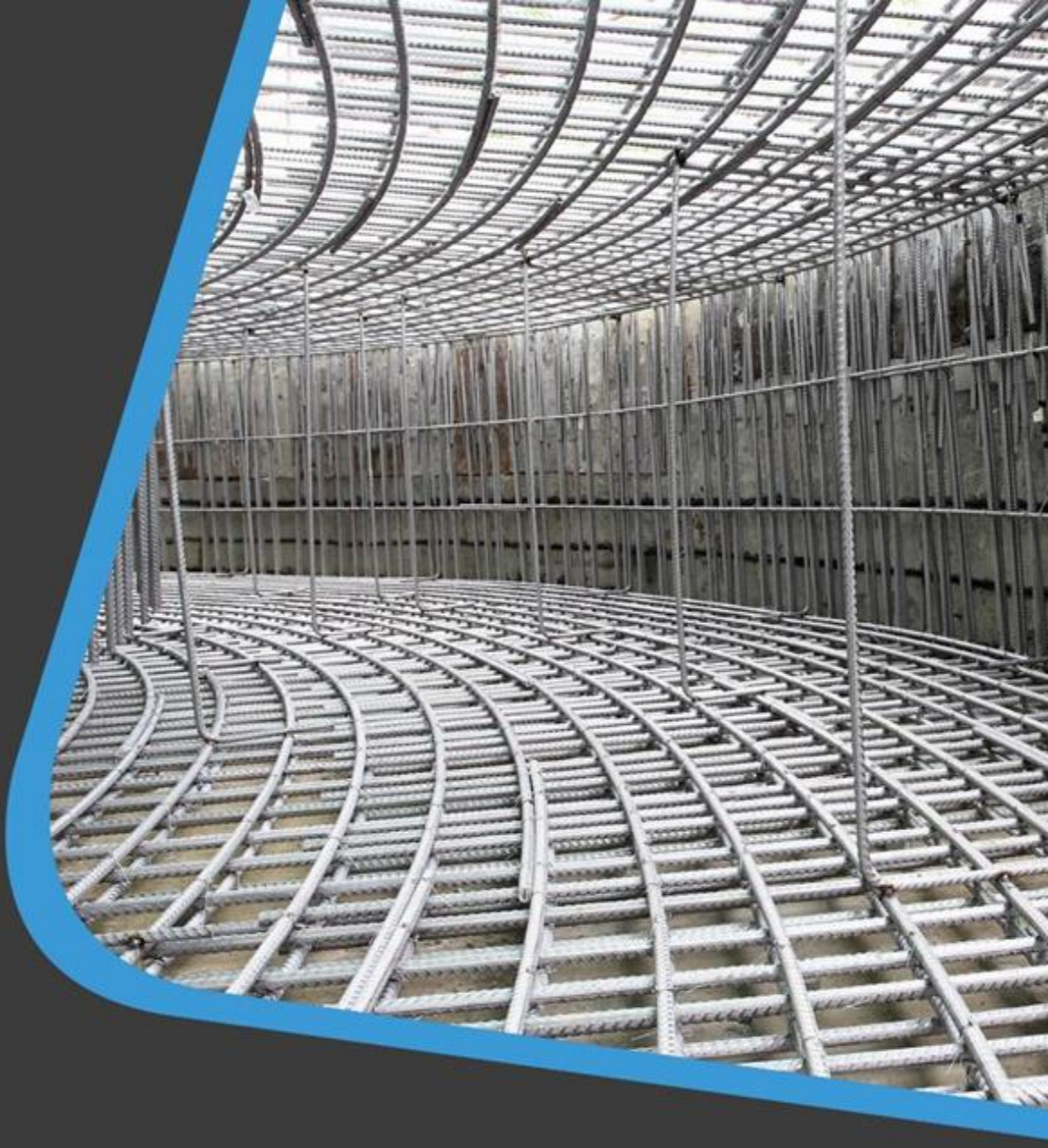

CADS RC
User Guide

CADS
GLOBAL CONSTRUCTION
SOFTWARE AND SERVICES

AUTODESK
Authorised Developer

Microsoft
Partner

CADS RC

VERSION 2026.0

USER GUIDE

Program version	:	2026.0
User Guide Issue	:	**6**
DATE OF ISSUE	:	October 2025

Upgrade Note Records

For future reference, please record the details of Upgrade Notes as you receive them in the table below:

Upgrade Note No.	Date Received	Received by

CADS RC

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Computer and Design Services Ltd.,
Arrowsmith Court,
Broadstone,
Dorset,
BH18 8AX,
UK

UK (Sales) : +44 (0) 1202 603031
UK (Support) : +44 (0) 1202 603733
UK (Fax) : +44 (0) 1202 690284
UK Email (Sales) : sales@cads.co.uk
UK Email (Support): support@cads.co.uk
UK Website : http://www.cads.co.uk

Contact Details for North America:

TOLL FREE (Sales) : 800-470-4566
TOLL FREE (Support) : 800-609-7916
(9am - 5pm USA East Coast Time)
TOLL FREE (Fax) : 800-511-4566
Email (Sales/Business) : office@cadsusa.com
Email (Support) : support@cads.co.uk
Website : www.cadsusa.com

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Contents

1 Introduction

Chapter Objectives

This chapter provides an overview of CADS RC 2026.0 for AutoCAD 2026 & Architectural Desktop 2026.

1.1 Overview

CADS RC is a program designed to make detailing and listing of reinforcement within the AutoCAD environment accurate and cost effective.

This version of the program has been designed specifically to run under AutoCAD 2026 & Architectural Desktop 2026 for Windows 10 & 11 and makes full use of the many features it offers. Some of the key features that CADS RC provides include the following:

- Support of standard and non-standard shape codes to the ACI Detailing Manual 1994, CRSI Manual of Standard Practice 1998 and the RSIC Manual OF Standard Practice 1995;
- Support for detailing to inch/pound, soft metric and hard metric systems;
- Extensive special shape code support;
- Extensive bar range types including tapered, staggered and alternate, with corresponding bar run types;
- Extensive bar editing facilities, including bar stretching (with automatic lapping if bar exceeds stock length) and editing via dialog boxes. Double clicking on bar invokes bar property dialog;
- Group Layering Option allowing user-definable layers for all CADS RC items along with the facility to place rebar on specific layer groups as they are detailed;
- Rebar library for storing standard reinforcement details which can be imported into drawings with automatic bar renumbering as required. Program uses AutoCAD's MDI feature and Design centre extensively for RC entities, i.e Drag and Drop, Copy and Paste etc work across drawings and from Design Centre;
- Label and bar mark format options to allow bar labels to be modified to suit user requirements. Masking of Label is possible.
- Active Schedule displayed via a dialog is available at all times;
- Schedule outputs can be customised to individual requirements;
- Full schedule and Bent Schedule on Drawing options with special shape code support.
- Schedule data can be output in data form to integrate with rebar fabricator production software applications;
- Bar weight printout facility;

- Partial Take-Off facility.

Commands can be selected from the CADS RC pop-down menu, toolbar or entered at the AutoCAD command line.

Although CADS RC can run stand-alone, it has been designed to integrate fully with other CADS Detailing Applications such as CADS Scale & CADS Viewport Manager to provide a complete detailing environment within AutoCAD.

This manual is intended to guide you through the program's features and show where you would use them.

Our CADS UK Technical Support Department staff will be pleased to help you or listen to your suggestions.

Computer and Design Services Ltd.,
Arrowsmith Court,
Broadstone,
Dorset,
BH18 8AX,
UK

UK (Sales) : +44 (0) 1202 603031
UK (Support) : +44 (0) 1202 603733
UK (Fax) : +44 (0) 1202 690284
UK Email (Sales) : sales@cads.co.uk
UK Email (Support): support@cads.co.uk
UK Website : http://www.cads.co.uk

Contact Details for North America:

TOLL FREE (Sales) : 800-470-4566
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(9am - 5pm USA East Coast Time)
TOLL FREE (Fax) : 800-511-4566
Email (Sales/Business) : office@cadsusa.com
Email (Support) : support@cads.co.uk
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1.2 Installation

For installation procedures, please click the "Help & tutorials" link available on the Installer page, and then select the "Installer Guide" link.

2 Bar Organisation

Chapter Objectives

This chapter explains bar organisation in CADS RC.

When detailing reinforced concrete using CADS RC there are two main points to consider as you develop the drawing:

1. Using the correct commands to indicate the required rebar arrangement on the drawing.
2. Controlling the input of data to the Schedule.

2.1 Drawing Bars

The drawing of bar bends is obviously an important part of CADS RC and this is covered in greater detail in the tutorial examples in Appendixes A and B. This section will give a general idea of the intended use of the most commonly used commands.

There are 2 basic commands within the CADS RC pop-down menu for drawing bars: DRAW BAR and DRAW RANGE.

2.1.1 Draw Bar

The DRAW BAR commands allows you to draw a single view of a bar. For example, consider the section and elevation of a retaining wall shown in Figure 2.1. To draw the shape code 17 in the top of the wall section, you would use a DRAW BAR command as you are only drawing a single view of the bar.

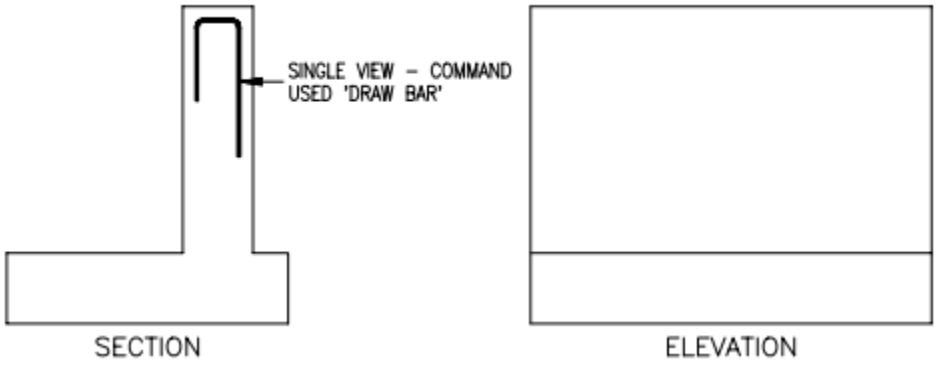


Figure 2.1 Draw Bar Command

2.1.2 Draw Range

The DRAW RANGE commands allow you to draw a BAR RANGE or a BAR RUN as shown in Figure 2.2.

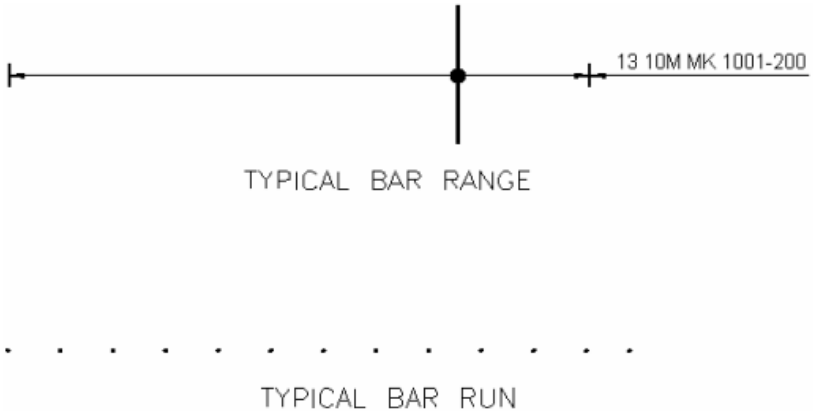


Figure 2.2 Bar Range and Bar Run Drawing

For example, consider again the section and elevation of a retaining wall shown in Figure 2.3. If you wished to show the shape code 17 already detailed on the section again on the elevation, you would use a DRAW RANGE command. This would allow you to draw the required view of the bar (known in CADS RC as an indicator bar) and to specify the start and end of the range line to indicate where the bar occurs.

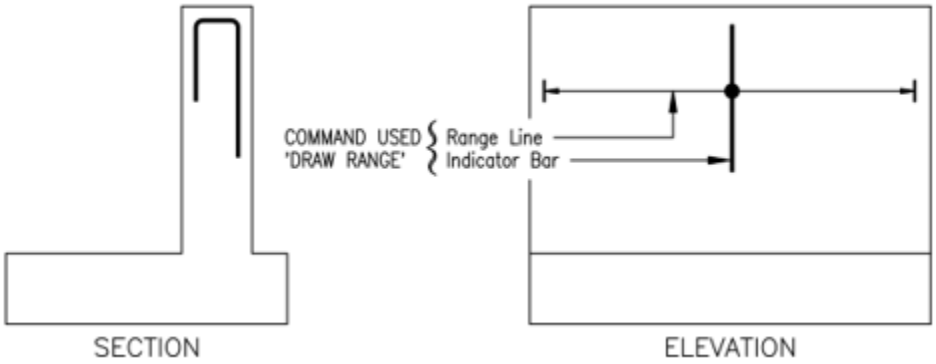


Figure 2.3 Draw Range Command

2.2 The Bar Set

Each view of a drawn bar forms part of a bar set. A bar set would normally consist of a number of views of the bar to show its location in the structure and a label giving No. off, Type, Size etc. Each bar set also has a corresponding line in the Schedule. For example, take the shape code 17 in the retaining wall in Figure 2.4.

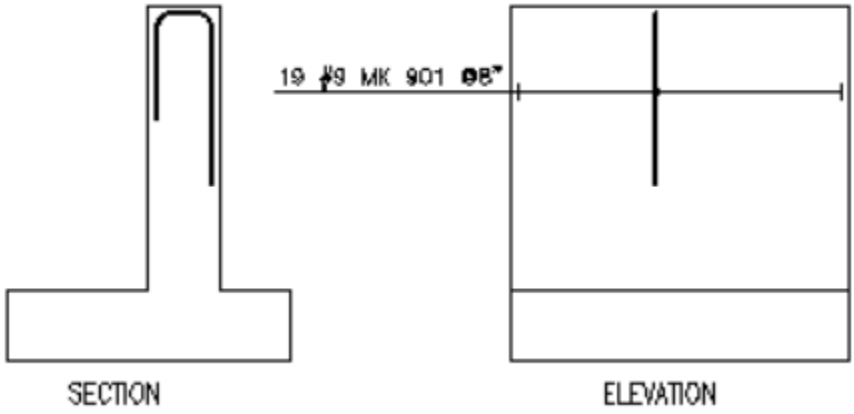


Figure 2.4 Bar Set

The shape code shape code 17 is drawn on the section. It is also drawn on the elevation in the form of a range and a bar label is shown. These 3 'views' form the bar set, which also has a corresponding line in the Schedule.

NOTE: Only one Bar Label is allowed per Bar Set.

2.3 Marks, Views & Sets

Both the 'DRAW BAR' and 'DRAW RANGE' commands are used in conjunction with either of the following sub commands: -

a) NEW MARK

b) Add View

c) NEW SET

These 3 sub commands control the input of data to the Schedule.

As a drawing is developed, it is quite common to show the same bar in different views on the drawing. If each time one of these views were drawn, additional bars were added to the Schedule, obviously there would be too many bars in the Schedule on completion of the drawing. Therefore, commands are required to draw bars in different bar views and 'ADD NEW LINE TO THE SCHEDULE' or 'UPDATE EXISTING LINE'. This is achieved by the correct use of the NEW MARK, Add View and NEW SET options.

2.3.1 New Mark

This instructs CADS RC that the bar view to be drawn is the first of a NEW BAR
SET and allocates the set a New Bar Mark. This will also add a new line to the Schedule for this bar set.

2.3.2 Add View

This instructs CADS RC that the bar view to be drawn is another view of an existing BAR SET already on the drawing. This will not add a new line to the Schedule but may update the line already present in the Schedule for this bar set.

2.3.3 New Set

This instructs CADS RC that the bar view to be drawn is the first of a NEW BAR SET but uses a Bar Mark already in use. (i.e. 2 identical sets of bars with the same Bar Mark). This will also add a new line to the Schedule for this bar set.

NOTE: A number of lines in the Schedule with the same Bar Mark can be combined into 1 line showing the total number of bars if required.

2.4 Bar Views

Most shape codes have a minimum of 4 bar views available for drawing. These are typically SIDE, LEFT, RIGHT & PLAN. The shape code 17 shown in Figure 2.5 is a good example to indicate the views produced by side, left, right & plan options (see also Appendixes A and B).

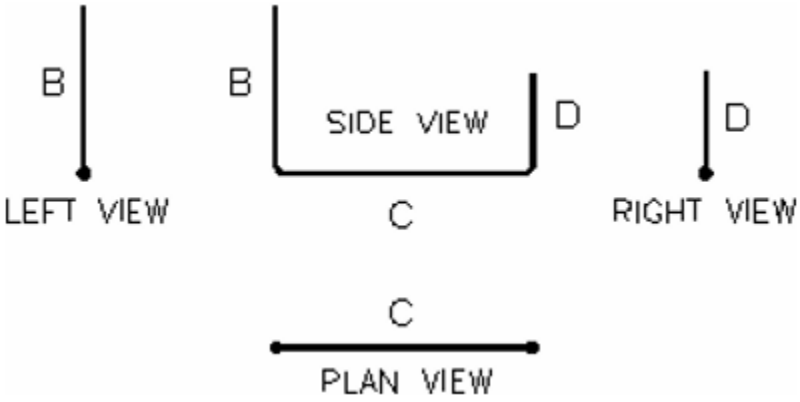


Figure 2.5 Shape code 17

2.4.1 Side View

The SIDE view of a shape code 17 draws the full shape code. The start point (or insertion point) is the intersection of leg B & C and is indicated by a white dot on the bar slide. The bar can be drawn at any angle or orientation required.

2.4.2 Left View

The LEFT view of a shape code 17 will ALWAYS draw LEG B. The start point (or insertion point) is the end indicating leg C as a dot.

2.4.3 Right View

The RIGHT view of a shape code 17 will ALWAYS draw LEG D. The start point (or insertion point) is the end indicating leg C as a dot.

2.4.4 Plan View

The PLAN view of a shape code 17 will ALWAYS draw LEG C. The start point (or insertion point) is the end indicating leg B as a dot.

2.5 Bar Alignments

Bars can be drawn by defining either the OUTER FACE, the INNER FACE or the CENTRE LINE of the bar (see also Appendix A).

2.5.1 Outer Alignment

If the bar drawing alignment is set to OUTER, then the dimensions are defined whilst drawing to the outer face of the bar is to be defined.

2.5.2 Inner Alignment

If the bar drawing alignment is set to INNER, then the dimensions are defined whilst drawing to the inner face of the bar is to be defined.

2.5.3 Centre Alignment

If the bar drawing alignment is set to CENTRE, then the dimensions are defined whilst drawing to the centre line of the bar is to be defined.

NOTE - No matter what alignment is used to generate a bar, the bar dimensions shown in the Schedule will be 'out to out' except A or G on standard 180-deg and 135-deg hooks, e.g. the inner face of a shape code T1 may be defined on the drawing but its overall dimensions will be shown in the Schedule.

2.6 Bar Styles

Bars can be drawn in two styles to cater for detailing at different scales etc. (see also Appendix A1).

2.6.1 Centre Style

This will draw the centre line only of the bar on a layer in a colour specified by the user in the configuration.

2.6.2 Profile Style

This will draw the full profile of the bar on a layer in a colour specified by the user in the configuration.

NOTE - A drawing can have a combination of bar styles and bars can be changed from one style to another using the CADS RC CHANGE BAR STYLE command.

2.7 Release Codes

Bar Sets can be allocated to Release Codes. This allows grouping together or separation of bar sets in the Schedule. For example, a drawing may consist of reinforcement details for two stairs. It may be necessary to allocate the reinforcement to Release Codes so that they can be identified in the Schedule. The allocation of bar sets to release codes allows CADS RC to process the Bar

List this way. It also allows the same bar mark to be used in different Release Codes but as CADS RC will not combine bars allocated to different release codes in the Schedule, the bar sets will be shown separately under their respective release codes.

(See also Chapter 5 - Set Release Codes)

2.8 Bar Manipulation

2.8.1 Erase

If you select an RC entity when using AutoCAD's erase command, you will be presented with this dialog.

Selecting Erase Bar View will erase only the drawing details that you have selected. The bar will remain in the Schedule.

If you select Erase Bar Set, then not only will your selected entities be removed, but also the bar details in the schedule and all other occurrences of that bar set in the drawing.

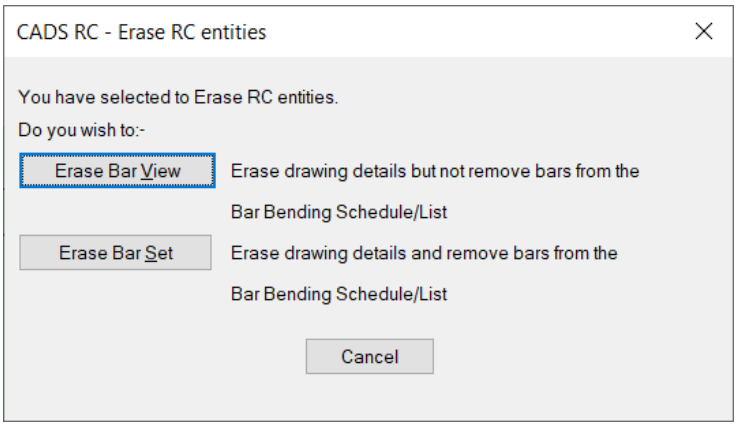


Figure 2.6 Erase RC entities dialog

2.8.2 Copy

If you select an RC entity when using AutoCAD's copy command, you will be presented with this dialog.

Selecting Copy Bar View will copy only the drawing details that you have selected. No bars will be added to the schedule.

If you select Copy Bar Set, then a new line will be added to the schedule.

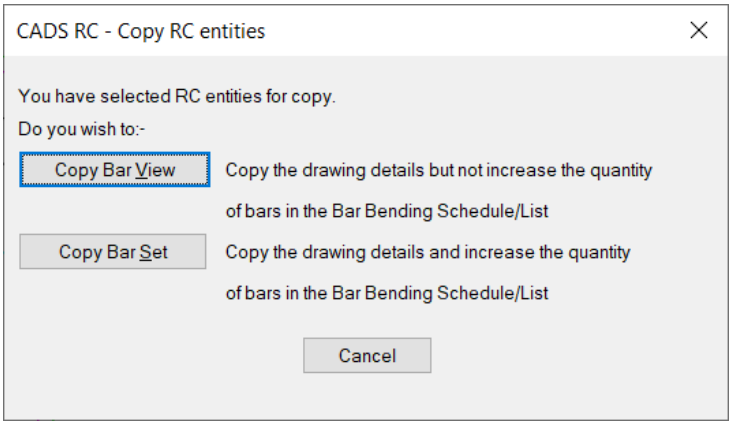


Figure 2.7 Copy RC entities dialog

2.8.3 Mirror

If you select an RC entity when using AutoCAD's mirror command, you will be presented with this dialog. Selecting Mirror Bar View will mirror only the drawing details that you have selected. No bars will be added to the schedule.

If you select Mirror Bar Set, then a new line will be added to the schedule.

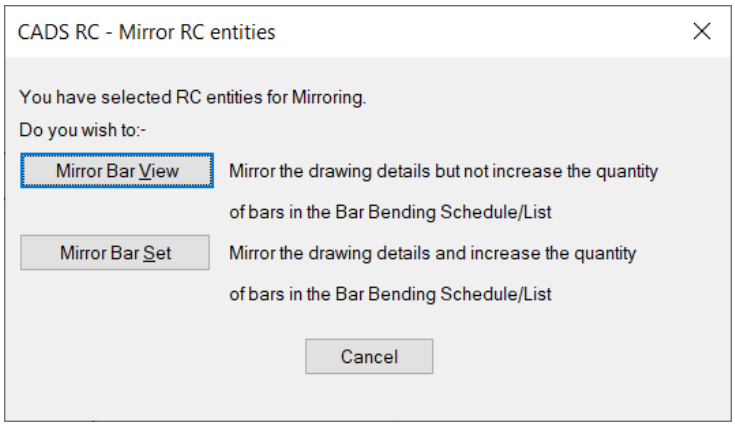


Figure 2.8 Mirror RC entities dialog

2.8.4 Array

If you select an RC entity when using AutoCAD's array command, you will be presented with this dialog. Selecting Copy Bar View will array only the drawing details that you have selected. No bars will be added to the schedule.

If you select Copy Bar Set, then a new line will be added to the schedule.

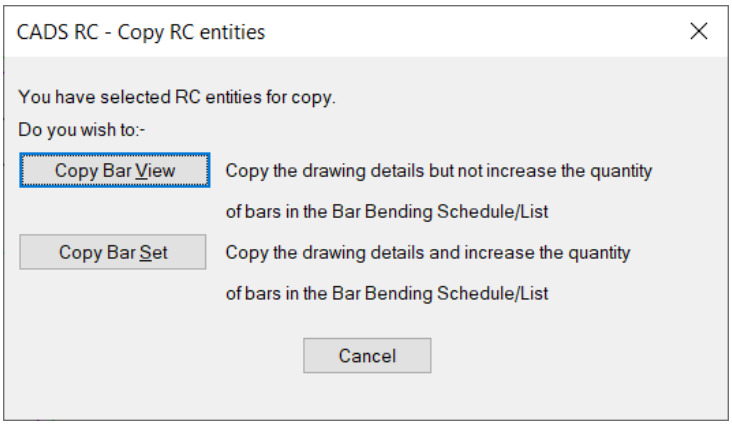


Figure 2.9 Array RC entities dialog

3 Bar Drawing

Chapter Objectives

This chapter describes the tools for bar drawing which are to be found in the CADS RC pull-down menu in the DRAW BAR and the DRAW RANGE submenu bars.

3.1 Bar Drawing Dialog

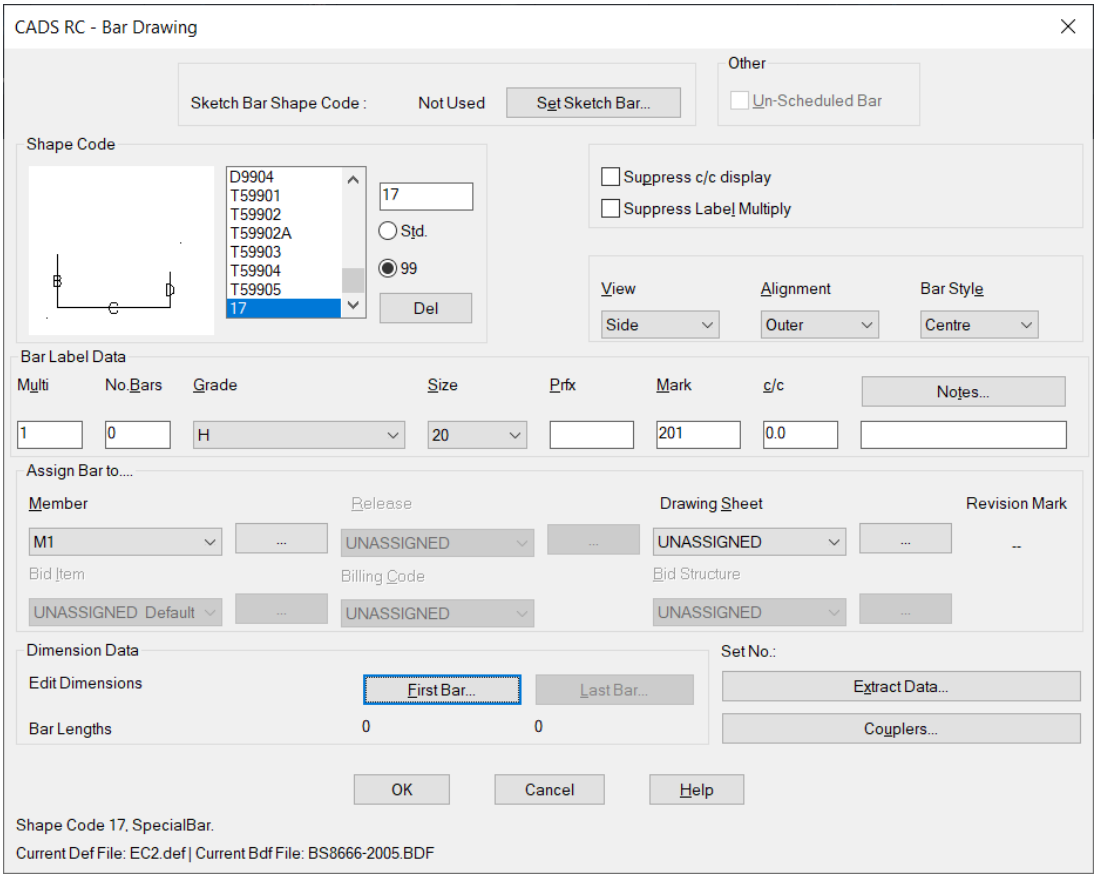


Figure 4.1 The Bar Drawing Dialog

The Bar Drawing dialog is the main tool for the selection and input of bending dimensions /data within CADS RC. There are 3 main ways of inputting bending dimensions /data: -

1. Drawing the required shape code on the drawing.
2. Extracting some or all of the bending dimensions /data from another bar.
3. Inputting all or some of the bending dimensions /data within the Bar Drawing dialog.

A combination of the 3 options may also be used. The options available within the Bar Drawing dialog are as follows:

3.1.1 Shape code

The shape code currently selected is displayed in three ways, a slide showing the shape code, a scrolling list beside it giving the shape code reference and an input field beside it. To select another shape code, either activate the scrolling list and pick the required shape code reference or enter the required shape code reference in the input field and pick the Std button below. If a shape code with that reference exists, it will be selected. If no shape code with that reference exists, you will be asked if you wish to create a shape code with that reference using the Special shape code option. The slide will update to show the shape code selected. The order in which the available shape codes appear in the scrolling list can be altered. If you wish to alter the shape code order, please contact CADS Technical Support Department.

3.1.2 Un-scheduled Bar

If activated by picking the box to display a tick in it, the bar drawn will not be added to the Schedule. New views of this bar can be drawn, including range views, but these will also not be added to the Schedule. If when drawing an Add View or NEW SET of an existing un-scheduled bar the Un-scheduled Bar option is activated, then the drawn bar is created as a un-scheduled New Bar Set with no effect on the existing bar set.

3.1.3 View

This specifies the bar view required, there are typically 4 options: -

1. Side
2. Plan
3. Left
4. Right

The Bar View is selected via the pop-up list. Plan, Left and Right views will display a slide indicating the bar leg which this view draws. For more information on Bar Views, see Chapter 2 and Appendix A1. Once you have exited the Bar Drawing dialog, there is still the option to change the Bar View from the side menu before you start to draw the bar.

3.1.4 Alignment

This specifies the bar Alignment required, there are 3 options: -

1. Outer - outer face of the bar is to be defined.
2. Centre - centre line of the bar is to be defined.
3. Inner - inner face of the bar is to be specified.

The Bar Alignment is selected via the pop-up list. For more information on Bar Alignments, see Chapter 2 and Appendix A1. Once you exit the Bar Drawing dialog, there is still an option to change the Bar Alignment from the side menu before you start to draw the bar.

3.1.5 Bar Style

This controls the style in which CADS RC will draw the bar, there are 2 options: -

1. Centre - The centre line of the bar will be drawn.
2. Profile - The full bar profile will be drawn.

If a bar run is being drawn, then 'centre' will draw the run as solid dots. If it is set to 'profile', then the dots will be drawn as hollow circles. For more information on Bar Styles, see Chapter 2 and Appendix A1.

3.1.6 Bar Label Data

This consists of 8 fields which, amongst other things, assist in calculating the number of bars required and pass data to the Schedule. The fields are as follows: -

Multi.

This is a label multiplier.

If a value of 1 is input, then the label will show, for example, 10 601 giving a No. of bars of 10 in the Schedule.

If a value of 3 is entered in the Multi. field, the label will show 3x10 601, giving a No. of bars of 30 in the Schedule. (See also 'Suppress Label Multiply' later in this section).

The label multiplier also allows invisible multipliers in the bar label. It's objective is to multiply the no. of bars in the bar label for scheduling purposes. This is achieved by entering multipliers in the form 1*2, the outcome of applying multipliers in this format is shown in Figure 4.2 below.

Multi Input	Bar Drawing dialog No. Bars	No. bars in bar label with suppress label multi NO	No. bars in bar label with suppress label multi Yes	No. bars in the Schedule
1	10	10 601	10 601	10
1*2	10	10 601	10 601	20
2	10	2x10 601	20 601	20
2*2	10	2x10 601	20 601	40

Figure 4.2 Label Multiplier Affects

No. Bars

The number of bars required can be input in this field. If left at 0, these will be calculated when a range view is drawn or input at a later date using dialog edit. If the number of bars has not yet been determined, the label will be shown in the form? 601.

Type

This specifies the grade of reinforcement for the bar. The required grade is selected from the pop-down list. (See also Appendix D - Support Files).

Size

The required bar size is selected from the options available in the pop-down list. (See also Chapter 8 - Enquiry).

Prfx

This input can be used to add an alphanumeric prefix to the bar mark. This will be applied to subsequent bar marks.

If, for instance, bar mark 03 was offered as default, entering AA in the Prfx. field would give a bar mark of AA03. The next new bar mark offered would be mark AA04 with AA entered automatically in the Prfx. field.

Changing the Prfx. option would apply the new prfx. to the current and subsequent bar marks.

Mark

The bar mark offered as default is the next highest available. If bar marking is configured to prefix with bar size, the next highest available is offered for the current bar size setting. Other bar marks can be entered. If an entered bar mark is already in use, a warning is given and the previously entered mark is restored. (See also Chapter 8 – Enquiry).

NOTE:

Although CADS RC allows bar marks to consist of up to 30 characters, certain output file formats only support up to 6 character bar marks.

c/c

This is the bar centres input used in range views to calculate the number of bars required. The bar centres, if left at 0, are asked for when doing a range view. (See also 'Suppress c/c display' later in this section).

Notes

Notes can be added to the label by picking on the Notes field and typing in the required note or by picking on the Notes Button and selecting a note from the list. (This list can be added to by the user. See Chapter 8 - Label Configuration).

3.1.7 Set Release Code

Picking the Set Release Code button accesses the Release Code Selection dialog. To allocate the bar to a release code, pick the required release code from the list and exit the dialog using the OK button. Whilst inside the release code dialog, release codes can be created, edited, made current etc. (See also Chapter 5 – Labelling - Set Release Code).

3.1.8 Extract Data

Accesses the Extract Bar Data dialog where various bar data can be extracted from another bar. The Extract Bar Data dialog can be accessed again, if required, to extract other bar data from a different bar.

3.1.9 Dimension Data

The First and Last bar buttons allow access to the bar dimension dialog where bar dimensions may be entered prior to drawing the bar view. The Last bar option is only available when drawing tapered ranges to allow dimension data for the first and last bar to be entered.

3.1.10 Set Sketch Bar

This accesses the Sketch Bar Selection dialog where a sketch bar view can be activated. If activated, the Bar Drawing Dialog Sketch shape code prompt is changed from Not Used to display the shape code of the sketch bar view. This option allows the bar view drawn to be of a different shape code than that which is specified in the bar drawing dialog and Schedule for the bar set.

3.1.11 Suppress c/c Display

If activated by picking the box to display an ‘X’, a label previously displayed 10 601-8” will then display 10 601 and vice versa, i.e. the label c/c are removed or reinstated to the label.

3.1.12 Suppress Label Multiply

If activated by picking the box to display an 'X', a label previously displayed
3x10 601 will then display 30 601 and vice versa. (See also 3.1.6 Multi.)

3.1.13 Current Release Code

Displays the Release Code to which this bar set is to be allocated.

3.1.14 Set No.

This is the number used by CADS RC to index sets in the Schedule. As this number is unique to individual sets, it can be used to manipulate the data. It cannot be altered by the user.

3.1.15 Couplers

This allows the attachment of couplers to the bar being drawn. For more information on coupler attachment, see the chapter entitled “Couplers”.

3.2 Draw Bar Command

The DRAW BAR commands allows the user to draw a single view of a bar. Off the DRAW BAR menu bar the following options are available:

3.2.1 New Mark

Menu Option Draw Bar -> New Mark

Command Line cads_rc_bars, press enter, M, press enter

Tool Bar 

Instructs CADS RC that the bar view to be drawn is the first of a NEW BAR SET and allocates the set a New Bar Mark. This will also add a new line in the Schedule for this BAR SET.

3.2.2 Add View

Menu Option Draw Bar -> New View

Command Line cads_rc_bars, press enter, V, press enter

Tool Bar 

Instructs CADS RC that the bar view to be drawn is another view of a picked BAR SET already on the drawing. This will not add a new line in the Schedule but may update the line already present in the Schedule for this BAR SET.

3.2.3 New Set

Menu Option Draw Bar -> New Set

Command Line cads_rc_bars, press enter, S, press enter

Tool Bar 

Instructs CADS RC that the bar view to be drawn is the first of a NEW BAR SET but uses a Bar Mark already in use. (i.e. 2 sets of bars with the same Bar Mark) This will also add a new line in the Schedule for this BAR SET.

Note: A number of lines in the Schedule with the same Bar Mark can be combined into 1 line showing the total number of bars if required.

3.3 Range Drawing

3.3.1 Range Options

CADS RC provides a number of range types for use on different structure types. The range types available are as shown in Figure 4.3.

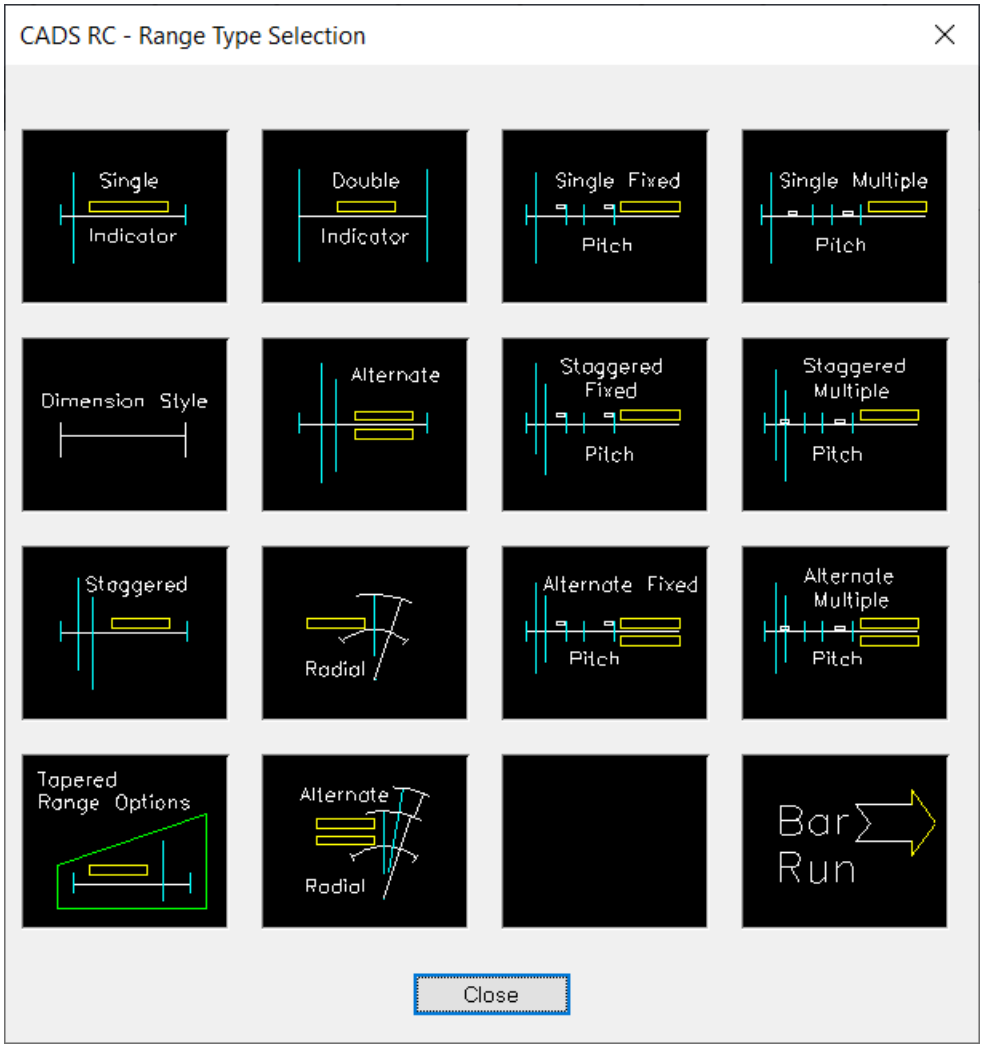
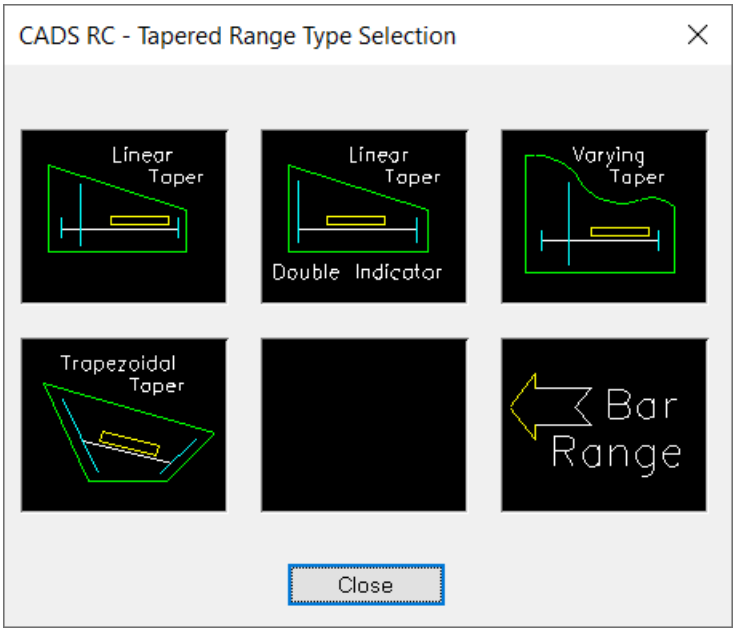


Figure 4.3 Range Type Selection



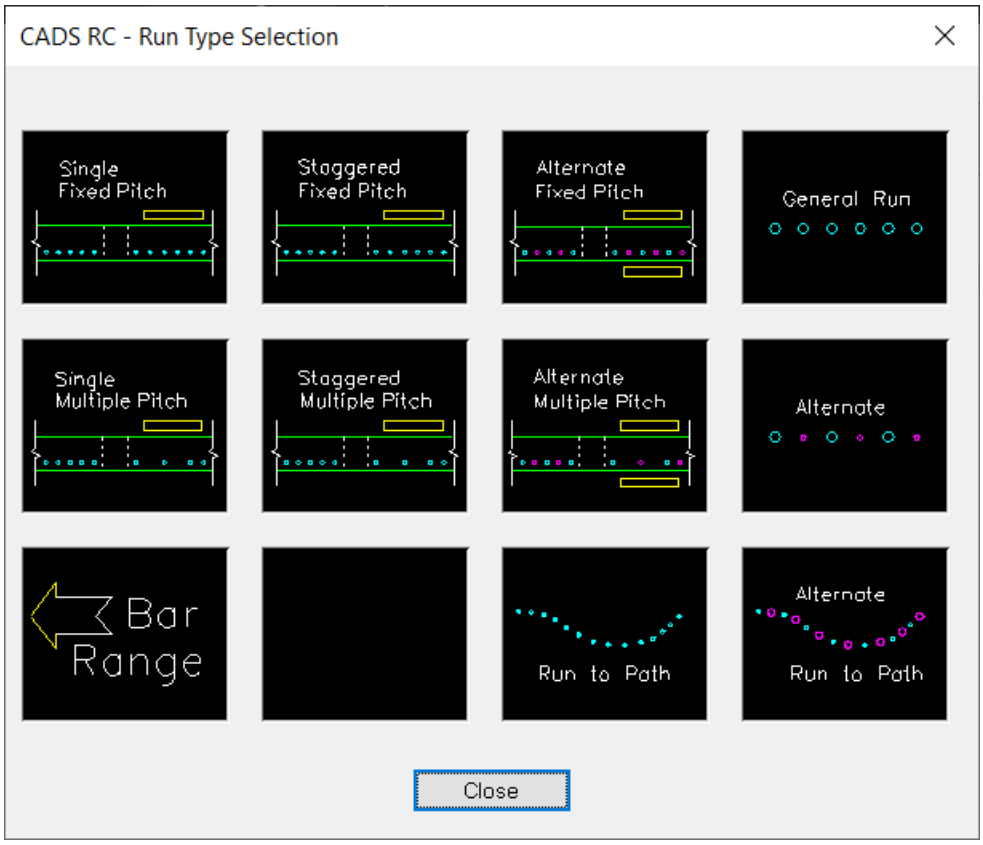


Figure 4.4 Draw Range Dialogs

3.3.2 Standard Range Types

Single Indicator

This range draws a single bar view within one range group. The bar c/c can be entered to calculate the number of bars required or a number of bars can be specified and the c/c will be calculated to suit by CADS RC.

Double Indicator

This range is similar to the Single indicator but a view of the bar is drawn at each end of the range group. The most common use of this range type is when indicating beam stirrups on elevations or plans.

Dimension Style

This range is similar to the Single indicator but no view of the bar is drawn. Only a range line is drawn, indicating the extents of the range group. The most common use of this range type is when indicating beam stirrups on elevations or plans where, due to congestion, the range is drawn outside the beam outline.

Staggered

This range is similar to the Single indicator but two views of the bar are drawn in a staggered fashion within one range group. The bar label can contain a configurable note to indicate that the bars are placed staggered within the range group. This range type can also be used for alternate bar reversed ranges but the bar label note will have to amended manually.

Alternate

This range draws two bars that have different bar marks within one range group. The label for each bar mark can contain configurable notes to indicate that they are alternately placed within the range group.

Radial

This range type allows radial ranges to be specified, for instance when detailing circular tank slab bottoms. The bars can be calculated at the inner or outer ends of the bar or along the range line. One bar view can be drawn within one range group and the bar c/c can be specified or a total number of bars entered.

