RebarCAD
Productivity Tools and Detailing Macros

RebarCAD Productivity Tools and Detailing Macros

VERSION 2026.0

USER GUIDE

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1 Introduction

Chapter Objectives

This chapter provides an overview of each of the Detailing Macros and Productivity Tools available for use with RebarCAD. Instructions for installing and authorising the software are also included.

1.1 Program Descriptions

1.1.1 CADS-BMD - Beam Detailer

CADS Beam Detailer provides an automated method of producing reinforcement drawings for concrete beams. It features Single, End and Interior span types. Detailers can choose many different bar arrangements with percentage span calculations and bar dimensions automatically determined from the entered span data.

1.1.2 CADS-CO - Column Detailer

CADS Column Detailer provides an automated method of producing reinforcement drawings for 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.

1.1.3 CADS-PFD - Spread Footing Detailer

CADS Spread Footing Detailer provides an automated method of producing reinforcement drawings for rectangular concrete spread 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.

1.1.4 CADS-CBA - Circular Bar Arrangement Detailer

CADS Circular Bar Arrangement Detailer 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.

1.2 . Installing CADS-RC Productivity Tools and Detailing Macros

RebarCAD Productivity Tools and Detailing Macro's use a common installation procedure. Information on installing the Detailing Macros can be found in the accompanying CADS Detailing Applications Installation Guide.

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2 CADS Beam Detailer (CADS-BMD)

Chapter Objectives

CADS Beam Detailer provides an automated method of producing reinforcement drawings for concrete beams. It features Single, End and Interior Span Types. Detailers can choose many different bar arrangements with percentage span calculations and bar dimensions automatically determined from the entered span data.

2.1 Program Operating Environment

CADS-BMD Beam Detailer works in conjunction with CADS-RC and therefore requires AutoCAD and RebarCAD to be loaded and ready for use before the Beam Detailer can be used.

CADS-BMD uses the Dimscale variable to size its text to suit the plotted scale of the drawing regardless of whether you are working with Tilemode set to 1 or 0. Ensure that Dimscale is set to match the plotted scale of the detail.

If you have access to either the CADS-Drawing Environment or CADS-Scale software, use the Drawing Set-up Function 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 CADS-DE or CADS-SC User Guides.

2.2 Calculation of the Curtailment of Support Bars

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.

2.3 Loading the Beam Detailer

The Beam Detailer is loaded by selecting the Outlines option from the CADSRC pull down menu and then picking the Detailers option.
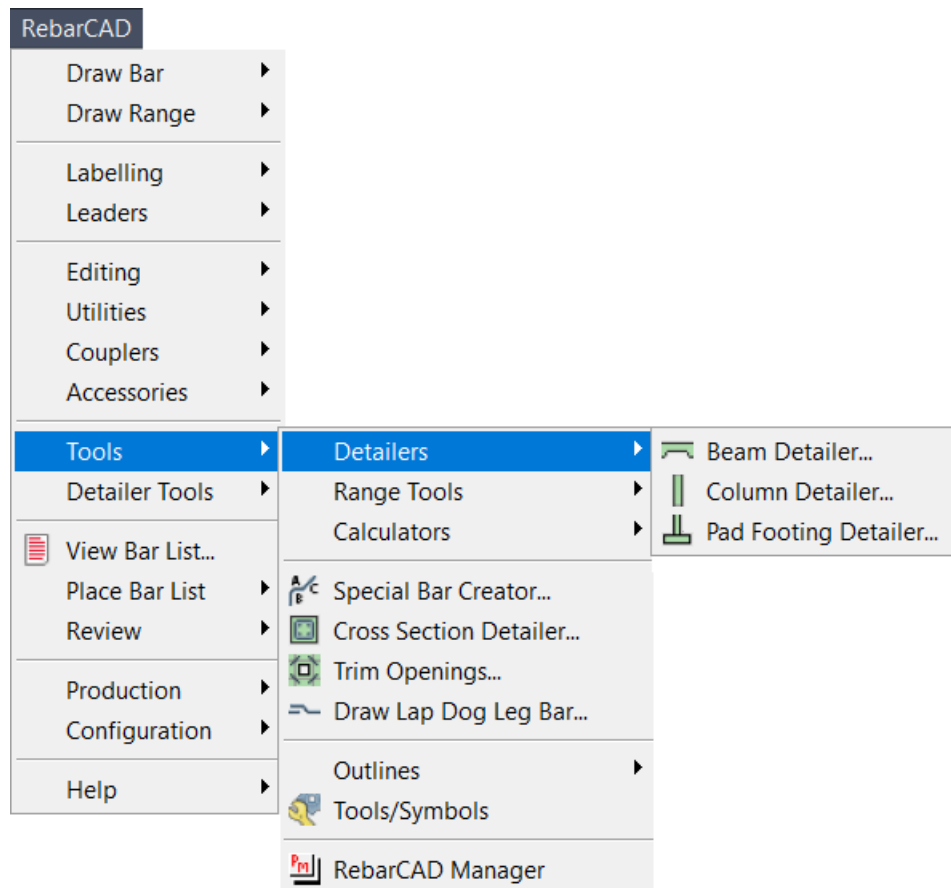
Figure 2.1 CADS-RC Detailers Selection Menu

The CADS-RC Detailer Selection Menu Dialog, as shown in Figure 2.1, is then displayed on the screen. This dialog displays a list of the Detailers and Productivity Tools that have been installed on your computer.

To load the Beam Detailer, highlight the line 'CADS-BMD, Beam Detailer' and then pick the Load button.

2.4 Allocating the Beam Member Title

Once the Beam Detailer (CADS-BMD) has been selected the Set Member Title Dialog is displayed, as shown in Figure 2.2. At this point you can select an existing member title or create a new member title. The beam reinforcement bars will be assigned to the selected member title. You can now continue by picking the OK button. For further information on Member Titles refer to the RebarCAD User Guide.
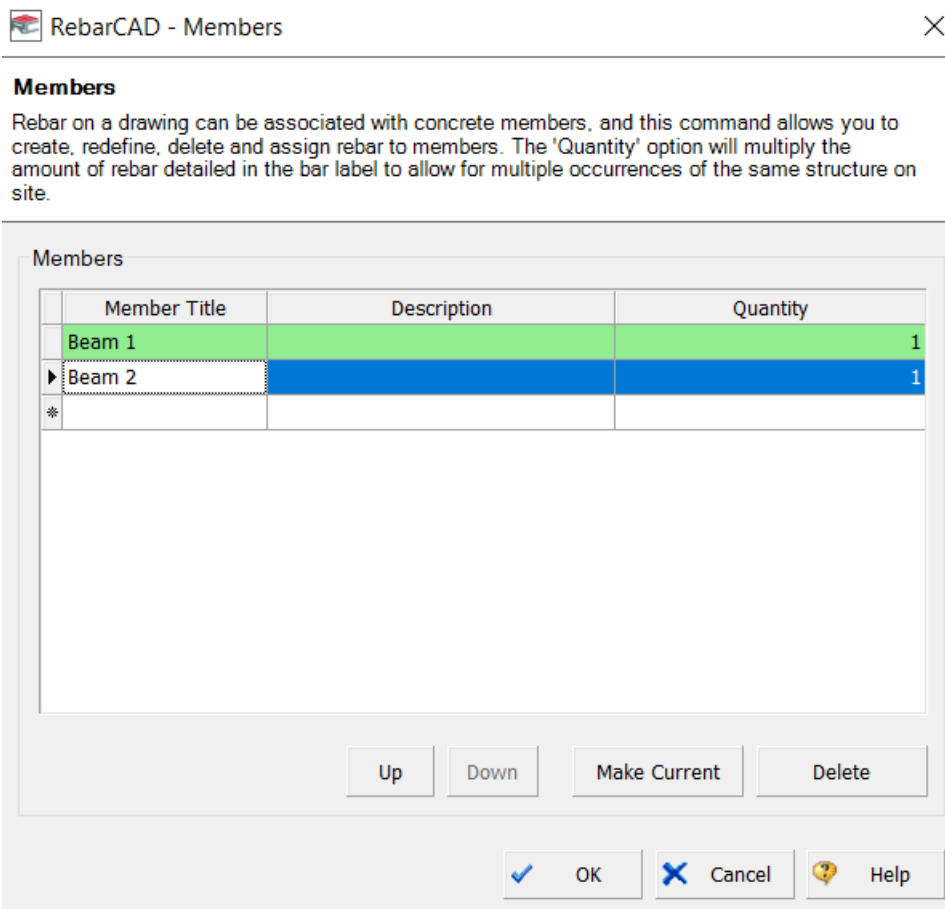
Figure 2.2 Set Member Title

2.5 Defining Beams for Detailing

The Beam Detailer requires five areas of data to be defined in order that the desired beam arrangement is produced. This consists of

▶ Beam Type (single span, end span or interior span);

▶ Beam Dimensions (span, depth, width etc.);

▶ Top Bar Arrangement;

▶ Bottom Bar Arrangement;

▶ Stirrup Arrangement.

2.5.1 Beam Detailer Configuration File Selection

When the Member Title has been defined the Beam Type Selection Dialog is displayed, as shown in Figure 2.3.
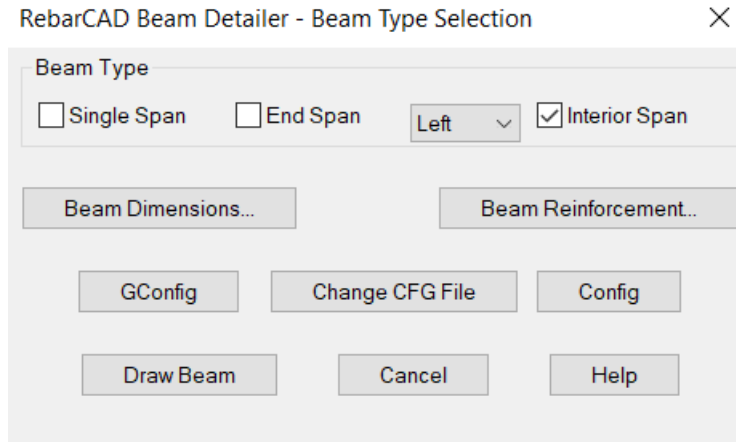
Figure 2.3 Beam Type Selection Dialog

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, as shown in Figure 2.4.

Currently the UK version of this software only offers one default file BMD_UK.DEF. This file is set-up for UK metric detailing and is automatically loaded when the Beam Detailer is used.
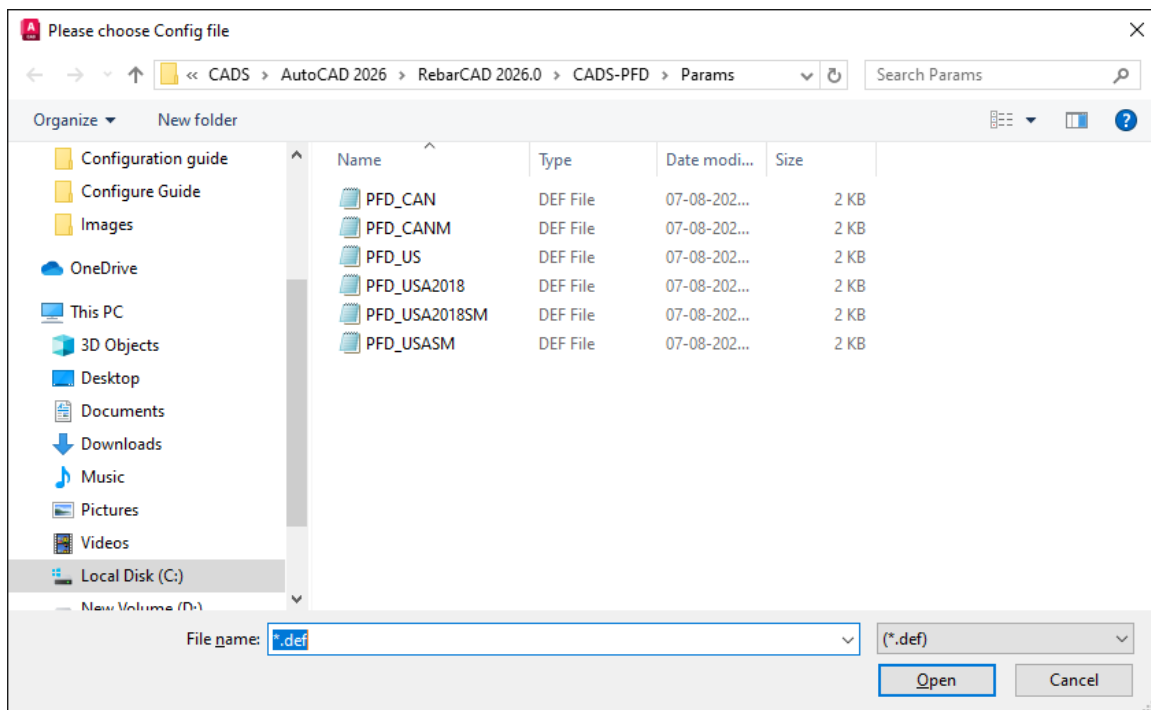
Figure 2.4 Default Beam Configuration Options.

Should other configuration options be required, please contact the CADS support department who will be happy to advise.

2.5.2 Selecting the Beam Span Type

The type of beam span can be selected from the Beam Type Selection dialog (Figure 2.3). Single, End 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 dialogues.
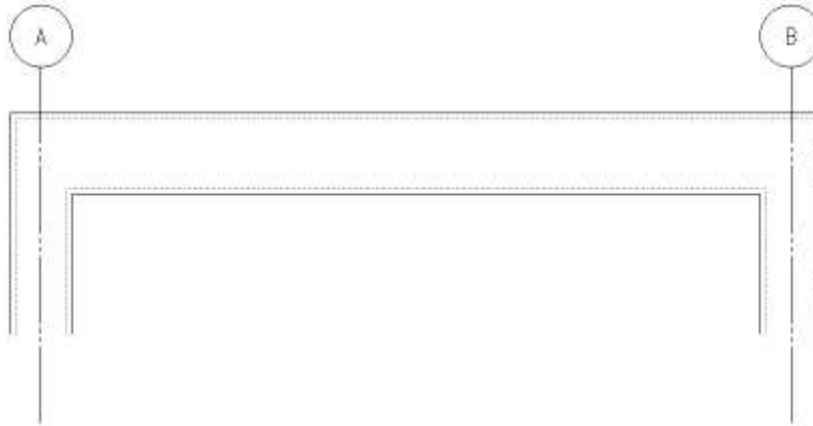
Figure 2.5 Single Span Beam Type

Figure 2.6 End Span Beam Type
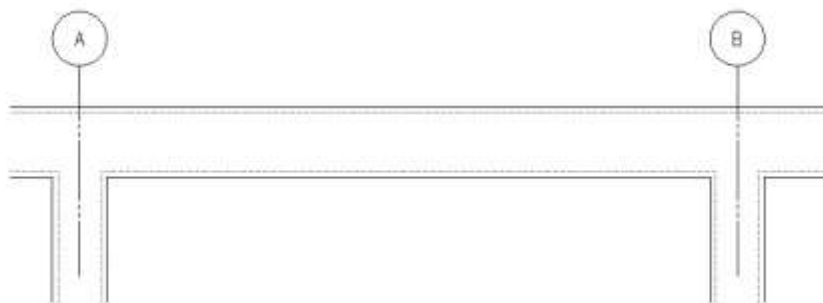
Figure 2.7 Interior Span Beam Type

2.6 Entering the Beam Dimensions

The beam dimensions can be amended or checked by picking the Beam Dimensions Button that is available from the majority of the beam detailer input dialogues.

Figure 2.8 Typical Beam Dimension 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 accessible for certain beam span types.

When defining an end or interior beam the CADS-BMD program needs the adjacent span data in order to calculate the correct curtailment dimensions for the top support bars.

Beam Dimension input data is as follows:

▶ Clear Span – This is required for all span types and is the clear span between column faces of the beam to be detailed;

▶ Adjacent Left Clear Span – This is required for interior and right end span types and is the clear span between column faces of the beam to the left of the beam to be detailed;

▶ Adjacent Right Clear Span – This is required for 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 required for all span types and is the overall column width at the left end of the beam being detailed;

▶ Right Column Width – This is required for all span types and is the overall column width at the right end of the beam being detailed;

▶ Beam Depth – This is required for all span types and is the overall depth of the beam to be detailed;

▶ Beam Width – This is required for all span types and is the overall width of the beam to be detailed;

▶ Draw Outline – This is required for all beam types. 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 – This is required for single and left end span types and is the end cover applied to top and bottom bars;

▶ Beam Right End Cover – This is required for single and right end span types and is the end cover applied to top and bottom bars;

▶ Top Cover to Stirrups – This is required for all beam types and is the cover applied to the beam link leg in the top of the beam;

▶ Bottom Cover to Stirrups – This is required for all beam types and is the cover applied to the beam link leg in the bottom of the beam;

▶ Near Face Cover to Stirrups – This is required for all beam types and is the cover applied to the beam link leg in the near face of the beam in elevation;

▶ Far Face Cover to Stirrups – This is required for all beam types and 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 centre 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 centre of the beam when draw outline is set to yes.

2.7 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. The beam outline dimensions, covers and curtailments control the lengths of the bars placed in the three reinforcement zones. If complex link arrangements are required the user may have to define certain bar dimensions in order to achieve the correct layout of bars.

2.7.1 Top, Bottom and Stirrup Bars - General Values

Selecting the Beam Reinforcement button displays the Reinforcement Selection Dialog where the bar grade and bar mark prefix can be defined for the Top and Bottom Reinforcement Bars and the Stirrup Bars.

Figure 2.9. Reinforcement Selection Dialog

2.7.2 Top Bar Arrangements

Pick the Top Reinforcement button to access the Top Reinforcement dialog where the top bar arrangements can be defined.

The bar arrangements can be conFigured manually by selecting which bars are required in the beam. Alternatively, these can be set automatically by picking the Pre-set Arrangement button. This displays the Pre-set Arrangements options for the type of beam selected. All that is then required is to set the number of bars, percentage span for curtailments etc.

