

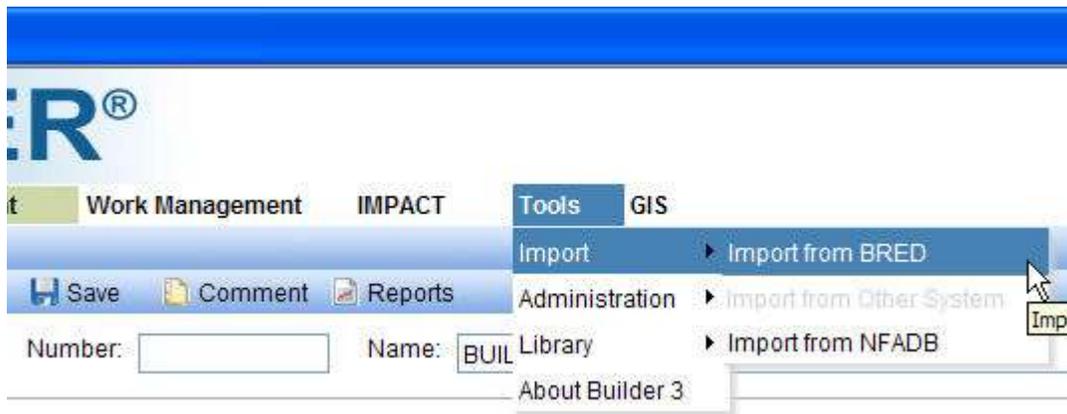
Tools

Import

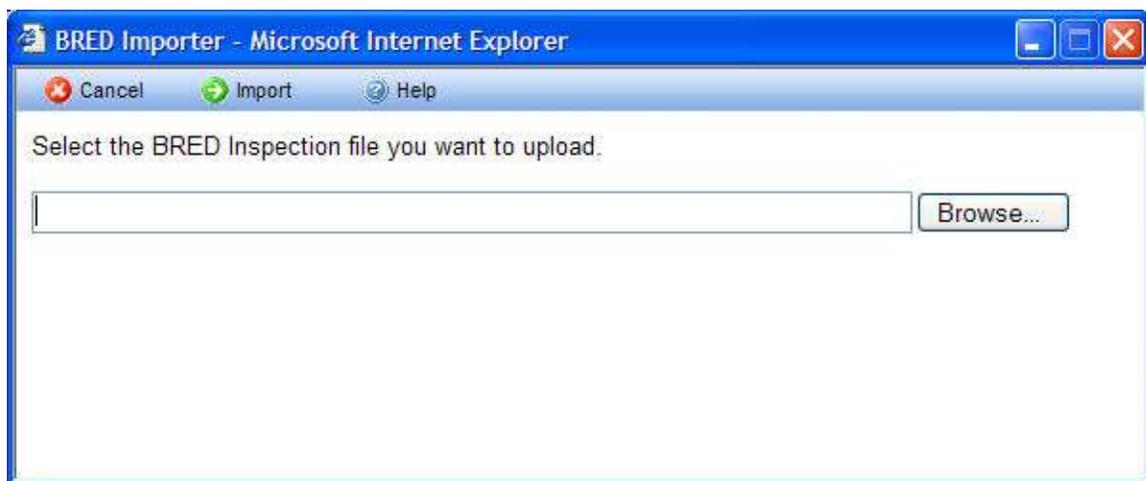
Importing Data from BRED

The BUILDER Remote Entry Database (BRED) allows you to collect inventory and inspection data using a free-standing pen-based handheld computer as you walk through the building you are inspecting. To load the data that you have collected on a BRED machine into the BUILDER database, you will need to import the database from BRED into BUILDER. It is important to note that the database file containing your new data must be loaded so that the BUILDER program has access to its path and can complete the importing process.

To import data from BRED, select *Tools -> Import -> Import from BRED* from the navigation menu.



The BRED Importer window will appear.



Use the BROWSE button select the BRED database you wish to import or simply enter the full path and filename in the textbox and click the PROCEED button in the toolbar.

When the data was exported from BUILDER originally, the inventory records for the exported buildings were locked so that no changes could be made in the BUILDER database while inventory and condition assessment data was entered through BRED. This is done to avoid possible conflicts in the independent editing processes that might take place in BUILDER and BRED. Once the import is complete, the inventory records for the buildings will be unlocked and can be edited again.

Importing Data from Other Systems

BUILDER provides an importing feature that allows users to establish or enhance their databases by importing from existing standard data systems. These include:

- [U.S. Army Integrated Facilities System \(IFS\)](#)
- [U.S. Army Installation Status Report \(ISR\)](#)
- [Roofer EMS](#)

To import data from another system, select *Tools -> Import -> Import from Other System* from the navigation menu.



The Import from Other System window will appear:

(Screen Shot)

From this window, data can be imported into BUILDER from any of the systems listed above. Click the specific system above for a description of the import process for that system.

Importing Data from the Navy Facility Asset Database (NFADB)

This feature is designed to allow BUILDER's U.S. Navy users to rapidly construct an initial inventory database from the data contained in the Navy Facility Assets Database (NFADB). This feature reads the NFADB data, including the hidden facility ID field used by other Navy automated systems to track a facility, and creates a BUILDER inventory database.

To import data from NFADB, select *Tools -> Import -> Import from NFADB* from the navigation menu.



The NFADB Import window will appear:

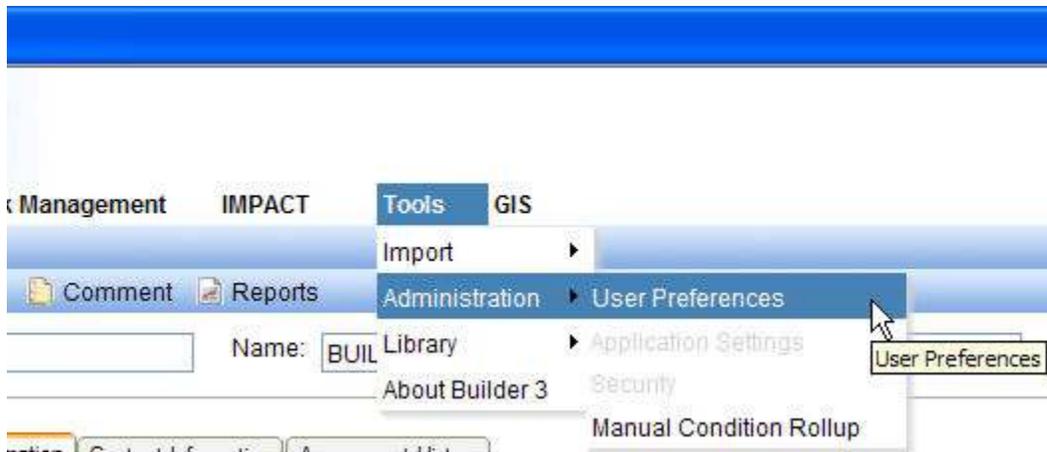
 A screenshot of a dialog box titled 'NFADB Import - Microsoft Internet Explorer'. The dialog has a blue header bar with 'Cancel', 'Proceed', and 'Help' buttons. Below the header, there are three input fields: 'NFADB Connection Name:', 'User Name:', and 'Password:'. Each field is currently empty.

On this screen, you must enter the NFADB connection name, user name, and password to access the database you wish to import. Once you have entered this data, click the PROCEED button. Often times, special assistance is required to use this feature since the information for some of the fields are not generally available to Navy sites. If you wish to build a Navy BUILDER inventory, contact the [Support Center](#) for assistance.

Administration

User Preferences

The User preferences window allows you to change the unit of measure, to clear all the locks on the database records, and change the password to your database. To edit the user preferences, select *Tools -> Administration -> User Preferences* from the navigation menu.



The User Preferences window will appear:



From this window, the following data can be edited:

- **Unit of Measure.** Select the unit of measure, English or Metric, to be used for the database.
- **Clear Locks.** Click the CLEAR LOCKS button to clear all the user locks and allow for all data to be edited.
- **Security.** If you wish to change your login password, enter the new password, retype it to confirm, and click the CHANGE PASSWORD button.

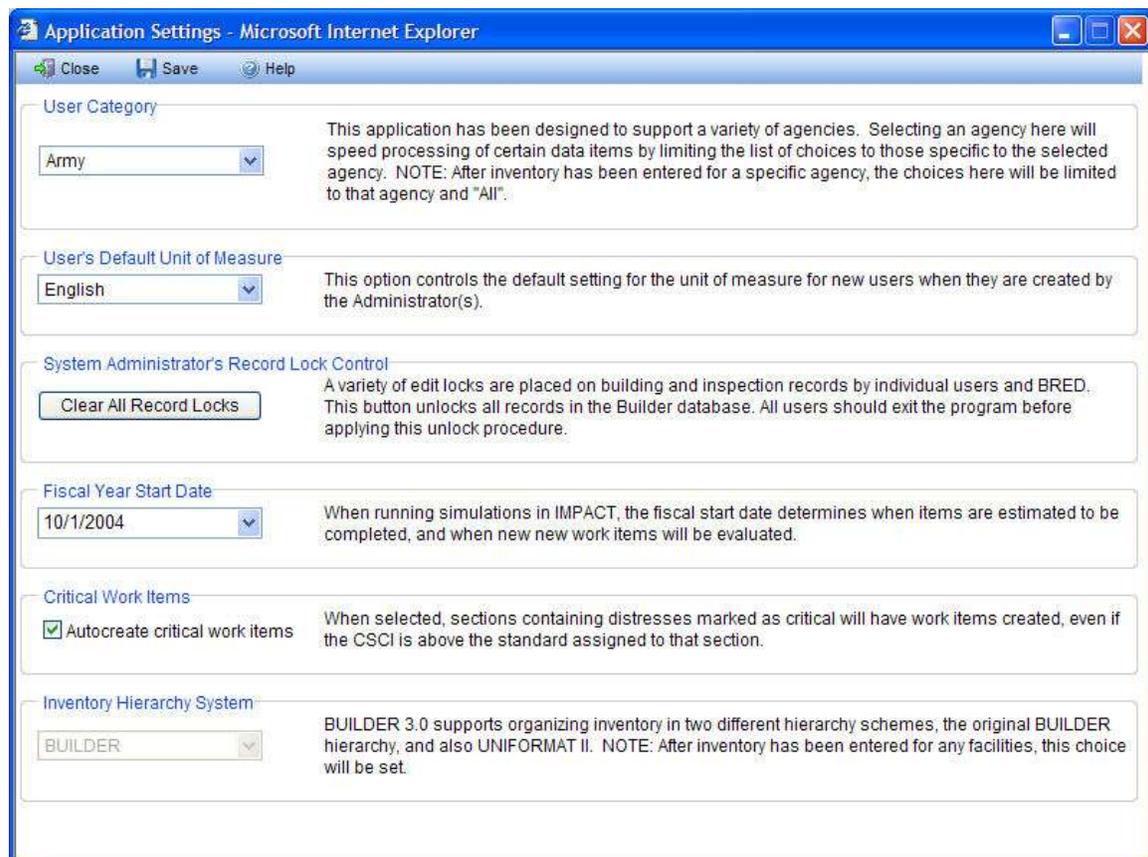
After editing any of the data, click the SAVE button to save the changes to the database and close the User Preferences window. Click the CANCEL button to disregard the changes and close the User Preferences window.

