CADEnCE

A tool for the collection and management of historic buildings and structures condition information

User Guide

Version 1.0

U.S. Air Force Space Command

Cultural Resources

CADEnCE

Condition Assessment Data Evaluation and Cost Estimation

Air Force Space Command

National Park Service

Designed and developed by Colorado State University,

Center for Environmental Management of Military Lands (CEMML)

under the direction of the

National Park Service, Intermountain Regional Office/Denver

U.S. Air Force Space Command

Cultural Resources

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PREFACE

This project was developed for US Air Force Space Command (AFSPC) Headquarters at Peterson AFB, Colorado Springs, Colorado, and its former Cultural Resources Program Manager, Ms. Victoria Williams, now at the US Air Force Academy, Colorado. More recently, Christine Keefe has served as AFSPC Point-of-Contact for the effort. The project was entitled *Air Force Space Command Cultural Resources Condition Assessment Methodology* and was funded by AFSPC through the National Park Service's Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) Cooperative Agreement Number H1200040001 with the Center for Environmental Management of Military Lands (CEMML), Colorado State University, Fort Collins, Colorado. RM-CESU personnel Kathy Tonneson (NPS Research Coordinator), Christine Whitacre (NPS Cultural Resource Specialist), and Lisa Gerloff (Executive Coordinator, University of Montana, Missoula) facilitated NPS project management through the RM-CESU system. The National Park Service's Intermountain Regional Office, Heritage Partnerships Program (Lakewood, Colorado) and NPS Historic Architect Thomas G. Keohan played key roles in technical oversight and product review.

The CADEnCE software utility was developed at the Center for Environmental Management of Military Lands by Stephen A. Sherman, Cultural Resource Specialist, with technical assistance provided by William Sprouse, Database Specialist, and Catherine Moore, graduate student in the CSU Department of History. Dr. James A. Zeidler, CEMML Associate Director for Cultural Resources, served as Principal Investigator for the project. Outside consultants on various aspects of the software utility included Per M. Hogestad, architect, Facilities Management, Colorado State University, and Dr. Christopher Koziol, historic architect, University of Colorado at Denver.

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EXECUTIVE SUMMARY

The Project

Condition Assessment Data Evaluation and Cost Estimation (CADEnCE) was developed as a tool to assist the Air Force Space Command (AFSPC) in collecting critical and timely information about the existing condition and costs for stabilization and repair of Command historic buildings and structures. Under the direction of the Intermountain Regional Office of the National Park Service, Colorado State University's Center for the Environmental Management of Military Lands (CEMML) was tasked with the creation of a condition assessment database program. The project was funded by Cultural Resources, HQ AFSPC, which also provided guidance and direction during design and development phases of the program. This project has two primary components: the methodology and its concomitant database application called CADEnCE. Based on the National Park Service *National Historic Landmark Building Condition Assessment* program, CADEnCE was developed, field tested and refined to specifically meet the needs of AFSPC cultural resources.

The Methodology

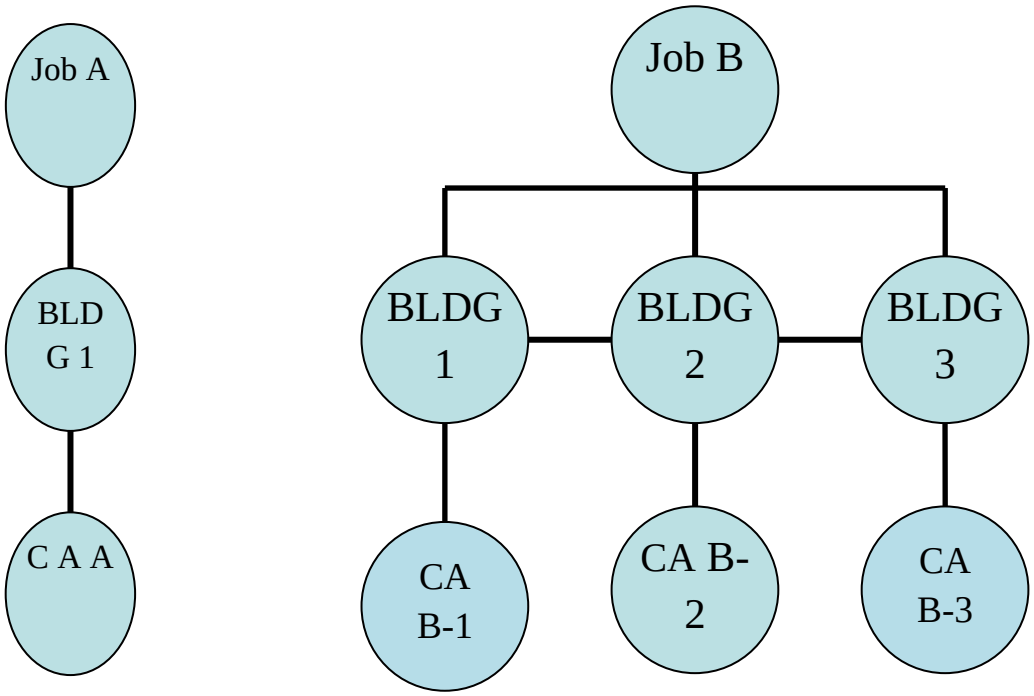
The goal of the project is to create a standardized and systematic methodology for the condition evaluation of historic buildings that will assist both cultural resource and facilities managers in improving the overall condition of historic AFSPC buildings and structures by identifying deficiencies and prioritizing required corrective work with associated costs, and helping to secure and retain needed funding. The standardized cultural resource condition assessment methodology will permit effective communication and integration of the needs of multiple AFSPC installations, including Cultural Resources, Civil Engineering and Environmental, Housing and Real Property functions within each of those installations. The methodology will provide pertinent and valuable information allowing AFSPC installations to more effectively compete for funding during the Fiscal Year (FY) funding cycle.

The Software

CADEnCE is an MS Access database application that assists AFSPC cultural resources staff and others in collecting, organizing and reporting critical and timely information regarding existing condition and repair costs of historic structures. The program combines historic preservation methodology with construction industry standards for describing structural elements, providing a framework for standard construction industry costing procedures to be applied to historic preservation tasks of stabilization and repair. While CADEnCE provides a standard format that can be used for all types of structures, allowing for consistency of evaluation and reporting across and between installations, it also has the flexibility to accommodate local and regional cost variations, differences in construction types, and information about local environmental factors affecting structure condition. CADEnCE can be used to record condition assessments, to compile and compare the costs of alternative treatment approaches, to develop and prioritize treatment recommendations, to store periodic condition assessments for the same structure for comparison over time, and to group condition assessments and recommendations from multiple structures for reporting at the installation, wing, or command level. Before using the software for the first time, it is recommended that the user first review the information in this user guide.

Key Concepts

The basic organizational unit of CADEnCE is the job. A job can consist of one condition assessment for one structure (Job A), or of condition assessments for two or more structures (Job B). For example, all underground structures at Installation X might be grouped together as a job, or all structures relating to missile launch complex at Installation Y. Each condition assessment is linked to one specific job, with a unique job identifier, and a condition assessment cannot exist in the system without being linked to a job. A structure, on the other hand, is NOT linked to one specific job. A structure can be included in one or more jobs, with a separate condition assessment for that structure in each job. For example, Job A might consist of a condition assessment of the roof of Administration Bldg 01, and Job B might consist of condition assessments of the fire protection systems in Administration Bldg 01, Control Bldg 02, and Maintenance Bldg 03.



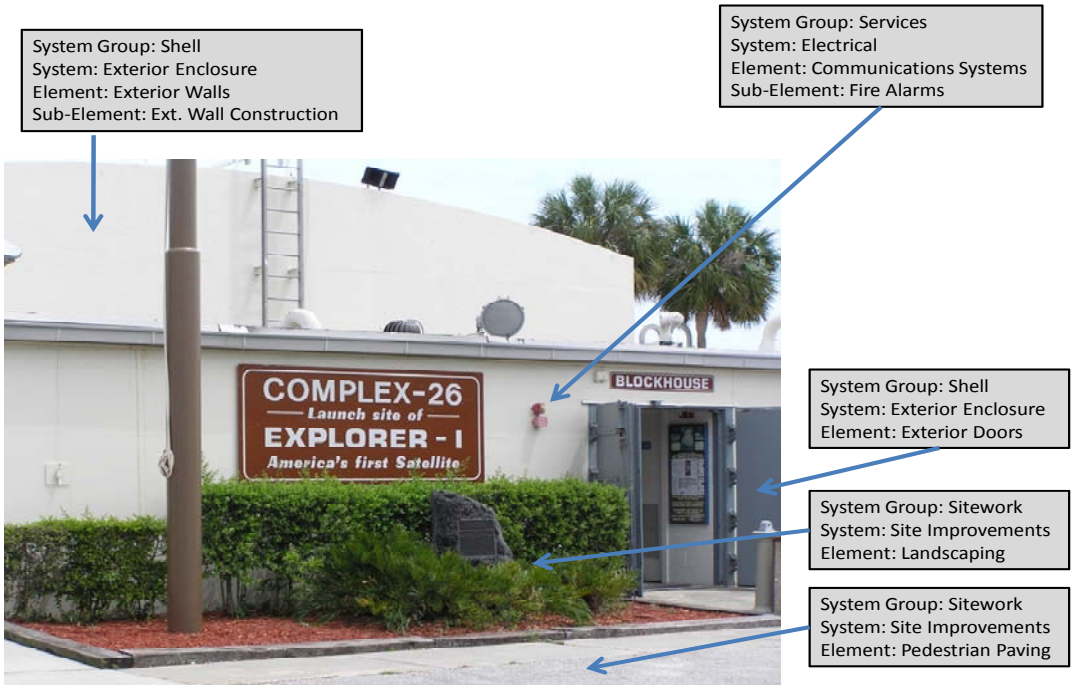
Generally, a cultural resources specialist would use CADEnCE to set up a job, perform the related condition assessment(s) and identify treatment recommendations and/or alternative treatment approaches and costs for repair. The program can be used as a stand-alone application on a laptop or notebook computer for use in the field, to record condition assessment information on site. Alternatively, condition assessment information can be entered on paper forms generated by the program, to be entered into an office computer at a later date.

The condition assessment begins at the Basic Condition Assessment level, which combines general information about the structure's condition, a description of any deficiencies, and work recommendations for treatment. If detailed cost information is not needed, a rough cost estimate of the alternative treatments can be included with the work recommendations, completing the cost estimation step at this level. This option might be the right choice for a periodic building condition survey, where deficiencies need to be monitored and recorded but no repair work will be undertaken. At the Basic Condition Assessment level, CADEnCE provides for an "overall" building or structure condition status useful for planning purposes and establishing priorities for completing Advanced Condition Assessment work.

If more detailed costing information is required, the information from the Basic Condition Assessment level can be transferred to the Advanced Condition Assessment. This step bridges the gap between cultural resources and construction management by translating items in assessment categories into construction **systems**/**assemblies**. The cost estimation function in CADEnCE (which may be performed by a construction or engineering specialist rather than a cultural resources specialist) works on the basis of assemblies, or very detailed costing can be done by breaking assemblies down into **unit**/**components.** The cultural resources specialist can then compare the costs of various alternatives, prepare reports, and review conditions and costs over time as needed.

Repair and stabilization costs may be obtained from a number of sources, including cost estimating software such as RS means, historical cost data or local or regional vendor quotes. CADEnCE itself does not automatically estimate repair costs, but is formatted using industry classification standards (Uniformat II) to straightforwardly accept cost data input.

Examples showing system/assembly classification for structural elements of AFSPC historic structures:



System Group: Services
System: Conveying
Element: Other Conveying Systems
Sub-Element: Hoists and Cranes

System Group: Substructure
System: Foundations
Element: Slab on Grade
Sub-Element: Structural Slab on Grade

System Group: Services
System: HVAC
Element: Distribution Systems
Sub-Element: Exhaust Ventilation System

System Group: Shell
System: Roofing
Element: Roof Coverings
Sub-Element: Gutters and Downspouts

System Group: Shell
System: Exterior Enclosure
Element: Exterior Walls
Sub-Element: Balcony walls and railings

Integration

CADEnCE uses the facility information recorded in RPIR and/or ACES to identify structures. One individual structure in CADEnCE corresponds to one particular individual facility in RPIR/ACES, and CADEnCE uses the Facility ID assigned in RPIR/ACES. Information is downloaded to CADEnCE from RPIR/ACES, and may include street address, descriptive information, size, current occupants, and acquisition cost. Missing or additional information can be input directly into the facility record in CADEnCE, but it is NOT uploaded back to RPIR/ACES.

Illustrations and images that are part of the general information about a structure should be stored in a directory accessible to the CADEnCE application. Likewise, photographs taken as part of the condition assessment fieldwork should be saved in a directory that can be accessed by CADEnCE. A utility for uploading photographs directly from a camera to the appropriate directory is included with CADEnCE. All images and selected illustrations (drawings) can be linked to a job for reference, and can be included in CADEnCE reports.

Step-by-Step Guide to CADEnCE

GETTING STARTED

Setting Up a New Job

The first step in using CADEnCE for a Condition Assessment is to set up a new Job. CADEnCE should be installed on your office computer - it can't be run from the CD. If your database administrator can download building and structure information from RPIR or ACES to your computer, it will simplify your set-up process because CADEnCE will automatically populate data fields for you from RPIR and ACES. You can also add building information directly if needed.

1. Gather the information needed to set up a new job. You will need a Job ID, which must be a unique alphanumeric code, and should follow a standard format for your installation. The format should be determined before CADEnCE is used at your installation for the first time. Once a job is created in CADEnCE, its ID cannot be changed. If a job is deleted in order to start again with a new Job ID, any condition assessment linked to that job is lost.

2. You will also need to know which buildings or structures are to be included in the job. Additional buildings/structures can be added on the fly, but you must have each building set up in the job in order to perform a condition assessment.

3. Launch the CADEnCE application.

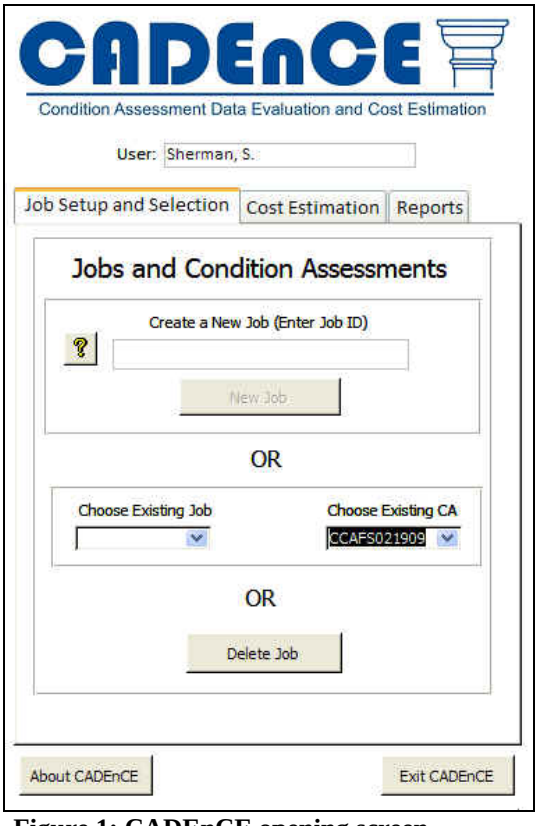


Figure 1: CADEnCE opening screen

Note: On any screen, click the ? button for a description of what you can do from that screen, or an explanation of what information is needed for an entry.

