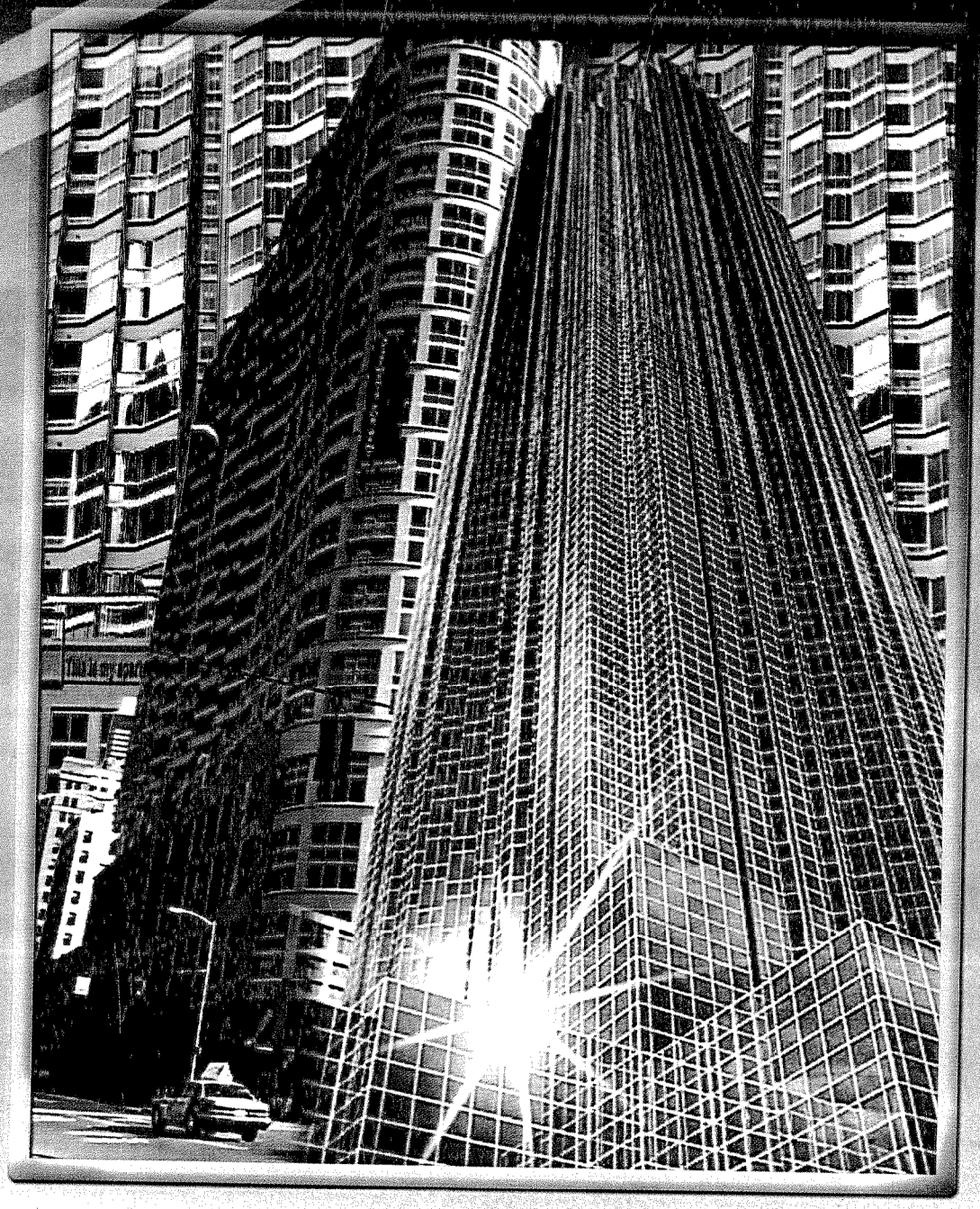
HOW TO MODEL AND DESIGN HIGH RISE BUILDING USING ETABS Program



