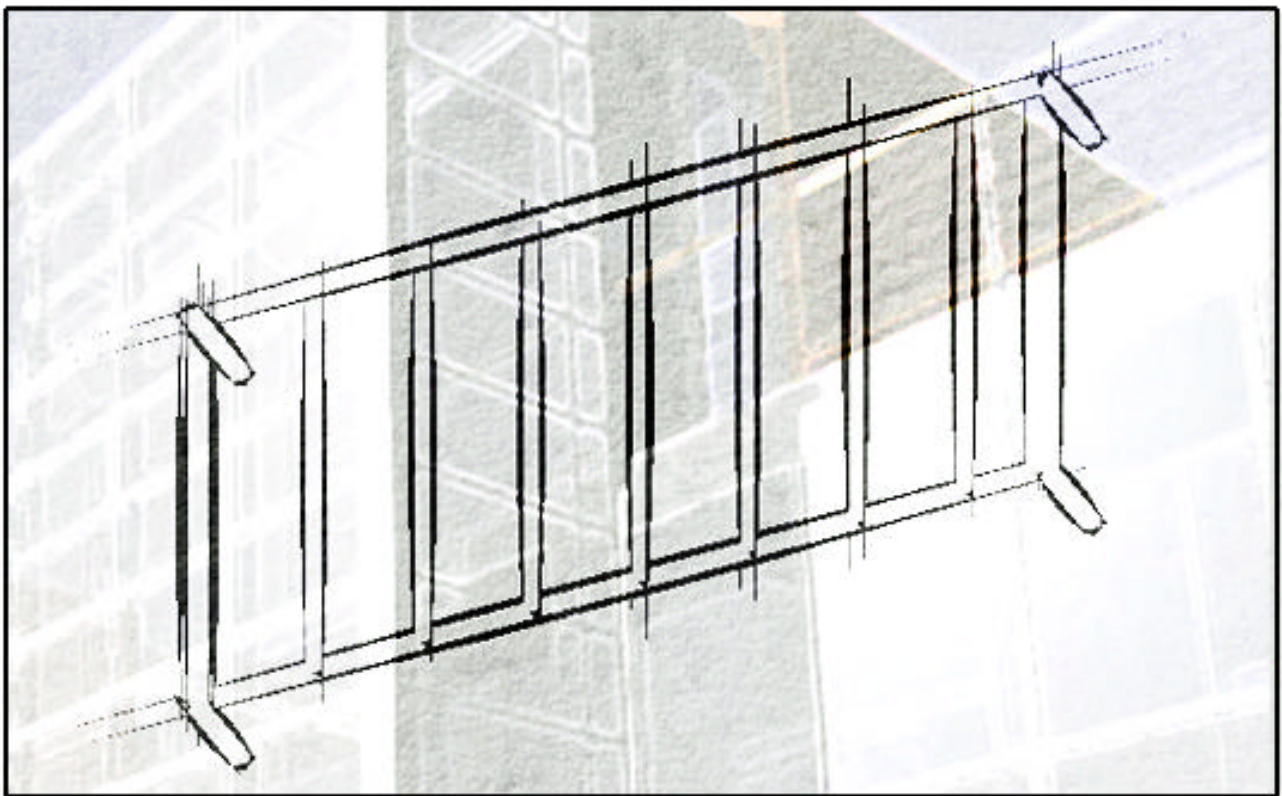


AUSTRALIAN *FLEXIBLE LEARNING* FRAMEWORK

# Placing Studs



## Framework Timber Framed Walls - Placing Studs



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*An initiative within the Australian Flexible Learning Framework for the National Vocational Education and Training System 2000 – 2004.*

### **Background**

In August 1999, the Australian National Training Authority Chief Executive Officers (ANTA CEOs) endorsed the *Australian Flexible Learning Framework for the National Vocation Education and Training System 2000 - 2004 (AFL Framework)*. The AFL Framework has been developed by the Flexible Learning Advisory Group (FLAG) and represents a strategic plan for the five- year National Project allocation for flexible learning. It is designed to support both accelerated take-up of flexible learning modes and to position Australian Vocational Education and Training (VET) as a world leader in applying new technologies to vocational education products and services.

### **Role of the Flexible Learning Advisory Group**

In broad terms, FLAG is a strategically-focused group of senior VET personnel advising ANTA CEOs, the ANTA Board, the Department of Education, Science and Training (DEST) the Australian Information and Communication Technology Education Committee (AICTEC - formerly known as the EdNA Reference Committee), on national issues relating to the directions and priorities for flexible learning in VET, with particular reference to online technologies.

### **The Project**

Building Blocks to Reality is a series of three instructional frameworks that direct building and construction apprentices and pre-vocational learners in the virtual building of a simple timber dwelling. The learning is based on an architectural 3D drawing package (archiCAD) and covers the construction of the, Sub floor, Timber Walls and the Hip and Truss Roofs.

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## An Overview

**Building Blocks to Reality** consists of three distinct frameworks with two of the frameworks having supporting sections.

The three distinct frameworks are:

- **Sub Floor Framing**
- **Timber Framed Walls**
- **Roof Framing**

The **Sub Floor framework** is a standalone module and will give the instructions necessary to virtually build the sub floor of the dwelling.

The **Timber Framed Walls framework** provides instructions to virtually build the wall frames for the dwelling. The sub sections to support Timber Framed Walls are:

- *Placing Studs*
- *Window Spaces*
- *Door Spaces*
- *Window/Door Spaces*

These give specific instructions to aid the virtual building of the dwelling. It is intended that each of these sub-sections be completed as standalone modules and then used as notes to aid the completion of the Timber Framed walls.

