

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;

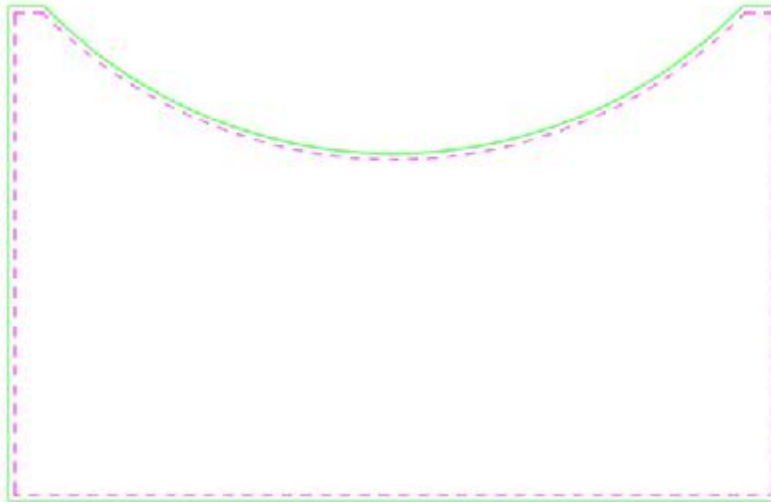


Figure 1.1 Polyline Outline of Slab

Select Draw Range – New Mark 

Select Tapered Range Options

Select Varying Taper

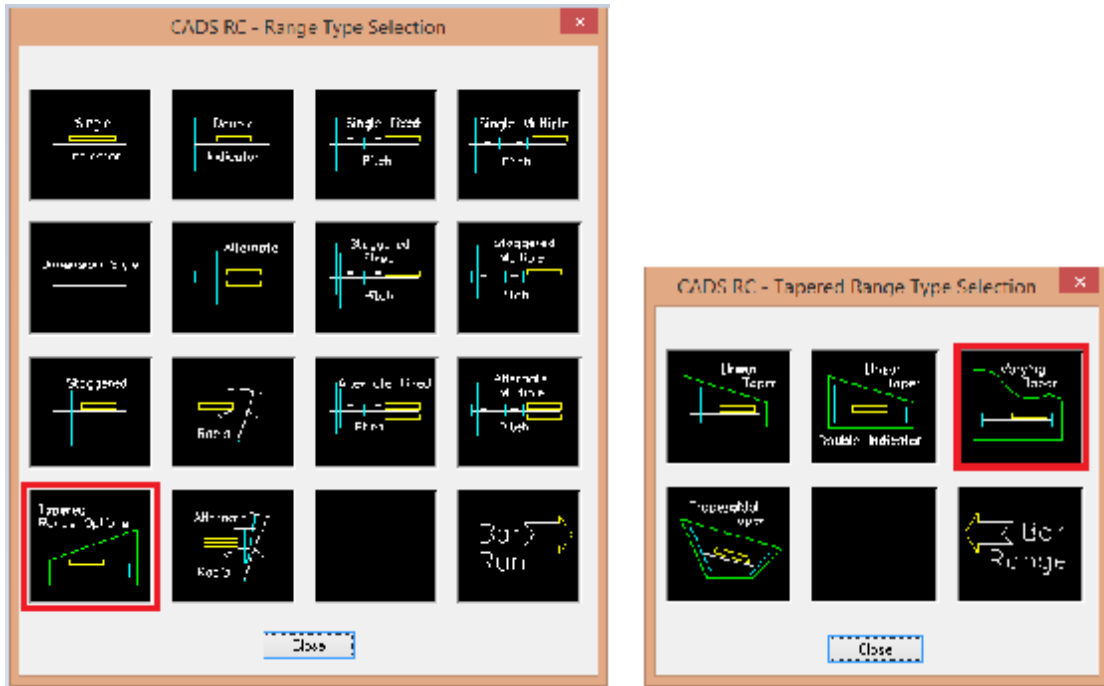


Figure 1.2 Range Type Selection & Tapered Range Type Selection

In the Draw Bar Dialog, setup the following options;

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

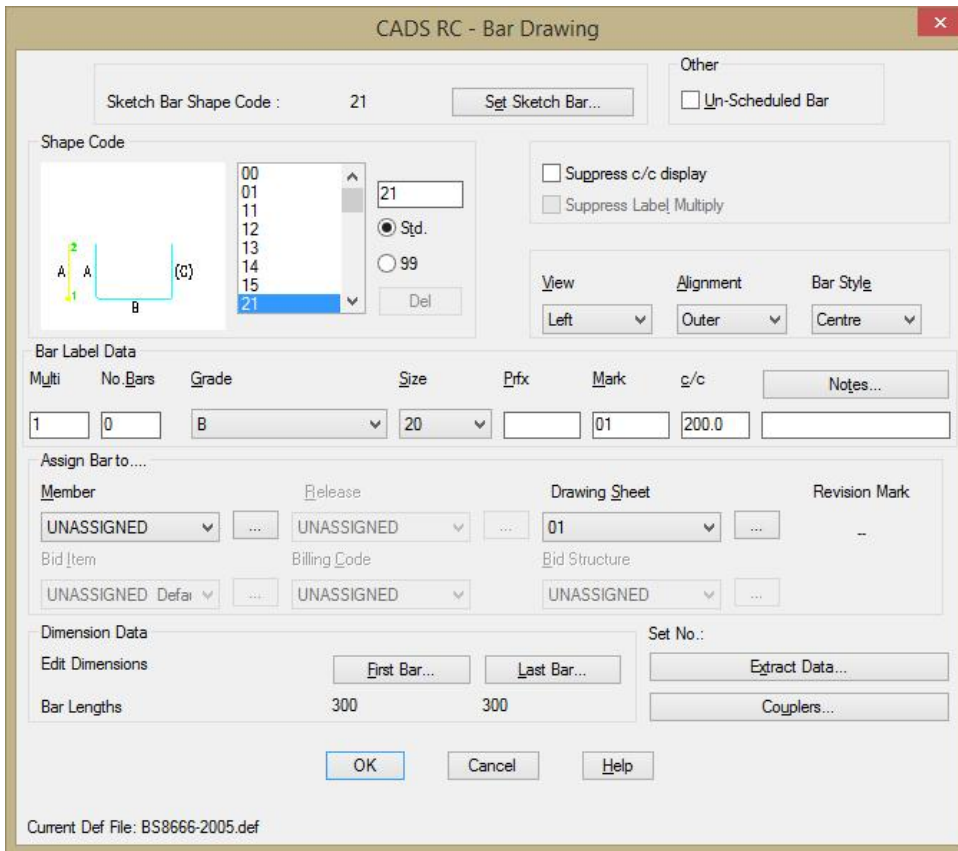


Figure 1.3 Draw Bar Dialog

Select the Sketch Bar option

Choose Shape Code 21, left view

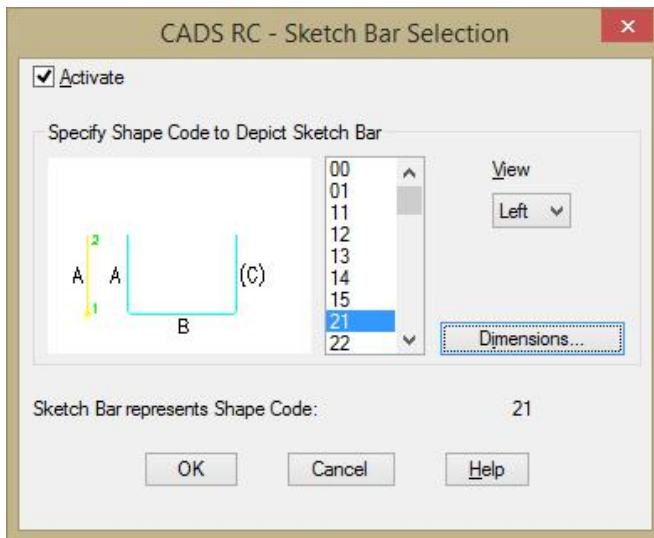


Figure 1.4 Sketch Bar Selection

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.

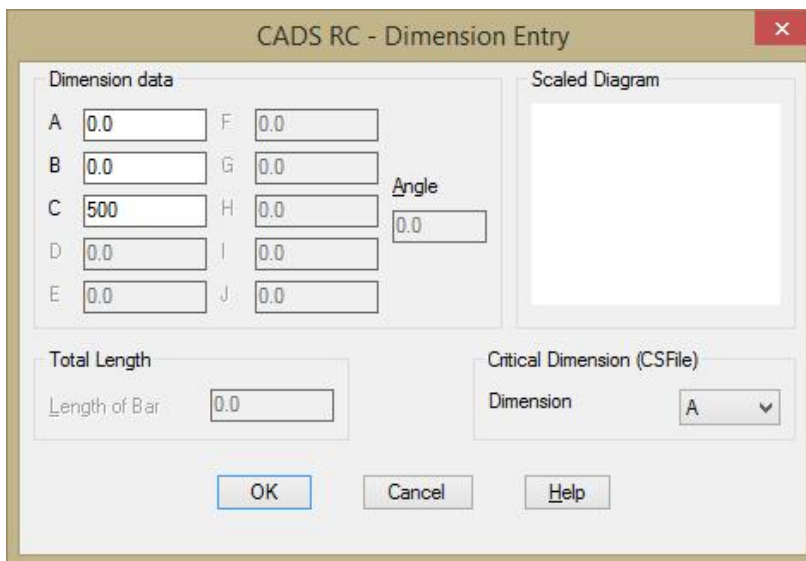


Figure 1.5 Sketch Bar Dimension Entry

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.

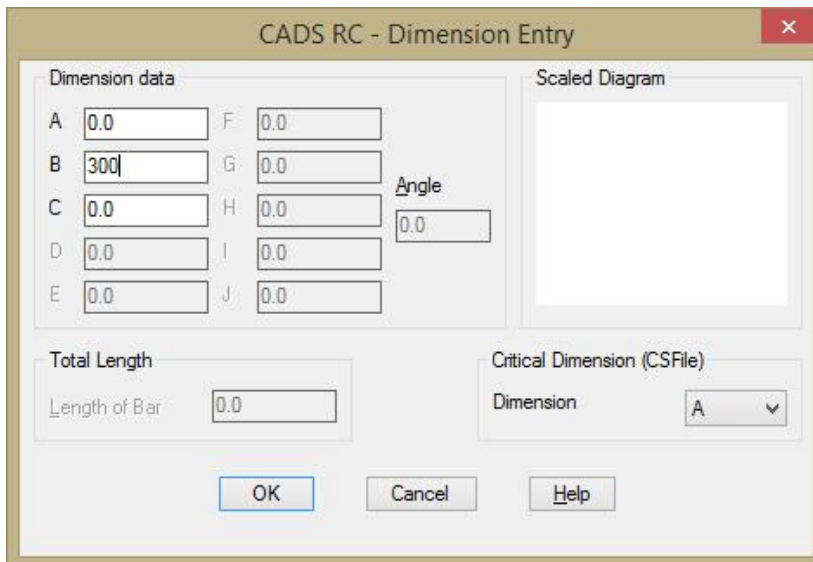


Figure 1.6 First Bar Dimension Entry

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.

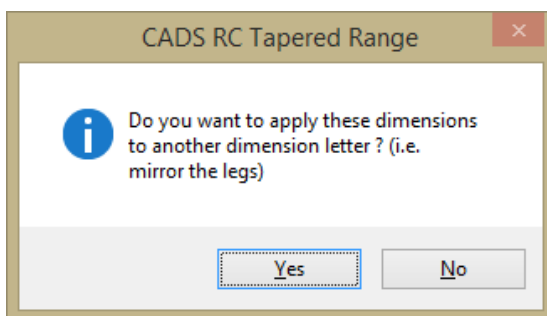


Figure 1.7 Tapered Range – apply dimensions to alternative legs

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

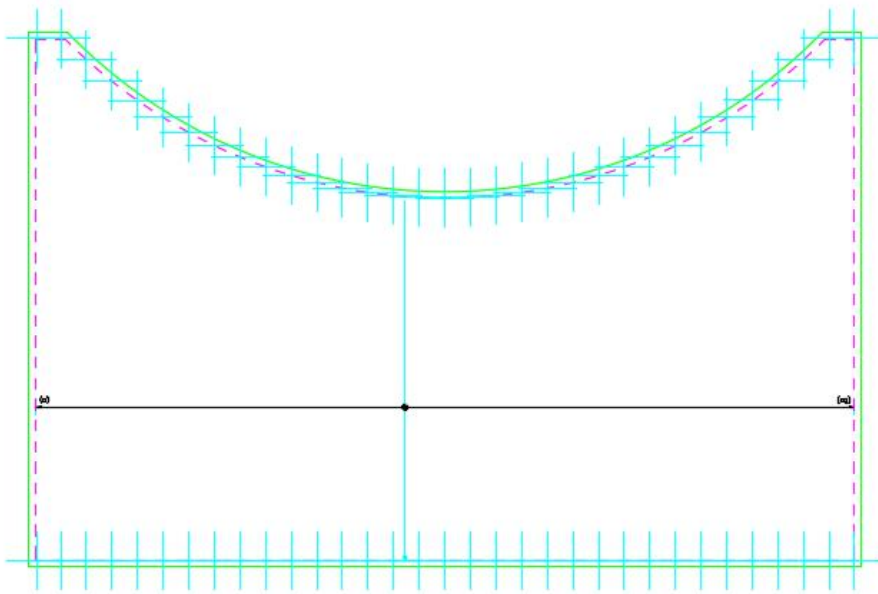


Figure 1.8 Sketch showing placement of tapered bars

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

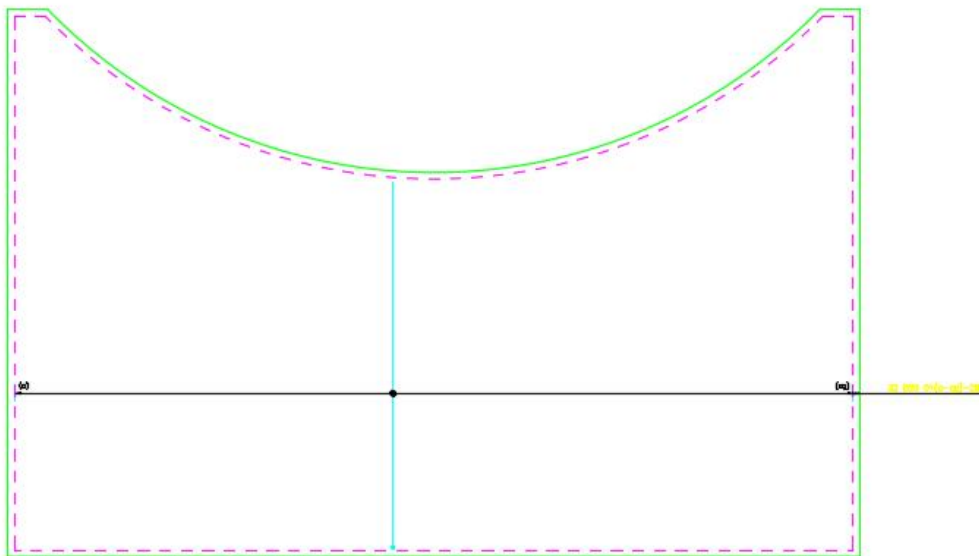


Figure 1.9 Varying Taper

Outline showing the positions of the Reinforcement and range line.

Formatted	Instances	Member	Ref. Mark	Type & Desc	No. of Members	No. of Bars in Each	Total No. Bars	Bar Weigh	Shape Code	A	B	C	D	E	F	D	Revised M
1	UNASSIGNED	C3a	E30		1	1	1	8153	21		3070		300	3070			
2		C3b	E30		1	1	1	8153	21		3070		300	3070			
3		C3c	E30		1	1	1	7825	21		2810		300	2810			
4		C3d	E30		1	1	1	7800	21		2870		300	2870			
5		C3e	D30		1	1	1	7200	21		2500		300	2500			
6		C3f	E30		1	1	1	6983	21		3370		300	3370			
7		C3g	E30		1	1	1	6796	21		3320		300	3320			
8		C3h	E30		1	1	1	6525	21		2155		300	2155			
9		C3i	E30		1	1	1	6350	21		3070		300	3070			
10		C3j	D30		1	1	1	6200	21		2965		300	2965			
11		C3k	E30		1	1	1	6075	21		2930		300	2930			
12		C3l	E30		1	1	1	5950	21		2875		300	2875			
13		C3m	E30		1	1	1	5875	21		2835		300	2835			
14		C3n	E30		1	1	1	5800	21		2800		300	2800			
15		C3o	E30		1	1	1	5750	21		2775		300	2775			
16		C3p	E30		1	1	1	5725	21		2760		300	2760			
17		C3q	E30		1	1	1	5700	21		2740		300	2740			

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;

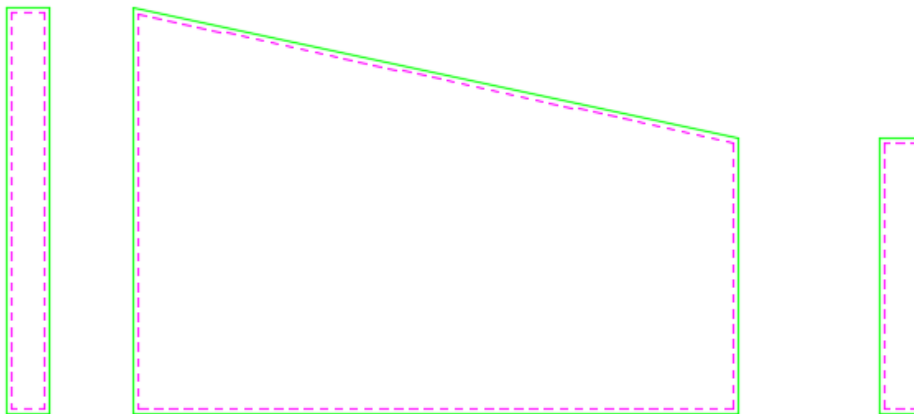


Figure 2.1 Typical Wall Outline

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

Select Draw Range – New Mark 

Select Tapered Range Options

Select Linear Taper

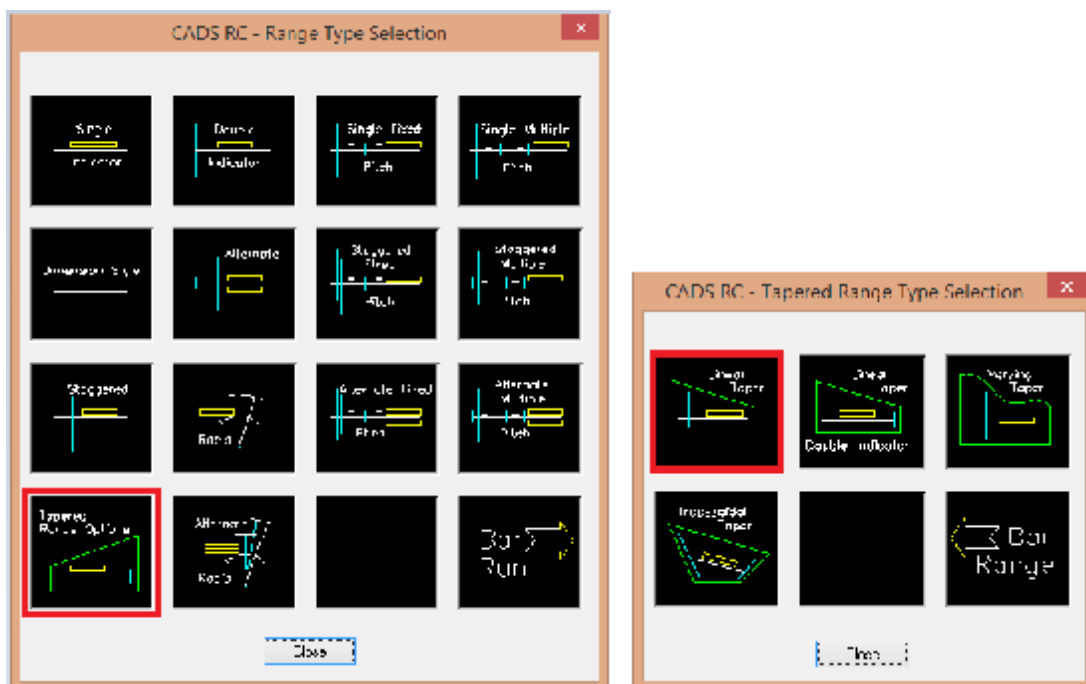


Figure 2.2 Range Type Selection & Tapered Range Type Selection

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.

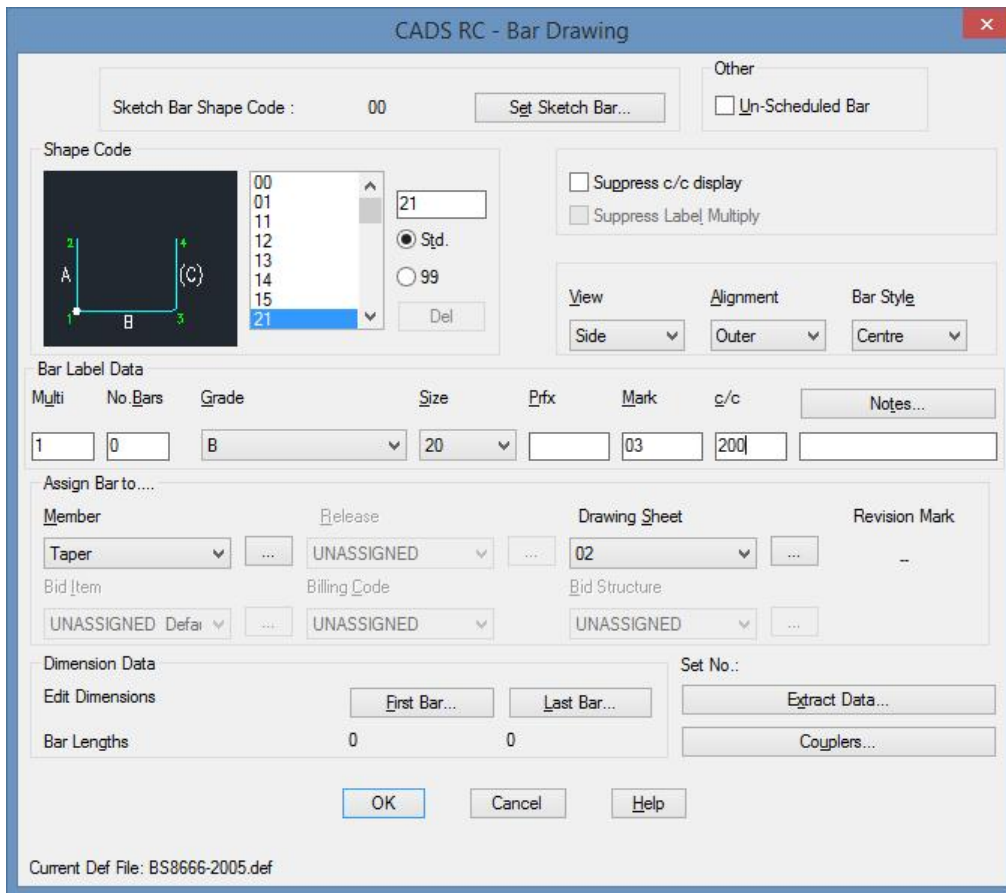


Figure 2.3 Draw Bar dialog

Select Set Sketch Bar

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

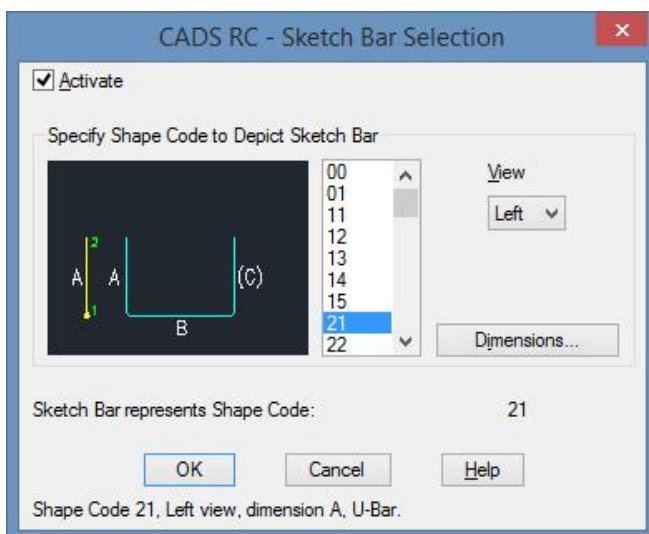


Figure 2.4 Sketch Bar Selection

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

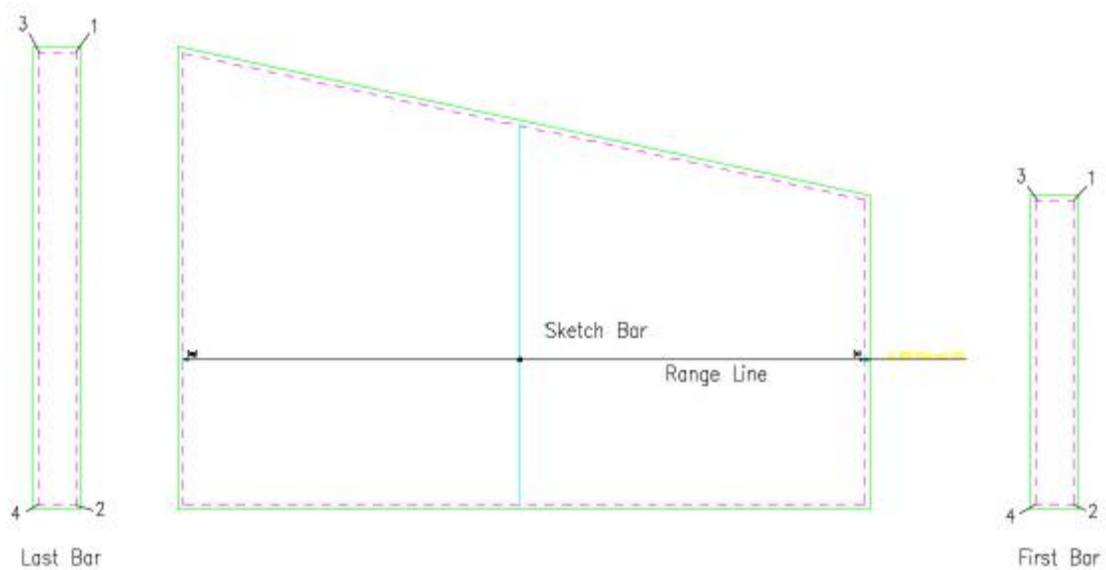


Figure 2.5 Drawing the Linear Taper Range – points to pick for first & last bars

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

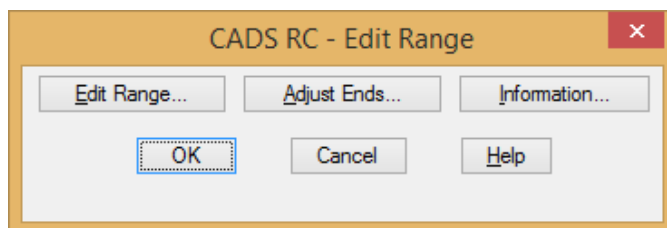


Figure 2.6 Edit Range dialog

Then click on Step Taper

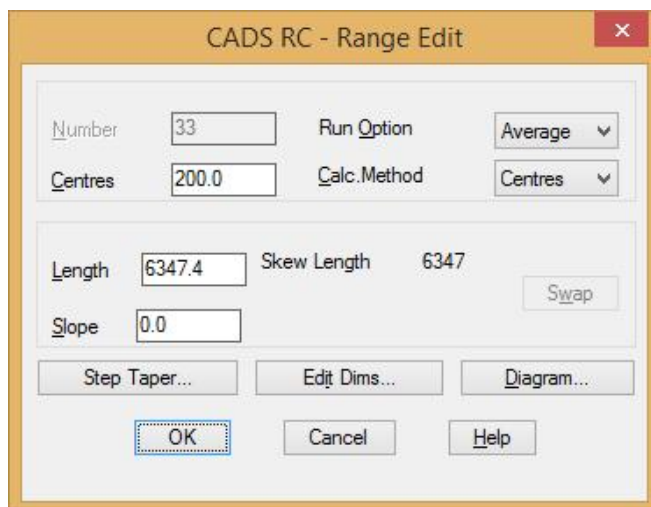


Figure 2.7 Additional Edit Range dialog

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.

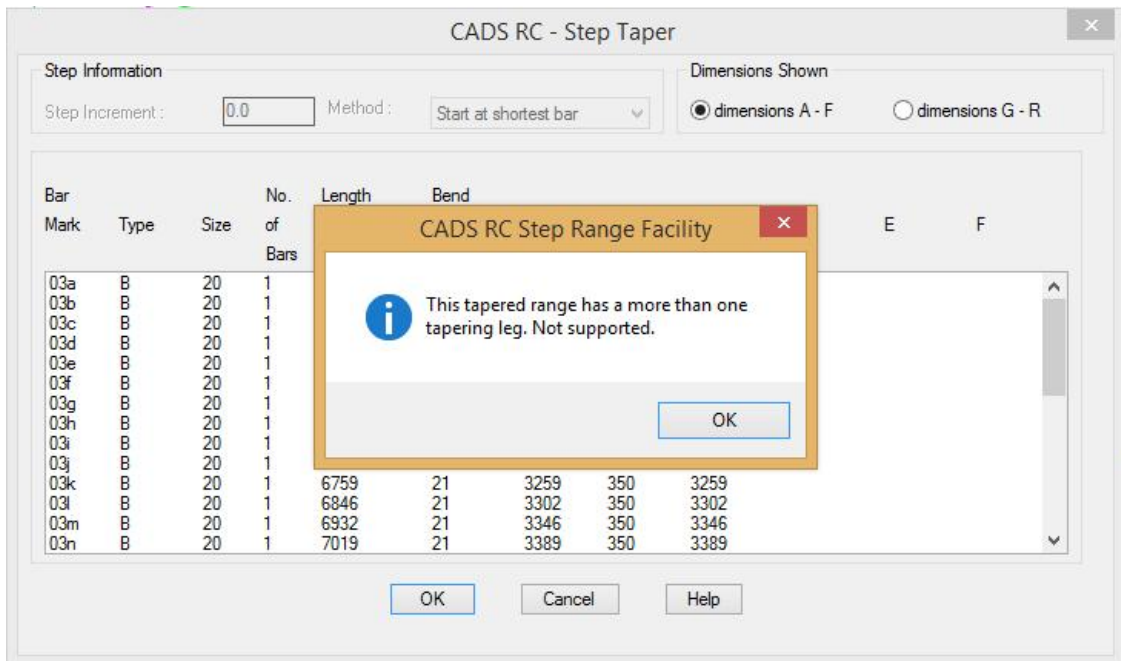


Figure 2.8 Step Taper Warning Message

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

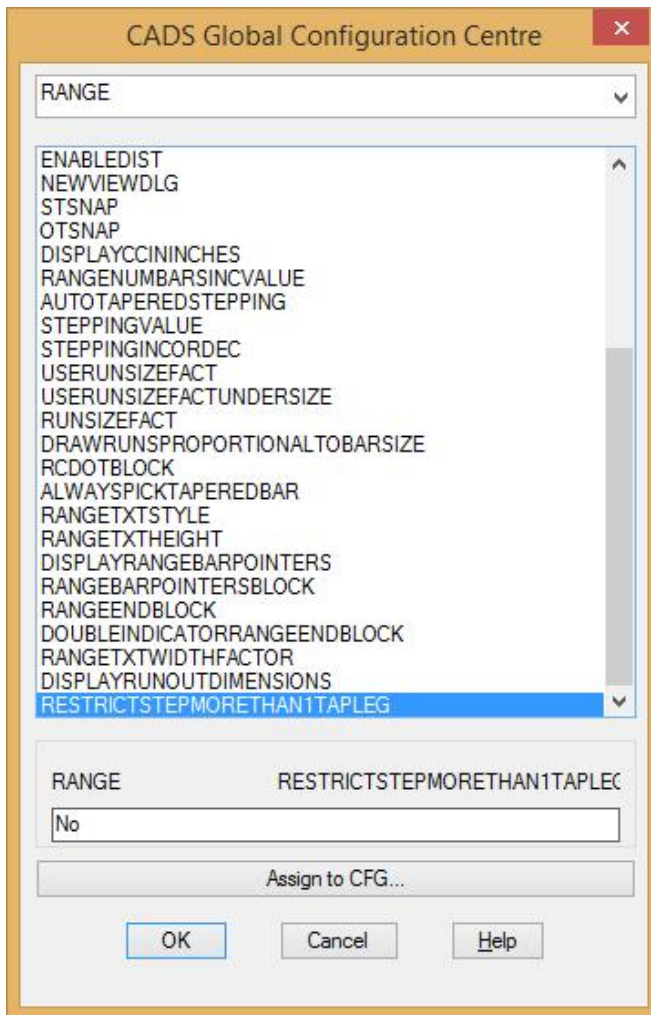


Figure 2.10 Global Configuration Centre

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

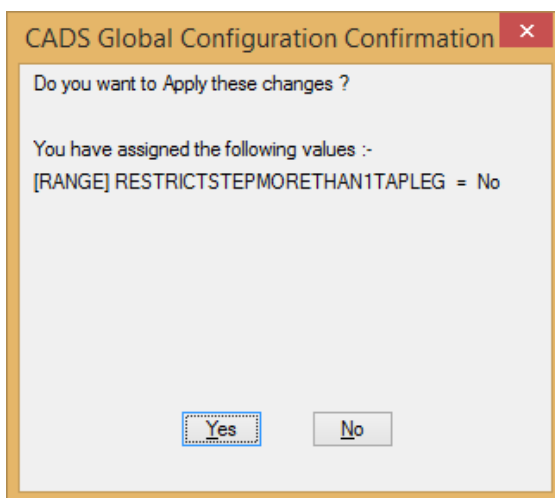


Figure 2.11 Global Configuration Confirmation

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.

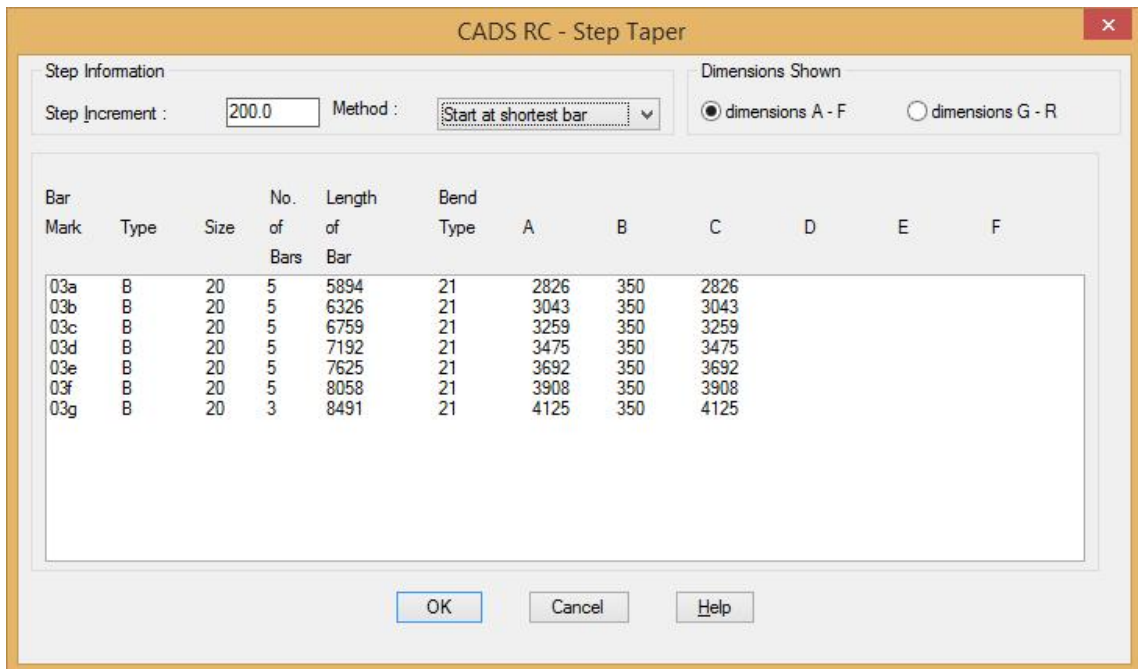


Figure 2.12 Step Taper dialog with 200mm step increment

Resulting schedule from applying a step increment

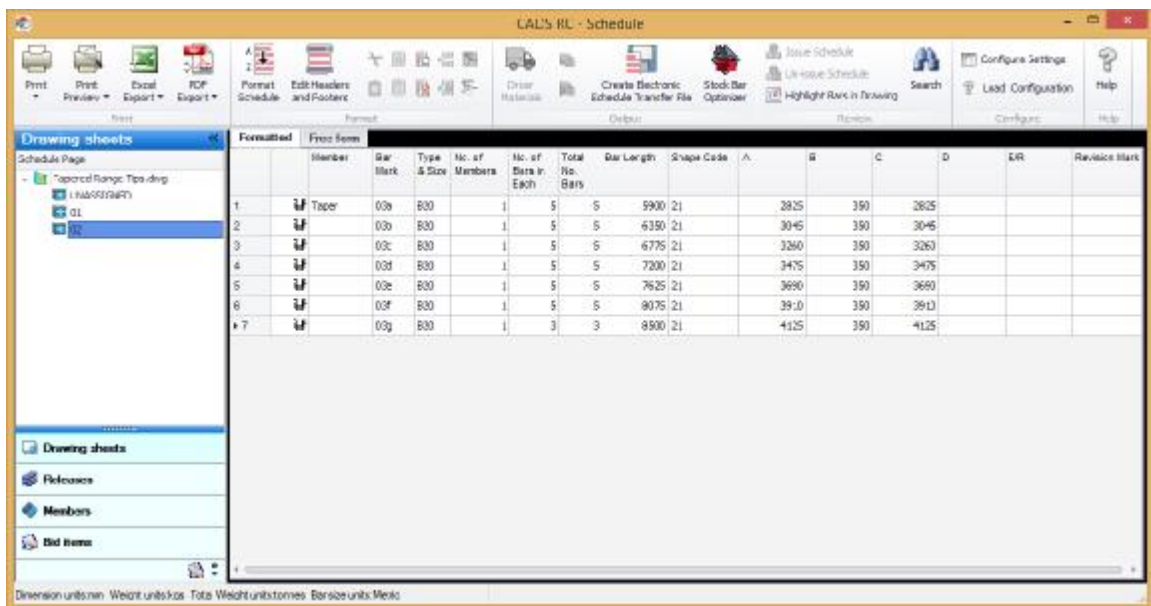


Figure 2.13 Schedule of Step Taper Range