Prepared by

Eng. Makar Nageh

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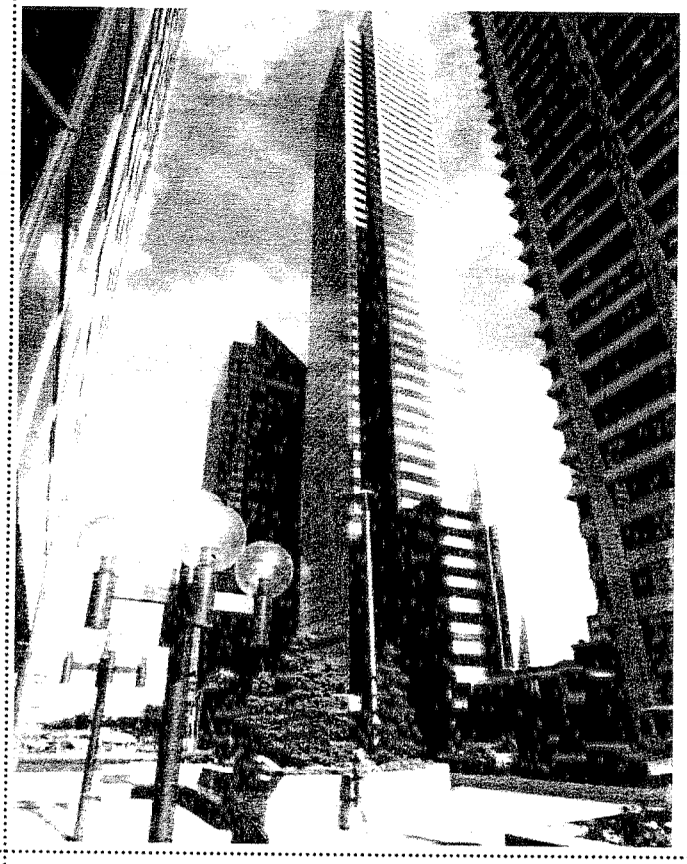

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لمزيد من المعلومات يرجى زيارة موقعنا على الانترنت

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In particular, thanks are for my father and my mother for their continuous support and encouragement

Foreword

Most present –day design is carried out using computer program. This book offers a lucid and coherent presentation of the most famous program of high-rise building (ETABS v9). This book is based on ETABS v9 and applicable to Etabs v8. The book contains detailed example of 40 story tower and detailed explain for the most important utility of the program (Like design, Dynamic analysis) without descanting due to the limitations on the size of the book without any effect of the purport.

I didn't take about the codes details because this out of the scope of this book but I mention any data required from the codes through the book chapters.

I attempted to not repeat explanation of some point many times but I refer to the explanation of this point when it is repeated.

I used the step-by-step instruction guide though development of ETABS model to show how quickly and easily a model can be created using this program.

The book contain the very important nonlinear analysis called sequential construction and explanation of the difference between the normal analysis and Sequential construction analysis, and also contain explanation of the ability of the program to work with any different sections, and how to define this sections to the program .

I explained through this book the program ability to transfer information from the ETABS database for use with other software package.

Makar Nageh

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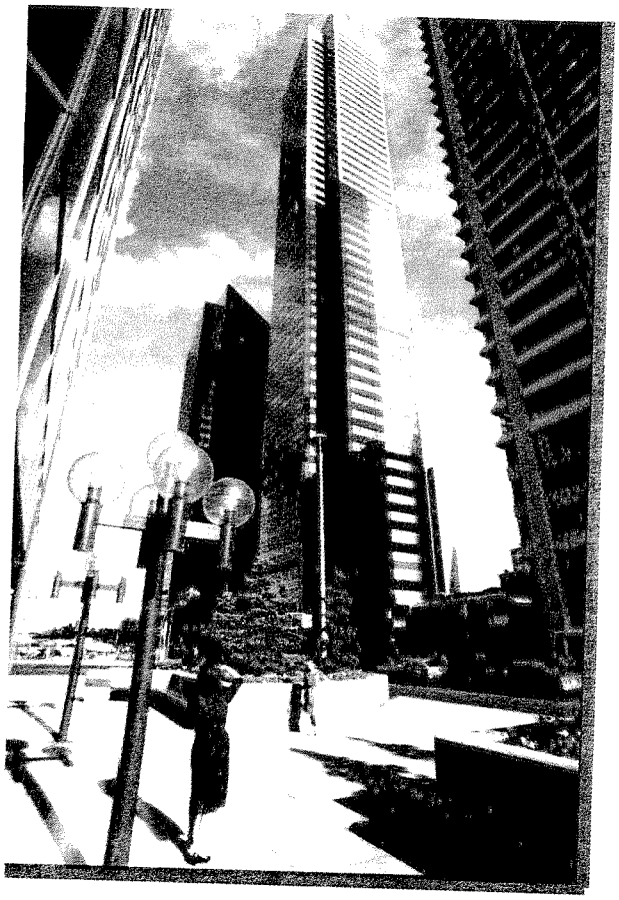


