SECTION 26 55 61

ENTERTAINMENT LED LUMINAIRIES

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* ETC, Inc.; lighting and rigging products.  
This section is based on the products of ETC, Inc., which is located at:3031 Pleasant View Rd., P. O. Box 620979Middleton, WI 53562-0979Tel: 608-831-4116Fax: 608-836-1736Email: [request info (mail@etcconnect.com)](https://arcat.com/rfi?action=email&company=ETC%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(16560etc)%253A%2520&coid=43555&spec=16560etc&rep=&fax=608-836-1736)  
Web: <https://www.etcconnect.com>   
 [ [Click Here](https://arcat.com/company/etc-inc-43555) ] for additional information.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Entertainment LED luminaires (Source Four LED) (Desire) (4wrd) (ColorSource)
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 06 10 00 - Rough Carpentry.
    2. Division 16 - Electrical for power wiring.
    3. Division 11 - Specialty Equipment - Theatrical Equipment
    4. Division 16 - Audiovisual Systems
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.
     4. Standards Compliance: Luminaire testing is by nationally recognized third-party labs in compliance with IES LM-84.
  2. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  3. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  4. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  5. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.
        1. Unless Specified Otherwise: Fixtures: 5 years. LED Arrays: 10 years.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: ETC, Inc., which is located at:3031 Pleasant View Rd., P. O. Box 620979Middleton, WI 53562-0979Tel: 608-831-4116Fax: 608-836-1736Email: [request info (mail@etcconnect.com)](https://arcat.com/rfi?action=email&company=ETC%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(16560etc)%253A%2520&coid=43555&spec=16560etc&rep=&fax=608-836-1736);Web: <https://www.etcconnect.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
       1. Standards Compliance: Luminaire testing is by nationally recognized third-party labs in compliance with IES LM-84.
       2. Warranty Unless Specified Otherwise: Fixture: 5 years. LED Array: 10 years.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete Basis of Design options not required.

* 1. ENTERTAINMENT LUMINAIRES (SOURCE FOUR LED SERIES)
     1. Basis of Design: Source Four LED Series 2 as manufactured by ETC Inc. A color-mixing high-intensity LED illuminator with DMX control of intensity and color. Broad spectrum color. User-friendly control interface. Power supply, cooling, and electronics; integral to each unit.
        1. Standards Compliance:
           1. Listed: cETLus, UL1573, and C22.2 C22. No.166.
           2. Compliance: CE and USITT DMX-512A

\*\* NOTE TO SPECIFIER \*\* Delete light engine option and model options not required.

* + - 1. Light Engine: With Shutter Barrel for use with fixed-field lens tubes only.
      2. Light Engine: Body only for use with zoom lens tubes and retrofit of existing fixtures.
      3. Model: Lustr.
      4. Source: LED Details: 60 Lumileds LUXEON Rebel LED
         1. Lustr: Max Lumens: 8,667. Lumens per Watt: 51.9. L70 Rating: 54,000 hours
      5. Colors: Utilize 60 LED emitters. Available in LED arrays as outlined below:
         1. Colors, Lustr: Red, Amber, Lime, green, Cyan, Blue, Indigo.

Designed for broad spectrum color, light tints, and variable whites. Measured brightness to be greater than 6,500 field lumens.

* + - * 1. Color Temperature Range: Lustr: 2,200 - 6,500 K.
        2. Calibrated Array: Yes.
        3. Red Shift: Yes. Can be disabled.
      1. Dimming: 15-bit nonlinear scaling techniques for high-resolution dimming.
         1. Four different dimming curve options to be accessible at the fixture's User Interface: Incandescent, Standard, Linear, and Quick.
         2. Dimming Curves: Optimized for smooth dimming over longer timed fades.
         3. Digitally driven using high-speed pulse width modulation (PWM)
         4. LED Control: Compatible with broadcast equipment in the following ways:

PWM Control of LED Levels: Imperceptible to video cameras and related equipment.

PWM Rates: Adjustable at fixture to avoid visible interference to video cameras and related equipment.

* + - 1. Optical: Can be used with LED CYC and Fresnel adapter.
         1. Beam Angle Range: Swappable lens tubes between 5 to 90 degrees.
         2. Gate Size: 3.15 inches.
         3. Aperture Size: 6.25 to 14 inches, depending on lens tube.
         4. Pattern Projection: Yes. High-quality pattern imaging.
         5. Pattern Size: A or B.
         6. Camera Flicker Control/Hz Range: Yes. 90 to 25,000 Hz.
         7. Light beam should have a 2-to-1 center-to-edge drop-off ratio.

Low gate and beam temperature.

Sharp imaging through a three-plane shutter design

Field Angles: 5, 10, 14, 19, 26, 36, 50, 70 and 90 degrees.

Sharp shutter cuts without halation.

Shutter warping and burnout in normal use shall be unacceptable.

Adjustable hard and soft beam edges.

Units of 19, 26, 36, and 50 degrees to have optional lens tubes (EDLT) available for precision, high-contrast imaging.

* + - 1. Control Interface: USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors.
         1. Compatible with ANSI RDM E1.20. Functions accessible via RDM protocol for modification from suitably equipped control console

Temperature sensors in luminaire to be viewable in real time via RDM.

* + - * 1. LCD for status reports and configuration changes. 6-button user-interface
        2. Multiple DMX input profile Options:

RGB: Control LED colors with 3-channel profile. Red, Green, Blue.

HSI: Control LED colors with 3-channel profile. Hue, Saturation, and Intensity.

HSIC: Control LED colors via a four-channel profile. Hue, Saturation, Intensity, and Color Point.

Color Point: Provides variable color temperature settings.

Direct: Control of each color channel via an independent channel.

Studio: Control of fixture in a white-light 3 channel profile.

Intensity, and Color Temperature, plus or minus Green (Tint).

Without DMX the fixture can master other Source Four LEDs and Desire fixtures that are connected via 5 pin XLR DMX cables.

A variable-rate strobe channel.

* + - * 1. Three Output Settings:

Boost Mode: Powers LEDs at maximum intensity. No compensation against LED ' droop' or intensity loss.

Regulated Mode: Restricts LED intensity. Compensates against LED droop.

Protected Mode: Restricts LED intensity. Compensates against LED droop and offers color consistency at highest permissible ambient temperature.

* + - * 1. Additional user-definable options include but are not limited to:

Display time out options. Loss of data behavior options. White point settings. Red-shift option for tungsten dimming emulation.

* + - * 1. Five Quick Set-Ups to select different combinations of the user options based on desired usage situation. To include:

General: For most situations.

Stage: When emulating incandescent fixtures is desired.

High Impact: When maximum output and effect is desired.

XT Arch: When color consistency and architectural characteristics are desired.

Studio: When DMX or stand-alone of white light output is required with intensity, color temperature and color tint control parameters.

* + - * 1. Stand-alone functionality eliminating the need for a console.

24 preset colors accessible as a stand-alone feature

12 sequences accessible as a stand-alone feature

The end user can modify each color and sequence

Fixtures can be linked together with DMX cables and controlled from designated master fixture. Up to 32 fixtures may be linked.

Stand-alone fixtures must restore to settings present prior to power cycling,

* + - * 1. Copy performance settings to other fixtures of same type via a 5 pin XLR DMX cable.
      1. Electrical: Internal Power Supply: 100 to 240 V 50/60 Hz. Power factor correction.
         1. Input Method: Neutrik powerCON in and thru. Requires power from a non-dimmable source.
         2. Inrush First Half-Cycle: 50 A at 120 V. 107 A at 240 V.
         3. Power Supply Outputs: Self-resetting current-limiting protection.
         4. Power Wiring and Accessory Cables: Rated to support linking of multiple fixtures up to the capacity of a 15 A breaker.
         5. Fixtures per Circuit: Values are for 120 V, 60 Hz. Results may vary by regions.

9 Lustr. 15 A via power thru connector.

10 Lustr. Via R20 module or Echo Relay Panel.

* + - * 1. Wattage Typical: Lustr: 167. Daylight HD: 248. Tungsten HD: 208.
        2. Current Draw Lustr: 120 V: 1.44 A. 240 V: 0.78 A.
      1. LED Emitters:
         1. Seven colors. High brightness and of proven quality from LED manufacturers.

Utilize Luxeon Rebel and/or Osram OSLON Square LED emitters.

* + - * 1. Utilize an LED binning process to maintain color consistency.
        2. Adjustable PWM frequency up to 25,000 HZ to avoid flicker on camera.
      1. LED Fixtures: Each fixture to undergo a burn-in test during manufacturing.
      2. LED System: Comply with all relevant patents.
      3. Longevity: Lustr fixture to be provided with an LM-84 test report from a nationally recognized test lab. LM-84 results to be no less than 54,000 hours L70 rating.
      4. Calibration: At factory to achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins.
         1. Calibration Data: Stored on LED array as part of on-board operating system.
         2. Arrays, including replacements, to be calibrated to same standard for consistency.
      5. Thermal:
         1. Operating Temperature: 32 to 104 degrees F.
         2. Cooling Fan: Speed control via a DMX channel to be possible.
         3. Fan Speed Software: Permits fixtures override DMX fan speed setting to prevent heat damage to fixture.
         4. Advanced Thermal Management: Maintains LED life to 70 percent intensity.

Lustr: After 54k hrs.

Multiple temperature sensors within the housing.

LED array circuit board temperatures.

Temperature sensors placed on each individual LED color circuit.

Fixture ambient.

CPU.

Temperature Sensors Monitor: Legible LCD multi-line backlit display.

* + - * 1. Droop Compensation: Yes.
        2. dB Range: 22.5 dBA at 39 inches average.
        3. BTUs/Hour: Lustr: 569.
      1. Physical: IP Rating: IP-20.
         1. Housing: Metal die-cast. Positive locking double-clutch fixture body.

Slot for glass or stainless steel patterns and soft focus diffuser.

Wide accessory slot. Sliding cover for motorized pattern device or iris.

* + - * 1. Colors: Black, white, silver, or custom.
        2. Lens: Secured with silicone shock mounts.
        3. Shutter Assembly: Plus or minus 25 degree rotation.
        4. Shutters: 20 gauge stainless steel
        5. Interchangeable Lens Tubes: For field angles. Teflon guides.
        6. Sturdy integral die cast gel frame holders with two accessory slots, and a top-mounted, quick release gel frame retainer.
        7. Mounting Options: Yoke, cyc floor stand.
        8. Yoke: Steel with two mounting positions allowing 300 degree rotation of fixture

Positive locking, hand operated yoke clutch.

