


## 1 Varying Taper Range, with two tapering legs

This tip describes how to produce a varying taper range with the same tapering dimensions for Legs A & C for shape code 21.

Draw a closed polyline shape, for example similar to the one shown below;



*Figure 1.1 Polyline Outline of Slab*

Select Draw Range – New Mark 

Select Tapered Range Options

Select Varying Taper

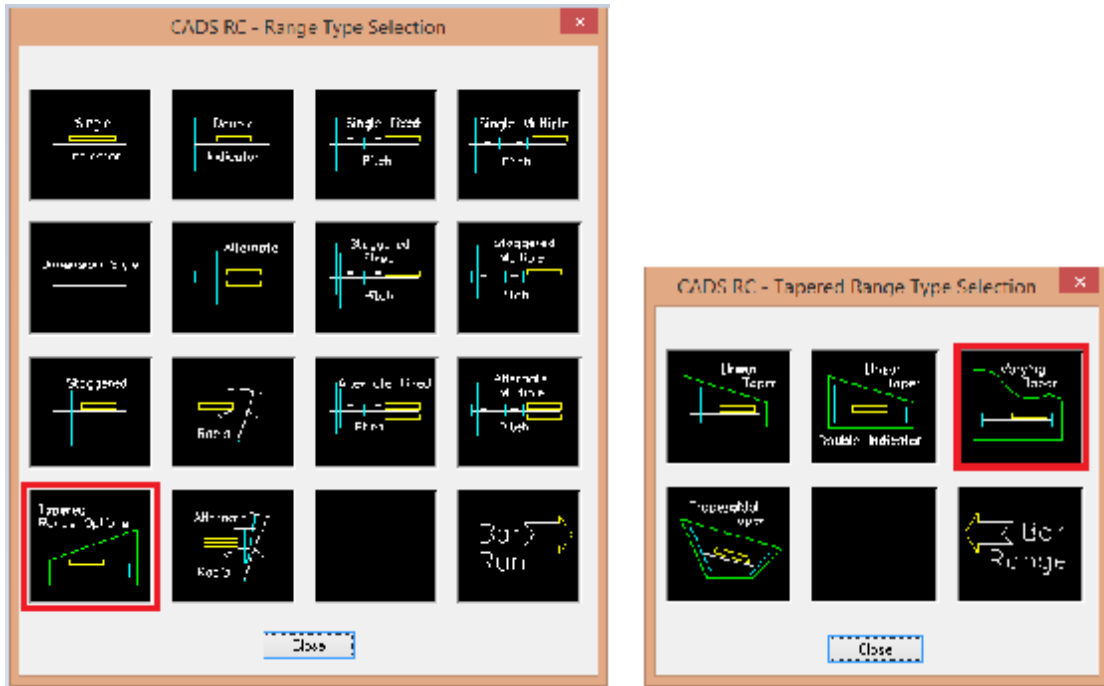


Figure 1.2 Range Type Selection & Tapered Range Type Selection

In the Draw Bar Dialog, setup the following options;

