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# Software Product Description

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**PRODUCT NAME: OptoMizer™ Lighting Audit System v2.3**

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**DESCRIPTION:**

OptoMizer™ is a multi-user, network-ready auditing system for the specific management of lighting retrofit audit data. It supports an unlimited number of system users and audits due to its relational database design. Sites operating separate copies of the OptoMizer™ system can selectively 'pass' audits or configuration data between systems allowing for a completely paper-less operation.

OptoMizer™ incorporates all of the lighting technology needed to create reports that range from parts lists, to detailed energy studies, to complete proposal packages. OptoMizer™ utilizes industry standard software (Microsoft Access) to ensure ease of use and provide for a long lifetime of service.

**FEATURES:****Parts Tables**

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The parts facilities within OptoMizer™ enables the lighting designer to track individual lighting component parts and pricing for use in the creation of luminaire designs.

The following is a breakdown of the fields available for tracking information about each part:

- Lamp: Model, Manufacturer, Type, Wattage, Lumens, Budget (cost), and Budget Expiration Date
- Ballast: Model, Manufacturer, Type, Voltage, Ballast Factor, PCB's present, Budget (cost), and Budget Expiration Date
- Socket: Model, Manufacturer, Configuration, Budget (cost), and Budget Expiration Date
- Reflector Kits: Model, Manufacturer, Socket Configuration, Budget (cost), and Budget Expiration Date
- Hardware: Kit #, TEK Screws, Blue Wire Ft., Red Wire Ft., Yellow Wire Ft., Yellow Jumper Wire Ft., Blue Wire Nuts, Yellow Wire Nuts, Lens/Closure, Budget (cost), and Budget Expiration Date

Misc. Hardware: Description, Budget (cost), and Budget Expiration Date

Lens: Type, Pattern, Budget (cost), and Budget Expiration Date

Packaged Fixtures: Model, Manufacturer, Description, Part Number, Vendor, Vendor Part Number, Budget (cost), and Budget Expiration Date

The Budget Expiration Date for each part is used to remind the user that the cost of the part may be out of date.

## **Schedules**

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There are two types of schedules that can be created in the Optimizer™ System. The first are called daily schedules and the second are called operating schedules.

Daily schedules are made up of a specific number of ON hours within a 24 day (hour 0 to hour 23).

Operating schedules are made up of three daily schedules grouped together. The three daily schedules would be classified as Weekday, Saturday, and Sunday.

An operating schedule would then be assigned to an audit space as either an 'Existing Schedule' or a 'Design Schedule.'

Assigning an operating schedule to an audit space then allows the system to calculate accurate energy usage and savings utilizing the existing and design wattage's in conjunction with the existing and design operating schedules.

Schedules are an automated feature within the OptoMizer system where the unique schedule id, description, and annual hour calculations are automatically created as the user builds the schedule.

## **Existing Luminaires**

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The existing luminaire design facility allows for the recording of existing fixture information in conjunction with a design and budget definition. Existing fixture information is tracked for the purpose of recording the installation characteristics as well as the existing wattage.

This information is used to design the replacement fixture and generate a budget for the complete retrofit of the fixture.

The existing luminaire design facility incorporates the existing fixture, design or retrofit fixture, and a budget for the retrofit into a single linked record that can then be assigned directly to an audit space.

## **Design Luminaries**

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The design luminaire facility allows for the detailed creation of fixtures utilizing design component descriptions in addition to the actual design components (parts). This facility allows the designer to manually create detailed fixtures while the system automatically creates a condensed, verbose description of the fixture and a related budget cost.

## **Wattages**

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OptoMizer supports an unlimited number of wattages that can be entered for each existing or design fixture code record. This gives the user the ability to enter in wattages such as Manufacturer, ANSI, or utility company wattages that can then be selected at fixture design time.

Within an audit, each existing and design fixture record utilized can then support up to two wattage values assigned at a time. The two selected wattage values are then available for selection at report time. For example, a user could run an energy savings report on a project audit utilizing the standard ANSI wattage values, then run the exact same report again using the projects utility company wattage.

## **Audit Space Data Collection**

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The audit screen is the primary data collection screen where the lighting auditor enters data on a space-by-space basis. The auditing process can move quickly as most of the necessary data to complete each space audit has already been designed or pre-configured in anticipation of the audit at hand (i.e. existing luminaire and design luminaire configurations, operating schedules, area usage types, etc.).

Detailed information about each audit space is captured and recorded within the OptoMizer software as the physical audit takes place:

- Space Identifier
- Space Name
- Existing and Design Area Usage Types
- Existing and Design Operating Schedules
- Zone, Building and Floor where the space is located
- Ceiling Height and Type
- General, Task & Day Foot Candle readings
- Existing and Design Lighting Controls
- Installation Difficulty rating
- General Space Notes
- Installation Notes
- Existing Luminaires, (with design luminaires and budget costs linked) and quantities, present in the space.

During the space-by-space audit, the auditor has the ability to create components on the fly directly from the audit entry screen (security permitting). This includes creating Existing and Design Luminaires, and Operating and Daily Schedules.

In addition, Several tools are provided to the auditor within the audit screen to perform verifications and time saving features against the audit:

### Find Missing Spaces

OptoMizer automatically assigns sequential space numbers to each audit space as spaces are entered. This tool will evaluate the entire current audit and notify the auditor of all space numbers that are missing from the audit.

### Find Existing Luminaire Spaces

This is a search function that will find and load only those audit spaces where a particular existing luminaire exists within the space.

