BUILDER™
Condition Assessment Guide

Version 3.3.12

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Introduction

Welcome to BUILDER™

BUILDER, part of the Sustainment Management System, provides facility managers with the tools needed to generate the greatest impact from maintenance and rehabilitation activities, and to plan and defend maintenance budgets.

The primary measure used in BUILDER is the *condition index* (CI) rating, using a 0-to-100 point scale. After real property inventory has been subdivided into hierarchical levels of increasing fineness, down to the Component-Section level, the condition index for each Component-Section is computed from inspection data that records the type, severity, and density of each distress found.

Deterioration curves, developed from experience over time, show the optimal point at which work should be done to avoid more costly rehabilitation projects later.

Another measure available in BUILDER is the *functionality index* (FI), also on a 0-to-100 point scale in keeping with the SMS design philosophy. It is computed from assessment data that records the functionality issues present in a building. Based on the severity and density of those issues, building modernization requirements can be identified.

Based on condition index and/or functionality index scores, BUILDER can generate recommended work items automatically. Using cost books associated with BUILDER, cost estimates are attached to the work items. Managers can then choose which work items to fund. The cost of *not* funding work items can be determined using Scenarios.

With the assistance of the Scenarios simulation engine included as part of BUILDER, managers can develop long-range work plans based on a sound investment strategy. By providing an objective description of condition (a core BUILDER functionality) and an automated means of exploring various options under different budget scenarios (Scenarios), BUILDER and Scenarios together make multi-year work plans easier to formulate and funding requests easier to justify. The goal is optimal facility performance for the dollars invested.

For information, announcements, links to documents, and discussion forums, visit the SMS community user's group website at https://www.sms.erdc.dren.mil.

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Using this Guide

This guide explains how to record condition assessment inspections in the Sustainment Management System with BUILDER™.

Prerequisite

This guide assumes that you are already familiar with the material in the *BUILDER™ Getting Started Guide* and the *BUILDER™ Inventory Guide*.

About Condition Assessment in BUILDER

Condition Assessment Overview

This topic introduces the Version 3.3 condition assessment process in BUILDER.

Notes: In the user documentation, the word "inspection" is sometimes used instead of "condition assessment." Also, "Component-Section" and "Section" are equivalent.

About Condition Assessment Types

After inventory of your real property has been entered into BUILDER, you can perform condition assessments/inspections. BUILDER accommodates multiple types of condition assessments*: Direct ratings*, where a green/amber/red color coding system used by the inspector is then translated into numeric condition ratings, and *distress surveys*, where the density and severity of deficiencies are logged, and then BUILDER computes Component-Section condition scores that take all of the deficiencies into account

About the Condition Index

When a condition assessment is completed, BUILDER computes a *condition index* for the inspected Component-Section. This condition index is the CSCI, the Component-Section Condition Index. Details about how the CSCI is calculated and rolled up to higher levels of inventory are found in "About CSCI Calculations and Rollup" on page 10.

Condition Assessment Reports

After a condition assessment is completed, the data entered into BUILDER can be used to generate a variety of inspection-related reports. These are described in the Reports section of the documentation.

Knowledge-Based Inspection Scheduling

An additional, optional task available to you after real property has been entered is to establish an inspection schedule using the Knowledge-Based Inspection scheduling tool in BUILDER. This tool is designed to select a subset of Component-Sections from your inventory that should be considered for inclusion in the next round of condition assessments.

Work Plans

Condition assessments are prerequisite to generating relevant work items and work plans, because the CSCI is used in deciding at what point an inventory item is in need of repair or replacement.

Condition Assessment Tools and Reference

This topic provides an overview of tools and resources available for help with the condition assessment process in BUILDER.

Condition Assessment Tools

BUILDER provides specialized tools to assist with the condition assessment process. These are described briefly here, and in more depth at the following linked locations:

- "Remote Inspection and Inventory Entry Using BuilderRED" on page 89,
- "Rapid Inspection Method (Direct Rating)" on page 31
- "About Knowledge-Based Inspection Scheduling " on page 83

BuilderRED

The is an optional, free, downloadable add-on to the **SMS**[1]. It is a portable application designed to run on a Windows® operating system, and can be used on a Windows tablet or laptop by inspectors at the inspection site.

Using BuilderRED, inspectors can quickly and easily enter condition assessment data into the application at the inspection site, then electronically import the data to BUILDER afterwards. This saves the effort of entering the data onto paper and then having to enter it again into the BUILDER Web interface.

Rapid Inspection Method

For assessments using the direct condition rating method, BUILDER's Rapid Inspection method enables quick and easy input. In cases where entire Components, Systems, Buildings, or Complexes have a uniform or nearly uniform condition rating, you can input the condition rating at levels higher than Component-Section, then adjust the condition rating of individual Component-Sections as needed.

> **Note:** There is no Rapid Inspection method for distress surveys.

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[1]Sustainment Management System

Knowledge-Based Inspection Scheduling

BUILDER also provides a Knowledge-Based Inspection scheduling tool. This tool is designed to select from your entire inventory a subset of Component-Sections that should be considered for inclusion in the next round of direct rating or distress survey condition assessments. Additionally, this feature is able to determine whether it is better to perform a distress survey or a direct rating.

Reference

Condition Assessment Reference Manual

A valuable resource to have on hand when performing condition assessment is the December 2018 ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections.* This reference manual, written for BUILDER Version 3, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

For distress surveys, Appendixes A through D of the Condition Assessment Reference Manual enumerate and define each of the available distresses. This information is also included in the BUILDER Online Help under the same Appendix numbers.

Orientation to the Condition Tree

This topic

- explains how to access the condition tree
- highlights the similarities and differences between navigating the condition tree and navigating the inventory tree
- explains how to exit the condition tree
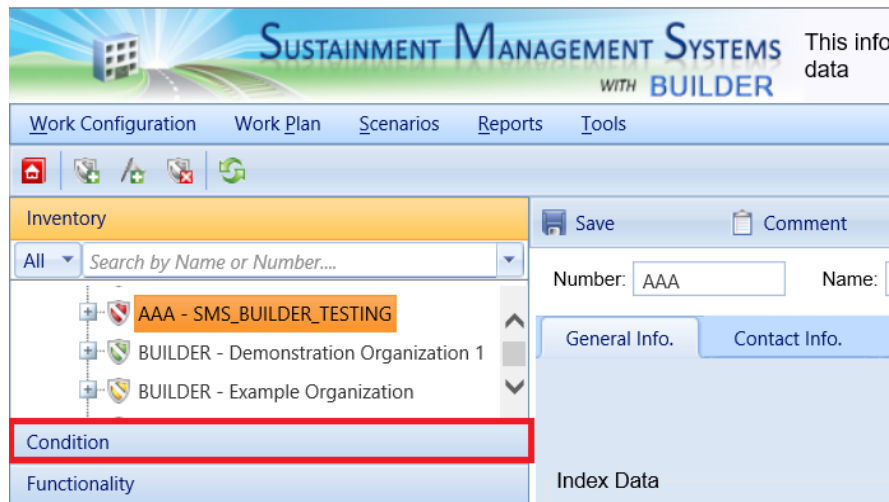
Access the Condition Tree

To record inspections or to work with Knowledge-Based Inspection Scheduling, you will need to work within the condition assessment navigation tree ("condition tree") in BUILDER.

Two alternate ways of accessing the condition tree are

a. switching to the condition tree from the inventory tree or functionality tree, or
b. making the condition tree your default view

## Switch from the Inventory or Functionality Tree

If your default location when opening BUILDER is the inventory tree or functionality tree, then you can switch to the condition tree by activating the **Condition** ribbon, which may be either above or below the tree currently being displayed.

Make the Condition Tree Your Default View

Alternatively, if you expect to be accessing the condition tree more often than the other navigation tree options, you have the option to configure your User Preferences to make the condition tree display by default when you open BUILDER. To do so, follow these steps:

1. Activate the <u>User Preferences</u> link at the upper right of the main BUILDER screen.
2. In the "Options" popup window, navigate to the **Default View** segment.
3. Activate the dropdown arrow (see the first red box in the illustration below) to display the options for default view.
4. Select **Condition Assessment** from the dropdown options.
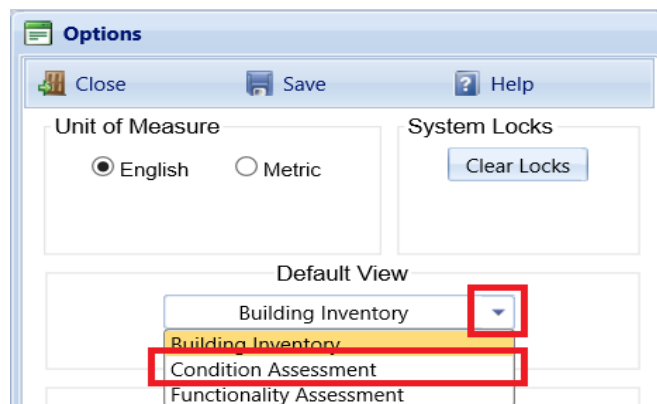
5. Activate 💾 **Save** on the popup window toolbar.
6. Use the **Close** button to close the "Options" window .

The next time you log into BUILDER, the condition tree will display at the left.
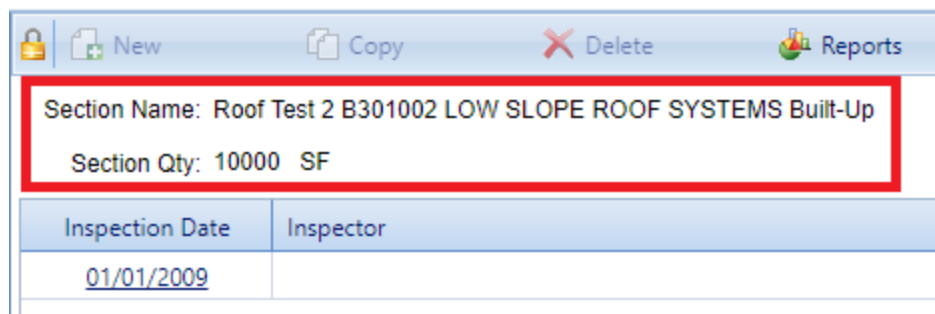
Navigating the Condition Tree

From the Organization (if applicable) or Site level, down through the Building level, navigating the condition tree works exactly the same way as navigating the inventory tree.

Once you click "+" to expand a Building, however, the display changes. Two folders, named **By System** and **By Sample Location** will appear below the Building.

By System

Navigating the **By System** folder will feel similar to navigating the inventory tree, except that the content area of the screen will remain blank until you reach the Section level. At the Section level, the Section name, quantity, and unit of measurement will appear in the content area just under the content area toolbar.

Next appears a table with the columns **Inspection Date** and **Inspector**. Activating the link for an inspection date will open the inspection.

> **Note:** The oldest inspection date listed, at the bottom of the table, will have no **Inspector** listed because it represents an inspection created automatically by BUILDER on the date the Component-Section was added to the BUILDER database. The CSCI rating for this inspection is 100 because the Component-Section was presumably new at the time.

> **Further Information:** For information about viewing individual inspections, see <u>"View a Direct Rating " on page 18</u>, and/or <u>"View a Distress Survey " on page 36</u>.

By Sample Location

If sampling has been used for inspections, the sample locations used will be listed under **the By Sample Location** folder. Applicable Components and Sections will be listed under each sample location.

Exit the Condition Tree

To exit the condition tree, simply activate either the **Inventory** ribbon or the **Functionality** ribbon in the navigation tree.

About CSCI Calculations and Rollup

A condition assessment in BUILDER results in the computation of a Component-Section Condition Index (CSCI). This informational topic details how the CSCI is calculated for each of the condition assessment types. It also touches on how the CSCI values are "rolled up" into condition indexes of progressively higher levels of BUILDER inventory.

CSCI Computation

The Component-Section Condition Index (CSCI) is a condition rating for the Component-Section being inspected. For all condition assessment types, BUILDER computes the CSCI by using the assessment data to calculate a deduct value, then subtracting that deduct value from the maximum possible rating of 100.

The deduct value computation differs depending on the type of condition assessment performed. The computational approach to obtaining a CSCI is described below for each inspection type:

- direct rating
- distress survey

Direct Rating CSCI Computation

For direct ratings, the selected color rating corresponds directly to a deduct value for the Component-Section. Using this deduct value, the CSCI can be easily computed. If sampling is used for the Component-Section, a sample unit condition index will be computed at each sample location and aggregated into a CSCI by computing the average of the representative samples weighted by size.

Distress Survey CSCI Computation

For distress surveys, the combination of distress type, severity level, and density of the subcomponents of the Section are used to determine the deduct value for the individual subcomponents. The deduct values for each combination of distress, severity, and density were determined during ERDC-CERL's research effort using rating values from a team of experts.

> **Note:** If more than one distress exists for a given Component-Section, the sum of the deduct values for the distresses present must be corrected. This is because as additional distress types and/or severity levels occur on the subcomponent, the impact of a given distress on the condition rating becomes less. This correction correlates the expert panel's ratings and the computed indexes. The correction factor is a function of the summed total of the individual deduct values, a minimum individual deduct value, and the number of different distress types and severity level combinations found. The correction factor values were developed from the rating panel data and are applied directly to the deduct value to produce a corrected deduct value.

After all the subcomponent condition indexes are determined for a Component-Section, the CSCI (or, if sampling is used, the Sample Unit Condition Index, SUCI) is computed based on the individual subcomponent CIs and their weight factors. If sampling is used, the sample unit indexes for each Component-Section are aggregated into a CSCI by computing the average of the representative samples weighted by size. All calculations are made at the time an inspection is entered.

Condition Index Rollups

The preceding documentation segments described how a condition index is computed for a Component-Section after an inspection. The inspection CIs form the basis for computing a current CI for all inventory items in the hierarchy. CSCIs are rolled up hierarchically to compute condition indexes for each component (BCCI), system (SCI), the Building as a whole (BCI), the Site, and the Organization. Collectively, trends can be monitored, and **M&R**[1] can be scheduled accordingly.

- **(Building) Component CI (BCCI) -** For each Component, the BCCI is computed by taking the average of its Sections' CIs, weighted by replacement cost.

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[1]Maintenance and Rehabilitation

- **System CI (SCI) -** For each System, the SCI is computed by taking the average of its Component CIs, weighted by replacement cost.
- **Building CI (BCI) -** For each Building, the BCI is computed by taking the average of its System CIs, weighted by replacement cost.
- **Complex CI -**The Complex CI is computed by taking the average of the BCIs of each Building in the Complex, weighted by replacement cost.
- **Site CI -** The Site CI is computed by taking the average of the BCIs of each Building at the Site, weighted by replacement cost.
- **Organization CI -** The Organization CI is computed by taking the average of the BCIs of each Building at the Organization, weighted by replacement cost.

For more information about rollups, see "APPENDIX A: About Rollup" on page 109.

Choose Assessment Type

Condition Assessment Types

This topic introduces the condition assessment (inspection) types available in BUILDER. Additional topics will go into further detail about direct ratings (including the Rapid Inspection method) and distress surveys separately.

> **Further Information:** More in-depth conceptual detail about direct ratings and distress surveys is available in the **Overview** chapter of ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

BUILDER offers these condition assessment types:

- direct ratings
- distress surveys

Each type is described briefly below, and more thoroughly at the links provided in the list above. All types allow for sampling. None of the types yield a detailed engineering assessment, but all are designed to satisfy facility management data requirements regarding inventory condition and expected work requirements. In keeping with other aspects of BUILDER's design, every effort has been made to speed the process and ease the burden of performing condition assessments.

Direct Rating - Quick Introduction

When performing a direct condition rating, the inspector enters a color rating describing the Section's condition according to the diagram shown below.

RATING	DETERIORATION	M&R NEEDS
Green + Green Green –	Minor Deterioration	Routine Maintenance or Minor Repair
Amber + Amber Amber –	Moderate Deterioration	Necessary Repair or Replacement
Red + Red Red-	Significant Deterioration	Major Rehabilitation or Replacement

The rating for the Component-Section is determined by first choosing one of the three color bands (green, amber, or red) that corresponds to the amount of deterioration observed and the maintenance and rehabilitation (M&R) needs of the Component-Section. Then within that color band, one of three ratings is chosen according to whether the observed condition falls at the top, middle, or bottom of the color band. Each color rating is specifically defined in Appendix B of this Condition Assessment Guide, or Appendix E in the Condition Assessment Reference Manual or Online Help.

The color rating chosen produces a CSCI, which is calibrated to match the ratings that would result if a distress survey had been done.

Distress Survey - Quick Introduction

When performing a distress survey, inspectors record information about a Component-Section by recording the distresses on each subcomponent of the Component-Section. Each distress is given a severity rating (low, medium, or high) and density range (quantity) based on established criteria. BUILDER uses this inspection information to calculate the Component-Section Condition Index (CSCI), which is then tied to **M&R**[1] costs to form the basis for maintenance and rehabilitation planning and budgeting. This process is illustrated by the diagram shown below.

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[1]Maintenance and Rehabilitation
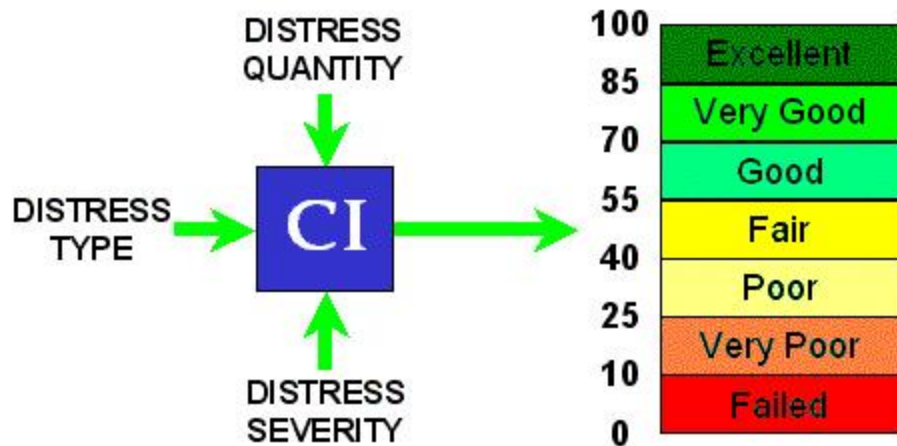
About Choosing Condition Assessment Type

The BUILDER condition assessment process is designed to require the minimum of data needed to make good managerial decisions about where attention and resources need to be focused. When a Building is new, or when inspecting a relatively new Component-Section with a long expected remaining service life, using a direct condition rating on each Component-Section will probably be sufficient. However, as a Component-Section begins to deteriorate, it is beneficial to gather more data during the inspection using a distress survey.

Section 2.4 in ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections,* provides additional information on pairing inspection types (distress survey vs. direct rating) with inspection objectives. This document is available for download at the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Direct Ratings

About Direct Ratings

Direct rating is the most commonly used type of condition assessment in BUILDER. A direct rating allows a seasoned inspector to judge the overall condition of a Component-Section and quickly assign a color code corresponding to a condition tier.

The Direct Ratings segment of the documentation describes direct ratings and provides links to direct rating tasks. It also alerts the user to the option of using the Rapid Inspection method.

What is a Direct Rating?

A direct rating is the most commonly used type of condition assessment in BUILDER. In contrast to a distress survey (which requires the inspector to catalog each deficiency found, including its density and severity), a direct rating allows a seasoned inspector to judge the overall condition of a Component-Section and quickly assign a corresponding color rating (Red, Amber, Green), by taking into account the same distress/severity/density factors of a distress survey but without the increased data input.

Using direct ratings is a quick and efficient way to assess the condition level of each Section, and after Sections have been inspected and assigned a condition rating, the condition of the Sections are rolled up to indicate overall condition of Components and Systems, and so on up the asset tree.

Beginning with BUILDER Version 3.3, direct rating can also be used on individual subcomponents, at the distress survey screen. This allows users to mix direct rating and distress survey within a Section.

When to Use a Direct Rating

Direct rating inspections, because they are faster and less complex than other options, can be ideal for inventory that is being brought into BUILDER in bulk for the first time.

> **Note:** For an even quicker start, consider using the Rapid Inspection method, which can speed up the process of creating direct rating inspections. Rapid inspection is described in detail at "Rapid Inspection Method (Direct Rating)" on page 31.

However, there are stages in the lifecycle of an asset where a more detailed con-dition assessment option, the distress survey, serves best to prolong the asset's useful life. To read engineering advice concerning the best timing for a distress survey, consult the **Overview** chapter of the manual referenced immediately below.

> **Resource:** ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Rapid Inspection Option

For assessments using the direct condition rating method, you can use BUILDER's Rapid Inspection method for quick and easy input. In cases where entire Components, Systems, Buildings, or Complexes have a uniform or nearly uniform condition rating, you can input the condition rating at levels higher than Component-Section, then adjust the condition rating of individual Component-Sections as needed.

> **Note:** There is no Rapid Inspection method for distress surveys.