Shape Code 21, Grade B, 20mm dia, 200 c/c

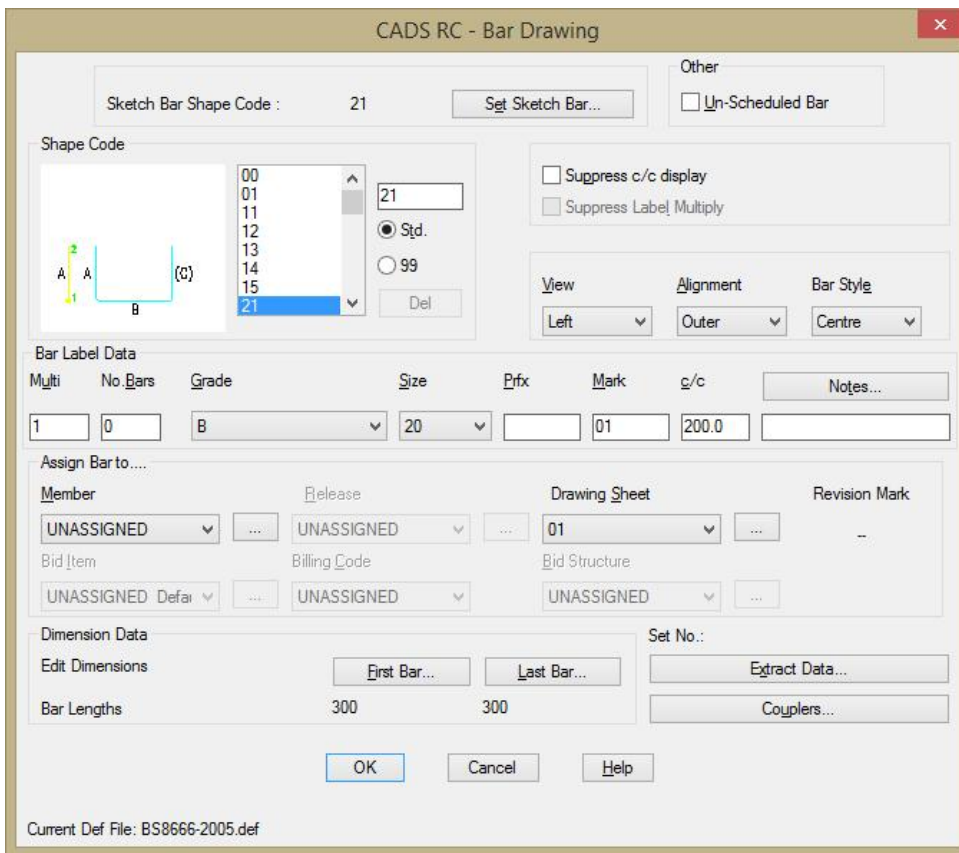


Figure 1.3 Draw Bar Dialog

Select the Sketch Bar option



Choose Shape Code 21, left view

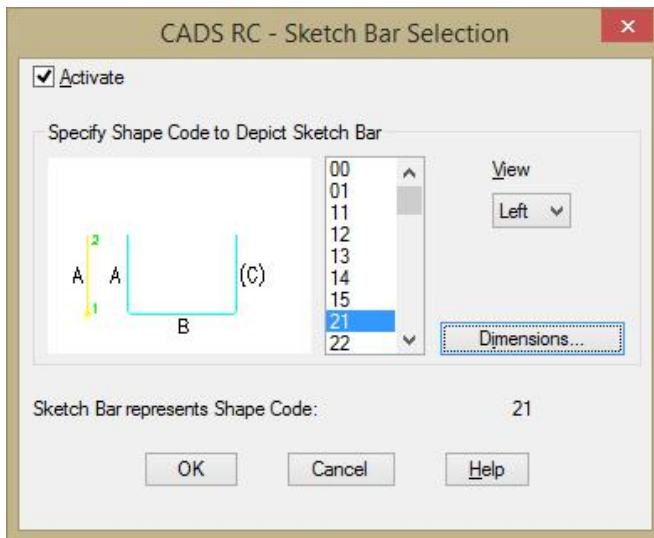


Figure 1.4 Sketch Bar Selection

Select the Dimensions button

Type in some dimensions for Leg C, this will force CADS RC to prompt which leg to taper when you draw the range. Note the view is set to left, leg A.

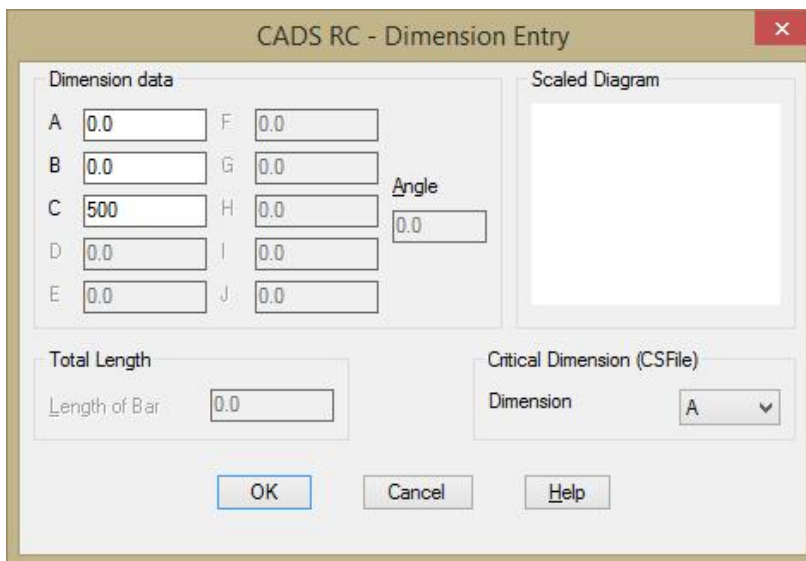


Figure 1.5 Sketch Bar Dimension Entry

Pick OK twice to return to the Draw Bar Dialog

Select the First Bar button and type in a dimension for Leg B pick OK

Repeat this procedure for the Last Bar button and type in the same dimension

Dimension B is going to be a fixed length.

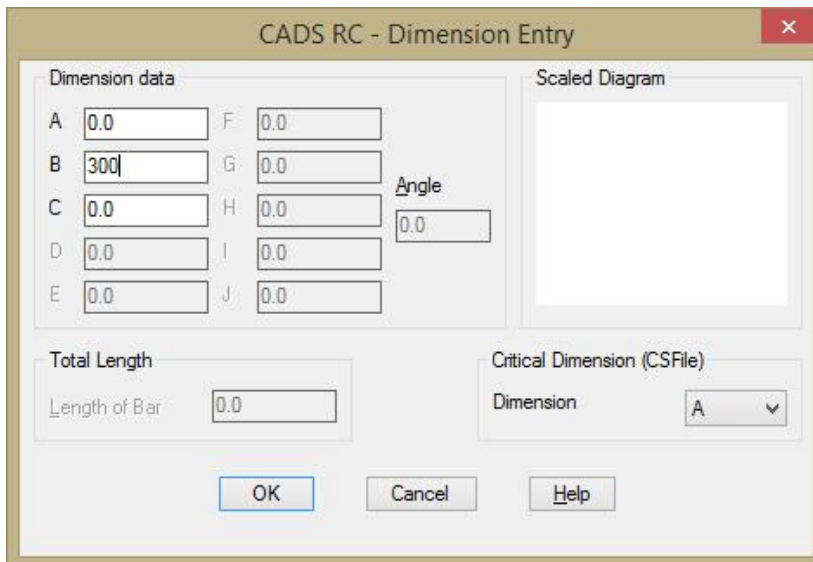


Figure 1.6 First Bar Dimension Entry

Pick OK to exit the Draw Bar dialog.

