

GYMLEADER NZ LTD

AUTODESK REVIT FAMILIES GUIDE



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1.0 Court Layout Families

Five Court Layout Families are provided:

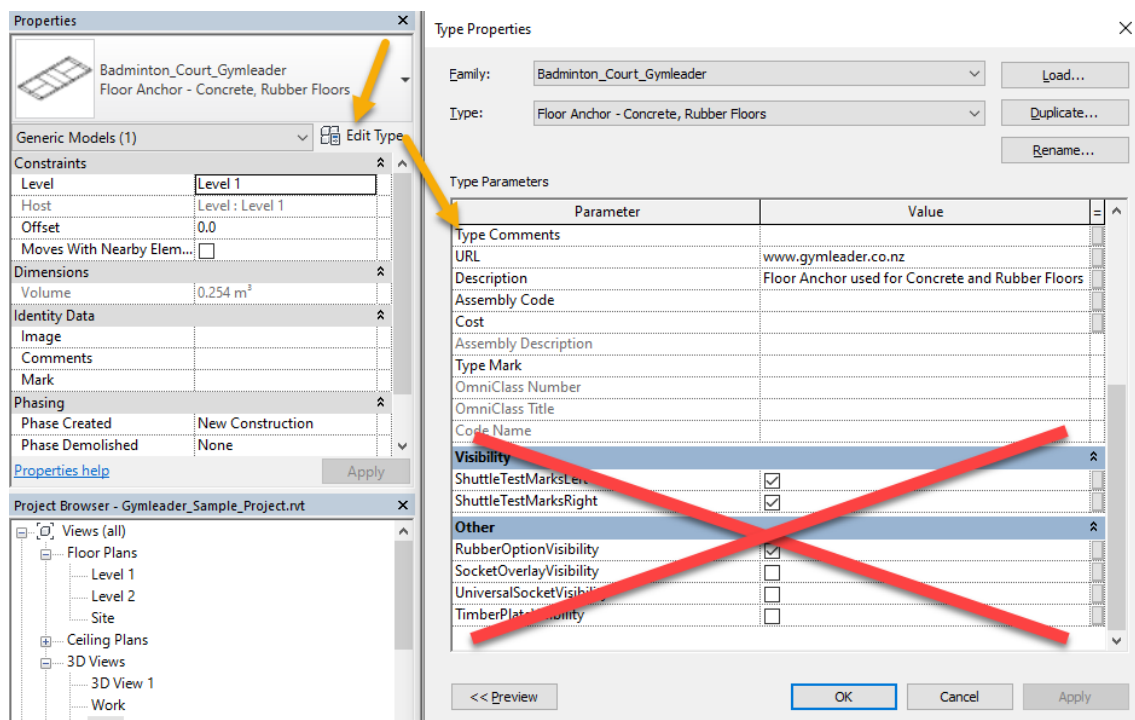
- Badminton
- Basketball
- Futsal
- Netball
- Volleyball

The Court Families have been built to suit the following Autodesk Revit versions: 2017, 2018, 2019 and 2020.


For Court Families that do not require a floor anchor, floor plate or floor sockets, the Type name found in the Type Selector is called '**Type 1**'. For all other Families, a picklist of Types (*options*) is available using the Type Selector.

The Court Families are of the Category: Generic Models. They have been constructed to display 3D modelled geometry and 2D linework for various views.

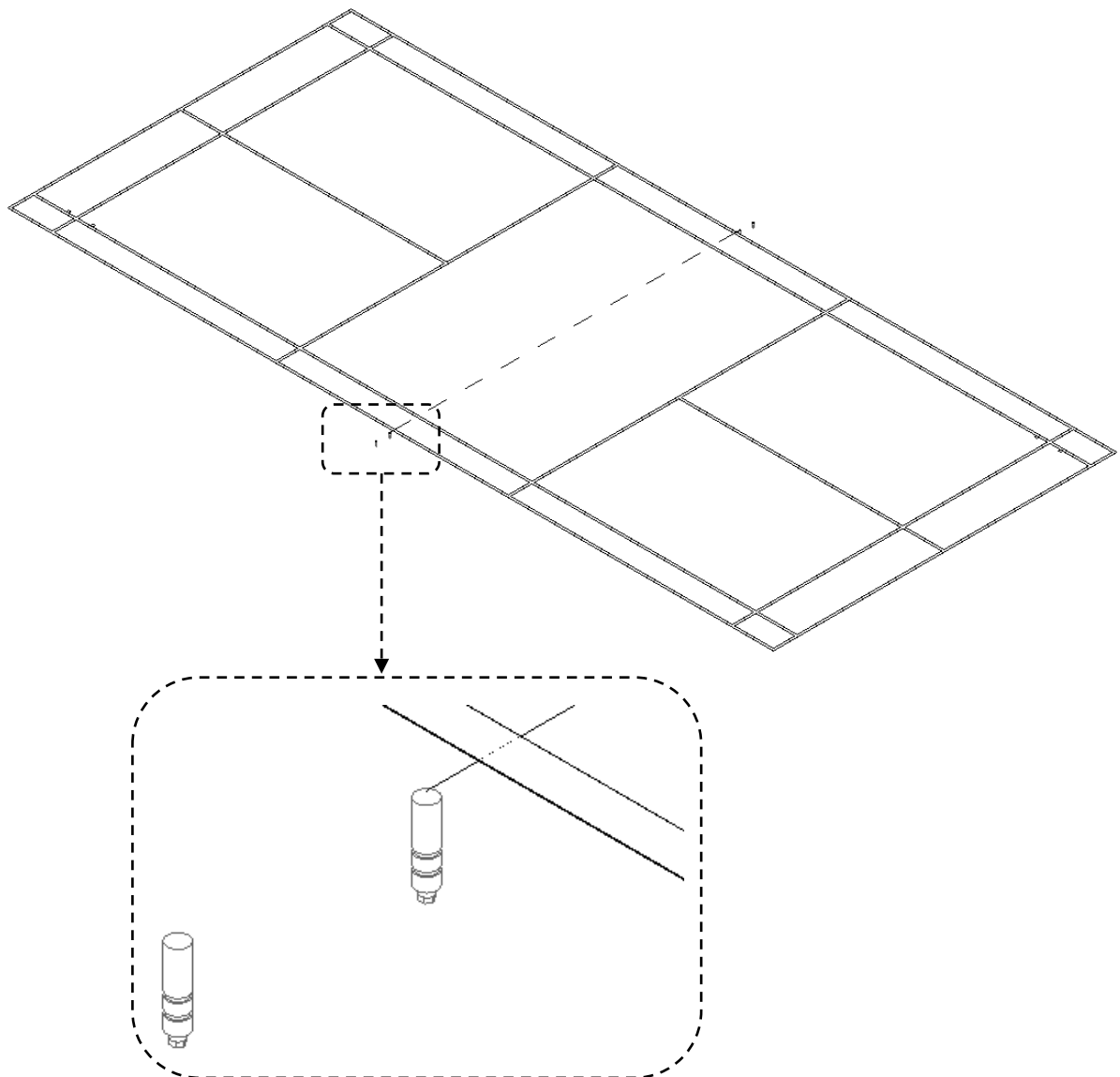
IMPORTANT Do not edit any Type based parameters listed under the Visibility and Other groupings as indicated in the following image. Doing so may break the visibility states that are correctly defined for each Family Type. Always use the Type Selector to specify different Court options.



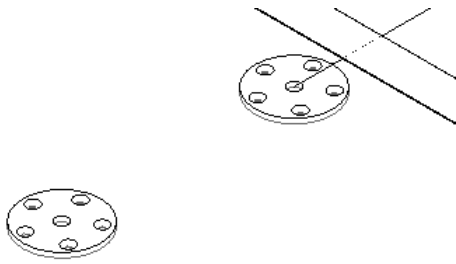
1.1 Badminton Court

	Badminton_Court_Gymleader
	Floor Anchor - Concrete, Rubber Floors
	Floor Plate - Timber Floors
	Overlay Socket - Concrete, Rubber Floors
	Universal Socket - Timber Floors

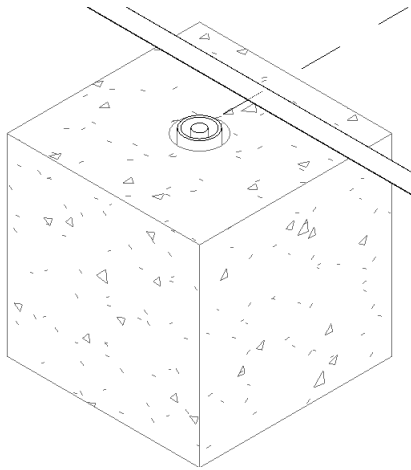
Floor Anchor – Concrete, Rubber Floors



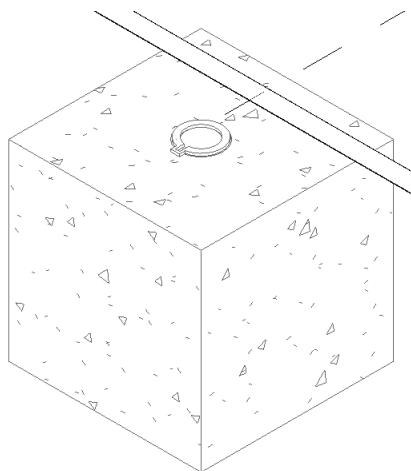
Floor Plate – Timber Floors



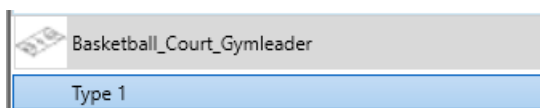
Overlay Socket – Concrete, Rubber Floors



