ME Design Database Setup Information

Introduction

ME Design now includes a database option that allows for enterprise operation. The database has the following functions:

1. Archiving reference or design projects. Any valid ME Design project may be stored in its entirety to the database
2. Creating material libraries. Individual material or other analysis objects (traffic, climate, etc.) can be stored and retrieved by users.

ME Design enterprise features works with either MS SQL or Oracle database software. Blank databases can be found at http://www.me-design.com . Database administrators should download the appropriate files for their database type and restore/create the databases for use with ME Design.

Database size grows at about 5 MB per project. A typical database should not exceed more than 10 GB and will usually require (~1 GB) much less space.

Server Software Requirements

Oracle: Oracle Server 10g Release 2 or greater

SQL Server: SQL Server 2005 or greater

Client Software Requirements

Oracle: Oracle Client 10g Release 2 or greater, Oracle Provider for OLEDB

SQL Server: None

MS SQL Install Instructions

The zipped file for the MS SQL installation will contain a file labeled MEDesign.bak. This file is a MS SQL backup file for a blank ME Design database. To restore this database:
1.) Open MS SQL Server Management Studio.
2.) Create a new database named MEDesign.
   a. Right click on Databases under your MS SQL server instances.
   b. Select New Database.
   c. In the dialog box that appears. Enter MEDesign under database name and select the OK button.
   d. The MEDesign database should appear as the last database in the Object Explore tree view under the Databases Folder.
3.) Restore the backup file to the MEDesign database.

a. Right click on the MEDesign database. Select Tasks|Restore|Database.
b. Select the From Device radio button und Source for Restore.
c. Select the browse button to navigate to the MEDesign.bak file. In the Specify Backup dialog box, select the Add button and select the file.
d. In the Restore Database – MEDesign dialog, check the Restore checkbox in from of the database to restore.
e. Select Options in the tree left tree view select options.
f. Under Restore options, check the Overwrite the existing database checkbox.
g. Select OK.

4.) Set permissions
a. Open the Security folder on the Object Explorer.
b. Right click on Logins and select New Login.
c. Under login name, enter darwinUser.
d. Select the SQL Server authentication radio button and enter a password.
e. Under default database select MEDesign
f. Select OK.

5.) Under the MEDesign database select the Security Folder and right click on Users folder.
a. Select the Login name radio button.
b. Browse and select the darwinUser from the User list.
c. Under database role membership select db_datawriter and db_datareader, db_owner.
d. Select OK.

6.) Open ME Design application and enter database login information. Full instructions for using the database are included in the document entitled ME Design Database Instructions.doc.

Oracle Database Install instructions

While MS SQL server has Microsoft SQL Server Management Studio for maintenance of the MS SQL database, Oracle has many different tools that can be used to manage an Oracle database. Therefore, more generic instructions are given for an Oracle database installation than are available for the MS SQL installation.

In the Oracle zip package, you will find a MEDesign.sql file which can be run as a script to create the tables and relationships necessary to utilize an ME Design database. It is left up to the Oracle DBA to setup a new Oracle database for ME Design. They can then utilize the .sql file to generate the necessary tables, indexes, procedures and constraints.

Users for the Oracle database will require read, write, and execute privileges.
1. Create new database (If Darwin is being placed under existing schema or a new schema is being created please disregard and go to step 2).
   a. Create new Database Instance.
   b. Set all necessary passwords and permissions which are needed for the database (i.e. network permissions, space allocation, etc.).
2. Create new schema

        a. Create a new User called DARWINME (this will create a schema called DARWINME)

        b. Give all necessary roles and privileges to the user.

3. Insert tables into schema
        a. Create schema with .sql file
                i. Open Oracle SQL Developer or SQL PLUS query editor.
                ii. Run the MEDesign.sql script

4. Create synonyms
        a. Create synonyms for all necessary tables, views …etc

5. Grant security privileges (read, write, execute).

6. Open ME Design application and enter database login information. Full instructions are included in the document entitled ME Design Database Instructions.doc.

ME Design Database Access Instructions

This document will go through step by step procedures to demonstrate how to set up database access for the ME Design software.   ME Design is able to connect to Oracle Databases 10.g and above, as well as SQL Server 2005 and up.

To Access the Database

To start using the ME Design database, user has to download the blank database files from ME Design download webpage (http://www.me-design.com/MEDesign/Documents.html), for either a SQL server database or an Oracle database.

Please speak with your DBA (Database Administrator) to have the appropriate database files properly installed.

Once your DBA has set up the ME Design database, the user will need to create an initialization file for the database. On the login screen, check the checkbox entitled "Open ME Design with database connection".
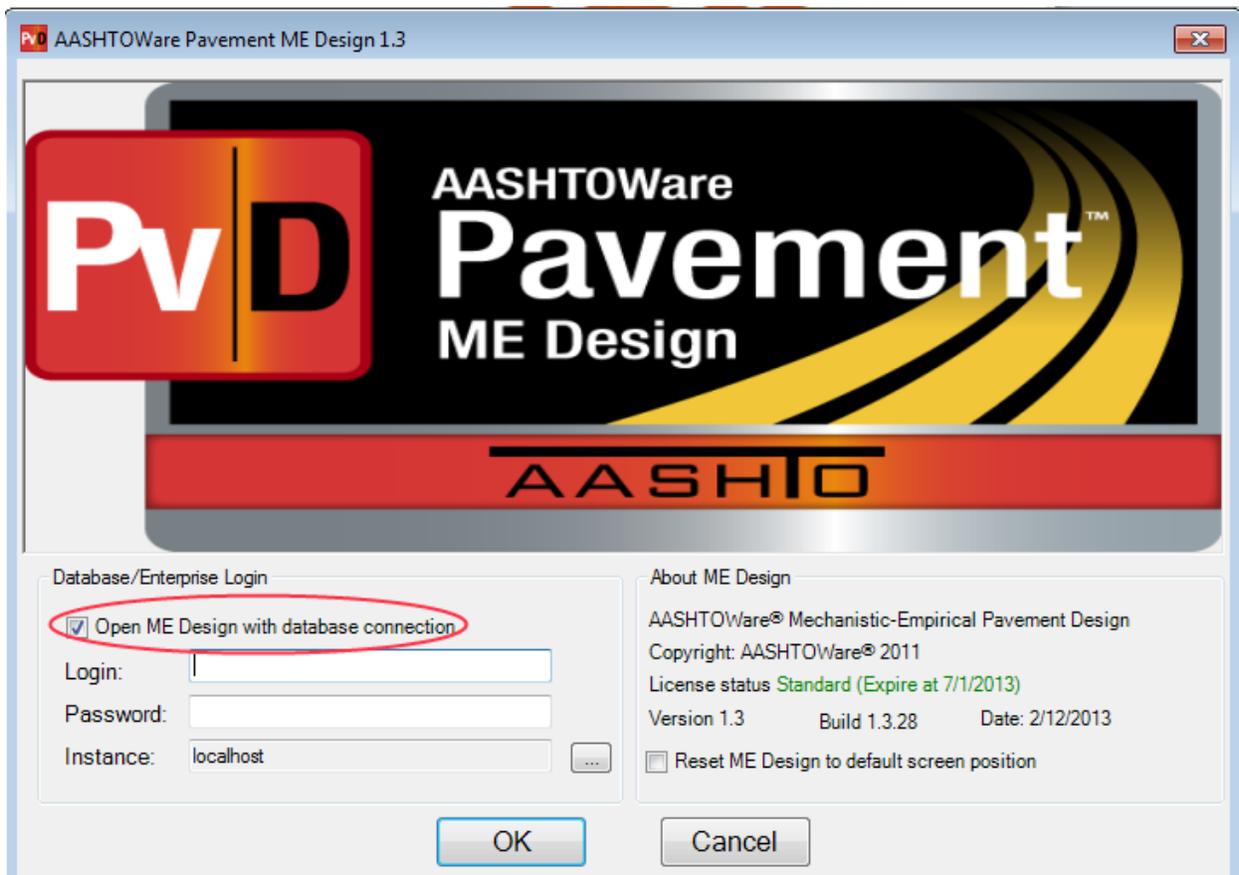