The **Roof Framing framework** consists of two sections:

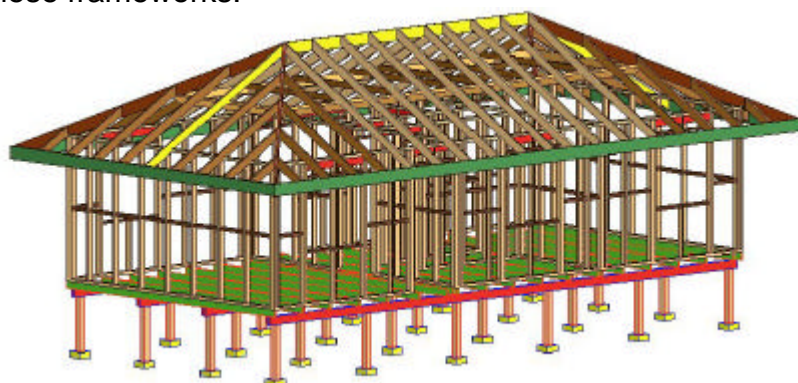
- *Roof Truss*
- *Hip Roof*

These modules provide instructions for the virtual building of a roof for the dwelling, depending on the roof type required.

An additional module '**Section/Elevation Tool**' is also available and must be referred to when developing the Hip Roof, although the principles covered can be practiced in any of the other frameworks.

It is intended that each of the frameworks be drawn separately, following the given guidelines, but it is possible that all the files of the three main sections can be merged to develop the completed dwelling in its entirety.

A template file providing set parameters is available and recommended for use when working with these frameworks.



## Placing Studs


By following these instructions you will be able to develop the skills required to, place the studs in the two end walls and all the internal walls that do not have doors or windows included. We will be using standard size materials and the **floor to ceiling height will be 2400**. Plates will not be trenched.

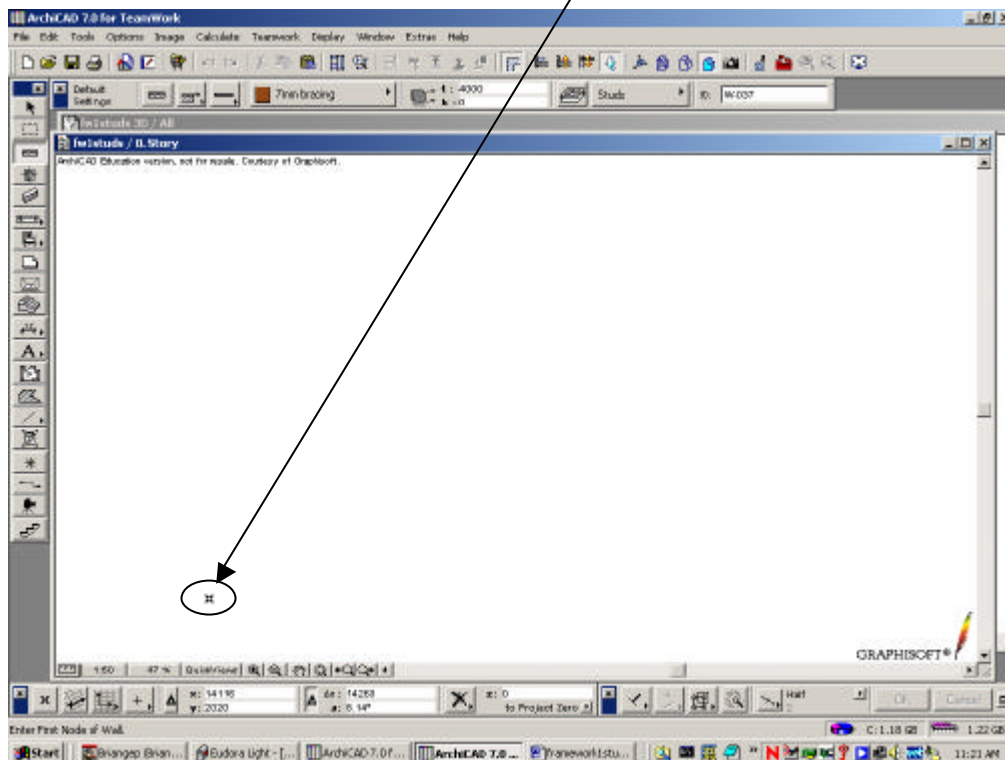
**Open** the template named: 'Ftemplate\_temp.pne'.

If the libraries window appears click **done**.


This template is a read-only document, once opened resave it by going to **File ► Save As**. Save the file to your personal drive and give the file a new name (eg. Fwstuds.pne).

Sizes of materials used will be as determined in Timber Framed Walls.

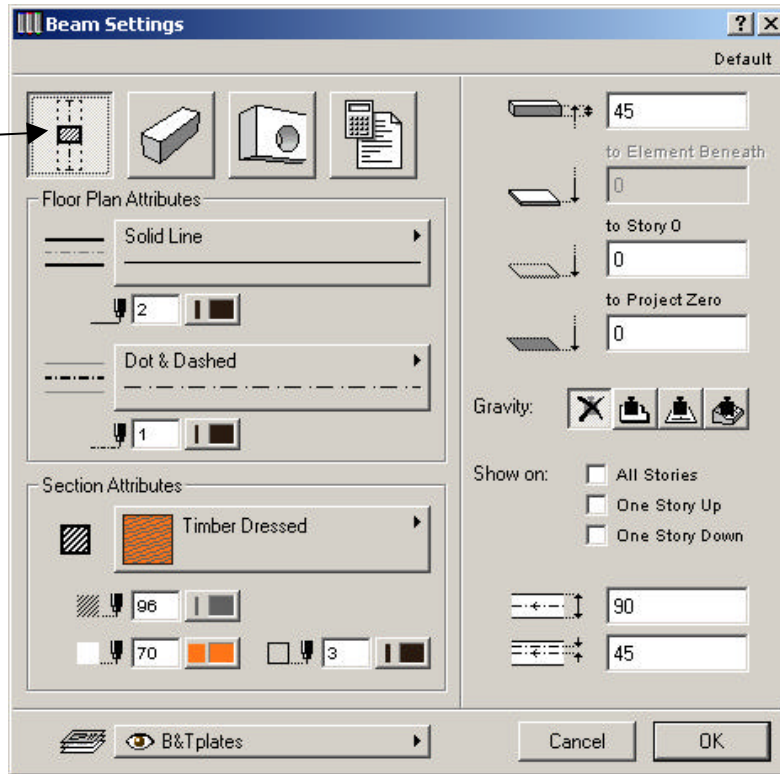
Drawing will commence from the *Global Origin*  point.