* + - * 1. Included Accessories: Hanging yoke, 5 ft power cable, soft focus diffuser in an A-size gobo holder, gel frame, and c-clamp.
      1. Options: Include but not limited to the following.
         1. Power Leads: Bare-end, Stage-Pin or Twist-lock.
         2. PowerCon to PowerCon cables for fixture power linking.
         3. Smooth Wash Diffuser for overlapping beams of light from multiple fixtures.
    1. Basis of Design: Source Four LED Series 3 as manufactured by ETC Inc. A color-mixing high-intensity LED illuminator. DMX control of intensity and color. Eight-color Lustr X8 array and tunable white light Daylight HDR array. Deep red LEDs in both arrays. Wireless DMX/RDM. Contactless programming and control using NFC and ETC's Set Light app, and intuitive user interface featuring a color picker and action-responsive backlit encoders.
       1. Standards Compliance:
          1. Listed: cETLus, UL1573, and C22.2 C22. No.166.
          2. Compliance: CE and USITT DMX-512A

\*\* NOTE TO SPECIFIER \*\* Delete light engine option and model options not required.

* + - 1. Light Engine With XDLT Shutter Barrel: For use with XDLT fixed-field lens tubes only.
         1. Model: Lustr X8.
         2. Model: Daylight HDR.
      2. Light Engine Body: For use with standard barrels, zoom lens tubes and retrofit of existing fixtures.
         1. Model: Lustr X8.
         2. Model: Daylight HDR.
      3. Source:
         1. LED Details: 90 Lumileds LUXEON C and CZ.
         2. Lustr: Max Lumens: 10,889. Lumens per Watt: 0.35.
         3. Daylight HDR: Max Lumens: 14,214. Lumens per Watt: 0.42.
         4. L70 Rating: Greater than 54,000 hours.
      4. Colors: Utilize 60 LED emitters. Available in LED arrays as outlined below:
         1. Lustr X8: Colors Used: Deep Red, Red, Amber, Lime, Green, Cyan, Blue, Indigo.
         2. Daylight HDR: Colors Used: Deep Red, Red, Mint, Cyan, Blue, Indigo.
         3. Color Temperature Range: 1,900 - 10,450 K.
         4. Calibrated Array: Yes.
         5. Red Shift: Yes. Selectable.
      5. Optical: Can be used with LED CYC and Fresnel adapter.
         1. Beam Angle Range: Swappable lens tubes between 5 to 90 degrees.
         2. Gate Size: 3.15 inches.
         3. Aperture Size: 6.25 to 17.5 inches, depending on lens tube.
         4. Pattern Projection: Yes. Pattern Size: A or B.
         5. Camera Flicker Control/Hz Range: Yes. 5,000 to 25,000 Hz.
         6. Light Beam: 2-to-1 center-to-edge drop-off ratio.

Low gate and beam temperature.

Sharp imaging through a three-plane shutter design.

* + - * 1. The Unit Provides, but is not Limited to:

Degree Field Angles: 5, 10, 14, 19, 26, 36, 50, 70 and 90.

Accept standard (5 to 90), EDLT (19 to 50) or XDLT (5 to 70) lenses.

High-quality pattern imaging.

Sharp shutter cuts without halation.

Shutter warping and burnout in normal use shall be unacceptable.

Adjustable hard and soft beam edges.

\*\* NOTE TO SPECIFIER \*\* Delete lens tubes option not required.

* + - * 1. Lens Tubes: EDLT for precision, high-contrast imaging. 19, 26, 36, and 50 degree units
        2. Lens Tubes: XDLT for precision, high-contrast imaging, and color-correction for 14, 19, 26, and 36 degree units.
      1. Control and User Interface:
         1. Input Method: 5-Pin XLR, Multiverse wireless and NFC.
         2. Protocols: USITT DMX-512A, RDM, City Theatrical Multiverse, NFC.
         3. RDM Configuration: Yes. Compatible with the ANSI RDM E1.20.
         4. Integrated radios for City Theatrical Multiverse technologies.
         5. Integrated Near Field Communication (NFC) hardware. Configuration from mobile devices.
         6. Color LCD display for easy-to-read status reports, control and configuration changes.
         7. USB port for software updates, diagnostics, configuration saving and loading.
         8. A two-button, 4 encoder user-interface. Encoders to be RGB backlit.
         9. Hard lockout switch to prevent nuisance bumping of the User Interface.
         10. Multiple DMX input profile options to include:

RGB Control: LED colors via a 3-channel profile: Red, Green, Blue.

Single Channel: Control intensity of prerecorded preset.

Expanded: Full control of attributes. Intensity, CCT, Tint, Tuning, Mix, RGB Color Control, Strobe, Curve, Fan

Direct: Control of individual color channels via an independent channel.

Intensity, Direct Color Control, Strobe, Curve, Fan

Studio: Control in a white-light profile.

Intensity, CCT, Tint, Tuning, Strobe, Curve, Fan

* + - * 1. Droop Compensation: Yes.
        2. User-Definable Options: Including but not limited to the following.

Display time out.

Loss of data behavior.

Red-shift for tungsten dimming emulation.

* + - * 1. Local Control Modes:

Studio: For white light operations.

HSI Color Picker: Access to selecting and storing user defined colors.

Presets: Quick access to default or user defined colors.

Effects: Playback of built-in sequences.

DMX: For setup of DMX parameters.

* + - * 1. Stand-Alone Functionality. No console.

24 preset colors accessible as a stand-alone feature.

Fixtures, up to 32, can be linked with DMX cables and controlled from a primary fixture.

Restores to settings prior to power cycling. No need for reprogramming.

* + - * 1. Capable of copying performance settings to other fixtures of same type via a 5 pin XLR DMX cable.
      1. Electrical: Internal Power Supply: 100V to 240 V 50/60Hz. Power factor correction.
         1. Input Method: AC via Neutrik powerCON TRUE1 TOP. Requires power from a non-dimmable source.
         2. Inrush First half-cycle: 40 A at 120 V. 80 A at 230 V.
         3. Power supply outputs: Self-resetting current-limiting protection.
         4. Support Power In and Thru Operation.

Power In: Via Neutrik TRUE1 TOP input connector.

Power Thru: Via Neutrik TRUE1 TOP output connector.

Fixture Power Wiring and Accessory Power Cables: Rated to support linking of multiple fixtures up to capacity of a 15A breaker.

* + - * 1. Fixtures per Circuit: 5. Link up to 4 via Power Thru connector.

TRUE1 Connector: Rated 20 A, 120 V/60 Hz, and 16 A 240 V/50 Hz.

* + - * 1. Wattage: Lustr X8: 307 at 120 V. 305 at 230 V.
        2. Wattage: Daylight HDR: 340 at 120 V. 330 at 230 V.
        3. Current Draw Lustr X8: 2.6 A at 120 V. 1.35 A at 230 V
        4. Current Draw Daylight HDR: 2.85 A at 120 V. 1.5 A at 230 V
      1. LED Emitters
         1. Eight different LED colors provide color characteristics as specified,
         2. LEDs Used: High brightness. Proven quality from reputable manufacturers.

Utilize Luxeon C LED emitters

* + - * 1. Manufacturer to use an LED binning process to maintain color consistency.
        2. Each LED fixture must undergo a burn-in test during manufacturing.
        3. PWM Frequency: Up to 25,000 Hz to avoid camera flicker.
      1. Calibration: At factory for consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins.
         1. Calibration Data: Stored on LED array as part of on-board operating system.
         2. Arrays, Including Replacement Arrays: Calibrated to same standards.
      2. Color: Utilize 90 LED emitters. minimum
         1. Color Temperature Range: 1900 to 10,450 K
         2. Lustr X8: Deep Red, Red, Amber, Lime, Green, Cyan, Blue and Indigo LEDs in array for broad spectrum color, light tints, and variable whites.
         3. Daylight HDR: Deep Red, Red, Mint, Cyan, Blue and Indigo in array providing a variable white-light adjustable from 1900 to 10,450 K. Designed for highest CRI and output of 4000 to 6500 K.
      3. Dimming: 15-bit nonlinear scaling techniques for high-resolution dimming.
         1. Optimized dimming curves for smooth dimming over longer timed fades.
         2. Digitally Driven: High-speed pulse width modulation (PWM). Allow settings to eliminate or reduce flicker when lighting for camera.
      4. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Cooling Fan. Speed control via a DMX channel.
         2. Fan speed software: Honor DMX fan settings but may power budget output to prevent damage if necessary
         3. Advanced Thermal Management Systems: Maintains LED life to 70 percent intensity after 54,000 hrs of use.

Multiple temperature sensors within the housing.

LED array circuit board temperatures.

Temperature sensors placed on each individual LED color circuit.

Control temperature.

Temperature Sensors Monitor: Legible LCD multi-line backlit display.

* + - * 1. Droop Compensation: Yes.
        2. dB Range: 34 dBA at 39 inches average.
        3. BTUs/Hour: Lustr: 1,047. Daylight HDR: 1,159.
      1. Physical: IP Rating: IP-20.
         1. Housing: Die-cast aluminum. Positive locking double-clutch fixture body.

Slot for glass or stainless steel patterns and soft focus diffuser.

Accessory slot with sliding cover for motorized pattern device or iris.

* + - * 1. Color Options: Black, white, silver, or custom color,
        2. Shutter Assembly: Plus or minus 25 degree rotation.
        3. Shutters: 25 gauge stainless steel
        4. Interchangeable Lens Tubes: For field angles. Ryton BR42B guides (in XDLT barrel) for smooth tube movement.
        5. Integral die cast gel frame holders with two accessory slots, and top-mounted, quick release gel frame retainer.
        6. Mounting Options: Yoke, cyc floor stand.
        7. Yoke: Steel with two mounting positions allowing 300 degree rotation of fixture

Positive locking, hand operated yoke clutch.

* + - * 1. Included Accessories: Hanging yoke, 5 ft power cable, an A-size gobo holder, and c-clamp
    1. Basis of Design: Source Four LED Fresnel Adapter Accessory as manufactured by ETC Inc. Turns the Source Four LED or ColorSource Spot into a powerful, controllable Fresnel.
       1. Color: Black or white.
       2. Compatible with all Source Four LED (Series 2 or 3) and ColorSource Spot engines.
          1. Not for use with HPL Source Four fixtures.
       3. Compatible with ETL and CE fixtures.
       4. Compact optics.
       5. Single-handed accessory-slot access.
       6. Optical:
          1. Bright, smooth washlight.
          2. Zoom: 15 to 50 degree.
          3. Barn-door beam shaping.
          4. Heat- and impact-resistant polycarbonate lenses.
       7. Accessories:
          1. Barn Door.
          2. Top hat, 3 inch.
          3. Top hat, 6 inch.
          4. Half hat.
    2. Basis of Design: Source Four LED CYC Adapter as manufactured by ETC Inc.
       1. Turn Source Four LED or ColorSource Spot into a bright, colorful, and versatile cyclorama wash light.
       2. Physical:
          1. Rugged, die-cast, aluminum construction.

\*\* NOTE TO SPECIFIER \*\* Not for use with HPL Source Four fixtures.

* + - * 1. Fits all standard Source Four LED (Series 2 or 3) or ColorSource Spot light engines.
        2. Compatible with ETL and CE fixtures.
        3. Can be top- and/or bottom-mounted.
        4. Simple, flexible setup.
      1. Optical:
         1. Bright, even wash light.
         2. Maximum color control with ETC's Color System.
         3. Smooth coverage up to 40 ft (top and bottom lit).
         4. Efficient 2:1 spacing ratio (maximum) from cyc. 1.5:1 ideal spacing ratio.
         5. Heat- and impact-resistant polycarbonate lenses.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete Basis of Design options not required.