Draw in the sketch bar and the range within the polyline.

Press enter to accept the number of bars

When prompted to Pick Entity, pick on the polyline you created earlier

The following will then display at the command line

“Path range can only taper one dimension at a time.

Enter dimension to be tapered (A C ) <A> :”

Press enter to accept Dimension A.

You are then prompted whether you want to apply the dimensions to another leg, answer Yes.

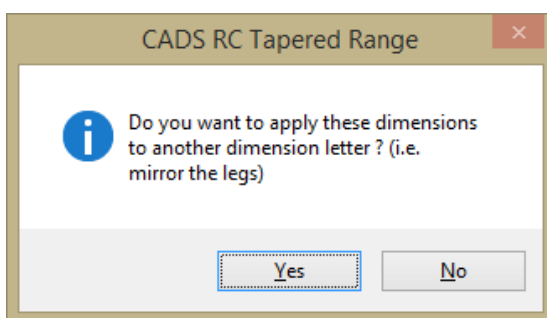


Figure 1.7 Tapered Range – apply dimensions to alternative legs

Enter dimension to be tapered (A C)<A>: Type in C and press enter

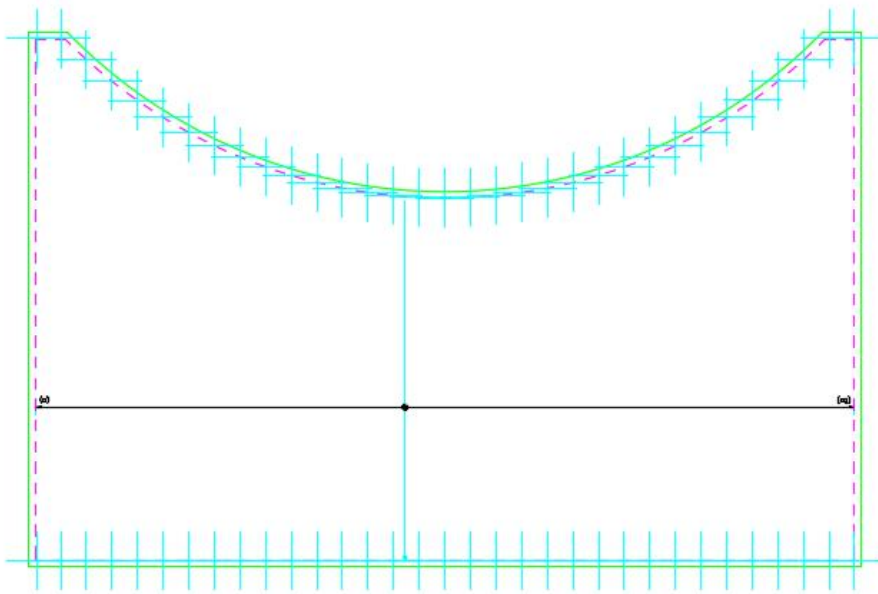


Figure 1.8 Sketch showing placement of tapered bars

Label bar <No> ? or J to Justify : Y

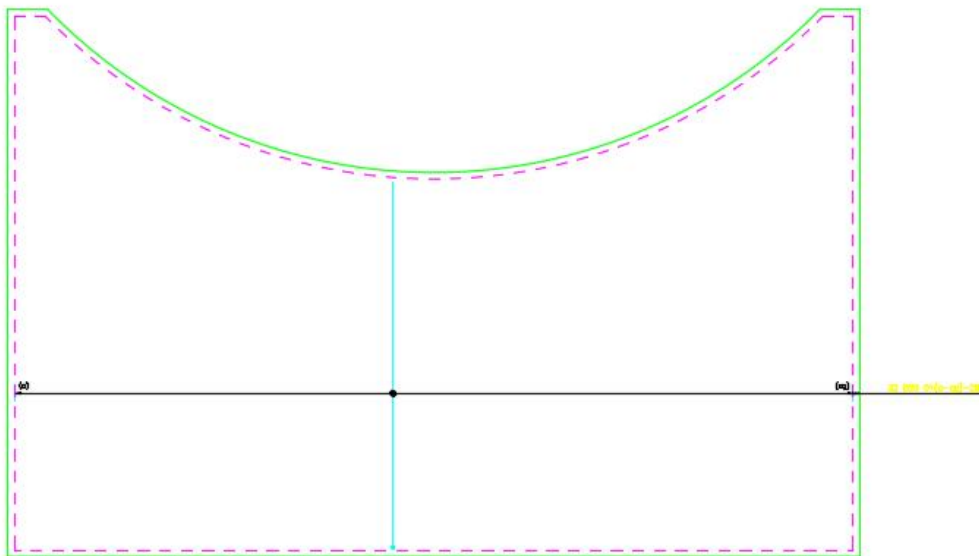


Figure 1.9 Varying Taper

Outline showing the positions of the Reinforcement and range line.