Additional Information

Chapter 5 of the December 2018 ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections* dis-cusses some of the concepts behind direct rating procedures. Written for BUILDER Version 3, the Condition Assessment Reference Manual is available by download from the SMS community user's group website at https://www.sms.er-dc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Direct Rating Tasks

Tasks that can be performed on a direct rating are:

View a Direct Rating
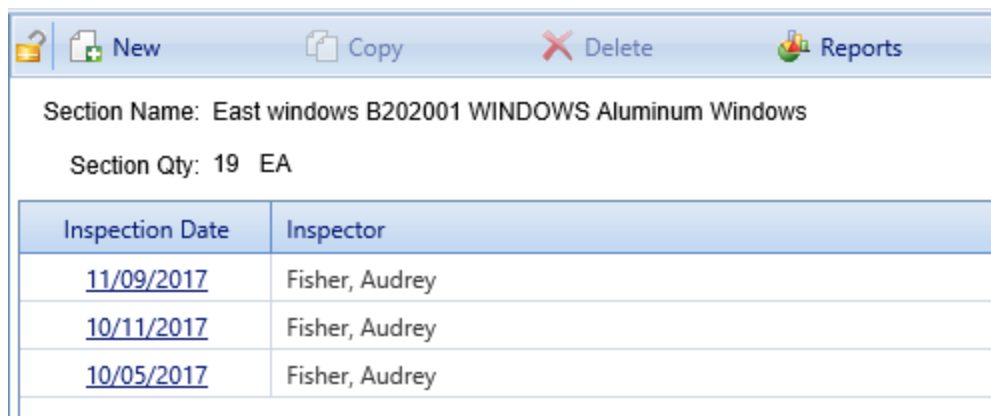
This topic covers how to open and view an existing direct rating that does not use sampling, and explains the information included there.

Open an Inspection

> **Note:** An inspection may be viewed at any time. Editing, however, may only be performed within a specified number of days after the inspection date. The number of days is typically 30 by default in BUILDER as delivered to customers, but can be configured by a BUILDER Administrator.

To open an inspection for viewing or editing,

1. If you are not already in the condition tree, activate the **Condition** ribbon.
2. Navigate to the Building containing the desired inspection.
3. Expand the Building's **By System** folder.
4. Navigate to the desired Section and click on its name. *In the content area you should see a table listing at least one inspection.*

> **Note:** The oldest inspection was automatically generated by BUILDER as a direct rating when the Section was added to the inventory. No inspector name will be listed for this inspection.
>
> Because an inventory item is assumed to be new at installation, BUILDER assigns a Green+ rating to this automatically generated inspection.

5. In the **Inspection Date** column, activate an inspection date link. *The inspection should open. The radio button under the **Type** heading indicates what type of inspection you are viewing or editing.*

View Direct Rating Inspection Data

The direct rating inspection screen has two tabs where you can view inspection data: **Inspection** and **Attachments**. Above the tabs is the toolbar.

Select a link below for how to view

- "Inspection Identification Data" below (date, inspector name, inspection type and method)
- "Inspection Results" on the next page
- "Inspection Attachments" on the next page
- "Inspection Comments" on page 21
- "Inventory Information" on page 21

Inspection Identification Data

- **Inspection Date.** The inspection date can be changed in this field. The oldest inspection is a direct rating that is automatically generated by BUILDER as of the date that the Component-Section was built, installed, or renewed.
- **Inspector (Read-Only).** Inspector name, automatically filled in by BUILDER based on user login. This will not be present for the oldest inspection, which is automatically generated by BUILDER.
- **Type**. Inspection type. Available types are **Direct Rating**, **Distress Survey**.
- **Method.** Inspection method. Available methods are **Not Sampling** and **Sampling**.

Inspection Results

All inspection results shown in the header section are read-only. They can not be directly changed in the BUILDER interface, only by changing the underlying assessment data or the selection on the corresponding Condition Rating Scale.

- **CSCI (Read-Only).** This is the Component-Section condition index corresponding to the color rating chosen by the inspector (see Inspector's rating judgment, later in this bullet list). In addition, the field's background color also matches the color rating. If the background color of the CSCI box is white, it means that data has not yet been entered to produce a result.
- **CSCCI (Read-Only)(Painted or coated items only).** If the Component-Section is painted or coated, the screen will display a separate condition index for the coating, as shown in the red box in this illustration:
- **Inspector's rating judgment.** The radio button selected under **Direct Condition Rating Scale** indicates the inspector's rating judgment for the Component-Section as a whole, and for the paint/coating if applicable:

Direct Condition Rating Scale			Paint/Coating Condition Rating Scale		
○ Green +	○ Amber +	○ Red +	○ Green +	○ Amber +	● Red +
○ Green	○ Amber	○ Red	○ Green	○ Amber	○ Red
● Green -	○ Amber -	○ Red -	○ Green -	○ Amber -	○ Red -

Inspection Attachments

The number in parentheses shown on an inspection's **Attachments** tab indicates how many attachments are connected with the inspection. (This is something you can see even when you are at the **Inspection** tab.) If the number is zero, there are no attachments yet associated with the inspection.

To view one or more attachments,

1. Navigate to and activate the **Attachments** tab. *If attachments are present, a table will display their type, title, and description*.
2. Activate the link in the **Title** column. *The attachment will appear in the "Image Viewer" popup window.*
3. When finished viewing, activate the **Close** button on the popup window toolbar.*You will be returned to the table of attachments.*
4. Repeat the two steps immediately above for additional attachments as desired.

Inspection Comments

To view comments for the inspection, activate the **Comment** button on the toolbar above the inspection display. *The "Inspection Comments" popup window will appear.*

> **Note:** If the **Comment** button icon does not show a white checkmark on a green background, no comments have been attached to the inspection.

To close the "Inspection Comments" popup without making any changes, either activate the ⊗ **Cancel** button on the popup toolbar, or activate the **X** in the upper right corner of the popup window.

Inventory Information

Inventory information is not directly a part of the inspection; however, when viewing an inspection in the condition tree, you have the option to switch to **Inventory** view to see more detail about the Component-Section if desired, by following these steps:

1. Without changing your location in the condition tree, activate the **Inventory** ribbon.
2. Activate the tabs as desired to see inventory details stored for the Section.
3. To return to the inspection, activate the **Condition** ribbon without changing your location in the inventory tree.

When you return to the condition tree, you will not be viewing the inspection itself, but rather the listing of inspections for that Component-Section. Simply re-select the date of the desired inspection to open it again.

Related Links

Add a Direct Rating

This topic covers how to create a new direct rating inspection that does not use sampling.

Initiate a New Inspection

To initiate a new inspection,

1. Make sure you are in the condition tree by activating the **Condition** ribbon.
2. Navigate to the Building containing the Section to be inspected.
3. Expand the Building's **By System** folder.
4. Navigate to the Section to be inspected and click on its name. *In the content area you should see a table listing at least one inspection.*
5. In the content area toolbar, activate the **New** icon. *Result: In the Content area you should see a screen similar to the one illustrated in Navigating the Direct Rating Inspection Screen.*
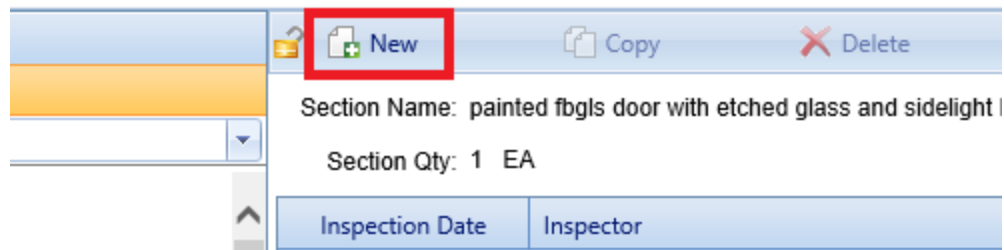
> **Troubleshooting tip:** If the **New** icon is deactivated, this may be because an inspection has already been recently recorded for the Section. If the designated editing window (typically 30 days) has not elapsed, you can edit the existing inspection instead of creating a new inspection.

Select Inspection Type

At the default new inspection screen shown below, you have these choices in the **Type** column:

- Direct Rating
- Distress Survey

Direct Rating is the default inspection **Type** when you create a new inspection, so if this is the type you wish to create, nothing needs to be done to select it. To create a distress survey instead, see "Add a Distress Survey " on page 43.

Enter Direct Rating Inspection Data

> **Permissions/Access Note:** At the far left of the toolbar above the **Inspection** and **Attachments** tabs, a record lock indicator shows as open (🔓) if the inspection is unlocked and can be edited if you have appropriate permissions. If the lock shows as closed (🔒), the inspection is locked. For example, it may have been exported to BRED.

The direct rating inspection screen has two tabs where you can enter inspection data: **Inspection** and **Attachments**. Above the tabs is the toolbar.

Select a link below for how to add

- "Inspection Identification Data" below
- "Inspector's Condition Rating" on the next page
- "Inspection Attachments" on page 68 (this links to a separate topic)
- "Inspection Comments" on page 65 (this links to a separate topic)

Inspection Identification Data

The following identifying information is contained in the header section at the **Inspection** tab:

- **Inspection Date.** Note that the oldest inspection is one that is automatically generated by BUILDER, as a direct rating, as of the date that the Component-Section was built, installed, or renewed.

- **Inspector (Read-Only).** Inspector name, automatically filled in by BUILDER based on user login. Inspector name will not be present for the oldest inspection, which is automatically generated by BUILDER.
- **Type.** Available inspection types are **Direct Rating**, **Distress Survey**.
- **Method.** Available inspection methods are **Not Sampling** and **Sampling**.

After the inspection type has been selected, you should be finished with identification entries unless you wish to use sampling. (**Not Sampling** is the default method, and what is described in this topic.) Your name, as creator of the inspection, is applied to the inspection and is not modifiable.

For information about using sampling, see .

Inspector's Condition Rating

Below the header section (and below any intervening detail about samples) is where you designate a color rating for the Section being inspected.

For a detailed description of each color rating, see Appendix B in this Condition Assessment Guide, or Appendix E in the Condition Assessment Reference Manual or Online Help.

If the Section is painted or coated, consult Appendix C in this Condition Assessment Guide, or Appendix F in the Condition Assessment Reference Manual or Online Help for detailed description of each paint color rating.

> **Resource:** The Condition Assessment Reference Manual, ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Direct Condition Rating

The radio button selected in the **Direct Condition Rating Scale** indicates the inspector's rating judgment for the Component-Section as a whole, not including paint or coating if the Paint/Coating Condition Rating grid appears to the right.

Paint/Coating Condition Rating

If the Component-Section is marked as painted in inventory, BUILDER will display the **Paint/Coating Condition Rating Scale**, and the appropriate color rating radio button should be selected.

Display of Inspection Results

The inspection result(s) are shown in the header section and are read-only. Each result is a numerical equivalent of the radio button selection made in the corresponding Condition Rating Scale. In addition, the background color of the CSCI display field should match the color rating selected.

- **CSCI (Read-Only).** In the header section, under the heading **Results**, is the Component-Section condition index corresponding to the rating chosen by the inspector.
- **CSCCI (Painted or coated items only) (Read-Only).** If the Component-Section is painted or coated, the screen will show a separate condition index for the coating at the upper right, below the CSCI.

Inspection Attachments

To associate one or more attachments with the inspection, see the topic "Inspection Attachments" on page 68.

The number in parentheses shown on the **Attachments** tab indicates how many attachments are connected with the inspection. If the number is zero, there are no attachments currently associated with the inspection.

Inspection Comments

To add, edit, or delete inspection comments, see the topic "Inspection Comments" on page 65.

Save Direct Rating

When finished with entering the desired direct rating information, activate **Save** on the content area toolbar.

Related Links

Edit a Direct Rating

This topic covers how to edit an existing direct rating inspection that does not use sampling.

Open an Inspection

> **Note:** An inspection may be viewed at any time. Editing, however, may only be performed within a specified number of days after the inspection date. The number of days is typically 30 by default in BUILDER as delivered to customers, but can be configured by a BUILDER Administrator.

To open an inspection for viewing or editing,

1. If you are not already in the condition tree, activate the **Condition** ribbon.
2. Navigate to the Building containing the desired inspection.
3. Expand the Building's **By System** folder.
4. Navigate to the desired Section and click on its name. *In the content area you should see a table listing at least one inspection.*

> **Note:** The oldest inspection was automatically generated by BUILDER as a direct rating when the Section was added to the inventory. No inspector name will be listed for this inspection.
>
> Because an inventory item is assumed to be new at installation, BUILDER assigns a Green+ rating to this automatically generated inspection.

5. In the **Inspection Date** column, activate an inspection date link. *The inspection should open. The radio button under the **Type** heading indicates what type of inspection you are viewing or editing.*

Edit Direct Rating Inspection Data

Permissions/Access Note: At the far left of the toolbar above the **Inspection** and **Attachments** tabs, a record lock indicator shows as open ( ) if the inspection is unlocked and can be edited if you have appropriate permissions. If the lock shows as closed ( ), the inspection is locked. For example, it may have been exported to BRED.

The direct rating inspection screen has two tabs where you can edit inspection data: **Inspection** and **Attachments**. Above the tabs is the toolbar.

Select a link below for how to edit

- "Inspection Identification Data" below
- "Inspector's Condition Rating" below
- "Inspection Attachments" on page 68 (this links to a separate topic)
- "Inspection Comments" on page 65 (this links to a separate topic)

Inspection Identification Data

- **Inspection Date.** The inspection date can be changed in this field. The oldest inspection is a direct rating that is automatically generated by BUILDER as of the date that the Component-Section was built, installed, or renewed.
- **Inspector (Read-Only).** Inspector name, automatically filled in by BUILDER based on user login. This will not be present for the oldest inspection, which is automatically generated by BUILDER.
- **Type**. Inspection type. Available types are **Direct Rating**, **Distress Survey**.
- **Method.** Inspection method. Available methods are **Not Sampling** and **Sampling**.

The inspection date can be changed, but this is not recommended. The designated Inspector name can not be changed.

If you change the inspection type using the radio buttons under **Type**, all information entered for the inspection type you changed from will be ignored.

For information about using sampling, see "How To Prepare for Sampling" on page 73. The instructions in this current topic assume you are using **Not Sampling** as the inspection method.

Inspector's Condition Rating

Below the header section (and also below the intervening detail about samples, if sampling is used) is where the color rating is designated for the Section, and sep-

arately for its paint/coating, if applicable. You can change the rating(s) and activate **Save** on the content area toolbar.

For a detailed description of each color rating, see Appendix B in this Condition Assessment Guide, or Appendix E in the Condition Assessment Reference Manual or Online Help.

If the Section is painted or coated, consult Appendix C in this Condition Assessment Guide, or Appendix F in the Condition Assessment Reference Manual or Online Help for detailed description of each paint color rating.

> **Note:** Both Component-Section and paint ratings allow you to enter a comment by activating the **Comment** button on the toolbar. See <u>"Inspection Comments" on page 65</u> for more information.

> **Resource:** The Condition Assessment Reference Manual, ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at <u>https://www.sms.erdc.dren.mil</u> (at the website, see **PRODUCTS > BUILDER > Downloads**).

Direct Condition Rating

The radio button selected under **Direct Condition Rating Scale** indicates the inspector's rating judgment for the Component-Section as a whole, not including paint or coating if the **Paint/Coating Condition Rating Scale** grid appears to the right.

Paint/Coating Condition Rating

If the Component-Section is marked as painted, the appropriate color rating radio button under **Paint/Coating Condition Rating Scale** should be selected.

Display of Inspection Results

The inspection result(s) are shown in the header section and are read-only. Each result is a numerical equivalent of the radio button selection made in the associated Condition Rating Scale. In addition, the background color of the CSCI display field should match the color rating selected.

- **CSCI (Read-Only).** In the header section, under the heading **Results**, is the Component-Section condition index corresponding to the rating chosen by the inspector.
- **CSCCI (Painted or coated items only) (Read-Only).** If the Component-Section is painted or coated, the screen will show a separate condition index for the coating at the upper right, below the CSCI.

Inspection Attachments

> **Note:** The only way to "edit" an attachment is to delete the attachment link from the list of attachments and link to an attachment that has been corrected as desired.

To associate one or more attachments with the inspection, see the topic "Inspection Attachments" on page 68.

Inspection Comments

To add, edit, or delete inspection comments, see the topic "Inspection Comments" on page 65.

Save Edited Direct Rating

After you have made your desired edits, be sure to activate **Save** on the content area toolbar.

Related Links

Delete an Inspection

This topic outlines the instructions and needed permissions for deleting an inspection (direct rating or distress survey)

Who May Delete an Inspection

- A Master Planner or BUILDER administrator may delete any inspection.
- You may delete any of your own inspections within 30 days (or possibly less–see **CAUTION** below) of their creation.

> **CAUTION:** If the default 30-day window has been changed to a different period of time in your organization, that different period of time is what will apply instead.

How to Delete

To delete an inspection,

1. Navigate to the applicable Component-Section in the condition tree and select it.

2. In the table of inspections, activate the inspector name in the row containing the inspection to be deleted. *The row will become highlighted, as shown below.*

> **Note:** The reason for activating the inspector name is that selecting the inspection date will activate the link and take you into the inspection itself.

3. Activate the ✘ **Delete** button on the toolbar.

4. Select **OK** in the confirmation popup.

Rapid Inspection Method (Direct Rating)

In an effort to speed the data input process, BUILDER offers a Rapid Inspection method feature for rapidly creating direct rating assessment records. This topic

- outlines types of situations where the Rapid Inspection method can be used to advantage
- explains how to use the Rapid Inspection method
- lists the required information to be entered

Example Situations

Some example situations where the Rapid Inspection feature might be used:

1. You have just renovated a family housing complex, and multiple systems have been completely replaced in every house. You need to record these new conditions in your BUILDER database.
2. You have just completed your BUILDER inventory, and although your resources for physical inspections are very limited, you have staff members who are intimately knowledgeable of conditions in most of your Buildings.
3. You structured your BUILDER inventory so that every door, window, room wall/floor/ceiling, etc. is identified as a Component-Section (see the inventory for 1131 Administration Building in the Example database as an illustration of this). Now that you have to perform an assessment, you find that every door, window, room wall/floor/ceiling, etc. must have its own inspection record, but you want to do a quick walkthrough of the Building and record component ratings for everything.

In all of these situations, you want to input condition ratings for Systems or Components for which you already know the rating. This is when Rapid Inspection can be very useful.

> **Note:** After explaining how to implement a Rapid Inspection, this topic will outline an appropriate Rapid Inventory approach for each of the situations above, in the section "Example Situations Revisited" on page 34.

Initiate a Rapid Inspection

To launch the Rapid Inspection window:

1. Highlight the smallest inventory item (Site, Complex, or Building) in the condition assessment tree that contains all of the Buildings that the rapid inspection will be used in.

2. Either (a) activate the **Rapid Inspection** icon on the inspection toolbar menu, or (b) right-click the inventory item and select **Rapid Inspection** from the dropdown list.
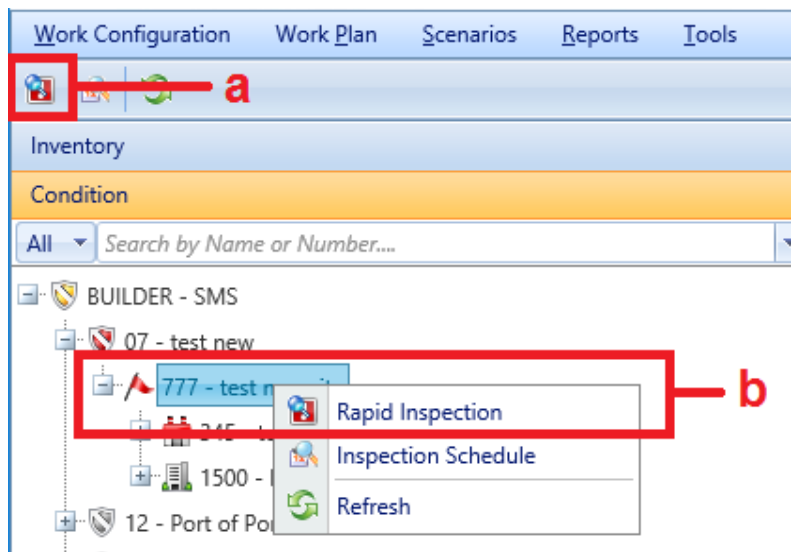
The "Rapid Inspection" popup window will appear:

Enter Rapid Inspection Parameters

Required Data

The following data are required before you can proceed with the Rapid Inspection process:

- **System.** In the dropdown list, select the System for which inspections are to be created.
- **Component and/or Material/Type.** If you do not specify a Component, then every Component-Section belonging to the selected kind of System in a selected Building(s) will have an assessment created for it. However, if you specify a Component but not a Material/Type, then every Component-Section belonging only to that kind of component in a selected Building(s) will have an assessment created for it. Finally, if you specify a Material/Type, then every Component-Section of that material and type in the selected Building(s) will have an assessment created for it.
- **Condition Rating for the Selected Items** - Select a Condition Rating for all of the inspections to be created.
- **Buildings to be Included in Rapid Inspection Entry** - Select the Buildings for which condition assessments are to be created by using the arrow keys to build the list of **Selected Buildings** from the **Available Building** list.

Optional Data

If you want to enter a comment to be recorded with every inspection created, activate the **Comment** button in the toolbar.

Activate Rapid Inspection

When all data has been entered, activate the **Proceed** button to start the Rapid Inspection process. If you do not wish to perform the Rapid Inspection, activate the **Close** button.