Application Settings

When you create a new inventory database, you should set the preferences in the Application Settings window before proceeding with any additions to inventory. To edit the application settings, select *Tools -> Administration -> Application Settings* from the navigation menu. Note that only a user with administrator privileges can change these settings.



The Application Settings window will appear.



From this window, the following preferences for your database can be edited:

- **User Category.** Select the user category for use when adding buildings to your inventory. By using this option, BUILDER presents an agency-specific list of building use types when adding inventory. The available categories are:
 - Army
 - Navy
 - Air Force
 - Civilian
 - Department of Energy
 - All

Choosing the All category allows you to enter building use types across multiple categories. It is important to note that once your inventory contains buildings from more than one category, the only choice here is All.

- **User Default Unit of Measure.** Select the default unit of measure for the inventory for all users. This unit of measure will initially be shown for all users initially, but each user can change their display units of measure at any time by using the [User Preferences](#) tool when they are logged into BUILDER.
- **Clear User Records Locks.** Click this button to clear all the locks placed on building and inspection records by individual users and BRED. It is important to note that the CLEAR locks button in the [User Preferences](#) window only clears locks on records locked by the current user, while the CLEAR ALL RECORD LOCKS button on this screen unlocks all locked records, regardless of how they were locked.

The locking of records is used to protect the data from inadvertent overwrites by multiple users. BUILDER also locks records when buildings are exported to BRED to prevent data changes from the BUILDER program while inspection is in progress. To protect data accuracy, all users should exit from the BUILDER program and all BRED files should be imported before the record locks are cleared.

- **Fiscal Year Start Date.** Enter the fiscal year start date. When running simulations in IMPACT, the fiscal start date determines when items are estimated to be completed, and when new work items will be evaluated.
- **Autocreate Critical Work Items.** Mark this checkbox if you want any section with a current distress marked as critical to automatically generate a work item for it. That is, sections containing distresses marked as critical will have work items created for them, even if the CSCI is above the standard assigned to that section.
- **Inventory Hierarchy System.** Choose the hierarchy system to use when inventorying your database. BUILDER 3.0 supports organizing inventory in two different hierarchy schemes, the original BUILDER hierarchy, and also UNIFORMAT II. It is important to note that after inventory has been entered for any facilities, this choice will be locked.

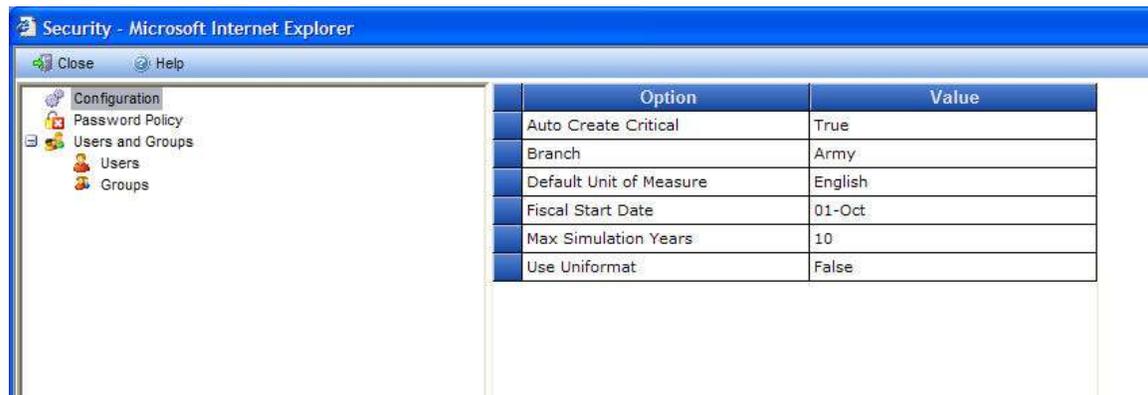
Security

The Security window allows the administrator to view configuration settings, set password parameters, and administer users and groups. The user must be logged in as an administrator to access this screen.

To edit the security features for BUILDER, select *Tools -> Administration -> Security* from the navigation menu.



The Security window will appear as seen below. The Configuration option lists the chosen BUILDER settings, setup in the [Application Settings](#). The Password Policy option allows the administrator to set password parameters for users.



Administering Users

Under Users and Groups, the Users option lists the available users set up for login into the system. This allows each system user to log into their own account, which has rights and privileges associated based on the group they are assigned to. The user screen is shown below:



The administrator can delete a user or edit user properties by selecting the name from the list, and choosing delete or edit from the toolbar. To add a new user, choose Add from the toolbar and the New User screen comes up. The administrator completes the information for name, user name, initial password, and click Save from the toolbar.

Personal

First Name: John
 Last Name: Smith
 User Name: jsmith

Unit of Measure

English Metric

Account Status

Enabled Disabled

Security

Password:
 Confirm:

The password cannot match any of the previous 1 password(s).
 The password must be at least 4 character(s) long.
 The password can be no longer than 10 character(s) long.

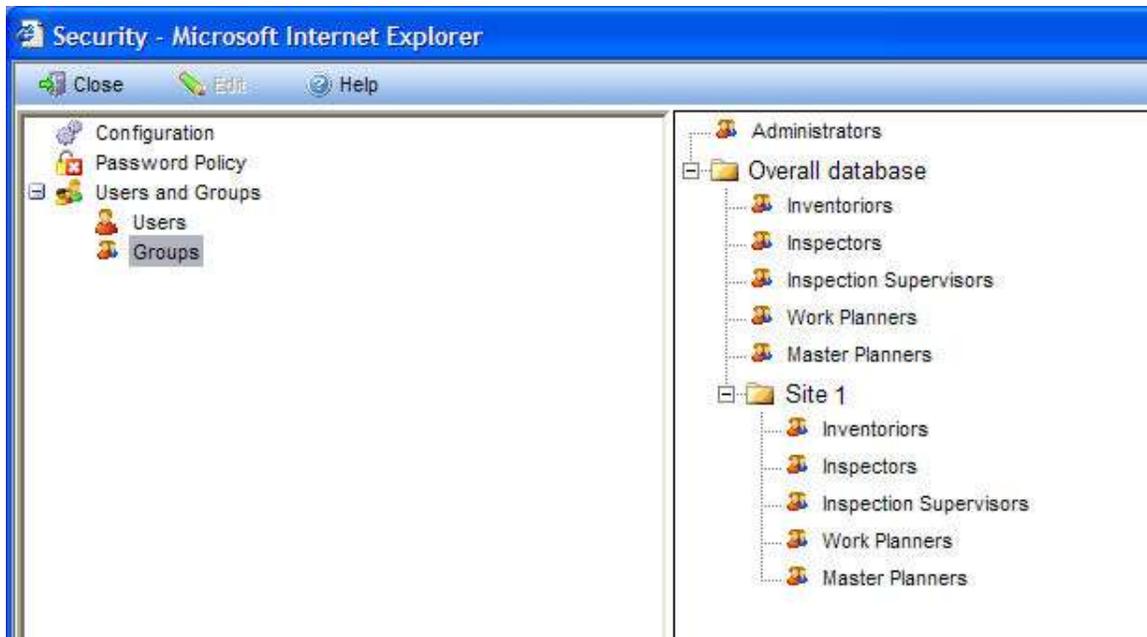
Roles

Site	Role

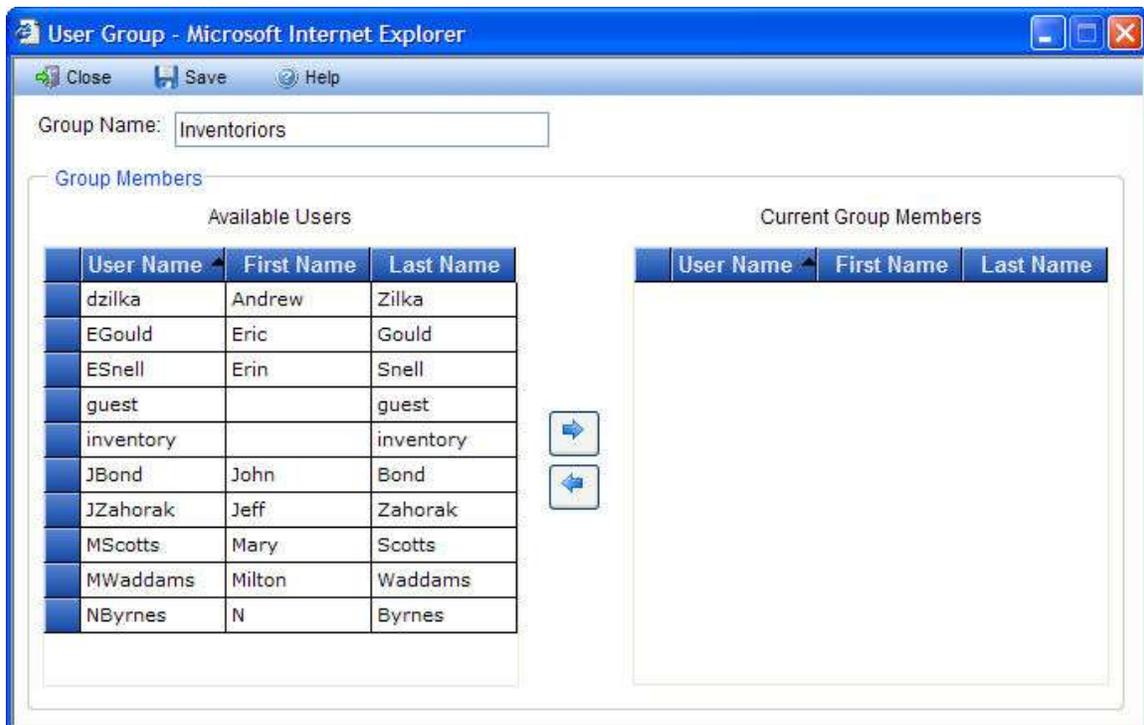
Creating groups

Once users have been created, they can be assigned to groups, which are allowed varying degrees of program access rights under the system. The different groups in BUILDER include:

- **Administrators** - can administer users, assign users to groups, and change BUILDER configuration settings.
- **Inventoriers** - can input/edit inventory information from the inventory screen
- **Inspectors** - has all the rights of Inventoriers, and can input/edit inspection information from the Condition Assessment screen
- **Inspection Supervisors** - has all the rights of Inspectors, and can also import/export data to BUILDER RED and create inspection schedules
- **Work Planners** - has all the rights of inspection supervisor, and can also create/edit work plans, standards, policies, prioritization schemes, and RSL and cost books.
- **Master Planners** - has all the rights of work planners, and can also generate multi-year work plan scenarios, and edit any and all data saved by other users of the program. The Master Planner is assigned the highest level of user privileges.