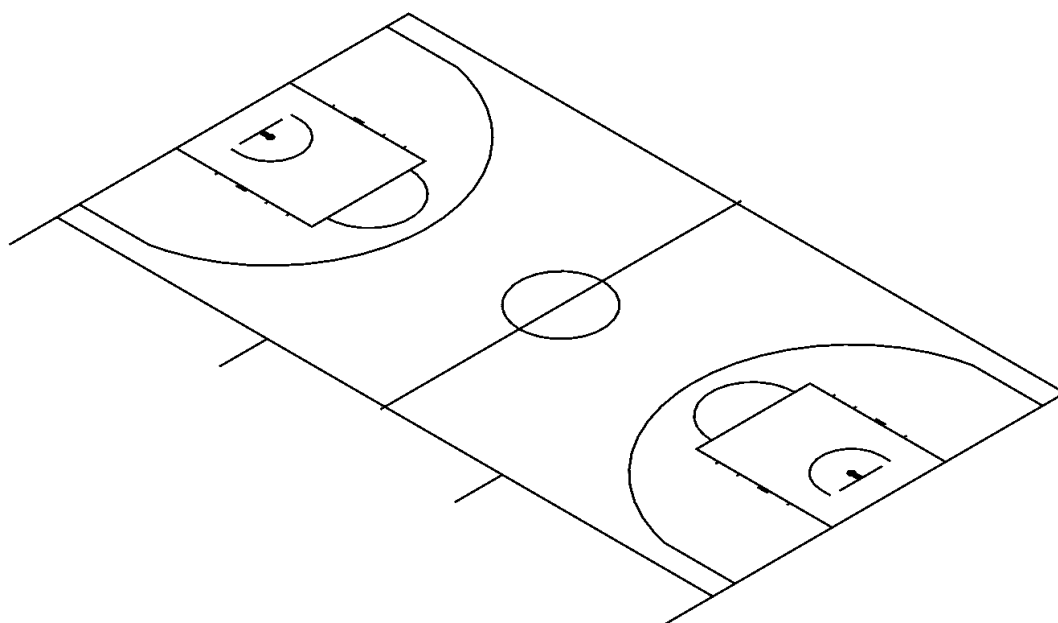
Universal Socket – Timber Floors



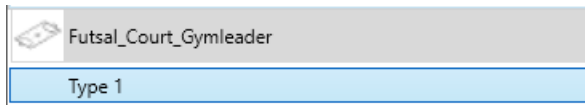
1.2 Basketball Court



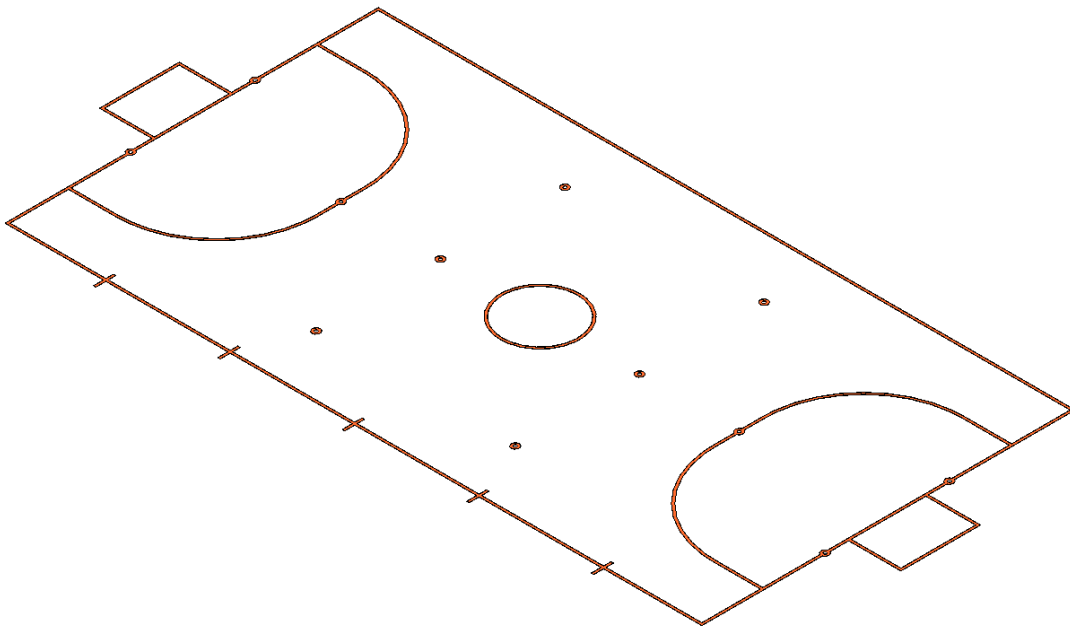
Type 1




1.3 Futsal Court



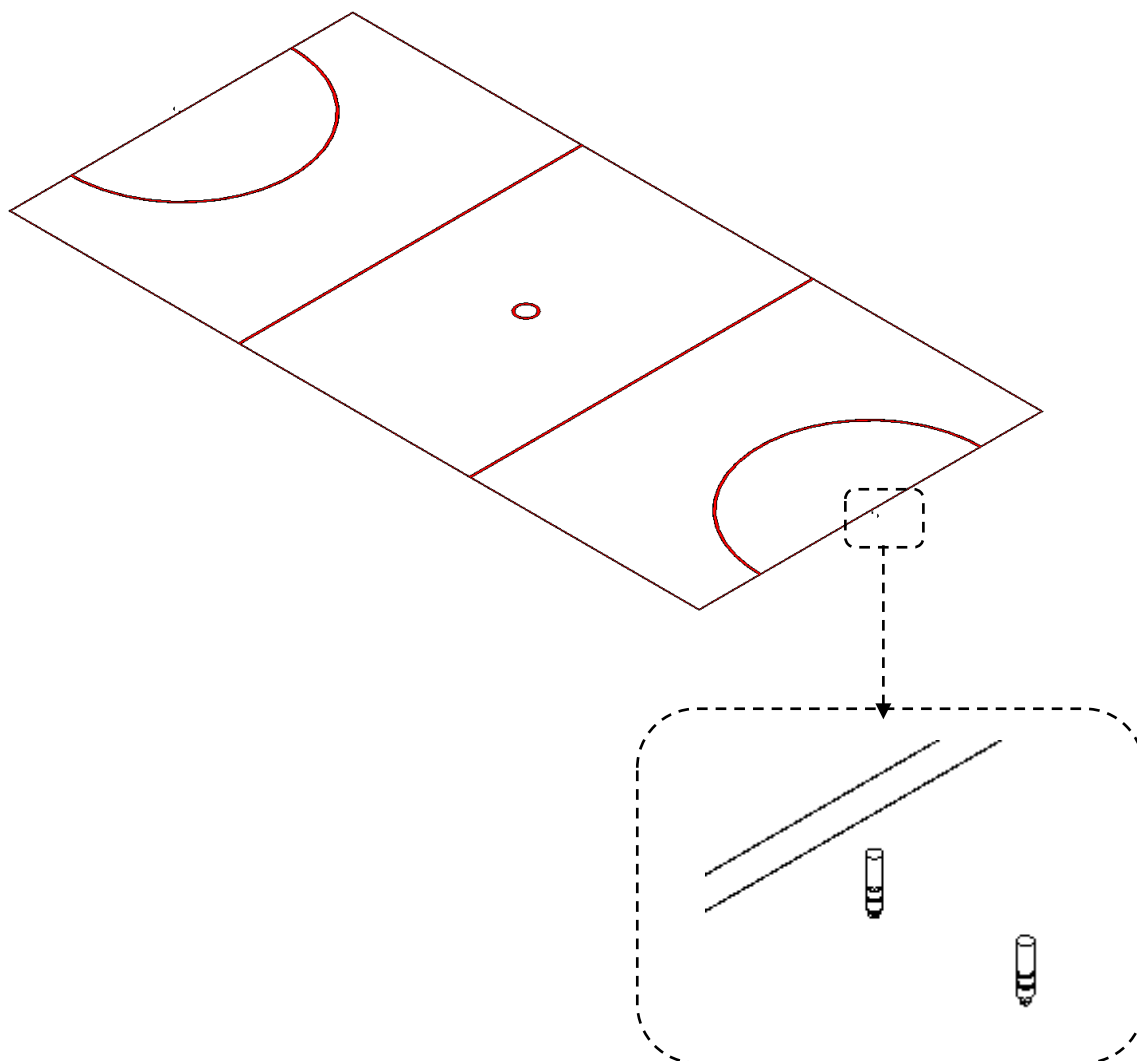
Type 1



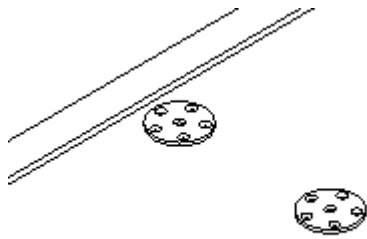
1.4 Netball Court

	Netball_Court_Gymleader
	Floor Anchor - Concrete, Rubber Floors
	Floor Plate - Timber Floors
	Overlay Socket - Concrete, Rubber Floors
	Universal Socket - Timber Floors