Formatted	Instances	Member	Rev. Date	Type & Desc	No. of Members	No. of Bars in Each	Total No. Bars	Rev. High	Range Code	Δ	R	C	D	Revised M
1	UNASSIGNED	C3a	8/30		1	1	1	8153	21		3070	300	3070	
2		C3b	8/30		1	1	1	8153	21		3070	300	3070	
3		C3c	8/30		1	1	1	7825	21		2810	300	2810	
4		C3d	8/30		1	1	1	7800	21		2810	300	2810	
5		C3e	8/30		1	1	1	7200	21		2500	300	2500	
6		C3f	8/30		1	1	1	6983	21		2370	300	2370	
7		C3g	8/30		1	1	1	6796	21		2320	300	2320	
8		C3h	8/30		1	1	1	6525	21		2155	300	2155	
9		C3i	8/30		1	1	1	6350	21		2070	300	2070	
10		C3j	8/30		1	1	1	6200	21		2000	300	2000	
11		C3k	8/30		1	1	1	6075	21		1930	300	1930	
12		C3l	8/30		1	1	1	5950	21		1875	300	1875	
13		C3m	8/30		1	1	1	5875	21		1835	300	1835	
14		C3n	8/30		1	1	1	5800	21		1800	300	1800	
15		C3o	8/30		1	1	1	5750	21		1775	300	1775	
16		C3p	8/30		1	1	1	5725	21		1760	300	1760	
17		C3q	8/30		1	1	1	5700	21		1740	300	1740	

Figure 1.10 Schedule of Varying Taper

Note there are only limited editing facilities available a Varying Taper Range once it has been placed, in some instances you will have to delete it and draw it again.

## 2 Applying a Step Taper to a Linear Taper with two tapering legs

Applying a Step Taper to a linear tapered shape code 21 with both the A and C Legs tapering will be explained in this example. Draw a suitable outline and end views as shown in the example drawing below;

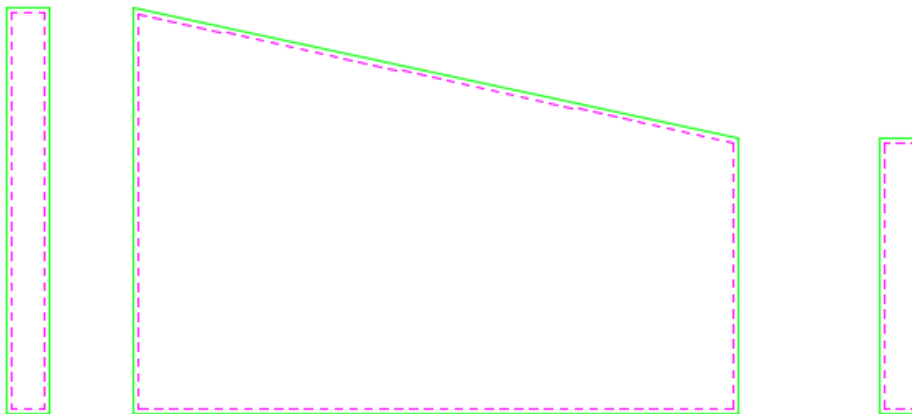


Figure 2.1 Typical Wall Outline

First you need to draw a linear tapered range inside the outline.

Select Draw Range – New Mark 

Select Tapered Range Options

Select Linear Taper

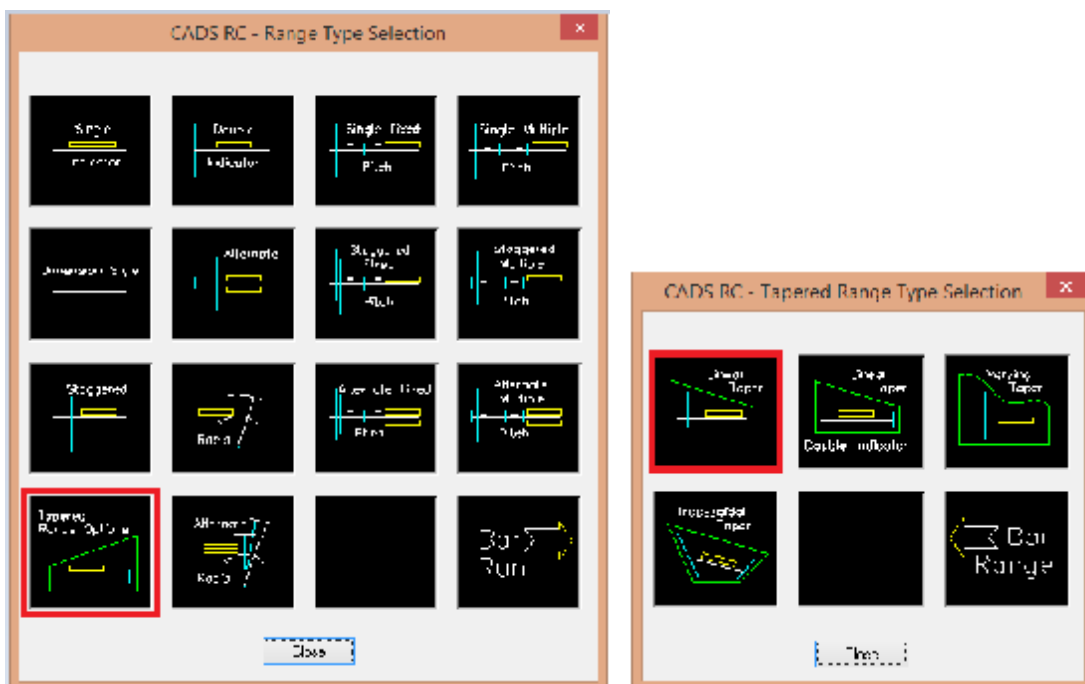


Figure 2.2 Range Type Selection & Tapered Range Type Selection

In the Draw Bar Dialog select Shape Code 21, Side View, Grade B, 20mm dia, 200mm c/c