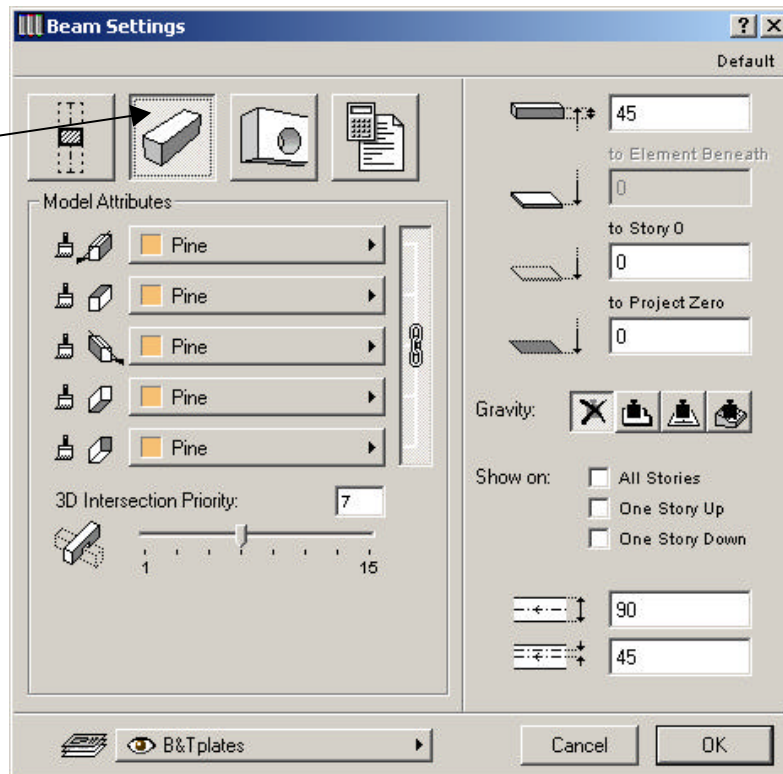
Bottom Plate (set up)

Double click the *Beam Tool*  and set up as shown below:

Click on Floor Plan Attributes button



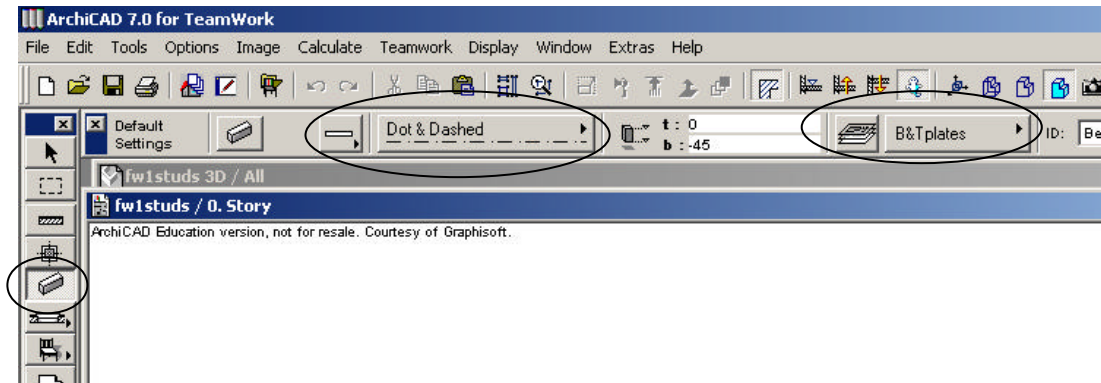
Click on Model Attributes button





Click OK

## Framework Timber Framed Walls - Placing Studs

Check screen settings are as below:



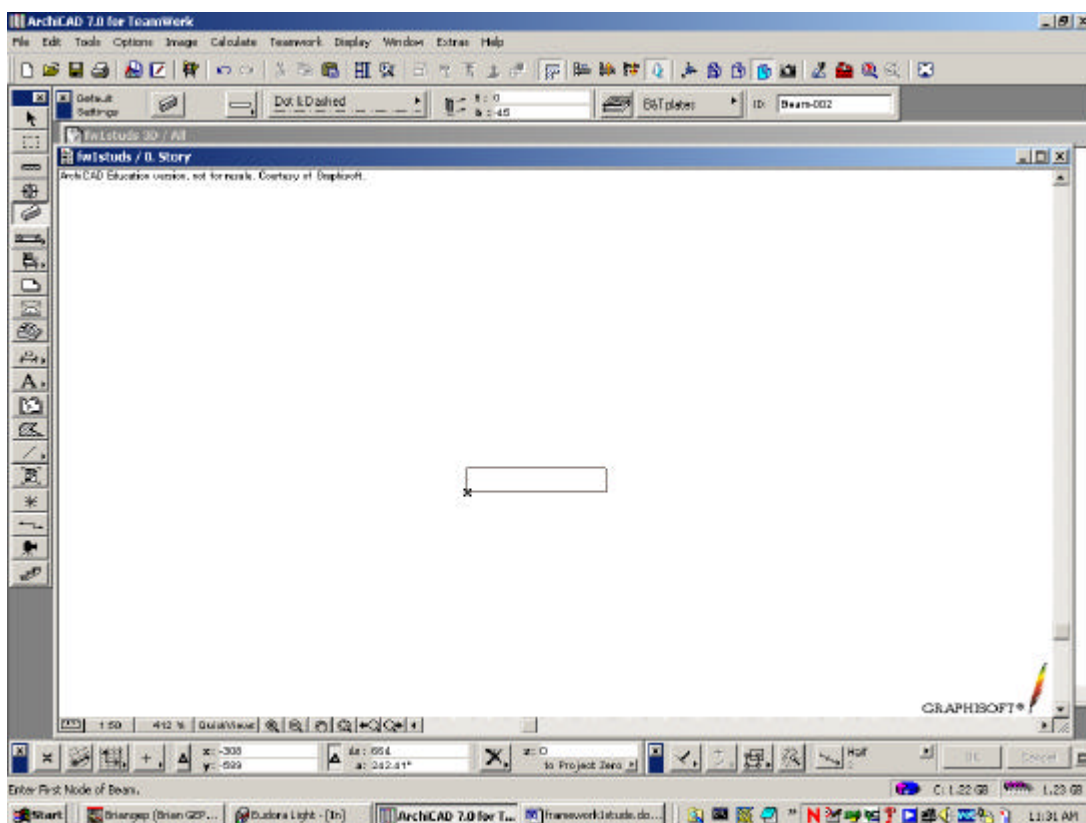
Move the cursor to the *origin zero*  point and left click when it changes to a *checkmark*  cursor. As you move the mouse you'll see the cursor change to a

pencil .

Now:

Type 'r' and then 500  
Press TAB  
Type 0 and press enter

Use *zoom window*  to draw a box around the short B/Plate



## Framework Timber Framed Walls - Placing Studs

**Move cursor back** to *origin zero* and click when it changes as described above.

Type 'r' and 4710  
Press TAB  
Type 90 and press enter



**Click on the fit window icon** .

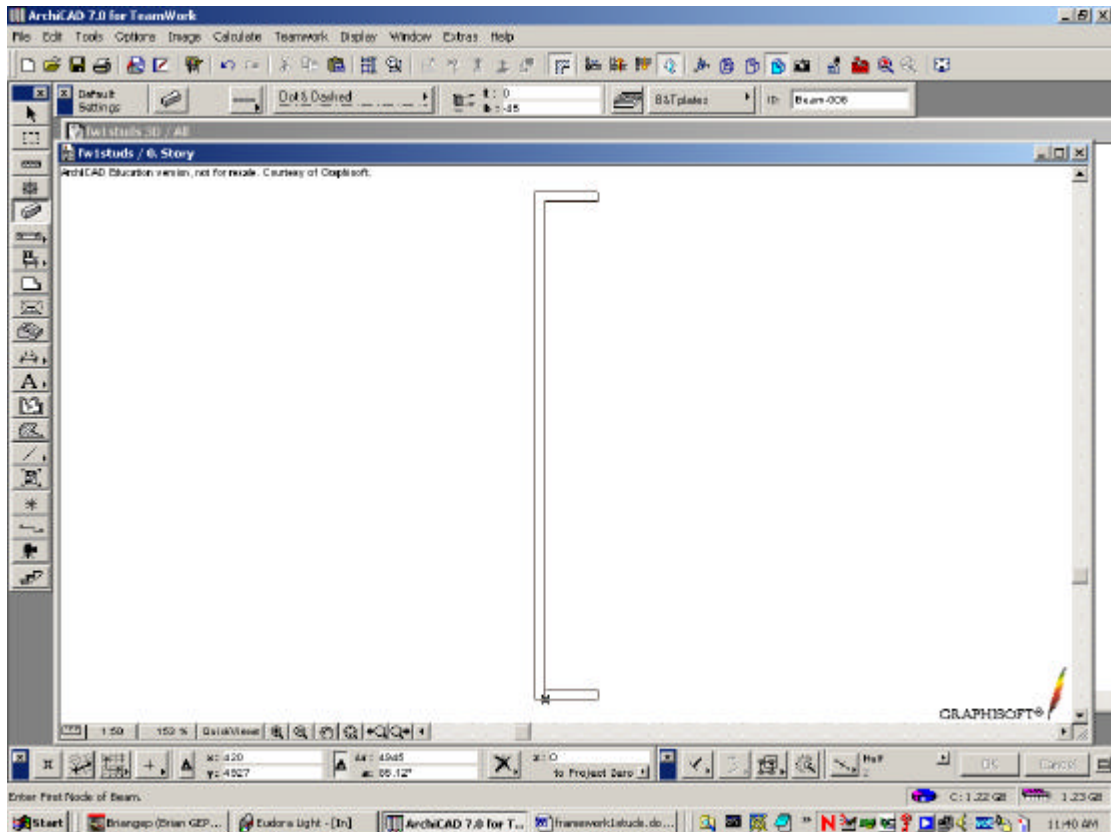
Now **click on the top left hand corner** of vertical plate.