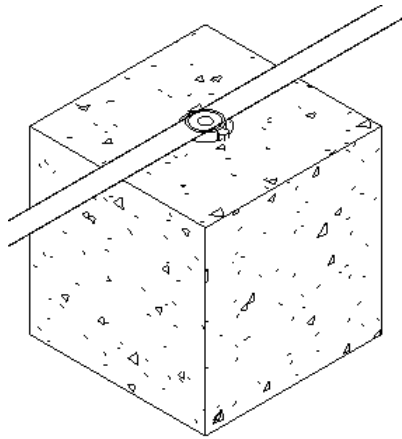
Floor Anchor – Concrete, Rubber Floors



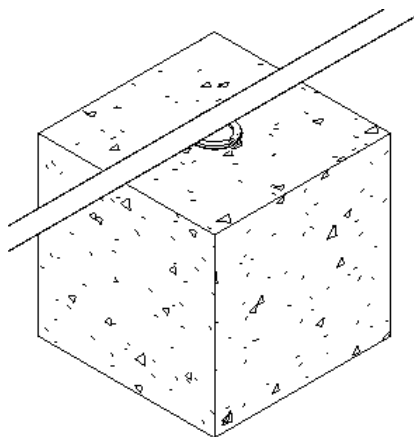
Floor Plate – Timber Floors




Overlay Socket – Concrete, Rubber Floors



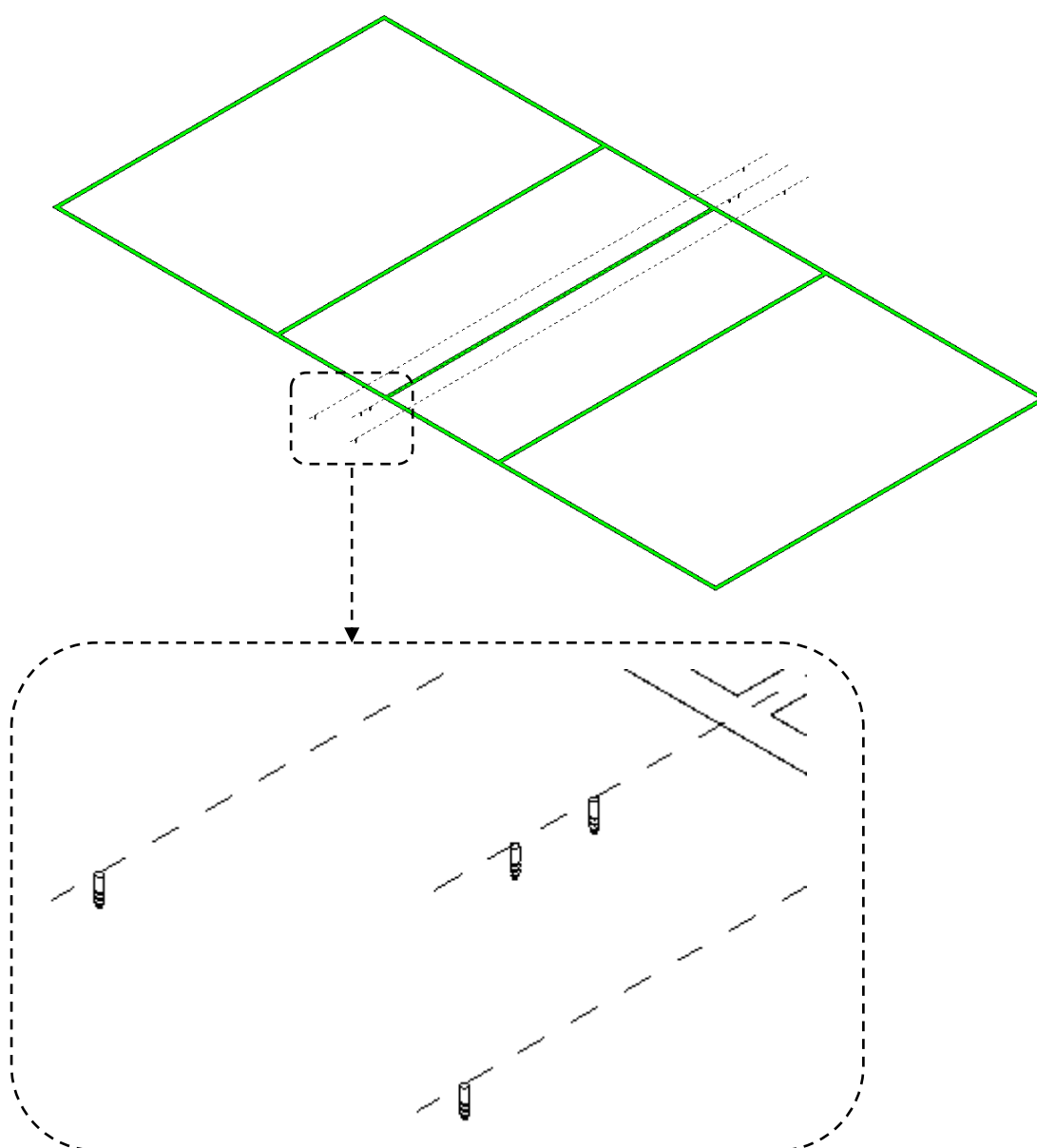
Universal Socket – Timber Floors



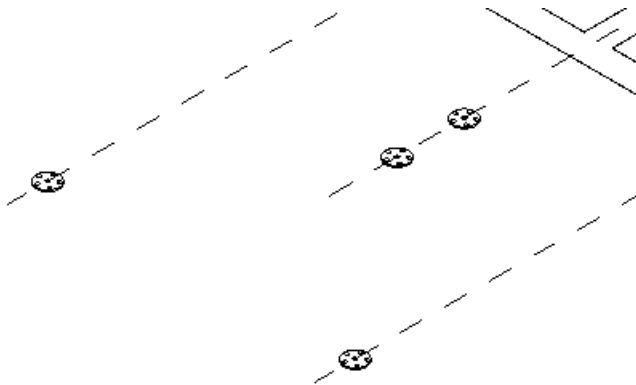
1.5 Volleyball Court

	Volleyball_Court_Gymleader
	Floor Anchor - Concrete, Rubber Floors
	Floor Plate - Timber Floors
	Overlay Socket - Concrete, Rubber Floors
	Universal Socket - Timber Floors

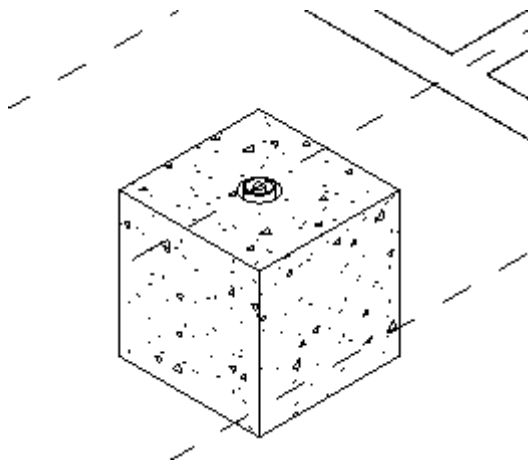
Floor Anchor – Concrete, Rubber Floors



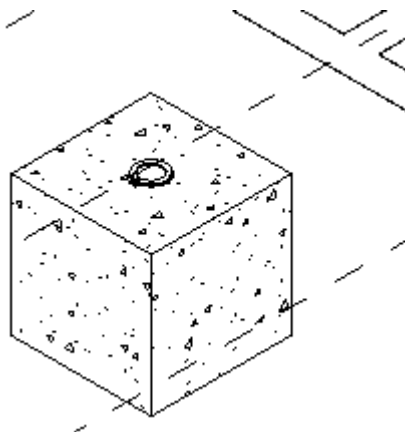
Floor Plate – Timber Floors



Overlay Socket – Concrete, Rubber Floors



Universal Socket – Timber Floors



2.0 Basketball Backboard Families

Two Basketball Families are provided:

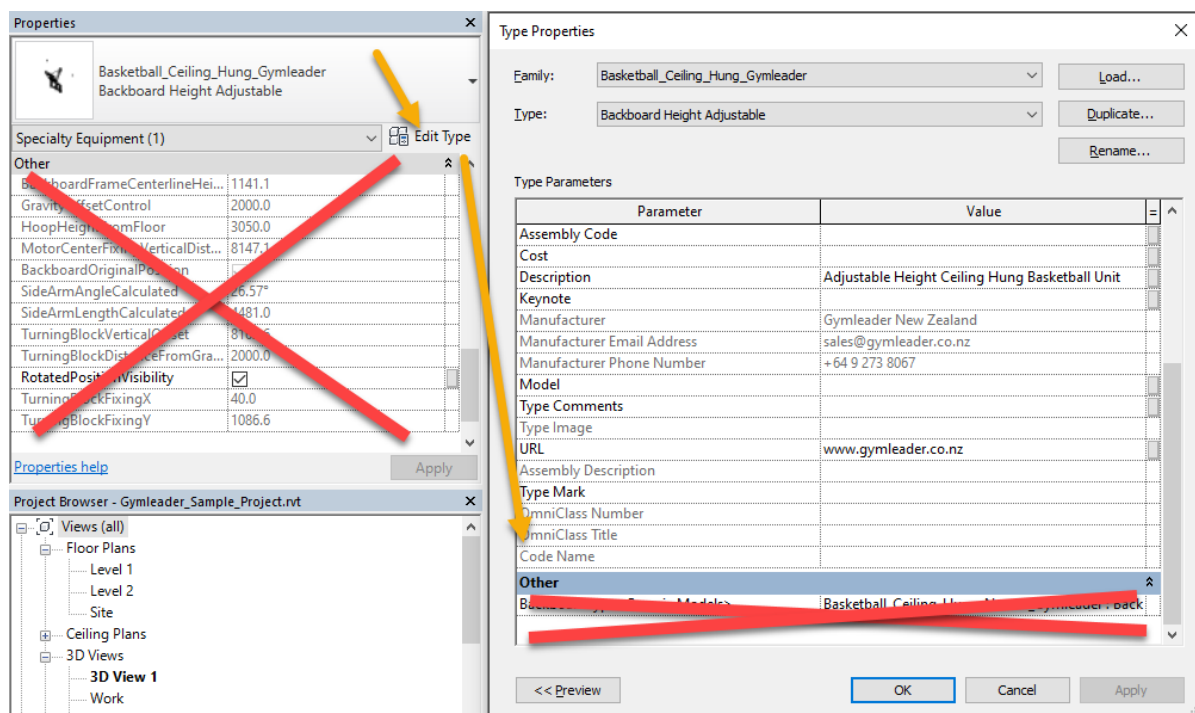
- Basketball Ceiling Hung
- Basketball Side Fold

The Court Families have been built to suit the following Autodesk Revit versions: 2017, 2018, 2019 and 2020.