Figure 2.10. Top Bar Reinforcement Dialog
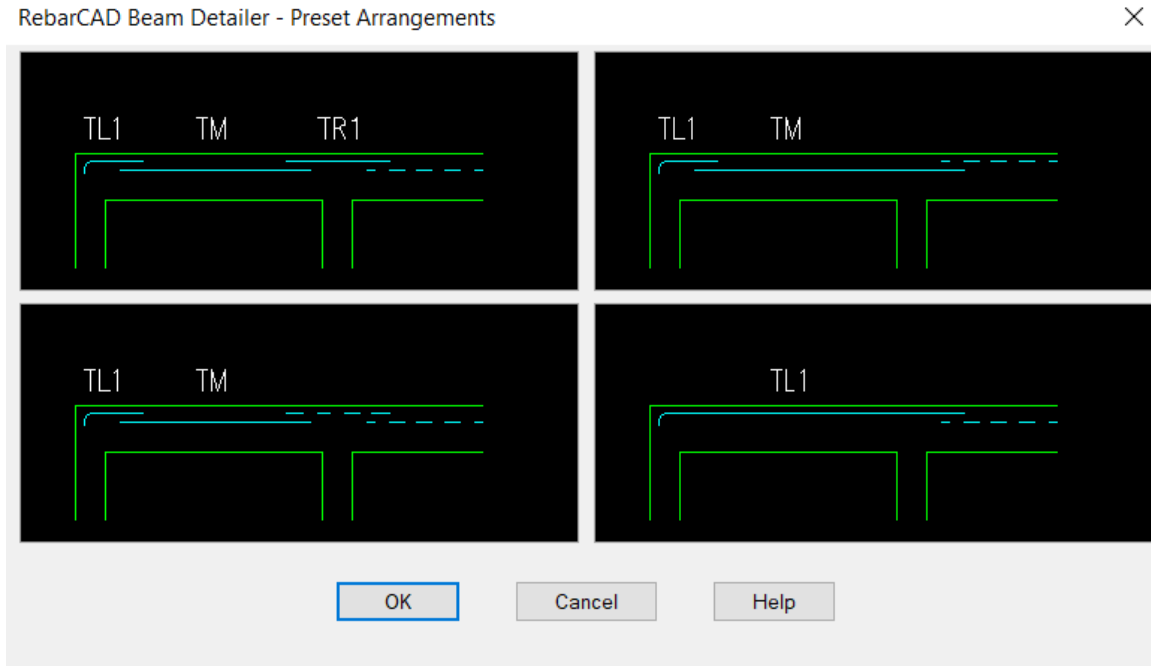
Figure 2.11. Single Span Top Bar Pre-sets
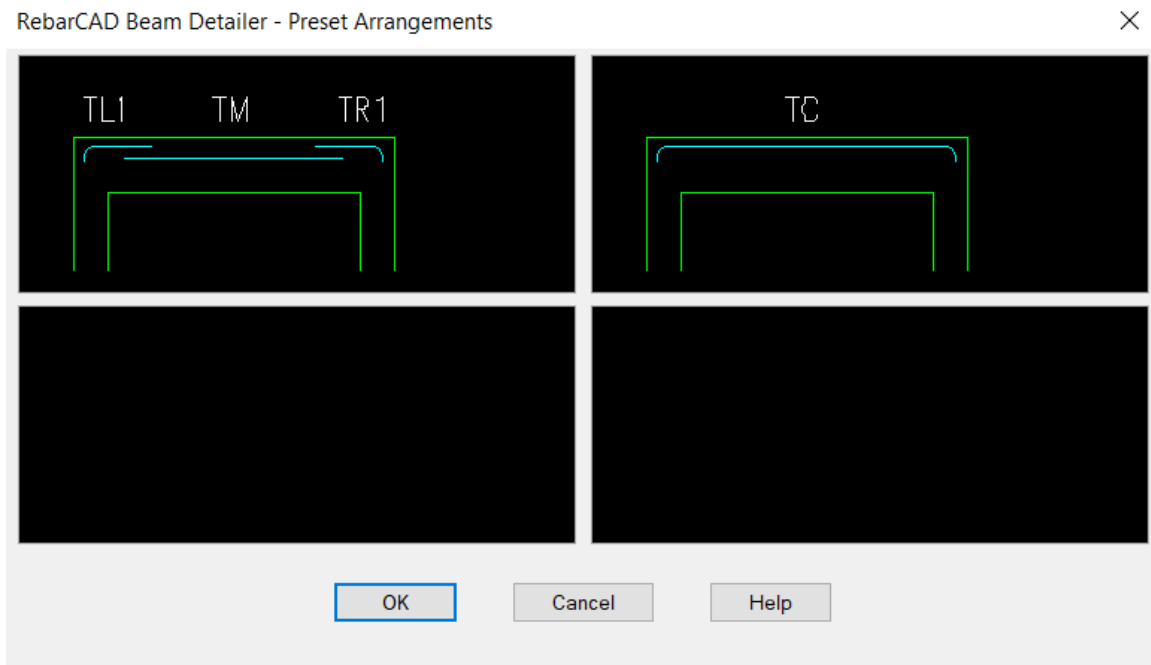
Figure 2.12. End Span Top Bar Pre-sets
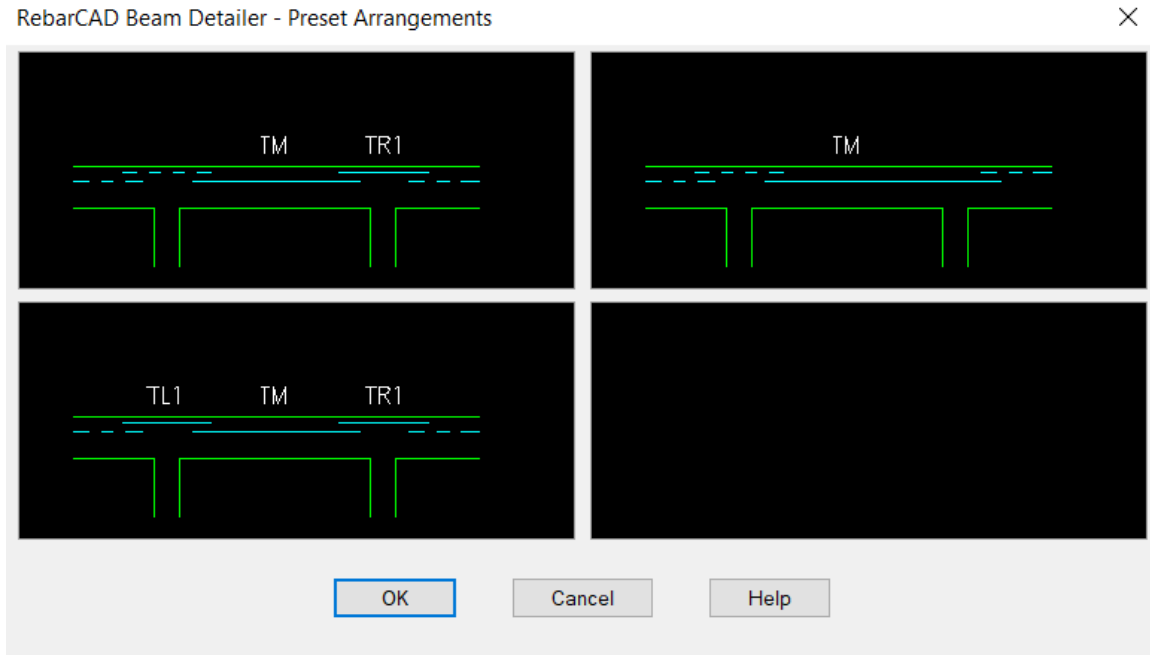
Figure 2.13. Interior Span Top Bar Pre-sets

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.
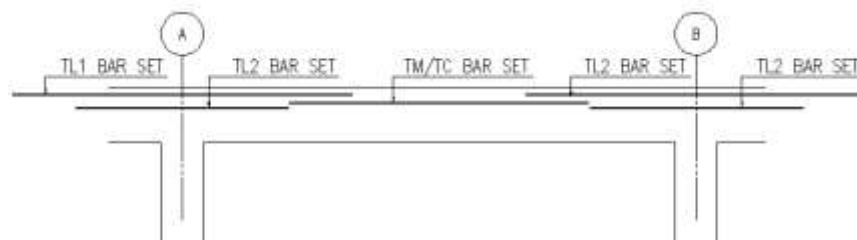
Figure 2.14 Top Bar Sets

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.

The following top bar data fields are available in all the beam types:

▶ No. Bars - Enter the number of bars required in the bar set;

▶ Size - Select the bar size for the bar set;

▶ Bend Type-Select the shape code for the bar set;

▶ Label Notes – Type in any note to be included in the bar label for the bar set.

TLl, TL2, TR1 and TR2 Bar Set Additional Inputs

These bars are used primarily over left and right supports and lap with the TM bar set, as shown in Figure 2.14. They have the following additional input fields to define their location within the beam:

▶ % Span - Enter the percentage of the span at which point the bar set is to curtail, the distance is taken from the relevant column face. When used in interior or end span beams the % span is based upon the greater of the clear or adjacent span value defined in the beam dimensions;

▶ Length - Enter the length 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 is 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 2.14, 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.

2.7.3 Bottom Bar Arrangements

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. Alternatively, these can be set automatically by picking the Pre-set Arrangement button. This displays the Pre-set
Arrangements options for the type of beam selected. All that is then required is to set the number of bars, percentage span for curtailments etc.
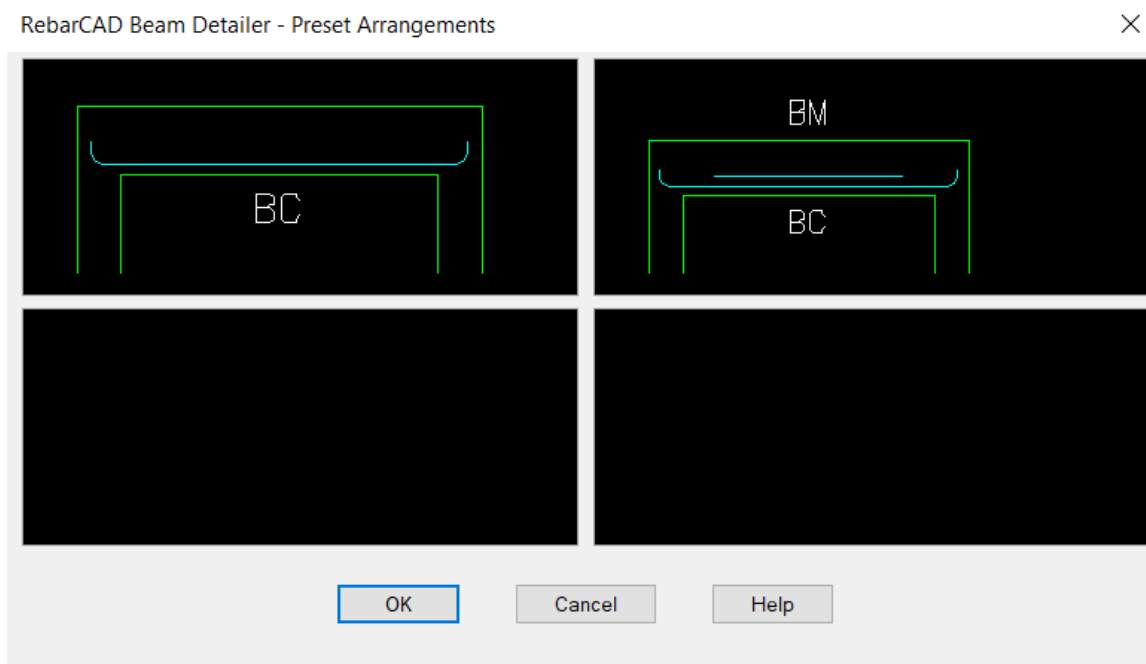
Figure 2.15 Single Span Bottom Bar Pre-sets
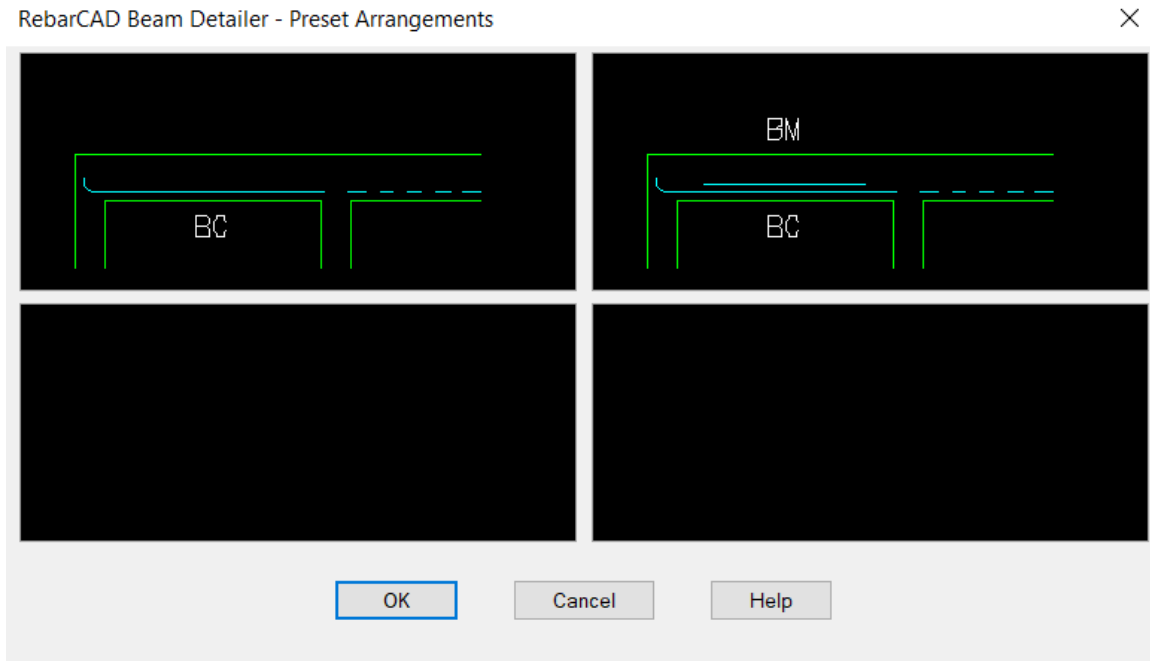
Figure 2.17 Interior Span Bottom Bar Pre-sets

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.
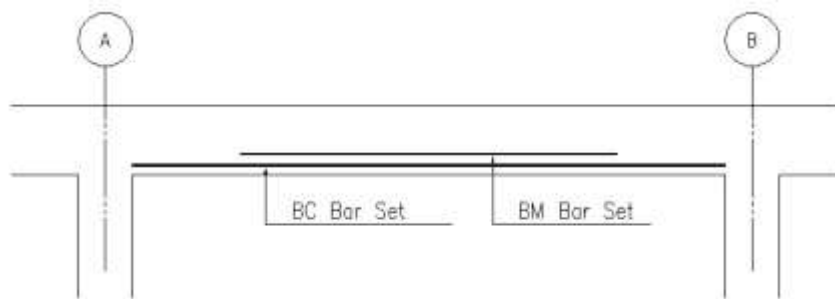
Figure 2.18 Bottom Bar Sets

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 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.

The following bottom bar data fields are available in all the beam types:

▶ No. Bars - Enter the number of bars required in the bar set;

▶ Size - Select the bar size for the bar set;

▶ Bend Type-Select the shape code for the bar set;

▶ Label Notes – Type in any note to be included in the bar label for the bar set.

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.

2.7.4 Stirrup Bar Zones

Beam Detailer allows the stirrup bars to be defined as one zone or three zones with the beam span.

Pick the Stirrup Reinforcement button to access the Stirrup Reinforcement dialog where the number, length and bar centres of the stirrup zones can be defined.

Figure 2.19 Stirrup Zone Data Dialog

Stirrup Zone Offset from the Column Face

The value entered in this field defines the offset distance from the right and left column faces to the start and end of the stirrup zones, as shown in Figure 2.20 and Figure 2.21.

One Stirrup Zone
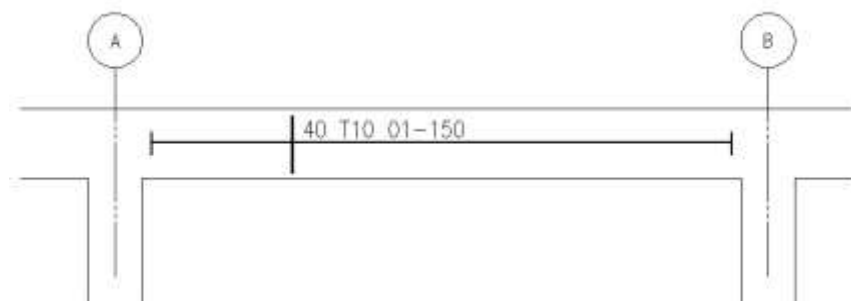
Figure 2.20 One Stirrup Zone

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 automatically 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 centre to centre distance;

▶ @ c/c - Enter the pitch of the stirrups. This will automatically re-calculate the number of bars.

Three Stirrup Zones
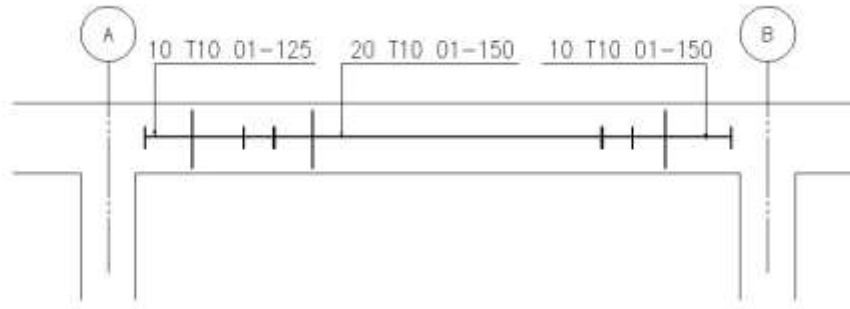
Figure 2.21 Three Stirrup Zones

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 re-calculate the number of bars.

Span Support Zone

▶ @ c/c - Enter the pitch of the stirrups. This will automatically re-calculate the number of bars;

▶ Zone Length - This input is not accessible and has been greyed 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 centre to centre values for the left and right stirrup zones. For instance, if the centres 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 re-calculate the number of bars.

2.7.5 Stirrup Bar Arrangements

Pick the Stirrup Arrangement button to access the Stirrup Arrangement dialog where the stirrup bar arrangements can be defined.

Figure 2.22 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 supports the all the shape codes available within CADS-RC. The detailer should use their discretion to choose the appropriate shape code. The default bend type is shape code 61.
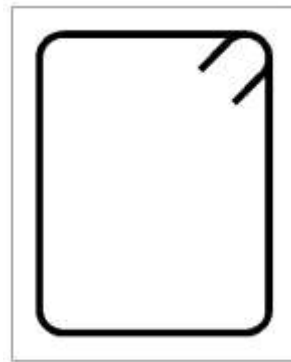
Figure 2.23 Outer Stirrup Bend Type

The outer stirrup bend type can be included within the beam if the option is selected and the following data fields are completed:

▶ Outer Stirrup Bend Type - Select the required shape code from the pop down list.

▶ Bar Size - Select the required bar size for the outer stirrup shape code.

▶ 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 supports the all the shape codes available within CADS-RC. The detailer should use their discretion to choose the appropriate shape code. The default bend type is shape code 38.
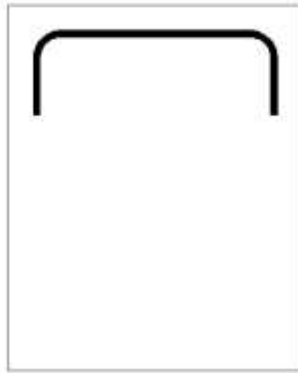
Figure 2.24 Outer Cap Stirrup Bend Type

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 shape code from the pop down list;

▶ Bar Size - Select the required bar size for the outer cap stirrup shape code;

▶ Dimensions - This displays the calculated bending dimensions of the outer cap stirrup shape code.

Inner Closed Stirrup Bend Type

The inner closed stirrup supports the all the shape codes available within CADS-RC. The detailer should use their discretion to choose the appropriate shape code. The default bend type is shape code 61.
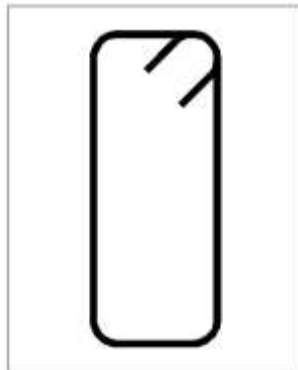
Figure 2.25 Inner Closed Stirrup Bend Type

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 shape code from the pop down list;

▶ Bar Size - Select the required bar size for the inner closed stirrup shape code;

▶ 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 shape code.

Inner Open Stirrup Bend Type

The inner open stirrup supports the all the shape codes available within CADS-RC. The detailer should use their discretion to choose the appropriate shape code. The default bend type is shape code 85.
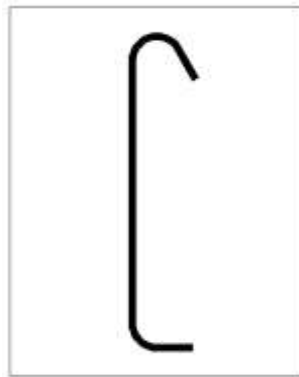
Figure 2.26 Inner Open Stirrup Bend Type

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 shape code from the pop down list;

▶ Bar Size - Select the required bar size for the inner open stirrup shape code;

▶ 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 shape code.

2.8 Drawing the 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 the prompts for an insertion point on the drawing.
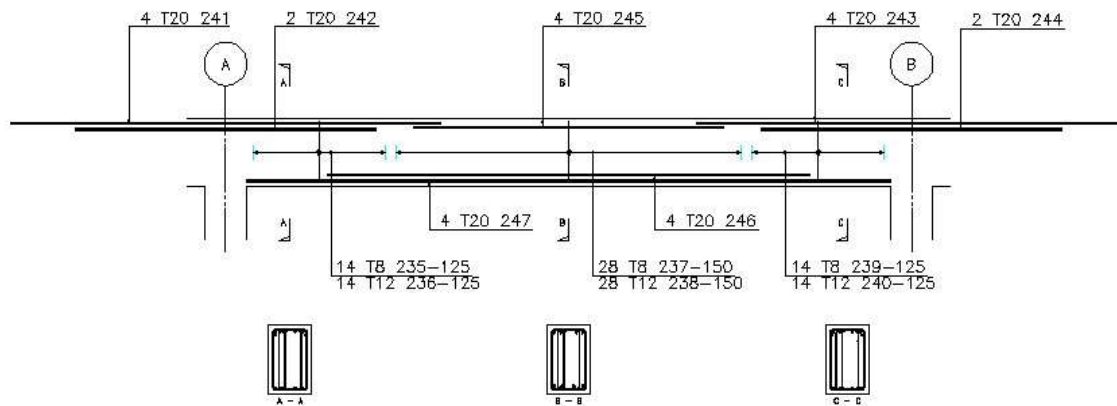
Figure 2.27 Typical Beam Detail and Sections

2.9 CADS-BMD Global Configuration Centre

The following chapter lists all of the configuration variables in CADS Beam Detailer

Setting		Value	Explanation
[TypesDimsInputData]	Type	Interior	Beam Type Currently Selected
	End	n/a	not applicable
	ClearSpan	3500.0	Clear span distance of beam being detailed
	AdjLeftClear	2000.0	Clear span of adjacent left span
	AdjRightClear	2000.0	Clear span of adjacent right span

Setting		Value	Explanation
[TypesDimsInputData]	LeftSupWidth	Interior	Beam Type Currently Selected
	RightSupWidth	n/a	not applicable
	BeamDepth	3500.0	Clear span distance of beam being detailed
	BeamWidth	2000.0	Clear span of adjacent left span
	Outline	2000.0	Clear span of adjacent right span
	CovLeftEnd	50.0	Cover to left end of beam being detailed
	CovRightEnd	50.0	Cover to right end of beam being detailed
	CovTopToStir	50.0	Cover to top of beam being detailed
	CovBtmToStir	50.0	Cover to bottom of beam being detailed
	CovNFToStir	50.0	Cover to near face of beam being detailed
	CovFFToStir	50.0	Cover to far face of beam being detailed

	CovLeftEnd	50.0	Cover to left end of beam being detailed
	LeftSupGridRef	A	Grid label annotation for left grid line
	RightSupGridRef	B	Grid label annotation for right grid line

Setting		Value	Explanation
[RebarInputData]	TopRnfGrade	T	Steel grade for top layer of reinforcement
	TopRnfPrefix		Prefix for top layer of reinforcement
	BtmRnfGrade	T	Steel grade for bottom layer of reinforcement
	BtmRnfPrefix		Prefix for bottom layer of reinforcement
	StirRnfGrade	T	Steel grade for links
	StirRnfPrefix		Prefix for links

Setting		Value	Explanation
[TopRnfLeftSupTL1]	TL1Include	1	Include bar in curtailment calc, 1 = On, 0 = Off
Top Left Support Bar	TL1Detail	1	Detail support bar
On Layer 1	TL1Number	4	No of bars
	TL1Size	20	Diameter of bar
	TL1Type	20	Shape code
	TL1Notes		Default notes for bar label
	TL1PercentFlag	1	Calculate Curtailment switch 1 = On, 0 = Off
	TL1Percent	30.0	Curtailment Percentage of Span
	TL1LengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1
	TL1Length	300.0	Length for curtailment calculation
	TL1Projection	0.0	End Beams only – distance bar projects beyond end of beam

Setting		Value	Explanation
[TopRnfLeftSupTL2]	TL2Include	1	Include bar in curtailment calc, 1 = On, 0 = Off
Top Left Support Bar	TL2Detail	1	Detail support bar 1 = On, 0 = Off
On Layer 2	TL2Number	2	No of bars
	TL2Size	20	Diameter of bar
	TL2Type	20	Shape code
	TL2Notes		Default notes for bar label

	TL2PercentFlag	1	Calculate Curtailment switch 1 = On, 0 = Off
	TL2Percent	20.0	Curtailment Percentage of Span
	TL2LengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1
	TL2Length	300.0	Length for curtailment calculation
	TL2Projection	0.0	End Beams only – distance bar projects beyond end of beam

Setting		Value	Explanation
[TopRnfRightSupTR1]	TR1Include	1	Include bar in curtailment calc, 1 = On, 0 = Off
Top Right Support Bar	TR1Detail	1	Detail support bar 1 = On, 0 = Off
On Layer 1	TR1Number	4	No of bars
	TR1Size	20	Diameter of bar
	TR1Type	20	Shape code
	TR1Notes		Default notes for bar label
	TR1PercentFlag	1	Calculate Curtailment switch 1 = On, 0 = Off
	TR1Percent	30.0	Curtailment Percentage of Span
	TR1LengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1
	TR1Length	300.0	Length for curtailment calculation
	TR1Projection	0.0	End Beams only – distance bar projects beyond end of beam

Setting		Value	Explanation
[TopRnfRightSupTR2]	TR2Include	1	Include bar in curtailment calc, 1 = On, 0 = Off
Top Right Support Bar	TR2Detail	1	Detail support bar 1 = On, 0 = Off
On Layer 2	TR2Number	2	No of bars
	TR2Size	20	Diameter of bar
	TR2Type	20	Shape code
	TR2Notes		Default notes for bar label
	TR2PercentFlag	1	Calculate Curtailment switch 1 = On, 0 = Off
	TR2Percent	20.0	Curtailment Percentage of Span
	TR2LengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1
	TR2Length	300.0	Length for curtailment calculation

	TR2Projection	0.0	End Beams only – distance bar projects beyond end of beam

Setting		Value	Explanation
[TopRnfSpanBarTM]	TMBInclude	1	Include bar in curtailment calc, 1 = On, 0 = Off
	TMBDetail	1	Detail support bar 1 = On, 0 = Off
	TMBNumber	4	No of bars
	TMBSize	20	Diameter of bar
	TMBType	20	Shape code
	TMBNotes		Default notes for bar label
	TMBLapFlag	1	
	TMBLap	300.0	
	TMBBarLengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1
	TMBBarLength	0.0	Length for curtailment calculation
	TMBPercent	30.0	Curtailment Percentage of Span

Setting		Value	Explanation
[TopRnfSpanBarTC]	TCBInclude	0	Include bar in curtailment calc, 1 = On, 0 = Off
	TCBDetail	0	Detail support bar 1 = On, 0 = Off
	TCBNumber	4	No of bars
	TCBSize	20	Diameter of bar
	TCBType	20	Shape code
	TCBNotes		Default notes for bar label
	TCBLeftProjection	0.0	
	TCBRghtProjection	0.0	

Setting		Value	Explanation
[BotRnfSpanBarBM]	BMBDetail	1	Detail support bar 1 = On, 0 = Off
	BMBNumber	4	No of bars
	BMBSize	20	Diameter of bar
	BMBType	20	Shape code
	BMBNotes		Default notes for bar label
	BMBPercentFlag	1	Calculate Curtailment switch 1 = On, 0 = Off
	BMBPercent	12.5	Curtailment Percentage of Span

	BMBBarLengthFlag	0	Calculate Curtailment as Percentage = 0, as Length = 1

	Setting	**Value**	**Explanation**
[BotRnfSpanBarBC]	BCBDetail	1	Detail support bar 1 = On, 0 = Off
	BCBNumber	4	No of bars
	BCBSize	20	Diameter of bar
	BCBType	20	Shape code
	BCBNotes		Default notes for bar label
	BCBLeftProjection	0.0	
	BCBRghtProjection	0.0	
	BCBPercentFlag	0	Calculate Curtailment switch 1 = On, 0 = Off

	Setting	**Value**	**Explanation**
[LinkBars]	LinkZones1	1	
	LinkZones2	0	
	LinkZones3	0	Three link zones, 0 = Off, 1 = On
	LinkStirZoneOff	50.0	Distance stirrup zone offset from column Face
	LinkLeftEntNum	1	
	LinkSpanEntNum	1	
	LinkRghtEntNum	1	
	LinkLeftNumber	10	Number of links in left zone
	LinkSpanNumber	10	Number of links in span zone
	LinkRghtNumber	10	Number of links in right zone
	LinkLeftSpacing	150.0	Stirrup pitch left zone
	LinkSpanSpacin	150.0	Stirrup pitch span zone
	LinkRghtSpacin	150.0	Stirrup pitch right zone
	LinkLeftZoneLe	0.0	Length of left zone
	LinkSpanZoneLen	1900.0	Length of span zone
	LinkRghtSpacing	0.0	Length of right zone

	Setting	**Value**	**Explanation**
[LinkArrangement]	LinkOuterFlag	1	Outer stirrup bend type switch, 0 = Off, 1 = On
	LinkOuterType	61	Outer stirrup bend type - shape code
	LinkOuterSize	8	Outer stirrup bend type - bar diameter
	LinkOuterOverlap	None	Outer stirrup bend type overlap, options none, 0.5 or 0.67
	LinkOuterDim0	600.0	Outer stirrup bend type dim 0
	LinkOuterDim1	400.0	Outer stirrup bend type dim 1
	LinkOuterDim2	0.0	Outer stirrup bend type dim 2
	LinkOuterDim3	0.0	Outer stirrup bend type dim 3

LinkOuterDim4	0.0	Outer stirrup bend type dim 4
LinkOuterDim5	0.0	Outer stirrup bend type dim 5
LinkOuterDim6	0.0	Outer stirrup bend type dim 6
LinkOuterDim7	0.0	Outer stirrup bend type dim 7
LinkOuterDim8	0.0	Outer stirrup bend type dim 8
LinkOuterDim9	0.0	Outer stirrup bend type dim 9
LinkOuterCapFlag	0	Outer cap stirrup bend type switch, 0 = Off, 1 = On
LinkOuterCapType	38	Outer cap stirrup bend type – shape code
LinkOuterCapSize	8	Outer cap stirrup bend type - bar diameter
LinkOuterCapDim0	0.0	Outer cap stirrup bend type dim 0
LinkOuterCapDim1	0.0	Outer cap stirrup bend type dim 1
LinkOuterCapDim2	0.0	Outer cap stirrup bend type dim 2
LinkOuterCapDim3	0.0	Outer cap stirrup bend type dim 3
LinkOuterCapDim4	0.0	Outer cap bend type dim 4
LinkOuterCapDim5	0.0	Outer cap bend type dim 5
LinkOuterCapDim6	0.0	Outer cap bend type dim 6
LinkOuterCapDim7	0.0	Outer cap bend type dim 7
LinkOuterCapDim8	0.0	Outer cap bend type dim 8
LinkOuterCapDim9	0.0	Outer cap bend type dim 9
LinkInnerClosedFlag	0	Inner closed Outer cap bend type switch, 0 = Off, 1 = On
LinkInnerClosedType	38	Inner closed stirrup bend type – shape code
LinkInnerClosedSize	8	Inner closed stirrup bend type - bar diameter
LinkInnerClosedSets	1	Inner closed stirrup bend type - number of sets of stirrups
LinkInnerClosedDim0	0.0	Inner closed stirrup bend type - dim 0
LinkInnerClosedDim1	0.0	Inner closed stirrup bend type - dim 1
LinkInnerClosedDim2	0.0	Inner closed stirrup bend type - dim 2
LinkInnerClosedDim3	0.0	Inner closed stirrup bend type - dim 3
LinkInnerClosedDim4	0.0	Inner closed stirrup bend type - dim 4
LinkInnerClosedDim5	0.0	Inner closed stirrup bend type - dim 5
LinkInnerClosedDim6	0.0	Inner closed stirrup bend type - dim 6
LinkInnerClosedDim7	0.0	Inner closed stirrup bend type - dim 7
LinkInnerClosedDim8	0.0	Inner closed stirrup bend type - dim 8
LinkInnerClosedDim9	0.0	Inner closed stirrup bend type - dim 9
LinkInnerOpenFlag	0	Inner open Stirrup bend type switch, 0 = Off, 1 = On

Setting		Value	Explanation
[LinkArrangement]	LinkInnerOpenType	85	Inner open Stirrup bend type - shape code

LinkInnerOpenSize	8	Inner open Stirrup bend type - bar diameter
LinkInnerOpenSets	2	Inner open Stirrup bend type - number of bar sets
LinkInnerOpenDim0	0.0	Inner open Stirrup bend type - dim 0
LinkInnerOpenDim1	0.0	Inner open Stirrup bend type - dim 1
LinkInnerOpenDim2	0.0	Inner open Stirrup bend type - dim 2
LinkInnerOpenDim3	0.0	Inner open Stirrup bend type - dim 3
LinkInnerOpenDim4	0.0	Inner open Stirrup bend type - dim 4
LinkInnerOpenDim5	0.0	Inner open Stirrup bend type - dim 5

The following section is not implemented in CADS-BMD Version 7.30

Setting		Value	Explanation
[BLGenCfg]	DefaultPath	None	Default path to import job files
General Configuration.	SectMarks	Standard	Section Points
			Choose between
			No sections (no sections per span)
			Standard section points (3 per span)
			Pick all section points (user to pick point on elevation where section is generated)
	ElevOffset	200.0	Section offset from elevation in plotted mm
	MinSectSpace	500.0	Spacing between sections in plotted mm
	ColumnLen	75.0	Column length on elevation in plotted mm
	CompactBars	1	Compact bar mark numbers, 0 = Off, 1 = On
	YcompactTol	10	Compact Tolerance in mm

Setting		Value	Explanation
[BLGridCfg]	GridLineLay	grid	Grid layer
Grid Configuration	GridBallLay	0-35text	Grid text layer
	GridBallRad	10.0	Grid balloon radius in plotted mm
	GridTextHgt	5.0	Grid Text height in plotted mm
	GridDimOff	20.0	Grid dimension offset in plotted mm
	GridBallOff	15.0	Grid Balloon offset from dimension in plotted mm

Setting		Value	Explanation
[BLSectMrkCfg]	SectMarksLay	0-50text	Section marker layer
Section Mark Config	SectMarksLBlk	sectmkl.dwg	Left section marker block
	SectMarksRBlk	sectmkr.dwg	Right section marker block

	SectMarksOff	15.0	Section marker offset from elevation in mm
	SectMarkTxtSz	3.0	Section marker text size in plotted mm
	SectMarkFact	1.00	Section marker scale factor
	SectMarkFirstLab	A	Section marker first label letter, starting on left
	SectMarkLabOffset	3.0	Section marker label offset in plotted mm

	Setting	**Value**	**Explanation**
[Miscellaneous]	DCLFile	cads-bmd.dcl	Current beam detailer dialog control file

	Setting	**Value**	**Explanation**
[BarInfo]	StraightBar	20	Straight bar shape code
	HookBar	32	Hook bar shape code
	LegBar	34	Leg bar shape code
	StraightBarDim	A	Straight bar leg letter
	HookBarDim	A	Hook bar leg letter
	LegBarDim	A	Leg bar leg letter
	StraightBarView	Plan	Straight bar view to be generated on elevation
	HookBarView	Side	Hook bar view to be generated on elevation
	LegBarView	Side	Leg bar view to be generated on elevation
	HookDim1	A	First hook dimension letter, if used
	HookDim2	G	Second hook dimension letter, if used

	Setting	**Value**	**Explanation**
[Labelling]	LabelDistFactor	~mm~10.0	Min distance of bar label from elevation in plotted mm.

This ends the unsupported Gconfig items that are not currently accessible.
The following section has been shortened to only include the first two supported shape codes; these fields can be expanded to include up to 99 supported shape codes.

	Setting	**Value**	**Explanation**
[SupportedLinkBars]	NumofSupportShapes	8	Current number of support shape codes, max 99
Make sure this is correct	Shape1	38	Set 1 shape code
	Shape1SameAs	None	Get settings from another shape
	Shape1Dim0	Depth	

Currently a maximum	Shape1Dim1	Width
99 shapes supported	Shape1Dim2	Depth
	Shape1Dim3	0.0
	Shape1Dim4	0.0
	Shape1Dim5	0.0
	Shape1Dim6	0.0
	Shape1Dim7	0.0
	Shape1Dim8	0.0
	Shape1Dim9	0.0
	Shape1VectX	1.0
	Shape1VectY	0.0
	Shape1Handing	R
	Shape1VectX2	1.0
	Shape1VectY2	0.0
	Shape1Handing2	R
	Shape1CapVectX	-1.0
	Shape1CapVectY	0.0
	Shape1CapHanding	L
	Shape1ElevView	Left
	Shape1ElevDirVect	Left
	Shape1SectView	Side
	Shape1InsertionPoint	Left
	Shape1OverLapDim1	1
	Shape1OverLapDim2	1

3 Column Detailer (CADS-CO)

Chapter Objectives

CADS 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. Detailers can choose many possible bar and tie arrangements (including spiral ties) with bar dimensions automatically calculated from the entered column data.

3.1 Program Operating Environment

CADS-CO Column Detailer works in conjunction with CADS-RC and therefore requires AutoCAD and CADS-RC to be loaded and ready for use before the Column Detailer can be used.

CADS-CO uses the Dimscale variable to size its text to suit the plotted scale of the drawing regardless of whether you are working with Tilemode set to 1 or 0. Ensure that Dimscale is set to match the plotted scale of the detail.

If you have access to either the CADS-Drawing Environment or CADS-Scale software, use the Drawing Set-up Function 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 CADS-DE or CADS-SC User Guides.

3.2 Loading the Column Detailer

The Column Detailer is loaded by selecting the Outlines option from the CADS-RC pull down menu and then picking the Detailers option.
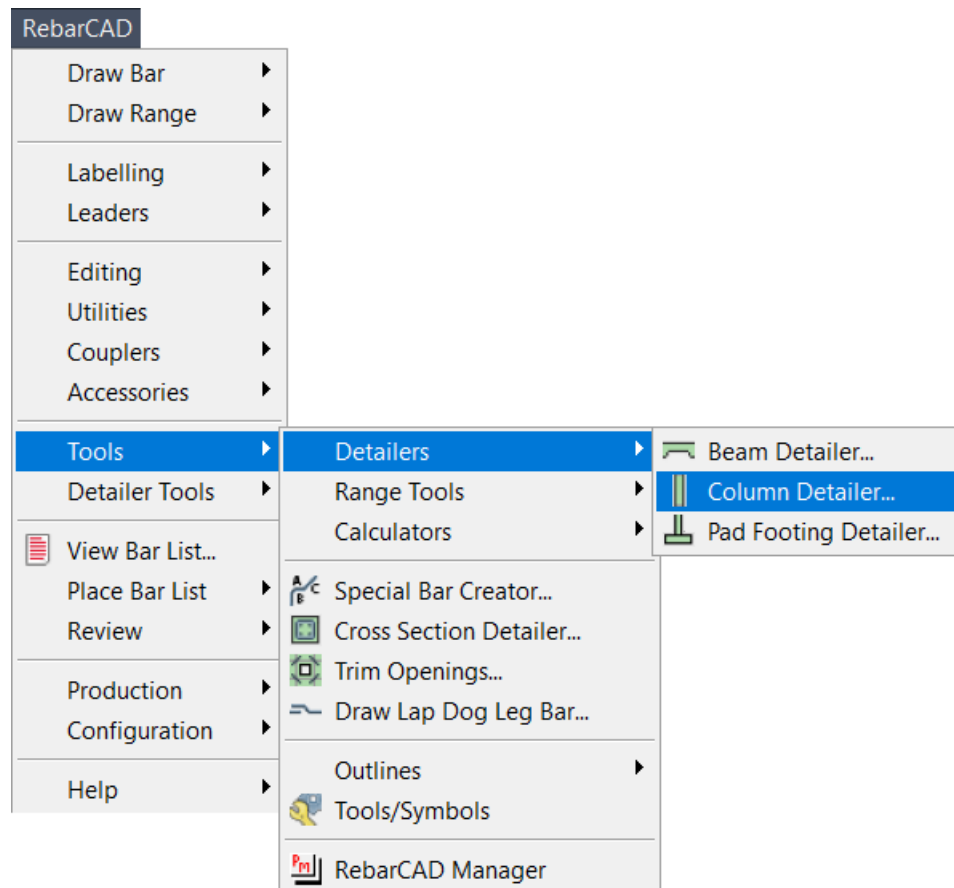
Figure 3.1 CADS-RC Detailers Selection Menu

The CADS-RC Detailer Selection Menu Dialog, as shown in Figure 3.1, is then displayed on the screen. This dialog displays a list of the Detailers and Productivity Tools that have been installed on your computer.

To load the Column Detailer, highlight the line 'CADS-CO Column Detailer' and then pick the Load button.

## 3.3 Defining Columns for Detailing

The Column Detailer requires four main areas of data to be defined in order that the desired column arrangement is produced. They consist of:

▶ Column Type (single span, end span or interior span) ;

▶ Column Dimensions (span, depth, width etc.);

▶ Main Column Bar Arrangement;

▶ Column Tie Arrangement, (links within the column).

When importing a column from the CADS-RC Column Designer program the definitions will be set by default to the information imported. This may be changed as required except for the link arrangement.

## 3.3.1 Allocating the Column Member Title

When the Column Detailer is loaded the CADS-RC Member Title Selection 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. For further information on Member Titles refer to the CADS-RC user manual.
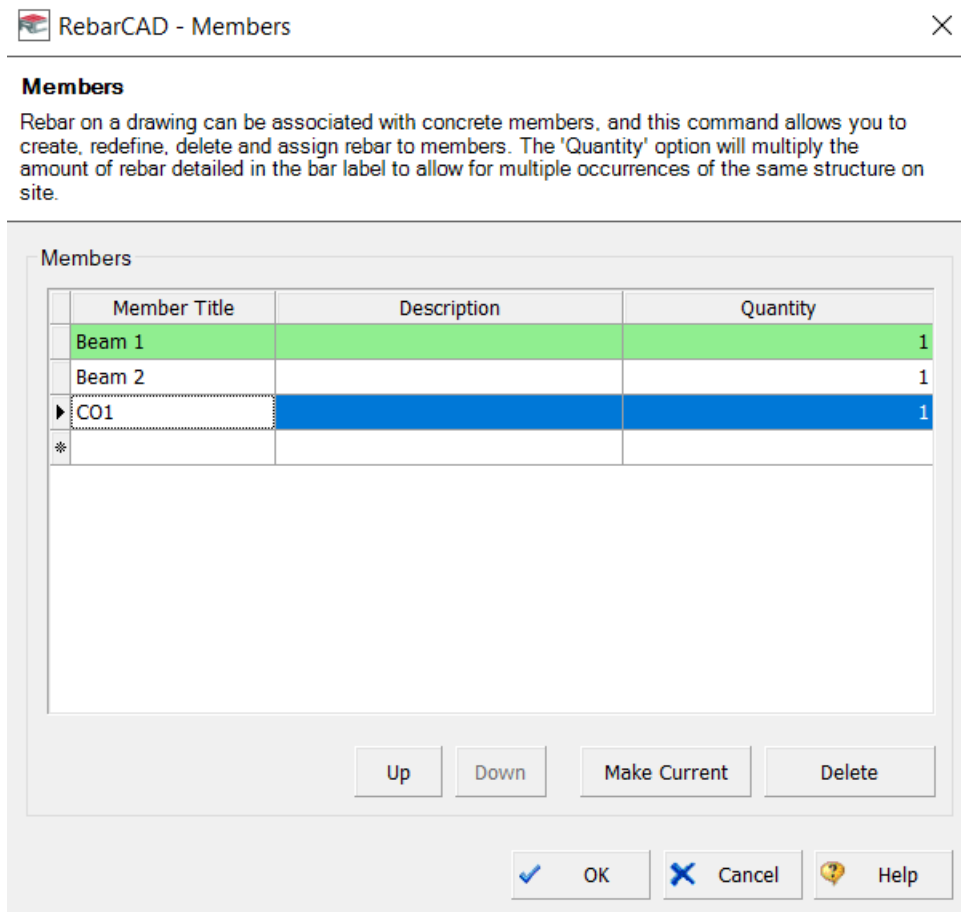
Figure 3.2 Member Title Selection Dialog

## 3.3.2 Column Detailer Configuration File Selection

When the required member title has been defined the Column Type Selection dialog is displayed.
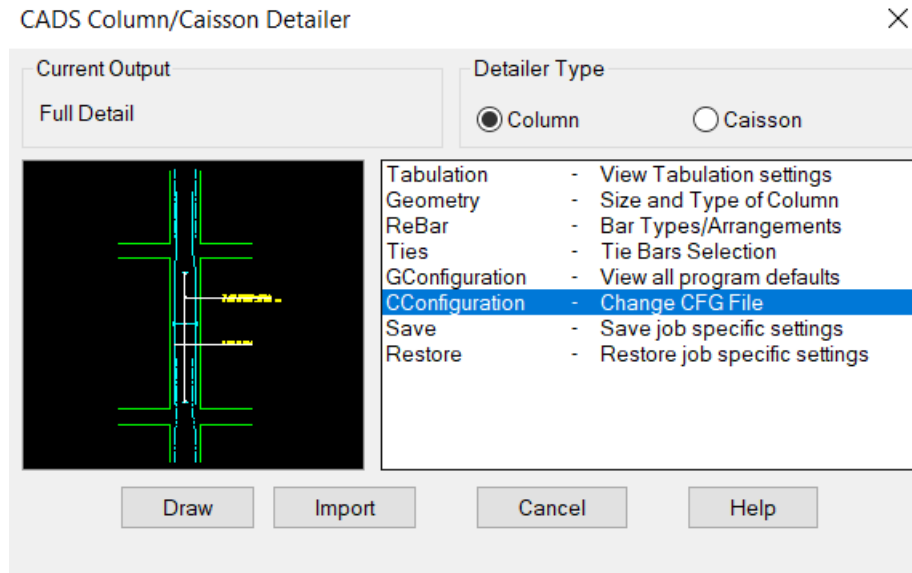
Figure 3.3 Column Type Selection Dialog

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 in Figure 3.4.

Currently the UK version of this software offers two configuration files CADSCO.DEF and COL_UK.DEF. The file CADS-CO.DEF is the default set-up for UK metric detailing and is automatically loaded when the Beam Detailer is used. The file COL_UK.DEF is identical to the CADS-CO.DEF.
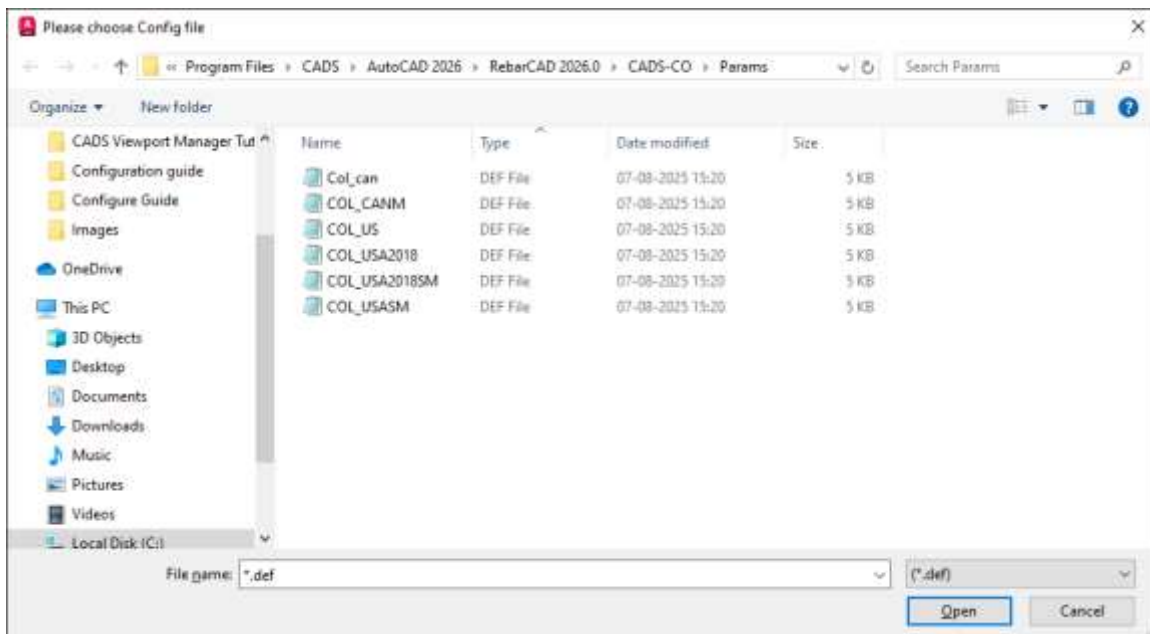
Figure 3.4 Default Column Configuration File Options

Should other configuration options be required, then please contact the CADS Support Department who will be pleased to advise accordingly.
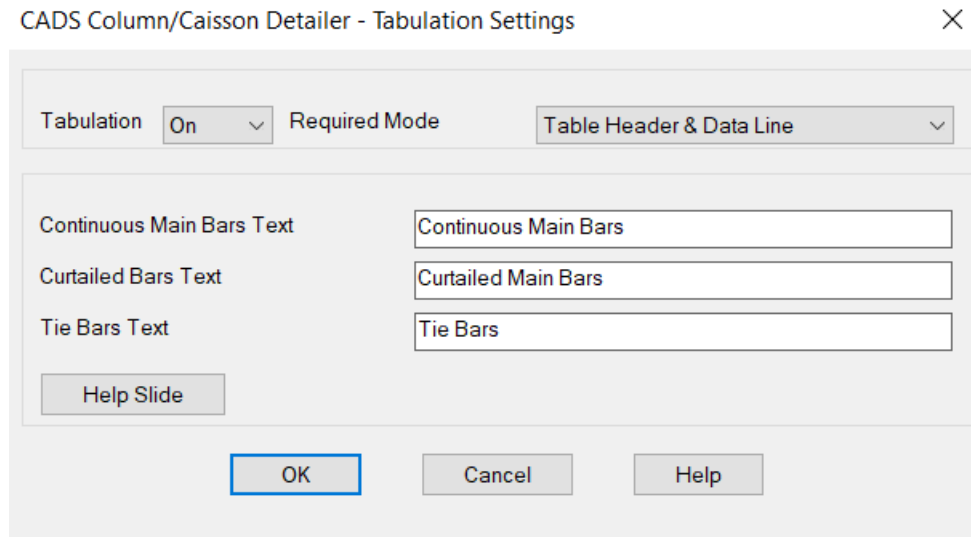
3.4 Tabulation

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.

To access the Tabulation Settings dialog double, click on the Tabulation – View Tabulation Settings option in the Main Column Detailer Dialog.

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 to chapter 3.7 Geometry – Size and Type of Column for further information.

Figure 3.5 Tabulation Dialog

Tabulation

This option switches the tabulation output On or Off. Switch it on to place a bar data table on the drawing.
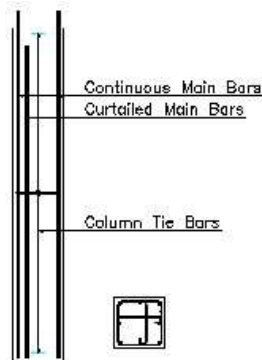
Required Mode

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, see Figure 3.6;

▶ 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, see Figure 3.7;

▶ Data Line Only – Inserts only the bar label data in tabular format so that it can be appended to a previous table, see Figure 3.8.

Column Mark	Level	Column Main Bars		Column Ties	Extra Ties	Notes
		Continuous	Curtailed			
Type A	Gnd Flr	4 T25 219	8 T25 220	20 T10 221—200		No Notes
				20 T10 222—200		No Notes
				20 T10 223—200		No Notes

Figure 3.6 Table Header and Data Line

Column Mark	Level	Column Main Bars		Column Ties	Extra Ties	Notes
		Continuous	Curtailed			
Type 1	1st Flr	4 T25 214	4 T25 215	20 T10 216—200		No Notes
				20 T10 217—200		No Notes
				20 T10 218—200		No Notes

Figure 3.7 Sketch Detail, Table Header and Data Line

Type B	Gnd Flr	4 T25 224	6 T25 225	20 T10 226—200		No Notes
				20 T10 227—200		No Notes
				20 T10 228—200		No Notes

Figure 3.8 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 3.9 for details on which bar sets reference which labels.
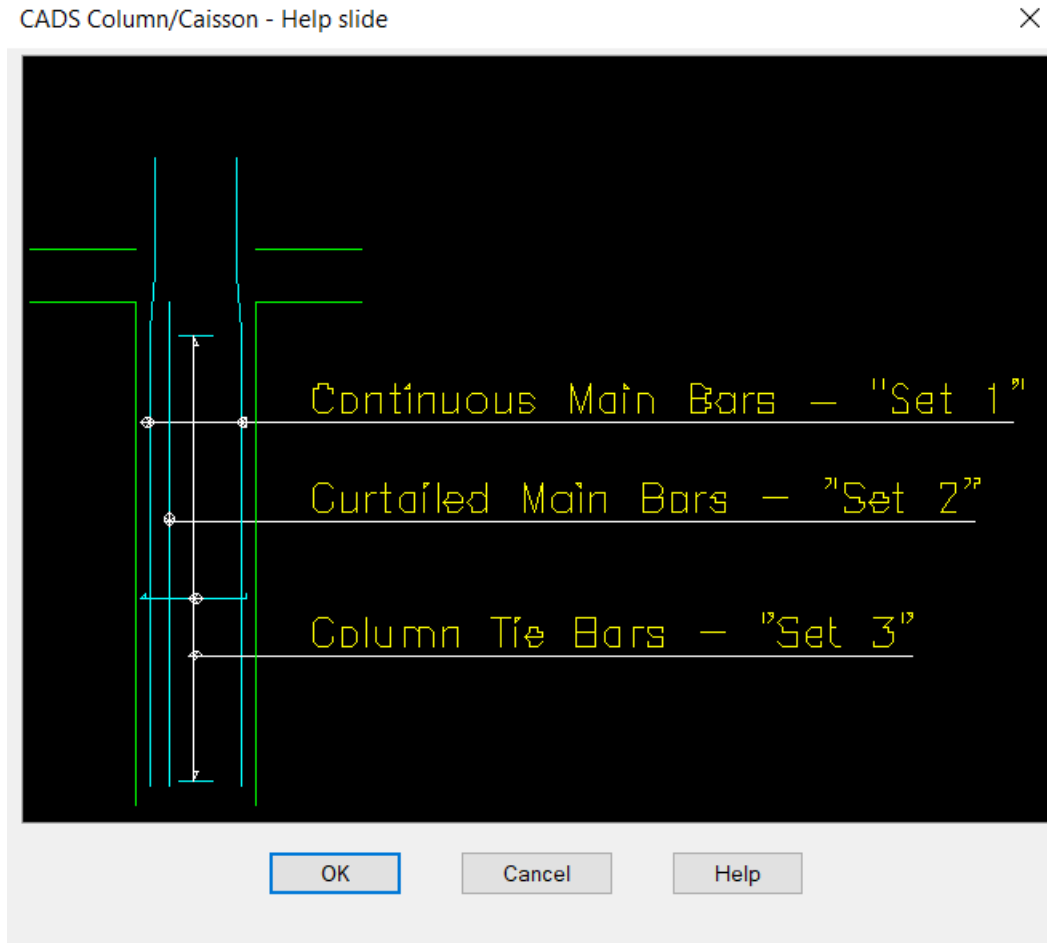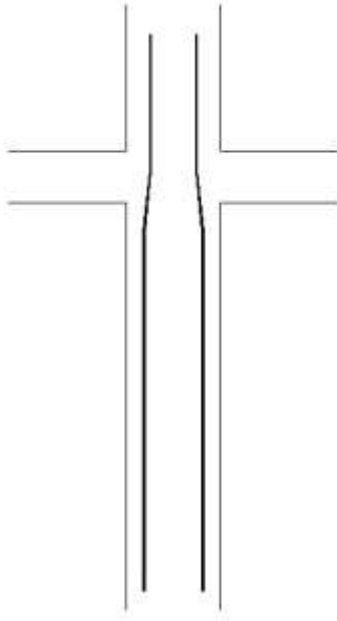
Figure 3.9 Tabulation Help Screen

3.5 Defining the Column Geometry

Selecting the Geometry option from the Main Column Detailer Dialog displays the Column Type and Dimension Input dialog, see Figure 3.12, where the column type and dimensions are input. The column detailer supports rectangular and circular columns with or without a column above present.