Type 'r' and 590  
Press TAB  
Type 0 and press enter

## Framework Timber Framed Walls - Placing Studs

View should be as below:

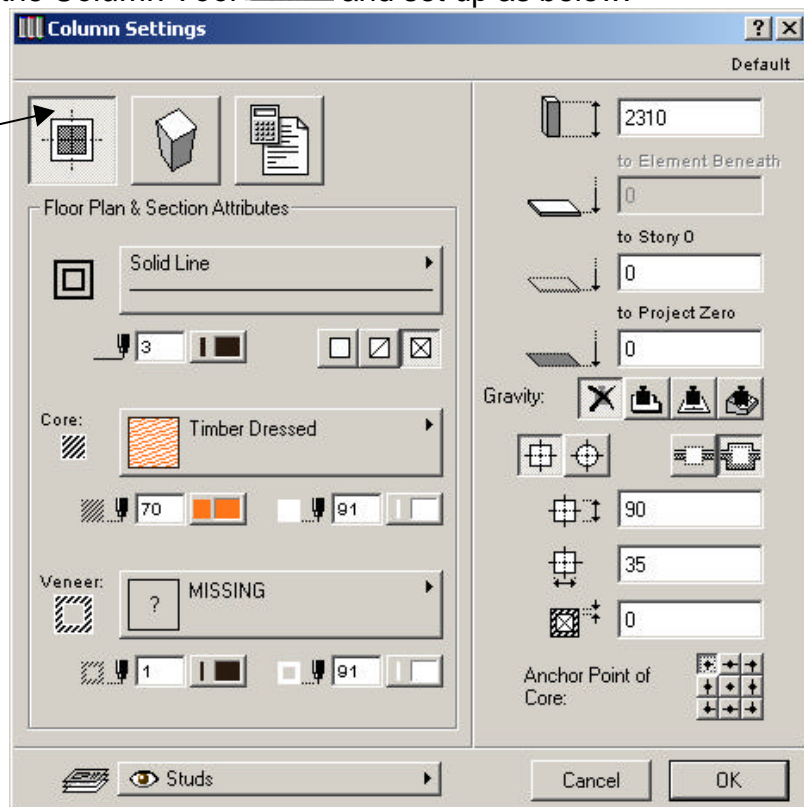


We have now recreated the bottom plate for the end wall of our framework I building.

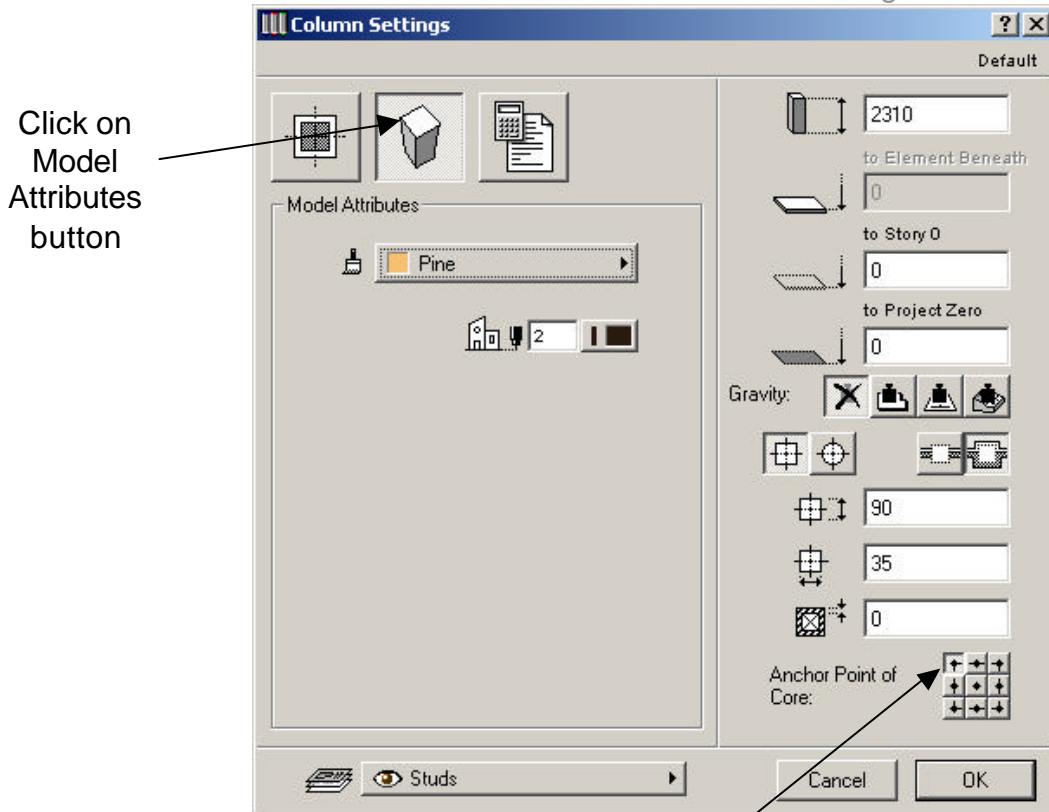
### Placing Corner Studs

Double click the *Column Tool*  and set up as below:

Click on  
Floor Plan  
Attributes  
button



## Framework Timber Framed Walls - Placing Studs



Click on Model Attributes button

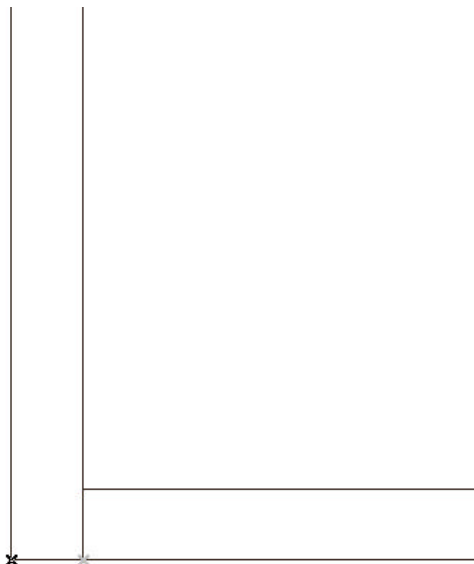
### **IMPORTANT:**

To place the studs in the corner the *anchor point* will need to be altered as per placement requirement.