* + 1. Basis of Design: Source Four Mini LED ellipsoidal framing projector spotlight as manufactured by ETC Inc. Dimmable using forward- or reverse-phase dimming technology.
       1. Approved Regulatory Standards: cETLus Listed. CE compliant.

\*\* NOTE TO SPECIFIER \*\* Delete versions not required and version options not required.

* + - * 1. Portable Version: ANSI/UL STD.153. Certified to CSA STD. C22.2 No: 250.
        2. Track Version: ANSI/UL STD.1574. Certified to CSA STD. C22.2 No: 9.0.
        3. Canopy Version: ANSI/UL STD.1598. Certified to CSA STD. C22.2 No: 250.
      1. Framing Spotlight:
         1. Interchangeable lens tubes for different field angles as specified.
         2. Stainless steel shutters of at least A301 grade material.
         3. Shutter Assembly: Plus or minus 175 degree rotation of framed area or pattern.
         4. Slot with a sliding, tool-locking cover for patterns.
         5. Allow for use of E-sized patterns.
         6. Include a pattern holder.
         7. Integral die cast media frame holder with two slots.
         8. Top mounted, quick release media frame retainer.
         9. Utilize a 2-3/4 inch gel frame.
         10. Thermally insulated knobs and shutter handles.
         11. Thermally insulated rear handle.
         12. Integral cable clamps for power leads.
         13. Steel yoke allowing at least 350 degree tilt of the fixture within the yoke.
         14. Tool-free tilt and beam adjustment. Allow tool-tightening at movement points.
      2. Three Installation Methods:
         1. Portable: Yoke mounted LED driver.

Size-matched, extruded aluminum, black anodized C-clamp for use on pipe ranging from 3/8 to 1 inch.

Three-foot power cable with a NEMA 5-15P connector

Tested to UL/cUL153 standard and listed with a 3rd-party laboratory

* + - * 1. Canopy: Color matched, powder-coat painted, formed steel canopy mount with mounting hardware.

Integral LED driver that fits within canopy. Requires no additional space in junction box or ceiling cavity.

Built-in rotation stop at 358-degrees to prevent cable twisting or damage.

Tested to UL/cUL1598 standard and so labeled.

* + - * 1. Track Mount: Color matched plastic track adapter for use with EUTRAC-brand 2-circuit track.

Integral LED driver installed into track adapter.

Tested to UL/cUL1574 standard and so labeled.

* + - 1. Source:
         1. LED Details: Cree XLamp MT-G2 EasyWhite LED.
         2. Max Field Lumens: 492 (2700 K, 36 degrees). Lumens per Watt: 37.
         3. L70 Rating: 35,000 hours.
      2. LED: A single LED emitter.
         1. Available Color Temperature: 2700, 3000, 4000, and 5000 K.
         2. Greater than 80 CRI (Source Four Mini LED): 3000, 4000, and 5000 K.
         3. Greater than 90 CRI (Source Four Mini LED Gallery): 2700 and 3000 K.
         4. Red Shift: No.
         5. Expected average power consumption: 12 W.
         6. Output: Source Four Mini LED: 450 field lumens minimum.
         7. Output: Source Four Mini LED Gallery: 375 field lumens minimum.
      3. Optical: High-contrast aspheric lenses. Anti-reflective coating to increase transmission.
         1. Field Angles: 19, 26, 36, and 50 degrees.
         2. Adjustable hard and soft beam edges.
         3. Crisp pattern imaging without significant halation.
         4. Sharp shutter cuts without halation.
         5. Three plane shutter for adjustable framing angles with ability to overlap cuts.

Built-in heat dissipation to prevent shutter warping and burnout.

* + - * 1. Allow for interchangeable lenses with variable beam angles.
        2. Pattern Size: E (1.47 inch with a 1 inch image area). Holder Included/
        3. Front Accessory Slot: Dual, captive accessory slots with 70 mm (2.75 in) media frame.
      1. Electrical:
         1. Voltage: 100 to 120 V 50/60 Hz and 230 to 240 V 50/60 Hz.
         2. Power Cord Length: 75 in
         3. Track Adapter (Track variant only):

120 V - Datatrack 2-circuit track adapter.

230 V - EUTRAC 3-circuit track adapter.

Global Trac Pro (GA69) or Halo compatible (AD1) adapters. AD1 adapters are compatible with Halo single and two circuit track systems.

* + - * 1. Wattage: 12 Typical. 14 Maximum.
        2. Inrush, First Half-Cycle: Less than 1 A. 120 or 230 V.
        3. Dimming Compatibility: Forward and Reverse Phase.
      1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: None.
         2. BTUs/hour: 40.95 Typical. 47.77 Max.
      2. Physical
         1. Materials: Die-cast aluminum.
         2. Finish: High temperature epoxy paint. Colors: Black, white, silver, or custom.
         3. Mounting: Track, Portable, or Canopy
         4. Track Adapter/Canopy Color: Color matched to fixture. Silver version of track fixture provided with black track adapter.
         5. IP Rating: IP20 for portable and canopy version. IP40 for track version.
         6. Included Accessories (portable variant): Steel yoke. C-clamp (not included with CE).
      3. Options:
         1. 19 degree Source Four Mini Lens Tube. Colors: Black, White, and Silver.
         2. 26 degree Source Four Mini Lens Tube. Colors: Black, White, and Silver.
         3. 36 degree Source Four Mini Lens Tube. Colors: Black, White, and Silver.
         4. 50 degree Source Four Mini Lens Tube. Colors: Black, White, and Silver.
      4. Accessories:
         1. Pattern holder.
         2. Color frame.
         3. Donut.
         4. Top hat.
         5. Top hat short.
         6. Half hat.
         7. Half hat short.
  1. ENTERTAINMENT LUMINAIRES (DESIRE SERIES)
     1. Basis of Design: Desire D22 as manufactured by ETC Inc. A color-mixing high-intensity LED illuminator with DMX control of intensity and color. Puts x7 Color System into a compact, round washlight. Die-cast enclosure, noiseless fan-free operation, multiple lens options, convenient size, and advanced user interface.
        1. Standards Compliance:
           1. Listed: UL 1573 and CSA C22.2 No. 166.
           2. Compliance: CE and EAC.

\*\* NOTE TO SPECIFIER \*\* Delete models and model options not required.

* + - 1. Model Lustr+: Optimized array with six colors plus high-intensity white LEDs to create an ideal wash fixture for full-range color.
      2. Model Studio Daylight: Contains twenty-two 5600 K LEDs for high-intensity, non-variable cool-white output.
      3. Model Studio Tungsten: Contains twenty-two 3000 K LEDs for high-intensity, non-variable warm-white output.
      4. Model Studio HD: Combines warm white and cool white LEDs for variable-color-temperature mixing. Added to this are carefully chosen colors from the Selador x7 Color System to fill in the white LED spectral gaps, providing the richest variable-white light possible in an LED fixture.
      5. Mounting: Portable. Standard yoke-mount hardware; power lead with Edison / Schuko / UK13A connector and DMX in / thru connectors
      6. Mounting: Install Canopy: Standard yoke-mount and canopy hardware; power lead with bare ends; and a permanent, single DMX in / thru cable
      7. Mounting: Track-Yoke: Track adapter and a single, permanent cable for both power and DMX in.
      8. Source:
         1. LED Details: 22 Lumileds LUXEON Rebel LED.
         2. Lustr+: Max Lumens: 1,499. Lustr+: Lumens per Watt: 31.
         3. Studio Daylight: Max Lumens: 2,533. Lumens per Watt: 50.
         4. Studio Tungsten: Max Lumens: 2,096. Lumens per Watt: 41.
         5. Studio HD: Max Lumens: 1,247. Lumens per Watt: 31.
         6. L70 rating: 50,000 hours.
      9. Color:
         1. Colors Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White
         2. Colors Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White
         3. Colors Studio Daylight: White
         4. Colors Studio Tungsten: White
         5. Color Temperature Range: 2,700 to 6,500 K
         6. Calibrated Array: Lustr+: Yes
         7. Calibrated Array: Studio Daylight: No
         8. Calibrated Array: Studio Tungsten: No
         9. Calibrated Array: Studio HD: Yes
         10. Red Shift: Yes (Lustr+ and Studio HD)
      10. Optical:
          1. Beam Angle: 8 to 71 degrees.
          2. Aperture Size: 6 inches
          3. Pattern Projection: No.
          4. Camera Flicker Control / Hz Range: Yes. 900 to 25,000 Hz.
          5. Secondary lenses for multiple beam-spread options.
      11. Control:
          1. Input Method: DMX512 via 5-pin XLR (portable only) Permanent power input cable. Protocols: DMX-512/RDM
          2. RDM Configuration: Yes.
          3. User Interface Type: LCD.
          4. Local Control: Yes.
          5. Onboard presets: Yes. Onboard sequences: Yes. Onboard effects: No.
          6. Fixture-to-fixture control: Yes.
          7. 15-bit virtual dimming engine.
      12. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 - 240 VAC 50/60 Hz.
        2. Input Method: Requires power from a non-dimmable source.
        3. Portable: Edison, Schuko or UK13A connector.
        4. Inrush First Half-Cycle: 17 A at 120 V. 25 A at 240 V.
        5. Fixtures per Circuit: 20 (R20 module or similar).
        6. Wattage: 56.5
        7. Current Draw: 0 A at 110 V. 0.48 A at 120 V. 0 A at 230 V. 0.288 A at 240 V.
      1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: No. db Range: N/A.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 192.778.
      2. Physical: IP Rating: IP20 for portable and canopy versions. IP40 for track version.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Hanging yoke.
      3. Secondary Lens Options:
         1. Narrow Linear Field: Lenses may be combined to create desired field size.

Narrow, Medium, Wide, and Extra wide lens.

* + - * 1. Round Field: Narrow, Medium, Wide, and Extra wide lens.
        2. Oblong Field: Narrow, Medium, and Wide lens.
    1. Basis of Design: Desire D40 as manufactured by ETC Inc. A color-mixing high-intensity LED illuminator with DMX control of intensity and color. Puts seven-color x7 system into a round theatrical washlight.
       1. Standards Compliance:
          1. Listed: UL 1573 and CSA C22.2 No. 166
          2. Compliance: CE and EAC.

\*\* NOTE TO SPECIFIER \*\* Delete model and model options not required.

