

# Inventory

## Inventory Overview

Your BUILDER inventory serves as the foundation for all that you will do with the BUILDER application. The first step in using BUILDER is to construct a database that describes the physical inventory you manage. That process of putting the data into BUILDER will probably be your single most intensive effort in working with the program, but it is a one-time effort that can be aided by features that may allow you to [import data from other systems](#), [copy buildings](#), use [building templates](#) when multiple buildings have a single design, or to use [embedded models](#) to estimate building composition.

Begin by grouping your buildings into logical management units, typically by their geographic regions, which are represented by [site records](#) in the BUILDER database. The site provides a natural way to group buildings and to apply properties that are regional in nature, such as the cost of operations and maintenance (O&M) work and the heating, ventilation and cooling (HVAC) climate.

Next, you [create building records](#) for the buildings at one of your sites. A building record includes critical information such as how the building is used, its size, age, and number of floors. You will find that BUILDER also allows you to store, at your option, a variety of other information about a building, such as applicable [family housing data](#). You will also be able to establish a [mission dependency index](#) to measure quantitatively how critical the building is to the mission for which it is used.

After you have created a building record in the BUILDER inventory, you will be able to add records that describe the various physical items that are part of the building: the doors, walls, windows, plumbing fixtures, heating units, etc. At the elemental level, these items are called component-sections, or simply sections. Component-sections are the management unit in BUILDER. You inspect them and plan work for them, and BUILDER applies its condition assessment algorithms to them in calculating their condition index. BUILDER uses embedded data and automated processes to determine a wealth of information about each component-section: its expected service life, its likely subcomponents and how their condition affects the section as a whole, and the cost of replacing, painting, repairing, and removing it. As you might imagine, for an automated system to be able to do all of this, there are some strict rules about how you define component-sections. Creating the component-section records is the most difficult and time-consuming aspect of creating the BUILDER inventory.

You begin by working down to the component-sections hierarchically, starting with the major systems of a building. In BUILDER, there are two building decompositions available:

- The traditional BUILDER system/component structure with 12 systems
- The ASTM UNIFORMAT II Classification for Building Elements with 17 systems (Level 2).

Regardless of which decomposition you choose, you will create the systems by selecting each applicable system from a pick list. Each system is further decomposed

into components (Level 3 elements when using UNIFORMAT). Again, you will create the component records by selecting from a pick list of components applicable to a given system. See [BUILDER Systems and Components](#) for a list of each decomposition's systems and their typical components.

Once you have created records for a system and for a component of that system, you are ready to create component-section records that actually represent the physical items in your building belonging to particular systems and components. For example, a system might be of type Exterior Closure and one of its components might be Doors. The component-section records represent the physical exterior doors in your building. Some of the doors may be glass personnel doors, some may be metal overhead doors. A component-section consists of items in the building that all belong to the same component and, moreover, are all of the same type and material/equipment category. In this example, you will have to create at least two records to represent the exterior doors; one for the glass personnel doors and one for the metal overhead doors. You will have considerable flexibility in how you group similar items together to form a component-section.

Once a component-section has been identified by component, type, and material/equipment category, BUILDER will have sufficient information to establish a clear link between the section and the embedded data and computations that it brings to the process in order to help you with your management tasks. Details, examples, and some suggestions about how to make the process of completing your BUILDER inventory are contained in the topic [Identifying Systems, Components and Sections](#).

## Groups

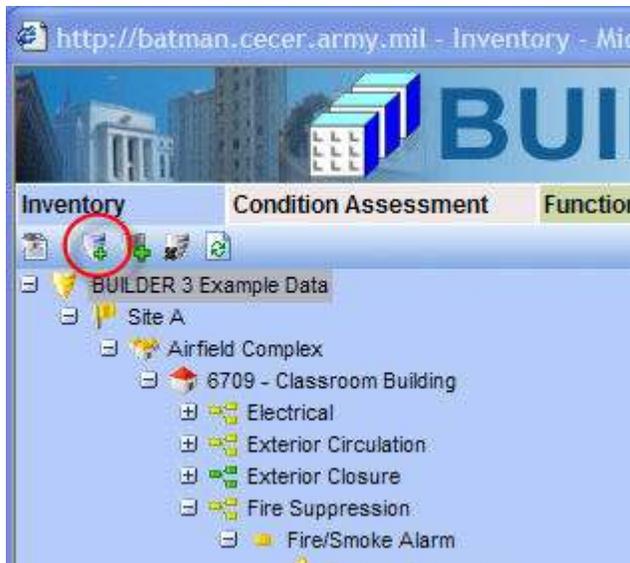
### Adding, Editing, and Deleting an Organizational Group

BUILDER 3.0 is an enterprise level program. As such, its inventory can contain buildings at a number of different sites. It is possible that multiple sites are managed together, as in a region, and therefore should be arranged together. If this is the case, BUILDER allows for multiple sites to be arranged together in an organizational group.

#### Adding an Organization

To add a sub organizational group under a main group, select the main group to add this subgroup to, and click the *Add Organization* button on the navigation menu.

Alternatively, you can create a parent organization group by selecting a site, a choosing *Add Parent Organization*.



After this, the following data is required for the organization:

- **Organization Number.** Enter the identifying number for the group, limited to 12 alphanumeric characters. You may leave this blank if you wish to supply only a name. You must enter at least a organization name or organization number and the combination of the two must be unique among the organizations in your database.
- **Organization Name.** Enter the identifying name for this organization, limited to 50 alphanumeric characters. You may leave this blank if you wish to supply only a number. You must enter at least a organization name or organization number and the combination of the two must be unique among the organization in your database.
- **Relation.** Specify the relation of the group being created to the selected organization or site on the inventory tree. There are three options for the relation:
  - Child - The organization will be placed under the selected organization. Note that child organization can only be created when an organization is selected in the inventory tree.
  - Parent - The organization will be placed above the selected organization or site.
  - Sibling - The organization will be placed at the same level as the selected organization or site. Note that the top level organization may not have a sibling organization.

Once the required data are entered, click the ADD button to create the organization. To close the window without creating the organization, click the CANCEL button.

#### Editing Organization Data

To edit data for a specific organization, select the organization in the inventory tree.



## Toolbar

- **CLOSE.** Use this button to close the organization record.
- **SAVE.** Use this button to save the changes you have made to the organization data.
- **COMMENT.** Use this button allows you to add, edit, and view comments about the organization.
- **REPORTS.** Use this button to launch the Report Selection tool, which gives you access to a list of standard reports relevant to organization inventory. See [Using the Report Viewer](#).

## General Information

Initially after an organization is selected in the inventory tree, the general information tab is shown and the following information can be edited:

- **Organization Number and Name.** You may edit the Organization Number and Name as you wish. Organization Number is allowed to contain 12 characters; Organization Name is allowed 50 characters.
- **Index Data** (Read-Only).
  - **Organization Condition Index (CI).** The organization CI displays the average CI of the buildings in the organization, weighted by replacement cost. This metric provides an overall sense of the condition of the group as a whole.
  - **Organization Functionality Index (FI).** The organization FI displays the average FI of the buildings in the organization, weighted by replacement cost. This metric provides an overall sense of the functionality of the organization as a whole.
  - **Organization Performance Index (PI).** The organization PI displays the average PI of the buildings in the organization, weighted by replacement cost. This metric provides an overall sense of the performance of the organization as a whole.
- **Calculated Data** (Read-Only).

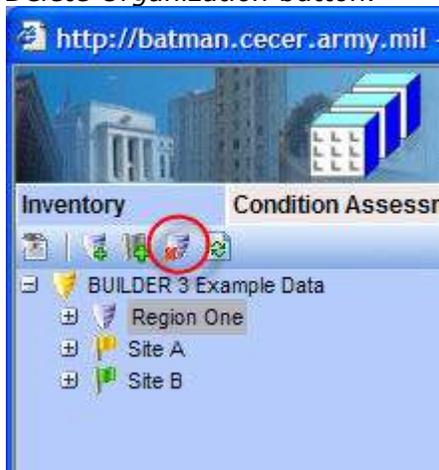
- **PRV.** The calculated data includes the aggregate present replacement value (PRV) of the buildings in the group.
- **Reference Settings.**
  - **Cost Book.** Select the [cost book](#) from the dropdown list you wish to use for the entire inventory of the organization. The cost book selected will provide inventory replacement costs for inventory.
  - **Service Life Book.** Select the [service life book](#) from the dropdown list you wish to use for the entire inventory of the organization. The service life book selected will estimate the remaining service life of component-sections in the inventory on the basis of its life expectancy and condition. Also, the service life is used in estimating a rate of deterioration in the condition index of a component-section when no more than one inspection has been recorded.
  - **Policy Sequence.** Select the [policy sequence](#) from the dropdown list you wish to use for the entire inventory of the organization. The policy sequence selected will establish the order of precedence for applying policies so that only one standard is chosen for the inventory in the building.
  - **Prioritization Scheme.** Select the [prioritization scheme](#) from the dropdown list you wish to use for the entire inventory of the organization. The prioritization scheme selected will prioritize and rank your work plan in a quick, objective, repeatable, and representative method with the touch of a button.

It is important to note that reference data can be set at the organization and site level. If this data is set at both levels, the reference settings at the site level will overwrite the reference settings at the organization level.

In addition to the general information for the organization described above, more information can be added and viewed on the [contact information and condition trends tab](#).

#### Deleting an Organization

To delete an organization, select the organization in the inventory tree, and click the *Delete Organization* button.



It is important to note that if you delete an organization, you also delete all inventory (sites, complexes, buildings, systems, components, and sections) in that organization. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the group you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

#### Additional Organizational Data

Additional Organizational data is displayed and can be edited on the contact information and condition trends tabs when a group is selected in the inventory tree.

### Contact Information Tab

The contact information for the organization can be viewed and edited by selecting the CONTACT INFORMATION tab.

The screenshot shows a software interface with a blue header bar containing 'Save', 'Comment', and 'Reports' icons. Below the header, there are two input fields: 'Number:' (empty) and 'Name:' (containing 'BUILDER 3 Example Data'). A horizontal line separates this from a tabbed interface with three tabs: 'General Information', 'Contact Information' (selected), and 'Assessment History'. Under the 'Contact Information' tab, there are several input fields: 'Name:' (containing 'Michael N Grussing'), 'Address:' (containing '2902 Newmark Dr'), 'City:' (containing 'Champaign'), 'State:' (containing 'IL'), 'Zip Code:' (containing '61822'), 'Phone #:', 'Fax #:', 'Email:', and 'WWW:'.

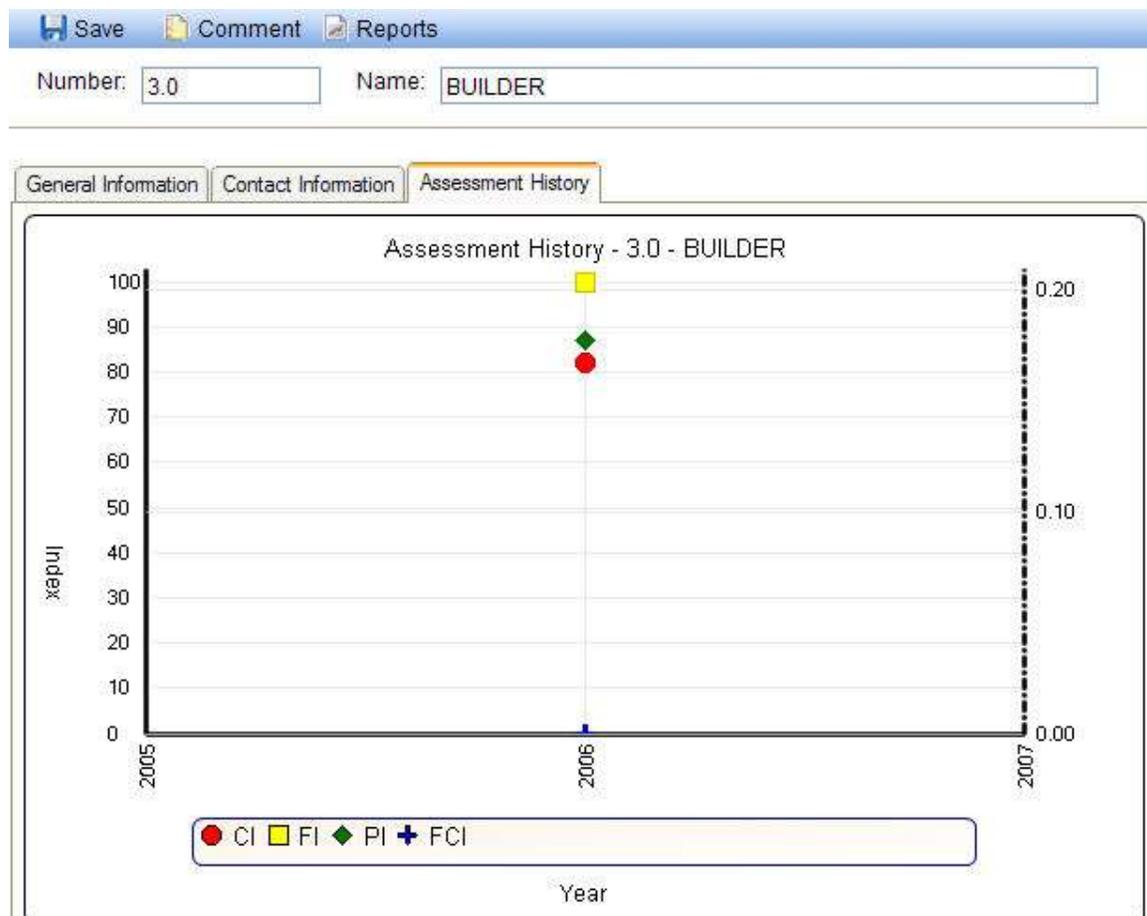
All of the additional organizational information is optional. It includes data regarding the official point of contact (POC) for the organization:

- **POC Name.** Enter the name of the organization point of contact, limited to 30 alphanumeric characters.
- **Address.** Enter the official street address of the organization, limited to 30 alphanumeric characters).

- **City.** Enter the city of the organization, limited to 15 alphanumeric characters.
- **State.** Enter the state of the organization, limited to 2 alphanumeric characters.
- **Zip Code.** Enter the zip code of the organization, limited to 10 alphanumeric characters.
- **Phone Number.** Enter the phone number of the organization POC, limited to 20 alphanumeric characters.
- **FAX Number.** Enter the FAX number of the organization POC, limited to 20 alphanumeric characters.
- **Email Address.** Enter the email address of the organization POC, limited to 75 alphanumeric characters.
- **WWW.** Enter the World Wide Web (WWW) URL address for the organization, limited to 75 alphanumeric characters.

### Assessment History Tab

The Assessment History tab provides a graph of the condition, functionality, performance, and FCI history of the organization, displaying the organization CI, organization FI, organization PI, and organization FCI over time.



### Sites

## Adding, Editing, and Deleting a Site

A BUILDER inventory can contain buildings at a number of different geographic locations. Several properties of buildings and their components are determined or affected by the building's geographic location, most critically the area cost factor, a multiplier which adjusts national average labor/material/equipment costs to local costs. Additional location data includes the HVAC zone and seismic zone of the site.

Knowing the geographic location of a building is extremely important, therefore BUILDER requires you to create a site record for each geographic location before you can add buildings to the database.

### Adding a Site

To add a new site select click the *Add Site* button from the navigation menu.



On this screen, enter the following required data for the site:

- **Number.** Enter the identifying number for the site, limited to 12 alphanumeric characters. You may leave this blank if you wish to supply only a name. You must enter at least a site name or site number and the combination of the two must be unique among the groups in your database.
- **Name.** Enter the identifying name for this site, limited to 50 alphanumeric characters. You may leave this blank if you wish to supply only a number. You must enter at least a site name or site number and the combination of the two must be unique among the groups in your database.

Additionally, you have the option of using factors (area cost factor, seismic zone, and HVAC zone) from existing locations in the BUILDER system by marking the **USE FACTORS FROM FOLLOWING LOCATION** checkbox and choosing a location from the dropdown lists. Choosing this data is optional and can be input later using the [SELECT button](#) if desired.

Once the required data are entered, click the **ADD** button to create the site. To close the window without creating the site, click the **CANCEL** button.

### Editing Site Data

To edit the data for a specific site, select the site in the inventory tree.



### Toolbar

- **SAVE.** Use this button to save the changes you have made to the site data.
- **COMMENT.** Use this button allows you to add, edit, and view comments about the site.
- **IMAGES.** Use this button to add and remove images of the site.
- **REPORTS.** Use this button to launch the Report Selection tool, which gives you access to a list of standard reports relevant to site inventory. See [Using the Report Viewer](#).
- **SELECT.** Use this button to launch the site selection window.



Select the state and then the location within that state of your site. The location list includes Department of Defense installations and most major cities in the United States. After the state and location are selected, click the SELECT

button to automatically fill in the required data fields on the location screen. If you click the CANCEL button, you will return to the Location screen without making changes. If your particular site is not listed, choose a location close to your site and edit the name afterward.

## General Site Information

Initially after a site is selected in the inventory tree, the general information tab is shown with the following information:

- **Site Number and Name.** You may edit the Site Number and Name as you wish. Site Number is allowed to contain 12 characters; Site Name is allowed 50 characters.
- **Location Factors**
  - **Area Cost Factor.** The area cost factor is a multiplier used to adjust national average cost for labor/materials/equipment to local costs. It is generally a number between 0.8 and 1.2 for continental U.S. locations, but it can be even greater than 2.0 in high-cost geographic locations.
  - **Seismic Zone.** The seismic zone is an integer from 1 to 7 following the Federal Emergency Management Agency's (FEMA) U.S. seismic zoning. Determine your site's seismic zone by using the SELECT button on the toolbar or by consulting the seismic map of the U.S. seismic zones, which can be accessed by clicking the MAP button next to the Seismic Zone text box.
  - **HVAC Zone.** The HVAC zone is an integer from 1 to 11. Determine your site's HVAC zone by using the SELECT button on the toolbar or by consulting the map of the U.S. HVAC zones, which can be accessed by clicking the MAP button next to the HVAC Zone text box.
- **Index Data (Read-Only).**
  - **Site Condition Index (CI).** The site CI displays the average CI of the buildings in the site, weighted by replacement cost. This metric provides an overall sense of the condition of the site as a whole.
  - **Site Functionality Index (FI).** The site FI displays the average FI of the buildings in the site, weighted by replacement cost. This metric provides an overall sense of the functionality of the site as a whole.
  - **Site Performance Index (PI).** The site PI displays the average PI of the buildings in the site, weighted by replacement cost. This metric provides an overall sense of the performance of the site as a whole.
  - **Site Facility Condition Index (FCI).** The site FCI represents the total maintenance and repair costs for the site, normalized by the total site PRV. This metric provides an overall sense of deferred repair work.
- **Calculated Data (Read-Only).**
  - **# of Facilities.** Displays the number of buildings included in the site inventory.
  - **PRV.** Displays the total present replacement value of the buildings at the site computed by adding the individual building replacement costs.
- **Reference Settings.**
  - **Cost Book.** Select the [cost book](#) from the dropdown list you wish to use for the entire inventory of the group. The cost book selected will provide inventory replacement costs for inventory.

