

ADAPT-PT/RC 20 Getting Started Tutorial ADAPT-RC mode

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adaptsupport@risa.com <u>www.risa.com</u> RISA, Tech., 26632 Towne Centre Dr. Ste210, Foothill Ranch, California, USA Tel: +1 (949) 951-5815, Toll Free: +1 (800) 332-RISA

This **ADAPT-PT/RC 20 Getting Started Tutorial** is intended to be used as a practical example and guide for modeling a 2D post-tensioned two-way slab frame in the RC mode of the program. While the example is related to a specific system type (two-way slab) the workflow applies to input of one-way slabs and beams. For additional information, refer to the **ADAPT-PT/RC 20 Getting Started Tutorial for PT mode** and the **ADAPT-PT/RC 20 User Manual**. Both documents can be accessed from the HELP menu of the program.

The example model is created with the help of a wizard which consists of different *Input Forms*. Each *Input Form* can be accessed at any time through the *Menu Bar*. The input that you provide on the *Input Forms* is displayed real-time in the *Structure View*. The view of the structure can be modified with the help of the *View Toolbar* which contains *View Tools* with which you can change the perspective, turn on and off components and zoom. The *Main Toolbar* contains *Common Tools* such as *New Project*, *Open Project*, and *Save Project*.

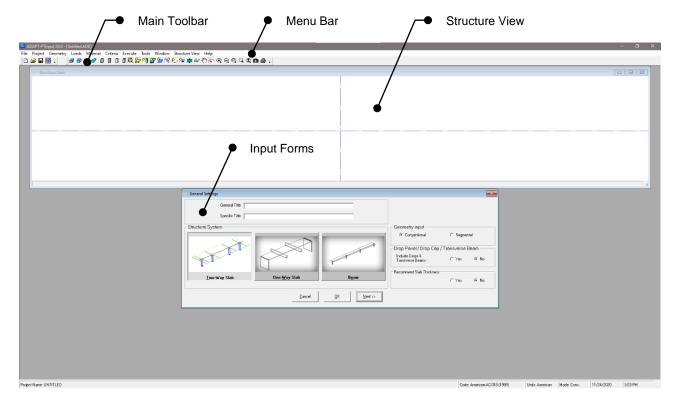


Figure 1: ADAPT-RC User Interface

1 Column-Supported Slab (Two-Way System)

The objective of this tutorial is to explain how a floor strip or frame line is idealized from a complete floor system and modeled as a slab- or beam-frame in ADAPT-PT/RC. This tutorial will demonstrate the step-by-step procedure in the RC mode of ADAPT-PT/RC to generate data, analyze and design a column-supported slab which is a part of a floor system. A column-supported slab is generally considered as a conventionally reinforced two-way system. The tutorial covers the following features of the program:

- Generation of input data, using the simple "Conventional" option of the program.
- Review of program calculated results and reports, both tabular and graphical.

The structure selected is a typical design strip from a floor system. The geometry, material, loading and other particulars of the structure are given below. The geometry of the whole floor is shown in **Figure 1-1**. The design strip for this tutorial is shown hatched in **Figure 1-2**.

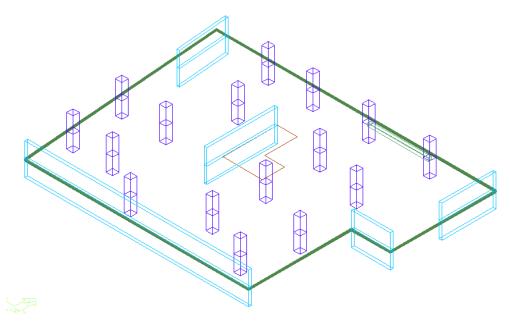
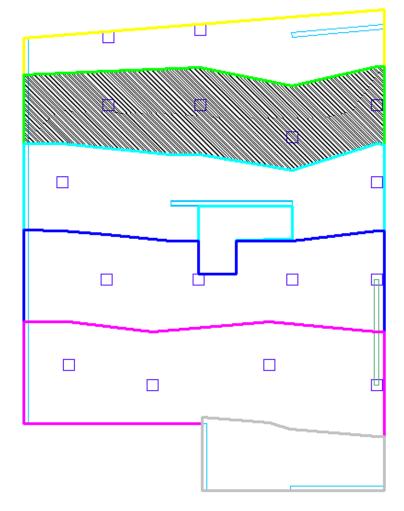


Figure 1-1





The lengths and tributary widths of the spans of the design strip in orthogonal direction are shown in **Figure 1-3**.

