

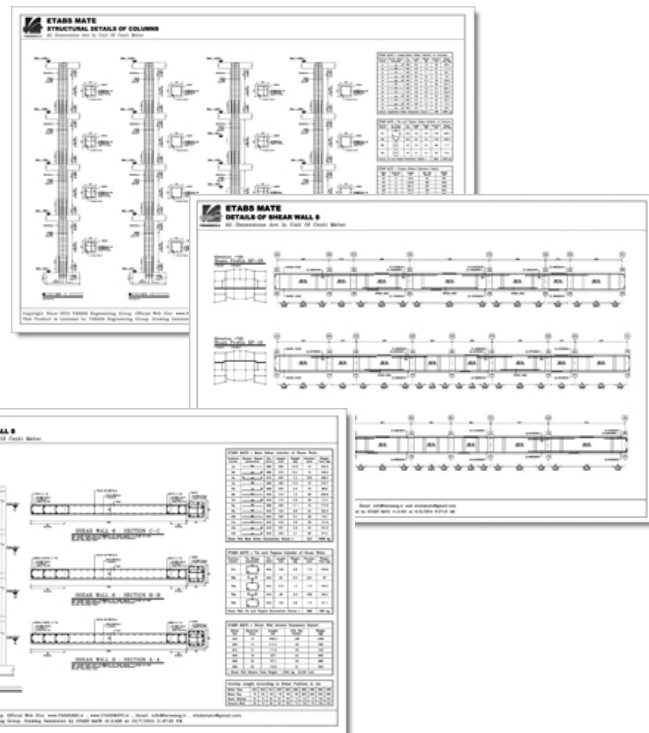
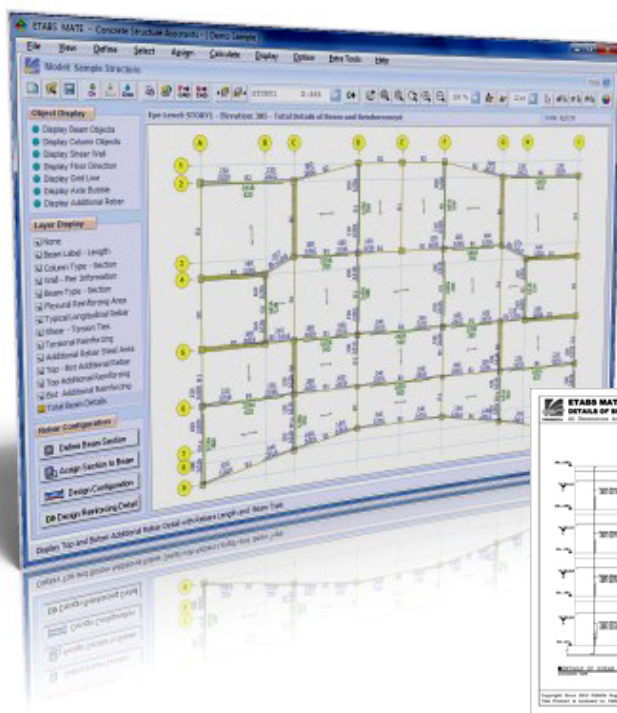
# ETABS MATE

Concrete Structure Assistant Software



## ETABS MATE Quick Start

Generate Details of the Concrete Structures Just in 4 Steps



The whole process of designing the reinforcement details of the concrete structures and then generating the structural drawings by ETABS MATE software will be carried out in just four simple steps. In this quick start, you will introduce with these four simple steps quickly.

In order to using this software for concrete structure detailing, the project must be model, analyze and design in the ETABS first. Specific instructions or restrictions are not required for labeling or naming the elements or frame sections that they are using in the ETABS modeling. And you can do modeling of your structure in the ETABS without any restrictions or any limitation in any way that you feel comfortable. After the modeling and design processes was completed and when all results were satisfactory and you decide to start the structure detailing, please follow these four below steps carefully for achieve the best results.

# ETABS MATE

## Concrete Structure Assistant Software

### 1 Generate Model Text File and Save Design Results Files of Structure by ETABS

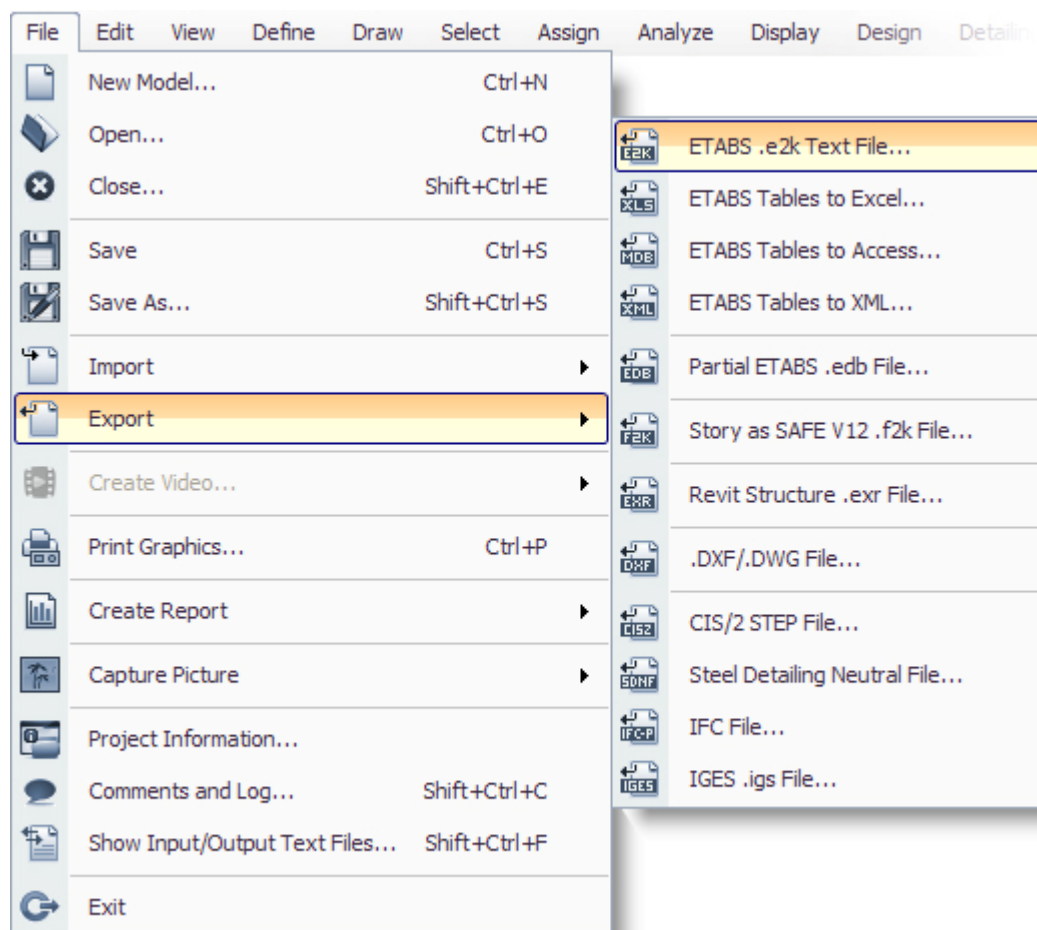
In ETABS software follow the below instructions to export structure model.

**Save model text file in ETABS with the TXT format as follows:**

 **File Menu > Export > ETABS .e2k Text File...** in ETABS 2013, 2015, 2016

Or

 **File Menu > Export > Save Model as ETABS .e2k Text File ...** in ETABS 9.x.x



**Note:** Please set the unit system of ETABS software to the **kgf-cm** before exporting the structure model text file.

# ETABS MATE

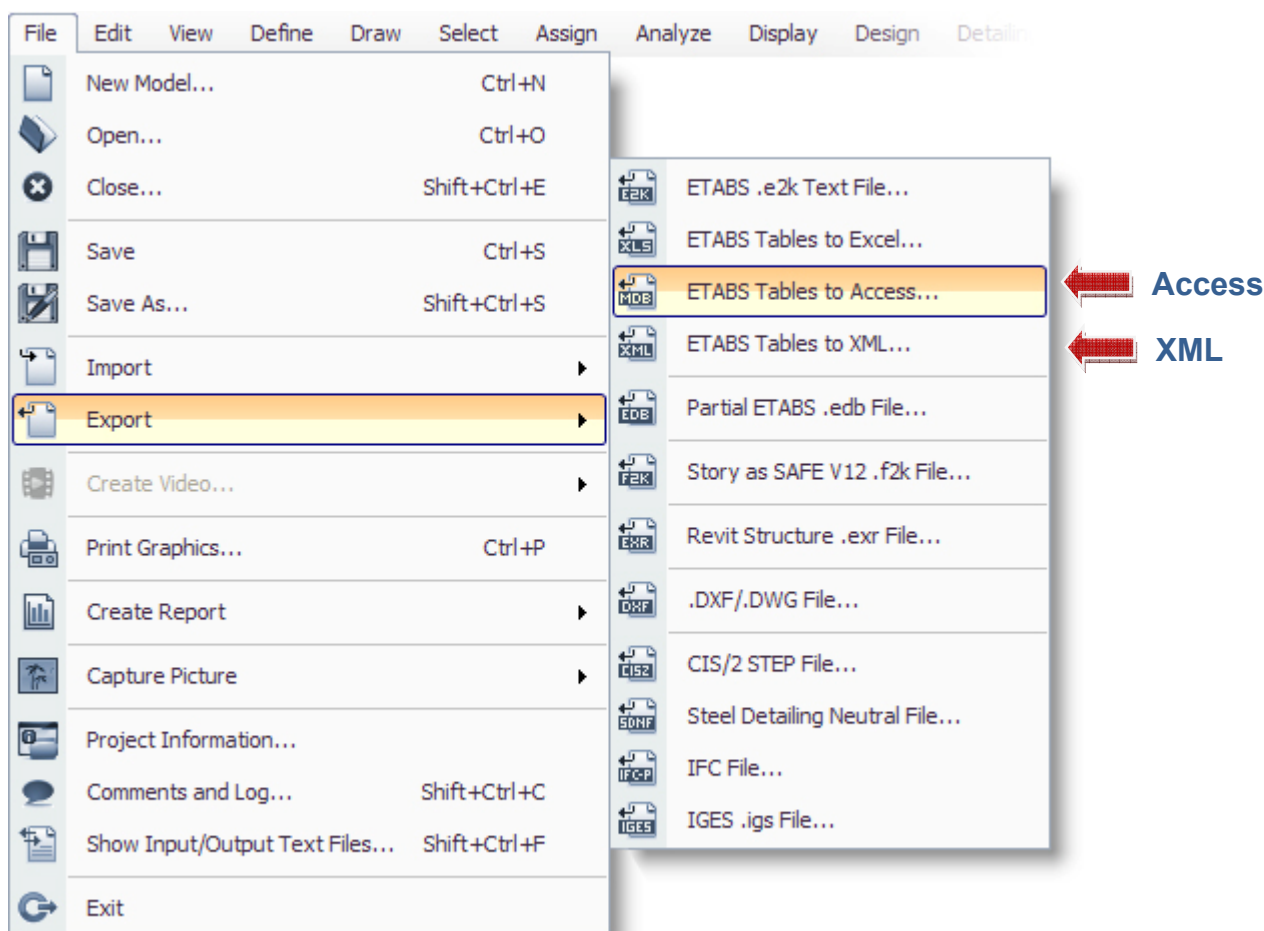
Concrete Structure Assistant Software

In **ETABS 2013, 2015 and 2016** generate the frame design and shear wall design data file with the ACCESS or XML file format as described in the below:

 **File > Export > ETABS Table to Access ...**

Or

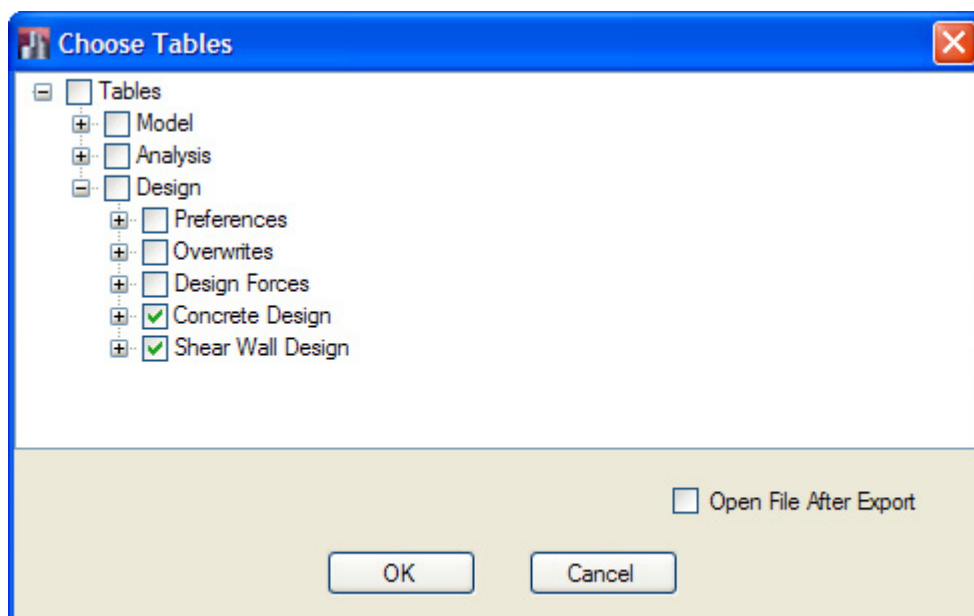
 **File > Export > ETABS Table to XML ...**



After choosing the save format of the design data file as described in top, the **‘Choose Tables’** interface will appear as the below image. In this interface, select the **‘Concrete Design’** option to save the design results of the frame, ie beams and structural columns, as well as this, please select the **‘Shear Wall Design’** option to store the results for the structural shear walls, and then deselect all other options as the below image. Then by selecting the name and location for the output file, design data file will be generated by the software in the specified location.

# ETABS MATE

Concrete Structure Assistant Software

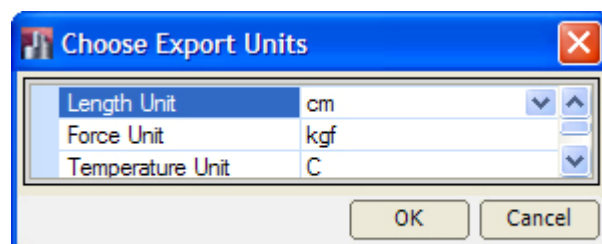


Of course, you can only save the design data file of the frame structure or just the design information of the shear walls in an ACCESS or XML file. To do this, repeat the steps above, and then, in order to save only the results of the frame design, in the **'Select Tables'** interface, you should select the **'Concrete Design'** option only, and only the **'Shear Wall Design'** option should be selected to save only the design results of the walls. And remove all other options.



**Note1:** You must analyze and design your structure before exporting design data file.

**Note2:** Please, prior to generating the design data file from the file menu, be sure to set the unit system of ETABS software on the **Kg-Cm** option, and then also set the **Kg-Cm** units again when the software asks you the output units as the below image.

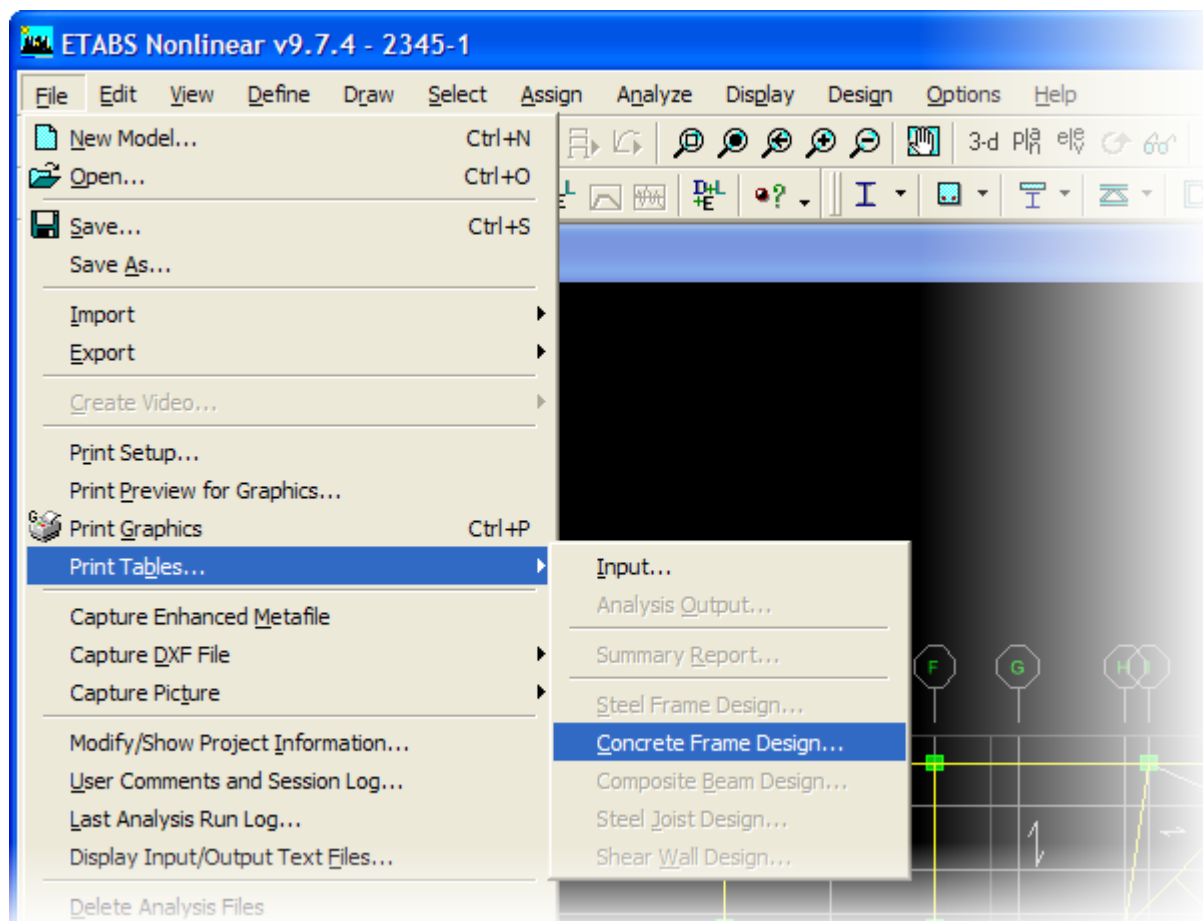


# ETABS MATE

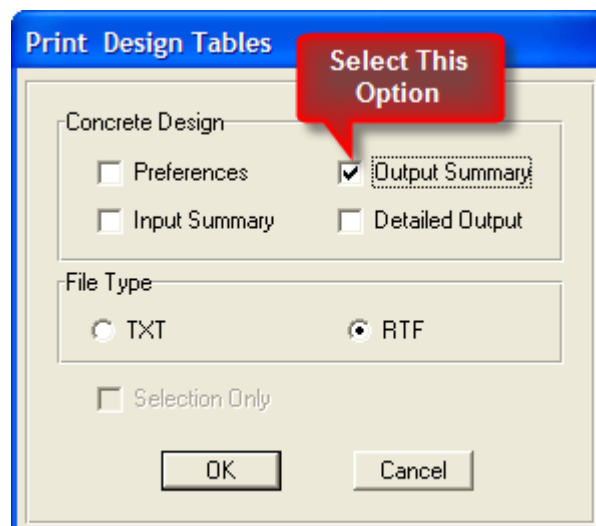
Concrete Structure Assistant Software

In **ETABS 9.x.x** you can generate frame design summary file with the RTF or TXT format as follows:

 **File Menu > Print Tables... > Concrete Frame Design...**



And then select the  **Output Summary** and  **RTF** or  **TXT** Option as the below image

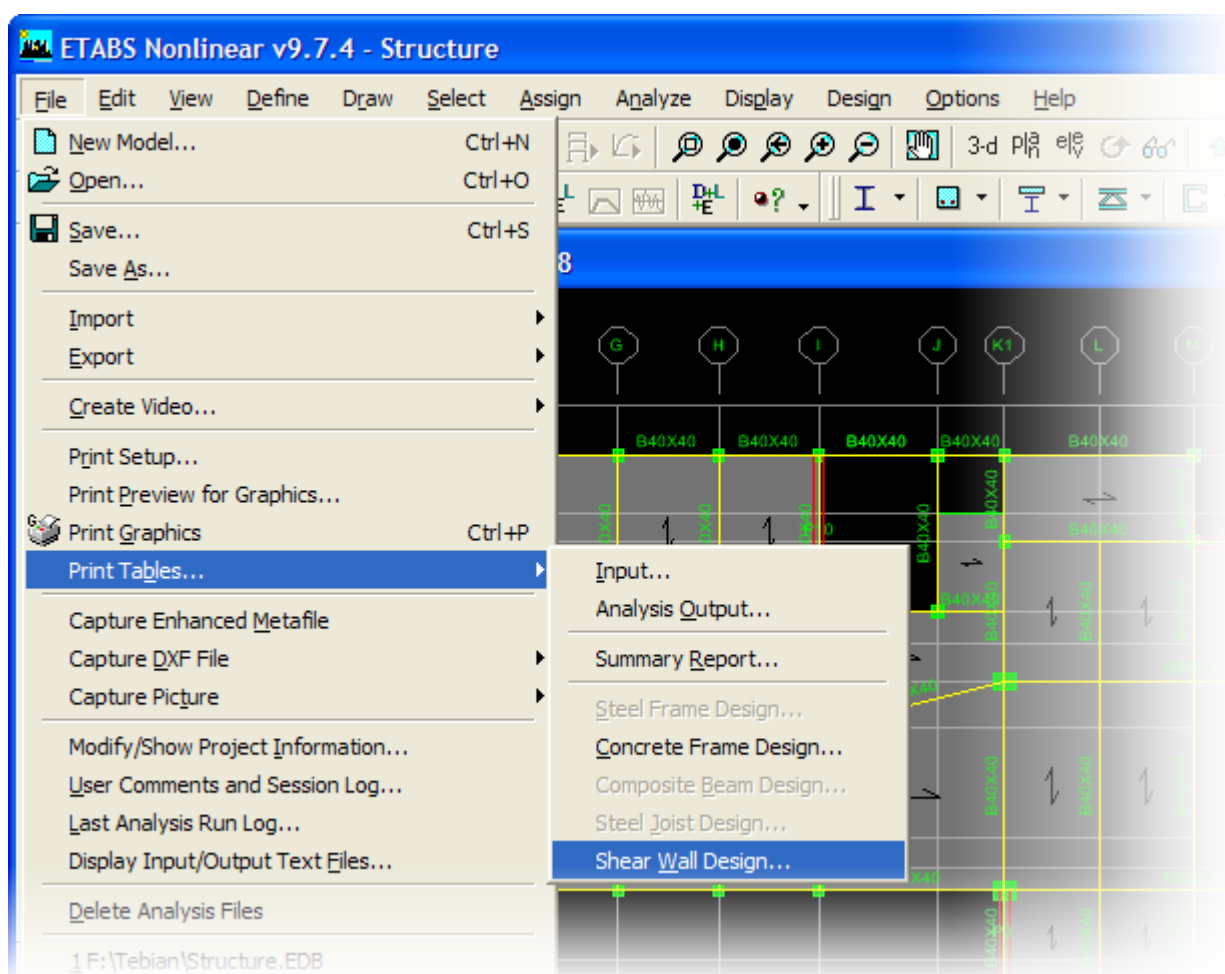


# ETABS MATE

Concrete Structure Assistant Software

In the same way generate the Shear Wall design summary file in the **ETABS 9.x.x** with the TXT file format as the follows:

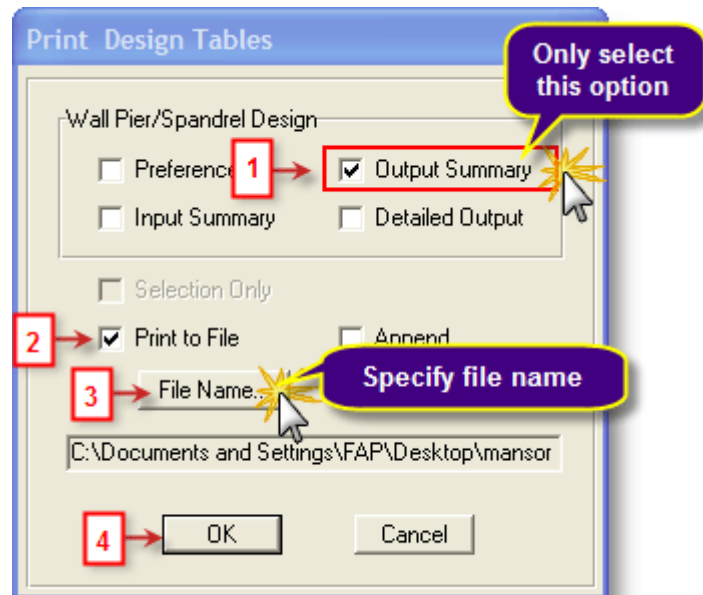
 **File Menu > Print Tables... > Shear Wall Design...**



After this, 'Print Design Table' interface will be appear as the below image.

# ETABS MATE

Concrete Structure Assistant Software



In this interface, as show in the top image, please select the  **Output Summary** And  **Print to file** option first and then by clicking on the '**File Name ...**' button, specify the name and location for the shear wall design output file.

After this, the shear walls design data file will be generating by the ETABS software in your specified location.

# ETABS MATE

## Concrete Structure Assistant Software

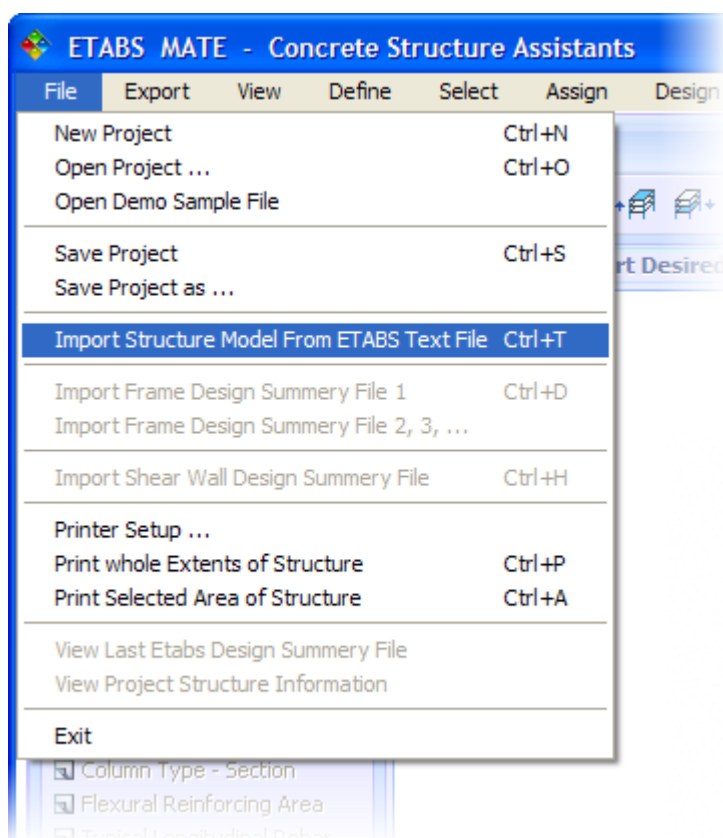
## 2 Import Prepared Files in the First Step into the ETABS MATE Software

At this stage, the model files and structural design data files that were produced in the previous step, must be imported into the ETABS MATE software.

First import the structural model text file to the ETABS MATE as the follows:

 **File Menu > Import Structure Model From ETABS Text File** (or use **Ctrl** + **T** shortcut keys)

Also you can use the  icon from the software top main toolbar for importing structure text file



And then import structure design data files into the ETABS MATE as follows:

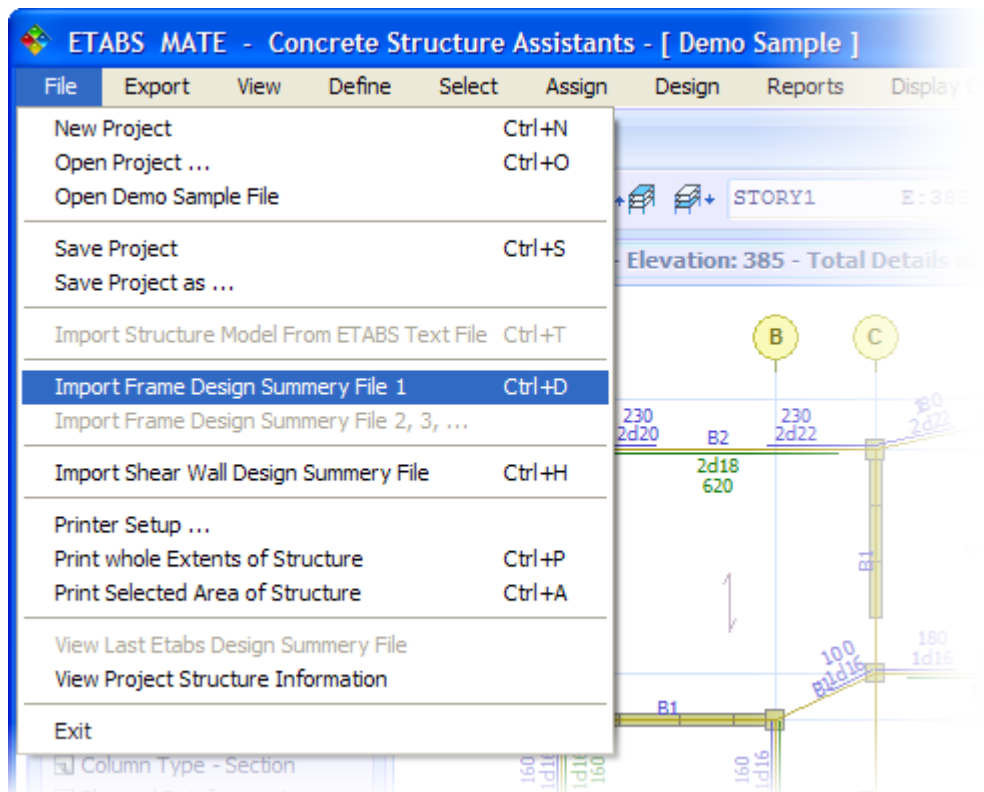
 **File Menu > Import Frame Design Summary File 1** (or use **Ctrl** + **D** shortcut keys)

Also you can use icon  from software top main toolbar for importing structure text file



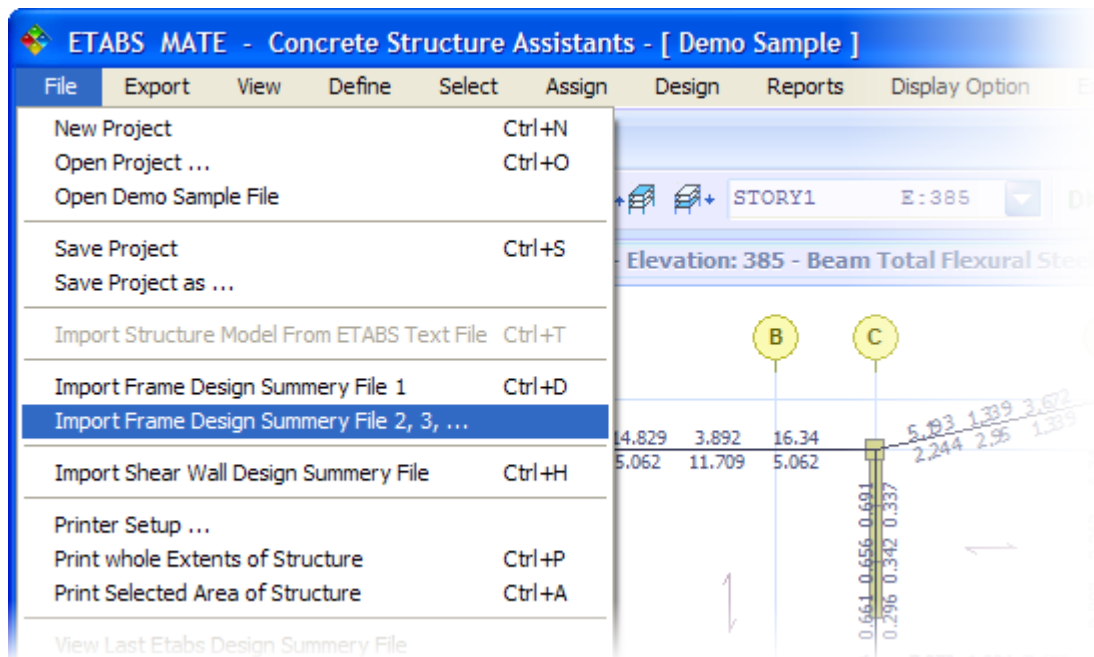
# ETABS MATE

Concrete Structure Assistant Software



If you have more design data files, Import them to the ETABS MATE as follows:

**File Menu > Import Frame Design Summary File 2,3,...** (or use icon  from top main toolbar)



In this case software envelops all design data points for each position of element. So all design values that show in the software on the elements are the maximum value of all imported design data files for each position. Also software considers these maximum values of each element positions in the reinforcement details design procedures.

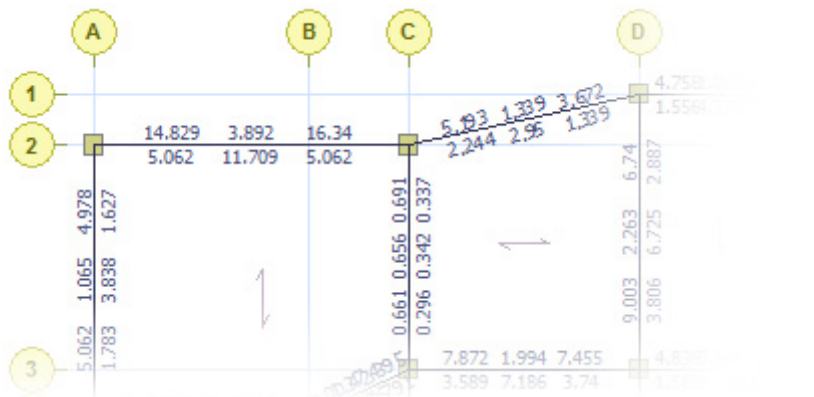
# ETABS MATE

Concrete Structure Assistant Software

After importing design data file, you can see these data on the each element. Also you can switch the information displayed on the elements by using the **Layer Display** panel as shown in the below images.

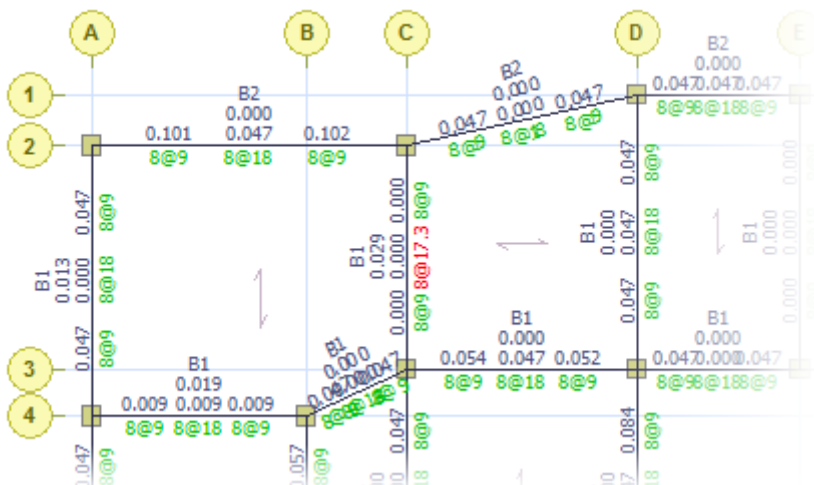
**Layer Display**

- Beam Label - Length
- Beam Type - Section
- Floor Assignment Details
- Floor Loading Details
- Wall - Pier Information
- Column Type - Section
- Flexural Reinforcing Area
- Typical Longitudinal Rebar
- Shear - Torsion Ties
- Torsional Reinforcing
- Additional Rebar Steel Area



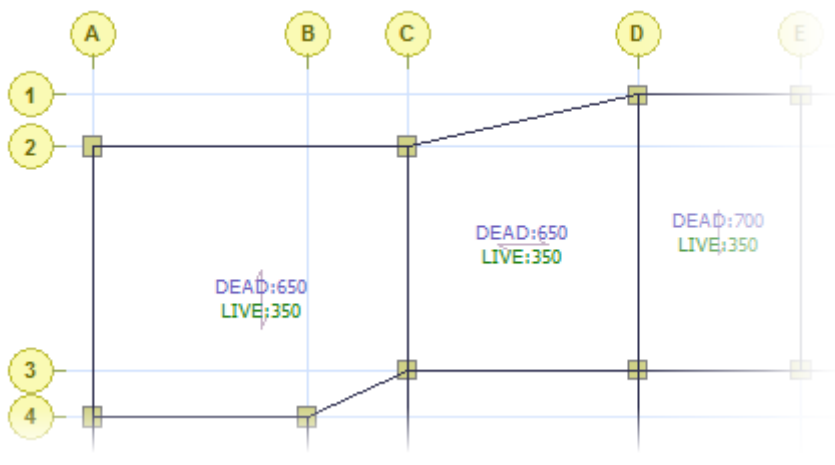
**Layer Display**

- Beam Label - Length
- Beam Type - Section
- Floor Assignment Details
- Floor Loading Details
- Wall - Pier Information
- Column Type - Section
- Flexural Reinforcing Area
- Typical Longitudinal Rebar
- Shear - Torsion Ties  N/E
- Torsional Reinforcing
- Additional Rebar Steel Area
- Top Additional Reinforcing



**Layer Display**

- Beam Label - Length
- Beam Type - Section
- Floor Assignment Details
- Floor Loading Details
- Wall - Pier Information
- Column Type - Section
- Flexural Reinforcing Area
- Typical Longitudinal Rebar
- Shear - Torsion Ties
- Torsional Reinforcing
- Additional Rebar Steel Area
- Top Additional Reinforcing
- Bot. Additional Reinforcing



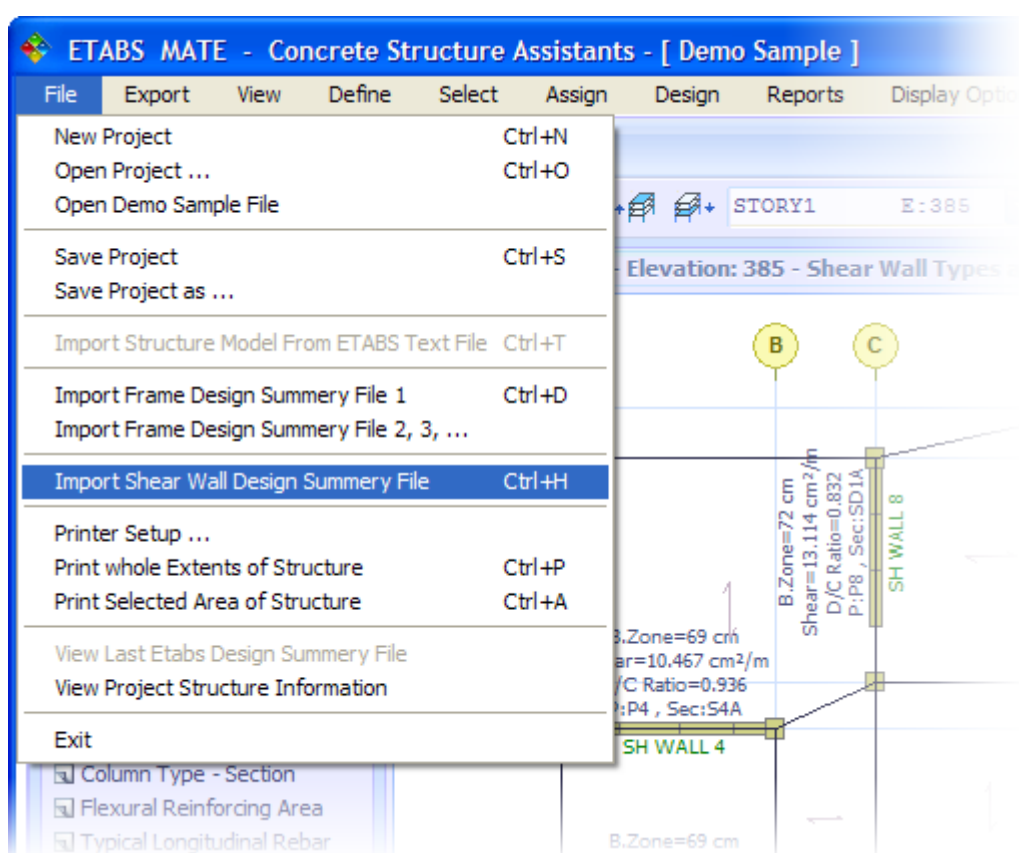
# ETABS MATE

Concrete Structure Assistant Software

If your structure contains any Shear Wall objects, please import shear wall design results file to the ETABS MATE as follows:

 **File Menu > Import Shear Wall Design Summary File** (or use **Ctrl** + **D** shortcut keys)

Also you can use  icon from software top main toolbar for importing shear wall design text file



In this case all shear wall data such as pier name, assigned section name, demand to capacity ratio, required shear steel area and required length of boundary zone will show on all walls in the plan of structure as shows in the top image.

Therefore you can control of this data very easy. Also if there are any problems, software marks them by red color. You can also see this data for one wall in all stories by right click on the wall.

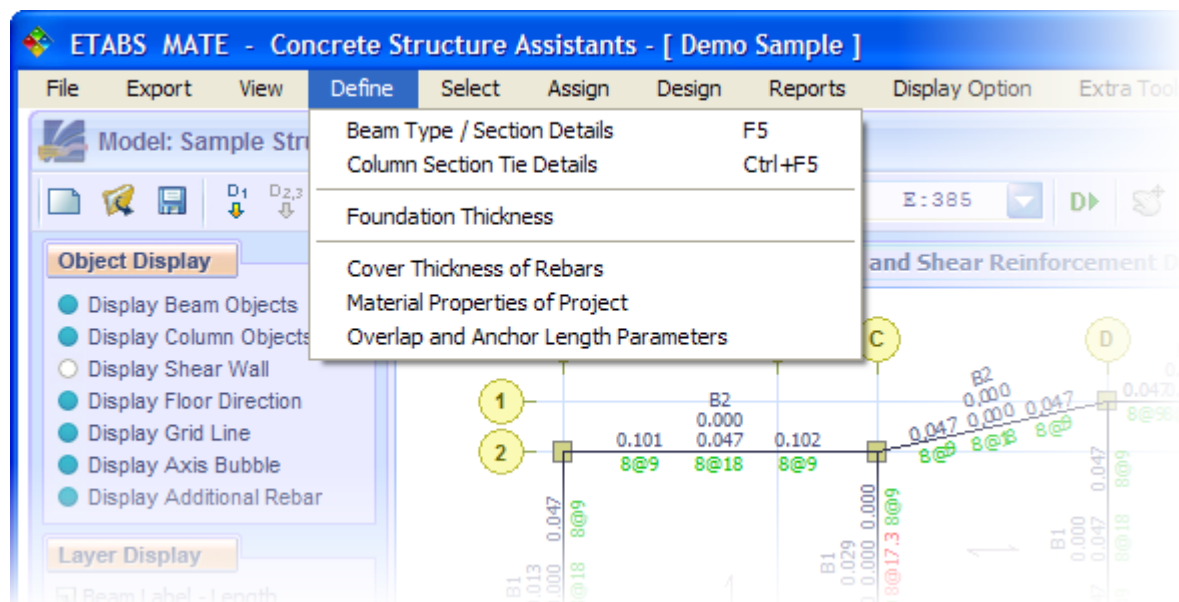
# ETABS MATE

Concrete Structure Assistant Software

## 3 Adjust the Design Parameters and Run Reinforcement Details Design Procedure

After importing structure to the ETABS MATE, software assigns some default configuration to your project automatically. Before start structure reinforcement detail design control software default configuration or imported settings such as material properties, rebar cover, beam longitudinal and transverse rebar, rebar overlap settings, element reinforcement design parameters, ... if necessary and then run design reinforcement procedure.

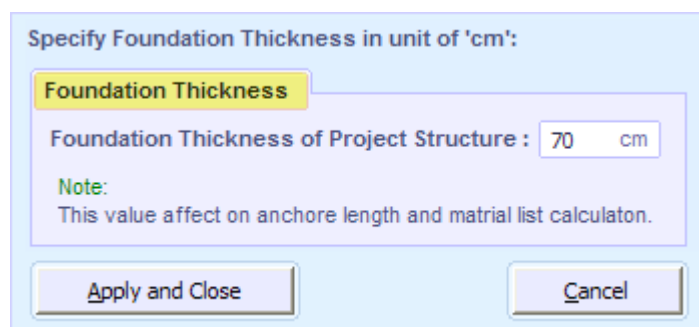
In the Define menu you can specify properties such as :



### Define Menu > Foundation Thickness

By this command you can specify thickness of your structure foundation.

This value affect on column and shear wall rebar anchor length and in material calculating procedure of software. Also this value displayed in column profile drawings detail.



# ETABS MATE

## Concrete Structure Assistant Software

### Define Menu > Cover Thickness of Rebars

By this command you can specify concrete cover thickness of rebar for each structural element type separately.

These values affect some reinforcement design procedure and also displayed in structural drawings.

**Define Rebar Concrete Cover**

Specify Concrete Cover Thickness of Rebar for Each Structural Element Types in Unit of Centimeters.

Beam Rebars Concrete Cover Thickness: 4 cm

Column Rebars Concrete Cover Thickness: 4 cm

Wall Rebars Concrete Cover Thickness: 3 cm

Apply Changes and Close      Cancel

### Define Menu > Material properties of projects

By this command you can specify concrete compression strength and rebar reinforcement yield stress of the structure.

These values affect some reinforcement design procedure such as rebar anchor length and some reinforcement design procedure. You can change these parameters only before importing design data to the software; therefore this interface automatically appears after importing structure model and allowing the user to easily control these values.

**Reinforced Concrete Specification**

**Founded Material Properties**

**Material Name 'CONC' has been Found in the Model e2k File**

Thus model imported values has been assignend to the material properties

Material Properties :

Rebar Bending Reinforcement Yield Stress, Fy : 4000 kgf/cm<sup>2</sup>

Concrete Specified Compression Strenght, F'c : 210 kgf/cm<sup>2</sup>

**Note:**  
Software only read the properties that specified in the material with name of 'CONC'. And if can not find 'CONC' material, software default value will be assigned to material properties. You can change these values before importing structure design data.

Modify Material Properties and Close      Close Window

# ETABS MATE

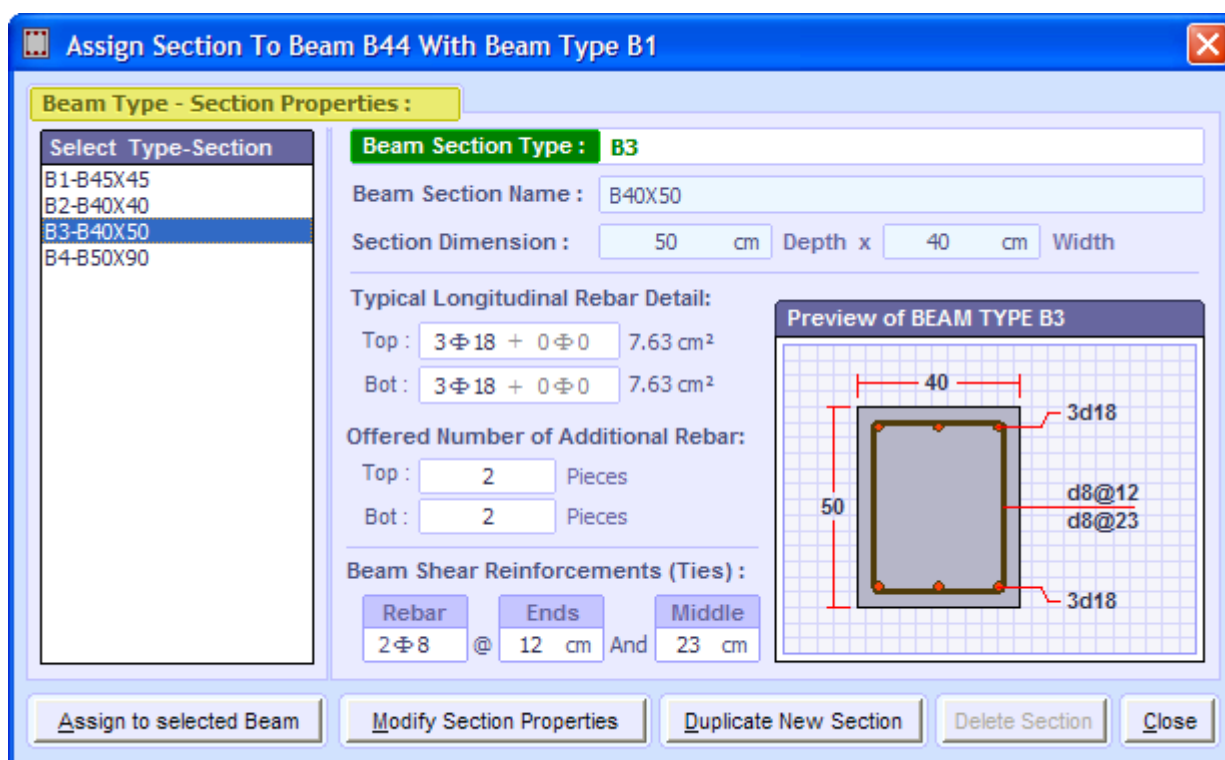
Concrete Structure Assistant Software

## Define Menu > Beam Type / Section Details

After importing structure model to the ETABS MATE, software automatically import all frame sections which they are used in the structure elements. Then software assigns some design properties such as type name, longitudinal and transverse reinforcements to the each type automatically as seen on the following image.

By this interface you can manage all beam types of the project and also you can view and modify each beam type properties such as type name, longitudinal rebar details and shear reinforcement details if necessary, as seen in the following image.

After making any changes in this interface all reinforcement details of beam will be reset and you must redesign reinforcement details again.



## Define Menu > Column Section Tie Details

By this interface you can manage frame section of columns similar to the interface of the beams that explained in the past part.

# ETABS MATE

Concrete Structure Assistant Software

## Define Menu > Overlap and Anchor length parameters

By this interface you can configure rebar overlap and anchor length parameters that software uses them in tit’s reinforcement design procedures. Software allow users to have two several method for configure these parameters. In the first method, software calculates overlap multiplier in base of project material properties and some parameters automatically. And in the second method users can calculate these multipliers for any rebar size and each rebar position, and then specify the calculated values to the related multiplier parameters manually. These settings can be seen in the following image.

**Overlap and Anchore Length Configuration**

Configuration Settings    Export

**Rebar Overlap and Anchor**

**Rebars Anchor / Overlap Length Calculation Settings**

Select Rebar Overlap Length Configuration Method:

Software Calculated Overlap Mutiplier     User Defined Overlap Mutiplier

Rebar Position	Rebar Diameter	
	ϕ10 ~ ϕ20	ϕ22 ~ ϕ32
BEAM TOP	71 db	89 db
BEAM BOT	55 db	69 db
Column - Wall	55 db	69 db

Rebar Position	Rebar Diameter	
	ϕ10 ~ ϕ20	ϕ22 ~ ϕ32
BEAM TOP	65	78
BEAM BOT	50	60
Column - Wall	50	60

Overlap Length / Anchor Length Ratio: 1.3    Rebar Overlap Length Rounding Step: 5 cm

**Software Overlap Calculation Parameters**

$f_y = 4000$  kgf/cm<sup>2</sup>     $\alpha(\text{Top}) = 1.3$      $\gamma(d < 22) = 0.8$   
 $f_c = 210$  kgf/cm<sup>2</sup>     $\alpha(\text{Bot}) = 1$      $\gamma(d > 20) = 1$   
 $\phi_s = 0.85$  Const.     $\beta = 1$      $\frac{c + k_{tr}}{d_b} = 1.5$   
 $\phi_c = 0.65$  Const.     $\lambda = 1$

$$l_d = \left[ \frac{0.86 f_{yd}}{\sqrt{f_{cd}}} \frac{\alpha \beta \gamma \lambda}{\frac{c + k_{tr}}{d_b}} \right] d_b$$

$f_{yd} = \phi_s f_y$  ,  $f_{cd} = \phi_c f_c$

Reset All Parameters to Default Value    Calculate Overlap Length Multiplier

**Rebar Overlap Length Table According to Software Calculated Multiplier**

Rebar Position	Rebar Diameter									
	ϕ10	ϕ12	ϕ14	ϕ16	ϕ18	ϕ20	ϕ22	ϕ25	ϕ28	ϕ32
Beam TOP	75	90	100	115	130	145	200	225	250	285
Beam BOT	55	70	80	90	100	110	155	175	195	225
Column - Wall	55	70	80	90	100	110	155	175	195	225

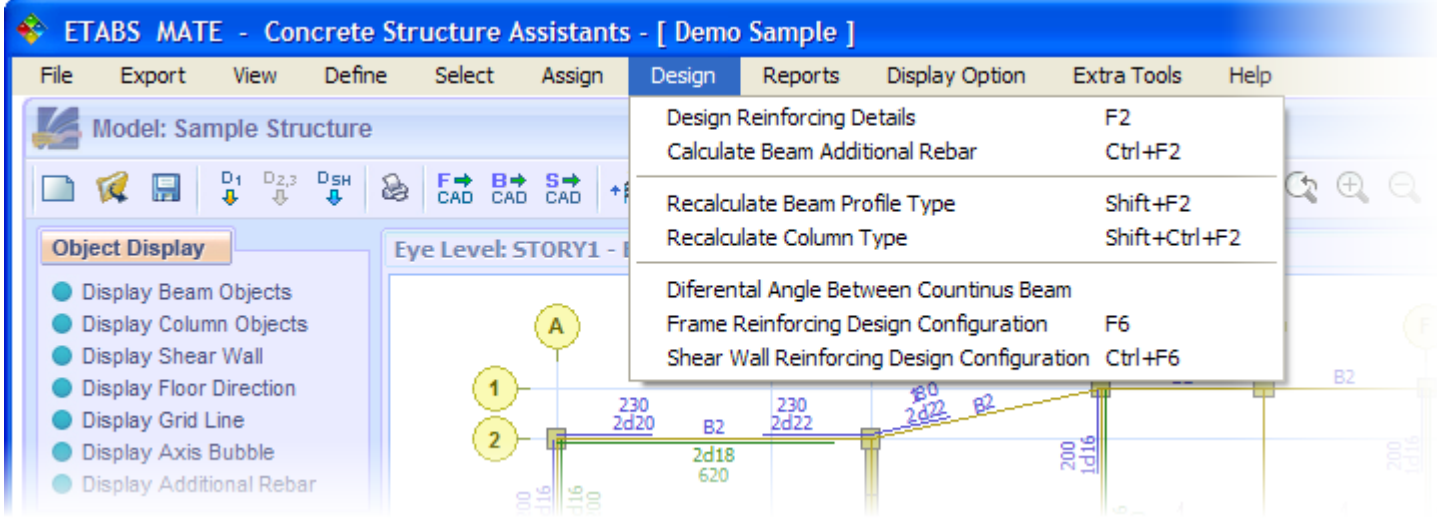
Apply Changes and Rebuild Overlap Length Table    Close

## Reinforcing Design Configuration

Also if necessary you can configure design parameters to customize software reinforcement design of structural elements as you like. These configuration interfaces are available in the **Design** menu. Some of these interfaces described here:

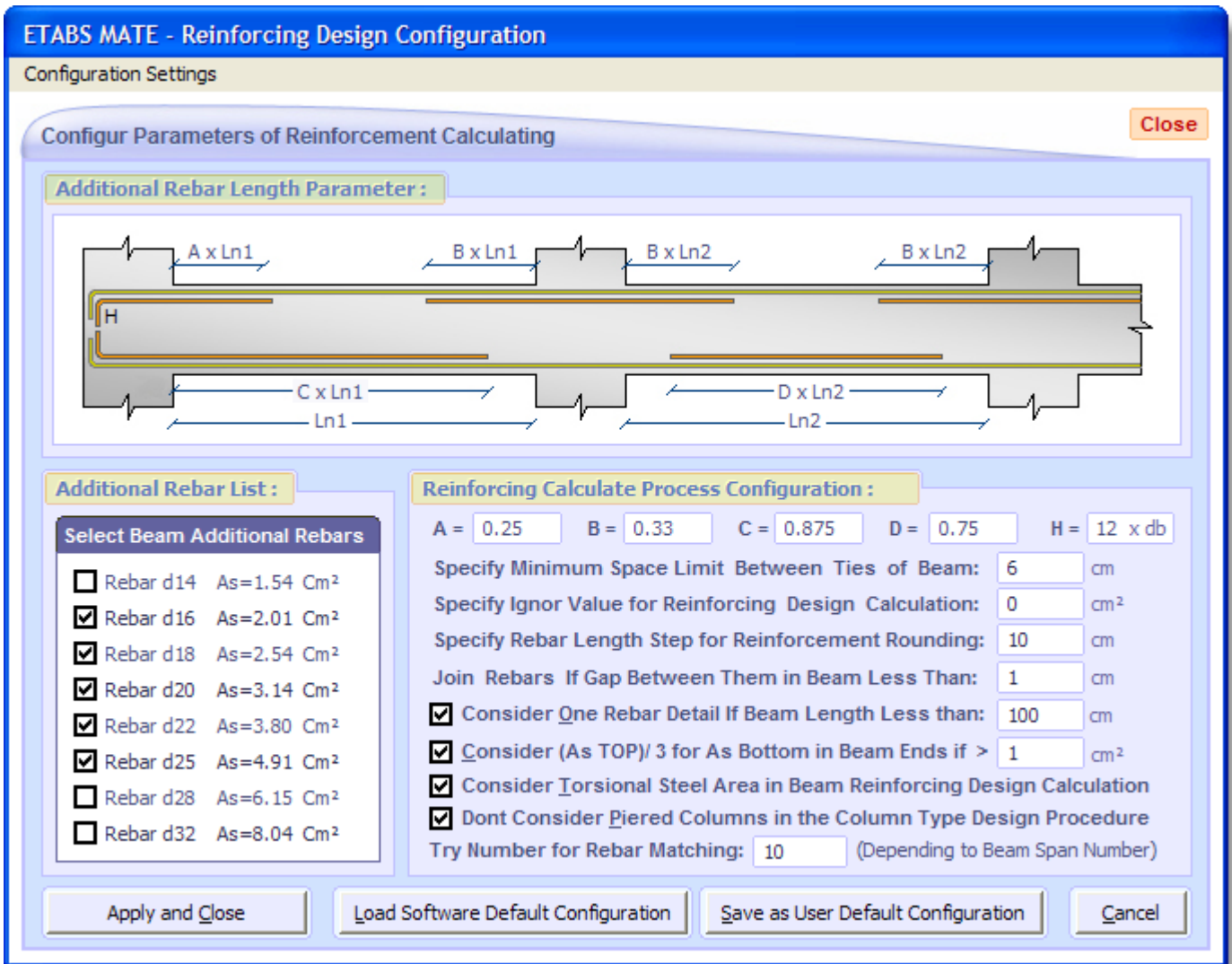
# ETABS MATE

Concrete Structure Assistant Software



**Design Menu > Frame Reinforcing Design Configuration (or use **F6** shortcut key)**

In this interface you can configure frame reinforcing design parameters. These parameters can be visible in the following image and you can configure them simply.





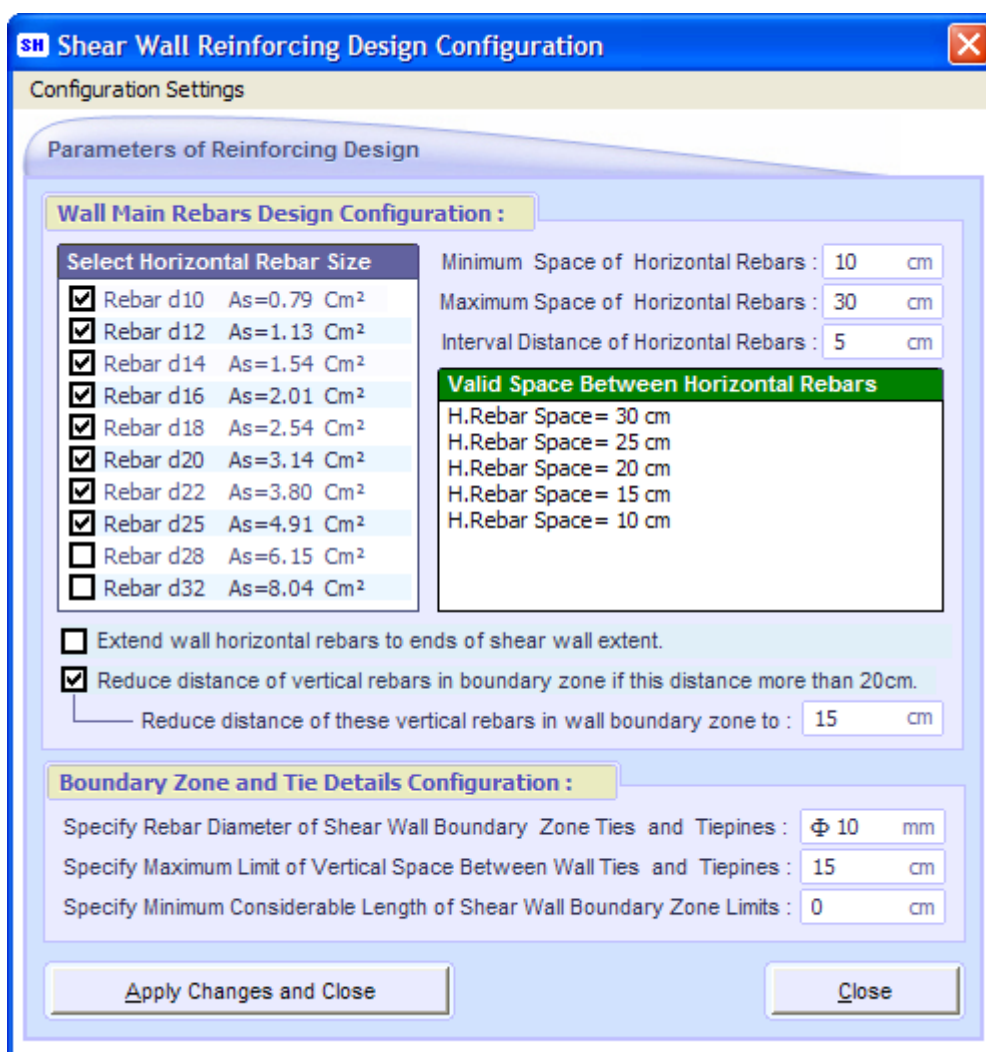
# ETABS MATE

Concrete Structure Assistant Software

After making any changes in this interface all frame designed reinforcement details of structure frame will be reset and you must redesign reinforcement details again.

 **Design Menu > Shear Wall Reinforcing Design Configuration** (or use **Ctrl** + **F6** shortcut keys)

In this interface you can configure Shear Wall reinforcing design parameters. These parameters can be visible in the following image and you can configure them simply.



**Shear Wall Reinforcing Design Configuration**

Configuration Settings

Parameters of Reinforcing Design

**Wall Main Rebars Design Configuration :**

Select Horizontal Rebar Size	Minimum Space of Horizontal Rebars :	Maximum Space of Horizontal Rebars :	Interval Distance of Horizontal Rebars :
<input checked="" type="checkbox"/> Rebar d10 As=0.79 Cm <sup>2</sup>	10 cm	30 cm	5 cm
<input checked="" type="checkbox"/> Rebar d12 As=1.13 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d14 As=1.54 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d16 As=2.01 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d18 As=2.54 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d20 As=3.14 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d22 As=3.80 Cm <sup>2</sup>			
<input checked="" type="checkbox"/> Rebar d25 As=4.91 Cm <sup>2</sup>			
<input type="checkbox"/> Rebar d28 As=6.15 Cm <sup>2</sup>			
<input type="checkbox"/> Rebar d32 As=8.04 Cm <sup>2</sup>			

**Valid Space Between Horizontal Rebars**

H.Rebar Space= 30 cm  
H.Rebar Space= 25 cm  
H.Rebar Space= 20 cm  
H.Rebar Space= 15 cm  
H.Rebar Space= 10 cm

Extend wall horizontal rebars to ends of shear wall extent.

Reduce distance of vertical rebars in boundary zone if this distance more than 20cm.

Reduce distance of these vertical rebars in wall boundary zone to : 15 cm

**Boundary Zone and Tie Details Configuration :**

Specify Rebar Diameter of Shear Wall Boundary Zone Ties and Tiepines :  $\Phi$  10 mm

Specify Maximum Limit of Vertical Space Between Wall Ties and Tiepines : 15 cm

Specify Minimum Considerable Length of Shear Wall Boundary Zone Limits : 0 cm

Apply Changes and Close      Close

After changing these parameters, new configuration settings affect on the shear wall reinforcing design automatically by clicking on apply change button, and you don't need to redesign structure again. Also you can manage or save this settings to use them in the future project by using the **Configuration Settings** menu.

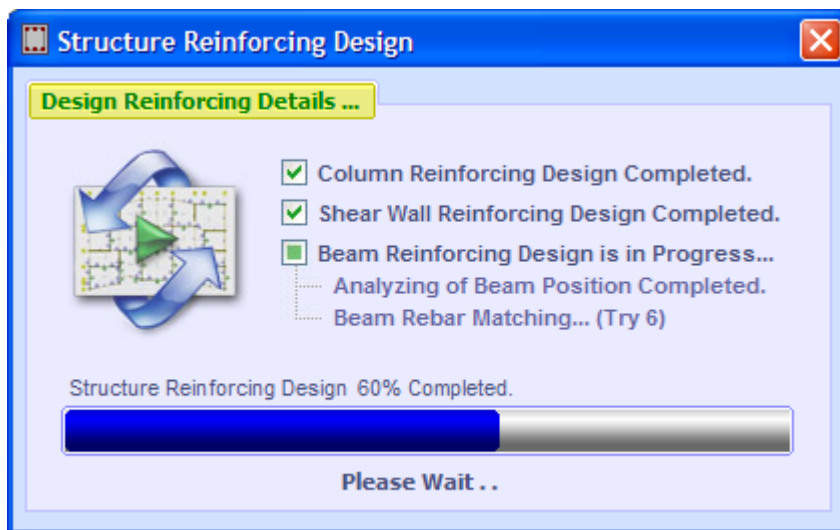
# ETABS MATE

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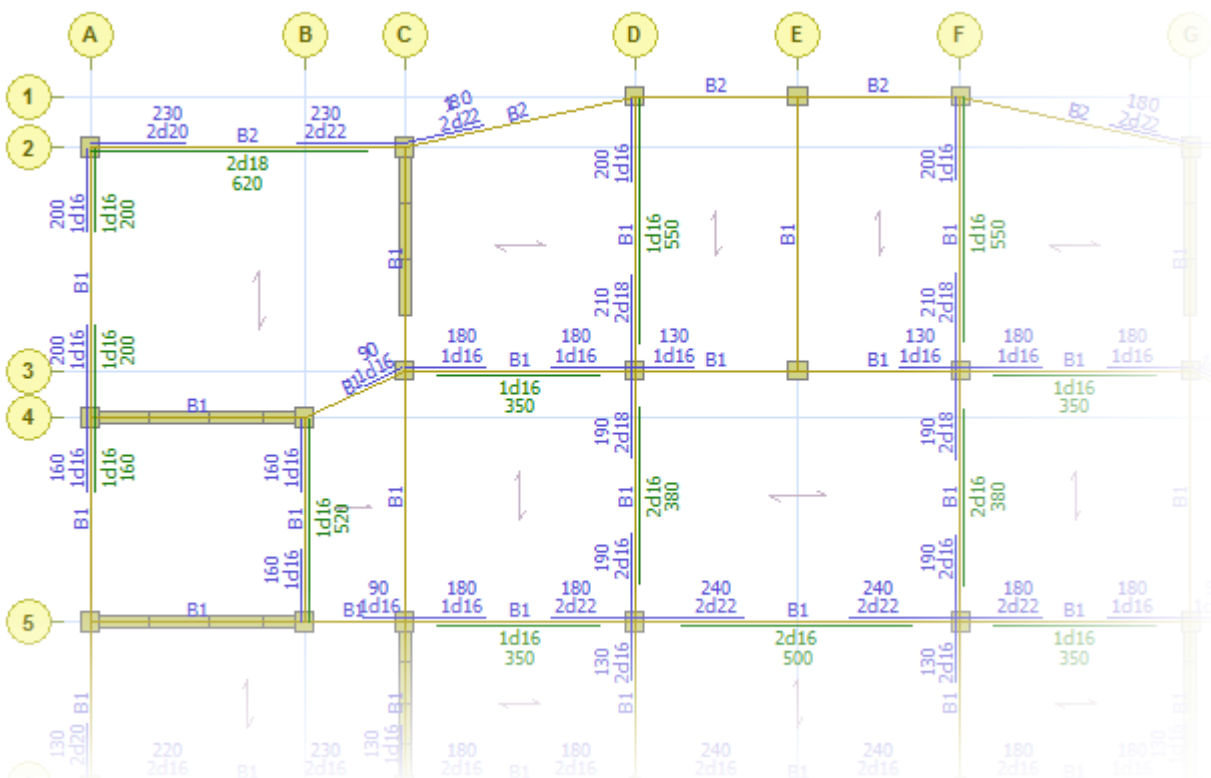
 Design Menu > Design Reinforcing Details (or use **F2** shortcut key)

Also you can use icon  from software top main toolbar for start design reinforcing details of structural elements of your project.

After importing model file and its design data to the software, you can use design command to start the software design procedures. By using this command the below interface will be displayed and it will show you design progress. This process will take less than one second for ordinary buildings.



After the completion of the design process, software design results will be visible in the main window, as seen in the following image.



# ETABS MATE

Concrete Structure Assistant Software

Also you can right click on every element in the respective layer for view more details or changing its software suggested design details. For example if you active the **Total Beam Details** layer and right click on a beam, the following interface will be displayed.

**Rebar Details of Beam B148**

Angle: 0 °

**Selected Beam Composition Details**

Type : B2	Length : 675 cm	Beam Position : End of Multi Span
Section: B40X40	S. Offset: 20 cm	Start Condition: Not Continus
Story : STORY1	E. Offset: 20 cm	End Condition: Continus
Elevat. : 385 Cm	Len. Net: 635 cm	Beam Direction : 0 °

**Reinforcement Details :**

Rebar Location	Torsion As	Flex. As	Typical As	M. Add. As	Add. Rebar	Length
START	TOP	0.000	14.829	9.42	5.405	2d20 230
	BOT	0.000	5.062	7.63	0.0	- -
MIDDLE	TOP	0.000	3.892	9.42	0.0	- -
	BOT	0.000	11.709	7.63	4.075	2d18 620
END	TOP	0.000	16.34	9.42	6.916	2d22 230
	BOT	0.000	5.062	7.63	0.0	- -

Overwrite Changed Details And Close    Overwrite Changed Details    Close

In this interface you can see all structural and design details of the selected beam. And also you can edit software designed details very easy by selecting new details or typing any desired details in the respective fields and pressing overwrite buttons. If you change and overwrite any details, these changes will be displayed immediately on the structure and software will use your overwritten details for preparing structural drawings and material lists.

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Also if you active the **Wall – Pier Information** layer and right click on a wall, the following interface will be displayed.

In this interface you can see all structural and design details of the selected wall. And also you can edit software designed details very easy by typing any desired details in the respective fields and pressing overwrite button. If you change and overwrite any details, software will use your overwritten details for preparing structural drawings and material lists.

# ETABS MATE

## Concrete Structure Assistant Software

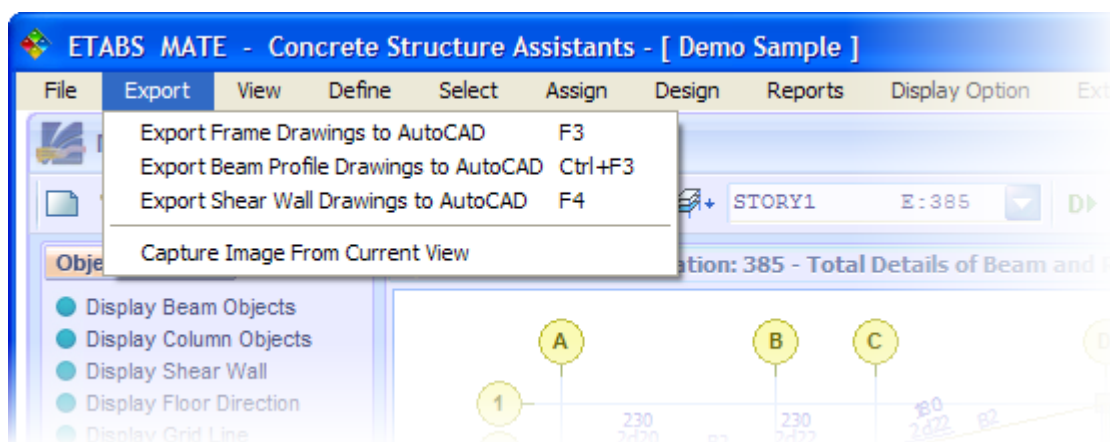
### 4 Generate Structural Drawings of Project in the AutoCAD Drawings File Format

After completing the reinforcement details design by software and perform the necessary controls, you can start the process of generating structural drawings of your project by software. Structural drawings will be saving very quickly in the AutoCAD drawings file format. Generated structural drawings files can be open in the all version of AutoCAD and you can easily view or edit drawings in this software.

For exporting structural drawings, you can use respective there icons in main software toolbar as seen in the following image.




Also you can use the commands in the **Export** menu for generating structural drawings of your projects as seen in the below image.



### Generate Frame Drawings

For generating frame structural drawing that contain floor and column details follow the below instruction.

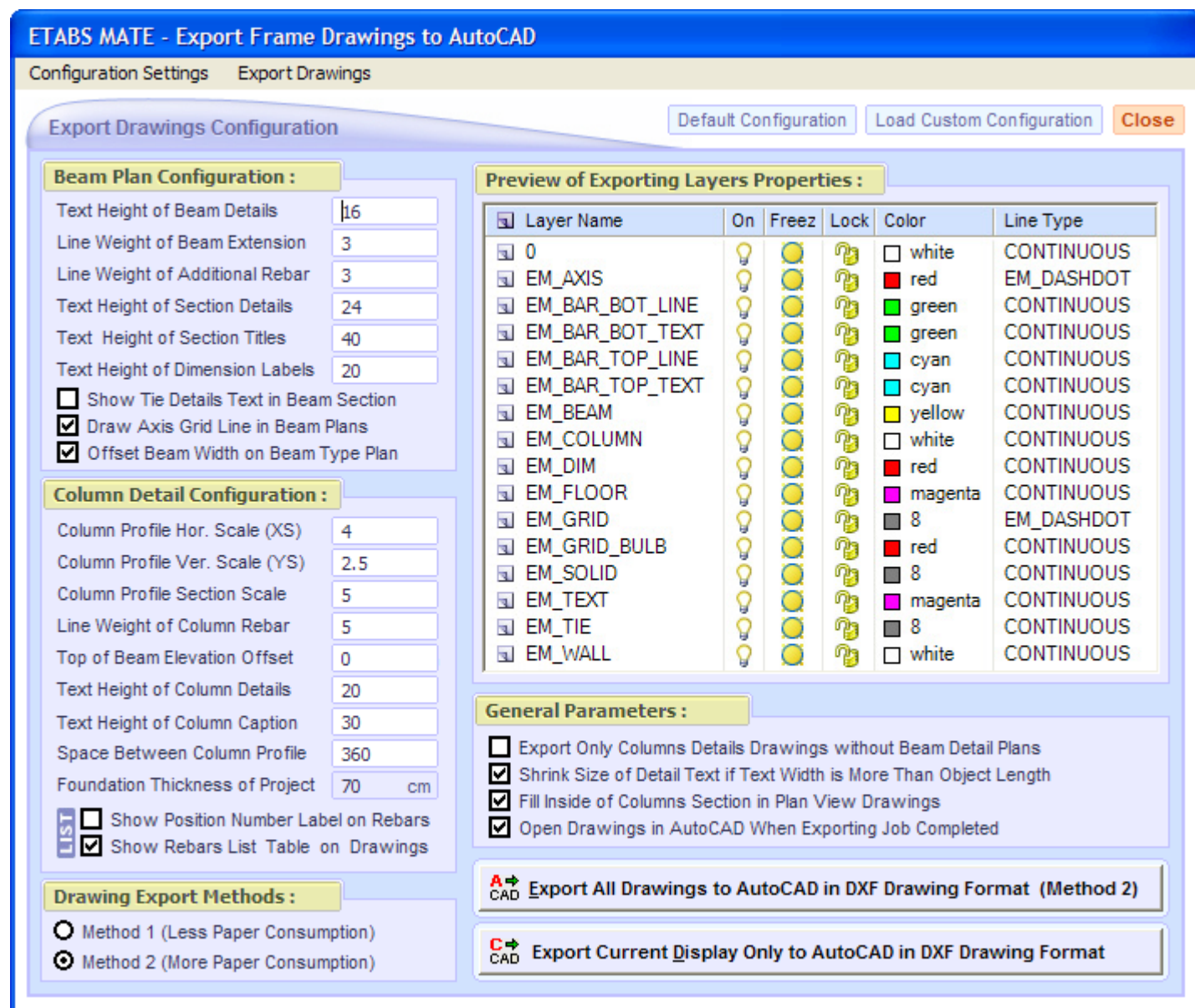
 **Export Menu > Export Frame Drawings to AutoCAD** (or use **F3** shortcut key)

Also you can use icon  from software top main toolbar for generate structural drawings of floor and column details of project.

After using this command the export interface that contains drawings parameters will be displayed as seen in the following image.

# ETABS MATE

Concrete Structure Assistant Software



In this interface you can configure the drawings parameters if necessary and then generate the drawings. In this interface you can see two export buttons:

Export All Drawings to AutoCAD in DXF Drawing Format (Method 2)

By this button you can generate all frame structural drawing and save it to the AutoCAD drawings file format.

Export Current Display Only to AutoCAD in DXF Drawing Format

By this button you can save only the selected active layer drawings in the AutoCAD drawings file format. In the other words by this button you can save all objects that can be view in the main graphical window of software in the AutoCAD file format.

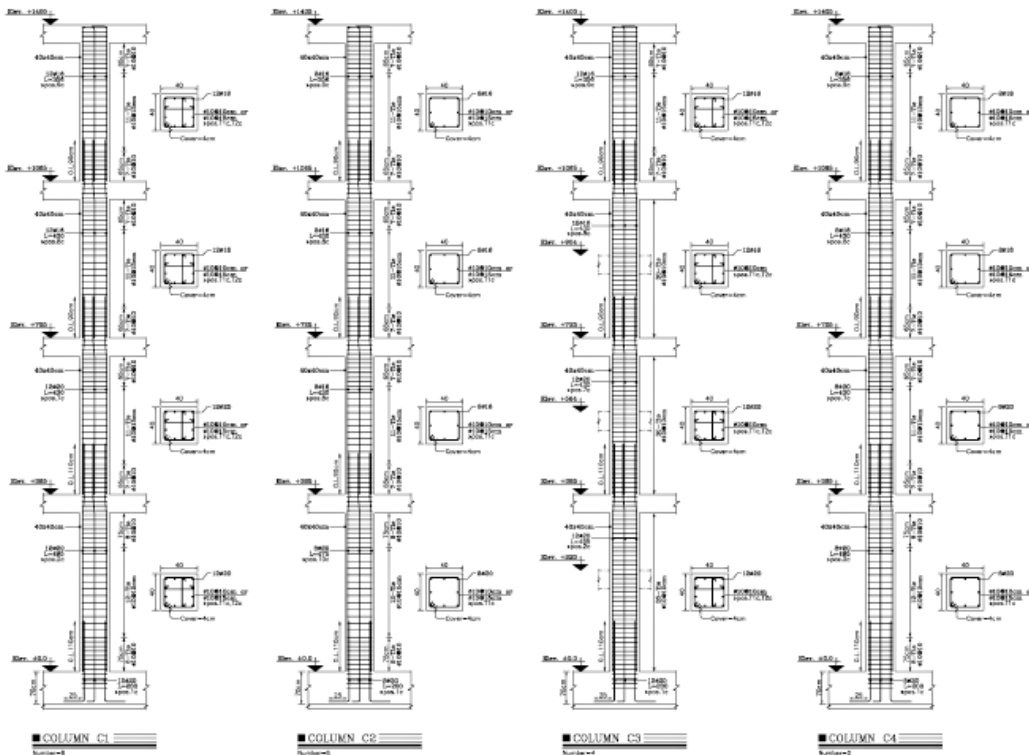
# ETABS MATE

Concrete Structure Assistant Software



## ETABS MATE STRUCTURAL DETAILS OF COLUMNS

All Dimensions Are In Unit Of Centi Meter.



ETABS MATE - Longitudinal Rebar Layout of Columns

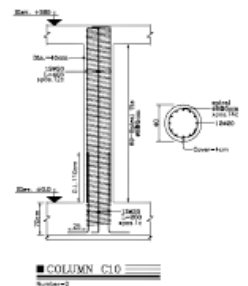
Position Number	Rebar Shape (mm)	Dia. (mm)	Length (mm)	Weight (kg)	Number (Count)	Weight (kg)
3a	40	40	322	4.8	148	691.8
3b	40	40	145	12.2	35	1177.0
3c	40	40	452	11.1	22	264.2
4a	40	40	387	5.8	14	147.2
5a	40	40	476	10.4	148	1520.2
5b	40	40	525	30	186	3027.0
7a	40	40	426	10.4	272	2828.8
8a	40	40	432	5.8	118	2613.2
9a	40	40	413	5.8	272	1328.2
10a	40	40	475	11.7	48	561.2
12a	40	40	248	4.2	22	124.2
13a	40	40	422	10	24	227.2
Columns Longitudinal Rebar Distribution Volume = 1296.18607 kg						

ETABS MATE - Tie and Topline Rebar Layout of Columns

Position Number	Rebar Shape (mm)	Dia. (mm)	Length (mm)	Weight (kg)	Number (Count)	Weight (kg)
7b	40	40	148	0.6	4162	2482.4
7c	40	40	32	0.2	4164	1360.8
7d	40	40	132	0.8	288	117.2
8b	40	40	181	0.4	480	176.2
Columns Tie and Topline Rebar Volume = 5842.5802 kg						

ETABS MATE - Columns Rebar Summary Report

Rebar Bar	Rebar Count	Length (mm)	12m Bar Piece	Weight (kg)
40	6	762.8	40	397
40	10	2195.8	89	5810
40	18	2842.2	100	4438
40	22	2207.4	928	6104
40	25	1545.4	109	5897
Columns Rebar Total Weight = 20997 kg (20.997 tons)				



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This Product is Licensed to: FARASA Engineering Group. Drawing Generated by ETABS MATE v1.3.426 at 10/7/2014 12:07:12 PM

Top image is a sample of some column details of a four story building that generated by software. Rebar list table of columns is also can be viewed in the image.

Drawing engine of software is very fast so that all consumed time for generating the total frame drawing detail of usual buildings is only less than one second.

## Generate Beam Profile Drawings

For generating Beam Profile structural drawing that contains beam geometry and its reinforcement details with the position plans, follow the below instruction:



**Export Menu > Export Beam Profile Drawings to AutoCAD** (or use **Ctrl** + **F3** shortcut keys)



Also you can use icon from software top main toolbar for generate structural drawings of beam profiles of project.

After using this command the export interface that contains drawings parameters will be displayed as seen in the following image.

# ETABS MATE

Concrete Structure Assistant Software

### Export Beam Profile to AutoCAD

Export Configuration Settings
Export Drawings

Load Custom Configuration
Close

#### Export Drawings Configuration

#### Beam Profile Configuration :

Beam Profile Horizontal Scale (XS)

Beam Profile Vertical Scale (YS)

Text Height of Beam Details

Axis Bubble Diameter of Profile

Beam Section Hatch Line Space

Space Between Beam Profiles

Top of Beam Elevation Offset

(L/d)max. for Consider Uniform Tie

Show Splice of Typical Longitudinal Rebars

Show Intermediate Beam Sections on Profile

Rearrange Tie Space Around Intermediate Beam

#### Beam Profile Title Configuration :

Text Height of Beam Profiles Title

Insert Title in Left of The Beam Profiles

Insert Title in Below of The Beam Profiles

Insert Scale Labels in Exporting Drawings

Draw Small Plan in Beam Profile Titles

Small Plan Magnifier Scale in Title :

Line Weight of Beam Profile Marker :

Draw Columns in Small Plan of Profile Titles

#### Beam Plan Configuration :

Text Height of Beam Profile Details

Line Weight of Beam Axe Line

Text Height of Dimension Line Label

Draw Axis Grid Line in Beam Plans

Offset Beam Width on Beam Profile Type Plan

Draw Shear Wall in Beam Profile Plan

Draw Floor Direction in Beam Profile Plan

Insert Beam Section Type Below the Beams

Insert Beam Dimension Below the Beams

#### Beam Section Configuration :

Text Height of Beam Section Details

Text Height of Section Titles

Scale of Beam Sections Drawings

Show Position Number Label on Rebars

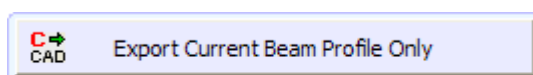
Show Rebars List Table on Drawings

C → CAD    Export Current Beam Profile Only

S → CAD    Export Beam Profiles in Current Story

A → CAD    Export All Beam Profiles in Total Stories

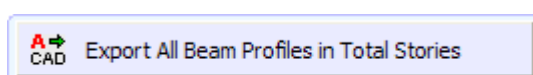
In this interface you can configure the drawings parameters if necessary and then generate the drawings. In this interface you can see three export buttons:



By this button you can generate only beam profile structural drawing of the selected beam and save it to the AutoCAD drawings file format.



By this button you can generate beam profiles structural drawing of all beams in the current story and save it to the AutoCAD drawings file format.



By this button you can generate beam profiles structural drawing of all beams in total stories and save it to the AutoCAD drawings file format.



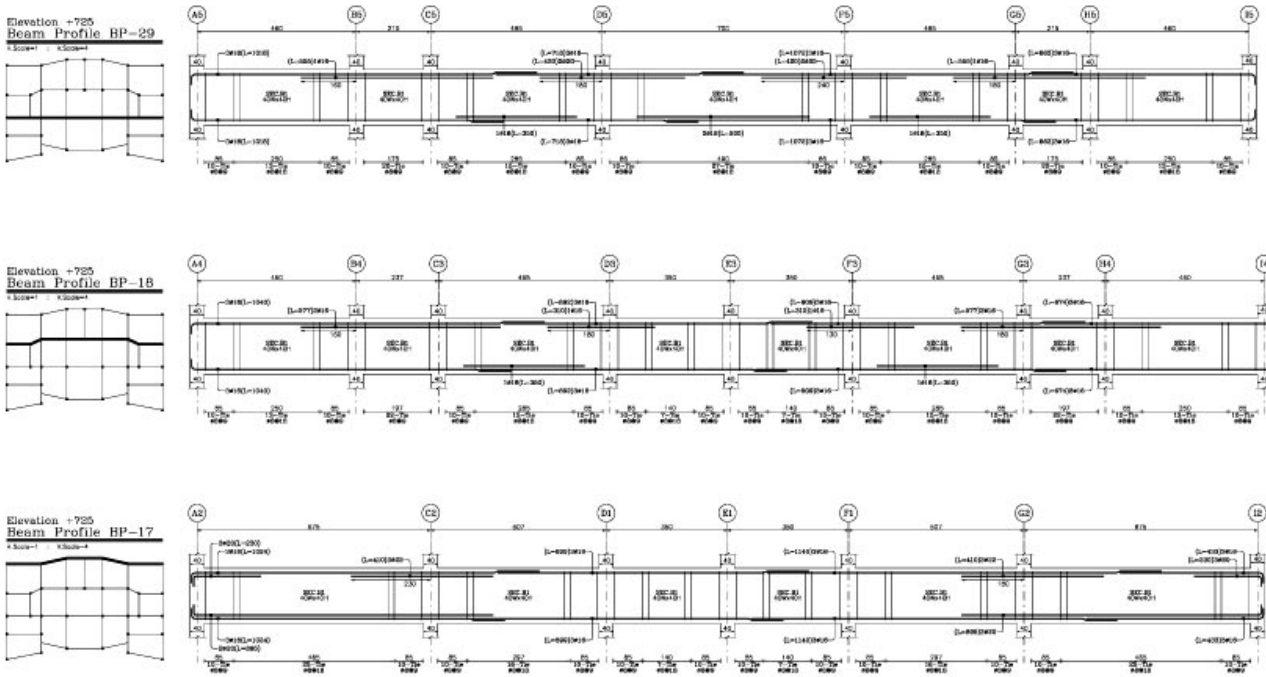
# ETABS MATE

Concrete Structure Assistant Software

## ETABS MATE

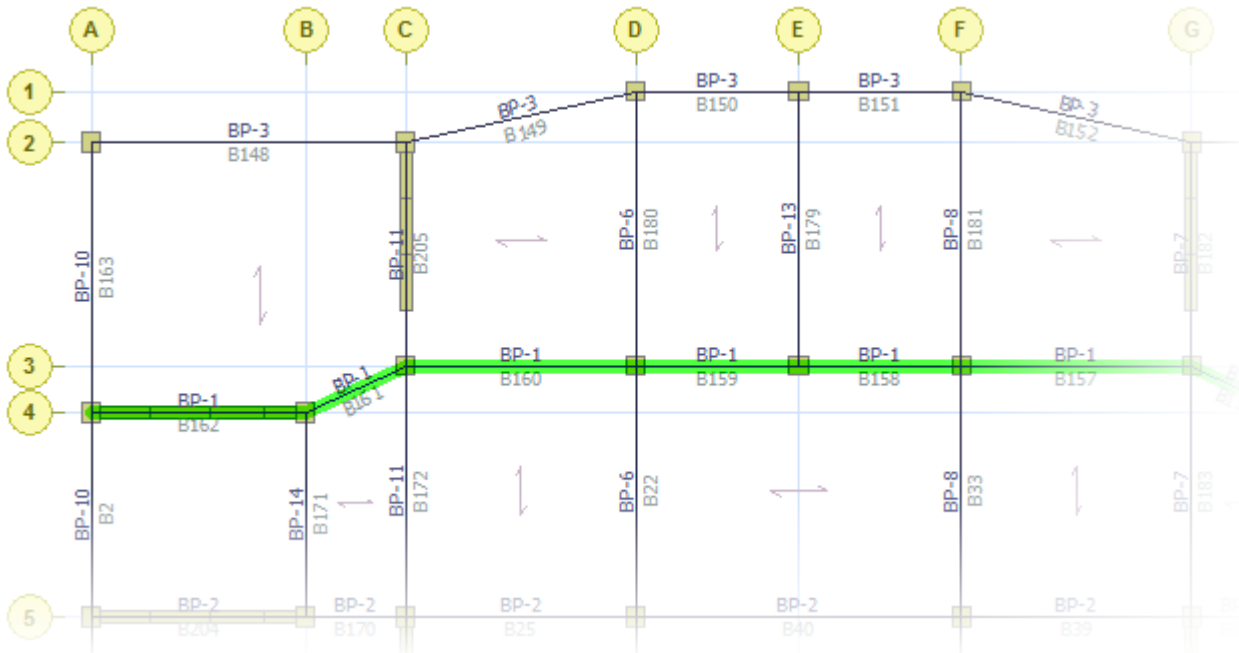
PLAN LEVEL: STORY2 Elevation: +725

DESCRIPTION: BEAM PROFILE DETAILS



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 This Product is Licensed to: Mohammad Mehdi Eslamizadeh. Drawing Generated by ETABS MATE v1.3.401 at 6/8/2014 8:27:13 AM

Top image is a sample of some beam details of a four story building that generated by software. Also you can manage beam profile in the software as seen in the following image.



# ETABS MATE

Concrete Structure Assistant Software

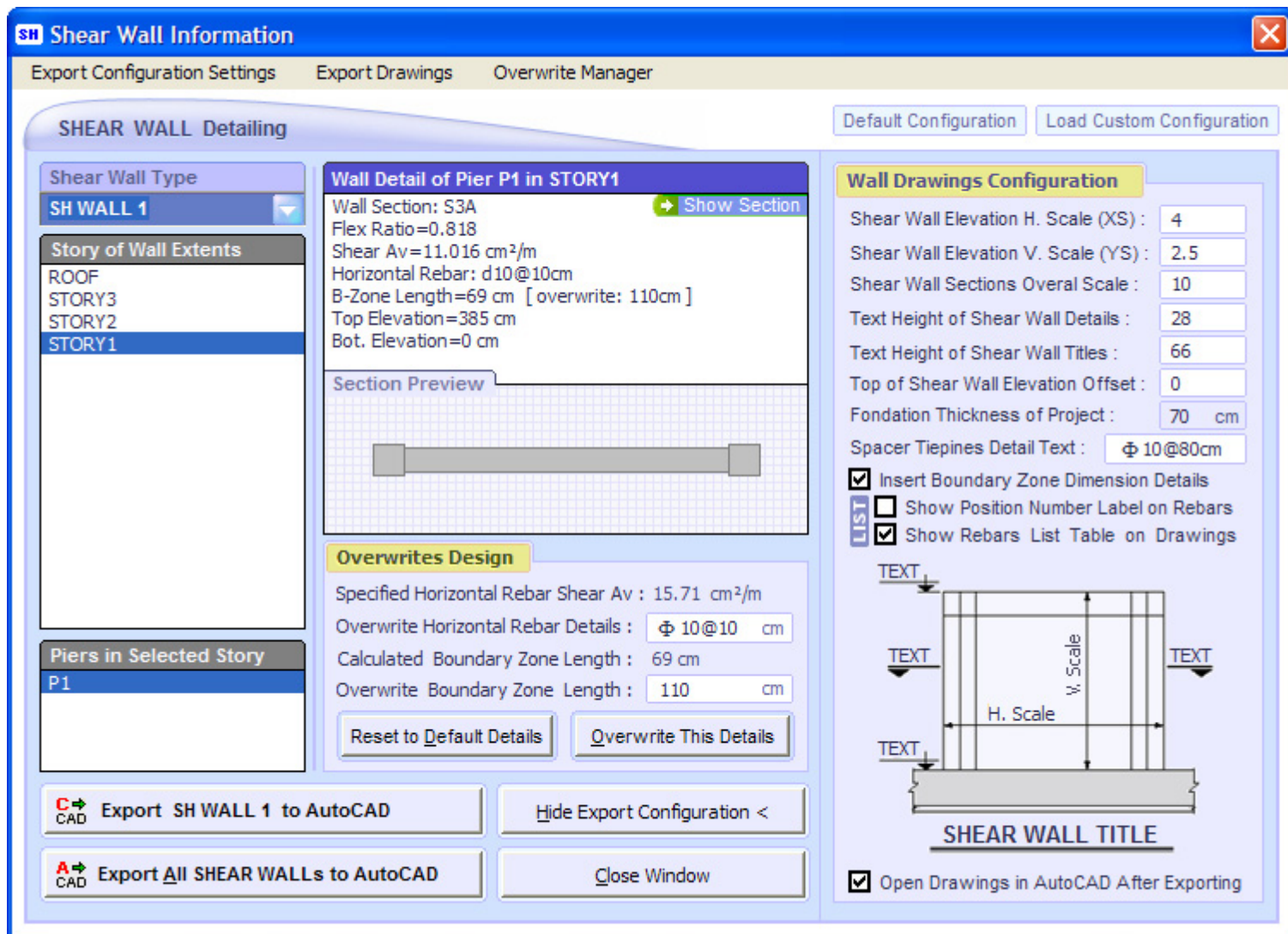
## Generate Shear Wall Drawings

For generating Shear Wall structural drawing that contains wall geometry and its reinforcement details with the elevation profile, follow the below instruction:

 **Export Menu > Export Shear Wall Drawings to AutoCAD** (or use **F4** shortcut key)

Also you can use icon  from software top main toolbar for generate structural drawings of shear walls of project.