Example Situations Revisited

For the examples discussed above, here is how this feature may have been used:

1. You know that all of the roofs were rebuilt in the family housing complex. Select all of the houses, select Roofing as the System, and select G+ as the rating. Clicking **Proceed** will create an inspection record with condition rating G+ for every Component-Section in the roofing system of every selected house.
2. Have each staff member sit down sequentially with BUILDER to do the following process: Select sets of Buildings within his/her expertise that all have the same known condition for certain Systems or Components. Use the Rapid Inspection feature to create inspections as appropriate. If two staff members happen to input records for the same Component-Section, the later rating will overwrite the earlier rating if the ratings are done on the same day. (BUILDER allows only one inspection record per day per Component-Section.)
3. You have scanned the interior doors in your walk-through of the Building, and they are all in good condition (rating G). Your inventory has 50 interior door Component-Sections, each door identified with the room it is in. Use Rapid Inspection by selecting the Building, selecting Interior Construction/Interior Doors, and selecting condition rating G. Clicking **Proceed** will automatically create 50 inspection records, one for each interior door Component-Section.

Distress Surveys

About Distress Surveys

This topic introduces the distress survey type of condition assessment, in which the inspector lists the distresses in a Component-Section.

The topic also supplies links to distress survey tasks.

What is a Distress Survey?

A distress survey is the most thorough type of condition assessment that can be performed on a Component-Section level in BUILDER. It is the Component-Section level condition assessment type that provides the greatest detail as to a Section's deficiencies. It is also more time consuming to perform than a direct rating.

Once details as to the severity and density of a Section's deficiencies have been entered, BUILDER will calculate the appropriate condition rating for the Section. After Sections have been inspected, the condition of the Sections are rolled up to indicate overall condition of Components and Systems, and so on up the asset tree.

When to Use a Distress Survey

To read engineering advice concerning the best timing for a distress survey, see "About Choosing Condition Assessment Type" on page 15.

Additional Information

ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections* (December 2018) provides more background conceptual information about condition assessments, and in Chapter 4 provides additional discussion about details such as distress density. Written for BUILDER Version 3, this document is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Distress Survey Tasks

Tasks that can be performed on Distress Surveys are:

View a Distress Survey

This topic covers how to open and view an existing distress survey that does not use sampling, and explains the information included there.

Open an Inspection

> **Note:** An inspection may be viewed at any time. Editing, however, may only be performed within a specified number of days after the inspection date. The number of days is typically 30 by default in BUILDER as delivered to customers, but can be configured by a BUILDER Administrator.

To open an inspection for viewing or editing,

1. If you are not already in the condition tree, activate the **Condition** ribbon.
2. Navigate to the Building containing the desired inspection.
3. Expand the Building's **By System** folder.
4. Navigate to the desired Section and click on its name. *In the content area you should see a table listing at least one inspection.*

Note: The oldest inspection was automatically generated by BUILDER as a direct rating when the Section was added to the inventory. No inspector name will be listed for this inspection.

Because an inventory item is assumed to be new at installation, BUILDER assigns a Green+ rating to this automatically generated inspection.

5. In the **Inspection Date** column, activate an inspection date link. *The inspection should open. The radio button under the **Type** heading indicates what type of inspection you are viewing or editing.*

View Distress Survey Inspection Data

Information about a distress survey is distributed as follows:

- The **Inspection** tab shows (1) a header section containing inspection identification data and CI results, followed by (2) a table of subcomponents showing higher-level information about each potential subcomponent in the Section (some of which might simply be recorded as not applicable).
- For each subcomponent that has distresses recorded against it, a popup can show details about each distress.
- If attachments (the number of which is shown in parentheses on the **Attachments** tab) are associated with the inspection, these are accessible from the **Attachments** tab.
- If one or more comments have been recorded for the inspection, they are shown together in a popup accessed by activating the **Comment** button on the content area toolbar.

Information contained at the inventory tree can sometimes provide helpful background information for evaluation.

Select a link below for how to view

- "Inspection Identification Data" below (date, inspector name, inspection type and method)
- "CI Results" on the facing page
- "Inspection Details: Table of Subcomponents" on the facing page
- "Inspection Details: Distresses Popup Window" on page 40
- "Inspection Attachments" on page 42
- "Inspection Comments" on page 42
- "Inventory Information" on page 43

Inspection Identification Data

The following identifying information is contained in the header section at the **Inspection** tab:

- **Inspection Date.** Note that the oldest inspection is one that is automatically generated by BUILDER, as a direct rating, as of the date that the Component-Section was built, installed, or renewed.
- **Inspector (Read-Only).** Inspector name, automatically filled in by BUILDER based on user login. Inspector name will not be present for the oldest inspection, which is automatically generated by BUILDER.

- **Type.** Available inspection types are **Direct Rating**, **Distress Survey**.
- **Method.** Available inspection methods are **Not Sampling** and **Sampling**.

CI Results

- **CSCI (Read-Only).** The Component-Section condition index *as of the time of the opened inspection* is listed under the heading **Results** at the right side of the header section.

Even though some or all of the CSCI value is obtained from distress entries, the background color of the CSCI display box is coded to approximate the direct rating color the given CSCI value would correspond to in a direct rating inspection: it will be green, amber, or red. If the background color of the CSCI box is white, it means that data has not yet been entered to produce a result.

- **CSCCI (Read-Only)(Painted or coated items only).** If the Component-Section is painted or coated, the screen will display a separate condition index for the coating.

Inspection Details: Table of Subcomponents

Below the header section is a table of subcomponents. (If sampling is being used, there will be an intervening section showing sample locations.)

The table of subcomponents lists customary subcomponents for the given type of Component-Section. It has the following columns (see illustration above):

- **N/A.** If, in a completed inspection, the checkbox in the **N/A** column is marked for a given subcomponent, that means this Component-Section does not contain that subcomponent type.

    Note: In a new distress survey that has not been filled in yet, all subcomponents are marked **N/A** by default.

- **Subcomponent (Read-Only).** This column shows the subcomponent type.
- **D/F.** If this checkbox is marked, it means that the subcomponent was found to be free of recordable distresses.
- **Distresses.** In each row of the table, the Distresses link brings up the "Distresses" popup window, where distresses can be entered and existing distresses can be viewed in detail. (See the listing below under "Inspection Details: Distresses Popup Window" below for a description of distress details.)
- **Insp.** BUILDER automatically marks the checkbox in this column if one or more distresses are recorded against the subcomponent, or, alternatively, the subcomponent is marked as defect free in the **D/F** column.

Inspection Details: Distresses Popup Window

Each subcomponent that has distresses recorded against it will contain data in the "Distresses" popup window that is accessed via the Distresses link in the table of subcomponents.

Distress Details Header Data

The header of the "Distresses" popup window provides the following information (see illustration below):

- **Component.** Identifies the Component number and name.
- **Section.** Identifies the Section number and name.
- **Subcomponent.** This identifies the subcomponent currently being detailed.
- **Subcomponent UM.** This shows the Unit of Measure (UM) being used for the subcomponent. Each subcomponent has a standard default UM that is used in BUILDER. However, by checking the **Alternative UM "Each"** checkbox, a user can change the UM for the subcomponent being evaluated from the default to "Each," if desired.
- **Alternative UM "Each" checkbox**. If this is checked, the unit of measure used for the component will be Each (EA) rather than a differing default UM such as linear feet (LF).

Table of Distress Details

Below the header section containing the inspection identification information is a table of distresses, where the following details can be viewed (see illustration above):

- **Distress.** Type of distress, which has been entered via a dropdown list of options.
- **Severity.** This will be Low, Medium, or High. Detail about what each of the severity designations means can be seen by activating the Help link in the rightmost column. Depending on the distress, it's possible that only a limited subset of the three options (Low, Medium, High) will apply as options for the selected distress.

    Note: The options available for Severity are limited by the specifications for the applicable distress being shown, but the set of possibility will always consist of Low, Medium, and High, or some subset of these three options.

- **Subcomponent Qty.** The total subcomponent quantity included in the Component-Section. For example, if there are three lavatories in the Component-Section, and each of them has one faucet, then the "Faucet" subcomponent quantity is 3.
- **Distress Qty.** The subcomponent quantity that is exhibiting the distress. For example, if only one of the faucets mentioned above is exhibiting corrosion, the distress quantity is 1. Another example would be to record the number of linear feet of gutter missing.

- **Density (Required).** What the selected density range indicates is detailed in the specifications page for the distress. To view this information, activate the Help link in the rightmost column.
- **Critical.** If this checkbox is marked in the most recent inspection, then replacing or repairing the item will appear on the work plan regardless of the usual KBI scheduling for that type of inventory item.
- **ESC (Emergency Service Call).** If an Emergency Service call has been performed or scheduled, there should be a mark in this checkbox.

> **Note: Critical** and **ESC** cannot both be checked.

- **ESC Num.** The service call number assigned to the Emergency Service Call.
- **ESC Date.** Date of the Emergency Service Call.
- **Help.** In this column, a link labeled Help will connect to the specifications page for the distress described in that row of the table.

Inspection Attachments

The number in parentheses shown on an inspection's **Attachments** tab indicates how many attachments are connected with the inspection. (This is something you can see even when you are at the **Inspection** tab.) If the number is zero, there are no attachments yet associated with the inspection.

To view one or more attachments,

1. Navigate to and activate the **Attachments** tab. *If attachments are present, a table will display their type, title, and description*.
2. Activate the link in the **Title** column. *The attachment will appear in the "Image Viewer" popup window.*
3. When finished viewing, activate the **Close** button on the popup window toolbar.*You will be returned to the table of attachments.*
4. Repeat the two steps immediately above for additional attachments as desired.

Inspection Comments

To view comments for the inspection, activate the **Comment** button on the toolbar above the inspection display. *The "Inspection Comments" popup window will appear.*

> **Note:** If the **Comment** button icon does not show a white checkmark on a green background, no comments have been attached to the inspection.

To close the "Inspection Comments" popup without making any changes, either activate the ⊗ **Cancel** button on the popup toolbar, or activate the **X** in the upper right corner of the popup window.

Inventory Information

Inventory information is not directly a part of the inspection; however, when viewing an inspection in the condition tree, you have the option to switch to **Inventory** view to see more detail about the Component-Section if desired, by following these steps:

1. Without changing your location in the condition tree, activate the **Inventory** ribbon.
2. Activate the tabs as desired to see inventory details stored for the Section.
3. To return to the inspection, activate the **Condition** ribbon without changing your location in the inventory tree.

When you return to the condition tree, you will not be viewing the inspection itself, but rather the listing of inspections for that Component-Section. Simply re-select the date of the desired inspection to open it again.

Related Links

Add a Distress Survey

This topic covers how to create a new distress survey inspection that does not use sampling.

If you are new to BUILDER inspections, consider first reviewing the topic for a detailed presentation of information contained in this type of inspection.

Initiate a New Inspection

To initiate a new inspection,

1. Make sure you are in the condition tree by activating the **Condition** ribbon.
2. Navigate to the Building containing the Section to be inspected.
3. Expand the Building's **By System** folder.
4. Navigate to the Section to be inspected and activate its name. *In the content area you should see a table listing at least one inspection.*
5. In the content area toolbar, activate the **New** icon.

A screen similar to the one illustrated below should appear in the content area. Your name (as entered in your user account user) is automatically filled in as the inspector.

> **Troubleshooting tip:** If the **New** icon is deactivated, it may be because an inspection has already been recently recorded for the Section. If the designated editing window (typically 30 days) has not elapsed, the existing inspection may be edited instead of creating a new inspection.

Select Inspection Type

At the default new inspection screen shown above, you have the following choices in the **Type** column:

- Direct Rating
- Distress Survey

To create a distress survey, activate the **Distress Survey** radio button in the **Type** column, as shown by the red box below. The content screen will change to the distress survey display:

Enter Inspection Data

See the topic "Distress Survey Data (Not Sampling)" on page 47 for how to how to enter or edit data in a distress survey type of inspection.

Related Links

"View a Distress Survey " on page 36
"Edit a Distress Survey " on the next page
"Distress Survey Data (Not Sampling)" on page 47
"Distress Survey: Distress-Level Data" on page 53
"Delete an Inspection" on page 63

Edit a Distress Survey

This topic introduces how to edit an existing distress survey inspection that does not use sampling.
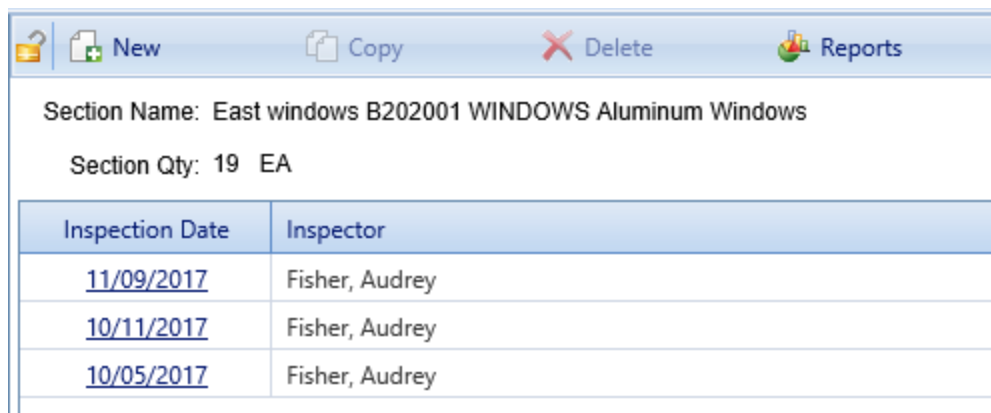
If you are new to BUILDER inspections, consider first reviewing the topic "View a Distress Survey " on page 36 for a detailed presentation of information contained in this type of inspection.

Open the Inspection

> **Note:** An inspection may be viewed at any time. Editing, however, may only be performed within a specified number of days after the inspection date. The number of days is typically 30 by default in BUILDER as delivered to customers, but can be configured by a BUILDER Administrator.

To open an inspection for viewing or editing,

1. If you are not already in the condition tree, activate the **Condition** ribbon.
2. Navigate to the Building containing the desired inspection.
3. Expand the Building's **By System** folder.
4. Navigate to the desired Section and click on its name. *In the content area you should see a table listing at least one inspection.*

New	Copy	Delete	Reports

Section Name: East windows B202001 WINDOWS Aluminum Windows

Section Qty: 19 EA

Inspection Date	Inspector
11/09/2017	Fisher, Audrey
10/11/2017	Fisher, Audrey
10/05/2017	Fisher, Audrey

> **Note:** The oldest inspection was automatically generated by BUILDER as a direct rating when the Section was added to the inventory. No inspector name will be listed for this inspection.
>
> Because an inventory item is assumed to be new at installation, BUILDER assigns a Green+ rating to this automatically generated inspection.

5. In the **Inspection Date** column, activate an inspection date link. *The inspection should open. The radio button under the* **Type** *heading indicates what type of inspection you are viewing or editing.*

Edit Inspection Data

See the topic "Distress Survey Data (Not Sampling)" below for how to enter or edit data in a distress survey type of inspection.

Related Links

Distress Survey Data (Not Sampling)

This topic, along with the topics "Distress Survey: Distress-Level Data" on page 53, "Inspection Comments" on page 65, and "Inspection Attachments" on page 68, provides detail about how to populate or edit a distress survey that does not use sampling.

The distress survey data screen and the "Distresses" popup window provide storage for a wealth of information pertaining to a distress survey inspection of a Component-Section. Sections below and in related topics will explain the following:

1. Inspection identification data and CI results
2. Subcomponent-level data (Table of Subcomponents)
3. Distress-level data, with instructions for how to view, add, copy, edit, or delete distresses
4. Inspection comments
5. Inspection attachments
6. Saving the distress survey

Inspection Identification Data and CI Results

The header tab of a distress survey record shows inspection identification information and CI results:

- **Inspection Date.** Note that the oldest inspection is one that is automatically generated by BUILDER, as a direct rating, as of the date that the Component-Section was built, installed, or renewed.
- **Inspector (Read-Only).** Inspector name, automatically filled in by BUILDER based on user login. Inspector name will not be present for the oldest inspection, which is automatically generated by BUILDER.
- **Type.** Inspection type (in this case, the inspection type is **Distress Survey**).
- **Method.** Inspection method (**Not Sampling** vs. **Sampling**).
- **Results (Read-Only).** Shows the CSCI *at the time of that inspection*, and also a paint condition rating if applicable.

Subcomponent-Level Distress Data

This segment describes data that can be viewed, added, and edited at the subcomponent level of the distress survey. To see operations that can be performed at the level of each individual distress are discussed in a separate topic, "Distress Survey: Distress-Level Data" on page 53.

When the **Distress Survey** radio button is first selected in the **Type** column, the content area of the BUILDER screen will resemble the screenshot below.

This screenshot shows how a distress survey will appear when first created . By default, all subcomponents are marked **N/A** (Not Applicable) at the outset. If, however, you are editing an existing distress survey, some or all of the checkboxes will likely be unmarked.

Available Subcomponents

The table of subcomponents below the header section (and below the Sampling section, if present) lists the customary subcomponents for the given type of Component-Section. The selection of subcomponents listed come from the BUILDER database. This selection cannot be changed, but subcomponents that do not apply to the Component-Section instance being inspected can be marked **N/A**.

Because **N/A** is marked by default, when adding a distress survey, first click the checked **N/A** checkbox for each subcomponent that applies to the Section being inspected, which will remove the **N/A** checkmark . Then, as you enter inspection data, you will either be entering distresses for subcomponents that are present, or marking them as defect free (**D/F**).

Subcomponent Details

At the Distress Survey screen shown above, the following condition assessment data can be recorded or edited (with the exception of Read-Only items):

1. **Defect Free (All) Checkbox.** If no distresses are found on any subcomponents, mark this checkbox to speed data entry.

2. **Paint Defect Free (All) Checkbox.** If all subcomponents are painted, a **Paint Defect Free** checkbox will appear. If the paint is defect free every-where, marking this checkbox will check all subcomponents as paint defect free in the **Paint D/F** column. More details about adding or editing data about painted items can be found in "Painted Sections" below.

Below the **Defect Free** checkbox is a grid format listing of possible sub-components for the current Section. The selection of subcomponents listed is gov-erned by the BUILDER database and cannot be altered by the user.

The following data is provided or entered for each subcomponent at the sub-component level of the distress survey display:

3. **Subcomponent (Read-Only).** Displays the name of a subcomponent, as taken from the BUILDER database.
4. **N/A Checkbox.** If the subcomponent is not applicable to this Section, this checkbox should be marked.

> **Note:** Initially, the **N/A** checkbox is marked for each sub-component.

5. **D/F Checkbox.** Mark this box if the subcomponent is defect free. Checking this box will automatically uncheck the **N/A**. checkbox.
6. **Distresses.** If the subcomponent is applicable but not defect free, activate its Distresses link to launch the "Distresses" popup window. See the topic "Distress Survey: Distress-Level Data" on page 53 for how to view, add, edit, and delete distress details at this window.
7. **Inspected ("Insp.") Checkbox (Read-Only).**If distresses have been recor-ded for the subcomponent or the subcomponent is marked **D/F**, then the **Inspected** checkbox will be marked automatically.

Once an inspection is complete, all subcomponents present in the Component-Section should either have distresses recorded against them, or be marked as Defect Free (**D/F**). Those not present in the Component-Section should be marked in the **N/A** column.

Painted Sections

If the Component-Section is marked as painted, the following columns are added to the grid for each subcomponent, to record the following data:

- **Paint N/A Checkbox** - Mark this checkbox if the subcomponent is not painted or not applicable to this Section. Initially, this checkbox is marked by default for each subcomponent.

- **Paint D/F Checkbox** - Mark this checkbox if the subcomponent is painted and the paint is defect free. Marking this box automatically un-checks the **Paint N/A** checkbox.
- **Paint Rating** - If the subcomponent is applicable and painted but the paint is not defect free, select an appropriate rating for from the dropdown list. See Appendix C in this Condition Assessment Guide, or Appendix F in the Condition Assessment Reference Manual or Online Help for a detailed description of each paint color rating.

> **Resource:** The Condition Assessment Reference Manual, ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Unit of Measure

Another data item that pertains to a given subcomponent as a whole is its unit of measure (UM). Unit of Measure configuration is accessible at the "Distresses" popup window and will be described with distress-level data, at "Change Sub-component/Distress Unit of Measure" in the topic "Distress Survey: Distress-Level Data" on page 53.

Distress-Level Data

Viewing and working with the details of individual distresses is explained in the topic "Distress Survey: Distress-Level Data" on page 53.

Inspection Attachments

About Inspection Attachments

The **Attachments** tab (to the right of the **Inspection** tab) allows files such as an image file to be attached to an inspection. An image might be a photograph, or it could be an electronic image of written notes or diagrams made during the inspection.

The attachment may be in any of the following formats:

- .jpg
- .jpeg
- .png
- .zip

- .doc
- .pdf

Note: As of March 7, 2019, .doc format is allowed, but not .docx.

Working with Inspection Attachments

How to view, add, edit, or delete inspection attachments is explained in the topic [“Inspection Attachments” on page 68](#).

Inspection Comments

View Comments

To view comments for the inspection, activate the **Comment** button on the toolbar above the inspection display. *The "Inspection Comments" popup window will appear.*

Note: If the **Comment** button icon does not show a white checkmark on a green background, no comments have been attached to the inspection.

To close the "Inspection Comments" popup without making any changes, either activate the ⊗ **Cancel** button on the popup toolbar, or activate the **X** in the upper right corner of the popup window.

Add, Edit, or Delete Comments

How to add, edit, or delete inspection comments is explained in the topic [“Inspection Comments” on page 65](#).