* + - 1. Model: Vivid. x7 Color System array balanced for best all-around use as a high-intensity color-changing wash fixture.
      2. Model: Lustr+. Optimized array with six colors plus high-intensity white LEDs to create an ideal front light wash fixture for full-range color, with an emphasis on lighter colors and white. It naturally lights skin tones.
      3. Model: Studio HD. Combines warm-white and cool-white LEDs for variable color temperature mixing. Added to this are five carefully chosen LED colors from the Selador x7 Color System to fill in the white LED spectral gaps.
      4. Model: Studio Daylight. Forty 5600 K LEDs for high-intensity, non-variable cool-white output.
      5. Model: Studio Tungsten. Forty 3000 K LEDs for high-intensity, non-variable warm-white output.
      6. Source:
         1. LED Details: 40 Lumileds LUXEON Rebel LED.
         2. Lustr+: Max Lumens: 2,593. Lumens per Watt: 25.2.
         3. Vivid: Max Lumens: 2,252. Lumens per Watt: 21.9.
         4. Studio HD: Max Lumens 3,194.Lumens per Watt: 33.2.
         5. Studio Daylight: Max Lumens: 4,332. Lumens per Watt: 43.1.
         6. Studio Tungsten: Max Lumens: 5,023. Lumens per Watt: 52.8.
         7. L70 rating: 50,000 hours
      7. Color:
         1. Colors Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White
         2. Colors Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo
         3. Color Temperature Range: Lustr+ and Vivid: 2,700 to 6,500 K
         4. Colors Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         5. Colors Studio Daylight: White.
         6. Colors Studio Tungsten: White.
         7. Color Temperature Range: Studio HD: 2700- 5600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array Lustr+, Vivid and Studio HD: Yes.
         11. Calibrated Array Studio Daylight and Studio Tungsten: No.
         12. Red Shift: Yes. Lustr+, Vivid and Studio HD.
      8. Optical:
         1. Beam Angle: range 10 to 71 degrees.
         2. Aperture Size: 7.5 inches.
         3. Pattern Projection: No.
         4. Pattern Size: N/A.
         5. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         6. Secondary lenses available for multiple beam-spread options.
      9. Control:
         1. Input Method: DMX512 via 5-pin XLR. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: LCD.
         4. Local Control: Yes.
         5. Onboard Presets: Yes. Onboard Sequences: Yes. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      10. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage: 100 to 240 V 50/60 Hz. Input Method: Neutrik powerCON in and thru.
        2. Inrush First Half-Cycle: 15 A at 120 V. 40 A at 240 V.
        3. Fixtures per Circuit:

9 (15 A power thru connector).

10 (R20 module or similar).

* + - * 1. Wattage: 103
        2. Current Draw: 0.82 A at 120 V. 0.40 A at 240 V.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: No. db Range: N/A.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 351.
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: Hanging yoke, 5 ft power cord, media holder.
         4. Easy access slots for secondary lenses and standard 7.5 inch PAR accessories.
      3. Secondary Lens Options: 7.5 inch lens.
         1. Narrow Linear Field Linear lenses may be combined to create desired field size. Narrow, Medium, Wide, and Extra wide lens.
         2. Round Field: Narrow, Medium, Wide, and Extra wide lens.
         3. Oblong Field: Narrow, Medium, and Wide lens.
    1. Basis of Design: Desire D40XT as manufactured by ETC Inc. An outdoor-rated color-mixing high-intensity LED illuminator with DMX control of intensity and color. The seven-color x7 system in a round theatrical wash light fully sealed and rated for IP66 outdoor use.
       1. Standards Compliance:
          1. Listed: cETLus and CSA C22.2 No. 250.0.
          2. Compliance: UL1598 and CE.

\*\* NOTE TO SPECIFIER \*\* Delete model and model options not required.

* + - 1. Model: Vivid: The x7 Color System array balanced for best all-around use as a color-changing wash fixture.
      2. Model: Lustr+: Optimized with six colors plus high-intensity white LEDs to create an ideal front light wash fixture. Full range color, with an emphasis on lighter colors and white.
      3. Model D40XT Studio HD: Combines warm white and cool white LEDs for variable color temperature mixing. Added are five LED colors from the x7 Color System to fill in the white LED spectral gaps.
      4. Model D40XT Studio Daylight: Forty 5600 K LEDs for high-intensity, non-variable cool-white output.
      5. Model D40XT Studio Tungsten: Forty 3000 K LEDs for high-intensity, non-variable warm-white output.
      6. Source:
         1. LED details 40 Lumileds LUXEON Rebel 2.5 W LED
         2. Max Lumens Vivid: 2,252.
         3. Max Lumens Lustr+: 2,593.
         4. Max Lumens: Studio HD: 3,194.
         5. Max Lumens: Studio Daylight: 4,332.
         6. Max Lumens: Studo Tungsten: 5,023.
         7. Lumens per Watt Vivid: 23.6.
         8. Lumens per Watt Lustr+: 25.2.
         9. Lumens per Watt: Studio HD: 33.2.
         10. Lumens per Watt: Studio Daylight: 43.1.
         11. Lumens per Watt: Studo Tungsten: 52.8.
         12. L70 Rating: 50,000 hours.
      7. Color:
         1. Colors Used Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White.
         2. Colors Used Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo.
         3. Color Temperature Range: Lustr+ and Vivid: 2,700- 6,500 K.
         4. Colors Used Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         5. Colors Used Studio Daylight: White.
         6. Colors Used Studio Tungsten: White.
         7. Color Temperature Range: Studio HD: 2,700-5,600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array Lustr+, Vivid and Studio HD: Yes.
         11. Calibrated Array Studio Daylight and Studio Tungsten: No.
         12. Red Shift: Yes. Lustr+, Vivid and Studio HD
      8. Optical
         1. Beam Angle: range 8 to 71 degrees.
         2. Aperture Size: 7.5 inches.
         3. Pattern Projection: No.
         4. Pattern Size: N/A.
         5. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         6. Secondary lenses available for multiple beam-spread options.
      9. Control:
         1. Input Method: DMX512 via 5-pin XLR. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: LCD.
         4. Local Control: Yes.
         5. Onboard Presets: Yes. Onboard Sequences: Yes. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      10. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 240 VAC 50/60 Hz.
        2. Input Method: Waterproof, 39 in power in and thru.
        3. Inrush First Half-Cycle: 15 A at 120 V. 40 A at 240 V.
        4. Fixtures per Circuit:

9 (15 A power thru connector).

10 (R20 module or similar).

* + - * 1. Wattage: 110.
        2. Current Draw: 1 / 0.5 A.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: No. db Range: N/A.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 351.
      2. Physical: IP Rating: IP66 for exterior wet location use.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: Hanging yoke, 5 ft power cord, media holder.
    1. Basis of Design: Desire D40XTI as manufactured by ETC Inc. Seven-color x7 Color System. IP66 rating for installation inside or outside. Produces a wide range of spectrally balanced saturated and tinted color choices. Die-cast enclosure, noiseless fan-free operation, and multiple lens options that can be changed on-site.
       1. Standards Compliance:
          1. Listed: cETLus and CSA C22.2 No. 250.0.
          2. Compliance: UL1598 and CE.
       2. Three Different LED Array Options.

\*\* NOTE TO SPECIFIER \*\* Delete model and model options not required.

* + - * 1. Model D40XTI Vivid: All-around use as a color-changing wash fixture.
        2. Model D40XTI Lustr+: Optimized with six colors plus high-intensity white LEDs to create a front light wash fixture; full-range color, with an emphasis on lighter colors and white.
        3. Model D40XTI Studio HD: Combines warm-white and cool-white LEDs with five carefully-chosen x7 LED colors, to fill in white LED spectral apps with variable color-temperature mixing for the richest variable white light possible in an LED fixture.
        4. Model D40XTI Studio Daylight: Contains forty 5600 K LEDs for high-intensity, non-variable cool-white output.
        5. Model D40XTI Studio Tungsten: Contains forty 3000 K LEDs for high-intensity, non-variable warm-white output.
      1. Source:
         1. LED details 40 Lumileds LUXEON Rebel LED.
         2. Max Lumens: Vivid: 2,252.
         3. Max Lumens: Lustr+: 2,593.
         4. Max Lumens: Studio HD: 3,194.
         5. Max Lumens: Studio Daylight: 4,332.
         6. Max Lumens: Studio Tungsten: 5,023.
         7. Lumens per Watt: Vivid: 23.6.
         8. Lumens per Watt: Lustr: 25.2.
         9. Lumens per Watt: Studio HD: 33.2.
         10. Lumens per Watt: Studio Daylight: 43.1.
         11. Lumens per Watt: Studio Tungsten: 52.8.
         12. L70 Rating: 50,000 hours.
      2. Color
         1. Colors Used: Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White.
         2. Colors Used: Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo.
         3. Colors Used: Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         4. Colors Used: Studio Daylight: White.
         5. Colors Used: Studio Tungsten: White.
         6. Color Temperature Range: Lustr+ and Vivid: 2,700- 6,500 K.
         7. Color Temperature Range: Studio HD: 2,700-5,600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array: Vivid: Yes.
         11. Calibrated Array: Lustr: Yes.
         12. Calibrated Array: Studio HD: Yes.
         13. Calibrated Array: Studio Daylight: No.
         14. Calibrated Array: Studio Tungsten: No.

\*\* NOTE TO SPECIFIER \*\* Not available on static white.

* + - * 1. Red Shift: Yes. Lustr+, Vivid and Studio HD.
      1. Optical:
         1. Beam Angle: range 8 to 17 degrees.
         2. Aperture Size: 7.5 inches.
         3. Pattern Projection: No.
         4. Pattern Size: N/A.
         5. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         6. Secondary lenses available for multiple beam-spread options.
      2. Control:
         1. Input Method: DMX512 via termination board. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: None. Configured via the RDM.
         4. Local Control: No.
         5. Onboard Presets: Yes. Onboard Sequences: Yes. Onboard Effects: No.
         6. Fixture-to-Fixture Control: No.
         7. 15-bit virtual dimming engine.
      3. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 240 VAC 50/60 Hz.
        2. Input Method: Waterproof, 72 inch power lead. Requires power from non-dimmable source.
        3. Inrush First Half-Cycle: 15 A at 120 V. 40 A at 240 V.
        4. Fixtures per Circuit: Ten. 15 A. May be fed on same circuit.
        5. Wattage: 110.
        6. Current Draw: 1 / 0.5 A.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: No. db Range: N/A.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 375.32.
      2. Physical: IP Rating: IP66 for exterior wet location use.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Single-pole mount, wall or square pole mount, twin fixture pole mount.
         3. Included Accessories: Hanging yoke, termination board, accessory ring for installation of secondary lenses.
         4. Cable Diameter: Power 0.36 inch / Data 0.34 inch
         5. Effective projected area (EPA): 0.74 sq inches.
    1. Basis of Design: Desire D60 as manufactured by ETC Inc. The seven-color x7 system into a high-brightness, 60-emitter, round theatrical washlight. Highly efficient primary lenses and color choices make the fixture ideal for stage, studio and anywhere strong color and high-intensity are requirements. The x7 Color System produces the widest range of spectrally-balanced saturated and tinted color choices available. The D60's rugged die-cast enclosure; quiet, fan-cooled operation; multiple lens options; and advanced user interface make it ideal for multiple applications.
       1. LED Arrays.

\*\* NOTE TO SPECIFIER \*\* Delete model and model options not required.