Since BUILDER can be configured for multiple sites and organizations, each user can have their group privileges assigned and restricted to that level. Therefore, a user can be assigned as a work planner only to one site or organization, or to the entire database globally. The screen below shows the group association. To assign users to a given group and level, select the node from the tree, and click the Edit button on the toolbar. The following screen will come up:



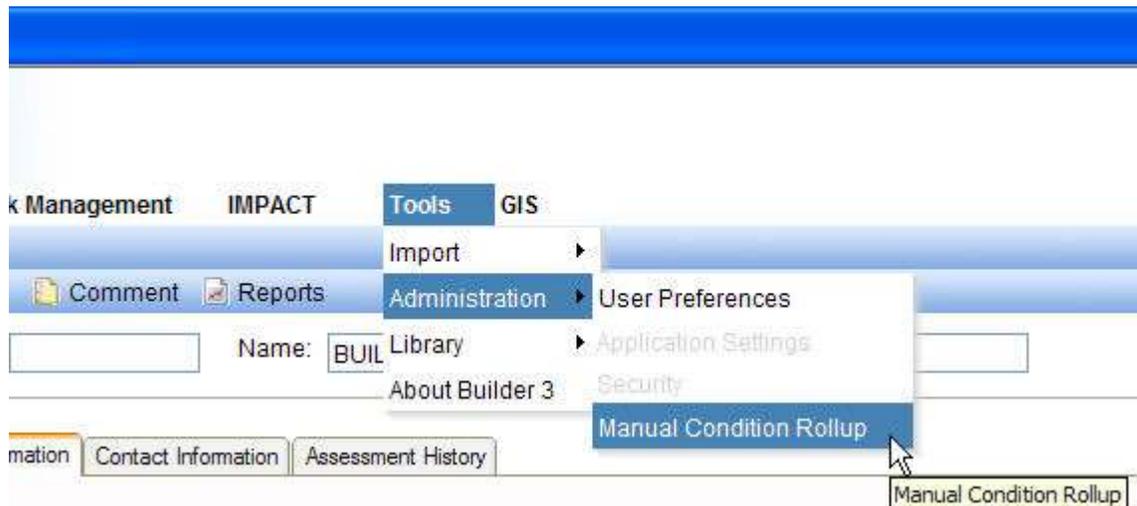
To assign users to the group, simply select the user from the Available Users list, and move them over to the Current Group Members

Manual Condition Rollup

The [Condition Assessment Overview](#) contains a description of BUILDER's process for calculating current CI values for all levels of its inventory. The process "rolls up" the CI values from one level of the inventory hierarchy to the next in a methodical manner, beginning with component-sections and ending with the site (or parent group if one is included in the inventory). BUILDER is designed to perform the rollup recalculation on your command. You should perform this rollup calculation frequently, but especially:

- If you have not performed the rollup within the last 6 months
- If you have entered a large number of new condition assessments
- If you need the most current CI measures to develop a new work plan.

To initiate the manual rollup process, select *Tools -> Administration -> Manual Condition Rollup* from the navigation menu.



The rollup process will begin for all inventory in the database and the Progress window will appear.



The following processes will occur during the rollout:

- Retrieve the latest condition assessment records and estimate a current component-section CI for all component-sections.
- Estimate the current remaining service life (RSL) for all component-sections. The RSL is adjusted by rate of deterioration in CI's.
- Estimate the current CI for all components by calculating the average of their component-sections' CI's weighted by replacement cost.
- Estimate the current CI for all systems by calculating the average of their components' CI's weighted by replacement cost.
- Estimate the current CI for all buildings by calculating the average of their systems' CI's weighted by replacement cost.
- Estimate the current CI for all complexes, sites, and groups by calculating the average of their buildings' CI's weighted by replacement cost.
- Retrieve the latest functionality assessment records and determine the building and functional area FI based on the results of the assessments.
- Estimate the current FI for all complexes, sites, and groups by calculating the average of their buildings' FI's weighted by replacement cost.
- Estimate the current PI for all buildings using a weighted combination of the current building CI and FI.
- Estimate the current PI for all complexes, sites, and groups by calculating the average of their buildings' PI's weighted by replacement cost.
- Estimate the Facility Condition Index (FCI) for all buildings by calculating the total cost of needed repairs in the buildings divided by the present replacement value of the building.
- Estimate the current Facility Condition Index (FCI) for all complexes, sites, and groups by calculating the total cost of needed repairs in their buildings divided by the present replacement value of the complex, site, or group.

After the rollout process completes, the Progress window will close and you will be returned to the main BUILDER screen. Building inventory windows will display recalculated current CI's for all elements.

Library

Viewing and Editing Cost Data

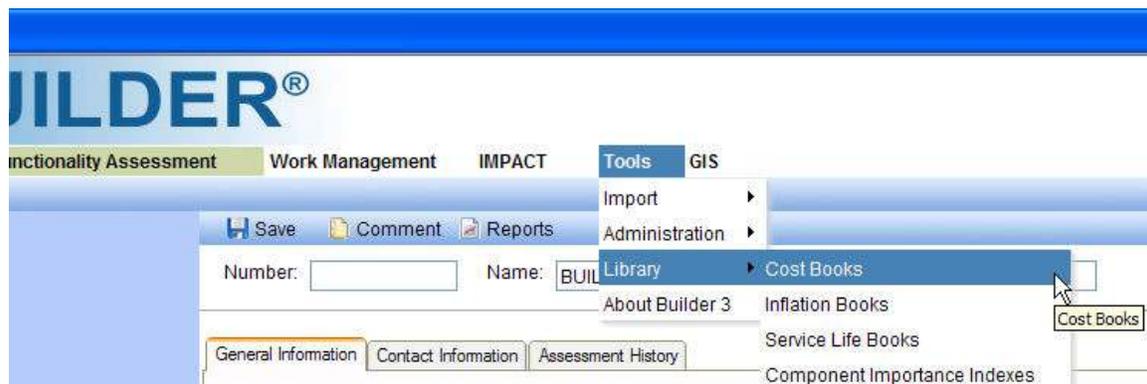
BUILDER has an embedded cost module that is used in two critical areas: work planning and condition assessment. The cost module provides inventory replacement costs for all levels of the building hierarchy. Additionally, replacement costs are used as weighting factors in rolling up CI's in the inventory hierarchy. For work planning, the cost module provides initial programming cost estimates for proposed maintenance, repair, and rehabilitation projects.

The data used in the cost module is derived from the Department of Defense's Tri-Service Automated Cost Engineering System (TRACES), from R.S. Means, and from your own cost data that you may add and use for the cost calculations. While TRACES and R.S. Means both provide electronic systems for cost estimating, BUILDER has its own coded methodology and only uses the cost data from those two sources. There are two primary reasons for this:

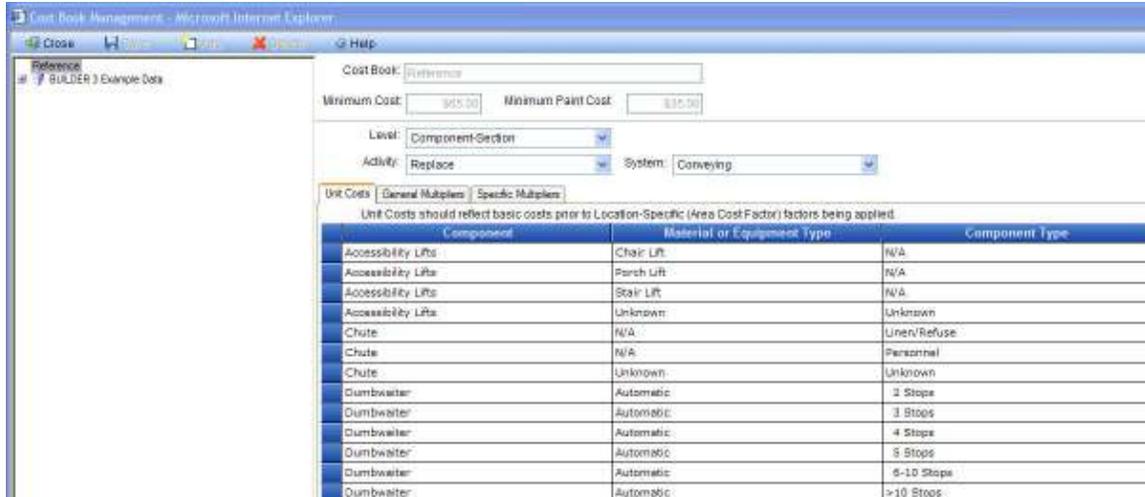
- Minimization of detail - Early in BUILDER's design, field input indicated that most users have very limited resources for creating and managing large, detailed databases of their facility assets. The BUILDER inventory and assessment data structures were designed to require as little data input as possible. The BUILDER cost module estimates costs from this minimal information; i.e. it can estimate the cost of a metal personnel door without knowing dimensions, hardware type, and other specifications normally required for most cost estimating systems.
- Flexibility of data - You can input your own cost data into the BUILDER cost module and it will work automatically with your inventory; proprietary cost estimating tools are much more difficult and numerous to integrate.

Managing Cost Data

To manage the cost data, select *Tools -> Library -> Cost Books* from the navigation menu.



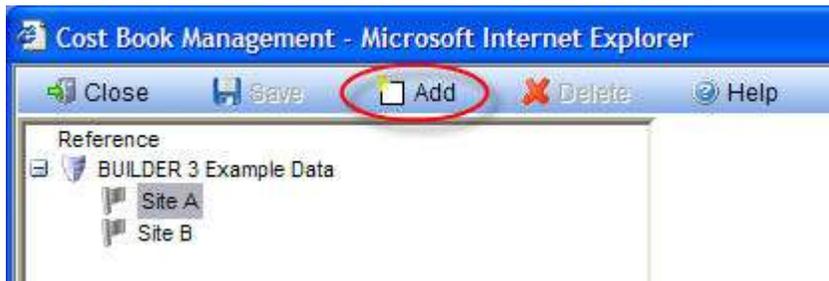
The Cost Management window will open.