Save Distress and Subcomponent Data

1. Each distress is confirmed separately at the **Distresses** popup, as described under "Save Distress Data" in the topic [“Distress Survey: Distress-Level Data” on the facing page](#).
2. After you finish confirming the distresses, you must also activate **Save** on the toolbar in the "Distresses" popup.

   IMPORTANT: If you fail to activate **Save**, your distress entries or edits will not be saved, even if you checkmarked them in the "Distresses" popup.

Related Links

Distress Survey: Distress-Level Data

This topic provides detail about how to populate or edit distress details in a distress survey that does not use sampling.

> **WARNING:** After you enter or edit a distress, if you do not activate the blue checkmark at the left side of the distress record to be saved, your work on that record will be lost!

The distress survey data screen and the "Distresses" popup window provide storage for a wealth of information pertaining to a distress survey inspection of a Component-Section. This topic focuses on working in the "Distresses" popup window. For information at the inspection and subcomponent level rather than the distress level, see the topic .

When the **Distress Survey** radio button is selected under the **Type** of condition assessment, the content area of the BUILDER screen will resemble the screenshot below.

This screenshot shows how a distress survey will appear when first created. By default, all subcomponents are marked **N/A** for "Not Applicable" at the outset. As you enter inspection data, you will either be entering distresses for sub-components that are present, or marking them as "Defect Free" (**D/F**). This topic details how to view, add, edit, and delete distresses.

View Subcomponent Distress Details

The "Distresses" popup window, shown below, is where you can view, add, copy, edit, or delete individual distresses against a subcomponent. Access to this popup window is via the Distresses link in the **Distresses** column of the distress survey screen.

The header section of the popup identifies the Component, Section, and sub-component, and shows the unit of measure (UM) being used to measure the sub-component quantity and distress quantity. The (limited) option to change the unit of measure is discussed in "Change Subcomponent/Distress Unit of Measure " below.

The lower section of the popup window is where distress details are recorded. Descriptions of these details are listed in "Add a Distress" below. Subsequent documentation segments will instruct how to add, edit, or delete a distress.

Change Subcomponent/Distress Unit of Measure

BUILDER users who enter distresses have the option to change the unit of measure from a non-"each" default selected by BUILDER to a unit of measure of "each." If the **Alternative UM "Each"** checkbox is marked in the "Distresses" popup window, this means that the unit of measure used for the component will be Each (EA) rather than a differing default UM such as linear feet (LF).

The checkbox for selecting an alternative UM of "Each" is the only user-editable field in the upper section of the "Distresses" popup.

Add a Distress

There are two alternative ways to initiate adding a distress in the "Distresses" popup:

a. Activate the ⊞ **Add new record** button above the table of distresses, and create a distress from scratch, or

b. Activate the ▢ **Copy [Distress]** button on the toolbar to use an existing distress listed in the popup as the starting point for a new distress.

For how to use the second method listed above, see "Copy a Distress" on page 59.

List of Distress Details

This segment will show how to enter the following distress details:

- **Distress Type (Required).** This is in the column labeled **Distress**. From the dropdown list, select a type of distress present on the subcomponent. For definitions of all the distresses, see Appendix A in the Condition Assessment Reference Manual* or the Online Help documentation.
- **Severity (Required).** Select the severity of the distress from the dropdown list. The applicable severities for each distress type are listed and defined in Appendix A in the Condition Assessment Reference Manual* and the Online Help documentation.

> **Tip:** You might find that you have two distresses of the same type, severity, and density. Such a pair of distresses should be combined into one row with an increased density value.

- **Subcomponent Quantity.** Enter the subcomponent quantity in the unit of measure listed above the grid. When the subcomponent's unit of measure should be"Each" but the unit of measure listed in the Subcomponent UM field is not, mark the **Alternative UM "Each"** checkbox and then enter the number of subcomponents.

- **Distress Quantity.** Enter the quantity of the subcomponent that has the distress in the unit of measure listed above the grid. When the subcomponent's unit of measure should be "Each" but the unit of measure listed in the Subcomponent UM field is not, mark the **Alternative UM "Each"** checkbox and then enter the number of subcomponents with the distress.

- **Density (Required).** Select the density of the distress from the dropdown list. The formulas used to compute the density for each distress type are listed in the definitions of the distresses in Appendix A in the Condition Assessment Reference Manual* and the Online Help documentation.

- **"Critical" Checkbox.** Mark this checkbox if the distress on the subcomponent is critical. Marking this checkbox will make the work item created for this Section "Must Do."

- **Emergency Service Call ("ESC") Checkbox.** Mark this checkbox if the distress on the subcomponent requires an ESC.

- **ESC Number.** If an ESC was issued to respond to this distress, enter its number for your records in this field.

- **ESC Date.** If an ESC was issued to respond to this distress and has been completed, enter the date of completion in this field. Distresses with completed service calls are assumed to have no effect on the subcomponent condition.

> ***Reference:** ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, December 2018, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Instructions with Screenshots

To add a distress against the subcomponent shown in the header section of the "Distresses" popup,

1. Activate the **+ Add new record** button at the top of the table of distresses.

2. Select a distress from the dropdown list of options in the **Distress** column.

3. Activate the Help link in the rightmost column to review the specifications page for the selected distress. A sample specifications page is shown below.

> **Tip:** Reviewing the specifications page is a good idea to do before selecting a severity for the distress because for some distresses, not all severity levels (Low, Medium, High) will be legitimate entries. For example, for the

distress "Electrical Ground Inadequate or Unintentional" (listed as "Elec Grnd Inad or Uninten" in the "Distress" dropdown list), only the severity level High is a legitimate entry, as shown on the specifications page.

General Distresses: Electrical Ground Inadequate or Unintentional

Definition:

Unintentional connection of very low resistance causing a short circuit or a high resistance connection resulting in inadequate grounding.

Notes:

1. "Electrical Ground Inadequate or Unintentional" is a special case of impaired operations. When present, record "Electrical Ground Inadequate or Unintentional" instead of "Operationally Impaired."
2. Record additional distress types, if known, should they be contributing to this distress. These may include "Corroded," "Loose," "Damaged," etc.

Severity Levels:

High - Distress exists.

Measurement:

Total Sub-Component Area, Length, or Quantity

Density:

100% (automatic)

> **Note:** All specification pages are documented in Condition Assessment Reference Manual appendixes, and listed in the BUILDER Online Help documentation.

4. Select the appropriate severity level from the dropdown list of options in the **Severity** column, keeping in mind any limitation in the Low/Medium/High options indicated by the specifications page for that distress.
5. Enter subcomponent quantity and distress quantity as appropriate.
6. Select the appropriate density range from the dropdown list of options in the **Density** column. You can activate the Help link in the rightmost column to review the appropriate matching between condition of the subcomponent and the corresponding density level to be selected.

7. Marking the **Critical** checkbox will trigger a repair work item within the first year of a work plan even if there is still a remaining maintenance life (RML) for the Component-Section.

8. **ESC** stands for Emergency Service Call. If an Emergency Service Call was generated due to the distress, mark this checkbox and fill in the number and date .
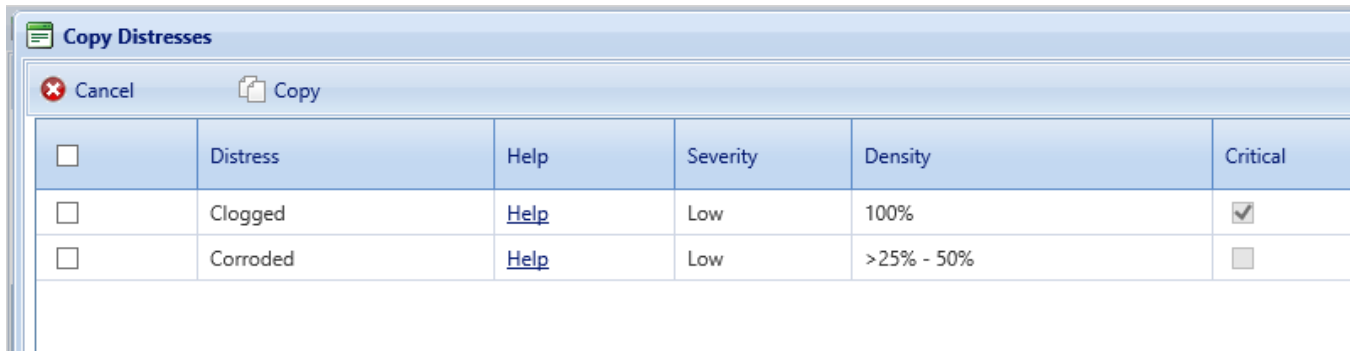
   Note: Critical and **ESC** should not be used together.

9. Save as described in .

Copy a Distress

To copy a distress from within the same subcomponent to use as a starting place for a new distress,

1. Activate the ⧉ **Copy** button on the "Distresses" popup window toolbar. *The "Copy Distresses" popup window will appear, providing checkboxes in the first column for selecting distresses.*

2. Mark the checkbox(es) of the distress(es) you wish to copy. Shown below is a sample selection.

3. If you wish to copy all of the distresses shown, mark the checkbox in the *first column of the header bar* of the distress table.
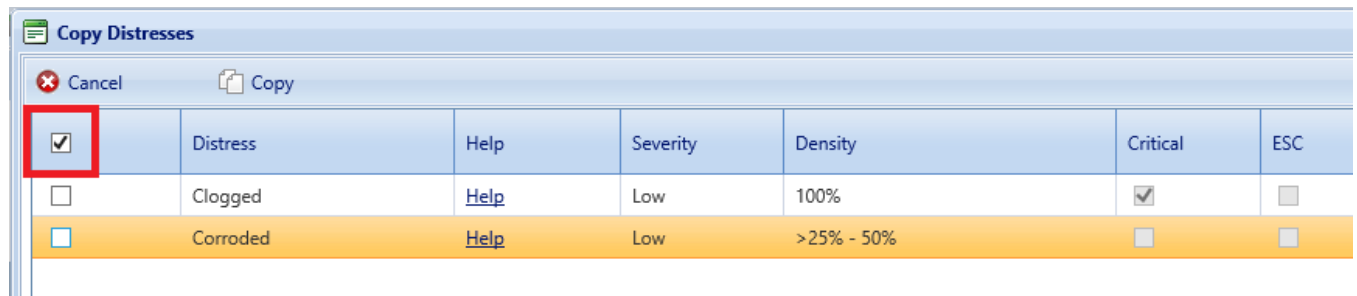
4. Copy or Cancel: After you have made your selection(s), activate the Copy button on the toolbar to complete the copy/copies. Alternatively, activate the ⊗ **Cancel** button to cancel the operation and return to the "Distresses" window.

Edit a Distress

To edit a distress that has been entered against the subcomponent shown in the header section of the "Distresses" popup window,
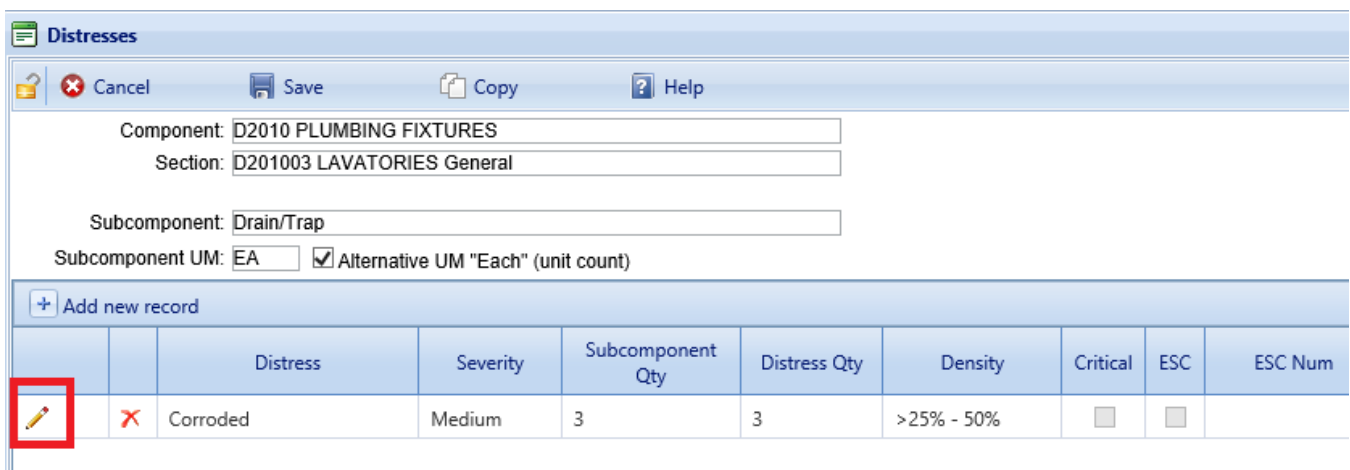
1. Activate the pencil icon shown in the left column, as shown above. *The display will change, as shown below:*

		Distress	Severity	Subcomponent Qty	Distress Qty	Density	Critical	ESC	ESC Num
+ Add new record									
✓ 🚫		Corroded ▾	Low ▾	3	3	>25% - 50% ▾	☐	☐	

2. Edit the desired fields. (Remember that you can consult the specifications page for the distress by activating the <u>Help</u> link in the rightmost column).

3. Save as described in <u>"Save Distress Data" below</u>.

Save Distress Data

To save distress data, you will need to first confirm your edits in each table row, and then save. The process described in these steps:

1. Confirming your edit(s) in the distress is the first step in a two-step save process. To confirm the distress, activate the blue checkmark icon on the left in that row of data. (Alternatively, if you wish to cancel the changes, activate the cancellation icon; it looks like a "Do Not Enter" sign.)

*After confirming the individual distress (**CAUTION: the distress is not yet saved to the inspection**), you will be returned to the view showing a pencil icon in the leftmost column.*

> **WARNING:** If you exit the "Distresses" popup without activating the **Save** button on the popup toolbar, you will lose your changes.

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WARNING: If your BUILDER instance times out, you may lose work that is not yet fully saved.

2. At this point, if you wish to add, edit, or delete other distress records in the "Distresses" popup window, you may do so before performing the second step in the save process.

3. Once all distresses have been entered, the second and last step in saving your edits is to activate 🖫 **Save** on the toolbar. *You will be returned to the Inspection tab showing the table of subcomponents.* (Alternatively, ⊗ **Cancel** will both (a) discard changes since the last **Save**, even distresses that have been entered using the blue checkmark, and (b) close the "Distresses" popup.)

> **Note:** If you choose to activate **Save** intermittently as you enter distresses, you will need to re-activate the Distresses link to enter the popup again, because the **Save** operation will automatically close the popup.

Delete a Distress

To delete a distress listed in the "Distresses" popup window,

1. In the table of distresses, activate the ✗ deletion button in the second column of the record you wish to delete.

		Distress	Severity	Subcomponent Qty	Distress Qty	Density	Critical	ESC	ESC Num
✏	✗	Clogged	Low	3	1	100%	☑	☐	
✏	✗	Corroded	Low	3	2	>25% - 50%	☐	☐	
✏	✗	Cracked	Low	3	3	>5% - 10%	☐	☐	

2. Confirm the deletion in the popup confirmation box. (Alternatively, you can select the **Cancel** button to cancel the deletion.)

Message from webpage	✕
❓ Are you sure you want to delete this distress?	
[OK] [Cancel]	

3. Activate 🖫 **Save** on the content area toolbar. *You will be returned to the Inspection tab showing the table of subcomponents.*

Delete an Inspection

This topic outlines the instructions and needed permissions for deleting an inspection (direct rating or distress survey)

Who May Delete an Inspection

- A Master Planner or BUILDER administrator may delete any inspection.
- You may delete any of your own inspections within 30 days (or possibly less–see **CAUTION** below) of their creation.

> **CAUTION:** If the default 30-day window has been changed to a different period of time in your organization, that different period of time is what will apply instead.

How to Delete

To delete an inspection,

1. Navigate to the applicable Component-Section in the condition tree and select it.
2. In the table of inspections, activate the inspector name in the row containing the inspection to be deleted. *The row will become highlighted, as shown below.*

> **Note:** The reason for activating the inspector name is that selecting the inspection date will activate the link and take you into the inspection itself.

3. Activate the ✖ **Delete** button on the toolbar.

4. Select **OK** in the confirmation popup.

Inspection Comments and Attachments

Inspection Comments

This topic explains how to add a comment file to an inspection, and how to view, edit, or delete existing comments.

> **IMPORTANT:** In a direct rating where the Component-Section is given an Amber rating (Amber+, Amber, or Amber-), best practice is to provide a comment listing the observations about the Component-Section's condition that led to the rating.

About Inspection Comments

The **Comment** button on the content area toolbar, above the inspection, indicates whether a comment has been logged for the inspection currently being displayed. The icon portion of the button resembles a clipboard.
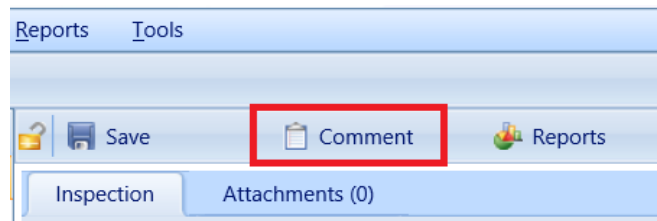
If a white checkmark on green background appears at the upper right corner of that icon, it means that a comment has been logged.

> **Note:** For any given inspection, all comments are contained in a single popup window.

View an Inspection Comment

To view comments for the inspection, activate the **Comment** button on the toolbar above the inspection display. *The "Inspection Comments" popup window will appear.*

> **Note:** If the **Comment** button icon does not show a white checkmark on a green background, no comments have been attached to the inspection.

To close the "Inspection Comments" popup without making any changes, either activate the ⊗ **Cancel** button on the popup toolbar, or activate the **X** in the upper right corner of the popup window.

Add an Inspection Comment

> **IMPORTANT:** In a direct rating where the Component-Section is given an Amber rating (Amber+, Amber, or Amber-), best practice is to provide a comment listing the observations about the Component-Section's condition that led to the rating.

To add one or more comments to the inspection,

1. Activate the 📋 **Comment** button on the content area toolbar above the inspection. *The "Inspection Comments" popup window will appear.*
2. Enter the text of your comment(s) in the popup.

3. *Optional:* After entry, you have the option to check and fix spelling as follows:
   a. Activate the ✓ **Check Spelling** button.
   b. Make any corrections needed, either by entering the needed changes in the upper ("Not in Dictionary") frame and activating the **Change** button, or by selecting one of the suggestions in the lower frame and then activating the **Change** button.

comment fo rthe 7/10/17 inspection.
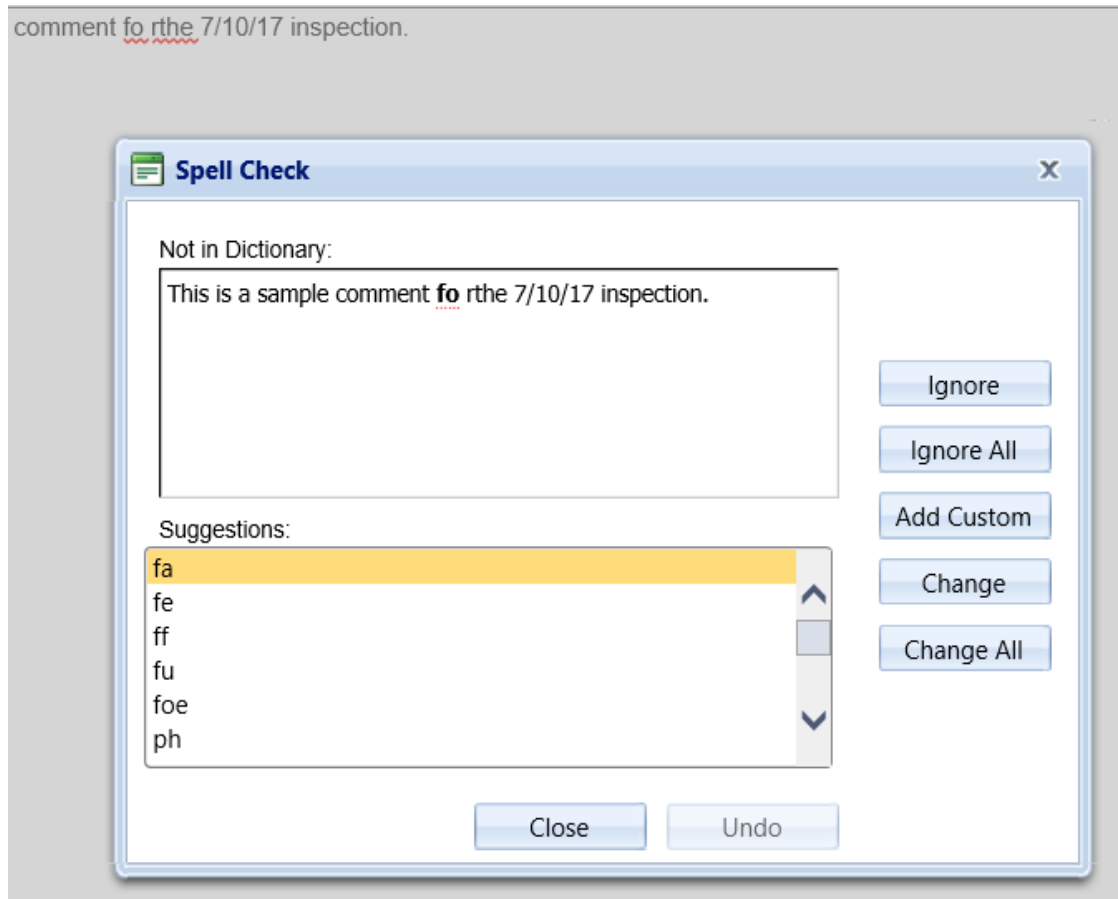
c. Activate **OK** on the popup that says the spell check is complete.

