Public Art Installation for the San Francisco Airport, Terminal 2, Boarding Area E
December 2oth, 2o13
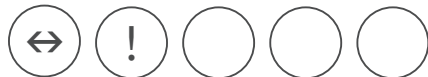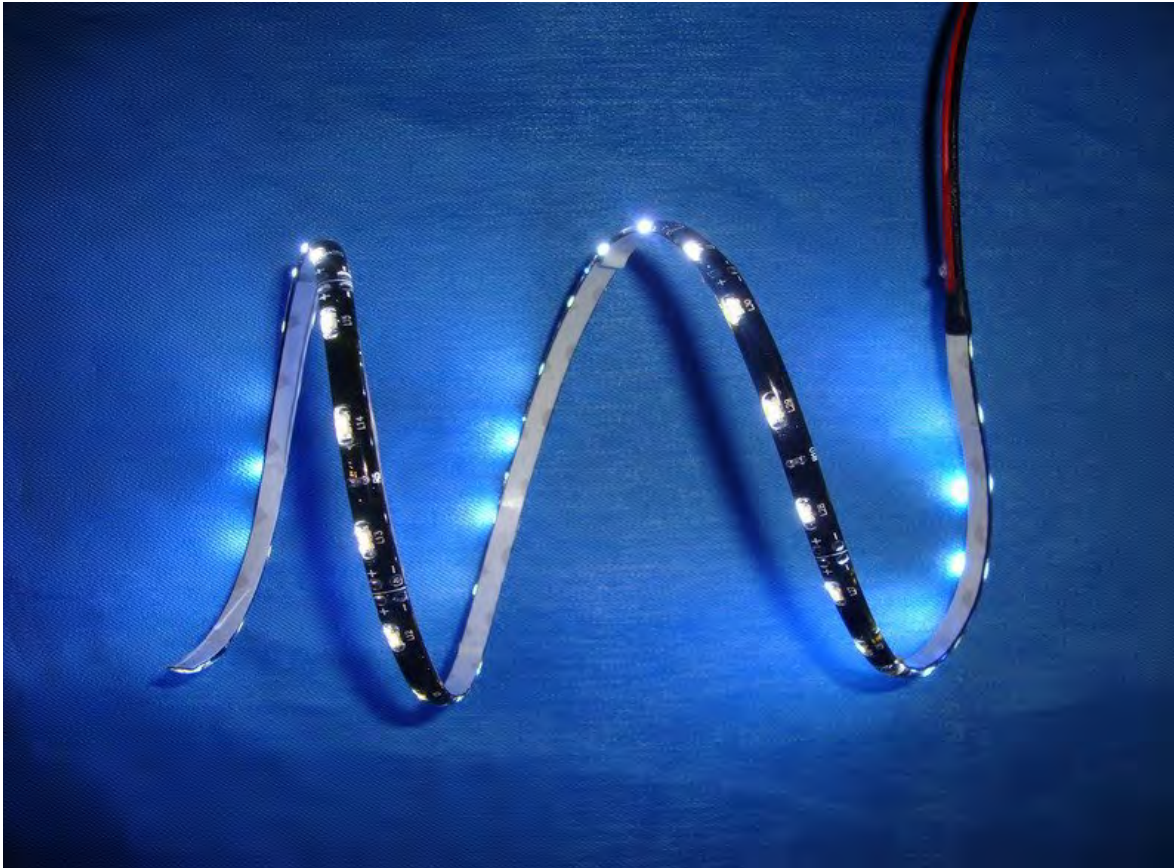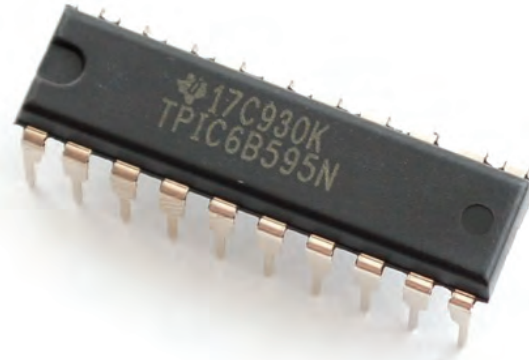
Electronic components

Each sphere will be indirectly lit by a LED strip hidden within the rim of the opening.
A small computer chip (Arguendo) generates a lighting pattern for all 27 spheres.

The LED strips and the Arguendo & its components last many years without requiring maintenance.
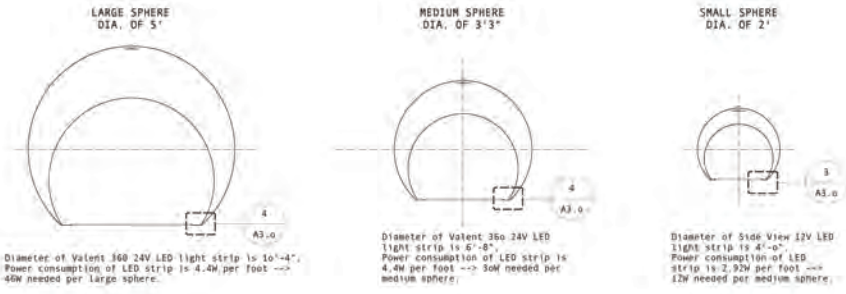
Electronic components

Each sphere is connected to the power grid via a transformer. All LED strips need low voltage to run. The Arguendo (Arguendo UNO microcontroller) will utilize a shift register (4 x 74HC595 shift register chips) to control the 27 drivers using Pulse Width Modulation. A real-time clock (DS1307 real-time clock) will be used to control the start up and shut down.
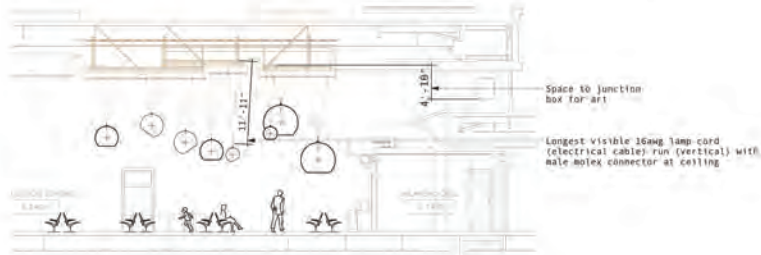
Electrical public art plans

LARGE SPHERE
DIA. OF 5'

MEDIUM SPHERE
DIA. OF 3'3"

SMALL SPHERE
DIA. OF 2'

Diameter of Valent 360 24V LED light strip is 10'-4".
Power consumption of LED strip is 4.4W per foot -->
46W needed per Large sphere.

Diameter of Valent 360 24V LED light strip is 6'-8".
Power consumption of LED strip is 4.4W per foot --> 30W needed per medium sphere.

Diameter of Side View 12V LED light strip is 4'-0".
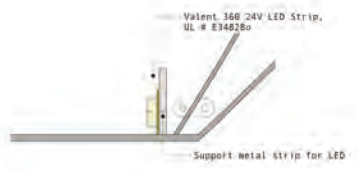Power consumption of LED strip is 2.92W per foot --> 12W needed per medium sphere.

Aviation has helped humans push the limits that space, time and gravity impose on us.
Space is full of holes, where space, time and gravity are distorted beyond our comprehension.

The exterior of the light fixtures spheres is made of mirror polished stainless steel. The bottom of the spheres is cut off, and a rim is welded onto it to hide the LED light strips.

The interior of the light fixture spheres is a hollow cavity. As it is perfectly even and painted with a matte color one looses sense of the sphere's proportion, and thus the sphere's interior becomes a dimensionless space. Subtle shifts in color and light intensity make the space unreadable - both expanding and flattening at the same time. The color spectrum shown is derived from colors that occur in the sky.
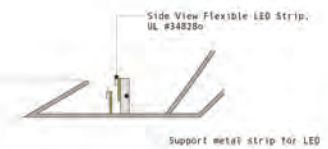
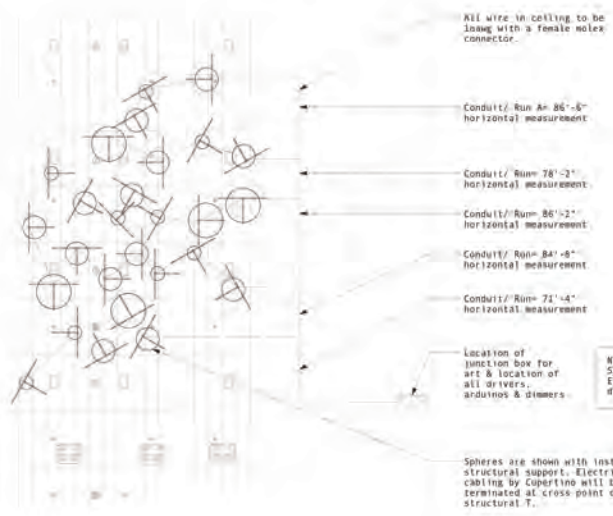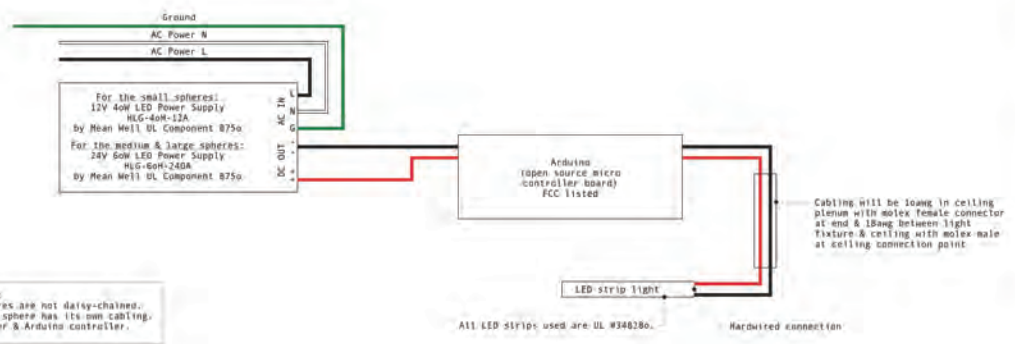**7** Schematic sphere sizes

6 Artwork explanation

Space to junction box for art

Longest visible 16awg lamp cord (electrical cable) run (vertical) with male molex connector at ceiling

Valent 360 24V LED Strip,
UL # E34828o

Side View Flexible LED Strip,
UL #34828o

Support metal strip for LED

Support metal strip for LED

5 Section
1/8"=1'-0"

4 Rim detail sphere dia. of 1.5m (5'5")
2:1

3 Rim detail sphere dia. of 0.6m (2')
2:1

All wire in ceiling to be 10awg with a female molex connector.

Conduit/ Run A= 86'-6" horizontal measurement

Conduit/ Run= 78'-2" horizontal measurement

Conduit/ Run= 86'-2" horizontal measurement

Conduit/ Run= 84'-8" horizontal measurement

Conduit/ Run= 71'-4" horizontal measurement

Location of junction box for art & location of all drivers, arduinos & dimmers.

Notes:
Spheres are not daisy-chained.
Each sphere has its own cabling, driver & Arduino controller.

Spheres are shown with installed structural support. Electrical cabling by Cupertino will be terminated at cross point of structural T.

Ground
AC Power N
AC Power L

For the small spheres:
12V 40W LED Power Supply
HLG-40H-12A
by Mean Well UL Component 875o

For the medium & large spheres:
24V 60W LED Power Supply
HLG-60H-240A
by Mean Well UL Component 875o

Arduino
(open source micro controller board)
FCC listed

Cabling will be 10awg in ceiling plenum with molex female connector at end & 18awg between light fixture & ceiling with molex-male at ceiling connection point

LED strip light

All LED strips used are UL #34828o.

Hardwired connection

2 Site plan
1/8"=1'-0"

1 Electrical diagram

Reflected ceiling plan

Grid references: (16.7) (18.3) (19.3) — (U) (T) (S)

Sphere wattage callouts (in plan):
- 30W, 12W, 46W (various spheres)

Left side sphere labels:
9S, 12M, 5L, 7S, 8M, 9M, 6S, 7M, 6M, 5M, 4M, 2L, 1L, 2S, 1M, 1S

Right side sphere labels:
13M, 8S, 11M, 10M, 5S, 4L, 3L, 4S, 3S, 3M, 2M

Conduit labels (in plan): CONDUIT A, CONDUIT B, CONDUIT C, CONDUIT D, CONDUIT E

Grid dimensions: 22' - 0" CL-03, 22' - 9" CL-03, 22' - 3" CL-03

CONDUIT A
A-13M A-12M
A-9s

CONDUIT B
B-11M B-10M B-5L
B-8s

CONDUIT C
C-9M C-8M C-4L C-3L
C-7s C-6s C-5s

CONDUIT D
D-7M D-6M D-5M D-4M D-3M D-2L
D-4s D-3s

CONDUIT E
E-2M E-1M E-1L
E-2s E-3s

Legend: Drivers (3)

x-Xx Meanwell HLG-60H-24A
For all large & medium spheres: 46W & 30W

X-Xx Meanwell HLG-40H-12A
For all small spheres: 12W

Conduit / Driver assignment (2)
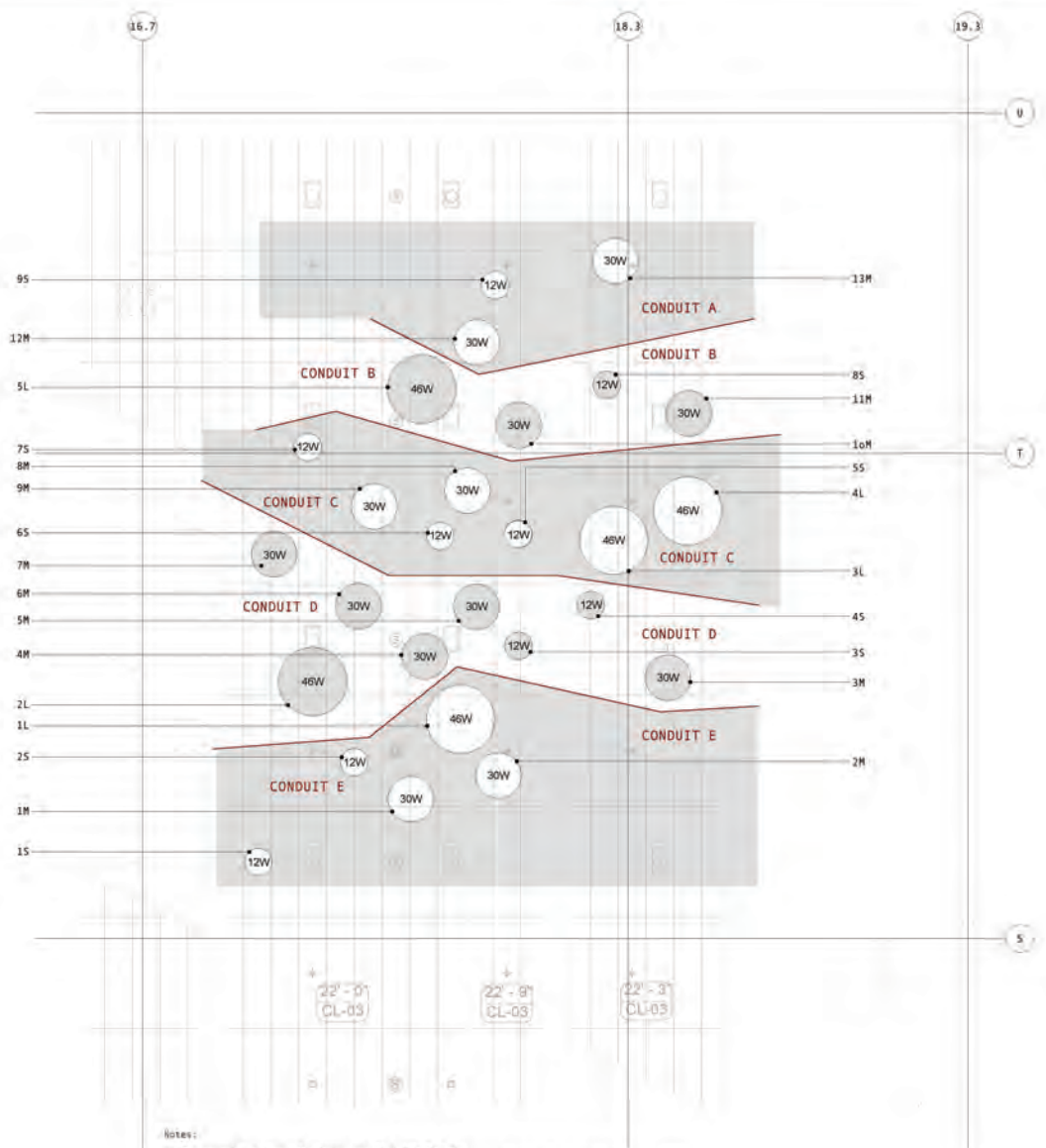
Sphere	Conduit/Run	Corresponding driver #
SMALL		
1s	E	E - 1s
2s	E	E - 2s
3s	D	D - 3s
4s	D	D - 4s
5s	C	C - 5s
6s	C	C - 6s
7s	C	C - 7s
8s	B	B - 8s
9s	A	A - 9s
MEDIUM		
1M	E	E - 1M
2M	E	E - 2M
3M	D	D - 3M
4M	D	D - 4M
5M	D	D - 5M
6M	D	D - 6M
7M	D	D - 7M
8M	C	C - 8M
9M	C	C - 9M
10M	B	B - 10M
11M	B	B - 11M
12M	A	A - 12M
13M	A	A - 13M
LARGE		
1L	E	E - 1L
2L	D	D - 2L
3L	C	C - 3L
4L	C	C - 2L
5L	B	B - 5L

Notes:
1. For excact location of spheres see PA 1.2 & PA 1.3.
2. Spheres are not daisy-chained. Each sphere has its own cabling, driver, and Arduino controller.

(1) Reflected ceiling plan
1/4"=1'-0"

Video mock-up of installation

We run several tests regarding the sequencing of the light installation.
We will show three different approaches-
a) a slow random movement through the whole field of 27 spheres
b) movement from the edge of the field the center of the field
c) movement through the field from the East side to the West side.