Note: You are setting the view to side in the main dialog so that when you are prompted to specify the dimensions of the first and last bars you can pick on the left and right end views of the wall.

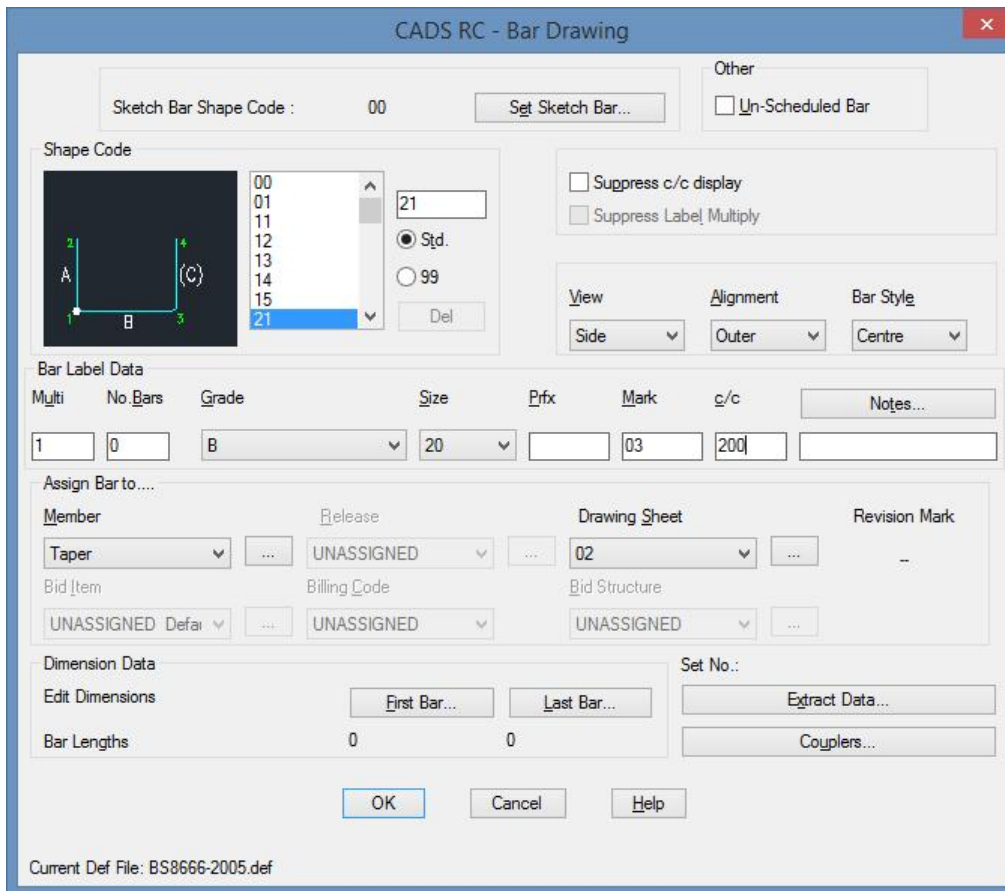


Figure 2.3 Draw Bar dialog

Select Set Sketch Bar

Select Shape Code 21, left view and click ok twice to return to the screen

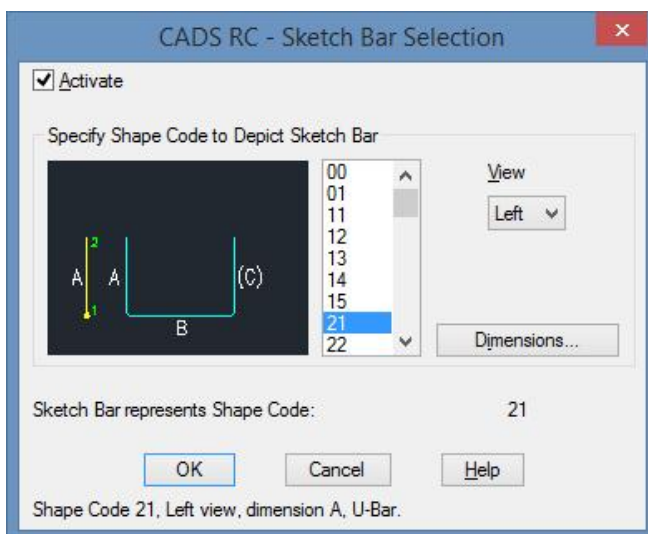


Figure 2.4 Sketch Bar Selection





Place the sketch bar and the range in the wall elevation, place the range from the shortest bar to the longest bar i.e. from right to left in this example.