4. Activate ✓ **OK** on the "Inspection Comments" popup toolbar. *You will be returned to the Inspection tab. The Comment icon on the content area tool-bar should be showing a white checkmark on a green background.*

> **WARNING:** Even though the Comment icon indicates that there is a comment attached to this inspection, the new comment is not yet saved until you activate the **Save** icon. Be sure to complete the next step below!

5. Activate **Save** on the content area toolbar.

Edit an Inspection Comment

To edit the inspection comment(s),

1. Activate the **Comment** button on the content area toolbar above the inspection. *The "Inspection Comments" popup window will appear.*
2. Make desired edits to the comment text in the popup.

3. *Optional:* After entry, activate the ✓ **Check Spelling** button and make any corrections needed. How to check spelling is described in more detail under above.

4. Activate ● **OK** on the "Inspection Comments" popup toolbar. *You will be returned to the Inspection tab.*

> **WARNING:** Your edits are not yet saved until you activate the **Save** icon. Be sure to complete the next step below!

5. Activate **Save** on the content area toolbar.

Delete an Inspection Comment

To delete an inspection comment,

1. Activate the **Comment** button on the content area toolbar above the inspection. *The "Inspection Comments" popup window will appear.*

2. Highlight the comment text in the popup that you wish to delete.

3. Press the **Delete** key on your keyboard, or perform an equivalent deletion maneuver.

4. Activate **OK** on the "Inspection Comments" popup toolbar. *If you deleted all of the text in the comment, the white checkmark on green background should have disappeared from the Comment icon on the content area toolbar.*

> **WARNING:** Your deletion is not yet saved until you activate the **Save** icon. Be sure to complete the next step below!

5. Activate **Save** on the content area toolbar.

Inspection Attachments

This topic explains how to add an attachment to a direct rating or distress survey inspection, and how to view, edit, or delete existing attachment files.

About Inspection Attachments

The **Attachments** tab allows files such as an image file to be attached to an inspection. An image might be a photograph, or it could be an electronic image of written notes or diagrams made during the inspection.

The attachment may be in any of the following formats:

- .jpg
- .jpeg
- .png
- .zip
- .doc
- .pdf

Note: As of March 7, 2019, .doc format is allowed, but not .docx.

View an Inspection Attachment

The number in parentheses shown on an inspection's **Attachments** tab indicates how many attachments are connected with the inspection. (This is something you can see even when you are at the **Inspection** tab.) If the number is zero, there are no attachments yet associated with the inspection.

To view one or more attachments,

1. Navigate to and activate the **Attachments** tab. *If attachments are present, a table will display their type, title, and description*.
2. Activate the link in the **Title** column. *The attachment will appear in the "Image Viewer" popup window.*
3. When finished viewing, activate the **Close** button on the popup window tool-bar. *You will be returned to the table of attachments.*
4. Repeat the two steps immediately above for additional attachments as desired.

Add an Inspection Attachment

To add an attachment to an inspection,

1. Navigate to the inspection's **Attachments** tab.
2. Activate the **Add** button as shown immediately below. *The "Add Image" popup window will appear, as displayed next.*
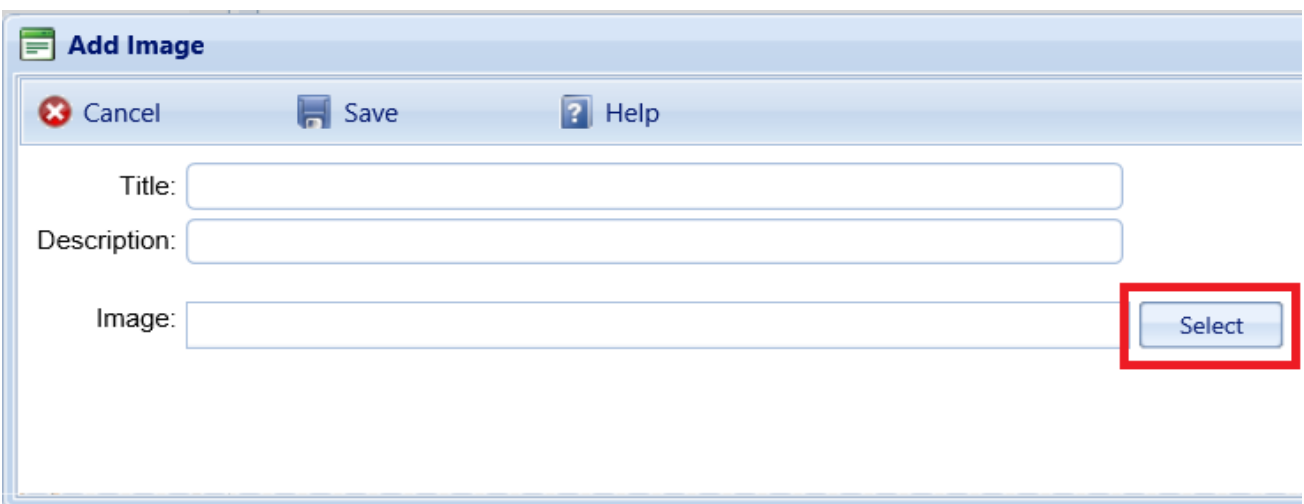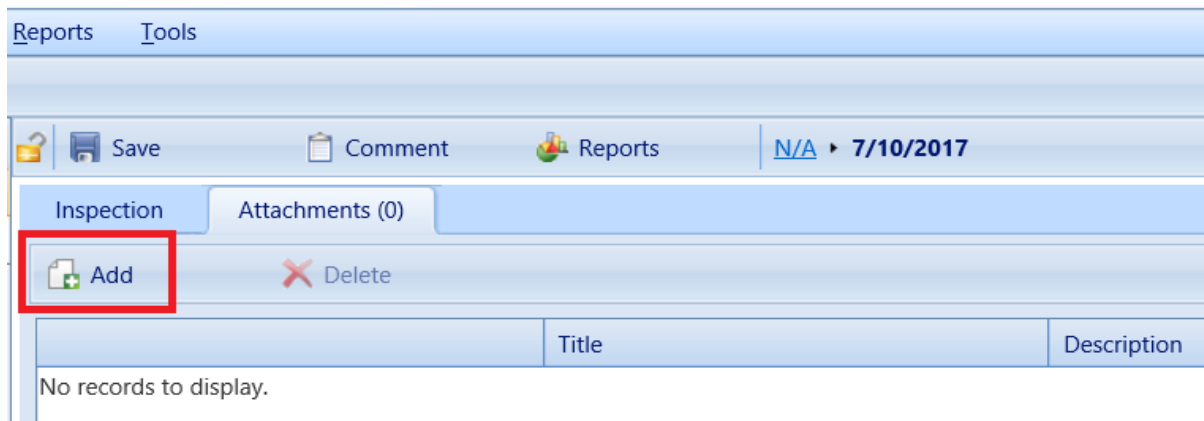
3. In the "Add Image" popup, enter a title and a description for your attachment.

4. Next, do one of the following to designate the path to the image:
   a. Enter the path name in the **Image** field.
   b. Alternatively, activate the **Select** button and navigate to the image file. Click or double-click the image file to attach it.

5. *The display in the popup window will change to indicate whether the attachment is in an acceptable format (green dot indicates acceptable format; red dot indicates unsupported format). You are also given the option here to remove the image if you wish.*
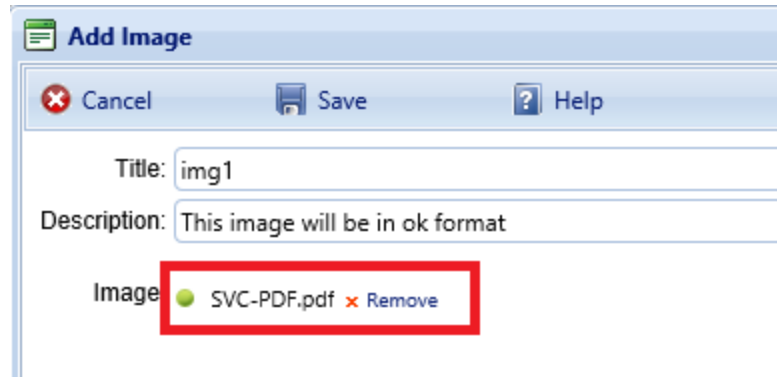
6. If the attachment is not in an acceptable format, activate the **x Remove** button as shown below and repeat from step 4.
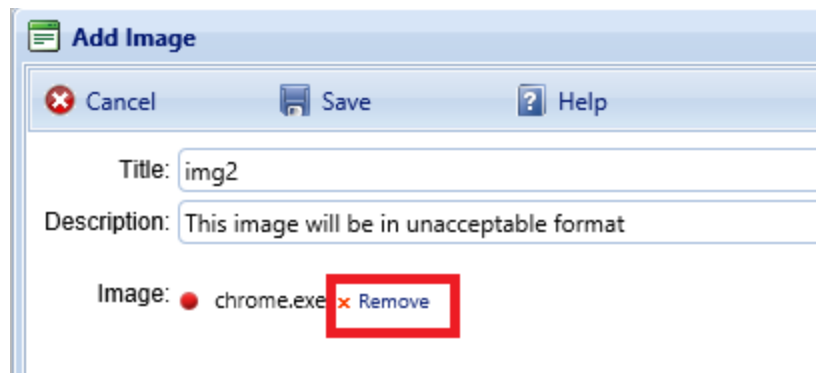
7. Once all of the information in the popup window is satisfactory, activate **Save** on the popup toolbar.

After an image has been added, the "Add Image" popup will close and you will be returned to the **Attachments** tab. A table in the content area will show the type, title, and description of each attachment.

Edit an Inspection Attachment

If the number in parentheses shown on the **Attachments** tab is greater than zero, there are one or more attachments associated with the inspection.

You can edit the title and/or description of an attachment as follows:

1. Navigate to the **Attachments** tab to view the attachments table.
2. Activate a link in the **Title** column. *The attachment will appear in the "Image Viewer" popup window.*
3. In the header section above the attachment, make the desired changes in the **Title** and/or **Description** field(s).
4. Activate **Save** on the popup toolbar to store your changes and return to the table of attachments.

5. Alternatively, if you want to cancel the change, activate **Close** on the popup toolbar. *You will be returned to the table of attachments*.

If you wish to change the contents of the attachment, you will need to delete the existing attachment file and add a new one.

Delete an Inspection Attachment

To delete an attachment,

1. Navigate to the inspection's **Attachments** tab to view the attachments table.
2. Select the attachment you wish to delete (do *not* activate the link in the **Title** column). *When properly selected, that record in the table will change background color as illustrated below:*

3. Activate the **Delete** button above the table.
4. Activate **Yes** in the confirmation box to delete the attachment, or **No** to cancel.

Sampling

How To Prepare for Sampling

If an entire Component-Section is not readily viewable–whether due to its size (quantity), complexity, inaccessibility, or other reasons–sampling can be used to cut down the workload or to estimate the condition of an entire Component-Section based on the condition of accessible parts. This topic introduces how to prepare for sampling.

The information in this topic is adapted and rearranged from Section 2.9 of ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Why Sample?

Sampling is a way of breaking up the assessment of large or spatially dispersed Component-Sections into more manageable parts, with each part being assessed individually. The use of sampling can also potentially provide some efficiencies in the assessment process, because the sum of the individual sample quantities need not equal the overall quantity of the Component-Section.

When to Use Sampling

Performing a condition survey inspection by sampling should be done when the component is large, complex, and/or discontinuous. In a practical sense, this means that the entire Component-Section is not readily viewable. Depending on organizational policies or guidance given to the inspector, sampling may not always be allowed but if it is, the decision to sample or not will be a judgment call made by the inspector based on building size and Component-Section quantities. Once the "Minimum Representative Sample Quantities" on the next page has been met, sampling rates are up to the discretion of the inspector and/or organizational policy. Both sampling and non-sampling approaches can be used in the same building for different Component-Sections.

Representative vs. Nonrepresentative Samples

Samples may be representative or nonrepresentative. Representative samples are those that *are* in a typical condition for the Component-Section as a whole. This does not mean that they are in exactly the same condition; some variation is expected. Nonrepresentative samples are those that are *not* in typical condition

for the Component-Section as a whole. This can be either significantly better or worse condition. The designation as "representative" or not *will* affect the CI. Non-representative samples are considered isolated, and thus they have less of an influence on the CI than do representative samples.

Minimum Representative Sample Quantities

The minimum quantities specified below are for representative samples. As long as the minimum number of representative samples is met, nonrepresentative samples or additional representative samples may also be added.

The number of representative (as to condition) samples to be taken of a specific Component-Section with the unit of measure of "each" are listed below:

- One (1) sample when the Component-Section quantity is 1-4.
- Two (2) samples when the Component-Section quantity is 5-9.
- At least three (3) samples when the Component-Section quantity is 10 or more.
- AND a minimum of 10% of the Component-Section quantity.

The number of representative (as to condition) samples to be taken of a specific Component-Section with the unit of measure of square feet (square meters) or linear feet (meters) are listed below:

- One (1) sample when the number of potential samples is 1-4.
- Two (2) samples when the number of potential samples is 5-9.
- At least three (3) samples when the number of potential samples is 10 or more.
- AND a minimum of 10% of the Component-Section quantity.

Non-Representative Samples

- Inspect nonrepresentative Component-Sections in addition to the required representative sample quantity amounts.
- Ensure that the nonrepresentative samples are designated as such.

Representative Sample Creation and Selection

Representative sample locations and sample sizes are determined by the layout of a given building. There are a few simple rules to follow, as listed below.

- A general walkthrough of the Building is recommended prior to selecting samples, to ensure that they are representative.
- Use discrete Building discontinuities (e.g., entire rooms, wall corners) to help delineate sample boundaries, especially when the quantity has a unit of measure of square feet (square meters) or linear feet (meters).

- When an area of the building (e.g., specific room) is selected for sampling, it is recommended but not required that all of the Component-Sections at that location be inspected as part of the sample (e.g., all Component-Sections for all Systems found in a room).

- Specific Component-Sections with a unit-of-measure of "each" should most often be sampled individually, (e.g., sample five of 25 interior doors as five separate samples).

- Sample sizes for Component-Sections with a unit-of-measure of "each" need not be restricted to one.

- Sample sizes are often situation specific. Try to have them be of approximately equal size, but be practical. There will be situations when this is not possible or practical.

- Ensure that all samples are properly identified as to location, including room number or name, if applicable, (think of the next person or inspector – can he/she easily find this location?).

- When sampling is used for a given condition survey inspection cycle, either the distress survey or direct condition rating approach may be used for a given Component-Section. However, do *not* combine the methods for any given Component-Section (i.e., do not use distress survey for one sample and direct condition rating for another sample).

Sampling Suggestions

- Specific rooms inside of a Building (e.g., "Room 110"), where all of the various Component-Sections in that room would be sampled (e.g., ceiling, walls, wall finish, floor, floor covering, light fixtures, etc.).

- Exterior wall locations (e.g. "North Wall"), where all Component-Sections included in that wall would be sampled (e.g., wall surface, doors, windows, awnings, lights).

- A Component-Section consisting of 10 roof ventilating fans (all 10 are the same) could label samples as "Fan 1", "Fan 2", etc.

- Interior doors denoted by room number (e.g., along a hallway) has many doors leading to rooms, so select the requisite number of doors with each door being a sample).

- Specific structural columns, beams, frames, trusses.

- A specific Component-Section (e.g., fireplace) with a quantity greater than one, but still a small number (such as two or three) that are geographically separated such that they cannot be inspected together. Inspect each one as a sample with a specific location. All Component-Sections will need to be inspected to be in conformance with the minimum sample quantity addressed above.

- If an entire Component-Section happens to be co-located at a defined sample location where other Component-Sections were sampled (e.g., a fireplace in a room selected for sampling of walls, ceiling, flooring), that Component-Section can either be included in the sample location or simply inspected without sampling.
- In general, do what makes sense, but ensure that the rules are followed.

The Importance of Sample Locations

The importance of sample locations cannot be overemphasized. The above sections briefly touched on sample locations, but two important considerations of inspection data management (past, present, and future) and field data collection practicalities are addressed below.

First, the sample location creation possibly provides a basis for collecting condition survey data for a number of different Component-Sections. For example if a room were chosen as a location, the walls, ceiling, light fixtures, etc. could all be inspected and associated with the same location. This can be very useful for future inspections even if all of the Component-Sections are not inspected in a given cycle, because a method of sorting inspection data is by sample location. These locations can be used year after year and will be illustrated later in this manual.

Second, the creation of sample locations will affect sampling rates and sizes. It was stated earlier that Component-Sections with the unit-of-measure of "each" should be sampled individually. However, sometimes this is impractical. If a sample location has been created that covers a specific area, such as a room, the Component-Section may have a quantity of more than one in that room. A logical clustering of individual items may form a practical basis for a sample. An example would be a Component-Section quantity of one hundred (100) light fixtures in a building. A room being sampled may have four fixtures out of that total Component-Section quantity. The intent would be to not inspect each light fixture in the sample location room. Rather, all four light fixtures would encompass a single sample. Under these circumstances it becomes important to make all sample sizes roughly the same for a given Component-Section. That is, avoid one sample of four (4) lights and another sample of forty (40) lights.

> **Additional Information:** Refer to ERDC/CERL SR-18-7, pages 25 and 26, for information about unusual condition situations and about sampling to quantify work needs for a distress survey with distress quantity.

Add a Sample

This topic shows how to add a sample when using the sampling method in a direct rating or distress survey.

> **Tip:** Before embarking on sampling for the first time, be sure to read "How To Prepare for Sampling" on page 73.

When the **Sampling** radio button is selected in the header section of the inspection, (whether it be a direct rating, or a distress survey), an additional section of the screen will open up because additional data is required for condition assessments that are performed using sampling. This additional data is reviewed at "Sampling Data" on page 81.

To add a sample,

1. Activate the button to the right of the **Sample** field.
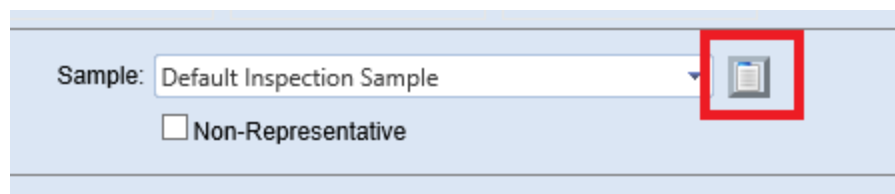
> **Note:** BUILDER provides an initial default sample named "Default Inspection Sample" which is initially sized at 100% of the Component-Section.

2. In the list of options, select ⬜ **Add Sample**. *The "Add Location" popup window will appear.*

3. In the "Add Location" popup, you have the option to select an existing sample location for the current Section. Alternatively, activate the **Create a new sample location** radio button and enter the sample name in the field.

4. Activate **Save** on the popup toolbar.

> **WARNING:** When you create your first sample for a Component-Section, you should either delete or reduce the size (**Sample Qty**) of the Section's Default Inspection Sample provided at delivery of BUILDER, because that default sample is initially sized at 100% of the Component-Section. *Failure to do this can result in the percentage inspected, reported in the "Inspected" field, to be greater than 100 percent.*

Related Links

"How To Prepare for Sampling" on page 73
"Edit a Sample" below
"Delete a Sample" on page 80
"Sampling Data" on page 81

Edit a Sample

This topic shows how to edit a sample when using the sampling method in a direct rating or distress survey.

When the **Sampling** radio button is selected in the header section of the inspection, (whether it be a direct rating, or a distress survey), an additional section of the screen will open up because additional data is required for condition

assessments that are performed using sampling. This additional data is reviewed at .

To edit a sample,

1. Expand the dropdown list in the **Sample** field.
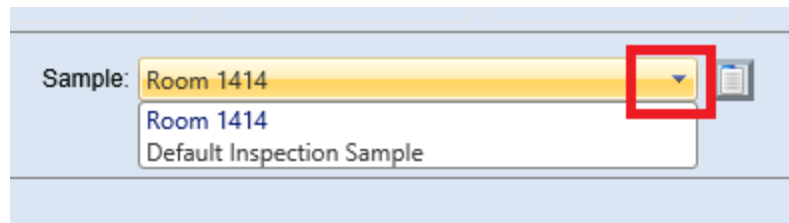
2. In the list, select the sample you wish to edit.
3. Activate the button to the right of the **Sample** field.
4. In the list of options, select ✏**Edit Sample**

5. If you wish to change the sample quantity, do so in the Sample Qty field. Make sure to adhere to the minimum quantity for representative samples, as listed in .

   > **Note:** If the percent inspected shows as more than 100%, you may want to consider deleting or reducing the size of the Default Inspection Sample, which is initially sized at 100% of the Component-Section.

6. You can also change whether the sample is designated as representative or not, by marking or unmarking the **Non-Representative** checkbox. This distinction is explained in .
7. Activate **Save** on the toolbar.