### **Click OK**

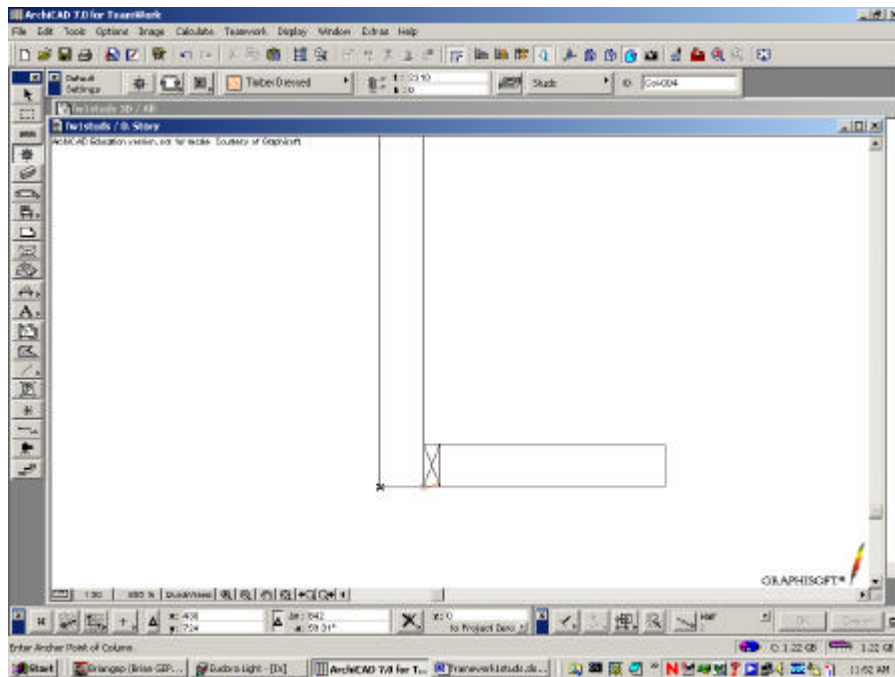
We will now place the first stud. To do this, *zoom in* closer to the bottom left corner

using the *Zoom Window*  icon.




## Framework Timber Framed Walls - Placing Studs

Move cursor to top of inside corner and click when it changes to a *checkmark* ✓.  
Should be as below:



### Moving Stud

This stud will now be moved 17.5mm towards the outside of the building so that it fits  $\frac{1}{2}$  on the inside and  $\frac{1}{2}$  on the outside of the rear wall plate.

**Choose** the *arrow tool*  and click in the middle of the stud. Selection nodes will now appear around the stud.




**Right mouse click** and from the pop up menu select '*drag*'. Click on the bottom left node and

Type r and then 17.5  
Press TAB  
Type 180 and press enter

**Click away** to turn off nodes.




### IMPORTANT

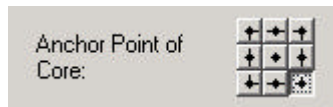
Alter the anchor point by **double clicking** the *Column Tool*  and choosing the lower left point.

**Click OK**

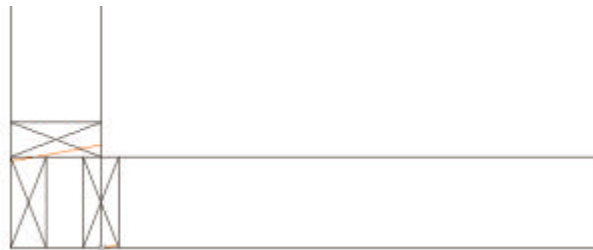
Place stud to outside corner as below:





To place the third stud in the combination double click the *Column Tool*  and change the 90 to 35 and the 35 to 90 also change the anchor point to the bottom right hand corner as shown below.



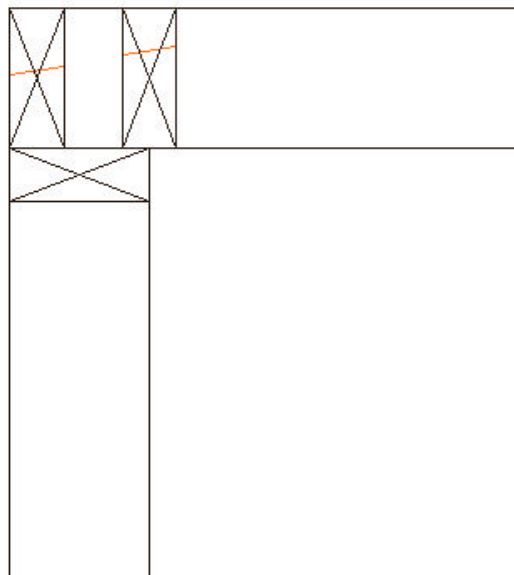
**Click OK** and click on the inside of the corner. Your drawing should now be as below:




The above procedure now needs to be repeated to place studs at the other end of the end wall.