4. On the opening dialog screen, make sure the top tab for Job Setup and Selection is active. Enter the new Job ID and click the *New Job* button.

5. The *Job Add/Edit* form will appear. The Job ID you just entered will appear in the top left box, and the current date will appear in the top right box. In the Job Description box, enter a description of the job. This box is a text entry field; you can include as much information as needed. The description might include the purpose or need for the job, the budget year, and, if more than one building or structure is included, an explanation of how or why these buildings were chosen.

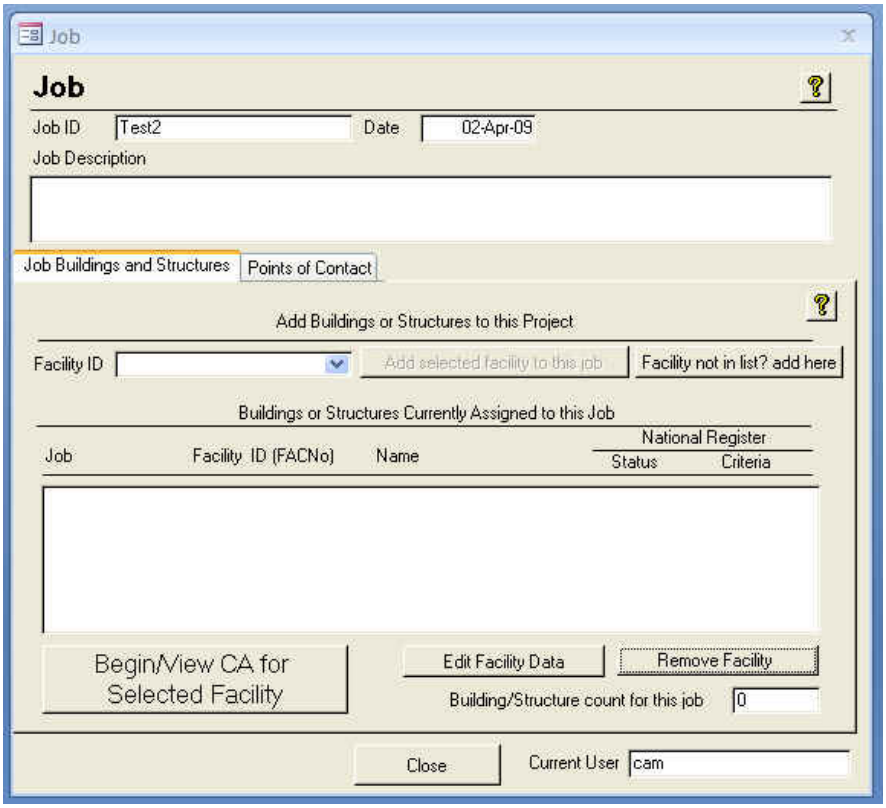


Figure 2: Job Add/Edit Form

6. On the *Job Buildings and Structures* tab of the *Job Add/Edit* form, add a building or structure to the job by selecting its Facility ID in the *Facility ID* dropdown box and clicking the *Add Selected Facility to this Job* button. Repeat for additional buildings/structures as needed. [The Add Selected Facility button will be greyed out until you select a facility in the dropdown box, then it will become active.]

7. If the building or structure that you want does not appear in the dropdown box list, click the *Facility Not in List? Add here* button to create a record for it. A blank *Building and Structure General Information* form will open. Fill out as much of the form and tabs as you wish; the only required field is the first one, the FACNo. (facility ID.) It's a good idea to use the same Facility

ID that is assigned to that building/structure in RPIR/ACES for the sake of consistency. Remember that any information you add does NOT get uploaded back into RPIR/ACES. You MUST click the *Save Changes* button at the bottom of the screen to save your additions or changes.

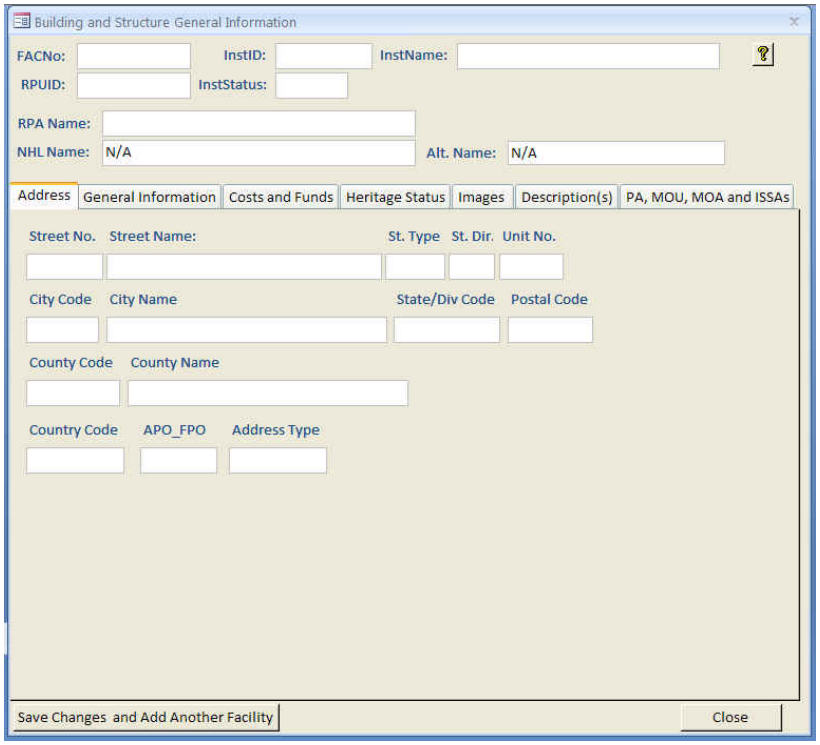


Figure 3: Building and Structure General Information Form

More information about the Building and Structure General Information form can be found beginning on page 32, under the Advanced Functions sections of this manual.

8. Buildings/structures that have been added to a job appear in the list box of the Job Add/Edit form.
    a. To begin a condition assessment, highlight a building in the list box and click the *Begin/View CA for Selected Facility* button to go to the Condition Assessment form. You can also review or continue work on an existing condition assessment by selecting the facility in the list box and clicking this same button.
    b. You can highlight a building in the list box and click the *Edit Facility Data* button to review, add or change building information, heritage status, and images.
    c. If you add a building and later decide not to include it in the job, you can highlight it in the list box and select the *Remove Facility* button. Any condition assessment information associated with that facility IN THIS JOB ONLY will be deleted.

9. On the *Points of Contact* tab of the *Job Add/Edit* Form, select the appropriate person for Point of Contact, SHPO contact, and Job Lead from the dropdown list next to each box. The first entry, Point of Contact, should be the building or installation representative. If a contact is not in the dropdown list, use the *POC Not in List? Add here* button to create a record, then return to this screen and add them using the dropdown list.

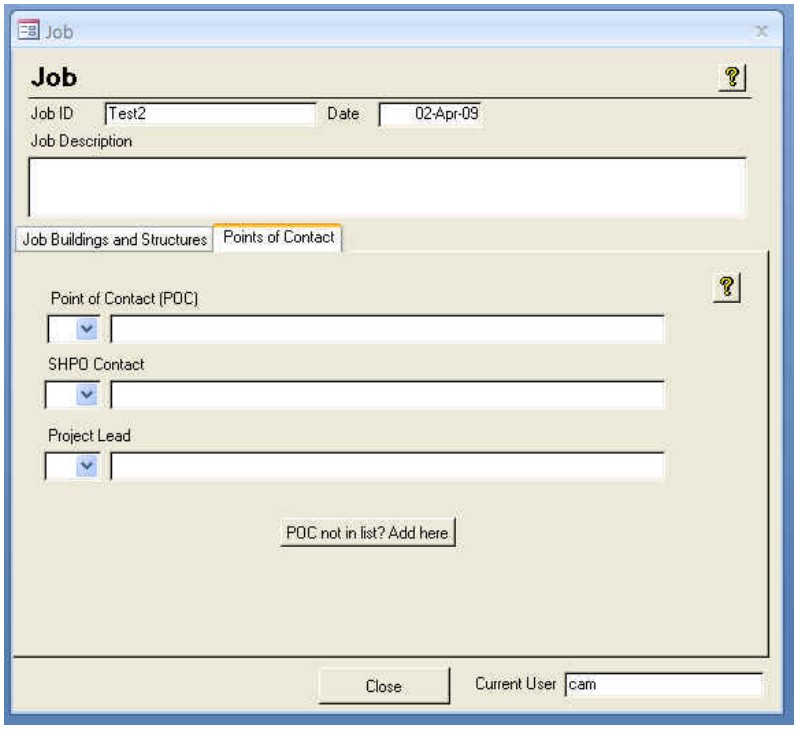


Figure 4: Job Add/Edit Form, showing Points of Contact tab

That's it for Job Set Up! You and CADEnCE are ready to perform a condition assessment.

Performing a Condition Assessment

There are two ways to use CADEnCE to do a condition assessment: the first is to use paper forms while at the job site to do a Basic Condition Assessment and transfer the information into CADEnCE back in the office. Alternatively, you can use a laptop computer or handheld device to enter information directly into CADEnCE while at the job site, allowing you to perform either a Basic Condition Assessment or a more detailed Advanced Condition Assessment in the field. If you are using a computer/handheld, make sure CADEnCE is installed and the Job set up in the program.

Information for each condition or deficiency in a condition assessment is linked together via a Condition Item Number (CIN) which is generated by CADEnCE when the information from the condition assessment is entered into the program. The description of the item, the condition and recommendations, preliminary cost estimates, and any photos detailing the condition are all entered under a single CIN. This number and the linked information can then be carried over to the Advanced Condition Assessment and to the Reports module.

Basic Condition Assessment Using Field Assessment Form (paper forms):

1. Before going to the job site, use CADEnCE to print paper forms for the condition assessment. Launch the CADEnCE application. On the opening screen, choose the Job ID in the *Choose Existing Job* drop down box.

2. On the *Job Add/Edit* screen, highlight the building or structure for which you will perform the condition assessment, and click the *Begin/View CA for Selected Facility* button. This will open the *Condition Assessment Information* form. Click the *Paper Forms for Field Assessment* button to send the forms to your printer. You may need multiple copies of the form.

3. Repeat these steps for any additional buildings or structures for which you plan to do a condition assessment.

4. On the job site, mark the assessment categories to be included in the job, and the status of each one. The assessment categories are organized by Site, Interior, Exterior, etc. Status ratings are Excellent, Good, Fair, Poor, Ruinous, Not Applicable (if that assessment category does not exist for the facility), and No Status Given. If you choose No Status Given, CADEnCE will not be able to calculate an overall condition assessment rating for the facility.

5. Each condition or deficiency you note in your condition assessment should be a separate item, but it can apply to more than one element of the building. For example, if the sills are rotten and need replacing on all the windows on the south aspect of the building, that could be one item. Each Condition Item will be assigned a CIN by CADEnCE.

6. For each Condition Item, indicate the assessment category it belongs to and provide a description, including location, and quantity and units affected.

7. As you take photos on site, note camera image numbers in the *Photos* box. The last page of the Field Assessment Form is a photo log, where you can list all photos for each condition item, with detailed descriptions.

8. Describe the condition of each item.

9. Enter the Rating and Priority codes. Ratings are based on the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1-6) and Priority codes are Critical, Serious, or Minor.

10. Provide work recommendations for each item, including specific information about historic fabric affected.

11. On the photo log, list each image and indicate which Condition Item it corresponds to. Provide a description of the information captured in the photo.

Basic Condition Assessment Using Computer or Handheld Device: You can use this procedure to do a field assessment on a laptop or handheld, or to enter data into an office computer from the paper forms used for the field assessment.

1. Launch the CADEnCE application. On the opening screen, choose the Job ID in the *Choose Existing Job* drop down box.

2. On the *Job Add/Edit* screen, highlight the building or structure for which you will perform the condition assessment, and click the *Begin/View CA for Selected Facility* button. This will open the *Condition Assessment Information* form.

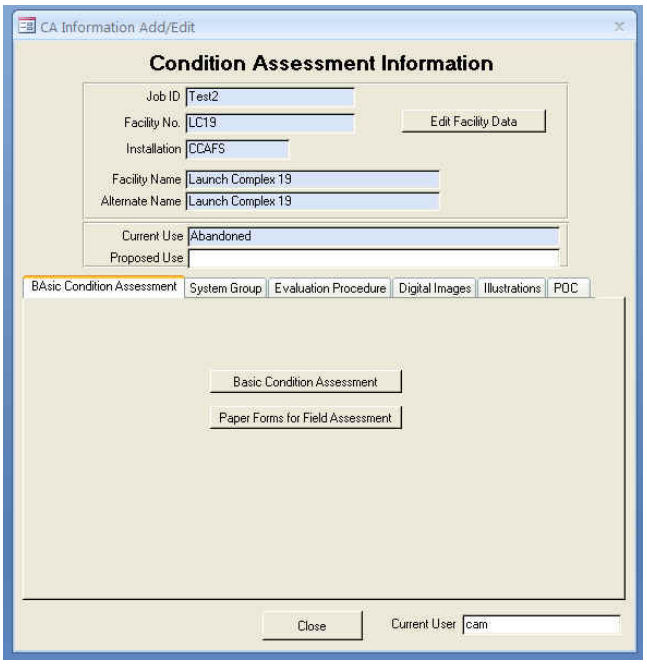


Figure 5: Condition Assessment Information form

3. The top portion of the form will fill from previously entered information. Fill out any additional information needed there or in the *Use* section.

4. Click the *Basic Condition Assessment* button.

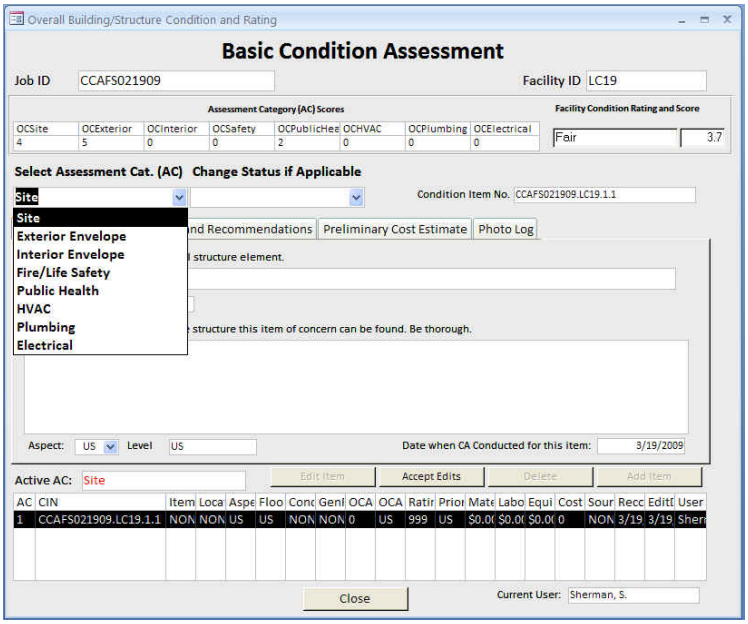


Figure 6: Basic Condition Assessment Form

5. Mark the assessment categories to be included in the job, and the status of each one. The assessment categories are Site, Interior, Exterior, etc. Status ratings are Excellent, Good, Fair, Poor, Ruinous, Not Applicable (if that assessment category does not exist for the facility), and No Status Given. If you choose No Status Given, CADEnCE will not be able to calculate an overall condition assessment rating for the facility.

6. Describe each Condition Item to be assessed. Each condition or deficiency you note in your condition assessment should be a separate item, but it can apply to more than one element of the building. For example, if the sills are rotten and need replacing on all the windows on the south aspect of the building, that could be one item.

7. Click the *Condition and Recommendations* tab to continue.

8. Describe the condition of the item.

9. Enter the Rating and Priority codes. Ratings are based on the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (1-6) and Priority codes are Critical, Serious, or Minor.

10. In the *Work Recommendations* field, describe the necessary maintenance, stabilization, or repair work needed. Make note of historic status of elements, and historic fabric requiring preservation or retention as the Secretary's *Standards* apply.

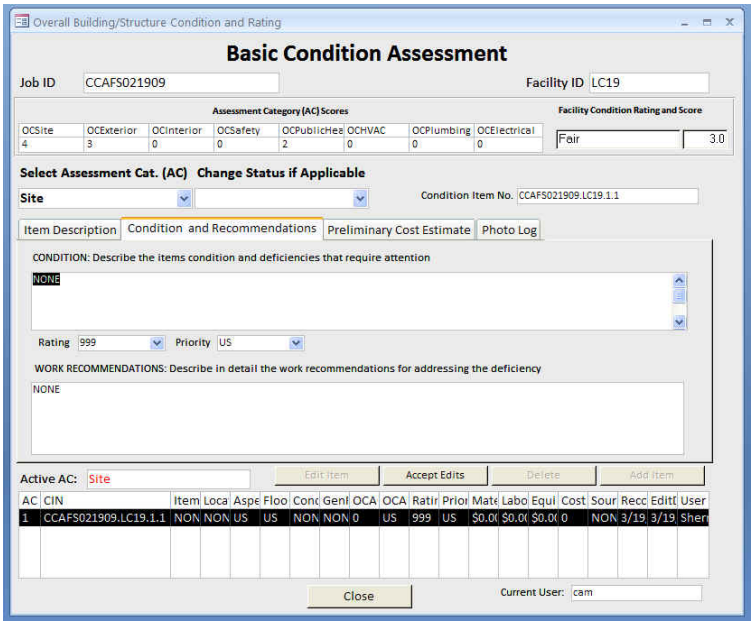


Figure 7: Basic Condition Assessment, showing Condition and Recommendations tab

11. The *Preliminary Cost Estimate* tab allows you to enter cost information obtained from Civil Engineering, historical data, or a vendor quote.

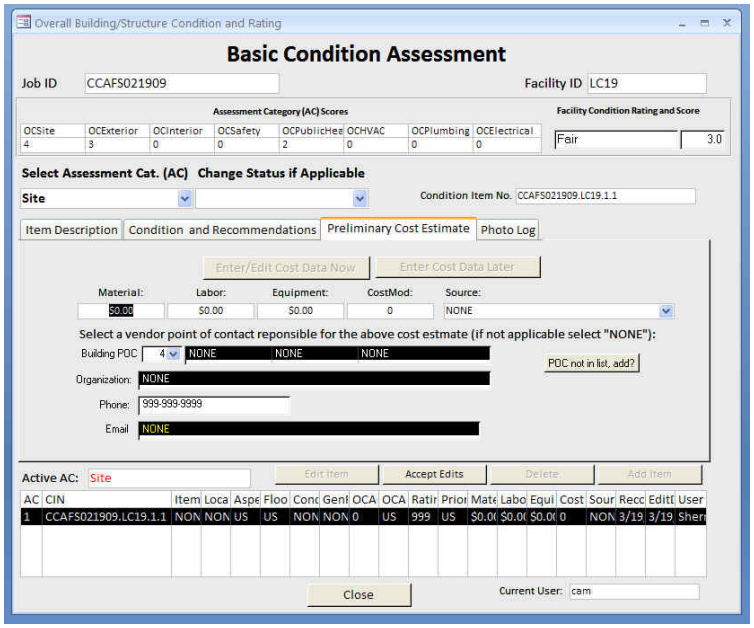


Figure 8: Basic Condition Assessment, showing Preliminary Cost Estimate tab

12. Cost dollar amounts entered in the Material, Labor, and Equipment fields should be the TOTAL cost to address the work recommendation for this CIN, not a per unit cost.

13. On the *Photo Log* tab, you can upload, describe, and view digital photos taken in the field. These images are linked to the Condition Item Number (CIN) and can be included in the report function of CADEnCE as well as reviewed for comparison over time.

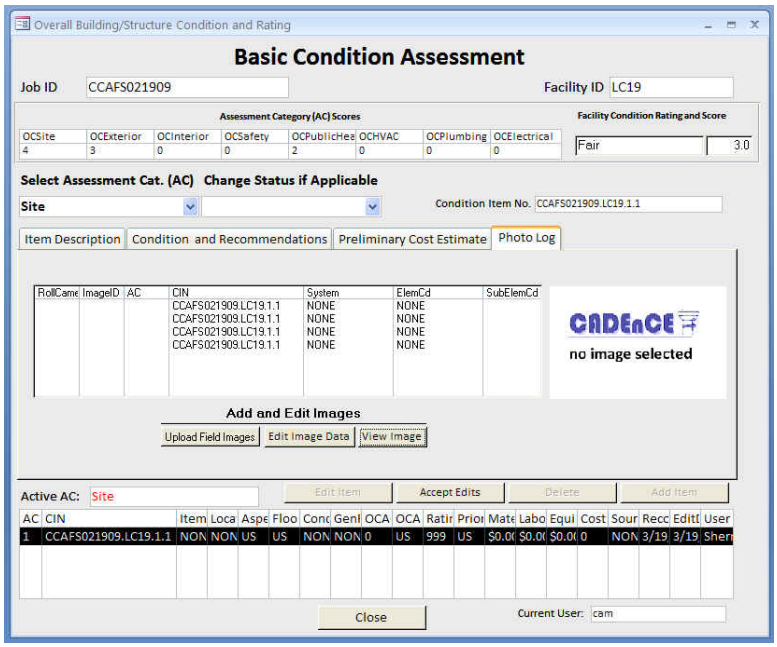


Figure 9: Basic Condition Assessment, showing Photo Log tab

This completes the Basic Condition Assessment. You can stop here, and go to the Reports module on the opening screen to review and print reports, or you can proceed to the Advanced Condition Assessment if a more detailed assessment and cost estimate are needed.

Advanced Condition Assessment

In CADEnCE, you have the option of beginning a Condition Assessment at the Basic level, then continuing with the Advanced level for some or all of the building elements needing attention. Alternatively, you can begin the Condition Assessment process at the Advanced level. The instructions that follow describe both alternatives.

1. If you are beginning a new job at the Advanced Condition Assessment level, set up the new job as described above. On the Job Setup screen, highlight the facility for which you wish to perform the condition assessment, and click *Begin/View CA*. On the *Condition Assessment Information* screen, select the *System Group* tab to continue.

2. If you have already performed a Basic Condition Assessment and want to transfer to the Advanced level, select the Condition Assessment from the *Choose Existing CA* dropdown menu on the opening screen to go to the *Condition Assessment Information* screen. On the *Condition Assessment Information* screen, select the *System Group* tab to continue.

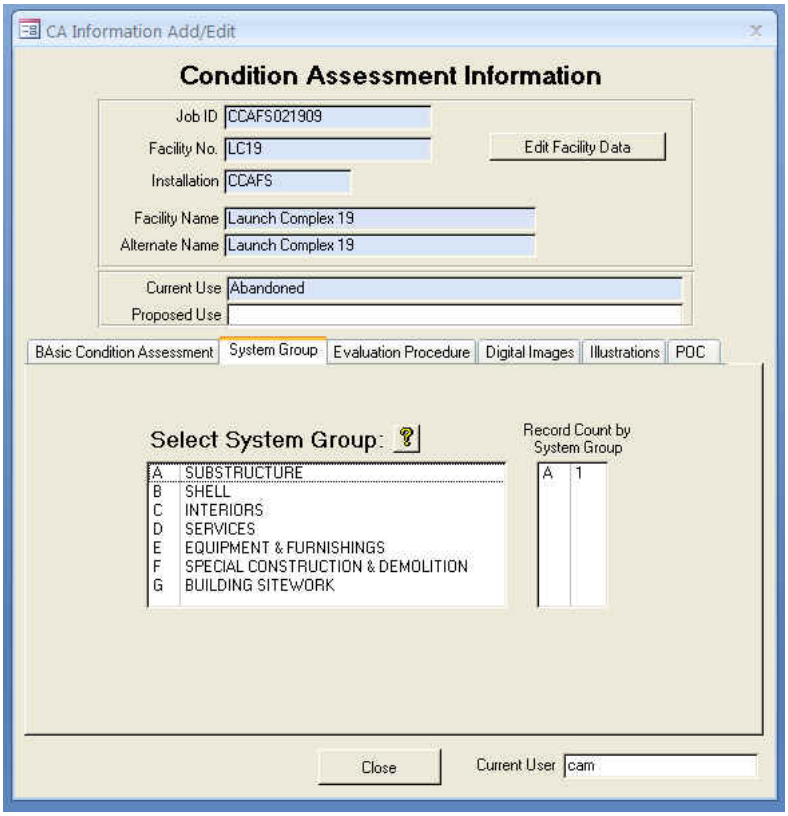


Figure 10: Condition Assessment Information, showing System Group (Advanced level) tab

3. The remaining tabs provide space to enter information about the assessment process and to link photos, drawings or digital images taken during the assessment.

4. On the System Group tab in the lower part of the screen, select a group from the list to create the first condition assessment record.

5. The System Condition form will open. If transferring information from a Basic Condition Assessment, select the Condition Item # from the dropdown box to link the information from the Basic assessment to the Advanced version.

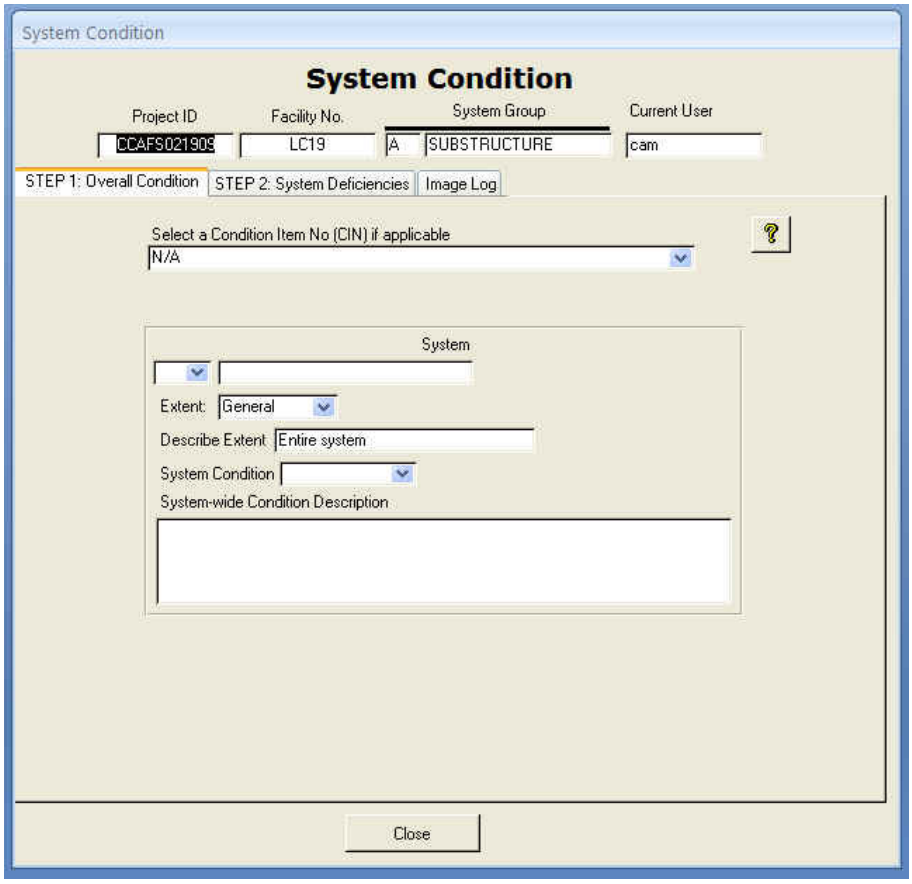


Figure 11: System Condition Form, showing Overall Condition Tab

6. On the *Overall Condition* tab,

    a. If you are continuing with a Condition Item from the Basic Condition Assessment, select the Condition Item Number (CIN) from the dropdown menu to link the existing information to this Advanced assessment.

    b. Select a system from the drop down box. The drop down box will only show systems belonging to the System Group you selected on the previous screen. If the system you want does not appear, close this window to go back to the Condition Assessment Information screen and choose a different System Group.

    c. For Extent, choose General or Portion. If Portion, use the Describe Extent field to provide details. You can type more than one line of text if needed; the box will allow scrolling to view the whole entry.

    d. Assign an overall System Condition from the dropdown menu

    e. The *System-wide Condition Description* box is a text field, allowing you to enter as much detail as necessary. Your entry on this screen is saved automatically.

You can stop here, and return to the *Condition Assessment* form to assess another system, or choose the *System Deficiencies* tab to provide detailed condition information for specific elements of the system/assembly. If you stop here, cost estimation will not be available for the system assessed; cost estimation is done on the basis of system ELEMENTS, so you must go on to the next step of the condition assessment process if you want to be able to perform cost estimation.

System Deficiencies and Work Recommendations

A primary goal of the program is to determine treatments and work recommendations needed to stabilize and preserve the building or structure. For each deficiency cited, a work recommendation needs to be made. Since the facilities being inspected are generally National Register listed or determined eligible, emphasis should be placed on repairing rather than replacing significant historic features. With regard to the appropriate treatment, The Secretary of the Interior's *Standards for the Treatment of Historic Properties* should be used. When collecting existing condition information, inspectors should not speculate on, nor project future uses for the building. The building/structure is inspected at a given time and codes and standards applied are contingent upon its function. That function would be evident by its use or may, in some cases, be specified as a proposed or pending use.

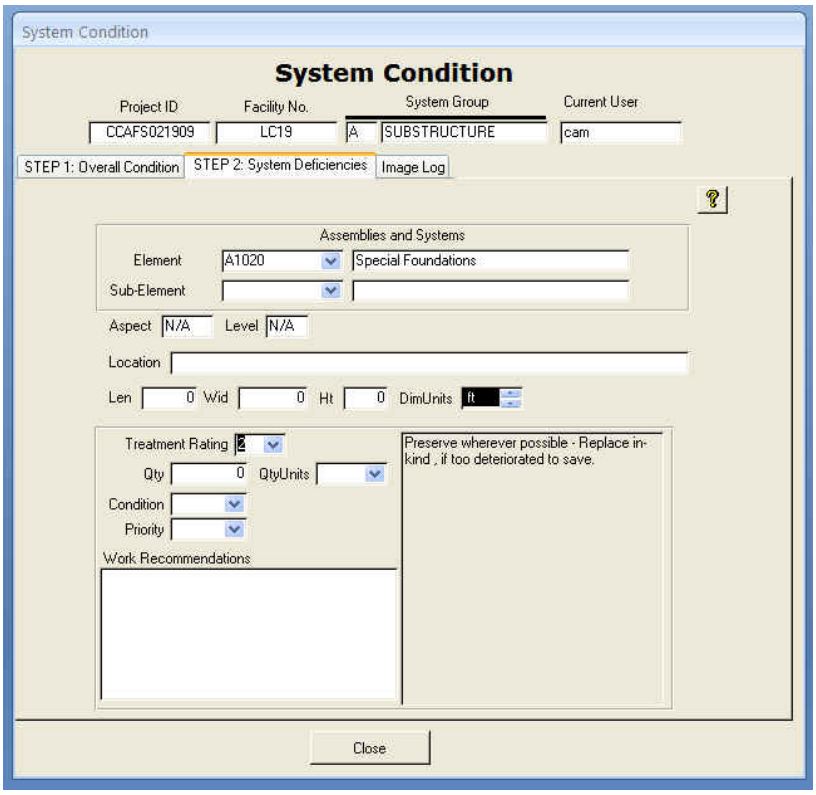


Figure 12: System Condition, showing System Deficiencies tab

7. System Deficiencies Tab. First, describe what is being assessed:

    a. Select the appropriate Element and Sub-Element from the dropdown lists.

    b. Aspect is North, South, East, West, or whatever designation is appropriate.

c. Level is Basement, 1st, 2nd, etc.

d. Location is a text field, allowing you to further describe the specific location of the element being assessed.

e. Provide measurements, where appropriate, to help identify the element and for calculating maintenance or repair costs.

8. Next, describe the Treatment Rating, Quantity, Condition and Priority descriptions defined as follows:

   a. Choose the appropriate treatment rating, 1 – 6.

TREATMENT RATING 1. Preserve

Statement of Importance: **a)** The element is associated with those qualities for which the property was designated a historic resource and dates from the period(s) of significance, and/or **b)** the element is highly distinctive architecturally and dates to the building/structure's period of significance, and **c)** the level of damage or deterioration is such that it is still feasible to preserve.

Condition: Poor to Good – Preserve.

TREATMENT RATING 2. Preserve wherever possible – Replace in-kind, if too deteriorated to save

Statement of Importance: **a)** The element has acquired significance in its own right or makes an important contribution to other historic periods or levels of significance identified for the property, or **b)** the element makes a significant contribution either to the property's historic appearance or as an integral part of the building's historic construction, or **c)** the element meets Treatment Rating 1, Preserve, criteria except that preservation is not feasible. An exception here would involve an element that is antiquated and no longer serves a functioning role; it should be retained in situ as a historic artifact wherever possible.

Condition: Fair to Good - Preserve Poor – Replace.

TREATMENT RATING 3. Preserve wherever possible – If too deteriorated to save element must be replaced with compatible material and design.

Statement of Importance: **a)** The element contributes to the historic appearance of the building and dates either to the period(s) of historic significance or represents later, sensitive repair or replacement work, or **b)** the element dates to the historic period(s) of significance of the building and represents a substantial amount of historic fabric.

Condition: Fair to Good - Preserve Poor – Replace

TREATMENT RATING 4. Preserve where there is no compelling reason for removal - Undertake all necessary alteration work as sensitively as possible, including any demolition work.

Statement of Importance: The element dates to the historic period(s) of significance of the building or is a later, sensitive repair, but does not represent a substantial amount of historic fabric, is not distinctive nor does it make any measurable contribution to the building's historic appearance or system of construction.

Condition: Fair to Good - Preserve Poor - Alter/Replace

TREATMENT RATING 5. Remove/Alter/Replace - Undertake all work as sensitively as possible.

Statement of Importance: **a)** The element is not significant and through design or condition detracts from the historic appearance of the building, or **b)** the element is a poor design and/or construction detail which contributes to the deterioration of the historic resource, or **c)** the element creates a serious code violation which cannot be mitigated. (In cases where mitigation is not possible, removal or alteration of the element may, in some cases, take precedence over a higher rating normally assigned to the element.)

Condition: Poor to Good - Remove/Replace

TREATMENT RATING 6. Specified Treatment is not required; however, if any work is done on this element it should be sympathetic to the historic qualities of the property.

This rating is applied to an element that has no historic value.

b. Enter the quantity and units for the element being assessed.

c. Select the appropriate Condition: Good, Fair, or Poor. The definition will appear in the box to the right when you select a Condition, but it is simply there for your reference and disappears when you make a selection in another field.

d. Identify the Priority: Critical, Serious, or Minor. The definition will appear in the box to the right when you select a Priority, but it is simply there for your reference and disappears when you make a selection in another field.

e. Use the Work Recommendations field to provide a description of the required maintenance or repair work that needs to be done, including how the treatment rating and

condition affect the recommendations. This field will appear in the Costing module when the cost estimates for the work recommendations are being developed.

9. When you have finished entering information for the record, click the *Close* button. This will save your entry and return you to the Condition Assessment Information form. Select a System Group to begin another assessment record, or click the *Close* button to exit the Condition Assessment Module.

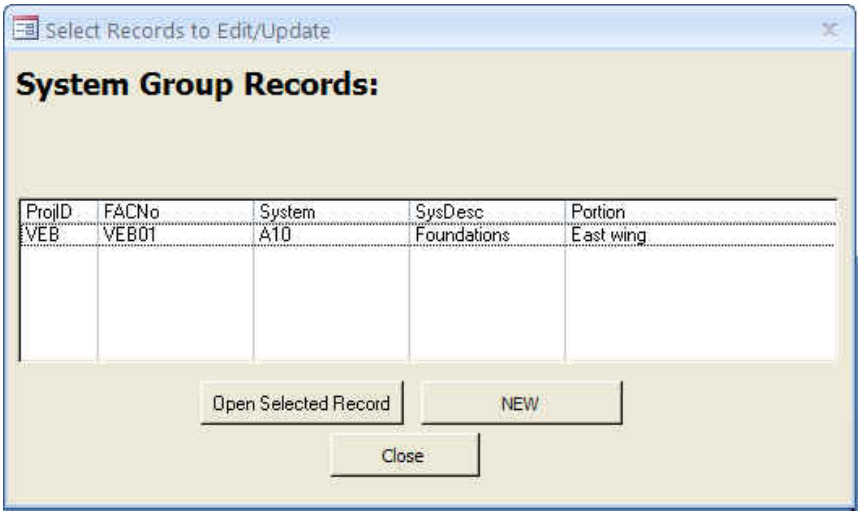


Figure 13: System Group Records form

Note that once an assessment record exists for a System Group, selecting that System Group on the Condition Assessment Information form will take you to the System Group Records selection form. To review or continue work on an existing record, select the record in the list and click *Open Selected Record button* or click *New* to begin another record within the same system group, or *Close* to return to the Condition Assessment form. As you complete additional assessment records for the System Group, you will be returned to the System Group Records screen rather than the Condition Assessment Information form, so that you can continue within the System Group without having to start from the beginning each time.

CREATING REPORTS

Condition Assessment Reports

[Note: Reports on the Project or Installation level which combine multiple Condition Assessments will be developed as part of the customization process as CADEnCE is implemented at each installation.]

The Basic Report

1. On the Opening Dialog screen, select the *Reports* tab and click the *Open Report Setup* button. (If you have just opened CADEnCE to work on a report, rather than continuing on from work on a Condition Assessment, you will need to enter your user name at the top of the Opening Dialog screen first.)

2. On the *CADEnCE Reports* tab, select the Job and Facility ID from the dropdown box. Enter a name for the report, or select an existing report from the second dropdown box. The Job ID and Fac. No. will appear at the top of the screen. Report format choices are on the tabs below the dropdown boxes, and will become active once a report is named or selected.

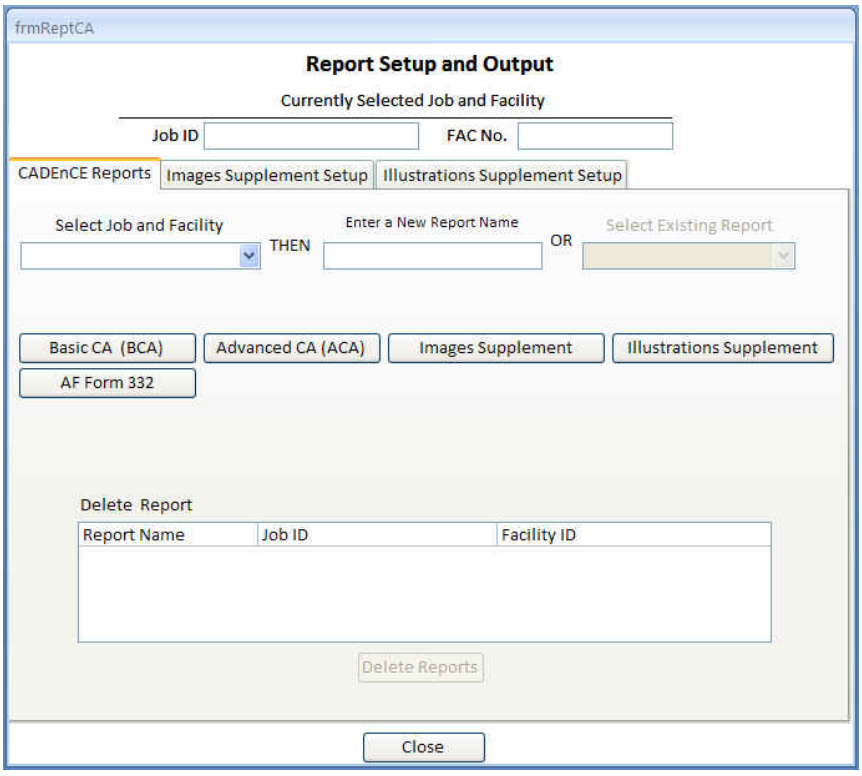


Figure 14: Report Setup and Output form

3. To run a simple report without images and illustrations for a Basic Condition Assessment or an Advanced Condition Assessment, click the appropriate button. The report will open in a preview window on your screen (it may take a while, depending on how many element records are included in the report.)

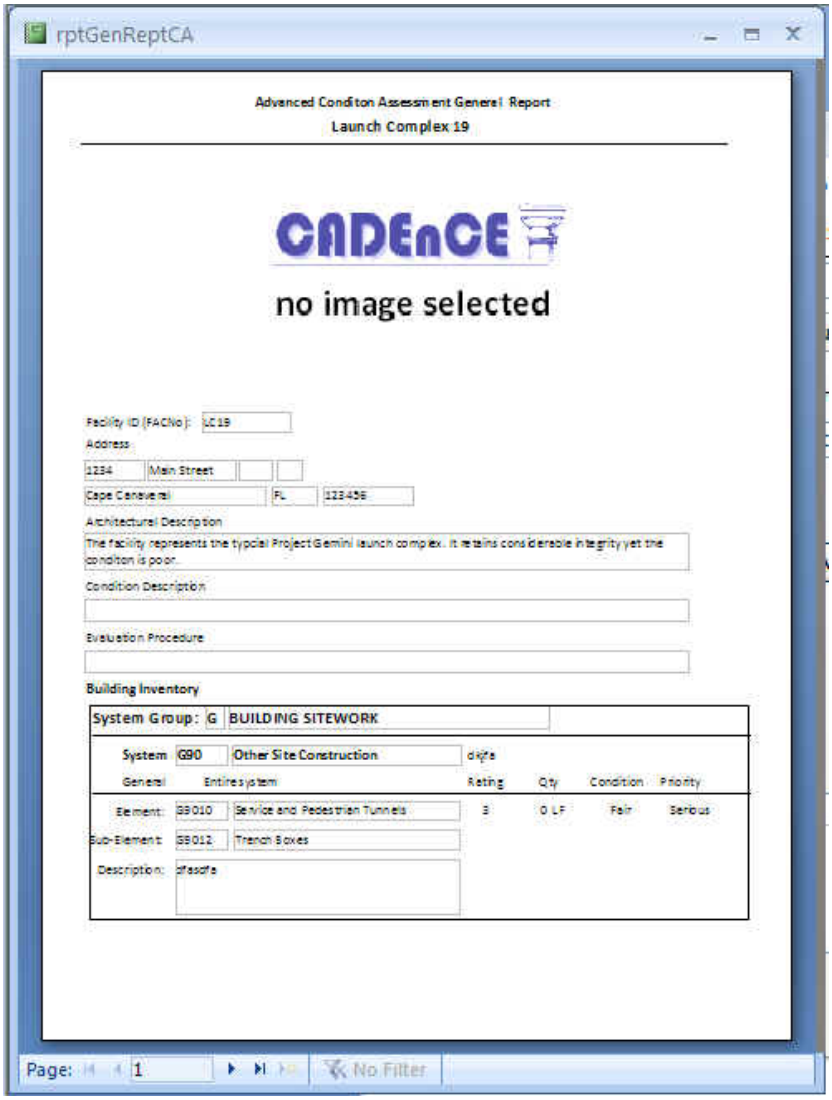


Figure 15: Advanced Condition Assessment General Report, Page 1

4. Review the report, using the Page Down and Page Up buttons on your keyboard, or the arrows at the bottom of the screen to view all pages. [Note: the Work Recommendations on Page 2 are generated by the Costing module, and the page will be blank if costing has not been performed for the project.]

5. Print the report using the Print command in the Access toolbar or menu.

Reports Including Images and Illustrations

To include images and illustrations of a facility in your report, you must first select the image files, put them in the desired order, and create captions for them. The files must be stored in a directory accessible to CADEnCE, either on a local drive on a stand-alone computer or on a server for a networked computer, and they must be linked to the Condition Assessment either in the facility's *Building and Structure General Information* form (Images tab) or in the *Condition Assessment Information* form (Digital Images or Illustrations tab). The actual images and illustrations are NOT stored in CADEnCE itself, just the information about the file's location. Photos, referred to as Images in CADEnCE, will appear in your report in an Images Supplement. Illustrations (architectural drawings, floor plans, etc.) will appear in an Illustrations Supplement. You can also designate an Image to appear on the report cover.

1. Use the *Images Supplement Setup* and/or *Illustrations Supplement Setup* tabs on the *Report Setup and Output* screen to choose the images and illustrations for your report. Select the Image Source in the dropdown box. The choices are "Facility" for images linked to the *Building and Structure General Information* form, "Field" or "Field-CIN" for images linked to a condition assessment. Choose a cover image from the choices in the dropdown box (*Images Supplement Setup* tab only.)

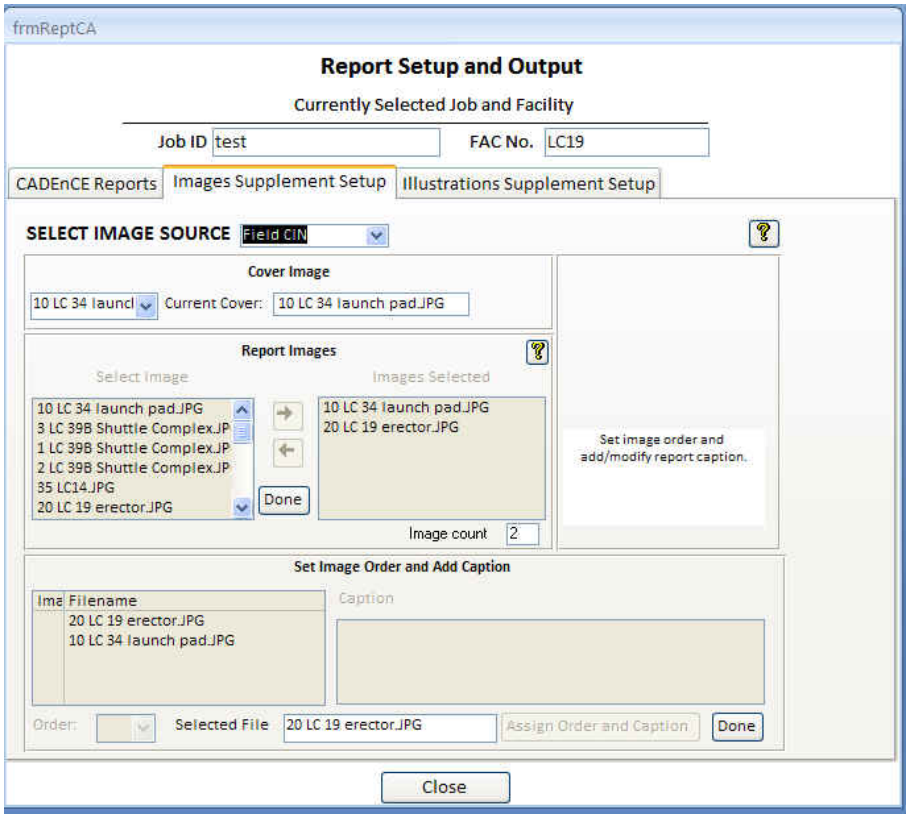


Figure 16: Report Setup and Output, Images Supplement Setup tab

2. In the *Report Images* box, highlight each desired image from the list of available files in the left-hand box, and click the right arrow to move it to the *Images Selected* list. To remove an image

from the *Images Selected* list, highlight it in the right-hand box and click the left arrow button. Click the *Done* button below the arrows when you have all the images you need for the report in the *Images Selected* list.

3. In the *Set Image Order and Add Caption* section, put the files in the order you wish them to appear in the report supplement. Highlight an image file name, enter a caption, select the order number and click the *Assign Order and Caption* button. Click the *Done* button in this box when you have finished.

4. When you have finished, choose the *Illustrations Supplement Setup* tab and follow the same procedure to choose, arrange and caption drawings for your report.

5. Return to the *Reports* tab and click *Images Supplement* to generate a preview. If everything looks good, use the Print command in the MS Access menu or toolbar to print the appendix. If you need to change anything, close the preview window and return to the *Images Supplement Setup* tab to edit. When you are finished, choose the *Reports* tab to preview and print the supplement.

6. Preview and print illustrations by clicking the *Illustrations Supplement* button on the *Reports* tab.

7. Your selections, ordering, and captions will be saved in CADEnCE under the report name and the supplements can be generated again without needing to go through the image selection and ordering process. If new image files are linked to the project, you will need to repeat the image selection process here to add them to the report supplements.

Output for AF 332 Form

CADEnCE can generate an output file of information needed to complete the AF Form 332, BCE Work Request. CADEnCE does not create a Form 332 itself. If you have Adobe Professional installed on your computer, you can create an Export File and merge it with the Form 332; if you do NOT have Adobe Professional, CADEnCE can generate a text file from which information can be copied and pasted into the Form 332.

1. On the *Report Setup and Output* screen, click the *AF FORM 332* button.

2. The *Output to Form 332* screen will open with the Job and Facility No. filled in from the choices made on the *Report Setup and Output* screen, and a list of the work recommendations developed in the Advanced Condition Assessment. (Recommendations from a Basic Condition Assessment cannot be used to generate the Form 332.)

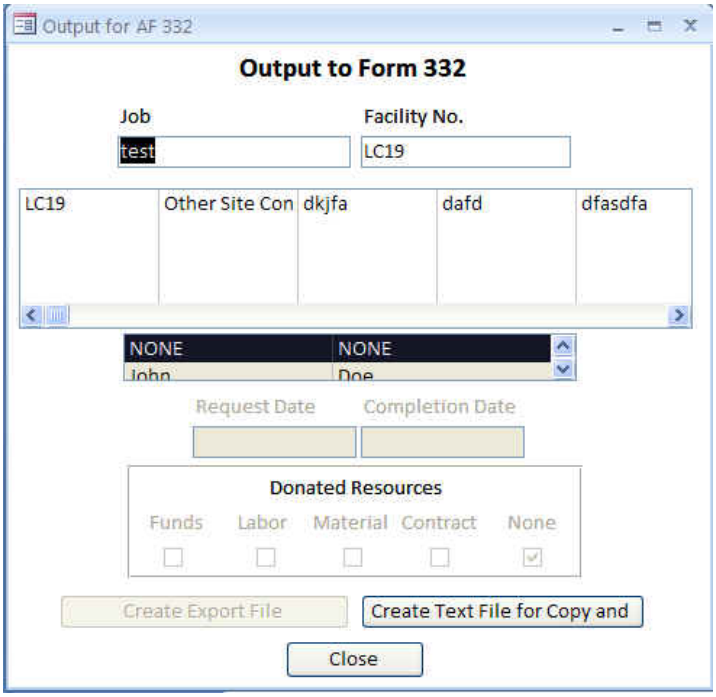


Figure 17: Report Options: Output to Form 332

3. In the list, highlight the work recommendation for which you want to create an output file. (If you want to submit Form 332 for more than one work recommendation, create a separate output file for each one.)

4. Highlight the requester's name in the next list box.

5. Fill in the *Request Date* (the field will activate once a work recommendation is highlighted) by choosing a date in the calendar pop-up or typing it into the field. Do the same for the *Completion Date*.

6. Check off any *Donated Resources* selections that apply to this work recommendation.

7. If you have Adobe Professional installed on your computer, click the *Create Export File* button. Adobe Professional will open a blank Form 332.

    - On the Forms menu in Adobe, choose “Manage Form Data” and “Import Data.”
    - On the pop-up file selection window, highlight the file whose name corresponds to the job and facility for which you are submitting the Form 332, and click the *Select* button.
    - The data from CADEnCE will fill the matching fields on the Form 332. Review the form, and print.

8. If you do NOT have Adobe Professional installed on your computer, click the *Create Text File for Copy and Paste* button to generate the output file. With this file open on your computer screen, open the Form 332 in another window and copy and paste the data from the output file into the Form 332.

ADVANCED FUNCTIONS

COST ESTIMATION

CADEnCE supports cost estimation by either an assemblies method or a unit price method, providing a high degree of accuracy and flexibility. Assemblies cost estimation follows the R.S. Means UniFormat II classification system, and Unit Price cost estimation utilizes MasterFormat, both of which are construction industry standard classification systems for which published cost information is available. This cost information is entered into CADEnCE at the time a cost estimate is created, linked to individual elements and sub-elements of an assembly (UniFormat II) or to units/components (MasterFormat.) Saved cost information can be selectively over-written with new data from in-house sources, a vendor quote, or local cost information if needed.

The assemblies method is the basic cost estimation tool in CADEnCE, and can be utilized by someone with minimal construction or engineering knowledge. The unit price method should be utilized by a construction specialist when sufficient design information is available and a higher degree of accuracy and specificity in costing is needed.

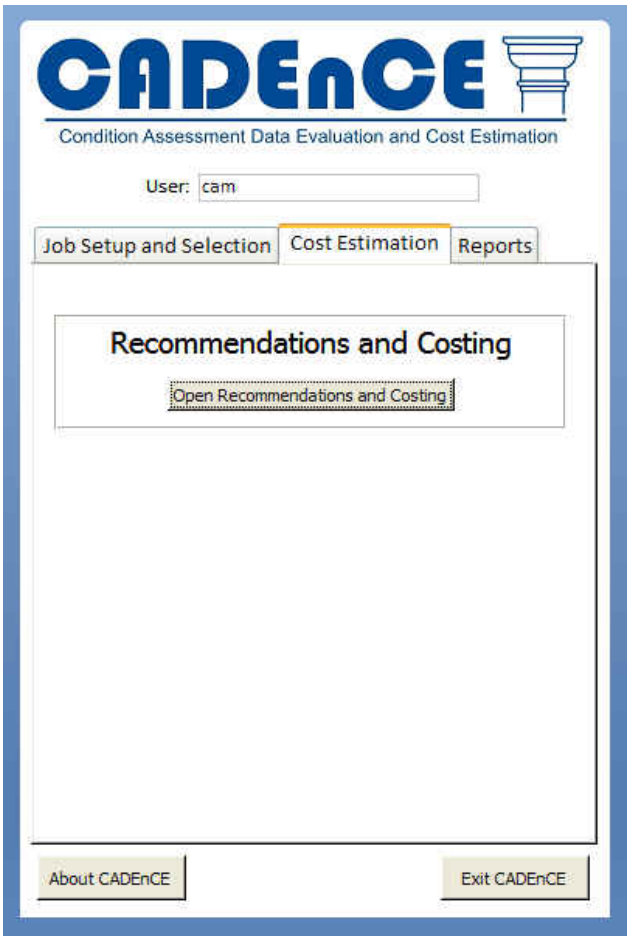


Figure 18: Opening Dialog screen, showing Cost Estimation tab

Assemblies Cost Estimation

In the same way that condition assessments are performed by first identifying a job and building or structure, then looking at each system and system element individually, so is cost estimation performed on a system by system basis within each job/building combination. Cost estimation is done on the element basis, so the condition assessment must be completed to the element level in order to be costed.

1. From the Opening Dialog screen, choose the *Cost Estimation* tab and click the *Open Recommendations and Costing* button.

2. Choose the desired Job ID from the dropdown box. This form builds progressively; once you make a choice in a field, the next field will appear. You can back up and clear the form by choosing a different item in a dropdown box.

3. Choose the desired building or structure in the *Fac No* dropdown box.

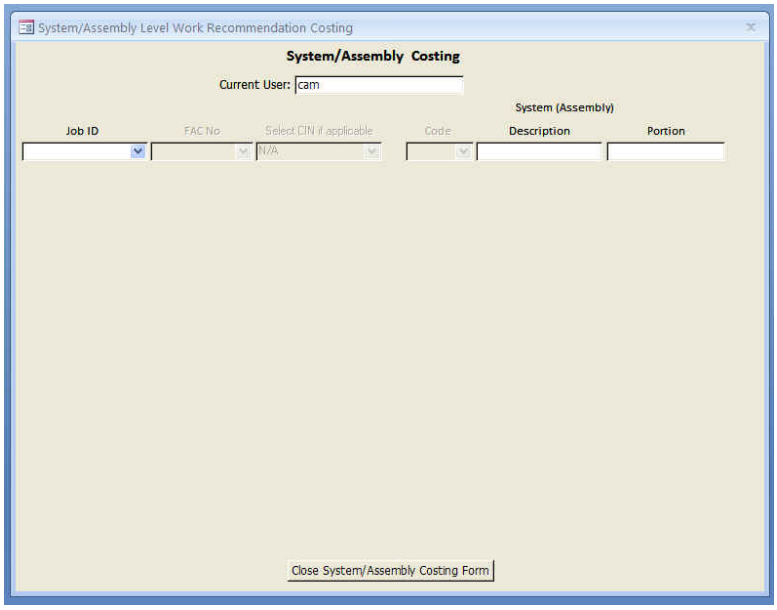


Figure 19: System/Assembly Costing form

4. Choose the first System and Assembly to be costed by selecting it in the *System (Assembly) Code* dropdown box. Only those systems and elements for which a condition assessment exists for this job/facility combination will be available in the dropdown box. The *Description*, *Portion*, *Element* and *Sub-Element* fields will fill in from the selection in the *Code* field, and the *Work Recommendations* field will fill in with the text input into this field on the Condition Assessment form. You can modify the Work Recommendations in the second text box, leaving the original recommendations unchanged.

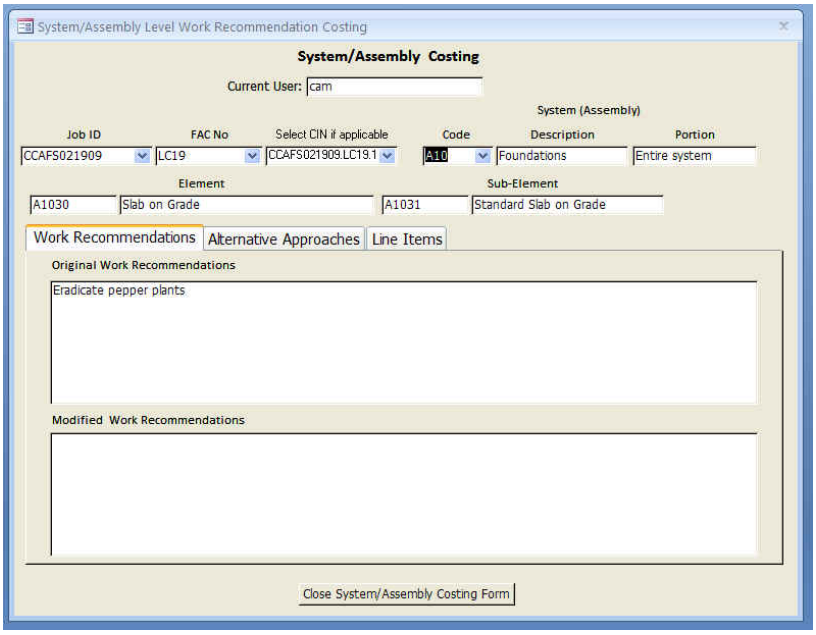


Figure 20: System/Assembly Costing Form, full view

5. Click the *Alternative Approaches* tab to enter treatment alternatives.

6. Click the *Line Items* tab to enter cost info for specific items. The *Line Items currently assigned…* box will be empty. Click the *New Alternative* button below the box to develop the first alternative course of action to address the work recommendations.

7. Choose the appropriate Major Class item from the dropdown box that appears in the lower portion of the screen, then the appropriate Line Item from the next box. If the line item you want does not appear in the dropdown list, click the *Add Another Line Item to Cost Data* button to add the information to the table, and then go back to the dropdown box to select it.

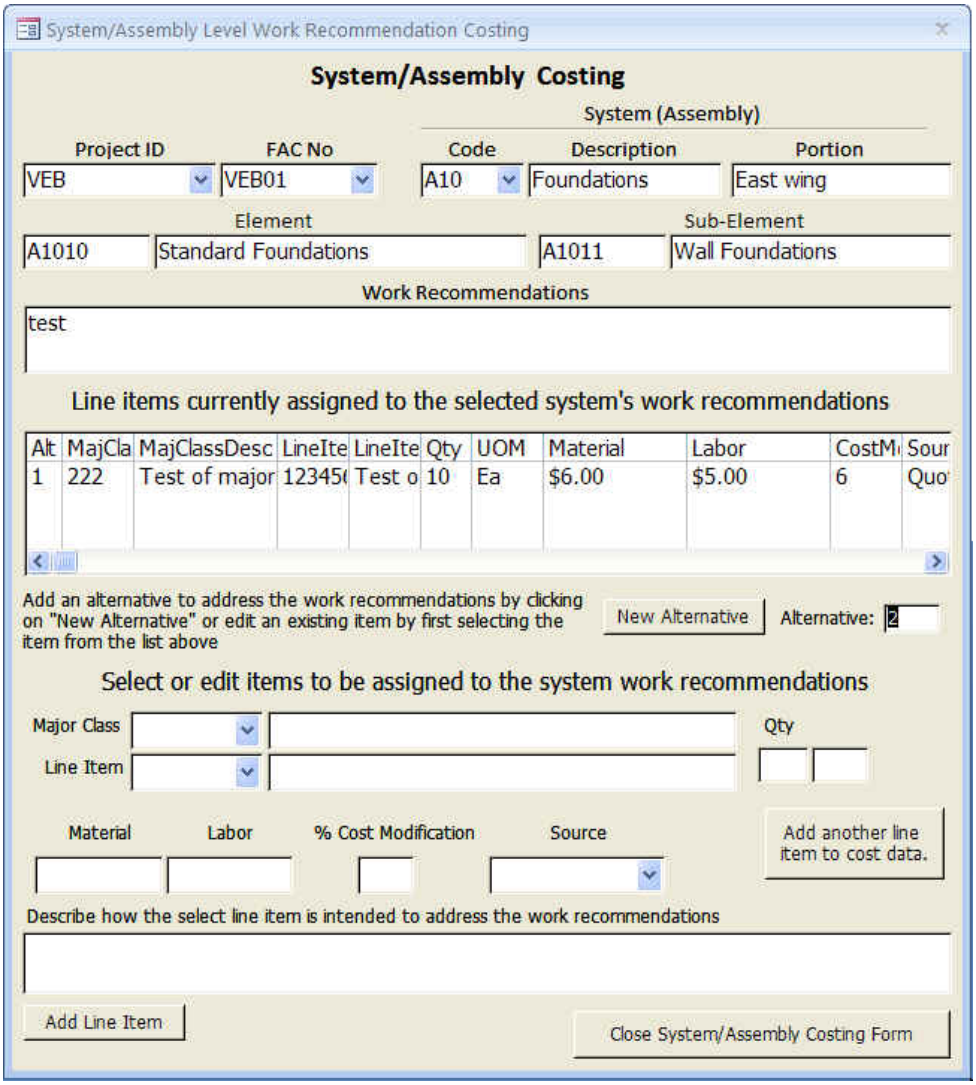


Figure 21: Full view of System/Assembly Costing form

8. Type a Quantity for this item in the *Qty* field. The first box is for the numerical quantity, and the second box is for the unit of measure.

9. If cost information for this line item exists in CADEnCE (from costs previously input into CADEnce for the element), then it will appear in the next row, broken down by materials, labor, and the cost modification percentage, along with the source. If no cost information is in the program, a dialog box will appear asking if you wish to add cost information to the program's data tables. If you say yes, a new table update form will appear on screen. You can input cost data from another source, which will be stored in the cost tables as well as appearing in this cost estimation. Save the new info and return to the System/Assembly Costing screen.

10. Use the text box at the bottom of the screen to explain the choice of this item, or to provide information about the cost data source, if needed.

11. Click the *Add Line Item* button to complete the costing for this item. Only one alternative is required for each work recommendation, but you may add as many as necessary.

12. If you need to edit an alternative, highlight it in the list box. A dialog box will appear, giving you the choice of *Edit, Remove, Proceed with Unit Costing,* or *Cancel*. Click the radio button for *Edit the Selected Item*, and then click *Continue*.

13. Make any necessary changes to the quantity field, cost information, or text explanation, then click *Accept Edits* to save your changes and return to the point where you can choose to add another alternative, make further edits, select another system/assembly for costing, or close the Costing form and return to the opening dialog screen.

Unit Cost Estimation

You must first develop a work recommendations alternative in System/Assembly Costing before you can begin Unit Costing. Once you select the alternative for Unit Costing, the cost information from the System/Assembly Costing will be removed.

1. Select the completed alternative in the list box on the *System/Assembly Costing* form. A dialog box will appear, asking if you wish to Edit, Remove, Proceed with Unit Costing, or Cancel. Click the radio button next to Proceed with Unit Costing, and click the Continue button.

2. Enter your name in the *Estimator's Name* box and click enter. The full form will appear, with the Project ID and Fac No filled in, along with the number of the alternative and the System identifying code.

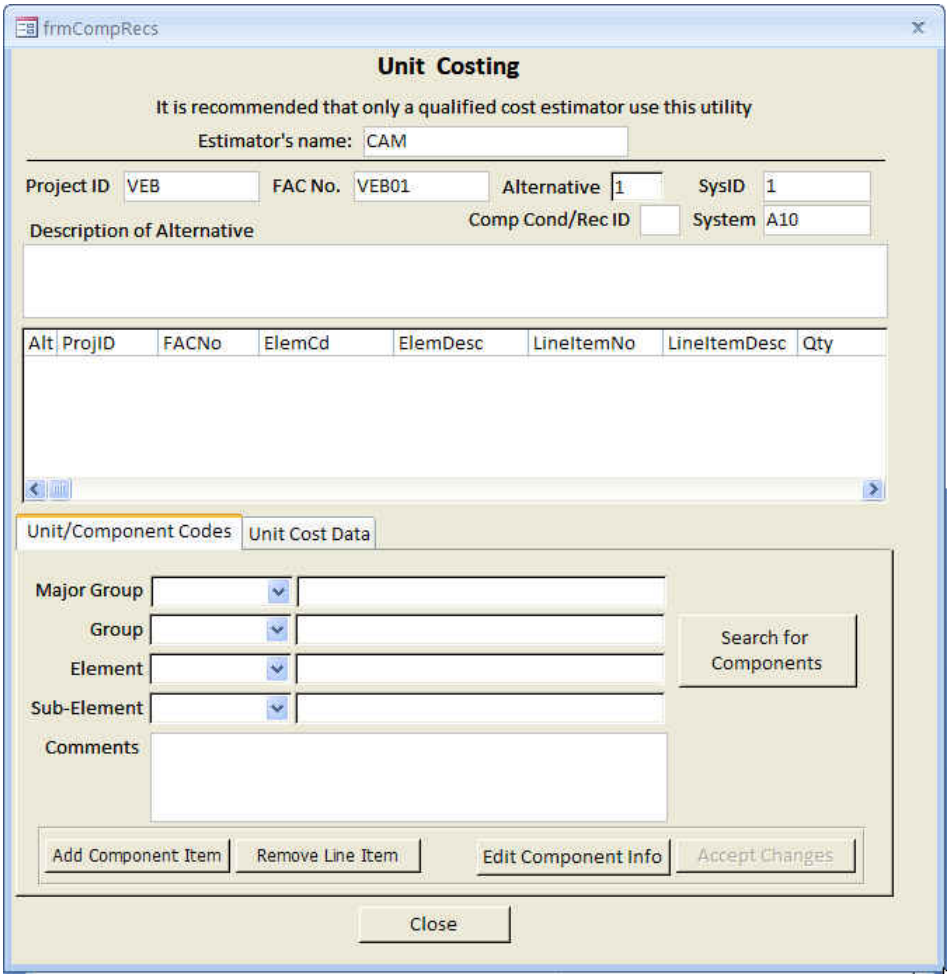


Figure 22: Unit Costing form

3. Describe the alternative in the text box.

4. On the *Unit/Component Codes* tab, choose the appropriate Major Group. Recall that Unit Costing is based on the MasterFormat classification system, not the UniFormat system that will have become familiar to you in earlier steps.

5. Select the appropriate Group, Element and Sub-Elements from the dropdown lists. If the item you want does not appear in the list, use the *Search for Components* button to the right to look it up.

6. Use the *Comments* text field to provide any necessary details about the choices made for the alternative.

7. Click *Add Component Item* to save the information as an alternative for this work recommendation. You will see a dialog box telling you that this can't be undone; however, you can always highlight an alternative in the list box and click the *Remove Line Item* button at the bottom of the screen to clear it.

8. With the Component highlighted in the list box, choose the *Unit Cost Data* tab to add costs.

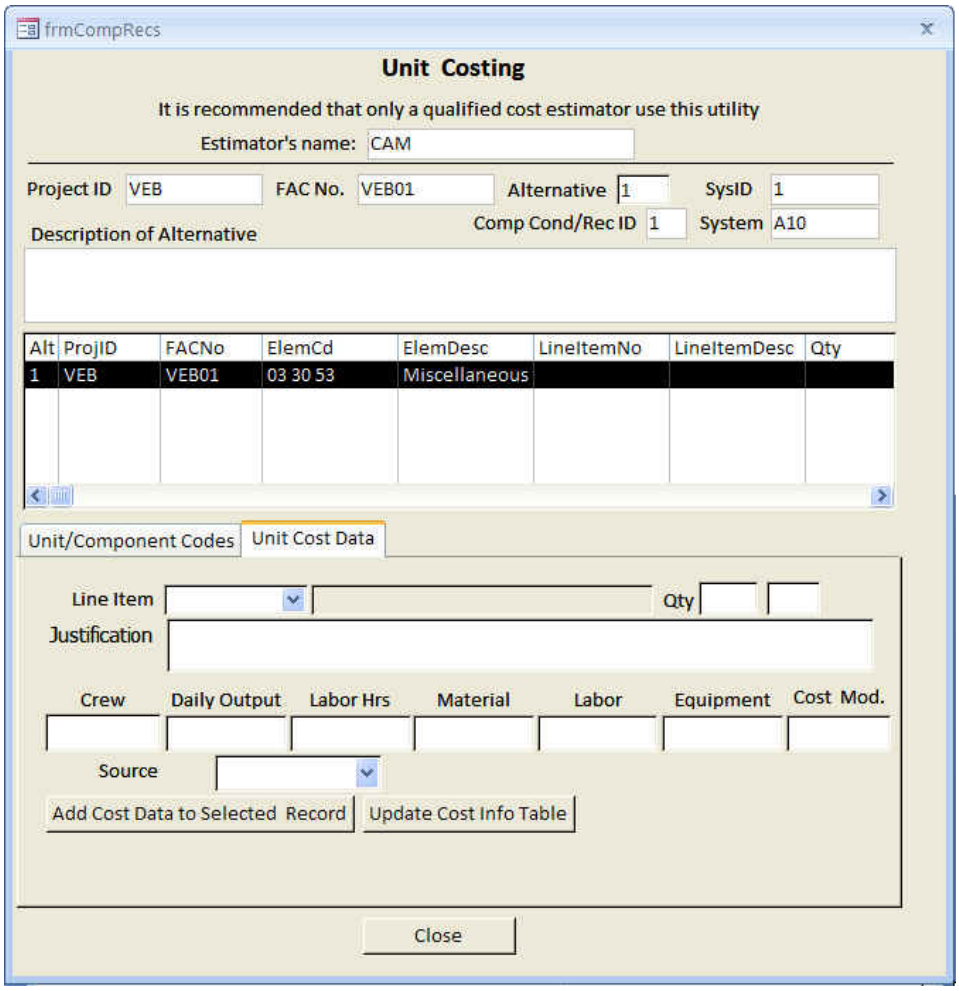


Figure 23: Unit Costing form with Unit Cost Data tab active

9. Select an appropriate line item in the drop down box, and enter the numeric quantity. The unit of measure box will be filled in based on the line item chosen. Cost details will appear in the breakdown boxes on the screen.

10. Enter an explanation for the line item chosen or quantity indicated in the *Justification* text box.

11. Click *Add Cost Data to Selected Record* to save your work. The list box will update with the cost data, and you'll be returned to the *Unit/Component Codes* tab to begin another line item record.

Building and Structure General Information Form

Building/structure general and background information is stored behind the scenes in CADEnCE, in database files called tables. For each building/structure, there is a general information table, a space allocation table where information concerning current tenant organizations is stored, a link to scanned drawings and digital images, a table of descriptive information that may be derived from multiple sources and include historic information, and a bibliographic reference table that stores annotated bibliographic information related to the building description table. Much of this general information is intended for use in report output which would fall under the heading of General Information.

A Facility Identification number (Facility ID or FACNo) or Real Property Unique Identifier (RPUID) is the primary key linking all of the general information tables to the related projects and condition assessment data. A unique identifier is required for all buildings and structures in CADEnCE.

In many cases, the Building/Structure General Information Form will contain information that has been uploaded to CADEnCE from RPIR, ACES or another real property inventory program. There are many fields in the form that are unique to CADEnCE, however, and won't be filled from the data upload. The cultural resources specialist can use this form to provide additional information about construction and use, costs and funds associated with original construction and restoration, and details about the heritage status of the building or structure.

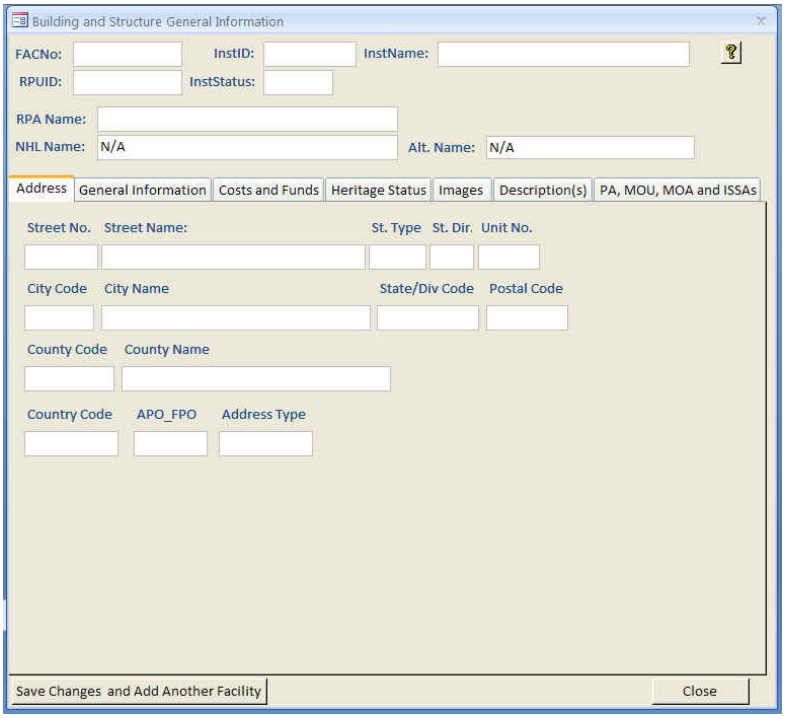


Figure 24: Building and Structure General Information form, Address tab

1. Identification information at the top of the form should match the information in RPIR/ACES. If these fields are not filled in from a data upload, be sure to use the same names and numbers that identify the building/structure in the inventory program. If the building/structure does not have an

entry in the inventory program and you are creating a record for the first time, follow the inventory program's naming and numbering conventions when creating names and identification numbers in CADEnCE. Although CADEnCE does not presently send information back to the inventory program, it is important to maintain consistency between the programs.

2. When moving between tabs on this form, click the *Save Changes* button at the bottom center of the form to save your work on each tab. When you are finished with viewing and updating all tabs, click the *Close* button to close the whole *Building and Structure General Information* form and return to the Project or Condition Assessment module.

3. The *Address* tab contains basic location information. Fill in any missing information in the appropriate fields.

4. The *General Information* tab contains fields to describe the current use, construction details, and dimensions of the building. This information is useful in developing work recommendations for maintenance or repair. Fill in any missing information in the appropriate fields.

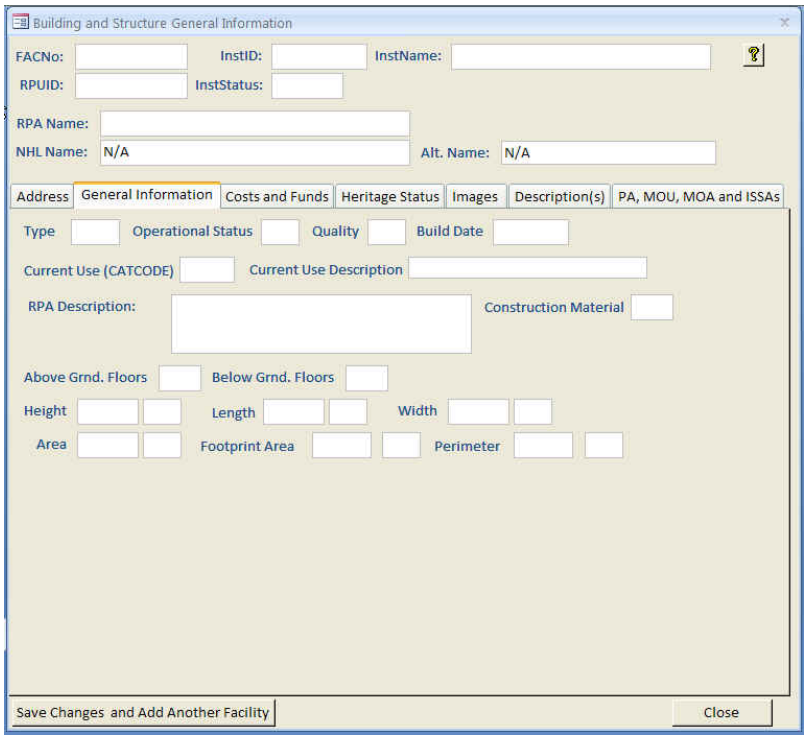


Figure 25: Building and Structure General Information form, General Info tab

5. The *Costs and Funds* tab details the breakdown of building acquisition costs and depreciation, and specifies the funds from which restoration costs can be drawn. If this information is not filled in from the data upload, it may need to be obtained from accounting or budget personnel.

6. The *Heritage Status* tab collects information from a variety of sources to summarize the building/structure's status in regard to federal historic preservation programs, with specific details of condition, uniqueness, and availability that can help to inform work recommendations.

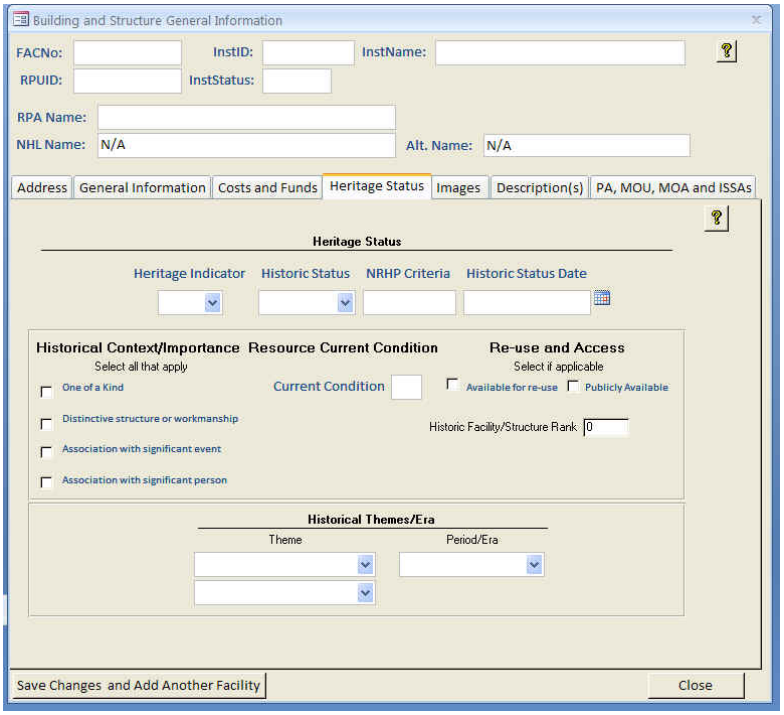


Figure 26: Heritage Status tab

The fields on this tab are based on different sources, including RPIR, the National Register of Historic Places criteria, and the *Historical Facility/Structure Ranking Tool* used at Cape Canaveral Air Force Station, Florida.

- The ***Heritage Indicator, Heritage Status*** and ***Historic Status Date*** fields are all based on the RPIR definitions.
- The ***NRHP Criteria*** field stores the criteria A, B, C or D as defined in the National Register Criteria of Eligibility 36 CRF 60.4.
- The ***Historic Facility/Structure Rank*** is calculated based on *Historic Status Code, Historical Context/Importance, Resource Current Condition, Re-use and Access.*

  Historic Status Code is based on the RPIR Definition and the points are assigned as follows:
  NHLI = 30 Individual National Historic Landmark
  NRLI = 22.5 Individual National Register Listed
  NREI = 15 Individual National Register Eligible
  NEV = 7.5 Not yet evaluated

  Historical Context/Importance closely resembles the NRHP Criteria. The user selects one or more of the following and each are worth 10 points for a total of 40 points: *One of a Kind, Distinctive structure or workmanship, Association with significant event, Association with significant person.*

Resource Current Condition
1 = 20 points
2 = 13.33 points
3= 6.67 points

Re-use and Access: the user can select all that apply with Re-Use and Accessibility valued at 5 points each.

- The fields under the heading *Historical Themes/Era* will be customized to each installation when it implements CADEnCE.

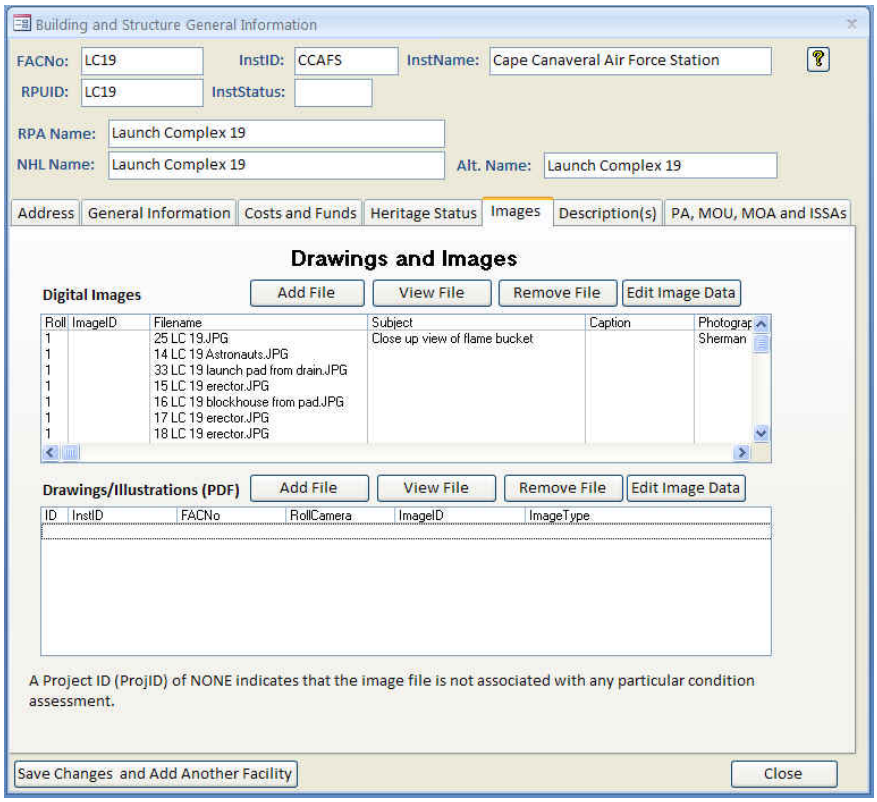


Figure 27: Images tab

7. The *Images* tab displays the images currently associated with the facility in question. To view an image, highlight the file in the list box and click the *View File* button. You can add additional image files by clicking on the *Add File* button which opens the *Edit Images Information* form (see description of this form below). To remove an image from the list (breaking its association with the facility identified on the form), highlight the file in the list box and click the *Remove File* button.

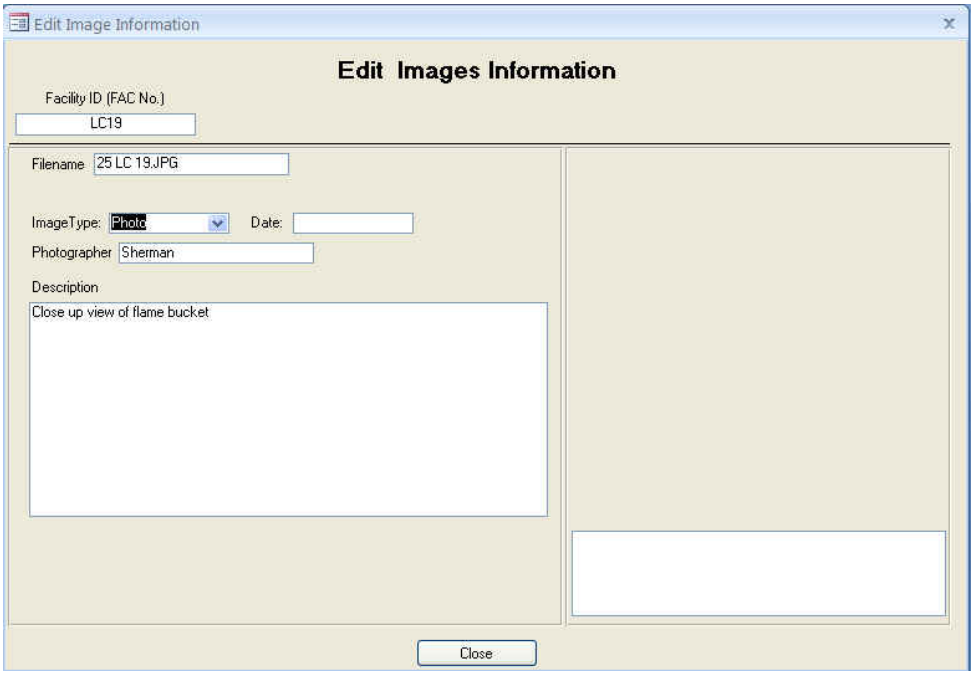


Figure 28: Edit Images Information form

8. On the *Edit Images Information* form, click the *Select Image* button and navigate to the directory where your desired image file is stored to add it. Choose a General Subject from the dropdown list, and fill out the *Brief Subject Description* and *Caption* fields, then click *Associate File with Facility* to complete the operation. Repeat the process to add another image file, or click the *Close* button to return to the *Images* tab.

9. The *Descriptions* tab allows you to view, edit, or add a text description to the Building/Structure file. Descriptions can include references and citations to published works. As with all other information on the *Building and Structure General Information* form, this information is available for reference during a condition assessment or costing procedure, and it can appear on reports produced by CADEnCE.

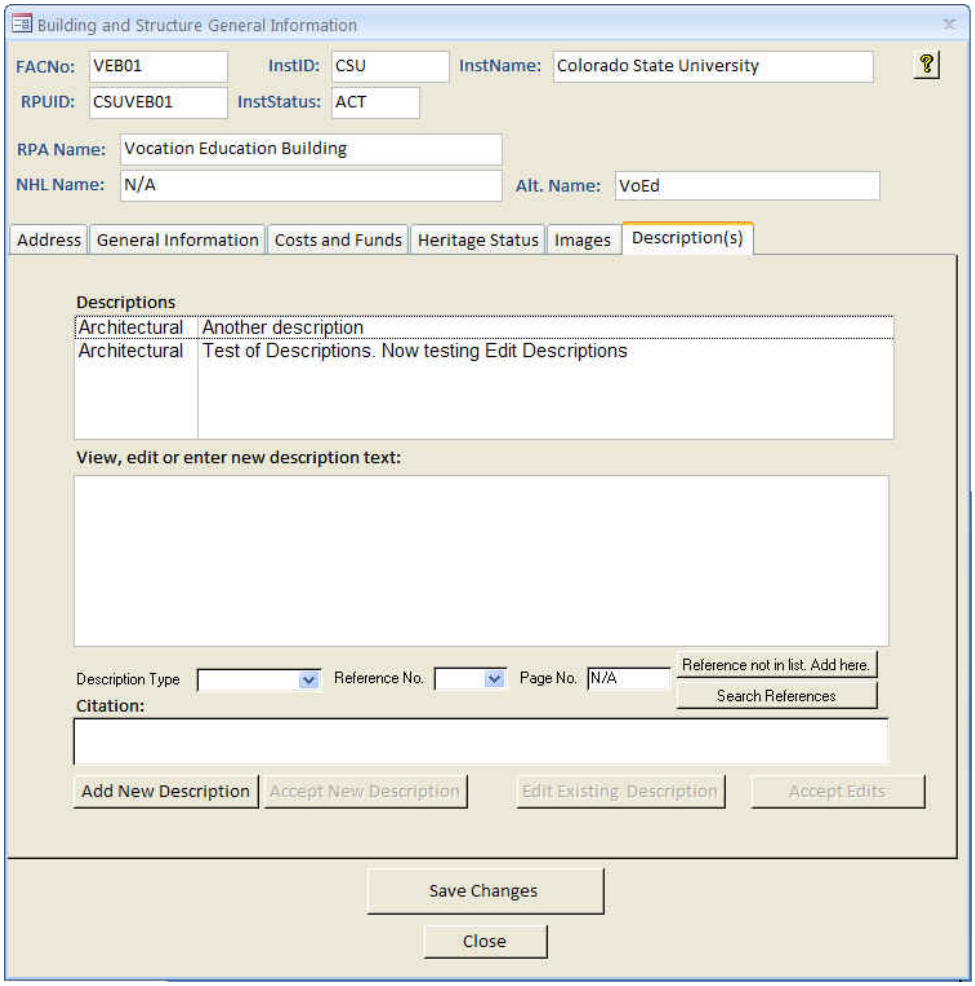


Figure 29: Descriptions tab of Building and Structure General Information form

- The description type and first line of text appear in the *Descriptions* list box. To view or edit a description, highlight it in the list and the full text will appear in the next box. References will appear in the fields in the lower part of the form. Highlight another description type/first line to view a different description, or click the *Edit Existing Description* to make changes. When you have finished editing, click the *Accept Edits* button to save your changes.

- To add a new description, click the *Add New Description* button, which will clear the text box. Enter your text, fill in the reference fields as appropriate, and click *Accept New Description* to save your work. The new description will appear in the list box.

10. The *PA, MOU, MOA and ISSAs* tab provides links to any such documents that relate to historic buildings or structures at the installation. This tab will be customized to the installation when CADEnCE is implemented.

APPENDIX A: RATINGS DEFINITIONS

Status Ratings

Status Rating 5: Excellent – Only normal scheduled maintenance required
Risk of future deterioration in condition: Minimal. No factors present to alter stable condition of monument

- Building/Structure is completely intact
- No exterior cosmetic imperfections
- No need for repair and only routine maintenance required
- Building envelope integrity not compromised (excellent condition)
- Infrastructure of building/structure sound
- Utilities intact and functioning

Status Rating 4: Good – Some minor repairs needed; functional
Risk of future deterioration in condition: Slight. Intervention may be desirable in the long term but monument stable currently

- Building/Structure is completely intact and structurally sound
- Few exterior cosmetic imperfections
- No need for repair and only routine maintenance
- Maintenance requirements are cosmetic in nature
- Building envelope integrity not compromised (generally good condition)
- Infrastructure of building/structure sound
- Utilities intact and functioning

Status Rating 3: Fair – More minor repairs required; mostly functional
Risk of future deterioration in condition: Medium. Deterioration likely within five years

- Building/Structure is intact
- There are early signs of wear, failure or deterioration
- Moderate to severe deterioration of non-structural elements is evident, but no more than 25% of these features
- Building/Structure envelope integrity not compromised though showing evidence of wear
- Standard preventative maintenance practices and/or building conservation methods have not been followed
- There is a reduced life expectancy of the building/structure
- There is a condition with long-term impact **beyond 5 years**
- Utilities intact and functioning but at reduced capacity or elements are in disrepair or not functioning
- Infrastructure of building/structure sound but shows signs of deterioration

Status Rating 2: Poor – Significant repairs required; system not fully functional for building use; does not meet all codes
Risk of future deterioration in condition: High. Deterioration likely within one year

- Building/Structure showing infrastructure/structural compromise
- Signs of imminent failure or breakdown of one or more elements
- Deterioration or damage of non-structural elements is evident on more than 25% of these features
- Building/Structure requires major repair or replacement of elements
- There is a reduced life expectancy of the building/structure
- Building/Structure envelope compromised
- There is deterioration which, if not corrected within 2-5 years will result in the failure of the Building/Structure element
- A threat to health and safety may occur within 2-5 years if the deterioration is not corrected

Status Rating 1: Ruinous – Major repair or replacement required to restore function; system unsafe
Risk of future deterioration in condition: Immediate. Ongoing deterioration in condition of monument

- Threat to human health and/or safety
- Building/Structure envelope compromised
- Multiple Building/Structure elements missing
- There is deterioration which, if not corrected will result in the failure of the Building/Structure element(s) within less than 2 years
- Building/structure in imminent danger of total collapse
- Partial collapse of Building/Structure
- Interior of building/structure exposed to the elements
- Standard preventative maintenance practices and/or building conservation methods have not been followed
- Advanced wear, failure or deterioration
- Utilities missing or not working
- Exterior landscape immediately around the building/structure overgrown
- Vegetation growth within or on the exterior surfaces

Treatment Ratings

TREATMENT RATING 1. Preserve

Statement of Importance: **a)** The element is associated with those qualities for which the property was designated a historic resource and dates from the period(s) of significance, and/or **b)** the element is highly distinctive architecturally and dates to the building/structure's period of significance, and **c)** the level of damage or deterioration is such that it is still feasible to preserve.

Condition: Poor to Good – Preserve.

TREATMENT RATING 2. Preserve wherever possible – Replace in-kind, if too deteriorated to save

Statement of Importance: **a)** The element has acquired significance in its own right or makes an important contribution to other historic periods or levels of significance identified for the property, or **b)** the element makes a significant contribution either to the property's historic appearance or as an integral part of the building's historic construction, or **c)** the element meets Treatment Rating 1, Preserve, criteria except that preservation is not feasible. An exception here would involve an element that is antiquated and no longer serves a functioning role; it should be retained in situ as a historic artifact wherever possible.

Condition: Fair to Good - Preserve Poor – Replace.

TREATMENT RATING 3. Preserve wherever possible – If too deteriorated to save element must be replaced with compatible material and design.

Statement of Importance: **a)** The element contributes to the historic appearance of the building and dates either to the period(s) of historic significance or represents later, sensitive repair or replacement work, or **b)** the element dates to the historic period(s) of significance of the building and represents a substantial amount of historic fabric.

Condition: Fair to Good - Preserve Poor – Replace

TREATMENT RATING 4. Preserve where there is no compelling reason for removal - Undertake all necessary alteration work as sensitively as possible, including any demolition work.

Statement of Importance: The element dates to the historic period(s) of significance of the building or is a later, sensitive repair, but does not represent a substantial amount of historic fabric, is not distinctive nor does it make any measurable contribution to the building's historic appearance or system of construction.

Condition: Fair to Good - Preserve Poor - Alter/Replace

TREATMENT RATING 5. Remove/Alter/Replace - Undertake all work as sensitively as possible.

Statement of Importance: **a)** The element is not significant and through design or condition detracts from the historic appearance of the building, or **b)** the element is a poor design and/or construction detail which contributes to the deterioration of the historic resource, or **c)** the element creates a serious code violation which cannot be mitigated. (In cases where mitigation is not possible, removal or alteration of the element may, in some cases, take precedence over a higher rating normally assigned to the element.)

Condition: Poor to Good - Remove/Replace

TREATMENT RATING 6. Specified Treatment is not required; however, if any work is done on this element it should be sympathetic to the historic qualities of the property.

This rating is applied to an element that has no historic value.

Condition Ratings

GOOD

- The element is intact, structurally sound and performing its intended purpose
- There are few or no cosmetic imperfections
- The elements needs no repair and only minor or routine maintenance

FAIR

- There are early signs of wear, failure, or deterioration, though the element is generally structurally sound and performing its intended purpose
- There is failure of a sub-component of the element
- Replacement of up to 25% of the element or replacement of a defective sub-component is required

POOR

- The element is no longer performing its intended purpose
- The element is missing
- Deterioration or damage affects more than 25% of the element and cannot be adjusted or repaired
- The elements shows signs of imminent failure or breakdown
- The element requires major repair or replacement

Priority Ratings

CRITICAL

- There is advanced deterioration which has resulted in the failure of the building element or will result in the failure of the building element if not corrected within two years, and/or
- There is accelerated deterioration of adjacent or related building materials as a result of the element's deficiency, and/or
- There is a threat to the health and/or safety of the user

SERIOUS

- There is deterioration which, if not corrected within 2-5 years, will result in the failure of the building element, and/or
- A threat to the health and/or safety of the user may occur within 2-5 years if the deterioration is not corrected, and/or
- There is deterioration of adjacent or related building materials and/or systems as a result of the element's deficiency
- There is a failure to meet a legislative requirement

MINOR

- Standard preventive maintenance practices and building conservation methods have not been followed, and/or
- There is a reduced life expectancy of affected or related building materials and/or systems, and/or
- There is a condition with long-term impact beyond 5 years

APPENDIX B: SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings is available from the National Park Service's Heritage Preservation Services Division, Technical Preservation Services at http://www.nps.gov/hps/tps/standards/index.htm (current as of May, 2009.)

APPENDIX C: INSTALLATION INSTRUCTIONS

CADEnCE must be installed on a computer to run. It cannot be run from the CD.

CADEnCE requires MS-Access 2003 or later: Access must be installed on the computer on which you wish to run CADEnCE.

1. Copy the folder labeled CADEnCE from the CADEnCE CD to your computer's hard drive.
2. On your computer's desktop, right-click and choose "New…" and "Shortcut."
3. In the Shortcut Wizard window, click "Browse" and navigate to the newly-installed CADEnCE folder. Choose the file "CADEnCE 2009 v1.0.mdb" and click OK.
4. Click "Next" on the Shortcut Wizard, type a name for the shortcut, and click "Finish" to create the shortcut on your desktop.

If you are not running Windows XP as your operating system, simply follow your system's instructions for setting a shortcut for the file "CADEnCE 2009 v1.9.mdb".

APPENDIX D: SAMPLE REPORTS

1. Basic Condition Assessment Report
2. Advanced Condition Assessment Report
3. Images Supplement
4. Output Report for AF Form 332

Basic Conditon Assessment Report

Launch Complex 19

Facility ID (FACNo): LC19 Job ID: Example

Address 1234 Main Street

Cape Canaveral FL 123456

Assessment Category: Site

Condition Item No: Example.LC19.1.1

Rating: 2 **Priority:** Critical

Description: Pavement areas.

Location: Paved areas surrounding launch pad.

Aspect: N/A **Level:** ground Quantity: 10 AC

Condition: Extensive infestation of Brazillian pepper is destroying the pavements by causing moderate to severe cracking.

Work Recommendations: Removal of Brazillian pepper plants by chemical and/or physical means.

Estimated total cost to address the above work recommendation:

Material	Labor	Equipment	Cost Mod.	Total
$1,000.00	$100,000.00	$5,000.00	0.0%	$106,000.00

Source: Internal/Historic

Assessment Category: Exterior Envelope

Condition Item No: Example.LC19.2.1

Rating: 2 **Priority:** Critical

Description: Launch pad foundation.

Location: The east side of the launch pad foundation..

Aspect: E **Level:** Ground Quantity: 200 LF

Condition: Brazillian pepper plants growing in and around the foundation have caused moderate to severe cracking which has also resulted in water damage to the structure.

Work Recommendations: Removal of Brazillian pepper plants by chemical and/or physical means.

Estimated total cost to address the above work recommendation:

Material	Labor	Equipment	Cost Mod.	Total
$100.00	$10,000.00	$0.00	3.0%	$10,403.00

Source: Internal/Historic

Basic Conditon Assessment Report

Launch Complex 19

Facility ID (FACNo): LC19

Job ID: Example

Address 1234 Main Street

Cape Canaveral FL 123456

Estimated total cost to address all work recommendations

Material	Labor	Equipment	Total
$1,100.00	$110,000.00	$5,000.00	$116,403.00

Advanced Conditon Assessment General Report

Launch Complex 19

Facility ID (FACNo): LC19

Address

1234	Main Street		
Cape Canaveral	FL	123456	

Architectural Description

The facility represents the typcial Project Gemini launch complex. It retains considerable integrity yet the conditon is poor.

Condition Description

Evaluation Procedure

Site visit to evaluate vegation related damage to LC 19.

Building Inventory

System Group: A SUBSTRUCTURE

System **A10** **Foundations** East side of launch comples

Portion	East side of launch pad structure	Rating	Qty	Condition	Priority
Element:	A1010 Standard Foundations	2	1 LF	Poor	Critical
Sub-Element:	A1011 Wall Foundations				
Description:	Spray and/or physically remove Brazillian pepper plants/roots.				

Work Recommendations

System A10

Element A1010 Sub-Element A1011

Major Class 222 Test of major class description

Line Item 12345 Test of line item desription

Quantity	Material	Labor	% Cost Mod.	Total	Source
100 LF	$6.00	$5.00	6.00	$66.00	Quote

Image Supplement

East elevation view of LC 19 Launch Pad. Note Brazillian pepper plants growing from foundation at left.

View of LC 19 Blockhouse from the top off the launch pad. The bulk of the vegetation in the foreground consists of Brazillian pepper.

BASE CIVIL ENGINEER WORK REQUEST

(See Reverse for Instructions)

Form Approved
OMB No. 0704-0188

SECTION I - TO BE COMPLETED BY REQUESTER

1. FROM *(Organization)*	2. OFFICE SYMBOL	3. DATE OF REQUEST	4. WORK REQUEST NO. *(For BCE Use)*
Organization		5/14/2009	

5. NAME AND PHONE NO. OF REQUESTER	6. REQUIRED COMPLETION DATE	7. BUILDING, FACILITY OR STREET ADDRESS WHERE WORK IS TO BE ACCOMPLISHED
John Doe, Phone: 1112223333	5/14/2009	LC19 1234 Main Street ,Cape Canaveral, Fl

8. DESCRIPTION OF WORK TO BE ACCOMPLISHED *(Include Sketch or Plan, when appropriate)*

Spray and/or physically remove Brazillian pepper plants/roots.

9. BRIEF JUSTIFICATION FOR WORK TO BE ACCOMPLISHED *(Not required for maintenance and repair)*

It is the Cultural Resource Managent Office's assessment that the Foundations system is in Poor condition, having a Priority rating of Critical. It's condition is described as: The foundation is exhibiting signs of moderate to severe degradation due to root and water infiltration as a result of Brazillian pepper infestation.

10. DONATED RESOURCES

X	FUNDS	X	LABOR	X	MATERIAL	X	CONTRACT BY REQUESTER		NONE

11. NAME OF REQUESTER	12. GRADE OF REQUESTER	13. SIGNATURE OF REQUESTER *(See Reverse of Form)*
John Doe		

14. COORDINATION

SECTION II - FOR BASE CIVIL ENGINEER USE

15. WORK ORDER *(Place an "X" in the appropriate box.)*

	IN-SERVICE		SELF-HELP		CONTRACT		SABER

16. DIRECT SCHEDULED WORK *(Place an "X" in the appropriate box.)*

	EMERGENCY		URGENT		ROUTINE		SELF-HELP		M/C

17. SELF-HELP *(Place an "X" in the appropriate box.)*

	BRIEFING REQUIRED		ADEQUATE COORDINATION		INSPECTION REQUIRED

SECTION III - COMPLETE ONLY IF WORK IS TO BE ACCOMPLISHED BY WORK ORDER

18. WORK CLASS	19. PRIORITY	20. ESTIMATED HOURS	21. ESTIMATED FUNDED COST	22. ESTIMATED TOTAL COST

	23.		24.		25.		26.
	THERE IS NO NEED FOR AN ENVIRONMENTAL ASSESSMENT (AFR 19-2)		A WRITTEN ASSESSMENT IS BEING/HAS BEEN PROCESSED		APPROVED		DISAPPROVED

27. REMARKS

SECTION IV - APPROVING AUTHORITY

28. NAME AND GRADE *(Please Type or Print)*	29. SIGNATURE	30. DATE

AF IMT 332, 19910101, V4

PREVIOUS EDITION IS OBSOLETE.

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