Alternate Radial

This range type is similar to the Radial type described earlier but allows alternate bars to be detailed in the range.

Single Fixed Pitch and Single Multiple Pitch

These range types are similar to the Single Indicator but allow a number of range groups to be drawn with the number of bars in each group indicated and the label displaying the total number of bars. The Fixed Pitch option assumes that the bar c/c are the same in each range group, whereas the Multiple Pitch option allows the bar c/c to be different in each range group.

Staggered Fixed Pitch and Staggered Multiple Pitch

These range types are similar to the Staggered range but allow a number of range groups to be drawn with the number of bars in each group indicated and the label displaying the total number of bars. The Fixed Pitch option assumes that the bar c/c are the same in each range group, whereas the Multiple Pitch option allows the bar c/c to be different in each range group.

Alternate Fixed Pitch and Alternate Multiple Pitch

These range types are similar to the Alternate range but they allow a number of range groups to be drawn with the number of bars in each group indicated with the label displaying the total number of bars. The Fixed Pitch option assumes that the bar c/c are the same in each range group, whereas the Multiple Pitch option allows the bar c/c to be different in each range group.

3.3.3 Tapered Range Types

Linear Taper

This range draws a single bar view within one range group, it then asks for the first and last bars to be drawn or uses the entered data so it can calculate the required tapered dimensions for the bar set. The label produced will give the total number of bars within the range with a configurable suffix relating to the number of bars in the range. The Schedule will display each bar in the range i.e. 601a, 601b, 601c etc. with that bars individual bending data. Tapered ranges can contain bar marks 601a to 601zz giving a maximum of 676 bars in any bar set.

Linear Taper Double Indicator

This range is similar to the Single Taper but a view of the bar is drawn at each end of the range group.

Varying Taper

This range type draws a single bar view within one range group. It then asks for an entity to be picked to define the boundary of the area to be reinforced with tapering bars. The bars are calculated as if placed at the angle of the indicator bar. The entity picked to define the boundary must be a closed polyline, circle or ellipse. The label produced will give the total number of bars within the range with alphabetical suffix relating to the number of bars in the range. The Schedule will display each bar in the range i.e. 601a, 601b, 601c etc. with that marks individual bending data. Tapered ranges of this type can contain bar marks 601a to 601zz giving a maximum of 676 bars in any bar set.

NOTE: This type of range cannot be edited, you will have to delete the range and redraw it if any of the bar/range data needs amending.

Trapezoidal Taper

This range type draws an indicator bar at each end of the range to define the first and last bars in the range. The intermediate bars are calculated as placed in a fan arrangement. The label produced will give the total number of bars within the range with alphabetical suffix relating to the number of bars in the range. The Schedule will display each bar in the range i.e. 01a, 01b, 01c etc. and marks the bar with its individual bending data. Tapered ranges of this type can contain bar marks 01a to 01zz giving a maximum of 676 bars in any bar set.

NOTE: This type of range cannot be edited, you will have to delete the range and redraw it if any of the bar/range data needs amending.

3.3.4 Bar Run Range Types

Run to Path

Two Run to Path options are available. One details a single bar mark and the other alternate bar marks. The run is defined by picking a pline entity and the bars are calculated from the pline length and placed along the pline.

Each of the above range types has a corresponding Run type which can be used in conjunction with the range.

NOTE: The two run to path ranges cannot be edited, you will have to delete these range types and redraw it if any of the bar/range data needs amending.

3.4 Draw Range Commands

The DRAW RANGE commands allow the user to draw a range or run view of a bar. Off the DRAW RANGE menu bar there are the following options:

3.4.1 New MARK

Menu Option Draw Range -> New MARK

Command Line cads_rc_range, press enter, M, press enter

Tool Bar 

Instructs CADS RC that the range to be drawn is the first of a NEW BAR SET and allocates the set a New Bar Mark. This will also add a new line in the Schedule for this BAR SET.

3.4.2 Add View

Menu Option Draw Range -> Add View

Command Line cads_rc_range, press enter, V, press enter

Tool Bar 

Instructs CADS RC that the range to be drawn is another view of a picked BAR SET already on the drawing. This will not add a new line in the Schedule but may update the line already present in the Schedule for this BAR SET.

3.4.3 New SET

Menu Option Draw Range -> New SET

Command Line cads_rc_range, press enter, S, press enter

Tool Bar 

Instructs CADS RC that the range to be drawn is the first of a NEW BAR SET but uses a Bar Mark already in use (i.e. 2 sets of bars with the same Bar Mark). This will also add a new line in the Schedule for this BAR SET. NOTE: A number of lines in the Schedule with the same Bar Mark can be combined into 1 line showing the total number of bars if required.

3.5 Utilities to Assist in Bar & Range Drawing

3.5.1 CADS Input Application

The CADS Input Application consists of a number of Extra Snaps and a Lap Bar facility to aid in the drawing of bar views and ranges. They are available from the side menu and CADS RC SNAPS toolbar during bar and range drawing operations, they do not replace AutoCAD's snaps which are still available for use in the normal fashion.

3.5.2 Extra Snaps

These commands are additional to the standard AutoCAD object snaps. Although similar to the object snaps, they expand them by allowing a point to be specified relative to an existing object or point. The Extra Snaps can be particularly useful when placing bars to an outline where no cover lines are present as bars can be placed relative to the outline itself.

Relative

Toolbar 

Allows you to specify a point, using a rectangular co-ordinate, relative to a picked point. Typically, you may wish to place a bar with 2” cover from the corner of an outline. Therefore, the bar can be placed RELATIVE to the INTERSECTION at the corner of the outline and given relative co-ordinates, for example, of 2”,2”. When entering the co-ordinate offset do not use the normal @ (relative distance) symbol, as this is implied automatically.

Polar

Toolbar 

This is equivalent to Relative except it expects a polar co-ordinate entered at the appropriate prompt in the form of a distance and an angle for the offset.

Midpoint

Toolbar 

This allows you to snap to a point midway between two picked points.

Datum

Toolbar 

Enables you to set a point which can be used repeatedly for specifying relative points. In effect, it allows a second origin (Datum) to be set on the drawing. The datum point is selected the first time the command is used during an editing session. Each time you wish to define points relative to this datum you must select the Datum option from the side menu. If you subsequently wish to change the datum, select the Datum option from the side menu and enter R for Reset at the prompt.

Along

Toolbar 

Enables you to snap to a point at a specified distance along a line or to a point along a line by entering a division factor. For instance, if you specify a division factor of 3, the snap will be at the third point along the line from the nearest end of the line picked.

Divide

Enables you to snap to a point along a line by entering a division factor. For instance, if you specify a division factor of 3, the snap will be at the third point along the line from the nearest end of the line picked.

Intersection

This snap will locate the projected intersection point of two lines which do not actually intersect. Note that you can also select two segments within the same polyline and obtain their intersection point.

Inters of Perps

This snap finds the intersection point of the perpendiculars from two lines. The perpendiculars spring from the points at which the two lines are picked. AutoCAD's OSNAPS can be used to pick particular end, mid or intersection points on the lines for precision. Unfortunately, you cannot use the other Extra Snaps such as Along in this instance, as AutoLisp does not allow re-entrant calls.

3.5.3 Lap Bar

Toolbar 

The Lap Bar function can be used to place or calculate bars which lap onto existing bars. The lap length offered as a default is that relating to the smallest diameter of either the bar being drawn or the bar being lapped to. Lap information is defined in the bar types file. Users wishing to modify or add to the default lap data may contact CADS Technical Support Department.

3.5.4 Tolerance Bar Leg

Toolbar 

The Tolerance option can be picked prior to defining an individual bar leg dimension during the drawing of the bar view. Picking Tolerance will apply the relevant tolerance to the leg dimension. Tolerance values can be modified to suit project criteria, users wishing to modify the default tolerance data may contact CADS Technical Support Department.

3.5.5 Label Aligning Options

Toolbar  Align Horizontal

Toolbar  Align Vertical

Picking one of the above options when prompted to place a bar label will align the bar label either vertically or horizontally with an existing bar label.

4 Labelling

Chapter Objectives

This chapter describes the Labelling section of CADS RC, which is primarily concerned with the Labelling/Notation of reinforcing bars and Release Code control.

4.1 Labelling

The tools for labelling and release code control are to be found off the CADS RC pull down menu Labelling menu bar where there are the following options:

4.1.1 Set Release Code

Menu Option Labelling -> Set Release Code

Command Line cads_rc_set_title

Toolbar 

Activates the Release Code Selection dialog shown in Figure 5.1, where the required Release Code can be made 'current'. The 'current' Release Code is the one CADS RC will allocate any new bar sets/marks subsequently drawn to in the Schedule.

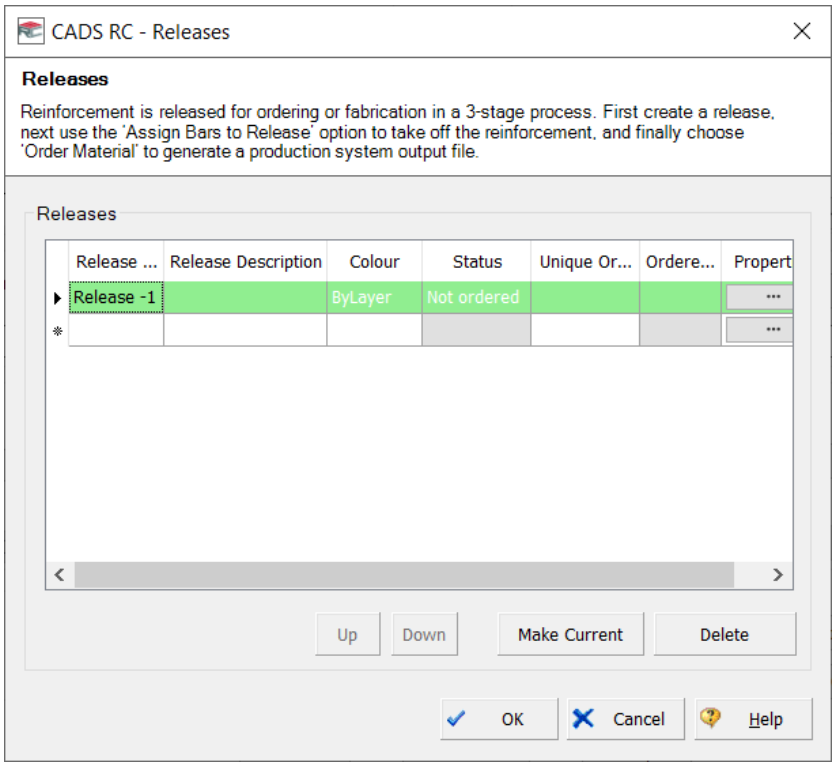


Figure 5.1 Release Code Selection Dialog

Release Codes allow CADS RC to group bars by release code in the Schedule. You may, on one drawing, detail 2 slabs named SLAB 1 and SLAB 2. By allocating the bars for Slab 1 to one release code and those for Slab 2 to another, CADS RC will sort the bars for each release code on request.

If you do not wish to utilise the Release Code system, all bars on a drawing can be allocated to a single release code.

Each Release Code can have a 3 digit Control Code allocated to it, the Control Code is used in the file name created when a Release Code is output to a file for import into rebar production software. Control Codes are dealt with in more detail later in this section.

The 'Current Release Code' is displayed at the top of the dialog box with the associated Control Code shown below. The list box displays all of the Release Codes and Control Codes created so far on the drawing.

The options available within the Release Code Selection dialog are as follows:-

New Button

To create a new release code, change the 'Release Code' field below the list to that required for the new release code (The 'Num.' and 'Control Code' could also be set at this point if required) and then pick the "New" button. The new release code is created and displayed in the list box.

Current Button

To make a release code current, pick the required release code in the list and then pick the 'Current' button. The 'Current Release Code' field above the list box will be updated to display the new current release code.

Delete Button

To erase an existing release code, highlight the release code in the list and then pick the delete button. A release code can only be deleted if it does not have any bar sets allocated to it.

Update Button

Num.

This value is the 'No. Off' required of the release code. For instance, you may detail a column footing once on a drawing knowing that 4 identical arrangements are required, 3 for other column footings. If you were to allocate all the bars required in the column footing to a particular release code and set that release code Num. option to 4, the Schedule will show 4 times the detailed rebar on the drawing.

To change, pick the required release code in the list box, change the 'Num.' field below and pick the "Update" button.

Release Code

This title is displayed on the Schedule. To edit the release code pick the required release code in the list box, change the ‘Release Code’ field below and pick the 'Update' button.

Control Code

The Control Code allocated to a Release Code is used by the output file options available in CADS RC. The reinforcement allocated to a particular Release Code can be output in file format for linking into other production software. When a Release Code is selected for output to file, its associated Control Code is used to identify the file created. To edit a control code, pick the required release code in the list box, change the ‘Control Code’ field below and pick the 'Update' button.

NOTE: Individual or a selection of bar sets can be allocated to different release codes by using the Change Release Code command. See also the Chapter “Bar Editing”.

Properties Button

Accesses the Release Code Properties dialog of the current release code as shown in Figure 5.2.

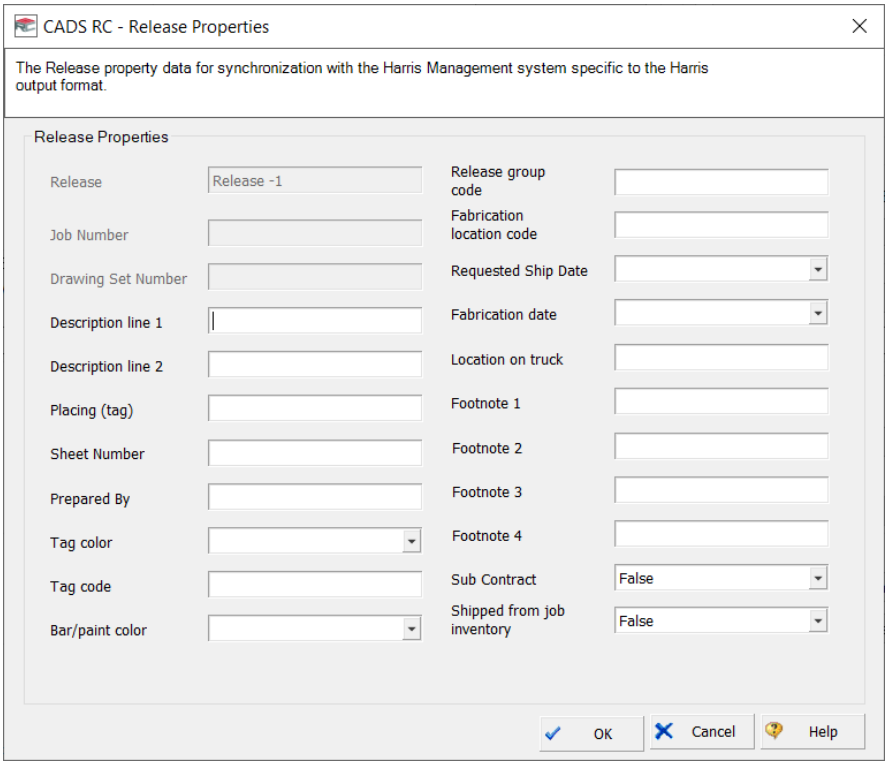


Figure 5.2 Release Code Properties Dialog

The Release Code Properties dialog allows property information to be defined for each release code created. This information (excluding the Standard File Output Headers which are optional in the CSF file output) can be output in comma separated format via the write CSG file output option for linking to estimating packages.

Each release code can have the following properties defined: -

Concrete Grade

Select the required concrete grade from the pop-down list.

Structure Type

A numerical value can be selected from the pop-down list to indicate structure type which can be recognised by the estimating package link.

Level

A level in meters can be defined so the estimating package can cost formwork support requirements.

Volume

The total volume of each release code can be calculated by defining a number of volume elements that make up the release code. Elements can be defined by picking the Create button beneath the volume list and defining a mean cross section area in metres2 and a length in metres from which the volume for that element is calculated. The sum of the volume elements is displayed as the total release code volume. Elements can be edited and deleted by highlighting the required element in the list and picking the Edit or Delete button.

Formwork Faces

The formwork faces can be defined for each release code. Formwork faces can be defined by picking the Create button beneath the formwork face list. Each formwork face can have a formwork type value which can be used to indicate if the face is vertical, horizontal, curved etc. The formwork face area is defined by entering a mean depth in metres and the face length in metres and from this the face area is calculated. Formwork faces can be edited and deleted by highlighting the required face in the list and picking the Edit or Delete button.

4.1.2 Label Bar

Menu Option Labelling -> Label Bar

Command Line cads_rc_lbar

Toolbar 

Allows a Bar Label to be placed on the drawing for a bar set not yet labelled. Placement of bar labels is aided by side menu options to align vertically or horizontally with existing labels or to stack labels to form columns.

NOTE: If a bar set is already labelled a message to this effect is given and the command cancelled. Only one bar label is allowed per bar set.

4.1.3 New Label

Menu Option Labelling -> New Label

Command Line cads_rc_newlabel

Toolbar 

Allows the creation of a new set of bars (and hence adds new line in the Schedule for this set) in the form of a Bar Label only. On selecting the command, a dialog giving information regarding this command is activated. Further views of this bar set can be generated using the 'Add View' commands as required.

4.1.4 Masking a Label

Mask Text

To create a mask for set of selected labels, use this command.

Menu Option Labelling -> Mask Text Command Line cads_rc_mask

Toolbar 

Allows the creation of a new Mask object behind the label such that the entities behind label are hidden behind the mask object so that plotting is clear for congested bars.

Mask All

To create mask for all labels in the drawing, use this command.

Menu Option Labelling -> Mask All

Command Line (command "cads_rc_mask" "A" "All" " ")

Toolbar 

Un Mask All

To Un mask for all labels in the drawing, use this command.

Menu Option Labelling ->Un Mask All

Command Line (command “cads_rc_mask” “D” “All” “ “)

Toolbar 

Bar Ref. '08'

Menu Option Labelling -> Bar Ref ‘08’

Command Line cads_rc_barref

Toolbar 

The Bar Reference command is used to position call offs showing the bar mark of the picked bar/bars. They can be used for calling off bar runs etc. as shown in Figure 5.4.

Figure 5.4 Bar Run with Bar References Added

You can add bar references to individual bars or several at a time. To add bar refs. to an individual bar, select a bar on the initial prompt and then place the bar ref. as required. To add bar refs. to several bars, press enter on the initial prompt, set the angle and then select the bars to be labelled. Then pick two points to indicate the position and alignment of the bar refs.

These Bar References are linked to the relevant bar set and therefore any change in bar mark automatically updates the bar references. Any Bar Reference can be repositioned using AutoCAD move as required.

The bar references can be selected when prompted to ‘Pick a Bar Set’ when using the Add View or New Set functions.

4.1.5 Tick & Tag

Menu Option Labelling -> Tick and Tag

Command Line cads_rc_autotag

Toolbar 

The Tick & Tag command is used to position call offs showing the bar mark of the picked bars beside an arrow indicating the bar ends. Tick & Tag can be used to indicate the bar ends of bars detailed on top of each other with laps etc. as shown in Figure 5.5.

Figure 5.5 Tick and Tag

You can tick & tag all the bars on one face of the structure using the 'crossing' window selection method.

4.1.6 Leader 1 (Leader with Arrow)

Menu Option Labelling -> Leader 1

Command Line cads_rc_leader1

Toolbar 

This Leader command is not the AutoCAD leader command, it is a command written within CADS RC and is only available when CADS RC is loaded. Its advantages over AutoCAD Leader are as follows:

1. Can be configured to underline text or to start at the end of text.
2. Automatically finishes the leader to a picked text item to ensure consistency across the drawing.
3. Can automatically find the correct label for a picked bar set.
4. Can stack leaders for labels in columns.
5. Configuration for layer, arrow length, arrow width and block name.

4.1.7 Leader 2 (Leader with Dot)

Menu Option Labelling -> Leader 2

Command Line cads_rc_leader2

Toolbar 

This Leader command is not the AutoCAD Leader command. It is a command written within CADS RC and is only available when CADS RC is loaded. Its advantages over AutoCAD Leader are as follows:

1. Can be configured to underline text or to start at the end of text.
2. Automatically finishes the leader to a picked text item to ensure consistency across the drawing.
3. Can automatically find the correct label for a picked bar set.
4. Can stack leaders for labels in columns.
5. Configuration for layer, dot X & Y scale factors and block name.

4.1.8 Leader 3 (Leader with no end block)

Menu Option Labelling -> Leader 3

Command Line cads_rc_leader3

Toolbar Not Applicable

This Leader command is not the AutoCAD Leader command. It is a command written within CADS RC and is only available when CADS RC is loaded. Its advantages over AutoCAD Leader are as follows:

1. Can be configured to underline text or to start at the end of text.
2. Automatically finishes the leader to a picked text item to ensure consistency across the drawing.
3. Can automatically find the correct label for a picked bar set.
4. Can stack leaders for labels in columns.
5. Configuration for layer, X & Y scale factors and block name.

4.1.9 More....

Activates a sub-menu with the following options:

4.1.10 Tag to Line

Menu Option Labelling -> More -> Tag to Line

Command Line cads_rc_tag2line

Toolbar Not Applicable

This command is similar to Tick & Tag but it can be used to align a number of Tick & Tags to a common base line. Tag to Line can be used for sloping sections as shown in Figure 5.6.

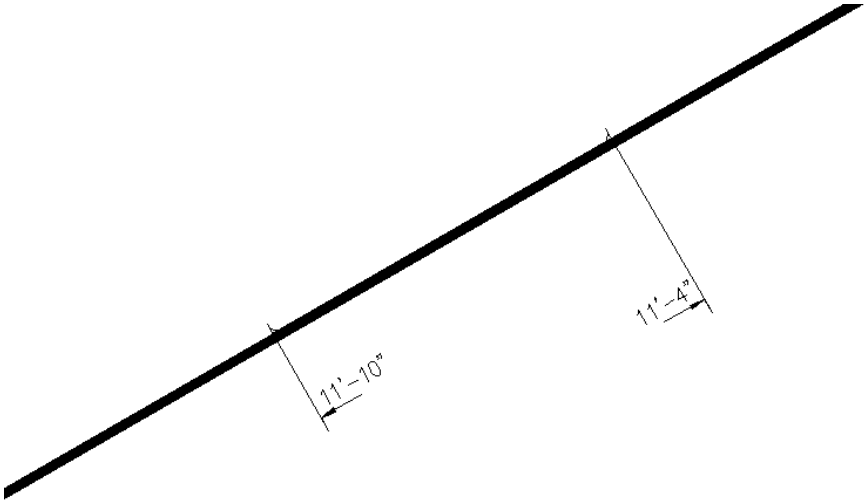


Figure 5.6 Tag to Line

4.1.11 Mult. Arrow Leader 1

Menu Option Labelling -> More -> Mult Arrow Leader 1

Command Line cads_rc_mleader1

Toolbar Not Applicable

This leader is very similar to AutoCAD Leader but it allows the positioning of a number of arrowheads along its length, as shown in Figure 5.7 Mult. Arrow Leader 1.

To use, pick the first arrowhead position, then pick the position of the end of the leader and finally, pick the positions of the additional arrowheads.

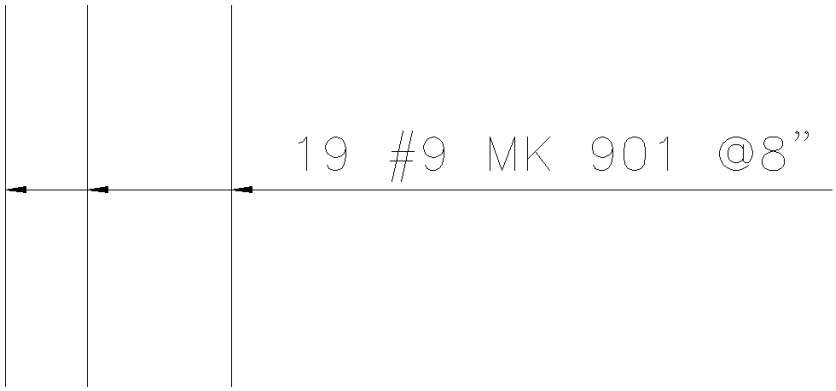


Figure 5.7 Mult. Arrow Leader 1

4.1.12 Mult. Arrow Leader 2

Menu Option Labelling -> More -> Mult Arrow Leader 2

Command Line cads_rc_mleader2

Toolbar Not Applicable

This leader is very similar to AutoCAD Leader but it allows the positioning of a number of dots along its length.

4.1.13 Next Bar Mark

Menu Option Labelling -> More -> Next Bar Mark

Command Line cads_rc_nbmark

Toolbar 

The Next Bar Mark command will display the next available bar mark for use calculated from the highest bar mark in use for the last bar size detailed. For example, if bar mark 1087 was in use but bar mark 1042 was not in use, the Next Bar Mark command will prompt bar mark 1088, as it assumes 1087 and below are in use. This command does not search for all bar marks not in use and therefore will not prompt bar mark 1042.

4.1.14 Set Release Code by Entity

Menu Option Labelling -> More -> Set Release Code by Entity

Command Line cads_rc_entset_title

Toolbar 

This will set the current Release Code to that of a bar set picked by the user. It can be useful on large drawings with a number of Release Codes in use.

4.1.15 Tools & Symbols

Menu Option Labelling -> More -> Tools and Symbols

Command Line cads_rc_tools

Toolbar 

This activates a dialog where a number of useful tools to aid general drafting can be picked. The options are as shown in Figure 5.8.

1. Grid Generator
2. Grid Balloons
3. Line Breaks
4. Pipe Ends
5. Section Markers and Section Marker Config.
6. Arrow Tip
7. Level and Elevation symbols
8. Standard Text
9. Standard Hatch Patterns
10. Elevation Symbol

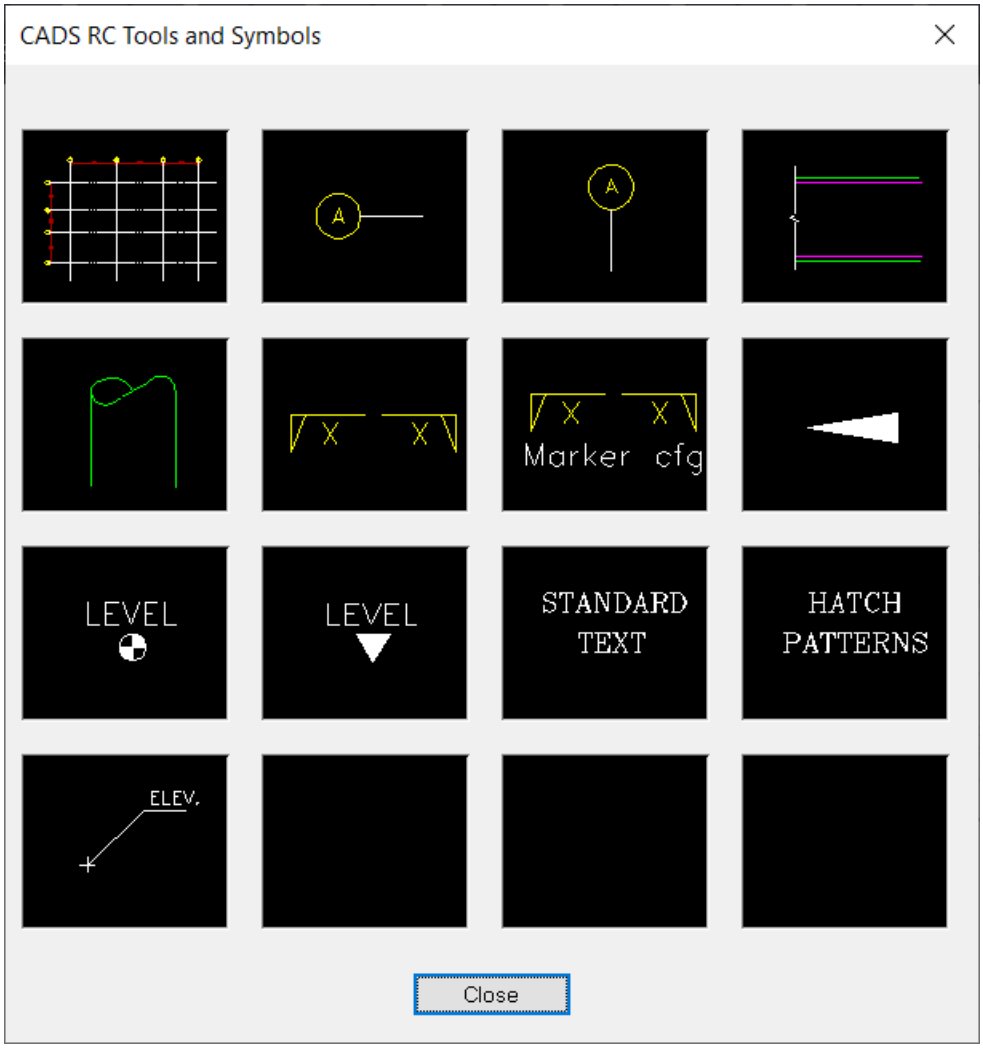


Figure 5.8 Tools and Symbols Dialog

5 Bar Editing

Chapter Objectives

This chapter describes the EDITING section of CADS RC, which is primarily concerned with the editing of reinforcement.

The tools for EDITING are to be found off the CADS RC pull down menu EDITING menu bar, where there are the following options:

5.1 Stretch Edit

Menu Option Editing -> Stretch Edit

Command Line cads_rc_stretch

Toolbar 

The Stretch Edit command allows bar views to be stretched in a similar fashion to AutoCAD stretch. Any bar view can be stretched, including ranges and runs, with all relevant views being updated automatically. If AutoCAD stretch is used on a bar, it will have no effect (if the entire bar view was in the stretch window, it will be moved as any entity would) but non CADS RC entities will stretch as normal.

CADS RC is arranged so that you are asked by default if you would like to allocate new bar marks to any bar sets which are stretched where other sets of the same bar mark exist outside of the stretch.

If Yes is entered, then new bar marks will be allocated to the stretched bar sets.

If No is entered, then all bar sets of that bar mark will be updated to the new stretched dimensions.

There are some limitations to the use of the Stretch Edit command on certain range/run types and these are listed as follows:

5.1.1 Radial Range Types

The Stretch Edit command does not support Radial range types. If the included angle of a Radial range needs to be altered, then the existing range has to be deleted and a new range drawn in its place to the new parameters.

5.1.2 Varying and Trapezoidal Tapered Ranges

The Stretch Edit command does not support Varying and Trapezoidal Tapered range types. If the area covered by either of these range types alters, then the existing range has to be deleted and a new range drawn in its place to the new parameters.

5.1.3 Run To Path and Alternate Run To Path

The Stretch Edit command does not support the Run To Path or Alternate Run To Path options. If the path along which the bar run is placed alters, then the existing run must be deleted and a new run drawn to the new path.

5.1.4 Linear Tapered Range Types

Although the Stretch Edit command allows stretching of these range types, it must be noted that any step increment applied to the range will be re-set to zero by the stretch. It is then necessary to re-apply the step increment to the range.

NOTE - If a Linear Tapered range with a step increment applied requires stretch editing and the Schedule has been issued, then it is advisable to delete the whole bar set and replace it with a new bar set. This is because the editing will remove the step and therefore increase the number of lines required for that tapered range in the Schedule. This may cause the tapered range to be repositioned in the Schedule onto a new page.

NOTE - The CADS RC Stretch Edit command also stretches non CADS RC entities as if stretched using AutoCAD stretch.

NOTE – If you want to stretch the bar lengths in a single indicator linear tapered range you will have to edit the first and last bar dimensions using the bar label edit command, see Chapter 6.3.

5.2 Stretch To Stock

Menu Option Editing -> Stretch To Stock

Command Line cads_rc_stkstretch

Toolbar

The Stretch to Stock options allow straight bars (side & plan views) to be stretched with additional bars added where the stretch distance would make the original bar length greater than the maximum stock length entered by the user.

On selecting Stretch to Stock, the command line prompts: -

Check for other sets and re-assign Bar Marks/Stock? <Yes>:

Type S or Stock and press enter, this will display the CADS RC Stock Length Defaults dialog, as shown in Figure 6.1

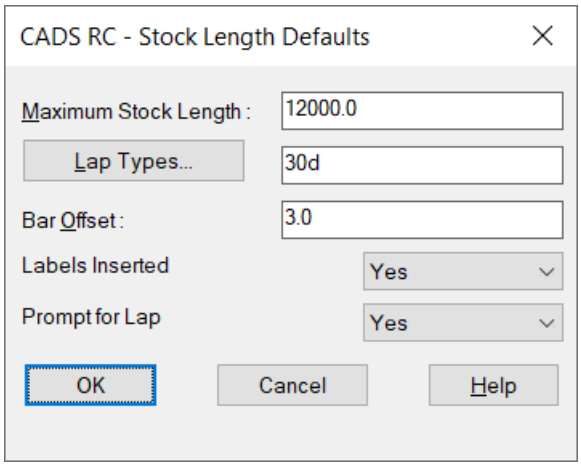


Figure 6.1 Stock Length Defaults Dialog

This dialog allows the creation of default data used by the Stretch To Stock option. The options available are as follows: -

Maximum Stock Length

This value is the maximum bar length for the bars selected for stretching. If the stretched bar length would exceed the maximum bar length, additional straight bars are inserted to complete the stretch.

Lap Types

A lap type (as defined in the configured bar types file) can be selected by picking the Lap Types button. This will determine the default lap length command line prompt. Specific lap lengths can be entered at the command prompt, as required.

Bar Offset

This is the plotted offset distance between lapped bars.

Labels Inserted

When this is set to Yes, you are asked to place the bar labels for any additional lapped bars as they are drawn. The bar to which each label refers is highlighted when the label insertion is asked for.

Prompt for Lap

When this is set to Yes, the default bar lap based upon the Lap Type is offered as default. At this point another lap distance can be entered, if required. When it is set to No, all additional bars are drawn automatically with laps based on the Lap Types setting.

5.3 Bar/Label Edit

Menu Option Editing -> Bar Label Edit

Command Line cads_rc_dlg_edit

Toolbar 

Left mouse button double – clicking on a CADS RC entity will also call this command.

Activates the Edit Bar Label Data dialog where all bar details are displayed. All active fields displayed are available for editing.

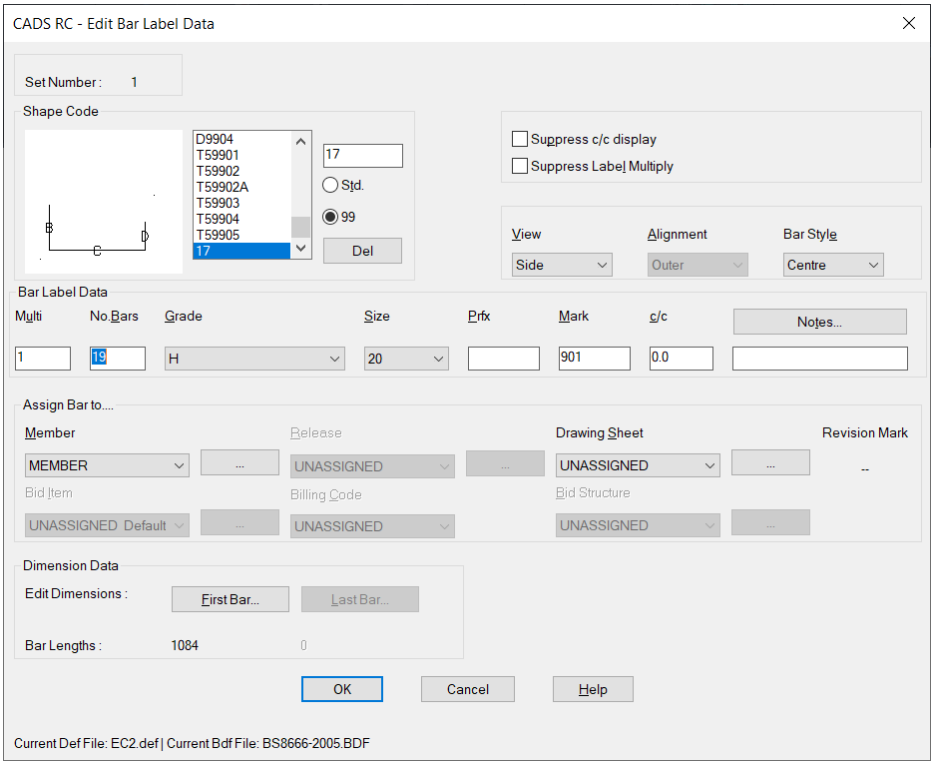


Figure 6.2 Edit Bar Label Data Dialog

The 'Edit Bar Label' data dialog allows the user to change or add data to an existing bar set. The options available within the dialog are as follows:

5.3.1 Shape code

A slide of the current shape code is displayed, the shape code can be changed by selecting another from the scrolling list or entering the required shape code in the input field. Changing this will cause all views of that bar to be updated. The orientation of existing bar views may be drawn differently from the original, so some use of rotate in AutoCAD may be required.

5.3.2 View, Alignment & Bar Style

These options are greyed out and so cannot be changed from within the dialog. They only show the picked bars View, Alignment and Bar style. You can edit these settings for a particular view by using the Change Bar Style and Change Bar View commands described later in this chapter.

5.3.3 Bar Label Data

This consists of 8 fields which, amongst other things, assist in calculating the No. of bars required and pass data to the Schedule. The fields are as follows (See also 'Chapter 3 - Bar Drawing').

Multi.

This is a label multiplier.

If a value of 1 is input then the label will show for example 10 601, giving a No. of bars of 10 in the Schedule.

If a value of 3 is entered in the Multi. field, the label will show 3x10 601, giving a No. of bars of 30 in the Schedule. (See also 'Suppress Label Multiply' later in this section)

The label multiplier also allows invisible multipliers in the bar label. Its objective is to multiply the no. of bars in the bar label for scheduling purposes. This is achieved by entering multipliers in the form 1*2. The outcome of applying multipliers in this format is shown in Figure 6.3.

Multi Input	Bar Drawing dialog No. Bars	No. bars in bar label with suppress label multi NO	No. bars in bar label with suppress label multi Yes	No. bars in the Schedule
1	10	10 601	10 601	10
1*2	10	10 601	10 601	20
2	10	2x10 601	20 601	20
2*2	10	2x10 601	20 601	40

Figure 6.3 Label Multiplier Affects

(See also the chapter “Bar Drawing”)

No. Bars

The number of bars required can be input in this field.

If it is left at 0, this will be calculated when a range view is drawn.

If the number of bars has not yet been determined, the label will be shown in the form? 601.

If the number of bars has already been calculated by specifying the c/c on a range, editing the number of bars will force the c/c value to display the average c/c. (See also “Suppress c/c Display” in this section).

Type

This specifies the grade of reinforcement for the bar, the required grade is selected from the pop-down list. All views of the bar are re-drawn to the new grade. The Schedule is updated and, where necessary, bending data set to minimum values if the change in grade means existing values are too small. (See also Chapter 8 - Enquiry).

Size

The required bar size is selected from the options available in the pop-down list. All views of the bar are re-drawn to the new size. The Schedule is updated and, where necessary, bending data is set to minimum values if the size is increased and if existing values are too small for the new size. (See also Chapter 8 - Enquiry).

Prfx

This input can be used to add/edit an alphanumeric bar mark prefix. If, for instance, bar mark 603 was to be edited by entering AA in the Prfx. Field, a new bar mark of AA603 would be allocated to the bar.

Mark

The bar mark can be altered by picking on the bar mark field and typing in the new bar mark.

If the entered bar mark is not in use, the set is allocated the new mark and the bar label, bar refs., ticks, tags and Schedule are updated accordingly.

If the entered bar mark is in use, a warning is given along with an option to change this set to the entered bar mark.

If NO is entered, the dialog is displayed again and another bar mark can be entered or the cancel button picked to exit with no change.

If YES is entered to the change to at the entered bar mark prompt, a further warning may be given if there is a change in shape code. Continuing will update this set to the entered bar mark. The orientation of existing bar views may be drawn differently from the original, so some use of rotate in AutoCAD may be required. (See also Chapter 8 - Enquiry).

NOTE

Although CADS RC allows bar marks to consist of up to 30 characters, certain output file formats only support up to 6 character bar marks.

c/c

This is the bar centres used in range views to calculate the number of bars required. The bar centres can be altered by picking on the c/c field and typing in the required c/c. If the bar has a range view, the no. of bars will be recalculated to the new c/c's. (See also Suppress c/c display' later in this section).

Notes

Notes can be added to the label by picking on the Notes field and typing in the required note or by picking on the Notes Button and selecting a note from the list provided. (This list can be added to by the user - see also Chapter 8 - Enquiry).

By picking on the Notes Button you are also offered four extra notes fields, all with a standard notes option, that appear below the standard notes.

5.3.4 Suppress c/c Display

If toggled by picking the box to display an X, a label which previously displayed 12 601-8” will then display 12 601 and vice versa.

If the bar c/c are suppressed, then the no. of bars value will remain constant and the c/c value adjusted to maintain the no. of bars for any alteration to range length via stretch bars.

If the c/c are not suppressed then the c/c will remain constant with the no. of bars altered to suit any change in range length via stretch bars.

5.3.5 Suppress Label Multiply

If activated by picking the box to display an X, a label which previously displayed 3x10 601will then display 30 601 and vice versa. (See also 5.3.3 Multi.)

5.3.6 First Bar

Picking on the first bar button accesses the 'Dimension Entry' dialog. Here, existing dimensions of the bar can be altered or missing dimensions added. The scaled diagram will be updated to indicate any alterations. Upon leaving the dialog via the OK button and leaving the 'Edit Bar Label' Data dialog via the OK button, the Schedule and all the bar views will be updated to the new dimensions.
If there is more than one set of this bar mark, upon leaving the 'Edit Bar Label' Data dialog an option to create a new bar mark for this set is offered.

If YES is replied, then this set can be given a new bar mark,

If NO is replied, then all sets of this bar mark are updated to the new dimensions entered.

5.3.7 Last Bar

This is only available if the set is a tapered bar set. It offers the same features as the 'First Bar' option.

5.3.8 Release Code

The release code that this bar is allocated to is displayed. The bar can be allocated to a different release code by activating the pop-down list and then picking the required release code from the list which shows all the release codes created on this drawing.

5.4 Range Edit

Menu Option Editing -> Range Edit

Command Line cads_rc_redit

Toolbar 

Left mouse button double – clicking on a CADS RC entity will also call this command.

Activates the Edit Range dialog where all the range data for that bar set can be accessed.

NOTE - To access the range data, the range line or bar run of the bar set must be picked. If a bar view or label is picked, then the command will display the Edit Bar Label Data dialog as if the Bar Label Edit command had been picked.

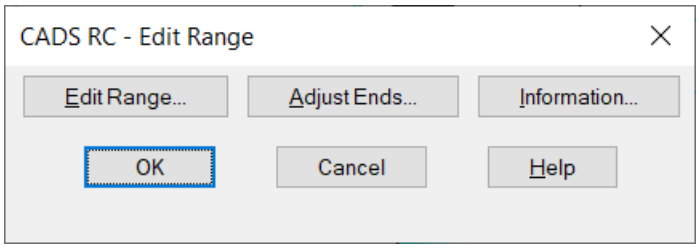


Figure 6.4 Edit Range Dialog

The Edit Range dialog allows you to edit the range data of a bar set. It also allows the bar dimensions of tapered bar ranges to be edited. The options available within the dialog are as follows:

5.4.1 Information

This displays the CADS RC Entity Information dialog which shows the range type, bar marks, grade and size etc. of the bar set picked.

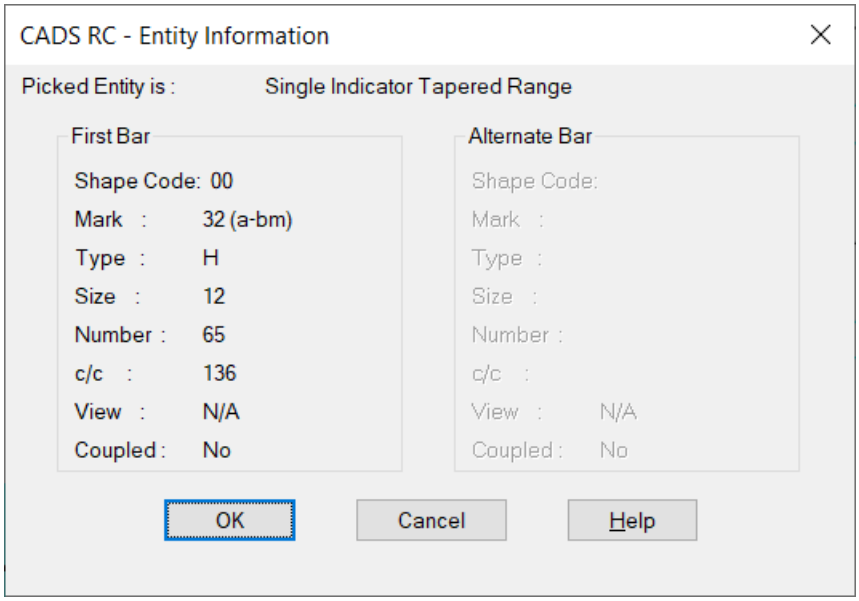


Figure 6.5 Entity Information Dialog

5.4.2 Adjust Ends

This option allows ranges to be skewed so that the number of bars is calculated along the skewed range length rather than the drawn range line length. The skew option is activated by picking the Adjust Ends option. You will then be asked to pick angles to which the range end markers will be re-drawn. An example of skewing a bar range can be found in Appendix B, along with a method

for skewing the range end markers whilst maintaining the drawn range line length as the length from which the number of bars are calculated.

5.4.3 Edit Range

This option will display the CADS RC Range Edit or the CADS RC Multiple Range Edit dialog, depending upon the range type picked for editing.

5.4.4 CADS RC Range Edit

The CADS RC Range Edit dialog is displayed for range types, except multiple ranges, which display the CADS RC Multiple Range Edit dialog described later in this section.