When prompted to place the first bar pick the points as indicated in the diagram below

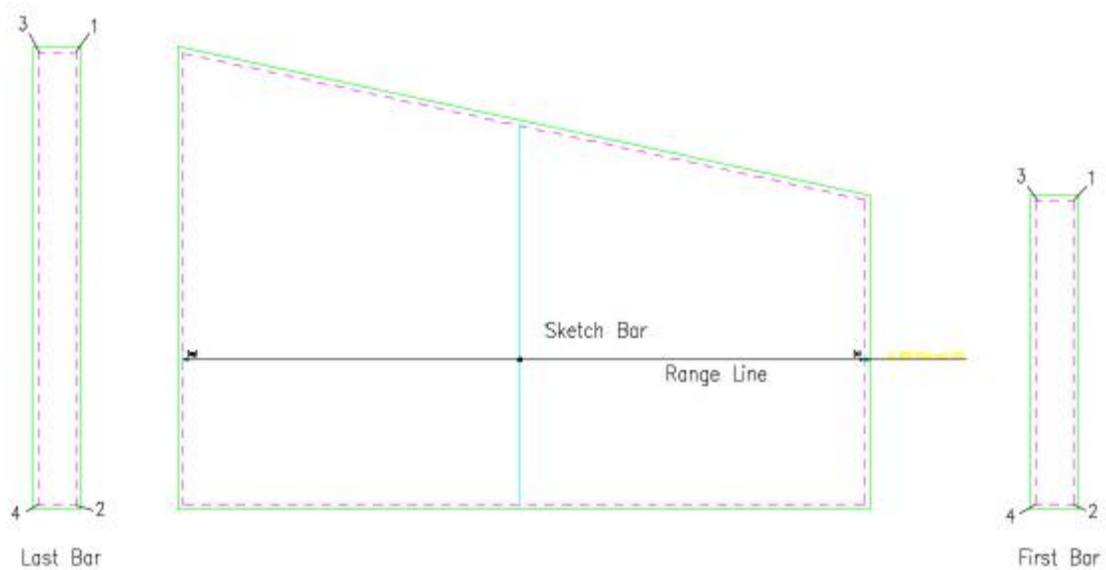


Figure 2.5 Drawing the Linear Taper Range – points to pick for first & last bars

Now to apply a step taper to Legs A & C of the tapering shape code 21

Double click on the Range Line or use the Edit Range Command, select Edit Range

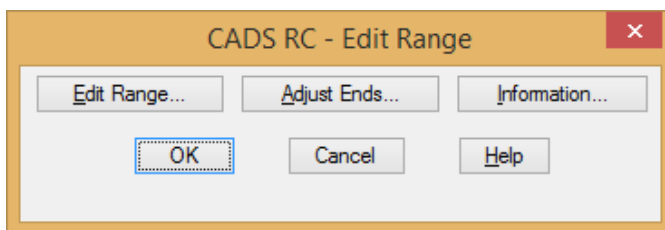


Figure 2.6 Edit Range dialog

Then click on Step Taper

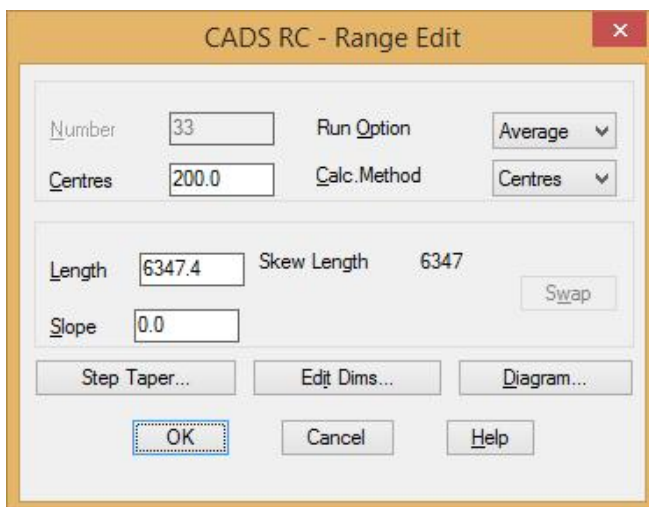


Figure 2.7 Additional Edit Range dialog

An error message will be displayed saying that this tapered range has more than one tapering leg, not supported. This can be overcome by changing a setting inside CADS RC Global/General Configuration.