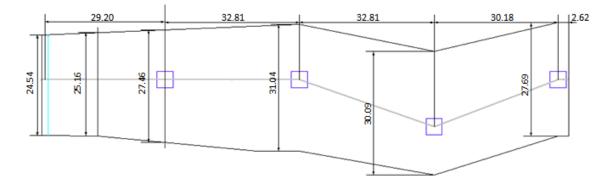
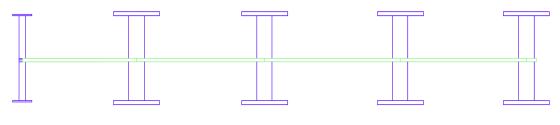


Figure 1-3

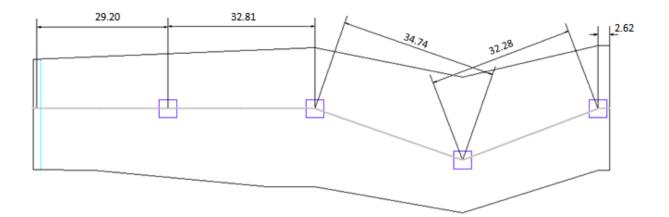


The elevation of the design strip is shown in Figure 1-4.





The length of the spans of the design strip along support line 2 is shown in **Figure 1-5**.





The idealized design strip is shown in **Figure 1-6**.

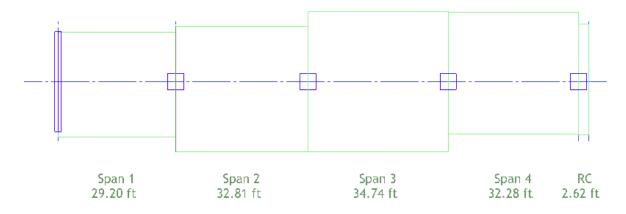


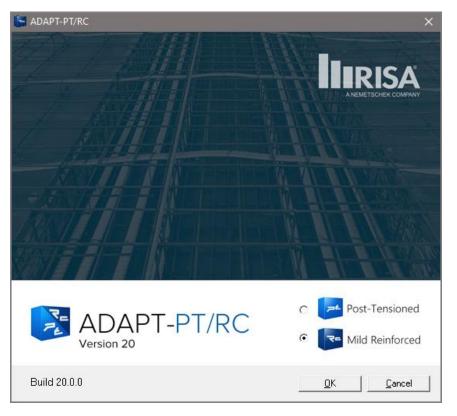
Figure 1-6

1.1 Material Properties and Loading

Thickness of slab	= 10 inch
(i) Material Properties	
Concrete:	
Compressive strength, f'c Weight Modulus of Elasticity	= 4000 psi = 150 pcf = 3605 psi
Nonprestressed Reinforcement:	
Yield stress, f _y Modulus of Elasticity Minimum Rebar Cover	= 60 ksi = 29000 ksi = 1 inch Top and Bottom
(ii) Loading	
Superimposed Dead load Live load	= 30 psf (uniform) = 50 psf (uniform)

1.2 Generate the Structural Model

When the program is launched from the desktop shortcut or from the computer START menu, the opening screen will appear as below. This screen gives you the option to select a design mode of **Post-Tensioned or Mild Reinforced**. For this tutorial, select the **Post-Tensioned** option and **OK**. This will open the PT mode of the program where the PT input forms are active and loaded.



In the ADAPT-RC input screen, click the *Options* menu and set the *Default Code* as **American-ACI318 (2014) / IBC 2015** and *Default Units* as **American**.

1.2.1 Edit the Project Information

1.2.1.1 General Settings

Open the new project by clicking either **New** on the *File* menu or the **New Project** button on the toolbar. This automatically opens the *General Settings* input screen, as in **Figure 1.1-1**. You can enter the *General Title* and /or *Specific Title* of the project in that window. For the purpose of this tutorial, enter the *General Title* as **Support Line 2**. This will appear at the top of the first page of the output. Enter *Specific Title* as **Two Way Slab**. This will appear at the top of each subsequent page of the output.

Next, select Geometry Input as Conventional.

Next, select the *Structural System* as **Two-Way slab**. Then there is an option to include drop caps, transverse beam and/or drop panels. In this case select **No**. Select **No** for the option *Recommend Slab Thickness*.

Click **Next** at the bottom right of this screen to open the next input screen, *Design Settings*.

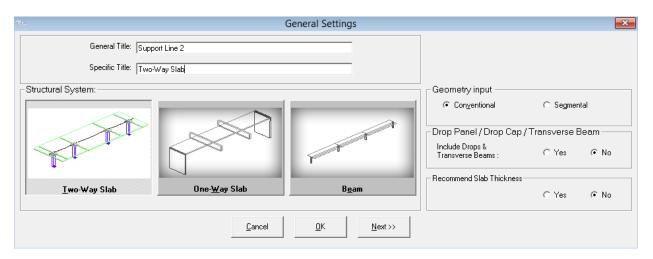


Figure 1.1-1

1.2.1.2 Design Code

In the Design Code screen, set the code as American-ACI318 (2014) / IBC 2015.