Both Basketball Families include two Backboard Types; **Adjustable** and **Fixed**. For the **Adjustable** Type, the Hoop Height can be controlled to suit Adult or Junior Hoop Heights.

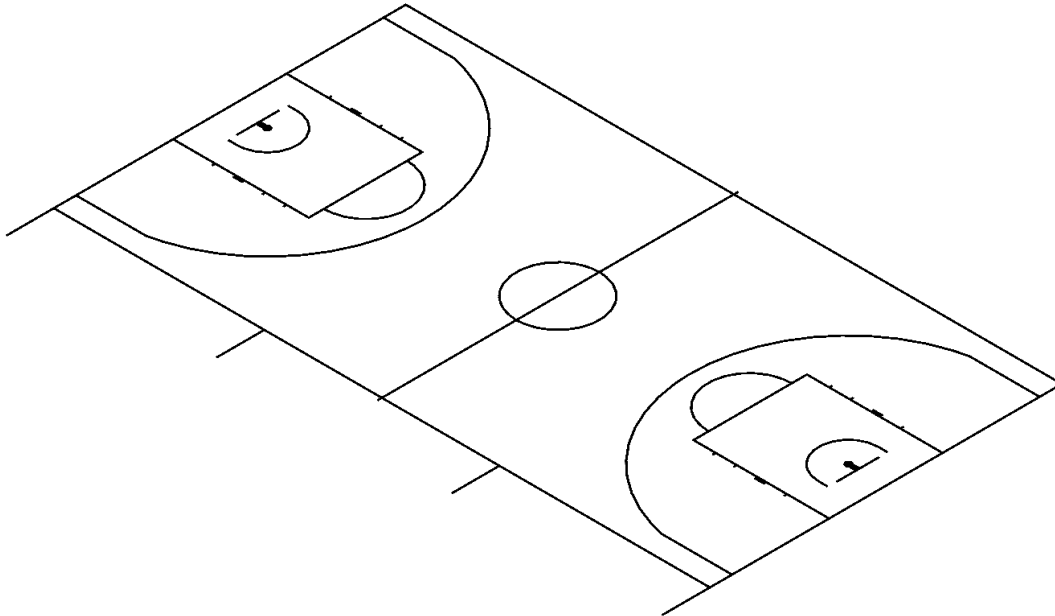
The Basketball Families are of the Category: Speciality Equipment.

IMPORTANT Do not edit any Instance parameters or Type based parameters listed under the Other group heading as indicated in the following image. Doing so may break the visibility states or mathematical rules that are correctly defined for each Family Type. Always use the Type Selector to specify different Basketball Backboard options.

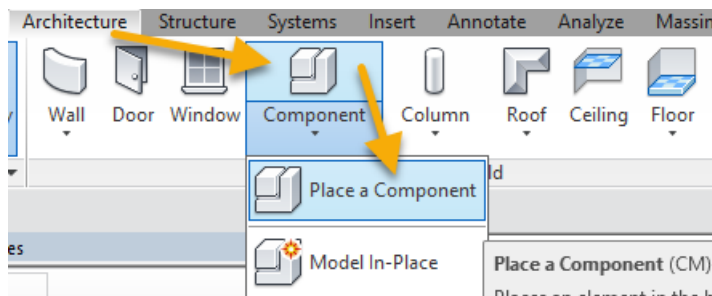


2.1 Basketball Ceiling Hung Family

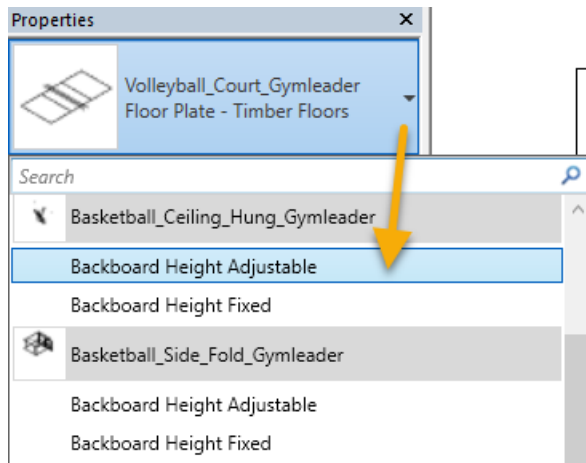
1. Firstly, add Floor, Wall and Ceiling elements to form the main building enclosure.
2. Next, place a Basketball Court Family:



3. Open a Floor Plan view.
4. Place a Ceiling Hung Basketball Family:



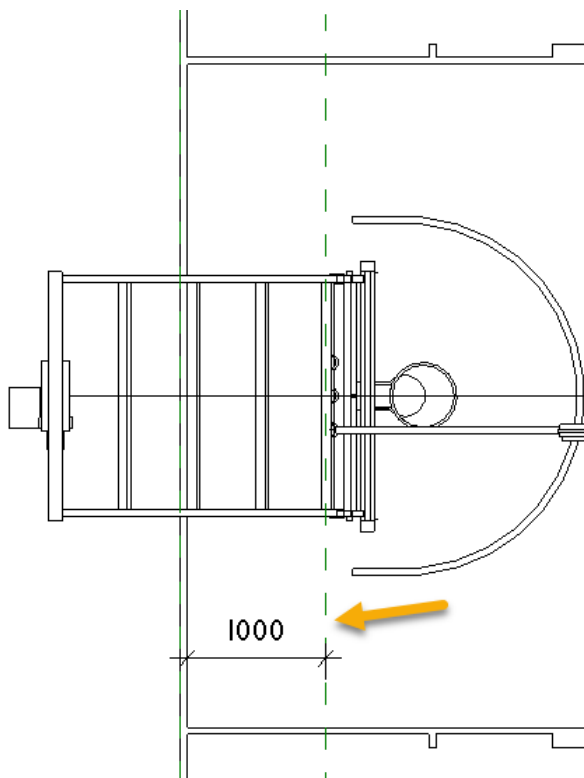
5. From the Type Selector, click **Basketball_Ceiling_Hung_Gymleader: Backboard Height Adjustable or Backboard Height Fixed**:



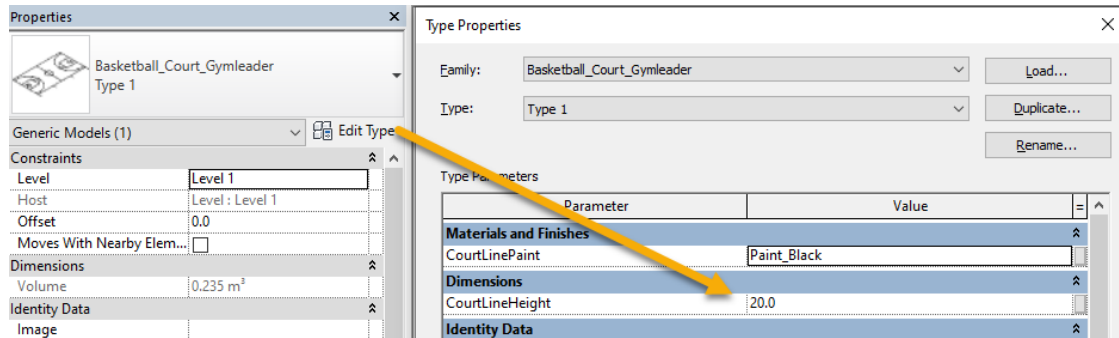
6. Click to place the family.

Note Press the Spacebar repeatedly to rotate the family 90 degrees prior to placing.

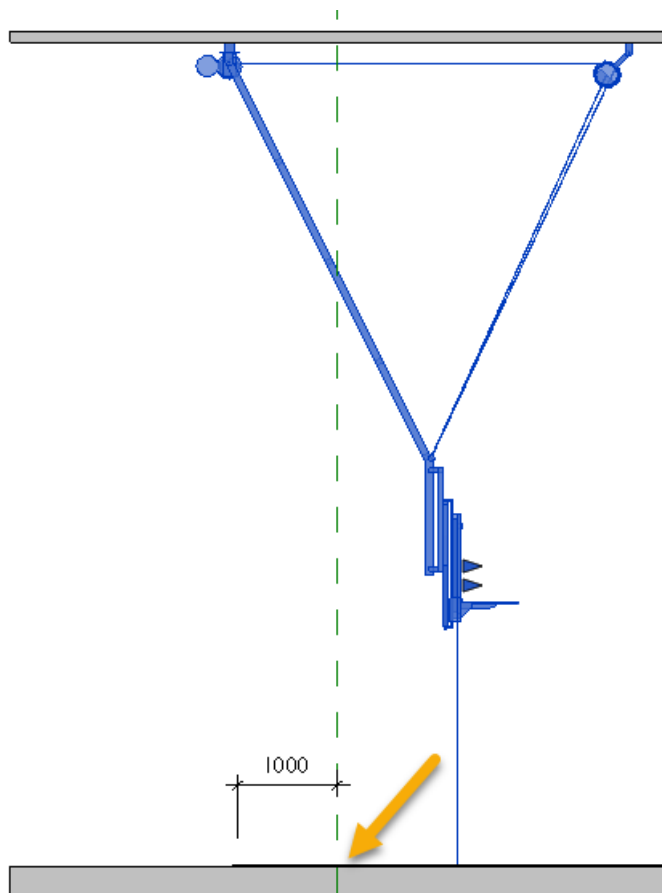
7. While in a plan view, add a Reference Plane **1000** to the inside edge of the exterior court markings as indicated in the following image:

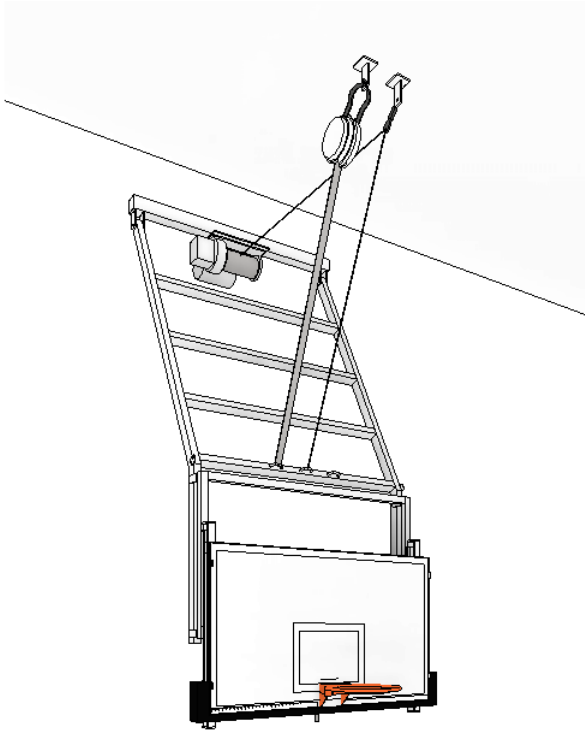


8. Create or open a Section view.
9. It may help to adjust the Basketball Court – *CourtLineHeight* Type parameter to **20** or **30**. This will help to better locate the ***Basketball_Ceiling_Hung_Gymleader*** Family to the court markings:

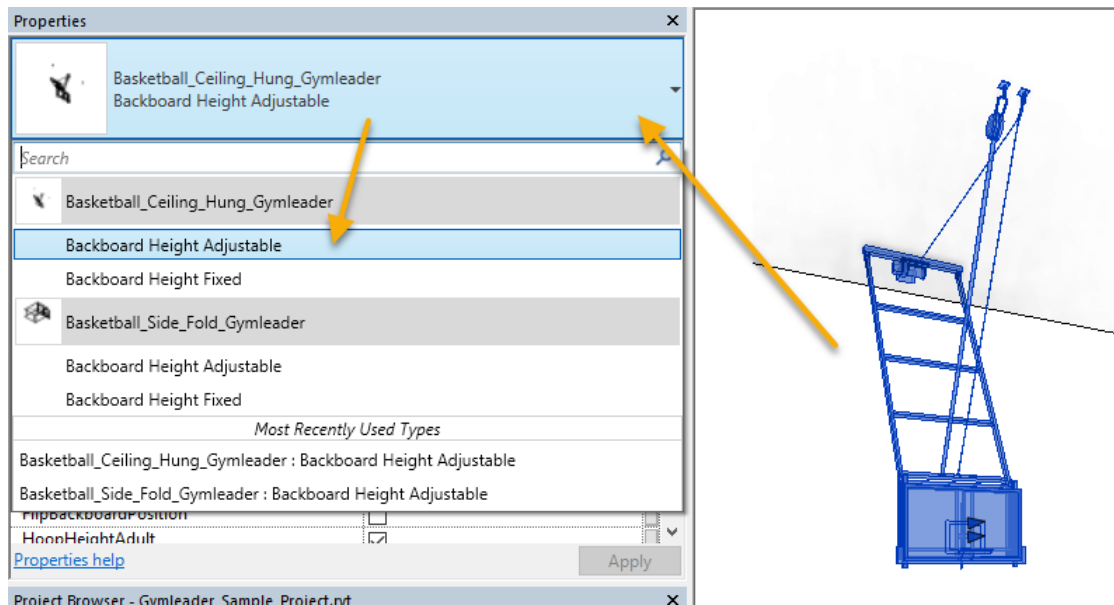


10. In the Section view, as you hover over the family, you will notice a 'hidden' line that is drawn towards the floor, which then extends outward. This has been added to help with the placement of the family to the inside edge of the exterior court marking.
11. Using this 'hidden' line as a reference, move the family so that the end of the hidden line that extends outward is aligned to the Reference Plane:

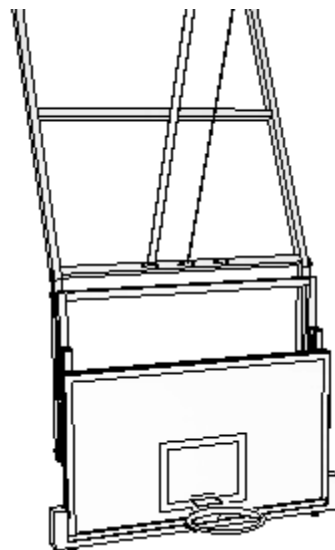
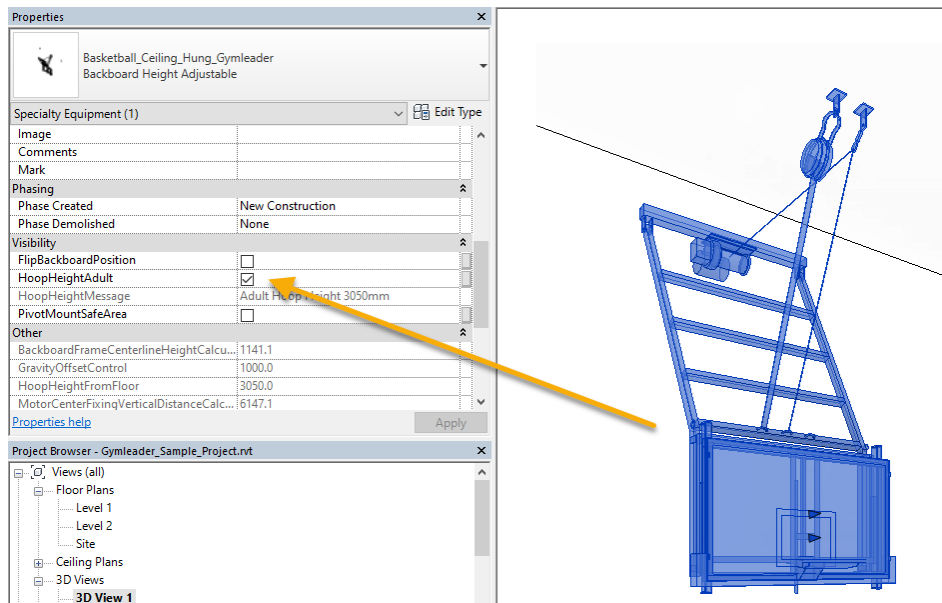




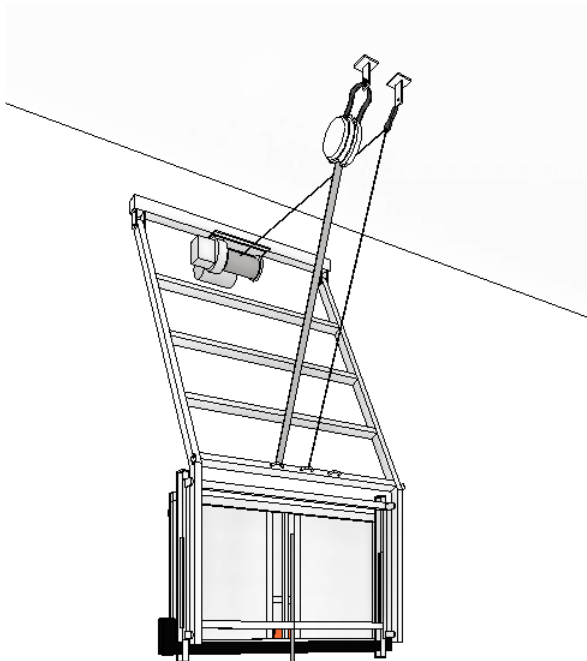
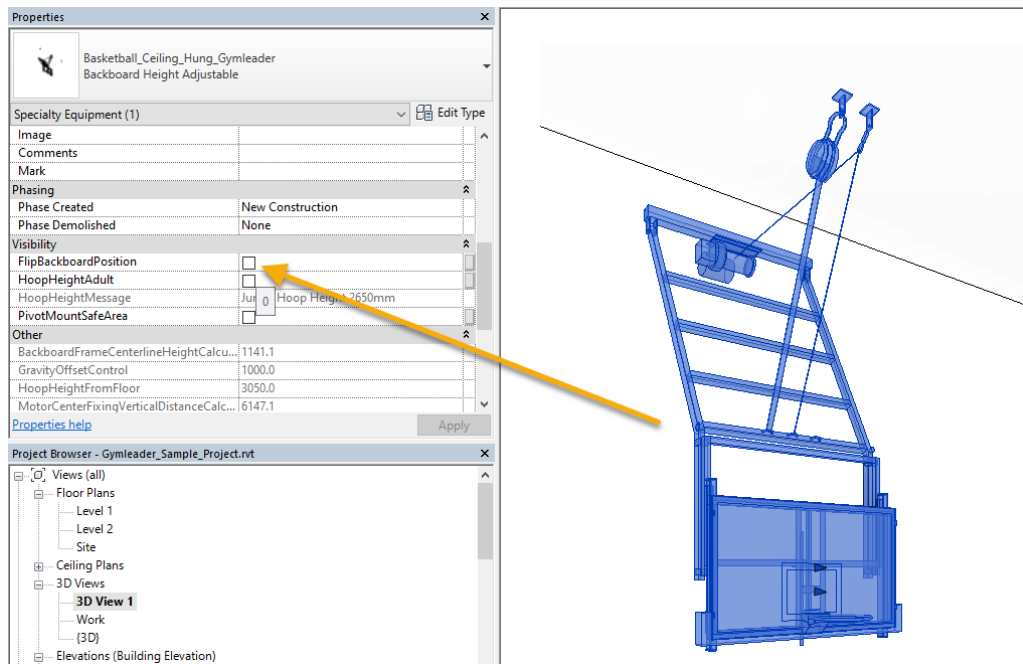
12. Once placed, the family can be changed between the **Backboard Height Adjustable** or **Backboard Height Fixed** Type using the Type Selector:



13. For the **Backboard Height Adjustable** Type, using the Properties palette, **untick** *HoopHeightAdult*.
The hoop height will be adjusted to suit Junior Hoop Height playing standards:



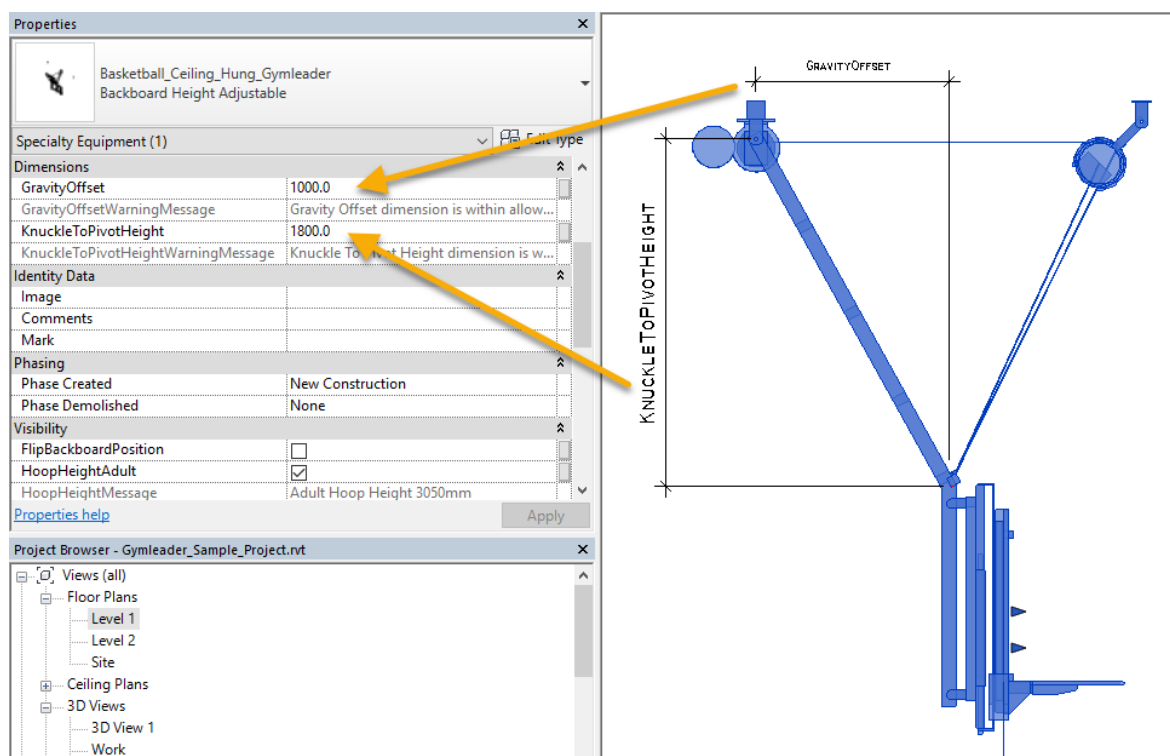
14. For either of the Backboard Types, using the Properties palette, **untick** *FlipBackboardPosition*.
The Backboard position will be reversed:



Adjusting the Gravity Offset and Knuckle To Pivot Height

- For either Backboard Type, using the Properties palette, adjust the *GravityOffset* or *KnuckleToPivotHeight* parameters. The *GravityOffset* parameter value is limited to a minimum dimension of 1000 and a maximum dimension of 2000.

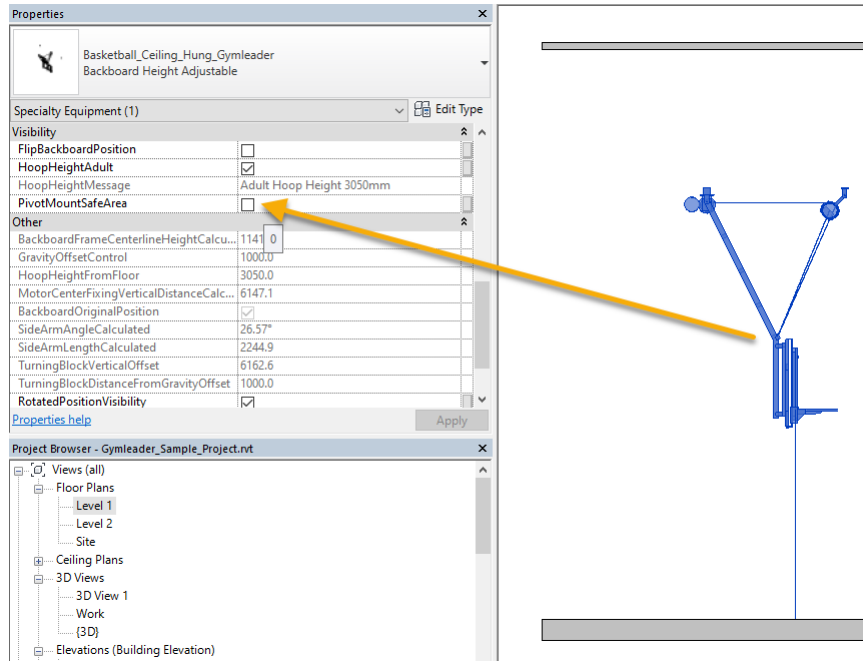
The *KnuckleToPivotHeight* parameter value is limited to a minimum dimension of 1800 and a maximum dimension of 4000.



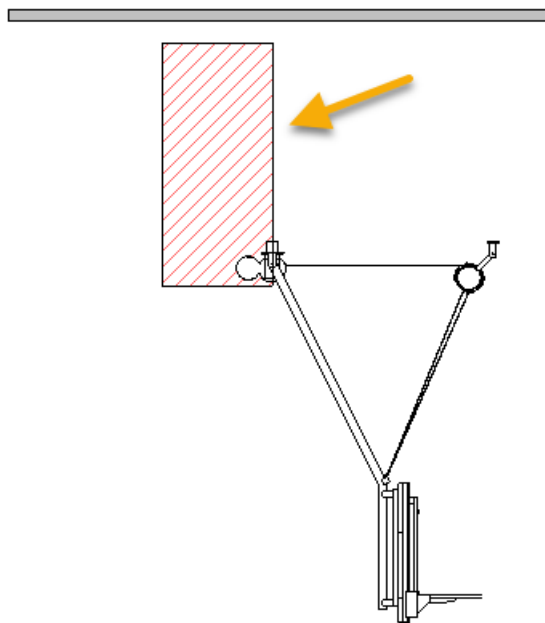
Note If either of these parameter values exceeds the minimum or maximum dimensions, take note of the *GravityOffsetWarningMessage* or *KnuckleToPivotWarningMessage* warning messages that will be displayed:

Dimensions	
GravityOffset	3000.0
GravityOffsetWarningMessage	Gravity Offset maximum dimension cannot exceed 2000mm, contact Gymleader
KnuckleToPivotHeight	6000.0
KnuckleToPivotHeightWarningMessage	Knuckle To Pivot Height maximum dimension cannot exceed 4000mm, contact Gymleader

- To help understand visually what the optimum area is based on combinations of the minimum and maximum values for the *GravityOffset* and *KnuckleToPivotHeight*, using Properties palette, tick *PivotMountSafeArea*:



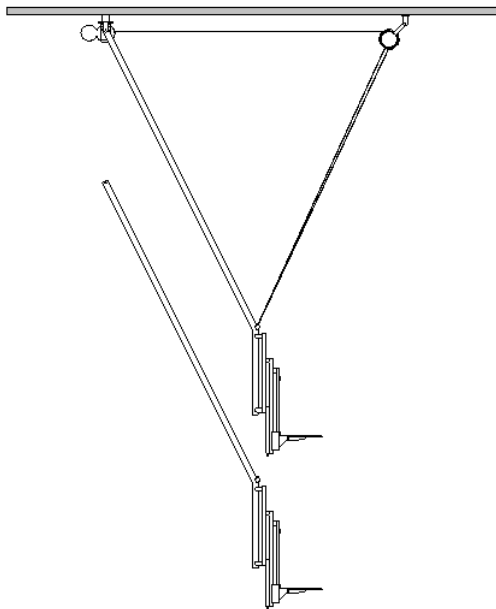
- A 2D hatched 'safe' area is displayed. This hatched area will only be displayed in Section or Callout views:



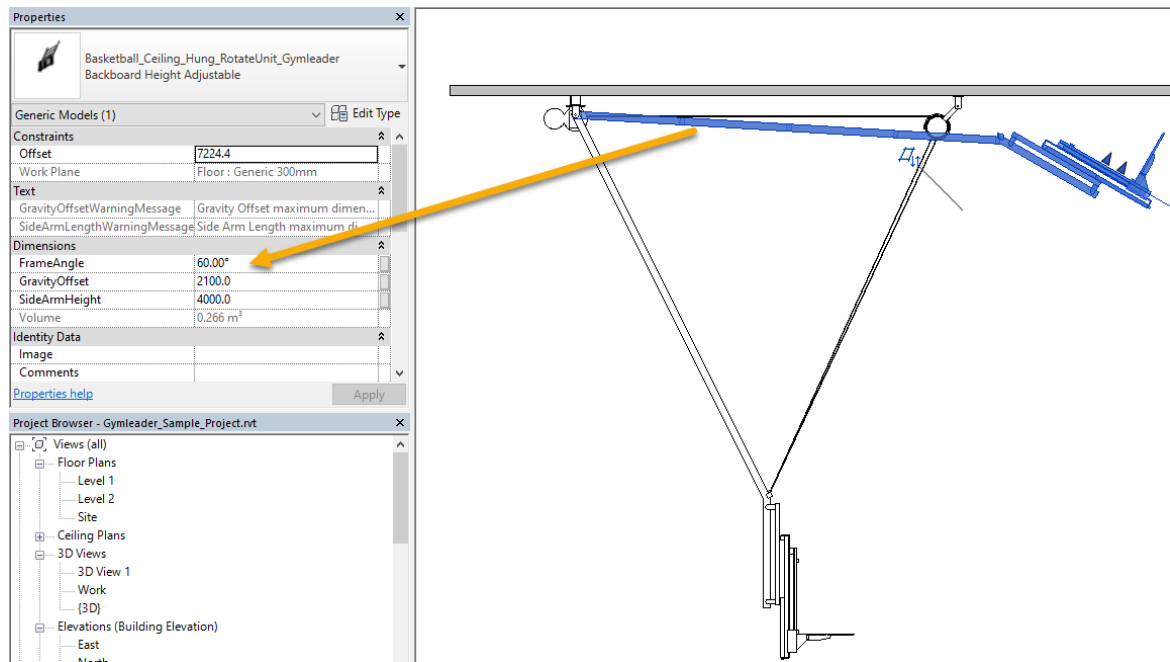
Rotating the Basketball Ceiling Hung Family

A Family is provided that can be used to help display the Basketball Ceiling Hung Family in a folded or closed position.