Expand the tree in the left portion of the window to show the available cost books in the database. Initially, only one cost book, Reference, is available. The Reference cost book cannot be deleted or edited; it is actually the built-in data derived from TRACES and R.S. Means. The Reference cost book is the foundation of all other cost books you create. You are free to use the Reference cost book if you like and not add any data of your own.

Adding and Editing Cost Data

If you would like to edit the cost data, you must add your own cost book first. To do so, select the organization or site where the cost book is applicable and click the ADD button in the toolbar.



The New Cost Book window will appear:

Enter the name of the new cost book, select the cost book to copy costs from, and click ADD. You may then edit the costs in the new cost book item by item on the Unit Costs tab using the dropdown lists to filter the grid at the bottom by inventory level, activity, and system (system only appears for section-level inventory items).

Additionally, you can edit the minimum paint cost and minimum cost for a work item from this tab. To edit different cost books in your inventory, select them in the tree and their data will appear in the grid.

Cost Book:

Minimum Cost: Minimum Paint Cost:

Level:

Activity: System:

Unit Costs | General Multiplier | Specific Multiplier

Unit Costs should reflect basic costs prior to Location-Specific (Area Cost Factor) factors being applied.

Component	Material or Equipment Type	Component Type	Unit	Current Cost
Accessibility Lifts	Chair Lift	N/A	EA	\$7,936.98
Accessibility Lifts	Porch Lift	N/A	EA	\$13,651.55
Accessibility Lifts	Stair Lift	N/A	EA	\$19,398.11
Accessibility Lifts	Unknown	Unknown	EA	\$18,923.90
Chute	N/A	Linen/Refuse	LF	\$122.15
Chute	N/A	Personnel	LF	\$356.40
Chute	Unknown	Unknown	LF	\$239.37
Dumbwaiter	Automatic	2 Stops	EA	\$20,354.58
Dumbwaiter	Automatic	3 Stops	EA	\$24,648.19
Dumbwaiter	Automatic	4 Stops	EA	\$29,341.81
Dumbwaiter	Automatic	5 Stops	EA	\$33,635.42
Dumbwaiter	Automatic	6-10 Stops	EA	\$47,316.26
Dumbwaiter	Automatic	>10 Stops	EA	\$65,290.72
Dumbwaiter	Manual	2 Stops	EA	\$5,672.26
Dumbwaiter	Manual	3 Stops	EA	\$7,829.88
Dumbwaiter	Manual	4 Stops	EA	\$9,787.11

General Multipliers Tab

The General Multipliers tab displays the multiplier that will be used in all cost computations for the items filtered using the dropdown lists at the top of the tab.

The general multiplier for the filtered items can be edited from this tab.

Cost Book:

Minimum Cost: Minimum Point Cost:

Level:

Activity: System:

Unit Costs: **General Multiplier** Specific Multiplier

General multiplier to apply to all costs:

Includes supervision and administration (15%), overhead and profit (10%)

Specific Multipliers Tab

The Specific Multipliers tab displays the factors used as multipliers for the filtered items. There are three types of specific multipliers: Historic, Housing, and Per Floor. Each multiplier can be edited from this tab by choosing the multiplier from the dropdown list. It is important to note that building level items do not have specific multipliers.

Cost Book:

Minimum Cost: Minimum Point Cost:

Level:

Activity: System:

Unit Costs: General Multiplier **Specific Multiplier**

Select Specific Multiplier:

Description: The base cost to replace this component/section will be increased by this percent for each floor of the building.

Component	Material or Equipment Type	Component Type	Per Floor
Accessibility Lifts	Chair Lift	N/A	0.000
Accessibility Lifts	Porch Lift	N/A	0.000
Accessibility Lifts	Stair Lift	N/A	0.000
Accessibility Lifts	Unknown	Unknown	0.000
Chutes	N/A	Linen/Refuse	0.000
Chute	N/A	Personnel	0.000
Chute	Unknown	Unknown	0.000
Dumbwaiter	Automatic	2 Stops	0.000
Dumbwaiter	Automatic	3 Stops	0.000
Dumbwaiter	Automatic	4 Stops	0.000

Assigning Cost Books

You can create multiple cost books, and assign separate ones to each organization or site. This is done in the Inventory mode by selecting the organization or site to assign the cost book to, and selecting the cost book from the drop down menu in the Reference Settings.

Save Comment Images Reports Select

Number: Name:

General Information Contact Information Building Information Assessment History GIS

Location Factors

Area Cost Factor:

Seismic Zone:

HVAC Zone:

Calculated Data

Number of Facilities:

PRV:

Index Data

	Metric	Value
	CI	81
	FI	98
	PI	85
	FCI	0.028

Reference Settings

Cost Book: Reference

Service Life Book: Reference

Inflation Book: Reference

Policy Sequence: Default

Prioritization Scheme: Simple Default

How Costs Are Calculated

Only two levels of costs are editable, the costs for buildings and for components-sections. A component cost is determined by totaling the costs of the components-sections belonging to it. Similarly, a system cost is determined by totaling the costs of the components belonging to it. Generally, the cost to replace, remove, or paint a component-section is determined by the formula:

Total Cost = Quantity*Unit Cost*Area Cost Factor*General Multiplier*Aggregate Specific Multiplier*Inflation Factor

where the Aggregate Specific Multiplier is the product of the applicable individual specific multipliers and the area cost factor is taken from the [site data](#). The cost to demolish a building uses the same formula, with the Aggregate Specific Multiplier = 1.0.

BUILDER uses building replacement cost data from the Tri-Service Military Construction Program in the Reference cost book, and the method described above is essentially the same as the method described in *Technical Manual 5-800-4, Programming Cost Estimates for Military Construction*, to estimate the replacement cost of each building. See <http://www.usace.army.mil/inet/usace-docs/armytm/> for the text of this technical manual.

Costs relative to a specific geographic location are determined by applying a multiplier called the area cost factor to a base construction cost. The BUILDER database of area cost factors is the same database used in the Tri-Service Automated Cost Engineering System (TRACES) and is set in the [site data](#).

The area cost factor (ACF) accounts for the following geographic differences in costs:

- local costs of construction labor, equipment, and materials
- weather, climate, and seismic requirements
- labor availability
- labor productivity

The inflation factor is computed based on the base year of the cost data and the inflation rates given in the default [inflation set](#). If the cost data corresponds to the data in the Reference cost book, then the cost module uses a fixed year for the base year. If you add your own cost book and enter a unit cost different from the Reference set, then the cost module saves the year in which you input that data as the base year for inflation computations.

Repair costs are handled differently. The cost module calculates repair costs for component-sections as a function of current condition index and the replacement cost computed as above using an algorithm derived through ERDC-CERL's research.

Viewing and Editing Inflation Rates

When costs are computed by the [cost module](#), an adjustment is made to account for inflation. The BUILDER cost module initially contains one Inflation Set, the Reference set, which is not editable. The data in the Reference set matches the inflation rates used by the Department of Defense for operations and maintenance costs. As time goes on and the economy's ups and downs yield different forecasts of inflation, you should create new inflation sets to more accurately predict outyear costs.

Managing Inflation Rates

To manage the inflation rates, select *Tools -> Library -> Inflation Set* from the navigation menu.



The Inflation Set Management window will appear.

Year	Rate
2007	0.0210
2008	0.0210
2009	0.0210
2010	0.0210
2011	0.0210
2012	0.0210
2013	0.0210
2014	0.0210
2015	0.0210
2016	0.0210
2017	0.0210

Expand the tree in the left portion of the window to show the available inflation sets in the database. As stated above, only the References inflation set is available initially. The Reference inflation set cannot be deleted or edited and serves as the foundation for all other inflation sets you create. You are free to use the Reference inflation set if you like and not add any data of your own.

Adding and Editing Inflation Rates

If you would like to edit the inflation rates, you must add your own data set first. To do so, choose the organization or site where it applies from the tree, then click the ADD button on the toolbar. The New Inflation Set window will appear:

Enter the name of the new inflation set, choose the set to copy inflation rates from, and click ADD. You will be returned to the Inflation Set Management window, the name of the new book will appear in the Inflation Set dropdown list, and you will see the data corresponding to the book you copied from. You may know edit the inflation rates on a year-by-year basis for the new set in the grid. To edit different inflation sets in your inventory, select them in the tree and their data will appear in the grid.

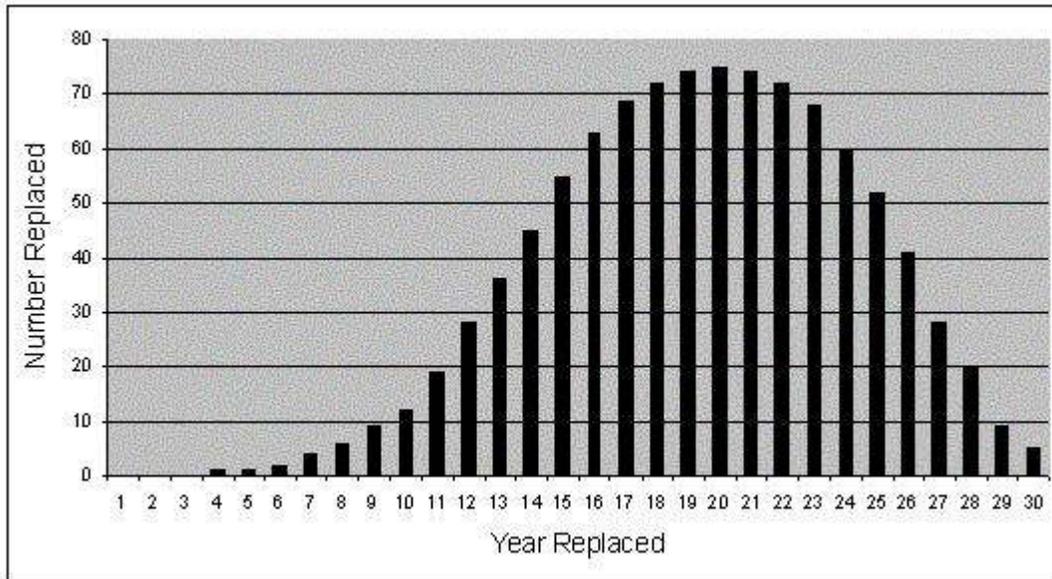
Choosing the Default Inflation Rate Data Set

Once the inflation set is created, it is available from the inventory screen to use for a given site, region, or organization.