* + - * 1. Model D60 Vivid: The x7 Color System array balanced for best all-around use as a color-changing wash fixture.
        2. Model D60 Lustr+: Optimized array with six colors plus high-intensity white LEDs to create an ideal front light wash fixture for full-range color, with an emphasis on lighter colors and white and natural illumination of skin tones.
        3. Model D60 Studio HD: Combines warm-white and cool-white LEDs for variable-color-temperature mixing. Added to this are five carefully chosen LED colors from the x7 Color System to fill in the white LED spectral gaps. D60 Studio HD provides the richest variable-white light possible in an LED fixture.
        4. Model D60 Studio Daylight: Contains sixty 5600 K LEDs for high-intensity, non-variable cool-white output.
        5. Model D60 Studio Tungsten: Contains sixty 3000 K LEDs for high-intensity, non-variable warm-white output.
      1. Standards Compliance:
         1. Listed: CSA C22.2 No. 166
         2. Compliance: UL1573, CE and EAC.
      2. Source:
         1. LED details 60 Lumileds LUXEON Rebel LED.
         2. Max Lumens: Vivid: 3760.
         3. Max Lumens: Lustr+: 4317.
         4. Max Lumens: Studio HD: 4,532.
         5. Max Lumens: Studio Daylight: 8,216.
         6. Max Lumens: Studio Tungsten: 6,482.
         7. Lumens per Watt: Vivid: 28.8.
         8. Lumens per Watt: Lustr: 33.33.
         9. Lumens per Watt: Studio HD: 30.9.
         10. Lumens per Watt: Studio Daylight: 57.0.
         11. Lumens per Watt: Studio Tungsten: 44.8.
         12. L70 Rating: 50,000 hours.
      3. Color:
         1. Colors Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White
         2. Colors Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo
         3. Colors Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         4. Colors Studio Daylight: White.
         5. Colors Studio Tungsten: White.
         6. Color Temperature Range: Lustr+ and Vivid: 2,700 to 6,500 K
         7. Color Temperature Range: Studio HD: 2700 to 5600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array: Yes. Lustr+, Vivid and Studio HD.
         11. Red Shift: Yes. Lustr+, Vivid and Studio HD.
      4. Optical:
         1. Beam Angle: range 8 to 71 degrees.
         2. Aperture Size: 9 inches.
         3. Pattern Projection: No.
         4. Pattern Size: N/A.
         5. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         6. Secondary lenses available for multiple beam-spread options.
      5. Control:
         1. Input Method: DMX512 via 5-pin XLR. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: LCD.
         4. Local Control: Yes.
         5. Onboard Presets: Yes. Onboard Sequences: Yes. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      6. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 240 VAC 50/60 Hz.
        2. Input Method: Neutrik powerCON in and thru. Requires power from non-dimmable source.
        3. Inrush First Half-Cycle: 15 A at 120 V. 40 A at 240 V.
        4. Fixtures per Circuit:

Nine. 15 A. via power thru.

Ten. R20. Via module or similar.

* + - * 1. Wattage: 161.
        2. Current Draw: 1.21 A at 120 V. 0.57 A at 240 V.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: Yes. Controllable. db Range: 25 dBa average at 39 inches.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 549.
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: Very Narrow Round diffuser, power cable optional yoke or floor stand.
    1. Basis of Design: Desire D60X as manufactured by ETC Inc. The control of x7 Color System and long throw of D60 in a portable, IP66 rated fixture. Mounts inside or outside. Produces a wide range of spectrally-balanced saturated and tinted color choices. Die-cast enclosure, noiseless fan-free operation and multiple lens options that can be changed on-site.
       1. LED Arrays:

\*\* NOTE TO SPECIFIER \*\* Delete model and model options not required.

* + - * 1. Model D60X Vivid: The x7 Color System array balanced for best all-around use as a color-changing wash luminaire.
        2. Model D60X Lustr+: optimized with six colors plus high-intensity white LEDs to create an ideal front light wash fixture. Full range color, with an emphasis on lighter colors and white.
        3. Model D60X Studio HD: Studio HD combines warm white and cool white LEDs for variable color temperature mixing. Added to this are five carefully chosen LED colors from the x7 Color System to fill in the white LED spectral gaps. D60X Studio HD provides the richest variable white light possible in an LED luminaire.
        4. Model D60X Studio Daylight: Studio Daylight contains sixty 5600 K LEDs for high-intensity, non-variable cool-white output.
        5. Model D60X Studio Tungsten: Studio Tungsten contains sixty 3000 K LEDs for high-intensity, non-variable warm-white output.
      1. Standards Compliance:
         1. Listed: cETLus and CSA C22.2 No. 250.0.
         2. Compliance: UL1598 and CE.
      2. Source:
         1. LED details 60 Lumileds LUXEON Rebel LED.
         2. Max Lumens: Vivid: 3,760
         3. Max Lumens: Lustr+: 4,317
         4. Max Lumens: Studio HD: 4,532
         5. Max Lumens: Studio Daylight: 8,216
         6. Max Lumens: Studio Tungsten: 6,482
         7. Lumens per Watt: Vivid: 31.9
         8. Lumens per Watt: Lustr+: 34.9
         9. Lumens per Watt: Studio HD: 33.4
         10. Lumens per Watt: Studio Daylight: 55.3
         11. Lumens per Watt: Studio Tungsten: 43.2
         12. L70 Rating: 50,000 hours.
      3. Color:
         1. Colors Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White.
         2. Colors Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo.
         3. Colors Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         4. Colors Studio Daylight: White.
         5. Colors Studio Tungsten: White.
         6. Color Temperature Range: Lustr+ and Vivid: 2,700- 6,500 K.
         7. Color Temperature Range: Studio HD: 2,700-5,600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array Vivid: Yes
         11. Calibrated Array Lustr+: Yes
         12. Calibrated Array Studio HD: Yes.
         13. Calibrated Array Studio Daylight: No.
         14. Calibrated Array Studio Tungsten: No.

\*\* NOTE TO SPECIFIER \*\* Not available on static white.

* + - * 1. Red Shift: Yes. Lustr+, Vivid and Studio HD.
      1. Optical:
         1. Beam Angle: range 8 to 17 degrees.
         2. Aperture Size: 9 inches.
         3. Pattern Projection: No. Pattern Size: N/A.
         4. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         5. Secondary lenses available for multiple beam-spread options.
      2. Control:
         1. Input Method: DMX512 via termination board. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: None. Configured via RDM.
         4. Local Control: No.
         5. Onboard Presets: Yes. Onboard Sequences: No. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      3. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 240 VAC 50/60 Hz.
        2. Input Method: Waterproof, 39 inch power lead. Requires power from non-dimming source.
        3. Inrush First Half-Cycle: 46 A at 120 V. 77 A at 240 V.
        4. Fixtures per Circuit: Ten. 15 A via power thru connector.
        5. Wattage: 124.
        6. Current Draw: 1 A.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: No. db Range: N/A.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 423.088
      2. Physical: IP Rating: IP66 for exterior wet location use.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Included Accessories: Hanging yoke.
    1. Basis of Design: Desire D60XTI as manufactured by ETC Inc. The control of x7 Color System and long throw of D60. IP66 rated fixture. Mounts inside or outside. Produces a wide range of spectrally-balanced saturated and tinted color choices. Die-cast enclosure, noiseless fan-free operation and multiple lens options that can be changed on-site.
       1. Standards Compliance:
          1. Listed: cETLus and CSA C22.2 No. 250.0
          2. Compliance: UL1598 and CE.
       2. LED Arrays:

\*\* NOTE TO SPECIFIER \*\* Delete models and model options not required.

* + - * 1. Model D60XTI Vivid: The x7 Color System array balanced for best all-around use as a color-changing wash luminaire.
        2. Model D60XTI Lustr+: Optimized with six colors plus high-intensity white LEDs to create an ideal front light wash fixture. Full range color, with an emphasis on lighter colors and white.
        3. Model D60XTI Studio HD: Studio HD combines warm white and cool white LEDs for variable color temperature mixing. Added to this are five carefully chosen LED colors from the x7 Color System to fill in the white LED spectral gaps. D60X Studio HD provides the richest variable white light possible in an LED luminaire.
        4. Model D60XTI Studio Daylight: Studio Daylight contains sixty 5600 K LEDs for high-intensity, non-variable cool-white output.
        5. Model D60XTI Studio Tungsten: Studio Tungsten contains sixty 3000 K LEDs for high-intensity, non-variable warm-white output.
      1. Source:
         1. LED details 60 Lumileds LUXEON Rebel LED.

Max Lumens: Vivid: 3,760.

Max Lumens: Lustr+: 4,317.

Max Lumens: Studio HD: 4,532.

Max Lumens: Studio Daylight: 8,216.

Max Lumens: Studio Tungsten: 6,482.

Lumens per Watt: Vivid: 31.9.

Lumens per Watt: Lustr+: 34.9.

Lumens per Watt: Studio HD: 33.4.

Lumens per Watt: Studio Daylight: 55.3.

Lumens per Watt: Studio Tungsten: 43.2.

* + - * 1. L70 Rating: 50,000 hours.
      1. Color:
         1. Colors Lustr+: Red, Amber, Green, Cyan, Blue, Indigo, White.
         2. Colors Vivid: Red, Red-Orange, Amber, Green, Cyan, Blue, Indigo.
         3. Colors Studio HD: Red, Amber, Green/Cyan, Blue, Warm White, Cool White.
         4. Colors Studio Daylight: White.
         5. Colors Studio Tungsten: White.
         6. Color Temperature Range: Lustr+ and Vivid: 2,700- 6,500 K.
         7. Color Temperature Range: Studio HD: 2,700-5,600 K.
         8. Color Temperature Range: Studio Daylight: 5600 K.
         9. Color Temperature Range: Studio Tungsten: 3000 K.
         10. Calibrated Array Vivid: Yes.
         11. Calibrated Array Lustr+: Yes
         12. Calibrated Array Studio HD: Yes.
         13. Calibrated Array Studio Daylight: No.
         14. Calibrated Array Studio Tungsten: No.

\*\* NOTE TO SPECIFIER \*\* Not available on static white.