**Click** the *Fit in Window*  icon to view the drawing and then *zoom*  closer to the top end of the wall.

Now **place the studs**:

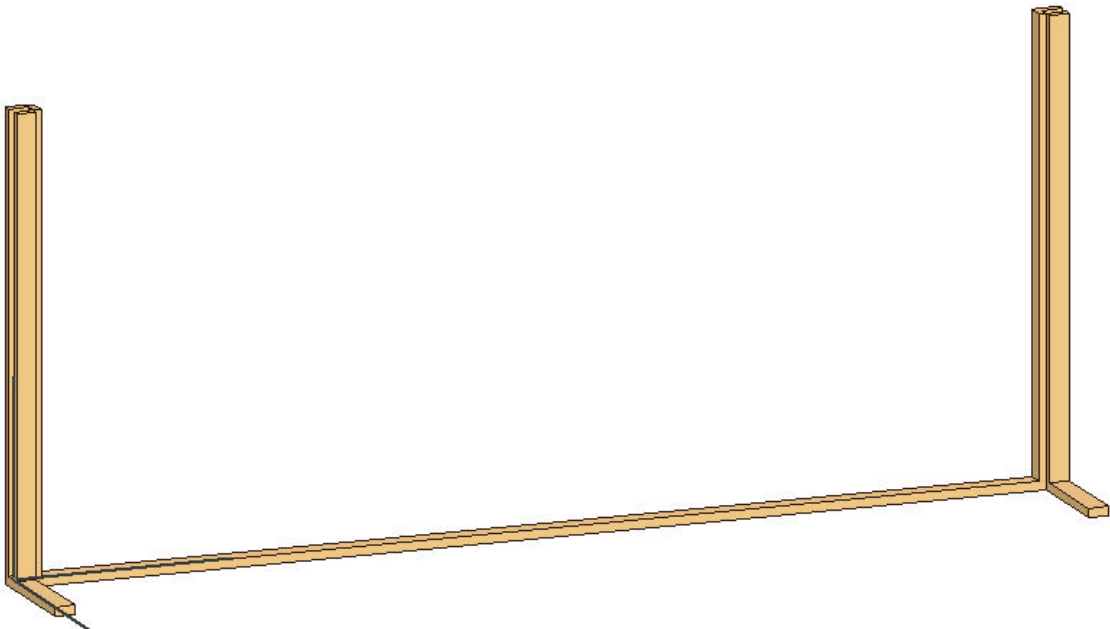


## Framework Timber Framed Walls - Placing Studs

Zoom out  and your plan should be as below:




**Check 3D view** by going to the pull down menu **Window ► 3D Window**.




**Return to 2D view**

Placing rest of studs in end wall

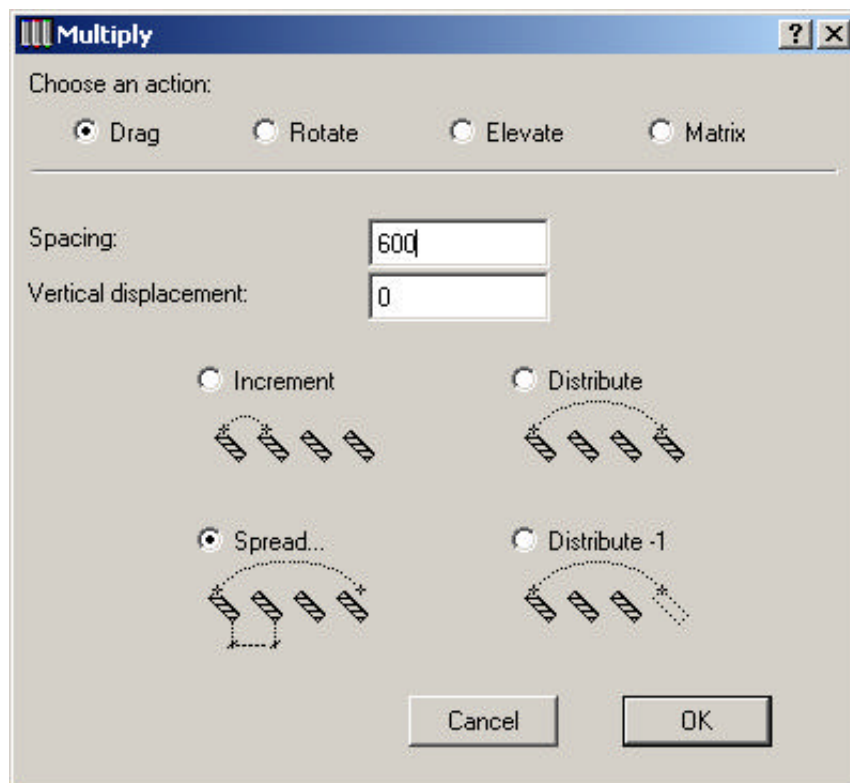
Zoom in  closer to the bottom stud combination.



Use the *Arrow Tool*  and select the first stud in the vertical wall. Do this by moving the cursor over a corner of the stud and click when the cursor changes to a *checkmark* ✓. You will see the selection nodes appear.



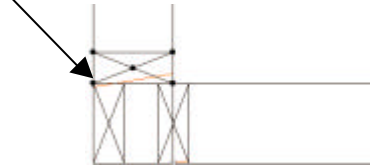
**Right click** the mouse and from the pop up menu choose '*multiply*'. Set the dialog box as below:




**Click OK**

## Framework Timber Framed Walls - Placing Studs

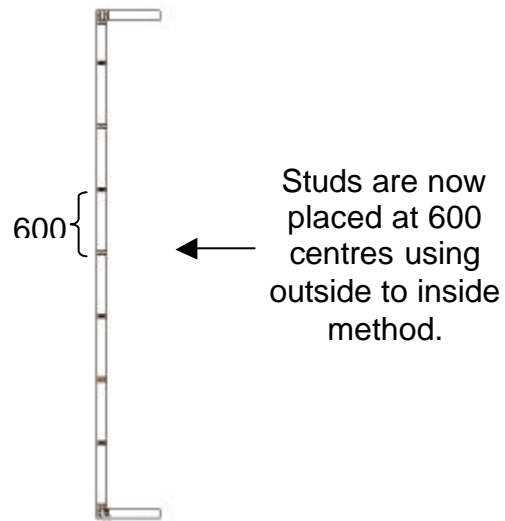
Click on the stud's bottom left node.