After using this command the export interface that contains drawings parameters will be displayed as seen in the following image.



In this interface you can overwrite software design details and also you can configure the drawings parameters if necessary and then generate the drawings. In this interface you can see two export buttons:

# ETABS MATE

Concrete Structure Assistant Software

Export SH WALL 1 to AutoCAD

By this button you can generate structural drawing of the current shear wall and save it to the AutoCAD drawings file format.

Export All SHEAR WALLs to AutoCAD

By this button you can generate structural drawing of the all shear walls in the project and save it to the AutoCAD drawings file format.

The following image is a sample of shear wall details of a four story building that generated by ETABS MATE software. Rebar list table of the wall is also can be viewed in this image. Drawing engine of software is very fast so that all consumed time for generating the total shear walls details of usual buildings is only less than one second.

**ETABS MATE**  
**DETAILS OF SHEAR WALL 8**

FARASAEG.ir All Dimensions Are In Unit Of Centi Meter.

**DETAILS OF SHEAR WALL 8**  
ELEVATION VIEW

**SHEAR WALL 8 : SECTION C-C**

**SHEAR WALL 8 : SECTION B-B**

**SHEAR WALL 8 : SECTION A-A**

ETABS MATE > Main Rebar Listof of Shear Walls						
Position Number	Rebar Shape (Automatic)	Dia. (mm)	Length (mm)	Weight (kg)	Number	Weight Total (kg)
1a	#25	550	21.6	16	345.3	
2a	#25	270	10.4	16	166.5	
3a	#10	404	2.5	200	498.2	
4a	#20	495	12.2	18	219.7	
5a	#20	200	4.9	18	88.8	
6a	#16	475	7.5	28	232.0	
7a	#16	175	2.8	28	77.3	
8a	#20	450	11.1	18	177.6	
9a	#18	430	6.8	52	302.9	
10a	#14	420	5.1	28	142.1	
11a	#12	410	3.6	28	101.9	
12a	#18	357	5.6	24	101.6	
13a	#12	352	3.1	28	87.5	
Shear Wall Main Rebar Summation Values >						610 2859 kg

ETABS MATE > Tie and Tiespine Listof of Shear Walls						
Position Number	Tie Shape (Automatic)	Dia. (mm)	Length (mm)	Weight (kg)	Number	Weight Total (kg)
T1a	#10	148	0.9	112	100.8	
T2a	#10	63	0.4	224	87	
T3a	#10	212	1.3	112	146.4	
T4a	#10	48	0.3	336	99.4	
T5a	#10	132	0.8	112	91.1	
Shear Wall Tie and Tiespine Summation Values >						600 525 kg

ETABS MATE > Shear Wall Rebars Summary Report				
Rebar Size	Diameter (mm)	Length (m)	12m Bar Number	Weight (kg)
#10	10	1829.2	138	1023
#12	12	213.4	16	189
#14	14	117.5	30	142
#16	16	527	44	832
#18	18	167.1	16	486
#20	20	132.8	11	342
Shear Wall Rebars Total Weight = 3184 kg (3.184 ton)				

Overlap Length According to Rebar Position in cm									
Rebar Size	#10	#12	#14	#16	#18	#20	#22	#25	#32
Beam Top	75	80	100	125	130	143	200	223	293
Beam Bottom	55	70	80	90	100	110	135	170	229
Column Wall	55	70	80	90	100	110	135	170	229

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In this stage all process of element reinforcement details design and structural drawing details of your project have been completed.

ETABS MATE Quick Start PAGE 27

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# ETABS MATE

Concrete Structure Assistant Software

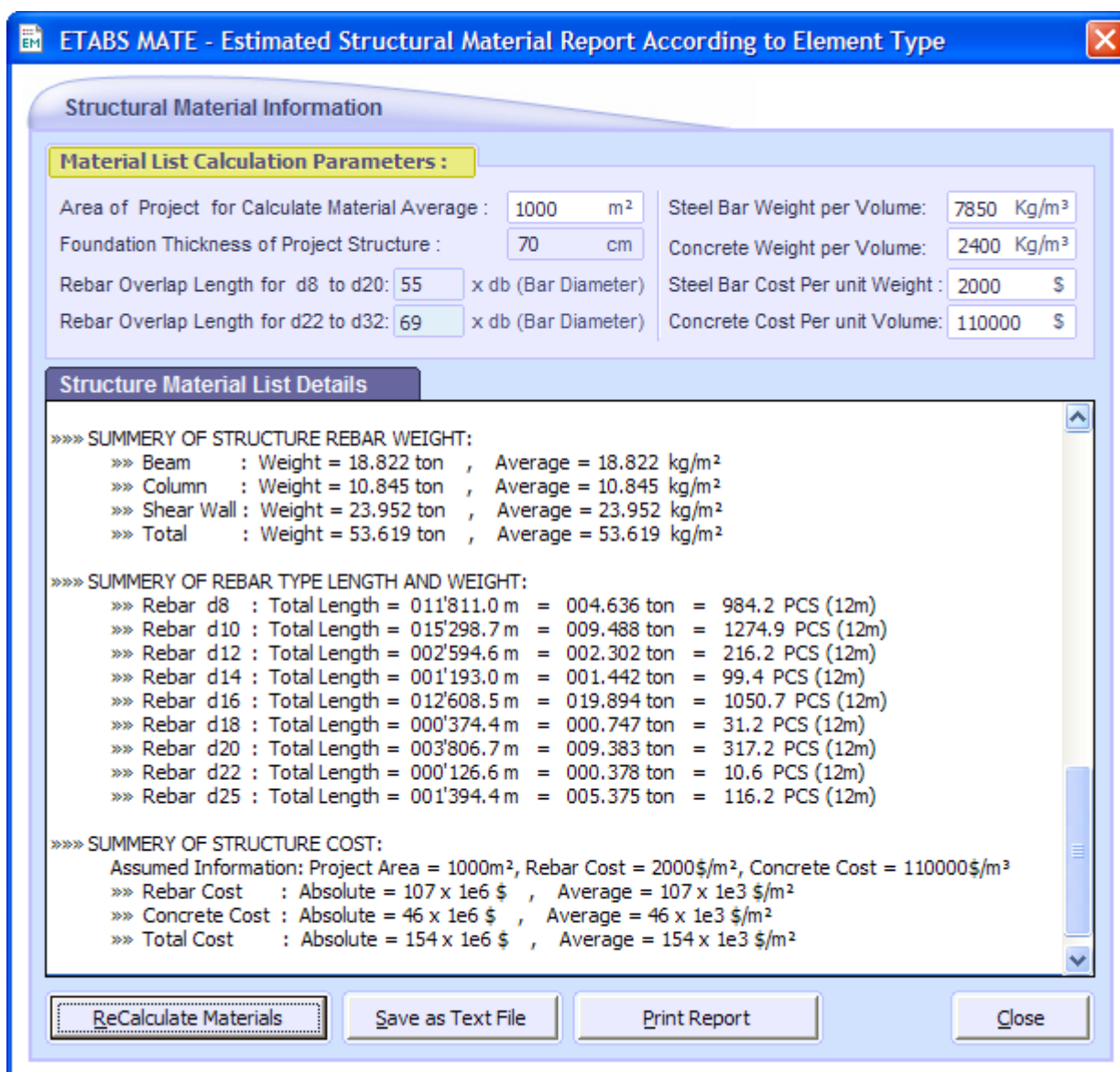
By this software also you can prepare some useful reports such as material lists. For generate material list please follow below instruction.

 **Export Menu > Estimated Material Report According to Element Type** (or use **F9** shortcut key)

By using this command, software will calculate material list of your project and generate its report. This report contains weight of rebar and volume of concrete of total structure by type of elements and by size of rebar as seen in the following image.

 **Export Menu > Estimated Material Report According to Story Sequence** (or **Ctrl** + **F9** shortcut keys)

By using this command, software will calculate material list of selected story of your project and generate its report. This report contains weight of rebar and volume of concrete of selected story by type of elements and by size of rebar as seen in the following image.



**ETABS MATE - Estimated Structural Material Report According to Element Type**

**Structural Material Information**

**Material List Calculation Parameters :**

Area of Project for Calculate Material Average :	1000 m <sup>2</sup>	Steel Bar Weight per Volume:	7850 Kg/m <sup>3</sup>
Foundation Thickness of Project Structure :	70 cm	Concrete Weight per Volume:	2400 Kg/m <sup>3</sup>
Rebar Overlap Length for d8 to d20:	55 x db (Bar Diameter)	Steel Bar Cost Per unit Weight :	2000 \$
Rebar Overlap Length for d22 to d32:	69 x db (Bar Diameter)	Concrete Cost Per unit Volume:	110000 \$

**Structure Material List Details**

»»» SUMMERY OF STRUCTURE REBAR WEIGHT:

- »» Beam : Weight = 18.822 ton , Average = 18.822 kg/m<sup>2</sup>
- »» Column : Weight = 10.845 ton , Average = 10.845 kg/m<sup>2</sup>
- »» Shear Wall : Weight = 23.952 ton , Average = 23.952 kg/m<sup>2</sup>
- »» Total : Weight = 53.619 ton , Average = 53.619 kg/m<sup>2</sup>

»»» SUMMERY OF REBAR TYPE LENGTH AND WEIGHT:

- »» Rebar d8 : Total Length = 011'811.0 m = 004.636 ton = 984.2 PCS (12m)
- »» Rebar d10 : Total Length = 015'298.7 m = 009.488 ton = 1274.9 PCS (12m)
- »» Rebar d12 : Total Length = 002'594.6 m = 002.302 ton = 216.2 PCS (12m)
- »» Rebar d14 : Total Length = 001'193.0 m = 001.442 ton = 99.4 PCS (12m)
- »» Rebar d16 : Total Length = 012'608.5 m = 019.894 ton = 1050.7 PCS (12m)
- »» Rebar d18 : Total Length = 000'374.4 m = 000.747 ton = 31.2 PCS (12m)
- »» Rebar d20 : Total Length = 003'806.7 m = 009.383 ton = 317.2 PCS (12m)
- »» Rebar d22 : Total Length = 000'126.6 m = 000.378 ton = 10.6 PCS (12m)
- »» Rebar d25 : Total Length = 001'394.4 m = 005.375 ton = 116.2 PCS (12m)

»»» SUMMERY OF STRUCTURE COST:

Assumed Information: Project Area = 1000m<sup>2</sup>, Rebar Cost = 2000\$/m<sup>2</sup>, Concrete Cost = 110000\$/m<sup>3</sup>

- »» Rebar Cost : Absolute = 107 x 1e6 \$ , Average = 107 x 1e3 \$/m<sup>2</sup>
- »» Concrete Cost : Absolute = 46 x 1e6 \$ , Average = 46 x 1e3 \$/m<sup>2</sup>
- »» Total Cost : Absolute = 154 x 1e6 \$ , Average = 154 x 1e3 \$/m<sup>2</sup>

Buttons: ReCalculate Materials, Save as Text File, Print Report, Close

# ETABS MATE

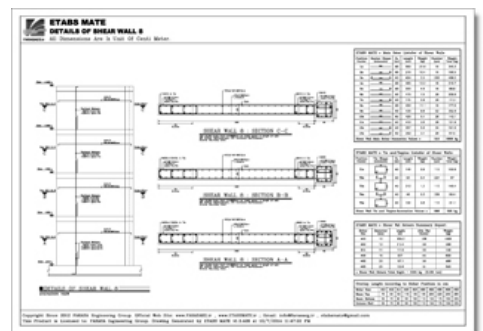
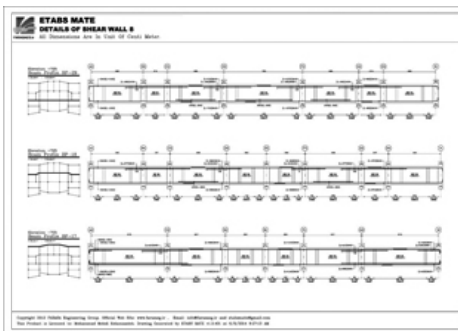
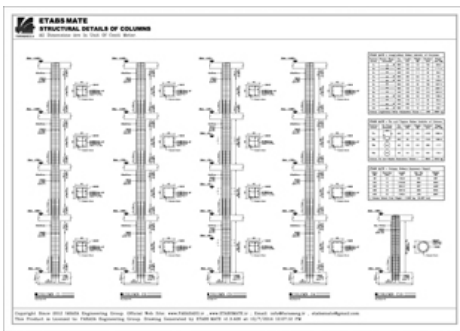
## Concrete Structure Assistant Software

To get more information and download the trial version of ETABS MATE software and its drawing samples in AutoCAD file format, please visit the official site of software.

 **Official Web Site:** [www.FARASAEG.ir](http://www.FARASAEG.ir)  
[www.ETABSMATE.ir](http://www.ETABSMATE.ir)  
[www.ETABSMATE.com](http://www.ETABSMATE.com)


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