Viewing and Editing Service Life Data

BUILDER comes with its own data regarding the service life expectancy, in years, of all types of building component-sections. It uses the expected service life data in several ways. First and foremost, BUILDER estimates the remaining service life of a component-section on the basis of its life expectancy and condition. Second, the expected 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.

An example of how service life data is gathered and used may be helpful. Suppose the BUILDER service life data indicates that a heavy grade carpet under moderate traffic levels has a life expectancy of 20 years. The 20 years is obviously an average, of some sort, and you should know that the average is determined more by the experiences and judgment of multiple facility managers than by statistically accurate field data. Gathering statistically valid data is virtually impossible, even for the manufacturer of a specific carpet type, but especially for the BUILDER database which must match service life with a very generic component-section type. If you installed a heavy grade carpet into 1000 buildings where the traffic level would be classified as moderate and you tracked how many years each carpet remained in the building before it was replaced, the graph of your data might look something like shown below (keep in mind that this is simply a conceptual picture and does not represent actual data.).



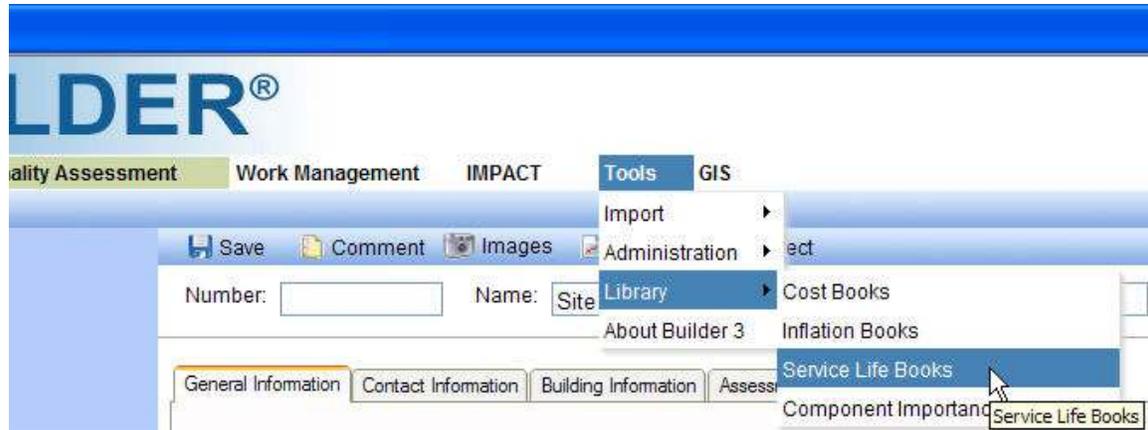
You can see from this simple graph that by year 20, the majority of the carpet in the 1000 buildings has been replaced. You can also see that all along the way, some of the carpet is being replaced sooner than 20 years and some later than 20 years. What makes the difference? Many factors may affect how long a particular carpet may be in use: level of daily and periodic cleaning, climate, actual quality of the carpet and of its installation, mission requirements of the tenant, etc. For those factors which affect the condition of the carpet, BUILDER attempts to relate an estimated remaining service life for a specific carpet component-section with the condition index of that section. The CI of the carpet at any given age gives a good indication of whether the carpet will last less than or more than the average life span. When you perform the process of [rolling up CI's](#) for your inventory, one of the computations in the series is to recompute the remaining service life of the component-section based on its current CI, its rate of deterioration during the time between its last two condition assessments, and the expected service life of the item.

As you can see, the expected service life is a key component in determining two important measures of how well a particular component-section is doing. The two are its current condition index and its remaining service life. Service life is used to determine an expected deterioration rate in estimating current condition in the absence of sequential condition assessment data. It is also used in the models that compute remaining service life on the basis of current CI and rate of deterioration.

The service life data in BUILDER's Reference set was derived from data collected during many years of research at ERDC-CERL, both during the BUILDER project and by an earlier study that resulted in the Maintenance Resource Prediction Model (MRPM), which has served as the foundation for a number of facility maintenance models. Your experience, however, may be different in terms of how long items last in your buildings. For example, your buildings may be in a very wet, windy climate and the roof surfaces may need to be replaced more often, paint may need to be applied more often, wood windows may need to be replaced sooner than the data indicates. BUILDER allows you to edit the service life data to reflect your knowledge and experience with the various building components you manage.

Creating and Editing Service Life Data

To manage the service life data, select *Tools -> Library -> Service Life Data* from the navigation menu.



The Service Life Management window will appear.

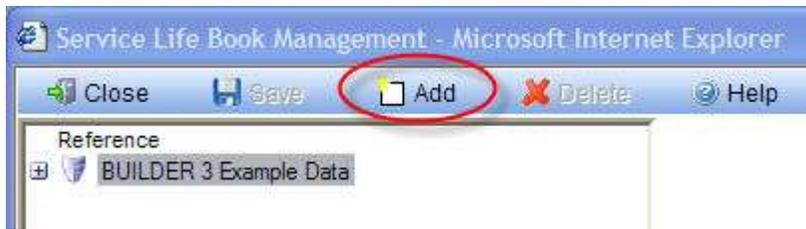
The screenshot shows the 'Service Life Book Management' window in Microsoft Internet Explorer. The window title is 'Service Life Book Management - Microsoft Internet Explorer'. The interface includes a 'Service Life Set' dropdown menu set to 'Reference' and a 'System' dropdown menu set to 'Conveying'. Below these is a table titled 'Years of Service Life (SL), Paint Life (PL) for Systems Components'.

Component	Material or Equipment Type	Component Type	SL
Accessibility Lifts	Chair Lift	N/A	35
Accessibility Lifts	Forch Lift	N/A	35
Accessibility Lifts	Stair Lift	N/A	35
Accessibility Lifts	Unknown	Unknown	25
Chute	N/A	Open/Refuse	20
Chute	N/A	Personal	20
Chute	Unknown	Unknown	20
Dumbwaiter	Automatic	2 Stops	35
Dumbwaiter	Automatic	3 Stops	35
Dumbwaiter	Automatic	4 Stops	35
Dumbwaiter	Automatic	5 Stops	35
Dumbwaiter	Automatic	8-10 Stops	35
Dumbwaiter	Automatic	>10 Stops	35

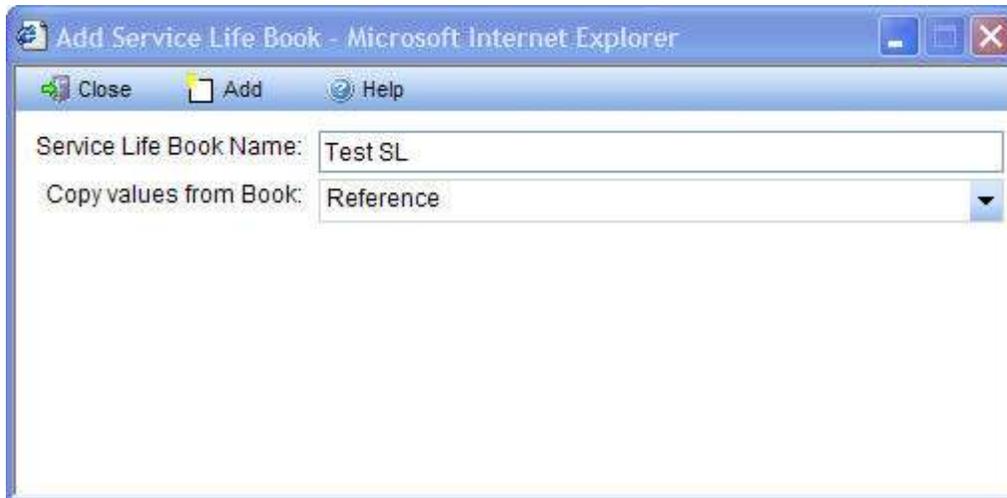
Expand the tree in the left portion of the window to show the available service life data sets. Initially, only one service life data set, Reference, is available. The Reference data set cannot be deleted or edited, and serves as the foundation of all other service life data sets you create. You are free to use the Reference service life data set if you like and not add any data of your own.

Editing Service Life Data

If you would like to edit the service life data, you must create your own data set first. To do so, click the ADD button on the toolbar.



The Service Life Management window will appear.



Enter the name of the new service life book, choose the book to copy service life data from, and click ADD. You will be returned to the Service Life Management window, the name of the new book will appear in the Service Life Set field, and you will see the data corresponding to the book you copied from. You may now edit the service life (SL) and paint life (PL) for the sections in the grid, which is filtered by system. To edit different service life sets in your inventory, select them in the tree and their data will appear in the grid.

Service Life Book:

System:

Years of Service Life (SL), Paint Life (PL) for Systems Components

Component	Material or Equipment Type	Component Type	SL	PL
Accessibility Lifts	Chair Lift	N/A	35	
Accessibility Lifts	Porch Lift	N/A	35	
Accessibility Lifts	Stair Lift	N/A	35	
Accessibility Lifts	Unknown	Unknown	35	
Chute	N/A	Unen/Refuse	20	
Chute	N/A	Personal	20	
Chute	Unknown	Unknown	20	
Dumbwaiter	Automatic	2 Stops	35	
Dumbwaiter	Automatic	3 Stops	35	
Dumbwaiter	Automatic	4 Stops	35	
Dumbwaiter	Automatic	5 Stops	35	
Dumbwaiter	Automatic	6-10 Stops	35	
Dumbwaiter	Automatic	>10 Stops	35	
Dumbwaiter	Manual	2 Stops	35	
Dumbwaiter	Manual	3 Stops	35	
Dumbwaiter	Manual	4 Stops	35	
Dumbwaiter	Manual	5 Stops	35	
Dumbwaiter	Manual	6-10 Stops	35	
Dumbwaiter	Manual	>10 Stops	35	
Dumbwaiter	Unknown	Unknown	35	

Assigning Service Life Books

You can create multiple Service Life books, and assign separate ones to each organization or site. This is done in the Inventory mode by selecting the organization or site to assign the Service Life book to, and selecting the Service Life book from the drop down menu in the Reference Settings.

Number: Name:

General Information | Contact Information | Building Information | Assessment History | GIS

Location Factors

Area Cost Factor:

Seismic Zone:

HVAC Zone:

Calculated Data

Number of Facilities:

PRV:

Index Data

	Metric	Value
	CI	81
	FI	98
	PI	85
	FCI	0.028

Reference Settings

Cost Book: Reference

Service Life Book: Reference

Inflation Book: Reference

Policy Sequence: Default

Prioritization Scheme: Simple Default

Reports

Selecting a Report

BUILDER offers a number of standard reports, each formatted in the commercial tool Data Dynamics Active Reports. These reports can be viewed, printed, or exported to electronic files of several formats. Reports can be viewed by clicking the REPORTS button  in the local toolbar. The Reports Selector window will appear.