- **Service Life Book.** Select the [service life book](#) from the dropdown list you wish to use for the entire inventory of the group. The service life book selected will estimate the remaining service life of component-sections in the inventory on the basis of its life expectancy and condition. Also, the service life is used in estimating a rate of deterioration in the condition index of a component-section when no more than one inspection has been recorded.
- **Policy Sequence.** Select the [policy sequence](#) from the dropdown list you wish to use for the entire inventory of the group. The policy sequence selected will establish the order of precedence for applying policies so that only one standard is chosen for the inventory in the building.
- **Prioritization Scheme.** Select the [prioritization scheme](#) from the dropdown list you wish to use for the entire inventory of the group. The prioritization scheme selected will prioritize and rank your work plan in a quick, objective, repeatable, and representative method with the touch of a button.
- **Inflation Set.** Select the [inflation set](#) from the dropdown list you wish to use for the entire inventory at that site. This will apply inflation cost factors to estimate repair costs for multi-year IMPACT scenarios.

It is important to note that reference data can be set at the group and site level. If this data is set at both levels, the reference settings at the site level will overwrite the reference settings at the group level.

In addition to the general information for the site described above, more information can be added and viewed on the [other tabs](#) at the top of the screen.

### **Deleting a Site**

To delete a site, select the site in the inventory tree and click the *Delete Site* option.

It is important to note that deleting a site deletes all inventory (complexes, buildings, systems, components, and sections) in that site. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the site you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

### **Additional Site Data**

Additional site data is displayed and can be edited on the contact information, building information, condition trends, and GIS tabs when a site is selected in the inventory tree.

### **Contact Information Tab**

The Contact Information for the site may be viewed and edited by selecting the CONTACT INFORMATION tab.

Save Comment Images Reports Select

Number: EXMPL Name: Camp Example

General Information **Contact Information** Building Information Assessment History GIS

Name: Mike Grussing, MSCE

Address: P.O. Box 9005

City: Champaign

State: IL

Zip Code: 61826

Phone #: 555-555-5555

Fax #: 555-555-0000

Email: michael.n.grussing@email.com

WWW: www.cecer.army.mil

All of the additional site information is optional. It includes data regarding the official point of contact (POC) for the location:

- **POC Name.** Enter the name of the site point of contact, limited to 30 alphanumeric characters.
- **Address.** Enter the official street address of the site, limited to 30 alphanumeric characters).
- **City.** Enter the city of the site, limited to 15 alphanumeric characters.
- **State.** Enter the state of the site, limited to 2 alphanumeric characters.
- **Zip Code.** Enter the zip code of the site, limited to 10 alphanumeric characters.
- **Phone Number.** Enter the phone number of the site POC, limited to 20 alphanumeric characters.
- **FAX Number.** Enter the FAX number of the site POC, limited to 20 alphanumeric characters.
- **Email Address.** Enter the email address of the site POC, limited to 75 alphanumeric characters.
- **WWW.** Enter the World Wide Web (WWW) URL address for the site, limited to 75 alphanumeric characters.

### Building Information Tab

Basic information regarding the buildings at the site is available under the BUILDING INFORMATION tab. All of the data shown on this tab is read-only.

Save Comment Images Reports Select

Number: EXMPL Name: Camp Example

General Information Contact Information **Building Information** Assessment History GIS

Site CI 82 Site FI 74 Site PI 82

Facility	Area	PRV	BCI	BFI	BPI	FCI
1102 - Legal Office	20,054	\$4,025,000	74	100	82	0.000
1109 - Communications Center	8,570	\$1,717,000	82	100	87	0.000
1112 - Credit Union Building	14,070	\$2,815,000	83	100	88	0.000
1131 - Administration Building	9,330	\$1,866,000	78	100	85	0.000
1328 - Personnel Office	26,750	\$5,350,000	85	100	89	0.000
1397 - Community Building	12,500	\$2,504,000	84	100	88	0.000
1617 - Security Office	9,700	\$1,943,000	83	100	88	0.000
1621 - Fire Station	16,950	\$3,390,000	80	100	86	0.000
4000 - Fitness Center	28,150	\$5,630,000	84	100	89	0.000
4571 - Dining Hall	16,540	\$3,314,000	81	100	87	0.000
4572 - NCO Barracks	24,875	\$4,983,000	81	100	84	0.000
4577 - Senior NCO Barracks	27,950	\$5,590,000	82	100	87	0.000
4911 - Consolidated Club	33,207	\$6,652,000	85	100	89	0.000

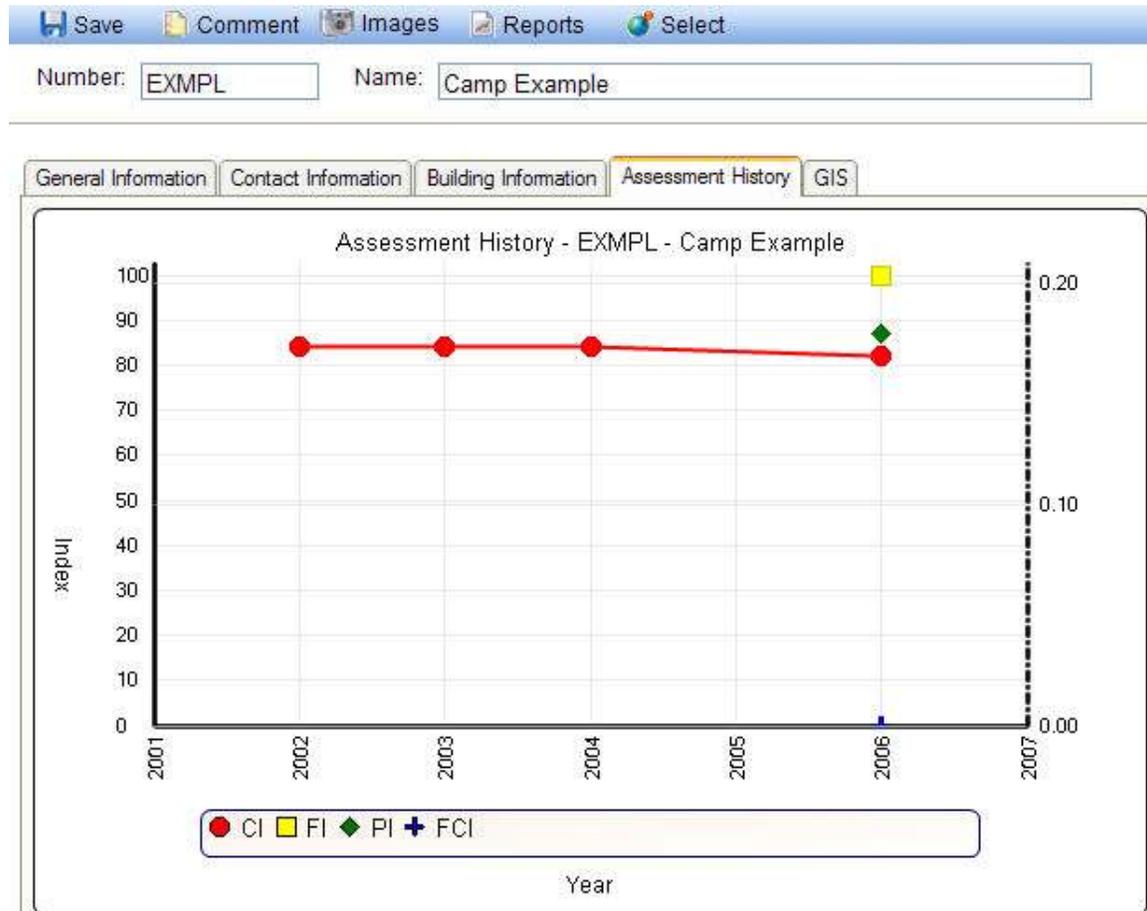
Export to Excel

- **Facility.** Displays the building number and name of each building at the site.
- **Area.** Displays the square footage of each building at the site.
- **Present Replacement Value PRV.** Displays the total present replacement value (PRV) of each building at the site.
- **Building Condition Index (BCI).** Displays the current BCI of each building at the site.
- **Building Functionality Index (BFI).** Displays the current BFI of each building at the site.
- **Building Performance Index (BPI).** Displays the current BPI of each building at the site.
- **Building Facility Condition Index (FCI).** Displays the current FCI of each building at the site.

Additionally, the site CI, site FI, site PI and site FCI are shown at the top of the tab, which are the average of each index of the buildings at the site weighted by replacement cost. Finally, all the information on this tab can be exported to a Microsoft Excel spreadsheet by clicking the EXPORT TO EXCEL button at the bottom of the screen.

### Assessment History Tab

The Assessment History tab provides a graph of the condition, functionality, and performance history of the site, displaying the site CI, site FI, site PI, and site FCI over time.



## GIS Tab

This tab can be used to add a GIS layer(s) for your site and link it to the inventory at your site. For more information, see [Setting Up GIS](#).

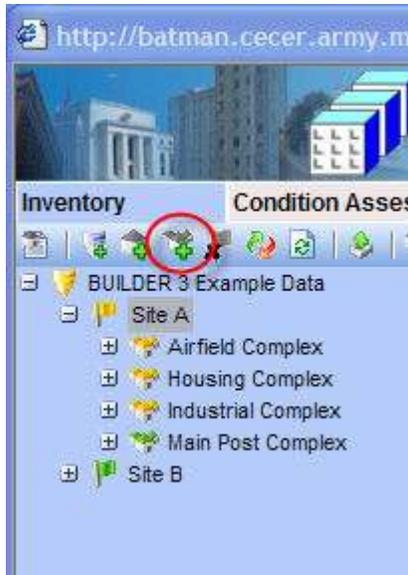
## Complexes

### Adding, Editing, and Deleting a Complex

BUILDER allows you to subdivide a site into regions called complexes. This is especially useful if your inventory has a large number of buildings at a single location. Each building may belong to at most one complex. You may choose not to use complexes at all, in which case buildings will be listed directly under their site in the inventory tree. If you do create complexes, you may also have buildings at your site that are not assigned to any complex. In this case, you may choose either to list unassigned buildings directly under their site or to have a complex named "Unassigned" which will have all such buildings listed under it in the inventory tree.

## Adding a Complex

To add a new complex to a site select the site on the inventory tree and click the *Add Complex* button from the navigation menu.



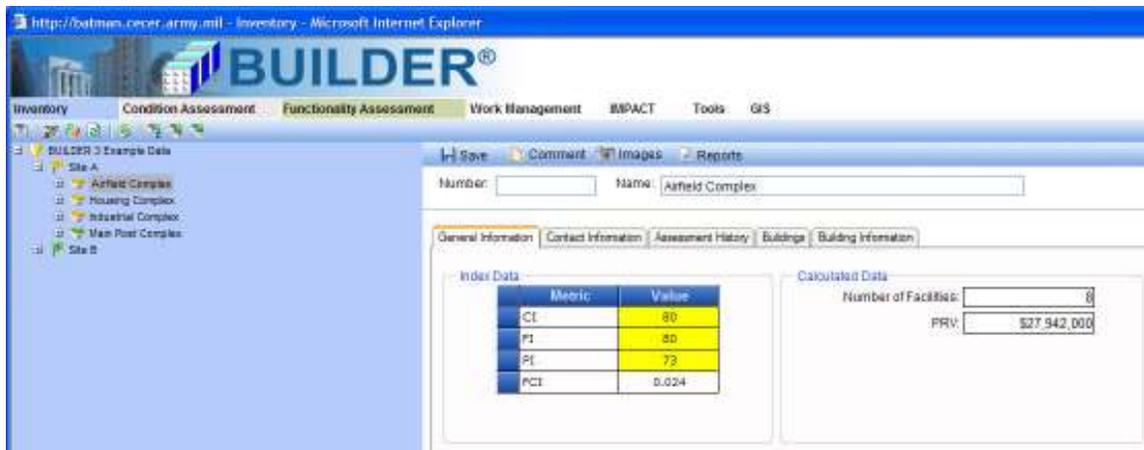
On this screen, enter the following required data for the complex:

- **Number.** Enter the identifying number for the complex, limited to 12 alphanumeric characters. You may leave this blank if you wish to supply only a name. You must enter at least a complex name or complex number and the combination of the two must be unique among the groups in your database.
- **Name.** Enter the identifying name for the complex, limited to 12 alphanumeric characters. You may leave this blank if you wish to supply only a number. You must enter at least a complex name or complex number and the combination of the two must be unique among the groups in your database.

Once the required data are entered, click the ADD button to create the complex. To close the window without creating the complex, click the CANCEL button.

## Editing Complex Data

To edit the data for a specific complex, select the complex in the inventory tree.



## Toolbar

- **SAVE.** Use this button to save the changes you have made to the complex data.
- **COMMENT.** Use this button allows you to add, edit, and view comments about the complex.
- **IMAGES.** Use this button to add, view, and remove images of the complex.
- **REPORTS.** use this button to launch the Report Selection tool, which gives you access to a list of standard reports relevant to complex inventory. See [Using the Report Viewer](#).

## General Complex Information

Initially after a complex is selected in the inventory tree, the general information tab is shown with the following information:

- **Complex Number and Name.** You may edit the Complex Number and Name as you wish. Complex Number is allowed to contain 12 characters; Complex Name is allowed 50 characters.
- **Index Data** (Read-Only).
  - **Complex Condition Index (CI).** The complex CI displays the average CI of the buildings in the complex, weighted by replacement cost. This metric provides an overall sense of the condition of the complex as a whole.
  - **Complex Functionality Index (FI).** The complex FI displays the average FI of the buildings in the complex, weighted by replacement cost. This metric provides an overall sense of the functionality of the complex as a whole.
  - **Complex Performance Index (PI).** The complex PI displays the average PI of the buildings in the complex, weighted by replacement cost. This metric provides an overall sense of the performance of the complex as a whole.
  - **Complex Facility Condition Index (FCI).** The complex FCI represents the total maintenance and repair costs for the complex, normalized by the total complex PRV. This metric provides an overall sense of deferred repair work.

- **Calculated Data** (Read-Only).
  - **# of Facilities.** Displays the number of buildings included in the complex inventory.
  - **PRV.** Displays the total present replacement value of the buildings at the complex computed by adding the individual building replacement costs.

#### Deleting a Complex

To delete a complex, select the complex in the inventory tree and click the *Delete* button.

It is important to note that deleting a complex deletes all inventory (buildings, systems, components, and sections) in the complex. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the complex you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

#### Additional Complex Data

Additional complex data is displayed and can be edited on the contact information, building information, condition trends, and buildings tabs when a complex is selected in the inventory tree.

#### **Contact Information Tab**

The contact information for the complex may be viewed and edited by selecting the CONTACT INFORMATION tab.

Save Comment Images Reports

Number:  Name:

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General Information **Contact Information** Assessment History Buildings Building Information

Name:

Address:

City:

State:

Zip Code:

Phone #:

Fax #:

Email:

WWW:

All of the additional complex information is optional. It includes data regarding the official point of contact (POC) for the location:

- **POC Name.** Enter the name of the complex point of contact, limited to 30 alphanumeric characters.
- **Address.** Enter the official street address of the complex, limited to 30 alphanumeric characters.
- **City.** Enter the city of the complex, limited to 15 alphanumeric characters.
- **State.** Enter the state of the complex, limited to 2 alphanumeric characters.
- **Zip Code.** Enter the zip code of the complex, limited to 10 alphanumeric characters.
- **Phone Number.** Enter the phone number of the complex POC, limited to 20 alphanumeric characters.
- **FAX Number.** Enter the FAX number of the complex POC, limited to 20 alphanumeric characters.
- **Email Address.** Enter the email address of the complex POC, limited to 75 alphanumeric characters.
- **WWW.** Enter the World Wide Web (WWW) URL address for this complex, limited to 75 alphanumeric characters.

### Building Information Tab

Basic information regarding the buildings in the complex can be viewed by selecting the BUILDING INFORMATION tab. All of the data shown on this tab is read-only.

Save Comment Images Reports

Number:  Name:

General Information Contact Information Assessment History Buildings **Building Information**

Complex CI:  Complex FI:  Complex PI:

Facility	Area	PRV	BCI	BFI	BPI	FCI
6709 - Classroom Building	10,667	\$2,224,000	78	76	76	0.000
8585 - Aircraft Mechanics School	34,748	\$4,957,000	82	100	87	0.000
8622 - Operations Building	8,600	\$1,723,000	82	100	88	0.000
8665 - Flight Simulator Building	10,300	\$2,044,000	68	100	77	0.000
8706 - Operations Headquarters	23,600	\$4,728,000	80	100	86	0.000
8753 - Aircraft Maintenance Shop	30,600	\$6,130,000	84	100	88	0.000
8784 - Hangar	26,400	\$5,289,000	88	100	92	0.000
8789 - Avionics Shop	17,341	\$3,474,000	86	100	90	0.000

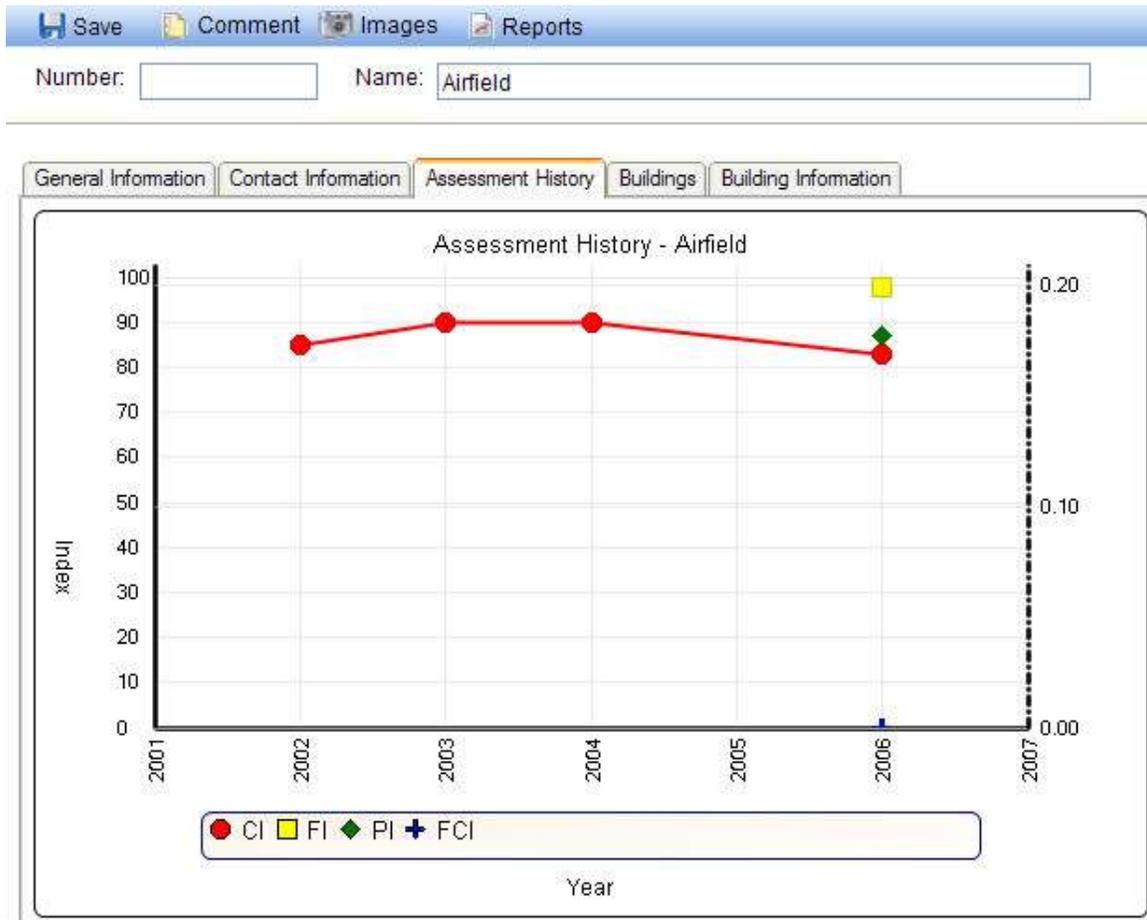
Export to Excel...

