



# RebarCAD Tutorial

































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
















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# 1 Introduction

This tutorial will give you the basic knowledge you need to detail reinforcement using the latest release of the **RebarCAD** program.

To gain the most benefit, you'll need to have:

- ▶ A basic knowledge of *AutoCAD 2026* or higher
- ▶ Reinforced concrete detailing knowledge
- ▶ Experience to produce reinforcement drawings and their respective Bar Lists.

The tutorial will guide you in how to use the **RebarCAD** commands. The examples and other drawings used here have already been installed on your computer.

Each command is first introduced and explained concisely. You will often be given related detailing information and shown how these commands can be used when detailing.

Sometimes you may be shown hints and tips to help you use commands more efficiently. These might show you how to reduce time spent on repetitive tasks or how to speed things up to get particular results quickly. We want to help you improve your productivity as you become more familiar with the program. Some of these tips may relate to using *AutoCAD* as well as to using **RebarCAD**.

Reading about commands is useful and necessary. However, the best way to develop and build your understanding of what **RebarCAD** can do is to practice, to use the commands with real examples. Every so often we'll invite you to *Try It!* to work through examples showing how you might apply these commands in everyday use. These examples will often relate to particular drawings or screen shots so that you can compare what is in this Tutorial with what you see on your screen. Work through these examples to make sure you understand how the commands work and how best to use them to make your detailing fast and efficient.

We show the *Key points* at the end of each chapter, together with a reference list of any commands introduced. These key points will remind you of what you have learned and will help to reinforce your understanding of what's important. As you get more familiar with using **RebarCAD** you'll be able to glance at these key points to remind yourself quickly of what is important about particular groups of commands.

These are the supported *AutoCAD* Platforms for **RebarCAD**:

AutoCAD Vertical	Supported Versions
AutoCAD	2026
AutoCAD Architecture	2026

Note: Pl. refer to release notes supplied with each **RebarCAD** release to get the updated list.

Throughout this document:

CADS refers to Computer and Design Services Limited

CAD refers to Computer Aided Drafting.

This training document is one of a series produced by Computer and Design Services of Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8AX.

## 1.1 Icon Guidance in the Tutorial

We've made liberal use of icons throughout this Tutorial in order to help you find different sections easily and quickly.

These icons mark the different sections in each chapter:



This shows where a new Concept is introduced.



This shows a Command Explanation, a section explaining what the command does, how to use it and how it can be applied when detailing. It may also be used to clarify the use of dialogs.



This shows the start of a section of Hints & Tips, advice to help you get the best out of **RebarCAD**.



The mouse icon is an invitation to *Try It!* Many of these exercise sections will include sample drawings on which you can work through the commands shown.



This shows Key Points, sections to reinforce your understanding of the commands you've just read about and tried as exercises.



The paperclip marks the Command Reference List at the end of each chapter. You can use these lists to remind yourself of the commands learnt and where to find them.

## 1.2 Commands, Menu Options and Other Terms

All commands can be selected from either the pull-down menus or from the relevant toolbars. These images and the menu path sequence given below are examples of how we show you where to find the different commands discussed in the command explanations or worked through in the example exercises.



This is an example of an image that is used to show the particular toolbar for the group of commands being discussed at that point.

### 1.2.1 Command Icons and Toolbar Buttons



This is an example of an image that is used to show the toolbar button or other icon to select to invoke the command being discussed. These icons will typically appear in the Try It! examples where you need to select a particular command. They're an alternative way to using menu sequences to invoke commands.

### 1.2.2 Menu Sequences

RebarCAD → Draw Bar → New Mark

A sequence like this is used to show the menu sequence to be followed to select the command being discussed.

### 1.2.3 Other Specialist Terms and Uses

Commands referenced in the text will usually be printed in bold, just as in this example here: **Set Working Scale**.

Terms with specialist meaning within RebarCAD or other programs will usually be printed in medium roman and capitalized, just as here: *Model Space*.

The names of different programs, books and documents will be printed in italics, as here: *RebarCAD*. Italic type will also be used for dialog names as here: ... the *Draw Bar* dialog.

Names of menu options, toolbars, dialog buttons and so on will often also be shown in italic to identify them clearly, as here: *Copy* or *Assign* or the *Refresh* button or the *Labeling* toolbar.

Single quotation marks are used to show scale or other measurements in feet with double marks used for inches, as here: 3'6" or 1:1/2".

Questions raised in dialogs will usually be printed in italics, as here: Do you wish to set the working scale to 1/8"? Any data you need to enter in response will usually be shown in bold italic, as here: Enter Y, though sometimes also merely in single quotation marks, as here: Enter 'Y'.

Figures in the text are numbered with the section where they're relevant followed by a colon and then an ordinal number. So, the first figure in section 3.2, for example, will be numbered 3.2:1, the second 3.2:2 and so on.

## 2 Introduction to RebarCAD Commands

### 2.1 Overview

When you manually detail reinforced concrete the scheduling operation is usually performed before the drawing is complete. When you use RebarCAD, however, the Bar List is created while the reinforcement is being detailed. This means that when the RebarCAD drawing is completed then the Bar List is also complete.

Very few commands are required to draw a bar and you will quickly become familiar with these. There is little else you need to complete a drawing although you will also come to learn RebarCAD's speed-drawing options, options that can make your detailing more efficient.

The vast majority of the remaining RebarCAD commands fall into one of two categories:

- ▶ commands required for editing (either to handle missing information or for using speed-drawing techniques);
- ▶ commands required for configuring the **RebarCAD** package to your office requirements.

The drawing commands are by far the easiest and you will learn these first. You will then learn the editing commands and, lastly, the commands you can use to tailor the software to your own needs.

Two additional products are supplied with **RebarCAD**, namely *CADS Scale* and *CADS Viewport Manager* (usually referred to as *CADS VPM*). *CADS VPM* is the recommended scaling program to use with **RebarCAD**. *Try It!* examples will show you how to scale drawings using *CADS VPM*, *CADS Scale* and *AutoCAD*.

### 2.2 Bar Organization

The use of **RebarCAD** commands to place graphics and text on the drawing ensures that all graphics and text relating to a Bar Mark are both linked together and linked to a line in the Bar List.

Consider the graphics that are needed to detail a bar:

- ▶ There may be several views of the bar;
- ▶ There may be Range Lines, each with end-of-range markers;
- ▶ There may be Ticks and Tags to show where bars start and end;
- ▶ There will be a Bar Label;
- ▶ There may be Bar Mark References.

## 2.3 Examine a RebarCAD Drawing

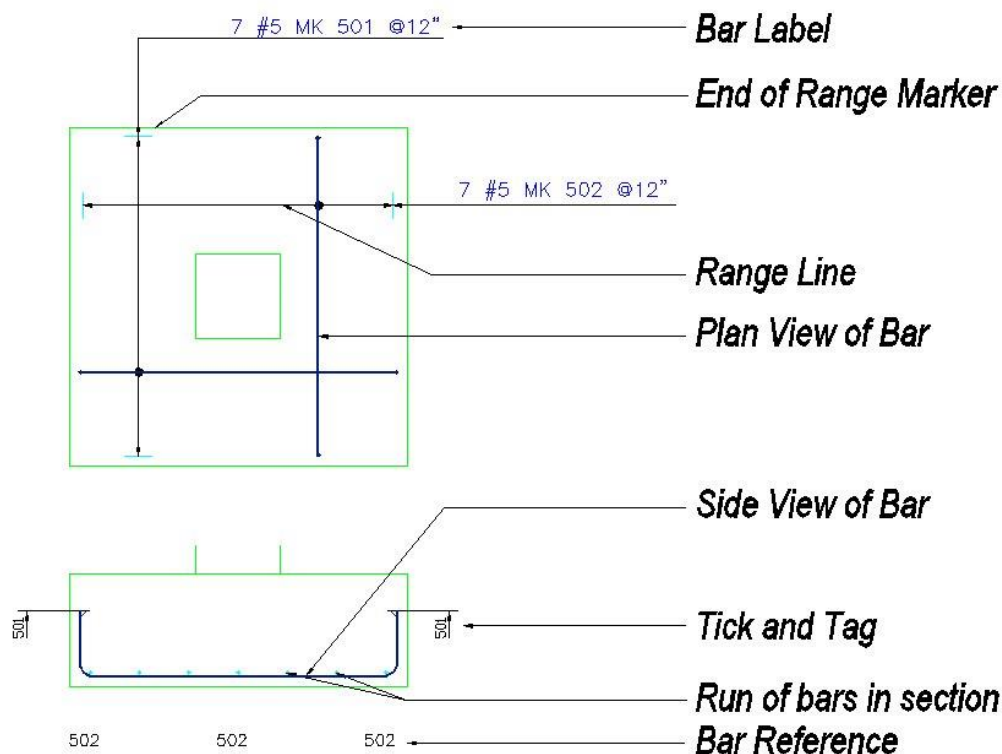
Let's look at a real drawing:

► Launch RebarCAD

AutoCAD will load and then RebarCAD, CADS Scale and CADS Viewport Manager will auto load. The pull-down menu shows the main headings for subsequent RebarCAD commands. Note that the remainder of the menu bar looks like a normal AutoCAD menu bar. However, RebarCAD has modified some of the standard AutoCAD commands, using these to issue warnings on use, etc. We'll give more information on these changes later.

► Now open the first drawing

- Click File → Open;
- Browse to '...\drawings';
- Select the file named **RebarCAD 01.dwg**.



**Figure 2.3:1 This is a drawing of a simple Pad Base with bottom reinforcement detailed.**

It has labels added describing the various graphics that constitute the **RebarCAD** elements of the drawing.

## 2.4 Creating Bars and Ranges

There are two basic commands for adding bars to your drawing, namely **Draw Bar** and **Draw Range**.

The **Draw Bar** command allows you to draw a single view of a bar in any orientation. An example of this is the Bend Type 21 bar shown on the Pad Base section in figure 1.2:1 above.

The **Draw Range** command allows you to draw a view of a bar with a Range Line attached or to draw a run of bars in section. An example of this is the Plan View of the same Bend Type 21 bar drawn on the Pad Base plan in figure 1.4:1 with the Range Line and End Range markers.

## 2.5 What is a Bar Set?

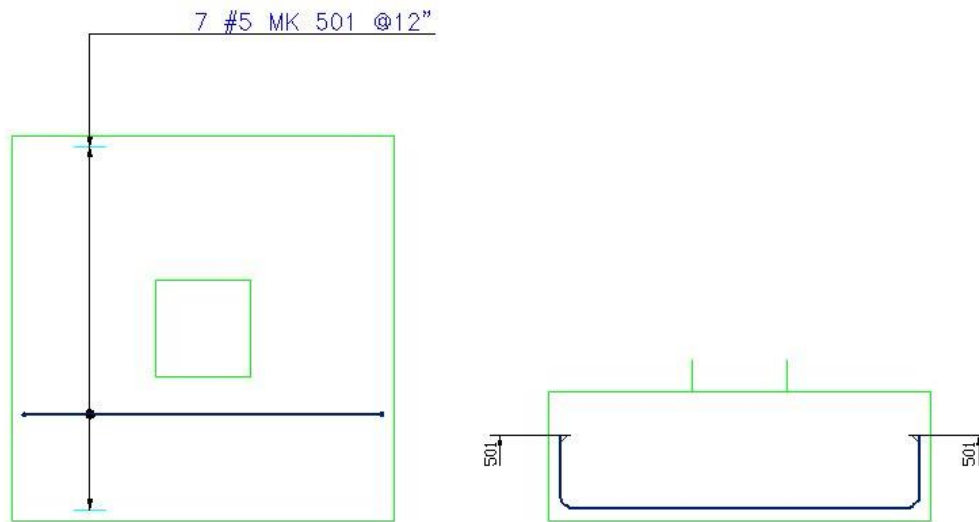
RebarCAD uses the concept of a Bar Set.

A Bar Set would generally consist of:

- ▶ Several views of the bar to show its location in the structure
- ▶ A Bar Label detailing the number of bars, material type and size, Bar Mark Number and Bar Centers.

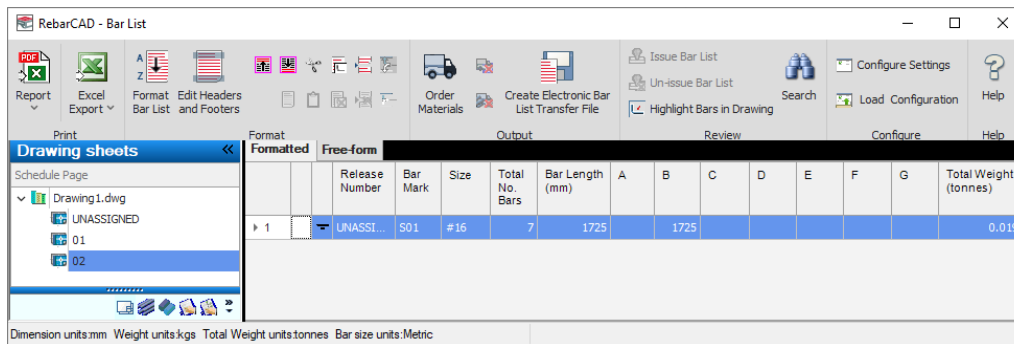
Each Bar Set is linked to a line in the Bar List that displays its Bar Mark Number, Bend Type, number of bars and its bending dimensions.

As an example, consider the Bend Type 21 in the Pad Base in figure 2.5:1 below.



**Figure 2.5:1 The bend bar drawn in section and plan**

This bar is also drawn on the plan in the form of a Plan View of the bar with a range and the Bar Label. The two views form the Bar Set, which also has a corresponding line in the Bar List.



**Figure 2.5:2 The Bar List window**

## 2.6 Concepts of New Mark, Add View and New Set

Before you start using **RebarCAD** you need to understand the relationship between New Mark, Add View and New Set. These are found in the *Draw Bar* and *Draw Range* menu bars and toolbars.

A *Bar Set*, as you now know, contains all the information needed to draw the graphics for one instance of a bar on the drawing and its corresponding line in the Bar List.

The actual graphics showing the bar is called the *Bar View*. Bar Views can be Plan, Elevation or Section Views. You will see later that each *Bar Mark* may contain one or more *Bar Sets*.

Both the **Draw Bar** and **Draw Range** commands are used in conjunction with any of the following sub-commands:

- ▶ New Mark;
- ▶ Add View;
- ▶ New Set.

These three sub-commands control the input of data to the Bar List and determine how the bars are linked together.

As a drawing is developed it is quite common to show the same bar in different views on the drawing. If a new line were added to the Bar List each time one of these views was drawn there would be too many lines in the Bar List. A mechanism is therefore required to update an existing line in the Bar List with the missing dimensions, number of bars etc.

This is achieved by the correct use of *New Mark*, *Add View* and *New Set* options.

### 2.6.1 New Mark

The New Mark sub-command instructs RebarCAD that the Bar View (and Range Line) to be drawn is the first set of a New Bar Mark and allocates the set the next available Bar Mark Number. This will also add a new line to the Bar List for this Bar Set. The New Mark function is the equivalent of the first set of a Bar Mark.

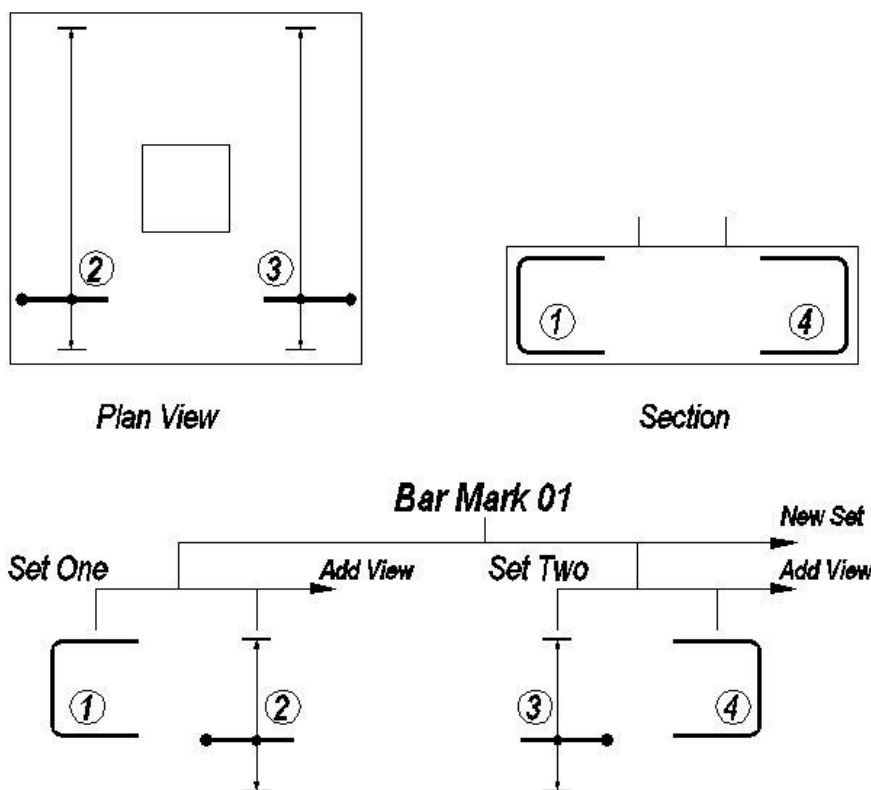
## 2.6.2 Add View

The Add View sub-command instructs RebarCAD that the Bar View (and Range Line) to be drawn is another view of an existing Bar Set already on the drawing. This will not add a new line to the Bar List but may update the line already present in the Bar List for this Bar Set.

## 2.6.3 New Set

The New Set sub-command instructs RebarCAD that the Bar View (and Range Line) to be drawn is the first of a new Bar Set but uses a Bar Mark already in use. This command allows the detailer to reuse the same Bar Mark in various locations within the structure. It can be considered as a *Repeat Bar Mark Number* command. This will also add a new line to the Bar List for this Bar Set.

*Note:* a number of lines in the Bend List with the same Bar Mark can be combined into one line showing the total number of bars if required provided that they are all associated with the same Drawing Sheet and Release Code. (There's more on Drawing Sheets and Release Codes later.)



**Figure 2.6:1 illustrates a simple Pad Base with Bar Mark 01 shown within two ranges.**

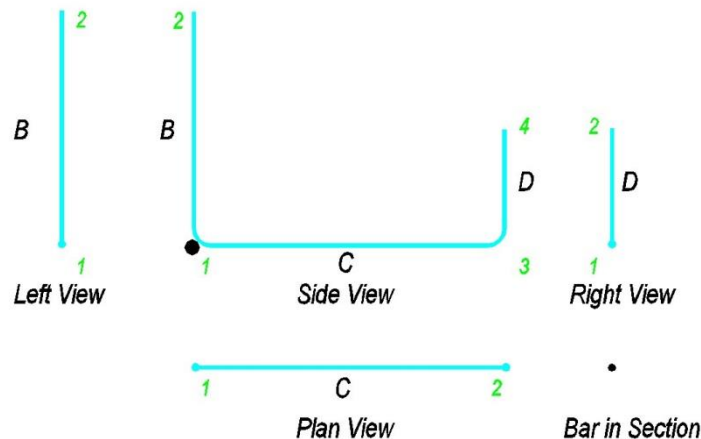
The graphics could be placed using four simple steps on the plan and the section. The relationship between the Mark, Sets and the Views is shown on the family tree diagram above. The circled numbers on these diagrams refer to the order of working while the different commands so used are described further below.

- ▶ **Draw Bar - New Mark** is used to place the Side View of the bar in the section. This allocates a new Bar Mark to the reinforcement plus a line in the Bar List;
- ▶ **Draw Range - Add View** is used to place the bar plus the Range Line in the plan. This updates any missing data in the existing line in the Bar List. Items 1 and 2 are linked together as Set One of Bar Mark 01;
- ▶ **Draw Range - New Set** is used to place a second instance of Bar Mark 01 in the plan and shows a bar plus its Range Line. The **New Set** command repeats the Bar Mark Number and allocates a line in the Bar List. Item 3 shows in Set Two of Bar Mark 01 in figure 2.5:1 above;
- ▶ **Draw Bar - Add View** is used to place the Side View of the bar in the section. All the information for Set Two of Bar Mark 01 is already present in the Bar List and so this view of the bar indicates its placing position in the structure.

## 2.7 Bar Views

All the standard Bend Types have a number of views available for drawing. The Bend Type 17, shown in figure 2.7:1 below, shows the views produced by the Side, Left, Right, Plan and Bar in Section options.

Note: when you are drawing a bar an image of the bar will appear on the top right of your screen, showing what it is that you're drawing. The green numbers shown on this image (commonly known as an AutoCAD Slide) show the order in which to pick the Placement points.



**Figure 2.7:1 Bar Views with Placement point order**

### 2.7.1 Side View

The Side View of a bar, here illustrated using a Bend Type 17, draws the full shape. The white insertion point or the green number 1 on the Slide indicates the start point of the bar. The green

numbers then indicate which order to pick the points to place the bar. The bar can be drawn at any angle or orientation required.

## 2.7.2 Left View

The Left view of Bend Type 17 will always draw Leg B. The green number 1 indicates the start point of the bar.

## 2.7.3 Right View

The Right view of Bend Type 17 will always draw Leg D. The green number 1 indicates the start point of the bar.

## 2.7.4 Plan View

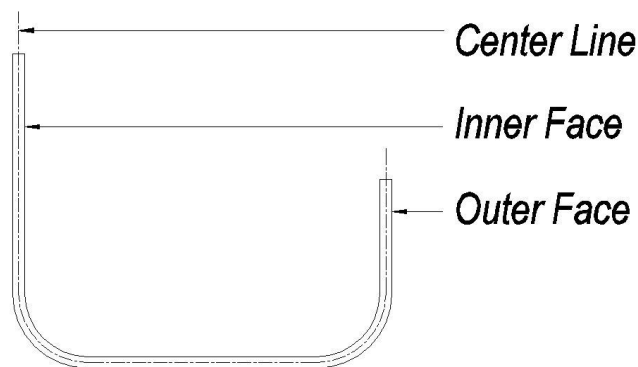
The Plan view of Bend Type 17 will always draw Leg C. The green number 1 indicates the start point of the bar.

## 2.7.5 Bar in Section

The Bar in Section view will always draw as either a solid donut or a circle depending on the Bar Style chosen.

## 2.8 Bar Alignments

Bars can be defined on the Outer Face, Center Line or Inner Face.



**Figure 2.8:1 How bar alignments are identified**

## 2.8.1 Outer Alignment

If the bar drawing alignment is set to Outer then the dimensions will be specified to the Outer Face of the bar.

## 2.8.2 Inner Alignment

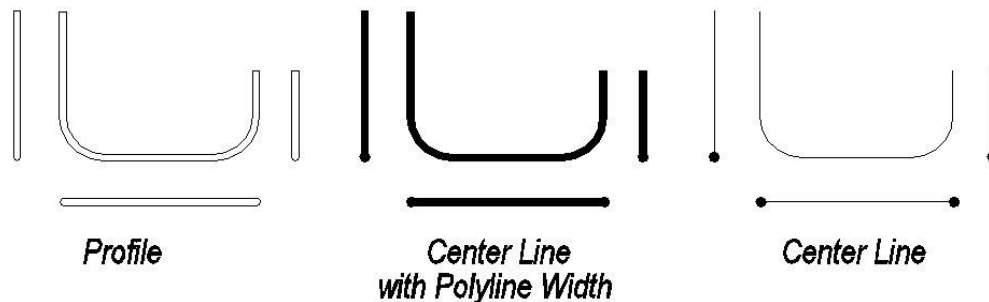
If the bar drawing alignment is set to Inner then the dimensions will be specified to the Inner Face of the bar. The program automatically calculates the Bar Bending Dimensions to the Outer Face of the bar for the Bar List.

## 2.8.3 Center Alignment

If the bar drawing alignment is set to Center then the dimensions will be specified to the Center Line of the bar. The program automatically calculates the bar bending dimensions to the Outer Face of the bar for the Bar List.

## 2.9 Bar Styles

Bars can be drawn in three styles to cater for detailing at different scales as necessary.



**Figure 2.9:1 The different bar styles available**

### 2.9.1 Center Style

This will draw the centerline only of the bar. The color of the layer on which the bar is placed will dictate the line thickness when plotted.

## 2.9.2 Center Style Showing True Diameter

This will draw the centerline only of the bar but uses a polyline with the width set to the diameter of the bar. Select **RebarCAD → Configuration → Bar Configuration** to configure this.

## 2.9.3 Profile Style

This will draw the full profile of the bar as a pair of parallel lines. The distance between the lines as drawn will be the actual diameter of the bar.

## 2.9.4 Hints & Tips – the Change Bar Style Command

A drawing can have a combination of bar styles and bars can be changed from one style to another using the **Change Bar Style** command. The command can be accessed through **RebarCAD → Editing → Change Bar Style**.

## 2.10 Be Consistent!

It is good practice to develop a consistent drawing method. This is particularly important when detailing with a CAD Reinforced Concrete software package as you have the ability to perform massive edits very easily.

Consider the extreme case of a bridge that has its span changed late in the detailing stage – being able to use a command such as *Stretch* and have the outline, bars and Bar List update automatically is very powerful and a facility that would appeal to all detailers. However, to minimize problems, it's important that the original detail be produced in a standard manner.

Always draw bars and ranges in a consistent direction:

- ▶ *Either top to bottom or bottom to top;*
- ▶ *Either left to right or right to left.*

Any bars that are stretched remotely (that is, not within the *Stretch Window*) will be extended or trimmed from the insertion point so if all the bars were drawn consistently from left to right and top to bottom they would all stretch in the same direction. Remember that if you stretch the section of a Member the bars in the other views will update as well.

Good drawing practice needs to be followed consistently over the whole office as different detailers may work on the same drawing over a period of time.

## 2.11 Key points - Introduction to RebarCAD Commands

- ▶ A Bar Mark Number can have several Bar Sets associated with it;
- ▶ A Bar Set can have several Bar Views associated with it, including Bar Views, Ranges, Bar Labels, Bar Mark References, and Ticks and Tags;
- ▶ Each Bar Set has its own Bar Label and one line in the Bar List;
- ▶ Bar Sets of the same Bar Mark Number and Member Title can be combined together prior to printing the Bar List;
- ▶ Develop a consistent approach to placing bars and ranges on the drawing.

## 3 RebarCAD Drawings

### 3.1 Introduction

Before starting to detail reinforcement, you need to set-up an AutoCAD drawing. You can add rebar to a new drawing or to an existing one. This chapter explains how to create new drawings, how to set the working scale of the drawing, and how to set up existing drawings. It also explains the concept of Drawing Sheets, something newly introduced in RebarCAD.

### 3.2 Drawing Sheets

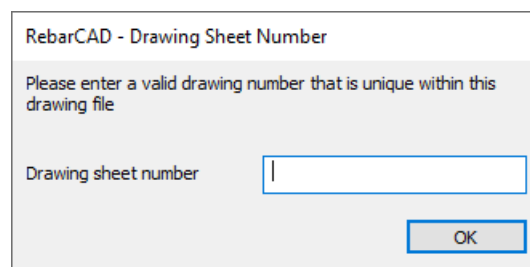
Drawing Sheets allow you to produce several drawings together with their associated Bar Lists from within a single *AutoCAD* DWG file. Whole structures can be detailed in one *AutoCAD* DWG file and split between several Drawing Sheets. Each Drawing Sheet and associated Bar List can be issued and tracked independently.

A Drawing Sheet can either be an *AutoCAD* Layout or a specific area of Model Space. Reinforcement can be assigned to specific Drawing Sheets as you detail or at a later time.

### 3.3 Creating a New file and Adding a Drawing Sheet

There are several ways to create a Drawing Sheet. Users of *CADS VPM* and *CADS Scale* can configure Drawing Sheets to be created automatically as part of the process of setting up a drawing. Other users can also ensure Drawing Sheets are created as part of their own drawing setup procedure. Instructions on configuring your own Title Blocks to both trigger Drawing Sheet creation and to map to the Bar List headers and footers can be found later in this chapter.

The creation of Drawing Sheets is triggered by the insertion of a *Title Block* that contains an attribute tag titled as *DRAWINGNO*. If a value is entered for this attribute then a corresponding Drawing Sheet will be created inside **RebarCAD**. If no value is specified for this attribute then **RebarCAD** will present a dialog, shown in figure 3.3:1 below, to ask for the Drawing Sheet number.






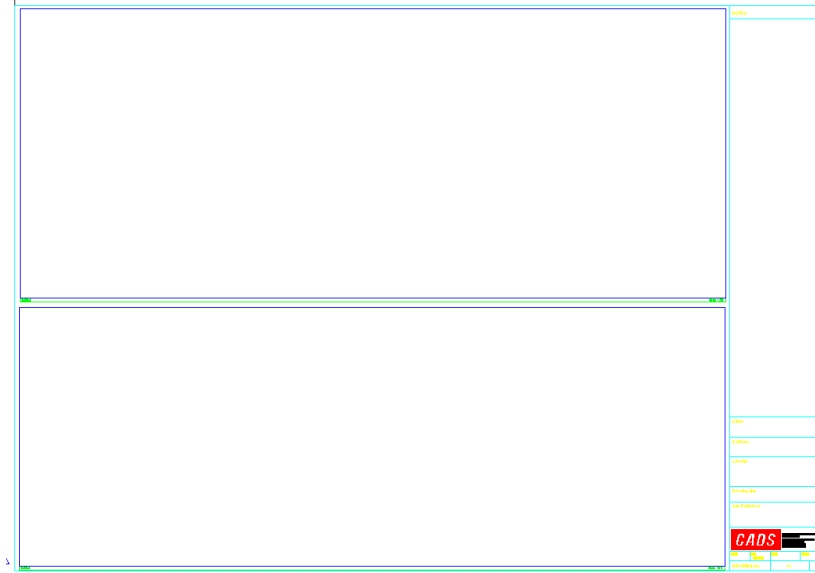
**Figure 3.3:1 Drawing Sheet Number dialog**

You can change the Drawing Sheet number by editing the associated *Drawing Number* attribute inside the Title Block. Similarly, you can delete Drawing Sheets by erasing the corresponding Title Block. Think of a Drawing Sheet as an instance of a Title Block within the drawing. If you decide not to insert a Title Block then bars will be assigned to an *UNASSIGNED* Drawing Sheet.

The following examples will help explain some of the basic operations relating to Drawing Sheets.




### 3.3.1 Try It! Create a Drawing Sheet Using CADs VPM and Adding a Viewport


- ▶ Launch RebarCAD;
- ▶ Select CADs VPM → Create *Layout* or  ;
- ▶ Accept the default *Layout* name and sheet. Select Create;
- ▶ Immediately select OK on the *Edit Attribute* dialog;
- ▶ Specify a Drawing Sheet number of 01 in the **RebarCAD** *Drawing Sheet Number* dialog;
- ▶ *Note:* this dialog will not appear if you specify a value for Drawing Number in the *Edit Attributes* dialog;
- ▶ Select **RebarCAD** → View Bar List or  ;
- ▶ You should see that a Drawing Sheet called 01 has been created;
- ▶ Close the Bar List;
- ▶ Select Layout2 Tab;
- ▶ Select CADs VPM → Create Viewport or  ;
- ▶ Fill in the Viewport title and select the Working Scale by picking 1:1/2" and select OK;
- ▶ Pick two diagonal points within the top half of the drawing area of the Title Block to specify the extents of the Viewport;
- ▶ You will then be switched into Model Space and prompted to place the Viewport boundary. Pick a point in the positive quadrant. You will then switch back to Layout2;
- ▶ Create another Viewport in the bottom half of the drawing area of the title block with the scale set at 1:10 and place the red boundary in Model Space  
**Note:** make sure that the boundaries are not inside each other and are not overlapping In Model Space the current working scale will automatically change simply when moving over one boundary to another. In Layout Space activating a Viewport will change the working scale







**Figure 3.3.1:1 Creating a Layout with two viewports using CADS VPM**

## 3.3.2 Create a Layout Space Drawing Sheet Using CADS Scale and Adding a Viewport


- ▶ Launch RebarCAD;
- ▶ Select *CADS Scale* → Drawing Setup or  ;
- ▶ In the 'Apply Setup To:' option, select *Layout1*  
Select *Commercial 18 x 24 inches*. Select OK;
- ▶ Select *Modify* on the *Page Setup Manager* dialog and set the *Paper Size* to *Arch C (18 x 24 inches)*, select OK and then select *Close*;
- ▶ Select a scale of *1:1/2"* in the *Setup Scale* dialog. Select OK
- ▶ Select OK on the *Edit Attributes* dialog;
- ▶ Specify a Drawing Sheet number of *01* in the **RebarCAD Drawing Sheet Number** dialog;  
**Note:** this dialog will not appear if you specify a value for Drawing Number in the *Edit Attributes* dialog.
- ▶ Select RebarCAD → View Bar List or  ;
- ▶ You should see that a Drawing Sheet called *01* has been created;
- ▶ Close the Bar List;
- ▶ Select *CADS Scale* → Create Scale Area or  ;
- ▶ This automatically switches you to Layout Space;

- ▶ Pick two diagonal points within the Title Block to indicate the extents of the Scale Area (approx. the top half of the drawing area);
  - ▶ Pick a scale of 1:1/2" in the *Enter Scale of Area* dialog and select OK;
  - ▶ Create another Scale Area at 1:1/8" in the remaining area inside the Title Block and answer **Yes** to *Do you wish to set the working scale to 1/8"?*;
- Note:** The Scale Area with the current working scale is highlighted in magenta
- ▶ Select CADS Scale → Set Working Scale or ;
  - ▶ Pick the border of the 1:1/2" Scale Area. This will set the working scale to 1:1/2".

### 3.3.3 Try It! Create a Model Space Drawing Sheet Using CADS Scale and Define Model Space Scale Areas

- ▶ Launch RebarCAD;
  - ▶ Select CADS Scale → Drawing Setup or ;
  - ▶ In the 'Apply Setup To:' option, select *Layout1*  
Select *Standard A2 Setup*. Select OK;
  - ▶ Select a scale of 1:1/2" in the *Setup Scale* dialog. Select OK;
  - ▶ Select OK on the *Edit Attributes* dialog;
  - ▶ Specify a Drawing Sheet number of 01 in the RebarCAD *Drawing Sheet Number* dialog
- Note:** this dialog will not appear if you specify a value for Drawing Number in the *Edit Attributes* dialog.
- ▶ Select RebarCAD → View Bar List or ;
  - ▶ You should see that a Drawing Sheet called 01 has been created;
  - ▶ Close the Bar List;
  - ▶ Select CADS Scale → Create Scale Area or ;
  - ▶ Pick two diagonal points in the top half of the title drawing to indicate the extents of the Scale Area;
  - ▶ Pick a scale of 1:1/2" in the *Enter Scale of Area* dialog and select OK;
  - ▶ Create another Scale Area at 1:1/8" and answer **Yes** to *Do you wish to set the working scale to 1:1/8"?*
- Note:** Unless the Scale Areas are of the same scale do not overlap them or place them inside each other;
- ▶ Select CADS Scale → Set Working Scale or ;
  - ▶ Pick the border of the 1:1/2" Scale Area. This will set the working scale to 1:1/2".

### 3.3.4 Create a Layout Space Drawing Sheet Using AutoCAD

- ▶ Launch RebarCAD;
- ▶ Make Layout1 active by selecting the tab;
- ▶ Right click on the Layout1 and select Page Setup Manager.... Select Modify. Select Arch C (18 x 24 inches) paper size. Select OK and Close;
- ▶ Select Insert → Block or type Insert;
- ▶ Browse to the '...\cads\AutoCAD 20xx\ RebarCAD xxxx.xx\CADS Scale blocks folder' and select 'CS18x24.dwg'. Select Open and then OK;
- ▶ Specify a Drawing Sheet number of 01 in the RebarCAD Drawing Sheet Number dialog;
- ▶ Select OK on the Drawing Sheet Number dialog;
- ▶ Select RebarCAD → View Bar List or ;
- ▶ You should see that a Drawing Sheet called Sheet 1 has been created.

## 3.4 Managing Drawing Scales

RebarCAD relies on the *AutoCAD Dimscale* variable being set to display the scale of the Viewport in which the detail is being placed. **RebarCAD** will read the Dimscale value and will automatically scale any blocks inserted whilst detailing to the correct size. The Dimscale can be set using *CADS VPM*, *CADS Scale* or set manually inside *AutoCAD*.

If using *CADS VPM* you will change the current working scale, and hence the Dimscale, simply by moving from one Viewport boundary to another.

If using *CADS Scale*, using the Set Working Scale command will change the current working scale and hence the Dimscale.

If you are using *AutoCAD*, you will need to create manually a different Dimension Style for each Working Scale on the drawing. The value that needs to be set is on the Fit Tab → Scale for Dimension Features → Use Overall Scale of: menu option. You can then make a particular Dimension Style current to change the Current Working Scale.

## 3.5 Restrictions on Detailing with RebarCAD

- ▶ Work within the positive quadrant of the *AutoCAD* drawing. Both X and Y co-ordinates are positive;
- ▶ Keep your details as close to the origin as possible (0,0). This keeps the co-ordinates small and reduces *AutoCAD*'s calculation time;
- ▶ Always work with the UCS (User Co-ordinates System) set to *World*;
- ▶ Always work with the View set to *Plan World*;

- ▶ Do not use Z values on any of the entities within General Arrangement drawings.

### 3.6 Configuring and Saving the Title Block Settings







Please consult the RebarCAD *Customisation & Configuration Guide* for information on configuring and saving the Title Block settings for future drawing sessions.

You can configure RebarCAD to work with any number of Title Blocks regardless of whether they use consistent attribute naming. You can use the same method to migrate any Title Blocks that are embedded in an *AutoCAD* DWT file.

### 3.7 Key points - RebarCAD Drawings

- ▶ Drawing Sheets are created when valid Title Blocks are inserted into either Model or Layout Space;
- ▶ Drawing Sheets can be edited or deleted via the associated Title Block;
- ▶ Do not place *CADS VPM* Model Space boundaries inside each other or overlap them;
- ▶ Do not place Scale Areas created in Model Space inside each other or let them overlap, unless they are set to the same working scale;
- ▶ **RebarCAD** relies on the *AutoCAD* Dimscale variable being set in order to scale the reinforcement text and block entities;
- ▶ When using *CADS Scale* remember to use the **Set Working Scale** command to change the current drawing scale;
- ▶ Detail as close to the origin in the positive X and Y co-ordinates as possible;
- ▶ Work with the UCS and View set to *World*;
- ▶ Do not use Z co-ordinates in General Arrangement drawings.

### 3.8 Command List - RebarCAD Drawings

Action	Menu Selection	Toolbar	Icon
Create Layout	CADS VPM → Create Layout	CADS VPM	
Drawing Setup	CADS Scale → Drawing Setup	CADS Scale	
View Bar List	RebarCAD → View Bar List	RebarCAD	
Create Viewport	CADS VPM → Create Viewport	CADS VPM	
Create Scale Area	CADS Scale → Create Scale Area	CADS Scale	
Set Working Scale	CADS Scale → Set Working Scale	CADS Scale	

## 4 General Arrangement Drawings and Drawing Reinforcement

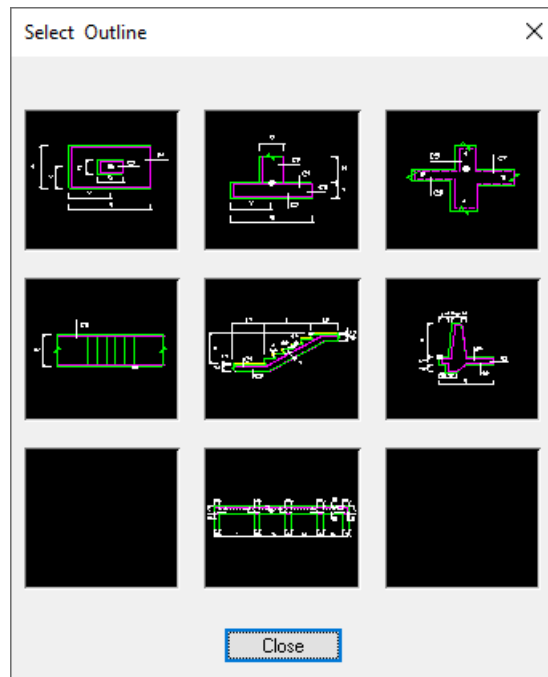
### 4.1 General Arrangement Drawings

Reinforcement can be added to any type of General Arrangement drawing that can be generated using standard *AutoCAD* commands. This can be an existing drawing or one prepared from scratch by the detailer. **RebarCAD** includes a number of General Arrangement tools to speed up the process and these are described in this chapter.

### 4.2 RebarCAD Outlines

**RebarCAD Outline Tools** provide several parametric routines that will automatically provide Cover Lines, accurate line types and appropriate dimensions as required. The tools for Outlines are found in the **RebarCAD** → Tools pull-down menu in the *Outlines* menu bar.


You can use the *Others* dialog box to pick a Pad Foundation.



**Figure 3.1:1** The *Others* dialog box

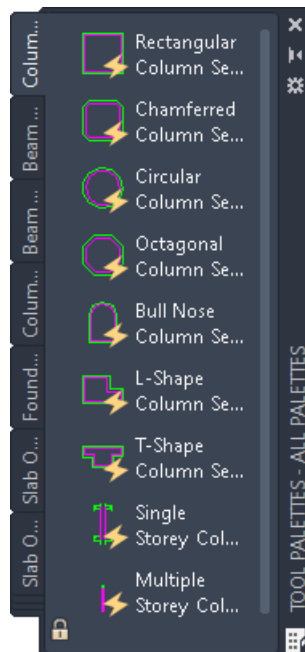
There are four main categories in the collection of Outline Tools:

- ▶ Beam...
- ▶ Column...
- ▶ Slab...
- ▶ Others...

These routines automatically place the outline on the 0-35 Layer and the Cover Line on a layer called *Cover*. If you need to view the image of the detail whilst typing in the dimensions select the *Slide* button  on the **RebarCAD Snaps** toolbar or type *Slide* at the command line. You have the option of adding the dimensions to the outline when you have finished inputting the dimensions.

## 4.3 Dynamic Blocks

**RebarCAD** ships with several tool palettes, which contain various *Dynamic Block Outlines* in both Imperial and Metric measures that can be dragged and dropped on to your drawing and then stretched to the correct size using *Grips*. Many of these support alternatives views of the structure. For instance, the *Pad Base Plan & Elevation Outlines* can be switched to show either the Plan or Elevation View.



**Figure 4.3:1 Selection of Tool Palettes**

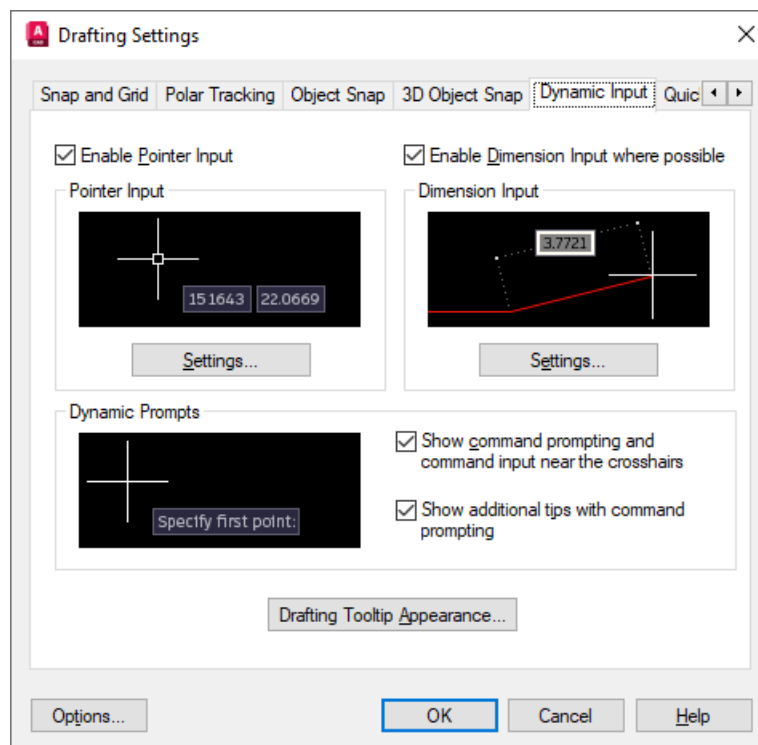
### 4.3.1 Hints & Tips - Loading RebarCAD Palettes

If the **RebarCAD** Palettes do not show up on your Tool Palette they can be loaded manually as follows:

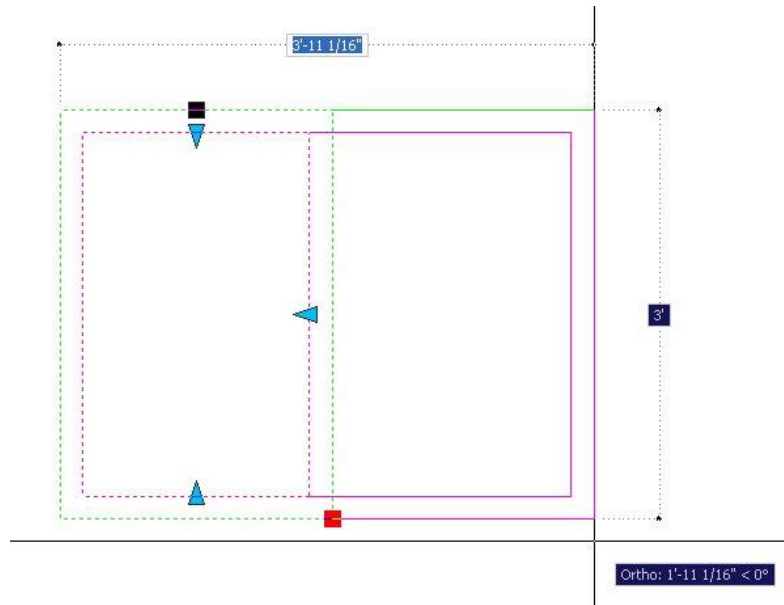
- ▶ Right click on the Icon at the bottom of the Tool Palette;
- ▶ Select *Customise Palettes*;
- ▶ Right click in the *Palettes* area and select *Import*;
- ▶ Browse to the \Program Files\Common Files\CADS Shared\CADS Outlines\Exported Palettes & Groups\Imperial or *Metric* directory;
- ▶ Pick the required \*.xtp file;
- ▶ Repeat the procedure until all the required XTP files are loaded.

### 4.3.2 Hints & Tips – Switching on Dynamic Input

With *AutoCAD* 2006 or higher it's often useful to switch on *Dynamic Input* when editing dynamic blocks. This will allow you to see the relative sizes of the outlines you are editing without having to add dimensions. This is done using the *Drafting Settings* dialog box, as shown below in figure 3.2:2. Figure 3.2:3 shows the effect of using the *Dynamic Input* settings.



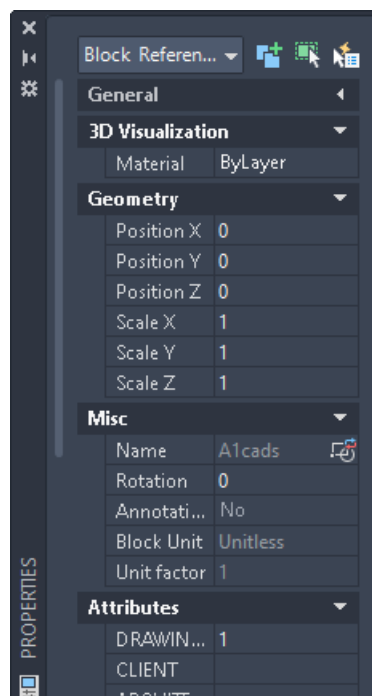
**Figure 4.3:2 The Drafting Settings dialog**



**Figure 4.3:3** Detailing with the Dynamic Input setting switched on

### 4.3.3 Hints & Tips – Editing Dynamic Block Dimensions

You can also edit the Dynamic Block dimensions in the *AutoCAD Properties* dialog box. Scroll down to the *Custom* section and you'll see all the editable dimensions displayed.



**Figure 4.3:4** The AutoCAD Properties dialog

## 4.4 RebarCAD Snaps - How to Use These in Detailing

If the RebarCAD Snaps toolbar is not visible on your screen then right click on any other RebarCAD toolbar and pick RebarCAD Snaps on the pop-up menu.

The toolbar is shown below as figure 3.3:1 and the icons are listed underneath, together with brief explanations of how to use them.



**Figure 4.4:1 The RebarCAD Snaps toolbar**

### 4.4.1 RebarCAD Snaps List of Toolbar Icons



*Slide:* displays an image of the Bend Type or outline currently selected.



*Datum:* set a temporary datum point on the drawing so allowing you to work relative to the point set on the drawing.



*Along:* move along a line to a set distance.



*Midpoint:* finds the midpoint between two known points.



*Polar:* define a distance at an angle from a known point using a set distance and a set angle.



*Relative:* define a distance from a known point using a horizontal and a vertical distance.



*Lap:* lap the bar being drawn with an existing bar.



*Tolerance:* apply tolerance to predefined values on the Bar Leg being drawn.



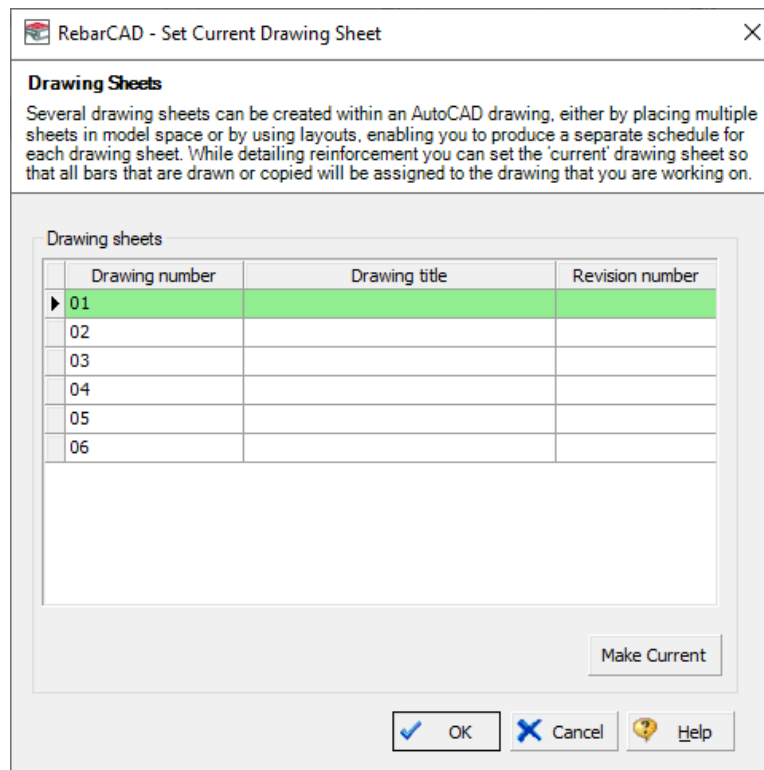
*Line Label Vertical:* extract the X co-ordinate from an existing Bar Label and use it to align vertically a Bar Label being placed.



*Line Label Horizontal:* extract the Y co-ordinate from an existing Bar Label and use it to align horizontally a Bar Label being placed.

## 4.5 Setting a Drawing Sheet Current

If you have several layouts in your *AutoCAD* drawing file you can use the Set Drawing Sheet command to ensure that the reinforcement is correctly assigned to a particular Drawing Sheet. The Bar List will automatically sort the reinforcement into Drawing Sheets. Later in this tutorial you will go through the commands used to assign reinforcement to a Drawing Sheet after it has been drawn and checking that reinforcement has been correctly assigned to a Drawing Sheet.

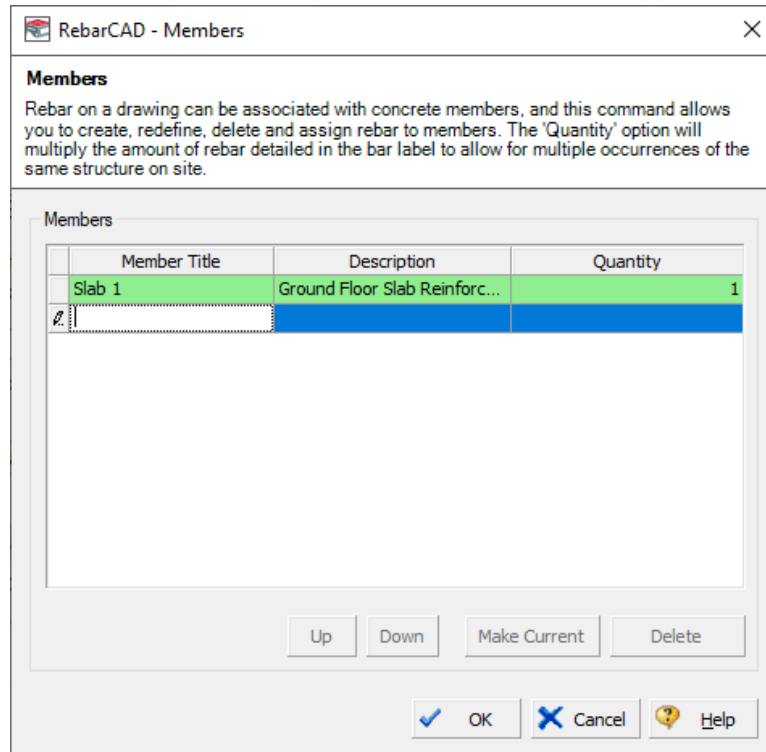


**Figure 4.5:1 The Set Current Drawing Sheet dialog**

## 4.6 Creating and Setting the Current Member

Members can be used as a way of grouping and categorising bars.

If you wish to produce a duplicate of a specific detail without drawing it then you will need to use the *Member Quantity* option.



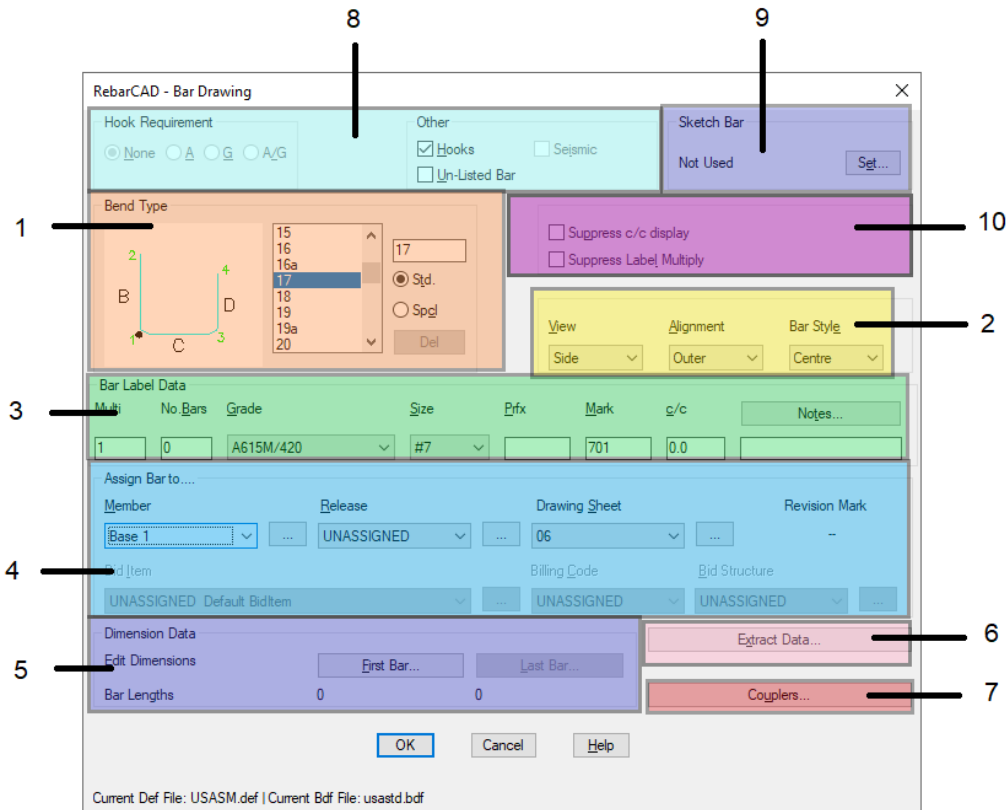
**Figure 3.5:1 The Members dialog**

### 4.6.1 Hints & Tips – Make the *Draw Bar* Dialog Default to a Member

To make the *Draw Bar* dialog default to a specific Member you can simply highlight the required Member within the list and click the *Make Current* button.

## 4.7 Bar Drawing Dialog

The RebarCAD *Bar Drawing* dialog is the main tool for the selection and input of bar bending data. You should try to input as much data as you can into this dialog box, as this will cut down the number of *AutoCAD* command line prompts needed and so speed up your detailing.



**Figure 3.6:1 The Bar Drawing dialog.**

The number labels added show the different sections and these are described below. The item labels on the dialog are shown below in ***bold italic***.

### 4.7.1 Bend Type

Use this section to set the *Bend Type* required either by scrolling through the Bend Types, or by typing in the required *Bend Number*. You can manually create your own Special Bars by typing in a unique number into this area and then selecting the *Spcl.* radio button. The Bend Types available will change depending on the Bar Description file configuration. The use of the *Spcl.* radio button and the availability of particular Bend Types at different times are both described more fully later.

## 4.7.2 Graphics Style

Use this section to set the required *View*, *Alignment* and *Bar Style*.

## 4.7.3 Bar Label Data

Input as much information as feasible, such as the centers and notes, in this section before drawing the bar in order to reduce the number of command line prompts needed later.

**Multi:** enter a numerical value here when you want to multiply the number of bars detailed. You can use this for Top and Bottom bars, Near-Face and Far-Face, or Bundle bars. The Label Multiplier also allows hidden multipliers in the Bar Label and so lets you multiply the number of bars in the Bar Label for take-off purposes. You can do this by entering multipliers in the form 2\*2. See the Help System for further information.

**Type and Size:** The Types and sizes of steel available will depend on the detailing standard selected from **RebarCAD** → Configuration → Change Detailing Standard.

**Notes:** use this option to add up to four extra lines of text to the Bar Label.

## 4.7.4 Assign Bar to...

Make entries here to show the current *Member*, *Release* and *Drawing Sheet* values. You can change these using the drop down menus.



Pick the Browse button to access the *Create/Set Current* dialogs for each option.

## 4.7.5 Dimension Data

Select the *First Bar* button to input the bar dimensions by hand. If you attempt to type in dimensions that are below the minimum or above the maximum configured Bar Leg lengths **RebarCAD** will issue a warning and auto-correct the dimensions.

## 4.7.6 Couplers

Use the *Couplers* button to attach a variety of manufacturer's couplers and threaded ends to the reinforcement.

## 4.7.7 Extract Data

The *Extract Data* button opens a dialog through which you select data to be copied from another Bar Set and then automatically added to the Bar Set being created.

### 4.7.8 Sketch Bar

The Set Sketch Bar button opens the *Sketch Bar* dialog box. You would normally use a sketch bar where you are unable to draw the true length of the bar or to draw the Left, Right or Plan Views of a User-Defined special bar.

### 4.7.9 Other

Tick the *Un-Bar Listd Bar* box if you do not want the bar being drawn to show up on the Bar List. You could also use this option to show continuation steel, which is being lapped in the current area but has previously been detailed on another drawing.


### 4.7.10 Suppress c/c Display and Suppress Label Multiply

Ticking the *Suppress c/c display* option prevents the centers from being displayed on the Bar Label. Ticking the *Suppress Label Multiply* box will change the Bar Label format if a Multiplier has been added in the Bar Label data area, a feature discussed at 3.6.3 above.


For instance, the Bar Label might ordinarily show **5x12 #5 Mk 501 @ 12**; if the Suppress Label Multiplier is selected it would show **60 #5 Mk 501 @12"**.

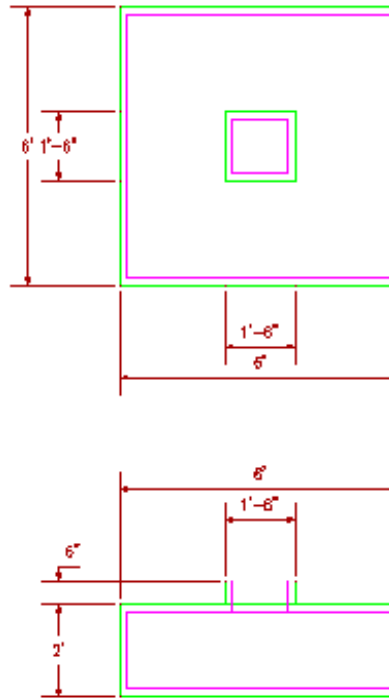
Click OK to exit the dialog once you have entered all the required data. On the top right of the screen an image of the Bend Type is displayed with the insertion point indicated as a white donut. The order in which to pick the Bar Legs is indicated numerically. The bar can be inserted at any angle and in any rotation.

### 4.7.11 Try It! Create a Pad Base from the RebarCAD Outline Routines

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 02.dwg. This is a drawing with an A2 Title Block with a Viewport set at 1:20 scale
- ▶ Make the Viewport in *Sheet 01* active
- ▶ Select **RebarCAD** → Tools → Outlines → Others...
- ▶ Select the Pad Base plan (the top left option), then the left-hand plan
- ▶ Select the *Slide* Icon, , from the **RebarCAD Snaps** toolbar or type *Slide* at the *AutoCAD* command line and enter the Pad Base plan dimensions given (shown in bold italics following the prompts in medium italics):

○ Enter Dimension A:      Type in 6'

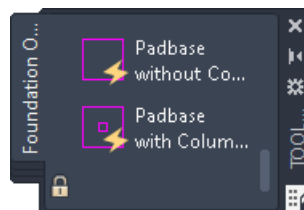
- *Enter Dimension B:*      *Type in 6'*
- *Enter Dimension C:*      *Type in 1'-6"*
- *Enter Dimension D:*      *Type in 1'-6"*
- *Enter Dimension X:*      *Type in 3'*
- *Enter Dimension Y:*      *Type in 3'*
- *Cover 1:*                  *Type in 2"*
- *Cover 2:*                  *Type in 2"*
- *Dimension the Outline (Yes/No):*      *Type in **Yes** and press enter*
- *Select Outline insertion point:*      Pick a point at the top of the Viewport
- ▶ Select **RebarCAD** → Tools → Outlines → Others...
- ▶ Select the *Pad Base Section* (the top middle option)
- ▶ Set the angle at zero either by typing the value in or by picking on the screen from left to right
- ▶ Select the *Slide* icon, , from the **RebarCAD Snaps** toolbar or type *Slide* at the *AutoCAD* command line and enter the Pad Base plan dimensions given (shown in bold italics following the prompts in medium italics):
  - *Enter Dimension T:*      *Type in 6"*
  - *Enter Dimension B:*      *Type in 6'*
  - *Enter Dimension H:*      *Type in 6"*
  - *Enter Dimension D:*      *Type in 1'-6"*
  - *Enter Dimension X:*      *Type in 3'*
  - *Cover 1:*                  *Type in 2"*
  - *Cover 2:*                  *Type in 2"*
  - *Cover 3:*                  *Type in 2"*
  - *Cover 4:*                  *Type in 2"*
  - *Dimension the Outline (Yes/No):*      *Type in **Yes** and press enter*
  - *Select Outline insertion point:*      Line the section up with the Plan View and place it below



**Figure 4.8.11:1 Pad Base Plan and Section created with RebarCAD Outline Routines**

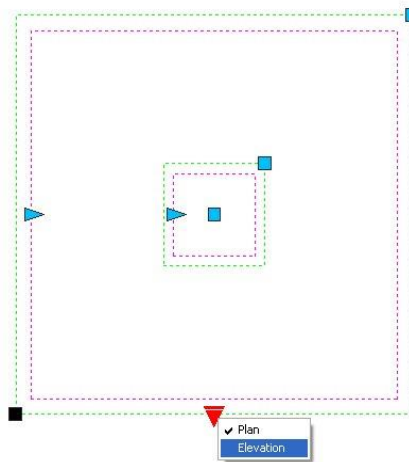
#### 4.7.12 Try It! Create a Pad Base Outline Using RebarCAD Dynamic Blocks

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\ RebarCAD 03.dwg. This is a drawing with an A2 Title Block with a Viewport set at 1:1/2" scale;
- ▶ Make the Viewport in Sheet 01 active;
- ▶ Launch the Tool Palettes and select Foundation Outlines- Imperial. If the RebarCAD Tool Palettes are not present refer to the Hints & Tips following section 3.2 above on how to load them;




**Figure 4.8.12:1 RebarCAD Pad Base Tool Palette**

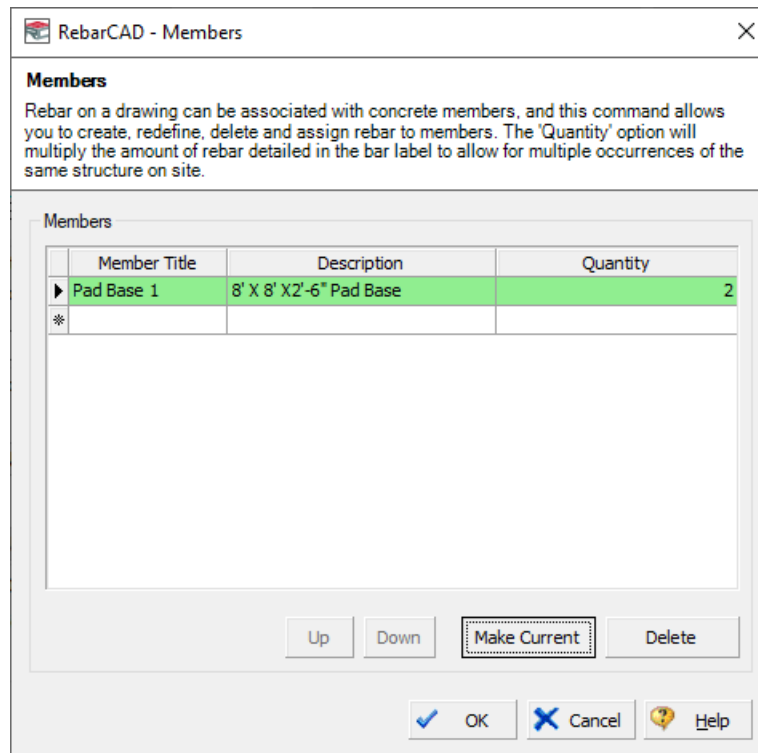
- ▶ Drag and drop the Pad Base with Column Plan & Elevation into the Viewport. It currently shows the Plan View of the Pad Base;
- ▶ Click on the plan to activate the Grips. Pick the top right Grip and stretch to the right. Change the length to 8';
- ▶ Pick the top right Grip point again and press the Tab key on the keyboard until the *Width* field is active. Change the width to 8';
- ▶ Copy the Pad Base plan below itself;
- ▶ Click on the Pad Base plan to activate the Grips, select the *Visibility Arrow* (indicated on the diagram below), and select the *Elevation* option;
- ▶ Move the elevation nearer to the Plan View.




**Figure 4.8.12:2 Pad Base Dynamic Block**

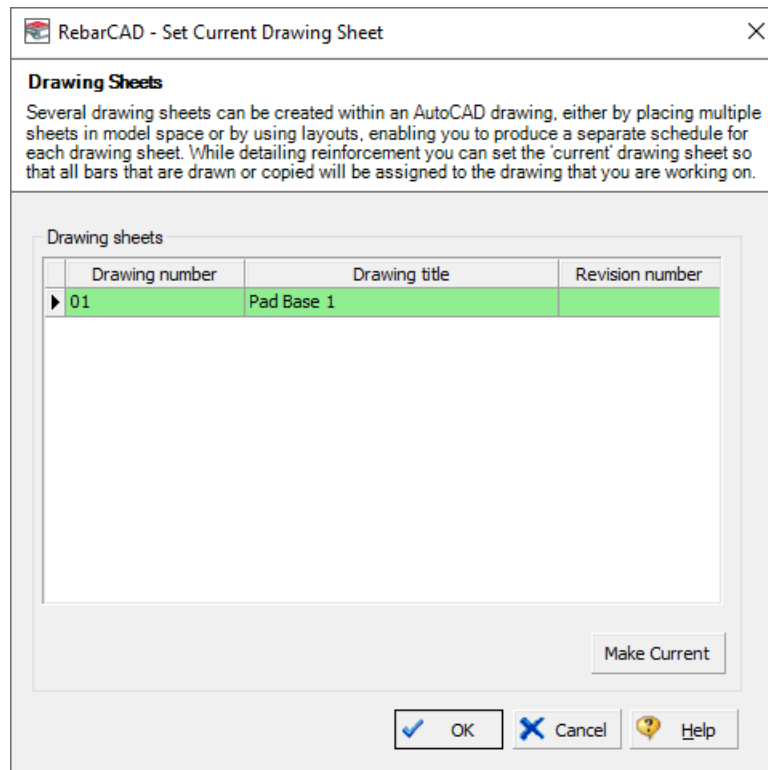
## 4.7.13 Create a Member Title and Set the Current Drawing Sheet

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 04.dwg. This is a drawing with an 17 x 22 inch Title Block with a Viewport set at 1:1/2" scale;
- ▶ Make the Viewport in *Sheet 01* active;
- ▶ Select RebarCAD → Draw Bar → Set Member or . Type in the Member Title as **Pad Base 1**, set the description to 8' x 8' x 2'-6" Pad Base and set the quantity to **2**. The quantity entered will multiply the total number of bars allocated to the Pad Base Member Title;
- ▶ Select Make Current and select OK. The line color will change to green to indicate that this is the current Member and that all reinforcement drawn will be assigned to this Member;



**Figure 3.6.13:1 RebarCAD Members dialog**


- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or . Drawing Number 01 is already highlighted so click the *Make Current* button. The line color will change to green to indicate that it is now current. The Drawing Title will automatically be picked up from the Drawing Title block. You can configure RebarCAD to read Title Block attribute information automatically;

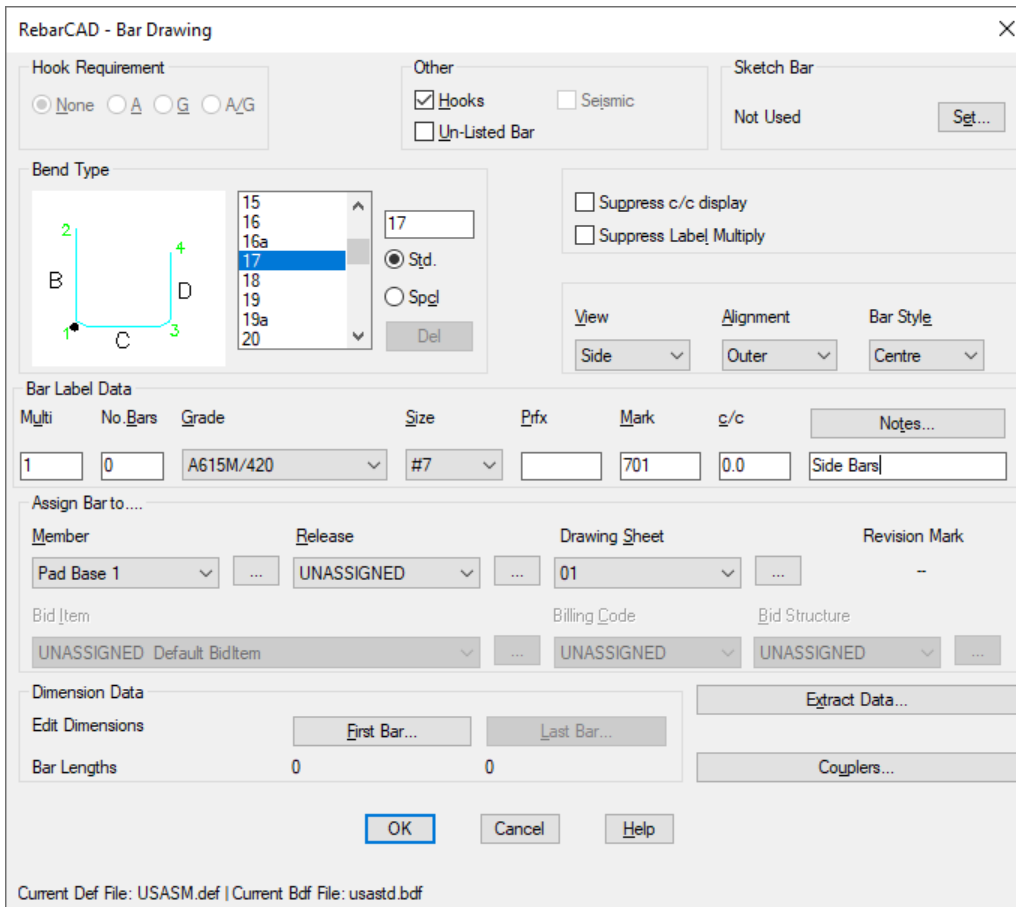


**Figure 3.6.13:2 Set Current Drawing Sheet screen**

## 4.7.14 Try It! Add two U Bars to the Pad Base Section

In this example you will add two Side Views of Bend Type 17 to the Pad Base Section using the *New Mark* and *New Set* sub options under Draw Bar.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 05.dwg
- ▶ Switch to Model Space and zoom in on the Pad Base detail
- ▶ Select RebarCAD → Draw Bar → New Mark or 
- ▶ Input the data as shown in figure 4.8.14:1 below
- ▶ **Note:** You can choose to input the Bar Centers now, that is, when you add a Range of the bar. RebarCAD defaults to 0" which will not be displayed on the Bar Label. Showing the Bar Centers is optional and you may not want to do this



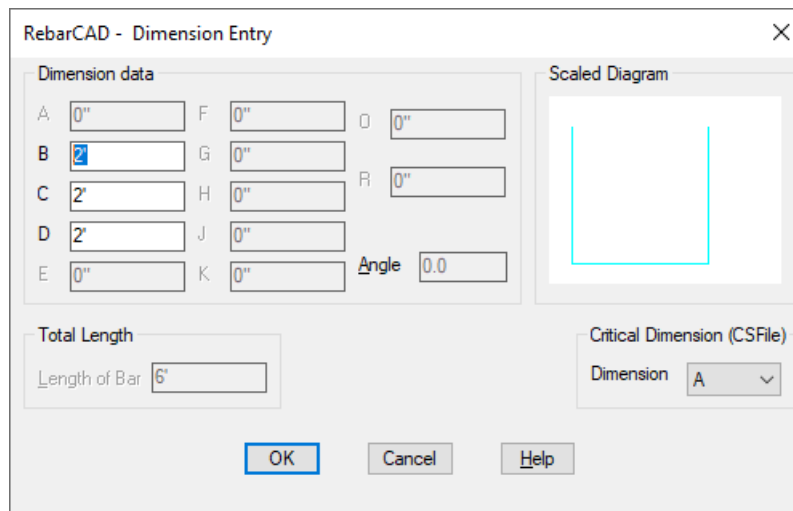
The dialog box is titled "RebarCAD - Bar Drawing". It contains several sections for configuring bar drawing parameters:

- Hook Requirement:** Radio buttons for None, A, G, and A/G.
- Other:** Checkboxes for Hooks (checked), Seismic, and Un-Listed Bar.
- Sketch Bar:** A "Not Used" button and a "Set..." button.
- Bend Type:** A diagram showing a bar with bends labeled B, C, and D. A list of bend numbers (15, 16, 16a, 17, 18, 19, 19a, 20) is shown, with 17 selected. A "Del" button is next to the list.
- Bar Label Data:** Fields for Multi (1), No. Bars (0), Grade (A615M/420), Size (#7), Prfx, Mark (701), c/c (0.0), and a Notes... button.
- Assign Bar to....:** Fields for Member (Pad Base 1), Release (UNASSIGNED), Drawing Sheet (01), and Revision Mark.
- Bid Item:** Fields for Bid Item (UNASSIGNED Default BidItem), Billing Code (UNASSIGNED), and Bid Structure (UNASSIGNED).
- Dimension Data:** Fields for Edit Dimensions and Bar Lengths (both 0). Buttons for First Bar... and Last Bar... are present.
- Buttons:** Extract Data..., Couplers..., OK, Cancel, and Help.

At the bottom, it shows "Current Def File: USASM.def | Current Bdf File: usastd.bdf".

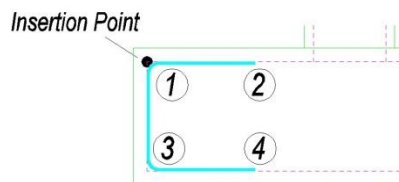
**Figure 4.8.14:1 The Bar Drawing dialog; see 3.6 for more explanation**

- ▶ Select the *First Bar* button and input Dimensions B, C and D as shown in figure 4.8.14:2 below. You do not have to input the dimensions in the *First Bar* dialog as they can be picked or specified directly on the screen whilst drawing the bar.  
Select OK twice;





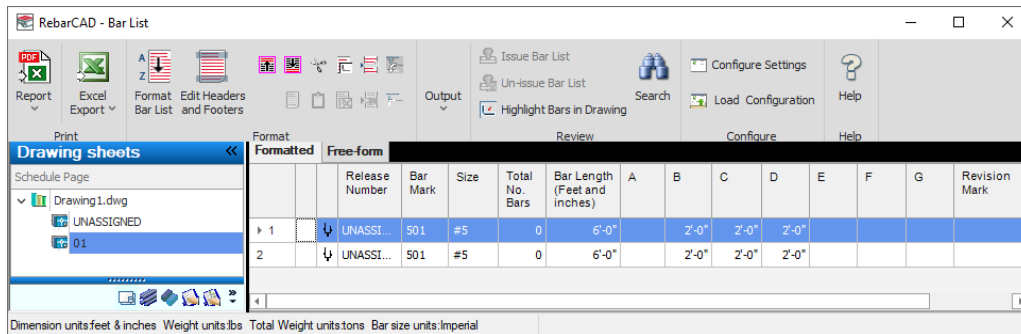
**Figure 4.8.14:2 RebarCAD Dimension Entry dialog**

- ▶ Pick the points to place the bar, as indicated in figure 4.8.14:3 below. The insertion point of the bar is on the Intersection of the Cover Lines at the top left. You can simply pick in the direction of points 2, 3 and 4 with *Ortho* switched ON, as you will already have input the length of these legs. If no dimensions have been specified you could use *Direct Distance Entry* to input the lengths, Relative Co-ordinates, Relative Polar Co-ordinates or Object Snaps;



**Figure 4.8.14:3 Insertion point and placing order Bend Type 17**


- ▶ Answer *No* to the prompt to place the Bar Label (Call Off). You will add the Bar Label to the Range Line later;
- ▶ Select RebarCAD → Draw Bar → New Set or  ;
- ▶ Select Continue with New Set;
- ▶ Select the bar drawn in the left side of the section;
- ▶ All the data in this dialog box, other than Notes, is already set-up correctly and this includes the Bar View. Type in *Side Bars* and select OK;
- ▶ Place the bar on the right hand side of the Pad Base with the Insertion point on the top right and Leg B along the top face of the structure;
- ▶ Answer No to Label Bar?;
- ▶ Select RebarCAD → View Bar List or  ;

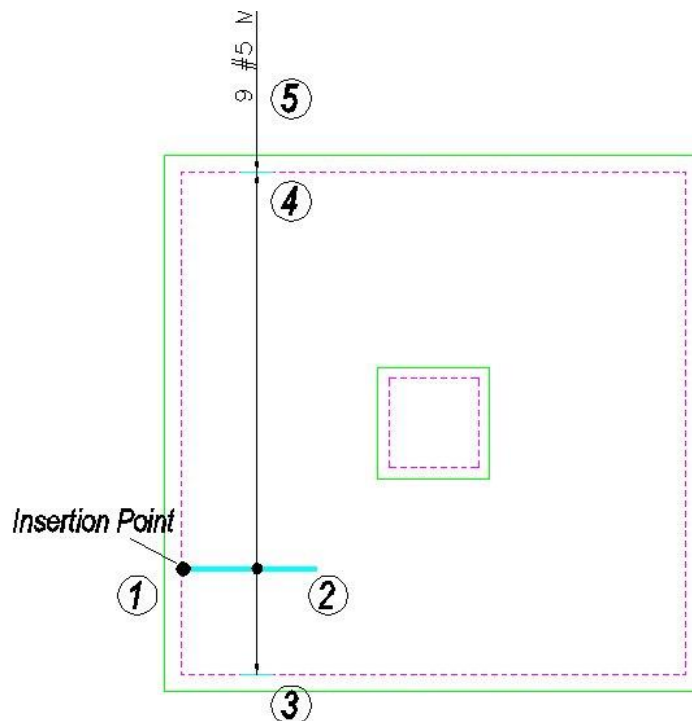


**Figure 3.6.14:4 The RebarCAD Bar List dialog**

## 4.7.15 Try It! Add the Ranges to the Pad Base Plan

In the appropriate places in this working example you should enter the values shown in **bold italics** following the prompts given in *medium italics*.

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 06.dwg;
- ▶ Switch to Model Space and zoom in on the Pad Base plan and section;
- ▶ Select RebarCAD → Draw Range → Add View or  ;
- ▶ Pick the Bend Type 17 on the left side of the section;
- ▶ Select the Single Indicator Range Style;
- ▶ Set the Bar View to Left and select OK;
- ▶ Pick the points as indicated on figure 4.8.15:1 below to place the Bar View and the Range Line. The range offsets should be set to 0". Set the Center Spacing at 12" and answer Yes to placing the Bar Label;



**Figure 4.8.15:1 Single Indicator Range Placing Order**

Left View Outer start point:	Pick point 1
Enter Outer Dimension:	Pick point 2.
Start of bar range / enter Slope / True Len / Line:	Pick point 3
Offset first bar from start <0">:	Press Enter
Pick End of range:	Pick point 4
Offset last bar from end <0">:	Press Enter
Range length to 7'-6".	

Center spacing or <Number of bars>: Type in 12 (for 12 inches) and press enter

Range options:

9 bars at < 1' > / Average c/c = 11 1/4" / Run out / Numeric:

Press Enter to continue or select (A)verage/(R)un Out/(N)umeric:


Press Enter to accept

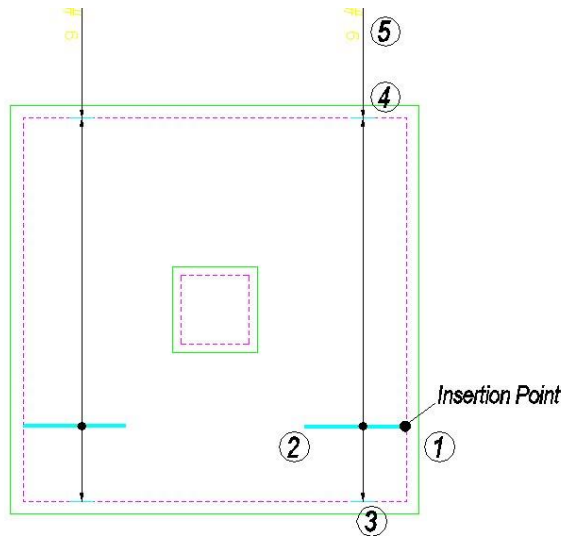
Label bar <No>? or J to Justify:

Type in y and press enter


Pick point:

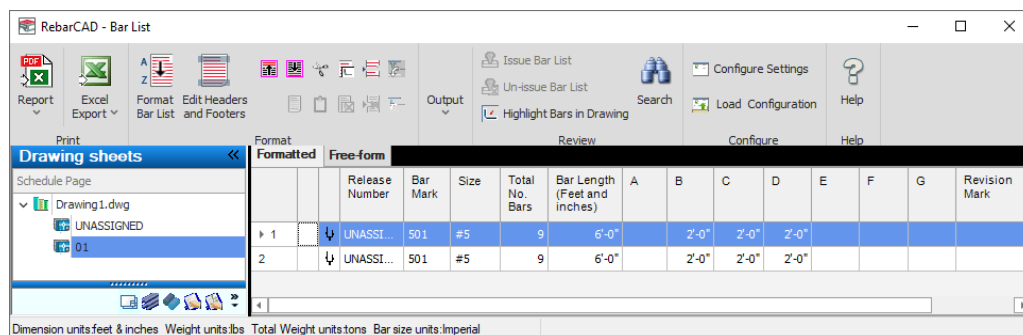
Pick the position of the Bar Label above the Plan View, point 5

- Repeat the **RebarCAD** → Draw Range → Add View or  command and add the range of the right hand Bend Type 17 to the Plan View, as shown in figure 4.8.15:2 below



**Figure 4.8.15:2 Second Single Indicator Range Placing Order**

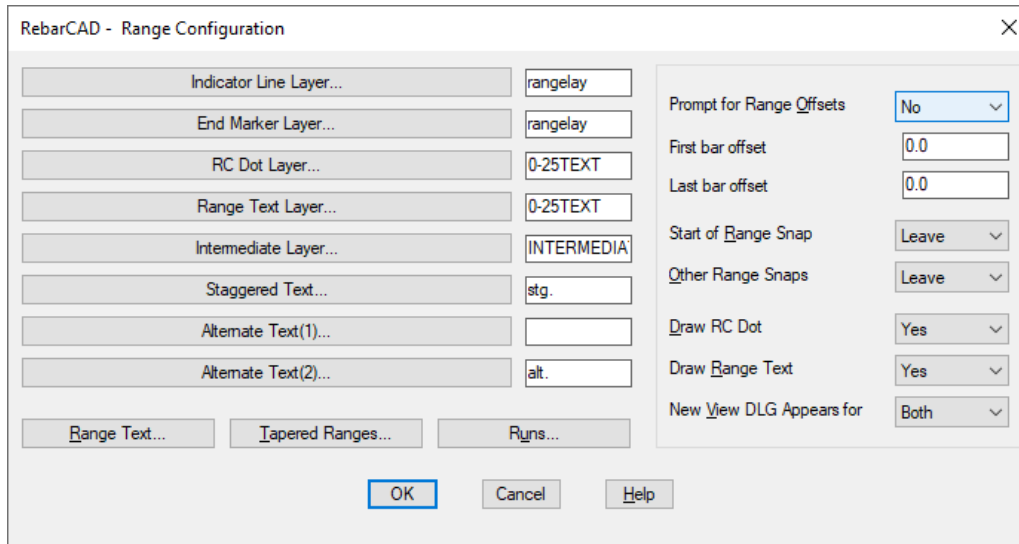
- ▶ If you have set the Range Offsets and Snaps and preset the Range Centers as suggested in the Hints & Tips at the end of this example then the time taken to place the range will have been reduced;
- ▶ Select RebarCAD → View Bar List or . Note that the number of bars allocated to each line has updated. Close the Bar List and the drawing;



**Figure 4.8.15:3 RebarCAD Bar List display**

## 4.7.16 Hints & Tips – Disable the Offset Prompt

The prompt *Offset First/Last Bar from Start/End* can be disabled if not required. This will speed up the placing of ranges. Select **RebarCAD** → Configuration → Range Configuration and set the *Prompt for Range Offsets* option to No as Figure 4.8.15:4.



**Figure 4.8.15:4 RebarCAD Range Configuration dialog**

#### 4.7.17



#### Hints & Tips – Preset Center to Center Spacing

You can preset the center-to-center spacing for the range in the *Draw Bar* dialog. This will suppress the *Bar Spacing* prompt when drawing the range.

#### 4.7.18



#### Hints & Tips – Save Configuration Changes Permanently

If you want to save any configuration changes permanently for all new drawings select **RebarCAD** → Configuration → Configuration Center → Miscellaneous Configuration and pick *Write Prototype Settings*. This creates a unique \*.INI (initialization) file on your computer. Every time you start a new drawing inside **RebarCAD** this file is read and the configuration is set accordingly.

#### 4.7.19



#### Hints & Tips – Lining up Bar Labels with Others

For lining up Bar Labels (Call Outs) with other Bar Labels, you can use these **RebarCAD** Snaps:




Line Label Vertical

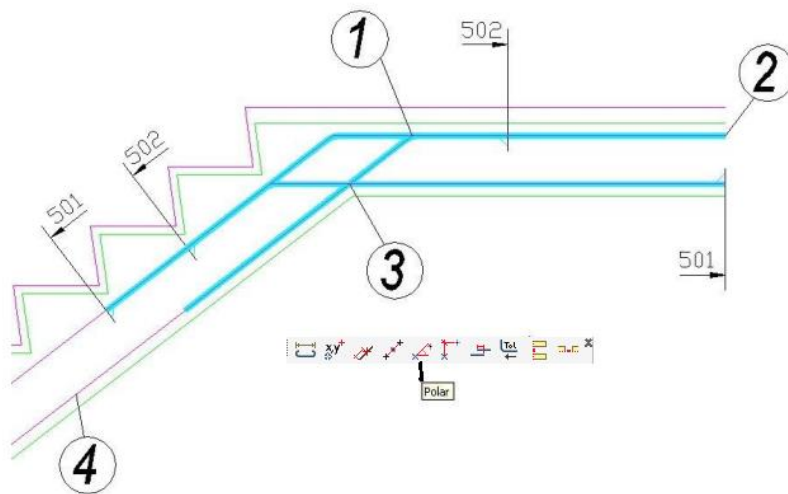


Line Label Horizontal

#### 4.7.20 Try It! Use the Polar RebarCAD Snap to Specify the Lap Length on the Sloping Leg of a Bar


You can use **RebarCAD** Polar Snaps to specify a lap distance from a known point and so avoid having to add lots of construction lines to your drawing.

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 07.dwg;
- ▶ Switch to Model Space and zoom in on the top landing of the staircase elevation;
- ▶ Select **RebarCAD** → Draw Bar → New Mark or  ;
- ▶ Select Bend Type 3c, set Bar Size #5, set View to Side, Set Alignment to Center and select OK;




**Figure 3.6.16:1 Placing Order of Bend Type 15 in the top landing**

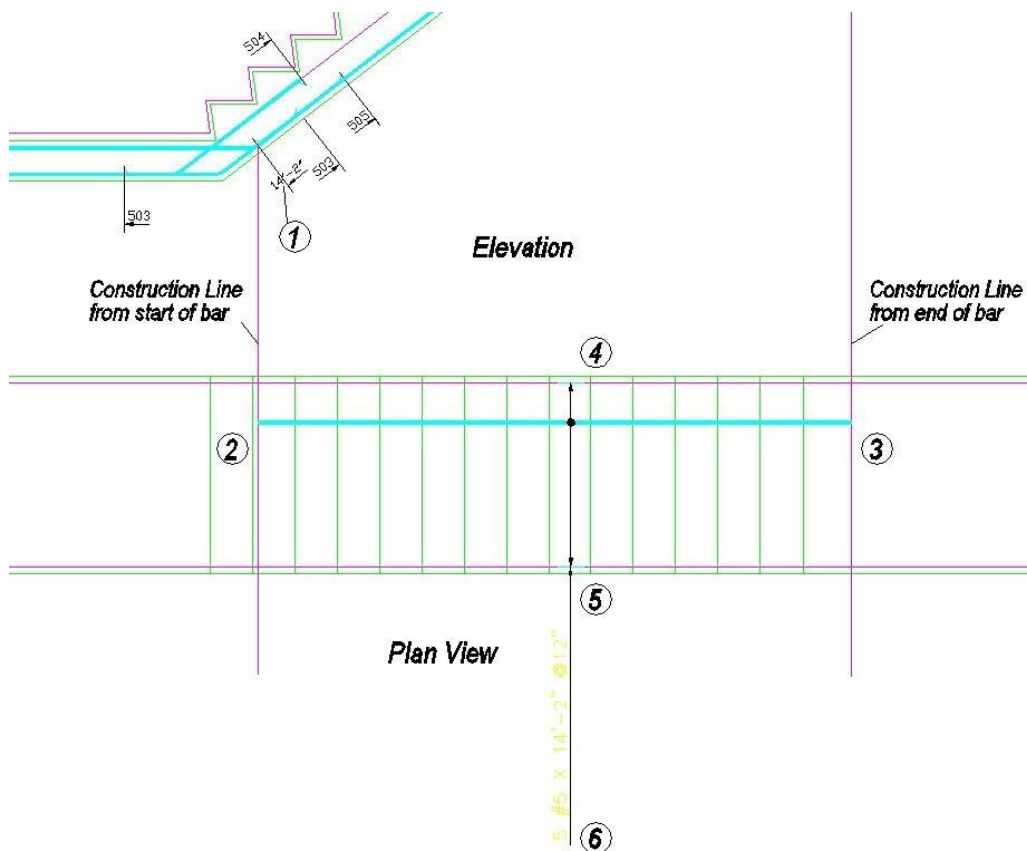
- ▶ Figure 3.6.16:1 above shows where to pick the points to place the bar
 

<i>Side View Center start point:</i>  <i>Enter Center Dimension B:</i> <i>Enter Center Dimension C:</i>  <i>Polar to:</i>  <i>Polar distance:</i> <i>Polar angle:</i> <i>Set Number is 19</i> <i>Label bar &lt;No&gt;? or J to Justify:</i>	Pick point 1 on the Intersection of the Cover Lines  Pick point 2 at the end of the Cover Line Pick Polar Snap button,  , or type <b>polar</b> and press Enter  Pick point 3 on the Intersection of the cover lines  Type in <b>24"</b> and press Enter Click on the Cover Line near point 4  Press Enter to finish the command
---	--
- ▶ Close the drawing;



#### 4.7.21 Try It! Use the Sketch Bar Option to Show a 'projected' Bar on a Plan View

To illustrate the use of the *Sketch Bar* option you will show in this example the main steel for a staircase flight in the Plan View. The section through the stair has already been detailed.

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 08.dwg;
- ▶ Switch to Model Space and zoom in on the Staircase Plan and Elevation;
- ▶ Select RebarCAD → Draw Range → Add View or  ;
- ▶ Pick the 14'-2" Tick and Tag indicated as point 1 on the diagram below ;



**Figure 4.7.21:1 Use of Sketch Bar for projected view of Bend Type 0**

- ▶ Select the Single Indicator Range
- ▶ Pick the Set... button,  to open the *Sketch Bar* dialog
- ▶ Select the Activate option, , and then pick *Bend Type 0* on the list. Select OK
- ▶ Set the Bar Centers c/c at 12" and select OK



- ▶ Place the Sketch Bar View and the Range Line picking points 2 to 6 shown in figure 3.6.17:1 above

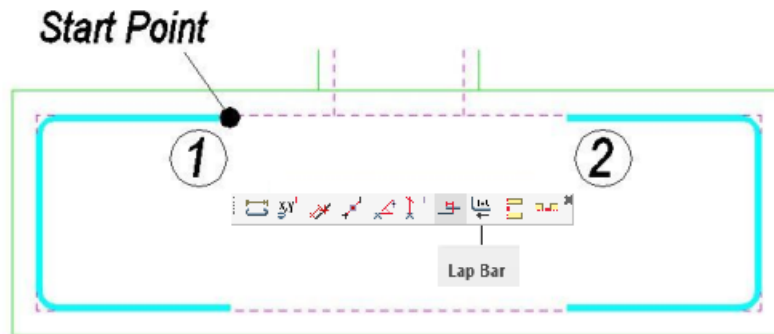
<i>Side View Center start point:</i>	Pick point 2 on the magenta construction line
<i>Enter Center Dimension B:</i>	Pick point 3 on the magenta construction line
<i>Setting Start Snap(s) Near</i>	
<i>Start of bar range / enter Slope / True Len / Line:</i>	Pick point 4 on the Cover Line
<i>Offset First bar from start &lt;0"&gt;:</i>	Press enter
<i>Setting Other Snap(s) Perp.</i>	
<i>Pick End of range:</i>	Pick point 5 on the Cover Line
<i>Offset Last bar from end &lt;0"&gt;:</i>	Press Enter
<i>Range length 3'-6"</i>	
<i>Range options :</i>	
<i>5 bars at &lt; 1' &gt; / Average c/c = 10 1/2" / Run out / Numeric :</i>	
<i>Press ENTER to continue or (A)verage/(R)un Out/(N)umeric : Press Enter</i>	
<i>Set Number is 1</i>	
<i>Label bar &lt;No&gt;? or J to Justify:</i>	Type <b>Y</b> and press Enter

*Pick point:* Pick point 6 below the Plan View. Note that you do not have to use a Sketch Bar with the cranked bars (Bend Type 3c), as RebarCAD will correctly calculate the *Projected Length* of the Plan View.


- ▶ Select RebarCAD → View Bar List to review Bar Data and then close the Bar List and the drawing.

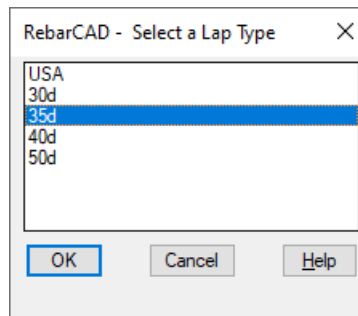
## 4.7.22 Try It! Use the Multiplier Field and Lap Bar RebarCAD Snap to Detail Top and Bottom Steel Efficiently

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 09.dwg;
- ▶ Switch to Model Space and zoom in on the Pad Base elevation;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make 01 the current Drawing Sheet;
- ▶ Select RebarCAD → Draw Bar → New Mark or  ;
- ▶ Select *Bend Type 0*, set *Bar Size #5*, set *View* to *Side*, Set *Alignment* to *Center*, type 2 in the *Multi* field and set *Centers* to 12" and select OK;
- ▶ Place the Straight Bar as indicated in the diagram below using the **RebarCAD** Lap Bar Snap. Set the *Lap Type* at 35d;



**Figure 4.7.22:1 Placing order to add a Lap Bar**

- Side View Center start point:* Pick the *Lap Bar* button  or type *Lap* and press Enter
- Pick bar to lap with:* Pick on the end of the U bar as shown by point 1  
Pick 35d (lap length equals 35 x bar diameter) and select OK



**Figure 4.7.22:2 RebarCAD Select a Lap Type dialog**

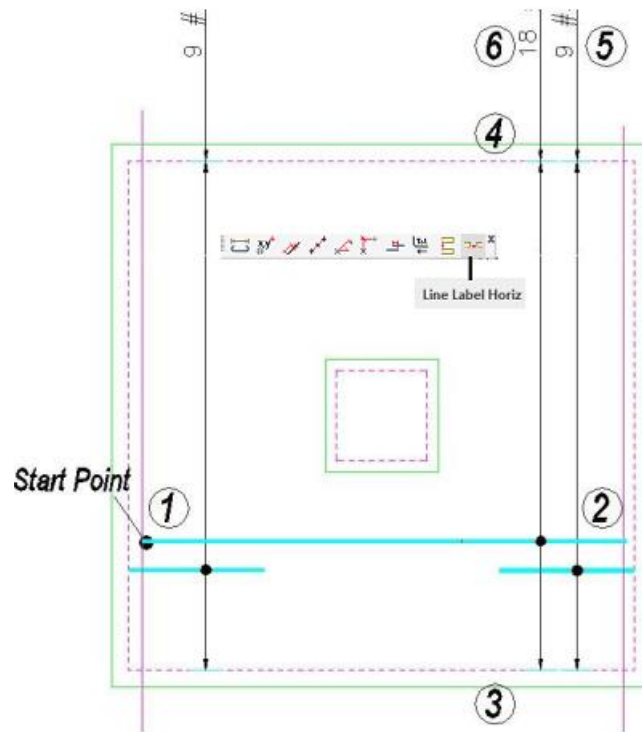
- Lap length = 1'-10"*  
*Distance from end of bar or Offset/<1'-10">:* Press Enter to Accept  
*Pick side of bar for flush face <Parallel>:* Press Enter to Accept
- Enter Center Dimension B:* Pick Lap Bar or type **Lap** and press Enter  
Pick 35d (Lap Length equals 35 x bar diameter) and select OK
- Pick bar to lap with:* Pick on the end of the U bar as shown by point 2
- Lap length = 1'-10"*  
*Distance from end of bar or Offset/<1'-10">:* Press Enter to accept  
*Pick side of bar for flush face <Parallel>:*

Press Enter to accept


Set Number is 12.

Label bar <No>? or J to Justify:

Press Enter to accept.



**Figure 4.7.22:3 Placing order to add lap bar and range to the Plan View**

- ▶ Select **RebarCAD** → Draw Range → Add View or  and pick the Straight Bar in the elevation you have just drawn. Choose a *Single Indicator Range*;
- ▶ Place the Straight Bar as indicated in figure 3.6.18:3 above using the *RebarCAD Snap Line Label Horizontal* to line up the Bar Labels. Note that construction lines have already been added to ease the placement of the bar;

Side View Center start point:

Pick point 1 on the construction line

Enter Center Dimension B:

Pick point 2 on the construction line

Setting Start Snap(s) Near

Start of bar range / enter Slope / True Len / Line:

Pick point 3 on the Cover Line

Setting Other Snap(s) Perp.

Pick End of range:

Pick point 4 on the Cover Line

Range length 7'-6".

Range options:

9 bars at < 1' > / Average c/c = 11 1/4" / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:

Press Enter

Set Number is 13

Label bar <No>? or J to Justify:

Pick point:

Type **Y** and press Enter

Pick **RebarCAD Line Label Horizontal Snap**



Pick any point on the right hand Bar Label (point 5)

.Y of INS of (need XZ):

Pick point 6

Double click on the Bar Label to open the *Edit Bar Label* dialog

- ▶ Tick the *Suppress Label Multiply* option to change the Bar Label from 2 x 19 to 28 for the number of bars;
  - ▶ Type in '9T & 9B' in the Notes Box and select OK;
- Note the change in the Bar Label from 2x9 #5 X 7'-2" @12" to 18 #5 X 7'-2" @12" 9T & 9B. Later we will cover adding the additional labels and copying the bar in to the bottom face of elevation to finish the detail;
- ▶ Select **RebarCAD** → View Bar List to review Bar Data and then close the Bar List and the drawing.

## 4.7.23 Try It! Use the Lap Bar RebarCAD Snap to Add Flight Steel to a Staircase

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 08.dwg;
- ▶ Make the viewport on Sheet 02 current;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or ;
- ▶ Make Sheet 02 the current Drawing Sheet;
- ▶ Select RebarCAD → Draw Bar → New Mark or ;
- ▶ Select Bend Type 0, set Bar Size #5, set View to Side, Set Alignment to Center and select OK; Place the Straight Bar as indicated in the diagram below using the **RebarCAD** Lap Bar Snap. Set the *Lap Type* at 35d.

Side view Center start point: Pick the Lap toolbar button or type lap and press Enter

Pick bar to lap with: Pick the end of the bar indicated by point 1

Lap length = 1'-10"

Distance from end of bar or Offset/<1'-10">: Press Enter to accept

Pick side of bar for flush face <Parallel>: Press Enter to accept

Enter Centre Dimension A: Pick the Lap toolbar button or type lap and press Enter

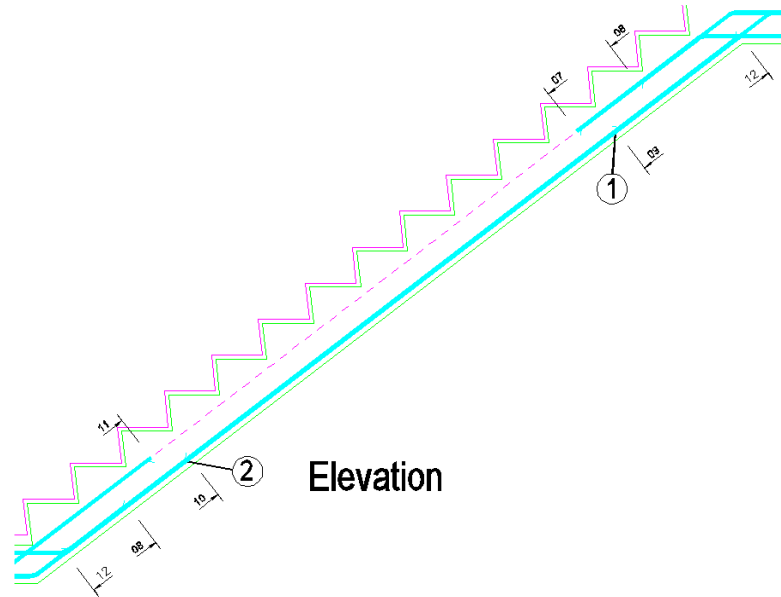
Pick bar to lap with: Pick the end of the bar indicated by point 2

Lap length = 1'-10"

Distance from end of bar or Offset/<1'-10">: Press Enter to accept

Pick side of bar for flush face <Parallel>: Press Enter to accept

Label bar <No>? or J to Justify: Press Enter to accept









**Figure 4.7.23:1 Lapping Bars on Staircase**

## 4.8 Key points - General Arrangement Drawings...

Rebar can be placed on outlines created by lines, polyline, blocks and xrefs.

- ▶ Switch on *Dynamic Input* when working with Dynamic Blocks in order to show the dimensions of the entity;
- ▶ You can use RebarCAD Snaps in conjunction with RebarCAD functions to speed up the drawing process;
- ▶ Input as much information into the *Draw Bar* dialog as possible to speed up the drawing process by minimising the need for command prompts later;
- ▶ Switch off the *Range Offset* prompts and preset the Range Snaps in the Range Configuration to reduce the number of command prompts;
- ▶ Reduce the number of Ranges that need detailing by using the *Multiplier* option in the *Draw Bar* dialog;
- ▶ Use a *Sketch Bar* to show a Projected View (not true length) of a bar;
- ▶ Save changes to the RebarCAD configuration by selecting the Save Settings option in the Configuration Center. This will affect all new drawings.

## 4.9 Command List - General Arrangement Drawings...

Action	Menu Selection	Toolbar	Icon
Create Pad Base Outline	RebarCAD →Tools→Outlines→Others	Outlines	
RebarCAD Snaps	RebarCAD Snaps		
Set Member	RebarCAD →Draw Bar→Set Member	Draw Bar	
Set Drawing Sheet	RebarCAD →Draw Bar→Set Drawing Sheet	Draw Bar	
Draw Bar→New Mark	RebarCAD →Draw Bar→New Mark	Draw Bar	
Draw Bar→New Set	RebarCAD →Draw Bar→New Set	Draw Bar	
Draw Range→Add View	RebarCAD →Draw Range→Add View	Draw Range	
Sketch Bar	RebarCAD →Draw Bar→Add View	Draw Bar	

## 5 Over Stock Length (OSL) and Creating Special Bars

### 5.1 Over Stock Length Overview

When detailing reinforcement there is an optimum length of bar that can be detailed and safely handled on site. The OSL (Over Stock Length) feature in RebarCAD allows you to specify this as the stock bar length. Once this has been set, if you then attempt to draw a bar that is longer RebarCAD will automatically offer to splice the bars across the structure. The splice position and lengths are based on rules that you set in the Over Stock Length dialog box. Once OSL bars have been drawn they are grouped together as a single entity. Any changes made will affect all the bars in the group.

### 5.2 Set Over Stock Length

You use this command to define the *Over Stock Length* that can be detailed before the OSL functionality is invoked.

### 5.3 Switching Off the Over Stock Length Option

The OSL feature can be switched off by selecting **RebarCAD** → Configuration → Configuration Center → Global/General Configuration.

Set the Top Field to *OverStockLength*

In the Middle Field select *UseOverStockLength*

In the Lower Field type in **No** and then pick *Assign to CFG*

Answer **Yes** to *Apply the Changes?*

### 5.4 Over Stock Length Restrictions

The Over Stock feature has the following limitations:

*OSL supports only the following shapes:*

- ▶ Straight Bar;
- ▶ Straight Bar with Hooks;
- ▶ U Bar and L Bar.

*OSL Supports only the following Range Types:*

- ▶ Single Indicator Range;
- ▶ Double Indicator Range;
- ▶ Double Indicator Tapered Range.

For U and L shapes, only the second leg of the bar shape is allowed to stretch beyond the Stock Length.

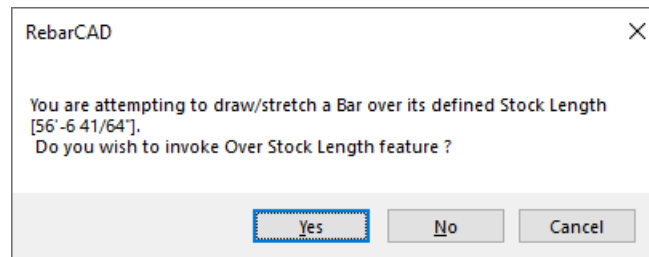
Couplers cannot be added to OSL bars. You can add couplers to an Exploded OSL Group - see Chapter 7, Edit and Modify commands, for further information.

The Add View or Set and Range View commands are not supported for Over Stock Length bars. You can use the Add View and New Set commands if you Explode an OSL Group - see Chapter 7, Edit and Modify commands, for further information.

If the difference between the first and last bar is more than the Stock Length of a Double Indicator tapered range, the bars will not be spliced as Over Stock bars.

## 5.5 Over Stock Length Dialog

This dialog will only appear if you attempt to draw a bar longer than the configured Over Stock Length.

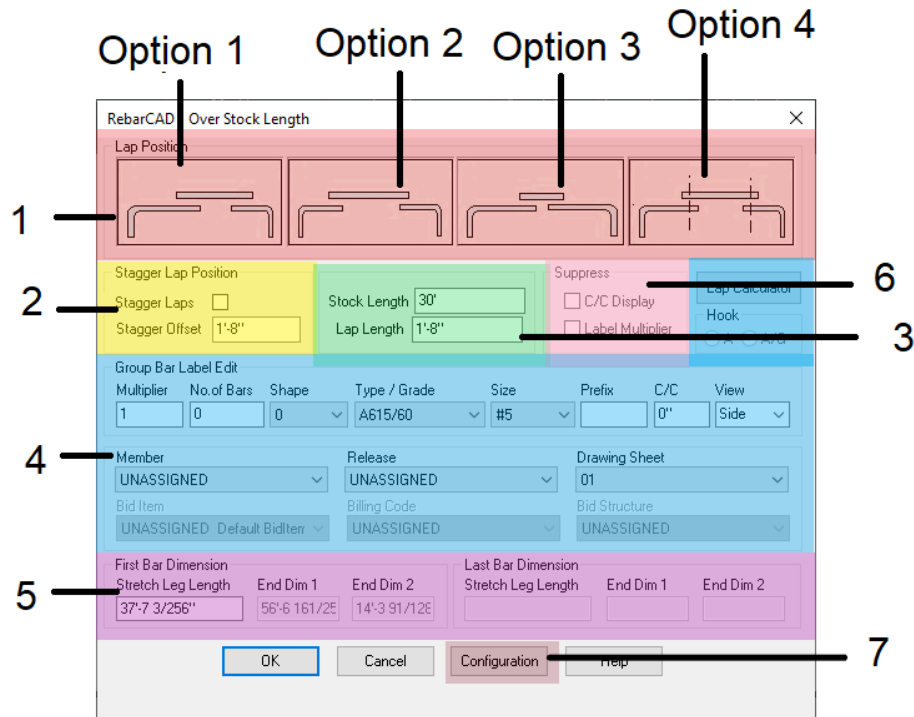


**Figure 5.5:1 The Invoke Over Stock Length Feature dialog**

If you answer No to the question shown in figure 5.5:1 then RebarCAD will attempt to draw the bar. If you attempt to draw a bar over the default maximum Stock Length then RebarCAD will ask you specify the length again. If the bar to be drawn is under this length RebarCAD will draw the bar. RebarCAD ships with the default Stock Length set to 20m but you can, of course, configure this to your particular needs.

If you select Cancel on this dialog box, RebarCAD exits the drawing routine and returns you to the AutoCAD command prompt.

If you answer Yes RebarCAD displays the Over Stock Length dialog, as shown below.



**Figure 5.5:2 The Over Stock Length dialog.**

The number labels added show the different sections and these are described below.

### 5.5.1 Lap Position Options

**Option 1:** The first and intermediate bars are drawn to the Stock Length. The last bar is the Run-Out Bar.

**Option 2:** The first and last bars have equal leg lengths. The intermediate bars are drawn to the Stock Length.

**Option 3:** The first, intermediate and last bars are all drawn to the Stock Length. The penultimate bar is used as the Run-Out Bar.

**Option 4:** The *Splice Bar Location* is defined by selecting *Splice Lines*, which have already been drawn. If the length of the bar between the Splice Lines exceeds the Stock Length the OSL routine will automatically offer a Splice point or allow you to pick additional Splice Lines.

### 5.5.2 Stagger Lap Position

This will only work with Option 1 of the lap positions. This option calculates and adjusts the first and last bar lengths such that if mirroring places the alternate bars the lap distance is staggered by the given value.

### 5.5.3 Stock and Lap Length

The Stock Length displayed is the length set by the Set Stock Length command.

The lap length displayed is the default distance set by **RebarCAD**. You can invoke the *Lap Calculator* to work out the correct splice distance for the diameter of bars you are detailing.

### 5.5.4 Group Bar Label Edit

This has exactly the same options as the *Draw Bar* dialog at 3.6 except that you can choose the *Bend Type* and the *Bar View Drawn* but you cannot add *Notes* - see the *Configuration* option for this. Use the Member option to check that the current Member is set correctly.

### 5.5.5 First and Last Bar Dimensions

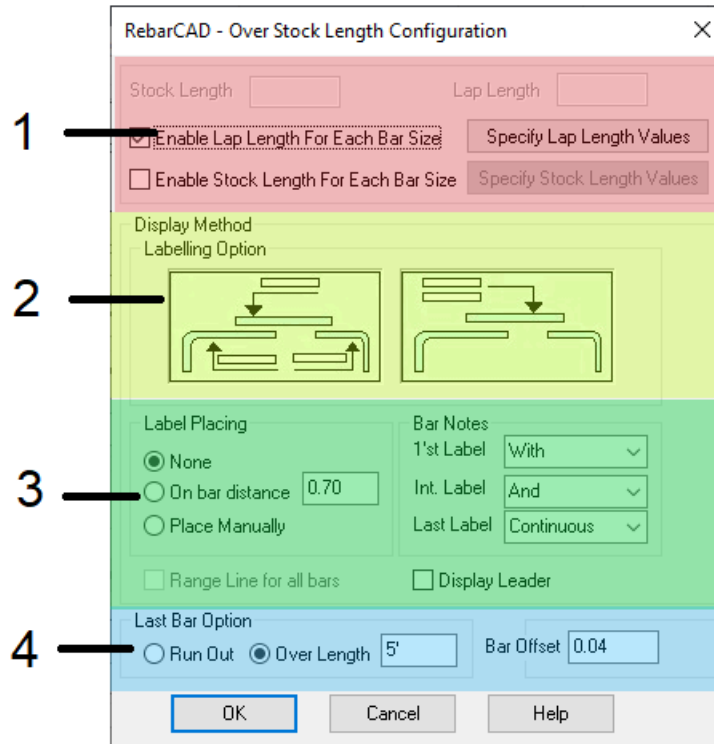
You can input missing dimensions in *End Dim 1* and *End Dim 2* if you select a Bend Type in the *Group Bar Label Edit* area that has more than one leg.

### 5.5.6 Suppress

As with the *Draw Bar* dialog box discussed in section 3.6 you can use the *Suppress C/C Display* to stop dimensions showing on the Bar Labels and the *Suppress Label Multiplier* option to change the *Number of Bars Displayed* to show the actual number of bars rather than the calculation, such as from, say, 2x3 to 6.

## 5.6 Over Stock Length Configuration Dialog

How you enable the settings in the *Configuration* dialog heavily influences the detailing style of the OSL range.



**Figure 5.6:1** The OSL Configuration dialog. Item labels are described below.

### 5.6.1 Stock and Lap Lengths

Use this option to fix Lap Lengths to Bar Diameters.

### 5.6.2 Display Method

The left hand option will place a Bar Label on each individual bar drawn.

The right hand option will stack all the Bar Labels in one location pointing to the first bar in the OSL group.

### 5.6.3 Label Placing and Bar Notes

The most efficient choice in *Label Placing* is *On bar distance*. This allows you to set the distance in plotted inches that the Bar Label is placed away from the bar.



In the *Bar Notes* sub-section you can choose from any of the standard options or you can type in your own data in any field.

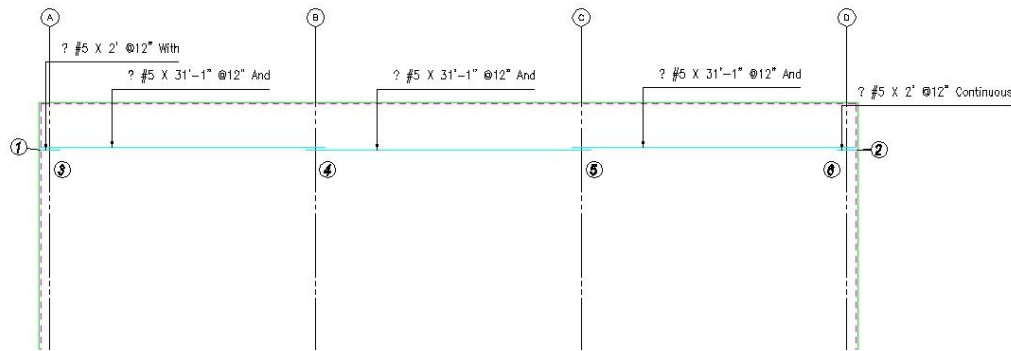
### 5.6.4 Last Bar Option

The *Run Out* option makes the last bar's length the calculated length based on the available Stretch Length and Stock Length.

If you select the *Over Length* option you can enter the length that the Run-Out Bar is allowed to exceed the Stock Length.

### 5.6.5 Try It! Place OSL Bars Using Grid Lines on a Slab

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 10.dwg
- ▶ Set the Working Scale to 1:20;
- ▶ Switch to Model Space and zoom in on the slab plan. The Drawing Sheet and Member have already been set;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make 01 the current Drawing Sheet;
- ▶ Select RebarCAD → Draw Bar → New Mark or  ;
- ▶ Select Bend Type 00, set Bar Size #5, set View to Side, set Alignment to Outer, set Centers to 12" and select OK;
- ▶ Set the *Start of Bar* as point 1 and *End of Bar* as point 2. Answer Yes to invoke the Stock Length default;
- ▶ Select *Lap Position Option 4*. Open the *Configuration* and check that the following are selected: *Enable Lap Length* and *On Bar Distance*. Click OK twice;
- ▶ Select the *Grid Lines*. Select *Objects* and then select the Grid Lines on the drawing indicated by numbers 3 to 6. Press Enter;
- ▶ You can use *Grip Editing* to realign the Bar Labels. Pick a Bar Label, select its grip and slide it up or down on the drawing as necessary. Note that if the leader follows the Bar Label this is because the *Dimension Label/Leaders* option is switched on inside the *Label Configuration* dialog;



**Figure 5.6.5:1 Placing Order OSL Bar Group**

## 5.7 Overview of Creating Special Bars

There are two methods of creating special bars in RebarCAD:


- ▶ Create a quick special bar inside the *Draw Bar* dialog;
- ▶ Use the *Special Bar Creator* see Section 12.1 for details on how to use the function and section 4.6.2 for a Try It! example. This is available in the *Tools* sub menu but has restricted input options compared to the previous method. However, you may find this approach easier to use for very simple bars.

If you are trying to create a complex bar with curved sections or oversized radii, it's worth contacting the RebarCAD Support for advice and to discuss the issues involved.

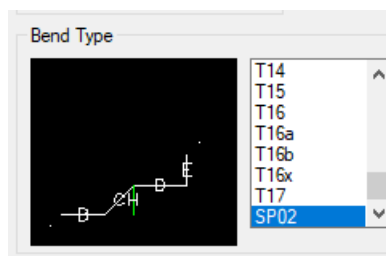
All the special bars you create are saved inside the drawing where they were created or used and, in a file, called *specials.spl*. This file is stored in the \cads\cads-rc\params folder. However, RebarCAD can be configured to read a file of a different name or one in a different folder location if necessary.

Use the *Try It!* examples below to create a special bar with a cranked leg. Example 4.6.1 shows you how to create such a bar using the *Draw Bar* dialog box and example 4.6.2 lets you create the same bar using the *Special Bar Creator*.


### 5.7.1 Try It! Create a Special Bar with a Cranked Leg Using the *Draw Bar* Dialog

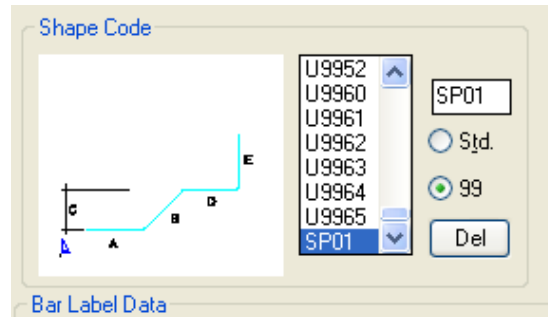
- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 11.dwg;
- ▶ Switch to Model Space and zoom in on the sketch of the bar. The Drawing Sheet and Member have already been set;
- ▶ Select RebarCAD → Draw Bar → New Mark or 

- ▶ In the *Bend Type* input field enter *SP01* and then select the *99* radio button. Answer *Yes* to create the special bar called *SP01*. It will now appear on the *Bend Type List*, although no image exists for it yet;
- ▶ Pick the *First Bar* button and change the *Slide Name* from *Special.SLD* to *SP01.SLD*;
- ▶ Set the *Bar Size* to *#5*. Select *OK*;
- ▶ Answer *Yes* to Draw Shape *SP01*?;
- ▶ Answer *No* to Create a Slide for *SP01*?;
- ▶ Answer *Yes* to Allow Individual Dimension Selection?;
- ▶ Select point 1 as the *Center Start point*, enter *B* as the next dimension letter and press Enter;
- ▶ Select point 2, enter *C* as the next dimension letter and select Enter;
- ▶ Select point 3, enter *D* as the next dimension letter and select Enter;
- ▶ Select point 4, enter *E* as the next dimension letter and select Enter;
- ▶ Select point 5 and select Enter to quit;
- ▶ Enter *No* to Label Bar?
- ▶ Create the slide image next. To do this use *AutoCAD Move* to relocate the bar on the dimension letters below by selecting point 6 as the *Base point of Displacement* and point 7 as the *Second point*;
- ▶ Zoom into the bar as close as you can get while still being able to see the dimension letters and lines;
- ▶ Type in *MSLIDE* at the *AutoCAD* command prompt. Browse to the *\CADS\AutoCAD 200x\RebarCAD 9.01\CADS-RC\params* folder and type in *SP01* as the filename and select *Save*;
- ▶ *Note:* In the path "... AutoCAD200x\..." above, *x* denotes the last digit in your version of *AutoCAD*, such as *AutoCAD2008* or *2009* and so on;



**Figure 5.7.1:1 Creating a special Bend Type**

- ▶ Test the shape by selecting the **RebarCAD** → Draw Bar → New Mark or . The image of your bar should now appear in the *Bend Type* window. We will later attach this diagram to the Bar List;




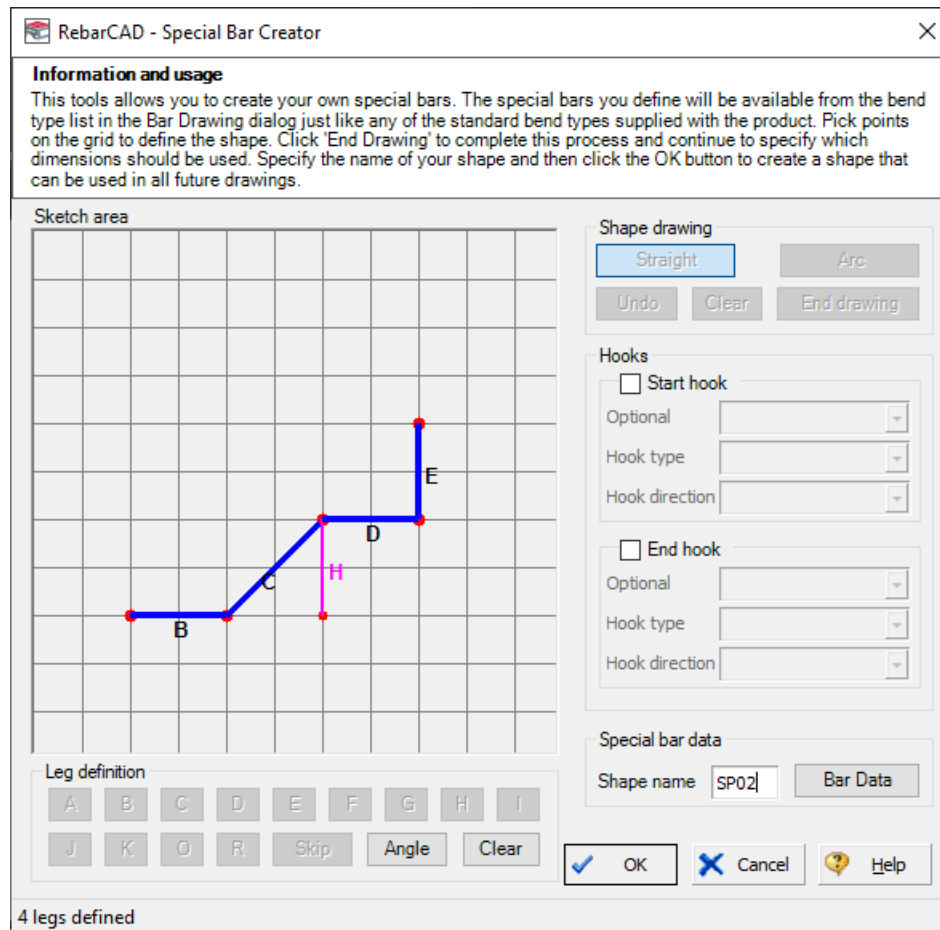
**Figure 5.7.1:2 Bend Type SP01 appears in the list of shapes**

Note the following points:

- You cannot amend the angle of the slope.
- You will need to add the H Dimension manually by editing the bar. Refer to Chapter 7, *Edit and Modify commands*, for more information.

## 5.7.2 Try It! Creating a Special Bar Using the Special Bar Creator

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 12.dwg;
- ▶ Switch to Model Space and zoom in on the sketch of the bar. The Drawing Sheet and Member have already been set;
- ▶ Select RebarCAD → Tools → Special Bar Creator or  ;
- ▶ Pick points on the grid, as shown in figure 4.6.2:1 below, to specify the bar legs;
- ▶ Type in the *Shape Name* as SP02;
- ▶ Pick End Drawing;
- ▶ Individual legs will be shown in green. Select the *Dimension Letter* as per figure 4.6.2:1. Skip assigning a letter to the *Horizontal Crank Dimension*;
- ▶ Select the *Bar Data* button, check that the slide name is correct and click OK;
- ▶ Select OK to finish the function. RebarCAD will automatically add the bar to the specials.spl file and create the slide;



**Figure 4.6.2:1 The Special Bar Creator window**

Note the following points:




- You cannot amend the angle of the slope.
- You will need to add the H Dimension manually by editing the bar. Refer to Chapter 7, *Edit and Modify commands*, for more information. You may need to remake the image of the Special Bar – please refer to points 12 to 14 in the example 4.6.1 above for more information.

## 5.8 Key points - OSL and Creating Special Bars

Use OSL (Over Stock Length) utilities to quickly add reinforcement to a drawing where spliced bars are grouped together as a single entity.

- ▶ Use the OSL *Splice* options to produce different bar layouts;
- ▶ Create special Bend Types using either the *Special Bar Creator* or inside the *Draw Bar* dialog;
- ▶ All special Bend Types are stored in a file *specials.spl* unless you configure this otherwise.

## 5.9 Command List - OSL and Creating Special Bars

Action	Menu Selection	Toolbar	Icon
Set Over Stock Length	RebarCAD → Draw Bar → Set OSL	Draw Bar	
Draw Range → New Mark	RebarCAD → Draw Range → New Mark	Draw Range	
Special Bar Creator	RebarCAD → Tools → Special Bar Creator	Misc Tools	

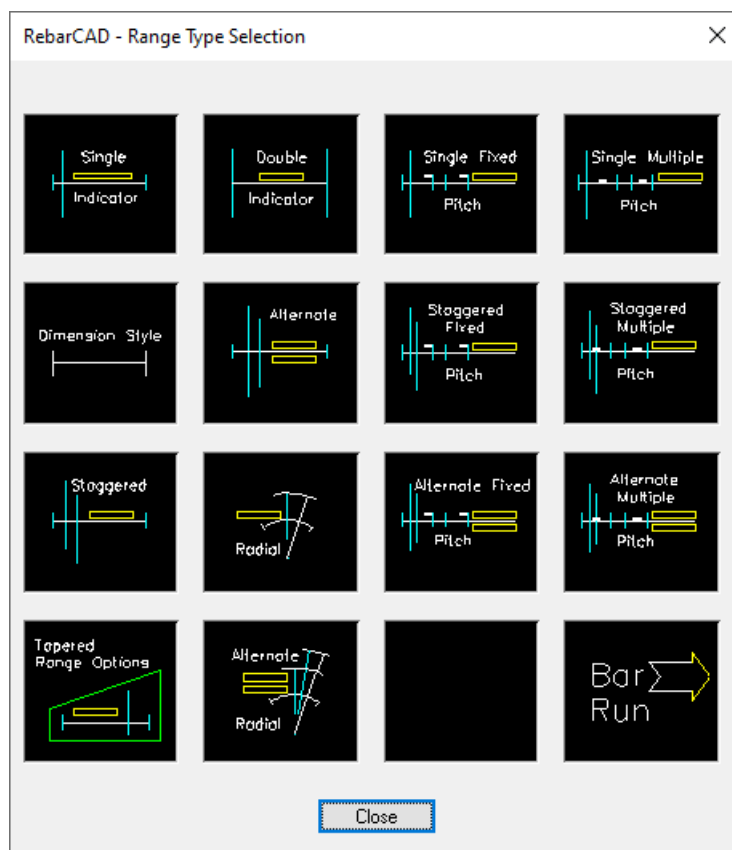
## 6 Range Types and Bar Runs

### 6.1 Introduction

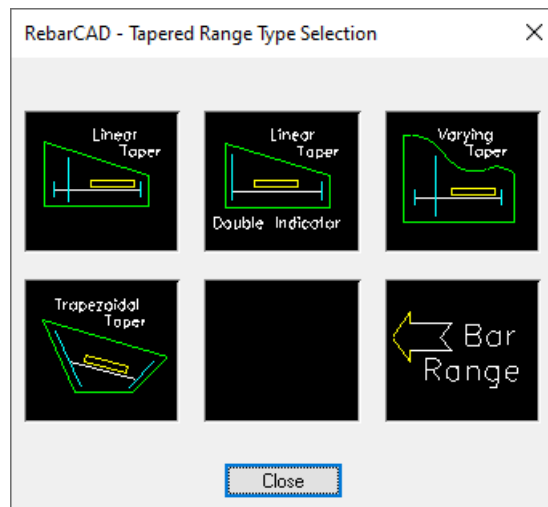
RebarCAD provides a number of Range (ladder) types and runs of bars for use on different structure types.

You opened the Range dialog in the previous section when adding Single Indicator Ranges to the Pad Base and the Slab (see Section 3.6.15).

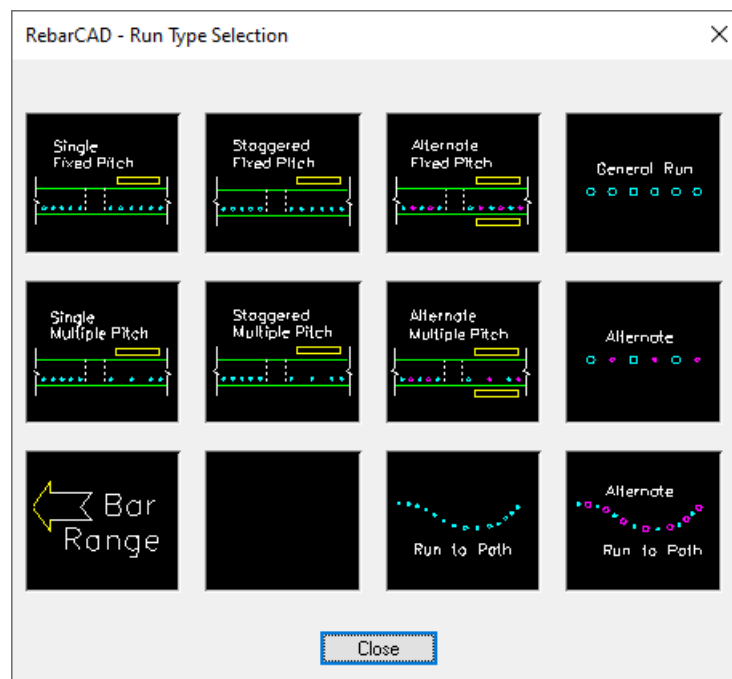
As you work through this section you'll get practice using examples of all the Range types, drawing them in typical structures and picking up detailing hints to increase your productivity.



**Figure 5.0:1** RebarCAD's Range Type Selection window



**Figure 5.0:2 The Tapered Range Type Selection window**



**Figure 5.0:3 The Run Type Selection window**

## 6.2 Single Group Ranges

The Single Group Range types typically show one or two Bar Views with one Range Group.

The text below takes you through typical input for the Single Group Ranges. It explains all the sub-options and their consequences. Prompts and other screen displays are shown in *italic* and values that you might enter are shown in ***italic***. The instruction “Press Enter” simply means that you should press the Enter or Return key. As usual, commands are often – though not always - shown

in bold roman (but sometimes in medium italic). Comments and explanations about what's happening or what you should do are set off with bullets and indented, as with the immediately following paragraph.

- ▶ Normally you would select the **Draw Range** command and then either *New Mark*, *Add View* or *New Set*. You would then select the *Range Type* from the *Range* dialog. The *Bar* dialog then loads and this lets you select the Bend Type, Type and Size and the Bar View, Style and Alignment.
- ▶ The typical Bar View is drawn first and then description elements of the Range can be selected from the following prompt:

Start of Bar Range / Enter Slope / True Len / Line:

- If *Slope* is selected then enter the angle of the slope of the Range. The distance selected for the Range should be the projected length - the system will work out the true length and the correct number of bars.
  - If *True Length* is selected then enter the true numeric length of the Range. The points picked on the screen will show the projected length of the Range.
  - If *Line* is selected then select an *AutoCAD* line on the screen that is the length of the Range Line. The points picked for the start and the end of the Range will show the projected length.
  - If a point is selected this will specify the start point of the Range.
- ▶ Offset First Bar from Start <0">:
  - ▶ After you've selected the start point of the Range a prompt to *Offset First Bar from Start* is shown. If you enter a distance the start of the Range will be moved appropriately from the point selected. Hence if you do not show Cover Lines you can work directly from the outline and use this offset option to enter the necessary cover distance. You could also use this offset to move the start of the bar range half a bar diameter from the Range start point. The same prompt for offset, this time from the end, appears after the last point of the Range has been selected.
  - ▶ Pick end of Range:
  - ▶ Select the end of the Range.
  - ▶ Offset Last bar from end <0">:
  - ▶ If required, enter the distance to offset the end of the Range from the point selected.
    - Range Length 39'-3 17/64".
    - Center Spacing or <Number of Bars>: 12"
  - ▶ The selected length of the Range is displayed. If an angle has been set then both the true Range length and the projected Range length will be displayed.
  - ▶ You will now be given an option of entering the center spacing or else pressing Enter and typing in the number of bars required. However, if you have already set the Bar Centers in the *Draw Bar* dialog box this prompt will not appear.

Range options:

41 bars at < 1' > / Average c/c = 11 25/32" / Run out / Numeric :

- ▶ Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:
- ▶ This prompt shows the numbers of bars that can be placed at the centers previously entered. You have three options (A, R or N) that will variously affect either the Bar Label or the Bar Placement.
  - *Average*: if you type **A** then the Bar Label will display the actual centers.
  - *Numeric*: if you type **N** then the centers will not be shown on the Bar Label.
  - *Run Out*: if you type **R** then when you draw the bars in section they will be placed at 1' centers, with the last pair closer together.
  - If you simply press Enter at the prompt the Bar Label will show the appropriate number of bars at the selected distances (here, for example, 41 bars at 1' centers). This is the option you will select most of the time.

Set Number is 1.

Label bar <No>? or J to Justify:

- ▶ Enter either **Y** (yes) or **N** (no) to show whether or not you want to place the Bar Label.
- ▶ The default value for the Bar Label is for it to align to the start of the text (to the left). However, if you want it to align with the end of the text (right) then enter **J** to Justify.
- ▶ If you prefer, you can simply select a point on the screen without answering the question about placing the Bar Label. If you do this you will need to add a leader manually.

Pick point:

- ▶ Select the point on the screen where the label is to be placed. **RebarCAD** will automatically add a leader if the Bar Label is in alignment with the Range Line.

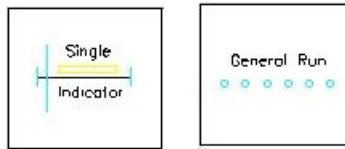
## 6.3 Hints & Tips - Disable Range Offset Prompts

You can disable the Range Offset prompt if required. Use the **RebarCAD** → Configuration → Configuration Center → Range Configuration menu selection and set the query *Prompt for Range Offsets* to *No*.

Using this same dialog box, you can set *Object Snaps* for the start and *Other Range Snaps*. Set the Start of Range Snap to *Near* and the Other Range Snaps to *Perp*.

Following this section there are brief explanations of each of the Single Group Ranges as well as examples of some typical applications. You can work through these to ensure you that you understand how to use these various features. Be aware that the example drawings do not have the offset prompt switched off.

### 6.3.1 Single Indicator Range







**Figure 6.3.1:1 Single and General Run selection buttons**

This Range shows a Single Bar View and one Range Group. The bars can be specified by center spacing or by the number in the Range. Use a General Run to represent this Range type when placing the bars in a section. This is one of the most commonly used Range types in all kinds of structure from flat slabs to retaining walls.

### 6.3.2 Single Indicator Range - Base - Adding U Bars as a Range and Adding Bars in Section

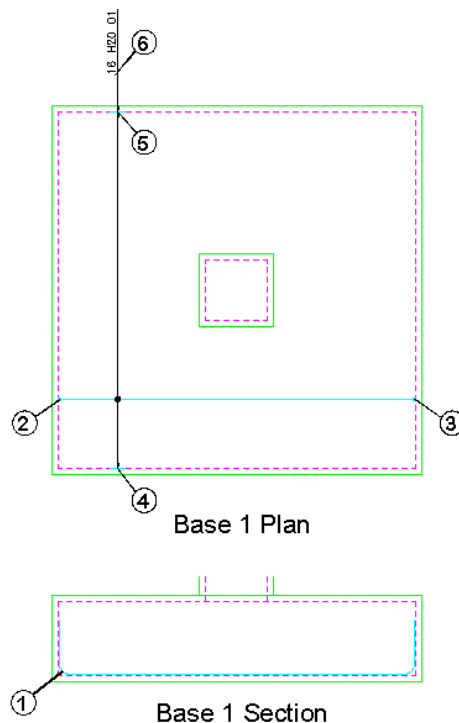
Figure 6.3.2:1 below shows the points specified in this example

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 13.dwg;
- ▶ Make the Viewport on *Base 1 Layout* active;
- ▶ Select RebarCAD → Draw Bar → Set Member or  ;
- ▶ Make Base 1 the current Member and select OK;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make 01 the current Drawing Sheet and select OK
- ▶ Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current;
- ▶ Zoom into the Base 1 Plan and Section;
- ▶ Add a Single Indicator Range to Base 1 Plan;
- ▶ Select RebarCAD → Draw Range → Add View or  ;
- ▶ *Pick Bar Set for New View:* Select the U Bar shown by point 1;
- ▶ Select the Single Indicator Range  ;
- ▶ In the Draw Bar dialog set the following:  
 Bar Centers 8", View Plan, Alignment Outer, Bar Style Center  
 Select OK

*Indicator Bar*


### Bend Type 17



- Plan View Outer start point:* Pick on the Cover Line at point 2
- Enter Outer Dimension C:* Pick on the Cover Line at point 3
- Start of Bar Range / Enter Slope / True Len / Line:* Select point 4 on the Cover Line
- Offset First bar from start <0"> :* Press Enter
- Pick end of Range:* Select point 5 on the Cover Line
- Offset Last bar from end <0"> :* Press Enter
- Range length 7'-6"*
- Range options :*
- 13 bars at <8"> / Average c/c = 7 ½" / Run out / Numeric :*
- Press ENTER to continue or (A)verage/(R)un Out/(N)umeric :* Press Enter
- Set Number is 1.*
- Label bar <No> ? or J to Justify:* Enter Y (Yes) and press Enter
- Pick point:* Select near point 6



#### 5.1.2:1 Adding Single Indicator Range to a Pad Base

Now Add the Bar Run in Base 2 Section

- ▶ Select **RebarCAD** → Draw Bar → Set Member or  ;
- ▶ Make *Base 2* the current Member and select OK;
- ▶ Zoom into the Base 2 Plan and Section;

- ▶ Select **RebarCAD** → Draw Range → Add View ;
- ▶ *Pick Bar Set for New View:* Select the Plan View of the U Bar, point 7;
- ▶ Select the *General Run* ;
- ▶ Select OK in the *Draw Bar* dialog  
 The Bar View is already set to Section; and the centers are set from drawing the Range in the Plan View;
- ▶ Start of Bar Range or ENTER to Select Bar Leg:  
 Press Enter to select the bar leg
  - If a point had been selected at this prompt, this would have shown the start of the Range. RebarCAD would then prompt for the end of the Range. It would then have shown the message about the Range being more than 5% different.
  - If you had selected the start and end of the Range and set the offset as the Bar Bending Radius the greater than 5% difference prompt would not have appeared.

Select Leg of Bar: Pick the U Bar in the section on the B leg as shown by point 8

Select Side of Line for Bars to be placed: Pick above the U Bar as shown by point 9

- ▶ The Range on the Plan was specified from cover to cover, a distance of 7' -6". The distance selected on the section by selecting leg B of the U Bar was 6' – 10". **RebarCAD** will therefore ask you if you want to continue as the variation in length is over 5%. This is a common method of detailing reinforcement and would be accepted.

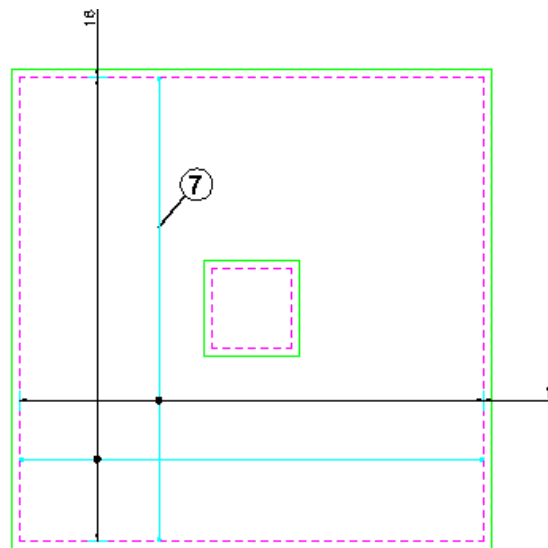
Are you sure you want to continue ? <No>:

Type Y and Press Enter to continue

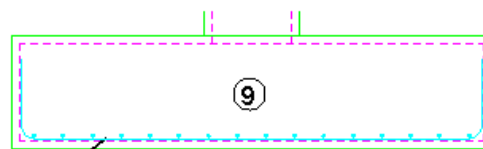
Range length 7'-6".

13 bars at 8" centers (7" clear.)

- ▶ The bars in section are now drawn along the C leg of the U Bar.  
 If you zoom in you will see that they are offset by half a bar diameter.



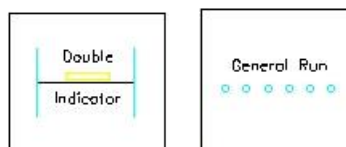
Base 2 Plan



Base 2 Section

**Figure 6.3.2:2 Adding a Run of Bars to the Pad Base Section**

### 6.3.3 Double Indicator Range






**Figure 6.3.3:1 Double Indicator and General Run selection buttons**

This Range shows a Bar View at the start end of the Range and one Range Group. The bars can be specified by Center Spacing or by the number in the Range. Use a General Run to represent this Range type when placing the bars in a section. This is most commonly used to indicate stirrups in a Beam Elevation.



## Try It! Double Indicator Range - Beam - Adding Stirrups

Figure 6.3.4:1 below shows the points specified in this example

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 13.dwg
- ▶ Make the Viewport on *Beam 1 Layout* active;
- ▶ Select RebarCAD → Draw Bar → Set Member or  ;
- ▶ Make *Beam 1* the current Member and select OK;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make *02* the current Drawing Sheet;
- ▶ Select RebarCAD → Draw Range → Add View or  ;

Now add a Double Indicator Range to the Beam elevation

For *Pick Bar Set for New View*: Select the Stirrup as shown by point 1



Select the Double Indicator Range

In the *Draw Bar* dialog set the following:

*Bar Centers 8"*, View **Left**, Alignment **Outer**,  
 Bar Style - **Center**  
 Select OK

*First Indicator Bar*

*Bend Type T1*

*Left view Outer start point:*

Select the Intersection at point 2

*Enter Outer Dimension C:*

Select the Intersection at point 3

*Second indicator bar, start point:*

Select the Intersection at point 4

*Pick Position of Range Line / Enter Slope / True Len / Line:*

Pick on the construction line at point 5

*Range length 17'-16"*.

*Range options :*

*28 bars at < 8" > / Average c/c = 7 25/32" / Run out / Numeric :*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:*

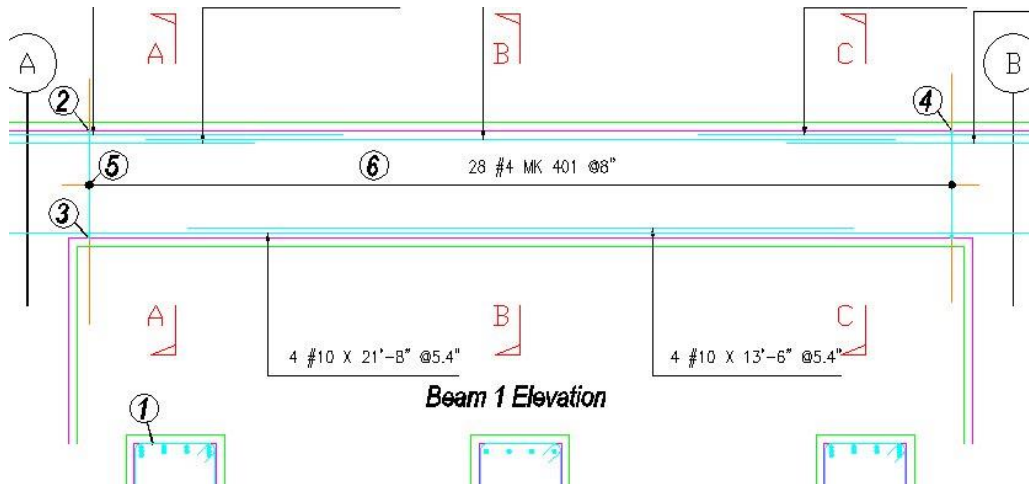
Press enter to accept

*Set Number is 17. Label bar <No> ? or J to Justify:*

Type **Y** and press enter

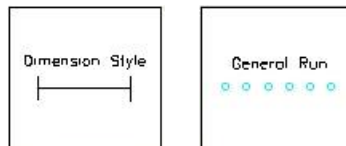
*Pick point:*

Pick near point 6 to position the Bar Label



**Figure 5.1.4:1 Adding a Double Indicator Range to the Beam Elevation**

### 6.3.4 Dimension Style Range





**Figure 6.3.5:1 Dimension Style Range and General Run selection buttons**



This Range type does not show a linked Bar View and only the Range line is drawn to show the extents of the Range Group. The bars can be specified by center spacing or by the number in the Range. Use a General Run to represent this Range type when placing the bars in a section. This is most commonly used to indicate the extents of the stirrups inside a beam where the Range line is placed externally.



#### **Try It! Dimension Style – Beam External Range Line**

Figure 6.3.6:1 below shows the points specified in this example

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 13.dwg;
- ▶ Make the Viewport on Beam 2 Layout active;
- ▶ Select RebarCAD → Draw Bar → Set Member or  ;
- ▶ Make Beam 2 the current Member and select OK;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;

- ▶ Make 03 the current Drawing Sheet;
- ▶ Now add a Dimension Style Range to the Beam Elevation;
- ▶ Select RebarCAD → Draw Range → Add View or ;
- ▶ Pick Bar Set for New View: Select the Stirrup as shown by point 1;
- ▶ Select the Dimension Style Range ;
- ▶ As no Bar View is being drawn select OK in the Draw Bar dialog as there is no need to change anything;

Start of Bar Range / Enter Slope / True Len / Line: Select the Intersection shown by point 2

Offset First bar from start <0">: Press Enter

Pick end of Range: Select the Intersection shown by point 3

Offset Last bar from end <0">: Press Enter

Pick Position of Range Line: Select the Intersection shown by point 4

Center spacing or <Number of bars>: Type in 8

Range options:

28 bars at <8"> / Average c/c = 7 25/32" / Run out / Numeric:

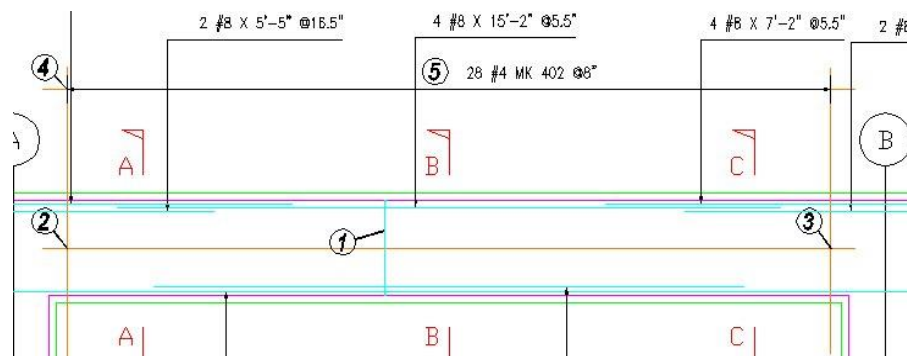
Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter

Range length 17'-6"

Set Number is 9

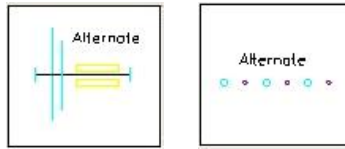
Label bar <No>? or J to Justify: Type Y and press Enter.

Pick point: Pick near to point 5 to position the Bar Label



**Figure 6.3.6:1 Adding a Dimension Style Range to the Beam Elevation**

### 6.3.5 Alternate Range



**Figure 5.1.7:1 Alternate Range selection buttons**

This Range shows two Bar Views that have different Bar Marks within one Range Group. The bars can be specified by center spacing or by the number in the Range. Use an Alternate Run to represent this Range type when placing the bars in a section. This type of Range is most commonly used in flat slabs.



#### **Try It! Alternate Range – Slab**

Figure 6.3.5:1 below shows the points specified in this example

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 13.dwg;
- ▶ Make the Viewport on *Slab 1 Layout* active;
- ▶ Select RebarCAD → Draw Bar → Set Member or  ;
- ▶ Make *Slab 1* the current Member and select OK;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make *04* the current Drawing Sheet;
- ▶ Adding an Alternate Range to the Slab 1 Plan;
- ▶ Select RebarCAD → Draw Range → New Mark or  ;
- ▶ Select the Alternate Range  ;
- ▶ For the first Alternate Bar select: *Bend Type 17, Grade A615/60, Size # 5, View Plan, Alignment Outer, Style Center*  
 Pick the First Bar button  
 Set Legs B and D to **1'** and select OK twice.  
*First Indicator Bar. Bend Type 17. Plan View Outer start point:* Select the Intersection shown by point 1  
*Enter Outer Dimension C:* Select the Intersection shown by point 2  
 For the Second Alternate Bar select: *Bend Type 0, Grade A615/60, Size # 7, View Plan, Alignment Outer, Style Center*  
 Select OK

## Second Indicator Bar

### Bend Type 0

Plan View Outer start point:

Select the Intersection shown by point 3

Enter Outer Dimension B:

Select the Intersection shown by point 4

### ► Setting Start Snap(s) Near;

Start of Bar Range / Enter Slope / True Len / Line:

Pick on the Cover Line as shown by point 5

Offset First bar from start <0"> :

Press Enter

Setting Other Snap(s) Perp.

Pick end of Range:

Pick on the Cover Line as shown by point 6

Offset Last bar from end <0"> :

Press Enter

Range Length 24'-8".

Center Spacing or <Number of bars>:

Type **10"** and press Enter

Range options:

31 bars at < 10" > / Average c/c = 9 55/64" / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to accept.

Set Number is 21. Label bar <No> ? or J to Justify:

Type **Y** and press Enter to place the Bar Label for the First Alternate Bar

Pick point:

Pick to the right of slab as shown by point 7

Set Number is 22.

Label bar <No> ? or J to Justify:

Type **Y** and press Enter.

You may like to try the Bar Label alignment tool built-in to the Alternate Range

Pick Bar Label Location:  
Label.

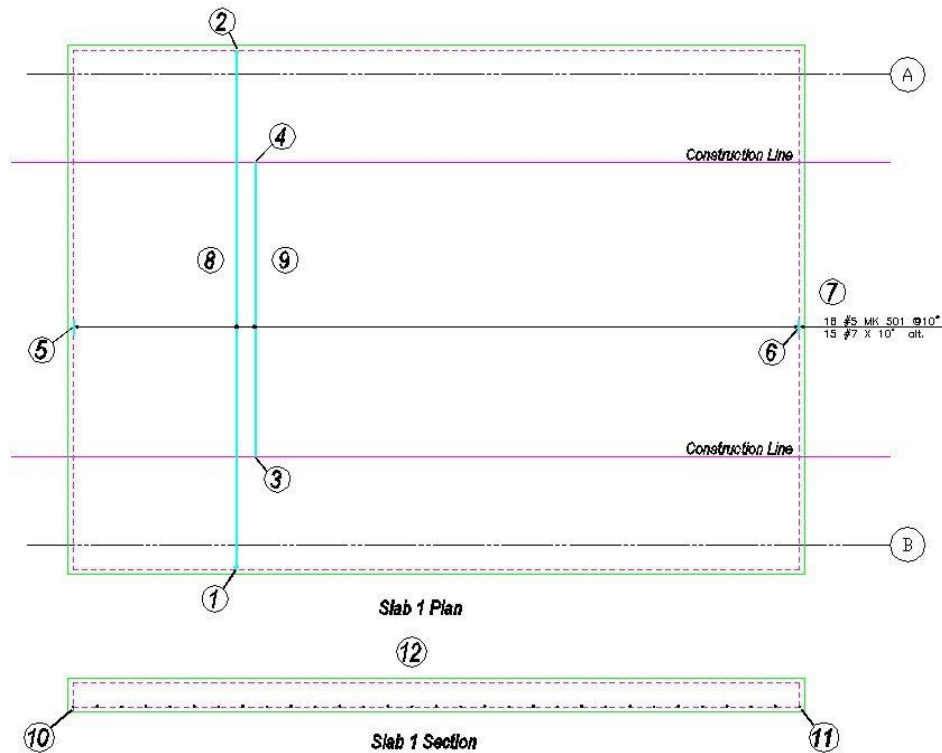
Pick directly on top of the first Alternate Bar

Rotation angle:

Pick to the right to set the angle to 0 degrees.



Pick Side of Label:

Pick below the leader to place the second Alternate Bar Label



**Figure 6.3.5:1 Adding an Alternate Range to a Floor Slab**

#### Adding the Alternate Bar Run to the Slab 1 Section

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ *Pick Bar Set for New View:* Select the U Bar as shown by point 8
- ▶ Select the Alternate Bar Run 
  - Existing Range of this bar - will calculate centers to existing length*
- ▶ *Pick Bar Set for Alternate New View:* Select the Straight Bar as shown by point 9
  - First Bar
  - Bend Type 17
  - Second Bar
  - Bend Type 0.
- Start of Bar Range or ENTER to select bar leg: Select the Intersection shown by point 10
- Offset First bar from start <0">: Press Enter
- Pick end of Range:* Select the Intersection shown by point 11
- Offset Last bar from end <0">: Press Enter
- Select side of line for bars to be placed:* Pick above the Cover Line as shown by point 12

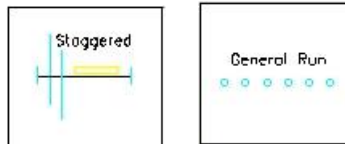
Range Length 24'-8"

Set Number is 21

Set Number is 22

- ▶ The bars in section are now drawn on the Cover Line. Zoom in and you will see the variation in bar diameter between the first and second Alternate Bars.

### 6.3.6 Staggered Range







**Figure 5.1.9:1 Staggered Range selection buttons**

This Range shows two Bar Views of the same Bar Mark and one Range Group. The bars can either be shown as a staggered offset or alternate reversed. The bars can be specified by center spacing or by the number in the Range. Use a General Run to represent this Range type when placing the bars in a section. This format is most commonly used in flat slabs or anywhere the Bar Laps need to be staggered in the structure



#### **Try It! Staggered Range – Slab**

Figure 6.3.6:1 below shows the points specified in this example

- ▶ Launch **RebarCAD**
  - ▶ Open drawing ...\\drawings\\ **RebarCAD** 13.dwg
  - ▶ Make the Viewport on *Slab 2 Layout* active
  - ▶ Select **RebarCAD** → Draw Bar → Set Member or 
  - ▶ Make *Slab 2* it the current Member and select OK
  - ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
  - ▶ Make *05* the current Drawing Sheet
  - ▶ Add a Staggered Range to the Base 2 Plan (bars reversed)
  - ▶ Select **RebarCAD** → Draw Range → New Mark or 
  - ▶ Select the Staggered Range 
  - ▶ In the Draw Bar dialog select: BendType **0**, Grade **A615/60**, Size#**5** Centers **10"**, View **Side**, Alignment **Outer**, Style **Center**
- Select the First Bar button. Select OK

*First Indicator Bar*

*Bend Type 0*

*Side View Outer start point:* Select the Intersection shown by point 1

*Enter Outer Dimension C:* Select the Intersection shown by point 2

*Reverse bar (Yes/No) <No>?* Press Enter

*Enter offset (stagger) to start of second indicator bar:* Select the Intersection shown by point 3

*Specify second point:* Select the Intersection shown by point 4

*Setting Start Snap(s) Near.*

*Start of Bar Range / Enter Slope / True Len / Line:* Select the Intersection shown by point 5

*Offset First bar from start <0">:* Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Select the Intersection shown by point 6

*Offset Last bar from end <0">:* Press Enter

*Range length 24'-8".*

*Range options:*

*31 bars at <10" > / Average c/c = 9 55/64" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to accept.


*Indicate position of second bar:* Select close to point 7

*Set Number is 23.*

*Label bar <No> ? or J to Justify:* Type **Y** and press Enter

*Pick point:* Pick near to point 8 to position the Bar Label

## Add the Bar Run to the Slab 2 Section

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ *Pick Bar Set for New View:* Select the Bar View as shown by point 9

- ▶ Select the *General Run* 

*Existing Range of this bar - will calculate centers to existing length*

*Bend Type 0*

*Start of Bar Range or ENTER to select bar leg:*

Select the Intersection shown by point 10

*Pick end of Range:*

Select the Intersection shown by point 11

*Select side of line for bars to be placed:*

Select above the Cover Line, point 12

*Range length 24'-8".*

*31 bars at 10" centers ( 9 1/4" clear).*

*Set Number is 23*

The bars in section are drawn along the section Cover Line.

**Note:** you can offset the bars from each other and you would normally use this option for Straight Bars.






This Range shows a Single Bar View attached to a *Radial Range Group*. The bars can be specified by center spacing either on the inner or outer Cover Line or the position of the Range Line or by the number of bars in the Range. Use the *Run to Path* to represent this Range type when placing the bars in a section. This Range is most commonly used to detail circular tank bottoms or sump tanks with sloping sides.



## Try It! Radial Range – Circular Sump Tank

Figure 6.3.7:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 14.dwg
- ▶ Make the Viewport on *Sump Tank 1 Layout* active
- ▶ This drawing has already had construction lines added to make placing the bars easier. The Hints & Tips sections after this example explain how to produce the construction lines.
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Sump Tank 1* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *01* the current Drawing Sheet
- ▶ Adding a crank bar to the Sump Tank Section
- ▶ Select **RebarCAD** → Draw Bar → New Mark or 
- ▶ In the Draw Bar dialog select: Bend Type **4c**, Grade **A615/60**, Size **# 5**, Centers **9"**, View **Side**, Alignment **Center**, Style **Center** and select OK

*Bend Type 4c*

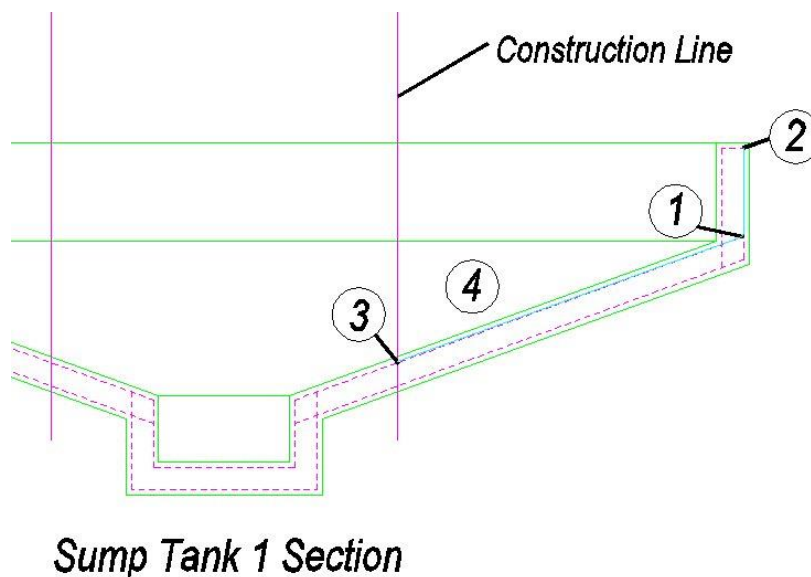
*Side View Center start point:* Select the Intersection shown by point 1

*Enter Center Dimension B:* Select the Intersection shown by point 2

*Enter Center Dimension C:* Select the Intersection shown by point 3



*Set Number is 2*

*Label bar <No> ? or J to Justify:* Press Enter to accept



**Figure 6.3.7:1 Adding Bend Type 4c to a Section through a sump tank**

## Adding a Radial Range of Sloping Bars to the Sump Tank 1 Plan

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ Select the *Radial Range* 
- ▶ *Pick Bar Set for New View:* Select the Bar View as shown by point 4
- ▶ Figure 5.1.12:2 below shows the immediately following points in this example.
- ▶ *Pick Setting Out point (SOP):* Pick the center of the circle as marked by point 5
- ▶ In the *Draw Bar* dialog, set the View to **Left** and select OK

*Indicator Bar*

*Bend Type 4c.*

*Left View Center start point:* Select the Intersection marked by point 6

*Enter Center Dimension H:* Select the Intersection marked by point 7

*Pick position of First Range Mark:* Select position 8 on the blue line

*Pick position of last Range Mark or Angle:* Select position 8 on the magenta line

*Pick position of dimension line <None>:* Press Enter to accept

If you pick a position at this point a dimension will be added to the Range showing the radius of the Range measurement position.

**Note:** this dimension cannot be deleted separately from the Range line. You may prefer to add the dimension in later if required.

- ▶ Range Measurement Position: Inner/Outer/<Range Line>: Type **O** (Outer)

The centers of the bars can be measured from these three locations:

- *Inner* – Bar end nearest to the center of the circle;
- *Outer* – Bar end that is furthest from the center of the circle;
- *Range Line* – Position where the Range Line has been located.

In this example we want to maintain a maximum of 9" centers on the outer edge. Using the construction lines previously marked on the drawing we have already graphically calculated the minimum centers at 3".

*Range length 98'-8 53/64"*

*Range options: 133 bars at < 9" > / Average c/c = 8 31/32" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to accept

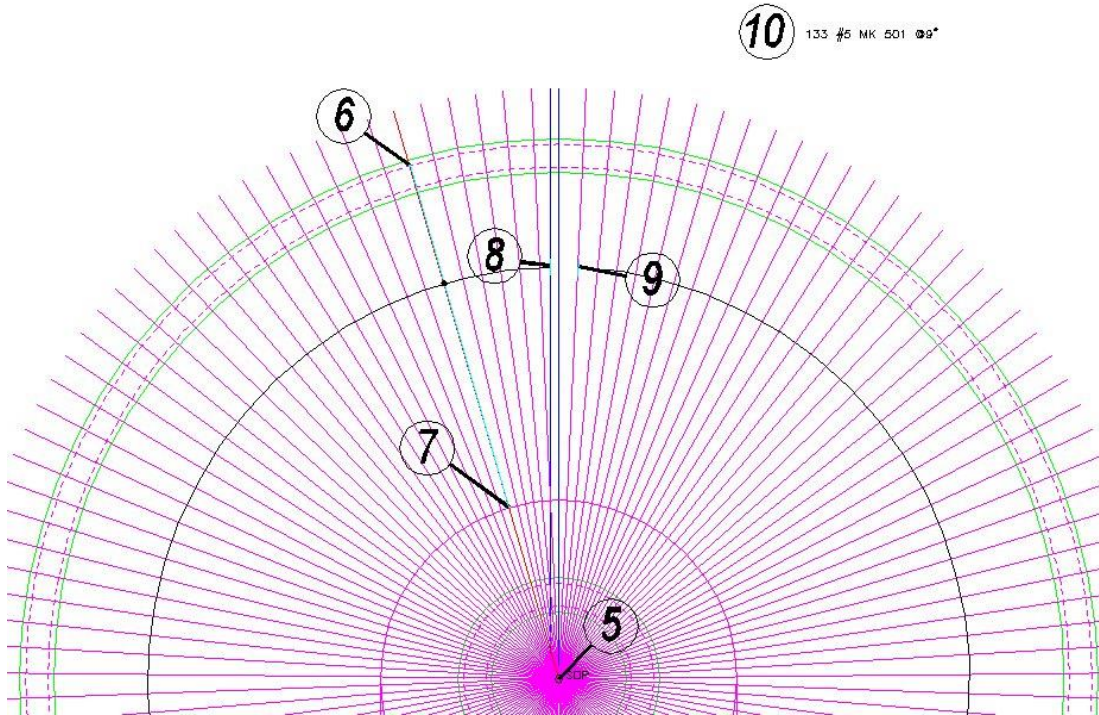
*Set Number is 1.*

*Label bar <No>? or J to Justify:* Type **Y** and press Enter

*Pick Bar Label location:* Select the position shown by point 10

*Rotation Angle:* Select to the right to indicate 0 degrees

- ▶ Switch off the construction layer to get a better view of the detail



**Figure 6.3.7:2 Adding a Radial Range to the Plan View of a Sump Tank**



#### Hints & Tips - Adding Radial Range Construction Lines

In the example above construction lines had already been added where you placed radial bars on the sump tank, thus helping to calculate the number of bars and their lengths.

However, you can do the following to add construction lines yourself:

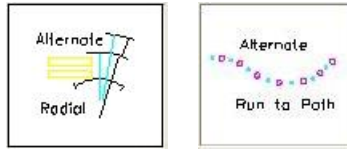
- ▶ Use *List* to find the circumference of the outer Cover Line;
- ▶ Divide the circumference by the maximum centers on the Outer Face and round up the result. (In the circular sump tank shown in example 5.1.12 above the circumference was 1194" and dividing this by maximum centers of 9" gives 133 bars when rounded up.);
- ▶ Then use a Polar Array to draw a construction line for every bar. Change the color of the top vertical line to make it easy to see and offset it by the minimum centers, in this case 3";
- ▶ The length of the Radial Bar is shown where the offset line crosses the next construction line. This can then be projected down into the section.



#### Hints & Tips – Radial Range Detailer

Rather than working out the bar patterning for a Radial Range you may prefer to use the Radial Bar Detailer. You can find this at RebarCAD → Tools → Range Tools

### 6.3.8 Alternate Radial Range






**Figure 6.3.8:1 Alternate Radial Range selection buttons**

This Range shows two Bar Views that have different Bar Marks attached to a *Radial Range Group*. The bars can be specified by center spacing either on the inner or outer Cover Line or by the position of the Range Line or by the number of bars in the Range. Use the *Alternate Run to Path* to represent this Range type when placing the bars in a section. This option is most commonly used to detail circular tank bottoms or the likes of sump tanks with sloping sides.



#### **Try It! Alternate Radial Range – Circular Sump Tank**

- ▶ Figure 6.3.8:1 below shows the points specified in this example;
- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 14.dwg;
- ▶ Make the Viewport on *Sump Tank 2 Layout* active;
- ▶ This drawing has already had construction lines added to make placing the bars easier. The Hints & Tips section above explains how to produce the construction lines yourself;
- ▶ Select **RebarCAD** → Draw Bar → Set Member or  ;
- ▶ Make *Sump Tank 2* the current Member and select OK;
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make *02* the current Drawing Sheet;
- ▶ Add the both Crank bars to the Sump Tank 2 Section;
- ▶ Select **RebarCAD** → Draw Bar → New Mark or  ;

In the Draw Bar dialog select Bend Type 4c, Grade A615/60, Size # 5, Centers 9", View Side, Alignment Center, Style Center and select OK

*Bend Type 4c*

*Side View Center start point:* Select the Intersection shown by point 1

*Enter Center Dimension B:* Select the Intersection shown by point 2

*Enter Center Dimension C:* Select the Intersection shown by point 3

*Set Number is 9.*

*Label bar <No>? or J to Justify:* Press Enter to accept

- ▶ Select RebarCAD → Draw Bar → New Mark or  ;

- ▶ In the Draw Bar dialog select: Bend Type **4c**, Grade **A615/60**, Size **# 5**, Centers **9"**, View **Side**, Alignment **Center**, Style **Center** and select OK

*Bend Type 4c*

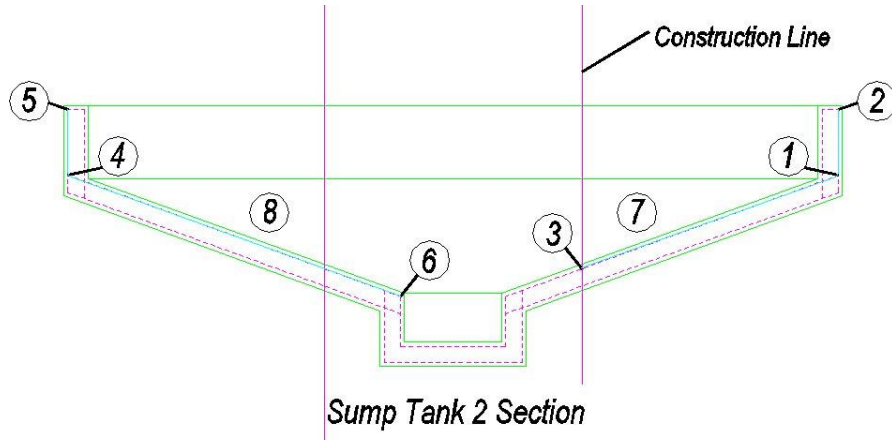
*Side View Center start point:* Select the Intersection shown by point 4

*Enter Center Dimension B:* Select the Intersection shown by point 5

*Enter Center Dimension C:* Select the Intersection shown by point 6



*Set Number is 10.*

*Label bar <No>? or J to Justify:* Press Enter to accept



**Figure 6.3.8:1 Adding two Bend Type 4c's as different Bar Marks**

#### **Add the Alternate Range to Sump Tank 2 Plan**

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ Select the Alternate Radial Range 
- ▶ *Pick Bar Set for New View:* Select the Bar View as shown by point 7
- ▶ *Pick Bar Set for Alternate New View:* Select the Bar View as shown by point 8
- ▶ Figure 5.1.14:2 below shows where to pick the following points to place the bar:
- ▶ *Pick Setting Out point (SOP):* Select the center of the circle, point 9
- ▶ In the Draw Bar dialog, set the View to **Left** and select OK

*First Indicator Bar*

*Bend Type 4c*

*Left view Center start point:* Select the Intersection shown by point 10

*Enter Center Dimension H:* Select the Intersection shown by point 11

In the Draw Bar dialog, set the View to **Left** and select OK

*Second Indicator Bar*

*Bend Type 4c*

*Left View Center start point:* Select the Intersection shown by point 12

*Enter Center Dimension H:* Select the Intersection shown by point 13

*Pick position of first Range Mark:* Select position 14 on the blue line

*Pick position of last Range Mark or Angle:* Select position 15 on the magenta line

*Pick position of dimension line <None>:* Press Enter to accept

*Pick position of alternate dimension line <None>:* Press Enter to accept

*Range measurement position Inner/Outer/<Range Line>:* Type in 'O' and press Enter

*Range length 98'-8 53/64"*

*Range options: 133 bars at < 9" > / Average c/c = 8 31/32" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to accept

*Set Number is 9*

*Label bar <No>? or J to Justify:* Type **Y** and press Enter

*Pick Bar Label location:* Select the position shown by point 16

*Rotation angle:* Pick to the right

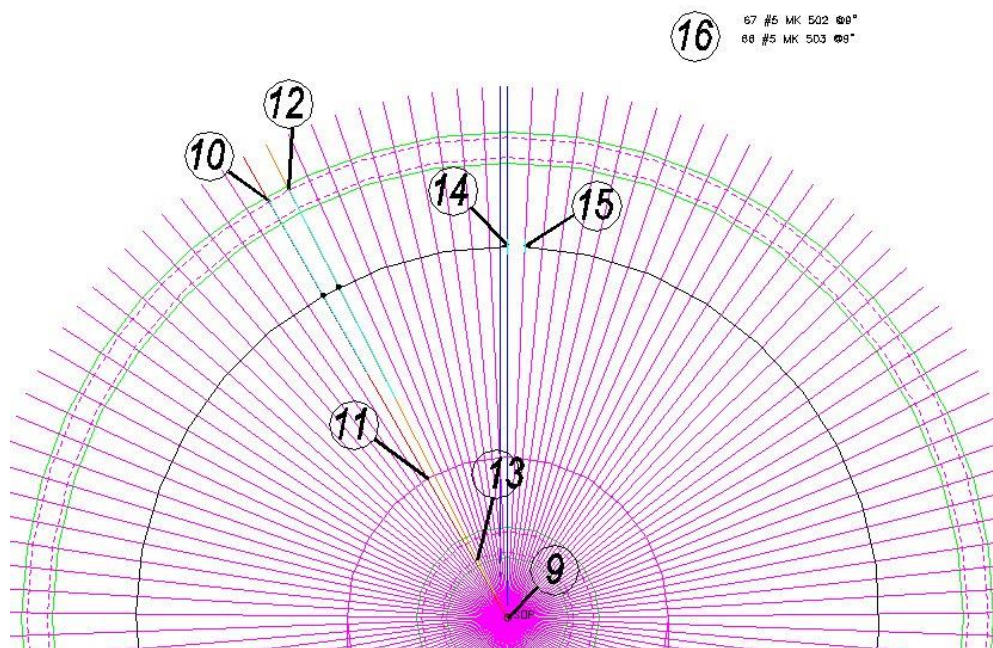
*Set Number is 10*

*Label bar <No>? or J to Justify:* Type **Y** and press Enter

*Pick Bar Label location:* Select the position shown by point 16 on the Bar Label you have just placed

*Rotation angle:* Press Enter for 0 degrees

- Switch off the construction layer to get a better view of the detail;



**Figure 6.3.8:2 Adding an Alternate Radial Range to the Plan View of a Sump**

## 6.4 Multiple Group Ranges with either Fixed or Multiple Centers

All these Ranges types typically show one or two Bar Views with one or more Range Groups.

The text below takes you through typical input for the Single Group Ranges. It explains all the sub-options and their consequences. Prompts and other screen displays are shown in *italic* and values that you might enter are shown in *bold italic*. As usual, commands are often – though not always – shown in bold roman, but sometimes in *italic*. Comments and explanations about what's happening or what you should do are set off with bullets and indented, as with the immediately following paragraph.

- ▶ Normally you would select the **Draw Range** command and either *New Mark, Add View* or *New Set*. The Range type is then selected from the *Range* dialog. Next the *Draw Bar* dialog loads where the Bend Type, Bar Type and size, the Bar View, Style and Alignment are selected.
- ▶ The typical Bar View is drawn first and then extents of the Range are selected.

Pick 'Range Line' for data or enter to <continue>:

- ▶ If another Range line exists which you would like to duplicate, select it and select the insertion point and rotation angle of the new Range. Press Enter to continue to select the Range start and end points.

Pick the start point of the first group:

- ▶ Select a point on screen for the start point of the Range.
- ▶ Offset First bar from start <0">:
- ▶ After you've selected the start of the Range, a prompt to *Offset First Bar from Start* is shown. If you enter a distance here it will move the start of the Range appropriately from the point selected. Consequently if you do not show Cover Lines you could work directly off the outline and use the offset to enter the cover distance. A similar prompt for *offset* will appear after the last point of the Range has been selected.

Pick end of Range:

- ▶ Select the end of the Range.

Offset Last bar from end <0">:

- ▶ If you need to offset the end of the Range from the point selected then enter a suitable value in response to this prompt.

Enter Slope / True Len / Line / or enter to proceed <Enter>:

- ▶ If *Slope* is selected, enter the angle of the slope of the Range. The distance selected for the Range should be the projected length - the system will work out the true length and the correct number of bars.
- ▶ If *True Length* is selected then enter the true length of the Range numerical, the points selected on the screen indicating the projected length of the Range.

- ▶ If *Line* is selected then select an *AutoCAD* line on the screen that is the length of the Range Line - the points selected for the start and the end of the Range will indicate the projected length.
- ▶ If no slope is required press Enter to continue

Cumulative distance <18'-1 15/16"> Group distance <18'-1 15/16">

Range length 18'-1 15/16".

Center spacing or <Number of bars>: **12**

- ▶ The selected length of the Range is displayed. If an angle had been set the true Range length would be shown as well as projected Range length.
- ▶ Next you have an option to enter the center spacing for the bars or to press Enter and type in the number of bars.

Range options:

20 bars at < 1' > / Average c/c = 11 15/32" / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:

- ▶ This prompt shows the numbers of bars that can be placed at the centers previously entered. You have three options (*A*, *R* or *N*) that will variously affect either the Bar Label or the Bar Placement.
  - Average: if you type **A** then the Bar Label will display the actual centers.
  - Numeric: if you type **N** then the centers will not be shown on the Bar Label.
  - Run Out: if you type **R** then when you draw the bars in section they will be placed at 1' centers, with the last pair closer together.
  - If you simply press Enter at the prompt the Bar Label will show 20 bars at 1' centers. This is the option you will select most of the time.

Pick or enter the start point of the next group or <Finish>:

- ▶ At this point either select the start point of the next Range Group or press Enter to finish the function.

Offset First bar from start <0">:

Pick end of Range:

Offset Last bar from end <0">:

Enter Slope / True Len / Line / or enter to proceed <Enter>:

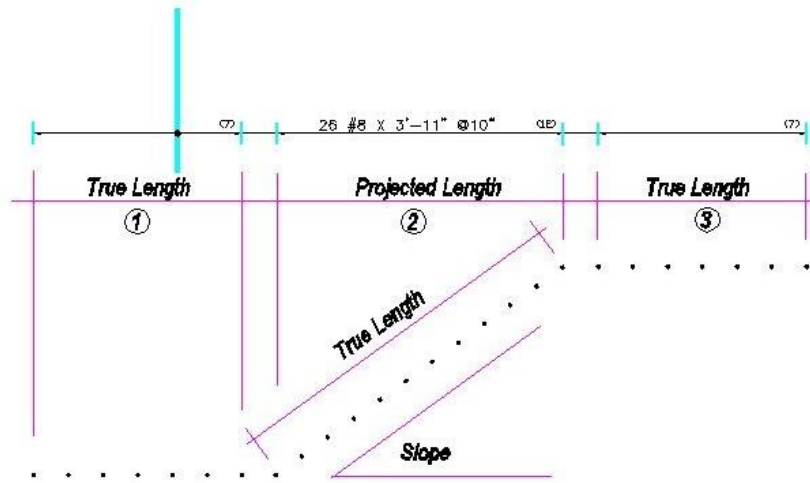
Cumulative distance <47'-8 19/32"> Group distance <23'-11 9/32">

Pick or enter the start point of the next group or <Finish>:

- ▶ A second group has been added to the Range and at this point *Finish* has been selected.
- ▶ If the Range type had been a Multiple Pitch type then the prompt for the center spacing or number of bars would appear for every Range Group.

Enter the Group Number to be drawn True Length on Range <1>:

- ▶ The figure below illustrates the distribution steel on a staircase and should help to explain the *True Length* prompt. In Section View Ranges 1 and 3 are drawn horizontally but Range 2 is drawn at an angle. When drawing the Plan View of the distribution steel, Groups 1 and 3 should be drawn to the true length but Group 2 should be drawn to the projected length. Hence in answer to the question above you should enter either **1** or **3**, these being the Groups that are drawn to the true length.



**Figure 6.4:1 Section View of distribution steel on a staircase**

Set Number is 2.

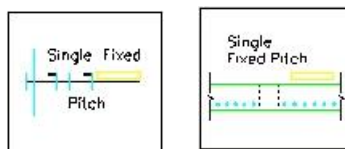
Label Bar <No>? or J to Justify:

- ▶ You can set the Bar Labels to align to either the start of the text (left) or the end of the text (right) by typing **J** to *Justify*. The default is left aligned.
- ▶ Enter either **Y** (yes) or **N** (no) to show whether or not you want to place the Bar Label.
- ▶ If you prefer, you can simply pick a point on the screen without answering the question about placing the Bar Label. If you do this you will need to add a leader manually.

Pick point:

- ▶ Pick the point on the screen where the label is to be placed. **RebarCAD** will automatically add a leader if the Bar Label is in alignment with the Range line.

### 6.4.1 Single Fixed Pitch Range







**Figure 6.4.1:1 Single Fixed Pitch Range selection buttons**

This Range shows a Single Bar View and one or more Range Groups that have the same centers throughout. The bars can be specified by center spacing or by the number in the Range. Once drawn the number of bars in each Range Group is clearly shown on the Range line. Use a Single Fixed Pitch Run to represent this Range type when placing the bars in a section. This form is most commonly used where holes or beam strips have been introduced into a structure and standard centers maintained on either side. This Range will also support changes of angle and could be used to define the distribution steel in a staircase.



## Try It! Single Fixed Pitch – Slab

Figure 6.4.1:1 below shows where to select the points to place the bar

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 15.dwg**
- ▶ Make the Viewport on *Slab 1 Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Slab 1* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *01* the current Drawing Sheet
- ▶ Add a Single Fixed Pitch Range to the Base 1 Plan
- ▶ Select **RebarCAD** → Draw Range → New Mark or 
- ▶ Select the Single Fixed Pitch 
- ▶ In the Draw Bar dialog select: Bend Type **0**, Grade **A615/60**, Size **# 5**, View **Side**, Alignment **Outer**, Style **Center** Select OK

*Indicator Bar*

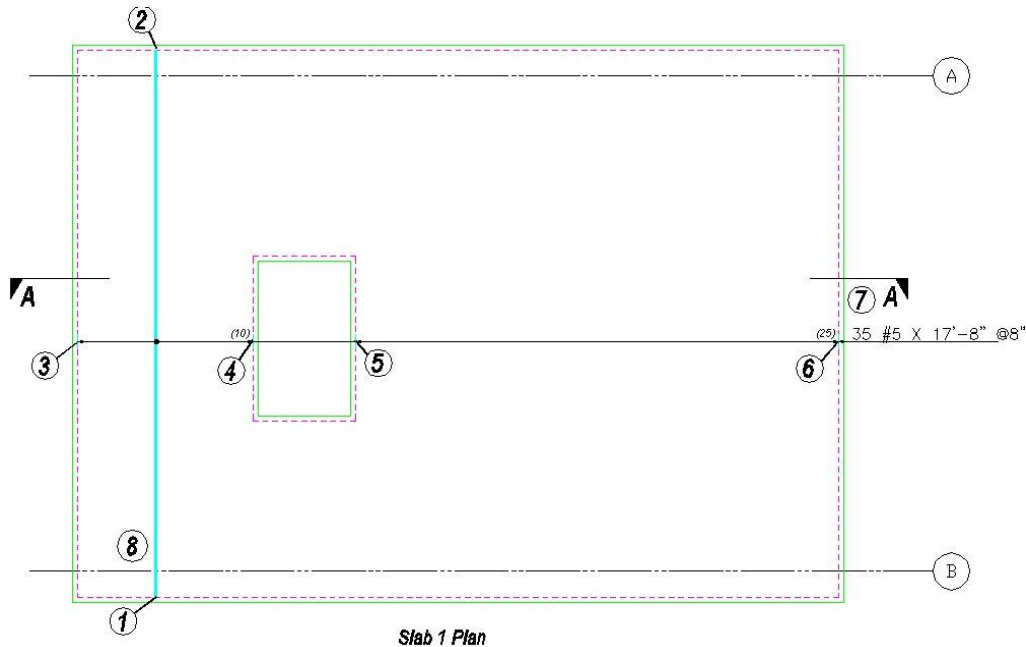
*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2

*Pick 'Range Line' for data or enter to <continue>:* Press Enter to continue

If another Range Line has already been drawn with the same layout as you need then you can select it and **RebarCAD** will apply its length properties to the current Range.



**Figure 6.4.1:1 Adding a Single Fixed Pitch Range to a Floor Slab**

► **Setting Start Snap(s) Near.**

*Pick the start point of the First Group:* Pick on the Cover Line as shown by point 3

Offset First bar from start <0">: Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 4

Offset Last bar from end <0">: Press Enter

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to proceed

*Cumulative distance <5'-8"> Group distance <5'-8">*

*Range length 5'-8"*

*Center spacing or <Number of bars>:* Type in **8** and press Enter

*Range options: 10 bars at <8"> / Average c/c = 7 9/16" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>:* Pick on the Cover Line at point 5 as shown

Offset First bar from start <0">: Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line at point 6 as shown

Offset Last bar from end <0">: Press Enter

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to continue

*Cumulative distance <24'-8"> Group distance <15'-8">*

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>: Press Enter to finish*

*Enter the Group Number to be drawn True Length on Range <1>: Press Enter to accept Range 1*

*Set Number is 8.*

*Label bar <No>? or J to Justify: Type Y and press Enter*

*Pick point: Position Bar Label as marked by point 7*

## Add a Single Fixed Pitch Bar Run to the Base 1 Section

▶ Select RebarCAD → Draw Range → Add View or 

▶ *Pick Bar Set for New View:* Select the Bar View on the plan, point 8

▶ Select the Alternate Radial Range 

▶ *Pick Bar Set for New View:* Select the Bar View on the plan, point 8

Figure 6.4.1:2 below shows where to select the remaining points to place the bar:

*Select OK to close the Draw Bar dialog.*

The view is already set to section

*Existing Range of this bar - will calculate centers to existing length*

*Bend Type 0*

*Pick start point <Normal Input>: Pick on the Intersection shown as point 9.*

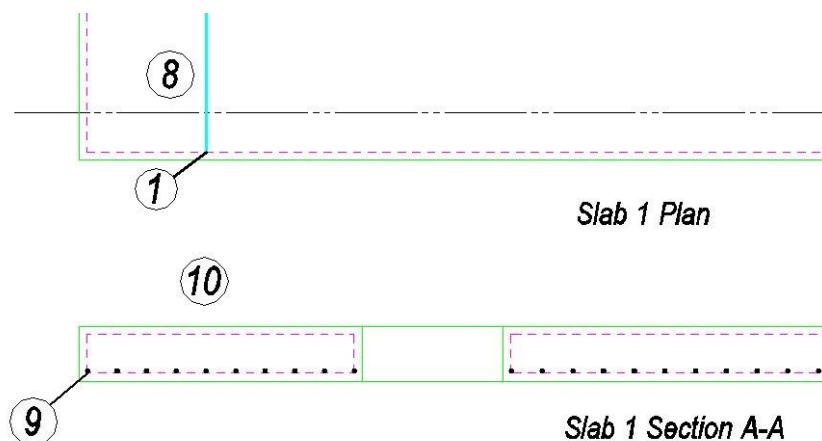
*Rotation <Original>: Press Enter to Set Rotation at 0 degrees, or Pick to the right to set the direction.*

*Select side of line for bars to be placed:*

*Pick above the section as shown by point 10*

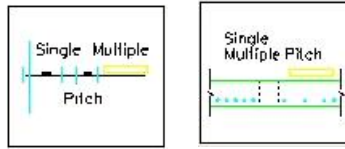
*Set Number is 8.*

Note that the bar run automatically lines up with the slab opening.



**Figure 5.2.2:2 Adding a Single Fixed Pitch Run of Bars in Section to the Slab Section**

## 6.4.2 Single Multiple Fixed Pitch Range





**Figure 6.4.2:1 Single Multiple Fixed Pitch Range selection buttons**

This Range shows a Single Bar View and one or more Range Groups that can have different centers for each Group. The bars can be specified by center spacing or by the number in the Range. Once drawn the number of bars and the center spacing in each Range Group is clearly shown on the Range Line. Use a Single Multiple Pitch Run to represent this Range type when placing the bars in a section. This format is most commonly used where shear strips need to be introduced in beams and slabs. This Range will also support changes of angle.





### **Try It! Single Multiple Pitch – Beam**

Figure 6.4.2:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 15.dwg
- ▶ Make the Viewport on Beam 1 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Beam 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet

### **Add a Single Multiple Pitch Range to the Beam 1 Elevation**

- ▶ Select **RebarCAD** → Draw Range → Add View or 
- ▶ Select the Single Multiple Pitch Range 
- ▶ *Pick Bar Set for New View:* Pick the link on the Section A-A as shown by point 1

In the *Draw Bar* dialog change the view to *Left* and select OK

*Indicator Bar*

*Bend Type T1*

*Left view Outer start point:* Pick on Cover Line as shown by point 2

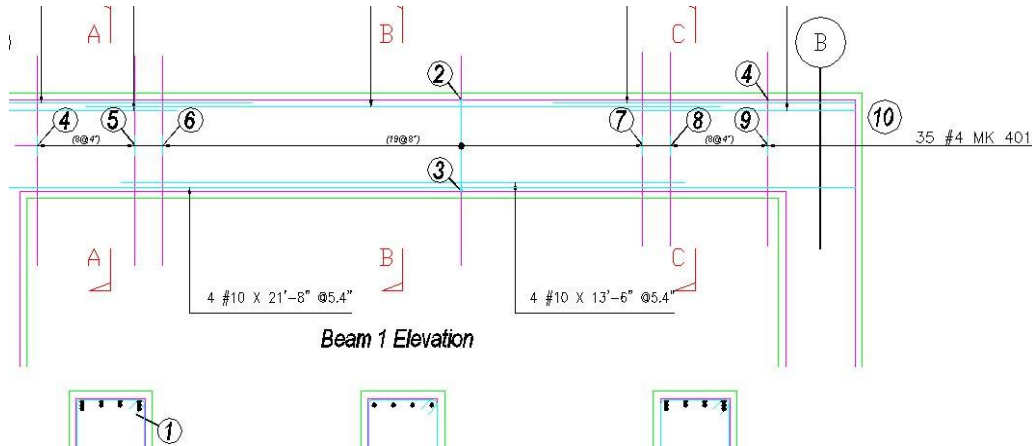
*Enter Outer Dimension C:* Pick on Cover Line as shown by point 3

*Pick 'Range Line' for data or enter to <continue>:* Press enter to continue

*Setting Start Snap(s) Near.*

*Pick the start point of the first group:* Pick on Cover Line as shown by point 4

Offset First bar from start <0">: Press enter



**Figure 5.2.4:1 Adding a Single Multiple Pitch Range to a Beam Elevation**

Setting Other Snap(s) Perp.

Pick end of Range: Pick on Cover Line as shown by point 5

Offset Last bar from end <0">: Press enter

Enter Slope / True Len / Line / or enter to proceed <Enter>: Press enter to continue

Cumulative distance <2'-4"> Group distance <2'-4">

Range length 2'-4"

Center spacing or <Number of bars>: Type in **4** and press Enter

Range options: 8 bars at <4"> / Average c/c = 4" / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press enter to continue

Setting Other Snap(s) Perp

Pick or enter the start point of the next group or <Finish>: Pick on Cover Line as shown by point 6

Offset First bar from start <0">: Press enter

Setting Other Snap(s) Perp

Pick end of Range: Pick on Cover Line as shown by point 7

Offset Last bar from end <0">: Press enter

Enter Slope / True Len / Line / or enter to proceed <Enter>: Press enter to continue

Cumulative distance <14'-6"> Group distance <11'-6">

Range length 11'-6"

Center spacing or <Number of bars>: Type in **8** and press Enter

Range options: 19 bars at <8"> / Average c/c = 7 43/64" / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to continue

Setting Other Snap(s) Perp.

Pick or enter the start point of the next group or <Finish>: Pick on the Cover Line as shown by point 8

Offset First bar from start <0">: Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 9

*Offset Last bar from end <0">:* Press Enter

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to continue

*Cumulative distance <17'-6"> Group distance <2'-4">*

*Range length 2'-4".*

*Center spacing or <Number of bars>:* Type in **4** and press Enter

*Range options: 8 bars at <4"> / Average c/c = 4" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>:* Press Enter to finish.

*Enter the group number to be drawn true length on Range <1>:* Press Enter to accept  
 Group 1

*Set Number is 9.*



*Label bar <No>? or J to Justify:* Type **Y** and press Enter


*Pick point:* Pick to the left of the beam, point 10




## Try It! Single Fixed Pitch - Stair Flight

Figure 6.4.2:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 15.dwg**
- ▶ Make the Viewport on *Stair 1 Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *03* the current Drawing Sheet
- ▶ Add a Single Fixed Pitch Bar Run to the Stair 1 Elevation
- ▶ Select **RebarCAD** → Draw Range → New Mark or 

- ▶ Select the Bar Run option 

- ▶ Select the Single Fixed Pitch Bar Run 

- ▶ In the Draw Bar dialog select: Bend Type **0**, Type **H**, Size **12**, Style **Centre** Select OK  
 Indicator Bar

Bend Type 00.

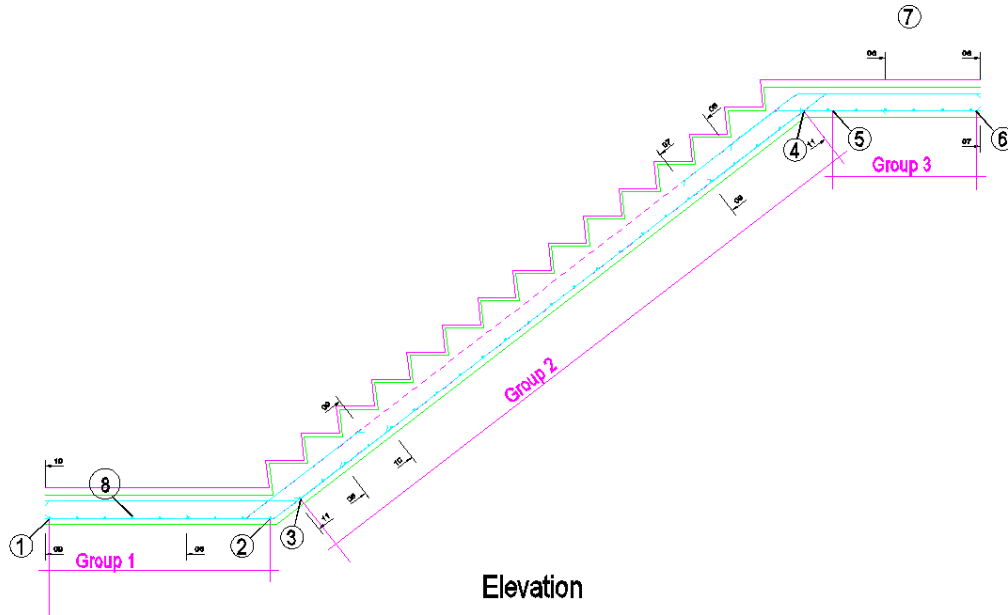
Pick 'range line' for data or Enter to <continue>: Press enter to continue

Pick the start point of the first group: Pick on the bar at point 1

Offset First bar from start <0>: Press enter to accept

*Pick End of range:* Pick on the bar at point 2

Offset Last bar from end <0>: Press enter to accept



**Figure 6.4.2:1 Adding Fixed Pitch Bar Run to Stair Elevation**

Enter True len / Line / or Enter to proceed <Enter>: Press enter to proceed

Cumulative distance <1502.5> Group distance <1502.5>

Range length 1502.5.

Centre spacing or <Number of bars>: Type in 200 and press enter

Range options:

9 bars at < 200 > / Average c/c = 187.8 / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press enter to continue

Pick or enter the start point of the next group or <Finish>: Pick on bar at point 3

Offset First bar from start <0>: Press enter to accept

*Pick End of range:* Pick on the bar at point 4

Offset Last bar from end <0>: Press enter to accept

Enter True len / Line / or Enter to proceed <Enter>: Press enter to accept

Cumulative distance <5832.2> Group distance <4320.8>

Pick or enter the start point of the next group or <Finish>: Pick on bar at point 5

Offset First bar from start <0>: Press enter to accept

*Pick End of range:* Pick on the bar at point 6

Offset Last bar from end <0>: Press enter to accept

Enter True len / Line / or Enter to proceed <Enter>: Press enter to accept

Cumulative distance <6887.7> Group distance <974.2>

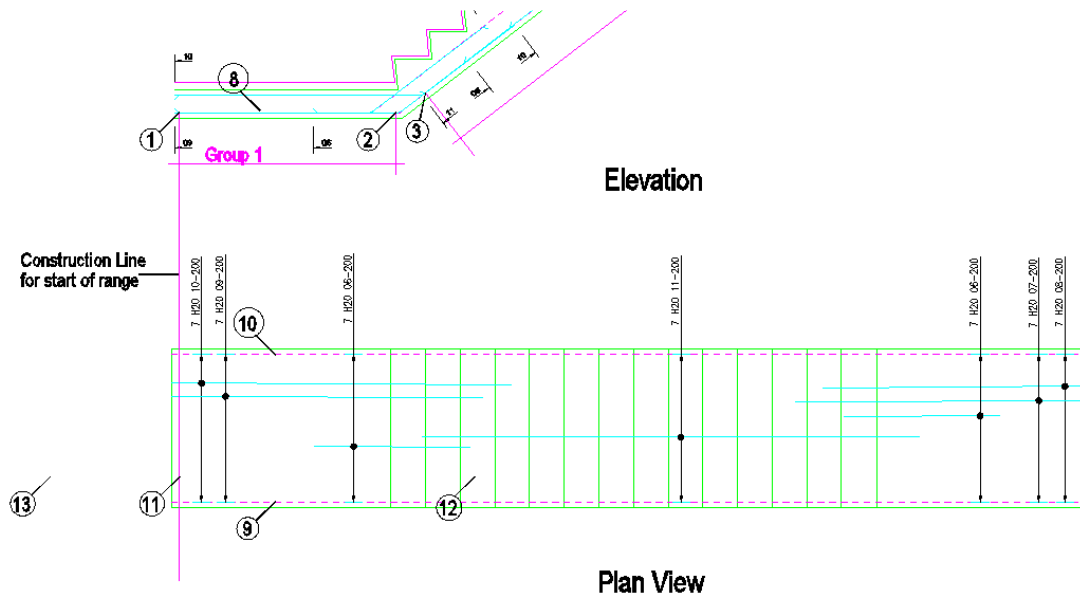
Pick or enter the start point of the next group or <Finish>: Press enter to accept

Select side of line for bars to be placed: Pick above the landing at point 7

Enter the group number to be drawn true length on range <1>: Press enter



Set Number is 17.

Label bar <No>? or J to Justify: Press enter to accept



**Figure 5.2.5:2 Adding the Fixed Pitch Range to the Stair Plan**

### Add a Fixed Pitch Range to the Staircase Plan

- ▶ Select RebarCAD → Draw Range → New Mark or 
  - ▶ Select the Single Fixed Pitch Bar Run 
  - ▶ In the Draw Bar dialog select: View **Side**, Alignment **Outer**, Style **Outer** Select OK
- Indicator Bar
- Bend Type 0.
- Sketch Mode <OFF> - UK BS8666:2005 Metric.
- Draw Range - New View/Set/Mark/Replay <View>:
- Pick bar set for New View:* Pick the bar in section indicated by point 8
- Existing range of this bar - will calculate centres to existing length.

Indicator bar

Bend Type 0.

Plan view Outer start point: Pick on Cover Line at point 9

Enter Outer Dimension A: Pick on Cover Line at point 10

Setting Start Snap(s) Near.

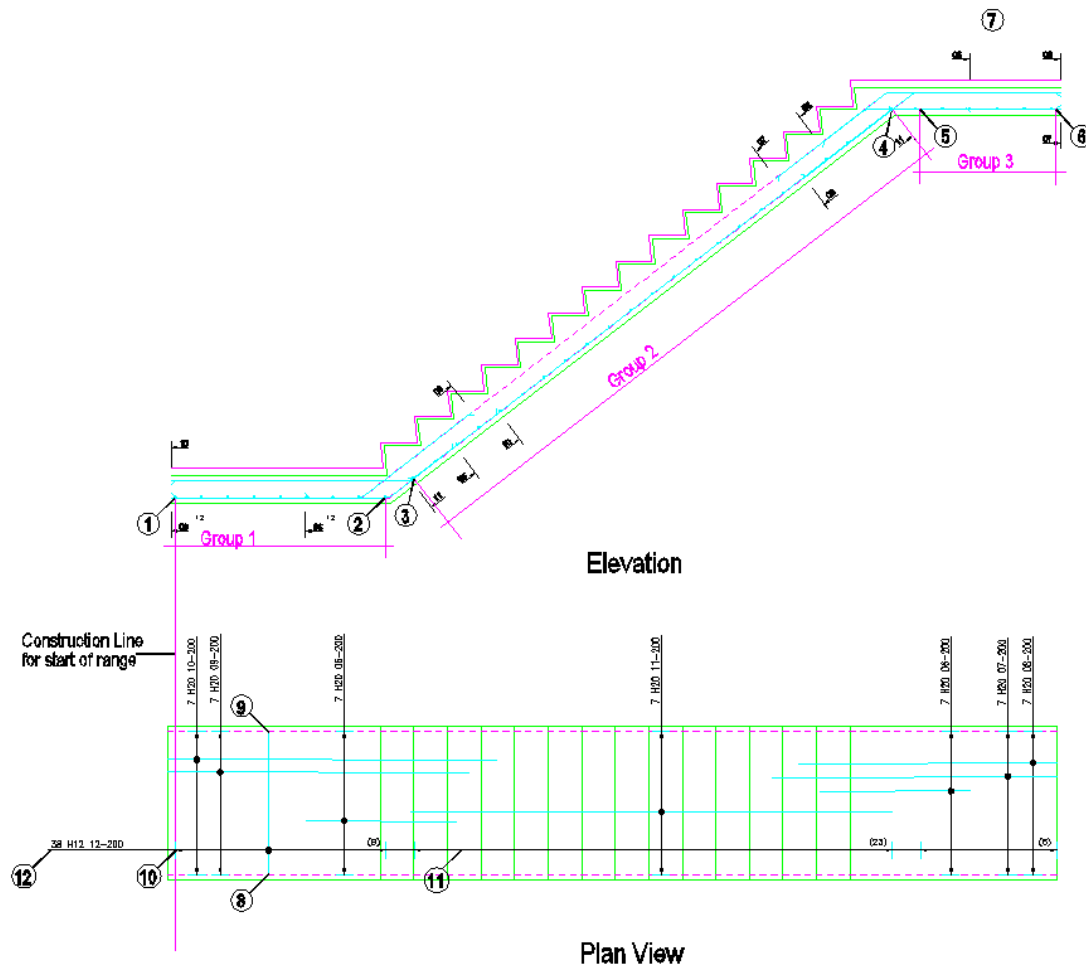
Pick start point <Normal Input>: Pick on Cover Line at point 11

Rotation <Original>: Pick to the right at point 12

Set Number is 17.

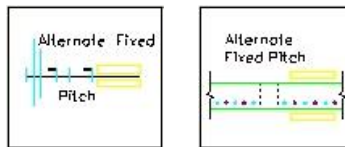
Label bar <No>? or J to Justify: Type Y and press enter

Pick point: Pick insertion at point 13



**Figure 6.4.2:3 Fixed Pitch Range and Bars in Section added to Stair**

### 6.4.3 Alternate Fixed Pitch Range







**Figure 6.4.3:1 Alternate Fixed Pitch Range selection buttons**

This Range shows two Bar Views that have different Bar Marks and one or more Range Groups that have the same centers throughout. Center spacing or the number in the Range can specify the bars. Once drawn the number of bars in each Range Group is clearly shown on the Range Line. Use an Alternate Fixed Pitch Run to represent this Range type when placing the bars in a section.



#### **Try It! Alternate Fixed Pitch - Slab**

Figure 6.4.3:1 below shows the points specified in this example

- ▶ Launch RebarCAD
  - ▶ Open drawing ...\\drawings\\ RebarCAD 15.dwg
  - ▶ Make the Viewport on *Slab 2 Layout* active
  - ▶ Select RebarCAD → Draw Bar → Set Member or 
  - ▶ Make *Slab 2* the current Member and select OK
  - ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
  - ▶ Make *03* the current Drawing Sheet
  - ▶ Add an Alternate Fixed Pitch Range to the Slab 2 Plan
  - ▶ Select RebarCAD → Draw Range → New Mark or 
  - ▶ Select the Alternate Fixed Pitch Range .
    - ▶ In the *Draw Bar* dialog for the first bar select: **Bend Type 17, Grade A615/60, Size # 6, View Plan, Alignment Outer, Style Center**
- Pick the First Bar button  
 Set Legs B and D at 12" and select OK twice
- First bar*  
*Bend Type 17*  
*Plan View Outer start point:* Pick on the Cover Line as shown by point 1  
*Enter Outer Dimension C:* Pick on the Cover Line as shown by point 2

In the *Draw Bar* dialog for the alternate bar select: *Bend Type 0, Grade A615/60, Size 4, View Side, Alignment Outer, Style Center*

Select OK

*Alternate bar*

*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 3

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 4

*Pick 'Range Line' for data or enter to <continue>:* Press Enter to continue

*Setting Start Snap(s) Near.*

*Pick the start point of the first group:* Pick on the Cover Line as shown by point 5

*Offset First bar from start <0">:* Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 6

*Offset Last bar from end <0">:* Press Enter

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to continue

*Cumulative distance <5'-8"> Group distance <5'-8">*

*Range length 5'-8"*

*Center spacing or <Number of bars>:* Type in **8** and press Enter

*Range options: 10 bars at < 8" > / Average c/c = 7 9/16" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>:* Pick on the Cover Line as shown by point 7

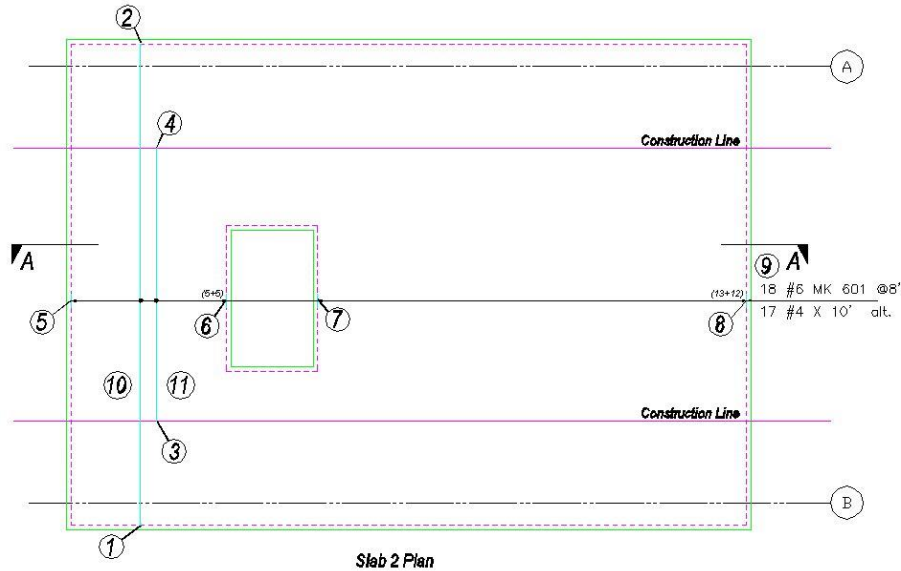
*Offset First bar from start <0">:* Press Enter

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 8

*Offset Last bar from end <0">:* Press Enter

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to continue



**Figure 6.4.3:1 Adding an Alternate Fixed Pitch Range to a Floor Slab**

Cumulative distance <24'-8"> Group distance <15'-8">

Previous group ended with Alternate bar.

Current group - First Bar = 13, Alternate Bar = 12, Total = 25.

Swap the order of these bars <No>: Press Enter for No

Setting Other Snap(s) Perp.

Pick or enter the start point of the next group or <Finish>: Press Enter to finish.

Enter the group number to be drawn true length on Range <1>: Press Enter for group No1

Set Number is 10.

Label bar <No>? or J to Justify: Type Y and press Enter

Pick point:

Set Number is 11.

Label bar <No>? or J to Justify: Type Y and press Enter to place the Bar Label for the first alternate bar.

Pick point: Pick a point on the right of slab, point 9



Set Number is 11.

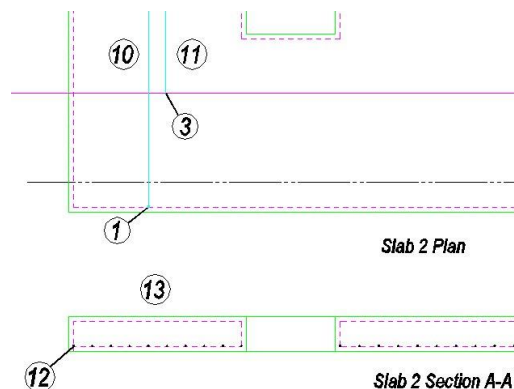
Label bar <No>? or J to Justify: Type Y and press Enter

**The Alternate Range has a built in Bar Label alignment tool which you may like to try out.**

- ▶ Pick Bar Label location: Pick directly on top of the first alternate Bar Label
- ▶ Rotation angle: Pick to the right to set the angle at 0 degrees
- ▶ Pick side of label: Pick below the leader to place the second alternate Bar Label

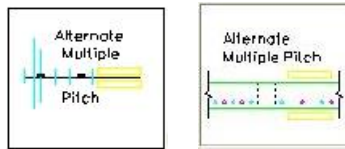
## Add an Alternate Fixed Pitch Bar Run to the Slab 2 Section

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ Select the Alternate Fixed Pitch Bar Run 
- ▶ Figure 5.2.6:2 below shows the following points specified in this example.
- ▶ *Pick Bar Set for New View:* Select the Bar View on the plan as shown by point 10  
*Existing Range of this bar - will calculate centers to existing length*  
*Pick Bar Set for Alternate New View:* Select the Bar View as shown by point 11  
 Select OK to close the *Draw Bar* dialog for the first bar; View is already set to section.  
*First bar*  
*Bend Type 17*  
 Select OK to close the *Draw Bar* dialog for the alternate bar;  
 View is already set to *Section*.  
*Alternate bar*  
*Bend Type 0*  
*Pick start point <Normal Input>:* Pick on the Intersection shown by point 12  
*Rotation <Original>:* Press Enter to set rotation at zero degrees  
*Select side of line for bars to be placed:* Pick above the section as shown by point 13  
*Set Number is 10*  
*Set Number is 11*  
 Note that the bar run automatically lines up with the slab opening.



**Figure 5.2.6:2 Adding an Alternate Fixed Pitch Run of Bars in Section to the Slab Section**

## 6.4.4 Alternate Multiple Pitch Range



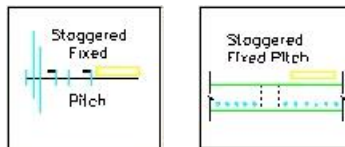
**Figure 6.4.4:1 Alternate Multiple Pitch Range selection buttons**

This Range shows two Bar Views that have different Bar Marks and one or more Range Groups that have different centers for each group. The bars can be specified by center spacing or by the number in the Range. The number and center spacing of the bars in each Range Group is clearly shown on the Range Line once the bars have been drawn.

Use an Alternate Multiple Pitch Run to represent this Range type when placing the bars in a section.

The functionality of the Alternate Fixed and Multiple Pitch Ranges is the same except that the Multiple Pitch Range will prompt for the bar spacing for every Range Group.

## 6.4.5 Staggered Fixed Pitch Range




**Figure 6.4.5:1 Staggered Fixed Pitch Range selection buttons**

This Range shows two Bar Views of the same Bar Mark and one or more Range Groups that have the same centers throughout. The bars can either be shown as a staggered offset or alternate reversed. The bars can be specified by center spacing or by the number in the Range. Once the bars have been drawn their number in each Range Group is clearly shown on the Range Line. Use a Staggered Fixed Pitch Run to represent this Range type when placing the bars in a section.



### **Try It! Staggered Fixed Pitch – Slab**

Figure 6.4.5:1 below shows the points specified in this example

- ▶ Launch RebarCAD;
- ▶ Open drawing ...\\drawings\\RebarCAD 15.dwg;
- ▶ Make the Viewport on Slab 4 Layout active;
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or  ;
- ▶ Make 05 the current Drawing Sheet.

► Select RebarCAD → Draw Range → New Mark or 



- First indicator bar*

*Side View Outer start point:* Pick on the Cover Line as shown by point 1

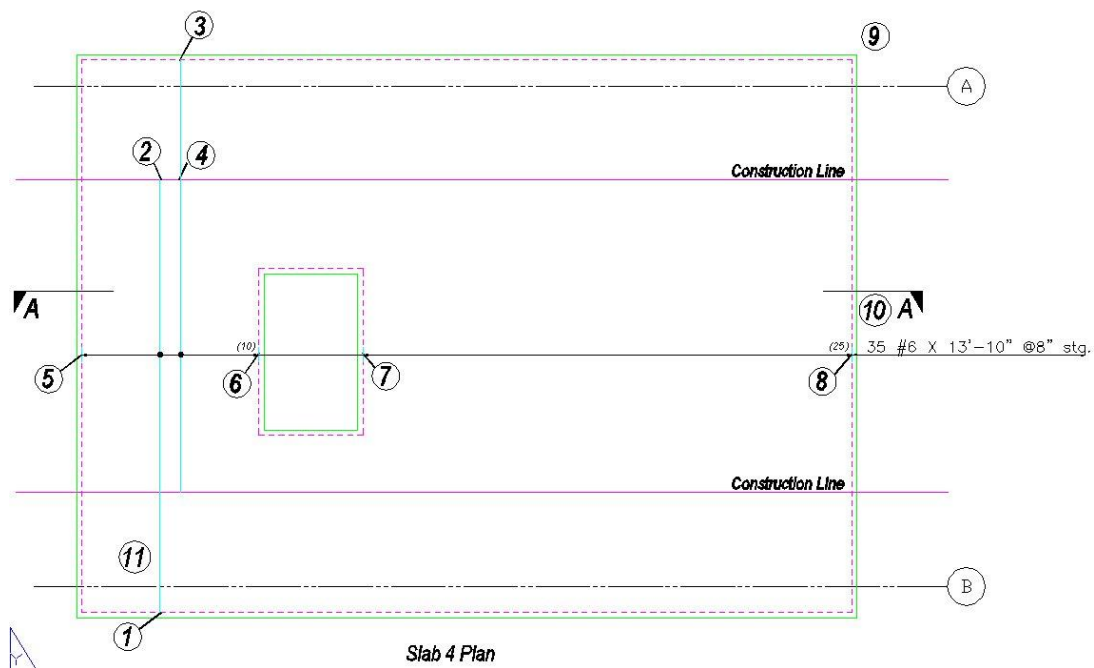
*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2

Reverse Bar (Yes/No) <No>? Press Enter to offset the bar

Enter Offset (stagger) to start of second indicator bar: Pick on the Cover Line as shown by point 3

*Second point:* Pick on the Cover Line as shown by point 4

Pick 'Range Line' for data or enter to <continue>: Press Enter to continue



### Setting Start Snap(s) Near.

*Pick the start point of the first group:* Pick on the Cover Line as shown by point 5

### Setting Other Snap(s) Perp.

*Pick end of Range:* Pick on the Cover Line as shown by point 6

Enter Slope / True Len / Line / or enter to proceed <Enter>: Press Enter to continue

*Cumulative distance <5'-8"> Group distance <5'-8">*

*Range length 5'-8".*

*Center spacing or <Number of bars>: Type in **8** and press Enter.*

*Range options: 10 bars at <8" > / Average c/c = 7 9/16" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to continue*

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>: Pick on the Cover Line as shown by point 7*

*Setting Other Snap(s) Perp.*

*Pick end of Range: Pick on the Cover Line as shown by point 8*

*Enter Slope / True Len / Line / or enter to proceed <Enter>: Press Enter to continue*

*Cumulative distance <24'-8"> Group distance <15'-8">*

*Setting Other Snap(s) Perp.*

*Pick or enter the start point of the next group or <Finish>: Press Enter to finish.*

*Indicate position of second bar: Toggle the bar into the required position*

*Pick at point 9*

*Enter the group number to be drawn true length on Range <1>: Press Enter to continue*

*Set Number is 12.*

*Label bar <No>? or J to Justify: Type **Y** and Press Enter to continue*

*Pick point: Pick on the right of slab as shown by point 10*

## **Add a Staggered Fixed Pitch Range to the Slab 4 Plan (offset bar)**

▶ Select RebarCAD → Draw Range → Add View or 

▶ Select the Staggered Fixed Pitch Bar Run 

▶ Figure 5.2.9:2 below shows the points following to select to place the bar:

▶ *Pick Bar Set for New View:* Select the Bar View as shown by point 11

*Existing Range of this bar - will calculate centers to existing length*

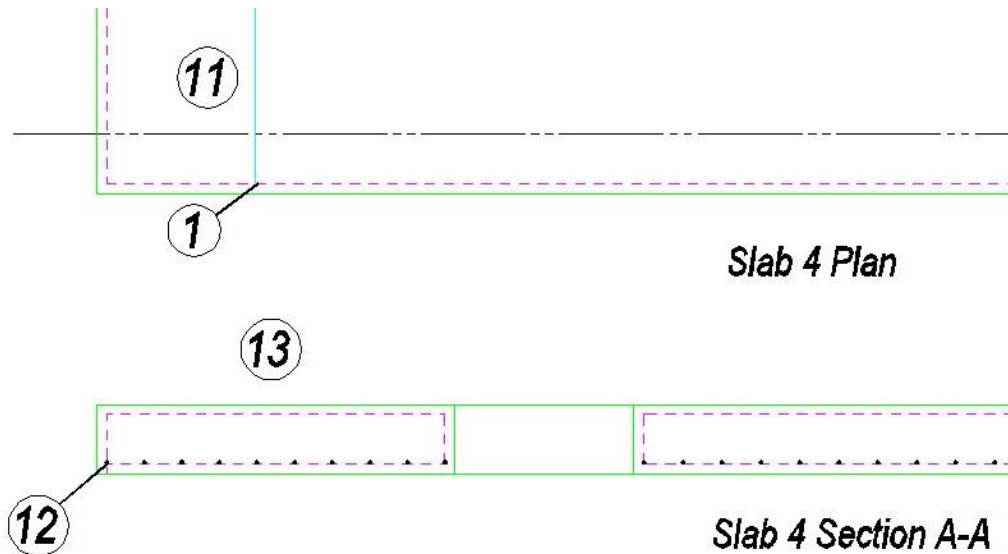
*Bend Type 0*

*Pick start point <Normal Input>: Pick on the Cover Line as shown by point 12*

*Rotation <Original>: Press Enter for original rotation*

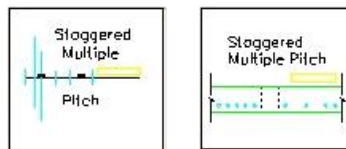
*Select side of line for bars to be placed: Pick above the section as shown by point 13*

*Set Number is 12*



**Figure 5.2.10:2 Adding a Staggered Fixed Pitch Run of Bars in Section to a Floor Slab**

## 6.4.6 Staggered Multiple Pitch Ranges



**Figure 6.4.6:1 Staggered Multiple Pitch Range selection buttons**

This Range shows two Bar Views of the same Bar Mark and one or more Range Groups that can have different centers for each group. The bars can either be shown as a Staggered Offset or Alternate Reversed. The bars can be specified by center spacing or by the number in the Range. Once the bars have been drawn their number and the Center Spacing in each Range Group is clearly shown on the Range Line. Use a Staggered Multiple Pitch Run to represent this Range type when placing the bars in a section.

The functionality of the Staggered Fixed and Multiple Pitch Ranges is the same except that the Multiple Pitch Range will prompt for the bar spacing for every Range Group.

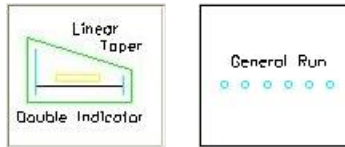
## 6.5 Tapered Ranges

These are Single Group Ranges with either one or two Bar Views. The prompts for these Range types broadly follow the Single Group Range prompts, with some variations. These variations are covered in the descriptions below and in the examples that follow at the end of this section.

### 6.5.1 Hints & Tips – Detailing Tapered Ranges

When detailing Tapered Ranges of any sort always draw the Range first and add the Bar Views afterwards.

### 6.5.2 Single Indicator Linear Taper Range



**Figure 6.5.2:1 Single Indicator Linear Taper Range selection buttons**

A Straight Linear Taper Range allows bars to be defined with varying dimensions using one Bend Type and one Bar Mark Number. The bars can be defined either from the shortest to the longest bar or vice versa. If a step taper is to be applied later then, for preference, the bars should be defined from the shortest to the longest – see Chapter 7, *Edit and Modify commands*, for more detail on this.

This Range shows one Bar View and one Range Group. The Bar View is drawn as a sketch bar, it being more convenient to draw rather than to calculate the position of an actual tapered bar. After drawing the bar and Range, the function prompts you to define the dimensions of the first and last bar in the Range so that it can calculate the lengths of the intermediate bars. The Bar Label produced will show the total number of bars together with a configurable suffix relating to the number of bars in the Range. Tapered Ranges can contain suffixes ranging from 'a' to 'zz' thus giving a maximum of 676 bars (that is, 26 x 26 letter combinations) in any Bar Set. Use a General Run to represent this Range type when placing the bars in a section. This format is most commonly used on any structure with one or two sloping edges.

### 6.5.3 Hints & Tips – Define Shortest Bar First for Tapered Ranges




Always define the Linear Taper Ranges from shortest to longest bar. If required, you can then edit the Range to add a step taper. A step taper will group the bars into incremental cuts and reduce the number of cuts that need fabricating. More on this subject is given in Chapter 7, *Edit and Modify commands*.



#### **Try It! Linear Taper – One Tapered Bar Leg in a Wall**

In this example you are going to add a Bend Type 0 that tapers from the shortest to the longest bar.

Figure 6.5.3:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 16.dwg**
- ▶ Make the Viewport on *Wall 1 Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Wall 1* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *01* the current Drawing Sheet
- ▶ Add a Linear Taper Range to Wall 1 Elevation
- ▶ Select **RebarCAD** → Draw Range → New Mark or 



- ▶ Select the *Tapered Range*



- ▶ Select the Linear Taper Range

- ▶ In the Draw Bar dialog select: Bend Type **0** and type in **2** in the Multi Field Grade **A615/60**, Size **# 6**, Center Spacing **8"**.

Type **NF & FF** in the Notes field. Select View **Side**, Alignment **Outer**, Style **Center**

Select the Set button under Sketch Bar

Set Bend Type **0**, View **Side**. Select OK twice

*Indicator bar*

*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2

*Setting Start Snap(s) Near.*

*Start of Bar Range / Enter Slope / True Len / Line:* Pick on the Cover Line as shown by point 3

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 4

*Range length 17'-8".*

*Range options:*

*28 bars at < 8" > / Average c/c = 7 55/64" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Calculating linear taper dimensions.*

*Enter dimensions for first bar in Range.*

*Side View Outer start point:* Pick on the Cover Line as shown by point 5

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 6

*Enter dimensions for last bar in Range.*

*Side View Outer start point:* Pick on the Cover Line as shown by point 7

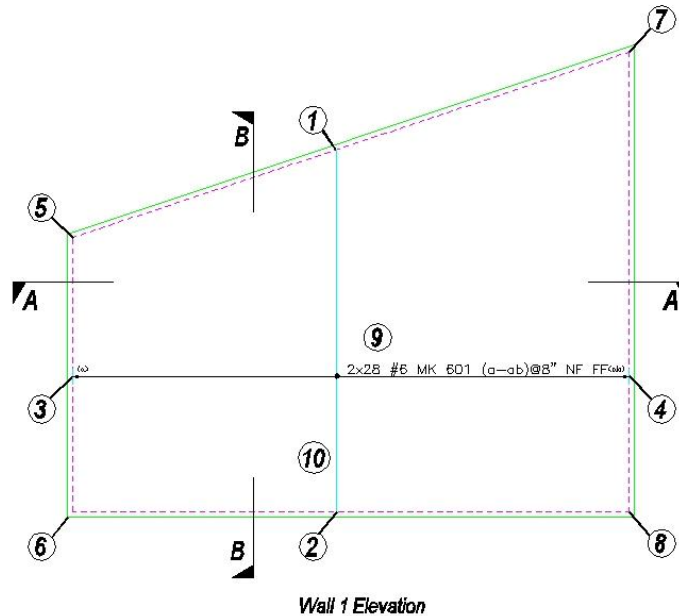
*Enter Outer Dimension B: Pick on the Cover Line as shown by point 8*

*Set Number is 2.*

*Label bar <No>? or J to Justify: Type Y and press Enter*


*Pick point: Pick as shown by point 9*

*Calculating linear taper dimensions*



**Figure 6.5.3:1 Adding a Linear Tapered Range to a Wall with one Tapered bar leg**

#### **Add Run of Bars in Section to the Plan View**

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ Figure 5.3.2:2 below shows the following points specified in this example.
- ▶ *Pick Bar Set for New View:* Select Bar View as shown by point 10

Select General Run 

*Existing Range of this bar - will calculate centers to existing length*

- ▶ In the Draw Bar dialog, select OK to exit as the view has already been set to section.

*Bend Type 0*

*Calculating linear taper dimensions*

*Start of Bar Range or ENTER to select Bar Leg: Pick on the Cover Line as shown by point 11*

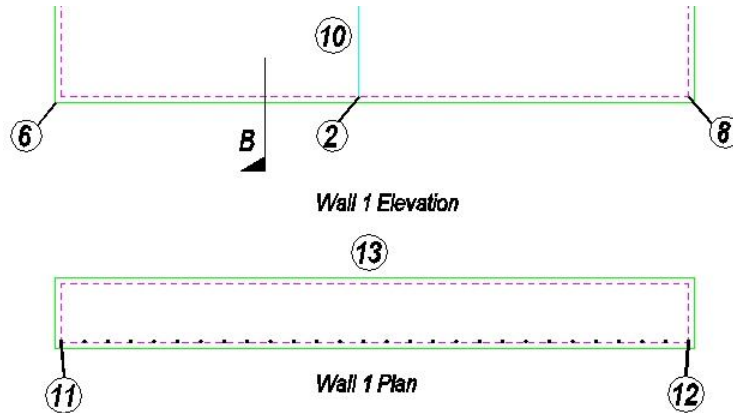
*Pick end of Range: Pick on the Cover Line as shown by point 12*

*Select side of line for bars to be placed: Pick above the Wall Plan as shown, point 13.*

*Range length 17'-8"*


28 bars at 8" centers ( 7 3/8" clear. )

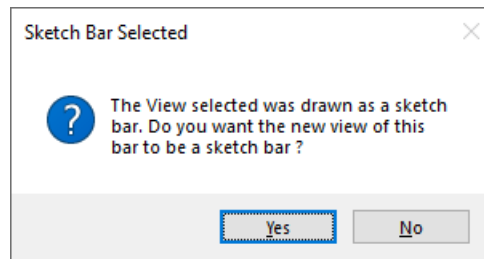
Set Number is 2



**Figure 6.5.3:2 Adding the Linear Taper Bars in Section to the Wall Plan**

#### Add Bars to the Wall Side Elevation

- ▶ Select RebarCAD → Draw Bar → Add View or 
- ▶ *Pick Bar Set for New View:* Select Bar View as shown by point 10



**Figure 6.5.3:3 Sketch Bar Selected dialog**

- ▶ Select **Yes** to make the Bar View being drawn a sketch bar.
- ▶ In the *Draw Bar* dialog, check that the *View* is set to **Side** and the *Alignment* to **Inner**. Select the *Set* button, Pick the *Dimension* button and set the *Dim B* dimension to **0"**. Select OK three times to return to the drawing.
- ▶ Figure 5.3.2:4 below shows the following points specified in this example.

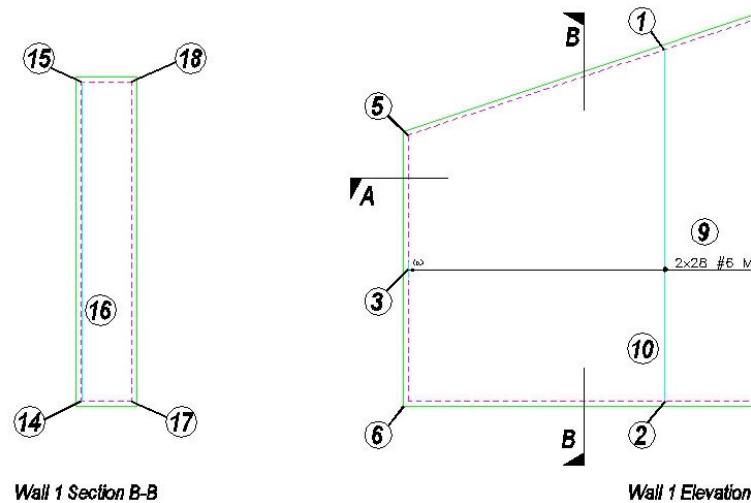
*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 14


*Enter Outer Dimension B*

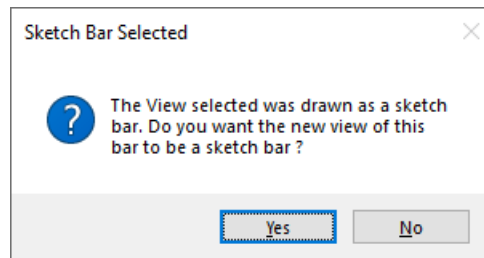
Pick on the Cover Line as shown by point 15

- ▶ Bar completed



**Figure 6.5.3:4 Adding Sketch Bar Views of the Linear Taper to the Wall Section**

- ▶ Now repeat the exercise and draw the sketch bar on the right hand side.
- ▶ Select RebarCAD → Draw Bar → Add View or 
- ▶ *Pick Bar Set for New View:* Pick Bar View as shown by point 16



**Figure 5.3.2:5 Sketch Bar Selected dialog**

- ▶ Pick Yes to make the Bar View being drawn a sketch bar
- ▶ In the *Draw Bar* dialog select OK as the sketch bar properties have been extracted from the bar selected.

*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 17

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 18

- ▶ Bar completed






### **Try It! Linear Taper – Two Tapered Bar Legs in a Wall**


In this example you are going to draw Bend Type 16 in the wall of the retaining wall elevation. Legs B and D are each going to vary. The easiest way to do this is to select all the dimensions of the first and last bar on the sections either side of the wall. Another approach would be to enter

the dimensions of the first and last bar in the *Draw Bar* dialog box. These methods are equally valid.

Figure 6.5.3:6 below shows the points specified in this example

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 16.dwg**
- ▶ Make the Viewport on *Wall 2 Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Wall 2* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *02* the current Drawing Sheet
- ▶ Add a Linear Taper Range to Wall 2 Elevation
- ▶ Select **RebarCAD** → Draw Range → New Mark or 

- ▶ Select the *Tapered Range* 

- ▶ Select the Linear Taper Range 

In the Draw Bar dialog select: Bend Type **16**, Grade **A615/60**, Size **# 6**, Center Spacing **8"**, View **Side**, Alignment **Outer**, Style **Center**.  
 Select the Set button under Sketch Bar.

Select Bend Type **16**, View **Right**  
 Select OK twice

*Right view Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension H:* Pick on the Cover Line as shown by point 2

*Setting Start Snap(s) Near.*

*Start of Bar Range / Enter Slope / True Len / Line:* Pick on the Cover Line as shown by point 3

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 4

*Range length 17'-8"*

*Range options: 28 bars at < 8" > / Average c/c = 7 55/64" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Calculating linear taper dimensions*

*Enter dimensions for first bar in Range*

*Side View Outer start point:* Pick on the Cover Line as shown by point 5

*Enter Outer Dimension C:* Pick on the Cover Line as shown by point 6

*Enter Outer Dimension D:* Pick on the Cover Line as shown by point 7

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 8

*Enter dimensions for last bar in Range*

*Side View Outer start point:* Pick on the Cover Line as shown by point 9


*Enter Outer Dimension C:* Pick on the Cover Line as shown by point 10

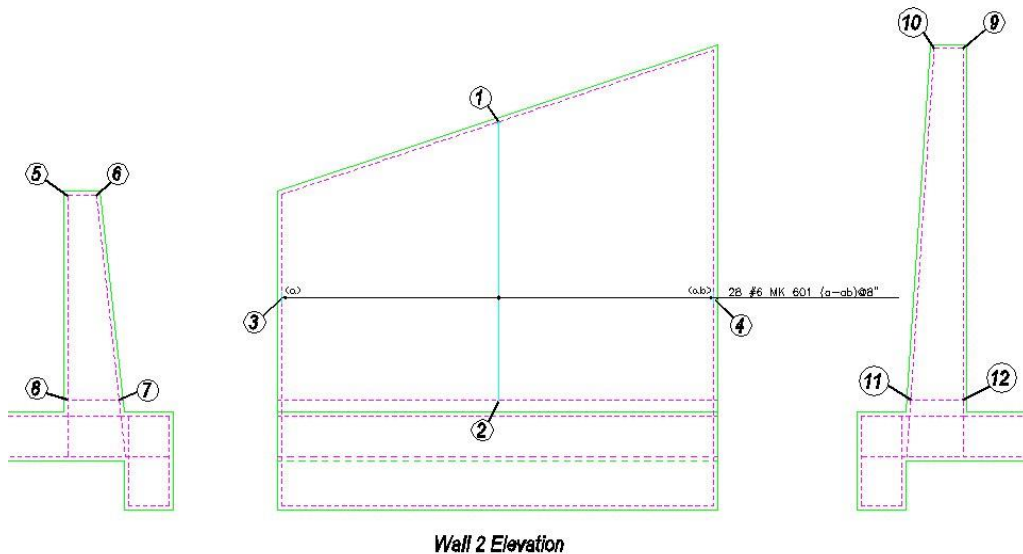
*Enter Outer Dimension D:* Pick on the Cover Line as shown by point 11

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 12

*Set Number is 3.*

*Label bar <No> ? or I to Justify: y*

- ▶ Select RebarCAD → View Bar List or 
- ▶ Select Drawing Sheet 02 on the right and review the bar dimensions.




**Figure 6.5.3:6 Adding a Linear Taper Range to a Wall with two Tapered bar legs**




### **Try It! Linear Taper – Curved Bars in a Sump Tank**




In this example you are going to add the curved bars to a Circular Sump Tank in both the plan and sectional elevation. You will use the single indicator linear taper range to place the bars on the plan view and set the slope of the range at 20 degrees.

Figure 6.5.3:7 below shows the points specified in this example for drawing the plan view and 6.5.3:8 show the points for placing the bar run.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 16.dwg
- ▶ Make the Viewport on *Circular Sump Tank Layout* active
- ▶ Select RebarCAD → Draw Bar → Set Member or 

- ▶ Make *Sump Tank* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make 07 the current Drawing Sheet

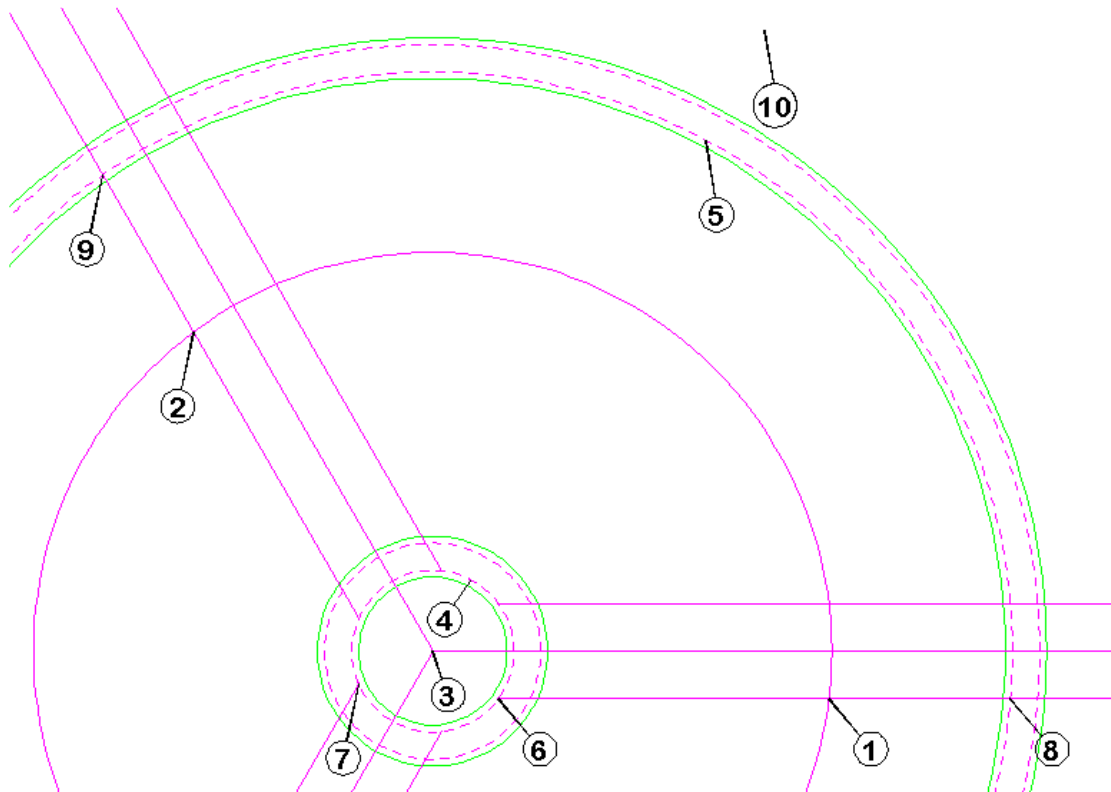
#### Add a Linear Taper Range to Sump Tank Plan

- ▶ Select **RebarCAD** → Draw Range → New Mark or 
- ▶ Select the *Tapered Range* 
- ▶ Select the Linear Taper Range 
- ▶ In the Draw Bar dialog select: Bend Type **9**, Type **H**, Size **12**, Centre Spacing **200**, View **Side**, Alignment **Outer**, Style **Centre**.

Select the Set Sketch Bar button.

Select Bend Type **9**, View **Side**

Select OK twice



**Figure 6.5.4:7 Setting Out points for Linear Taper**

*Side view Outer start point:* Pick intersection as indicated by point 1

*Enter Outer Chord:* Pick intersection as indicated by point 2

*Enter Outer Radius r:* Pick intersection as indicated by point 3

Start of bar range / enter Slope / True len / Line: Type in **S** and press enter

*Enter angle of slope:* Type in **20** and press enter

Slope angle: 20.0

Start of bar range / enter Slope / True len / Line: Pick intersection as indicated by point 4

Offset First bar from start <0>: Press enter to accept

*Pick End of range:* Pick intersection as indicated by point 5

Offset Last bar from end <0>: Press enter to accept

Range lengths: Drawn 3856.1, True 4103.6, Angle 20.0

Range options: 22 bars at < 200 > / Average c/c = 195.4 / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press enter to accept Calculating linear taper dimensions

Enter dimensions for first bar in range.

*Side view Outer start point:* Pick intersection as indicated by point 6

*Enter Outer Chord:* Pick intersection as indicated by point 7

*Enter Outer Radius r:* Pick intersection as indicated by point 3

Enter dimensions for last bar in range.

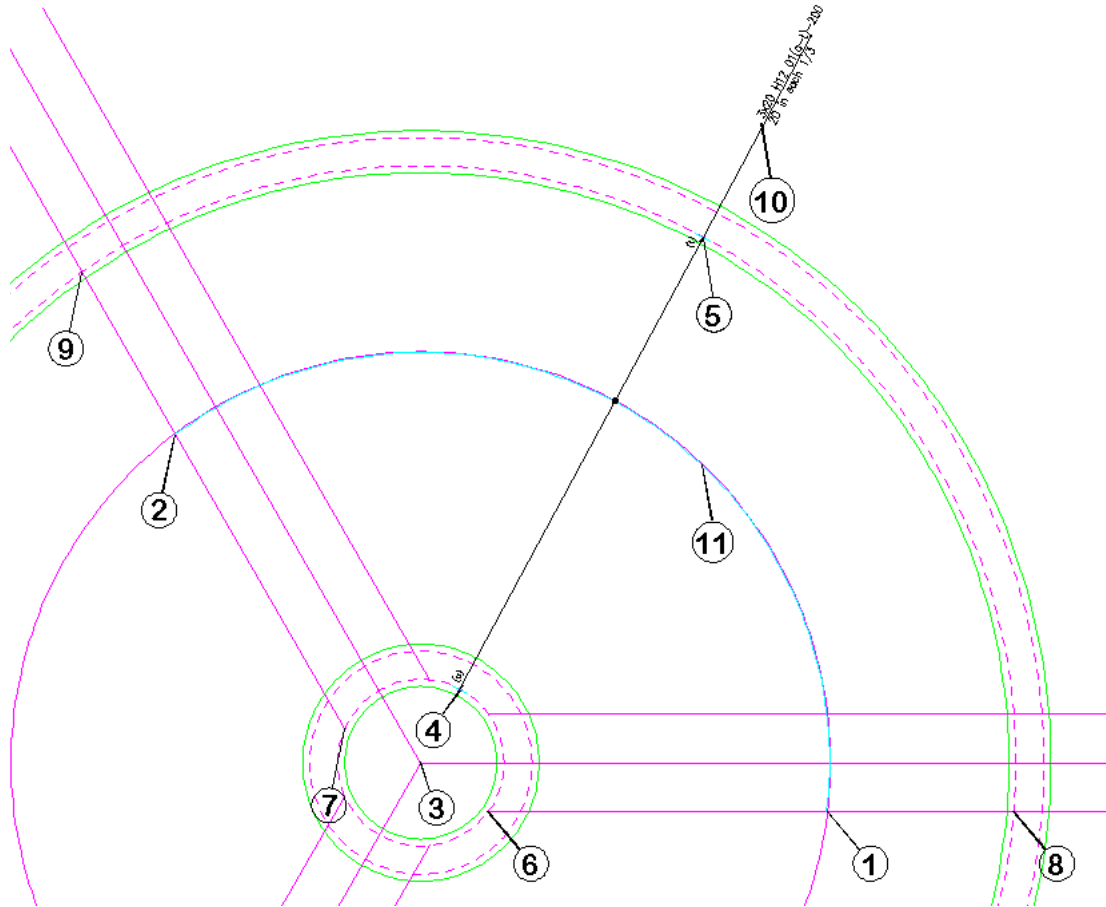
*Side view Outer start point:* Pick intersection as indicated by point 8

*Enter Outer Chord:* Pick intersection as indicated by point 9

*Enter Outer Radius r:* Pick intersection as indicated by point 3

*Label bar <No>? or J to Justify:* Type **Y** and press enter, place label at point 10 as indicated.

- ▶ Double click on the bar label to edit the properties of the bar set, pick the Notes button and type in 20 bars in each 1/3 into the Notes 1 field and pick OK. In the Multi field type in 3 and pick OK. This will triple the number of bars in the bar list, so that you do not have detail the whole tank.



**Figure 5.3.4:2 Finished Linear Taper Range**

#### Add a Bar Run to Sump Tank Sectional Elevation

- Select RebarCAD → Draw Range → New View or 

*Pick bar set for New View:* Pick the bar indicated by point 11

In the *Draw Bar* dialog: Pick the **OK** button as all fields are correctly set.

Existing range of this bar - will calculate centres to existing length.

Bend Type 9.

Calculating linear taper dimensions

Start of bar range or ENTER to select bar leg:

Pick intersection as indicated by point 12

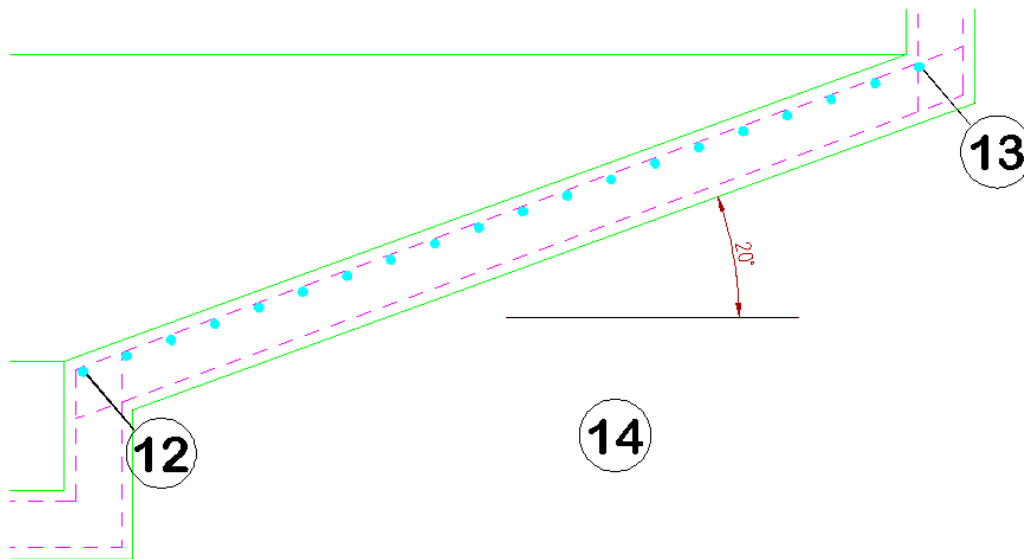
Offset First bar from start <0>: Press enter to accept

*Pick End of range:* Pick intersection as indicated by point 13

Offset Last bar from end <0>: Press enter to accept

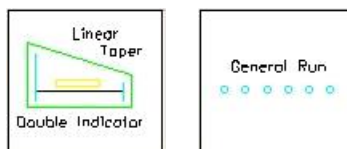
Select side of line for bars to be placed: Pick as indicated by point 14

- Range has already been specified, the distance you have picked is greater than 5% different. Are you sure you want to continue? <No>: Type **Y** and press enter.



**Figure 6.5.3:8 Finished Bar Run**

## 6.5.4 Double Indicator Linear Taper Range



**Figure 6.5.4:1 Double Indicator Linear Taper Range selection buttons**

A Double Linear Taper Range allows bars to be defined with varying dimensions using one Bend Type and one Bar Mark Number. The bars can be defined either from the shortest to the longest bar or vice versa. If a step taper is to be applied later then, for preference, the bars should be defined from the shortest to the longest – see Chapter 7, *Edit and Modify commands*, for more detail on this.




This Range shows two Bar Views at the start and end of the Range and one Range Group. The first and last bars are drawn true size and the function calculates the lengths of the intermediate bars. The Bar Label produced will show the total number of bars together with a configurable suffix relating to the number of bars in the Range. Tapered Ranges can contain suffixes ranging from 'a' to 'zz' thus giving a maximum of 676 bars (that is, 26 x 26 letter combinations) in any Bar Set. Use a General Run to represent this Range type when placing the bars in a section. This format is most commonly used in any structure with one or two sloping edges. This type of Tapered Range is very easy to modify if the structure changes - as long as the bars are included within the stretch window it will automatically update the tapered bar lengths.




## Try It! Double Indicator Taper – Tapered Beam – Two Tapered Legs

In this example you are going to detail a stirrup in a Tapered beam showing a bar at each end.

Figure 6.5.4:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 16.dwg
- ▶ Make the Viewport on Beam 1 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Beam 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Add a Double Indicator Taper Range to the Tapered Beam Elevation
- ▶ Select RebarCAD → Draw Range → New Mark or 

- ▶ Select the Tapered Range 

- ▶ Select the Linear Taper Range 

In the Draw Bar dialog select: Bend Type **T1**, Grade **A615/60**, Size # **4**, Center Spacing **8"**, View **Left**, Alignment **Outer**, Style **Center**

Pick the First Bar button Type in **1'-2"** for Dimension B, Select OK and do the same for the Last Bar. Select OK twice.

*First indicator bar*

*Bend Type T1*

*Left view Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension C:* Pick on the Cover Line as shown by point 2

In the Draw Bar dialog Select OK

*Second indicator bar*

*Bend Type T1*

*Left view Outer start point:* Pick on the Cover Line as shown by point 3

*Enter Outer Dimension C:* Pick on the Cover Line as shown by point 4

*Pick position of Range Line on or near first or last bar <Specify>:* Pick on the Cover Line as shown by point 5

*Pick position of Range Line on or near other typical bar:* Pick on the Cover Line as shown by point 6

*Enter Slope / True Len / Line / or enter to proceed <Enter>:* Press Enter to continue

*Range length 14'-10 3/32"*

*Range options: 24 bars at < 8" > / Average c/c = 7 3/4" / Run out / Numeric:*

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to continue

Label bar <No> ? or J to Justify: Pick a point above the beam, as point 7

#### Add a Leader from the Bar Label to the Range Line

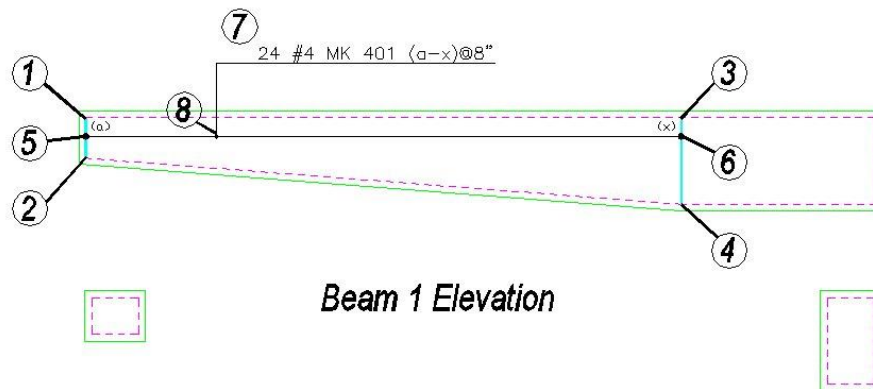
- Select RebarCAD → Leaders → Leader 2

Leader type is configured to <Underneath>:

Pick start point or Bar/Stack <Stack>: Pick on the Range Line, point 8

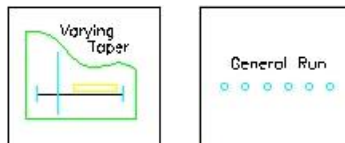
Next point or ENTER to select label: Press Enter to select the Bar Label

Select label: Pick the Bar Label.



**Figure 6.5.4:1 Adding a Double Indicator Tapered Range to a Tapered beam with two Tapered bar legs**

### 6.5.5 Varying Taper Range



**Figure 6.5.5:1 Varying Taper Range selection buttons**

A Varying Taper Range calculates the length of bars based on a closed polyline boundary, circle or ellipse. This Range shows one Bar View and one Range Group. The Bar View is automatically drawn as a sketch bar, something easier and more convenient than calculating the position of an actual tapered bar. After the bar and Range have been drawn the function prompts for the boundary to be selected. It will then generate temporary markers at the points where the bars have been calculated, clearing these later. The Bar Label produced will show the total number of bars together with a configurable suffix relating to the number of bars in the Range. Tapered Ranges can contain suffixes ranging from 'a' to 'zz' thus giving a maximum of 676 bars (that is, 26 x 26 letter combinations) in any Bar Set. Use a General Run to represent this Range type when placing the bars in a section. This function is most commonly used for any structure where the boundary to be reinforced is non-linear.

## 6.5.6 Hints & Tips – Varying Taper, Polyline Not Closed

If the function reports that the boundary is not a closed polyline then abort the command and use the *AutoCAD* Explode command to break the outline apart. Use Polyline Edit to rejoin the lines.

If there is a curve in the boundary, select it last when creating the boundary using the polyline edit command.



If the internal space is clear then rather than tracing the outline of the Varying Taper you should use the *AutoCAD* Boundary command to create it.






### **Try It! Varying Taper – Curved Balcony**

In this example you are going to add some main steel to a curved balcony, A closed polyline on the cover layer has already been formed.

Figure 6.5.6:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 16.dwg
- ▶ Make the Viewport on Slab 1 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Slab 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 04 the current Drawing Sheet

### **Add a Varying Taper Range to the Slab 1 curved balcony with one tapered leg**

- ▶ Select RebarCAD → Draw Range → New Mark or 
- ▶ Select the Tapered Range 
- ▶ Select the Varying Taper Range 
- ▶ In the Draw Bar dialog select: Bend Type 0, Grade A615/60, Size # 6, Center Spacing 8", View Side, Alignment Outer, Style Center and select OK

*Indicator bar*

*Bend Type 0*

*Side View Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2

*Setting Start Snap(s) Near.*

*Start of Bar Range / Enter Slope / True Len / Line:* Pick on the Cover Line as shown by point 3

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 4

*Range length* 29'-8".

*Range options:* 46 bars at < 8" > / Average c/c = 7 29/32" / Run out / Numeric:

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Pick entity:* Pick the boundary on the Cover Line, point 5

*Tapering dimension B.*

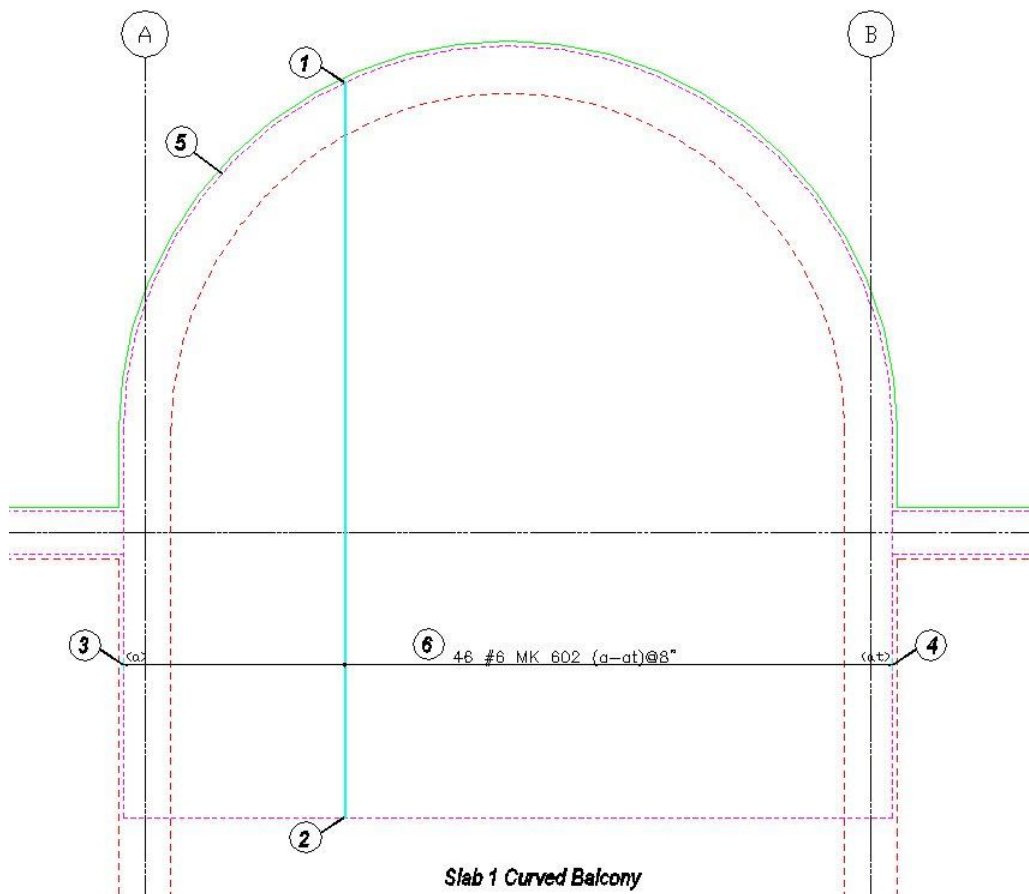
*Done.*

*Set Number is 5*

Notice how temporary node points show all the bars within the Range.

*Label bar <No>? or J to Justify:* Type **Y** and press Enter

*Pick point:* Pick near point 6








**Figure 6.5.6:1 Adding a Varying Taper Range to a curved balcony**



### **Add a Varying Taper Range to the Slab 1 Curved Balcony With Two Tapered Legs**

In this example you are going to draw a Bend Type 17 with varying B and D Legs and a constant C Leg. However, in order to ensure that RebarCAD prompts to apply the Varying Taper to more than one leg you will also need to add in any dimension needed into the D Leg field.

Figure 6.5.6:2 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 16.dwg
- ▶ Make the Viewport on Slab 2 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Slab 2 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 05 the current Drawing Sheet
- ▶ Select RebarCAD → Draw Range → New Mark or 
- ▶ Select the Tapered Range 
- ▶ Select the Varying Taper Range 
- ▶ In the Draw Bar dialog select: Bend Type 17, Grade A615/60, Size # 6, Center Spacing 8", View Left, Alignment Outer, Style Center.  
 Select the First and Last Bar buttons and enter a dimension of 1' for Leg C. Select the Set button under Sketch Bar, choose Bend Type 17, View Left. Select the Dimensions button, type 1' into the Leg D field and select OK three times to return to the drawing.

*Indicator bar*

*Bend Type 17*

*Left view Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2

*Setting Start Snap(s) Near.*

*Start of Bar Range / Enter Slope / True Len / Line:* Pick on the Cover Line as shown by point 3

*Setting Other Snap(s) Perp.*

*Pick end of Range:* Pick on the Cover Line as shown by point 4

*Range length 29'-8".*

*Range options: 46 bars at < 8" > / Average c/c = 7 29/32" / Run out / Numeric:*

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

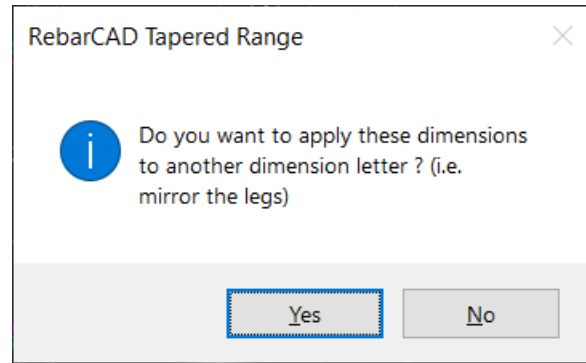
*Pick entity:* Pick the boundary on the Cover Line, point 5

*Path Range can only taper one dimension at a time.*

*Enter dimension to be tapered (B D ) <B>:*

*Press Enter to accept Leg B*

*Tapering dimension B*



#### 6.5.6:1 RebarCAD Tapered Range dialog

*Answer yes to apply the dimensions to another bar leg*

*Done*

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

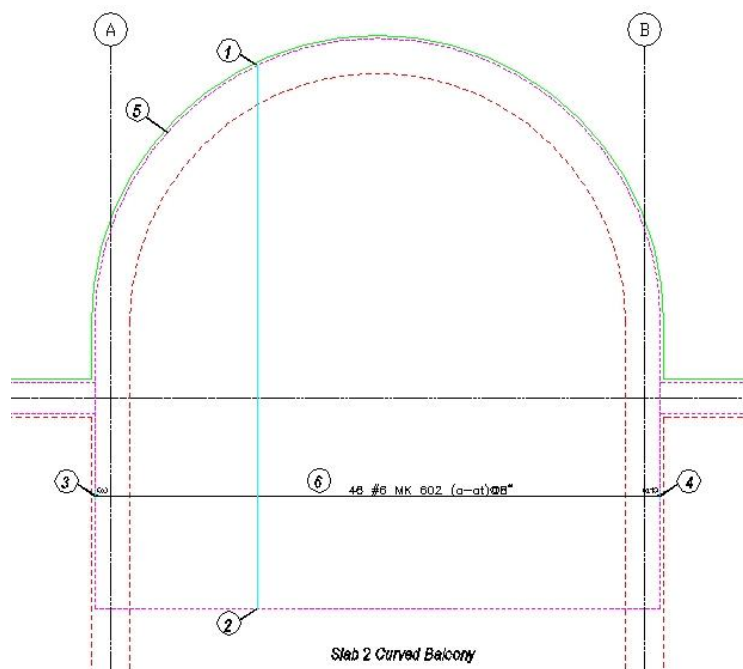
*Adjusting dimension Cy*

*Set Number is 8*

*Notice how temporary node points show all the bars within the Range.*

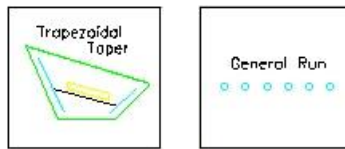
*Label bar <No>? or J to Justify: Type Y and press enter*

*Pick point: Pick near point 6*



**Figure 5.3.9:2 Adding a Varying Tapered Range to a Curved Balcony with two Tapered bar legs**

## 6.5.7 Trapezoidal Taper Range



**Figure 6.5.7:1 Trapezoidal Taper Range selection buttons**




This Range type draws an Indicator Bar at each end of the Range to define the length of the first and last bars. The Range line is then placed in between the first and last bars. The Bar Centers can be calculated at either the narrow or wide end of the fan as controls are available through the function to swap between each end. The intermediate bars are calculated as a fan arrangement. The Bar Label produced will show the total number of bars with a configurable suffix relating to the number of bars in the Range. Tapered Ranges can contain suffixes ranging from 'a' to 'zz' thus giving a maximum of 676 bars (that is, 26 x 26 letter combinations) in any Bar Set. Use a General Run to represent this Range type when placing the bars in a section.



### **Try It! Trapezoidal Taper – Slab**

In this example you are going to add a Trapezoidal Range to a slab as it turns a corner with a 45-degree chamfer.

Figure 6.5.7:1 below shows the points specified in this example.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 16.dwg
- ▶ Make the Viewport on Slab 3 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Slab 3 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 06 the current Drawing Sheet
- ▶ Add a Trapezoidal Taper Range to Wall 2 Elevation
- ▶ Select RebarCAD → Draw Range → New Mark or 

- ▶ Select the Tapered Range 

- ▶ Select the Trapezoidal Taper Range 

- ▶ In the Draw Bar dialog select: Bend Type 0, Grade A615/60, Size # 6, View Side, Alignment Outer, Style Center Select OK

*First indicator bar*

## *Bend Type 0*

*Side View Outer start point: Pick on the Cover Line as shown by point 1*

*Enter Outer Dimension B: Pick on the Cover Line as shown by point 2*

*In the Draw Bar dialog Select OK as the first indicator bar has already defined the properties.*

*Second indicator bar*

## *Bend Type 0*

*Side View Outer start point: Pick on the Cover Line as shown by point 3*

*Enter Outer Dimension B: Pick on the Cover Line as shown by point 4*

*Pick position of Range Line on or near first or last bar <Specify>: Pick on the Cover Line as shown by point 5*

*Pick position of Range Line on or near other typical bar: Pick on the Cover Line as shown by point 6*

*Press 'C' to calc bar numbers along shown line or <ENTER> to swap line: Press Enter to swap*

**Note:** *by defining the bars from the narrow end to the wide end the calculation line will be shown as the narrow end and you will be defining the minimum centers. If you wish you can press Enter to move the calculation line to the other end of the bars and you could then calculate the number of bars based on the maximum centers. However, be aware that RebarCAD does not check the minimum or maximum centers at the opposite end to test for clashing or for centers being too far apart.*

*Press 'C' to calc bar numbers along shown line or <ENTER> to swap line: Press Enter to swap*

*Press 'C' to calc bar numbers along shown line or <ENTER> to swap line: Type C and press Enter*

*Enter Slope / True Len / Line / or enter to proceed <Enter>: Press Enter to continue*

*Range length 10'-8 3/16"*

*Center spacing or <Number of bars>: Type in 4 and press Enter.*

*Range options: 34 bars at < 4" > / Average c/c = 3 57/64" / Run out / Numeric:*

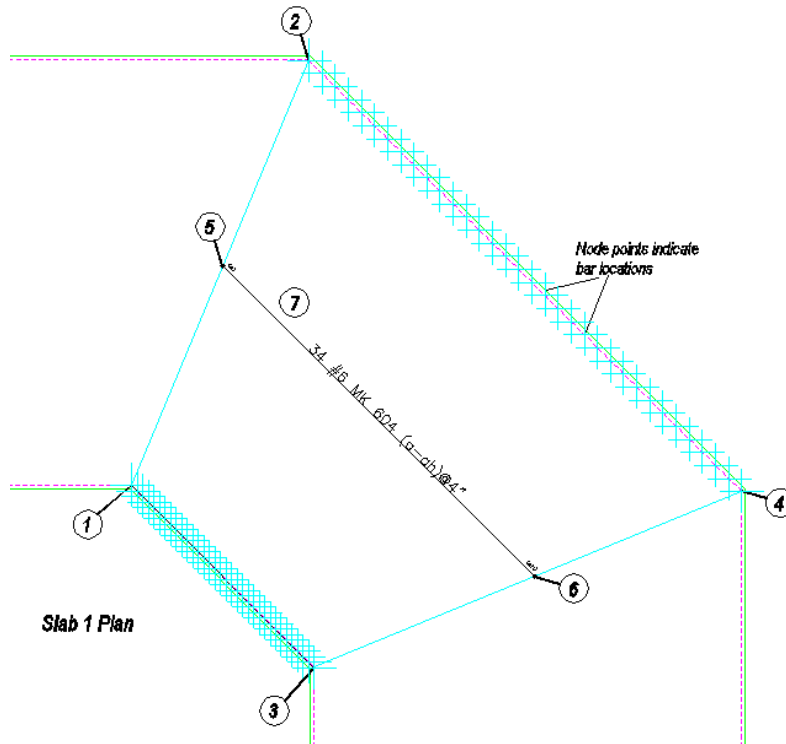
*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to accept*

*Set Number is 6*

*Label bar <No>? or J to Justify: Type in Y and press Enter*

*Pick point: Place label on the Range Line as shown in the figure 5.3.10:1 below.*

**Note:** *When the Range is complete RebarCAD displays a series of node points which indicate the bar spacing. These will disappear when you zoom or regenerate the drawing. You can use these points to check the distance between the bars.*

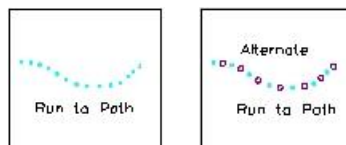


**Figure 6.5.7:1 Adding a Trapezoidal Taper Range to a Floor Slab**

## 6.6 Bar Runs

Each of the Range types above indicates its corresponding Bar Run Type. The Run to Path Range types, however, require some additional explanation and this is given below.

### 6.6.1 Run to Path



**Figure 6.6.1:1 Run to Path selection buttons**

Two Run to Path options are available. The Run to Path command details a Single Bar Mark and the Alternate Run to Path details two alternate Bar Marks. The Bar Run is defined by picking a polyline entity, choosing which side to place the bar and setting the Bar Centers or number of bars.



### Hints & Tips – Run to Path Along a Curved Polyline




When using Run to Path along a curved polyline switch off any running Object Snaps (Osnaps) that have been set as this may otherwise cause the bars in section to bunch together.



## 6.6.2 Try It! Run to Path

In this example you are going to add the main steel to a circular column plan and elevation. You will add the bars to the plan first and then to the elevation. After adding the bars to the elevation, you will need to edit the Bar Label to restore the number of bars.

Figure 6.6.2:1 below shows the points specified in this example

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 17.dwg
- ▶ Make the Viewport on Columns Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Column 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 01 the current Drawing Sheet
- ▶ Add a Run to Path Bar Run to Column 1 Elevation
- ▶ Select RebarCAD → Draw Range → New Mark or 
- ▶ Select Bar Run

- ▶ Select the Run to Path



In the *Draw Bar* dialog set: *Number of Bars* to **10**, select *Bend Type* **0**, *Grade* **A615/60**, *Size* **#6**, *Alignment* **Outer**, *Style* **Center** and select OK

*Bend Type* 0

*Pick entity:* Pick the Cover Line near point 1

*Pick ON entity for start point of run:* Pick top quadrant of the Cover Line, point 2

*Range length* 8'-0 23/32"

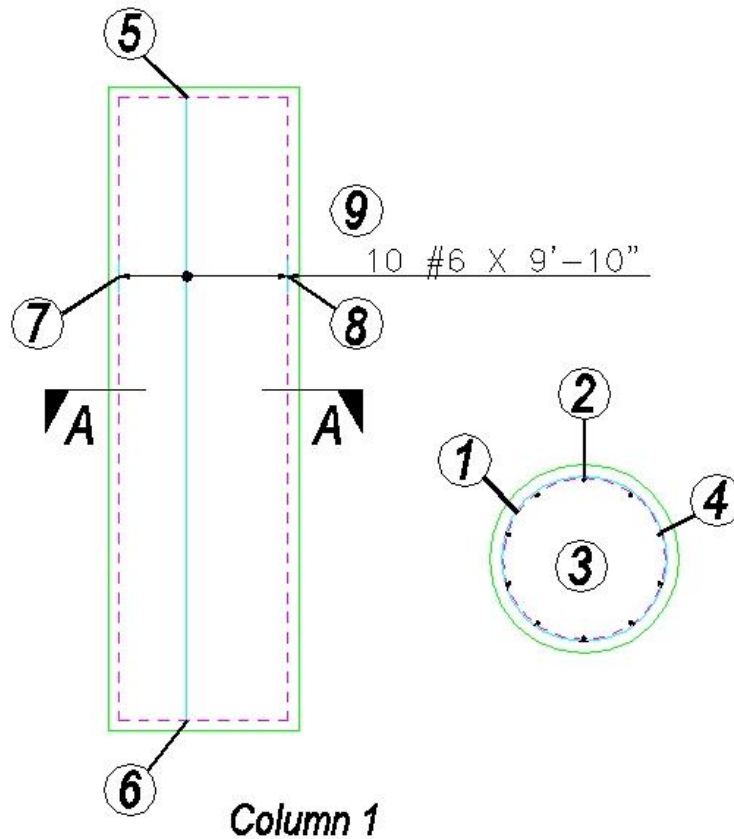
*Range options:* 10 bars at < 1' > / Average c/c = 10 3/4" / Run out / Numeric:

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

*Pick side for run <Centered>:* Pick inside the circle, point 3


*Set Number* is 3

*Label bar <No> ? or J to Justify:* Press Enter



**Figure 5.4.2:1 Adding Bars in Section using Run to Path to a Circular Column**

#### Add Single Indicator Range to Column Elevation

- ▶ Select RebarCAD → Draw Range → Add View or 
- ▶ Pick Bar Set for New View: Pick Bar View as shown by point 4  
*Existing Range of this bar - will calculate centers to existing length*  
 In the Draw Bar dialog, set the View to **Side**, pick the Suppress C/C display and select OK  
*Indicator bar*  
*Bend Type 0*  
*Side View Outer start point:* Pick on Cover Line as shown by point 5  
*Enter Outer Dimension B:* Pick on Cover Line as shown by point 6  
*Setting Start Snap(s) Near*  
*Start of Bar Range / Enter Slope / True Len / Line:* Pick on Cover Line as shown by point 7  
*Setting Other Snap(s) Perp*  
*Pick end of Range:* Pick on Cover Line as shown by point 8  
*Range length 2'-8"*  
*Range options: 10 bars at < 3 9/16" > / Average c/c = 3 9/16" / Run out / Numeric:*  
*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to continue*

*Label bar <No>? or J to Justify:* Type **Y** and press Enter

*Pick point:* Place label near point 9







## Hints & Tips – Resetting the Number of Bars

If the number of bars in the Bar Label updates to show the wrong number, double pick the Bar Label, type in the number of bars (for instance, 10 in this case) and select OK. Chapter 7, *Edit and Modify commands*, give more information on editing bar and range data.



## Try It! Alternate Run to Path

Figure 5.4.3:1 below shows the points specified in this example

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 17.dwg**
- ▶ Make the Viewport on *Wall 1 Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or .
- ▶ Make *Wall 1* the current Member and select OK.
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or .
- ▶ Make *02* the current Drawing Sheet
- ▶ Add a Run to Path Bar Run to Column 1 Elevation
- ▶ Select **RebarCAD** → Draw Range → New Mark or .
- ▶ Select *Bar Run*
- ▶ Select the Alternate Run to Path 
- ▶ In the *Draw Bar* dialog for the first bar select: **Bend Type 0, Grade A615/60, Size # 4**  
Select OK

*First bar:*

*Bend Type 0*

In the *Draw Bar* dialog for the first bar select: **Bend Type 0, Grade A615/60, Size # 8** Select OK

*Second bar:*

*Bend Type 0*

*Pick entity:* Pick on the Cover Line as shown by point 1

*Range length 30'-3 13/16".*

*Center spacing or <Number of bars>:* Type in **8** and press Enter

*Range options:* 47 bars at < 8" > / Average c/c = 7 29/32" / Run out / Numeric:

*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press Enter to continue

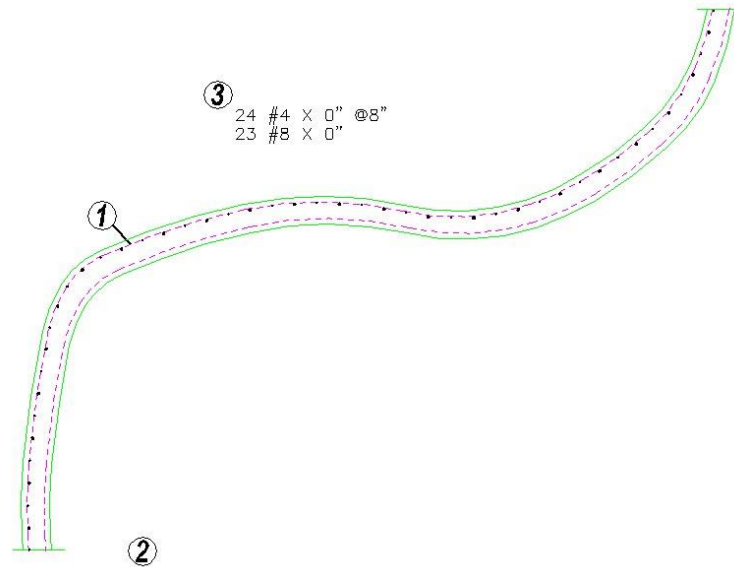
Pick side for run <Centered>: Pick to the right at point 2

Set Number is 7

Label bar <No> ? or J to Justify: Pick at point 3

Set Number is 8.

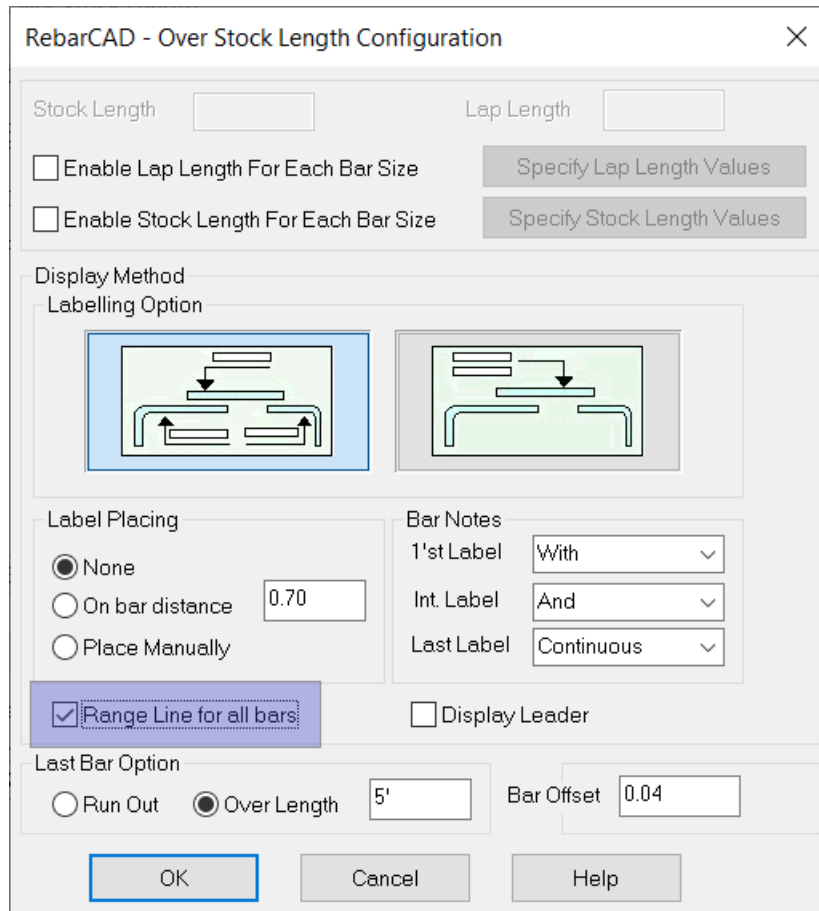
Label bar <No> ? or J to Justify: Pick below the first Bar Label



**Figure 6.6.1:1 Adding Bars in Section to a Curved Wall using Alternate Run to Path**

## 6.7 OSL Groups and Ranges

The only Range types that are supported are *Single Indicator*, *Double Indicator* and *Double Indicator Taper*. The OSL dialog box will be displayed if the length of the bar is over the Stock Length. In the *Configuration* dialog an additional prompt is available which will place Range Lines for each of the OSL bars in the group: this marked in red in figure 5.5:1 below.



**RebarCAD - Over Stock Length Configuration**

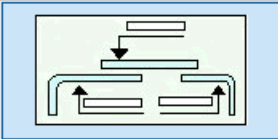
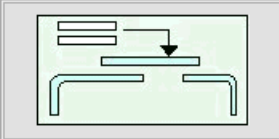
Stock Length  Lap Length

☐ Enable Lap Length For Each Bar Size Specify Lap Length Values

☐ Enable Stock Length For Each Bar Size Specify Stock Length Values

Display Method

Labelling Option

Label Placing

☒ None

☐ On bar distance

☐ Place Manually

☒ Range Line for all bars

Bar Notes

1'st Label

Int. Label

Last Label

☐ Display Leader

Last Bar Option

☐ Run Out ☒ Over Length

Bar Offset





OK Cancel Help

**Figure 6.7:1 RebarCAD Over Stock Length Configuration dialog**



### **Try It! Adding OSL Bars and Ranges to a Floor Slab**

Figure 6.7:3 below shows the points specified in this example.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 17.dwg
- ▶ Make the Viewport on Slab 1 Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Slab 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Select RebarCAD → Draw Bar → Set Over Stock Length or 
- ▶ Enter the value for Over Stock Length <12000.0> : Type in 9000 and press Enter
- ▶ Select RebarCAD → Draw Range → New Mark or 



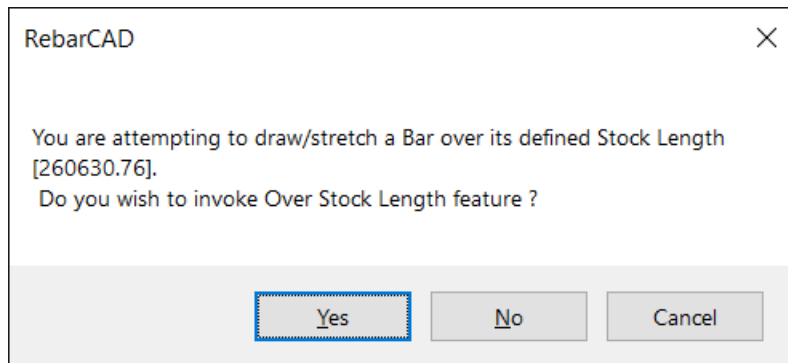
- ▶ Select the Single Indicator Range
- ▶ In the Draw Bar dialog for the first bar select: *Bend Type 0*, *Grade A615/60*, *Size # 6*, *Centers 12"*, *View Side*, *Alignment Outer*, *Style Center* and select OK

*Indicator bar*

*Bend Type 0*

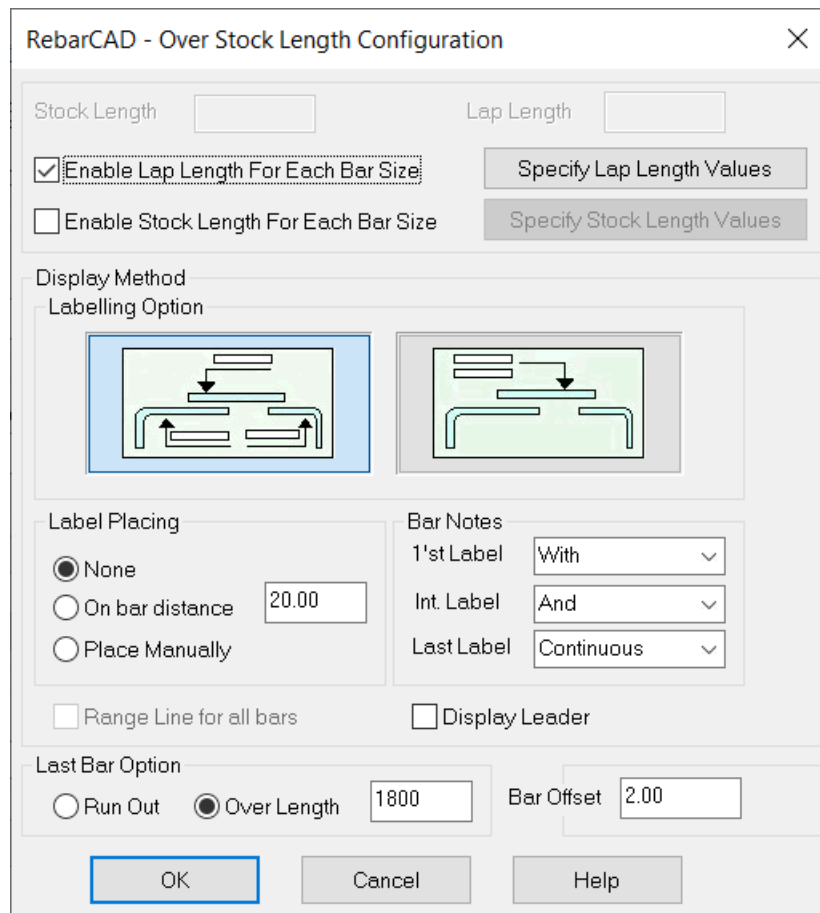
*Side View Outer start point:* Pick on the Cover Line as shown by point 1

*Enter Outer Dimension B:* Pick on the Cover Line as shown by point 2



**Figure 6.7:2 Invoke OSL Feature dialog**

- ▶ Answer **Yes** to the Invoke OSL?
- ▶ In the *OSL Configuration* dialog choose Option 4 with the Splice Lines. Select *Configuration* and ensure that the dialog is set-up as shown in figure 6.7:2.



**Figure 6.7:3 RebarCAD Over Stock Length Configuration dialog**

- ▶ Select OK twice to close the dialog boxes

You will then be prompted to select the Splice Lines.

- ▶ Select Splice Lines

*Select objects:* Pick on the Splice Line as shown by point 3

*Select objects:* Pick on the Splice Line as shown by point 4

*Select objects:* Pick on the Splice Line as shown by point 5

*Select objects:* Pick on the Splice Line as shown by point 6

*Select objects:* Press Enter to continue

You will now be prompted to select the start and end of the first Range Line. Make sure you select the extents to of the Range so that it crosses the first bar.

- ▶ Setting Start Snap(s) Near

*Start of Bar Range / Enter Slope / True Len / Line:* Pick on the Cover Line as shown by point 7

*Setting Other Snap(s) Perp.*

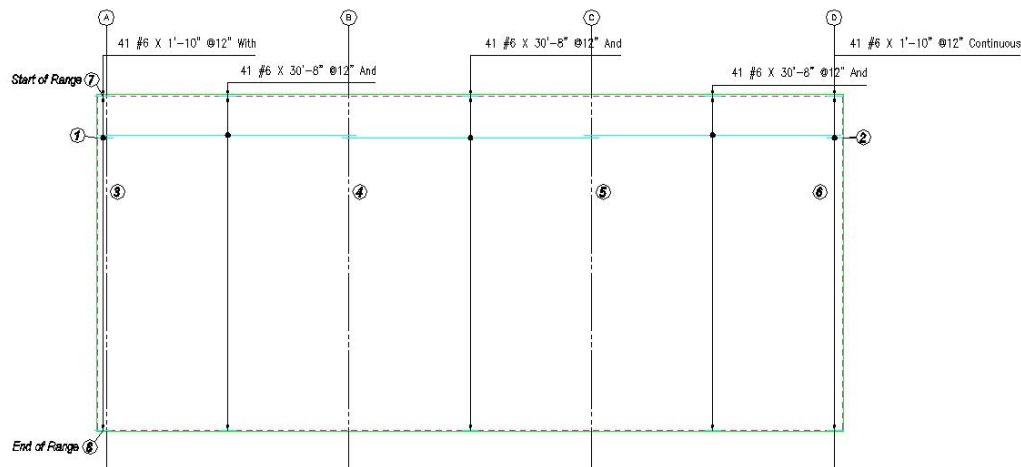
*Pick end of Range:* Pick on the Cover Line as shown by point 8

Range length 40'.

Range options: 41 bars at < 1' > / Average c/c = 1' / Run out / Numeric:

Press ENTER to continue or (A)verage/(R)un Out/(N)umeric: Press Enter to continue


The RebarCAD OSL command draws the Range Lines across all the bars and places the Bar Labels. Use Grip Stretch to move the labels to the correct position and the leaders will follow. This is because the AutoCAD Dimension Label / Leader has been switched to inside the Label Configuration.



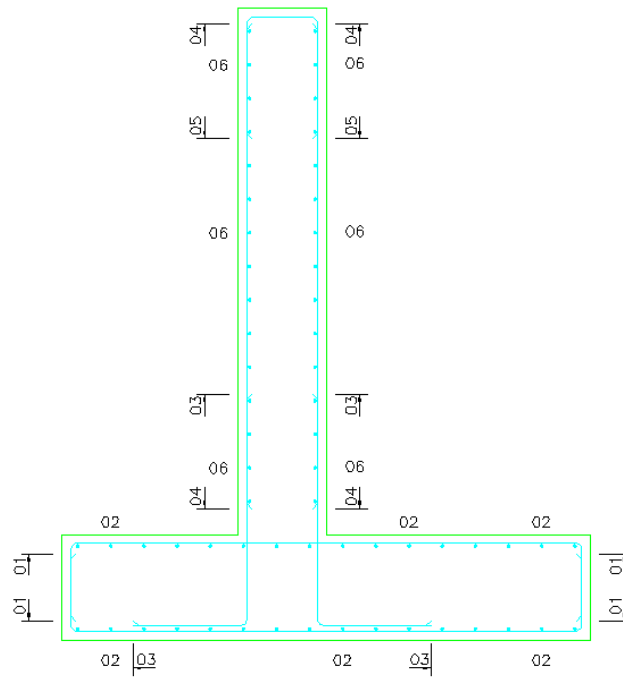
**Figure 6.7:4 Adding OSL Bars and Ranges to a Floor Slab**



### **Try It! Drawing a Retaining Wall**

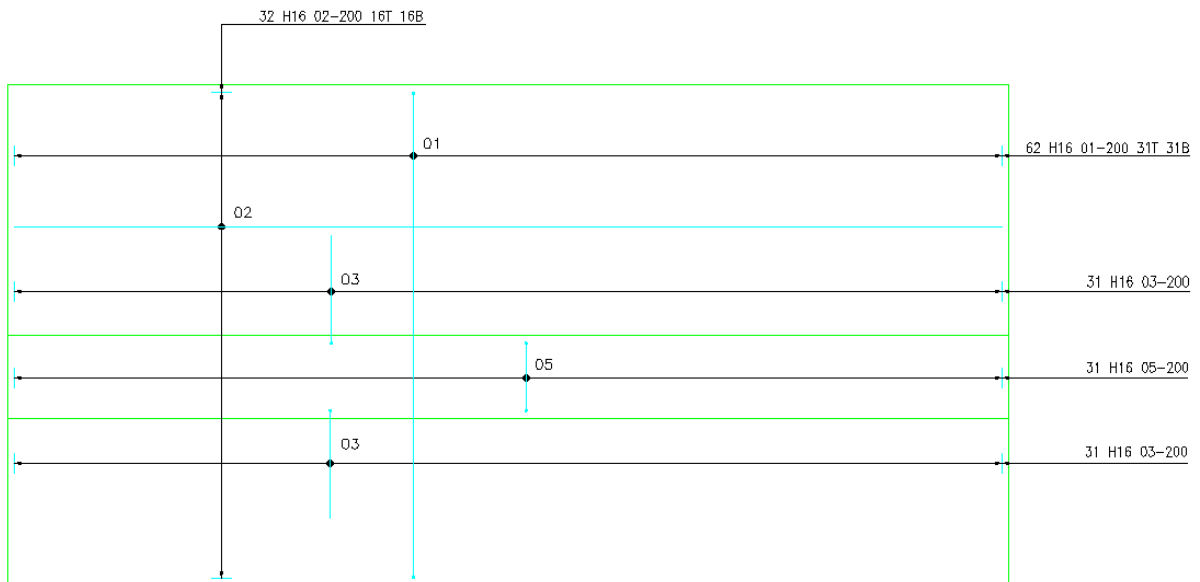
- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\Retaining Wall.dwg
- ▶ Make the Viewport on Retaining Wall (02) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet

The purpose of this Try It! is to detail a concrete retaining wall, add all the labeling and take advantage of the multiplier field in the draw bar dialog box. Using the finished details below as a guide add the reinforcement to the retaining wall plan, section and elevation. This will demonstrate a sufficient level of understanding and knowledge to detail simple reinforced structures.



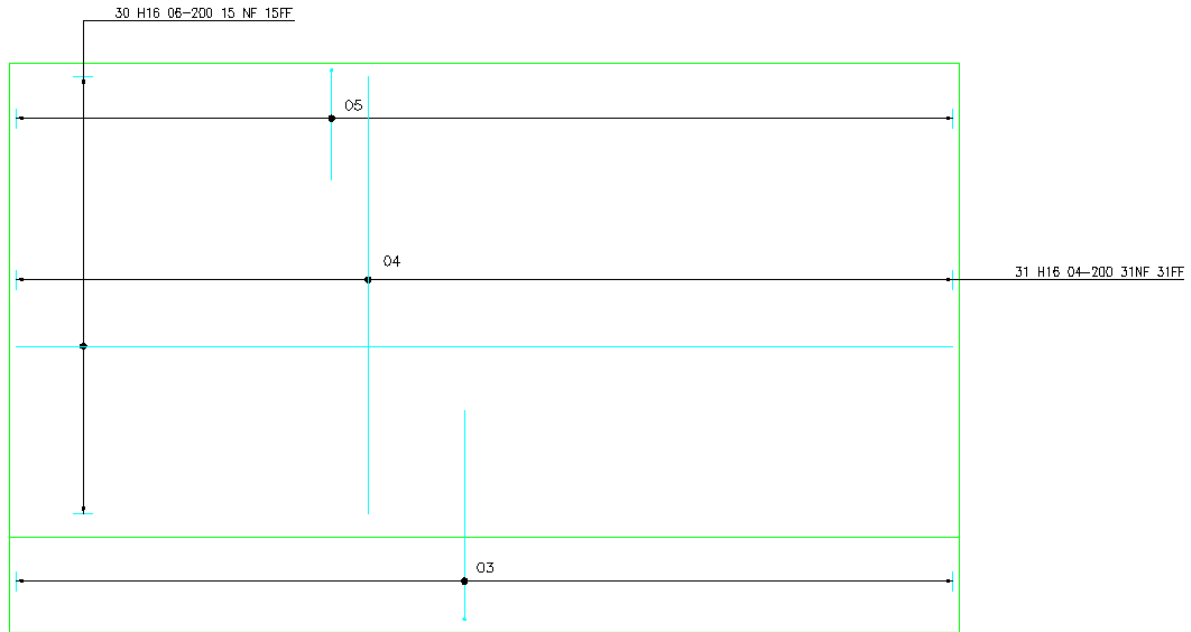
Section A-A

Figure 6.7:5 Section A-A



Plan View

Figure 6.7:6 Retaining Wall Plan View



## Front Elevation

**Figure 6.7:7 Front Elevation**

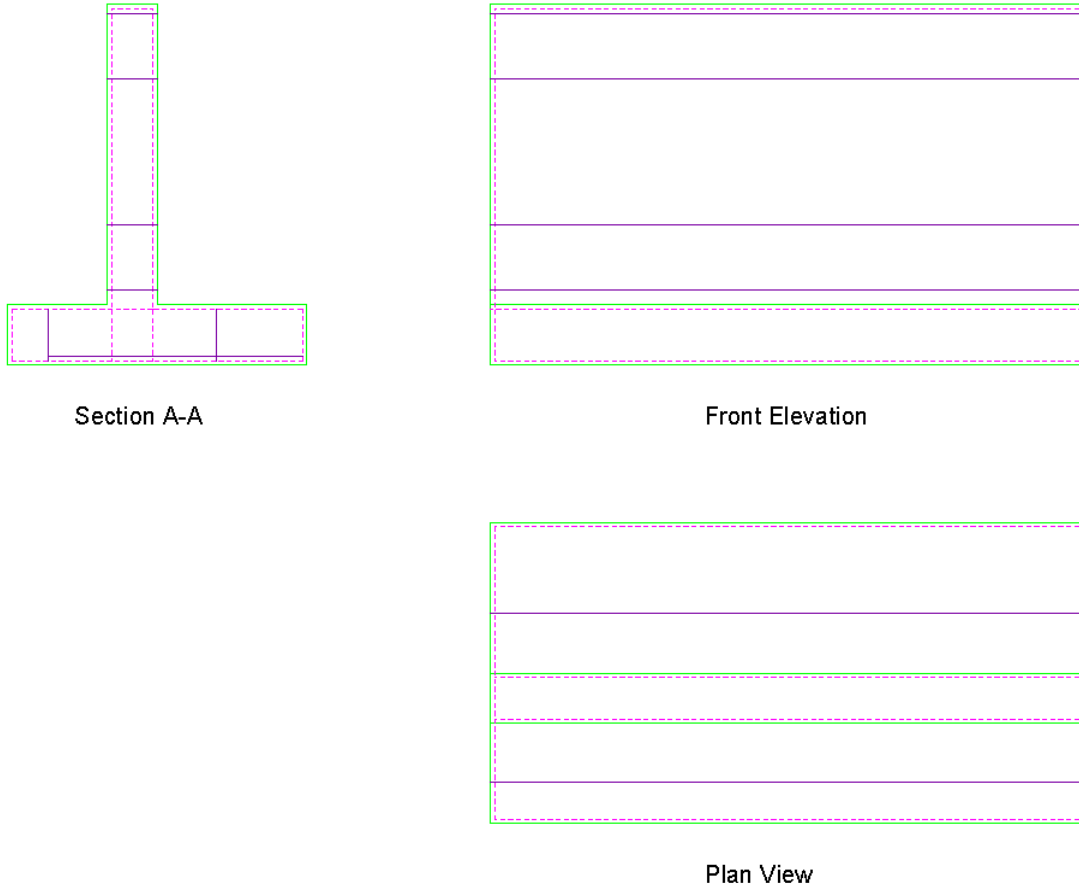
RebarCAD - Bar List

Release Num	Bar Mark	Size	Total No. Bars	Bar Length (mm)	Bend Type	A	B	C	D	E	F	G	H	J	K	O	R	Total Weight (tonnes)
1	1	#7	0	2320			2630											0.000
2	2	#7	0	1300	2	135	990					135						0.000
3	3	#7	0	2330	3	125	580	660	305	660			555	80	355	1595		0.000
4	4	#7	0	1865	3	910	600	355					580	145	1410			0.000
5	5	#7	5	2090	4	155	420	605	305	605			550	255	1235			0.003
6	6	#7	6	2185	4	155	795	825	410				665	490	1695			0.003

Dimension units: mm Weight units: kg Total Weight units: tonnes Bar size units: Metric

**Figure 6.7:8 Bar List showing bar bending information**

Construction lines have been added to the G.A drawing, as shown in figure 5.5.2:5 below and to aid with the placement of bars, all dimensions for the bar legs are shown in figure 5.5.2:4 above.



**Figure 6.7:9 Retaining Wall Outlines**

## 6.8 Key points – Range Types and Bar Runs

- ▶ Ranges can be roughly broken up into five groups:
  - *Single Group Ranges*
  - *Multiple Group Ranges*
  - *Radial Ranges*
  - *Tapered Ranges*
  - *Bar Runs*
- ▶ Use the Range Configuration to switch off the Range offset prompt and set the Start and Other Range Snaps.
- ▶ Bar Runs can be quickly placed on the bar leg by picking the leg when prompted to start the Range.
- ▶ Use the Multi field in the Draw Bar dialog to multiply the number of bars drawn, for example the top and bottom faces.

- ▶ In the Staggered Ranges the bars can be either offset or reversed.
- ▶ Use setting out construction lines for calculating the length of radial bars graphically.
- ▶ With Alternate Ranges draw the bars in the full side view of the bar or manually input the dimensions before drawing the Range. Editing is limited on this Range type.
- ▶ You can use the Slope/True Length/Line option inside the Range command Set An Angle when drawing a Plan View.
- ▶ When detailing Tapered Ranges always start with the Range and not the individual Bar Views.
- ▶ When detailing a Tapered Range start with the shortest bar first as this will allow you to apply a step taper.
- ▶ You can taper more than one leg on a bar.
- ▶ Varying Taper Range will only work with a closed polyline boundary. If the function fails to recognise the boundary, explode it and recreate it with the Polyline Edit command.
- ▶ If you need to have more than one leg tapered when using the Varying Taper command remember to add a dimension for the additional leg in the Sketch Bar dialog.
- ▶ Sketch bars can be used to show a projected view of a bar.
- ▶ The spacing on a Trapezoidal Taper can be calculated on the short or long edge.
- ▶ Use the Multiple Group Ranges to detail around holes and to adjust to show changes of angle in a structure.
- ▶ Range Offsets can be preset to a required distance in the Range Configuration. This could be half a bar diameter to give automatic offsets from the start and end of Range if the offsets are disabled.
- ▶ Range Offsets can be disabled in the Range Configuration.
- ▶ Object Snaps can be added to the Start and Other Range Snaps in the Range Configuration.
- ▶ Over Stock Length (OSL) bars can only be detailed with Double Indicator Taper Ranges and Single and Double Indicator Ranges.

## 6.9 Command List – Range Types and Bar Runs

Action	Menu Selection	Toolbar	Icon
Draw Range → New Mark	RebarCAD → Draw Range → New Mark	Draw Range	
Draw Range → Add View	RebarCAD → Draw Range → Add View	Draw Range	
Draw Bar → New Mark	RebarCAD → Draw Bar → New Mark	Draw Bar	
Draw Bar → Add View	RebarCAD → Draw Bar → Add View	Draw Bar	
Set Member	RebarCAD → Draw Bar → Set Member	Draw Bar	
Set Drawing Sheet	RebarCAD → Draw Bar → Set Drawing Sheet	Draw Bar	
Set Over Stock Length	RebarCAD → Draw Bar → Set Over Stock Length	Draw Bar	
Leader 2	RebarCAD → Leaders → Leader 2	Leaders	
View Bar List	RebarCAD → View Bar List	RebarCAD	
Range Configuration	RebarCAD → Configuration → Configuration Center → Range	Config	


## 7 Labeling Commands

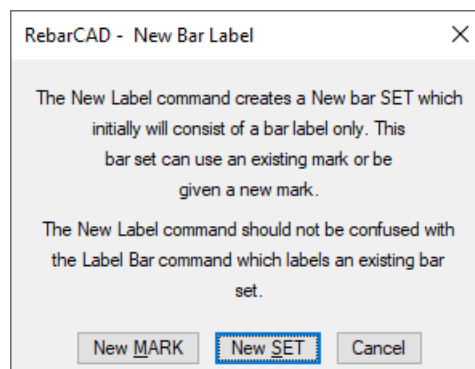
### 7.1 Introduction

Each Bar Set on the drawing requires a Bar Label (call off) to be complete. RebarCAD is designed to allow a user to add only one Bar Label per Bar Set. Additional labels such as bar references, which show either the bar length or the Bar Mark, and Ticks and Tags (end of bar indicators) can be added. You can Mask the Bar Label text, that is, leave a clear space around the text either individually or for the whole drawing if it becomes congested.

The tools for adding text to the Bars Set are found on the RebarCAD pull down menu under Labeling.

### 7.2 Add New Label

The Add New Label command, , creates a new Bar Label either as a New Mark or a New Set without having to draw a bar or range. This command is available from **RebarCAD** → Labeling or through the *Labeling* toolbar. When the command is selected the dialog box shown in figure 6.1:1 is displayed.

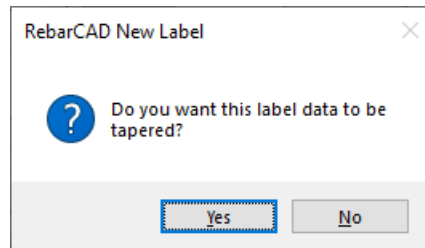


**Figure 7.2:1 RebarCAD New Bar Label dialog**

**New Mark:** If you select the *New Mark* option, the *Draw Bar* dialog opens with the next Bar Mark Number automatically allocated. You can input the bar data as normal – for instance, Bend Type, number of bars, dimensions, and so on – and then select OK to close the dialog. **RebarCAD** prompts you to place the label on the drawing and offers to draw a leader if required.

**New Set:** If you select the *New Set* option you will be prompted to pick on an existing Bar Mark on the drawing. All the data for the bar will then be taken from the Bar Mark selected. Select OK and place the Bar Label on the drawing.

If you use the *First Bar* button in the *Draw Bar* dialog to enter data by hand and then pick the Last Bar button **RebarCAD** will ask if you want this label data to be tapered, as shown in figure 6.1:2 below.



**Figure 7.2:2 RebarCAD New Label dialog**

If you select **Yes** then RebarCAD will automatically consider this as a tapered Bar Mark. You will then need to enter the number of bars so that RebarCAD can calculate the dimensions of each of the Tapered bars.

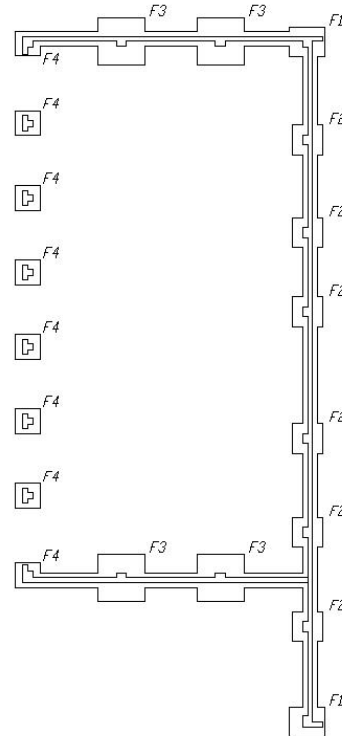
If you select **No** you will be returned to the *Draw Bar* dialog.

This command is very useful if you simply want to add stock steel to the drawing or perhaps add a Bar Label to an existing range. If you have already detailed the top steel, for instance, you can then use the New Label command to add the bottom steel rather than having to detail the whole range again. However, note that if you choose to edit the range you will need to edit the Bar Label separately as the two are not automatically linked. There are better techniques to produce two labels on one Range Line and these are covered later in [Chapter 7, Edit and Modify commands](#).

### 7.2.1 Rebar Tables


You can also use the **New Label** command to add Bar Labels to a tabulated table that relates to a master diagram.

FOOTING MAT SCHEDULE			
MARK	QTY.	SIZE	REINFORCING
F1	2	6'-0" x 7'-2" x 2'-0"	2x8 #5 X 5'-6" @12" BTM. S.W. 2x7 #5 X 6'-8" @12" BTM. L.W. 2x7 #7 X 6'-8" @12" TOP L.W. 2x8 #7 X 5'-6" @12" TOP S.W. 2x4 #3 MK 314 @48" STANDEE
F2	6	6'-0" x 6'-0" x 2'-0"	6x28 #5 X 5'-6" 1/2 E.W. T&B 6x4 #3 MK 313 @48" STANDEE
F3	4	9'-6" x 9'-6" x 2'-0"	4x40 #5 X 9' 1/2 E.W. T&B 4x9 #3 MK 313 @48" STANDEE
F4	8	4'-0" x 4'-0" x 1'-3"	8x10 #5 X 3'-6" 1/2 E.W.



**Figure 7.2.1:1 Typical use of Tabulated Bar Labels in RebarCAD**

## 7.3 Label an Existing Bar

The Label an Existing Bar command, , will add a Bar Label to an existing set of bars on a drawing that has not already been labelled. This command is accessible through **RebarCAD** → Labeling or from the *Labeling* toolbar. If the set has already been labelled then **RebarCAD** will report, *Bar Set already labelled* and abort the command. Only one Bar Label can be shown per Bar Set on the drawing.

The command will prompt you to select a bar or to press Enter for a multiple selection of Bar Sets, thus: *Pick bar/label to edit or <ENTER> for multiple selection:*

### 7.3.1 Labeling an Individual Bar

If you pick a single Bar Label you will be prompted for the Bar Label location and rotation and then for the start point of the leader on the bar or range.

- ▶ Pick Bar Label location:
- ▶ Rotation angle:
- ▶ Pick point on bar:

### 7.3.2 Placing a Selection of Bar Labels

If you press Enter to invoke the *Selection* then you can pick several bars. The command cycles through the bars asking of each:

Link label to bar/range with leader (Yes/No/Always) <Yes>:

- ▶ If you answer *Yes* you are then asked to pick the start point of a leader to become part of the Bar Set.

In each case the leader drawn is either going to be Leader 1 or the Leader for the current Dimension Style depending on whether the *Dimension Label/Leader* option is switched *Off* or *On* inside the *Label Configuration* dialog.

## 7.4 Formatting Bar Labels

RebarCAD offers extensive tools to configure the Bar Labels, Bar Refs and Ticks and Tags to your requirements. The Configuration options are available from the RebarCAD menu by selecting Configuration, then Configuration Center and then Label Configuration. This is not intended to be an exhaustive guide to label configuration but it will give you some information and show you points that may be of use to you.

### 7.4.1 Label Configuration dialog

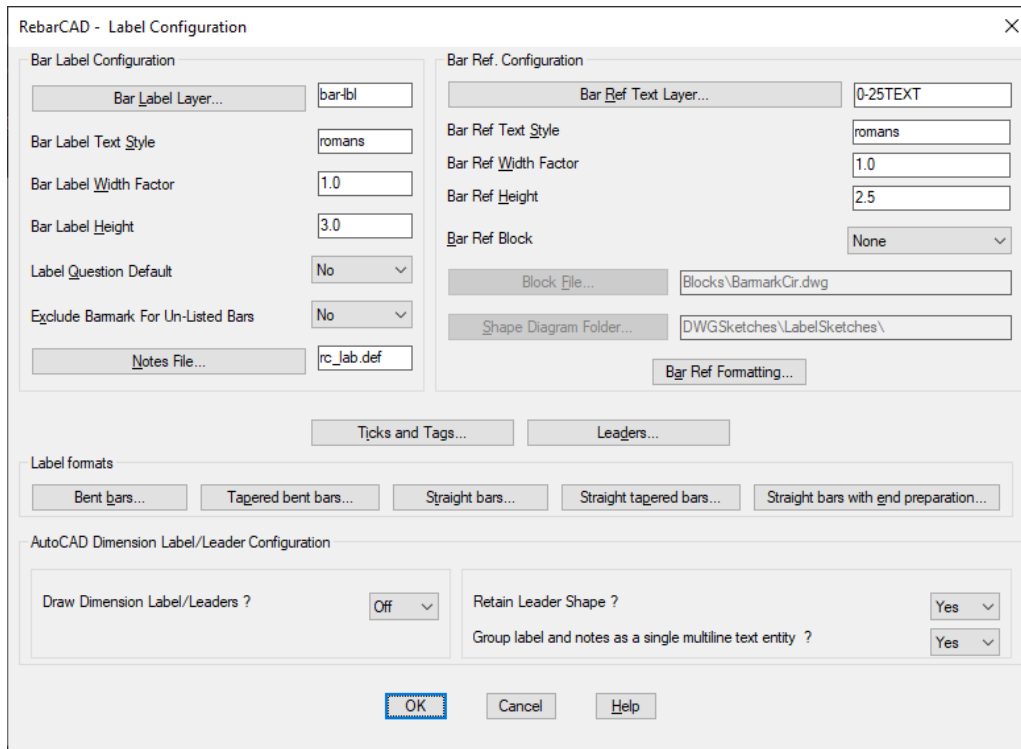
Any dimensions set in the RebarCAD Configuration dialogs should be considered as plotted dimensions.

Figure 6.3.1:1 below shows the *Label Configuration* dialog. All layers and fonts must be present in the current drawing before they can be changed in the dialog.

You can change the *Label Question* default to *Yes*, *No* or *None*. If set to *Yes* you can simply press Enter when prompted for a Bar Label.

To change the prompt select RebarCAD → Configuration → Configuration Center and select *Label Configuration*. You can then change the prompt by selecting the drop down menu alongside the *Label Question Default* option.

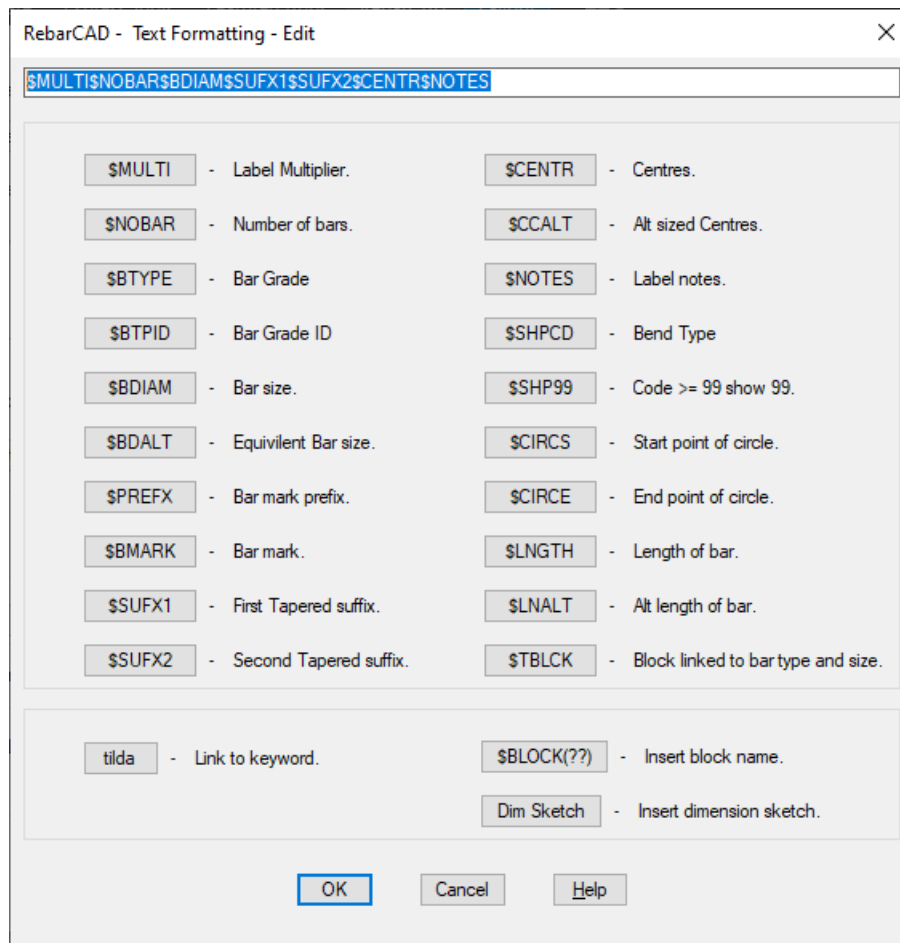
*Draw Dimension Label/Leader* invokes the *AutoCAD* style leaders instead of the RebarCAD ones if you select *On* in the drop down box.



**Figure 7.4.1:1 RebarCAD Label Configuration dialog**

## 7.4.2 Bend Bar Label Format

This dialog lets you configure the string that will become the Bar Label. There are three different Label Format options: *Bend*, *Straight* and *Tapered*. Bend and Tapered Bar Labels will require a Bar Mark but the Straight Bar Label will show the length of the bar.



**Figure 7.4.2:1 RebarCAD Text Formatting dialog**

The Bend Label format has the following elements:

`$MULTI~x$NOBAR $BDIAM MK $BMARK (~$SUF1~-$SUF2~)@~$CENTR ~$NOTES`

`$MULTI` - Bar Label multiplier

`$NOBAR` - Number of bars assigned to the Bar Set

`$BDIAM` - Bar diameter

`MK` - Hard wired text to denote Mark. Any text or symbol can be hardwired into the label.

`$BMARK` - Bar Mark Number. The format of the Bar Mark Number is set-up in the Bar Configuration.

`$SUF1` - Although this is only really required for the taper bar this shows the first tapered suffix

`$SUF2` - Although this is only really required for the taper bar this shows the last tapered suffix

`@` - Hardwired text to denote AT

`$CENTR` - Bar Centers for the Bar Set

`$NOTES` - Displays any text typed into the notes box in the *Draw Bar* dialog.

### 7.4.3 3 Straight Bar Label Format

\$MULTI~x\$NOBAR \$BDIAM X \$LNGTH (~\$SUFx1~-\$SUFx2~)@~\$CENTR ~\$NOTES

The Straight Bar Label Format only varies in that the *MK* and *\$BMARK* are replaced with *\$LNGTH*, which shows the total length of the bar.

You can move, delete from or add to the keywords in the Bar Label format to create your own style of Bar Label.

### 7.4.4 Bar Mark Format

To access the *Bar Mark Format* dialog, open the *Bar Configuration* dialog from the *Configuration Center* and select the *Bar Marking* button.

The Bend Label Format is displayed as *\$PREFIX\$BDIAM\$BMARK* which will show as Prefix, Bar Diameter and then the Bar Mark.

The Straight Label Format is displayed as *\$PREFIX\$BMARK* which will show the Prefix and the Bar Mark.

By default, the program is shipped not to show Bar Marks for Straight Bars.

### 7.4.5 Hints & Tips - Placing a Circle Around the Bar Mark


You can configure **RebarCAD** to show a circle around the Bar Mark. Do this by preceding *\$BMARK* with *\$CIRCS* and following it by *\$CIRCE* (*Circle Start* and *Circle End*) as shown below. RebarCAD will draw a circle large enough to enclose the Bar Mark Number.

\$CIRCS\$BMARK\$CIRCE

### 7.4.6 Hints & Tips – Showing Configuration Changes

You can update any changes to the label configuration by using the Redraw Bar command, accessible from the RebarCAD → Editing pull-down menu.

## 7.5 Tick and Tag

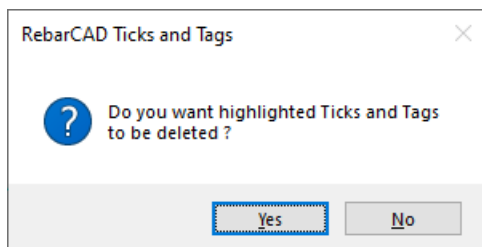
The Tick and Tag command, , is used to mark the start and end of the bar, typically in a section of the structure where bars are normally drawn on top of each other. This command is accessible through **RebarCAD** → Labeling or from the *Labeling* toolbar.

The Tick is normally shown as a 45-degree line starting just after the start and just before the end of the bar.

The Tag is shown as a line drawn perpendicular to the bar and with the Bar Mark or bar length shown parallel to the bar.

You can *Tick and Tag* all the bars on one face of a structure by selecting them all with the crossing window at the beginning of the function.

If some of the bars have already been tagged then **RebarCAD** will prompt you to delete the existing Ticks and Tags as shown in figure 6.4:1 below. It is best to answer Yes here as otherwise you will have two sets of Ticks and Tags on top of each other.




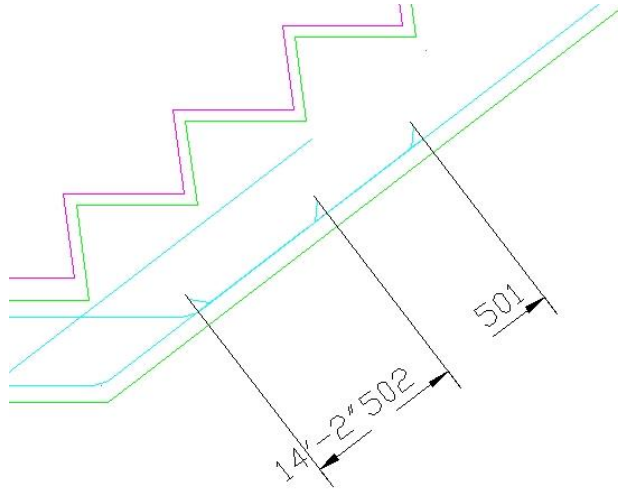
**Figure 7.5:1 Ticks and Tags Deletion dialog**

## 7.5.1 Hints & Tips – Alternative Ways of Distinguishing Bars

If you prefer not to use *Ticks and Tags* to show the end of the bar then you could instead move the bars slightly apart and use the Bar Reference command to show the length or the Bar Mark.

## 7.6 Tick and Tag to a Line

The Tick and Tag to a Line command, , gives the same result as the standard Tick and Tag command but allows you to specify a line on which to align the tags. You can invoke this command through RebarCAD → *Labeling* or from the *Labeling* toolbar. The command is very useful anywhere that you need to align tags to each other, for instance on sloping sections such as staircases or circular sump tanks.

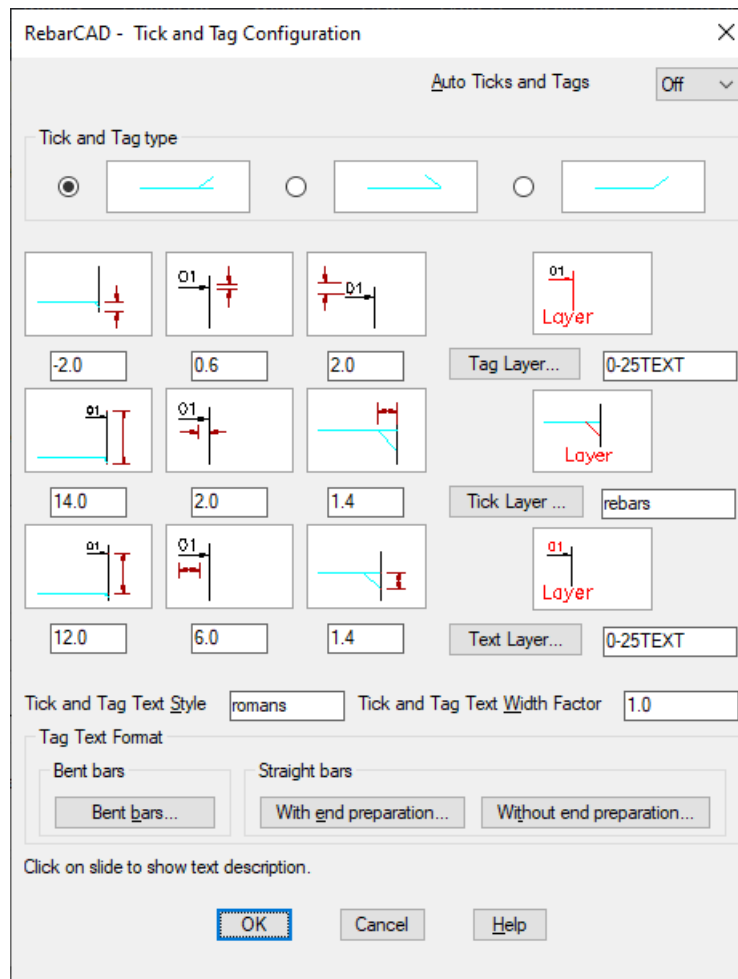


**Figure 7.6:1 Ticks and Tags added to Straight Bars**

## 7.7 Tick and Tag Configuration

Invoke *Tick and Tag Configuration* options from the RebarCAD menu by selecting Configuration → Configuration Center → Label Configuration, → Ticks and Tags.


The area of the graphic being amended by the input field is shown in red for each diagram. All dimensions are set at the plotted size. RebarCAD will calculate the correct insertion size depending on the current working scale of the drawing. The current *AutoCAD Font Style* is the style applied to the tag text.



**Figure 7.7:1 RebarCAD Tick and Tag Configuration dialog**

The *Tag Text Format* option uses the same dialog as the Bar Label Format. This lets you Customise the Tag Text to your specific requirements.

## 7.8 Adding Bar References

The Add Bar Reference command, , generates text and allows you to add this to the drawing to show, for instance, the Bar Mark Number for bend bars or the bar length for Straight Bars. This command is accessible through **RebarCAD** → Labeling or from the *Labeling* toolbar. You can configure the reference text to show different information.

You can use the Add Bar Reference command to add information in respect of individual bars, runs of bars or multiple sets of bars. The Bar Refs are linked as Views to the Bar Set and any change in the Bar Mark Number or bar length will automatically be shown in the Bar Reference. You can use *AutoCAD* Move to reposition the Bar Refs. You can use the Bar Refs when prompted to pick a Bar Set when detailing a New Set or Add View.

The command will prompt you to select a bar or to press Enter for a multiple selection of Bar Sets, thus: *Pick bar of required Bar Mark or ENTER for selection:*

## 7.8.1 Placing an Individual Bar Reference

If you pick a bar on the drawing you are then prompted to pick an insertion point.

*Pick insertion point for bar reference Angle/Reset/<point>:*

*Pick insertion point for bar reference Angle/Reset/<point>:*

Once you have finished placing Bar Refs press Enter to finish and exit the command.

## 7.8.2 Placing a Selection of Bar References

If you press Enter to invoke the *Selection* you will be initially prompted for the angle of the text and then asked to select the bars either individually or by using a window.

*Please set angle of bar Reference text Reset/Angle <0.00>:*

*Select bar dots to be referenced Reset:*

*Select objects: Specify opposite corner: 5 found*

*Select objects:*

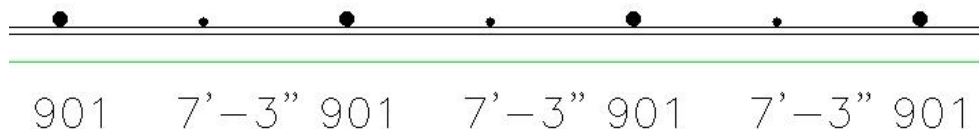
Press Enter to continue

► Next you are prompted for a reference line and this dictates the insertion point on the bar refs.

*Start of reference line: Pick a point*

*End of reference line: Pick a point*

Press Enter to finish and exit the command when you have finished selecting objects.



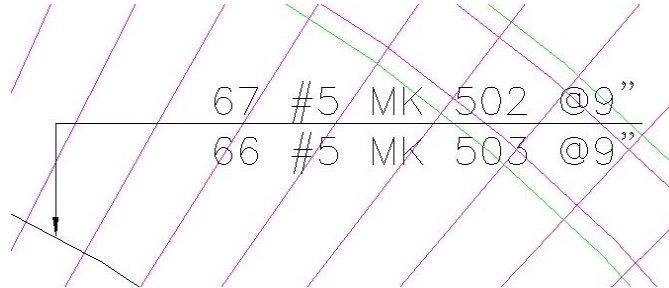
**Figure 7.8.2:1 Bar Refs added to a Run of Bars in Section**

## 7.9 Masking Bar Labels

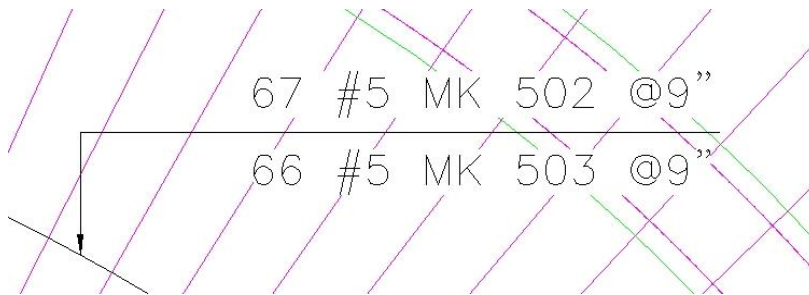
Use Mask commands to place a clear *AutoCAD* mask behind a Bar Label or Labels so that they can be clearly read. **RebarCAD** offers commands to place them individually or for all the Bar Labels on the drawing. There is also an Unmask command that will remove the text masks.

## 7.9.1 6.8.1 Mask Text

Use the Mask Text command to mask one or more Bar Labels. This command will place a mask behind each label and obscure the lines and other detail behind. The command is accessible through RebarCAD → *Labeling* or from the *Labeling* toolbar.



**Figure 7.9.1:1 Bar Labels obscured by lines before applying a mask**



**Figure 7.9.1:2 Bar Labels after the mask has been applied**

## 7.9.2 2 Mask All

The Mask All command will create a mask object behind all Bar Labels present on the drawing. You can invoke this command through **RebarCAD** → *Labeling* or the *Labeling* toolbar.

## 7.9.3 Unmask All

The Unmask All command removes any mask objects that are on the drawing. This command is accessible through RebarCAD → *Labeling* or the *Labeling* toolbar.

## 7.10 Toggle Hidden Multipliers

### 7.10.1 Apply Hidden Multipliers Inside the *Draw Bar* dialog

*Hidden Multipliers* can be added to the *Multi* field inside the *Draw Bar* dialog box so that bars can be multiplied inside the Bar List without the additional numbers appearing on the Bar Label. The second number added to the multiplier field will not be displayed on the Bar Label unless the Hidden Multiplier toggle is switched off.

If you had ten bars and set the Multi field to 5\*4, for example, the Bar Label would then show 5 x 10 bars and the Bar List would show a total of 200 for that Bar Set.

If *Suppress Label Multiply* were applied in the *Draw Bar* dialog the number of bars on the label would show instead as 50.

If you reversed the *Multi* field to 4\*5 the Bar Label would show either 4 x 10 or 40 bars depending on whether the *Suppress Label Multiply* field was selected. The Bar List would still show 200 bars.


This feature is useful for detailing bundled bars.

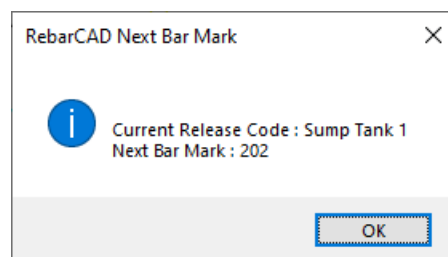
### 7.10.2 Toggling the Hidden Multiplier

If you use this toggle to display the hidden multiplier the Bar Label described in the example above would change from 50 bars to 4 x 50 bars to show the true number detailed. You can invoke the Toggle Hidden Multiplier command through **RebarCAD** → Labeling or from the *Labeling* toolbar,



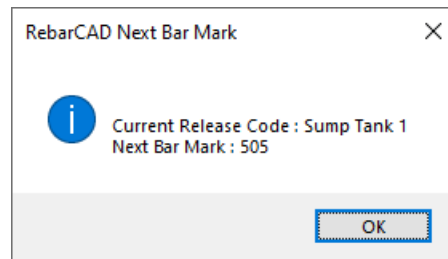
## 7.11 Next Bar Mark

The Next Bar Mark command, , displays the next highest Bar Mark available. This command is accessible through **RebarCAD** → Labeling or from the *Labeling* toolbar. It cannot report on any Bar Marks that have not been used consecutively.



**Figure 7.11:1 RebarCAD Next Bar Mark display**

However, if the last Bar Mark drawn was 504 (#5 bar size and Bar Mark 04) then *RebarCAD* will report as follows:






**Figure 7.11.1:2 RebarCAD Next Bar Mark display**



### **Try It! Configure New Label Format**

In this example you are going to change the Bar Label format to include a circle around the Bar Mark Number.

Figure 7.11:1 below shows the points to select to place the bar

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 18.dwg
- ▶ Make the Viewport on Configure New Label Format (01) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make New Label Format the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 01 the current Drawing Sheet
- ▶ Select RebarCAD → Configuration → Configuration Center or 

Select *Label Configuration*

Select the Bend Label Format


Change the format from:

**\$MULTI~x\$NOBAR \$BTYPE\$BDIAM \$BMARK(~\$SUFx1~-\$SUFx2~)-~\$CENTR ~\$NOTES**

to

**\$MULTI~x\$NOBAR \$CIRCS\$BTYPE\$BDIAM \$CIRCS\$BMARK(~\$SUFx1~-\$SUFx2~)\$CIRCE-~\$CENTR ~\$NOTES**

Select OK and then Close to return to the drawing

- ▶ Select **RebarCAD** → Draw Range → Add View or 
- ▶ Select Single Indicator Range

*Pick Bar Set for New View:* Pick on the bar shown by point 1

In the *Draw Bar* dialog set the *View* to *Plan* and the *Centers* to **8"**

*Indicator bar*

*Bend Type 3c.*

*Plan View Outer start point:* Pick on the Cover Line shown by point 2

*Enter Outer Dimension O:* Switch **Ortho On**. Pick to the right at point 3

*Setting Start Snap(s) Near.*

*Start of bar range / Enter Slope / True Len / Line:* Pick on the Cover Line shown by point 4

*Setting Other Snap(s) Perp.*

*Pick End of range:* Pick on the Cover Line shown by point 5

*Range length 3'-6".*

*Range options:*

*7 bars at < 8" > / Average c/c = 7" / Run out / Numeric:*

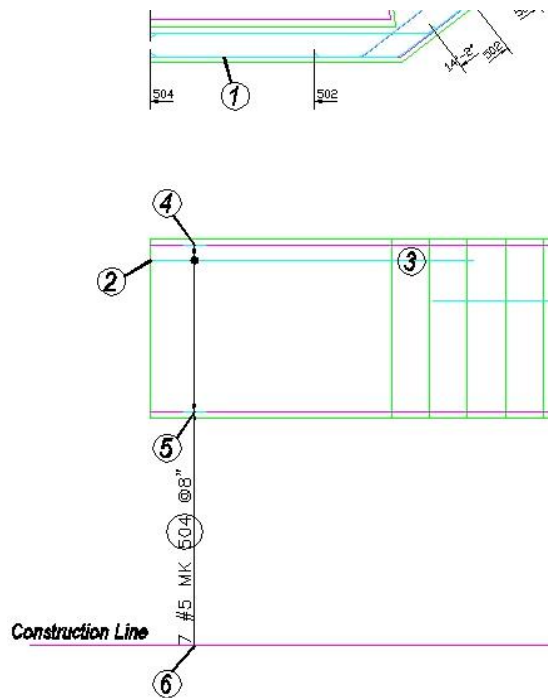
*Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:* Press enter to continue

*Set Number is 2.*

*Label bar <No>? or J to Justify:* Type **Y** and press enter

*Pick point:* Pick on the construction line at point 6

- The Bar Label now shows the circle around the Bar Mark






**Figure 7.11:2 Bar Label for cranked bars showing new format**



## Try It! Add Missing Bar Labels

In this example you are going to add a vertically oriented label to an existing set of bars on the right hand side of the staircase plan

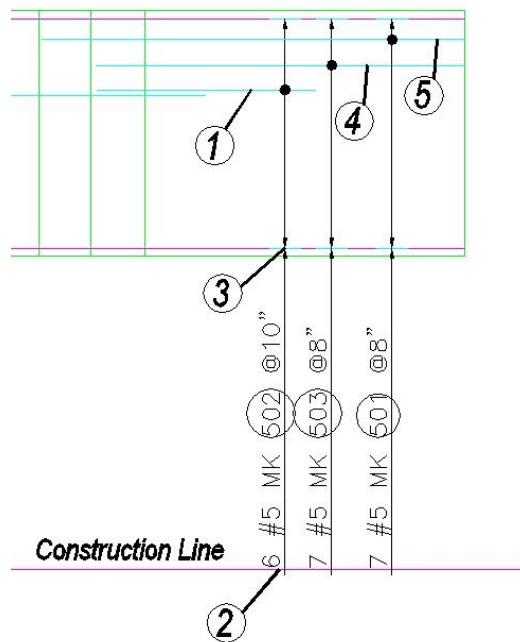
- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 18.dwg
- ▶ Make the Viewport on Missing Labels (02) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Missing Labels the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet
- ▶ Select RebarCAD → Labeling → Label an Existing Bar or 

*Pick bar/label to edit or <ENTER> for multiple selection:* Pick on bar, shown by point 1

*Pick Bar Label location:* Pick on the construction line, point 2

*Rotation angle:* Pick vertically up the screen with **Ortho On** or type **90** and press enter

*Pick point on bar:* Pick at the end of the range, at point 3



**Figure 7.11:3 Missing Bar Labels added to Staircase Plan**

- ▶ Continue and add Bar Labels for Bar Marks 503 and 501 as shown above.




Bar Mark 503, pick point 4

Bar Mark 501, pick point 5



## Try It! Add Ticks and Tags to Bars in the Stair Elevation

In this example you are going to add Ticks and Tags to the top face of the top landing on the staircase section.

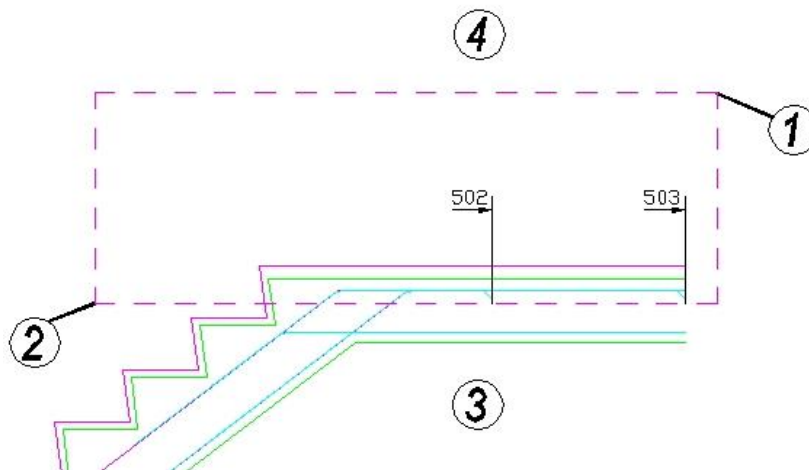
- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 18.dwg
- ▶ Make the Viewport on *Add Ticks and Tags* (03)
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Ticks and Tags* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Select **RebarCAD** → Labeling → Tick/Tag a Bar or 

*Select crossing window of bars for ticking and tagging:* Pick first corner, shown by point 1

*Other corner:* Pick second corner, shown by point 2

*Select side for bar-tick <None>:* Pick below the landing, shown by point 3

*Select side for bar-tag <None>:* Pick above the landing, shown by point 4






**7.11:4 Ticks and Tags added to Staircase Elevation**

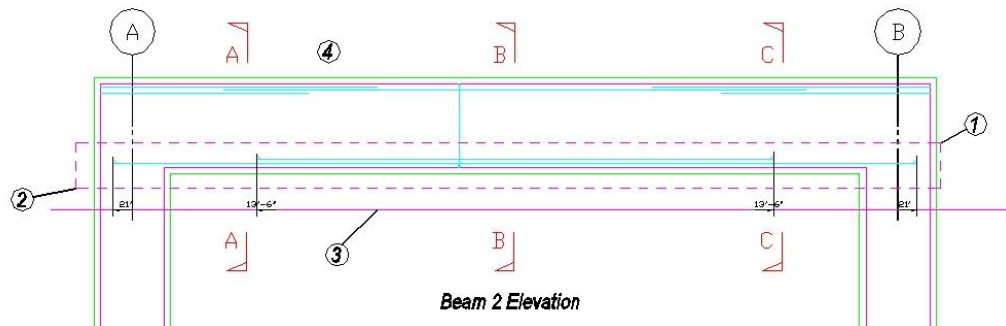


## Try It! Use Tag to a Line on Bars in Section

In this example you are going to add the Ticks and Tags along the underside of the beam elevation so that they all line up neatly.

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 18.dwg
- ▶ Make the Viewport on *Add Tags to Line* (04) active



- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Beam 1* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *04* the current Drawing Sheet
- ▶ Select **RebarCAD** → Labeling → Tick/Tag to a Line or 
  - Select crossing window of bars for ticking and tagging: Pick first corner, shown by point 1
  - Other corner:* Pick second corner, shown by point 2
  - Pick endpoints of line to extend bar tags to, or ENTER to select line:* Press enter
  - Select a line:* Pick on the construction line, point 3
  - Select side for bar-tick <None>:* Press enter




**Figure 7.11:5 Tags added to Beam Elevation using Tag to a Line**



## Try It! Add Bar References

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 18.dwg
- ▶ Make the Viewport on *Bar References Layout* active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Stair 4* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *02* the current Drawing Sheet

### Add Bar References using the Selection Method

- ▶ Select **RebarCAD** → Labeling → Add Bar Reference or 
  - Pick bar of required Bar Mark or ENTER for selection: Press enter for Selection
  - Please set angle of bar Reference text Reset/Angle <0.00>: Press enter to set angle of text to 0

Select bar dots to be referenced Reset:

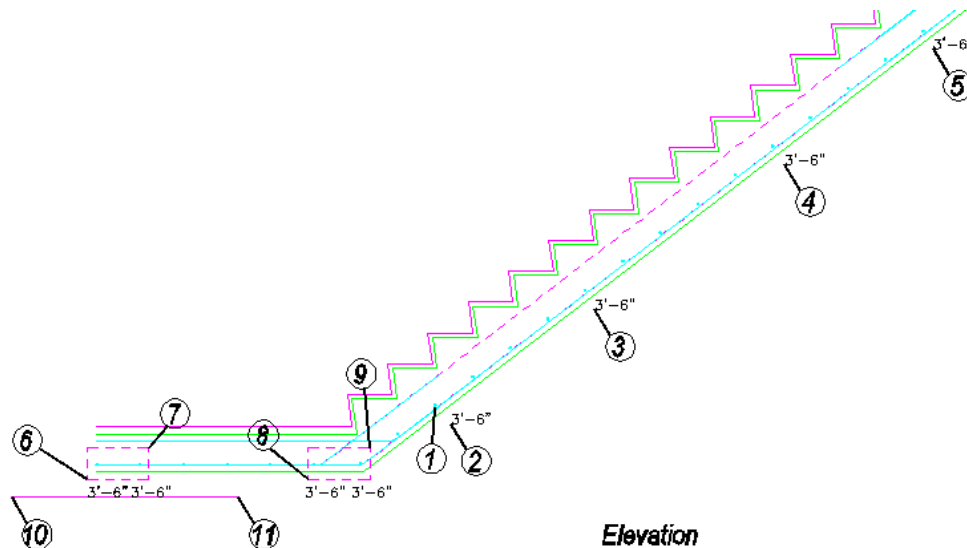
Select objects: Pick bar in section as shown by point 1

Select objects: Pick bar in section as shown by point 2

Select objects: Pick bar in section as shown by point 3

Select objects: Pick bar in section as shown by point 4



Pick insertion point for bar reference Angle/Reset/<point>: Press Enter to finish




**Figure 7.11:6 Bar References added to Staircase Elevation**



### **Try It! Mask and Unmask Bar Labels**

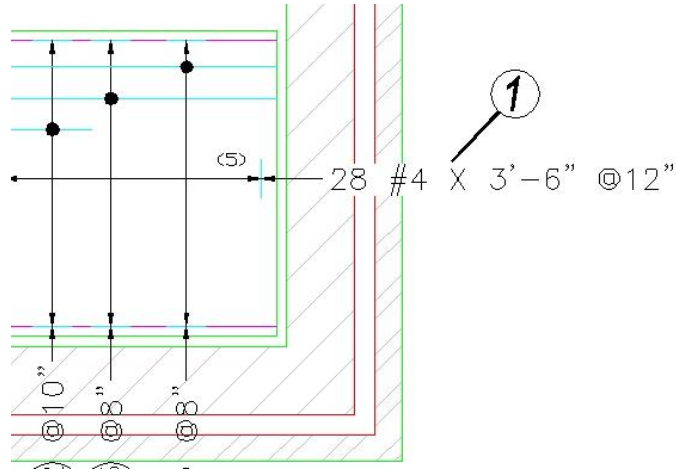
- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 18.dwg
- ▶ Make the Viewport on Add Text Mask active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Mask Labels the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 06 the current Drawing Sheet

### **Mask Text**

- ▶ Select **RebarCAD** → Labeling → Mask Text or 
  - Select Operation - Attach/Detach <Attach>:
  - Select Text Objects to Attach Mask
  - Select objects: Pick Bar Label shown by point 1


Select objects: Press enter

- The command adds a mask behind the Bar Label, as shown below in figure 6.10.6:1

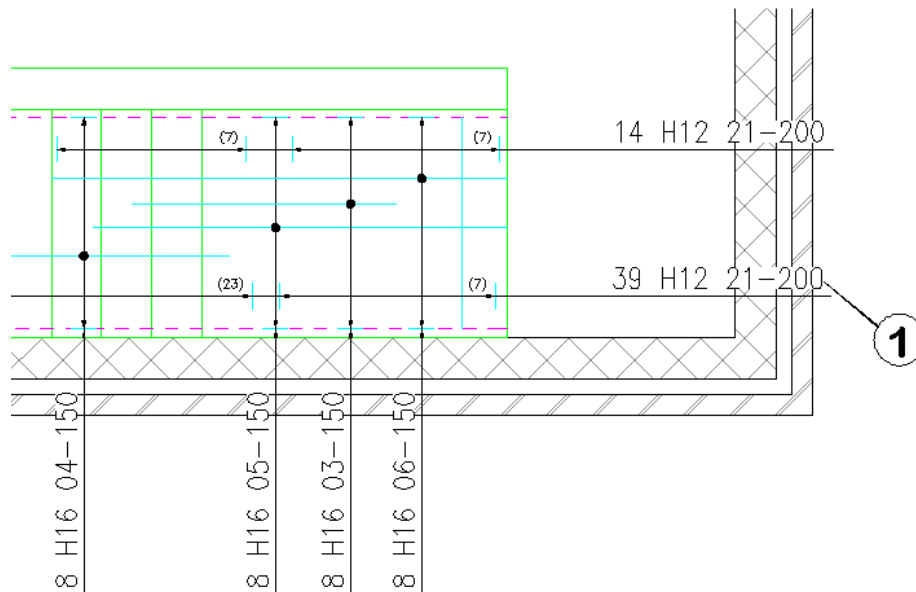


**Figure 7.11:7 Masking of selected Bar Labels by using Mask Text**

#### Mask All

- Select RebarCAD → Labeling → Mask All or 

RebarCAD automatically selects all the Bar Labels and adds a mask behind each one.

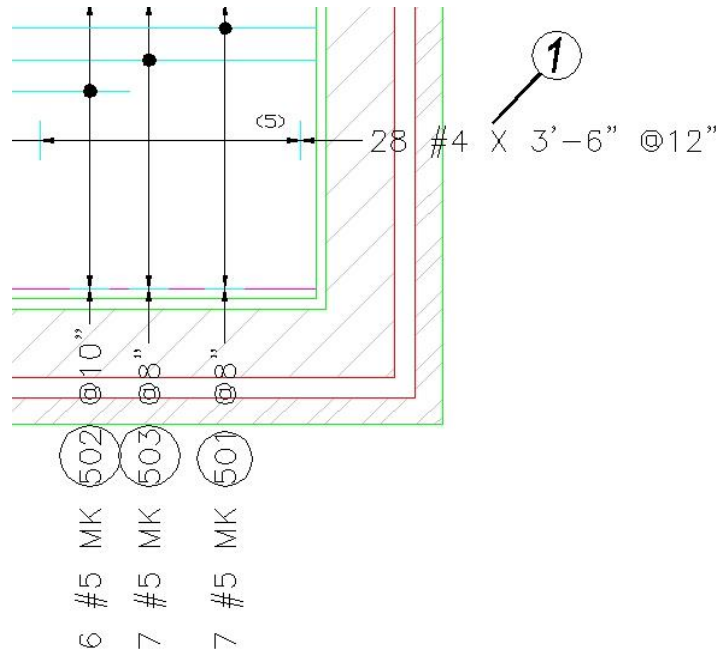


**Figure 7.11:8 Mask All applies a mask to all Bar Labels in a drawing**

#### Unmask All

- Select RebarCAD → Labeling → Unmask All or 

RebarCAD automatically selects all the Bar Labels and removes any masks that are present behind them.





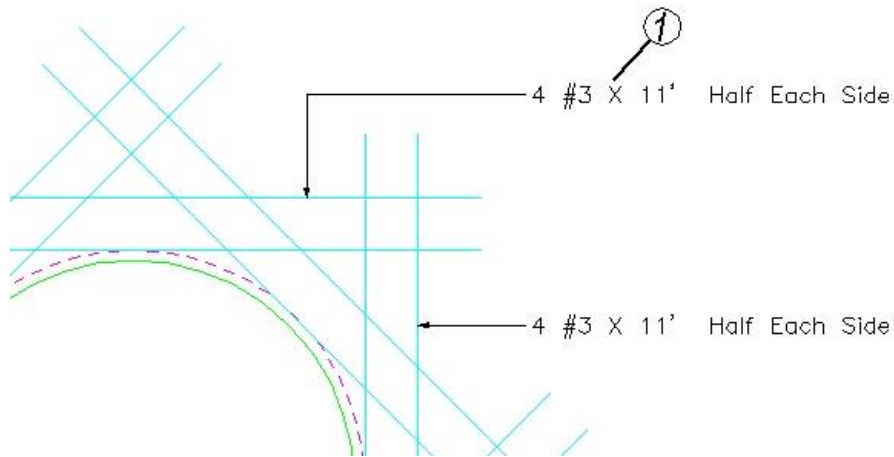
**Figure 7.11:9 All the Bar Labels have now been unmasked using Unmask All**




### Try It! Add Hidden Multipliers and Toggle their Display

This is an example detail of a hole in the structure that appears five times. Rather than show the detail five times or add it to its own Member title you can use the Hidden Multiplier to multiply the bars by 5. You are going to use the **Bar Label Edit** command to change the Multi field from **1** to **1\*5** and then toggle the Hidden Multiplier *Off* and then back *On* to see how the bar label changes.

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 18.dwg**
- ▶ Make the Viewport on Add Hidden Multipliers Layout active
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Hidden Multipliers* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make 07 the current Drawing Sheet



**Figure 7.11:10 Bar Labels showing Hidden Multiplier Switched Off**

- Select **RebarCAD** → Editing → Edit Bars or 


*Pick bar/label to edit or <ENTER> for multiple selection:* Pick the Bar Label shown by point 1 in figure 6.10.7:1 above.

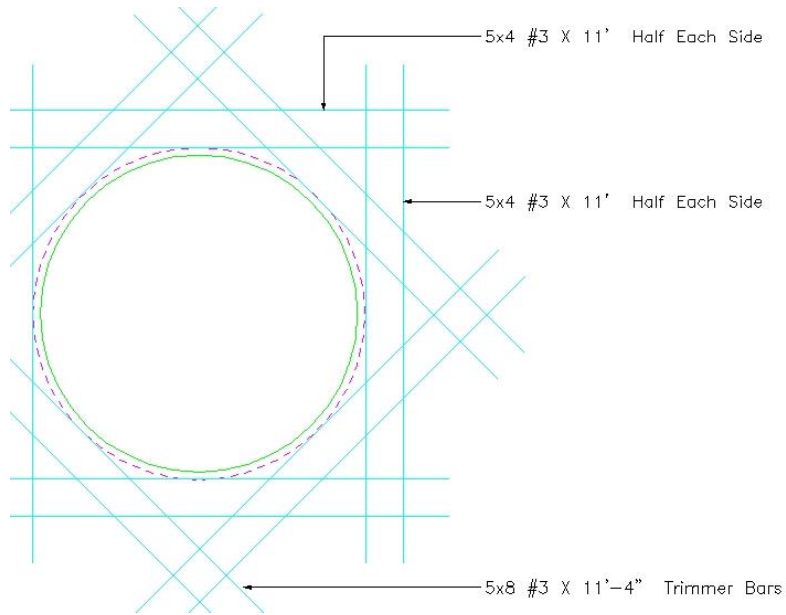
Type in **1\*5** in the *Multi* field and select OK

Bar Label Data		
Multi	No. Bars	Grade
1*5	4	A615/60


**Figure 7.11:11 Multi Field inside Edit Bar dialog**

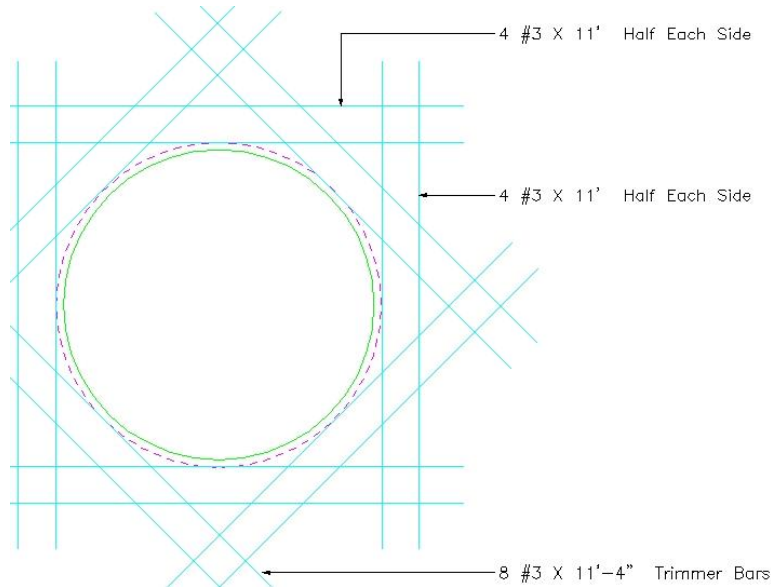
Repeat this procedure for the other two Bar Labels.

- Select **RebarCAD** → Labeling → Toggle Hidden Multipliers or 



**Figure 7.11.12 Bar Labels before Toggle Hidden Multipliers is switched on**

- Select RebarCAD → Labeling → Toggle Hidden Multipliers or 



**Figure 7.11.13 Bar Labels after Toggle Hidden Multipliers is switched on**

## 7.12 Leaders

RebarCAD supports three different leaders of its own as well as the AutoCAD Dimension Style leaders. You can use the Label Configuration dialog to set whether to use RebarCAD or AutoCAD leaders. To use RebarCAD leaders set the option Draw Dimension Label/Leaders to Off. To use AutoCAD leaders set this option to On. See figure 6.11.2:1 below where the section is shown in red. There are advantages to using the AutoCAD leaders: for example, when you move the text the leader will follow while in the case of Bar Labels then text, together with associated notes, can be drawn as multi-liner text.

### 7.12.1 RebarCAD Leaders

There are three types of RebarCAD leaders that can be used while labeling.

- ▶ Leader 1 – default configuration shows an arrowhead with a leader line
- ▶ Leader 2 – default configuration shows a dot with a leader line
- ▶ Leader 3 – default configuration shows a leader line only

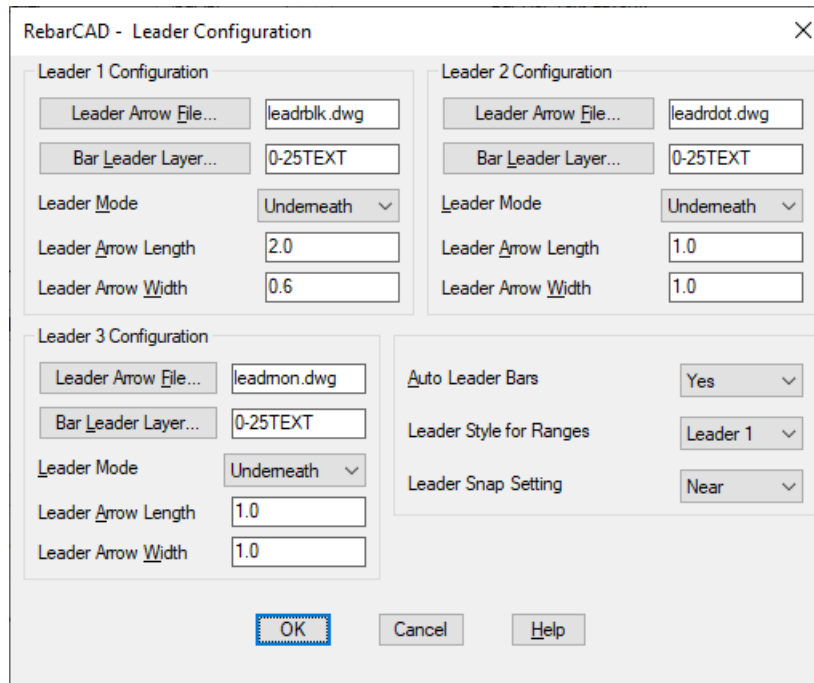
All the leaders can be configured to draw underneath the label or to draw to the start or end of the label. There are also options to automatically locate a Bar Label from a known bar and to stack the leaders for labels that are drawn in columns.

#### RebarCAD Leader Configuration

The Configuration options are available from the RebarCAD menu by selecting Configuration → Configuration Center → Label Configuration and Leaders....

Configuration for each of the RebarCAD Leader Types is available in this dialog.

Generally speaking you can change the block inserted at the end of the leader (leader arrow file), its layer and size and whether the leader is placed underneath or in the center of the text.



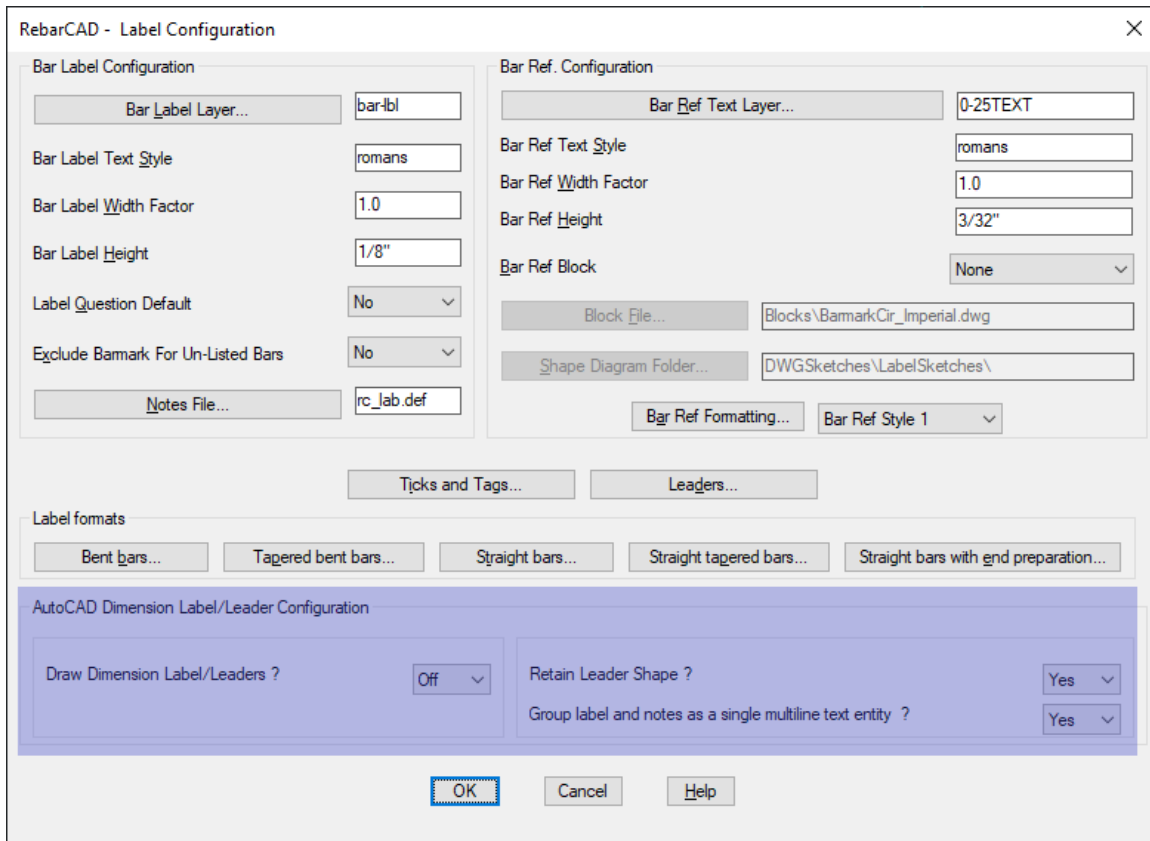
**Figure 7.12:1 RebarCAD Leader Configuration dialog**

If you wish to create your own arrowhead, draw it at full size in Model Space and make sure that the tip of the arrow is placed at 0,0.

## 7.12.2 AutoCAD Leaders

If you wish to use AutoCAD Dimension leaders with RebarCAD you need to switch them on inside the Label Configuration dialog. This is accessed through RebarCAD → Configuration → Configuration Center. The configuration of the Dimension leaders is carried out through the AutoCAD Dimension Style dialog.

Do not use both AutoCAD and RebarCAD leaders on one drawing but stick to one or the other throughout a drawing file.



**Figure 7.12.2:1 Label Configuration dialog with leader selection options marked**

### Draw Dimension Label/Leaders?

If this option is set to *On* then when you place a leader on the drawing the *AutoCAD* Dimension leader will be used. The current *Dimension Style* will determine the style of the leader. If the option is set to *Off* then **RebarCAD** leaders will be used.

### Retain Leader Shape?

If this option is set to *Yes* and *Draw Dimension Label/Leaders* option is switched on then the leader will automatically follow the label when the text associated with the leader is moved.

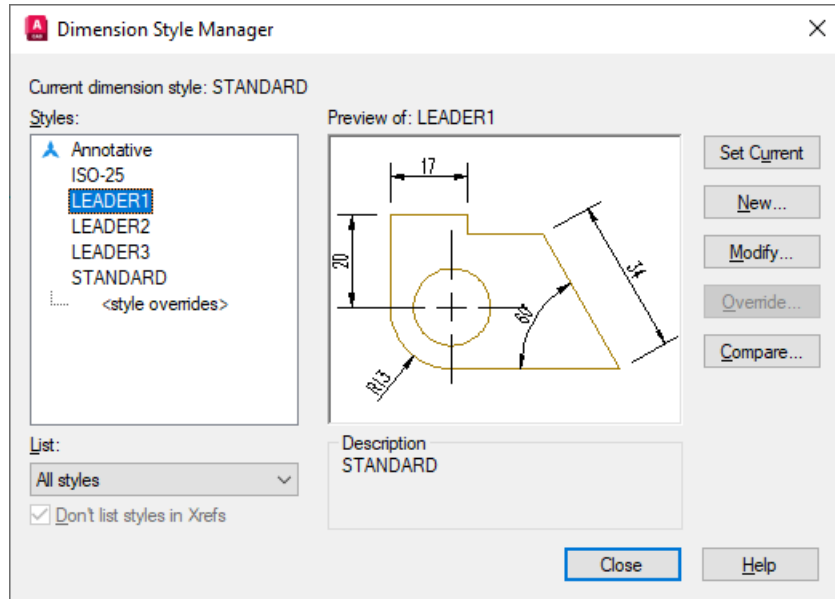
### Group Label and Notes as a Single Multiline Text Entity?

If this option is set to *Yes* and *Draw Dimension Label/Leaders* is switched on the Bar Label and its associated notes will become a *Multiline Text (Mtext)* entity. If it's set to *No* the labels will be treated as *Single Line Text* entities (*Dtext*).

### Changing the Style of the *AutoCAD* Dimension Leaders

RebarCAD will have created three additional Dimension Styles on your drawing. Each of these styles relates to one of the three leader styles available within RebarCAD.

If you wish to change the properties of the leaders you will have to edit each one in turn inside the Dimension Style Manager dialog, shown in figure below. A change to the leader set-up is best carried out in your AutoCAD template drawing.





**Figure 7.12.2:2 The Dimension Style Manager dialog**




### **Try It! Add RebarCAD Leaders to a Drawing**

In this example you are going to use all the options available within the RebarCAD leader command.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 19.dwg
- ▶ Make the Viewport on RebarCAD Leaders the active Layout
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make RebarCAD the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 01 the current Drawing Sheet

#### **Leader 1**

Adding Leader 1 between the Range Line and Bar Label

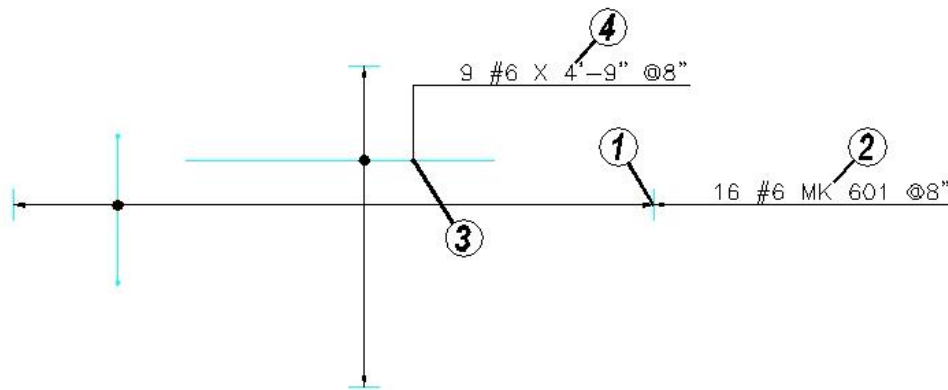
- ▶ Select **RebarCAD** → Leaders → Leader Option 1 or 

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Pick the point at the end of the Range Line as shown by point 1

Next point or ENTER to select label: Press Enter to select a label


Select label: Pick the label shown by point 2



**Figure 7.1.2:3 Adding leaders 1 & 2 to the drawing**

### Leader 2

#### Adding Leader 2 between the Range Line and Bar Label

- ▶ Select **RebarCAD** → Leaders → Leader Option 2 or 

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Pick the point on the bar shown by point 3

Next point or ENTER to select label: Press Enter

Select label: Pick the label shown by point 4

### Leader 2 Bar Option

#### Using the Leader 2 to locate a Bar Label

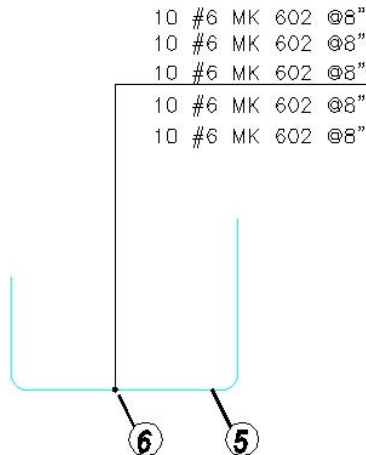
- ▶ Select **RebarCAD** → Leaders → Leader Option 2 or 

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Type **B** and press Enter

Pick bar: Pick the bar shown by point 5


Pick point on bar: Pick start point of the leader, point 6

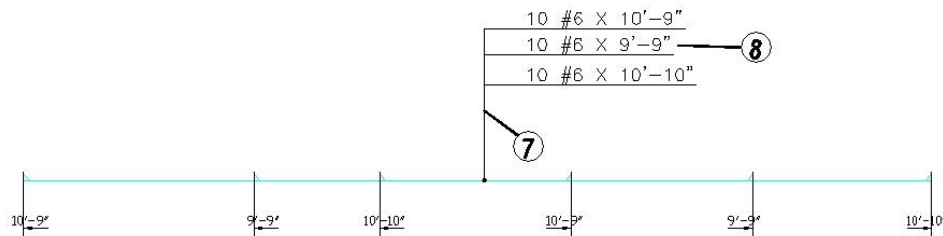


**Figure 7.12.2:4 Locating the Bar Label using the RebarCAD leader command**

### Leader 2 Stack Option

#### Using Leader 2 Stack option




- ▶ Select RebarCAD → Leaders → Leader Option 2 or 
- Leader type is configured to <Underneath>: -
- Pick start point or Bar/Stack <Stack>: Type **S** and press Enter
- Select leader: Pick the Leader shown by point 7
- Select label: Pick the label shown by point 8
- ▶ Repeat the function for the label above.

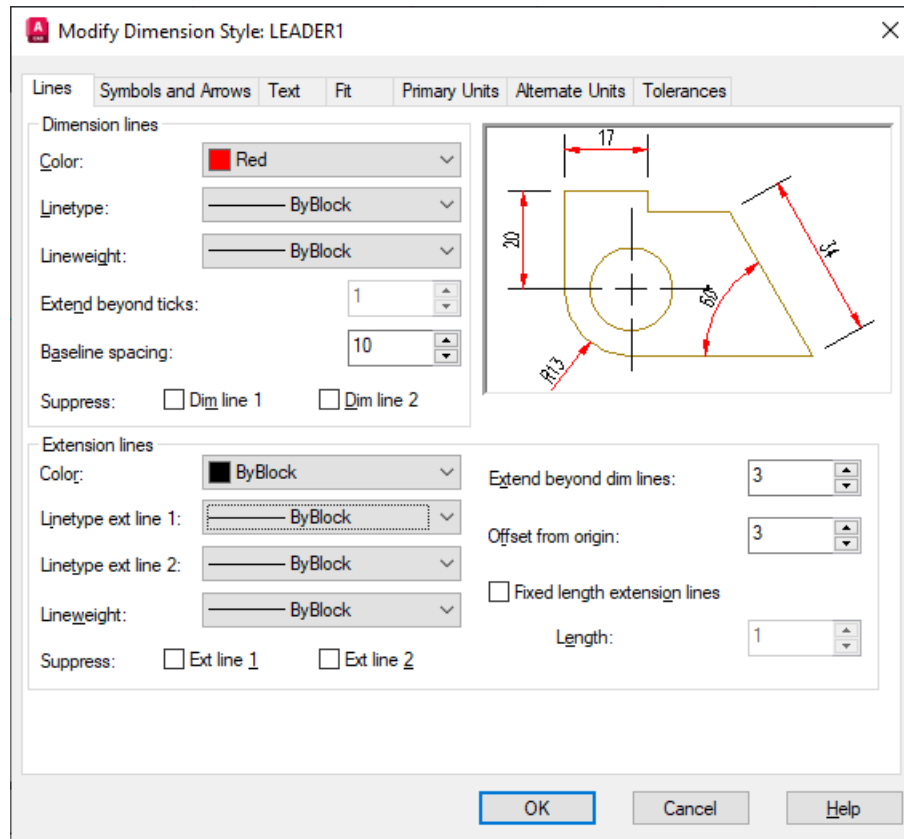


**Figure 7.12.2:5 Stacking RebarCAD leaders from one start point**

**Try It! Add AutoCAD Dimension Style Leaders to a Drawing**

In this example you are going to switch on the *AutoCAD* leaders inside **RebarCAD**, change the leader 1 arrowhead style and the leader color. Then place some leaders that show the configuration changes.

- ▶ Launch RebarCAD
  - ▶ Open drawing ...\\drawings\\ RebarCAD 20.dwg
  - ▶ Make the Viewport on AutoCAD Leaders (01) the active Layout
  - ▶ Select RebarCAD → Draw Bar → Set Member or 
  - ▶ Make AutoCAD Leaders the current Member and select OK
  - ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
  - ▶ Make 01 the current Drawing Sheet
  - ▶ Configure AutoCAD Dimension Leaders
  - ▶ Select RebarCAD → Configuration → Configuration Center – Label Config
  - ▶ Switch on the Draw Dimension Label/Leaders. Set Retain Leader Shape and the Group Label and Notes options to Yes
  - ▶ Select OK and Close to return to the drawing
  - ▶ Select Format → Dimension Style or 
  - ▶ Pick LEADER1 on the list of styles and then select MODIFY
  - ▶ Select the Lines and Arrows tab
  - ▶ Change the Dimension Line color to Red and the Leader Arrowhead type to Box Filled
- Note:** In AutoCAD 2006 & 2007 the Dimension Line color appears on the Lines tab. The Leader Arrowhead appears on the Symbols and Arrows tab.
- ▶ Select OK and then Close



**Figure 7.12.2:6 Modify Dimension Style dialog**

## Leader 1

### Adding Leader 1 between the Range Line and Bar Label

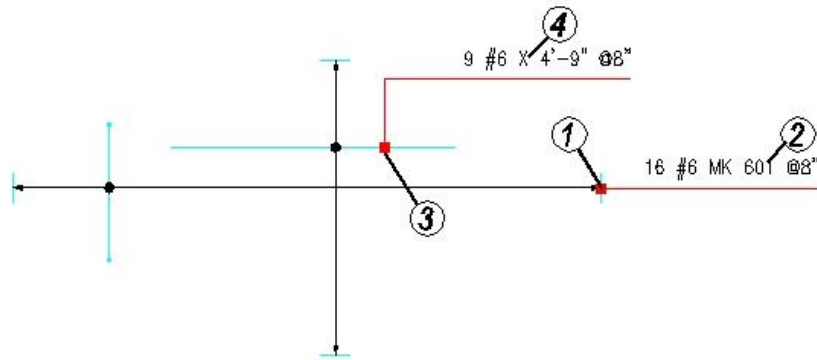
- Select **RebarCAD** → Leaders → Leader Option 1 or 

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Pick point at the end of the Range Line as shown by point 1 below

Next point or ENTER to select label: Press enter to select a label


Select label: Select the label shown by point 2



**Figure 7.2.2:7 Adding AutoCAD style leaders to the drawing**


## Leader 2

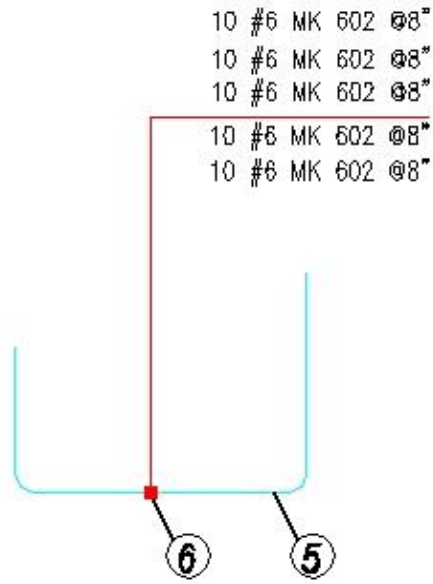
### Adding Leader 2 between the Range Line and Bar Label

- ▶ Select **RebarCAD** → Leaders → Leader Option 2 or 
- Leader type is configured to <Underneath>: -
- Pick start point or Bar/Stack <Stack>: Pick point on the bar as shown by point 3
- Next point or ENTER to select label: Press enter
- Select label: Select the label shown by point 4

## Leader 1 Option

### Using the Leader 1 to locate a Bar Label

- ▶ Select **RebarCAD** → Leaders → Leader Option 1 or 
- Leader type is configured to <Underneath>: -
- Pick start point or Bar/Stack <Stack>: Type **B** and press enter
- Pick bar: Pick the label as shown by point 5
- Pick point on bar: Pick the start point of leader, point 6


















*Figure 7.12.2:8 Stacking AutoCAD leaders from one start point*

## 7.13 Key points - Labeling Commands

- ▶ Use the New Label command to add another Bar Label to a Range Line, to indicate top and bottom steel for instance.
- ▶ Use New Label to populate a tabulated table.
- ▶ All RebarCAD labels can be formatted to your individual or company requirements
- ▶ Use Label an Existing Bar to add missing Bar Labels to previously drawn Bar Sets.
- ▶ Ticks and Tags can be used to indicate the start and end of bars.
- ▶ Use Bar References to indicate the Bar Marks or the bar lengths of bars in section.
- ▶ Use Mask Text to prevent Bar Labels becoming obscured in congested drawings.
- ▶ You can use either RebarCAD or AutoCAD leaders on a drawing. Do not use both on one drawing.
- ▶ AutoCAD leaders will automatically update if their associated text is moved on the drawing.
- ▶ Use the Bar Option in the Leader commands to locate missing Bar Labels.

## 7.14 Command List - Labeling Commands

Action	Menu Selection	Toolbar	Icon
View Bar List	RebarCAD → View Bar List	RebarCAD	
Configuration Center	RebarCAD → Configuration → Configuration Center	Config	
Draw Range – Add View	RebarCAD → Draw Range → Add View	Draw Range	
Label an Existing Bar	RebarCAD → Labeling → Label an Existing Bar	Labeling	
Tick and Tag	RebarCAD → Labeling → Tick and Tag	Labeling	
Tag to a Line	RebarCAD → Labeling → Tag to a Line	Labeling	
Add Bar Reference	RebarCAD → Labeling → Add Bar Reference	Labeling	
Mask Text	RebarCAD → Labeling → Mask Text	Labeling	
Mask All	RebarCAD → Labeling → Mask All	Labeling	
Unmask All	RebarCAD → Labeling → Unmask All	Labeling	
Edit Bars	RebarCAD → Editing → Edit Bars	Editing	
Toggle Hidden Multipliers	RebarCAD → Labeling → Toggle Hidden Multipliers	Labeling	
Leader 1	RebarCAD → Leaders → Leader Option 1	Leaders	
Leader 2	RebarCAD → Leaders → Leader Option 2	Leaders	
Dimension Style	Format → Dimension Style	Dimension	

## 8 Edit and Modify Commands

### 8.1 Introduction

RebarCAD has an extensive range of editing tools that allow you to change the properties of bars, ranges and their labels.

You can also use some of the AutoCAD Modify commands to alter RebarCAD entities. There are some restrictions, however, and these are discussed later in this chapter.

### 8.2 Double Click Editing

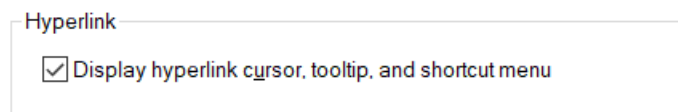
The easiest way to edit the properties of bars and ranges is to use the *Double Click Edit* feature. With this enabled you can simply double click on a **RebarCAD** entity to display the relevant editing dialog box. If a bar or any of the labels are selected then the *Edit Bar Label Data* dialog will be displayed. If a range or bar run is selected the *Edit Range* dialog will be displayed.

#### 8.2.1 Enabling Double Click Editing

RebarCAD has a toggle option built in to switch Double Click Editing On and Off. This is accessed through RebarCAD → Configuration → Double Click Edit Toggle.

#### 8.2.2 Hints & Tips – Switching on Hyperlinks to Enable Double Click Editing

You might find that even if you've enabled the Double Click Edit feature it doesn't work! If this happens, check that the *Display hyperlink cursor, tooltip, and shortcut menu* is switched on inside the *AutoCAD Options* dialog under the *User Preferences* Tab.




**Figure 8.2.2:1 Hyperlink Option in the Options dialog**

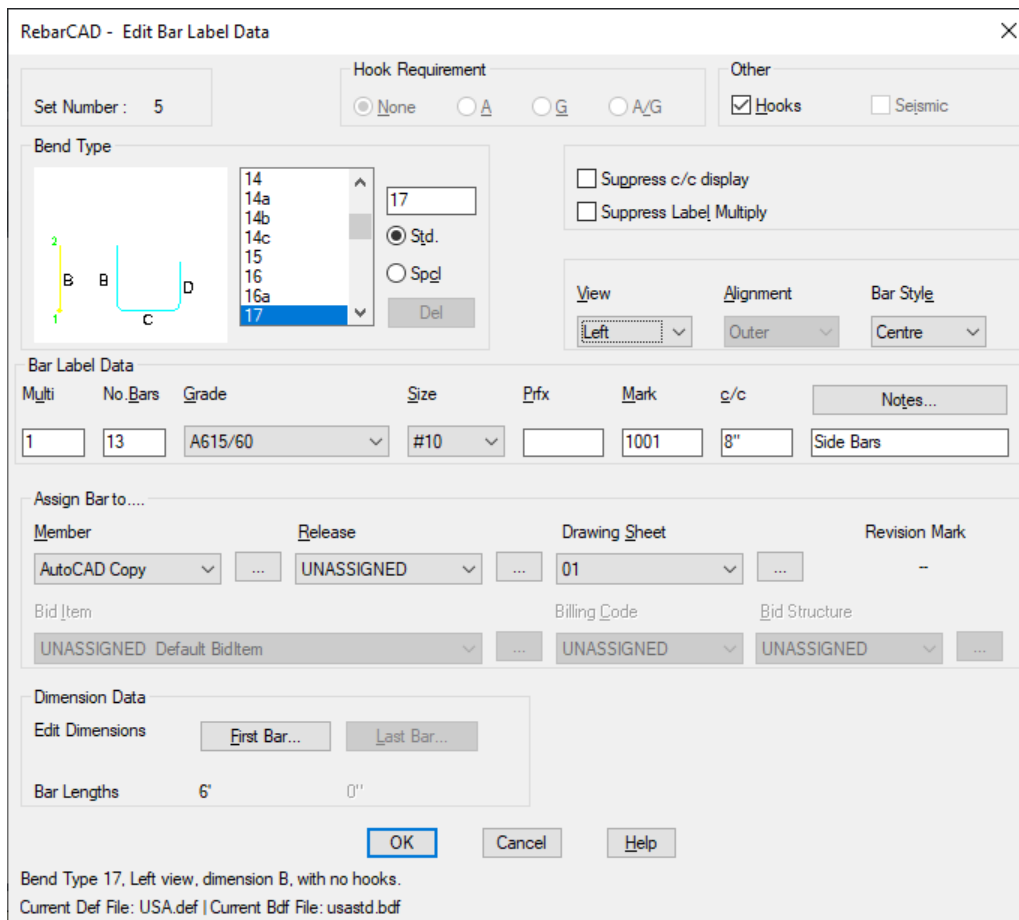
When double clicking on Bar Labels pick the beginning of the label. If you select a different point you may display the *AutoCAD Text Edit* dialog instead.

## 8.3 Bar Editing: Single and Multiple Selection

RebarCAD allows you to edit either individual bars or a multiple selection of bars. There are restrictions on what you can edit in each case and this will be explained later. However, you can generally edit safely any of the active fields within the dialog box.

### 8.3.1 Editing Individual Bars

You can access the Edit Bar Label Data dialog either by double clicking on a bar or an associated label or by using the Edit Bars command, , and then picking a bar or an appropriate label. This command is accessible through RebarCAD → Editing → Edit Bars or from the Editing toolbar.



The dialog box is titled "RebarCAD - Edit Bar Label Data". It contains several sections for configuring bar properties:

- Set Number:** 5
- Hook Requirement:** Radio buttons for None, A, G, and A/G.
- Other:** Checkboxes for Hooks (checked) and Seismic.
- Bend Type:** A list of bend types (14, 14a, 14b, 14c, 15, 16, 16a, 17) with 17 selected. A diagram shows a bar with bends labeled B, C, and D. A text box next to the list contains the number 17.
- Bar Label Data:** Fields for Multi (1), No. Bars (13), Grade (A615/60), Size (#10), Prfx, Mark (1001), c/c (8"), and Notes... (Side Bars).
- Assign Bar to....:** Fields for Member (AutoCAD Copy), Release (UNASSIGNED), Drawing Sheet (01), and Revision Mark.
- Dimension Data:** Fields for Bid Item (UNASSIGNED Default BidItem), Billing Code (UNASSIGNED), and Bid Structure (UNASSIGNED). Buttons for "First Bar..." and "Last Bar..." are present.
- Bar Lengths:** 6' and 0'.
- Buttons:** OK, Cancel, and Help.

At the bottom, it states: "Bend Type 17, Left view, dimension B, with no hooks. Current Def File: USA.def | Current Bdf File: usastd.bdf"

**Figure 8.3.1:1 Individual Reinforcement - Edit Bar Label Data dialog**

With individual bars you can edit any of the following elements:

#### Bend Type

You can select a different *Bend Type* from the list. Any other views of the bar associated with the Bar Set will also be updated. However, be aware that the orientation of the bar may then change

on the drawing. If this happens you can use the *AutoCAD* Rotate command to correct it. If some of the leg dimensions are not found, **RebarCAD** will automatically add the minimum bar dimensions for those legs, except in cases where bar legs are not mandatory. Any existing leg dimensions will be retained.

### Hooks

Use this option to add or remove *Hooks* as required.

### Bar Label Data

Any of the *Bar Label Data* fields can be edited. Be aware that if you change the bar size all the Bar Views will update and consequently may not align with the Cover Line on the structure. If the bar has been lapped with another bar the lap may also need to be adjusted manually.

If you change a Bar Mark that has already been assigned to another Bar Set on the drawing, the bar you are editing will be assigned the properties of the existing Bar Mark. **RebarCAD** will issue a warning to say that the Bar Mark is already in use and will ask you to confirm the change.

### Graphics

You can change the Bar View to any of the views offered by the Bend Type selected. You can also toggle the style of the bar between center and profile.

### Edit Dimensions

You can change the bar *dimensions* manually in the *First Bar* and *Last Bar* dialog boxes. The *Last Bar* dialog will only be available if a tapered Bar Mark is being edited. If the dimensions are changed all other Bar Views will automatically update. You should then check to make sure that the views do not project through the outline. See Figure 7.3.3:1 for the Dimension Entry dialog.

### Assign Bar to....

You can change the *Member*, *Release* or Drawing Sheet associated with the Bar Set.

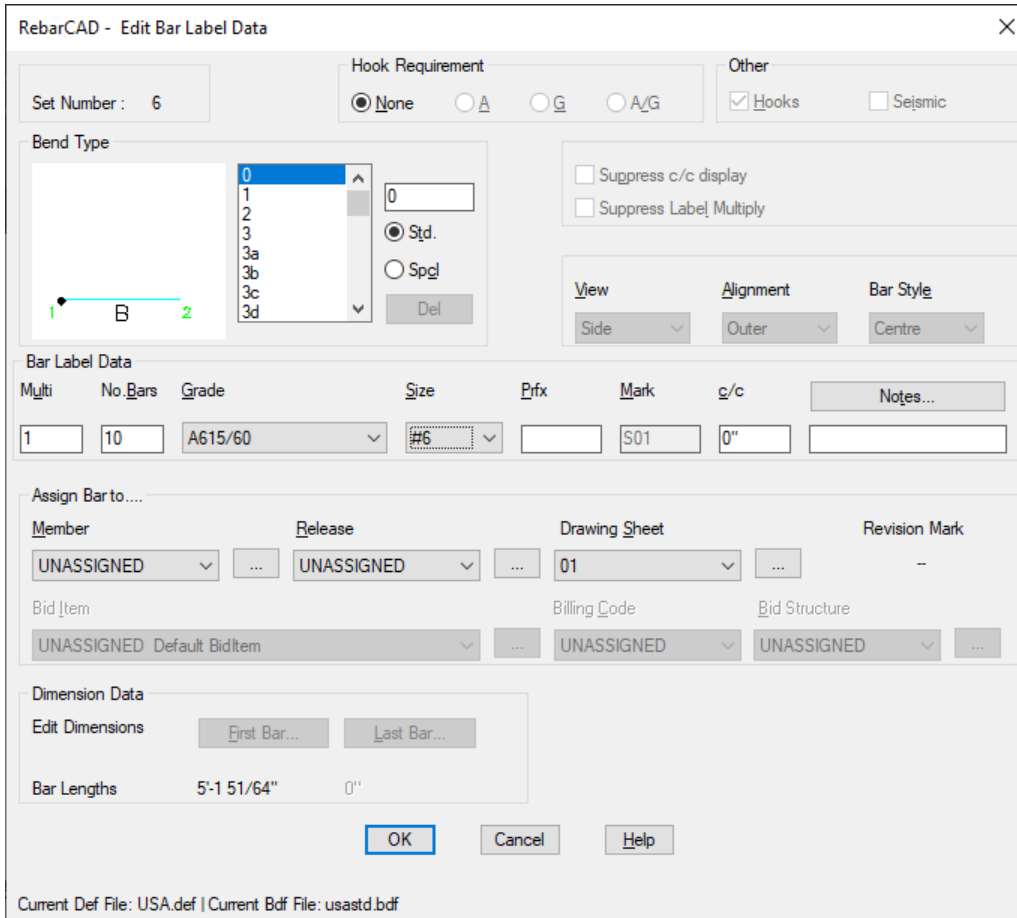
### Center and Label Multiply Suppression

You can select either or both the *Suppress c/c display* and *Suppress Label Multiply* options. This will change the Bar Label display. If you suppress the Bar Centers and then subsequently edit the range length the number of bars will remain constant but the spacing between bars will change. Conversely if this option is not selected and the range length is edited, the number of bars will change and the bar spacing will remain the same.

If you have changed any of the properties and if other Bar Sets exist for that Bar Mark then when you exit the *Edit Bar Label Data* dialog **RebarCAD** will ask whether you want to assign a new Bar Mark to the edited set or update all the Bar Sets of that Bar Mark to the new values.

## 8.3.2 Editing a Multiple Selection of Bars

The Edit Bars command has a Multiple Selection sub option. Selecting the command from RebarCAD → Editing → Edit Bars and pressing Enter will let you select several bars or the whole drawing, as required. Note that when the multiple selection sub option is invoked several fields on the dialog are deactivated and their properties cannot therefore be changed. Compare figures 7.2.1:1 above and 7.2.2:1 below to see the differences.



RebarCAD - Edit Bar Label Data

Set Number : 6

Hook Requirement: ☒ None ☐ A ☐ G ☐ A/G

Other: ☒ Hooks ☐ Seismic

Bend Type: [List: 0, 1, 2, 3, 3a, 3b, 3c, 3d] [Std.] [Spcl.] [Del]

Suppression: ☐ Suppress c/c display ☐ Suppress Label Multiply

View: Side Alignment: Outer Bar Style: Centre

Bar Label Data:

Multi	No. Bars	Grade	Size	Prfx	Mark	c/c	Notes...
1	10	A615/60	#6		S01	0"	

Assign Bar to....

Member	Release	Drawing Sheet	Revision Mark
UNASSIGNED	UNASSIGNED	01	--

Bid Item: UNASSIGNED Default BidItem Billing Code: UNASSIGNED Bid Structure: UNASSIGNED

Dimension Data:

Edit Dimensions: [First Bar...] [Last Bar...]

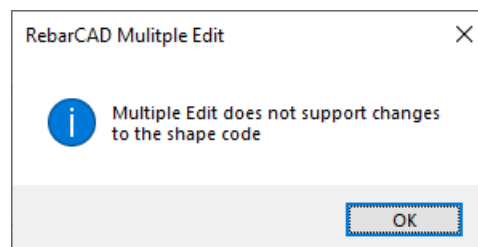
Bar Lengths: 5'-1 51/64" 0"

OK Cancel Help

Current Def File: USA.def | Current Bdf File: usastd.bdf

**Figure 8.3.2:1 Multiple Edit – Edit Bar Label Data dialog**

If you attempt to change the Bend Type RebarCAD will display the following message:



**Figure 8.3.2:2 Multiple Bend Type editing not supported**

With a selection of bars you can edit any of the following:

#### Bar Label Data

Only certain fields are now available for editing. These are *Multi*, *No. Bars*, *Type*, *Size*, *Prfx*. and *c/c*.

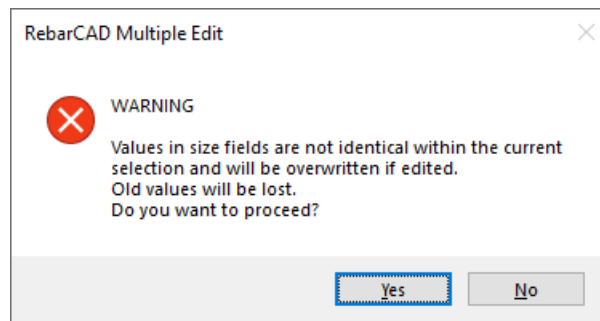
#### Assign Bars to

You can change the *Member*, *Release* or *Drawing Sheet* that the Bar Set is associated with.

Multiple editing of bar data could be used to change the *Type, Size, Member, Release* or *Drawing Sheet* of a whole drawing. So, if the reinforcement in the lower floor is the same as that in an upper floor but, for instance, the Type or Size has changed you can simply use a copy of the lower floor drawing and edit it quickly as necessary.

### 8.3.3 Hints & Tips - Warning on Editing Multiple Bars

If you pick a selection of bars with different Types or bar sizes **RebarCAD** will warn you that the existing Types and bar sizes will be overwritten with the new ones selected in the *Edit Bar Label Data* dialog. If the Type or Size fields are not edited the bars will retain their original data.



**Figure 8.3.3:3 Multiple Edit Bars Warning**

### 8.3.4 Hints & Tips - Use Multiple Bar Edit to Modify a Whole Drawing

You can use the Multiple Selection Option from the Edit Bars command to change the Type and bar diameter for a whole drawing.

### 8.3.5 Restrictions on Bar Label Edit According to the Type of Range

#### **Alternate Ranges of all Types**

Do not change the Bar Centers in the *Edit Bar Data* dialog for this Range type as it cannot communicate with the alternate bar. Instead, use Edit Range to change the centers.

#### **Varying Taper Range**

You cannot edit the bar dimensions for the first and last bar - use Edit Range to edit individual bars.




#### **Trapezoidal Taper**

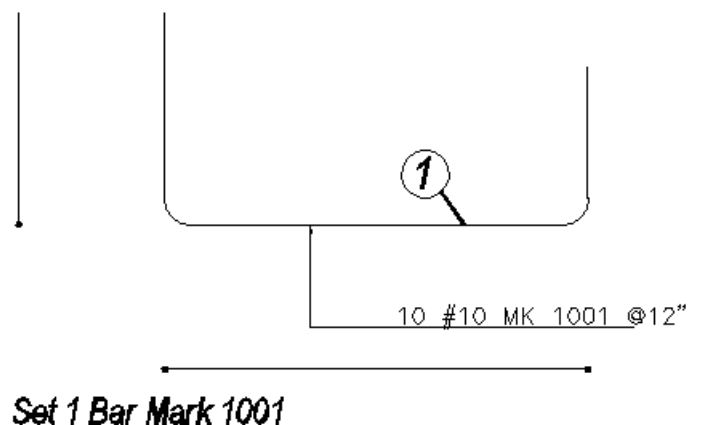
Once drawn, the bars assigned to this range type cannot be edited.



## Try It! Use Edit Bars to Change the Properties of a Single Bar

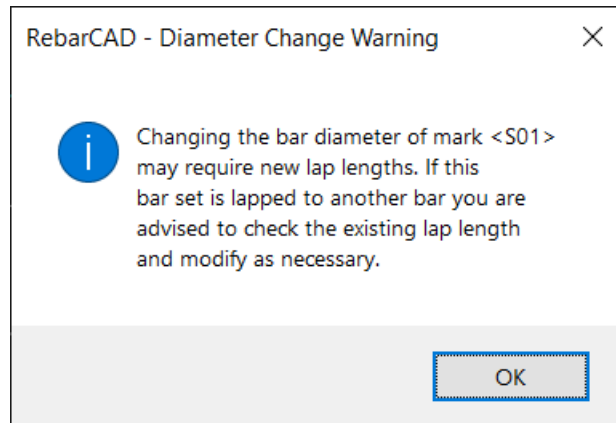
Using the **Edit Bars** command you are going to change the bar diameter and the B and D leg dimensions of the Bar Mark 1001. This bar has another set associated with it but as you are changing the bar diameter **RebarCAD** will automatically assign another Bar Mark and **not** warn that other sets exist.

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 21.dwg
- ▶ Make the Viewport on *Edit Single Bar (01)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Edit Single Bar* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *01* the current Drawing Sheet
- ▶ Select **RebarCAD** → Editing → Edit Bars or  or double click the bar as marked by point 1 in figure 7.2.4:1 below



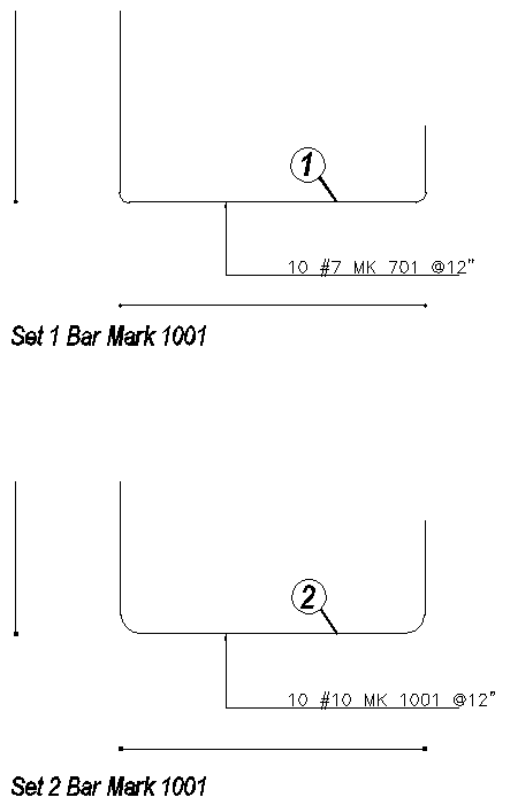
**Figure 8.3.5:1 Editing the properties of Bend Type 17**

- ▶ In the *Edit Bar Label Data* dialog box change the Bar Diameter to #7
- ▶ Select the *First Bar...* button
  - Change Leg A to **5'**
  - Change Leg C to **2'**
- ▶ Select OK twice to return to the drawing




**Figure 8.3.5:2 Bar Diameter Change Warning display**

- ▶ A warning is displayed about the change in bar diameter and laps with any other bars need to be checked and adjusted accordingly.
- ▶ Select OK
- ▶ All the views of the Bar Set are updated to reflect the change.

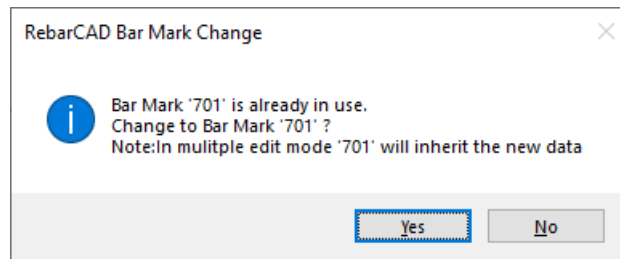


**Figure 8.5.3:3 Editing the properties of Bend Type 17**

- ▶ Select **RebarCAD** → Editing → Edit Bars or  or double click the bar as marked by point 2 in figure above

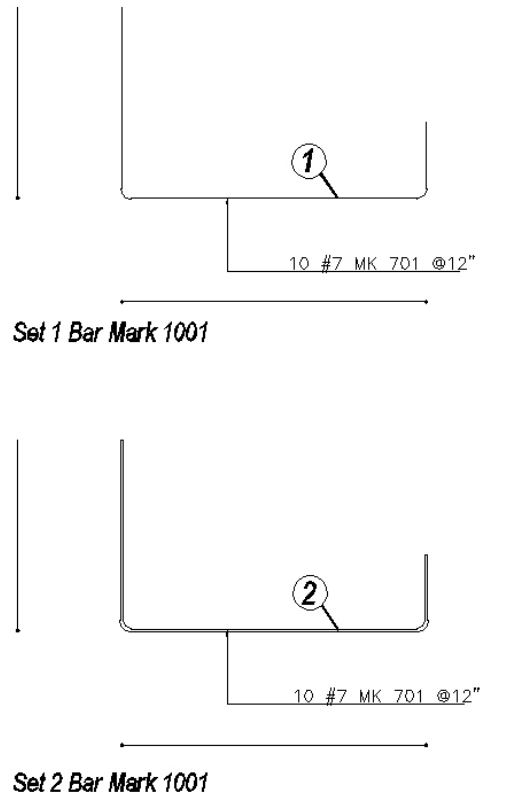
Using the Edit Bars command you are going to change the bar style of the selected bar to Profile and change the Bar Mark Number to 701 to let it inherit the properties of the bar we have just changed.

- ▶ In the *Edit Bar Label Data* dialog box change the Bar Style to *Profile* and type in *701* as the Bar Mark Number
- ▶ Select OK to return to the drawing



**Figure 8.3.5:4 Bar Mark Change Warning dialog**




- ▶ The warning points out that Bar Mark 701 has already been assigned. If you select Yes the bar being edited will inherit the properties of Bar Mark 701.
- ▶ Select Yes
- ▶ The second set of bars update to reflect the properties of Bar Mark 701 and the Side View changes to a profile bar style.



**Figure 8.3.5:6 Editing the properties of Bend Type 17**



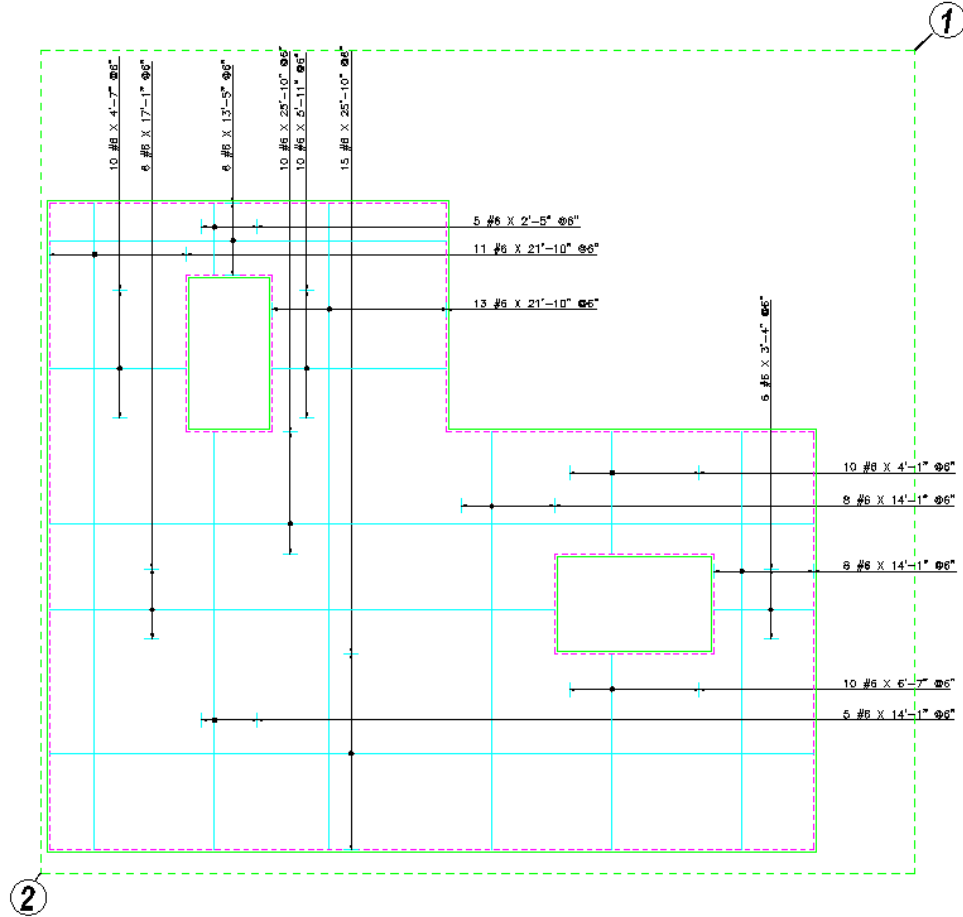
### **Try It! Use Edit Bars to Change the Properties of a Selection of Multiple Bars**

- ▶ Launch RebarCAD
  - ▶ Open drawing ...\\drawings\\ RebarCAD 21.dwg
  - ▶ Make the Viewport on Edit Multiple Bars (02) current
  - ▶ Select RebarCAD → Draw Bar → Set Member or 
  - ▶ Make Edit Multiple Bars the current Member and select OK
  - ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
  - ▶ Make 02 the current Drawing Sheet
  - ▶ Select RebarCAD → Editing → Edit Bars or 
  - ▶ Pick bar/label to edit or <ENTER> for multiple selection: Press enter
- Select items to edit globally:

Select objects: Pick point 1 as shown in figure 7.2.5:1

Specify opposite corner: Pick point 2 to form a crossing window

121 found



**Figure 8.3.5:1 Selecting the bars for multiple bar data editing**

Select objects: Press enter to continue

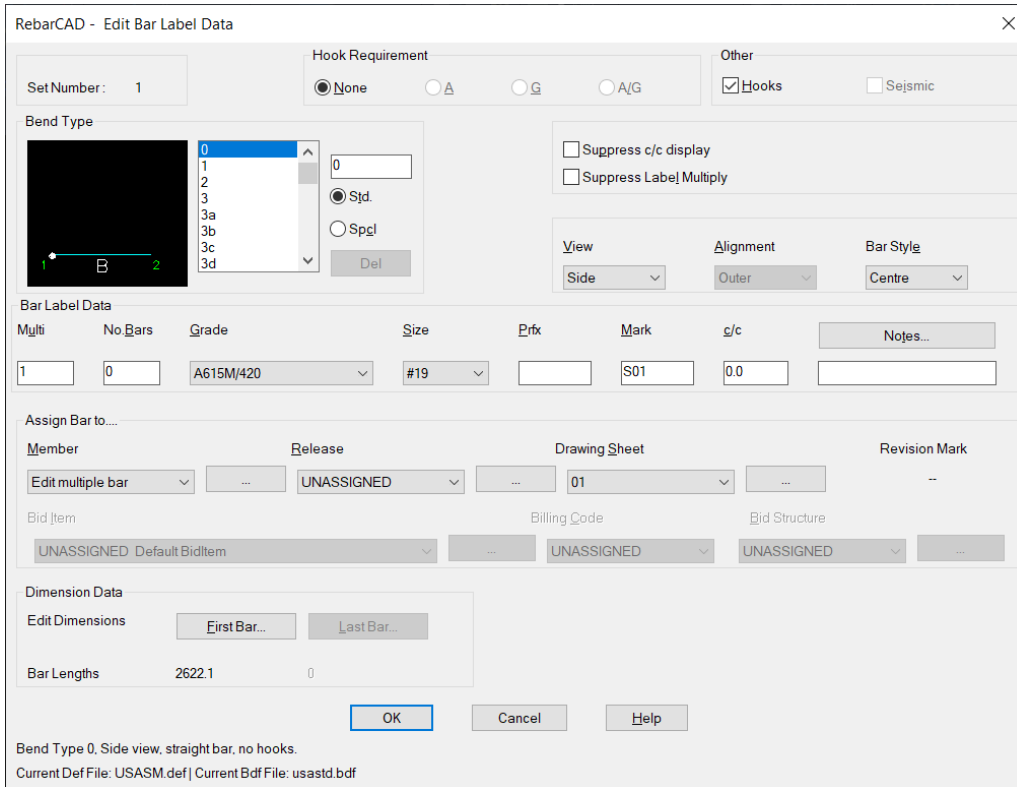
- ▶ In the *Edit Bar Label Data* dialog box change the following: *Member* - change to *Edit Multiple Bars*

*Drawing Sheet* - change to **02**

*Bar Size* - change to **#8**

*Center Spacing* - change to **8"**

- ▶ Select OK to close the dialog

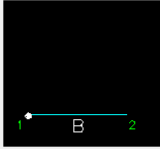


RebarCAD - Edit Bar Label Data

Set Number: 1

Hook Requirement: ☒ None ☐ A ☐ G ☐ A/G

Other: ☒ Hooks ☐ Seismic

Bend Type:    ☒ Std. ☐ Spgl

☐ Suppress c/c display  
☐ Suppress Label Multiply

View: Side Alignment: Outer Bar Style: Centre

Bar Label Data

Multi	No Bars	Grade	Size	Prfx	Mark	g/c	Notes...
1	0	A615M/420	#19		S01	0.0	

Assign Bar to....

Member	Release	Drawing Sheet	Revision Mark
Edit multiple bar	UNASSIGNED	01	--

Bid Item: UNASSIGNED Default BidItem Billing Code: UNASSIGNED Bid Structure: UNASSIGNED

Dimension Data

Edit Dimensions:

Bar Lengths: 2622.1 0

Bend Type 0, Side view, straight bar, no hooks.  
 Current Def File: USASM.def | Current Bdf File: usastd.bdf

**Figure 8.3.5:2 Multiple Edit Bar Label Data dialog**


All the RebarCAD entities selected are now updated to show the properties that were changed in the Edit Bar Label Data dialog. This shows how quickly large amounts of data can be edited inside RebarCAD. For instance, if this had been a slab plan that quickly needed its bar size and spacing amended this could have been done in only a few seconds by using the Multiple Selection option in the Edit Bars command.

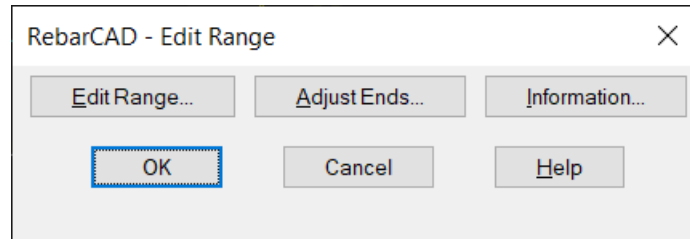
## 8.4 Edit Range

The editing options offered by the *Edit Range* dialog will vary according to the type of range selected for modifying. Broadly speaking you can split the ranges into the following groups:

- ▶ Single Group
- ▶ Multiple Group
- ▶ Radial
- ▶ Tapered

### 8.4.1 Edit Range Dialog

You can either double click on the Range Line or select the Edit Range dialog through the menu sequence RebarCAD → Editing → Edit Range or by clicking on the toolbar button . The initial Edit Range dialog is the same for all the range types.



**Figure 8.4.1:1 Edit Range dialog**

The function buttons available are:

#### **Edit Range...**

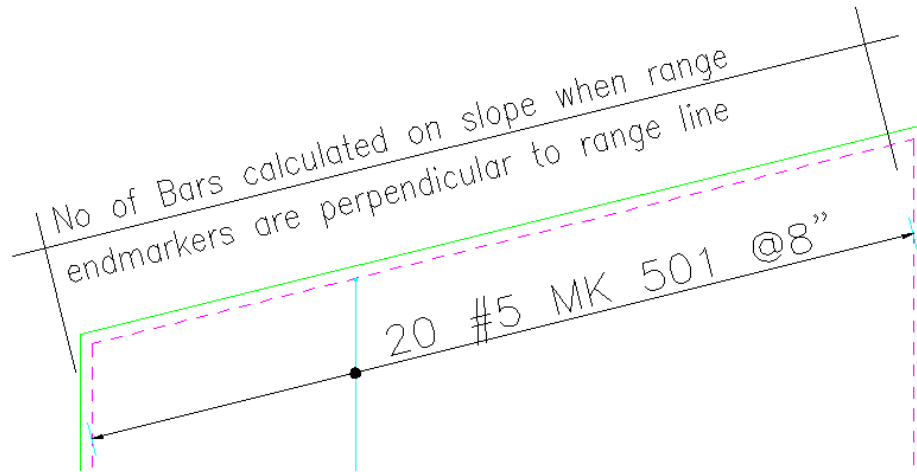
This button opens the *Edit Range* dialog. The functionality varies for each of the Range Groups but basically the dialog allows you to edit the Bar Centers, range length, and so on. You cannot, however, edit any of the properties of a Trapezoidal Tapered Range bar – to achieve this you would need to delete and redraw it with changed properties.

More information on variations in the *Edit Range* dialog is given later in this chapter.

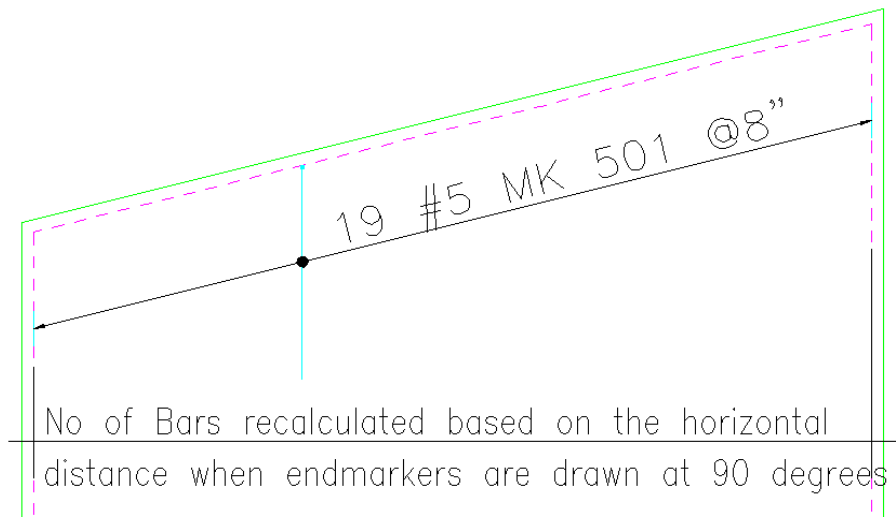
#### **Adjust Ends...**

The *Adjust Ends* button lets you rotate the range end markers away from the perpendicular to the Range Line, giving what is called the *skew angle*. This feature is useful when drawing ranges that align with a sloping edge but where you need to calculate the bars either vertically or horizontally. When you select this option you are prompted to define the new angle of the range end marker by picking two points on the screen. The range will be regenerated with the markers shown at the new skewed angle, the number of bars recalculated and the Bar Label amended.

This option is not available for Double Indicator, Dimension Style, Radial, Double Indicator Taper, Varying or Trapezoidal Range routines.



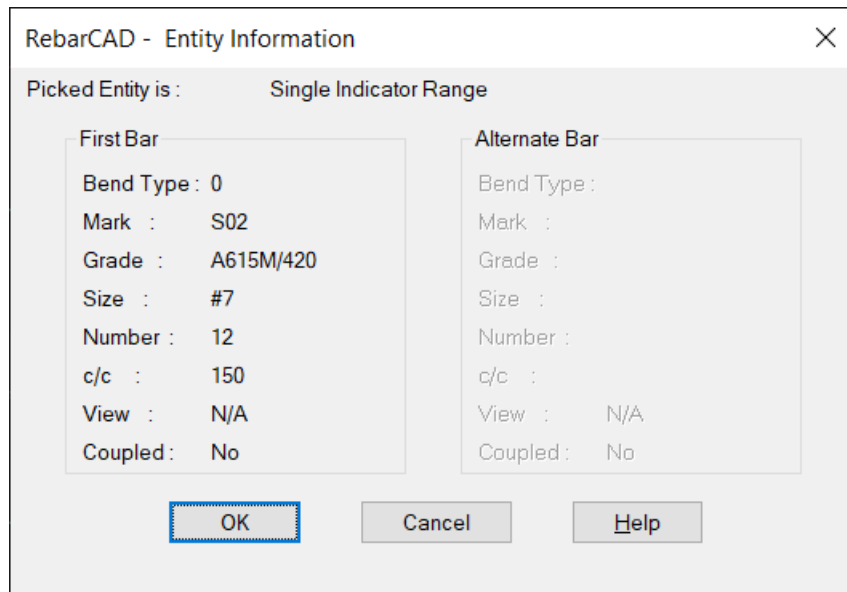
**Figure 8.4.1:2 Range End Marker perpendicular to Range Line**



**Figure 8.4.1:3 Range End Marker skewed to Vertical Alignment**

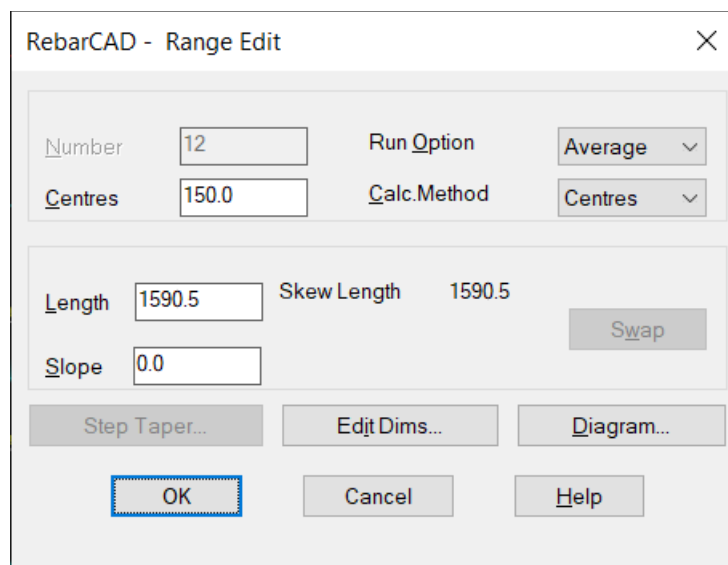
#### Information...

This button displays details about the type of range and information on the Bend Type(s) associated with it.



**Figure 8.4.1:4 Range Information dialog**

## 8.4.2 Single Group Edit Range dialog



**Figure 8.4.2:1 Edit Range dialog for Single Groups**

The Edit Range dialog offers the following options:

### Run Option

*Run Option* controls how the Bar Runs are placed on the drawing. If *Average* is selected all the bars in section are placed at the average center-to-center spacing. If *Runout* is selected then the bars in section are placed at the designated centers with the last bar being placed at the run out center-to-center dimension.

### Calc. Method

This option controls whether the number of bars on the Range Line is calculated from the center spacing or specified as a fixed number of bars. If the number option is selected the center spacing is automatically omitted from the Bar Label. If the length of this range is subsequently amended the center spacing will adjust but the number of bars will not change. This option is useful when detailing the main steel in beams as these are usually set to a fixed number of bars across the width.

### Number

The *Number* option will only become active if the *Calc. Method* is set to *Number*, when you can then type in the required number of bars for the range.

### Centers

The *Centers* option is the default option unless the *Suppress c/c* display has been selected in the *Draw Bar* dialog or the *Calc. Method* has been set to *Number*. The value to be entered into this field is the maximum center to center bar spacing. Changing this value will recalculate the numbers of bars required in the range.

### Length

This option displays the drawn length of the Range Line and can be edited through this dialog box. The range will always redraw itself with the insertion point as the fixed point. Hence if you want to change the range length *and* move the insertion point it would be best to use the Stretch Bar/Range command or else to edit as two separate operations. The *skew length*, and not the *length* (from which it might differ), is used to calculate the number of bars in the range.

### Slope

This field will display any angle of slope that might have been set when the range was placed. If the range picked was drawn as a foreshortened view, then the slope angle it represents will be reported as a value other than zero. Entering a slope value of 0.1 will always set the *skew length* to that of the *length*. This allows ranges to have the end markers skewed but have the bar number calculation still based on the drawn Range Line length.

### Skew Length

If a bar range has had the end markers adjusted to produce a skew range, then the *Skew Length* is shown here. If the skew length is reported as being the same as the length, then the range has not been skewed.

## 8.4.3 Edit Dims

The *Edit Dims* button displays exactly the same *Dimension Entry* dialog as that accessed through the *Edit Bar Data* dialog. See figure below.

RebarCAD - Dimension Entry

**Dimension data**

A	0.0	F	0.0	O	0.0
B	1530.8	G	0.0	R	0.0
C	0.0	H	0.0		
D	0.0	J	0.0		
E	0.0	K	0.0	Angle	0.0

**Total Length**

Length of Bar: 1530.8

**Scaled Diagram**

**Critical Dimension (CSFile)**

Dimension: A

OK Cancel Help

Figure 8.4.3:1 Dimension Entry dialog

## 8.4.4 Diagram

The *Skew Help* display shows the way the slope and skewed ranges are calculated.

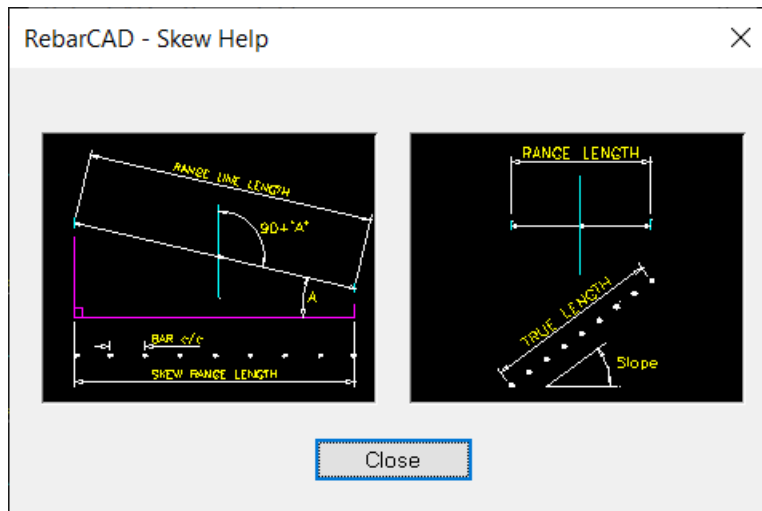
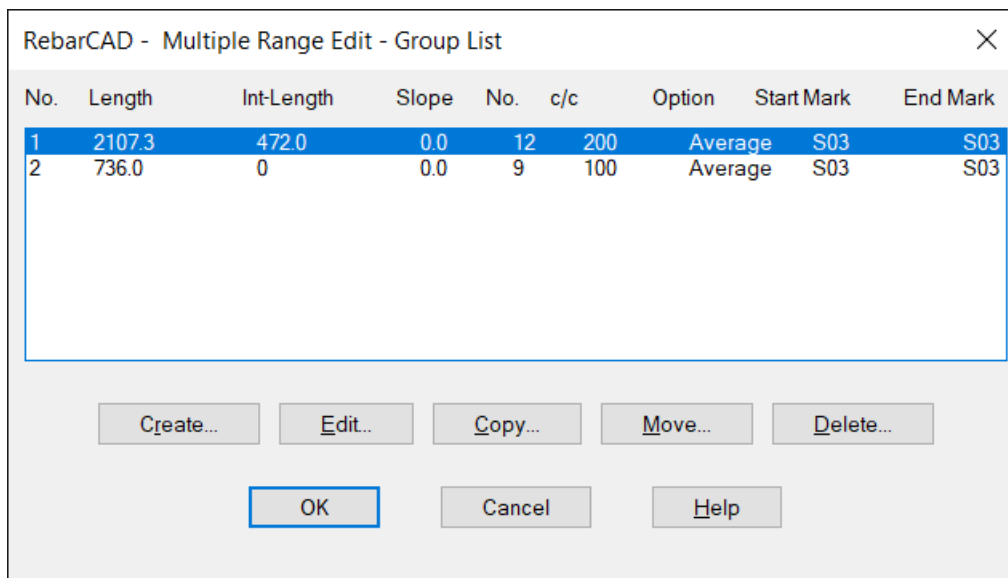


Figure 8.4.4:1 Skew Help display

## 8.4.5 Multiple Group Edit Range Dialog



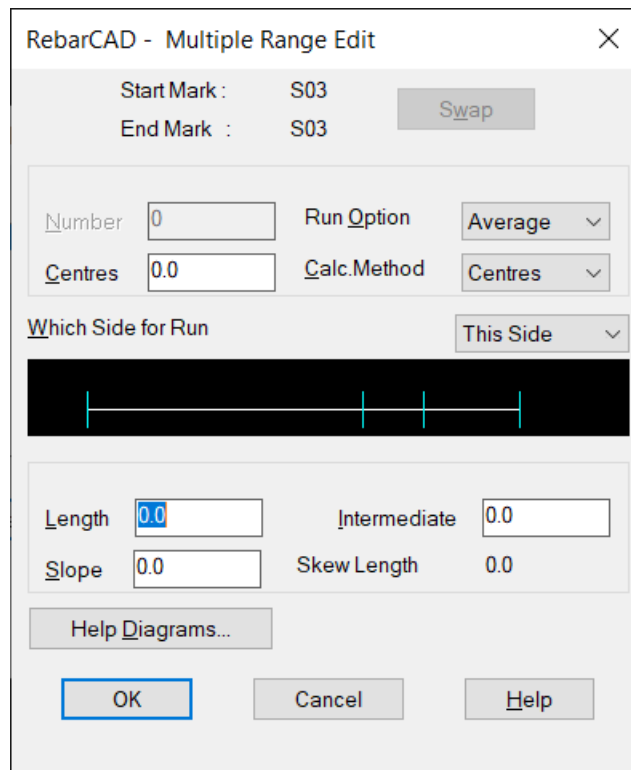
**Figure 8.4.5:1 Multiple Group Edit Range dialog**

The *Multiple Range Edit Group List* dialog displays the currently defined groups for the Range Line in the form of a spreadsheet. You can double click on one of the groups to access the *Edit* dialog box rather than having to highlight the group and then pick *Edit*. To access the *Edit*, *Copy*, *Move* or *Delete* options highlight the group on the list and then pick the appropriate command button from the dialog.

This dialog has the following options:

### Create

The *Create* option allows you to add a new group to the Range. When you have entered the data you can indicate where the group should be inserted by specifying its *Group Number*. The dialog box is always displayed with all the fields set to zero. If you want to duplicate some data from another group it's better to use the *Copy* option and then edit the newly created group by changing the contents of some of the fields.



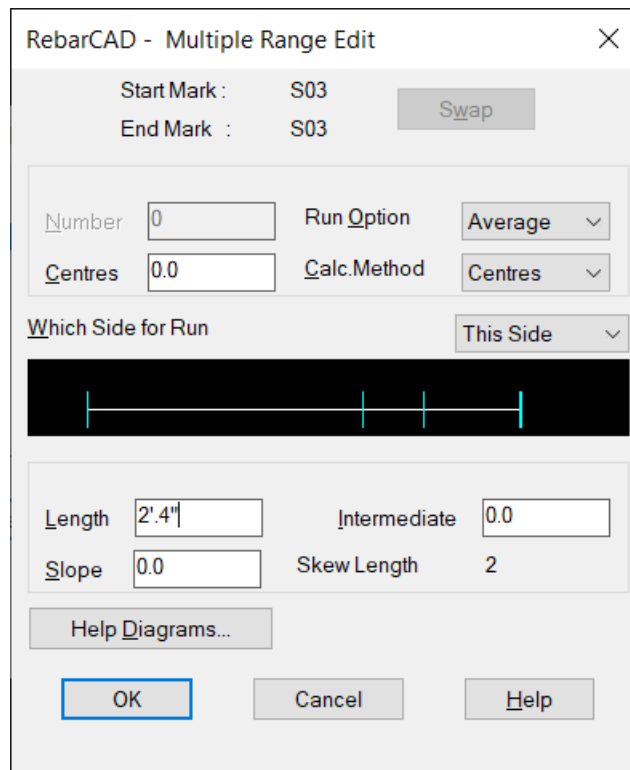
The dialog box is titled "RebarCAD - Multiple Range Edit" and contains the following fields and controls:

- Start Mark :** S03
- End Mark :** S03
- Swap** button
- Number** input field: 0
- Run Option** dropdown menu: Average
- Centres** input field: 0.0
- Calc. Method** dropdown menu: Centres
- Which Side for Run** dropdown menu: This Side
- A visual diagram showing a horizontal line with three vertical tick marks.
- Length** input field: 0.0
- Intermediate** input field: 0.0
- Slope** input field: 0.0
- Skew Length** input field: 0.0
- Help Diagrams...** button
- OK**, **Cancel**, and **Help** buttons at the bottom.

**Figure 8.4.5:2 Create Multiple Range Group dialog**

## Edit

The *Edit* option will display the *Multiple Range Edit* dialog for the group highlighted in the group list. A scaled diagram is displayed to show your changes and the position of the group being edited. The options are similar to the *Single Group Range Edit* dialog (see figure 7.3.2:1 above) except that you can type in the distance between Range Groups and swap the bar order for an Alternate Range.



RebarCAD - Multiple Range Edit

Start Mark : S03      End Mark : S03     

---

Number       Run Option  ▾

Centres       Calc.Method  ▾

Which Side for Run  ▾

---

Length       Intermediate

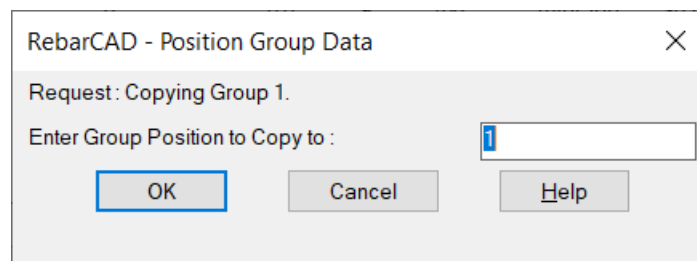
Slope       Skew Length

**Figure 8.4.5:3 Edit Multiple Range Group dialog**

### Copy

The *Copy* option will duplicate the currently highlighted group in the group list to another position you specify in the *Group Number* field. You can then edit the newly created group by double clicking on it in the spreadsheet and changing its values as necessary.



RebarCAD - Position Group Data

Request : Copying Group 1.

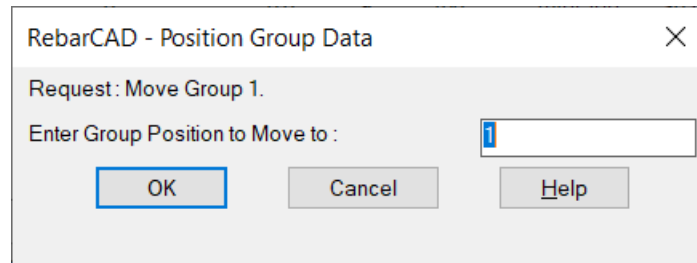
Enter Group Position to Copy to :

**Figure 8.4.5:4 Copy Multiple Range Group dialog**

### Move

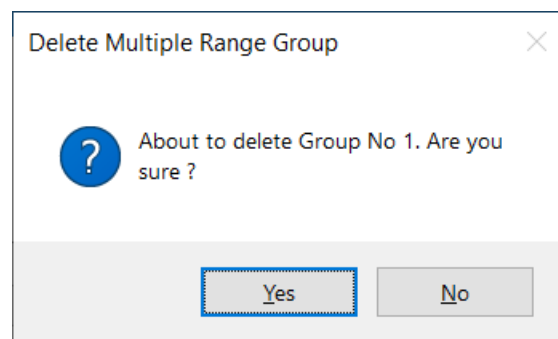
The *Move* option will move the currently highlighted group to the position that you specify in the *Group Number* field.



**Figure 8.4.5:5 Move Multiple Range Group dialog**

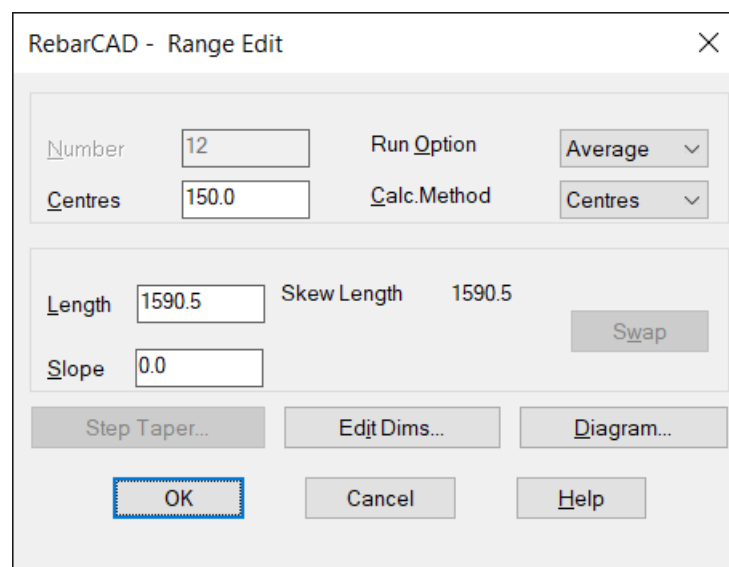
## Delete

The *Delete* option will remove the group currently highlighted in the group list.



**Figure 8.4.5:6 Delete Multiple Range Group dialog**

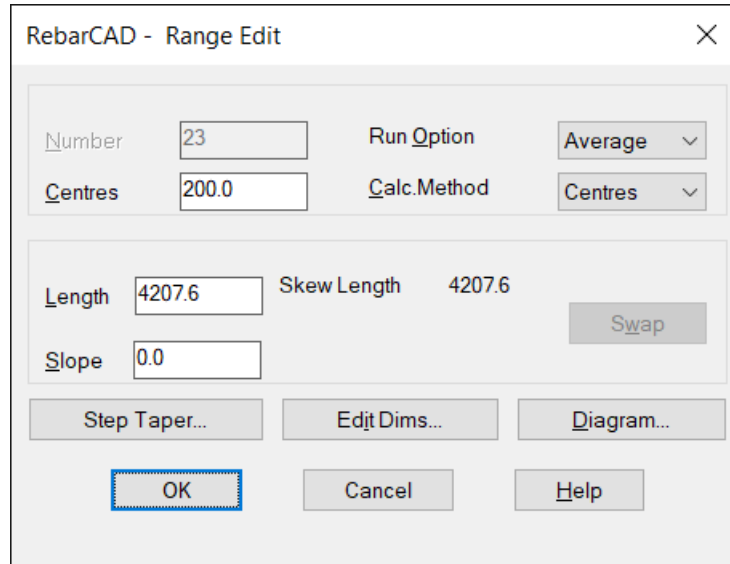
## 8.4.6 Radial Range Edit Dialog



**Figure 8.4.6:1 Radial Range Edit dialog**

The editing options for *Radial Ranges* are restricted. You can amend the centers, the run out and the calculation method but you cannot edit the range length. However, you can apply a slope to the range length and this is useful when detailing spiral ramps and silos.

### 8.4.7 Tapered Range Edit Dialog



The dialog box is titled "RebarCAD - Range Edit". It contains the following fields and controls:

- Number**: Text box with value 23.
- Run Option**: Dropdown menu with "Average" selected.
- Centres**: Text box with value 200.0.
- Calc. Method**: Dropdown menu with "Centres" selected.
- Length**: Text box with value 4207.6.
- Skew Length**: Text box with value 4207.6.
- Slope**: Text box with value 0.0.
- Swap**: Button.
- Step Taper...**: Button.
- Edit Dims...**: Button.
- Diagram...**: Button.
- OK**: Button.
- Cancel**: Button.
- Help**: Button.

**Figure 8.4.7:1 Tapered Range Edit dialog**

All editing options for the Single Indicator Range are also available for the *Tapered Range*. In addition, you can apply a step increment to a Tapered Range and you can edit individual bars in the taper and change their dimensions.

#### Step Taper

The *Step Taper* option allows you to group tapered bars according to a step increment length that rationalises the number of cut bars within the range. You can only apply a step taper to a range if it has been detailed from the shortest to the longest bar. If a step increment is applied to a range of bars, the length of any bars that lap with the range must be increased by the step length. You can apply the step to start at the shortest bar, which keeps all the bars within the outline, or to start at the longest bar. In the dialog below a step increment has been applied to the range and the cut bars have reduced from (a-ab) to (a-j).

RebarCAD - Step Taper

Step Information

Step Increment:  Method:

Dimensions Shown

☒ dimensions A - F ☐ dimensions G - R

Bar Mark	Grade	Size	No. of Bars	Length of Bar	Bend Type	A	B	C	D	E	F
706a	A615M/420	#7	1	1439.4	0			1439.4			
706b	A615M/420	#7	1	1455.7	0			1455.7			
706c	A615M/420	#7	1	1472.1	0			1472.1			
706d	A615M/420	#7	1	1488.5	0			1488.5			
706e	A615M/420	#7	1	1504.8	0			1504.8			
706f	A615M/420	#7	1	1521.2	0			1521.2			
706g	A615M/420	#7	1	1537.5	0			1537.5			
706h	A615M/420	#7	1	1553.9	0			1553.9			
706i	A615M/420	#7	1	1570.2	0			1570.2			
706j	A615M/420	#7	1	1586.6	0			1586.6			
706k	A615M/420	#7	1	1603.0	0			1603.0			
706l	A615M/420	#7	1	1619.3	0			1619.3			
706m	A615M/420	#7	1	1635.7	0			1635.7			
706n	A615M/420	#7	1	1652.0	0			1652.0			

OK Cancel Help

**Figure 8.4.7:2 Step Taper dialog before Step Increment applied**

RebarCAD - Step Taper

Step Information

Step Increment:  Method:

Dimensions Shown

☒ dimensions A - F ☐ dimensions G - R

Bar Mark	Grade	Size	No. of Bars	Length of Bar	Bend Type	A	B	C	D	E	F
706a	A615M/420	#7	1	1439.4	0			1439.4			
706b	A615M/420	#7	1	1455.7	0			1455.7			
706c	A615M/420	#7	1	1472.1	0			1472.1			
706d	A615M/420	#7	1	1488.5	0			1488.5			
706e	A615M/420	#7	1	1504.8	0			1504.8			
706f	A615M/420	#7	1	1521.2	0			1521.2			
706g	A615M/420	#7	1	1537.5	0			1537.5			
706h	A615M/420	#7	1	1553.9	0			1553.9			
706i	A615M/420	#7	1	1570.2	0			1570.2			
706j	A615M/420	#7	1	1586.6	0			1586.6			
706k	A615M/420	#7	1	1603.0	0			1603.0			
706l	A615M/420	#7	1	1619.3	0			1619.3			
706m	A615M/420	#7	1	1635.7	0			1635.7			
706n	A615M/420	#7	1	1652.0	0			1652.0			

OK Cancel Help

**Figure 8.4.7:3 Step Taper dialog after 200 mm Step Increment applied**

## Edit Dims

You can edit the lengths of individual bars inside the Tapered Range by using the *Edit Dims* dialog. You may need to do this to accommodate a duct or an opening. Simply double click on the bar to be edited and the standard *Edit Dims* dialog is displayed.

RebarCAD - Range Tapered Dims Editor

Dimensions Shown  
☒ dimensions A - F ☐ dimensions G - R

Bar Mark	Grade	Size	No. of Bars	Length of Bar	Bend Type	A	B	C	D	E	F
706a	A615M/420	#7	1	1439.4	0			1439.4			
706b	A615M/420	#7	1	1455.7	0			1455.7			
706c	A615M/420	#7	1	1472.1	0			1472.1			
706d	A615M/420	#7	1	1488.5	0			1488.5			
706e	A615M/420	#7	1	1504.8	0			1504.8			
706f	A615M/420	#7	1	1521.2	0			1521.2			
706g	A615M/420	#7	1	1537.5	0			1537.5			
706h	A615M/420	#7	1	1553.9	0			1553.9			
706i	A615M/420	#7	1	1570.2	0			1570.2			
706j	A615M/420	#7	1	1586.6	0			1586.6			
706k	A615M/420	#7	1	1603.0	0			1603.0			
706l	A615M/420	#7	1	1619.3	0			1619.3			
706m	A615M/420	#7	1	1635.7	0			1635.7			
706n	A615M/420	#7	1	1652.0	0			1652.0			

OK Cancel Help

**Figure 8.4.7:4 Tapered Range Edit Dimensions dialog**

## 8.4.8 Varying Taper Range Edit Dialog

RebarCAD - Range Edit

Number  Run Option

Centres  Calc. Method

Length  Skew Length

Slope

Swap

Step Taper... Edit Dims... Diagram...

OK Cancel Help

**Figure 8.4.8:1 Varying Taper Range Edit dialog**




In the case of a Varying Taper you can edit only the run out option for the bars in section or else change the dimensions of individual bars within the range using the *Edit Dims* option.

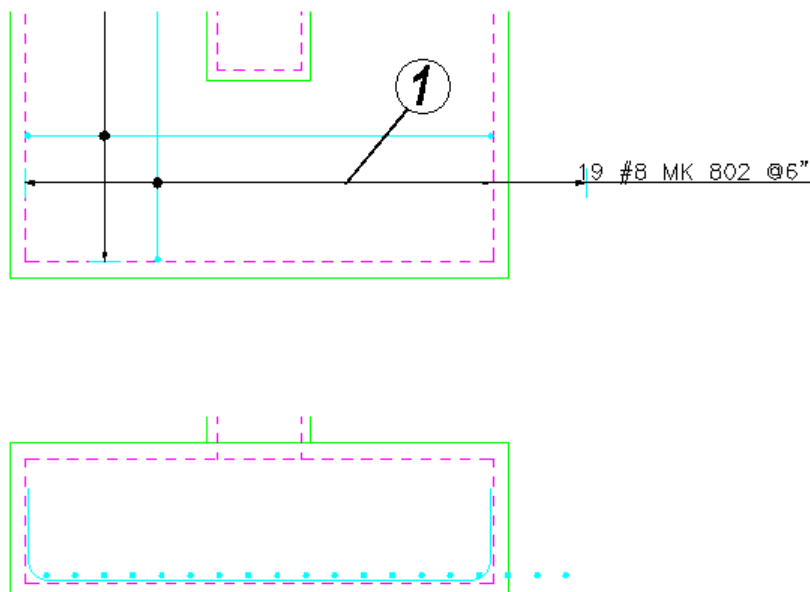
### 8.4.9 Hints & Tips - Add Missing Bar Leg Dimensions to Tapered Ranges

Bar and range editing is very restricted on Varying Taper bars but if you accidentally miss out a bar leg dimension you can still input it quickly through the *Edit Dims* dialog. If the dimension is constant through the range simply double click on the first and last bar in the range and input the same length before quitting the *Edit Range* dialog. **RebarCAD** will then apply the same dimension to all the bars in the range. This functionality applies also to the Linear Taper Ranges.



#### **Try It! Use Edit Range to Change the Properties of the Single Indicator Range**

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 21.dwg
- ▶ Make the Viewport on Range Edit Single Indicator (03) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Range Edit Single Indicator the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Edit Range or  or double click on the Range Line as indicated by point 1 on figure 7.3.9:1 below



**Figure 8.4.9:1 Using Edit Range to edit the range length**

- ▶ Select *Edit Range* and then change the following in the *Edit Range* dialog: *Centers* - change to 6"

Run Option - change to Run Out

Length - change to 9'




- ▶ Select OK twice to return to the drawing

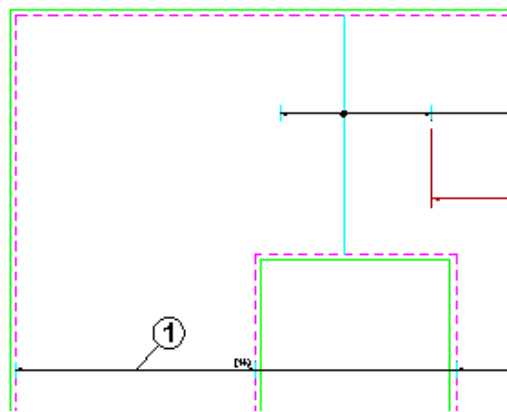
The drawing will automatically update to reflect the changes made in the dialog. The bars in section are now placed at 6" centers instead of 8" centers. The Range Line has extended beyond the outline of the structure in both the plan and section views because you changed the length. However, generally when you want to change the length of a range it is best to use the Stretch Bar/Range command as this will update the outline as well as the RebarCAD entities.



### **Try It! Use Edit Range to Change the Properties of the Multiple Group Range**

This exercise will take you through introducing a new opening into the multiple group range using the *Edit Range* function. Currently the range has two groups so you are going to copy Group 2 to position 3 and then edit both groups to the correct length.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 21.dwg
- ▶ Make the Viewport on Edit Range Multiple Group (04) Layout current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Range Edit m mo Multiple Group the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 04 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Edit Range or  or double click on the Range Line as shown by point 1 in figure 7.3.10:1 below



**Figure 8.4.9:1 Using Edit Range to add a Range Group**

- ▶ Select Edit Range
- ▶ Highlight Group 2 and select *Copy...*
- ▶ Type in 3 for the Group Position to Copy to
- ▶ Select OK

Highlight Group 2 and select *Edit...*

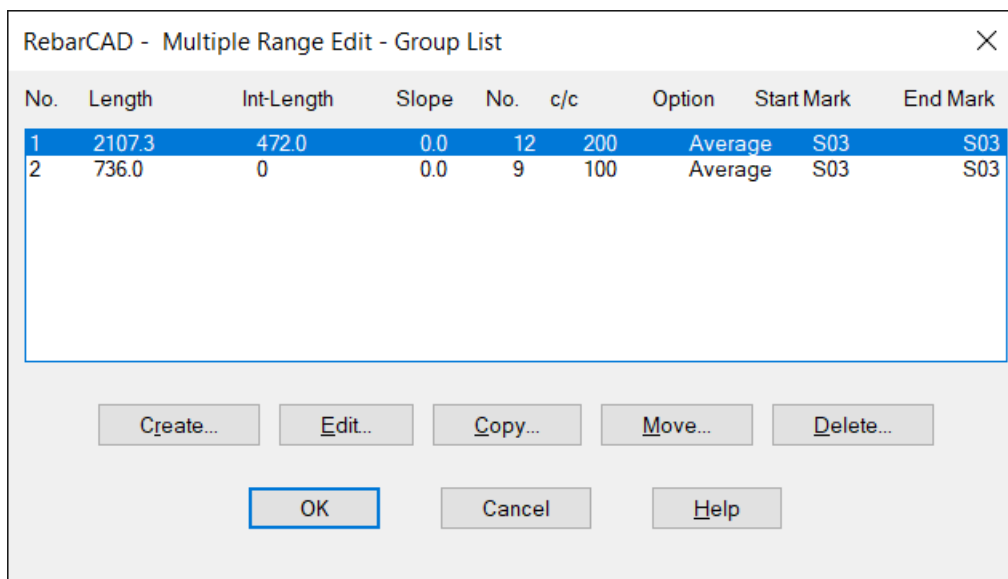
In the *Multiple Range Edit* dialog change the length to 2' and set the intermediate length to 2',

The length is the length of the Range Line and the intermediate length is the distance between two Range Groups.

As you change the data for each of the fields the scaled diagram updates.

- ▶ Select OK
- ▶ Highlight Group 3 and select *Edit...*

In the *Multiple Range Edit* dialog change the length to 3400.

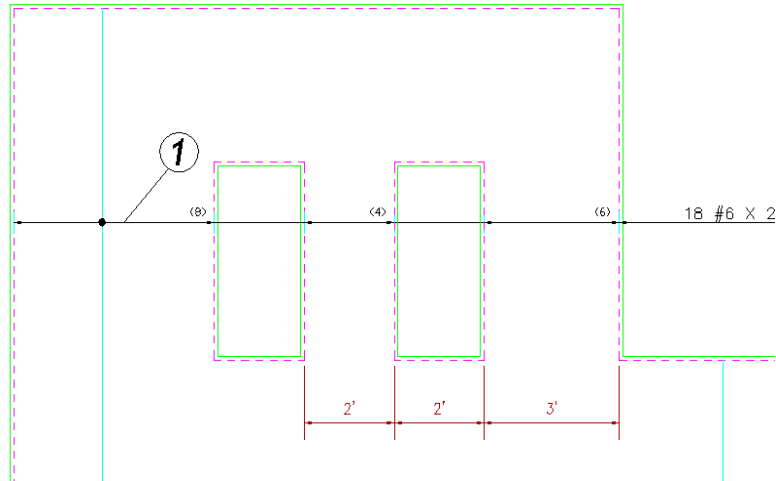


No.	Length	Int-Length	Slope	No.	c/c	Option	Start Mark	End Mark
1	2107.3	472.0	0.0	12	200	Average	S03	S03
2	736.0	0	0.0	9	100	Average	S03	S03

**Figure 8.4.9:2 Multiple Range Edit dialog**

- ▶ Select OK three times to return to the drawing.

The range redraws itself to show three groups and the number of bars is amended in the Bar Label.






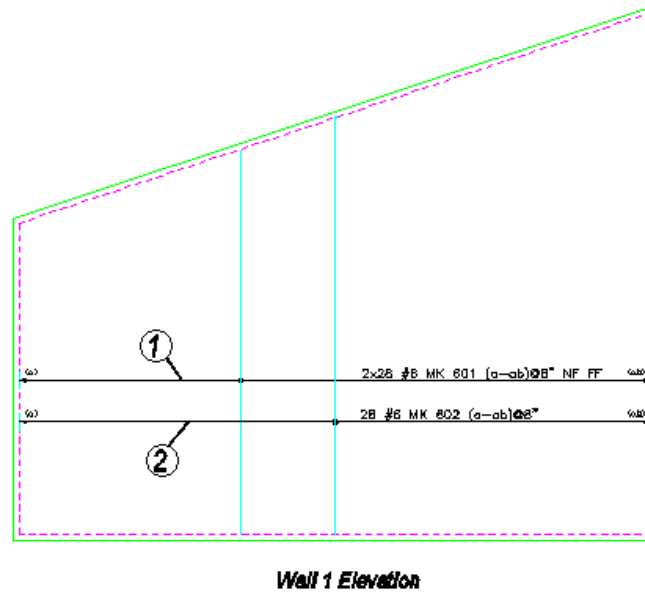
**Figure 8.4.9:3 Additional Group added to Single Fixed Pitch Range**



### Use Edit Range to Change the Properties of the Linear Taper Range

In this exercise you are going to apply a step taper to a Straight Bar and to a bend bar. You will get an error message when attempting to apply the step to the bend bar. You will then change the **RebarCAD** Configuration to allow you to apply the step taper.

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 21.dwg
- ▶ Make the Viewport on *Edit Range Linear Taper* (05) current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Edit Range Linear Taper* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make 05 the current Drawing Sheet
- ▶ Select **RebarCAD** → Editing → Edit Range or  or double click on the Range Line as marked by point 1 in figure 7.3.11:1 below



**Figure 8.4.9:1 Tapered Ranges detailed on Wall Outline**

- ▶ Select Edit Range...
- ▶ Select *Step Taper...*

In the *Step Taper* dialog set the *Step*

*Increment* to 6" and then press the Tab key on the keyboard or pick in another field on the dialog box

- ▶ The list of bars updates and the Bar Mark changes from (*a to ab*) to (*a to j*). Try changing the *Method* from *Start at Shortest Bar* to *Start at Longest Bar*. The number of cut bars within the Mark stays the same but (*a*) will now have 1 bars and (*j*) will now have 3. Return the *Method* to *Start at Shortest Bar*.

RebarCAD - Step Taper

Step Information

Step Increment:  Method:


Dimensions Shown

☒ dimensions A - F ☐ dimensions G - R


Bar Mark	Grade	Size	No. of Bars	Length of Bar	Bend Type	A	B	C	D	E	F
706j	A615M/420	#7	1	1586.6	0			1586.6			
706k	A615M/420	#7	1	1603.0	0			1603.0			
706l	A615M/420	#7	1	1619.3	0			1619.3			
706m	A615M/420	#7	1	1635.7	0			1635.7			
706n	A615M/420	#7	1	1652.0	0			1652.0			
706o	A615M/420	#7	1	1668.4	0			1668.4			
706p	A615M/420	#7	1	1684.7	0			1684.7			
706q	A615M/420	#7	1	1701.1	0			1701.1			
706r	A615M/420	#7	1	1717.4	0			1717.4			
706s	A615M/420	#7	1	1733.8	0			1733.8			
706t	A615M/420	#7	1	1750.2	0			1750.2			
706u	A615M/420	#7	1	1766.5	0			1766.5			
706v	A615M/420	#7	1	1782.9	0			1782.9			
706w	A615M/420	#7	1	1799.2	0			1799.2			

OK Cancel Help

**Figure 8.4.9:2 Step Taper dialog**


- ▶ Select OK three times to return to the drawing
- ▶ Select **RebarCAD** → Editing → Edit Range or  or double click on the Range Line as marked by point 2 in the figure 7.3.11:1 above
- ▶ Select Edit Range...
- ▶ Select Step Taper...

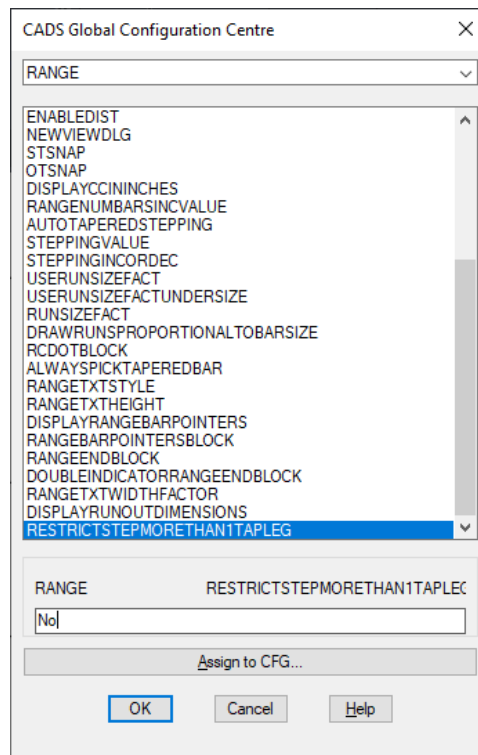
RebarCAD Step Range Facility

 This tapered range has a more than one tapering leg. Not supported.


OK

**Figure 8.4.9:3 Step Taper Warning of more than one sloping leg**


- ▶ Select OK four times to return to the drawing
- You are now going to edit the configuration to allow you step taper more than one bar leg at a time.
- ▶ Select **RebarCAD** → Configuration → Configuration Center or 
- ▶ Select Global/General Configuration






**Figure 8.4.9:4 Global Configuration dialog**

- ▶ In the *Global Configuration* dialog set the top field to *Range* using the drop down menu. In the middle field scroll to the bottom of the list and highlight *RestrictStepMoreThan1TapLeg*. In the lower input field type in *No*
- ▶ Pick *Assign to CFG*
- ▶ Select *OK*
- ▶ Select *Yes* to apply the change that has just been made
- ▶ Select *Close*
- ▶ Select **RebarCAD** → *Editing* → *Edit Range* or  or double click on the *Range Line* as indicated by point 2 in the figure 7.3.11:1 above
- ▶ Select *Edit Range...*
- ▶ Select *Step Taper...*  
Enter a step increment of 6"
- ▶ Select *OK* three times to return to the drawing  
Both ranges now show the bars as (*a*) to (*j*).

## 8.5 Redraw Bar

The Redraw Bar command  will delete the **RebarCAD** entity from the drawing and redraw it from the **RebarCAD** database information. This command is accessible through **RebarCAD** → Editing → Redraw Bar or from the *Editing* toolbar. If you have made any configuration changes this command will allow you to apply them to existing entities on the drawing. Also, if the bar is highlighted on the drawing, possibly through running the Drawing Audit command, the Redraw Bar command will return the entities to their original colors, scale and line thicknesses.

### 8.5.1 Try It! Use Redraw Bar to Show RebarCAD Configuration Changes on a Drawing


- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 22.dwg**
- ▶ Make the Viewport on *Redraw Bar (01)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make Redraw Bar the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *01* the current Drawing Sheet
- ▶ Select **RebarCAD** → Configuration → Configuration Center or 
- ▶ Select Bar Configuration
  - Set the Pline Width = Diameter to Yes
  - Set Draw Over Sized Ends to Yes
  - Set the Over Sized Ends Factor to **0.070**
  - Select OK
- ▶ Select Label Configuration Set the Bar Label Height to 1/6"
- ▶ Pick the Bend Label Format button
 

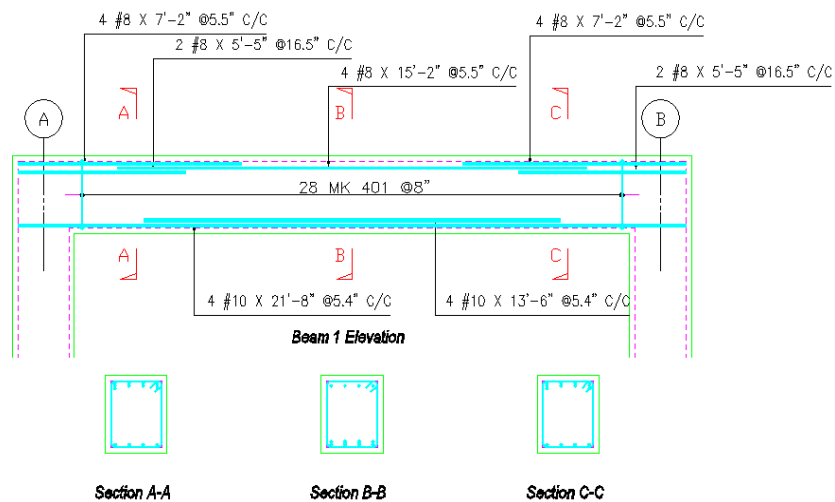
Add a hyphen after \$NOBAR and before \$BMARK from the Bar Label format string as shown in red below:

```
$MULTI~x$NOBAR-$BTYPE$BDIAM-$BMARK(~$SUFx1~-$SUFx2~)-~$CENTR ~$NOTES
```

Highlight the bar label format string, then right click and copy it onto the clipboard.


Select OK
- ▶ Pick the Straight Label Format button Right click on the bar label format string and paste in the copied straight label format.
- ▶ Select OK

- ▶ Do the same thing with the Tapered Label Format and the Straight Tapered Label Format buttons.
  - ▶ Select Close
  - ▶ Select RebarCAD – Editing → Redraw Bar or 
  - ▶ Select objects: Select the Beam Elevation and Sections using Crossing Window. a
- Select objects: Press enter to continue
- Processing data, please wait.
- Percent complete 100%.
- ▶ The **RebarCAD** entities have updated to reflect the changes in the configuration. All detailing and editing on this drawing will reflect the changes made in the configuration.



**Figure 8.5.1:1 Results of Reconfiguring shown on Beam**

## 8.6 Stretch Bar/Range

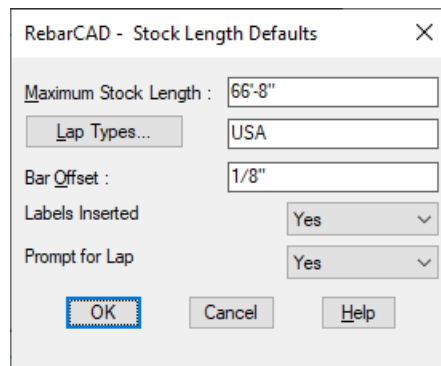
You cannot use the AutoCAD Stretch command on RebarCAD entities as it cannot communicate with the RebarCAD database and hence the Bar List. A RebarCAD Stretch Bar/Range command, , has been specifically written for this purpose, and this will also stretch AutoCAD entities. This function has the capability of retaining or changing the Bar Marks of any entities selected for stretching.

This command is accessible from RebarCAD → Editing → Stretch Bar/Range or through the Editing toolbar.

The command prompts as follows:

Check for other sets and re-assign Bar Marks/Stock? <Yes>:

- ▶ If you type **S** for Stock the dialog shown in figure 7.5:1 below is displayed. This allows you to amend the *Maximum Stock Length* value and if you then attempt to stretch the bar(s) over this value **RebarCAD** will automatically invoke the *Over Stock Length* feature discussed earlier in Section 4.4. Select OK to return to the command.



**Figure 8.6:1 Stock Length Defaults dialog**

Check for other sets and re-assign Bar Marks/Stock? <Yes>:




- ▶ The function can either retain or change the Bar Marks of the entities selected for stretching. If you answer *No* to whether you want to change the Bar Marks then any other sets of that Bar Mark on the drawing will be modified as well to reflect the new dimensions. If you answer *Yes* to that same question then new Bar Mark Numbers will be allocated to the stretched bars.

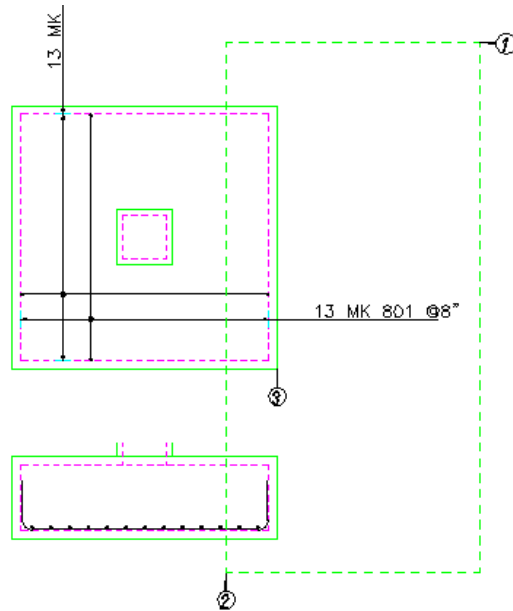
Select object to be stretched or crossing window:

You are then prompted to use the crossing window to select the part of the drawing to be stretched and then distance and angle of the stretch. As the crossing window has been preset you can pick in any direction.



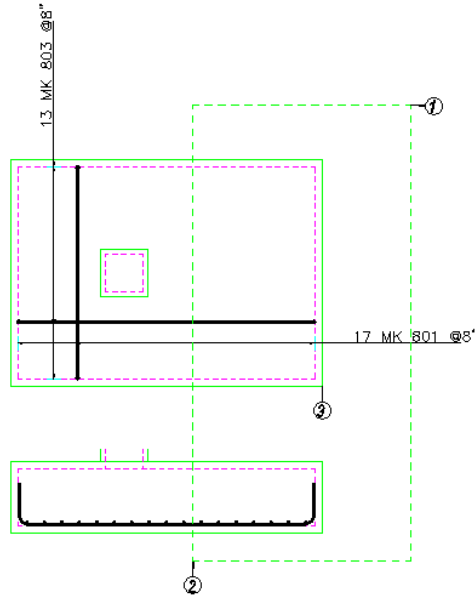
### **Try It! Use Stretch Bar/Range to Change the Dimensions of a Pad Base**

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 22.dwg
- ▶ Make the Viewport on Stretch Pad Base (02) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Stretch Pad Base the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Stretch Bar/Range or 



**Figure 8.6:1 Pad Base before using Stretch Bar/Range**




- ▶ Check for other sets and re-assign Bar Marks/Stock? <Yes>: Press enter  
 Select object to be stretched or crossing window: Select point 1 as shown in figure 7.5.1:1  
 Other corner: Select point 2  
 15 found. 4 bar(s) found.  
 Base point: Select point 3  
 New point: Type in **@3'** and press enter
  - ▶ The Pad Base plan and section are stretched 3' to the right, and the Bar Mark of one of the bars changes to accommodate the change in Leg B.
- Note: if you carried out the exercise directly after completing the Redraw Bar exercise the RebarCAD entities would have been redrawn with the newly configured properties.

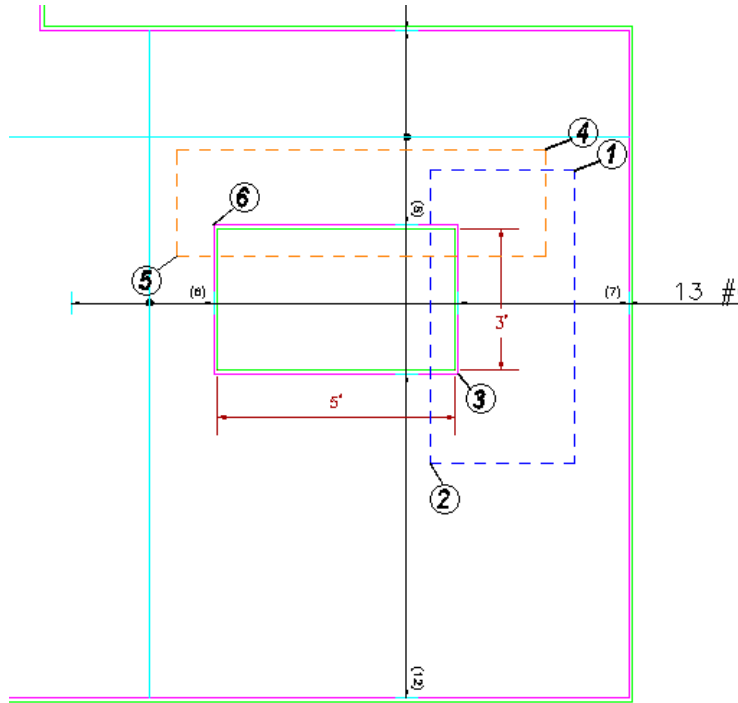


**Figure 8.6:2 Pad Base after using Stretch Bar/Range**




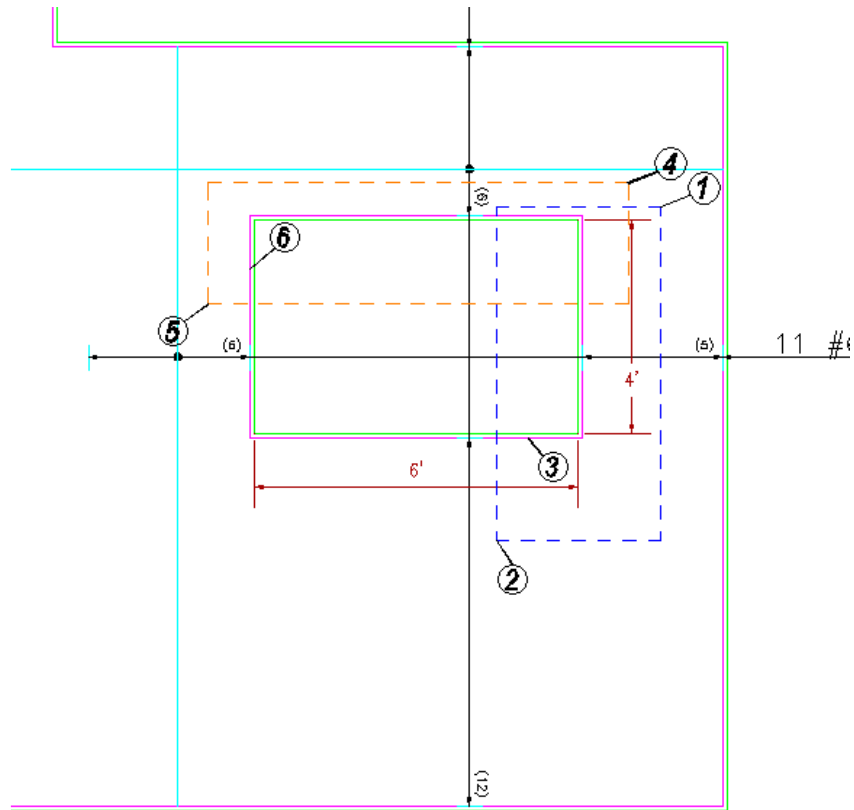
**Try It! Use Stretch Bar/Range to Change the Size and Position of Openings in a Slab**

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 22.dwg
- ▶ Make the Viewport on Stretch Slab Openings (03) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Stretch Slab Openings the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Stretch Bar/Range or 



**Figure 8.6:3 Slab with Opening to be resized**



- ▶ Check for other sets and re-assign Bar Marks/Stock? <Yes>: Press enter  
*Select object to be stretched or crossing window:* Select point 1  
*Other corner:* Select point 2  
*15 found. 4 bar(s) found.*  
*Base point:* Select point 3  
*New point:* Type in **@1' 0"** and press enter
- ▶ Select RebarCAD → Editing → Stretch Bar/Range or 
- ▶ Check for other sets and re-assign Bar Marks/Stock? <Yes>: Press enter  
*Select object to be stretched or crossing window:* Select point 4  
*Other corner:* Select point 5  
*15 found. 4 bar(s) found.*  
*Base point:* Select point 6  
*New point:* Type in **@0', 1'** and press enter

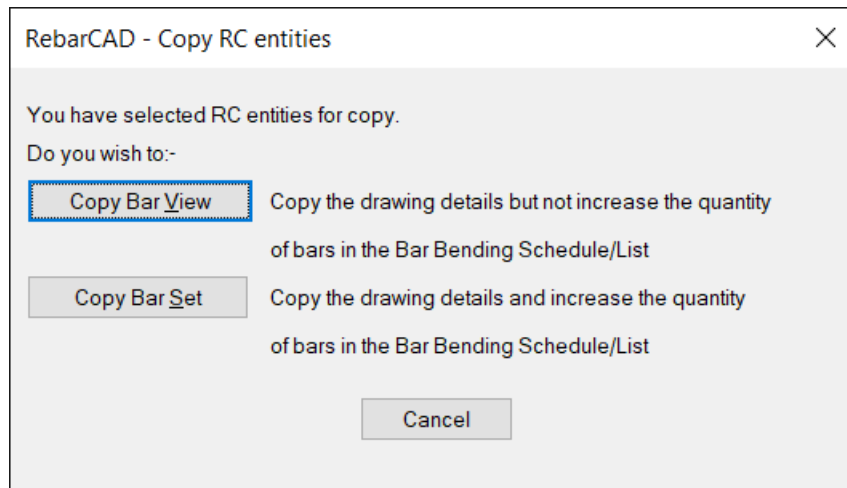


**Figure 8.6:2 Slab with re-sized opening**

## 8.7 Using AutoCAD Commands to Modify a Drawing

### 8.7.1 Copy and Array


You can use the AutoCAD commands Copy  and Array  to produce duplicate RebarCAD entities in exactly the same way as in standard AutoCAD. While using these commands you will be prompted to choose to add the RebarCAD entities as either a *Copy Bar Set* or *Copy Bar View* by the dialog shown below as figure 7.6.1:1. The *Copy Bar Set* option will duplicate the Entities and add another line to the Bar List, which increases the number of bars on the detail. The *Copy Bar View* just duplicates the entities but does not increase the number of bars on the Bar List.



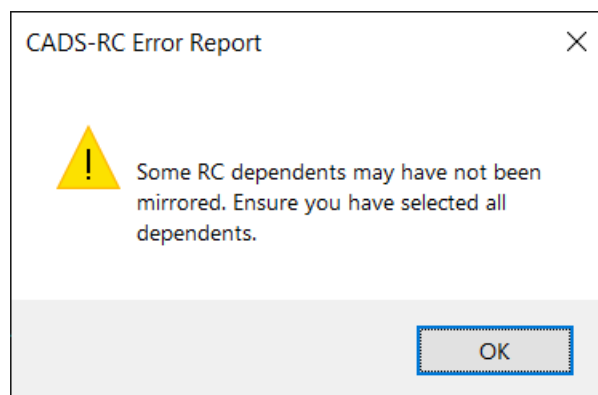
**Figure 8.7.1:1 RebarCAD Copy Bar View or Set Confirmation**

The Cancel option will abort the Copy or Array command.

## 8.7.2 Mirror

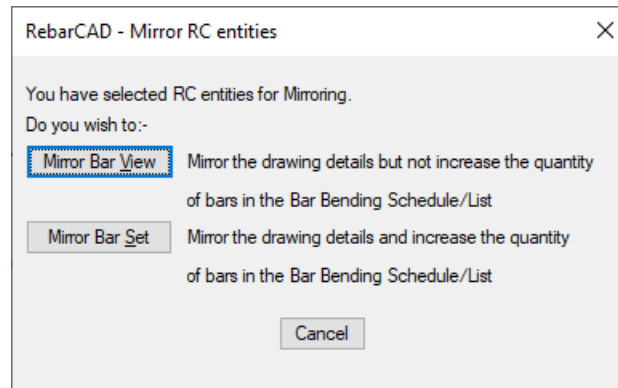
You can use the *AutoCAD* Mirror command  to produce reflected copies of **RebarCAD** entities on your details.

If you decide to delete the original **RebarCAD** entities (source objects) a warning message will be displayed as shown in figure 7.6.2:1 below. This warning points out that if there are any other graphics linked to the Bar View that have not been selected for mirroring **RebarCAD** will not be able to delete them.





**Figure 8.7.2:1 RebarCAD Mirror Warning**

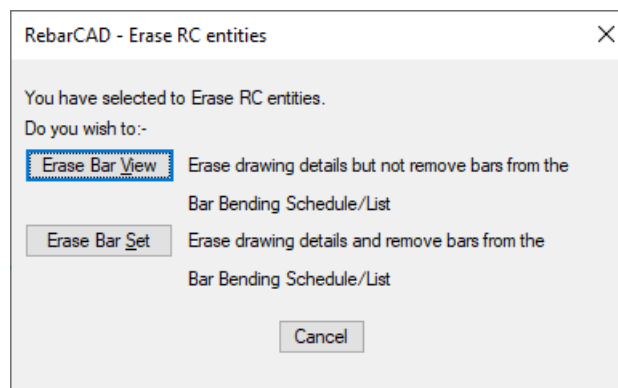
If you decide not to delete the original objects you will be prompted to select *Mirror Bar View* or *Mirror Bar Set*. The *Mirror Bar Set* option will duplicate the entities and add another line to the Bar List that increases the number of bars on the detail. The *Mirror Bar View* just duplicates the entities but does not increase the number of bars on the Bar List.



**Figure 8.7.2:2 RebarCAD Mirror Bar View or Set Confirmation**



### 8.7.3 Erase, Cut and Delete

You can use the AutoCAD Erase  or Cut  commands, and the Delete key on the keyboard to remove RebarCAD entities from the drawing. When you press Enter to confirm the objects to delete RebarCAD will interrupt and ask whether to Erase Bar View or Erase Bar Set. If Erase Bar Set is picked then all the entities belonging to the bars selected will be deleted from the drawing and the entry in the Bar List will be removed as well. If Erase Bar View is selected only the entities selected from the drawing will be deleted and the bars will not be removed from the Bar List.



**Figure 8.7.3:1 RebarCAD Erase Bar View or Set Confirmation**

### 8.7.4 Copy and Paste


You can use Copy  and Paste  from the *Edit* pull down menu to place objects on the clipboard. These can then be pasted into the same drawing or into a different drawing.

When using *Copy* and *Paste* to copy entities from one drawing to another ensure both drawings are at the same working scale. The *Paste* command will add the bars as the next available Bar Marks on the drawing.

### 8.7.5 Hints & Tips - Copy and Paste

When copying and pasting details from one drawing to another make sure that the working scales are the same. If required, you can then rescale the detail once it has been inserted.

### 8.7.6 Export and Insert a Block




If you want to save a RebarCAD detail for later use you can create an AutoCAD Wblock. Create the detail in exactly the same way as you would with AutoCAD either by selecting Export from the File pull down menu and then changing the files to DWG type or else by typing Wblock at the command line. When you import the detail to the existing drawing, or to a new one, using the Insert Block command  make sure that the Explode option is selected in the dialog so that RebarCAD can assign the next available bars marks to the detail.

Note: You cannot edit the Wblock drawing to change the RebarCAD entities as you have no access to the RebarCAD database. If you need to amend a library detail then import it to a drawing, edit it, and then export it again as a Wblock.



#### **Try It! Use AutoCAD Copy to Add Missing Bar Views**

Using the **AutoCAD Copy** command, you'll copy an existing bar from the Pad Base plan into the Section as a New View to represent the top and bottom bars.

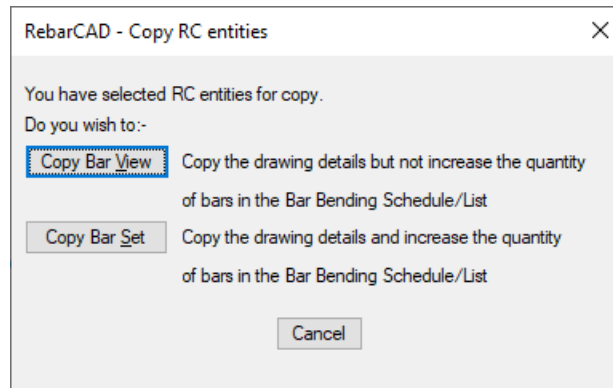
- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 23.dwg**
- ▶ Make the Viewport on **AutoCAD Copy (01)** current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make **AutoCAD Copy** the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make **01** the current Drawing Sheet
- ▶ Select Modify → Copy or 

*Select objects:* Select the Bar View shown by point 1

*Select objects:* Press enter

*Specify base point or displacement:* Pick the position shown by point 2

*Specify second point of displacement:* Pick the position shown by point 3

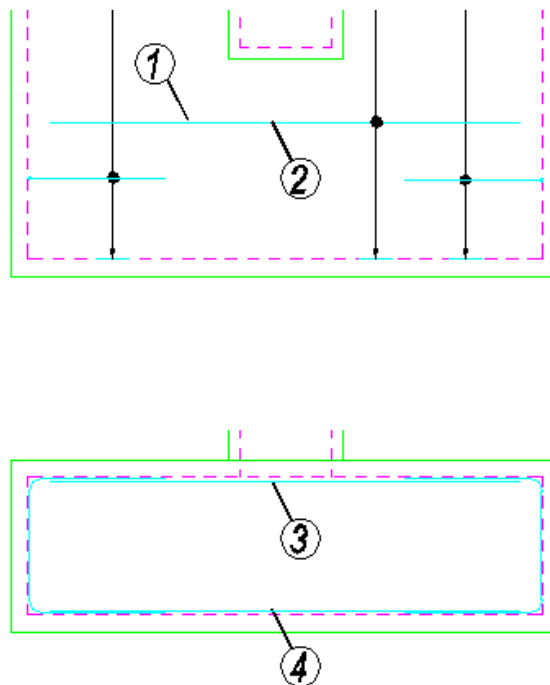


**Figure 8.7.6:1 RebarCAD Copy Bar View or Set Confirmation dialog**

- Select Copy Bar View

*Specify second point of displacement:* Pick the position shown by point 4

*Specify second point of displacement:* Press enter to continue






**Figure 8.7.6:2 Using AutoCAD Copy to duplicate Bar Views**

Using **AutoCAD Copy** to duplicate the bars where the same view is required is faster than drawing the bar using the **Draw Bar** routine.

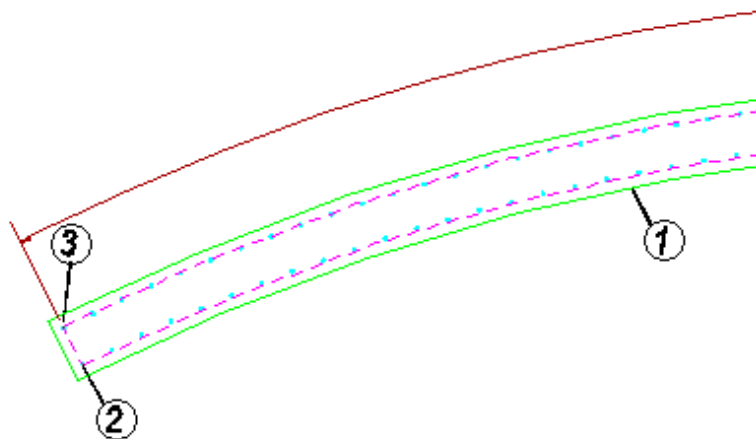


In this exercise you are going to use the *AutoCAD Polar Array* to produce a Run of Bars in Section as a New View along an arc.

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 23.dwg
- ▶ Make the Viewport on *AutoCAD Array (02)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *AutoCAD Array* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *02* the current Drawing Sheet
- ▶ Select Modify → Array or  Pick *Polar Array*

Select OK

- ▶ Select Copy Bar View
- ▶ Repeat the exercise with the bar in section as shown by point 3 but set the *Total Number of Items* to 65. Set the Center point of the array arc as above

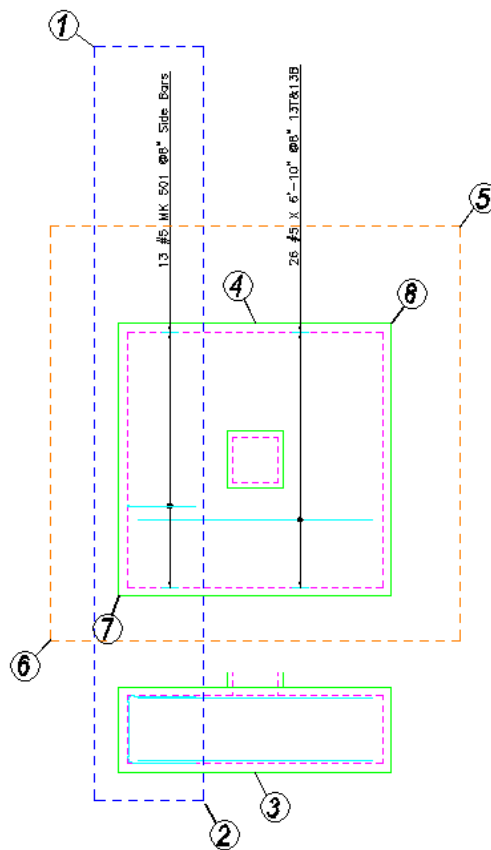


**Figure 8.7.6:1 Using AutoCAD Array to place bars along an arc**



**Try It! Use AutoCAD Mirror to Place Bars at the Opposite End of a Beam**

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 23.dwg
- ▶ Make the Viewport on AutoCAD Mirror (03) current
- ▶ Select RebarCAD → Draw Bar → Set Member or
- ▶ Make AutoCAD Mirror the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or
- ▶ Make 03 the current Drawing Sheet



**Figure 8.7.6:1 Using AutoCAD Mirror to finish a detail**


- ▶ Select Modify → Mirror or
- Select objects:* Pick inside the blue rectangle, as shown by point 1
- Specify opposite corner:* Pick inside the blue rectangle, as shown by point 2, to form a selection window
- Specify first point of mirror line:* Pick at the midpoint as shown by point 3
- Specify second point of mirror line:* Pick at the midpoint as shown by point 4

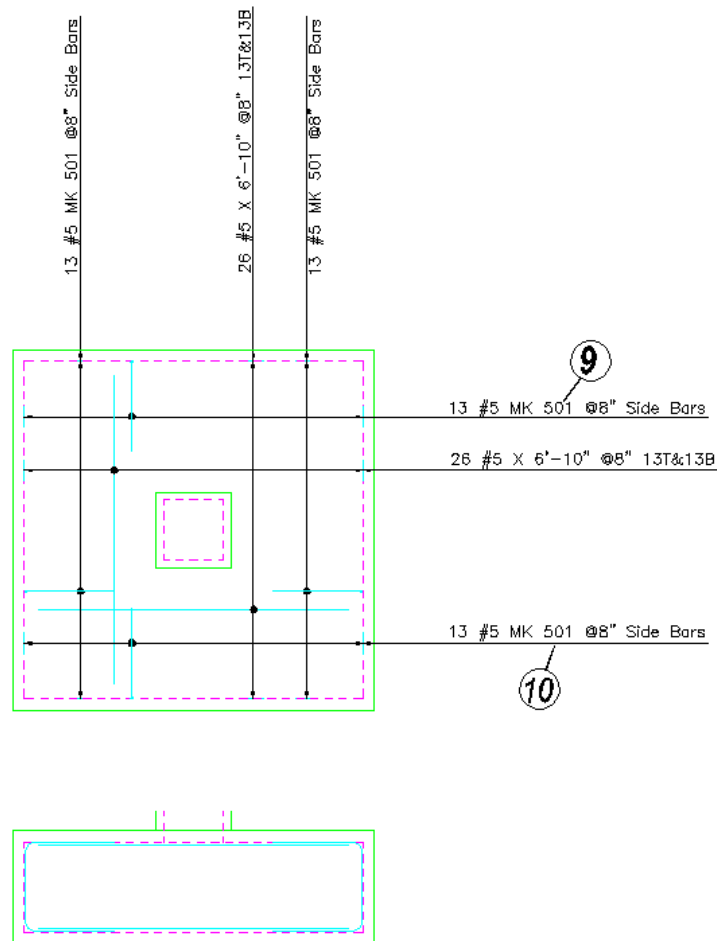
*Delete source objects? [Yes/No] <N>: Press Enter to continue*

*Pick Mirror Bar Set*


This has reflected the left hand Bar Set to the right in the plan and the section. You will need to move the Bar Label to the correct side of the leader line.

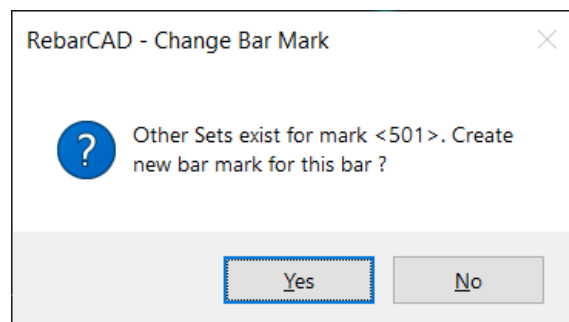
Next you are going to mirror all the bars and the ranges on the plan at 45 degrees to produce the second layer of reinforcement. You will then adjust leg B of the U bar to fit inside the first layer of reinforcement.

- ▶ Select Modify → Mirror  command
- ▶ *Select objects:* Pick inside the orange rectangle, as shown by point 5  
*Specify opposite corner:* Pick inside the blue rectangle, as shown by point 6, to form a selection window  
*Specify first point of mirror line:* Pick at the endpoint marked as point 7  
*Specify second point of mirror line:* Pick at the endpoint marked as point 8
- ▶ Hold the Shift Key down on the keyboard and select the Pad Base and Column Outlines to remove them from the AutoCAD selection set.  
*Delete source objects? [Yes/No] <N>: Press enter to continue*
- ▶ Pick Mirror Bar Set
- ▶ Move the Bar Labels above the leader line



**Figure 8.7.6:2 Completed detail using AutoCAD Mirror**

- ▶ Select **RebarCAD** → Editing → Edit Bars or 
- ▶ Pick bar/label to edit or <ENTER> for multiple selection: Pick the Bar Label shown by point 9
- ▶ Select the *First Bar* button and change leg B to 1'-10"
- ▶ Select OK twice to return to the drawing



**Figure 8.76:3 Create New Bar Mark Confirmation dialog**

- ▶ Select Yes to accept

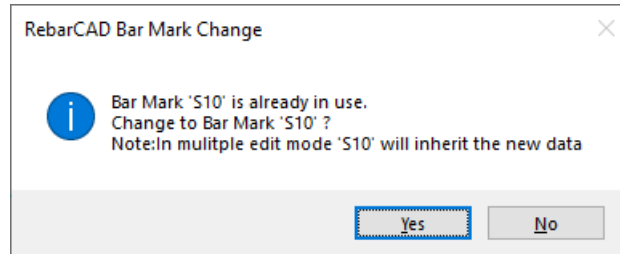
Next Bar Mark is <504>: Press enter to accept

Select RebarCAD → Editing → Edit Bars or 

Pick bar/label to edit or <ENTER> for multiple selection:

Pick the Bar Label shown by point 10

Change the Bar Mark to 504 and select OK



**Figure 8.7.6:4 Bar Mark Change dialog**



- ▶ Select Yes to accept

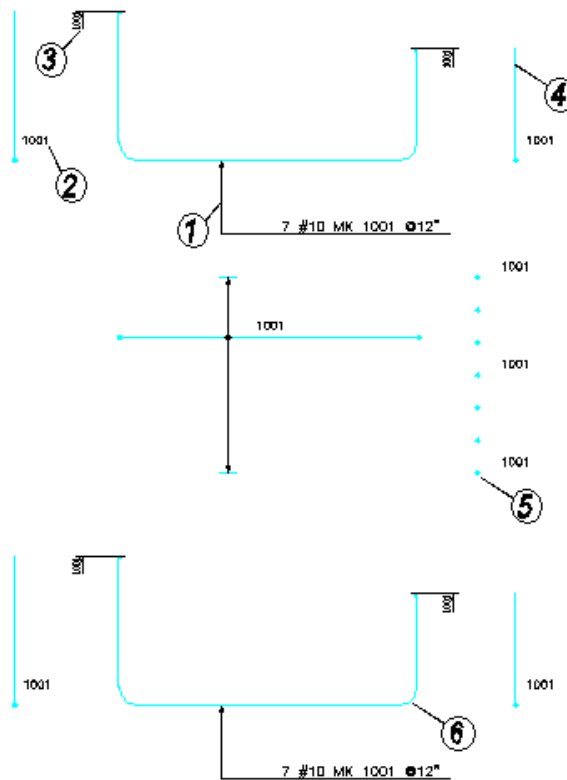
This exercise illustrates how quickly you can work with RebarCAD if you use the AutoCAD Modify and RebarCAD Editing commands to produce details.




## 7.6.9 Try It! Delete Bars and Ranges from a Drawing Using AutoCAD Erase

Using *AutoCAD Erase* you are going to explore the differences between *Erase Bar Set* and *Erase Bar View*.


- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 23.dwg
- ▶ Make the Viewport on AutoCAD Erase (04) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make AutoCAD Erase the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 04 the current Drawing Sheet




**Figure 8.7.6:1 Using Erase Bar View and Set**


- ▶ Select Modify → Erase or 
  - Select Objects: Pick the leader as shown by point 1
  - Select Objects: Press enter
- ▶ Choose Erase Bar View

Note that only the leader line has been deleted and not the arrowhead. You need to select both for deletion


- ▶ Select Modify → Erase or 
  - Pick the *Bar Reference* as shown by point 2
  - Select Objects: Press enter
  - Select Erase Bar View
  - Note that only the Bar Reference is deleted

- ▶ Select Modify → Erase or 
  - Pick the *Tag* as shown by point 3
  - Select Objects: Press enter
  - Select Erase Bar View


Note that the Ticks and Tags at each end of the bar are deleted

- ▶ Select Modify → Erase or 
- ▶ Pick the *Bar View* as shown by point 4  
Select Objects: Press enter  
Select Erase Bar View


Note that the Bar View and its Bar Reference are deleted

- ▶ Select Modify → Erase or 
- ▶ Pick the *Bar In Section* as shown by point 5  
Select Objects: Press enter  
Select Erase Bar View

Note that the whole Bar Run and the associated Bar References are deleted

- ▶ Select Modify → Erase or 
- ▶ Pick the *Bar In Section* as shown by point 6  
Select Objects: Press enter  
Select Erase Bar View

Note that the range line and associated end markers are deleted from the drawing

- ▶ Select Modify → Erase or 
- ▶ Pick the *Bar In Section* as shown by point 7  
Select Objects: Press enter  
Select Erase Bar Set

Note that all the entities associated with the bar set are deleted from the drawing

## 8.8 **AutoCAD Commands You Cannot Use on Reinforcement Entities**

The following *AutoCAD* commands won't work with **RebarCAD** entities:

- ▶ Stretch
- ▶ Offset
- ▶ Scale
- ▶ Lengthen
- ▶ Trim, Extend
- ▶ Break


► Explode

You can however, Explode or Break RebarCAD entities, but this will destroy the link to the RebarCAD database and the bars may no longer appear on the Bar List.

## 8.9 Explode Over Stock Length (OSL) Group

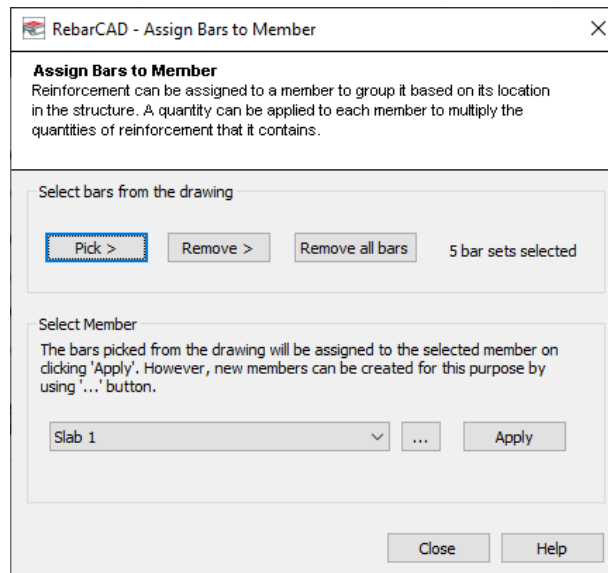
An OSL Group of Bars and/or Ranges can be exploded into individual sets if required. Take care to use the RebarCAD Explode OSL Group command and not the AutoCAD Explode command. You cannot currently add Views to an OSL group and so you will need to explode the Group in order to add Views. Once exploded the Bar Sets will no longer behave as an OSL group.

## 8.10 Assign Bars to Members

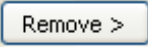
Throughout this tutorial we've encouraged you always to set the default Member before you start detailing. However, after the bar has been drawn you can always change the Member to which it has been assigned by using the Assign Bars to Member command, .

This command is available from the Editing toolbar or through RebarCAD → Editing → Assign Bars to Member. You can use this command to quickly assign multiple bars to a Member.


Select the Member from the drop down list and then use the *Pick* button to select the bars to be assigned. After you've made your selection you must use the *Apply* button on this dialog window as otherwise the assignment or reassignment will not be made and the changes will be lost. Having the *Apply* button on the dialog means that you can easily and quickly make several sets of changes without having to reload the command each time.



**Figure 8.10:1 Assign Bars to Member dialog**

If  you've changed your mind about including certain bars then simply use the *Remove* button to deselect bars that aren't wanted.


The  *Remove All Bars* button deselects all bars picked.

And  if you need to add new Members to your list then use the *Browse* button to open the *Create Member* dialog to do this.

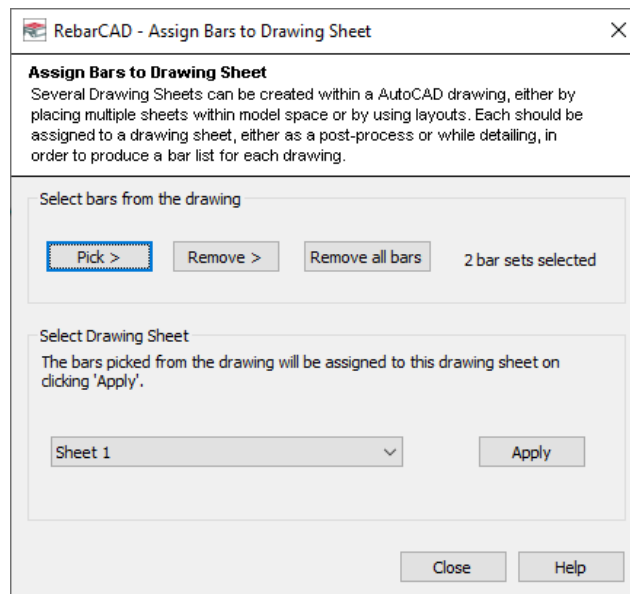
### 8.10.1 Hints & Tips – Quick Way to Check Member Assignment

You can use the Assign Bars to Member command to view and check quickly that the bars on the drawing are assigned to the correct Member. Switch to Model Space and do a Zoom Extents on the drawing. Select the Assign Bars to Member command. Choose each Member on the drop down list in turn and select the Pick option. RebarCAD will highlight in magenta (color 6) all the bars currently assigned to that selected Member.

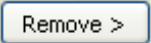
## 8.11 Assign Bars to Drawing Sheets

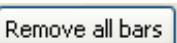
Throughout this tutorial we've encouraged you always to set the default Drawing Sheets before you start detailing. However, after the bar has been drawn you can always change the Drawing Sheet to which it has been assigned by using the Assign Bars to Drawing Sheet command, .

This command is available from the Editing toolbar or through RebarCAD → Editing → Assign Bars to Drawing Sheet. You can use this command to quickly assign multiple bars to a Drawing Sheet.



**Figure 8.11:1 Assign Bars to Drawing Sheet dialog**

If  you've changed your mind about including certain bars then simply use the Remove button to deselect bars that aren't wanted.

The  Remove All Bars button deselects all bars picked.

## 8.11.1 Hints & Tips - Quick Way to Check Drawing Sheet Assignment




You can use the Assign Bars to Drawing Sheet command to view and check quickly that the bars on the drawing are assigned to the correct Drawing Sheet. Switch to Model Space and do a Zoom Extents on the Drawing. Select the Assign Bars to Drawing Sheet command. Choose each Drawing Sheet on the drop down list in turn and select the Pick option. RebarCAD will highlight in magenta (color 6) all the bars currently assigned to that selected Drawing Sheet.

## 8.12 Assign Bars to Release

The creation of Releases and of Assigning Bars to Releases is covered in the Section **on Production, Chapter 10.**

### 8.12.1 Try It! Copy and Paste a Detail from one Drawing Sheet to Another and Assign the Drawing Sheet and Member

Using the standard *Windows* method of *Copy* to the clipboard and *Paste* from the clipboard you are going to duplicate a **RebarCAD** detail. The copy and paste functionality could be used to duplicate details from one open drawing to another.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD** 23.dwg
- ▶ Make the Viewport on *AutoCAD Copy Clip (05)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member  command
- ▶ Make *AutoCAD Copy Clip* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *05* the current Drawing Sheet
- ▶ Select Edit → Copy with Base point or 


*Specify base point:* Pick the endpoint shown by point 1

*Select objects:* Pick in space, as shown by point 2, to create a crossing window

*Specify opposite corner:* Pick in space as shown by point 3

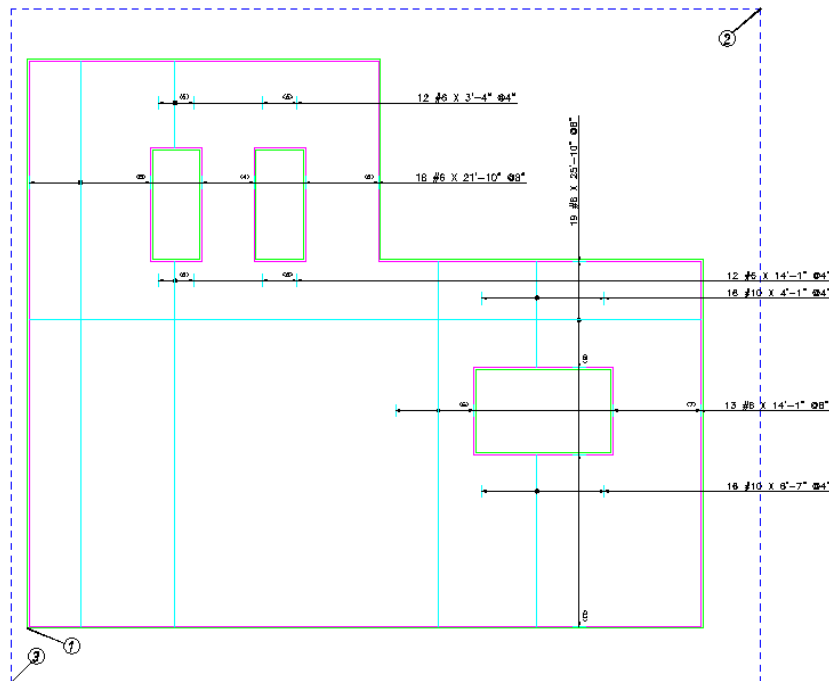
*Select objects:* Press enter to continue

The slab has now been placed on the *Windows* clipboard

- ▶ Make the Viewport on *AutoCAD Paste (06)* current
- ▶ Select Edit → Paste command 

*Specify insertion point:* Pick the insertion point shown by point 4

The slab is pasted into the Viewport. If bend bars are present **RebarCAD** will automatically assign them the next available Bar Marks.




**Figure 8.12.1:1 Copy & Paste, selecting objects**

### Assigning Drawing Sheet and Member

- ▶ Select **RebarCAD** → Bar List
- ▶ Select Drawing Sheet 06 on the list on the right; no bars appear in the sheet
- ▶ Select Drawing Sheet 05

You have double the quantity of bars, all assigned to Member *AutoCAD Copy Clip*. You are now going to use **Assign Bars to Member** and **Assign Bars to Drawing Sheet** to correct this problem.

- ▶ Select **RebarCAD** → Editing → Assign Bars to Drawing Sheet or 
  - ▶ In the *Assign Bars to Drawing Sheet* dialog, select Drawing Sheet 06 from the drop down list.
- Select the *Pick* button

Make a crossing window around the whole detail in Model Space that is shown in *Viewport on Layout AutoCAD Paste*

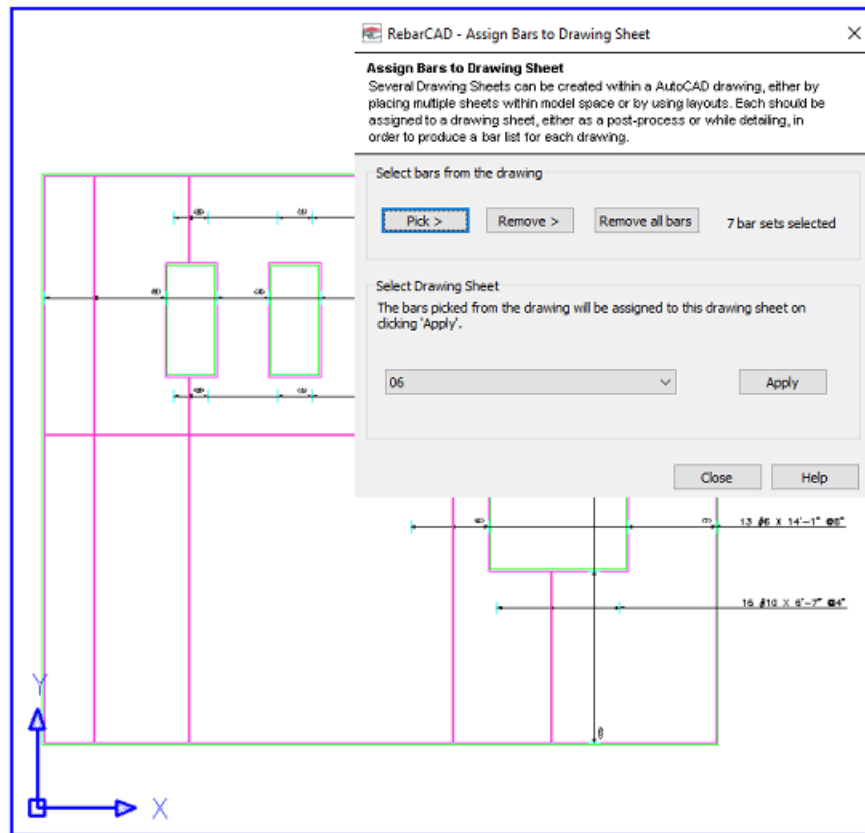
Press enter to return to the *Assign Bars to Drawing Sheet* dialog

In the background behind the dialog all the picked bars turn magenta to confirm your selection


Select *Apply*

The bars are assigned to the Drawing Sheet 06.

Select *Close*



**Figure 8.12.1:2 Assign Bars to Drawing Sheet on Layout, AutoCAD Paste (06)**

- ▶ Select RebarCAD → Editing → Assign Bars to Member or 

In the dialog select *AutoCAD Paste* from the Member drop down list

Select the *Pick* button

Make a crossing window around the whole detail in Model Space that is shown in Viewport on Layout *AutoCAD Paste* (06)

Press enter to return to the dialog



- ▶ Behind the dialog all the picked bars turn magenta to confirm your selection.

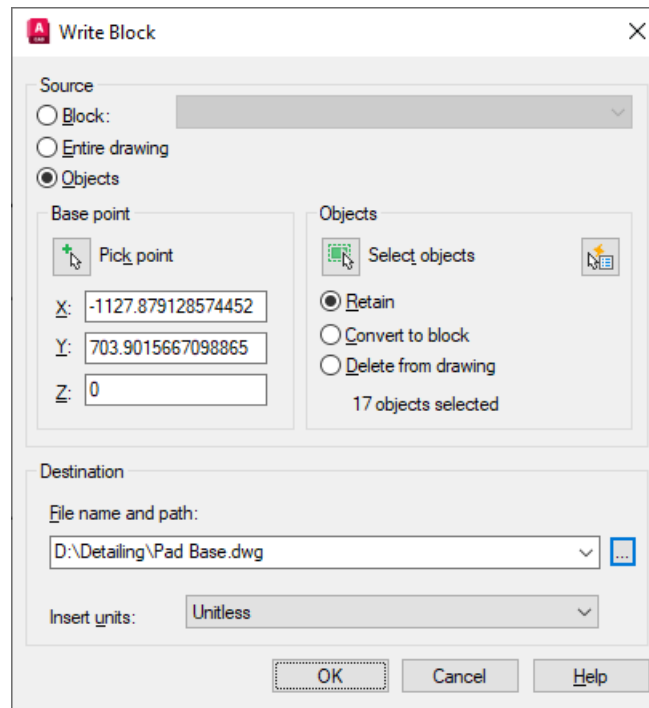
Select *Apply*

- ▶ The bars are assigned to the Member – *AutoCAD Paste*.
- ▶ Select *Close*



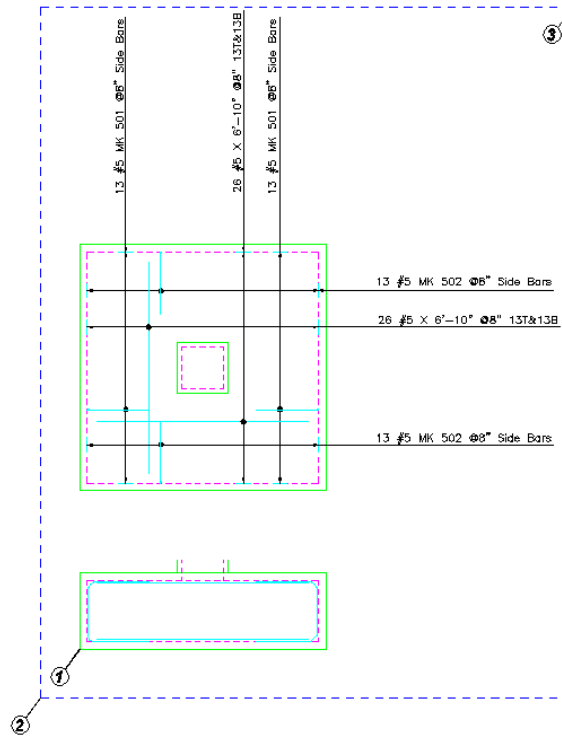
## **Try It! Export and Import a Wblock to a Drawing, Assigning Drawing Sheet and Member**

- ▶ Launch **RebarCAD**
- ▶ Open drawing ...\\drawings\\ **RebarCAD 23.dwg**
- ▶ Make the Viewport on *AutoCAD Export Wblock (07)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *AutoCAD Import Wblock* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make 08 the current Drawing Sheet
- ▶ Type *Wblock* and press enter



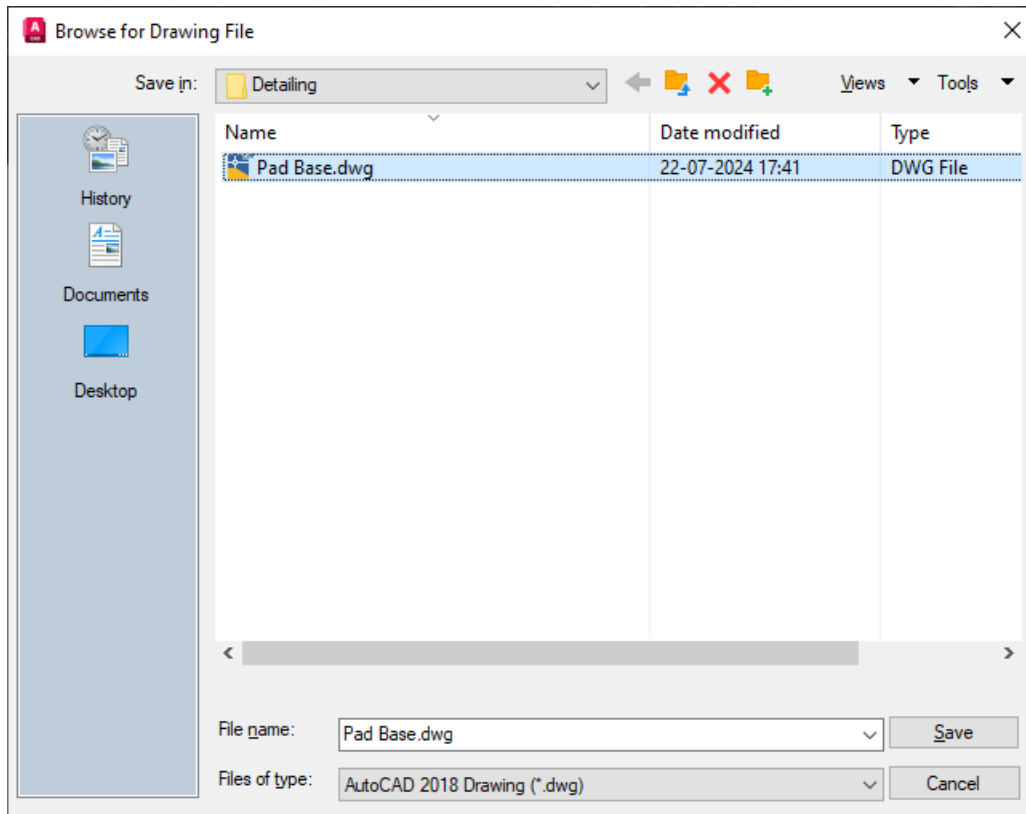
**Figure 7.11.2:1 Wblock dialog**

- ▶ Select the *Pick point* button  
Wblock Insertion base point: Select point 1
- ▶ In the Wblock dialog make sure that the *Retain* radio button is selected. This prevents *AutoCAD* from deleting the objects that have selected for export as a Wblock.




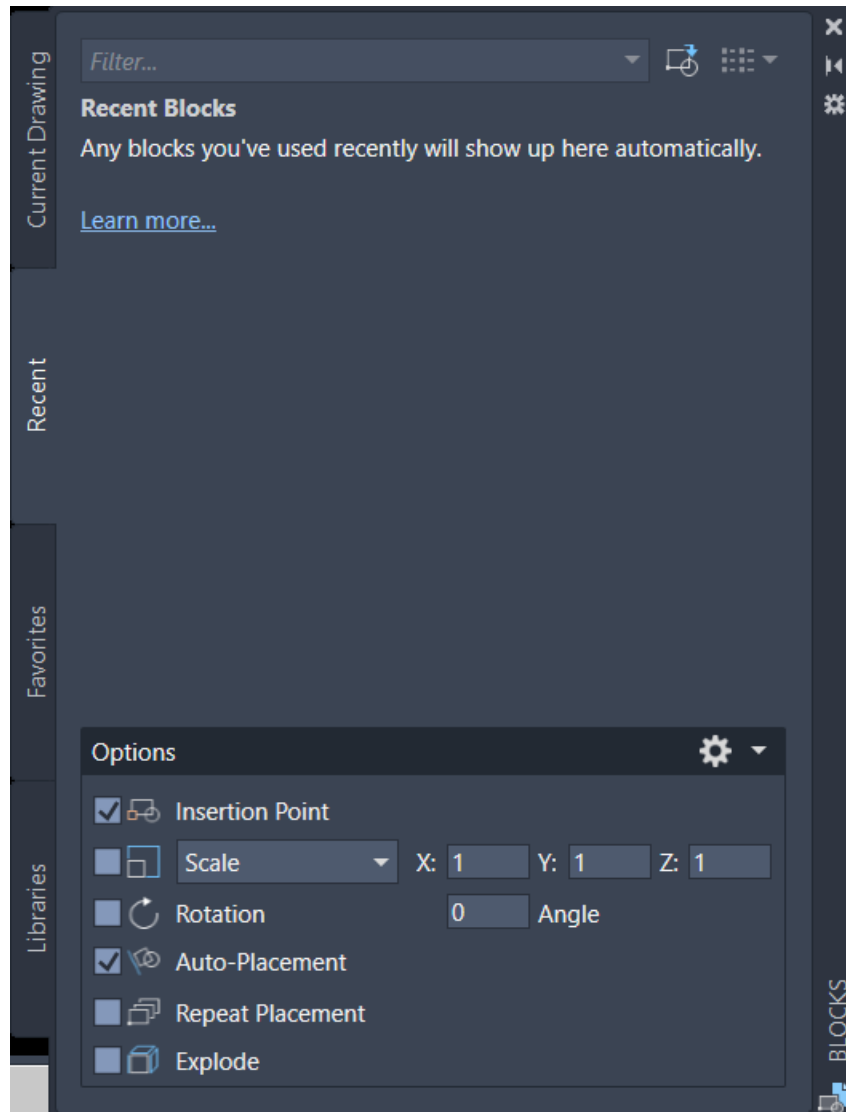
**Figure 8.12.1:2 Selecting objects to save as a Wblock**

- Click the *Select Objects* button
- Select objects:* Select point 2
- Specify opposite corner:* Select point 3
- Select objects:* Press enter
- Specify the File name and path by selecting the Browse button



**Figure 8.12.1:3 Specifying Path and Filename of Wblock**

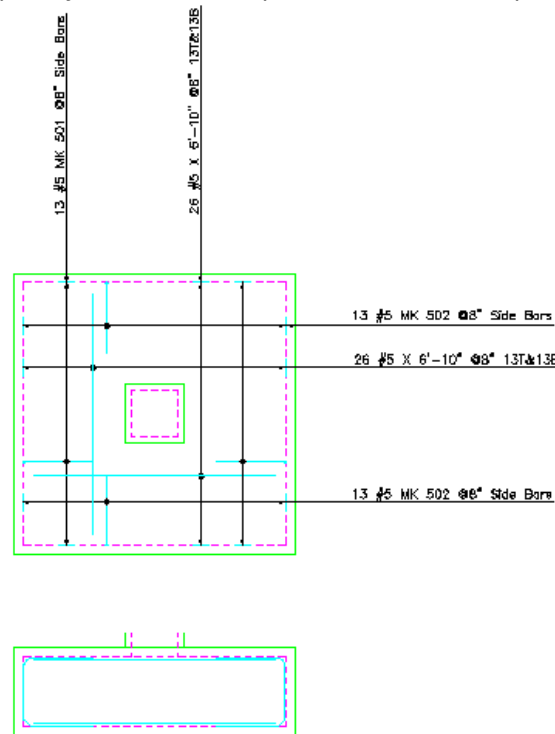
- ▶ Use a suitable folder such as the one currently holding your tutorial drawings. Type in the file name as 'Pad Base'.
- Select Save
- Set Insert Units to Unitless
- Select OK to create the Wblock
- ▶ Make the Viewport on *AutoCAD Import Wblock (08)* current
- ▶ Select Insert → Block 
- In the *Insert Block* dialog select *Browse*
- Locate the Pad Base Wblock just created. Select *Open*
- ▶ This returns you to the *Insert* dialog. Make sure that insertion point is set to *Specify on Screen* and that the *Scale* and *Rotation* buttons are unselected. Make certain that the *Explode* option is selected so that **RebarCAD** can reassign the Bar Marks.



**Figure 8.12.1:4 Block Insertion dialog**


► Select OK

*Specify insertion point for block:* Pick a point inside the Viewport to place the detail



**Figure 8.12.1:5 Inserted Wblock on Drawing Sheet 08**

## 8.13 Change View to Set





The Change View to Set command, , will separate the Bar View / Bar Label from an existing Bar Set and make it a Bar Set in its own right. The Bar List will update to show another instance of the Bar Set.

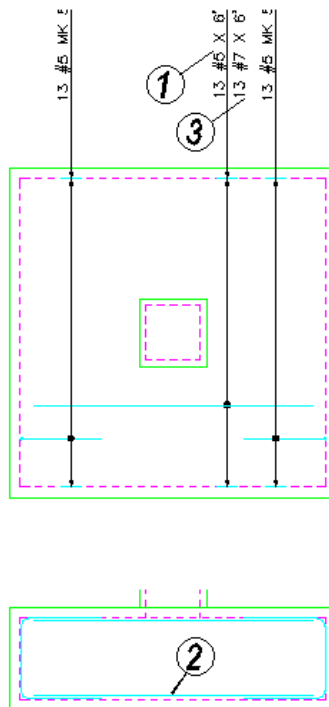
This command is available from the *Editing* toolbar or through **RebarCAD** → *Editing* → *Change View to Set*.

### 8.13.1 Try It! Change View to Set


In this exercise you are going to make the bottom Straight Bar in the section a set on its own so that you can change its bar diameter without affecting the top steel. Start by changing the multi setting and the notes in the Straight Bar range.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 24.dwg
- ▶ Set Working Scale at 1:20
- ▶ Make the Viewport on Change View to Set (01) current

- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Change View to Set the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 01 the current Drawing Sheet
- ▶ Select Editing → Edit Bars or 
  - Select Objects:* Pick the Bar Label shown by point 1
  - Set the *Multi* Field to **1**
  - Change the *Notes* to read **T**
  - Select OK
  - Use Grips to shorten the leader
- ▶ Select Editing → Change View to Set or 
  - Pick required View for new SET:* Pick the Bar View shown by point 2
  - Set Number* is 15
  - Label bar <No>? or J to Justify:* Type **Y** and press enter
  - Pick Bar Label location:* Position as shown by point 3 and rotate to 90 degrees




**Figure 8.13.1:1 Selecting Bar Views to change to a Bar Set**

- ▶ Select CADS-RC → Editing → Edit Bars or 
  - Select Objects:* Pick the Bar Label shown by point 3

- ▶ Set the Bar Size to **#7**
- ▶ Change the Notes to read **B**
- ▶ Select OK
- ▶ Answer *Yes* to *Create New Mark?* and select OK on the Warning about the Laps

This is a quick way of editing the drawing to change the bottom steel when the multi option has been used. Remember that if *Edit This Outline as the Bottom Straight Steel* has no Range in the Plan View the number of bars will **not** update and you will need to do this manually. Also note that the ticks and tags updated automatically to the new bar mark number.




## 8.14 Change Set to View

The Change Set to View command, , changes a Bar Set to a Bar View of an existing Bar Set. Both Bar Sets must be of the same Bar Mark Number for this command to work. The Bar List will update to remove the Bar Set that has been linked.

This command is available from the Editing toolbar or through RebarCAD → Editing → Change Set to View.

### 8.14.1 Try It! Change Set to View

For this exercise the bars in the section have been mistakenly drawn as *New Sets* instead of using the **Add View** command. You can use the command **Change Set to View** to link the bars in the section to the bar, range and Bar Label in the Plan View.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 24.dwg**
- ▶ Make the Viewport on *Change Set to View (02)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Change Set to View* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *02* the current Drawing Sheet
- ▶ Select **RebarCAD** → Editing → Change Set to View or 

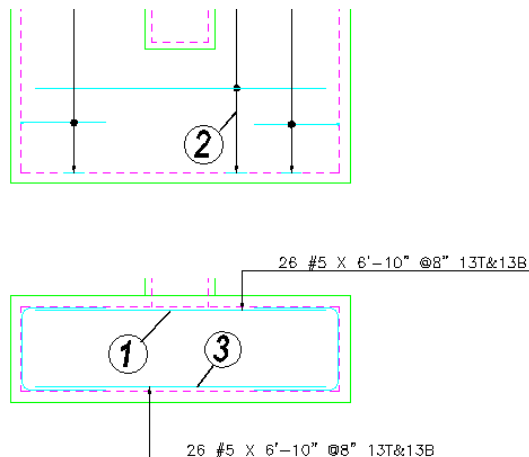
*Pick required SET to change to new View:* Pick Bar View shown by point 1

*Correct selection? <Yes>:* Press enter

*Pick RC entity to add to (as a new View):* Pick the Range Line shown by point 2

*Both views already labelled, deleting first*


- *Note:* the command automatically deletes the Bar Label of the Bar View being linked. However, it does not delete the leader line or leader arrow and you will need to do this manually.



**Figure 8.14.1:1 Change Set to View – Bars Views unlinked**


- Repeat the command and the actions shown as *Try It!* item 8. above but select the Bar View to be changed as shown by point 3. Again, link it to the same Range Line as marked by point 2.

## 8.15 Change Bar Style

The Change Bar Style command  is used to toggle the display of the bar from Center Line to Profile or vice versa. You can select one or more bars to change at the same time and the selection can be a mixture of Center Line and Profile bars.

This command is accessible from the Editing toolbar or through RebarCAD → Editing → Change Bar Style.

## 8.16 Change Bar View




The Change Bar View command, , is used to change the current view of a selected bar. For instance, you might copy a Bar View from a Section View of the structure to an Elevation View of the structure and want to change it to a Right View. You can work through all the available views of the bar by pressing Enter on the keyboard. When the bar you want shows then press Esc to select it and to exit the command.

This command is accessible from the Editing toolbar or through RebarCAD → Editing → Change Bar View.

## 8.17 Hints & Tips - Missing Bar Views

If the required view is not shown when you work through the views with the Change Bar View command it means that all the dimension data has not been entered for the bar. Use the Esc key on the keyboard to Exit the command, double click the bar to display the *Edit Bar Data* dialog and select *Edit Dims*. Type in the missing data and then try the Change Bar View command again.

### 8.17.1 Try It! Change Bar View and Bar Style

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 24.dwg
- ▶ Make the Viewport on Change Bar View & Style (03) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Change Bar View & Style the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Change Bar Style or 

*Select bars to be toggled:*

*Select objects:* Make a crossing box as shown by point 1

*Specify opposite corner:* Select point 2

*Select objects:* Press enter

- ▶ The Side View of the bar is redrawn in Profile Style

- ▶ Select **RebarCAD** → Editing → Change Bar View or 

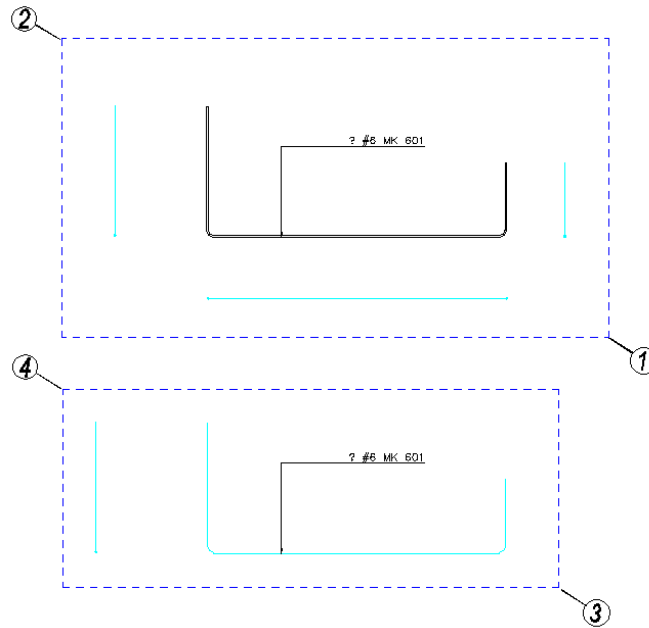
*Select bars to be toggled:*

*Select objects:* Make a crossing box as shown by point 3

*Specify opposite corner:* Select point 4

*Select objects:* Press enter

*Enter view or <ENTER> to toggle:* Press enter to work through the views offered and press the Esc key to select and exit when you've reached the view you want



**Figure 8.17.1.1 Change Bar View and Bar Style**

## 8.18 Add Entity to View


The Add Entity to View command can be used to add AutoCAD graphics entities – such as lines, polylines, arcs, circles and so on - to a Bar Set. This command is accessible through RebarCAD → Editing → Add Entity to View. You might use this command to create custom Range Lines to attach to the Bar View or perhaps to add a missing dot between the Range Line and the Bar View.


Once you have selected the entities to attach to the Bar View RebarCAD will prompt:

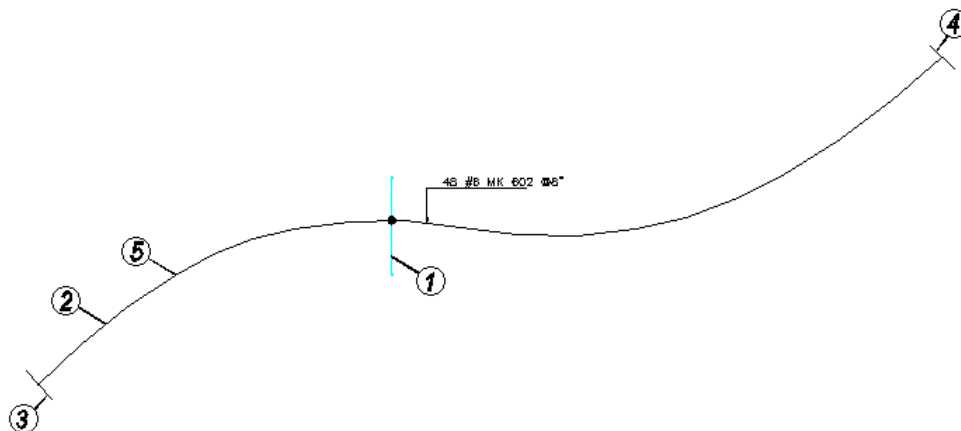
Calculate centers from added entity <No>:

If you answer Yes to this prompt you will be asked to reselect the entity to act as the Range Line and then to type in the center spacing or the number of bars. Note that the Add Entity to View command will not prompt you to add a Bar Label, something which the Draw Range command would do if a Bar Label were not present for the Bar Set.

### 8.18.1 Try It! Add Entity to View

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 24.dwg
- ▶ Make the Viewport on Add Entity to View (04) current
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Add Entity to View the current Member and select OK

- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 04 the current Drawing Sheet
- ▶ Select RebarCAD → Editing → Add Entity to View
  - Pick Bar View to add entities to:* Pick the bar as shown by point 1
  - Select objects:* Select the line shown by point 2
  - Select objects:* Select the polyline shown by point 3
  - Select objects:* Select the line shown by point 4
  - Select objects:* Select the line shown by point 5
  - Select objects:* Press enter
  - Calculate centers from added entity <No>:* Type in **Y** and press enter
  - Pick entity to calculate centers from:* Pick on the polyline as shown by point 5
  - Range length* 30'-10 41/64"
  - Center spacing or <Number of bars>:* **8"**
  - Range options:* 48 bars at <8"> / Average c/c = 7 57/64" / Run out / Numeric:
  - Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:*
  - Press ENTER to continue or (A)verage/(R)un Out/(N)umeric:*
  - Press enter to continue
- ▶ The Bar Label updates to show the correct number of bars and the Bar Centers.





**Figure 8.18.1:1 Create a Custom Range Line using Add Entity to View**

## 8.19 Add Text to View

The Add Text to View command can be used to attach additional text to a Bar Set. You will be prompted first to select the relevant Bar View and then to type in the text you want to add. There is a limit of 132 characters and the text you enter will automatically be formatted to match the Bar Label for font, height and layer.

This command is accessible through RebarCAD → Editing → Add Text to View

### 8.19.1 Try It! Add Text to View

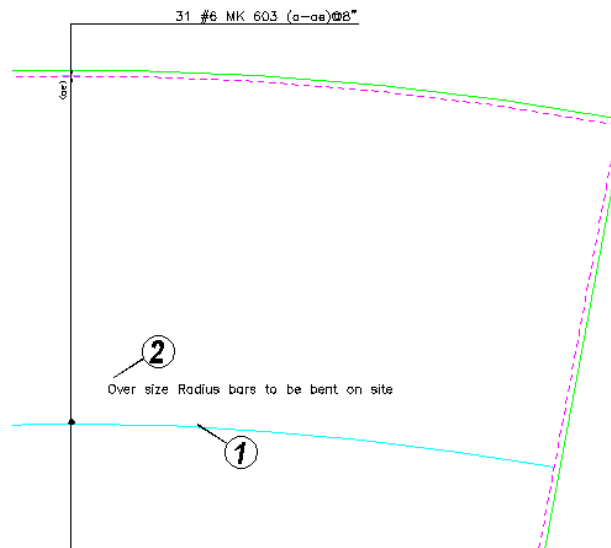
- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 24.dwg**
- ▶ Make the Viewport on *Add Text to View (05)* current
- ▶ Select **RebarCAD** → Draw Bar → Set Member or 
- ▶ Make *Add Text to View* the current Member and select OK
- ▶ Select **RebarCAD** → Draw Bar → Set Drawing Sheet or 
- ▶ Make *05* the current Drawing Sheet
- ▶ Select **RebarCAD** → Editing → Add Text to View

*Pick Bar View to add text to:* Pick bar as shown by point 1

*Enter text (no more than 132 characters):* Type in, **Oversized Radii bars to be bend on Site** and press Enter

*Pick Bar Label location:* Pick point 2

*Rotation angle:* Press enter for default rotation of 0 degrees.










**Figure 8.19.1:1 Attach Annotation to a Bar Set using Add Text to View command**

## 8.20 Key points - Edit and Modify Commands

- ▶ For speed, use the Double Click Editing feature to edit RebarCAD Entities. If you select a Bar View it will display the Edit Bar Data dialog while if you select a range it will display the Edit Range dialog.
- ▶ The Edit Range dialog will vary depending on the type of range selected as some range types have restrictions on the type of data that can be edited.
- ▶ The Edit Bars command has a multiple selection option. This can be useful for changing globally properties such as steel Type, bar size and the like, within a whole drawing.
- ▶ Use the Edit Bars command to change properties such as Type, size, Bend Type, notes and so on relating to a bar.
- ▶ Use the Edit Range command to change the range properties such as range length, multiple groups, step increments on taper ranges, skewed range end markers, and more.
- ▶ You can apply a step taper to a Tapered Range that has more than one leg.
- ▶ Missing tapering dimensions for the Varying Taper can be added through the Edit Range dialog.
- ▶ Use the Redraw Bar command to refresh configuration changes made to an existing drawing.
- ▶ If you need to stretch RebarCAD entities then use the Reinforcement Stretch Bar/Range command. Do not use the AutoCAD Stretch command.
- ▶ Use the AutoCAD Copy, Mirror and Array commands to rapidly duplicate RebarCAD entities and then edit them to your requirements.
- ▶ You cannot use the following AutoCAD Modify commands on RebarCAD entities: Stretch, Offset, Scale, Lengthen, Trim, Extend, Break, Explode.
- ▶ You can create custom Range Lines using the Add Entity to View command.
- ▶ You can work through the available Bar Views using the Change Bar View command.
- ▶ You can change the style of multiple bars between Profile and Center Line by using the Change Bar Style command.
- ▶ Use Windows Copy and Paste to duplicate details between open drawings.
- ▶ Make AutoCAD Wblocks to create RebarCAD library details.

## 8.21 Command List - Edit and Modify Commands

Action	Menu Selection	Toolbar	Icon
RebarCAD Commands			
Set Member	RebarCAD → Draw Bar → Set Member	Draw Bar	
Set Drawing Sheet	RebarCAD → Draw Bar → Set Drawing Sheet	Draw Bar	
Edit Bars	RebarCAD → Editing → Edit Bars	Editing	
Edit Range	RebarCAD → Editing → Edit Range	Editing	
Configuration Center	RebarCAD → Configuration → Configuration Center	Config	
Redraw Bar	RebarCAD – Editing → Redraw Bar	Editing	
Stretch Bar/Range	RebarCAD → Editing → Stretch Bar/Range	Editing	
Assign Bars to Drawing Sheet	RebarCAD → Editing → Assign Bars to Drawing Sheet	Editing	
Assign Bars to Member	RebarCAD → Editing → Assign Bars to Member	Editing	
Change View to Set	RebarCAD → Editing → Change View to Set	Editing	
Change Set to View	RebarCAD → Editing → Change Set to View	Editing	
Change Bar Style	RebarCAD → Editing → Change Bar Style	Editing	
Change Bar View	RebarCAD → Editing → Change Bar View	Editing	
Add Entity to View	RebarCAD → Editing → Add Entity to View	Editing	
Add Text to View	RebarCAD → Editing → Add Text to View	Editing	

AutoCAD Commands			
Copy	Modify → Copy		
Array	Modify → Array		
Mirror	Modify → Mirror		
Erase	Modify → Erase		
Copy with Base point	Edit → Copy with Base point		
Paste	Edit → Paste		
Export	File → Export		
Block	Insert → Block		

## 9 Checking Drawings (Utilities)


### 9.1 Introduction

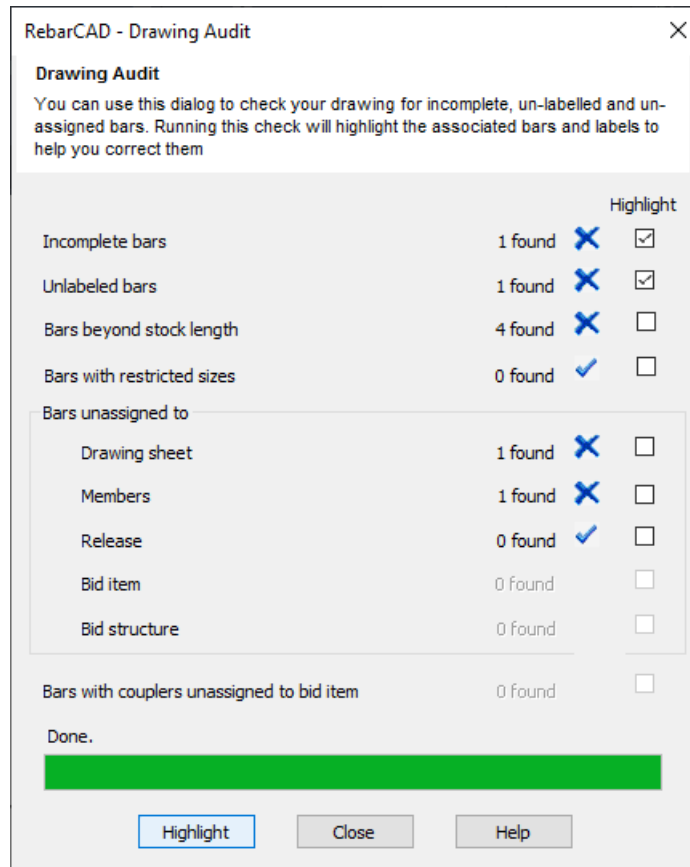
RebarCAD comes with a number of utilities that allow you check and interrogate the RebarCAD entities on your drawing:

- ▶ Use the **Drawing Audit** command to make sure all Bar Sets are complete and labelled
- ▶ Use the **Check Database** command to ensure that all **RebarCAD** entities are linked correctly to the Bar List
- ▶ The **Match Bars** command will check all Bar Marks on the drawing and give those that are identical the same Mark Number
- ▶ The **Compact Bars** command will ensure that Bar Marks are sequential

You can also create AutoCAD selection sets of bars based on specific, selectable criteria.

## 9.2 Drawing Audit

Use the Drawing Audit command  to make sure that all the Bar Sets on the drawing are complete and labelled. This command is accessible through **RebarCAD** → Utilities → Drawing Audit. If a Bar Set is incomplete or unlabelled you can either highlight it on the drawing or add it to an *AutoCAD* selection set for interrogation. After running the command, a display reports the audit results.



**RebarCAD - Drawing Audit**

**Drawing Audit**  
 You can use this dialog to check your drawing for incomplete, un-labelled and un-assigned bars. Running this check will highlight the associated bars and labels to help you correct them

		Highlight
Incomplete bars	1 found	<input checked="" type="checkbox"/>
Unlabeled bars	1 found	<input checked="" type="checkbox"/>
Bars beyond stock length	4 found	<input type="checkbox"/>
Bars with restricted sizes	0 found	<input type="checkbox"/>
<b>Bars unassigned to</b>		
Drawing sheet	1 found	<input type="checkbox"/>
Members	1 found	<input type="checkbox"/>
Release	0 found	<input checked="" type="checkbox"/>
Bid item	0 found	<input type="checkbox"/>
Bid structure	0 found	<input type="checkbox"/>
Bars with couplers unassigned to bid item	0 found	<input type="checkbox"/>

Done.

**Figure 9.2:1 Drawing Audit report display**

### Incomplete Bar Sets

If you tick this option RebarCAD will report the number of Bar Sets with incomplete bar bending data or where the number of bars is incomplete. In addition, it will highlight such sets on the drawing by coloring the bars magenta. When you then add the missing data the Bar Sets will be redrawn in the correct colors.

If you do not tick the highlight option RebarCAD will still report the number of incomplete bars but will add them instead to the AutoCAD Selection set which you can then manipulate using the Move command to reposition the bars for interrogation.

### Unlabeled Bar Sets

RebarCAD will also report the number of Bar Sets lacking a Bar Label. If you tick the option then RebarCAD will highlight any unlabeled Bar Sets in magenta. When the Bar Label is added to the Bar Set it will be redrawn in the correct color.

If you do not tick the highlight option then RebarCAD will add any unlabeled bars to the AutoCAD Selection set which you can then manipulate using the Move command to reposition the bars for interrogation.

### Bar to be purged from the Bar List



You can also use the Drawing Audit command to clean up the Bar List. If all the views of a Bar Set have been erased using the Erase Bar View command then the Bar Set will still appear in the Bar List. Drawing Audit will purge these bars from the RebarCAD database and the Bar List.

## 9.3 Hints & Tips - Resetting Reinforcement Entities to the Original Colors

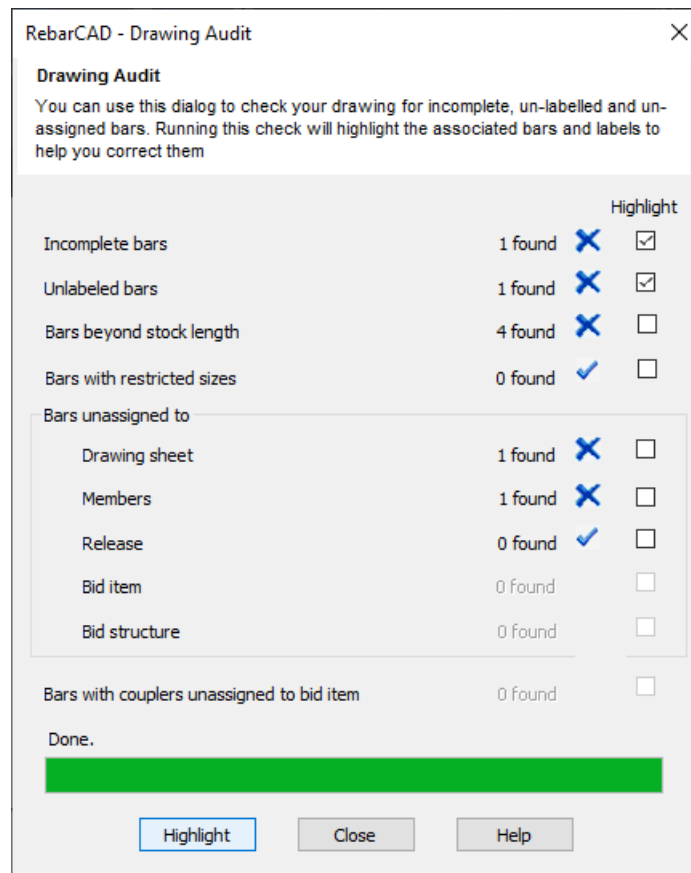
If you want to return the RebarCAD entities to their original colors without first adding missing data then use the Redraw Bar command. This is accessible as RebarCAD → Editing → Redraw Bar.

## 9.4 Try It! Drawing Audit

In this exercise you are going to run the *Drawing Audit* to see if any of the bars are incomplete or unlabelled. This function checks the whole drawing but in this example only the bars in the *Drawing Audit* (01) layout will show any errors.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 25.dwg
- ▶ Make the Viewport on Drawing Audit (01) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Drawing Audit the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet
- ▶ Make Drawing Sheet 01 current
- ▶ Select RebarCAD → Utilities → Drawing Audit or 

The command checks the drawing and reports, as shown in 8.1.1:1 below, that there are five incomplete and two unlabelled Bar Sets. Make sure that the highlight options are ticked so that the command highlights the bars on the drawing and places them in the AutoCAD previous selection set. In some cases, such as Bars in Section, RebarCAD cannot highlight the bars so you will need to move the incomplete and unlabelled bars off the drawing for closer inspection.



**Figure 9.4:1 Drawing Audit report display**

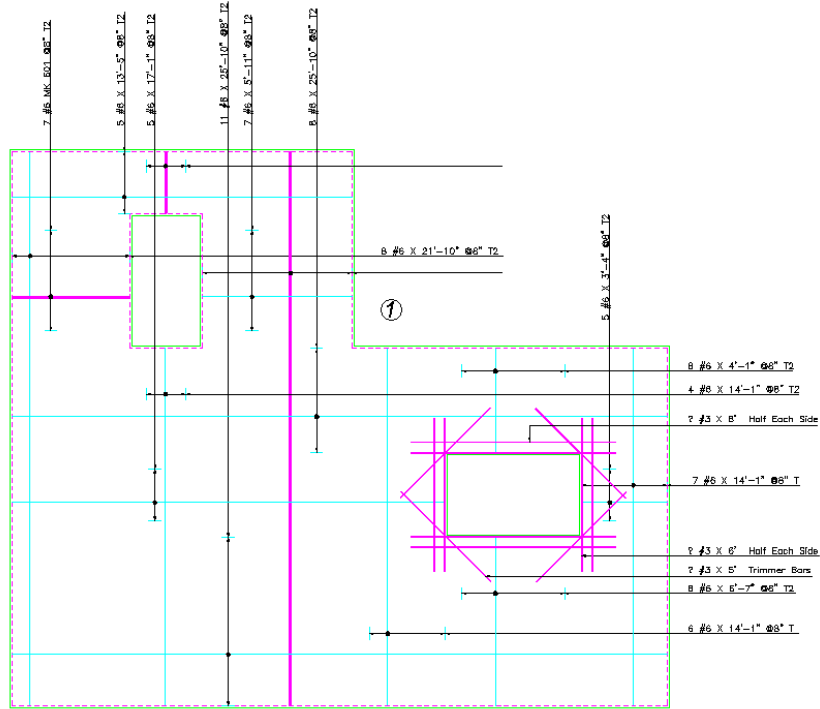
- Select Modify → Move or

*Select objects:* Type in **P** for previous selection set

*Select objects:* Press enter to continue

*Select objects: Specify base point or displacement:* Select point 1 as marked on figure 8.1.1:2

*Specify second point of displacement or <use first point as displacement>:* Type **@30'<90** and press Enter





**Figure 9.4:2 Bars highlighted by the Drawing Audit command**


- ▶ Select the *Model* tab and zoom into the bars that you have just moved and that have been marked as incomplete or unlabeled.

You can inspect the bar data by double clicking on each bar and checking the bar numbers or the bar dimensions. As you add the missing dimensions or numbers of bars, the edited bars will be redrawn in their original colors.

The remaining bars need their Bar Labels added.

- ▶ Select **RebarCAD** → Editing → Edit Bars  
 Select the trimmer bars one by one and set the number of bars to **4**  
 Select the *Bend Type 21s* and set the C legs to **12"**
- ▶ Select **RebarCAD** → Labeling → Label an Existing Bar, pick the highlighted bar and place the label on the leader
- ▶ Select **RebarCAD** → Utilities → Drawing Audit or   
 You will probably find that one Bar Set does **not** have a Bar Label so tick the highlight options and add the missing Bar Label. If you have found incomplete or unlabelled bars it is worth running the command a second time after you have added the missing bar data as **RebarCAD** may pick up more errors.
- ▶ Select Modify → Move or   
*Select objects:* Make a window around the bars, ranges and labels that you moved earlier.  
 Move them @30'<180 to return to their original positions

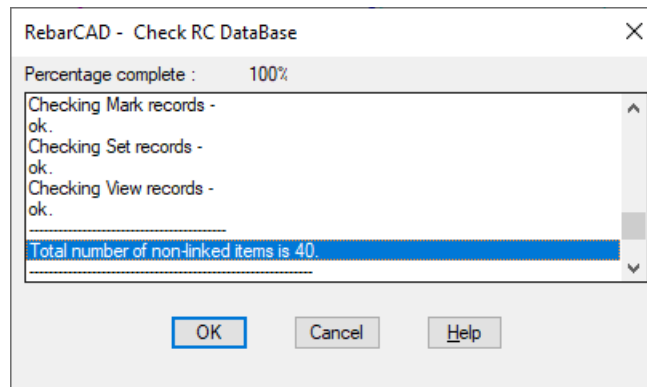
## 9.5 Check Database

The Check Database, , command checks RebarCAD entities on a drawing to make sure that they are correctly linked to the Bar List and vice versa. This command is accessible through RebarCAD → Utilities → Check Database.

The command prompts you to select specific entities on the drawing or press Enter to check all entities. The command can take some time, particularly if checking a drawing with a large number of entities on it, and so shows a Percentage Complete message while running. It will then report the number of non-linked RebarCAD entities on the drawing.

If all entities are linked correctly you can simply select OK to close the dialog box.

The command may report that some entities are not linked correctly. You may then want to scroll through the list window to review the various messages reported there.



**Figure 9.5:1 RebarCAD Check Database report display**

If there are non-linked items and you select OK **RebarCAD** will attempt to repair any that are found. Any that cannot be linked back to the **RebarCAD** database are automatically placed in the **AutoCAD** selection set and highlighted on the drawing.

The command also lists the total number of damaged entities and warns that they may not appear in the Bar List:

*Attempting repair on 40 entities, please wait.*

*Entities not linked to/from the Bar List are highlighted and are now stored in AutoCAD's previous selection set. These items may not appear in the Bar List.*

*Total number of non-linked items is 40.*

You are prompted as to what action to take in respect of the unlinked entities:

### **Erase**

*Erase* deletes all damaged entities from the drawing. Use with care! The risk with this action is that you may not know which items have been deleted.

### **De-reference**

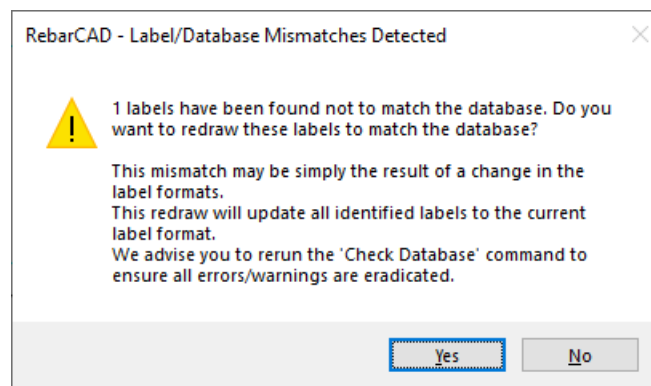
De-reference converts any damaged RebarCAD entities into AutoCAD entities. Again you may not be fully aware of which entities have been converted.

### Leave

The Leave option moves the damaged entities to the AutoCAD Selection set. You can then use AutoCAD Move to manipulate these entities. When prompted to select objects by the move command, type P for previous selection set and the damaged items are picked. You can then move these entities off the drawing for review. You could also change them on to a temporary layer and trace over them with new RebarCAD entities.

If there are unlinked **RebarCAD** entities on the drawing and you select *Cancel* then no highlighting or corrections will be carried out. All unlinked entities are placed into *AutoCAD's Previous Selection Set*.

The *Check Database* command will also detect any **RebarCAD** Bar Labels that are mismatched. Mismatched labels are those where the format does not agree with the configured format on the drawing, something which could happen if the Bar Label had been edited with the *AutoCAD* text editor. If the command finds any mismatched Bar Labels it will report the number and prompt you to redraw, as figure 8.2:2 below shows.



**Figure 9.5:2 Label/Database Mismatches report and prompt**

If you select Yes, the Bar Label is redrawn as the current drawing format. Selecting No leaves, the Bar Label unchanged.

## 9.5.1 What are Non-Linked Entities?

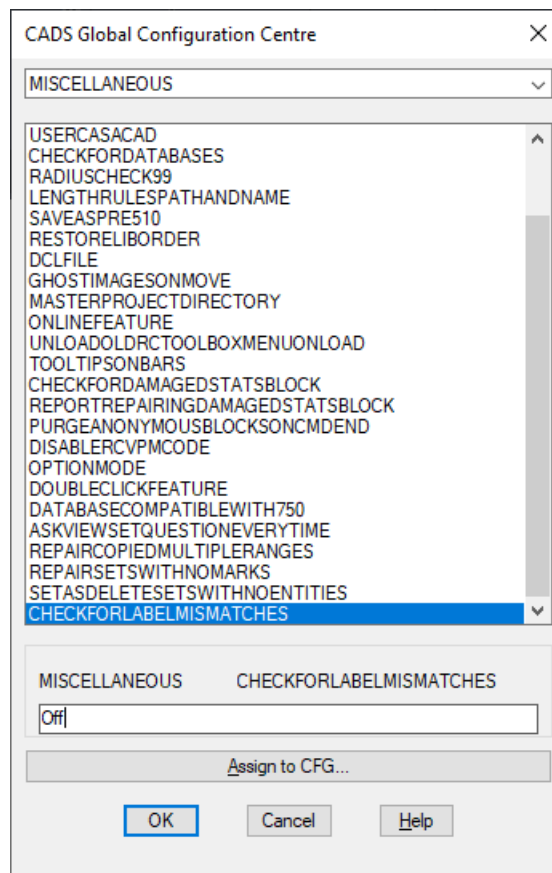
Each RebarCAD entity has a database index (number) and bar data. If the Check Database command finds an entity which is Not Linked this means that no index entry exists for that entity. This could occur if AutoCAD was killed before the drawing was saved or you ran out of disk space or RAM. These items, known as Damaged Entities, cannot be re-linked back to the database but need to be deleted and redrawn.

If the Check Database command finds an entity which is correctly linked to the database but not shown in the Bar List, RebarCAD will attempt to regenerate the entity from the database, adding any such entities to the drawing as New Views. Repairs can only be carried out on Bars/Bar Labels (if not labelled already) and Range lines.

## 9.5.2 Hints & Tips - Switching off Bar Label Selection in the Check Database Command

If the Check Database command does not correctly select unlinked entities when the Leave option is selected, you should check and change the configuration through RebarCAD → Configuration → Configuration Center → Global/General Configuration. Set the top field to Miscellaneous and highlight CheckForLabelMismatches in the middle field. In the lower field type in Off and select Assign to CFG. Select OK twice and select Close to return to the drawing. See figure 8.2:3 below.


Run the Check Database command again and confirm that when you select Leave RebarCAD creates a selection set of the unlinked bars.




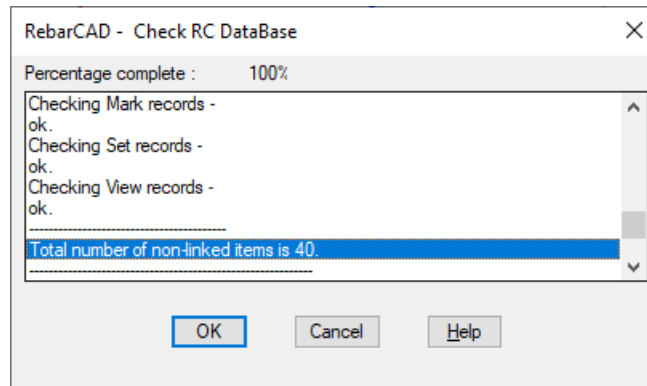
**Figure 9.5.2:1 RebarCAD's Global Configuration Center**



### **Try It! Check Database**

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 25.dwg
- ▶ Make the Viewport on Check Database (02) Layout active.
- ▶ Select RebarCAD → Draw Bar → Set Member or 

- ▶ Make Check Database the current Member and select OK
  - ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet
  - ▶ Make Drawing Sheet Check Database (02) current
  - ▶ Select RebarCAD → Utilities → Check Database or 
- Entities to check Pick/All <All>:      Press enter to continue



**Figure 9.5.2:1 Check Database report window**

*Attempting repair on 40 entities, please wait.*

*Entities not linked to/from the Bar List are highlighted and are now stored in AutoCAD's previous selection set. These items may not appear in the Bar List.*

*Total number of non-linked items is 40.*

*How do you want to handle the 40 invalid RC entities found?*

*De-referencing will convert any invalid RC entity into a standard AutoCAD entity.*

*Do you want to (E)rase, (D)e-reference or (L)eave them? <Leave>:*

Press enter to continue

- ▶ Select Modify → Move or 

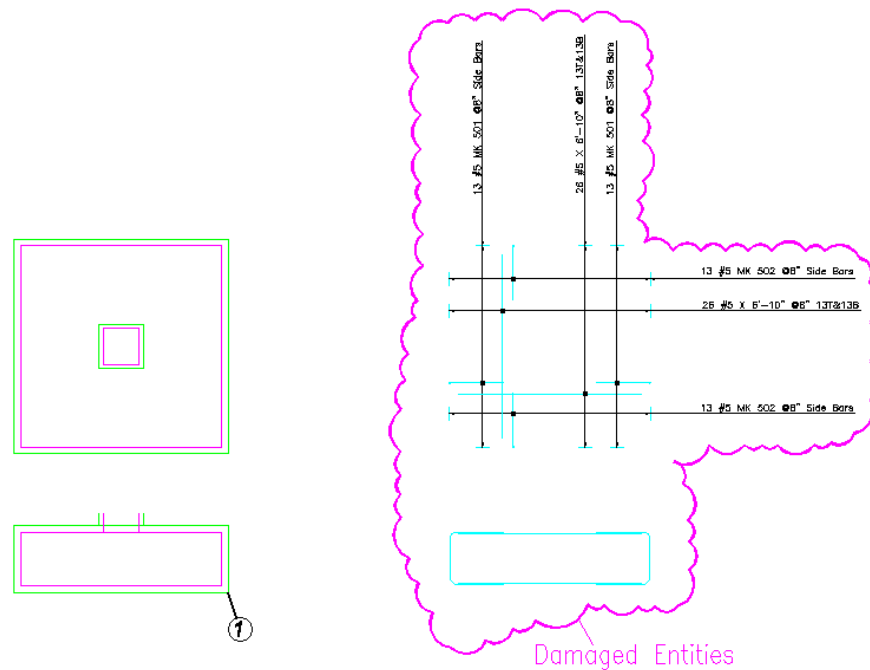
*Select Objects: Type **P** for previous selection set*

Press enter to continue

*40 found*

*Select objects: Specify base point or displacement: Pick point 1 as shown on figure 8.2.2:2 below*

*Specify second point of displacement or <use first point as displacement>: Type **@16',0** and press enter*




**Figure 9.5.2:2 Damaged RebarCAD Entities identified by the Check Database command**

- All the **RebarCAD** entities moved to the right are damaged and need to be redrawn. This damaged detail has been manufactured for this tutorial as it is rare that the problem occurs.

If you find that you frequently get unlinked and damaged RebarCAD entities you need to contact your local RebarCAD support department. They will need to know which versions of AutoCAD and RebarCAD you have installed and to see a sample drawing which illustrates what is going wrong. You can find out how to contact the support department by checking RebarCAD → Help → About.

## 9.6 Match Bars

The Match Bars command, , searches the drawing for identical bars which have been detailed with different Bar Mark Numbers. The command is accessible through RebarCAD → Utilities → Match Bars. You are given the option to suppress questions and accept defaults.

If you answer No to the prompt Suppress Questions and Accept Defaults, each time the command finds an identical bar you are asked if you want to make them the same Mark and which Mark Number to change to.


If you answer Yes to Suppress Questions and Accept Defaults, RebarCAD will assume that all bars are to be matched and assign the lowest Bar Mark Number.

## 9.7 Hints & Tips - Applying Tolerance to Match Bars

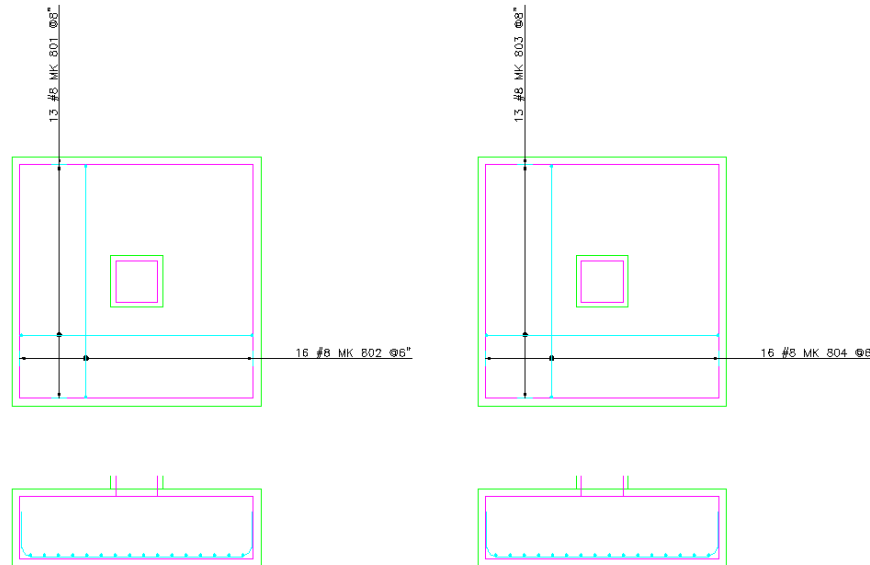
The Match Bars command can be configured to match Straight Bars within a set distance of another bar. This is known as the Straight Length Tolerance. This tolerance is configured through RebarCAD → Configuration → Configuration Center → Bar Configuration → Rounding/Match Bars. Straight bars with a difference in bar length less than or equal to the entered Straight Length Tolerance will be offered for Bar Mark matching.

## 9.8 Try It! Match Bars Try It! Match Bars

This example will show how you might run Match Bars. The two Pad Bases shown in figure 8.3.1:1 below are detailed with Bend Type 21 and have exactly the same dimensions, bar size, and so on. They should therefore all have the same Bar Mark Number. However, they have been copied and pasted from another drawing and RebarCAD has assigned new Bar Mark Numbers for each Bar Set. The Match Bars routine will assign the same Bar Mark to each Bar Set.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 25.dwg
- ▶ Make the Viewport on Match Bars (03) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Match Bars the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet
- ▶ Make Drawing Sheet 03 current

Normally you would answer Yes to the prompt about suppressing questions and accepting defaults but here you should answer No. This will let you see for yourself exactly what the command does and how you can override any of the defaults if you want to retain a particular Bar Mark. The command will check the entire drawing although in this example we are primarily interested in what happens to Bar Marks 801 to 804.



**Figure 9.8.1:1 Running the Match Bars command**

- Select **RebarCAD** → Utilities → Match Bars or 

*Suppress questions and accept defaults <No>: Press Enter*

*Bar Marks <S01> and <S02> are the same.*

*Do you wish to combine them to make one Mark ? <Yes>: Press Enter*

*Enter the Mark that you want to keep from S01/S02 <S01>: Press Enter*

*Bar Marks <S04> and <S05> are the same.*

*Do you wish to combine them to make one Mark ? <Yes>: Press Enter*

*Enter the Mark that you want to keep from S04/S05 <S04>: Press Enter*

*Bar Marks <S04> and <S07> are the same.*

*Do you wish to combine them to make one Mark ? <Yes>: Press Enter*

*Enter the Mark that you want to keep from S04/S07 <S04>: Press Enter*

*Bar Marks <S09> and <S10> are the same.*

*Do you wish to combine them to make one Mark ? <Yes>: Press Enter*

*Enter the Mark that you want to keep from S09/S10 <S09>: Press Enter*

*Bar Marks <802> and <804> are the same.*

*Do you wish to combine them to make one Mark? <Yes>: Press Enter*

*Enter the Mark that you want to keep from 802/804 <802>: Press Enter*

*Bar Marks <801> and <803> are the same.*

*Do you wish to combine them to make one Mark? <Yes>: Press Enter*


*Enter the Mark that you want to keep from 801/803 <801>: Press Enter*

*6 similar Bar Marks found and modified.*

- Zoom around the Viewport to check that all the Bar Labels now show Bar Mark 801.

- ▶ You may see slightly different Bar Marks appearing at the command line - simply press Enter to accept the defaults.



## 9.9 Compact Bars

The Compact Bar Marks command, , checks through all Bar Marks on a drawing and reassigns Bar Mark Numbers so that they are sequential. The command is accessible through **RebarCAD** → Utilities → Compact Bar Marks.

Using this command together with the Match Bars command ensures the most efficient use of Bar Marks on a drawing.

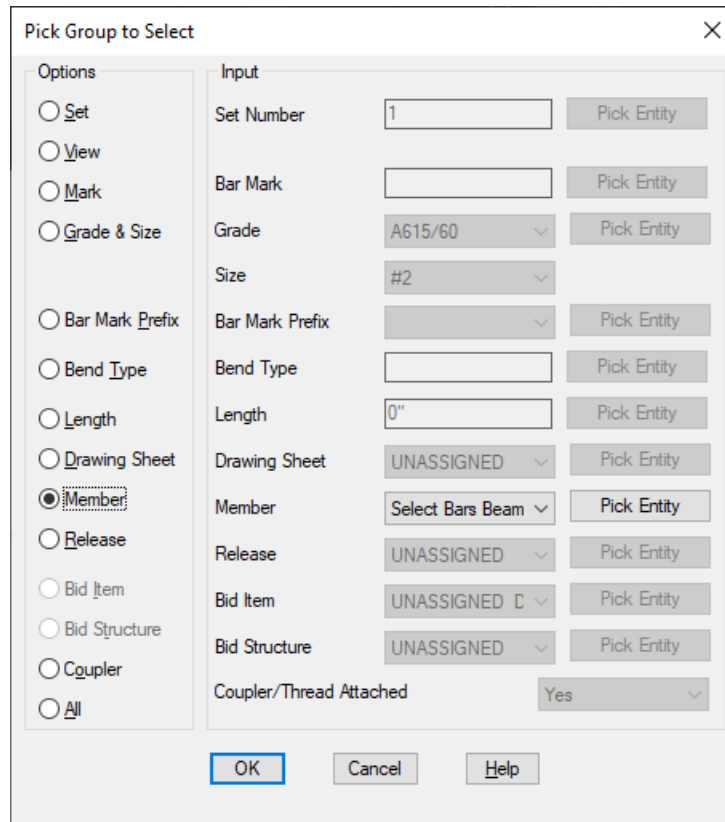
### 9.9.1 Try It! Compact Bars

In this exercise you are going to run the *Compact Bars* routine to make Bar Mark Numbers sequential.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 25.dwg
- ▶ Make the Viewport on Compact Bars (04) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Compact Bars the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet
- ▶ Make Drawing Sheet 04 current
- ▶ Select RebarCAD → View Bar List or 
- ▶ Select the 04 Drawing Sheet







The dialog box is titled "Pick Group to Select" and has a close button (X) in the top right corner. It is divided into two main sections: "Options" on the left and "Input" on the right.

**Options:** A vertical list of radio buttons. The "Member" option is selected, indicated by a black dot. The other options are "Set", "View", "Mark", "Grade & Size", "Bar Mark Prefix", "Bend Type", "Length", "Drawing Sheet", "Release", "Bid Item", "Bid Structure", "Coupler", and "All".

**Input:** A series of fields and buttons. Each field has a "Pick Entity" button to its right. The fields are:
 

- Set Number: Text box containing "1".
- Bar Mark: Empty text box.
- Grade: Dropdown menu showing "A615/60".
- Size: Dropdown menu showing "#2".
- Bar Mark Prefix: Dropdown menu.
- Bend Type: Empty text box.
- Length: Text box containing "0".
- Drawing Sheet: Dropdown menu showing "UNASSIGNED".
- Member: Dropdown menu showing "Select Bars Beam".
- Release: Dropdown menu showing "UNASSIGNED".
- Bid Item: Dropdown menu showing "UNASSIGNED".
- Bid Structure: Dropdown menu showing "UNASSIGNED".
- Coupler/Thread Attached: Dropdown menu showing "Yes".



At the bottom of the dialog are three buttons: "OK", "Cancel", and "Help".

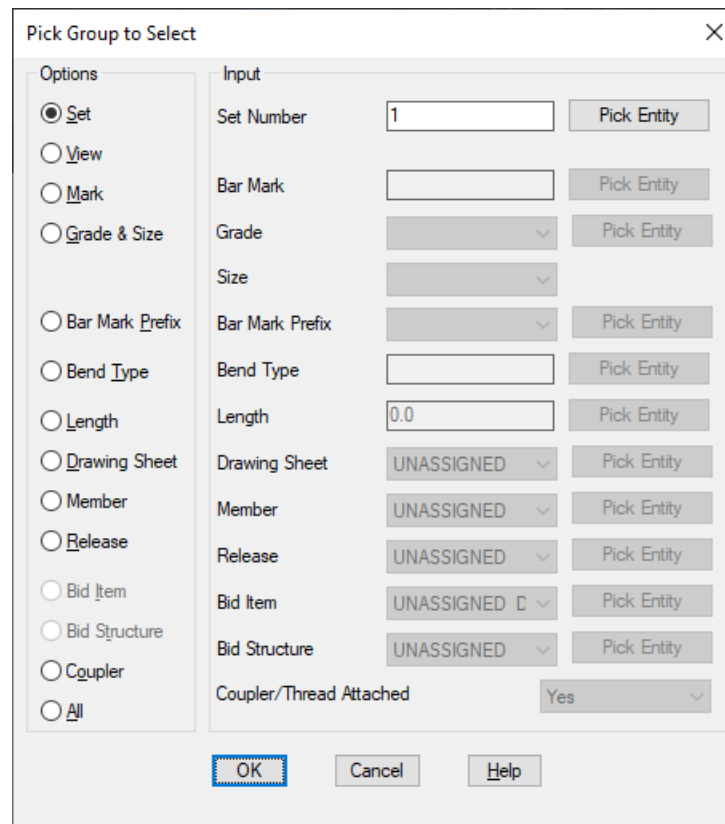
**Figure 9.10:1 The Select Bars dialog**

You can make an AutoCAD selection set of a Bar Set, Bar View, Bar Mark, Bend Type, Bar Length, Member, Release, or Coupled Bars or choose all RebarCAD entities on the drawing.

## 9.11 Try It! Select Bars

In this exercise you are going to use the Select Bars command to see if the Bar Sets in Beams 1 & 2 have been correctly assigned. You could use the routine to check that Bar Set and Bar View linkage is correct

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 25.dwg
- ▶ Make the Viewport on Select Bars (05) Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Select Bars Beam 1 the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet
- ▶ Make Drawing Sheet 05 current
- ▶ Select RebarCAD → Utilities → Select Bars or 



**Figure 8.5.1:1 The Select Bars dialog**

- ▶ Select the Member option, choose Select Bars Beam 1 from the drop down list and select the OK button.

RebarCAD reports that 110 entities have been selected and placed in the AutoCAD selection set

- ▶ Select Modify → Move or 

*Select objects:* Type **P** and press enter


*Select objects:* Press enter to continue

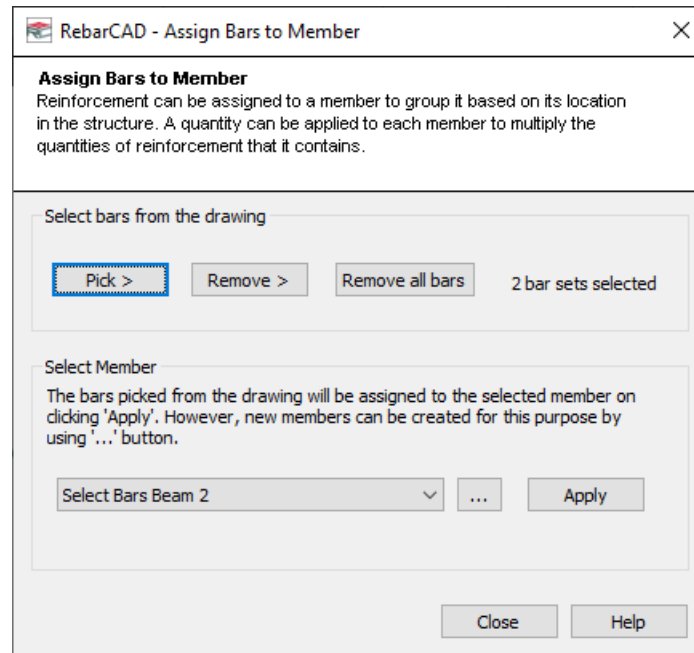
*Specify base point or displacement:* Pick a point anywhere in the Viewport

*Specify second point of displacement or <use first point as displacement>:* Type in **@0,32'** and press enter

- ▶ Select the Model Space tab

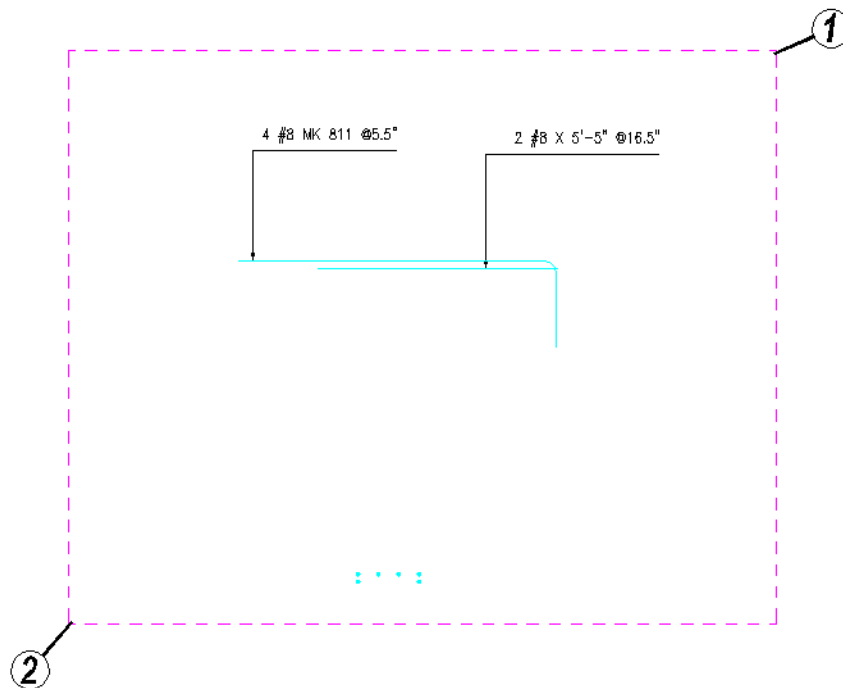
Investigate the area above the Viewport boundary titled *Select Bar 05*. You can see that some of the bars from Beam 2 have been selected as well. Use the **Assign Bars to Member** command to change them to Beam 2.

- ▶ Select RebarCAD → Editing → Assign Bars to Member or 



**Figure 9.11.1:2 Assign Bars to Member dialog**


- Set the select Member field to *Select Bars Beam 2* Select the *Pick* button and make a crossing window around the bottom bars as shown in figure below *Select Objects*: Press *enter* to return to the dialog

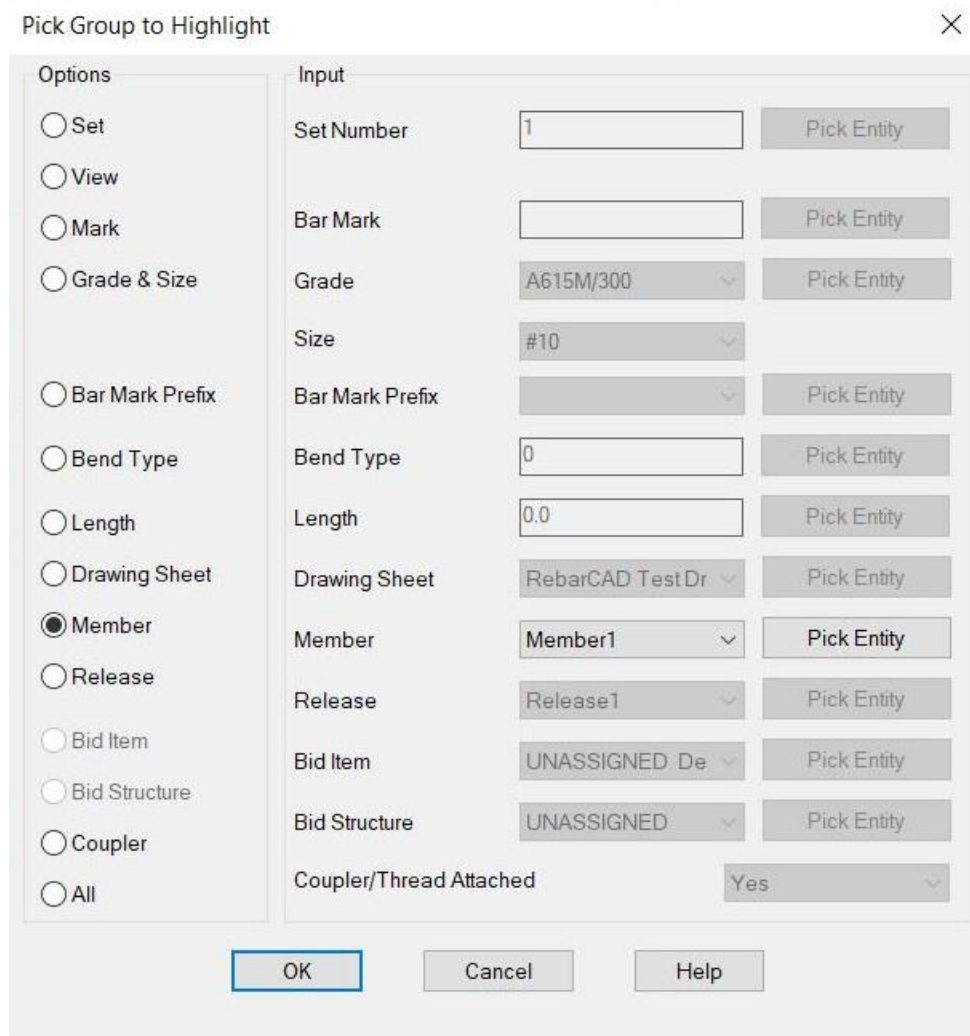


**Figure 9.11.1:3 Selecting bars to Assign to a Member**

- ▶ Pick Apply in the Assign Bars to Member dialog and then Close
- ▶ Select all the RC Entities above the Viewport boundary and move them back into their original position.

## 9.12 Highlight Bars

The Highlight Bars command, , will highlight RebarCAD entities on the drawing based on the parameters selected through the Pick Group to Highlight dialog. This command is accessible through RebarCAD → Utilities → Highlight Bars



The dialog box titled "Pick Group to Highlight" contains two main sections: "Options" and "Input".

**Options:** A vertical list of radio buttons for selecting the entity type to highlight:

- ☐ Set
- ☐ View
- ☐ Mark
- ☐ Grade & Size
- ☐ Bar Mark Prefix
- ☐ Bend Type
- ☐ Length
- ☐ Drawing Sheet
- ☒ Member
- ☐ Release
- ☐ Bid Item
- ☐ Bid Structure
- ☐ Coupler
- ☐ All

**Input:** A series of fields and buttons for specifying parameters:

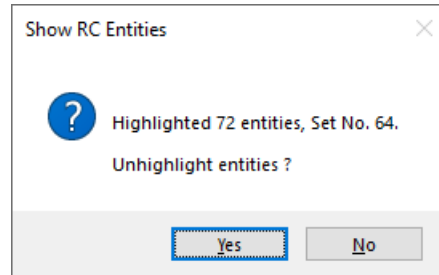
Parameter	Value	Action
Set Number	1	Pick Entity
Bar Mark		Pick Entity
Grade	A615M/300	Pick Entity
Size	#10	
Bar Mark Prefix		Pick Entity
Bend Type	0	Pick Entity
Length	0.0	Pick Entity
Drawing Sheet	RebarCAD Test Dr	Pick Entity
Member	Member1	Pick Entity
Release	Release1	Pick Entity
Bid Item	UNASSIGNED De	Pick Entity
Bid Structure	UNASSIGNED	Pick Entity
Coupler/Thread Attached	Yes	

At the bottom of the dialog are three buttons: OK, Cancel, and Help.

**Figure 9.12:1 Highlight Bars dialog**


You can choose to highlight a Bar Set, Bar View, Bar Mark, Bend Type, Bar Length, Member, Release, or Coupled Bars or choose all RebarCAD entities on the drawing. The RebarCAD entities selected are then immediately highlighted on the drawing once OK has been selected.

You are then prompted to Unhighlight the Entities. If you select Yes the entities will return to their original configured colors. If you select No the entities will remain highlighted in magenta. You can later use the Redraw Bar command, accessible through RebarCAD → Editing → Redraw Bar, to return them to their correct colors.

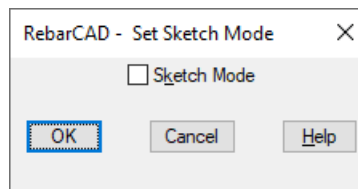


**Figure 9.12:2 The Un-highlight dialog of the Highlight Bars command**

## 9.13 Toggle Sketch Drawing Mode

The Toggle Sketch Drawing Mode command, , opens a dialog box with an option to set *Sketch Mode ON* or *OFF* by marking a tick box.

This command is accessible through **RebarCAD** → Utilities Toggle → Sketch Drawing Mode




**Figure 9.13:1 RebarCAD Set Sketch Mode dialog**

If Sketch Mode is ticked ON then Bar Labels are treated as intelligent RebarCAD entities. However, Bar Views, Range Lines, bar references and other such entities are drawn instead as AutoCAD entities. This means if the bar data is edited the views and ranges will not update.

If Sketch Mode is turned OFF by unticking the box then all RebarCAD entities are linked to each other and any editing will dynamically update all associated views of a Bar Set.

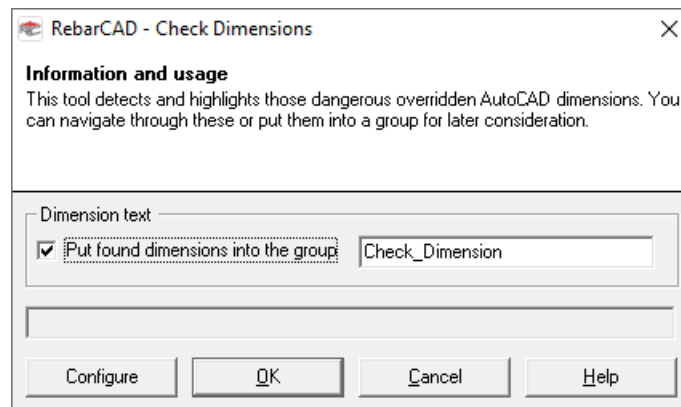
You should leave Sketch Mode switched OFF, selecting it only if there is a particular reason to have all RebarCAD entities other than Bar Labels handled as AutoCAD entities.

## 9.14 Check Dimensions

The Check Dimensions command, , will check all the dimensions on a drawing whether in Model or Layout Space to see if the dimension text has been manually edited to a different value. The command will ignore additional text which has been appended to the dimension.

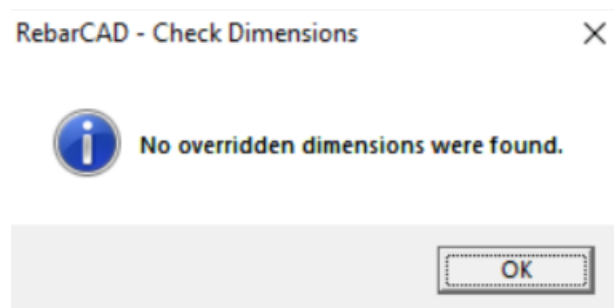
This command is accessible through **RebarCAD** → Utilities → Check Dimensions

When you initially select the command, the dialog shown in figure 8.8:1 below is displayed.



**Figure 9.14:1 Check Dimensions dialog**

If you select the *Check Dims* button **RebarCAD** searches the drawing, checks all the dimensions in Model and Layout Space and reports back how many dimensions have been modified.

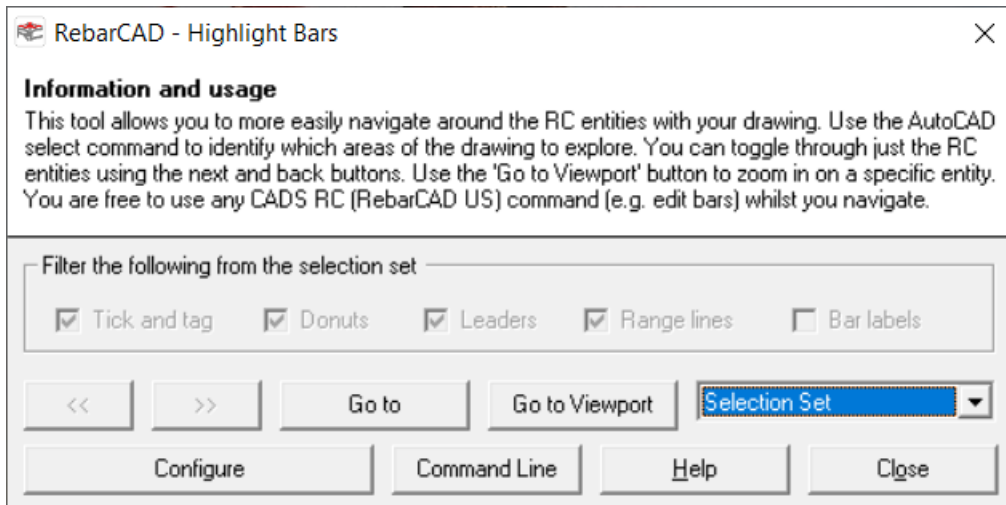


**Figure 9.14:2 The Check Dimensions report window**

If the check box *Put Found Dimensions into the Group* is ticked then the dimension entities found will be put into AutoCAD group as specified in the text box. This group name can be changed, as described below, using the *Configure* button offered in the dialog.

If you select Yes, the command will let you navigate around the drawing and show you which dimensions have been manually edited.

You can use the *Highlight* dialog box, shown in figure 8.8:3 below, to easily identify the edited dimensions. They will appear in a blue box on the drawing. You can then choose to leave them alone or edit them. When finished select the *Close* button.



**Figure 9.14:3 Highlight Bars Navigation dialog**

## 9.14.1 Check Dimensions Configuration

If you select the *Configure* button shown in the *Check Dimensions* dialog in figure 8.8:1 above then you'll be offered the following parameters to configure and store:

### Group Name

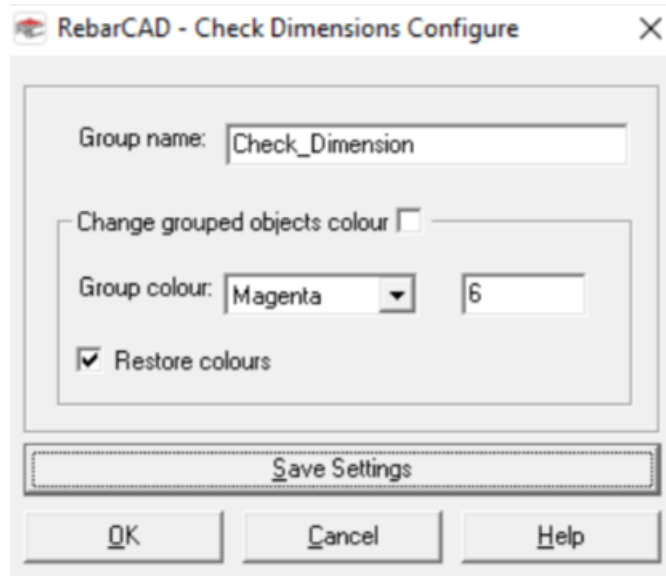
Type in the default group name. If the group name is still set to *Check\_Dimension* then change it as this name is not recognised by the *AutoCAD* Group utility.

### Group Color

If the check box *Change Group Object's color* is *On* the group color entered will be applied to the dimension text groups.

### Write Prototype Settings

This option creates a configuration file with the extension .INI which stores the settings entered in the *Check Dimensions Configuration* dialog. Each time you use the function these settings will be displayed.



**Figure 9.14.1:4 Check Dimensions Configuration dialog**

## 9.15 Save As V8.4 Drawing

Use this command to save your current RebarCAD drawings in the earlier RebarCAD V8.40 format.

This command is accessible through RebarCAD → Utilities → Save as V8.4 Drawing

*Note:* if you save a V9 drawing in V8 format the following data will be lost:






- ▶ Drawing Sheet, Release and Member Information
- ▶ Issuing and Revision Information

## 9.16 Key points - Checking Drawings

- ▶ When you have finished detailing run the following commands:
  - *Check Database*
  - *Drawing Audit*
  - *Match Bars*
  - *Compact Bars*
- ▶ This ensures that all the RebarCAD entities on the drawing are correctly linked to the database and Bar List. Running *Match Bars* and *Compact Bars* ensures the most efficient use of Bar Marks on the drawing.
- ▶ Use *Drawing Audit* to tidy up the Bar List if bars are present that have been deleted from the drawing.


- ▶ *Check Database* will detect Bar Labels that have been manually edited and offer to redraw them.
- ▶ Use *Select Bars* to create *AutoCAD* selection sets of RebarCAD entities based on defined parameters such as Member, Release, Mark and the like.
- ▶ Use *Check Dimensions* to highlight which dimensions have had their associated text manually overridden.
- ▶ V9 drawings can be saved to V8.4 format, with certain limitations.

## 9.17 Command List - Checking Drawings

Action	Menu Selection	Toolbar	Icon
RebarCAD Commands			
Drawing Audit	RebarCAD → Utilities → Drawing Audit	Utilities	
Check Database	RebarCAD → Utilities → Check Database	Utilities	
Match Bars	RebarCAD → Utilities → Match Bars	Utilities	
View Bar List	RebarCAD → View Bar List	Utilities	
Compact Bars	RebarCAD → Utilities → Compact Bars	Utilities	
Select Bars	RebarCAD → Utilities → Select Bars	Utilities	
Assign Bars to Member	RebarCAD → Editing → Assign Bars to Member	Utilities	
Highlight Bars	RebarCAD → Utilities → Highlight Bars	Utilities	
Toggle Sketch Drawing Mode	RebarCAD → Utilities → Toggle Sketch Drawing Mode	Utilities	
Check Dimensions	RebarCAD → Utilities → Check Dimensions	Utilities	
Save As V8.4 Drawing	RebarCAD → Utilities → Save As V8.4 Drawing	Utilities	
AutoCAD Commands			
Move	Modify → Move		

## 10 Interacting with the Bar List

### 10.1 Introduction

The Bar List viewer is designed to give you maximum freedom to organise and view your bar data to your own requirements. The View Bar List command can be accessed from the RebarCAD pull down menu or by selecting  on the RebarCAD toolbar.

### 10.2 Navigating around the Bar List

There are three main areas to the *Bar List* dialog. These are shown in figure 9.1:1 below.

#### **Navigation Area**

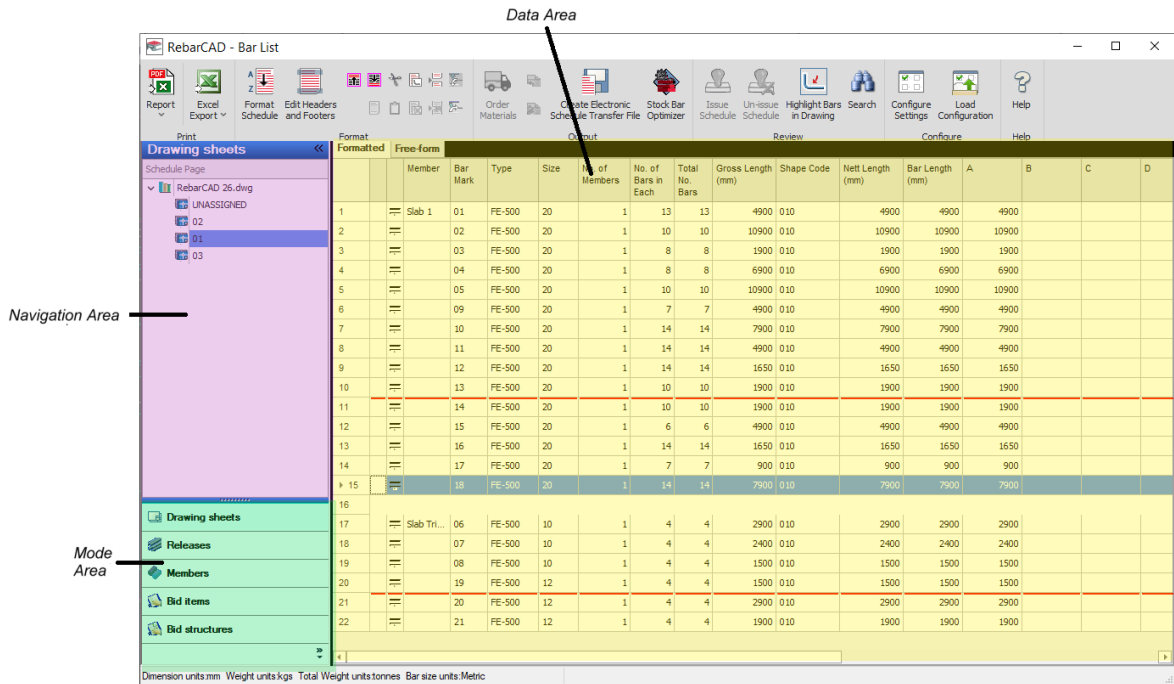
The *Navigation Area* shows a tree view of the available Drawing Sheets, Releases or Members depending on which option is selected in the *Mode Area*.

#### **Data Area**

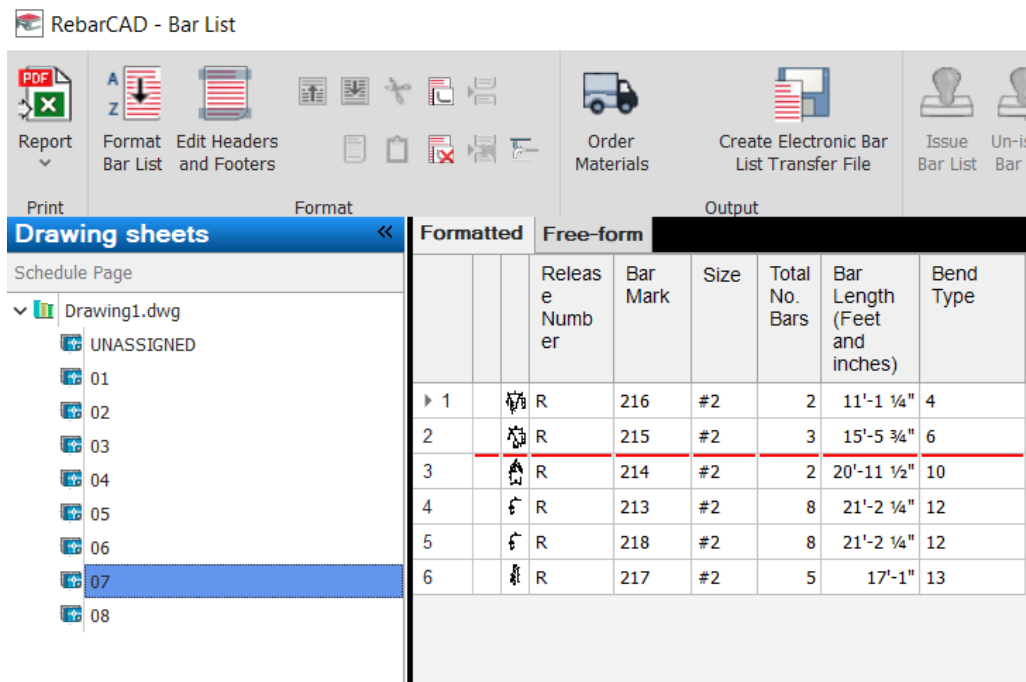
The *Data Area* displays bar bending data relevant to the selection made in the *Navigation Area*. There are two tabs, *Formatted* and *Free-Form*, and these will be described later.

#### **Mode Area**

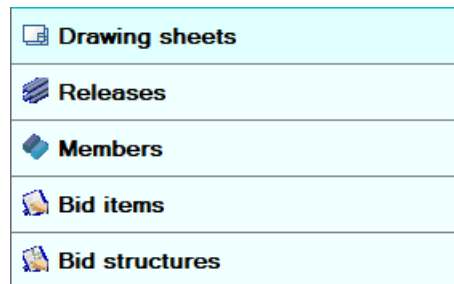
This area has three icon buttons, *Drawing Sheets*, *Releases* and *Members*, used to select what displays in the *Navigation Area* and, hence, what class of bar bending data will be shown in the *Data Area*.



When you open the Bar List the *Navigation Area* will show a list of all the currently created Drawing Sheets. If you select a particular Drawing Sheet the *Data Area* will adjust its output to show just the bars assigned to that Drawing Sheet.



If you want to see data on Members then select the *Members* icon in the *Mode Area*, shown in figure 9.1:3 below. This will change the *Navigation Area* to display a tree view of Members and selecting a particular Member will show its data in the *Data Area*.



**Figure 10.2:3 Mode Area of the Bar List Viewer**

RebarCAD - Bar List

Print Print Preview Excel Export PDF Export Format Edit Headers Bar List and Footers Order Materials

Members << Formatted Free-form


Drag a column header here to group the display. Right-click for more options

Member Title	Quantity	Total Weight		Drawing sheet	Release Number	Bar Mark	Grade	Bar Size
▼ Drawing1.dwg								
UNASSIGNED	1	0.036						
Slab 1	1	0.025						
Beam 1	1	0.036						
Wall 1	1	0.013						
			1	01	R	201	A615/60	#2
			2	01	R	202	A615/60	#2
			3	01	R	203	A615/60	#2
			4	01	R	204	A615/60	#2
			5	07	R	214	A615/60	#2
			6	07	R	217	A615/60	#2
			7	01	R	S01	A615/60	#2

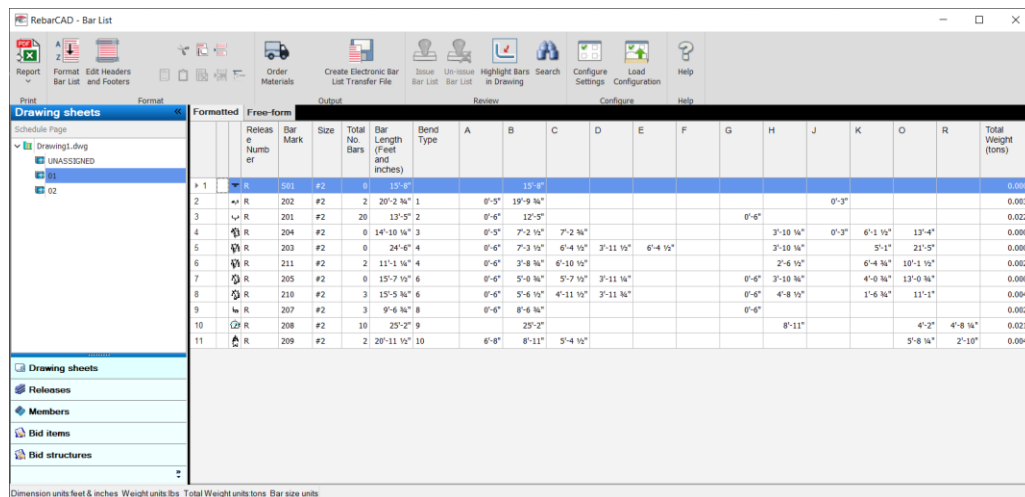
**Figure 10.2:4 Members displayed in Free-Form Data display**

Similarly, if you want to see data on Releases then select the *Releases* icon in the *Mode Area*. This will change the *Navigation Area* to display a tree view of Releases. Further information on Releases is given later in this chapter.

## 10.3 Try It! Navigating around the Bar List

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 26.dwg
- ▶ Make the Viewport on Slab 1 (01) Layout active
- ▶ Select RebarCAD → View Bar List or 

By default, the formatted view of the first Drawing Sheet (01) should be displayed. This is shown in figure 9.1.1:1 below.



	Release Number	Bar Mark	Size	Total No Bars	Bar Length (Feet and inches)	Bend Type	A	B	C	D	E	F	G	H	J	K	O	R	Total Weight (tons)
1	R	101	#2	9	13'-8"			13'-8"											0.000
2	R	202	#2	2	20'-2 1/4" 1		0'-5"	19'-9 1/4"								0'-3"			0.003
3	R	201	#2	20	13'-5" 2		0'-6"	12'-5"						0'-4"					0.022
4	R	204	#2	0	14'-10 1/4" 3		0'-5"	7'-2 1/4"	7'-2 1/4"						3'-10 1/4"	0'-3"	6'-1 1/2"	13'-4"	0.000
5	R	203	#2	0	24'-6" 4		0'-6"	7'-3 1/2"	6'-4 1/2"	3'-11 1/2"	6'-4 1/2"				3'-10 1/4"		5'-1"	21'-5"	0.000
6	R	211	#2	2	11'-1 1/2" 4		0'-6"	3'-8 1/4"	6'-10 1/2"						2'-6 1/2"		6'-4 1/4"	10'-1 1/2"	0.002
7	R	205	#2	0	15'-7 1/2" 6		0'-6"	5'-0 1/4"	5'-7 1/2"	3'-11 1/4"					0'-6"	3'-10 1/4"	4'-0 1/4"	13'-0 1/4"	0.000
8	R	210	#2	3	15'-5 1/2" 6		0'-6"	5'-6 1/2"	4'-11 1/2"	3'-11 1/4"					0'-6"	4'-8 1/2"	1'-6 1/4"	11'-1"	0.004
9	R	207	#2	3	9'-6 1/4" 8		0'-6"	8'-6 1/4"											0.002
10	R	208	#2	10	25'-2" 9			25'-2"											0.021
11	R	209	#2	2	20'-11 1/2" 10		6'-8"	8'-11"	5'-4 1/2"								4'-2"	4'-8 1/4"	0.004

Figure 10.3:1 Formatted Bar List View showing Drawing Sheet 01

- ▶ Select each Drawing Sheet in turn to filter the data to show in the data view only bars belonging to that Drawing Sheet

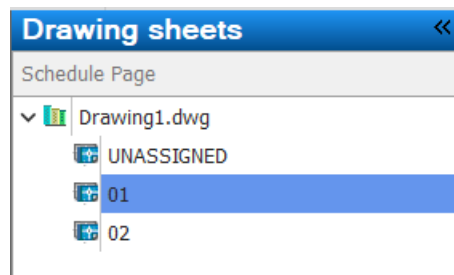
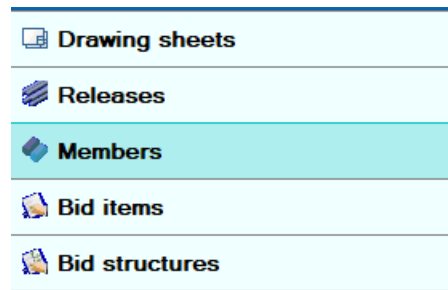


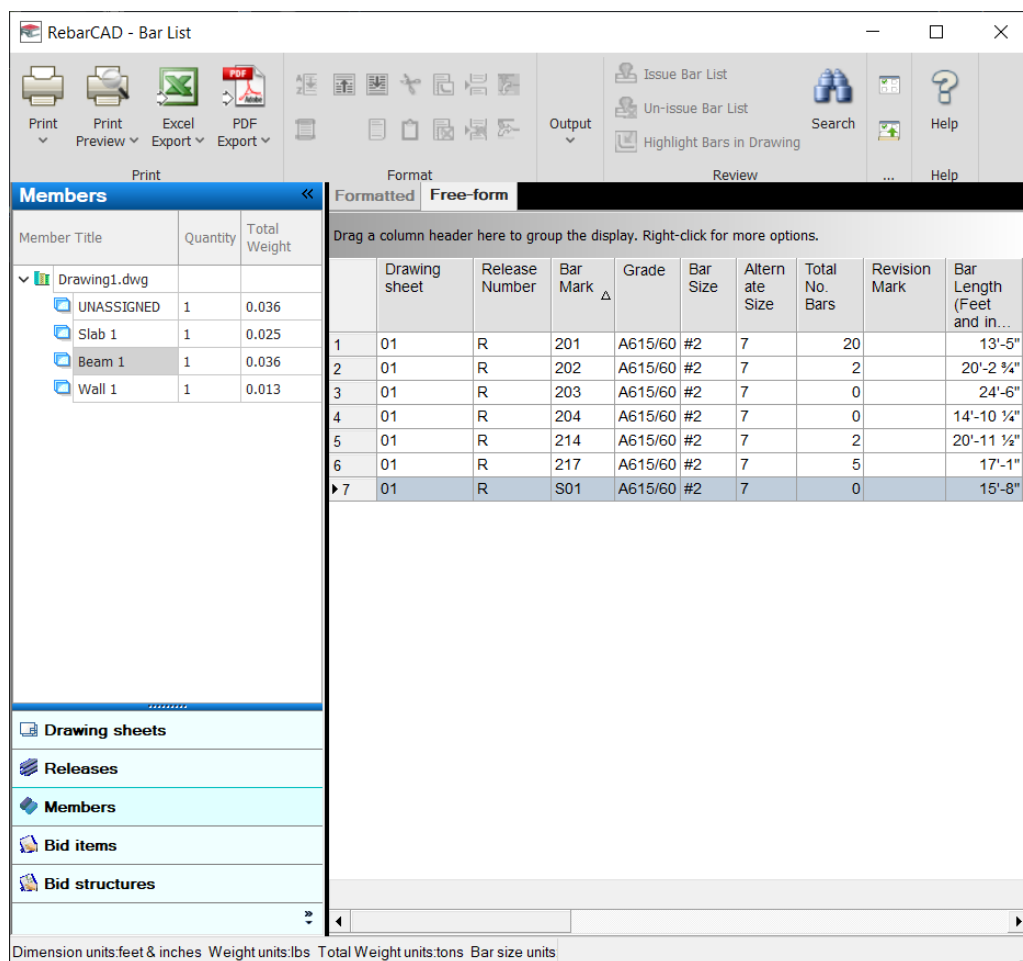
Figure 10.3:2 Selecting a different Drawing Sheet

- ▶ Select the *Member* icon in the *Mode Area*. The *Navigation Area* will now change to show the list of Members



**Figure 10.3:3 Select Members Mode**

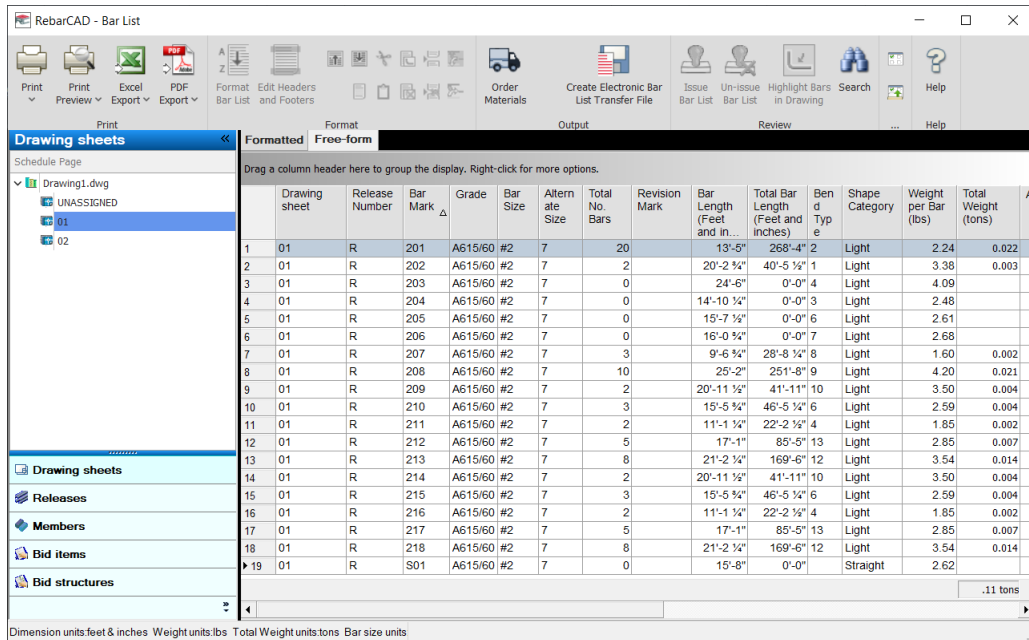
- Select each Member in turn to filter the data to show in the data view only bars belonging to that Member



**Figure 9.1.1:4 Reinforcement assigned to Beam 1 Member**

- Now switch back to see Drawing Sheet data again. Select the *Drawing Sheet* icon in the *Mode Area*. The *Navigation Area* will again list the Drawing Sheets while the *Data Area* will show data for whichever Drawing Sheet you've selected.

- Switch between the *Free-Form* and the *Formatted* tabs to toggle the style of the *Data Area* displays and to see how they differ. This is discussed in section 9.2.



RebarCAD - Bar List

Format Free-form

Drag a column header here to group the display. Right-click for more options.

Drawing sheet	Release Number	Bar Mark	Grade	Bar Size	Alternate Size	Total No. Bars	Revision Mark	Bar Length (Feet and inches)	Total Bar Length (Feet and inches)	Bend Type	Shape Category	Weight per Bar (lbs)	Total Weight (tons)	A
1 01	R	201	A615/60	#2	7	20		13'-5"	268'-4"	2	Light	2.24	0.022	
2 01	R	202	A615/60	#2	7	2		20'-2 3/4"	40'-5 1/4"	1	Light	3.38	0.003	
3 01	R	203	A615/60	#2	7	0		24'-6"	0'-0"	4	Light	4.09		
4 01	R	204	A615/60	#2	7	0		14'-10 1/2"	0'-0"	3	Light	2.48		
5 01	R	205	A615/60	#2	7	0		15'-7 1/2"	0'-0"	6	Light	2.61		
6 01	R	206	A615/60	#2	7	0		16'-0 3/4"	0'-0"	7	Light	2.68		
7 01	R	207	A615/60	#2	7	3		9'-6 3/4"	28'-8 1/4"	8	Light	1.60	0.002	
8 01	R	208	A615/60	#2	7	10		25'-2"	251'-8"	9	Light	4.20	0.021	
9 01	R	209	A615/60	#2	7	2		20'-11 1/2"	41'-11"	10	Light	3.50	0.004	
10 01	R	210	A615/60	#2	7	3		15'-5 3/4"	46'-5 1/4"	6	Light	2.59	0.004	
11 01	R	211	A615/60	#2	7	2		11'-1 1/4"	22'-2 1/4"	4	Light	1.85	0.002	
12 01	R	212	A615/60	#2	7	5		17'-1"	85'-5"	13	Light	2.85	0.007	
13 01	R	213	A615/60	#2	7	8		21'-2 1/4"	169'-6"	12	Light	3.54	0.014	
14 01	R	214	A615/60	#2	7	2		20'-11 1/2"	41'-11"	10	Light	3.50	0.004	
15 01	R	215	A615/60	#2	7	3		15'-5 3/4"	46'-5 1/4"	6	Light	2.59	0.004	
16 01	R	216	A615/60	#2	7	2		11'-1 1/4"	22'-2 1/4"	4	Light	1.85	0.002	
17 01	R	217	A615/60	#2	7	5		17'-1"	85'-5"	13	Light	2.85	0.007	
18 01	R	218	A615/60	#2	7	8		21'-2 1/4"	169'-6"	12	Light	3.54	0.014	
19 01	R	S01	A615/60	#2	7	0		15'-8"	0'-0"		Straight	2.62		

Dimension units: feet & inches Weight units: lbs Total Weight units: tons Bar size units

Figure 10.3:5 Bar List showing Free-Form View

## 10.4 Formatted versus Free-Form Bar List Views

The bar bending data for individual Drawing Sheets can be displayed in either *Formatted* or *Free-Form* style. You can toggle between the styles by selecting one or other tab at the top of the *Data Area*, as shown below in figure.

Formatted	Free-form
	Release Number
	Bar Mark

Figure 10.4:1 Formatted and Free-Form Tabs

This toggle option is only available for Drawing Sheets. If you're viewing Member or Release data, having selected one of those icons in the *Mode Area*, then only the Free-Form style of display is offered. Formatted views of bar bending data are only available here for Drawing Sheets.

### 10.4.1 Formatted Style


This style displays the bar bending data in the form in which it will be eventually printed or output electronically. In this mode there are options to *Sort*, *Combine* or *Segregate* the data as well as to

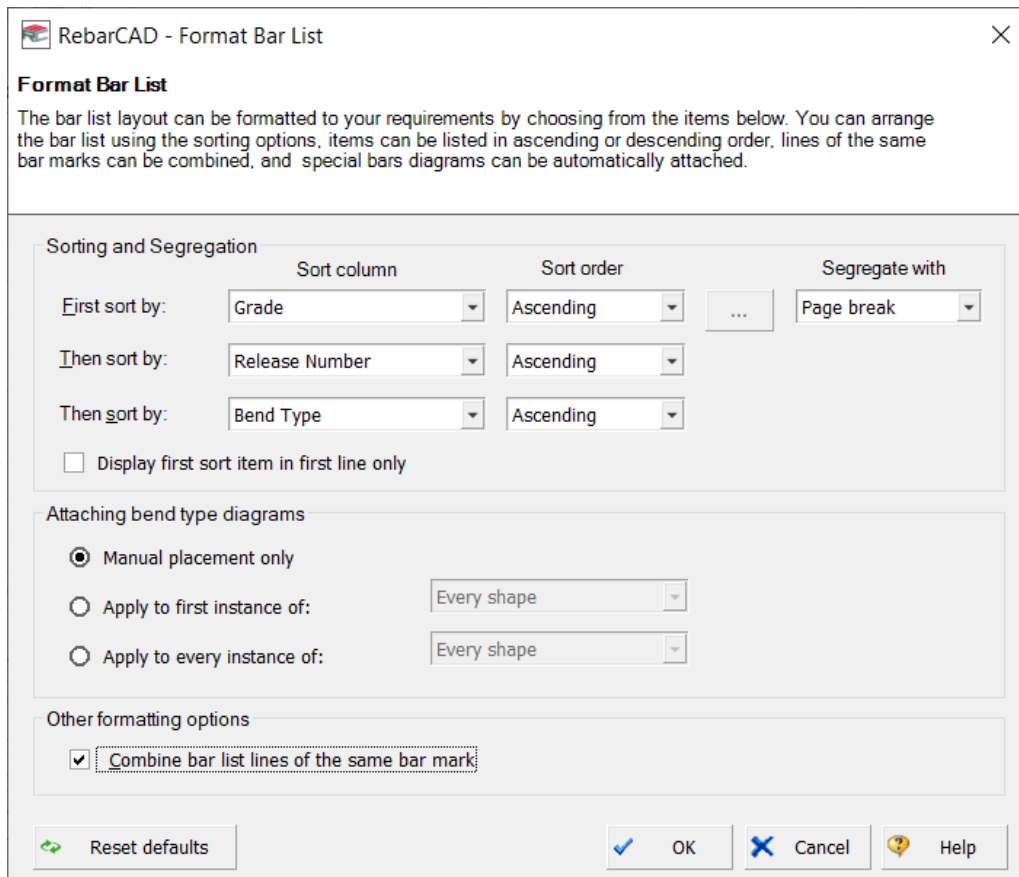
attach diagrams of the Bend Types. You can also manually insert or remove text lines and page breaks and move the data into different positions within the Bar List.

## 10.4.2 Free-Form Style

The Free-Form Style displays the bar data in its raw, unformatted form. This allows you to filter, group and order the bar data in any way you like to produce Customised output irrespective of the constraints of any company or industry standard. A more detailed description of how to use this feature can be found in Section 9.6, later in this chapter.

## 10.5 Formatting the Bar List

The Format Bar List command is accessible from the *Bar List* toolbar, , or through Bar List → Edit → Format Bar List. It displays the dialog shown in figure 9.3:1 below.



**RebarCAD - Format Bar List**

**Format Bar List**

The bar list layout can be formatted to your requirements by choosing from the items below. You can arrange the bar list using the sorting options, items can be listed in ascending or descending order, lines of the same bar marks can be combined, and special bars diagrams can be automatically attached.

**Sorting and Segregation**

	Sort column	Sort order	Segregate with
First sort by:	Grade	Ascending	Page break
Then sort by:	Release Number	Ascending	
Then sort by:	Bend Type	Ascending	

☐ Display first sort item in first line only

**Attaching bend type diagrams**

☒ Manual placement only

☐ Apply to first instance of: Every shape

☐ Apply to every instance of: Every shape


**Other formatting options**

☒ Combine bar list lines of the same bar mark

Reset defaults OK Cancel Help

**Figure 10.5:1 Format Bar List dialog**



The Format Bar List command, , is only available when you view Drawing Sheet data in formatted view by selecting the *Formatted* tab.

There are three areas in the dialog: Sorting and Segregation, Attaching Bend Type Diagrams, and Other Formatting Options.

### 10.5.1 Sorting and Segregation

You can apply three levels of sorting to Formatted View and choose for each one whether the data should be in ascending or descending order. The first level of sorting has an additional *Segregate with* option to allow you to add a page break, a blank line or not to segregate. You can also choose to have the first sort field – such as *Member* - display on the first line only of the block of bar bending data it applies to.

### 10.5.2 Attaching Bend Type Diagrams


Diagrams of the Bend Types can be added manually, whether for the first instance or for every instance, and either for all Bend Types or just for specials.

### 10.5.3 Other Formatting Options

Ticking the *Combine Bar List lines of the same Bar Mark* check box will add together all the sets allocated to the first segregation field.

## 10.6 Try It! Formatting the Bar List

In this Try It! you will format the Bar List ready for printing. This will include changing the display order of the member titles, sorting and combining.

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 26.dwg
- ▶ Make the Viewport on Slab 1 (01) Layout active
- ▶ Select RebarCAD → View Bar List or 

By default, the formatted view of the first Drawing Sheet (01) should be displayed. This is shown in figure 9.3.1:1 below.

RebarCAD - Bar List

Report Format Edit Headers and Footers Order Materials Create Electronic Bar List Transfer File Issue Bar List Un-issue Bar List Highlight Bars in Drawing Search Configure Settings Load Configuration Help

Print Format

**Drawing sheets**

Schedule Page

UNASSIGNED

01

02

**Drawing sheets**

**Releases**

**Members**

**Bid items**

**Bid structures**


		Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	Bend Type	A	B	C	D	E	F
1	R	501	#2	0	15'-0"				15'-0"				
2	R	202	#2	2	20'-2 3/4"	1	0'-5"	19'-9 3/4"					
3	R	201	#2	20	13'-5"	2	0'-6"	12'-5"					
4	R	204	#2	0	14'-10 1/4"	3	0'-5"	7'-2 1/2"	7'-2 3/4"				
5	R	203	#2	0	24'-6"	4	0'-6"	7'-3 1/2"	6'-4 1/2"	3'-11 1/2"		6'-4 1/2"	
6	R	211	#2	2	11'-1 1/4"	4	0'-6"	3'-8 3/4"	6'-10 1/2"				
7	R	216	#2	2	11'-1 1/4"	4	0'-6"	3'-8 3/4"	6'-10 1/2"				
8	R	205	#2	0	15'-7 1/2"	6	0'-6"	5'-0 3/4"	5'-7 1/2"	3'-11 1/4"			
9	R	210	#2	3	15'-5 3/4"	6	0'-6"	5'-6 1/2"	4'-11 1/2"	3'-11 3/4"			
10	R	215	#2	3	15'-5 3/4"	6	0'-6"	5'-6 1/2"	4'-11 1/2"	3'-11 3/4"			
11	R	206	#2	0	16'-0 3/4"	7	0'-5"		6'-1 1/4"	9'-6 1/2"			
12	R	207	#2	3	9'-6 3/4"	8	0'-6"	8'-6 3/4"					
13	R	208	#2	10	25'-2"	9		25'-2"					
14	R	209	#2	2	20'-11 1/2"	10	6'-8"	8'-11"	5'-4 1/2"				
15	R	214	#2	2	20'-11 1/2"	10	6'-8"	8'-11"	5'-4 1/2"				
16	R	213	#2	8	21'-2 1/4"	12		7'-2 3/4"	8'-2 1/2"	5'-9"			
17	R	218	#2	8	21'-2 1/4"	12		7'-2 3/4"	8'-2 1/2"	5'-9"			
18	R	212	#2	5	17'-1"	13		9'-8 1/4"	7'-4 3/4"				
19	R	217	#2	5	17'-1"	13		9'-8 1/4"	7'-4 3/4"				

Dimension units: feet & inches Weight units: lbs Total Weight units: tons Bar size units:

**Figure 10.6:1 Bar List ready for formatting**

- Select Edit → Format Bar List or 

In the Sorting and Segregation section on the 'First Sort by:' line, set the 'Sort Order' to Custom and then pick the Browse button as shown below figure.


**RebarCAD - Format Bar List**
✕

**Format Bar List**

The bar list layout can be formatted to your requirements by choosing from the items below. You can arrange the bar list using the sorting options, items can be listed in ascending or descending order, lines of the same bar marks can be combined, and special bars diagrams can be automatically attached.

**Sorting and Segregation**

	Sort column	Sort order		Segregate with
First sort by:	Grade	Ascending	...	Page break
Then sort by:	Release Number	Ascending		
Then sort by:	Bend Type	Ascending		

☐ Display first sort item in first line only

**Attaching bend type diagrams**

☒ Manual placement only

☐ Apply to first instance of: Every shape

☐ Apply to every instance of: Every shape

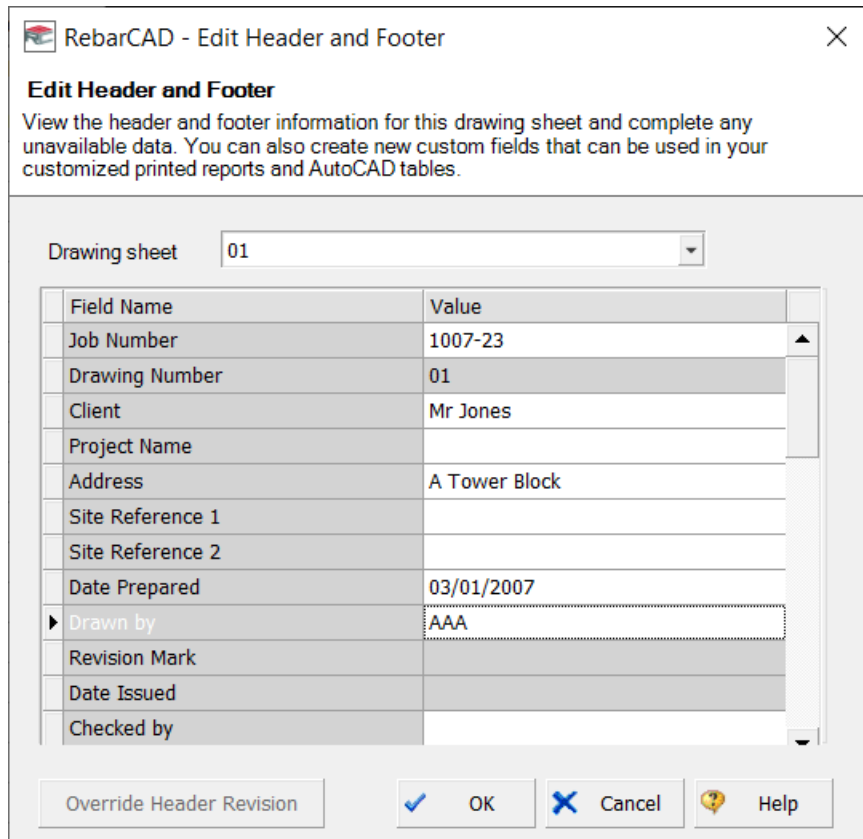
**Other formatting options**

☐ Combine bar list lines of the same bar mark

↺ Reset defaults
✓ OK
✕ Cancel
🔍 Help

**Figure 10.6:2 Format Bar List Dialog**





**Edit Header and Footer**

View the header and footer information for this drawing sheet and complete any unavailable data. You can also create new custom fields that can be used in your customized printed reports and AutoCAD tables.

Drawing sheet: 01

Field Name	Value
Job Number	1007-23
Drawing Number	01
Client	Mr Jones
Project Name	
Address	A Tower Block
Site Reference 1	
Site Reference 2	
Date Prepared	03/01/2007
Drawn by	AAA
Revision Mark	
Date Issued	
Checked by	

Override Header Revision    ☒ OK    ☐ Cancel    Help

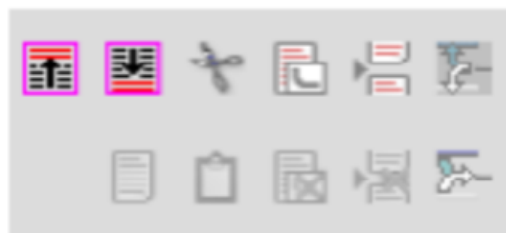
**Figure 10.6:5 Edit Header and footer dialog**

You will need to format each Drawing Sheet in turn. The Bar List is now ready for printing.

## 10.7 Manipulating the Formatted Bar List

You can also manipulate the Bar List manually using a range of commands accessible in various ways:

You can select from the Bar List → Edit menu, shown in figure 9.4:1 below.



**Figure 10.7:1 Bar List Edit Menu**

Or you can select the commands from the *Bar List* toolbar, shown in figure 9.4:2 below.



**Figure 10.7:2 Bar List Standard toolbar**

You could also select a line within the Bar List and show the available options by right clicking with your mouse. Figure 9.4:3, below, illustrates this. This is often the quickest way to access a particular command.

Formatted		Free-form							
		Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	Bend Type	A	B
1		R	S01	#2	0	15'-8"			15'-8"
2		R	202	#2	2	20'-2 3/4"	1	0'-5"	19'-9 3/4"
3		R	201	#2	20	13'-5"	2	0'-6"	12'-5"
4		R	204	#2	0	14'-10 1/4"	3	0'-5"	7'-2 1/2"
5		R	203	#2	0	24'-6"	4	0'-6"	7'-3 1/2"
▶ 6		R	205	#2	0	15'-7 1/2"	6	0'-6"	5'-0 3/4"

New Page  
 Attach Diagram  
 Insert Lines Above  
 Insert Lines Below  
 Cut Ctrl+X  
 Highlight Bars in Drawing

**Figure 10.7:3 Bar List Right Mouse Click Menu**

## 10.7.1 Bar List *Edit* Menu Options

The Bar List *Edit* menu offers commands useful for manipulating the Bar List in various ways. As mentioned earlier, many of these are also available on the *Bar List Standard* toolbar or from a menu brought up by right clicking on a line of data within the Bar List. There's also an additional command to add text to a blank line, and this is described at the end of the list. Note that these options are available only in the *Formatted Bar List* view.

### Cut

This uses the standard Windows *Cut* command and, with *Paste*, lets you move selected bar data from one location to another within the Bar List. You can highlight a single line by clicking on it with your left mouse button or highlight a continuous block of lines by clicking on the first, holding down the keyboard Shift key and then clicking on the last line. And if you want to select a number of lines in different places then keep the keyboard Ctrl key pressed while making your selection.

*Hint:* it's sometimes quicker to select a large block using click/Shift-click and then *unselect* a few unwanted lines individually using Ctrl-click.

The lines you select will be highlighted in **green** and you can then Cut these by, for instance, right clicking to show the menu and selecting *Cut* or by using the toolbar or the Bar List → Edit menu described earlier.

Formatted		Free-form								
			Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	A	B	C
▶ 1		⚡	UNASSI...	S01	#2	4	18'-0"		18'-0"	
2		⚡	UNASSI...	S02	#2	4	22'-9"		22'-9"	
3		⚡	UNASSI...	401	#4	7	8'-9"	0'-8"	7'-5"	
4		⚡	UNASSI...	201	#2	7	9'-5"			3'-3 1/4"
5		⚡	UNASSI...	402	#4	7	11'-11 1/4"	0'-8"	10'-7 ...	
6		⚡	UNASSI...	202	#2	7	12'-2"			4'-7 3/4"

**Figure 10.7.1:1 Bar Data marked to be moved in the Formatted Bar List**

## Paste

This also uses a standard Windows command, *Paste*. After you've *Cut* selected lines click in the location in the Bar List where the line or lines should go. Select *Paste*, using any of the three approaches described earlier, to move the lines to the new position.

## Insert line

Use this option to insert blank lines into the Bar List view, positioned above the line of bar data selected when the command is invoked. You can then leave the line blank or add text to it as described in the paragraph on *Attaching Text to a Blank Line* at the end of this list of Bar List *Edit* menu options.

## Delete

Use the *Delete* option to remove lines from the Bar List. Lines can be deleted individually or as a group selected in the same manner as explained above in the description of the *Cut* option.

Formatted		Free-form									
		Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	A	B	C	D	E
1		UNASSI...	S02	#2	0	23'-1"		23'-1"			
2		UNASSI...	S01	#2	0	14'-8"		14'-8"			
3		Text can be added to the blank line									
4											
5											

**Figure 10.7.1:2 Adding Text to a blank line in the Bar List**

### Attach Diagram

Use this option to attach bar shape diagram(s) to an individual line or to a selection of lines. You can select a group of lines by marking in the standard manner explained earlier in the description of the *Cut* option. If you want to add diagrams to *all* lines in the Bar List first select the Drawing Sheet number from the list in the *Navigation Area* and then invoke the *Attach Diagram* command.

### Detach Diagram

Use this option to detach bar shape diagram(s) from an individual line or a selection of lines that you can select by marking in the standard manner explained earlier in the description of the *Cut* option. If you want to detach previously attached diagrams from *all* lines in the Bar List first select the Drawing Sheet number from the list in the *Navigation Area* before invoking the *Detach Diagram* command.

### New Page

This option lets you insert a page break above a line selected in the Bar List.

If you have configured the Bar List to a fixed number of lines per page then page breaks will automatically be inserted at the appropriate points. (The **RebarCAD Customisation & Configuration Guide** gives details on how to do this.) If you add additional page breaks using the *New Page* option then further blank lines may be added automatically to the Bar List in order to ensure that the correct number of lines per page appear.

You cannot manually introduce page breaks into the middle of a Tapered Range list.

### Remove Page Break

This option is only available if page breaks have been added manually to the Bar List using the *New Page* option described. To remove a page break select the first line of the new page after the

break and select *Remove Page Break*, using any of the three approaches described earlier – for example, by right clicking and selecting from the menu offered.

If you've configured the Bar List to a fixed number of lines per page then after you've removed a page break there will be automatic adjustments made to ensure that the correct number of lines per page appear. This applies whether pages are displayed or printed.

## Combine Bars

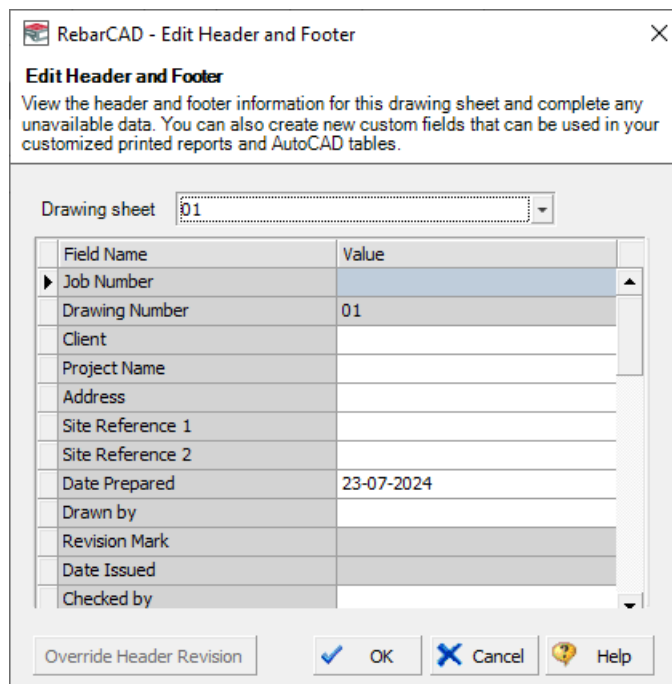
You can use the *Combine Bars* option to combine a selection of bars or all the bars present in the currently displayed Drawing Sheet. Make any selection you need by marking lines in the standard manner explained earlier in the description of the *Cut* option. Bar Sets of the same Mark will be added together when you use this option.

## Format Bar List

See section 9.7, which discusses the options available in the *Format Bar List* dialog above.

## Edit Bar List Header and Footer Information

This option displays the *Edit Header and Footer* dialog shown in figure below.



**Edit Header and Footer**  
 View the header and footer information for this drawing sheet and complete any unavailable data. You can also create new custom fields that can be used in your customized printed reports and AutoCAD tables.

Drawing sheet: 01

Field Name	Value
▶ Job Number	
Drawing Number	01
Client	
Project Name	
Address	
Site Reference 1	
Site Reference 2	
Date Prepared	23-07-2024
Drawn by	
Revision Mark	
Date Issued	
Checked by	

Override Header Revision ☒ OK ☐ Cancel


**Figure 10.7.1:3 Bar List – Edit Header and Footer dialog**

*Header* and *Footer* data can be viewed for each Drawing Sheet. Fields that can be edited are shown with a white background in the text box. When the data is initially entered for each field it is automatically copied into the Header and Footer for each Drawing Sheet to save you having to re-enter the data for each one. If you need to amend the information for different Drawing Sheets



simply select the appropriate number in the drop down box near the top of the dialog and make what field changes are necessary.

The drawing number and project information will be transferred automatically from the Title Block on the Drawing Sheet, always provided that the attributes there have been correctly cross referenced with the fields in the Bar List. This is a configuration option and you should check the RebarCAD Customisation & Configuration Guide for details.

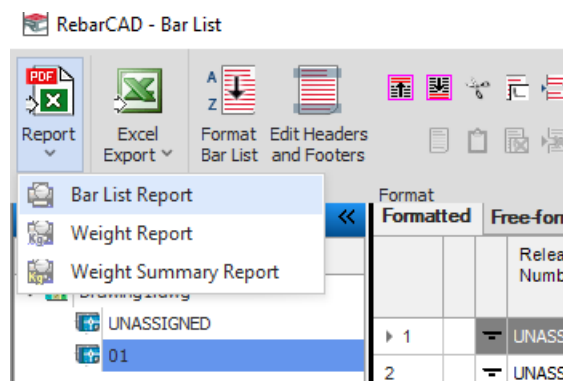
## Adding Text to a Blank Line

Any time that you want to add text to a blank line double click on the line in the Bar List to bring up the text entry option, . Click on this symbol to open the *Text Entry* dialog and then type in the text required. The font style and size will automatically be set to the same as is used in the main body of the Bar List. Select OK to add the new text to the Bar List.

## 10.8 Printing Bar Lists & Reports

You can print a formatted view of the Bar List through the *Print* or the *Print Preview* options from the Bar List → File menu or by selecting the  or  icons in the *Bar List Standard* toolbar, shown in figure 9.5:1. First select the relevant Drawing Sheet from the list in the *Navigation Area* and then select the Print or Print Preview command. Make sure, also, that any necessary Bar List formatting has been done.


Both the Print Preview and the Print commands offer three standard reports: Bar List, Weight, and Weight Summary. RebarCAD comes with industry standard styles of these reports as well as including some Customised ones. The RebarCAD Customisation & Configuration Guide will show you how to view the reports shipped with the program, how to make simple changes to their layouts and how to request a fully Customised report from RebarCAD Support.

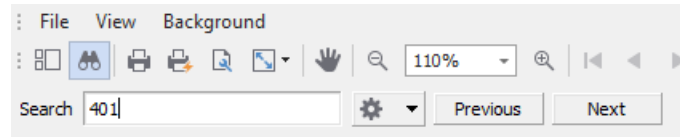


**Figure 10.8:1 Selecting the Print Preview of the Bar List Report**

## Print Preview Search Option

Once the *Print Preview* dialog is displayed you can search the text in the document. You might use this option to locate a Bar Mark, find bars of a certain length, and so on.

Select the Search command icon, , from the top of the *Print Preview* dialog. In the *Find what* box type in the text to find in the Bar List and select the *Find Next* button.



**Figure 10.8:2 Find Text dialog in Print Preview**

You can also adjust how the search runs by ticking any of the three boxes to match the case of the text, to find whole words only or to search back up the list from the current position. If the search option finds the text it will highlight the line in the Bar List. You can continue searching as necessary by selecting *Find Next*. Use the *Close* button to finish the search and exit the dialog.

REBAR-CAD BAR LIST

CADS-USA INC.

Customer :  
Project :  
Location :  
Material For :  
JobNo :  
Drawing SheetNo : 02

Dwg.No : 02  
Sheet No : 1  
Date : 01-03-2007  
Revised :  
Drawn by :

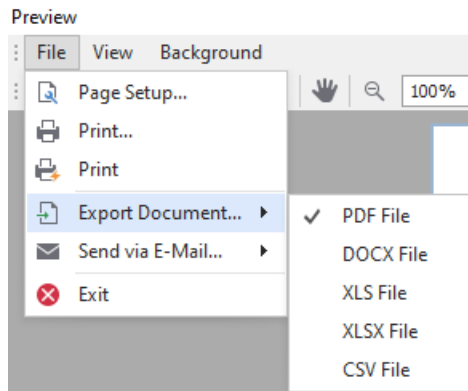
Item	No.	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	O	R
1	28	#4	8'-5"	401	T1	0'-4 1/2"	1'-8"	2'-2"	1'-8"	2'-2"		0'-4 1/2"	0'-3"				
2	35	#4	8'-5"	401	T1	0'-4 1/2"	1'-8"	2'-2"	1'-8"	2'-2"		0'-4 1/2"	0'-3"				

**Figure 10.8:3 Line in Bar List Preview highlighted by the Search option**

## 10.8.1 Exporting to Electronic File Format

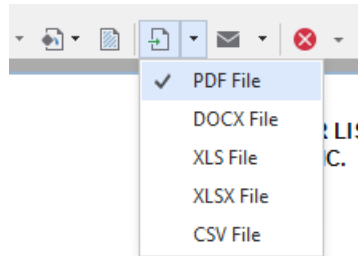
The *Print Preview* dialog also offers electronic file export options.

You can set the default document export type by selecting the down arrow by the *Save As* icon and ticking the format preferred. This is shown in figure 9.5.1:1 below.

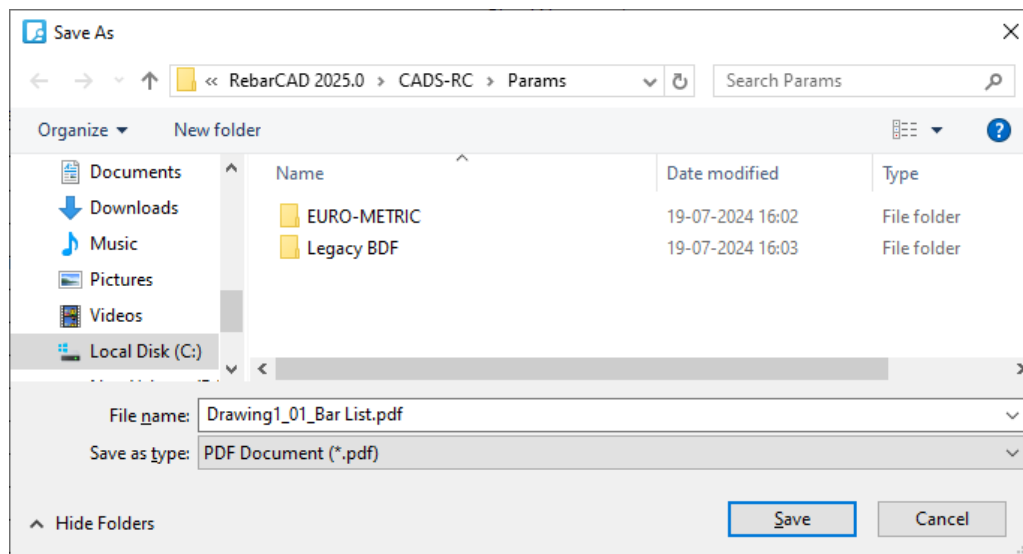


**Figure 10.8.1:1 Setting the default Export Document type**

When you select the *Export Document* icon it will automatically default to the preferred file type, PDF in this example. You can also access the same options by selecting File Menu → Export Document. In the *Save As* dialog that appears you can change the *Files of Type* to the format you require.



**Figure 10.8.1:2 Selecting the Export Document (electronic format)**



**Figure 10.8.1:3 Changing files of given type to alternative electronic formats**

## 10.8.2 Adding a Watermark to the Background

You can add a watermark to the Bar List output background either as text or as an image. Select Background → Watermark in the *Preview* dialog.

Select the *Text* tab to set the text content and properties, including transparency.

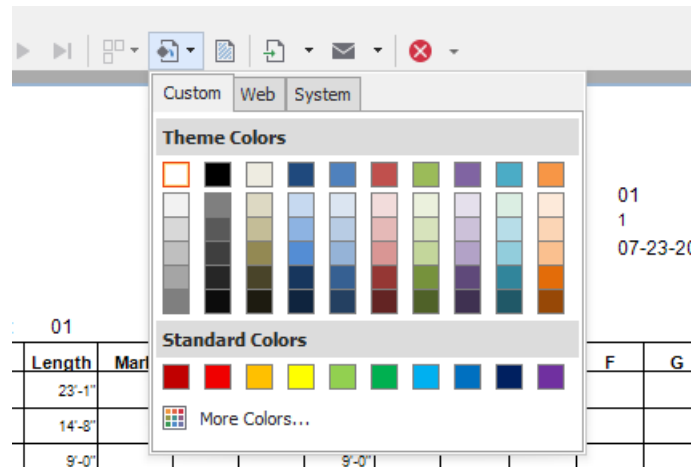
If you want to add an image, select the *Picture* tab. You can control whether the image is tiled, clipped, stretched or zoomed. You can also change its alignment both horizontally and vertically and change its transparency.



**Figure 10.8.2:2 Effect of adding a Watermark to the Bar List output**

### 10.8.3 Changing the Background Color

You can change the background color of what is output by selecting Background → Color from the *Preview* menu and then choosing from the color swatch.




**Figure 10.8.3:1 Changing the Background Color**

[illegible]

**Figure 10.8.3:2 Result of Changing the Background Color and adding a Watermark**




## Try It! Printing the Bar List


- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 26.dwg**
- ▶ Make the Viewport on *Slab 1 (01) Layout* active
- ▶ Select **RebarCAD** → View Bar List or 


By default the formatted view of the first Drawing Sheet (01) should be displayed.

- ▶ Select Drawing Sheet 02 from the Navigation Area

Various alternative options for printing or setting up are shown following:

Select **File** → **Print Preview** from the *File* menu or  from the toolbar and then select *Bar List Report*


Select **File** → **Print Direct** or  to send the Bar List to your default printer. This will automatically print one copy unless your printer setup is configured otherwise


Select **File** → **Print** or  to choose a printer from the list available to your PC. This also allows you to edit the properties such as the number of copies

Select **File** → **Page Setup** or  to change the paper size, margins or orientation

REBAR-CAD BAR LIST																	
CADS-USA INC.																	
Customer :									Dwg. No : 02								
Project :									Sheet No : 1								
Location :									Date : 01/03/2007								
Material For :									Revised :								
JobNo :									Drawn by :								
Drawing Sheet No : 02																	
Item	No. Pcs	Size	Length	Mark	Type	A	B	C	D	E	F	G	H	J	K	O	R
1	28	#4	8'-5"	401	T1	0'-4 1/2"	1'-8"	2'-2"	1'-8"	2'-2"		0'-4 1/2"	0'-3"				
2	35	#4	8'-5"	401	T1	0'-4 1/2"	1'-8"	2'-2"	1'-8"	2'-2"		0'-4 1/2"	0'-3"				

**Figure 10.8.4:1 Bar List Preview for Drawing Sheet 02**

- ▶ You can also export the document to an electronic format such as PDF.
- ▶ Select **File** → **Export Document** or 

Check that the *File Types* list has a tick beside PDF and then type in a suitable filename to create a PDF copy of the Bar List
- ▶ Close the *Print Preview* dialog
- ▶ Select **Settings** → **Configure** and pick the *Bar List* tab
- ▶ Select the option Include Standard Straight Bars
- ▶ Select *Apply* and *Close*
- ▶ Select **File** → **Print Preview** or 

**Figure 10.8.4:2 Bar List Preview for Drawing Sheet 02 showing both Straight and Bent Bars**

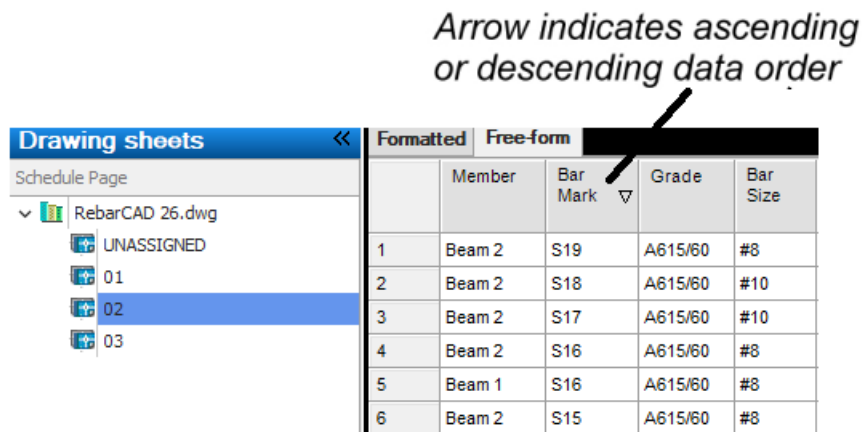
You can produce a custom report from the bar bending data using *Free-Form* view. To access this option, open the Bar List, select the Drawing Sheet you want and then select the *Free-Form* tab in the *Data Area*, as shown below in figure 9.6:1.

**Figure 10.9:1 Free-Form tab**

## 10.9.1 Changing the Bar Data Display Order

The bar bending data will initially be displayed in the order in which the bars were created on the drawing. You can change this order through the Bar List column headers – clicking in turn on a particular column header will sort the bar bending data into ascending or descending order.

*Arrow indicates ascending or descending data order*

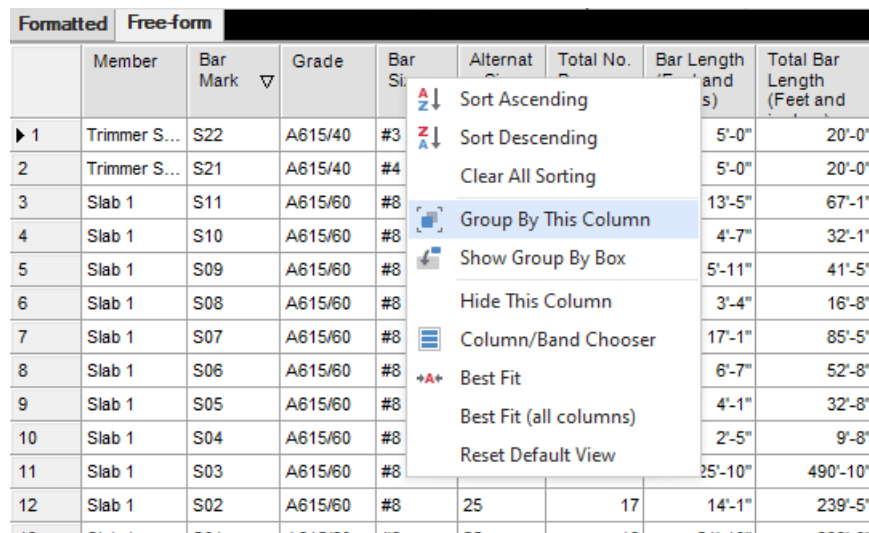


	Member	Bar Mark	Grade	Bar Size
1	Beam 2	S19	A615/60	#8
2	Beam 2	S18	A615/60	#10
3	Beam 2	S17	A615/60	#10
4	Beam 2	S16	A615/60	#8
5	Beam 1	S16	A615/60	#8
6	Beam 2	S15	A615/60	#8

**Figure 10.9.1:1 Changing Data Order by clicking on the field header**

## 10.9.2 Grouping the Bar Data

You can group bars with the same property by right clicking on the column header and selecting the *Group by This Column* option, shown in figure 9.6.2:1 below. You can group several columns if required, by selecting them one at a time. These can be ungrouped by selecting the *Ungroup* option.



	Member	Bar Mark	Grade	Bar Size	Alternat	Total No.	Bar Length (Feet and Inches)	Total Bar Length (Feet and Inches)
1	Trimmer S...	S22	A615/40	#3			5'-0"	20'-0"
2	Trimmer S...	S21	A615/40	#4			5'-0"	20'-0"
3	Slab 1	S11	A615/60	#8			13'-5"	67'-1"
4	Slab 1	S10	A615/60	#8			4'-7"	32'-1"
5	Slab 1	S09	A615/60	#8			5'-11"	41'-5"
6	Slab 1	S08	A615/60	#8			3'-4"	16'-8"
7	Slab 1	S07	A615/60	#8			17'-1"	85'-5"
8	Slab 1	S06	A615/60	#8			6'-7"	52'-8"
9	Slab 1	S05	A615/60	#8			4'-1"	32'-8"
10	Slab 1	S04	A615/60	#8			2'-5"	9'-8"
11	Slab 1	S03	A615/60	#8			25'-10"	490'-10"
12	Slab 1	S02	A615/60	#8	25	17	14'-1"	239'-5"

**Figure 10.9.2:1 Grouping Data by Column Headers**

The figure below shows the effect of grouping by bar size. Different bar sizes are grouped separately and a total weight displayed for each such group, as shown for Bar Sizes 10, 20 and 25 in figure 9.6.2:2. You can then click on the + mark to expand the group to see which Bar Marks have been included, as shown here for Bar Sizes 20 and 25.

Drawing sheets		Formatted Free-form												
Schedule Page		Member	Bar Mark	Grade	Bar Size	Alternat e Size	Total No. Bars	Bar Length (Feet and inches)	Total Bar Length (Feet and	Bend Type	Shape Category	Weight per Bar (lbs)	Total Weight (tons)	
RebarCAD 26.dwg		Bar Size: #2 Total Weight : 0.047												
UNASSIGNED		1	Side ...	201	A615/60	#2	7	152	3'-8"	557'-4"	17	Heavy	0.61	0.047
01		Bar Size: #3 Total Weight : 0.004												
02		2	Trim...	S22	A615/40	#3	10	4	5'-0"	20'-0"		Straight	1.88	0.004
03		Bar Size: #4 Total Weight : 0.007												
		3	Trim...	S21	A615/40	#4	13	4	5'-0"	20'-0"		Straight	3.34	0.007
		Bar Size: #8 Total Weight : 1.950												

**Figure 10.9.2:2 Results of Grouping by Bar Size**

### 10.9.3 Moving Column Fields within the Free-Form Viewer

You can add or remove columns by right clicking on a column header and selecting the *Column Chooser* option. This will display a list of available columns any of which you can drag to the column header area as required. And if you want to remove columns then simply drag them from the column header area into this column list window.

Formatted Free-form											
	Member	Bar Mark	Grade	Bar Size	Alternate Size	Total No. Bars	Bar Length (Feet and inches)	Total Bar Length (Feet and inches)	Bend Type		
1	Trimmer S...	S22	A615/40	#3	10	4	5'-0"	20'-0"			
2	Trimmer S...	S21	A615/40	#4	13	4	5'-0"	20'-0"			
3	Slab 1	S11	A615/60	#8	25	5	13'-5"	67'-1"			
4	Slab 1	S10	A615/60	#8	25	7	4'-7"	32'-1"			
5	Slab 1	S09	A615/60	#8	25	7	5'-11"	41'-5"			
6	Slab 1	S08	A615/60	#8	25						
7	Slab 1	S07	A615/60	#8	25						
8	Slab 1	S06	A615/60	#8	25						
9	Slab 1	S05	A615/60	#8	25						
10	Slab 1	S04	A615/60	#8	25						
11	Slab 1	S03	A615/60	#8	25						
12	Slab 1	S02	A615/60	#8	25						
13	Slab 1	S01	A615/60	#8	25						
14	Side Steel	201	A615/60	#2	7						

Customization

- Billing Code
- Diameter
- Drawing sheet
- Gross Length (Feet and inches)
- Member Description
- Nett Length (Feet and inches)
- No. of Bars in Each
- No. of Members
- Release Description
- Release Number
- Revision Mark
- Set Number
- Shape Category
- Shape Code

**Figure 10.9.3:1 Add extra columns to the free-form view**

Formatted		Free-form							
	Member	Bar Mark ▾	Shape Category	Grade	Bar Size	Alternate Size	Total No. Bars	Bar Length (Feet and inches)	Total Bar Length (Feet and inches)
▶ 1	Trimmer S...	S22	Straight	A615/40	#3	10	4	5'-0"	20'-0"
2	Trimmer S...	S21	Straight	A615/40	#4	13	4	5'-0"	20'-0"
3	Slab 1	S11	Straight	A615/60	#8	25	5	13'-5"	67'-1"
4	Slab 1	S10	Straight	A615/60	#8	25	7	4'-7"	32'-1"
5	Slab 1	S09	Straight	A615/60	#8	25	7	5'-11"	41'-5"
6	Slab 1	S08	Straight	A615/60	#8	25	5	3'-4"	16'-8"
7	Slab 1	S07	Straight	A615/60	#8	25	5	17'-1"	85'-5"
8	Slab 1	S06	Straight	A615/60	#8	25	8	6'-7"	52'-8"
9	Slab 1	S05	Straight	A615/60	#8	25	8	4'-1"	32'-8"
10	Slab 1	S04	Straight	A615/60	#8	25	4	2'-5"	9'-8"

**Figure 10.9.3:2 Result of adding a new column, Shape Category, from the list**

## 10.9.4 Printing the Free-Form View

Once you have prepared the report to show the information wanted in the form you need then select the *Print* or *Print Preview* option from the Bar List → File menu.

The sample report in figure 9.6.4:1 below shows a report listing bars of type H Type grouped into bar sizes.

Member	Bar Mark	Shape Category	Grade	Bar Size	Alternate Size	Total No. Bars	Bar Length (Feet and inches)	Total Bar Length (Feet and inches)	Bend Type	Weight per Bar (lbs)	Total Weight (tons)
Bar Size: #2 Total Weight : 0.047'											
Side	201	Heavy	A615/60	#2	7	152	3'-8"	557'-4"	17	0.61	0.047
Bar Size: #3 Total Weight : 0.004'											
Trimm	S22	Straight	A615/40	#3	10	4	5'-0"	20'-0"		1.88	0.004
Bar Size: #4 Total Weight : 0.007'											
Trimm	S21	Straight	A615/40	#4	13	4	5'-0"	20'-0"		3.34	0.007
Bar Size: #8 Total Weight : 1.950'											
Slab	S01	Straight	A615/60	#8	25	18	21'-10"	393'-0"		58.29	0.525
Slab	S02	Straight	A615/60	#8	25	17	14'-1"	239'-5"		37.60	0.320
Slab	S03	Straight	A615/60	#8	25	19	25'-10"	490'-10"		68.97	0.655
Slab	S04	Straight	A615/60	#8	25	4	2'-5"	9'-8"		6.45	0.013
Slab	S05	Straight	A615/60	#8	25	8	4'-1"	32'-8"		10.90	0.044
Slab	S06	Straight	A615/60	#8	25	8	6'-7"	52'-8"		17.58	0.070
Slab	S07	Straight	A615/60	#8	25	5	17'-1"	85'-5"		45.61	0.114
Slab	S08	Straight	A615/60	#8	25	5	3'-4"	16'-8"		8.90	0.022
Slab	S09	Straight	A615/60	#8	25	7	5'-11"	41'-5"		15.80	0.055
Slab	S10	Straight	A615/60	#8	25	7	4'-7"	32'-1"		12.24	0.043
Slab	S11	Straight	A615/60	#8	25	5	13'-5"	67'-1"		35.82	0.090
											2.007 tons




**Figure 10.9.4:1 Report showing H Reinforcement grouped into Bar Sizes, ready for printing**

The *Print Preview* option of the Free-Form View will let you see exactly how the report will look when printed. This is shown below in figure.

Formatted	Free-form											
	Member	Bar Mark	Shape Category	Grade	Bar Size	Alternate Size	Total No. Bars	Bar Length (Feet and inches)	Total Bar Length (Feet and inches)	Bend Type	Weight per Bar (lbs)	Total Weight (tons)
	[-] Bar Size: #2 Total Weight : 0.047'											
1	Side ...	201	Heavy	A615/60	#2	7	152	3'-8"	557'-4"	17	0.61	0.047
	[-] Bar Size: #3 Total Weight : 0.004'											
2	Trimm...	S22	Straight	A615/40	#3	10	4	5'-0"	20'-0"		1.88	0.004
	[-] Bar Size: #4 Total Weight : 0.007'											
3	Trimm...	S21	Straight	A615/40	#4	13	4	5'-0"	20'-0"		3.34	0.007
	[-] Bar Size: #8 Total Weight : 1.950'											
4	Slab 1	S01	Straight	A615/60	#8	25	18	21'-10"	393'-0"		58.29	0.525
5	Slab 1	S02	Straight	A615/60	#8	25	17	14'-1"	239'-5"		37.60	0.320
6	Slab 1	S03	Straight	A615/60	#8	25	19	25'-10"	490'-10"		68.97	0.655
7	Slab 1	S04	Straight	A615/60	#8	25	4	2'-5"	9'-8"		6.45	0.013

**Figure 10.9.4:2 Print Preview of Free-Form View**

## 10.9.5 Try It! Creating a Free-Form Report

- ▶ Open drawing ...\\drawings\\ RebarCAD 26.dwg
- ▶ Make the Viewport on Slab 1 (01) Layout active
- ▶ Select RebarCAD → View Bar List or 
- By default, the formatted view of the first Drawing Sheet (01) should be displayed.
- ▶ Select Drawing Sheet 02 from the Navigation Area
- ▶ Select the *Free-Form* tab
- ▶ Right click on the *Member* column header and select *Group by this Column*
- ▶ Right click on the *Bar Size* column header and select *Group by this Column*
- ▶ Expand all of the groupings by selecting the  symbol
- ▶ Select Print Preview 

## 10.10 Bar List Menu Options

### 10.10.1 File Menu Options

#### Print Preview

When you are in Formatted mode, you can view and print these three reports:

- ▶ Bar List
- ▶ Weight
- ▶ Weight Summary

All the reports are previewed in the template style selected in the Bar List configuration settings. In free-form mode you can print exactly what you have Customised in the free-form Bar List view.

#### Print

This is the standard *Windows* command, used here to print reports. There's a description of how to use it in section 9.5.

#### Exit

This closes the Bar List viewer.

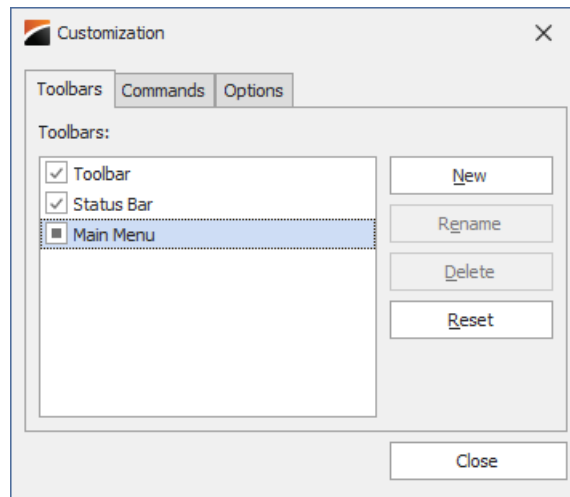
### 10.10.2 9.7.2 Edit Menu Options

See section 9.4.1 above for information on the Edit menu options.

### 10.10.3 9.7.3 View Menu Options

#### Toolbar

This is a standard Windows *View* menu item. You can Customise your toolbars display through this menu option.



**Figure 10.10.3:1 Toolbar Customisation dialog**

#### Refresh

In certain very occasional circumstances the Bar List may not get refreshed automatically. You can, however, force a refresh by selecting this option or by pressing the F5 key. If refresh is used any customisation made in the Free-Form View will be lost.

### 10.10.4 9.7.4 Production Menu Options

Not covered in this Tutorial as this is relevant to RebarCAD only

### 10.10.5 9.7.5 Review Menu Options

See Chapter 11, Issuing and Revisions.

### 10.10.6 9.7.6 Issue Bar List

See Chapter 11, *Issuing and Revisions* for details concerning Issuing Bar Bar Lists

### 10.10.7 9.7.7 Settings Menu Options

#### Configure

Clicking on the *Configure* option will open the *Bar List Configure* dialog through which you can set default values for the Bar List. This configuration option also lets you adjust settings for display, the revision system, the production output/fabrication system and for the printed reports. Please refer to the **RebarCAD Customisation & Configuration Guide** for more detail.

### Load Configuration


Selecting *Load Configuration* will open the *Load Configuration* dialog box. This lists any configuration files prepared for your project and lets you select whichever you need, optionally using the *Browse* button to search in other folders. Please refer to the **RebarCAD Customisation & Configuration Guide** for more detail.


## 10.11 Bar List Configuration

RebarCAD ships with the Bar List preconfigured to what is most commonly used. The program includes the RebarCAD Customization & Configuration Guide and this explains what each of the settings does and how they influence the Bar List.

This Tutorial periodically makes reference to relevant Bar List Configuration Items when it seems useful or helpful to do so.

## 10.12 Key points – Interacting with the Bar List

- ▶ There has to be at least one Drawing Sheet defined before the *Bar List* dialog box can be opened.
- ▶ To make the *Bar Draw* dialog default to a specific Member set it as current.
- ▶ Use the *Assign Bars to Members* command, , to assign existing bars to a Member.
- ▶ You can view information about Members from inside the Bar List.
- ▶ Use the mode selector buttons in the *Mode Area* to select whether Drawing Sheets, Members or Releases are shown in tree view in the *Navigation Area*.
- ▶ The *Data Area* shows bar bending data for a particular Drawing Sheet, Member or Release depending on what is selected in the *Navigation Area*.
- ▶ Formatting options can be applied only to the formatted view and not to the free-form view.
- ▶ You can select *Formatted View* only in Drawing Sheet mode.
- ▶ The free-form style can be used to produce quick queries and reports.
- ▶ Select the *Free-Form* tab to switch to free-form mode.
- ▶ The *Free-Form* view does not show combined bars.
- ▶ Right click on the column headers to see available options such as to sort or group bars.
- ▶ Select a bar in the Bar List and use a right mouse click to find available editing options.

- ▶ Some manual formatting option that can be carried out inside the Bar List may result in conflict with the automatic formatting options. This will result in the automatic formatting options being reset.
- ▶ Ensure you have the correct Drawing Sheet selected before doing a print.
- ▶ You can configure the Bar List on a drawing to be by Release or by Drawing Sheet.
- ▶ The *Preview* dialog includes some additional export options. (e.g. PDF, Excel).
- ▶ The Bar List on drawing will display an 'INVALID' message if subsequent edits are made to the bars being shown. The Bar List can be refreshed by using the *Refresh Bar List on Drawing* command,  .

## 10.13 Command List – Interacting with the Bar List

Action	Menu Selection	Toolbar	Icon
View Bar List	RebarCAD → View Bar List	Utilities	

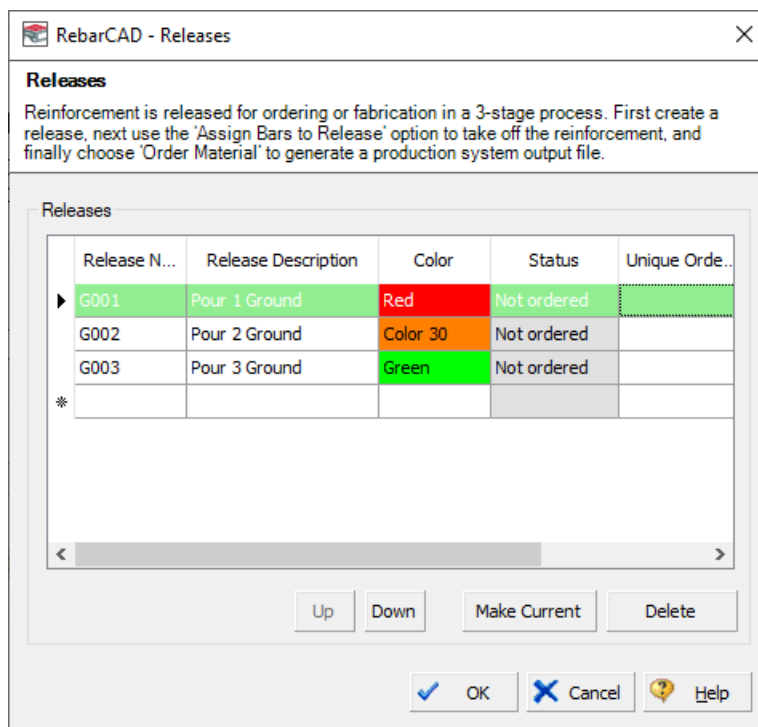
# 11 Order Materials (Production Output)

## 11.1 Introduction

This section covers creating and assigning bars to Releases and then ordering those Releases. Use the **Order Materials** command when outputting rebar for fabrication.

## 11.2 Creating and Setting a Release

To load the *Set Release* dialog select **RebarCAD → Draw Bar** or click on the  icon.



**Figure 11.2:1 Set Release Dialog**


This dialog box allows you to create Releases by specifying the Release Number, description and color. The Release Number can contain both letters and numbers as required. You can set the Release of a Bar Set before it has been drawn by highlighting a Release on the List and setting it as the current one by using the *Make Current* button.

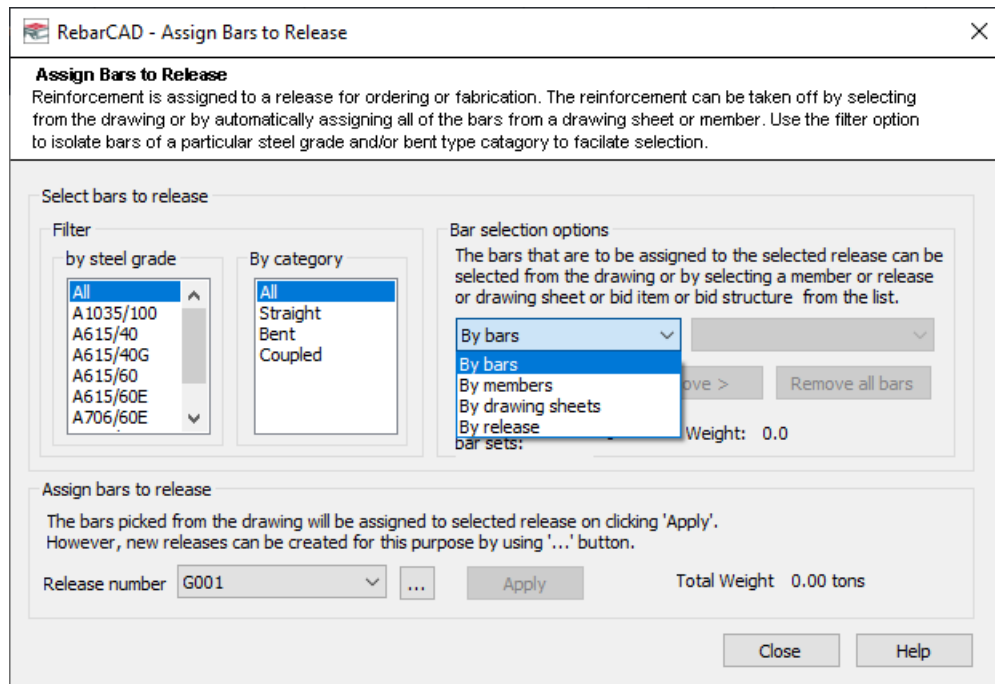
The *Status*, *Unique Order Number* and *Order Date* cannot be edited in this dialog but will automatically update when a Release has been ordered.

You can delete Releases that are surplus to requirements by highlighting them and selecting the *Delete* button.

Note that both Members and Releases are independent methods of grouping bars. There is no direct correlation between the two. There is an option in the **Assign Bars to Release** command to assign a Member as a whole to a Release.

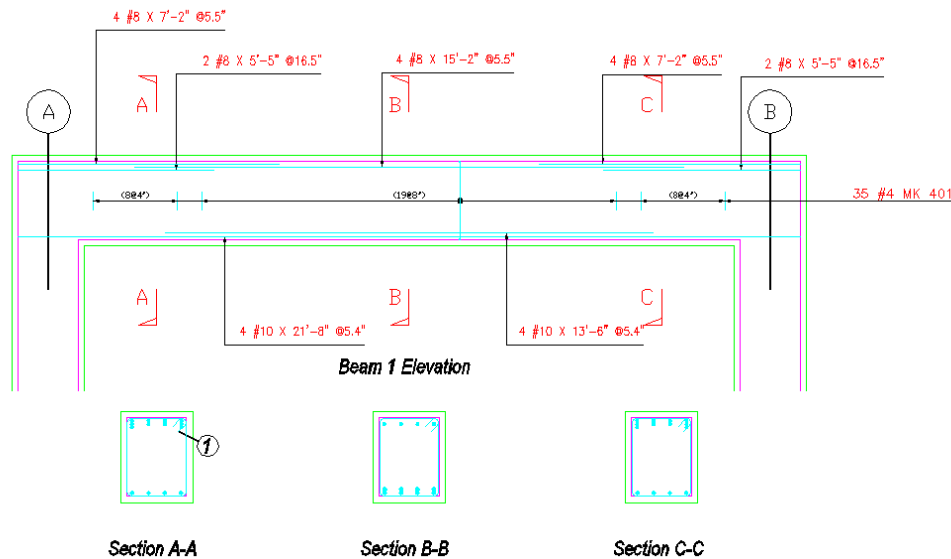
## 11.3 Assigning Bars to a Release

You can assign existing bars on the drawing to a Release by using the **Assign Bars to Release** command, .



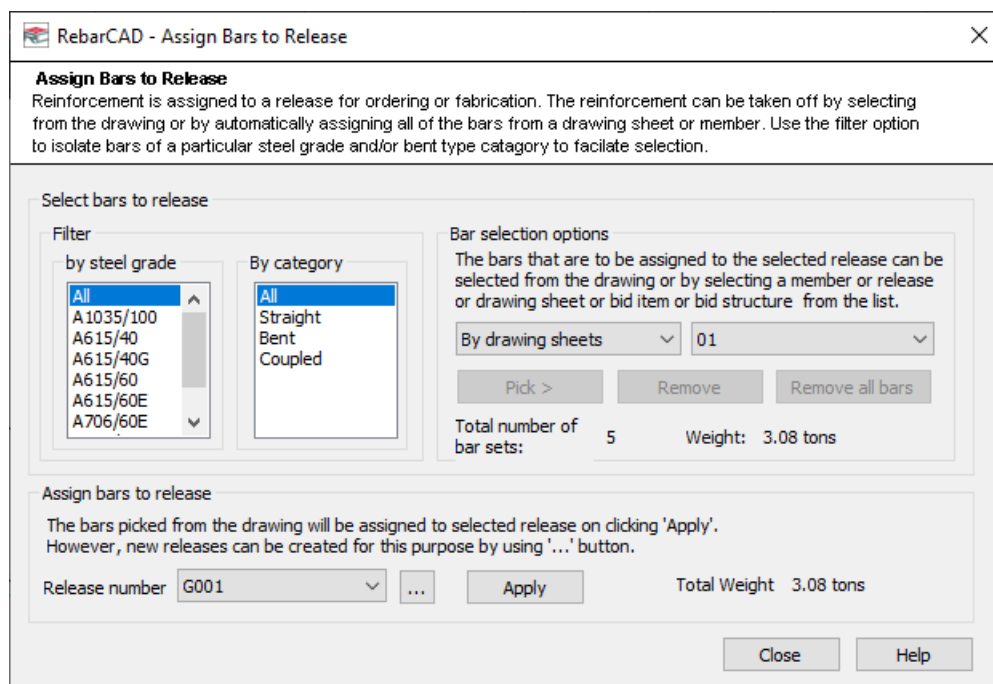
**Figure 11.3:1 Assigning Bars to a Release by selecting them on the drawing**

Use the selection buttons to build up a list of bars to be assigned to a Release. Select the required Release from the list and then click *Apply*. You can use the additional filter options to help build up the required selection of bars.




**Figure 10.2:2 Bar Label Changing color after being assigned to a Release**

You can also create a selection of Bar Sets by choosing either Drawing Sheets or Members and then selecting the appropriate sheet or member from the second drop down menu as shown in figure 10.2:3 below.

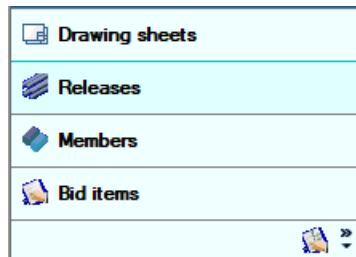


**Figure 10.2:3 Assigning Bars to a Release by Drawing Sheet**

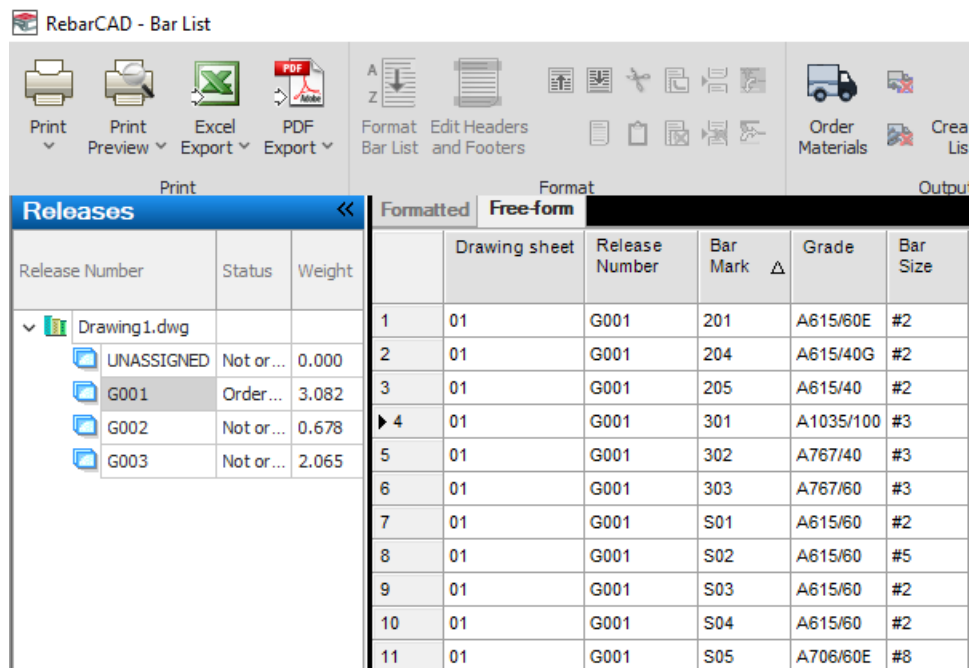
When you select the *Apply* button the bars are assigned to the Release. At the same time the number of selected bars is reset to 0, allowing you to make additional assignments.

You  can select the *browse* button, shown left, at any time to access the *Releases* dialog to create or modify the Releases made.

You can review the status and weight of the individual Releases inside the Bar List by selecting the *Release* options from the *Mode Area* of the Bar List, as shown in figure 10.2:4 below.



**Figure 11.3:4 Selecting the Releases option in the Mode Area of the Bar List**



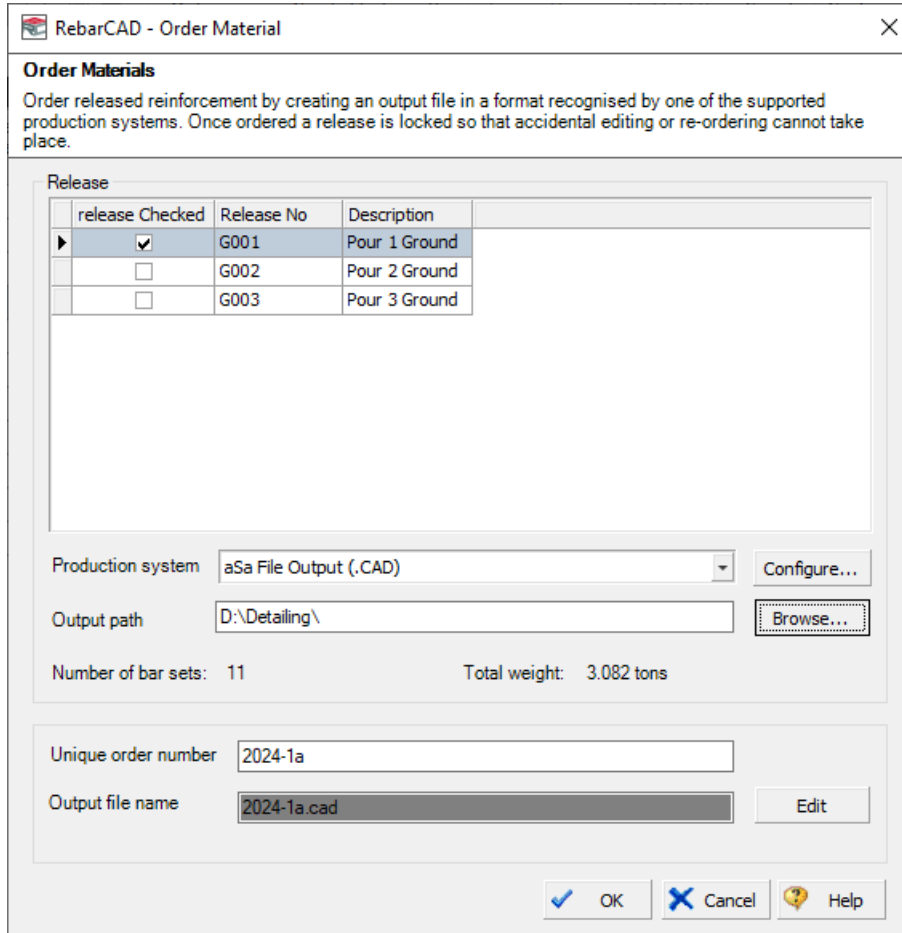
**Figure 11.3:5 Releases are displayed in Free-Form view inside the Bar List**

Selecting a particular Release in the *Navigation Area* of the Bar List will filter the results in the *Data Area* to show just bars belonging to the selected Release. Note that the *Status* column in the tree listing of Releases in the Navigation Area reports that the rebar is currently not ordered.

## 11.4 Ordering Materials

Once you have created a Release and assigned bars to it you can order the rebar for fabrication. Select the **Order Materials** command through **RebarCAD → Production → Order Materials**. The *Order Material* dialog is then displayed and *RebarCAD* automatically loads the Bar List in the

background. Select the Release you wish to output, choose the folder in which to save the output file and type in a unique order number.



**RebarCAD - Order Material**

**Order Materials**  
 Order released reinforcement by creating an output file in a format recognised by one of the supported production systems. Once ordered a release is locked so that accidental editing or re-ordering cannot take place.

release Checked	Release No	Description
<input checked="" type="checkbox"/>	G001	Pour 1 Ground
<input type="checkbox"/>	G002	Pour 2 Ground
<input type="checkbox"/>	G003	Pour 3 Ground

Production system: aSa File Output (.CAD) Configure...

Output path: D:\Detailing\ Browse...

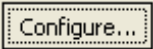
Number of bar sets: 11      Total weight: 3.082 tons

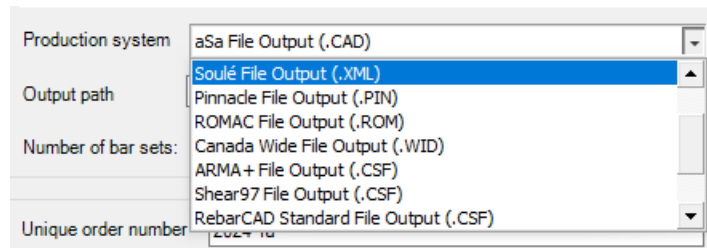
Unique order number: 2024-1a

Output file name: 2024-1a.cad Edit

OK Cancel Help

**Figure 11.4:1 Order Material dialog**

If  the correct *Production* system is not displayed select the *Configure* button shown and choose from the list offered.



Production system: aSa File Output (.CAD) ▼

Output path: Pinnacle File Output (.PIN)

Number of bar sets: ROMAC File Output (.ROM)


Unique order number: Canada Wide File Output (.WID)

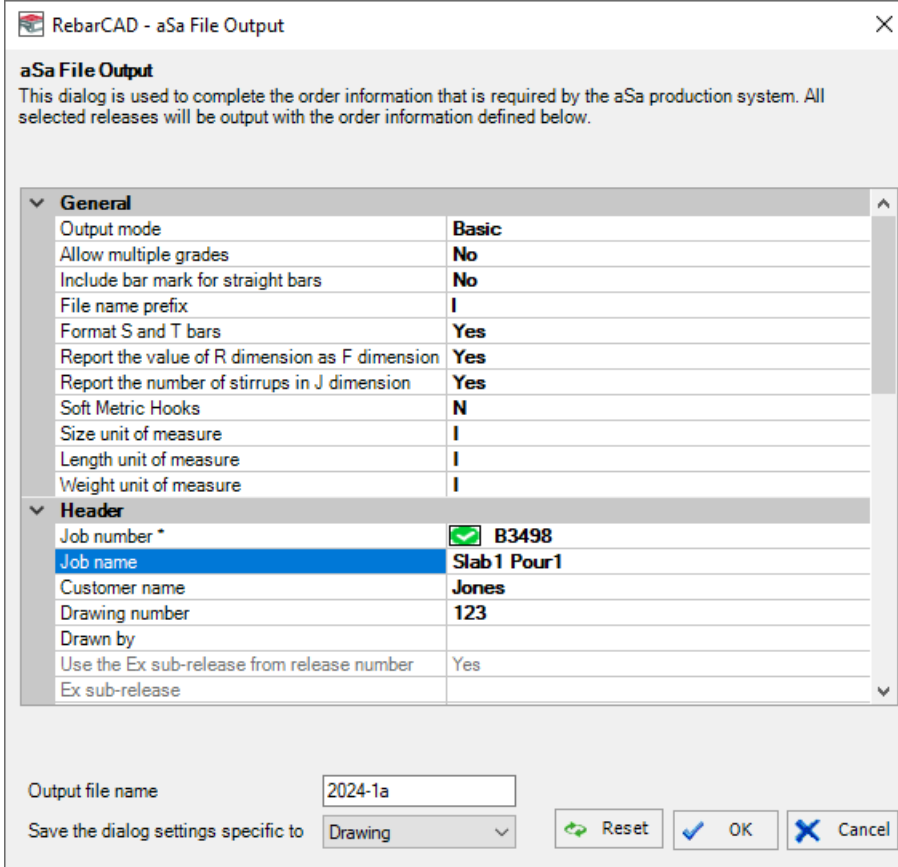
ARMA+ File Output (.CSF)

Shear97 File Output (.CSF)


RebarCAD Standard File Output (.CSF)

**Figure 11.4:2 List of Production Systems supported by RebarCAD**

If the  you need the file name to be different from the Unique Order number select the *Edit* button shown and type in the new name. Select OK to order the rebar. The dialog displayed next will depend on which Production System has been selected. The dialog shown in figure 10.3:3 below is the *aSa File Output* dialog. Further information needs to be added here to complete the order process.

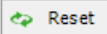
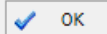



**aSa File Output**  
 This dialog is used to complete the order information that is required by the aSa production system. All selected releases will be output with the order information defined below.

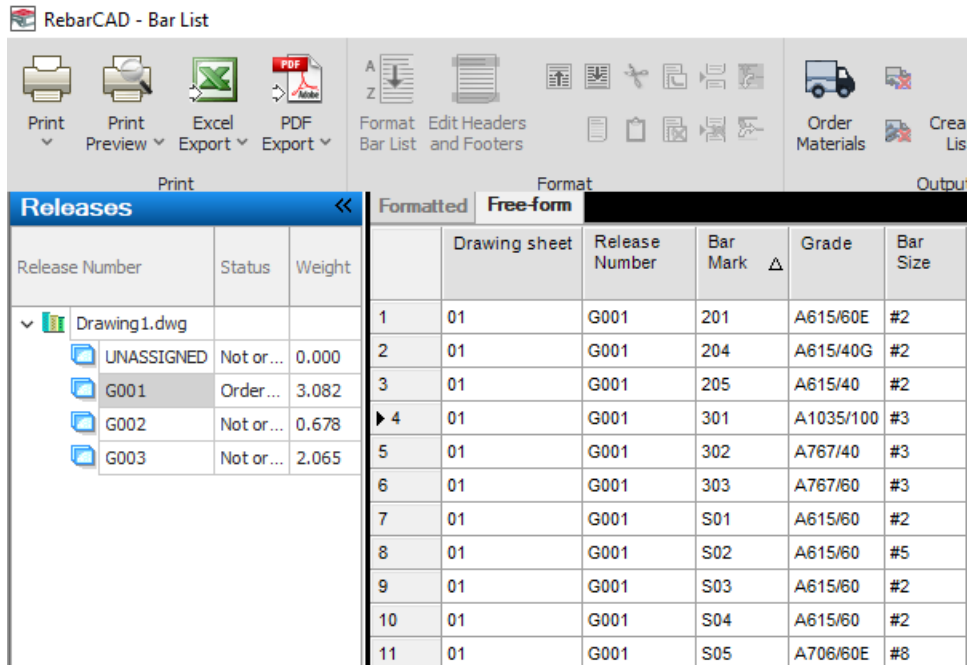
General	
Output mode	Basic
Allow multiple grades	No
Include bar mark for straight bars	No
File name prefix	I
Format S and T bars	Yes
Report the value of R dimension as F dimension	Yes
Report the number of stirrups in J dimension	Yes
Soft Metric Hooks	N
Size unit of measure	I
Length unit of measure	I
Weight unit of measure	I
Header	
Job number *	 B3498
Job name	Slab 1 Pour1
Customer name	Jones
Drawing number	123
Drawn by	
Use the Ex sub-release from release number	Yes
Ex sub-release	

Output file name:

Save the dialog settings specific to:

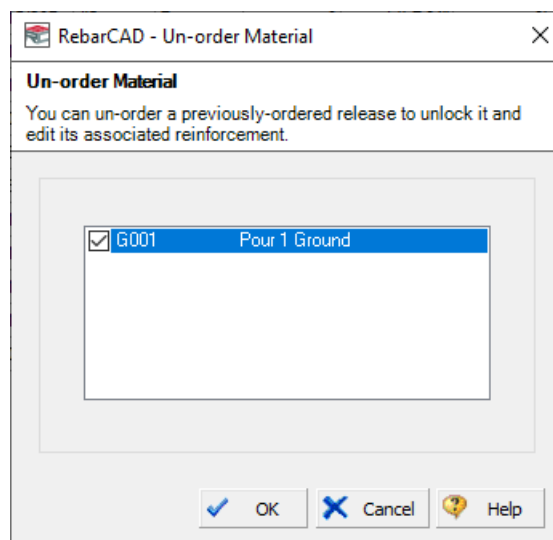
**Figure 11.4:3 aSa File Output dialog**



**Figure 11.4:4 Bar List Showing Release G001 ordered**

## 11.5 Un-Order Materials


You may sometimes wish to cancel an order and you can use the **Un-Order Materials** command to do this. Select this through **RebarCAD → Production → Un-Order Materials**. The *Un-Order Material* dialog is displayed with the Bar List displayed in the background. Only the Releases that have already been ordered are displayed. Tick the one required and select OK.



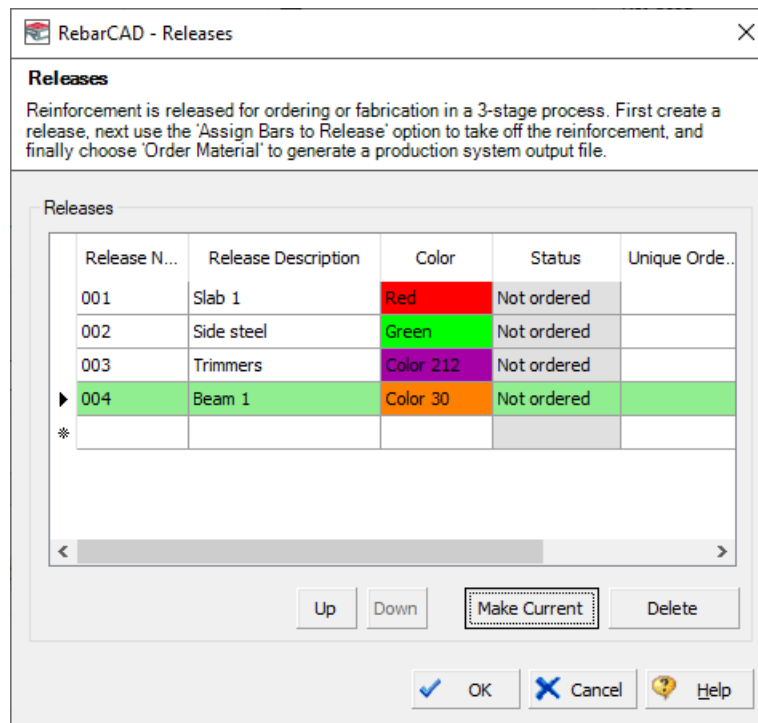
**Figure 11.5:1 Un-Order Material dialog**

## 11.6 Try It! Ordering Rebar


- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 26.dwg
- ▶ Make the Viewport on *Beams 1 & 2 (02) Layout* active
 

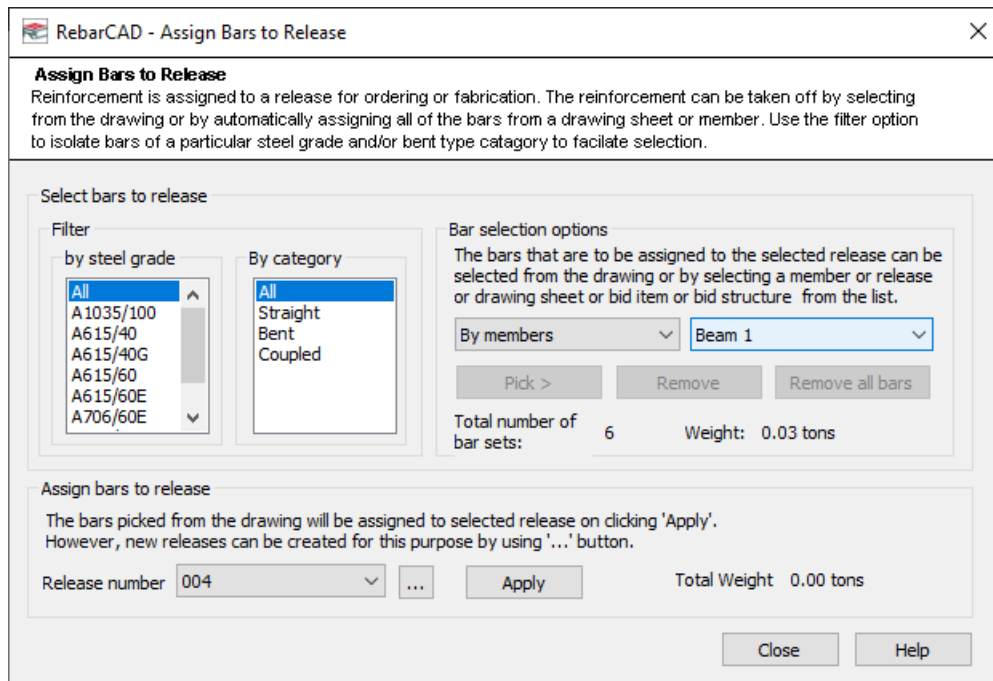
First you need to create a Release and then assign rebar to that Release.
- ▶ Select RebarCAD → Draw Bar → Set Release or 

In the *Releases* dialog create a Release called **004**  
 Type in **Beam 1** for the description and set the color to **Orange**.  
 Make this current by selecting the *Make Current* button.
- ▶ Select OK to exit the dialog



**Figure 11.6:1 Create a Release dialog**

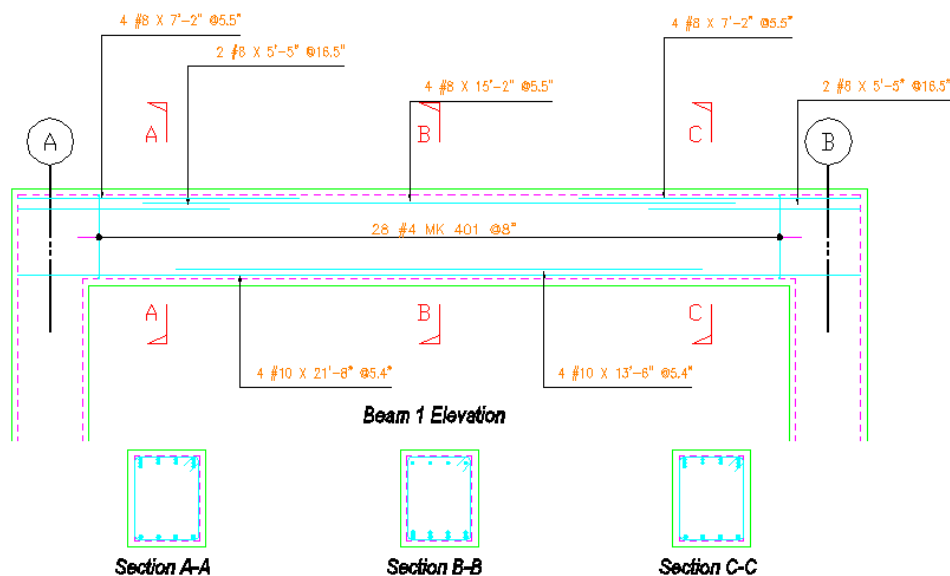
- ▶ Select RebarCAD → Production → Assign Bars to Release or 



**Figure 11.6:2 Assign Bars to Release dialog**

- ▶ As this drawing has had its rebar already assigned to Members set the Bar Selection Options to *By Member* and select *Beam 1* from the list of Members
- ▶ Ensure the Release Number is set to *004* and then select *Apply* and then *Close*

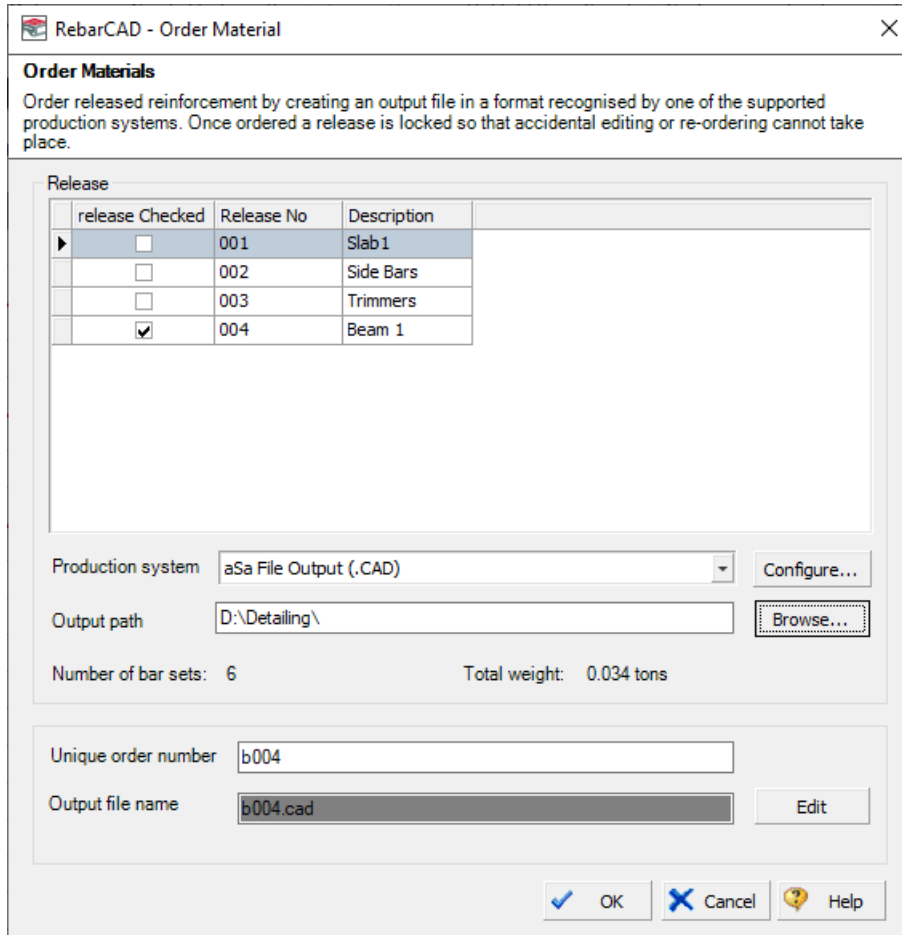
All the Bar Labels selected for Release 004 will now change color to red, making it easy to identify them on the drawing.



**Figure 10.5:3 Rebar Assigned to Release 001 shown in orange**

Next you can order the rebar assigned to Release 004.

- Select RebarCAD → Production → Order Materials



**Order Materials**  
 Order released reinforcement by creating an output file in a format recognised by one of the supported production systems. Once ordered a release is locked so that accidental editing or re-ordering cannot take place.

release	Checked	Release No	Description
►	<input type="checkbox"/>	001	Slab 1
	<input type="checkbox"/>	002	Side Bars
	<input type="checkbox"/>	003	Trimmers
	<input checked="" type="checkbox"/>	004	Beam 1

Production system: aSa File Output (.CAD) Configure...

Output path: D:\Detailing\ Browse...

Number of bar sets: 6      Total weight: 0.034 tons

Unique order number: b004

Output file name: b004.cad Edit

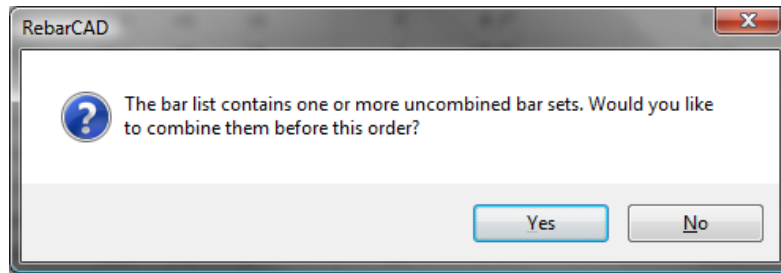
OK Cancel Help

**Figure 11.6:4 Order Material dialog**

- Select Release 004 and specify where to save the output file.

This drawing has been configured to output to aSa. If you require a different production system then select the *Configure* button and choose another one. Enter a unique *Order Number* and select OK.

Depending on which production system you have configured you may be asked to specify additional data. Input the data shown below in figure 10.5:5 below.



**Figure 11.6:5 Combining prompt prior to ordering**

**RebarCAD - aSa File Output**

**aSa File Output**  
This dialog is used to complete the order information that is required by the aSa production system. All selected releases will be output with the order information defined below.

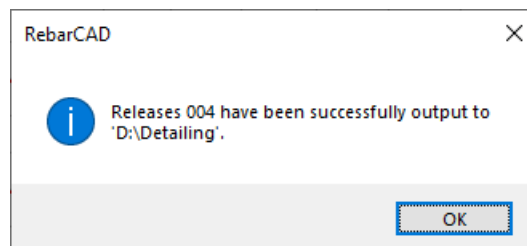
General	
Output mode	Basic
Allow multiple grades	No
Include bar mark for straight bars	No
File name prefix	I
Format S and T bars	Yes
Report the value of R dimension as F dimension	Yes
Report the number of stirrups in J dimension	Yes
Soft Metric Hooks	N
Size unit of measure	I
Length unit of measure	I
Weight unit of measure	I
Header	
Job number *	<input checked="" type="checkbox"/> 1007
Job name	A tower
Customer name	
Drawing number	01
Drawn by	
Use the Ex sub-release from release number	Yes
Ex sub-release	

The selected release(s) contains bar(s) of different grades.  
To support multiple grades, set the "Allow multiple grades" to "Yes".

Output file name:

Save the dialog settings specific to:

**Figure 11.6:6 aSa File Output dialog**



**Figure 11.6:7 Confirmation of Production File creation**

- ▶ Use *Windows Explorer* (accessible through the desktop <ComputerName> or *My Computer* icon) or some suitable search system to confirm the creation of the appropriate file.

Typical Contents of the b004.CAD Output File






```

1A 1007          a tower      0 0      NIII
2R 4T 1  401  0042 108 202 108 202  0042      805
8
3A 1007  004  b00 Beam 1      02
3B      60  60  40000
3J
6R  28      401
6R  4  10 2108
6R  4  10 1306
6R  4  8 1502
6R  4  8 505
6R  8  8 702
8 WEIGHT: 1136 DEF: I3TTTYA  XX X  X
  
```

## 11.7 Key points - Order Materials

- ▶ Members' quantity options in v9 have replaced the Releases quantity option in v8.
- ▶ You can use Members to quickly build up Releases.
- ▶ All ordered bars will be locked against future editing. Use un-order if required.
- ▶ The *Draw Bar* dialog defaults to the Release that is set to current in the Release dialog.

## 11.8 Command List – Order Materials

Action	Menu Selection	Toolbar	Icon
View Bar List	RebarCAD → View Bar List	Utilities	
Set Current Drawing Sheet	RebarCAD → Draw Bar → Set Current Drawing Sheet...	Draw Bar	
Define Release	RebarCAD → Draw Bar → Set Release ...	Draw Bar	
Assign Bars to Release	RebarCAD → Editing → Assign Bars to Release	Editing	
Order Materials	RebarCAD → Production → Order Materials		


## 12 Place Bar List

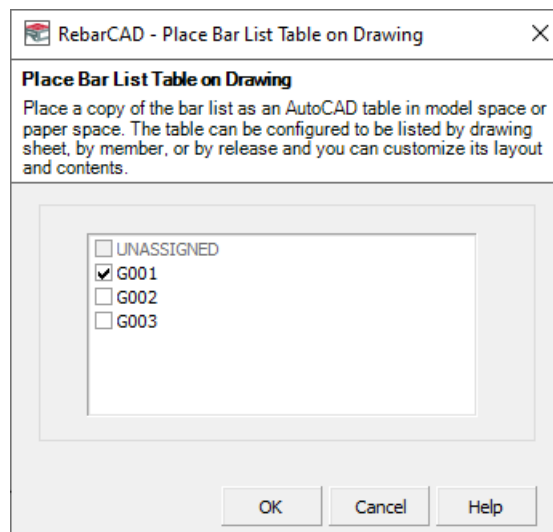
### 12.1 Introduction

The Place Bar List on Drawing command will place a copy of the Formatted Bar List View on the drawing either in Layout or Model Space. The Bar List by default is placed by Release. Any manual formatting carried out in the Free-Form View of the Bar List will not be carried over. You can also place a list of the Bar Marks used on the drawing using the Place Bar List on Drawing command.

### 12.2 Place Bar List on Drawing

The Place Bar List on Drawing command draws your Bar List on the drawing using a customisable *AutoCAD* table. The style and format of the *Bar List Table* is set using the *Configure Bar List Settings* dialog. This is described more fully in the *RebarCAD Customisation & Configuration Guide*.


You can access the command through RebarCAD → Place Bar List → Place Bar List on Drawing or the toolbar icon . You will be asked to pick a Release, a Member or a Drawing Sheet from the *Place Bar List Table on Drawing* dialog. The Bar List configuration controls which of these items is displayed in the dialog.



**Figure 12.2:1 Place Bar List Table on Drawing dialog**

RebarCAD will then draw a preview of the Bar List and ask you to position it on the drawing.

The Bar List can be placed on the drawing in either Model Space or Layout Space. The Bar List on Drawing table is linked to the Bar List Viewer. If any editing of the reinforcement entities takes place and this results in a change in the Bar List RebarCAD will display the word INVALID across it.

The Bar List on Drawing can be refreshed to match the contents of the Bar List Viewer by running the Refresh Bar List on Drawing Command. You can access the command through CADs-RC → Place Bar List → Refresh Bar List on Drawing or the toolbar icon .

Weight by Release	
Release Numbers	Weight
UNASSIGNED	0.000
G001	1.596
G002	0.000
G003	0.000
Total Weight	1.596

BAR LIST																
Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'D'	'R'
S04	4	#10	13'-6"			13'-6"										
S05	4	#10	21'-8"			21'-8"										
S03	4	#8	15'-2"			15'-2"										
S02	2	#8	5'-5"			5'-5"										
S01	4	#8	7'-2"			7'-2"										
S06	35	#5	17'-8"			17'-8"										
S01	4	#8	7'-2"			7'-2"										
S02	2	#8	5'-5"			5'-5"										
S08	35	#6	13'-10"			13'-10"										
S07	17	#4	10'-0"			10'-0"										
601	18	#6	19'-8"	17		1'-0"	17'-8"	1'-0"								
401	35	#4	8'-5"	T1	0'-4 #4	1'-8"	2'-2"	1'-8"	2'-2"		0'-4 #4	0'-3"				

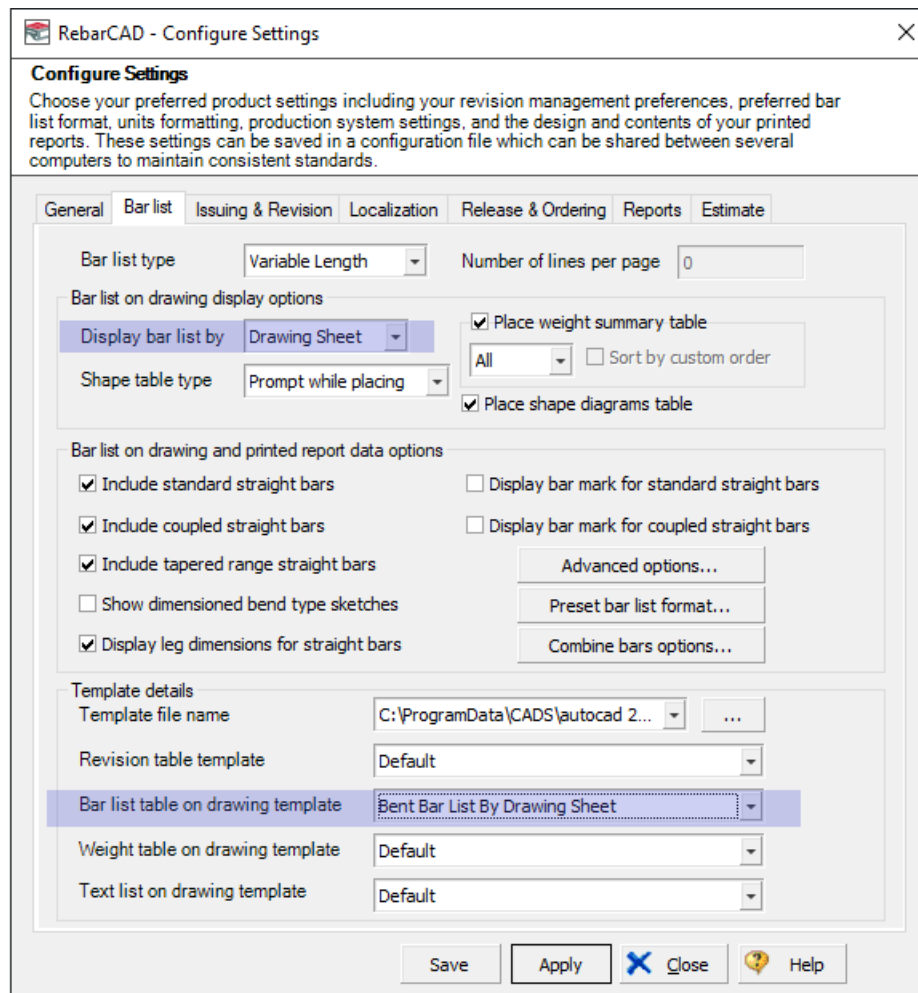
**Figure 12.2:2 Bar List, Weight Summary and Bend Type Diagrams on Drawing**

## 12.2.1



### Hints & Tips – Placing Bar List by Drawing Sheet

By default, you can only place the bar list on drawing if you have created and assigned bars to a Release. If you want to place the bar list on the drawing and you have not assigned bars to a Release you will need to reconfigure *RebarCAD* to place the bar list by Drawing Sheet. Select **RebarCAD → Configuration → Configuration Centre → Configure Bar List Settings** and then select the **Bar List Tab**.



**Figure 12.2:3 Configuring to Place Bar List by Drawing Sheet**

In the Bar List on drawing display options set the *Display Bar List* by to *Drawing Sheet*.


In the Template details set the Bar List table on drawing template to Bent Bar List by Drawing Sheet.

Pick *Apply* and *Close* if you only want to use this feature on the current drawing.

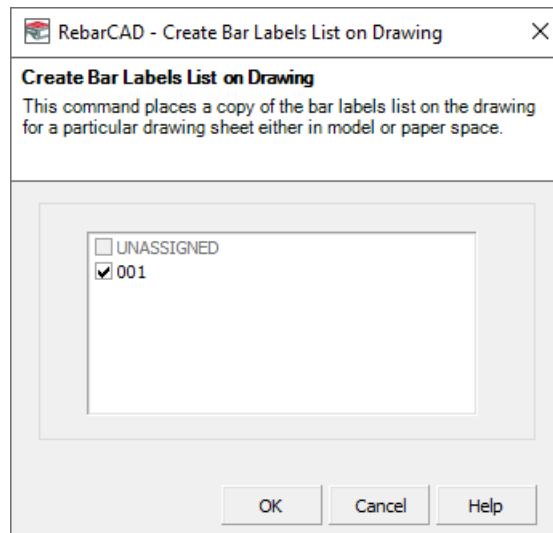
Pick *Save* and *Close* if you want to use this feature for all new drawings.

You can now Place the Bar List by Drawing Sheet.

## 12.3 Place Bar Labels List on Drawing

The Place Bar Labels on Drawing command adds a list of the entire Bar Marks used by a particular Drawing Sheet on to the drawing. You can access it through RebarCAD → Place Bar List → Place Bar Labels on Drawing or from the toolbar icon .

The command will prompt you to select the required Drawing Sheet from the *Create Bar Labels on Drawing* dialog.



**Figure 12.3:1 Create Bar Labels List on Drawing dialog.**


The list of labels is generated using *AutoCAD Mtext* (multi-line text) and can be placed in either Model or Layout Space.

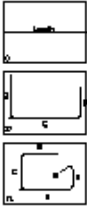
```
[1] 4 #10-S04
[1] 4 #10-S05
[1] 4 #8-S03
[1] 2 #8-S02
[1] 4 #8-S01
[1] 35
#5-S06
[1] 4 #8-S01
[1] 2 #8-S02
[1] 35
#6-S08
[1] 17 #4-S07
[1] 18 #6-601
[1] 35 #4-401
```

**Figure 12.3:2 Example of Bar Labels List on Drawing**

## 12.4 Refresh List On Drawing

The Bar List on Drawing is an AutoCAD table that is linked to the Bar List View. RebarCAD will mark the Bar List on Drawing as invalid if any bars are added to the Release, Member or Drawing Sheet. It will also mark it as invalid if any existing bars are edited in such a way as to cause a material change to the Bar List.

When the command is selected it will redraw all the Bar Lists on drawings that have been marked as *Invalid*. You can access it through **RebarCAD** → Place Bar List → Refresh List on Drawing or by the toolbar icon .




Weight by Release	
Particular Members	Weight
UNASSIGNED	0.000
001	1.596
002	0.000
003	0.000
<b>Total Weight:</b>	<b>1.596</b>

BAR LIST																
Bar Mark	Qty	Size	Total Length	Type	W	D	U	V	E	F	B	H	L	T	R	
004	4	#10	15'-6"													
005	4	#10	21'-8"													
006	4	#8	15'-2"													
008	8	#8	9'-9"													
001	4	#8	7'-2"													
006	25	#8	17'-4"													
001	4	#8	7'-2"													
006	8	#8	9'-9"													
008	35	#8	18'-11"													
007	17	#4	10'-9"													
001	18	#8	17'-8"	12												
001	35	#4	17'-8"	71	0'-4 3/4"	1'-8"	2'-2"	2'-8"	2'-2"			0'-4 3/4"	0'-3"			

Figure 12.4:1 Bar List on Drawing marked as *INVALID* as the drawing has been edited

## 12.4.1 Try It! Place and Update a Bar List on drawing

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ **RebarCAD 27.dwg**
- ▶ Make the Viewport on *Slab 1 (01) Layout* active
- ▶ Select **RebarCAD** → Place Bar List → Place Bar List on Drawing or 

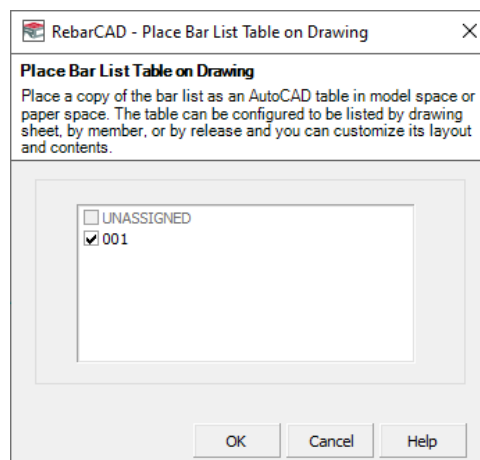


Figure 12.4:1 Place Bar List on Drawing dialog, selecting the Appropriate Release Number

- ▶ Tick the Drawing Sheet and click OK

Specify insertion point of Bar List on drawing page 1:

Pick a point on the drawing above the slab

Specify height of table OR Press <ENTER> to specify no of Bar List lines:

Press Enter

Enter no of rows for table <36>:

Press Enter to accept

Specify arrangement of shape diagrams [Vertical/Horizontal/Area]<Vertical>:

Press enter to accept

Specify insertion point of shape table:

Pick a point to the left of the Bar List

Specify insertion point of weight table:

Pick a point below the Bar List

Release Number: 001				BAR LIST												
Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'D'	'R'
S01	18	#3	21'-10"			21'-10"										
S02	17	#3	14'-1"			14'-1"										
S03	19	#3	25'-10"			25'-10"										
S04	4	#3	2'-5"			2'-5"										
S05	8	#3	4'-1"			4'-1"										
S06	8	#3	6'-7"			6'-7"										
S07	5	#3	17'-1"			17'-1"										
S08	5	#3	3'-4"			3'-4"										
S09	7	#3	5'-11"			5'-11"										
S10	7	#3	4'-7"			4'-7"										
S11	5	#3	13'-5"			13'-5"										

Length	Weight by Release	
	Release Numbers	Weight
	UNASSIGNED	1.844
	001	1.950
	Total Weight	3.794

**Figure 12.4:2 Bar List, Shape Diagrams and Weight by Release on Drawing**

If you modify the rebar associated with Slab 1 the Bar List on Drawing will be marked as *Updated*. You will then need to use the **Refresh List On Drawing** command to refresh it.

- ▶ Select RebarCAD → Editing → Edit Bars

Select one of the Bar Labels on the drawing Change the Bar Centers from 8" to 6" and select OK


The Bar List on the drawing is now shown as *INVALID*

Release Number: 001				BAR LIST												
Bar Mark	Qty	Size	Total Length	Type	'A'	'B'	'C'	'D'	'E'	'F'	'G'	'H'	'J'	'K'	'O'	'R'
S01	10	#8	21'-10"			21'-10"										
S02	17	#8	14'-1"			14'-1"										
S03	19	#8	25'-10"			25'-10"										
S04	4	#8	2'-5"			2'-5"										
S05	8	#8	4'-1"			4'-1"										
S06	9	#8	6'-7"			6'-7"										
S07	5	#8	17'-1"			17'-1"										
S08	5	#8	3'-4"			3'-4"										
S09	7	#8	5'-11"			5'-11"										
S10	7	#8	4'-7"			4'-7"										
S11	5	#8	13'-5"			13'-5"										

Length
0


Weight by Release	
Release Numbers	Weight
UNASSIGNED	1.844
001	1.350
Total Weight	2.794

**Figure 12.4.3 Bar List on Drawing shown as Invalid after editing Bar Properties**




- ▶ Select RebarCAD → Place Bar List → Refresh Bar list on Drawing or 

The Bar List is redrawn in exactly the same place with updated information.

## 12.5 Key points - Place Bar List

- ▶ The *Bar List on Drawing* will display an *INVALID* message if subsequent edits are made to the bars being shown.
- ▶ The Bar List can be refreshed by using the *Refresh Bar List on Drawing* command, .
- ▶ The Bar List can be placed in either layout or Model Space.
- ▶ Use *Place Bar List on Drawing* to keep track of the Bar Marks used.
- ▶ The Bar List can be either a fixed or variable length.

## 12.6 Command List - Place Bar List

Action	Menu Selection	Toolbar	Icon
View Bar List	<b>RebarCAD</b> → View Bar List	RebarCAD	
Place Bar List on drawing	Place Bar List → Place Bar List on Drawing	Place Bar List	
Refresh Bar List on drawing	Place Bar List → Refresh Bar List on Drawing	Place Bar List	

## 13 Issuing and Revisions


### 13.1 Introduction

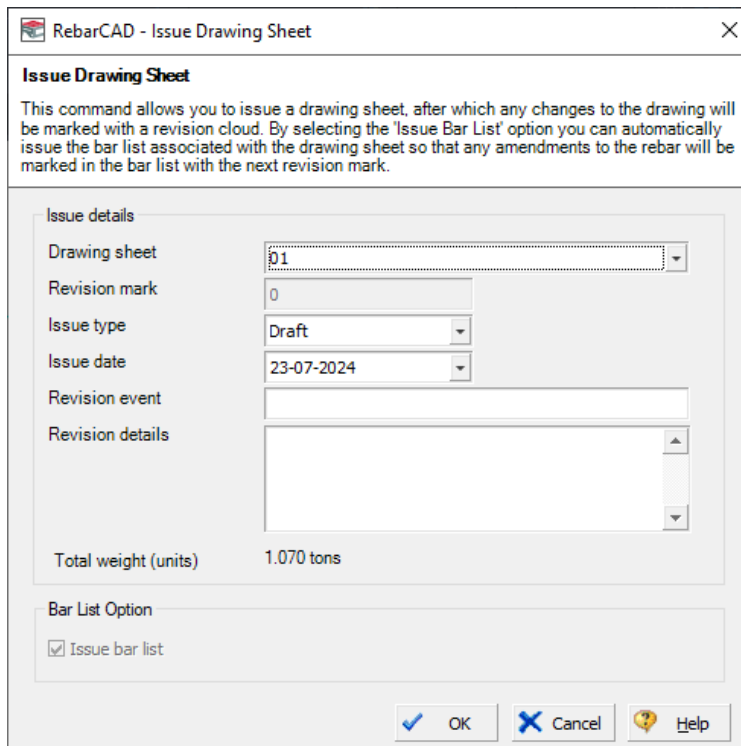
RebarCAD includes a sophisticated issuing and revision system. Once the drawing and Bar List have been completed you can issue them together or individually. Any subsequent editing of the bars will be marked with a revision letter both on the drawing and inside the Bar List.

### 13.2 Issue Drawing Sheet

Use this command to issue a Drawing Sheet. Any changes to the RebarCAD Entities on the drawing after it has been issued will be marked with a Revision Cloud. The background color of the issued Drawing Sheet is changed to a pale pink.

RebarCAD allows you to track revisions made to reinforcement bars with Revision Clouds and callouts. If you configure a Revision Table then any review comments present there will also get updated automatically. You can also configure revision settings to meet your company or client's specification.

To issue a Drawing Sheet together with the Bar List select RebarCAD → Review → Issue Drawing Sheet or use the toolbar icon .



**RebarCAD - Issue Drawing Sheet**

**Issue Drawing Sheet**

This command allows you to issue a drawing sheet, after which any changes to the drawing will be marked with a revision cloud. By selecting the 'Issue Bar List' option you can automatically issue the bar list associated with the drawing sheet so that any amendments to the rebar will be marked in the bar list with the next revision mark.

**Issue details**

Drawing sheet: 01

Revision mark: 0

Issue type: Draft

Issue date: 23-07-2024

Revision event:

Revision details:

Total weight (units): 1.070 tons

**Bar List Option**

☒ Issue bar list

OK Cancel Help

**Figure 13.2:1 Issue Drawing Sheet dialog**

In the *Issue Drawing Sheet* dialog select the Drawing Sheet to be issued. If this is the first issue, leave the Revision Mark at 0; all subsequent edits will be marked as *Rev A* (or using whichever letter is configured).

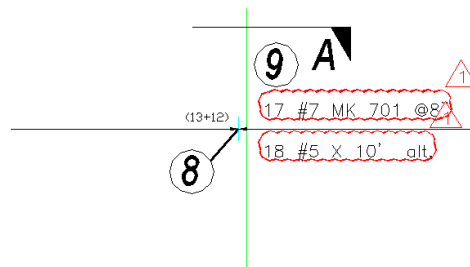
The Revision Event field can be used to associate revision costs with changes in the design of the structure. For further information on how to use this field refer to the *RebarCAD Customisation & Configuration Guide*.

After being issued a Revision Table will be generated automatically. If the *Title Block* does not contain this table then you will be asked to place it manually.

	Tender Issue to Contractors	23-07-2024
REVISION MARK	REVISION DETAILS	DATE
Client		

**Figure 13.2:2 Revision Table added to Title Block**

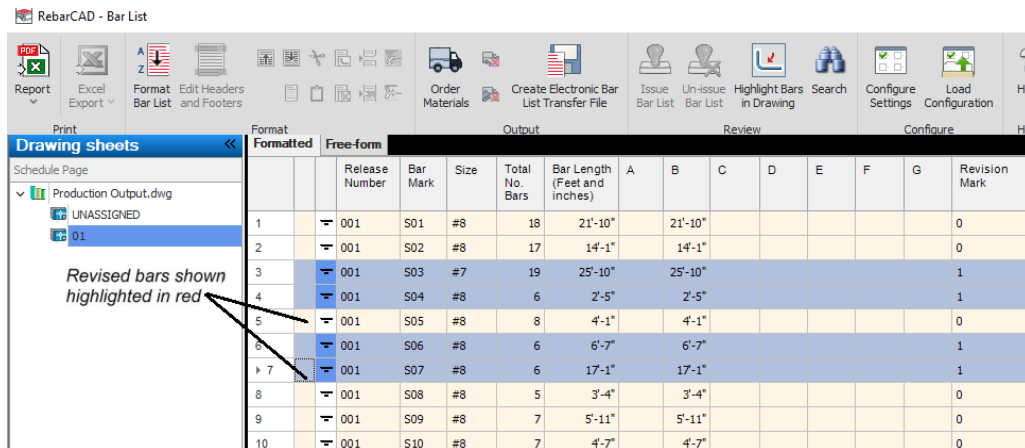
If you now edit any of the bars within the issued Drawing Sheet they will automatically be marked with a Revision Cloud and symbol, as shown in figure below.



**Figure 13.2:3 Revision Labels added to edited Bar Sets**

The list of bars shown in the Data Area includes a Revision Mark column – the last column – that identifies which revision a bar belongs to. This is shown in figure below.

RebarCAD - Bar List




	Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	A	B	C	D	E	F	G	Revision Mark
1	001	S01	#8	18	21'-10"		21'-10"						0
2	001	S02	#8	17	14'-1"		14'-1"						0
3	001	S03	#7	19	25'-10"		25'-10"						1
4	001	S04	#8	6	2'-5"		2'-5"						1
5	001	S05	#8	8	4'-1"		4'-1"						0
6	001	S06	#8	6	6'-7"		6'-7"						1
7	001	S07	#8	6	17'-1"		17'-1"						1
8	001	S08	#8	5	3'-4"		3'-4"						0
9	001	S09	#8	7	5'-11"		5'-11"						0
10	001	S10	#8	7	4'-7"		4'-7"						0

**Figure 13.2:4 Bar List Updates to reflect revision.**

A *Track Changes* layer is also created automatically as part of the revision. This can be used to identify and control revision change. The layer name is prefixed with the Drawing Sheet number and includes the corresponding revision letter. An example of this might be *Sheet1Revision1Changes*.

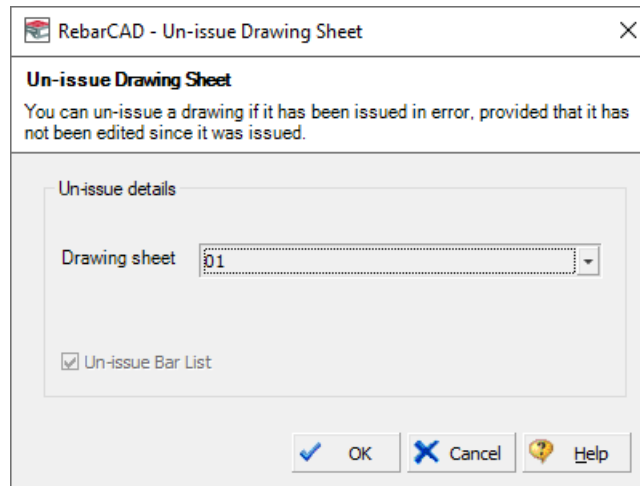
## 13.3 Un-Issue Drawing Sheet

The Un-Issue Drawing Sheet command, , is provided in case you issue a Drawing Sheet accidentally or wrongly and need to revert it back to the last issued status. This facility is available only if you have not made any changes after issuing the Drawing Sheet.

The *Un-issue Drawing Sheet* dialog will list the Drawing Sheets available in your current drawing files. Select the Drawing Sheet whose Bar List you wish to un-issue.

Once you click on the OK button the Drawing Sheet reverts back to the last issued state. The revision entry made in the Bar List header is updated accordingly.

**Note:** The Bar List can also be un-issued along with the Drawing Sheet while un-issuing the Drawing Sheet.



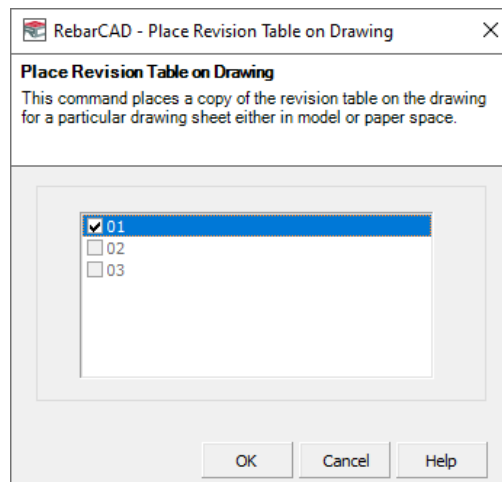
**Figure 13.3:1 Un-Issue Drawing Sheet dialog**

## 13.4 Place Revision Table

Selecting this option opens up the *Place Revision Table on Drawing* dialog. This displays all the Drawing Sheets present in the drawing, as shown below in figure 13.4:1. Select the Drawing Sheet on which you want to place the Revision Table.

A Revision Table with a *DRAFT* printed over it will be placed in the specified position on the drawing, as shown below in figure 13.4:2. Once you are satisfied with the Revision Table you can delete the annotation, which is in text form.

For details of how to create your own templates refer to the *RebarCAD Customisation & Configuration Guide*.



**Figure 13.4:1 Place Revision Table on Drawing dialog**


0		23-07-2024
REVISION MARK	REVISION DETAILS	DATE

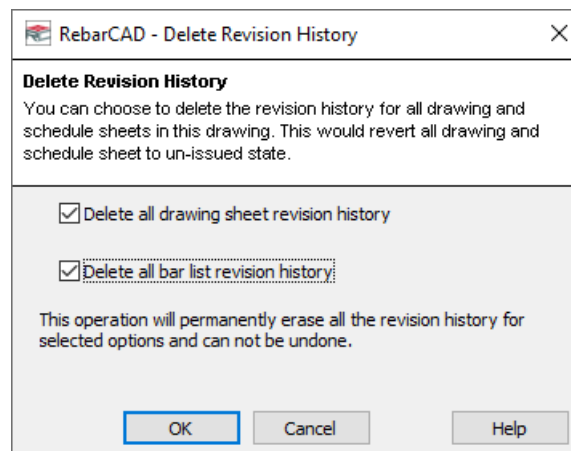
Client

**Figure 13.4:2 Revision Table placed on title block**

## 13.5 Delete Revision History

This command completely removes any revision information from a drawing. This is useful when you want to reuse an existing drawing. Once the revision history has been deleted from a drawing it cannot be retrieved.


The Delete Revision History command, , is accessed from the RebarCAD → Review menu or the *Review* toolbar.

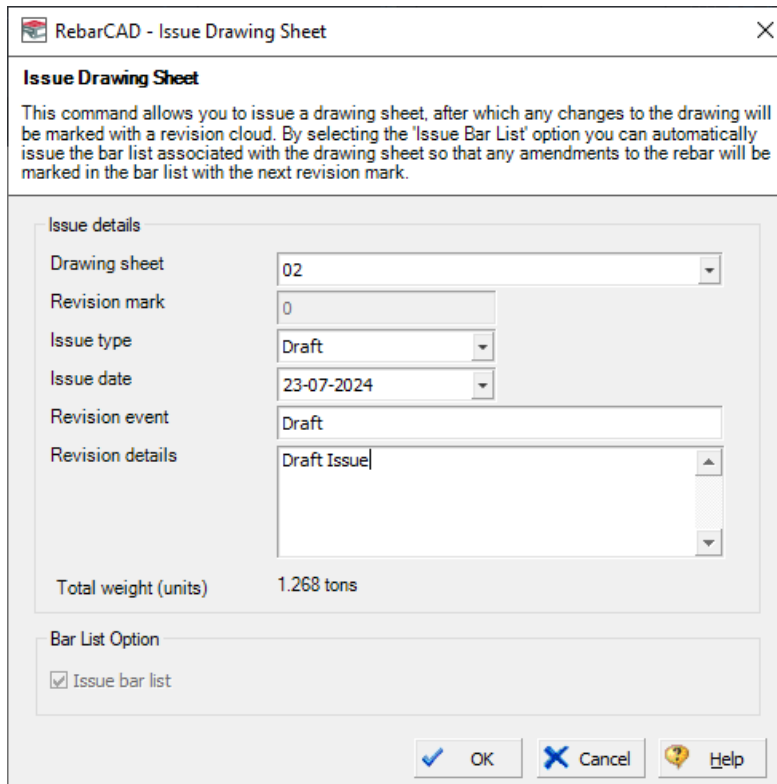


**Figure 13.5:1 Delete Revision History dialog**

The Revision Table on the Drawing Sheet will have to be erased manually.

### 13.5.1 Try It! How to Issue, Revise and Re-Issue a Drawing Sheet together with the Bar List

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 27.dwg
- ▶ Make the Viewport on Beams 1 & 2 (02) Layout active
- ▶ Select RebarCAD → Review → Issue Drawing Sheet or 



**RebarCAD - Issue Drawing Sheet**

**Issue Drawing Sheet**

This command allows you to issue a drawing sheet, after which any changes to the drawing will be marked with a revision cloud. By selecting the 'Issue Bar List' option you can automatically issue the bar list associated with the drawing sheet so that any amendments to the rebar will be marked in the bar list with the next revision mark.

**Issue details**

Drawing sheet	02
Revision mark	0
Issue type	Draft
Issue date	23-07-2024
Revision event	Draft
Revision details	Draft Issue

Total weight (units) 1.268 tons

**Bar List Option**

☒ Issue bar list

OK Cancel Help

**Figure 13.5:1 Issue Drawing Sheet dialog**

- ▶ Select Drawing Sheet 02 from the drop down menu. Leave the rest of the preset fields as displayed. Type in *Draft* into the Revision Event and *Draft Issue* into the Revision Comment. Select OK. Ensure that *Issue Type* shows *Draft*

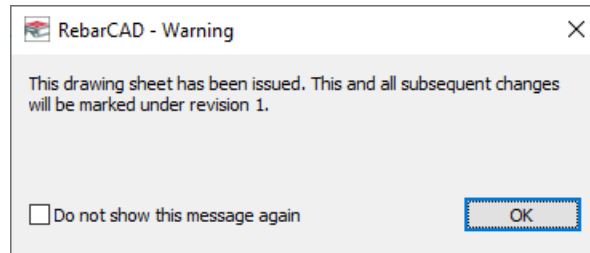
A Revision Table is automatically added to the **Title Block** of the Drawing Sheet for Beams 1 & 2. If the **Title Block** does not have a *RevisionTable* attribute defined, RebarCAD will ask you to manually place the table on the sheet.

0	Draft Issue	23-07-2024
REVISION MARK	REVISION DETAILS	DATE

Client

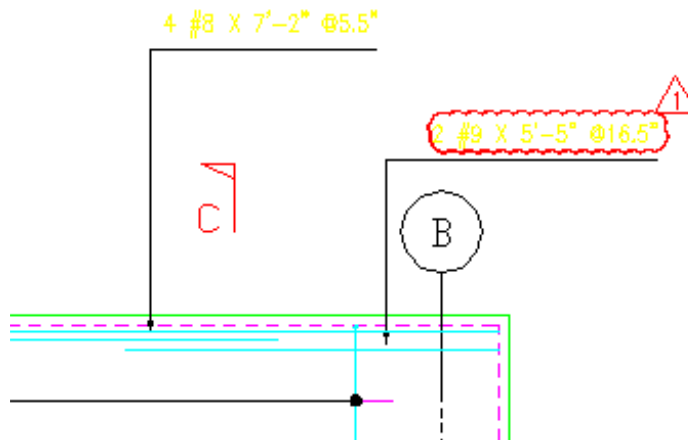
**Figure 13.5:2 Revision Table added to Drawing Sheet**

- ▶ Select RebarCAD → Editing → Edit Bars and change the bar size of one of the bars in Beam 1
- ▶ Select OK when the RebarCAD revision warning, shown in figure 12.5:3 below, appears




**Figure 13.5:3 Revision Warning display**

A Revision Cloud should now appear around the edited Bar Label.



**Figure 13.5:4 Revision cloud added to the edited Bar Label.**

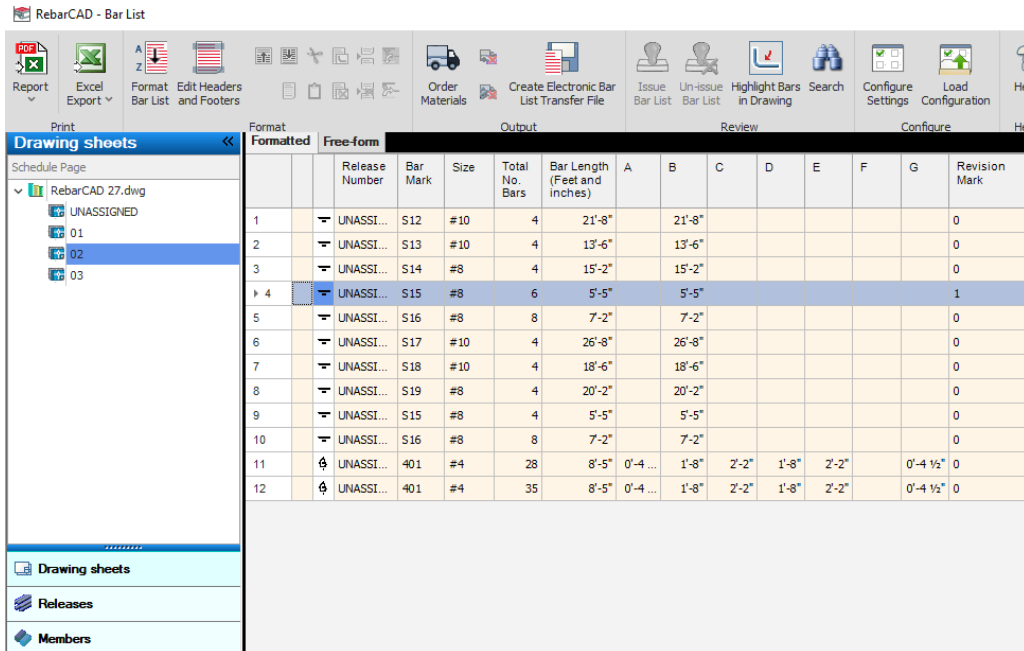
- ▶ Select RebarCAD → View Bar List or 
- ▶ Select Drawing Sheet 02

Note that Revision A has been applied to the edited bar.

► Close the Bar List

The Revision Cloud has been placed on the *AutoCAD* layer *02Revision1Changes*. This marks Drawing Sheet 02, first revision. This layer can be switched off if you do not want to display the Revision Cloud - refer to the *RebarCAD Customisation & Configuration Guide* for information on how to do this.


RebarCAD - Bar List



	Release Number	Bar Mark	Size	Total No. Bars	Bar Length (Feet and inches)	A	B	C	D	E	F	G	Revision Mark
1	UNASSI...	S12	#10	4	21'-8"		21'-8"						0
2	UNASSI...	S13	#10	4	13'-6"		13'-6"						0
3	UNASSI...	S14	#8	4	15'-2"		15'-2"						0
4	UNASSI...	S15	#8	6	5'-5"		5'-5"						1
5	UNASSI...	S16	#8	8	7'-2"		7'-2"						0
6	UNASSI...	S17	#10	4	26'-8"		26'-8"						0
7	UNASSI...	S18	#10	4	18'-6"		18'-6"						0
8	UNASSI...	S19	#8	4	20'-2"		20'-2"						0
9	UNASSI...	S15	#8	4	5'-5"		5'-5"						0
10	UNASSI...	S16	#8	8	7'-2"		7'-2"						0
11	UNASSI...	401	#4	28	8'-5" 0'-4 ...	1'-8"	2'-2"	1'-8"	2'-2"			0'-4 1/2"	0
12	UNASSI...	401	#4	35	8'-5" 0'-4 ...	1'-8"	2'-2"	1'-8"	2'-2"			0'-4 1/2"	0

**Figure 13.5:5 Revised bar highlighted on Bar List viewer**

You have now completed revising the drawing so it needs to re-issued.

- Select RebarCAD → Review → Issue Drawing Sheet or 
- Select Drawing Sheet 02 from the drop down menu. Make sure that the Revision Mark is set to 1. Change the *Issue Type* to *Tender*. Type in *Tender* for both the *Revision Event* and *Revision Comments*. Select OK

RebarCAD - Issue Drawing Sheet

### Issue Drawing Sheet

This command allows you to issue a drawing sheet, after which any changes to the drawing will be marked with a revision cloud. By selecting the 'Issue Bar List' option you can automatically issue the bar list associated with the drawing sheet so that any amendments to the rebar will be marked in the bar list with the next revision mark.

Issue details

Drawing sheet

02

Revision mark

1

Issue type

For Approval

Issue date

23-07-2024

Revision event

For Approval

Revision details

For Approval

Total weight (units)

1.272 tons

Bar List Option

☒ Issue bar list

OK

Cancel

Help

**Figure 13.5:6 Issue Drawing Sheet dialog**

The Revision Table on the Drawing Sheet is automatically updated to show the Revision 1 entry. All subsequent revisions will show 2 as the revision number.

1	For Approval	23-07-2024
0	Draft Issue	23-07-2024
REVISION MARK	REVISION DETAILS	DATE






Client

**Figure 13.5:7 Revision Table showing Revision A.**

## 13.6 Key points - Issuing and Revisions

- ▶ You can issue a Bar List with or without its associated Drawing Sheet.
- ▶ Issuing a Drawing Sheet will 'lock down' the Bar List. Any editing of the drawing will result in Revision Markers being added to the drawing and Bar List.
- ▶ A Drawing Sheet can be un-issued if accidentally issued.
- ▶ If a Revision Table is not automatically placed on the Drawing Sheet use the Place Revision Table
- ▶ All the Revision History can be removed from a drawing using the *Delete Revision History* command.
- ▶ Editing Rebar Entities on an Issued Drawing Sheet will result in Revision Clouds being added to the Bar Labels unless already switched off in the Configuration.

## 13.7 Command List - Issuing and Revisions

Action	Menu Selection	Toolbar	Icon
View Bar List	RebarCAD → View Bar List	RebarCAD	
Issue Drawing Sheet	RebarCAD → Review → Issue Drawing Sheet...	Review	
Un-issue Drawing Sheet	RebarCAD → Review → Un-issue Drawing Sheet...	Review	
Place Revision Table	RebarCAD → Review → Place Revision Table	Review	
Delete Revision History	RebarCAD → Review → Delete Revision History	Review	

## 14 Tools

### 14.1 Introduction

The RebarCAD productivity tools contain several utility tools that can be used to increase reinforcement detailing efficiency. Common structural elements like beams, columns, slabs etc can be detailed in a few picks. As the name suggests, these tools will greatly enhance your reinforcement detailing productivity. You can also use these tools for quick and approximate estimation as required for bidding and stock ordering purpose.

RebarCAD is shipped with the following additional utilities;

Special Bar Creator	The special bar creator allows you to create your own Bend Type 99's.
Cross Section Detailer	The Cross Section Detailer helps to detail cross sections through columns, beams and slabs including the reinforcement bars.
Trim Openings	The Trim Openings utility details and labels the reinforcement around either rectangular or circular holes in a structure.
Draw Lap Dog Leg	The Draw Lap Dog Leg Bar tool helps with the placing of a cranked bar when lapping with an existing bar on the drawing.
Outlines	The RebarCAD Outline tools includes a range of parametric shapes which automatically include concrete cover lines, with the correct line types, layers and dimensions, if required. Also included is a Freehand Outline routine which draws a line with a parallel cover line beside.
Tools & Symbols	Tools and Symbols dialog contains a number of useful tools that can be used to help with general drafting such as a Grid Generator, grid balloons and line breaks.


The Utilities use the AutoCAD Dimscale variable to size the text and blocks to suit the plotted scale of the drawing regardless of whether you are working in Model Space only or both Model/Layout space. Ensure that Dimscale is set to match the plotted scale of the detail.

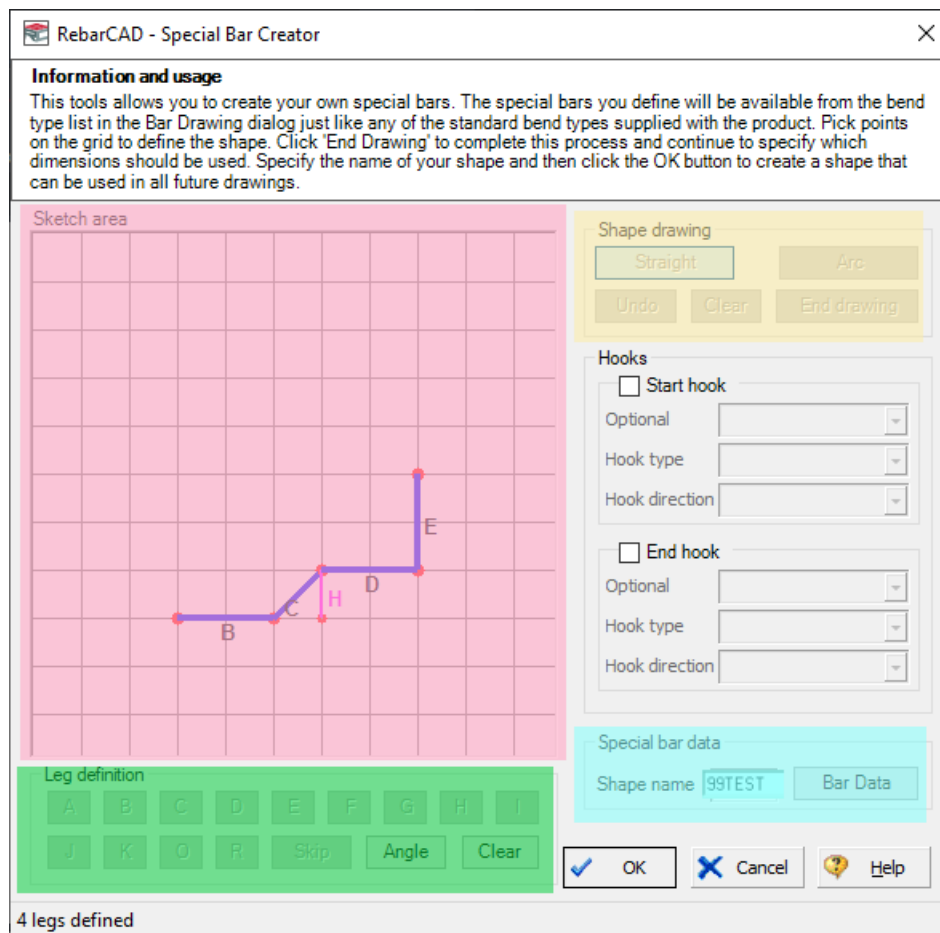
If you have access to the CAD\$-SC software, use the Drawing Set-up Function to load in a Title Block and set the appropriate scale and drawing environment. Alternatively, you can use CAD\$

VPM, create Layout function or basic AutoCAD, create Layout as described in Section 2 of this Tutorial.

## 14.2 Special Bar Creator

The special bar creator allows you to create your own Bend Type 99's. The shapes that you define will be added to the list of bars available in the Draw Bar Dialog. They are stored in a file called specials.spl. You will need to start by defining the geometry of the shape in the Sketch Area, then select End Drawing, next select the leg definition names and then finally you will need to name the file and pick OK.

This command is available from the *Tools* toolbar or through **RebarCAD** → Tools → Special Bar Creator .

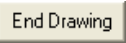


**Figure 14.2:1 Special Bar Creator Dialog**

### 14.2.1 Shape Drawing

Straight and Arc	Use these options in the Shape Drawing area to define whether you are drawing a line or a curve.
Undo	This will remove the last element drawn on the shape.
Clear	This will delete all lines and / or arcs in the Sketch Area. It can also be used to clear the dimension letters from the shape.
End Drawing	Use this option when you have finished defining the shape in the Sketch Area to proceed to defining the leg dimensions.

### 14.2.2 Sketch Area

Pick points in the sketch area to define the shape of the bar, you can use either straight or curved lines by selecting the options from the Shape Drawing Area. Pick the End Drawing button  to proceed onto dimensioning the shape.

Make the diagram of the shape as large as possible as this will result in the best slide being created to add to the Bar List.

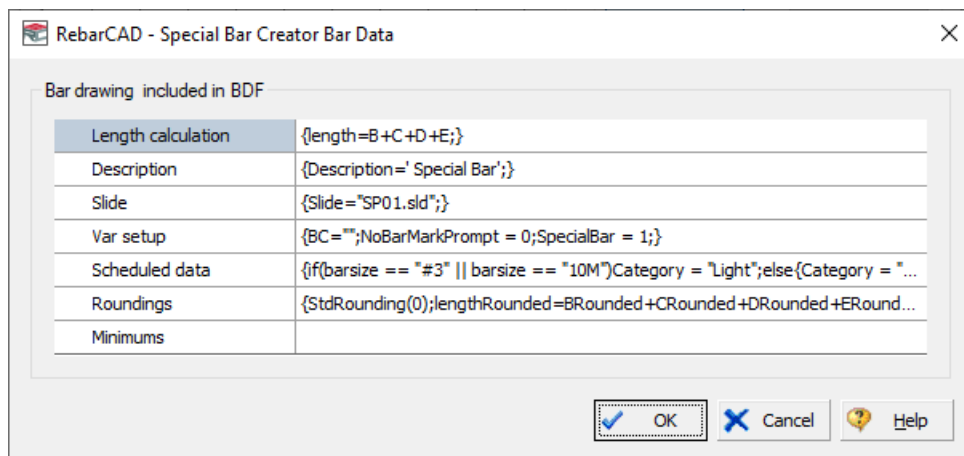
### 14.2.3 Leg Definition

Once the End Drawing button has been selected you are guided around the shape to define the leg letter dimensions. The leg to be dimensioned is highlighted in green, either pick the required letter or select Skip if a dimension is not required. You can use the Clear option to remove the dimensions and define them again.

### 14.2.4 Shape Name

Type in a unique name for the Bend Type 99 that you are creating. If the name has been duplicated the program will inform you and ask you to enter another name.

## 14.2.5 Bar Data



**Figure 14.2.5:1 Special Bar Creator Bar Data dialog**

The Bar Data dialog cannot be accessed unless all the information to create the Bend Type 99 has been entered. The dialog shows all the information that is specific for the bar being created. The length calculation will have appropriate formula for the shape defined. The data in this dialog can be amended if required to include deductions for bends.

When you select OK on the main Special Bar Creator dialog all the information is added to the Specials.spl file. At the same time a slide file and windows meta file is created for displaying in the Draw Bar dialog and the Bar List.

## 14.2.6 Limitations

Shapes with inclined legs (except legs that have angled dimensions) and / or arcs can only be used as label only option, as it will not be possible to draw these shapes from RC.

If required, these shapes can be drawn using polylines manually and RC's label with appropriate dimensions can be inserted.

## 14.2.7 Tips on Dimensioning Bend Type 99's

### Dimensioning for Straight legs

There are two cases for dimensioning straight legs;

Horizontal or Vertical legs

- ▶ Only one dimension can be assigned for this case.

Inclined legs

There are five possible ways to define the dimensioning;

- ▶ Assigning one dimension along leg and other dimensions for both horizontal & vertical projection
- ▶ Assigning one dimension along leg and other dimension for horizontal projection.
- ▶ Assigning one dimension along leg and other dimension for vertical projection.
- ▶ Assigning the leg dimension only.
- ▶ Assigning the horizontal and vertical projection


#### Dimensioning for Arcs

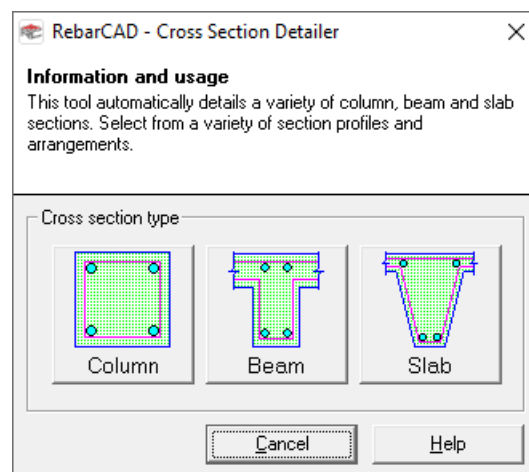
- ▶ An arc requires any of the two dimensions - Chord length and Radius.

### 14.2.8 Try It! How to Create a Bend Type 99 using the Special Bar Generator

Refer to 4.6.2 Try It! Creating a Special Bar

## 14.3 Cross Section Detailer

The Cross Section Detailer helps to detail cross sections through columns, beams and slabs including the reinforcement bars. The length of the longitudinal bars will be set to zero by default. This can be edited inside the detailer or afterwards using the RebarCAD editing commands. This command is available from the *Tools* toolbar or through RebarCAD → Tools → Cross Section Detailer .



**Figure 14.3:1 Cross Section Detailer dialog**

The Cross Section Details contains the following shapes;

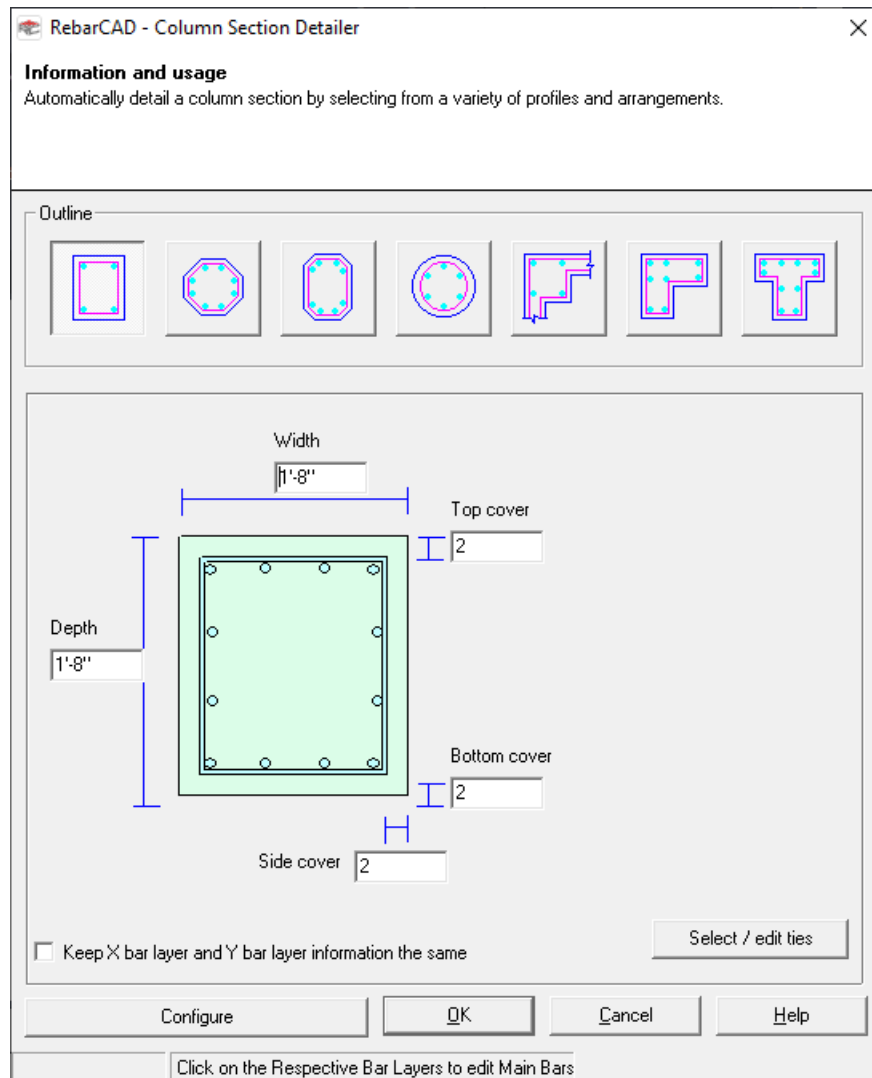
Columns	Rectangular column, Chamfered column, Octagonal column, Circular column, L column and T shaped column.
Beams	Rectangular beam, L beam, T beam, Z beam, I beam and L beam with down stand.
Slabs	Cross sections of waffle rib, Slab thickening with duct, Slab edge, Slab edge with Recess or Up strand.

The Cross Section Detailer supports multiple sizes of bars in a single layer for all types of cross sections.

Only the Beam Cross section offers side bars and multiple layers of bars.

The slab edge cross section offers dowel bars with a toggle option.

## 14.3.1 Columns



**Figure 14.3.1:1 Column Cross Section dialog**

Selecting the Column option from the main dialog invokes the Column Cross Section dialog as shown above in figure 13.2.1:1. This is divided into sub sections;

### Outlines and Dimensions

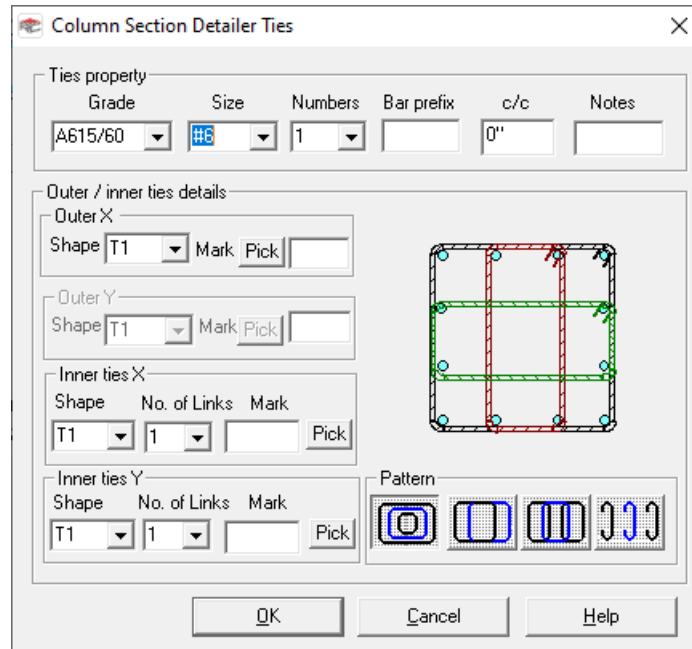
The following column types are available;

Rectangular, Chamfered, Octagonal, Circular, L Shaped and T Shaped.

Select the required option and a preview of the section is shown along the input dimension fields. Enter the dimensions for the width, length etc as required.

### Select / Edit links

Selecting this button invokes the Column Section Detailer Links dialog as shown in figure 13.2.1:2 below.



**Figure 14.3.1:2 Column Section Detailer Tie dialog**

- Link Property** Use the fields in this section to define the Type, Size, Number off, Bar Prefix, Centers and Label Notes for the inner and outer links.
- Outer Link / Inner Link Details** Use these fields to set the Bend Type and if required the bar mark number and the number of links.
- Pattern** There are four link patterns available – concentric, concertina, chain and simple hooks. The pattern can be checked or unchecked.

### Longitudinal Reinforcement Details



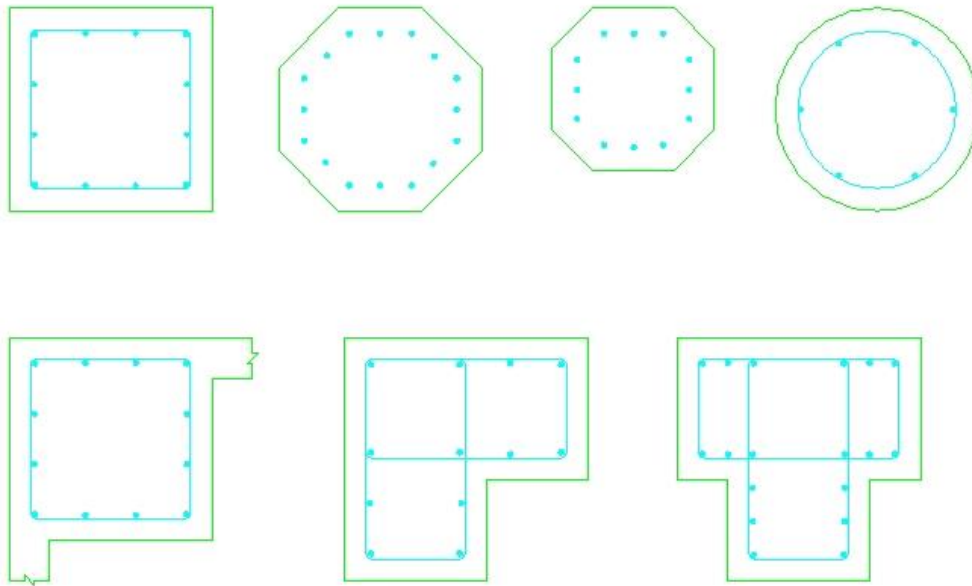
**Figure 14.3.1:3 Column Section Detailer Horizontal Bar Details**

Picking one of the main reinforcement bars on the section diagram will invoke the Column Section Detailer Horizontal Bar Details dialog as shown in figure 13.2.1:3 above. Different bar diameters can be entered on the same layer of reinforcement using this dialog and the program will adjust the bar locations within the section. The following properties can be set in this dialog;

Grade	Grade of the bars in the layer
Shape	Bend Type
Bar Prefix	Prefix of bar if any
Notes	Notes for the bar if any

In order to assign different bar diameters in the same reinforcement layer there are three additional rows of editing fields;

Size	Diameter of the bar
Numbers	Number of bars of that diameter in the layer
Bar Mark	You can type in the Bar Mark Number to be assigned to the bar
Length	Type in the required length of the bar, this allows different diameters of bar to have different lengths
Pick	You can use the Pick button to link the bars in the section with bars already detailed on the drawing. The new bars will be shown as Views of the selected bars

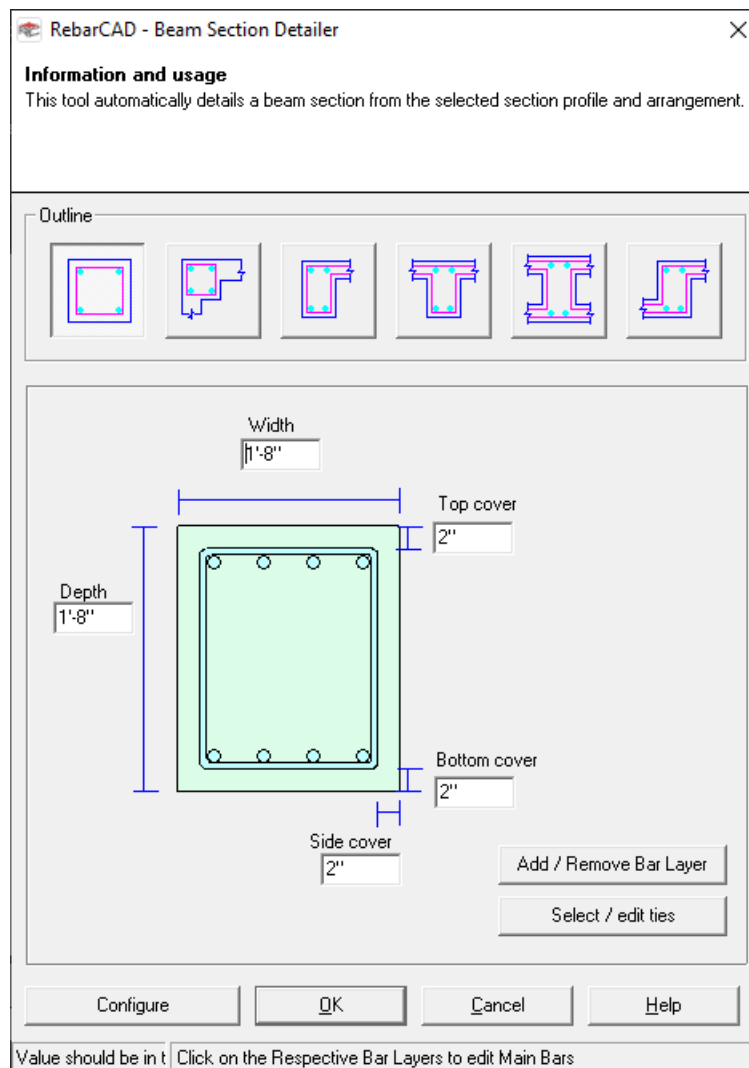


**Figure 14.3.1:4 Typical Column Cross Section Details**

#### Configure

Please refer to Section 13.2.4 for details on Configuration

## 14.3.2 Beams



**Figure 14.3.2:1 Beam Section Detailer dialog**

Selecting column option from main dialog invokes the Beam Cross Section dialog as shown above in figure 13.2.2:1. This is divided into sub sections;

### Outlines and Dimensions

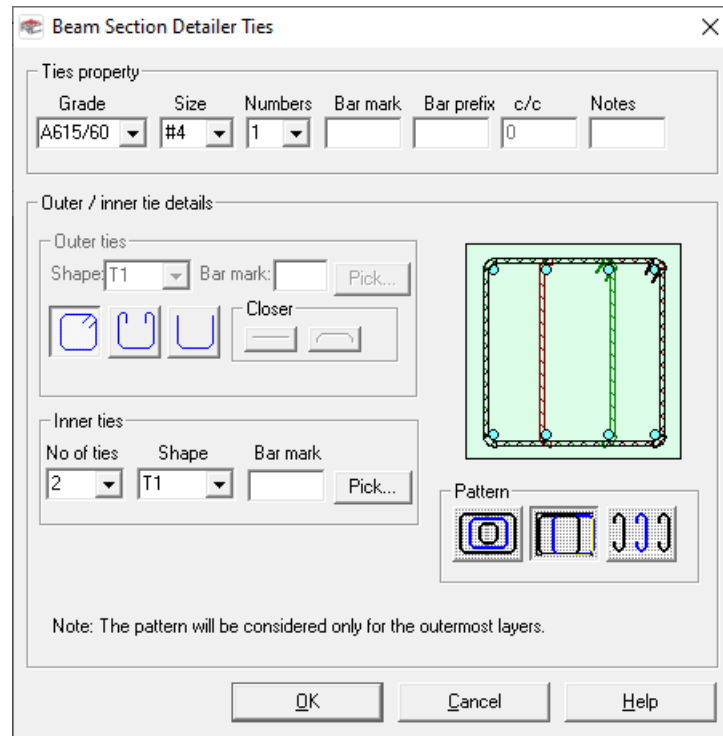
There following Beam Types are available.

Rectangular beam, L beam, T beam, Z beam, I beam and L beam with down stand.

Select the required option and a preview of the section is shown along the input dimension fields. Enter the dimensions for the width, length etc as required.

### Select Edit / Link bars

Selecting the edit / link bars button invokes the Beam Section Detailer Links dialog as shown in figure 13.2.2:2 below.

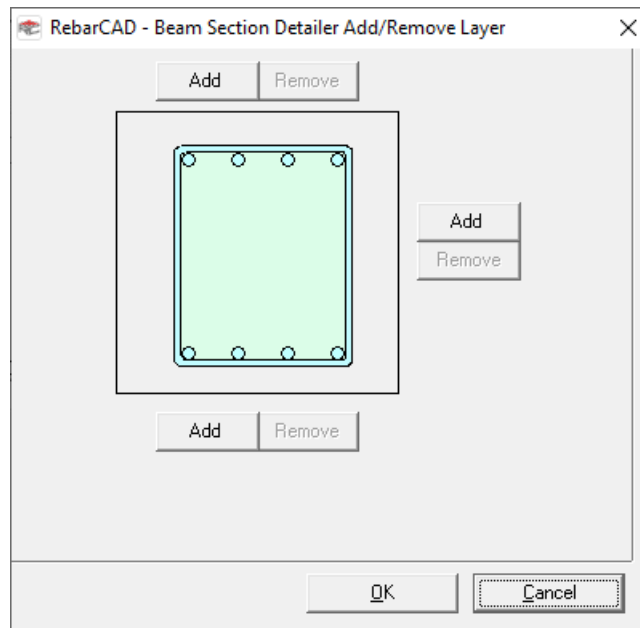


**Figure 14.3.2:2 Beam Section Detailer Ties dialog**

- |                                 |   |
|---------------------------------|---|
| Link Property                   | Use the fields in this section to define the Type, Size, Number off, Bar Prefix, Centers and Label Notes for the inner and outer links. |
| Outer Link / Inner Link Details | Use these fields to set the Bend Type and if required the bar mark number and the number of links.                                      |
| Pattern                         | There four link patterns are available – concentric, concertina, chain and simple hooks. The pattern can be checked or unchecked.       |

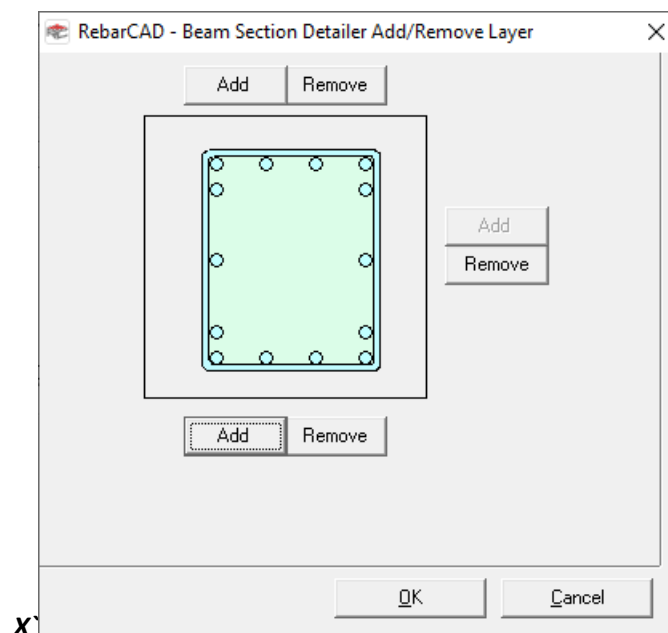
### Adding or Removing Bar Layer

Selecting the Add / Remove Bar Layer button invokes the Beam Section Detailer Add/Remove Layer dialog as shown in figure 13.2.2:3 below.



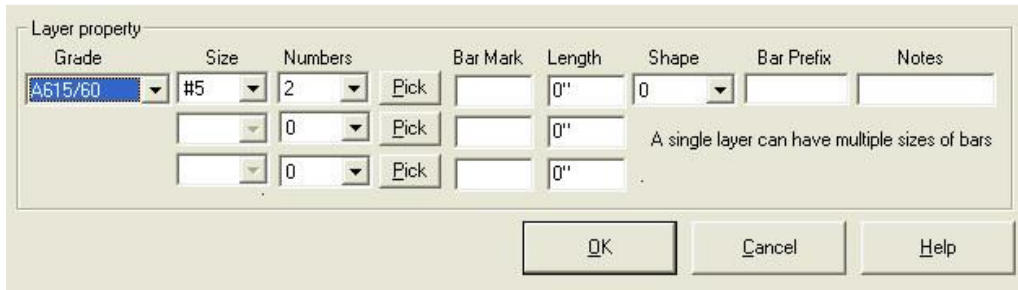
**Figure 14.3.2:3 Beam Section Detailer Add/Remove Layer dialog**

A maximum of three layers of reinforcement can be added to the top and bottom of the beam section at the sides and one layer can be added as side bars.



**Figure 14.3.2:4 Add/Remove Layer dialog with all layers added**

## Longitudinal Reinforcement Details



Grade	Size	Numbers	Bar Mark	Length	Shape	Bar Prefix	Notes
A615/60	#5	2	Pick	0"	0		
		0	Pick	0"			
		0	Pick	0"			

OK Cancel Help

A single layer can have multiple sizes of bars

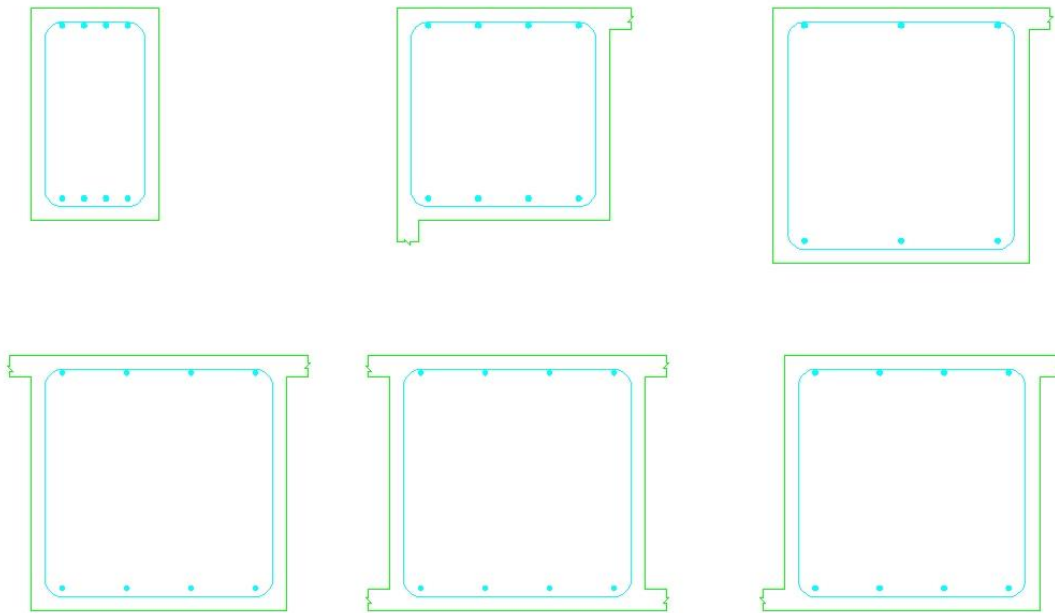
**Figure 14.3.2:5 Beam Section Bar Layer Y dialog**

Picking one of the main reinforcement bars on the section diagram will invoke the Beam Section Bar Layer dialog as shown in figure 13.2.2:5 above. Different bar diameters can be entered on the same layer of reinforcement using this dialog and the program will adjust the bar locations within the section. The following properties can be set in this dialog;

Grade	Grade of the bars in the layer
Shape	Bend Type
Bar Prefix	Prefix of bar if any
Notes	Notes for the bar if any

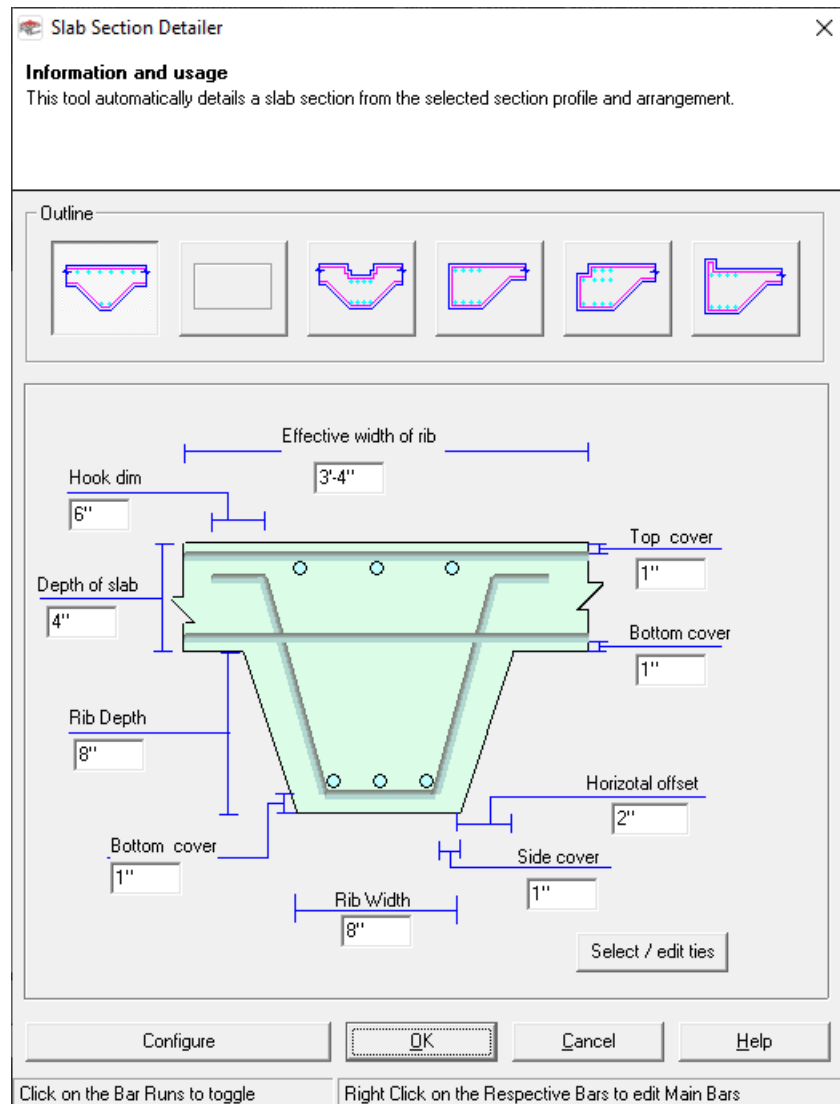
In order to assign different bar diameters in the same reinforcement layer there are three additional rows of editing fields;

Size	Diameter of the bar
Numbers	Number of bars of that diameter in the layer
Bar Mark	You can type in the Bar Mark Number to be assigned to the bar
Length	Type in the required length of the bar, this allows different diameters of bar to have different lengths
Pick	You can use the Pick button to link the bars in the section with bars already detailed on the drawing. The new bars will be shown as Views of the selected bars



**Figure 14.3.2:6 Typical Beam Section Details**

## 14.3.3 Slab



**Figure 14.3.3:1 Slab Section Detailer dialog**

Selecting the Column option from the main dialog invokes the Slab Section dialog as shown in figure 13.2.3:1above. This is divided into sub sections;

### Outlines and Dimensions

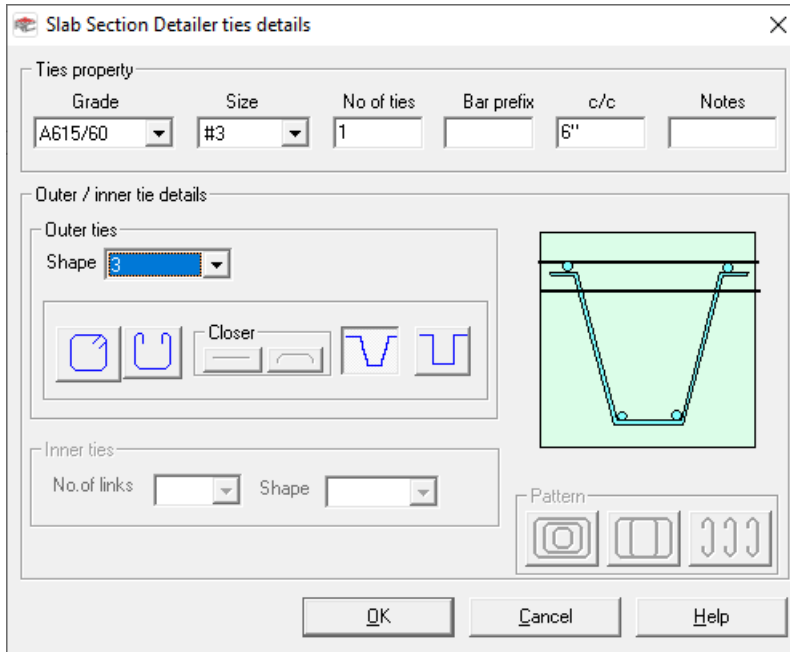
There following Slab Section Types are available;

Waffle Rib, Slab Thickening with Duct, Slab Edge, Slab Edge with Recess and Slab Edge with Up stand.

Select the required option and a preview of the section is shown along the input dimension fields. Enter the dimensions for the width, length etc as required.

## Select / Edit Link Bars

Picking the Select / Edit Links button invokes the Slab Section Detailer Links dialog as shown in figure below.



The dialog box is titled "Slab Section Detailer ties details". It contains the following sections:

- Ties property:** Includes fields for Grade (A615/60), Size (#3), No of ties (1), Bar prefix, c/c (6"), and Notes.
- Outer / inner tie details:**
  - Outer ties:** Includes a Shape dropdown (set to 3) and a visual representation of the tie shape.
  - Inner ties:** Includes No. of links and Shape dropdowns.
  - Pattern:** Includes four icons representing different link patterns: concentric, concertina, chain, and simple hooks.

Buttons at the bottom include OK, Cancel, and Help.

**Figure 14.3.3:2 Slab Section Detailer Ties dialog**

- |                                 |   |
|---------------------------------|---|
| Link Property                   | Use the fields in this section to define the Type, Size, Number off, Bar Prefix, Centers and Label Notes for the inner and outer links. |
| Outer Link / Inner Link Details | Use these fields to set the Bend Type and if required the bar mark number and the number of links.                                      |
| Pattern                         | There four link patterns are available – concentric, concertina, chain and simple hooks. The pattern can be checked or unchecked.       |

## Longitudinal Reinforcement Bar Details



The dialog box is titled "Slab Section Detailer Bar Details". It contains the following fields:

- Grade: A615/60
- Size: #3
- Numbers: 2
- Bar mark: (empty)
- c/c: 0"
- Bar prefix: (empty)
- Notes: (empty)

Buttons at the bottom include OK, Cancel, and Help.

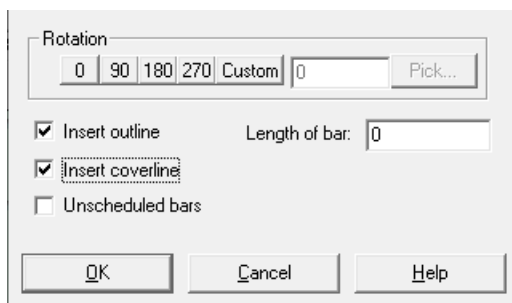
**Figure 14.3.3:3 Slab Section Bar Details**

Picking one of the main reinforcement bars on the section diagram will invoke the Beam Section Bar Layer dialog as shown above in figure. The following properties can be set in this dialog;

Grade	Grade of the bars in the layer
Size	Diameter of the bar
Numbers	Number of bars of that diameter in the layer
Bar Mark	You can type in the Bar Mark Number to be assigned to the bar
Shape	Bend Type
C/C	Enter the bar center to center distance
Bar Prefix	Prefix of bar if any
Notes	Notes for the bar if any

## 14.3.4 Configuration

Picking the Configure button invokes the Section Detailer Configuration dialog as shown in figure below.





**Figure 14.3.4:1 Section Detailer Configuration dialog**

In the Section Detailer Configuration Dialog Box, the following options are available

Rotation	Use to set the insertion angle of the section on the drawing.
Insert Outline	If checked, the section outline will be drawn.
Insert Cover line	If checked, the cover line will be drawn.


- |                  |  |
|------------------|--|
| UnBar Listd Bars | If checked, the reinforcement bars will be drawn as unBar Listd bars.  |
| Length of Bars   | This is the global edit field for the length of bars. The value entered in this field will become the default value for all the length fields. |

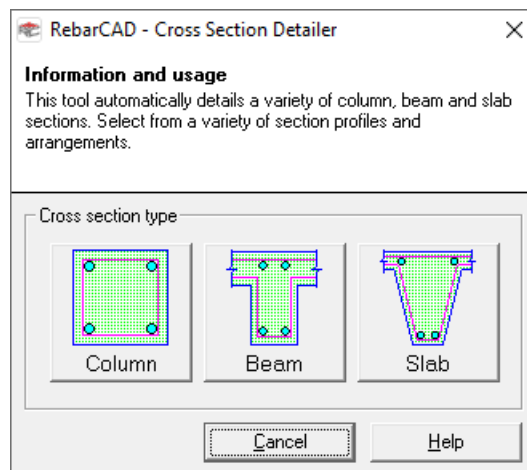
## 14.3.5 Try It! Detailing Cross Sections using the Detailer

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 29.dwg
- ▶ Make the Viewport on Cross Section Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Cross Section the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 01 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

### Add various cross sections to the drawing

- ▶ Select RebarCAD → Tools → Cross Section Detailer or 
- ▶ Select the Column Icon from the Cross Section Detailer dialog as shown in figure below.



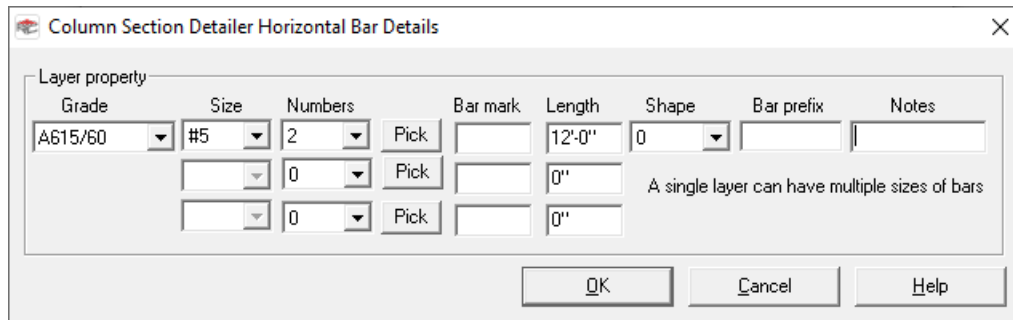
**Figure 14.3.5:1 Cross Section Detailer dialog**

In the Column Section Detailer dialog select a rectangular column section

Set the dimensions as follows;

Width 2', Depth 2', top, Bottom and Side Covers at 2"

Hover over the main steel on the column diagram, when the selection hand appears pick the steel section to load the Horizontal Bar Details dialog as shown below in figure



Column Section Detailer Horizontal Bar Details

Layer property		Size	Numbers	Bar mark	Length	Shape	Bar prefix	Notes
Grade	A615/60	#5	2	Pick	12'-0"	0		
			0	Pick	0"			
			0	Pick	0"			


A single layer can have multiple sizes of bars

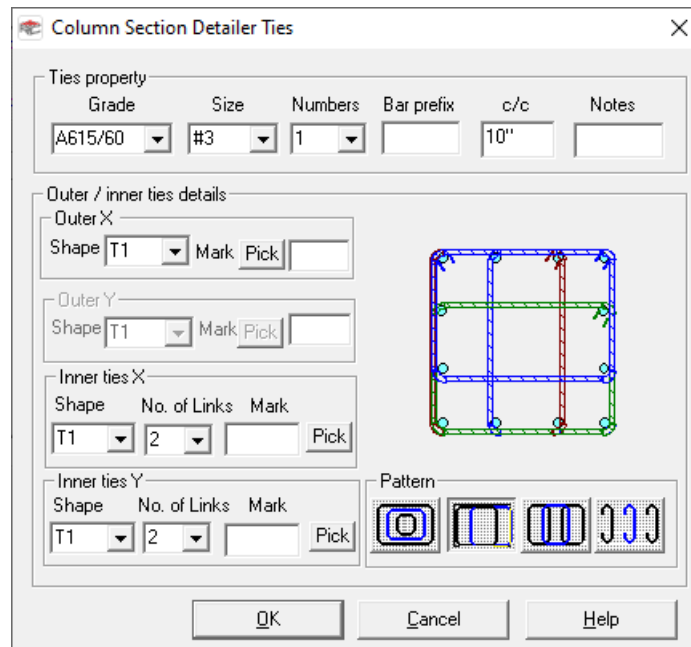
OK Cancel Help

**Figure 14.3.5:2 Horizontal Bar Details**

Set the Steel Grade to **A615/60**, Bar Diameter to **#8**, number of bars to **2** and the Length to **12'**. Select OK.

Pick the Select/Edit Links button to load the Links dialog.

Set the Steel grade to **A615/60**, Bar Diameter to **#3**, Bar Centres at **10"** and choose the Chained Links Pattern button .



Column Section Detailer Ties

Ties property		Size	Numbers	Bar prefix	c/c	Notes
Grade	A615/60	#3	1		10"	

Outer / inner ties details

Outer X  
Shape T1 Mark Pick

Outer Y  
Shape T1 Mark Pick

Inner ties X  
Shape T1 No. of Links 2 Mark Pick

Inner ties Y  
Shape T1 No. of Links 2 Mark Pick

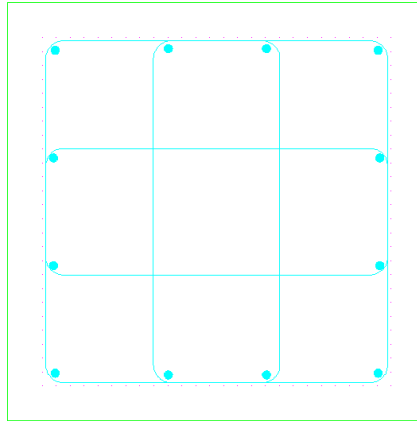
Pattern

OK Cancel Help

**Figure 14.3.5:3 Links dialog**

Pick OK twice to return to the drawing and pick an insertion point for the detail.


Note: that you will have to manually add bar labels and bar references if required. Each bar set will be assigned a new bar mark number. To reduce the number of bar marks run the Match Bar and Compact Bar commands available from RebarCAD → Utilities menu.



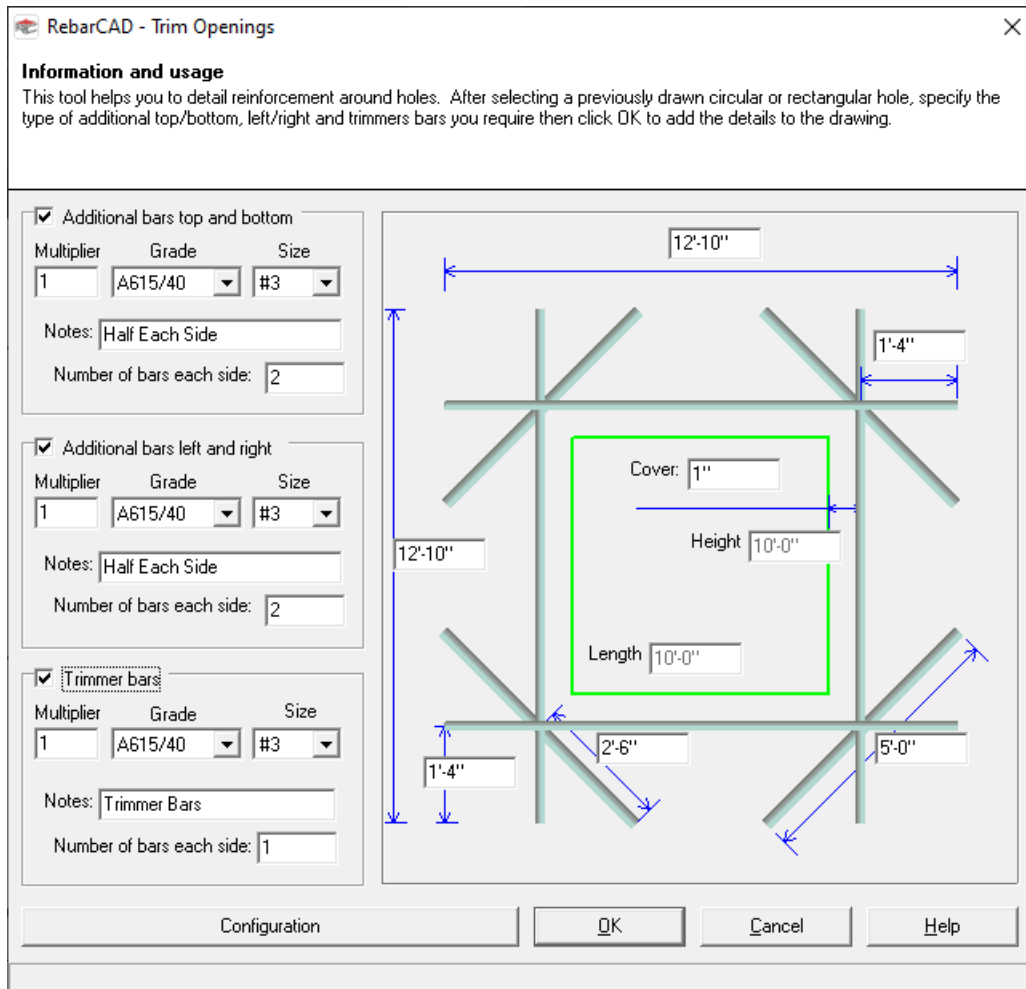
**Figure 14.3.5:4 Typical Column Cross Section**

## 14.4 Trim Openings

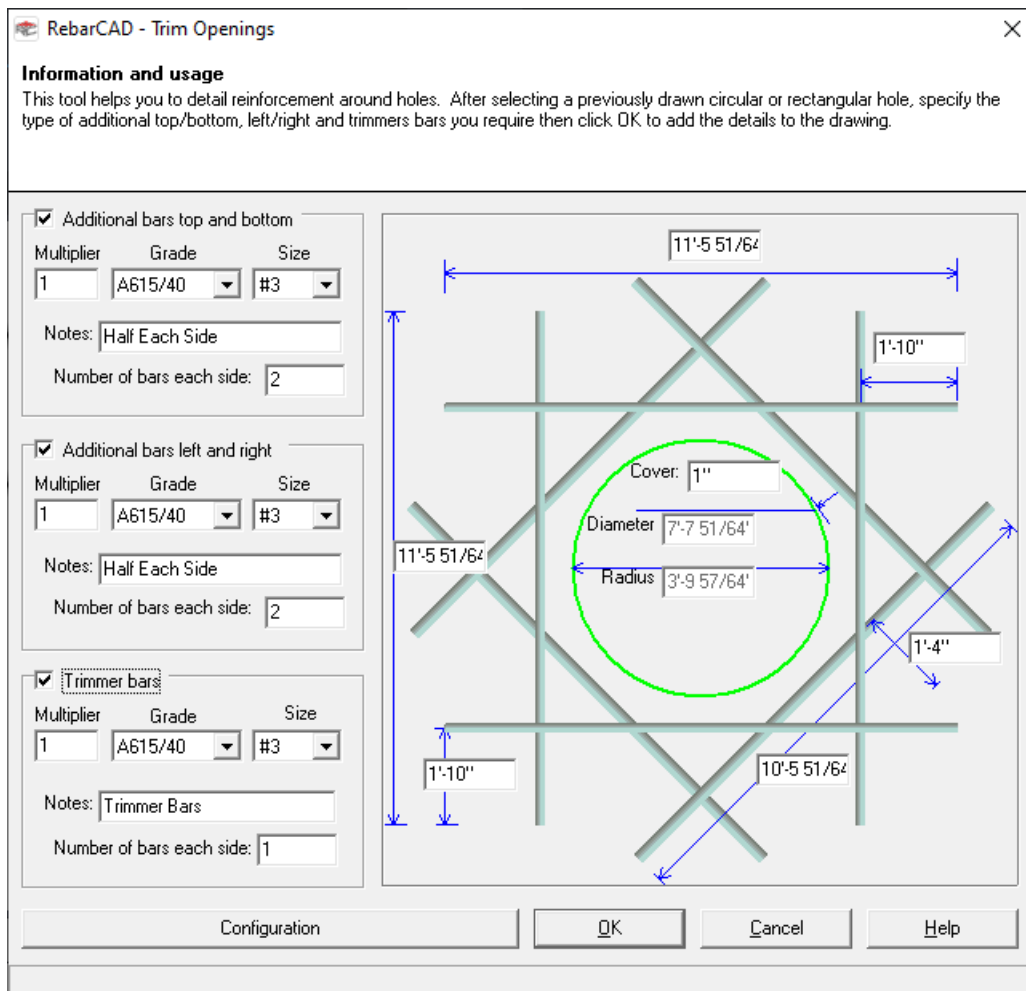
The Trim Openings utility details and labels the reinforcement around either rectangular or circular holes in a structure. You will need to draw the opening before starting the command.

This command is available from the *Tools* toolbar or through RebarCAD → Tools → Trim Openings .

At the AutoCAD command line, you will be prompted to “Select the opening to use:” Pick either a rectangular polyline or a circle that forms the outline of the opening. The Trim Opening dialog is then displayed. The preview will vary depending on whether you selected a rectangle or circle outline, the input fields are the same.



**Figure 14.4:1 Trim Openings – Rectangular Opening**



**Figure 14.4:2 Trim Openings – Circular Opening**

### 14.4.1 Cover Distance

The concrete cover can be entered in this field, the default value is set in the configuration.

### 14.4.2 Including Additional Trimmer Reinforcement

#### Trimmer Bars

By default, this option is not selected.

If you select this option the following data needs to be entered for the Trimmer Bars.

Multi Bar multiplier, the default is one.

Grade Steel Grade of the trimmer bars.

Size	Diameter of the bar.
Note	Notes for the trimmer bars, the default text is "Trimmer Bars".
Number or Bars each side	This is number of bars at 45 degrees each corner of the opening, by default this is set to 1.

## Additional Bars - Top and Bottom

By default, this option is not selected.

If you select this option the following data needs to be entered for the Top and Bottom Bars.

Multi	Bar multiplier, the default is one.
Grade	Steel Grade of the trimmer bars.
Size	Diameter of the bar.
Note	Notes for the trimmer bars, the default text is "Half Each Side".
Number or Bars each side	This is number of bars above and below the opening, by default this is set to 2.

## Additional Bars – Left and Right

Exactly the same data is entered for the Left and Right Bars as the Top and Bottom Bars.

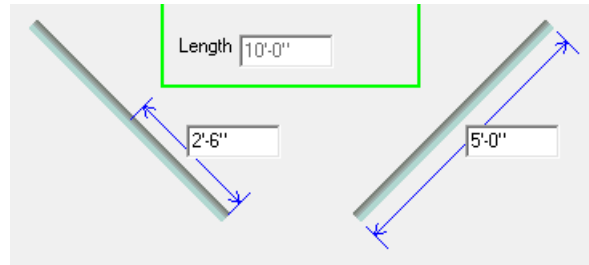
## 14.4.3 Bar Lengths

### Trimmer Bar Lengths

There are two different ways the trimmer bar length can be defined as shown in figure 13.3.3:1 below;

- 1 Overall length
- 2 Projection from the point where trimmer bar from the other direction intersect.

The values in each field depend on each other and will change automatically.



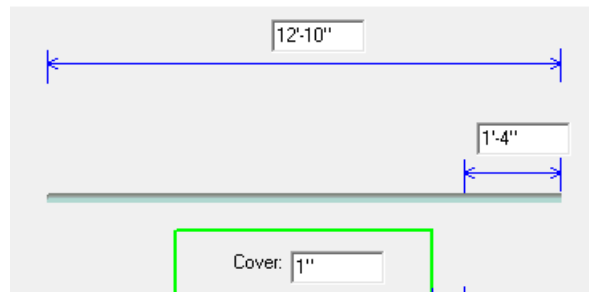
**Figure 14.4.3:1 Trimmer Bar Lengths**

### Top and Bottom Bar Lengths

There are two different ways the top and bottom bar lengths can be defined as shown in figure 13.3.3:2 below;

- 1 Overall length.
- 2 Projection from the point where left and right bars meet. This value is kept constant if the hole size is changed.

The values in each field depend on each other and will get changed automatically.



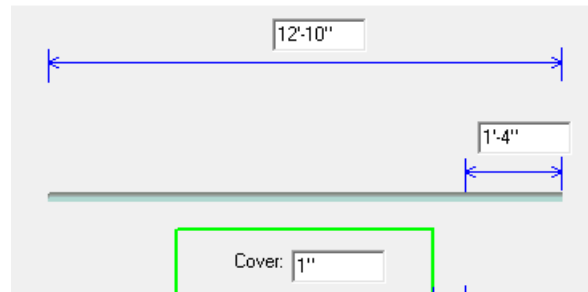
**Figure 14.4.3:2 Top and bottom bar lengths**

### Left and Right Bar Lengths

There are two different ways the top and bottom bar lengths can be defined as shown in figure below;

- ▶ Overall length
- ▶ Projection from the point where the trimmer bar from the other direction intersect.

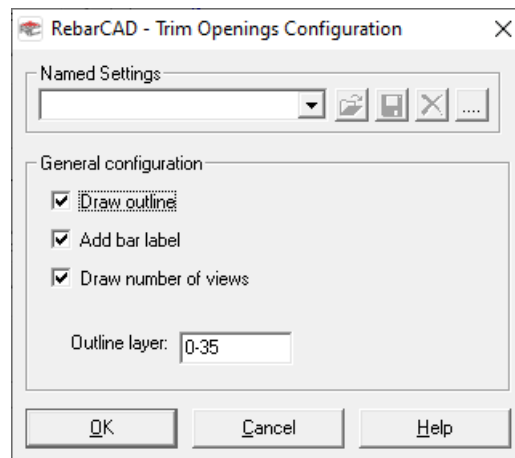
The values in each field depend on each other and will get changed automatically.



**Figure 14.4.3:3 Left and right bar lengths**

## 14.4.4 13.3.4 Configuration

Select the Configuration button to display the Trim Openings Configuration dialog as shown below in figure.



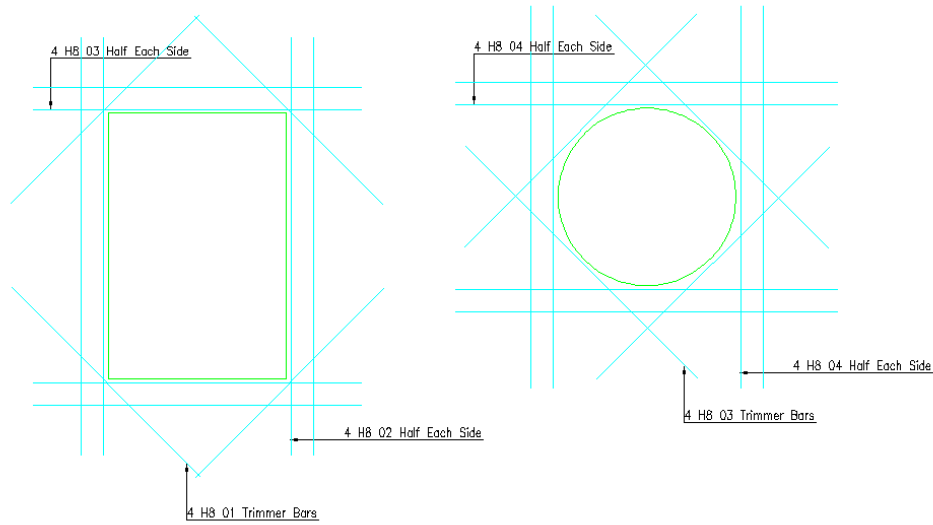
**Figure 14.4.4:1 Trim Openings Configuration dialog**

The configuration dialog has the following items for the user to configure.

**Named Settings** These options are not available in this version of the program



### General Configuration

Draw Outline	If ticked the opening outline will be drawn
Add bar label	If ticked the bar labels will be drawn
Draw number of views	If ticked this option will show all the bars for each bar set around the opening. If un-ticked, only one bar view will be drawn for each bar set around the opening.




**Figure 14.4.4:2 Typical Trimmed Opening Details**

### 14.4.5 Try It! Trimming an Opening

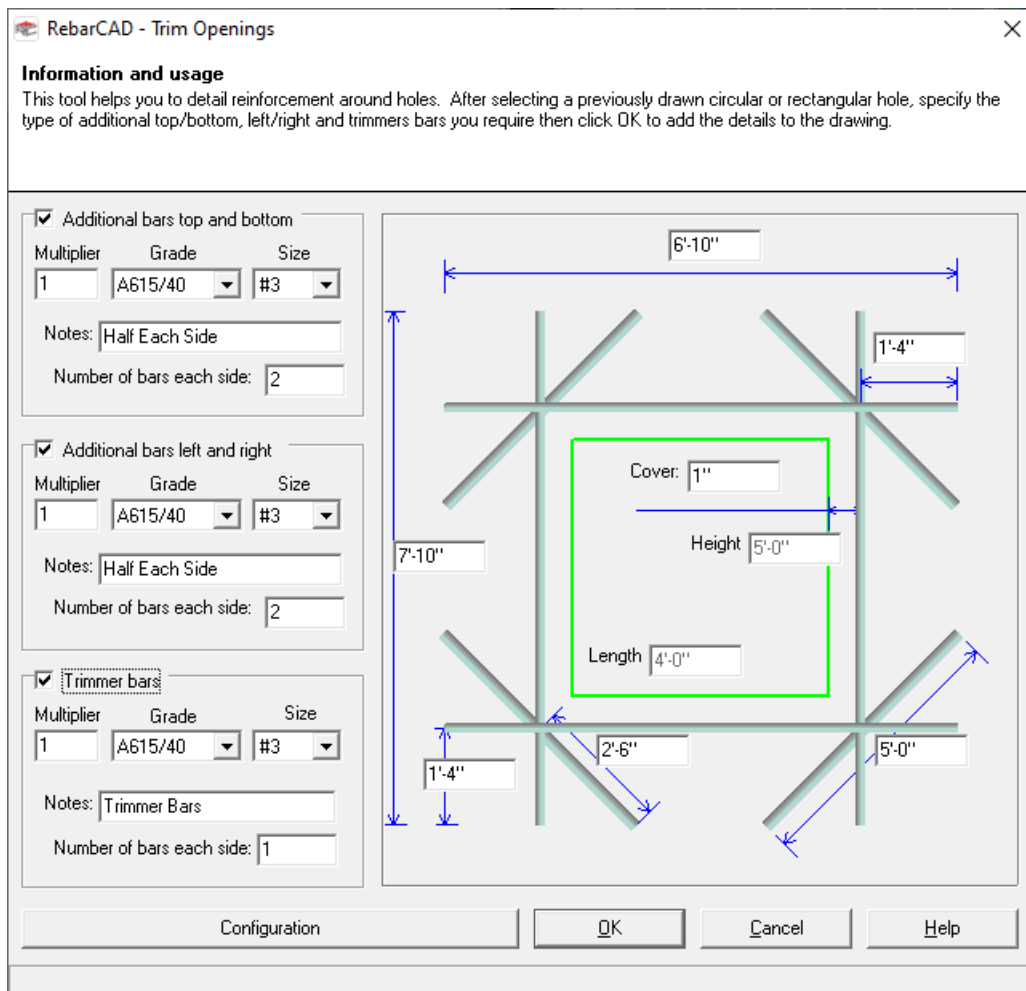
- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 29.dwg
- ▶ Make the Viewport on Trim Openings Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Trim Openings the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

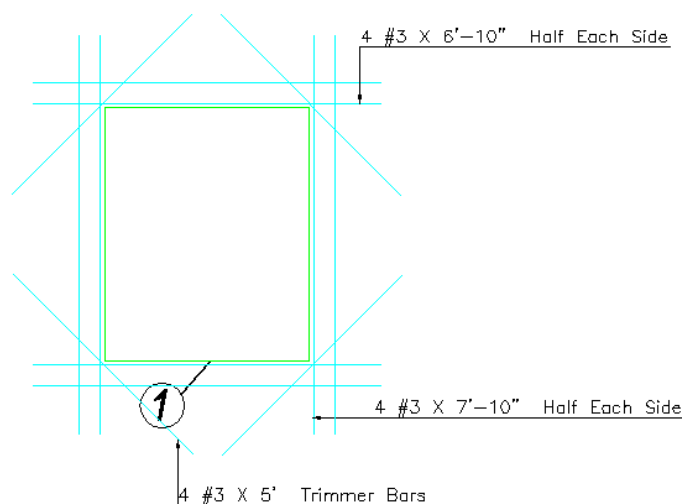
- ▶ Select **RebarCAD** → Draw Bar → Trim Openings or .

*Select the opening to use:* Pick the outline indicated by point 1


Set the fields as shown below in figure 13.3.5:1 and pick OK and the function will add the trimming reinforcement around the opening.



**Figure 14.4.5:1 Trim Rectangular Openings dialog**

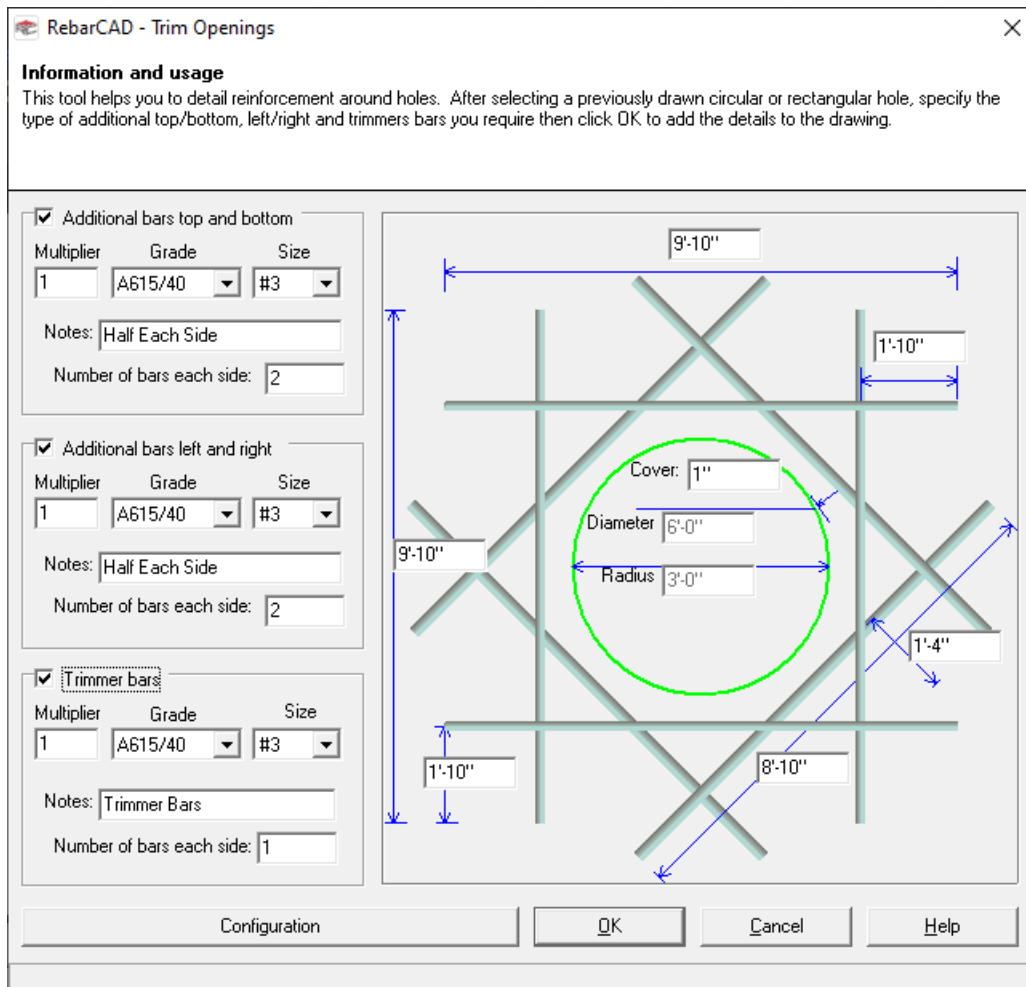


**Figure 14.4.5:2 Finished Square Opening**

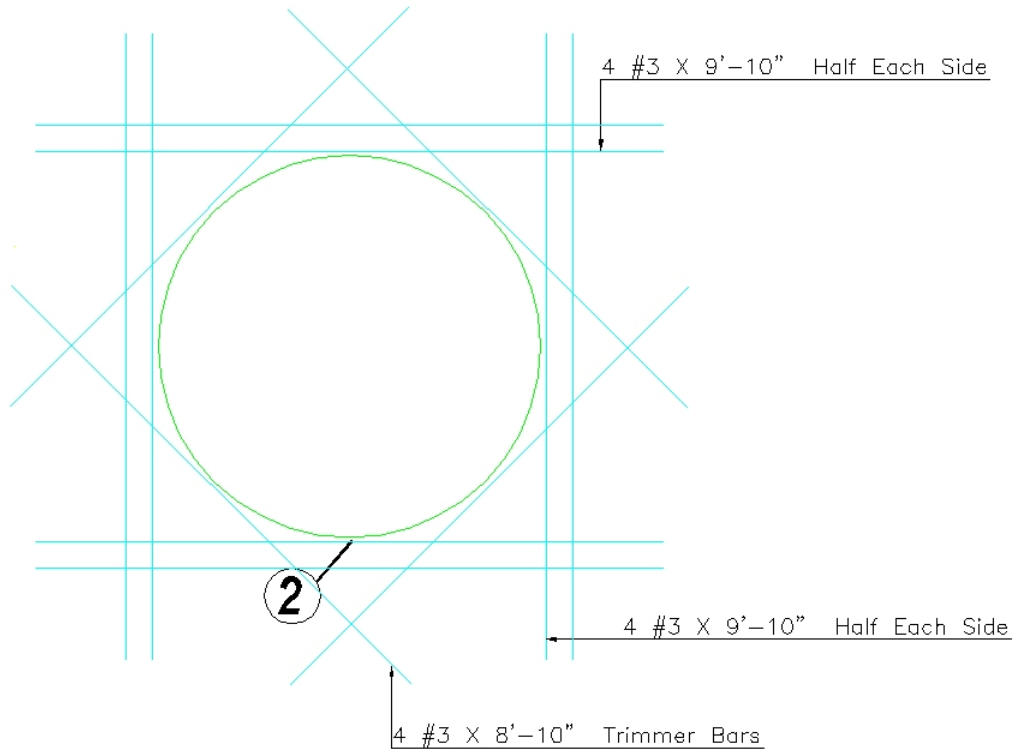
- Select RebarCAD → Draw Bar → Trim Openings or .

*Select the opening to use:* Pick the outline indicate by point 2

Set the fields as shown below in figure and pick OK and the function will add the trimming reinforcement around the opening.




**Figure 14.4.5:3 Trim Circular Openings dialog**



**Figure 14.4.5:4 Trimmed Circular**

## 14.5 Draw Lap Dog Leg Bar

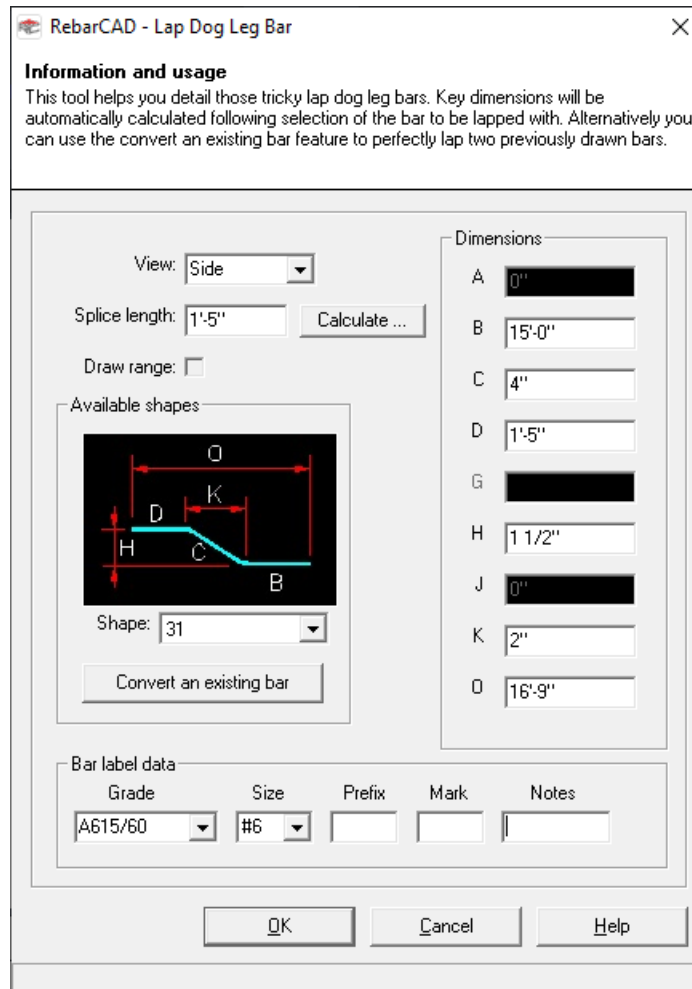
The Draw Lap Dog Leg Bar tool helps with the placing of a cranked bar when lapping with an existing bar on the drawing. The cranked bar is drawn as a new bar mark in either plan or side view. It can lap with an existing bar which may or may not have a range line attached.

This command is available from the *Tools* toolbar or through RebarCAD → Tools → Lap Dog Leg Bar .

### 14.5.1 Using Lap Dog Leg Bar Command

At the AutoCAD command line, you will be prompted "Pick the range of bars to lap with:"

Select a bar view on the screen and then the Lap Dog Leg Bar dialog as shown in the figure below.



**RebarCAD - Lap Dog Leg Bar**

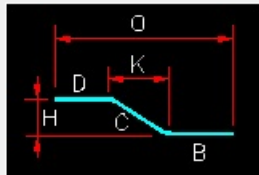
**Information and usage**  
 This tool helps you detail those tricky lap dog leg bars. Key dimensions will be automatically calculated following selection of the bar to be lapped with. Alternatively you can use the convert an existing bar feature to perfectly lap two previously drawn bars.

View:

Splice length:  Calculate ...

Draw range: ☐

Available shapes



Shape:

Convert an existing bar

**Dimensions**

A:

B:

C:

D:

G:

H:

J:

K:

Q:

**Bar label data**

Grade	Size	Prefix	Mark	Notes
<input type="text" value="A615/60"/>	<input type="text" value="#6"/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

OK Cancel Help

**Figure 14.5.1:1 Lap Dog Leg Bar dialog**

The View and Bar Label data fields are updated automatically depending on the Bend Type picked to lap with on the drawing. There are a number of fields that can be edited to suit your requirements;

#### Splice Length

By default, the utility sets the splice length (lap length) at 30d but this can be overridden by typing in a new value.

#### Shapes

Use the drop down menu to select the crank bar bend type. The shapes that are offered will vary according to the Detailing Standard configured inside RebarCAD. The appropriate default dimensions are displayed in dimension fields. You will only be able to edit the length of dogleg. The remaining dimensions are automatically calculated based on splice length, bar to lap and lapping bar values.

#### Convert an Existing Bar

You can also convert an existing lapped bar in RebarCAD to a lap with dogleg bar. Click the "Convert an existing bar"

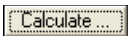
button in the main dialog box and select an existing bar on the drawing.

## Bar Label Data

Grade	Grade of the dogleg bar. Default value is Grade of bar to lap with
Size	Size of dogleg bar. Default value is Size of bar to lap with
Prfx	Bar mark prefix. Default value is Prfx of bar to lap with
Mark	Bar Mark required. If none, automatic bar mark of <b>RebarCAD</b> will be used
Notes	Notes that will get appended to the label

You can now continue by picking the OK button.

## 14.5.2 Calculate...

Select the Calculate button  from the main Draw Lap Dog Leg dialog box to open the Splice Length Calculator as shown below in figure.

The Splice calculator helps to calculate Splice / Lap length required for any bars under tension for a set of given design parameters.

- ▶ The program supports ACI 318 code and CRSI Tables.
- ▶ For ACI 318 code, it uses section 12.2.3 of ACI 318 and considers all the parameters given in this section.
- ▶ For CRSI Table, it uses appropriate tables.
- ▶ The program supports mixing of metric and imperial bars.
- ▶ Metric unit supports hard and soft metric bars.

There are two tabs – one for ACI 318 code method and other for CRSI Tables. Choose the required method.

### ACI 318

This uses section 12.2.3 of ACI 318 Code and calculates based on the formula given.

**RebarCAD - Splice Calculator**

**Information and usage**  
This tool calculates splice/lap lengths for any bars under tension. The program supports ACI 318 (section 12.2.3) code and CRSI tables. Select the required method tab and proceed to specify all associated properties. This tool will automatically shown the splice/lap length (shown in red) as you define your parameters.

ACI 318 | **CRSI Table**

Concrete  
Strength (fc') 4000 Tensile strength fct 379 Use tensile strength  
Light weight

Bars  
Class A Grade Strength fy Location  
Class B A615/60 60000 Top Others ☐ Epoxy coated  
Class C

Units  
Imperial Metric Imperial / metric bars Imperial Metric Soft Metric

☒ Transverse details Width 2'-0" >> Longitudinal details

Transverse bar spacing 1'-0" Longitudinal bar spacing 6"

Transverse no. of legs 2 Lap distance **1'-5"**

Transverse bar size #6 Longitudinal no. of bars 4

Longitudinal bar size #6 >>

Side cover 2" Bottom cover 2"

Close Help

**Figure 14.5.2.:1 ACI 318 Tab on the Splice Calculator**

### CRSI Table

All the relevant CRSI tables are made available and the appropriate lap value is displayed from the Table.

**RebarCAD - Splice Calculator**

**Information and usage**  
This tool calculates splice/lap lengths for any bars under tension. The program supports ACI 318 (section 12.2.3) code and CRSI tables. Select the required method tab and proceed to specify all associated properties. This tool will automatically shown the splice/lap length (shown in red) as you define your parameters.

ACI 318 **CRSI Table**

Concrete  
Strength (fc') 4000

Structure Type  
Beam / column All others  
Slab / wall

Method  
ACI 318  
AASHTO

Bars  
Class A Class B Class C

Location  
Top Others ☐ Epoxy coated

Note :  
CRSI Table supports only Grade 60 Steel

Units  
Imperial Metric

Condition  
Case1: Cover at least 1 time BarDia AND C-C Spacing at least 2 times BarDia

☒ Transverse details Width 2'-0" >>

Transverse bar spacing 1'-0"

Transverse no. of legs 2

Transverse bar size #6 >>

Side cover 2" Bottom cover 2"

Longitudinal details

Longitudinal bar spacing 6"

Lap distance **1'-3"**

Longitudinal no. of bars 4

Longitudinal bar size #3 >>

Close Help

**Figure 14.5.2:2 CRSI Table Tab on the Splice Calculator dialog**

### Entering Concrete data

The concrete data fields consist of width of the concrete, side and bottom cover to reinforcement, bar strengths and a light weight concrete option.

- |                |   |
|----------------|---|
| Structure Type | If the CRSI Tab is selected pick the structure type before inputting the width, side and bottom covers.   |
| Width          | Enter the width of concrete. The width value will be used to calculate the spacing of the longitudinal bars, given the number of bars and side cover. |

Bottom Cover	The bottom cover distance will be applied to the transverse reinforcement if this has been selected. Alternatively if it has not been selected the cover will apply to the longitudinal steel.
Side Cover	The side cover distance will be applied to the transverse reinforcement if this has been selected. Alternatively if it has not been selected the cover will apply to the longitudinal steel. If the number of bars have been specified this value will be used to help calculate the bar centers.
Strength	Pick the concrete strength ( $f_c'$ ) available from the drop down list or enter directly in the input field.
Use Tensile Strength	Select this check box if you want to specify the tensile strength that is to be used in the calculation.
Tensile Strength	Enter the tensile strength of concrete to be used in the calculation. Default value based on compressive strength will be available. This automatically gets calculated if compressive strength is changed. This value will not be used for calculation if "Use Tensile Strength" option is "off".

## Defining Rebar Data

### Longitudinal Bar Details

Listed below are the fields relating to the longitudinal bars. The data from these fields is used to calculate the lap length.

Longitudinal Spacing	Bar	Enter the spacing of bar for which the lap required to be calculated.
Longitudinal of Bars	Number	Enter the number of longitudinal bars from which the spacing of bars will be calculated and will be used for calculation.
Longitudinal Bar Size		Enter the longitudinal bar size.

### Transverse Bar Details

Select the tick box 'Transverse details' if these bars are required. The following data fields then need to be filled in.

Transverse Bar Spacing	Enter the spacing of bar, which will be used to calculate $K_{tr}$ value.
------------------------	---

Transverse Number of Legs	Enter the number of Transverse legs, which will be used to calculate Ktr value.
Transverse Bar Size	Enter the transverse Bar Size, which will be used to calculate Ktr value.

## Rebar Data

Grade	Enter Longitudinal Bar Grade.
Steel Strength	Enter Longitudinal bar steel Strength.
Location	This is location of Longitudinal bars.
Epoxy Coated	Select this check box if the bars are epoxy coated.
Class A	Use this option if bars lapped are staggered as per Section 12.15 of ACI 318.
Class B	Use this option if bars lapped are not staggered.



## Calculated Lap and Unit

Units	Metric and Imperial units are available and Imperial is default. Selecting the unit will update all the information in the dialog to the selected unit. Program also supports bars in different units and mixing of them is possible. Imperial bars, metric bars, and soft metric bars are supported. Selecting imperial unit default to imperial bars and metric unit default to metric bars. Metric bars in imperial units and Imperial bars in metric units are possible.
Calculated Lap	The calculated lap is displayed as shown and it gets updated for any change in any of the edit fields. It will have the lap value in the current unit.

### 14.5.3



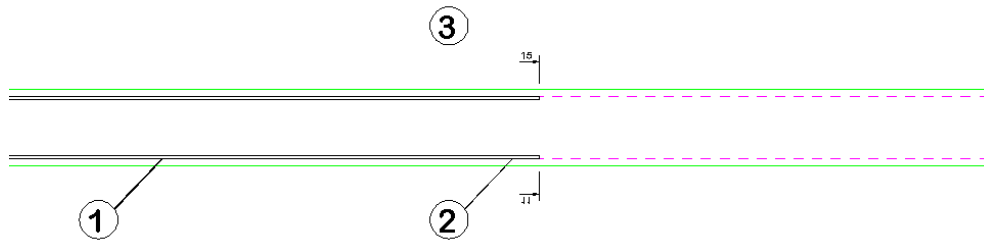
### *Try It!* Drawing Lap Dog Leg Bar

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 29.dwg
- ▶ Make the Viewport on Draw Lap Dog Leg Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Draw Lap Dog Leg the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 

- ▶ Make 03 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

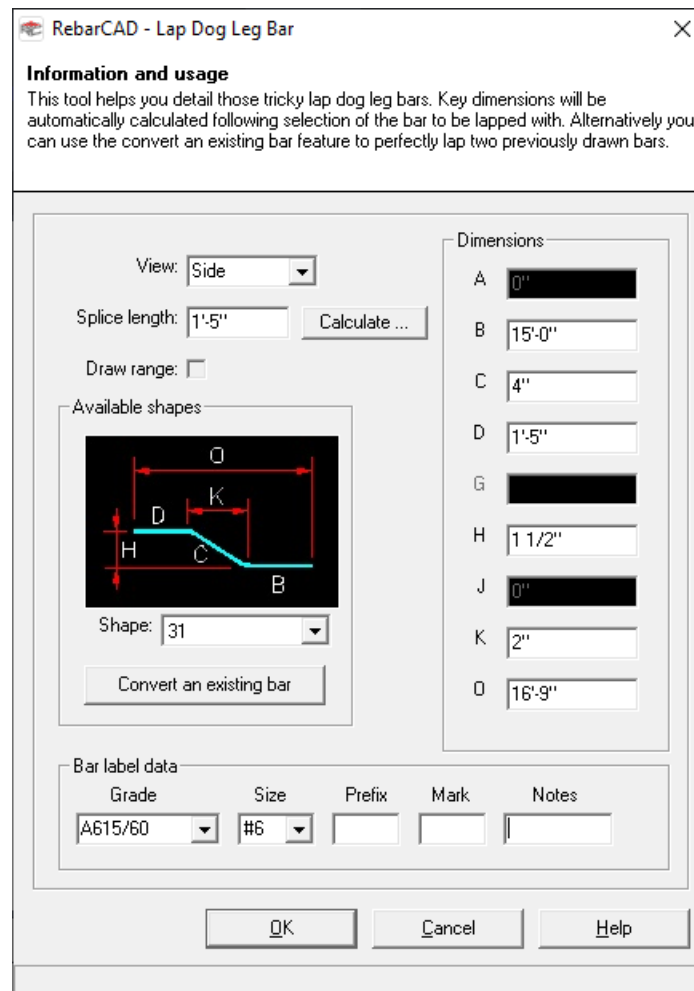
- ▶ Use *Zoom Window* into the center of the section where the picking points are shown



**Figure 14.5.1:1 Bars to Lap with**

- ▶ Select RebarCAD → Tools → Draw Lap Dog Leg Bar or

*Pick the range of bars to lap with:* Pick the bar indicate by point 1



**Figure 14.5.3:2 Lap Dog Leg Bar dialog**

Set the fields in the Lap Dog Leg dialog as indicated in figure 14.5.1:2.

When setting the bar size the lap calculator dialog box will appear accept  $40d$  as the bar diameter multiplier. Pick *OK*.

Pick a point to indicate which end of the bar to lap: Pick on the bar at point 2

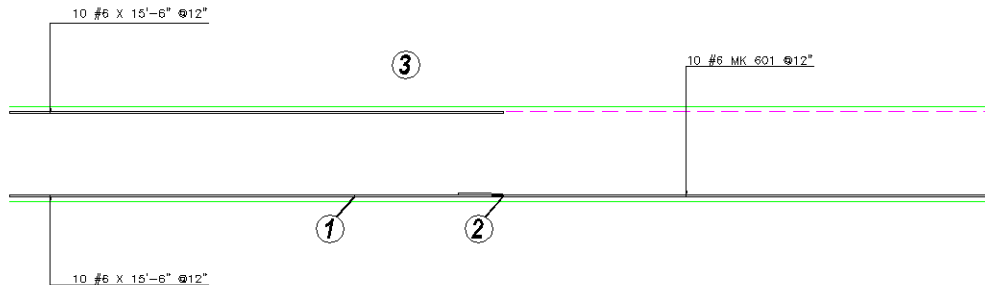
Pick a point to indicate which side to place the lap dog leg bar: Pick above bar at point 3

If the bar to lap with is range bar then the user will also be asked for

Pick where to place the range line:

If the user not specified the length of dogleg in the main dialog, then in command it will be asked user to pick a point to calculate dimension of dogleg.

Then the dogleg bar is placed according with new bar mark.



**Figure 14.5.3:3 Lap Bar drawn**

## 14.6 Outlines

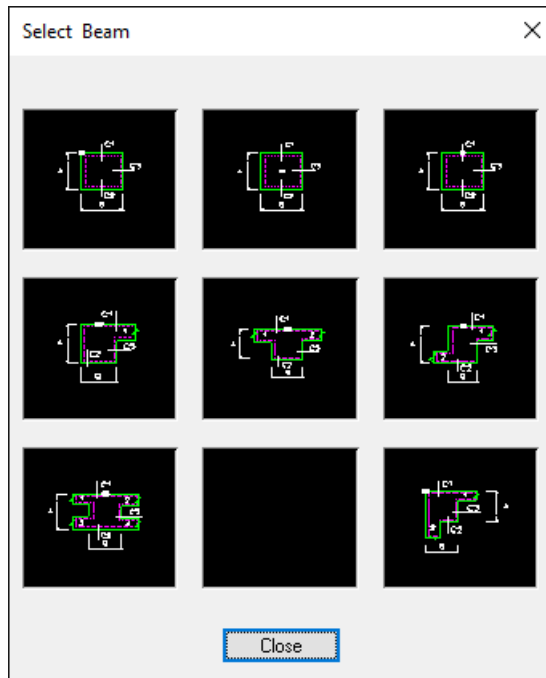
The RebarCAD Outline tools includes a range of parametric shapes which automatically include concrete cover lines, with the correct line types, layers and dimensions, if required. Also included is a Freehand Outline routine which draws a line with a parallel cover line beside. The distance between the cover and outline can be defined. The outline routines have been provided with RebarCAD to assist your detailing and you do not need to use them to create a reinforcement detail.

The Outline routines are available from the Outlines toolbar or through RebarCAD → Tools → Outlines. The Outlines are broken down into the following sections;

- ▶ *Beam;*
- ▶ *Column;*
- ▶ *Slab;*
- ▶ *Others;*
- ▶ *Freehand.*

### 14.6.1 Beam Outlines

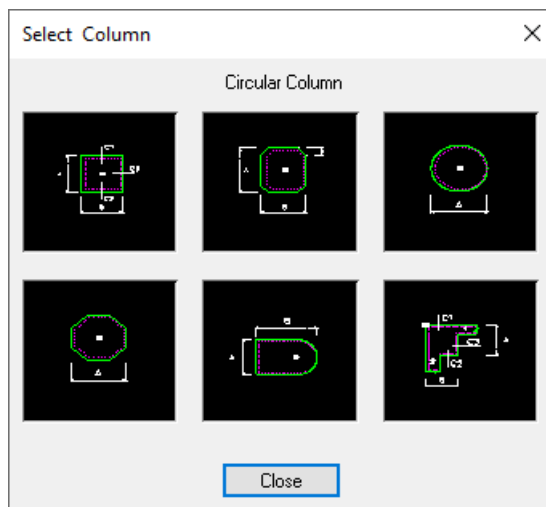
Loads the Beam Outlines dialog where the required beam section/elevation outline can be selected. After selecting the initial outline, you may be presented with another dialog asking you to select the required orientation / rotation. You will then be prompted to input the dimensions as indicated on the slide. To view the slide again, type S for slide at the command prompt.



**Figure 14.6.1:1 Beam / Column Sections and Elevations**

## 14.6.2 Column Outlines

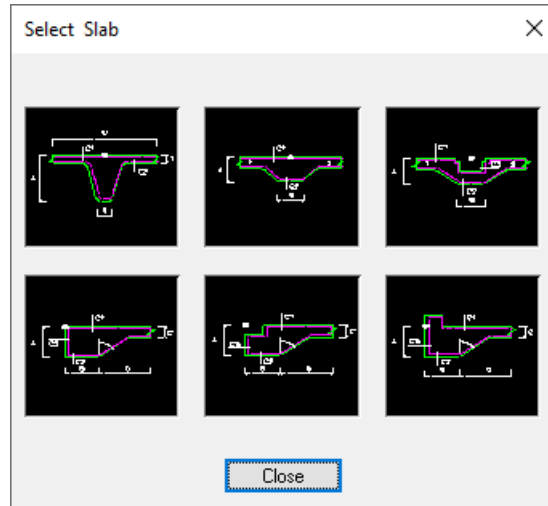
Loads the Column Outlines dialog where the required column section outline can be selected. After selecting the initial outline, you may be presented with another dialog asking you to select the required orientation / rotation. You will then be prompted to input the dimensions as indicated on the slide. To view the slide again, type S for slide at the command prompt.



**Figure 14.6.2:1 Column Outline dialog**

### 14.6.3 Slab Sections

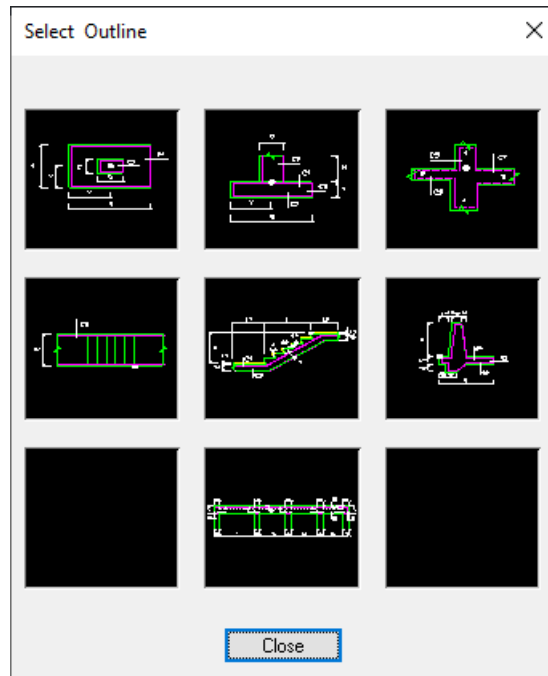
Loads the Slab Outlines dialog where the required slab section outline can be selected. After selecting the initial outline, you may be presented with another dialog asking you to select the required orientation / rotation. You will then be prompted to input the dimensions as indicated on the slide. To view the slide again, type S for slide at the command prompt.



**Figure 14.6.3:1 Slab Outline dialog**

### 14.6.4 Others

Loads the Outline dialog where the required section or plan outline can be selected. After selecting the initial outline, you may be presented with another dialog asking you to select the required orientation / rotation. You will then be prompted to input the dimensions as indicated on the slide. To view the slide again, type S for slide at the command prompt.



**Figure 14.6.4:1 Outline dialog**

The following Outlines are available in the Others Outline dialog;

- ▶ Pad Base in plan and elevation
- ▶ Staircase in plan and elevation
- ▶ Retaining Wall in section
- ▶ Beam intersection
- ▶ Ground Beam Layout

## 14.6.5 Free Hand Outlines

This routine will allow you to draw the outline of your shape with the cover being automatically drawn too.

You use the freehand outline exactly the same as the AutoCAD Line command, by picking from point to point, or specifying distances and angles and then pressing ENTER to finish or C to close the line.

When you first select the command, you are prompted to enter the offset distance to the cover line.

Next you specify the first two points of the line. At this point you are asked to toggle alignment position between the cover line and the outline. If you draw your first line from bottom to top and toggle the alignment to the right you will specify your dimensions on the outline and not the cover. When you move your cursor to the right the pair of lines will move to follow you.

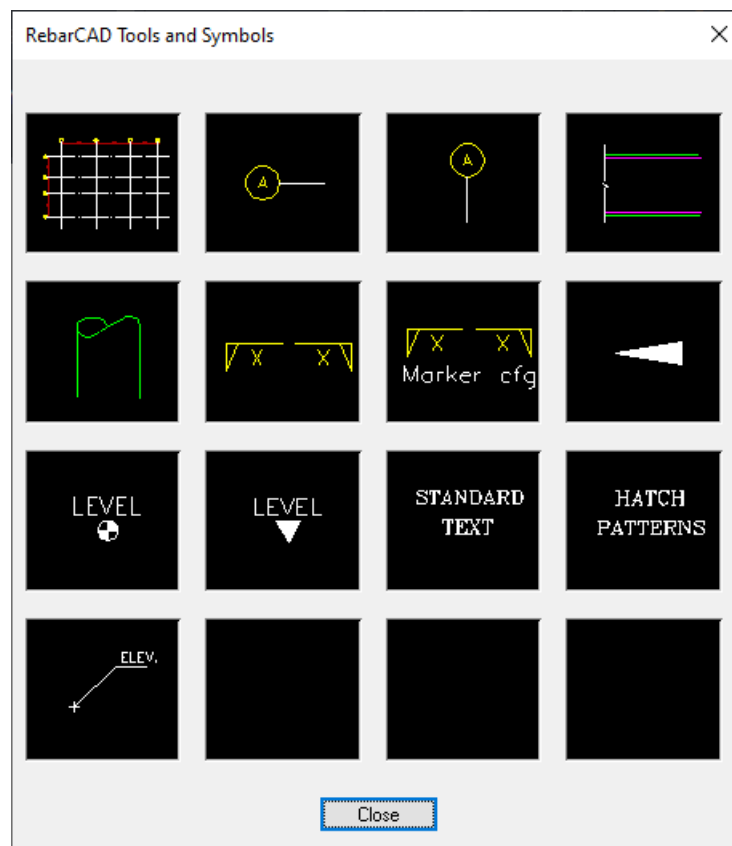
You can then continue specifying the points to form the outline and cover will remain constant, all the corners will be trimmed to suit.

You can press Enter to finish or type C for close to end the command.

## 14.7 Tools & Symbols

Tools and Symbols dialog contains a number of useful tools that can be used to help with general drafting such as a Grid Generator, grid balloons and line breaks.

This command is available through **RebarCAD** → Tools → Tools/Symbols.



**Figure 14.7:1 Tools and Symbol dialog**

This activates a dialog where a number of useful tools to aid general drafting can be picked. The options are as shown

### 14.7.1 Grid Generator

Places a grid on the drawing which allows different distances between the vertical and horizontal lines. The grid functions are configured inside the Global Configuration dialog under the heading of Grid.

## 14.7.2 Grid Balloons

This utility to place either horizontal or vertical annotated grid balloons

## 14.7.3 Line Breaks

A configurable line brake command

## 14.7.4 Pipe Ends

A circular pipe end symbol

## 14.7.5 Arrow Tip

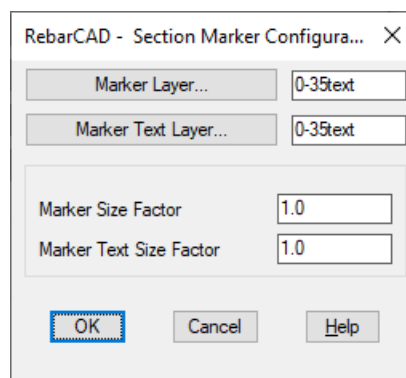
An arrow tip block

## 14.7.6 Level and Elevation symbols

Contains symbols with attributes attached to type in the level height etc

## 14.7.7 Section Markers and Section Marker Config.

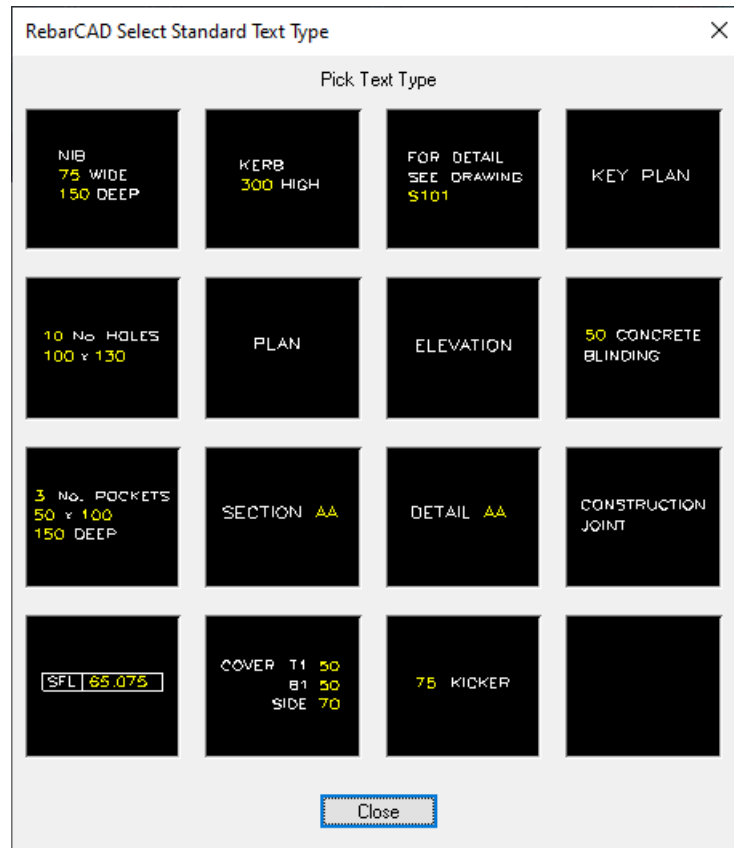
You can set the layers and sizes for the section marker symbol and text. The symbol is automatically rescaled according to the working scale of the drawing



**Figure 14.7:2 Section Marker Configuration**

## 14.7.8 Standard Text

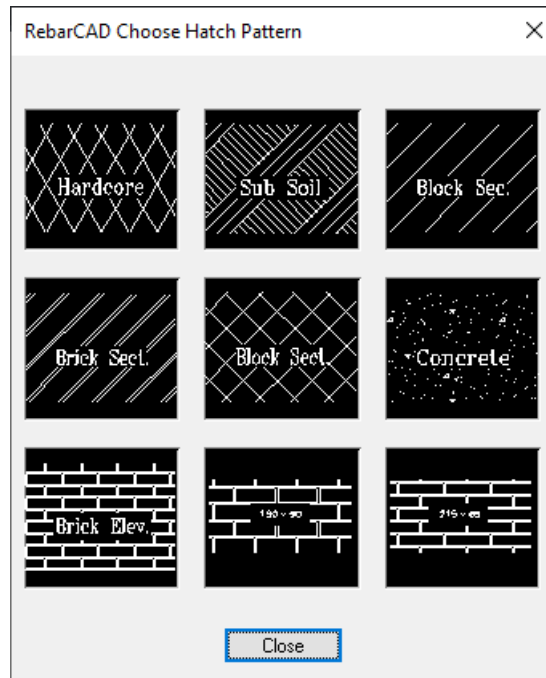
These are blocks which contain annotation text for details, some of them have editable attributes



**Figure 14.7:3 Standard Text Types**





## 14.7.9 Standard Hatch Patterns

These include are CADS hatch patterns for Hardcore, Sub-soil, Block & Brick Section, Concrete and Brick Elevations.



**Figure 14.7:4 Hatch Pattern dialog**

## 14.8 Command List - Tools

Action	Menu Selection	Toolbar	Icon
Special Bar Creator	RebarCAD→Tools→Special Bar Creator	Misc Tools	
Cross Section Detailer	RebarCAD →Tools→Cross Section Detailer	Misc Tools	
Trim Openings	RebarCAD →Tools→Trim Openings	Misc Tools	
Draw Lap Dog Leg Bar	RebarCAD →Tools→ Draw Lap Dog Leg Bar	Misc Tools	
Outlines - Beam	RebarCAD →Tools→ Outlines - Beam	Outlines	
Outlines - Column	RebarCAD →Tools→ Outlines -Column	Outlines	
Outlines - Slab	RebarCAD →Tools→ Outlines - Slab	Outlines	
Outlines - Others	RebarCAD →Tools→ Outlines - Others	Outlines	
Outlines - Freehand	RebarCAD →Tools→ Outlines - Freehand	Outlines	
Tools & Symbols	RebarCAD →Tools→ Tools & Symbols		

## 15 Detailers

### 15.1 Introduction

RebarCAD is shipped with the following Detailers;

Beam Detailer	Beam Detailer provides an automated method of producing reinforcement drawings for concrete beams. It features <u>Single</u> , <u>End</u> and <u>Interior Span</u> Types.
Column Detailer	Column Detailer provides an automated method of producing placing drawings for reinforced concrete columns. It features Rectangular and Circular Column types with or without columns above.
Pad Footing Detailer	CADS Pad Footing Detailer (PFD) provides an automated method of producing reinforcement drawings for rectangular reinforced concrete pad footings.

The RebarCAD Detailers provide an automated method of producing reinforcement drawings for standard structural types. You can input the dimensions of the structure and influence the bar arrangements based on standard layouts of rebar. The details are then drawn and Bar Listd for you. With some of the detailers you can also import design data from the CADS Design Programs.

The Detailers use the AutoCAD Dimscale variable to size the text and blocks to suit the plotted scale of the drawing regardless of whether you are working in Model Space only or both Model/Layout space. Ensure that Dimscale is set to match the plotted scale of the detail.


If you have access to the CADS-SC software, use the Drawing Set-up Function to load in a Title Block and set the appropriate scale and drawing environment. Alternatively, you can use CADS VPM, create Layout function or basic AutoCAD, create Layout as described in Section 2 of this Tutorial.

### 15.2 Beam Detailer

Beam Detailer provides an automated method of producing reinforcement drawings for concrete beams. It features Single, End and Interior Span Types. You can choose different bar arrangements with percentage span calculations and bar dimensions automatically determined from the entered span data.

The Beam Detailer allows the top and bottom support bars to be curtailed. The amount of curtailment can be specified as either a fixed distance or calculated as a percentage of the clear span between the column faces. For the bottom support reinforcement, the curtailment calculation is based on the current beams clear span. For the top support reinforcement, the

curtailment calculation is based on either the current beams clear span or the adjacent beams clear span whichever is the greater.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Beam Detailer .

There are four data input dialog boxes which need to be completed before attempting to ask the detailer to draw the beam these consist of;

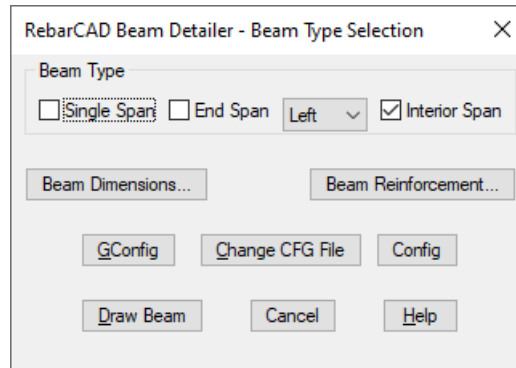
Beam Type                      specify either single span, end span or interior span.

Beam Dimensions            input the dimensions for span, depth, width etc.

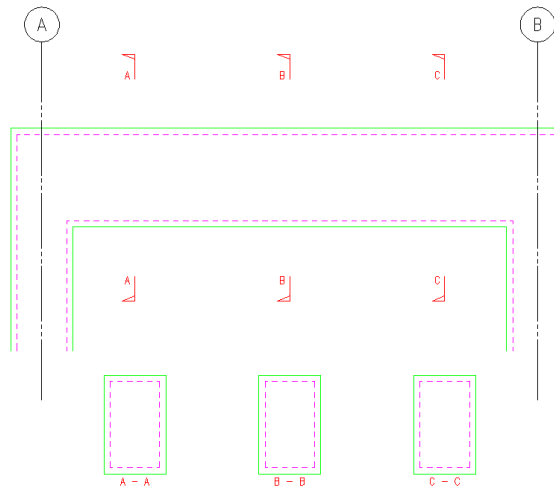
Beam Reinforcement        set-up the top, bottom and link reinforcement

## 15.2.1      Selecting the Beam Type

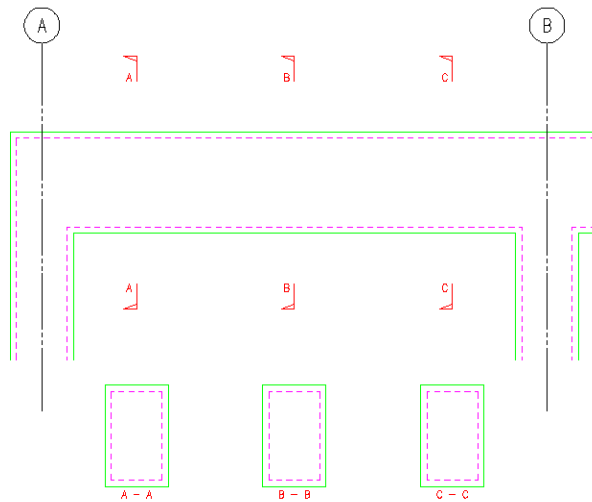
The type of beam span can be selected from the Beam Type Selection dialog. Single Span, End Span or Interior span types can be selected by activating the relevant check box. End spans may be defined as left or right by picking the relevant option from the adjacent pop-down list. At any time during the set-up procedure the beam span type can be altered or checked by picking the Beam Selection Button that is available from the majority of the beam detailer input dialogs.



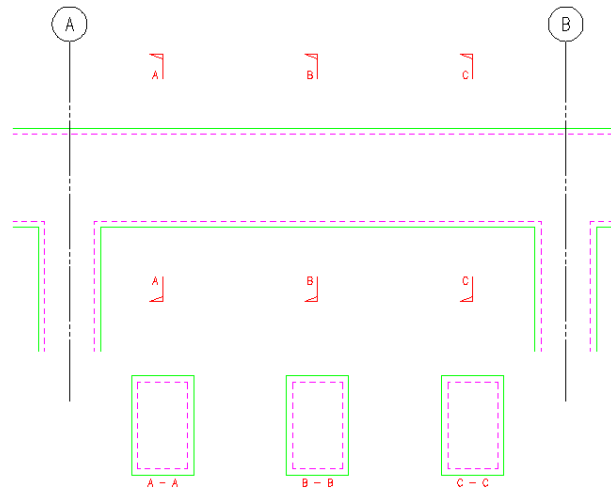
**Figure 15.2.1:1 Beam Detailer Beam Type Selection**



**Figure 15.2.1:2 Single Span Beam Type**




**Figure 15.2.1:3 End Span Beam Type**



**Figure 15.2.1:4 Interior Span Beam Type**

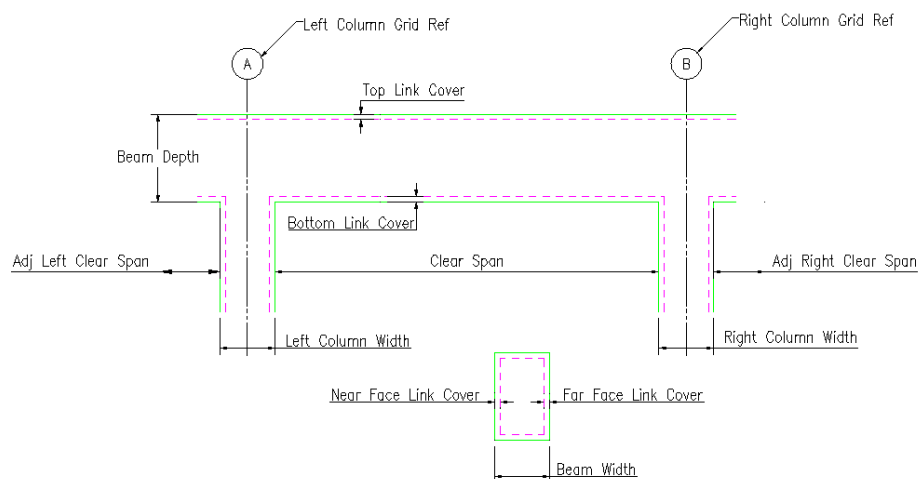
## 15.2.2 Entering the Beam Dimensions

The beam dimensions can be amended or checked by picking the Beam Dimensions Button  that is available from most of the beam detailer input dialogs.

**Figure 15.2.2:1 Beam Dimensions dialog**

The types of beam dimension data that are required are dependent upon the beam span type selected. Therefore, some beam dimension fields will not be accessible for certain beam span

types. When defining an end or interior beam the BMD program needs the adjacent span data in order to calculate the correct curtailment dimensions for the top support bars.



**Figure 15.2.2:2 Beam Detailer Dimensions**


Beam Dimension input data is as follows:

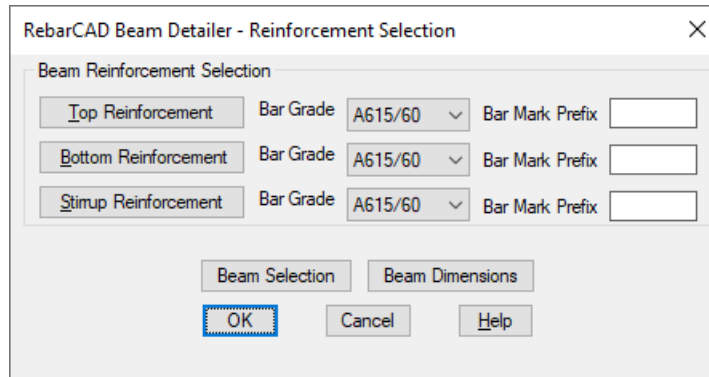
Clear Span	This is the clear span between column faces of the beam.
Adjacent Left Clear Span	Interior and right end span types only and is the clear span between column faces of the beam to the left of the beam to be detailed.
Adjacent Right Clear Span	Interior and left end span types and is the clear span between column faces of the beam to the right of the beam to be detailed.
Left Column Width	This is the overall column width at the left end of the beam.
Right Column Width	This is the overall column width at the right end of the beam.
Beam Depth	This is the overall depth of the beam.
Beam Width	This is the overall width of the beam
Draw Outline	When set to Yes the detail produced will include the beam outline, set to No the detail produced will only contain the reinforcing entities that can be placed into an existing general arrangement drawing.

Beam Left End Cover	Single and left end span types only, this is the end cover applied to top and bottom bars.
Beam Right End Cover	Single and right end span types only, this is the end cover applied to top and bottom bars.
Top Cover To Links	This is the cover applied to the beam link leg in the top of the beam.
Bottom Cover To Links	This the cover applied to the beam link leg in the bottom of the beam.
Near Face Cover To Links	This is the cover applied to the beam link leg in the near face of the beam in elevation.
Far Face Cover To Links	This is the cover applied to the beam link leg in the far face of the beam in elevation.
Left Column Grid Ref.	This is the grid reference for the left column grid line and is drawn in the center of the beam when the draw outline is set to yes.
Right Column Grid Ref.	This is the grid reference for the right column grid line and is drawn at the center of the beam when draw outline is set to yes.

## 15.2.3 Defining the Bar Arrangements

The Beam Detailer program divides the beam reinforcement into three zones. These are for the Top, Bottom and Stirrup (Link) Reinforcement.

Picking the beam reinforcement button  opens up the reinforcement selection dialog box where the bar grade and bar mark prefix can be defined for the Top Reinforcement and Bottom Reinforcement and the Stirrup reinforcement.



RebarCAD Beam Detailer - Reinforcement Selection

Beam Reinforcement Selection

Top Reinforcement Bar Grade A615/60 Bar Mark Prefix

Bottom Reinforcement Bar Grade A615/60 Bar Mark Prefix


Stirrup Reinforcement Bar Grade A615/60 Bar Mark Prefix

Beam Selection Beam Dimensions

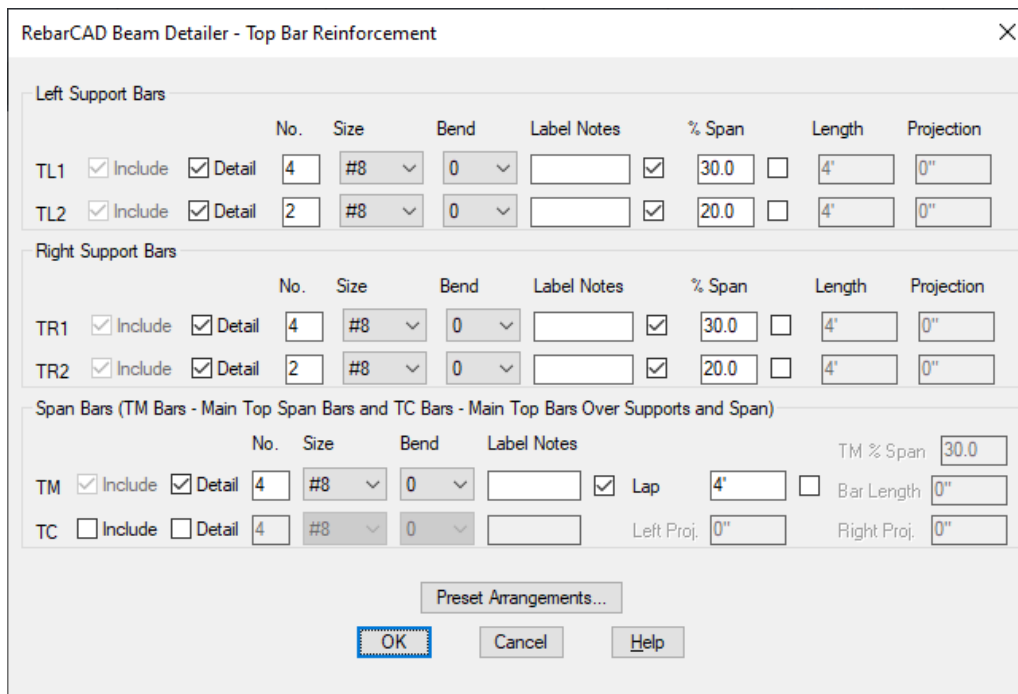
OK Cancel Help

**Figure 15.2.3:1 Reinforcement Selection Dialog**

## 15.2.4 Top Bar Arrangement

From the Reinforcement Selection dialog pick the Top Reinforcement button  to access the Top Reinforcement dialog.

The top bar arrangements can be configured manually by selecting which bars are required in the beam.



RebarCAD Beam Detailer - Top Bar Reinforcement

Left Support Bars

	No.	Size	Bend	Label Notes	% Span	Length	Projection
TL1	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Detail	4 #8	0	<input type="text"/>	<input checked="" type="checkbox"/> 30.0	<input type="text"/> 4'	<input type="text"/> 0"
TL2	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Detail	2 #8	0	<input type="text"/>	<input checked="" type="checkbox"/> 20.0	<input type="text"/> 4'	<input type="text"/> 0"

Right Support Bars

	No.	Size	Bend	Label Notes	% Span	Length	Projection
TR1	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Detail	4 #8	0	<input type="text"/>	<input checked="" type="checkbox"/> 30.0	<input type="text"/> 4'	<input type="text"/> 0"
TR2	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Detail	2 #8	0	<input type="text"/>	<input checked="" type="checkbox"/> 20.0	<input type="text"/> 4'	<input type="text"/> 0"

Span Bars (TM Bars - Main Top Span Bars and TC Bars - Main Top Bars Over Supports and Span)

	No.	Size	Bend	Label Notes	TM % Span	Bar Length	Left Proj.	Right Proj.
TM	<input checked="" type="checkbox"/> Include <input checked="" type="checkbox"/> Detail	4 #8	0	<input type="text"/> Lap	<input type="text"/> 30.0	<input type="text"/> 4'	<input type="text"/> 0"	<input type="text"/> 0"
TC	<input type="checkbox"/> Include <input type="checkbox"/> Detail	4 #8	0	<input type="text"/>			<input type="text"/> 0"	<input type="text"/> 0"

Preset Arrangements...

OK Cancel Help

**Figure 15.2.4:1 Top Bar Reinforcement Dialog**

The following top bar reinforcement data fields are available for all the beam types:

No. Bars	Enter the number of bars required in the bar set.
Size	Select the bar diameter for the bar set.
Bend Type	Select the Bend Type for the bar set.
Label Notes	Type in any bar label note to be added.

## TLI, TL2, TR1 and TR2 Bar Sets - Additional Inputs

These bars are used primarily over the left and right supports and they lap with the TM bar set. They have the following additional input fields to define their location within the beam:

% Span	Define the length of the bar by typing in the % of the span, the distance is taken from the relevant column face. With interior or end span types the percentage is based on the greater of the clear or adjacent span distances.
Length	Enter the length of the bar from the column face at which the bar is set to curtail.
Proj.	End Span Beams only. This option allows the bars to be projected past the end of the beam by the distance typed into the field. The projection setting is only used with the End Span Beams where there are no adjacent spans. For instance, this could be used to tie the beam bars into an adjacent span by entering a projection equal to the lap required.

## TM Bar Set Additional Inputs

This bar set is the main span reinforcement in the top of the beam. It has the following inputs to define the location of the bars within the beam:

Lap	The TM bars lap with the TL1 and TR1 bars, see Figure 14.1.4:1, enter the lap length required between the two bars.
Length	Enter the required bar length which is placed equally about the mid-span.
% Span	The TM bar can be placed as a continuous bar over the column into the adjacent beam. The curtailment point of the TM bar in the adjacent span is entered as a percentage of the clear span. The

percentage span is based on either the current beams clear span between column faces or the adjacent beams clear span whichever is the greater.


## TC Bar Set Additional Inputs

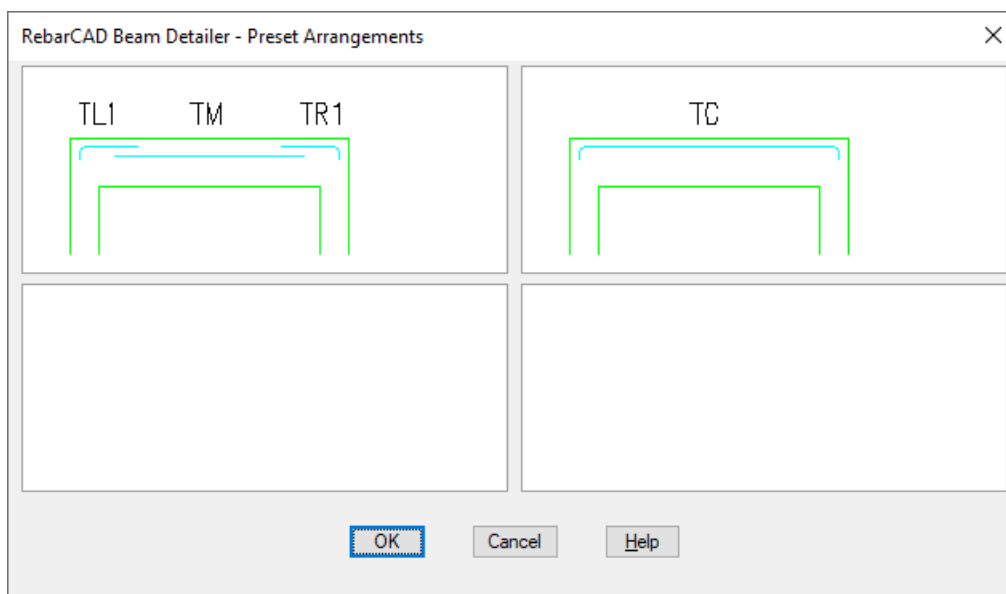
This bar set is used only on single span beam types where a continuous top bar is required. The TC Bar uses the following input to define its location within the beam:

### Left and Right Proj

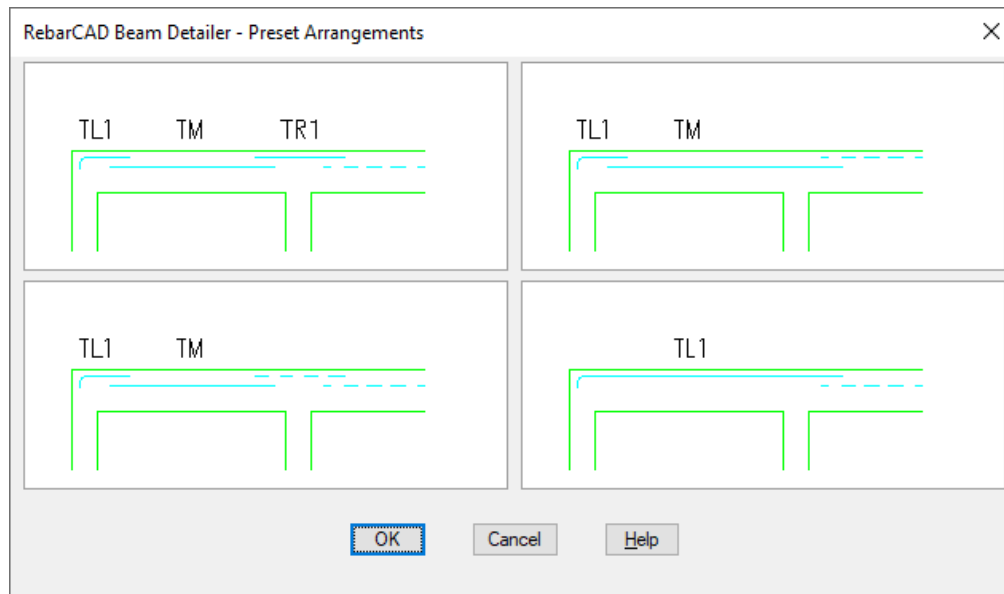
The TC bar can be projected past the end of the beam by the distance typed into this field. For instance, this could be used to tie the beam bars into an adjacent span by entering a projection equal to the lap required.

## Preset Arrangements

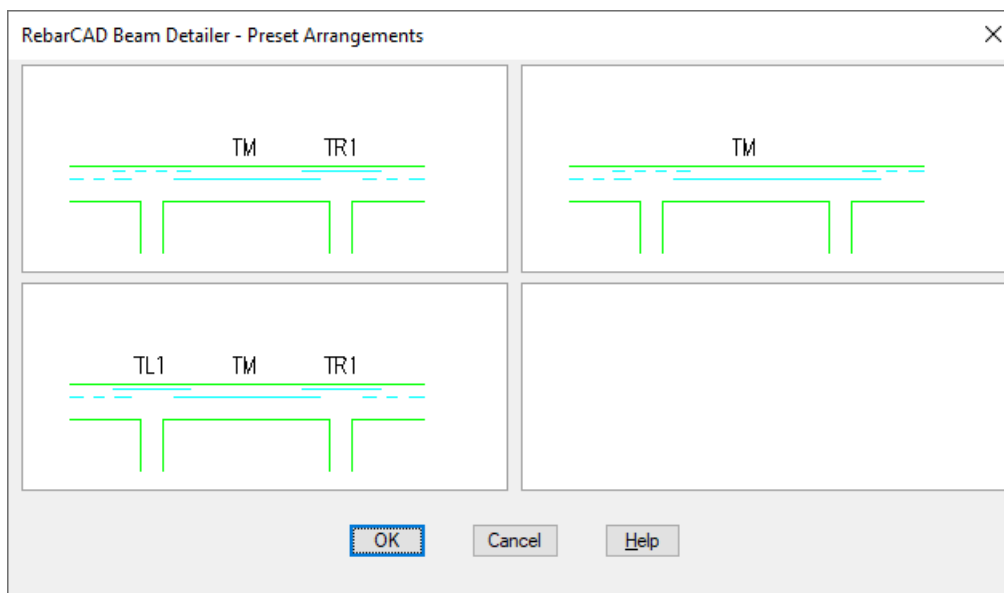
Alternatively, the bar arrangement can be set by picking the Pre-set Arrangements button . This displays the Pre-set Arrangements options for the type of beam selected. Pick on the diagram that displays the bar layout you require to set-up the Top Bar Reinforcement dialog. Shown below are the different top bar arrangements that are available depending on the span type selected.



**Figure 15.2.4:2 Single Span Top Bar Pre-sets**

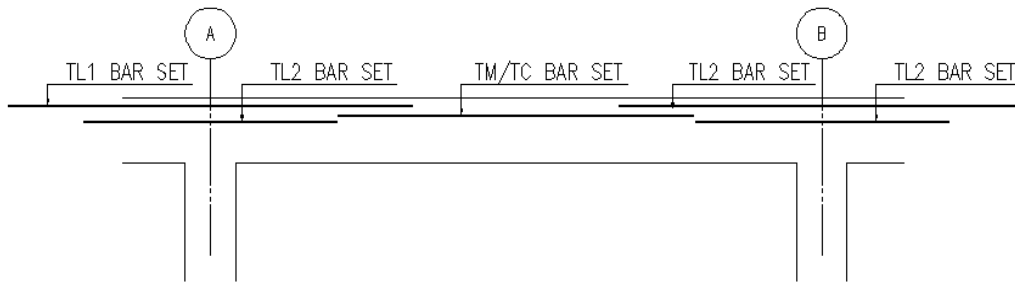


**Figure 15.2.4:3 End Span Top Bar Pre-sets**



**Figure 15.2.4:4 Interior Span Top Bar Pre-sets**

Six additional sets of bars are available for use in the top of the beams. These bar sets are optional and can be omitted from the beam in order to achieve the desired bar arrangement.



**Figure 15.2.4:5 Top Bar Set annotation explained**

### Detail and Include Options

Each of the bar sets has Detail and Include options that determines whether the bar set is to be included in the beam detail or not.

The Detail and Include options can be used in combination. Listed below are the combination options available and an explanation of the effects on the beam being detailed:

Detail option selected

The bar set will be detailed based on the data entered.


Include option selected with Detail option not selected

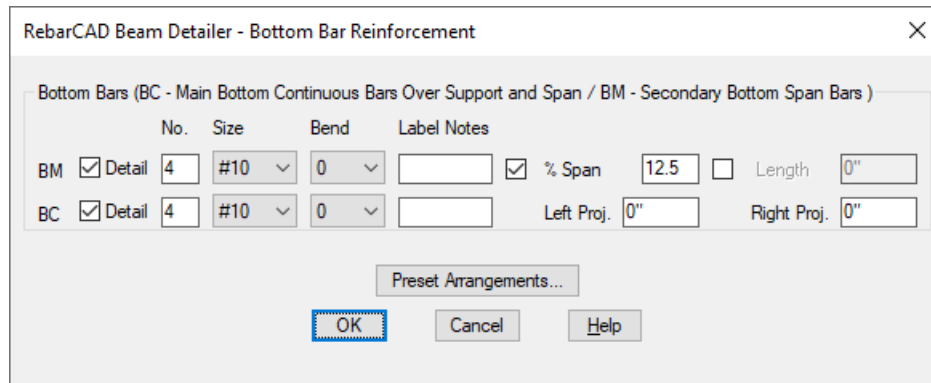
The bar set will not be detailed. However, the data for the bar set will be used to determine the length of the bars that lap with it. For example, if an interior or left end beam has been detailed with the right support bars shown in that span when the adjacent right span beam is detailed the left support bars are already present in the previous beam and do not need to be drawn. However, the information for these bars is required to determine the correct lap and bar length for the span bars in the adjacent right beam.

Include and Detail options not selected

The bar set will not be detailed and the data not used in any bar dimension calculations.

## 15.2.5 Bottom Bar Arrangement

Pick the Bottom Reinforcement button  to access the Bottom Reinforcement dialog where the bottom bar arrangements can be defined. The bar arrangements can be configured manually by selecting which bars are required in the beam.



RebarCAD Beam Detailer - Bottom Bar Reinforcement

Bottom Bars (BC - Main Bottom Continuous Bars Over Support and Span / BM - Secondary Bottom Span Bars)

	No.	Size	Bend	Label Notes			
BM	<input checked="" type="checkbox"/> Detail	4	#10	0	<input type="checkbox"/> % Span	12.5	<input type="checkbox"/> Length 0"
BC	<input checked="" type="checkbox"/> Detail	4	#10	0	Left Proj.	0"	Right Proj. 0"

Preset Arrangements...

OK Cancel Help

**Figure 15.2.5:1 Bottom Bar Reinforcement dialog**

The following top bar reinforcement data fields are available for all the beam types:

No. Bars	Enter the number of bars required in the bar set
Size	Select the bar diameter for the bar set.
Bend Type	Select the Bend Type for the bar set.
Label Notes	Type in any bar label note to be added.

#### BC Bar Set Additional Inputs

This bar set is the main span reinforcement in the bottom of the beam. It has the following input to define its location in the beam:

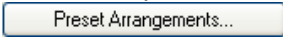
Left and Right Proj	The bar can be projected past the column face into the column by the entered distance
---------------------	---

#### BM Bar Set Additional Inputs

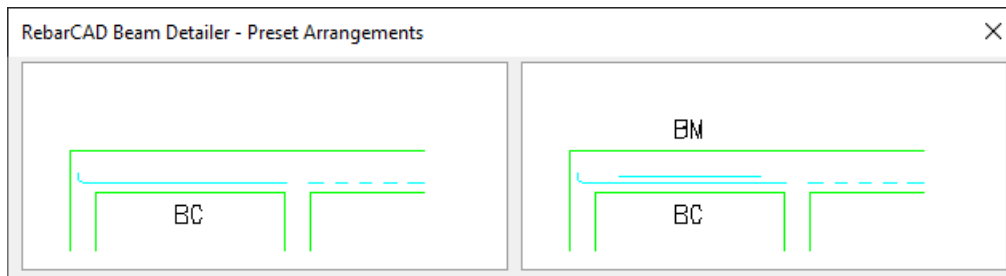
This bar set can be used to define secondary bars in the bottom of the beam. It has the following inputs to define its location in the beam:

% Span	Enter the percentage of the clear span at which point the bar set is to curtail, the distance is taken from the relevant column face.
Length	Enter a length from the column face at which the bar is to curtail.

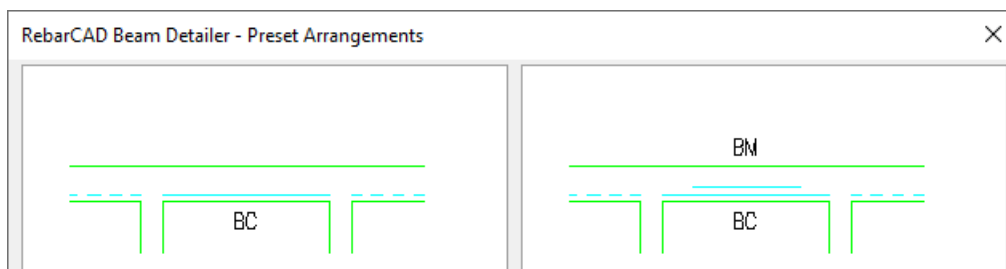
#### Preset Arrangements

Alternatively, the bar arrangement can be set by picking the Pre-set Arrangements button . This displays the Pre-set Arrangements options for the type of beam selected. Pick on the diagram that displays the bar layout you require to set-up the Bottom Bar

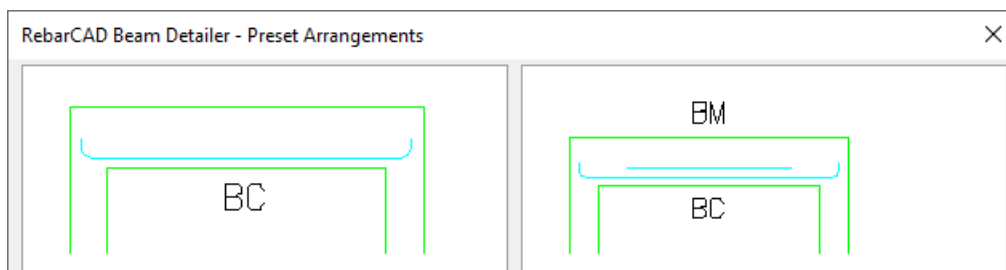
Reinforcement dialog. Shown below are the different bottom bar arrangements that are available depending on the span type selected.



**Figure 15.2.5:2 Single Span Bottom Bar Pre-sets**

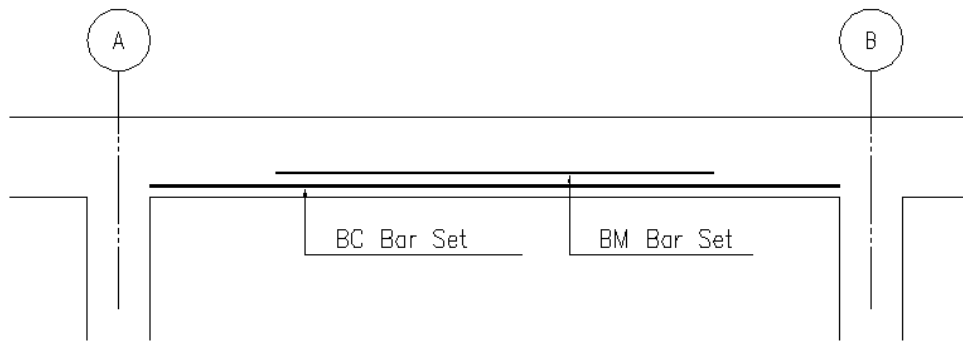


**Figure 15.2.5:3 End Span Bottom Bar Pre-sets**



**Figure 15.2.5:4 Interior Span Bottom Bar Pre-sets**

Two bar sets are available for use as the bottom bars for the beam, these bar sets are optional and can be omitted from the beam in order to achieve the desired bar arrangement.



**Figure 15.2.5:5 Bottom Bar Sets**


Each of the bar sets has a Detail option that determines whether the bar set is to be included in the beam detail or not. Listed below are the outcome of the combinations available when using the Detail option and an explanation of the effects on the beam being detailed.

**Detail Options:**

Detail Option Activated		The bar set will be detailed based on the information entered for that bar set.
Detail Option Not Activated		The bar set will not be detailed and its data will not be used in any bar dimension calculations.

## 15.2.6 Stirrup Reinforcement

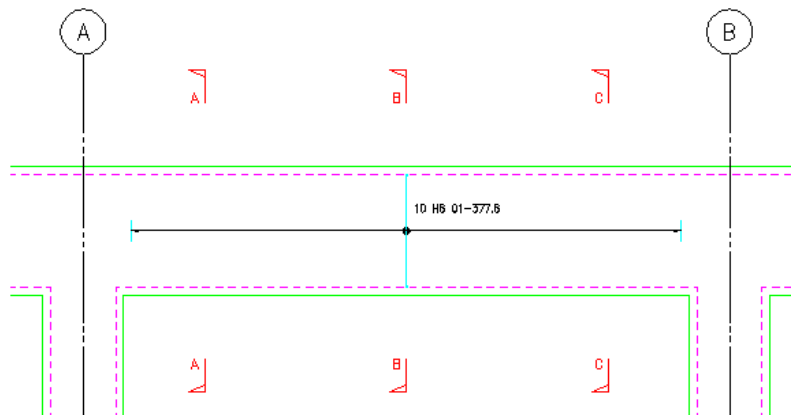
### Stirrup Bar Zones

The Beam Detailer allows the stirrup (link) bars to be defined as one zone or three zones within the beam span. Pick the Stirrup Reinforcement button  to access the Stirrup Reinforcement dialog where the number, length and bar centers of the stirrup zones can be defined.

**Figure 15.2.6:1 Stirrup Zone Data Dialog**

#### Stirrup Zone Offset from the Column Face

The distance entered in this field defines the distance from the right and left column faces to the start and end of the stirrup zones.



**Figure 15.2.6:2 Beam showing One Stirrup Zone**

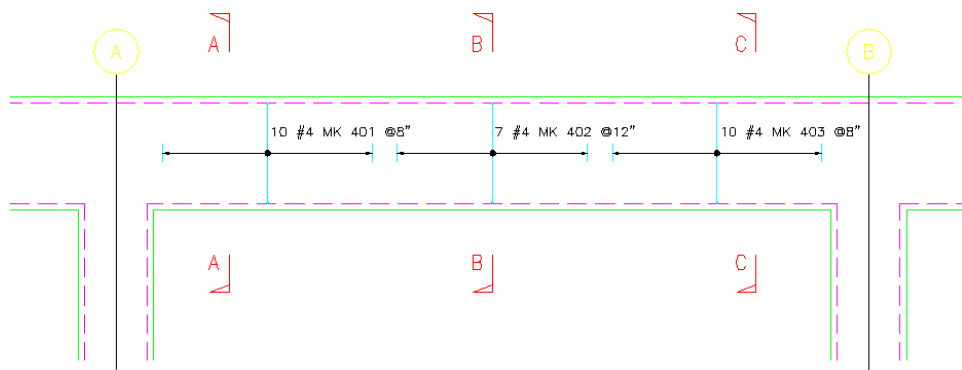
#### One Stirrup Zone

When one stirrup zone is selected for the beam span the following Span Support Zone data fields are available for input:

Zone Length

The zone length is calculated as the Clear Span less the offset from the right and left column faces.

No. Bars	Enter the number of stirrups required, this will automatically recalculate and display the average center to center distance.
@ c/c	Enter the centers of the stirrups. This will automatically recalculate and display the number of bars.



**Figure 15.2.6:3 Beam showing Three Stirrup Zone**

### Three Stirrup Zones

When three stirrup zones are selected for the beam span the following inputs are available:

#### Left Support Zone

Zone Length Enter the required length for the left stirrup zone.

@ c/c Enter the pitch of the stirrups. This will automatically recalculate and display the number of bars.

#### Span Support Zone

@ c/c Enter the pitch of the stirrups. This will automatically recalculate and display the number of bars.

Zone Length This input is not accessible and has been grayed out. The support zone length is calculated automatically by subtracting the left and right zones and the two intermediate distances for the total clear span. The intermediate distances between the stirrup zones are set

to the center to center values for the left and right stirrup zones. For instance if the centers for the left stirrup zone are set to 125mm then the intermediate distance between the left and support zones will be 125mm.

## Right Support Zone


Zone Length

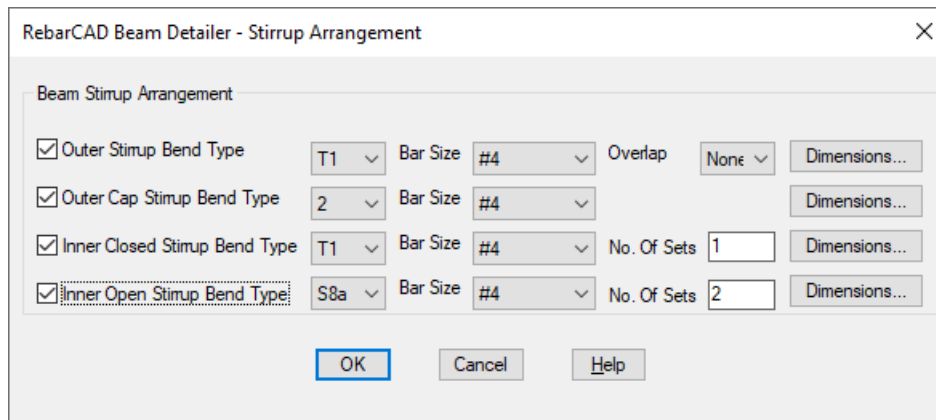
Enter the required length for the right stirrup zone.

@ c/c

Enter the pitch of the stirrups. This will automatically recalculate and display the number of bars.

## Stirrup Bar Arrangements

Pick the Stirrup Arrangement button  to access the Stirrup Arrangement dialog where the stirrup bar arrangements can be defined.

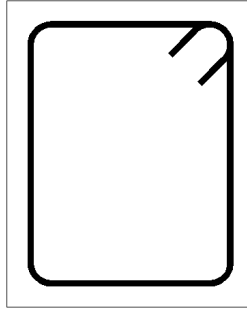


**Figure 15.2.6:4 Stirrup Bar Arrangement Dialog**

Four different stirrup bar types can be selected for use as stirrup bars. The bar sets are optional and can be omitted from the beam in order to achieve the desired stirrup bar arrangement if required.

### Outer Stirrup Bend Type

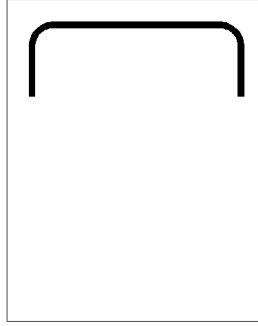
The outer stirrup bend type selection supports all the available Bend Types available within **RebarCAD**. The detailer should use their discretion to choose the appropriate Bend Type. The default bend type is Bend Type 51.



**Figure 15.2.6:5 Outer Stirrup Bend Type**

The outer stirrup bend type can be included within the beam if the option is selected and the following data fields have been completed:

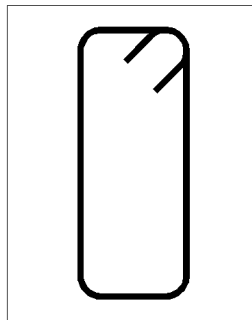
Outer Stirrup Bend Type	Select the required Bend Type from the drop down list.
Bar Size	Select the required bar size for the outer stirrup Bend Type.
Over Lap	The overlap controls the number of stirrup bars that are detailed across the width of the beam. The options available are None, 0.5 and 0.67. If set to None then a single stirrup is added, its outer face will be placed against the cover lines of the beam. If set to 0.5 or 0.67, then two stirrups are detailed with the width of each stirrup width being either 0.5 or 0.67 of the beam width minus the Near Face and Far Face cover distances.
Dimensions	This displays the calculated bending dimensions of the outer stirrup shape code. Outer Cap Stirrup Bend Type The outer stirrup bend type selection supports all the Bend Types available within RebarCAD. The detailer should use their discretion to choose the appropriate Bend Type. The default bend type is Bend Type 21.



**Figure 15.2.6:6 Outer Cap Stirrup Bend Type**

The outer cap stirrup bend type can be included within the beam if the option is selected and the following data fields are completed:

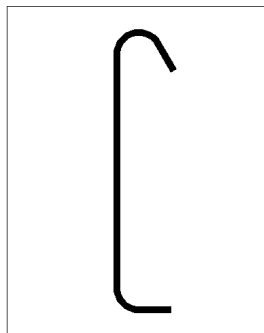
Outer Cap Stirrup Bend Type	Select the required Bend Type from the drop down list.
Bar Size	Select the required bar size for the outer cap stirrup Bend Type.
Dimensions	This displays the calculated bending dimensions of the outer cap stirrup Bend Type. Inner Closed Stirrup Bend Type The inner closed stirrup bend type selection supports all the Bend Types available within <b>RebarCAD</b> . The detailer should use their discretion to choose the appropriate Bend Type. The default bend type is Bend Type 51.



**Figure 15.2.6:7 Inner Closed Stirrup Bend Type**

The inner closed stirrup bend type can be included within the beam if the option is selected and the following data fields are completed:

Inner Closed Stirrup Bend Type	Select the required Bend Type from the drop down list.
Bar Size	Select the required bar size for the inner closed stirrup Bend Type.
No. Of Sets	Specify the required number of stirrups to be detailed across the width of the beam.
Dimensions	This displays the calculated bending dimensions of the inner closed stirrup Bend Type. Inner Open Stirrup Bend Type The inner open stirrup bend type supports all the Bend Types available within <b>RebarCAD</b> . The detailer should use their discretion to choose the appropriate Bend Type. The default bend type is Bend Type 51.



**Figure 15.2.6:8 Inner Open Stirrup Bend Type**

The inner open stirrup bend type can be included within the beam if the option is selected and the following data fields are completed:

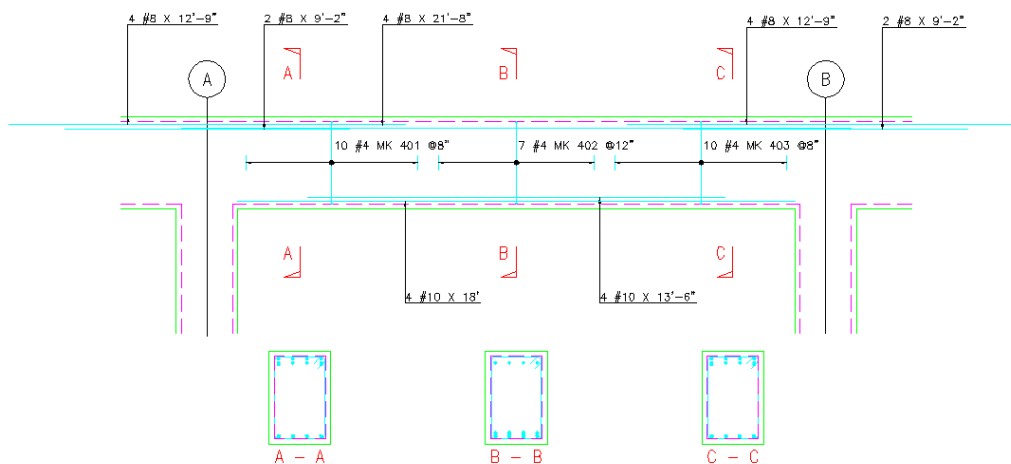
Inner Open Stirrup Bend Type	Select the required Bend Type from the drop down list.
Bar Size	Select the required bar size for the inner open stirrup Bend Type.
No. Of Sets	Specify the required number of stirrups to be detailed across the width of the beam.

## Dimensions

This displays the calculated bending dimensions of the inner open stirrup Bend Type.

## 15.2.7 14.1.7 Drawing Beam Detail

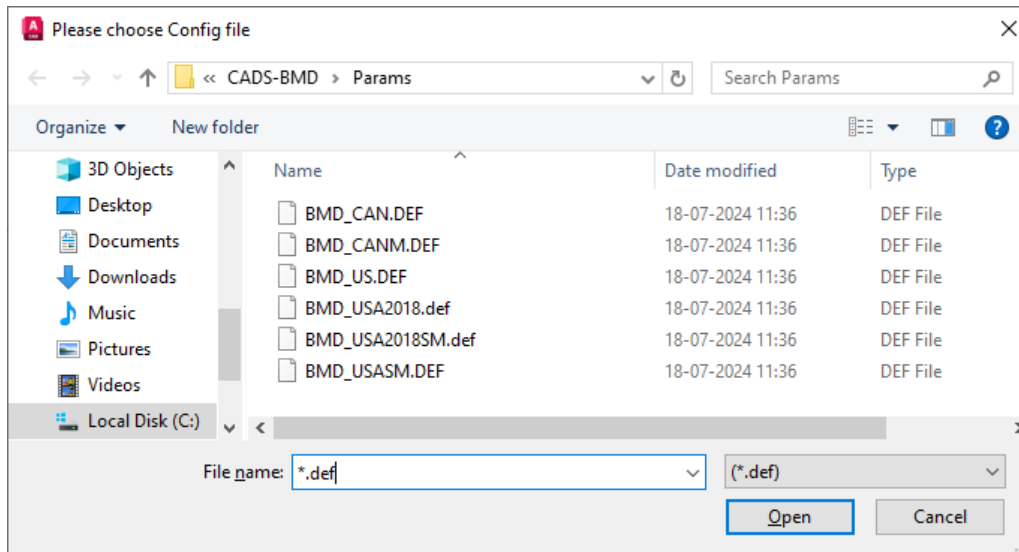
The Beam can be drawn on the screen in AutoCAD when all of the relevant information has been entered into the beam detailer dialogs. Return back to the initial Beam Type Selection dialog by picking the OK button and then pick the Draw Beam Button . The beam elevation and sections are drawn, the program prompts for an insertion point on the drawing.



**Figure 15.2.7:1 Typical Beam Detail and Sections**

## 15.2.8 14.1.8 Beam Detailer Configuration File Selection

To change the Beam Detailer configuration, select the Change CFG button  in the Beam Type Selection Dialog. The required configuration file (\*.def file) can be selected in order that suitable default data is displayed. By default, the program is set to BS 8666:2005.




**Figure 15.2.8:1 Beam Detailer Config File**

## 15.3 Column Detailer

The Column Detailer provides an automated method of producing details for reinforced concrete columns. It features Rectangular and Circular Column types with or without columns above. Detailers can choose many possible bar and tie arrangements (including spiral ties) with bar dimensions automatically calculated from the entered column data.

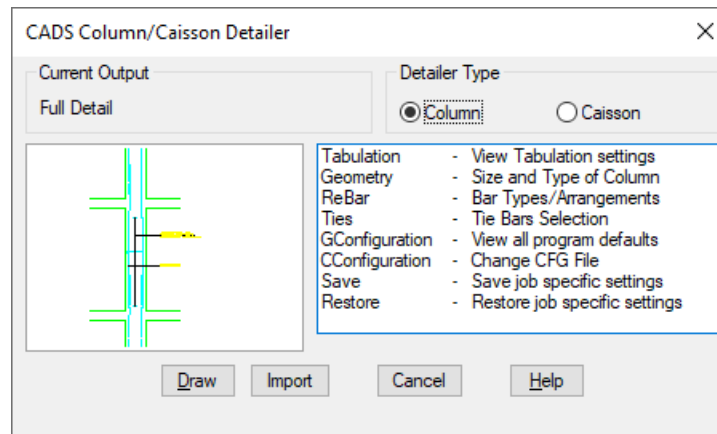
You can use either VPM or Scale software to load in a Title Block and set the appropriate scale and drawing environment. For more information on the Drawing Set-up Routines refer to either the [VPM](#) or [Scale](#) Help pages.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Column Detailer 

When the Column Detailer is loaded the RebarCAD Member dialog is displayed. At this point you are able to select an existing Member Title or create a new Member Title. The bars created by the column detailer will be assigned to the current Member Title. When the desired Member Title has been selected you may continue by picking the OK button.

### 15.3.1 Detailer Type

When the required Member Title has been defined the Column Type Selection dialog is displayed. There is an option to select the Detailer Type which can either be a Column or a Caisson.

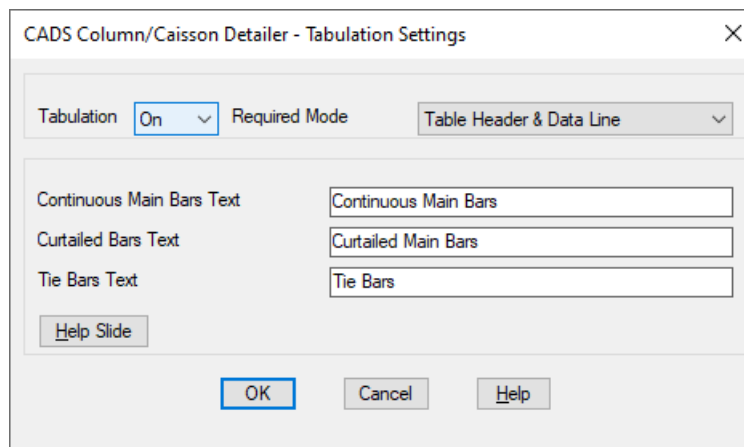


**Figure 15.3.1:1 Column Type Selection Dialog**

## 15.3.2 14.2.2 Tabulation Settings

Instead of having to draw every column detail the tabulation output options can be used to group similar columns together. A typical 'sketch' detail of the column elevation and section can be inserted on the drawing that in turn is referenced to the bar data which is laid out in tabular format. Different tabulation header options are available so that the bar label data can be laid out in one table. Double click the Tabulation option to load the dialog box.

Note: If you use the Tabulation Options to produce details and bar data tables you need to set the column mark and level data in the Geometry Dialog first, refer [Geometry](#) – Size and Type of Column for further information.



**Figure 15.3.2:1 Tabulation Dialog**

### Tabulation

This option switches the tabulation output On or Off. Switch it on to place a bar data table on the drawing.

## Required Mode

The required mode option allows you to select different table header and sample detail options:

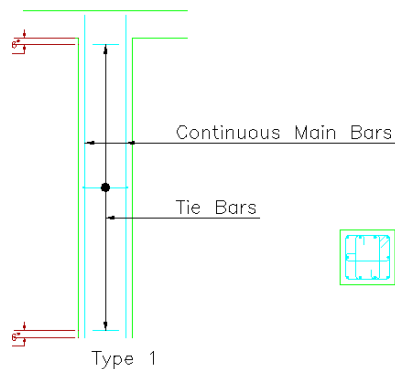
**Table Header & Data Line** Inserts a new table on the drawing with the header descriptions and bar label data but it does not insert a typical detail.

Column Mark	Level	Column Main Bars		Column Ties			Notes
		Continuous	Curtailed	Top Extra Ties	Middle Ties	Bottom Extra Ties	
Type 1	First Floor	10 #8 X 11'-10"			17 #4 MK 404 Ø8"		No Notes
					2x17 #4 MK 406 Ø8"		No Notes
					17 #4 MK 406 Ø8"		No Notes

**Figure 15.3.2:2 Table Header and Data Line**

**Sketch detail, Table header & Data Line**

Inserts a new table on the drawing with header descriptions and bar label data. It also produces a typical detail of the column and its section with labels that are referenced to the table.



Column Mark	Level	Column Main Bars		Column Ties			Notes
		Continuous	Curtailed	Top Extra Ties	Middle Ties	Bottom Extra Ties	
Type 1	First Floor	10 #8 X 11'-10"			17 #4 MK 407 Ø8"		No Notes
					2x17 #4 MK 406 Ø8"		No Notes
					17 #4 MK 409 Ø8"		No Notes

**Figure 15.3.2:3 Sketch Detail, Table Header and Data Line**

**Data Line Only**

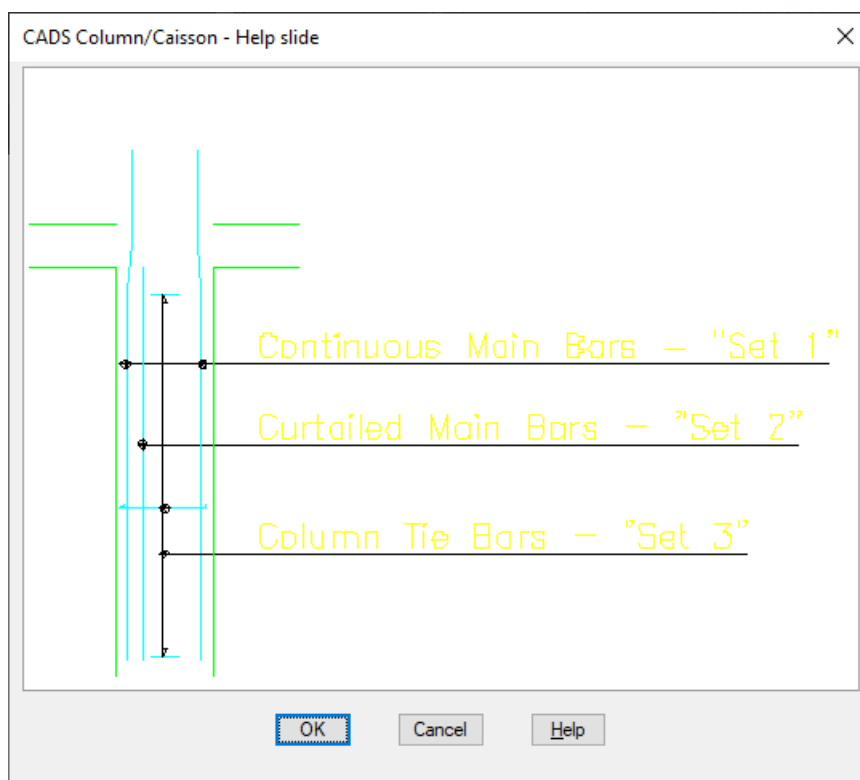
Inserts only the bar label data in tabular format so that it can be appended to a previous table.

Type 1	First Floor	10 #8 X 11'-10"		17 #4 MK 410 Ø8"	No Notes
				2x17 #4 MK 411 Ø8"	No Notes
				17 #4 MK 412 Ø8"	No Notes

**Figure 15.3.2:4 Data Line Only**

### Tabulation Text Lines

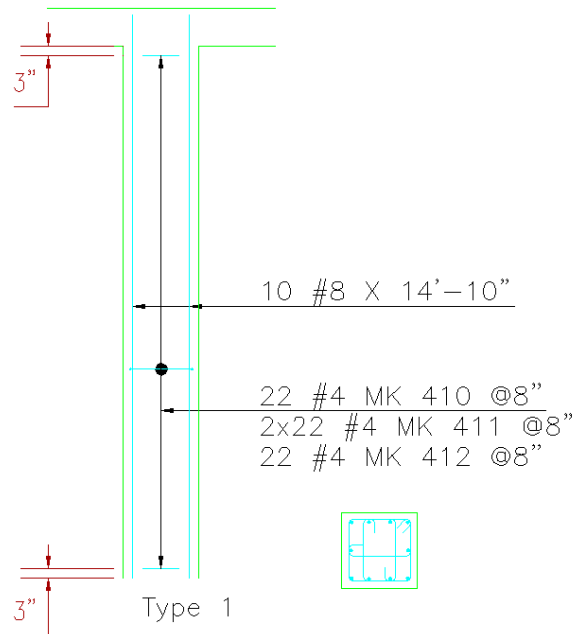
The tabulation text details are used if a sketch detail is requested by selecting the sketch detail, table header and data line option under the Required Mode option. The text fields are referenced to the data lines in the Bar Data Table, see Figure below for details on which bar sets reference which labels.



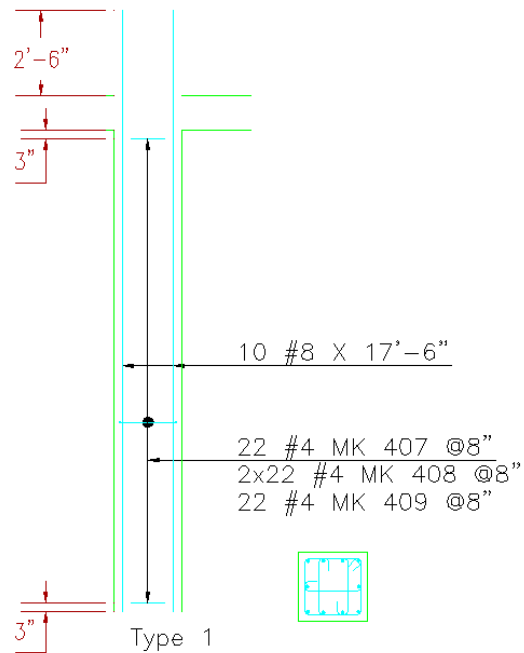
**Figure 15.3.2:5 Tabulation Help Screen**

## 15.3.3 Defining the Column Geometry

Selecting the Geometry option from the Main Column/Caisson Detailer Dialog displays the Column Type and Dimension Input dialog, where the column type and dimensions are input. The column detailer supports rectangular and circular columns with or without a column above present.



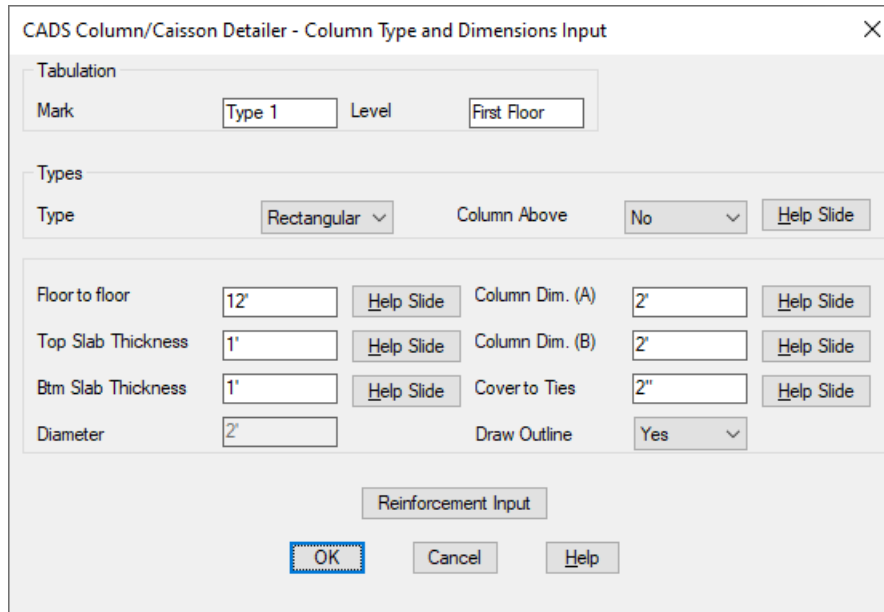
**Figure 15.3.3:1 Column without column above**



**Figure 15.3.3:2 Column with column above**

The column dimensions can be altered or checked in the Column/Caisson Type and Dimension Input dialog which is available from the majority of the column detailer input dialogs.

The Column Dimension Data is dependent upon the column type selected; therefore some column dimension fields are not accessible for certain column types.



The dialog box is titled "CADS Column/Caisson Detailer - Column Type and Dimensions Input". It contains the following sections and controls:

- Tabulation:**
  - Mark:
  - Level:
- Types:**
  - Type:  (dropdown)
  - Column Above:  (dropdown)
  - Help Slide:
- Dimensions:**
  - Floor to floor:
  - Column Dim. (A):
  - Top Slab Thickness:
  - Column Dim. (B):
  - Btm Slab Thickness:
  - Cover to Ties:
  - Diameter:
  - Draw Outline:  (dropdown)
- Buttons:**
  - Reinforcement Input:
  - OK:
  - Cancel:
  - Help:

**Figure 15.3.3:3 Column Type and Dimension Input dialog**

The Column/Caisson Dimension input data is as follows:

- |                |   |
|----------------|---|
| Column Mark    | This option is only used by the detailer if the tabulation option is activated in the Tabulation Settings Dialog. The column mark could be used to define a column type or grid location on the general arrangement drawing. Refer to Tabulation in <a href="#">Column Geometry</a> for more information. |
| Level          | This option is only used by the detailer if the tabulation option is switched on in the Tabulation Settings Dialog. The level option is used to define the floor level of the column. Refer to Tabulation in <a href="#">Column Geometry</a> for more information.  |
| Column Type    | Defines the column section type as Rectangular or Circular.   |
| Column Above   | Choose whether a column is drawn above or not by selecting Yes or No.   |
| Floor to Floor | Enter the floor to floor distance.  |

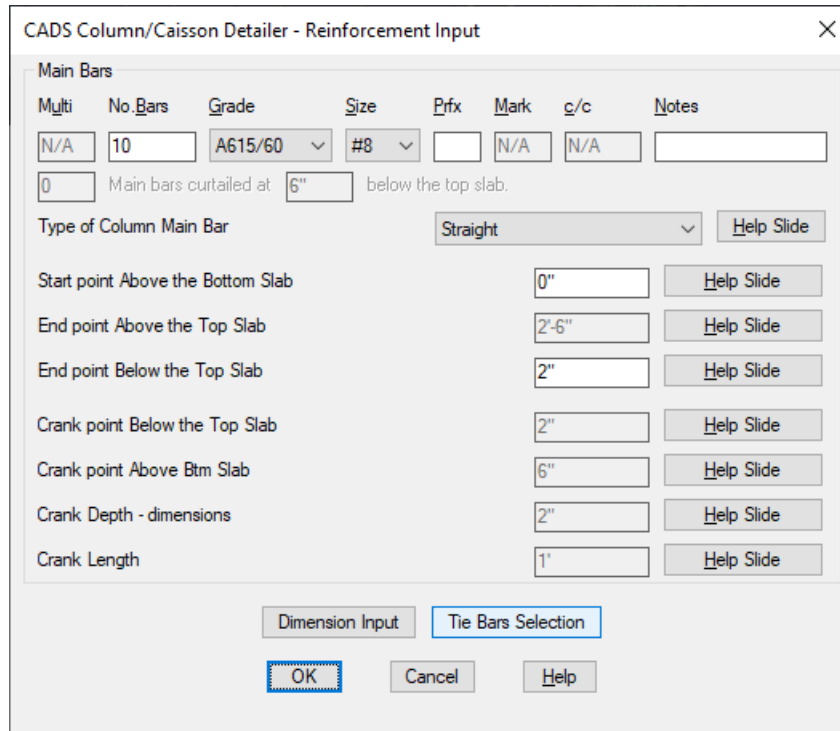
Top Slab Thickness	Enter the thickness of the slab above the column.
Bottom Slab Thickness	Enter the thickness of the slab below the column.
Column Diameter	If column type is set to circular the column diameter or the caisson diameter is entered here.
Column Dim. (A)	If the column type is set to rectangular, the column dim (A) is entered here.
Column Dim. (B)	It the column type is set to rectangular, the column dim (B) is entered here.
Cover to Ties	Enter the required cover value to the column links.
Draw Outline	When set to Yes the detail produced will include the column outline, set to No the detail produced will only contain the reinforcement elements which can be placed into an existing outline drawing.

### 15.3.4 Defining the Bar Arrangements

The Column/Caisson Detailer requires two bar arrangement areas to be defined namely Column/Caisson Main Bars and Column/Caisson Ties (Links). In each area the general arrangement is defined with the Column/Caisson detailer calculating actual bar dimensions based upon the Column/Caisson dimensions and covers.

#### Column/Caisson Main Bar Arrangements

Selecting the Reinforcement Input button displays the Reinforcement Input dialog where the bar arrangements can be defined.



**CADS Column/Caisson Detailer - Reinforcement Input**

**Main Bars**

Multi	No. Bars	Grade	Size	Prfx	Mark	c/c	Notes
N/A	10	A615/60	#8		N/A	N/A	

0 Main bars curtailed at 6" below the top slab.

Type of Column Main Bar: Straight [Help Slide](#)

Start point Above the Bottom Slab: 0" [Help Slide](#)

End point Above the Top Slab: 2'-6" [Help Slide](#)

End point Below the Top Slab: 2" [Help Slide](#)

Crank point Below the Top Slab: 2" [Help Slide](#)

Crank point Above Btm Slab: 6" [Help Slide](#)

Crank Depth - dimensions: 2" [Help Slide](#)

Crank Length: 1' [Help Slide](#)

[Dimension Input](#) [Tie Bars Selection](#)

[OK](#) [Cancel](#) [Help](#)

**Figure 14.2.4:1 Reinforcement Input Dialog**

The following Column/Caisson Main Bar inputs are available:

No. Bars	Enter the total number of main bars required in the Column/Caisson.
Grade	Select the required bar grade for the Column/Caisson main bars.
Size	Select the bar size for the bar set.
Prfx	Enter any bar mark prefix required.
Notes	Enter any note you want to include in the bar label for the Column/Caisson main bars set.

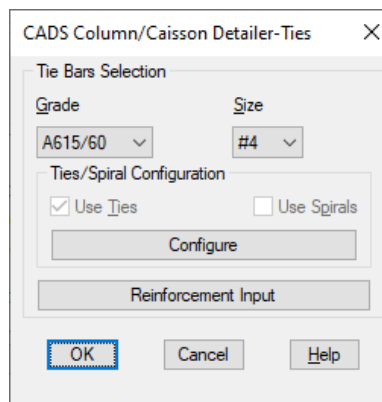
### Curtailed Main Bars

The Number of Bars field described above defines the total number of Column/Caisson main bars required. If some of these bars are to be curtailed then you may enter the number of bars to be curtailed at a given distance below the top slab level. Curtailed column main bars will always be detailed as straight bars. The program does not know which bars are to be curtailed so it draws the indicator bar in elevation ready for repositioning as required.

## Additional Column Main Bar Inputs

Type of Column Main Bar	If set to Bend, column main bars which project into the column above will be detailed as cranked bars. If set to Straight, column main bars which project into the column above will be detailed as straight bars.
Start point Above the Bottom Slab	Enter a distance above the bottom slab level at which the column main bars will start. If the bars are to be detailed starting from the bottom slab then a distance of zero may be entered.
End point Above the Top Slab	Only required if Column Above is set to Yes. Enter the distance above the top slab at which the column main bars will be terminated.
End point Below the Top Slab	Only required if the Column Above is set to No. Enter the distance below the top slab level at which the column main bars will detailed terminated.
Crank point Below the Top Slab	Only required if the Column Above is set to Yes. Enter the distance below the top slab level at which the column main bar upper crank point is to be placed.
Crank point Above Btm Slab	Only required if the Column Above is set to Yes and Crank at bottom. Enter the distance above the end of bar at which the column main bar bottom crank point is to be placed.
Crank Depth / 'Out to Out' Dimension	Only required if the Column Above is set to Yes. Enter the overall crank distance required on the column main bars.
Crank Length	The slope length of the crank.

## Tie Bar Arrangement



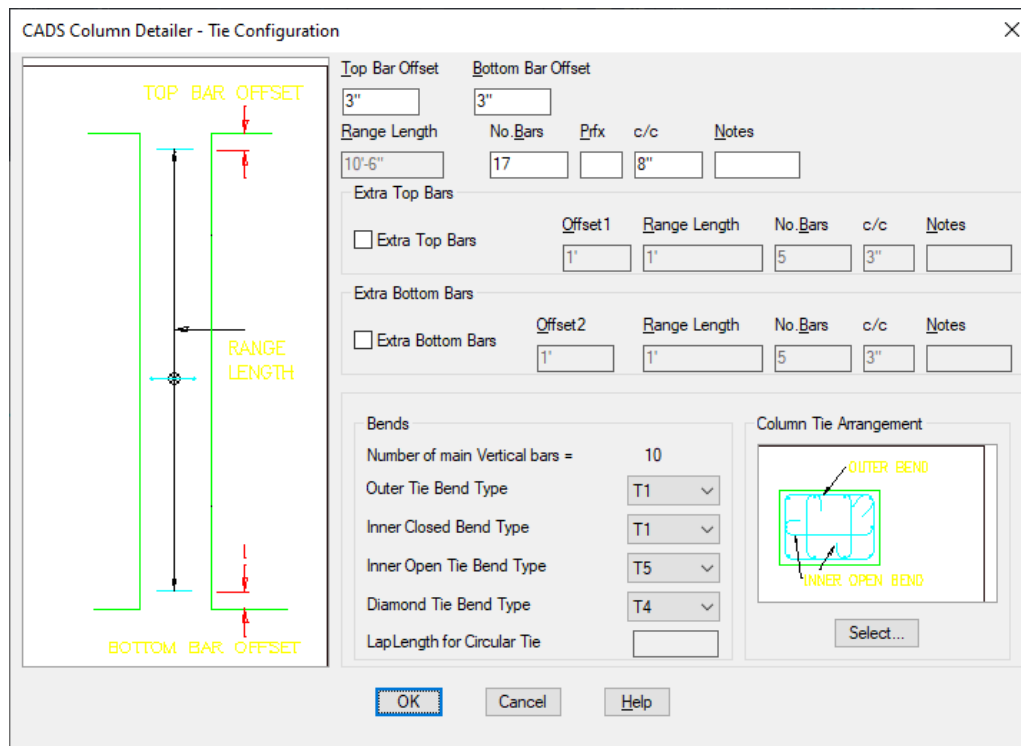
**Figure 15.3.4:2 Tie Arrangements dialog**

The following Column/Caisson Tie (Link) Bar inputs are available in the Column/Caisson Detailer Ties Input dialog box:

Grade	Select the required bar grade for the column link bars.
Size	Select the bar size for the bar set.
Ties\Spiral Configuration	Circular column types can be detailed with either loose ties (links) or spiral bars. If Circular type of column is selected then the check box will be ticked from which the user can select either loose ties or spirals.
Configure	Opens up <a href="#">Tie Configuration</a> Dialog Box when rectangular column type or circular column type with tie arrangement is selected and opens up <a href="#">Spiral tie configuration</a> dialog box if Circular Column Type with the Spiral ties option or Caisson detailer type is selected.

### Tie Configuration

The Tie Configuration Dialog Box will be available from the Configure option in the Column/Caisson Ties input Dialog box when rectangular column type is selected or circular column type with loose tie arrangement is selected.

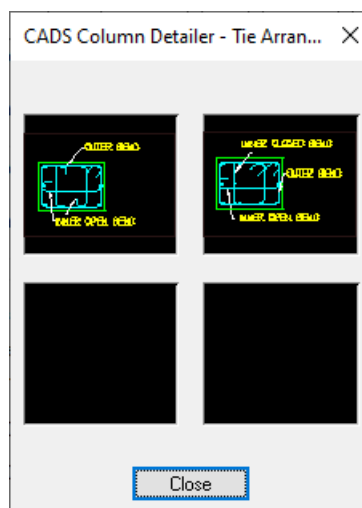


**Figure 15.3.4:3 Main vertical bar tie arrangements dialog**

In Tie Configuration Dialog Box the following Tie (Link) bar inputs are available

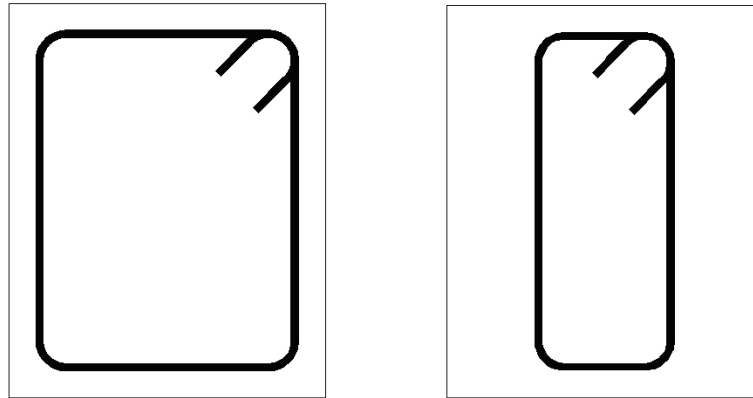
No. Bars	Enter the total number of column link bars required.
Size	Select the bar size for the bar set.
Prfx	Enter any bar mark prefix required.
C/C	Enter the required column link pitch.
Notes	Enter any note you want to include in the bar label for the column link bars set
Top Bar offset	Distance to start the ties from the top of the column.
Bottom Bar Offset	Distance to start the ties from the bottom of the column.
Extra Top bars	If extra links are required at the Top of the column then the number, c/c and any specific label notes required for the bar label of the extra links can be entered in the Extra Top bars input dialog.
Extra Bottom bars	If extra links are required at the bottom of the column then the number, c/c and any specific label notes required for the bar label of the extra links can be entered in the extra Bottom bars input dialog.

Default column link arrangements are available for selection by picking the Select button that displays the column tie arrangements options for the number of main vertical bars in use as shown below.

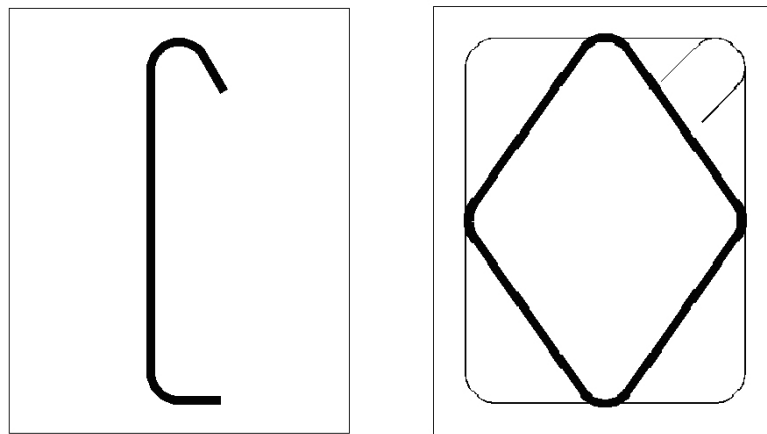


**Figure 15.3.4:4 Main vertical bar tie arrangements**

When the required tie arrangement has been selected the actual bend types to be used can be defined.



**Figure 15.3.4:5 Outer Tie and Inner Closed Tie**



**Figure 15.3.4:6 Inner Open Tie and Diamond Tie**

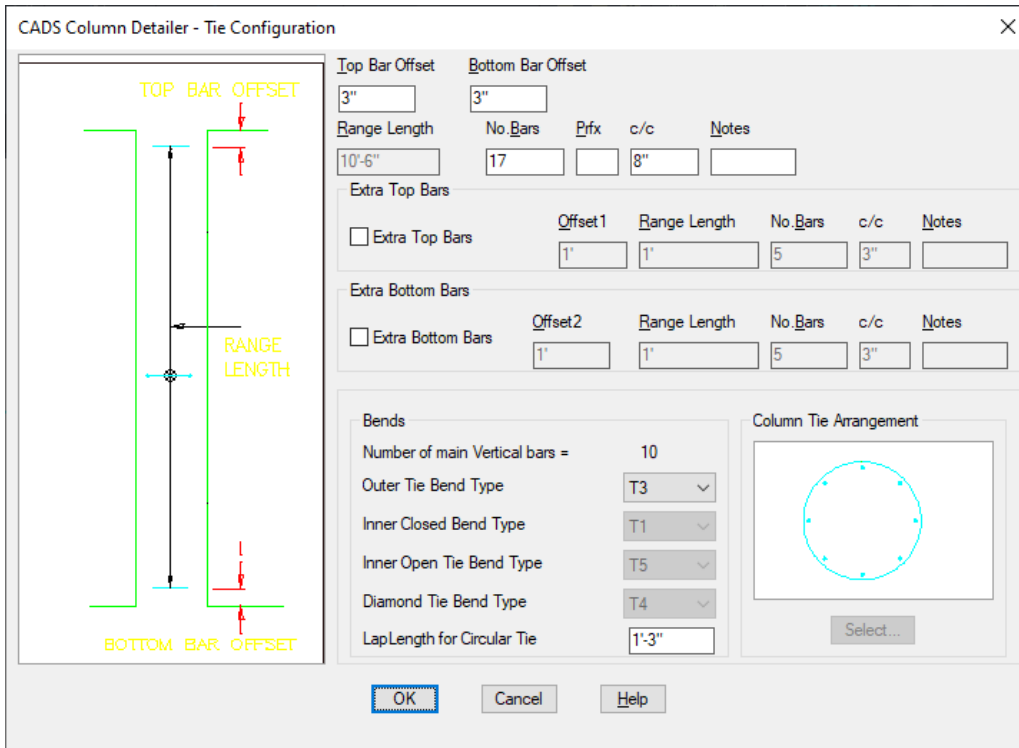
The tie bend types can be defined at Bends Dialog boxes

Outer Tie Bend Type	Select Outer Tie Bend Type. The available Ties for rectangular column types are T1 & T2 and for circular column type is T3, RT3 & bT3.
Inner closed bend Type	Select inner closed bend types. The available Ties for rectangular column types are T1 & T2.
Inner Open Tie bend type	Select inner open Tie bend types. The available ties for rectangular column types are T5, T9 & T12.
Diamond Tie bend type	Select the diamond tie bend type. The ties available are T4.
Lap Length for circular tie	Input lap length value for circular ties.

For imported details the RebarCAD Column Designer determines the tie arrangement and only limited amendments can be made. The program will not draw arrangements with an odd number of bars and if more than sixteen bars are entered the program draws half in the opposite face with an enclosing link ready for the detail to be amended on the drawing as necessary.

When the required tie arrangement has been selected the actual bend types to be used can be defined.

### Circular Links and Spirals Configuration



**CADS Column Detailer - Tie Configuration**

Diagram illustrating the tie configuration for a column, showing the TOP BAR OFFSET, RANGE LENGTH, and BOTTOM BAR OFFSET.

**Top Bar Offset**: 3"

**Bottom Bar Offset**: 3"

**Range Length**: 10'-6"

**No. Bars**: 17

**Prfx**:

**c/c**: 8"

**Notes**:

**Extra Top Bars**

☐ Extra Top Bars

**Offset1**: 1"

**Range Length**: 1'

**No. Bars**: 5

**c/c**: 3"

**Notes**:

**Extra Bottom Bars**

☐ Extra Bottom Bars

**Offset2**: 1"

**Range Length**: 1'

**No. Bars**: 5

**c/c**: 3"

**Notes**:

**Bends**

Number of main Vertical bars = 10

Outer Tie Bend Type: T3

Inner Closed Bend Type: T1

Inner Open Tie Bend Type: T5

Diamond Tie Bend Type: T4

Lap Length for Circular Tie: 1'-3"

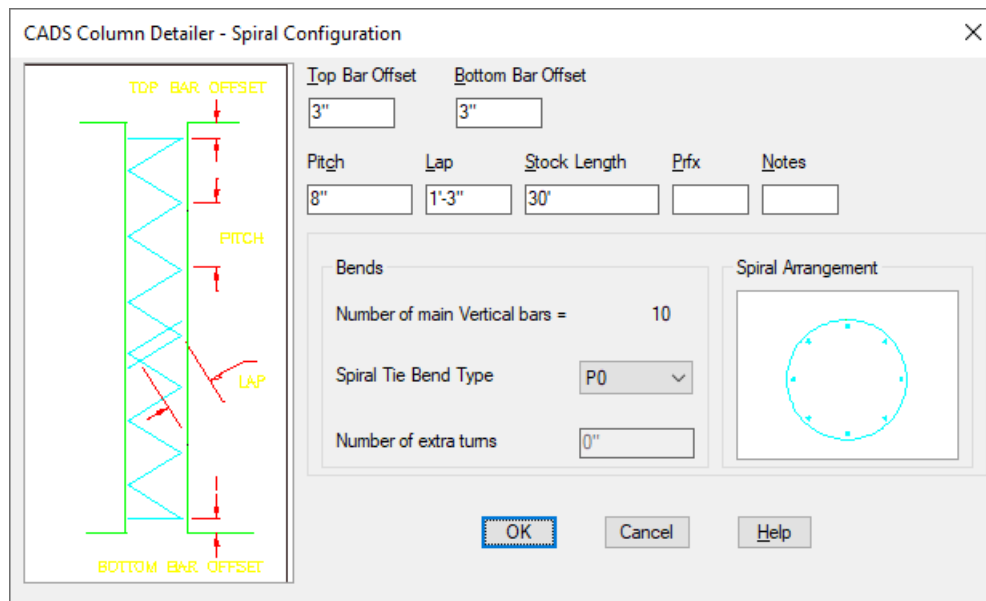
**Column Tie Arrangement**

Select...

Buttons: OK, Cancel, Help

**Figure 15.3.4:7 Tie Arrangements dialog**

If Circular Column/Caisson Type is selected with the spiral ties, the configure option in the Column/Caisson ties input dialog box opens the spiral tie configuration dialog box.



**Figure 15.3.4:8 Spirals dialog**

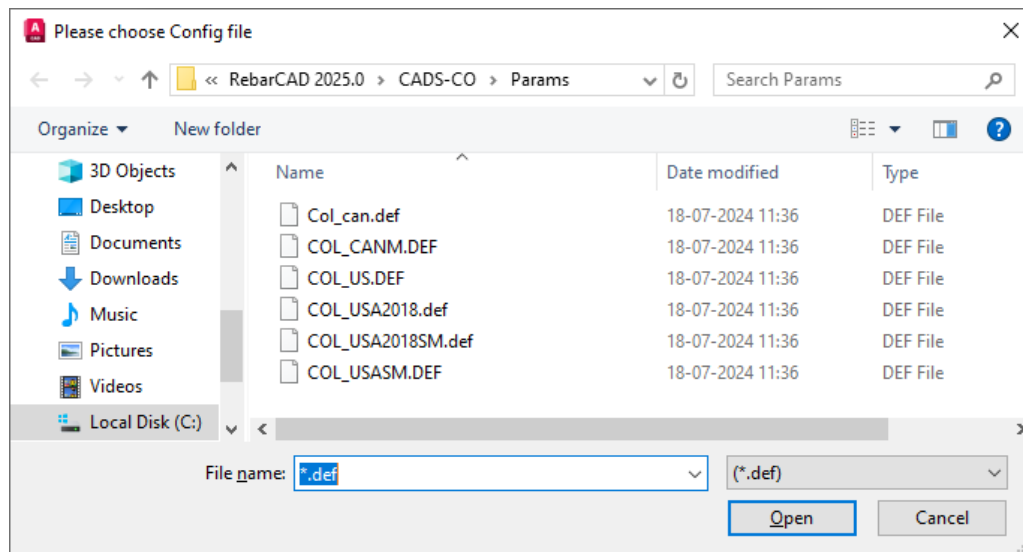
The spirals dialog allows the following spiral information to be entered:

Bend Type	Enter the required spiral bend type. The available bend types are 0, P1, P2, P3, HP1, HP2, HP3, SPI, X, XL, XM, LX, LX1, LXL, LXM.
Number of extra turns	Enter the number of extra turns required for shape SPI
Spiral Tie Pitch	Enter the required spiral pitch (dimension F).
Lap	Enter the required lap length value
Stock Length	Enter the stock length of the bar.
Prfx	Enter the bar mark prefix value.
Notes	Enter the extra notes to be added with the bar label.
Top bar offset	Enter the distance above the bottom slab at which the spiral is to start.
Bottom bar offset	Enter the distance below the upper face of the top slab at which the spiral is to bend.

Note: Column/Caisson Detailer will warn if the spiral bar is over the maximum stock length that is defined within RebarCAD. It will, however, continue to draw the bar even though it may be over the stock length.

## 15.3.5 Configuration - Column Detailer Configuration File Selection

This dialog contains a Change CFG File option that allows the required configuration file (def file) to be selected in order that suitable default data is displayed, as shown.



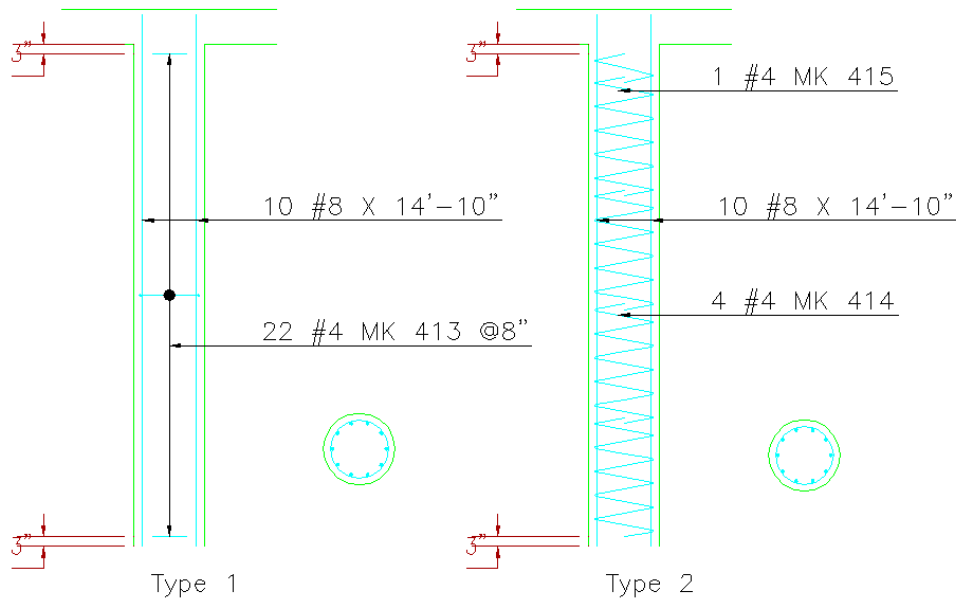
**Figure 14.2.5:1 Default Column Configuration File Options**

## 15.3.6 Drawing the Column/Caisson Detail

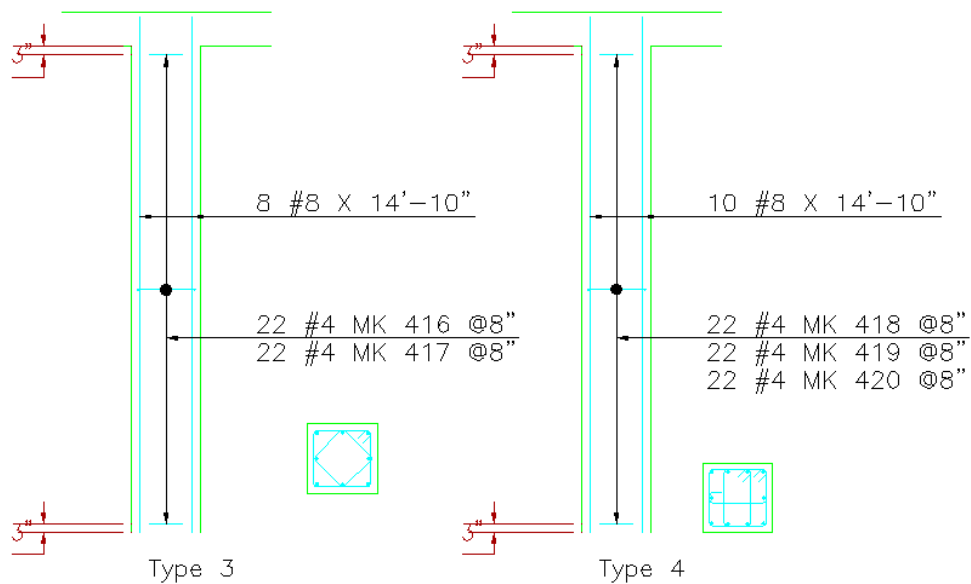
When the required Column/Caisson data has been entered the Column/Caisson can be drawn by selecting the Draw button from the Column/Caisson Detailer dialog which can be displayed by picking the OK button from the Geometry or Reinforcement dialogs.

The Column/Caisson Detailer draws the column elevation first and then prompts for its insertion point.

The section is then drawn and its placement requested. Both elevation and section can be relocated after their initial insertion.



**Figure 15.3.6:1 Typical Circular Column Elevations and Sections**




**Figure 15.3.6:2 Typical Rectangular Column Elevations and Sections**

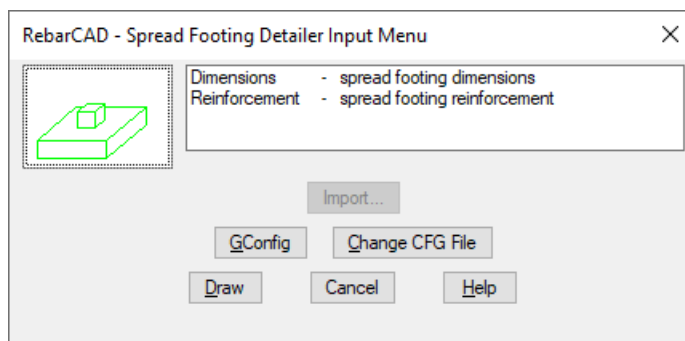
## 15.4 Pad Footing Detailer

CADS Pad Footing Detailer (PFD) provides an automated method of producing reinforcement drawings for rectangular reinforced concrete pad footings. It features Top and Bottom or Bottom

Bar only arrangements with the option to include column starter bars. Bar dimensions are automatically calculated from the entered footing data.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Pad Footing Detailer .

When the Pad Footing Detailer (PFD) has been selected the Set Member Title Dialog is displayed. At this point you can select an existing Member or create a new Member. The Pad footing reinforcement bars will be assigned to the selected member title. You can now continue by picking the OK button. When the required Member Title has been defined the Pad Footing Detailer (PFD) Input Menu dialog is displayed as shown in figure 14.3:1.



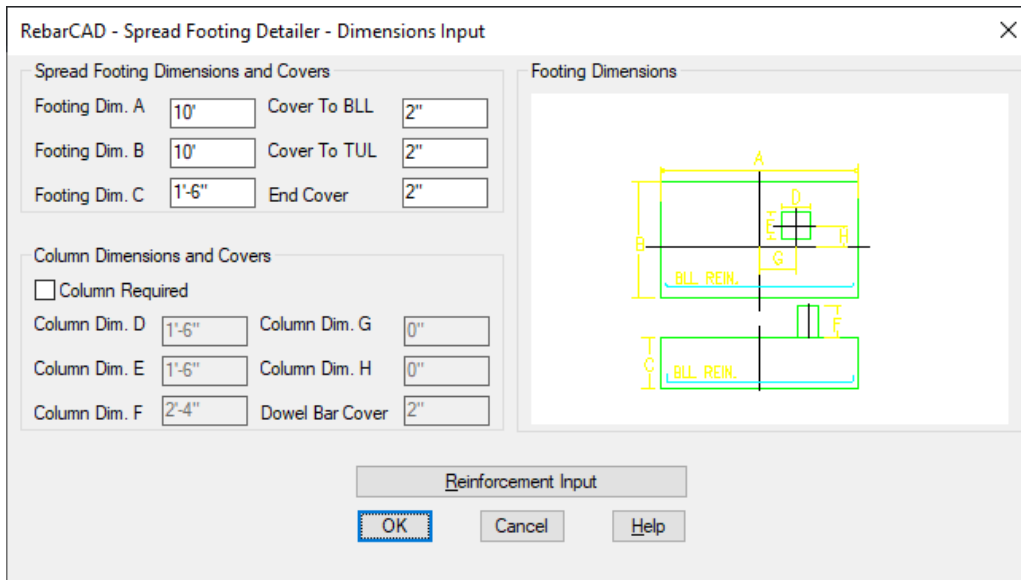
**Figure 15.4:1 Pad Footing Detailer Dialog**

The Pad Footing Detailer requires three main data areas to be defined in order that the desired footing arrangement is produced. They consist of:

- Dimensions**                      Input the required size of the footing
- Column Dimensions**        Input the size of the column if required
- Reinforcement**                Select the reinforcement layout and sizes

## 15.4.1 Defining the Pad Footing Dimensions

Selecting the Dimensions option from the Pad Footing Detailer dialog displays the Dimensions Input dialog as shown in figure 14.3.1:1 where you can type in the footing and column dimensions.



RebarCAD - Spread Footing Detailer - Dimensions Input

Spread Footing Dimensions and Covers

Footing Dim. A: 10'      Cover To BLL: 2"

Footing Dim. B: 10'      Cover To TUL: 2"

Footing Dim. C: 1'-6"      End Cover: 2"

Column Dimensions and Covers

☐ Column Required

Column Dim. D: 1'-6"      Column Dim. G: 0"

Column Dim. E: 1'-6"      Column Dim. H: 0"

Column Dim. F: 2'-4"      Dowel Bar Cover: 2"

Footing Dimensions

Reinforcement Input

OK      Cancel      Help

**Figure 15.4.1:1 Pad Footing Dimension dialog**

Spread Footing Dimension and Cover input data is as follows:

Footing Dim. A	Overall footing dimension parallel with the bottom lower layer of reinforcement (BLL).
Footing Dim. B	Overall footing dimension parallel with the bottom upper layer of reinforcement (BUL).
Footing Dim. C	Overall footing depth
Cover To BLL	Enter the concrete cover to the BLL reinforcement.
Cover To TUL	Enter the concrete cover to the TUL reinforcement.
End Cover	Enter the concrete cover to the end of the reinforcement at the edge of the spread footing.

## 15.4.2 Defining the Column Dimensions

If a column is required the Column required check box needs to be ticked which enables the column data to be input, as shown in figure below.

Column Dimensions and Covers input data is as follows:

Column Dim. D	Overall column dimension parallel with the bottom lower layer of reinforcement (BLL).
Column Dim. E	Overall column dimension parallel with the bottom upper layer of reinforcement (BUL).
Column Dim. F	Enter the column height.
Column Dim. G	Enter the column offset from the center of the footing parallel with the bottom lower layer of reinforcement (BLL).
Column Dim. H	Enter the column offset from the center of the footing parallel with the bottom upper layer of reinforcement (BUL).
Dowel Bar Cover	Enter the concrete cover to the column dowel bars.

## 15.4.3 Defining the Footing Bar Arrangements

The Column Detailer requires two bar arrangement areas to be defined namely the Footing and Column Dowels. In each area the general arrangement is defined with the spread footing detailer calculating actual bar dimensions based upon the footing and column dimensions and covers.

RebarCAD - Spread Footing Detailer - Reinforcement Input

**Footing Reinforcement - General**

☒ Top and Bottom Reinforcement ☐ Bottom Reinforcement Only Bar Grade: A615/60 Prfx.:

**Footing Reinforcement - Detailed**

	Bend Type	Bar Size	Bar c/c	Label Notes
TUL Reinforcement	0	#4	8"	TUL
TLL Reinforcement	0	#4	8"	TLL
BUL Reinforcement	0	#4	8"	BUL
BLL Reinforcement	0	#4	8"	BLL

**Column Dowel Reinforcement - General**

☐ Dowel Hook in BLL ☒ Dowel Hook Above BUL Bar Grade: A615/60 Prfx.:

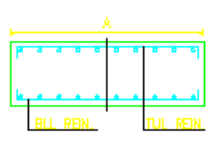
**Column Dowel Reinforcement - Detailer**

	Num / Spc	No. Dowels	Dowels CC Spacing	Bend Type	Bar Size	Label Notes
Column Dowels	<input checked="" type="checkbox"/>	4	2"	0	#5	Dowels

Dowel Projection Above Footing: 2'-3" Dowel Projection Into Footing: 1'

Dimensions Input

OK Cancel Help



**Figure 15.4.3:1 Pad Footing Reinforcement Input dialog**

The following Spread Footing Reinforcement General inputs are available:

Top and Bottom Reinforcement	Tick this check box to detail top and bottom reinforcement in the footing.
Bottom Reinforcement Only	Tick this check box to detail bottom reinforcement only in the footing.
Bar Grade	Select the bar grade to be used for the footing reinforcement.
Prfx	Enter any bar mark prefix required for the footing reinforcement, if any. The following Spread Footing Reinforcement Detailed inputs are available for each layer of footing reinforcement:
Bend Type	Select a suitable Bend Type to be used for the bar set.
Bar Size	Select the required bar size.
Bar c/c	Enter the required bar pitch.

Label Notes

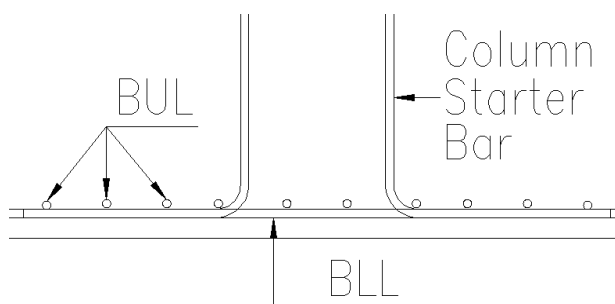
Enter any bar label notes required for the bar set label.

## 15.4.4 Defining Column Reinforcement

The column dowel (starter bars) options are only available if a column option is activated in the Dimensions input.

The following Column Dowel Reinforcement General inputs are available:

**Dowel Hook in BLL** Only available if the Column Bend Type is set to a bend shape code such as a 37. If activated the column starter bar is detailed with leg or the hook A placed in the lower layer of the bottom reinforcement.

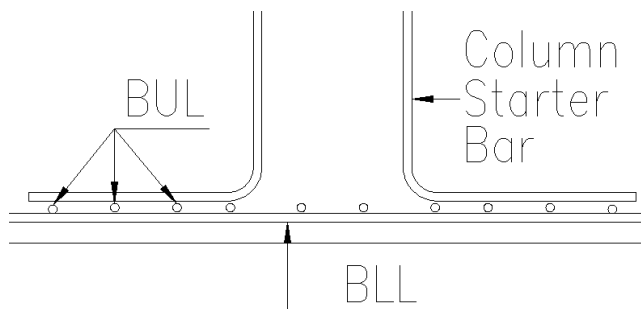


**Figure 15.4.4:1 Column Dowel Hook detailed in BLL**

**Dowel Hook Above BUL** Only available if the Column Bend Type is set to a bend Bend Type such as a 37. If activated the column starter bar is detailed with leg or the hook A placed in the upper layer of the bottom reinforcement.

**Bar Grade** Select the bar grade to be used for the column dowel reinforcement.

**Prfx.** Enter any bar mark prefix required for the column dowel reinforcement.




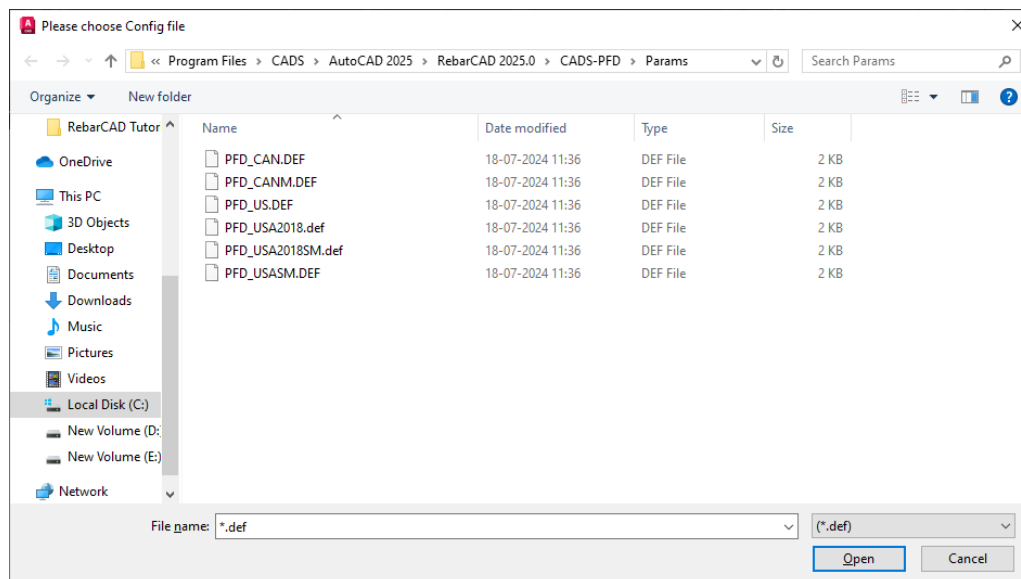
**Figure 14.3.4:2 Column Dowel Hook detailed above BUL**

The following Column Dowel (Starter Bar) Reinforcement Detailed inputs are available:

No. Dowels	Available if the Num/Spc check box is ticked. Enter the required number of column starter bars.
Bend Type	Select the bend type to be used for the column starter bars.
Bar Size	Select the required bar size.
Bar c/c	Enter the required starter bars pitch to automatically calculate the No. Bars required.
Label Notes	Enter any bar label notes required for the column starter bar set label.
Dowel Projection Above Footing	Enter the projection required for the column starter bars above the footing top.
Dowel Projection into Footing	Only available if the column dowel bend type is set to a straight Bend Type (Bend Type 20). Enter the projection required into the footing from the footing top for the starter bars.

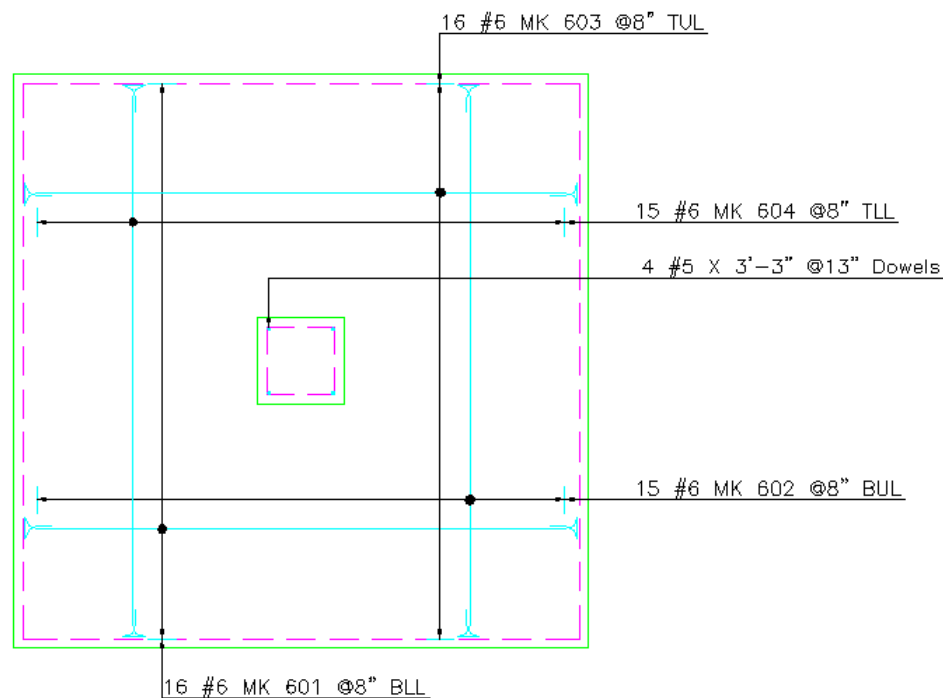
## 15.4.5 14.3.5 Configuration File Selection

The Pad Footing Detailer dialog, contains a Change CFG File option  that allows the required configuration file (def file) to be selected in order that suitable default data is displayed.




**Figure 15.4.5:1 Pad Footing Configuration dialog**




## 15.4.6 Drawing the Pad Footing Detail



**Figure 15.4.6:1 Typical Pad Footing Detail**

When all the Pad Footing data has been entered the footing can be drawn by selecting the Draw button  from the Pad Footing Detailer Input Menu dialog which can be displayed by picking the OK button from the Dimensions or Reinforcement dialog. The footing is drawn and you are prompted for its location.

## 15.5 Command List – Detailers

Action	Menu Selection	Toolbar	Icon
Beam	RebarCAD →Tools→Detailers→ Beam	Detailers	
Column	RebarCAD →Tools→Detailers→ Column	Detailers	
Pad Footing	RebarCAD →Tools→Detailers→ Pad Footing	Detailers	

## 16 Range Tools

### 16.1 Introduction

RebarCAD is shipped with the following Range Tools;


Circular Bar Detailer	This provides an automated method of detailing circular bar arrangements like those found in circular tanks using lapped stock length bars. Single or multiple rings can be detailed for flat or sloping slabs.
Area Detailer	The Area Detailer provides an automated method of detailing irregular outlines with openings with varying bars as individual bars and as part of tapered range.
Split Range	This command will split an existing range around an opening and provide additional steel above and below the opening.
Change Range Type	The Change Range Type tool allows you to change from one range type to another. The tool will delete the original range line and transfer all the set data to the new range line.
Share Range Line	The Share Range Line function allows you to add other bar sets to an existing range line on the drawing. The bar sets that have been added will inherit the range data from the existing range.
Show All Bars	The Show All Bars in Range command will add all the bars to a selected range line.
Radial Bar Detailer	Radial Bar Detailer calculates the radial steel, typically detailed in circular slabs and tanks.

The Range Tools use the AutoCAD Dimscale variable to size the text and blocks to suit the plotted scale of the drawing regardless of whether you are working in Model Space only or both Model/Layout space. Ensure that Dimscale is set to match the plotted scale of the detail.

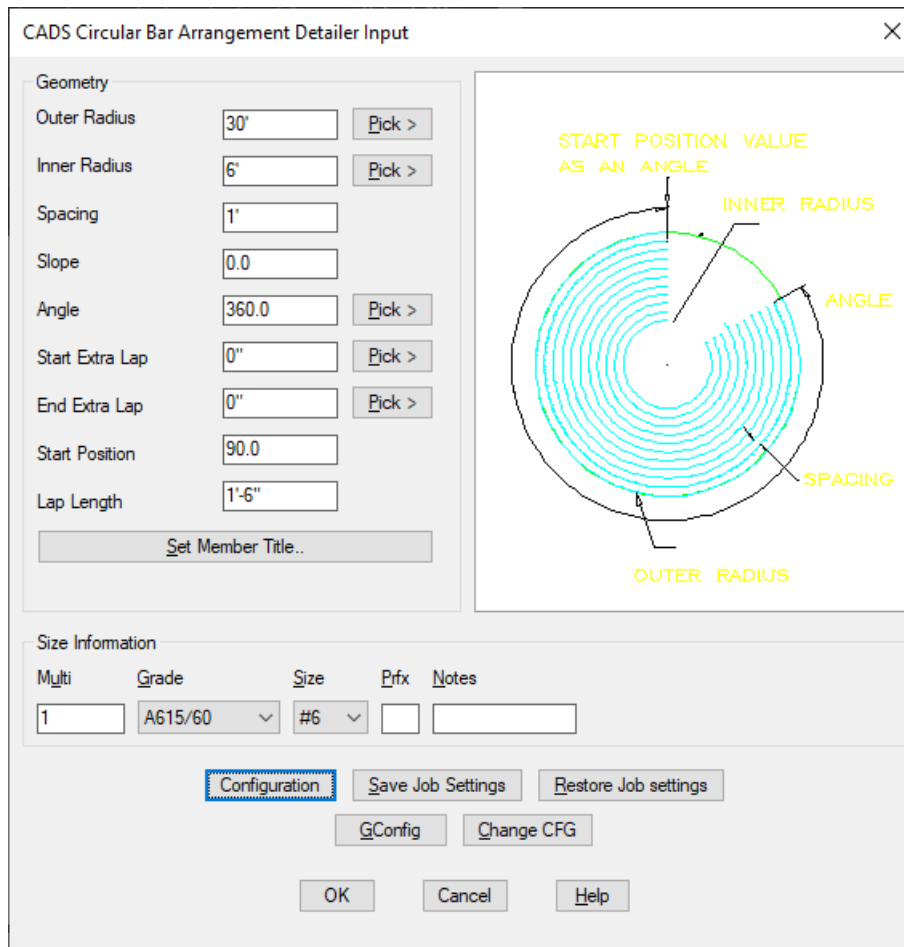
If you have access to the CADS-SC software, use the Drawing Set-up Function to load in a Title Block and set the appropriate scale and drawing environment. Alternatively, you can use CADS VPM, create Layout function or basic AutoCAD, create Layout as described in Section 2 of this Tutorial.

## 16.2 Circular Bar Arrangement

Circular Bar Arrangement provides an automated method of detailing circular bar arrangements like those found in circular tank slabs using lapped stock length bars. Single or multiple rings can be detailed for flat or sloping slabs or tanks.

This command is available from the Detailers toolbar or through RebarCAD → Tools → Detailers → Circular Bar Arrangement Detailer .

### 16.2.1 Circular Bar Arrangement Geometry




**Figure 16.2.1:1 Circular Bar Arrangement dialog**

The Circular Bar Arrangement Detailer requires two main areas of data to be defined in order that the desired bar arrangement is produced. They consist of:

Geometry	Use to define the size and slope of the structure. Also the spacing, laps and start positions of the bars.
<b>Bar Information</b>	Use to set the multiplier, steel grade, bar diameter and notes.
Set Member Title	Use to set the rebar's member title.

## 16.2.2 Setting the Member Title

To allocate the Circular Bar Arrangement Detailer (CBA) to a Member select the Member title button . This in turn displays the Member dialog. At this point you can select an existing Member Title or create a new member title. The Circular Bar Arrangement reinforcement will be assigned to the selected member title. You can now continue by picking the OK button.

## 16.2.3 Defining Bar Arrangements

The Size Information inputs which define the bar arrangements are as follows:

Multi	Enter the required label multiplier to be applied to each bar set
Grade	Select the required bar grade.
Size	Select the bar diameter.
Prfx.	Enter any bar mark prefixing required.
Notes	Enter any note you want to include in the bar labels.
Lap Length	Enter the lap length to be used for bars that require lapping.

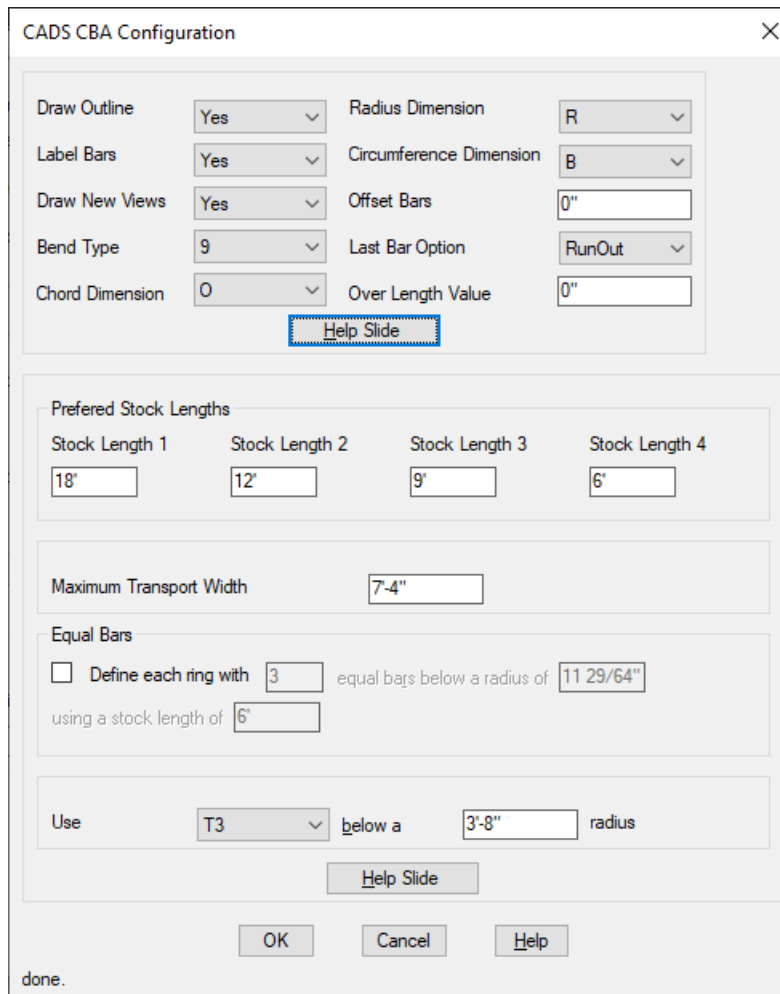
## 16.2.4 Defining the Circular Bar Arrangement Geometry

The Circular Bar Arrangement Input dialog contains input options for defining the Circular Bar Arrangement geometry required for detailing using the following options:

Outer Radius	Enter the radius to the outer concrete cover line. Selecting the pick option allows the outer cover radius to be defined by picking points on the AutoCAD drawing.
Inner Radius	Enter the radius to the inner concrete cover line. Selecting the pick option allows the inner cover radius to be defined by picking points on the AutoCAD drawing.

Spacing	Enter the bar pitch required, if set to zero then a single ring of reinforcement will be detailed to the Outer Cover Radius value.
Slope	Enter the slope angle if the slab slopes towards the center so the correct number of rings of reinforcement can be calculated.
Angle	Enter the included angle that is to be detailed. Selecting the pick option allows the total rotation to be defined by picking an angle on the AutoCAD drawing.
Start Extra Lap	Enter any additional lap required, in mm, at the start of the radius bars.
End Extra Lap	Enter any additional lap required, in mm, at the end of the radius bars.
Start Position	Start Position Indicates the start angle for the reinforcement placement, 90 means that the start position is vertically at the top of the bar arrangement.

## 16.2.5 Circular Bar Arrangement Configurations




The dialog box is titled "CADS CBA Configuration" and contains the following sections:

- General Settings:**
  - Draw Outline: Yes
  - Label Bars: Yes
  - Draw New Views: Yes
  - Bend Type: 9
  - Chord Dimension: 0
  - Radius Dimension: R
  - Circumference Dimension: B
  - Offset Bars: 0"
  - Last Bar Option: RunOut
  - Over Length Value: 0"
- Preferred Stock Lengths:**
  - Stock Length 1: 18'
  - Stock Length 2: 12'
  - Stock Length 3: 9'
  - Stock Length 4: 6'
- Maximum Transport Width:** 7'-4"
- Equal Bars:**
  - ☐ Define each ring with 3 equal bars below a radius of 11 29/64" using a stock length of 6"
- Use:** T3 below a 3'-8" radius

Buttons: OK, Cancel, Help, done.

**Figure 16.2.5:1 Circular Bar Arrangement dialog**

The Configuration button  opens up the Configure dialog box where the following inputs are available:

- |                       |   |
|-----------------------|---|
| Draw Outline          | If set to Yes, the Circular Bar Arrangement detail includes an outline drawn to the Outer Cover Radius.   |
| Label Bars            | If set to Yes, each bar set is automatically labeled as it is drawn.  |
| <b>Draw New Views</b> | If set to Yes then all stock length bars in each ring of reinforcement are drawn, if set to No only the first and run-out bar are drawn for each ring of reinforcement. |
| Bend Type             | Select the bend type to be used for stock length radial bars. The Circular Bar Arrangement detailer supports Bend Type 67.  |

Chord Dimension	Select the bend dimension representing the chord length of the bend type.
Radius Dimension	Select the bend dimension letter representing the radius of the bend type.
Circumference Dimension	Select the bend dimension letter representing the circumference of the bend type
Offset Bars	Enter in plotted mm the distance which lapping bars will offset to show the lap when plotted
Last Bar Options	This is applied to the closer bar in the Circular Bar Arrangement detail and has the following options:
Run Out	<p>If set to Run-out the closer bar will be detailed to the</p> <p>dimensions required to close the arrangement by lapping onto the last preferred/stock length bar making the bar shorter than the preferred/stock length.</p>
Over Length	<p>If set to Over Length the last preferred/stock length bar will be extended to close the Circular Bar Arrangement detail making the bar longer than the preferred/stock length.</p>
Over Length Value	Enter the Over length value.

**Preferred Stock Lengths** The options available in this dialog are as follows:

- |                |  |
|----------------|--|
| Stock Length 1 | Enter the longest choice stock of bar length.  |
| Stock Length 2 | Enter the second longest choice of stock bar length.   |
| Stock Length 3 | Enter the third longest choice of stock bar length.  |
| Stock Length 4 | Enter the fourth longest choice of stock bar length. The circular bar arrangement detailer will use the longest stock bar length until the E dimension becomes greater than the value defined for the Maximum Transport width at which point it will begin to use the next longest stock bar length and so on. |

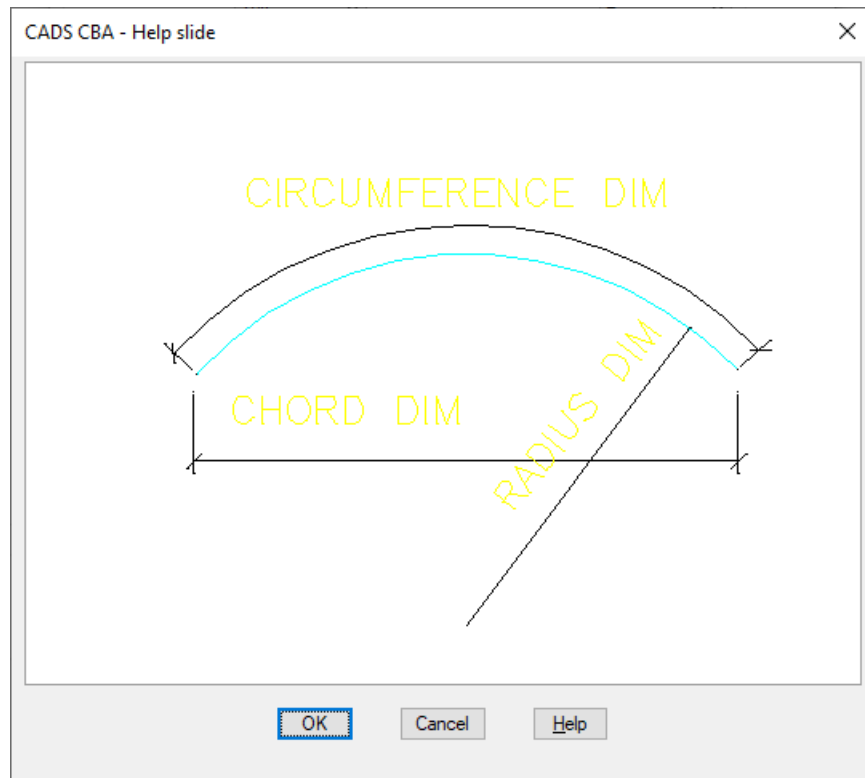
**Maximum Transport Width** Enter the maximum transport dimension value for the bend bars

**Use T3 below 7'-4" Radius** Enter the bend type you wish to detail when the radius is below the entered value. By default Bend Type T3 is used.

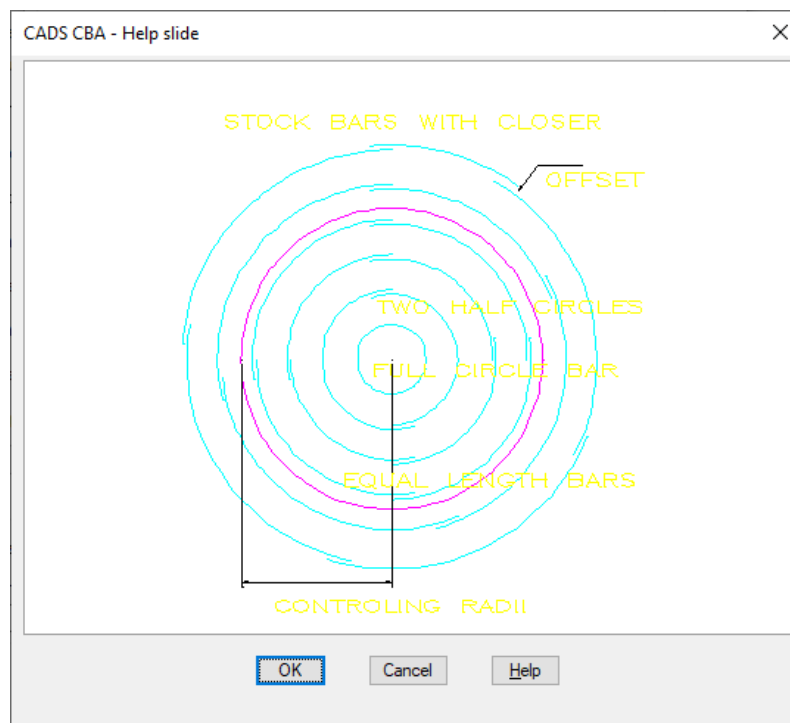
**Equal Bars** Define each ring with 3 equal bars below a radius of 11' using a stock length of 6'. Enter the values if equal bars are to be detailed for rings below certain radius.

**Save Job Settings** This button opens up the Save as Dialog box where all the configuration settings can be saved in a specified location.

**Restore Job Settings** Selecting this button displays the Open dialog box where a predefined project settings file can be selected.




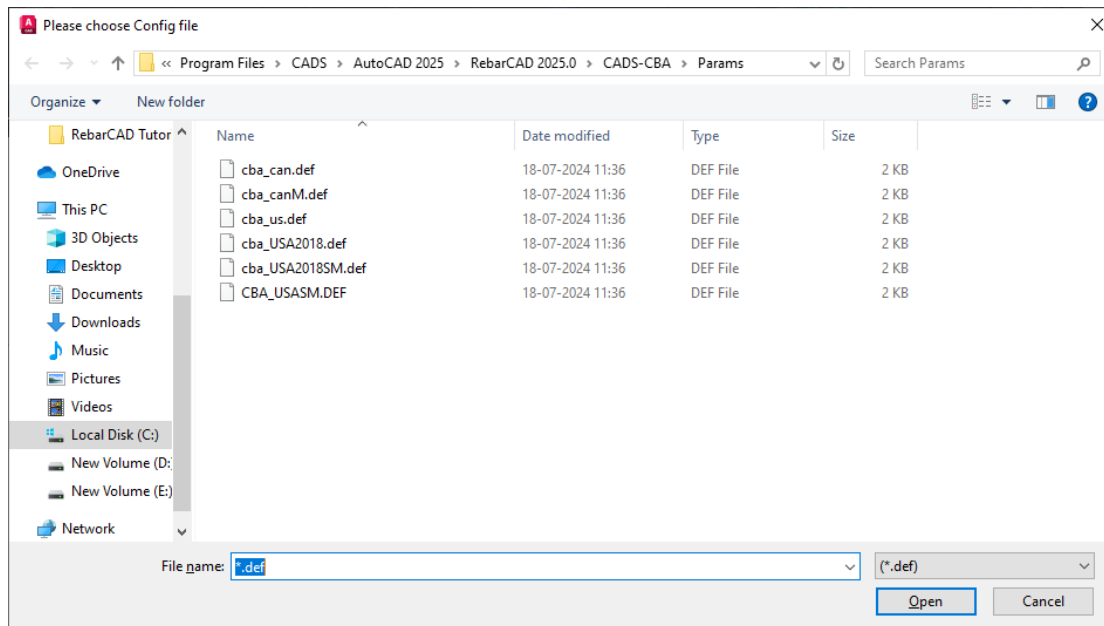
**Figure 16.2.5:2 CBA Dimension Help Slide**



**Figure 16.2.5:3 Equal Bars Help File**

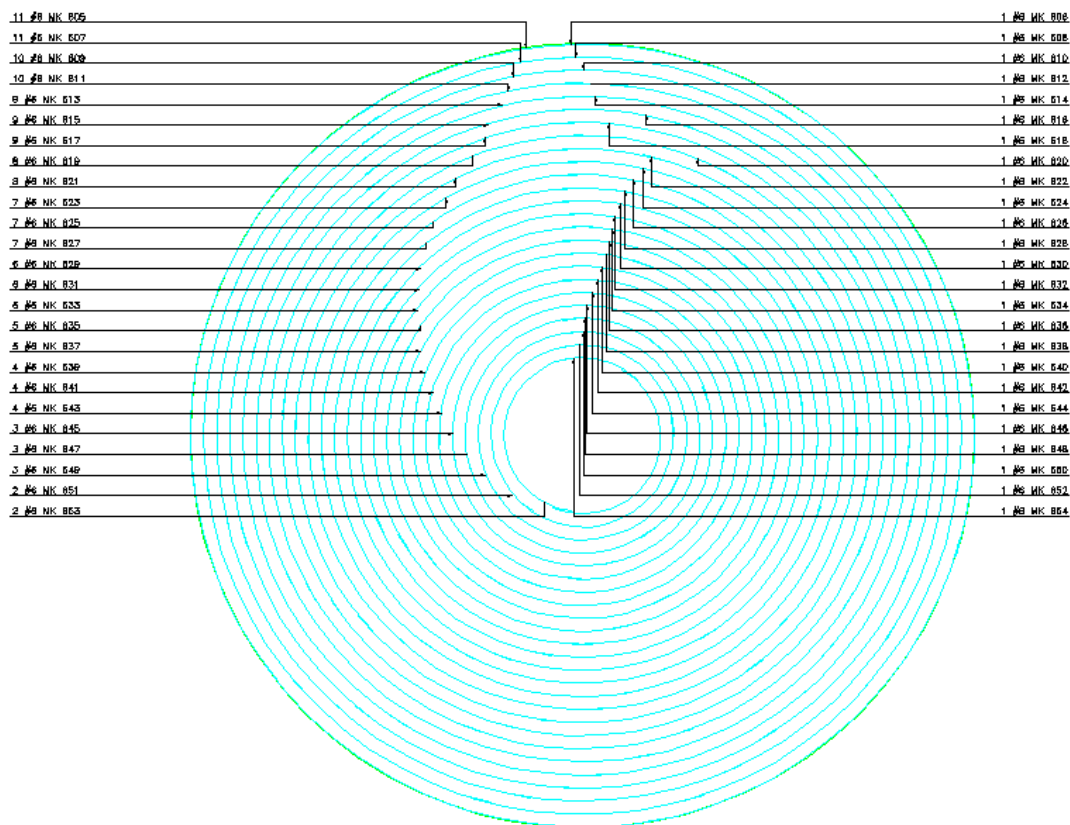
## 16.2.6 CBA Configuration File Selection

When the Circular Bar Arrangement Detailer (CBA) is loaded the Circular Bar Arrangement Detailer Input dialog is displayed. This dialog contains a Change CFG File button  that allows the required configuration file (def file) to be selected in order that suitable default data is displayed. The CBA will automatically select the correct definition file depending on the standard set-up in RebarCAD.



**Figure 16.2.6:1 Choose Definition File**


## 16.2.7 Drawing the Circular Bar Arrangement



**Figure 16.2.7:1 Typical Circular Arrangement**


When the required Circular Bar Arrangement data has been entered the Circular Bar Arrangement can be drawn by selecting the OK button from the Circular Bar Arrangement Detailer Input dialog.

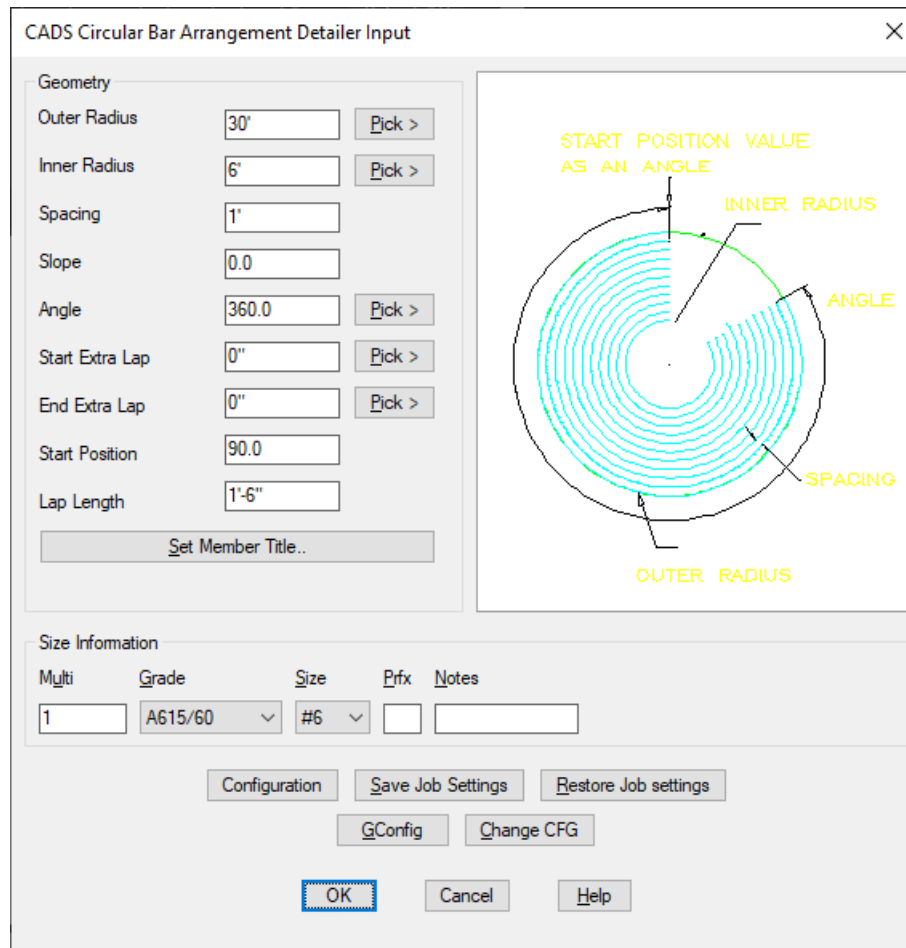
## 16.2.8 Try It! Using the Circular Bar Arrangement Detailer

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 31.dwg
- ▶ Make the Viewport on Circular Bar Layout active
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the Draw Bar dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

You are going to add arc and circular bars using the Circular Bar Arrangement Detailer to the Sump Tank Plan taking into account the slope of the tank.

- Select RebarCAD → Tools → Range Tools → Circular Bar Arrangement Detailer or .



**Figure 16.2.8:1 Circular Bar Arrangement Detailer dialog**

- Set the *Outer Radius* at **30'**, the *Inner Radius* at **10'**, the *Spacing* at **8"** and the *Slope* at **15** degrees.

Pick **OK** to detail the outline.

Base Point: Pick the centre of the detail

New Point: Pick the centre of the outline

Do require a Move/Rotate/Copy <No> Press enter to accept

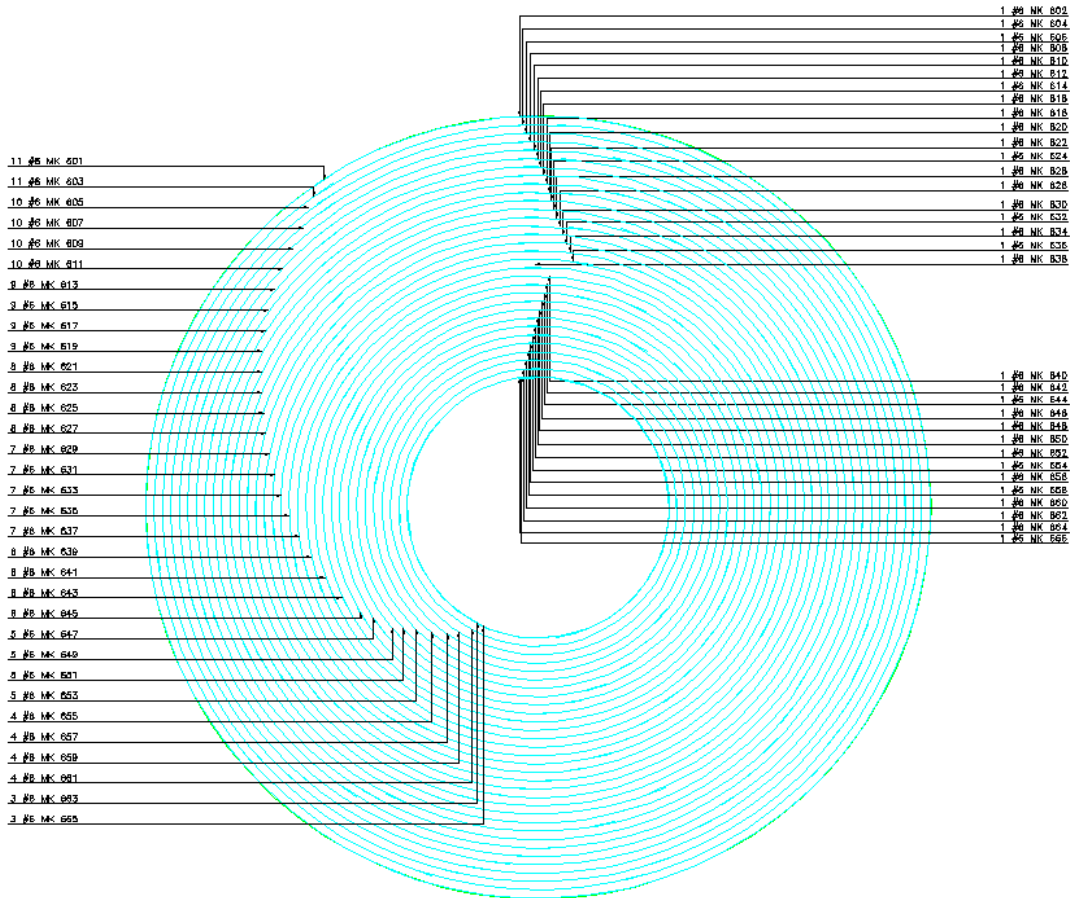
- Select RebarCAD → Leaders → Leader Option 1 or .

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Type B for bar and press enter

Pick bar: Pick on one of the outside bars on the plan view.


Pick point on bar: Pick a point on the same bar and the leader is drawn from the bar to the bar label. You can continue and add all the leaders in if you have time.



**Figure 16.2.8:3 Finished Circular Bar Arrangement Detail**

## 16.3 Area Detailer

The Area Detailer is used to add reinforcement to irregular polyline outlines with or without openings. The detailer has the ability to detail either single indicator or tapered ranges with either straight, bend or hook bars in one direction at a time. The Area detailer will also support Over Stock Length bars.

This command is available from the Detailers toolbar or through RebarCAD → Tools → Detailers → Area Detailer .

### 16.3.1 Basic Operation

Load the Area Detailer tool. At the AutoCAD command line, you will be asked;

Select the outer boundary...

Select a Pline object:

Select a polyline or region object that has already been drawn to define the outer boundary of the area to be detailed.

Next, at the AutoCAD command line, you will be asked;

Do you want to select any holes (Yes/No) <Yes>?

Answer yes if you want to pick polyline or region objects that have already been drawn. If you answer No the Area Detailer dialog will be displayed.

Select the opening(s)...

Select polyline/Region<Pick points>:

There are three options to define the openings with the default option as Pick points.

- ▶ *Select polyline*      You can select a polyline entity.
- ▶ *Region*      You can pick a point inside a closed region.
- ▶ *Pick*      You can pick as many points as required to select the area.

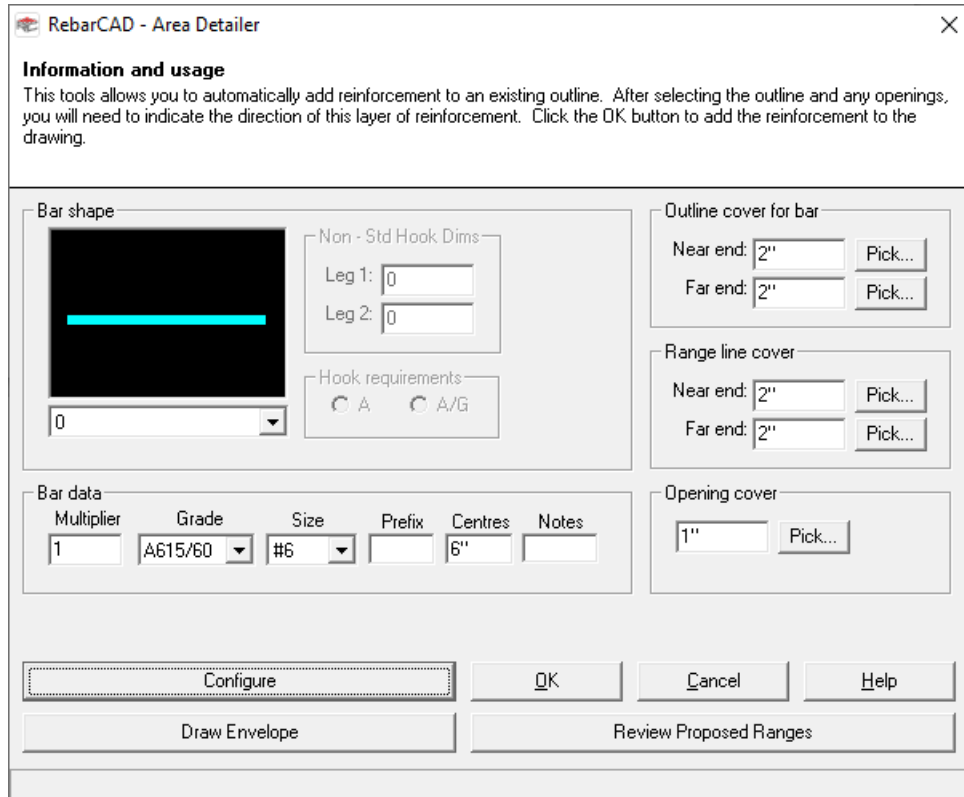
After selecting the objects for the openings, press enter and then you will be prompted at the AutoCAD command line;

Pick start point to indicate direction of ranges:

Pick end point to indicate direction of ranges:

Pick points to define the direction of the ranges. The area detailer will support ranges drawn at any angle. However, if the auto-place bar label option is selected in the configuration, they will be placed horizontally and occasionally the leader maybe missed.

After indicating the direction of the ranges, the Area Detailer Dialog box is displayed as shown in figure below.



**RebarCAD - Area Detailer**

**Information and usage**  
 This tool allows you to automatically add reinforcement to an existing outline. After selecting the outline and any openings, you will need to indicate the direction of this layer of reinforcement. Click the OK button to add the reinforcement to the drawing.

**Bar shape**  
 [Diagram of a bar with a hook]   
 Non - Std Hook Dims  
 Leg 1: [0]   
 Leg 2: [0]   
 Hook requirements:   
☐ A ☐ A/G

**Outline cover for bar**  
 Near end: [2"] [Pick...]   
 Far end: [2"] [Pick...]

**Range line cover**  
 Near end: [2"] [Pick...]   
 Far end: [2"] [Pick...]

**Bar data**  

Multiplier	Grade	Size	Prefix	Centres	Notes
[1]	[A615/60]	[#6]	[ ]	[6"]	[ ]

**Opening cover**  
 [1"] [Pick...]

[Configure] [OK] [Cancel] [Help]

[Draw Envelope] [Review Proposed Ranges]

**Figure 16.3.1:1 Area Detailer main dialog**

Area Detailer Dialog contains the following fields to be input:

**Cover Values** Define the cover values for Bar, Range Line & Openings.

**Bar Shape** Define the Bend Type to be drawn.

**Bar Data** Set the steel grade, bar diameter, centers and notes.

## 16.3.2 Defining Cover Values

You can define the cover distances to the Bars, the Range lines and then openings in the Area Detailer main input dialog. You can enter the cover values for each using one of two options;

You can type in a value for the cover distance.

You can pick the cover distance on the drawing by selecting the Pick button.

## 16.3.3 Defining Bar and Range Data

### Bar Shape

The user can pick the Bend Type to be used by the Area Detailer from the drop down list. (This is country specific and some of them may be disabled.) The user can enter the appropriate hook dimensions when a Non-standard hook bar shape is selected.

**Bar Label data**

The bar label data consists of:

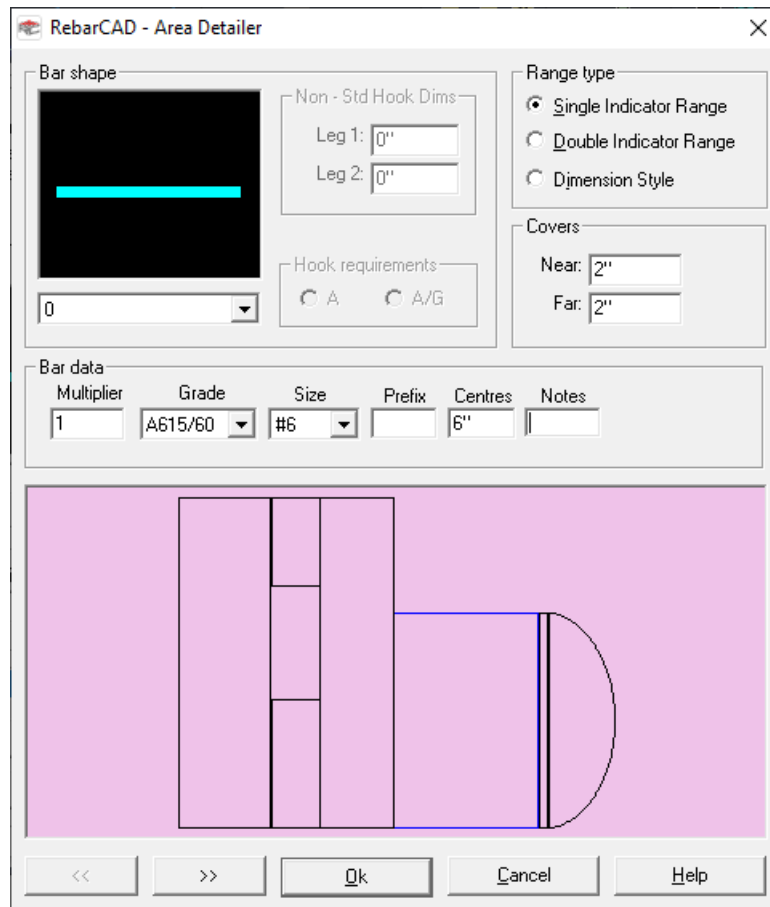
Multi	Multiplier of Bars
Grade	Grade of the Bar Shape selected
Size	Size of Bar Shape selected.
Prefix	Bar mark prefix. Default value is none.
C/C	C/C spacing of the bars. This depends on number of bars and the envelope area.
Notes	Notes that will get appended to the label.

**Other Options**

The other options included in the Area Detailer main dialog include:

Configure	Picking the Configure button opens up the Area Detailer configuration dialog box.
Draw Envelope	Picking the Draw Envelope button draws the envelope solutions within the outline and then terminates the function.
Review Ranges	Proposed Picking the Review Proposed Ranges button opens up the Envelope detail dialog box.
OK	You can detail the selected outline with openings by clicking "OK" button.

## 16.3.4 Envelope Details



**Figure 16.3.4:1 Envelope Details dialog**

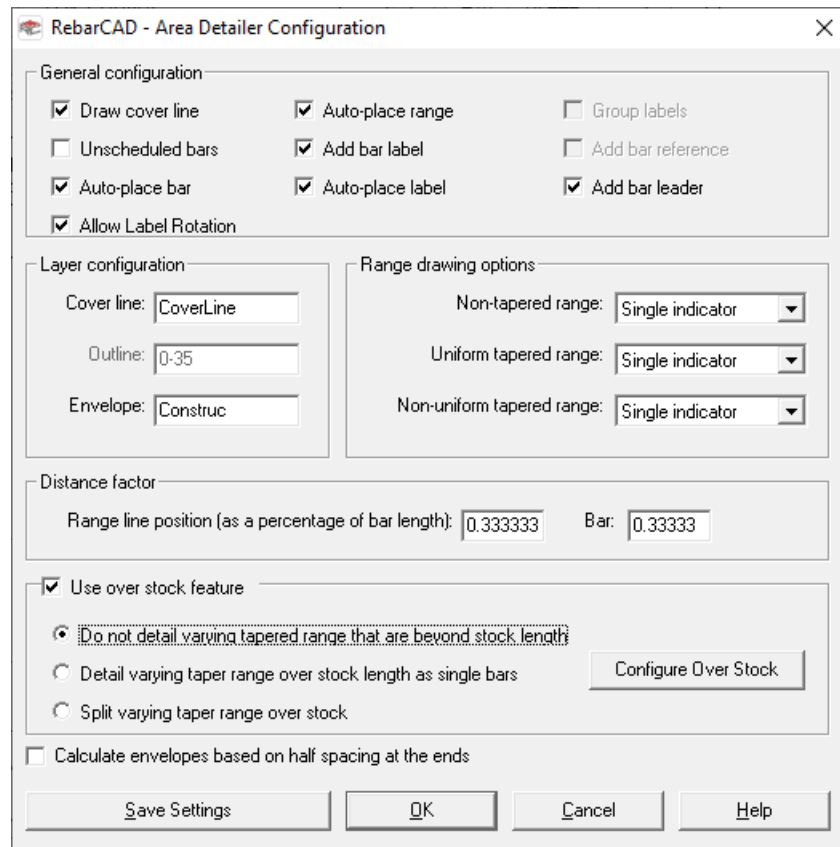
You can view and edit envelope detailing data by clicking Review proposed ranges from the main dialog.

The user can view all envelope solutions by clicking the << & >> buttons. The default Range Type is the range type defined in Area Detailer Configuration dialog accordingly.

You can also amend the covers, bar and range data for each envelope in this dialog.

## 16.3.5 Configuration

The Area Detailer Configuration dialog is invoked by clicking "Configure" button from the Area Detailer main dialog as shown in figure below.



**Figure 16.3.5:1 Area Detailer Configuration dialog**

The configuration dialog as shown above in figure has the following items for the user to configure:

#### General Configuration

Draw Cover line	Select if you want to a draw cover line.
UnBar Listd Bars	Select if you want to place UnBar Listd Bars
Auto Place Bars	Select if you want CBA to automatically place the reinforcement bars on the drawing in predefined positions.
Auto Place Range	Select if you want CBA to automatically place Range Lines on the drawing in predefined positions.
Add Bar Label	Select if you want to add the bar label to the drawing.
Auto Place Label	Select if you want to automatically place the Bar Label on the drawing in redefined positions.
Group Labels	Select if you want to Group the Bar Labels together.

**Add Bar Reference**                      Select if you want to Add Bar references to the reinforcing bars.

### **Layer Configuration**

Cover line	Type in the Layer name for the cover line
Outline	The layer for the outline is set by the polyline or region selected on the drawing
Envelope	Type in layer name for the envelope lines. The defined layer names will be created in the AutoCAD Layer Properties Manager.

### **Range drawing options**

Range configuration can be defined based on three major categories of Range envelope types, these are:

- ▶ Non-Tapered Range
- ▶ Uniform Tapered Range
- ▶ Non- Uniform Tapered Range

#### **Non - Tapered Range**

If the range envelope is Non Tapered range then you can detail these envelopes with the following range types:

- ▶ Single Indicator Range
- ▶ Double Indicator Range
- ▶ Dimension Style

The user can select the required range type from the drop down list.

#### **Uniform Tapered Range**

If the range envelope is Uniform Tapered range then you can detail those envelopes with the following range types

- ▶ Linear Tapered Range
- ▶ Linear Double Indicator
- ▶ Detail Single Bars

The user can select the required range type from the drop down list.

#### **Non Uniform Tapered Range**

If the range envelope is Non Uniform Tapered range then you can detail those envelopes with the following range types

- ▶ Varying Taper Range
- ▶ Detail Single Bars

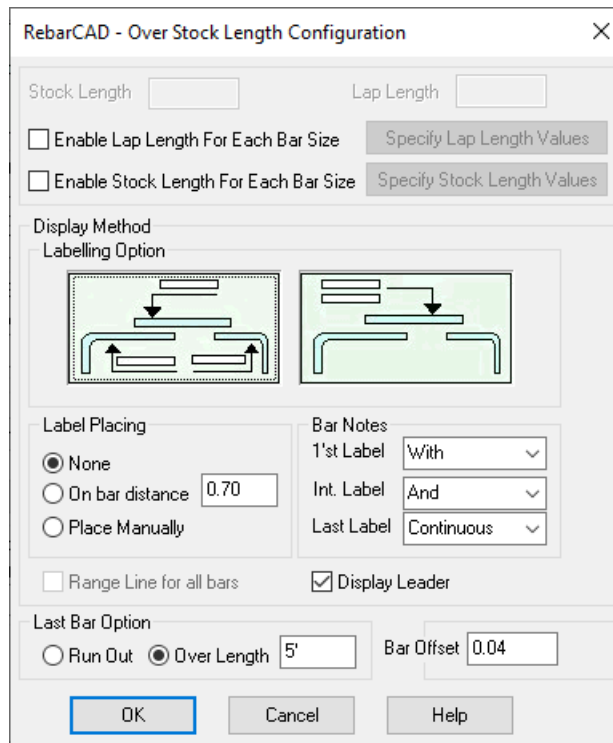
The user can select the required range type by picking the appropriate option button.

## Distance Factor

You can specify the position on the drawing where the range line is drawn by using the "*Range Line Position Factor*". This value is expressed as a percentage of the distance measured from top to the bottom of the range bar. If the envelope is either linear taper or varying taper then the factor is measured from bottom to top of the first bar of a range.

You can also specify the position on the drawing where the reinforcement bar is drawn by using the "*Bar Insertion Point*" option. If, 2 is specified then the bar will be drawn where the 3rd reinforcement bar would cross the range line.

## 16.3.6 Use Over Stock Length



The dialog box is titled "RebarCAD - Over Stock Length Configuration". It contains the following sections:

- Stock Length** and **Lap Length** input fields.
- ☐ **Enable Lap Length For Each Bar Size** with a **Specify Lap Length Values** button.
- ☐ **Enable Stock Length For Each Bar Size** with a **Specify Stock Length Values** button.
- Display Method** section with a **Labelling Option** sub-section containing two diagrams of rebar configurations.
- Label Placing** section with radio buttons for **None** (selected), **On bar distance** (0.70), and **Place Manually**.
- Bar Notes** section with dropdown menus for **1'st Label** (With), **Int. Label** (And), and **Last Label** (Continuous).
- ☐ **Range Line for all bars** and ☒ **Display Leader**.
- Last Bar Option** section with radio buttons for **Run Out** and **Over Length** (5'), and a **Bar Offset** (0.04) input field.
- OK**, **Cancel**, and **Help** buttons at the bottom.

**Figure 16.3.6:1 Over Stock Length Configuration**

You can choose to allow the Area Detailer to use the Over Stock Length feature available in RebarCAD by selecting the "Use over stock feature" option.

Picking the Configure Over Stock feature opens up the Over Stock Configuration dialog as shown in figure above.

There are also options to use OSL for varying tapered range. Selecting the Do not detail varying tapered range that are beyond stock length option will not detail the varying tapered envelope if the length of the bar exceeds stock length.

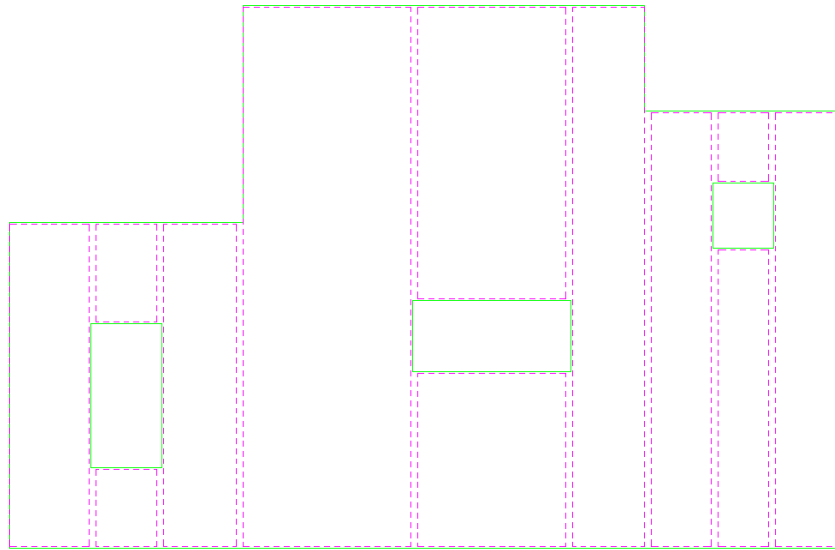
Selecting the option detail varying taper range over stock length as single bars will detail the varying taper over stock length envelope as single bars.

Save Settings

Select Save Settings if user needs the current program values as the default values.

### 16.3.7 Draw Envelope

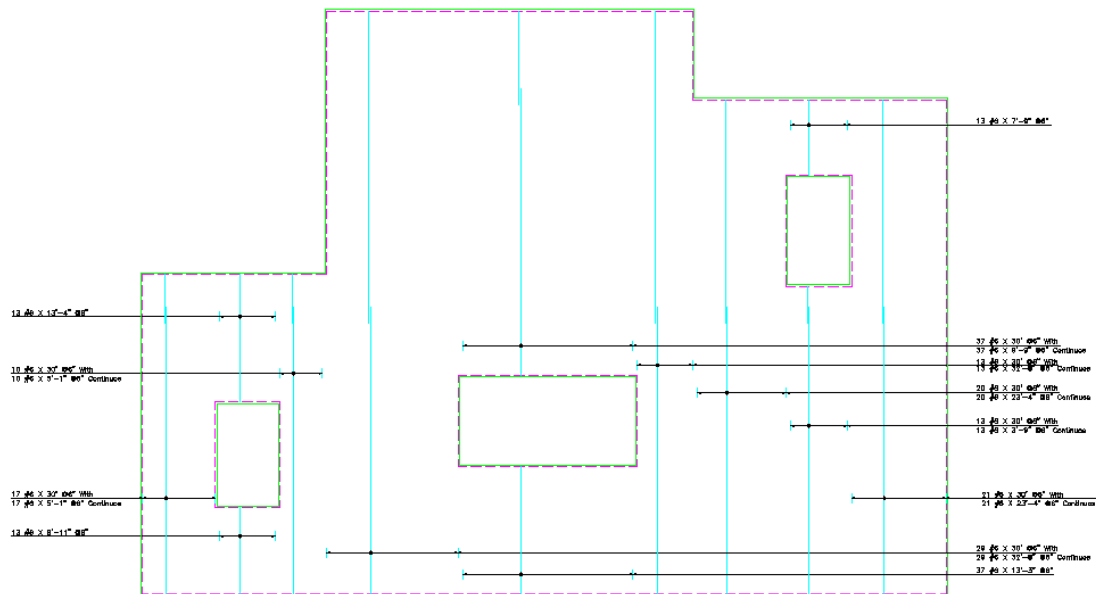
Picking the Draw Envelope button will add the envelope solution to the Polyline / Region Outline on the drawing.



***Figure 16.3.7:1 Typical Envelope solution added to the outline***



### 16.3.8 Detail Area

Picking the OK button on the main dialog and the detailer will add the reinforcement to the outline.



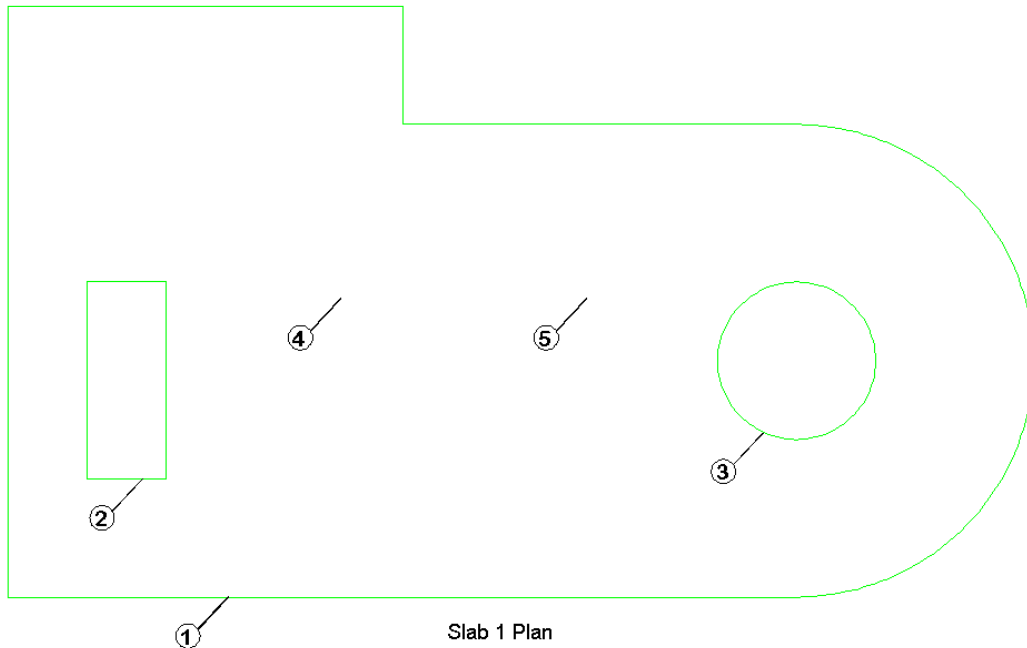
**Typical 16.3.8:1 Typical Outline detailed with the Area Detailer**

## 16.3.9 Try It! Using the Area Detailer

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 30.dwg
- ▶ Make the Viewport on Area Detailer Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Area Detailer the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 02 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

- ▶ Select RebarCAD → Tools → Range Tools → Area Detailer or .



**Figure 15.2.9:1 Outline to detail using the Area Detailer**

Select the outer boundary..

Select a Pline object:

Pick outline indicated by point 1

Do you want to select any holes (Yes/No)<Yes>: Press enter to accept

Select the openings..

Select polyline/Region/<Pick points>:

Type S for select, press enter

Select objects:

Pick outline indicated by point 2

Select objects:

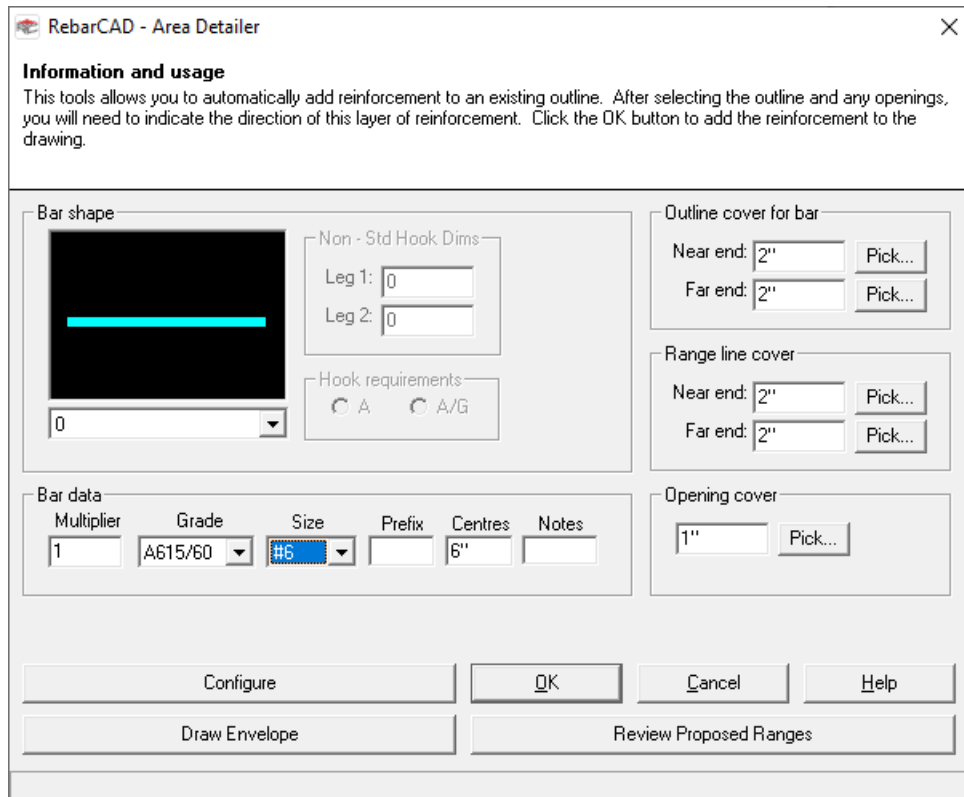
Pick outline indicated by point 3

Select objects:

Press enter to finish selecting.

Pick start point to indicate direction of ranges: Pick point on drawing indicated by point 4

Pick end point to indicate direction of ranges: Pick point on drawing indicated by point 5



**RebarCAD - Area Detailer**

**Information and usage**  
 This tool allows you to automatically add reinforcement to an existing outline. After selecting the outline and any openings, you will need to indicate the direction of this layer of reinforcement. Click the OK button to add the reinforcement to the drawing.

**Bar shape**

Non - Std Hook Dims  
 Leg 1: 0  
 Leg 2: 0

Hook requirements:  
☐ A ☐ A/G

Outline cover for bar  
 Near end: 2" Pick...  
 Far end: 2" Pick...

Range line cover  
 Near end: 2" Pick...  
 Far end: 2" Pick...

Opening cover  
 1" Pick...

**Bar data**

Multiplier	Grade	Size	Prefix	Centres	Notes
1	A615/60	#6		6"	

Buttons: Configure, OK, Cancel, Help, Draw Envelope, Review Proposed Ranges

**Figure 16.3.9:2 Area Detailer dialog**

Select / type in the defaults in the Area Detailer dialog box as shown above in figure above. Then pick the Configure button.



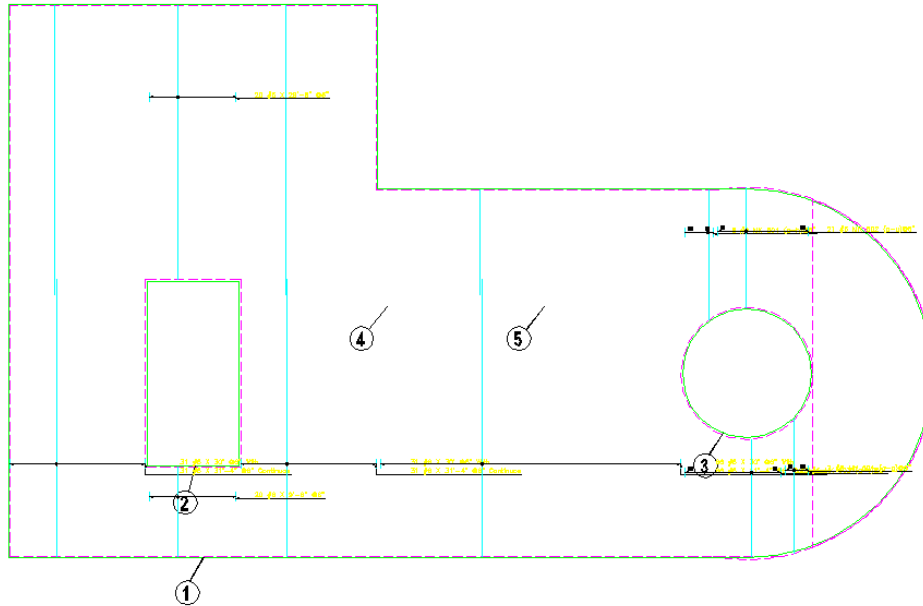
**General configuration**

<input checked="" type="checkbox"/> Draw cover line	<input checked="" type="checkbox"/> Auto-place range	<input type="checkbox"/> Group labels
<input type="checkbox"/> Unscheduled bars	<input checked="" type="checkbox"/> Add bar label	<input type="checkbox"/> Add bar reference
<input checked="" type="checkbox"/> Auto-place bar	<input checked="" type="checkbox"/> Auto-place label	<input checked="" type="checkbox"/> Add bar leader
<input checked="" type="checkbox"/> Allow Label Rotation		

**Figure 16.3.9:3 General Configuration settings**

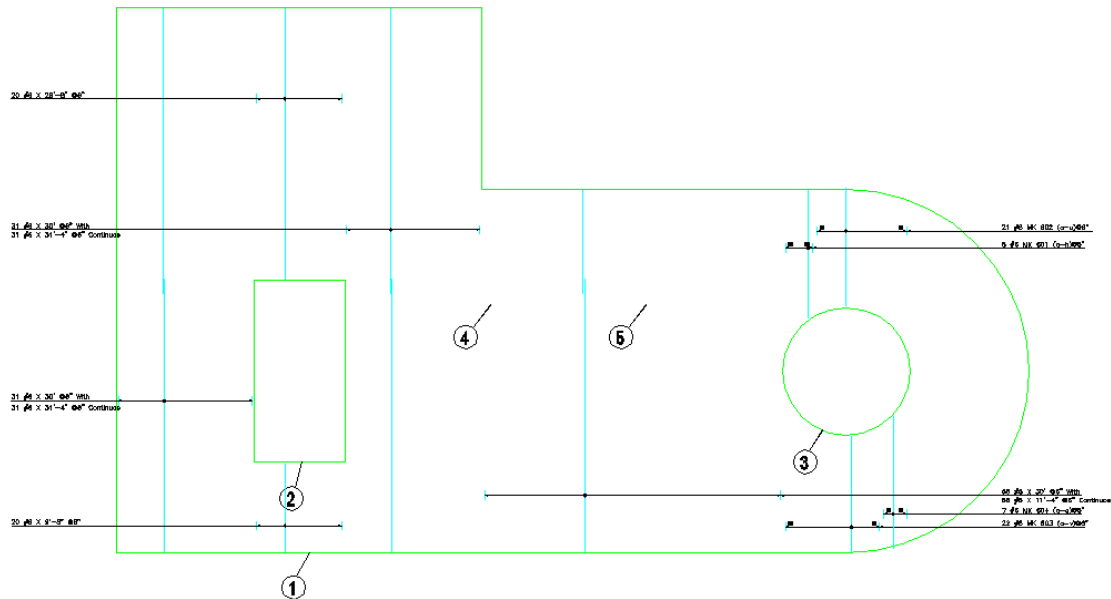
Select the options in the General configuration as shown above in figure above

Pick Ok twice to return to the drawing, the Area Detailer now places the bars and ranges.



**Figure 16.3.9:4 Slab detailed using the Area Detailer**


Use AutoCAD and **RebarCAD** editing commands to tidy up the drawing/.



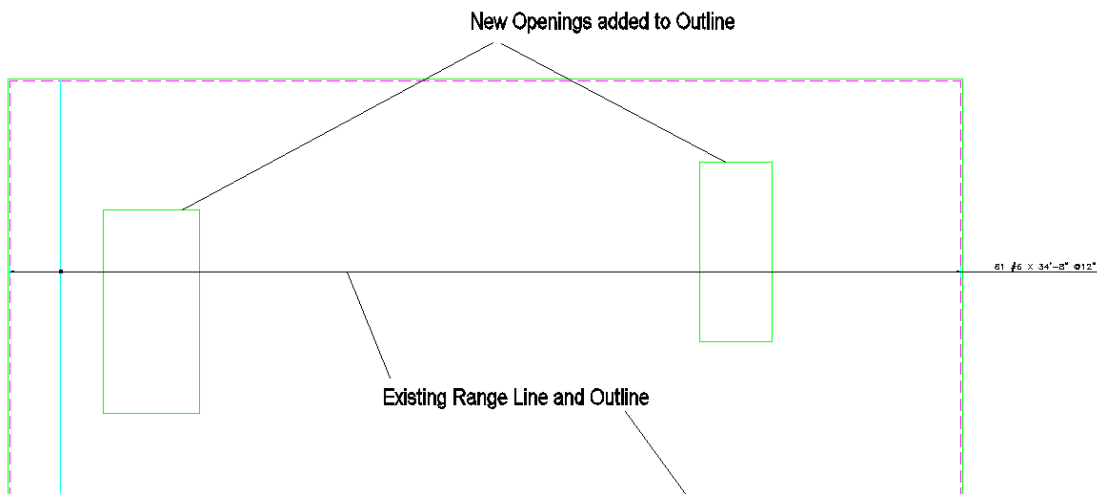
**Figure 16.3.9:5 Slab after labels have been tidied up**

## 16.4 Split Range

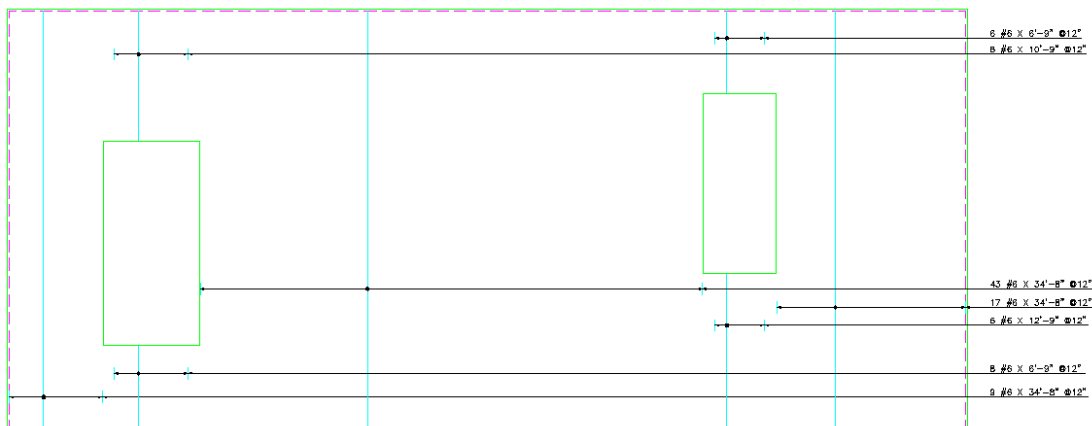
The Split range tool can be used to break an existing range line around one or more openings within the boundaries of a range area. It will redraw the ranges either side of the opening as well as above and below as shown below in figure.

This command is available from the Detailers toolbar or through RebarCAD → Tools → Detailers → Split Range .

Before using this command make sure that the openings are already drawn using either an AutoCAD region or a polyline as shown below in figure 15.3:1.



**Figure 16.4:1 Typical Outline, with range and new openings**



**Figure 16.4:2 Finished Split Range Detail**

After picking the command from either the Toolbar or the pull down menu you will be prompted at the AutoCAD command line to select a range which you want to split.

Select Range line:

Once you have selected the range you will be prompted again.

Select the opening(s)...

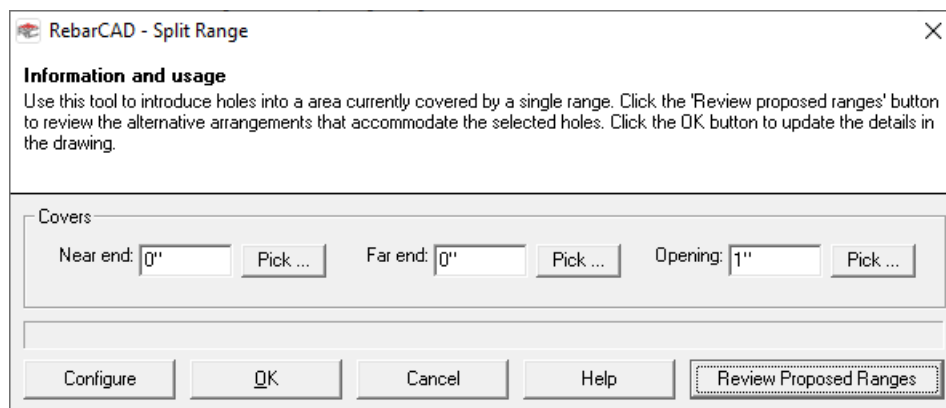
Select polyline/Region<Pick points>:

There are three options to define the openings with the default option as Pick points.

- ▶ Select polyline      You can select a polyline entity.
- ▶ Region                You can pick a point inside a closed region.
- ▶ Pick                  You can pick as many points as required to select perimeter of the area.

After selecting the objects for opening press Enter and then you will be prompted in the command prompt.

## 16.4.1 Defining the Split Range Defaults



**Figure 16.4.1:1 Split Range dialog**

### Defining Cover value

The user can define the cover value to the openings. There are two options to enter cover values,

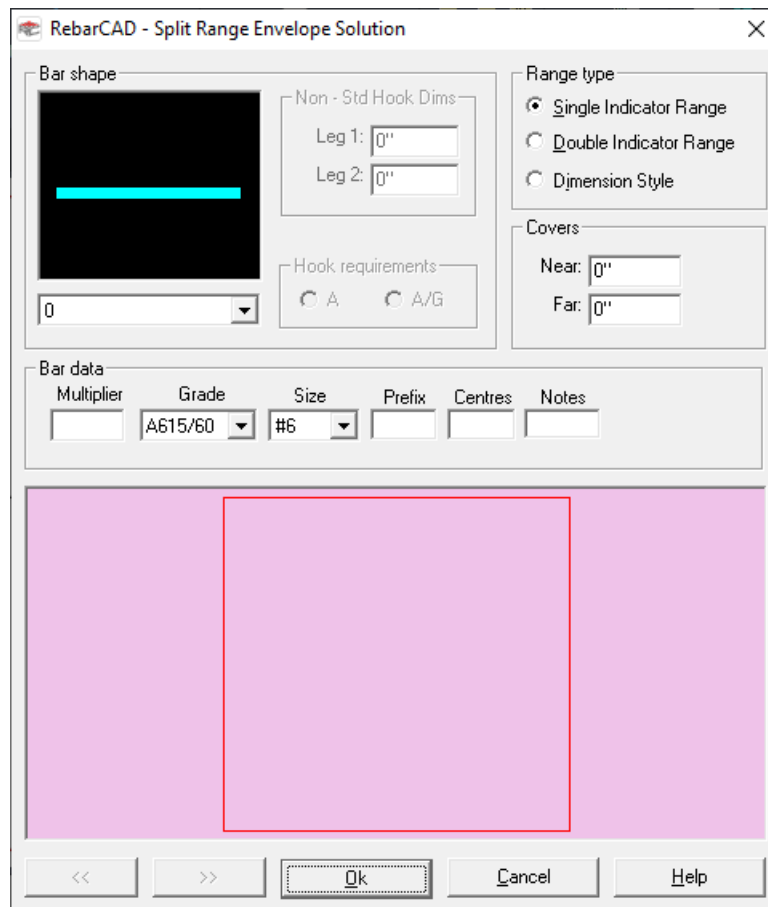
- ▶ You can enter a value for the cover.
- ▶ You can pick the cover distance on the drawing.

Picking the Configure button opens up the Split range configuration dialog box.

Picking the Review Proposed ranges opens up the Envelope detail dialog box.

## 16.4.2 Envelope Details

The User can view and edit envelope detailing data by clicking Review proposed ranges from the main dialog.

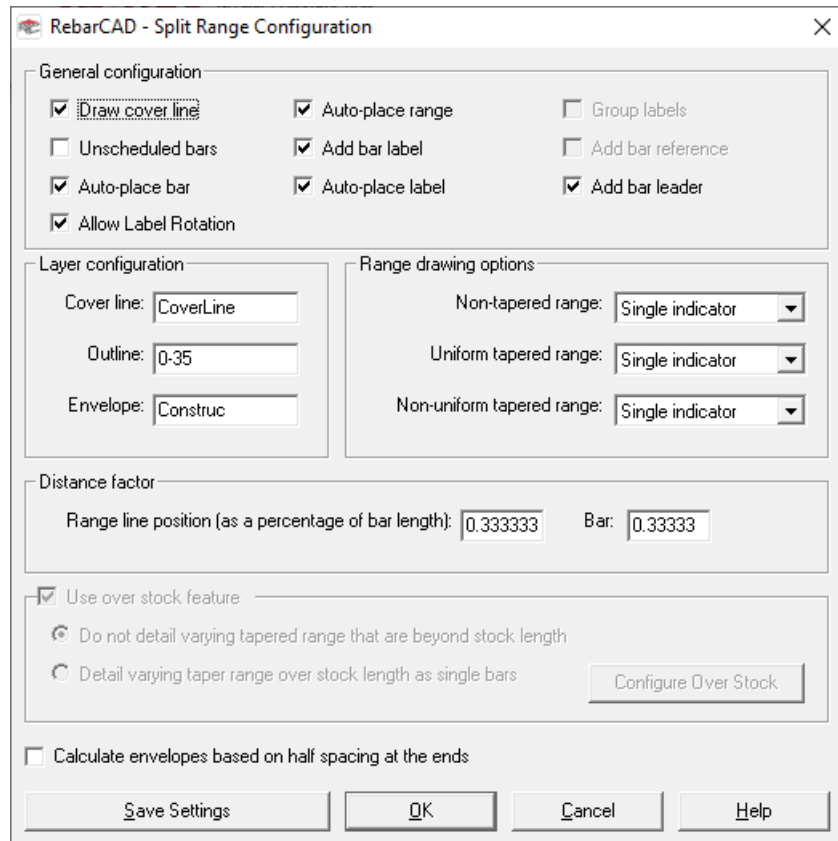


**Figure 16.4.2:1 Envelope Detail dialog**

The user can view all envelope solutions by picking either the back << or forwards >> buttons. The default Range Type is the range type defined in [Split Range Configuration](#) dialog. At this point of time the user can also change range type information for each envelope.

### 16.4.3 Split Range Configuration

Split Range configuration dialog is invoked by clicking "Configure" button from Split Range main dialog. Configuration dialog is displayed as shown below.



**Figure 15.3.3:1 Split Range Configuration dialog**

The configuration dialog has the following items for user to configure.

#### General Configuration

Draw Cover line	Select if you want to a draw cover line.
Unlisted Bars	Select if you want to place Unlisted Bars.
Auto Place Bars	Select if you want CBA to automatically place the reinforcement bars on the drawing in predefined positions.
Auto Place Range	Select if you want CBA to automatically place Range Lines on the drawing in predefined positions.
Add Bar Label	Select if you want to add the bar label to the drawing.
Auto Place Label	Select if you want to automatically place the Bar Label on the drawing in redefined positions.
Labels Group	Select if you want to Group the Bar Labels together.
Add Bar Reference	Select if you want to Add Bar references to the reinforcing bars.

### Layer Configuration

Cover line	Type in the Layer name for the cover line
Outline	The layer for the outline is set by the polyline or region selected on the drawing
Envelope	Type in layer name for the envelope lines. The defined layer names will be created in the AutoCAD Layer Properties Manager.

### Range drawing options

Range configuration can be defined based on three major categories of Range envelope types, these are:

- ▶ Non-Tapered Range
- ▶ Uniform Tapered Range
- ▶ Non Uniform Tapered Range

#### Non –Tapered Range

If the range envelope is Non Tapered range then you can detail these envelopes with the following range types:

- ▶ Single Indicator Range
- ▶ Double Indicator Range
- ▶ Dimension Style

The user can select the required range type from the drop down list.

#### Uniform Tapered Range

If the range envelope is Uniform Tapered range then you can detail those envelopes with the following range types

- ▶ Linear Tapered Range
- ▶ Linear Double Indicator
- ▶ Detail Single Bars

The user can select the required range type from the drop down list.

#### Non Uniform Tapered Range

If the range envelope is Non Uniform Tapered range then you can detail those envelopes with the following range types

- ▶ Varying Taper Range
- ▶ Detail Single Bars

The user can select the required range type by picking the appropriate option button.

## Distance Factor

You can specify the position on the drawing where the range line is drawn by using the "*Range Line Position Factor*". This value is expressed as a percentage of the distance measured from top to the bottom of the range bar. If the envelope is either linear taper or varying taper then the factor is measured from bottom to top of the first bar of a range.

You can also specify the position on the drawing where the reinforcement bar is drawn by using the "*Bar Insertion Point*" option. If, 2 is specified then the bar will be drawn where the 3rd reinforcement bar would cross the range line.

Save settings

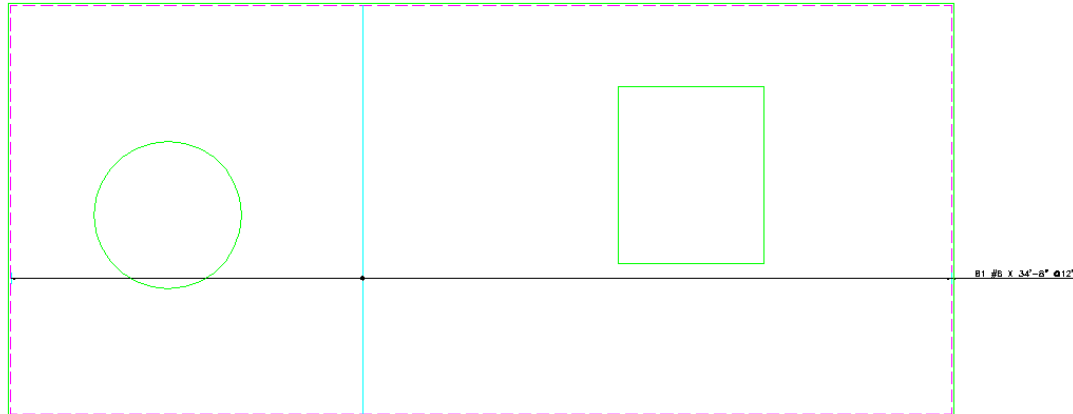
Select save settings if user needs current program values as the default value.

## 16.4.4 Splitting the Range line

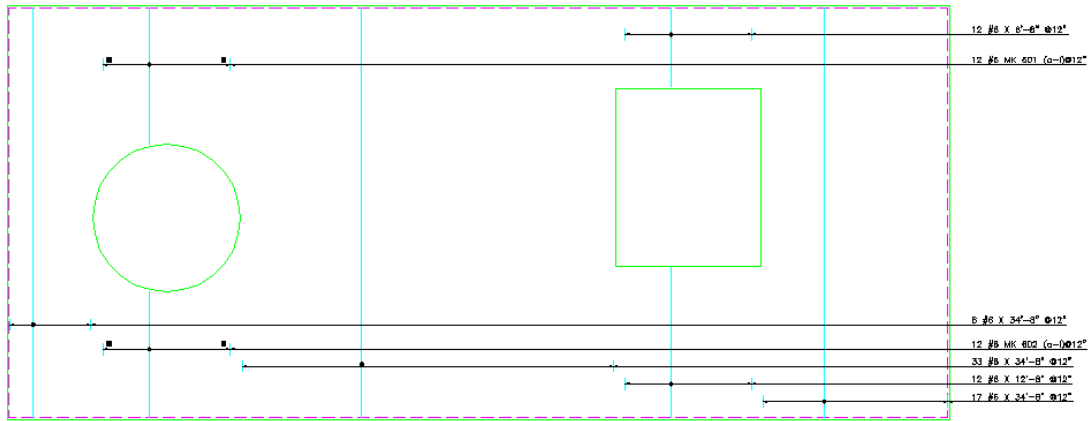
After setting the default values in the Split Range dialog box you can select the OK button to split the selected range line around the openings.

For example, a single indicator range line is selected as a the range line to Split with a circular and rectangular opening as shown in figure 15.3.4:1.

The range line is broken with the openings and each envelope is detailed with different range types as shown in figure 15.3.4:2.





**Figure 16.4.4:1 Range before running Split Range command**




**Figure 16.4.4:2 New detail after running the Split Range command**

### 16.4.5 Try It! Using Split Range Tool

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 30.dwg
- ▶ Make the Viewport on Split Range Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Split Range the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 03 the current Drawing Sheet and select OK
- ▶ Alternatively, you can select the Member and the Drawing Sheet in the Draw Bar dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

In this example you are going to split a range around two openings that have been introduced into the structure.

- ▶ Select RebarCAD → Tools → Range Tools → Split Range or .

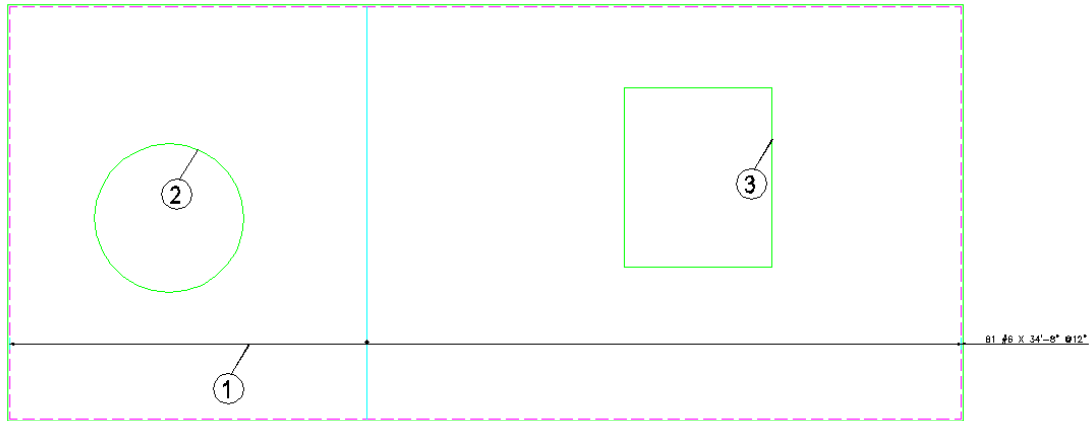
Select Range line: Pick range indicated by point 1

Select the opening(s): Select polyline/Region/<Pick points>: Type in S and press enter

Select objects: Pick opening indicated by point 2

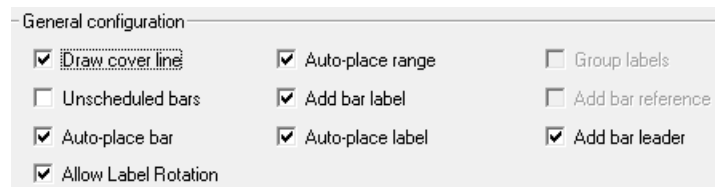
Select objects: Pick opening indicated by point 3

Select objects: Press enter to continue



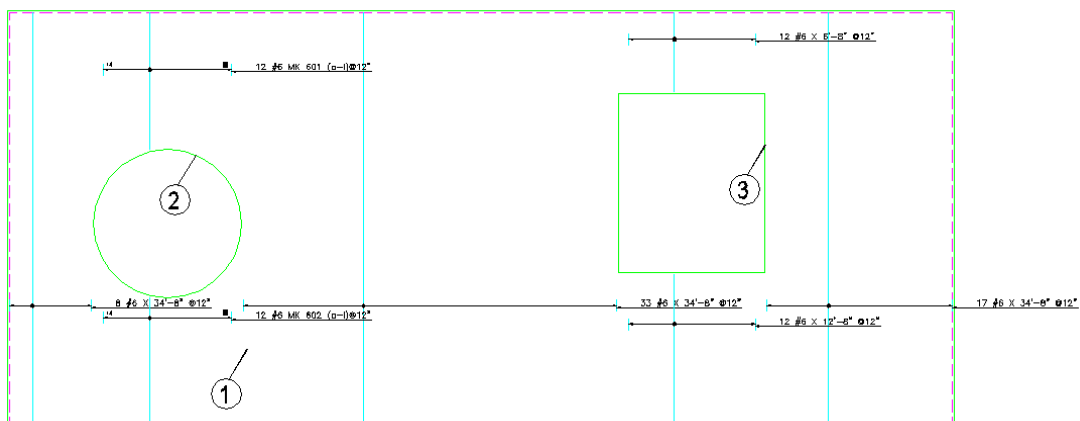
**Figure 16.4.5:1 Range**

In the Split Range dialog box set the cover to the opening to 50, pick the Configure button and select the options as indicated in figure 16.4.5:2

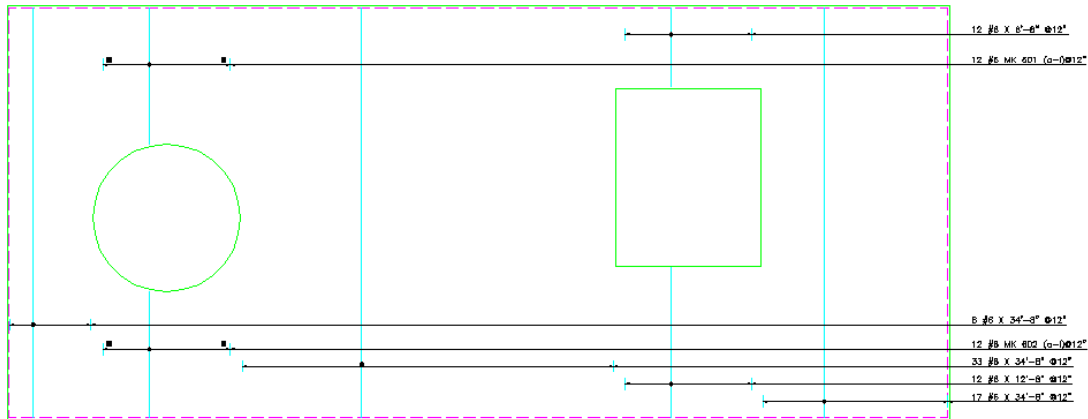


**Figure 16.4.5:2 General Configuration settings**

Pick OK twice and the Split Range Tool will delete the original range and draw new ranges inside the envelopes based on the configuration settings. Use AutoCAD modify commands to tidy up the drawing.



**Figure 16.4.5:3 Detail as drawn by the Split Range Tool**



**Figure 16.4.5:4 Finished Detail**

## 16.5 Change Range Type

The Change Range Type tool allows you to change from one range type to another. The tool will delete the original range line and transfer all the set data to the new range line.


You can only change the range type to a similar one, for instance if you have selected a single indicator linear taper you can change it to a double indicator linear taper.

### 16.5.1 Change Range Groups

The following lists the Change Range Type Groups;

- ▶ **Single Ranges**      Single Indicator; Double Indicator; Single Fixed Pitch; Single Multiple Pitch; Dimension Style
- ▶ **Alternate Ranges**    Alternate; Alternate Fixed Pitch; Alternate Multiple Pitch
- ▶ **Staggered Ranges**    Staggered; Staggered Fixed Pitch; Staggered Multiple Pitch
- ▶ **Tapered Ranges**      Linear Taper; Double Indicator; Double Taper

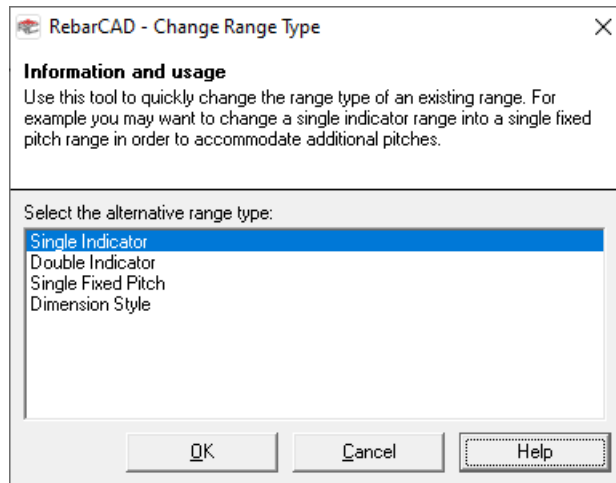
### 16.5.2 Using Change Range Type Tool

This command is available from the Detailers toolbar or through RebarCAD → Tools → Detailers → Change Range Type or .

After picking the command from either the Toolbar or the pull down menu you will be prompted at the AutoCAD command line to select the range you want to change.

### 16.5.3 Select a New Range to Change

Once the range has been picked the Change Range Type dialog is displayed as shown below in figure below. The alternative range types to change to will vary according to the range selected on the drawing.



**Figure 16.5.1:1 Change Range Type dialog**

### 16.5.4 Select a New Range to Change

Choose the range type to change to from the list of possible range types shown in the dialog box.

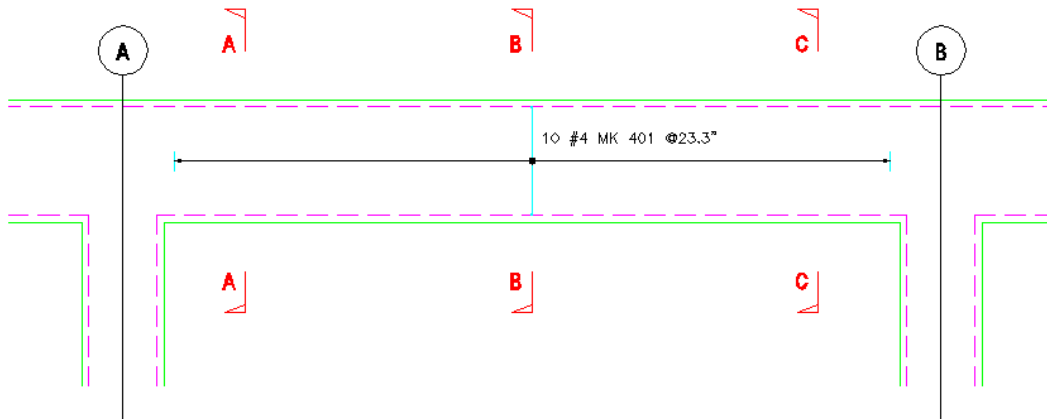
### 16.5.5 Changing Range type

The existing range will be changed to the new range type when the OK button is selected in main dialog.

The function will delete the original range and pass the bar set data to the new range type. The change range type tool may require additional input data especially if changing from a single indicator type range to a multiple range. It is at this stage you will be prompted to pick additional points of you want to split the range into groups.

### 16.5.6 Limitations

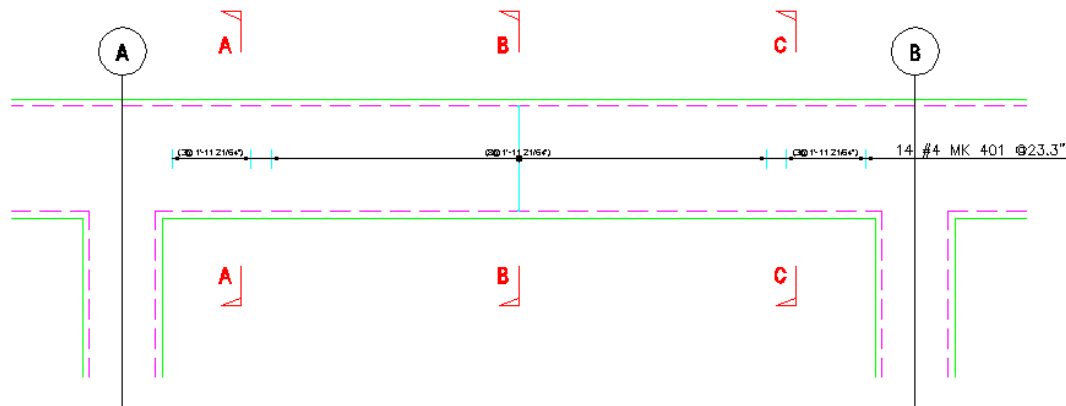
When range type is changed to a multiple fixed pitch type range, then all groups are given with same center to center spacing. You can use the Edit Range function to change the center spacing for each range group. This is illustrated in the example below.



**Figure 16.5.1:2 Single Indicator Range**

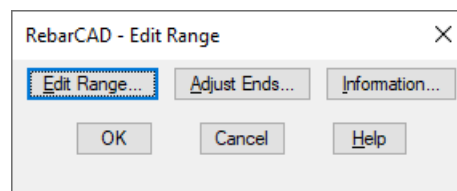
Use the Change Range Type tool to change the range from a single indicator to a single multiple pitch.

Note: the user has drawn construction lines to make it easier to select the start and end points of the range groups.

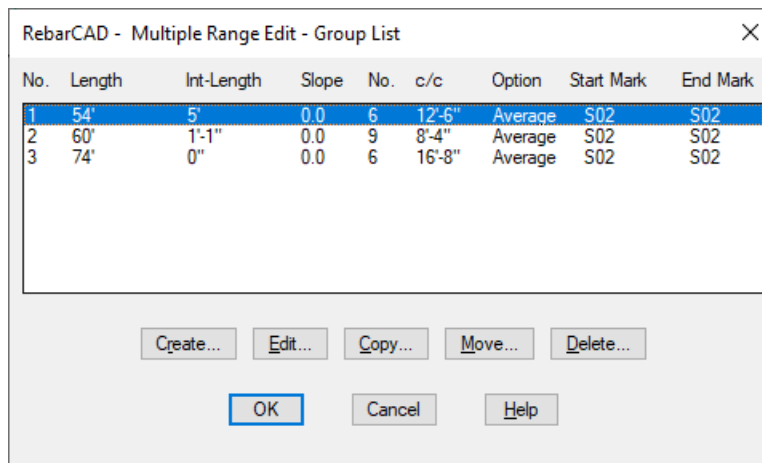


**Figure 16.5.1:3 Single Indicator changed to a Single Multiple Pitch**

Double click the range line to access the Range Edit dialog as shown in figure 15.4.1:4 and pick the Edit Range button.

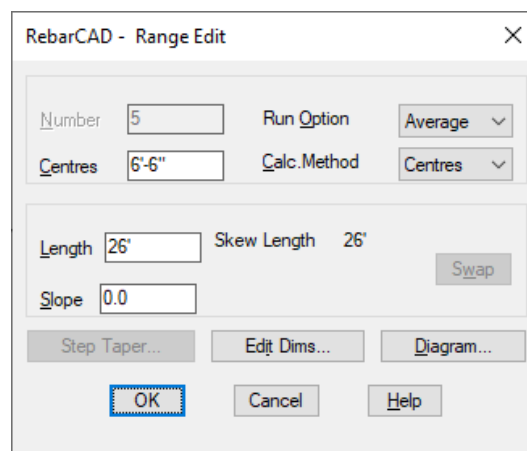


**Figure 16.5.1:4 Edit Range main dialog**



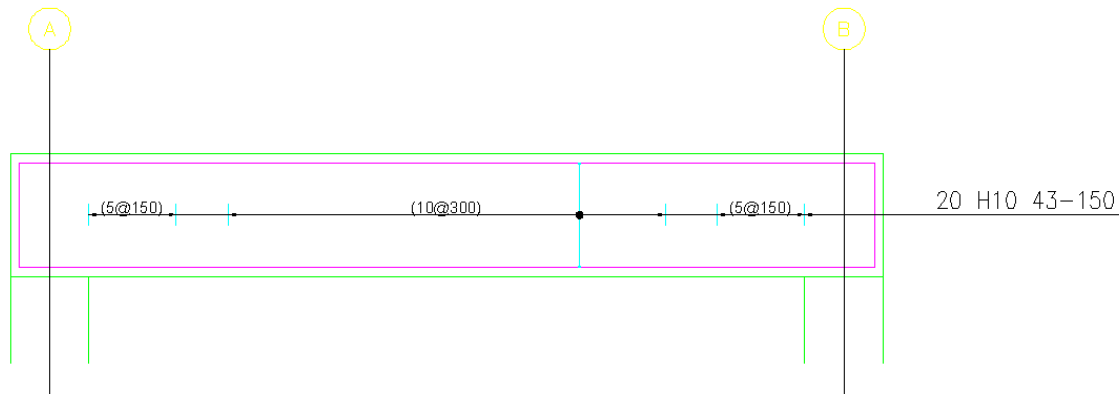
**Figure 16.5.1:5 Edit Range Group List**

The Group List dialog is displayed as shown in figure 16.5.1:5, highlight the second group and pick the Edit button to access the Range Edit Properties dialog as shown in figure 16.5.1:6.





**Figure 16.5.1:6 Multiple Range Edit Properties dialog**

Change the centers from 6" to 12" and pick OK to exit back the drawing. The range updates as shown in figure 16.5.1:7.



**Figure 16.5.1:7 Finished Beam Detail**

## 16.5.7 Try It! Using the Change Range Type Tool

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 30.dwg
- ▶ Make the Viewport on Change Range Type Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Change Range Type the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 04 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

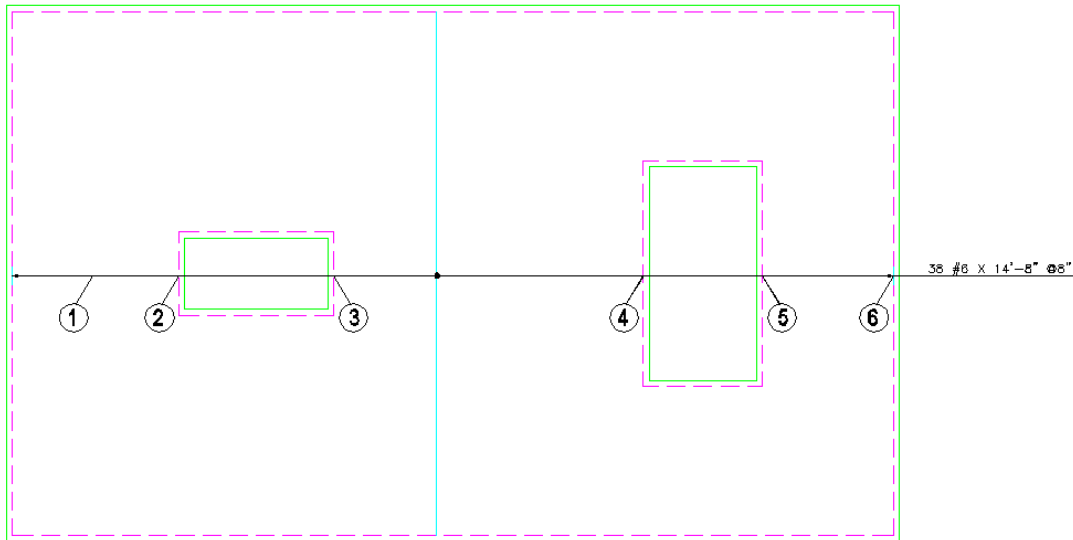
In this example you are going to change the range from a single indicator range to a single fixed pitch range and then select around the two openings that have been introduced into the structure.

- ▶ Select RebarCAD → Tools → Range Tools → Change Range Type or .

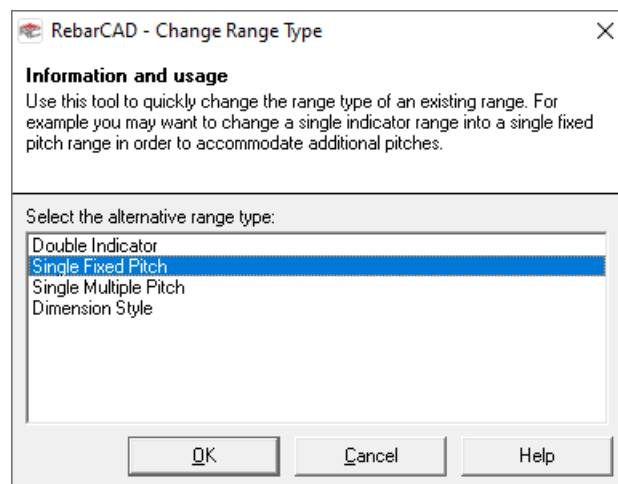
Select range line: Pick range line as indicate by point 1

In the Change Range Type dialog highlight the Single Fixed Pitch and pick OK

You will then be prompted to pick the endpoint of the range. In this case you are going to pick around the openings as indicated below in figure 15.4.2:1



**Figure 16.5.2:1 Outline with Single indicator range and new openings**



**Figure 16.5.2:2 Change Range Type dialog**

**Pick end of Range:** Pick intersection as indicated by point 2

Offset of last bar from end <0>: Press enter to accept

Pick or enter the start point of the next group or <Finish>:

Pick intersection as indicated by point 3

Offset of first bar from start <0>: Press enter to accept

**Pick end of Range:** Pick intersection as indicated by point 4

Offset of last bar from end <0>: Press enter to accept

Pick or enter the start point of the next group or <Finish>:


Pick intersection as indicated by point 5

Offset of first bar from start <0>: Press enter to accept

*Pick end of Range:* Pick intersection as indicated by point 6

Offset of last bar from end <0>: Press enter to accept

Do you want to change the label position? (Yes/No) <Yes>: Type N and press enter

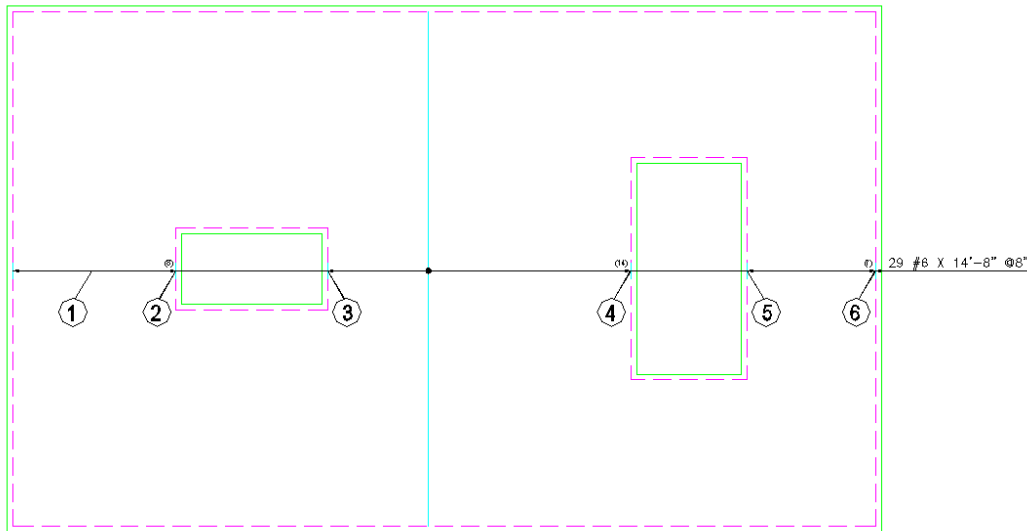
- ▶ You will need to manually redraw the leader between the end of the range and the bar label using the Leader Option 1 command.
- ▶ Select RebarCAD → Leaders → Leader Option 1 or .

Leader type is configured to <Underneath>: -

Pick start point or Bar/Stack <Stack>: Pick the end of the range line

Next point or ENTER to select label: Press enter


*Select label:* Pick the bar label



**Figure 16.5.2:3 Finished Detail using Change Range Type**

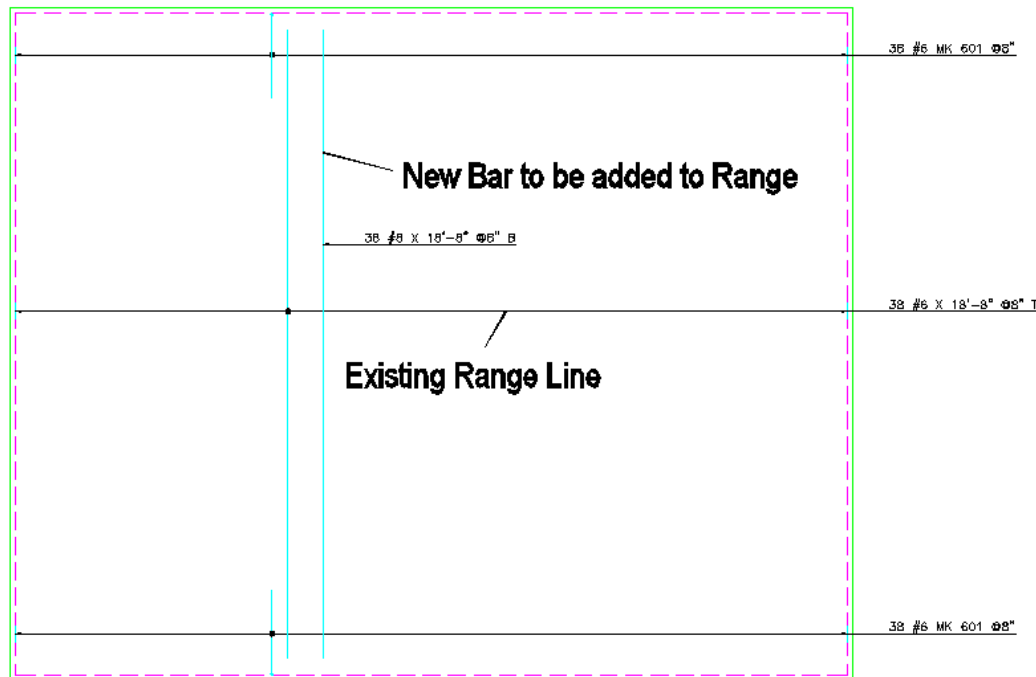
## 16.6 Share Range Line

The Share Range Line function allows you to add other bar sets to an existing range line on the drawing. The bar sets that have been added will inherit the range data from the existing range. Therefore, you do not have to keep drawing ranges lines with the same data, you can simply attach a bar to an existing range. There are no dialog boxes for the Share Range Line function, all options will be displayed at the AutoCAD command line.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Share Range Line or .

## 16.6.1 Sequence of Operation

Before selecting the Share Range Line command, add the reinforcement bars you wish to attach to an existing range across that range as shown in the example in figure below.



**Figure 16.6.1:1 Detail showing existing range and bar set to be added.**

Once you have selected the Share Range Line function you will be prompted at the AutoCAD command line as follows:

Pick the range line to share:

This may be any range type except a Tapered Range. If valid range is not selected, you will see the following message:

The selected Range or object is not supported.

Do you want to try selecting again (Yes/No)<No>:

Answer Yes to this prompt and the function will ask for the range line to share to be selected again. You can cancel the command if required.

If an appropriate range line is selected, the function will prompt as follows:

Pick bars to share the chosen range line:

Select the bar that you wish to add to the range line.

Do you want to select another bar to share (Yes/No) <Yes>?

If you answer Yes to this prompt you can keep on selecting bars to add to the range line.

If you answer *No* to this prompt the function will add the range data to the selected bar (s), add a donut between the range line and the bar, as well as adding a bar reference to clearly identify each bar set.

You will then be prompted to:

Pick the position of the label:

Select the position of the bar label for the bars that have been added to the existing range line.

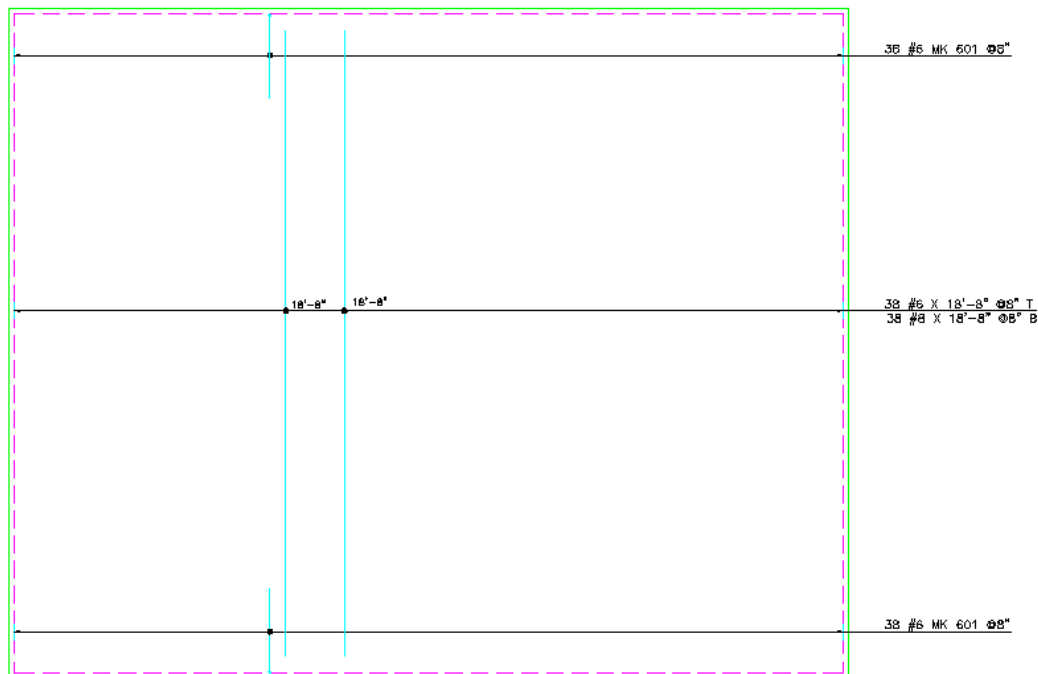
You will then be prompted to:

Align Base label to New Label<ON>:

If the existing range line is already labeled and you are happy with the position of the bar labels type in *Off* to finish the command.

If the existing range has not been labeled press enter to accept the default and pick the new position of the bar label for the existing range.

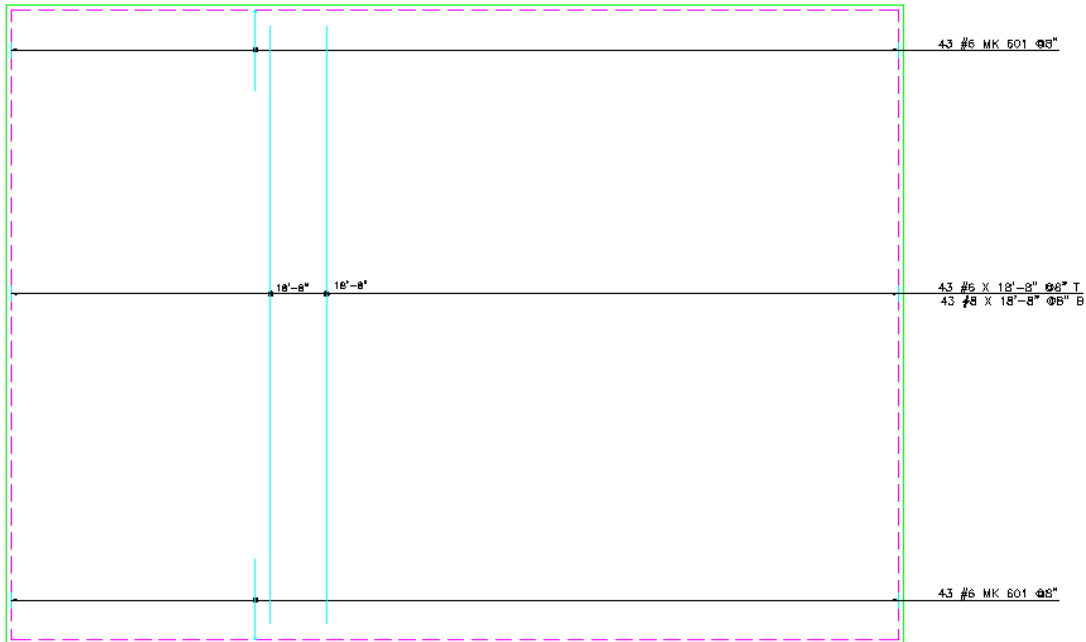
The Share Range Line command actually reproduces the existing range that was selected and attaches it to the bar set that was selected. So, in fact, RebarCAD duplicates the ranges and places one on top of the other.



**Figure 16.6.1:2 Finished result of Share Range Line**

## 16.6.2 Editing Shared Range Lines

If you stretch the shared range line, the newly drawn range line(s) also gets stretched, as one is drawn on top of the other.



**Figure 16.6.2:1 Stretched detail**

## 16.7 Show All Bars in Range


The Show All Bars in Range command will add all the bars to a selected range line. At this stage only the following range lines are supported;

### Supported Range Styles

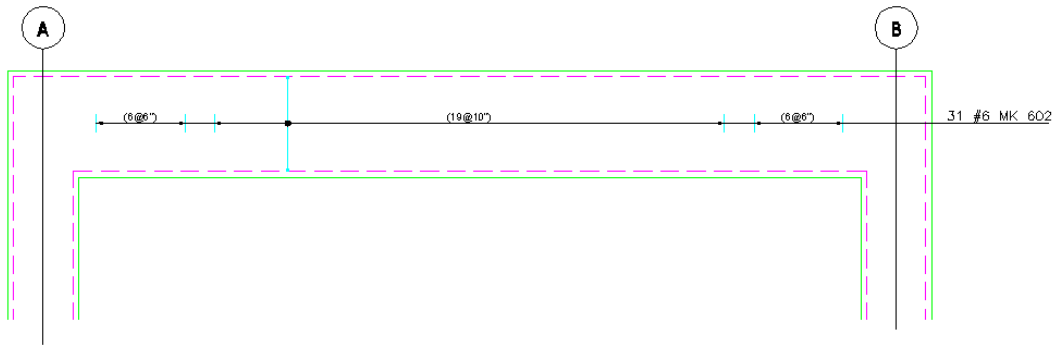
Single Indicator, Single Multiple and Fixed Pitch, Alternate, Alternate Fixed and Multiple Pitch, Staggered, Staggered Fixed and Multiple Pitch.

### Range Styles Not Supported

Dimension Style and any of the radial and tapered range types. It is hoped to expand the selection for a later release of RebarCAD.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Show All Bars in Range or .

Load the Show All Bars in Range tool. No dialog boxes are displayed for this command and all options will be displayed at the AutoCAD command line.



**Figure 16.7:1 Range before showing all bars**

### 16.7.1 Sequence of Operation:

Once you have selected the Show All Bars function you will be prompted at the AutoCAD command line as follows:

Select range (enter <H> for Help):

If H is entered, a help file wizard is started up to assist you using the function.

You can then select the range to show all bars.

Do you want to select another range (Yes/No) <Yes>?

After selecting the first range you are prompted whether you would to select more ranges. The default is set to Yes, press Enter to accept and select another range.

After selecting all the ranges to display, type in No to terminate the selection process & proceed to the next step. Then the program will automatically display all the bars in the first of the selected range lines and then it prompts:

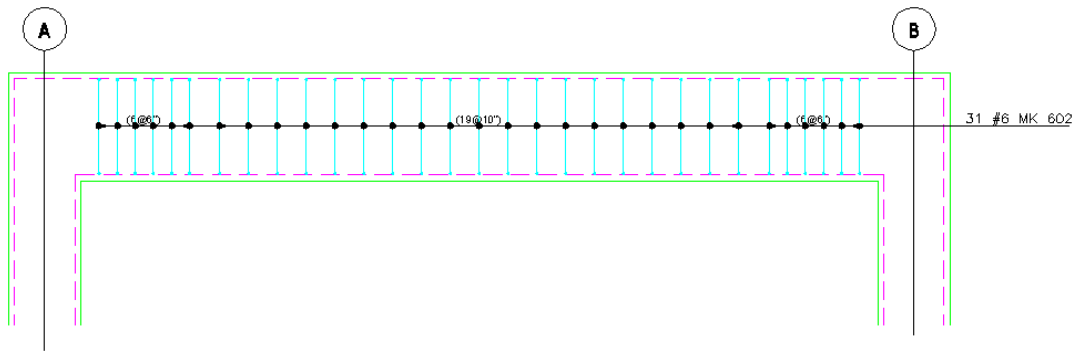
Do you want to change the position of label (Yes/No) <Yes>

The default is Yes, type in No to terminate the program or to allow the function to continue to display of all bars in any other selected range lines.

If you want to align the bar label to a new position, then type Y for yes. At the AutoCAD command line, you will be asked to:



Pick the Label Position:

Once the new position has been selected, the bar label is moved accordingly. The Show All Bars function will then either terminate or continue showing the bars on other selected ranges.




**Figure 16.7.1:1 Multiple Pitch Range showing all bars**

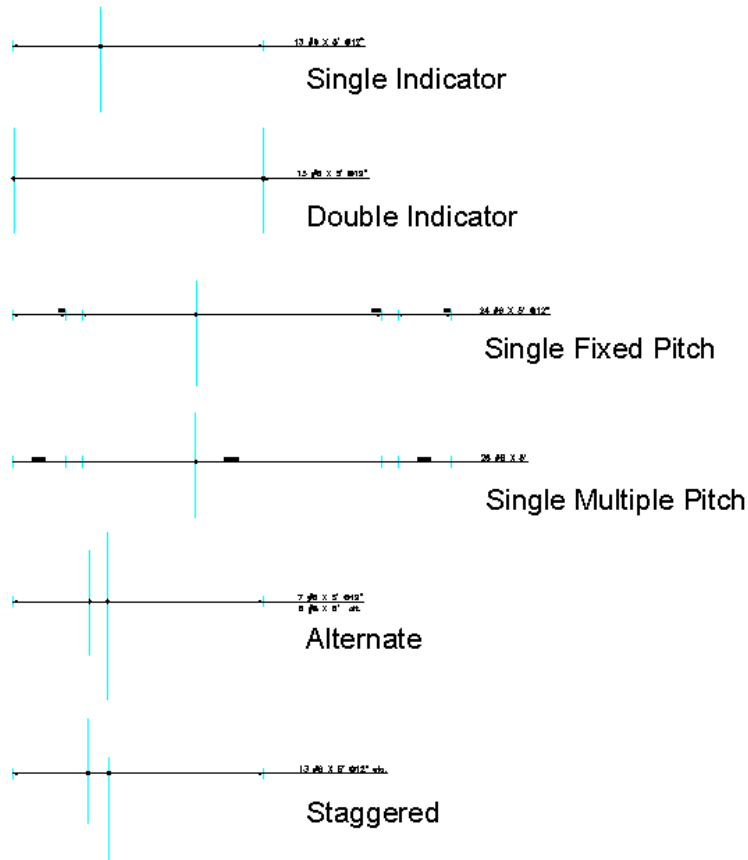
## 16.7.2 Try It! Using the Show All Bars in Range Tool

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\ RebarCAD 30.dwg
- ▶ Make the Viewport on Show All Bars in Range Layout active
- ▶ Select RebarCAD → Draw Bar → Set Member or 
- ▶ Make Show all Bars in Range the current Member and select OK
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 05 the current Drawing Sheet and select OK

Alternatively, you can select the Member and the Drawing Sheet in the *Draw Bar* dialog. If you select the browse button for the Member and Drawing Sheet you can choose which Member and Drawing Sheet to make current.

In this example you are going to show all the bars in several range types.

- ▶ Select RebarCAD → Tools → Range Tools → Show all Bars in Range or 



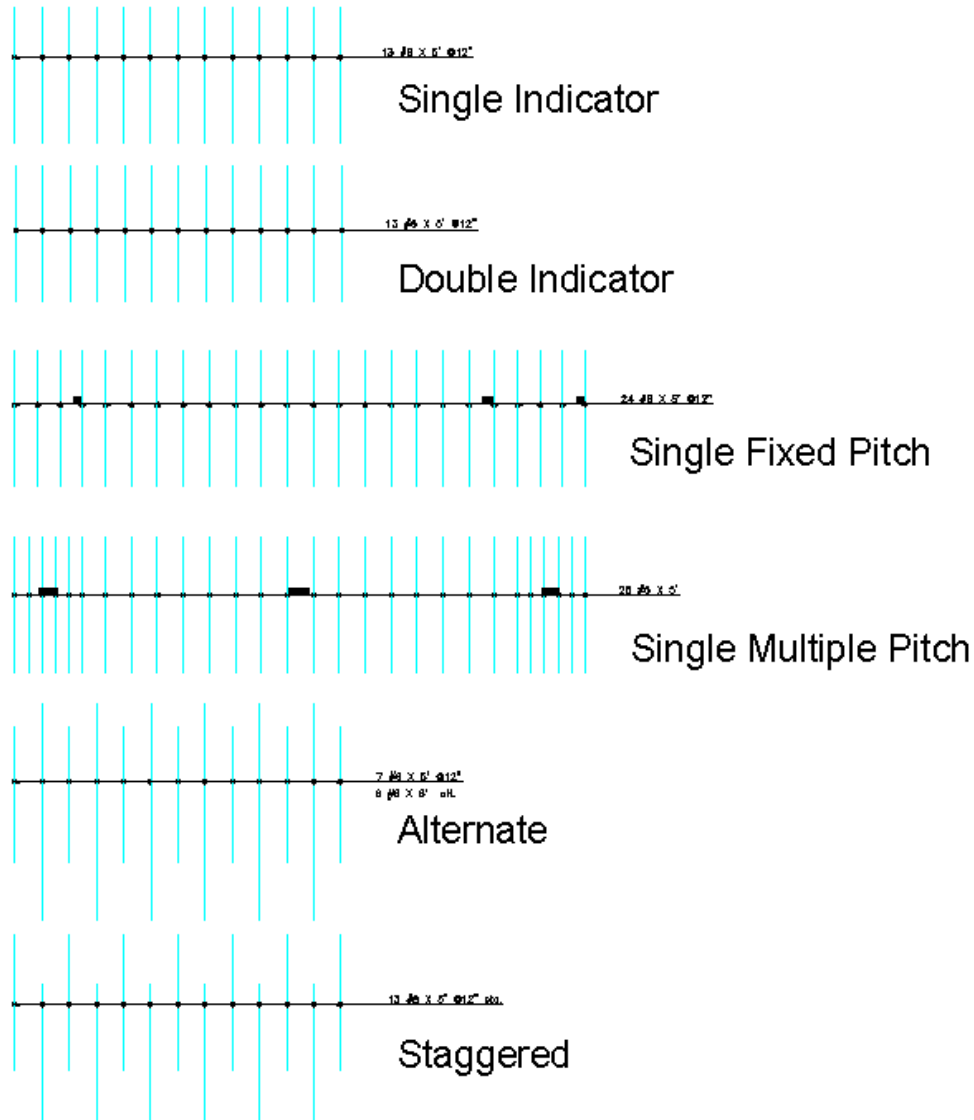
**Figure 16.7.2:1 Selection of Range Styles**

Select range (enter <H> for Help): Pick the Single Indicator Range

Do you want to select another range (Yes/No) <Yes>: Type in N and press enter

Do you want to change the position of the label (Yes/No) <Yes>: Type in N and press enter

Continue using the Show All Bars in Range command to show bars on some of the other range styles.




**Figure 16.7.2:2 Selection of Ranges showing all bars**

## 16.8 Radial Bar Detailer

Radial Bar Detailer calculates the radial steel, typically detailed in circular slabs and tanks.

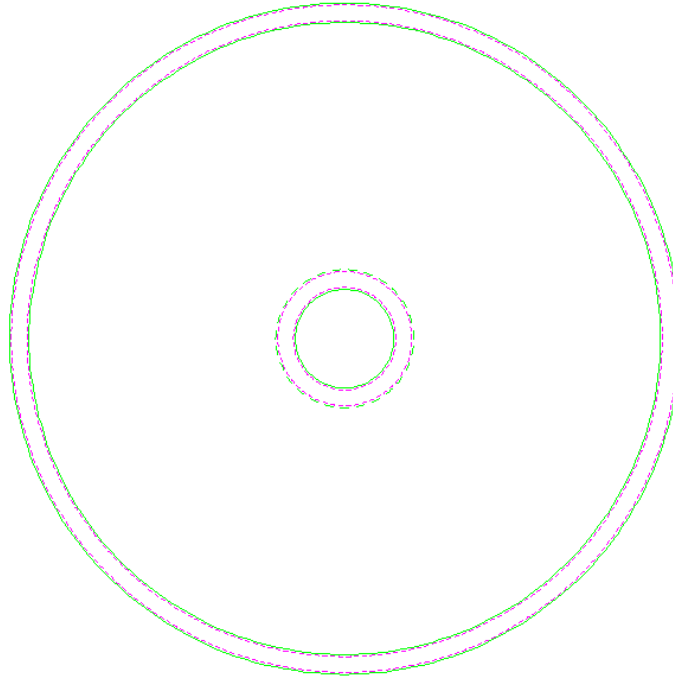
The tool essentially calculates the number of curtailments based on initial input. Once an initial solution has been reached, the detailer may change certain information and the program will provide the real time update to enable the detailer to explore alternative options prior to the tool producing the final detail on the drawing.

The Radial Bar Detailer considers detailing the entire area of the circular slab.

This command is available from the *Detailers* toolbar or through RebarCAD → Tools → Detailers → Radial Bar Detailer or .

## 16.8.1 Basic operation

Once you have selected the Radial Bar Detailer function you will be prompted at the AutoCAD command line as follows:



**Figure 16.8.1:1 Tank outline ready for detailing**

Do you want to select the inner and outer circles for the radial detail (Yes/No)<Yes>:

Accept the *Yes* default to select existing circles on the drawing as shown above in figure 16.8.1:1 and *No* to open the Radial Bar Detailer dialog box without selecting any circles.

Select the inner circle for the radial detail:

Select an existing inner circle and the function prompts as follows:

Select the outer circle for the radial detail:

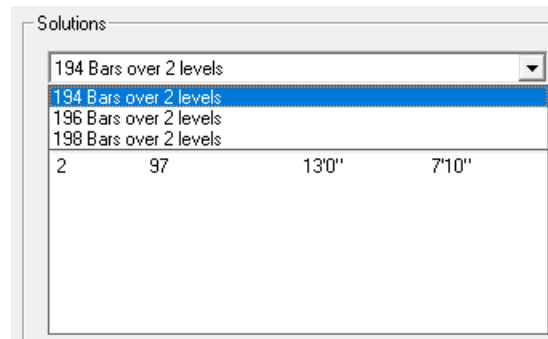
Select an existing outer circle and then the Radial Bar Detailer dialog box is displayed as shown below in figure 16.8.1:2.

**Figure 16.8.1:2 Radial Bar Detailer dialog**

Outer and Inner radii	The data for these fields will be updated from the selected circles. You can also edit or input radius details directly in this dialog without selecting the circle.
Outer and Inner Covers	Type in the required cover distance in millimeters.
Design Spacing	This is the maximum distance between the bars where they intersect with the outer radius.
Minimum Spacing	This is the minimum spacing between bars to allow the concrete to be placed.

## Solutions

The program will display several different solutions based on the input data entered. You can select any one of the solutions from the drop down menu, this will update the main display.



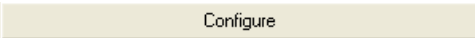
**Figure 16.8.1:3 Radial Bar Detailer Alternative Solutions**

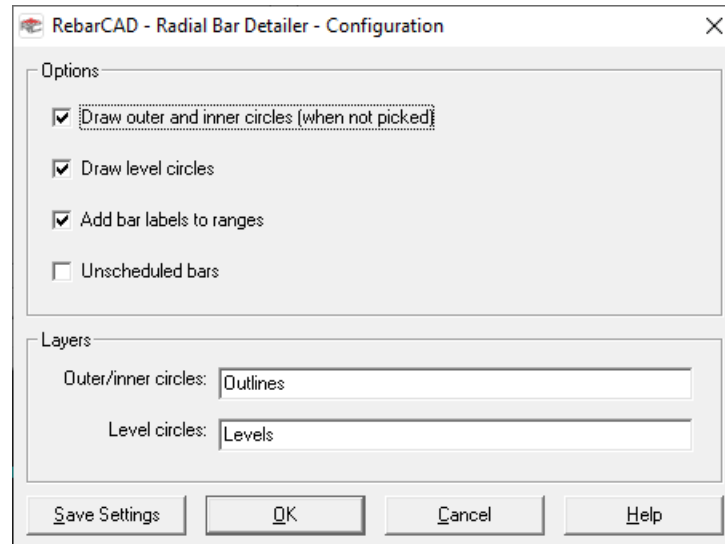
## Bar Data for level

You can define bar data for each level by selecting the level from the solution. The following fields for the bar label data,

Bar shape	You can select the bar shape from the options available in the drop down list. You can also define hooks and leg dimensions for "L" bars and "U" bars.
Multiplier	Set a bar label multiplier if required.
Type/Grade	Select the required Steel Grade. The list represented in this drop down menu will be based on the current RC configuration.
Size	Select the required bar size from the drop down list. The list will be based on the grade of steel selected.
Prefix	This input can be used to add alphanumeric prefix to the bar mark.
Mark	The default bar mark will be the next highest available bar mark for the current drawing. If the user enters a new bar mark in this field, and the entered bar mark is already in use, a warning is given and the previous/current bar mark is restored.
Notes	Notes can be added/appended to the bar label by typing the notes in this field.

## 16.8.2 Configuration Settings

Pick the Configure button  to load the Radial Bar Detailer Configuration dialog as shown in figure below.



**Figure 16.8.2 Radial Bar Detailer Configuration dialog**

### Options

**Draw outer and inner circles (when not picked)** Check this option if you want the detailer to automatically draw the inner and outer circles.

**Draw level circles** Check this option if you want the detailer to draw the level circles as set-up by the selected solution.

**Add bar labels to ranges** Check this option to add bar labels to the radial range.

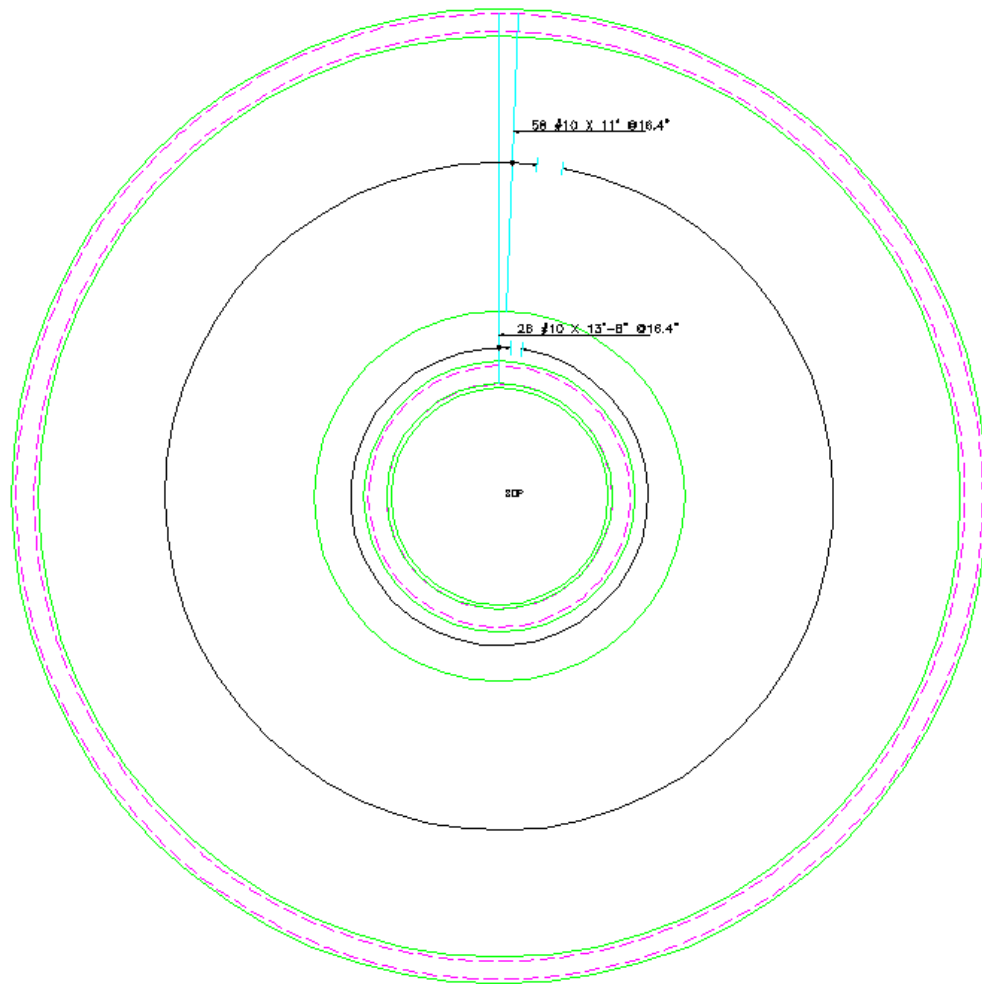
**Unlisted bars** The bars detailed through radial bar detailer will not be included in the Bar List if this option is checked.

### Layers

The user can define the drawing layers for the outer/inner circles and level circles.


## 16.8.3 Drawing the Radial Bar Bars

Once the defaults have been entered and a solution selected, pick OK on the Radial Bar Detailer main dialog to add bars to the selected circles as shown in the typical example in figure below.



**Figure 16.8.3:1 Radial Bars added to outline**

## 16.8.4 Try It! Using the Radial Bar Detailer

- ▶ Launch RebarCAD
- ▶ Open drawing ...\\drawings\\RebarCAD 31.dwg
- ▶ Make the Viewport on Radial Bar Detailer Layout active
- ▶ This drawing has already had construction lines added to make placing the bars easier. The Hints & Tips sections after this example explain how to produce the construction lines.
- ▶ Select RebarCAD → Draw Bar → Set Drawing Sheet or 
- ▶ Make 07 the current Drawing Sheet
- ▶ Using the Radial Bar Detailer to detail the Tank Plan View

It is anticipated, in a future version of this detailer, that you will be able to set the angle of slope for a sump tank. The range of Bend Types supported will be extended so that you will be able to detail a circular sump tank with crank bars.

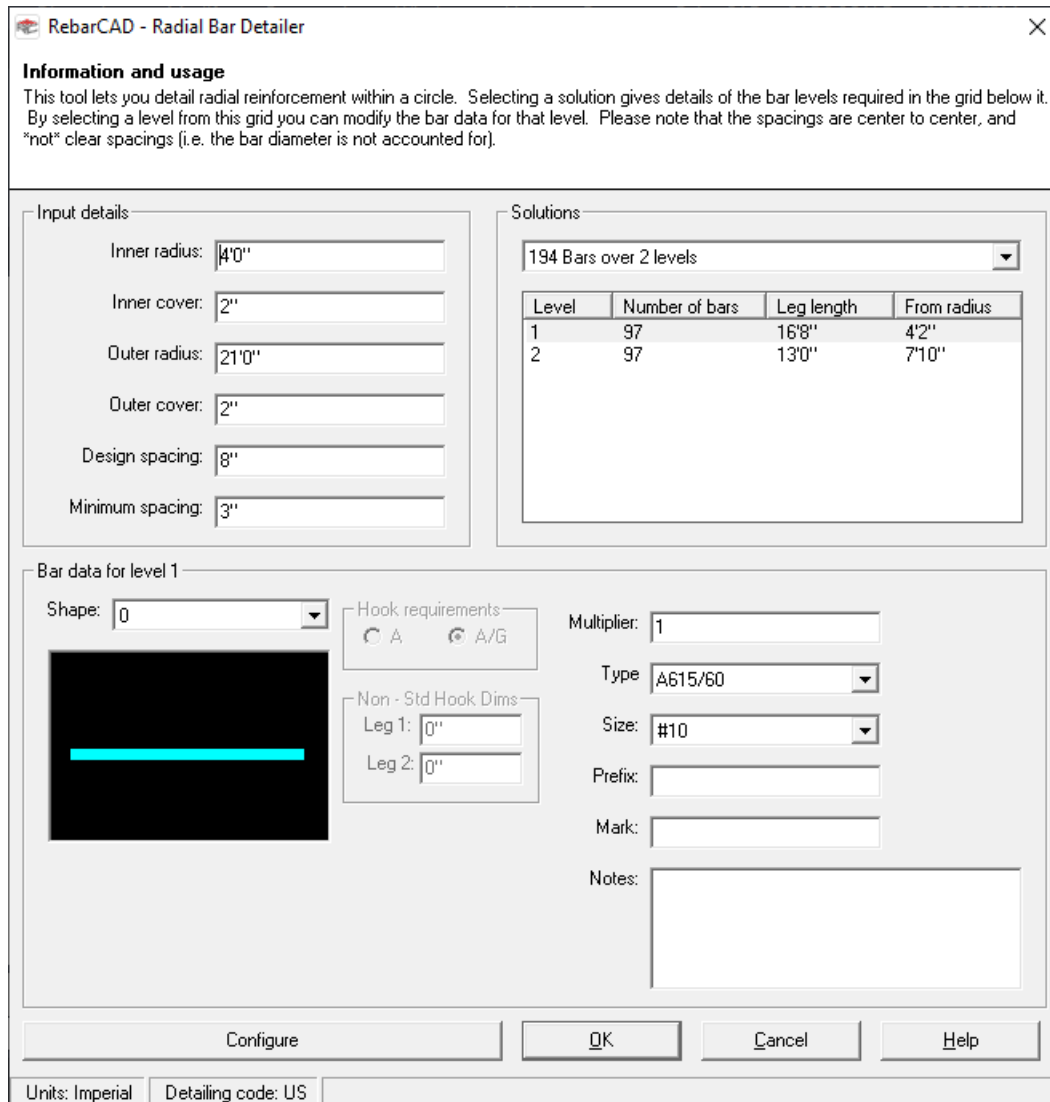
- Select RebarCAD → Tools → Range Tools → Radial Bar Detailer or 

Do you want to select the inner and outer circles for the radial detail (Yes/No) <Yes>:

Press enter to accept

Select the inner circle for the radial detail: Pick the circle indicated by point 1

Select the outer circle for the radial detail: Pick the circle indicated by point 2



**RebarCAD - Radial Bar Detailer**

**Information and usage**  
 This tool lets you detail radial reinforcement within a circle. Selecting a solution gives details of the bar levels required in the grid below it. By selecting a level from this grid you can modify the bar data for that level. Please note that the spacings are center to center, and "not" clear spacings (i.e. the bar diameter is not accounted for).

**Input details**

Inner radius: 4'0"

Inner cover: 2"

Outer radius: 21'0"

Outer cover: 2"

Design spacing: 8"

Minimum spacing: 3"

**Solutions**

194 Bars over 2 levels

Level	Number of bars	Leg length	From radius
1	97	16'8"	4'2"
2	97	13'0"	7'10"

**Bar data for level 1**

Shape: 0

Hook requirements: ☐ A ☒ A/G

Non - Std Hook Dims

Leg 1: 0"

Leg 2: 0"

Multiplier: 1

Type: A615/60

Size: #10

Prefix:

Mark:

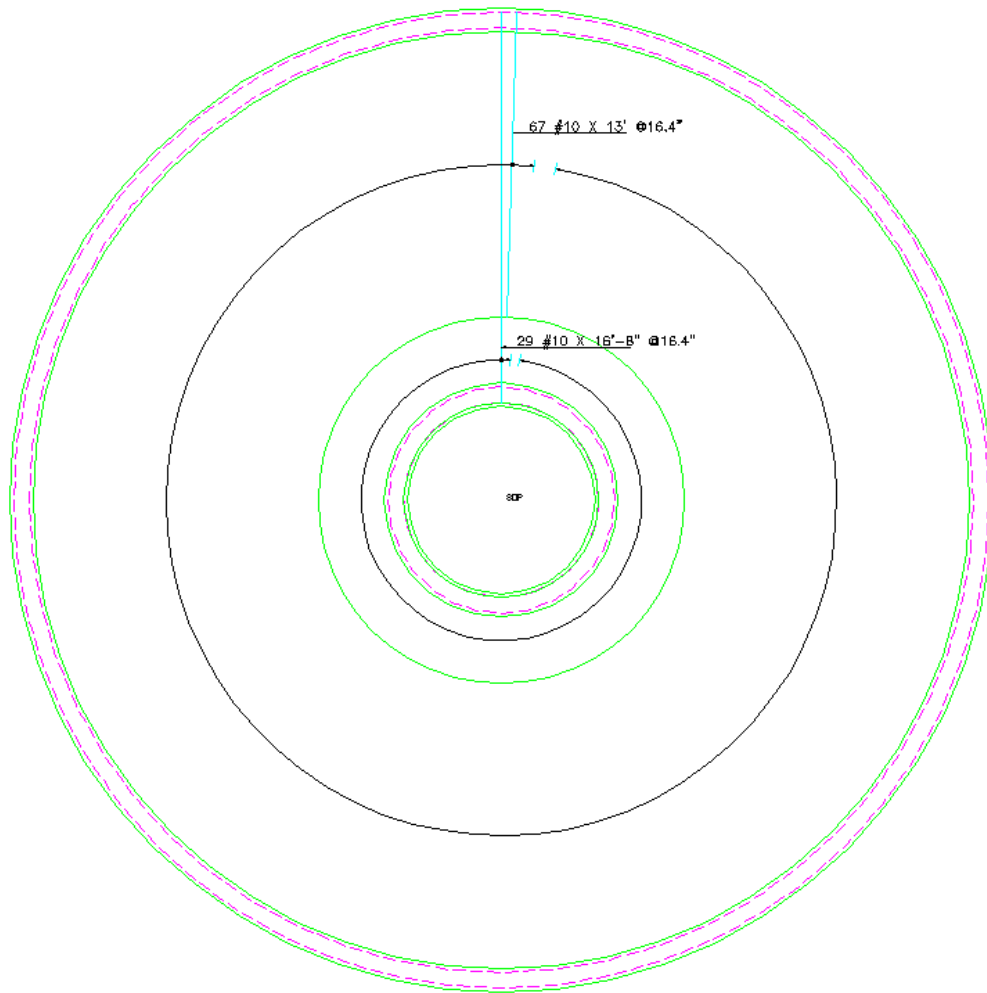
Notes:

Configure OK Cancel Help

Units: Imperial Detailing code: US







**Figure 16.8.4:1 Radial Bar Detailer dialog**

In the Radial Bar Detailing dialog pick OK to continue.



**Figure 16.8.4:2 Finished Circular Slab**

## 16.9 Command List - Range Tools

Action	Menu Selection	Toolbar	Icon
Circular Bar Arrangement	RebarCAD →Tools→Range Tools→ Circular Bar Arrangement	Range Tools	
Area Detailer	RebarCAD →Tools→Range Tools→ Area Detailer	Range Tools	
Split Range	RebarCAD →Tools→Range Tools→ Split Range	Range Tools	
Change Range Type	RebarCAD →Tools→Range Tools→ Change Range Type	Range Tools	
Share Range Line	RebarCAD →Tools→Range Tools→ Share Range Line	Range Tools	
Show All Bars in Range	RebarCAD →Tools→Range Tools→ Show All Bars in Range	Range Tools	
Radial Bar Detailer	RebarCAD →Tools→Range Tools→ Radial Bar Detailer	Range Tools	