After un-checking the use without database connection option, click the ellipsis button (…) next to the database field.
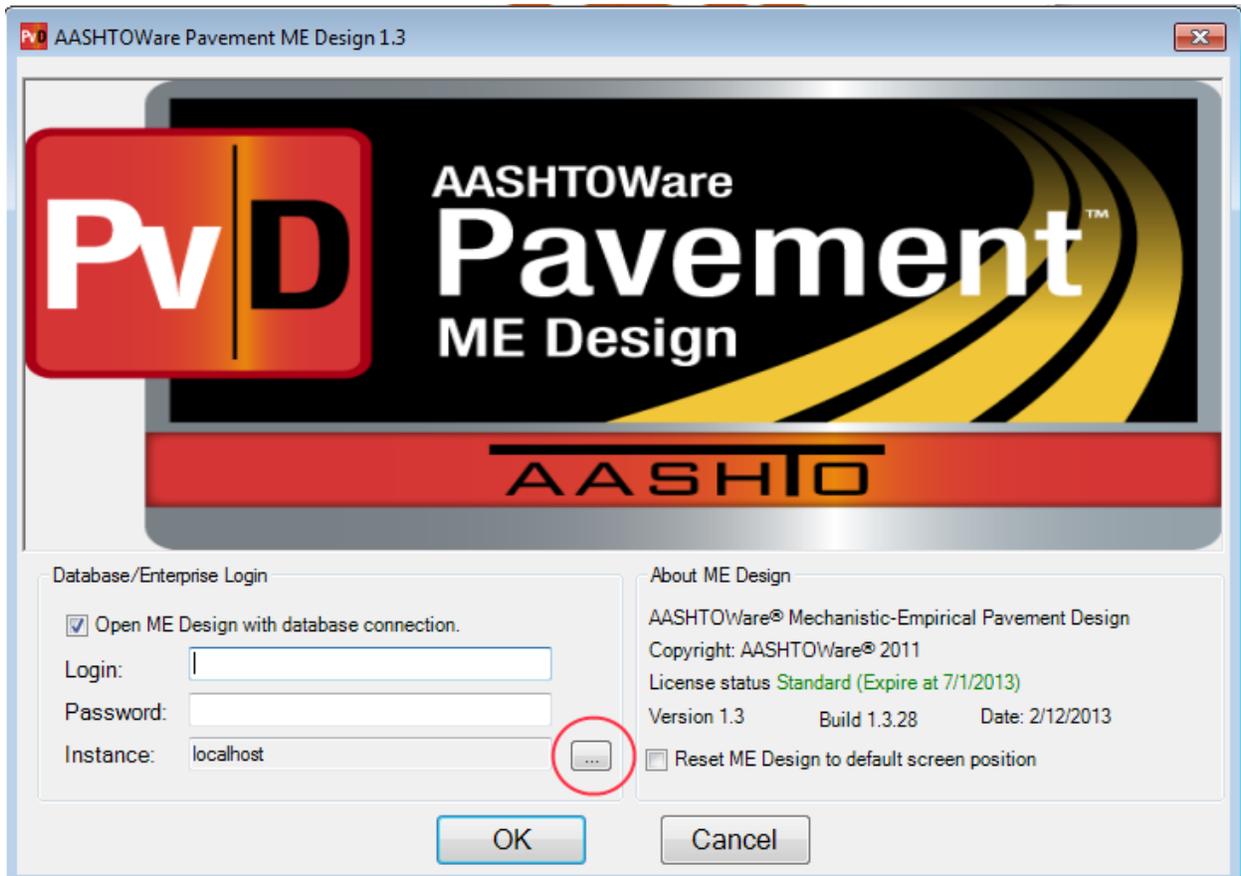
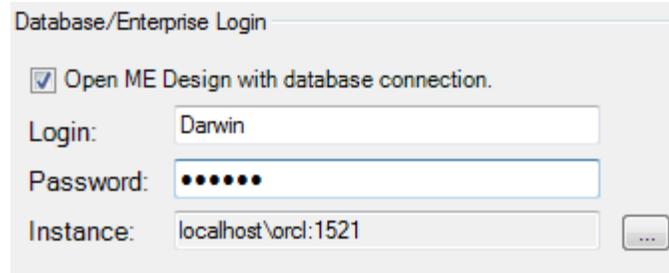The user will be presented with a database authentication and connection screen.
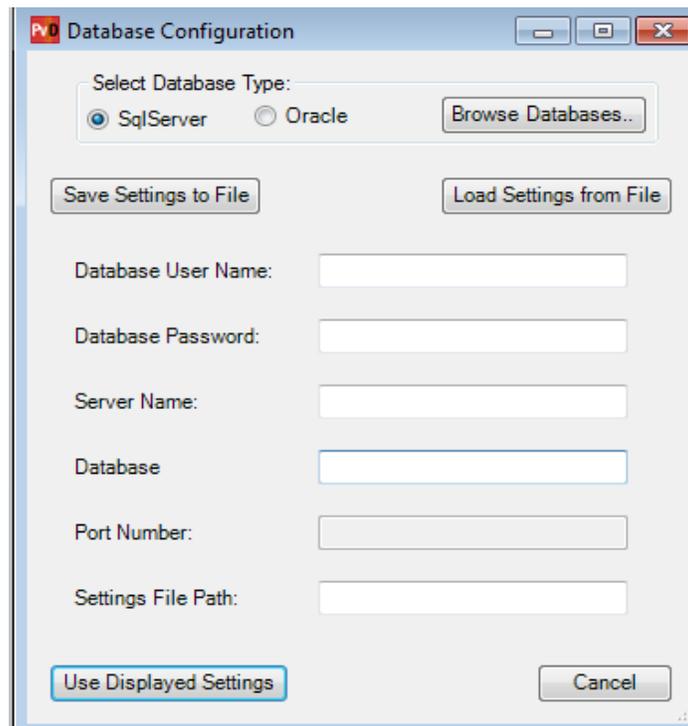
Users now have the option to save their connection file to disk or load an existing connection. User will fill all their database connection information, after this task is completed. The user should save the database connection file (by clicking on the "save settings to file" button), however the user can simply use the displayed settings without saving the settings. This file can be distributed to other users and then, via the "load settings to file" button, used again on other workstations. Press the "OK" button when finished. You will now see the name of the server on which the ME Design database resides in the "Instance" field.
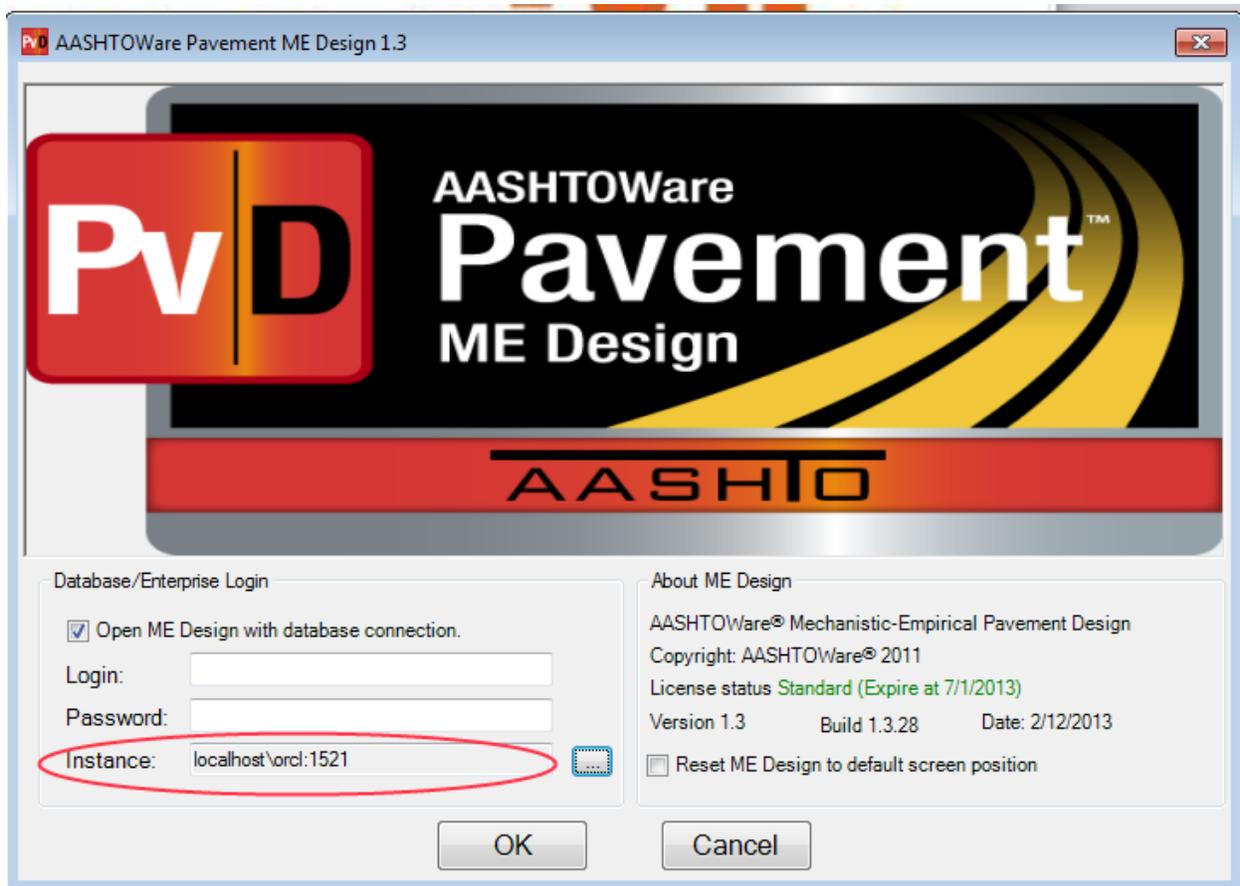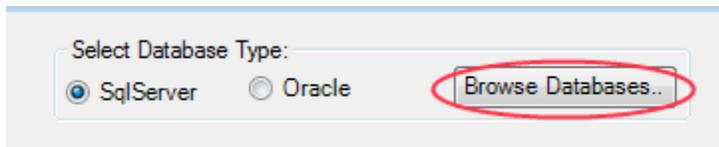
Creating User Accounts

The first time a user connects to the database, an administrator's account needs to be created. In order to create this admin account, the user must log in as **Darwin/Darwin**.
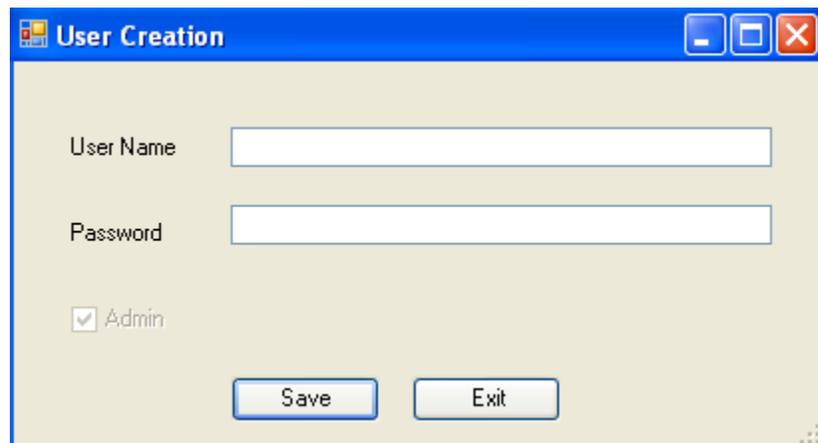
Logging in with this account will bring up an account creation screen, which will allow the creation of one admin account.
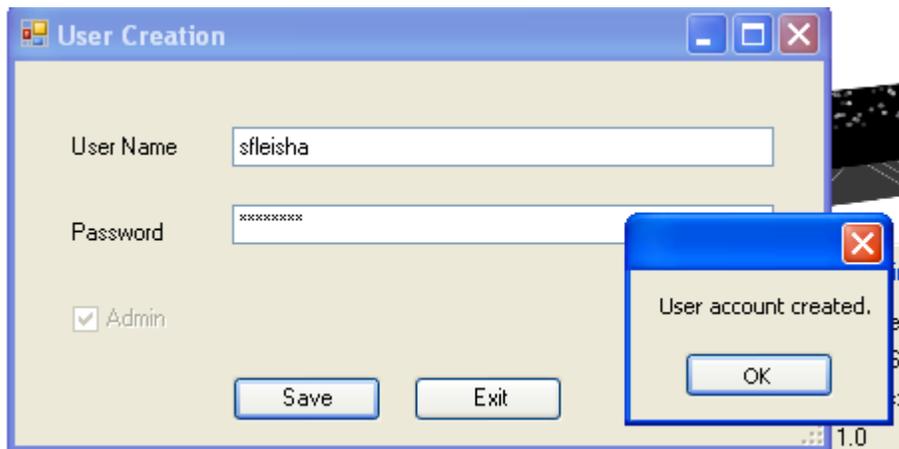

Once this account is created, the Darwin/Darwin account will go inactive. The user will have to login with the account that was just created.


Admin users have full permissions to access ME Design data. They will be able to create new users and update general users' information as necessary. Under the Tools menu, there is an option titled Administrator and it is the place where all the new users' information has been stored.
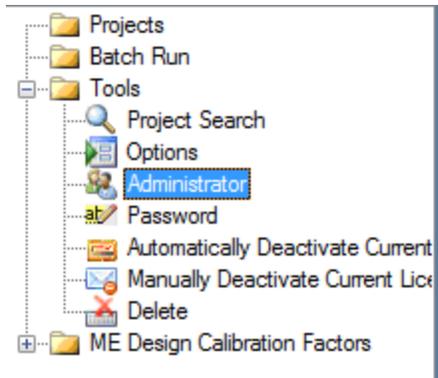
To create a new user, click on Button Create, fill in the proper information and then save.

Edit User Information

To edit a user's account information, an administrator needs to click on Edit button. This will bring up a list of all users that have access to the database. Select the one that you want to edit the appropriate information.
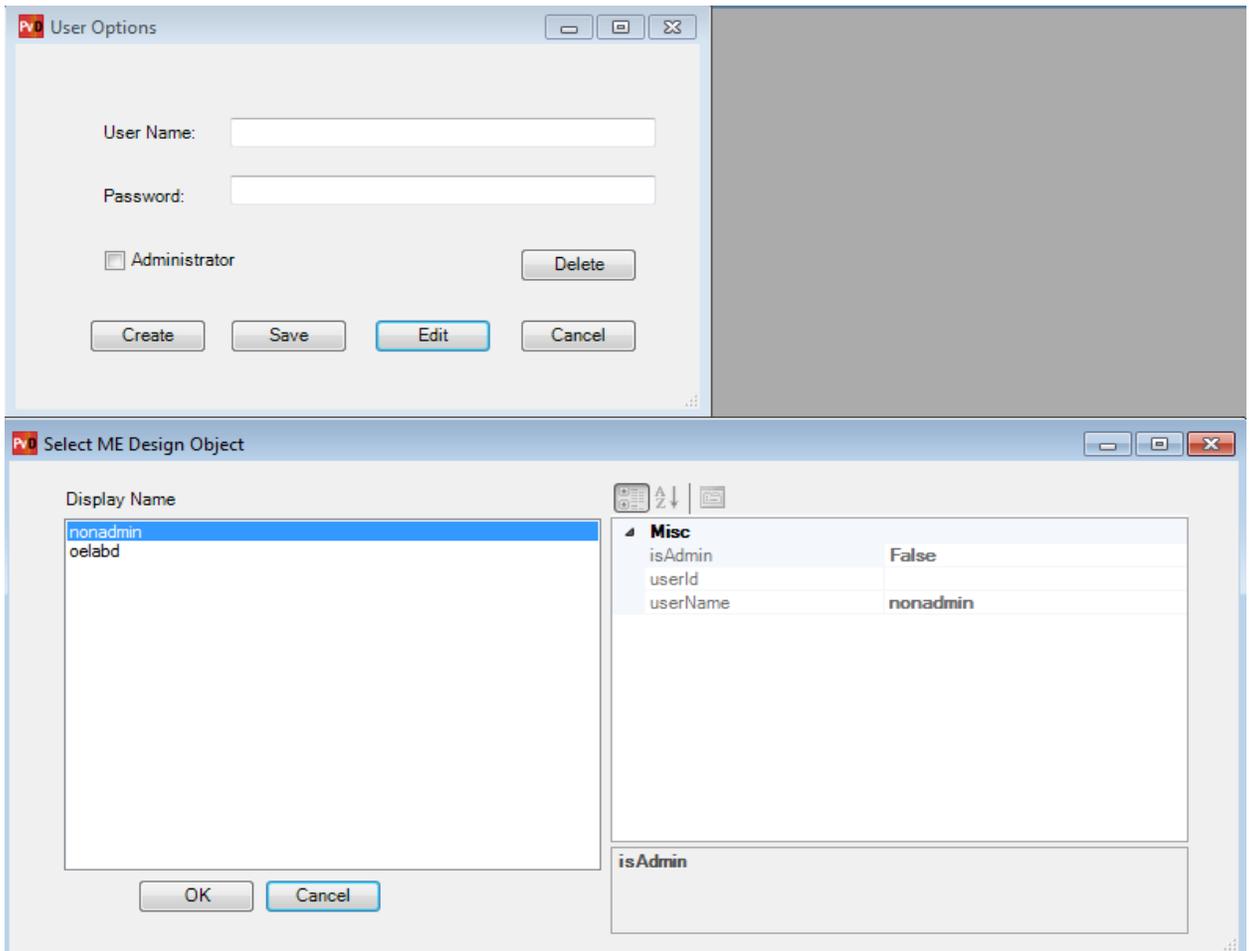
Password Change

If a user wants to change his/her password, there is a password selection under the Tools node inside the program. Users can click on this option to change their passwords. An admin user can also change the password using this feature.
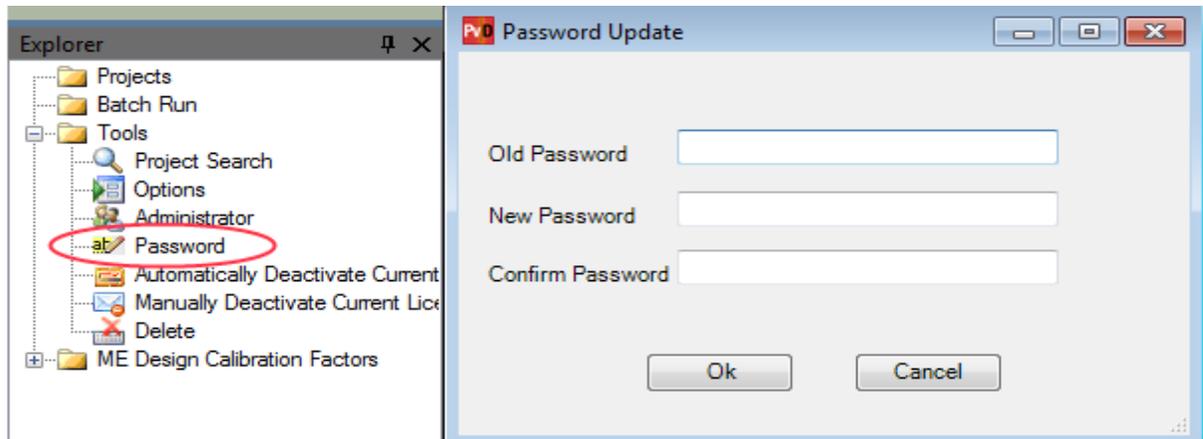
Once ME Design is connected to the database, some new options will be available and are displayed under the right click menus from the explorer menu and the menu ribbon at the top of the main application screen.
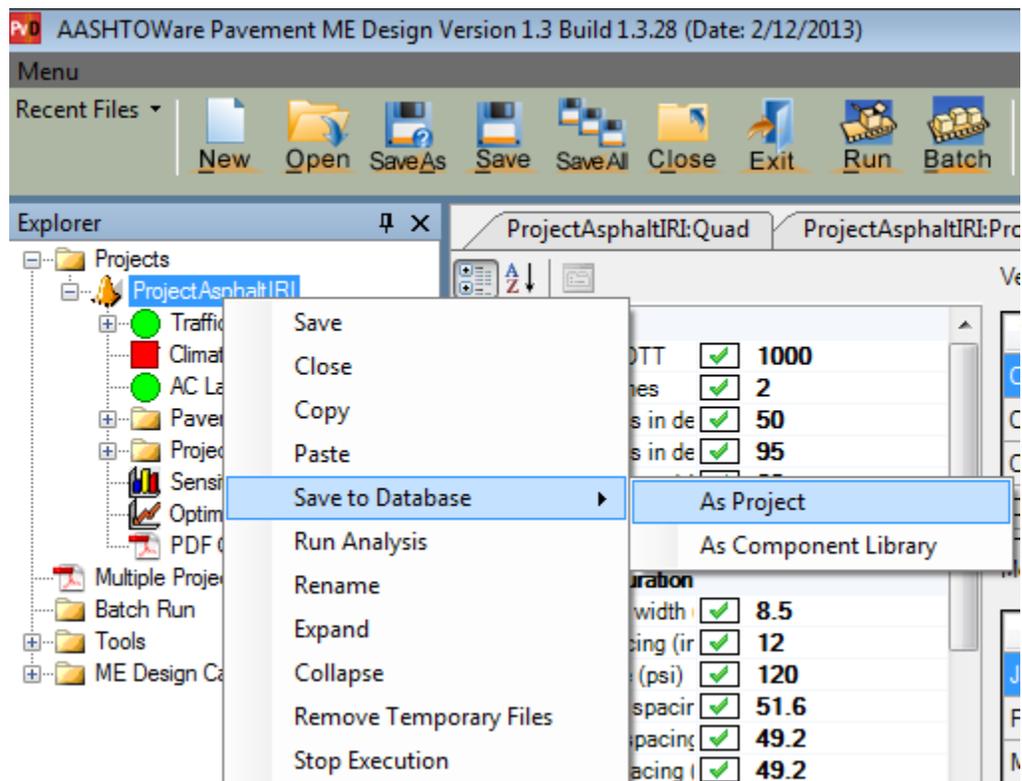
Save and Retrieve Data

In ME Design, two primary items can be saved to database, full projects and library items.

For Full Project

To save a project, the user must right click on the highlighted project to open all menu options. After clicking on 'Save to Database', a full project will take 5-10 seconds to save on the database. A message will show if the save succeeded. If the save failed, an error message will display.
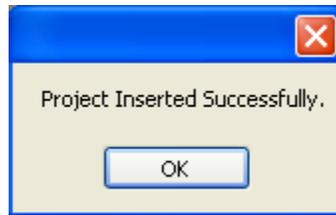
In order to retrieve projects from the database, the user will need to use **Advanced Search** page, which is located under Tools option in the explorer window.
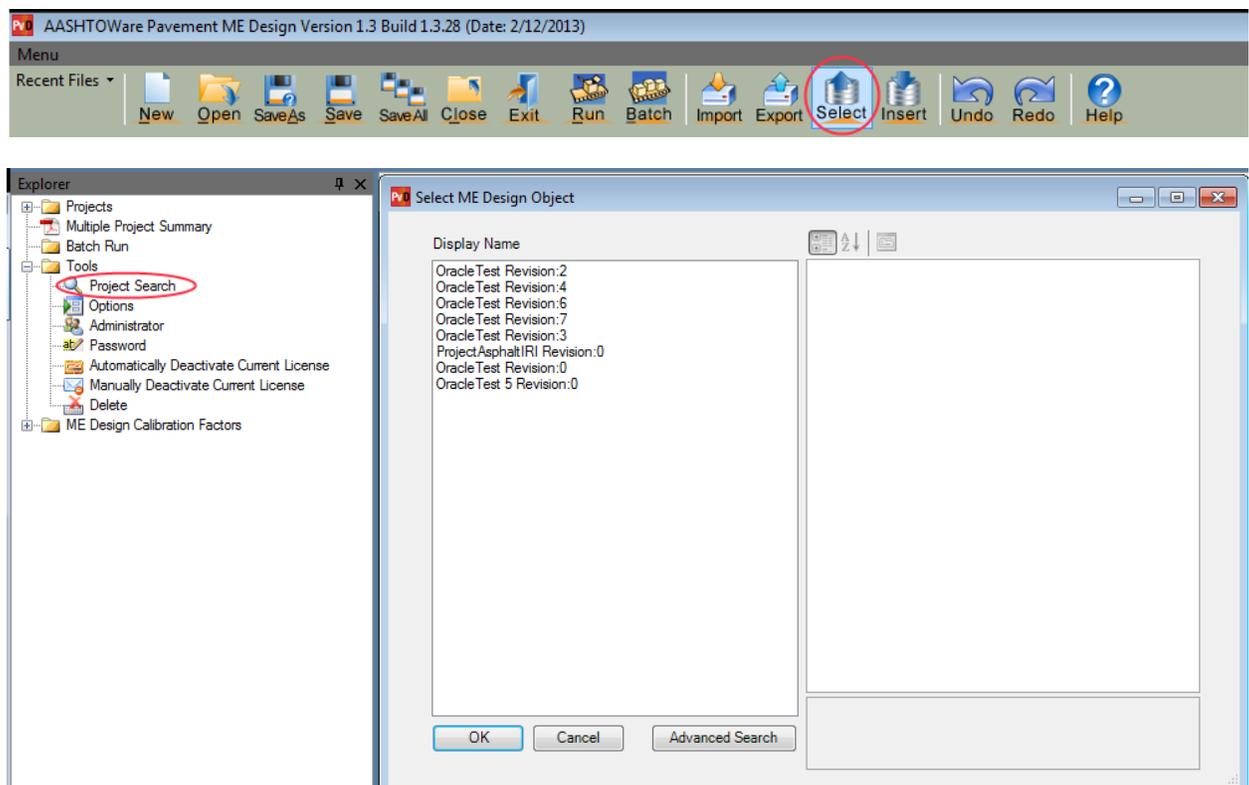

The Project Search tool has a query generator for the user to search the database. The user is able to make a query based on the chosen criteria.
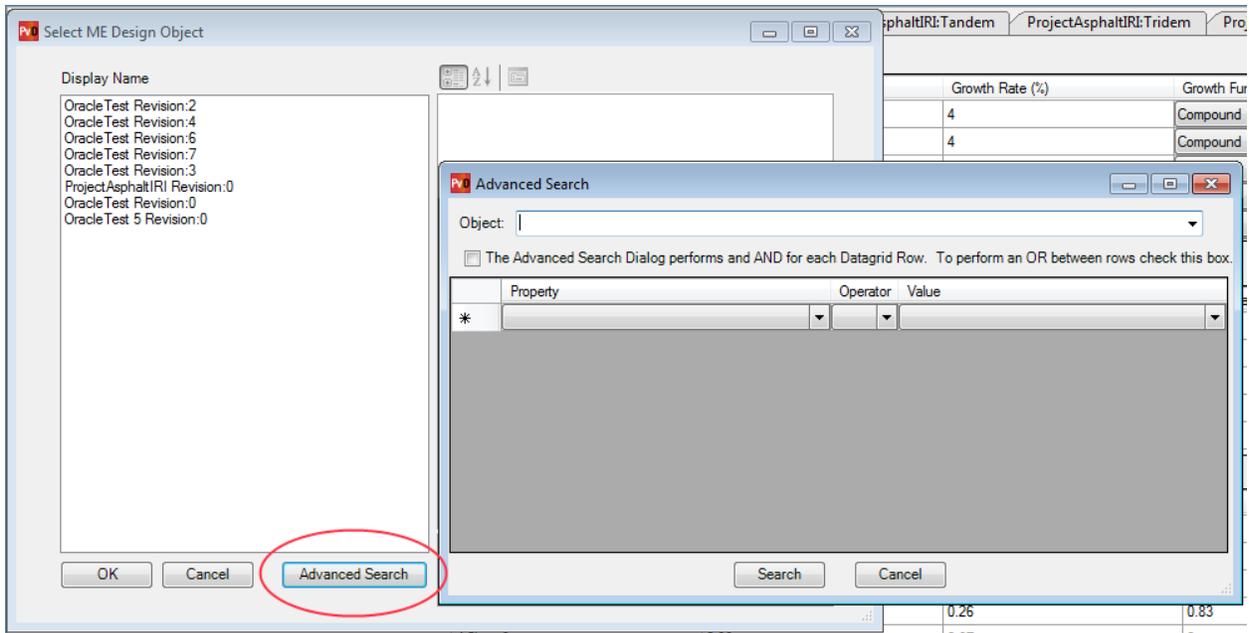
In the Advanced Search window, the object drop down is the high level object: project information, traffic, material, etc. The property drop down contains the properties of object chosen in the first column. For example, Traffic (from the first drop down) properties include AADT, lane width, axle width, etc. The Value Property contains all the unique values, which are stored in the database for the selected property in the second column.

The Operator drop down specifies the filter operation to be performed, in this example it translates to find the Project or Projects with the Project Revision Number that equals 7.
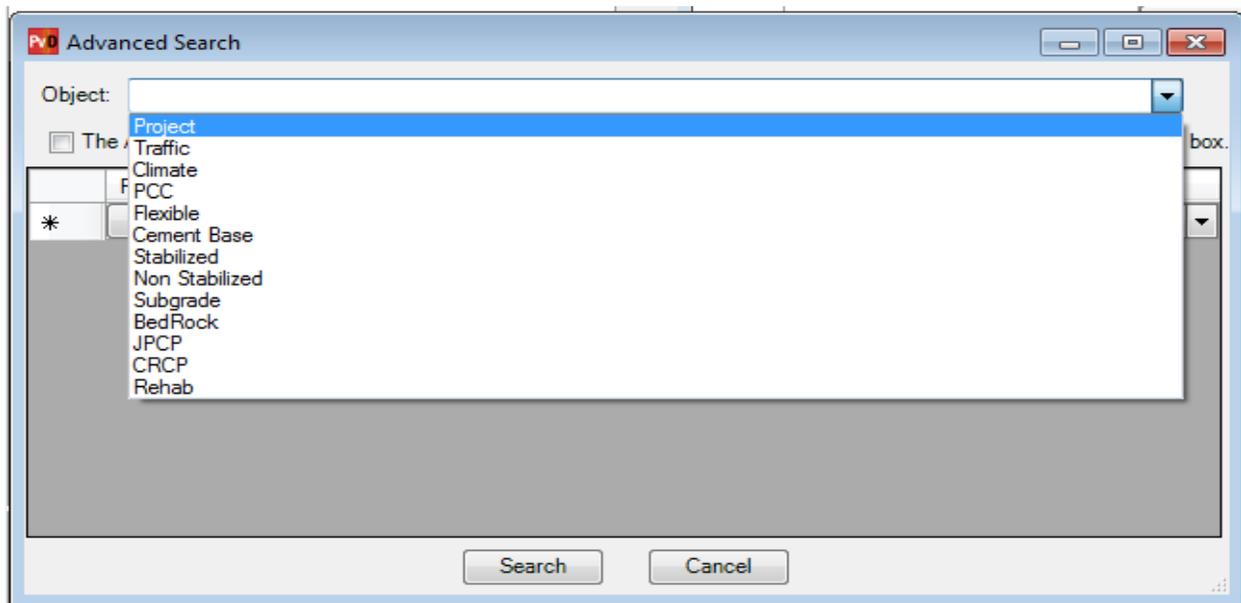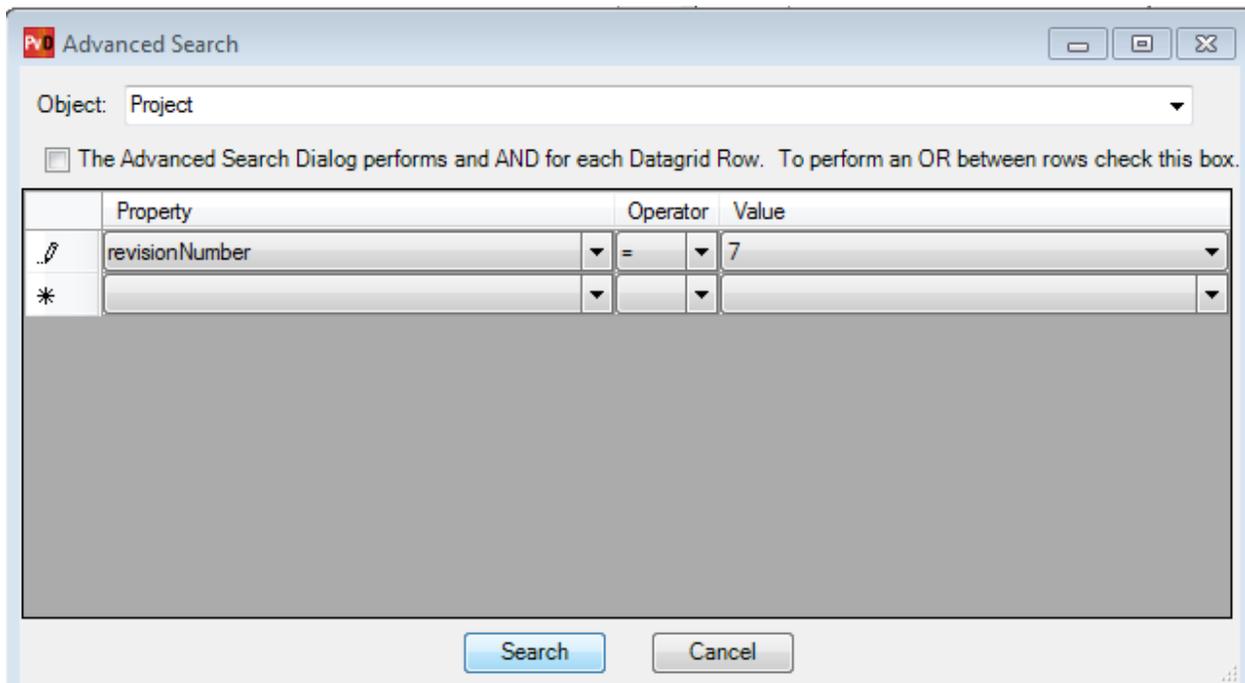
The checkbox provides the flexibility to AND between queries, with the checkbox unchecked the functionality is an OR between the queries.

Once the query is correctly entered, the user clicks on "Search" button. If there are any projects that match the provided conditions, they will be listed in a window. By clicking on a project, data for this project will be retrieved from the database and displayed in the ME Design window.
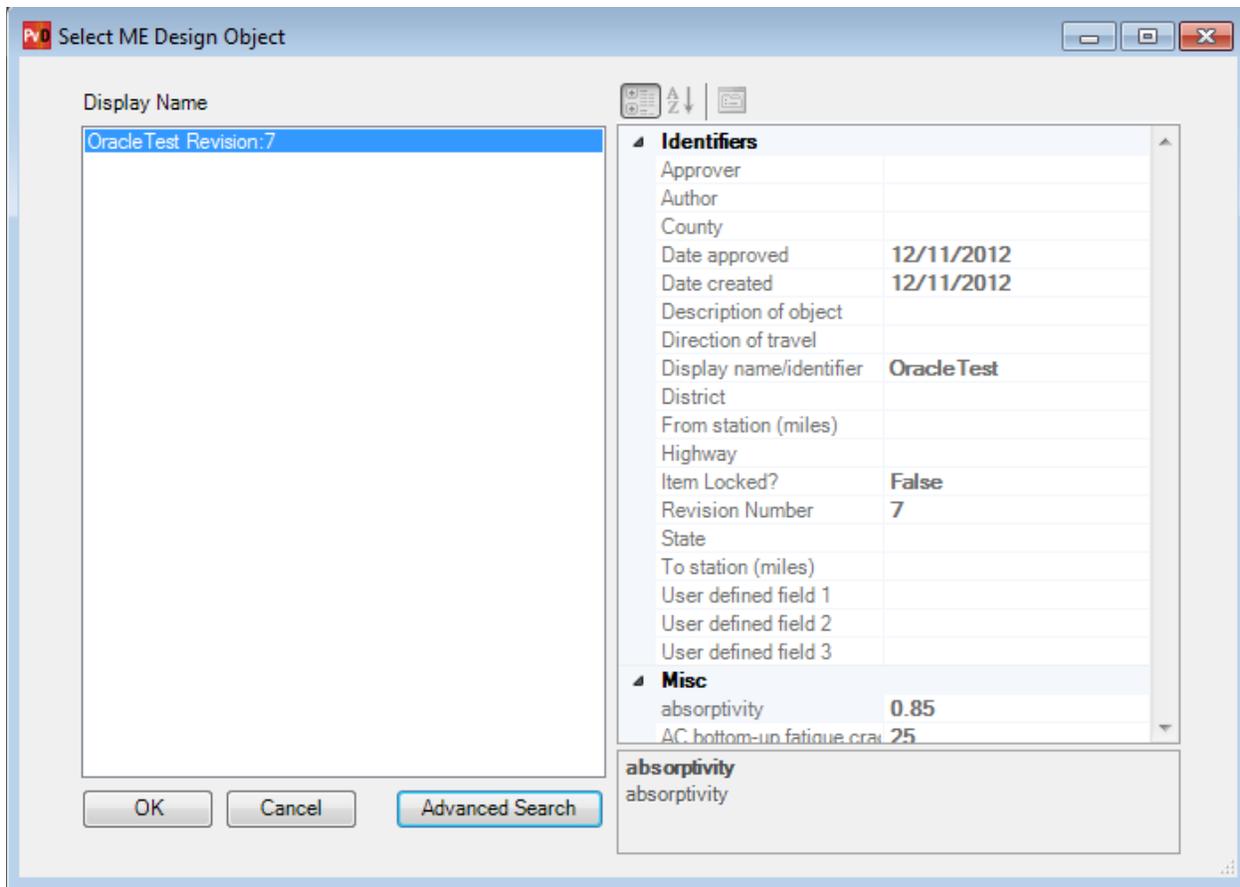
Please take note of the following:

1. A search may bring down several projects which match the query, but only one project can be retrieved and displayed from database at a time. After one project is selected and clicked to open, search result window will be closed. When selecting data out of multiple projects, multiple searches must be made.
2. Only one item can be used from the first column for any search. For example, you cannot search on the display name from the project and combine that with AADT from traffic. They would have to be two distinct searches.

For Library Items

For inserting Library items into the database, highlight the item you would like to save to the database and right click mouse button to open the options. The following screenshot shows how to save Traffic data into the database.
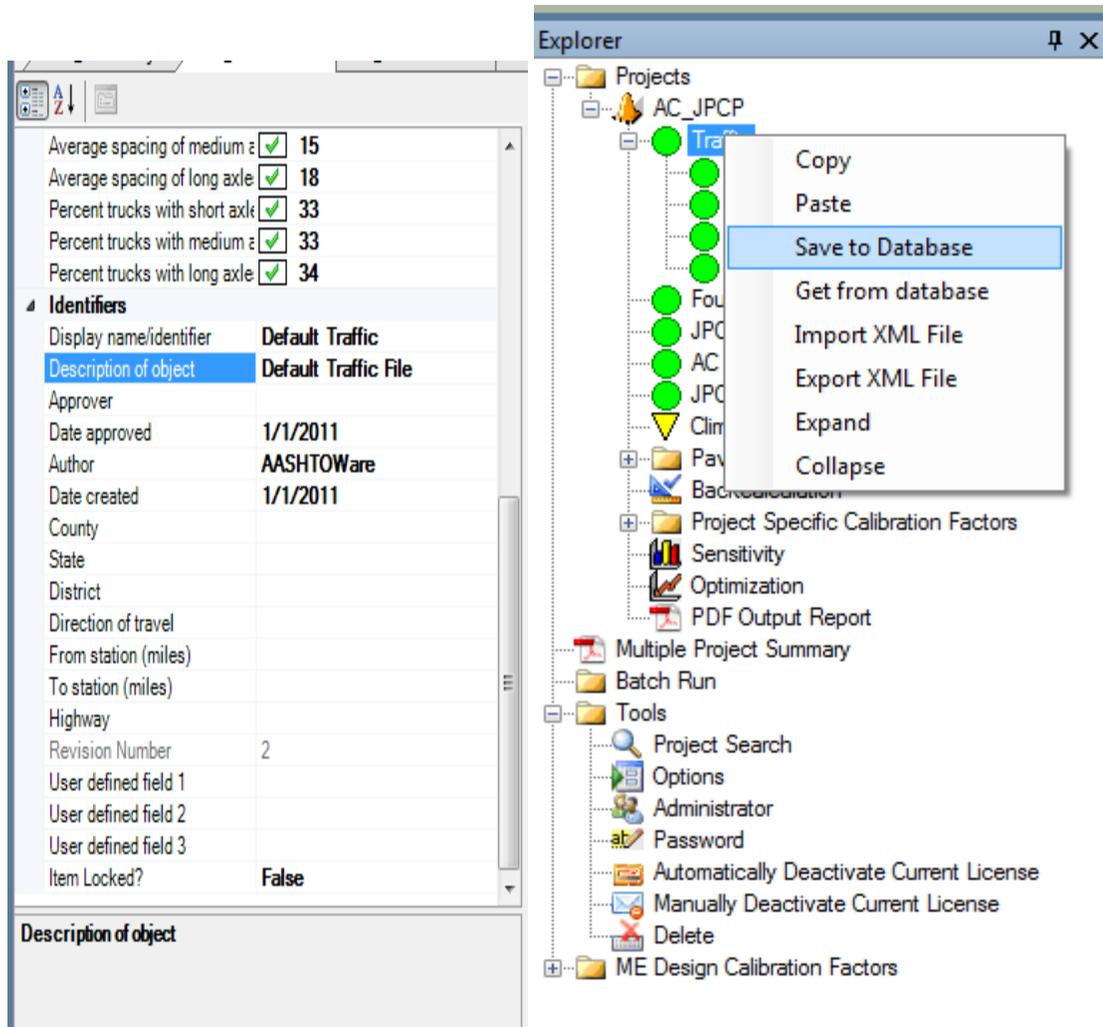
In order to correctly insert a library object into the database, the Display Name must be entered. The following error message will show, if Display Name is not filled.