Report Selector - Microsoft Internet Explorer

Close | View Report | Help

Select a Report:

To view a report, select it from the dropdown list and click the VIEW REPORTS button. The selected report will launch in the [Report Viewer](#) window. The method used to open the Reports Selector window determines the type and scope of the reports available to be viewed.

When you select the REPORTS button on a toolbar at a particular inventory level, the dropdown list includes only reports applicable to that level. Additionally, the report will only show data for the current model you are in. For example, if the REPORTS button is clicked while in inspection mode, or inspection related reports will be displayed.

Using the Report Viewer

The Report Viewer provided with BUILDER is a commercial report generator supplied by Data Dynamics Active Reports. The report viewer offers a number of powerful capabilities for working with BUILDER's standard reports. It allows you to view reports in a variety of formats, to print the reports, and to export the reports to an electronic file of a variety of formats. Shown below is the general appearance of the report viewer:

Complex	Building	BCI	BFI	BPI	FCI	MOI
USPS						
	Warehouse 1	94	100	96	0.000	
Main Post						
	1102 Legal Office	75	100	82	0.026	38
	1109 Communications Center	82	100	87	0.031	92
	1112 Credit Union Building	83	100	88	0.031	67
	1131 Administration Building	78	100	85	0.022	38
	1328 Personnel Office	85	100	89	0.016	67
	1397 Community Building	84	100	89	0.027	38
	1617 Security Office	83	100	88	0.020	86
	1621 Fire Station	80	100	86	0.024	86
	4000 Fitness Center	84	100	89	0.013	71
	4571 Dining Hall	81	100	87	0.020	69
	4572 NCO Barracks	91	100	94	0.006	76
	4577 Senior NCO Barracks	82	100	87	0.013	78
	4911 Consolidated Club	85	100	89	0.051	71
Airfield						
	6709 Classroom Building	85	76	80	0.023	54
	8585 Aircraft Mechanics School	82	100	87	0.012	85

Toolbar

- **CLOSE.** Use this button to close the window.
- **VIEW TYPE.** Select the view type of the report from the dropdown list. The reports you can be viewed in Adobe Acrobat (PDF), HTML, or ActiveX.

Note that one report, "Work Plan for Export to MS Excel," was designed specifically to be used with Microsoft Excel and not to be viewed and printed as it appears in the Report Viewer. By choosing to export this report the Excel,

you can format, sort, eliminate columns, add your own columns, etc. as you wish to build your own work plan reports.

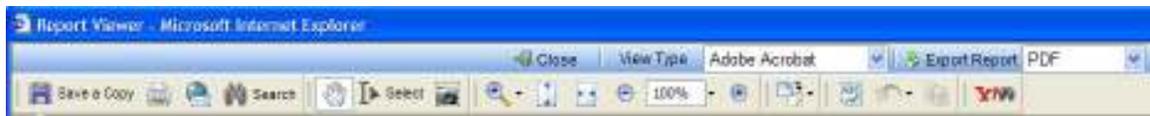
- EXPORT REPORT. Use this button to export the report.
- HELP. Use this button to launch the help topic associated with viewing reports.

Exporting a Report

New to BUILDER 3.0 is the ability to export reports to hardcopies. A report can be exported in 4 formats:

- Adobe Acrobat (PDF)
- Microsoft Excel
- Microsoft Word (RTF)
- HTML

To export the current report, select the format type using the dropdown list and click the EXPORT REPORT button in the toolbar.



The export process will begin, and you will be asked if you wish to open the exported report or save it to file. If you wish to save the report to file, you must specify a file path and name.

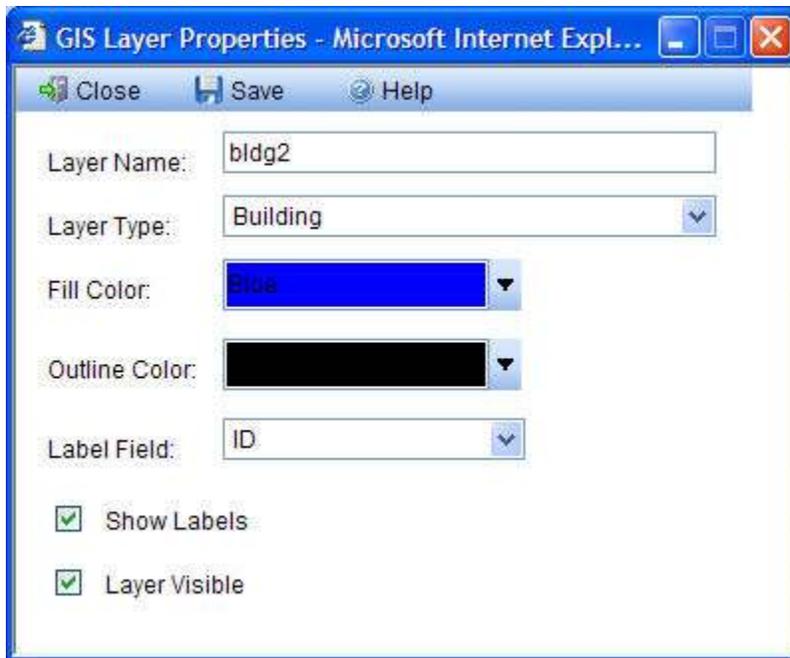
GIS

Setting Up GIS

If you have a GIS map and wish to associate with a site in your inventory, it can be done from the GIS tab on the [site information screen](#).



Each row in the grid shows the data for a GIS layer that has been added for the site. To edit the data in a particular row, click the PROPERTIES button in the column on the left. The GIS Layer Properties window will appear.



Properties that can be edited in this window include:

- **Layer Name.** Enter the name the layer will be identified by.
- **Fill Color.** Select the fill color for the layer from the dropdown list.
- **Outline Color.** Select the outline color for the layer from the dropdown list.
- **Label Field.** Select the label describing the layer to be shown in the [GIS Viewer](#) from the dropdown list.
- **Show Labels.** Mark this checkbox if you want the layer labels to be visible in the [GIS Viewer](#).
- **Layer Visible.** Mark this checkbox if you want the layer to be visible in the [GIS Viewer](#).
- **Layer Searchable.** Mark this layer if you want the layer to be searchable. That is, mark the checkbox if you want the linked building identifiers to be shown when a particular data element is selected in the GIS Viewer.

After editing the data for a layer, click the SAVE button in the toolbar to save the changes to the layer. Click the CANCEL button if you do not wish to save the changes to the layer.

Adding a Layer

To add a layer that can be shown in the [GIS Viewer](#), click the NEW button. The GIS Upload window will appear.

GIS Upload - Microsoft Internet Explorer

Cancel Import Help

Select the files for the GIS layer that you want to display.

The three GIS files will contain the file extensions DBF, SHP, and SHX. All three of these files must have the same name.

Browse...

Browse...

Browse...

Select layer type: Building

Select the three GIS files you would like to upload using the BROWSE buttons next to the three fields. The GIS files you need to upload will contain the file extensions DBF, SHP, and SHX, and all three must have the same name. After the three GIS files have been selected, click the PROCEED button to initiate the upload. After the upload process is complete, the new layer will appear as a new row on the grid. If you do not wish to upload the files, click the CANCEL button.

Deleting a Layer

If you would like to delete a layer from the grid, select the layer and click the DELETE button. Note that deleting a layer may prevent a [theme from being viewed](#) in the [GIS Viewer](#) correctly (or at all).

Linking a GIS Layer to the BUILDER Inventory

By linking the GIS layers to the BUILDER inventory, the building identifiers are shown when a particular data element is selected in the GIS Viewer. To link a GIS layer that has already been added, select the layer you wish to link in the grid and click the LINK  button. The Map Linker window will appear.

GIS Data Linker - Microsoft Internet Explorer

Close Proceed Help

Use the process below to link the layers of your GIS map to the inventory database. Use a GIS tool (for example, ArcView) to export each layer of your map to a shape file format. Identify fields in the .DBF table and the inventory table for which values can be matched. When you have completed this, click the Proceed button to add an inventory link column to the .DBF file.

GIS Data File

Location: EXMPL - Camp Example
GIS Database: bldg2

Select the corresponding columns from each data file that will be used to make the linkage:

The column _____ in the DBF file corresponds to column _____ in the inventory.

Click on a DBF column header to select the column Click on an inventory column header to select the column

ID	MIID	Number	Name	Address
1109	BI28K-LDMI-NSY4-DHPQ-4K	1001	Quarters A	7230 Oak Street
1621	BSPAW-TQ3Z-622G-T6RF-Y	1002	Quarters B	7232 Oak Street
1102	BT5EC-24NC-39QY-XVNZ-V	1003	Quarters C	7234 Oak Street
1112	B72TZ-XTZG-YM91-70XO-IS	1004	Quarters D	7236 Oak Street
1131	BPW74-KMNF-5SLD-10EV-7	1005	Quarters E	7238 Oak Street
4571	BJHWB-PJCA-Z8O8-KH9W-S	1006	Quarters F	7240 Oak Street
1328	BTZVI-8027-IFBA-517O-2C	1007	Quarters G	7242 Oak Street
4911	BWCA4-INGP-MW24-VOF5-F	1008	Quarters H	7244 Oak Street

In the Map Linker, select the column in the left grid corresponding to the building identifier in the .dbf file that matches either building number, name, or address. Select the column in the right grid corresponding to the selected building identifier in the BUILDER inventory. For DOD agencies, this will generally be building number. Click the PROCEED button to begin the automated linkage process. This process will create a new column in the .dbf file that will contain the BUILDER unique ID for each building the process is able to match.

Moving a Layer

If multiple layers are added for a particular site, then the order in which they appear in the grid on the GIS tab will dictate how they appear in GIS viewer and in [themes you create](#). The GIS viewer is configured to show the layer at the top of the grid over all other layers on the grid. That is, if the top layer in the grid and the bottom layer on the grid both have overlapping element on the map, the element associated with the top layer will be shown and the element associated with the bottom layer will not be. If there is no overlap between layers, all layers will be shown in their entirety.

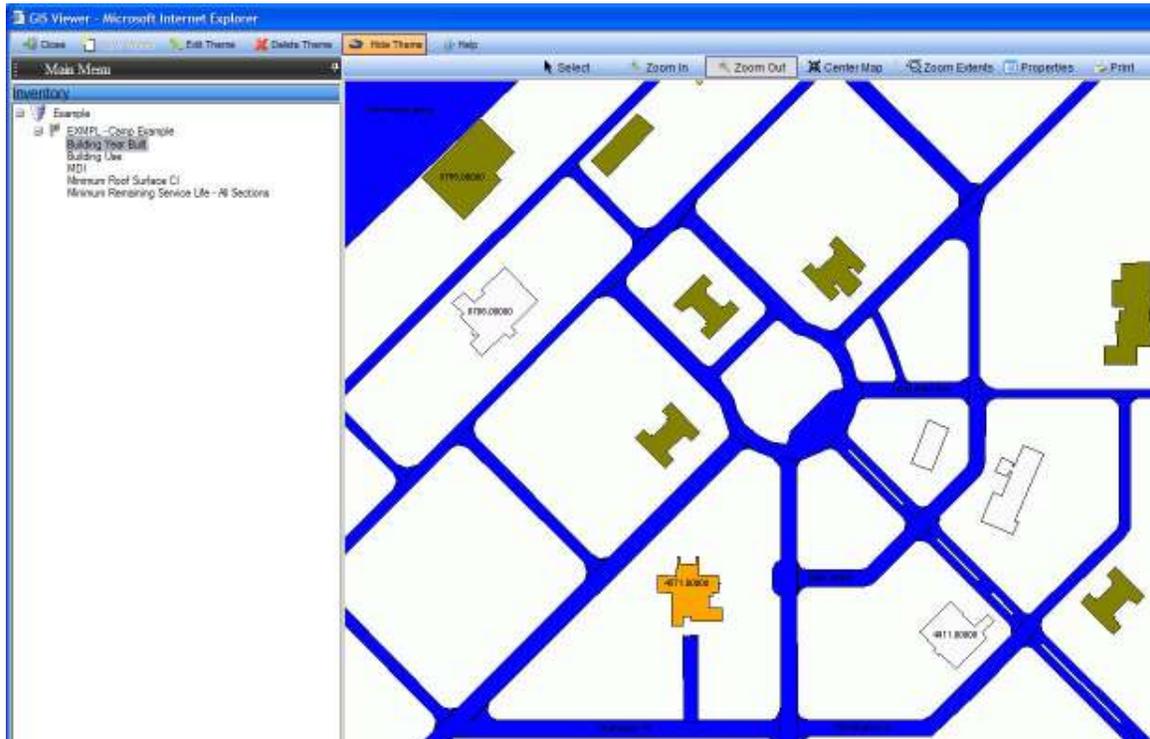
To move a layer in the GIS grid, select the layer and use the UP and DOWN arrows. The different layers in the grid should be moved to ensure the correct elements are shown the GIS viewer and in the themes you create.

GIS Viewer

After you have [setup GIS layers for your BUILDER Inventory](#), the associated GIS map can be viewed by selecting *GIS* from the navigation menu.



The GIS Viewer window will appear.



When the GIS Viewer appears, the GIS layers associated with the site will be shown. Additionally, the tree on the left side of the window can be expanded to show all of the themes that have been created for the site and a legend appears on the right side of the screen. The tree and legend can be hidden and shown again using the arrow buttons marked on the screen shot shown above.

Toolbar

- CLOSE. Use this button to close the GIS Viewer.
- CREATE THEME. Use this button to [create a new theme](#).
- EDIT THEME. Use this button to edit the selected theme.
- DELETE SELECTED THEME. Use this button to delete the selected theme.
- VIEW/HIDE THEME. Use this button to [view the selected theme](#) or hide the currently shown theme.
- SELECT. Use this button to select a particular element on the map. After clicking this button, clicking on a linked data element will display information about it. See [Setting Up GIS](#) for information on how to link data elements.
- ZOOM IN. Use this button to zoom in on the map. After clicking this button, click once on the map where you wish to zoom in.

- ZOOM OUT. Use this button to zoom out from the map. After clicking this button, click once on the map where you wish to zoom out.
- CENTER MAP. Use this button to center the map. After clicking this button, click once on the map where you wish to center the map.
- ZOOM EXTENTS. Use this button show the entire map.
- PRINT. Use this button to print the map.
- HELP. Use this button to launch the help topic associated with the GIS Viewer.

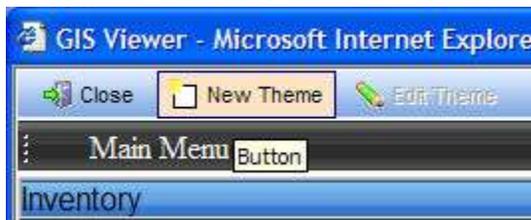
Creating Themes

A helpful tool included in BUILDER is the ability to create and show themes based on properties of the inventory (BCI, BFI, BPI, estimated work cost, etc). Creating and viewing these themes allows for an overall indication of the site's properties to be viewed and compared from a single location.

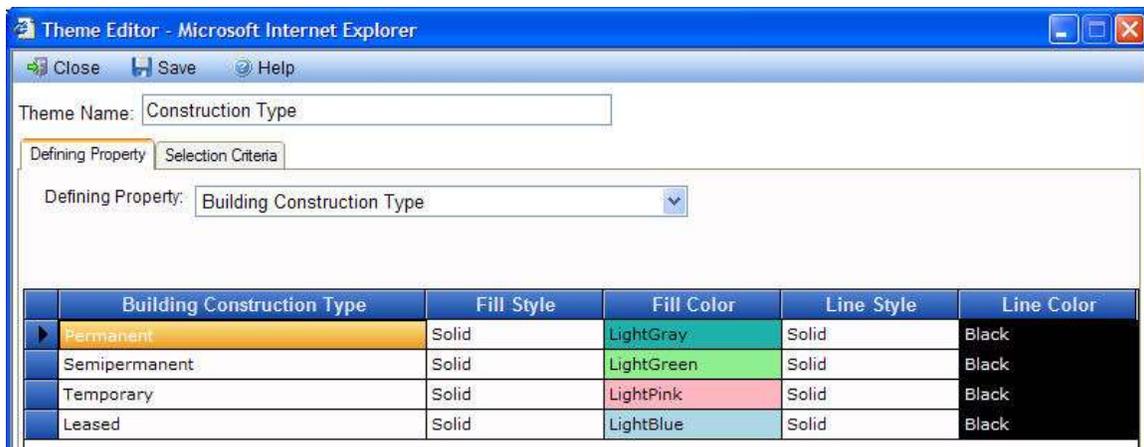
To create a theme, open the GIS Viewer window by selecting *GIS* from the navigation menu.



From the GIS Viewer, click the CREATE NEW THEME button on the toolbar.



The Add Theme window will appear.



Initially, the Add Theme window will be open to the Defining Property tab. On this tab, the following data should be input:

- **Theme Name.** Enter the name of the theme being created, which should be unique.
- **Defining Property.** Select the defining property of the theme from the dropdown list. Depending on the Defining Property chosen, the grid in the bottom of the screen will populate with different values in the first column.
- **Fill Style.** Select the fill style from the dropdown list for the selected row. Each inventory item that has the property in the first column of the selected row will have the selected fill style when the theme is viewed.
- **Fill Color.** Select the fill color from the dropdown list for the selected row. Each inventory item that has the property in the first column of the selected row will have the selected fill color when the theme is viewed.
- **Line Style.** Select the line style from the dropdown list for the selected row. Each inventory item that has the property in the first column of the selected row will have the selected line style when the theme is viewed.
- **Line Color.** Select the line color from the dropdown list for the selected row. Each inventory item that has the property in the first column of the selected row will have the selected line color when the theme is viewed.

In addition to the data described above, additional data can be entered for the theme on the [Selection Criteria](#) tab. Adding selection criteria to a theme can limit the inventory the theme is shown for. After all of the data for the theme has been entered, click the SAVE button in the toolbar to create the theme. Click the CANCEL button in the toolbar if you do not wish to create the theme.

Viewing Themes

A helpful tool included in BUILDER is the ability to create and show themes based on properties of the inventory (BCI, BFI, BPI, estimated work cost, etc). Creating and viewing these themes allows for an overall indication of the site's properties to be viewed and compared from a single location.

After a [GIS theme has been created](#), it can be viewed in the GIS viewer. To open the GIS viewer, select *GIS* from the navigation menu.



To view a theme, select it in the tree and click the SHOW THEME button in the toolbar.



The theme, using the fills and lines you defined when creating the theme, will be shown in the GIS viewer. The different element appearances allows for data regarding the inventory to be easily identified and compared with one and other. From this information, areas of concern and areas of non-concern can be easily identified.

When viewing a theme, the legend corresponding to the defining property is show in the right portion of the screen. Additionally, the toolbar buttons ([see GIS Viewer](#)) allow for the GIS map to be zoomed in, zoomed out, etc.

Mission Dependency Index

Mission Dependency Index Overview

Securing and defending funding for building maintenance, repair, and revitalization (MR&R) is difficult at best. MR&R funding is almost always less than required since the preference of resource managers is to spend the available funds in areas that directly affect the primary mission. Buildings generally serve in a support role and usually do not directly affect the accomplishment of their owner's mission. Some examples:

- For a military agency, the primary mission is in some way related to the warfighting capability. Recruitment and retention of soldiers, modernization of weapons, and training all directly affect the primary mission; the existence of or condition of most buildings will probably not directly affect the warfighting capability.
- For a manufacturer, the primary mission is the production and sale of the company's products. The machinery in the assembly line and the abilities of the sales force directly affect the company's mission; the building containing the assembly line may have little effect on the company's mission.
- For a school, the primary mission is the education of its students. The quality of the teachers and the curriculum are key to the school's mission; the classroom building only secondary.

It is very difficult to measure how buildings and their states of repair affect the mission performance of their owners. Such a measure would be invaluable when seeking funding because a clear cause-and-effect relationship could be shown. This is the desired product of the Mission-Focused Infrastructure Investments program.

While not available today, ongoing research is striving to develop such a metric.

BUILDER offers the Mission Dependency Index (MDI), which is currently under development by the U.S. Navy Naval Engineering and Service Center (Port Hueneme, CA) in a cooperative research effort with ERDC-CERL. The MDI is based on the mission owner's assessment of the importance of each building to the accomplishment of his/her mission. The goal, as in the second view of the story, is to identify in an objective, quantitative manner how critical each facility is to the overall performance of the mission. Each building has an MDI score in the 0-100 range, where 100 is most critical and 0 is least critical. With such a score available, the most critical buildings can be easily identified, especially by the automated computer decision processes used by BUILDER.

The MDI score for a building is based primarily on the answer given by the owner/user to two questions:

1. How long could the functions provided by this facility be unavailable before adverse impact to your mission?

- (N) Must be maintained continuously (24/7)
- (B) Brief (a matter of hours)
- (S) Short (a matter of days)
- (P) Prolonged (a matter of weeks)

2. If this facility was not functional, could you continue performing your mission by using another facility or by setting up temporary facilities?

- (I) No, it's impossible
- (D) Yes, but with great difficulty
- (P) Yes, with little or no difficulty

Each selected mission answers these two questions about each building it owns or uses. Additional scoring data is gathered when each other mission at the same location answers the following two questions about the selected mission:

1. How long could the functions provided by the selected mission be unavailable without adverse impact to your mission?

- (N) Must be maintained continuously (24/7)
- (B) Brief (a matter of hours)
- (S) Short (a matter of days)
- (P) Prolonged (a matter of weeks)

2. If the selected mission's infrastructure were not available, could you continue performing your mission by using other facilities or by setting up temporary facilities?

- (I) No, it's impossible
- (D) Yes, but with great difficulty
- (P) Yes, with little or no difficulty

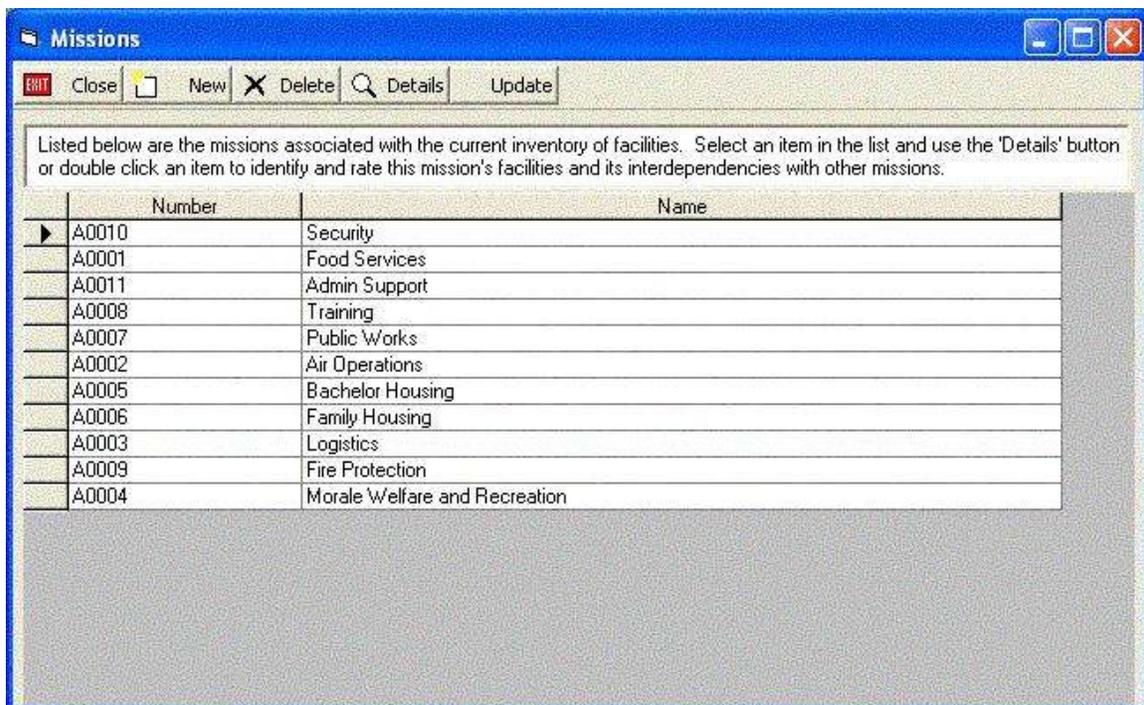
This second set of questions yields a mission interdependency score that adjusts a building score upward for each other mission dependent on its owner.

In its current implementation, the algorithm for computing the MDI score for a building combines the points associated with these questions to achieve an overall score. See [Determining the Mission Dependency Index](#) for instructions regarding the data required for computing a MDI score for each building in your inventory and for using the MDI in user-defined groups, themes, and prioritization.

Determining the Mission Dependency Index

The Mission Dependency Index (MDI) is a measure of the relative importance of a building on a 0-100 scale. The value of the measure is determined by mission owner of the building and by other missions dependent on the building or the building's primary mission. In a military setting, various missions may include: air operations, port operations, payroll, supply, security, public works, training, etc. For a city, the missions may be city administration, fire protection, police protection, library services, public housing, public works, etc. An industrial complex may have missions of production, administration, payroll, human services, maintenance, etc.

To establish building MDI scores for your inventory, select *Data/Mission Evaluation* on the menu bar and follow the instructions below:



The first step is to establish the various missions that are accomplished in the buildings in your inventory. To do this, take special care to identify all of the missions. This may involve holding discussions with key people and/or reviewing organization charts and/or other pertinent material.

Manage your list of missions by clicking the NEW button on the window above to create a mission and by clicking the DELETE button to delete the mission selected in the grid that lists existing missions. When adding a mission or editing an existing mission's details as seen in the window below, **Number** is limited to 20

alphanumeric characters and **Name** is limited to 75 alphanumeric characters. Access the details for each mission by selecting a mission in the grid and clicking the DETAILS button or by double-clicking the mission in the grid.

The screenshot shows a window titled "Mission Details" with a blue header bar. Below the header, there are "Close" and "Save" buttons. The main content area is divided into three tabs: "POC Information" (which is selected and highlighted with a dashed border), "Mission Facilities", and "Mission Interdependencies". Under the "POC Information" tab, there are several text input fields: "Number" (A0008), "Mission Name" (Training), "First Name" (Betty), "Last Name" (Spitfire), "Organization" (Training Department), "Position" (Training Coordinator), "Email Address" (bspitfire@abc.mil), and "Phone" (703-234-6518).

The mission details screen has three tabs of information:

POC Information.

First Name/Last Name. This should be a spokesperson for the mission who will serve as the primary person for answering the mission questions later. First Name and Last Name are each limited to 50 alphanumeric characters.

For the POC named above, provide **Organization** (limited to 20 alphanumeric characters), **Position** (limited to 50 alphanumeric characters), **Email Address** (limited to 150 alphanumeric characters), and **Phone** number (limited to 20 alphanumeric characters).

Mission Facilities.

POC Information	Mission Facilities	Mission Interdependencies
	<p>Facilities in Inventory (Double click to select):</p> <ul style="list-style-type: none"> 1001 Quarters A 1002 Quarters B 1003 Quarters C 1004 Quarters D 1005 Quarters E 1006 Quarters F 1007 Quarters G 1008 Quarters H 1009 Quarters I 1010 Quarters J 1102 Legal Office 1109 Communications Center 1112 Credit Union Building 1131 Administration Building 1328 Personnel Office 	<p>Mission Facilities (Double click to evaluate):</p> <ul style="list-style-type: none"> 6709 Classroom Building 8585 Aircraft Mechanics School 8665 Flight Simulator Building

On the Mission Facilities tab, use the arrow keys to build a list of the facilities owned/occupied by the current mission. Each building will serve at least one mission. For example, a fire station serves the mission of fire protection. It is possible that a building will serve more than one mission. For example, a single building may serve both as a fire station and as a police station.

The next step involves answering two questions about each mission facility. While on the Mission Facilities Tab, double click, in turn, each building in the Mission Facilities list. This will display a Facility Owner Evaluation screen. The mission POC should select the answer to each of the two questions and provide the current date. A comment may be added by clicking the COMMENT button on the toolbar. Use the SAVE button to save changes and the CLOSE button to return to the previous screen.

MDI Facility Owner Evaluation

EXIT Close Save Comment

Facility Name: 6709 Classroom Building

Facility Mission Owner: Training

Survey Date: 03/28/2002

Question 1

How long could the functions provided by this facility be unavailable without adverse impact to your mission?

(N) Must be maintained continuously (24/7)
 (B) Brief (a matter of hours)
 (S) Short (a matter of days)
 (P) Prolonged (a matter of weeks)

Question 2

If this facility was not functional, could you continue performing your mission by using another facility or by setting up temporary facilities?

(I) No, it's impossible
 (D) Yes, but with great difficulty
 (P) Yes, with little or no difficulty

Mission Interdependencies.

POC Information		Mission Facilities		Mission Interdependencies	
Mission Interdependency Evaluations (Double Click to Evaluate)					
Number	Name	Q3	Q4		
▶ A0010	Security	N	P		
A0001	Food Services	B	P		
A0011	Admin Support	B	D		
A0007	Public Works	B	D		
A0002	Air Operations	B	D		
A0005	Bachelor Housing	B	P		
A0006	Family Housing	S	P		
A0003	Logistics	S	D		
A0009	Fire Protection	N	I		
A0004	Morale Welfare and Recreation	B	I		

With Mission Interdependencies, the POC of the current mission (Training in the examples here) double clicks each other listed mission and answers two questions on the MDI Mission Interdependency Evaluation screen regarding how the POC's mission is dependent upon the selected mission. The POC also provides the date on which the evaluation was determined.

MDI Mission Interdependency Evaluation

Close Save Comment

Evaluate the dependency of your mission (Training) on the selected mission listed below.

Selected Mission: Security

Survey Date: 03/29/2002

Question 3

How long could the functions provided by the selected mission be unavailable without adverse impact to your mission?

- (N) Must be maintained continuously (24/7)
- (B) Brief (a matter of hours)
- (S) Short (a matter of days)
- (P) Prolonged (a matter of weeks)

Question 4

If the selected mission's infrastructure were not available, could you continue performing your mission by using other facilities or by setting up temporary facilities?

- (I) No, it's impossible
- (D) Yes, but with great difficulty
- (P) Yes, with little or no difficulty

When all mission buildings and mission interdependencies have been evaluated, you will return to the Missions window illustrated at the top of this topic. If you have entered new data or changed existing data, you should click the UPDATE button on

the toolbar to force the MDI scoring to be recalculated for the buildings in your inventory.

See [Using the Mission Dependency Index](#) for suggestions regarding how the MDI scores may be used for forming groups, displaying themes, and prioritizing work items.

Using the Mission Dependency Index

The Mission Dependency Index (MDI) serves as a measure of the relative importance of your buildings to the missions associated with your inventory. On a scale of 0 to 100, the higher the MDI score for a building the more important it is. The mission owners themselves establish the MDI scores; see the [Mission Dependency Index](#) topic for details regarding how the value of the MDI is determined for each building. The examples in this topic illustrate various ways to use the MDI.

GIS Themes

Using the property "Facility Mission Dependency Index (MDI)" as the defining property for a GIS theme would allow you to display your inventory color-coded by importance.

Prioritization Schemes

Perhaps the most valuable use of the MDI is in the area of prioritization. With limited resources for maintaining an inventory of buildings, the MDI is a good measure for insuring that work items in mission critical buildings rank high and are more likely to be funded.