Criteria - Design Code		
Design codes		
C American-ACI318 (1999)	C Brazilian-NBR6118 (2014)	C European-EC2 (2004)
C American-ACI318 (2005) / IBC 2006	C British-BS8110 (1997)	C Indian-IS1343 (2004)
C American-ACI318 (2008) / IBC 2009	C Canadian-A23.3 (1994)	C Indian-IS1343 (2017)
C American-ACI318 (2011) / IBC 2012	C Canadian-A23.3 (2004)	C Hong Kong-CoP (2007)
American-ACI318 (2014) / IBC 2015	C Canadian-A23.3 (2014)	C Hong Kong-CoP (2013)
C American-ACI318 (2019) / IBC 2018	C Australian-AS3600 (2001)	C Chinese GB 50010 (2002)
	C Australian-AS3600 (2009)	
Design Code Annex		Ţ
<< Back	<u>D</u> K <u>C</u> ancel	<u>N</u> ext >>

Figure 1.1-2

1.2.1.3 Design Settings

This screen is divided into three parts: Analysis options, Design options, and Contribution to unbalanced moment.

In Analysis options, you can select various calculation settings.



First, select **Yes** for Reduce Moments to Face-of-Support option.

Select **No** for the option to *Redistribute moments*.

Select **Yes** for the Equivalent Frame Modeling.

In *Design options*, **check** *Use all provisions of the code* that you have selected in the previous step.

In Generate moment capacity based on, **check** Design Values.

In Contribution to unbalanced moment, leave the contribution of Top isolated bars and Bottom isolated bars as default values (**100** percent).

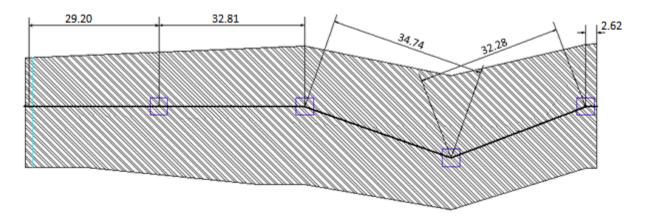
Resign Settings	
Analysis options	Design options
	 Use all provisions of the code
Reduce moments to Face-of-Support :	Yes C No C Disregard the following provisions
Redistribute moments (post-elastic)	C Yes © No
Use Equivalent Frame Method	
	Generate moment capacity based on
	Design values O User entered values
Contribution to unbalanced moment	
Top Isolated Bars: 100 🎗	Bottom Isolated Bars: 100 🎗
	<< Back

Figure 1.1-3

Click **Next** at the bottom right of the *Design Settings* screen to open the *Span Geometry* input screen.

1.2.2 Edit the Geometry of the Structure







This screen is used to enter the cross-sectional geometry of the slab as per Figure 1-6.

Set the *Number of Spans* as **4** either by clicking the **up arrow** or using **CTRL +.**

Select the section, *Sec*, as **Rectangular** and edit **29.20 ft** for length, *L*, **310.00 in** for width, *b*, and **10 in** for height, *h*, for SPAN 1. Similarly enter details for SPAN 2, 3, 4 and R-Cant as shown in Figure 1.1-5. The widths (*b*) of each span are average tributary width for that span.

As you enter the values, the span is displayed in real-time in the 3D window.

The reference height (Rh) identifies the position of a reference line that is used to specify the location of the tendon. Typically, the reference height is set equal to the slab depth. Edit reference height, *Rh* as **10 in**, i.e., slab depth, for all spans.

The left and right multiplier columns (<-M and M->) are used to specify the tributary width to indicate how much of the tributary falls on either side of the support line. For this tutorial, tributary method is used, i.e., tributary widths are entered as width, *b*, and the ratio of the tributary width on either side of the support line is entered as the left and right multipliers. For SPAN 1, enter <-M and M-> as **0.47** and **0.53** respectively. Similarly enter details for SPAN 2, 3, 4 and R-Cant as shown in Figure 1.1-5.



$ \begin{array}{c c} & \text{Span Geometry} \\ \hline \\ & \text{Number of Spans} \\ \hline \\ & \text{I}_{\text{T}} [CTRL + / \cdot] \\ & \text{I}_{\text{D}} \hline \\ & \text{I}_{D$													
Legend													
	L-Cant = Left Cantilever NP = Non-Prismatic Sec. = Section 0-0 = Reference plane ? R+Distance from <- M = Left Multiplier R-Cant = Right Cantilever PR = Prismatic Seg. = Segments L = Span Length / + Span Le												
Label	PR	Sec.	Seg.	L	Ь	h	bf	hf	bm	hm	Bh	<-M=	M -> =
Typical	PR	- 0		0.00	0.00	10.00					10.00	0.50	0.50
🗌 L-Cant		-											
SPAN 1	PR	- 0		29.20	310.00	10.00					10.00	0.47	0.53
SPAN 2	PR	- 0		32.81	372.00	10.00					10.00	0.44	0.56
SPAN 3	PR	- 0		34.74	417.00	10.00					10.00	0.50	0.50
SPAN 4	PR	- 0		32.28	360.00	10.00					10.00	0.57	0.43
R-Cant	PR	- 0		2.62	326.00	10.00					10.00	0.52	0.48
	Y H-Cant YH I												



Click **Next** on the bottom line to open the next input screen.

1.2.2.2 Enter Support Geometry

This screen is used to input column/wall heights, widths and depths. You may enter dimensions for columns/walls above and/or below the slab.

Select the **Both Columns** from the support selection. Enter **9.02 ft** for *H1* and **9.84 ft** for *H2* in the typical row and press **ENTER**, since all the supports are the same height.

Next, enter the dimensions of the supports. B is the dimension of the column/wall cross- section normal to the direction of the frame. D is the column/wall dimension parallel to the frame.

Enter the given column/wall dimensions as in Figure 1.1-6.

On this input screen, you can select for each support whether the left edge and the right edge of that support is interior or exterior.

In this case, all supports are interior as the span is an interior span.

C Lower Column C Both Columns C No Columns										D ₂	■ ↓ ↓		
Legend Units H1 = Lower Column Length D = Dimension in Span Direction Left edge = Interior or exterior H = ft													
H2 = Upper Column Length % = Percentage of column stiffness				Dc = Diameter of circular column B = Dimension normal to span			Right edge = Interior or exterior				All others = in		
Support	H1	В	D	Dc	%	H2	В	D	Dc	%	Left edge		ge
	9.02	47.24	47.24		100.00	9.84	0.00	0.00				Exterior	_
•	9.02	295.20	19.69		100.00	9.84	295.20	19.69				Exterior	
2	9.02	47.24	47.24		100.00	9.84	47.24	47.24				Exterior	
	9.02 9.02	47.24 47.24	47.24 47.24		100.00 100.00	9.84 9.84	47.24	47.24				Exterior	
)		47.24	47.24		100.00	9.84	47.24	47.24		-	Exterior <u></u> Exterior <u></u>	Exterior	
3 L	0.02	47.Z4	47.24		100.00	J.04	47.24	47.24		100.00		Lxtenor	
)	9.02												

Figure 1.1-6

Click **Next** on the bottom line to open the *Supports Boundary Conditions* input screen.

1.2.2.3 Enter Support Boundary Conditions

This screen is used to enter support widths and column boundary conditions.

Support widths can be entered if you answered "Yes" to the "Reduce Moments to face-of- support" question on the *Design Settings* screen, i.e., if you answered "No", you cannot input values in the *SW* column. This input value will be used to calculate the reduced moments.

Since the support width, *SW*, is set to the column/wall dimension (D) as a default, the SW values will be automatically determined from the support geometry and cannot be modified by the user. If you want to input the *SW* values, **uncheck** the *SW=Column Dimension box*.

Select the boundary conditions for *lower* and *upper* columns as **1**(fixed) from the drop down list.

Leave the *End Support Fixity* for both the left and right supports as default **No**. This will be used when the slab or beam is attached to a stiff member.



=- Supports - Boundary Co						
Slab/beam boundary condi Full fixity option left slab/beam end C Yes C No	Full fixity option right slab/beam end	Fixed 2-Pinned	1	Legend SW = Support width ir design strip Boundary condition for LC = Lower Column UC = Upper Column		
- Units SW = in	$\overrightarrow{SW} = \text{Actual width of support}$	Support 1 2 3 4 5	SW 0.00 19.69 47.24 47.24 47.24 47.24	1 v 1 1 v 1 1 v 1 1 v 1 1 v 1	▼ 1 ▼ 1 ▼ 1 ▼ 1 ▼ 1	UC (F) 1 v 1 v 1 v 1 v 1 v 1 v 1 v 1 v
	<< <u>B</u> ack	<u>0</u> K	<u>C</u> ancel	<u>N</u> ext >>		



Click **Next** at the bottom of the screen to open the input screen *Loading*.

1.2.3 Enter Data

1.2.3.1 Edit the Loading Information

Enter the span number as **1** in the *Span* column. If the loads are the same for all the spans, you can type **ALL** or **all** in the *Span* column. This will copy the data to all of the spans.

If you choose not to include Self-weight, you now have the option to define the self-weight (**SW**) as a *Class*. In any case, you can choose to specify additional dead load as superimposed dead load (**SDL**) as a *Class*.

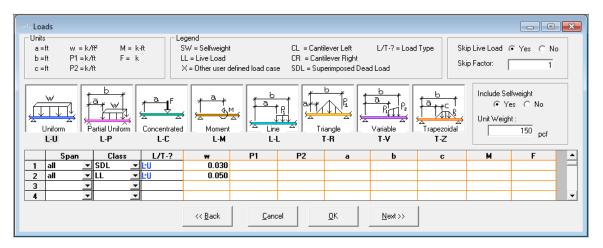
PT/RC 2014 gives you the option to specify any load as an X Class.

Select the *Class* as **SDL** from the drop down list and specify the load type as uniform either by typing **U** in *L*-? or by **dragging the icon** from the graphics of the uniform loading.

The default of the load type when you select the load class is L-U; so leave it as is for this tutorial.