* + - * 1. Red Shift: Yes. Lustr+, Vivid and Studio HD.
      1. Optical:
         1. Beam Angle: Range 8 to 17 degrees.
         2. Aperture Size: 9 inches.
         3. Pattern Projection: No. Pattern Size: N/A.
         4. Camera Flicker Control/Hz Range: Yes: 900 to 25,000 Hz.
         5. Secondary lenses available for multiple beam-spread options.
      2. Control:
         1. Input Method: DMX512 via termination board. Protocols: DMX-512/RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: None. Configured via RDM.
         4. Local Control: No.
         5. Onboard Presets: Yes. Onboard Sequences: No. Onboard Effects: No.
         6. Fixture-to-Fixture Control: No.
         7. 15-bit virtual dimming engine.
      3. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 240 VAC 50/60 Hz
        2. Input Method: Waterproof, 72 inch power lead. Requires power from non-dimming source.
        3. Inrush. First Half Cycle: 46 A at 120 V . 77 A at 240 V
        4. Fixtures per circuit: Ten. 15 A. via power thru connector.
        5. Wattage: 124.
        6. Current Draw: 1 A.
      1. Thermal: Operating Temperature: Minus 4 to 104 degrees F.
         1. Fan: No
         2. Droop Compensation: Yes.
         3. BTUs/hour: 423.088
      2. Physical: IP Rating: IP66 for exterior wet locations.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting: Single-pole, wall or square pole, twin fixture pole.
         3. Included Accessories: Hanging yoke, data termination board, accessory ring for installations of secondary lenses.
         4. Cable Diameter: Power 0.53 inches.
         5. Effective projected area (EPA): 0.95.
    1. Basis of Design: Desire Fresnel as manufactured by ETC Inc. Full 13 to 55 degree zoom. Light is bright and efficient through entire zoom range. Up to 25 percent more efficient than traditional Fresnel optical systems. Lustr X8 color system with deep red LEDs. Wireless DMX Multiverse technology and an intuitive user interface.
       1. Standards Compliance:
          1. Listed: cETLus.
          2. Compliance: CE and FCC.
       2. LED Arrays:
          1. Model: Lustr X8.
       3. Source:
          1. LED Details: Lumileds LUXEON C.
          2. Max Lumens: 6,176.
          3. Lumens per Watt: 54.
          4. L70 Rating: Greater than 54,000 hours.
       4. Color:
          1. Colors Used: Deep Red, Red, Amber, Lime, Green, Cyan, Blue, Indigo
          2. Color Temperature Range: 1900 to 10450 K
          3. Calibrated Array: Yes
          4. Red Shift: Yes. Selectable.
       5. Optical:
          1. Beam Angle Range: 13 to 55 degrees.
          2. Aperture Size: 7 inches.
          3. Pattern Projection: No.
          4. Pattern Size: N/A.
          5. Camera Flicker Control/Hz Range: Yes. 5,000 to 25,000 Hz.
       6. Control:
          1. Input Method: 5-Pin XLR, Multiverse wireless and NFC.
          2. Protocols: DMX-512, RDM, City Theatrical Multiverse, NFC.
          3. Modes (Footprint): 5. Channels: 1 to 12.
          4. RDM Configuration: Yes.
          5. User Interface Type: Full color display.
          6. Local Control: Yes.
          7. Onboard Presets: Yes. 12. Onboard Sequences: Yes.
          8. FixtureLink: Yes.
       7. Wireless:
          1. Band: 2.400 to 2.480 GHz.
          2. Range: 328 ft indoors, 1640 ft line of sight. Subject to conditions.
          3. Max Receivers:

DMX: No limit.

RDM: Varies by transmitter used.

Multiverse SHoW Baby: 585.

Multiverse Transmitter: 5,000.

* + - * 1. Broadcast Power: 100 mW.
      1. Electrical:

\*\* NOTE TO SPECIFIER \*\* Measurements are for 120 V, 60 Hz. Results may vary in different regions.

* + - * 1. Voltage Range: 100 to 230 VAC
        2. Input Method: AC via powerCON TRUE1 TOP.
        3. Inrush First Half-Cycle: 28 A at 120 V. 46 A at 230 V.
        4. Fixtures per Circuit: Nine. Link up to 8 via Power Thru connector.

TRUE1 Connector Ratings: 20 A at 120 V/60 Hz and 16 A at 230 V/50 Hz.

* + - * 1. Wattage: 120 V: 138. 230 V: 132
        2. Current Draw: 120 V: 1.2 A. 230 V: 0.6 A.
      1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Controllable. db Range: 8.4 to 37.7 dBa.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 606.
      2. Physical: IP Rating: IP20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: Yoke, power cable.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete Basis of Design options not required.

* 1. ENTERTAINMENT LUMINAIRES (4WRD SERIES)
     1. Basis of Design: Source 4WRD II (Watt Reduction Device) Engine as manufactured by ETC Inc. A replacement for a Source Four burner. Converts the HPL source to a white-light LED and provides a significant reduction in power consumption. Theatrically dimmable via DMX or line dimmable, with a traditional LED curve, to allow flexibility for your installation.
        1. Standards Compliance:
           1. Complete Luminaire: UL 1573 and CSA C22.2 No. 166.
           2. Retrofit Kit: UL 1598C and CSA TIL B79-A.
           3. Compliance: CE.

\*\* NOTE TO SPECIFIER \*\* Delete kits not required and kit options not required.

* + - 1. Source 4WRD II, Retrofit Kit, 120 V.
      2. Source 4WRD II, Retrofit Kit, 120 V with Fixture Body.
      3. Source 4WRD II Gallery (90+ CRI), Retrofit Kit, 120 V.
      4. Source 4WRD II Gallery (90+ CRI), Retrofit Kit, 120 V with Fixture Body.
      5. Source 4WRD II Daylight Gallery (90+ CRI), Retrofit Kit, 120 V.
      6. Source 4WRD II Daylight Gallery (90+ CRI), Retrofit Kit, 120 V with Fixture Body.
      7. Source 4WRD II Retrofit Kit, 230 V.
      8. Source 4WRD II Gallery (90+ CRI) Retrofit Kit, 230 V.
      9. Source 4WRD II Daylight Gallery (90+ CRI) Retrofit Kit, 230 V.
      10. Source:
          1. LED Details: S4WRD II LED.
          2. Max Lumens: 3200 K: 11430. 3200 K Gallery: 9716. Daylight Gallery: 10333.
          3. Lumens per Watt:

120 V: 3200 K: 76.2. 3200 K Gallery: 64.8. Daylight Gallery: 68.9.

240 V: 3200 K: 65.3. 3200 K Gallery: 55.5. Daylight Gallery: 59.0.

* + - * 1. L70 Rating: Greater than 45,000 hours.
      1. Color:
         1. Colors Used: Warm or Cool White.
         2. Color Temperature Range: 3200 K 80+ or 90+ CRI, 5900 K 90+ CRI.
         3. Calibrated Array: No.
         4. Red Shift: No.
      2. Optical:
         1. Field Angle Range: Swappable lens tubes between 5 to 90 degrees.
         2. Gate Size: 79 mm.
         3. Aperture Size: Lens dependent.
         4. Pattern Projection: Yes.
         5. Camera Flicker Control/Hz Range: No, not PWM dimmed.
      3. Control:
         1. Input Method: DMX Control per line dimmed. Protocols: DMX/RDM via RJ45.
         2. Modes (Footprint): 1 Channel (Intensity) for DMX.
         3. RDM Configuration: Yes.
         4. User Interface Type: 7-segment address display, local level control via UI.
         5. Local Control: Yes.
         6. Onboard Presets: No. Onboard Sequences: No. Onboard Effects: No.
         7. Fixture to Fixture Control: No.
      4. Electrical:
         1. Voltage: 120 VAC: 114 to 125 V, 60 Hz. 230 VAC: 209 to 252 V, 50 Hz.
         2. Input Method:

120 V: Hardwired, 39 inch cord, Edison plug.

230 V: Hardwired, 39 inch cord, bare end.

* + - * 1. Inrush First Half-Cycle: 30 A at 120 V. 12 A at 230 V,
        2. Fixtures per Circuit:

120 V: 14, 20 A switched circuit, R20 module or similar.

230 V: 6 fixtures per non-dimmed circuit (ER15AFR module).

* + - * 1. Wattage (Typical/Standby): 1505 / 1.2 at 120 V. 175 / 3.7 at 230 V.
        2. Current Draw: 1.26 A at 120 V. 0.75 A at 230 V
      1. Thermal: Operating Temperature: 41 to 104 degrees F.
         1. Fan: Yes, Not controllable.
         2. Droop Compensation: No.
         3. dB Range: 28 dBa. Average at 39 inches.
         4. BTUs/hour: 120 VAC: 529. 230 VAC: 597.
      2. Physical: IP Rating: IP-20 indoor only.
         1. Materials: Cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: 4WRD mounting post.
    1. Basis of Design: Source 4WRD Color II LED Engine Retrofit as manufactured by ETC Inc. Transforms existing Source Four incandescent profiles into RGBA LED fixtures, More stage looks with fewer fixtures. Less energy and maintenance. The upgrade is quick and nondestructive. Switched power, 100 to 240 VAC, and dims via DMX.
       1. Standards Compliance:
          1. Complete Luminaire: UL 1573 and CSA C22.2 No. 166.
          2. Retrofit Kit: UL 1598C and CSA TIL B79-A.
          3. Compliance: CE. UKCA.
       2. Source:
          1. LED Details: Nichia LEDs.
          2. Max Lumens (26 EDLT): Full On: 6042. 3200 K: 5051: 5600 K: 5687.
          3. Lumens per Watt: Full On: 42.2. 3200 K: 46.3. 5600 K: 45.9.
          4. L70 Rating: Greater than 60,000 hours.
       3. Color:
          1. Colors Used: RGB-A (Red, Green, Blue and Amber).
          2. Color Temperature Range: 2,200 - 6,500 K.
          3. Calibrated Array: Yes.
          4. Red Shift: No.
       4. Optical:
          1. Beam Angle Range: Swappable lens tubes between 5 - 90 degrees.
          2. Gate Size: 79 mm.
          3. Aperture Size: Lens dependent.
          4. Pattern Projection: Yes.
          5. Camera Flicker Control/Hz Range: Yes, 1.2 kHz and 20 kHz.
       5. Control:
          1. Input Method: DMX Control. Protocols: DMX/RDM via RJ45.
          2. Modes (Footprint): 1 (1=Intensity, 2=Red, 3=Green, 4=Blue, 5=Amber, 6=Strobe).
          3. RDM Configuration: Yes.
          4. User Interface Type: 7-segment address display, local level control via UI.
          5. Local Control: Yes.
          6. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
          7. FixtureLink Support: Yes.
       6. Electrical:
          1. Voltage: 100 to 240 V, 50 to 60 Hz.
          2. Inrush First Half-Cycle: 32 A at 120 V. 60 A at 240 V.
          3. Wattage (Typical/Standby): 146 / 3.0 at 120 V. 143 / 2.9 at 230 V.
          4. Current Draw: 1.25 A at 120 V. 0.67 A at 230 V.
       7. Thermal: Operating Temperature: 41 to 104 degrees F.
          1. Fan: Yes, Not controllable. db Range: 27 dBa average at 39 inches.
          2. Droop Compensation: No.
          3. BTUs/hour: 120 V: 458. 230 V: 449.
       8. Physical: IP Rating: IP-20.
          1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
          2. S4WRD mounting post and reflector diffusion.
    2. Basis of Design: Source 4WRD PAR/PARNel as manufactured by ETC Inc. Transforms Source 4WRD II LED or S4WRD Color II LED engine into a soft light.
       1. Fixture bodies for use with Source 4WRD II or SrWRD Color II LED retrofit.
       2. Works just like a Source Four PAR or PARNel, using the same accessories.
       3. Brighter than the 750 W HPL versions.
       4. Uses same Source 4WRD II LED or Source 4WRD Color II retrofit as the Source 4WRD ellipsoidal.
       5. Standards Compliance:
          1. cULus.
          2. CEm when used with ETC Source 4WRD LED Retrofit.
       6. Source:
          1. S4WRD II or S4WRD Color II LED sold separately.
       7. Optical:
          1. Beam Angle Range: PAR: 10 to 36 degrees. PARNel: 13 to 30 degrees.
          2. Gate Size: N/A.
          3. Aperture Size: 7 inches.
          4. Pattern Projection: No.
          5. Pattern Size: N/A.
          6. PAR: AR coated flat lens. PAR lenses sold separately.
          7. PARNel: ships with PARNel lenses.
       8. Physical: IP Rating: IP-20.
          1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
          2. Mounting Options: Yoke.
          3. Included Accessories: Color frame.
          4. Includes S4WRD mounting post. Required S4WRD II or S4WRD Color II LED available separately.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required or delete Basis of Design options not required.