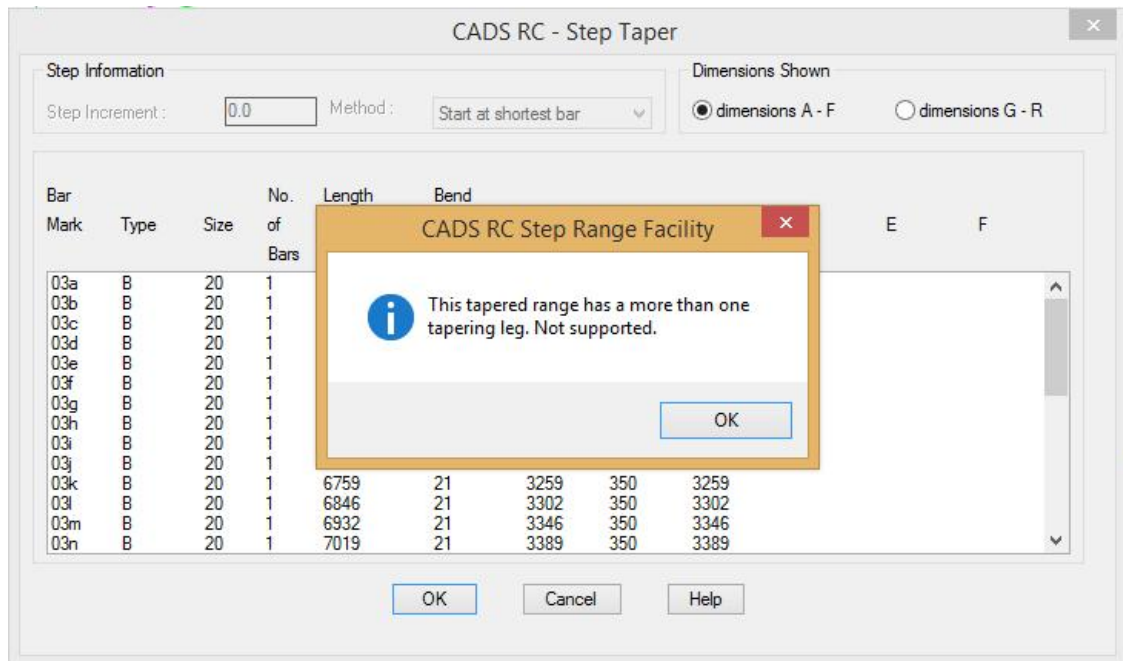


Figure 2.8 Step Taper Warning Message

Cancel out of the Edit Range function to the AutoCAD command line.

Select CADS RC – Configuration Centre – Global/General Configuration



Figure 2.9 Configuration Centre

In the Global/General Configuration dialog, set the top field to Range

Highlight RestrictStepMoreThan1TapLeg in the middle field  
Type in No in the lower field and click Assign to CFG and ok

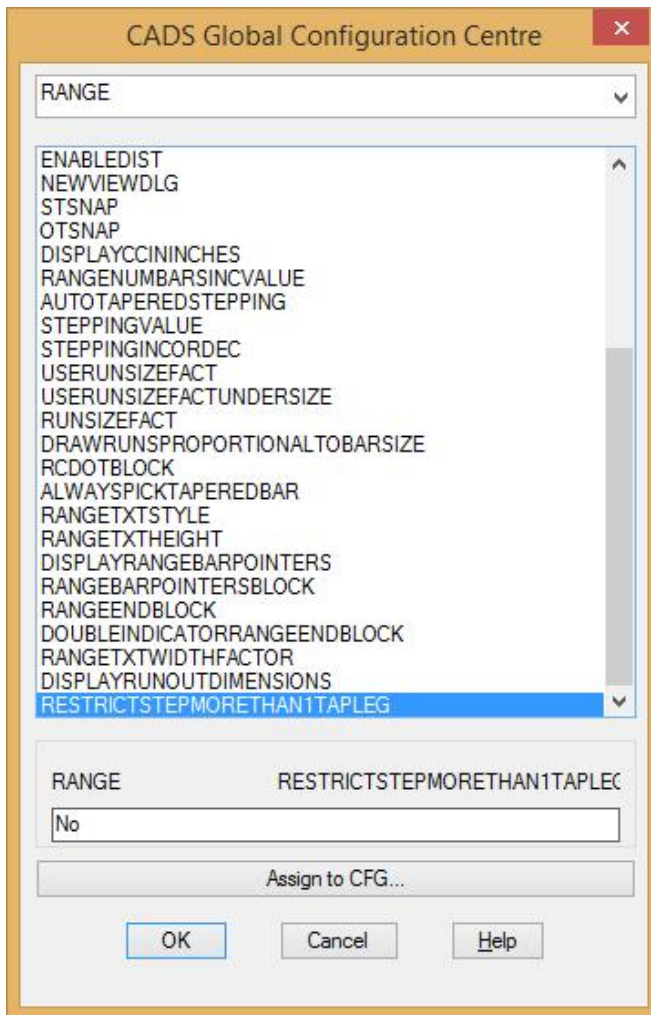


Figure 2.10 Global Configuration Centre

Click Yes on the Apply these changes screen and close the Configuration Centre

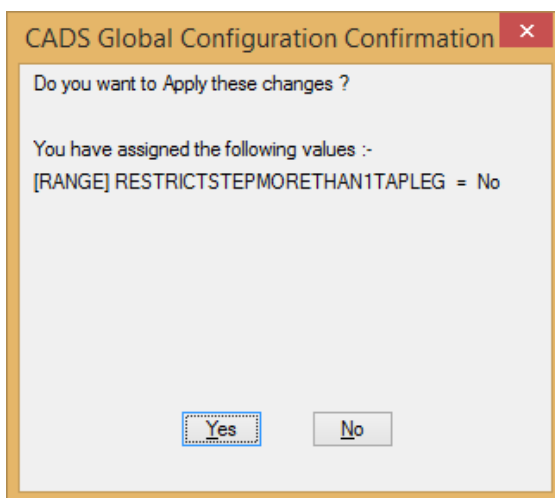


Figure 2.11 Global Configuration Confirmation

Now double click on the range and select Edit Range and then Step Taper.