Type **0.03 k/ft**² (=30 psf) for superimposed dead load in the *w* column. You can enter DL with or without self-weight, since the program can calculate self-weight automatically. In order to calculate the selfweight automatically, you must answer **Yes** to *Include Self-Weight* question at the top right of the screen and enter **150 pcf** as unit weight of concrete. Repeat the procedure for live load by entering the **span number** and changing the *Class* to **LL** and *w* value to **0.05** k/ft^2 (=50 psf) for all spans.

Answer **Yes** to *Skip Live Load*? at the top left of the screen and enter the *Skip Factor* as 1 (**Figure 1.1-8**)..





If you go to any other form and navigate back to the Loads input form, you will see that the loading information is now entered in the table for each span (**Figure 1.1-9**).

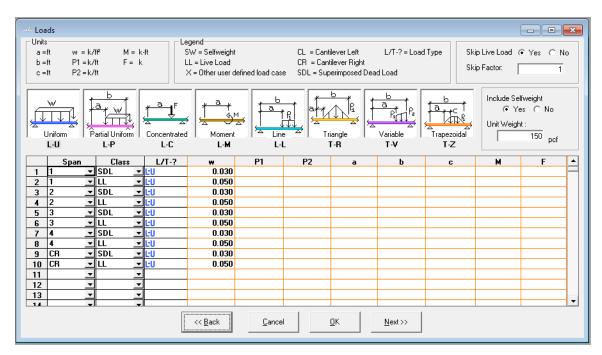


Figure 1.1-9



Click **Next** at the bottom of the screen to open the *Material - Concrete* input screen.

1.2.4 Edit the Material Properties

1.2.4.1 Enter the Properties of Concrete

Select **Cylinder** concrete strength at 28 days. Select the **Normal** *weight* and enter the *strength at 28 days* for slab/beam and column as **4000 psi**. When you press **Enter** from the strength input value, the *Modulus of Elasticity* will be calculated automatically based on the concrete strength and the appropriate code formula.

For this tutorial, keep the value of creep coefficient as **2**. The creep coefficient will be used in the calculation of long-term deflection. Consider

খন Material - Concrete	
Concrete strength at 28 days	Cylinder C Cube
Slab / Beam Weight : Image: Compain Compaint Compaint Compaint Compaint Compaint Compaint Compaint Compaint Company (Company) Strength at 28 days (If company) Modulus of Elasticity at 28 Days : Ultimate Creep Coefficient :	Column Strength at 28 days (f'c) 4000. psi Modulus of Elasticity at 28 Days : 3605. ksi
<< <u>B</u> ack <u>C</u> ancel	<u>D</u> K <u>Next>></u>



1.2.4.2 Enter the Properties of Reinforcement

In the section *Longitudinal reinforcement*, change the values for *Yield Strength* and *Modulus of Elasticity* to **60 ksi** and **29000 ksi** respectively. Change the *Preferred Bar Sizes for Top and Bottom* to **5** and **8** respectively. These will be used when calculating the number of bars required.

In the section Column Strip Allocation, specify **60%**, **70%** and **100%** for *In spans*, *Over interior columns* and *Over exterior columns*, respectively. This section specifies allocation of reinforcement in column strip and middle strip. Note the balance of 100% is applied to

middle strip reinforcement. Refer to ACI 318 for applicable distribution percentages for column strips.

In Shear reinforcement, select *Stud (headed bar)* and change *Preferred Stud diameter, Yield strength shear reinforcement* and the *Number of rails per side* to **0.5 inch, 60 ksi** and **2** respectively. Set the number of rails per side to **2.** Do not select the two options at the bottom-right of the input window. These are options allow the user to check two-way shear with respect to seismic drift requirements as well as consideration of the least critical setion ,bo, at d/2 from the edge of reinforcement. Refer to the **ADAPT-PT/RC 20 User Manual** for more information.

Re Material - Reinforcement			x
Longitudinal reinforcement Yield strength (fy) main bars : Modulus of elasticity : Preferred bar size for top bars : Preferred bar size for bottom bars : Column Strip Allocation In spans : Over interior columns : Over exterior columns :	66.72 ksi 29007.37 ksi 5 ▼ 5 ▼ 60. % 75. % 100. %	Shear reinforcement Stud (headed bar) Stirrup Preferred stud diameter : Yield strength (fy) shear reinforcement: Number of rails per side "b": Number of rails per side "d": Include minimum shear reinforcement Consider octagonal critical sections pa Edge Distance of Rails:	
	<< <u>B</u> ack <u>D</u> K	<u>C</u> ancel <u>N</u> ext >>	

Figure 1.1-11

Click **Next** at the bottom of the screen to open the next input screen.

1.2.4.3 Edit Base Reinforcement

The program allows you to specify a base reinforcement that is taken into consideration when designing the structure. Select **Yes** in the *Base Reinforcement* section.

You have the choice between defining a mesh or isolated rebar. For this example choose **Isolated** from the drop down box.



Next specify the span where your base reinforcement starts. For this example, let the rebar start at the beginning of span 1. Therefore, enter a 1 in *First end location* and a 0 in *X1/L*.

