

September 14, 2023

**TO:** Waterbury Development Review Board

**FROM:** Karen Nevin, Executive Director

**RE:** DRB Permits #090-21 & #058-22

Our approved permit #090-21 required us to return to the DRB with detailed designs of the gateway feature and exterior lighting for the Stowe Street Alley.

Enclosed please find two sets of documents:

1. Stowe Street Alley Gateway proposal. The Stowe Street Alley Committee chose Flywheel Industrial Arts of Montpelier as the artist/designer/fabricator of the Stowe Street Alley gateway. The gateway reflects the industrial feel of the fire escape on 21 Stowe Street. Large industrial I-beams will straddle the entrance with a mirrored, rotating feature suspended above and slightly outside of the alley – drawing in pedestrians from the street. People will be able to interact with the cube by rotating the crank at street level. The mirrored surfaces will reflect the surroundings, continually changing the appearance at the entrance. Two large concrete footings have been designed to secure the structure in place.
2. Stowe Street Alley Lighting proposal. The Alley requires different types of lighting to serve different purposes: safety/security and event spaces. We hired Donna Leban, of Light/Space/Design to design the different lighting needed. Using Luminquad wall mounted fixtures with three different beam types will be mounted high on 23 Stowe Street building. These downward oriented lights will be aimed within the confines of the alley and will not add to the sky glow in the night sky. The second lighting will be a series of horizontal hanging, lantern-like fixtures hanging above the ground in the center of the alley. This will create a more intimate event space. All of the lights will be programmable LED lights using warm white color.

# Stowe Street Alley Waterbury, VT

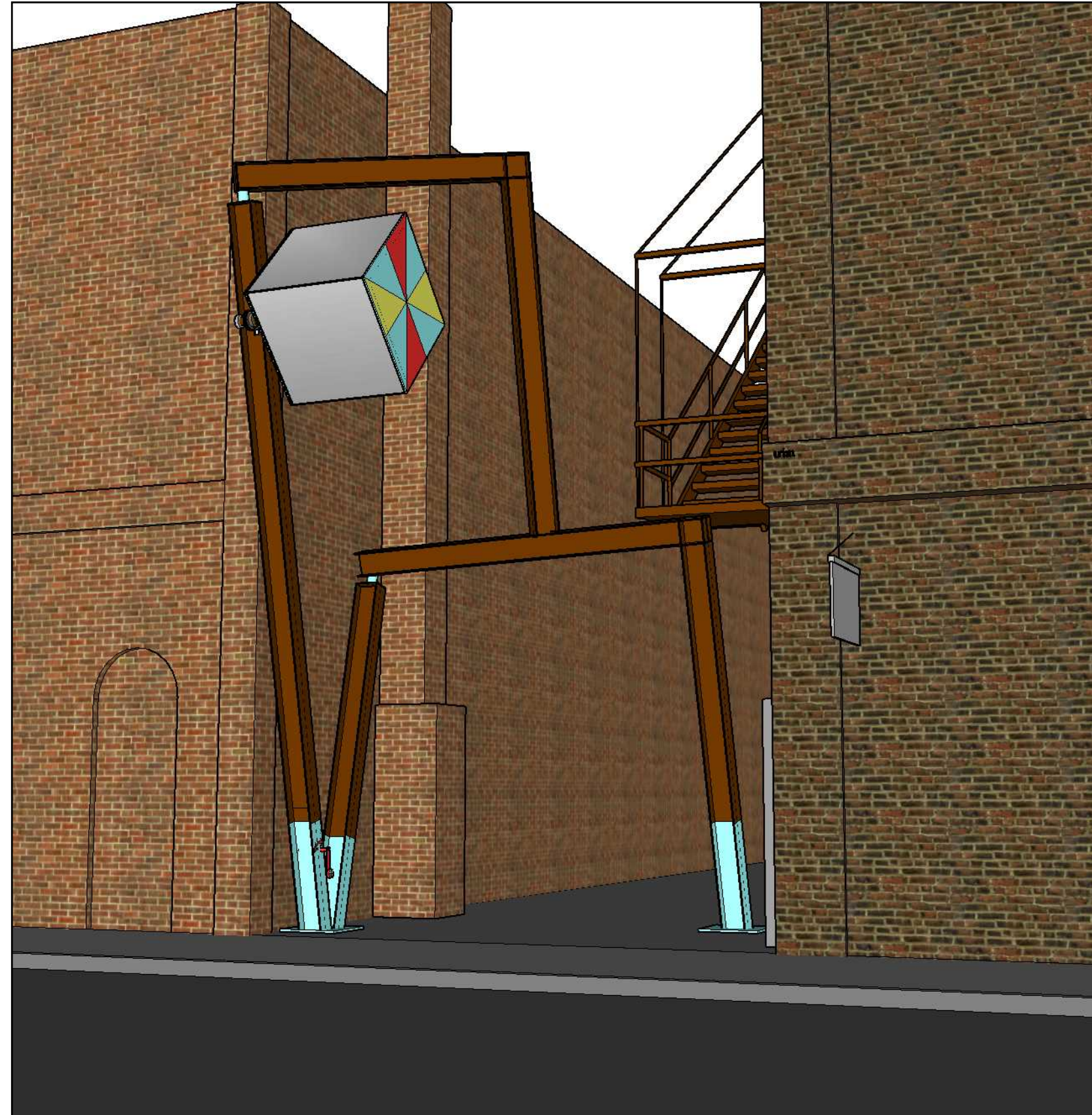
- Part of Park development project in downtown Waterbury, VT
- Interactive sculptural gateway
- Steel I-Beam structure
- Stainless/colorful cube structure manually rotates using hand crank at street level (public use)
- Footings to be installed Fall 2023
- Gateway to be installed Fall 2023 (if possible) or Spring 2024

## 1st Phase

- Assess overall feasibility of structure
- Design Concrete footings

## Phase 2

- Design steel connections
- Specify hardware for rotating cube drive components

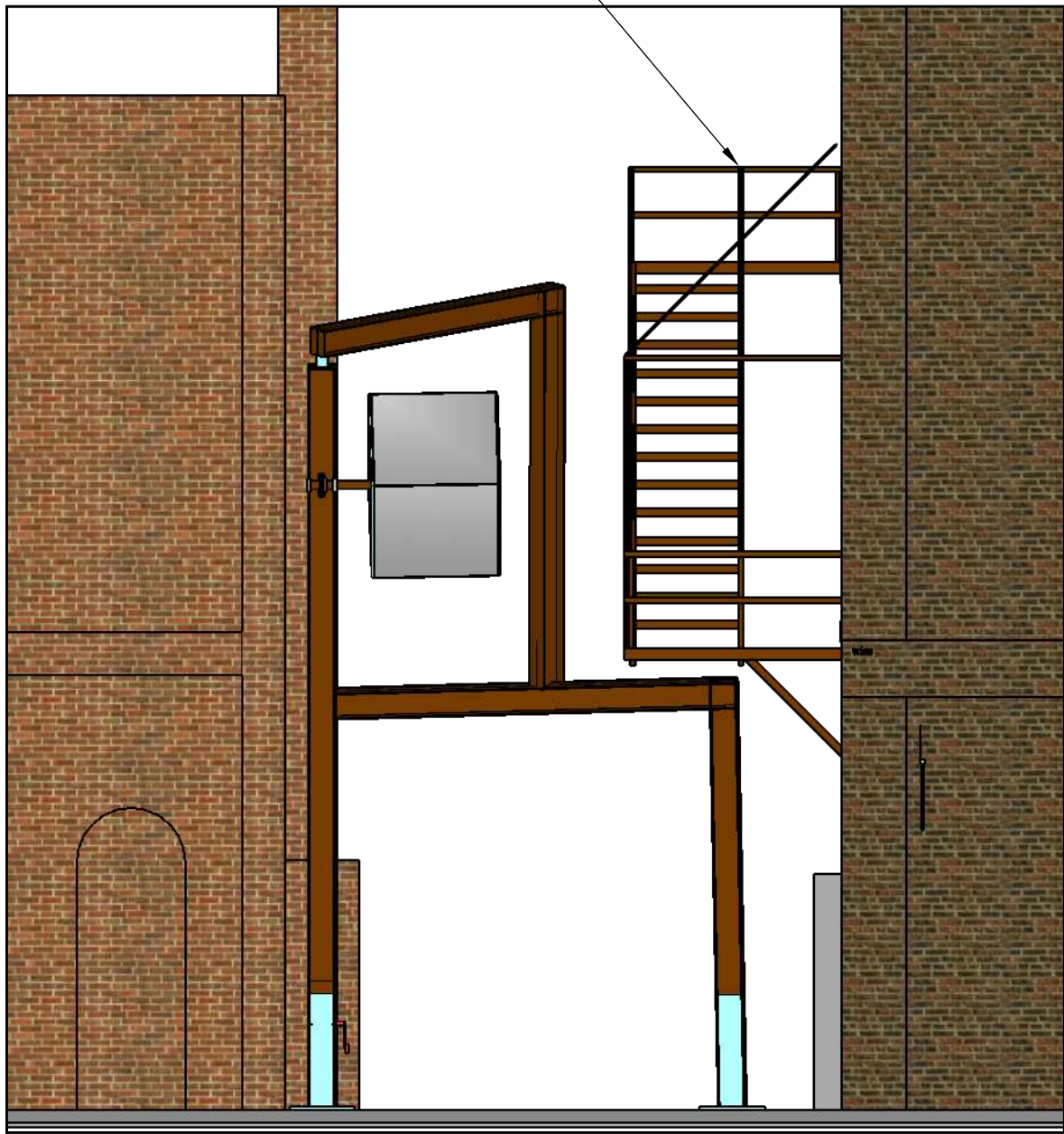


**flywheel**  
INDUSTRIAL ARTS

Stowe Street Gateway  
Engineering Drawings  
(For Pricing Only)  
8.20.23

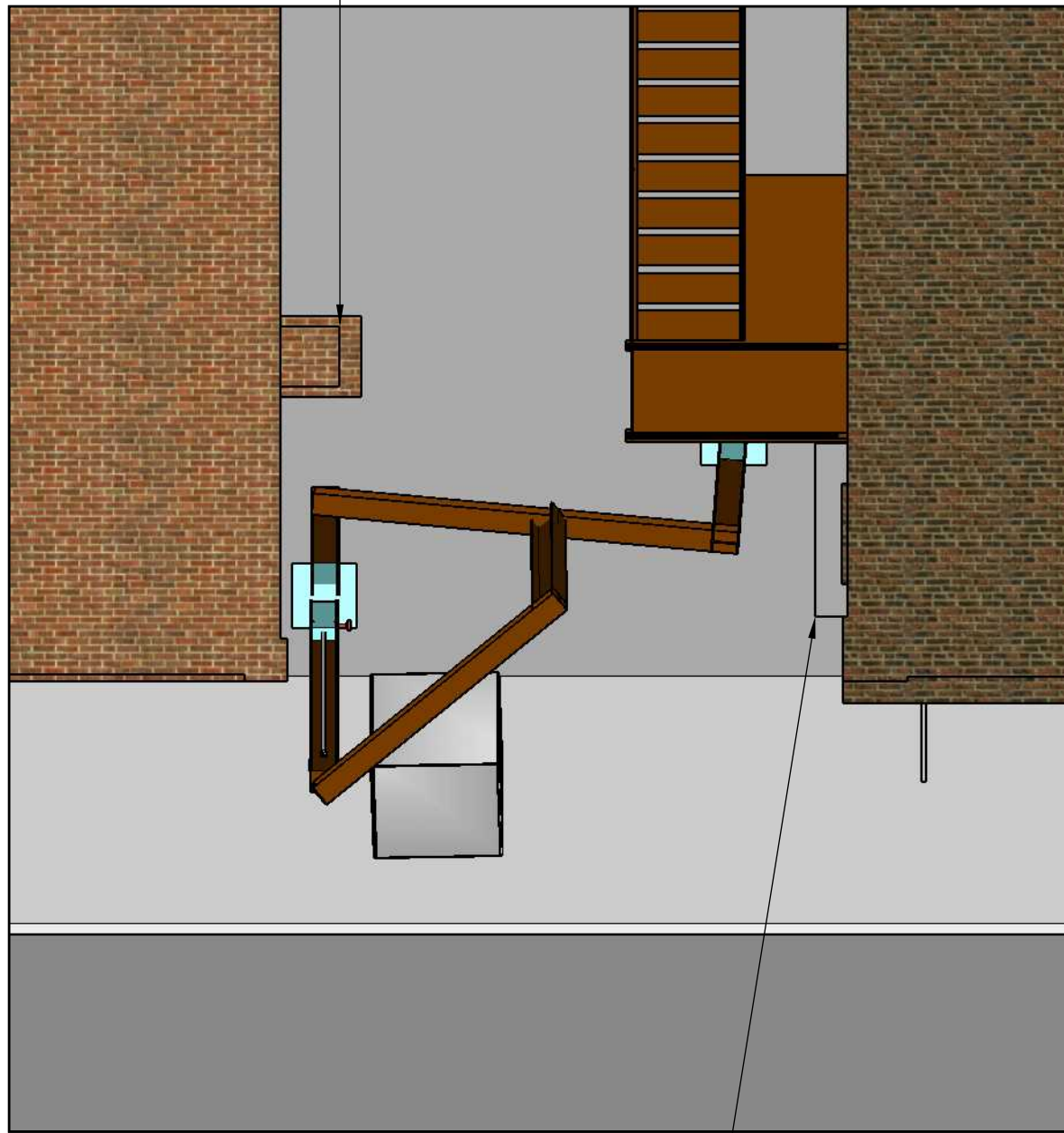
jesse@flywheelindustrialarts.com  
802.825.6467

Existing Fire Escape



Front Elevation

Existing Chimney



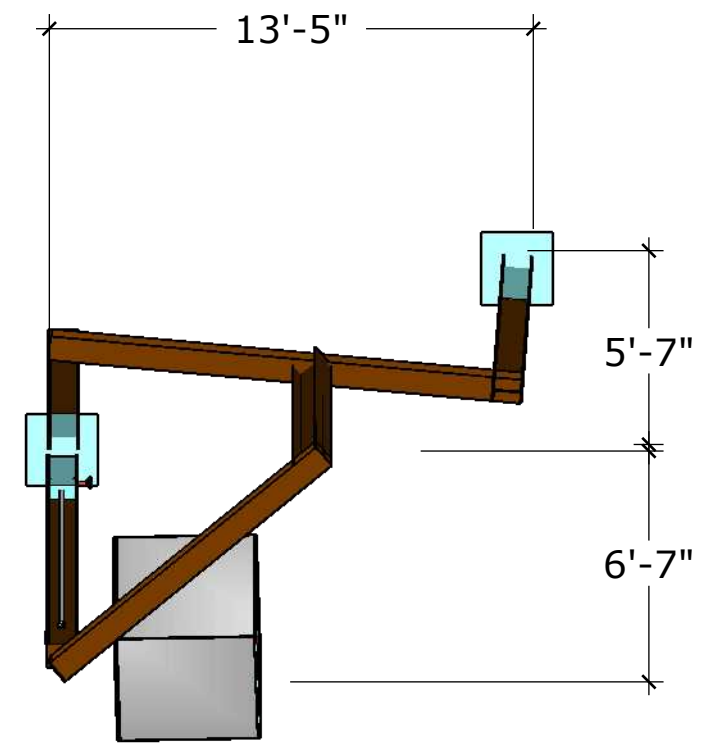
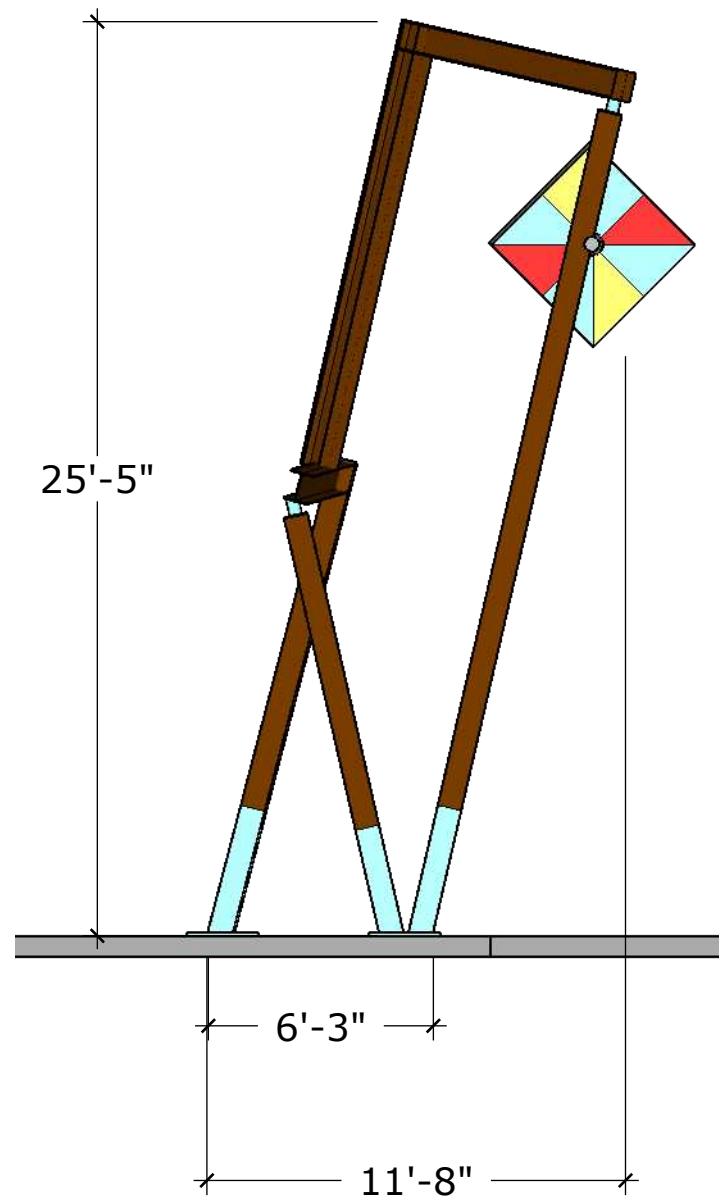
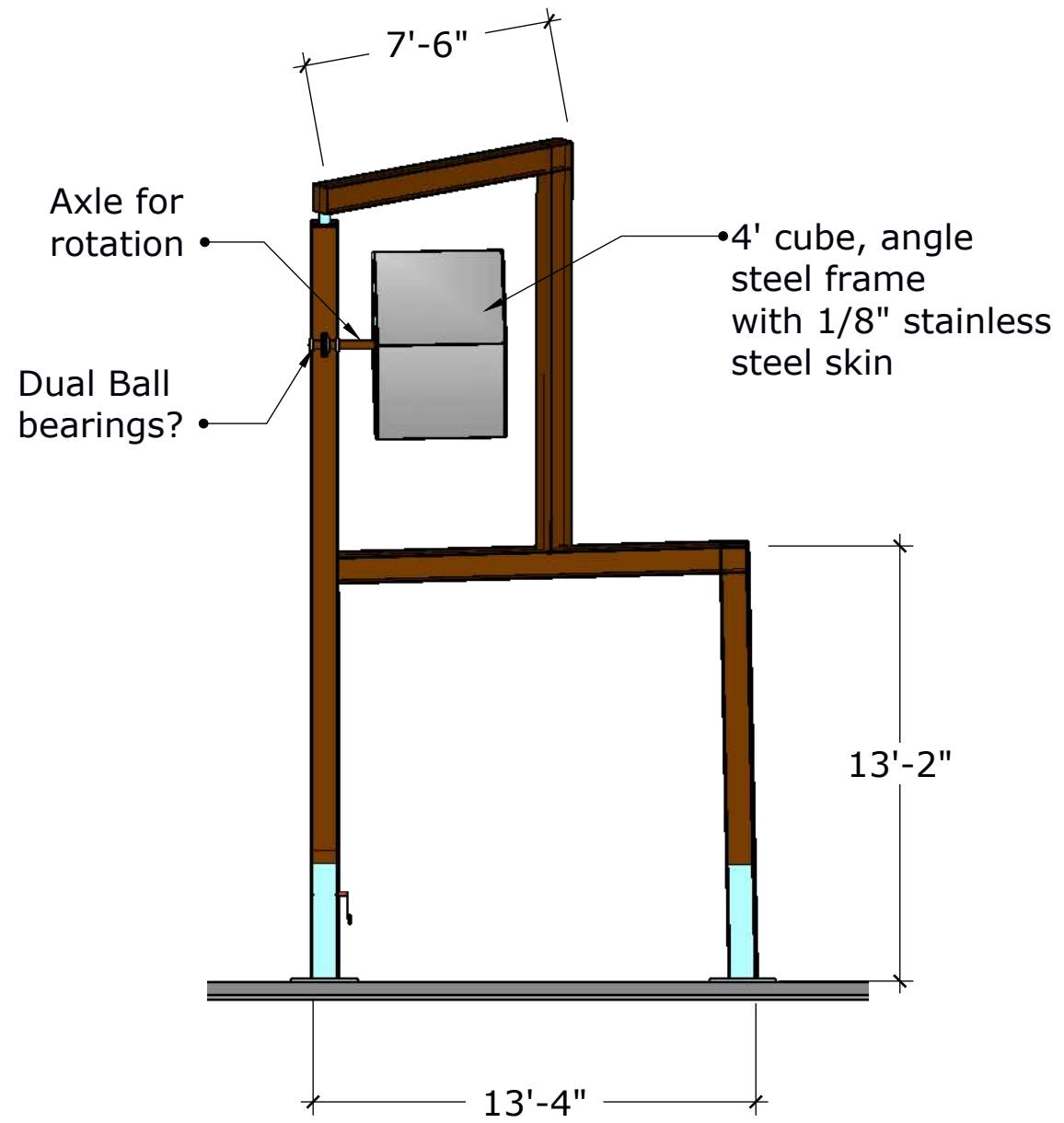
Plan View

Electrical Panels

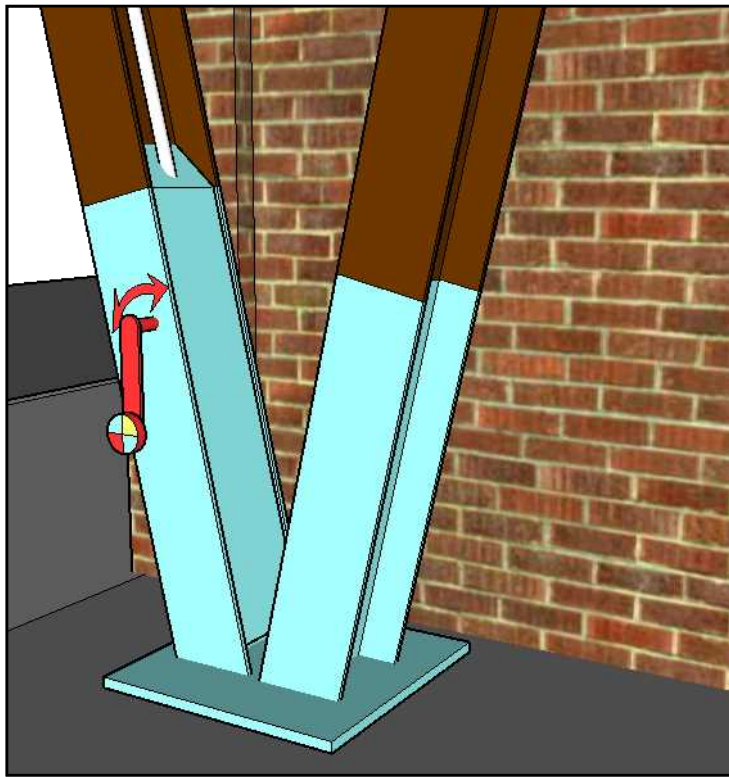


Stowe Street Gateway  
Engineering Drawings  
(For Pricing Only)  
8.20.23

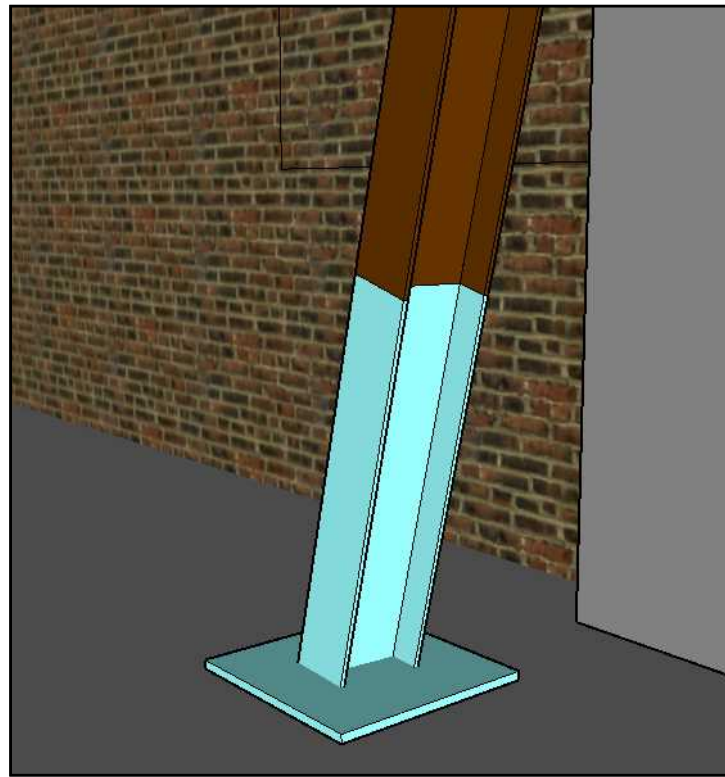
jesse@flywheelindustrialarts.com  
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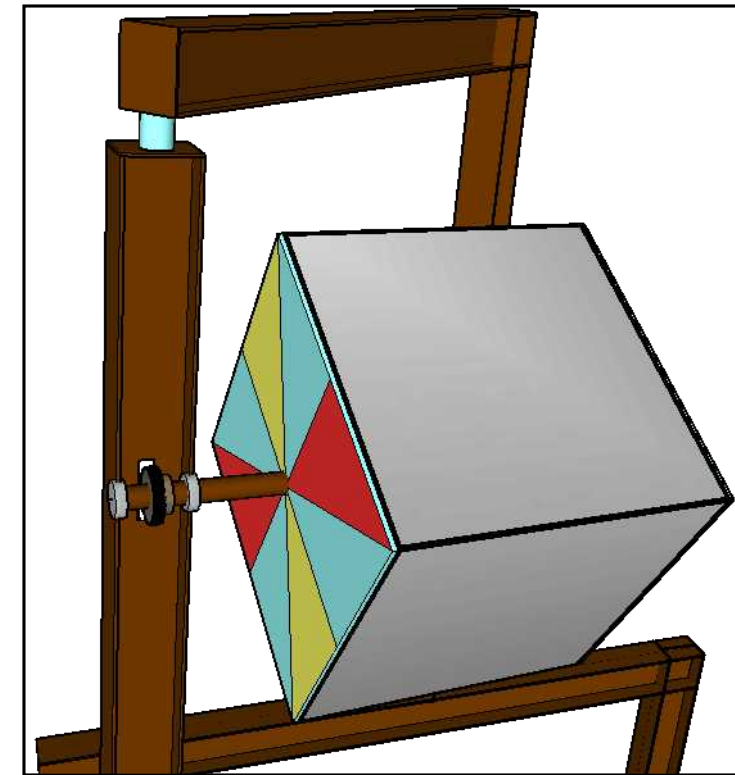
Approx. Dimensions  
Proposed Beams- W 10 x 45



Base Plate with Hand Crank  
enclosed gearing with drive rod  
going up to Cube

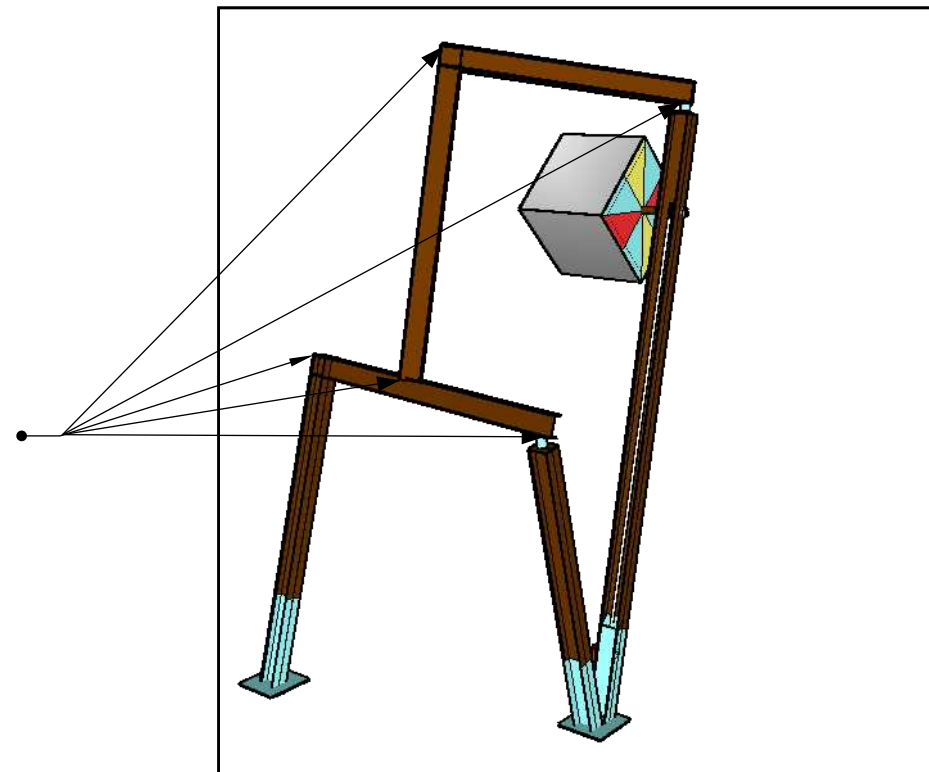


Base Plate



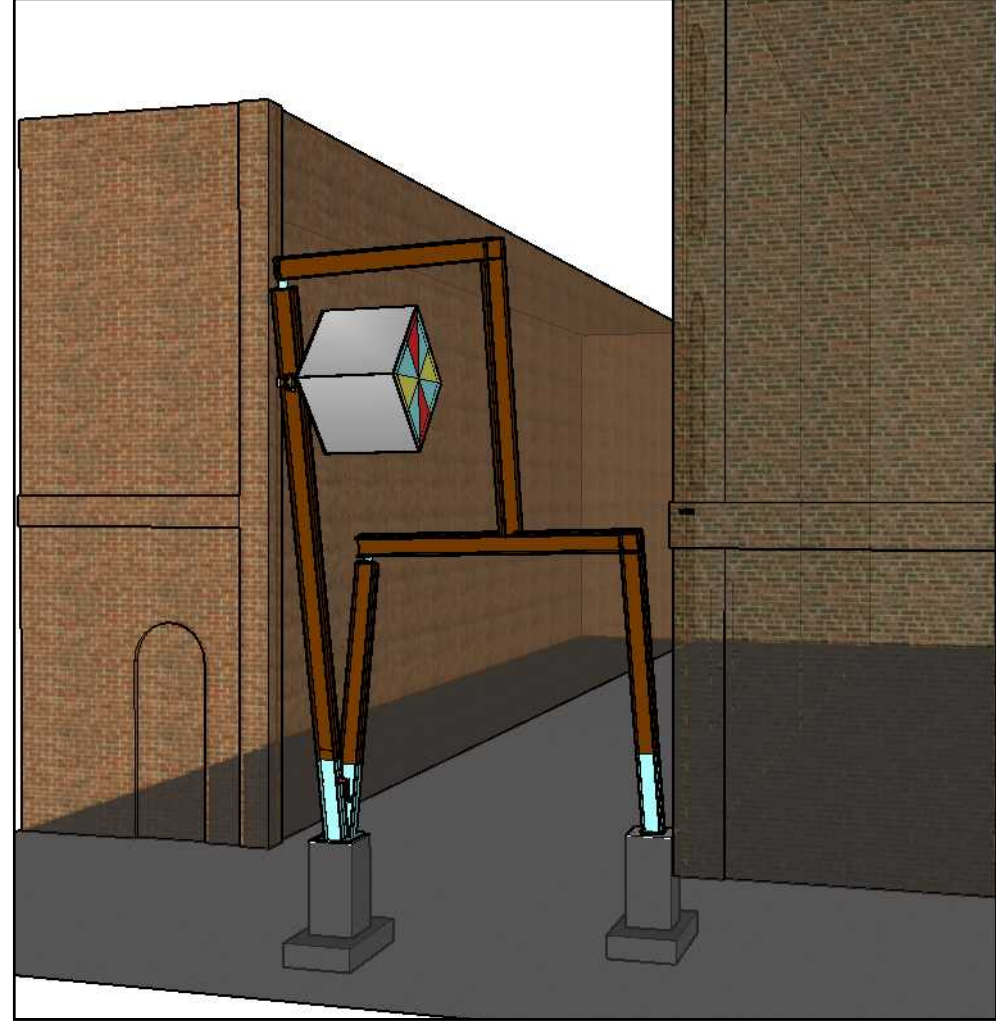
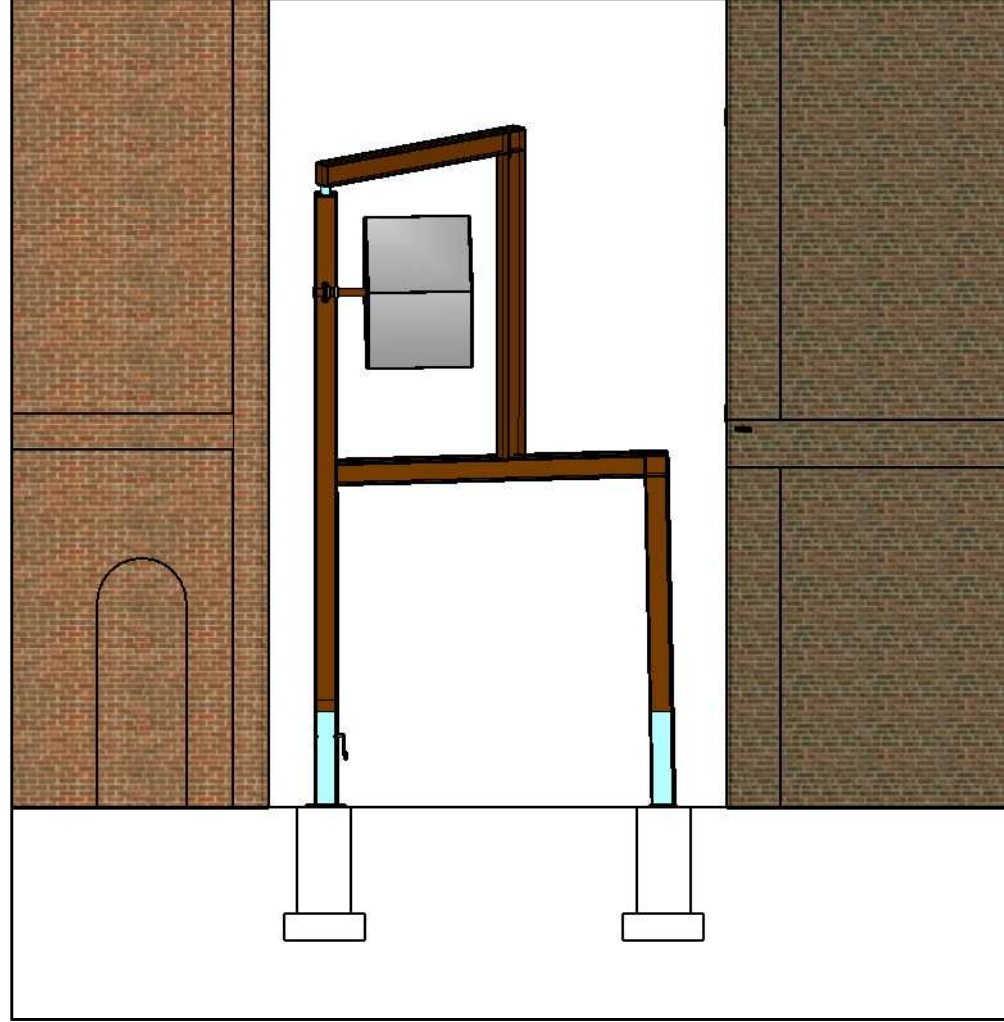
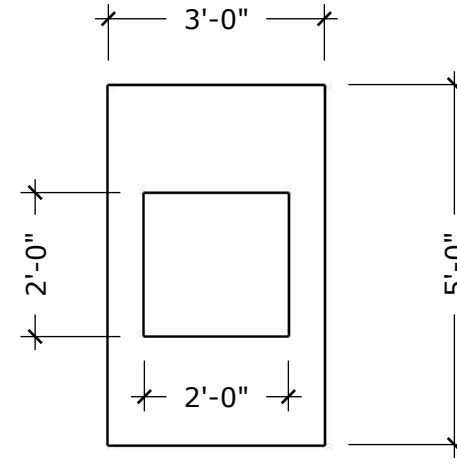
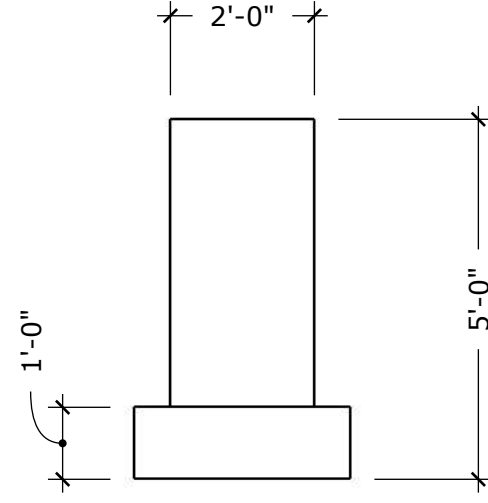
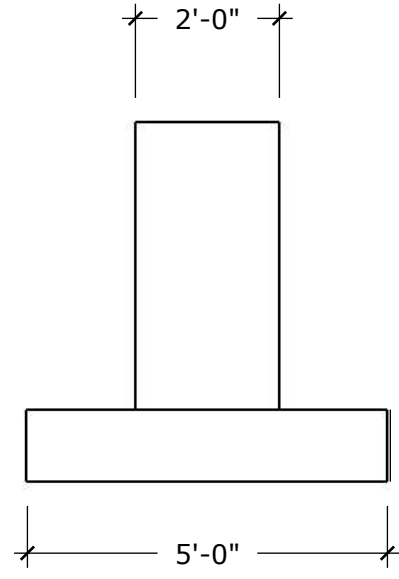
Cube  
Mounted to I-Beam with set of ball bearing  
Axel and Cog connect to drive rod on  
back side of I-Beam

Connections between  
beams to be determined  
in Phase 2 of design



Connection Elements

# Footings



Revitalizing Waterbury  
Gateway - Footings  
Preliminary, Not for Construction  
8.28.23

jesse@flywheelindustrialarts.co  
mflywheelindustrialarts.com

From DeWolfe:

Our recommendation for pricing purposes would be to carry:

- 5'-0" x 3'-0" x 1'-0" footing poured with 5'-0" soil cover to the bottom of footing
- 2'-0" x 2'-0" Square Pier from the top of the footing to finish grade

These are rough estimates based upon the four sculpture options you provided via e-mail on May 31, 2023. We have based our rough sizing on Option 1: Whimsey Mobile, however the four options are similar enough where there shouldn't be a significant difference for the foundations.

Some important items to note:

- We've estimated a 3'-0" wide footing that is poured tight to the existing foundation wall of the adjacent structure. Our sizing is based upon the column / pier being centered on the footing. This would require the center line of the column being located 1'-6" from the face of the structure. If the column is offset from the center of the footing (i.e. not located at 1'-6" from the face of the structure), the footing size will need to be adjusted in a final design.
- Our estimate is based upon the footings for the new sculptures being located above the existing footings of the adjacent structure. If the existing footings are located at a shallower depth and interfere with the footings for the sculpture, a different design and approach will need to be determined.

## Stowe Street Alley, Waterbury – Conceptual Lighting Plan

For Revitalizing Waterbury, Karen Nevin- Executive Director, Laura Parette- Project Manager

May 22, 2023

Conceptual Lighting Design by Donna Leban, Light/Space/Design

Goal: To make the Stowe Street Alley a more lively and inviting location, particularly during evening hours and year-round, through incorporation of theatrical-like lighting concepts including color and movement.



Although this 3D model image does not show the intended ability to program changes in light color and intensity, it does help one imagine the dynamic potential of contrasting colors of programmable lighting within the Stowe Street alley space. Projected imagery is also possible, all combining to attract people to events and exhibits in this currently underutilized space.

### Concept Description:

Two main lighting elements make up the lighting concept. First, Red-Blue-Green (RGB) color-changing wall mounted fixtures of 3 different beam types are mounted high on the Northeast wall of the Waterbury Emporium building. These downward oriented lights, roughly 9" x 6" x 3" deep and aimed within the confines of the alley, would not add to sky glow in the night sky. The fixtures would be provided with 120-277volt power supply using a combination power and data supply cable, daisy-chained between up to 15 LED fixtures of 14 watts each. Lumenpulse, a Montreal-based manufacturer, provides the small Lumenquad (LQS) fixture type for exterior use with DMX/RDM enabled digital



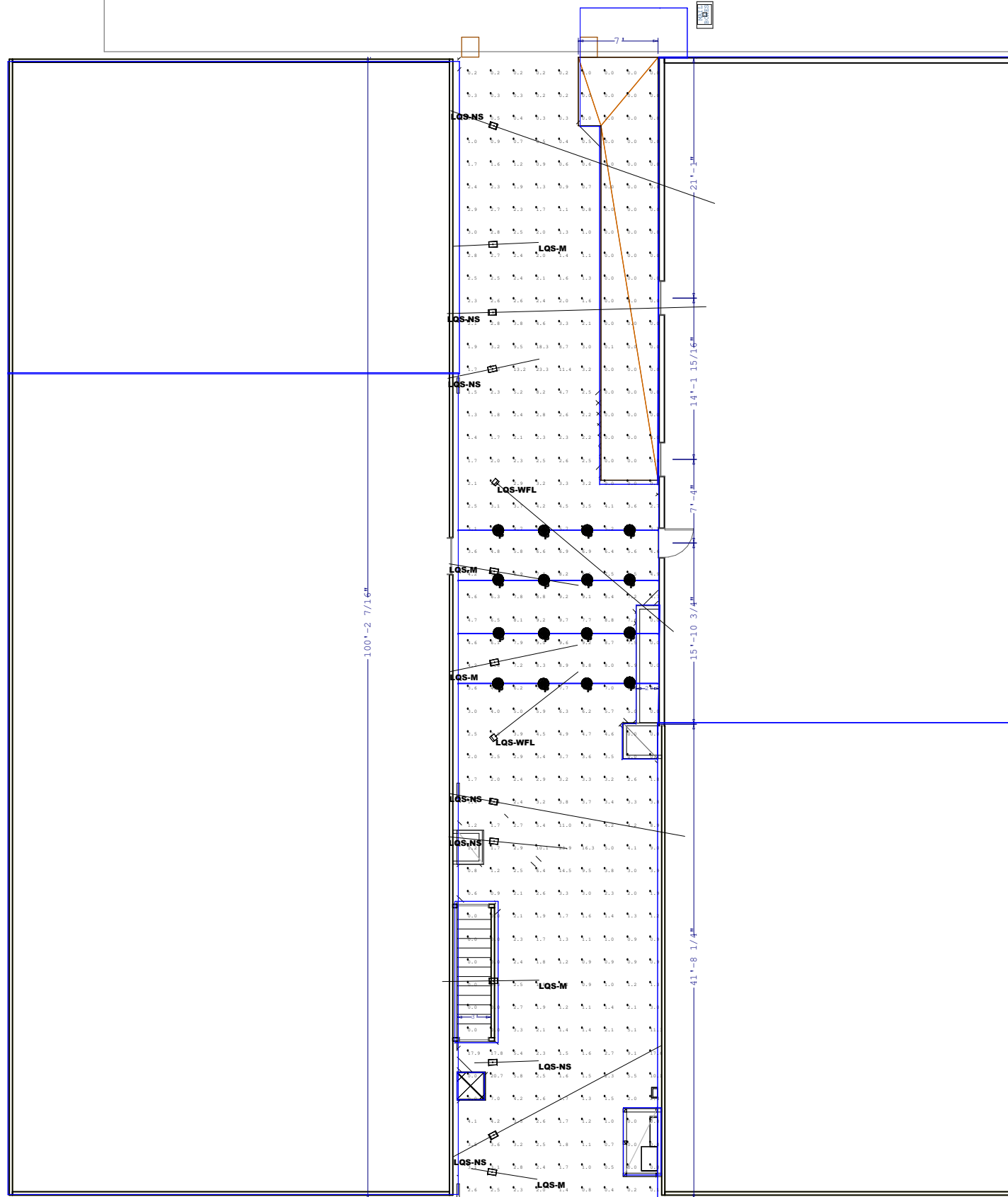
dimming and controls, along with the Lumentalk system to enable programming of the color-changing and dimming capabilities. See attached literature.

A second lighting feature is series of (4) catenary (horizontal-hanging support cable) mounted low-output, lantern-like LED fixtures mounted at 13' above the ground in the center of the alley. Depending on fixture size, this is estimated as 16 fixtures total at 3 watts each. This horizontally mounted feature provides a more intimate pedestrian scale within the space, as well as defines a performance area. In keeping with the theatrical theme, having these fixtures also be color-tunable with DMX type controls would provide the ultimate in flexible programming. Or, they could be a fixed warm white color coordinated with controls to allow the Lumenpulse system to provide all the fireworks (not literally speaking).

A third site feature, still to be revealed, is a creative gate feature at the Stowe Street end of the alley, into which lighting would be integrated. This feature would be added into the lighting control sequence for a seamless site experience.

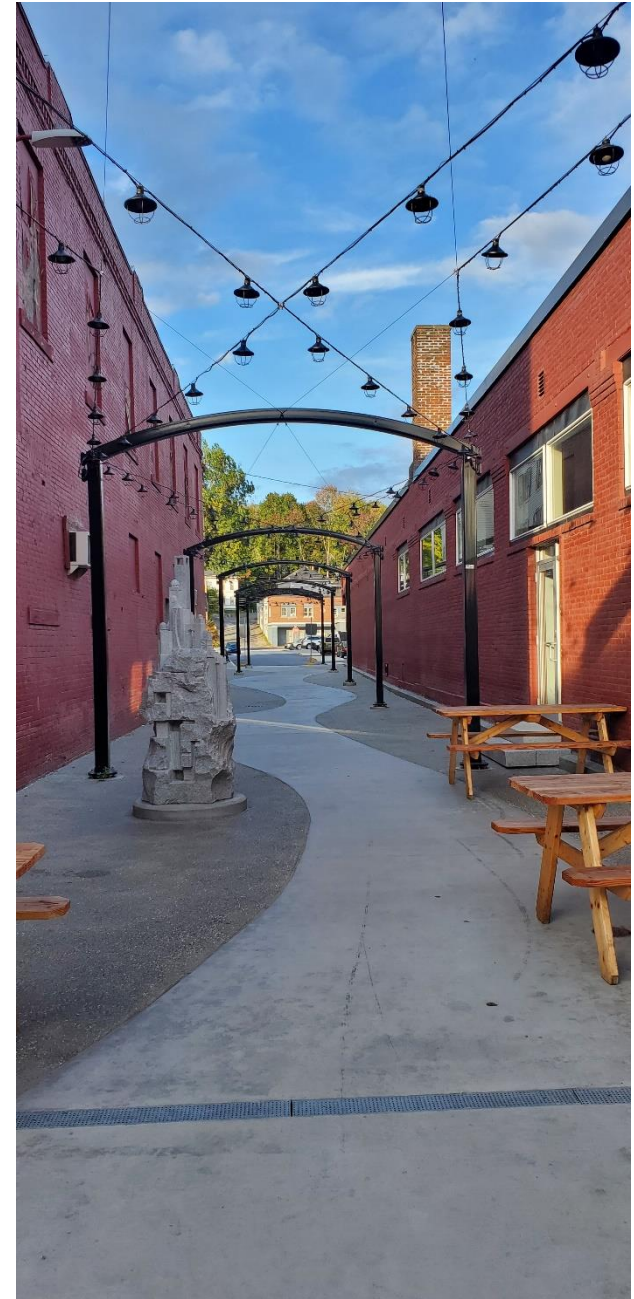
The electronic controls for the lighting described would need to be located in a weather-protected, climate-controlled space adjacent to the alley space. This will also need to be accessible for maintenance, although programming of the site lighting can be done off-location. Space requirements for the controls is to be determined.

A portion of the Lumenquad fixtures, perhaps 7 or 8, may be installed initially with or without the full control system as security lighting. The next steps in the process, once approved by Revitalizing Waterbury, is to determine the complete specifications for both elements of the lighting concept for budgeting purposes. Meeting with the electrical contractor to go over site electrical requirements is also advised.



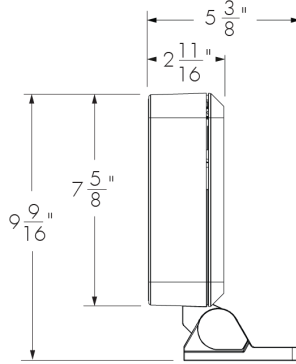
**Stowe St Alley Conceptual Lighting Plan**  
**May 19, 2023**  
**D. Leban, Light/Space/Design**

Alley lighting for center of alley. Small, downward facing catenary string lanterns to create intimate atmosphere at center of alley/event space.



Project Name \_\_\_\_\_ Qty \_\_\_\_\_

Type \_\_\_\_\_ Catalog / Part Number \_\_\_\_\_

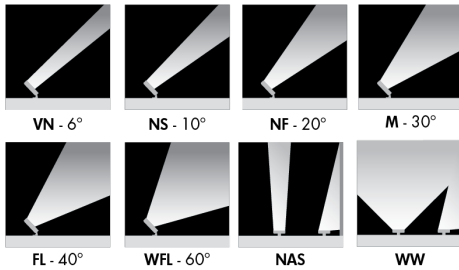


Side view



Front view

**Optics**



**Description**

The Lumenquad Small Colour Changing, 14W LED luminaire, has a sleek 2 11/16 in profile with no visible wiring or hardware and seamlessly integrates with any architecture while also applying dynamic colour. Lumenpulse's latest generation of LED boards possess an optimised candela and lumens recipe for both Narrow and Wide optics. The Lumenquad Small Colour Changing is the epitome of versatility and can be configured with numerous options including optics for wallwash and floodlighting, RGB colour, various mounting options, accessories, controls, and multiple standard finishes, as well as Legacy or Custom output modes.

**Colors and Color Temperatures**



**Features**

**Ratings**

IP66 IK10

<b>Color and Color Temperature</b>	RGB
<b>Optics (nominal distribution)</b>	VN (6°), NS (10°), NF (20°), M (30°), FL (40°), WFL (60°), NAS (Narrow Asymmetric), WW (Asymmetric Wallwash)
<b>Mounting Options</b>	Surface mount, Wall mount bracket with decorative cover, Wall mount bracket without decorative cover, Recessed JBOX wall mount with decorative cover, Recessed JBOX wall mount without decorative cover, Pole mount, Tenon mount, Stake mount, Stud mount
<b>Optical Options (factory installed)</b>	Linear spread lens vertical distribution, Linear spread lens horizontal distribution, Honeycomb louver
<b>Options</b>	Corrosion-resistant coating for hostile environments
<b>Power Consumption</b>	14W
<b>Warranty</b>	5-year limited warranty

**Certifications**



**Performance**

<b>Maximum Delivered Output</b>	668 lm (RGB full output, VN 6°, DMX/RDM)
<b>Maximum Delivered Intensity</b>	32,296 cd at nadir (RGB full output, VN 6°, DMX/RDM)

<b>Illuminance at Distance</b>	Minimum 1 fc at 180 ft (RGB full output, VN 6°, DMX/RDM)
<b>Lumen Maintenance</b>	L70 120,000 hrs (Ta 25 °C)

**Physical**

<b>Housing Material</b>	Low copper content high pressure die-cast aluminum
<b>Lens Material</b>	Clear tempered glass
<b>Hardware Material</b>	Stainless steel
<b>Gasket Material</b>	Silicone
<b>Surface Finish</b>	Electrostatically applied polyester powder coat
<b>Weight</b>	6.65 lbs
<b>EPA</b>	Front = 0.43 sq ft, Side = 0.21 sq ft, Front 45°= 0.41 sq ft

**Electrical and control**

<b>Voltage</b>	120-277 volts
<b>Fixture Cable</b>	Power and data in one cable
<b>Conductors</b>	5C #16-5 (DALI8 control), 6C #14-3/ #24-3 (DMX/RDM control)
<b>Control</b>	DMX/RDM enabled, DALI-2 dimming Type 8, Lumentalk system is enabled with LDB accessory - see typical wiring diagrams for details
<b>Resolution (DMX/RDM)</b>	Per fixture, 8-bit or 16-bit, 3 channels (RGB)
<b>RGB Color Mixing</b>	9 LEDs (3x Red, 3x Green, 3x Blue)

**Environmental**

<b>Storage Temperature</b>	-40 °F to 158 °F (device must reach start-up temperature value before operating)
<b>Start-up Temperature</b>	-13 °F to 122 °F
<b>Operating Temperature</b>	-40 °F to 122 °F
<b>Ingress Protection Rating</b>	IP66, Wet location rated
<b>Impact Resistance Rating</b>	IK10
<b>Application Wind Speed</b>	Luminaires were designed based on AASHTO 2013 standard to ensure highest quality and safety. Installation should be validated by a local project engineer to ensure the luminaires are suitable for the wind speed and exposure of the specific application

**Accessories (order separately)**

<b>Optical Accessories</b>	Snoot, Visor, Linear Spread Lens Adjustable, Wire Guard
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**How to order**

Housing	Voltage <sup>(2)</sup>	Color and Color Temperature <sup>(3)</sup>	Optics	Optical Options <sup>(5)</sup>	Mounting Options <sup>(6)</sup>
<b>LQS</b> Lumenquad Small <sup>(1)</sup>	<b>120</b> 120 volts  <b>208</b> 208 volts  <b>220</b> 220 volts  <b>240</b> 240 volts  <b>277</b> 277 volts	<b>RGB</b> RGB	<b>VN</b> Very Narrow 6° <sup>(4)</sup>  <b>NS</b> Narrow Spot 10° <sup>(4)</sup>  <b>NF</b> Narrow Flood 20° <sup>(4)</sup>  <b>M</b> Medium 30° <sup>(4)</sup>  <b>FL</b> Flood 40° <sup>(4)</sup>  <b>WFL</b> Wide Flood 60° <sup>(4)</sup>  <b>NAS</b> Narrow Asymmetric <sup>(4)</sup>  <b>WW</b> Asymmetric Wallwash <sup>(4)</sup>	<b>LSLH</b> Linear spread lens horizontal distribution <sup>(6)</sup>  <b>LSLV</b> Linear spread lens vertical distribution <sup>(6)</sup>  <b>HL</b> Honeycomb louver <sup>(7)</sup>	<b>SM</b> Surface mount  <b>WM</b> Wall mount bracket with decorative cover  <b>WMNC</b> Wall mount bracket without decorative cover  <b>WAM6</b> Wall arm mount 6 in with decorative cover  <b>WAM6NC</b> Wall arm mount 6 in without decorative cover  <b>WAM12</b> Wall arm mount 12 in with decorative cover  <b>WAM12NC</b> Wall arm mount 12 in without decorative cover  <b>WAM18</b> Wall arm mount 18 in with decorative cover  <b>WAM18NC</b> Wall arm mount 18 in without decorative cover  <b>WAM24</b> Wall arm mount 24 in with decorative cover <sup>(9)</sup>  <b>WAM24NC</b> Wall arm mount 24 in without decorative cover <sup>(9)</sup>  <b>WMRJB</b> Recessed JBOX wall mount with decorative cover  <b>WMRJBNC</b> Recessed JBOX wall mount without decorative cover  <b>WAMRJB6</b> Recessed JBOX wall arm mount 6 in with decorative cover  <b>WAMRJB6NC</b> Recessed JBOX wall arm mount 6 in without decorative cover  <b>WAMRJB12</b> Recessed JBOX wall arm mount 12 in with decorative cover  <b>WAMRJB12NC</b> Recessed JBOX wall arm mount 12 in without decorative cover  <b>WAMRJB18</b> Recessed JBOX wall arm mount 18 in with decorative cover  <b>WAMRJB18NC</b> Recessed JBOX wall arm mount 18 in without decorative cover  <b>WAMRJB24</b> Recessed JBOX wall arm mount 24 in with decorative cover  <b>WAMRJB24NC</b> Recessed JBOX wall arm mount 24 in without decorative cover  <b>RPM4/1</b> Round pole mount 4 in  <b>RPM4.5/1</b> Round pole mount 4.5 in  <b>RPM5/1</b> Round pole mount 5 in  <b>RPM4/2</b> Round pole mount 4 in for two fixtures  <b>RPM4.5/2</b> Round pole mount 4.5 in for two fixtures  <b>RPM5/2</b> Round pole mount 5 in for two fixtures  <b>PLTU</b> Lumentech pole mount <sup>(10)</sup>  <b>TN2</b> Tenon adapter for 2 3/8 in O.D. pole  <b>TN4</b> Tenon adapter for 4 in O.D. pole  <b>SK</b>

					Stake mount <b>STM</b> Stud mount <sup>(11)</sup>
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**Notes:**

1. Consult factory for products that are BAA-approved (Buy American Act).
2. Consult factory for 100 volts.
3. Consult factory for color mix with Royal Blue.
4. Factory installed, not interchangeable on site.
5. Optical options are factory installed and cannot be changed in the field.
6. Not available with WFL, NAS and WW optics.
7. Not available with NAS and WW optics.
8. All mounting options (except for SM mounting) are interchangeable. Consult factory for details.
9. A cable length of 10 ft or greater must be specified.
10. Available for Lumentech poles with a square or round profile. A PLTU - Universal Yoke accessory must be ordered with the Lumentech pole for the Lumentech to fit with the PLTU mounting option. Refer to Lumentech specification sheet and installation instructions for more details.
11. For thru-wall mounting.

**How to order**

Finish	Control <sup>(15)</sup> <sup>(18)</sup>	Options	Certification	Cable Length <sup>(17)</sup> <sup>(23)</sup> <sup>(25)</sup>
<b>BK</b> Black Sandtex®  <b>BRZ</b> Bronze Sandtex®  <b>SI</b> Silver Sandtex®  <b>WH</b> Smooth white  <b>BKTX</b> Textured black  <b>BRZTX</b> Textured bronze non-metallic  <b>GRATX</b> Textured medium gray  <b>GRNTX</b> Textured green  <b>WHTX</b> Textured white  <b>CC</b> Custom color & finish <sup>(12)</sup> <sup>(13)</sup> <sup>(14)</sup>	<b>DMX/RDM</b> DMX/RDM enabled <sup>(16)</sup> <sup>(17)</sup>  <b>DALIT8</b> DALI-2 dimming Type 8 <sup>(19)</sup>	<b>CRC</b> Corrosion-resistant coating <sup>(20)</sup> <sup>(21)</sup>	<b>UL</b> UL compliant  <b>CE</b> CE compliant <sup>(22)</sup>	<b>3FT</b> 3 ft <sup>(17)</sup> <sup>(24)</sup>  <b>10FT</b> 10 ft  <b>20FT</b> 20 ft  <b>30FT</b> 30 ft  <b>50FT</b> 50 ft  <b>70FT</b> 70 ft  <b>100FT</b> 100 ft

**Notes:**

- 12. Lumenpulse offers a wide selection of RAL CLASSIC (K7) colors with a smooth texture and high-gloss finish. Please consult factory for a list of available K7 colors, other RAL textures and glosses, or to match alternate color charts. Final color matching results may vary.
- 13. Longer lead times can be expected for custom RAL color finishes.
- 14. Setup charges apply for RAL colors. Consult factory for details.
- 15. Lumentalk system is enabled with LDB-DMX accessory. DMX/RDM must be specified in the order code. See the typical wiring diagrams in the specification sheet for details.
- 16. A control box (CBX) and LumenID (LID) must be specified.
- 17. Maximum of 3 ft cable length for daisy chain DMX applications with CBX-DS.
- 18. A Lumentranslator 2 (LTL2) and LumentalkID (LIDL1) must be specified for Lumentalk applications. Consult Lumentranslator 2 and Lumentalk pages and specification sheets for details.
- 19. DALI-2 Type 8 controller required, provided by others.
- 20. Use only when exposed to salt spray. This option is not required for normal outdoor exposure.
- 21. Setup charges apply. Consult factory for details.
- 22. Consult European specification sheet and installation instructions for CE wiring information.
- 23. Not applicable to WMRJB, WMRJBNC and WAMRJB 6 in to 24 in mounting options (with or without decorative cover). Cable lengths for these mounting options are determined by the length of the mounting bracket.
- 24. Not available with WAM24 or WAM24NC mounting options.
- 25. UL fixtures specified with a Smooth white finish and a SM, WM, WMNC, or WAM 6 in to 24 in mounting option (with or without decorative cover) are provided with a white cable. A black cable is provided for all other fixture configurations.