The Display Name field is located under the Identifiers section for the property grid of the object. For Datagrid objects, such as Axle Load Distribution, user can right click inside the datagrid and choose the option for the identifiers (identification).

| 3.21	5.81	5.26	7.39	6.85	7.42
7.99	9.63	9.93	8.51	6.47	5.19
4.93	8.43	13.67	17.68	16.71	11.5
5.18	8.35	13.85	17.35	16.21	10.2
6.32	Copy			8.55	7.29
5.97	Paste			8.59	7.11
6.03	Delete			10.69	11.1
6.8	Identification			9.88	8.54
9.24	8.27	7.12	5.85	4.54	3.46
6.7	8.45	11.87	13.57	12.13	9.47
3.21	5.81	5.26	7.38	6.85	7.41
7.99	9.64	9.93	8.51	6.47	5.19
4.93	8.43	13.68	17.68	16.71	11.5

The Properties window will open for user to fill in the appropriate information.

After the user has filled in the display name, object information can be saved to the database. A message box will display if the save operation succeeded.

To obtain the library objects from the database, user can right click on the object and choose 'Get from database' (see Figure below).
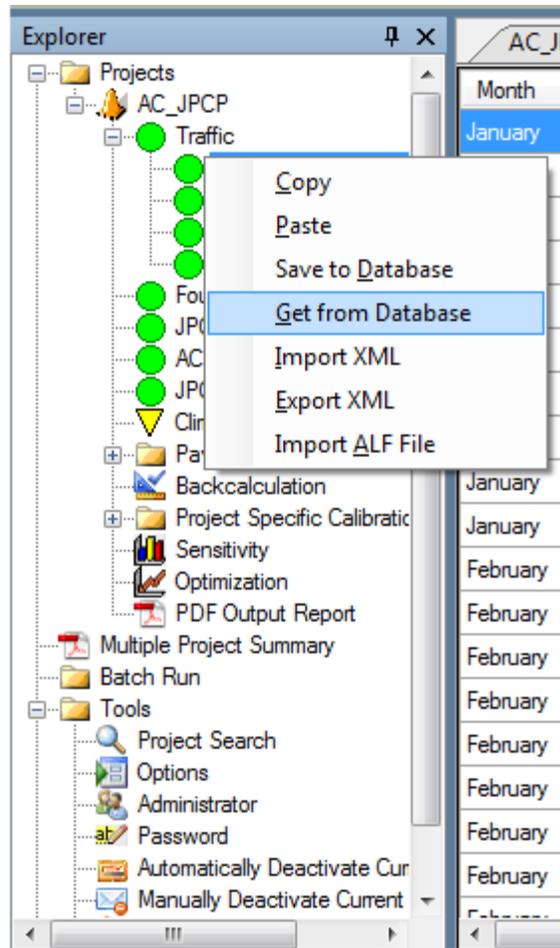
Once a material object is saved to the database, it can then be retrieved and displayed in a Material List window. Remember that any object saved from a project will not show up in the window.
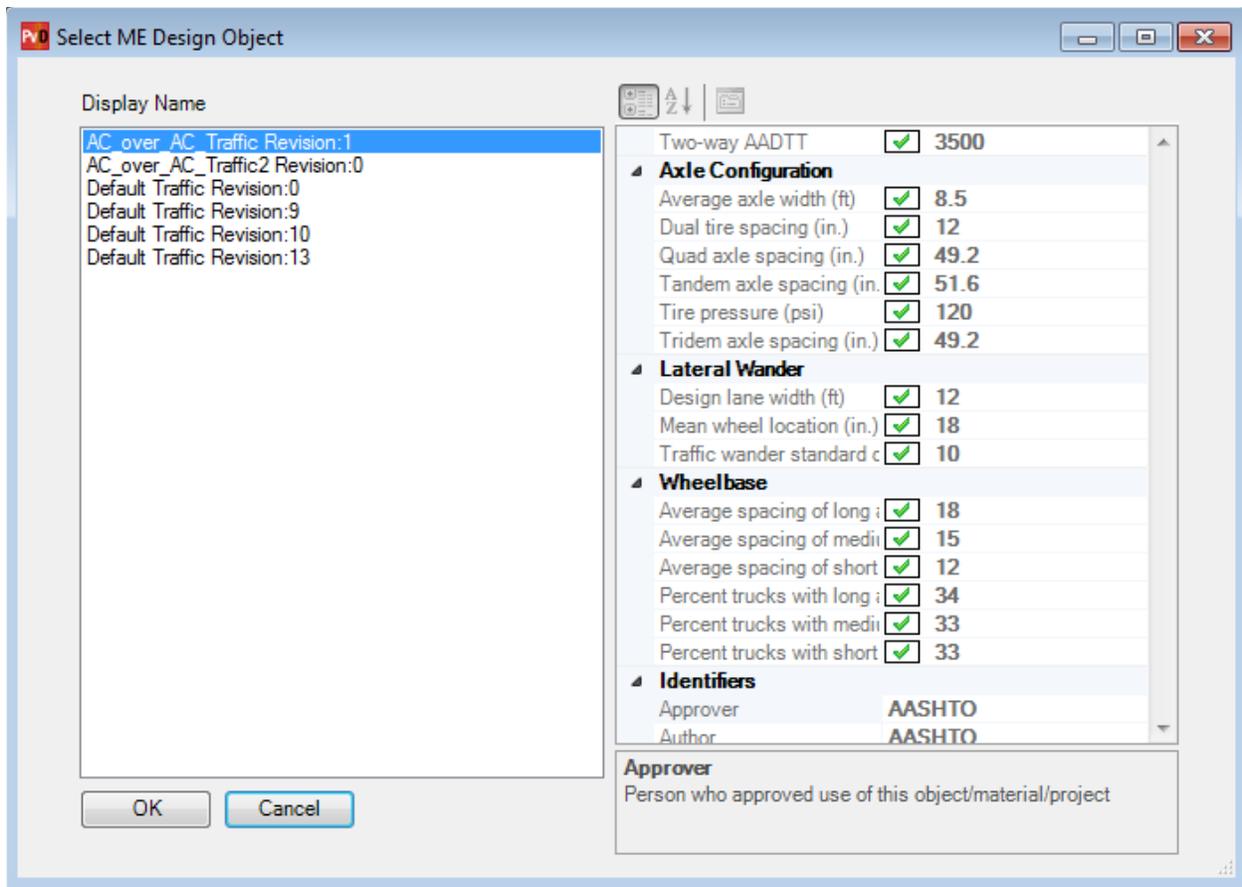
The user can select the library item from this window and insert it into the object they have selected. For types of Unbound, Asphalt, and PCC, material information can be retrieved from the database when a user is adding a layer to a project. The user just needs to click the radio button and all of the types that match the layer type will populate in the boxes (See example below).

Material Layer Selection

Insert layer below: Layer 4 Subgrade : A-7-6

Layer type: Non-stabilized Base (4)

Select material type

( ) Select from default list (•) Import from database [Filter] ( ) Import from file [Open]

A-1-a

▲ **Unbound**		
Coefficient of lateral earth	✔	**0.5**
Layer thickness (in.)	✔	**10**
Poisson's ratio	✔	**0.35**
▲ **Modulus**		
Resilient modulus (psi)	✔	**40000**
▲ **Sieve**		
Gradation & other engine	✔	**A-1-a**
▲ **Identifiers**		
Approver		
Author		**AASHTO**
County		
Date approved		**1/1/2011**
Date created		**1/1/2011**
Description of object		**Default material**

Approver
Person who approved use of this object/material/project

[OK] [Cancel]