Type in 200 in the Step Increment field and press the tab key on your keyboard. This updates the dialog to show the step increments applied to the bars.

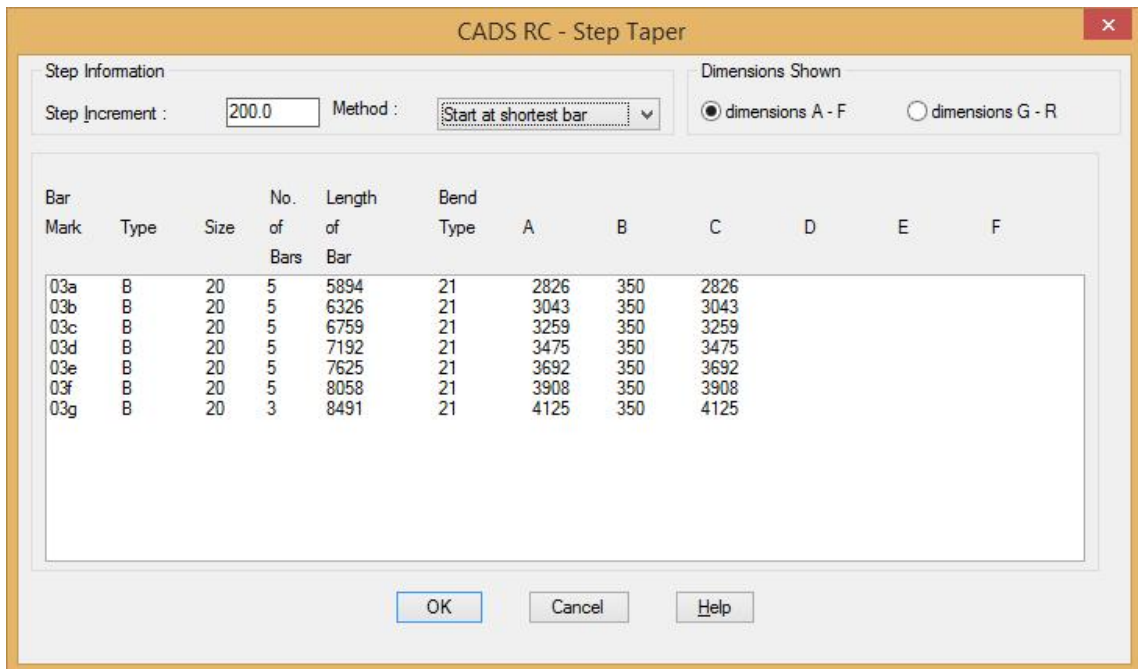


Figure 2.12 Step Taper dialog with 200mm step increment

Resulting schedule from applying a step increment

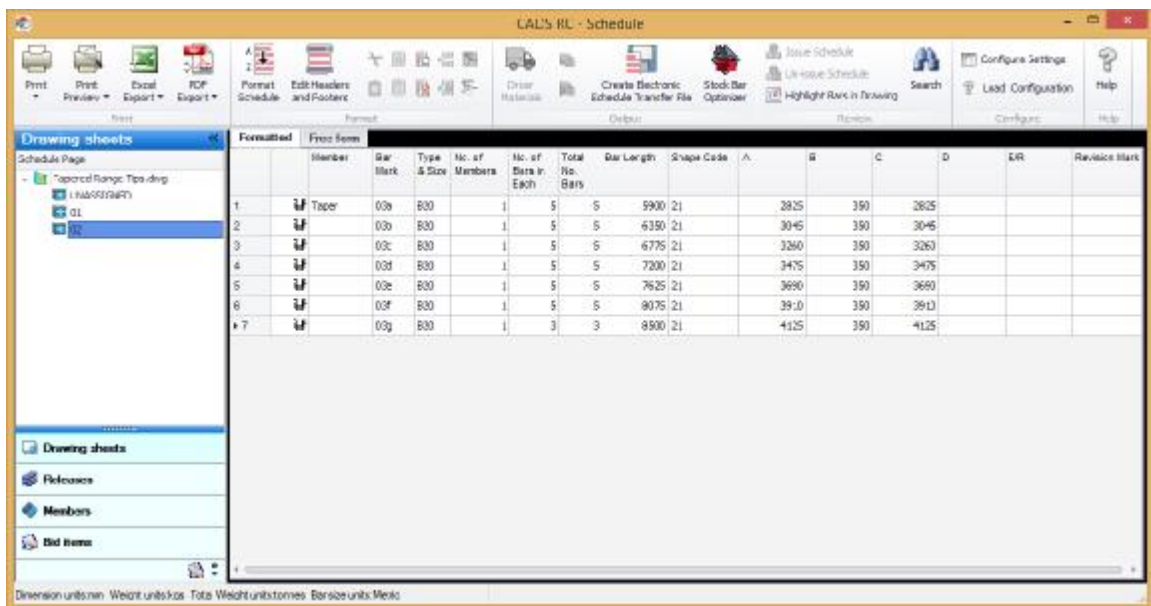


Figure 2.13 Schedule of Step Taper Range