#### Verify Audit Correctness

This tool will provide checks against the current audit, looking for data discrepancies and data entry errors. In many cases, the tool will correct the problems automatically when possible. Some of the checks performed when this tool is run are:

- Remove any orphaned budget cost records within this audit that are not assigned to a design luminaire.
- Verify that Existing Luminaire records with Design Luminaires assigned also have a matching Budget Cost record assigned.
- Verify that audit spaces have at least one existing luminaire / design luminaire assigned to them.
- Verify Design Luminaire & Budget Code relationships. For example, ensuring that a design luminaires selected ballast matches the selected ballast on the associated budget cost record.

#### Search and Replace Procedures

This allows the auditor to perform search and replace procedures such as:

- Replace 'Existing ANSI Wattage' based on 'Existing Fixture Code'
- Replace 'Existing Utility Wattage' based on 'Existing Fixture Code'
- Replace existing data in 'Building' field with new data.
- Replace existing data in 'Floor' field with new data.
- Replace existing data in 'Zone' field with new data.
- Replace 'Existing Schedule' with new 'Existing Schedule'.
- Replace 'Design Schedule' with new 'Design Schedule'.

Options are provided to the auditor within the audit screen to perform special functions such as:

#### Set / Change Audit Password

This option allows the user to apply, remove, or change a password for the current audit. This password will completely secure the entire audit from unauthorized access.

#### Define Annual Hour Reductions

This allows the auditor to defined Annual Hour Reductions in order to compensate for lighting schedules that do not apply for an entire year. For example, a school may operate only nine months out of a year. In order to provide accurate energy calculations, a reduction is applied to the audit that would remove the percentage of time from the total annual hours. Annual hour reductions can be applied to the audit manually by percentage of reduction, or by weekly or monthly settings. Each Annual Hour Reduction can apply to the entire audit, or can be applied to specific individual buildings within an audit.

#### Replicate Model Audit to Construction

If the initial audit was designated as a 'model' audit, then the replicated audit will be the 'construction' audit.

An audit can only be replicated if the other audit type does not yet exist. The normal usage for this feature would be to create a complete model audit with the original audit data taken from the field audit, and then replicate the audit over to construction. Once construction has a copy of the audit, they can make changes to their copy as the project progresses without changing the initial model audit.

Passwords can be separately applied to the model and construction audits with a single project. This ensures audit integrity throughout the length of the project.

This dual audit approach also will allow for queries and reports to be created that can analyze the differences between the initial audit and the final (after construction) audit. This information could be extremely valuable in fine tuning the auditing process for accuracy.

## **Security**

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Users gain access to the OptoMizer™ system via individual user id's and passwords. User ids determine what area's of the system the user's can access, whether that access is read/write or read only, and what actions the user can perform. In addition, all records that are updated are stamped with the user id along with the date and time.

Aside from the conventional user id security, audits can be individually password protected to disallow unauthorized access.

## **Multiple Copy Synchronization Capability**

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The OptoMizer™ database system can be configured to support a 'network' of OptoMizer™ systems that can pass audits and configuration information between themselves. There are two modes of operation that an OptoMizer™ system can be configured for: Master or Slave.

In a typical master / slave setup, one copy of OptoMizer™ would be designated as the 'Master' system within the organization. This 'master' system would be the copy that is continually updated with the latest lighting component parts and pricing. Other OptoMizer system's within the organization would be designated as 'Slave' systems. These 'Slave' systems would receive parts and pricing updates from the 'Master' system, whereby keeping all of the OptoMizer systems within the company synchronized.

Many variations of this multiple system configuration are conceivable in order to protect pricing structures that may differ from one office to another.

## **Importing and Exporting Capabilities**

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The OptoMizer™ database has full importing and exporting capabilities. These capabilities allow for configuration tables, full projects, or individual audits to be "passed" between OptoMizer™ databases. This "passing" allows for full electronic communication and synchronization between systems.

The importing and exporting capabilities also allow for the electronic archiving of audits. Audits can be exported into a single file and then stored on disk for future reference.

There are three types of import / export files that can be generated by the system.

Configuration Tables: The 'Configuration Tables' export file contains all records in the Lamps, Ballasts, Sockets, Reflector Kits, Hardware, Misc. Hardware, Lens, Occupancy Controls, Fixtures,

Fixture Wattages, and Design ID Components tables. It also includes all Design Luminaire and Budget Cost templates, Cost Description Templates, Daily and Operating schedules.

Use of this export would be for synchronizing all configuration tables within the target 'Slave' OptoMizer™ database with the 'Master' OptoMizer™ database. This export contains no project or audit related data.

Complete Project: The 'Complete Project' export file includes all data related to the selected project for BOTH the Model and Construction audits (if applicable). This export also includes all information included in the 'Configuration Tables' export type as described previously.

When a 'Complete Project' export file is imported into an OptoMizer™ database, the import procedure will remove any project from the system bearing the same project number as the one being imported. After which, a full configuration tables update will occur, then the entire project will be imported into the system.

Specific Project Audit The 'Specific Project Audit' export file includes all data related to the selected project for ONLY the audit type selected. This export also includes all information included in the 'Configuration Tables' export type as described previously.

Unlike the 'Complete Project' import, the 'Specific Project Audit' import only removes the audit from the system bearing the same project number as the one being imported. It will leave the other audit intact for the project.

## **Reporting**

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The OptoMizer system contains pre-defined database reports that cover the majority of the reporting needs for an audit proposal. These reports are extremely detail oriented and provide data calculations to satisfy most customer and utility company requirements.

The majority of the OptoMizer reports are interactive in that the user has many parameters and methods of output to select from. Most of the reports included in the system can be printed, previewed, turned into an Excel spreadsheet, or output to a delimited text file.

Energy reports have the option of being run against different wattage types at the report run time. This allows the user to easily run reports and examine the outcome utilizing ANSI wattage, or any other configured wattage type.