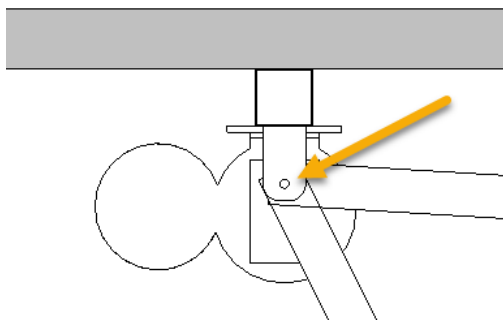
1. Load in the ***Basketball_Ceiling_Hung_RotateUnit_Gymleader.rfa*** Family
2. Following the steps above, click to place this family in a plan view.
3. Using the Properties palette, edit the parameters to 'match' the values for the ***Basketball_Ceiling_Hung_Gymleader*** Family. For example, if the value for *GravityOffset* is 1200 and the value for *KnuckleToPivotHeight* is 3200, edit the same parameters for the ***Basketball_Ceiling_Hung_RotateUnit_Gymleader*** Family.
4. Move and align the ***Basketball_Ceiling_Hung_RotateUnit_Gymleader*** Family to match the position of the ***Basketball_Ceiling_Hung_RotateUnit_Gymleader*** Family:



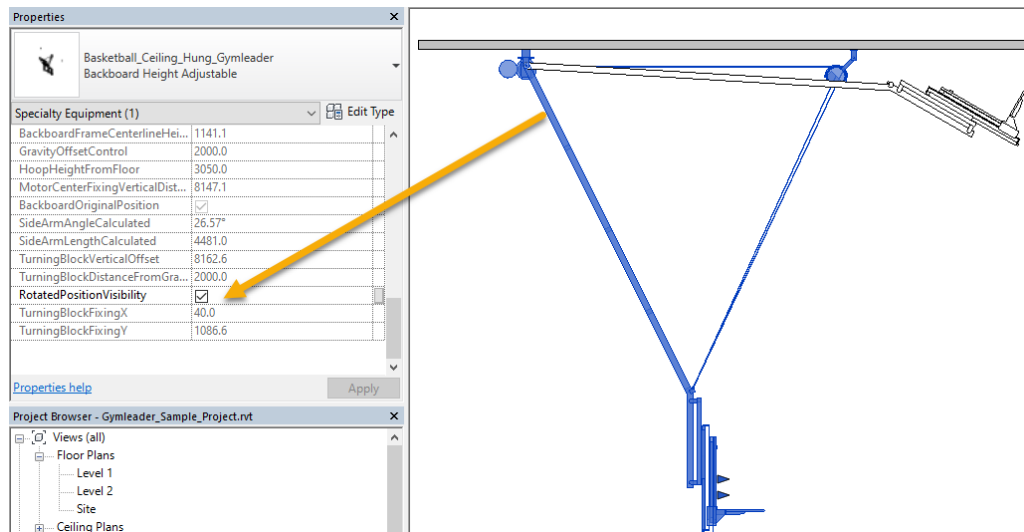
5. Using only the Properties palette, change the *FrameAngle* value to rotate the ***Basketball_Ceiling_Hung_RotateUnit_Gymleader*** Family to a closed position.



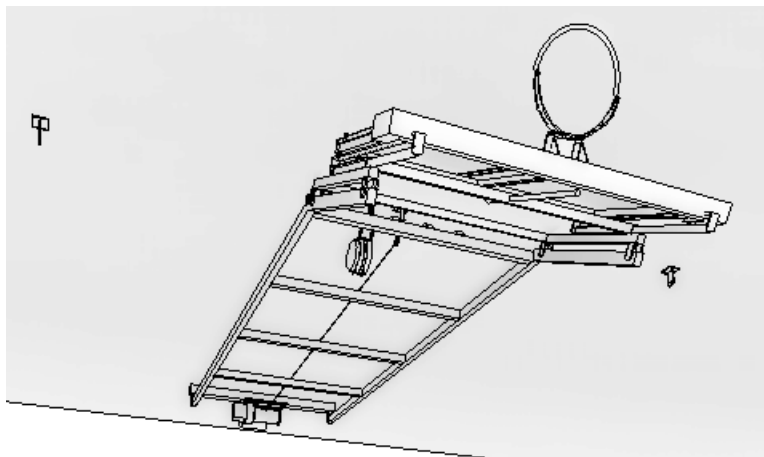
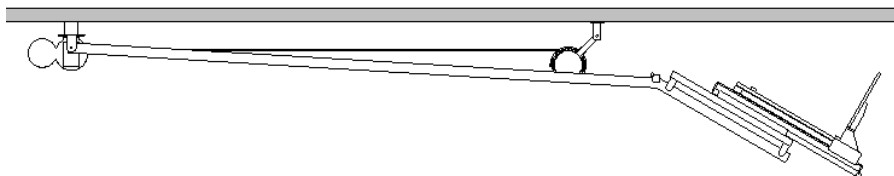
Note After rotating, the **Basketball_Ceiling_Hung_RotateUnit_Gymleader** Family may need to be moved again into position. A good snap point of reference is the centre point shown located near the ceiling mount frame:



6. To hide components of the **Basketball_Ceiling_Hung_Gymleader** Family, using the Properties palette, **untick RotatedPositionVisibility**:

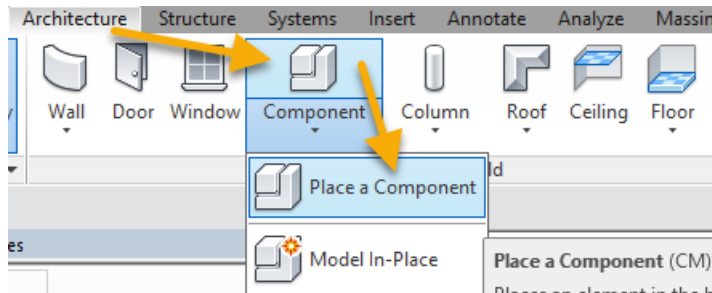


With a combination of these two Families, the desired look of a folded or closed position is achieved.

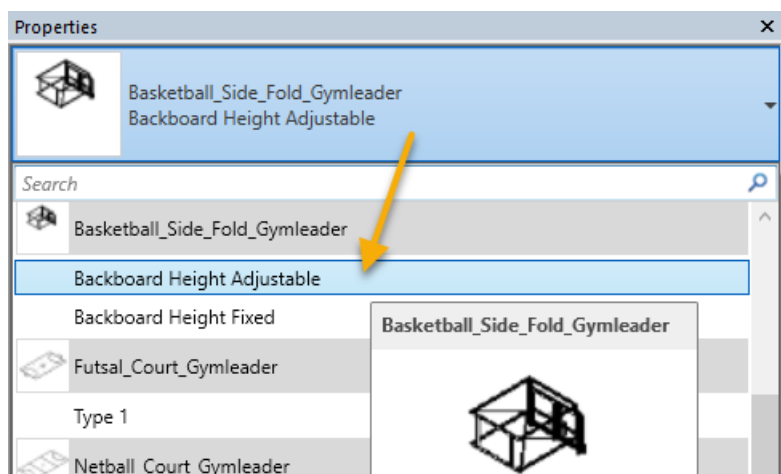


2.2 Basketball Side Fold Family

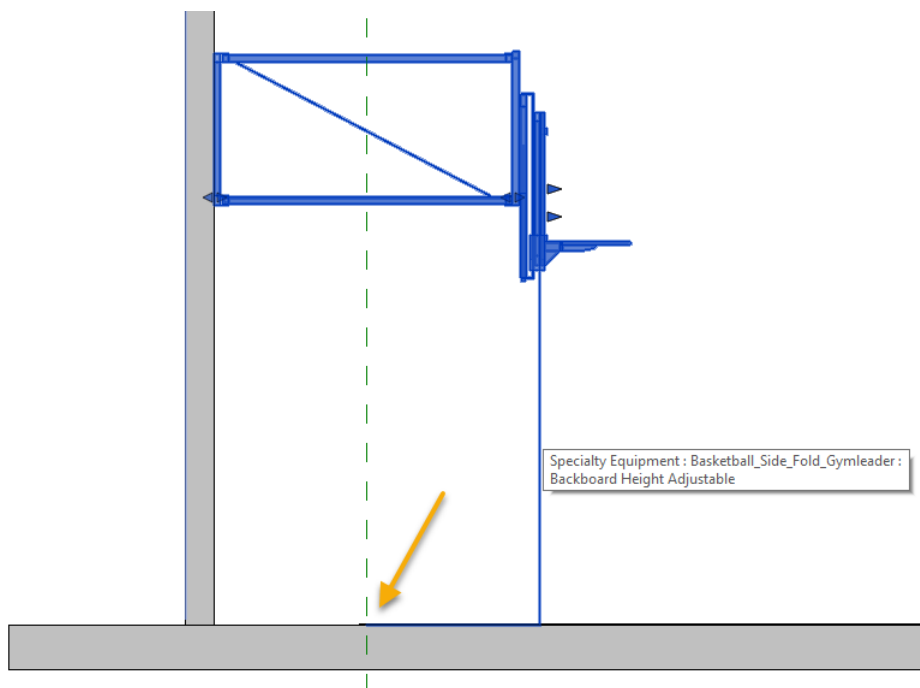
1. Follow the steps above to add Floor, Wall and Ceiling elements to form the main building enclosure.
2. Open a Floor Plan view.
3. Place a Side Fold Basketball Family:



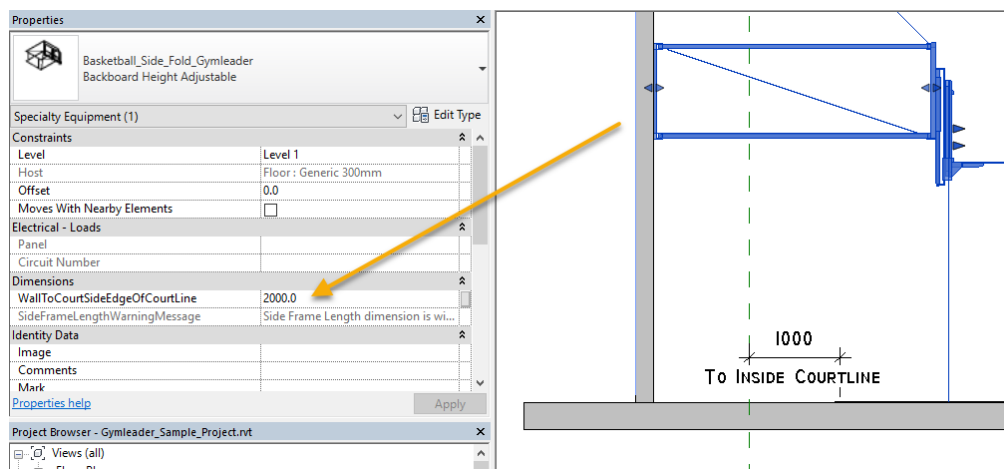
4. From the Type Selector, click **Basketball_Side_Fold_Gymleader: Backboard Height Adjustable or Backboard Height Fixed:**



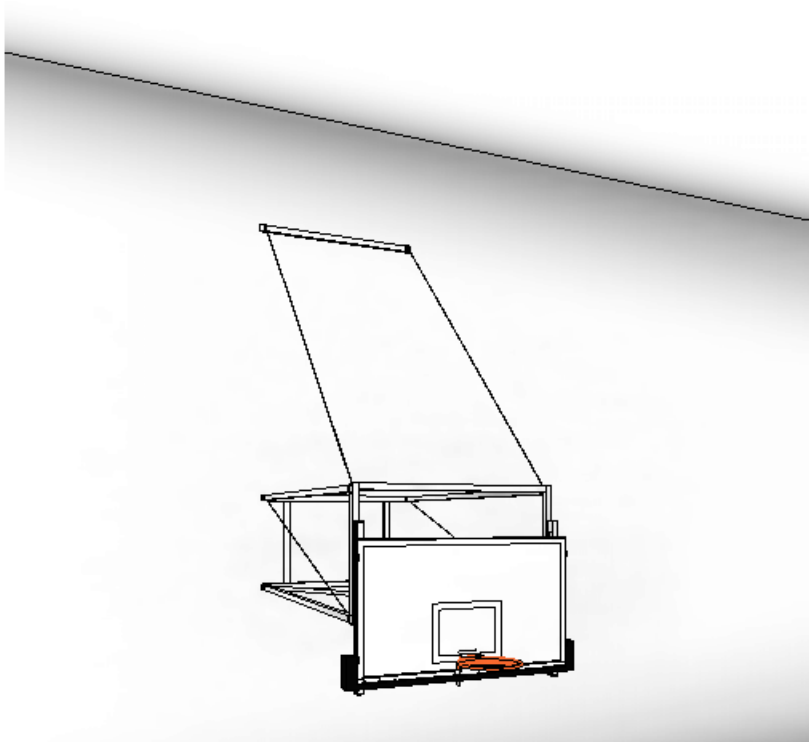
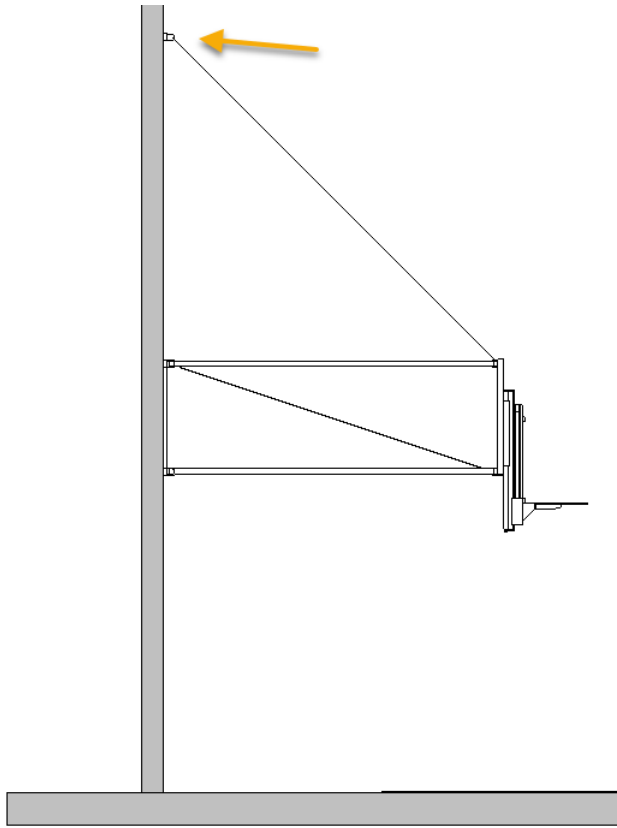
5. Using the 'hidden' line, move the **Backboard_Side_Fold_Gymleader** Family to be 1000 from the inside of the Basketball Court marking:



- Using the Properties palette, for Dimensions, change the value for *WallToCourtSideEdgeOfCourtLine* from 1000 to 2000:

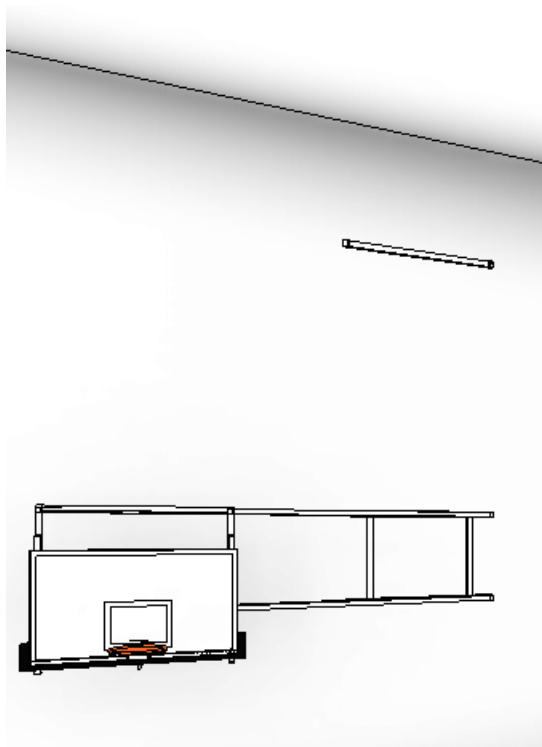
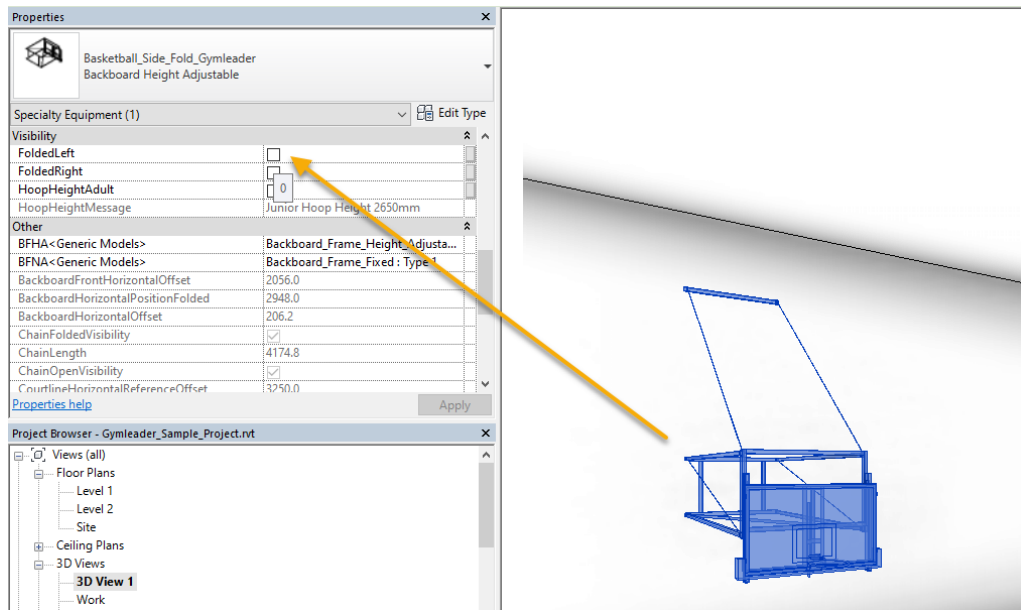


- At a value greater than 1400 a top wall bracket is displayed:



Folding Closed the Basketball Side Fold Family

1. Using the Properties palette, under Visibility, tick *FoldedLeft* or *FoldedRight*.



2. **Unticking** both *FoldedLeft* and *FoldedRight*, will return the **Basketball_Side_Fold_Gymleader** Family back to an Open position.