If you want to specify the end of the reinforcement at the end of span number 4, define **4** for *Second end location* and **1** for *X2/L*.

Furthermore, you specify **4** bars (*Number*) with *Bar Size* of **6** as **Bottom** bars with a *Cover* of **2 inch**.

			Base	Non-Prestre	essed Reir	forcement				
			Ba	se Reinforcemer	it (© Y					
(Is Fir wh	end pe = Mesh reinforcem olated] or stirrups st end location, Secor nich reinforcement star , X2 = distances of the nforcement to its imme	d end location ts and terminate e first and secor	= the spansi s nd end of a	n Barsize Number	= size of the r = number of	ciated to X1 and mesh or isolated isolated bars or : ietween the mes	rebar		coverare in in	
	Туре	First end location	X1/L	Second end location	X2/L	Bar Size	Number	Spacing	Top/Bottom	Cover 🔺
1	Isolated 🗸	1 🖃	0.00	4 🔻	1.00	6	- 4		Bottom 💌	2
2		 		<u>▼</u> ▼		-	<u>▼</u>		- -	
4	- -	- - -					- -		-	
5	_						<u>-</u>		-	-
•		-		-						•
			<< <u>B</u> a	ick <u>(</u>	<u>2</u> K	Cancel	<u>N</u> ext>>			



Click **Next** at the bottom of the screen to open the input screen, *Criteria – Allowable Stresses.*

1.2.5 Edit the design criteria

1.2.5.1 Specify Minimum Covers for Mild Steel Reinforcement

For nonprestressed reinforcement, edit **1.0** in *Cover* for top, bottom and side (as shown in **Figure 1.1-14)**.

R=	Criteria: Cover / CGS											
_Non-prestressed	Non-prestressed Reinforcement											
CI	ſ	1.0	in									
CI	Clear Bar Cover (Bottom) :											
C	ear Bar Cover (Side) :	ſ	1.0	in								
<< <u>B</u> ack	<u>o</u> k	<u>C</u> ancel	<u>N</u> ext >	>								

Figure 1.1-14

Click **Next** at the bottom of the screen to open the input screen, *Criteria – Minimum Bar Extension.*

1.2.5.2 Specify Minimum Bar Length and Bar Extension of Mild Steel Reinforcement

Use the default values for bar extensions (as shown in **Figure 1.1-19**). Note that the "development length" is user-defined and is the bar extension beyond point of zero moment where reinforcement is no longer required.

Real Criteria - Minimum Bar Extension	—
Development length of reinforcement required for strength —	
Top Bar Extension:	12. in
Bottom Bar Extension:	12. in
	[
<< <u>B</u> ack <u>O</u> K <u>C</u> ancel	Next >>



Click **Next** at the bottom of the screen to open the input screen, *Criteria – Rebar Curtailment.*

1.2.5.3 Specify Top and Bottom Rebar Curtailment Input for Spans

The default values given for Long and Short Bars relative for length equal to fraction of span and % of area of required steel are according to Chapter 13 of ACI-318 (2014). Keep the default values (as shown in **Figure 1.1-20 and Figure 1.1-21**). Note that curtailment rules relative to the selected code are applied to top and bottom bars and are conservatively adjusted such that the bar lengths are equal on both sides of the support or equal at both sides of the center of span. Also, 2 bars are set as a minimum requirement.

The reinforcement result output for this example will be based on the curtailment rules which take priority over reinforcement rules relative to the previous section for bar extensions. In the case where curtailment rules are not sufficient to the default solution (that solution related to the bar extension input) the reinforcement



arrangement and length output will be given as that taken from the bar extension input.

	Criteria - Reinforcement Curtailment										X		
– Description – – –													
Top Bars:	ACI-318 Cu	rtailment. Tu	MO-)	√ay Slab. Top	o Bars.				_				
Bottom Bars:	ACI-318 Cu	rtailment. Ti	wo-)	w∕aySlab. Bot	tom Bars.								
Top Bars Bottom Bars													
	Cantil	ever			Ex	terior Span					Int	terior Span	
Longer Bars:	1 0.5 0	× L × Ast min bars		0.3	× L × Ast min bars	0.3 0.5 0		* L * Ast min bars		0.3		* L * Ast min bars	_
Shorter Bars:	0.5	* L * Ast min bars		0.2 0.5 0	× L × Ast min bars	0.2 0.5 0		* L * Ast min bars		0.2 0.5 0		* L * Ast min bars	
Note: Top bar e	extensions rep	resent lengt	ths i	measured from	i supports								
Curtail rules based on Curtail lengths based o				Apply Curtailment Rules for Bottom Bars						urtailment File File Open File Save			
C Eurocode EC	2	<< <u>B</u> ac	k	<u> </u>	к	<u>C</u> ancel		<u>N</u> ext >	>				

Figure 1.1-20

		(Cri	teria - Rei	inforceme	nt Curtailme	ent				х
Description											_
Top Bars:	ACI-318 Curtailment. Two-Way Slab. Top Bars.										
Bottom Bars:	ACI-318 Curtailment. Two-Way Slab. Bottom Bars.										
	Top Bars		Ŷ		Bottom B	ars					
	Cant	ilever	!		Exteri	or Span	_			Interior Span	
	0	×L	1	0	×L	0	×L	1	0	×L	
Longer Bars:	0.5	* Ast	1	0.5	* Ast	0.5	* Ast	1	0.5	* Ast	
	2	min bars	!	2	min bars	2	min bars	ł	2	min bars	
	0	×L	;	0	×L	0	*L	 		×L	
Shorter Bars:	0.5	* Ast	il	0.5	* Ast	0.5	* Ast	i	0.5	* Ast	
	0	min bars	il	0	min bars	0	min bars	l;	0	min bars	
Note: Bottom ba	ar extensions	represent ga	ips r	measured fror	n supports.						
Curtail rules base	d on	Curtail leng	gths	based on —	Options-					Curtailment File	
 None / Off User Defined 		 Clear S 	ipar	n Length		Curtailment Rule	•			File Open	1
C ADAPT C Support Span I		oan Length	Length F Equal Extensions of Top Bars over S								
ACI-318									-1		
C Eurocode EC	2	<< Back		0	ĸ	Cancel	<u>N</u> ext >:				

Figure 1.1-2

1.2.5.4 Input Load Combinations

Figure 1.1-16 shows the screen which is used to input the load combination factors for strength (ultimate) load conditions. It is also used to enter any applicable strength reduction factors. The default values are according to the American-ACI318 (2014) / IBC 2015.

The program allows you to specify four strength and service load combinations. ForACI318 (2014) / IBC 2015. The program automatically determines service (minimum) reinforcement per the code selected and system type. For this example, do not include lateral loads.

Strength load combination factors	Service load combination factors
1: 1.2 SW + 1.6 LL + 1.2 SDL + 1.6 X	1: 1 SW + 0.3 LL + 1 SDL + 0.3 X
2: 1.4 SW + 0 LL + 1.4 SDL + 0 ×	2: 0 SW + 0 LL + 0 SDL + 0 X
3: 0 SW+ 0 LL+ 0 SDL+ 0 X	3: 1 SW + 1 LL + 1 SDL + 1 X
4: 0 SW + 0 LL + 0 SDL + 0 X	4: 0 SW + 0 LL + 0 SDL + 0 X



1.3 Save and Execute the Input Data

To save the input data and execute the analysis, either select **Execute Analysis** on the menu bar or click on the **Save & Execute Analysis** button **1**. Then, give a **file name** and **directory** in which to save the file. Once the file is saved, the program will automatically execute the analysis by reading the data files and performing a number of preliminary data checks.

Once successfully finished, you return to the main program window. The Results can be viewed and/or printed as Reports, Graphs and PT Summary as shown in **Figure 1.2-1**.

Execution Successfully Completed	
- To display text Report use toolbar icon:	Æ
- To display detailed Graphs use toolbar icon:	Þ
- To display graphical Summary use toolbar icon:	-
- Other actions - select from program menu above.	

Figure 1.2-1



Close the above window by clicking **X** at the top right corner.

1.4 Create Reports

ADAPT-PT/RC includes the Report Generator. To setup the report, select the Report

Setup item on the *Options* menu or click the **Report Setup** button **I** on the main toolbar. The *Report Generator* screen shown in **Figure 1.3-1** will open.

The program allows you to generate reports in an MS-Word[®] editable format. You have the following options:

- Report cover: Select this option to generate a report cover with your logo and company information. To update your company information, click on Update Company Info on the *Report Generator* and you will see the screen Company Information shown in Figure 1.3-2.
- Table of Contents
- Concise Report: This report includes Project Design Parameters and Load Combinations as well as a Design Strip Report containing Geometry, Applied Loads, Design Moments, Tendon Profile, Stress check / Code check, Rebar Report, Punching Shear, Deflection and Quantities.
- Tabular Reports Compact
- Tabular Reports Detailed
- Graphical Reports
- Legend

C Report G	enerator	- 🗆 🗙
List of all Sections	List of Sele	ected Sections
Report Cover Table of Contents Concise Report Tabular Reports - Compact Tabular Reports - Detailed Graphical Reports Legend		
User Selections Remove Selection Save Selection Save	re as Default Browse Reports	Update Company Info
Default	✓ Create New Report	Exit
Create Optional Spreadsheet Report (XLS)		

Figure 1.3-1

Simply check any item in the *List of all Sections* to include it in the report. The item will then appear in the *List of Selected Sections* on the right hand side of the *Report Generator*.

To generate and view the report, click on **Generate/View Report** on the bottom of the *Report Generator*.

The program allows you to open and view existing reports by clicking on Open Reports.

The Report Generator allows you to save report content as either a default template or as a user defined template. This enables you to quickly select content for any project by either using the default content or any other user defined content.

To define content as the default template, select report content from the List of all Sections and click on **Save as Default**.