- **Facility.** Displays the building number and name of each building in the complex.
- **Area.** Displays the square footage of each building in the complex.
- **Present Replacement Value PRV.** Displays the PRV of each building in the complex.
- **Building Condition Index (BCI).** Displays the current BCI of each building in the complex.
- **Building Functionality Index (BFI).** Displays the current BFI of each building in the complex.
- **Building Performance Index (BPI).** Displays the current BPI of each building in the complex.
- **Building Facility Condition Index (FCI).** Displays the current FCI of each building in the complex.

Additionally, the complex CI, complex FI, complex PI and complex FCI are shown at the top of the tab, which are the average of each index of the buildings in the complex weighted by replacement cost. Finally, all the information on this tab can be exported to a Microsoft Excel spreadsheet by clicking the EXPORT TO EXCEL button at the bottom of the screen.

### Assessment History Tab

The Assessment History tab provides a graph of the condition, functionality, performance and FCI history of the complex, displaying the complex CI, complex FI, complex PI and complex FCI over time.



### Buildings Tab

The Buildings tab lists the buildings currently assigned to the complex. Buildings can be assigned or removed from the complex on this tab. The buildings are broken into two columns on this tab:

- **Unassigned Buildings.** Lists the buildings at the site that are not assigned to a complex.
- **Assigned Buildings.** Lists the buildings assigned to the current complex.

Save Comment Images Reports

Number:  Name:

General Information Contact Information Assessment History **Buildings** Building Information

Unassigned Buildings

- 01 - Operations
- 02 - RD
- 03 - House
- 04 - Test
- JDA - Test

Assigned Buildings

- 6709 - Classroom Building
- 8585 - Aircraft Mechanics School
- 8622 - Operations Building
- 8665 - Flight Simulator Building
- 8706 - Operations Headquarters
- 8755 - Aircraft Maintenance Shop
- 8784 - Hangar
- 8789 - Avionics Shop

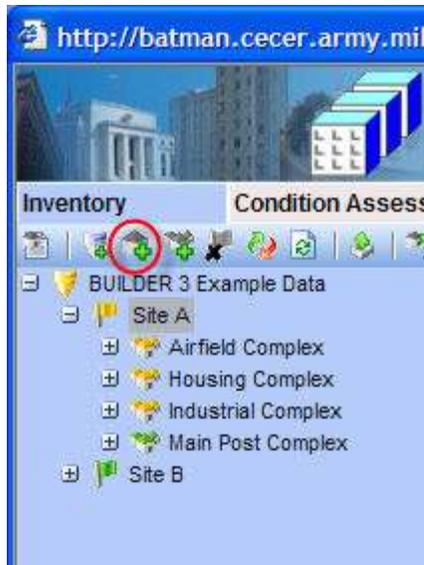
> >> < <<

Select the desired building and use the arrow keys to move unassigned buildings onto the assigned list or to remove buildings from the assigned list to the unassigned list. Only buildings that are not assigned to a complex will appear in the list on the left. If you wish to move a building from one complex to another, you must remove it from the first complex before you can add it to the second.

## Buildings

### Adding a Building

After a [site has been created](#), you can add the actual buildings to your inventory. To add a building, select the site you wish to add the building to in the inventory tree and click the *Add Building* button from the navigation menu.



the data required to be supplied when adding a building includes:

- **Building Number.** Enter the identifying number for the building, limited to 12 alphanumeric characters. Note that because the Building Number is alphanumeric instead of numeric, the alphabetic ordering of buildings in a list will follow character order rather than number order; for example, building number 10 will be listed before building number 2. You may avoid this situation by using leading zeros in your numbering system, e.g. use 02 or 002 or 0002 instead of 2, depending on the maximum number of digits you use in numbering buildings.
- **Building Name.** Enter the identifying number for the building, limited to 12 alphanumeric characters. The use of single quotes, double quotes, and ampersands is discouraged as these characters occasionally interfere with query formation. The Building Number and Building Name you enter will be concatenated into a string that must be a unique display identifier for the building at its location. If you intend to incorporate GIS mapping, it is important at this point to follow standard naming conventions at your site. Linking buildings in your BUILDER inventory with objects on your GIS map will be much simpler if the same building identifiers are used in both places.
- **Building Use.** Select the building use from the dropdown list that most closely matches the buildings use. If you are a Department of Defense activity, BUILDER should display familiar category codes for your service.
- **Construction Type.** Select the construction type from the dropdown list that matches the building. Construction type options include:
  - Permanent
  - Semi-Permanent
  - Temporary
  - Leased
- **Status.** Select the appropriate status of the building from the dropdown list. See [Using the Building Status Property](#) for more information. Status type options include:
  - Active
  - Vacant

- To be transferred
- To be demolished
- To be acquired
- To be built
- Transferred
- Demolished

The default status is "Active." The last four of these values indicate that the designated building is not currently part of the inventory, and two others indicate that the building will be removed from the inventory in the future. In essence, the [building status property](#) allows you to enter future buildings into the inventory and to plan for their maintenance in IMPACT even though they are not presently owned. In addition, the building status property allows you to keep records for buildings that are no longer in the physical inventory. Such records are ignored in processes that should only consider current buildings, such as condition roll-ups and work planning.

- **Year Built.** Enter the year that construction of the building was completed. This data element determines the age of the building, which is a critical factor in BUILDER's decision-making processes.
- **Number of Floors.** Enter the number of floors of the building. This data element is used to estimate the size of the building's footprint by dividing the area by the number of floors.
- **Area.** Enter the gross area of the building.

This data is required because BUILDER's internal algorithms generally have parameters determined by the building's use, size, age, number of floors, status, and construction type, so it is essential that the information be provided as a part of creating the building record.

When you have entered the required data, click the ADD button to create the building. The Building Summary window will open to allow you to immediately [edit the building data](#). To close the window without creating the new building, click the CANCEL button.

#### Editing Building Inventory Data

To view and edit building inventory data, select the building in the Inventory Tree.

The screenshot shows the BUILDER software interface. The main window displays the 'General Information' tab for a building. The building number is 6709 and the name is Classroom Building. The building use is Y7134 - AIRCRAFT MAINTENANCE INSTRUCTIONAL BUILDING. The building type is MB14 - Reinforced Masonry Bearing Walls with Precast Concrete Diaphragms. The current status is Active. The construction type is Permanent. The area is 10,667 SF. The year constructed is 1978. The number of floors is 1. The replacement cost is \$1,750,000. The Mission Dependency Index (MDI) is 33. The Index Data table shows metrics: CI (80), FI (-3), PI (28), and FCI (0.023). The Functionality table shows issues: Location (88), Size & Config (84), Struct Adequacy (33), Access (72), and Ana (72).

## Toolbar

- **SAVE.** Use this button to save the changes you have made to the building data.
- **COMMENT.** Use this button allows you to add, edit, and view comments about the building.
- **IMAGES.** Use this button to add, view, and remove images of the building.
- **REPORTS.** Use this button to launch the Report Selection tool, which gives you access to a list of standard reports relevant to building inventory. See [Using the Report Viewer](#).

## General Information

Initially after a building is selected in the inventory tree, the general information tab is shown with the following information, all of which is required:

- **Building Number.** Enter the identifying number for the building, limited to 12 alphanumeric characters. Note that because the Building Number is alphanumeric instead of numeric, the alphabetic ordering of buildings in a list will follow character order rather than number order; for example, building number 10 will be listed before building number 2. You may avoid this situation by using leading zeros in your numbering system, e.g. use 02 or 002 or 0002 instead of 2, depending on the maximum number of digits you use in numbering buildings.
- **Building Name.** Enter the identifying number for the building, limited to 12 alphanumeric characters. The use of single quotes, double quotes, and ampersands is discouraged as these characters occasionally interfere with query formation. The Building Number and Building Name you enter will be concatenated into a string that must be a unique display identifier for the building at its location. If you intend to incorporate GIS mapping, it is important at this point to follow standard naming conventions at your site.

Linking buildings in your BUILDER inventory with objects on your GIS map will be much simpler if the same building identifiers are used in both places.

- **Building Use.** Select the building use from the dropdown list that most closely matches the buildings use. If you are a Department of Defense activity, BUILDER should display familiar category codes for your service.
- **Current Status.** Select the appropriate status of the building from the dropdown list. See [Using the Building Status Property](#) for more information. Status type options include:
  - Active
  - Vacant
  - To be transferred
  - To be demolished
  - To be acquired
  - To be built
  - Transferred
  - Demolished

The default status is "Active." The last four of these values indicate that the designated building is not currently part of the inventory, and two others indicate that the building will be removed from the inventory in the future. In essence, the [building status property](#) allows you to enter future buildings into the inventory and to plan for their maintenance in IMPACT even though they are not presently owned. In addition, the building status property allows you to keep records for buildings that are no longer in the physical inventory. Such records are ignored in processes that should only consider current buildings, such as condition roll-ups and work planning.

- **Effective Year of Status.** When you choose a building status other than the default "Active" status, you must also provide a year in which the permanent status will take effect. For vacant, demolished, and transferred buildings, the effective year is the year the action occurred. For future "To be" statuses, the effective year is the year the future event will occur, i.e. the year the building is actually built, acquired, transferred, or demolished.
- **Construction Type.** Select the construction type from the dropdown list that matches the building. Construction type options include:
  - Permanent
  - Semi-Permanent
  - Temporary
  - Leased
- **Year Built.** Enter the year that construction of the building was completed. This data element determines the age of the building, which is a critical factor in BUILDER's decision-making processes.
- **Number of Floors.** Enter the number of floors of the building. This data element is used to estimate the size of the building's footprint by dividing the area by the number of floors.
- **Area.** Enter the gross area of the building.

In addition to the general information data described above, this tab displays some data calculated by BUILDER including:

- **ISR Rating** (Read-Only). This is a U.S. Army-specific data field. If you are managing an Army site for which [Installation Status Report data has been](#)

- [imported into BUILDER](#), this color rating will correspond to the building's primary use ISR rating.
- **Replacement Cost.** This data element contains the current replacement cost for a building of the current building's use and size under current construction standards. BUILDER provides a cost module to estimate the replacement cost. If you do not check the manual override checkbox, the cost module will update the replacement cost using the default [cost book](#), adjusted for [inflation](#) and [geographic location](#), when costs are updated. If you check the manual override checkbox, the cost module will not affect this building's replacement cost, and you will have to periodically update its replacement cost manually to account for inflation.
  - **Mission Dependency Index.** The availability of the Mission Dependency Index (MDI) is the result of on-going U.S. Navy research to develop a process for computing a 0-100 index that measures how critical the facility is to the overall mission of its owner. This measure is one of several being developed to allow user input to shape an automated planning process that uses metrics and rules for their application to identify and prioritize budget allocations and work plans. See [Mission Dependency Index Overview](#) for more information.
  - **Index Data (Read-Only).** All of the indices below are updated every time a [CI roll-up](#) is performed.
    - **Building Condition Index (BCI).** The BCI measures the condition of the building as a whole. It is computed by averaging the condition indices of the building's systems, weighted by the replacement costs of the systems.
    - **Building Functionality Index (BFI).** The BFI measures the functionality of the building as a whole. It is computed from the results of a [functionality assessment](#) of the building as a whole.
    - **Building Performance Index (BPI).** The BPI measures the overall performance of the building as a whole. It is computed using a weighted combination of the BCI and BFI.
    - **Facility Condition Index (FCI).** The (FCI) is the industry standard index calculated by dividing the total cost of necessary repairs in the building divided by the replacement cost of the building. In BUILDER, the total cost of necessary repairs is estimated by summing the individual section repair costs.
  - **Status**
    - **Family Housing (Read-Only).** This checkbox indicated whether or not the building is family housing. It is automatically marked if the building use type is residential. If checkbox is marked, you can save more data about each dwelling unit by clicking the  button. See [Family Housing Data](#) for information on the data that can be entered.
    - **Historic Building (Read-Only).** This checkbox indicates whether or not the building is historic. It is automatically marked if a functional assessment has been performed in the building and it has been determined that the building is historic or has cultural resources in the building.
    - **Child-Occupied Facility.** This checkbox indicates whether or not the facility is child-occupied. You can mark or un-mark this box as appropriate.
  - **Functionality (Read-Only).** Displayed in this grid is a list of the functionality issues with deficiencies in the building. Only functionality issues with a FI below the threshold set in the functionality standard will be shown here.

In addition to all of data described above, the other tabs at the top of the screen allow for [additional information](#) regarding the building to be added, viewed, and edited.

### Additional Building Data

Additional building data is displayed and can be edited on the additional information, condition trends, work item history, and systems at a glance tabs when a building is selected in the inventory tree.

### Additional Information Tab

The additional building information is accessed from the general building inventory screen by selecting the ADDITIONAL INFORMATION tab.

Save Comment Images Reports

Building No:  Building Name:

General Information **Additional Information** Assessment History Work Item History Systems at a Glance

POC Name:   
 Phone:   
 E-Mail:

Street:   
 City:   
 State:  Zip:

Architect:     
 Contractor:     
 Documents:

Perimeter:  LF

Description	Length	Width

NOTE: Length and width are measured in linear feet

v

All of the additional building information is optional and includes:

### Point of Contact

- **POC Name.** The name of the point of contact for the building, limited to 30 characters.
- **Phone.** The building POC's phone number, limited to 20 characters.
- **Email.** The building POC's Email address, limited to 75 characters.

### Address

- **Street.** The building's street address, limited to 30 characters.
- **City.** The city portion of the building's address, limited to 15 characters.
- **State.** The state portion of the building's address, limited to 2 characters.
- **Zip.** The zip code of the building's address, limited to 10 characters.

### Building Design

- **Architect.** Lists the architects of the building. Add and delete names by using the adjacent buttons. Each architect's name is limited to 30 characters.
- **Contractor.** Lists the contractors of the building. Add and delete names by using the adjacent buttons. Each contractor's name is limited to 30 characters.
- **Documents.** Lists the documents related to the building. Add and delete document names by using the adjacent buttons. Each document's name is limited to 24 characters.

### Dimensions

- **Perimeter.** Enter the linear measure of the perimeter of the building.
- **Description.** Enter a description of the distinct areas of the building you wish to add dimensions for. For example, you may list "East Wing/West Wing", or "Offices/Library/Warehouse", or "Public Areas/Secure Areas." Each description is limited to 50 characters. Use the ADD DIMENSION and DELETE DIMENSION buttons to add and delete items from the list.
- **Length.** Enter the length of the area identified in the description.
- **Width.** Enter the width of the area identified in the description.

### Assessment History Tab

The Assessment History Trends tab displays two graphs showing how different metrics in the building have changed over time. The graph on the left displays the condition, functionality, performance and FCI history of the building (by displaying the BCI, BFI, BPI, and FCI) from the year the building was constructed to the current fiscal year.



### Work Items History

The Work Item History tab shows a list of the work items that have been performed and/or are scheduled to be performed in the building. The work items can be filtered by FY, status, system, component, or section using the dropdown lists on the screen. For more information on work items, see the [Work Planning Overview](#).

Save Comment Images Reports

Building No: 6709 Building Name: Classroom Building

General Information Additional Information Assessment History Work Item History **Systems at a Glance**

FY: <All> System: <All>  
 Status: <All> Component:  
 Section:

Description	FY	Activity	Est. Cost	Status	Return	ROI
Replace Lighting Fixtures Incandescent Exterior	2008	Replace	\$250	Awaiting Funds	\$248	0.98
Repair Exterior Ramp Concrete	2008	Repair	\$250	Awaiting Funds	\$6,900	27.60
Repair Exterior Window Metal Casement	2008	Repair	\$250	Awaiting Funds	\$1,300	4.40
Replace Air Handling Unit Modular <3 Tons	2008	Replace	\$860	Awaiting Funds	\$1,200	1.00
Repair Air Handling Unit Central Station 12000-14000 CFM	2008	Repair	\$250	Awaiting Funds	\$5,200	20.80
Repair Fuel Storage Fuel Oil 1000-2000 Gall	2008	Repair	\$250	Awaiting Funds	\$910	3.64
Replace Cooling Unit/Plant Unknown Unknown	2008	Replace	\$90,000	Awaiting Funds	\$95,000	1.33
Replace Cooling Unit/Plant Heat Pump Residential 4-5 Tons	2008	Replace	\$6,300	Awaiting Funds	\$6,300	1.00
Replace Interior Floor Finish/Covering Wood	2008	Replace	\$960	Awaiting Funds	\$1,050	0.78
Replace Interior Floor Finish/Covering Carpet	2008	Replace	\$44,000	Awaiting Funds	\$45,500	-0.31
Replace Cooling Unit/Plant Air Conditioner Thru-Wall <25000 BTUH	2008	Replace	\$2,700	Awaiting Funds	\$3,000	1.10

Export To Excel

### Systems at a Glance Tab

Basic information regarding the systems in the building can be viewed by selecting the SYSTEMS AT A GLANCE tab. The systems at a Glance tab shows the systems inventoried in the building, each system's condition index (SCI), and the replacement cost of each system. All of the data shown on this tab is read-only.

Save Comment Images Reports

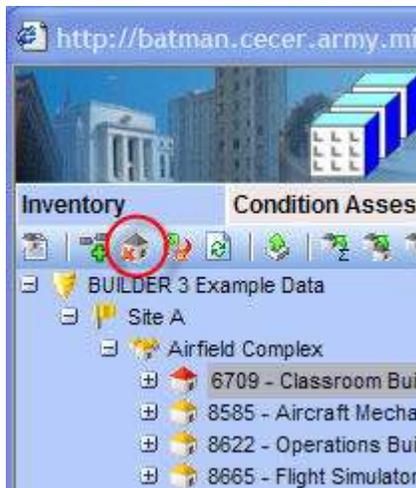
Building No: 6709 Building Name: Classroom Building

General Information Additional Information Assessment History Work Item History **Systems at a Glance**

Description	SCI	Replacement Cost
Electrical	86	\$28,775
Exterior Circulation	66	\$38,400
Exterior Closure	98	\$231,475
Fire Suppression	81	\$7,500
HVAC	48	\$141,816
Interior Construction	63	\$122,080
Plumbing	90	\$15,750
Roofing	90	\$55,510
Specialties	88	\$7,400
Structural	91	\$53,600

### Deleting a Building

To delete a building select the building in the Inventory tree and click the *Delete Building* button.



It is important to note that deleting a building deletes all the inventory (systems, components, and sections) in the building. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the building you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

Instead of deleting a building, you can use the [Building Status](#) property to mark buildings that have been demolished or transferred to another owner. With this method, the building's records remain in the database, but the building is ignored in processes that should only consider current buildings. See [Using Building Status to Track Non-Current Buildings](#).

#### Using the Building Status Property

The Building Status property allows you to maintain database records for buildings not currently in your physical inventory, whether for historical purposes or future planning. A building's current status is used in the decision processes of both BUILDER and IMPACT, and it is the basis for a number of useful capabilities, including allowing you to:

- Define [policies](#) so that buildings scheduled for demolition are maintained at a lower standards than might generally apply. Simply use the Building Status as one of the attributes used to define a policy and assign standards as appropriate to each status type.
- Define work [prioritization schemes](#) that consider future changes in building status in prioritizing work items. This can be done by using the Building Status as an initial split in your prioritization scheme and assigning weights appropriate for each status type (probably using 0.0 weight for non-current status types).
- Plan for the maintenance load of buildings to be added to your inventory in the future by [analyzing an IMPACT scenario](#).
- Change the status of a building dynamically during an IMPACT simulation to study the effects of a changing inventory on the budget and the work load.

The Building Status property is set on the [Building Summary](#) screen and has one of the following values:

- **Active.** This is the default building status. Use this status for buildings that are currently in use. This status is the end status for buildings with status "To be built" or "To be acquired."
- **Vacant.** This status replaces the Vacant checkbox property used in earlier versions of BUILDER. Use this status for buildings that are currently in your physical inventory but not in use.
- **To be transferred.** Use this status for buildings that will be transferred to another owner in the future. The effective year of this status is the year in which the transfer will take place. No BUILDER or IMPACT cost is associated with such a transfer. However, maintenance policies may be associated with this status that yield different standards than would ordinarily be in effect.
- **To be demolished.** Use this status for buildings that will be demolished in the future. The effective year of this status is the year in which the building is to be demolished. In an IMPACT simulation, a building-level work item to demolish the building will be generated, including a cost estimate for the work. In addition, maintenance policies may be associated with this status that lower the standards usually required for this type of building.
- **To be acquired.** Use this status to enter inventory records for an existing building prior to its acquisition. The effective year of this status is the year in which the building is expected to be acquired. You will be able to edit the building and inspection data for this type of building, and BUILDER's condition and remaining service life predictions will be applied based on the inspection data entered. In this way, you will be able to estimate the maintenance requirements of such a building prior to its acquisition. In an IMPACT simulation, this feature allows you to acquire buildings as the simulation progresses.
- **To be built.** Use this status to enter inventory records for a new building prior to its commissioning for occupancy. The effective year of this status is the year in which the building is expected to be recognized as part of your physical inventory. In BUILDER, you will be able to edit the building data on the Building Summary screen but will not be able to add inspection records until the status changes to "Active." In an IMPACT simulation, this feature allows you to add new buildings dynamically as the simulation progresses.
- **Transferred.** Use this status to force BUILDER's automated processes for condition/service life assessment and work planning to skip the building but leave the inventory and inspection records intact. The effective year for this status is the year in which the transfer takes place. This status is the end status of the "To be transferred" status.
- **Demolished.** Use this status to remove a building from BUILDER's automated processes for condition/service life assessment and work planning but leave the inventory and inspection records intact. The effective year for this status is the year in which the building is demolished. This status is the end status of the "To be demolished" status.

The last four of these values indicate that the designated building is not currently part of the inventory, and two others (to be transferred and to be demolished) indicate that the building will be removed from the inventory in the future. In essence, the building status property allows you to enter future buildings into the inventory and to plan for their maintenance in IMPACT even though they are not presently owned. In addition, the building status property allows you to keep records for buildings that are no longer in the physical inventory. Such records are ignored in processes that should only consider current buildings, such as condition roll-ups and work planning.

When you [delete a building](#) from BUILDER, you actually remove all database records associated with that building. If you wish to keep the records, whether for historical purposes, analysis, or possible transfer to another BUILDER database (perhaps the building is being transferred from one property book to another), you should simply set the building status property to an appropriate value.

### Using Building Status to Track Non-Current Buildings

The Building Status property allows you to have records in your BUILDER database for buildings that are not currently in your physical inventory. This is useful for buildings at both ends of the life-cycle. You may keep records for buildings that have been demolished or transferred, and you may add buildings planned for future construction or acquisition.

### Adding Buildings To Be Built or Acquired in the Future

Using the Building Status property, it is possible to enter buildings into the database before they are actually in the physical inventory. This includes buildings under construction (designated with status "To be built") and existing buildings being considered for acquisition from another owner (designated with status "To be acquired"). With the building status property, you will be able to assess short-term work requirements for newly acquired existing buildings and to plan long-term maintenance requirements for future buildings using an IMPACT scenario.

If you enter records for a building with status "To be acquired", you may record inspection results prior to acquisition. The BUILDER processes that determine remaining service life and condition prediction will track the condition of the building after it is first entered and prior to acquisition. With this information, BUILDER will be able to generate a work plan for the building to upgrade it to the standards established by an appropriate policy sequence. Such information could be invaluable in planning for the load such a building will place on both short and long term budgets.

If you enter a building with status "To be built", you may not record new inspections until the status changes to "Active". The BUILDER processes that determine remaining service life and condition prediction will skip such a building, under the assumption that quality assurance during the construction process will force all systems to a CI of 100 prior to commissioning. The advantage of entering the building before it is built is that you may include it in IMPACT scenarios to measure its long-term effects on work plans and budgets. That is, the IMPACT scenario can change the status of a new building to "Active" at a scheduled time and begin treating it as a normal building with predictable deterioration rates and work requirements.

### **Keeping Records for Buildings That Have Been Demolished or Transferred**

In earlier versions of the BUILDER application, the only way to eliminate a building from the automated assessment and planning processes used by BUILDER and IMPACT was to delete the building. With this approach, all records related to the building were actually deleted from the database. The Building Status property gives you another option.

If you have records in the BUILDER database for a building which is to be demolished or transferred to another owner, you can keep the inventory, inspection, and work history records in the BUILDER database but make the building invisible to BUILDER's automated processes simply by changing the building's status to "Demolished" or "Transferred".

Here is a summary of the Builder/IMPACT approach to a building with status "Demolished" or "Transferred":

- Inventory records are locked. You will be unable to change the building's data properties or its composition.
- Condition and Functionality Assessment records are locked. You will be unable to change existing records or to add new records.
- Work Planning records are locked. You will be unable to change existing records or to add new records.
- The building's cost data will not be affected by annual cost updates at the beginning of the calendar year.
- The CI and RSL values for the building and its systems/components/sections will not be updated.
- The building will not be considered during automatic work generation.
- If the building will not appear in IMPACT simulations.
- If the building's status is changed to "Demolished" or "Transferred" during an IMPACT simulation, it will have records for the years prior to its status change and then will be treated as it is in BUILDER. That is, there will be no further updates of data, no new inspections, no changes in condition or service life, etc.

## **Systems, Components, and Sections**

### Identifying Systems, Components and Sections

After you have [created a building](#) and entered its required data elements, you should identify the systems, components and sections in the building. Your decomposition of a building into its systems, and the decomposition of those systems into components will be very straight-forward. The formation of sections, however, will require some thought on your part. BUILDER manages buildings at the section level, and you will inspect sections and plan work for sections. BUILDER's representation of building sections has been designed to be very flexible. With flexibility comes choices, choices that add complexity to the process. Pay particular attention to the "Defining Sections" section below. In addition to adding the systems, components, and sections manually, BUILDER provides several mechanisms to speed the inventory process including [Copying a Building](#), [Building Templates](#), and using the [Embedded Building Models](#).

### **Defining Systems**

BUILDER offers you the option of using one of two [building system representations](#):

1. BUILDER's traditional building decomposition into 12 systems
2. ASTM UNIFORMAT II Classification for Building Elements with 17 systems

The traditional BUILDER systems were chosen to be more closely aligned to the maintenance and repair activities of buildings, while the UNIFORMAT systems align more closely with building construction.

Systems are used solely to help you organize the records for the actual physical items in your building, so choose the system decomposition that best suits your needs. Once you have chosen one of the two system representations, you may begin creating system records for each building. You may create only one system of each system type for any given building. In creating a new system for a building, the list of choices for the new system will only include those systems not already created for the building. See [Adding, Viewing, and Deleting a System](#) for details.

### **Defining Components**

Like systems, components are used to help organize the records of the actual physical items in the building. The components that can be added to a system will depend on the building system representation you have chosen. You may create only one component of each type for each system. In creating a new component, the list of choices will only include those components of the appropriate system that have not already been created. See [Adding and Viewing a Component](#) for details.

If you have a component that is not in the list of available component types, please contact one of the [Support Centers](#). BUILDER does not have a feature for user-defined components. Each component has a number of data elements associated with it (varieties of types and materials, costs, service lives, standard units of measure, inspectable subcomponents, etc.) which must be researched before the component can be added.

### **Defining Sections**

Building sections are the key structures in a BUILDER inventory. The System and Component structures are organizational in nature, serving to categorize what is in a building into manageable groups. Building sections actually represent the physical items of a building, belong to a particular component, and have the following properties:

- Component Type
- Material/Equipment Type
- Quantity
- Age
- Whether or not it is painted, and, if so, when it was last painted and paint type

BUILDER has been designed to be flexible in allowing you to represent your building's sections in a number of ways to support how you intend to manage them. Some examples may be helpful:

1. Building A has 5 exterior doors (System: Exterior Closure, Component: Exterior Door). Four of the doors are metal personnel doors and the fifth is a metal overhead door. Because there are two different types of doors (personnel, overhead), you will have to create at least two sections. In this

- situation, you should create a section for the metal overhead door and enter the appropriate data about it. You do not need to create a section name for this door since there is only one. For the four metal personnel doors, if you intend to manage them as a unit, create one more section and enter the appropriate data about the doors. Again, you do not need to enter a section name because you are only creating one section of this material and type.
2. Building A has 5 exterior doors (System: Exterior Closure, Component: Exterior Door). You lease Building A to two tenants X and Y. Two metal personnel doors and a metal overhead door are in the tenant X area, and the other two metal personnel doors are in the tenant Y area. Because you plan to inspect and maintain the doors by tenant, you create three sections:
    1. Tenant X Metal Personnel with quantity 2
    2. Tenant X Metal Overhead with quantity 1
    3. Tenant Y Metal Personnel with quantity 2.

When you create each section for Tenant X, you use "Tenant X" as the name of the section. Do the same for Tenant Y. In fact, you may want to name every section (especially Interior Construction sections) in the Tenant X area "Tenant X". When you inspect the building, you can use the section name to distinguish sections belonging to each of the tenants.

3. Building A has 2 reciprocating 20-ton chillers (System: HVAC, Component: Cooling Unit/Plant). If they are the same age and you plan to manage them as a unit, then create one section with quantity 2. However, if you want to manage them individually or if they were installed at different times and may therefore have different maintenance requirements, then create two sections of quantity 1 each. Since both sections have the same equipment type (Reciprocating 20-30 Ton) and component type (Chillers), you will have to have distinct Section Names for the two sections. You may use their barcode IDs as the section names if you wish.
4. Building B has 50 interior wood personnel doors, all alike and all installed when the building was built. You originally create one section with quantity 50 for these doors. You may have several years of inspection data regarding the doors, which have deteriorated uniformly over time. With the current inspection, however, two of the doors are found to be severely damaged and will have to be replaced. If the two doors remain in their original section, inspection samples for these two doors will have to be marked as "non-representative". When the condition index is calculated, the condition of the two doors, which are only 4% of the section, will have only a small impact on the overall section CI. Since you will be replacing the two doors, perhaps with a different quality of door since they may be subject to higher user abuse, you should use component sectioning to isolate the two doors. To do this, reduce the original section quantity to 48. Then create a new section for the two damaged doors and enter the current inspection data for this new section, which will then have a low CI.

From these examples you can see that some thought will have to be given to how you decompose a building into sections. Hopefully, you can also see that BUILDER is flexible enough to allow you to manage at the level of detail that you choose. See [Adding and Editing a Section](#) for details.

## **Inventory Suggestions**

It is not necessary to do a complete inventory initially. Implementation funds and/or time may be limited so it is possible and permissible to begin with only some of the component-sections and expand the inventory on an as-needed basis. If the desire is to begin with a limited set, the following suggestions are made:

- Focus on the components that are most critical to building function
- Focus on the components that traditionally dominate M&R needs.

When sectioning, a few rules of thumb are offered:

- To avoid a data burden, use the smallest number of sections possible to meet managerial needs. For example, it is usually not necessary to individually section every room, each exterior wall, etc.
- Since material differences (e.g. wood vs. masonry) are criteria for sectioning, only create sections for material differences when the quantity is significant enough to warrant individual management attention. For example, an exterior wall may be made of wood, but a few square feet of wall is made of masonry, essentially for decoration. The wood wall is clearly a section, but what about the masonry? Should it be its own section? If the masonry quantity is a mere fraction of the wood and work would be accomplished on the masonry at the same time as the wood (in other words, the entire wall is being managed as a unit), then there is no need to create a section just for the masonry. However, if the quantities of both the wood and masonry are significant, then create sections for both.
- Equipment sectioning should be thought out carefully when multiple units of the same equipment are present. For example, there may be three air handling units of the same type, age, etc. In this case, there could be one section with the quantity of three, or three sections with the quantity of one. Which approach should be taken? If the desire is to manage them as essentially one unit as far as planning repair and replacement, then one section will suffice. However, if it is expected that over time, they will be replaced individually, etc, then each should be its own section.
- Obtaining accurate an accurate quantity can be difficult, and often times there are many sources for obtaining quantity. These include drawings, actual measurement or count, or other records. It must be understood that the more detailed or accurate the count or measurement, the more costly it is to collect the data. Extracting information from records, including drawings, and doing a field validation is the most costly. Reasonable estimates within reasonable error are very acceptable as it will result in reasonable error in BUILDER's analyses. For example, the wall finish may truly be 10,634 SF. An estimate of 11,000 SF will suffice for planning purposes especially if the cost to get the true value is twice that for an estimate. Component-sections that cover an area (SF or SM) are the most difficult to obtain with precision whereas those that are "each" are the easiest. Generally, field count the "each" component-sections and estimate the others. The estimates can be refined in the future when projects are developed for M&R work.
- Care should be taken when establishing Year Built/Renewed. Error here will result in erroneous remaining service lives and add error to the projected year when M&R should be performed. Experience has shown, however, that sometimes the year in which component-sections were replaced, rehabilitated, or initially installed/constructed is truly unknown as the records are no longer available. In those cases, make a reasonable estimate and

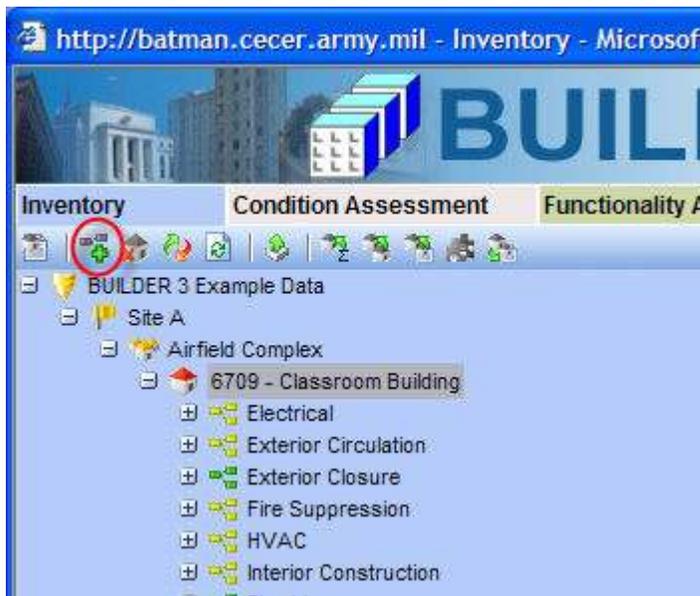
mark the estimated checkbox. Often, there are people who will remember when that work was done, at least in a generalized way (e.g. early 1990's). Fortunately, through subsequent inspections and condition assessments, the Year Installed/Built becomes less important, as BUILDER's prediction models will use the condition assessment information to adjust the remaining service life and to predict when M&R will be required in the future.

### Adding, Viewing, and Deleting a System

Please be sure to read the topic [Identifying Systems, Components and Sections](#) before proceeding with this topic.

#### **Adding a System**

A new system can be added to an existing building by selecting the building in the inventory tree and clicking the *Add System* button.



The context area of the BUILDER screen will appear as shown below.



Select the system you wish to add to the building from the dropdown list and click ADD to add the system. If you do not wish to add a system to the building, click the CANCEL button.

Note that each building can contain only one system of each type. The dropdown list for adding a system will display only the system types that do not already exist in the building.

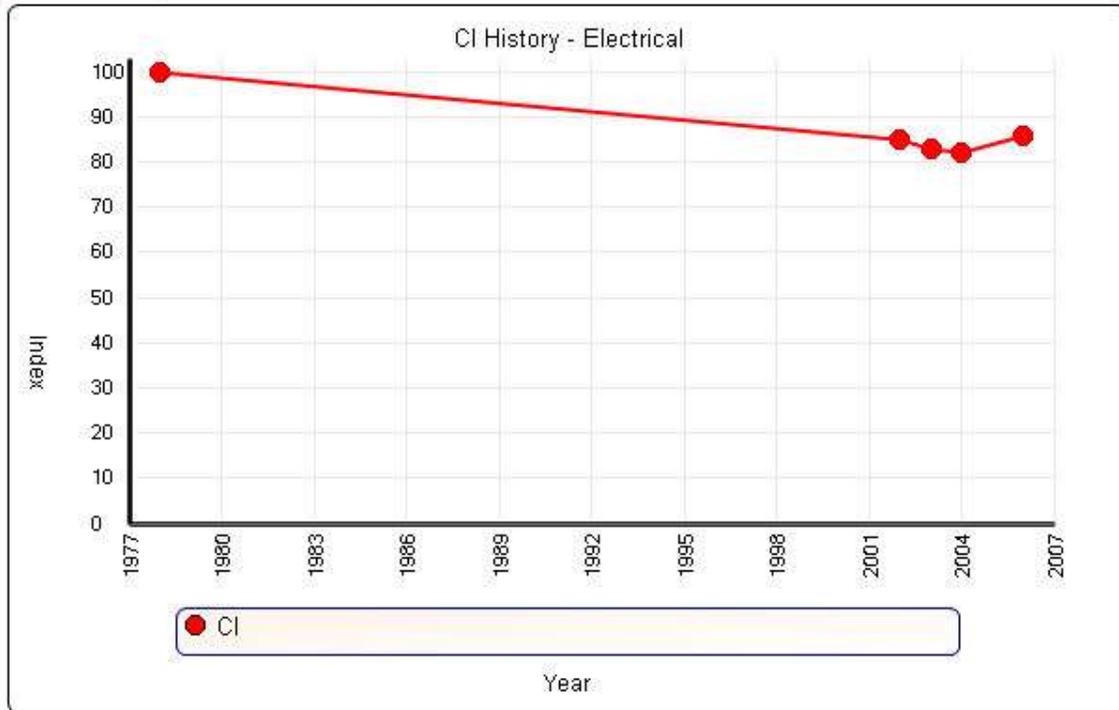
### **Viewing an Existing System**

Data for an existing system can be viewed by selecting the system in the inventory tree. At the top of the context area, the system description, system condition index (SCI), and system replacement cost are shown. Additional information regarding the system is found in the different tabs and is described below.

### **Condition History Tab**

The Condition History tab displays a graph of the CI history of the system over time.

CI: 86
 Replacement Cost:



### Components at a Glance Tab

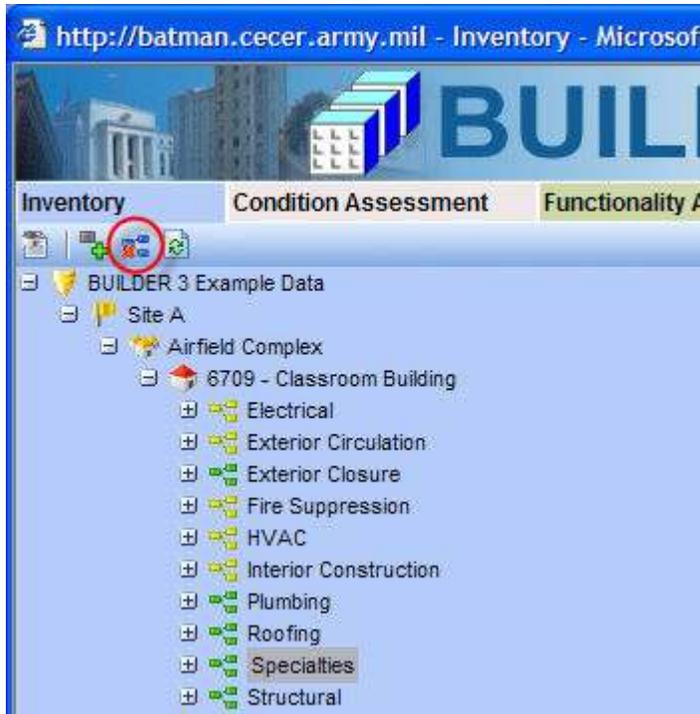
Basic information regarding the components in the system can be viewed by selecting the COMPONENTS AT A GLANCE tab. The components at a Glance tab shows the components inventoried in the system, each building component's condition index (BCCI), and the replacement system cost of each component. All of the data shown on this tab is read-only.

CI: 86
 Replacement Cost:

Description	BCCI	Replacement Cost
Distribution	70	\$11,000
Lighting Fixtures	98	\$14,825
Panels	90	\$2,950

## Deleting an Existing System

To delete a system from a building, select the system in the Inventory Tree and click the *Delete System* button on the menu toolbar.



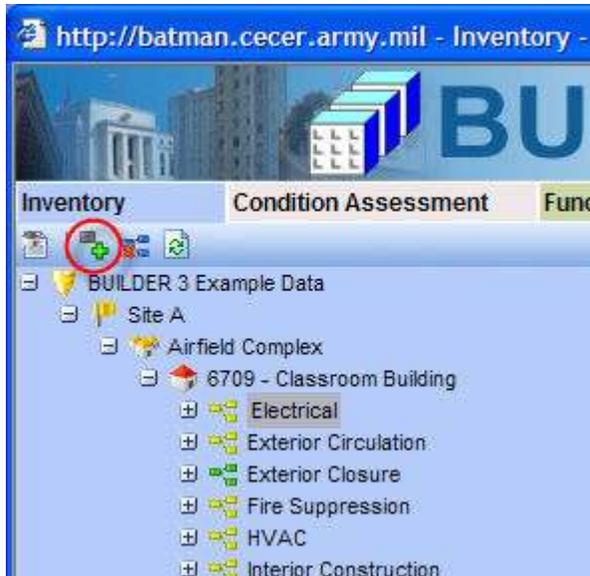
It is important to note that deleting a system will delete all inventory (components and sections) in the system. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the system you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

### Adding and Viewing a Component

Please be sure to read the topic [Identifying Systems, Components and Sections](#) before proceeding with this topic.

### Adding a Component

A new component can be added to an existing system by selecting the system in the inventory tree and clicking the *Add Component* button.



The context area of the BUILDER screen will appear as shown below.



Select the component you wish to add from the dropdown list and click ADD to add the component. If you do not wish to add a component to the system, click the CANCEL button.

Note that each system can contain at most one component of each type. The dropdown list for adding a component will display only the component types that do not already exist for the system.

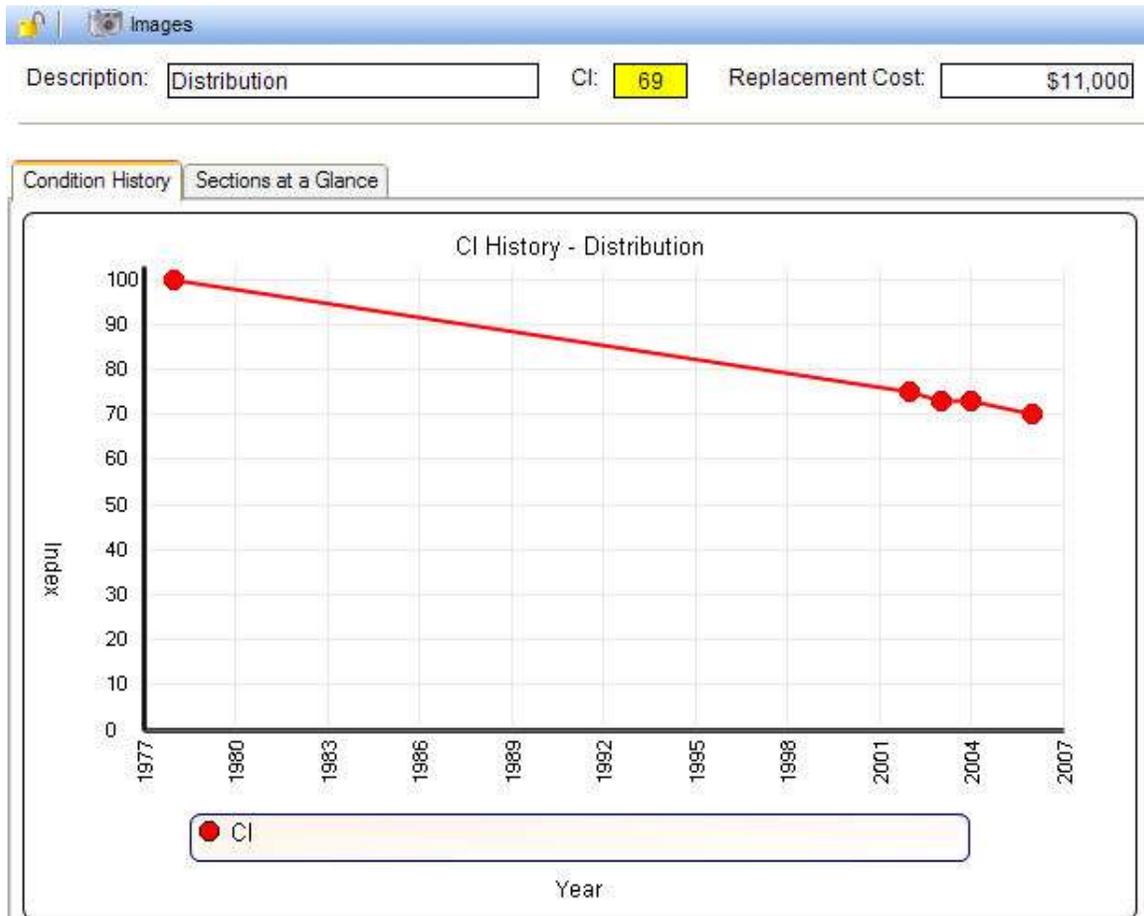
### Viewing an Existing Component

Data for an existing components can be viewed by selecting the component in the inventory tree. At the top of the context area, the component description, building component condition index (BCCI), and component replacement cost are shown.

Additional information regarding the component is found in the different tabs and is described below.

### Condition History Tab

The Condition History tab displays a graph of the CI history of the component over time.



### Sections at a Glance Tab

The Sections at a Glance tab shows the inventoried sections in the system, each section's CSCI, and each section's replacement cost. The replacement cost is computed from BUILDER's cost models based on section type and section quantity, and the CSCI is computed based on condition assessment data for the section.

Images

Description:  CI:  Replacement Cost:

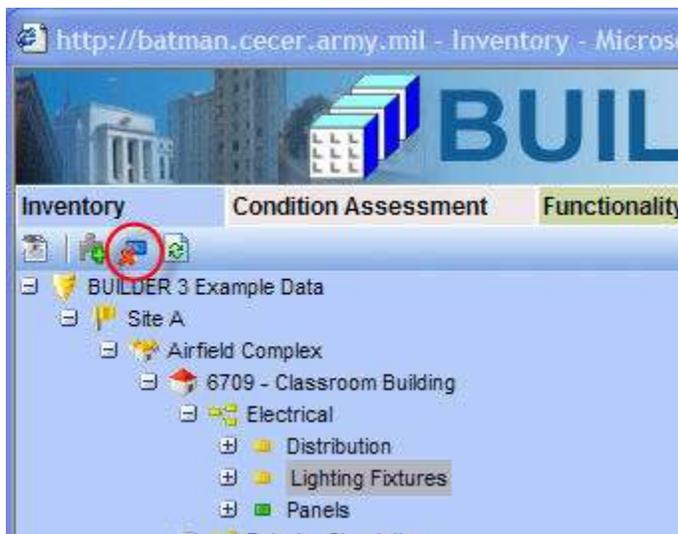
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Condition History | Sections at a Glance

	Description	CSCI	Replacement Cost
	Wood Wall	95	\$ 3,850
	Wood Base	77	\$ 5,000

### Deleting an Existing Component

To delete a system component, select the component in the Inventory Tree, right-click it, and select *Delete*.



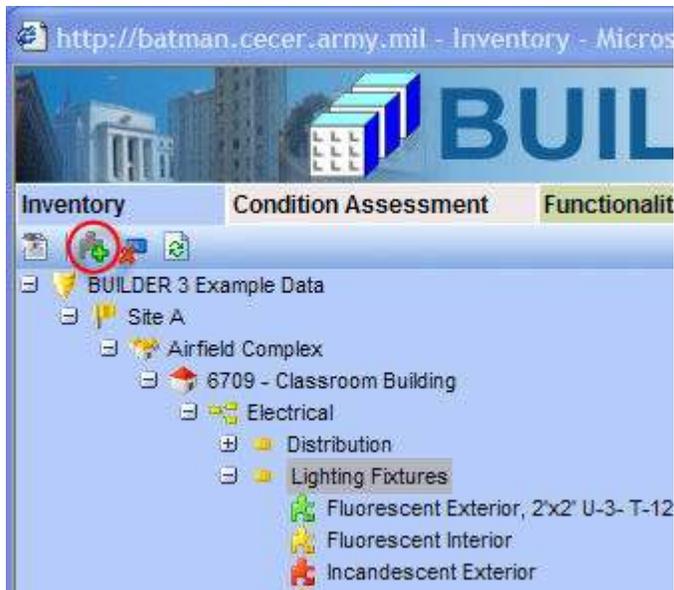
It is important to note that deleting a component will all sections in the component. Be sure that you wish to take this action. This is a significant step to take and should only be done when you are certain that you wish to clear the entire inventory of the system you have selected. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

### Adding and Editing a Section

Please be sure to read the topic [Identifying Systems, Components and Sections](#) before proceeding with this topic.

### Adding a Section

A new section can be added to an existing component by selecting the component in the inventory tree and clicking the *Add Section* button.



The context area of the BUILDER screen will appear as shown below.

Cancel Add

Section Name: N/A

Material Category: Glass

Component Subtype: Base

Quantity: 0 EA

Year Built/Renewed: 1978  Estimated

Painted/Coated:

Year Painted/Coated: 1978

Paint/Coating Type: Alkyd Gloss Enamel

Before adding the section, the following data must be recorded:

- Section Name.** Enter the name of the section. A section is described by its name, its material/equipment category, and its component subtype. You may have multiple sections of the same material/equipment category and component subtype, but each such section must have a unique name. A given section name may be used, however, for the sections of different systems and components, which allows the section name to be used in organizing your inventory and condition assessment procedures. For example, you may use the section name "Room 101" for the floor, walls, doors, plumbing, HVAC etc. sections in Room 101. When inspecting Room

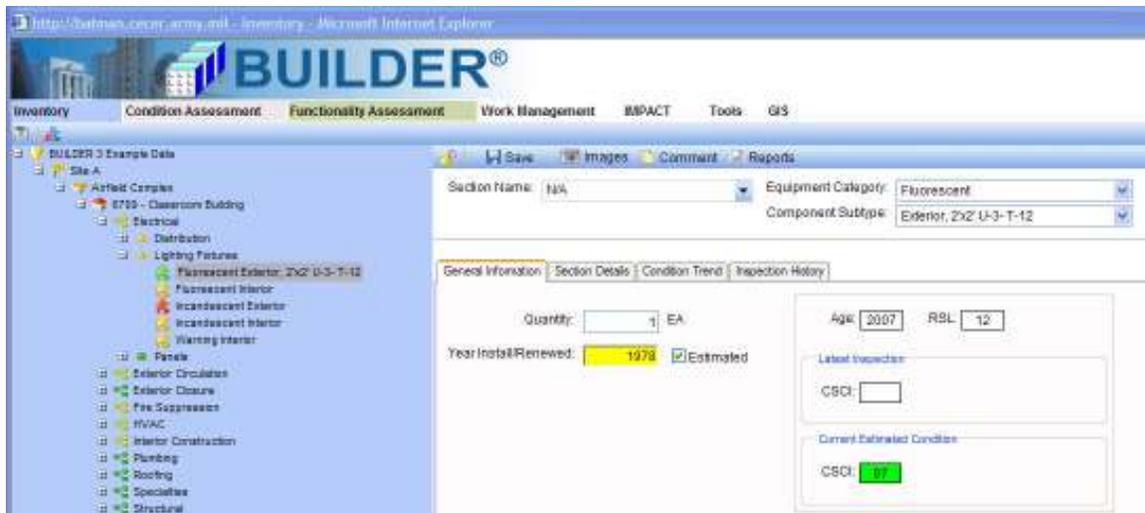
101, all of the building sections with the name "Room 101" can be easily selected. To simplify the process of creating multiple types of sections with the same section name, the Section Name property includes a dropdown list of current section names for the building. You may either type in a new section name or choose a name from the dropdown list.

- **Material/Equipment Category.** Select the material/equipment category of the section from the dropdown list. Each component has a set of distinct material/equipment categories. For example, a "Door" component has material categories "Wood", "Metal", "Glass", etc.
- **Component Subtype.** Select the component subtype of the section from the dropdown list. Each component type and material/equipment category has a set of distinct component subtypes. For example, a "Door" component with material category "Wood" has component subtypes of "Personnel", "Overhead", etc.
- **Quantity.** Enter the quantity of the section.
- **Year Built/Renewed.** Enter the four-digit year the section was built (or installed if equipment) or renewed. If you have no record of the year the section was last replaced, you can enter an estimated year and check the Estimated checkbox. Initially, BUILDER algorithms estimate the year the section was last replaced. The default value is the building's year of construction if the age of the building is less than 1.5 times the expected service life of the section. If the estimating algorithm is used or you are unsure of when the section was built/renewed, make sure you mark the Estimated checkbox.
- **Painted/Coated.** Mark this checkbox if section is painted or has a surface coating.
- **Year Painted/Coated.** If the section is marked as painted/coated, enter the four-digit year the section was last painted. If you have no record of the year the section was last painted/coated, you can enter an estimated year and check the Estimated checkbox. Initially, BUILDER algorithms estimate the year in which the section was last painted/coated. The default value is the building's year of construction if the age of the building is less than 1.5 times the expected paint life of the section. If the estimating algorithm is used or you are unsure of when the section was last painted/coated, make sure you mark the Estimated checkbox.
- **Paint/Coating Type.** If the section is marked as painted/coated, select the paint/coating type from the dropdown list.

After adding the section data, click the ADD button to add the section to your inventory. If you do not wish to add the section, click the CANCEL button to close the form.

### Editing Section Data

Data for a given section can be viewed and edited by selecting the section in the inventory tree.



## Toolbar

- **SAVE.** Use this button to save the changes you have made.
- **COMMENT.** Use this button allows you to add, edit, and view comments about the section.
- **IMAGES.** Use this button to add and remove images of the section.
- **REPORTS.** Use this button to launch the Report Selection tool, which gives you access to a list of standard reports relevant to section inventory. See [Using the Report Viewer](#).

## General Information Tab

After a section is selected in the inventory navigation tree the General Information tab is shown, and all of the section data described above can be edited.

Additional data on this tab includes:

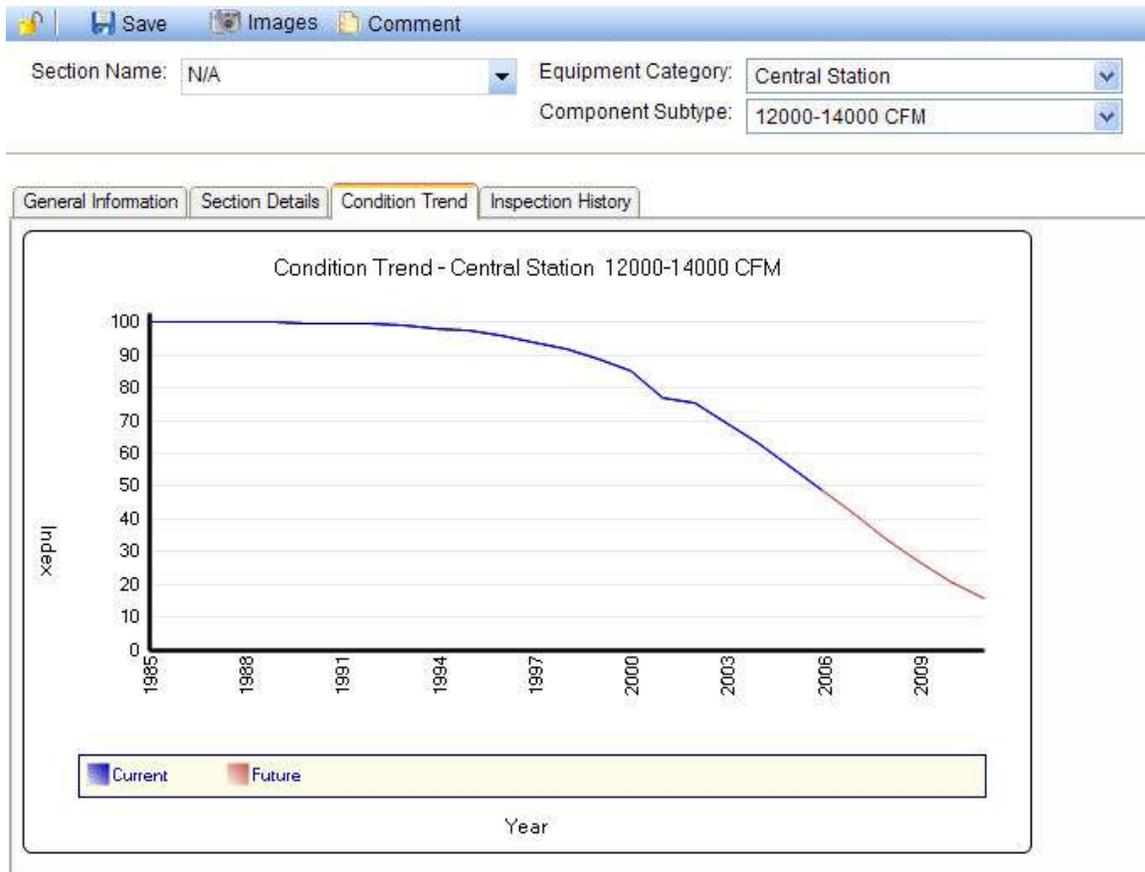
- **Age** (Read-Only). Displays the age of the section calculated from the Year Installed/Built.
- **RSL** (Read-Only). Displays the remaining [service life](#), in years, of the section. The remaining service life is calculated during the [CI roll-up process](#) using age, section service life, and section condition index trend.
- **Last Inspection** (Read-Only). Displays the date that the last condition assessment was performed on the section. Also displayed is the component-section condition index (CSCI) computed on the inspection date based on the assessment results. If the section is painted, the Coating Condition Index (CCI) computed at the last inspection date will also be shown.
- **Current Estimated Condition** (Read-Only). Displays the estimated CSCI based on service life and condition index trend. The estimated CSCI is computed during the [CI roll-up process](#), a process that should be performed on a regular basis. If the section is painted, the CCI computed at the last inspection date will also be shown. If the section is painted, the current estimated CCI will also be shown.

### **Section Details Tab**

In addition to the General Information tab, you can store additional data about the section in the [Section Details](#).

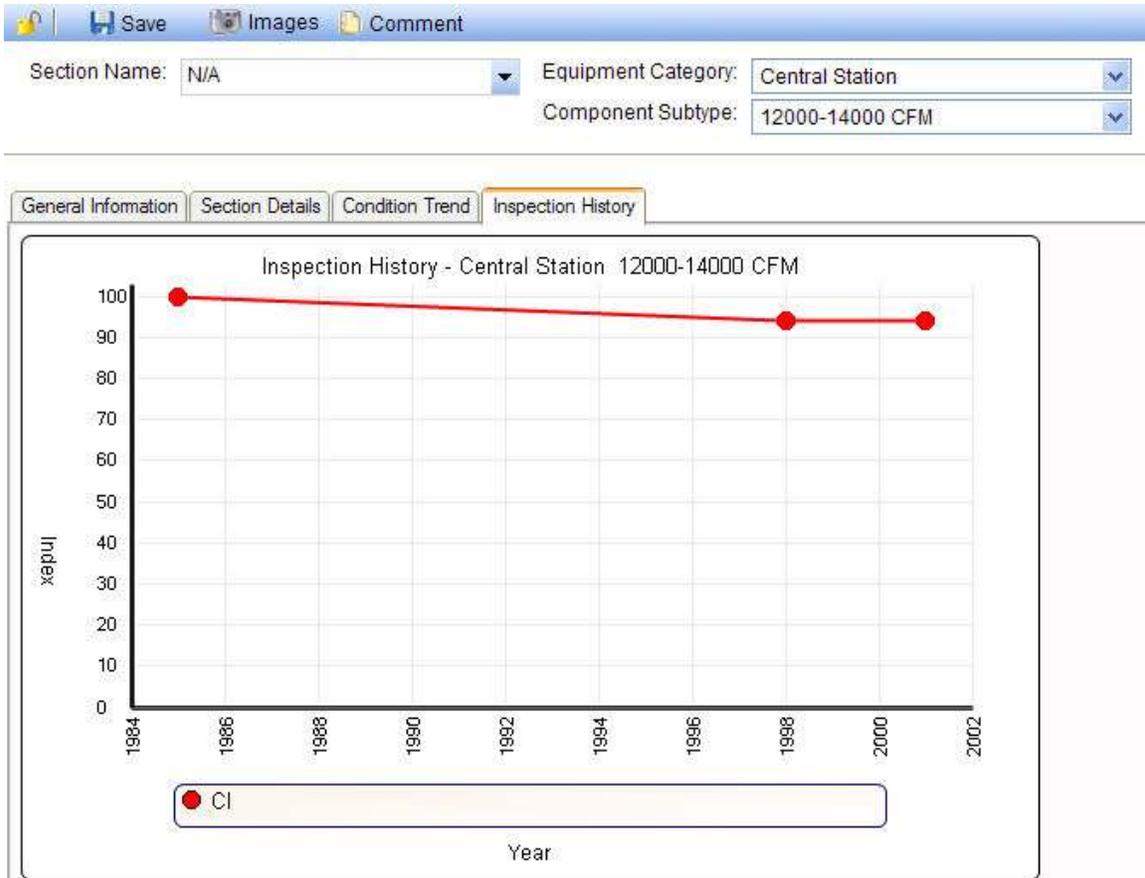
### **Condition Trend Tab**

The Condition Trend tab shows the trend of the CSCI based on inspection information, as well as the projected CSCI trend into the future based on observed deterioration rates and expected service life.



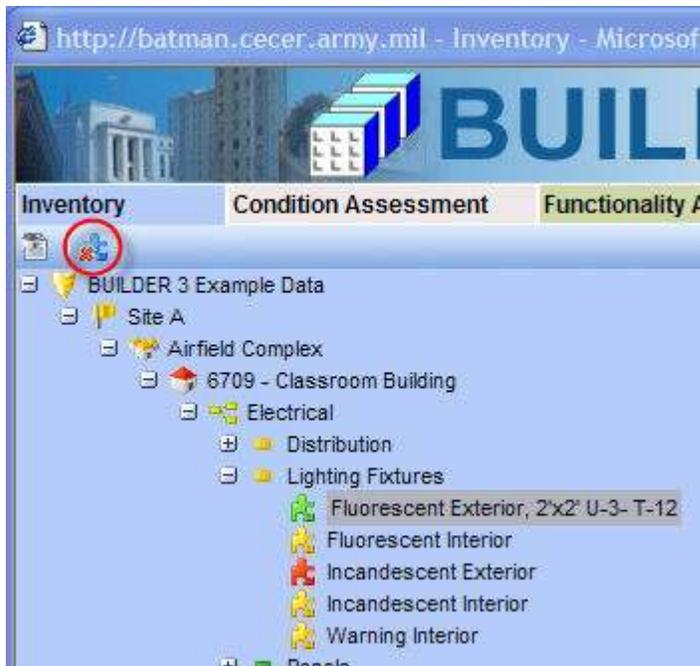
### Inspection History Tab

The Inspection History tab displays a graph of the CSCI history of the section over time, based on inspection information.



### Deleting a Section

To delete a section, select the section in the Inventory Tree, right-click it, and select *Delete*.



This is a significant step to take and should only be done when you are certain that you wish to clear the section you have selected from the inventory in the building. Making frequent backups of your inventory database will protect you from significant data losses if mistakes in deleting are made.

### Section Details

Section details include critical information regarding warranties, model number, manufacturer, equipment serial numbers and property identifiers, and location. After defining a section, you may add details regarding individual items of equipment or constructed elements on the Section Details tab, as shown below. Use the ADD DETAIL and DELETE DETAIL buttons at the bottom of the screen to add and delete details for the section.

Section Name: N/A    Equipment Category: Central Station  
Component Subtype: 12000-14000 CFM

ID Number	Equipment Type	Equipment Make	Model	Serial Number	Capacity	Manufacturer
AHU010	Central Station	Dual	320-345-342	324kjak34332	12500 CFM	Trane

Add Detail    Delete Detail

### Toolbar

- **SAVE.** Use this button to save the changes you have made to the section detail.
- **COMMENT.** Use this button to add, edit, and view comments about the section details.
- **IMAGES.** Use this button to add and remove images of the section.

### Section Detail Data

Because section detail data can be recorded for equipment and non-equipment section types, some of the data elements may not apply to a particular component-section. Simply fill in the applicable data fields and leave the non-applicable fields blank. Section detail data that can be entered includes:

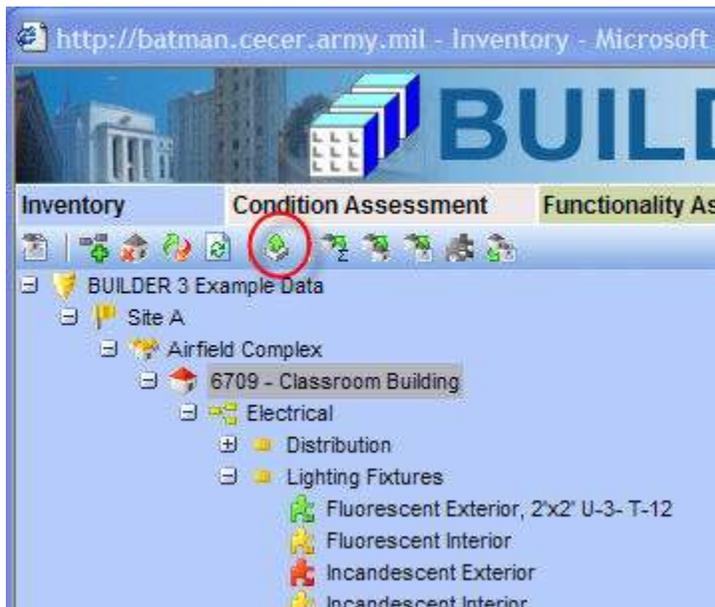
- **ID Number** (Required for individual items of equipment; not used for non-equipment section types). Enter the identifier for the individual equipment, limited to 20 alphanumeric characters.
- **Equipment Type.** Enter the equipment type of the section, limited to 50 alphanumeric characters.
- **Equipment Make.** Enter the equipment make of the section, limited to 30 alphanumeric characters.
- **Serial Number.** Enter the serial number of the section, limited to 30 alphanumeric characters.
- **Model.** Enter the section model, limited to 20 alphanumeric characters.
- **Capacity.** Enter the capacity of the section, limited to 70 alphanumeric characters.
- **Manufacturer.** Enter the manufacturer of the section, limited to 40 alphanumeric characters.
- **Warranty Company.** If the section has a warranty, enter each warranty company, which is limited to 50 alphanumeric characters each. For each section, two warranty companies may be listed.

- **Warranty Date.** If the section has a warranty, select each warranty date using the dropdown calendar. For each section, two warranty dates may be listed, numbered to match the warranty company.
- **Location.** Enter the section location, limited to 40 alphanumeric characters.
- **Date Manufactured.** Select the date the section was manufactured using the dropdown calendar.
- **Control Type/Make.** Enter the section control type or make, limited to 50 alphanumeric characters.
- **Year Installed.** Enter the 4-digit year the section was installed.
- **Comment.** Enter comments about the section.

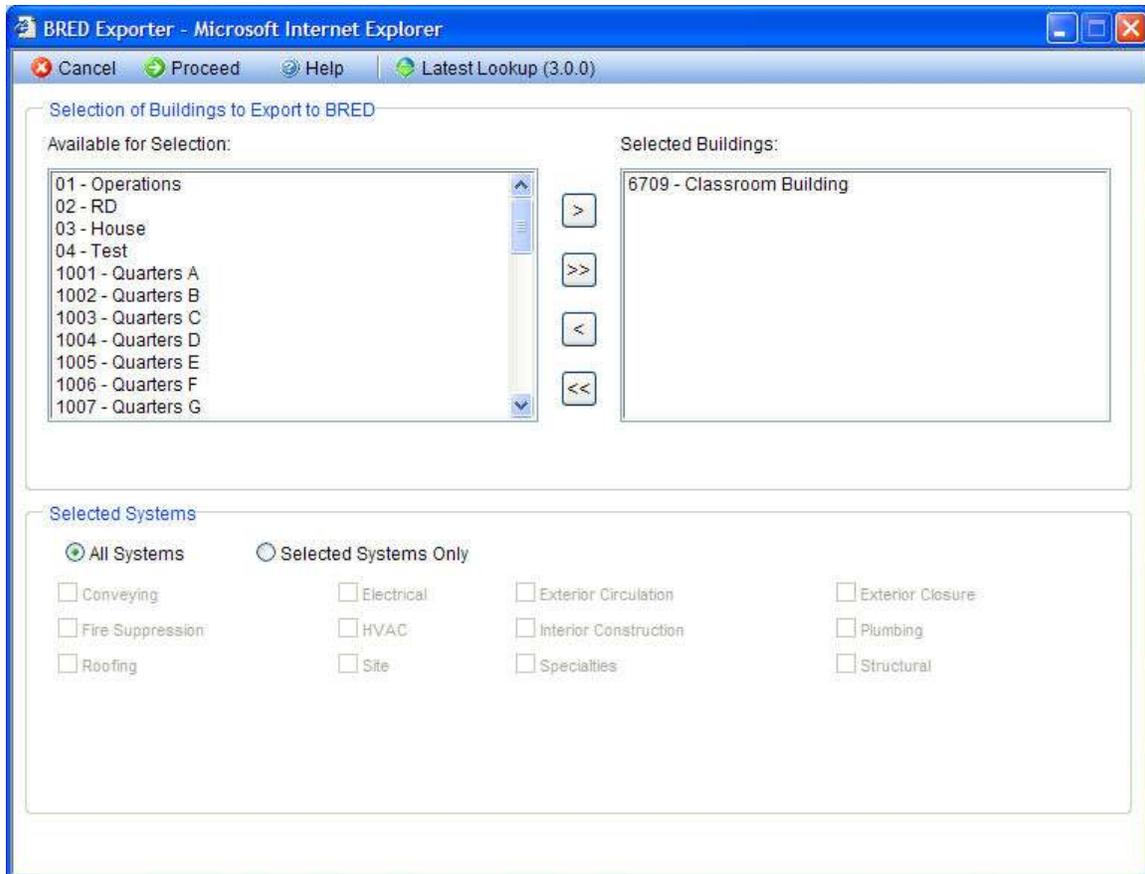
### Exporting Data to BRED

The BUILDER Remote Entry Database (BRED) software program allows you to electronically collect inventory and condition assessment data using a handheld pen-based computer as you walk through the building. BRED was developed by the U.S. Army Corps of Engineers at ERDC-CERL and is intended to be used with conjunction with the EMS Enterprise Framework. Using BRED to collect data instead of pen and paper techniques provide many advantages, most notably savings in time and costs, and should be used whenever possible.

Before BRED can be used to collect data for existing buildings in your inventory, a database that can be uploaded into BRED must be exported from BUILDER. To export a database to upload into BRED, select the smallest organizational item in the inventory tree that contains all of the buildings with data that will be exported and click the *Export to BRED* button from the navigation menu, or right click on an item in the tree and choose *Export to BRED*



The BRED Exporter window will appear.



In this window input the required data, including:

- **Selected Buildings.** Select the buildings that data will be exported for. To add a building to the Selected Buildings list, select it in the Available for Selection list and use the arrow buttons to move it to the Selected Buildings list.
- **Selected Systems.** Select the systems that data will be exported for the selected buildings. The default option is All Systems, but you may choose to export any number and combination of buildings systems. If you choose to export only some of the systems, click the Selected Systems Only button and check the systems you wish to export individually.

After entering the necessary data, click the PROCEED button to initiate the export process. Clicking the CANCEL button at any time will cancel any pending activity and close the window.

By clicking the PROCEED button, the following tasks area accomplished:

- A Microsoft Access database is created, which is identified by path and name you chose after the export has completed. The database will contain the inventory and condition assessment data for the selected systems in the buildings in the Selected Buildings list. This database is accessible to a computer with the BRED software, where inventory and/or condition

assessment data can be recorded. Once complete, this file can be [imported into BUILDER](#) to add the new data is added to the database.

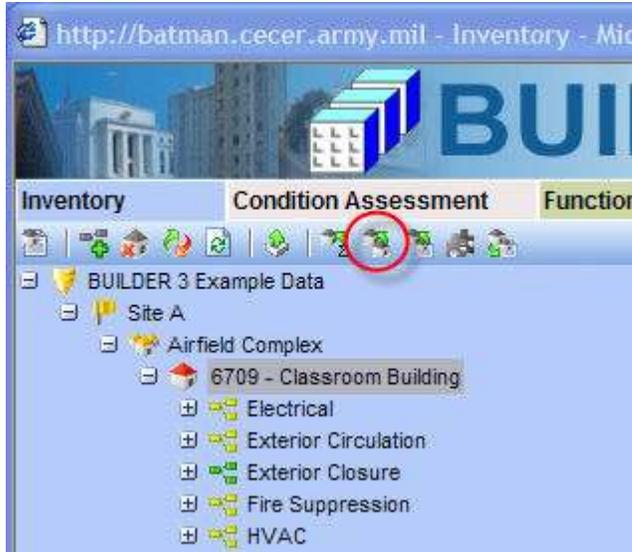
- The building inventory records of the selected systems that were exported are locked so changes cannot be made to them in BUILDER while being edited with BRED. The records are unlocked when the BRED data is imported back into the database.
- The *Latest Lookup (3.x.x)* button allows users to download the latest version of the lookup database that contains BUILDER's inventory lists, so that BRED lists are always current and in sync with BUILDER.

## Rapid Inventory Methods

### Copying a Building

BUILDER has been designed to help you quickly establish an inventory database for your buildings. One of the most time-consuming aspects is the decomposition of a building into its systems, components, and sections. One method that eases the data input process is copying a building's inventory from one building to another. This feature is very useful if you have a number of buildings in your inventory that were all built at the same time using the same plans and specifications.

Before you can copy a building's inventory from one building to another, you must first [create the building](#) and complete its inventory as fully as possible, including all of the related building data. Once the building has been created, select it in the inventory tree and click the *Copy Inventory to Another Building* button.



The Copy Building window will appear, and the building whose inventory you wish to copy should appear in the Select Building to Copy dropdown list.

In the Copy Target section of the window, select whether you want to copy that building's inventory to a New Building or into an Existing Building. If you select a New Building, you must supply Building Number and Building Name. If you select an Existing Building, a list of buildings currently in the inventory will be shown and you can select the building you wish to copy the inventory to.

In the Record Categories to be Included section of the window, check all of the categories you wish to have copied to the new/existing building. The following record categories can be copied to the new/existing building:

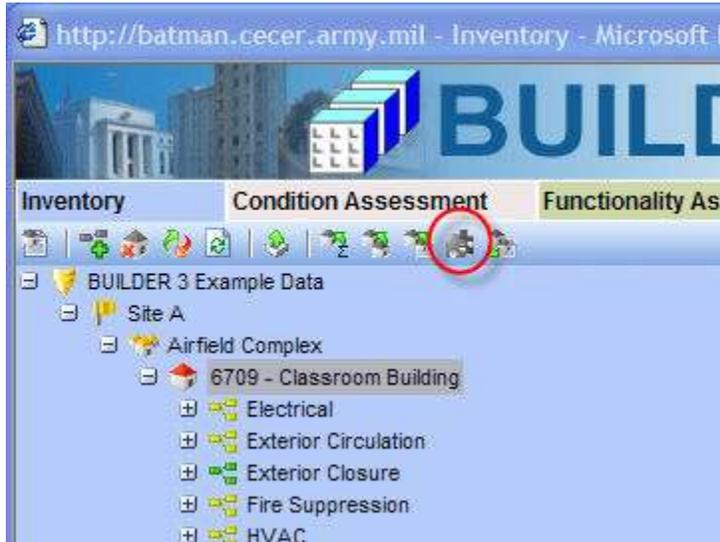
- **System/Component Structure.** Marking this checkbox will copy all of the systems, components, and sections to the new/existing building.
- **Copy Section Date as "Estimated".** Marking this checkbox will mark all of the section install dates in the new/existing building as estimated. This checkbox can only be marked if the System/Component Structure checkbox is marked.
- **Last Inspection Rating.** Marking this checkbox will copy the last condition assessment rating for each section to the new/existing building. This checkbox can only be marked if the System/Component Structure checkbox is marked.
- **Architect/Contractor Information.** Marking this checkbox will copy all of the [architect and contractor information](#) to the new/existing building.
- **Applicable Housing Information.** Marking this checkbox will copy all of the [housing information](#) from the family housing screen to the new/existing building.
- **Building Dimension Data.** Marking this checkbox will copy all of the [dimension data](#) to the new/existing building.

Click the PROCEED button to start the copy process. After the copy process is complete, you can edit all of the copied building's records if adjustments are necessary. If you do not wish to copy the building, click the CLOSE button.

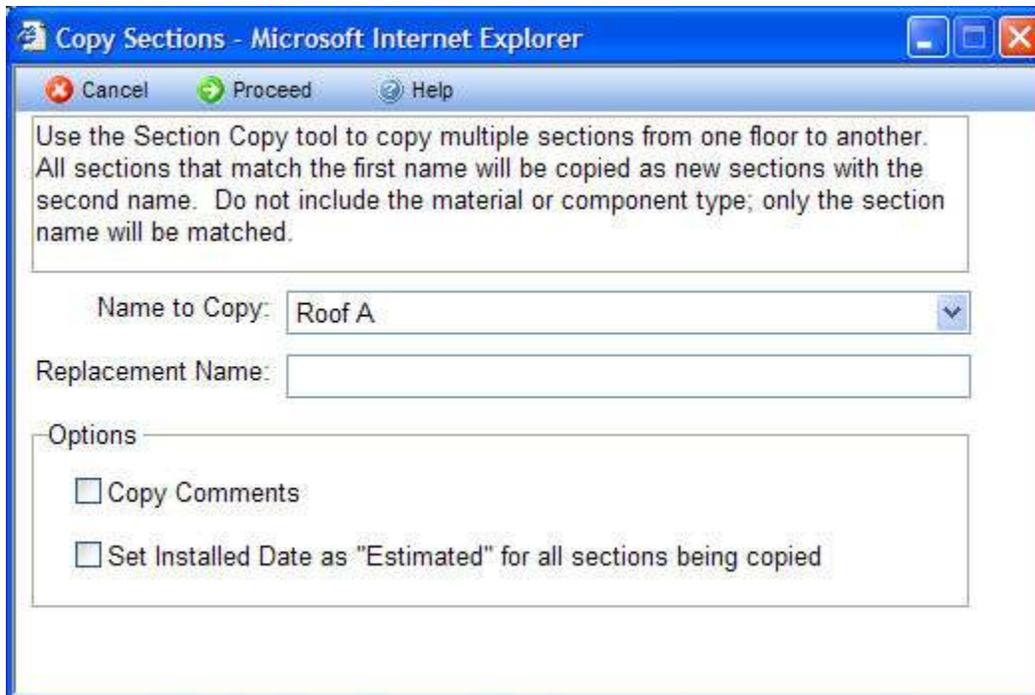
### Copy Sections

BUILDER has been designed to help you quickly establish an inventory database for your buildings. One of the most time-consuming aspects is the decomposition of a building into its systems, components, and sections. One method that eases the data input process is the Copy Sections tool, which allows you to copy pre-existing sections from one area of a building to another area of the same building. An example of when to use this tool is in a multistory building with similar or identical inventory on multiple floors. The first floor can be inventoried and then copied to other floors, saving time and reducing inventory costs.

To use the copy sections tool, select the building you wish to copy the sections in from the inventory tree and click the *Copy Sections* button.



The Copy Sections window will appear.



In the copy sections window, enter the following data:

- **Name to Copy** (Required). Choose the existing section name to copy from the dropdown list. All sections that match the selected name will be copied as new sections.
- **Replacement Name** (Required). Enter the replacement name for the copied sections. The replacement name will appear as the section name for the copied sections.
- **Copy Comment** (Optional). Mark the Copy Comments checkbox if you wish to copy the comments associated with the copied sections and associate them with the replacement sections also.
- **Set Installed Date as "Estimated" for all sections being copied** (Optional). Mark this checkbox if you want all of the replacement sections' year installed to be marked as estimated.

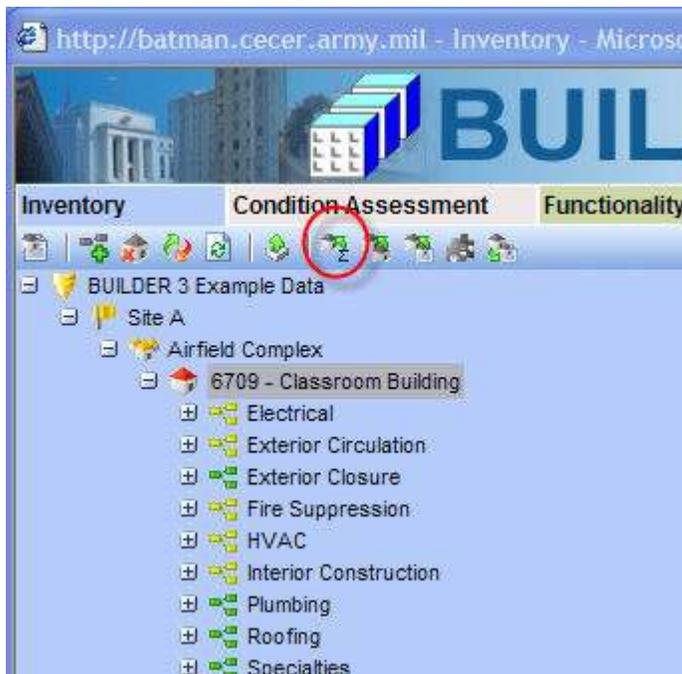
After all of the data has been entered, click the PROCEED button in the toolbar to copy the sections. The copied sections will be added to the database and appear on the inventory tree. If you do not wish to copy the sections, click the CANCEL button.

#### Using the Embedded Building Models

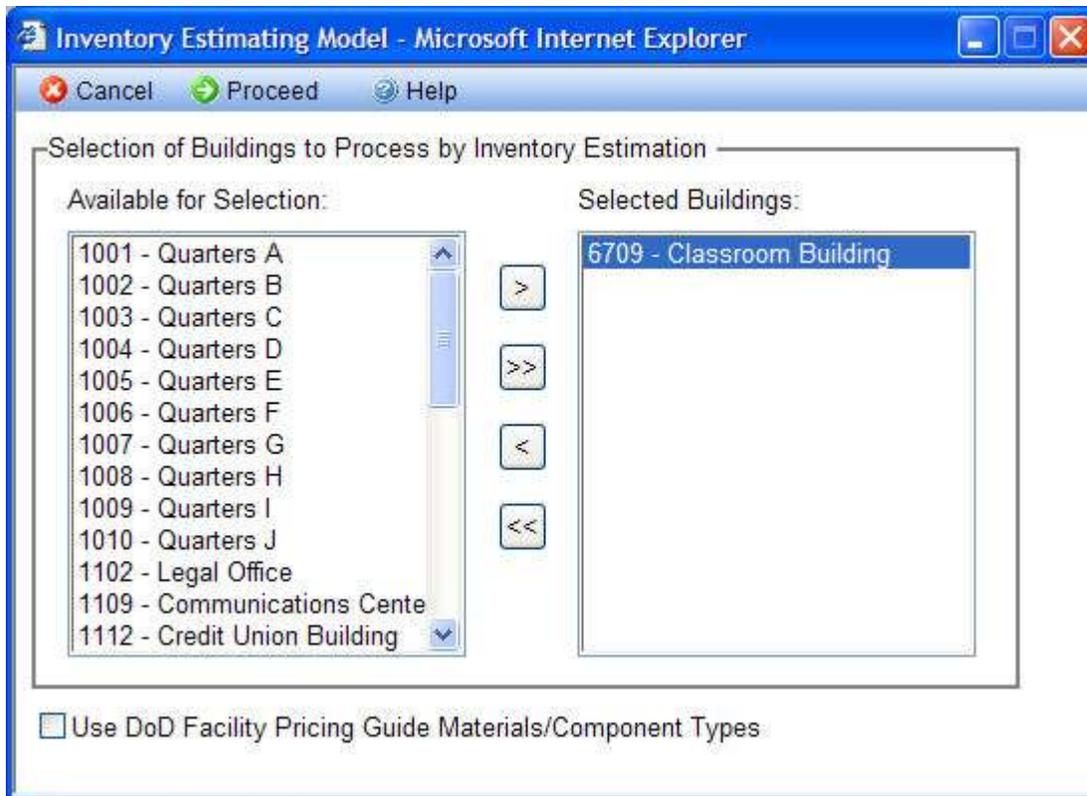
BUILDER has been designed to help you quickly establish an inventory database for your buildings. One of the most time-consuming aspects is the decomposition of a building into its systems, components, and sections. To help with this building decomposition, BUILDER has a set of embedded building models that construct an initial breakdown of systems, components, and sections in buildings based on the building use type, size, age, and number of floors. The building models were established by the Department of Defense under the Unified Facilities Criteria (UFC) system and published in the [DoD Facilities Pricing Guide](#).

BUILDER provides two options when using the embedded models for estimating building composition. The default model identifies likely components but creates sections of unknown material/equipment type and unknown component type. The DoD model identifies a specific material/equipment type and component type for each section. For example, the generic model may create a section of 10 doors of material type "Unknown" and component type "Unknown", while the DoD model may create a section of 10 doors of material type "Metal" and component type "Personnel". After applying either model, you will be able to edit the data for each building to increase accuracy. This refinement of the data can be done gradually over time as your needs require and as more accurate data becomes available.

Before the embedded models can be used, the buildings you wish to use the models on must [be created](#) and the general building information must be entered. Once the buildings are created, select the smallest organizational item in the inventory tree that contains all of the buildings that are to be expanded using the embedded models click the *Rapid Inventory Estimation* button.



The Inventory Estimating Model window will appear.



Select the buildings you wish to estimate the inventory for using the embedded models on the Available for Selection list and use the directional buttons to move them to the Selected Buildings list. If you wish to use the DoD model for this process, check the box at the bottom of the window, otherwise the generic model will be used.

Click the PROCEED button to start the estimation process. When the process is complete, you will be able to review and edit the systems, components, and sections created during the estimation. If you do not wish to estimate the inventory of the building(s), click the CANCEL button.

## Building Templates

### Using Building Templates

BUILDER has been designed to help you quickly establish an inventory database for your buildings. One of the most time-consuming aspects is the decomposition of a building into its systems, components, and sections. The Building Template feature is designed to ease the inventory development process in BUILDER. If your physical inventory contains a number of buildings that are essentially of the same design and composition, you can establish a template for that design to use as a "cookie cutter" and then apply an automated process with the template to create the matching buildings in your BUILDER inventory with little additional effort.

A building template looks very much like a building in BUILDER. Every data element belonging to a template or one of its substructures has a corresponding data element

in a building. A template has general building data such as use, size, and number of floors as well as a decomposition into systems, components, sections (including section details). If the template is designated as family housing, then you may specify data about each dwelling unit regarding number of rooms and types and makes of appliances. A template does not have data that is only known for each specific building, such as its year of construction, its condition ratings, its costs, its location, etc.

The template feature is designed to be used as an initial step in the construction of your inventory database. However, in order to achieve the greatest benefit from using templates, you must be very familiar with BUILDER's approach to inventorying a building. See [Adding a Building](#) and [Identifying Systems, Components and Sections](#) for important information regarding how buildings and their template counterparts are structured in the database.

BUILDER offers several methods for creating a template:

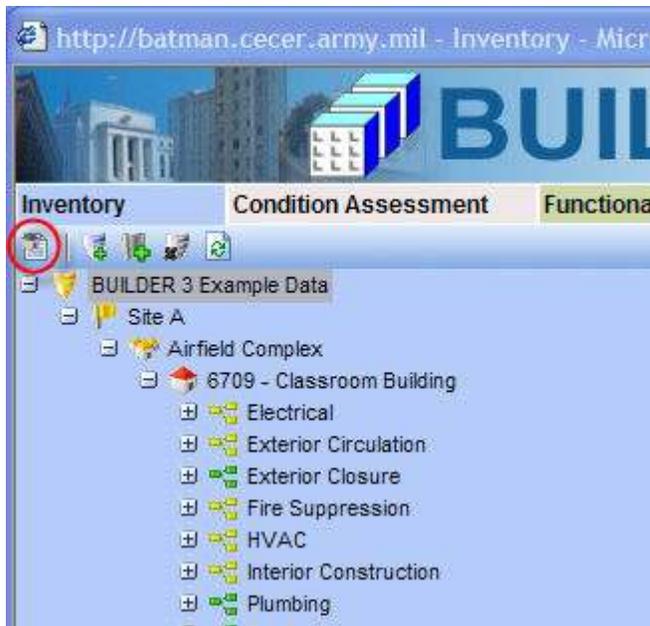
1. You can create a template by inputting each data element in much the same way that you create a building. See [Managing the Template Library](#) for instructions regarding this method.
2. Since each building in your inventory database has all of the comparable data elements of a template, you may create a template quickly by [copying an existing building's data into a template](#).
3. You can [import templates](#) from another user's template library for use in your own library. This import capability is especially useful for military installations, which may have many buildings constructed from a few standard service-wide designs.

Once a template is established, a building with the same design can be created in an automated fashion by copying the template data into the appropriate building data elements. This process can save hours of manual input if you have multiple buildings for which the template applies. See [Creating Building Inventory Using Templates](#) to learn how to use a template to create or expand the data for one building at a time and for multiple buildings at the same time.

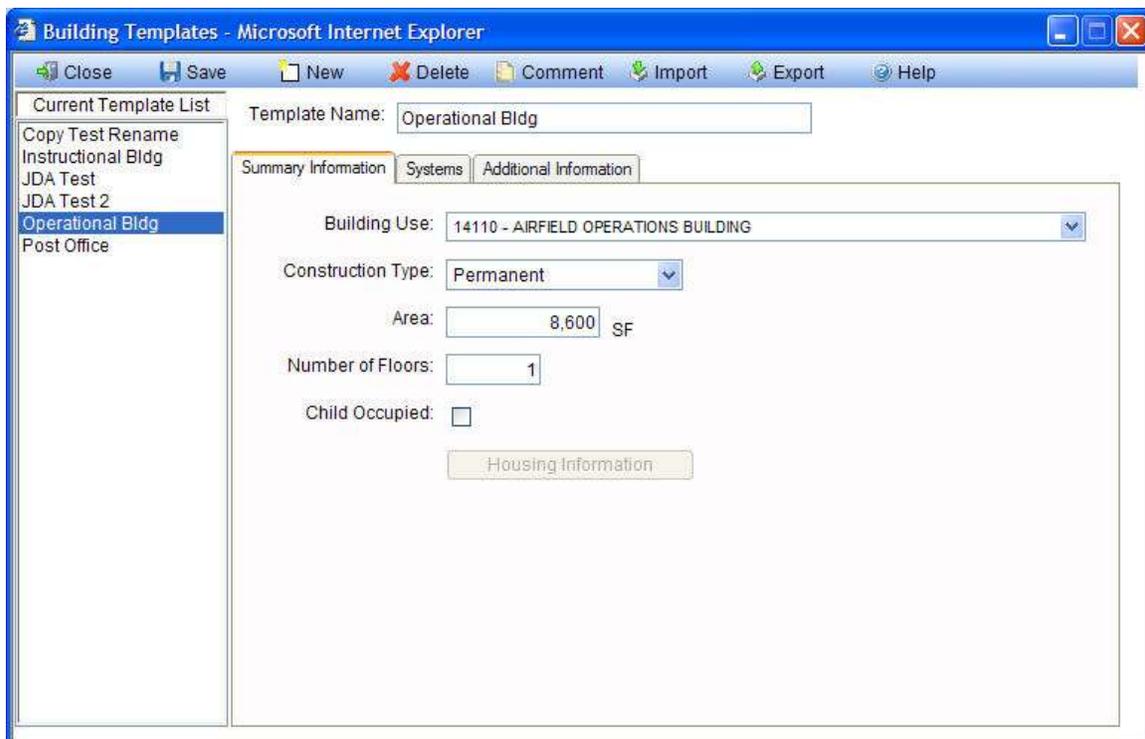
### Managing the Template Library

Building templates provide a convenient method for rapidly creating your building inventory when you have multiple buildings with the same design and composition. A template stores the basic data about a generic building and can be used to create many buildings at one time using an automated process that copies the structure of the template to each desired building. For more information about templates, see [Using Building Templates](#).

BUILDER stores all of the templates in your database in a template library. From the template library you are able to manually add, edit, and delete templates in your database. To manage the template library, click the *Building Templates* button from the navigation menu.



The Building Template window will appear.



The Building Templates window lists the current templates in the library on the left side and the data for the selected template on the right side. The data on the different tabs are described below.

### Toolbar

- CLOSE. Use this button to close the Building Template window.
- SAVE. Use this button to save the changes you have made to the building templates.
- NEW. Use this button to create a new template.
- DELETE. Use this button to delete the template currently selected.
- COMMENT. Use this button to add, edit, and view comments for the template.
- IMPORT. Use this button to [import templates](#) from other sources.
- EXPORT. Use this button to [export templates](#) to other sources.

### Summary Information Tab

The following data appears on the Summary Information tab and can be edited.

- **Name** (Required). Enter the name that will appear in the template list and must be unique among the templates in your library. If you expect to create a large template library, especially if you anticipate sharing your library with others or importing other user's templates, then the name you choose here should be sufficiently descriptive of the building type to allow it to be safely and efficiently selected for use. Consider using a combination of its Building Use type with a specific model or style description. The use of single quotes, double quotes, and ampersands is discouraged as these characters occasionally interfere with query formation.
- **Building Use**. Select the building use from the dropdown list that most closely matches the buildings use.
- **Construction Type**. Select the construction type from the dropdown list that matches the building. Construction type options include:
  - Permanent
  - Semi-Permanent
  - Temporary
  - Leased
- **Area** (Required). Enter here the gross area of the building.
- **Number of Floors** (Required). Enter the number of floors in the building.
- **Child-Occupied**. Mark this checkbox if the facility is child-occupied.
- **Housing Information**. If the template is residential in nature (single family dwelling, multi-family dwelling, apartment building), then you can save more information about each dwelling unit, including the number of rooms by type and available appliances. This follows the pattern of [Family Housing Data](#) for a building, except that data regarding house numbers, dates and warranties is omitted.

### Systems Tabs

The Systems tab gives you access to the data regarding the decomposition of the building into systems, components, and sections.

Summary Information **Systems** Additional Information

System: Electrical

Component: Distribution

Number of Sections: 1

Section: Electrical Category 8

Quantity: 8,600 SF

Painted/Coated

Note that this tab is arranged hierarchically, with systems containing components which contain sections. Use the buttons to the right of each respective dropdown list to add or delete inventory to the template. Once a system is added, you may define components for that system. Once a component is added you may define sections for that component. This follows the same pattern used for buildings, except that building-specific data (e.g. condition, age, year installed or built, year painted, and warranty dates and companies) is not used for templates. See [Identifying Systems, Components and Sections](#) for a description of how buildings are decomposed by system.

Each section has two data elements for input:

- **Quantity.** Enter the quantity of the section.
- **Painted/Coated.** Mark this checkbox if section is painted or has a surface coating.

Additional data for the section can be added by clicking the DETAILS button, which will launch the [section details](#) window. The data element displayed for each component, Number of Sections, is a rollup value from the section-level and is read-only.

### Additional Information Tab

The Additional Information tab provides a location to store additional building data.

Summary Information Systems **Additional Information**

**Dimensions**

Perimeter:  LF

Description	Length	Width
Wing A	50	40

NOTE: Length and width are measured in linear feet.

**Building Design**

Architect:

Contractor:

The data that can be recorded on this tab includes:

### Dimensions

- **Perimeter.** Enter the linear measure of the perimeter of the building.
- **Description.** Enter a description of the distinct areas of the building you wish to add dimensions for. For example, you may list "East Wing/West Wing", or "Offices/Library/Warehouse", or "Public Areas/Secure Areas." Each description is limited to 50 characters. Use the ADD DIMENSION and DELETE DIMENSION buttons to add and delete items from the list.
- **Length.** Enter the length of the area identified in the description.
- **Width.** Enter the width of the area identified in the description.

### Building Design

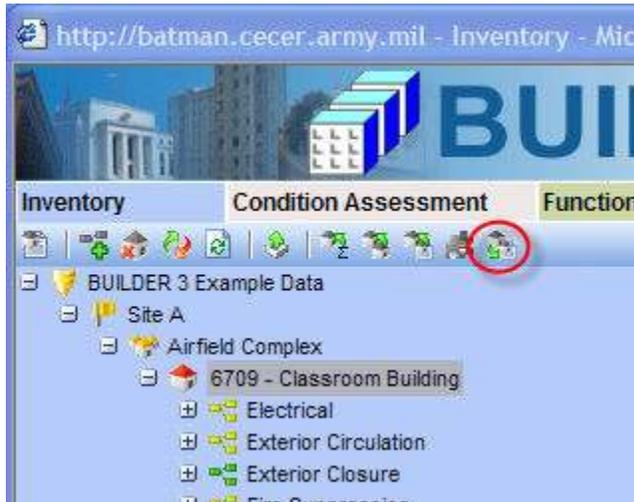
- **Architect.** Lists the architects of the building. Add and delete names by using the adjacent buttons. Each architect's name is limited to 30 characters.
- **Contractor.** Lists the contractors of the building. Add and delete names by using the adjacent buttons. Each contractor's name is limited to 30 characters.

### Copying Building Inventory to a Template

Building templates provide a convenient method for rapidly creating your building inventory when you have multiple buildings with the same design and composition. A template stores the basic data about a generic building and can be used to create

many buildings at one time using an automated process that copies the structure of the template to each desired building. For more information about templates, see [Using Building Templates](#).

To create a template by copying a building in your inventory, select the building in the inventory tree and click the *Copy Inventory to New Template* button.



The Copy Building to Template window will appear.



Enter the name of new template, which must be unique among the templates in your library, and click the PROCEED button to create the template. Click CLOSE if you do not wish to create the template.

Note that if you expect to create a large template library, especially if you anticipate sharing your library with others or importing other user's templates, then the name you choose here should be sufficiently descriptive of the building type to allow it to be safely and efficiently selected for use. The template name is allowed to be an alphanumeric string of 50 characters or less and the use of single quotes, double quotes, and ampersands is discouraged as these characters occasionally interfere with query formation.

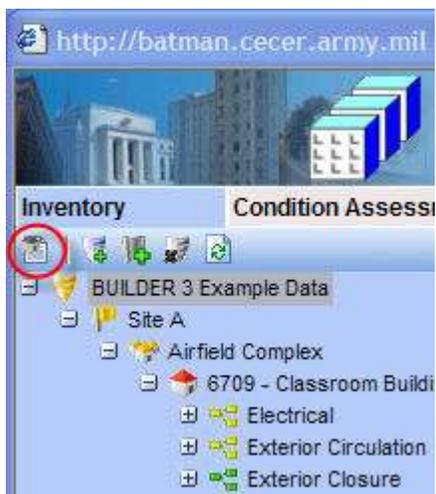
Importing and Exporting Building Templates

Building templates provide a convenient method for rapidly creating your building inventory when you have multiple buildings with the same design and composition. A template stores the basic data about a generic building and can be used to create many buildings at one time using an automated process that copies the structure of the template to each desired building. For more information about templates, see [Using Building Templates](#).

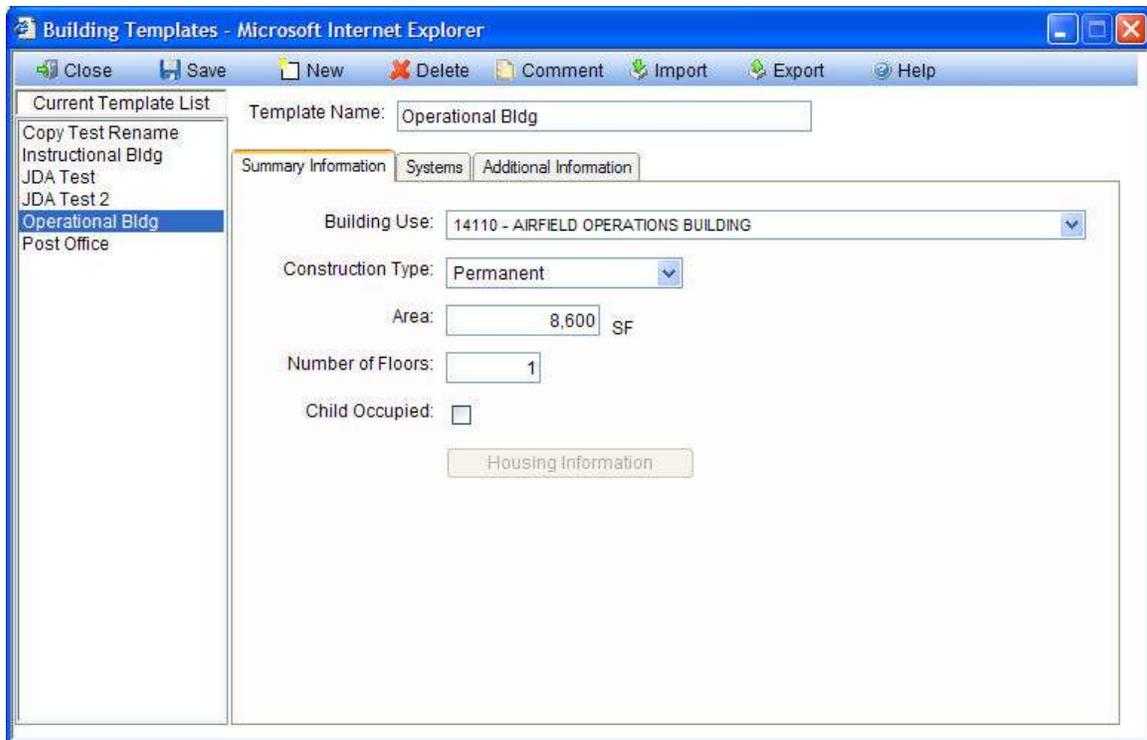
BUILDER allows for different users to share building templates by importing and exporting individual templates. This capability is especially useful for military installations, which may have many buildings constructed from a few standard service-wide designs.

### Importing Building Templates

To import a template, open the template library by clicking the *Building Templates* button from the navigation menu.



The Building Template window will appear.



Select IMPORT from the toolbar, and the Import Template window will appear.



Use the BROWSE button to locate the template you wish to import into your template library, and click PROCEED. If you do not want to import a template, click the CANCEL button.

Before BUILDER imports your selections, checks of unique identifiers (internal data hidden from view) and template names are performed to avoid conflicts between your current template library and the templates being imported. If duplicate identifiers are found, the selected template will not be imported since it already exists in your library. If you are attempting to import a template with the same name but a different unique identifier as an existing template in your library, then the importing process will stop with an error message indicating the problem templates. If you still wish to import the problem templates, change the names of the corresponding templates in your library so that they are distinct from the

templates you wish to import. See [Managing the Template Library](#) for instructions regarding changing the name of a template in your library.

Note that the Building Use property of a template is dependent on the user category (Army, Navy, Air Force, Civilian, etc.). If you are managing an installation from one user category but importing building templates from a different user category, then the template Building Use properties will not match any of the building uses in your list. When you view each imported template, the Building Use property will be blank. You will have to select an appropriate Building Use property from your list of uses for each imported template. The template name can be used help choose an appropriate use.

### Exporting Building Templates

To export a template, highlight it on the left side of the Building Template window and select EXPORT from the toolbar. The export process will begin, and the Processing screen shown below will appear.



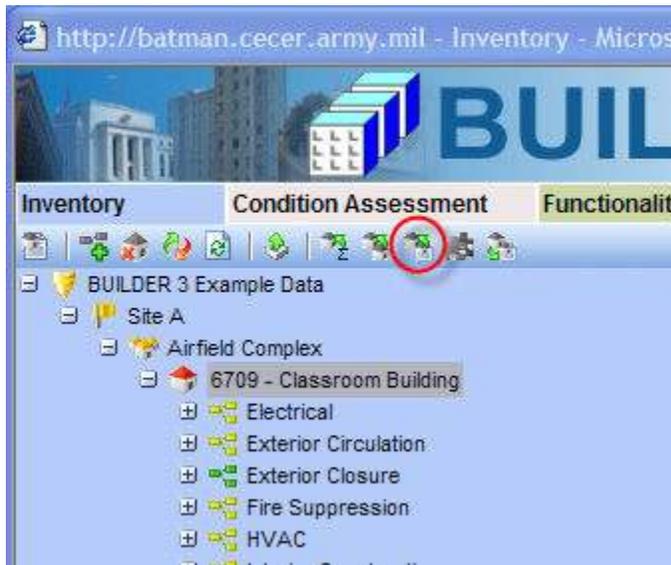
After the template has been successfully exported, you will be asked if you want to save or open the exported template. If you choose to save the template, you will be prompted for a path and file name for the exported template. The saved exported template can then be sent to other BUILDER users to be utilized in their template libraries. If you choose to open the exported template after the export is complete, the template will be open as a XML document.

### Creating Building Inventory Using Templates

Building templates provide a convenient method for rapidly creating your building inventory when you have multiple buildings with the same design and composition. A template stores the basic data about a generic building and can be used to create many buildings at one time using an automated process that copies the structure of the template to each desired building. For more information about templates, see [Using Building Templates](#).

## Creating Building Inventory for a Single Existing Building Using Templates

Once you have created a template, you can use it to create building inventory. If you have an single existing building and wish to expand its inventory using the template, select the building in the inventory tree. Take a look at the general information for the building to make sure that the data for important properties such as building use, area, and number of floors is correct. If you still wish to expand its inventory using the template, click the *Create Inventory Using Template* button.



This Apply Template window will appear.



Select the template you wish to apply to the building from the dropdown list and click PROCEED. If no systems have been created for the building prior to this point, the template's systems, components, sections, and section details will be copied to the building. However, if the building already had systems, the template's systems structure will not be copied to it.

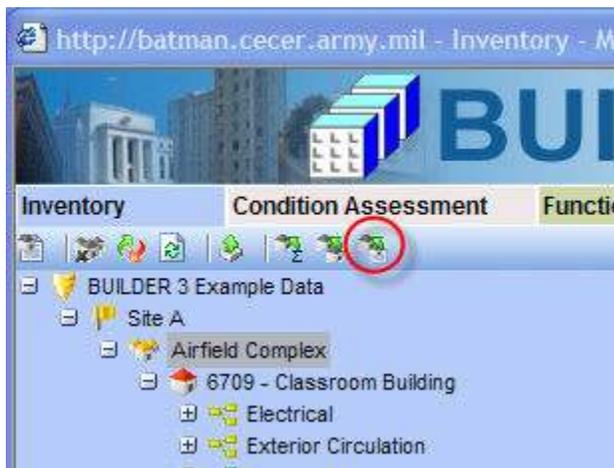
When the template process is complete, you will be able to select each of the newly created systems, components, and sections in the inventory tree and to edit the new data if adjustments need to be made. This same pattern applies to building dimensions, architects, contractors, and family housing records. That is, each of

these template lists will be copied to the building if and only if the building's corresponding list is empty. Otherwise, the building's existing list will be left unedited.

If you do not wish to apply the template to the building, click the CANCEL button.

### **Creating Building Inventory for Multiple Buildings Using Templates**

The most efficient way to use templates is to create the inventory for multiple buildings at a time. To create inventory for multiple buildings using a template, select the smallest organizational item in the inventory tree that contains all of the buildings that will have inventory created using the template, click the *Create Inventory for Multiple Buildings Using Templates* button.



The Apply Template to Multiple Building window will appear:

Template To Multiple Building(s) - Microsoft Internet Explorer

Close Proceed Help

Select a template: Copy Test Rename

Create inventory for existing items  Create new buildings

Add information below to create new buildings from the template.

Number	Name	Year Built
--------	------	------------

Add Building Remove Building

When applying a template to multiple buildings, you have the option of either creating new buildings with the template or applying the template to multiple existing buildings. Each option is described below.

### **Create New Buildings Option**

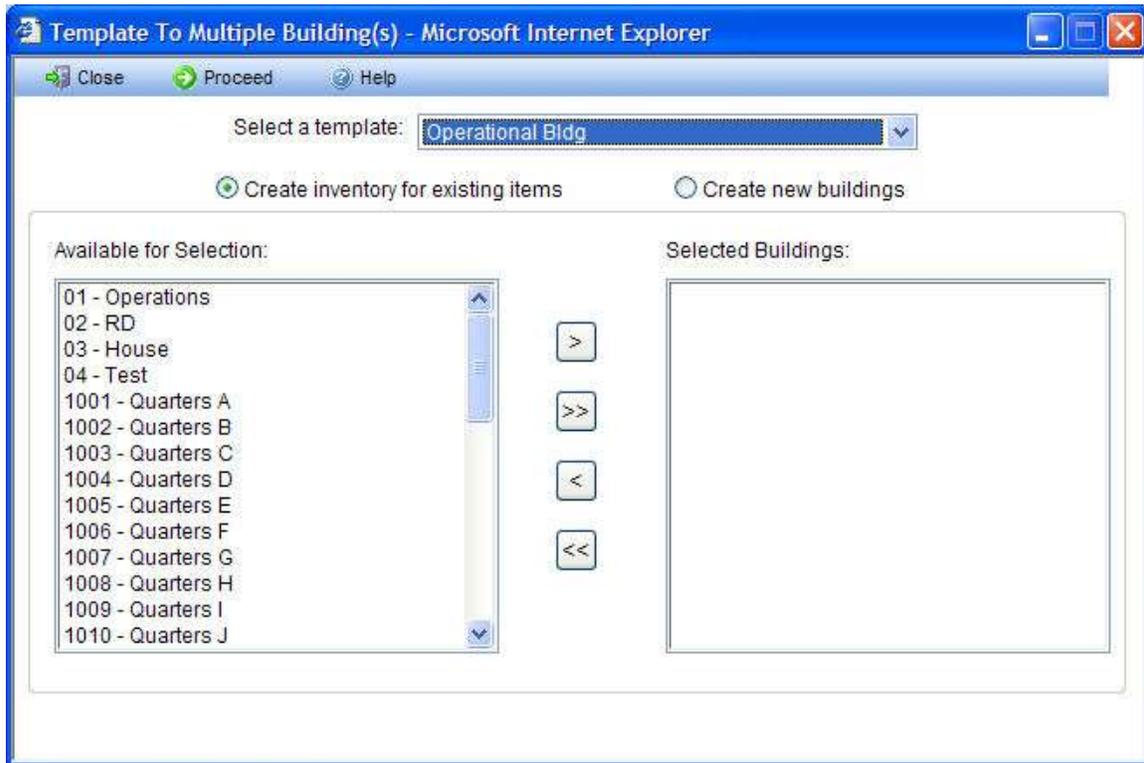
The window shown above illustrates when the Create new buildings option is chosen. For this option, use the ADD BUILDING button to add a new building to the grid. For each new building a number and/or name must be entered. If you wish to delete any of the buildings from the list, highlight the row in the grid and click the REMOVE BUILDING button.

When you listed all of the new buildings you wish to create using the template in the grid, click the PROCEED button to start the process that will create each building and copy the template data to it. This process may take a minute or so for each building, depending upon the complexity of the template's data structure.

When the process is complete, the new buildings will be available for editing. In particular, critical information that applies to each specific building should be added immediately, especially the year of construction and dates associated with sections since these data elements are used extensively in BUILDER's algorithms. Finally, when you have completed your inventory input, you should use the [cost estimating tool](#) to establish current costs for all buildings and their substructures.

### **Create Inventory for Existing Items Option**

If you choose to create inventory for existing items, then the Apply Template to Multiple Buildings will appear as shown below:



In this window, the complete list of buildings Available for Selection at the selected inventory level will be displayed on the left. Select the buildings you wish to expand using the selected template and use the arrow buttons to move the buildings to the Selected Buildings list. When the Selected Buildings list is complete, click the PROCEED button.

When you do this, existing general information for each building will be replaced with the template data. If no systems have been created for a building, the template's systems, components, sections, and section details will be copied to it. However, if a building already has systems, the template's systems structure will not be copied to it. This same pattern applies to building dimensions, architects, contractors, and family housing record. That is, each of these template lists will be copied to a building if and only if the building's corresponding list is empty. Otherwise, the building's existing list will be left untouched.

When the process is complete, edit each building to add or verify critical data elements such as the year of construction, dates associated with sections, and all quantities since these data elements are used extensively in BUILDER's algorithms. Finally, when you have completed your inventory input, you should use the [cost estimating tool](#) to establish current costs for all buildings and their substructures.