* 1. ENTERTAINMENT LUMINAIRES (COLORSOURCE)
     1. Basis of Design: ColorSource CYC as manufactured by ETC Inc. A dedicated cyclorama fixture for creating beautiful, smooth washes of light on a cyclorama or wall. Five-color mix of red, green, blue, lime, and indigo for expanded range and color control.
        1. Standards Compliance:
           1. Listed: cETLus, UL 1573, and CSA C22.2 No. 166.
           2. Compliance: CE and EAC.
        2. Source:
           1. LED Details: 42 Lumileds LUXEON C LEDs.
           2. Max Lumens: 4117.
           3. Lumens per Watt: 31.
           4. L70 rating: greater than 50,000 hours.
        3. Color:
           1. Colors Used: Red, Green, Blue, Indigo, and Lime.
           2. Color Temperature Range: Range.
           3. Calibrated Array: Yes.
           4. Red Shift: No.
        4. Optical:
           1. Beam Angle Range: DMX-512 via 5-pin XLR connector
           2. Gate Size: N/A.
           3. Aperture Size: N/A.
           4. Pattern Projection: No.
           5. Pattern Size: N/A.
           6. Camera Flicker Control/Hz Range: Default: 1,200 Hz. RDM: 25,000 Hz.
           7. The ColorSource CYC has a built in accessory for spill control.
        5. Control:
           1. Input Method: DMX-512 via 5-pin XLR connector. Protocols: DMX.
           2. Modes (Footprint): 5 channel: IRGBS (5). Direct: IRGBILS (7). 1 channel: (1). RGB: RGB (3).
           3. RDM Configuration: Yes.
           4. User Interface Type: 7-segment address display, local level control via UI.
           5. Local Control: Yes.
           6. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
           7. FixtureLink support: Yes.
        6. Electrical:
           1. Voltage: 100 to 230 VAC, 50 to 60 Hz.
           2. Input Method: PowerCON in and thru.
           3. Inrush First Half-Cycle: 39 A at 120 V. 74 A at 240 V.
           4. Fixtures per Circuit:

9, using power thru connector.

10, per 20 A switched circuit, R20 module or similar.

* + - * 1. Wattage (Typical/Standby): 133 / 1.4 W at 120 V. 116 / 1.2 W at 230 V.
        2. Current Draw: 1.11 A at 120 V. 1.11 A at 230 V.
      1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: No. db Range: 18.5 dBa average at 39 inches.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 453.
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke and floor.
         3. Included Accessories: Hanging yoke, power cable.
    1. Basis of Design: ColorSource Linear as manufactured by ETC Inc. Combines output o with a sleek linear design creating a strip light. Uses RGB-L or bi-white color system.
       1. Standards Compliance:
          1. Listed: cETLus, UL 1573, and CSA C22.2 No. 166.
          2. Compliance: CE and EAC.

\*\* NOTE TO SPECIFIER \*\* Delete models and model options not required.

* + - 1. Model ColorSource Linear 1. 0.5 meters long. One cell of control.
      2. Model ColorSource Linear 1. Deep Blue. 0.5 meters long. One cell of control.
      3. Model ColorSource Linear 2. 1 meter long. Two cells of control.
      4. Model ColorSource Linear 2. Deep Blue. 1 meter long. Two cells of control.
      5. Model ColorSource Linear 4. 2 meters long. Four cells of control.
      6. Model ColorSource Linear 4 Deep Blue. 2 meters long. Four cells of control.
      7. Model ColorSource Linear Pearl 1. 0.5 meters long. One cell of control.
      8. Model ColorSource Linear Pearl 2. 1 meter long. Two cells of control.
      9. Model ColorSource Linear Pearl 4. 2 meters long. Four cells of control.
      10. Source:
          1. LED Details: 40 Lumileds LUXEON Z LEDs per segment.
          2. Max Lumens: Linear 1: 3,039.
          3. Max Lumens: Linear 1 DB: 2,978.
          4. Lumens per Watt: Linear 1: 28.1.
          5. Lumens per Watt: Linear 1 DB: 27.6.
          6. Max Lumens: Linear 1 Pearl: 5,649
          7. Lumens per Watt: Linear 1 Pearl: 50.
          8. L70 Rating: 55,000 hours. Standard and DB.
          9. L70 Rating: Greater than 60,000 hours. Pearl.
      11. Color:
          1. Colors Used: Linear 1: Red, green, blue, lime.
          2. Colors Used: Linear 1 DB: Red, green, indigo, lime.
          3. Color temperature Range: Standard and DB: Color mixing fixture.
          4. Colors Used: Linear 1 Pearl: Warm white and cool white.
          5. Color Temperature Range: Pearl: 2700 to 6500 K.
          6. Calibrated Array: Yes.
          7. Red Shift: No.
      12. Optical:

\*\* NOTE TO SPECIFIER \*\* Secondary lenses available for multiple beam-spread options.

* + - * 1. Beam Angle Range: 15.6 degrees.
        2. Gate Size: N/A.
        3. Aperture Size: 7.5 inches.
        4. Pattern Projection: No.
        5. Pattern Size: N/A.
        6. Camera Flicker Control/Hz Range: Default: 1,200 Hz. RDM: 25,000 Hz.
      1. Control:
         1. Input Method: DMX-512 via 5-pin XLR connector. Protocols: DMX512, RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: 7-segment address display, local level control via UI.
         4. Local Control: Yes.
         5. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      2. Electrical:
         1. Voltage: 100 to 240 VAC, 50 to 60 Hz.
         2. Input Method: PowerCON in and thru.
         3. Inrush First Half-Cycle: Linear 1 / Linear 2 / Linear 4.

35 A / 35.6 A / 67.5 A at 120 V. 49 A / 85.6 A / 153 A at 240 V.

* + - * 1. Fixtures per Circuit:

9 cells, 15 A power thru connector.

10 cells, R20 module or similar.

* + - * 1. Wattage (120 VAC / 240 VAC): Linear 1: 115 / 112.
        2. Wattage (120 VAC / 240 VAC): Linear 2: 218 / 213.
        3. Wattage (120 VAC / 240 VAC): Linear 4: 438 / 426.
        4. Wattage (120 VAC / 240 VAC): Linear 1 Deep Blue: 110 / 108.
        5. Wattage (120 VAC / 240 VAC): Linear 2 Deep Blue: 218 / 214.
        6. Wattage (120 VAC / 240 VAC): Linear 4 Deep Blue: 440 / 428.
        7. Current Draw Linear 1: 0.95 A at 120 VAC. 0.48 A at 240 VAC.
        8. Current Draw Linear 2: 1.82 A at 120 VAC. 0.91 A at 240 VAC.
        9. Current Draw Linear 4: 3.68 A at 120 VAC. 1.82 A at 240 VAC.
        10. Current Draw Linear 1 Deep Blue: 0.92 A at 120 VAC. 0.46 A at 240 VAC.
        11. Current Draw Linear 2 Deep Blue: 1.82 A at 120 VAC. 0.91 A at 240 VAC.
        12. Current Draw Linear 4 Deep Blue: 3.70 A at 120 VAC. 1.83 A at 240 VAC.
        13. Pearl:

Wattage (Typical / Standby) at 120 VAC:

Linear 1: 113 / 1.5. Linear 2: 219 / 3. Linear 4: 444 / 5.3.

Wattage (Typical / Standby) at 240 VAC:

Linear 1: 112 / 2.6. Linear 2: 214 / 2.6. Linear 4: 431 / 5.3.

Current Draw Linear 1: 0.95 A at 120 VAC. 0.54 A at 240 VAC.

Current Draw Linear 2: 1.83 A at 120 VAC. 1.00 A at 240 VAC.

Current Draw Linear 4: 3.74 A at 120 VAC. 1.90 A at 240 VAC.

* + - 1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Not controllable.
         2. db Range Average at 39 inches: Linear 1: 24.8 dBA.
         3. db Range Average at 39 inches: Linear 2: 28.4 dBA.
         4. db Range Average at 39 inches: Linear 4: 31.0 dBA.
         5. Droop Compensation: Yes.
         6. BTUs/hour: (120 VAC / 240 VAC).

Linear 1: 392.38 / 382.14.

Linear 2: 743.82 / 726.76.

Linear 4: 1,494.46 / 1,453.51.

Linear 1 Deep Blue: 375.32 / 368.50.

Linear 2 Deep Blue: 743.82 / 730.19.

Linear 4 Deep Blue: 1,501.28 / 1,460.34.

Linear 1 Pearl: 385.

Linear 2 Pearl: 747.

Linear 4 Pearl: 1514.

* + - 1. Physical: IP Rating: IP-20.
         1. Materials: Die-cast alum. and plastic. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke. 1 cell option. Trunnions.
         3. Included Accessories: Power cable and trunnions.
    1. Basis of Design: ColorSource PAR as manufactured by ETC Inc. An affordable high quality wash fixture. Uses RGB-L or bi-white color system.
       1. Standards Compliance:
          1. Listed: cETLus, UL 1573, UL 924, CSA C22.2 No. 166 and 141.
          2. Compliance: CE and EAC.

\*\* NOTE TO SPECIFIER \*\* Delete model not required. Delete arrays not required. Delete model options not required.

* + - 1. Model ColorSource PAR: Black
      2. Model ColorSource PAR Deep Blue: Black.
      3. Model ColorSource: PAR Pearl, black.
      4. Arrays:
         1. Original RGB-L (Red/Green/Blue/Lime).
         2. Deep Blue RGI-L (Red/Green/Indigo/Lime).
         3. Pearl (Warm and Cool White).
      5. Source:
         1. LED Details: 40 Lumileds LUXEON Z LEDs
         2. Max Lumens: PAR: 3,039. PAR DB: 2,429. Pearl: 5709
         3. Lumens per Watt: PAR: 28.1. PAR DB: 27.6. Pearl: 50.
         4. L70 rating: Greater than 55,000 hours.
      6. Color:
         1. Colors Used: PAR: red, green, blue, lime.
         2. Colors Used: PAR Deep Blue: red, green, indigo, lime.
         3. Colors Used: PAR Pearl: Warm white and cool white.
         4. Color temperature Range: Standard and DB: Color mixing.
         5. Color temperature Range: Pearl: 2700 to 6500 K.
         6. Calibrated Array: Yes.
         7. Red Shift: No.
      7. Optical:

\*\* NOTE TO SPECIFIER \*\* Secondary lenses available for multiple beam-spread options.