Figure 3.10 Column with column above
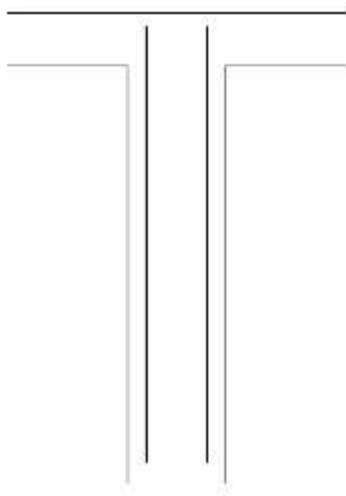
Figure 3.11 Column without column above

The column dimensions can be altered or checked in the Column 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.

Figure 3.12 Column Type and Dimension Input dialog

The Column 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 chapter 3.6 Tabulation 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 chapter 3.6 Tabulation 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 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.

3.6 Defining the Bar Arrangements

The Column Detailer requires two bar arrangement areas to be defined namely Column Main Bars and Column Ties (Links). In each area the general arrangement is defined with the column detailer calculating actual bar dimensions based upon the column dimensions and covers.

3.6.1 Column Main Bar Arrangements

Selecting the Reinforcement Input button displays the Reinforcement Input dialog where the required bar arrangements can be defined.

Figure 3.13 Reinforcement Input Dialog

The following Column Main Bar inputs are available:

▶ No. Bars - Enter the total number of main bars required in the column.

▶ Grade - Select the required bar grade for the column 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 main bars set.

Curtailed Main Bars

The Number of Bars field described above defines the total number of column 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 Bent, 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 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 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 placed;

▶ Crank Depth / 'Out to Out' Dimension - Only required if 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.

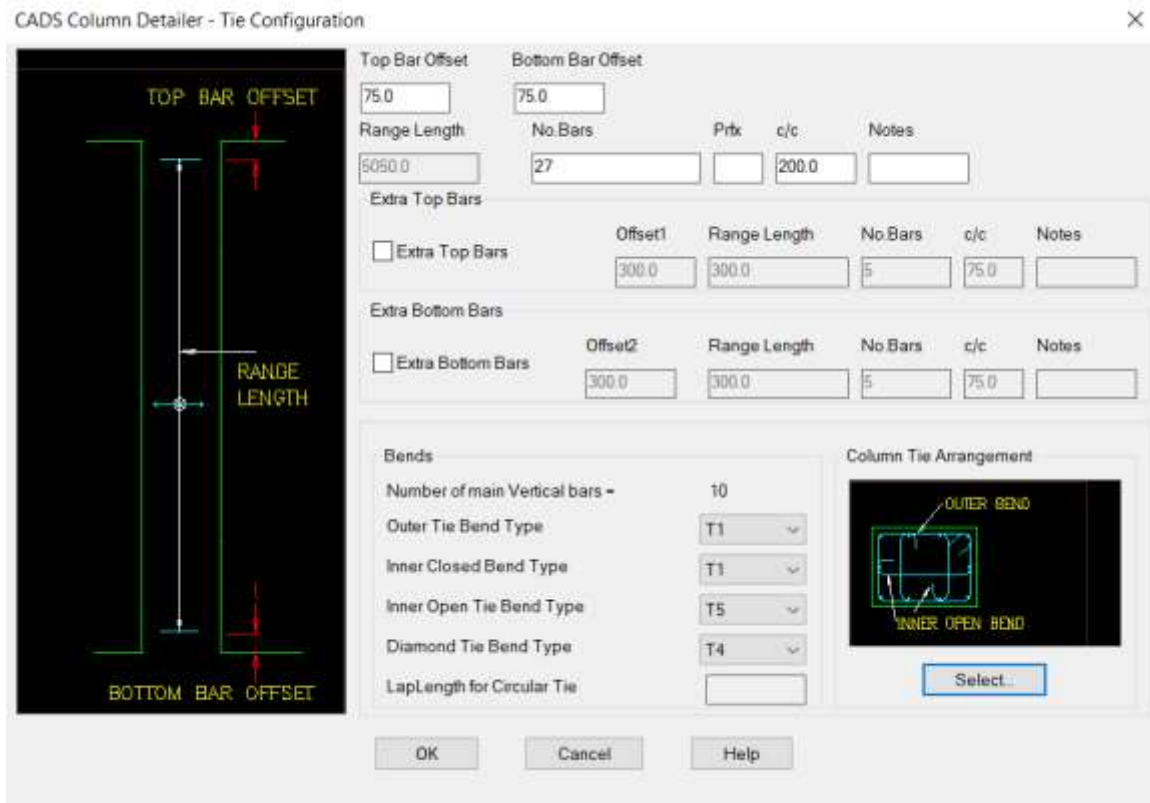## 3.6.2 Column Tie Bar Arrangements

Rectangular Column Types

The following Column Tie (Link) Bar inputs are available:

▶ No. Bars - Enter the total number of column link bars required;

▶ Grade - Select the required bar grade for the column link bars;

▶ 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.

If extra links are required then the number, pitch and any specific label notes required for the bar label of the extra links can be entered in the extra link inputs.

'The actual column link bar arrangement is defined by picking the Tie Arrangements button that accesses the Tie Arrangements Dialog.

Figure 3.14 Tie Arrangements dialog

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.

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.
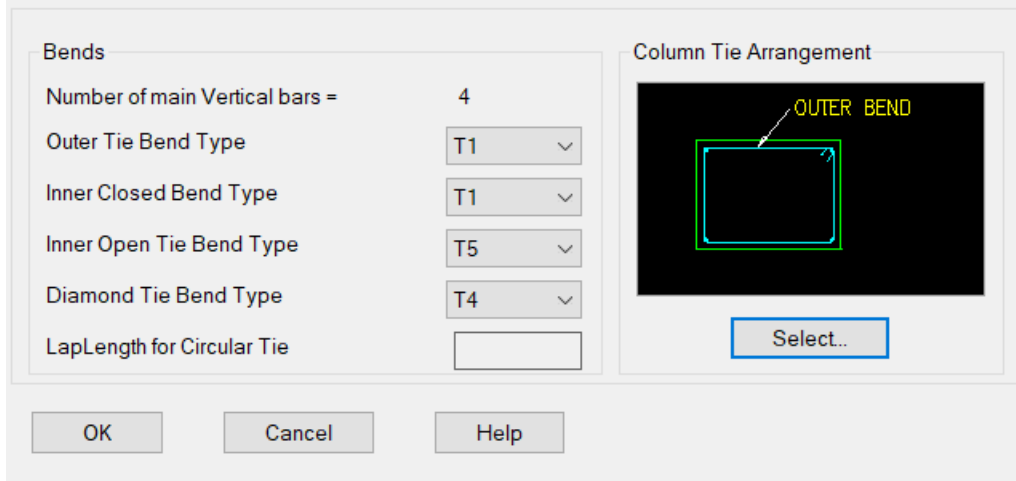
Figure 3.15 4 main vertical bar tie arrangements
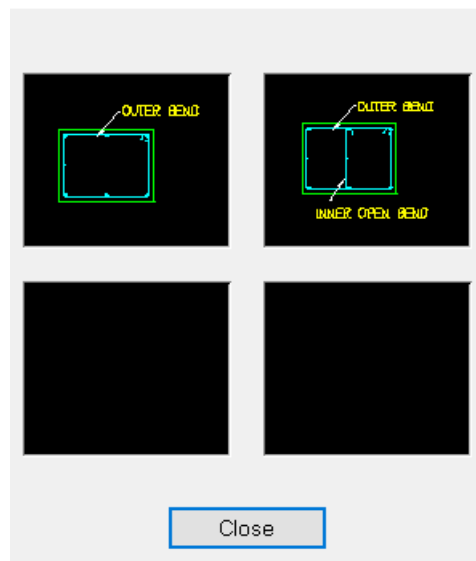
Figure 3.16 6 main vertical bar tie arrangements
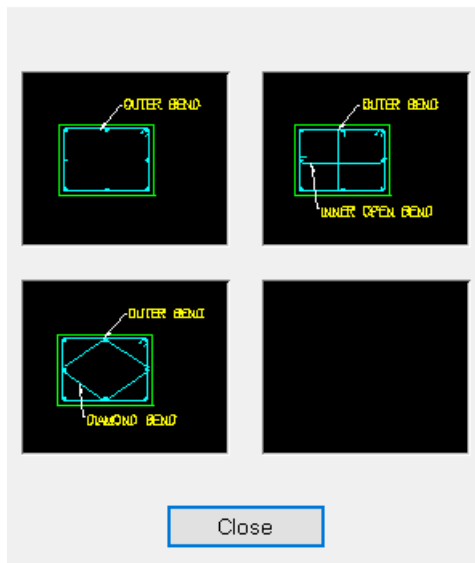
Figure 3.17 8 main vertical bar tie arrangements
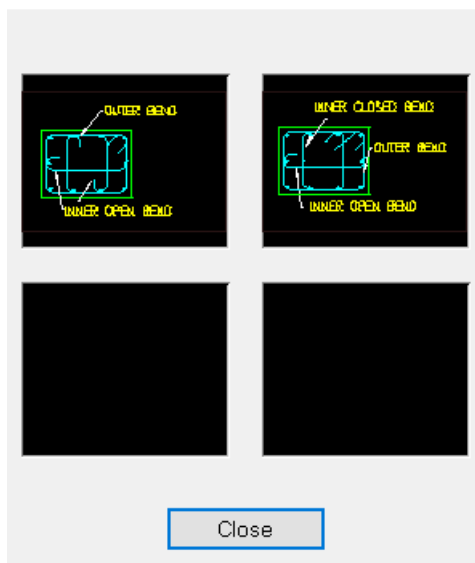
Figure 3.18 10 main vertical bar tie arrangements
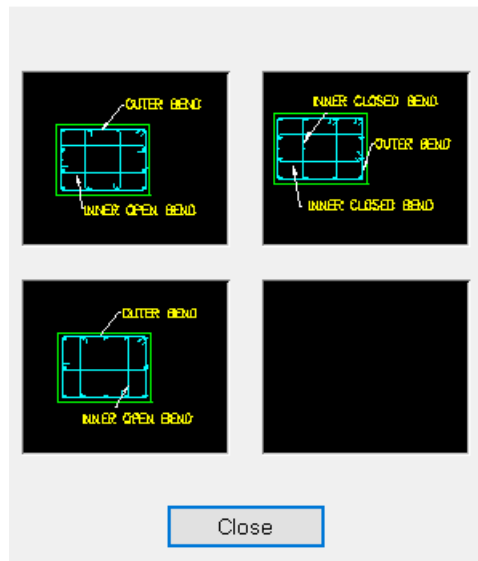
Figure 3.19 12 main vertical bar tie arrangements
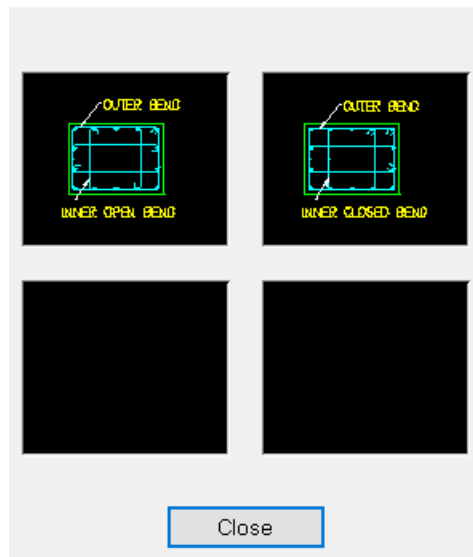
Figure 3.20 14 main vertical bar tie arrangements
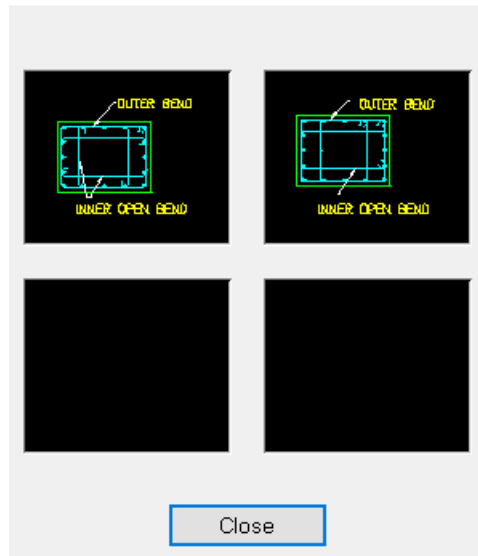
Figure 3.21 16 main vertical bar tie arrangements

When the required tie arrangement has been selected the actual bend types to be used can be defined.
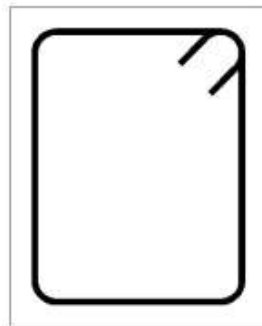
Figure 3.22 Outer Tie
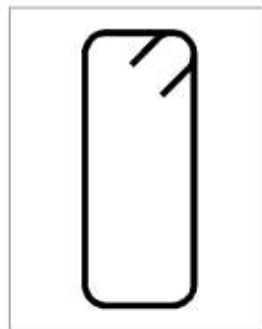
Figure 3.23 Inner Closed Tie
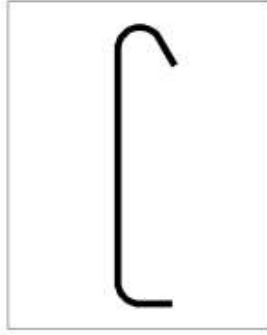
Figure 3.24 Inner Open Tie
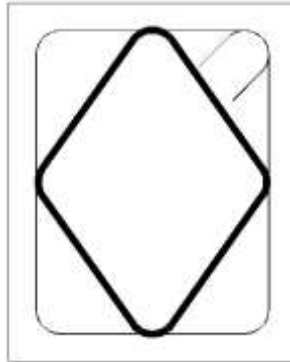
Figure 3.25 Diamond Tie

Circular Column Types

Circular column types can be detailed with either loose ties (links) or spiral bars.

Loose Ties (Links)

If loose ties are required the following Column Tie (Link) Bar inputs are available:
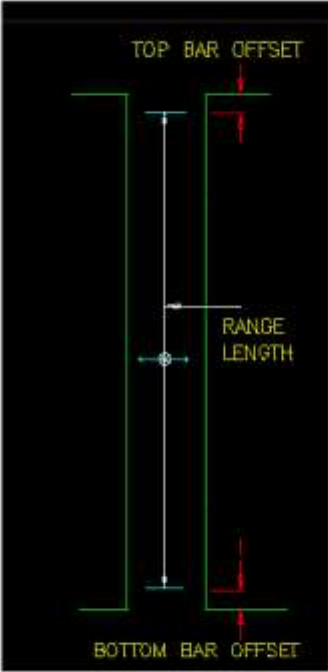
▶ No. Bars - Enter the total number of column link bars required 2. Grade - Select the required bar grade for the column tie bars;

▶ Size - Select the bar size for the bar set;

▶ Prfx. - Enter any bar mark prefix required;

▶ C/C - Enter the required column tie pitch;

▶ Notes - Enter any note you want to include in the bar label for the column link bar set.

If extra links are required 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 tie input dialog.

The actual column link bar arrangement is defined by picking the Tie Arrangements button that accesses the Tie Arrangements Dialog.

Figure 3.26 Tie Arrangements dialog

Spiral Bars

If spiral bars are required the spiral check box can be activated in the Reinforcement Input Dialog, see Figure 3.13, which enables the Spirals Button on the Tie Arrangements Dialog. Picking the Spirals button displays the Spirals dialog.

Figure 3.27 Spirals dialog

The spirals dialog allows the following spiral information to be entered:

▶ Bend Type - Enter the required spiral bend type;

▶ Spiral Tie Pitch - Enter the required spiral pitch (dimension F);

▶ Start Point above Btm Slab - Enter the distance above the bottom slab at which the spiral is to start;

▶ End Point below Top Slab – Enter the distance below the upper face of the top slab at which the spiral is to bend.

Note:

CADS Column Detailer will warn if the spiral bar is over the maximum stock length that is defined within CADS-RC. It will, however, continue to draw the bar even though it may be over the stock length.

3.7 Importing a Column Detail from CADS Column Designer

The Import Button on the Column Detailer Main Input Menu Dialog allows data prepared by the CADS Column Designer program to be used directly by the detailer. The link arrangements are determined in the designer and cannot be adjusted. Otherwise the all other imported data can edited with the column detailer dialogs.

3.7.1 Locating and Selecting the File to Import

Once the Import Option has been selected the Column Import Dialog is displayed. This dialog shows the directories / folders in the left hand panel and the files in the right. It is set to display the Column Designer *.RCD files.
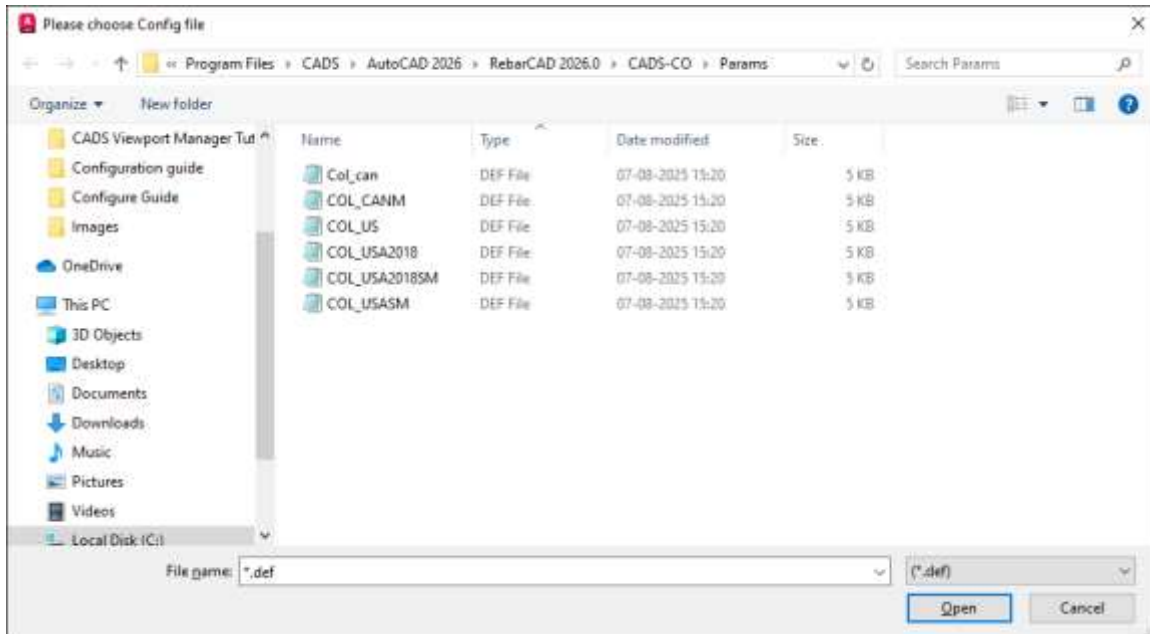
Figure 3.28 CADS Column Detailer Import Dialog

If you are not in the directory / folder you require then select the appropriate directory/folder or drive in the left panel until the correct path is shown.

Select the *.rcd file to import and then pick the OK button.

3.7.2 Editing Imported Column Designer Files

Once the data has been imported from the designer into the detailer you can edit some of the bar data. Please note however, that if you attempt to edit the link arrangement a warning is issued, as shown in Figure 3.27.

If NO is selected then the link arrangement defined in the Column Designer is retained. If YES is selected then the link arrangement can be edited within the column detailer dialogs.
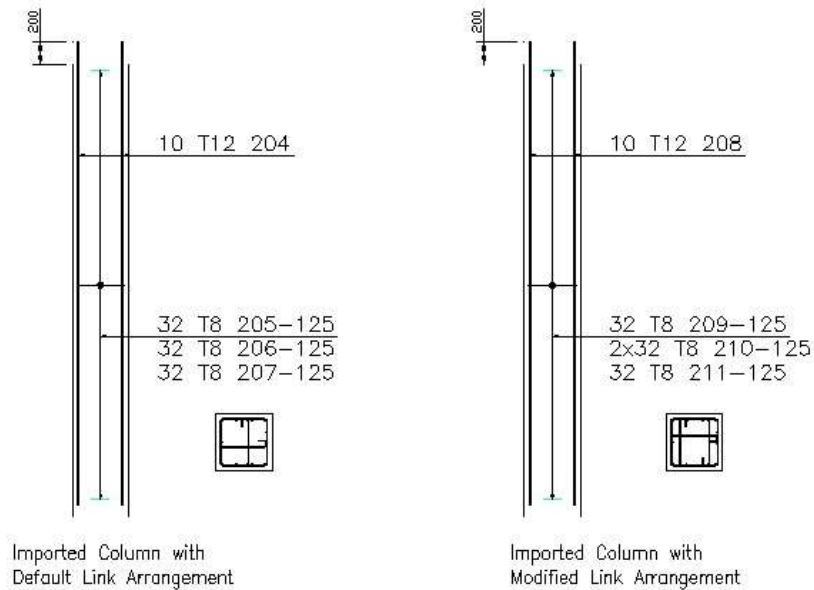
Figure 3.29 Typical Imported Column Details

3.8 Drawing the Column Detail

When the required column data has been entered the column can be drawn by selecting the Draw button from the Column Detailer dialog which can be displayed by picking the OK button from the Geometry or Reinforcement dialogs.

The 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.
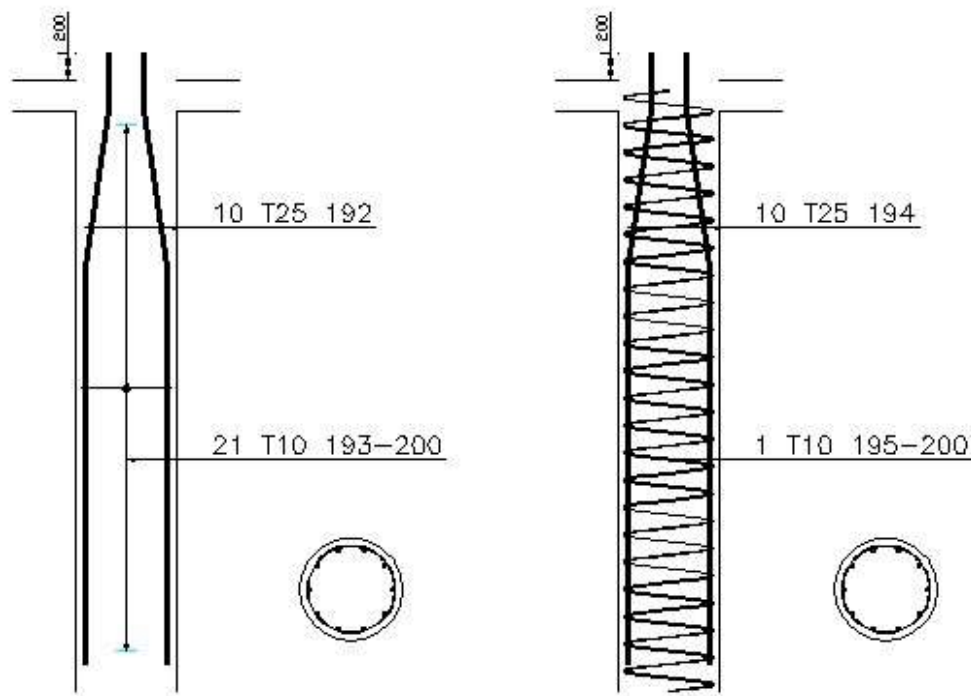
Figure 3.30 Typical Circular Column Elevations and Sections
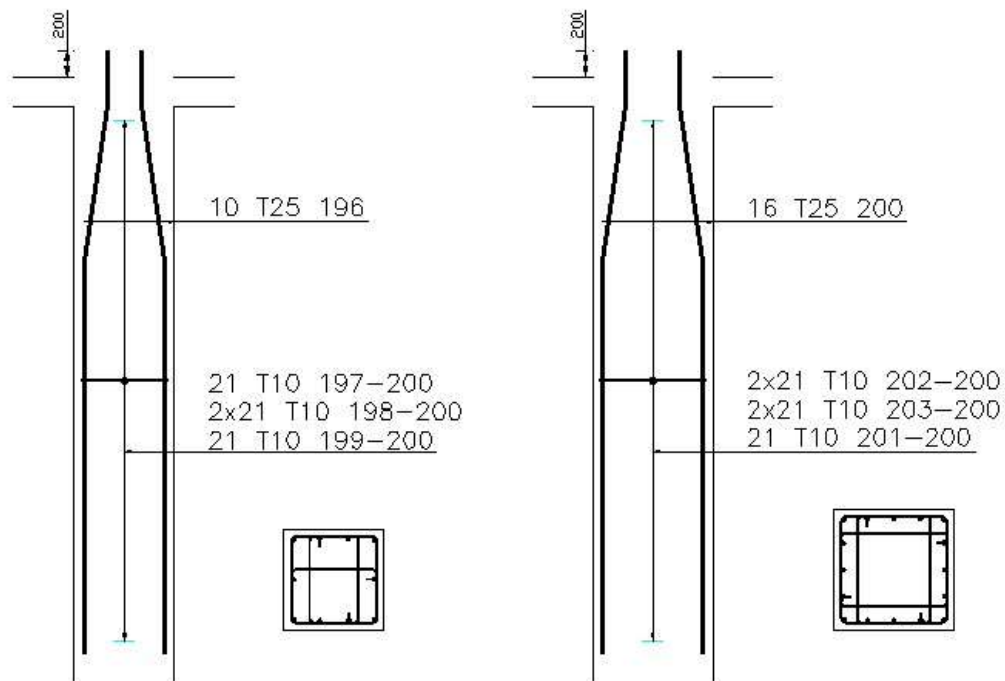
Figure 3.31 Typical Rectangular Column Elevations and Sections

3.9 CADS-CO Global Configuration Centre

	Setting	Value	Explanation
[GeometryInputData]	ColumnAbove	No	
	ColumnSection	Rectangular	Column section type, rectangular or circular
	FloorToFloor		5500.0
	TopSlabThickness	500.0	Top structural slab thickness
	BtmSlabThickness	500.0	Bottom structural slab thickness
	ColumnDiam		750.0
	ColumnDimA		750.0
	ColumnDimB		750.0
	CoverToTies		75.0
	DrawOutline		
	Yes		Draw outline switch Yes / No

	Setting	Value	Explanation
[GeometryInputData]	DrawDimension	Yes	Draw dimensions switch Yes / No
	LinkRangeInset	HALF_CC_SPACING	

	Setting	Value	Explanation
[RebarInput Data]	ColumnNumBars	10	Number of column main bars
	NumXbarsImported	0	
	NumYbarsImported	0	
	NumXlegsImported	0	
	NumYlegsImported	0	
	ColumnGrade	T	Column main bars - Grade
	ColumnSize	16	Column main bars - Diameter
	ColumnPrefix		Column main bars - Bar mark prefix
	ColumnNotes		Additional column main bar label note
	StartAboveBtm	200.0	Start distance of main column bars above bottom slab
	EndAboveTop	200.0	End distance of main column bars above top slab
	EndBelowTop	200.0	End distance of main column bars below top slab
	CrankBelowTop	200.0	Crank distance of main column bar below top slab

CrankAboveBtm	200.0	Crank distance of main column bars above bottom slab
CrankDepth		Width of main column bar crank from outer face to outer face
CrankLength		Length of main column bar crank
TieNumBars		Number of link bars
TieGrade		Link bar - Grade
TieSize	8	Link bar - Diameter
TiePrefix		Link bars – Bar Mark prefix
Tiecc	200.0	Link bars - pitch
TieNotes		Link bars - additional bar label note
TieNumExtra	0	Number of extra links
TieccExtra	200.00	Extra Links - Pitch
TieNotesExtra	Extra Ties	Extra Links – additional bar label note
TieArrangement 1		Tie Arrangement option selected
NumCurtailedMainBars	0	Number of main column bars curtailed
StopDistanceForCurtail	200.0	
SpiralsActivated	0	Spiral link switch, 0 = Off, 1 = On
SpiralPitch	200.0	Vertical distance between spiral revolutions
SpiralStartPointAboveBtmSlab	0.0	Spiral link - start point above
SpiralEndPointBelowTopSlab	75.0	Spiral link – end point below top slab
ColumnAboveMainBendType	Bent	
ColumnNotAboveMainBendType	Straight	
PositionOfBend	At Top	
ColumnMainBarArrange	Straight	

	Setting	**Value**	**Explanation**
[Miscellaneous]	DCLFile	col_us.dcl	CADS-CO dialogue control file

	Setting	**Value**	**Explanation**
[BarInfo]	DCLFile	col_us. dcl	CADS-CO dialogue control file
	StraightBar	20	Straight shape code
	StraightBarDim	A	Straight shape code leg letter
	Lbar	34	L bar shape code

LbarDim	A	L bar shape code leg letter
CrankBar	41	Crank bar shape code
CrankDim1	A	Crank bar dim 1 letter
CrankDim2	B	Crank bar dim 2 letter
CrankDim3	C	Crank bar dim 3 letter
CrankDim4	D	Crank bar dim 4 letter
CrankHanding	L	
CrankAngle	180.0	
CrankIp	1	
HookDim1		
HookDim2		
TieOuterShape	61	
TieOuterShapeCircular 9904		Outer circular link bar shape code
TieInnerClosedShape	61	
TieInnerOpenShape	85	
TieInnerOpenDim1	A	
TieInnerOpenDim2	B	
TieInnerOpenDim3	C	
TieInnerOpenDim4	D	
TieInnerOpenRotation	No	
OuterLinkDim1	B	
OuterLinkDim1Circular	A	
OuterLinkDim1CircularDivision	1.0	
OuterLinkDim2	A	
OuterLinkDim3	B	
OuterLinkDim4	A	
OpenTieHanding	R	
OpenTieRotation	Yes	
OpenTieAddRotation	0.0	
DiamondBar	99T4	Diamond link shape code
DiamondHookDim2		
DiamondXDim	H	
DiamondYDim	I	
PolarTieRad	Yes	
SpiralShape	87	Spiral link shape code
SpiralOverallDim	C	Spiral link overall dimension letter
SpiralPitchDim	B	Spiral link pitch dimension letter
SpiralDimeterDim	A	Spiral link diameter dimension letter

	Setting	Value	Explanation
[Labelling]	LabelDistFactor	~mm~10.0	Bar Label offset distance from elevation in plotted mm
	ColumnLeaderPosDivision	0.8	

TieLeaderPosDivision	0.6	
TieRangeBarPosDivision	0.5	

	Setting	Value	Explanation
[Labelling]	LabelDistFactor	~mm~10.0	Bar Label offset distance from elevation in plotted mm
	ColumnLeaderPosDivision	0.8	
	TieLeaderPosDivision	0.6	
	TieRangeBarPosDivision	0.5	

	Setting	Value	Explanation
[Tabulation]	Tabulation	Off	Tabulation option On / Off
	TabulationMode	Table Header & Data Line	Current tabulation mode options: - Table Header & Data Line; Sketch Detail, Table Header & Data Line; Data Line only.
	MainBarsText	Continuous Main Bars	Default text for main column bars on sketch diagram
	CurtailedBarsText	Curtailed Main Bars	Default text for curtailed bars on sketch diagram
	TiesBarsText	Column Tie Bars	Default text for column links on sketch diagram
	TableLayer	bar-lbl	Tabulation table layer
	TableHeaderBlock name	tabhead	Tabulation table header wblock
	TableLineBlock	tabline	Tabulation table body wblock name
	TableThreeLineDist	20.9619	
	TableColMarkDist	41.6950	
	TableLevelDist	28.8223	
	TableContinuousDist	69.6447	
	TableCurtailedDist	69.6447	
	TableColumnTiesDist	69.6447	
	TableColumnXTiesDist	69.6447	

	Setting	Value	Explanation
[ColumnDesigner]	DataPath	\cads\rccd\data	Path to column designer job files

	Setting	Value	Explanation
[SupportedGrades]	GradeT	T	
Grade Conversion	GradeR	R	
	GradeS		

GradeU
GradeX
GradeY
GradeM

_____

4 Spread Footing Detailer (CADS-PFD)

Chapter Objectives

CADS Spread Footing Detailer provides an automated method of producing reinforcement drawings for rectangular reinforced concrete spread 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.

4.1 Program Operating Environment

CADS-PFD Spread Footing Detailer works in conjunction with CADS-RC and therefore requires AutoCAD and CADS-RC to be loaded and ready for use before the Beam Detailer can be used.

CADS-PFD uses the Dimscale variable to size its text to suit the plotted scale of the drawing regardless of whether you are working with Tilemode set to 1 or 0. Ensure that Dimscale is set to match the plotted scale of the detail.

If you have access to either the CADS-Drawing Environment or CADS-Scale software, use the Drawing Set-up Function 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 CADS-DE or CADS-SC User Guides.

4.2 Loading the Spread Footing Detailer

The Spread Footing Detailer is loaded by selecting the Outlines option from the CADS-RC pull down menu and then picking the Detailers option.
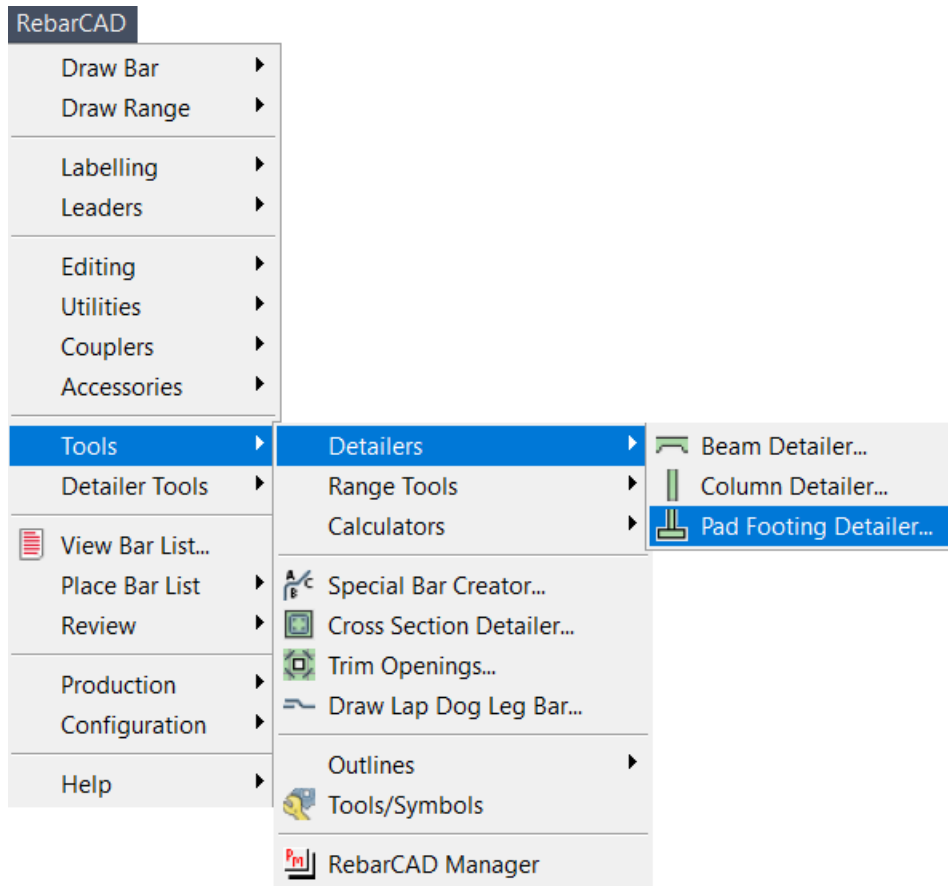
Figure 4.1 CADS-RC Detailers Selection Menu

The CADS-RC Detailer Selection Menu Dialog, as shown in Figure 4.1, is then displayed on the screen. This dialog displays a list of the Detailers and Productivity Tools that have been installed on your computer.

