

# **ROOFBASE™ WEB**

**AN INTRODUCTION**

**&**

**A USER'S GUIDE**

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## **INTRODUCTION**

RoofBase™ Web is an Inventory Management, Evaluation, and Budget Forecasting software for the roofing industry. It's designed to assist building owners and managers towards achieving their financial and maintenance objectives for their roofing assets. By providing information regarding the materials making up the roof system, the condition of the roof and roofing components, as well as maintenance alternatives, building owners and managers have a an advantage in making smart financial decisions and realizing greater longevity in their roofing investments.

This program is actually comprised of 6 “living” parts. The first part is the field inspection. In the inspection year, which is typically the Model Roof Year; a thorough evaluation is performed of the roof and its components. This inspection includes the completion of a data form and a field drawing along with recommendations for corrective action, observations, and photos for each roof section. This mass of data is returned to the office where the forms are entered into the program along with the observations and photos and the field drawing is transferred to AutoCAD.

The second part of the program is the Inventory. Each roof system is comprised of various components. These components make up what is commonly known as the roofing and waterproofing system that protects the interior of the building. RRI divides these components into basic categories: 1) General—age, slope, access, size, type of drainage; 2) Roof System—roof type, # plies, attachment, surface; 3) Base Construction—structural deck, secondary roof, lightweight fill, underlayment; 4) Insulation—base and top, types, thicknesses, attachments; 5) Perimeter—base flashing, counterflashing, coping, metal edge; and 6) Roof History—knowledge of leaks and warranty information. This information is gathered in the field, entered on the field forms, and scanned into the program.

The third part of the program is the CAD drawing. This is not only a scaled drawing of the roof and its associated components, but it also contains tremendous amounts of data specific to each roof section that is extracted from the drawing and processed by the software. Data is pulled from AutoCAD and processed through the program to create an overall evaluation and numeric rating of the roof system. In creating drawings this way, RRI is able to reduce costs associated with data entry, but more importantly, RRI is able to more accurately get data into the program for evaluation purposes.

The fourth part of the program is the Evaluation. This is where the data extracted from AutoCAD is seen within the program. The Evaluation is the accumulation of defects showing their total effect on the roof to provide an overall condition of the roof as well as a detail of each defect type and defect code. Recognizing that the condition rating is the key component of any maintenance management system, RoofBase™ uses seven (7) separate condition indices.

- ◆ RSC Roof Surface Condition Evaluation
- ◆ RMC Roof Membrane Condition Evaluation
- ◆ RIC Roof Insulation Condition Evaluation
- ◆ RDC Roof Deck Condition Evaluation
- ◆ BFC Base Flashing Condition Evaluation
- ◆ MFC Metal Flashing Condition Evaluation
- ◆ PWC Parapet Wall Condition Evaluation

The Roof Membrane Condition Evaluation (RMC) and the Base Flashing Condition (BFC) indices are further broken down in accordance with the type of roof system and type of flashing system. For example, BUR indicates Built-up Roof, MBR indicates Modified Bitumen Roof, SPR indicates Single Ply Roof, MRS indicates Metal Roof System, PUF indicates Sprayed Polyurethane Foam Roof, SRS indicates Shingle Roof System, SLR indicates Slate Roof System,

and TRS indicates Tile Roof System. Similarly, CBR indicates Composition Base Flashings, MBF indicates Modified Bitumen Flashings, SPF indicates Single Ply Flashings, PFF indicates Polyurethane Foam Flashings, and SMF indicates Sheet Metal Flashings.

These indices provide a measure of each component's ability to perform its function, the needed level of repair, and the potential for leakage. A listing of specific anomalies or defects is provided under each of these indices, and these defects are further rated as to its severity level: (1) Low Severity; (2) Medium Severity; and (3) High Severity. In addition, the magnitude of the problem in terms of percentage of area is also provided. For example, a defect may be listed as follows:

RIC-1-3 Wet Roof Insulation	2.00%
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The above listing indicates that 2% of the roof insulation is wet at a high severity level. Each Roof Resources Roofing Specialist is equipped with a manual, which discusses in detail which conditions constitute a low severity, a medium severity, or a high severity level for each roof defect. The RoofBase™ Software Program then evaluates each roofing defect in terms of its severity level, its prevalence, and pre-determined weighted factors, and then, a total "Roof Insulation Condition" index is determined. Once all of the roof condition indices are determined, they are added together and an Overall Roof Condition Evaluation (or index) is provided.

All roof condition defects are further displayed on CAD drawings, which are included in every roof analysis and evaluation report. On the CAD drawing, each individual defect is noted and the size of the defect is provided. For example, a defect may be noted on the CAD drawing as follows:

136-RIC-1-3

The number "136" indicates that the defect encompasses 136 square feet. The defect index of "RIC-1" as discussed above, indicates that the defect is wet roof insulation. And, the number "3" indicates that the defect is in the high severity level. Also in the Roof Analysis and Evaluation Report is a listing of each defect, a description of that defect, and a recommended corrective action.

The fifth part of the program is Budget Forecasting. The Budget Planning and Forecast Section of RoofBase™ provides the Building Owner with the critical information needed to make well-informed, well-supported decisions regarding the repair and/or replacement of his or her roofs. The Budget Planning and Forecast Section is divided into four (4) sub-sections—(1) Current Year Budget Estimates and Alternatives; (2) Annual Maintenance Calculations; (3) Life Cycle Cost Analysis; and (4) 5 Year Budget Forecast.

Everything related to budgeting and forecasting is based on the Model Roof Year—or the year the most recent inspection took place. Under Budget Estimates and Alternatives, cost estimates are provided for: (1) Corrective Repairs; (2) Preventive and Corrective Repairs; and (3) Roof Replacement. Corrective Repairs indicate those repairs that are deemed to be critical to stopping the infiltration of moisture into the roof assembly, or correcting the potential for moisture to enter the roof assembly. Preventive and Corrective Repairs include all necessary corrective repairs, plus preventive maintenance measures that will increase the service life of the roof. Estimates for repair activities are determined in much the same way that a roofing contractor estimates his services. Labor rates are determined by estimating the crew size and the number of days required to make the recommended repairs. Factors are considered for proximity to a major city.

A number of factors are considered in arriving at the roof replacement budget estimate such as: (1) Recommended Roof System; (2) Estimated Deck Replacement; (3) Working and Access Conditions; and (4) Miscellaneous Conditions such as extensive sheet metal work, removal of multiple roofs, and installation of tapered insulation.

The Annual Maintenance Calculations are based on square footage costs. It is important to note, however, that these costs may vary depending on the corrective method selected. Thus, estimates are provided for four (4) different scenarios: (1) Should no repairs be performed; (2) Should only corrective repairs be performed; (3) Should preventive and corrective repairs be performed; and (4) Should the roof be replaced.

In the section entitled “Life Cycle Cost Analysis,” alternatives are presented relative to the repair/replacement decision, and the costs associated with each are analyzed. The Model Roof Year refers to the first year in which some form of corrective action is scheduled to begin. Usually it is the present year or the following year. The Model Roof Life refers to the design service life of the particular roof system. The Projected Year of Replacement refers to the projected year in which the existing roof should be scheduled for replacement for each scenario: (1) Annualized Maintenance Performed; (2) Corrective Repairs Performed; and (3) Preventive and Corrective Repairs Performed. Next to each projected year of replacement is the annual cost over the expected model life of the roof based on the type of roof system, beginning with the Model Roof Year.

The final section is the 5-Year Budget Forecast. In this section, the lowest cost per year alternative taken from the Life Cycle Cost data provided. And then, 5-year budgetary forecasts are provided commencing with the Model Roof Year.

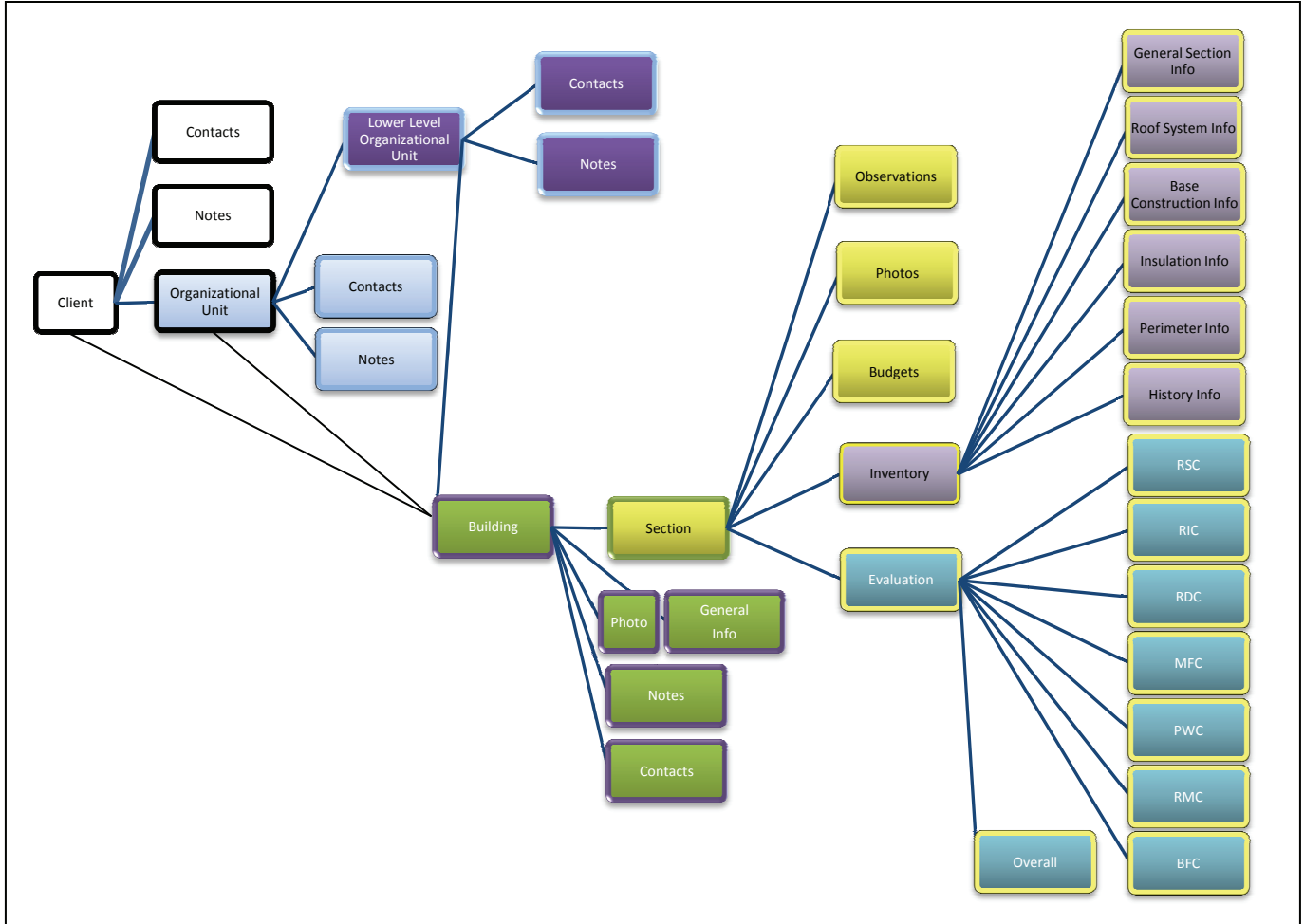
On January 1<sup>st</sup>, RRI automatically ages each roof section by 1 year. Additionally, RRI monitors the various costs associated with roof repair and roof replacement in the marketplace and makes adjustments as necessary. The Web version of RoofBase is truly a “living” document whereby the data is updated regularly and so may appear different at different times throughout the year. These changes may be due to cost increases based on market changes, additional information provided to RRI during the year, new inspections, roof repairs, or roof replacements.

The sixth and final part of the program is what truly makes this a “living” document—the repair logs. There are two (2) repair logs in RoofBase™. The first is the Emergency Leak Log. This log is designed for that emergency situation where a leak is occurring and a contractor has to be called in for immediate repairs. The second log is the Maintenance Log and this is designed for the scheduled repairs of defects. In this location information may be entered associated with repairs and defects can be checked off as having been repaired. The maintenance log does affect the evaluation.

Understanding the basic components of the program makes navigation and use of the product easier and more effective. The following is a user’s guide to RoofBase™ Web. While certain features may be “turned on” or “off” based on an individual’s security privileges as well as the “level” of visibility also based on security—this manual addresses the whole program.

## PROGRAM OVERVIEW

The first thing to understand when working in RoofBase™ Web is that it is organized hierarchically. At the top of the hierarchy is you—the client. Beneath the client may be regions or departments or agencies, whatever grouping or organizational unit your company devises, if any. There can be multiple levels of these organizational units and below those are buildings and below buildings are sections. (See Figure 1)



**Figure 1**

Each area of the program has its own set of information. For example, Client has address, city and state as well as contacts and notes available for that level. The first level of organizational units (i.e. department/agency) has contacts and notes as well. Any higher level—Client, Organizational Unit, or Lower Level Organizational Unit—can lead directly to a building. The OU's are not required by the program, but if your company has them the program supports them.

As you can see in Figure 1, the Section contains the majority of data. This is because roofs are most easily managed at the section level. It is fairly uncommon for all sections on a building to have roof replacements performed at the same time. Largely this is due to the cost. Roofs are capital expenditures and the cost of replacing many roof sections at one time is simply prohibitive. With this in mind, RoofBase™ Web is designed to allow the user to manage their roofs at the section level creating an environment to achieve the greatest savings, value, and life span for each section.

Now that you have seen how the program is organized, let's delve into how to navigate the screens and what tasks may be performed on each one.

## Log In

The first screen you see when you come to the site is the log in screen. By now you have been assigned a user name and an initial password. Once you've logged in the first time, you can change your password any time you want in the "My Account" area. If you have forgotten your password you can retrieve it by using the forgotten password link on the log in page. All you need is the email address you were registered with.

So your first step is to enter your user name and password and click the log in button. If you choose the Cancel button you are returned to the Roof Resources, Inc. website.

## Welcome

The first time you log in you are taken to the Welcome screen. This is just an introductory screen for the program with a brief description of what the intention of RoofBase™ Web is. If you wish to go straight to a list of buildings after your first log in, simply uncheck the box on the screen and starting the next time you log in you'll be taken directly to buildings.

Also on this screen you'll notice links in the top right hand corner. You can log out of the program—which returns you to the log in page. The Contact Us takes you to a contact form that will email your message to Roof Resources, Inc. directly.

Below those two links you'll see a bar of additional links—Home, Buildings, and My Account. The Home link is the Welcome screen. Buildings takes you to a list of your available buildings; and My Account takes you to a maintenance screen with the various tasks you are able to perform for your own account, e.g. change password.

## My Account

In the My Account area of the program you can update your user account, change your password, and update the information associated with your access level (i.e. update client information or update organizational unit information).

### **Update User Account**

If you go to update your user account you have the opportunity to change your email address and your name.

### **Change Password**

If you go to change password, you have to know your existing password before you can enter a new password. You are also required to enter your new password twice so that you can be certain you entered it exactly the way you intended to.

### **Update [Other] Information**

Depending on your account access, you may see "Update Client Information" or "Update Department Information" or "Update Building Information" or something else entirely based on how your organization is structured.

In these screen you can edit the name of your company, organizational unit, or building. You can edit addresses, add contact information, and add notes.

It is at this level that a couple of things need to be understood. First, the tabs are designed to show you "ownership" levels. (See Figure 2)

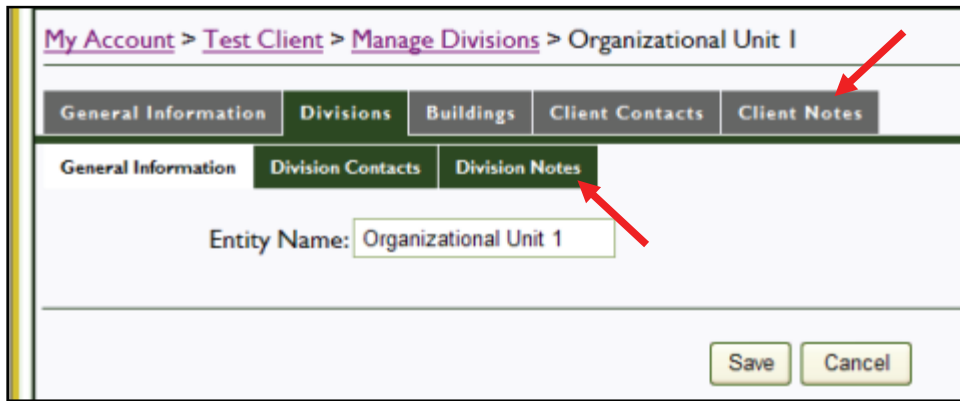


Figure 2

Notice that on the main tab bar, the contacts and notes belong to the client where on the second bar under Division (this company's organizational unit name) the contacts and notes belong to the division. Also notice, that the top line tells you exactly where you are in the program at all times. In this case we are in My Account>Test Client>Manage Divisions>Organizational Unit 1 information. You can click on any of the underlined portions of that line to return to that level as a means of navigation. You can also click on the tab to move around the program.

From here you can choose to manage buildings—which then gives you a list of all of your available buildings, or you can always click on the Buildings link at the top of the site to get to a buildings list. The difference between the two areas is minor functionality.

The Manage Buildings gives a list of buildings sorted by the RRI building ID. This list shows you the organizational unit it belongs to if there is one, the RRI Building ID it was assigned, the name of the building, the number of sections that have been entered into the system, and the location of the building. By clicking on the RRI Building ID you can drill down to get more detail about the building. (See Figure 3)

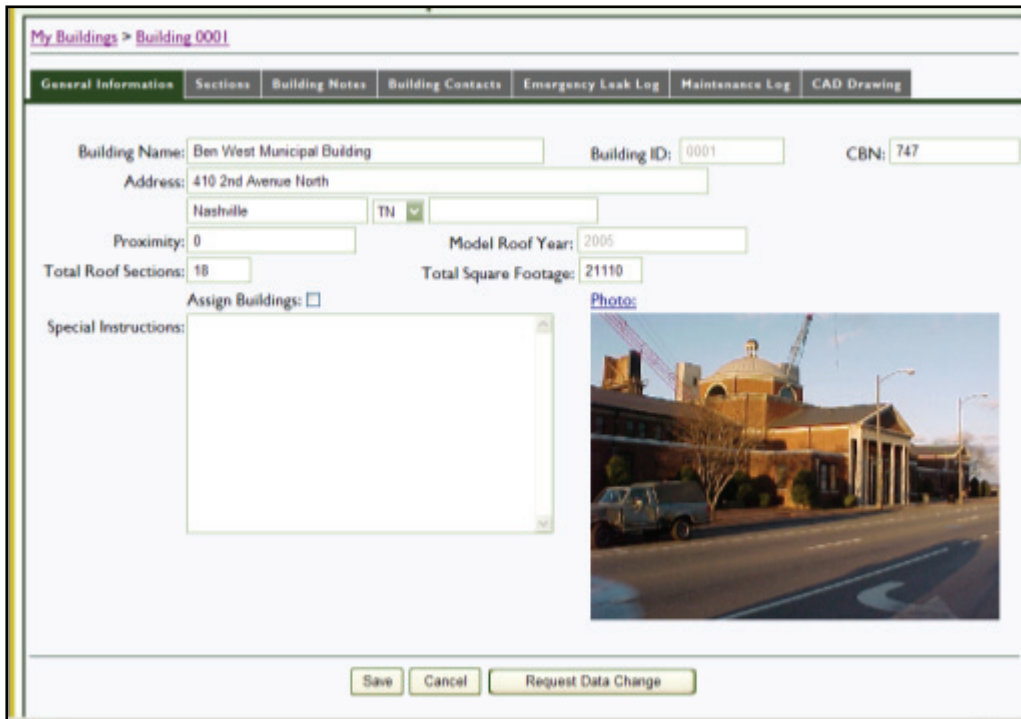


Figure 3

As you can see, the primary “General Information” tab contains basic information about the building such as name, address, your building number if you have one, proximity to major city, # roof sections, square footage, any special instructions relating to this building (this is used primarily for instructions to the consultant) and a photo of the building. From here through the rest of the screens there is an additional button at the bottom of each page next to the Cancel button to request a data change.

The Request Data Change button takes you to the “Contact Us” form and is intended for your use to request updates to data that users are unable to edit. Certain information is protected for the sake of data integrity and only RRI administrators may edit it. This avoids data conflicts, accidental deletion errors, and corrupt data. If a building is sold, demolished, etc.—or a section—then use the request data change and an RRI administrator will take care of it. Just put in the email what building you are referring to and what information needs changing. You will receive a response once the alteration has been made.

Other tabs available from the building detail are Sections, Building Notes, building Contacts, Emergency Leak Log, Maintenance Log, and CAD Drawing. We’ll go through each of these with Sections being last.

### **Building Notes**

If you have add/edit permissions you can add notes for your building. Notes are intended for your use—however you want. If you want to put in reminders, you can do that. If you want to use it for a log of ongoing issues, you can do that too. Notes are intended for your use. All notes are dated and marked with the user’s name who added it.

### **Building Contacts**

Contacts are available so you have quick access to the people who work on your building, for your organizational unit, etc. You can add them with phone numbers and email address and they are listed by type. Current types include: Architect, Area, Building, Campus, Contractor, Consultant, Owner, Manager, Region, and Site. If there is another type that needs to be added, you may use the request data change to RRI for an addition.

### **Emergency Leak Log**

The Emergency Leak Log allows you to select which section has been repaired, enter what contractor you called, when you called them, enter what the problem is, when the contractor responded, what was done, how much it cost and whether it was a permanent repair or temporary fix. This is designed to let you track non-scheduled calls.

### **Maintenance Log**

The Maintenance Log is designed for scheduled maintenance based on defects noted during the inspection. You can enter the contractor, the date the work was completed, and the total cost of repairs. Then you can check off which repairs were made. If 100% of the repair was made, enter the total value under the “SF, LF, Unit” column in the box at the end of the row. If partial repairs were made to that defect, enter the value of what was repaired. If there have previously been repairs made on that defect, but not 100% then the box will show only what is still available. If you enter a value that is too high—the box will self-adjust when you save the page to fit what is possible.

All defects show for each roof section on a building until 100% of a defect has been repaired and then it is removed from the list.



**\*\*\*NOTE: When you mark an item as repaired, send a request for data change to RRI. While the repairs do update the Evaluation, they do not update the repair budgets automatically and RRI will need to make adjustments accordingly. Note in your request what sections you fixed. \*\*\***

### CAD Drawing

You have the ability to view previously uploaded drawing files. These files can be DWF, PDF, or any image format. RRI typically uses either DWF or PDF type files. If you do not have the AutoDesk Design Review product, it is a free download and there is a link to the site on the page.

If you have any trouble or questions, call RRI.

### Sections

The Sections tab provides a list of all the sections entered for the selected building. On the summary tab you'll see the Section ID, SQ. FT., Age, Current Roof Type, and current activation status. By clicking on the Section ID you can get to the detail for each roof section.

Once you select to view the details of a section, you'll notice your tabs change. (Figure 4)

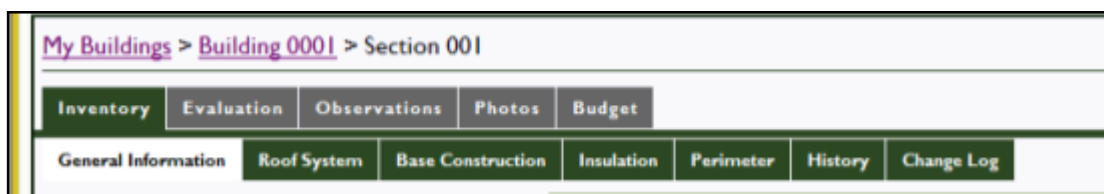


Figure 4

In the Section Detail you now have the options on the main list of Inventory, Evaluation, Observations, Photos, and Budget.

### Inventory

The inventory contains the detailed listing of the roof system and related components. The information is broken down into several categories: Roof System, Base Construction, Insulation, Perimeter, and History. The change log is simply a notation for changes that are made during data processing.

The only section data that does not require a data request change is the Warranty found under the Inventory>History tab.

### Evaluation

The evaluation section is divided into several parts. First is the Overall Tab—this shows a summary of the evaluation for the section. Each of the remaining tabs contains additional details for the defect types. For example, if the Overall Tab shows that the section has Roof Surface defects, then you might want to know what types of defects were found. Click on the Roof Surface tab to see a list of those defects. On the main screen you'll see a listing of the defects along with a short description, the amount, and the % of the roof section effected. For greater detail of the anomaly simply click on the defect code. This will take you to a detailed listing of the defect including the description, recommendation, and a repair specification reference if applicable.

### Observations

This is a listing of any observations noted by the inspector at the time of the investigation. In some cases, the inspector made large notes regarding the section, so you can click on the observation to see the whole thing in more detail.

## Photos

The photos are displayed in small format by roof section. For a description and larger view of each photo, click on the picture to pull the larger image and caption.

## Budget

The budget and forecasting section provides projected expenditures for each roof section. As explained in the introduction of this manual, the budgets and forecasting section is broken down into 4 areas—Current Year Estimates & Alternatives, Annual Maintenance Calculations, Life Cycle Cost Analysis, and Five Year Forecast.

### Current Year Estimates & Alternatives

In this area you'll see the Corrective Repair Cost for the model roof year, the Preventive and Corrective Repair Cost for the model roof year, the Estimated Replacement Cost in current dollars, an option for No Repairs, Engineering Services, and Section Factor.

**Corrective Repairs:** This is the repair cost for those defects noted during the inspection that either are causing leaks or have the potential to cause water intrusion and should be fixed to maintain the integrity of the system. These are often considered the minimum repairs to perform.

**Preventive Repairs:** This is the repair cost that combines the corrective repairs along with any other maintenance repairs that need performing as noted during the investigation.

**\*\*\*BOTH SETS OF REPAIRS MAY INCLUDE MASONRY REPAIRS. CHECK YOUR DEFECT LISTING UNDER PWC FOR FURTHER INFORMATION.\*\*\***

**Estimated Replacement:** This is the estimated cost of replacement in today's dollars. This does not include design fees, quality inspection, or any professional testing that may need to be performed; however, it does include masonry work if noted during the inspection, special conditions relating to work at the site such as non-standard hours, extensive safety, extensive security, removal of asbestos, etc.

**No Repairs:** This is simply set as an option.

**Option Buttons:** RRI recognizes that while the best financial decision based on the condition of the roof, the cost of repairs, and the cost of replacement may be to replace the roof or perform extensive repairs, etc. that recommendation may not be in your budget for the current year. As a result, RRI has put an option button next to each of the above items to allow you, the user, to select which alternative you want to set your roof section on the path of. This will adjust the 5 year budget forecast accordingly so you can see when you should replace your roof, how much money to spend until then, etc. This option may be changed at any time, but is available to assist you in defining your management strategy.

**Engineering Services:** Because the estimated replacement cost does not include the cost for engineering and testing services or design services, RRI has given you a space to enter a value for said services. This does not get added to the replacement cost because it is a projection, but you may save a value that you want to add to your budget if you choose.

### Annual Maintenance Calculations

These are square footage costs that project approximately what you can expect to spend per year. For No Repairs, Corrective Repairs, and Preventive Repairs these are costs per year after the first year and until roof replacement. Roof Replacement Complete is the cost after a full roof replacement is finished and until the first evaluation is performed. **The evaluation cycle may vary depending upon your warranty.**

### Life Cycle Annualized Cost Analysis

This area shows you the model roof year, the model roof life for the section’s roof type, the project year of replacement based on various scenarios, and the cost per year of the roof over the life of the roof along with the current recommendation.

### Five Year Forecast

The 5 year forecast starts with the model roof year as year 1 and shows the projected costs per year over 5 years.

Finally, if you select “My Buildings” from the navigation chain or select “Buildings” from the top right link you’ll be taken to a slightly different list of buildings from the one seen on the “Manage Buildings” page found through “My Account”.

On this list you’ll see a filter option that allows you to drill down if you have organizational units 1 or 2 levels deep. You’ll also note that you have the ability to sort the list by RRI Building ID, Building Name, # Sections, City, or State. (See Figure 5)

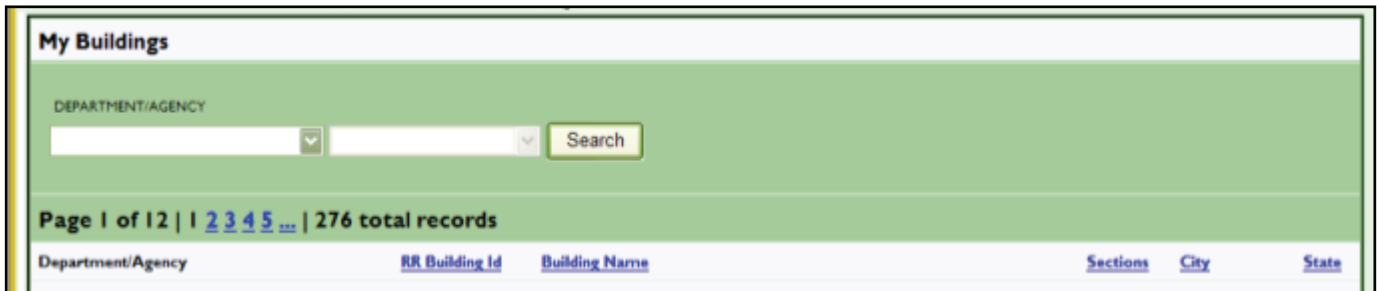


Figure 5

By clicking on one of the column headings you can change the sort order. Additionally, if available, by selecting an organizational unit from the drop-down list at the top you can narrow your list of buildings.

Once you have sorted or filtered your list, you can select a building by clicking its RR Building ID the same as from the other list and all of the information remains the same the rest of the way through.