* + - * 1. Beam Angle Range: 14.5 degrees.
        2. Gate Size: N/A.
        3. Aperture Size: 7.5 inches.
        4. Pattern Projection: No.
        5. Pattern Size: N/A.
        6. Camera Flicker Control/Hz Range: Default: 1,200 Hz. RDM: 25,000 Hz.
      1. Control:
         1. Input Method: DMX-512 via 5-pin XLR connector. Protocols: DMX512, RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: 7-segment 3 button interface.
         4. Local Control: Yes.
         5. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      2. Electrical:
         1. Voltage: 100 to 240 VAC, 50 to 60 Hz. Input Method: PowerCON in and thru.
         2. Inrush First Half-Cycle: Original / Deep Blue / Pearl.

35 A / 35.6 A / 67.5 A at 120 V. 49 A / 85.6 A / 153 A at 240 V.

* + - * 1. Fixtures per Circuit:

9 (15 A power thru connector).

10 (R20 module or similar).

* + - * 1. Standard and DB

Wattage: 90 W at 120 V. 89 W at 240 V.

Current Draw: 0.75 A at 120 V. 0.40 A at 240 V.

* + - * 1. Pearl

Wattage (Typical / Standby): 114 / 1.6 at 120 V. 112 / 1.5 at 230 V.

Current Draw: 0.96 A at 120 V. 0.50 A at 230 V.

* + - 1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Not controllable. db Range: 24.8 dBA average at 39 inches.
         2. Droop Compensation: Yes.
         3. BTUs/hour: RGB-L: 307. RGI-L Deep Blue: 303. Pearl: 389
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke or floor stand.
         3. Included Accessories: Power cable and hanging yoke.
         4. Seven-segment, three-button Interface.
    1. Basis of Design: ColorSource Spot V and ColorSource Spot VXT as manufactured by ETC Inc. Brings together a five-color light engine with the build-quality and support of an ETC product. Uses a mix of red, green, blue, indigo and lime LED emitters. ETC optics, adapters, and accessories.
       1. Standards Compliance:
          1. Listed: cETLus, UL 1598, UL 924, CSA C22.2 No. 250.0.
          2. Compliance: CE.

\*\* NOTE TO SPECIFIER \*\* Delete models not required and delete model options not required.

* + - 1. Model ColorSource Spot V with shutter barrel, black.
      2. Model ColorSource Spot VXT with shutter barrel, black.
      3. Model ColorSource Spot V, body only, black.
      4. Model ColorSource Spot VXT, body only, black.
      5. Source:
         1. LED Details: 60 Lumileds LUXEON Rebel and LUXEON C LEDs.
         2. Max Lumens: 9300.
         3. Lumens per Watt: 47.2.
         4. L70 Rating: Greater than 54000 hours.
      6. Colors:
         1. Colors Used Spot: Red, green, blue, indigo, lime.
         2. Color temperature Range: Color mixing.
         3. Calibrated Array: Yes.
         4. Red Shift: No.
      7. Optical:
         1. Beam Angle Range: 5 to 90 degrees. Swappable lens tubes.
         2. Gate Size: 80 mm.
         3. Aperture Size: 6.25 to 14 inches depending on lend tube.
         4. Pattern Projection: Yes.
         5. Pattern Size: A or B.
         6. Camera Flicker Control/Hz Range: 5 kHz and 25 kHz.
      8. Control:
         1. Input Method:

DMX-512 via 5-pin XLR connector. Protocols: DMX512, RDM.

City Theatrical Multiverse. Protocols: DMX512, RDM

* + - * 1. NFC Configuration: Yes, via Set Light app.
        2. RDM Configuration: Yes.
        3. User Interface Type:

ColorSource Spot V: 7-segment 3 button interface.

ColorSource Spot VXT: No UI on Fixture

* + - * 1. Local Control: Yes. (ColorSource Spot V only)
        2. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
        3. Fixture-to-Fixture Control: Yes.
        4. 15-bit virtual dimming engine.
      1. Electrical:
         1. Voltage: 100 to 240 VAC, 50 to 60 Hz.
         2. Input Method: powerCON True1 TOP in and thru.
         3. Inrush First Half Cycle: 55 A at 120 V. 59 A at 240 V.
         4. Fixtures per Circuit:

Eight. (R20 module or similar).

* + - * 1. Power Draw

Wattage: Typical: 199. Standby: 2 at 100 V.

Wattage: Typical: 197. Standby: 2 at 120 V.

Wattage: Typical: 194. Standby: 2 at 240 V.

Current Draw at 100 VAC: Typical: 2 A. Standby: 0.07 A.

Current Draw at 120 VAC: Typical: 1.65 A. Standby: 0.08 A.

Current Draw at 240 VAC: Typical: 0.9 A. Standby: 0.10 A.

* + - 1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Controllable.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 671.77.
      2. Physical: IP Rating: ColorSource Spot V: IP-20. ColorSource Spot VXT: IP-65
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke.
         3. Included Accessories: Hanging yoke, 39 inch power cable, soft-focus diffuser in an A-size gobo holder.
    1. Basis of Design: ColorSource Spot Jr. as manufactured by ETC Inc. Compact four-color light engine. A mix of red, green, blue, and lime LED emitters. Original and Deep Blue arrays. Built-in zoom capabilities. 5,708 lumen output.
       1. Standards Compliance:
          1. Listed: cETLus, UL 1598, CSA C22.2 No. 250.
          2. Compliance: CE and EAC.

\*\* NOTE TO SPECIFIER \*\* Delete models not required and delete model options not required.

* + - 1. Model ColorSource Spot jr XLR, black.
      2. Model ColorSource Spot jr XLR, white.
      3. Model ColorSource Spot jr Deep Blue XLR, black.
      4. Model ColorSource Spot jr Deep Blue XLR, white.
      5. Source:
         1. LED Details: 52 Lumileds LUXEON C LEDs.
         2. Max Lumens: Standard: 5,708. Deep Blue: 5,426. Lumens per Watt: 44.8.
         3. L70 Rating: 54000 hours.
      6. Color:
         1. Colors Standard: Red, green, blue, lime
         2. Colors Deep Blue: Red, green, indigo, lime.
         3. Color Temperature Range: Color mixing.
         4. Calibrated Array: Yes.
         5. Red Shift: No.
      7. Optical:
         1. Beam Angle Range: 25 to 50 degrees. Swappable lens tubes.
         2. Gate Size: 1.96 inches.
         3. Aperture Size: 6.25 to 14 inches.
         4. Pattern Projection: Yes.
         5. Pattern Size: M. OD: 2.6 inch, ID: 1.89 inches, up to 0.080 inches thick.
         6. Camera Flicker Control / Hz Range: Default: 1,200 Hz. RDM: 25,000 Hz.
      8. Control:
         1. Input Method: DMX-512 via 5-pin XLR connector. Protocols: DMX512, RDM.
         2. RDM Configuration: Yes.
         3. User Interface Type: 7-segment 3 button interface.
         4. Local Control: Yes.
         5. Onboard Presets: Yes, 12. Onboard sequences: Yes. 5. Onboard effects: No.
         6. Fixture-to-Fixture Control: Yes.
         7. 15-bit virtual dimming engine.
      9. Electrical:
         1. Voltage: 100 to 240 VAC, 50 to 60 Hz. Input Method: PowerCON in and thru.
         2. Inrush, First Half Cycle: 35 A at 120 V. 45 A at 240 V.
         3. Fixtures per Circuit:

Seven: 15 A power thru connector.

Eight: R20 module or similar.

* + - * 1. Wattage (Typical / Standby): 166 W / 2.6 W at 120 V. 162 W / 2.0 W at 240 V.
        2. Current Draw: 1.40 A at 120 V. 0.73 A at 240 V.
      1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Not controllable. db Range: 202 dBA average at 39 inches.
         2. Droop Compensation: Yes.
         3. BTUs/hour: 549.
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting: Yoke.
         3. Accessories: Hanging yoke, 5 ft power cable.
    1. Basis of Design: ColorSource Fresnel V as manufactured by ETC Inc. An affordable high quality Fresnel wash fixture with motorized zoom. Uses RGBIL color system.
       1. Standards Compliance:
          1. Listed: cETLus, UL 1573, , CSA C22.2 No. 166.
          2. Compliance: CE and EAC.
       2. Model ColorSource Fresnel V: Black
       3. Arrays:
          1. RGBIL (Red/Green/Blue/Indigo/Lime).
       4. Source:
          1. LED Details: 44 Lumileds LUXEON C LEDs
          2. Max. Lumens: 5,300.
          3. Lumens per Watt: 36.
          4. L70 rating: Greater than 54,000 hours.
       5. Color:
          1. Color temperature Range: Color mixing.
          2. Calibrated Array: Yes.
          3. Red Shift: No.
       6. Optical:
          1. Beam Angle Range: 13 to 44 degrees.

Motorized zoom.

* + - * 1. Gate Size: N/A.
        2. Aperture Size: 7"
        3. Pattern Projection: No.
        4. Pattern Size: N/A.
        5. Camera Flicker Control/Hz Range: Default: 5kHz. RDM: 25,000 Hz.
      1. Control:
         1. Input Method: DMX-512 via 5-pin XLR connector. Protocols: DMX512, RDM, City Theatrical Multiverse, NFC.
         2. RDM Configuration: Yes.
         3. NFC Configuration: Yes
         4. User Interface Type: 7-segment 3 button, single encoder interface.

Encoder controls local motorized zoom

* + - * 1. Local Control: Yes.
        2. Onboard Presets: Yes, 12. Onboard Sequences: Yes, 5. Onboard Effects: No.
        3. Fixture-to-Fixture Control: Yes.
        4. 15-bit virtual dimming engine.
      1. Electrical:
         1. Voltage: 100 to 240 VAC, 50 to 60 Hz. Input Method: PowerCON True1 in and thru.
         2. Inrush First Half-Cycle:
         3. Fixtures per Circuit:

20 Amp Power-Thru Connector: Quantity of 8.

R20 Module or Similar: Quantity of 9.

Wattage at 120 Volts: 148.4 W.

Wattage at 240 Vol: 147 W.

Current Draw at 120 Volts: 1.28 Amps.

Current Draw at 240 Volts: 10.70 Amps.

* + - 1. Thermal: Operating Temperature: 32 to 104 degrees F.
         1. Fan: Yes. Not controllable. dB Range: 22.9 dBA average at 39 inches.
         2. Droop Compensation: Yes.
      2. Physical: IP Rating: IP-20.
         1. Materials: Die-cast aluminum. Colors: Black, white, silver, or custom.
         2. Mounting Options: Yoke or floor stand.
         3. Included Accessories: Power cable and hanging yoke.
         4. Seven-segment, three-button Interface.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION