

University Square Development

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Site Plan - Lighting



University Square Development

View from Johnson St. & Lake St.

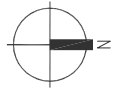
March 21, 2007



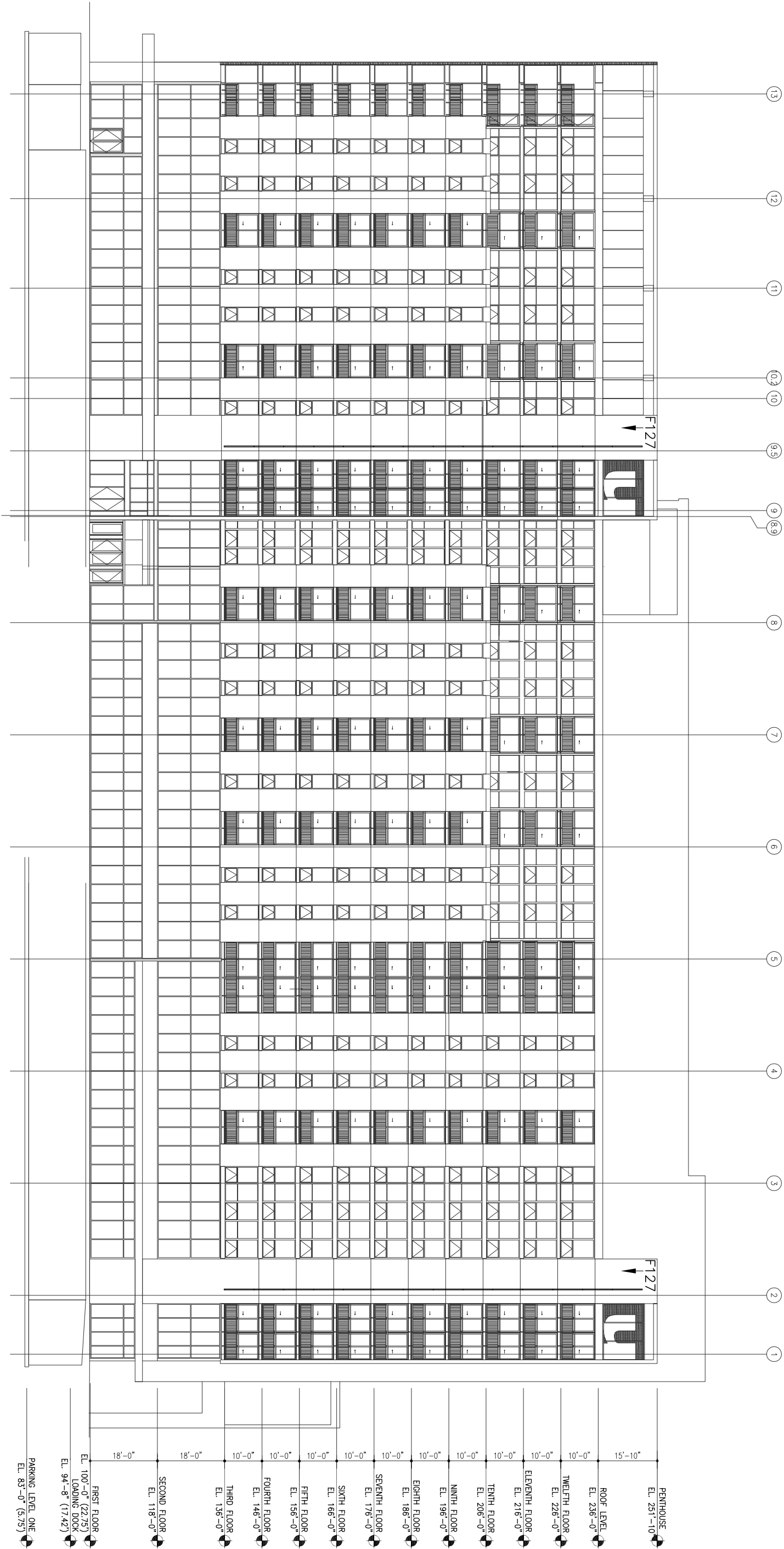
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View from University Ave. & East Campus Mall

March 21, 2007

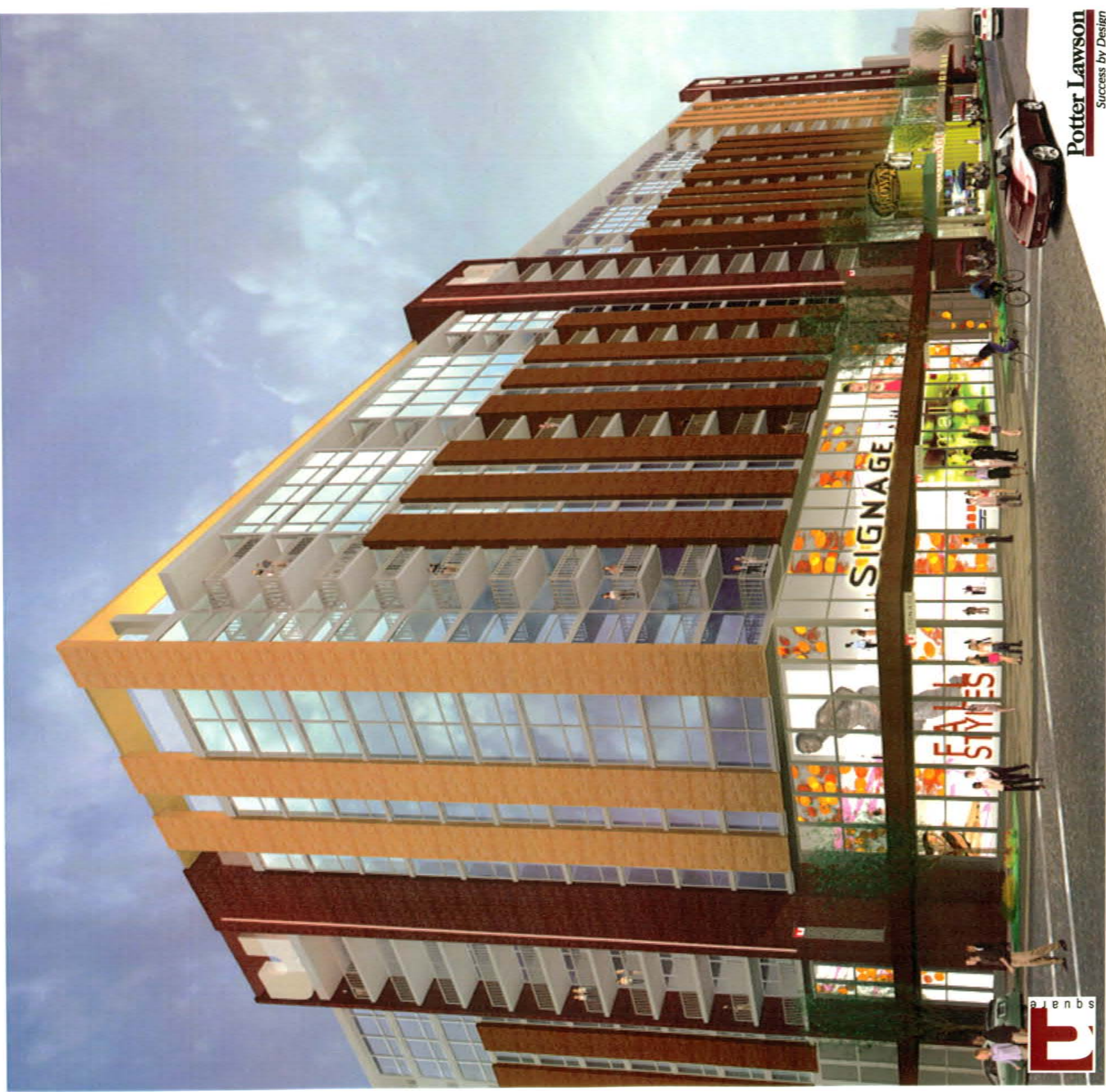


North Facade - Lighting



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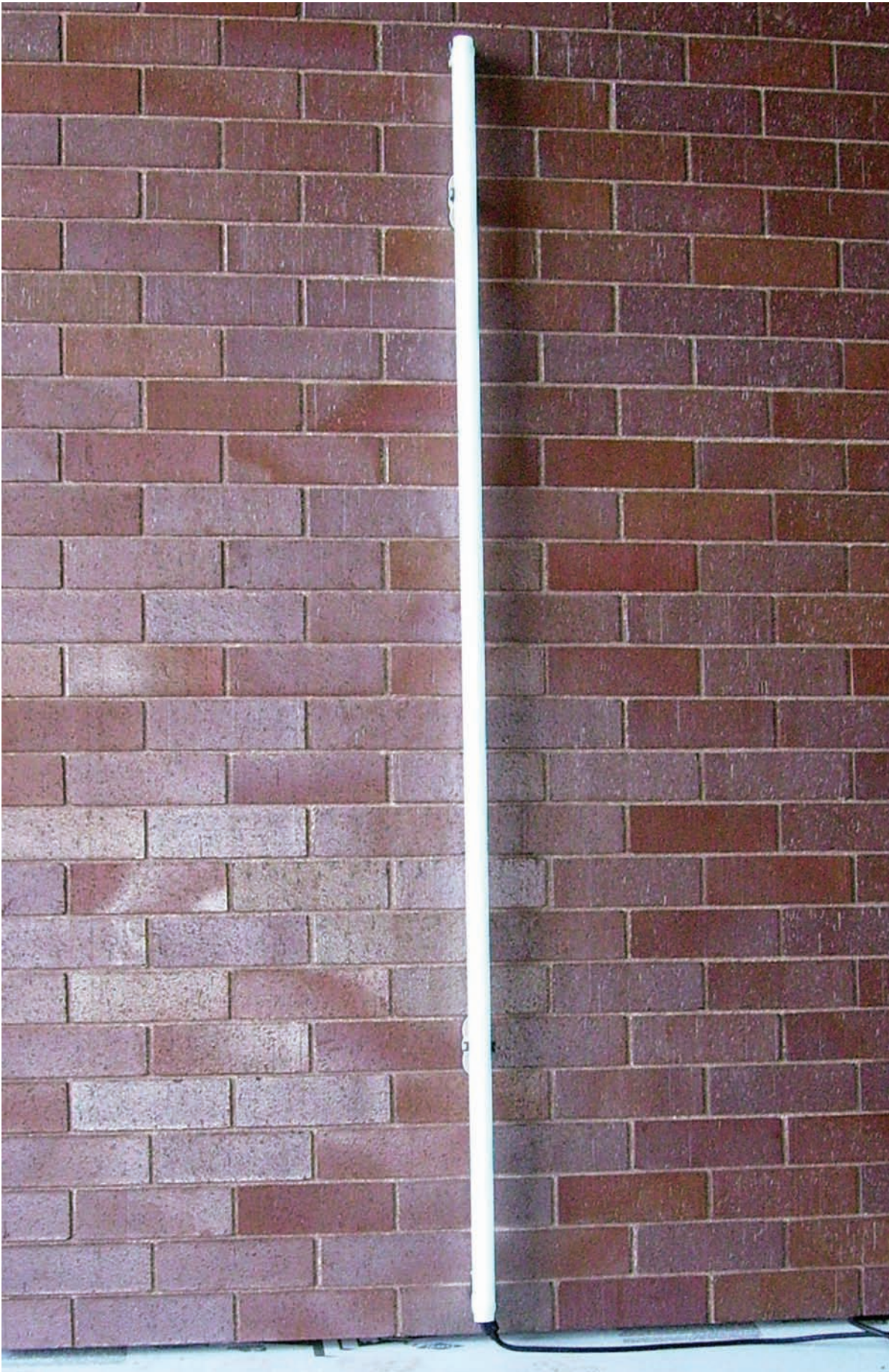
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View from Lake St. & University Ave.

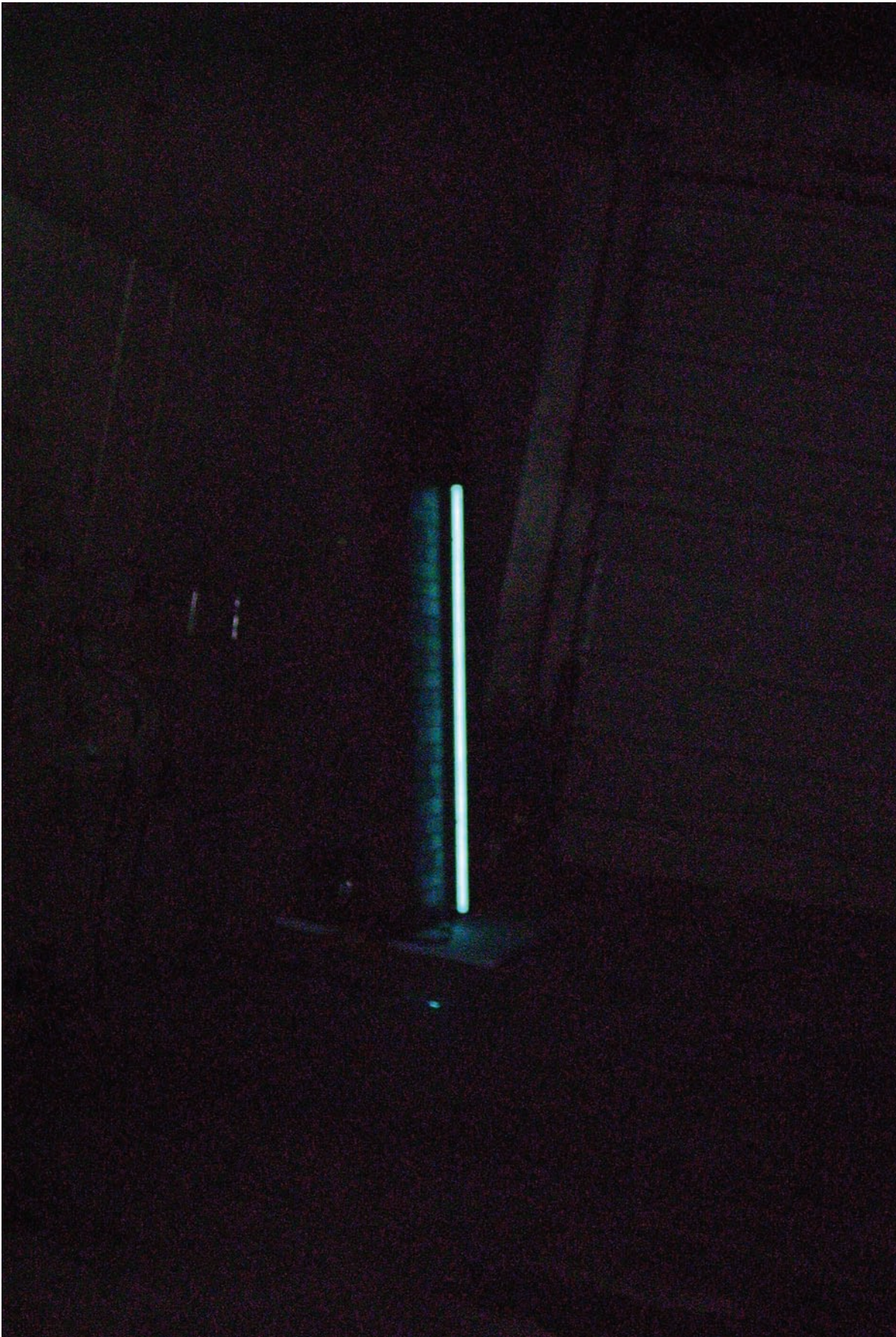
March 21, 2007



Example Photo

March 14, 2007

Potter Lawson
Success by Design



Example Photo

March 14, 2007



Example Photo

March 14, 2007

Potter Lawson
Success by Design



Example Photo

March 14, 2007

iColor Accent
Powercore

USER GUIDE



COLOR KINETICS INCORPORATED
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iColor Accent Powercore
ITEM# 123-000010-00, (2-foot)
123-000010-01, (4-foot)
123-000010-02, (8-foot)

This product is protected by one or more of the following U.S. Patents and their foreign counterparts: 6,211,626, 6,340,868, 6,888,322, 6,975,079, 7,064,498, and 7,161,311. Other patents pending.

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PUB-000166-00 Rev 01

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GETTING STARTED

Color Kinetics® iColor® Accent Powercore® is a direct view indoor/outdoor linear fixture that can be used to create long columns of color to highlight the outside of buildings or to create low-resolution video displays in entertainment or retail applications. This guide contains important information about installing and operating your new iColor Accent Powercore fixtures safely and accurately.

Included in This Box

- 1 iColor Accent Powercore fixture (either 2-ft (0.46 m), 4-ft (1.22 m), or 8-ft (2.44 m))
- User Guide

Additional Items Needed

- Color Kinetics Data Enabler EO (ITEM #:106-000003-06)
- Color Kinetics 50-ft (15.24 m) Leader Cable for Accent Powercore (with terminator) (ITEM #: 108-000028-00)
- Color Kinetics 1-ft (0.31) Jumper Cable for Accent Powercore (ITEM #: 108-000029-00)
- Color Kinetics 10-ft (3.05 m) Jumper Cable for Accent Powercore (ITEM #: 108-000029-01)
- Color Kinetics 5-ft (1.52 m) Jumper Cable for Accent Powercore (ITEM #: 108-000029-02)
- #10 mounting screws (M5) and tools

Scope of This User Guide

The goal of this user guide is to explain in the steps necessary to install iColor Accent Powercore and assure peak performance. Its intended use is for reference only, by persons who are fully qualified. This document should never be considered a substitute for any provision of a regulation or state and/or local code.

Identification and Warnings of Safety Hazards

In accordance with ANSI Z535.4-2002 the following system of identifying the severity of the hazards associated with the products is used:

“**DANGER**” Imminently hazardous situation which, if not avoided, will result in death or serious injury.

“**WARNING**” Potentially hazardous situation which, if not avoided, could result in death or serious injury.

“**CAUTION**” Potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage. Also used to alert against unsafe practices.

IGNORING A HAZARD WILL VOID ANY WARRANTY.

DANGER: Ensure that main power supply is off before installing, wiring, or servicing the iColor Accent Powercore.

DANGER: iColor Accent Powercore must be installed by a qualified electrician in accordance with NEC and relevant local codes.

WARNING: Do not attempt to install or use iColor Accent Powercore until you read and understand the installation instructions and safety labels.

WARNING: Do not use iColor Accent Powercore if the power cables are damaged.

WARNING: As dictated by a Structural Engineer and/or local code, install safety cables to iColor Accent Powercore fixtures.

WARNING: When using safety cables, ensure that they comply to the specifications given in this user guide.

CAUTION: Do not attempt to remove the rubber purge ports located on the end caps of the fixtures.

CAUTION: iColor Accent Powercore has no serviceable parts. Do not attempt to open the fixture.

CAUTION: Do not use sharp tools near or on the fixture lens.

CAUTION: Do not hot swap. Ensure that power to the fixture is off before connecting or disconnecting fixtures.

NOTE: The instructions and precautions set forth in this user guide are not necessarily all-inclusive, all conceivable, or relevant to all applications as Color Kinetics cannot anticipate all conceivable or unique situations.

Owner/User Responsibilities

It is the responsibility of the contractor, installer, purchaser, owner, and user to install, maintain, and operate iColor Accent Powercore in such a manner as to comply with all state and local laws, ordinances, regulations, and the American National Standard Institute Safety Code.

PLANNING THE INSTALLATION

The iColor Accent Powercore installation requires in-depth planning to ensure timely, successful installation with minimal complications and down time.

Planning Suggestions

When planning iColor Accent Powercore installation, Color Kinetics suggests doing the following:

- Consult a Structural Engineer to design an installation scheme that is safe and viable.
- Consult an Electrical Inspector to approve all wiring plans.
- Refer to local and state codes for installation compliance.
- Create a Layout Plan drawing.
- Create a Mapping Grid. Use this grid to record serial numbers for easy reference and addressing.
- Consult Color Kinetics Application Engineering Services as needed, at support@colorkinetics.com.

Installation Considerations

When creating your installation plan, consider the following:

- Location of Data Enabler EO in relation to the lights. Each Data Enabler EO supports one leader cable. The run of iColor Accent Powercore fixtures connected to the leader cable can be the lesser of 15 fixtures or 100 feet (30.48 m).
- Location of the screw holes on the fixture and method of attaching. The fixture can be installed using screws suitable for the mounting surface.
- Calculate the number of fixtures per Data Enabler EO. Use the Configuration Calculator located at www.colorkinetics.com/support to calculate the number of fixtures you can put on a Data Enabler EO. This fixtures to Data Enabler EO ratio is determined by the parameters of your installation. Installation parameters include all or some of the following: line voltage, fixture type, leader length, and jumper lengths.
- Install and wire the Data Enabler EO before installing iColor Accent Powercore fixtures. Refer to the Data Enabler EO User Guide.

