ICLS Specification Manual

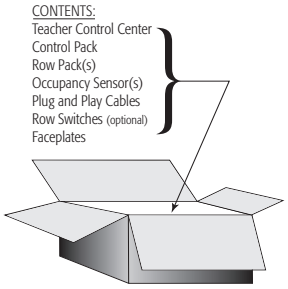
FINELITE

Better Lighting For A Better Workplace

Integrated Classroom
ICLS
Lighting System

ICLS Integrated Classroom Lighting System

The Integrated Classroom Lighting System **(ICLS)** is designed for use in general-purpose classrooms at the K-12 through university level. Further, ICLS has applications in a wide range of conference rooms and multi-purpose rooms found in commercial facilities. ICLS incorporates high quality indirect/direct luminaires with unique controls to improve lighting quality, deliver two distinct lighting modes, and reduce energy.



Controls Package

Finelite Services

Finelite set the standard for service in the linear lighting market. ICLS is supported by new levels of service developed with the school construction market in mind.

Controls Packages

All the controls for each classroom are packaged together and typed by classroom for faster installation. Control Packages include the Teacher Control Center, Control Pack, Row Pack(s), Occupancy Sensor(s), Plug and Play cables, optional Row Switches and all the necessary face plates. Specify voltage.

Layout Design

Finelite inside sales teams are available to layout your project to ensure it meets recommended classroom lighting practices and will assist in driving your project to attain energy loads of 1 w/ft^2.

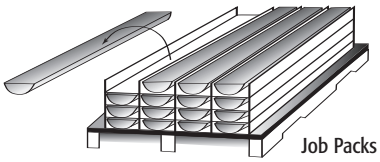
100%
TESTED

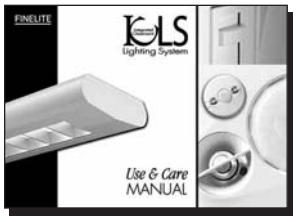
100% Tested

Finelite tests each project 100% as a system before shipping them to your job site. This saves you time and money.

Job Packs

By request, Finelite will ship your project on cardboard saddles. Eliminating cartons improves installation times and reduces jobsite waste.


Job Packs



Use & Care Manual

Use and Care Manual

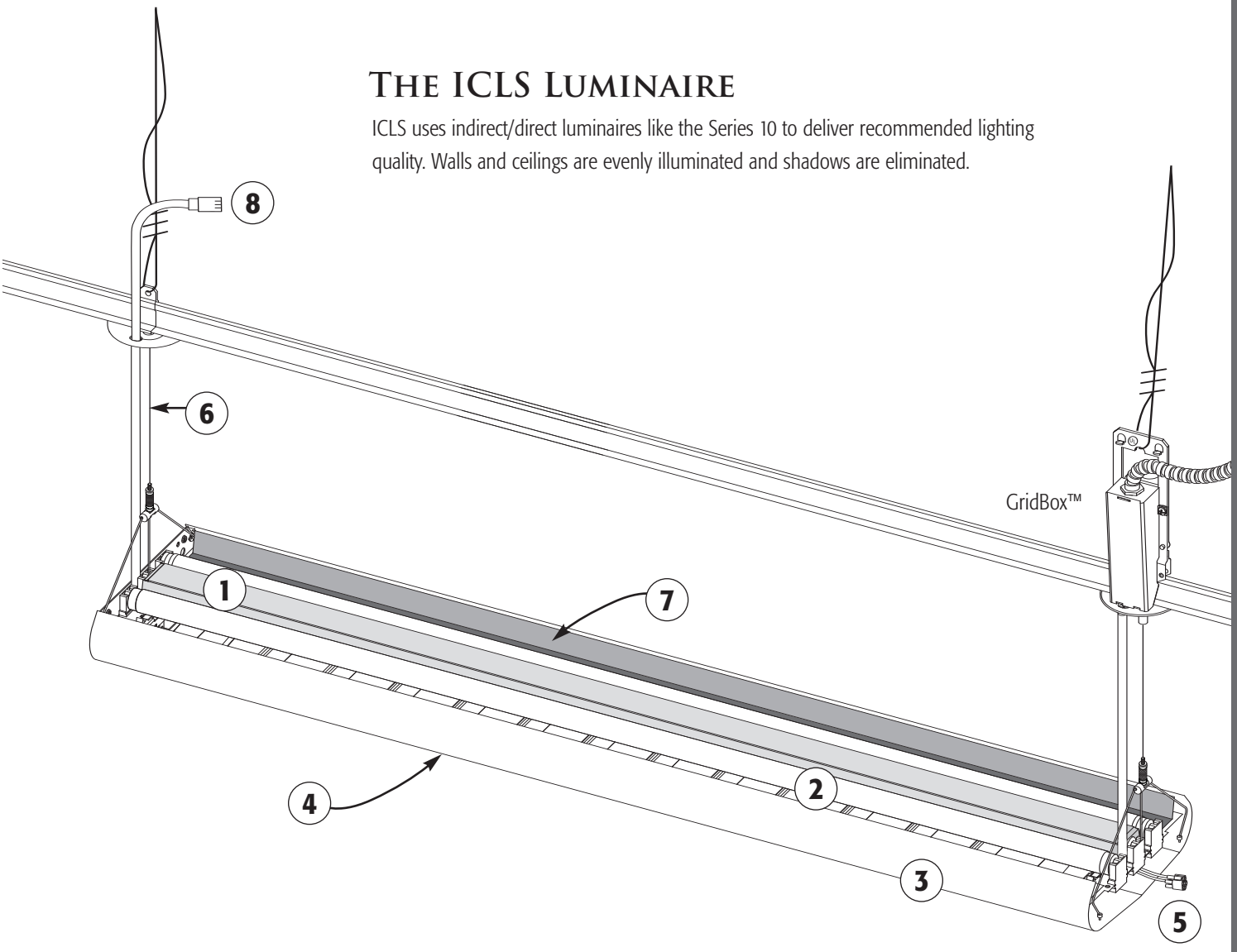
Every classroom will include an ICLS Use and Care Manual, clearly detailing how the system works, how to maximize energy savings, and how to troubleshoot the system. A clear plastic sleeve is included, and we suggest locating it directly below the Teacher Control Center.

Single Source Warranty

In addition to the Finelite fixture warranty, we will provide a single source warranty on all ICLS electronic and interconnection components for a period of 5 years. Finelite will coordinate repairs and directly pass through to the unique part manufacturers as required. See *www.finelite.com* for full warranty details. Lamps will be covered with a 2-year pass through warranty to the manufacturer.

The ICLS Luminaire

ICLS uses indirect/direct luminaires like the Series 10 to deliver recommended lighting quality. Walls and ceilings are evenly illuminated and shadows are eliminated.



1 Controlled Center Optics

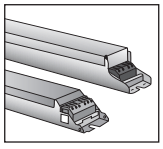
- 96% reflective paint for maximum efficiency
- Directs 100% of light down in A/V mode

2 Lamps

- 3100 lumen XPS T8 lamps
- High efficacy lamps feature excellent lumen maintenance and maximize energy savings

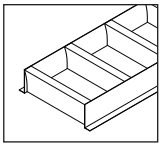
3 Ballasts

- High ballast factor ballasts
- Increases light output without affecting lamp life
- Different ballast factor ballasts can be used to balance energy usage and light output
- ICLS is available with 0.77, 0.88, and 1.18 ballast factor electronic ballasts



4 Louver

- Semi-Specular parabolic louver
- Excellent shielding – prevents glare



5 Wiring

- Pre-wired luminaires for easy installation
- Plug-together wiring ensures proper connection

6 Aircraft Cable

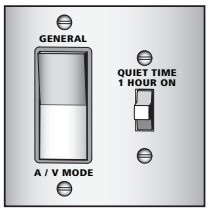
- Semi-adjustable and fully adjustable aircraft cable available
- Standard cable load is 480 lbs.
- Optional cable load of 920 lbs. is available (fully adjustable only)
- Fully adjustable cable includes standard safety bar for added security

7 EP Reflectors

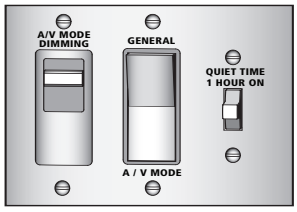
- Highly specular side reflectors enhance performance

8 Dimming Plug and Play

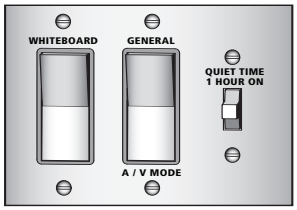
- Optional dimming features plug and play connections
- The plug is quickly and easily connected to the ICLS system above the ceiling
- Plug and play wiring is provided by Finelite



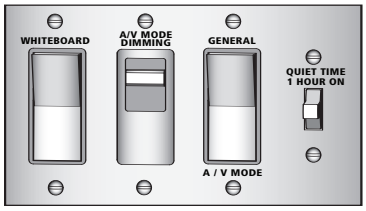
TCC



TCC with A/V Dimming

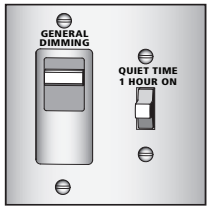


TCC with Whiteboard

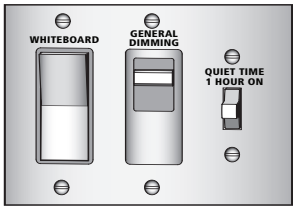


TCC with A/V Dimming & Whiteboard

Whiteboard



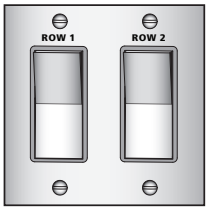
General Dimming with Quiet Time



General Dimming with Whiteboard & Quiet Time

ROW CONTROLS are available in the following configurations.

- 2 & 3 Row Control
- 2 & 3 Row Control with Whiteboard



2 Row Control

Teacher Control Center (TCC)

The easy-to-use control provides the ability to switch from General Mode to A/V Mode. The standard features include:

- Quiet Time Switch – Bypasses the occupancy sensor for 1 hour to prevent false negatives during periods of limited movement.
- Laser Etched Face Plates – Switch labels are laser etched into the face plates for enhanced durability.
- Fully Assembled – The TCC arrives at the jobsite fully assembled. Plug-together wiring connects the assembly to the system.
- A/V Switch – 3-way specification grade decorator, white
- Back Box Dimensions – Two gang box, 2" deep

TCC with A/V dimming

Add the ability to dim the center lamp during A/V presentations for added control.

- Attractive Decora style dimmer
- Designed for 0-10v dimming ballasts
- Dims from 100% – 5% light output
- Back Box Dimension – Three gang box, 2" deep

TCC with Whiteboard

Add the ability to control secondary lighting systems such as a whiteboard luminaire.

- A/V Switch – 3-way 120/277v specification grade decorator, white
- Whiteboard Switch – 3-way 120/277v specification grade decorator, white
- Back Box Dimensions – Three-gang box, 2" deep

TCC with A/V Dimming and Whiteboard

Combine the ability to dim the A/V lamp and control a secondary lighting system.

- Dimmer – Decora style dimmer. Specify 120v or 277v.
- A/V Switch – 3-way 120/277v specification grade decorator, white
- Whiteboard Switch - 3-way 120/277v specification grade decorator, white
- Back Box Dimensions – Four-gang box, 2" deep

Optional Whiteboard Switch

A separate line voltage whiteboard switch is available for specification.

- Whiteboard Switch – 3-way 120/277v specification grade decorator, white
- Back Box Dimensions – Single 2" x 4" box, 2" deep

General Dimming with Quiet Time

This option adds the ability to use dimming as the primary A/V control and is designed for use with daylight dimming strategies.

- Dimmer – Decora style dimmer. Specify 120v or 277v.
- Designed for 0-10V dimming ballasts
- Dims from 100%- 5% light output
- Back box Dimensions – Two gang box, 2" deep

General Dimming with Whiteboard and Quiet Time

Add the optional control for a secondary luminaire such as a whiteboard luminaire.

- Dimmer – Decora style dimmer. Specify 120v or 277v
- Whiteboard Switch - 3-way 120/277v specification grade decorator, white
- Back box Dimensions – Three-gang box, 2" deep

Row Control

ICLS accommodates row control at primary entrances.

- Optional Finelite supplied switches and face plates

continued.

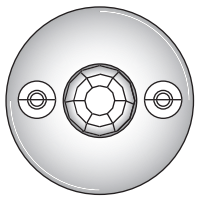
Master Room Control

- Optional laser etched face plates
- 3-way switches are wired into system according to normal practices
- Switches – 3-way 120/277v specification grade decorator, white
- Individual rows can be controlled for manual daylight control

Master Room Control

Provides optional on/off control for all rows and supplemental lighting. Located at the primary entrance.

- 3-way 120/277v specification grade decorator, white



Occupancy Sensor

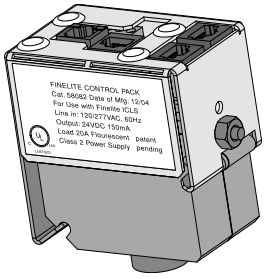
Occupancy Sensor

Low profile, ceiling mounted, dual technology occupancy sensor uses passive infrared (PIR) and ultrasonic technologies to detect room occupancy.

- 360º coverage pattern
- Coverage: PIR = 38', Ultrasonic = 40'

Factory Calibration:

- PIR and Ultrasonic are both required to turn the lights on and either technology keeps them on.
- Unit will turn the lights off when the room is unoccupied for 10 minutes.
  If a junction box is required or desired use a 4" octagonal box that is 1½" deep.

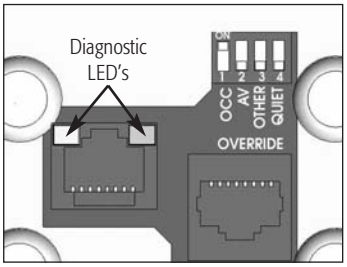


Control Pack

Control Pack

The Control Pack uses a proprietary printed circuit board to communicate with and deliver power to the sensors and relays.

- OmniPort design enables any component to be plugged into any port
- UL 2043 plenum rated plastic
- ½" nipple snaps into junction box for easy installation
- Available in 120v or 277v
- Delivers secondary voltage of 24VDC
- Dimensions 3.25" x 3.25" x 2"
- Contains (4) RJ45 connection points



Control Pack Detail

The Control Pack includes override and status indicator LED's.

Override #1 – Overrides Occupancy Sensor to enable a unit to be replaced.

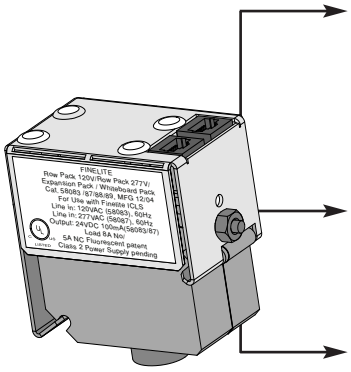
Override #2 – Forces the system into A/V mode, which allows the cables and TCC switch to be tested.

Override #3 – Turns on the supplemental classroom lighting. Typically this is the whiteboard luminaire.

Override #4 – Will activate the Quiet Time Switch for testing purposes.

Green diagnostic LED indicates unit is receiving power.

Yellow diagnostic LED indicates unit is receiving signals from occupancy sensor.



- Row Pack
- Expansion Pack
- Whiteboard Pack

Row Pack

The Row Pack provides power to sensors and relays in parallel with the Control Pack. The Row Pack contains a 3-way relay that controls the lighting mode choice *(A/V or General)*. The Row Pack is controlled by the Teacher Control Center. The Row Pack contains (2) RJ45 connection points. One Row Pack is included per classroom.

Expansion Pack

The Expansion Pack is similar to the Row Pack with the exception that it does not provide power to the sensors and relays. One Expansion Pack is required for a two-row installation and for each additional row.

Whiteboard Pack

The Whiteboard Pack contains a 3-way relay allowing the luminaire to be controlled via low voltage signal from the Teacher Control Center. The Whiteboard Pack contains (2) RJ45 connection points and is typically wired into the same box as the Control Pack and Row Pack.

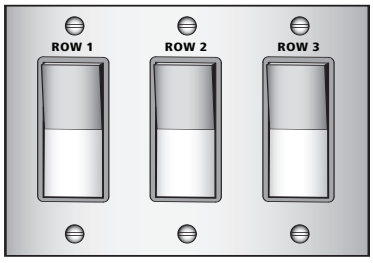
ICLS Installation Features

Low voltage plug and play wiring combined with patent pending protocol makes ICLS affordable and easy to install.

Control Pack / Row Pack

The Control Pack and Row Packs are easily attached to a four square junction box with extension ring. This unit should be placed near the row controls so building power can be brought to the system.

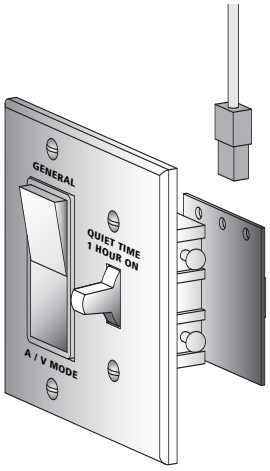
Low voltage wiring (supplied) is plugged in as shown above. Flex is brought from the junction box to each of the luminaire rows. See wiring diagrams on pages 8 and 9 for more information.



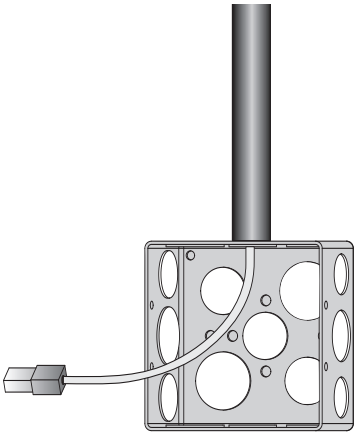
Row Switches

Row Switches are line voltage and are wired in the same manner as other Row Switches. All switches are standard 3-way to accommodate multiple location row switching.

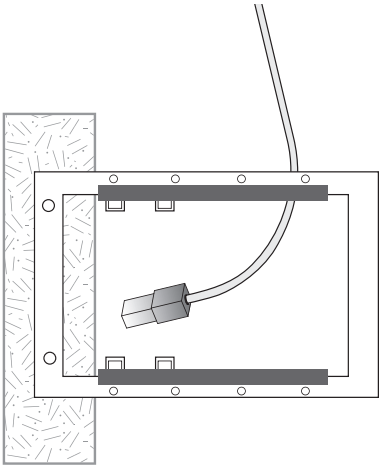
Teacher Control Center



The Teacher Control Center is easy to install. Simply plug in the low voltage wiring to the back of the TCC and mount the unit.



If conduit is required, the installer shall use ¾" conduit and use large radius bends to prevent kinks from forming in the cable.



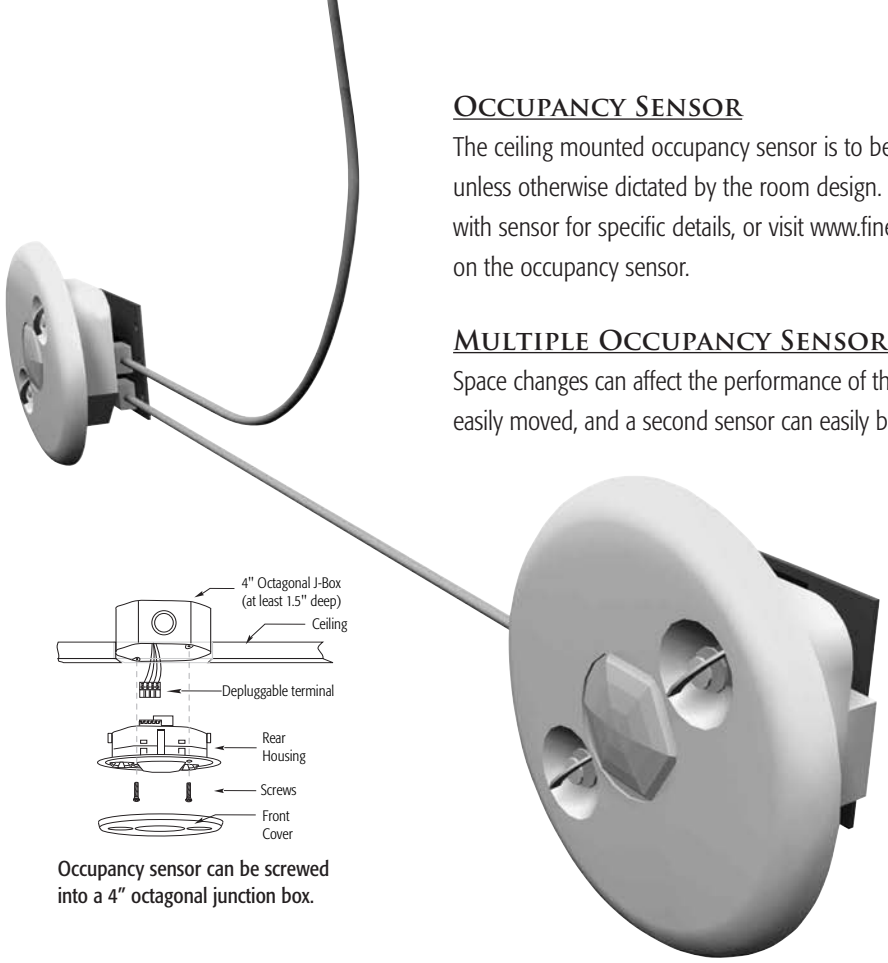
Network wiring brackets are a good solution for low voltage situations.

Occupancy Sensor

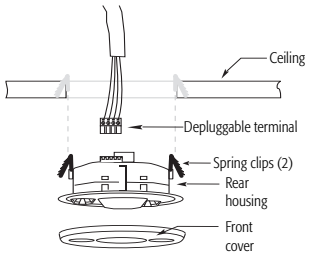
The ceiling mounted occupancy sensor is to be placed in the center of the room unless otherwise dictated by the room design. See installation instructions included with sensor for specific details, or visit www.finelite.com for more detailed information on the occupancy sensor.

Multiple Occupancy Sensors

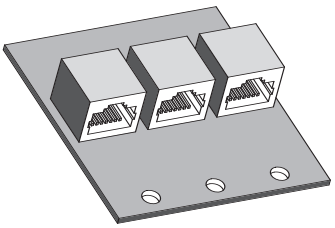
Space changes can affect the performance of the occupancy sensor. These sensors are easily moved, and a second sensor can easily be plugged directly into the other sensor.



Occupancy sensor can be screwed into a 4" octagonal junction box.



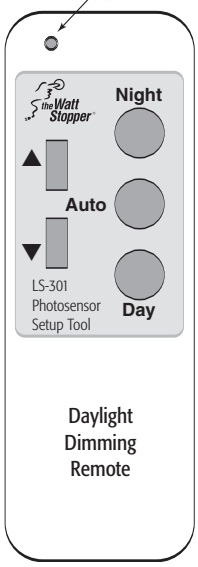
The occupancy sensor can be installed in the ceiling tile without a junction box. Spring clips are included with the sensor.



Low Voltage Splitter

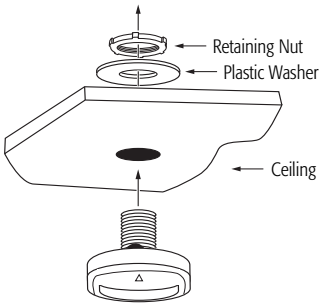
The low voltage splitter is included for ICLS systems using dimming. Low voltage plugs from the luminaire are simply plugged into the low voltage splitter.

Daylight Dimming Sensor

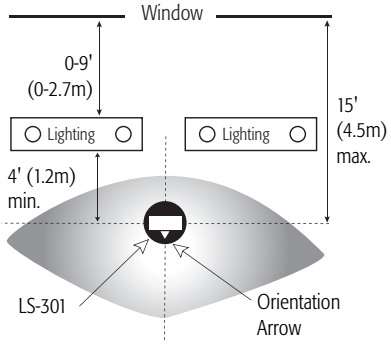


Daylight Dimming Remote

The optional daylight dimming sensor is ceiling mounted and features a closed loop system. The unit considers both daylight and electric light when adjusting the light levels. Photosensor adjustment is accomplished through the use of a handheld remote supplied with each unit. The sensor is plugged into its own low voltage dimming splitter.



Install as shown.



Place the unit as shown here.

ICLS Standard 2 Row Cost Example

The patented ICLS protocol makes installing the system easy. Row switches and luminaires are installed and wired per established practices. Control elements are connected via Finelite supplied plug and play cables.

Contractor Supplied Parts	Cost per Item	Total Cost
4" Sq. J-Box - CP/RP	$1.00 each	$1.00
4" Sq. Extender Ring - CP/RP	$0.65 each	$0.65
4" Sq. J-Box - TCC	$1.00 each	$1.00
4" Sq. J-Box - RS	$1.00 each	$1.00
J-Box Cover	4 @ $0.50 each	$2.00
50' of FC (power to fixtures)	$0.30 / ft	$15.00
FC Connectors	2 @ $0.25 each	$0.50
10' EMT (power to row switches)	$0.80 / ft.	$8.00
10' EMT (to run plug and play cable inside wall to TCC)	$0.80 / ft.	$8.00
EMT Connectors	2 @ $0.50 each	$1.00
Wirenuts	18 @ $0.05 each	$0.90
TOTAL COST OF CONTRACTOR SUPPLIED PARTS		**$39.05**

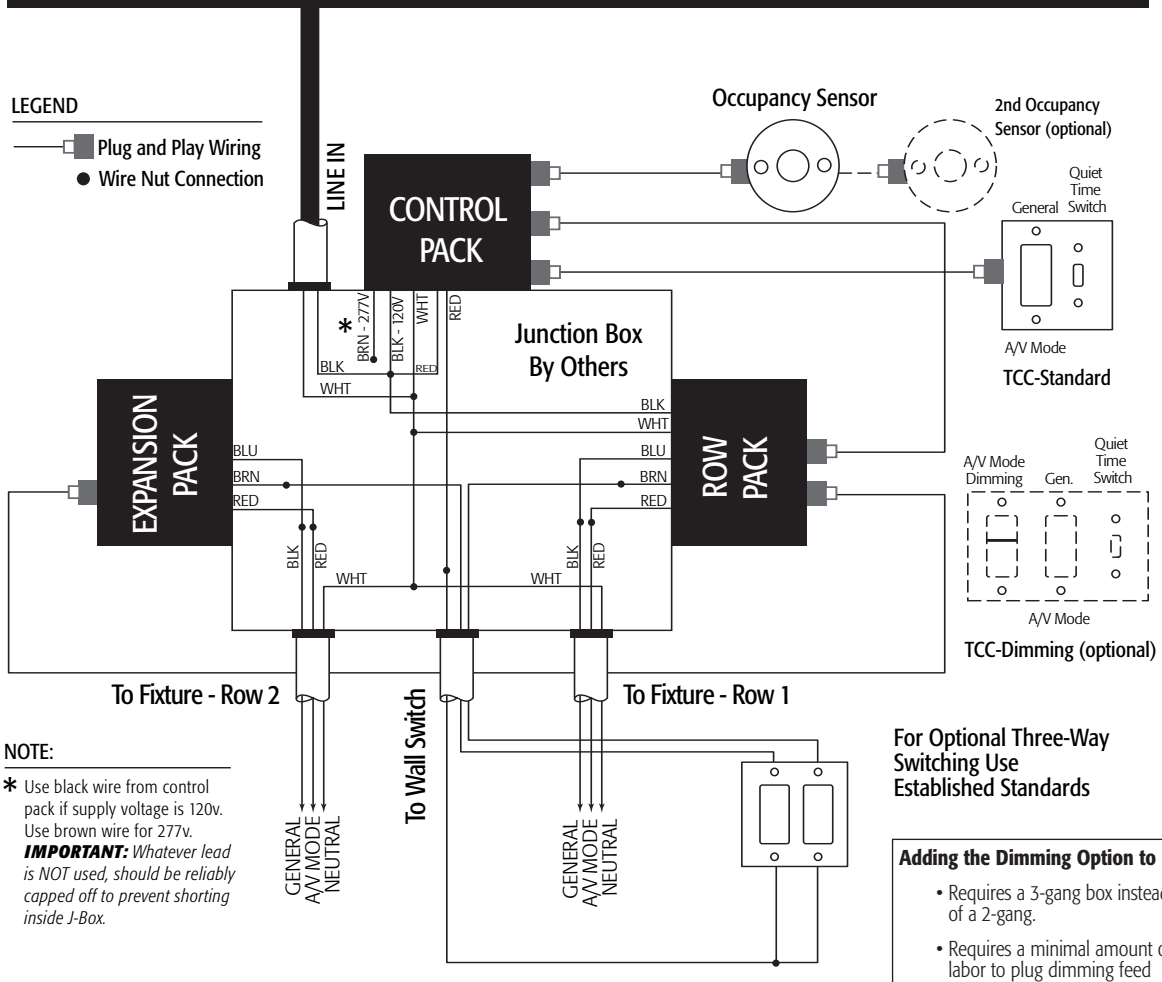
LEGEND:
CP/RP = Control Pack/Row Pack
FC = Flex Conduit
CP = Control Pack
EP = Expansion Pack
OS = Occupancy Sensor
TCC = Teacher Control Center
RMC = Electrical Metallic Tubing
RP = Row Pack
LV = Low Voltage Plug and Play

Contractor Supplied Labor	# of Operations	Qty: Minutes Per Operation	Total Time
Make Connections at Primary J-Box			
Connect J-Box to Line-in Conduit		45	45
Attach CP, RP, & EP	3 connections	5	15
Splice CP, RP, & EP	12 Splices	2.5	30
Connect flex for fixtures	2 connections	5	10
Connect EMT to RS	1 connection	10	10
Install Other Control Elements			
Install TCC, J-Box & EMT	1 Box	30	30
Install RS, J-Box, & EMT	1 Box	45	45
Connect LV wiring for system	4 Cables	5	20
Install Ceiling Mounted OS		30	30
TOTAL TIME INSTALLING CONTROL ELEMENTS			**235**
Installing Fixtures* – (2) 24' rows			
Install Suspension Points	6 Points	10 each	60
Install Fixtures	48 Feet	1.5 min / ft.	72
Wire Feeds into Gridbox™	2 Feeds	15 min each	30
TOTAL TIME INSTALLING FIXTURES			**162**
TOTAL INSTALLATION TIME			**397**
TOTAL LABOR COST @ $60 HR			**$397.00**

Notes: Line-In conduit not included in calculation.

***** See the Finelite Contractor Guide for more information on estimating fixture installation.

Standard 2 Row ICLS Wiring Detail



NOTE:

* Use black wire from control pack if supply voltage is 120v. Use brown wire for 277v.
IMPORTANT: *Whatever lead is NOT used, should be reliably capped off to prevent shorting inside J-Box.*

For Optional Three-Way Switching Use Established Standards

Adding the Dimming Option to ICLS:

- Requires a 3-gang box instead of a 2-gang.
- Requires a minimal amount of labor to plug dimming feed (attached to fixture) to ICLS.

ICLS Standard 2 Row With Whiteboard Cost Example

Contractor Supplied Parts	Cost per Item	Total Cost
4" Sq. J-Box - CP/RP	$1.00 each	$1.00
4" Sq. Extender Ring - CP/RP	$0.65 each	$0.65
4" Sq. J-Box - TCC	$1.00 each	$1.00
4" Sq. J-Box - RS	$1.00 each	$1.00
J-Box Cover	4 @ $0.50 each	$2.00
75' of FC (power to fixtures)	$0.30 / ft	$22.50
FC Connectors	3 @ $0.25 each	$0.75
10' EMT (power to row switches)	$0.80 / ft.	$8.00
10' EMT (to run plug and play cable inside wall to TCC)	$0.80 / ft.	$8.00
EMT Connectors	2 @ $0.50 each	$1.00
Wirenuts	21 @ $0.05 each	$1.05
TOTAL COST OF CONTRACTOR SUPPLIED PARTS		**$46.95**

LEGEND:

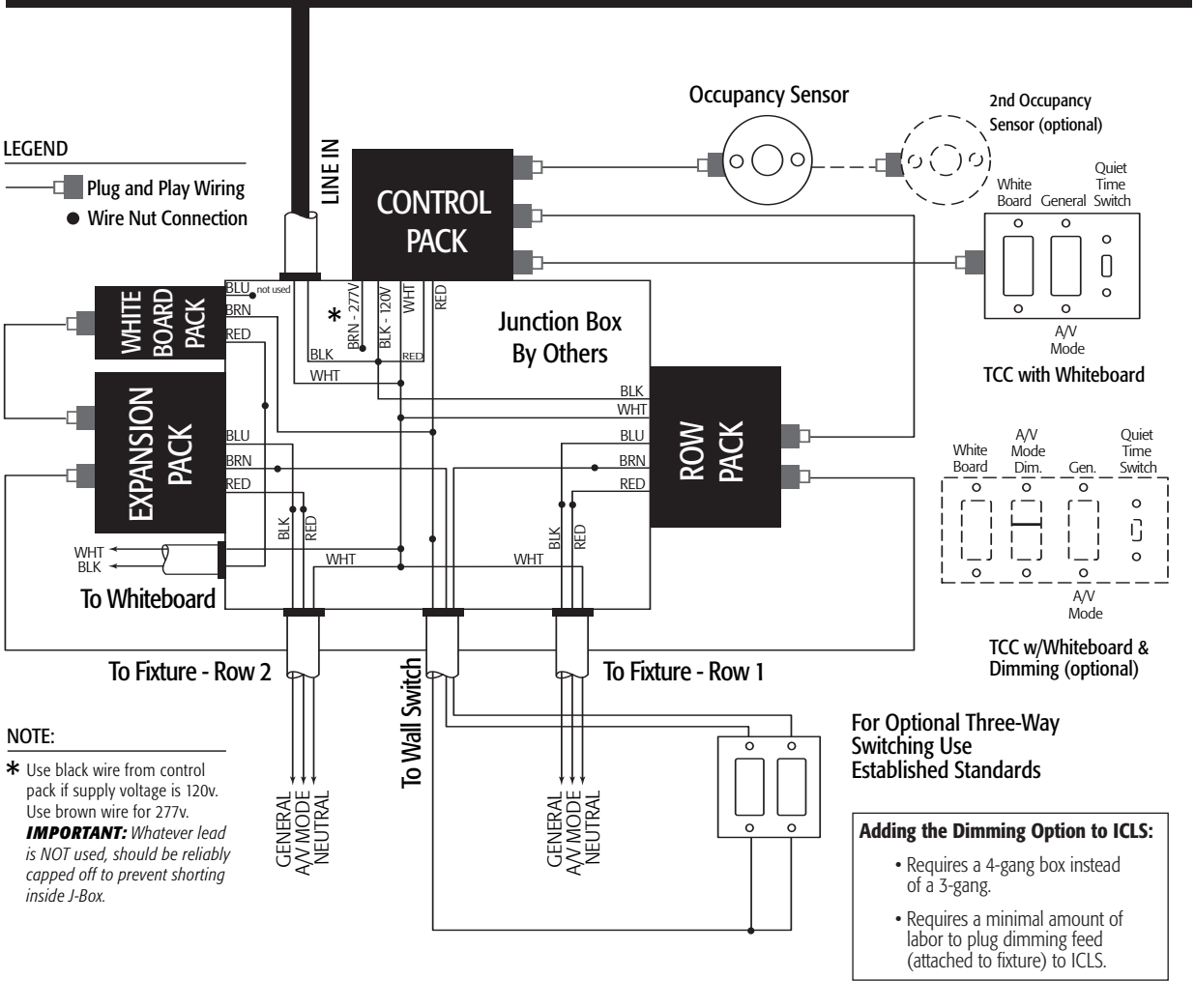
CP/RP = Control Pack/Row Pack
FC = Flex Conduit
CP = Control Pack
EP = Expansion Pack
OS = Occupancy Sensor
TCC = Teacher Control Center
RMC = Electrical Metallic Tubing
RP = Row Pack
LV = Low Voltage Plug and Play
WBP = Whiteboard Pack

Contractor Supplied Labor	# of Operations	Qty: Minutes Per Operation	Total Time
Make Connections at Primary J-Box			
Connect J-Box to Line-in Conduit		45	45
Attach CP, RP, EP & WBP	4 connections	5	20
Splice CP, RP, EP, & WBP	15 Splices	2.5	37.5
Connect flex for fixtures	3 connections	5	15
Connect EMT to RS & TCC	2 connections	10	20
Install Other Control Elements			
Install TCC, J-Box & EMT	1 Box	30	30
Install RS, J-Box, & EMT	1 Box	45	45
Connect LV wiring for system	4 Cables	5	20
Install Ceiling Mounted OS		30	30
TOTAL TIME INSTALLING CONTROL ELEMENTS			**262.5**
Installing Fixtures* – (2) 24' rows			
Install Suspension Points	8 Points	10 each	80
Install Fixtures	52 Feet	1.5 min / ft.	78
Wire Feeds into Gridbox™	3 Feeds	15 min each	45
TOTAL TIME INSTALLING FIXTURES			**203**
TOTAL INSTALLATION TIME			**465.5**
TOTAL LABOR COST @ $60 HR			**$465.50**

Notes: Line-In conduit not included in calculation.

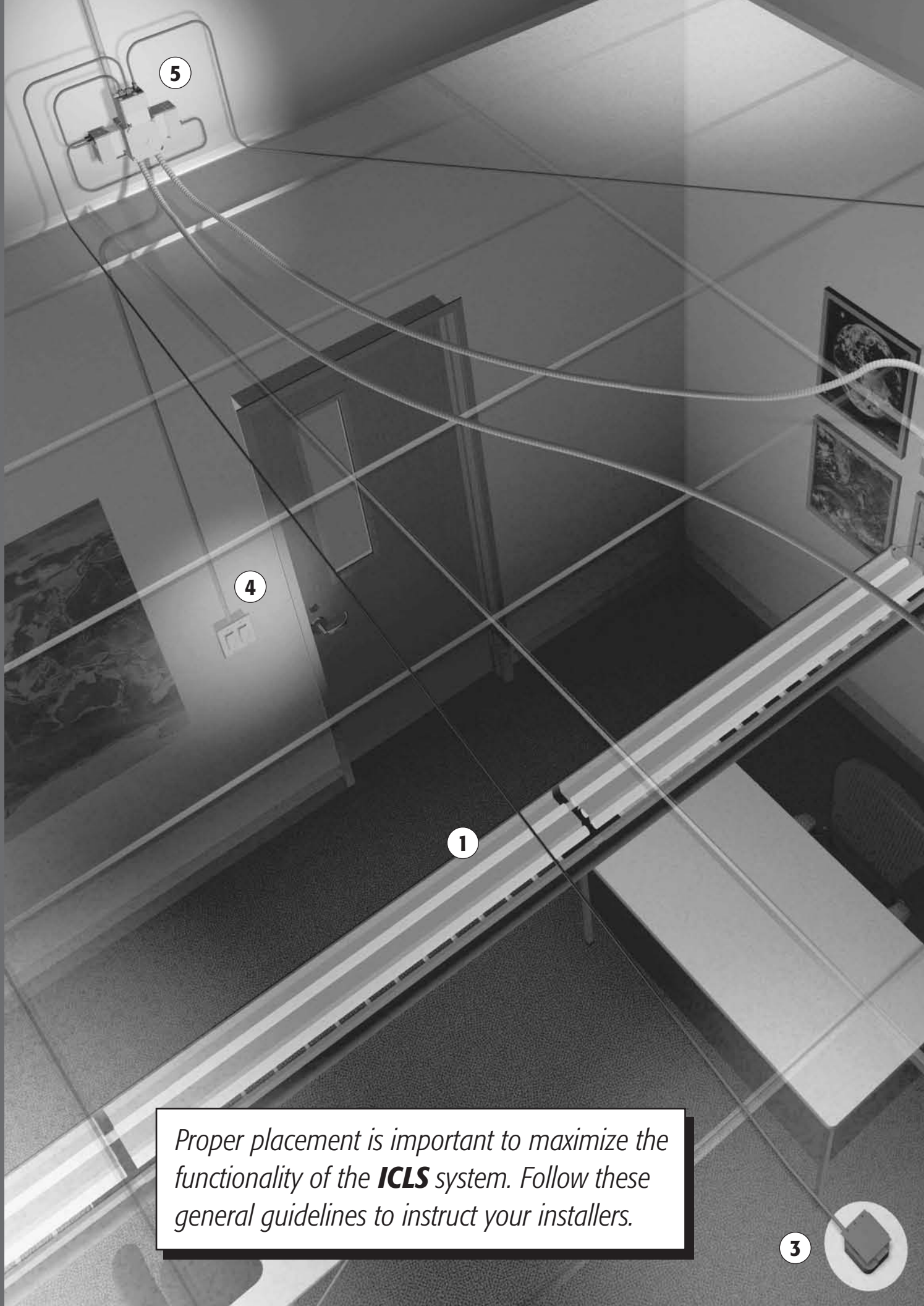
***** See the Finelite Contractor Guide for more information on estimating fixture installation.

Standard 2 Row ICLS with Whiteboard Wiring Detail



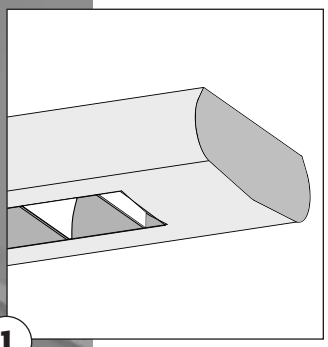
Adding the Dimming Option to ICLS:

- Requires a 4-gang box instead of a 3-gang.
- Requires a minimal amount of labor to plug dimming feed (attached to fixture) to ICLS.



*Proper placement is important to maximize the functionality of the **ICLS** system. Follow these general guidelines to instruct your installers.*

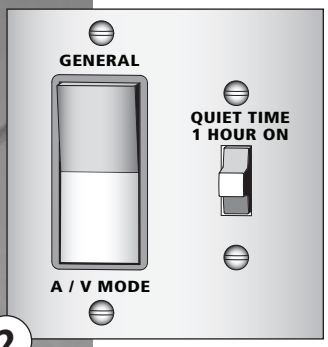
ICLS System Placement



1

Luminaires

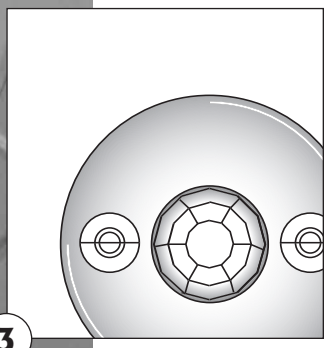
ICLS uses an indirect/direct luminaire to meet current recommended practices. The dual circuited luminaire has an efficiency of no less than 83% in the uplight and 57% in the downlight position. The luminaire uses a high reflectance (96-97%) painted white optical control device to direct light downward when in the A/V mode.



2

Teacher Control Center (TCC)

The Teacher Control Center places lighting control at the front of the classroom and should be placed on the main teaching wall closest to the teacher's desk. The default location is to the left of the whiteboard. Placing the control in this position improves teacher control and increases use of the system.

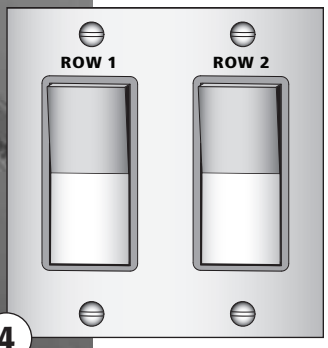


3

Occupancy Sensor

The ceiling mounted occupancy sensor should be positioned in the approximate center of the room in a 2-row design and between the two rows closest to the teacher's desk in a 3-row design.

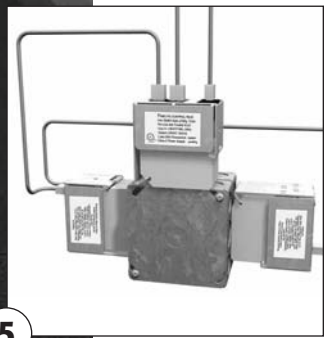
- Mount sensor 4-6' away from HVAC outlets or heating blowers.
- Certain room configurations may require the use of more than one sensor to provide adequate coverage. Contact factory for design assistance.



4

Row Switches

Row switches are available from Finelite with laser engraved face plates, or can be provided by others. Row switches are to be mounted near the primary room entrance. Switches shall also accommodate a 3-way installation if required.



5

Control Pack / Row Pack

The control pack/row pack unit requires building power and is generally placed near the row switches for the most economical use of materials. Connections from the control pack to the occupancy sensor, teacher control center, dimming units, and optional daylight sensor are made using plug-together low voltage wiring.

Integrated Classroom LS Lighting System

Ordering Information

Use the following to select the controls package for your specific classroom. Other configurations are available. Contact factory for more information. Order luminaires separately.

1 **Room #**
Include the actual classroom # so Finelite can include this type on each controls box.

2 **# of Rows**
Identify the number of luminaire rows in the classroom. Do not include Whiteboard Luminaire. Consult Factory for 4 or more rows.

2R = 2 Rows

3R = 3 Rows

3 **Voltage**
Identify site voltage: **120v, 277v**

4 **Dimming**
Identify dimming requirements. Select ALD dimming option when using Daylight Dimming (DD) controls.

00 = No Dimming

CLD = Center Lamp Dimming

ALD = All Lamp Dimming

5 **Occupancy Sensor**
Identify the number of occupancy sensors required in the space. (Contact the factory if the number of occupancy sensors exceeds the number of luminaire rows.)

OS1 = One Occupancy Sensor

OS2 = Two Occupancy sensors, plus one additional plug and play cable

6 **Daylight Dimming**
Identify daylight harvesting requirements. Select ALD dimming option when using Daylight Dimming (DD).

NDD = No Daylight Dimming

DD = Daylight Dimming

7 **Whiteboard Luminaire Controls**
Identify requirements for whiteboard luminaire control. In addition to adding necessary electrical equipment, selecting WL will yield a Teacher Control Center that includes a whiteboard switch. When selecting a whiteboard luminaire control we suggest selecting MSB3, 4, or 5 below.

NWL = No whiteboard luminaire control

WLLV = Add whiteboard luminaire control to the low volage teacher control center

WLHV = Add a separate line voltage control switch for Whiteboard

8 **Main Switch Bank**
Identify Main Switch Bank controls for providing on/off control at primary room entrance.

00 = No Finelite supplied main switchbank controls

MSB1 = Independent control for two luminaire rows

MSB2 = Independent control for three luminaire rows

MSB3 = Independent control for two luminaire rows and a whiteboard luminaire

MSB4 = Independent control for three luminaire rows and a whiteboard luminaire

MSB5 = One single master control for all luminaires.
Add X to any of the above to double controls for a 3-Way wiring installation. *Example = MSB1X will result in 2 sets of two independent row controls.*

9 **Laser Engraving for Row Controls**
We recommend having laser engraving for all the control switches for easy function identification. Teacher Control Center is always laser engraved.

NLE = No laser engraving.

LE = Laser engraving for TCC, & row switches.

Ordering Example

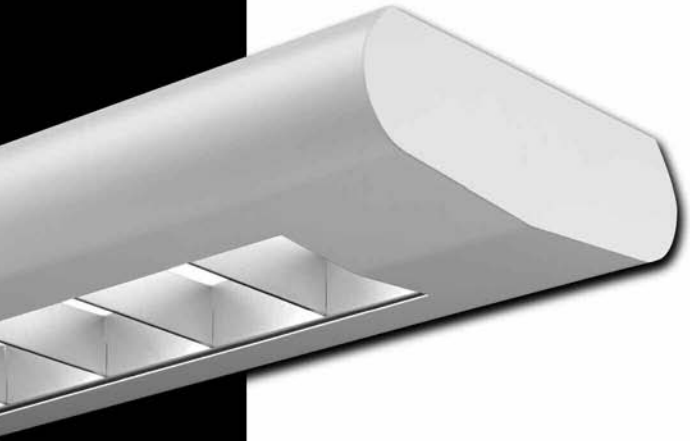
Room 1A – 2R – 120v – CLD – OS1 – NDD – WLLV – MSB3 – LE

1 **2** **3** **4** **5** **6** **7** **8** **9**

Finelite, Inc. ◇ 30300 Whipple Road ◇ Union City, CA 94587-1525 ◇ 510 / 441-1100 ◇ FAX: 510 / 441-1510 ◇ www.finelite.com

FINELITE

ILS
Integrated Classroom
Lighting System



Use & Care
MANUAL

Table of Contents

Online Information

More product information, including technical information and installation instructions can be located at www.finelite.com.

Your School Selected ICLS Because:

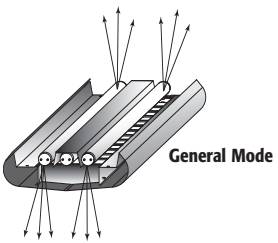
- ICLS gives the teacher another tool to ***improve the learning environment.***
- ICLS is ***affordable*** to install and maintain.
- ICLS ***reduces energy costs*** and money saved on energy can be put back into the school.
- ICLS uses ***recommended lighting*** and lighting control practices.

Read this Use & Care manual to familiarize yourself with the ICLS system and to maximize the benefit to yourself, your students, and the environment.

The ICLS System Explained

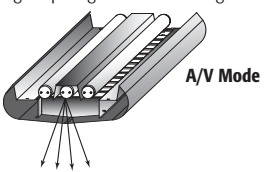
The Lights – The ICLS system uses high performance indirect/direct lighting designed to illuminate the ceiling and walls to reduce glare which causes distraction and eye fatigue. This type of lighting is endorsed by ANSI (American National Standards Institute), and CHPS (Collaborative for High Performance Schools). The ICLS system is designed to provide two distinct modes: **General and A/V**.

General – The General mode directs the light of the two outside lamps up to light the ceiling and walls. This mode is used to meet your general classroom needs.

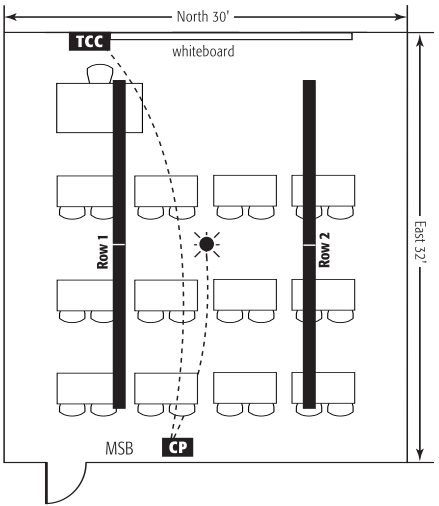


General Mode

A/V – The A/V mode is for use during *audiovisual presentations*. This mode directs light from the center lamp downward, improving screen contrast while providing ample light for note taking.



A/V Mode



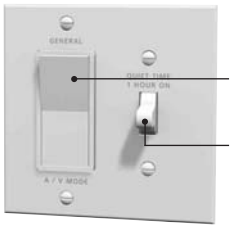
Finelite Classroom
2 - 24' Rows,
14' Row Centers

LEGEND

TCC = Teacher Control Center
= Occupancy Sensor
MSB = Main Switch Board
CP = Control Pack
- - - = Plug and Play Cables

The ICLS System Explained

Teacher Control Center – The Teacher Control Center (TCC) places the necessary controls near the front of the classroom. From this location you can do the following:



TCC – Option 1

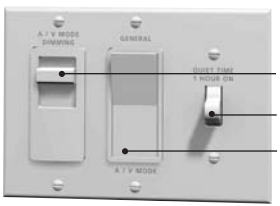
Change Lighting Mode *(General to A/V)*

Quiet Time Switch

Change Lighting Modes – Change from General to A/V mode.

Quiet Time Switch – The Quiet Time Switch is designed to bypass the occupancy sensor for **1 hour**. Use this switch when movement in the classroom is limited. For example, flip the switch during written tests, or when you are alone in the room grading papers and this will prevent the occupancy sensor from turning the lights off.

Note – The Quiet Time Switch resets itself.



TCC – Option 2

Dimming

Quiet Time Switch

Change Lighting Mode *(General to A/V)*

Dim the A/V Mode (Optional) – The optional dimming switch allows you to dim the center lamp when you have it switched to the A/V mode.

Row Switching – The row switches are located at the main entrance of the classroom. Each row is individually controlled.

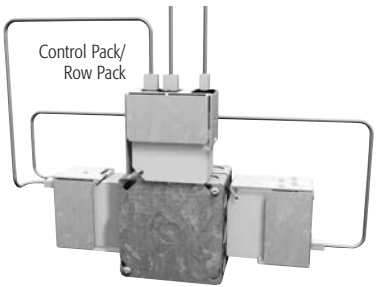
Row Switching

Row 1 & 2 On

The ICLS System Explained

Occupancy Sensor – The Occupancy Sensor detects movement by using two technologies **(infrared and ultrasonic)** in order to increase sensitivity and reliability. The unit is factory set to require both technologies to turn the lights on and either to keep them on. When no occupancy is detected for **10 minutes** (factory setting) the lights will turn off.

Daylight Sensor – The *optional* Daylight Sensor mounts on the ceiling and seamlessly adjusts the electric lighting to achieve the desired light level. A remote is included with the system to make adjustments.



Control Pack / Row Pack – This unit communicates with and delivers power to the Teacher Control Center and Occupancy Sensor. The unit is generally mounted above the ceiling near the row switches.

Using ICLS to be Energy Efficient

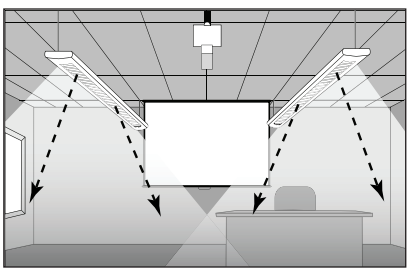
Utilities generally make up one of the largest components of a school district's monthly operating budget and lighting generally accounts for most of the electricity consumed in the school. ICLS is designed to reduce the amount of energy required to light the classroom. ***You can help save even more energy by doing the following:***

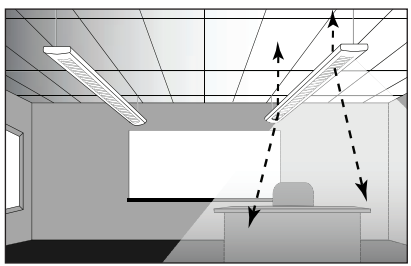
Use the A/V Mode – In addition to providing improved lighting quality for audiovisual presentations, the A/V mode cuts the energy used in half. Learn how to incorporate the A/V mode into your teaching methods and **SAVE ENERGY**.

Be Daylight Smart – Monitor the amount of sunlight in your classroom. You may find you can switch off one or more rows of lights during certain periods of the day.

Monitor your Lighting Needs – You may find when you are alone in the classroom that you can work with just one row of lights turned on.

A/V Mode (downlight only)



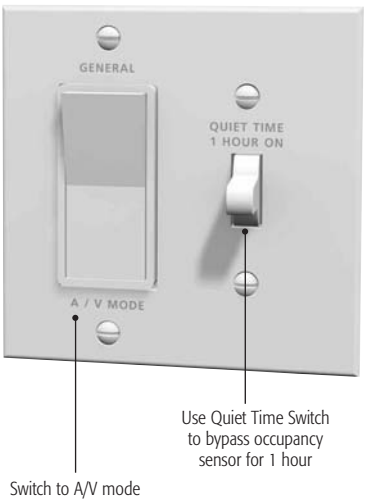


Daylight Smart (one row switched off)

Improving the Learning Environment

Finelite tested ICLS in 30 real world classrooms for an entire teaching cycle. Input from teachers just like you helped develop the system and identified methods for using the system to improve the learning environment. Their input included:

Teacher Control Center with Quiet Time Switch



- Use A/V mode when using TV's, overhead projectors, or movies on projection screens. In addition to improving screen contrast, the change in lighting focuses student attention.
- Use A/V mode to encourage quiet reading time.
- Use A/V mode to calm an excited class.
- Use the Quiet Time switch during tests, and after hours when grading papers to prevent the occupancy sensor from turning the lights off.

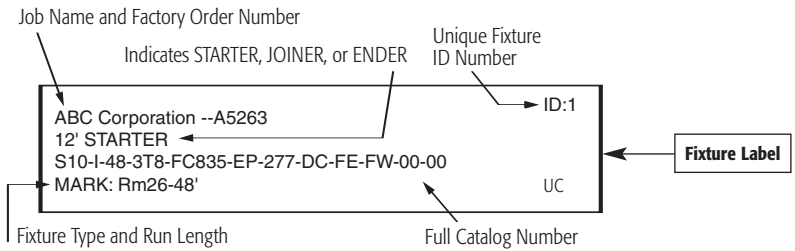
Warranty and Contact Information

Finelite Inc., warranties all electronic components, including ballast, occupancy sensor, optional daylight sensors, switches, and plug and play wiring to be free from defects in materials and workmanship for a period of **five years**. Lamps shall be warranted for a period of **two years**.

Contact Information:

Finelite, Inc.
30300 Whipple Road
Union City, CA 94587-1525
Phone: (510) 441-1100
Fax: (510) 441-1510

Reference Information – Inside each fixture is a product label. Please have the information listed on this label available when you call. This information will enable us to identify the exact parts configurations and manufacturers used on your fixtures.



Maintenance / Troubleshooting

How do I replace the ballast?

SAFETY FIRST – Ballasts should only be replaced by a qualified electrician. Expose ballast channel by removing reflectors as shown in ***Figure A & B***. With the electricity safely shut off, clip the wires and remove the ballast. Remove the old ballast and secure the new ballast in place. *(Note: check the parts list located in this manual to locate the correct ballast for this fixture).* Strip the wires to expose ½" of the wire, match up the same color wires and wire nut them together.

Figure A

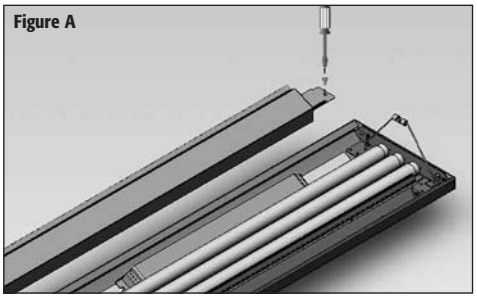
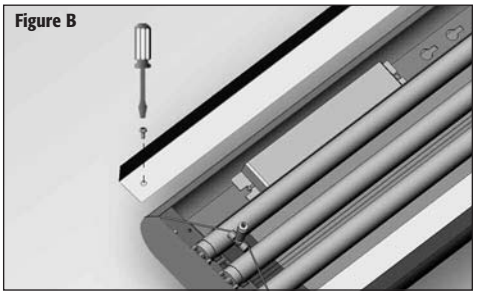


Figure B



Maintenance / Troubleshooting

How do I clean the fixtures?

Exterior – The exterior finish is powder coat paint making it extremely durable. Use a soft cloth and non-abrasive cleaning products like 409, Windex, or Simple Green to clean the exterior of the product. We suggest you spray the cleaning product on the cloth and then rub the surface to avoid spraying onto electrical components.

Interior – Wiping the interior with a soft cloth will remove most dirt that may have accumulated on the reflectors. If necessary, spray a mild glass cleaner on a soft cloth. Be careful not to spray directly onto electrical components.

Downlight Shield – The center downlight optical component should be cleaned with a soft cloth and a mild glass cleaner. Spray the cleaner on the soft cloth and then gently rub on metal.

Detailed Occupancy Senor Guide (DT-305)

How do I change the settings on the Occupancy Sensor?

Changing occupancy settings is explained in the installation instructions for the sensor (DT-305), which is included with this manual. Online instruction sheets for the Occupancy Sensor (DT-305) can be located at www.finelite.com.

Detailed Daylight Senor Guide (LS-301)

How do I change the settings on the Daylight Sensor?

Changing the settings is explained in the installation instructions for the sensor (LS-301), which is included with this manual. Online instruction sheets for the Daylight Sensor (LS-301) can be located at www.finelite.com.

Maintenance / Troubleshooting

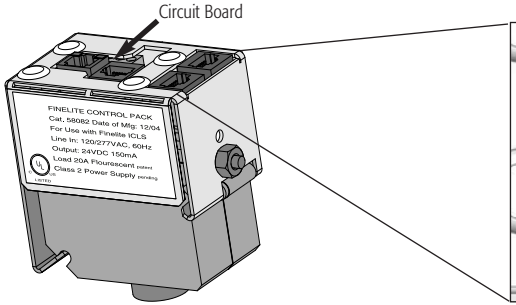
How do I troubleshoot the Occupancy Sensor?

Refer to specific occupancy sensor guide (DT-305) included for more extensive troubleshooting information.

Use the following instructions if the troubleshooting guide for the DT-305 does not solve your issue or if it appears the occupancy sensor may be broken.

We have included a bypass into the system to keep the lights on in the event that the occupancy sensor fails. There is a circuit board located in the Control Pack (**Figure C**). The Control Pack should be located above ceiling near the row switches at the main entrance of the room. [Instructions are located on a label on this junction box.] Flip the dip switch as indicated in (**Figure D**). Return power to the room and turn the lights on. As soon as possible, replace the Occupancy Sensor and return dip switches to their original position.

Figure C
Control Pack



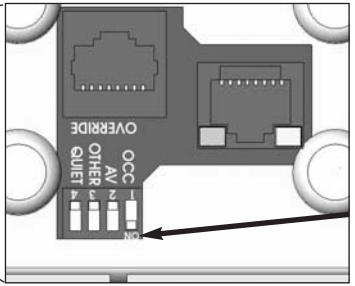


Figure D
Circuit Board
Detail

To override the occupancy sensor flip the "OCC" dip switch to the **ON** position as indicated.

Maintenance / Troubleshooting

One or some (not all) of the lamps are flickering or are off.

- Exchange flickering lamp with one that isn't flickering. If this corrects the problem, replace affected lamps. Consider group relamping.
- If the problem isn't corrected, consult a qualified electrician to inspect and possibly replace the ballast in the affected section.

All lamps flicker in an unpredictable fashion.

- With power turned off, check cable connections between Control Pack and Occupancy Sensor and Teacher Control Center. Replace cable if necessary.
- Check all wire connections at the Control Pack.

Lights do not turn on with occupancy.

- See Occupancy Sensor Installation Instructions included with this Use and Care Manual. This guide is also available at www.finelite.com.
- If the problem persists do the following:

  Override Occupancy Sensor by positioning dip switches in Control Pack as shown in **Figure D**.

Maintenance / Troubleshooting

– If the problem is corrected, replace occupancy sensor and return dip switches to original position.

– If problem persists, replace cable between Control Pack and Occupancy Sensor.

Lights do not turn off automatically.

• See occupancy sensor troubleshooting guide included with this Use and Care Manual. This guide is also available at www.finelite.com.

How do I troubleshoot the Daylight Sensor?

• Refer to the specific Daylight Sensor (LS-301) guide included for more extensive troubleshooting information. Online instruction sheets for the Daylight Sensor (LS-301) can be located at www.finelite.com.

Replacement Parts

Contact Finelite for price and availability of the parts below. **Note: Parts listed are standard parts. Customer specified parts might be different than listed here.**

Description	Manufacturer	Manufacturer Part #	Finelite Part #	Location of Part
Lamps - 32w T8 XPS	Osram Sylvania	FO32835/XPS ECO	93390	Inside Light Fixture
Ballast (non-dimming)	Osram Sylvania	QT2x32120ISSC 10/CS*	93054	Inside Light Fixture
Ballast (non-dimming)	Osram Sylvania	QT432120ISSC 10/CS*	93113	Inside Light Fixture
Dimming Ballast (optional)	Osram Sylvania	QTP3x32T8/120Dim5QNL	93183	Inside Light Fixture
Occupancy Sensor	Finelite/Wattstopper	DTF-305-O	58055	Ceiling Mounted
Occupancy Sensor RJ45 Interface (Plugs into sensor)	Finelite	58161	58161	Attached to Occupancy Sensor
Daylight Dimming Sensor (optional)	Finelite	LS-301 with RJ45 plug	58183	Ceiling Mounted
Daylight Dim. Sensor Setup Remote (optional)	The Watt Stopper	LSR-301-S	58036	Hand Held Remote
Daylight Dim. Sensor Occupant Remote (optional)	The Watt Stopper	LSR-301-P	58035	Hand Held Remote
Control Pack	Finelite	58082	58082	Above Ceiling
Row Pack 120V	Finelite	58083	58083	Above Ceiling
Row Pack 277V	Finelite	58087	58087	Above Ceiling
Expansion Pack	Finelite	58088	58088	Above Ceiling
Whiteboard Pack (optional)	Finelite	58089	58089	Above Ceiling
TCC Assembly - A/V, Quiet Time	Finelite	58065	58065	Teacher Control Center
TCC Assembly - A/V, Quiet Time, Dim.(optional)	Finelite	58066	58066	Teacher Control Center
TCC Assembly - A/V, QT, Whiteboard (optional)	Finelite	58031	58031	Teacher Control Center
TCC Faceplate - A/V, Quiet Time	Finelite	58069	58069	Teacher Control Center
TCC Faceplate - A/V, QT, Dim. (optional)	Finelite	58070	58070	Teacher Control Center
TCC Faceplate - A/V, QT, Whiteboard (optional)	Finelite	58024	58024	Teacher Control Center

* Replace with identical ballast.

FINELITE

Better Lighting For A Better Workplace

Finelite, Inc.
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Union City, CA 94587-1525
Phone (510) 441-1100
Fax (510) 441-1510
www.finelite.com

Form No. 98057

FINELITE

Better Lighting For A Better Workplace

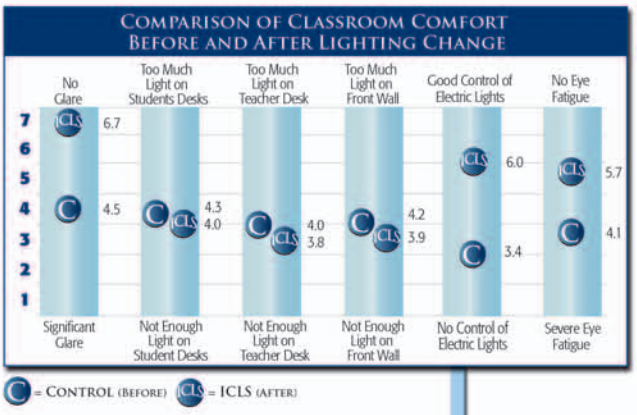
Integrated Classroom Lighting system

Integrated Classroom Lighting System

The Integrated Classroom Lighting System **(ICLS)** is the culmination of a multi-year research study sponsored in part by the California Energy Commission through the Public Interest Energy Research **(PIER)** program. Thirty real world test classrooms were monitored for an entire teaching cycle, and the study proved ICLS would improve the learning environment, increase teacher satisfaction and reduce energy consumption.

Increased Teachers Satisfaction 9:1

ICLS improves the quality of light, as well as instructor control over the learning environment. This chart summarizes a portion of independent surveys that show teachers prefer ICLS 9:1 over existing lighting.



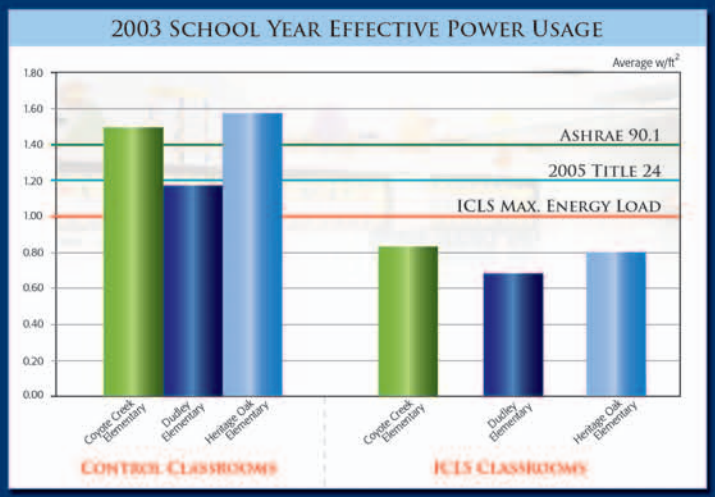
Installation Costs Reduced

ICLS is easy to install, requires fewer contractor-supplied parts, and installs much faster than traditional lighting products. The result is lower installation costs, making ICLS even more affordable.

Proven Energy Savings

15 million data points cannot be ignored. Our multi-year research project proved ICLS saves energy – 30 to 50% on average. This chart shows established standards, the ICLS target, and averages for schools we monitored.

Increased energy efficiency reduces operating costs, leaving more educational funds available for school programs.



The Learning Environment

ICLS increases teacher satisfaction by improving the learning environment. The lighting used is recommended for general classroom illumination, and includes a second lighting mode to enhance the effectiveness of audiovisual presentations. The controls are easy-to-use and include a Quiet Time Switch to bypass the occupancy sensor, giving the instructor added control.

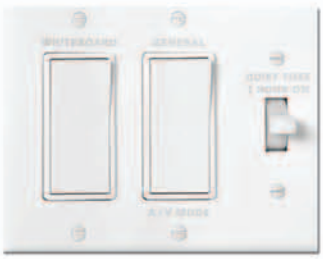
Tools That Enhance Learning

A / V Mode Dimming

ICLS can be specified with A/V mode dimming for enhanced teacher control over the learning environment. Lamps dim from 100% to 5% light output.

Daylight Harvesting

Improve the learning environment by choosing daylight harvesting products, designed to minimize classroom disruption. Closed loop daylight dimming systems seamlessly adjust the electric lighting to achieve the desired footcandle level.



Whiteboard Lighting

Supplemental lighting on the teaching wall increases student attention, and products such as optional whiteboard luminaires are easily integrated into the ICLS control system.

Contact Finelite for information regarding our Series X2 whiteboard luminaire.

More Teacher Control...

A / V Mode

The audiovisual mode directs 100% of light down on the work surface for improved screen contrast.

- Ample light is available for note taking during presentations
- Student attention is focused on the presentation

...At The Front Of The Classroom

The Teacher Control Center provides simple, effective control over the classroom environment.

The Quiet Time Switch will bypass the occupancy sensor for 1 hour to prevent false negatives during periods of limited movement.

General Mode

The general mode delivers an effective balance of uplight and downlight to evenly illuminate the ceiling and walls.

- Eliminates glare that causes distraction
- Eliminates harsh shadows

Improved Learning

Components

1

Direct/Indirect Luminaire

ICLS uses direct/indirect luminaires like the Series 10 to deliver expert recommended lighting quality.

- Glare is eliminated for fewer classroom distractions
- Walls and ceilings are evenly illuminated
- High reflectance materials ensure optimum efficiency

2

Teacher Control Center

The Teacher Control Center places easy-to-use lighting control at the front of the classroom.

- Change from general to audiovisual mode at the flip of a switch
- Quiet Time Switch bypasses occupancy sensor for 1 hour to prevent false negatives during periods of limited movement
- Faceplates are laser engraved for long-lasting durability

3

Dual Technology Occupancy Sensor

The low profile, ceiling mounted sensor provides reliable occupancy control for improved energy savings.

- Uses passive infrared and ultrasonic technologies to detect occupancy
- Plug and play connections make installation and maintenance easy

4

Row Control

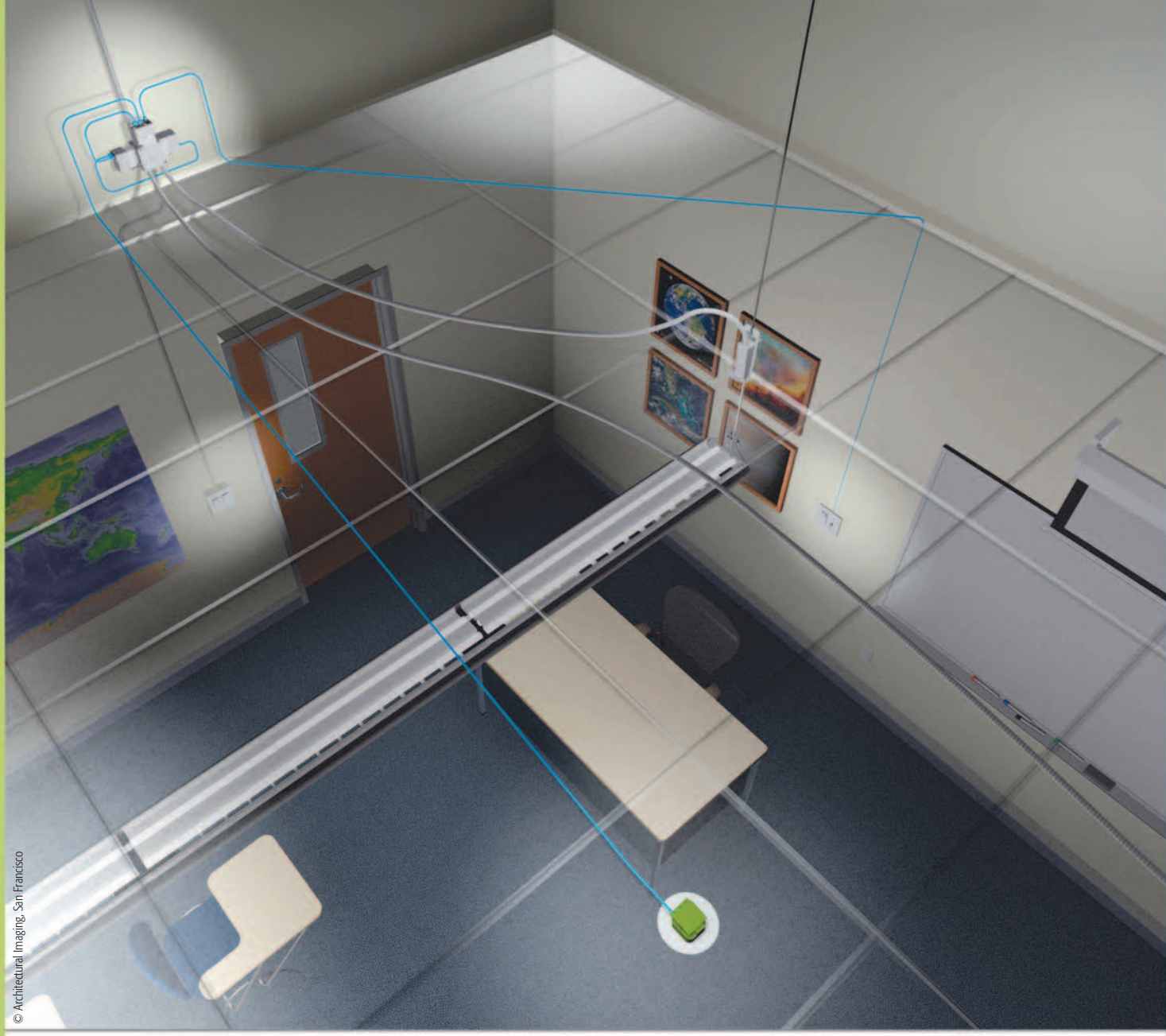
ICLS accommodates independent row control at primary entrances.

- Optional Finelite supplied switches include laser engraved faceplates
- Individual rows can be controlled for manual daylighting control
- Row control can be placed at multiple locations

Plug Together Wiring

Plug together wiring connects ICLS control elements, including the Teacher Control Center, occupancy sensor, and daylight harvesting sensors.

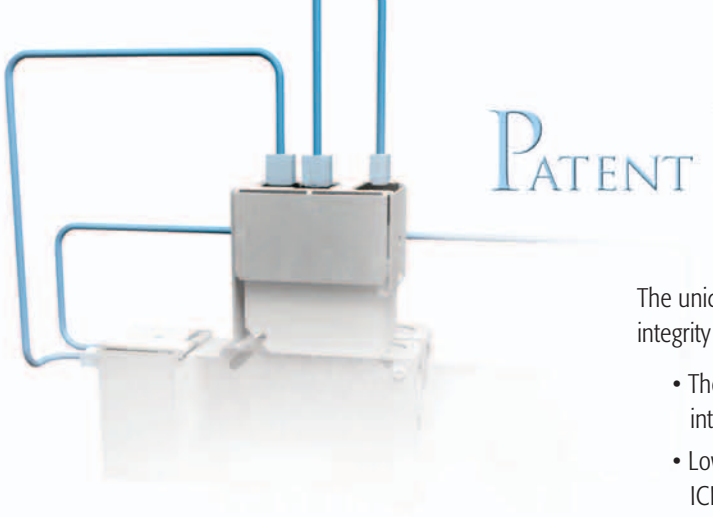
- Installation time and labor costs are reduced
- Sensors are easily moved to accommodate space changes
- Additional occupancy sensors can simply be plugged into the system



Plug and Play Makes The Difference

ICLS combines high performance luminaires, state-of-the-art components and a patent pending protocol to advance the quality and effectiveness of classroom lighting. Low voltage plug and play cables connect the components, and dramatically reduces installation costs, lowers on-site commissioning and accommodates system changes throughout the life of the classroom.

ICLS Integrated Classroom Lighting System



Patent Pending Approach

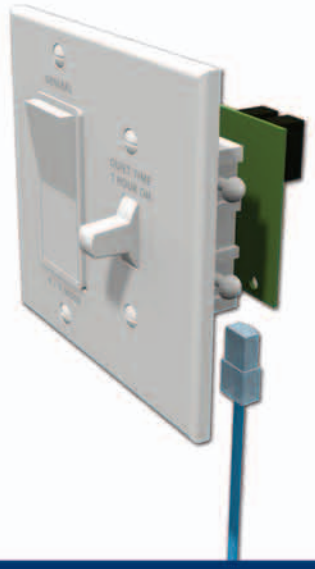
The unique patent pending protocol improves the flexibility and integrity of the ICLS system.

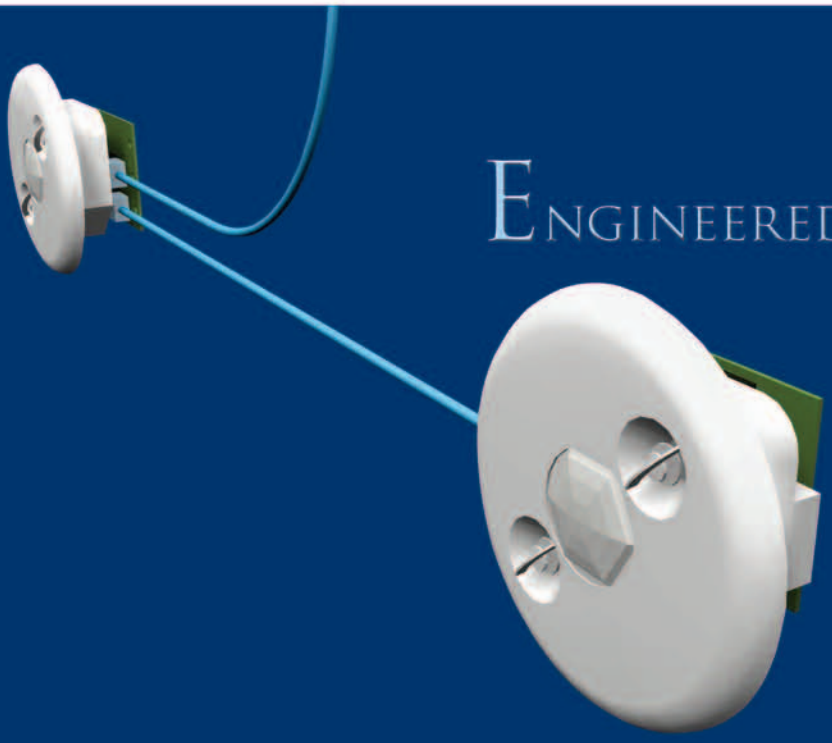
- The OmniPort design allows any component to be plugged into any port for error-free installation.
- Low voltage wiring carries power to, and communicates with, ICLS system components.
- Circuitry includes testing and override features to minimize classroom disruption during maintenance.

Easy Installation

ICLS reduces installation labor costs and contractor supplied parts.

- Teacher Control Center, occupancy sensors, and daylight dimming equipment require no contractor supplied wiring – simply plug it in!
- Plug and play low voltage wiring replaces conduit, making installation fast and affordable.
- The Finelite GridBox™ allows products to be installed On-Grid and have the power feed pass directly into the junction box.





Engineered To Accept

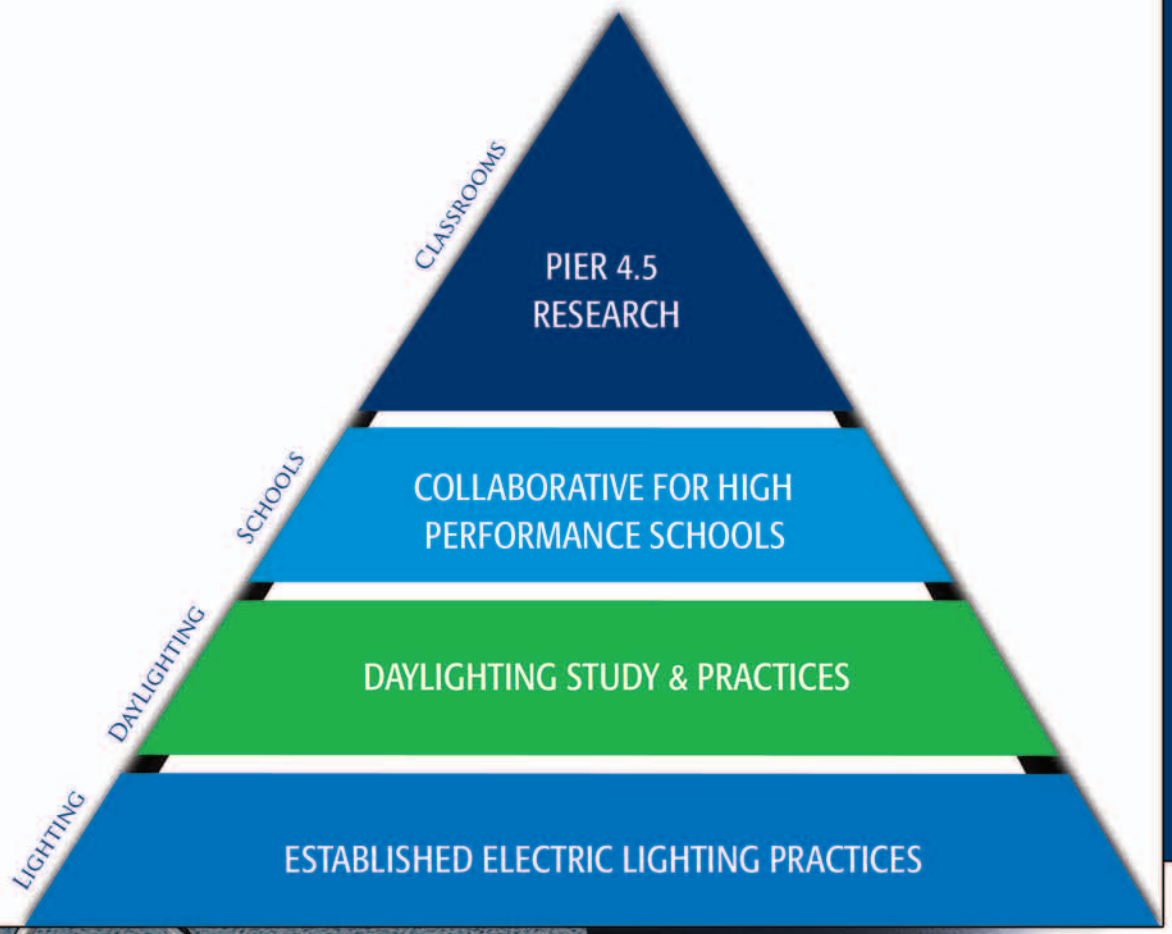
ICLS is designed to accommodate system expansions and changes.

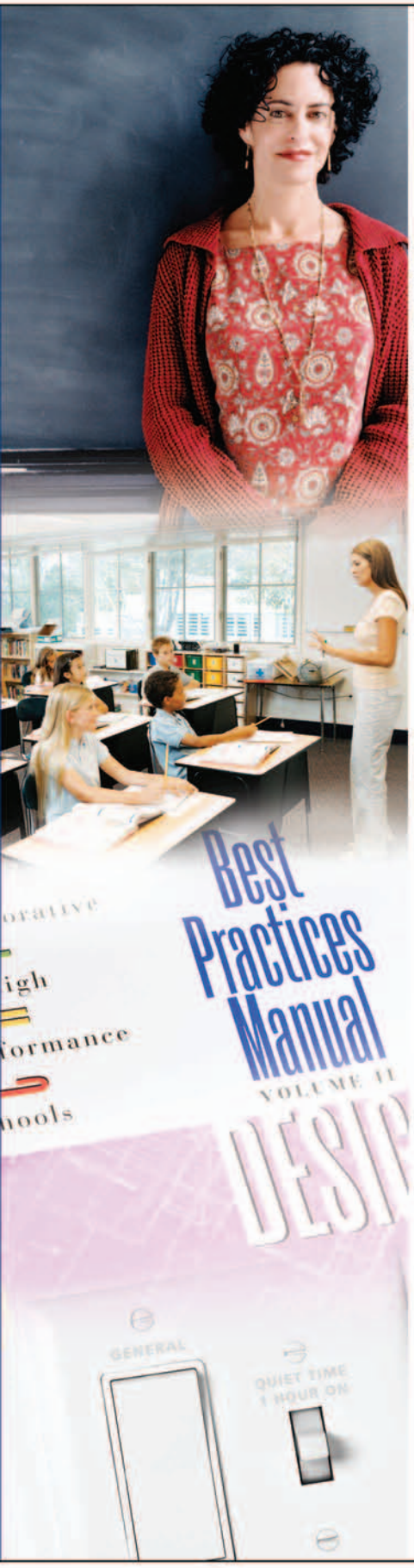
- Daylight harvesting is easily added to an existing system.
- Additional occupancy sensors are simply "daisy-chained" to accommodate space changes.
- New technologies are easily integrated into the ICLS system.

ICLS Integrated Classroom Lighting System

Meaningful product development results in concepts created with the intent to drive change in the marketplace. Years of combined knowledge and practice in the art of lighting built the foundation for research and development that resulted in ICLS. This system will change how the industry illuminates classrooms!

Foundations That Ensure GREAT → Classroom Lighting





Established Electric Lighting Practices

For more than 50 years leaders in the IESNA, IALD, and AIA have sought to establish tenets of good school lighting design, including:

- Increased control leads to increased satisfaction
- Light surfaces uniformly and reduce glare
- Pay special attention to the teaching wall
- Light faces
- Provide layout flexibility

daylighting Study and Practices

A great deal of quality research has been conducted to establish the importance of daylight in school design:

- Proper daylighting design improves student performance
- Direct sunlight is not daylighting
- Use north and south facing windows
- Use side and top lighting

Collaborative for High Performance Schools

CHPS seeks to facilitate the design of learning environments that are resource efficient, healthy, comfortable, well lit and contain the amenities needed for a quality education. To enhance visual comfort:

- Integrate natural and artificial lighting strategies
- Balance the quantity and quality of light in each room
- Control and eliminate glare
- Reduce energy to less than 1 w/ft^2

Pier 4.5 Research

Pier 4.5 is a real world research project focused on improving classroom lighting and reducing energy consumption.

- Provide more instructor control
- Include lighting for A/V presentations
- Use 30 real world test classrooms to gauge teacher preference
- Make it affordable for every school district
- Work with specific municipality and school districts to tailor lighting system to meet specific daylighting goals

ICLS Integrated Classroom Lighting System

Sustainable Design Meets Flexibility

Learn More About ICLS...

Visit Our Website At
www.finelite.com

FINELITE

Better Lighting For A Better Workplace

Finelite, Inc.
30300 Whipple Road
Union City, CA 94587-1525
Phone 510/441-1100
Fax 510/441-1510
www.finelite.com

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