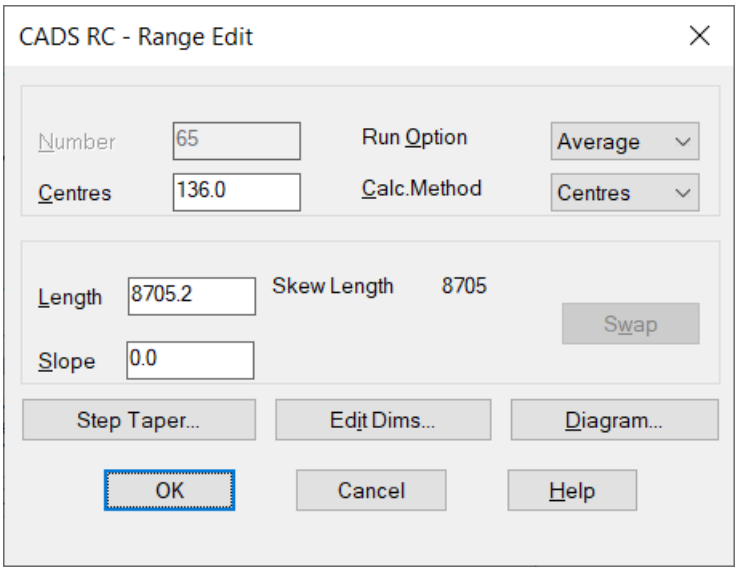


Figure 6.6 Range Edit Dialog

The Range Edit dialog has the following options available:

Number

This is the number of bars in the range. The display is greyed out if the Calc. Method is set to Centres, which means that the number of bars is automatically calculated from the Centres and Length values. If you wish to manually adjust the number of bars, then the Calc. Method must be set to Number first.

Centres

This is the maximum bar c/c's upon which the number of bars calculation is being based upon. Editing this value will re-calculate the number of bars required in the range.

Run Option

This controls how any bar run views of the bar range are to be drawn. If set to Average, then any bar runs will be drawn with the bars at average c/c spacing. If set to Runout, then any bar runs will be shown with the bars drawn at the specified c/c spacing with the last spacing being the runout c/c value.

Calc. Method

This controls how the number of bars required in the range is being calculated. If set to Centres, then the number of bars is being calculated from the Centres value. If set to Number, then the number of bars can be entered with the Centres being adjusted to suit the number of bars over the range length.

Length

This is the length of the drawn range line and it is used in calculating the number of bars in the range. If the Skew Length beside it differs from the Length, then the Skew Length is used to calculate the number of bars in the range.

Skew Length

If a bar range has had the end markers adjusted to produce a skew range, then the skew length is shown here. If the Skew Length is reported as being the same as the Length, then the range has not been skewed.

Slope

If the range picked was drawn as a foreshortened view, then the slope angle it represents will be reported as a value other than zero. Entering a slope value of 0.1 will always set the Skew Length to that of the Length. This allows ranges to have the end markers skewed but the bar number calculation still based on the drawn range line length.

Step Taper

This option is available if the range picked was a Linear Tapered range. It accesses the Step Taper dialog where a step increment can be applied to rationalise the number of bar suffixes in the range. An example of applying a step increment to a bar range can be found in Appendix B.

Edit Dims

This option allows you to edit the bending data of a bar in the range. If the range picked was a tapered range, then all the bar data is shown in the form of a mini Schedule. To edit a particular bar's bending data, the line for that bar can be double clicked. Its data will then be displayed to allow editing with no effect on the other bars' dimensions.

Diagram

This will display help diagrams indicating the calculation process of sloping and skewed bar ranges.

5.4.5 CADS RC Multiple Range Edit - Group List

The CADS RC Multiple Range Edit - Group List dialog is displayed if the range picked was a multiple range type.

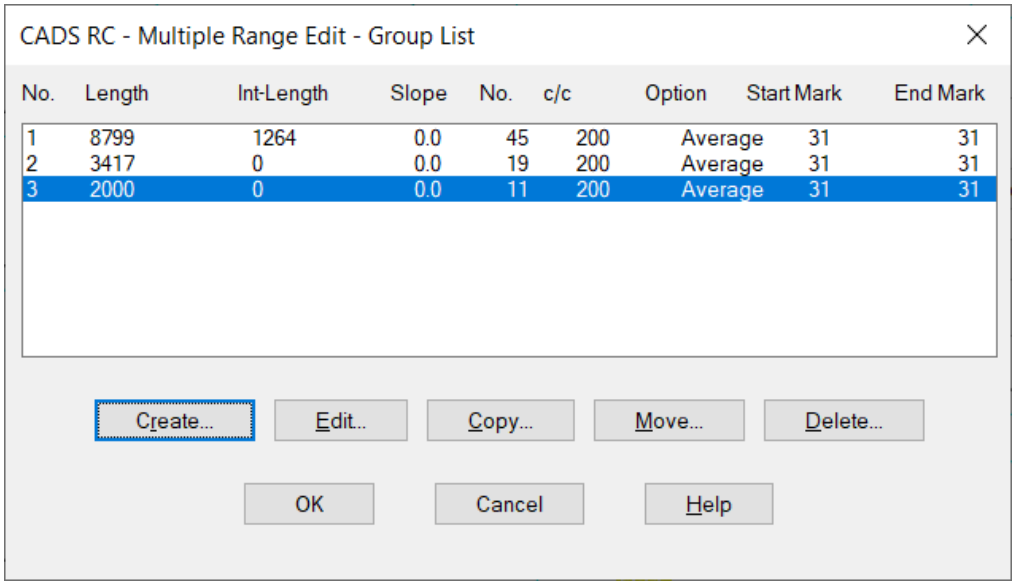


Figure 6.7 Multiple Range Edit - Group List Dialog

The Multiple Range Edit - Group List dialog displays the range information of each range group in the picked range in the form of a spreadsheet.

The Multiple Range Edit - Group List dialog has the following options:

Create

This option allows a new group to be created in the range. A blank Multiple Range Edit dialog will be displayed where the required group data can be entered. On exiting the dialog, you will be asked to allocate this new group a group number so that it can be added to the range.

Edit

This option will display the Multiple Range Edit dialog for the group highlighted in the group list.

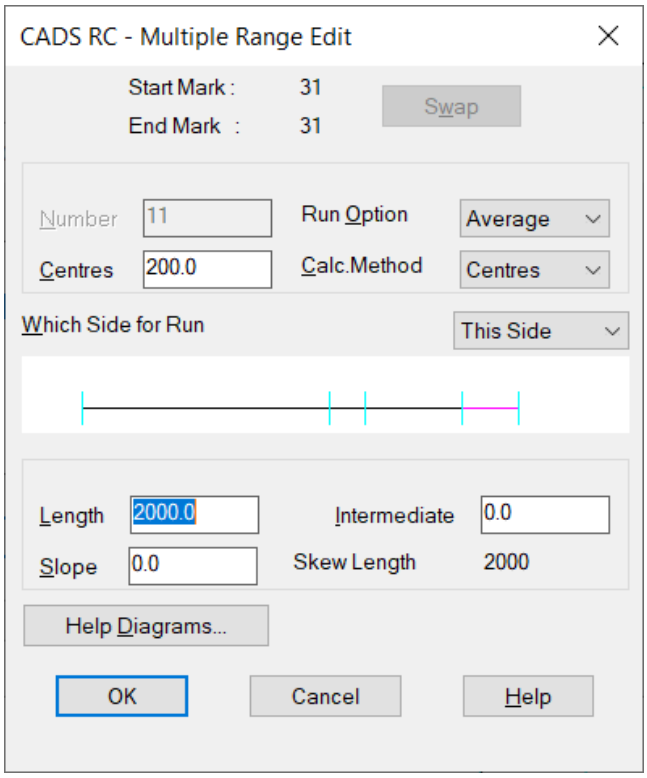


Figure 6.8 Multiple Range Edit Dialog

The Multiple Range Edit dialog has the following options:

Start Mark - End Mark

This option refers to Alternate range types. Using the Swap button you can change the bar mark of the first bar in the group.

Number

This is the number of bars in the range. The display is greyed out if the Calc. Method is set to Centres, which means that the number of bars is automatically calculated from the Centres and Length values. If you wish to manually adjust the number of bars, then the Calc. Method must be set to Number first.

Centres

This is the maximum bar c/c's upon which the number of bars calculation is being based. Editing this value will re-calculate the number of bars required in the range group.

Run Option

This controls how any bar run views of the range group are to be drawn. If set to Average, then any bar runs will be drawn with the bars at average c/c spacing. If set to Runout, then any bar

runs will be shown with the bars drawn at the specified c/c spacing with the last spacing being the runout c/c value.

Calc. Method

This controls how the number of bars required in the range group is being calculated. If set to Centres, then the number of bars is being calculated from the Centres value. If set to Number, then the number of bars can be entered with the Centres being adjusted to suit the number of bars over the range length.

Which Side for Run

This allows any bar run views of the range to be re-drawn on the other side of the line drawn to specify the bar run.

Length

This is the length of the drawn range line for the group and it is used in calculating the number of bars in the range. If the Skew Length beside it differs from the Length, then the Skew Length is used to calculate the number of bars in the range.

Intermediate

This is the distance from the end of the current range group to the start point of the next range group.

Skew Length

If range group has had the end markers adjusted to produce a skew range, then the skew length is shown here. If the Skew Length is reported as being the same as the Length, then the range group has not been skewed.

Slope

If the range picked was drawn as a foreshortened view, then the slope angle the group represents will be reported as a value other than zero. Entering a slope value of 0.1 will always set the Skew Length to that of the Length. This allows ranges to have the end markers skewed but the bar number calculation still based on the drawn range line length.

Help Diagrams

This will display help diagrams indicating the calculation process of sloping and skewed bar ranges.

Copy

This option will copy the currently highlighted group in the group list to a group number you specify.

Move

This option will move the currently highlighted group in the group list to a group number you specify.

Delete

This option will delete the currently highlighted group in the group list.

5.5 Strike Out Set

Menu Option Editing -> Strike Out SET

Command Line cads_rc_sbarset

Toolbar 

This command is used when you wish to erase a bar set from the drawing and draw a line through the set in the Schedule. Picking one bar view from the drawing will select all views of that bar set automatically and on confirmation erase all bar views and draw a line through the line in the Schedule for this bar set. This can be useful for revisions.

5.6 Change Release Code

Menu Option Editing -> Change Release Code

Command Line cads_rc_cmember

Toolbar 

This command can be used to change the Release Code to which one or more selected bars are allocated. If this command is used and the Schedule has already been formatted, the bars will be re-sorted by release code.

5.7 View / Set Toggles

Activates a sub-menu with the following options:

5.7.1 Change SET to View

Menu Option Editing->View/SET Toggles->Change SET To View

Command Line cads_rc_SET2view

Toolbar 

This command will change a Bar Set to a Bar View of another set. The line in the Schedule for the set to be changed to a bar view will be erased, along with its bar label, if present.

NOTE - Both sets must be of the same bar mark.

5.7.2 Change View to SET

Menu Option Editing->View/SET Toggles->Change View To SET

Command Line cads_rc_view2SET

Toolbar 

This command will change a Bar View to Bar Set. This will add a new line to the Schedule for the New Set and allow a label to be placed on the drawing for the New Set.

5.8 More.....

Activates a sub-menu with the following options:

5.9 Change Bar Style

Menu Option Editing->More->Change Bar Style

Command Line cads_rc_cbstyle

Toolbar 

This command is used to toggle bars from centre line to profile and vice versa. More than one bar view can be selected at a time and any selection can consist of a mixture of centre and profile.

5.10 Change Bar View

Menu Option Editing->More->Change Bar View

Command Line cads_rc_cview

Toolbar 

This command is used to change the view of a picked bar. For instance, it can be used to change a side view of a bar to a plan view etc.

NOTE - If the required view is not drawn, it means that not all of the bar bending data required to draw the view has been input.

5.11 Add Entity To View

Menu Option Editing->More->Add Entity to View

Command Line cads_rc_addview

Toolbar 

This command can be used to link non- CADS RC entities to views. It could be used, for example, to create custom range lines to attach to a bar view.

5.12 Add Text To View

Menu Option Editing->More->Add Text to View

Command Line cads_rc_addtext

Toolbar 

This command can be used to attach text to a picked bar or label. The text automatically inherits the 'bar label' layer, height, font etc. and when entered, the bar label placement tools are available to align vertically, horizontally or stacked.

5.13 Redraw RC EntMore->Redraw RC entity

Command Line cads_rc_redraw

Toolbar 

This command is used to force CADS RC to re-draw the picked items as if newly created. If you have changed the CADS RC configuration this command can be used to redraw the CADS RC entities with the new settings.

6 Group Layering Option (GLO)

Chapter Objectives

This chapter describes the Group Layering Option, which can be used to differentiate between reinforcement in the top or bottom of a slab or either face of a wall by easily placing bars, ranges and bar labels etc. on various associated AutoCAD layers.

The benefit of the GLO is that the drawing can be readily presented to show only the top bars or even just the bars in the T2 layer. For example, if you set up the GLO in the appropriate manner, you also have the opportunity of using alternative line styles. If your normal practice is to use broken lines for top bars and solid for bottom, then this can be easily achieved.

6.1 Setting Up the Layers

A full description of this procedure is given later in this section but a brief outline is shown here for the sake of clarity. There are two steps to defining the layer groups. One is to name the layers and define their line type and colour attributes and the other is to name the groups and assign the layers to each CADS RC entity. A description of each CADS RC entity is also given later in this section.

The layers are named in a file called RC-LAY.TXT, which is used to set up all the CADS RC layers and is normally kept in the ??\CADS-RC\PARAMS directory. The groups are defined in a special file called RCGRPLAY.GLO also in the ??\CADS-RC\PARAMS directory. Both of these files are default files supplied with CADS RC. If you intend to change them to suit your own requirements, then you are strongly advised to copy them first to another directory and modify the new files rather than the default files. CADS RC can be pointed to the new files by altering the Group Layer File and Layer Define File settings in the Miscellaneous configuration options. This will avoid the new files being overwritten by any updates to CADS RC you install subsequently. Also, by using alternative paths or filenames for these two files, you can set up different GLO arrangements for different projects. The configuration can then be changed to point to the appropriate files depending on the project.

To make any changes act as defaults for subsequent drawings, set the Write Prototype Settings option to YES in the Miscellaneous Configuration, so that a new configuration file is written to the hard disk.

6.2 Using the Group Layering Option

By default, CADS RC uses the standard layers as set up in the Configuration options. To use the Group Layering Option, you must set the GROUP LAYERING OPTION to YES in the Miscellaneous configuration. Once that is done, you will be prompted to 'Pick required group layer or to Ignore' near the start of each function, from the screen menu, which draws a CADS RC entity.

The layer groups defined are listed on the side menu with three standard options at the bottom of the menu. We advise you to maintain these options on any GLO files you create.

These standard options are: Ignore, All and None. Ignore can be selected in response to the 'Pick required group layer or I to Ignore' prompt, and will place the entities drawn on the standard layers as if the GLO was not in use. The All and None prompts are for use with the GLO control facilities described later.

After the first GLO selection of an editing session, a similar prompt appears in subsequent RC entity functions, this time with the previous layer group offered as a default. The layer groups are defined using a code number which appears in the default brackets rather than the group name. If you want to use a different group, then select the group name from the side menu, although you can type in the appropriate group number if you prefer.

The Ignore option places the entities on the standard default layers. Not those specified in the GLO. This option has to be selected each time you wish to use the default layers. Consequently, if you wish to draw a number of RC entities on the default layers, you are advised to turn the Group Layering Option OFF in the Miscellaneous configuration.

The tools for GROUP LAYERING CONTROL are to be found off the CADS RC pull down menu GROUP LAYERING menu bar where there are the following options:

6.2.1 Show Group

Menu Option Group Layering -> Show Group

Command Line cads_rc_show_glo

Toolbar 

This command allows you to turn on a group by picking it from the side menu.
You can use this command to turn on as many groups as you wish.

6.2.2 Show Group ONLY

Menu Option Group Layering -> Show Group ONLY

Command Line cads_rc_show_one_glo

Toolbar 

This command will show only the group picked from the side menu. Any other groups will be turned off. This is useful for preparing a drawing for plotting where you only require the picked layer to be plotted.

6.2.3 Show All Groups

Menu Option Group Layering -> Show All Groups

Command Line cads_rc_show_glo A

Toolbar 

This command turns on all the group layers.

6.2.4 Suppress Group

Menu Option Group Layering -> Suppress Group

Command Line cads_rc_!show_glo

Toolbar 

This command turns off the group picked from the side menu.

6.2.5 Suppress Group ONLY

Menu Option Group Layering -> Suppress Group ONLY

Command Line cads_rc_!show_one_glo

Toolbar 

This command turns off the group picked from the side menu and turns all other groups on.

6.2.6 Suppress All Groups

Menu Option Group Layering -> Suppress All Groups

Command Line cads_rc_show_glo N

Toolbar 

This command turns all the groups off.

6.2.7 Change to Other Group

Menu Option Group Layering -> Change to other Group

Command Line cads_rc_change_glo

Toolbar 

This command allows you to change RC entities on one group layer to another group layer. It simply requires you to select the RC entities you wish to change and then pick the group you wish to change them to from the side menu. CADS RC will redraw the selected items on their new group layer.

6.3 Group Layering and Non - RC Entities

The GLO facilities are designed to work specifically with bar views and their associated components. However, there is no reason why any object cannot be drawn on one of the group layers so that it can be turned on or off with the group. At present, other CADS RC objects such as outlines are drawn according to their configured layers and the GLO does CADS RC not over-ride these settings. If you want such objects on one of the group layers, then you will need to change the object's layer.

6.4 Group Layering Option

The Group Layering Option (GLO) allows bars and other RC entities to be assigned to groups of layers so that it is easy to manipulate details showing reinforcement in various locations such as top or bottom faces of a slab.

The method of using the GLO is described earlier in this manual. The following sections tell you how to set the layers and groups and also define each CADS RC entity. To help you by illustrating the principles, an example is included later in this chapter.

6.5 RC Entities

CADS RC entities are drawing objects which relate in some manner to the bar sets CADS RC uses to display its details. Most of them are linked to the bar database.

Once the group layering option is activated, whenever a CADS RC entity has to be drawn, you must assign it to one of the defined group layers. If several entities are to be drawn within the one command, you will only be asked once and all the entities will be assigned as appropriate.

The following entities are recognised by CADS RC and are used in its layer assignment and GLO set up files.

Rebars	-	the reinforcing bar plot line
Bar run	-	the bars (bar dots) drawn in section
Ticks	-	the tick marker indicating the end of a bar
Label	-	the text label describing the bar set
Range line	-	the line between end markers in a range
Range intermid	-	the range line between groups in a multiple range
RC leader	-	the line from the range or bar to the label
End marker	-	the symbol marking the limits of a range group
Bar ref	-	the bar mark text normally used with runs
Range refs	-	the range text used with multiple range groups
Range dots	-	the range/bar line intersection markers
Tags	-	the symbols pointing to the mark text at bar ends
Tag text	-	the bar mark text used at bar ends
Tension symbol	-	coupler tension symbol
Compression symbol	-	compression symbol coupler
Thread symbol	-	coupler thread symbol
Coupler TXT	-	coupler label text

Rebars can also have a colour assigned to allow alternative pen thicknesses when drawing its plot line or its profile.

Profile colour - the colour for the correct profile pen.

Centre colour - the colour for the correct centre plot line pen.

6.6 Naming the layers

rclay.txt. This file is installed in the ??\CADS-RC\PARAMS directory and is updated each time a later version of the program is installed. Because of this, you are advised to make a copy, unless you are happy with the defaults and either rename it or place it in another directory. If you do this, you should alter the path to the new file in the Miscellaneous Configuration. This can be

found from the Miscellaneous Configuration option on the Enquiry menu and it is changed by entering the full path and name for the new file in the dialog entry labelled Layer definition path.

If you then set the Write prototype setting to YES, this will be come the default layer file for all subsequent drawings.

The structure of the file is very simple and requires you to enter the data on three consecutive lines for each layer. Comments can also be added by preceding them with a ';' (semi-colon).

The first of the lines gives the layer name. Any valid name may be used.

The second line contains the linetype assigned to that layer.

The third line contains the colour or colour number assigned to that layer, e.g.:

```
Thickbars        ; this is a comment
CONTINUOUS
CYAN
```

There is nothing to prevent you from using the existing default layers, but when layer groups are turned off, other details using the layers will be turned off also. It is, therefore, better to assign layers specifically for the CADS RC entities. You don't need a layer for each entity, as most of them can share a layer. It really depends on whether their linetype and pen thickness (colour) is the same.

Rebars are handled slightly differently in that there is an option to show them as a plot line or profile. This does not rely on layers but the line colour and the group definition file has keywords to handle this independently. It is recommended that you set the layer definition to that required for the centre line.

6.7 Defining the Layer Groups

The layer groups are defined in a file called rcgrplay.glo also in the ??\CADS-RC\PARAMS directory. The order in which this file is laid out determines the order of the groups in the side menu which appears when CADS RC needs to know which group to assign entities to. As supplied, you can define up to 19 groups, although if you need more and your display can accommodate them, the Group Layering Option section of the cads.mnu menu file can be edited to suit.

The syntax of the GLO file is quite simple:

Anything following a ';' is a comment

```
; this is a comment
```

Menu items appear between [square brackets] and must be the only item on the line apart from a subsequent comment.

```
[menu item]      ; optional comment
```

Each group name is a menu item and is immediately followed by the entity assignments (list of entities and their layers). The entity assignments contain the entity name followed by an = sign and then the layer name as defined in the layer definition file described above. The names are not case sensitive, but must match the names defined in the layer definition file.

```
Rebars = 0-70 ; optional comment
```

The example in the next section shows typical entries. You do not have to assign all the RC entities as any not assigned will be placed on their default layers.

The GLO works by mapping the menu items it finds in this file to a template within the cads.mnu file, which need not be edited unless you want more than 19 groups. This template allocates a number to each line of the side menu which matches the order of the menu items in the GLO file. The first menu item should not be altered, as this provides the standard 'Cancel' facility.

As the program reads the GLO file it creates the menu items and allocates them to the 'line no.' in the cads.mnu. If the menu items are followed by an entity name then the item is recognised as a group name. Empty brackets show as a blank line on the side menu.

This process is repeated until the end of the file is reached. In the GLO file supplied the last three menu items on lines 21, 22 and 23 are:

[Ignore]

[All]

[None]

These have corresponding actions in the cads.mnu and if you wish to remove them or add more group option lines, then you can edit the cads.mnu accordingly. The AutoCAD Reference Manual

gives details of .mnu files but you are advised not to edit them unless you are reasonably familiar with them.

6.8 Group Layering Option Definition Example

The earlier explanations are necessarily rather technical, so this simple example is offered as a guide to setting up your own GLO. In this example it is assumed that you wish to have additional groups for starters and nibs/upstands.

Load the rc-lay.txt file into a text editor such as WordPad or EDIT, which is supplied with recent versions of DOS. Be careful if you are using a word processor as these sometimes add invisible control characters which can cause problems.

You are advised not to edit the original file, so immediately save it under a new name such as my-lay.txt. You may also wish to specify a new directory at the same time. Most editors have a 'save as' facility which will rename the current document so that you can no longer accidentally overwrite the original.

To keep things simple, each group will use one layer for the bar type entities and another for the text and range line types. It does not matter what layer names they are given, provided they are not duplicated, but it is wise to use sensible ones.

In this example, the bar layer for the starters group will be called BarStr and the text layer TxtStr and for the nibs group BarNib and TxtNib respectively.

In both cases the bars will be continuous line types of cyan colour. By default, in CADS RC, cyan maps to a 0.7mm pen. The text layers will be continuous, white, which has a default mapping to a 0.25mm pen.

To set this up, you should add the new layer names and attributes to the bottom of the file thus:

BarStr

CONTINUOUS

CYAN

TxtStr

CONTINUOUS

WHITE

BarNib

CONTINUOUS

CYAN

TxtNib

CONTINUOUS

WHITE

You should now save this file.

The next step is to define the layer groups. The easiest way to do this is to load the supplied rcgrplay.glo file and save it under a new name, say myglo.glo, in whichever directory you choose. So that you can easily check that you are using the correct GLO file in future, you are advised to delete most of the original comments and substitute your own, e.g.:

; extra starter and nib layer groups for project xyz.

Assuming that you do not wish to alter the existing layer groups, go to the end of the file and find the first empty [] after the existing layer definitions. In the file supplied there will be a line number commented beside the bracket, e.g.:

```
[]          ; 17
```

Leave the [Ignore], [Add] and [None] items at the bottom, as these will be retained. Inside the brackets add the group name you want to appear on the side menu for the starter bars group and a comment, if you wish e.g.:

```
[Starters]          ; 17 special group layer for starter bars
```

Insert a line for the entity definitions, which must follow this name. To save a lot of typing, copy the preceding group definition (from the Rebars = BarGen entity, just below the group name [General], to the last entity Coupler TXT=TXTGEN)

to the inserted line. You now only need to alter the layer names i.e. change each instance of BarGen to BarStr and TxtGen to TxtStr.

Repeat this procedure for the bar nib group. In this case the name could be

[Nibs] (note leading spaces are used to adjust the text laterally in the side menu) and the layers should be changed to BarNib and TxtNib respectively.

You might like to add a separator to the next menu item [____] to finish off the list. The end of the GLO file should now look something like that shown in Figure 7.1 - GLO File.

If you need to add more groups, before extending the menu, you could remove the various prompt items at the top of the list and separators, all of which do nothing other than aid clarity.

You should now save this file.

Now the file editing is complete you will need to alter the CADS RC configuration to read the new files you have created. This can be done by starting AutoCAD, either with a new or existing drawing, and loading CADS RC. Once it is loaded, select the Miscellaneous configuration option Enquiry menu. This will display a dialog which has entries for both the layer and GLO definition files. Change the entries to give the full path, including file name and extension for both files. The example below shows the default settings.

Group layering path ??\CADS-RC\PARAMS\rcgrplay.glo

Layer definition path ??\CADS-RC\PARAMS \rc-lay.txt

CADS RC will now be able to find the files when it needs them. Before leaving the dialog, you should set the Group Layering Option to ON in order to invoke it, otherwise the normal default layering will be used. If you want to keep these settings for subsequent drawings, then set the Write configuration setting entry to YES before selecting OK to exit from the dialog. This will write the configuration to disk to be loaded into CADS RC on subsequent occasions.

If you now return to the drawing and select one of the options to draw a new bar or range, the first prompt will be 'Pick required Group Layer or 'I' to Ignore' : and the side menu will show you the new groups.

Selecting the group will then assign all the entities to the appropriate layers. For instance, if you pick Starters, then the bars will go on layer BarStr and the labels on layer TxtStr. Subsequently the group you pick will be the default until you choose another.

This all there is to setting up the Group Layering Option. If you have any difficulties contact our CADS Technical Support Department.

```
[ G.L.O]                ; 1 top line Ctrl-C's out of command
[--------]              ; 2 remember side menus only have 8 characters, usually.
[ T1/N1]                ; 3 group name
Rebars      = BarT1     ; Bars T1 layer
Centre colour  = Cyan   ; Bar plot line colour
Profile colour = White  ; Bar profile colour
Bar run     = BarT1     ; "
Bar section = BarT1
Ticks       = BarT1
Label       = TxtT1     ; labels T1 layer
Range Line  = TxtT1
End Marker  = TxtT1
Bar Refs    = TxtT1
Range Refs  = TxtT1
Range Dots  = TxtT1
Range Intermid = TxtT1  ; Lines between range lines in mutliple ranges
RC Leader   = TxtT1
Tags        = TxtT1
Tags Text   = TxtT1
Tension Symbol=BarT1
Compression Symbol=BarT1
Thread Symbol=BarT1
Coupler Txt =TxtT1
Unscheduledbar= BarT1
[ T2/N2]                ; 4 group name
Rebars      = BarT2     ; Bars T2 layer
Centre colour  = Cyan   ; Bar plot line colour
Profile colour = White  ; Bar profile colour
Bar run     = BarT2     ; "
Bar section = BarT2
Ticks       = BarT2
Label       = TxtT2     ; labels T2 layer
Range Line  = TxtT2
End Marker  = TxtT2
Bar Refs    = TxtT2
Range Refs  = TxtT2
Range Dots  = TxtT2
Range Intermid = TxtT2  ; Lines between range lines in mutliple ranges
RC Leader   = TxtT2
```

Figure 7.1 GLO File

7 Outlines

Chapter Objectives

The CADS RC Outline tools, which supply a range of parametric shapes to automatically provide cover lines, correct line types and dimensions, are described in this chapter.

7.1 General Description

The CADS RC Outline tools provide a range of parametric shapes which automatically provide cover lines, correct line types and also dimensions, if required. Also provided is a Freehand Outline option which allows a line to be drawn with a cover line beside it to a defined cover dimension.

Although CADS RC provides tools to assist in the production of outlines for reinforcement details, there is no requirement for the outlines to be produced within the CADS environment.

CADS RC can be used on outline drawings produced within or imported into AutoCAD. Where no cover lines exist, reinforcement can be placed relative to outlines using a range of extra snaps provided within CADS RC (See chapter 3 section 3.5.1).

The Outlines menu also allows access to any CADS RC Detailers, if installed.

The tools for Outlines are to be found in the CADS RC pull-down menu in the Outlines menu bar.

7.1.1 Beam Sect/Elev

Menu Option Outlines -> Beam Sect/Elev.

Command Line cads_rc_sections, press enter, B, press enter

Toolbar 

7.1.2 Column Sect/Elev

Menu Option Outlines -> Column Sect/Elev..

Command Line cads_rc_sections,press enter, C, press enter

Toolbar 

Accesses a dialog where the required column section/elevation outline can be selected from the options displayed.

7.1.3 Slab Sections

Menu Option Outlines -> Slab Sections

Command Line cads_rc_sections, press enter, S, press enter

Toolbar 

Accesses a dialog where the required slab section outline can be selected from the options displayed.

7.1.4 Miscellaneous

Menu Option Outlines -> Miscellaneous

Command Line cads_rc_sections, press enter, O, press enter

Toolbar 

Accesses a dialog where the following outline options are available: -

1. Pad Base in plan and elevation
2. Staircase in plan and elevation
3. Retaining Wall in section
4. Beam intersection

NOTE - Some of these options display subsequent dialogs where a number of orientations may be displayed. Once the final selection has been made, prompts for dimensions will be displayed. In some cases, the outlines have quite a few dimension inputs which it can be impossible to remember from the previous slides. Picking VSLIDE from the side menu or the toolbar, displays the relevant slide so that dimension entry is easier.

7.2 Freehand Outline

Menu Option Outlines -> Freehand Outline

Command Line cads_rc_wall

Toolbar

Useful though the above outline shapes may be, there will be many instances when they are not appropriate. This is where the Freehand Outline option on the Outlines menu comes into its own. It enables you to draw an outline and parallel cover line in one operation.

You use it exactly like the normal AutoCAD LINE command, by picking point to point and then pressing ENTER to finish or C to close the line. The difference comes at the beginning of the command where the function needs to know the cover offset. If you draw the line from left to right, then a positive cover places the cover line below the outline. Conversely, a negative value places the cover line above.

As the outline may be drawn by reference to some existing construction, you can toggle the first line so that, the outline, the cover line or mid-way point between 8-2

them lies along the selected points. To do this, you move the cursor to the appropriate edge of the screen, or the centre, at the Toggle alignment prompt. You will see the pair of lines move according to the cursor position and you can press the pick button when the required alignment is shown.

You can then continue picking points to form the line which will maintain the same relative alignment for the remaining segments. As stated above, ENTER or Close will terminate the line.

7.3 Detailers

Menu Option Outlines -> Detailers

Command Line cads_rc_macros

Toolbar 

Detailers are a series of additional programs that allow complete parametric reinforcement details of structural elements to be created.

The Detailers option from the Outlines menu enables you to access them. It displays a list of installed Detailers.

From then on what you do depends on the Detailer in question. Each Detailer is described in the Productivity Tools Manual. The manual covers each detailer's scope, how to use it, and the details it produces. When it has finished its task, you will be returned to your drawing. If you choose to have the Detailer draw a detail immediately, then you may need to place the detail on the drawing before proceeding further.

All details produced are fully compatible with the CADS RC bar database and bar editing functions.

8 Enquiry

Chapter Objectives

This chapter describes the Enquiry section of CADS RC which contains tools to Find Bars along with Program Configuration. The Enquiry tools can be found off the CADS RC pull down menu Enquiry menu bar.

The Enquiry menu bar has the following options:

8.1 Bar Tooltips

This option is automatic. Moving the cross-hairs over a CADS RC entity will cause the Bar Tooltips to be displayed. The information bar tooltips displays are: - Bar Mark

Bar size and grade,

Multiplier

Shape code Quantity

C/c spacing.

Bar tooltips can be toggled on/off feature using the menu option: -

Enquiry -> Tooltips Toggle

8.2 Show Bars

Menu Option Enquiry -> Show Bars

Command Line cads_rc_highlight

Toolbar 

8.3 Select Bars

Activates the PICK GROUP TO HIGHLIGHT dialog where options are available to highlight bars by view, set, mark, release code or all CADS RC entities. There is an option to leave the selected items highlighted or not.

Menu Option Enquiry -> Select Bars

Command Line cads_rc_select

Toolbar 

The Select Bars command will place items into AutoCAD's 'previous selection set'. This allows, for example, all occurrences of a particular bar mark to be selected and moved using AutoCAD move 'previous' so that they can be looked at easily.

On picking Select Bars, the PICK GROUP TO SELECT dialog is activated where options are available to select bars by view, set, mark, release code or all CADS RC entities.

8.4 Configuration

Menu Option Enquiry -> Configuration

Command Line cads_rc_config

Toolbar 

Accesses the CADS RC Configuration Centre dialog as shown in Figure 9.1.

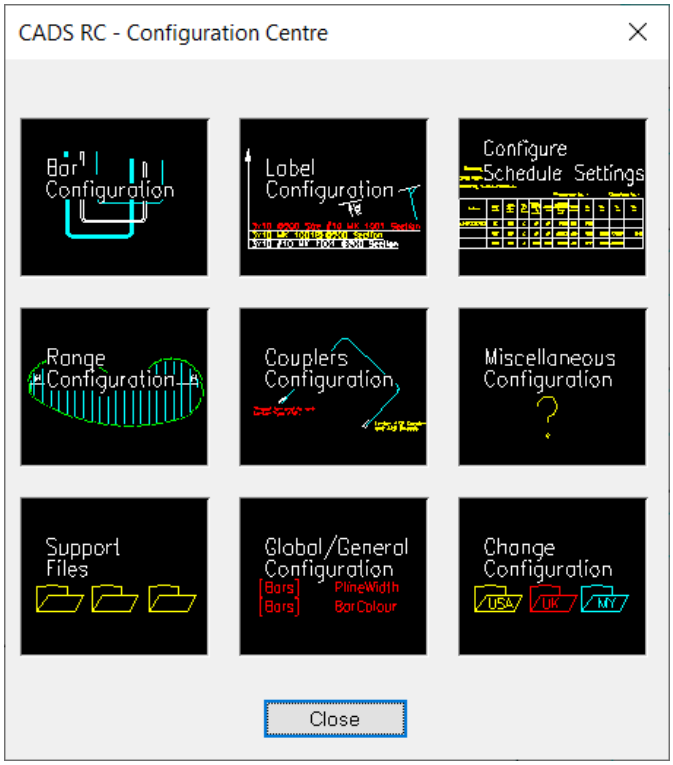


Figure 9.1 CADS RC Configuration Centre Dialog.

From the CADS RC Configuration Centre dialog, the following configuration options are available.

8.5 Bar Configuration

The 'Bar Configuration' dialog contains the configuration for the reinforcing bars and part of the ranges.

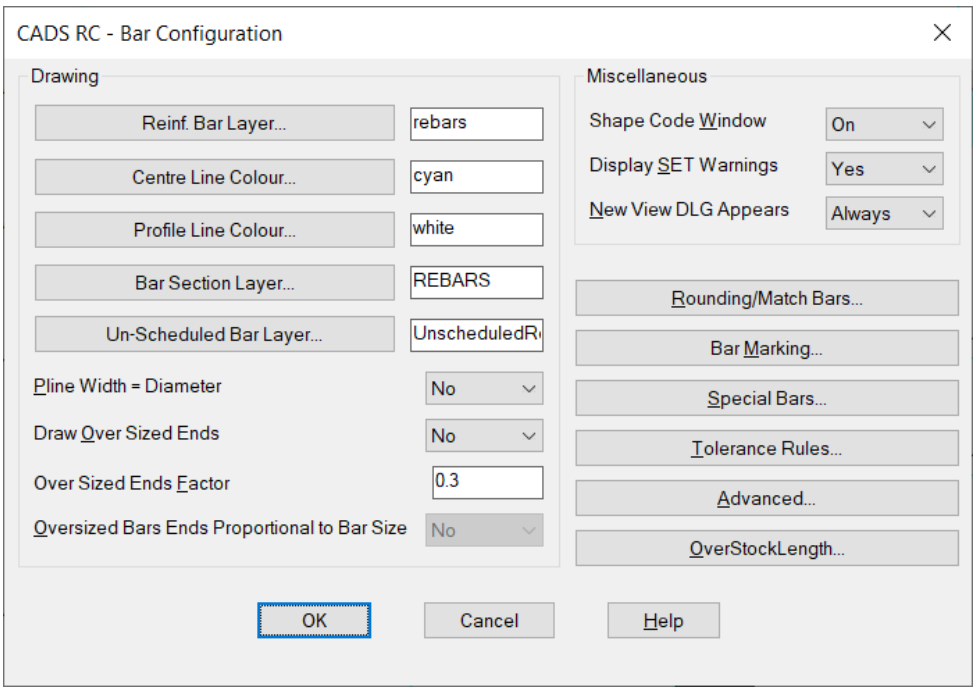


Figure 9.2 Bar Configuration Dialog

The options shown in the dialog are as follows: -

8.5.1 Reinf. Bar Layer

This is the colour the bar will be drawn if set to centre line mode when the Group Layering Option is OFF. The required colour can be typed into the field or the Centre Line Colour Button can be picked to invoke the standard AutoCAD colour selection dialog where the required colour can be picked from the colour palette.

8.5.2 Profile Line Colour

This is the colour the bar will be drawn if set to profile mode when the Group Layering Option is OFF. The required colour can be typed into the field or the Profile Line Colour Button can be picked to invoke the standard AutoCAD colour selection dialog where the required colour can be picked from the colour palette.

8.5.3 Bar Section Layer

This is the layer on which bar runs are placed when the Group Layering Option is OFF. The required layer can be typed into the field or the Bar Section Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.5.4 Pline Width = Diameter

If set to ‘Yes’, then bars will be drawn as plines with a width equal to the bar diameter.

8.5.5 Draw Over Sized Ends & Over Sized End Factor

If draw Over Sized Ends is set to NO, the donuts drawn at the end of bars to indicate the presence of another bar leg are drawn to the exact bar diameter. When set to Yes the donuts are scaled up by the factor defined in the Over Sized Ends Factor field.

8.5.6 Shape code Window

Set to 'On' if the shape code diagram is required when picking the insertion/dimensions of a bar.

8.5.7 Display SET Warnings

This option not required in this version.

8.5.8 New View DLG Appears

If you require the 'Bar Drawing' dialog to appear every time a new bar view is picked, then set to 'Always'; otherwise set to 'Never'.

8.5.9 Rounding / Match Bars

Accesses the Rounding/Match Bars Config as shown in Figure 9.3.

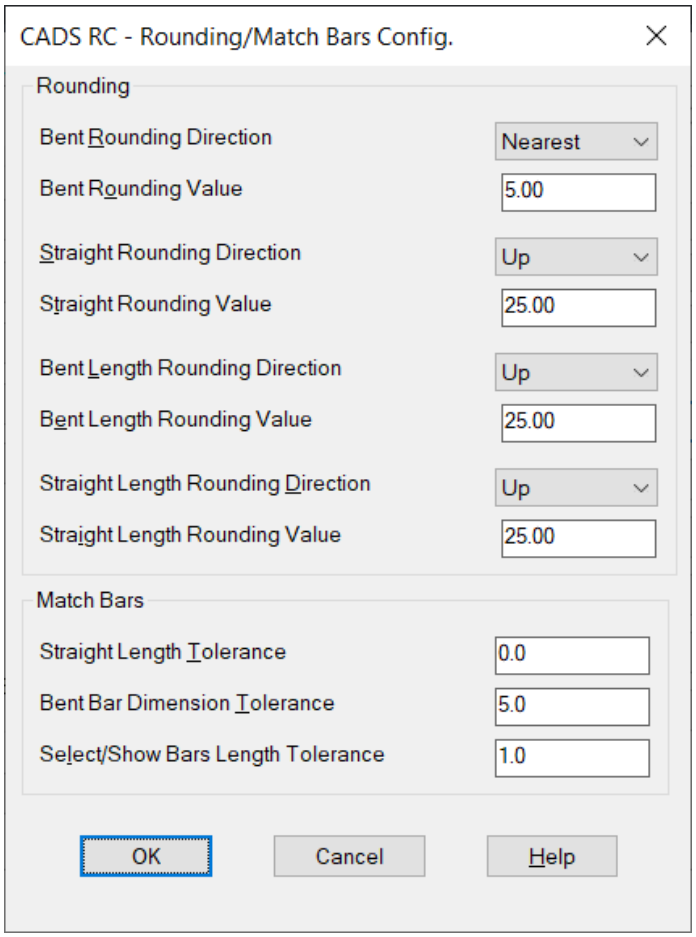


Figure 9.3 Rounding/Match Bars Config Dialog

The options shown in the dialog are as follows: -

Bent Rounding Direction

Defines the Schedule rounding direction (Up, Down or Nearest) applied to the bending dimensions of all bent bars and special bars.

Bent Rounding Value

Defines the Schedule numerical rounding value applied to the bending dimensions of all bent bars and special bars.

Straight Rounding Direction

Defines the Schedule rounding direction (Up, Down or Nearest) applied to the bending dimensions of all straight bars.

Straight Rounding Value

Defines the Schedule numerical rounding value applied to the bending dimensions of all straight bars.

Bent Length Rounding Direction

Defines the Schedule rounding direction (Up, Down or Nearest) applied to the bar length of all bent bars and special bars.

Bent Length Rounding Value

Defines the Schedule numerical rounding value applied to the bar length of all bent bars and special bars.

Straight Length Rounding Direction

Defines the Schedule rounding direction (Up, Down or Nearest) applied to the bar length of all straight bars.

Straight Length Rounding Value

Defines the Schedule numerical rounding value applied to the bar length of all straight bars.

Straight Length Tolerance

A tolerance value which will be used by the Match Bars function when processing straight bars may be entered. Straight bars with a difference in bar length less than or equal to the entered Straight Length Tolerance will be offered for bar mark matching.

Select/Show bars Length Tolerance

A tolerance value which will be used by the Select/Show Bars function when processing bars may be entered. Bars whose difference in bar length is less than or equal to the entered Select/Show Tolerance will be offered for bar mark matching.

8.5.10 Bar Marking

Accesses the Bar Marking Configuration dialog as shown in Figure 9.4.

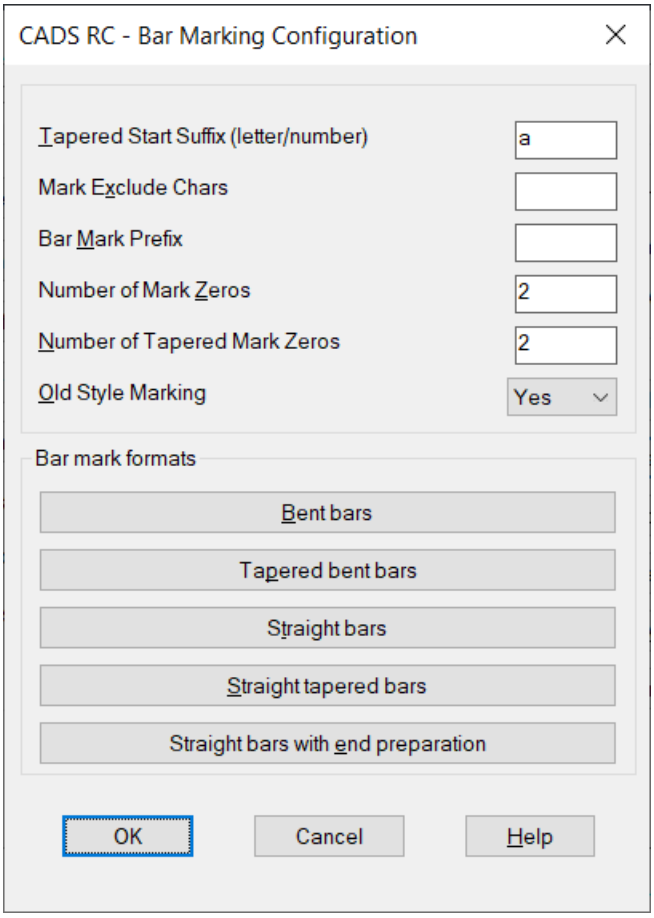


Figure 9.4 Bar Marking Configuration Dialog

The options shown in the dialog are as follows: -

Tapered Start Suffix

Enter the alpha or numerical suffix to be applied to the first bar in a tapered range.

Mark Exclude Characters

Enter any characters which may be present in any of the variables used in bar mark formats which are not to be included in the actual bar mark, e.g. If a bar mark format included prefixing with the bar size and the bar sizes were in the form 10M, 12M, 16M etc., bar marks would be in the form 10M01, 10M02 etc. Entering M in the Mark Exclude Chars would give bar marks 1001, 1002 etc. by excluding M from the bar mark system.

Bar Mark Prefix

Enter any prefix which is to be automatically applied to all bar marks.

Number of Mark Zeros

Entering 2 will give two digit bar marks such as 01, 02 etc., entering 3 will give three digit bar marks such as 001, 002 etc. and so on.

Number of Tapered Mark Zeros

Entering 2 will give tapered bar ranges two digit bar marks such as 01a, 02b etc., entering 3 will give three digit bar marks such as 001a, 002b etc. and so on.

Old Style Marking

This option is used when bar mark formats are set to prefix the bar mark with the bar size. When Old Style Marking is set to No and the bar mark format includes prefix with bar size, the bar marks are in the form 1001, 1002, 1201, 1003, 1202 e.g. each size begins with mark 01. When set to Yes and the bar mark format includes prefix with bar size, the bar marks are in the form 1001, 1002, 1203, 1004, 1205 e.g. bar marks are concurrent across bar sizes.

Bent, Tapered Bent, Straight and Straight Tapered Bar Mark Formats

Different Bar Mark Formats can be defined for these four bar type categories. Each format is defined via a Text Formatting dialog as shown in Figure 9.5.

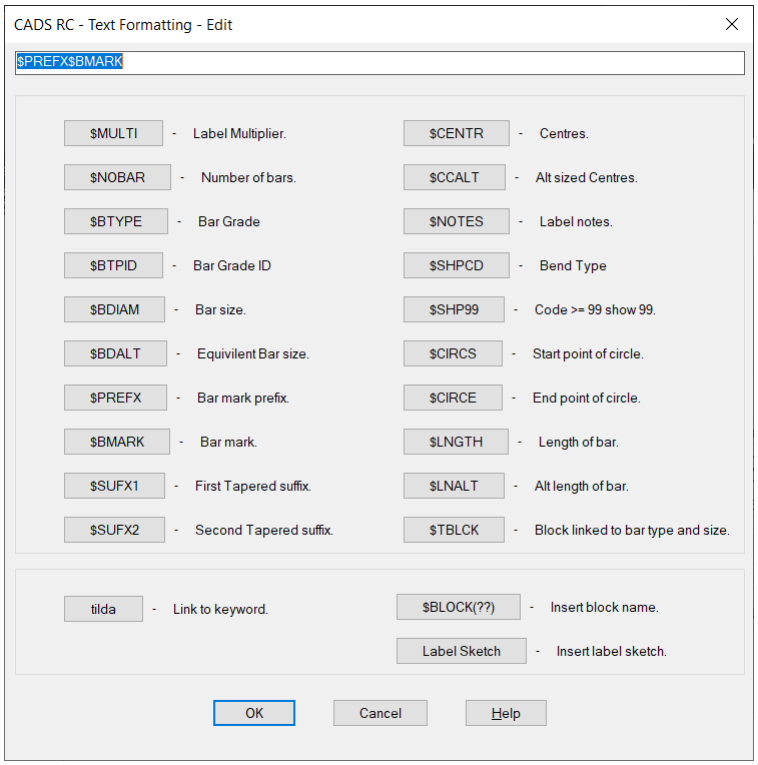


Figure 9.5 Bar Mark Format Dialog

For more information on setting up specific bar mark formats, please contact CADS Technical Support Department.

8.5.11 Special Bars

Accesses the CADS RC Special Bar Configuration Dialog as shown in Figure 9.6.

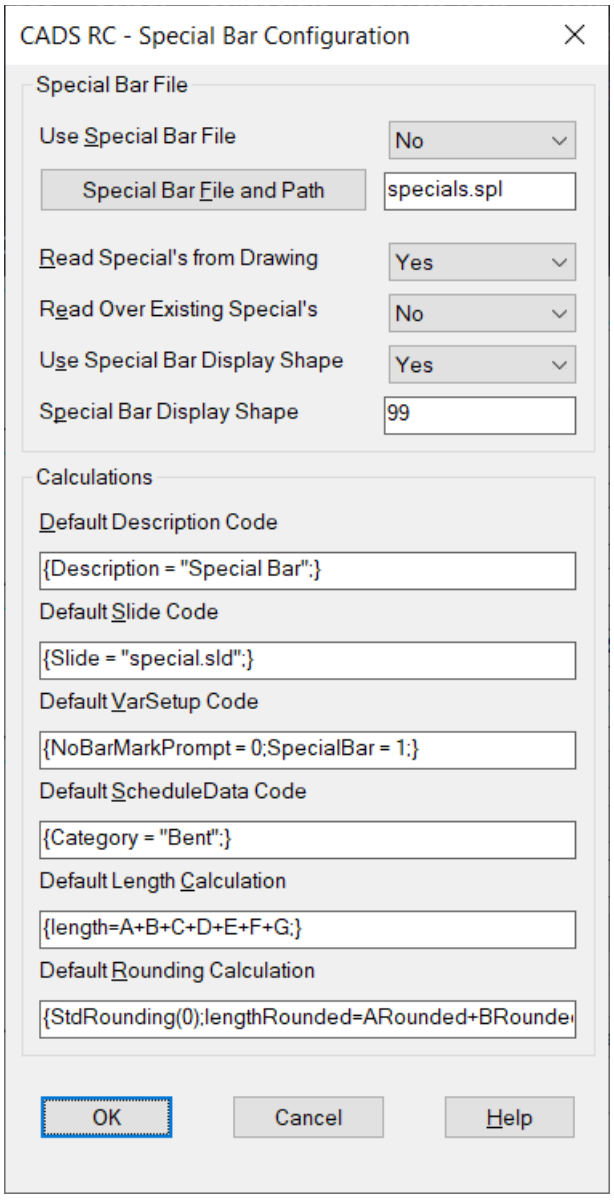


Figure 9.6 Special Bar Configuration Dialog

For information on how to define the Special Bar Configuration items, please contact CADS Technical Support Department.

Tolerance Rules

Not Applicable to this version.

9.5.14. Advanced Bar Configuration Options

Accesses the Advanced Bar Configuration Dialog as shown in Figure 9.8.

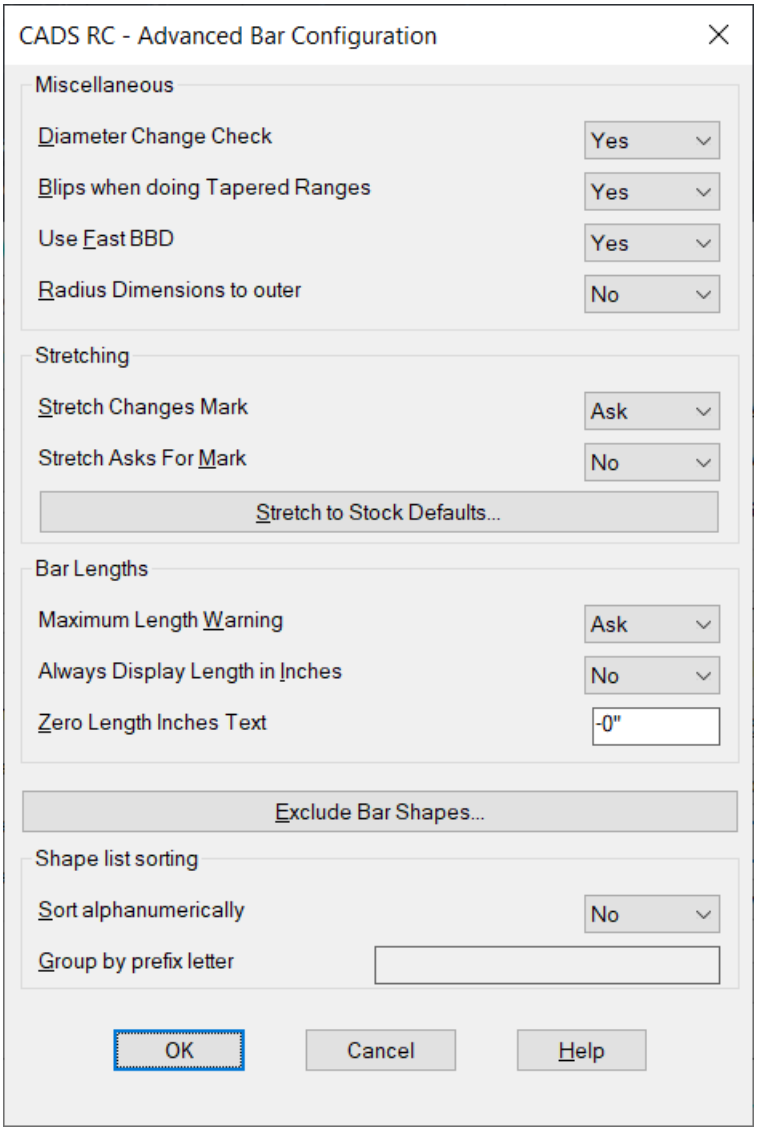


Figure 9.7 CADS RC Advanced Bar Configuration Dialog

The options shown in the dialog are as follows: -

Diameter Change Check

When an existing bar is edited and the bar diameter or bar type is changed, if Diameter Change Check is set to Yes, a dialog warning is displayed as a reminder to check that current lap lengths are adequate for the new bar diameter/type.

Blips when doing Tapered Ranges

When set to Yes, the endpoints of all bars within a Varying Taper Range are indicated by AutoCAD Blips.

Use Fast BBD

The Bar Bending Data (BBD) file is processed many times and for this reason it has been built into CADS RC as compiled code rather than Interpreted code (file). CADS RC checks the size of the Bar Bending Data (BBD) configured. If the file is the same size as the size that is recorded in the executable, then the internal compiled BBD is run. If the file size is different, then the configured BBD

File is interpreted. The user can force the BBD File to be interpreted by

configuring 'Use Fast BBD' to No in the Bar configuration. The default is YES for speed.

Radius Dimensions To Outer

Standard shape codes with radius dimensions can be scheduled with the radius to the inside or outside face of the bar. When set to No, the radius dimension is that to the inside face of the bar.

Stretch Changes Mark

This option controls how the Stretch Edit function reacts if there are other sets of a bar which are undergoing a stretch. The options are: -

- Yes - If other sets exist, the bar undergoing the stretch is automatically assigned a new bar mark, leaving the existing sets un-altered.
- No - If other sets exist, they will be updated to the new dimensions of the bar undergoing the stretch.
- Ask - If other sets exist, the program will ask if the bar undergoing the stretch is to be assigned a new bar mark.

Stretch Asks For Mark

This option works in conjunction with the Stretch Changes Mark option above and relates to the allocation of new bar marks. The options are: -

- Yes - When new bar marks are being allocated, the user is asked to confirm each new bar mark.
- No - New bar marks are automatically assigned using the next available bar mark in the sequence.

Stretch to Stock Defaults

Accesses the CADS RC Stretch to Stock Defaults dialog as shown in Figure 9.8. These are the default settings used by the Stretch to Stock function.

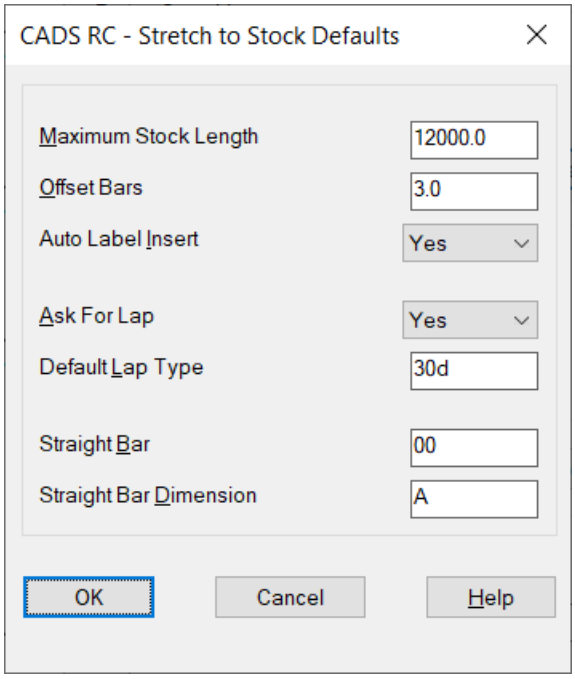


Figure 9.8 Stretch to Stock Defaults Dialog

The options shown in the dialog are as follows: -

Maximum Stock Length

This is the maximum bar length to be used, when the stretched bar would exceed this length additional bars are added with laps to complete the reinforcement detail.

Offset Bars

This is the plotted distance which lapping bars are offset to make the lap visible on the drawing.

Auto Label Insert

When set to Yes, as each additional lapped bar is detailed placement of the associated bar label is offered. The bar to which the label relates is highlighted to assist in correct placement of the bar label.

Ask For Lap

When set to Yes, the user is asked to confirm/enter the required lap length to be used. When set to No, the default lap value is used.

Default Lap Type

Enter the required default lap type.

Straight Bar

Enter the shape code defined in the bdf file for straight bars.

Straight Bar Dimension Enter the straight bar dimension.

Maximum Length Warning

CADS RC allows a maximum bar length to be set. If this length is exceeded, the outcome is controlled by the Maximum Length Warning setting. The options are as follows: -

1. Ask - If the maximum bar length is exceeded, a dialog is displayed allowing the user to either detail the bar as drawn or abort the bar drawing operation.
2. Print- If the maximum bar length is exceeded, a warning is printed on the command line.
3. Abort - If the maximum bar length is exceeded, the bar drawing operation is aborted.

Always Display Length Inches

This option is only relevant when detailing in feet and inch units. When set to Yes, bar dimensions which are exact feet values will display the inch value of 0. When set to No, the inch value will not be shown.

Zero Length Inches Text

Used when Always Display Length Inches is set to Yes. The text entered will be used for zero inch values, e.g. 0” would give 5’0” whereas -0” would give 5’-0”.

Exclude Bar Shapes

Accesses the CADS RC Select Bar Shapes to be Excluded dialog as shown in Figure 9.10.

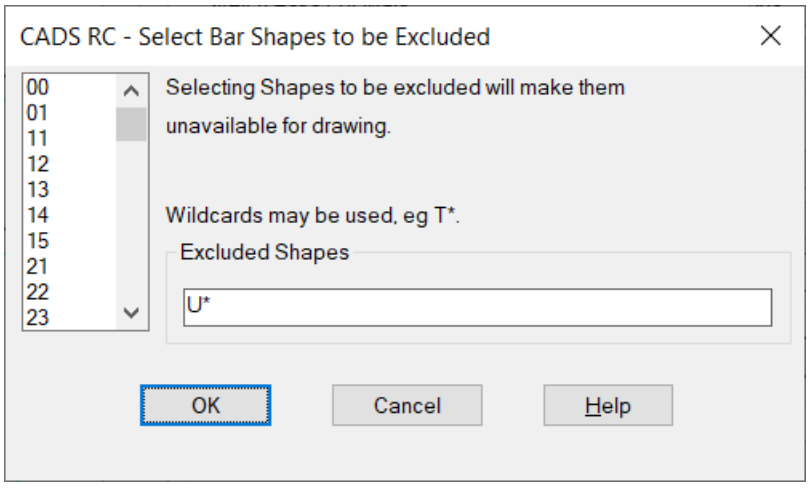


Figure 9.9 Select Bar Shapes to be Excluded Dialog

Selecting with a double click a shape code from the shape code list will add that shape to the Exclude Shapes field and remove those shape codes from the bar drawing and bar editing dialog. If a shape code is deleted from the Exclude shapes field, it will become available for use in the Bar Drawing and Bar Editing dialog.

8.6 Label Configuration

The 'Label Configuration' dialog contains the configurations for all labelling and annotation options.

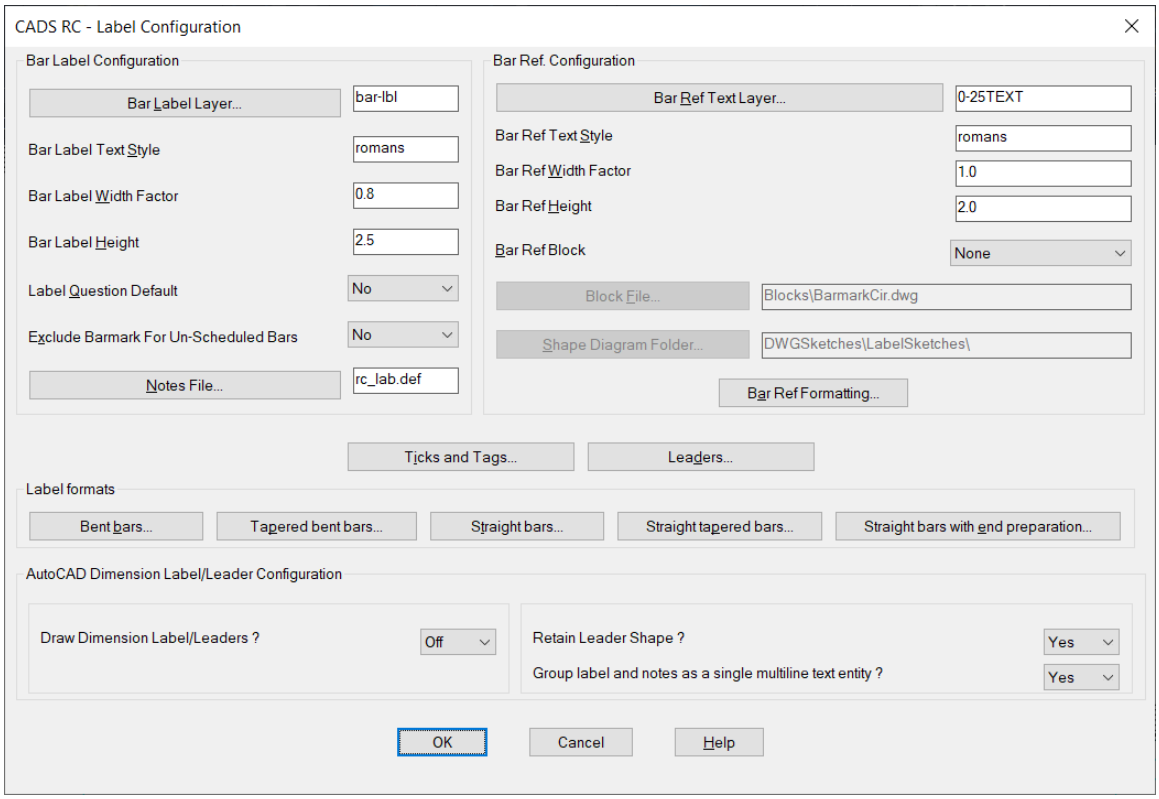


Figure 9.11 Label Configuration Dialog

The options shown in the dialog are as follows: -

8.6.1 Bar Label Layer

This is the layer on which the Bar Labels are drawn when the Group Laying

Option is OFF. The required layer can be typed into the field or the Bar Label Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.6.2 Bar Label Text Style

This is the text style used for Bar Labels.

8.6.3 Bar Label Width Factor

This is the width factor applied to Bar Label text.

8.6.4 Bar Label Height

This is the height of the Bar Label text in plotted mm/inches.

8.6.5 Label Question Default

This is the default offered at the 'Label Bar' prompt. The options are as follows:

'Yes' - The prompt will display 'Label Bar <Yes>'

'No' - The prompt will display 'Label Bar <No>'

'None' - The bar must be labelled to complete the bar / range drawing function.

8.6.6 Exclude Barmark For Un-Scheduled Bars

<TO DO>

8.6.7 Notes File

This is the standard notes File Name and Path. The file name and path can be typed into the field or the Notes File button picked and the required file selected from a standard file selection dialog.

A default notes file ??\CADS_RC\PARAMS\RC_LAB.DEF is supplied, this file can be copied and used to create your own notes file.

8.6.8 Label formats

The Label Format options allows you to control the layout and contents of Bar Label for

- Bent bars;
- Tapered bent bars;
- Straight bars;
- Straight tapered bars;
- Straight bars with end preparation.

It is accessed by picking the Label Format button. The current label format is displayed inside the CADS RC Text Formatting - Edit dialog as shown in Figure 9.11.

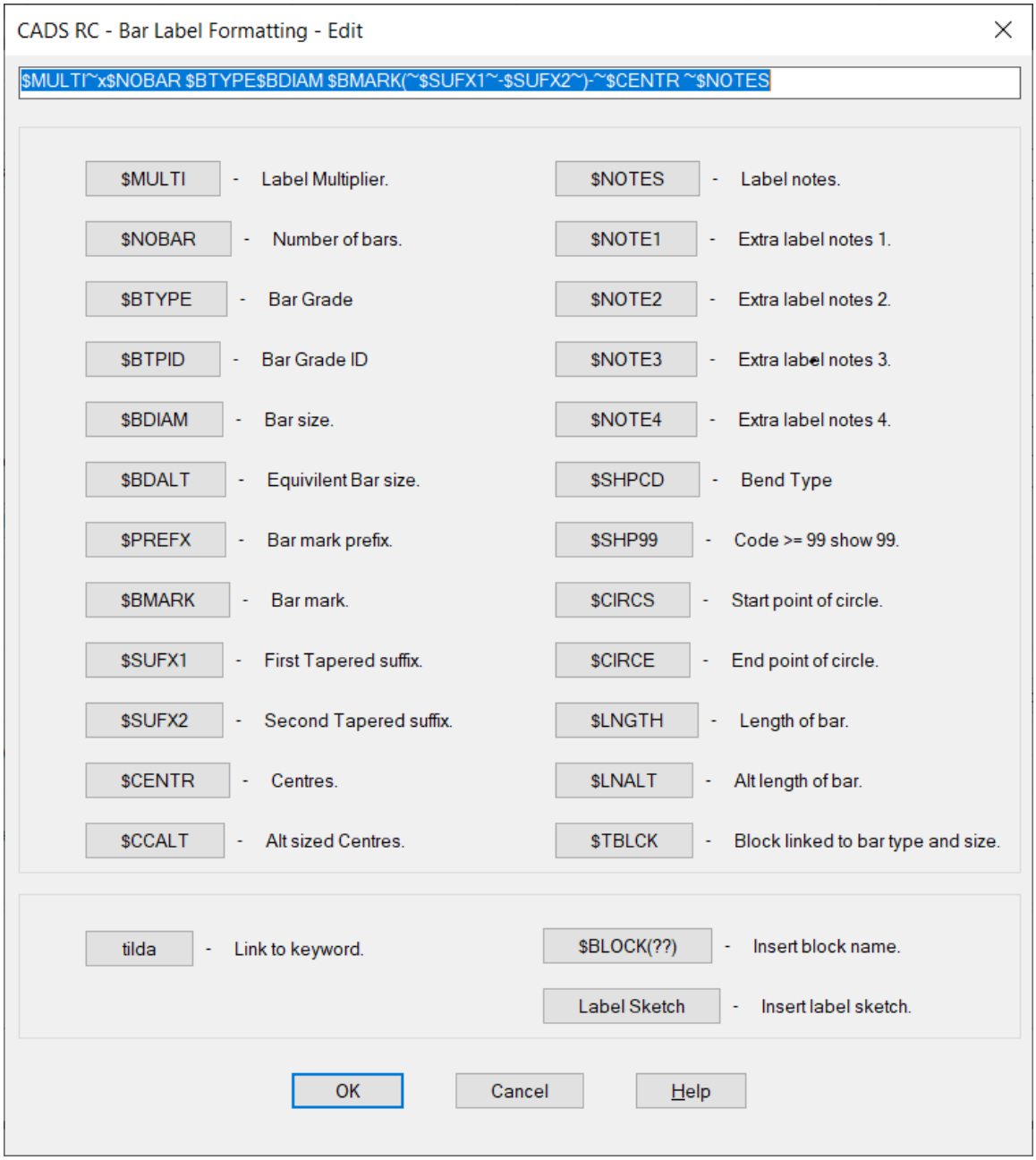


Figure 9.11 Label Format Dialog

For more information on setting up specific bar label formats, please contact CADS Technical Support Department.

8.6.9 Bar Reference Text Layer

This is the layer on which the Bar Ref's are drawn when the Group Laying Option is OFF. The required layer can be typed into the field or the Bar Ref. Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.6.10 Bar Ref. Text Style

This is the text style used for Bar Ref's.

8.6.11 Bar Ref. Width Factor

This is the width factor applied to Bar Ref. text.

8.6.12 Bar Ref. Height

This is the height of the Bar Ref. text in plotted mm/inches.

8.6.13 Bar Ref. Formatting

The Bar Ref. Formatting options allow you to control the layout and contents of Bar Ref's. Accessed by picking the Bar Ref. Formatting button the current format is displayed inside the CADS RC Text Formatting - Edit dialog as shown in Figure 9.12.

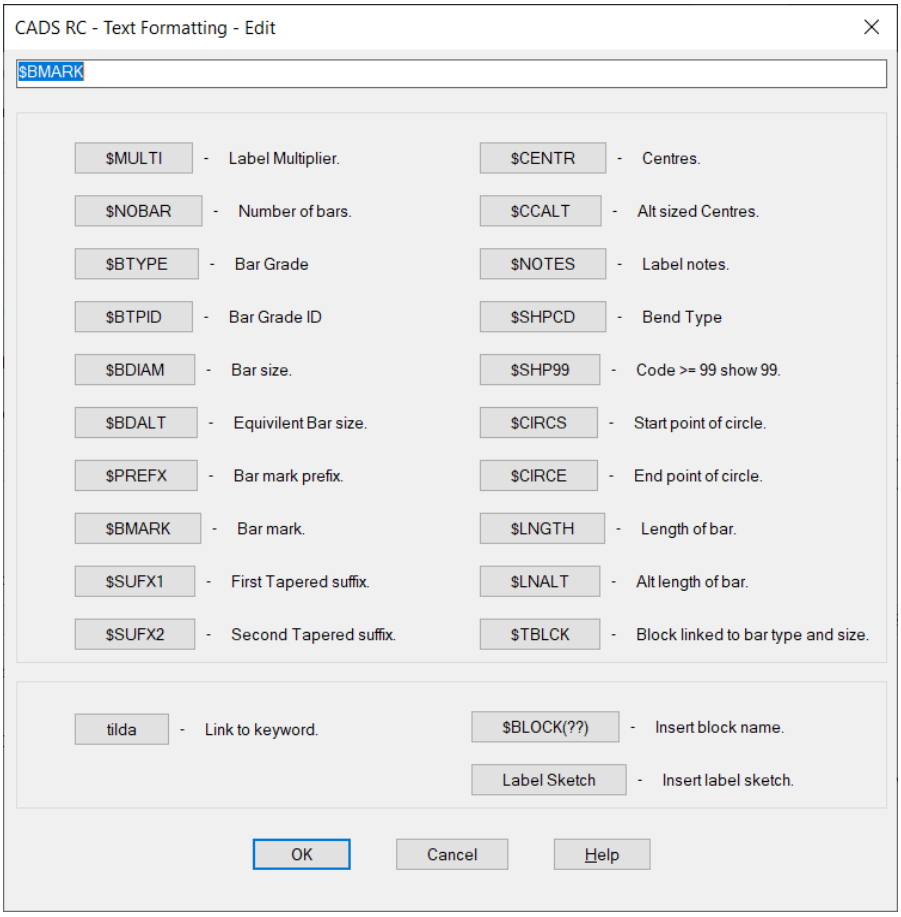


Figure 9.12 Bar Reference Format Dialog

For more information on setting up specific bar reference formats please contact CADS Technical Support Department.

8.6.14 Tick & Tag Configuration

The Tick & Tag configuration is available by picking the Ticks and Tags button inside the CADS RC Label Configuration dialog. This accesses the CADS RC Tick & Tag Configuration dialog, as shown in Figure 9.13.

Clicking on a slide will display a description of that configuration item in the top left corner of the dialog. The configuration items are as follows:

Offset from bar end to tail start

Enter required distance in plotted mm/inches. A negative value forces the tail past the bar end the entered distance. A positive distance will stop the tail the entered distance short of the bar.

Offset from bar end to tail top

Enter required distance in plotted mm/inches.

Offset from bar end to arrow tip

Enter required distance in plotted mm/inches.

Width of arrow head

Enter required width in plotted mm/inches.

Length of arrow head

Enter required length in plotted mm/inches.

Length of arrow tail

Enter required length in plotted mm/inches.

Height of Bar Mark text

Enter required height in plotted mm/inches.

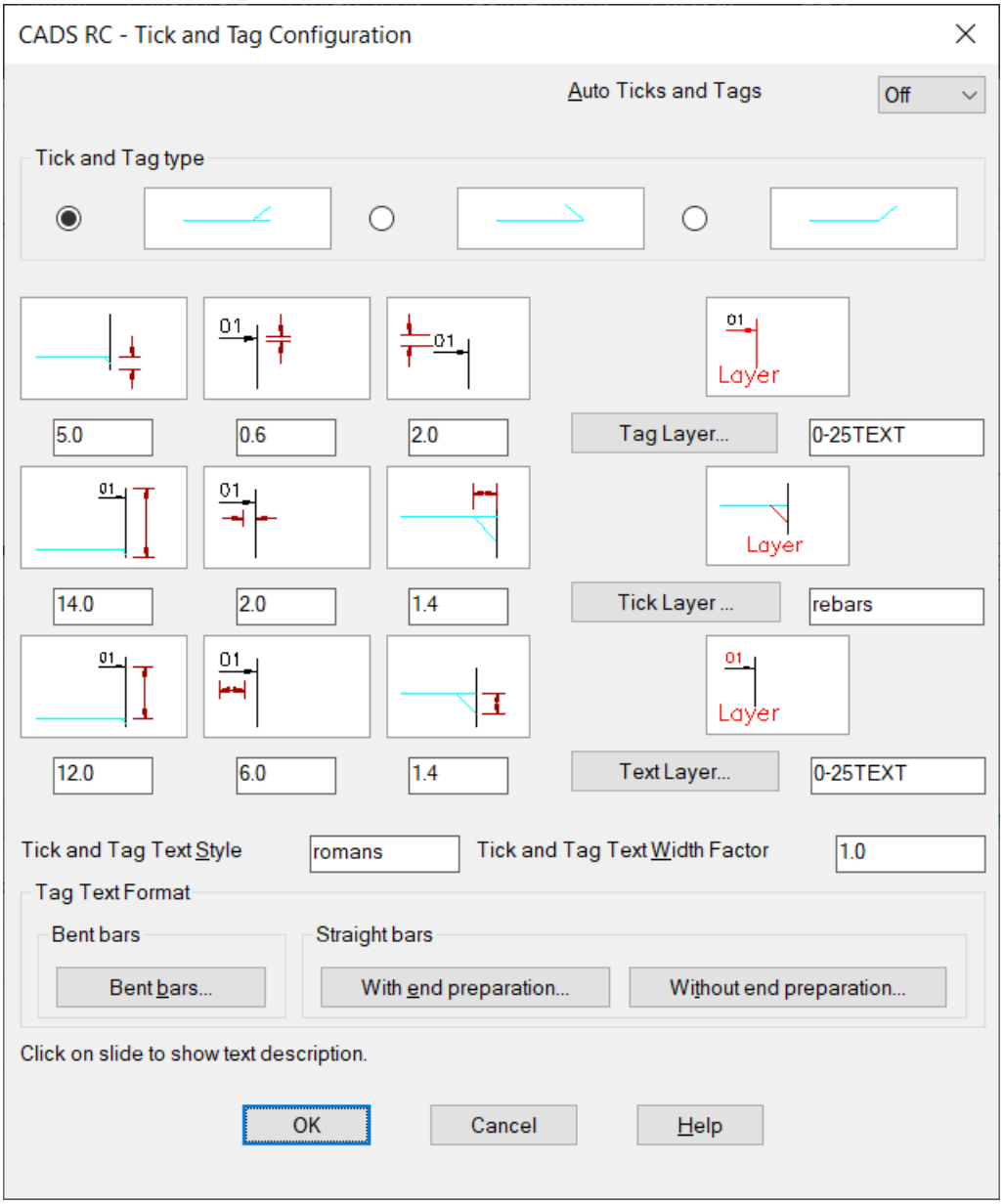


Figure 9.13 Tick & Tag Configuration Dialog

Length of tick

Enter required length in plotted mm/inches.

Height of tick

Enter required height in plotted mm/inches.

Tag Layer

This is the layer on which the Tags are drawn when the Group Layering Option is OFF. The required layer can be typed into the field or the Tag Layer button can be picked to invoke a standard layer

selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Tick Layer

This is the layer on which the Ticks are drawn when the Group Layering Option is OFF. The required layer can be typed into the field or the Tick Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Text Layer

This is the layer on which the Text is drawn when the Group Layering Option is OFF. The required layer can be typed into the field or the Text Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Auto Ticks & Tags

If set to ON, then as each bar view is drawn you are prompted to attached Ticks & Tags. If set to OFF, then no prompt is offered for Tick & Tag attachment.

Tag Text Format

The Tag Text Formatting options allow you to control the layout and contents of the Tag text. They are accessed by picking the Tag Text Format button. The current format is displayed inside the CADS RC Text Formatting - Edit dialog, as shown in Figure 9.14.

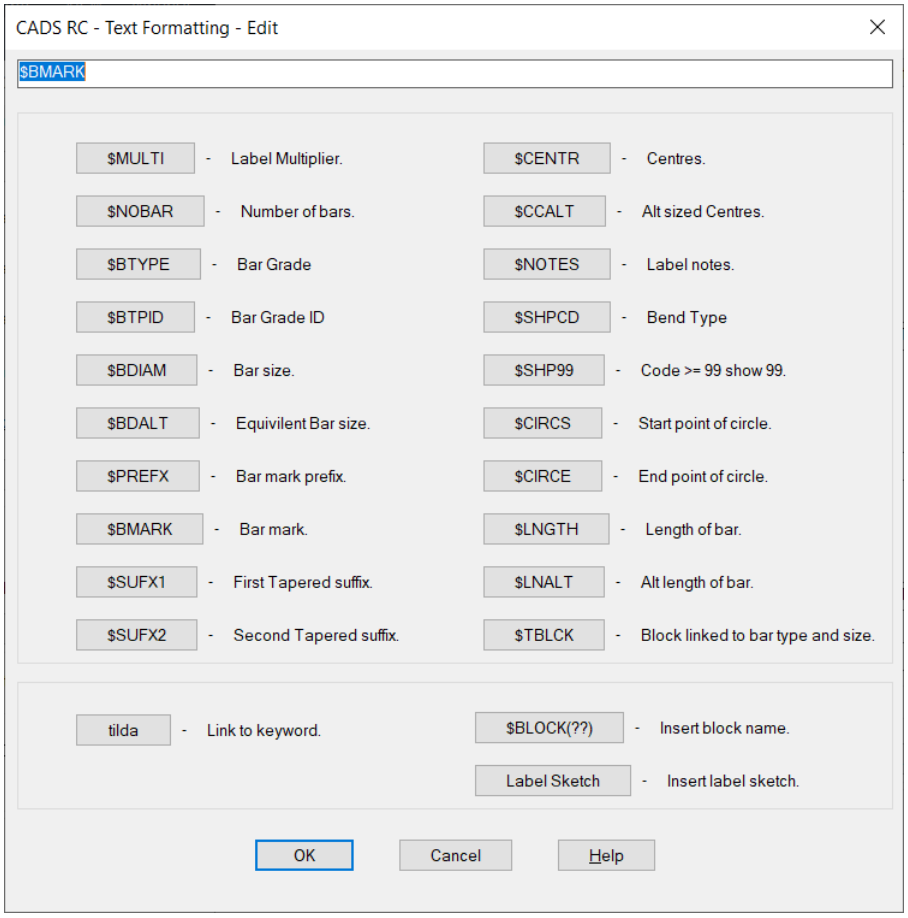


Figure 9.14 Text Formatting - Edit Dialog

For more information on setting up specific bar reference formats, please contact CADS Technical Support Department.

8.6.15 Leader Configuration

The Leader configuration is available by picking the Leaders button inside the CADS RC Label Configuration dialog. This accesses the CADS RC Leader Configuration dialog, as shown in Figure 9.15.

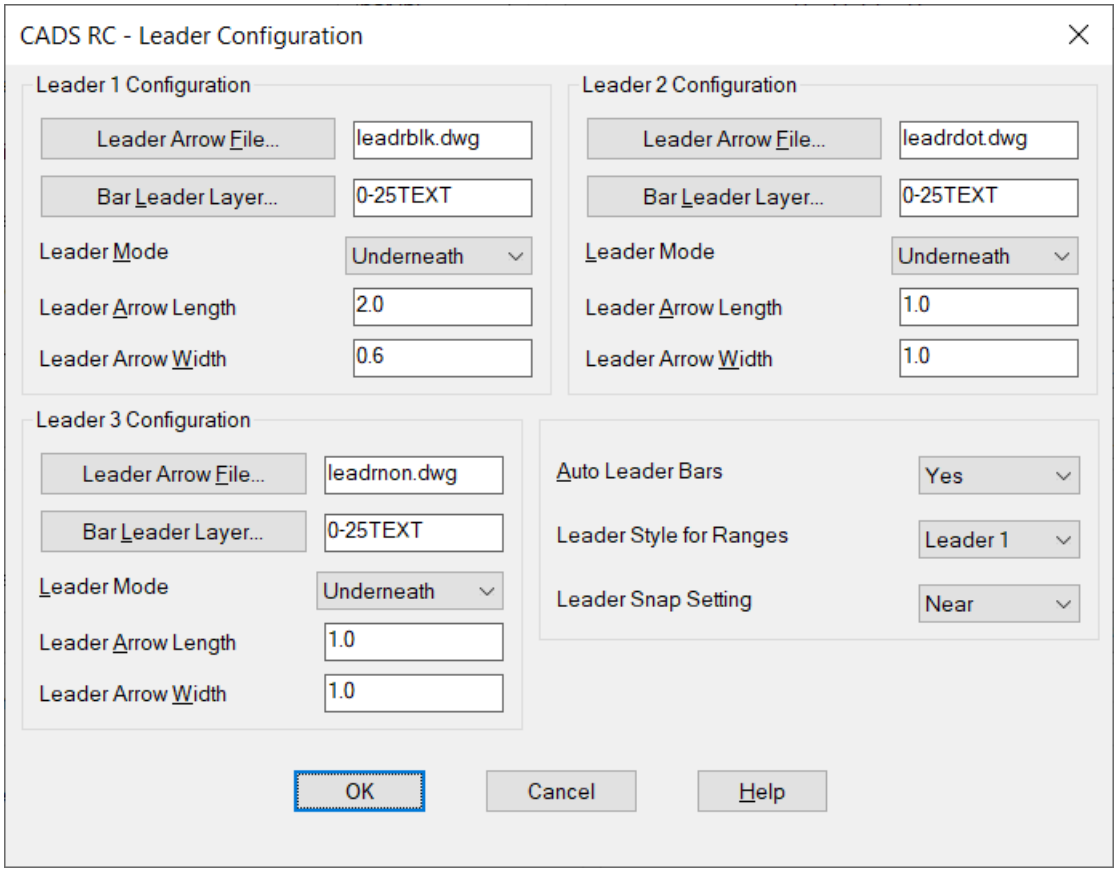


Figure 9.15 Leader Configuration Dialog

This configuration controls the Leader 1, Leader 2 & Leader 3 options available from the Labelling options. This does not affect the standard AutoCAD Leader. Three Leader types are available, namely Leader 1, Leader 2 and Leader 3. The

CADS RC Leader Configuration dialog has identical options for Leader 1, Leader 2 and Leader 3, so the configuration options listed below apply to all types.

Leader Arrow File

This is the leader block File Name and Path. The file name and path can be typed into the field or the Leader Arrow File Button picked and the required file selected from a standard file selection dialog. This block is inserted on the end of the leader to form the arrow or donut as required in Leader 1 or 2.

Bar Leader Layer

This is the layer on which the Leader is drawn when the Group Laying Option is OFF. The required layer can be typed into the field or the Bar Leader Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Leader Mode

If set to Underneath, then the leader will be drawn underlining the bar label. If set to Centre, then the leader will be drawn from the end of the bar label.

Leader Arrow Length

This is the length of the leader arrowhead in drawn mm/inches for Leader 1 and the donut diameter in Leader 2.

Leader Arrow Width

This is the width of the leader arrowhead in drawn mm/inches for Leader 1 and the donut diameter in Leader 2.

Auto Leader Bars

Setting to Yes will automatically call the leader command if after drawing a bar view the associated label is immediately placed by entering Yes at the label bar prompt.

8.7 Range Configuration

The Range Configuration dialog contains the configuration of the ranges.

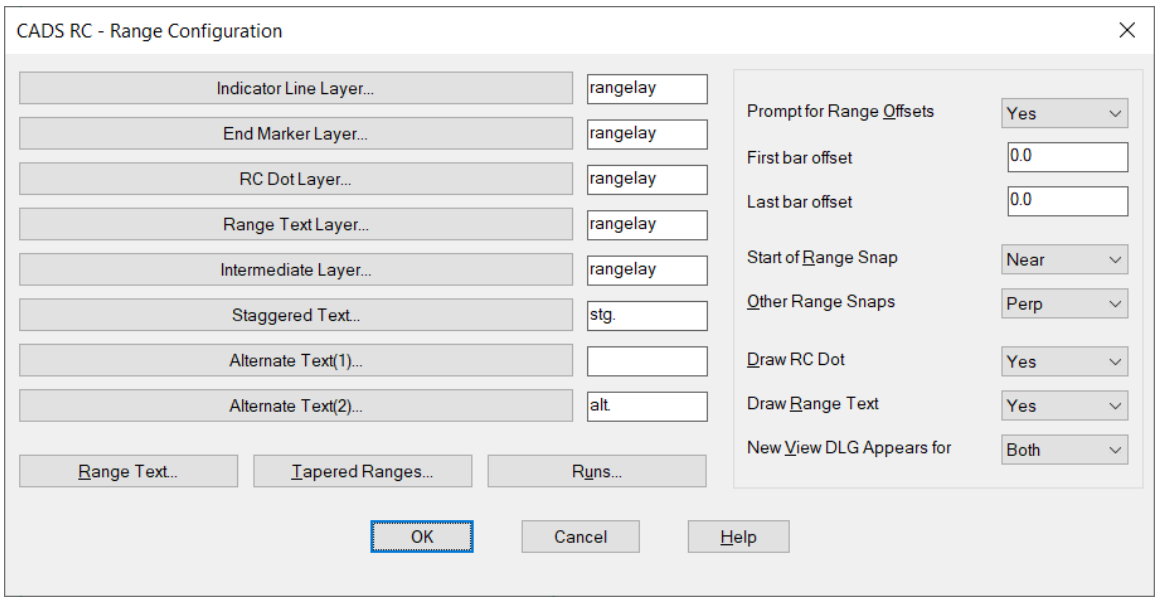


Figure 9.16 Range Configuration Dialog

The options shown in the dialog are as follows: -

8.7.1 Indicator Line Layer

This is the layer on which the Range line is placed when the Group Layering

Option is OFF. The required layer can be typed into the field or the Indicator Line Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.7.2 End Marker Layer

This is the layer on which the Range Line End Markers are placed on when the Group Layering Option is OFF. The required layer can be typed into the field or the End Marker Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.7.3 RC Dot Layer

The RC dot is a block which is inserted at the intersection point of the range line and the bar drawn. The RC Dot Layer is the layer which the RC dot is placed on when the Group Layering Option is OFF. The required layer can be typed into the field or the RC Dot Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.7.4 Range Text Layer

This is the layer that any range text is placed on when the Group Layering Option is OFF. Range Text is text associated with a range type, i.e. on multiple ranges text is displayed to show group c/c in the form (17+16) @8”.

The required layer can be typed into the field or the Range Text Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.7.5 Intermediate Layer

This is the layer which the multiple range intermediate lines are placed on when the Group Layering Option is OFF. The intermediate lines are the lines between groups of bars in multiple group ranges. The required layer can be typed into the field or the Intermediate Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.7.6 Staggered Text

This is the text that is copied into a Staggered Range Bar Label. The required text can be typed into the field or the Staggered Text Button can be picked to invoke the Standard Note dialog where the required note can be selected from the displayed list.

8.7.7 Alternate Text (1)

This is the text that is copied into the label of the first bar drawn in an Alternate

Range. The required text can be typed into the field or the Alternate Text (1) Button can be picked to invoke the Standard Note dialog where the required note can be selected from the displayed list.

8.7.8 Alternate Text (2)

This is the text that is copied into the label of the second bar drawn in an

Alternate Range. The required text can be typed into the field or the Alternate Text (2) Button can be picked to invoke the Standard Note dialog where the required note can be selected from the displayed list.

8.7.9 First Bar Offset

When drawing a bar range, a prompt 'first bar offset' is given when the start of the range has been picked to allow the start point to be offset from the picked point. The value entered in this field will be offered as a default at the 'first bar offset' prompt.

8.7.10 Last Bar Offset

When drawing a bar range, a prompt 'last bar offset' is given when the end of the range has been picked to allow the end point to be offset from the picked point. The value entered in this field will be offered as a default at the 'last bar offset' prompt.

8.7.11 Start of Range Snap

When drawing a bar range it is quite common to use AutoCAD snaps to pick the start point of the bar range. This option allows the user to configure different snaps from those currently configured when picking the start point of a range.

The options are as follows: -

Leave - Keep current OSNAP setting.

None - No OSNAP End - Endpoint etc.

8.7.12 Other Range Snaps

When drawing a bar range, it is quite common to use AutoCAD snaps to pick the end point of the bar range (or the start point of intermediate groups in multiple ranges). This option allows the user to configure different snaps from those currently configured when picking the end or the start point of intermediate groups in multiple ranges.

The options are as follows: -

Leave - Keep current OSNAP setting.

None - No OSNAP End - Endpoint etc.

8.7.13 Draw RC Dots

Set to 'Yes' if RC Dots are required. See also 'RC Dot Layer'.

8.7.14 Draw Range Text

Set to 'Yes' if range text is required. See also 'Range Text Layer'.

8.7.15 New View DLG Appears

The user may not want to look at the 'Bar Drawing' dialog every time a new view is being carried out for a range or run.

The options are as follows:-

Both - DLG appears for both new view Range or Run

Range - DLG appears for range only

Run - DLG appears for run only

Neither - DLG doesn't appear for either range or run

9.7.16. Tapered Ranges

The ‘Tapered Ranges Config.’ dialog contains the automatic range stepping configuration as shown in Figure 9.17.