STEPS TO A SUCCESSFUL INSTALLATION

There are two sets of installation steps, depending on whether your iColor Accent Powercore fixtures will be controlled using Ethernet or DMX.

Installation Steps for Ethernet Control

1. Install the Data Enabler EO.
2. Install the fixtures.
3. Connect the fixtures to Light System Manager (LSM) or Video System Manager (VSM).

Each of these steps are described below.

Installing the Data Enabler EO (for Ethernet)

Determine the location for the Data Enabler EO. One Data Enabler EO can support a one leader cable. The run of fixtures on the leader cable can be the lesser of 15 fixtures or 100 feet (30.48 m).

Things to remember:

- Install the Data Enabler EO according to state and local codes.
- Consult an Electrical Inspector to approve all wiring plans.

Refer to the Data Enabler EO User Guide for complete installation and wiring instructions. After running power and data to the Data Enabler EO, you are ready to attach the iColor Accent Powercore fixtures.

Installing the Fixtures (for Ethernet)

DANGER: Ensure that the power source is off before wiring the Data Enabler EO or connecting fixtures. Failure to do so will result in death and will void the warranty.

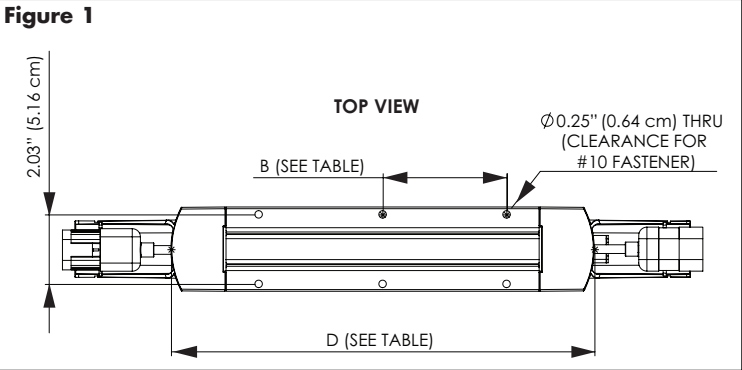
iColor Accent Powercore fixtures are installed in series. The in-line connectors allow the fixtures to butt up against one another, providing for the best visual effects. Jumper cables are available to add space between the fixtures when needed.

Mount the fixtures by using the mounting holes on each side of the fixture. The number of mounting holes depends on the size of the fixture (see Table 1).

Table 1: iColor Accent Powercore Fixture Dimensions

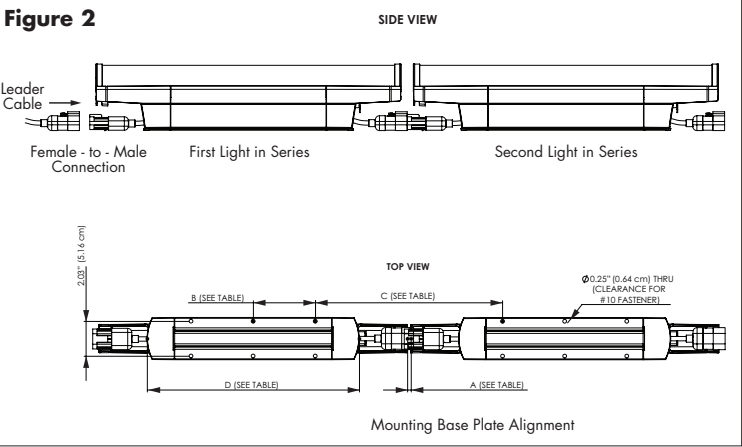
Fixture Size inches cm	A inches cm	B inches cm	C inches cm	D inches cm	Fastening Locations per Fix- ture	Weight lbs. kg
24 60.96	0.25 0.64	4.88 12.40	14.63 37.16	18.38 46.69	6	4.5 2.0
48 121.92	0.38 0.97	8.06 20.47	16.13 40.97	42.38 107.65	10	9.3 4.2
96 242.84	0.50 1.27	12.06 30.63	24.13 61.29	90.38 229.57	14	18.0 8.6

Use hardware suitable for the mounting surface. (See Figure 1.) Table 1 lists the dimensions for the different size fixtures.



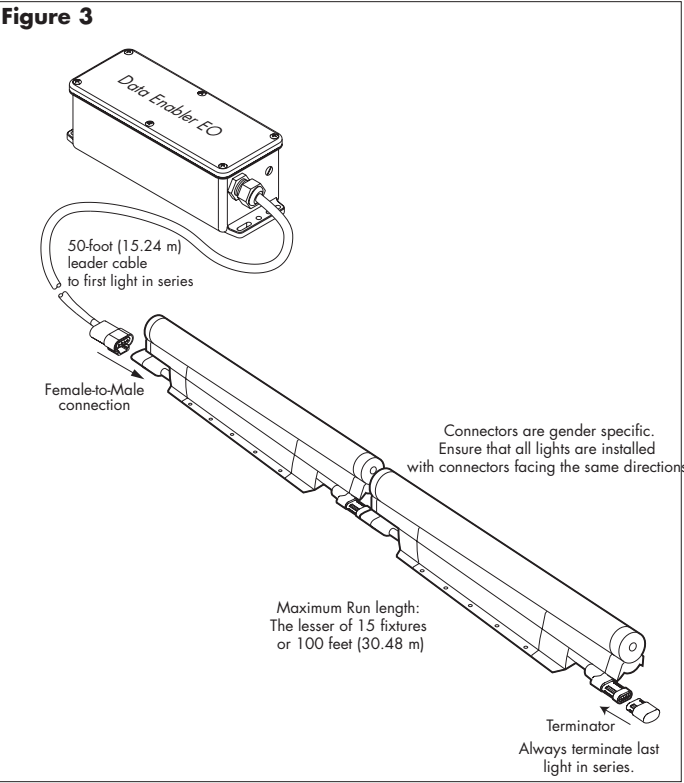
NOTE: The iColor Accent Powercore fixture can be used as a template when pre-drilled pilot holes are required. Hold the fixture in place and mark the screw holes.

1. Position the first fixture in a series and attach it with the appropriate number of #10 mounting screws suitable for the mounting surface. Ensure that the male connector is in position to receive data and power from the Leader Cable. (See Figure 2.) Table 1 lists the dimensions for the different size fixtures.
2. Position the next fixture in the series, matching the male connector end to the female connector of the previously mounted fixture. Attach the fixture to the surface. (See Figure 2.) Table 1 lists the dimensions for the different size fixtures. The flexible connector cables allow for up to 180° turning radius.



3. Continue mounting the fixtures, making power/data connections as you go, until all lights in the series are mounted.
4. Once all fixtures are mounted and connected, connect the leader cable from the Data Enabler to the first fixture in the series. Ensure power is off when making this connection.

5. Insert the terminator into the last fixture of each light series.
6. Repeat Steps 1 through 5 for each Data Enabler in the installation until all lights are installed. (See Figure 3.)



Connecting to LSM or VSM (for Ethernet)

For Ethernet control, connect the iColor Accent Powercore fixtures and the Data Enabler EO to the Light System Manager (LSM) or Video System Manager (VSM) as described in the LSM or VSM User Guides. Figure 4 shows the configuration.

CAUTION: Ensure terminator is inserted into last fixture of each series. Failure to do so may result in minor or moderate injury or property damage and will void the warranty.

Installation Steps for DMX Control

1. Install the Data Enabler EO.
2. Install the fixtures.
3. Address the fixtures using Accent EtherSAS (Accent Ethernet Serial Addressing Software).
4. Connect to a Color Kinetics or third party DMX512 controller.

Each of these steps are described below.

Installing the Data Enabler EO (for DMX)

See *Installing the Data Enabler EO (for Ethernet)* on page 1.

Installing the Fixtures (for DMX)

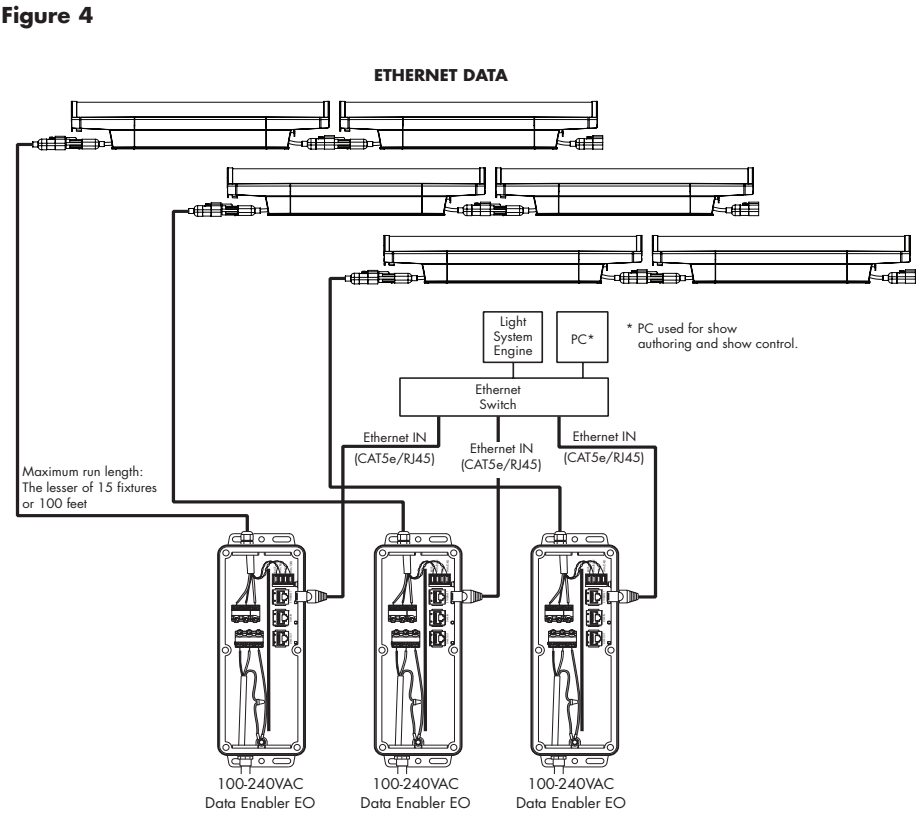
See *Installing the Fixtures (for Ethernet)* on page 1.

Addressing the Fixtures (for DMX)

NOTE: Serial addressing gives you the option of post-installation addressing multiple fixtures through a single Data Enabler or multiple Data Enablers using the recorded serial numbers. Refer to the Accent EtherSAS Instruction Guide for details.

The iColor Accent Powercore fixtures are pre-addressed to light number 1 at the time of manufacture. Address each fixture with a new light number, as needed, using Accent EtherSAS.

NOTE: During setup of a DMX installation, the Accent EtherSAS software addresses the fixtures using an Ethernet connection between the PC and the Data Enabler EO.



- Download the Accent Ethernet Serial Addressing Software and instructions from <http://support.colorkinetics.com>.
1. With power disconnected, connect a single iColor Accent Powercore fixture or a series of fixtures to a Data Enabler EO.
 2. Connect the PC running Accent EtherSAS to the Ethernet Port on the Data Enabler EO.
 3. Connect power to the Data Enabler EO.
 4. Use Accent EtherSAS to set the light address for each fixture.

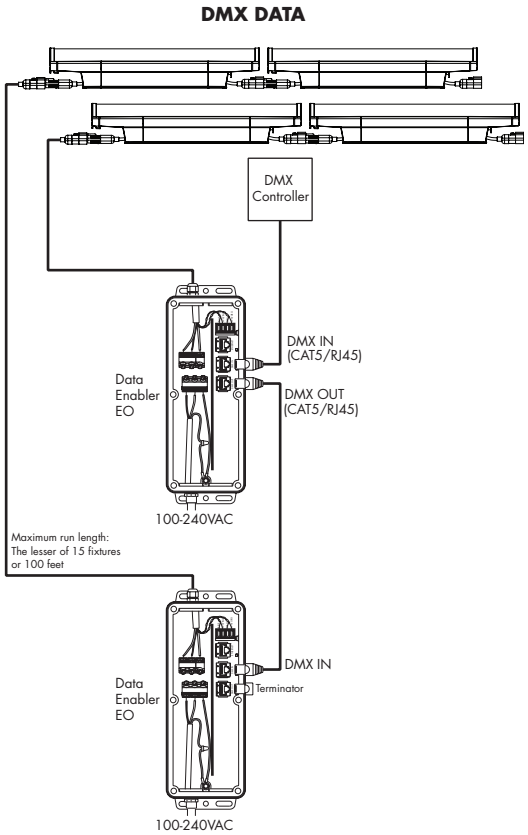
Connecting to the DMX512 Controller

For DMX control, connect the iColor Accent Powercore fixtures and the Data Enabler EO to the Color Kinetics or third party DMX512 controller as described in the user documentation for the controller. (See Figure 4.)

Temperature Monitoring

For protection from extreme temperatures, the iColor Accent Powercore has been designed with a temperature monitoring feature. If operating temperatures rise to an unsafe level, a compensation circuit is triggered and the iColor Accent Powercore operation is interrupted causing the lights to turn dull red.

To prevent additional power shut-downs, determine the cause of the overheating and correct the problem. Power-cycle the system to return to full intensity.



iCOLOR ACCENT POWERCORE SPECIFICATIONS	
COLOR RANGE	16.7 million (24bit) additive RGB colors; continuously variable intensity output range
OUTPUT	50-100 lumens (estimated)
SOURCE	Chip-on-board RGB LEDs
VISIBILITY RANGE	250° x 180°
HOUSING	Sealed plastic and extruded aluminum
WEIGHT	2-ft (0.61 m) - 4.5 lbs (2.0 kg) 4-ft (1.22 m) - 9.3 lbs (4.2 kg) 8-ft (2.44 m) - 18.0 lbs (8.2 kg)
CONNECTORS	Over-molded, integral male/female connectors
LISTINGS	UL/cUL, CE
COMMUNICATION SPECIFICATIONS	
DATA INTERFACE	Color Kinetics Data Enabler EO (Item#106-000003-06)
CONTROL	Color Kinetics full line of controllers, including Video System Manager, Light System Manager, and other DMX512 (RS485) sources
ELECTRICAL SPECIFICATIONS	
INPUT VOLTAGE	100-240 VAC
POWER CONSUMPTION	8W/ft
LEADER CABLE	50-ft (15.24 m) Leader Cable for Accent Powercore (ITEM# 108-000028-00)
JUMPER CABLES	1-ft (0.30 m) Jumper Cable for Accent Powercore (ITEM# 108-000029-00) 10-ft (3.05 m) Jumper Cable for Accent Powercore (ITEM# 108-000029-01) 5-ft (1.52 m) Jumper Cable for Accent Powercore (ITEM# 108-000029-02)
ENVIRONMENTAL SPECIFICATIONS	
TEMPERATURE RANGE	-4°F to 122°F (-20°C to 50°C) based on testing of specific product
PROTECTION RATING	IP66

LED Source Life

In traditional lamp sources, lifetime is defined as the point at which 50% of the lamps fail. This is also termed Mean Time Between Failure [MTBF]. LEDs are semiconductor devices and have a much longer MTBF than conventional sources. However, MTBF is not the only consideration in determining useful life. Color Kinetics uses the concept of useful light output for rating source lifetimes. Like traditional sources, LED output degrades over time (lumen depreciation) and this is the metric for SSL lifetime.

LED lumen depreciation is affected by numerous environmental conditions such as ambient temperature, humidity, and ventilation. Lumen depreciation is also affected by means of control, thermal management, current levels, and a host of other electrical design considerations. Color Kinetics systems are expertly engineered to optimize LED life when used under normal operating conditions. Lumen depreciation information is based on LED manufacturers’ source life data as well as other third party testing. Low temperatures and controlled effects have a beneficial effect on lumen depreciation. Overall system lifetime could vary substantially based on usage and the environment in which the system is installed.

Temperature and effects will affect lifetime. Color Kinetics rates product lifetime using lumen depreciation to 50% of original light output. When the fixture is running at room temperature using a color wash effect, the lifetime is in the range of 30,000-50,000 hours. This is based on LED manufacturers’ test data. For more detailed information on source life, please see www.colorkinetics.com/lifetime.

Warranty

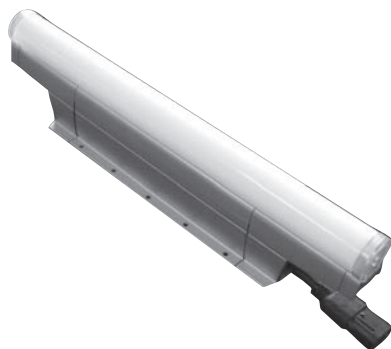
This product is sold pursuant to CK’s Standard Terms and Conditions (the “T&Cs”) which may be found at <http://colorkinetics.com/howtobuy/buy/terms> and which contain important provisions, including, among others, Limited Warranty, exclusions and limitations on CK’s liability for damages, and restrictions on the remedies that are available to you.

PRELIMINARY INFORMATION

ALL SPECIFICATIONS SUBJECT TO CHANGE



iCOLOR ACCENT POWERCORE



Color Kinetics® iColor® Accent Powercore is a direct view indoor/outdoor linear fixture, designed to succeed iColor Accent. Available in 2-ft (0.61 m), 4-ft (1.22 m), and 8-ft (2.44 m) lengths and with control resolution down to 1.2 inches (3.05 cm) increments, the fixtures can be connected to create long columns of color to highlight the outside of buildings or to create low-resolution video displays in entertainment and retail applications. The diffuse lens is specifically designed for direct viewing. Like its predecessor, iColor Accent Powercore is designed to meet the rugged requirements of outdoor applications. Because it utilizes Powercore® technology, line voltage goes directly into the fixtures, simplifying installation and allowing for much longer runs.

The housing for iColor Accent Powercore is extruded aluminum, providing strong support. The diffused plastic lens gives a 250° viewing angle and uniform color mixing. Fixtures can be connected in series by over-molded locking connectors, which supply both power and data.

With an Ethernet line going directly into each fixture via the leader cable, iColor Accent Powercore can be controlled by Color Kinetics Video System Manager (VSM) and Light System Manager (LSM). In addition, the Data Enabler EO can be used to convert DMX from a third-party controller to Ethernet before reaching the first fixture. Control resolution can be selected from as little as 1.2 inches (3.05 cm) segments to as much as 8-ft (2.44 m) segments.

iCOLOR ACCENT POWERCORE SPECIFICATIONS

COLOR RANGE	16.7 million (24bit) additive RGB colors; continuously variable intensity output range
OUTPUT	50-100 lumens (estimated)
SOURCE	Chip-on-board RGB LEDs
VISIBILITY RANGE	250° x 180°
HOUSING	Sealed plastic and extruded aluminum
WEIGHT	2-ft (0.61 m) - 4.5 lbs (2.0 kg) 4-ft (1.22 m) - 9.3 lbs (4.2 kg) 8-ft (2.44 m) - 18.0 lbs (8.2 kg)
CONNECTORS	Over-molded, integral male/female connectors
LISTINGS	UL/cUL, CE

COMMUNICATION SPECIFICATIONS

DATA INTERFACE	Color Kinetics Data Enabler EO (ITEM# 106-000003-06)
CONTROL	Color Kinetics full line of controllers, including Video System Manager, Light System Manager, or other DMX512 (RS485) sources

ELECTRICAL SPECIFICATIONS

INPUT VOLTAGE	100-240 VAC
POWER CONSUMPTION	8W/ft
LEADER CABLE	50-ft (15.24 m) Leader Cable for Accent Powercore (ITEM# 108-000028-00)
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LED SOURCE LIFE

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Temperature and effects will affect lifetime. Color Kinetics rates product lifetime using lumen depreciation to 50% of original light output. When the fixture is running at room temperature using a color wash effect, the lifetime is in the range of 30,000-50,000 hours. This is based on LED manufacturers' test data. For more detailed information on source life, please see www.colorkinetics.com/lifetime.

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DRY

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ITEM# 123-000010-00 (2 ft)
123-000010-01 (4 ft)
123-000010-02 (8 ft)

This product is protected by one or more of the following U.S. Patents and their foreign counterparts: 6,211,626, 6,340,868, 6,888,322, 6,975,079, 7,064,498, and 7,161,311. Other patents pending.

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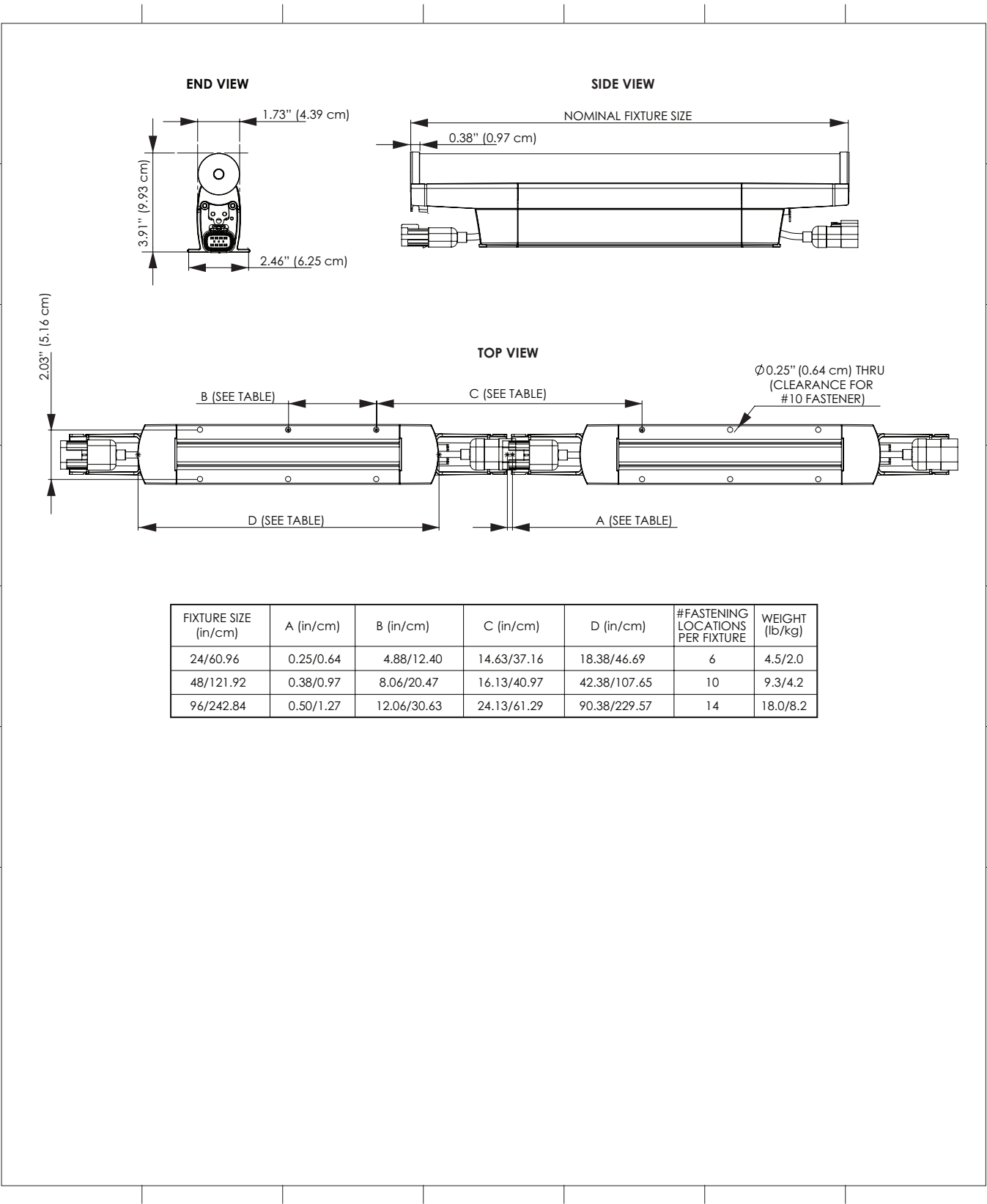
BR0204 Rev 02

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PRELIMINARY INFORMATION
ALL SPECIFICATIONS SUBJECT TO CHANGE

iCOLOR ACCENT POWERCORE

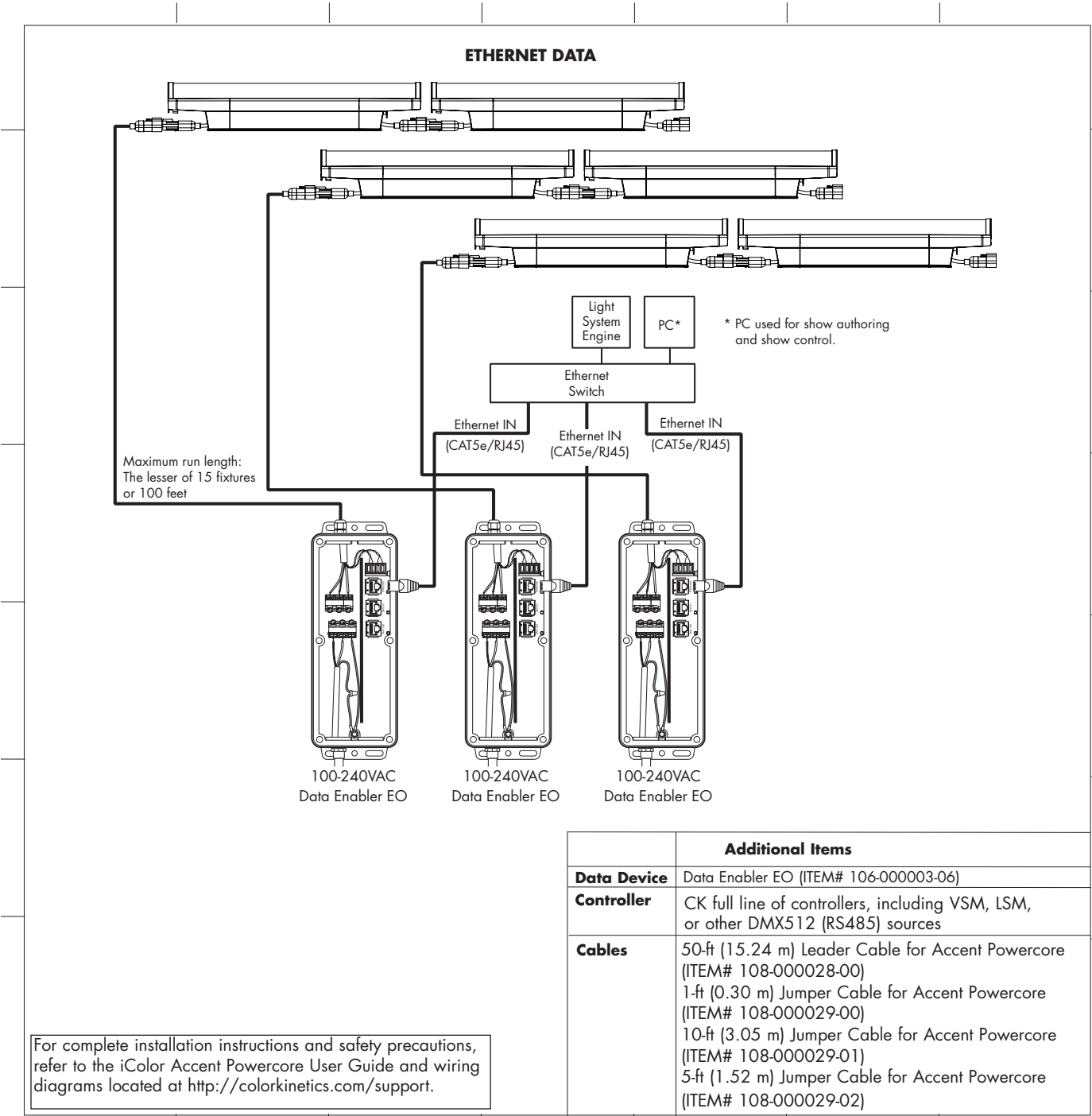
PHYSICAL DIMENSIONS



PRELIMINARY INFORMATION
ALL SPECIFICATIONS SUBJECT TO CHANGE

iCOLOR ACCENT POWERCORE

FUNCTIONAL FLOW DIAGRAM



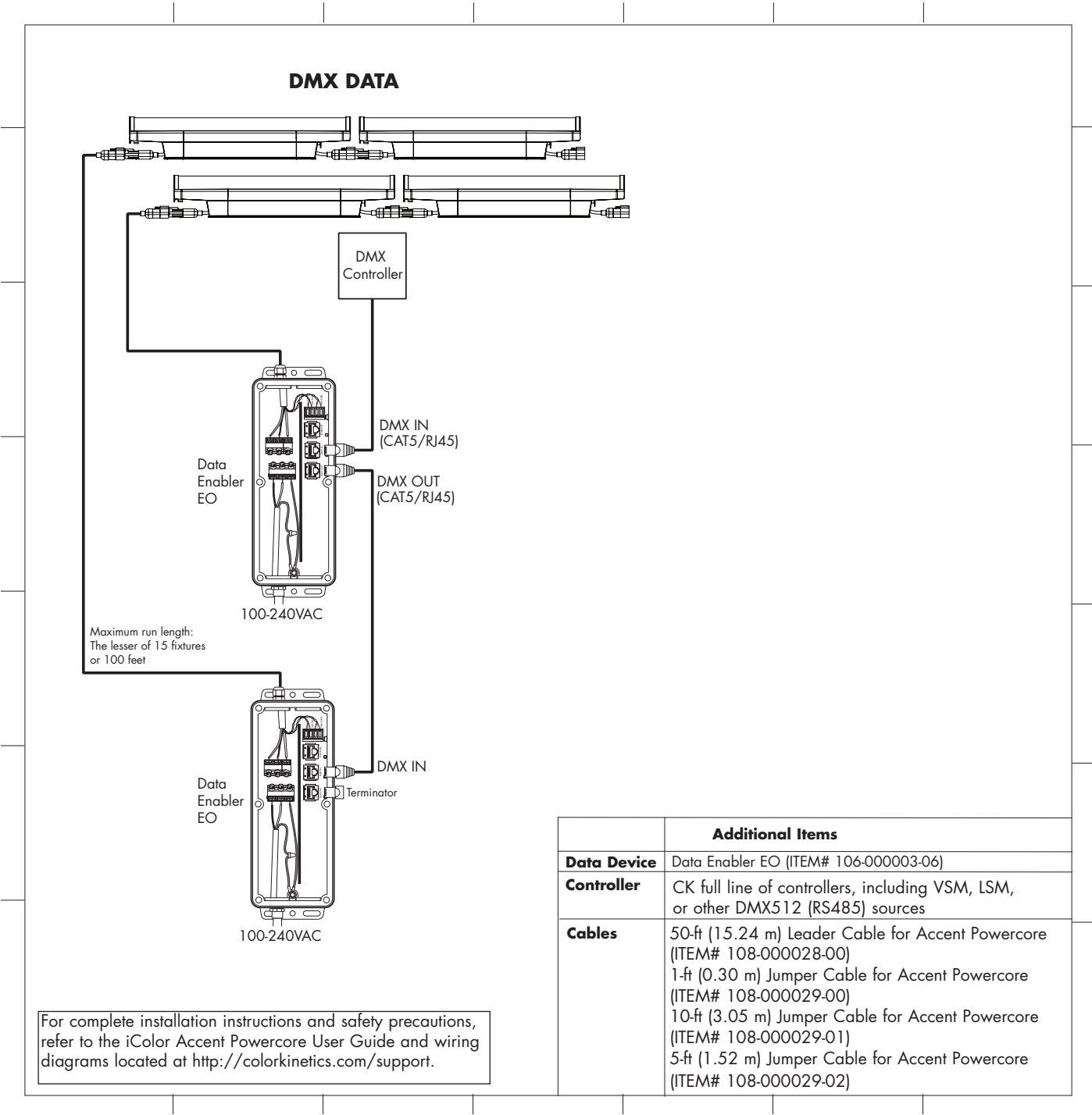
OPTIBIN®

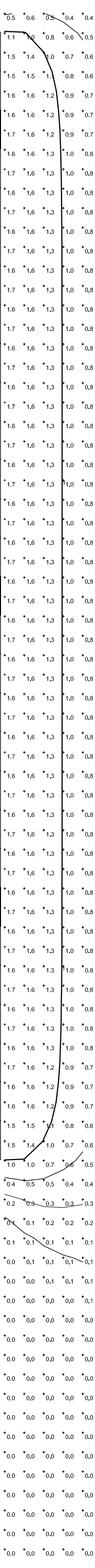
There are inherent variations in the fabrication processes of all semiconductor materials. For LEDs, this variance results in differences in the color and intensity of light output as well as electrical characteristics. Due to these differences, LED manufacturers sort production into "bins," but insuring the availability of a single bin is very difficult.

PRELIMINARY INFORMATION
ALL SPECIFICATIONS SUBJECT TO CHANGE

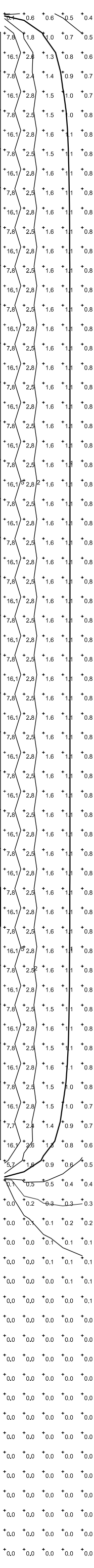
iCOLOR ACCENT POWERCORE

FUNCTIONAL FLOW DIAGRAM





Measurements perpendicular to building
three feet behind lighting element.



Measurements perpendicular to building
at lighting element.

