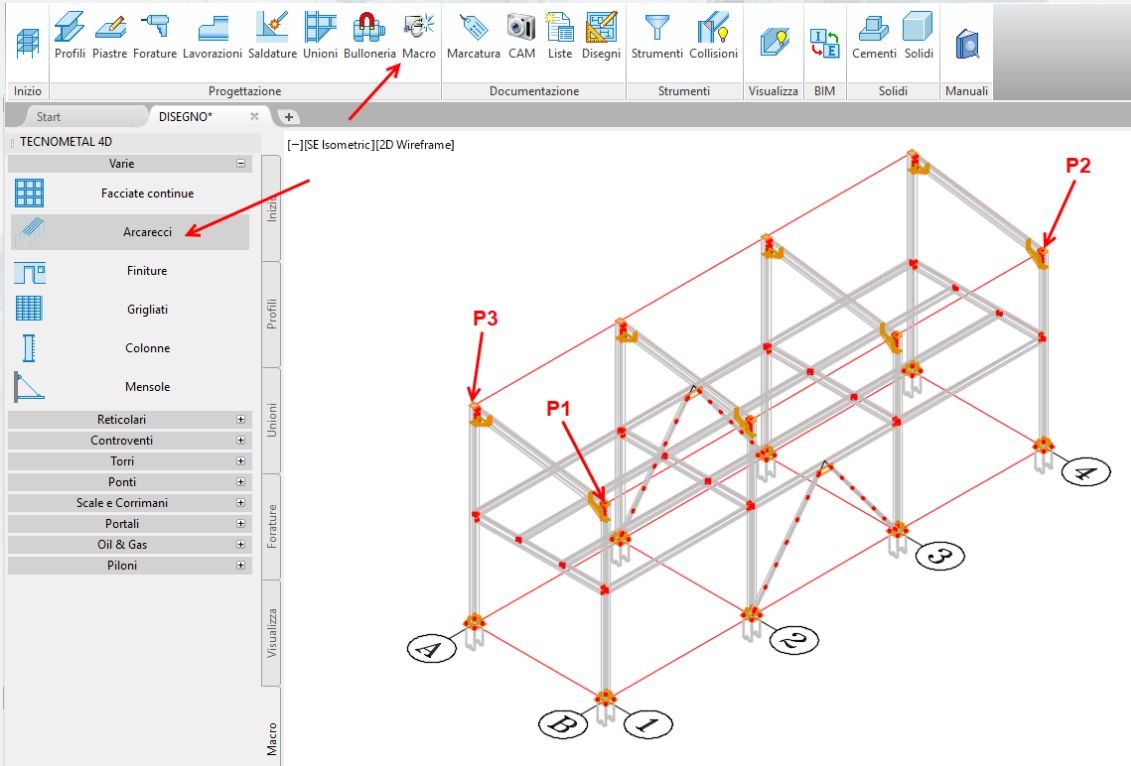


At this point we proceed with the welding of the brace plates to the respective beams or columns, select A and B, repeat the operation for all plates.

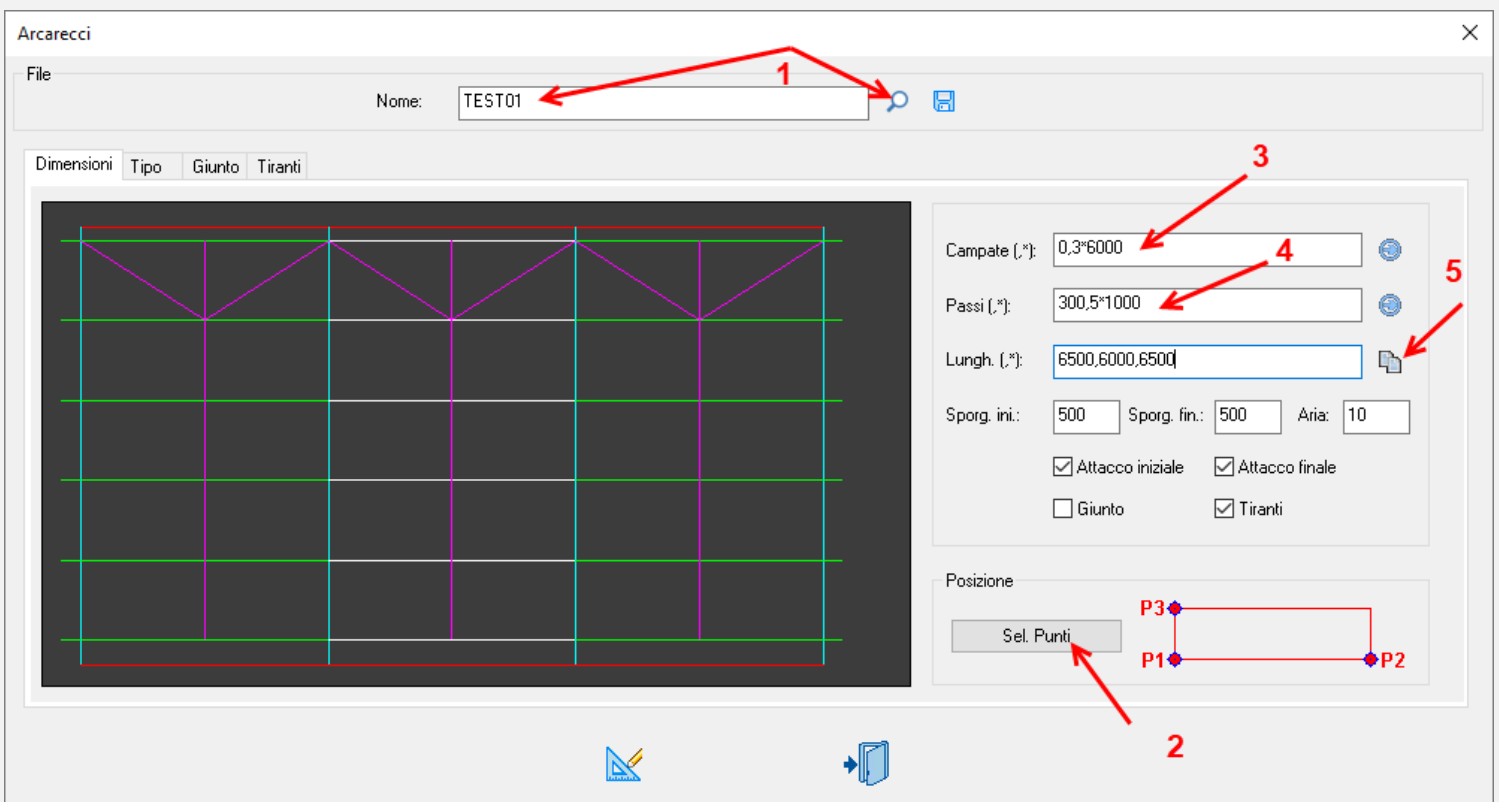




## Purlins Macro



With the MACRO command select Purlins. In the opened window select TEST01 (1) then with the button (2) select three points in the model as in the picture, correct the Spans (3) and the paces (4) then press the button (5), execute the drawing with the Drawing command.





Final result:

