Intelligent

Cost

Estimator

Manual

CESS LLC

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1. INTRODUCTION

1.1 What is One Click Designer?

One Click Designer (**OCD**) is a smart and user-friendly engineering software that was exclusively developed for civil engineers by the civil engineers at CESS LLC. Unlike any software packages currently in the market place serving similar purposes, OCD Software presents a groundbreaking approach in providing a reliable yet easy-to-use solution that integrates the cutting-edge computer engineering technologies with our extensive experience in the planning, design and construction of numerous civil engineering projects. The powerful features of OCD Software have enabled us as well as our clients to maximize the efficiency and productivity in a timely and cost effective manner. With a framework that was exclusively developed for civil engineering design purposes based on local standards and specifications, OCD Software offers users the flexibility to either use an existing CAD files or simply use the established templates to effectively perform engineering design tasks.

Additionally, with just one click, OCD Software can automatically generate customized reports, which streamlines the process and saves time for manual inputting and formatting. OCD Software reduces human errors through a highly automated process. Furthermore, with the same or higher level of automation, OCD Software enables users to check whether the design files are in compliance with the standards and/or specifications that are required for the project at hand. OCD Software can also be used for quick and rough cost estimates for funding programming and/or preliminary planning purposes. In such cases, users do not have to spend the time to set specific standards, which results in a significant amount of savings in time and effort yet produces the cost estimates with an acceptable level of accuracy.

It is worth noting that OCD Software is a very effective and sophisticated tool for some of the most tedious and time-consuming tasks that are being performed regularly by engineering professionals in both public and private sectors. With some customized modifications to the generalized framework, OCD Software can be an even more powerful tool to be used in many areas of engineering practices and public works operations.

1.2 Features of One Click Designer (OCD)

- ✓ **Easy Data Input** - Information can be imported to the database by simply clicking the object in existing AutoCAD or MicroStation files or spreadsheet files. Users can select either an existing CAD file or a built-in template, and use the easy-to-follow modules to complete the task. Double click any object, all information related to the object is collected and displayed for users' convenience.

- ✓ **Automatic Data Update** - The database is expanded and updated automatically every time when new information is entered, which not only keeps the information current but also ensures consistency and saves time for all future uses.

- ✓ **Fully Integrated with CAD Platforms** - when an object is selected, all AutoCAD and MicroStation properties of the object will be obtained. Users can draw design plans in either AutoCAD or MicroStation software environment without setting properties. All settings predefined in the templates will follow the standards of a federal, state or other agency as specified by users. Additionally, multiple AutoCAD and MicroStation files can be used concurrently throughout the design process.

- ✓ **Customized Reporting** - With a simple click, an accurate and customized report can be automatically generated and easily updated to reflect the most recent changes in either unit costs or standards and specifications.

- ✓ **Flexible and Accurate** - All criteria for quantity take-off and cost estimation can be set flexibly and tailored to satisfy user's specific needs or preferences. Any changes made throughout the process are automatically updated whenever design files are modified.

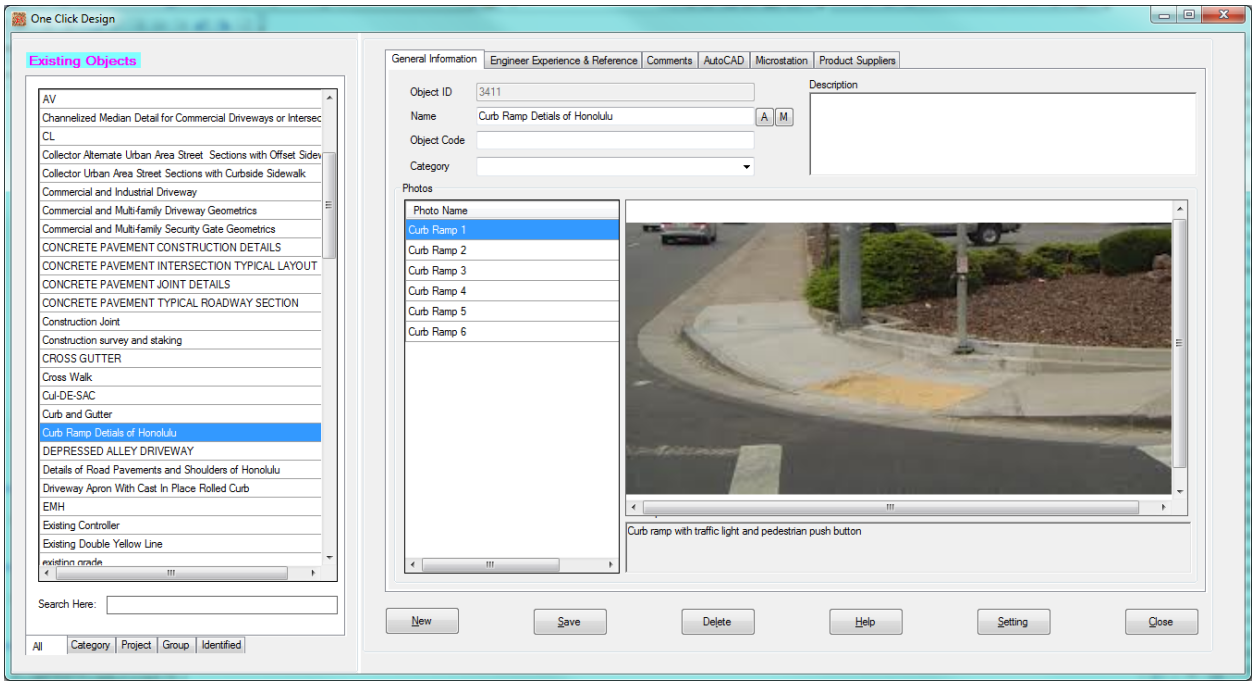
- ✓ **Group Collaboration** - OCD Software promotes group collaboration among professionals with a system that collects and keeps track of the knowledge and experience shared by various engineers throughout a project design process.

- ✓ **Quick Reference Search** - Users can search and quickly find the standards, parameters, and any other design related information from the built-in reference system.

- ✓ **Quality and Consistency** – The predefined templates not only save users' time and effort, but also ensure quality and consistency in both design practice and final design products. Such an approach creates standardized drawings that are easy to read and understand with fewer revisions necessary and much higher efficiency.

2. MAIN INTERFACE

The picture below depicts the main interface of the One Click Designer (OCD). There are two tab controls in this interface, including the collection of the objects as shown in the list box on the left portion of the picture, and the properties of these objects as shown on the right portion of the picture.



Users can conveniently find all existing objects that have been imported to the database from previous projects, and select the ones that they need for the project at hand from the list box. All pertinent details of an object will be displayed on the screen by clicking the object. Such details include general information, engineer's experience, references, related comments, CAD information, and related projects. The details of all aspects will be further described in the subsequent sections as we go through the process.

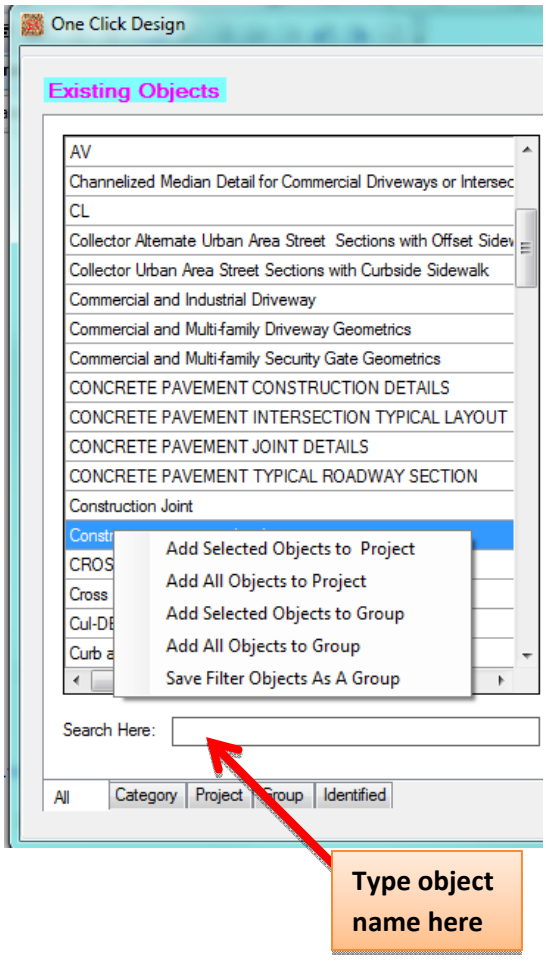
3. EXISTING OBJECTS

3.1 Search Existing Objects

All existing objects can be found in the Collection Tab. These objects are organized and can be searched in five categories, including ***All, Category, Project, Group,*** and ***Identified*** as shown at the lower left corner of the main interface screen. While the ***All*** and ***Project*** tabs are self explanatory, the framework of the OCD software offers users a tremendous flexibility in defining and grouping objects in the ***Category, Group,*** and ***Identified*** tabs in a way that accommodates users' special project needs, local practice, existing resources, as well as personal preference.

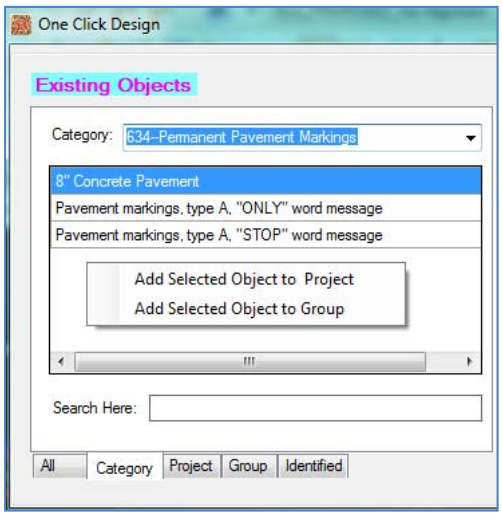
Summarized below are some examples on how users can take advantage of such a framework to effectively search existing objects for a project at hand.

Method 1 – Search Objects in the ***All*** Tab



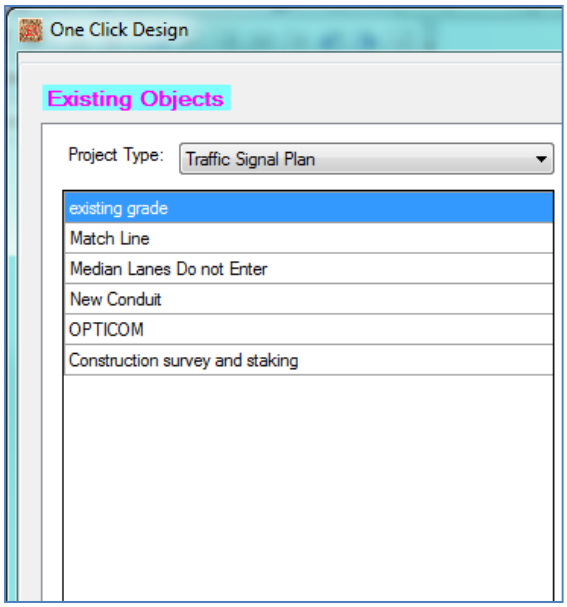
- Click the ***All*** tab, all existing objects can be found here and are sorted by names.
- A text box is placed at the bottom of the page as shown in the screenshot to the left. Type partial or full name of an object and then click the ***Enter*** key, all objects contained the related letters will appear in the list.
- Right click on the tab; a menu with five functions appears and can be used to import objects to a specific project or group. Before applying these functions, a project or group should be specified in the ***Project*** tab or ***Group*** tab, respectively. If no project or group is specified, the system will switch to the ***Project*** or ***Group*** tab. After selecting or inputting a project or a group, go back to the ***All*** tab to complete the process.
- For Example, when "pavement marker" is typed in the text box, all pavement markers related objects are listed. See the screenshot on the left for details. Right click and select the ***Save Filter Objects as A Group***, a new group named "pavement marker" is created and all objects in the list box are included in the group.

Method 2 – Search Objects in the ***Category*** Tab



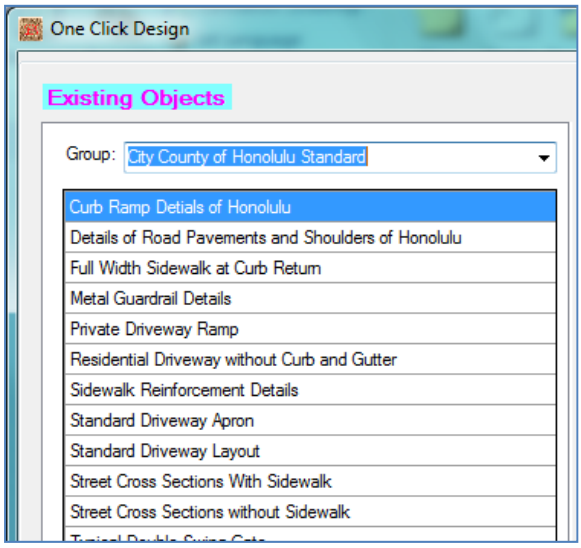
- In the ***Category*** tab, all existing objects are classified by categories.
- Select a category from the drop down box, all objects contained in the category will be listed.
- The rest of the operations are exactly the same as what was used in the ***All*** tab.

Method 3 – Search Objects in the ***Project*** Tab



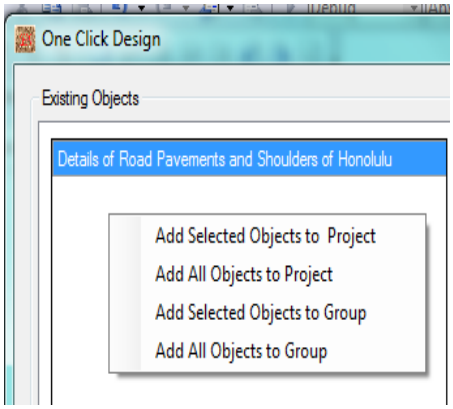
- In the ***Project*** tab, all existing objects are organized by project types.
- Select a project type from the drop down combo box, and all objects contained in the project are listed. Right click on the list box, a menu with three functions will appear as shown in the picture to the left. Using these functions, users can save or remove objects. Click the ***Goto Project Type Management*** to set the project type.

Method 4 – Search Objects in the ***Group*** Tab



- In the ***Group*** tab, all existing objects are organized by groups.
- Select a group from the drop down combo box, and all objects contained in the group are listed. Right click on the list box, a menu with three functions will appear.
- Using these functions, users can save or delete a group, or remove objects from the group.

Method 5 – Search Objects in the ***Identified*** Tab



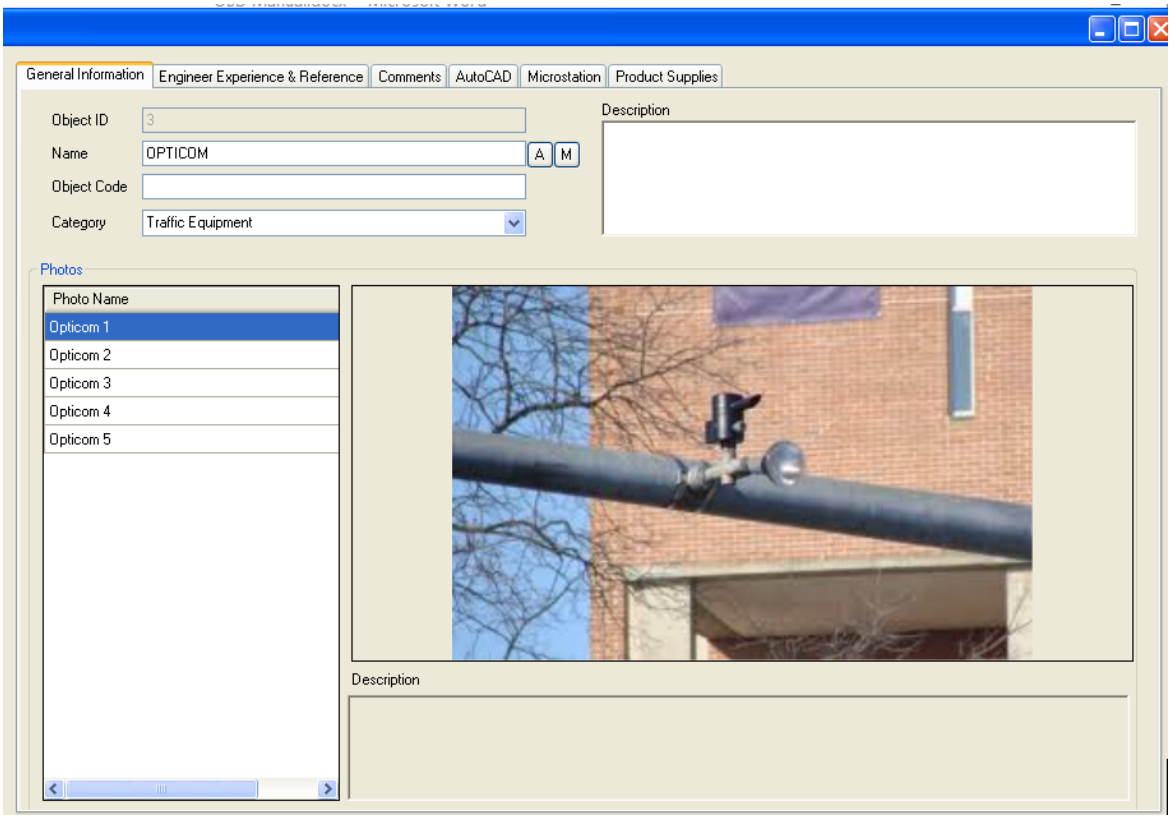
- In the AutoCAD tab, click the ***Identify*** button, move the mouse on the AutoCAD file, and select an object. The system will automatically identify the object and show all possible object names. Click the designated name of the object, all related information will be retrieved for users' convenience.
- In the MicroStation tab, select an object and click the ***Identify*** button. All possible object names will be listed. Click the designated name of the object, all related information can be retrieved for users' convenience.
- Right click in the ***Identified*** tab, a menu with four sub-tabs will appear. With these functions, users can import objects into specific group or project.

3.2 Information of Existing Objects

To find out the specifics of an object, just click on the object. All information about the object will be displayed, including general information, engineer's experience & reference, and comments. This function also provides users with the available resources, such as, pertinent manuals and websites, properties in AutoCAD or attributes MicroStation, as well as information on product supplies.

3.2.1 General Information

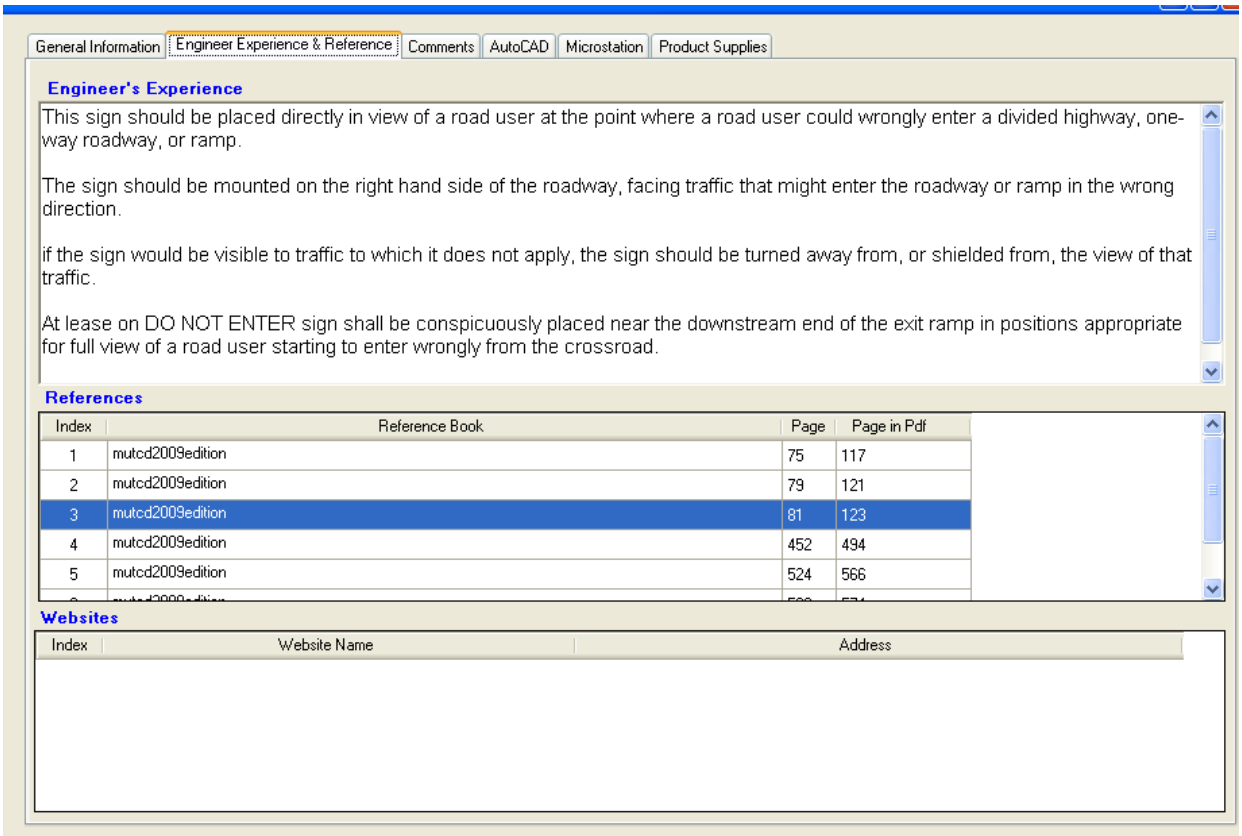
Under the General Information tab, users can see the ID, name, code, category and descriptions of an object. Additionally, related photos of the object and the photo name that differentiates the technical specifications for the object are also included under the ***General Information*** Tab. Displayed below is an example for the object called **OPTICOM**, which demonstrates how the above mentioned information is provided. By moving the mouse on a photo, users can zoom in, zoom out, or even move the photo.



3.2.2 Engineer's Experience & Reference

Under the Engineer's Experience & Reference tab, all engineers can input their personal experience and observations on an object to share with others who come across the object. All pertinent references on the object can be found in the reference data grid. Users can right click on the reference data grid to obtain a menu with five functions, including: ***Add Reference Book***, ***Remove Reference Book***, ***Open Reference Book from Local***, ***Open Reference Book from Website***, and ***Open Reference Book Management***.

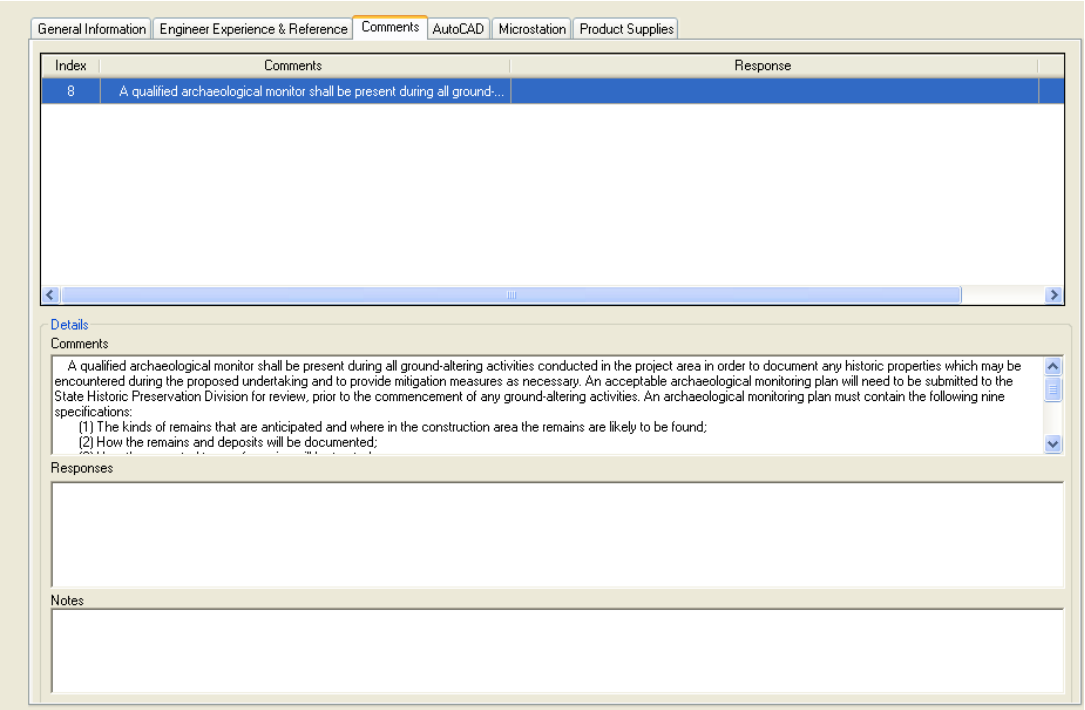
Users can simply click ***Open Reference Book from Local***, or ***Open Reference Book from Website***, to get all the pertinent references about the object. As shown in the picture below, the related websites of the object are also listed in the website data grid to save users' time in searching for confirmation. Users can also right click on the data grid, a menu of four functions will appear, including: ***Add Website***, ***Remove Website***, ***Open Website***, ***Open Website Management***. Click the ***Open Website***, the website will be opened and accessed in iexplore. For demonstration purposes, displayed in the picture below is an example of a "DO NOT ENTER" traffic control sign.



3.2.3 Comments

Under the ***Comments*** Tab, all the comments that were previously made by engineers about the selected object can be found here. Users can click each comment in the data grid to display the details of the comments in the text box below. Users can right click on the ***Comments*** data grid to obtain a menu with five functions, including: ***Add Comments***, ***Remove Comments***, ***Open Original File for Comments***, ***Open File with Comments***, and ***Save Filter Objects as a Group***.

When the ***Open Original File for Comments*** function is clicked, the original file for review will be opened. But if the ***Open Contained Comments*** function is clicked, the file with previous comments will be opened. See the example below for details. To obtain comments from previous projects, it is recommended that users deploy a Comments Management System developed by CESS Inc. to ensure a maximal use of the functions that are built-in the software package.



3.2.4 AutoCAD

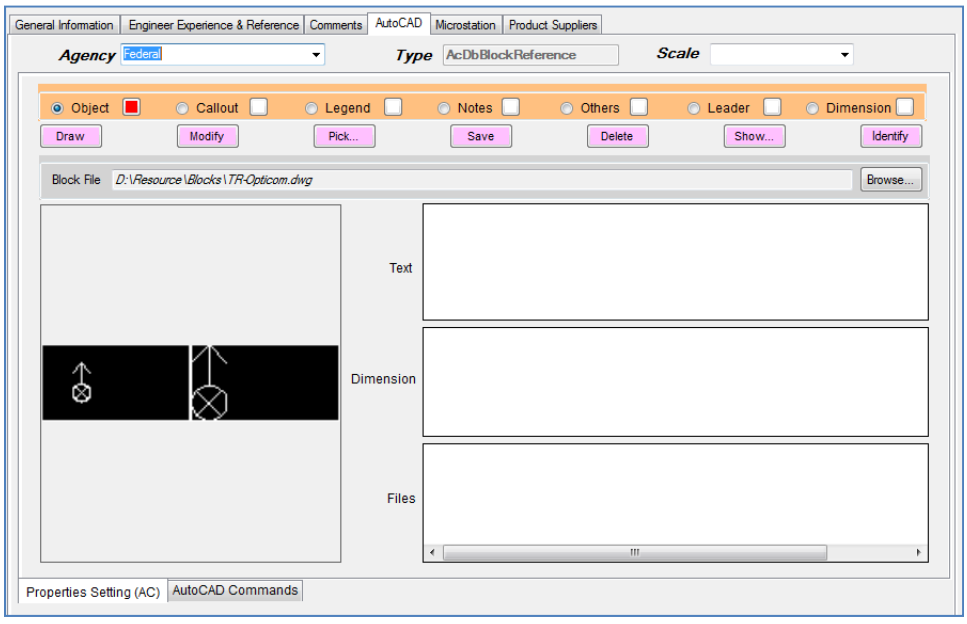
Under the AutoCAD tab, there are two sub-tabs shown at the lower left corner, including Properties Setting (AC) and AutoCAD Commands.

Under the Properties Setting (AC) sub tab, seven functions are available for drawing or modifying CAD design plans, which include ***Object, Callout, Legend, Notes, Others, Leader,*** and ***Dimensions***. Once an agency is selected, some of the white boxes will be filled with red color, which means these properties are set. For example, as shown in the figure below, the object "Opticom" is selected for a federal agency. The object is set and the box to the right of the "Object" is shown in red color. Users can click the box to the left of the "Object" and then click the ***Draw*** button to draw the object in an AutoCAD file. Users can follow the same procedure to perform the ***Callout, Legend, Notes, Leader,*** or ***Dimension*** functions. Users can select the text in the list box to draw a text in the AutoCAD file as well. There is no need to change any properties because the selected object is preset in the software to follow all standards and specifications that are required by the selected agency.

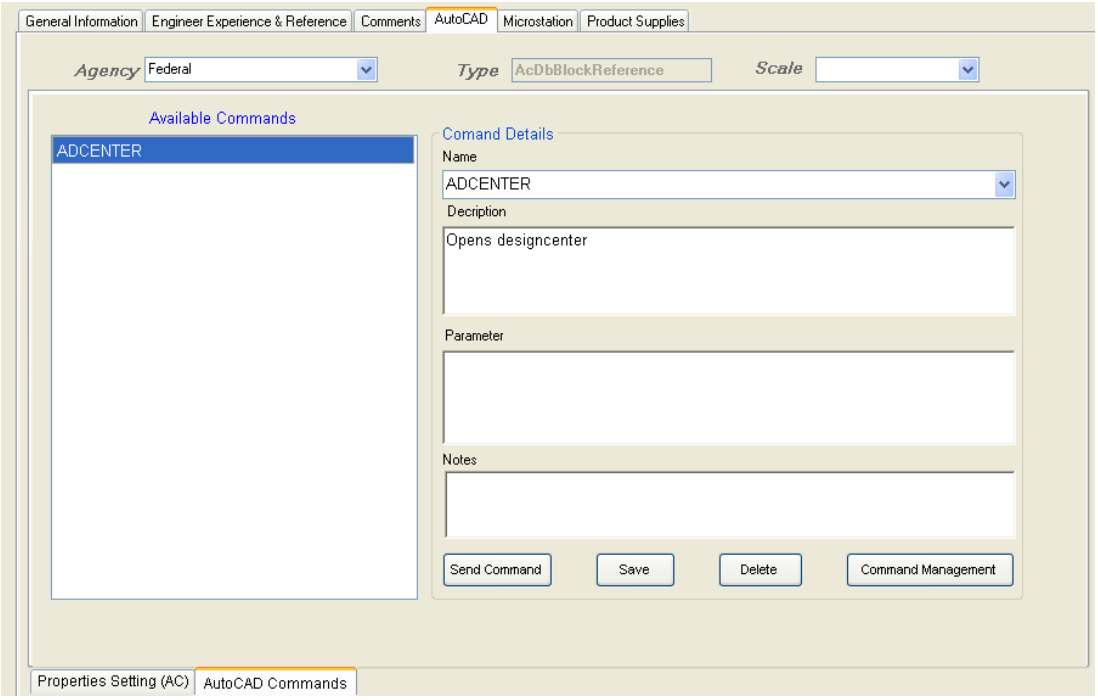
In the event that changes are needed, users can click the ***Modify*** button to change the existing object in AutoCAD based on the properties saved in the database.

Click the ***Identify Object*** button, and pick an object in the AutoCAD file. The system will identify the object that is listed under the ***Identified*** tab. Users can also click the object directly to obtain all information related to the object.

Click the ***Open Sample AutoCAD*** button, the sample AutoCAD file including the object will be opened as shown in the picture below.



Under the ***AutoCAD Commands*** sub tab, all AutoCAD commands are listed in the left list box as shown in the picture below. Users can click any command and get the parameters of the selected command displayed. By clicking the ***Send Command*** button, users can run the command function in the current AutoCAD file. Users are encouraged to check out the rest of the functions contained in this sub tab, which are very intuitively designed and easy to follow.



3.2.5 MicroStation

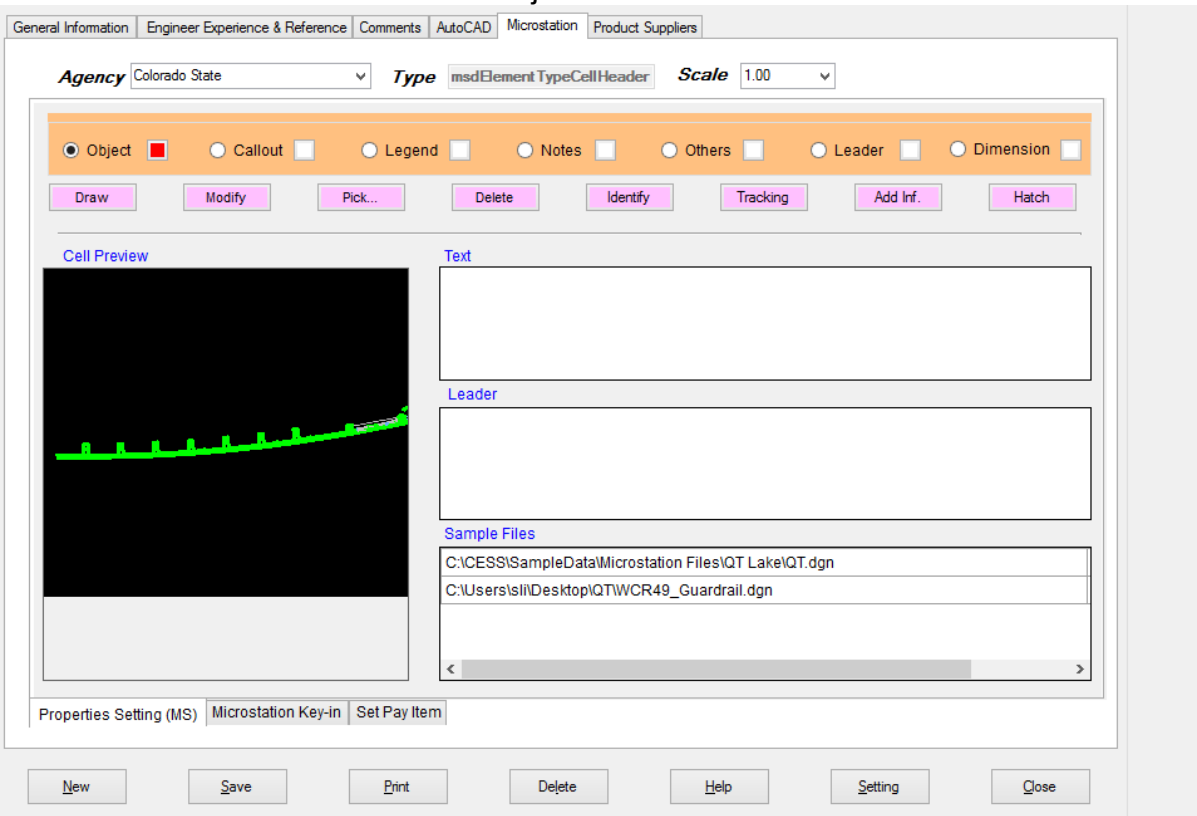
Under the ***MicroStation*** tab, there are two sub tabs as shown at the lower left corner of the interface main screen, including ***Properties Setting (MS),*** and ***MicroStation Key-In***.

Under the ***Properties Setting*** sub tab, seven functions are available for drawing or modifying CAD design plans, which include ***Object, Callout, Legend, Notes, Others, Leader,*** and ***Dimensions***. Once an agency is selected, some white boxes will be filled with red color, which means these properties are set. For example, as shown in the figure below, the object “AV” is selected for a federal agency, ***Object*** is set and the box next to the “Object” becomes red. Users can click the round button to the Left of the “Object” and then click the ***Draw*** button. The object will be drawn in a MicroStation file. Users can follow the same procedure to perform the ***Callout, Legend, Notes, Leader,*** and ***Dimension*** functions. Users can also select the text in the data grid to draw a text in the MicroStation file. There is no need to change any properties

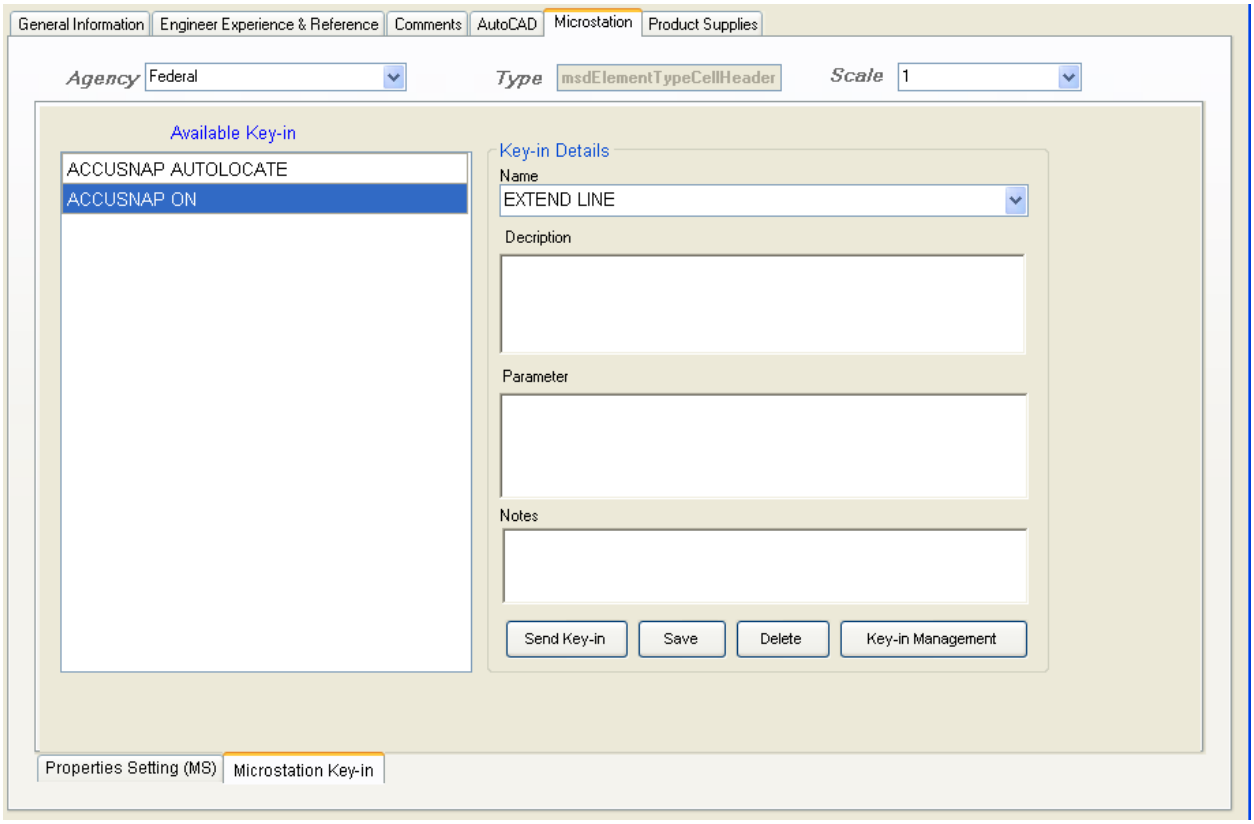
because the selected object is preset in the software to follow all standards and specifications that have are required by the selected agency.

In the event that changes are needed, users can click the ***Modify*** button to change the selected object in MicroStation based on the properties saved in the database.

Select object in MicroStation file and click the ***Identify*** button, system will identify the object that is listed under the ***Identified*** tab. Users can also click the object directly to obtain all information related to the object.



Under the ***MicroStation Key-in*** sub tab, all key-ins are listed in the list box in the left portion of the screen. Users can click any one of the key-ins to get the parameters of the key-in that are selected. By clicking the ***Send Key-in*** button, users can run the key-in function within the current MicroStation file. A sample screen is provided in the picture below. Users are encouraged to check out the rest of the functions contained in this sub tab, which are intuitively designed and easy to follow.

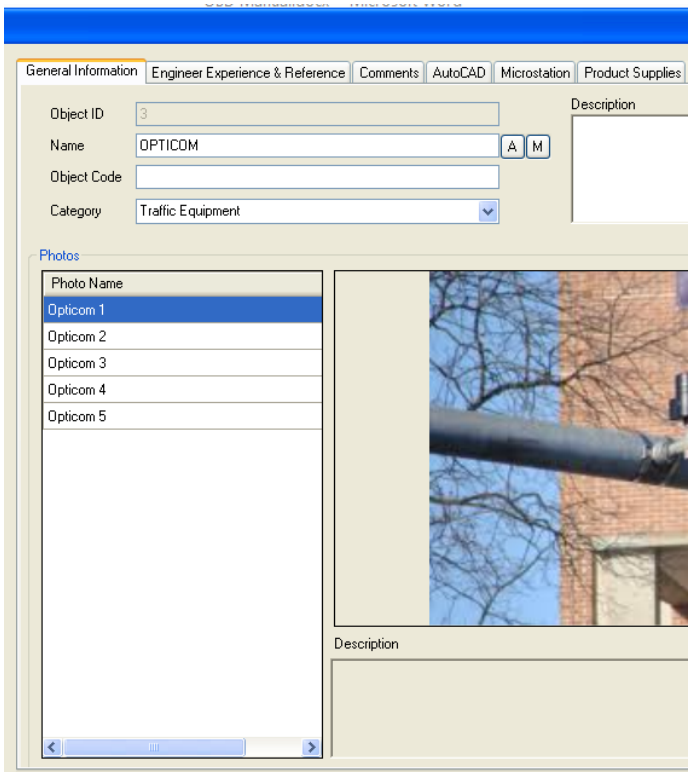

General Information
Engineer Experience & Reference
Comments
AutoCAD
Microstation
Product Supplies
Agency
Federal
Type
msdElementTypeCellHeader
Scale
1
Available Key-in
ACCUSNAP AUTOLOCATE
ACCUSNAP ON
Key-in Details
Name
EXTEND LINE
Decription
Parameter
Notes
Send Key-in
Save
Delete
Key-in Management
Properties Setting (MS)
Microstation Key-in

4. DATA INPUT FOR NEW OBJECTS

Users can add a new object by clicking the ***New*** button. While an object ID is generated automatically, there are six aspects of an object can be input into the system. Details of each of these six aspects are summarized in the sub-sections below.

4.1 General Information

General information contains name, object code, category, description and photo of an object. Shown below are the screenshot of the ***General Information*** interface on the left and the brief descriptions of all input fields on the right.



- **Name**: required input that is unique and not duplicated with any other objects.
- **Object Code**: Optional input that is normally applied to a pay item.
- **Category**: normally defined per specifications, but can also be defined by users' input.
- **Description**: a brief introduction of the object.
- **Photo**: all photos related to the object can be imported. Refer to Section 4.1.1 for details.

4.1.1 Add Photo for an Object

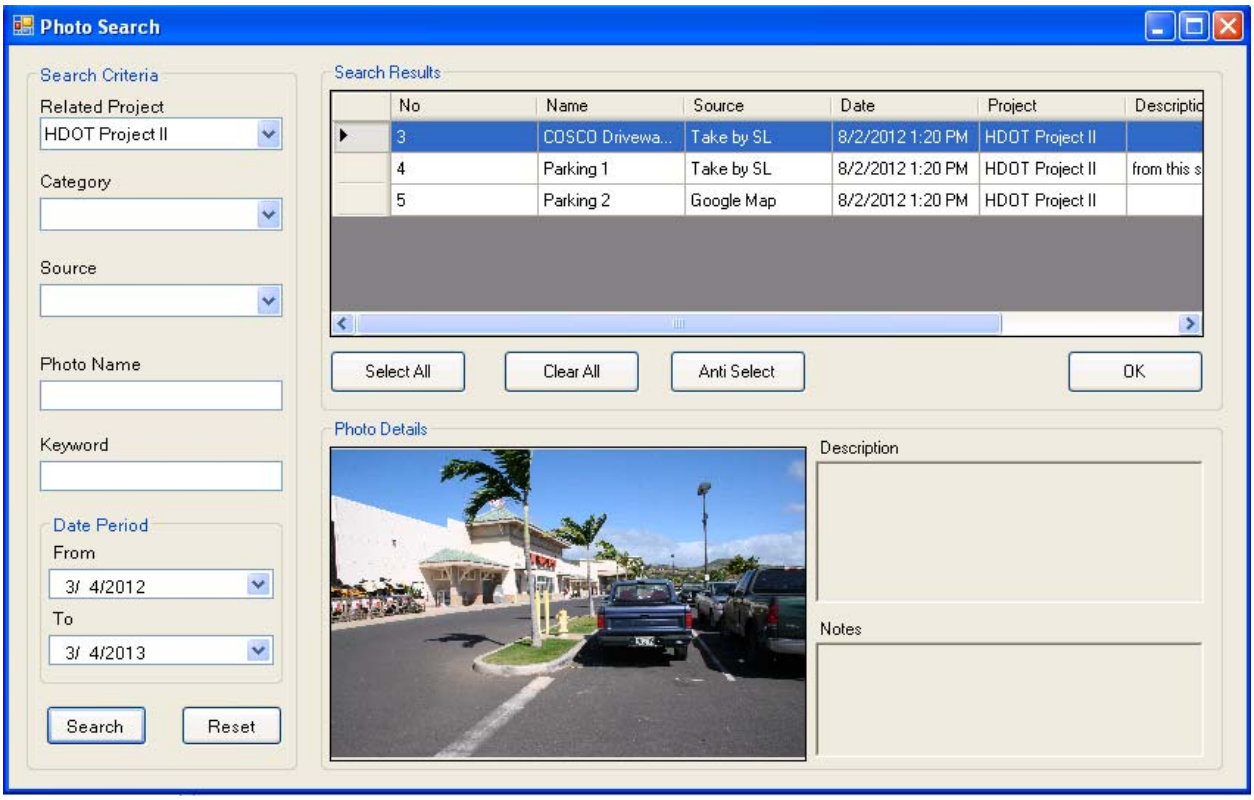
Users can easily add photos to an object in the ***General Information*** interface. The picture below describes the process.

- To add photos for an object, right click on the list box, and click the ***Add Photo*** button. A photo search window will appear. Users can select photos from the list and link them to the object.
- To show photo details, click the ***Show Details*** button. All information related to the selected photo will be displayed.
- Only the photos that have been registered in system can be recognized and available for selection from the list.
- To register a photo in the system, close the photo search window. Right click on the photo list box, and then select the ***Goto Photo Management*** option. Refer to Section 4.1.3 on how to register photos in the system.

4.1.2 Search Photo and Add to an Object

The picture below is the screenshot of the ***Photo Search*** interface. Click the ***Search*** button after setting search criteria, all photos met the criteria will appear in the data grid. Click the ***Reset*** button to start a new search.

Select pertinent photos and click the ***OK*** button. The selected photos will be imported for the object. To see the information of a photo, click the photo in the data grid, the photo along with its descriptions and notes will appear in the photo box.



4.1.3 Photo Management

The procedure for registering photos in the system is as follows:

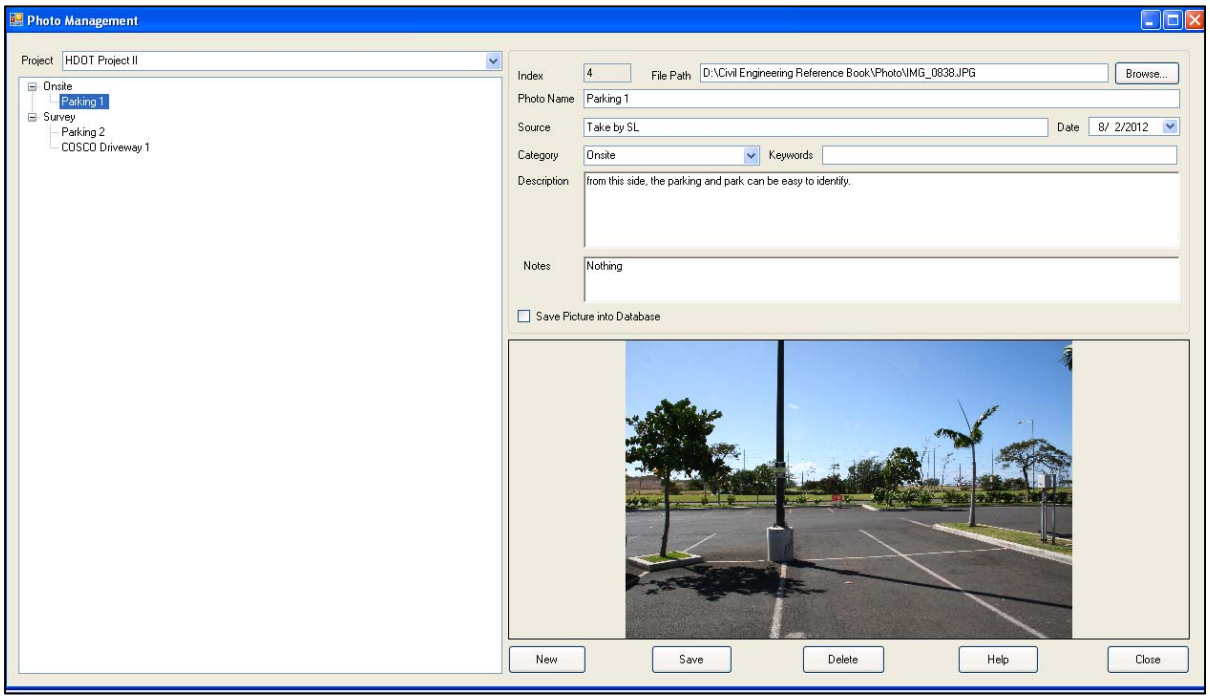
1) Select a project from the drop down combo box. If there is no related project, select **None.** Otherwise, all existing photos related to the project are listed and grouped by category in the tree view to the left of the screen.

2) Click the ***New*** button, an index is automatically generated in the system. Select a photo file from the local disk, and input as much object information as you can so that the object can be easily searched and identified in the system. Check the box to the left of the ***Save Photo into Database*** function for important photos. By default, this box is not checked. When the box is checked, all information related to the photo will be saved in the database permanently. Even when the photo is removed or deleted at one point of time, the system can retrieve the photo and related information from the database when needed.

3) Click the ***Save*** button at bottom of the screen.

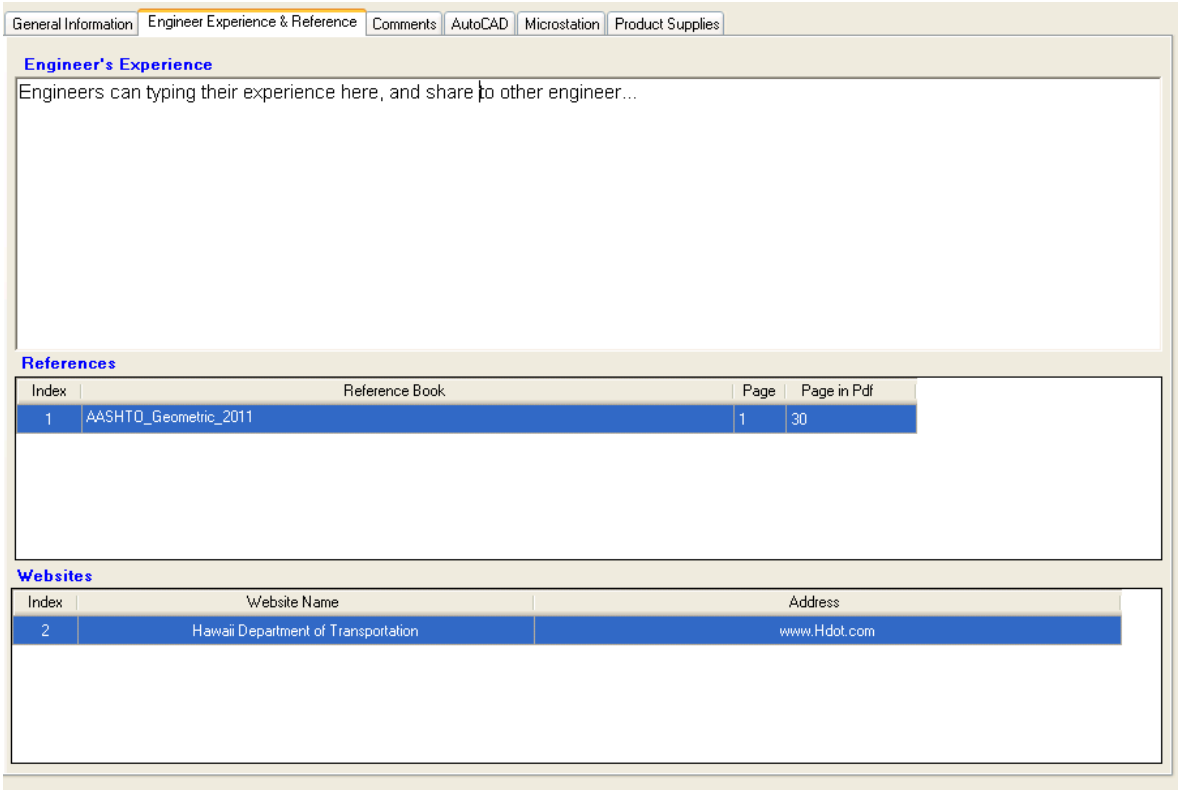
4) To update a photo, select the photo by double clicking the photo name from the tree view, edit the information and then click the ***save*** button.

5) To delete a photo, select the photo and click the ***Delete*** button.

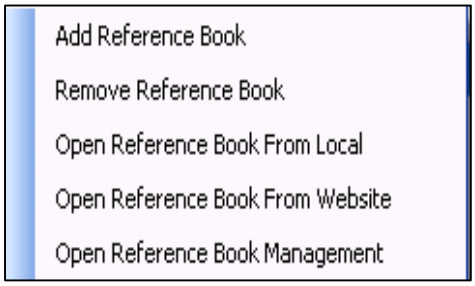


4.2 Engineer's Experience & References

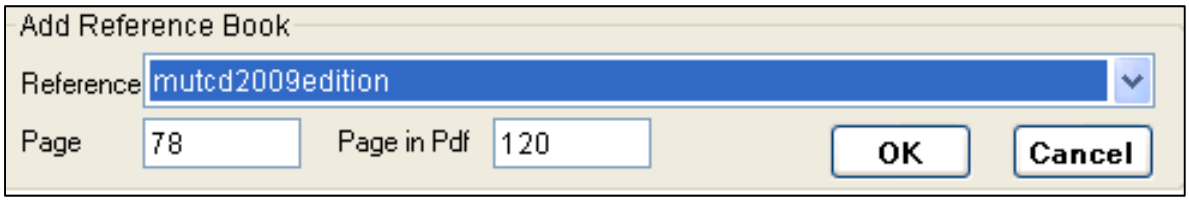
Three functions are provided in this interface, including ***Engineer's Experience, References,*** and ***Websites***. Engineers can share their experience and observations of the object in the text box, and/or select helpful references and websites to learn or confirm a specific design issue. Shown below is the screenshot of this interface.



By right clicking on the reference data grid, a menu with five functions will appear as shown in the picture below:



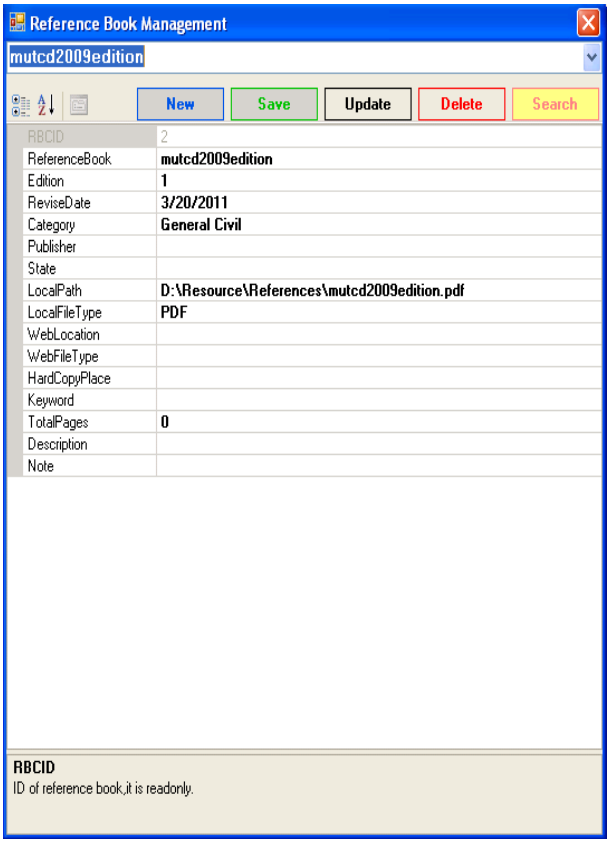
Select the ***Add Reference Book*** function, a window will appear as shown in the picture below. Select reference and input the page number. If reference is in a PDF format, input the page number in the PDF file. Click the ***OK*** button to add reference for the object.



- To remove a reference of an object, click the reference in data grid, and click the ***Remove Reference Book*** function.

- To open the reference book, click the ***Open Reference Book From Local*** function or the ***Open Reference Book From Website*** function.

- To add or edit reference book, click the ***Open Reference Book Management*** function. Refer to the screenshot below for details.

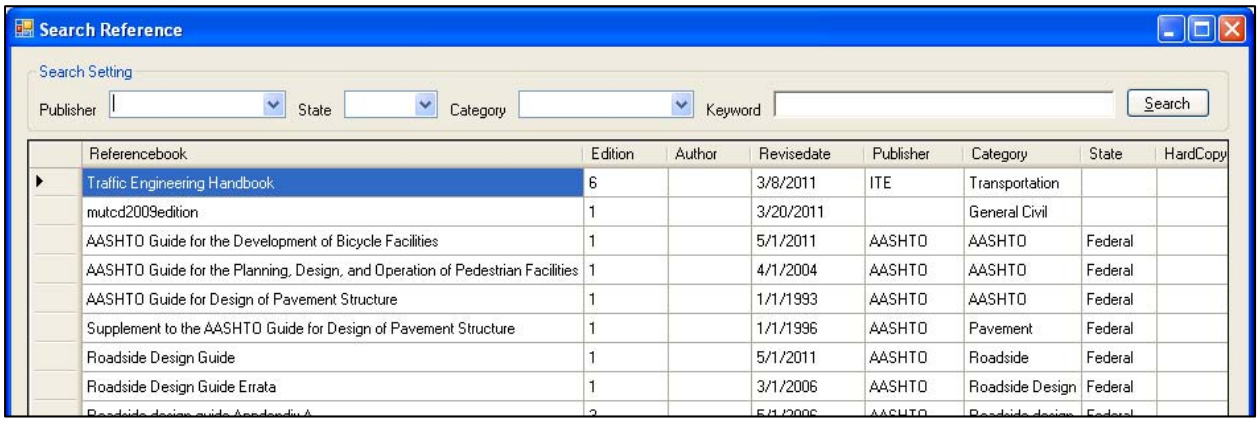


- To add a new reference book, click the ***New*** button. Input the basic information of the reference book, such as, name, edition, revision date, category, localpath, keyword, etc. Click the ***Save*** button to save the input.

- To change the information in a reference book, select the book from dropdown box. Click the ***Update*** button after editing.

- To delete a reference book, select the book from drop down box, then click the ***Delete*** button.

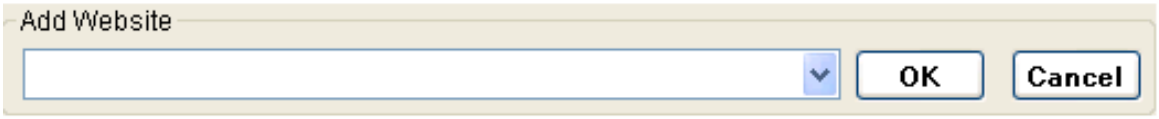
- To search a reference book, click the ***Search*** button. A search window will appear as shown below.



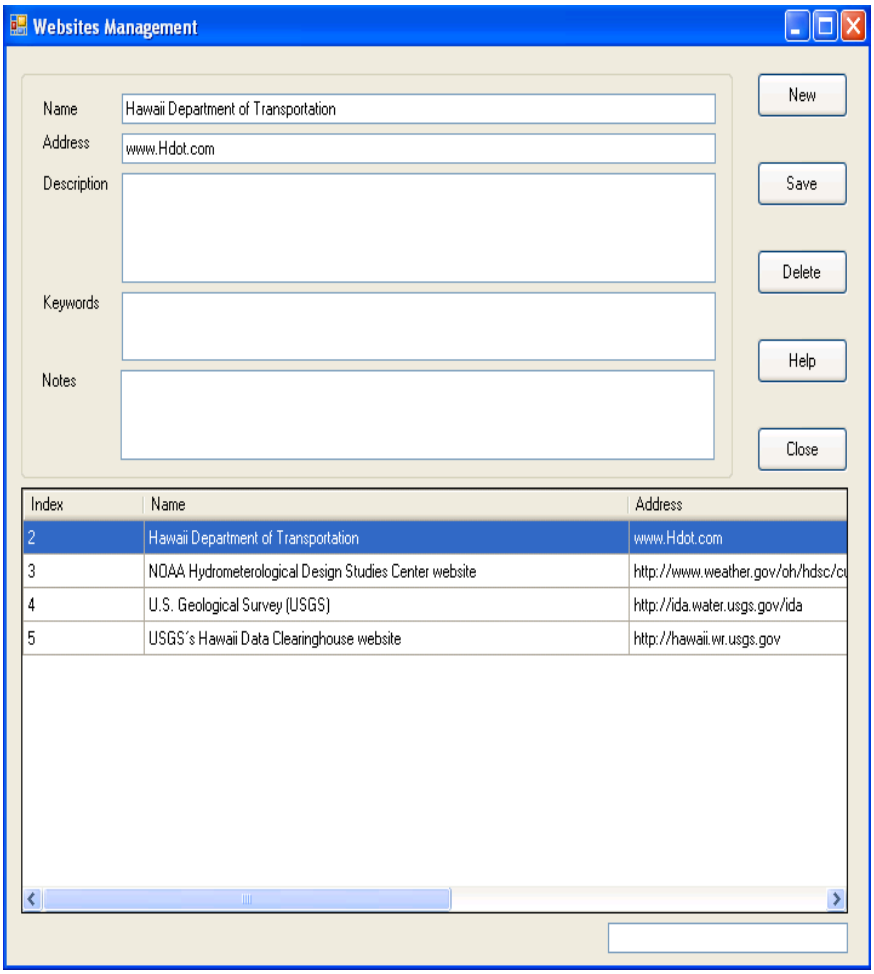
Reference books can be searched based on filter conditions specified for the search. As shown in the screenshot above, typical filter conditions include publisher, state, category, and keyword.

Right click on the reference data grid, a menu with four functions will appear as shown below:

Click the ***Add Website*** function, an input window will appear as shown below. Select a website from dropdown box and click the ***OK*** button. The website will be added to the object. Click the ***Cancel*** button to close.



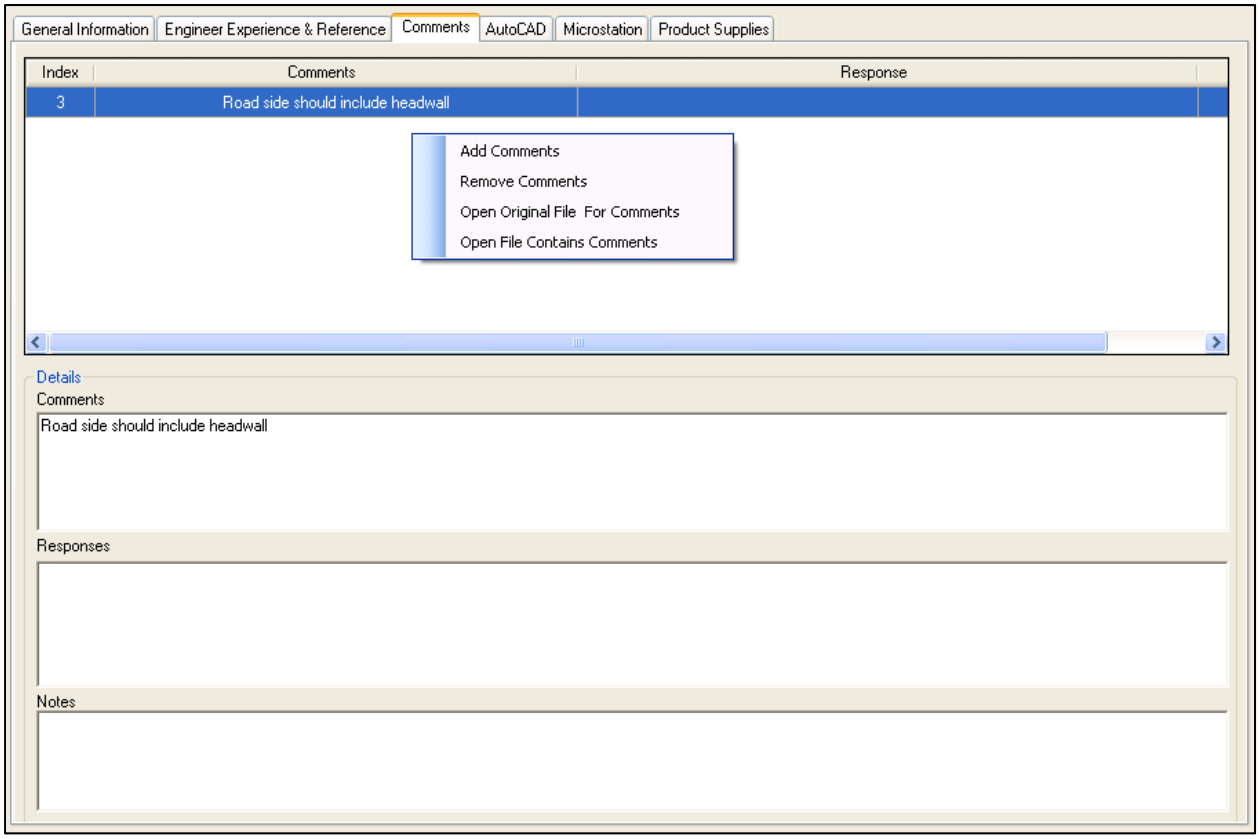
- To remove a website, select the website from the data grid, and then click the ***Remove Website*** function.
- To open a website, select the website from the data grid, and then click the ***Open Website*** function.
- To add, edit or delete a website, click the ***Open Website Management*** function. Shown below is the screenshot of the ***Website Management*** interface.



- To add a new website, click the ***New*** button, input the website information, and then click the ***Save*** button.
- To change the website information, click the website, edit it, and then click the ***Save*** button.
- To delete a website, select the website and then click the ***delete*** button.
- Users can easily search for a website by typing part or full name of the website in the search box.

4.3 Comments

All comments and responses that were made on an object are stored, indexed and listed in the data grid. Users can click any comment to see the details of the comment and corresponding response in the ***Details*** section of the screenshot as shown below.



Right click on the data grid, a menu with four functions will appear. Users can choose to add or remove comments, open original file for comments, or open file with comments.

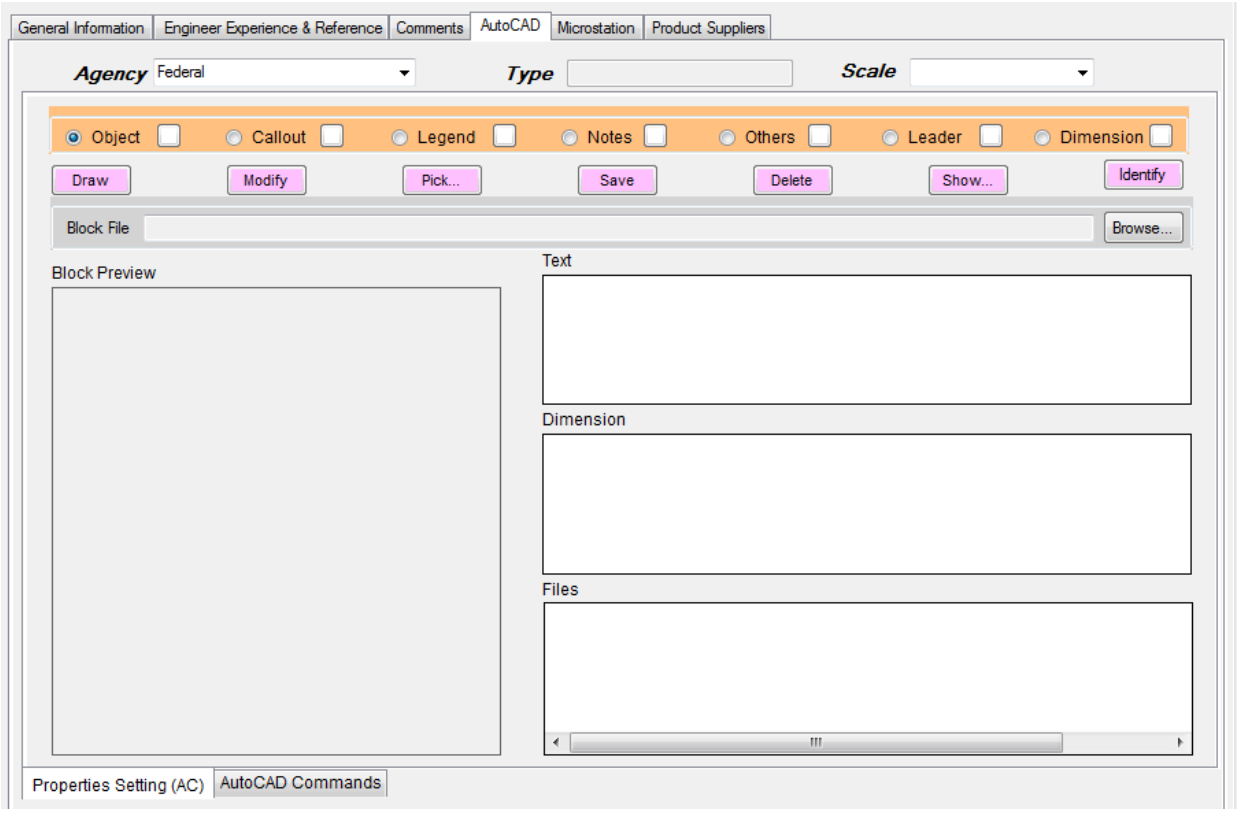
When the ***Add Comments*** button is clicked, the **Search Comment** window will appear. The procedure to link comments to an object is similar to the procedure that is used for the **Search Photo** function as described in Section 4.1.2. Once the information of an object is completed, click the ***Save*** button.

4.4 AutoCAD Properties Setting

There are two sub-tabs in the ***AutoCAD Setting*** interface, including ***Properties Setting*** and ***AutoCAD commands***.

4.4.1 *Properties Setting (AC)*

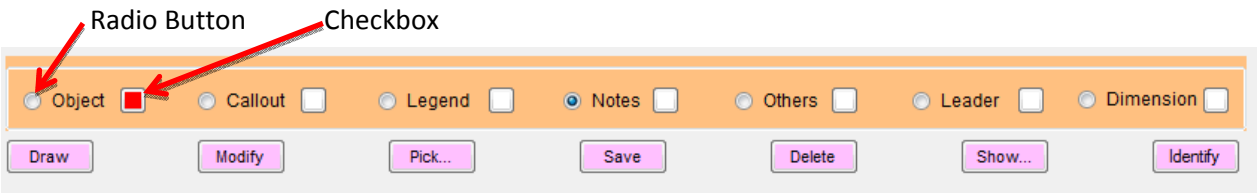
The screenshot below is for ***Properties Setting (AC)***. In this interface, users can set AutoCAD properties for each agency. The details are shown below.



Once an object is selected, users have to specify an agency, such as federal, state, city, or any other type, in order to set the design standards accordingly per the requirements of the specified agency.

In the ***Properties Setting (AC)*** tab, users can set AutoCAD properties by following the procedure summarized below:

Run AutoCAD: If the check box to the right of the ***Object*** button is red, it means that the object's AutoCAD properties have been set. Click the ***Draw*** button, and the object will be drawn in the AutoCAD file according to the AutoCAD properties saved in the database.



Note: This function is invalid if the block file that users specified for a block cannot be found. For Hatch, the closed object should be selected, otherwise, the function work incorrectly.

By default, the scale of the object is set the number setting in Globe Setting. If the Cell / Block scale is set in Globe Setting, the scale will be loaded automatically. Otherwise, the scale will be set to 1. However, users can specify any other numbers in the ***Scale*** box, and the object will be scaled according to users' input.

Users also can draw any text related to the object into an existing AutoCAD file. The types of text can include callout, legend, notes, and others. If some type of text related to the object already exists, the checkbox to the right of the text type would be in red color. For example, when the callout for the object exists, the checkbox to the right of the "Callout" would be filled with red color. Click the radio button to the left of the "Callout", all callout text will be shown in the text data grid. Select one text and click the ***Draw*** button, then move mouse to the AutoCAD file and pick a place in the drawing. The text will be drawn and become part of the design drawing with the same properties that were set previously in the file.

The same procedure can be used to draw leaders or dimensions. For example, when a leader need to be drawn on an AutoCAD file, click the radio button to the left of the "Leader", select one of the leader style from the data grid, and move the mouse to the AutoCAD file. The leader will be drawn on the screen as selected with the same properties that were previously set in the file.

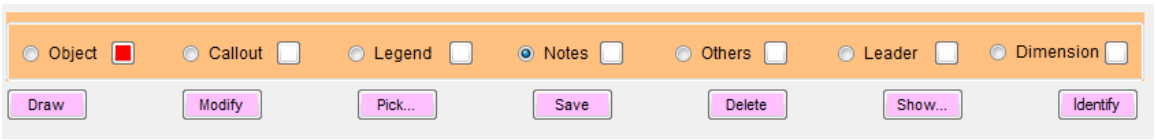
Users can click the ***Show*** button to find out the details of the properties of an object. Summarized below is the procedure to set the AutoCAD Properties for an object:

1) Click the ***Pick…*** button, move the mouse to an AutoCAD file, and then click the object.

2) The AutoCAD properties of the object will be obtained with a confirmation message on the screen. Click the ***OK*** button or the ***Save*** button.

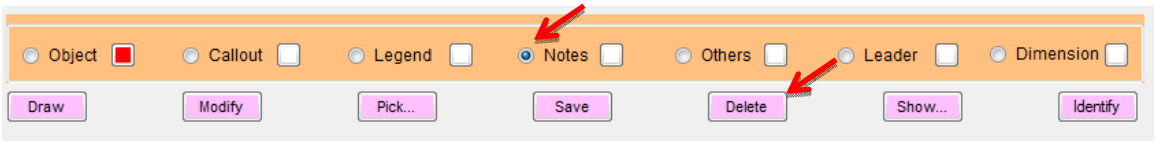
3) There are four aspects of an object that can be set for AutoCAD properties: **Object, Text, Leader, and Dimension**. To setup AutoCAD properties of an object, select an aspect by clicking the radio button to its left, then move mouse to the AutoCAD file to select an object, and then click the ***Save*** button to save

the information. When the AutoCAD properties have been saved successfully, the checkbox will be filled with red color as shown below:

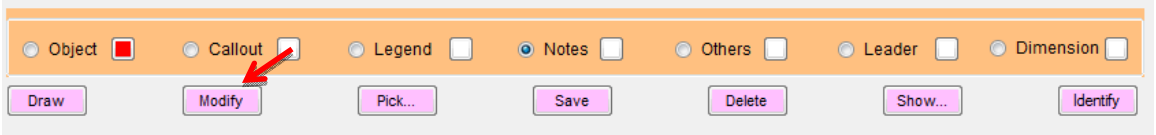


Note: The block file should be specified if the object type is a block, and click the Save button again to save it.

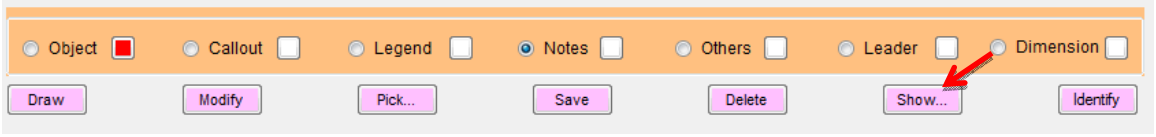
4) To delete properties, click the radio button to the left of an aspect, and then click the ***Delete*** button. When the AutoCAD properties have been deleted, the check box to the right of the aspect will no longer be red in color.



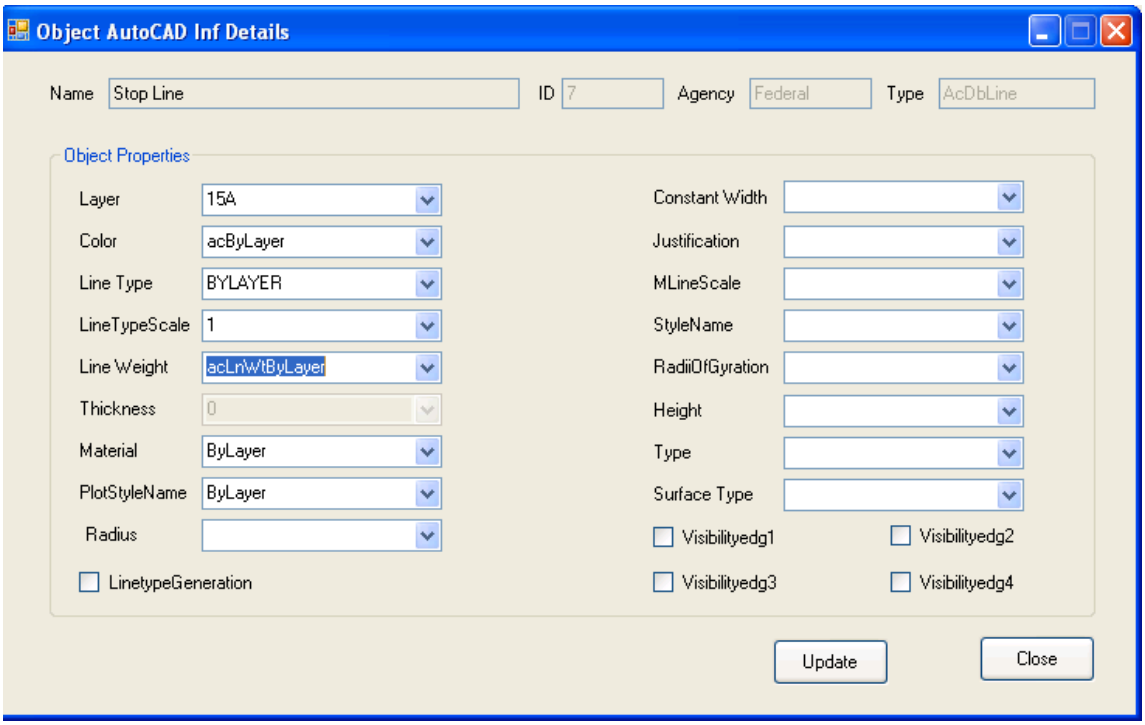
5) Click the ***Modify*** button and then click an object in an AutoCAD file, the object's properties will be change to the properties that have been saved in the database.



6) To see the details of the properties, click the ***Show*** button.



7) The ***Object AutoCAD information details*** window will appear as shown below. In this interface, users can change and save the AutoCAD properties of an object.

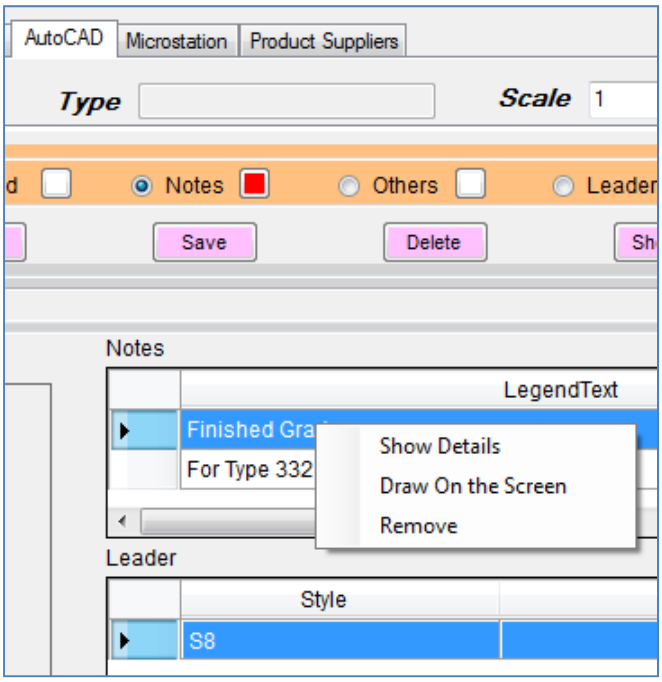


8) Text or MText objects have to be selected for callout, legends, notes or any other AutoCAD properties setting. The procedures are similar to the ones that were used in ***Object Setting***.

9) Dimensions of an object should be selected for the ***Dimension*** or **Leader** properties setting. The rest of the process, except the ***Draw*** function, is similar to the one that was used in ***Object Setting***. When the ***Draw*** button is clicked, the system will set the dimension properties for the object, but users have to select dimension type from the ***Dimension*** menu in ***AutoCAD*** program.

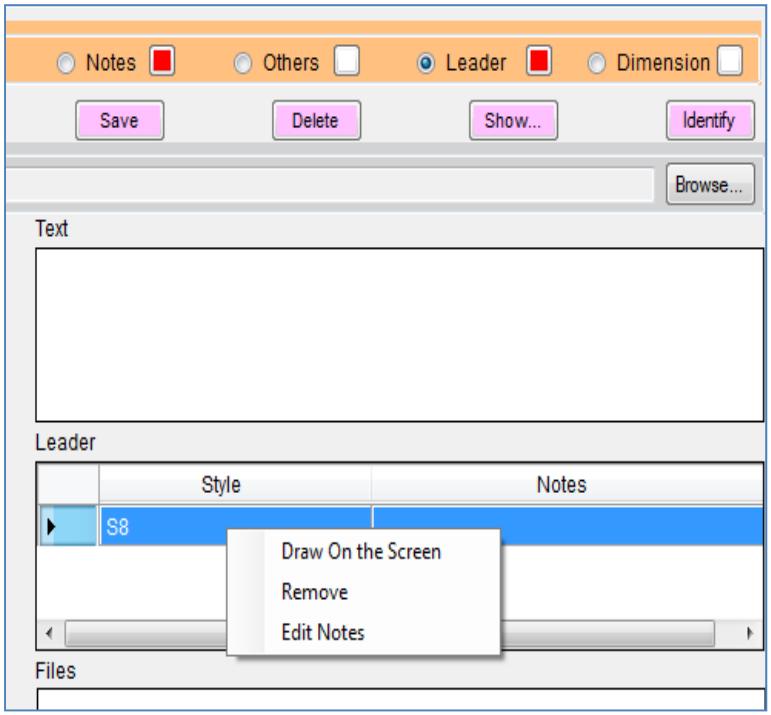
As a result of the most recent upgrades to the OCD software, additional functions are provided for users to perform their design work more conveniently and effectively. These functions include but not limited to the following:

Right click on the text data grid, a menu with three functions will appear as shown in the picture below:



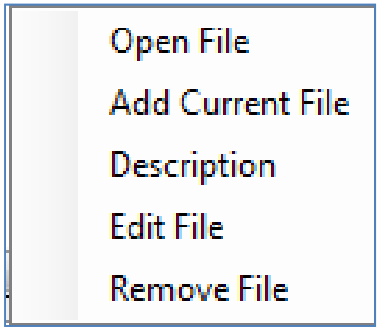
1. Click the ***Show Details*** function to see the details of the descriptions of the selected TEXT.
2. Click the ***Draw On the Screen*** function to draw the selected text in an existing AutoCAD file directly.
3. Click ***Remove*** to delete a text from the data grid. It will remove the text from the database permanently.

Right click on the ***Leader/Dimension*** data grid, a menu with three functions will appear as shown in the picture below:



1. Click the ***Draw on the Screen*** function to draw the selected leader or dimensions in an existing AutoCAD file directly.
2. Click the ***Remove*** function to remove the selected leader or dimensions from the object. Note that such a deletion is permanently.
3. Click the ***Edit Notes*** function to revise the notes on the leader or dimension style.

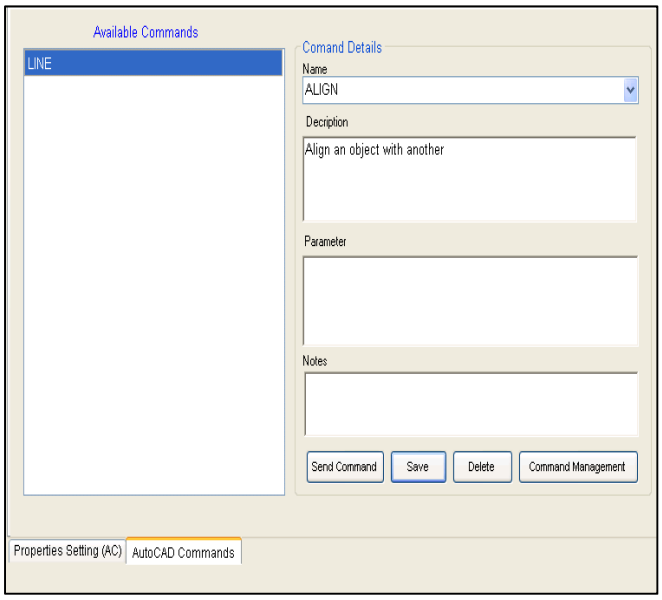
Right click on the ***File*** data grid, a menu with five functions will appear as shown in the picture below:



- Click the ***Open File*** function to open a selected file in AutoCAD.
- Click the ***Add Current File*** function to add the selected AutoCAD file to the database.
- Click the ***Description*** function to add descriptions to the selected AutoCAD file.
- Click the ***Edit File*** function to revise the descriptions of the selected AutoCAD file.
- Click the ***Remove File*** function to delete the selected AutoCAD file.

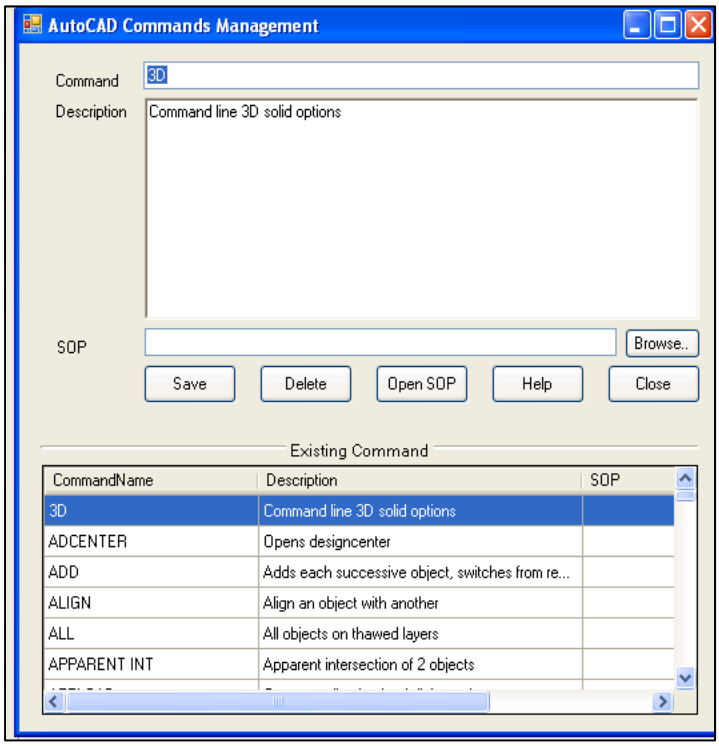
4.4.2 AutoCAD Commands

In the ***AutoCAD Commands*** window, all ***AutoCAD*** commands are loaded in the combo box. Users can add or delete commands for an object using the procedure described below:



- Select a command from drop down box, input description, parameter and notes, click the ***Save*** button.
- Double click a command in list box, click the ***Send Command*** button, it will run in ***AutoCAD***. Click the ***Delete*** button to delete the command from the object.
- Click the ***Command Management*** function to add or revise a command.

4.4.3 *AutoCAD* Commands Management



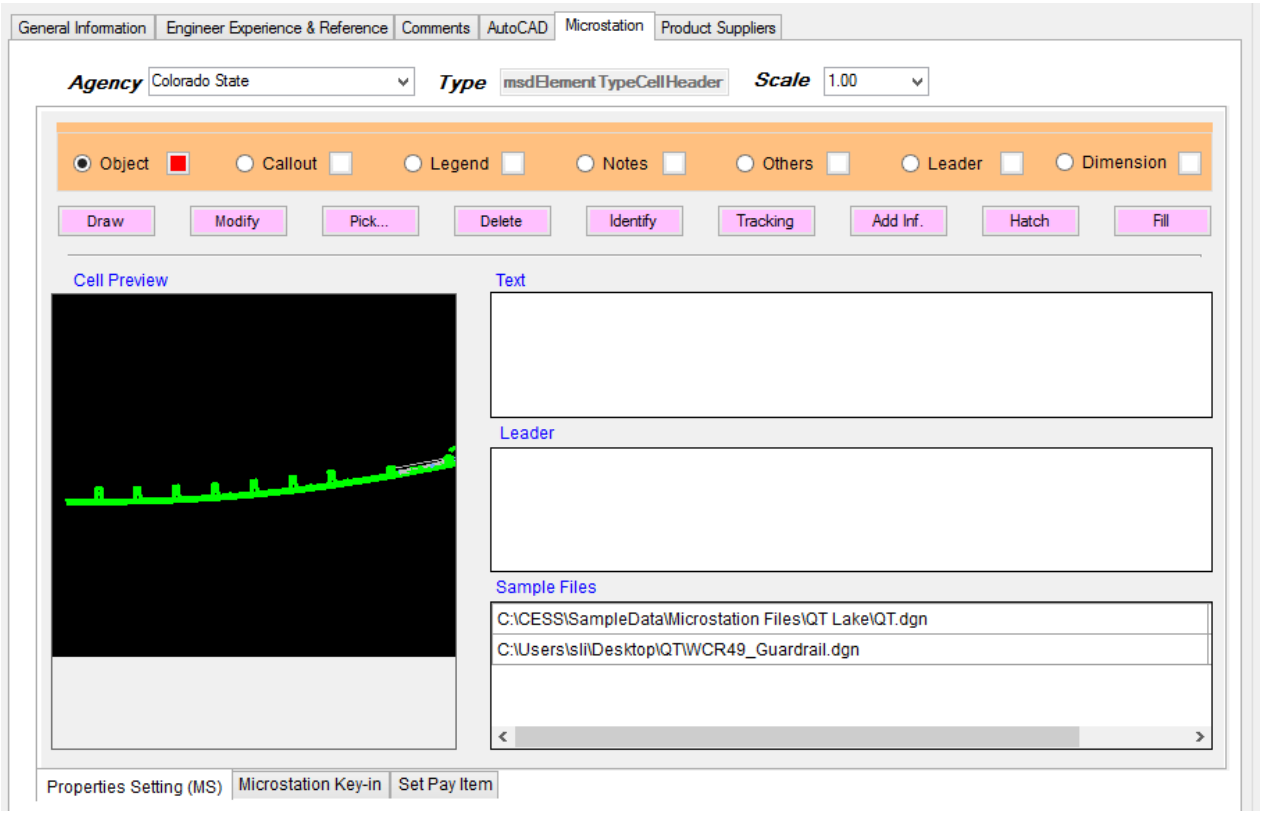
- To add a new command, type in command name, description, and specify State of Procedure (SOP) file, then click the ***Save*** button.
- To delete a command, select the command from the list box, click the ***Delete*** button.
- To read about a SOP, click the ***Open SOP*** button to open the SOP file.
- To close the window, click the ***Close*** button.

4.5 MicroStation Properties Setting

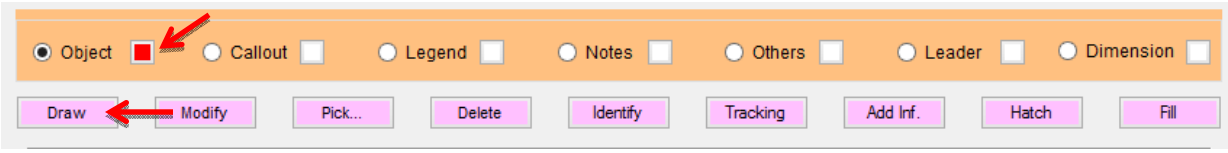
Similar to what was provided in Section 4.5, there are two sub-tabs, i.e., ***Properties Setting,*** and ***MicroStation Key-in***, that are used in the ***MicroStation Properties Setting (MS)*** interface.

4.5.1 Properties Setting (MS)

Depicted below is the screenshot for the ***Properties Setting (MS)*** interface. With the functions provided in this interface, users can easily set properties and draw, modify and identify an object in ***MicroStation***. Refer to the picture below for further details.



If the square box to the right of the word "***Object***" is marked in red color as shown in the picture below, it means that MicroStation properties of the object have been set. Click the round box to the left of the word "***Object***" and then click the ***Draw*** button, the selected object will be drawn in ***MicroStation*** according to the properties that were previously set in the database.



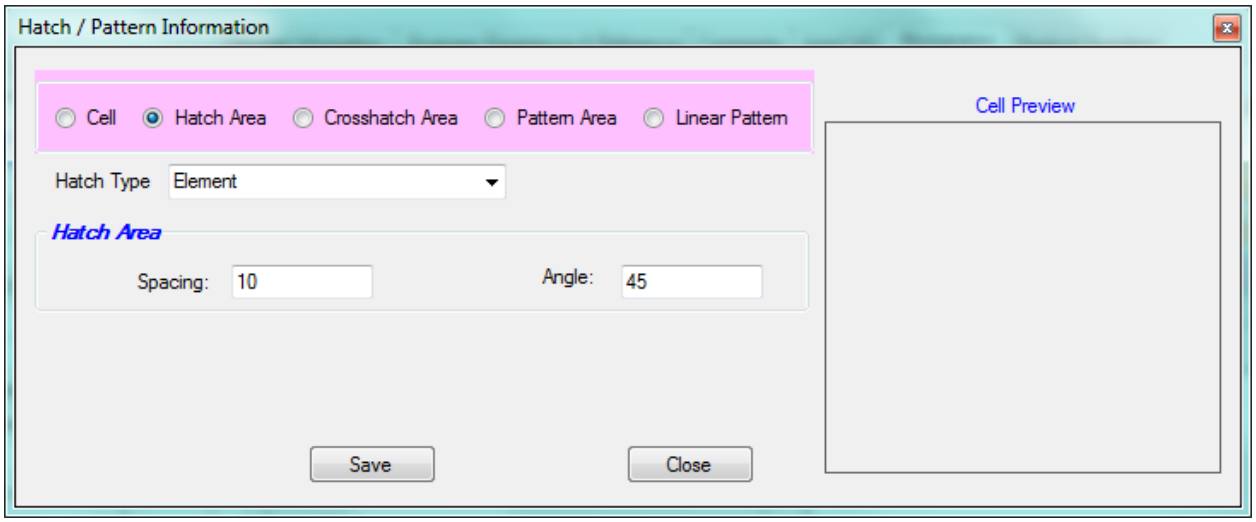
To draw ***Callout, Legend, Notes, Others, Leader*** or ***dimension***, users need to select a text from the data grid first because normally there is more than one text related to the object. Once a text is selected, move the mouse to the MicroStation drawing and put the text to the file with the assigned properties.

Note: This function is invalid in the event that either a specified cell or cell file cannot be found. Otherwise a preview image is shown on the picture box when the cell object is selected.

By default, the scale of the object is set as 1, users can specify a number of their choice in the scale text box, and the object will be scaled based on users' input.

To setup the properties of ***Object, Callout, Legend, Notes, Leader,*** or ***Dimension*** related to an object, select the object in ***MicroStation***, then click the ***Pick…*** button, the properties of the object are automatically saved in the database.

If the object is in ***Cell, Hatch Area, Cross Hatch Area, Pattern area,*** or ***liner Pattern***, then additional data will have to be specified by clicking the ***Hatch Info.*** button. Refer to the screenshot and procedures summarized below for details.



1) If the object is in a ***Cell***, specify the cell file path, cell name, and then click the ***Save*** button. It is important to ensure that the cell selected is included in the cell file under the same name.

2) If the object is in a ***Hatch Area***, specify the hatch type, space, angle, and then click the ***Save*** button.

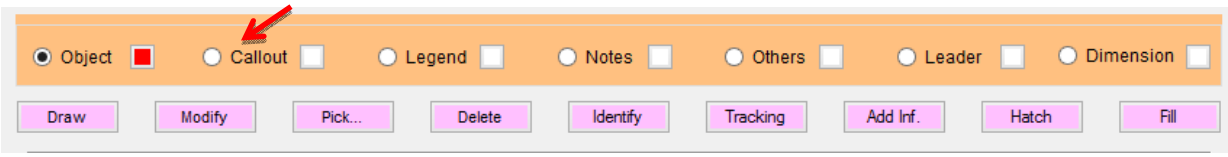
3) If the object is in a ***Cross Hatch Pattern***, specify the hatch type, space1, space2, angle1 and angle2, and then click the ***Save*** button.

4) If the object is in a ***Pattern Area***, specify the cell file path, cell name, scale, row space, column space, angle, hatch type, and then click the ***Save*** button.

5) If the object is in a ***Linear Pattern***, specify the cell file path, cell name, scale, hatch type, and then click the ***Save*** button.

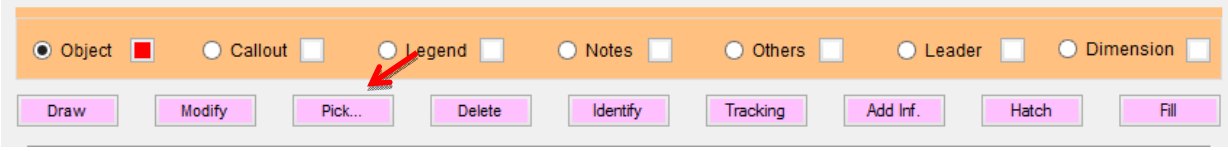
Once the above mentioned information is provided, users can click the ***Hatch*** button, and the selected object will be hatched with the specified parameters.

Once the specified properties have been saved successfully, the square check box to the right of a function will be filled with red color.

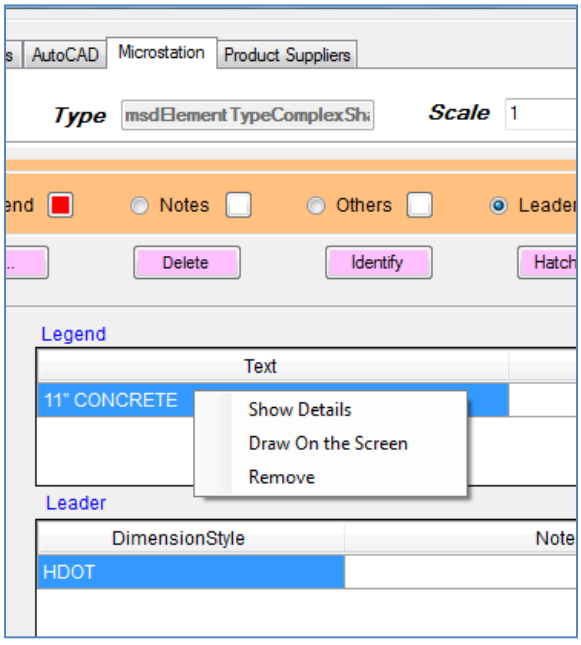


To delete any properties, click the ***Delete*** button. The square check box to the right of a function will become uncollored after properties have been successfully deleted.

To modify the properties of an object, select the object in ***MicroStation*** drawing, and then click the ***Modify*** button. The properties of the object will be automatically changed to the properties that were previously set in the database.

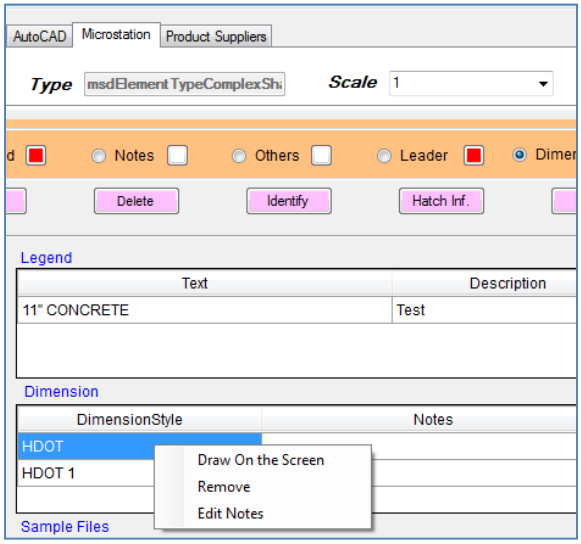


Click the ***Show*** button to see the details of the properties set for an object, the following window will appear. Users can change the properties of the object and save it in this window. Right click on the text data grid, three options will appear as shown below:



1. Click ***Show Details*** to show the description of the text.
2. Click ***Draw on the Screen*** to draw a selected text on a ***MicroStation*** drawing with the same properties previously set in the database.
3. Click ***Remove*** to delete a selected text from an object. Note that this action will permanently delete the text from the object.

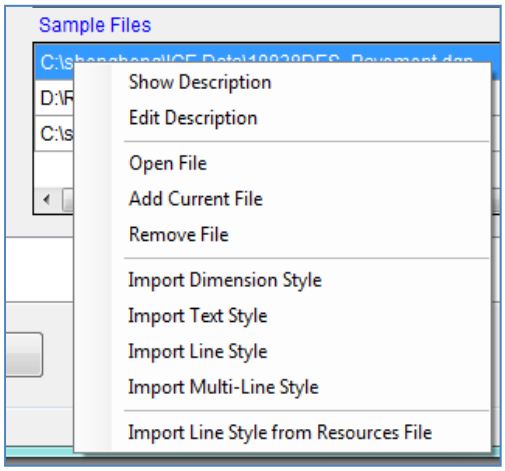
Right click on the ***Dimension*** data grid, three functions will appear as shown below. Similarly, there are ten functions provided in ***Sample Files*** as shown below:



1. Click ***Draw on the Screen*** to draw dimensions on a MicroStation drawing with the same properties previously set in the database.

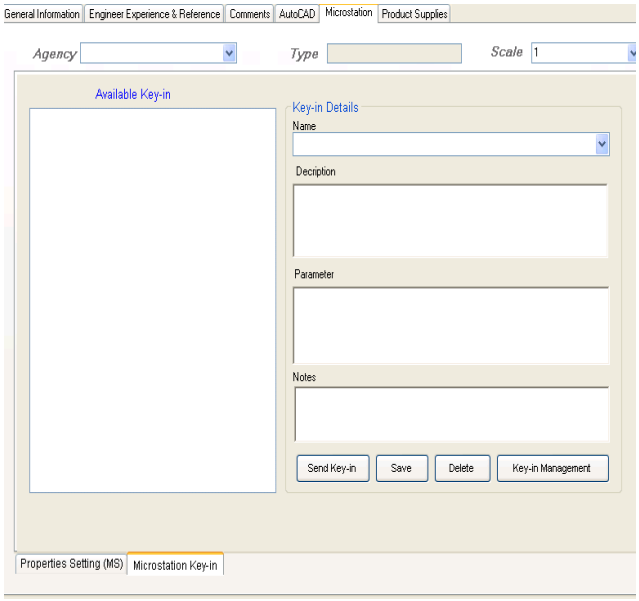
2. Click ***Remove*** to delete a dimension from an object. Note that this action deletes the dimension permanently from the object.

3. Click ***Edit Notes*** to revise the description of a dimension or leader.



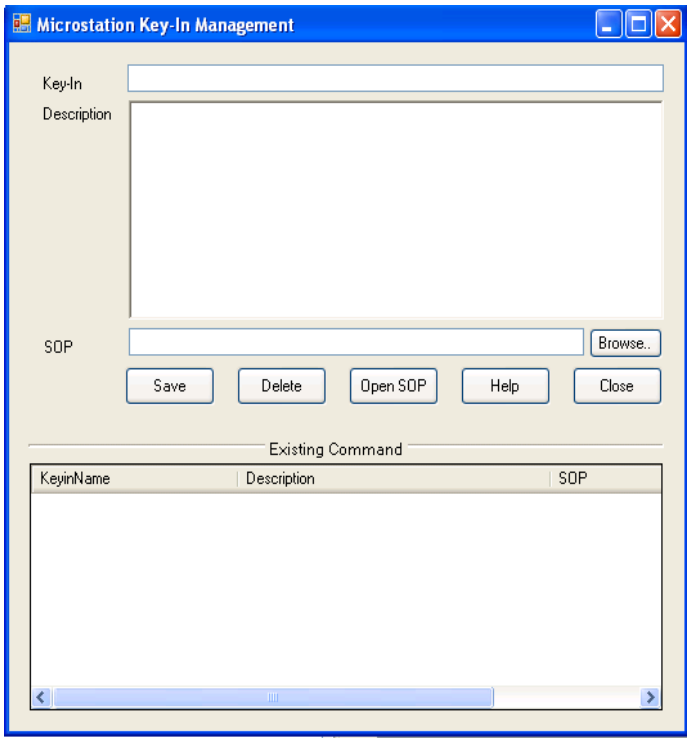
1. ***Show Description***: Self explanatory.
2. ***Edit Description***: Self explanatory.
3. ***Open File***: Open file in ***MicroStation***.
4. ***Add Current File***: Add file to an object.
5. ***Remove File*****:** Remove file from an object.
6. ***Import Dimension Style*****:** Import dimension style to a ***MicroStation*** file.
7. ***Import Text Style*****:** Import text style from a selected file to a ***MicroStation*** file.
8. ***Import Line Style*****:** Import line style from selected file to a MicroStation file.
9. ***Import Multi-Line Style*****:** Import multi-lane style to a ***MicroStation*** file.
10. ***Import Line Style from Resources File*****:** Import the file that was set in the ***Globe Setting*** window. Refer to Chapter 5: Globe Setting for details.

4.5.2 *MicroStation Key-In*



- Select ***Key-in*** from the drop down box, input name, description, parameters and notes, click the ***Save*** button.
- Double click a command in the list box, or the ***Send Key-In*** button. It will run in ***MicroStation***.
- Click the ***Delete*** button to remove.
- Click the ***Key-In Management*** button to add or revise key-ins.

4.5.3 *MicroStation Key-In Management*



- To add a new key-in, type in its name, description, and specific SOP (State of Procedure) file, then click the ***Save*** button.
- To delete a key-in, select the key-in from the list box, and then click the ***Delete*** button.
- To review a specific SOP, click the ***Open SOP*** button to open the file.
- Click the ***Close*** button to close the window.

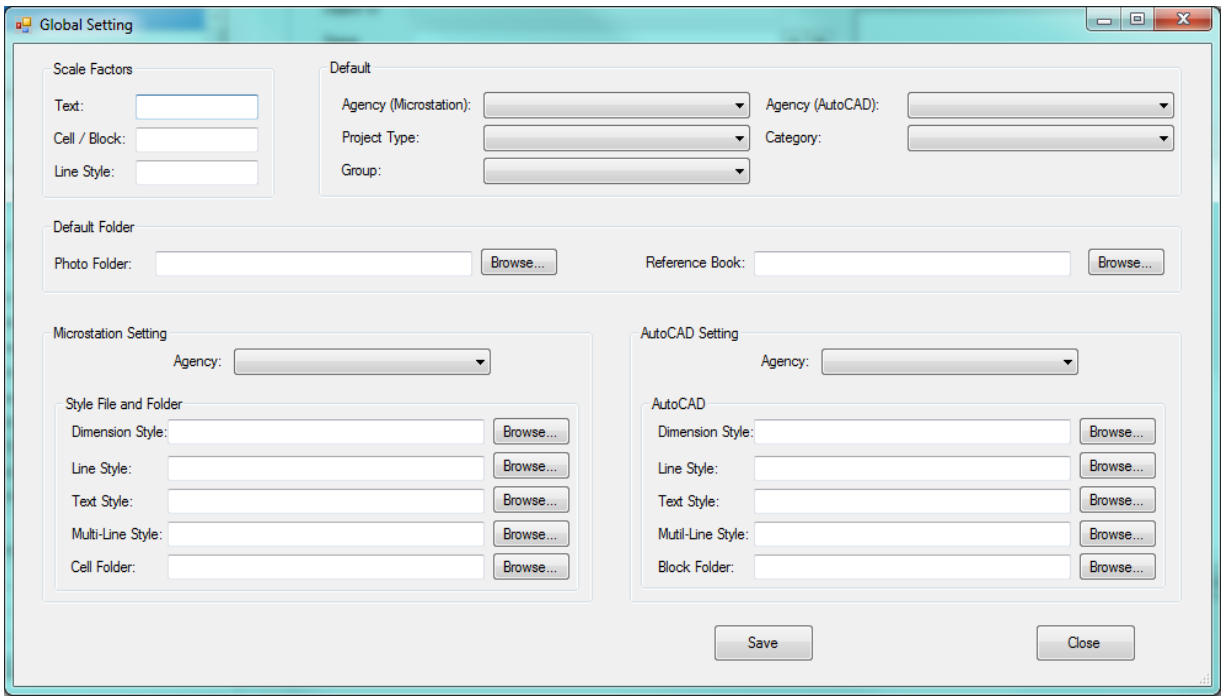
5. GLOBE SETTINGS

This module was developed to effectively handle standard settings in CAD files using a globe setting approach. Users can setup default scale and styles for text, cell, block, and line, or a default agency for ***MicroStation*** and ***AutoCAD***, as well as project type, category, group, photo folder, and reference book folder. By defining and applying globe settings, users can not only save a tremendous amount of time throughout the design process, but also avoid some tedious data input efforts and potential human errors.

Under the ***MicroStation*** environment, users can setup files for each agency to specify acceptable styles for dimension, line, text, or multi-line, as well as a cell folder. Under the ***AutoCAD*** environment, users can setup files for an agency to specify the acceptable styles for dimension, line, text and multi-line, as well as a block folder.

Once all the settings are set, Users should run the program first. There is no need to select agency, scale, category, project type, and group as they will be loaded automatically. Additionally, users do not have to select these parameters nor to find the location of a cell or block folder every time they go through the process.

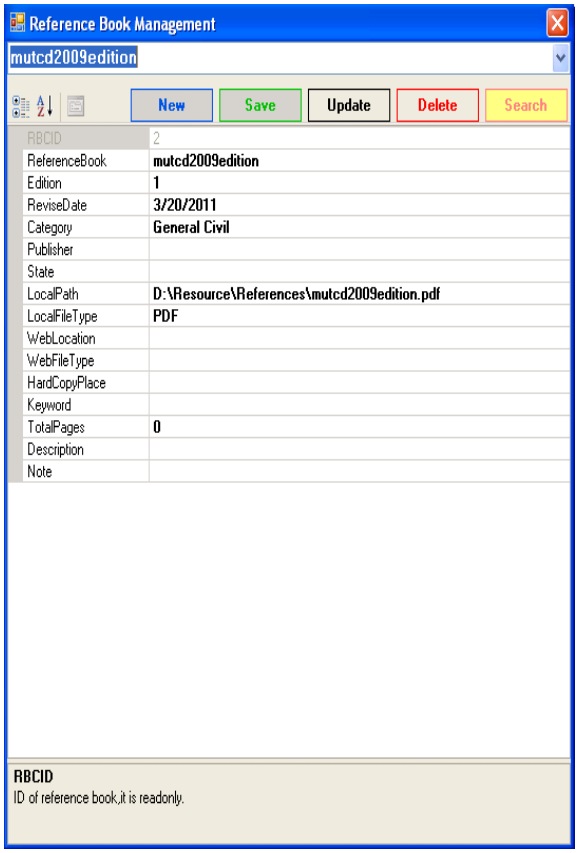
Once the dimension style files are set, the system will import the dimension style into the CAD file at hand when draw any object into the file. Depicted below is the Global Setting interface.



6. HELP

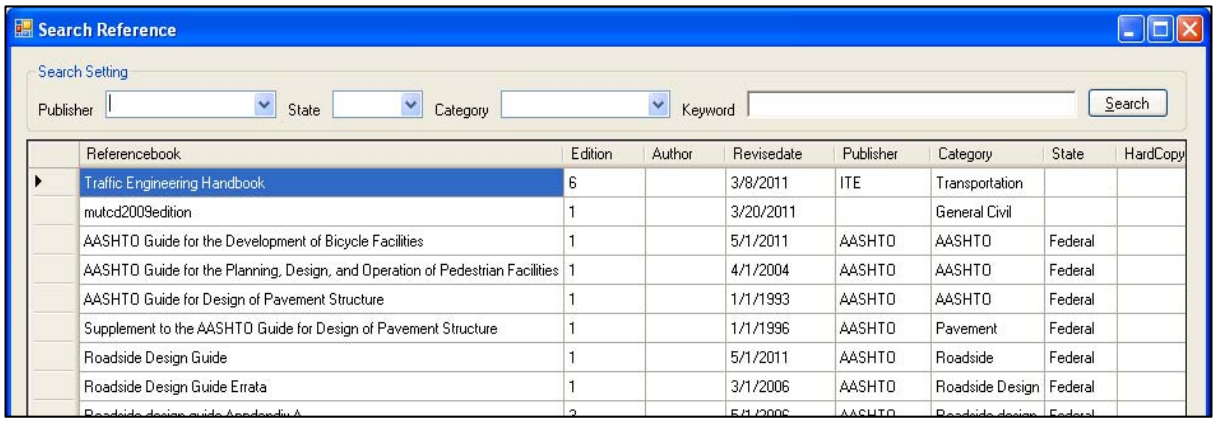
6.1 *Reference Book Management*

The ***Reference Book Management*** interface was developed by CESS LLC to help users achieve a more convenient and effective practice in project related information management. The framework of the interface and a step-by-step procedure are provided below for users' convenience.



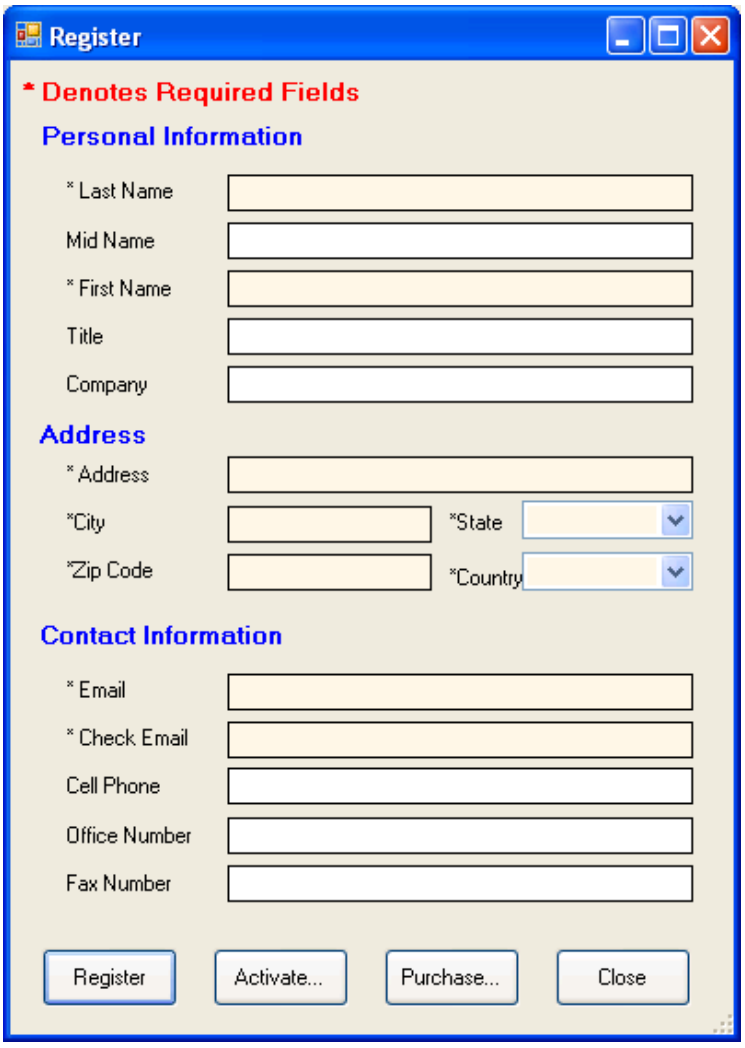
- To add a new reference book, click the ***New*** button, input basic information, including Name of the reference book, category, local path, keyword etc., then click the ***Save*** button.
- To revise the information in a reference book, select the book from the drop down box, revise, and then click the ***update*** button.
- To delete a reference book, select the book from the drop down box, then click the ***Delete*** button.
- To search a reference book, click the ***Search*** button, and a search window will appear with details as shown in the picture below.

Reference books can be searched based on user defined search filters or conditions, including publisher, state, category, and keyword. Refer to the screenshot below for details.



6.2 Product Registration

Product registration is an important step in order for users to keep up with the latest news and updates, and continue to receive technical support as well as free upgrades from CESS LLC. This interface was built-in the OCD software package so that users can conveniently register their CESS LLC. product licenses and activate the software packages that were purchased. The ***Register*** interface and a step-by-step procedure are provided below for users' convenience.



- After the 30-day trial period, users will have to purchase the software in order to continue to use the Software. Click the ***Purchase*** button, and a license agreement will be effectuated with an on-going technical support once the payment is made in full.
- Fill out the registration form, and click the ***Register*** button. An activate code will be sent to the user shortly via email.
- To activate the software, click the ***Activate…*** button, and input the activate code obtained in the previous step.
- Click the ***Close*** button to complete the activation process and close the window.