To load the Spread Footing Detailer, highlight the line 'CADS-PFD Spread Footing Detailer' and then pick the Load button. This will load the Spread Footing detailer ready for use.

4.3 Allocating the Spread Footing Member Title

When the Spread Footing Detailer (CADS PFD) has been selected the Set Member Title Dialog is displayed, as shown in Figure 4.2. At this point you can select an existing member title or create a new member title. The spread footing reinforcement bars will be assigned to the selected member title. You can now continue by picking the OK button. For further information on member Titles refer to the RebarCAD User Guide.
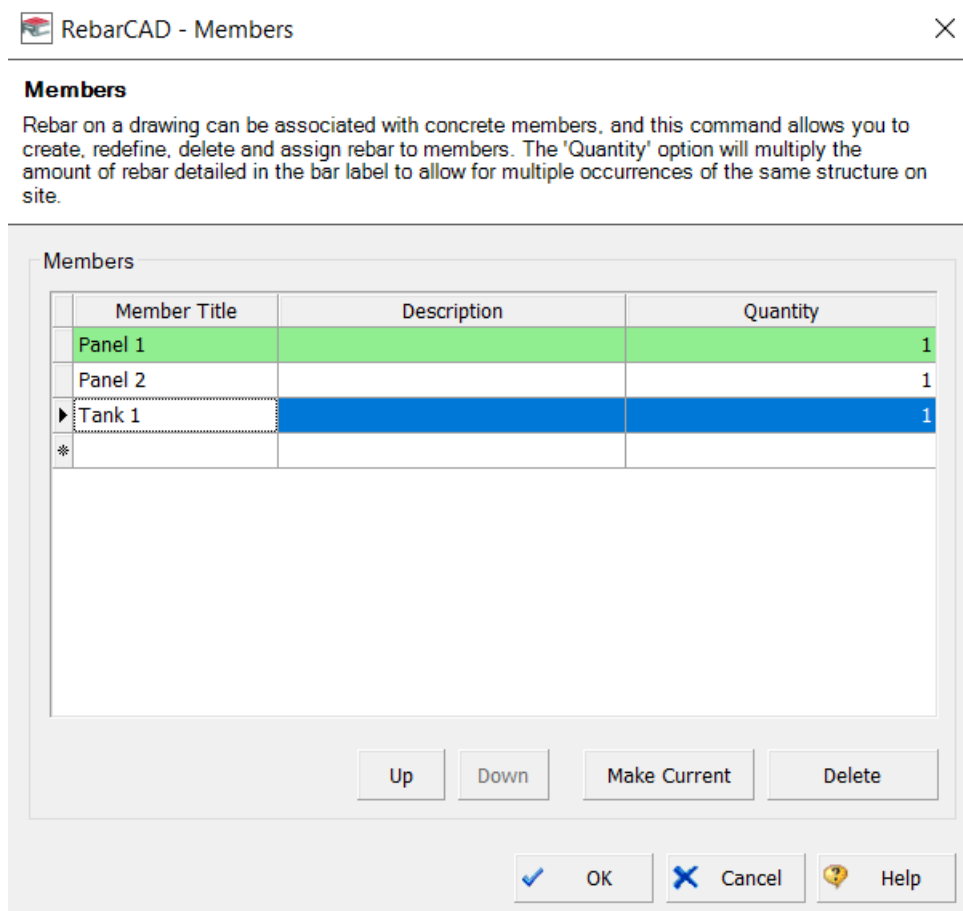
Figure 4.2 Member Title Selection Dialog

When the required member title has been defined the Spread Footing Detailer Input Menu dialog is displayed.
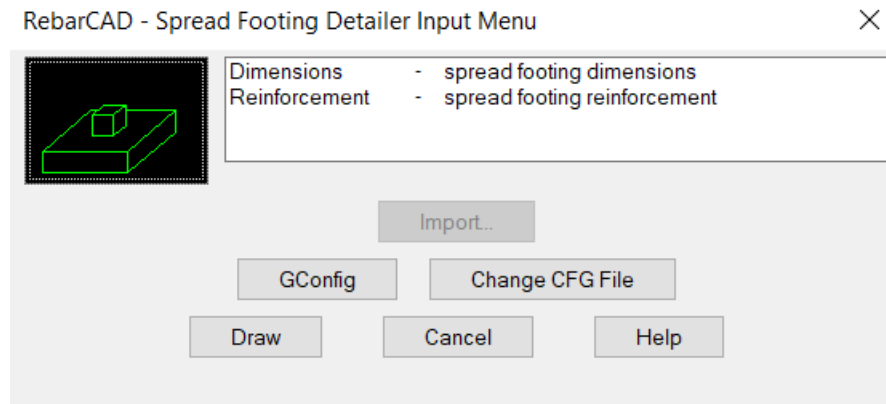
Figure 4.3 Spread Footing Detailer Dialog

4.4 Defining Spread Footings for Detailing

The Spread Footing Detailer requires three main data areas to be defined in order that the desired footing arrangement is produced. They consist of:

- ▶ Spread Footing Dimensions;
- ▶ Column Dimensions (optional);
- ▶ Reinforcement requirement.

4.4.1 Configuration File Selection

The Spread Footing Detailer Dialog, see Figure 4.3, 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 in Figure 4.4.

Currently the UK version of this software offers two default files CADS-

PFD.DEF and PFD_UK.DEF. The CADS-PFD.DEF is set-up for UK metric detailing and is automatically loaded when the Beam Detailer is used. The PFD_UK.DEF is identical to the CADS-PFD.DEF file.
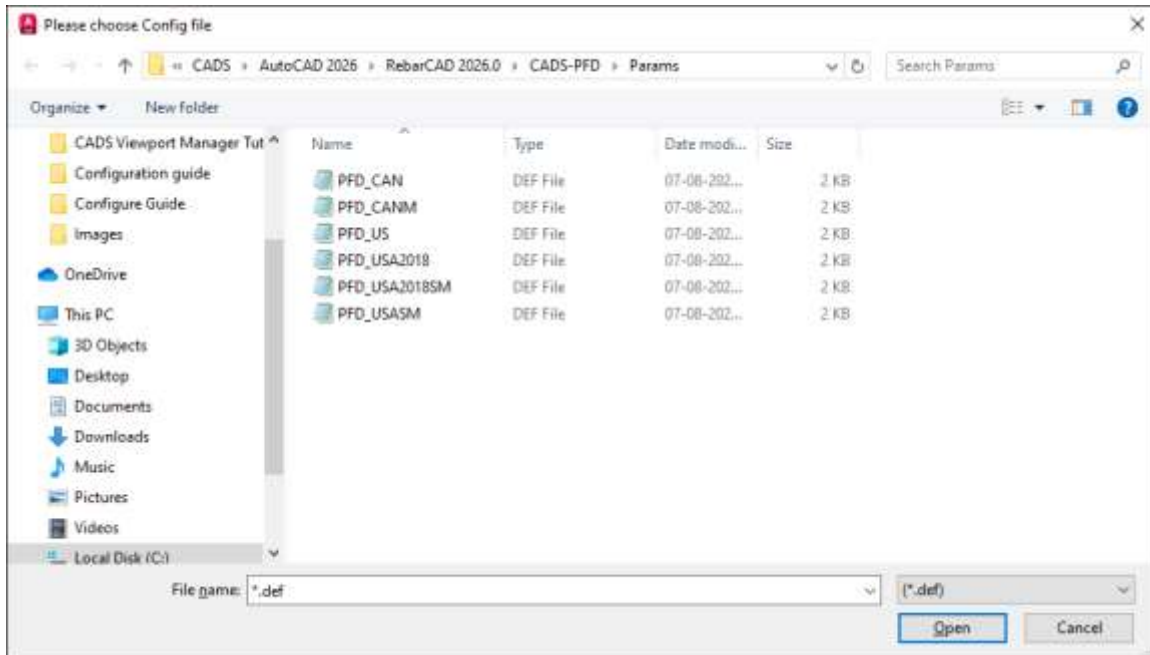
Figure 4.4 Default Spread Footing Configuration File Options

Should other configuration options be required, then please contact the CADS Support Department who will be pleased to advise accordingly.

4.5 Defining the Spread Footing Dimensions

Selecting the Dimensions option from the Spread Footing Detailer Input Menu dialog displays the Dimensions Input dialog where the footing and column dimensions are input.

Figure 4.5 Dimensions Input 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);
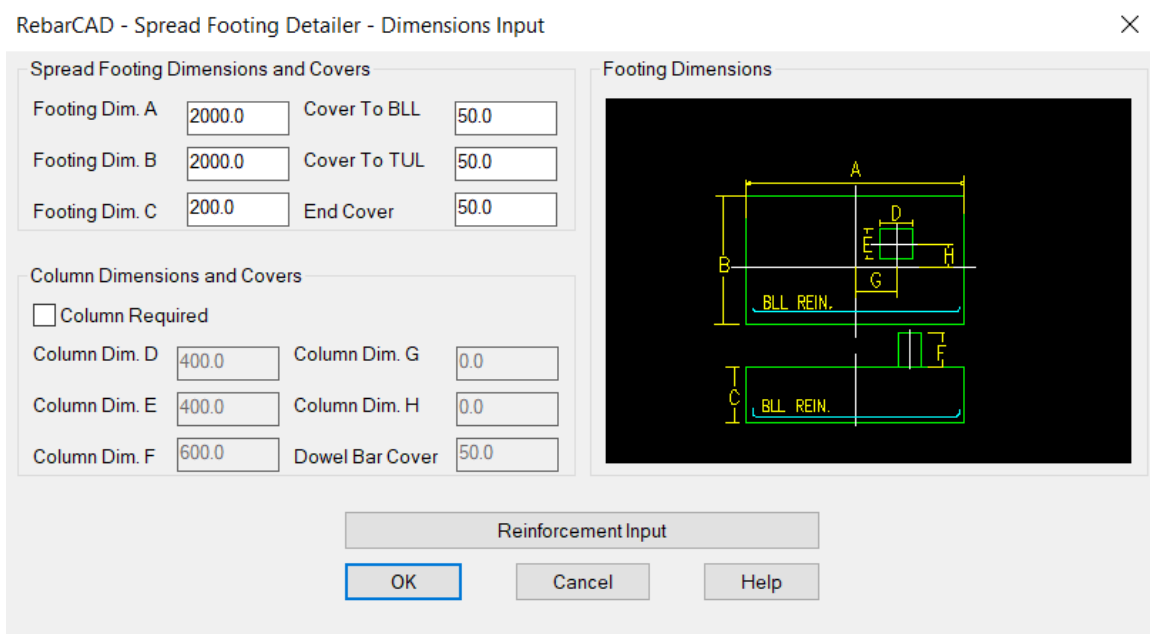
▶ Footing Dim. B - Overall footing dimension parallel with the bottom upper layer of reinforcement (BUL);

▶ 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.

If a column is required the Column Required check box needs to be activated which enables the column data to be input.

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 centre of the footing parallel with the bottom lower layer of reinforcement (BLL);

▶ Column Dim. H - Enter the column offset from the centre of the footing parallel with the bottom upper layer of reinforcement (BUL);

▶ Dowel Bar Cover - Enter the concrete cover to the column dowel bars.

4.6 Defining the 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.

Selecting the Reinforcement Input option displays the Reinforcement Input dialog where the required bar arrangements can be defined.

Figure 4.6 Reinforcement Input Dialog

Footing Reinforcement

The following Spread Footing Reinforcement General inputs are available:

▶ Top and Bottom Reinforcement - Activate this check box to detail top and bottom reinforcement in the footing;

▶ Bottom Reinforcement Only - Activate 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 shape code 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.

Column Dowel 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 Shape Code is set to a bent 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;
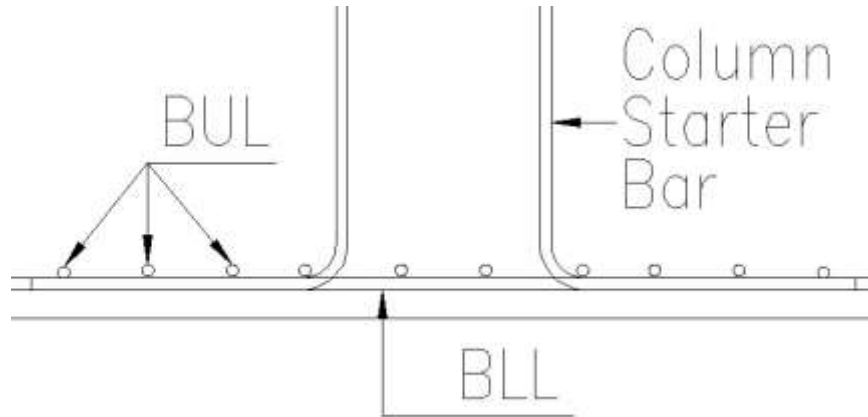
Figure 4.7 Column Dowel Hook detailed in BLL

▶ Dowel Hook Above BUL - Only available if the Column Shape Code is set to a bent shape code 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;
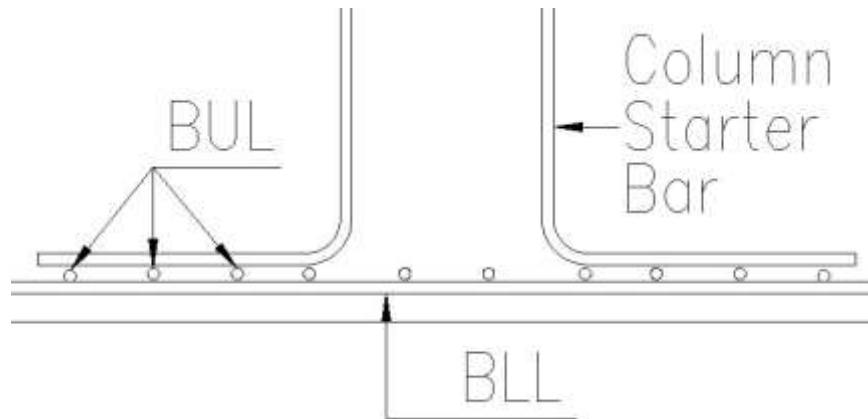
Figure 4.8 Column Dowel Hook detailed above BUL

▶ 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.

The following Column Dowel (Starter Bar) Reinforcement Detailed inputs are available:

▶ No. Dowels - Available if the Num/Spc check box is activated. 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 shape code (shape code 20). Enter the projection required into the footing from the footing top for the starter bars.

4.7 Drawing the Spread Footing Detail

When the required footing data has been entered the footing can be drawn by selecting the Draw button from the Spread 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.
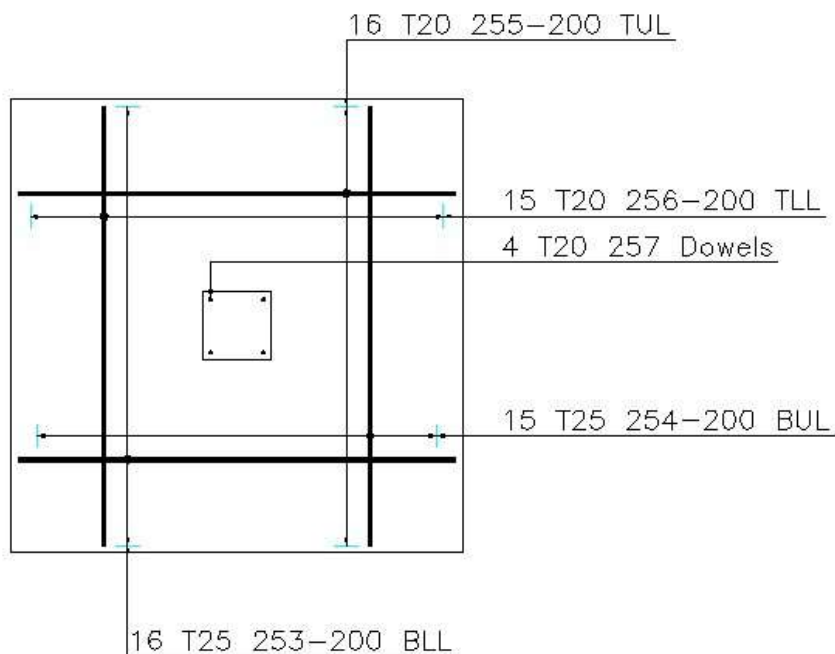
Figure 4.9 Typical Spread Footing Detail

4.8 CADS-PFD Global Configuration Centre

Setting		Value	Explanation
[DimensionInputData]	DimA	2000.0	Footing length dimension
	DimB	2000.0	Footing width dimension
	DimC	200.0	Footing depth dimension
	CoverToBLL	50.0	Cover to lower bottom layer of reinforcement
	CoverToTUL	50.0	Cover to top upper layer of reinforcement
	EndCover	50.0	Cover to ends of reinforcement
	ColumnRequired	0	Column required 0 = No, 1 = Yes
	DimD	400.0	Column length dimension
	DimE	400.0	Column width dimension
	DimF	600.0	Column kicker height dimension
	DimG	0.0	Offset column parallel to length from centre of footing
	DimH	0.0	Offset column parallel to width from centre of footing
	DowelBarCover	50.0	Cover to column main bars

Setting		Value	Explanation
[RebarInputData]	Grade	T	Grade of reinforcement
	TULType	20	Top upper layer shape code
	TULSize	20	Top upper layer bar diameter
	TULNotes	TUL	Top upper layer bar label notes
	TULSpacing	15.0	Top upper layer pitch
	TLLType	20	Top lower layer shape code
	TLLSize	20	Top lower layer bar diameter
	TLLNotes	TLL	Top lower layer bar label notes
	TLLSpacing	150	Top lower layer pitch
	BULType	20	Bottom upper layer shape code
	BULSize	20	Bottom upper layer bar diameter
	BULNotes	BUL	Bottom upper layer bar label notes
	BULSpacing	150.0	Bottom upper layer pitch
	BLLType	20	Bottom lower layer shape code
	BLLSize	20	Bottom lower layer bar diameter
	BLLNotes	BLL	Bottom lower layer notes
	BLLSpacing	150.0	Bottom lower layer pitch
	TopBtmReinfReq	0	Top and Bottom Reinforcement required switch

			0 = Off,
			1 = On
	BtmReinfOnlyReq	1	Bottom only reinforcement required switch
			0 = Off,
			1 = On
	FootPrefix		Main footing reinforcement bar mark prefix text
	BowelHookInBLL	0	Column main cage bar hook in bottom lower layer switch
			0 = Off,
			1 = On
	BowelHookAbvBUL	1	Column main cage bar hook in bottom upper layer switch
			0 = Off,
			1 = On
	ColumnPrefix		Column main cage bar mark prefix
	ColumnGrade	T	Column main cage bar grade
	ColumnNumber	4	Number of column main cage bars
	NumOfDowels	4	Number of starter bars
	DowelCCSpacing	50.0	Starter bar pitch
	ColumnSpacing	0.0	Column spacing
	NumSpcToggle	1	
	ColumnType	37	Starter bar shape code
	ColumnSize	20	Starter bar diameter
	ColumnNotes	Dowels	Starter bar label note
	DowelProjAbovFoot	1000.0	Starter bar projection above footing
	DowelProjIntoFoot	400.0	Starter bar projection into footing

	Setting	Value	Explanation
[Miscellaneous]	DCLFile	cads-pfd.dcl	CADS-PFN dialog control file

	Setting	Value	Explanation
[BarInfo]	StraightBar	20	Straight bar shape code
	HookBar	32	Hook bar shape code
	LegBar	34	Leg bar shape code
	StarterBar	37	Starter bar shape code
	StraightBarDim	A	Straight bar dimension letter
	HookBarDim	A	Hook bar dimension letter
	LegBarDim	A	Leg bar dimension letter
	StarterBarDim	B	Starter bar dimension letter
	StraightBarView	Plan	Straight bar, view to be drawn
	HookBarView	Plan	Hook bar, view to be drawn

LegBarView	Plan	Leg bar, view to be drawn
T1PlanDim	D	

	Setting	**Value**	**Explanation**
[Labelling]	LabelDistFactor	~mm~10.0	Bar Label offset distance from outline in plotted mm

—————————————————

5 Circular Bar Arrangement Detailer (CADS-CBA)

Chapter Objectives

CADS Circular Bar Arrangement Detailer 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.

