



# User's Manual

Version 2.06



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## **GENERAL**

D-Coder is intended as a general-purpose program for tabulating structural design criteria. Design criteria that can be tabulated using D-coder include the following:

- Wind Loads
  - Components and cladding
  - Main wind force resisting systems (MWFRS)
- Seismic Loads
  - Elements and components
  - Lateral force resisting system (LFRS)
- Dead Loads
- Floor live loads
- Roof live and snow loads
- Deflection limits

Each of the above criteria is discussed in more detail in the manual.

After entering the data that you want to report, click the 'O.K.' button on the individual data forms or on the 'Print Preview' button on the toolbar. From the preview screen, you can modify data or enter new data by selecting the parameter you wish to modify from the 'Design Criteria' menu item.

From the preview screen, you can also save your project data. To save a project, select 'Save Project' from the 'File' menu item or click on the Save Project button on the toolbar.

## **DISCLAIMER**

While every reasonable effort has been made to verify the accuracy of the program and this manual, it is the responsibility of the user to individually confirm the results. The developer of the software and this manual's liability is limited to the purchase price of the software.

D-Coder is intended as a productivity tool to assist engineers in calculating and tabulating various structural design criteria in an easy to use report. It is not intended as a substitute for the building codes themselves. A thorough knowledge and understanding of the various provisions of the codes is essential in any structural design.

Wind and seismic loads are calculated based on formulas from various model building codes. It is critical that the user of the program understands the intent and limitations inherent in the codes. In certain situations, there are multiple ways to calculate loads for a given circumstance. It is incumbent on the user to verify that the results of this program are consistent with their particular application.

## **INSTALLATION**

D-Coder can be installed on any computer using a Windows operating system (windows 95 or later). To install the program, close all other applications (including the MS-Office toolbar if it is available). Then insert the CD and click the Windows 'Start' button and select 'Run'. In the input field, type or select 'Setup.exe' from the CD files.

The installation program will create a folder \Program Files\D-Coder by default, or you can select a different folder. Each of the files required for operation, including the executable, various startup files and the Windows shared files will then be installed in the appropriate folder.

## **GETTING STARTED**

To start using D-Coder double-click on the D-Coder.exe file created during installation. If you would like a D-Coder shortcut on your Desktop, simply drag and drop the D-Coder icon to your desktop or use any of the other standard methods.

Once the program is started, select the design criteria you wish to tabulate from the 'Design Criteria' menu. You can also open an existing file by selecting 'Open Project' from the 'File' menu or by clicking on the 'Open Project' button on the toolbar

## **WIND LOADS**

D-Coder calculates wind pressures in accordance with ASCE 7-98 and the 1997 Uniform Building Code (UBC). Pressures for design of components and cladding as well as main wind force resisting systems can be determined. The various inputs required to determine wind pressures based on the above codes are site and project specific. The codes themselves should be consulted to determine the appropriate values of these inputs.

To start a wind load sessions, select 'Wind' from the 'Design Criteria' menu item. Then select a code to use for wind load calculations using the 'Code' dropdown in the upper left of the screen.

D-Coder uses a set of user-defined default inputs at startup. These values can be modified so that your preferences are entered each time you start a wind load session. To save your preferences, just enter each of the values you wish to save and click on the 'Save Current Settings as Default' button.

Descriptions of the wind load calculations for each code is described below:

### **ASCE 7-98**

Determination of pressures in accordance with ASCE 7-98 requires a variety of inputs including:

- Basic wind speed,  $V$  (mph)
- Exposure Category (A, B, C or D)
- Topographic factor,  $K_{zt}$  (at the base elevation)
- Directionality factor,  $K_d$
- Roof Slope
- Roof Height,  $h$
- Importance Factor,  $I$
- Enclosure Classification (Open, Partially Enclosed or Enclosed)

Basic Wind Speed can vary from 85 to 170 mph and represents the 3-second gust speed at 33 feet above the ground in Exposure C. This value should be determined from Figures 6-1 of ASCE 7-98 or from the local building jurisdiction. To enter a wind speed, select a value from the 'Basic Wind Speed' dropdown, or type in a value within the above range.

The Exposure Category is dependent on the building's surroundings as defined in ASCE 7-98. Select an Exposure Category from the dropdown.

The Topographic factor,  $K_{zt}$ , accounts for the local topography of the building site. ASCE 7-98 contains procedures and formulas for determining  $K_{zt}$  based on the geometry of the building and its surroundings. Enter  $K_{zt}$  at the base by selecting a value from the dropdown or by typing a value in the input box. If a value of  $K_{zt}$  not equal to 1.0 is entered, you will also need to enter values for  $L_h$  and the type of hill or escarpment. By entering these values, D-Coder can determine the value of  $K_{zt}$  at various heights,  $z$ , up the building.

The Directionality factor,  $K_d$ , is typically 0.85 for buildings but varies for other types of structures.  $K_d$  is also to be applied only when load combinations from ASCE 7-98 Sections 2.3 and 2.4 are used. Enter  $K_d$  by selecting a value from the dropdown or by typing a value in the input box.

The Roof Slope can be entered in degrees or as a 'rise' per 12 units of run. Select the units (degrees or :12) from the dropdown, then select or enter the slope value in the adjacent dropdown box.

The Roof Height,  $h$ , is defined in ASCE 7-98 as the mean roof height except when the roof angle is less than or equal to 10 degrees where  $h$  is defined as the eave height. Select or enter a value for roof height from the dropdown labeled 'Mean Roof Height,  $h$  (ft).'

The Importance factor,  $I$ , is dependent on the building Category and the wind speed. See ASCE 7-98 Table 6-1 for appropriate values of the Importance factor. Select or enter a value for roof height from the dropdown labeled 'Importance Factor,  $I$ .'

The Enclosure Classification (Open, Partially Enclosed or Enclosed) must also be selected. Definitions for enclosed, partially enclosed and open buildings are given in ASCE 7-98 Section 6.2. Select the enclosure classification from the three options in the box labeled 'Enclosure Classification.' For simplicity, for partially enclosed structures,  $q_i$  is taken as  $q_h$  for positive internal pressure evaluation as allowed in the definition of  $q_i$ .

Values of  $GC_{pi}$  are taken directly from ASCE 7-98 Table 6-7. The reduction coefficient,  $R_i$  for large volume buildings is not used.

You can choose which wind pressures are tabulated by selecting the appropriate items under the heading 'Customize Report.'

#### Components & Cladding - ASCE 7-98

If 'Wall Elements' are selected Component and Cladding pressures will be tabulated. You can choose to tabulate wind loads only at the mean wall height or to tabulate at intervals used in ASCE 7-98 to tabulate  $K_z$ . It is sometimes convenient to only see the value at mean roof height since outward wind pressures for wall elements are the same over the entire building height. Wall component and cladding pressures are tabulated at areas at each of the break points in the  $GC_p$  diagrams in ASCE 7-98 (typically 10, 100 and 500 square feet).

Values are tabulated for positive and negative pressures for each appropriate wall element zone. For definitions of the various zones, see ASCE 7-98 Figures 6-5A and 6-8.

'Roof Elements' can also be selected if you wish to tabulate wind pressures for roof components and cladding. In order to properly calculate wind pressures at the roof, you must select the appropriate roof type from the roof type dropdown just below the 'Roof Elements' heading. You can also tabulate pressures at overhangs by selecting the 'Include Overhangs' item. As for wall components and cladding, pressures are tabulated for roof components and cladding by zone (see ASCE 7-98 Figures 6-5B through 6-7B). Select a roof type for components and cladding from the upper of the two roof type dropdowns.

Note that for some roof heights, values of  $GC_p$  are available in ASCE 7-98 only for certain types of roofs. See Figures 6-5A through 6-8.

## Main Wind Force Resisting Systems - ASCE 7-98

D-Coder uses the general method of ASCE 7-98 section 6.5.6.2.1 and the associated Figure 6-3 for determination of Main Wind Force Resisting System loads.

Wind pressures can be tabulated for the main wind force resisting system (MWFRS) by selecting the 'Main Wind Force System' item. If this box is checked, additional inputs are required including:

- MWFRS roof type
- Building plan width
- Building plan breadth
- The orientation of the ridge relative to width/breadth
- Building frequency for both the width and breadth of the structure
- Building damping ratio as a percent of critical for both the width and breadth of the structure (e.g. 5% = 5)

The MWFRS roof type is selected from the roof type dropdown box included with the MWFRS data input. Note that the available roof types for MWFRS calculations are not the same those available for component and cladding calculations. As such, the most appropriate roof type for the MWFRS may be different than the most appropriate type for components and cladding.

Building plan width and breadth are entered in the appropriately labeled boxes. Select the orientation of the roof ridge relative to width or breadth in the dropdown below the dimension inputs. For definitions of width and breadth, see ASCE 7-98.

MWFRS pressures are also a function of the building frequency in each direction (along width and breadth). Enter the building frequency in Hertz or (cycles per second) in the 'Building Frequency' boxes under the 'Building Data' heading.

For building frequencies less than 1.0 Hz, the damping ratio must also be entered. Enter these values, as a percentage, in the appropriately labeled boxes.

D-Coder uses the building frequency and damping to calculate the gust effect factor,  $G$ , for rigid structures and,  $G_f$  for flexible structures. The output simply calls the factor  $G$ . Please note that the calculated  $G$  for rigid structures is limited to a maximum of 0.85 while the calculated  $G$  ( $G_f$ ) for flexible structures has no upper or lower limit.

The output labeled "Max" is the algebraic maximum and "Min" is the algebraic minimum of the formula:

$$p = qGC_p - q_i(GC_{pi}) \quad - \text{ASCE 7-98 Eq. 6-15}$$

Thus, the "Max" values indicate negative internal pressures ( $-GC_{pi}$ ) and the "Min" values indicate positive internal pressures ( $GC_{pi}$ ) at a given location. Since the sign convention of ASCE 7-98 section 6.5.12.1.1 is positive toward a surface and negative away from a surface, the sum of the "Max" values for walls (in this case summing pressures in the same physical direction) provides the net pressure. Note that the sum of the windward wall and leeward wall "Max" values equals the sum of the "Min" values in the same physical direction. However, moderately sloped roofs (between 10 and 60 degrees) may have both positive and negative values of  $C_p$  in addition to positive and negative values of  $GC_{pi}$ . As stated above, only the algebraic maximum and minimum values are shown.

Note that ASCE 7-98 requires that design of the MWFRS must be for a minimum of 10 psf. D-Coder checks the worst case wall pressures and alerts the user to check the pressures, but does

not adjust the pressures. D-Coder does not check the roof pressures. The user must verify that the requirements of ASCE 7-98 section 6.1.4.1 are met.

## 1997 UBC

Determination of wind pressures in accordance with the 1997 UBC requires the following inputs:

- Wind Speed
- Exposure Category
- Building mean roof height
- Importance Factor, I
- Enclosure Classification (Unenclosed, Partially Enclosed or Enclosed)

The Wind Speed is specific to the building location as determined by the local building jurisdiction and ranges from 70 mph to 130 mph. Select or enter the appropriate value from the dropdown labeled 'Basic Wind Speed, V (mph).

The Exposure Category (B, C or D) is dependent on the local topography and proximity to other buildings or bodies of water as defined in the UBC. Select the appropriate category from the dropdown labeled 'Exposure Category.'

The building mean roof height can be any between 0 and 400 feet and is used, along with the exposure category to determine the value of  $C_e$ , the combined height, exposure and gust factor. For heights between 0 and 15 feet, the value of  $C_e$  is taken as the value at 15 feet.

The Importance Factor is dependent on the type and use of the structure as defined in the UBC and is a direct multiplier in the equations for wind pressures. Select or enter the appropriate value from the dropdown labeled 'Importance Factor, I.'

The Enclosure Classification (Unenclosed, Partially Enclosed or Enclosed) must also be selected. Select the enclosure classification from the three options in the box labeled 'Enclosure Classification.'

If you wish to tabulate wind pressures on roof elements, you must also enter the roof slope. The Roof Slope can be entered in degrees or as a value per 12 units of run. Select the units (degrees or :12) from the dropdown, select or enter the slope value in the adjacent dropdown box.

You can choose the wind pressures to be calculated by clicking on the appropriate boxes under the heading 'Customize Report.'

If 'Wall Elements' are selected element and component pressures will be tabulated. You can choose to tabulate wind loads only at the mean roof height or to tabulate at intervals used in the 1997 UBC for  $C_e$ . It is sometimes convenient to only see the value at mean roof height since negative (outward) wind pressures for wall elements are the same over the entire building height. Wall element and component pressures are tabulated at areas 10 square feet or less and at 100 square feet. The UBC allows a reduced value of wind pressure for areas larger than 10 square feet via a reduction in the value of  $C_q$ . Pressures are tabulated for positive and negative pressures for the 'typical' zones of the building as well as the building corners (referred to high wind corners or HWC in D-Coder output). The 1997 UBC defines building corners as extending 0.1 times the least building dimension or 10 feet, whichever is less. The UBC also has specific wind pressures for design of parapets. If you wish to tabulate wind pressures on the parapet, select 'Include Parapets' under 'Include Wall Elements.'

'Roof Elements' can also be selected if you wish to tabulate wind pressures for roof components and cladding. If you wish to include pressures at overhangs, also select the 'Include Overhangs' item.

If you wish to tabulate wind pressures for use in Main Wind Force Resisting System design, select the 'Main Wind Force System' box. MWFRS wind pressures, including uplift, are tabulated over the height of the building using Method 2 (Projected Area Method).

## **SEISMIC LOADS**

D-Coder calculates seismic force coefficients in accordance with 2000 edition of the International Building Code (IBC 2000) and the 1997 Uniform Building Code (UBC). Coefficients for design of elements and components as well as lateral force resisting systems can be determined. The various inputs required to determine seismic coefficients based on the above codes are site and project specific. The codes themselves should be consulted when determining the appropriate values.

To start a seismic load session, select 'Seismic' from the 'Design Criteria' menu item. Then select a code to use for seismic calculations using the 'Code' dropdown in the upper left of the screen.

The program uses a set of default inputs at startup. These values can be modified so that your preferences are entered each time you start a seismic load session. To save your preferences, just enter each of the values you wish to save and click on the 'Save Current Settings as Default' button.

Tabulation of seismic coefficients for the different codes is as follows:

### **IBC 2000**

Determination of seismic coefficients in accordance with IBC 2000 requires a variety of inputs including:

- Building Height,  $h$
- Short period spectral acceleration,  $S_s$
- The Site Class (A, B, C, D, E or F)
- Site Coefficient,  $F_a$

The Building Height,  $h$ , is defined as the average roof height of the structure relative to the base elevation. Select or enter the appropriate value from the dropdown labeled 'Bldg Ht.,  $h$  (ft).'

The short period spectral acceleration,  $S_s$  (%g) is defined in Section 1615 of IBC 2000 and Figure 1615(1) or may be defined by the local building jurisdiction. Select or enter the appropriate value from the dropdown labeled 'Ss, %g.'

The Site Class is described in IBC 2000 section 1615.1.1 and is based on the soil profile beneath the structure and is used in conjunction with the value of  $S_s$  to determine the site coefficient,  $F_a$ . Select the appropriate value from the dropdown labeled 'Site Class.'

The site coefficient,  $F_a$ , can be determined based on the value of  $S_s$  and the site class or entered directly. If you wish to have D-Coder determine the value of  $F_a$  based on other inputs, select 'Calculate' from the dropdown. If you want to override the calculation feature, a value of  $F_a$  can be input directly by typing the appropriate value in the  $F_a$  dropdown. Note that for Site Class F with  $S_s > 1.25$  and for Site Class F,  $F_a$  cannot be calculated using ordinary methods and must be based on a site-specific analysis.

### **Elements and Components**

If seismic coefficients are to be tabulated for elements and components in accordance with IBC 2000 Section 1621, check the box labeled 'Elements and Components.' Additional inputs are required in order to tabulate seismic coefficients for element and component design:

- ASD or LRFD
- Component types
- Interval for tabulation of  $z$

Seismic coefficients for elements and components are determined in accordance with IBC 2000 Equations 16-67 through 16-69.

Seismic coefficients can be tabulated as either ASD or LRFD values. If ASD is chosen, the seismic coefficients are the values from the above listed equations divided by 1.4.

IBC 2000 lists design parameters  $a_p$  and  $R_p$  for a variety of element types. The value of  $I_p$  is dependent on the type and use of the components and is described in IBC 2000 Section 1621.1.6. To select which types of element types to tabulate seismic coefficients for, click on the button labeled 'Select Components'. From the component selection dialog, select the category of the component you wish to tabulate. Note that the categories listed follow IBC 2000 Table 1621.2 and 1621.3. Click on the boxes associated with the components that you want to tabulate and select or enter the appropriate value of  $I_p$  for that component. After you have selected all of the components you wish to tabulate, click the 'O.K.' button in the component dialog. Note that a maximum of seven component types can be entered.

Seismic coefficients per IBC 2000 Equation 16-67 vary with elevation up the height of the building. You can select the interval along the height for which coefficients are tabulated by selecting or entering a value from the dropdown labeled 'Interval for z (ft).'

### **Lateral Force System**

If you wish to tabulate coefficients for seismic base shear, check the box labeled 'Main Lateral Force Resisting Systems.' In order to calculate base shear coefficients for a structure's lateral force resisting system, additional inputs are required:

- Seismic Use Group
- 1-second spectral acceleration,  $S_1$
- Site Coefficient,  $F_v$
- Building System Style and Type
- Occupancy Importance factor,  $I_E$
- The Fundamental Period of the building from a rigorous analysis,  $T$  (optional)

The Seismic Use Group is assigned based on the building's intended use as defined in IBC 2000 Section 1616.2. Select a value from the dropdown labeled 'Seismic Use Group.'

The 1-second spectral acceleration,  $S_1$ , is defined in IBC 2000 Section 1615 and Figures 1615(2) through 1615(10). Select or enter the appropriate value from the dropdown labeled 'S1, %g.'

The site coefficient,  $F_v$ , can be determined based on the value of  $S_1$  and the Site Class, or entered directly. If you wish to have D-Coder determine the value of  $F_v$  based on other inputs, select 'Calculate' from the dropdown. If you want to override the calculation feature, a value of  $F_v$  can be input directly by typing the appropriate value in the  $F_a$  dropdown. Note that for Site Class F with  $S_1 > 0.5$  and for Site Class F,  $F_v$  cannot be calculated using ordinary methods and must be based on a site-specific analysis.

The Response Modification Coefficient,  $R$  is dependent on the type of lateral force system being used for the structure. The various types of systems are discussed in IBC 2000 Section 1617.6 and specific values of  $R$  are given in IBC 2000 Table 1617.6.

The Occupancy Importance factor  $I_E$  is described in IBC 2000 Section 1616.2 and Table 1604.5 as a function of the occupancy type of the structure.

The Fundamental Period of the building,  $T$ , must be determined in accordance with IBC 2000 Section 1617.4.2. Select or enter the appropriate value from the dropdown labeled 'period T, s.' D-Coder calculates the period,  $T_a$ , using IBC 2000 equation 16-39. Note that periods determined

from dynamic analysis are limited by D-Coder in accordance with the IBC 2000 to  $C_u$  (from Table 1617.4.2) times the approximate fundamental period,  $T_a$ .

### 1997 UBC

Determination of seismic coefficients in accordance with 1997 UBC requires a variety of inputs including:

- Seismic Zone (1, 2A, 2B, 3 or 4)
- Building Ht.,  $h_r$
- Soil Profile ( $S_A$ ,  $S_B$ ,  $S_C$ ,  $S_D$ ,  $S_E$ )
- Near Source Factor,  $N_a$  (seismic zone 4 only)

The Seismic Zone is defined in 1997 UBC section 1629.4.1 and Figure 16-2, or in accordance with the local building jurisdiction. Select a value from the dropdown labeled 'Seismic Zone.'

The Building Height,  $h_r$ , is defined as the average roof height of the structure relative to the base elevation. Select or enter the appropriate value from the dropdown labeled 'Bldg Ht.,  $h_r$  (ft).'

The Near Source factor,  $N_a$  is defined in 1997 UBC section 1629.4.2 and applies only in seismic zone 4. It is a function of the Source Type and distance to that Source.  $N_a$  can be entered directly or determined in accordance with Table 16-S. If  $N_a$  is to be determined automatically, you must also enter the seismic Source Type (A, B or C) and the Source Distance (km). Each of these values can be selected or entered in the dropdowns accompanying their respective labels.

The seismic importance factor is given in UBC Table 16-K and may be different for elements than for the main building lateral system.

### **Elements and Components**

If seismic coefficients are to be tabulated for elements and components in accordance UBC Section 1632.1, check the box labeled 'Elements and Components.' Additional inputs are required in order to tabulate seismic coefficients for element and component design:

- ASD or LRFD
- Component types
- Interval for tabulation of  $z$
- Seismic Importance Factor,  $I_p$

Seismic coefficients for elements and components are determined in accordance with UBC Equations 32-1 through 32-3.

Seismic coefficients can be tabulated as either ASD or LRFD values. If ASD is chosen, the seismic coefficients are the values from the above listed equations divided by 1.4.

The seismic importance factor,  $I_p$ , is given in UBC Table 16-K and may be different for elements than for the main building lateral system. Note that for panel connections in Section 1633.2.4, the value of  $I_p$  is specified as being 1.0 for the entire connector.

The 1997 UBC lists design parameters  $a_p$ , and  $R_p$  for a variety of element types. To select which element to tabulate seismic coefficients for, click on the button labeled 'Select Components'. From the component selection dialog, select the category of the component you wish to tabulate. Note that the categories listed follow UBC Table 16-O. Click on the boxes associated with the components that you want to tabulate. After you have selected all of the components you wish to tabulate, click the 'O.K.' button in the component dialog. Note that a maximum of seven component types can be entered.

Seismic coefficients per the 1997 UBC Equation 32-1 vary with elevation. You can select the interval along the height for which coefficients are tabulated by selecting or entering a value from the dropdown labeled 'Interval for z (ft).'

### **Lateral Force System**

If you wish to tabulate coefficients for seismic base shear, check the box labeled 'Main Lateral Force Resisting Systems.' In order to calculate base shear coefficients for a structure's lateral force resisting system, additional inputs are required:

- Near Source Factor,  $N_v$ , or the Source Type and Distance (seismic zone 4 only)
- Response Modification Coefficient, R
- Seismic Importance factor, I
- The Fundamental Period of the building, T

The Near Source Factor,  $N_v$ , is given in UBC Table 16-T as a function of seismic source type and the closest distance to a known seismic source. You can select or enter a value of  $N_v$  directly, or D-Coder can determine the appropriate value based on the input seismic source type and distance.

The Response Modification Coefficient, R is dependent on the type of lateral force system being used for the structure. The various types of systems are given in UBC Table 16-N.

The Seismic Importance factor, I, is given in UBC Table 16-K as a function of the occupancy type of the structure.

The Fundamental Period of the building, T, must be determined in accordance with UBC Section 1630.2.2. You can select 'Method A' from the dropdown if you want D-Coder to determine the value of the period in accordance with UBC equation (30-8). If you wish to use Method B, you can enter the value of the building period from a separate analysis. D-coder will automatically check the limiting values of 1.3 and 1.4 times the period from Method A for seismic zones 1 through 3 and zone 4 respectively.

### **DEAD LOADS**

Selecting 'Dead Loads' from the 'Design Criteria' menu item allows you to tabulate dead loads.

To enter a dead load summary for a system, start by typing or selecting the name of the system (e.g. Composition Roof) in the dropdown labeled 'System Name.' Add components into the system by selecting or typing items in the 'Components' dropdown on the left side of the screen. If a component is entered by typing, enter the name followed by a space and then the weight in psf. NOTE: THE MAXIMUM NUMBER OF CHARACTERS FOR A COMPONENT IS 23. After the component description and unit weight are entered, click the '**Add to System**' button to add the component to the system list.

Note that when a component is added to a dead load system, the name and weight are also added to the 'Components' dropdown. If you want to save the component list, select '**File**' from the main menu followed by '**Save Dead Load Data**' then '**Save Component List.**' In this manner, you can develop an extensive catalog of commonly used component types that can be entered in future systems by simply clicking on the item and clicking the 'Add to System' button, or by double-clicking the item from the 'Components' list.

As components are added to the system, the total weight of the system is shown in the box below the system list. Components can also be deleted from a system list by selecting the component and clicking on the 'Delete Component' button or by selecting the component and clicking the right button of the mouse.

If you want to catalog a commonly used dead load system , you can add the system to the 'System Name' dropdown by selecting '**Save Dead Load Data**' and '**Save System**' from the '**File**' menu item.

To add the system to the report, click on the 'Add to Report' button. The system name will then appear in the 'Selected Systems' box. If you wish to edit a selected system, click on the system name. Edit the system by changing its name, adding or deleting components. Once you are done editing the system, click the button labeled 'Edit Complete.'

Clicking the system name in the 'Selected Systems' box and then clicking the 'Delete System' button can be used to delete systems from a report.

### **FLOOR LIVE LOADS**

To tabulate and report floor live loads, select 'Floor' from the 'Design Criteria' menu. Choose descriptions and values of floor live load from the list box by double-clicking the item or by clicking the item and then clicking the '**Add to Selected Items List**' button. To delete an item from the Selected Items list, click to select the item, and then click the '**Delete Item**' button.

You can add items not already in the list by simply typing them into the text field above the list.

Note that when an item is added to the Selected Item list, it is also added to the list of items from which you can choose. If you want to save the list, select '**File**' from the main menu followed by '**Save List.**' In this manner, you can develop an extensive catalog of commonly used floor live loads that can be added to future reports using the methods described above.

You can also delete items from the list of choices by selecting the item and clicking the '**Delete Item**' button. To save the reduced list of choices, follow the instructions above.

Once you have entered all of the floor live load information, click the '**O.K.**' button to return to preview the report.

### **ROOF LIVE AND SNOW LOADS**

To tabulate and report roof live/snow loads, select 'Roof' from the 'Design Criteria' menu. Choose descriptions and values of roof live/snow load from the list box by double-clicking the item or by clicking the item and then clicking the '**Add to Selected Items List**' button. To delete an item from the Selected Items list, click to select the item, and then click the '**Delete Item**' button.

You can add items not already in the list by simply typing them into the text field above the list.

Note that when an item is added to the Selected Item list, it is also added to the list of items from which you can choose. If you want to save the list, select '**File**' from the main menu followed by '**Save List.**' In this manner, you can develop an extensive catalog of commonly used floor live loads that can be added to future reports using the methods described above.

You can also delete items from the list of choices by selecting the item and clicking the '**Delete Item**' button. To save the reduced list of choices, follow the instructions above.

Once you have entered all of the roof live/snow load information, click the '**O.K.**' button to return to preview the report.

### **DEFLECTION LIMITS**

To tabulate and report deflection limits, select 'Deflection Limits' from the 'Design Criteria' menu. Choose descriptions and values of deflection limits from the list box by double-clicking the item or

by clicking the item and then clicking the '**Add to Selected Items List**' button. To delete an item from the Selected Items list, click to select the item, and then click the '**Delete Item**' button.

You can add items not already in the list by simply typing them into the text field above the list.

Note that when an item is added to the Selected Item list, it is also added to the list of items from which you can choose. If you want to save the list, select '**File**' from the main menu followed by '**Save List.**' In this manner, you can develop an extensive catalog of commonly used floor live loads that can be added to future reports using the methods described above.

You can also delete items from the list of choices by selecting the item and clicking the '**Delete Item**' button. To save the reduced list of choices, follow the instructions above.

Once you have entered all of the deflection limit information, click the '**O.K.**' button to return to preview the report.

### **VIEWING AND PRINTING RESULTS**

You can view your report at any time by clicking the '**Print Preview**' button on the toolbar. The report is also displayed after you finish entering the various criteria and click the '**O.K.**' button.

To print a paper copy of the report, from the print preview screen click the '**Print**' button on the toolbar or select 'Print' from the 'File' menu.

The top and bottom margins of the report can be set in order to fit the report on your calculation sheets or letterhead. To set the margins, select 'Page Setup' from the 'File' menu. Enter the desired top and bottom margins by clicking on the up/down buttons or by typing the values directly. Once you have the margin settings entered, click '**Apply**'.

If you want to save the margin settings as a default, click the '**Save Margin Settings as Default**' button.

### **SAVING AND OPENING FILES**

#### Saving a Project

You can save project inputs by clicking the '**Save**' button on the toolbar or by selecting the 'Save Project' from the 'File' menu. Follow the usual Windows protocol for selecting folders and naming files. NOTE: D-Coder only allows files to be saved from the print preview screen. This ensures that saved files have valid inputs and reduces the likelihood of errors.

#### Opening a Project

You can open a previously saved project by clicking the '**Open**' button on the toolbar or by selecting 'Open Project' from the 'File' menu. Follow the usual Windows protocol for selecting folders and the file name.

If an error occurs reading a file, a warning message will appear indicating that some of the data may not have been properly retrieved. If you receive such a message, carefully review the report before printing or saving to be sure the inputs are the ones you expect.

## References

1. ASCE 7-98. Minimum Design Loads for Buildings and Other Structures; American Society of Civil Engineers. 1801 Alexander Bell Drive. Reston, Virginia 20191.
2. IBC 2000. 2000 International Building Code; International Code Council, Inc. 5203 Leesburg Pike, Suite 708; Falls Church, Virginia 22041



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