

User's manual

Version 2014.3.1

Content

1	INTRODUCTION.....	5
1.1	Installation	5
1.2	Preparing a model for ISY CAD Rebar	5
1.2.1	The _ISYCADRebar legend.....	5
1.2.2	Defining tag arrow heads	5
1.2.3	Project Parameters	5
1.3	What you need to know about ISY CAD Rebar	6
1.4	Do not edit family parameters manually.....	6
1.5	Rebar.dat - the settings file	6
1.6	The families.....	7
1.6.1	Elevation	7
1.6.2	Generic families	7
1.6.3	In plane	7
1.6.4	In plane with distribution line.....	7
1.6.5	Section	7
1.6.6	Section with distribution line	7
1.6.7	Reinforcement text.....	7
1.6.8	Running meter	7
1.6.9	Running meter with line	7
1.6.10	Running meter in section	7
1.6.11	Running meter symbols	7
1.6.12	Tags	8
1.7	Bar schedule	8
1.8	Options dialog	9
1.8.1	General	9
1.8.2	Schedule	9
2	FUNCTION OVERVIEW	11
2.1	Bar Mark Parameters	11
2.2	Instance Parameters	12
2.3	Place Rebar with Distribution Line	12
2.4	Place Rebar in Plan	12
2.5	Place Distribution Line	12
2.6	Place Section Rebar with Distribution Line	12
2.7	Place Single Section Rebar	12
2.8	Place Rebar in Elevation.....	13
2.9	Running Meter Tag	13
2.10	Running Meter with Line.....	13
2.11	Running Meter in Section	13
2.12	Running Meter with Line.....	13
2.13	Running Meter Symbol.....	13
2.14	Reinforcement Text	13
2.15	Generate Rebar Symbol from 3D Rebar	13
2.16	Administrate Bar Marks	15
2.16.1	Edit bar instance	15
2.16.2	Revise bar mark.....	15
2.16.3	Edit scale	15
2.16.4	Change Tag Size	15
2.16.5	Rename bar mark	16
2.16.6	Renumber bar mark.....	16
2.16.7	Delete bar marks	16
2.16.8	Verify rebars.....	17
2.16.9	Reload symbols	17
2.16.10	Purge symbols.....	17
2.17	Bar Schedule	18
2.18	List bar marks	24
2.19	Export Reinforcement.....	24
2.20	License manager	24
2.21	Help	24

2.22	About ISY CAD Rebar	25
3	BEST PRACTICE.....	26
3.1	3D Rebars	26
4	FREQUENTLY ASKED QUESTIONS	27
4.1	The symbols of the symbolic rebar in plane are not correct	27
4.2	The rebar shape I want to use is not in the shape code list.....	27
4.3	The number of bars in the schedule are wrong	27
4.4	The color and line weight of the rebar is wrong	27
4.5	What do bar in plane and in elevation mean?.....	27
4.6	Can Revit's copy and move functions be used on all rebar instances?.....	27
4.7	The arrow heads of the tags are wrong	27
4.8	Placing rebars is very slow.....	27
4.9	The length of the rebar is not correct until after it has been placed in view.....	28
4.10	Length of a rebar is wrong.....	28
4.11	Something else is wrong or you have suggestions	28

1 Introduction

ISY CAD Rebar is an application for the BIM system Revit from Autodesk. ISY CAD Rebar is an integrated application for drawing reinforcement and contains functions for drawing reinforcement in plan, elevation and cross section with a complete solution for generating reinforcement schedules. ISY CAD Rebar also has a comprehensive solution for creating symbolic drawings from Revit 3D reinforcement. ISY CAD Rebar is a flexible and user friendly application, and can be adapted to most standards.

1.1 Installation

The application can be downloaded from Norconsult Informasjonssystemer's web pages, www.nois.no

Make sure that the downloaded version is compatible with you Revit version.

After download, follow the installation guide for installation.

Contact your retailer for help or NoIS support:

Support e-mail: support.technocad@nois.no

All functions are called from the Rebar ribbon, found under the ISY CAD tab.

1.2 Preparing a model for ISY CAD Rebar

ISY CAD Rebar handles most of the loading of families and reading of setting files automatically, but there are some things that cannot be handled by the application and must be set manually in each model.

1.2.1 The _ISYCADRebar legend

Create an empty legend view called `_ISYCADRebar`.

The reason for this is that ISY CAD Rebar uses elevation family types as information carriers. And when using Revit's purge function, some of those family definitions might get deleted. Therefore ISY CAD Rebar places an instance of each bar mark in elevation in this legend view. This is done automatically and the user does not have to worry about this. But the legend must be created manually.

The legend view should be defined in the templates.

1.2.2 Defining tag arrow heads

ISY CAD Rebar has tags with three different arrow heads (none, arrow and circle). In addition there are different tags if the Material Take Off (MTO) parameter is set in the instances. ISY CAD Rebar cannot set these arrow heads and it's not possible to set the arrow heads in the tag families. Therefore this arrow head must be set manually using standard Revit functionality.

The tag families should be loaded into the templates and the arrow heads set correctly.

1.2.3 Project Parameters

- **ISY CAD Rebar Settings** – This parameter can be used to set the name with full path of a settings file that is specific to this project. This parameter is optional, if not found the application uses the default settings file.
- **ISY CAD Rebar Revision** – This parameter can be reported to the schedule and this value will also be set as a prefix to the file name of the schedule. Also, the revision defined in this parameter is set as default value in the main dialog when creating new bar marks. The parameter is optional.
- **ISY CAD Rebar Revision Date** – This parameter can be reported to the schedule and is the date of the latest revision. The parameter is optional.
- **ISY CAD Rebar Schedule Template** – Project specific schedule template.
- **ISY CAD Rebar Schedule Sum Template** – Project specific schedule summation template.
- **ISY CAD Rebar Default Steel Quality** – The value of this parameter is used as steel quality when creating symbolic rebars from 3D and the 3D rebar do not have a valid material. This value is also used as default value when opening the dialog for placing reinforcement.

1.3 What you need to know about ISY CAD Rebar

ISY CAD Rebar for Revit is an application based on NoIS's reinforcement application with the same name on the CAD system MicroStation from Bentley Systems.

The user interface of ISY CAD Rebar is basically self-explanatory, and the user, knowing how reinforcement is to be drawn, should be able to use the application in an efficient way. There are however some aspects of the inner works of the application that the user should know of, to be able to configure and utilize the full potential of the application to her or his usage.

There are two different ways to work with ISY CAD Rebar:

1. Place all reinforcement symbolically using ISY CAD Rebar functions.
2. Place all rebars in 3D with Revit. Then use ISY CAD Rebar to create symbolic rebars and place reinforcement text in the detail views.

It is also possible to use a combination of 3D reinforcement and symbolic reinforcement.

In this chapter the user shall be given an insight in how ISY CAD Rebar is built and configured and with that get better usage of the application.

1.4 Do not edit family parameters manually

As a general rule, the type parameters and instance parameters of the rebar families should not be edited manually. This can break the logic of the application and the bar schedule can be wrong.

There are functions for administrating bar marks (type parameters). And a function for edition instance parameters.

In some cases the bars placed in plane might not have symbols as desired. That is the only time the instance parameters can be edited. See FAQ for more details.

1.5 Rebar.dat - the settings file

ISY CAD Rebar has a relative small application core, meaning that most of the rules for the application is set in its parameter file, Rebar.dat and in the families (see next chapter). In this way we have secured an open system that is configurable for most standards, world-wide.

The settings file contains:

- File paths for families and schedule templates
- Bar diameter definitions
- Mandrel diameter definitions
- Steel quality definitions
- Shape code names with name of elevation and generic families
- Placement definitions
- Rebar in plane family name
- Rebar in plan with distribution line family name
- Section rebar family name
- Section rebar with distribution line family name
- Reinforcement text family name
- Running meter reinforcement family name
- Running meter reinforcement symbol family names
- Rebar tag family name
- Running meter comment used in tags and schedule

The various parameters in the settings file are documented in the settings file delivered with ISY CAD Rebar. The preCalculate parameter has been moved to the options dialog.

1.6 The families

All symbolic reinforcements placed with ISY CAD Rebar are detail items families. In addition there is a set of tag families. There are families for drawing reinforcement in elevation, plan and section. This is just an overview of the families the usage is explained in detail later in the documentation.

1.6.1 Elevation

Each shape code have its own family that defines this shapes geometry and each type of this family is the placeholder for the bar mark information. This is the rebar in elevation and has nothing to do with elevation views. Note that multi planar rebars has two elevation families. One that shows the side view and one that shows the front view. The side view is the placeholder for the bar mark.

1.6.2 Generic families

Each shape code also has a generic family that is used to define the figure in the main dialog and in the schedule. This family is usually not loaded in a project and is never used in the model.

1.6.3 In plane

This family only has one type and this is used for all shape codes to draw a symbolic representation of the reinforcement in plane. This is the rebar in plane and has nothing to do with plane views.

1.6.4 In plane with distribution line

This family only has one type and this is used for all shape codes to draw a symbolic representation of the reinforcement in plane with a distribution line. This is the rebar in plane and has nothing to do with plane views.

1.6.5 Section

This family only has one type and this is used for all shape codes to draw a symbolic representation of the section of a single rebar.

1.6.6 Section with distribution line

This family only has one type and this is used for all shape codes to draw a symbolic representation of the section of several rebars along a distribution line.

1.6.7 Reinforcement text

This family only has one type and this is used for all shape codes to place an empty family that is always tagged.

1.6.8 Running meter

This family only has one type and this is used for all running meter bar marks to place an empty family that is always tagged. This is different than the family mentioned above because it has some additional parameters specific for running meter reinforcement.

1.6.9 Running meter with line

This family only has one type and this is used for all running meter bar marks to place an running meter rebar with a distribution line.

1.6.10 Running meter in section

This family only has one type and this is used for all running meter bar marks to draw a symbolic representation of the section of several running meter rebars along a distribution line.

1.6.11 Running meter symbols

This is just unintelligent symbols without any reinforcement information. It's meant to be used together with the running meter family to visualize the running meter reinforcement. It is possible to place four different symbols: In plane, in plane with distribution line, section and section with distribution line.

1.6.12 Tags

This family contains the various tags used when tagging the symbolic reinforcement placed with ISY CAD Rebar.

1.7 Bar schedule

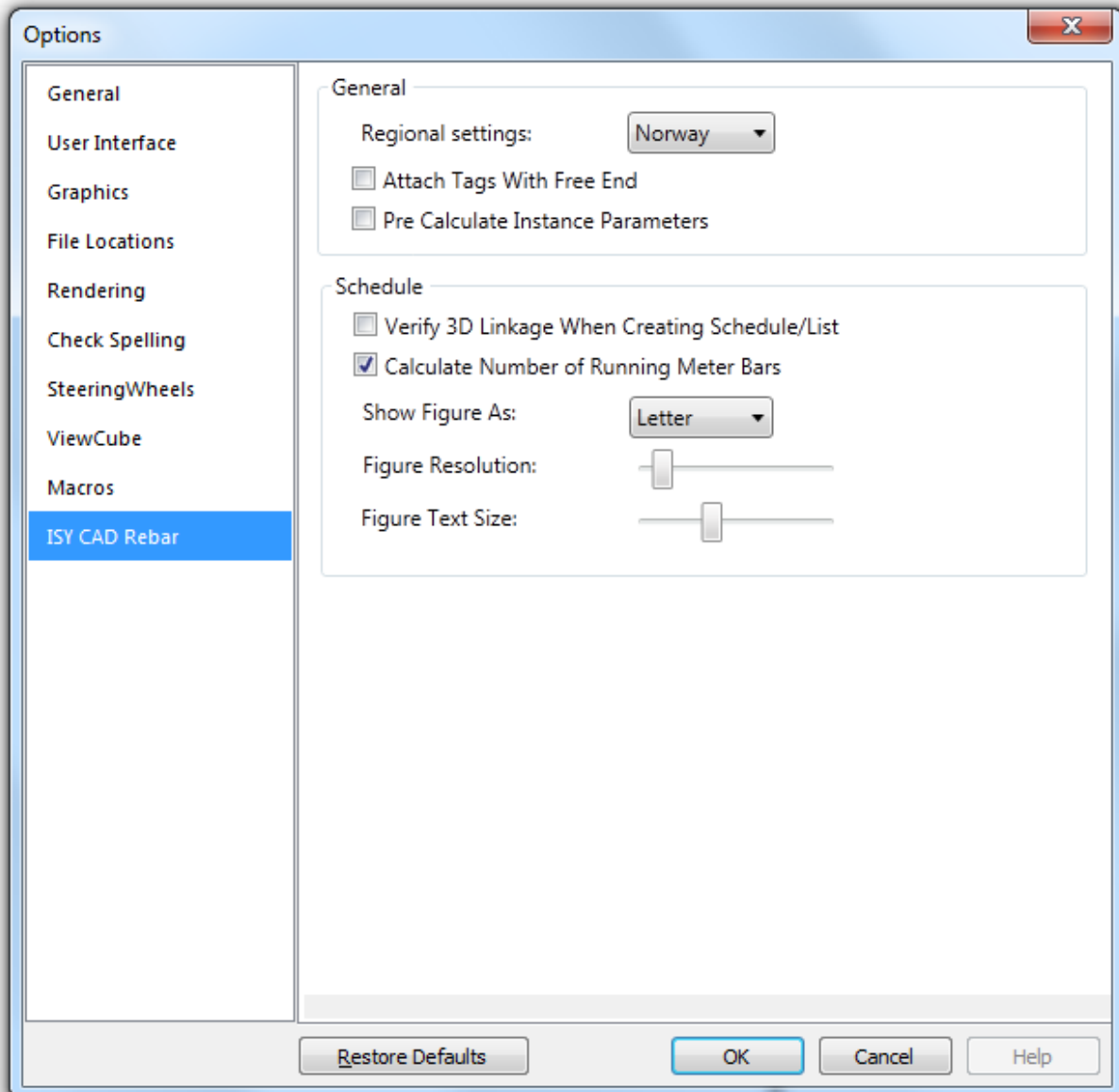
Bar schedules are produced by the application that reads the bar marks in the design view or sheet.

All occurrences of reinforcement objects (with MTO on) are summed up.

Bar schedules can be created as word or PDF files.

1.8 Options dialog

ISY CAD Rebar has its own options in Revit's options dialog.



1.8.1 General

Regional settings

Select the country standard used for shape codes and schedules.

Pre calculate instance parameters

If unchecked, the length of bar in plane is not pre calculated. This will speed up placement of families, but the real length of the bar will not be set until after all instances are placed in the model.

Attach tags with free end

If checked, all tags are attached with free end.

1.8.2 Schedule

Verify 3D linkage when creating schedule/list

If the function for creating symbolic from 3D rebars is used this will run a test to ensure that all the 3D rebars has not changed since the symbolic rebars were created. Note that if this is checked, creating schedules and lists will take longer time.

Calculate number of running meter bars

If checked, number of running meter bars is calculated in schedule. The length of one bar is also shown in the length columns. If not checked, these fields are left blank.

Show figure as

When creating schedules the figures can be created with either letters or the actual dimension.

Figure resolution

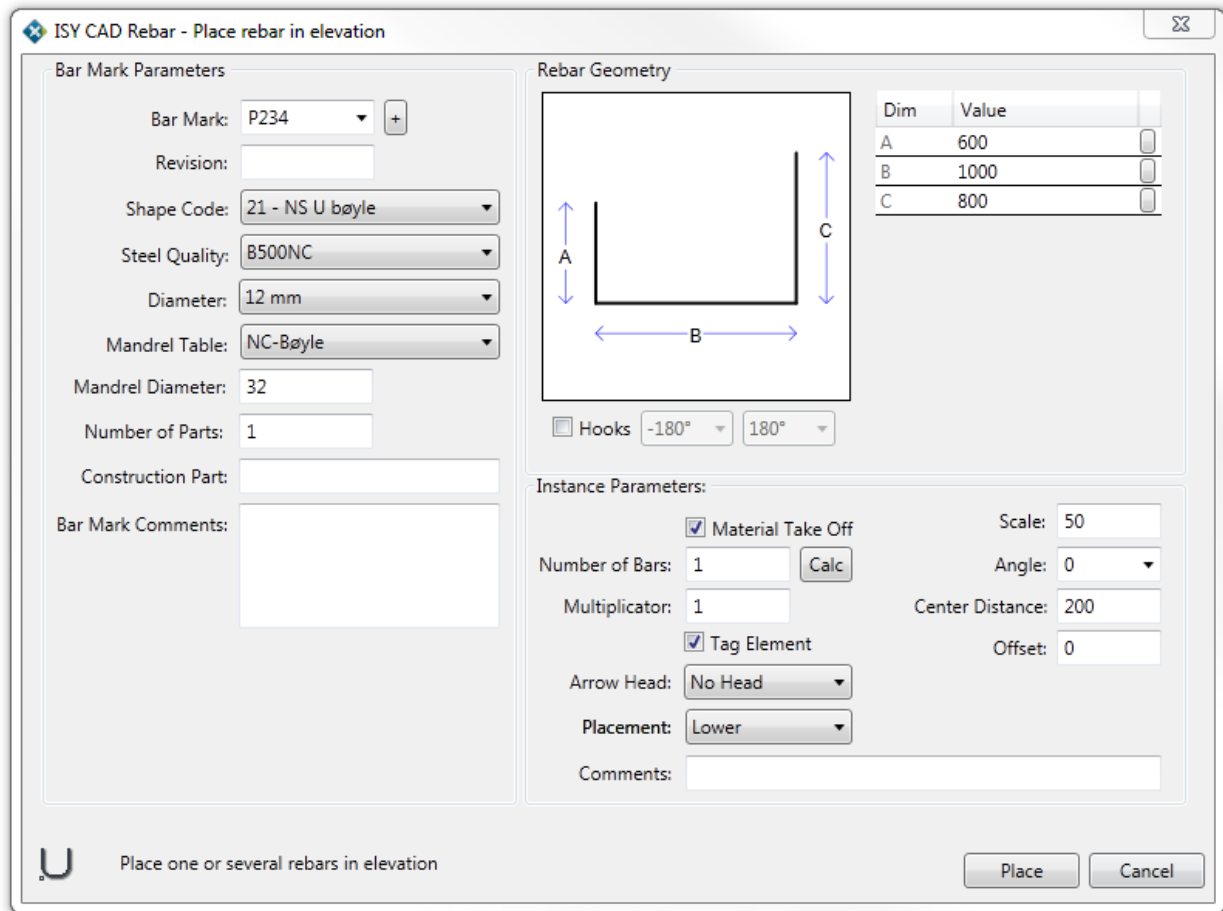
The figure in the schedule is created as a bitmap. Use this slider to change the resolution of the bitmap.

Figure text size

Use this slider to change the size of the texts in the figures in the schedule.

2 Function overview

The main dialog for placing symbolic rebars is shown below. The dialog shown here is for placing rebar with a distribution line, but all dialogs are more or less the same. There are small variations, and they are specified in the list below the dialog.



ISY CAD Rebar - Place rebar in elevation

Bar Mark Parameters

Bar Mark: P234 +

Revision:

Shape Code: 21 - NS U bølge

Steel Quality: B500NC

Diameter: 12 mm

Mandrel Table: NC-Bølge

Mandrel Diameter: 32

Number of Parts: 1

Construction Part:

Bar Mark Comments:

Rebar Geometry

Diagram showing dimensions A, B, and C.

Dim	Value
A	600
B	1000
C	800

Hooks: -180° 180°

Instance Parameters:

☒ Material Take Off Scale: 50

Number of Bars: 1 Calc Angle: 0

Multiplier: 1 Center Distance: 200

☒ Tag Element Offset: 0

Arrow Head: No Head

Placement: Lower

Comments:

Place one or several rebars in elevation

Place Cancel

2.1 Bar Mark Parameters

Bar mark parameters are specific to the bar mark and is fixed after a bar mark is placed in the model. To change these values use the revise bar mark function.

Note that in the dimension list there is a small button for each value. Use this button to measure the dimension in active view.

Most of the values selectable are defined in the rebar.dat file. And they can all be reported in schedules. The revision field also has a default value if the project parameter **ISY CAD Rebar Revision** is defined and has a value. The total number of bars with this bar mark in the schedule is multiplied with the "Number of Parts" value.

2.2 Instance Parameters

The instance parameters are explained in the table below:

Parameter Name	Explanation
Material Take Off (MTO)	If on, the instance of the bar mark is counted in the schedule. The symbolic representation of a rebar should only have one instance with this set on.
Number Of Bars	The functions with a distribution line calculate this value automatically. In all other functions this must be set manually. When placing bars in elevation there is also a calculate button next to this value that brings up a calculator that can be used to calculate number of bars from distribution length and center distance.
Multiplicator	The number of bar marks of this instance of this bar mark is multiplied with this value in the schedule if MTO is on.
Tag Element	If on, the placed instances are tagged. Usually the tags must be moved afterwards.
Arrow Head Placement	The arrow head of the tag can be: No head, Arrow head or Circle Head
Scale	This value is shown symbolically in plane and in tags. See rebar.dat for the various values.
Angle	When placing rebars in plane or in section it's possible to set a scale. In the section function the rebars is placed with the bar diameter multiplied with this scale. In plane the size of the symbols (Into plane, out of plane, etc.) is defined by this value. In the plane functions this value is set to the view scale by default.
Center Distance	When placing rebars in plane and in elevation they are rotated by this value. In elevation the rotation happens after the instances are placed and in most cases it's better to use standard Revit functions. In plane the symbols on the plane line is set according to this angle. There is also a drop down here where it is possible to select top (0°), bottom (180°), left (90°) and right (270°). When placing multi planar rebars the only possible values are side or front.
Offset	This is the center distance between the rebars.
Total Running Length	The instances are placed with this offset value.
Running Meter Factor	This parameter is only valid when placing running meter. It's explained in more detail in the running meter chapter.

2.3 Place Rebar with Distribution Line

Opens the main dialog where type and instance parameters are set. When pressing "Place" the user can place a line based symbolic instance of a rebar in plan into active view. The number of rebars is calculated based on the center distance and the length of the distribution line.

2.4 Place Rebar in Plan

Opens the main dialog where type and instance parameters are set. When pressing "Place" the user can place a symbolic instance of a rebar in plan into active view.

2.5 Place Distribution Line

This function only places a distribution line with no rebars associated with it.

2.6 Place Section Rebar with Distribution Line

Opens the main dialog where type and instance parameters are set. When pressing "Place" the user can place a line based symbolic instance of a section of rebar's into active view. The number of rebars is calculated based on the center distance and the length of the distribution line.

If "Display all sections" is checked in the main dialog, all the sections are drawn. If it's not check, a distribution line is drawn together with just one rebar in section.

2.7 Place Single Section Rebar

Opens the main dialog where type and instance parameters are set. When pressing "Place" the user can place a single symbolic instance of a section of a rebar into active view.

2.8 Place Rebar in Elevation

Opens the main dialog where type and instance parameters are set. When pressing “Place” the user can place a symbolic instance of a rebar in elevation into active view. When placing bars in elevation the dialog also has a button next to number of bars. Clicking this button opens a simple calculator for calculating number of bars based on distribution length and center distance.

In the Swedish version it is also possible to show symbols on the ends of rebars in elevation when the bar mark do not have hooks. The symbols are defined the same place as hooks. These symbols are instance based.

2.9 Running Meter Tag

Opens the main dialog where type and instance parameters are set. When pressing “Place” the user can place a tag representing running meter reinforcement.

This function can be used in two ways:

1. Select a filled region element representing the area where the running meter reinforcement is to be placed, before starting the function. Then the **Total Running Length** is automatically calculated based on the **Center Distance** and the **Running Meter Factor**.
2. If a region is not selected before calling the function the **Total Running Length** must be calculated manually. The **Running Meter Factor** does not have any effect.

2.10 Running Meter with Line

Use this function to place running meter rebars with a distribution line. Total running length and number of bars is calculated from the center distance, running length and the running meter factor. The formulas for calculating are defined in the family. And the running length is the length of one run of rebars.

2.11 Running Meter in Section

2.12 Running Meter with Line

Use this function to place running meter rebars in section. Total running length and number of bars is calculated from the center distance, running length and the running meter factor. The formulas for calculating are defined in the family. And the running length is the length of one run of rebars.

2.13 Running Meter Symbol

This function places unintelligent symbolic instances of rebars. The parameters that can be set are: scale, placement and symbol. The symbols can be dragged in all directions after placement. It is possible to place four different symbols: In plane, in plane with distribution line, section and section with distribution line.

2.14 Reinforcement Text

Opens the main dialog where type and instance parameters are set. When pressing “Place” the user can place a tagged empty symbolic instance of a rebar in elevation into active view. This means that only the tags are shown. This function is useful if none of the other function makes the desired result. Use standard Revit detail drawing to create the symbolic lines and then place reinforcement text to create the tag and get it reported in the schedule. The running meter symbols can also be used to create the symbolic representation.

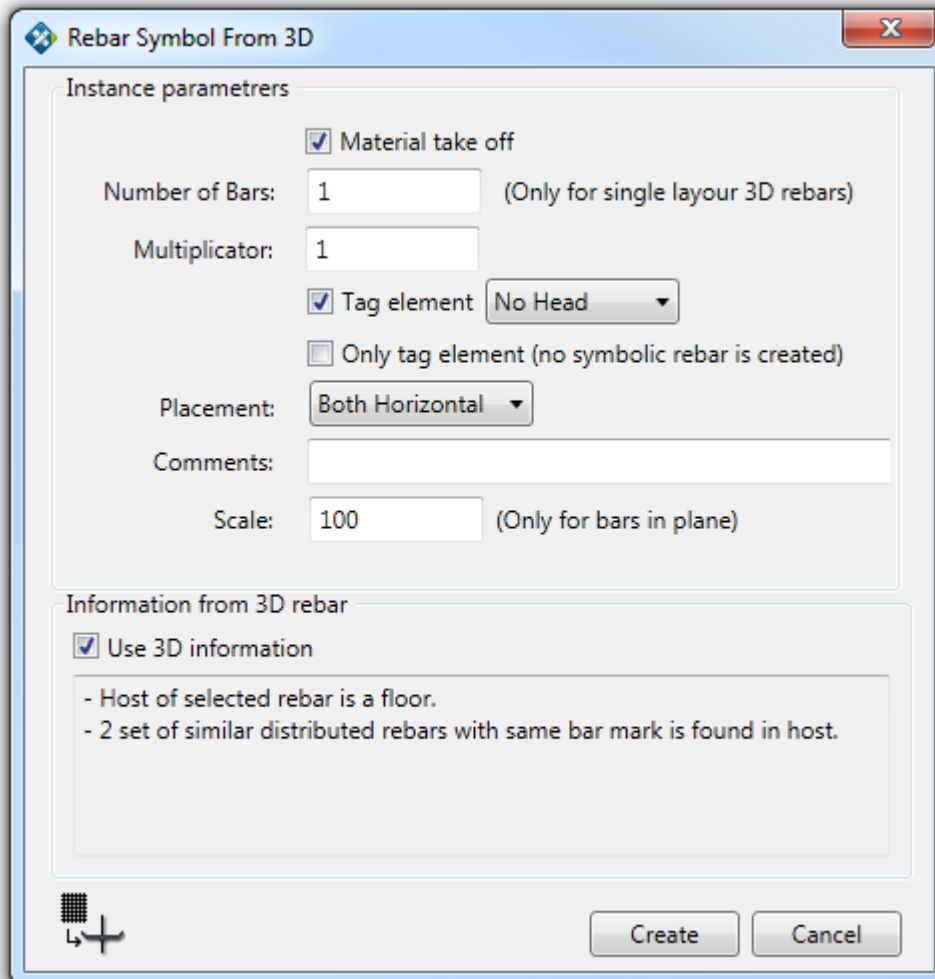
2.15 Generate Rebar Symbol from 3D Rebar

This function creates a symbolic rebar symbol from a Revit 3D rebar element created with Revit Structure. Either pre-select one or more 3D rebar before calling this function, or pick a Revit 3D rebar afterwards. It's not recommended to select more than one 3D Rebar. Afterwards set the instance parameters in the dialog show below.

Also note that the dialog has an information window where information about the 3D rebars are given. In the dialog below the selected rebar is located in a floor and ISY CAD Rebar has detected that there exists two sets of similar rebar in this floor. And when this is the case the placement is automatically set to **Both Horizontal**. If the rebar were located in a wall placement would have been set to **Both Vertical**. Also if

the selected 3D rebar already has a symbolic representation **Material take off** will automatically be set off.

It is also possible to keep ISY CAD Rebar from auto detecting these variables by unchecking **Use 3D information**.



There is another special option here; **only tag element**. If on, the 3D rebar is not hidden in the view and a symbolic representation is not drawn. Only a reinforcement text element is placed. This is useful if the 3D rebar is shown fine in the view and you do not need to have a symbolic representation.

Also note that **number of bars** is only used when the 3D rebar is placed as single layout.

The scale defines the size of end symbols when placing rebars in plane.

Rebar symbol from 3D will either place a symbolic rebar or just place reinforcement text elements, depending on the 3D rebar.

If the 3D rebars are placed with a distribution and viewed along the distribution path, they are hidden in active view and a symbolic representation will automatically be placed instead.

If the 3D rebars are viewed perpendicular to the distribution path, in section or as a single bar, the 3D rebars are not hidden in view. A reinforcement text is then placed in the view.

The function automatically detects the bar mark and the shape code. The bar mark is found from the 3D Rebar parameter called "Mark" or "Schedule Mark". Usually the "Mark" parameter should be used, but if this parameter is empty ISY Cad Rebar uses the "Schedule Mark" parameter.

If the 3D rebar is unknown a dialog is shown where it's possible to select from the known shape codes. Here it's also possible to select **Running Meter**. If running meter is selected no symbolic representation

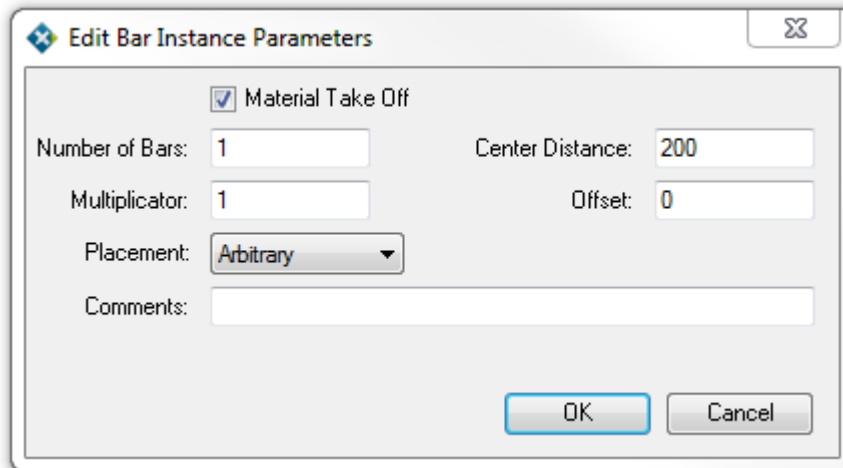
is created, the 3D rebar is not hidden, only a running meter tag is placed in the view. To get a symbolic representation, the running meter symbol must be placed manually and the 3D rebar hidden.

2.16 Administrate Bar Marks

This is a set of function for editing and administrating bar marks.

2.16.1 Edit bar instance

Change the parameters of a bar instance. This function should always be used to change values of instances. Never use Revit's Properties window.

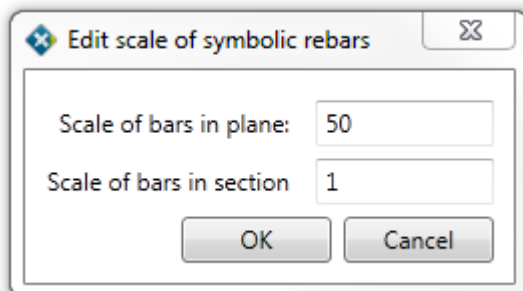


2.16.2 Revise bar mark

Revise a bar mark. This is the same dialog used when placing rebars. The dialog will not close when pressing the Revise button. This is intentional and makes it easier to revise several bar marks.

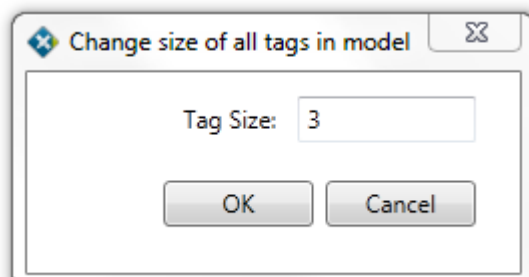
2.16.3 Edit scale

Changes the scale of symbolic rebars in active view.



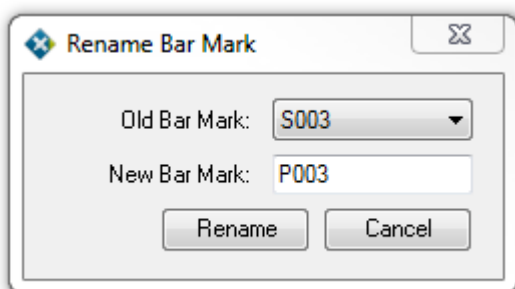
2.16.4 Change Tag Size

Changes the size of the ISY CAD Rebar text tags. This function will change the tag size of all the tags in the entire model.



2.16.5 Rename bar mark

Rename a bar mark.

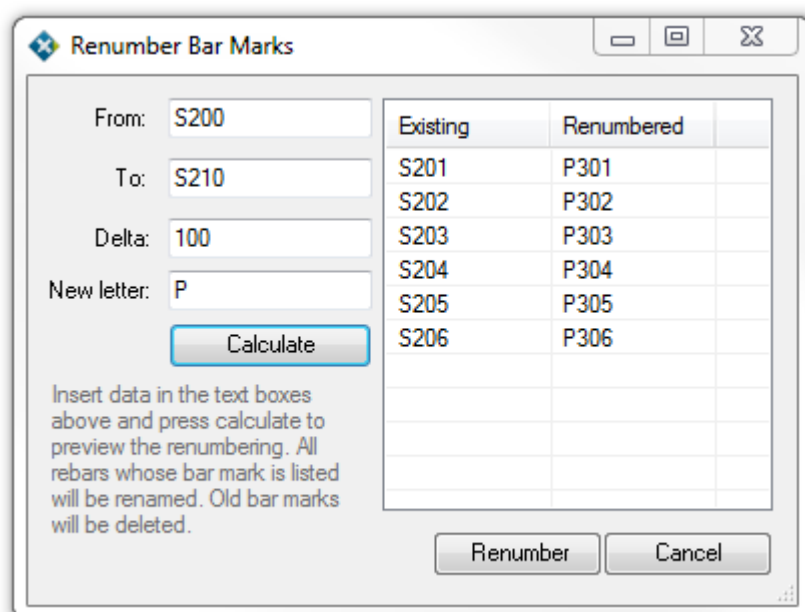


2.16.6 Renumber bar mark

Renumber a series of bar marks with a delta value and/or a new letter. This function can be run in two different modes.

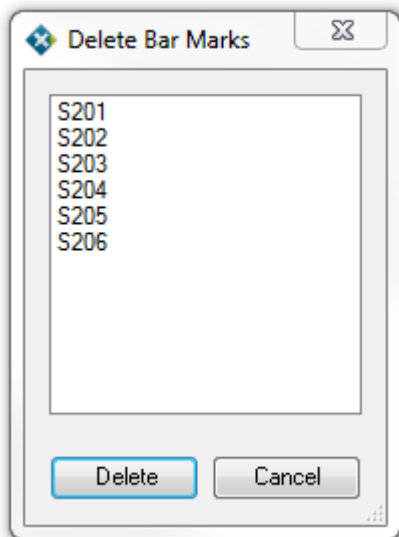
If no rebar instances is in selection set when the function is started the user must enter bar marks in the to and from text boxes. All bar marks in the entire model between these will be renumbered.

If one or more instances are in the selection set when starting the function, only the selected instances will be renumbered. This is an ideal function to use if you copy rebars from one floor to another and wants to give the newly copied rebars new bar marks.



2.16.7 Delete bar marks

Delete bar marks selected in list and all its instances.



2.16.8 Verify rebars

Verifies that the 3D rebars and their symbolic representations are coherent.

2.16.9 Reload symbols

Reloads all ISY CAD Rebar families in the model and recreates the intermediate file used for figures in preview and schedule.

2.16.10 Purge symbols

Delete all unused bar marks.

2.17 Bar Schedule

This function creates a bar schedule from the symbolic rebars in active view, sheet or entire model. The function uses Word documents as templates and can create the schedule as PDF or Word files.

Create Bar Mark Schedule

Output File: C:\Autodesk\Projects2013\rebar.pdf Browse...

Output File Format: PDF docx

Report: Entire Model

Count: Only Symbolic Rebars

Filter:

Construction parts: ☒ <Undefined>

☒ All Construction Parts

☒ Open Output File

Create Cancel

The dialog has the following options:

- Output file. Name of output schedule file.
- Output file format. Either Word or PDF. Word files can be doc or docx.
- Report. Entire Model, Active View or a View/Sheet set. If entire model is selected. All bar marks in the entire model are listed. If active view is selected only bar marks present in the active view are listed. The last option is View/Sheet set, this will list all bar mark present in selected View/Sheet Set. If no sets are defined in the model this option will not be shown.
- Count. Only symbolic rebars, only 3D rebars or both symbolic and 3D rebars. Use this to list the various types of rebars.
- Filter. Write a regular expression her to filter the list.

- Construction parts. List of all construction parts. Chosen construction parts will be added to the list.
- Open output file. If checked, the file will be opened after it has been created. Note that you need an application for reading the selected format installed on your computer.

Two template files are needed to create the bar schedule. A rebar template file which describes the rebars and a summation template files which sums up the total amount of rebar used. Both template files are defined in the rebar.dat configuration file. Each rebar template file contains a certain amount of predefined percentage codes. These percentage codes are substituted by project data and rebar data found in the Revit project file. The codes are described in the tables below.

Rebar template file percentage code overview

Percentage code	Data type	Percentage code description
%1%Barmark	Bar data	Name of bar
%1%Preview	Bar data	Bitmap preview of bar
%1%RMComment	Bar data	Comment on running meter bar
%1%Comment	Bar data	Comment on bar
%1%Quality	Bar data	Quality of steel
%1%Dia	Bar data	Diameter of bar
%1%Length	Bar data	Length of bar
%1%NumParts	Bar data	Number of construction parts
%1%Count	Bar data	Number of bars
%1%CountTot	Bar data	Total number of bars
%1%TotLen	Bar data	Total bar length in millimeter
%1%TotLenM	Bar data	Total bar length in meter
%1%Code	Bar data	Shape code of bar
%1%DimA	Bar data	Bar dimension A
%1%DimB	Bar data	Bar dimension B
%1%DimC	Bar data	Bar dimension C
%1%DimD	Bar data	Bar dimension D
%1%DimE	Bar data	Bar dimension E
%1%DimF	Bar data	Bar dimension F
%1%DimG	Bar data	Bar dimension G
%1%DimR	Bar data	Bar dimension R
%1%DimS	Bar data	Bar dimension S
%1%DimT	Bar data	Bar dimension T
%1%DimU	Bar data	Bar dimension U
%1%DimV	Bar data	Bar dimension V
%1%DimX	Bar data	Bar dimension X
%1%DimY	Bar data	Bar dimension Y
%1%DorDia	Bar data	Mandrel diameter
%1%LenCor	Bar data	Bar length correction (due to bending)
%1%Rev	Bar data	Revision of bar
%1%SumMM	Bar data	Total length in millimeter of bar with same bar diameter and steel quality. Use this when diameter is in fixed columns in schedule.
%1%SumM	Bar data	Total length in meter of bar with same bar diameter and steel quality. Use this when diameter is in fixed columns in schedule.
%1%SumKg	Bar data	Total weight of bar with same bar diameter and steel quality. Use this when diameter is in fixed columns in schedule.
%1%Sum2MM	Bar data	Total length in millimeter of bar with same bar diameter and steel quality. Use this when diameter is in a column defined by Sum2Dia in schedule.
%1%Sum2M	Bar data	Total length in meter of bar with same bar diameter and steel quality. Use this when diameter is in a column defined by Sum2Dia in schedule.
%1%Sum2Kg	Bar data	Total weight of bar with same bar diameter and steel quality. Use this when diameter is in a column defined by Sum2Dia in schedule.

%1%Sum2Dia and	Bar data	Diameter of rebar when using Sym2 codes above.
%1%Sum2Quality	Bar data	Steel quality of the bar marks with diameter defined in Sum2Dia.
%1%ConstAll	Bar data	List of all construction parts on page
%1%PageName	Project data	Name of page

All bar data except SumMM/SumM and SumKg must have the same numbers of entries in a rebar page. The percentage codes must always start with 1 and increased with 1 for each new entry for each percentage code.

SumMM/SumM and SumKg must have the same number of entries as there are bar diameters defined in the rebar.dat configuration file. The percentage codes must always start with 1 and increase with 1 for each new bar diameter defined.

The project data fields only have 1 percentage code each and are automatically found inside the Revit project file.

Summation template file percentage code overview

Percentage code	Data type	Percentage code description
%1%RebarPage	Summation data	Name of rebar page
%100%Length	Summation data	Total Length in millimeter of bar with same bar diameter and steel quality from specific rebar page
%100%LengthM	Summation data	Total Length in meter of bar with same bar diameter and steel quality from specific rebar page
%1%SumMM	Summation data	Total length in millimeter of bar for one summation schedule with same bar diameter and steel quality
%1%SumM	Summation data	Total length in meter of bar for one summation schedule with same bar diameter and steel quality
%1%SumKg	Summation data	Total weight of bar for one summation schedule with same bar diameter and steel quality

The RebarPage percentage code defines how many rebar pages should be shown on the summation page. The percentage codes must always start with 1 and increased with 1 for each new entry for each percentage code.

The Length percentage codes are defined in rows for each rebar page and each row must have the same number of entries as there are bar diameters defined in the rebar.dat configuration file. You can use up to 100 Length percentage codes for each row. The first row has entries from 100-199, second row from 200-299, and so on...

Project data for both Rebar template file and Summation template file

The project data fields only have 1 percentage code each and are automatically found inside the Revit project file. The data is used in the template files with the code %1%_P:"Project parameter name". All project data that can be used are shown in the project information dialog shown below.

Project Properties

Family:

Type:

Instance Parameters - Control selected or to-be-created instance

Parameter	Value
Text	
Rebar Prepared	
Rebar Prepared Date	
Rebar Checked	
Rebar Checked Date	
Rebar Approved	
Rebar Approved Date	
Rebar Revision	
Rebar Revision Date	
Rebar Document Number	
Rebar Logo	
Rebar Schedule Template	
Rebar Schedule Sum Template	
Rebar Company Name	
Rebar Company Address	
Rebar Company Post Number	
Rebar Company Telephone	
Rebar Company Mail	
Identity Data	
Organization Name	
Organization Description	
Building Name	
Author	Øyvind
Energy Analysis	
Energy Settings	Edit...
Other	
Project Issue Date	Issue Date
Project Status	Project Status
Client Name	Owner
Project Address	Edit...
Project Name	Project Name
Project Number	Project Number

Project data may be altered in the following dialog, Project settings in Create Bar Mark Schedule

Create Bar Mark Schedule

Project settings

Project

Rebar Template:

Summation Template:

Logo:

Project Number:

Project Name:

Client Name:

Author:

Document Number:

Prepared: Date:

Checked:

Approved:

Revision:

Company

Name:

Address:

Post Number:

Telephone:

Mail:

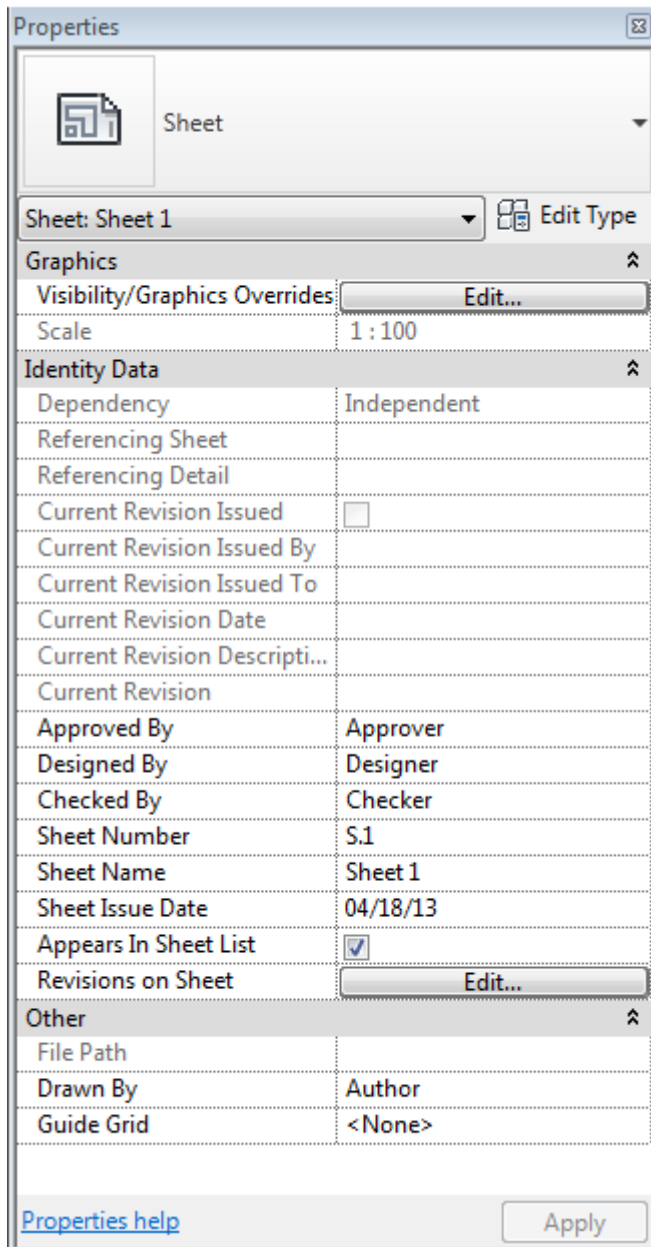
The following parameters correspond to each input filed in the dialog above:

- Rebar Schedule Template
- Rebar Schedule Sum Template
- Rebar Logo
- Project Number
- Project Name
- Client Name
- Author
- Rebar Document Number
- Rebar Prepared
- Rebar Prepared Date
- Rebar Checked
- Rebar Checked Date
- Rebar Approved

- Rebar Approved Date
- Rebar Revision
- Rebar Revision Date
- Rebar Company Name
- Rebar Company Address
- Rebar Company Post Number
- Rebar Company Telephone
- Rebar Company Mail

Sheet data for template files when active view is chosen for printing

Sheet data may also be used in the template files when active view is chosen for printing. The code used in the template files should then be of the format %1%_S:"Sheet parameter name". Data that can be used is found inside the following dialog.



The Properties dialog box for a Sheet is shown. It includes a 'Sheet' icon and a dropdown menu showing 'Sheet: Sheet 1'. Below this is an 'Edit Type' button. The dialog is organized into several sections: Graphics, Identity Data, and Other. The Graphics section includes 'Visibility/Graphics Overrides' and 'Scale' (set to 1:100). The Identity Data section includes 'Dependency' (set to Independent), 'Referencing Sheet', 'Referencing Detail', 'Current Revision Issued' (checkbox), 'Current Revision Issued By', 'Current Revision Issued To', 'Current Revision Date', 'Current Revision Descripti...', 'Current Revision', 'Approved By' (set to Approver), 'Designed By' (set to Designer), 'Checked By' (set to Checker), 'Sheet Number' (set to S.1), 'Sheet Name' (set to Sheet 1), 'Sheet Issue Date' (set to 04/18/13), 'Appears In Sheet List' (checkbox checked), and 'Revisions on Sheet' (with an 'Edit...' button). The Other section includes 'File Path', 'Drawn By' (set to Author), and 'Guide Grid' (set to <None>). At the bottom, there is a 'Properties help' link and an 'Apply' button.

Graphics	
Visibility/Graphics Overrides	Edit...
Scale	1 : 100

Identity Data	
Dependency	Independent
Referencing Sheet	
Referencing Detail	
Current Revision Issued	☐
Current Revision Issued By	
Current Revision Issued To	
Current Revision Date	
Current Revision Descripti...	
Current Revision	
Approved By	Approver
Designed By	Designer
Checked By	Checker
Sheet Number	S.1
Sheet Name	Sheet 1
Sheet Issue Date	04/18/13
Appears In Sheet List	☒
Revisions on Sheet	Edit...

Other	
File Path	
Drawn By	Author
Guide Grid	<None>

[Properties help](#) Apply

2.18 List bar marks

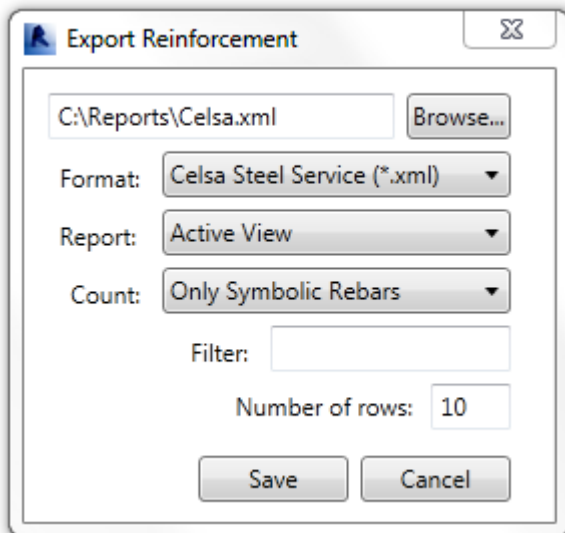
This function opens a dialog that lists all bar marks in the model. The dialog is modeless, which means that it can stay open all the time.

List bar marks has the following options:

- Select. Adds the selected bar marks to selection set in active view.
- Entire Model, Active View or a View/Sheet set. If entire model is selected. All bar marks in the entire model are listed. If active view is selected only bar marks present in the active view are listed. The last option is View/Sheet set, this will list all bar mark present in selected View/Sheet Set. If no sets are defined in the model this option will not be shown.
- Only symbolic rebars, only 3D rebars or both symbolic and 3D rebars. Use this to list the various types of rebars.
- Refresh. Press this button to refresh the list.
- Filter. Write a regular expression her to filter the list.

2.19 Export Reinforcement

This function exports the reinforcement to text files. The formats supported are BVBS and Celsa Steel Services' XML format.



The dialog has the following options:

- The file name of the file supported.
- Format to export to. Either Celsa Steel Services (xml) or BVBS (abs)
- Report. Entire Model, Active View or a View/Sheet set. If entire model is selected. All bar marks in the entire model are listed. If active view is selected only bar marks present in the active view are listed. The last option is View/Sheet set, this will list all bar mark present in selected View/Sheet Set. If no sets are defined in the model this option will not be shown.
- Count. Only symbolic rebars, only 3D rebars or both symbolic and 3D rebars. Use this to list the various types of rebars.
- Filter. Write a regular expression her to filter the list.
- Number of rows. This is only used when exporting to Celsa Steel Services format. This value should be the same as number of rebars on each page in the schedule.

2.20 License manager

If a single user license is used, this will show a simple dialog that displays the path to the license file.

If a network license is used, this will show all current users and have the possibility to borrow licenses.

2.21 Help

Open this document.

2.22 About ISY CAD Rebar

Open the about dialog with information about the version of the application.

3 Best Practice

3.1 3D Rebars

When generating symbolic rebars from 3D rebars there are some guidelines that should be followed to get the best result as fast as possible.

Only select one 3D rebar at a time

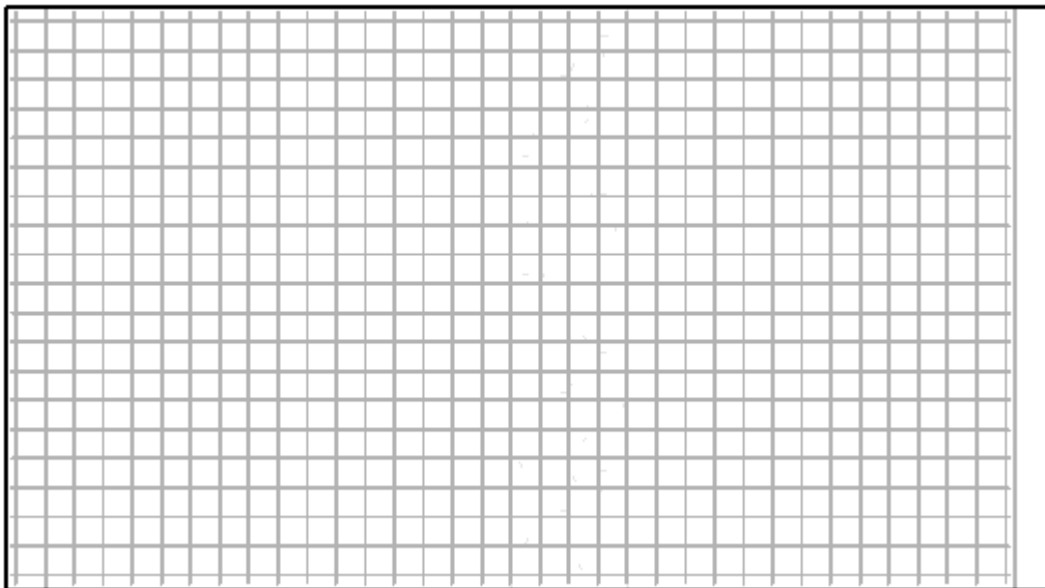
Usually it's best to select just one rebar (or set of rebars) at a time. All selected rebars will get the same instance parameters and that might not be desired. Also the tag placement might be a mess if several rebars are selected. Selecting just one 3D rebar at a time will provide best control of the process.

When identical rebar sets are placed atop of each other in a view

This can now be handled automatically by the application, but the method described below is still valid.

This is best described with a wall example, but will be just as valid on e.g. a floor. In the wall example below there are both horizontal and vertical rebar sets. The visible rebars in the view are those placed nearest. But there are identical rebar sets below with placement farther. In this case best practice would be:

- Select either one of the horizontal or vertical sets.
- Run the **Bar Symbol from 3D** function.
- Set placement to "Both sides vertical. (Vertical here has nothing to do with the orientation of the bars, but of the host. A wall would be vertical and a floor horizontal).
- Set all other instance parameters to desired values.
- When the create button is pressed, a symbolic bar with distribution line would be placed and the selected rebar set would be hidden in the view.
- The rebar set that's placed farther away would still be visible. Use standard Revit functionality to hide the rebar set below.
- Do the same operation for the other orientation.



Use "Number of Bars" on identical single layout 3D rebars

This can now be handled automatically by the application, but the method described below is still valid.

In the column shown to the right. There are 4 straight identical bars that goes through the entire column and stick out at the top. To keep the view as clean as possible you can select just one of those bars and set **Number of Bars** in the dialog to 4.

Note that the 3D rebars that are not selected can be selected in this or another view, without a warning that this bar already has a symbolic representation.



4 Frequently Asked Questions

4.1 The symbols of the symbolic rebar in plane are not correct

Usually the symbolic representation of a rebar in plane is correctly drawn, but in some case the result might not be as desired. This can be solved by manually editing some of the instance parameters of the rebar.

The rebar in plane is represented by a line with symbols on it. These symbols are changed with instance parameters.

Each bar has a **Start Symbol Type** and an **End Symbol Type**. These can be set to FarSide, BothSides, IntoPlane etc. Note that changing from FarSide to e.g. NearSide will not update the placement representation in the tag. Only the following symbols should be used on ends:

BothSides, FarSide, NearSide, IntoPlane, OutOfPlane and None.

In addition it is possible to place 6 symbols on the line. The symbol parameters are called **1 Symbol Type**, **2 Symbol Type** etc. And the position is defined in the matching length parameters called **1 Symbol Distance**, **2 Symbol Distance** etc. The distances are from the start of the line. Only the following symbols should be used on the line:

Breakpoint, Both1, Both2, OutOfPlane No Extension, Q1, Q2, Q3, Q4 and Void.

Experiment with the various symbols to see how they work.

4.2 The rebar shape I want to use is not in the shape code list

Use the user defined shape code. This should have all length parameters and the possibility to set the total length of the shape.

- Place the rebar using Revit's 3D functionality and just tag it with **Reinforcement Text**.
- Draw the reinforcement with Revit detail lines and just tag it with **Reinforcement Text**.
- Contact your retailer or NoIS to create it.

4.3 The number of bars in the schedule are wrong

- Check that the **Number of Parts** parameter in the bar mark is correct.
- Check all instances that **Multiplicator** and **Number of Bars** are correct.
- Check that the **Material Take Off** is not set on multiple representations of the same reinforcement.
- For line based families the calculation of number of bars is defined in the families.

4.4 The color and line weight of the rebar is wrong

To solve this, override the color and weight of the Detail Items line called **ISY CAD Rebar**. This can be done in two ways:

- Define the desired color and weight in the entire model using Revit's **Object Styles**.
- Override the color and weight in each view using Revit's **Visibility/Graphics**.

4.5 What do bar in plane and in elevation mean?

It has nothing to do with the view. It's how the rebar is drawn in active view. Drawing a rebar in plane in an elevation view, is perfectly fine.

4.6 Can Revit's copy and move functions be used on all rebar instances?

Yes. But copying from one model to another is not recommended.

4.7 The arrow heads of the tags are wrong

See chapter in this manual about defining tag arrow heads.

4.8 Placing rebars is very slow

Setting the length of the rebar in plane sometimes can take quite a lot of time. To prevent this set the **PreCalculate** parameter in the options dialog. The drawback is that the correct length of the rebar is not set until after the rebar has been placed in the model.

4.9 The length of the rebar is not correct until after it has been placed in view

See chapter above.

4.10 Length of a rebar is wrong

The length of rebars is calculated in the families. The default calculation is the theoretical length.

4.11 Something else is wrong or you have suggestions

Contact your ISY CAD Rebar retailer or send a support case to: support.technocad@nois.no