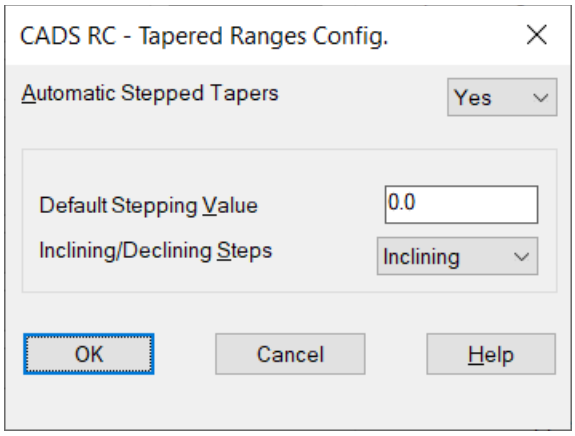


Figure 9.17 Tapered Ranges Config. Dialog

The options shown in the dialog are as follows: -

Automatic Stepped Tapers

When set to Yes, linear tapered ranges will automatically have a step taper applied to the default value.

Default Stepping Value

This is the default step/grouping value.

Inclining/Declining Steps

When set to Inclining, the step/grouping will be applied starting from the shortest bar.

When set to Declining, the step/grouping will be applied starting from the longest bar.

8.7.16 Runs

The 'Runs' dialog contains the bar run sizing configuration, as shown in Figure 9.18.

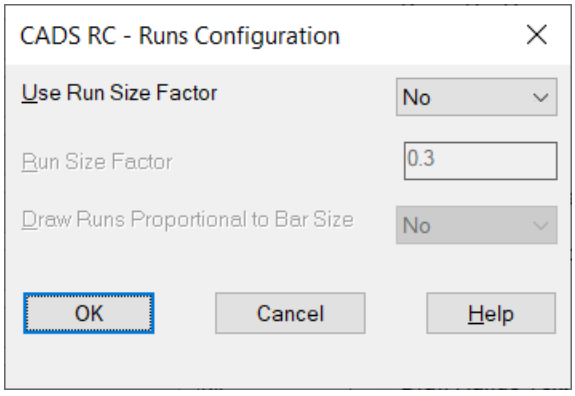


Figure 9.18 Runs Configuration Dialog

The options shown in the dialog are as follows: -

Use Run Size Factor

When set to Yes, bar runs are drawn to the plotted size entered in the Bar Size Factor option.

When set to No, bar runs are drawn to the exact bar diameter.

Bar Size Factor

Enter the plotted size for all bar runs regardless of diameter or drawing scale.

8.8 Coupler Configuration

The 'Coupler Configuration' dialog contains the configuration for coupler settings and annotation on both the drawing and Schedule.

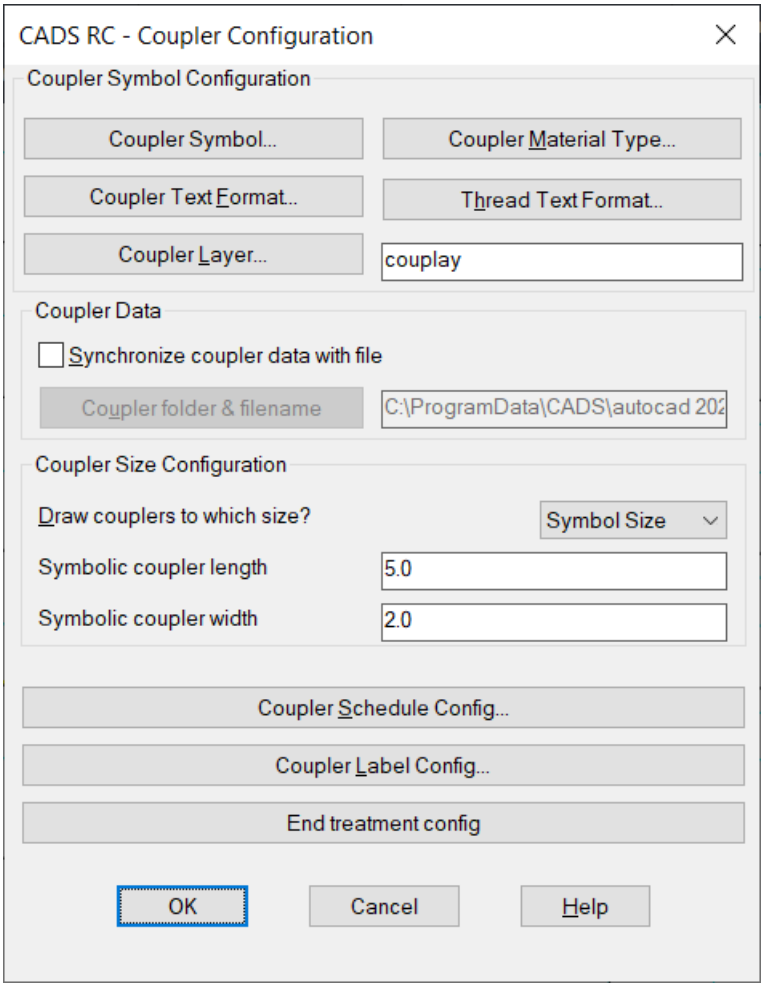


Figure 9.19 Coupler Configuration Dialog

The options shown in the dialog are as follows: -

8.9 Miscellaneous Configuration

The ‘Miscellaneous Configuration' dialog contains general configuration options.

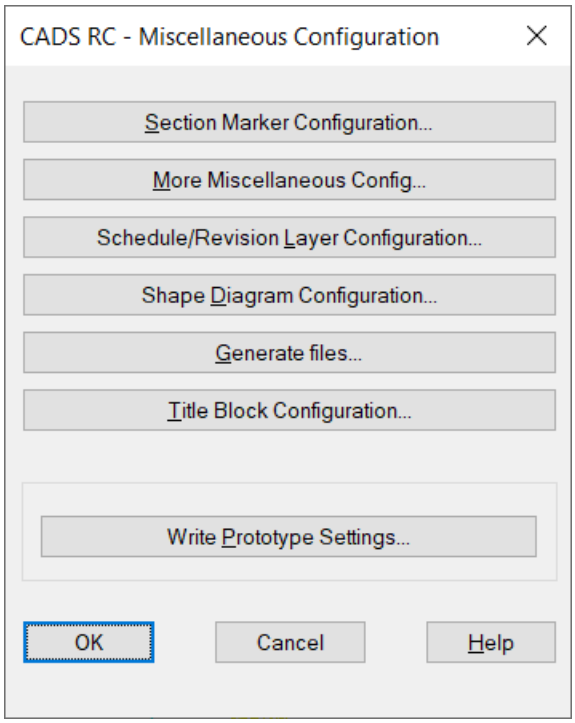


Figure 9.27 Miscellaneous Configuration Dialog

The options shown in the dialog are as follows:-

8.9.1 Section Marker Configuration

Accesses the Section Marker Configuration dialog shown in Figure 9.29.

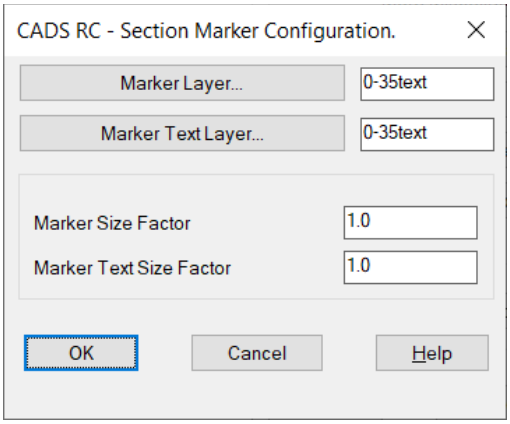


Figure 9.29 Section Marker Configuration Dialog

This configuration controls the size and layers used for the Section Markers available from the Tools & Symbols option.

Marker Layer

This is the layer the section marker symbol is placed on. The required layer can be typed into the field or the Marker Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Marker Text Layer

This is the layer the section marker text is placed on. The required layer can be typed into the field or the Marker Text Layer button can be picked to invoke a standard layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Marker Size Factor

This is a size factor, which controls the drawn size of the section markers.

Marker Text Size Factor

This is a size factor, which controls the drawn size of the section marker text.

8.9.2 More Miscellaneous Configuration

Accesses the Miscellaneous Configuration dialog shown in Figure 9.30.

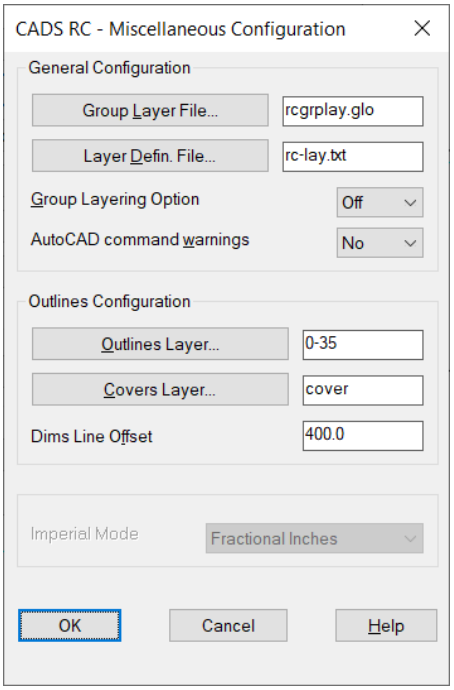


Figure 9.30 Miscellaneous Configuration Dialog

This configuration controls a number of general configuration options.

Library Dir.

This is the default path to where the Rebar Library reads or writes particular details. The required path can be typed into the field or by picking the Library Dir. Button the required path can be selected using a standard path selection dialog.

Group Layer File

This is the file which describes layer groups to appear on the side menu. The required file can be typed into the field or by picking the Group Layer File Button the required file can be selected using a standard file selection dialog. This file is only used if the Group Layering Option is ON.

For more information on the Group Layering Option, see Chapter 6.

Layer Define File

The 'Layer Definition File' describes how layers are created. This file requires editing when the GLO file has been changed. The required file can be typed into the field or by picking the Layer Define. File Button the required file can be selected using a standard file selection dialog.

For more information on the Group Layering Option, see Chapter 6.

Group Layering Option

Set to 'On' if the Group Layering Options are required.

AutoCAD command warnings

Not required in this version.

Outlines Layer

This is the layer on which the outlines of any CADS RC Outlines are placed. The required layer can be typed into the field or the Outlines Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Cover Layer

This is the layer on which the cover lines of any CADS RC Outlines are placed. The required layer can be typed into the field or the Cover Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

Dims Line Offset

The distance that the dimensions are drawn away from the outline of any CADS RC Outline. This value is in DRAWING UNITS.

Imperial Mode

This configuration option is available when feet/inch units are in use and it determines whether fractional or decimal inches are to be used.

9.9.4. Write Prototype Settings

This allows you to write out a new .ini file to the hard disk, which will contain any changes made to the configuration. This will mean that any new drawings started

subsequently using the comparable .def file will have the new .ini file configuration as default settings.

8.10 Support Files

CADS RC uses 5 support files to determine the shape codes, bar types, bar bending rules etc. to be used. Support files can be configured via the CADS RC Support File dialog, as shown in Figure 9.31.

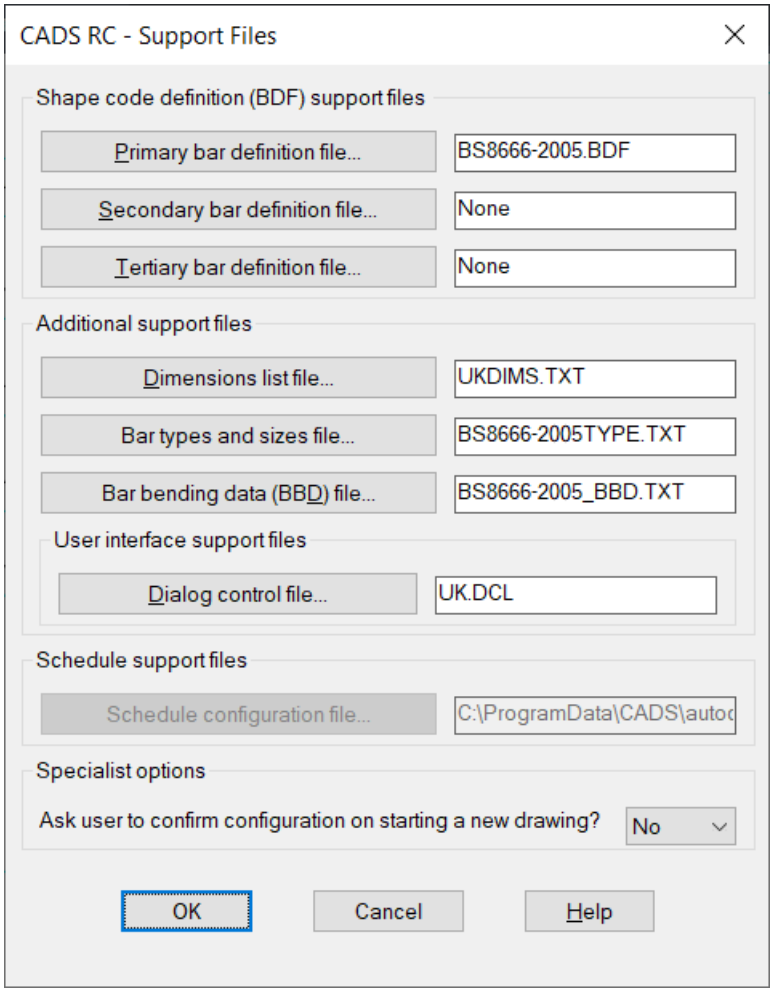


Figure 9.31 Support File Dialog

8.10.1 Bar Dims Txt Files

This is the file which specifies the dimension names that are to be used within CADS RC.

CADS RC can handle up to 25 dimensions, each with different names of any length.

Dimension names can be anything, e.g. A, B, C etc. or A1, A2, A3 etc. or Peter, Piper, Pecked etc. Basically, anything that is required.

The total number of lines in the file depicts the total number of dimensions that are used within CADS RC. Again, 25 is the limit.

It is advised not to change this file, as it is the base file from which all other support files work. Changing this file would require changing the Configured Def file, the Bar Bending Data File (BBD) and also the Bar Description File (BDF).

8.10.2 9.10.2. Bar Types File

This file describes the different Bar Steel Types available to CADS RC.

There is no limit to the number of different bar types available to CADS RC. Bar Types are specified by declaring the '**' keyword before the actual name of the Bar Steel Type. e.g.:

**T

{

}

This will declare a new Bar Steel Type of type 'T'.

CADS RC uses many variables that are declared in each Bar Steel Type, these are as follows:

Description	-	This is a written description of the Bar Steel Type
bartype_id	-	This is used when a Bar Steel Type is the same, in data, as another Bar Steel Type. For instance, in the UK types T and R control the rules for bending, all types other than R use type T's bending rules.
ProdGrade	-	This is used in the USA/Canada and is the Production Grade for the Production File Output.
Sizes	-	A string containing a comma separated list of available sizes.
AltSizes	-	A string containing a comma-separated list of Alternate sizes. This is used when, for instance, a drawing has been drawn in Imperial and needs to be output as Metric. The string must be in the same order as the Sizes list.
DrawnDia	-	The Drawn Diameter of the bar. This is again a comma- separated list which must be in the same order as the Sizes.
NominalDia	-	The Nominal Diameter of the bar. This is again a comma- separated list which must be in the same order as the Sizes.
Weight	-	Cross Sectional Weight of the Bar. This is again a commaseparated list which must be in the same order as the Sizes.
LAPDATA$???	-	A string containing a comma-separated list of available laps. The user may add as many LAPDATA's as is required. The '???' specifies the name of a specific Lap. Again, this is a comma-separated list which must be in the same order as the Sizes.
LengthMax	-	A string containing the maximum length for a particular size of bar. This is again a comma-separated list which must be in the same order as the Sizes.

BlockName	-	This variable specifies the block which can be inserted onto a label using the $TBLCK keyword in the label format configuration. If only a block name is specified e.g. "c:\tmp\block", then this will be inserted for every size. If a comma-separated list is supplied, then in the order in which the Sizes are specified, the blocks will be inserted for each size.

The user may also add additional variables which can be referenced in other support files.

8.10.3 Bar Bending Data File

This file sets up the different Bending rules for a bar. The file is processed many times and for this reason it has been built into CADS RC as compiled code rather than interpreted code (file).

CADS RC checks the size of the Bar Bending Data (BBD) configured, if the file is the same size as the size that is recorded in the executable, then the internal compiled BBD is run. If the file size is different, then the configured BBD File is interpreted. The user can force the BBD File to be interpreted by configuring 'Use Fast BBD' to No in the Bar configuration.

If the user does see a need to change the BBD File, then for speed, the code must be written as efficiently as possible.

8.10.4 Bar Shape codes File

This file describes the different Bar Shape code s available to CADS RC.

There is no limit to the number of different Bar Shape codes available to CADS RC.

There is no limit to the number of different Views of a particular Bar shape code. Bar Shapes are specified by declaring the '**' keyword before the actual name of the Bar shape code. e.g.

**20 - Side:

The Side view is the master view.

The user may create different views of the same shape by defining:

**20 - Left:

New shapes can be derived from existing shapes to save effort:

20 - Left:32 - Right:**34 - Right:

Deriving new shapes from 'Side' views is not allowed and will cause undesired effects.

Warning - It is a very complex file and only very experienced users should change it. If you require new shapes, then simply use the BarGen program to create them.

8.10.5 Dialog Control File

The Dialog Control file controls the appearance and contents of all dialogs within CADS RC.

For more information on setting up specific dialog control files, please contact CADS Technical Support Department.

8.11 Global / General Configuration

The Global / General Configuration option allows access to all configuration variables used by CADS RC via the CADS RC Global Configuration Centre dialog, as shown in Figure 9.32.

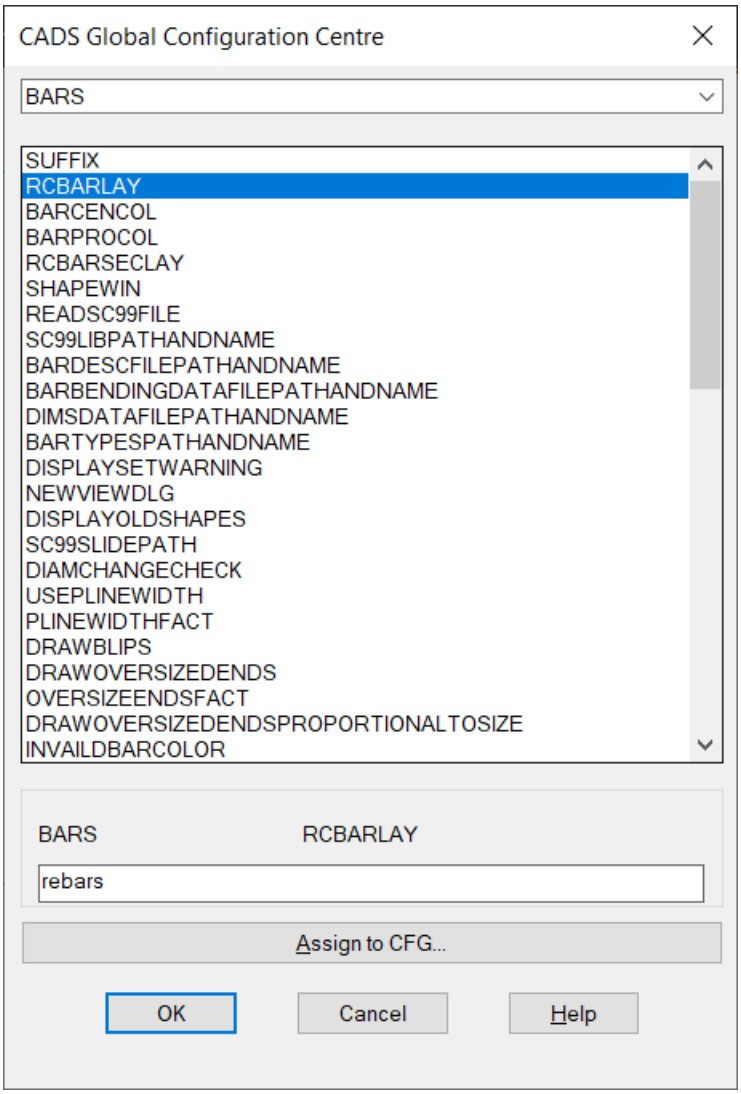


Figure 9.32 Global Configuration Centre Dialog

Individual configuration item values can be viewed by highlighting the configuration item in the scrolling list. The current value is displayed in the input field at the bottom of the dialog. Values can be changed by entering the required value in the input field and then picking the Assign to CFG button. New values will only be assigned if the Assign to CFG button is picked and will only apply to the current drawing. Changes made which are to be permanent changes for all new drawings must be assigned to the .ini file by using the Write Prototype Settings option described earlier in this chapter. A full listing of all CADS RC configuration items can be found in Appendix F.

8.12 Change Configuration

Menu Option Change CFG File

Command Line cads_rc_cconfig

Toolbar 

CADS RC configuration files (.def file extension) can be selected from the Configuration File Selection dialog, as shown in Figure 9.33.

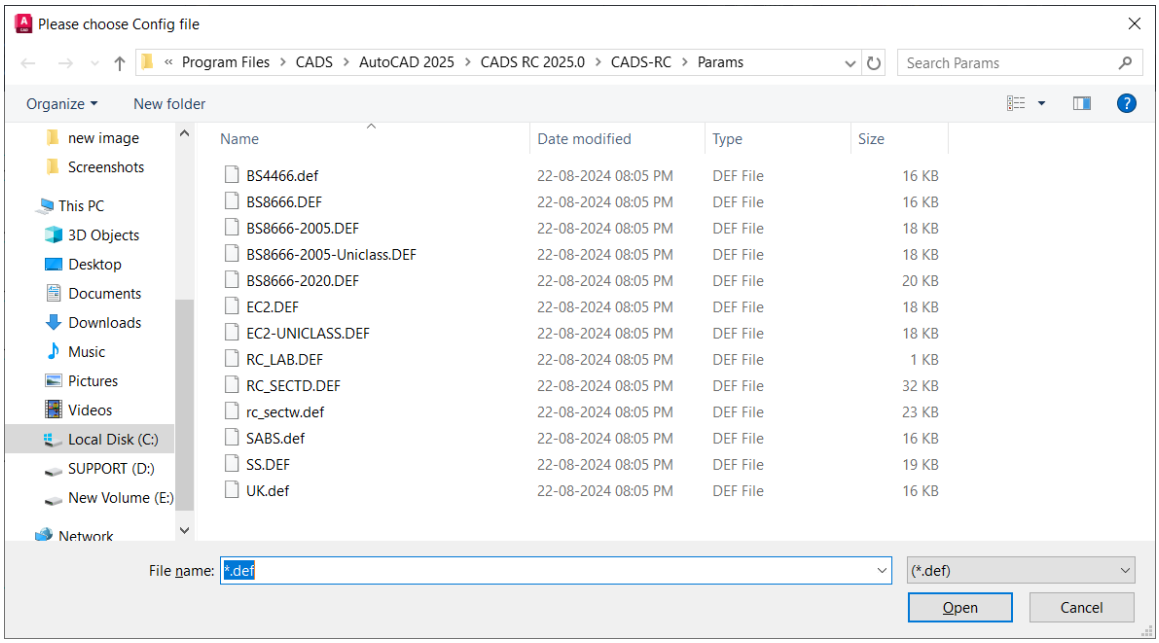


Figure 9.33 CADS RC Configuration File Selection Dialog.

For more information on CADS RC configuration files, refer to Appendix F.

8.13 Schedule Configuration

The Schedule Configuration dialog contains Schedule On Drawing, Bent Bar Schedule (North America only) & General Schedule Configuration.

8.13.1 8.13 Schedule on Drawing Configuration

The Schedule on drawing blocks have attribute tags defined inside them. You can create your own custom layout of these blocks, provided that you use the same tag names. Any text manually entered into the schedule will be automatically inserted into the schedule on drawing.

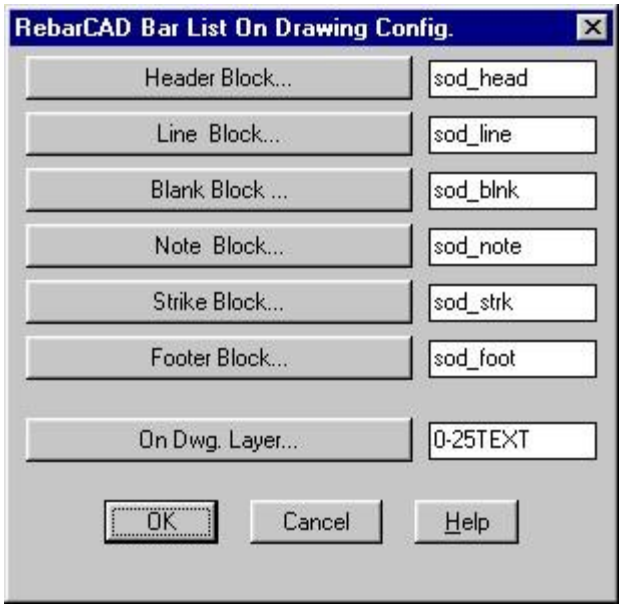


Figure 9.34 CADS RC Schedule On Drawing Configuration Dialog.

Header Block Name

This is the block that is inserted at the header of the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Header Block Name Button, the required file can be selected using a standard file selection dialog.

Line Block Name

This is the block that is inserted as the line of the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Line Block Name Button, the required file can be selected using a standard file selection dialog.

Blank Block Name

This is the block that is inserted for blank lines on the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual

requirements. The required file can be typed into the field or, by picking the Blank Block Name Button, the required file can be selected using a standard file selection dialog.

Note Block Name

This is the block that is inserted for text entry lines on the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Note Block Name Button, the required file can be selected using a standard file selection dialog.

Strike Block Name

This is the block that is inserted for struck out lines on the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Strike Block Name Button, the required file can be selected using a standard file selection dialog.

Footer Block Name

This is the block that is inserted at the foot of the Schedule when it is inserted into the drawing using the Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Footer Block Name Button, the required file can be selected using a standard file selection dialog.

On Drawing Layer

This is the layer on which the Schedules On Drawing are placed on. The required layer can be typed into the field or the On Drawing Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.13.2 Bent Schedule on Drawing Configuration

The Bent Schedule on drawing option is primarily used on reinforcement drawings to North American standards. The standard normally requires the fabricator to produce a listing on the drawing of all bent bars. This assists in the checking and placing activities.

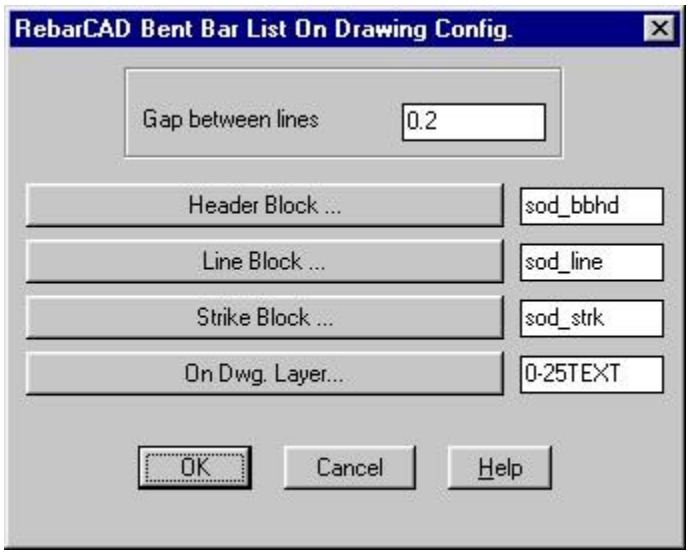


Figure 9.35 CADS RC Bent Schedule On Drawing Configuration Dialog

The Bent Schedule on drawing blocks have attribute tags defined inside them. You can create your own custom layout of these blocks, provided that you use the same tag names. Any text manually entered into the schedule will be automatically inserted into the schedule on drawing.

Gap Between Lines

This value determines the distance between each line. Entering a distance equal to the height of the block used for the data lines will give no gap between data lines.

Header Block Name

This is the block that is inserted at the header of the schedule when it is inserted into the drawing using the Bent Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Header Block Name Button, the required file can be selected using a standard file selection dialog.

Line Block Name

This is the block that is inserted as the line of the bent schedule when it is inserted into the drawing using the Bent Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Line Block Name Button, the required file can be selected using a standard file selection dialog.

Strike Block Name

This is the block that is inserted for struck out lines on the bent schedule when it is inserted into the drawing using the Bent Schedule On Drawing option. The user may change this block to meet individual requirements. The required file can be typed into the field or, by picking the Strike Block Name Button, the required file can be selected using a standard file selection dialog.

On Drawing Layer

This is the layer on which the Schedules On Drawing are placed on. The required layer can be typed into the field or the On Drawing Layer Button can be picked to invoke a layer selection dialog where the required layer can be selected from a list displaying the current drawing layers.

8.13.3 Weights Configuration

These items control the precision of the weights when output directly onto the drawing.

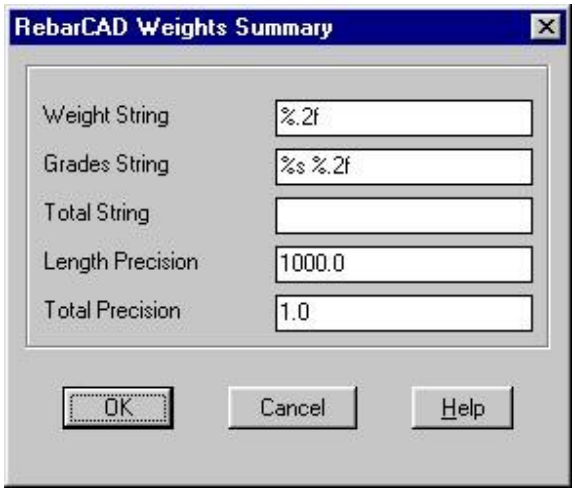


Figure 9.36 CADS RC Weights Summary Configuration Dialog

For more information on Weights Summary options please contact CADS Technical Support Department.

8.13.4 Miscellaneous Configuration

Figure 9.37 CADS RC Schedule Miscellaneous Configuration Dialog

Schedule Dialog Size

The options are 8 x 76 and 23 x 78. Depending on your screen type and font size, the display can show an 8 or 23 line schedule.

List / Schedule Un-Labelled Bars

If this is set to 'Yes', then the list / schedule will show all bar sets including those which are not labelled. If set to 'No', then any bar sets that are NOT labelled will NOT be displayed in the list / schedule.

Multiplexor

The multiplexor value determines the amount of memory allocated to the schedule database. The default value for the multiplexor is 10, therefore the schedule will reserve: -

'10' x 200 Release Codes

'10' x 200 Bar Marks

'10' x 200 Bar Sets

'10' x 2000 Bar Views

'10' x 200 Schedule Descriptions

Slide Path

The path for the user defined special bar slides. By default, CADS RC reads the current directory first.

If it fails, it tries to find the slide in the 'Slide Path' directory.

If yet again it fails, it tries to find the slide in the ??\CADS-RC\params directory.

For more information on special bar slides, see the chapter entitled “Schedule Display”.

8.13.5 Revision Config.

This option accesses the CADS RC Schedule Revision Configuration dialog which controls the revision handling facility within the internal schedule.

The Schedule Revision Configuration dialog displays a list of the revision suffixes which will be applied to bar lines each time they are revised. The revision suffixes are also affected by the Revision System selected. The settings shown in Figure 9.37 will give the following revision process:

1. When the schedule is issued for the first time, no revision suffix will be shown on the schedule header or any bar lines, as the First Issue option is blank.
2. Any alterations made to the schedule by editing bars on the drawing will mark the relevant line with revision A. The schedule header revision field will also be marked A on all pages which contain a revised line. Assume all schedule pages are then issued for the second time.
3. Any alterations made to schedule pages which already have a revision A will mark the relevant line with revision B. The schedule header revision field will also be updated from revision A to revision B. Any alterations made to a schedule page which has not been altered since the original issue will be marked with revision A. The schedule header revision field will also be marked A.

The above process allows schedule pages to be at different revision levels. Each schedule page will step through the revision suffixes as it is revised. This form of revision handling is known in CADS RC as the Normal Revision System.

Later in this section, the effect of the Petro-Chemical Revision System is explained.

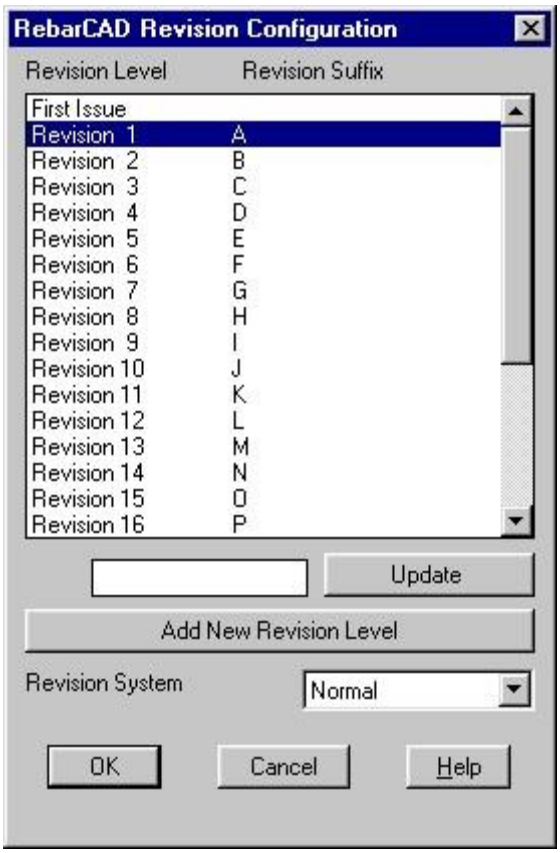


Figure 9.38 Schedule Revision Configuration Dialog

The options available in the Schedule Revision Config dialog are as follows:

Update

This option is used to alter the revision suffix which will be used for a particular revision level. If you wish to alter the Revision 1 revision level suffix from A to 1, then you should proceed as follows:

1. Highlight the Revision 1 line in the list. This will display the revision suffix for this revision level in the field to the left of the Update button.
2. Change the A in the field to the left of the Update button to 1.
3. Pick on the Update button. This will then update the Revision 1 revision level suffix to 1. Once you have updated all the revision level Revision Suffixes, they can be written out to the hard disk to act as the default setting for all new drawings by exiting via the OK buttons and Writing Prototype Settings from the Miscellaneous Configuration dialog.

Add New Revision Level

The schedule configuration has 26 revision levels in place as a default. If you require more revision levels, they can be added one at a time by picking the Add New Revision Level button which will add a new revision level to the end of the list. The suffix for new revision levels can be set by using the Update option described earlier.

Revision System

CADS RC provides two revision systems for controlling the revision handling of the internal Schedule. You must ensure that you have the required revision system selected before you issue the Schedule, since it cannot be altered once the Schedule has been issued.

1. Normal

   The Normal revision system allows Schedule pages to be revised independently. If a revision is made to a schedule page, then the relevant line along with the schedule revision header field will be marked with the current revision suffix. All the revisions made to a schedule page remain beside the revised line so that it is easy to see what each revision relates to. The schedule header field will always display the revision suffix of the latest revision.

2. Petro-chemical

   The Petro-chemical revision system revises all Schedule header fields with the current revision level, even if no changes have been made to the page. When a revision is made to a Schedule page, all prevision revisions are removed from all the pages. Only lines which have been revised since the Schedule was last issued will be marked with the revision suffix, but all pages will have their revision header field marked with the current revision suffix, therefore the Petro-chemical system only marks the current revisions on the schedule with all previous revisions being deleted. All pages remain at the same revision level, even if the current revisions do not affect the page.

8.13.6 Schedule Format

The schedule format options allow automatic formatting settings to be defined for execution when entering the internal schedule. At present, these options are only available when using North American set-ups.

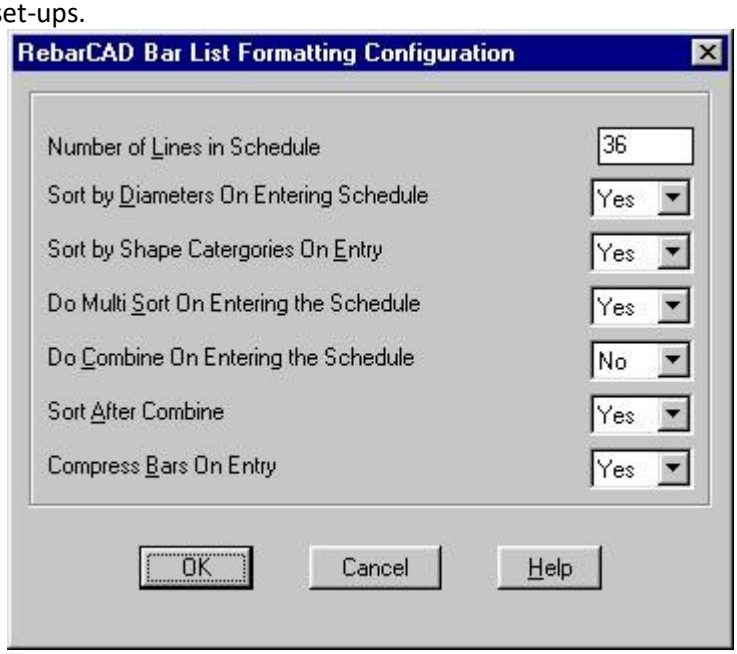


Figure 9.39 Schedule Formatting Configuration Dialog

Number of Lines in Schedule

This defines the number of lines on each Schedule page.

Sort By Diameters On Entering Schedule

When activated, bars will be sorted by bar size in ascending order.

Sort By Shape Categories On Entering Schedule

When activated, bars will be sorted by shape code category.

Do Multi Sort On Entering Schedule

When activated, bars will be sorted by the criteria defined in the Internal Schedule Multi Sort option.

Do Combine On Entering Schedule

When activated, will automatically combine identical bar marks onto a single line of the schedule.

Sort After Combine On Entering Schedule

When activated, bars will be sorted by bar mark if 'Do Combine' above is activated.

Compress Bars On Entering Schedule

When activated, bars will be compacted to remove any blank lines.

9 Utilities

Chapter Objectives

This chapter describes the Utilities section of CADS RC, which contains Auditing and Bar Matching tools.

The UTILITIES options are to be found off the CADS RC pull down menu UTILITIES menu bar where there are the following options:

9.1 Auditing

This activates a sub-menu with the following options:

9.1.1 Drawing Audit

Menu Option Utilities -> Auditing -> Drawing Audit

Command Line cads_rc_audit

Toolbar 

The Drawing Audit command checks the drawing for the following

Incomplete Bar Sets - Bars which have incomplete bending data or bar sets where the number of bars not yet specified will be highlighted. (Bars are highlighted by a change of colour to magenta or by ghosting the entities).

Un-labelled Bar Sets - Bars Sets which have not had their label placed on the drawing will be highlighted. (Bars are highlighted by a change of colour to magenta or by ghosting the entities)

Bar to be Purged from the Schedule - Bars which have had all their views erased will have their schedule entries Purged (erased from the schedule).

9.1.2 Check RC Database

Menu Option Utilities -> Auditing -> Check RC Database

Command Line cads_rc_audit3

Toolbar 

The Check RC database facility checks every CADS RC entity on the drawing to see if it is correctly linked to the schedule and if the schedule is correctly linked to it. It also checks the schedule indexes for validity.

When Check RC Database is being run, a percentage complete message is displayed at the top of the dialog to indicate how much checking is left. If it finds any errors while checking, it adds these errors to the scrolling list so that they may be viewed by the user. If any errors are found (see below), then the next operation will be determined by an OK selection or a Cancel selection.

10-1

If OK, then the entities that are not linked to the CADS RC database are corrected if possible. Any remaining unlinked entities are placed into AutoCAD's 'Previous' selection set. These can be moved off the drawing by typing 'P' for previous selection set when prompted to select objects whilst using the AutoCAD move command.

If Cancel then no highlighting or any corrections are carried out. Any damaged items are put into AutoCAD's 'PREVIOUS' selection set.

When Check RC Database finds an entity which is not linked to the schedule, i.e. it has the relevant data on the entity but the indexes into the schedule are invalid, then this means that the particular entity is definitely lost and must be redrawn. For example, this would occur if CADS RC was 'killed' before a save or when out of disk space or memory. These entities are known as 'Damaged items'.

When Check RC Database finds an entity which is linked to the schedule correctly but the schedule does not know about it, then the Check Rebar database function will attempt to regenerate the entity using the raw data held within the schedule database. When it does this, it simply adds the entity to the list of view records held within the schedule, thus making it into a new view. Check RC Database can only do this with Bars/Range lines and, if the set is not already labelled, bar labels. These entities are known as 'Non-Linked Rebar entities'.

Prompts

'Bar set <??> already labelled, deleting duplicate' this prompt appears when the Bar Label in question already has a label associated with the set.

'Attempting Repair on non-linked Rebar entity, handle '???' ' this prompt appears when a CADS RC entity (not a bar label) is linked to the database but the database is not linked to the CADS RC entity. Repairs can only be carried out on Bars/Bar Labels (if not labelled already) and Range lines. All other CADS RC entities will not be repaired and require deleting and redrawing.

9.1.3 Match Bars

Menu Option Utilities -> Match Bars

Command Line cads_rc_audit2

Toolbar 

The Match Bars command searches the drawing for identical bars which are allocated different bar marks. The user is given the option to match bar marks along with the bar mark to retain.

Match Bars can be configured to match straight bars where the difference in bar length is less than or equal to the value entered in 'StraightTolerance' in the Bar > Rounding/Match Bars configuration options. (See also chapter 8 - Enquiry).

9.1.4 Compact Bar Marks

Menu Option Utilities -> Compact Bar Marks

Command Line cads_rc_compact

Toolbar 

The compact bar marks options re-assigns bar marks so that any gaps found in the bar markings are removed. Using compact bar marks after match bars, ensures that the most efficient use of bar marks is achieved.

9.1.5 Redraw RC Entities

Menu Option Utilities->Redraw RC entity

Command Line cads_rc_redraw

Toolbar 

This command is used to force CADS RC to re-draw the picked items as if newly created.

9.1.6 Sketch Mode

Menu Option Utilities->Sketch Mode

Command Line cads_rc_bset

Toolbar 

When Sketch Mode is set to ON, only bar labels are drawn as intelligent CADS RC entities, all other CADS RC entities are drawn as normal AutoCAD entities with no link to the schedule database.

10 Schedule and Output Options

Chapter Objectives

This chapter describes the CADS RC Schedule option, which displays the rebar contents of the current drawing, the Create Partial Take Off option and the available schedule printing / output file options.

The CADS RC Schedule is a unique feature to CADS RC in that it is dynamically linked to the rebar information detailed on the AutoCAD drawing. As rebar is added, deleted or edited on the drawing using CADS RC, the schedule is constantly updated in line with the rebar content of the drawing. This helps to eliminate scheduling errors and improves detailing productivity, as the schedule is produced automatically.

10.1 Schedule Display Overview

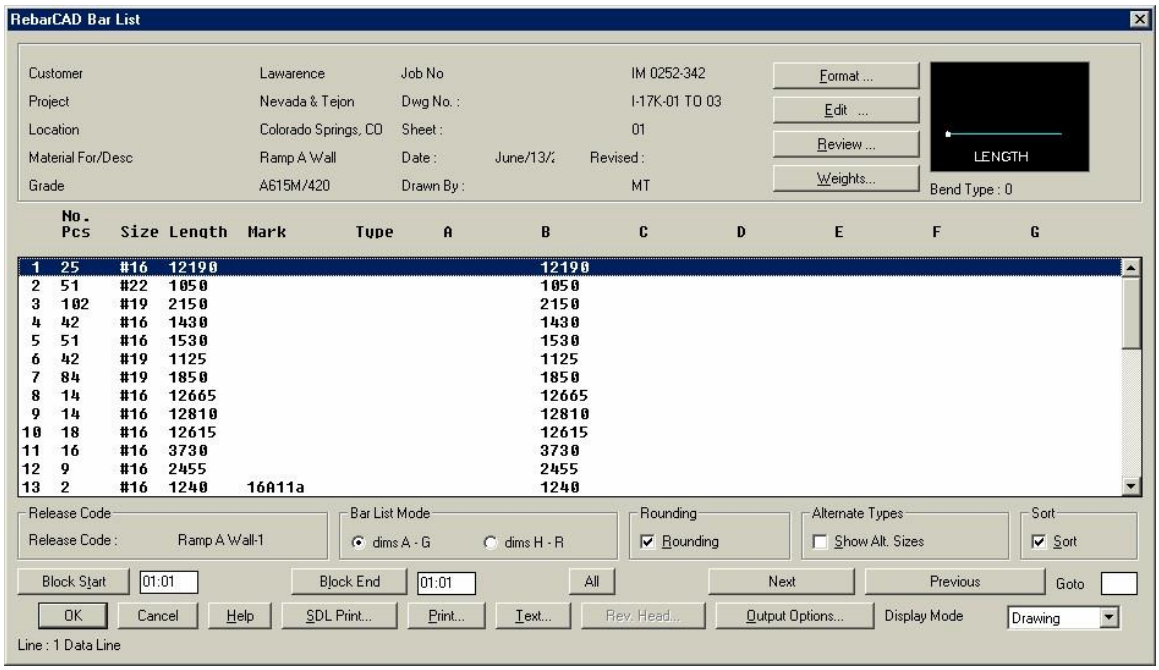


Figure 12.1 Internal Schedule Display

The Internal Schedule displays and allows access to the following options: -

10.1.1 Sheet

Upon entering the internal schedule, page 01 is displayed as a default. The current page being viewed is displayed in the Sheet field in the header area of the schedule display. If the schedule contains more than one page, then the Next and Previous buttons are available at the bottom of the schedule to enable the user to browse through the schedule. If a particular page is to be

viewed, then the required Page No. can be entered in the Go To field and on pressing Keyboard Return that page will be displayed.

10.1.2 Release Code Field

The Release Code field immediately beneath the rebar content display shows the Release Code to which the currently highlighted data line is allocated.

10.1.3 Site Ref. 1, Site Ref. 2, Date Prep., Prep. By, Date Revised, Revised By, Footnote 1 and Footnote 2.

The above fields display the text entered in their corresponding fields in the Schedule Header Information which is available via the Edit button.

10.1.4 Schedule Mode

To cater for complex special bars where more than 5 dimensions are required, the schedule display can be toggled to show dimensions A - E/R, dimension F - J or the Descriptions applied to the schedule lines.

10.1.5 Dimension Rounding Pick Box

If activated, the bar bending dimensions are shown rounded to the values defined in the bar rounding configuration.

If not activated, the bar bending dimensions shown are as drawn. The precision of the unrounded dimensions if imperial units are in use is to the precision setting defined during the drawing setup routine or those defined in the AutoCAD UNITS setting.

10.1.6 Block Start, Block End & All Buttons

As Bar Sets are added to a drawing they are simultaneously added to the internal schedule. This means that the schedule will require minor formatting, so that entries are grouped correctly before printing or outputting production files. This formatting can be carried out over all or blocks of the schedule. Prior to formatting, the block to be worked on requires selection. Normally, the whole schedule will be formatted and this can be selected by picking the All button at the bottom of the schedule display. If only part of the schedule is to be formatted, then the line at the start of the block is picked to highlight it and then the BLOCK START button selected. The start position will then be confirmed in the field beside. A similar exercise is used to select the BLOCK END.

10.1.7 Format Button

The Format button accesses the Format dialog where the following options are available :-

SORT, MOVE, REPOSITION, COMBINE, COMPACT, USER FORMAT 1 and USER FORMAT 2.

See Chapter 12.2 for a full description of this option.

10.1.8 Edit Button

The Edit button accesses the Edit dialog where the following options are available: -

INSERT, DELETE, HEADER, ATTACH & DETACH.

See Chapter 12.3 for a full description of this option.

10.1.9 Review Button

The Review button accesses the Review dialog where the following options are available: -

ISSUE, VIEW ISSUES, MOVE LINES, SCHEDULE STATUS, REVISION CONFIG and UNISSUE.

See Chapter 12.4 for a full description of this option.

10.1.10 Weights Button

The Weights button accesses the Bar Weights dialog where bar weights can be viewed.

See Chapter 12.5 for a full description of this option.

10.1.11 Print Button

The Print button accesses the Print Options dialog where the required output can be selected. This uses an Excel template as a source file and the output will be based on this excel template.

See Chapter 12.6 for a full description of this option.

10.1.12 SDL Print Button

The SDL Print button accesses the Print Options dialog where the required output can be selected. This is based on SDL customisation file.

10.1.13 Text

The text button allows text to be added to the currently highlighted line on the schedule. The line to have text applied must be a soft blank line.

10.1.14 Rev. Head.....

This option is only available on issued schedule. Picking the Rev. Head button allows the schedule header revision suffix of the currently displayed page to be entered manually.

10.1.15 Output Options

The other output options button accesses the CADS RC Output options dialog which allows the schedule data to be output in other forms than to a printer.

See Chapter 12.7 for a full description of this option.

10.1.16 Display Mode

Allows the schedule dimensions to be converted from mm to feet/inches and vice versa. Setting to Drawing will display the schedule dimensions in the unit format of the drawing.

10.1.17 OK Button

Exits the schedule and saves any changes made.

10.1.18 Cancel Button

Exits the schedule and forgets any changes made.

10.2 Format Options

10.2.1 Sort Option

This function works on a previously defined block of entries (See Block Start, Block End & All). It can be accessed from the Format Button in the internal schedule. The Sort function has six options.

Bar Mark

The chosen bar marks are arranged in ascending order.

Type + Size

The marked block will be sorted in descending order of bar type and size.

Shape Code

The selected entries are sorted by shape code in numerical ascending order.

Release Code

The entries are grouped by Release Code in the order that the first entries for each Release Code occur in the Release Code list.

Release Code + Type

The entries are grouped by Release Code in the order that the first entries for each Release Code occur in the Release Code list. Each Release Code is then sorted by bar type.

Release Code + Mark

The entries are grouped by Release Code in the order that the first entries for each Release Code occur in the Release Code list. Each Release Code is then sorted by bar mark.

Release Code + Type + Mark

The entries are grouped by Release Code in the order that the first entries for each Release Code occur in the Release Code list. Each Release Code is then sorted by bar type. Each bar type is then sorted by bar mark.

In all cases, the bars are sorted by Release Code first to ensure they are kept together. The Sort Release Code option is provided to allow you to carry out a sort without applying any other conditions. If you wish to arrange Release Codes in a particular order, then you may Sort the entries first then Move them to the required positions. Should you wish to sort the entries regardless of Release Code, then you will need to change all the bar sets on the drawing to one

Release Code using the Change Release Code facility from the Editing section.

You cannot sort 'Issued' schedule pages.

10.2.2 Move Option

The Move Option allows you to move a previously defined block of entries (See Block Start, Block End & All) to the current highlighted line in the schedule. The entries are inserted at that position so the current entry and any following ones will be moved down the schedule.

You cannot move entries on 'Issued' schedule pages - see Review Options later in this chapter.

10.2.3 Reposition Option

The Reposition Option allows you to move a previously defined block of entries (See Block Start, Block End & All) to the current highlighted line in the schedule. The entries are inserted at that

position so the current entry and any following ones will be moved down the schedule. Reposition, moves the entries completely and does not leave blank lines behind, as does the Move option.

You cannot reposition entries on 'Issued' schedule pages.

10.2.4 Combine Option

The Combine Option will combine all the entries of the same bar mark with the first occurrence of that bar mark in a previously defined block of entries (See Block Start, Block End & All). The number of bars in each combined entry is added to that first one. This function combines and compacts the entries simultaneously. Bars will NOT BE COMBINED if they are allocated to DIFFERENT RELEASE CODES.

You cannot combine 'Issued' schedule pages.

10.2.5 Compact Option

The Compact Option removes blank lines created by deletion or moving entries. All blank lines within the previously defined block of entries (See Block Start, Block End & All) will be removed.

You cannot compact 'Issued' schedule pages.

10.2.6 User Format 1

The User Format 1 option allows a number of typical format options to be performed under one operation. The following formats can be selected: -

- Compact Bars;
- Combine Bars;
- Sort By Type + Release code;
- Segregate Release Codes - This will force each release code to start on a new schedule page, each bar type used for a particular release code will also start on a new schedule page;
- Sort By Shape Code Category - Bars will be sorted by straight, bent and link shape categories. 6. Sort By Bar Mark .

10.2.7 User Format 2

Not applicable.

10.3 Edit Options

10.3.1 Insert Option

Left to its own devices, CADS RC adds bar set details to the schedule on successive lines. This can make reading the schedule difficult, so apart from the Sorting, Combining, and Moving facilities provided there is also one to insert a blank line between entries.

Selecting the Insert Option will force a blank line before the currently highlighted line. The existing entry will then be moved down. If this means that an entry at the bottom of the schedule page will be moved onto the next page, then you are warned that other schedule pages will be changed if you continue.

You cannot insert lines onto 'Issued' schedule pages.

10.3.2 Delete Option

The Delete Option allows you to erase struck-out entries within a previously defined block of entries (See Block Start, Block End & All). It will only delete struck-out entries. Note that struck-out entries cannot be restored to full entries.

You cannot delete lines on 'Issued' schedule pages.

10.3.3 Headers Option

The Headers Option displays the Header field options for the schedule page currently displayed. The Schedule Page No. is displayed at the top of the dialog.

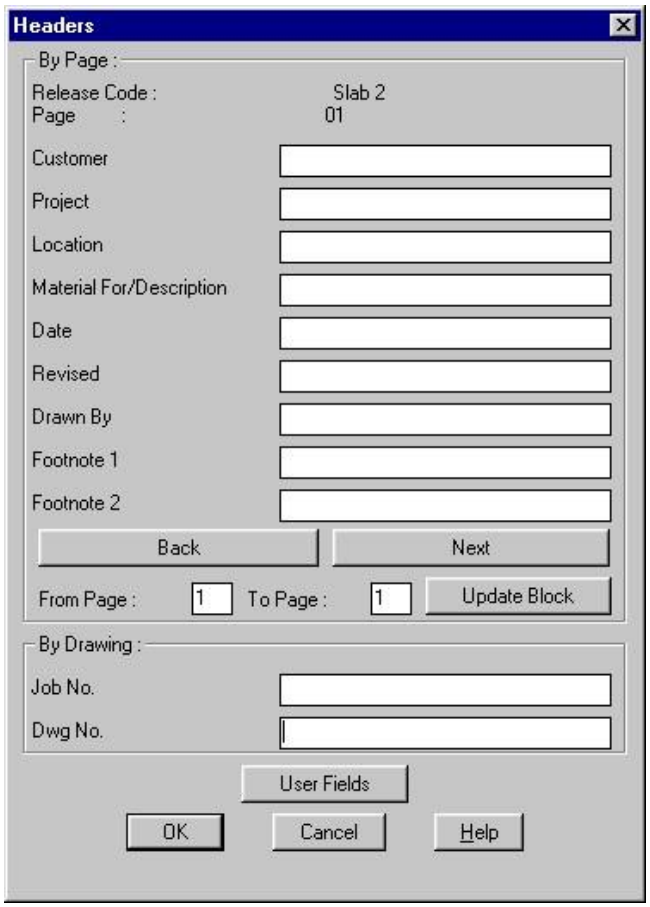


Figure 12.2 Headers Editing Dialog

When the Header option is picked, the header information for the schedule page displayed at that time is shown. The page number is shown at the top of the Header Editing dialog. Data can be entered and a block of pages defined to be updated to the entered data.

The Header data for other pages can be viewed and edited by using the 'Back' and 'Next' buttons to display the required page.

User Fields

The user field button accesses a dialog (see Figure 12.3) where 20 additional data fields are available for inclusion on schedule printouts which are produced by customised SDL files. These 20 fields can be positioned anywhere using the SDL file and contain up to 80 characters.

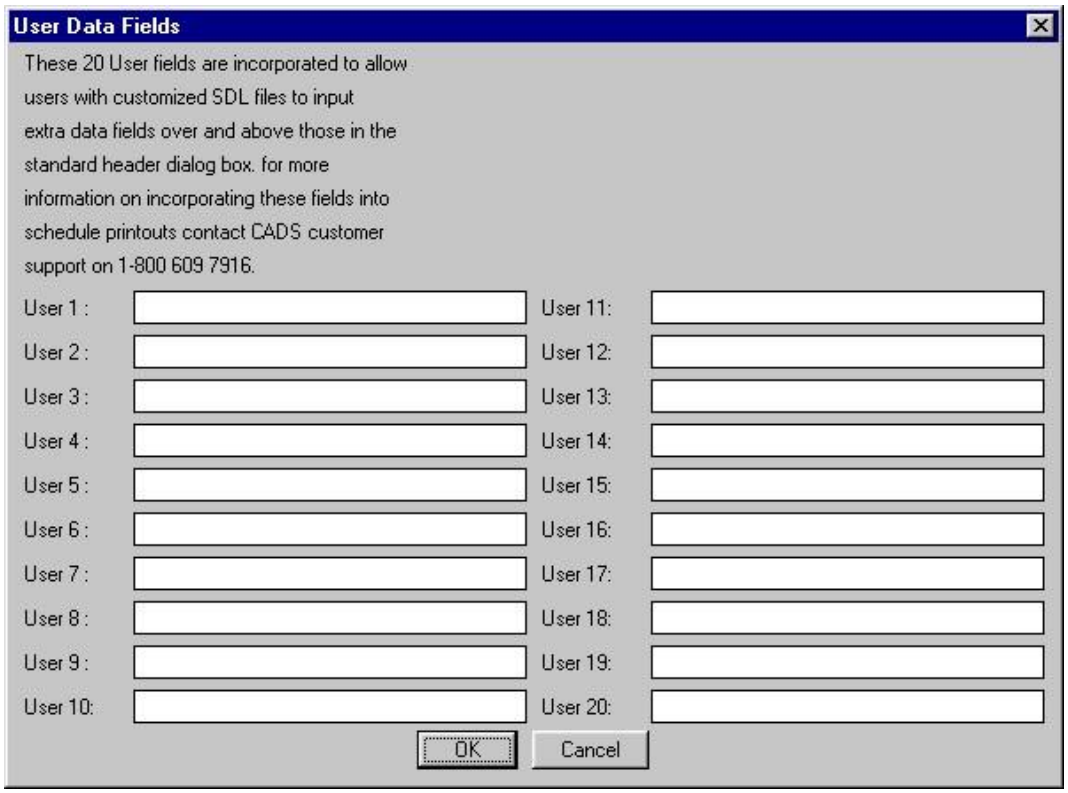


Figure 12.3 User Data Fields Dialog

For example:

User 1 can be incorporated into SDL controlled schedule printouts by adding the following line to the SDL file beneath existing "Field1" entries.

FIELD1, UDATA1, x, y

For further information, contact CADS Support.

10.3.4 Attach Option (Attach slide to special bars or standard shape codes)

CADS RC supports two types of special bars: -

- Special Bars pre-defined in CADS RC and selected via the shape code list;
- Quick Special Bars, where the user controls dimensions while drawing the bar and is free to define the bar as almost any shape. These bars require the user to create the required schedule slide when either drawing the bar or after using the AutoCAD Mslide command. Make sure the slide is saved in the nominated special bar slide folder.

- The attach option allows diagrams to be attached to special bars (or standard shape codes) which will be printed on the schedule printout, whether printed via a external printer or placed on the drawing using the schedule on drawing option.
-
- Generally, the attaching of diagrams is best done after the schedule has been formatted (sorted, combined etc.), as schedule data has to be moved down the schedule as diagrams are attached. With this in mind, it is best to leave the defining of schedule descriptions until all diagrams have been attached, as descriptions do not move with the schedule data as they are line number specific.

There are 5 options for attaching diagrams to special bars: -

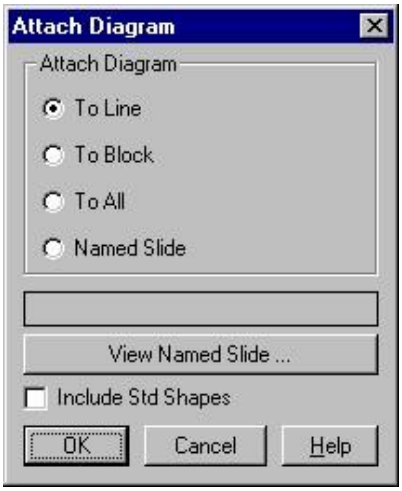


Figure 12.4 Attach Diagram Dialog

To Line

Used to attach a diagram to the line currently highlighted in the schedule.

To Block

Used to attach slides to all standard and Quick special bars within a defined block of schedule data. In order that Quick special bars have automatic slide attachment, they must have a slide name the same as the special bar name defined when drawing the bar. Where a Quick special bar is found and no slide is found, 3 soft blank lines will be placed after the data line.

To All

This is in essence similar to the To Block option but all schedule pages are included.

Named Slide

Used to attach diagrams where the slide name is different to the shape code name. The line to have the named slide attached must be highlighted prior to selecting the Attach option. The

required slide name is entered in the field below (.sld extension is not required). CADS RC looks for the slide in the following locations: -

- The current working directory;
- The ??\CADS-RC\PARAMS directory;
- The directory defined in the Slide Path option within the CADS RC Schedule Configuration. The entered slide can be viewed by picking the View Named Slide option.

NOTE - If a diagram is already attached to the line, its name is displayed in the slide name field.

Include Standard Shape Codes

When activated slides will also be applied to standard shape codes when used in conjunction with the To Block and To All options.

10.3.5 Detach Option (Detach slide from special bars or standard shape codes)

The Detach Option allows diagrams to be removed for the schedule. There are 4 options for detaching diagrams from special bars and standard shape codes: -

From Line

Used to detach a diagram from the line currently highlighted in the schedule.

From Block

Used to detach diagrams from all lines within a defined block of schedule data. The block must be defined prior to selecting the Detach option.

From All

Used to detach diagrams from all bars over all schedule pages.

Named Slide

Not applicable.

10.4 Review Options

CADS RC has a schedule revision handling facility which, if required, will mark changes in the schedule with revision letters or numbers. Alterations must be carried out on the drawing, thereby ensuring that the schedule is updated correctly. Bending data cannot be edited on the schedule. It must be edited on the drawing and so update the schedule accordingly.

NOTE - This revision handling facility applies to the schedule only. Revision of the DRAWING TITLE BLOCK is the responsibility of the user.

The Review dialog has 6 options as listed below: -

10.4.1 Issue

The Issue Option is used to set the revision handling facility in motion. Revision handling will not commence until Issue has been used. This allows bars to be deleted while a drawing is being built up without marking them as revisions in the schedule. You are asked for an issue date and this will appear on all headers as Date Prepared. Once issued, any bars deleted on the drawing will be shown struck out in the schedule (indicated as a line with an S to the right of the line) along with a revision letter to the right of the line. Extra bar sets added to the drawing will be placed on a new schedule page.

Formatting of schedule pages is not allowed once Issue has been used.

10.4.2 View Issues

Not available in this version.

10.4.3 Move Lines

If additional bars sets are added to a drawing which has an issued schedule, the new bars are placed on a new schedule page. New bar sets cannot be combined but they can be moved from the new schedule page on schedule to existing pages if space is available in the form of soft blank lines. To move a line of data from a new schedule page onto an existing page, the following procedure should be adopted:

- Select the line/lines you wish to move onto an existing schedule page by marking them as a block using Block Start and Block End;
- Highlight the line on the existing schedule page where you want the first line in the marked block of new lines to be positioned;
- Select Move Lines from the Review options. You will then be asked to confirm the move command. Picking Yes will return you to the Revision dialog, which you should exit via the OK button. The lines will then be placed on the schedule page and marked with the current revision suffix.

10.4.4 Schedule Status

Picking the Schedule Status option will display a list of the schedule pages giving each page's current revision status. The revision status prompts are as follows:

- First Issue - Indicates that the page is a new schedule page which has not been issued yet;
- No change - Indicates that the schedule page has had no revisions since the schedule was last issued;

- Issue as Rev.? - Indicates that the schedule page has been revised since the schedule was last issued.

10.4.5 Revision Config

Accesses the Revision Configuration dialog. See the chapter entitled “Enquiry”.

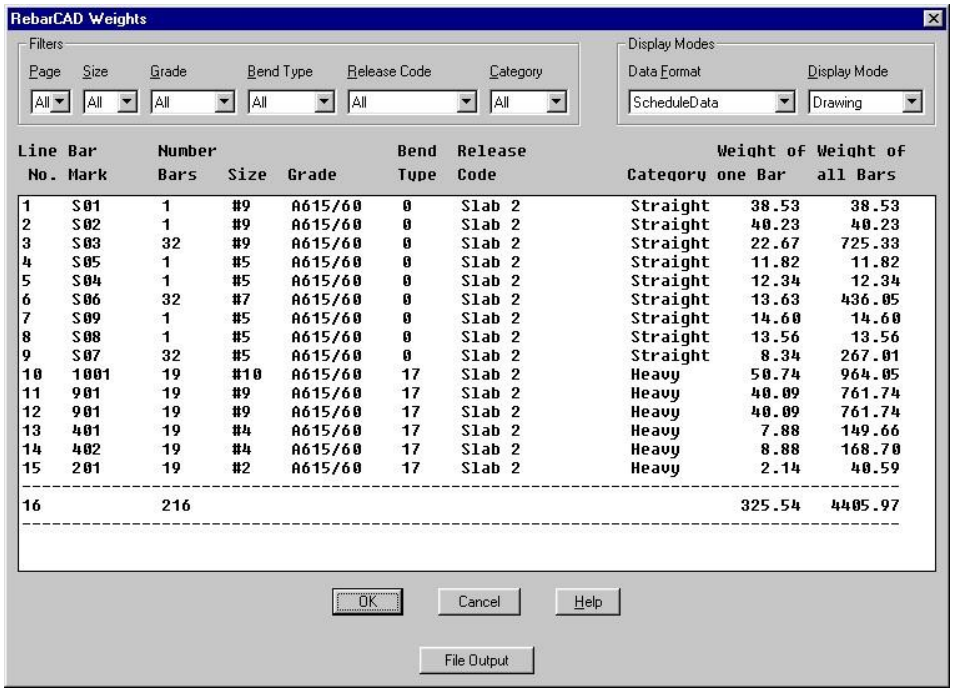
10.4.6 Unissue

The Unissue Option will remove any revision marks on the schedule and allow the use of the Format Options. There is no 'undo' facility to this command. Once used, all previous revision history is lost. The schedule/drawing is NOT returned to its state as when issued. It simply returns the current schedule to an unissued state.

10.4.7 Line Revision - Manual Control

This option is only available on Issued schedules. Double clicking on a schedule line displays a small dialog where the required revision suffix for that line can be entered manually.

10.5 Weights Option



Line No.	Bar Mark	Number Bars	Size	Grade	Bend Type	Release Code	Category	Weight of one Bar	Weight of all Bars
1	S01	1	#9	A615/60	0	Slab 2	Straight	38.53	38.53
2	S02	1	#9	A615/60	0	Slab 2	Straight	40.23	40.23
3	S03	32	#9	A615/60	0	Slab 2	Straight	22.67	725.33
4	S05	1	#5	A615/60	0	Slab 2	Straight	11.82	11.82
5	S04	1	#5	A615/60	0	Slab 2	Straight	12.34	12.34
6	S06	32	#7	A615/60	0	Slab 2	Straight	13.63	436.05
7	S09	1	#5	A615/60	0	Slab 2	Straight	14.60	14.60
8	S08	1	#5	A615/60	0	Slab 2	Straight	13.56	13.56
9	S07	32	#5	A615/60	0	Slab 2	Straight	8.34	267.01
10	1001	19	#10	A615/60	17	Slab 2	Heavy	50.74	964.05
11	901	19	#9	A615/60	17	Slab 2	Heavy	40.09	761.74
12	901	19	#9	A615/60	17	Slab 2	Heavy	40.09	761.74
13	401	19	#4	A615/60	17	Slab 2	Heavy	7.88	149.66
14	402	19	#4	A615/60	17	Slab 2	Heavy	8.88	168.70
15	201	19	#2	A615/60	17	Slab 2	Heavy	2.14	40.59
16		216						325.54	4405.97

Figure 12.5 Weights Dialog

The Weights dialog, by default, displays the weight of the bars of each schedule line. However, there are controls along the top of the dialog that allow the user to select the weighting criteria required. i.e. the weighting of Page 1, with Release Code "Slab2" , showing ‘Heavy’ steel only.

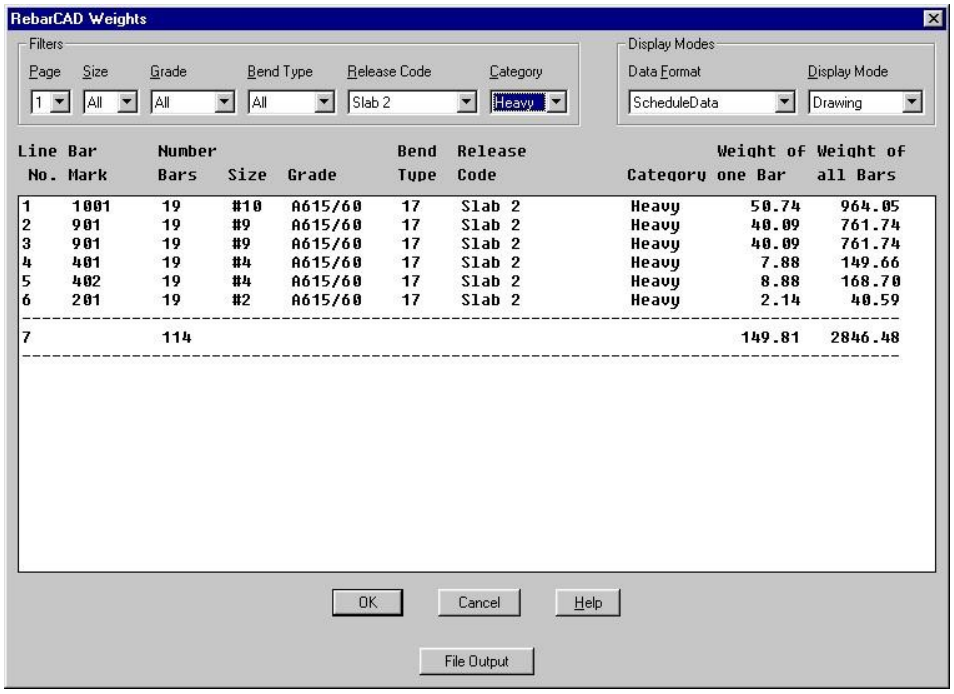


Figure 12.6 Weights Dialog with Filters Applied

10.6 Schedule Printout Option

At any stage during the detailing process all or part of the current schedule contents can be output for printing. The schedule will be output to the printer in the order it was when the Print option was selected. If you want the schedule to be in a sorted, combined etc. state you must do this before selecting the Print option.

The CADS RC Excel print option for schedules is based on an excel template and can be customised easily for any requirement for a defined domain.

To use this print option, the Microsoft Excel program must be installed in the computer. Use " SDL print option " if Microsoft Excel is not available.

10.6.1 Using the Print Option

Operation

Selecting the print option displays the Print dialog as shown.

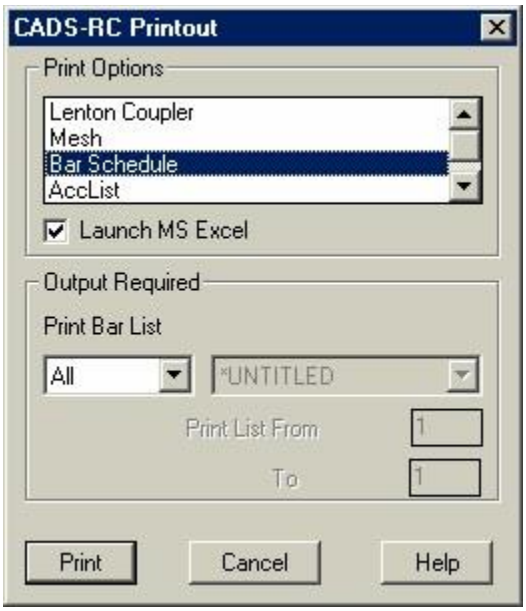


Figure 12.7 CADS RC Print Option dialog

This has the following key inputs.

Templates

The following templates are supplied with the installation and are listed in the print option list box.

Bar schedule	-	Schedule including attached diagrams with coupler information.
Mesh	-	Mesh list of mesh fabric inserted using Mesh option from RcToolbox
Lenton coupler	-	Filtered list of Lenton couplers alone
Accessory list	-	List of all accessories present in the drawing
Coupler list	-	List of all Couplers present in the drawing

Select the appropriate template from the list.

Launching Excel / Printing the Schedule

Checking the check box “Launch MS Excel” launches the excel if the print option is selected.

If this is "Off", the program will send the information to the current printer.

10.7 Schedule Printout Option Using SDL file

At any stage during the detailing process, all or part of the current schedule contents can be output for printing. The schedule will be output to the printer in the order it was when the Print option was selected. If you want the schedule to be in a sorted, combined etc. state, you must do this before selecting the Print option.

To output schedule data to a printer, select the Print option from inside the internal schedule display.

Upon selecting the Print button, the CADS RC Printout dialog is displayed. In this, the printout layout can be defined via the SDL File option and the output contents selected via the Output Required option.

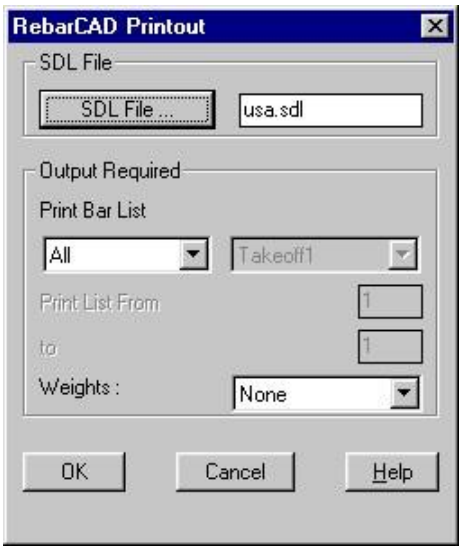


Figure 12.8 Schedule Printout options

10.7.1 SDL File option

The SDL File option controls the printed page layout of the schedule. CADS RC is supplied with 6 *.sdl files, namely usa.sdl which is used when printing the full schedule. Wdefault.sdl is used when printing schedule weight reports.

The required SDL file can be selected for use by picking the SDL File button. This activates a standard AutoCAD file selection dialog where the available .sdl files are displayed. The required file can then be selected in the normal AutoCAD fashion. SDL files can be stored on any accessible drive or directory available to AutoCAD.

Customised .sdl files can be created to provide printed schedule layouts to specific client requirements. For more information on this service, please contact CADS Technical Support Department who will be pleased to provide the relevant information.

10.7.2 Output Required option

CADS RC allows the following schedule output options:

- All;
- Selected;
- Take Off.

which are selected from the Print Schedule pop down list.

All

Selecting the All option in the Print Schedule pop down list will output the entire schedule (all release codes) contents for printing.

Selected

Selecting the Selected option from the Print Schedule pop down list activates the 'Print List From' and 'to' fields where you may select a block of schedule pages for printing by entering the first page number and last page number in the relevant fields.

Take Off

Selecting the Take Off option from the Print Schedule pop down list allows the scheduling for a previously defined Partial Take Off to be output to the printer. When Take Off is selected, the pop down list beside it is activated. You may then select the required Partial Take Off release code you wish to output to the printer.

When you have selected the required SDL File and output, whether it be All, Selected or Take Off, to continue the print procedure, pick the OK button. Your operating system Print Setup is then activated so that you may select your preferred printer etc.

10.7.3 Weights

When set to None, the Schedule is printed. When set to Schedule, the Bar Weights are output. In order to output bar weights in the correct format, the sdl file option must be set to wdefault.sdl.

10.8 Output Options

Selecting Output from inside the internal schedule display displays the CADS RC Output Options dialog.

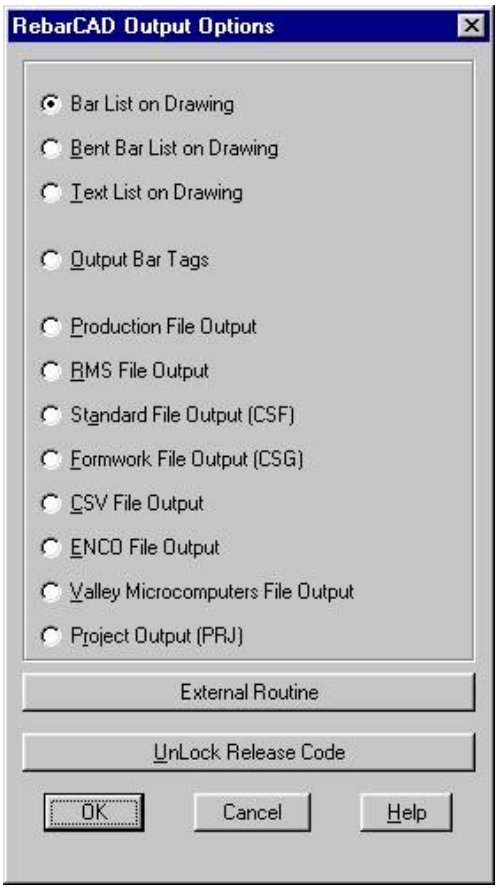


Figure 12.9 CADS RC Output options dialog

10.8.1 Schedule on Drawing

The Schedule on Drawing option creates wblocks of each schedule page for a particular release code for placement on the drawing. If the Schedule has been previously placed on the drawing, you are asked if you wish to replace the existing schedule. On completion of the placement of all the schedule pages, you have the option to place bend diagrams on the drawing of the shape codes included on the schedule.

The schedule will be output to the drawing in the order it was when the Schedule on Drawing option was selected. If you want the schedule to be in a sorted, combined etc. state, you must do this before selecting the Schedule on Drawing option.

10.8.2 Bent Schedule on Drawing

The Bent Schedule on Drawing option creates wblocks of each schedule page for a particular release code for placement on the drawing, straight bars will not be shown. If the Bent Schedule has been previously placed on the drawing, you are asked if you wish to replace the existing bent schedule. On completion of the placement of all the bent schedule pages, you have the option to place bend diagrams on the drawing of the shape codes included on the schedule.

The bent schedule will be output to the drawing in the order it was when the Bent Schedule on Drawing option was selected. If you want the schedule to be in a sorted, combined etc. state, you must do this before selecting the Schedule on Drawing option.

10.8.3 Text List on Drawing

Places a text list of all the used bar marks on the drawing.

10.8.4 Output Bar Tags

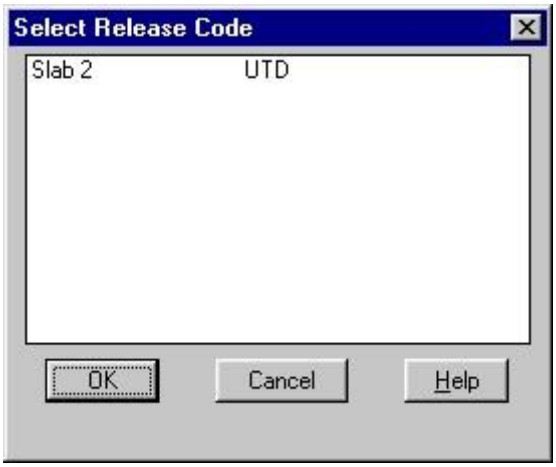


Figure 12.10 Select Release Code for Bar Tags Output

Figure 12.11 Tagging Options Dialog

10.8.5 Standard File Output (CSF)

Standard CADS output file format for linking to CADS Schedule or user spreadsheet applications. For more information about how to implement these options, please contact CADS (UK) Technical Support Department.

A number of US production systems support this format. These include Soule Teleprosessing and Shear 97 production software.

10.8.6 Formwork File Output (CSG)

Customised CSF file output. For more information about how to implement these options, please contact CADS (UK) Technical Support Department.

10.8.7 Links to Production Software

CADS RC is capable of supporting a number of output file formats that allow users to integrate it with their production software applications. For more information about how to implement these options, please contact CADS (UK) Technical Support Department.

CADS RC aSa Interface

The CADS RC Production File Output interface is designed to download the Bar Bending, Project Manager and Schedule Header information from CADS RC to the aSa production software.

Figure 12.12 aSa Production File Output Dialog

In order to use the CADS RC aSa Production File Output, select Production File Output from the CADS RC Output options inside the Schedule.

Project Information into the header / footer dialog box for the first page of the Schedule. This information will then be used for the aSa header / input defaults.

All the default information from either the Project Manager or the Schedule Header can be altered inside the aSa header / input dialog box.

The Control Code is used as the primary ordering control in the aSa Interface. Users can input up to 30 characters in this field and this is used as the aSa default description.

The Default Data that is transferred through to the aSa Production File Output is;

Job No and Job Name

Customer

Dwg No

By

The Desc is CADS RC's Release Code that, as stated earlier has been enhanced to permit 30 characters.

The user is expected to enter the Rel, SAC Code, Recut, Straight and Bent Bundle Weight Values.

Ordinarily, the file details will be defined by the configuration and no user input is normally required.

10.8.8 Unlock Release Code

This option overrides the lock out when the release code has been 'taken off' the drawing.

10.8.9 External Routines

Output to a number of Production systems are now written for CADS RC as external dll files. These can be selected from this option.

Pinnacle Data Systems.

This Interface supports production software supplied by Pinnacle Data Systems In order to use this format, select pinnacle.dll from the list.

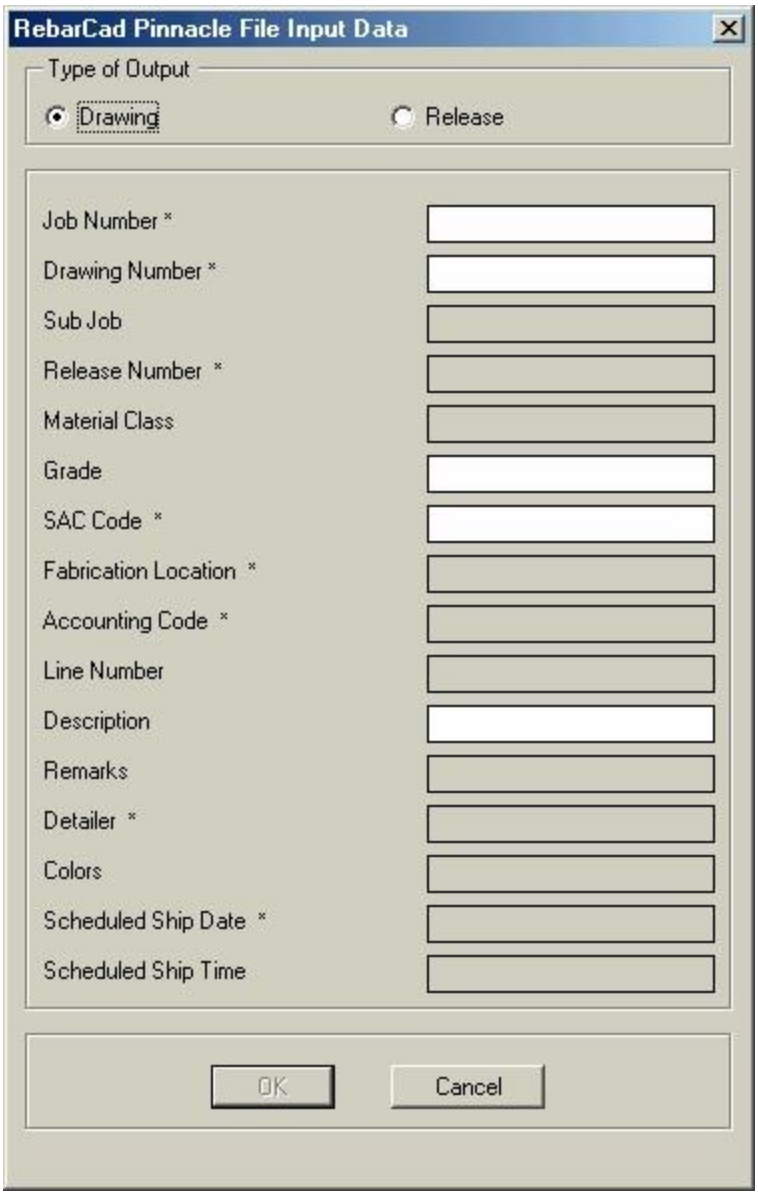


Figure 12.13 Pinnacle Production File Output Dialog

CADS RC will output a file type. pin which should be written to a location that the Pinnacle system knows as a download area. Please contact your Pinnacle vendor direct for download location and default data information.

SteelPAC Systems

This Interface supports SteelPAC production software supplied by Pac Technologies. In order to use this format, select Steelpac.dll from the list.

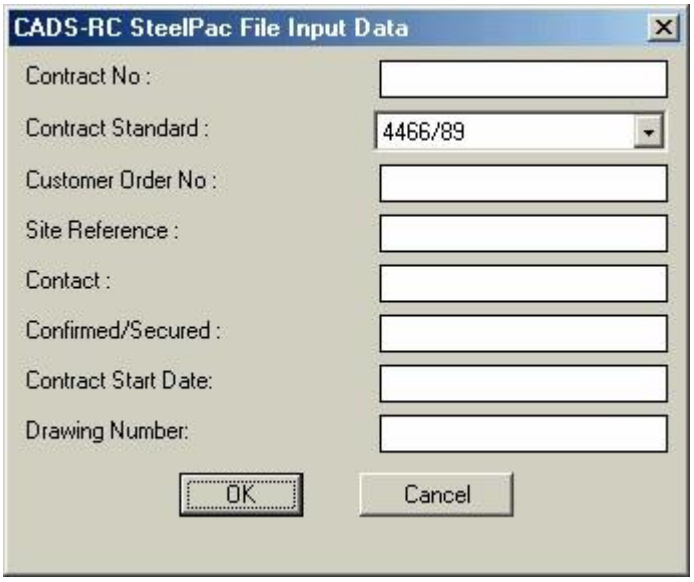


Figure 12.14 Pinnacle Production File Output Dialog

CADS RC will output a file type. sdi which should be written to a location that the Steelpac system knows as a download area. Please contact your Steelpac vendor directly for download location and default data information.

11 Special Bars

Chapter Objectives

This chapter describes the Special Bar options within CADS RC.

11.1 Overview

CADS RC provides 2 special bar options.

- Over 30 predefined special bars are supplied in addition to the standard shape codes. The special bars supplied with CADS RC are available for selection from the standard shape code list and have the same detailing and editing functionality as the standard shape codes;
- Quick 99 option which allows the user to create special bars by drawing the required shape on the drawing. The user can define the length calculation required and create a fully dimensioned shape slide for inclusion on the schedule printout.

Note: Rctoolbox Macros include “Special Bar” macro which makes the process of creating Special Bars easier.

11.2 Quick Special Bar Option

The Quick Special Bar option is available for use in the bar drawing dialog. Shape codes created by the Quick Special Bar option can be saved to a specials.spl file for use on subsequent drawings. They are saved only on the drawing as required. An input field has been provided beside the Shape Code List where the user may enter the Special Bars shape code name’ (e.g. 99C01) required as shown in Figure 13.1.

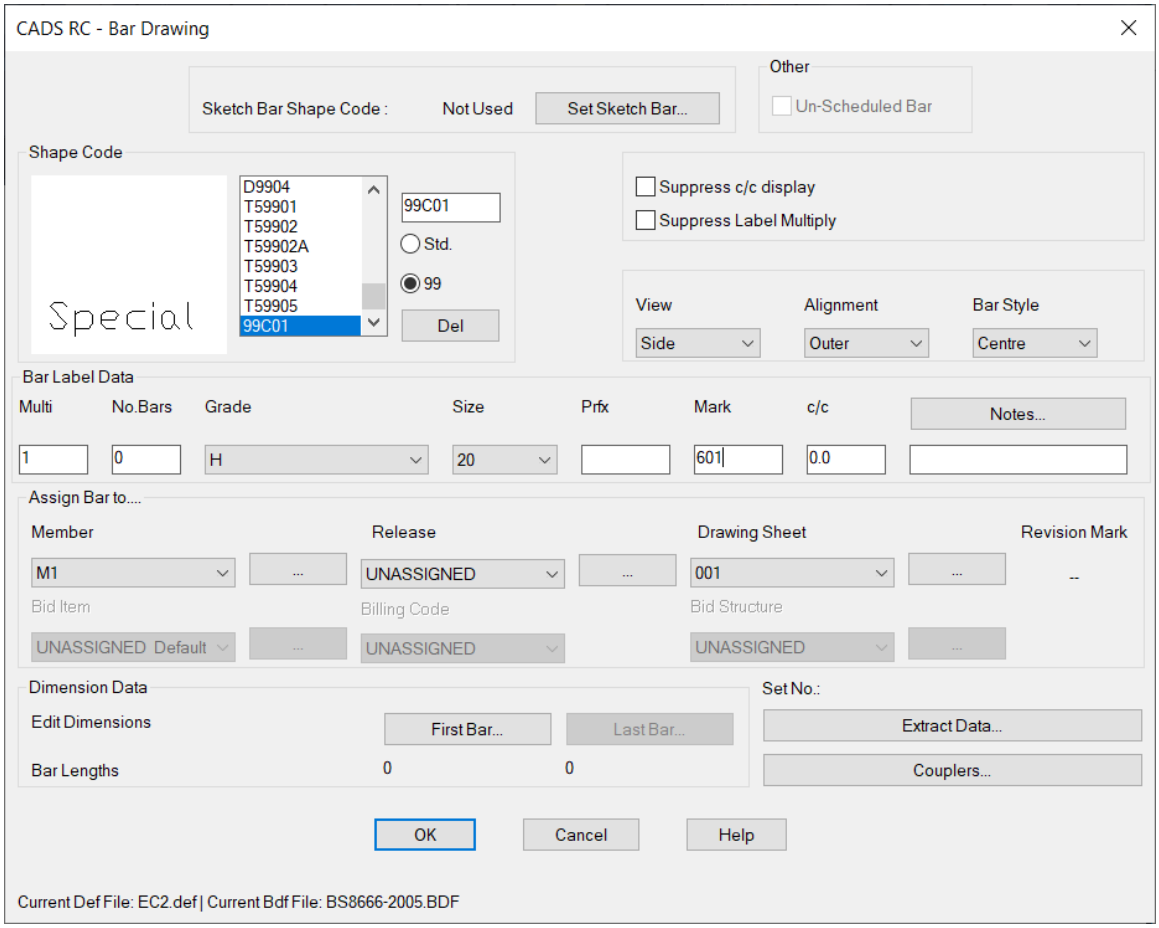


Figure 13.1 Bar Drawing dialog

Picking on the 99 check box below will prompt if a special bend with this ‘shape code name’ is to be created. If Yes is chosen, then the shape code name is added to the shape code list.

The required Dimensions etc. for this shape code can then be defined in the Dimensions dialog. This dialog, as shown in Figure 13.2, is different to that shown for standard shape codes.

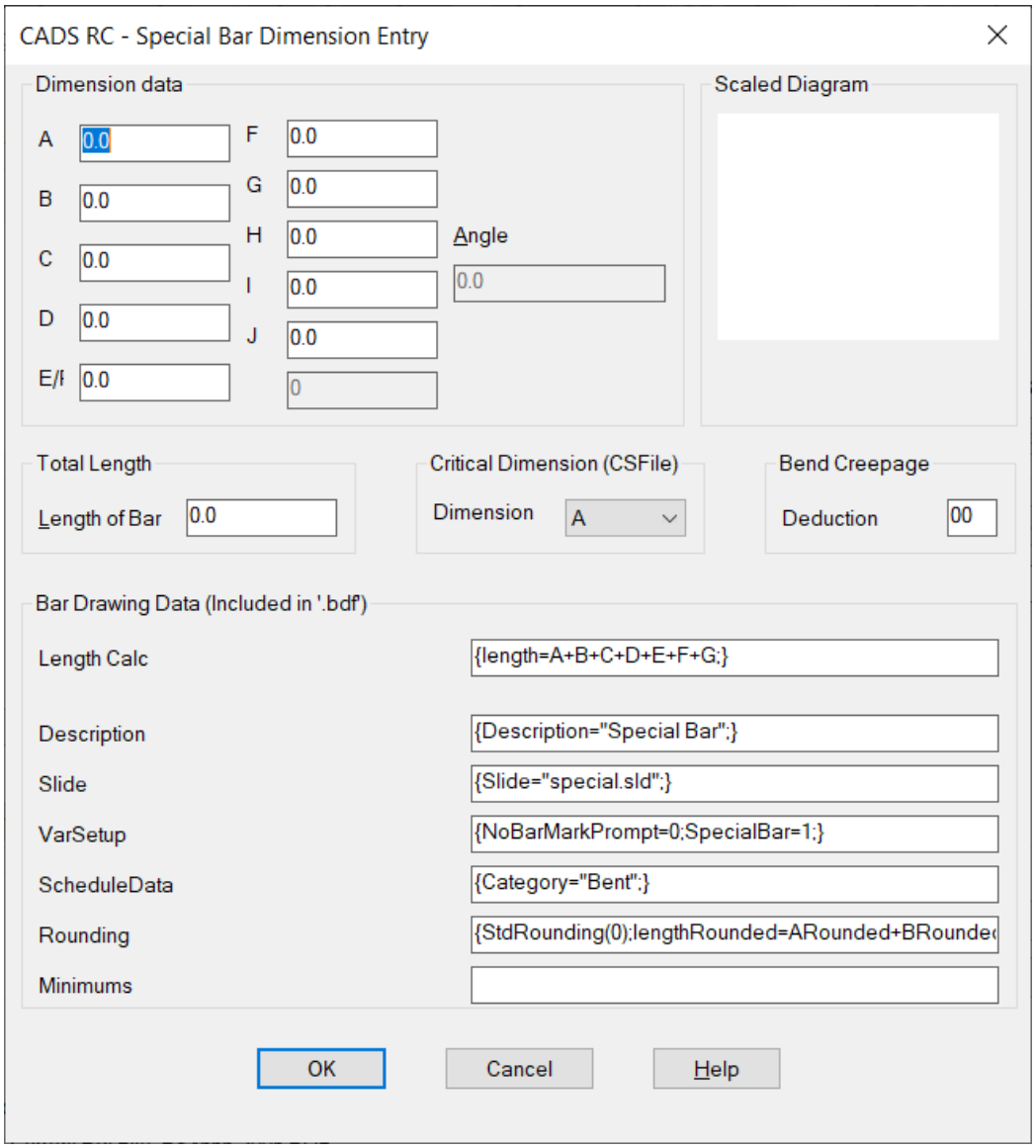


Figure 13.2 Special Bar Dimensions dialog

The options available in the Special Shape Code 'Dimensions' dialog are as follows: -

Dimension Data - All dimensions A through to J are available for use. The length of bar required is calculated from the length calculation defined below, but can be edited to any value. If the length is edited to a value different to that calculated and the bar is edited later using Edit Bar / Label, the length will be re-set to it's calculated value.

Length Calc

The default length calculation 'A+B+C+D+E+F+G' but can be edited by the user to add or remove dimensions, include fixed values (+ ½ ", - 25 etc.), or any valid expression such as (-2*barrad), (-4*bardia).

Description

This is printed at the bottom of the Bar Drawing and Bar Editing dialogs when the shape code is selected.

Slide

This is the AutoCAD slide name which is displayed when the shape code is selected. If a slide is created during the bar drawing process then that slide will be used in preference.

VarSetup

Contact CADS Technical Support Department for more information on this option.

ScheduleData

Contact CADS Technical Support Department for more information on this option.

Rounding

Contact CADS Technical Support Department for more information on this option.

Minimums

Contact CADS Technical Support Department for more information on this option.

The Quick Special Bar option only calculates bar leg dimensions automatically (Figure 13.3 dimensions B, C and D). Bend crank dimensions, such as dimension E on the example shown in Figure 13.3 below, must be entered manually.

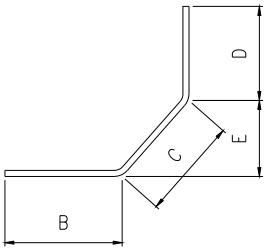


Figure 13.3 Example Special Bar

If it is intended to use the automatic slide creation option within Quick Special Bar, to ensure that any bend crank dimensions (Figure 13.3 dimension E) or overall bar dimensions are included in the slide, they must be flagged as being in use by entering an arbitrary value in the relevant 'bar data -> First Bar' dimensions field prior to exiting the bar drawing dialog and drawing the shape code.

11.3 Quick Special Bar Example

This section is a step by step guide to creating the Special Bar shown in Figure 13.3 with a shape code name of 99C01. As Quick special bars can be quite complicated, CADS RC does not allow Outer or Inner faces to be defined when drawing the bar. The centre line of the bar must always be defined. There is also no support for left, right or plan views. These views are achieved by using the sketch bar option.

To ensure that any slide created is clear, it is best to create the shape code off the drawing sheet so that only the bar shape and dimensions are included in the slide. Once created, the bar can be deleted but it remains available for selection in the shape code list where it can be used to detail the actual bar required.

The procedure is as follows: -

Select the CADS RC command Draw Bar -> New Mark.

In the Bar Drawing dialog, enter 99C01 in the input field adjacent to the shape code list and pick the 99 radio button below. If a shape code shape code with that shape code name exists, it will be selected for use, otherwise you are asked to confirm that you wish to create a special bar with that bend name. Selecting Yes will create the special bar in the shape code list.

As the special bar we are creating has a crank dimension, we will flag this dimension as used by picking the First Bar dimension data button.

The Special Bar Dimensions dialog is displayed as shown in Figure 13.2. Enter an arbitrary value for dimension E (e.g. 4"), we can also define the required length calculation (e.g. {length=B+C+D;}) and Rounding (e.g. StdRounding(0);lengthRounded=BRounded+CRounded+DRounded;

StdRounding(1);}).

Exit the dimensions dialog via the OK button.

Exiting the bar drawing dialog via the OK button will prompt 'Do you want to be able to draw 99C01' - Select Yes. A further prompt 'Do you want to create a slide for 99C01' is displayed - Select Yes.

The command line will prompt

Allow individual dimension selection <No> :

If you enter No to this prompt, then CADS RC will allocate each bar leg drawn the next dimension suffix automatically. In the above special bar, we need to control the allocation of dimension suffixes as we wish to specify the crank height as E and the leg dimensions as B, C and D. We will therefore enter YES to the Allow individual dimension selection <No>: prompt.

You will then be prompted:

Centre start point: which can be selected in any AutoCAD manner.

You will then be prompted:

Enter next dimension or ENTER to quit <A>:

as the first leg we are going to specify is dimension B, enter B at the command line.

You will then be prompted:

Enter next dimension or ENTER to quit <B>:

Enter @2'<0 to draw leg B 2' to the right.

You will then be prompted:

Enter next dimension or ENTER to quit <A>:

as the second leg we are going to specify is dimension C, enter C at the command line.

You will then be prompted:

Enter next dimension or ENTER to quit <C>:

Enter @1'-6" <45 to draw leg C 1'-6" at an angle of 45 degrees.

You will then be prompted:

Enter next dimension or ENTER to quit <A>:

as the third leg we are going to specify is dimension D, enter D at the command line.

You will then be prompted:

Enter next dimension or ENTER to quit <D>:

Enter @3'<90 to draw leg D 3' at an angle of 90 degrees.

You will then be prompted:

Enter next dimension or ENTER to quit <A>:

As leg D is the last on the bar press Enter to complete the bar drawing process.

You will then be prompted:

Pick first corner of zoom window:

You are now asked to define a zoom window which will be used to determine the slide area. With this in mind, pick a zoom window which allows for the placement of dimensions etc. When the zoom window has been defined, you will be prompted:

Place text for dimension B:

Pick the lower left insertion point for the dimension B.

You will then be prompted:

Place text for dimension C:

Pick the lower left insertion point for the dimension C.

You will then be prompted:

Place text for dimension D:

Pick the lower left insertion point for the dimension D.

You will then be prompted:

Place text for dimension E:

Pick the lower left insertion point for the dimension E.

You will then be prompted:

Draw line(s) by picking start point <Escape>:

You may now draw any lines to indicate the dimension points. On completion of drawing any lines required, press Enter to finish.

You are then presented with a standard file selection dialog defaulted to the ??\CADS-RC\PARAMS folder. Enter in the Filename\Pattern field the slide name for use on the schedule. Enter 99C01 (placing the schedule in the default directory with a name the same as the bend name will ensure the slide is automatically attached by the attach diagram option).

The slide is then created and you are prompted to label the bar as required.

All that remains is to determine the actual value of any crank/offset dims and enter the required dimension using bar/label edit.

New sets or marks of shape code 99C02 can now be created as the shape code is available from the shape code list.

NOTE - Only side views using centre alignment can be drawn. Any left, right or plan views required must be created using the sketch bar option or AutoCAD lines.

12 Couplers

Chapter Objectives

This chapter describes the scope and use of the CADS RC ERICO Lenton, MSP MacAlloy 500 and Annotate Coupler library facilities.

12.1 Overview of the CADS RC coupler facility

The CADS RC coupler facility allows bars with couplers or coupler threads to be easily detailed and added to the schedule in a logical manner. To enable coupler data to be controlled, some basic rules have been incorporated into the CADS RC coupler facility.

12.1.1 Ancon CCL Coupler Rules.

- Couplers can be applied to any shape code (including standard and Quick special bars) which have one or two free legs. Couplers cannot be applied to closed stirrups i.e. shape code s T1 and shape code X etc (Coil bar);
- Any bar which has a coupler applied to it using the CADS RC coupler facility will be scheduled as a shape code 99. All bending dimensions will be printed in the schedule, including those that make up standard bobs or hooks;
- Schedule diagrams are available for all shape codes with up to 5 bending dimensions which can have couplers attached. Quick special bars which have couplers or coupler threads do not have supplied diagrams, the required slide must be created by the user;
- Bars which have all couplers removed using the CADS RC coupler facility will revert back to their standard shape code in the schedule;
- No additions are made to the bar length or leg length in the schedule.

12.1.2 ERICO Lenton Coupler Rules

- Couplers or coupler threads can be applied to any shape code (including standard and Quick Special Bars) which have one or two free legs. Coupler or coupler threads cannot be applied to closed stirrups i.e. shape codes T1, T2 etc and shape code X etc (Coil bar);
- Any bar which has a coupler or coupler thread applied to it using the CADS RC coupler facility will be scheduled as a shape code 99. All bending dimensions will be printed in the schedule, including those that make up standard bobs or hooks;
- Schedule diagrams are available for all shape codes with up to 5 bending dimensions which can have couplers attached. Quick special bars which have couplers or coupler threads do not have supplied diagrams. The required slide must be created by the user;
- Bars which have all couplers or coupler threads removed using the CADS RC coupler facility will revert back to their standard shape code in the schedule;

- Bending dimensions displayed in the schedule can be either as detailed on the drawing or the drawn dimension with the end preparation tolerance added.

A configuration option is available to indicate on the schedule slide the dimensions which require end preparation and the reduction to the length of this dimension after end preparation.

12.1.3 MSP maculae 500 Coupler Rules

- Couplers can be applied to any shape code (including standard and Quick special bars) which have one or two free legs. Couplers cannot be applied to closed stirrups i.e. shape codes T1 and shape code X etc (Coil bar);
- Any bar which has a coupler applied to it using the CADS RC coupler facility will be scheduled as a shape code 99. All bending dimensions will be printed in the schedule, including those that make up standard bobs or hooks;
- Schedule diagrams are available for all shape codes with up to 5 bending dimensions which can have couplers attached. Quick special bars which have couplers or coupler threads do not have supplied diagrams, the required slide must be created by the user;
- Bars which have all couplers removed using the CADS RC coupler facility will revert back to their standard shape code in the schedule;
- No additions are made to the bar length or leg length in the schedule as the MacAlloy 500 bar does not require any end preparation for MacAlloy 500.

12.2 CADS RC coupler facility commands

The CADS RC coupler facility has 7 command options which are listed below:

- Add/Edit Coupler - Available from the Coupler sub-menu;
- Add Symbols/Labels - Available from the Coupler sub-menu;
- Couple Bars - Available from the Coupler sub-menu;
- Couple to Face - Available from the Coupler sub-menu;
- Connect to Coupler - Available from the Coupler sub-menu;
- Lenton P13 Cage Cplr - Available from the Coupler sub-menu;
- Lenton P13/P15 Closer - Available from the Coupler sub-menu.

12.2.1 Add/Edit Coupler

Menu Option Couplers->Add/Edit Coupler

Command Line cads_rc_coupler

Toolbar 

The Add/Edit Coupler command is selected from the Coupler sub-menu and is used for adding, editing or removing couplers and threads from individual bars via the CADS RC Coupler dialog (Figure 14.1).

NOTE - The Add/Edit Coupler command makes adjustments to the leg dimension based on selected End conditions wherever applicable.

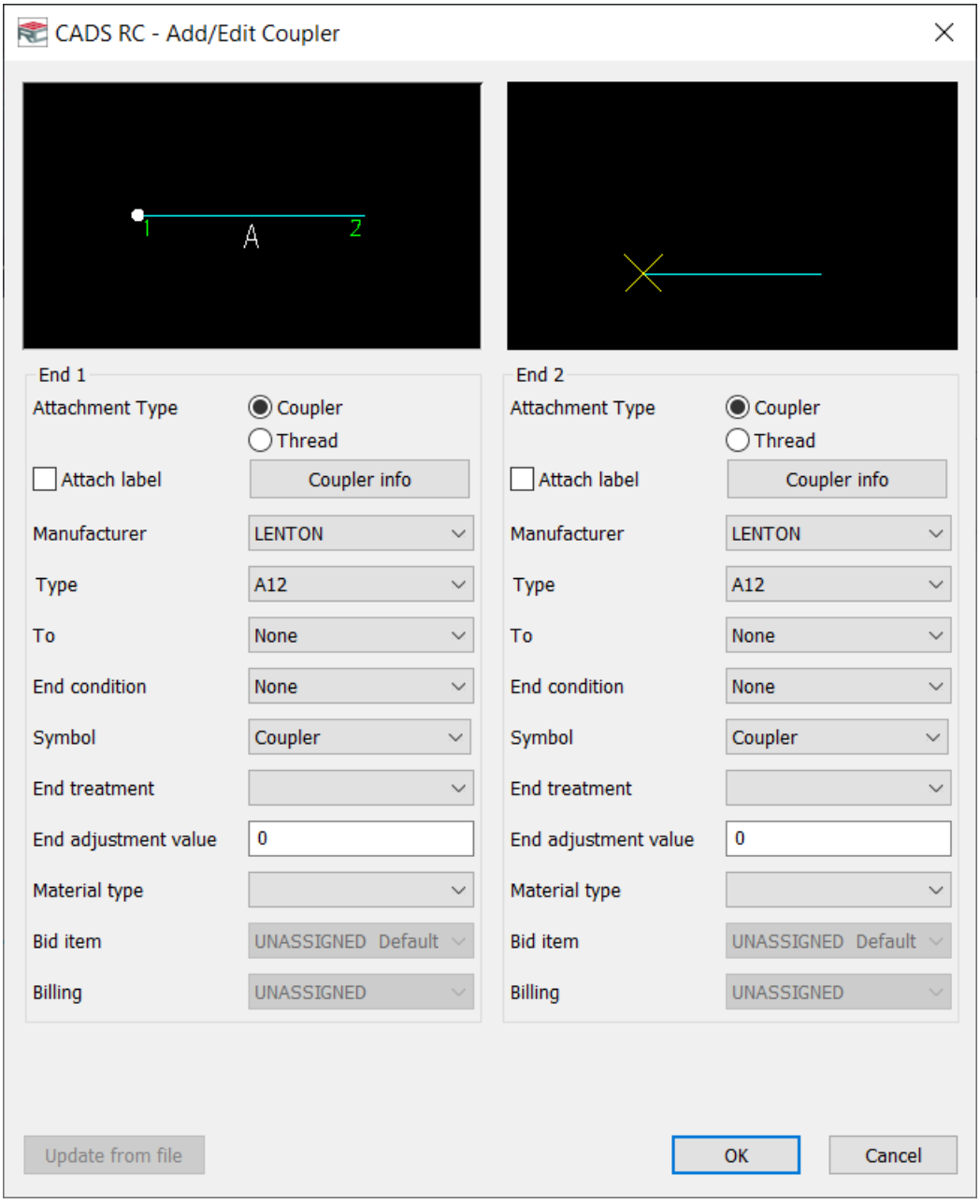


Figure 14.1 CADS RC Coupler dialog

The CADS RC Coupler dialog contains 2 slides. The left hand slide displays the shape code used to create the bar picked (along with the bar diameter) whilst the right hand slide displays a scaled diagram of the actual view picked. The scaled diagram includes a red cross on one bar leg. This red cross toggles between bar legs when the 'Coupler or thread' option is selected for that bar leg. This allows the user to see which bar leg will be affected on the drawing.

The options available within the CADS RC Coupler dialog are applicable to each free leg which can be coupled/threaded and are as follows:

Manufacturer

The Manufacturer option controls the coupler types available from the Coupler Type option. The required coupler manufacturer can be set for each bar leg/end. This makes it possible to apply a different manufacturer's coupler to each end of a bar.

Note

For the Ancon range, the manufacturer field also defines the coupler type.

Two MSP MacAlloy options are available, MSP-STD lists the stock MSP 500 couplers while MSP-SPEC lists the non-stock MSP 500 couplers.

The MSP Coupler abbreviations indicate the following: -

12.2.1.1.1 MSP-STD

M5LN	-	Lock Nut
M5PC	-	Pin Stop Coupler
M5C	-	Standard Coupler
VF	-	Void Former
M5ST	-	Turnbuckle (25mm Adjustment)
M5PCN	-	Pin Stop Coupler with Lock Nut
M5CN	-	Standard Coupler with Lock Nut
M5STN	-	Turnbuckle (25mm Adjustment) with Lock Nut

12.2.1.1.2 MSP-SPEC

M5HC	-	Hexagonal Coupler
M6LT	-	Turnbuckle (100mm Adjustment)
M5HCN	-	Hexagonal Coupler with Lock

M5LTN - Turnbuckle (100mm Adjustment) with Lock Nut

CFG...

The CFG... button accesses the CADS RC Coupler Configuration dialog for the manufacturer selected. (See the chapter entitled “Enquiry”).

Info...

Displays technical information of the coupler type selected

Coupler or Thread

This option controls the treatment to be applied to the end of that bar leg. The options are:

Coupler

The free end of this bar leg is to have a coupler attached and is to be threaded to suit the coupler type selected. Setting this option to Coupler activates the Coupler Type option so that the required coupler type can be selected.

Thread

The free end of this bar leg is to be threaded to suit the Lenton coupler type selected. Setting this option to Thread activates the Coupler Type option so that the coupler type this bar is to be threaded to suit can be selected.

NOTE - The Thread option is only available if that leg’s manufacturer option is set to Lenton.

Coupler Type

Lists the coupler types available from the manufacturer chosen for attachment to the free end of this bar leg.

End Conditions

End condition lists set of end conditions available for the coupler type selected.

Couplers can be given following end conditions so that the bar legs will be reduced physically according to the end condition value defined in the coupler definition file.

- None - No end condition will be applied. This is default;
- Coupled between bars - This has to be used if two bars are coupled and a face reduction is required;
- Coupled to Face - This will be useful for the bar stopping at the face;
- Coupled to Face with Form fixer- This will be useful for the bar stopping at form works with a fixer;

Coup'd to Diam

This is used if the coupler attached to the free end of this bar leg is connected to a different diameter bar. The default is the diameter of the bar selected, if a different diameter is entered then the bars coupler label and schedule diagram will indicate a coupler with reducer e.g. the bar coupler label and schedule diagram will show:

Lenton Coupler or	maculae M5PC
Type A12 'R'	16/12 Reducer

16/12

Attach Label

If this option is checked, label will be attached.

12.2.2 Add Symbols/Labels

Menu Option Couplers->Add Symbols/Labels

Command Line cads_rc_acoupler

Toolbar 

The Add Symbols/Labels command is selected from the Coupler sub-menu and it is used to add or remove symbols/labels from individual bar views on the drawing without entering the Add/Edit Coupler dialog. It has no affect on the schedule printout for the bar selected.

On picking the 'Add Symbols/Labels' command from the Couplers sub-menu, you are asked to select one of the following options from the side menu:

Symbol

Only a coupler symbol will be attached.

Label

Only a coupler label will be attached.

Both

A coupler label and symbol will be attached.

None

No label or symbol will be attached. (This option is used to removed symbols/labels already attached to the bar view).

Once you have selected the required option, you will be asked to pick the bar view you wish to apply the setting to. This command applies the setting selected to all coupled legs in the bar view picked. If you require more control over the symbol/label for each bar leg, then this can be achieved from the CADS RC Coupler dialog where symbol/label settings can be different for each bar leg end.

If the picked bar is part of a bar set which has no couplers/coupler threads attached, you are asked if you wish to attach a coupler/coupler thread to that bar set. Selecting Yes takes you into the CADS RC Couplers dialog where the options described earlier in the section Add/Edit Coupler are available, whilst selecting No returns you to the AutoCAD command prompt.

12.2.3 Couple Bars

Menu Option Couplers->Couple Bars

Command Line cads_rc_cbars

Toolbar 

The Couple Bars command is used to connect two existing bars using an appropriate coupler type.

You are asked to pick the bar you want to allocate the coupler to (picking towards the end of the leg you want the coupler placed on) followed by the bar you want to couple to (again picking towards the end of the leg you want the thread applied). The CADS RC Couplers dialog (Figure 14.2), where the required coupler type can be selected, is then displayed. On exiting the dialog via the OK button, the bar leg allocated the coupler is adjusted so that the correct clearance is achieved between the bar ends and you are asked to place the relevant coupler labels.

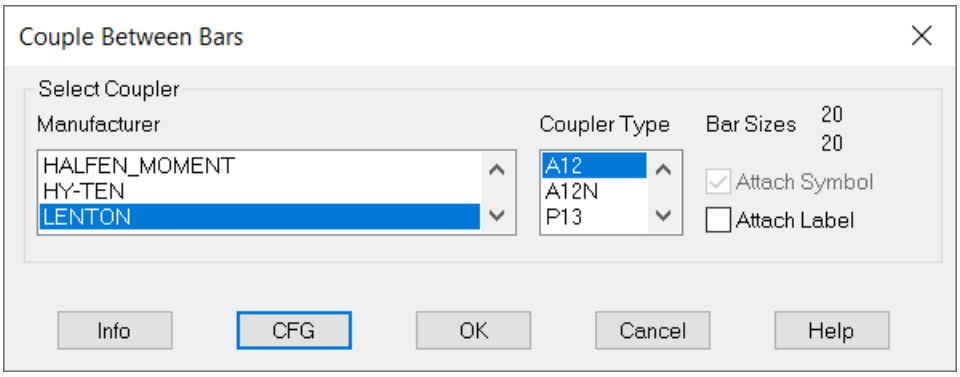


Figure 14.2 CADS RC Couplers dialog

Notes

- For the Couple Bars command to work, the bar legs picked must be drawn in line or parallel on the drawing;
- Any adjustments required to achieve the correct clearance between the bar ends are always made to the bar allocated the coupler;
- If the bars picked are of different diameters, the coupler is always allocated to the larger diameter bar.

12.2.4 Couple To Face

Menu Option Couplers->Couple to Face

Command Line cads_rc_c2face

Toolbar 

The Couple To Face command is used to add a coupler to an existing bar when the coupler is to be placed/fixed to a known face. (e.g. when a coupler is to be placed up to a formwork face ready for the connecting bar in the next element to be attached after the removal of the formwork).

You are asked to pick the bar you want to couple and then to define the face on which the coupler is to be placed. The CADS RC Couplers dialog (Figure 14.3) is then displayed and the required coupler type can be selected. On exiting the dialog via the OK button, the bar leg allocated the coupler is adjusted so that the correct clearance is achieved between the bar end and the face. You are then asked to place the relevant coupler label.

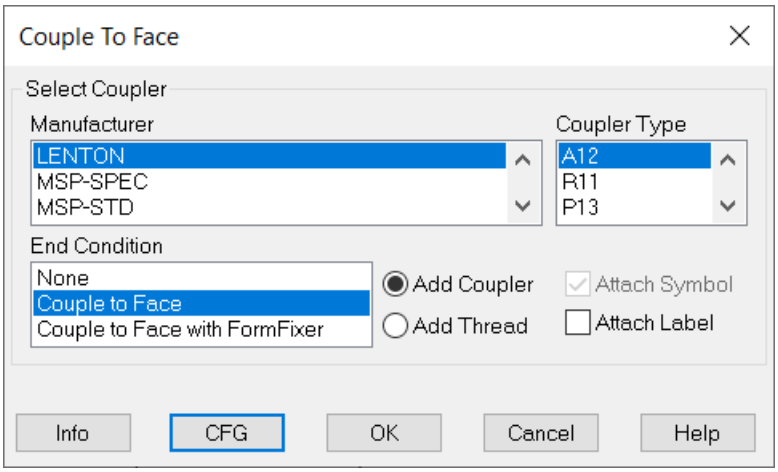


Figure 14.3 CADS RC Couplers dialog

NOTE.

- Where the coupler type selected is of a two part construction, the coupler is placed with the end of the female part adjacent to the face so that the male part can be attached when the formwork is removed;
- Where the coupler is to be fixed to the formwork using a sealing cap, you must, if required, allow for the thickness of the sealing cap when defining the face, as this is not taken into account when adjusting the bar end position.

12.2.5 Connect To Coupler

Menu Option Couplers->Connect to Coupler

Command Line cads_rc_c2coupler

Toolbar 

The Connect To Coupler command is used to connect a bar to another bar which has a coupler already allocated to the bar end.

You are asked to pick the bar leg which is already coupled and then the bar which is to be connected to it. The non-coupled bar leg is then adjusted to achieve the correct clearance between the bar ends (the relevant thread is applied to the end of the bar if the coupled bar is using a Lenton coupler). You are then asked to place the relevant coupler thread label.

NOTE.

- For the Connect To Coupler command to work, the bar legs picked must be drawn in line or parallel on the drawing;
- Any adjustments required to achieve the correct clearance between the bar ends is always made to the bar which is connecting to the existing coupled bar;
- If the non-coupled bar is of a larger diameter to the existing coupled bar, the command is aborted, as the coupler must always be applied to the larger diameter bar.

12.2.6 Annotate Couplers

Menu Option Couplers->Add/Edit Annotated Coupler

Command Line cads_rc_atcoupler

Toolbar 

The CADS RC Annotate Coupler function provides support for annotating and scheduling coupler types other than those provided by Erico Lenton or MSP MacAlloy.

The Annotate Coupler command is selected from the Coupler sub-menu and is used for adding, editing or removing annotated couplers and threads from individual bars via the CADS RC Annotate Couplers dialog (Figure 14.5).

NOTE - The Annotate Coupler command does not make any adjustment to the bar on the drawing. It simply adds a coupler or thread to the end of the bar at its existing position on the drawing.

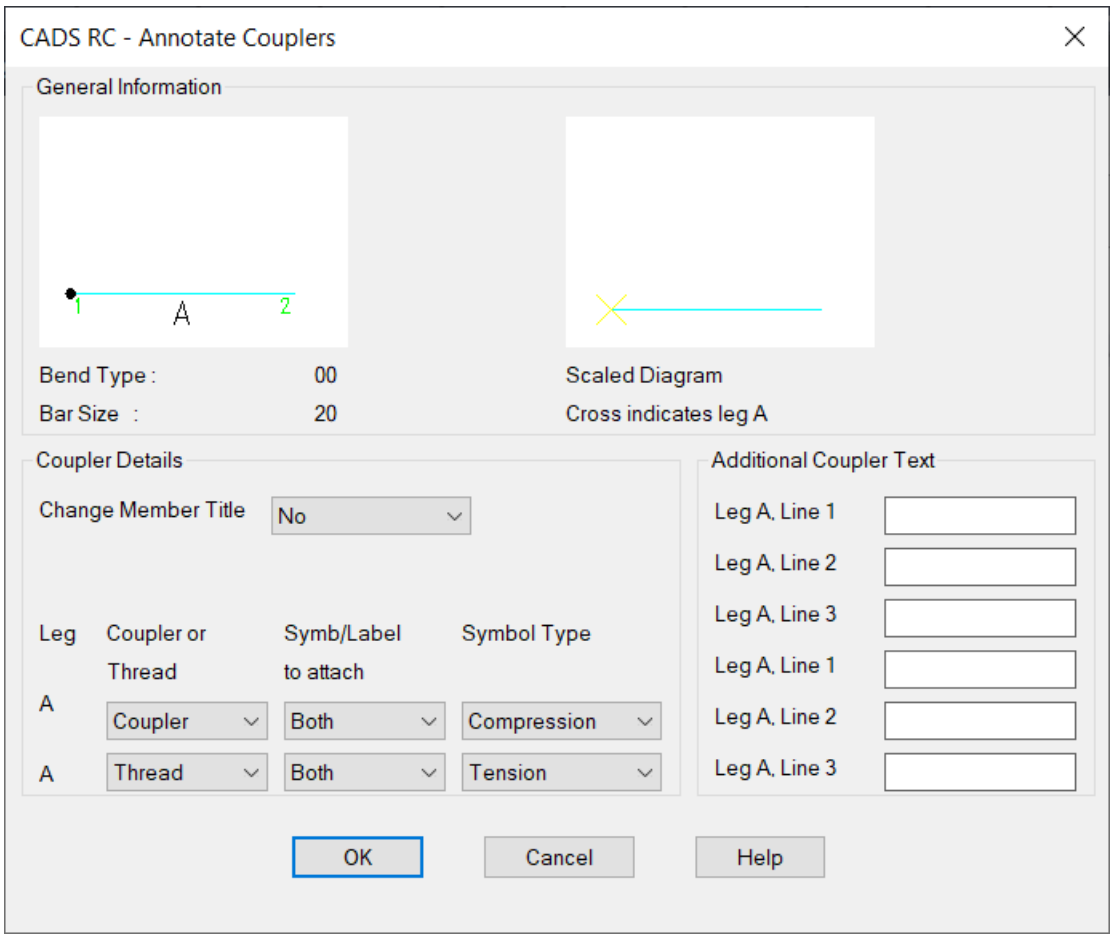


Figure 14.5 CADS RC Annotate Couplers dialog

The CADS RC Coupler dialog contains 2 slides. The left hand slide displays the shape code used to create the bar picked (along with the bar diameter) whilst the right hand slide displays a scaled diagram of the actual view picked.

The scaled diagram includes a red cross on one bar leg. This red cross toggles between bar legs when the 'Coupler or thread' option is selected for that bar leg. This allows the user to see which bar leg will be affected on the drawing.

The options available within the CADS RC Annotate Coupler dialog are applicable to each free leg which can be coupled/threaded and are as follows:

12.2.7 Coupler or Thread

This option controls the treatment to be applied to the end of that bar leg. The options are :

None - No treatment is required to the free end of this bar leg.

Coupler - The free end of this bar leg is to have a coupler attached and is to be threaded to suit the coupler type selected.

Thread - The free end of this bar leg is to be threaded to suit the coupler type.

12.2.8 Symbol/Label to attach

This option is used to specify the symbol and label to be attached on the drawing adjacent to this bar leg end for the picked bar view only. The options are:

None - No label or symbol will be attached.

Label - Only a coupler label will be attached.

Symbol - Only a coupler symbol will be attached.

Both - A coupler label and symbol will be attached.

This setting does not apply to all views of this bar leg, only the bar view picked from the Add/Edit Coupler command. Labels can be applied to other views of this bar using the Add Symbols/Labels command described in the section Add Symbols/Labels to be found later in this chapter.

12.2.9 Symbol Type

This option is used to specify the symbol type to be attached to this bar leg if the 'Symbol/Label to attach' option is set to 'Symbol' or 'Both'. The options are:

None - No symbol will be attached regardless of 'Symbol/Label to attach' setting.

Tension - Will attach the Tension symbol block specified in the Coupler Configuration.

Compression - Will attach the Compression symbol block specified in the Coupler Configuration.

Thread - Will attach the Thread symbol block specified in the Coupler Configuration.

Additional Coupler Text

Three lines of text can be added for each leg, the text entered is shown on the bar view and also included on the schedule printout if the relevant diagram is attached to the bar data line.

13 Excel Print Option

Chapter Objectives

This chapter describes the scope and use of Print option from Schedule dialog, which uses Excel Templates.

13.1 Overview of the CADS RC Excel Print Option

The CADS RC Excel print option for schedule is based on an excel template and can be customised easily for any requirement for a defined domain.

To use this print option, the Microsoft Excel program must be installed in the computer. Use " SDL print option" if Microsoft Excel is not available.

13.2 Using the Print Option

13.2.1 Operation

Selecting the print option displays the Print dialog as shown.

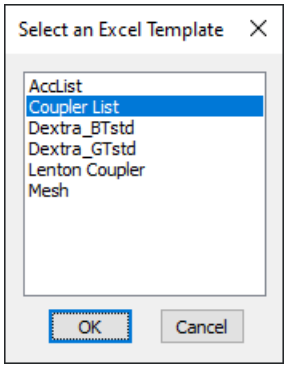


Figure 16.1 CADS RC Print Option dialog

This has following key inputs.

Templates

The following templates are supplied with the installation and are listed in the print option list box.

Bar schedule	-	Schedule including attached diagrams with coupler information.
Mesh	-	Mesh list of mesh fabric inserted using Mesh option from RcToolbox

Lenton coupler	-	Filtered list of Lenton couplers alone
Accessory list	-	List of all accessories present in the drawing
Coupler list	-	List of all Couplers present in the drawing

Select the appropriate template from the list.

Launching Excel / Printing the Schedule

Checking the check box “Launch MS Excel” launches the excel if the print option is selected.

If this is "Off", the program will send the information to the current printer.

14 OverStock Length Feature

Chapter Objectives

This chapter describes the scope and use of the Over Stock Length feature for RC bars.

14.1 Overview of the CADS RC Over Stock Feature.

Over stock length feature allows to splice the bars whose length is above the user specified stock length and enables editing as a group.

It increases the overall productivity for spliced bars as re editing as a group makes revisions much easier.

The Tapered Range macro also has the option to draw the bars as Over Stock bars.

This feature can be turned off completely if the Global config as shown below is set as "No".

[OverStockFeature]

UseOverStockLength=No

14.2 Drawing Bars Beyond Stock Length

The feature gets triggered automatically if the length of the bar is beyond the Stock length.

The following dialog pops up in the program with the options "Yes", "No" and Cancel.

Figure 15.2.1 OverStock Warning Dialog

- Yes - invokes Over Stock Feature Dialog;

- No - Works as Previous version of the program;
- Cancel - Cancels the operation.

OverStock Feature Dialog

If the OverStock option is selected, the following dialog appears.

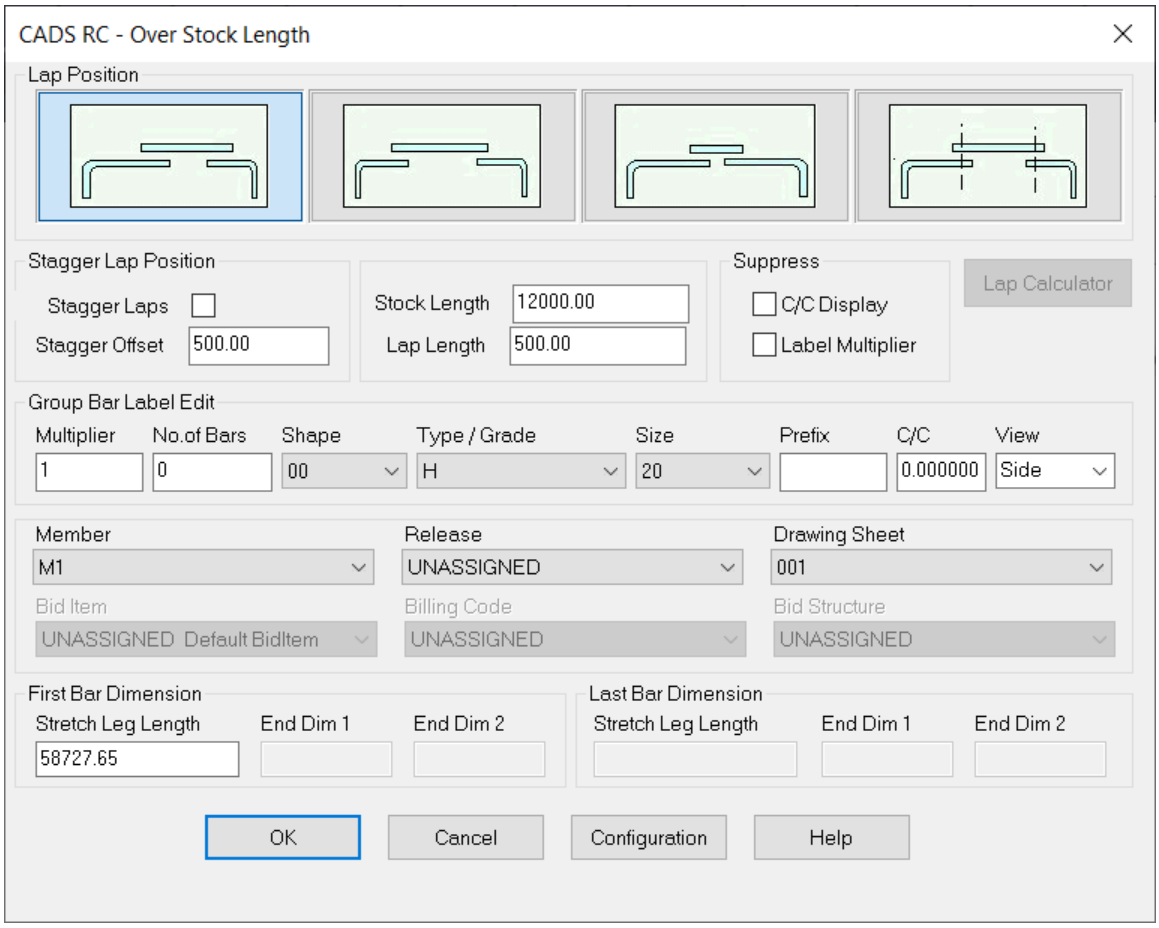
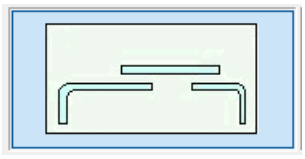


Figure 15.2.2 OverStock Main Dialog

Splice Options

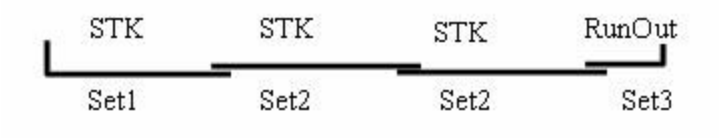
There are four splice options as shown in the dialog and each one splices the bar as explained below.

Splice Option 1:

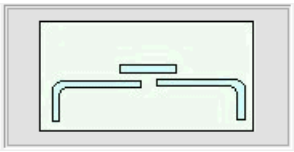


The first and Intermediate bars are the stock bars and the last bar is the run out bar.

An example of a spliced detail is shown below. The Set number shown indicates as to how the bar mark is determined.

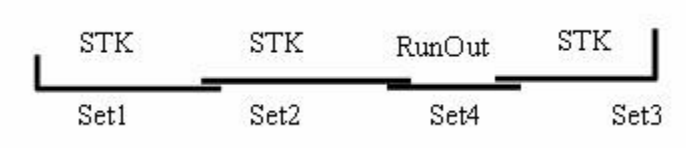


Splice Option 2:

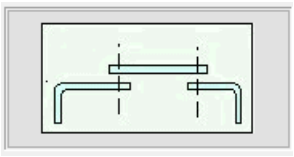


The first, last and Intermediate bars are stock bars. The last but one bar is the run out bar.

An example of a spliced detail is shown below.

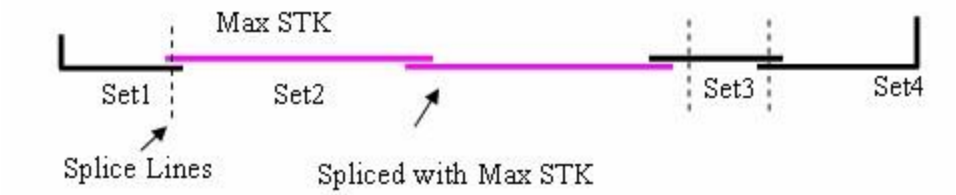


Splice Option 4:



Each splice is defined by selecting set of lines. If the distance between two lines goes beyond the Maximum Stock Length, the program splices this zone by maximum stock length.

An example of a spliced detail is shown below.



Stock Length

This is the length of the bars for splicing. This cannot be more than the Program Stock Length (Max Stock Length).

For e.g if the construction joint is set at 8000 mm (or 30') and the bar needs splicing at those points, the stock length can be entered as 8000 mm (30') which is less than the program stock length (12000 mm or 66').

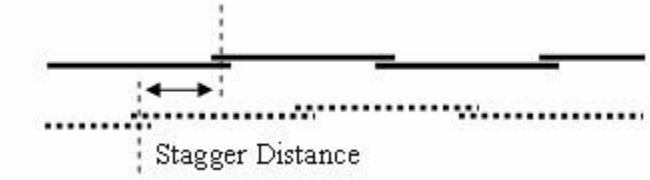
The stock length can also be based on the available Stock lengths of bars specified by the Manufaturers.

Lap Length

This is the length of the Lap for splicing defaulted to 500 mm (1'-8"). This is not automatically calculated according to the size of the bar. Hence it is the user's responsibility to enter the proper Lap value.

Staggered Lap

This option calculates and adjusts the first and last bar lengths such that if the alternate bars are placed by mirroring, the lap distance is staggered by the given value. Note that this option should be used with care for U and L shaped bars which are unsymmentric.



Bar Group Data

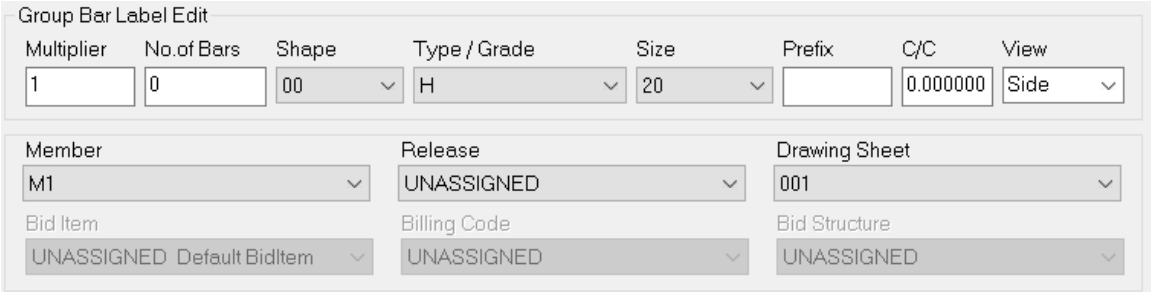
This is similar to the options available for bar.

Multi:

Multiplier for the group.

No. of Bars:

No of bars for the group.



Shape:

Shapes that are supported for OverStock feature are listed here.

Following shapes are supported.

Straight bar

Straight bar with Hooks U bar and L bar.

For U and L shape, only the Second leg is allowed to stretch beyond beyond the Stock length.

Grade:

Grade of the bars within the group.

Size:

Size of the bars in the group.

When the Size is changed, it will give the following warning message that it does not automatically calculate the lap required for the selected size.

Prefix:

Prefix for the bars in the group.

C/C:

Centre to Centre distance of the bars in the group.

View:

Side view and Plan view for the group are supported. The views can be changed as required.

Release Code:

Release Code of the bars in the group.

Hooks:

User can select either A or A/G hooks for bars in the group.

Suppress c/c Display

If toggled by picking the box to display an X, the c/c value will be suppressed in the label display for the entire group. (Refer 4.1.11 “Suppress c/c display” for more details)

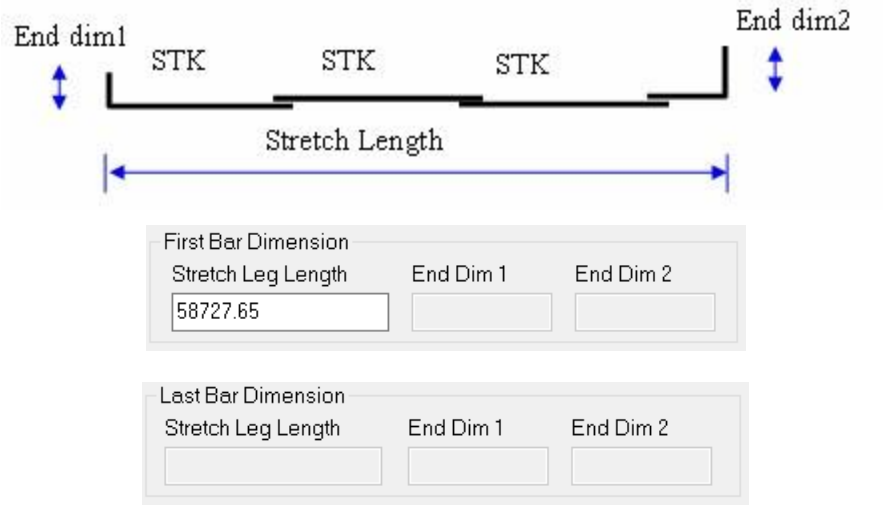
Suppress Label Multiplier

If activated by picking the box to display an X, the multiplier will be suppressed in the label display for the entire group. (Refer 4.1.12 “Suppress Label Multiply” for more deails)

First Bar and Last Bar Data

This is similar to the options available for bars.

The stretch length is the leg length of the bar to which splicing is done. Stretch length , end dim1 and end dim2 are shown in the figure below.



Lap Calculator

This invokes the lap calculator for US config.

14.3 Editing of the CADS RC Over Stock Bars

This is similar to the options available for bar.

Barlabel editing and Double click editing of OverStock bars invoke the OverStock Feature’s main dialog.

Multiple Edit can also be done for groups.

Note:

Any editing done on lables such as moving label / leader will retain it's position on most cases of editing such as changing bar size, grade etc. There are certain cases where it will reposition the labels to OSL defaults. User needs to reposition if required.

Copy Operation

Autocad Copy command or RC copy command invokes the following dialog and the options available are given below.

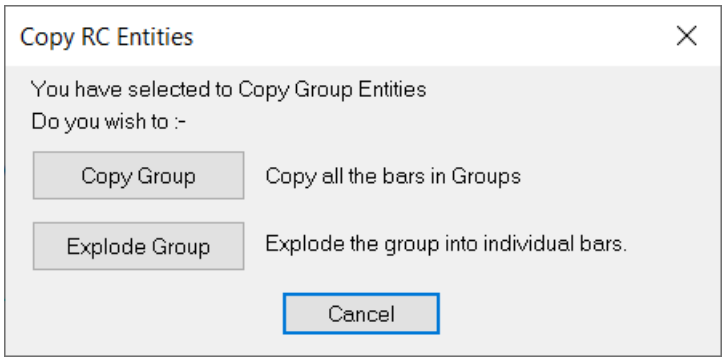


Figure 15.3.1 OverStock Copy warning Dialog

Copy Group:

Allows to Copy the group as View or Set.

Note:

Copying the group as Set and then editing any of the set updates the bar Mark of the Over Stock Group.

Explode Group:

Explodes the group into individual bars.

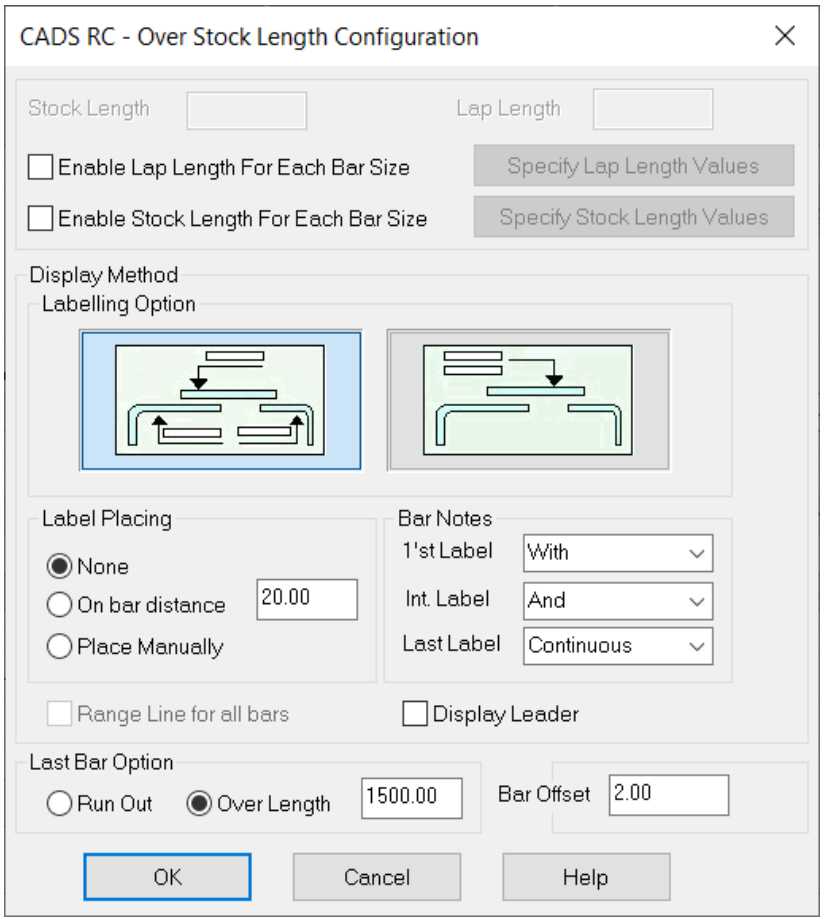
Exploding as individual bars

The Command "cads_rc_Explode" prompts to select the Over Stock bars and explodes it as individual bars.

Now the bars no longer behave as a group of bars which react to the features avaiblable in over stock length command.

14.4 Configuration Options for Over Stock Bars

If the OverStock Config option is selected, the following dialog appears.



Stock Length

This value is the stock length that can be provided by the user. This edit box will be enabled when invoked from Area Detailer Macro and disabled when invoked from CADS RC. While using CADS RC the stock length value can be provided in the OSL main dialog.

Lap Length

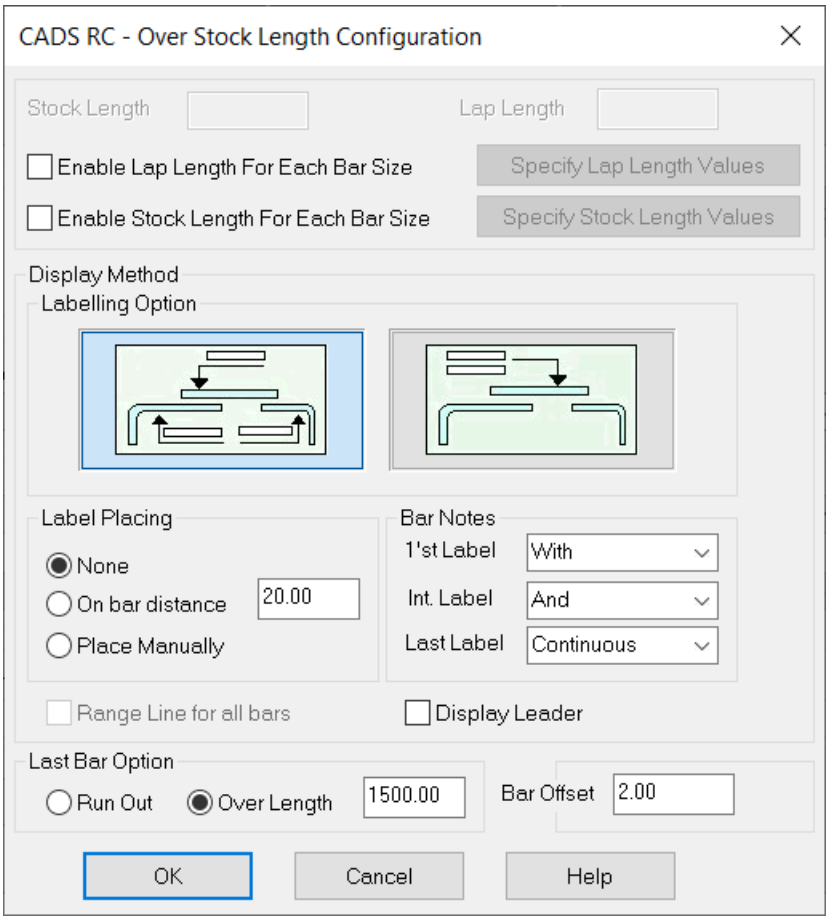
This value is the lap length that can be provided by the user. This edit box will be enabled when invoked from Area Detailer Macro and disabled when invoked from CADS RC. While using CADS RC the lap length value can be provided in the OSL main dialog.

Lap Length for each bar size

The new feature of specifying Lap length for each bar size can be availed by activating the below check box.

14.5 Configuration Options for Over Stock Bars

If the OverStock Config option is selected, the following dialog appears.



Stock Length

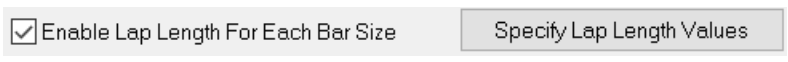
This value is the stock length that can be provided by the user. This edit box will be enabled when invoked from Area Detailer Macro and disabled when invoked from CADS RC. While using CADS RC the stock length value can be provided in the OSL main dialog.

Lap Length

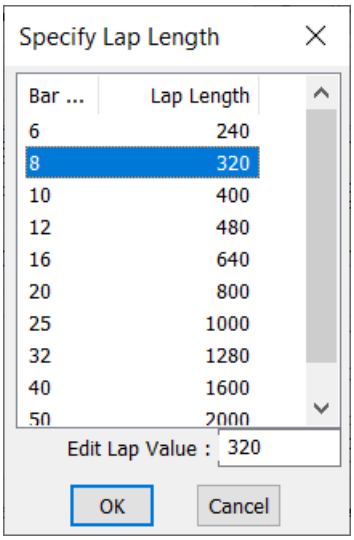
This value is the lap length that can be provided by the user. This edit box will be enabled when invoked from Area Detailer Macro and disabled when invoked from CADS RC. While using CADS RC the lap length value can be provided in the OSL main dialog.

Lap Length for each bar size

The new feature of specifying Lap length for each bar size can be availed by activating the below check box.



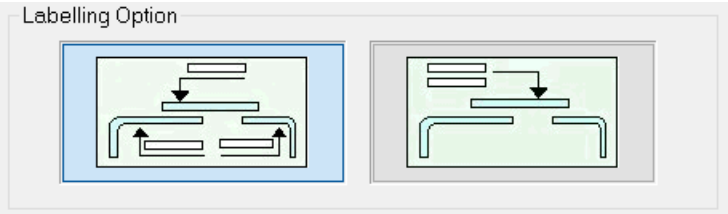
The lap length for each bar size can be viewed/changed by clicking on the “Specify Lap Length Values” button.



The default vaue for lap length for each bar size is 40 X Bar diametre. User can change the default lap length values by clicking on the respective row in the list box and then enter the value in the below text box. The lap length value for each bar size will be retained for future use and is stored as configuration items in the drawing. This lap length value will be automatically used by the program while drawing over stock length bars.

Labeling Option

This option controls the manner in which the intermediate bars are drawn i.e as view or set.It also indicates how the labels are placed i.e label all the bars individually or stack them.



Option 1: Label the bars individually

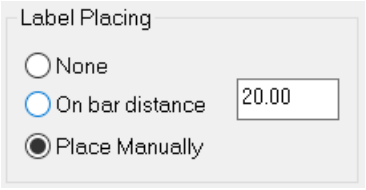
Labels all the bars individually and the intermediate bars are drawn as new Sets.

Option 2: Label the bars as Stack

Labels are stacked and the intermediate bars are drawn as new views and the multiplier is adusted accordingly

Label Placing

Label placing options available are as shown below.



None:

Does not label the bars.

On bar distance:

Places the labels at a distance from the bar. The distance is calculated by multiplying the dimscale with the “On bar distance” factor.

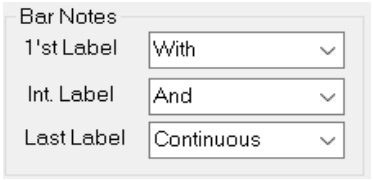
Place Manually:

Allows to place the bars manually i.e user has to manually pick the arrow position and leader postion for each bar.

Bar Notes for Label

The following Label Notes are available for the first bar, Intermediate bar and Last bar.

1’st Bar’s Label: Default value is “With”



Intermediate Bar’s Label: Default value is “And”

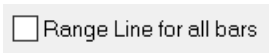
Last Bar’s Label: Default value is “Contnuous”.

The Label Notes can be either entered or selected from the standard notes provided in the list box.

Range line for All Bars

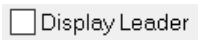
This is used for a range of bars which are grouped with the OSL feature.

If the “Range Line for all Bars” option is “On”, the program draws the Range line for all bars.



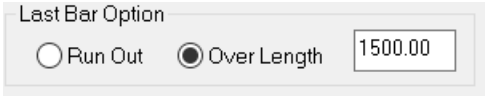
Display Leader

If this option is turned off, leader will not be drawn. This option is ‘off’ by default for ranges.



Last Bar Option

The last bar option as shown in the figure below allows to control the manner in which the last bar is drawn.



Run Out:

This option just makes the last bar's length as the calculated length based on the available stretch length and stock length.

Over Length:

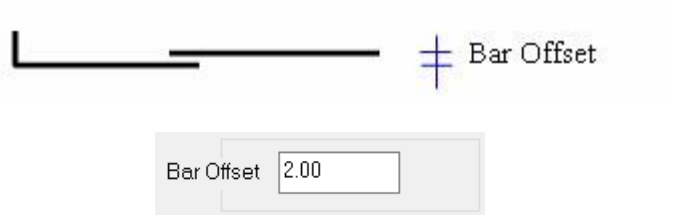
If the last bar is sligtly higher than the stock length, it can be set to a value such that it can be more than stock length by a given "Over length" value.

Note:

For the Run out option, if the last bar calculated is too small which is not practical, the program automatically switches to "Over Length value" after giving a warning message at the Autocad command window.

Bar Offset

This is the factor which allows the user to adjust the position of each alternate bar near the "Lap" as shown in the figure below to add more visibilty.



The "Bar offset" value is multiplied with the "Dimscale" value and is used to calculate the actual height in the drawing.

Over Stock Feature - Limitations

The Over Stock feature has the following limitations.

- It supports only the following shapes;
  - Straight bar;
  - Straight bar with Hooks;
  - U bar;
  - L bar.

- It supports only the following range types;
    - Single indicator range;
    - Double indicator range;
    - Double indicator tapered range.
- For U bar, the second Leg alone can be stretched beyond stock length;
- Couplers cannot be added;
- Add view or Set command and Range view command are not supported for Over Stock bars;
- If the difference between the first and last bar is more than the stock length of a double indicator tapered range, it will not be spliced as Over Stock bars.

15 Appendix B - CADS RC Configuration Reference

Chapter Objectives

The following pages list some of the more useful configuration variables for use in CADS RC.

Please be aware, that it is possible, by making changes to the Global

Configuration Centre to cause CADS RC to behave incorrectly. Only Advanced Users should attempt to edit these settings unless directed to do so by CADS Technical Support Department.

Appendix D1 -

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[Config]			
CurrentCFG			Default cfg (USA)
Setup			USA
MMConfig			USA
MMBarSizeDisplayUnitType			2
MMBarSizeConfiguration			1
MMWeightDisplayUnitType			6
MMWeightDisplayUnitMode			1
ScheduleLayer			BARLIST
RevisionTableLayer			BARLIST

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[SoftMetric]			
UnitsMode	-	USA Soft Metric Variable	1
NoModes	-	USA Soft Metric Variable	5

Multiplier1	-	USA Soft Metric Variable	1.0
Multiplier2	-	USA Soft Metric Variable	0.03937007874016
Multiplier3	-	USA Soft Metric Variable	25.4
Multiplier4	-	USA Soft Metric Variable	10
Multiplier5	-	USA Soft Metric Variable	0.254
Units1	-	USA Soft Metric Variable	0
Units2	-	USA Soft Metric Variable	4
Units3	-	USA Soft Metric Variable	2
Units4	-	USA Soft Metric Variable	2
Units5	-	USA Soft Metric Variable	2
Precision1	-	USA Soft Metric Variable	-1
Precision2	-	USA Soft Metric Variable	2
Precision3	-	USA Soft Metric Variable	0
Precision4	-	USA Soft Metric Variable	2
Precision5	-	USA Soft Metric Variable	2
Id1	-	USA Soft Metric Variable	Drawing
Id2	-	USA Soft Metric Variable	MM ->Inches

Id3	-	USA Soft Metric Variable	Inches->MM
Id4	-	USA Soft Metric Variable	MM ->Metres
Id5	-	USA Soft Metric Variable	Inches-Metres
WeightMultiplier1	-	USA Soft Metric Variable	1.0
WeightMultiplier2	-	USA Soft Metric Variable	2.20462262
WeightMultiplier3	-	USA Soft Metric Variable	0.45359237
WeightMultiplier4	-	USA Soft Metric Variable	2.20462262
WeightMultiplier5	-	USA Soft Metric Variable	0.45359237

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[DimensionExclusion]			
ExcludeSeismic	-		Seismic
ExcludeHidden1			Hidden1
ExcludeHidden2			Hidden2
ExcludeHidden3			Hidden3
ExcludeHidden4			Hidden4
ExcludeHidden5			Hidden5

ExcludeHidden6	Hidden6
ExcludeHidden7	Hidden7
ExcludeHidden8	Hidden8
ExcludeHidden9	Hidden9
ExcludeHidden10	Hidden10
ExcludeHidden11	Hidden11
ExcludeHidden12	Hidden12

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[Bars]			
Suffix	BAR Configuration - Bar Marking...	Tapered Start Suffix (letter/number)	A
RcBarLay	BAR Configuration	Reinforcement Bar Layer	rebars
BarCenCol	BAR Configuration	Centre Line Colour	Cyan
BarProCol	BAR Configuration	Profile Line Colour	White
RcBarSecLay	BAR Configuration	Bar Section Layer	0-70
ShapeWin	BAR Configuration	Shape Code Window	On

BarDescFilePathAndName	SUPPORT FILES	Bar Shape Codes file	usa.bdf
BarBendingDataFilePathAndName	SUPPORT FILES	Bar Bending Data file	
DimsDataFilePathAndName	SUPPORT FILES	Bar Dims Txt file	usadims.txt
BarTypesPathAndName	SUPPORT FILES	Bar Types File	
LegacyBarDescFilePathAndName			usa.bdf
DisplaySetWarning	BAR Configuration	Display SET warnings	Yes
NewViewDLG	BAR Configuration	New View Dialog Appears	Always
DisplayOldShapes	---	Displays Old 9, 11, 13 and 21	No
Sc99SlidePath	---	Special Bar Slide Path	
DiamChangeCheck	BAR Configuration - Advanced...	Diameter Change Check	Yes
UsePlineWidth	BAR Configuration	Use Pline Width rather than centreline	No
PlineWidthFact	---	Pline Width Factor	0.3
DrawBlips	BAR Configuration - Advanced...	Blips when doing Tapered Ranges	Yes
DrawOverSizedEnds	BAR Configuration	Draw Over Sized Ends	No
OverSizeEndsFact	BAR Configuration	Over Sized Ends Factor	0.3
DrawOverSizedEndsProportionalToSize			No

InvaildBarColor	---	The colour Incomplete/Unlabelled bars are shown at	6
AutoLeaderBars	---	Automatically Leader Bars	Yes
ShowType2As17	---	Shows a type 2 as a 17 in the schedule	No
UseFastBBD	BAR Configuration - Advanced...	Use Fast BBD	Yes
ShowSlideError	---	Display warning if view slide not present	No
StartBarPos	---	Contact CADS	0
StretchChangesMark	BAR Configuration - Advanced...	Stretch Changes Mark	Ask
StretchAsksForMark	BAR Configuration - Advanced...	Stretch Asks for Mark	No
MaxLengthWarning	BAR Configuration - Advanced...	Maximum Length Warning	Ask
AlwaysDisplayLengthInches	BAR Configuration - Advanced...	Always Display Length in Inches	No
ZeroLengthInchesTxt	BAR Configuration - Advanced...	Zero Length Inches text	-0"
RadDimToOuter	BAR Configuration - Advanced...	Radius Dimensions to Outer	No
ExcludeBarShapes	BAR Configuration - Advanced - Exclude Bar Shapes...	Bar shapes can be selectively excluded from shape codes list	
SchedRadialBarAsStraight	---	Schedule shape code 9 as a 0 in Schedule	Yes

RadialMaxHeight	---	Maximum H Dim suitable for Transport	2235.0
MaxDimensionLength			800.0
MaxDefaultBarLength			800.0
DimensionMinimums			Yes
UpdateBarDimensions			Yes
AskForBmarkinput			Yes
HooksButtonOnEdit			On
AllowDimsBelowMinimum			No
WarnOfNonStandardHooks			No
AllowDuplicateControlCodes			Yes
UpdateSlopingLegsDimsOnEntryToDimsDlg			Yes
AlwaysDefaultToAandGHookOnDrawBar			No
AskToChangeConfigOnNewDrawing			No
SortShapeList			No
ShapeGroupSortingOrder			
ShowShapeCodeWarning			YES

UnScheduledBarLayer			UnscheduledRebars
RestrictedBarSizes			
BentMaxHeight			88.0
USER180STIRRUPHOOK			Yes
HookDim1			A
HookDim2			G

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[SpecialBars]			
UseSpecialsFile	BAR Configuration - Special Bars	Use Special Bar File	No
SpecialBarFilePathAndName	BAR Configuration - Special Bars	Special Bar Path and Filename	specials.spl
DefaultDescription			{Description = "Special Bar";}
DefaultSlidename			{Slide = "special.sld";}
DefaultVarSetup			{BC="";NoBarMarkPrompt = 0;SpecialBar = 1;}

DefaultScheduleData			{if(barsize == "#3" || barsize == "10M")Category = "Light";else{Category = "Heavy";}}
DefaultLengthCalc	BAR Configuration - Special Bars	Default Length Calculation	{length=A+B+C+D+E+F+G;}
DefaultRounding	BAR Configuration - Special Bars	Default Rounding Calculation	{StdRounding(0);lengthRounded=ARounded+BRounded+CRounded+DRounded+ERounded+FRounded+GRounded;StdRounding(1);}
SpecialBarsSlidePath	---	Special Bars slide path	
SlideTxtWidthFact	---	Width factor of Slide Text	1.0
SlideTxtLay	---	Layer for Slide Text	bar-lbl
SlideTxtHeightFact	---	Height factor of Slide Text	0.1
SlideTxtStyle	---	Text Style for Slide Text	Romans
UseSpecialBarText	---	Use Special Bar Text	No
SpecialBarText	---	Special Bar Text	
ReadSpecialsFromDwg	BAR Configuration - Special Bars	Read Special Bars from the Drawing database	Yes
ReadBarThatAlreadyExists	BAR Configuration - Special Bars	Contact CADS	No

ReReadSpecialsFromFile	No
AutoNameBarLegDimsForPline	No
AutoNameSpecialShape	No
AutoSpecialShapeNamePrefix	SS
DefaultPlineToSpecialShape	3
CouplerBarDisplayShape	No

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[Label]			
LabelLay	LABEL Configuration	Bar Label Layer...	bar-lbl
CircleLay	-	Layer of Circle used in Indian Labelling	bar-lbl
LabelHeight	LABEL Configuration	Bar Label Height	~mm~3.0
LabelWidthFactor	LABEL Configuration	Bar Label Width Factor	1.0
LabelTextStyle	LABEL Configuration	Bar Label Text Style	romans
LabelBarQuestionDef	LABEL Configuration	Label Question Default	No

AutoLabelEdit	---	Goes into Edit Bar label automatically after each draw bar	off
NotesFile	LABEL Configuration	Notes File...	rc_lab.def
StackLabelsDistFac	---	Distance between stacked labels	1.8
LabelForm1	LABEL Configuration	Label Format	
TaperedLabelForm1	LABEL Configuration	Label Format	
BarMarkFormat	LABEL Configuration	Bar Mark Format	
TaperedBarMarkFormat	LABEL Configuration	Bar Mark Format	
BarMarkExcludeChars	BAR Configuration - Bar Marking...	Exclude size characters in bar mark	#M
BarMarkPrefix	BAR Configuration - Bar Marking...	Bar Mark Prefix	
BarMarkFormat	BAR Configuration - Bar Marking...	Bar Mark Format String	$BMARK
BarMarkExcludeChars			
NumberOfMarkZeros	BAR Configuration - Bar Marking...	Value of 2 gives bar marks 01, 02 etc	2
NumberOfTaperedMarkZeros	BAR Configuration - Bar Marking...	Value of 2 gives bar marks 01, 02 etc	2

OldStyleMarking	BAR Configuration - Bar Marking...	USA Consecutive marking within size	Yes
StrghtLabelForm1	LABEL Configuration	Label Format	$MULTI~x$NOBAR $BDIAM X $LNGTH (~$SUFX1~-$SUFX2~)@~$CENTR ~$NOTES
StrghtTapLabelForm1	LABEL Configuration	Label Format	$MULTI~x$NOBAR $BDIAM MK $BMARK (~$SUFX1~-$SUFX2~)@~$CENTR ~$NOTES
StrghtEPLabelFormat			$MULTI~x$NOBAR $BDIAM MK $BMARK (~$SUFX1~-$SUFX2~)@~$CENTR ~$NOTES
StrghtBarMarkFormat	LABEL Configuration	Bar Mark Format	$PREFXS$BMARK
StrghtTapBarMarkFormat	LABEL Configuration	Bar Mark Format	$PREFX$BDIAM$BMARK
StrghtEpBarMarkFormat			$PREFX$BDIAM$BMARK
LabelBlockPath		Path for Blocks in labels	
CalcNewViewBarMark		Contact CADS	
AltengthFactor		Mulitplier for inch/mm conversion	25.4
NewLabelCallsAutoLeader			Yes
AskForRotationAngleWhilePlacing			No

LABELCIRCLEOFFSET	1.2
LABELFORMATEXTRANOTES1	
LABELFORMATEXTRANOTES2	
LABELFORMATEXTRANOTES3	
LABELFORMATEXTRANOTES4	
LABELBLOCKSCALEFACTOR	
PLACELABELBLOCKMANUALLY	No
LABELBLOCKXOFFSET	0
LABELBLOCKYOFFSET	0
CCDecimalPlaces	
ExcludeBmarkForUnSchedBars	No
CCSuffix	

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[TicksTags]			
AutoTickTag	LABEL Config - Ticks and Tags...	Automatically Ticks and Tags bars drawn	off

EndBarToBottomTail	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~-2.0
EndBarToTopTail	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~14.0
EndBarToArrowTip	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~12.0
ArrowHeadWidth	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~0.6
ArrowHeadLength	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~2.0
ArrowTailLength	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~6.0
BmarkTxtHeight	LABEL Config - Ticks and Tags...	Ticks and Tag formatting	size/placement		~mm~2.0
TagLay	LABEL Config - Ticks and Tags...	Layer for Tag			0.25TEXT
TickXDim	LABEL Config - Ticks and Tags...	Tick Size			~mm~1.4
TickYDim	LABEL Config - Ticks and Tags...	Tick Size			~mm~1.4
TickLay	LABEL Config - Ticks and Tags...	Layer for Tick			rebars
TxtOffset	LABEL Config - Ticks and Tags...	Offset for Tag Text			~mm~1.0
TxtLay	LABEL Config - Ticks and Tags...	Layer for Text			0-25TEXT

TagForm1	LABEL Config - Ticks and Tags...	Tag Text Format to be used	$BMARK
LineBreakZSize	---	Tools and Symbols Line Break Size	1.0
LineBreakExtend	---	Tools and Symbols Line Break Size	~mm~3.0
StrghtTagForm1	---	Straight Tag Text format	$LNGTH
StrghtTapTagForm1	---	Straight Tapered Tag Text format	$LNGTH
StrghtEPTagFormat			LNGTH
DrawProfileTicks			No
ProfileTicksFactorX			4.0
ProfileTicksFactorY			2.0
Style			Romans
WidthFactor			1.0
DisplayAcadLeader			No
StartTickAtBarEnd			No
SwapTickDir			No

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[Outlines]			

OutlineLay	MISC Config - More Misc Config	Outlines Layer	0-35
CoverLay	MISC Config - More Misc Config	Cover Layer	cover
DimLineOffset	MISC Config - More Misc Config	Dims Line Offset	~mm~400.0

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[GroupLayering]			
GLOactive	MISC Config - More Misc Config	Group Layering Option	Off
GLOPathAndName	MISC Config - More Misc Config	Group Layering File	rcgrplay.glo
LayerDefPathAndName	MISC Config - More Misc Config	Layer Defin. File	rc-lay.txt
AllowLayerNameOfAnyCase			No

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[RcLibrary]			
RcLibPath	MISC Config - More Misc Config	RC Library Directory Path	

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[SectionMarkers]			

MarkerLay	MISC Config - Section Marker Configuration	Section Marker Layer	0-35text
MarkerTxtLay	MISC Config - Section Marker Configuration	Section Marker Text Layer	0-35text
MarkerSizeFactor	MISC Config - Section Marker Configuration	Section Marker Size Factor	1.0
MarkerTxtSizeFactor	MISC Config - Section Marker Configuration	Section Marker Text Size Factor	1.0

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[RcLeader]			
LeaderAlignment	LABEL Config - Leaders...	Leader Mode	Underneath
LeaderLay	LABEL Config - Leaders...	Bar Leader Layer...	0-25TEXT
LeaderArrowLength	LABEL Config - Leaders...	Leader Arrow Length	~mm~2.0
LeaderArrowWidth	LABEL Config - Leaders...	Leader Arrow Width	~mm~0.6
ArrowHeadPathAndName	LABEL Config - Leaders...	Leader Arrow File...	leadrblk.dwg
LeaderAlignment2	LABEL Config - Leaders...	Leader Mode	Underneath
LeaderLay2	LABEL Config - Leaders...	Bar Leader Layer...	0-25TEXT
LeaderArrowLength2	LABEL Config - Leaders...	Leader Arrow Length	~mm~1.0
LeaderArrowWidth2	LABEL Config - Leaders...	Leader Arrow Width	~mm~1.0
ArrowHeadPathAndName2	LABEL Config - Leaders...	Leader Arrow Path and Filename	leadrdot.dwg

LeaderAlignment3			Underneath
LeaderLay3			0-25TEXT
LeaderArrowLength3			~mm~1.0
LeaderArrowWidth3			~mm~1.0
ArrowHeadPathAndName3			leadrnon.dwg
UnderneathDist	LABEL Config - Leaders...	Distance Underneath	0.35
ARXLeader			Off
ACADLeader			Off
RangeLeaderStyle			Leader 1
LeaderSnapSetting			Near
LeaderLineOffset			0

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[BarRefs]			
Style	LABEL Config	Bar Ref Text Style	romans
Layer	LABEL Config	Bar Ref Text Layer	25TEXT
HeightFactor	LABEL Config	Bar Ref Height	~mm~2.5

WidthFactor	LABEL Config	Bar Ref Width Factor	1.0
RefForm1	LABEL Config	Bar Ref Formatting	$BMARK
StrghtRefForm1	---	Bar Ref Formatting for Straight bars	$BMARK
StrghtTapRefForm1	---	Bar Ref Formatting for Tapered Straight bars	$BMARK
StrghtEPRefForm			$BMARK
BarRefBlock			None
BarRefBlocKName			Blocks\BarmarkCir_Imperial.dwg
BarRefShapeDiagramPath			DWGSketches\LabelSketches\
BarRefBlockScaleFactor			1
RedrawBarRefBlocksBasedOnConfig			No

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[Range]			
IndicatorLineLay	RANGE Config	Range Indicator Line Layer	rangelay
EndMarkerLay	RANGE Config	Range End Marker Layer	rangelay

RcDotLay	RANGE Config	RC Dot layer	0-25TEXT
SeparateTxtLay	---	Range Text Layer	0-25TEXT
IntermediateLineLay	RANGE Config	Intermediate Line Layer	rangelay
DrawRCDots	RANGE Config	Option to draw RC Dots or not	yes
DrawRangeTxt	RANGE Config	Option to draw Range Text or not	yes
DefStaggeredLabelTxt	RANGE Config	The Default Text for staggered Range Label	stg.
DefAlternateLabel1Txt	RANGE Config	The Default Text for 1st Alternate Range Label	
DefAlternateLabel2Txt	RANGE Config	P	alt.
Fdist	RANGE Config	The Default Text for 2nd Alternate Range Label	~mm~0.0
Sdist	RANGE Config	P	~mm~0.0
EnableDist	---	First Range Offset	Yes
NewViewDLG	RANGE Config	New View Range Dialog appears for Both, Run, Range, Neither	Both
StSnap	RANGE Config	Start of Range Snap	Leave
OtSnap	RANGE Config	Other Range Snap	Leave

DisplayCCInInches	Display C/C In Inches (12”) rather then feet (1’)	Yes
RangeNumBarsIncValue	Minimum decimal fraction for inclusion in no. bars calc for ranges	0.0
AutoTaperedStepping	Allow Automatic Step Tapering	Yes
SteppingValue	Value for Automatic Step Taper	~mm~0.0
SteppingIncOrDec	Stepping Inclined or Declined	Inclined
UseRunSizeFact	Bars in section below a certain diameter drawn oversize	No
UseRunSizeFactUnderSize		
RunSizeFact	Size for the bar in section to be drawn if using RunSizeFactor	0.3
DrawRunsProportionalToBarSize		No
RcDotBlock	BlockName inserted for RC Dot	rc-dot
AlwaysPickTaperedBar		No
RangeTxtStyle		romans
RangeTxtHeight		~mm~2.0
DisplayRangeBarPointers		No

RangeBarPointersBlock			
RangeEndBlock			
DoubleIndicatorRangeEndBlock			
RangeTxtWidthFactor			
MultiCcTxt		Text on muliple ranges showing no. off and c/c	Yes

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[RangeText]			
SingleIndicatorRangeTxtFormat1			($NOBAR)
SingleIndicatorRangeTxtAlignment1			Right(Above)
SingleFixedPitchRangeTxtFormat1			($NOBAR)
SingleFixedPitchRangeTxtAlignment1			Right(Above)
SingleMultiplePitchRangeTxtFormat1			($NOBAR@$CENTR)
SingleMultiplePitchRangeTxtAlignment1			Middle(Above)
AlternateSingleFixedPitchRangeTxtFormat1			($ALTNOBAR1+$ALTNOBAR2)
AlternateSingleFixedPitchRangeTxtAlignment1			Right(Above)

AlternateMultiplePitchRangeTxtFormat1	($ALTNOBAR1+$ALTNOBAR2)
AlternateMultiplePitchRangeTxtAlignment1	Right(Above)
StaggeredFixedPitchRangeTxtFormat1	($NOBAR)
StaggeredFixedPitchRangeTxtAlignment1	Right(Above)
StaggeredMultiplePitchRangeTxtFormat1	($NOBAR@$CENTR)
StaggeredMultiplePitchRangeTxtAlignment1	Middle(Above)
SingleIndicatorRangeTxtFormat2	
SingleIndicatorRangeTxtAlignment2	
SingleFixedPitchRangeTxtFormat2	
SingleFixedPitchRangeTxtAlignment2	
SingleMultiplePitchRangeTxtFormat2	
SingleMultiplePitchRangeTxtAlignment2	
AlternateSingleFixedPitchRangeTxtFormat2	
AlternateSingleFixedPitchRangeTxtAlignment2	
AlternateMultiplePitchRangeTxtFormat2	@$CENTR
AlternateMultiplePitchRangeTxtAlignment2	Right(Below)
StaggeredFixedPitchRangeTxtFormat2	

StaggeredFixedPitchRangeTxtAlignment2		
StaggeredMultiplePitchRangeTxtFormat2		
StaggeredMultiplePitchRangeTxtAlignment2		
TaperedRangeTxtFormat1		
TaperedRangeTxtAlignment1		Left(Above)
TaperedRangeTxtFormat2		($SUFX2)
TaperedRangeTxtAlignment2		Right(Above)
Orientationtolerance		10
AlternateRangeTxtFormat1		
AlternateRangeTxtAlignment1		
AlternateRangeTxtFormat2		
AlternateRangeTxtAlignment2		

[Miscellaneous]

EditReactorQuickPromptStyle=No		No
Set2ViewLabDel	Delete First of second label when a set changed to view	first

BarUtlPathAndName		scutils.txt
LapDefsPath	n/a	
UseRcAsAcad	Sketch Mode On/Off	No
CheckForDataBases	Check for 2 or more RC databases on drawing	yes
RadiusCheck99	n/a	yes
LengthRulesPathAndName	n/a	maxlens.rle
SaveAsPre510	n/a	no
RestoreLibOrder	n/a	yes
DCLFile	Dialog Control File	uk.dcl
GhostImagesOnMove	Ghosted Images appear on Move	No
MasterProjectDirectory		
OnlineFeature		On
UnloadOldRCToolboxMenuOnLoad		Yes

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[AboutBox]			

StaticSlideName	---	n/a	cadslogo
NumberOfSlides	---	n/a	20
SlideNamePrefix	---	n/a	logo
SlideLibraryName	---	n/a	logo
AnimationSpeed	---	n/a	1.0

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[LayerAliasManager]			
Status		Layer Aliasing On/Off	0

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[MemorySavers]			
UsingCADS-SC		Contact CADS	Yes
UsingCouplers		Contact CADS	No
UpdateDependants		Contact CADS	Yes
NumberTapered		Contact CADS	705
UsingOldTapered		Contact CADS	No

NotShownUnLabeledBars		Contact CADS	No
EnableRecNoUpdate		Contact CADS	No
ChangeToDBLayer		Contact CADS	No

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[Couplers]			
Leg1AttachSymbol	COUPLER Config	Symbol default setting	Both
Leg2AttachSymbol	COUPLER Config	Symbol default setting	Both
ReducerText	COUPLER Config	Default Text	R
Line1Text	COUPLER Config	Default Text	$MANUF $CTYPE Coupler '~$REDCR~' $FMDIA~/$TODIA
Line2Text	COUPLER Config	Default Text	and $CTYPE thread.
Line3Text	COUPLER Config	Default Text	
ThreadLine1Text	COUPLER Config	Default Text	Thread bar end to suit
ThreadLine2Text	COUPLER Config	Default Text	$MANUF Type $CTYPE.
ThreadLine3Text	COUPLER Config	Default Text	

DefManuf	COUPLER Config	Default Text	Lenton
HTMLFilePath			
CplFilePath			
TotalEndConditions			3
CouplerFolder			

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[CouplersConfig]			
TensionSymbol	COUPLER Config	Drawing to be inserted for Tension Block	tension.dwg
CompressionSymbol	COUPLER Config	Drawing to be inserted for Compression Block	compress.dwg
ThreadSymbol	COUPLER Config	Drawing to be inserted for Thread Block	thread.dwg
CouplerLengthFact	COUPLER Config	Default scaling factor	~mm~5.0
CouplerWidthFact	COUPLER Config	Default scaling factor	~mm~2.0
TensionLayer	COUPLER Config	Tension Layer	couplay
CompressionLayer	COUPLER Config	Compression Layer	couplay
ThreadLayer	COUPLER Config	Thread Layer	couplay
RealCouplerSize	COUPLER Config	Draw Coupler Symbol True Size	No

LabelLayer	COUPLER Config	Label Layer	couplay
LabelTStyle	COUPLER Config	Label Text Style	romans
LabelHeight	COUPLER Config	Label Height	~mm~2.0
HeightBetweenTxt	COUPLER Config	Between Distance	~mm~1.0
LabelWFactor	COUPLER Config	Label Width Factor	1
SymbolORlabel	COUPLER Config	Information of prnted schedule slide	Both
SchedExtra	COUPLER Config	Addition on printed schedule	No
DefSchedExtra	COUPLER Config	Default addition on printed schedule	1
CouplerTolerance	COUPLER Config	Dimension tolerance on printed schedule	No
DefTolerance	COUPLER Config	Default dimension tolerance on printed schedule	-1
BlocksDir	COUPLER Config	Couplers Block directory	uscplrs
AnnotationChangesRelease	COUPLER Config	Add coupler changes release code	yes
CouplerLayer	COUPLER Config		couplay
AutoAttachLabel	COUPLER Config		No

GCONFIG SETTING	**DIALOG Equiv (if relevant)**	**DESCRIPTION**	**DEFAULT**
[Grid]			

OffsetGridLines	---		~mm~50.0
OffsetDimLines	---		~mm~50.0
OffsetBalloonCC	---		~mm~11.0
DistBetweenGrid	---		~mm~5000.0
SubLineOffset	---		~mm~5.0
GridLayer	---		0-35TEXT

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[MatchBars]			
StraightTolerance	Bar Config - Rounding/Match Bars	Tolerance allowed for matching straight bars	~mm~0.0
BentBarDimTolerance	Bar Config - Rounding/Match Bars	Tolerance allowed for matching bent bars	~mm~6.35
SelectLengthTolerance	Bar Config - Rounding/Match Bars	Tolerance for Select/Show bars	~mm~1.0
SuppressQuestions	Bar Config - Rounding/Match Bars		No

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT

[Rounding]

RndDir	BAR Config - Rounding/Match Bars	Rounding Direction (1.0 is UP, 0.0 is Nearest, -1.0 is DOWN)	-1
RndVal	BAR Config - Rounding/Match Bars	Rounding Value	0.25
LenRndDir	BAR Config - Rounding/Match Bars	Length Rounding Direction	-1
LenRndVal	BAR Config - Rounding/Match Bars	Length Rounding Value	0.25
StraightRndDir	BAR Config - Rounding/Match Bars	Straight Bar Rounding Direction	-1
StraightRndVal	BAR Config - Rounding/Match Bars	Straight Bar Rounding Value	1
StraightLenRndDir	BAR Config - Rounding/Match Bars	Straight Bar Length Rounding Direction	-1
StraightLenRndVal	BAR Config - Rounding/Match Bars	Straight Bar Length Rounding Value	1
LapDir	---	Lap Rounding Direction	1
LapVal	---	Lap Rounding Value	0.25
BarDimensionPreRoundingAddition			0.02

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT

[StockBars]

MaxStockLength	Bar Config - Advanced - Stretch to Stock Defaults	Maximum Stock length	800
DefaultLapType	Bar Config - Advanced - Stretch to Stock Defaults	Lap Types	USA
OffsetBars	Bar Config - Advanced - Stretch to Stock Defaults	Bar Offset	~mm~3.0
AutoLabelInsert	Bar Config - Advanced - Stretch to Stock Defaults	Labels Inserted	Yes
AskForLap	Bar Config - Advanced - Stretch to Stock Defaults	Prompt for Lap	Yes
StraightBar	Bar Config - Advanced - Stretch to Stock Defaults	Straight Bar	0
StraightBarDim	Bar Config - Advanced - Stretch to Stock Defaults	Straight Bar Dimension	B

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[OverStockLength]			Yes
UseOverStockLength			360
OverStockLength			792
MaxStockLength			4725

MaxStretchLength	1
LapPosition	0
StaggerLap	20
StaggerOffset	20
LapLength	1
LabelOption	1
LabelPlacing	0.7
LblBarDistance	0.2
LblBarDistanceMin	3.9
LblBarDistanceMax	0
RangeLineForAllBars	With
LabelNotes1	And
LabelNotes2	Continuous
LabelNotes3	rebars
GroupLayer	2
LastBarOption	60
OverLength	0

OverLengthMin	0.04
BarOffset	0
BarOffsetMin	0.2
BarOffsetMax	180
MaxLapLength	0.25
LabelPlacingFactor	0.5
RangeLineFactor	No
UseCurrentStockLengthForManualSplicing	No
MoveOSLGroup	No
RotateOSLGroup	4
SupportedShapes	Yes
Shape1	0
Shape1NumDims	1
Shape1Dim1	B
Shape1Dim	B
Shape1StartBarShape	0
Shape1EndBarShape	0

Shape1NumberOfHooks	0
Shape1NumberOfBendDia	0
Shape2	1
Shape2NumDims	1
Shape2Dim1	B
Shape2Dim	B
Shape2StartBarShape	1
Shape2EndBarShape	1
Shape2NumberOfHooks	1
Shape2NumberOfBendDia	0
Shape3	2
Shape3NumDims	1
Shape3Dim1	B
Shape3Dim	B
Shape3StartBarShape	2
Shape3EndBarShape	2
Shape3NumberOfHooks	1

Shape3NumberOfBendDia	0
Shape4	17
Shape4NumDims	3
Shape4Dim1	B
Shape4Dim2	C
Shape4Dim3	D
Shape4Dim	C
Shape4StartBarShape	17
Shape4EndBarShape	17
Shape4NumberOfHooks	0
Shape4NumberOfBendDia	0

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[Tolerances]			
ToleranceRules	BAR Config - Tolerance Rules…	Contact CADS	

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT

[OverridingBarRadii]			
OverrideBarRadii			No
rcen			0
r			0

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[ProjectSettings]			
InProjectMode			No
ImperialTemplateDwg			..\support\cadsimp.dwt
MetricTemplateDwg			..\support\cadsiso.dwt
DrawingSetupDllPath			..\cads-sc\cads-sc.arx
DrawingSetupDll			cads-sc.arx
DrawingSetupFunctionCall			CadsSetup
DefFileRulesFile			cads-rc.dfr
MMConfigurationFile			USA_config.xml

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT

[AccessoriesListConfig]			
ListLayerName			0-25TEXT
BlockHeaderHeight			5
BlockListHeight			5

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[Slide]			
SlideLibName			UsaSched.slb
DestinationFolder			USA
BlockScaleFactor			10

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[WmfConfiguration]			
WmfTextScaleFactor			2
WmfTextFontName			Arial
WmfTextWeight			700
WmfPenThickness			10

GenerateWmfFromDwg			No

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[ExcelPrint]			
ExcelTemplatePath			XLT/USA

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[TitleBlockConfig]			
AutoSearchTitleBlock			Yes

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[USA_BBD]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180
NMIN_HOOK90			amin
NMIN_HOOK135			dmin135

NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[USAM_BBD]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180
NMIN_HOOK90			amin
NMIN_HOOK135			dmin135
NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[IMMT_BBD]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180
NMIN_HOOK90			amin

NMIN_HOOK135			dmin135
NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[SMIM_BBD]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180
NMIN_HOOK90			amin
NMIN_HOOK135			dmin135
NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[cani_bbd]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180

NMIN_HOOK90			amin
NMIN_HOOK135			dmin135
NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[canm_bbd]			
HOOK90			Hook90
HOOK135			Hook135
HOOK180			Hook180
NMIN_HOOK90			amin
NMIN_HOOK135			dmin135
NMIN_HOOK180			hmin180

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[COUPLERSYMBOLANDGRADE]			
NOOFSYMBOLS			MaleCoupler.dwg
SYMBOLNAME1			FemaleCoupler.dwg

SYMBOLNAME2	Terminator.dwg
SYMBOLNAME3	LongThread.dwg
SYMBOLNAME4	CouplerWithLongThread.dwg
SYMBOLNAME5	FormSaver.dwg
SYMBOLNAME6	Positional.dwg
SYMBOLNAME7	Positional_FP.dwg
SYMBOLNAME8	CouplerWithThread.dwg
SYMBOLNAME9	MaleCoupler.dwg

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[RELEASEANDORDERING]			
ALLOWSUBRELEASE			NO
SPLITSUBRELEASEBY			-

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[ExtraLabelNotes]			
HideExtraLabelNotes1			No

HideExtraLabelNotes2			No
HideExtraLabelNotes3			No
HideExtraLabelNotes4			No

GCONFIG SETTING	DIALOG Equiv (if relevant)	DESCRIPTION	DEFAULT
[BarGrades]			
GradesSupportingFractionalSizes			SmoothRnd