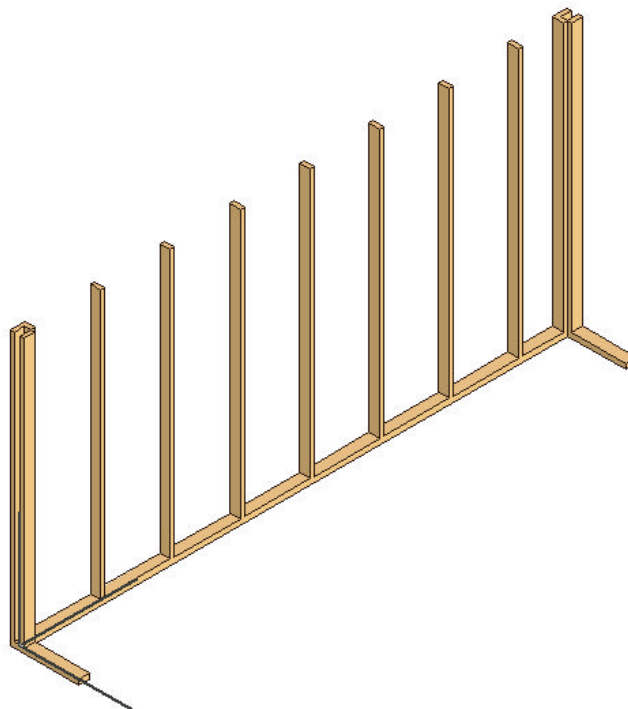
Click on *fit in window*  and drag the attached studs toward top of screen.

Select the lower left corner of the top corner stud and click when the cursor changes to a *checkmark* ✓. (**Holding the Shift key down** will help with the alignment)

Drawing should be as below:

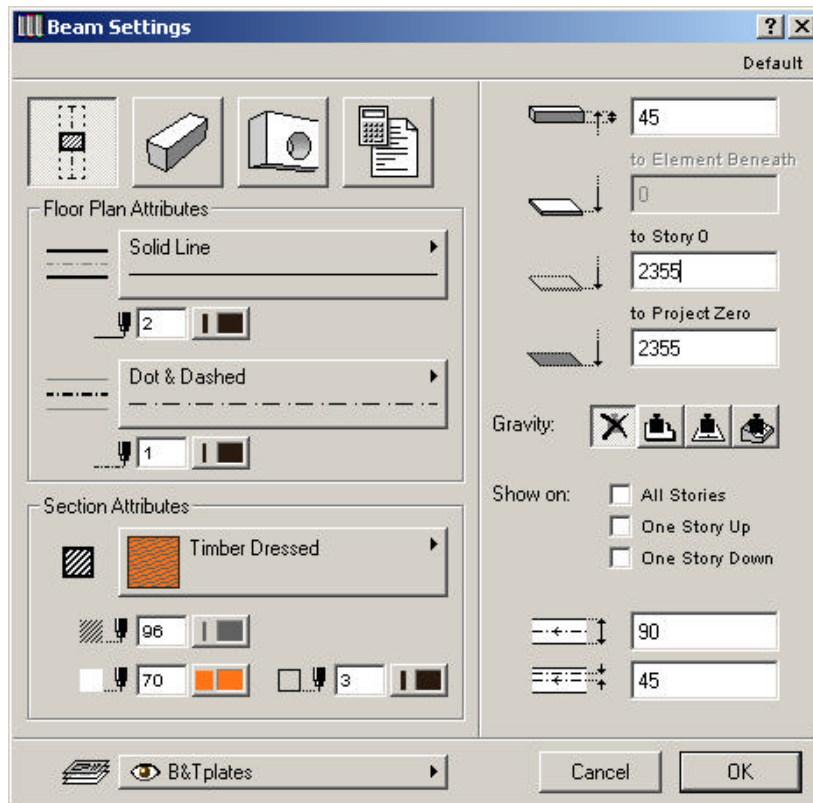


Click away to turn off nodes and **check your 3D view.**





Placing Top Plate in position

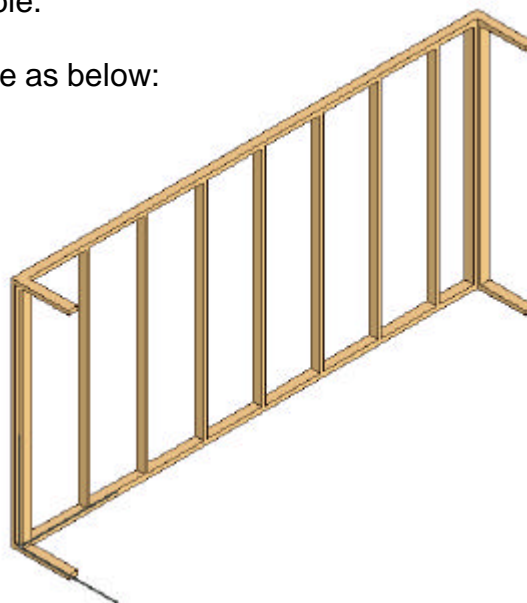
Double click *Beam Tool*  and set as below:



Draw the top plates over the existing bottom plates using the same procedure that was used to place the bottom plates.

Make use of the cursor changes such as the *checkmark* ✓ and the full pencil  to select joining points. Remember that you can always *zoom in*  closer to make joining points more visible.

Your plan should now be as below:



**The methods covered in this section will be used to place all the studs on the end and internal walls in Timber Framed Walls.**