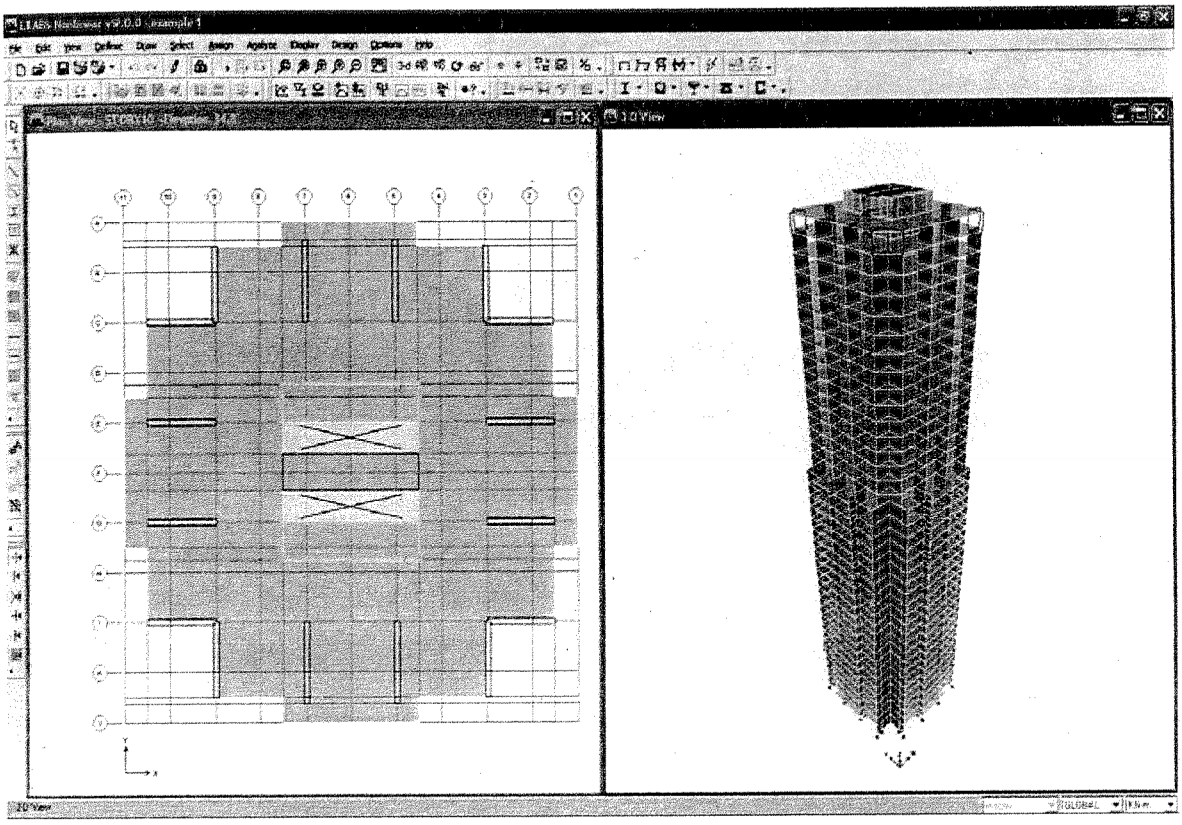
HOW TO MODEL AND DESIGN HIGH RISE BUILDING USING ETABS Program

Modeling & Analysis

Chapter 1

An Example Model

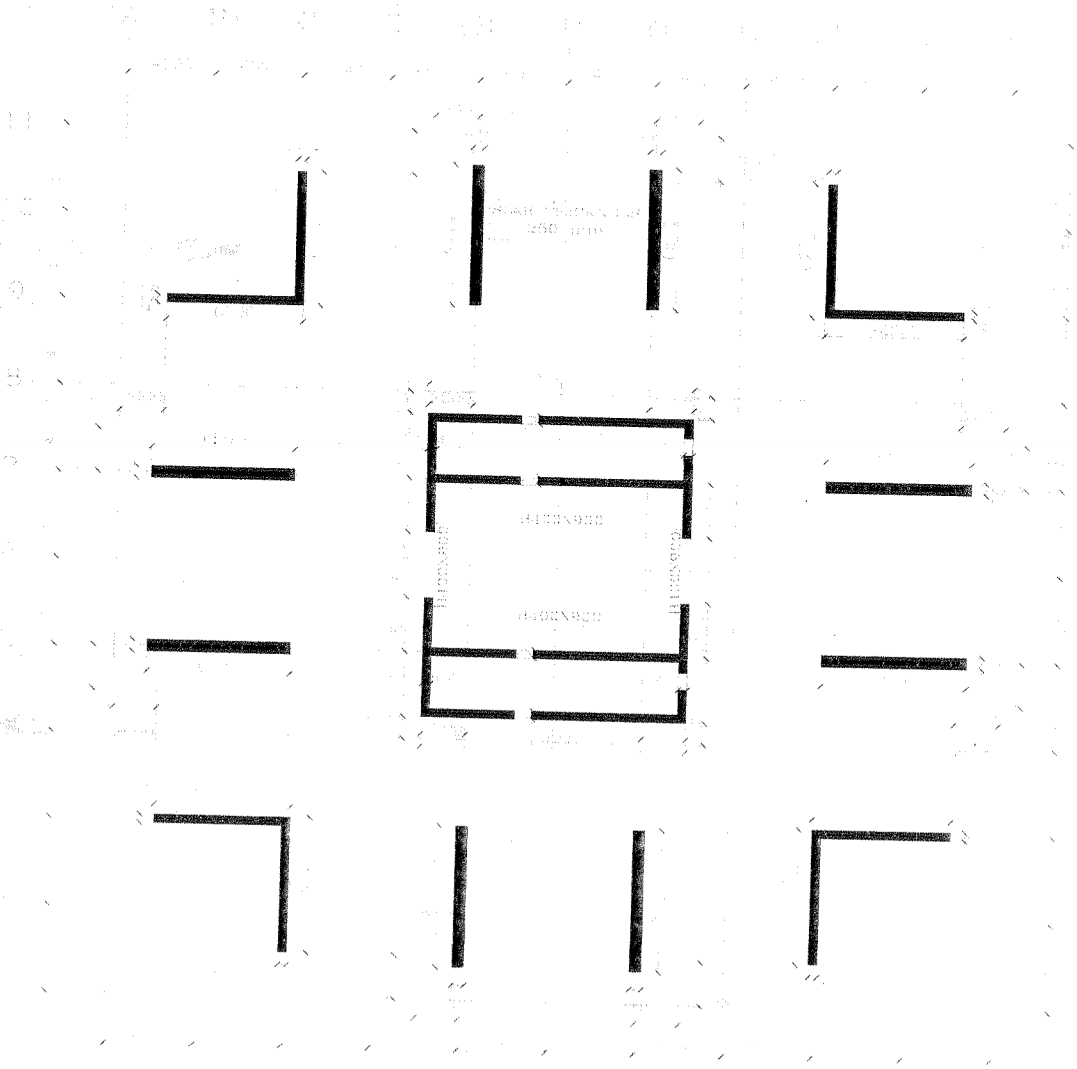
- In this Example we will built the model shown in the figure. Each step of the model creation process is identified, and various modal construction techniques are introduced. At the completion of this Example, You will have found that, it is so easy to built Etabs model in a few hours.



- The step by step instruction will guide you through development of your first model

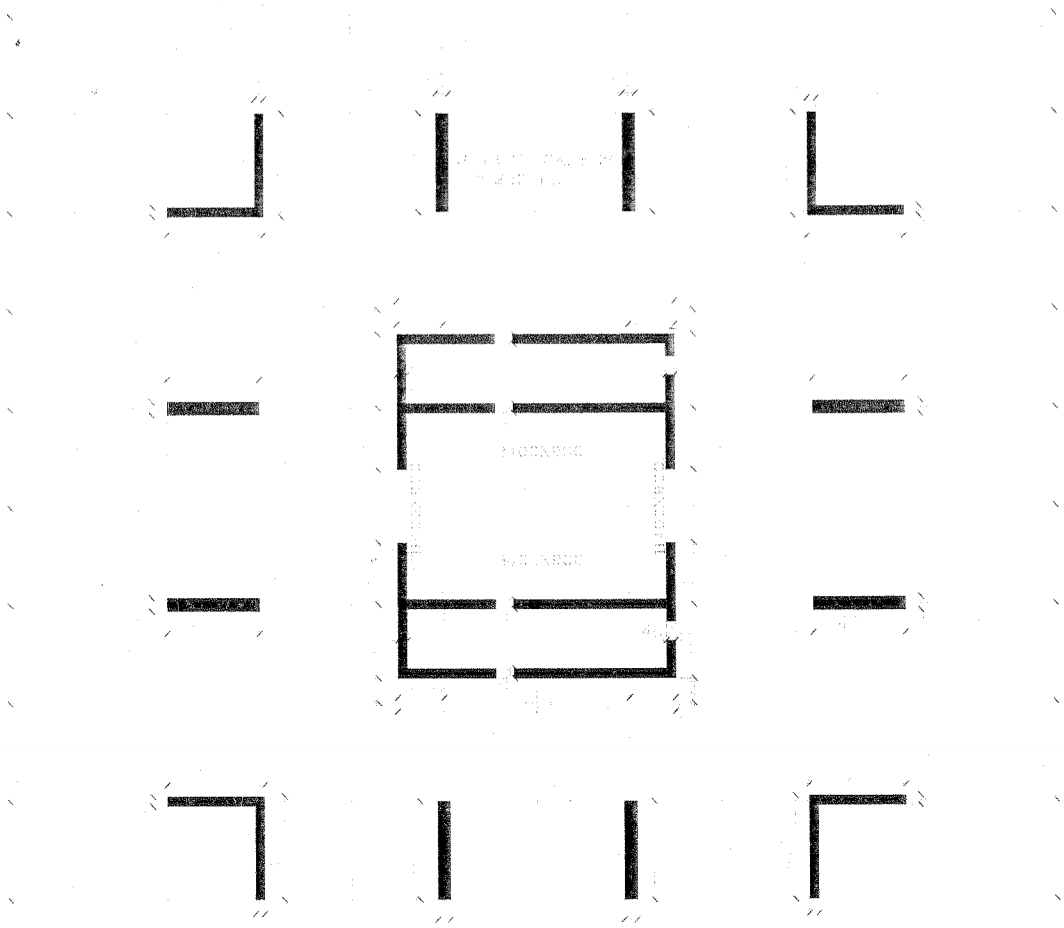
The Example Project

- The tower of our example is 40 story building.
- The first story height is 4.2m and the typical stories height is 3.4m.
- The lateral force resisting system consists of 8 Shear walls,4 L shear walls, and 1 core wall
- The plans of the tower floors as shown blow

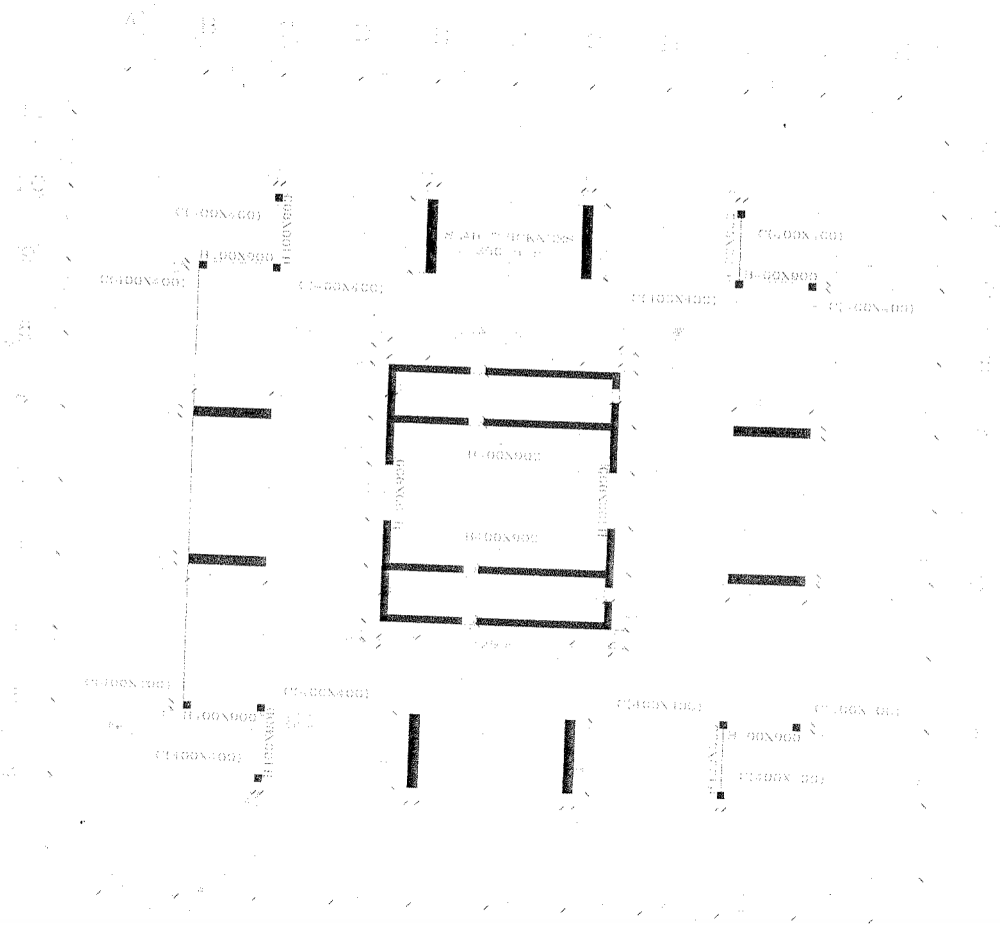


From level 1 to level 23

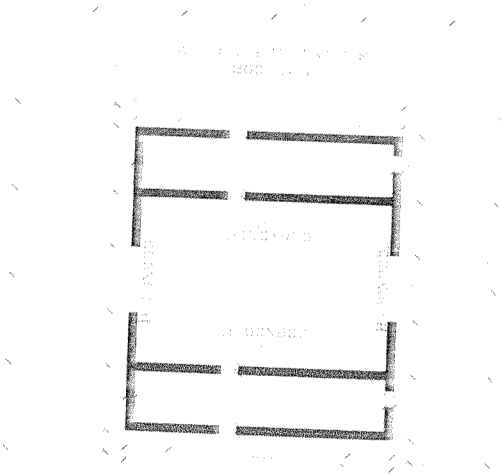
Note: the slab thickness of level 23 is 300 mm



From level 24 to level 38



Level 39

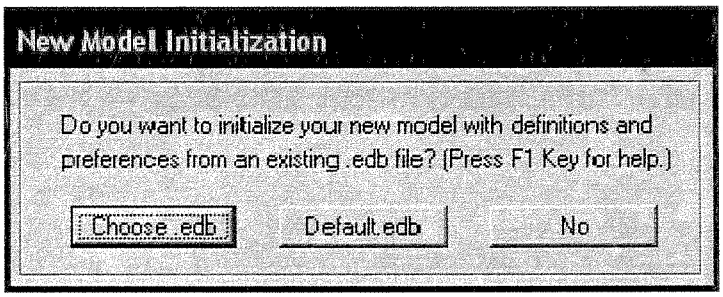


Level 40 (ROOF FLOOR)

Step 1: Begin anew model

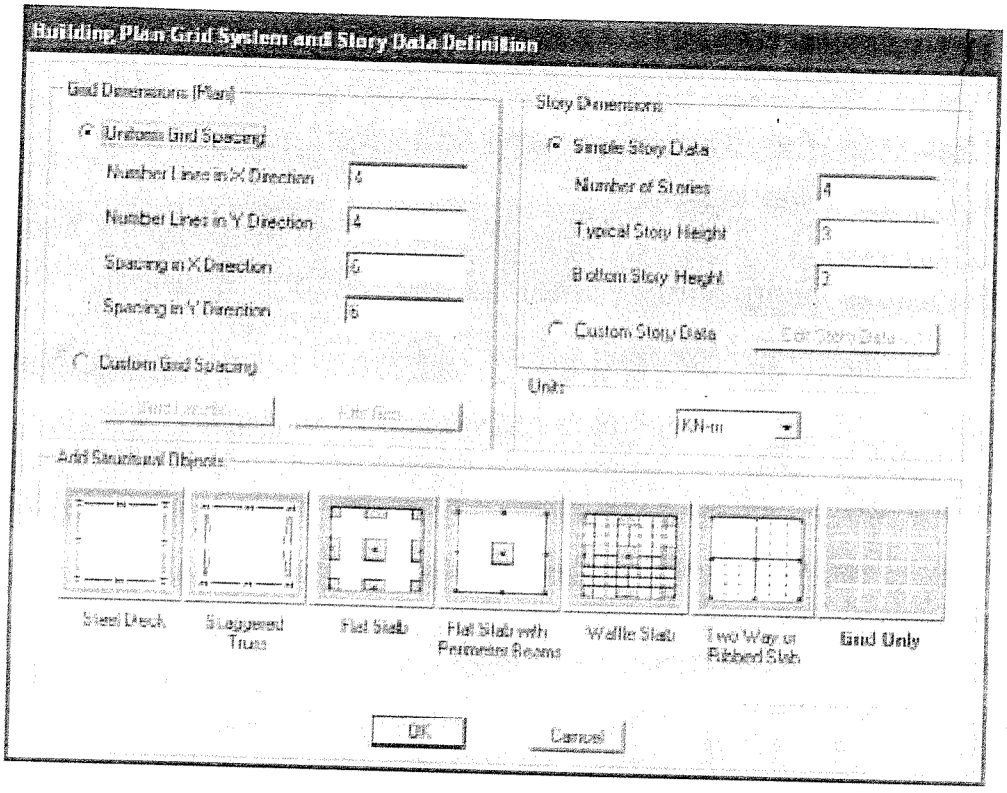
- In this step, the dimensions and story height are set.
  1. open the program
  2. Check the units of the model in the drop-down box in the lower right-hand corner of the Etabs window , click the drop-down box to set the units to **KN-m**

  3. Click the **File menu** ⟶ **New model command** Or the New Model button the form shown in figure will be displayed



Note: *we select* ***No*** *because this first model you will built, and we discuss in the another chapter this form again because by this form you can safe more than 40%of the time in building the model*

  4. the next form of **Building Plan Grid System and Story Data Definition** will be displayed after You select click **NO** button



- In the form of **Plan Grid System and Story Data Definition** you can:

1. **<u>Set the Grid Dimensions(plan)</u>**

   - Set the Number of Grid lines in X direction in the Number of lines in X direction edit box =11 (Horizontal Grid)

   - Set the Number of Grid lines in Y direction in the Number of lines in Y direction edit box =11(Vertical Grid)

   - Set the Spacing between Grid lines in X direction in the Spacing in X direction edit box =4 m

   - Set the Spacing between Grid lines in Y direction in the Spacing in Y direction edit box =4 m