To define content as a user defined template, select report content from the List of all Sections and click on Save Selection. You are asked to enter a name for your selection. This name appears then in the drop down box in the **User Selections** frame.

CompanyInformation	
Company Information	
This information will appear at the bottom of each page	
Logo	
Browse	
This logo will appear at the cover page of the report	
Leave Blank to use default ADAPT information OK Cancel	

Figure 1.3-2

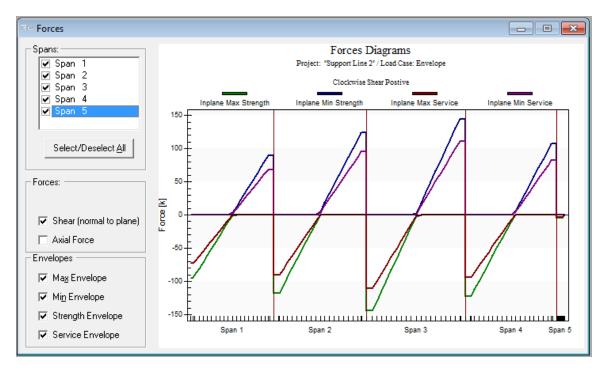
To open the "RC Summary Report" (Figure 1.3-3) either click the BuilderSum button on the tool bar or select the RC summary item on the *View* menu.

ADAPT - STRUCTURAL CONCRETE SOF TWARE SYSTEM ADAPT-RC Version 2017 Date: 09 - 25 - 2017 Time: 15:36 File: PTRC_2017_RC_GSG_M1 1 - PROJECT TITLE: "Support Line 2" 1.1 Design Strip: Two-Way Slab 1.2 Load Case: Envelope
2 - MEMBER ELEVATION [t] 52.21 5
3 - TOP REBAR 3.1 ADAPT selected () setxes 3.2 ADAPT selected () setxes 3.3 Num. of layers 1
5 - BOTTOM REBAR 5.1 ADAPT selected 5.2 ADAPT selected 5.3 Num. of layers 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
6 - REQUIRED & PROVIDED BARS 6.1 Top Bars
7 - PUNCHING SHEAR OK - Acceptable RE-Reinforce
9 - DESIGN PARAMETERS 9.1 Code: American ACI318 (2014)/IBC (2015) f ₄ = 4000 psi f ₇ = 60 ksi (longitudinal) f ₇ = 60 ksi (shear) 9.2 Rebar Cover. Top = 1 in Bottom = 1 in Rebar Table:
10 - MATERIAL QUANTITIES CONCRETE MLD STEEL Total volume of concrete = 3267.8 ft ² Total weight of rebar = 9175.1 lb Area covered = 3921.4 ft ² Average rebar usage = 2.340 lb/ft ² , 2.808 lb/ft ² 11 - DESIGNER'S NOTES

Figure 1.3-3

To view the graphs, either click the **Show Graphs** button = from the toolbar or select **Graphs** in the menu.

Forces Diagram button **I** displays forces for selected load combinations or envelop as shown in **Figure 1.3-4**.





Moment Diagram button displays forces for selected load combinations or envelop as shown in **Figure 1.3-5**.

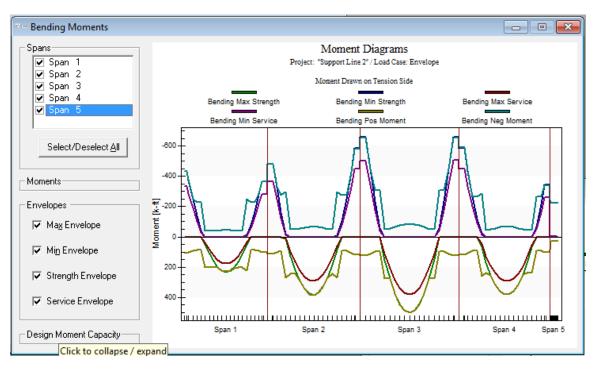


Figure 1.3-5



Rebar Diagram button S displays forces for selected load combinations or envelop as shown in **Figure 1.3-6**.

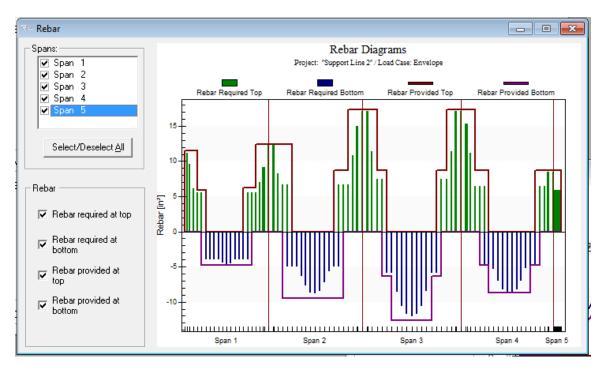


Figure 1.3-6

2 Additional References to be Consulted with This Manual:

- ADAPT-PT/RC 20 User Manual
- ADAPT-PT/RC 20 Getting Started Tutorial PT mode
- ADAPT-PT/RC 20 Verification Manual