Delete a Sample

> **Tip:** When you create your first sample for a Component-Section, you should either delete or reduce the size (**Sample Qty**) of the Section's Default Inspection Sample provided at delivery of BUILDER, because that default sample is initially sized at 100% of the Component-Section. This would lead to the percentage inspected–reported in the **Inspected** field–to be greater than 100 percent after creating more samples.
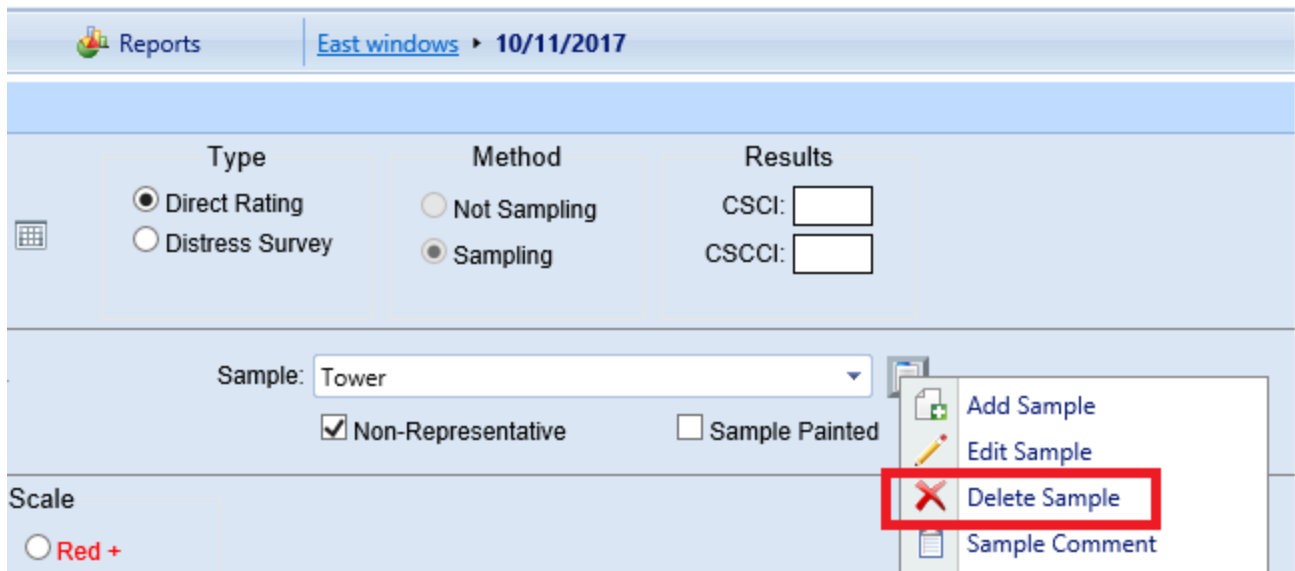
To delete a sample,

1. Expand the dropdown list in the **Sample** field.
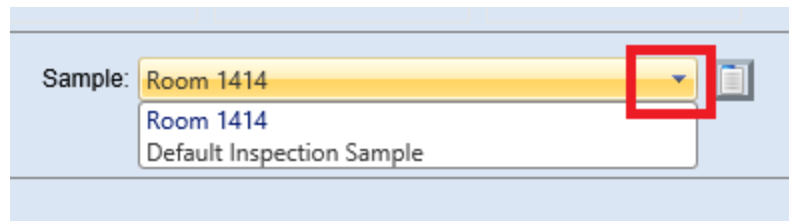
2. In the list, select the sample you wish to delete.
3. Activate the button to the right of the **Sample** field.

4. In the list of options, select ✘ "Delete Sample."

5. Activate **Save** on the toolbar.

Related Links

"How To Prepare for Sampling" on page 73
"Add a Sample" on page 77
"Edit a Sample" on page 78
"Sampling Data" below

Sampling Data

This topic reviews the data available about a sample when using the sampling method in a direct rating or distress survey.

When the **Sampling** radio button is selected in the header section of the inspection, (whether it be a direct rating, or a distress survey), an additional section of the screen will open up because additional data is required for condition assessments that are performed using sampling.

Additional data related to sampling:

- **Sample Qty.** The quantity of the Section inspected at the current sample location. (The unit of measure is displayed to the right of the data field.)

- **% Inspected (Read-Only).** Displays the total percentage of the Section that has been inspected for the current inspection date. This value is calculated by summing the sample quantities of all sample locations and dividing by the Section quantity.

   > **Note:**BUILDER provides an initial default sample named "Default Inspection Sample" which is initially sized at 100% of the Component-Section. Thus, if additional samples are added without deleting or reducing the size of the Default Inspection Sample, the percent inspected can be over 100%.

- **Sample.** The list of all available sample names is stored in this field, in a dropdown. Using the button to the right of this field, you can choose to

   a. Add a sample location.

   b. Edit the currently selected sample.

   c. Delete the currently selected sample.

   d. Add comments regarding the current sample.

- **Non-Representative.** Mark this checkbox if the condition of the current sample is not representative of the Component-Section as a whole. Representative samples are those that are in a "typical" condition for the Component-Section as a whole. This does not mean that they are exactly in the same condition. Some variation is expected. Non-representative samples are those that are not in typical condition for the Component-Section as a whole. This can be either significantly better or worse condition. Non-representative samples are considered isolated and thus have less of an influence on the condition index than representative samples.

Related Links

Scheduling Assessments

About Manual Inspection Scheduling

This topic points to information about best practices for inspection scheduling. To learn about BUILDER's automated scheduling tool, see "About Knowledge-Based Inspection Scheduling " below.

To read about the principles of inspection scheduling, see Section 2.6 in the **Overview** chapter of the manual referenced immediately below.

> **Resource:** ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

About Knowledge-Based Inspection Scheduling

Overview

The knowledge-based inspection (KBI) feature in BUILDER is designed to select from your entire inventory a subset of Component-Sections that should be considered for inclusion in the next round of condition assessments. Additionally, this feature is able to determine the type of condition assessments to perform. The selection algorithm is based on pieces of data (knowledge) associated with the Component-Sections that are compared with user-defined parameters.

> **Note:** The KBI feature is an optional tool. It can assist in selecting candidates for condition assessment if other structured programs for scheduling inspections are lacking.

For an explanation of the Knowledge-Based Inspection principles, please refer to the **Overview** chapter of ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).

Determining When to Perform a Condition Assessment

As stated above, the KBI feature needs to compare knowledge about the Component-Section with user-defined parameters to determine when a condition

assessment is to be performed. These parameters are input when creating a condition standard and must be input for each of the five condition zones shown in the figure below. For an explanation of each condition zone, see Section 2.5, **Condition Zones**, in the **Overview** chapter of the manual referenced immediately below.

> **Resource:** ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections*, is available by download from the SMS community user's group website at https://www.sms.erdc.dren.mil (at the website, see **PRODUCTS > BUILDER > Downloads**).
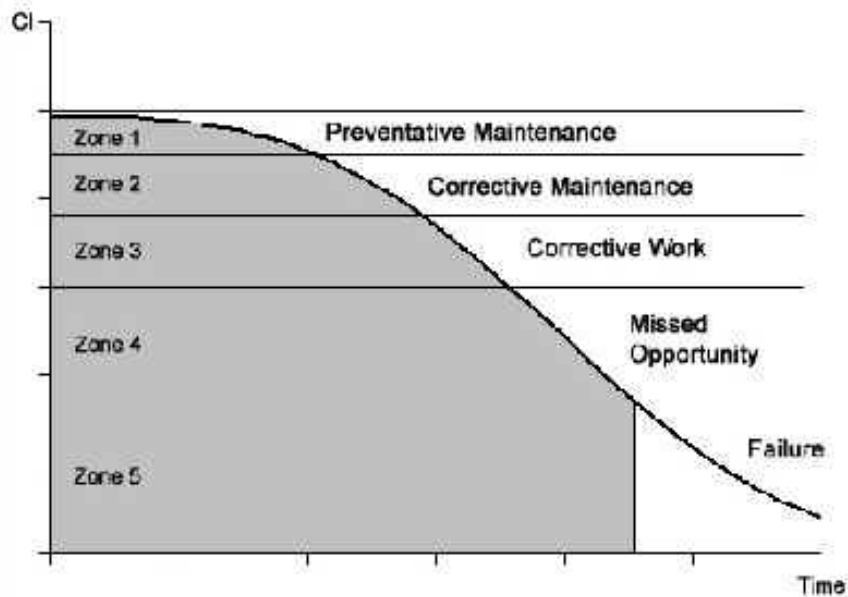
The user-defined parameters for the KBI feature include:

- **CI Lower Bound.** The lower bound of the CI range of the condition zone. Providing the lower bound for each zone breaks the condition curve as shown above.
- **Maximum Inspection Interval.** The maximum amount of time, in years, between condition assessments in each condition zone.
- **Number of Inspections in Zone.** The maximum number of condition assessments that should be performed in each condition zone.
- **Degradation Factor.** The ratio of the maximum relative rate of deterioration to the expected rate of deterioration when a condition assessment is triggered. That is, if the deterioration rate were set to 2, any measured deterioration rate greater than twice the expected rate would trigger another inspection.

Based on the projected CI of the Component-Section, the KBI feature determines which range the Component-Section is in, and how many inspections to perform in that range. It then calculates the time between inspections to accomplish this. This interval is compared to the maximum inspection interval, and the lesser of the two becomes the allowable inspection interval.

When the time since the last inspection becomes greater than the allowable interval between condition assessments, the Component-Section is flagged for inclusion into the next round of assessments. In addition, if the rate of deterioration of the CI seen by the last condition assessment is greater than the allowable rate of deterioration determined by the deterioration factor discussed above, the Component-Section will also be flagged for inclusion into the next round of assessments.

Determining the Type of Condition Assessment to Perform

Once the KBI program selects the subset of recommended Component-Sections for inclusion into the next round of assessments, it must determine the assessment type that will be used for each condition assessment. Based on the CI range that the component is projected to be in, the general guidelines below apply.

Range	Procedure
1	Direct
2	Distress
3	Distress
4	Direct
5	Direct

In some instances, a more detailed level of condition assessment may be warranted regardless of the guidelines recommended above. If a more detailed assessment was performed previously, this same assessment type will be recommended again for zones 1 - 3. This means, for example, if the Component-Section is still in range 1 and the previous condition assessment type was a distress survey, the KBI program would recommend a distress survey be performed.

Using the KBI Feature in BUILDER

To begin using the KBI feature, see "Add a Knowledge-Based Inspection Schedule" on the next page.

Add a Knowledge-Based Inspection Schedule

To add a knowledge-based inspection schedule in BUILDER,

1. Start with full-screen view (BUILDER window to the full size of your computer screen) for best results.
2. Activate the **Condition** ribbon unless you are already in the condition tree.
3. Navigate to a Site or below.
4. Then do one of the following:

    a. Activate the **Inspection Schedule** icon in the inspection navigation toolbar, as shown in the image below.
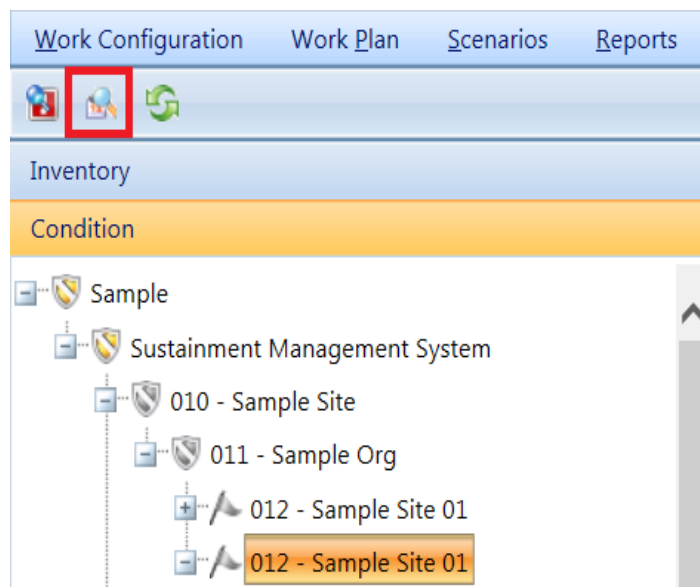
    b. Alternatively, right-click the location in the Condition navigation tree and select **Inspection Schedule** from the dropdown list.

The Knowledge-Based Inspection Scheduling window will appear.

Knowledge-Based Inspection Scheduling Toolbar

The following options are available at the Knowledge-Based Inspection Scheduling toolbar:

- **Close**. Closes the Knowledge-Based Inspection Scheduling window and returns to the **Condition** ribbon.
- **Export to Excel**. Exports the current inspection schedule to a Microsoft Excel spreadsheet.
- **Generate**. Generates a new inspection schedule.

- **Create Work Items**. Work items can be created from this location, but this generation takes a long time.
- **Delete Selected**. Deletes any row of the inspection table where the check-box is marked.
- **Help**. Opens a help document in a new browser tab.

Creating an Inspection Schedule

To create a knowledge-based inspection schedule,

1. Activate the **Generate** button in the toolbar.
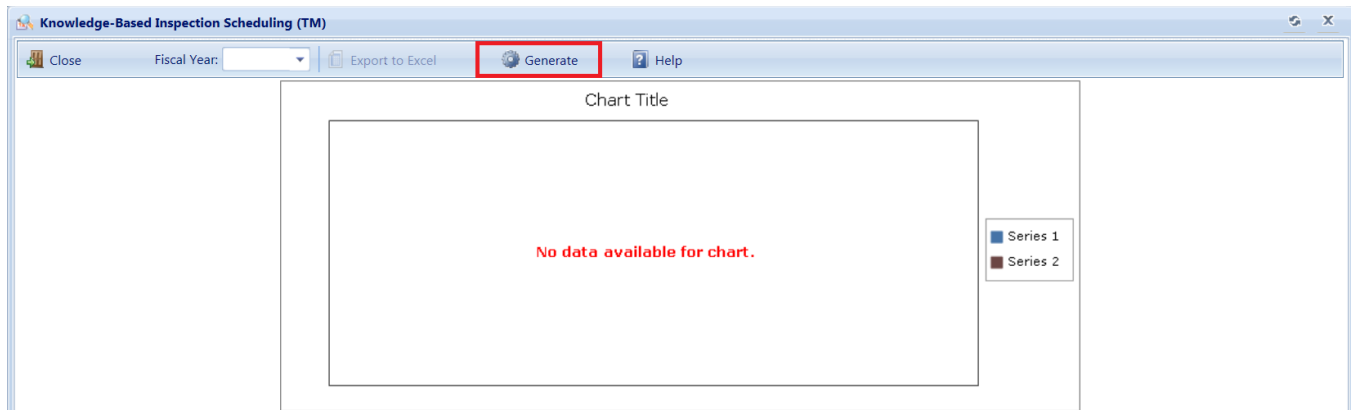
The "Scheduler" popup window will appear.

2. In the Scheduler window, first use the dropdown to choose how many years of inspection schedule to generate.
3. Next, activate **Proceed** to delete your current inspection schedule and generate a new one with KBI. (Alternatively, activate **Cancel** to cancel and exit the Scheduler window.)

> **WARNING:** Generating a new inspection schedule will delete the current inspection schedule.

Using the policy sequencepolicy sequence defined in the Site data, the **KBI**[1] inspection schedule will be generated and shown in the window.

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[1]Component material category
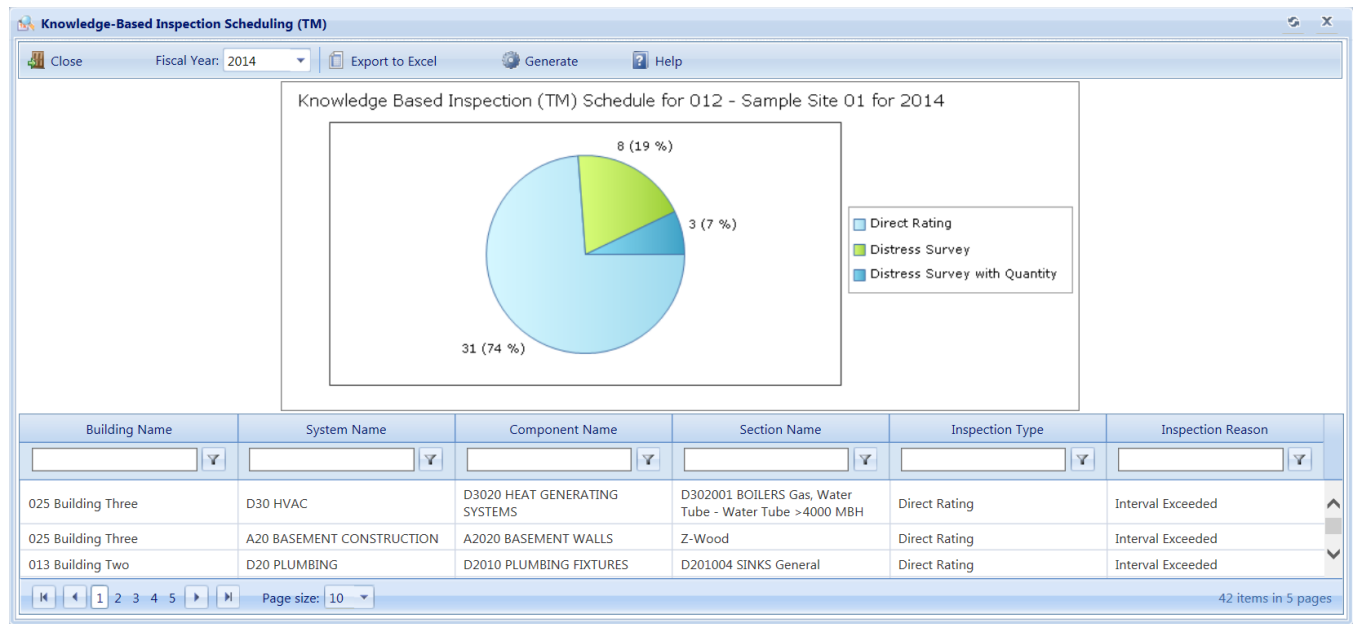
4. To export the schedule to a Microsoft Excel spreadsheet, activate **Export to Excel** in the toolbar.

Remote Inspection and Inventory Entry Using BuilderRED

This topic

- Introduces the BUILDER Remote Entry Database (BuilderRED) tool.
- Provides the download location.
- Explains briefly what the tool can do.
- Links to topics giving detailed instructions for exporting to and importing from BuilderRED.

What is BuilderRED?

The BUILDER™ Remote Entry Database (BuilderRED, or BRED) is an optional tool designed for use with BUILDER. It allows you to (1) capture and collect inventory and inspection data using a Windows tablet or laptop as you walk through a Building, and then (2) later, load that data into the BUILDER database.

You can download BRED from the **PRODUCTS > BUILDER > Downloads** section of the [SMS community user's group website](#), under the heading **BUILDER Remote Entry Database (BRED)**.

> **IMPORTANT:** Before upgrading from BUILDER Version 3.3.6, be sure to read the introductory segment in this documentation that explains the impact of this upgrade on using BuilderRED.

Collecting Inventory Data

When performing inventory, Buildings and their subparts can be created in BuilderRED, then imported into BUILDER. If the Buildings have already been created in BUILDER, they can be exported to BuilderRED, where inventory details can be entered on-site, then imported back into BUILDER.

Performing Inspections

Inspectors can use BuilderRED to enter condition assessment data in BUILDER format and then import it into BUILDER. Standard functionality assessments are also built into BuilderRED. These assessments can be initiated and filled out in the field, then imported into BUILDER.

Export Data to BuilderRED

You can choose to export database items to BuilderRED (aka BRED) either (a) with or (b) without the images that are linked to these items.

> **WARNING:** In BUILDER releases prior to 3.3.10, non-image files such as PDFs may prevent *all* images from exporting to BuilderRED or importing into BUILDER from BuilderRED. This known issue of image export from BUILDER is due to file size precautions: overlarge files can cause the export to fail.

Below are some recommendations for best practices to follow to help ensure successful and less time-consuming export of files to BuilderRED:

> **Best Practice Recommendation #1:** Be sure to observe the 30-day time limit on editing inspections and re-importing them into BUILDER, or the time limit in effect for your implementation of BUILDER if it differs from 30 days.

> **Best Practice Recommendation #2:** Some Facilities (Buildings) within your Site can already contain several hundred photos. If you know beforehand that you will not need to view or edit these existing photos in BuilderRED, the best practice is to just download the BRED file without images.

> **Best Practice Recommendation #3:** 800 pixels is the recommended maximum width and maximum height for images to be used in BuilderRED.

The next section describes how to export both database information and images to BuilderRED. For instructions on exporting database information without images, see Export Database Information Alone to BuilderRED.

