

## 6 *Shearwalls* Tutorial 6 – 3 Storey Apartment Building (Canadian)

### 6.1 Software Version and Standard

This tutorial was completed using WoodWorks® Canada 2020, and CSA O86-19.

### 6.2 Introduction

This tutorial goes over the lateral design of a 3-storey apartment building.

Click [here](#) to download the Shearwall file (.wsw) created from going through this tutorial, prior to extending walls and openings to levels 2 and 3.

Click [here](#) to download the Shearwall file (.wsw) created from going through this tutorial, after extending walls and openings to levels 2 and 3.

### 6.3 Settings

1. Click on the **Settings** tab located in the menu bar.
2. Click on the **Default Values** tab in the **Settings** window.
3. Click on the **Reset original settings** button.
4. Under the **Member dimensions** section, specify:
  - a. **3** as the **Wall height (m)**
  - b. **200** as the **Floor/ceiling depth (mm)**
5. Under the **Roof geometry** section, select **Flat Roof** from the **Construction\*** drop-down list.
6. Under the **Self weights** section, specify **0.6** as the **Roof self weight (kPa)**.
7. Under the **Site information** section, select:
  - a. **Ontario** from the **Province\*** drop-down list
  - b. **Ottawa (City Hall)** from the **City\*** drop-down list
8. Click **OK**.

Settings

?

×

Company Information		Project Description		Format	Options	
Design	Default Values	Hold-downs	License Management	Loads and Forces	Plan View	Elevation View
<div>Member dimensions</div> <div> <div>Wall height</div> <div>3</div> <div>m</div> </div> <div> <div>Wall display thickness*</div> <div>140</div> <div>mm</div> </div> <div> <div>Floor/ceiling depth</div> <div>200</div> <div>mm</div> </div> <div> <div>Opening height*</div> <div>0.91</div> <div>m</div> </div> <div> <div>Opening bottom offset*</div> <div>0.76</div> <div>m</div> </div>		<div>Self weights</div> <div> <div>Floor</div> <div>0.5</div> <div>kPa</div> </div> <div> <div>Ceiling</div> <div>0.3</div> <div>kPa</div> </div> <div> <div>Roof</div> <div>0.6</div> <div>kPa</div> </div> <div> <div>Snow</div> <div>0.5</div> <div>kPa</div> </div> <div> <div>Interior wall</div> <div>0.3</div> <div>kPa</div> </div> <div> <div>Exterior wall</div> <div>0.5</div> <div>kPa</div> </div>		<div>Site information</div> <div> <div>Province*</div> <div>Ontario</div> <div>▼</div> </div> <div> <div>City*</div> <div>Ottawa (City Hall)</div> <div>▼</div> </div> <div> <div>Velocity pressure</div> <div>0.41</div> <div>kPa</div> </div> <div> <div>Importance category</div> <div>Normal</div> <div>▼</div> </div> <div>Standard walls for exterior footprint</div> <div> <div>Top level</div> <div>Exterior with Anchorages</div> <div>▼</div> </div> <div> <div>Other levels</div> <div>Exterior with Hold-downs</div> <div>▼</div> </div> <div>Reset original standard walls</div>		
<div>Roof geometry</div> <div> <div>Construction*</div> <div>Flat Roof</div> <div>▼</div> </div> <div> <div>Slope*</div> <div>30.0</div> <div>deg</div> </div> <div> <div>Overhang*</div> <div>300</div> <div>mm</div> </div>						

\*These settings create default values for the currently open project (except that Roof geometry settings must be set before Structure view is exited). All other settings have no effect unless "Save as default for new files" is checked.

☐ Save as default for new files
 

Reset original settings

OK

Cancel

Help

Figure 1: Shearwalls Tutorial 6 – Design Settings

## 6.4 CAD Import

1. Click on the **Import CAD Drawing** button on the toolbar.
2. Select **3** from the **Number of levels with CAD drawings** drop-down list.
3. Click on the **Import File** button for **Level 1**.
4. Follow the steps that are outlined in the **CAD Import Wizard**.

Note: Specify the first reference point by selecting the bottom left corner of the family room in apartment 3.

5. Specify **4 (m)** for the **X-coordinate** and **0 (m)** for the **Y-coordinate**.
6. Click **Next**.
7. Specify the second reference point by selecting the top left corner of the family room in apartment 1.
8. Specify **20 (m)** as the **Distance between points**.
9. Click **Finish level 1**.
10. Repeat steps 3-10 for level 2 and level 3 of the apartment.

Click [here](#) to download the CAD drawing file (.pdf).

## 6.5 Structure Blocks and Adjusting Levels

1. Click on the **Structure** button on the toolbar.
2. Create the first block by clicking and holding the left mouse button, starting at the top left corner of the structure (family room apartment 1) to the bottom right corner of the structure (family room apartment 4).
3. In the **Structure Input** window, under the **Blocks** section specify:
  - a. **Main** as the **Block name**
  - b. **3** as the **No. of levels**
4. In the **Structure Input** window, under the **Levels** section specify **0.5** as the **Diaphragm elevation (m)** for **Foundation elevation**

**Note:** Adjust the **Wall height (m)** and/or **Floor/Ceiling depth (mm)** if they do not match the values specified in the design settings ([6.3 Settings](#)).

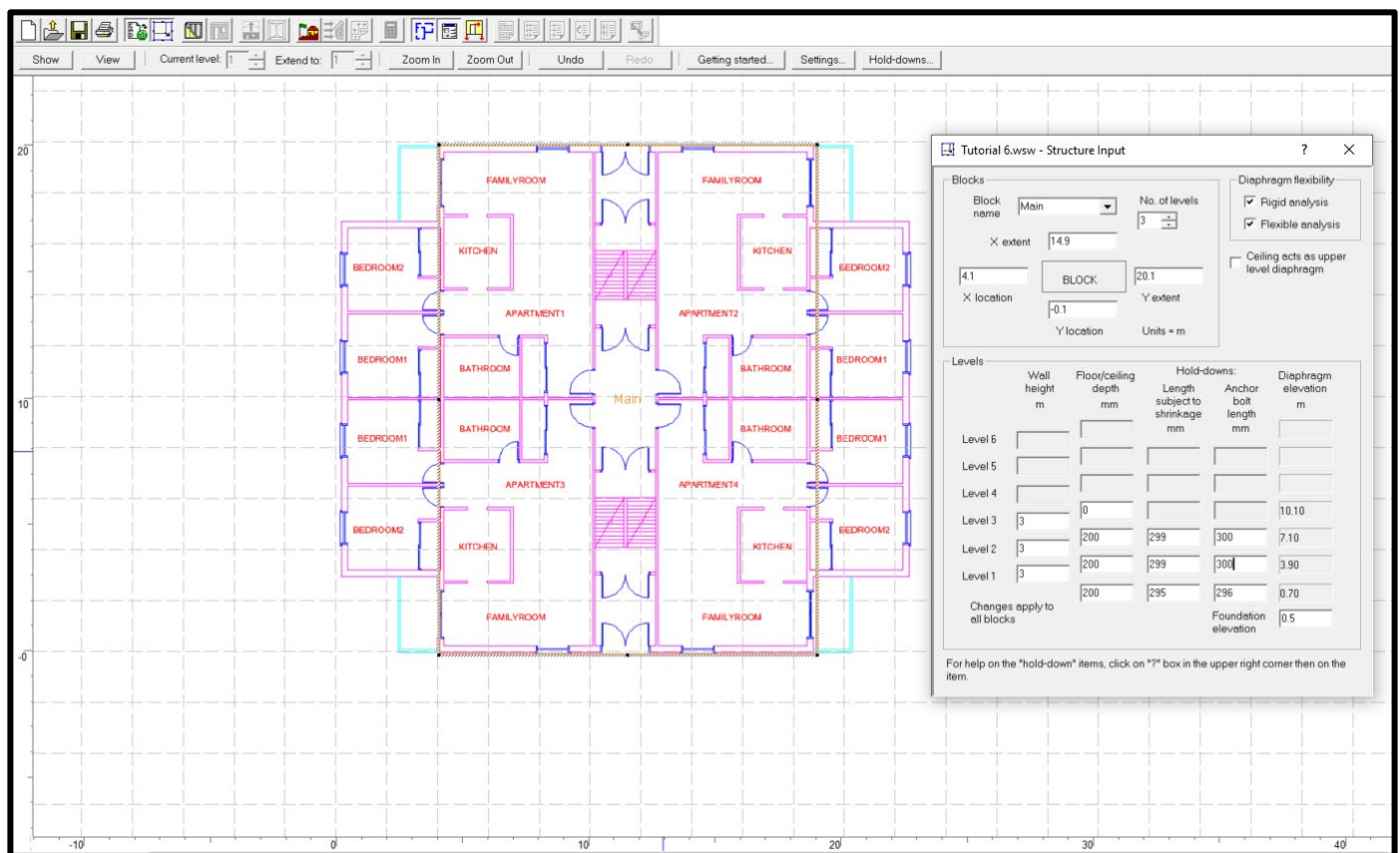


Figure 2: Shearwalls Tutorial 6 – CAD Drawing Block

## 6.6 Level 1

### 6.6.1 Wall Details

1. Click on the **Walls** button on the toolbar.
2. Click on wall **1-1**.
3. Click on **(4, 0)** and drag the wall to **(4, 3)**.
4. Click on **(4, 20)** and drag the wall to **(4, 17)**.

Note: There should be three walls (1-1, 1-2 and 1-3) along shearline 1.

5. Click on wall **2-1**.
6. Click on **(19, 0)** and drag the wall to **(19, 3)**.
7. Click on **(19, 20)** and drag the wall to **(19, 17)**.

Note: There should be three walls (2-1, 2-2 and 2-3) along shearline 2.

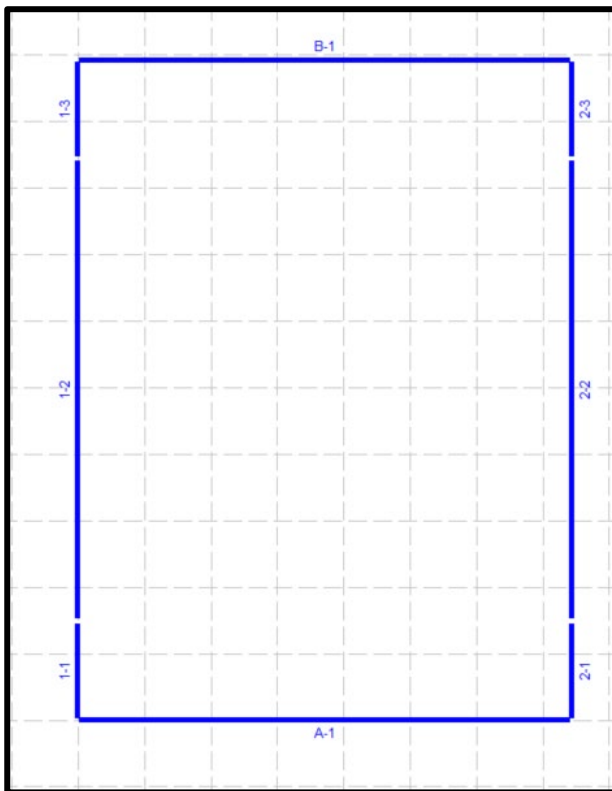


Figure 3: Shearwalls Tutorial 6 – Splitting Shearline 1 and 2 (Without CAD Drawing)

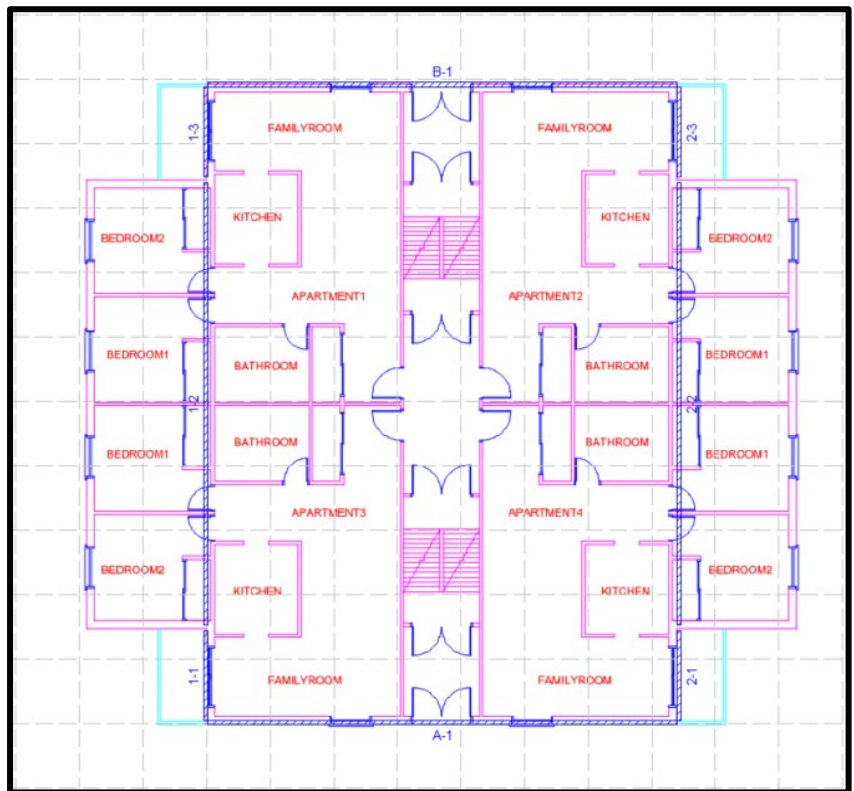


Figure 4: Shearwalls Tutorial 6 – Splitting Shearline 1 and 2 (With CAD Drawing)

8. Click on wall **1-2** and while holding down the **left** mouse button and the **Shift** key on the keyboard, drag wall **1-2** to gridpoint **(0, 3)**.

Note: This wall has been renamed to **1-1**.

9. Click on wall **3-2** (formerly wall 2-2) and while holding down the **left** mouse button and the **Shift** key on the keyboard, drag wall **3-2** to gridpoint **(22.8, 3)**.

Note: This wall has been renamed to **4-1**.

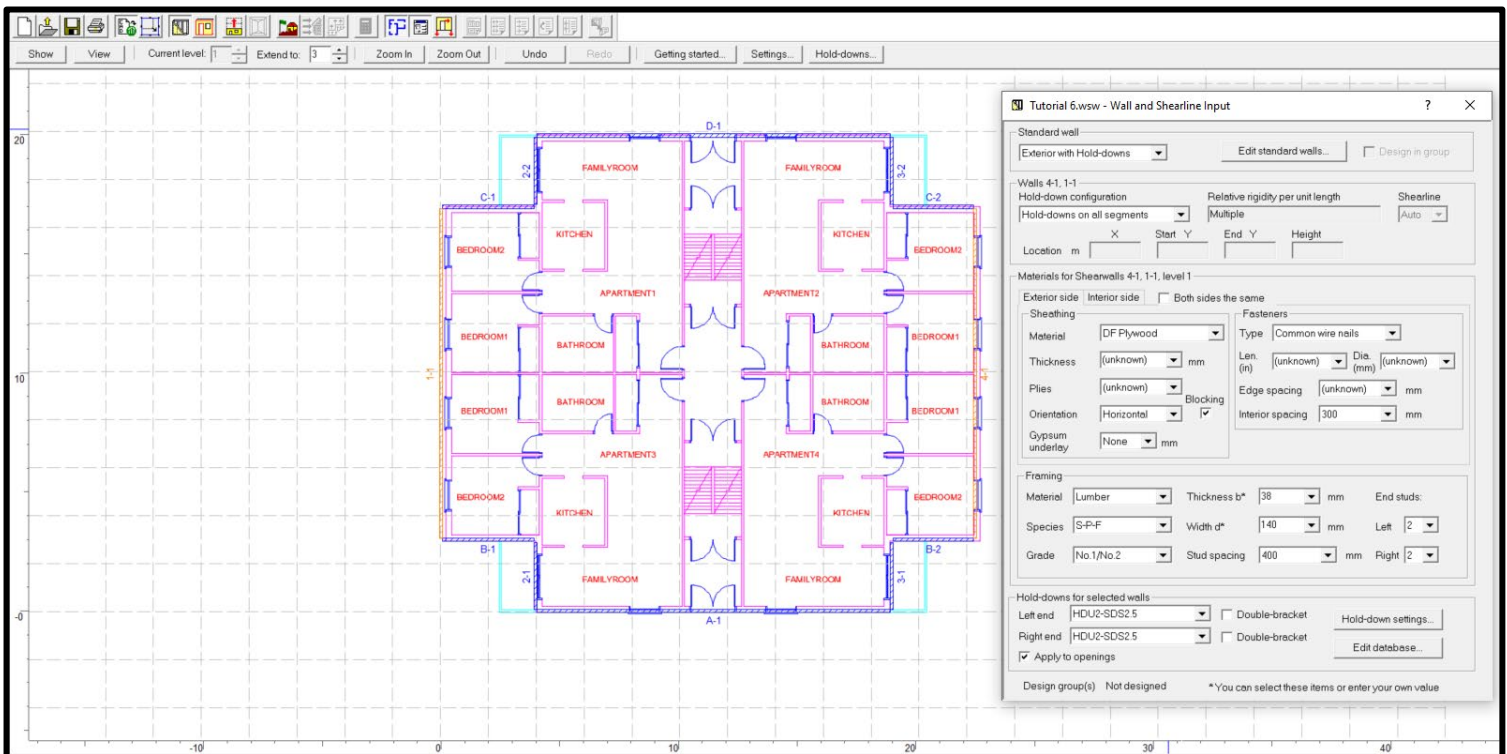


Figure 5: *Shearwalls Tutorial 6 – Extend Shearline 1 and 2 to Match CAD Drawing*

10. Create the North-South and East-West walls of the apartment by using the coordinates in the table below:

<b>North-South Walls</b>					<b>East-West Walls</b>				
<b>No.</b>	<b>Name</b>	<b>X (m)</b>	<b>Start Y (m)</b>	<b>End Y (m)</b>		<b>Name</b>	<b>Y (m)</b>	<b>Start X (m)</b>	<b>End X (m)</b>
1	1-1	0	3	17		A-1	0	4	19
2	2-1	4	0	3		B-1	2.7	4	6.9
3	2-2	4	17	20		B-2	2.7	15.9	19
4	3-1	4.2	3	10		C-1	3	0	4
5	3-2	4.2	10	17		C-2	3	19	22.8
6	4-1	6.9	2.7	5.6		D-1	5.6	4.2	6.9
7	4-2	6.9	14.3	17.2		D-2	5.6	15.9	18.7
8	5-1	7.3	7.5	10		E-1	6.6	0	4.2
9	5-2	7.3	10	12.5		E-2	6.6	18.8	22.8
10	6-1	10.2	0	20		F-1	7.5	4.2	8.3
11	7-1	12.7	0	20		F-2	7.5	14.5	18.7
12	8-1	15.6	7.5	10		G-1	10	0.2	10.2
13	8-2	15.6	10	12.5		G-2	10	12.7	22.8
14	9-1	15.9	2.7	5.6		H-1	12.5	4.2	8.3
15	9-2	15.9	14.3	17.2		H-2	12.5	14.6	18.7
16	10-1	18.7	3	10		I-1	13.4	0	4.2
17	10-2	18.7	10	17		I-2	13.4	18.8	22.8
18	11-1	19	0	3		J-1	14.3	4.2	6.9
19	11-2	19	17	20		J-2	14.3	15.9	18.7
20	12-1	22.8	3	17		K-1	17	0	4
21	-	-	-	-		K-2	17	19	22.8
22	-	-	-	-		L-1	17.2	4.2	6.9
23	-	-	-	-		L-2	17.2	15.9	18.7
24	-	-	-	-		M-1	20	4	19

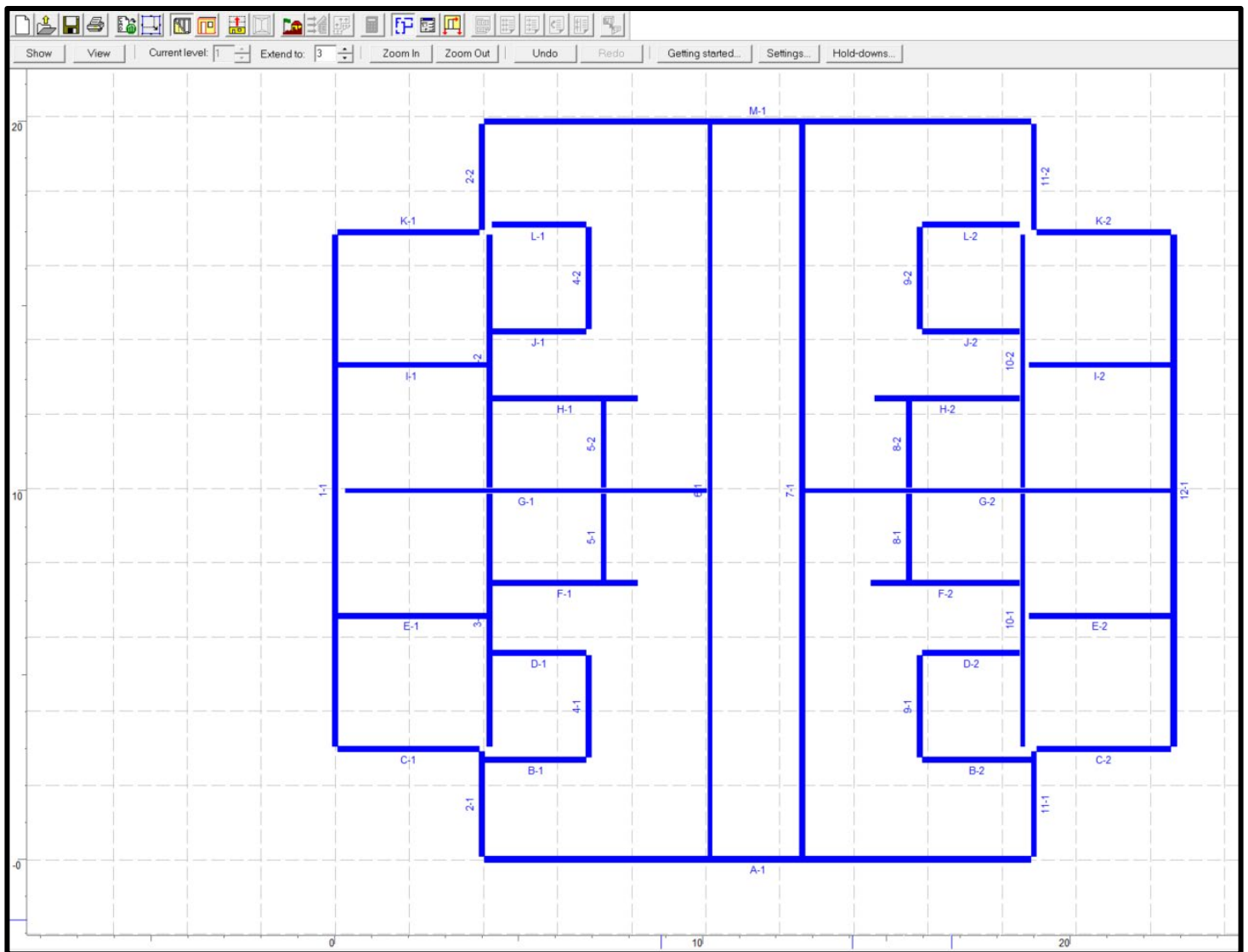


Figure 6: *Shearwalls Tutorial 6 – Level 1 Interior Shearwalls (Without CAD Drawing)*



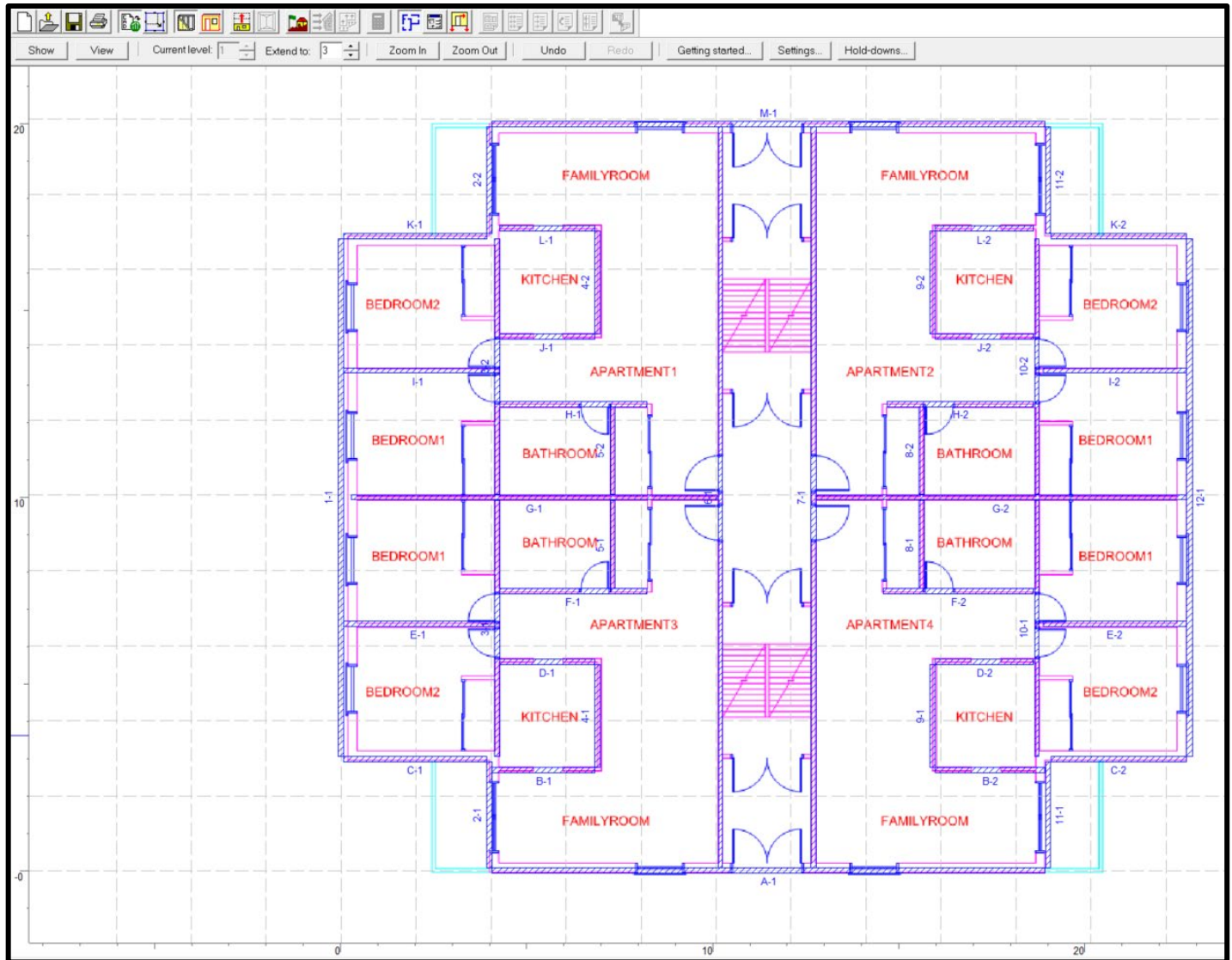


Figure 7: Shearwalls Tutorial 6 – Level 1 Interior Shearwalls (With CAD Drawing)

### 6.6.2 Openings

1. Click on the **Openings** button on the toolbar.
2. Create the North-South and East-West openings of the apartment by using the coordinates in the table below:

North-South Openings					East-West Openings			
No.	Wall	Opening Type	Offset from Edge (m)	Width (m)	Wall	Opening Type	Offset from Edge (m)	Width (m)
1	1-1	W	1.2	1.2	A-1	W	3.9	1.2
2		W	4.7	1.2		D	6.5	1.9
3		W	8	1.2		W	9.7	1.2
4		W	11.5	1.2	B-1	W	1	0.8
5	2-1	D	0.6	1.9	B-2	W	1	0.8
6	2-2	D	0.6	1.9	D-1	W	1	0.8
7	3-1	D	2.7	0.8	D-2	W	1	0.8
8		D	3.6	0.8	F-1	D	2.2	0.8
9	3-2	D	2.5	0.8	F-2	D	1.2	0.8
10		D	3.5	0.8	H-1	D	2.2	0.8
11	6-1	D	8.9	0.8	H-2	D	1.2	0.8
12		D	10	0.8	J-1	W	1	0.8
13	7-1	D	8.9	0.8	J-2	W	1	0.8
14		D	10	0.8	L-1	W	1	0.8
15	10-1	D	2.7	0.8	L-2	W	1	0.8
16		D	3.6	0.8	M-1	W	3.9	1.2
17	10-2	D	2.5	0.8		D	6.5	1.9
18		D	3.5	0.8		W	9.7	1.2
19	11-1	D	0.6	1.9	-	-	-	-
20	11-2	D	0.6	1.9	-	-	-	-
21	12-1	W	1.2	1.2	-	-	-	-
22		W	4.7	1.2	-	-	-	-
23		W	8	1.2	-	-	-	-
24		W	11.5	1.2	-	-	-	-

Tip: Create the openings, over the blue doors and windows illustrated in the CAD drawing, by clicking and dragging the mouse.

3. Click on any wall in the North-South or East-West direction.
4. In the **Opening Input** window, under the **Wall** section specify **2.2 (m)** as the **Height** and **0 (m)** as the **Offset from bottom** for door openings and **1 (m)** as the **Height** and **1.2 (m)** as the **Offset from bottom** for window openings.
5. Repeat steps 3 and 4 until all door and window openings have been adjusted.

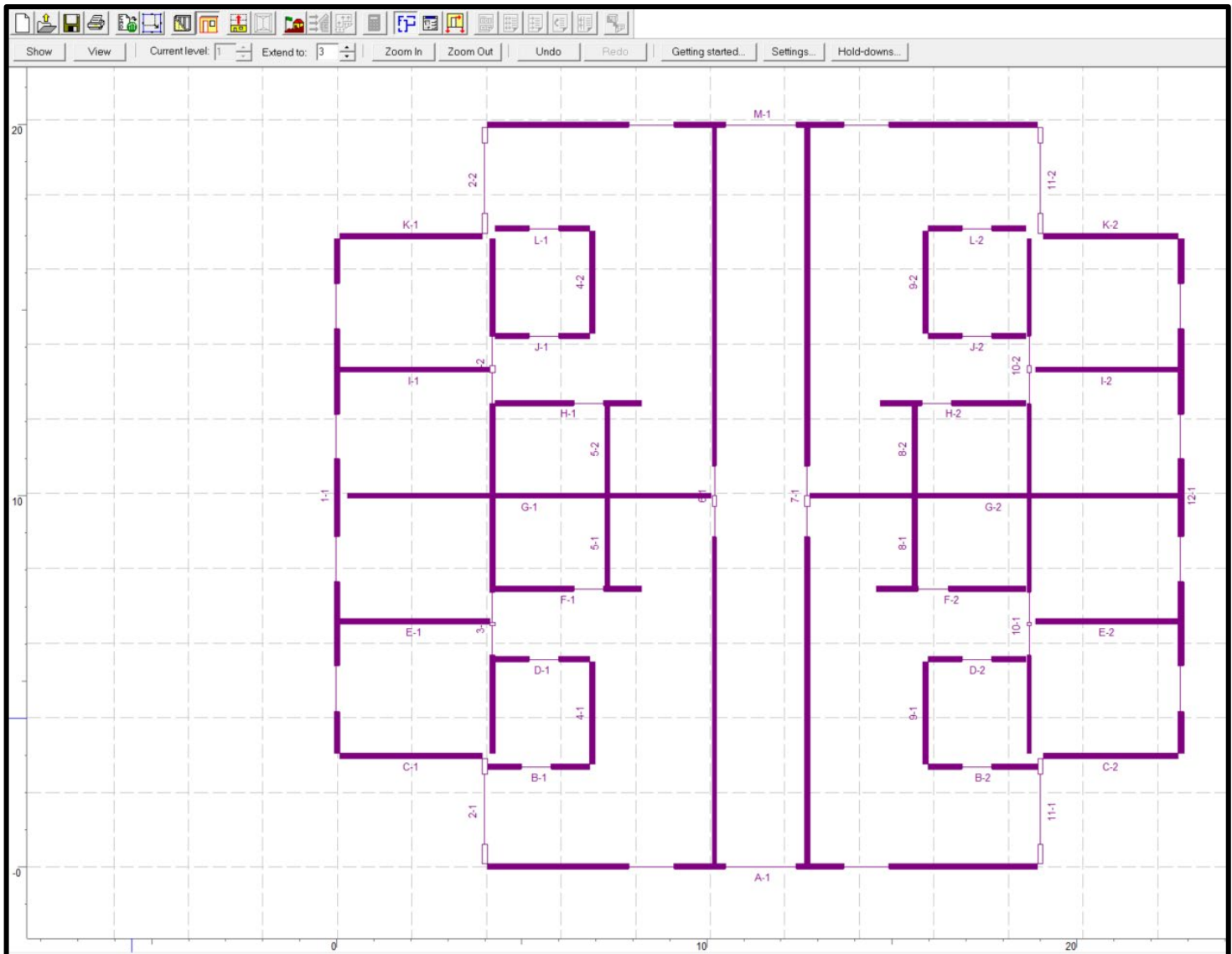


Figure 8: Shearwalls Tutorial 6 – Level 1 Door and Window Openings (Without CAD Drawing)

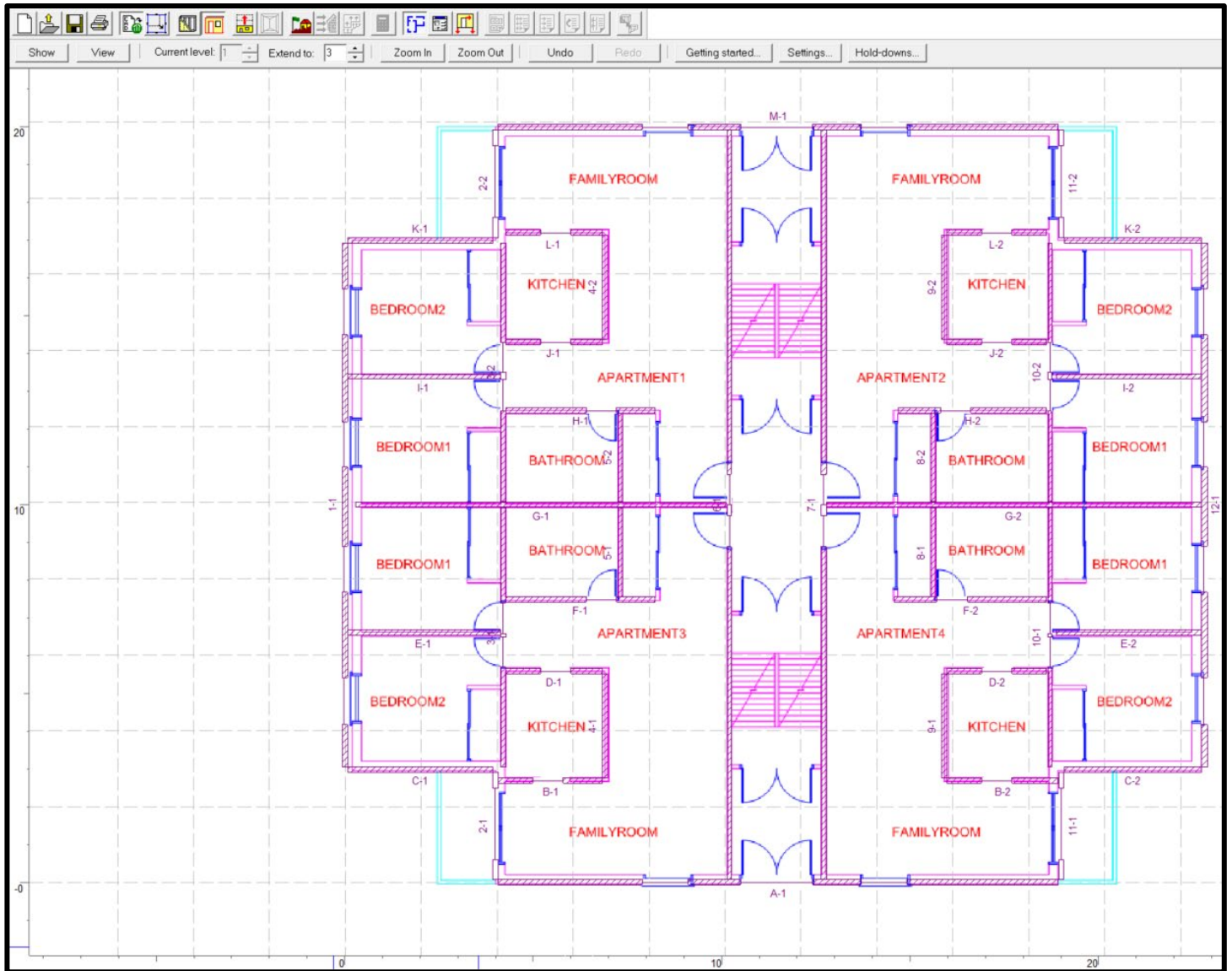


Figure 9: Shearwalls Tutorial 6 – Level 1 Door and Window Openings (With CAD Drawing)

## 6.7 Create Standard Walls

### 6.7.1 Shearwall1

1. Click on the **Walls** button on the toolbar.
2. In the **Wall and Shearline Input** window, click on the **Edit standard walls...** button.
3. In the **Wall and Shearline Input** window, under the **Edit standard wall** section, click on the **New** button.
4. In the **Wall and Shearline Input** window, under the **Standard wall** section, specify **Shearwall1** as the new standard wall name.
5. In the **Wall and Shearline Input** window, under the **Edit standard wall** section, select **Hold-downs on all segments** from the drop-down list.
6. In the **Wall and Shearline Input** window, under the **Materials for Shearline** section, select the **Both sides the same** check box.
7. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify:
  - a. **OSB** as the **Material**
  - b. **11** as the **Thickness (mm)**
  - c. **2R24** as the **Panel mark**
  - d. **Horizontal** as the **Orientation**
  - e. Select the **Blocking** check box
8. In the **Wall and Shearline Input** window, under the **Fasteners** section, specify:
  - a. **Common wire nails** as the **Type**
  - b. **2-1/2"** as the **Len. (in)**
  - c. **3.33** as the **Dia. (mm)**
  - d. **(unknown)** as the **Edge spacing (mm)**
  - e. **(unknown)** as the **Interior spacing (mm)**
9. In the **Wall and Shearline Input** window, under the **Framing** section, specify:
  - a. **Lumber** as the **Material**
  - b. **S-P-F** as the **Species**
  - c. **No.1/No.2** as the **Grade**
  - d. **38** as the **Thickness b\* (mm)**
  - e. **140** as the **Width d\* (mm)**
  - f. **400** as the **Stud spacing (mm)**
  - g. **2** as the **Left and Right End studs**
10. Click **Save**.
11. Click **OK**.

**Tutorial 6.wsw - Add a New Standard Wall** ? X

---

Standard wall

▼ Shearwall1 ☐ Design as a group

---

Edit standard wall

Hold-down configuration

▼ Hold-downs on all segments

New Copy Delete Save Cancel

---

Materials for Shearline

Both sides ☒ Both sides the same

Sheathing

Material ▼ OSB

Thickness ▼ 11 mm

Panel mark ▼ 2R24

Orientation ▼ Horizontal

Gypsum underlay ▼ None mm

Blocking ☒

Fasteners

Type ▼ Common wire nails

Len. (in) ▼ 2-1/2" Dia. (mm) ▼ 3.33

Edge spacing ▼ (unknown) mm

Interior spacing ▼ (unknown) mm

---

Framing

Material <span>▼</span> Lumber	Thickness b* <span>▼</span> 38 mm	End studs:
Species <span>▼</span> S-P-F	Width d* <span>▼</span> 140 mm	Left <span>▼</span> 2
Grade <span>▼</span> No.1/No.2	Stud spacing <span>▼</span> 400 mm	Right <span>▼</span> 2

Figure 10: *Shearwalls Tutorial 6 – Shearwall1 Properties*

### 6.7.2 Shearwall2

1. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Shearwall1** from the drop-down list.
2. Click **Copy**.
3. In the **Wall and Shearline Input** window, under the **Standard wall** section, specify **Shearwall2** as the new standard wall name.
4. In the **Wall and Shearline Input** window, under the **Materials for Shearline** section, deselect the **Both sides the same** check box.
5. In the **Wall and Shearline Input** window, under the **Materials for Shearwalls** section click on the **Interior side** tab.
6. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify **None** as the **Material**.
7. Click **Save**.
8. Click **OK**.

### 6.7.3 Shearwall3

1. In the ***Wall and Shearline Input*** window, under the ***Standard wall*** section, select ***Shearwall2*** from the drop-down list.
2. Click ***Copy***.
3. In the ***Wall and Shearline Input*** window, under the ***Standard wall*** section, specify ***Shearwall3*** as the new standard wall name.
4. Click ***Save***.
5. Click ***OK***.



## 6.8 Modify Standard Walls

### 6.8.1 Exterior Non-Shear Standard Wall

1. In the **Wall and Shearline Input** window, click on the **Edit standard walls...** button.
2. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Exterior Non-Shear** from the **Standard wall** drop-down list.
3. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify:
  - a. **OSB** as the **Material**
  - b. **11** as the **Thickness (mm)**
  - c. **2R24** as the **Panel mark**
  - d. **Horizontal** as the **Orientation**
  - e. Select the **Blocking** check box
4. In the **Wall and Shearline Input** window, under the **Fasteners** section, specify:
  - a. **Common wire nails** as the **Type**
  - b. **2-1/2"** as the **Len. (in)**
  - c. **3.33** as the **Dia. (mm)**
  - d. **150** as the **Edge spacing (mm)**
  - e. **300** as the **Interior spacing (mm)**
5. In the **Wall and Shearline Input** window, under the **Framing** section, specify:
  - a. **Lumber** as the **Material**
  - b. **S-P-F** as the **Species**
  - c. **No.1/No.2** as the **Grade**
  - d. **38** as the **Thickness b\* (mm)**
  - e. **140** as the **Width d\* (mm)**
  - f. **400** as the **Stud spacing (mm)**
  - g. **2** as the **Left and Right End studs**
6. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify **None** as the **Material**.
7. Click **Save**.
8. Click **OK**.

Tutorial 6.wsw - Edit Standard Walls

Standard wall  
 Exterior Non-Shear Exterior Non-Shear ☐ Design as a group

Edit standard wall  
 Hold-down configuration  
 Non-shearwall

New Copy Delete OK Cancel

Materials for Shearline  
 Exterior side Interior side ☐ Both sides the same

Sheathing  
 Material OSB  
 Thickness 11 mm  
 Panel mark 2R24  
 Orientation Horizontal ☒ Blocking  
 Gypsum underlay None mm

Fasteners  
 Type Common wire nails  
 Len. (in) 2-1/2" Dia. (mm) 3.33  
 Edge spacing 150 mm  
 Interior spacing 300 mm

Framing  
 Material Lumber Thickness b\* 38 mm End studs:  
 Species S-P-F Width d\* 140 mm Left 2  
 Grade No.1/No.2 Stud spacing 400 mm Right 2

Figure 11: *Shearwalls Tutorial 6 – Modified Exterior Non-Shear Standard Wall*

### 6.8.2 Interior Non-Shear Standard Wall

1. In the **Wall and Shearline Input** window, click on the **Edit standard walls...** button.
2. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Interior Non-Shear** from the **Standard wall** drop-down list.
3. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify:
  - a. **GWB Type X** as the **Material**
  - b. **12.5** as the **Thickness (mm)**
  - c. **Horizontal** as the **Orientation**
  - d. Select the **Blocking** check box
4. In the **Wall and Shearline Input** window, under the **Fasteners** section, specify:
  - a. **Drywall screws** as the **Type**
  - b. **1-1/4"** as the **Len. (in)**
  - c. **200** as the **Edge spacing (mm)**
  - d. **300** as the **Interior spacing (mm)**
5. In the **Wall and Shearline Input** window, under the **Framing** section, specify:
  - a. **Lumber** as the **Material**
  - b. **S-P-F** as the **Species**
  - c. **No.1/No.2** as the **Grade**
  - d. **38** as the **Thickness b\* (mm)**
  - e. **140** as the **Width d\* (mm)**
  - f. **400** as the **Stud spacing (mm)**
  - g. **2** as the **Left and Right End studs**
6. In the **Wall and Shearline Input** window, under the **Sheathing** section, specify **None** as the **Material**.
7. Click **Save**.
8. Click **OK**.

Tutorial 6.wsw - Edit Standard Walls ? X

Standard wall  
 Interior Non-Shear Interior Non-Shear ☐ Design as a group

Edit standard wall  
 Hold-down configuration  
 Non-shearwall

New Copy Delete OK Cancel

Materials for Shearline

Both sides ☒ Both sides the same

Sheathing  
 Material: GWB Type X  
 Thickness: 12.5 mm  
 Plies:   
 Orientation: Horizontal ☒ Blocking  
 Gypsum underlay: None mm

Fasteners  
 Type: Drywall screws  
 Len. (in): 1-1/4" Dia. (mm):   
 Edge spacing: 200 mm  
 Interior spacing: 300 mm

Framing  
 Material: Lumber Thickness b\*: 38 mm End studs:  
 Species: S-P-F Width d\*: 140 mm Left: 2  
 Grade: No.1/No.2 Stud spacing: 400 mm Right: 2

Figure 12: *Shearwalls Tutorial 6 – Modified Interior Non-Shear Standard Wall*

### 6.9.1 Level 1

- [illegible]

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3. Press the **Ctrl** key on the keyboard and select the following North-South walls:
  - a. **4-1, 4-2, 5-1, 5-2, 8-1, 8-2, 9-1** and **9-2**
4. Continue holding the **Ctrl** key on the keyboard and select the following East-West walls:
  - a. **B-1, B-2, D-1, D-2, E-1, E-2, F-1, F-2, H-1, H-2, I-1, I-2, L-1, L-2, J-1, J-2, L-1** and **L-2**
5. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Interior Non-Shear** from the **Standard wall** drop-down list.

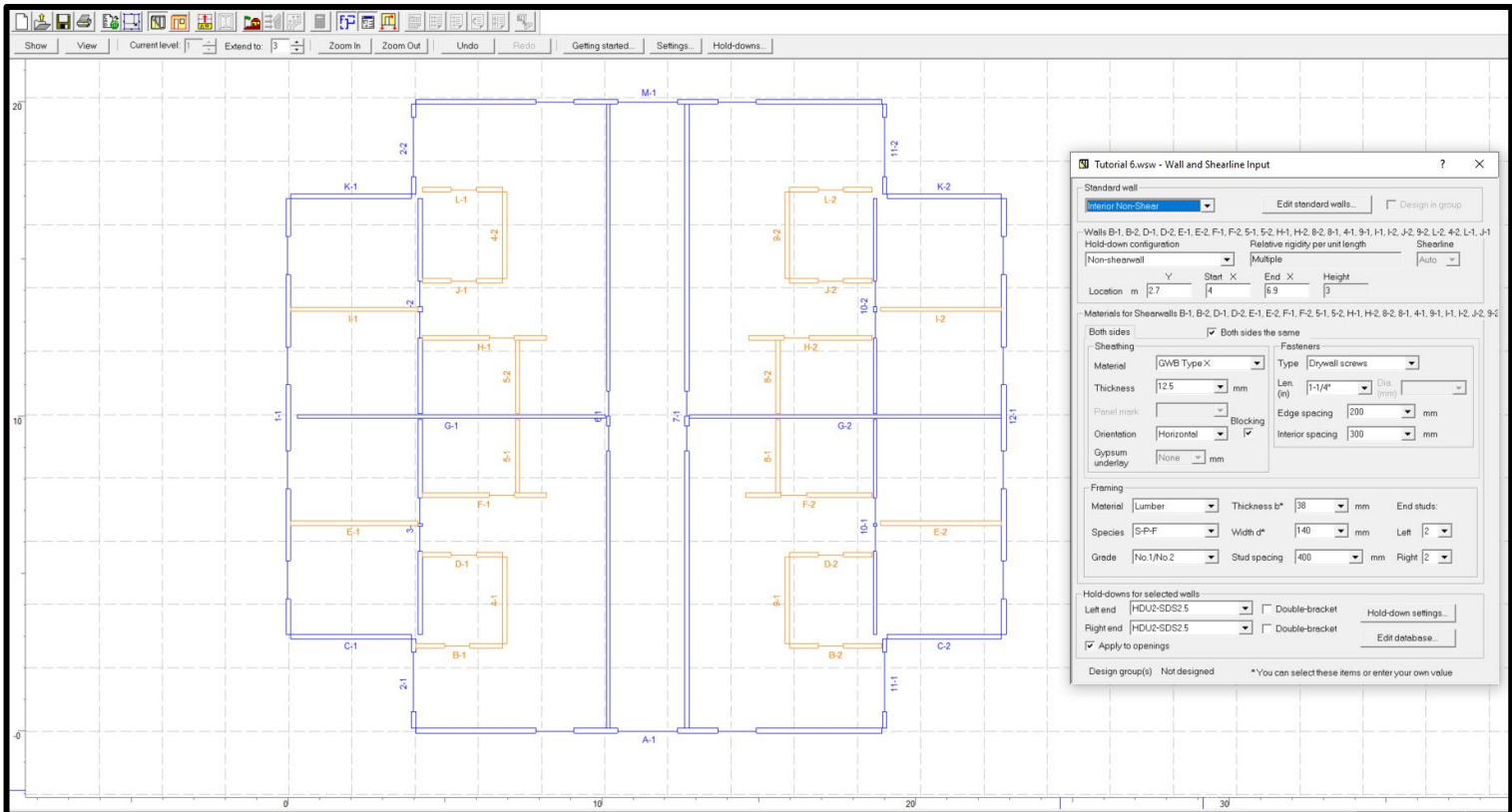


Figure 14: *Shearwalls Tutorial 6 – Specify Interior Non-Shear Walls (Level 1)*

- 
- Tutorial 6.wsw - Wall and Shearline Input**
- Standard wall: **Shearwall1** Edit standard walls... ☒ Design in group
- Walls: C-1, 3-1, 3-2, K-1, G-1, 6-1, 7-1, 10-2, K-2, G-2, 10-1, C-2  
 Hold-down configuration: **Multiple** Relative rigidity per unit length Shearline  
☒ Hold-downs on all segments Multiple End X Height  
 Location: m Y Start X End X Height  
0 4 3
- Materials for Shearwalls C-1, 3-1, 3-2, K-1, G-1, 6-1, 7-1, 10-2, K-2, G-2, 10-1, C-2 level 1
- Both sides: ☒ Both sides the same
- Sheathing: **OSB** Type **Common wire nails**  
 Material: **OSB** Len **2-1/2"** Dis **3.33**  
 Thickness: **11** mm Dis **3.33** mm  
 Panel mark: **1R2/2F16** Blocking ☒  
 Orientation: **Horizontal** Edge spacing **(unknown)** mm  
 Gypsum underlay: **None** mm Interior spacing **(unknown)** mm
- Framing: **Lumber** Thickness b" **38** mm End studs  
 Species: **S-P-F** Width d" **140** mm Left **2**  
 Grade: **No 1/No 2** Stud spacing **400** mm Right **2**
- Hold-downs for selected walls: **HOU2-SDS2.5** Double-bracket Hold-down settings...  
 Left end: **HOU2-SDS2.5** Double-bracket Edit database...  
 Right end: **HOU2-SDS2.5** Double-bracket  
☒ Apply to openings
- Design group(s): **Not designed** \*You can select these items or enter your own value

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## 6.9.2 Level 2

1. Click on the **Extend Walls Upwards** button on the toolbar.
2. On the menu bar, change the **Current level** to **2**.
3. Press the **Ctrl** key on the keyboard and select the following North-South walls:
  - a. **3-1, 3-2, 6-1, 7-1, 10-1** and **10-2**
4. Continue holding the **Ctrl** key on the keyboard and select the following East-West walls:
  - a. **C-1, C-2, G-1, G-2, K-1** and **K-2**
5. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Shearwall2** from the **Standard wall** drop-down list.

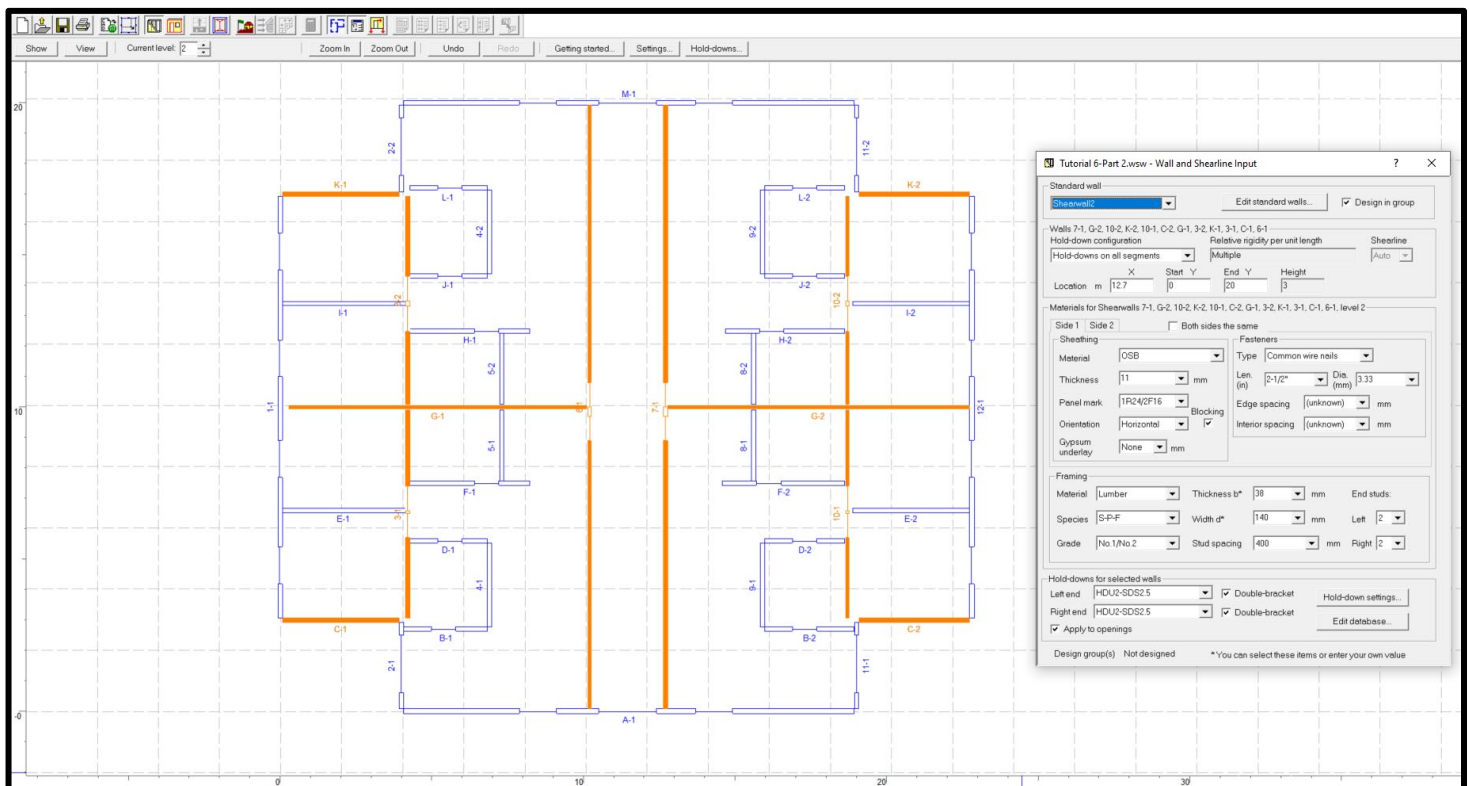


Figure 16: Shearwalls Tutorial 6 – Specify Shearwall2 Walls (Level 2)



### 6.9.3 Level 3

1. On the menu bar, change the **Current level** to **3**.
2. Press the **Ctrl** key on the keyboard and select the following North-South walls:
  - a. **3-1, 3-2, 6-1, 7-1, 10-1** and **10-2**
3. Continue holding the **Ctrl** key on the keyboard and select the following East-West walls:
  - a. **C-1, C-2, G-1, G-2, K-1** and **K-2**
4. In the **Wall and Shearline Input** window, under the **Standard wall** section, select **Shearwall3** from the **Standard wall** drop-down list.

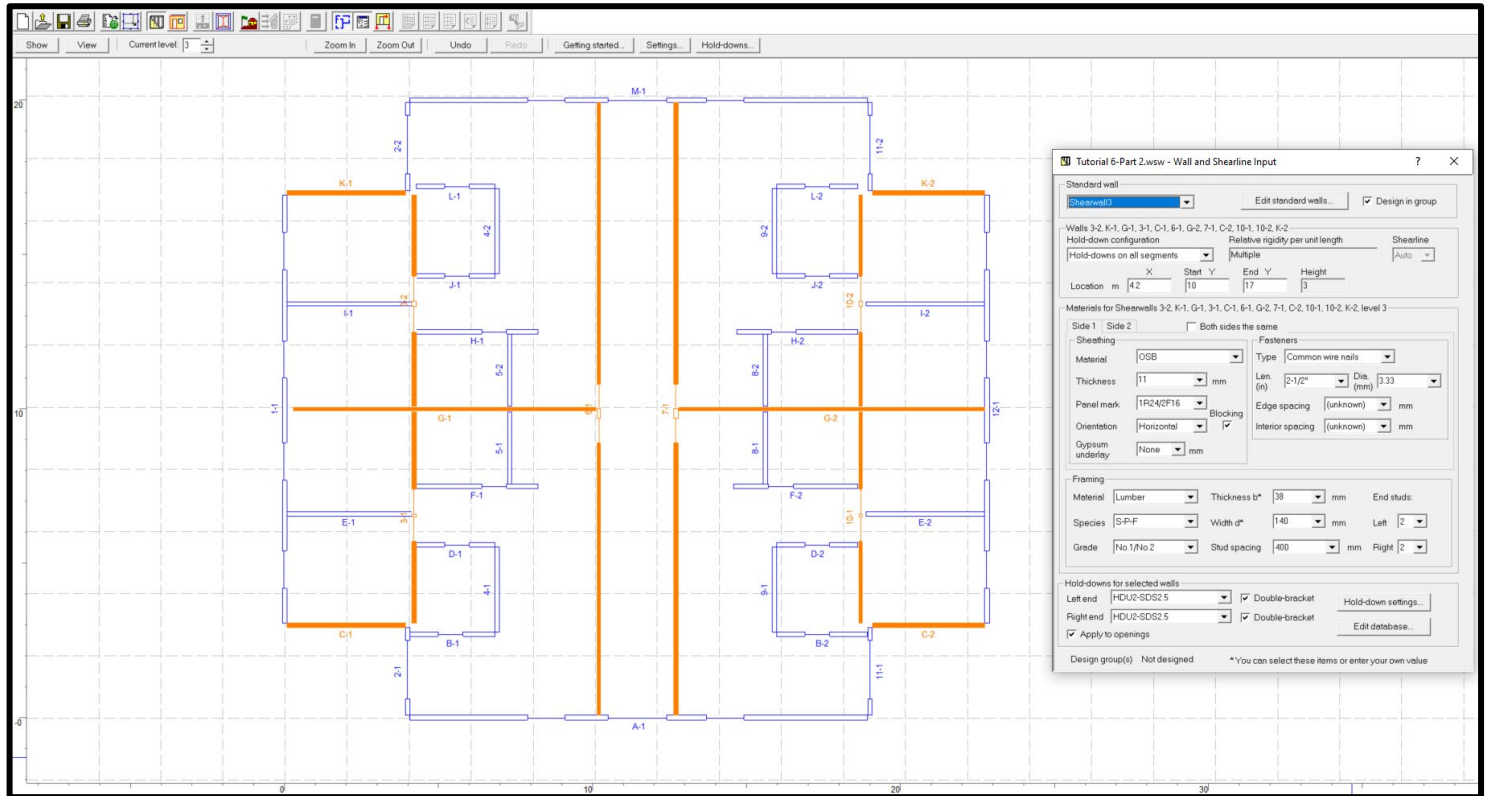


Figure 17: *Shearwalls Tutorial 6 – Specify Shearwall3 Walls (Level 3)*

## 6.10 Roof Shape

1. Click on the **Roof Blocks** button on the toolbar.
2. Click on the **Main** structure block and adjust the roof block as shown in Figure 18.
3. In the **Roof Input** window, under the **Construction** section, select the **Flat roof** check box.

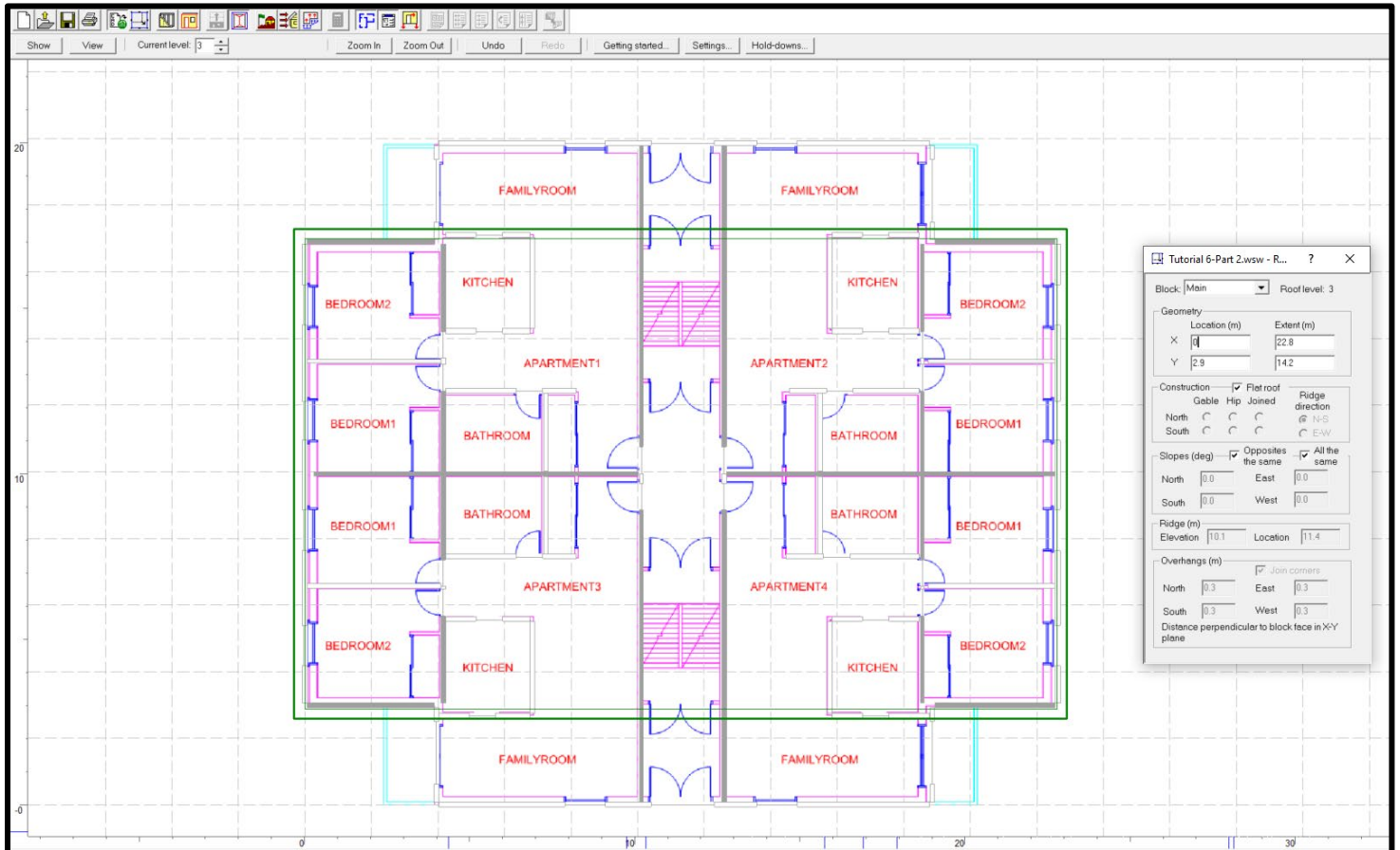


Figure 18: *Shearwalls Tutorial 6 – Modify Roof Input for Main Block*

4. Create and adjust a second roof block as shown in Figure 19.
5. In the **Roof Input** window, under the **Construction** section, select the **Flat roof** check box.

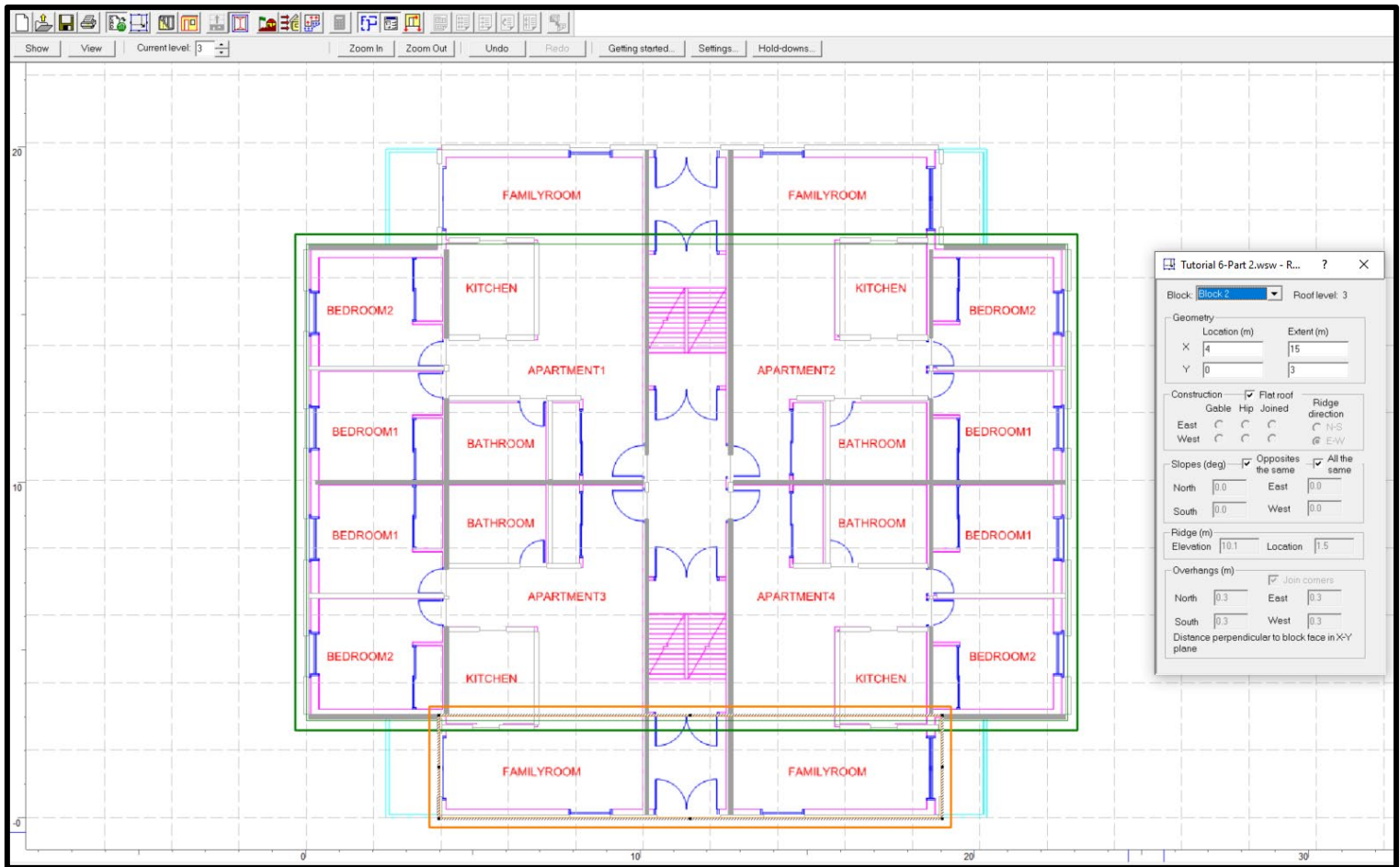


Figure 19: *Shearwalls Tutorial 6 – Second Roof Block*

6. Create and adjust a third roof block as shown in Figure 20.
7. In the **Roof Input** window, under the **Construction** section, select the **Flat roof** check box.

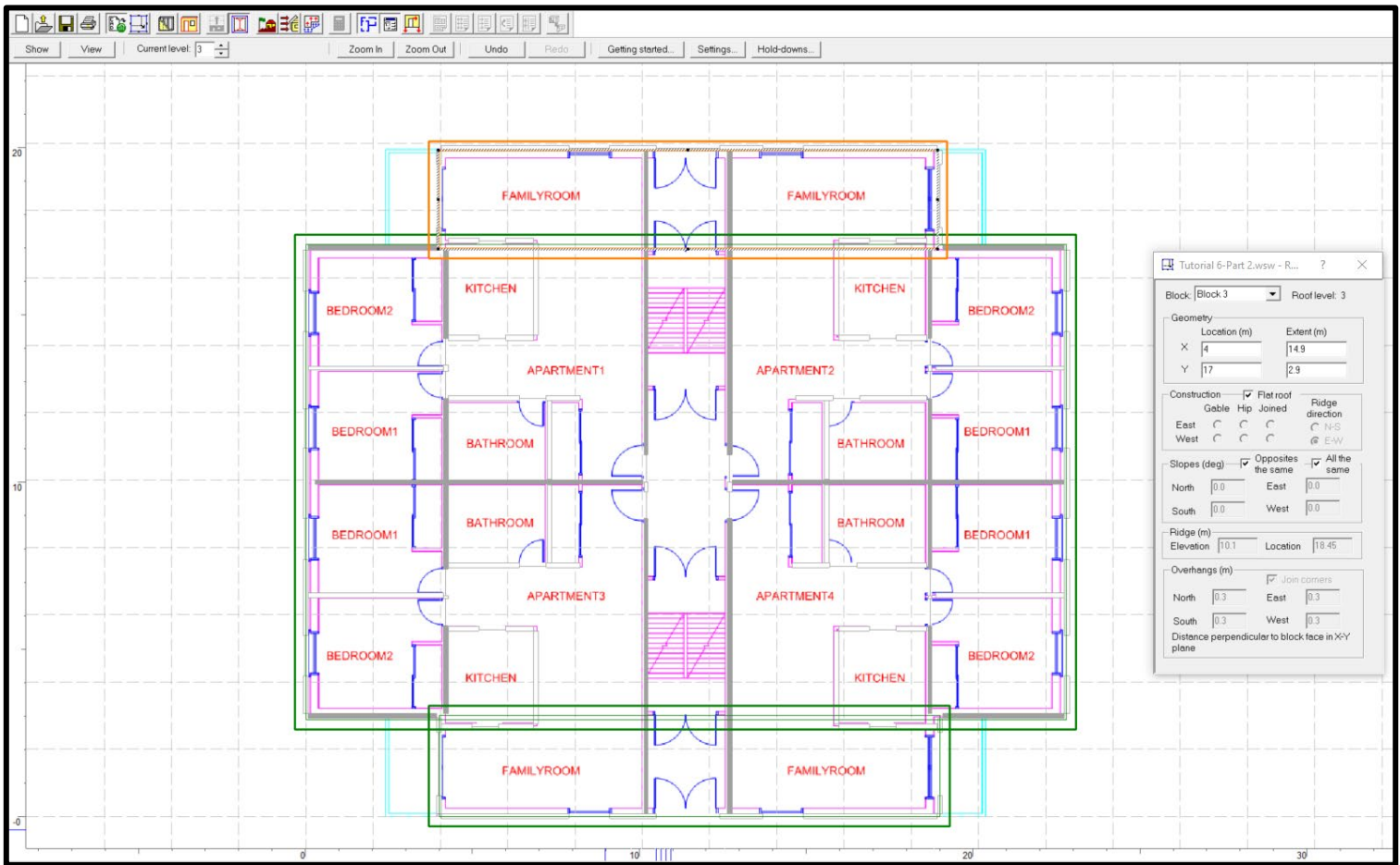


Figure 20: *Shearwalls Tutorial 6 – Third Roof Block*

## 6.11 Generating Loads

1. Click on the **Generate Loads** button on the toolbar.
2. In the **Generate Loads** window, under the **Building levels** section, specify level **1** to **3**.
3. Click on the **Generate loads on selected levels** button.

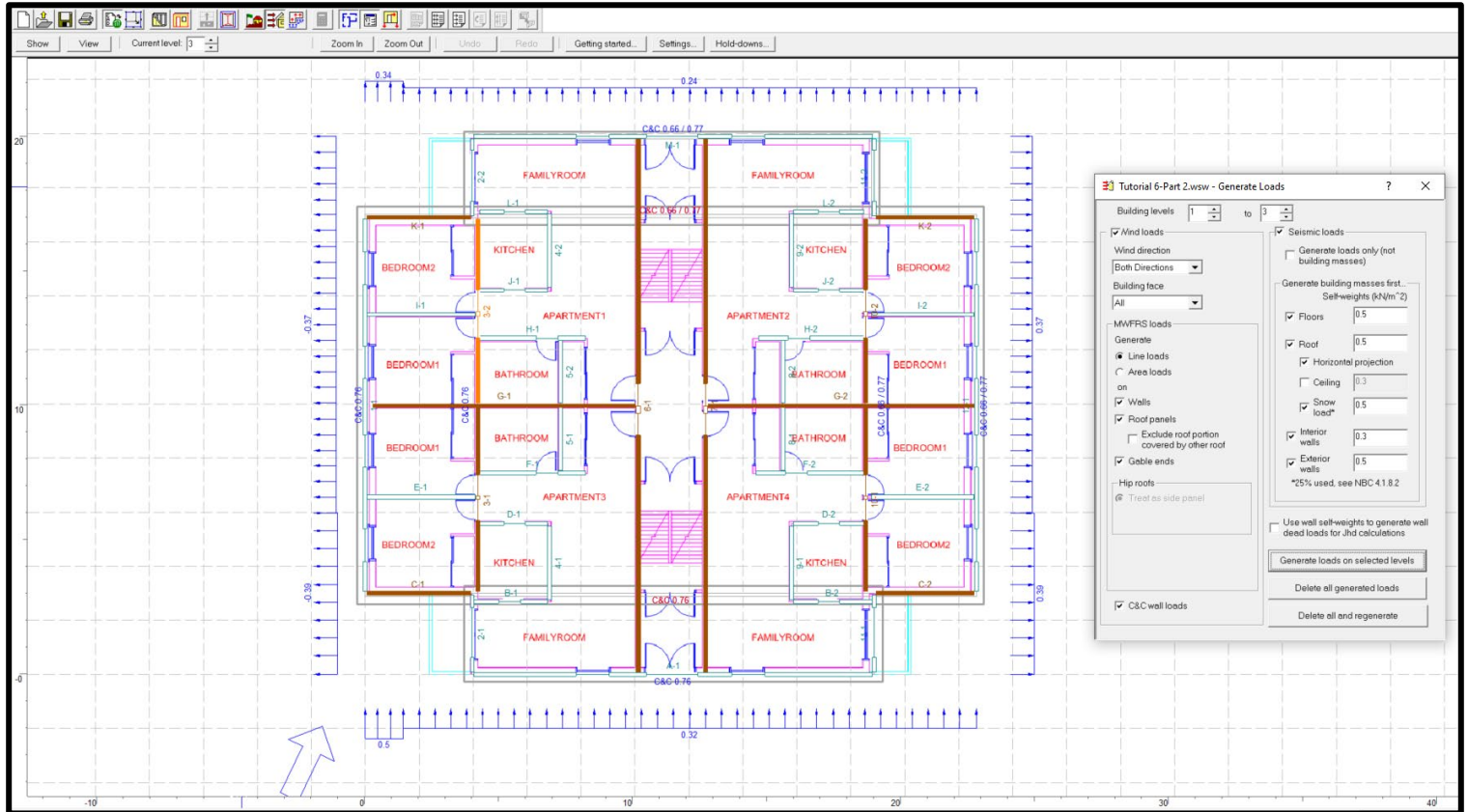


Figure 21: *Shearwalls Tutorial 6 – Generate Loads (Level 1-3)*

## 6.12 Designing Shearwalls

1. Click on the **Run Design** button on the toolbar.
2. Click on the **Accept Design** button on the toolbar.

Note: *Shearwalls* will prompt you to save the project file.

*Shearwalls* will complete the design, and will automatically generate the **Seismic Load Generation Details**, **Wind Load Generation Details**, **Torsional Analysis Details**, and **Detailed Shearwall Design**. These buttons are displayed on the toolbar.



Figure 22: *Shearwalls Tutorial 6 – Run Design*

### 6.13 View Results

Click [here](#) to download a PDF of the design summary.

Click [here](#) to download a PDF of the detailed shearwall design.

Click [here](#) to download a PDF of the torsional analysis details.

Click [here](#) to download a PDF of the seismic load generation.

Click [here](#) to download a PDF of the wind load generation.

The screenshot shows the WoodWorks® Shearwalls 2020 (Update 1) software interface. At the top, there is a menu bar with options: File, Edit, Settings, Hold-downs, Actions, View, Window, Help. Below the menu bar is a toolbar with various icons. The main window displays the following information:

**Canadian Wood Council** | **Conseil Canadien du bois**

**WoodWorks® Shearwalls 2020 (Update 1)**

**Tutorial 6-Part 2.wsw** | **Mar. 28, 2021 20:38:11**

**Project Information**

**DESIGN SETTINGS**

Design Code		Wind Method	
CSA O86-19 / NBC 2015		NBC 4.1.7.6 - Low buildings	
Max Shearwall Offset [m]		Service Conditions	
Plan (within storey)	Elevation (between storeys)	Fabrication Moisture Content	Service
0.15	0.20	15% dry	10% dry
Max Height-to-length Ratio	Height Restrictions for Wind Loads	Disable Gypsum Contribution for Design	
Blocked	Unblocked	Seismic	Wind
3.5	2.0	No	No
Shearline shearwalls can have dissimilar materials			
Shearwall relative rigidity: Deflection-based stiffness of wall segments			
Design shearwall force/length: Based on wall rigidity/length			

Figure 23: *Shearwalls Tutorial 6 – Design Summary*