5.1 Program Operating Environment

CADS-CBA Circular Bar Arrangement Detailer works in conjunction with CADS-RC and therefore requires AutoCAD and CADS-RC to be loaded and ready for use before the Circular Bar Arrangement Detailer can be used.

CADS-CBA uses the Dimscale variable to size its text to suit the plotted scale of the drawing regardless of whether you are working with Tilemode set to 1 or 0. Ensure that Dimscale is set to match the plotted scale of the detail.

If you have access to either the CADS-Drawing Environment or CADS-Scale software, use the Drawing Set-up Function 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 CADS-DE or CADS-SC User Guides.

5.2 Loading the Circular Bar Arrangement Detailer

The CADS-CBA Detailer is loaded by selecting the Outlines option from the CADS-RC pull down menu and then picking the Detailers option.

The CADS-RC Detailer Selection Menu Dialog, as shown in Figure 7.1, is then displayed on the screen. This dialog displays a list of the Detailers and Productivity Tools that have been installed on your computer.
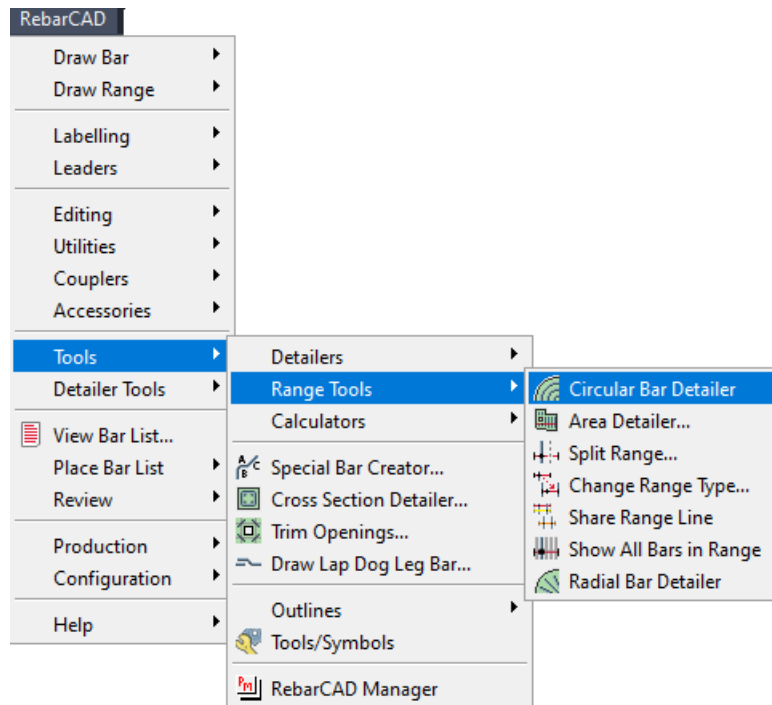
Figure 5.1 Detailer Selection Menu dialog

To load the Circular Bar Arrangement Detailer, highlight the line 'CADS-CBA Circular Bar Arrangement Detailer' and then pick the Load button. This will load the CADS-CBA Detailer ready for use.

5.3 Defining Circular Bar Arrangements for Detailing

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:

▶ Circular Bar Arrangement Size;

▶ Bar Information.

5.3.1 Allocating the CADS-CBA Detailer Member Title

When the Circular Bar Arrangement Detailer (CADS CBA) has been selected the Circular Bar Arrangement Input dialog is displayed, as shown in Figure 7.4.

To allocate the CADS-CBA to a Member Title select the Set Release Code button. This in turn displays the Member Title Selection 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. For further information on Member Titles refer to the RebarCAD User Guide.

Figure 5.2 Member Title Selection Menu Dialog

5.3.2 CADS-CBA Configuration File Selection

When the Circular Bar Arrangement Detailer is loaded the Circular Bar Arrangement Detailer Input dialog is displayed, as shown in Figure 7.4. 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 in Figure 7.3.

Currently the UK version of this software offers two default files CADSCBA.DEF and CBAUK.DEF. The CADS-CBA.DEF is set-up for UK metric detailing and is automatically loaded when the Beam Detailer is used. The CBAUK.DEF is identical to the CADS-CBA.DEF file.
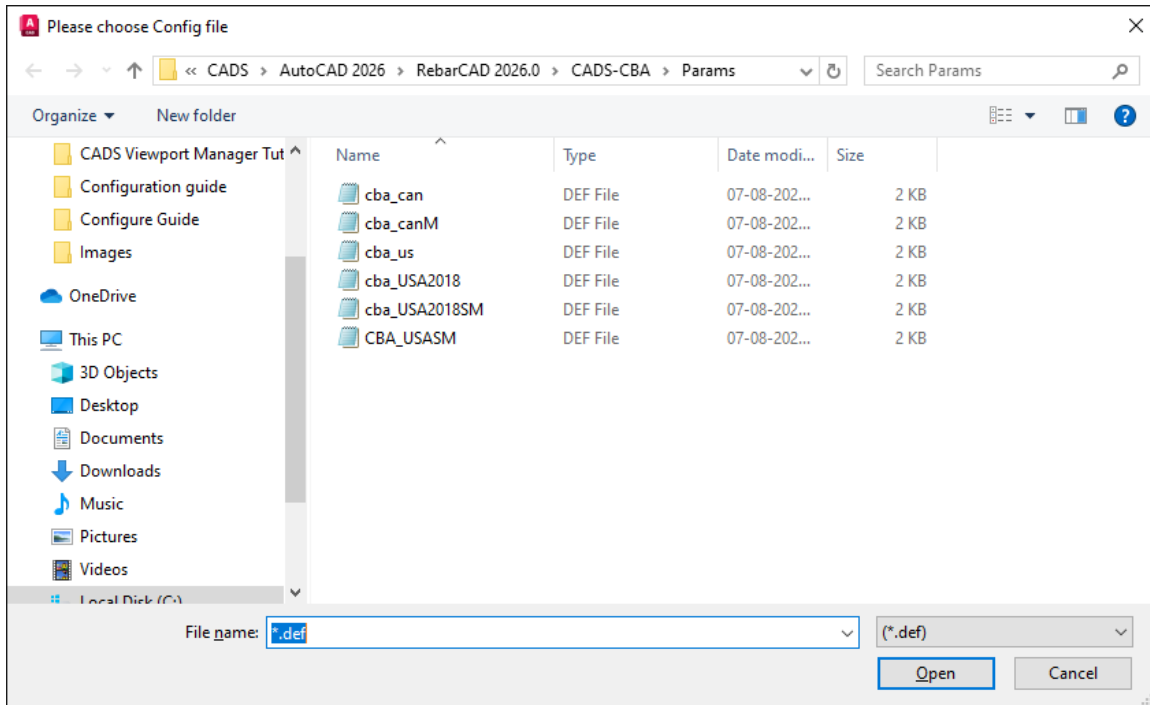
Figure 5.3 Default Circular Bar Arrangement Config File Options

Should other configuration options be required, then please contact the CADS Support department who will be pleased to advise accordingly.

5.3.3 Defining the Circular Bar Arrangement Geometry

The Circular Bar Arrangement Detailer Input dialog contains input options for defining the Circular Bar Arrangement geometry required for detailing.

The Circular Bar Arrangement Size is defined using the following geometry options:

▶ Outer Cover 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 Cover 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;

▶ C/C - 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 centre so the correct number of rings of reinforcement can be calculated;

▶ Total Rotation - 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.
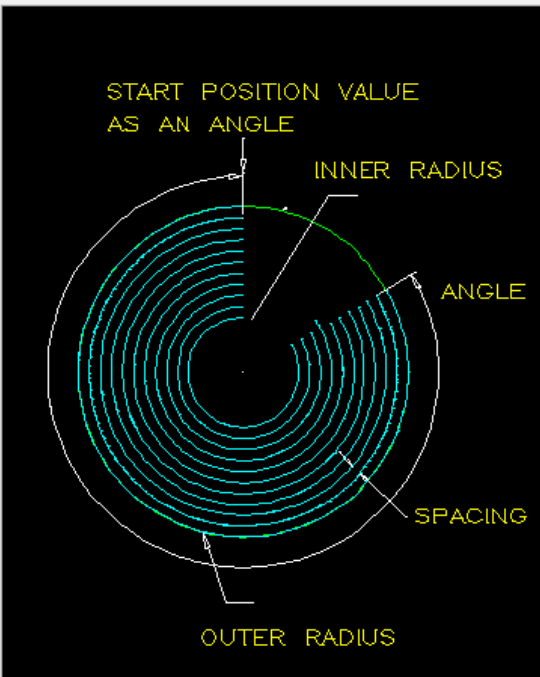
Figure 5.4 Circular Bar Arrangement Detailer Input dialog

5.3.4 Defining the Circular Bar Arrangements

The Bar 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;

- ▶ Bend Type - Select the bend type to be used for stock length radial bars. The Circular Bar Arrangement detailer supports bend type 65;

- ▶ Chord Dimension - Select the bend dimension representing the chord length of the bend type. Not supported on the UK version of this software;

- ▶ 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;

- ▶ Lap Length Required - Enter the lap length to be used for bars that require lapping;

- ▶ 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:

- ▶ If set to Run-out the closer bar will be detailed to the dimensions required to close the arrangement by lapping onto the last preferred/stock length bar making the bar shorter than the preferred/stock length;

- ▶ 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 then the preferred/stock length.

5.3.5 Miscellaneous Inputs

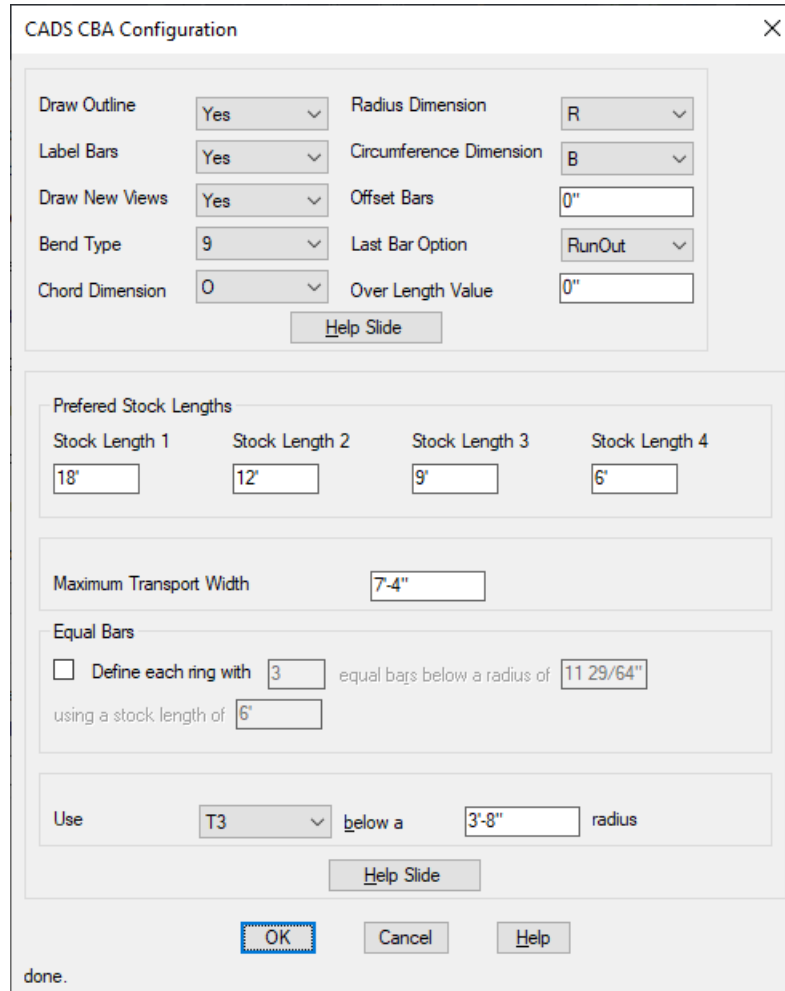The miscellaneous inputs available are as follows:

- ▶ 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 labelled as it is drawn;

- ▶ Draw New Views - 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;

- ▶ 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.

5.3.6 Preferred Stock Lengths

Selecting this button accesses the Transport / Stock Length dialog. The options available in this dialog are as follows:

- ▶ First Selected Stock Length - Enter you longest choice stock of bar length;

▶ Second Selected Stock Bar Length - Enter your second longest choice of stock bar length;

▶ Third Selected Stock Bar Length - Enter you third longest choice of stock bar length;

▶ Fourth Selected Stock Bar Length - Enter you 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 bent bars;

Figure 5.5 Stock Bar and Transport Data Dialog

5.4 Drawing the Circular Bar Arrangement Detail

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.

The Circular Bar Arrangement is drawn and its placement requested.
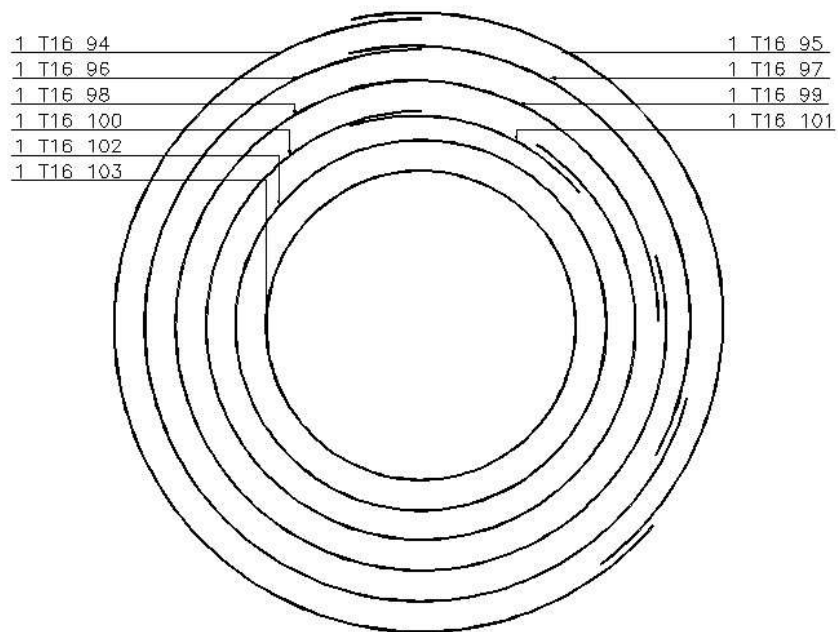
Figure 5.6 Typical Circular Bar Arrangement Detailer output

Three label groups are used when labelling is on:

▶ Top Left Labels - Labels for the stock bars in each reinforcement ring listed outer ring at the top and innermost ring at the bottom;

▶ Top Right Labels - Labels for the run-out bars in each reinforcement ring listed outer ring at the top and innermost ring at the bottom.

5.5 CADS-CBA Global Configuration Centre

	Setting	Value	Explanation
[InputData]	Radius	9000.0	Outer cover radius
	InnerRadius	4000.0	Inner cover radius
	Cc	250.0	Bar pitch
	Slope	0.0	Slope of circular bar arrangement
	Angle	360.0	Angle of circle to be reinforced
	Multi	1	Bar multiplier
	Grade	T	Reinforcement grade
	Size	10	Bar diameter
	StockLength	12000.0	Longest bar length
	StockLength2	9000.0	Second longest bar length
	StockLength3	6000.0	Third longest bar length
	StockLength4	3000.0	Fourth longest bar length
	LapLength	450.0	Default lap distance
	OffsetBars	0.0	Distance to offset lapped bars
	LastBarOption	RunOut	Last bar options; runout or overlength
	Prefix		Bar mark prefix
	LabelNotes		Bar Label default notes

	Setting	Value	Explanation
[InputData]	DrawOutline	Yes	Draw circular outline, Yes / No option
	LabelBars	Yes	Label bars Yes / No option
	MinRadiusForCircularShape	1200.0	Minimum
	DrawNewViews	Yes	Start extra bar lap distance
	StartExtraLap	0.0	End extra bar lap
	EndExtraLap	0.0	Reinforcement start angle
	StartPosition	90.0	Draw circular outline, Yes / No option

	Setting	Value	Explanation
[Miscellaneous]	DCLFile	cba_us.dcl	CADS-CBA dialog control file

	Setting	Value	Explanation
[BarInfo]	ArcBendType	65	Radius bar shape code
	ChordDim		Chord dimension letter, not UK
	RadiusDim	E	Radius dimension letter
	CircumferenceDim	A	Circumference dimension letter
	RdimtoWhatFace	Inner	Radius to which face of bar
	CircularHookDim1		
	CircularHookDim2		
	CircularLapDim		
	CircularShape	9904	Circular bar shape code
	CircularShapeDim	A	Circular bar dimension letter
	CircularShapeDimFact	2.0	
	PolarCircRad	No	

	Setting	Value	Explanation
[Labelling]	LabelDistFactor	~mm~10.0	Distance of bar labels from outline

_____

Customer Enquiry Fax Sheet

To: CADS Ltd.	**Fax: +44(0) 1202 690284**
Number of sheets	**(inclusive)**

From:

Name:	**Company:**
Phone:	**Fax:**

CADS Application:	**Version:**
Processor type and speed:	**Memory size:**
Hard disk size:	**Operating system:**

Other applications running:

Details of the enquiry:

CADS Address Details

If you would like to contact CADS, please do so on the following:

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Email (Support)	:	support@cads.co.uk
Website	:	www.cads.co.uk