Export Database Information and Images to BuilderRED

1. In the BUILDER navigation tree, right-click the lowest level node (Site, Complex, or Building) that contains the items you wish to export.
2. Select the "Export to BRED" option:

3. In the "BRED Exporter" popup window, highlight the Building(s) you want to export, using the arrows to move Buildings in or out of the Selected Buildings list. Click here to see different ways you can select Buildings.[1]

---

[1]

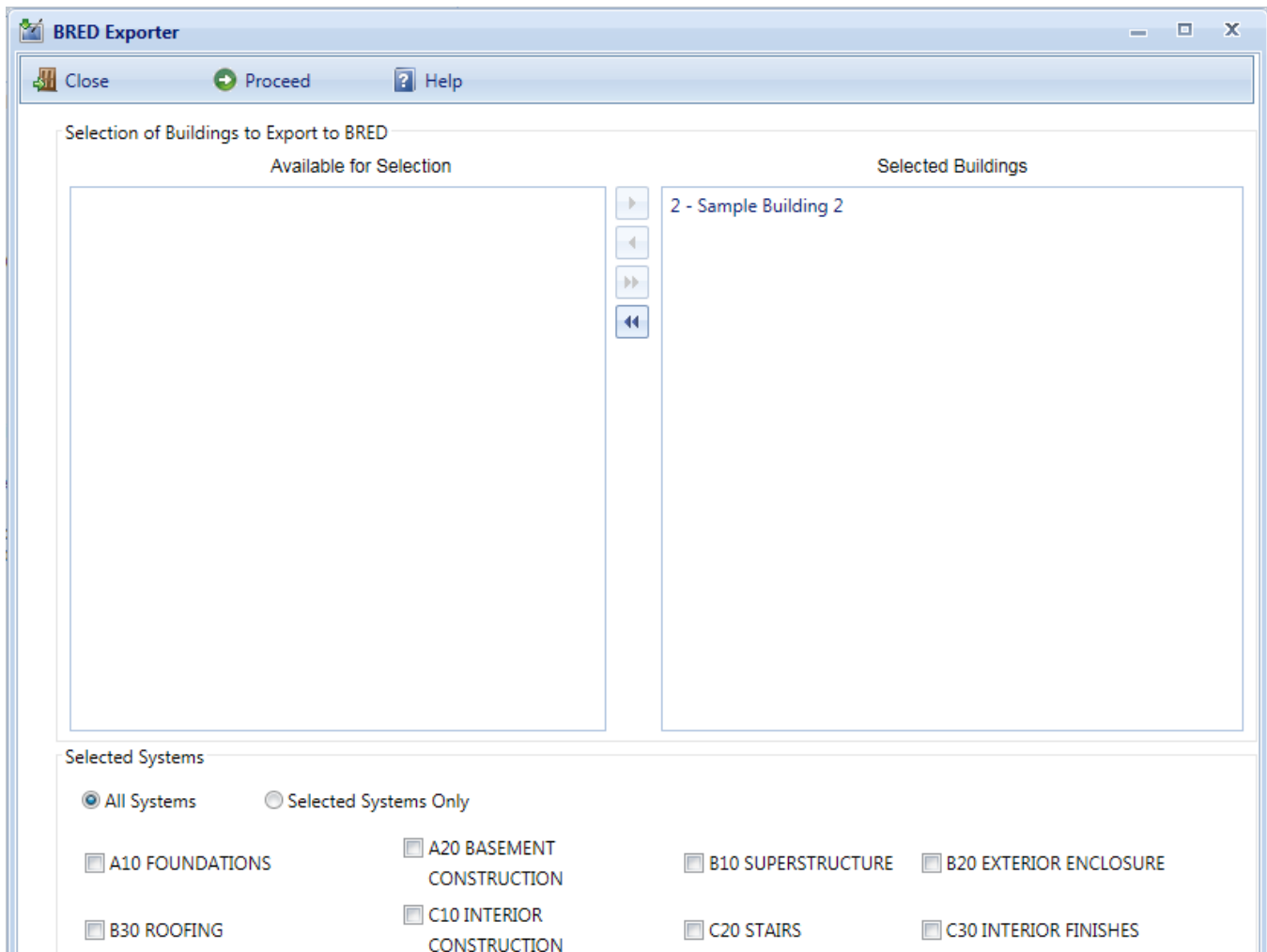| All Buildings:	Activate the double arrow.
One Building:	1. Select the Building. 2. Activate the single arrow.
Multiple Buildings, contiguous in the list:	1. Select the first Building. 2. Press and hold **SHIFT**, then select the last Building. 3. Release **SHIFT**. 4. Activate the single arrow.
Multiple Buildings, not contiguous in the list:	1. Select the first Building. 2. Press and hold **CTRL**, then select each subsequent Building desired. 3. Release **CTRL**. 4. Activate the single arrow.
To deselect a highlighted Building from the list:	a. Press and hold **CTRL**, then select the Building. b. Alternatively, you can wait until the Building has been moved to the right-hand column under "Selected Buildings", then select the Building, and activate the single arrow pointing to the left. This will move the Building back into the "Available for Selection" column.

4. Once the desired Buildings are in the Selected Buildings column, do one of the following in the lower section of the "BRED Exporter" window:
   a. Choose "All Systems" (radio button; this is the default), or
   b. Select specific systems (using radio button and checkboxes).

5. (Optional) In order to download images with the BRED file, you must select "Also Export Images" at the bottom of BRED Exporter Window, as shown below:
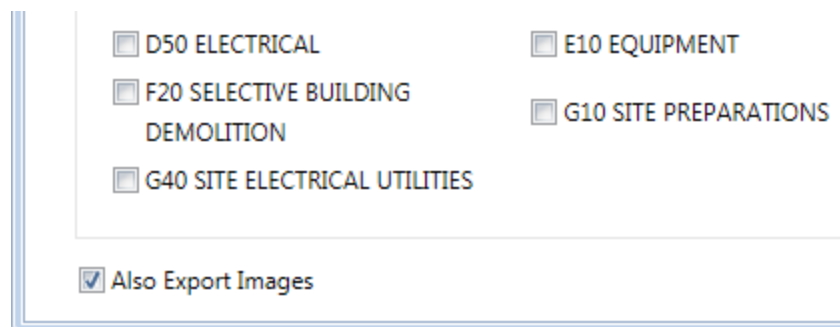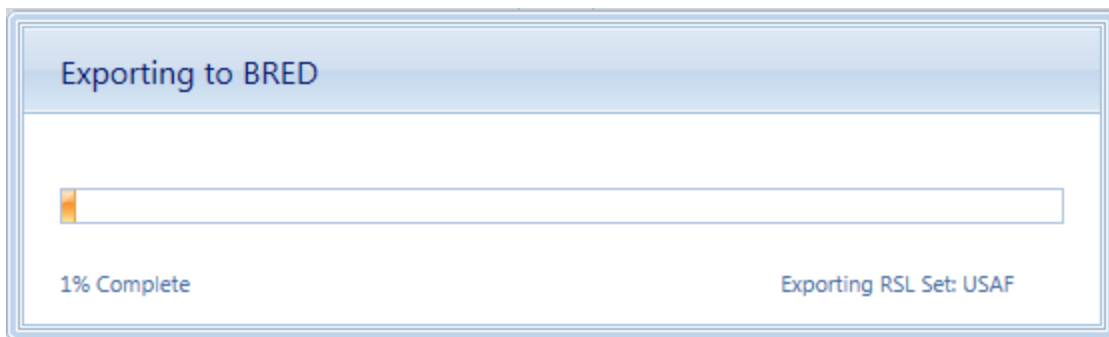
Note: If instead of "Also Export Images" you see "No Images to Export" it means that the Building(s) you have selected to export do(es) not currently have any images:
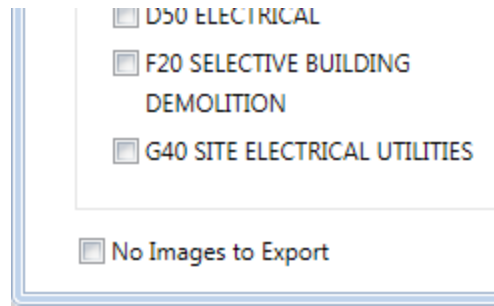
6. To start the export, click the **Proceed** button near the top of the window. *A progress bar will display as the BRED database file is downloaded*:

By clicking the **Proceed** button, the following tasks area accomplished:

- A Microsoft Access database is created, which will be identified by the path and name you choose 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.

7. After the database file has successfully downloaded, select the "Save As" option to choose a file location for it:

8. If the BRED file did not download correctly, select "Redownload Export File." Otherwise, select "Download Images File" to start the second download (the download of the images file into BRED):
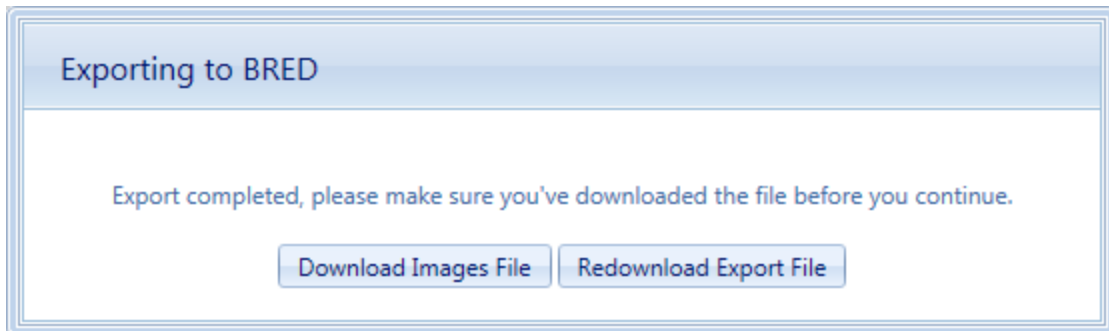
9. After the second download completes, click "Save As" and choose the **same file location** as your BRED database file.

10. Lastly, select "Complete Export" to finish the export process:
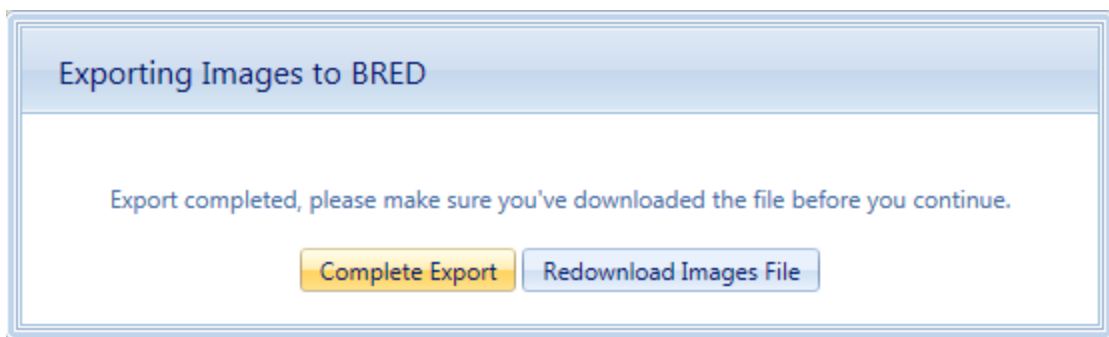
Time Limit on Editing Inspections

Once the export is complete, you can use BuilderRED to collect Inventory data or perform Inspections. Note that it is a common standard to have a 30-day time limit from the date of an Inspection to edit the Inspection or the comments in it. This time limit applies both in BuilderRED and after the data has been imported back into BUILDER.

Known Issue with Image Export from Builder
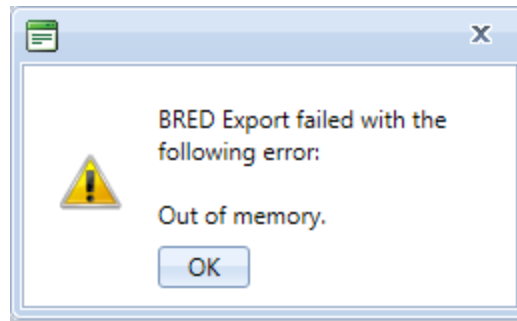
This issue applies to versions of BUILDER 3.3.9 and older.

If the BRED Export error message shown above displays after you try to down-load the image file from BUILDER, that indicates that somewhere in the exported files there is an attachment (such as a PDF, an Excel file, etc.) that is not an image. The workaround is to export the Building(s) without images.

Export Database Information Alone to BuilderRED

This section outlines the procedure to export data from BUILDER to BuilderRED without any of the associated image files.

1. In the BUILDER navigation tree, right-click the lowest level node (Site, Complex, or Building) that contains the items you wish to export.
2. Select the "Export to BRED" option:

3. In the "BRED Exporter" popup window, highlight the Building(s) you want to export, using the arrows to move Buildings in or out of the Selected Build-

ings list. Click here to see different ways you can select Buildings.[1]

---

[1]

All Buildings:	Activate the double arrow.
One Building:	1. Select the Building. 2. Activate the single arrow.
Multiple Buildings, contiguous in the list:	1. Select the first Building. 2. Press and hold **SHIFT**, then select the last Building. 3. Release **SHIFT**. 4. Activate the single arrow.
Multiple Buildings, not contiguous in the list:	1. Select the first Building. 2. Press and hold **CTRL**, then select each subsequent Building desired. 3. Release **CTRL**. 4. Activate the single arrow.
To deselect a highlighted Building from the list:	a. Press and hold **CTRL**, then select the Building. b. Alternatively, you can wait until the Building has been moved to the right-hand column under "Selected Buildings", then select the Building, and activate the single arrow pointing to the left. This will move the Building back into the "Available for Selection" column.

BRED Exporter

Close   ● Proceed   ? Help

Selection of Buildings to Export to BRED

Available for Selection   Selected Buildings

2 - Sample Building 2

Selected Systems

◉ All Systems   ○ Selected Systems Only

☐ A10 FOUNDATIONS   ☐ A20 BASEMENT CONSTRUCTION   ☐ B10 SUPERSTRUCTURE   ☐ B20 EXTERIOR ENCLOSURE

☐ B30 ROOFING   ☐ C10 INTERIOR CONSTRUCTION   ☐ C20 STAIRS   ☐ C30 INTERIOR FINISHES

4. Once the desired Buildings are in the Selected Buildings column, do one of the following in the lower section of the "BRED Exporter" window:

    a. Choose "All Systems" (radio button; this is the default), or

    b. Select specific systems (using radio button and checkboxes).

5. In order to download the BRED file without downloading the associated images, make sure that the **Also Export Images** checkbox at the bottom of the BRED Exporter Window is *not* checked.

6. To start the export, click the **Proceed** button near the top of the window. *A progress bar will display as the BRED database file is downloaded*:

Exporting to BRED

1% Complete   Exporting RSL Set: USAF

By clicking the **Proceed** button, the following tasks area accomplished:

- A Microsoft Access database is created, which will be identified by the path and name you choose 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 Buildin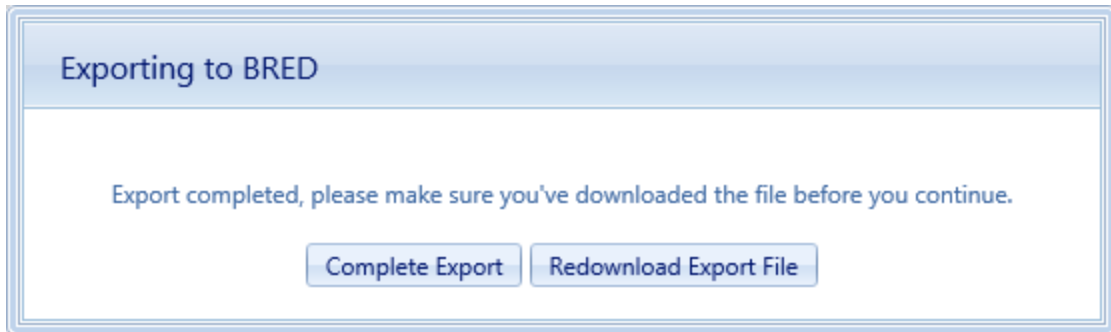gs list. This database is accessible to a computer with the BRED software, where inventory and/or condition assessment data can be recorded. Once complete, this file can be imported into BUILDER to add the new data is added to the database.

- 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.

7. After the database file has successfully downloaded, select the "Save As" option to choose a file location for it:

			Save
			Save as
Do you want to open or save **BRED_Export_07-Jan-2015_15-00.mdb** (7.50 MB) from **129.229.51.29**?	Open	Save ▼	Save and open

8. If the BRED file did not download correctly, select "Redownload Export File." Otherwise, select "Complete Export" to finish the export process:

Exporting to BRED

Export completed, please make sure you've downloaded the file before you continue.

Complete Export   Redownload Export File

Time Limit on Editing Inspections

Once the export is complete, you can use BuilderRED to collect Inventory data or perform Inspections. Note that it is a common standard to have a 30-day time limit from the date of an Inspection to edit the Inspection or the comments in it. This time limit applies both in BuilderRED and after the data has been imported back into BUILDER.

Import Data from BuilderRED to BUILDER

Overview of the Import Process

In order to load data collected using BRED 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.

If you added new images during Inventory or Inspections, then importing your information back into BUILDER will be done in two steps: (1) importing the BRED database into BUILDER, and (2) importing the image archive file.

These two steps may be followed by an optional third step: (3) performing a manual condition rollup. This step is optional because the system performs automated rollups nightly.

If you have no images to import, then you can go straight from importing the BRED database information into BUILDER to performing a rollup.

How To Import Database Information

After you have finished adding, editing, and deleting Inventory and/or Inspections data, the updated database must be imported back into BUILDER, to assess the condition of the installation and to plan maintenance and repair.

To import database information into BUILDER from BuilderRED:

1. Save all changes to the database in BuilderRED.
2. Open BUILDER.
3. Select **Tools > Import > Import from BRED** starting at the main menu.
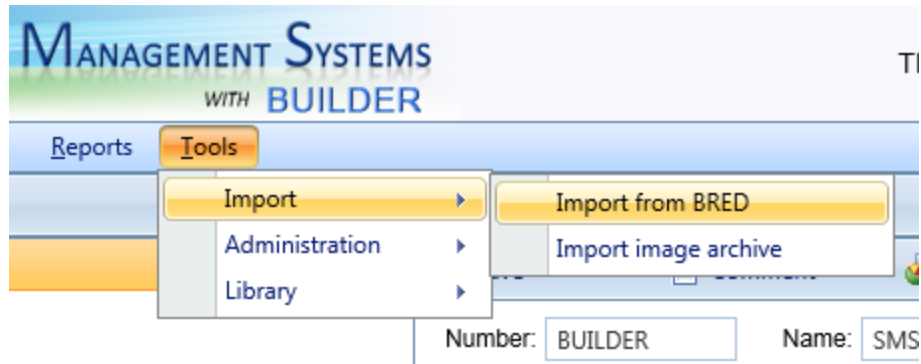
The "Import from BRED" popup window will appear:
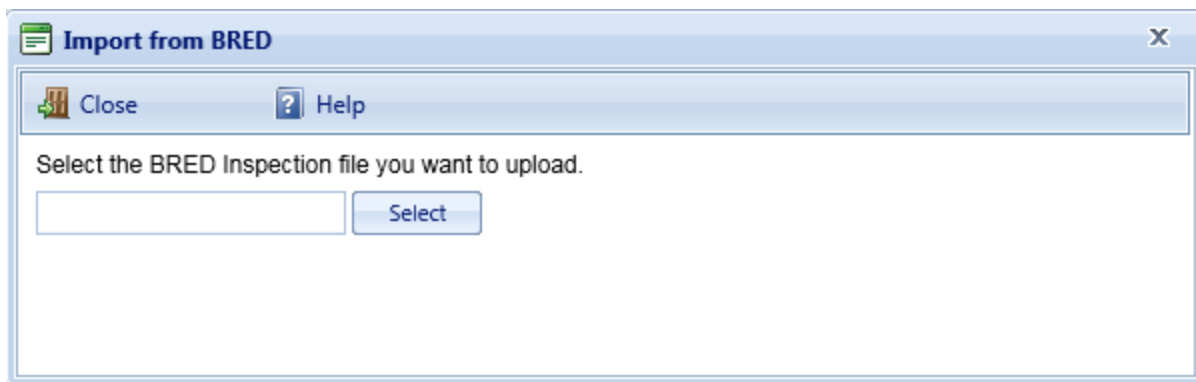
4. Locate the database you wish to import, by either (a) entering the full path and file name in the text box or (b) clicking the **Select** button, navigating to the database file, and selecting it.
5. All changes to the database will be imported into BUILDER and you will see a popup window with the following message:
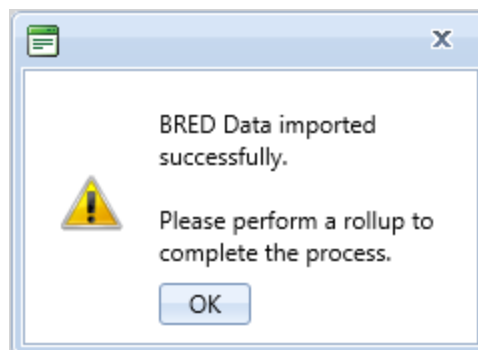
6. If you don't have any images to be imported into BUILDER, activate **OK**. You are finished with the import, and can perform a rollup if you wish.

7. **IMPORTANT: I**f you have images to import from BuilderRED, it is recommended that you NOT click **OK** to perform a manual condition rollup at this point. Instead, close the popup box by activating the "x," then follow the instructions in the next section:

How To Import Images

The process of importing images makes use of an image archive file that has the extension .bredpackage. By default, the image archive file has the same name as the .mdb BRED data file containing the imported data, except for the extension.

> **WARNING:** It is very important that the name of the image archive file match the name of the .mdb data file. If you rename one of these files, be sure to rename the other one identically (except for the extension). Images will not be found by the BRED (.mdb) file if the .bredpackage file name doesn't match.

To import images into BUILDER from BuilderRED:

1. If you have new images that need to be imported from BRED, this procedure needs to be done *after* importing the database information (see section above).

2. Select **Tools > Import > Import image archive** starting at the main menu. *(The "Import image archive" popup window will appear.)*

3. Locate the image ("bredpackage") file corresponding to the database you just imported, by either (a) entering the full path and file name in the text box or (b) clicking **Select**, navigating to the database file, and selecting it. The image archive will be in the same location as the database file, and similarly named except that the extension is .bredpackage instead of .mdb.

4. When you see the message "Upload successful," close the "Import image archive" window. Follow with a manual condition rollup as warranted (see next section).

Should I Perform a Rollup after Import?

The items you import from BuilderRED are unlocked as soon as the import is complete, whether you do a manual condition rollup or not. However, the condition and Functionality Indexes will not yet have been updated.

If you only performed inventory with BuilderRED, you need to do a rollup only if

- one or more cost books or other reference books have changed, or
- you wish to see updated PRVs or RSLs immediately instead of waiting on BUILDER's automated rollup (performed overnight)

If you entered inspection data in BuilderRED, performing a rollup after the import is completed allows you to see the changes in the following indexes right away:

- condition indexes
- functionality indexes
- performance indexes

If you do not perform a rollup at this time, the SMS will do the rollup automatically overnight, and the updated index figures will be available the next day.

How To Perform a Manual Rollup after Importing from BuilderRED

To perform a manual rollup, do one of the following:

a. Right-click on the affected Building (or Complex, if multiple Buildings were exported from the same Complex). Then select **Rollup Building** or **Rollup Complex**.
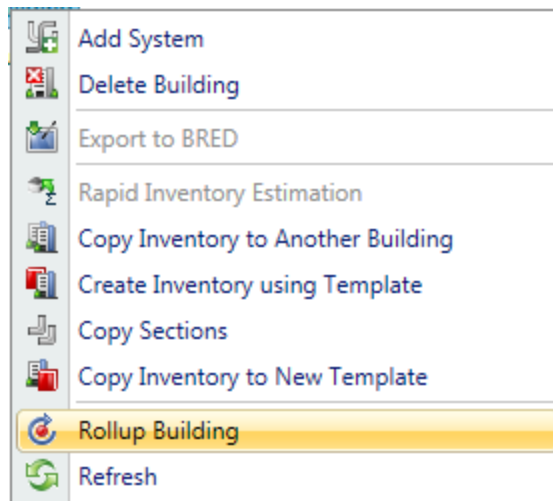
b. Alternatively, select the Building (or Complex, if multiple Buildings were exported from the same Complex) and click the Rollup icon on the tool-bar.

You have the option to roll up the entire Site in similar fashion, but be aware that a Site rollup can take an extremely long time. It would typically be less time con-suming to sequentially select the applicable Complexes and Buildings for manual rollup.

Reports

Generate a Report

BUILDER™ offers a number of standard reports. These reports can be viewed, printed, or exported to electronic files of several formats.

How To Generate and View a Report

> **Note:** This topic explains how to access reports from the toolbar at the top of the Content Area, not from the main toolbar.

To view a report,

1. In the navigation tree in the left window pane, navigate to and select the node for which you want to generate a report.

2. Click the **Reports** button 📊 in the local toolbar.

    > **Note:** The **Reports** button is available if you are in the inventory tree or condition tree, but not when you are in the functionality navigation tree.

    > **Note:** Selected Standard reports are also available from the **Reports** button on the main menu bar.

3. *For Inventory only:* Select either **Standard** or **Custom** (where available) reports:
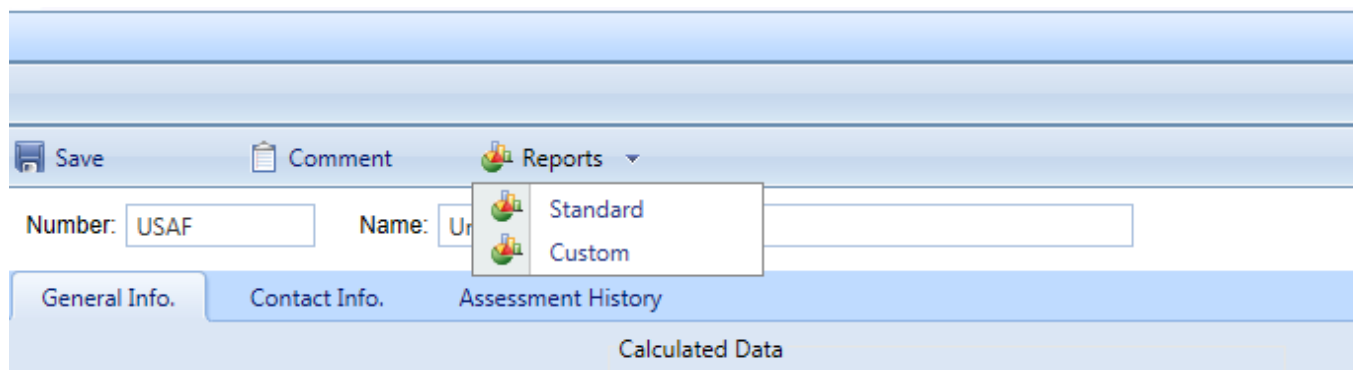
> *The "Reports," "Standard Reports," or "Custom Reports" window will appear. This window contains a dropdown list of reports, which includes only reports applicable to that level. Additionally, the report will only show data for the current mode you are in. For example, if you activate the Reports button while in inspection mode, only inspection related reports will be displayed.*

4. Activate the dropdown arrow in the bar, and select the desired report from the dropdown list.

5. After you have a report selected, click the **View Report** button in the popup window toolbar; or, if you have selected a Custom Report, click on the **Run Report** button in the popup window toolbar.

The selected report will launch in the Report Viewer window or in the Custom Reports window. The image below shows a sample report in the Report Viewer:
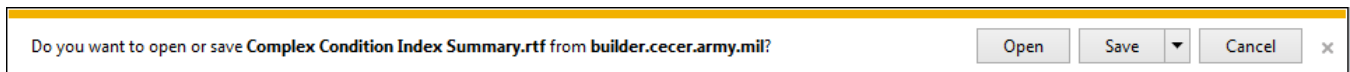
Export a Report

Export a Standard Report

To export a standard report, first follow the steps in . Then

1. In the Report Viewer toolbar, select the Export Type: **PDF**, **Excel**, or **Word (RTF)**.

    > **CAUTION:** Not all reports have been adapted to the Excel format.

2. In the Report Viewer toolbar, click **Export Report**.
3. At the bottom of the screen, you will be queried whether you want to save the report:

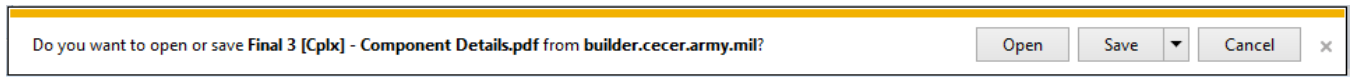| Do you want to open or save **Complex Condition Index Summary.rtf** from **builder.cecer.army.mil**?	Open	Save ▾	Cancel	×

4. Click the down arrow to the right of the **Save** button.
5. Select **Save as**.
6. In the Save As popup window, browse to the desired location where you wish to save the report.
7. Name the report in the File name: bar; then activate **Save** (lower right).
8. After the download is complete, the bar at the bottom of the screen with give you the option to open the report you just saved, to open the folder, or view downloads. If none of these are needed, click the "x" at the right sight of the query bar.
9. If you want to open the report to view it, select **Open**. When you close the viewing window, you will be back at the Report Viewer window.
10. Click **Close** to close the Report Viewer window.

Export a Custom Report

To export a custom report, first follow the steps in . Then

1. With the desired report showing in the Custom Reports popup window, activate the **Save** icon.
2. Select the desired export format from the options in the dropdown list.
3. At the bottom of the screen, you will be queried whether you want to save the report:

Do you want to open or save **Final 3 [Cplx] - Component Details.pdf** from **builder.cecer.army.mil**?   Open   Save ▾   Cancel   ×

4. Click the down arrow to the right of the **Save** button.

5. Select **Save as** (or **Save and open**).

6. In the Save As popup window, browse to the desired location where you wish to save the report.

7. Click the **Save** button.

APPENDIX A: About Rollup

Automated Rollup

BUILDER automatically "rolls up" inventory, condition, and functionality inform-ation nightly. (For installations with U.S. Army Corps of Engineers support ser-vice, this begins at about 6:00 p.m.). Starting at the Section level, aggregated Section-level information in each Component is recorded for the Component; aggregated Component-level information is recorded for each System; aggreg-ated System-level information is recorded for each Building, and so forth up the entire inventory tree.

Manual Rollup

Users can perform a manual rollup at the Building, Complex, or Site level (subject to permissions). A user-initiated manual rollup is limited in scope to the Building, Complex, or Site where the rollup is run, including all of its sublevels of inventory. A manually initiated rollup of the entire navigation tree can only be performed by a BUILDER Administrator.

What does a Rollup Do?

The following (subcategorized) processes will occur during the rollup:

Inventory

Inventory-related processes accomplished by a rollup are as follows:

- The current remaining service life (RSL) is estimated for all Sections.
- RSL information is reflected upwards through the Inventory tree.
- Plant Replacement Value (**PRV**[1]) is updated at all levels. For example, if new Sections, Components, or Systems have been added to a Building, its PRV will increase.

Condition Assessment

Condition assessment-related processes accomplished by a rollup are as follows:

- **Components:** The current CI for each Component (BCCI) is estimated by calculating the average of its Component-Sections' condition indices, weighted by replacement cost.

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[1]Plant Replacement Value. For an inventory item above the Building level, this number will be the aggregate of the PRV of all Buildings included in that item.

- **Systems:** The current CI for each System (SCI) is estimated by calculating the average of its Components' condition indices, weighted by replacement cost.
- **Buildings:** The current condition index for each Building (BCI) is estimated by calculating the average of its Systems' condition indices, weighted by replacement cost.
- **Complexes, Sites, and Organizations:** The current condition index for all Complexes, Sites, and Organizations is estimated by calculating the average of their Buildings' condition indices, weighted by replacement cost.

FCI

In addition to calculating and rolling up BUILDER condition indexes, rollup also calculates the financially oriented Facility Condition Index (FCI):

- The FCI is estimated for all Buildings using the formula FCI = (1- $current repair needs/$**PRV**[1]) x 100, obtaining the dollar amount of repair needs from BUILDER work items.
- The FCI is estimated for all Complexes, Sites, and Organizations, using the formula FCI = (1- $current repair needs/$**PRV**[2]) x 100, obtaining the dollar amount of repair needs from BUILDER work items for the Complex, Site, or Organization.

Functionality and Performance

Processes accomplished by a rollup related to functionality and performance are:

- The latest functionality assessment records are retrieved. Based on the results of the assessments, the **FI**[3] is determined for each Functional Area and applicable Building.
- The current **FI**[4] is estimated for all Complexes, Sites, and Organizations by calculating the average of their Buildings' FIs, weighted by replacement cost.
- The current **PI**[5] is estimated for each Building, using a weighted combination of the Building's CI and FI.

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[1]Plant Replacement Value. For an inventory item above the Building level, this number will be the aggregate of the PRV of all Buildings included in that item.

[2]Plant Replacement Value. For an inventory item above the Building level, this number will be the aggregate of the PRV of all Buildings included in that item.

[3]Functionality Index

[4]Functionality Index

[5]Performance Index. See also: BPI. The Performance Index is a weighted combination of the CI value and the FI value, with the lower of the two values being given two-thirds of the weight and the higher of the two values being given one-third of the weight.

- The current **PI**[1] is estimated for all Complexes, Sites, and Organizations by calculating the average of their Buildings' PIs, weighted by replacement cost.

After the rollup process completes, the "Manual Condition Rollup" popup window (or the "Progress" window, in case of a full-tree rollup performed by a BUILDER administrator) will close. You will be returned to the originating BUILDER screen Updated condition colors (red, amber, green) will be displayed for all elements in the inventory, condition, and functionality trees, and recalculated current condition indices will be shown in the relevant information screens.

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[1]Performance Index. See also: BPI. The Performance Index is a weighted combination of the CI value and the FI value, with the lower of the two values being given two-thirds of the weight and the higher of the two values being given one-third of the weight.

APPENDIX B: Direct Condition Rating Definitions

This table of direct condition rating definitions is from Appendix E of ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections.*

Table E-1. Direct Condition Rating Definitions

Rating	SRM[1] Needs	Rating Definition
Green (+)	Sustainment consisting of possible preventive maintenance (where applicable)	Entire Component-Section or Component-Section sample free of observable or known distress
Green	Sustainment consisting of possible preventive maintenance (where applicable) and minor repairs (corrective maintenance) to possibly few or some subcomponents.	No Component-Section or sample serviceability or reliability reduction. Some, but not all, minor (non-critical) subcomponents may suffer from slight degradation or few major (critical) subcomponents may suffer from slight degradation.
Green (-)		Slight or no serviceability or reliability reduction overall to the Component-Section or sample. Some, but not all, minor (non-critical) sub-components may suffer from minor degradation or more than one major (critical) subcomponent may suffer from slight degradation.
Amber (+)	Sustainment or restoration to any of the following: Minor repairs to several sub-components; or Significant repair, rehabilitation, or replacement of one or more subcomponents, but not enough to encompass the Component-Section as a whole; or Combinations thereof	Component-Section or sample serviceability or reliability is degraded, but adequate. A very few, major (critical) subcomponents may suffer from moderate deterioration with perhaps a few minor (non-critical) subcomponents suffering from severe deterioration.
Amber		Component-Section or sample serviceability or reliability is definitely impaired. Some, but not a majority, major (critical) subcomponents may suffer from moderate deterioration with perhaps many minor (non-critical) subcomponents suffering from severe deterioration.
Amber (-)		Component-Section or sample has significant serviceability or reliability loss. Most subcomponents

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[1]Building Condition Index - a condition rating for the overall Building. For each Building, the BCI is computed by taking the average of its Systems' CIs, weighted by replacement cost.

		may suffer from moderate degradation or a few major (critical) subcomponents may suffer from severe degradation.
Red (+)	Sustainment or restoration required consisting of major repair, rehabilitation, or replacement to the Component- Section as a whole.	Significant serviceability or reliability reduction in Component–Section or sample. A majority of sub-components are severely degraded and others may have varying degrees of degradation.
Red		Severe serviceability or reliability reduction to the Component-Section or sample such that it is barely able to perform. Most subcomponents are severely degraded.
Red (-)		Overall Component-Section degradation is total. Few, if any, subcomponents salvageable. Complete loss of Component-Section or sample serviceability.

APPENDIX C: Paint Rating Definitions

This table is from Appendix F of ERDC/CERL SR-18-7, *Knowledge-Based Condition Assessment Reference Manual for Building Component-Sections.*

Table F-1. Paint/Coating Rating Definitions

Rating	% Deteriorated	Relative Amount Deteriorated
Green (+)	0.00-0.03	Up to about 1" x 4" in a 8' x 10' area; 1/32" in a 10' length; or 3 in 10,000
Green	0.03 – 0.10	Between about 1" x 4" and 1" x 12" in a 8' x 10' area; 1/32" and ⅛" in a 10' length; or 3 and 10 in 10,000
Green (-)	0.10 – 0.30	Between 1" x 12" and 3" x 12" in a 8' x 10' area; ⅛" and ⅜" in a 10' length, or 1 and 3 in 1000
Amber (+)	0.30 – 1.00	Between 3" x 12" and 10" x 12" in a 8' x 10' area; ⅜" and 1¼" in a 10' length; or 3 and 10 in 1000
Amber	1.00 – 3.00	Between 10" x 12" and 18" x 18" in a 8' x 10' area; 1¼" and 3¾" in a 10' length; or 1 and 3 in 100
Amber (-)	3.00 – 10.0	Between 1' x 2½' and 1' x 8' in a 8' x 10' area; 3¾" and 12" in a 10' length; or 3 and 10 in 100
Red (+)	10.0 – 17.0	Between 1' x 8' and 1¾' x 8' in a 8' x 10' area; 1' and 1¾' in a 10' length; or 10 and 17 in 100
Red	17.0 – 33.0	Between 1¾' x 8' and 3⅓' x 8' in a 8' x 10' area; 1¾' and 3⅓' in a 10' length; or 17 and 33 in 100
Red (-)	33.0 - 100	Greater than 1/3 of area, length, or amount

Glossary

Administrator

A user with Administrator Role can administer users, assign users to Roles, and change software configuration settings.

Area Cost Factor

A multiplier that adjusts national average labor/material/equipment costs to local costs. For example, in a remote area with high shipping costs and a tight labor market, the Area Cost Factor might be 1.3. The Area Cost Factor 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.

ATFP

Antiterrorism Force Protection

BCCI

Building Component Condition Index - a condition rating for the target Building Component. For each Component, the BCCI is computed by taking the average of its Sections' CIs, weighted by replacement cost

BCI

Building Condition Index - a condition rating for the overall Building. For each Building, the BCI is computed by taking the average of its Systems' CIs, weighted by replacement cost.

BFI

Building Functionality Index - computed from the results of a functionality assessment.

BPI

Building Performance Index - a measure of a Building's overall performance, derived from a weighted combination of the BCI and BFI, where the lower of the two values is given two-thirds of the weight and the higher of the two values is given one-third of the weight. If no functional assessment has been performed, the BFI is assigned a value of 100.

BRED

BUILDER Remote Entry Database (BuilderRED)

BUR

Built-up Roofing

CCI

Coating Condition Index

CI

Condition Index

CII

Component Importance Index. This index may be used to rank the relative importance of components against one another. An example of use is in Work Configuration to hold different Component Sections to different thresholds, or to prioritize them differently based on relative importance.

CM

Corrective Maintenance

CMC

Component material category

Complex CI

Complex Condition Index - a condition rating for the target Complex. The Complex CI is computed by taking the average of the BCIs of each Building in the Complex, weighted by replacement cost.

CSCCI

Component Section Coating Condition Index

CSCI

Component-Section Condition Index - a condition rating for the target Component-Section. The CSCI is computed by using the assessment data to calculate a deduct value, then subtracting that deduct value from the maximum possible rating of 100. The deduct value computation differs for each condition assessment method.

Equipment Make

The series, collection or line that the equipment is included in, if applicable. For example, a Trane® gas furnace might be designated as S9V2, XC95, or XV95.

ERDC-CERL

U.S. Army Engineer Research and Development Center, Construction Engineering Research Laboratory

ESC

Emergency Service Call

FAFI

Functional Area Functionality Index

FCA

Facility Condition Assessment

FCI (ROOFER)

Flashing Condition Index. In ROOFER the FCI, as determined by inspection and/or algorithm, is used in the calculation of the Roof Condition Index (RCI).

FEMA

Federal Emergency Management Agency

FI

Functionality Index

HABS

Historic American Buildings Survey

HAER

Historic American Engineering Record

HPSB

High Performance and Sustainable Building

IAQ

Indoor air quality

ICI (ROOFER)

Insulation Condition Index

Icon Color

Icon color designates the condition of an SMS element, or whether it has yet been inspected at all. If the icon is gray, no inspection has been performed. Red, amber, and green icons indicate a red-, amber-, or green-level average condition of all sublevels below the designated icon, assuming that a rollup has been performed.

Inspection Supervisor

A user with Inspection Supervisor Role has all the rights of an Inspector, and can also create inspection schedules

Inspector

Person who performs inspections to be input into BUILDER or ROOFER. As a permissions Role, Inspectors can input and edit inventory information in Inventory mode, and can input and edit inspection information from the Condition Assessment screen.

Inventorior

A user with Inventorior Role can add and edit records below the Building level.

KBI

Knowledge-Based Inspection

M&R

Maintenance and Rehabilitation

Master Planner

A user with Master Planner Role has all the rights of a Work Planners, and can also generate multi-year work plan scenarios, and edit any and all data saved by other users of the program. Master Planner is the highest level of user privileges.

MBH

1,000 BTU/hour

MCI (ROOFER)

Membrane Condition Index

MDI

Mission Dependency Index - measures the relative importance of a Building

MOA

Memorandum of Agreement

MOU

Memorandum of Understanding

NAGPRA

Native American Graves Protection and Repatriation Act

PCBs

Polychlorinated biphenyls

PCI (ROOFER)

Panel Condition Index. The PCI is one component making up the Roof Condition Index (RCI) for a metal panel roof, along with the Insulation Condition index (ICI) if applicable, and the Flashing Condition Index (FCI).

PI

Performance Index. See also: BPI. The Performance Index is a weighted combination of the CI value and the FI value, with the lower of the two values being given two-thirds of the weight and the higher of the two values being given one-third of the weight.

PM

Preventative Maintenance

PM inspection

Preventative maintenance inspection

PRV

Plant Replacement Value. For an inventory item above the Building level, this number will be the aggregate of the PRV of all Buildings included in that item.

RCI (ROOFER)

Roof Condition Index

RML

Remaining Maintenance Life

RPIE

Real property installed equipment

RSL

Remaining Service Life

SCCI

Subcomponent condition index, produced when using direct rating in a preventative maintenance (PM) inspection

SCI

System Condition Index - a condition rating for a Building System. For each System, the SCI is computed by taking the average of its Components' CIs, weighted by replacement cost.

SCI (ROOFER)

Substrate Condition Index

Site CI

Site Condition Index - a condition rating for the target Site. The Site CI is computed by taking the average of the BCIs of each Building at the Site, weighted by replacement cost.

SMS

Sustainment Management System

SOW

Statement of Work

SP

Single Ply

SR

Shingle Roofing

SRM

Sustainment, Restoration, and Modernization

STIG

Security Technical Implementation Guide (DoD)

SUCI

Sample Unit Condition Index

UM

Unit of Measure. Examples: Each; LF (linear feet)

Work Planner

A user with Work Planner Role has all the rights of an Inspection Supervisors, and can also create and edit work plans, standards, policies, prioritization schemes, and RSL and cost books.

Index

V

W