Marked Agendas
Approved Minutes
Approved Reports

The October 2, 2014 Development Review Board Meeting Agenda and Minutes can be found at

http://www.scottsdaleaz.gov/boards/DRB

DEVELOPMENT REVIEW BOARD REPORT

Meeting Date:	October 2, 2014	Item No. 6
General Plan Element:	*Character and Design*	
General Plan Goal:	*Foster quality design that enhances Scottsdale as a unique southwestern desert community.*	

ACTION

Scottsdale Quarter - Block M Garage
6-DR-2014#2

Location: 15059 N. Scottsdale Rd.

Request:
1. Approval of the location for a public art installation on the east and south elevations of the Block M parking structure as part of the Cultural Improvement Program.
2. Approval of the building elevations relative to the addition of a 6th level to the parking garage structure.

OWNER

Glimcher Properties, LP
180 E. Broad Street
Columbus, OH 43215

ARCHITECT/DESIGNER

Nelsen Partners, Inc.
15210 N. Scottsdale Road
Scottsdale, AZ 85254

ENGINEER

David Evans & Associates, Inc.
4600 E. Washington
Phoenix, AZ 85034

APPLICANT CONTACT

Gwen Jarick
Nelsen Partners
480-949-6800

BACKGROUND

Zoning

Action Taken _____

This site was zoned Planned Regional Center (PRC) by Ordinance 3648, (cases 5-GP-2005 and 24-ZN-2005) approved by the City Council on October 24, 2005. On May 13, 2014 the City Council approved a zoning district map amendment for amended development standards to allow 90 feet of building height and additional floor area ratio on this site. The PRC zoning district allows a broad range of general merchandise and service uses including, but not limited to, retail, office, restaurants, bars, live entertainment, and residential. This district allows mixed-use development, as proposed with this project.

Context

Scottsdale Quarter is located on N. Scottsdale Road between E. Butherus Road on the south, N. 73rd Street on the east, and E. Greenway-Hayden Loop on the north. Scottsdale Quarter is a multi-building mixed-use development with a contemporary design style. Block M is located at the southeast corner of the overall Scottsdale Quarter development, on the northwest corner of E. Butherus Drive and N. 73 Street. This portion of the site is currently vacant, and is part of the final phase of Scottsdale Quarter, which was approved by the Development Review Board earlier this year with 6-DR-2014#2.

Adjacent Uses and Zoning

- North — Block L of Scottsdale Quarter, vacant, approved for a 6-story mixed-use building, zoned Planned Regional Center (PRC).
- South — Butherus Drive, farther south are office uses, zoned Industrial Park (I-1).
- East — Office and aviation related uses, zoned Industrial Park (I-1).
- West — 6-story multi-tenant building with retail/restaurant/parking (Scottsdale Quarter), zoned Planned Regional Center (PRC).

DEVELOPMENT PROPOSAL

Goal/Purpose of Request

There are two (2) requests included with this application. The first is approval of the location for the public art that is proposed on the south and east elevations of the parking structure building. In accordance with Section 1.902 of the Zoning Ordinance, the Development Review Board shall approve the location of public art provided in accordance with the Cultural Improvement Program. This art piece will be the second installation of public art within Scottsdale Quarter, the first being the stone benches by artist Larry Kirkland located in the quad. The parking structure on which the art will be located was approved by the Development Review Board earlier this year with case 6-DR-2014.

The proposed art piece by Joseph O'Connell is titled "Lenses" and consists of an illuminated architectural façade wrapping around the southeast corner of the garage structure. The art will span an area approximately 30 feet x 75 feet on the south elevation and 30 feet x 120 feet on the east elevation, tying together at the corner of the building. In addition to the merit of the piece as a work of art, it will also function as an integrated screen to shield the vehicles and interior elements of the parking structure. The proposed art concept has been reviewed and approved by the Scottsdale Cultural Council. Please see the detailed narrative and design concepts in Attachment 8 of this report.

The second request in this application is for the addition of a 6th level to the Block M parking garage

structure. The additional level will increase the height on this portion of the site by approximately 12 feet (from 63 feet to 74 feet-4 inches at the highest point). The design, color, and materials of the structure will all remain the same.

Neighborhood Communication

The City sent notices to property owners within 750 feet of the site, and the site was posted. As of the date of this report staff has not received any comments.

DEVELOPMENT REVIEW BOARD CRITERIA ANALYSIS

The proposed public art is contributing to the fulfillment of Scottsdale Quarter's participation in the Cultural Improvement Program, which requires that a minimum 1% of the project valuation be allocated to public art installations or in lieu payment to the Cultural Improvement Program. In addition to fulfillment of the Cultural Improvement Program, the architectural integration of the art into the building presents a creative solution to the zoning ordinance requirements for screening of the parking structure. The prominent location of the art at the intersection of E. Butherus Drive and N. 73rd Street allows a broad range of public accessibility, for both pedestrians and vehicles. The art piece will likely become a landmark for way finding in the airpark area, and is capable to feature a community interactivity component if desired.

The proposed 6th level addition to the garage structure remains consistent with the City Council approved Development Plan for Scottsdale Quarter, which allows up to 90 feet of building height in this location. The architecture of the structure remains consistent with the elevations that were approved by the Development Review Board with 6-DR-2014.

Development Information (for reference only)

Standard	**Development Project** (SQ overall) 23.52 net acres	**Development Site** (Block M only) 2.69 net acres
Existing Use	Mixed-use	Vacant
Proposed Use	Mixed-use	Mixed-use
Building Size	1,434,377 square feet	171,599 square feet
Floor Area Ratio Allowed (commercial only)	0.8, up to 1.0 w/ amended development standards	N/A
Floor Area Ratio Proposed (commercial only)	1.0	1.47
Building Height Allowed	60 feet, up to 90 w/ amend.	60 feet, up to 90 w/ amend.
Building Height Proposed	90 feet	90 feet

Parking Required	3,709 spaces	N/A (shared)
Parking Provided	3,794 spaces	N/A (shared)
Open Space Required	204,911 square feet Plus 5% (Block K) – 6,214 SF Plus 5% (Block L&M) – 13,327 SF Total: 224,452 square feet	29,195 square feet
Open Space Provided	306,166 square feet / 7.03 acres	30,028 square feet (at grade) 1,513 square feet (private)

OTHER BOARDS & COMMISSIONS

Scottsdale Cultural Council

The Scottsdale Cultural Council unanimously approved the public art proposal at their September 10, 2014 meeting.

STAFF RECOMMENDATION

Recommended Approach:

Staff recommends that the Development Review Board approve Scottsdale Quarter Block M per the attached stipulations, finding that the Development Review Criteria have been met.

RESPONSIBLE DEPARTMENT

Planning and Development Services
Current Planning Services

STAFF CONTACT

Bryan Cluff
Planner
480-312-2258
E-mail: bcluff@ScottsdaleAZ.gov

APPROVED BY

Bryan Cluff, Report Author — Date: 9/18/14

Steve Venker, Development Review Board Coordinator — Date: 9/18/14

Phone: 480-312-2831 E-mail: svenker@ScottsdaleAZ.gov

ATTACHMENTS

A. Stipulations
1. Applicant's Narrative
2. Context Aerial
2A. Close-Up Aerial
3. Zoning Map
4. Site Plan
5. Building Elevations (approved with 6-DR-2014)
6. Building Elevations (proposed)
7. Perspective
8. Art Proposal by Creative Machines
9. Scottsdale Cultural Council approval letter

Stipulations for the Development Review Board Application: Scottsdale Quarter - Block M Garage Case Number: 6-DR-2014#2

These stipulations are intended to protect the public health, safety, welfare, and the City of Scottsdale.

GOVERNANCE:

1. Except as stipulated below, all stipulations from 6-DR-2014 shall continue to apply to the site.

APPLICABLE DOCUMENTS AND PLANS:

2. Except as required by the Scottsdale Revised Code, the Design Standards and Policies Manual (DSPM), and the other stipulations herein, the site design and construction shall substantially conform to the following documents:
   a. Architectural elements, including dimensions, materials, form, color, and texture, shall be constructed to be consistent with the building elevations submitted by Nelsen Partners, Inc., with a City staff date of 8/29/14.
   b. The Public Art installation shall be in general conformance with the narrative description and "Art for Scottsdale Quarter" package prepared by Joe O'Connell and Creative Machines, with a City staff date of 8/29/14.

RELEVANT CASES:

Ordinance

A. At the time of review, the applicable Zoning and DRB cases for the site were: 5-GP-2005, 14-ZN-2005, 12-ZN-2012, 18-ZN-2013, 10-DR-2007, 10-DR-2007#2, 10-DR-2007#3, and 6-DR-2014.

SCOTTSDALE QUARTER

GLIMCHER
NELSEN PARTNERS, INC.
8/27/2014

PROJECT NARRATIVE BLOCK M ART LOCATION AND ADDITIONAL GARAGE LEVEL

This design review request is for an additional level to the already approved Block M garage at Scottsdale Quarter and the location of the art piece. Scottsdale Quarter encompasses 28.61 Gross AC of PRC zoning in the Scottsdale Airpark. Block M comprises 2.681 Ac. of the development. The property is located across the street from Kierland Commons, which is on the west side of Scottsdale Rd in the City of Phoenix. Scottsdale Quarter has been successful in fulfilling the vision it created when the property was originally rezoned back in 2005. The current site has completed Phases I & II of the vision for Scottsdale Quarter. Block K has been approved and is under construction as the first piece of the Phase III development. Phase III Block M is the second portion to be completed and will be the basis for our design review request.

Our request will allow for the integrated garage to accommodate the parking load for blocks M and L. This additional level does not adversely affect the design or surrounding development. This request is in compliance with the approved zoning case 18-ZN-2014.

The design will be consistent with the Scottsdale Quarter Design Guidelines.

The buildings will have vertical and horizontal façade articulation along with a color and material palette that reflects the high standards of the existing buildings on site.

The southeast corner of the garage will be cladded in an art piece as part of the cultural improvement contribution. The art piece will be designed and installed by an artist that is approved by the art council. The art council has approved this location and Stage I of the art submittal.

ATTACHMENT #1

Scottsdale Quarter Block M Garage and Public Art

6-DR-2014#2

ATTACHMENT #2

Scottsdale Quarter Block M Garage and Public Art

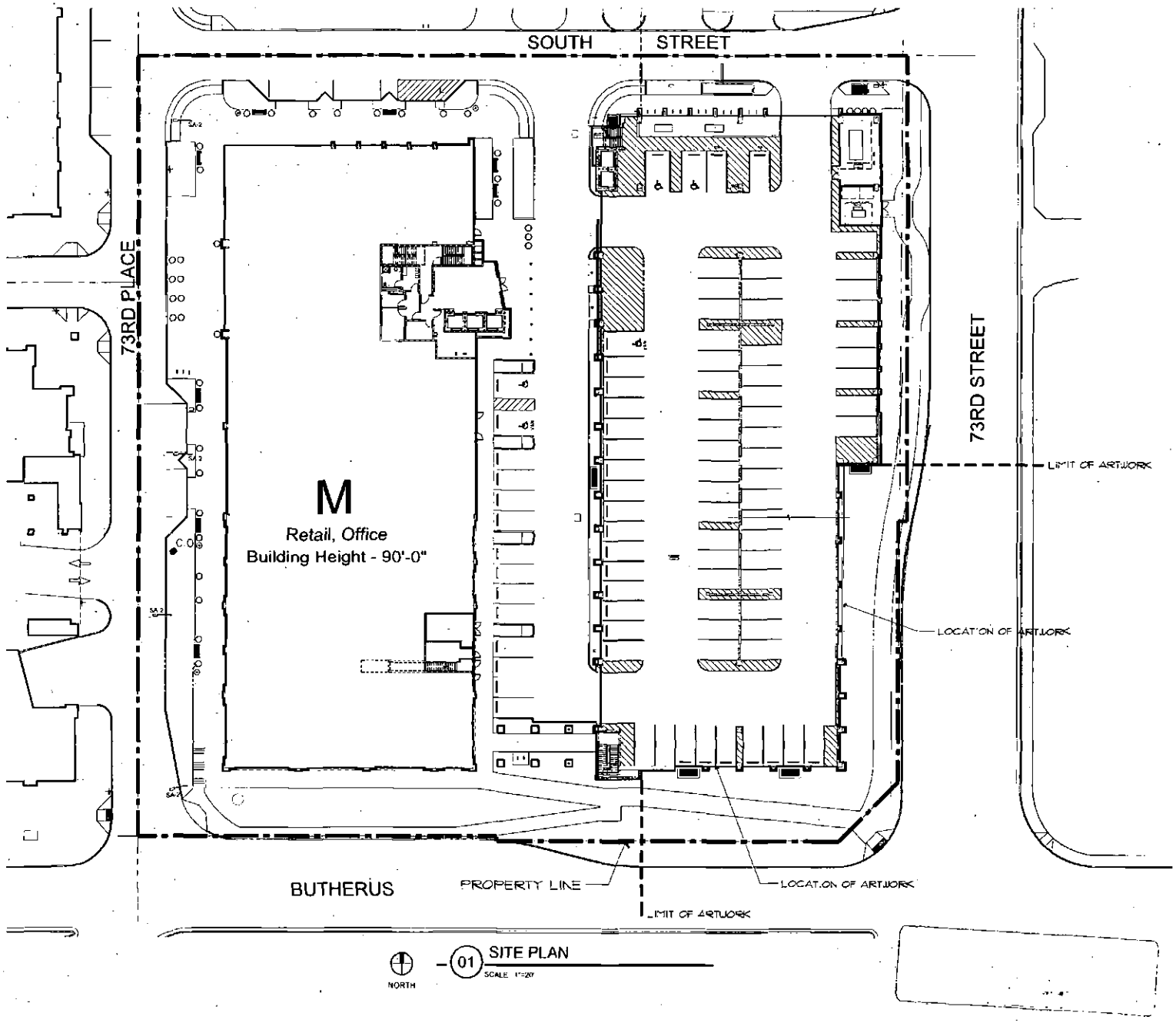
6-DR-2014#2

ATTACHMENT #2A

Zoning Map

6-DR-2014#2

ATTACHMENT #3



ATTACHMENT #4

NelsenPartners
Nelsen Partners, Inc.
Architecture Planning Interiors
Austin - Scottsdale
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Scottsdale, Arizona 85254
tel 480.949.6800
fax 480.949.6801
www.nelsenpartners.com

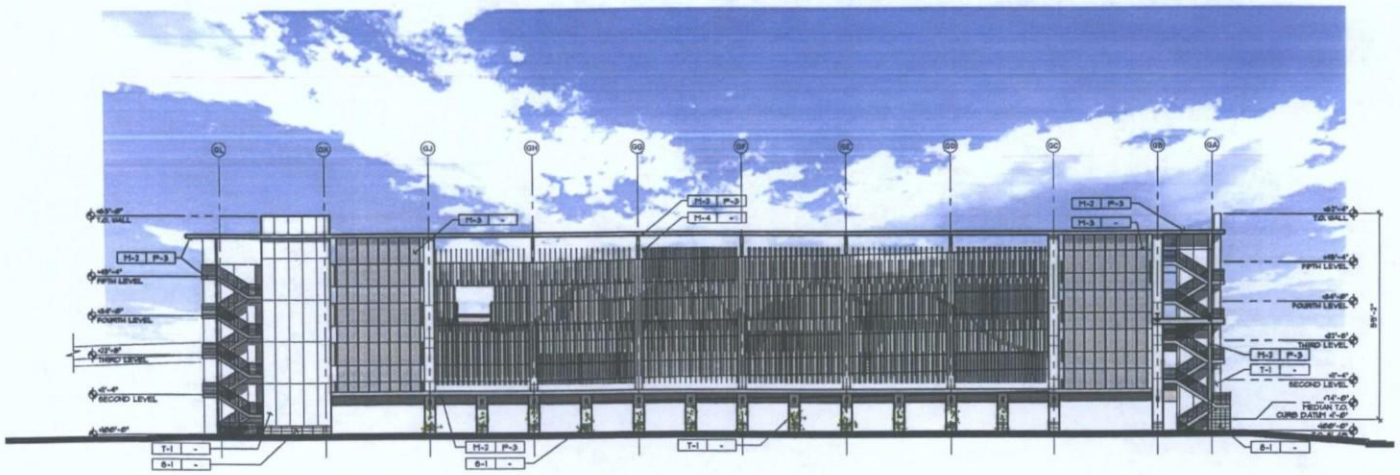
PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING

Scottsdale Quarter Block M
15059 N. Scottsdale Rd.
Scottsdale, AZ 85260

Date
August 28, 2014

Project No.
31374

A110
SITE PLAN



02 GARAGE - WEST ELEVATION
SCALE: 1/16" = 1'-0" REF:

01 GARAGE - EAST ELEVATION
SCALE: 1/16" = 1'-0" REF:

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SCOTTSDALE QUARTER
PHASE III BLOCK M
N. 73RD STREET AND E. BUTHERUS ROAD
SCOTTSDALE, ARIZONA

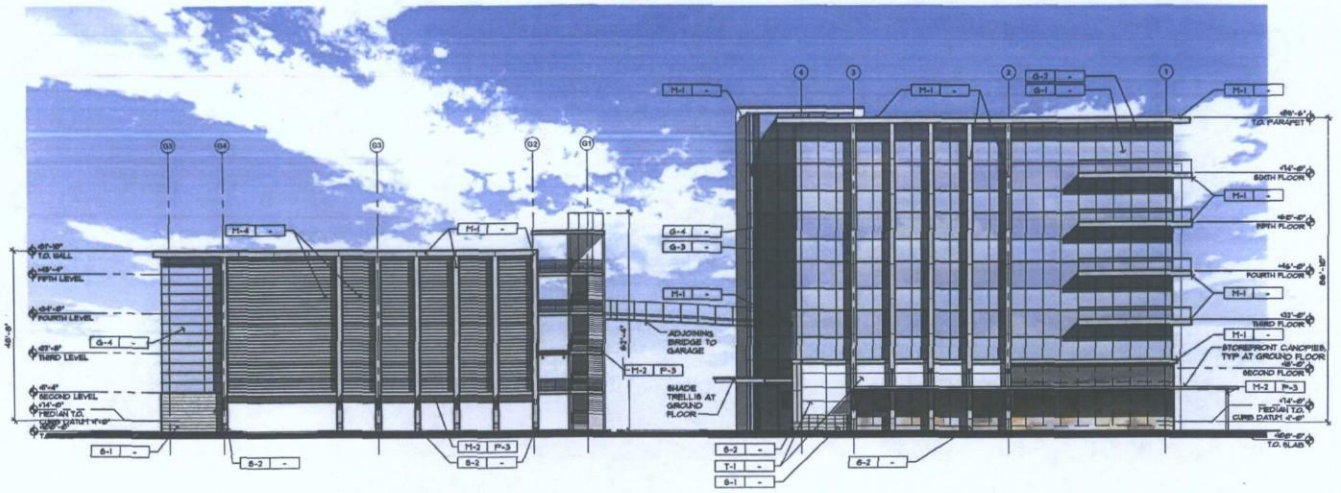
Date
February 22, 2014
Revisions
April 4, 2014
2nd City Submittal

Project No.
31374

A303
EXTERIOR ELEVATIONS

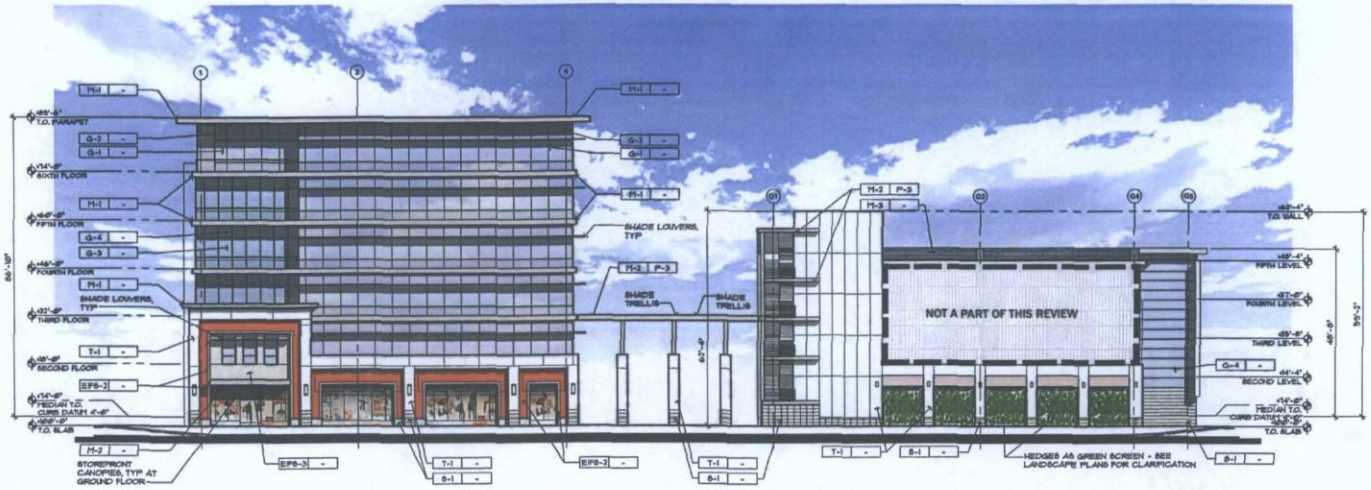
EXISTING - APPROVED w/ 6-DR-2014

ATTACHMENT #5



02 NORTH ELEVATION

SCALE: 1/16" = 1'-0" REF:



01 SOUTH ELEVATION

SCALE: 1/16" = 1'-0" REF:

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SCOTTSDALE QUARTER
PHASE III BLOCK M

N. 73RD STREET AND E. BUTHERUS ROAD
SCOTTSDALE, ARIZONA

Date
February 22, 2014
Revisions
April 4, 2014
2nd City Submittal

Project No.
31374

A302
EXTERIOR ELEVATIONS

EXISTING - APPROVED w/ 6-DR-2014

MATERIALS SCHEDULE

P-1: BENJAMIN MOORE 971 "OLYMPIC MOUNTAINS"
P-2: BENJAMIN MOORE 1031 "LA PALOMA GRAY"
M-1: COMPOSITE METAL PANEL - "SILVERSMITH"
M-2: PAINTED MISC. STRUCTURAL STEEL P-3
M-3: PERFORATED METAL
M-4: PAINTED EXTRUDED ALUMINUM ANGLES P-1
T-1: LARGE PORCELAIN WALL PANEL - WHITE
S-1: LIMESTONE VENEER "LIMERERS" HONED
S-2: LIMESTONE VENEER " PEWTER MIST" HONED
EIFS 2: BENJAMIN MOORE 1003 "KITTEN WHISKERS"
EIFS 3: BENJAMIN MOORE 990 "ASHEN TAN"
EIFS 4: BENJAMIN MOORE HC-57 "ASHLEY GRAY"
G-1: PACIFICA INSULATED GLASS- PACIFICA ON SOLARBAN 60
G-2: SPANDREL GLAZING UNIT - PACIFICA ON OPACI COAT 300
G-3: SOLAR GRAY INSULATED GLASS- SOLARGRAY ON SOLARBAN 60
G-4: SPANDREL GLAZING UNIT- SOLARGRAY ON OPACI COAT 0770

02 GARAGE - WEST ELEVATION
SCALE: 1/16" = 1'-0" REF:

01 GARAGE - EAST ELEVATION
SCALE: 1/16" = 1'-0" REF:

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SCOTTSDALE QUARTER
PHASE III BLOCK M
N. 73RD STREET AND E. BUTHERUS ROAD
SCOTTSDALE, ARIZONA

Date
February 22, 2014
Revisions
April 4, 2014
2nd City Submittal

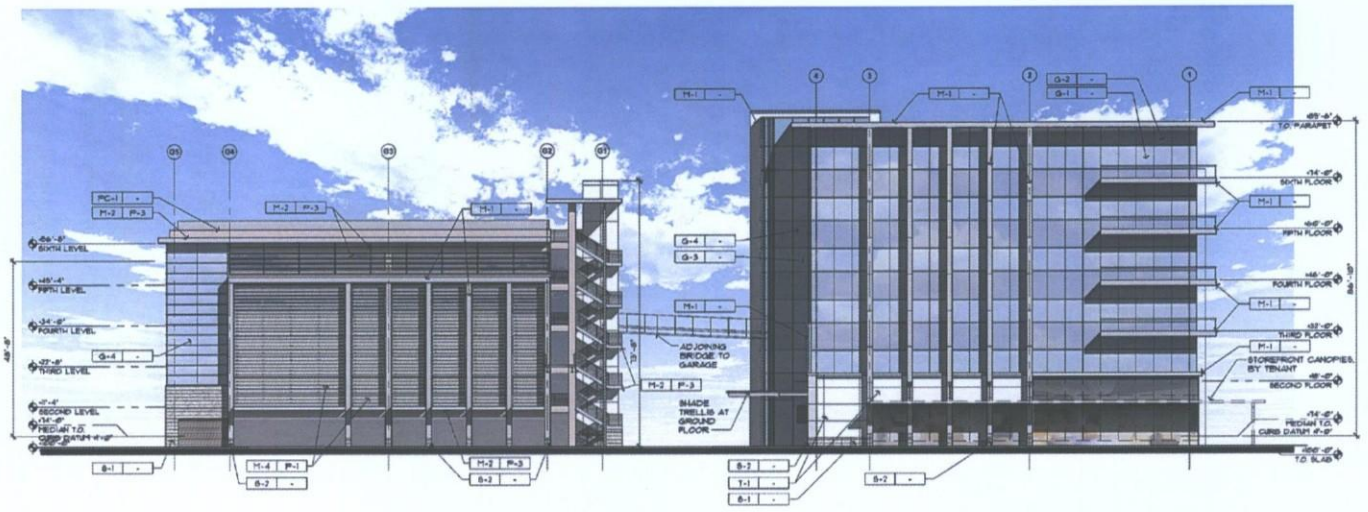
Project No.
31374

A303
EXTERIOR ELEVATIONS

ATTACHMENT #6

MATERIALS SCHEDULE

P-1: BENJAMIN MOORE 571 "OLYMPIC MOUNTAINS"
P-3: BENJAMIN MOORE 1581 "LA PALOMA GRAY"
M-1: COMPOSITE METAL PANEL - "SILVERSMITH"
M-2: PAINTED MISC. STRUCTURAL STEEL P-3
M-3: PERFORATED METAL
M-4: PAINTED EXTRUDED ALUMINUM ANGLES P-1
T-1: LARGE PORCELAIN WALL PANEL - WHITE
S-1: LIMESTONE VENEER "LUEDERS" HONED
S-2: LIMESTONE VENEER " PEWTER MIST" HONED
EIFS 3: BENJAMIN MOORE 1063 "OTTEN WHISKERS"
EIFS 3: BENJAMIN MOORE 996 "ASHEN TAN"
EIFS 4: BENJAMIN MOORE HC-87 "ASHLEY GRAY"
G-1: PACIFICA INSULATED GLASS- PACIFICA OH SOLARBAN 60
G-2: SPANDREL GLAZING UNIT - PACIFICA OH OPACI COAT 300
G-3: SOLAR GRAY INSULATED GLASS- SOLARGRAY OH SOLARBAN 60
G-4: SPANDREL GLAZING UNIT- SOLARGRAY OH OPACI COAT 6779



02 NORTH ELEVATION

SCALE: 1/16" = 1'-0" REF:

01 SOUTH ELEVATION

SCALE: 1/16" = 1'-0" REF:

NelsenPartners

Nelsen Partners, Inc.
Architecture Planning Interiors

Austin - Scottsdale

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SCOTTSDALE QUARTER PHASE III BLOCK M

N. 73RD STREET AND E. BUTHERUS ROAD
SCOTTSDALE, ARIZONA

Date
February 22, 2014

Revisions
April 4, 2014
2nd City Submittal

Project No.
31374

A302
EXTERIOR ELEVATIONS

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PRELIMINARY

NOT FOR
CONSTRUCTION
OR
RECORDING

SCOTTSDALE QUARTER
PHASE III BLOCK L & M

N. 73RD STREET AND E. BUTHERUS ROAD
SCOTTSDALE, ARIZONA

Date
August 27, 2014

Project No.
31374

A308
AERIAL VIEW

ATTACHMENT #7

Creative Machines

3113 E. Columbia St.
Tucson AZ 85714
toll free 800 861 7937
local 520 294 0939
fax 520 294 0848
www.creativemachines.com

August 27, 2014

Bryan Cluff
City of Scottsdale Planning Department
7447 E. Indian School Rd, Suite 105
Scottsdale AZ 85251

Thank you for sharing the opportunity to create art for Scottsdale Quarter. Let me share a bit about my company and our concept for the garage screening at Scottsdale Quarter.

Creative Machines is my design and fabrication company and I consider all 19 employees my collaborators. Our work often involves the interplay of nature and technology and we are strong advocates of art that is beautiful at first glance but yields deeper rewards with sustained engagement. Because we do both design and fabrication under one roof we can move easily from the conceptual to the material and back again. We work through an iterative process with extensive prototyping pushing the boundaries of existing fabrication practices. A palette of steel, acrylic and colored light allows us to create unique effects. In the acrylic pieces we employ the contrast between a weightless translucent form during the day and a colorful glowing object at night. In the steel pieces we use perforation and projection to transform the surrounding space into an illuminated landscape. Light is the connective thread that runs through our work, and we believe in light's emotive power and its ability to enliven a space. Many of our pieces are located in harsh environments—direct sunlight, high humidity and unsupervised public access. For this reason we use materials and fabrication methods that are meant to endure.

Our proposal for Scottsdale Quarter is called *Lenses*.

Description:
Lenses is an illuminated architectural façade wrapping around the parking garage of the Scottsdale Quarter. The piece is a subtle image operating at a monumental scale created by a pattern of CNC-cut polycarbonate panels offset from each other and bolted to a steel sub-frame that extends from the concrete parking structure. The circle pattern is an abstraction based on the concept of optical lenses, which transmit and reflect light pulling images into focus or blurring them into fields of color. We also drew inspiration from the graphic quality of the circles in the Scottsdale Quarter logo. During the day, the art will manifest the sense of a lens through gradients of color reflecting motion and change captured in two dimensions resulting in a colorful visual landscape. At night, the façade will come alive with an array of computer-driven LED wall washers, which act as a lens transforming information into dynamic panorama of color.

ATTACHMENT #8

Site Integration:
The proposed artwork fits into the Scottsdale Quarter's overall design themes by enhancing the goals of creating a forward looking space with a more contemporary and sophisticated style. Polycarbonate panels, steel, and kaleidoscopic lighting present a varied material palette, which reflects a more modern architectural expression like the rest of the Scottsdale Quarter. For this piece, we worked within the confines of the garage façade since the art council had already approved that location. By covering the parking garage, the art is able to transform a mundane piece of infrastructure into a visually rich piece of art that draws interest and attention to the site while maintaining the style of the surrounding buildings.

Functionality:
The art will function as a contemporary landmark within Scottsdale Quarter aiding in pedestrian and motorist wayfinding during both the day and at night. The colored panels will shade and diffuse any direct sunlight entering the garage during the day, and the glowing façade will add ambient light for increased visibility at night. The panels will be spaced to allow for adequate airflow to move through the garage. As the artwork will be integrated into the building's façade there shouldn't be any issues related to accessibility.

Lighting and Electronics:
At night, we propose using an array of computer-driven LED wall washers behind the colored polycarbonate to light the scrim brilliantly from behind. The array will be spaced along a grid—26 sections long by 3 sections high— effectively creating a low-resolution screen across the façade.

We propose to choose a series of images—such as images of Scottsdale that have been contributed by the public—and have the entire scrim 'move' over these images like a lens gliding over a large surface. The programmed 'lens' changes these images into abstract fields of color. We have posted a video demonstrating the effect here:

http://youtu.be/mxdH248-wQ8

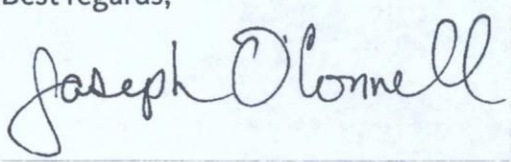
Interactivity:
One option for engaging the community would be to solicit images from the visitors to the Scottsdale Quarter or develop a partnership with Scottsdale Public Art to gather images thereby making the façade a 'lens' on the greater community of Scottsdale and its visual culture.

Another option for community engagement would be to post a dozen images on a poster or a website and allow the public to guess which images are being displayed on particular nights.

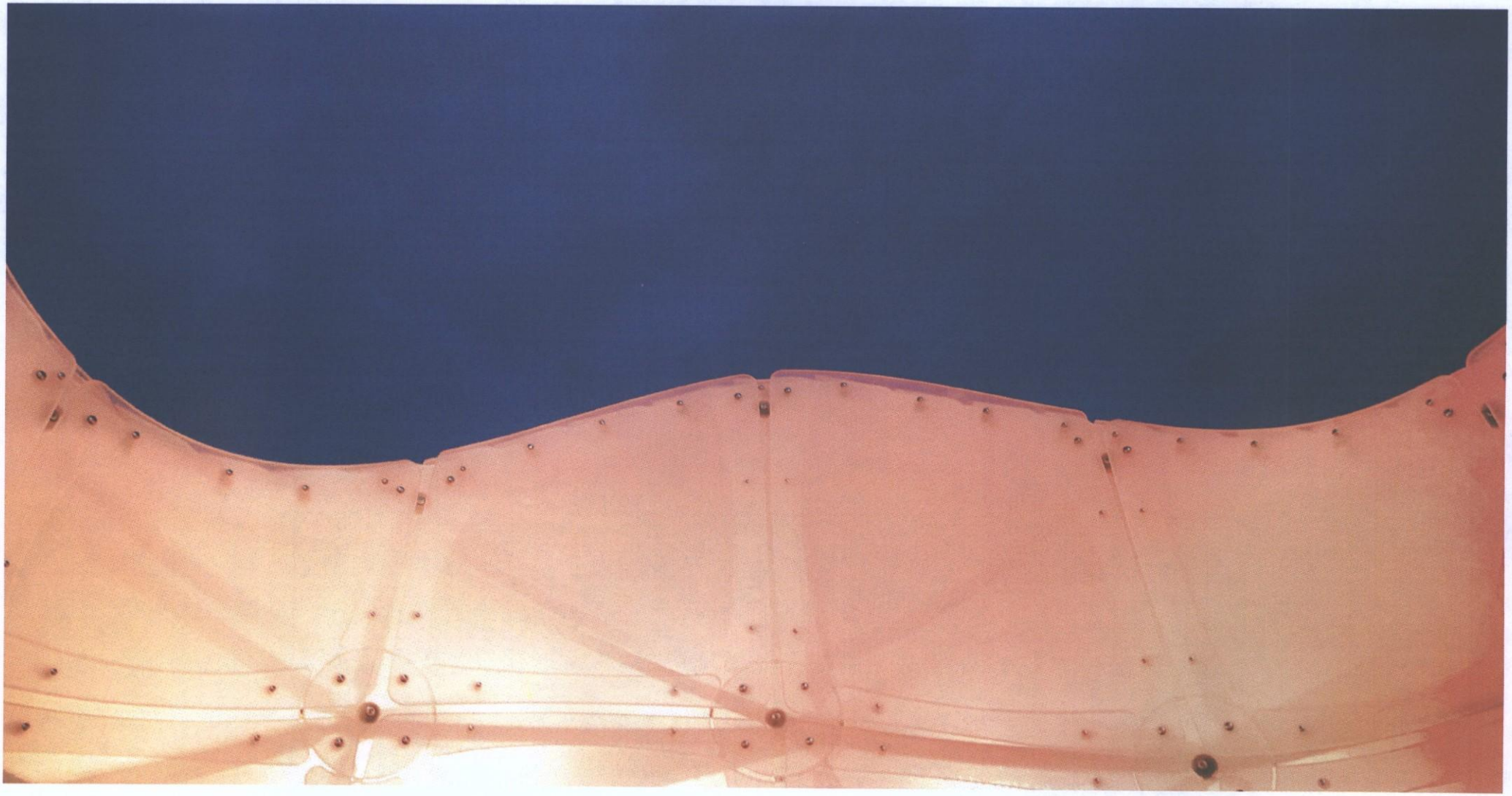
We bring to this project ten years of experience creating LED arrays in permanent outdoor artworks. In all cases, we look for meaningful programming to drive the moving light patterns. In other pieces, we have created hours of light sequences referencing the four seasons, the aurora borealis, and musical scores.

In addition, we have employed interactive sensors to drive LED arrays. An interactive sensor could be incorporated into this project using pedestrian traffic or by training a camera on cars entering the garage. Using the timing and colors of these objects, their movement could drive an evolving two-dimensional pattern on the scrim.

Best regards,



Joseph O'Connell



Art for Scottsdale Quarter

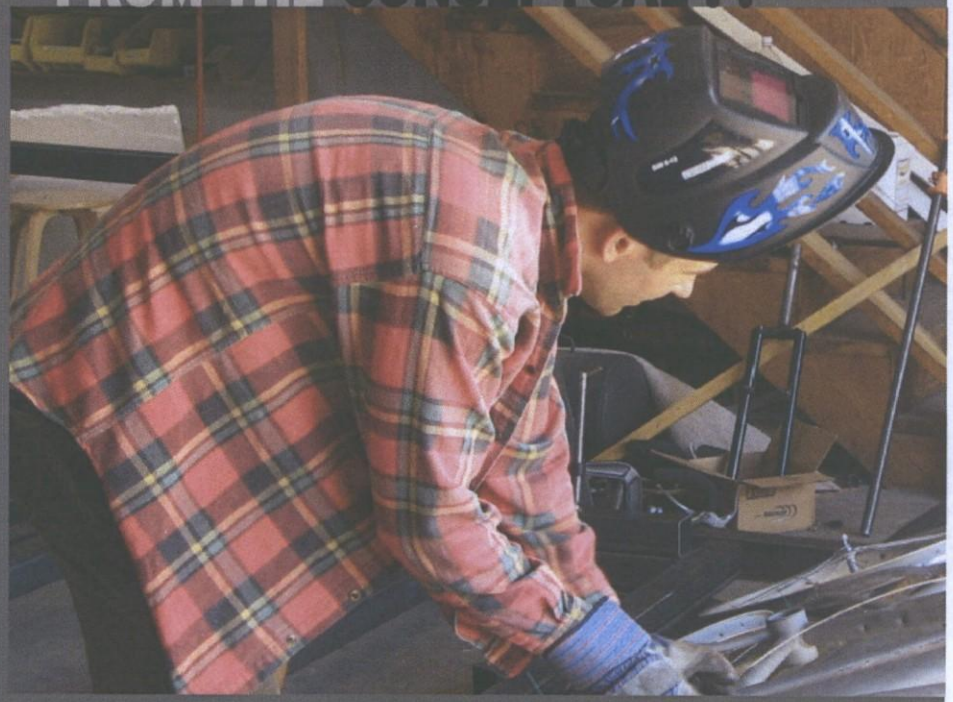
Concept Proposal for Garage Screening

Joe O'Connell

Creative Machines

3113 East Columbia Street
Tucson, AZ 85714 USA
toll free 800 861 7937
local 520 294 0939
fax 520 294 0848
www.creativemachines.com

FROM THE CONCEPTUAL . .



. . . to the material and back again.

My goal is to create new ways to live with art—ways in which art solves problems, enriches the human experience and creates an atmosphere of participation, curiosity, and connection to community. I use a remarkable diversity of forms and materials but the common thread is my belief that an artpiece is not complete until other people have made it their own through interaction.

I have created sculptures that react to people's touch, their heartbeat, their waving hands, their shadows, and the movies they create on their cellphones. But the concept of interactivity goes deeper than technology. It encompasses careful analysis of sight lines, siting sculptures at ground level, shapes that invite exploration and forms that encourage people to interact with each other. I like to leave room for people to bring their own meaning to pieces in significant ways.

Creative Machines is my design and fabrication company and I consider its 19 employees my collaborators. A palette of stainless steel, acrylic and colored light allows us to create powerful public experiences. In the acrylic pieces we employ the contrast between a weightless form during the day and a heavily colored object at night. In the metal pieces we use perforation and projection to transform the surrounding space into an illuminated landscape. We often draw upon light's emotive power and its ability to enliven a space.

Many of our pieces are located in harsh environments - direct sunlight, high humidity and unsupervised public access. For this reason we use materials and fabrication methods that are meant to endure.

Thank you for considering us for this commission.

ARTIST BIO & RESUME

BIOGRAPHY

Joe grew up making things and turned that into a career. After a long liberal arts education that spanned four universities he began working for science museums where he designed and built exhibits. He founded Creative Machines Inc in 1995 to design and fabricate interactive exhibits for museums around the world. He began making public art in 2002 in order to reach new audiences.

EMPLOYMENT

OWNER, 12/97 - present
Creative Machines Inc. is my 14,000 square-foot fabrication facility in Tucson, AZ, where I employ 16 artists, designers, engineers and craftspeople. Our shop is set up to support comprehensive prototyping and fabrication. Smart, inquisitive people and extensive CNC capabilities give us the ability to explore innovative materials and processes. We design and fabricate every project in-house. We've created and installed public art and exhibits for clients throughout the world.

INVENTOR in RESIDENCE, 6/95-9/96
Inventure Place - Akron, Ohio
Over two summers, I developed exhibits on-site, involving visitors and staff, and kept a keen eye on how visitors used the mix of historical and interactive exhibits.

EXHIBIT DEVELOPER, 6/93-6/95
Hands On!, Inc. - St. Petersburg, Florida
I played a major role in a two year project to master plan, prototype, design, fabricate and install interactive exhibits about creativity and invention for Inventure Place: Home of the National Inventors Hall of Fame.

EXHIBIT PROGRAM DEVELOPER, 9/91-10/93
Liberty Science Center - Jersey City, New Jersey.

STAFF SCIENTIST, 8/90-8/91
Science North - Sudbury, Ontario, Canada.

EXHIBITIONS/PUBLICATIONS/AWARDS

Accel Design Conference, 4/2014
Bike Chandeliers, San Francisco, CA
Mondo*Arc Magazine, 10/2013
Art & Design Profile, Issue #75
Installation Magazine, 7/2013
"Under the Bridge with Ballroom Luminoso"
The Atlantic Cities, 5/2013
Mark Byrnes, "A Public Art Installation Bridges the Gap Created by an Overpass."
Transformative Design Award, 10/2013
A SXSW Eco 'Place By Design' Award for Ballroom Luminoso
Spark! Mesa's Festival of Creativity, Spring 2013
Seed Pod, Mesa Arts Center, Mesa, Arizona
WHOA Magazine, Fall 2012
Keel, Michael. "Two Artists, One Heart." 78-82.
Chalk the Block Festival, 2012
Seed Pod, Downtown San Antonio, Texas
Glow, 2005-2008, 2012
Seed Pod, Triangle Ranch, Oro Valley, Arizona
AfterGlow, 2010
Seed Pod, Club Congress, Tucson, Arizona
All Souls Procession, 2010
Seed Pod, Downtown Tucson, Arizona
Firestone Gallery, 2010
Bike Chandeliers, East Hampton, New York
Sculpture Magazine, 5/2010
SEED[pop!], Vol. 29 No. 4
Artistic Hot-Dip Galvanizing Excellence Award, 2009
for Wondrous, Marana, Arizona
Sculpture Magazine, 1/2010
Bike Church, Vol. 29 No. 1
Love of Machines, 1-2/2005
Joseph Gross Gallery, University of Arizona. Solo show featured nine of my interactive sculptures.

EDUCATION

UNIVERSITY of CALIFORNIA at SAN DIEGO, 9/89-6/93, Graduate Program in Sociology/Science Studies. Published extensively in history and sociology of science.

PRINCETON UNIVERSITY, 9/91-6/92, Graduate Program in History of Science. Visiting scholar supported by NSF Graduate Research Fellowship.

UNIVERSITY of CHICAGO, 9/87-6/89 , History, Philosophy, and Social Studies of Science and Medicine. Received B.A. with highest honors, Phi Beta Kappa, Dean's List.

RUTGERS UNIVERSITY, 9/85-6/87, Rutgers College Honors Program. Double-majored in physics and philosophy. Received an NSF undergraduate grant for research in statistical physics over summer 1987.

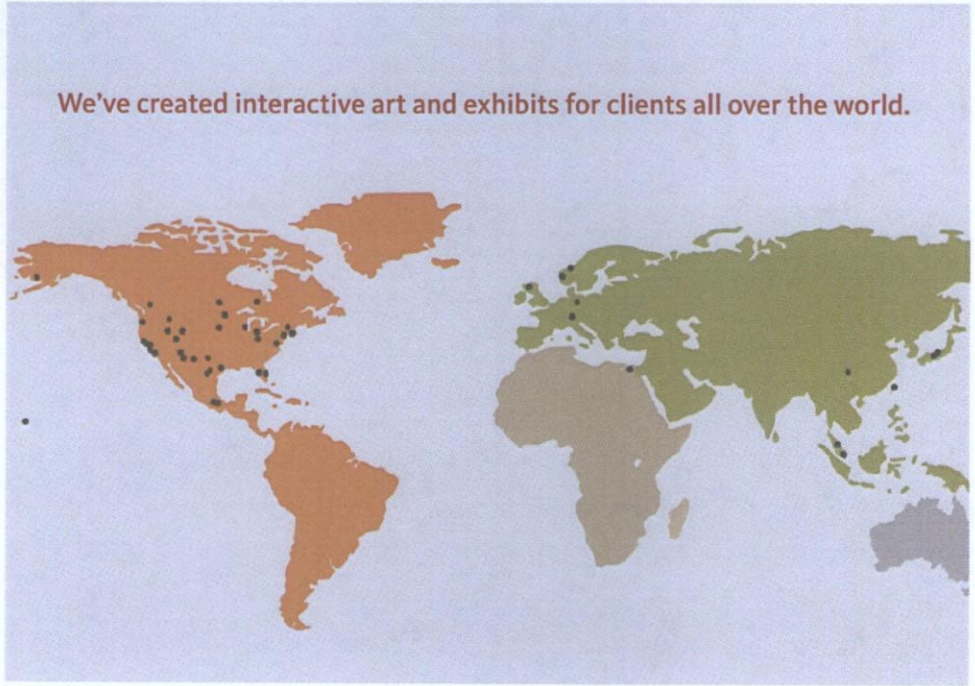
ABOUT CREATIVE MACHINES

CREATIVE MACHINES

Creative Machines is 19 artists, engineers and skilled craftspeople guided by a shared vision of awesomeness. Our 14,000 s.f. shop in Tucson, Arizona is devoted entirely to pushing the boundaries of public art and interactive exhibits through comprehensive prototyping and fabrication. Smart, inquisitive people and extensive capabilities in electronics, CNC machining and 3D forming give us the ability to explore pioneering materials and processes.

Since 1995 Creative Machines has created and installed public art and exhibits for clients throughout the world, doing about $1.6M of work annually.

We design and fabricate all of our own public art projects. Because we do all of the work in-house, we can prototype ideas extensively during the design process and can respond quickly to whatever obstacles and opportunities arise during fabrication. With comprehensive resources under one roof, we can extend a consistency of vision to all aspects of a project.



SELECT PROJECTS:

Public Art Museums

Elipsis, Walnut Creek, CA, currently commissioned $200,000.

Bosque, District 9 Library, San Antonio, TX, w/ Blessing Hancock, currently commissioned $100,000.

Piole Kabuto, Piole, Himeji, Japan, 2014, $85,000.

Texas Rising, Texas Tech University, Lubbock, TX w/ Blessing Hancock, currently commissioned, $485,000.

Untitled, Pantano Wash, Tucson, AZ, w/ Blessing Hancock, currently commissioned $99,000.

Camaraderie, Department of Veterans Affairs, Palo Alto, CA, w/ Blessing Hancock, currently commissioned, $300,000.

Electrofish, Rockville, MD, w/ Blessing Hancock, currently commissioned, $200,000.

Small Talk About the Weather, Oklahoma City, OK, w/ Blessing Hancock, currently commissioned, $185,000.

Pinwheels, Alexian Brothers Women & Children's Hospital, Hoffman Estates, IL, currently commissioned, $105,000.

On Display, Denver, CO, w/ Blessing Hancock, currently commissioned, $250,000.

Ballroom Luminoso, San Antonio, TX, 2013, w/ Blessing Hancock, $100,000.

Fish Bellies, Texas State University, San Marcos, TX, w/ Blessing Hancock, 2013, $250,000.

Heart Beacon, Emergency Coordination Center, Portland, OR, w/ Blessing Hancock, 2013, $150,000.

Line and Sky, The CommonLinks, Shreveport, LA, w/ Blessing Hancock, currently commissioned, $750,000.

Chinook Arc, Beltline Park, Calgary, Alberta, Canada, w/ Blessing Hancock, 2014, $500,000.

Brilliance, Palo Alto, CA, w/ Blessing Hancock, 2014, $200,000.

Cyclorama, University of Central Florida, Orlando, FL, w/ Blessing Hancock, 2012, $130,000.

Empire of Giants, Dallas, TX, w/ Blessing Hancock, currently commissioned, $150,000.

Origo Environment Sphere, Inspira, Sarpsborg, Norway, w/ Blessing Hancock, 2011, $35,000.

Utah Bit and Mine, Midvale, UT, w/ Blessing Hancock & Nina Borgia-Aberle, 2011, $130,000.

Seed Pods, Tinsletown, The Woodlands, TX, w/ Blessing Hancock, currently commissioned, $325,000.

Cocoon, Tucson, AZ, w/ Blessing Hancock & Nina Borgia-Aberle, 2014, $200,000.

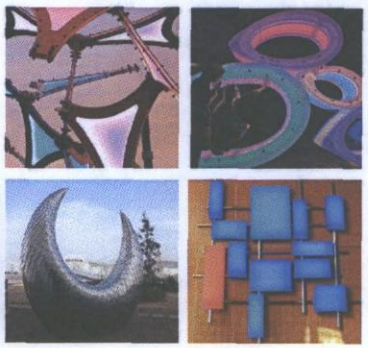
Wet Wheel, Tucson, AZ, currently commissioned, $100,000.

Wandering Stars, Tucson, AZ, w/ Blessing Hancock, 2014, $130,000.

Bends Towards Justice, MLK Tower at Depot Plaza, Tucson, AZ, currently commissioned, $170,000.

SEED[pop!], Public Art for the Solar Decathlon, Washington D.C., w/ Blessing Hancock, 2009, $25,000.

Toby, Scott Avenue Renovation, Tucson, AZ, 2009, $75,000.



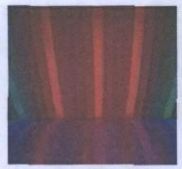
Bike Church, Barrio Anita Neighborhood, Tucson, AZ, w/ Blessing Hancock, 2009, $90,000.

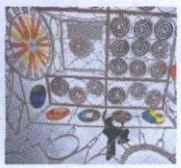
Public Drums, Tucson, AZ, 2008, $40,000.

Wondrous, Wheeler Taft Abbett Sr. Public Library, Marana, AZ, 2008, $100,000.

Color Factory, Discovery Gateway, Salt Lake City, UT, 2006, $130,000.

Desert O, Luminarias del Pueblo, Tucson, AZ, 2004, $75,000.





Children's Museum of Austin, 2013, $531,500.

Inspiria, Sarpsborg, Norway, 2011, $405,275.

Pusat Sains Negara, *Kuala Lumpur., 2010, $161,000.*

Durango Discovery Museum, Durango, Colorado, 2010, $125,000.

Science Museum of Minnesota, St. Paul, MN, 2010, $80,000.

The United Nations, New York, NY, 2009, $27,500.

Adventure Science Center, Nashville, TN, 2009, $46,000.

Anchorage Museum, Anchorage, Alaska, 2008, $364,150.

Alqanater Children's Museum, Cairo, Egypt, 2008, $125,000.

Vitenfabrikken, Sandnes, Norway, 2008, $52,000.

Science Centre Singapore, Singapore, 2008, $202,000.

NTU Hospital, Taiwan, 2008, $110,000.

Don Harrington Discovery Center, Amarillo, Texas, 2008, $125,000.

VILVITE, Bergen, Norway, 2008, $192,500.

The Manitoba Museum, Winnipeg, Manitoba, Canada, 2008, $61,500.

Exploratorium, San Francisco, CA, 2008-2014, $68,000.

Kendall Healthcare, Ithaca, NY, 2008, $48,000.

Liberty Science Center, Jersey City, New Jersey, 2007, $373,277.

Children's Museum of Utah, Salt Lake City, Utah, 2006, $130,000.

Bishop Museum, Honolulu, Hawaii, 2005-2010, $586,500.

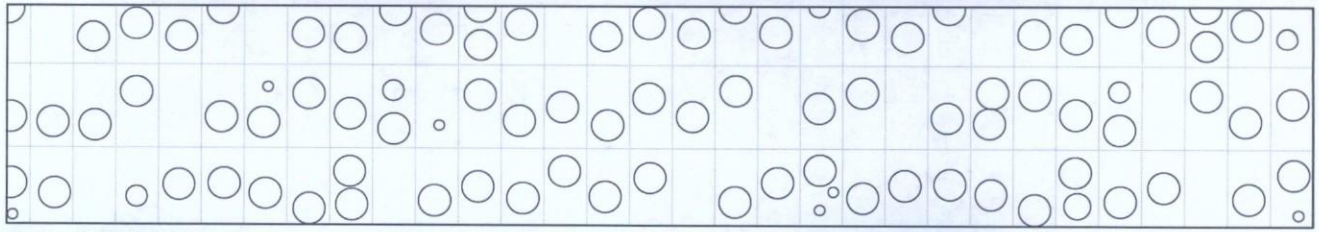
Complete references for all projects available upon request.

LENSES

Description:
Lenses is an illuminated architectural façade wrapping around the parking garage of the Scottsdale Quarter. The piece is a subtle image operating at a monumental scale created by a pattern of CNC-cut polycarbonate panels offset from each other and bolted to a steel sub-frame that extends from the concrete parking structure. The circle pattern is an abstraction based on the concept of optical lenses, which transmit and reflect light pulling images into focus or blurring them into fields of color. We also drew inspiration from the graphic quality of the circles in the Scottsdale Quarter logo. During the day, the art will manifest the sense of a lens through gradients of color reflecting motion and change captured in two dimensions resulting in a colorful visual landscape. At night, the façade will come alive with an array of computer-driven LED wall washers, which act as a lens transforming information into dynamic panorama of color.

Site Integration:
The proposed artwork fits into the Scottsdale Quarter's overall design themes by enhancing the goals of creating a forward looking space with a more contemporary and sophisticated style. Polycarbonate panels, steel, and kaleidoscopic lighting present a varied material palette, which reflects a more modern architectural expression like the rest of the Scottsdale Quarter. For this piece, we worked within the confines of the garage façade since the art council had already approved that location. By covering the parking garage, the art is able to transform a mundane piece of infrastructure into a visually rich piece of art that draws interest and attention to the site while maintaining the style of the surrounding buildings.

Functionality:
The art will function as a contemporary landmark within Scottsdale Quarter aiding in pedestrian and motorist wayfinding during both the day and at night. The colored panels will shade and diffuse any direct sunlight entering the garage during the day, and the glowing façade will add ambient light for increased visibility at night. The panels will be spaced to allow for adequate airflow to move through the garage. As the artwork will be integrated into the building's façade there shouldn't be any issues related to accessibility.



South Elevation

East Elevation

LENSES

LIGHTING AND ELECTRONICS:

At night, we propose using an array of computer-driven LED wall washers behind the colored polycarbonate to light the scrim brilliantly from behind. The array will be spaced along a grid—26 sections long by 3 sections high— effectively creating a low-resolution screen across the façade.

We propose to choose a series of images—such as images of Scottsdale that have been contributed by the public—and have the entire scrim 'move' over these images like a lens gliding over a large surface. The programmed 'lens' changes these images into abstract fields of color. We have posted a video demonstrating the effect here: http://youtu.be/eFgk0RwLV24

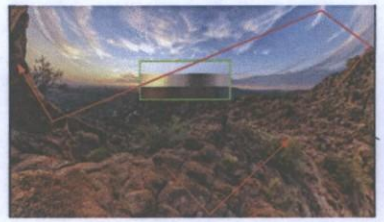
INTERACTIVITY:

One option for engaging the community would be to solicit images from the visitors to the Scottsdale Quarter or develop a partnership with Scottsdale Public Art to gather images thereby making the façade a lens on the greater community of Scottsdale and its visual culture.

Another option for community engagement would be to post a dozen images on a poster or a website and allow the public to guess which images are being displayed on particular nights.

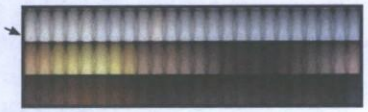
We bring to this project ten years of experience creating LED arrays in permanent outdoor artworks. In all cases, we look for meaningful programming to drive the moving light patterns. In other pieces, we have created hours of light sequences referencing the four seasons, the aurora borealis, and musical scores.

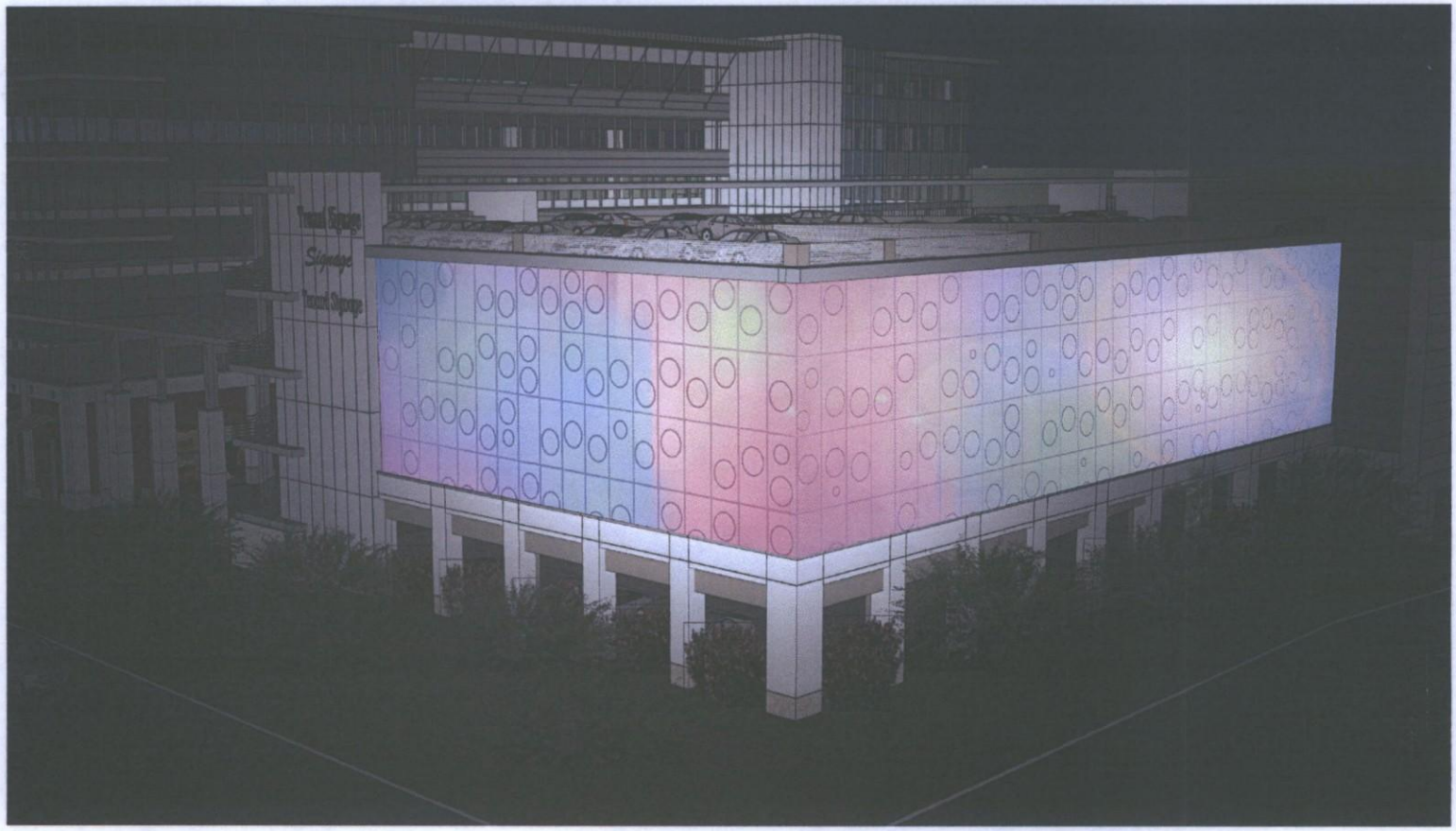
In addition, we have employed interactive sensors to drive LED arrays. An interactive sensor could be incorporated into this project using pedestrian traffic or by training a camera on cars entering the garage. Using the timing and colors of these objects, their movement could drive an evolving two-dimensional pattern on the scrim.



Example image of Camelback Mountain showing how the virtual 'lens' scans over it inside the lighting controller.

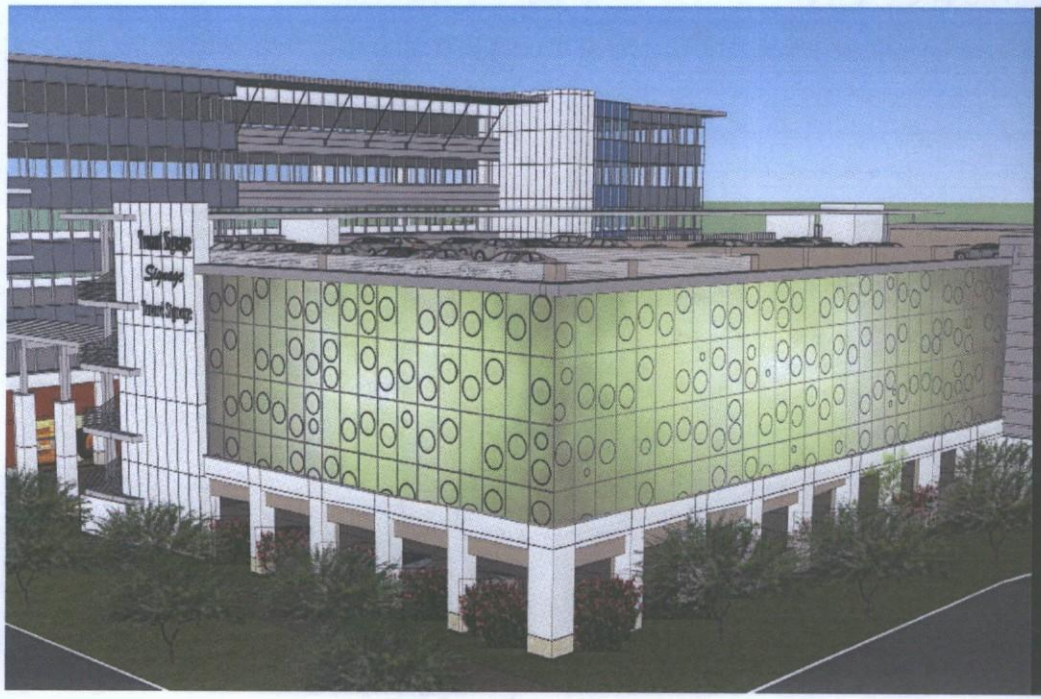
At the instant the 'lens' is over the portion of the image shown to the left, wall washers shine the colors onto the scrim from behind. As the 'lens' moves over the surface, the wall washers change dynamically. Click the YouTube link to see it in action.



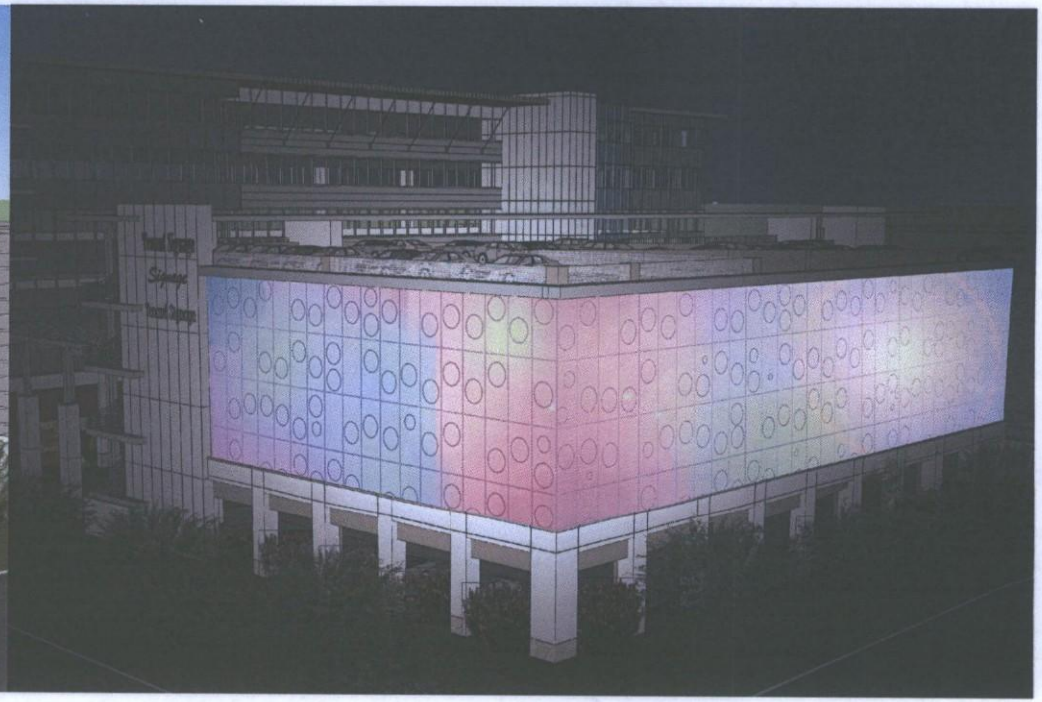


DAY TO NIGHT TRANSITION

Daytime image



Night image



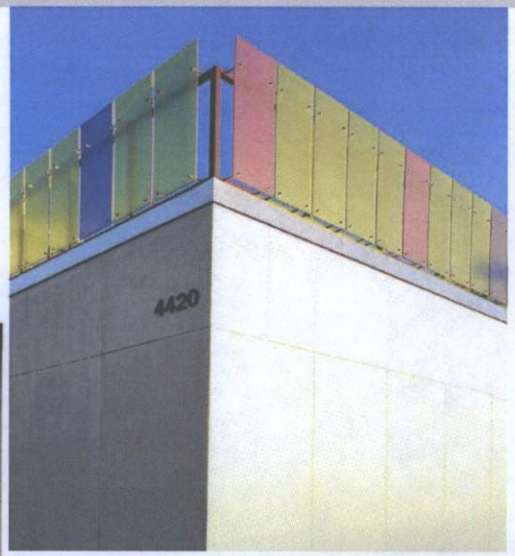
The color palette for the daytime profile will be formed from colored acrylic panels. During the day, the acrylic will not be lit by LEDs, but sunlight will shine through the panels giving them a more translucent appearance. The image above shows a general conceptual direction, but we will further develop the daytime color palette by working within the confines of the material. We have provided more in depth information about the material and other potential color ranges on the following pages.

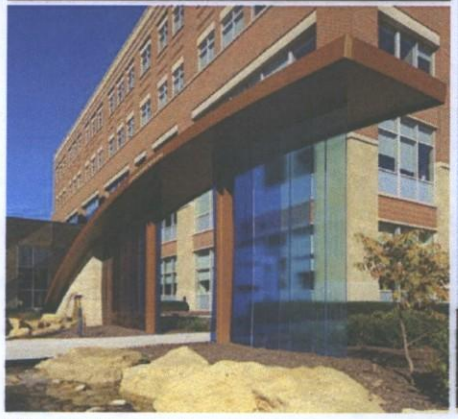
At night, these colored acrylic panels will be lit with high intensive colored LED lights. The various colors of the lights will be determined by scanned images, as explained in the previous section. The power of the LED lighting will alter the colors of the acrylic to create effects similar to the night image above.

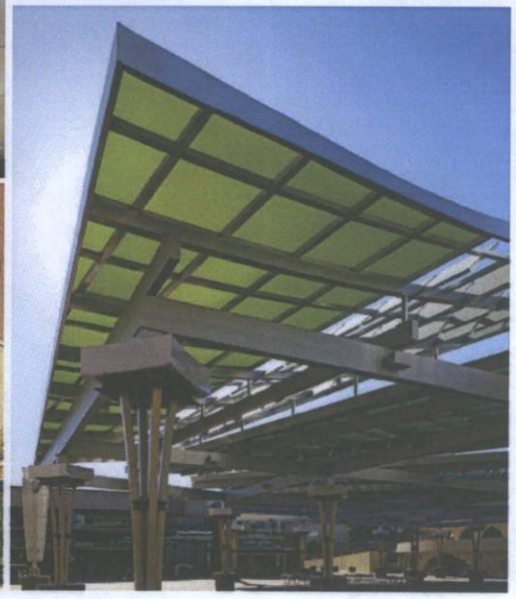
MATERIAL

We propose to make the facade from a 1/2" thick UV-stabilized exterior polycarbonate from 3-form called Koda XT. This material is 100 times stronger than glass, is self-extinguishing, achieves a Class B flame spread and smoke developed rating, has proven itself in harsh climates, and is available in an array of colors and finishes from subtle to vibrant.

We meet the requirement for 50% air flow by staggering panels so there are gaps above and below each panel.

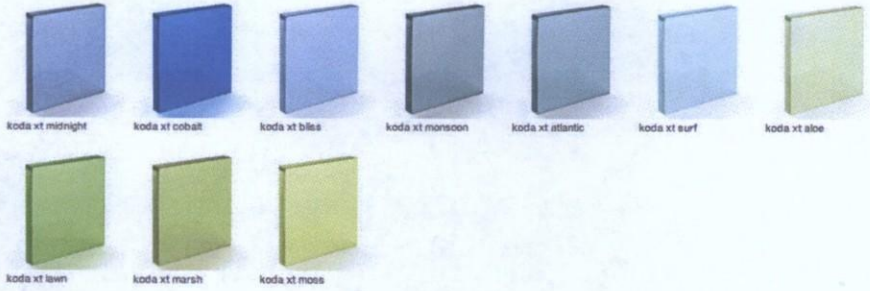






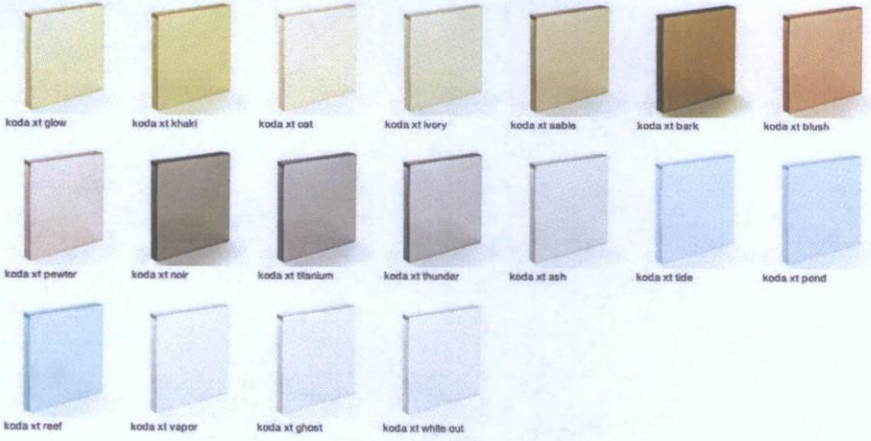
All images on this page are from www.3-form.com

Blue to Green



Yellow to Purple

Pales and Neutrals



INSTALLATION, MAINTENANCE, ELECTRONICS, ENGINEERING, MATERIALS:

Installation Plan:
Our scrim concept will be straightforward to install as it uses standard construction techniques and many off-the-shelf components. We have experience with complex installations and would coordinate logistics between our in-house team, the architect, and the contractor. The contractor will perform the installation of the artwork, and we will provide all the necessary parts such as polycarbonate panels, lighting, electronics, and hardware. Panels and lights will be numbered to correspond to a drawing to aid in installation. All parts will be wrapped in protective plastic and shipped from our studio in Tucson to Scottsdale.

Maintenance Plan:
We have chosen materials that are well proven in inclement weather and used standard construction techniques so our artwork will be durable and low maintenance. The façade is modular so if one panel or light becomes damaged only that portion needs to be replaced.

As part of this project, we will supply a thorough project manual that covers materials and maintenance of the artwork.

Electronics:
We have incorporated lighting technology successfully into our public art projects for the last ten years. We design for longevity, durability and ease of replacement.

This piece uses off-the-shelf DMX-controllable LED fixtures. Only the controller is custom. The DMX control protocol is sufficiently universal that many manufacturers make compatible light fixtures, assuring that this artpiece can be maintained for years to come.

Structural Engineering:
We consult with Schneider Structural Engineers, an Arizona-licensed structural engineer for all of our projects and obtain structural stamps as needed.

Materials:
Cladding: *Koda XT* - UV stabilized colored polycarbonate panels with a variety of texture options. See attached specifications. Colors may be altered based on 3-form pricing and availability

Hardware: stainless steel, galvanized steel, and aluminum.

Light Fixtures: (78) Iliuminarc *Ilumipanel 40 IP OPTIC 30 RGB* fixtures or similar. See attached specifications.

SCOPE, 3D MODEL, WARRANTY, TIMELINE, BUDGET:

Scope:
Our scope includes the design, engineering, fabrication and shipping of the artwork. Our budget does not include installation, although it does include comprehensive installation drawings.

We have assumed that the base building would provide attachment points approximately 4' on center. We would provide the hardware between these points and our panels.

We have included an allowance of $25,000 in our budget for the provision of electrical wiring, conduit, and junction boxes to our LED fixtures.

3D Model:
We have added the art to the SketchUp model provided by the architects. See .skp file

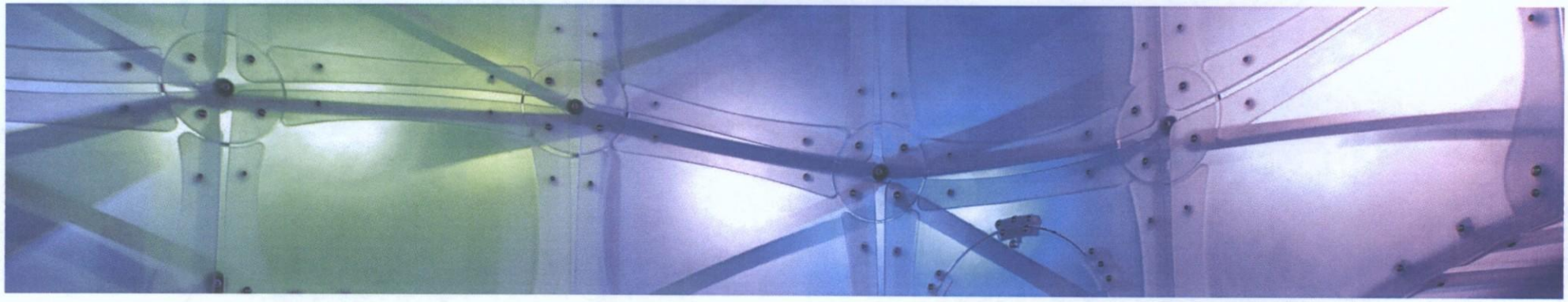
Warranty:
We aim to please when it comes to our public art reputation. Our fabrication process includes full prototyping and testing before we use any techniques in a public project. If artist-created parts need replacement within 12 months of installation due to design or fabrication failure send a photograph of the area to Creative Machines, and we will send a replacement part free of charge. Warranty begins at complete acceptance of work and covers 12 months.

After 12 months, or for damage due to vandalism or acts of God, we will supply replacement parts at market price + fabrication labor (for custom products) + 15% overhead fee and shipping. We encourage you to replace standard parts yourself. We always provide complete product descriptions and details in our manual.

Timeline:
Estimated completion Fall 2015

Preliminary Budget Breakdown:

Design, Engineering and Admin	$155,750
Materials	$372,150
Fabrication	$235,100
Palletizing and Shipping	$5,000
Subcontracted Services	$30,000
Documentation/Maintenance Plan	$2,000
Total Budget:	$800,000



PRODUCT SPECIFICATIONS: EXTERIOR POLYCARBONATE PANELS

3form koda XT™

Product Description

3form Koda XT offers color, durability and design freedom for the most extreme environments and applications. These panels exhibit the highest performance of any engineered resin panels. Color, finish, and translucency coupled with endless shaping options. Koda XT is the perfect medium for your exterior architectural application.

A product line developed specifically for exterior projects, Koda XT has the added benefits of being constructed from polycarbonate, which is both environmentally responsible and high-performing.

FEATURES AND BENEFITS

- Form and shape to create eye-catching installations
- Extremely tough, allowing for easy fabrication and maximum installed durability
- Extremely versatile, enabling designers to achieve full design potential
- Lightweight, half the density of glass, making for easier installation and reducing structural support requirements
- Good chemical resistance, reducing potential harm incurred by cleaning agents

AVAILABLE COLORS

STANDARD

Crystal Clear **Glass Green**

C3 COLOR SYSTEM

3form Koda XT can be combined with any of the C3 colors in as few as one panel. Use the C3 Color Matching System to create over 10,000 colors.

CUSTOM COLORS

Koda XT can be customized to match nearly any translucent or transparent color (minimums may apply).

TEXTURES/PATTERNS/FINISHES

Koda XT comes standard with a polished front and back finish.

3form provides the option of substituting between 4 optional finishes. In most cases, you can even pick different front and back finishes. Finishes include:

- **Patent** - A high gloss finish with highest light transmission
- **Patina** - A non-glare finish with smooth appearance
- **Sandstone** - A durable finish with subtle texture
- **Stucco** - A durable finish with a pebbled texture
- **Vellum** - A random brushed finish similar to 3form renewable matte

PANEL SIZES AND TOLERANCES

3form Koda XT panels are offered in standard 4' x 8' (1.2 m x 2.4 m) and 4'x10' (1.2m x 3.0m) sizes. Custom lengths and widths up to 12' long and 8' wide are possible. All dimensions and squareness (standard with custom) are subject to a 3/16" (4.7 mm) tolerance.

Standard thickness of Koda XT is 1/2" (12.7 mm) and 1/4"* (6.3 mm).

*1/4" Koda XT is only available in Crystal Clear.

STANDARD COLORS

NOMINAL THICKNESS GAUGE	MINIMUM ALLOWANCE GAUGE	MAXIMUM ALLOWANCE GAUGE
1/2" (12.7 mm)	0.427" (10.85 mm)	0.500" (12.7 mm)
1/4" (6.3 mm)	0.215" (5.50 mm)	0.290" (6.6 mm)

C3 COLOR SYSTEM & CUSTOM COLORS

NOMINAL THICKNESS GAUGE	MINIMUM ALLOWANCE GAUGE	MAXIMUM ALLOWANCE GAUGE
1/2" (12.7 mm)	0.451 (11.45 mm)	0.555 (14.09 mm)

Sheet tolerance readings are based on an average of several measurements along both long edges of each panel. These measurements are taken 2-3 inches (50-75 mm) from the edges of the panel.

Custom gauges of Koda XT are possible. Your 3form Sales Representative can assist you with questions regarding custom gauges for your application.

FLATNESS TOLERANCE

Koda XT panels shall not have distortion in the form of a wrinkle, twist or scallop along the perimeter of the sheet. Overall warp extending across the sheet is permitted to a maximum of 9/32" (7.1 mm) for each 48" (1.2 m) or fraction thereof. Panel is to be measured when laying horizontally under its own weight on a flat continuous surface.

Specifications

FLAMMABILITY & SMOKE TEST RESULTS – BUILDING CODE APPROVALS

Koda XT panels have been independently tested and meet the criteria for approved interior finishes and light transmitting resin materials as described in the 2009 International Building Code®.

TEST	3FORM KODA XT	RESULT
ASTM D 2843 Smoke Density	48.9	PASS Below 75
ASTM D 635 Flame Spread	Self-extinguishing	Class CC1
ASTM D 1929 Self-Ignition Temperature	1004°F	PASS Greater than 650°F
ASTM E84-09 Flame Spread: 1/4" thickness Smoke Developed	65 450	Class C: 76-75 Class B: ≤450
ASTM E84-09 Flame Spread: 1/2" thickness Smoke Developed	55 400	Class B: 76-75 Class B: ≤450
CAN/ULC 102-2 Flame Spread: 1/2" thickness Smoke Developed	57 280	N/A N/A

PANEL WEIGHT

THICKNESS (INCHES)	WEIGHT PLUS (LB/FT²)
1/2" (12.7 mm)	0.1 lb/ft² (15.1 kg/m²)
1/4" (6.3 mm)	1.9 lb/ft² (7.21 kg/m²)

EXPANSION/CONTRACTION ALLOWANCES

Like all resin products, 3form Koda XT will expand and contract normally with fluctuations in temperature. The following formula provides allowances that should be made in framed or fitted applications:

- Longest length of panel (inches) x temperature change of the sheet (°F) x 0.00004 = Amount of Linear Expansion/Contraction (inches)

example:

• 48" x 96" panel that experiences a 100°F temperature change will expand/contract: 96 inches x 100 degrees°F x 0.00004 in/in °F = 0.384 inches (expansion)

Allowances should also be made in the following situations:

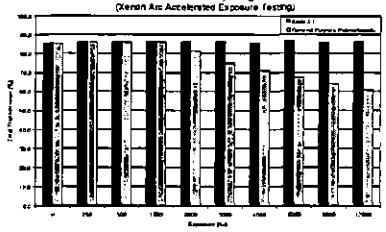
- Fastening points
- Channel depths in frames
- Holes for standoffs and other hardware
- Meeting points for multiple sheets of 3form Koda XT

ULTRAVIOLET EXPOSURE PERFORMANCE

3form Koda XT panels incorporate ultraviolet stabilization technologies that are proven to maintain aesthetics and performance. The following charts provide an overview of the effectiveness of the UV stabilization technology that is incorporated with 3form Koda XT panels.

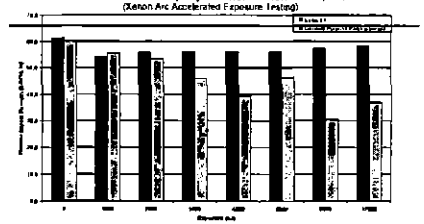
One important characteristic of a materials performance is the ability to maintain consistent aesthetics. The following chart demonstrates the performance of both Koda XT and unstabilized polycarbonate in terms of maintaining consistent light transmission. It is shown that the 3form Koda XT with UV stabilization exhibits excellent performance following 12,000 kJ of exposure (representing approximately 10-years outdoor Florida exposure).

3form Koda XT Color Stability - Light Transmission
(Xenon Arc Accelerated Exposure Testing)



Another important factor to consider is the ability of a material to maintain its physical integrity after exposure to solar radiation. The following chart shows how the impact strength is maintained after 12,000 kJ of accelerated exposure of Koda XT.

3form Koda XT Property Retention - Flatwise Impact
(Xenon Arc Accelerated Exposure Testing)



DEFLECTION

3form Koda XT will exhibit different amounts of deflection given a variety of factors: fastening techniques, loads, panel thickness and panel dimensions to list a few. The 3form Technical Help desk can assist you with general deflection guidelines for your application with the Koda XT Deflection Charts technical white paper. If your application has specific engineering requirements, please contact the 3form Product Technology team for additional direction.

HEAT FORMING/COLD BENDING

3form Koda XT C3 cannot be heat formed. Only the standard colors (Crystal Clear, Glass Green) of Koda XT are able to be heat formed.

3form Koda XT can be cold bent for simple bends and curved areas. As a rule, a minimum radius of 1000 times thickness is acceptable for Koda XT.

KODA XT THICKNESS	MINIMUM COLD BEND RADII
1/2" (12.7 mm)	500" (1270 mm)
1/4" (6.3 mm)	250" (635 mm)

EDGE FINISHING

Edges of 3form Koda XT panels are able to be machined or routed into a variety of different forms. In addition to a straight edge, edges may accept beveling, rounding, etc. Additional finishing, such as sanding or polishing, can also be provided to some edges.

SOUND TRANSMISSION CLASS (STC) VALUES FOR KODA XT

Measurement protocol: ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

KODA XT THICKNESS	STC VALUES
1/2" (6.5mm)	34

Selected Mechanical and Physical Properties for 3form Koda XT

		TYPICAL VALUE			
		0.118" (3 mm)		0.236" (6 mm)	
PROPERTY*	ASTM METHOD	SI	U.S.	SI	U.S.
GENERAL					
Density	D 1505	1.200 g/cm³	0.043 lb/in³	1.200 g/cm³	0.043 lb/in³
Water Absorption	D 570 @ 23°C (73°F), 24h Immersion	0.15%	0.15%	–	–
MECHANICAL					
Tensile Stress @ Break	D 638	62 MPa	9,000 psi	–	–
Tensile Stress @ Yield	D 638	65.5 MPa	9,500 psi	–	–
Elongation	D 638	110%	110%	–	–
Tensile Modulus	D 638	2,344 MPa	340,000 psi	–	–
Flexural Modulus	D 790	2,380 MPa	345,000 psi	–	–
Flexural Strength	D 790	93 MPa	13,500 psi	–	–
Compressive Strength	D 695	86 MPa	12,500 psi	–	–
Compressive Modulus	D 695	2,380 MPa	345,000 psi	–	–
Shear Strength, Ultimate	D 732	69 MPa	10,000psi	–	–
Shear Strength, Yield	D 732	41 MPa	6,000 psi	–	–
Shear Modulus	D 732	788 MPa	114,000 psi	–	–
Rockwell Hardness	D 785	M70/R118	M70/R118	–	–
Safety Glazing	ANSI Z97.1	PASS		PASS	
Izod Impact Strength, Notched	D 256 @ 23°F	747 J/m	14 ft-lb/in.	82 J/m	1.2 ft-lb/in.
Impact Strength, Unnotched	D 4812 @ 23°F	2,202 J/m No Failure	60 ft-lb/in. No Failure	–	–
Impact Penetrative – Puncture, Energy @ Max. Load	D 3763 @ 23°F	>61 J	>45 ft-lb		
Mass Data Notice of Acceptance (NOA)				NOA No. 12-0103.01	
THERMAL					
Continuous Max Use Temperature - Standard and Custom Colors	–	132°C	270°F	132°C	270°F
Continuous Max Use Temperature - C3 Colors	–	93°C	200°F	93°C	200°F
Heat Deflection Temperature	D648 @ 66psi	137.7°C	280°F		
Forming Temperature	–	163-182°C	325-360°F	163-182°C	325-360°F
Thermal Conductivity	ASTM C 177	0.196 W/m°K	1.36 (Btu/hr ft²/°F)/in	0.196 W/m°K	1.35 Btu/(hr ft²/°F)/in
Coefficient of Thermal Expansion	ASTM D 696	8.75 x 10^{-5} m/m/°C	0.75 x 10^{-5} in/in/°F	8.75 x 10^{-5} m/m/°C	3.75 x 10^{-5} in/in/°F

* Unless noted otherwise, all tests are run @ 23°C (73°F) and 50% relative humidity, using specimens machined from extruded sheeting with a thickness as indicated.

**Notbreak as defined in ASTM D 4812 using specimens having a thickness as indicated. Properties

Chemical Resistance of 3form Koda XT to Select Compounds

8 DAY FULL IMMERSION TESTING @ 73°F (23°C)

Polymer materials are affected by chemicals in different ways. Changes in performance or appearance can be attributed to fabrication methods, exposure conditions, concentration of chemical substances or exposure duration. Such factors can even influence the final effect of substances that 3form Koda XT is considered "Resistant" to under test conditions. Further details are explained below:

FABRICATION

Stresses generated from sanding, grinding, drilling, polishing, machining, sawing and/or forming (hot or cold).

EXPOSURE

Exposure duration, stresses imparted during the application life-cycle due to loads, temperature changes, heat, environments, etc.

APPLICATION OF CHEMICALS

Application from contact, rubbing, wiping, spraying, soaking, etc. Also having an effect is the relative concentration of the chemical in question.

The following data is based on complete immersion of Koda XT in the chemical or reagent shown. Samples remained immersed and were stored at 23°C (73°F) for a period of six days. Following the test period the samples were removed from immersion and inspected. This table represents the changes in appearance of the immersed samples over the testing period.

The following table provides indicative performance of the chemical resistance characteristics of Koda XT. The following codes are used to describe the chemical resistance characteristics:

R = RESISTANT

3form Koda XT is able to withstand the identified compound for long exposure periods (6 days, full immersion)

LR = LIMITED RESISTANCE

3form Koda XT is only resistant when in contact with this compound for short periods at room temperature. It is advised that further determination of the effect of the substance be further tested in your particular application.

NR = NOT RESISTANT

3form Koda XT is not resistant to the compound. The material will swell, craze, haze, dissolve or experience some physical change when exposed to this substance.

REAGENT	RESULT	REAGENT	RESULT
Acetic Acid, 10% in water	R	Acetone	NR
Ammonia, 0.1% in water	NR	Ammonium chloride, 10% in water	R
Benzene	NR	Benzine (no aromatic hydrocarbons)	R
Butyl Acetate	NR	Calcium tetrachloride	NR
Chloroform	NR	Citric Acid, 10% in water	R
Diacetone alcohol	NR	Diethyl ether	NR
Dimethyl formamide	NR	Diocthl phthalate	NR
Ethanol	NR	Ethanol, 10-5%	R
Ethyl Acetate	NR	Ethylene chloride	NR
Ethylene glycol, 1:1 with water	R	Glycerin	NR
Hexane	R	Hydrochloric Acid, 10% in water	R
Hydrogen Peroxide, 30% in water	R	Iron (III) chloride, saturated solution	R
Isooctane (2,2,4-trimethyl pentane)	R	Isopropanol (pure)	R
Methanol	NR	Methyl Ethyl Ketone	NR
Methylene chloride	NR	Methylene chloride	NR

REAGENT	RESULT	REAGENT	RESULT
Nitric Acid, 10% in water	R	n-propanol	NR
Ozone, 1% in air	NR	Paraffin, paraffin oil, free from aromatic hydrocarbons	R
Phosphoric acid, 1% in water	R	Propane	R
Silicone Oil	R	Sodium Carbonate, 10% in water	R
Sodium Chloride, 10%	R	Sodium Hydroxide, 1%	NR
Sodium Nitrate, 10% in water	R	Styrene	NR
Sulfuric Acid, 10% in water	R	Tetrachloroethene	NR
Tetrachloroethylene	NR	Trichloroethylene	NR
Tricresyl Phosphate	NR	Triethylene Glycol	R
Xylene	NR		

Cleaning Instructions

3form Koda XT, like all thermoplastic resin materials, should be cleaned periodically. A regular, quarterly cleaning program will dramatically help prevent noticeable weathering and dirt build-up.

Rinse the sheets with lukewarm water. Remove dust and dirt from Koda XT with a soft cloth or sponge and a solution of mild soap and/or liquid detergent in water. A 50:50 solution of isopropyl alcohol and water also works well. Rinse thoroughly with lukewarm water.

Always use a soft, damp cloth to blot dry. Rubbing with a dry cloth can scratch the material and create a static charge. Never use scrapers or squeegees on Koda XT. Also avoid scouring compounds, gasoline, benzene, acetone, carbon tetrachloride, certain glazing fluids, lacquer thinner or other strong solvents.

DO NOT:

- Use a squeegee.
- Strong solvents, highly alkaline or abrasive cleaning agents.
- Clean in hot sun or elevated temperatures.
- Rub with a dry cloth.

PRESSURE WASHING

Pressure washing can also be an effective way to remove miscellaneous debris from surfaces of 3form Koda XT installations.

Pre-soak panels with a light water spray to loosen and remove incidental surface debris.

It is recommended that the water pressure for cleaning Koda XT panels be 1,500 psi or less. 3form Koda XT is a tough material but can be damaged if high pressure is concentrated in a single position too long. Use a gradual sweeping motion over the application. Never concentrate water spray in a single position. Pressure nozzle should never be positioned closer than 8" (203 mm) from the panel surface.

Always test a portion of the sheet first before spraying. If test piece shows any sign of material fatigue, abrasion or delamination – discontinue pressure washing and proceed with manual cleaning instructions as described above.

Coated or painted parts are not suitable for pressure washing as finish may be stripped off. Pressure washing is not suitable for Koda XT panels that have been seamed or sealed. If using detergent, use mild detergents only. Rinse sheet with light water spray after washing.

DO NOT:

- Concentrate spray in single position.
- Use more than 1,500 psi pressure.
- Position pressure nozzle closer than 8" (203 mm) from panel.
- Proceed with pressure washing if test piece shows detrimental effects to panel.
- Pressure wash Koda XT panels that have been painted or coated to maintain coating integrity.

If debris or dirt is not removed by pressure washing attempt to clean with manual procedures described in preceding section.

IMPORTANT

If a cleaning material is found to be incompatible in a short-term test, it will usually be found to be incompatible in the field. The converse, however, is not always true. Favorable performance is no guarantee that actual end-use conditions have been duplicated. Therefore, these results should be used as a guide only and it is recommended that the user test the products under actual end-use conditions.

For more information, please visit 3-form.com or call 877-649-2670.

ILUMINARC®

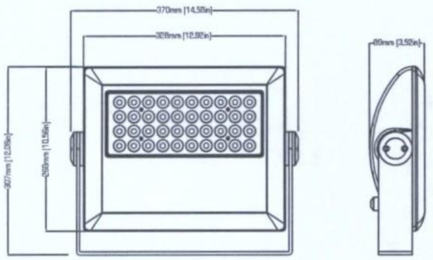
ILUMIPANEL 40 IP OPTIC 30 RGB

Item Number: 01620521

Client:________________________

Project:________________________

Date:____________Type:____________



LIGHT SOURCE & OPTICAL SPECIFICATIONS
Light Source: 40 LEDs (14 red, 14 green, 12 blue) 3 W (680 to 911 mA)
Light Source Lifespan: 50,000 hours based on LED manufacturer's specifications
Installed Optics: 30°
Beam Angle: 22°
Field Angle: 38°
Lumens: 2,680
Base Illuminance 631 lux @ 5 m
Efficacy: 22.75 lm/W
Color Temperature Presets: Built-in
Minimum Distance to Illuminated Surface: 4 in (92 mm)

CONSTRUCTION& PHYSICAL SPECIFICATIONS
Length: 14.5 in (370 mm)
Width: 3.5 in (89 mm)
Height: 12 in (306 mm)
Weight: 18.25 lb (8.28 kg)
Color: Off white
Ingress Protection Rating: IP67
Housing Material: Cast aluminum
Lens Cover: Impact resistant glass
Installation Orientation: Any

CONTROL SPECIFICATIONS
Control Protocol: USITT DMX-512a
Control Channels: 1, 3, 4 or 7
Operating Modes: Selectable personalities
Solid (1-channel): dimmer
Arc 1 (3-channel): red, green, blue
Arc 1+D (4-channel): dimmer, red, green, blue
Arc Full (7-channel): dimmer, red, green, blue, color macros, strobe, dimming speed
Stand Alone Control: N/A
Remote Addresser: Ilumicode
Data Connection: 11.2 ft (3.4 m) Waterproof cable

ELECTRICAL SYSTEM SPECIFICATIONS
Input Voltage: 100 to 240 VAC, 50/60 Hz (auto-ranging)
Power and Current: 118 W, 0.99 A @ 120 V
113 W, 0.52 A @ 230 V
Power Supply: Electronic internal
Dimmer: Electronic
Power Linking: N/A
Power Connection: 10.6 ft (3.2 m) Waterproof cable

THERMAL SPECIFICATIONS
Cooling: Convection
Startup Temperature Range: -4 °F to 113 °F (-20 to 45) °C
Operating Temperature Range: -40 °F to 113 °F (-40 to 45) °C
Storage Temperature Range: -40 °F to 167 °F (-40 to 75) °C

REGULATORY & VOLUNTARY QUALIFICATION
Certification Listings: MET, CE
Environment: Wet location, IP67
Warranty: 36 month manufacturer's limited warranty (for covered regions only)

Product Web Page

ILUMINARC.
5200 NW 108th Ave.
Sunrise, FL 33351
+1.954.923.3680

ILUMINARC®

ILUMIPANEL 40 IP OPTIC 30 RGB

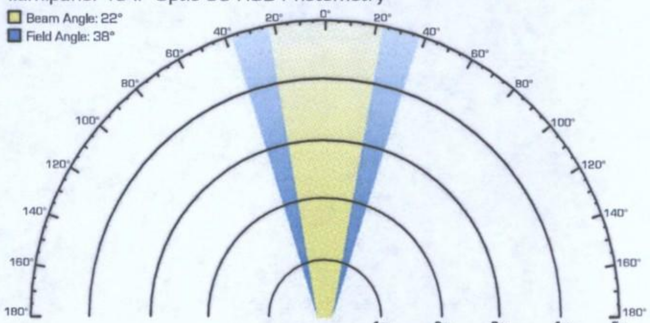
Item Number: 01620521

Client:________________________

Project:________________________

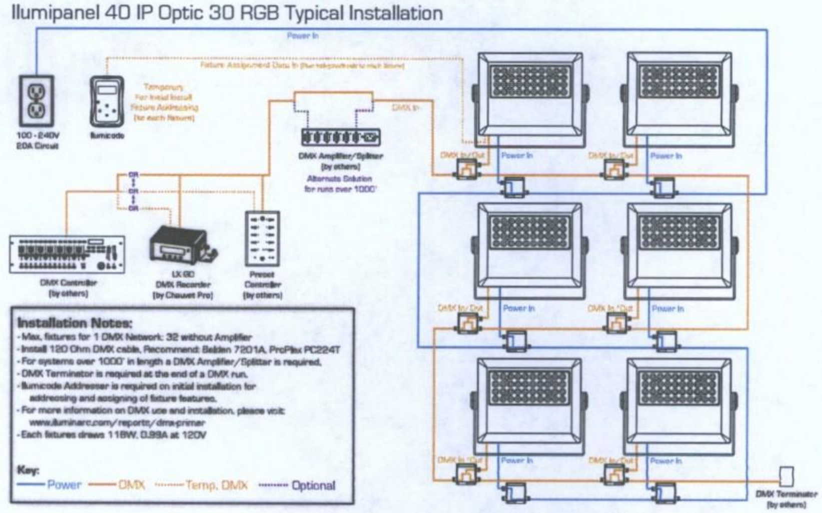
Date:____________Type:____________

Ilumipanel 40 IP Optic 30 RGB Photometry



	1m	2m	3m	4m	5m
Illuminance at a Distance [lux]:	15,781	3,945	1,753	986	631
Beam Spread: Horizontal[m]:	0.4	0.8	1.1	1.5	1.9
Vertical[m]:	0.4	0.8	1.1	1.5	1.9

Ilumipanel 40 IP Optic 30 RGB Typical Installation



Installation Notes:
- Max. fixtures for 1 DMX Network: 32 without Amplifier
- Install 120 Ohm DMX cable, Recommend: Belden 7201A, ProPlex PC224T
- For systems over 1000' in length a DMX Amplifier/Splitter is required.
- DMX Terminator is required at the end of a DMX run.
- Ilumicode Addresser is required on initial installation for addressing and assigning of fixture features.
- For more information on DMX use and installation, please visit: www.iluminarc.com/reports/dmx-primer
- Each fixtures draws 118W, 0.99A at 120V

Key:
—— Power —— DMX ······ Temp. DMX ······ Optional

WWW.ILUMINARC.COM - INFO@ILUMINARC.COM
Iluminarc reserves the right to make improvements to this product and its specifications at anytime without notice.

ILUMINARC.
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Sunrise, FL 33351
+1.954.923.3680

"They came in with an amazing vision, did a fantastic job with the community outreach and input during the concept development, and remained true to their innovative vision while tailoring the art-work to be site specific to Palo Alto. Joe and his team were profes-sional, courteous, really attentive to every detail and concern raised, and very creative in their solutions. I cannot express how impressed I am with all of their dedication and determination to get things done right for the long term. It reflects well on Joe and Creative Machines as a whole."

Elise DeMarzo
Public Art Manager
City of Palo Alto

"Creative Machines is among the top firms worldwide for the engineering and fabrication of complex interactive experiences. They excel at engineering and fabrication, the integration of sophisticated technology with highly accessible experiences, and the pairing of multimedia with traditional interactives. I can highly recommend a relationship with Creative Machines."

Rickard Larsson
Project Leader
INSPIRIA science center,
Sarpsborg, Norway

Gwen Jarick
Nelsen Partners, Inc.
15210 N. Scottsdale Rd, Suite 300
Scottsdale, Arizona 85254

August 27, 2014

Dear Gwen,

I am writing to provide written confirmation of Scottsdale Public Art's support for the art concept plan by Joe O'Connell of Creative Machines for Scottsdale Quarter's Block M.

The art concept has been approved by our Advisory Board and Scottsdale Public Art is also committed to continuing an already existing working relationship with the Quarter's marketing staff to provide opportunities to local artists by developing future calls to artists for images to be used in conjunction with this project as base images in the lensing effect of Joe O'Connell's artwork.

We very much look forward to seeing this project completed and to continuing to work with Scottsdale Quarter, its surrounding community, and our local artists.

Sincerely,

Donna Isaac
VP/Director
Scottsdale Cultural Council/Scottsdale Public Art

ATTACHMENT #9