

luminal space: an installation on low steps



MONDAY 4/13
one day only
one day - midnight
morning - light/sound at 5pm



LUMINAL SPACE:

A PUBLIC ART INSTALLATION

APRIL 2015



lu·mi·nal
(loo'me-nəl)
adj.

1. of or relating to a lumen <luminal scarring>

lu·men
(loo'mən)
n. pl. lu·mens or lu·mi·na (-mə-nə)

1. *Anatomy*: The inner open space or cavity of a tubular organ, as of a blood vessel or an intestine.
2. *Biology*: The interior of a membrane-bound compartment or organelle in a cell.
3. *Abbr. Im Physics*: The SI unit of luminous flux, equal to the amount of light per unit time passing through a solid angle of one steradian from a light source of one candela intensity radiating equally in all directions.

LUMINAL SPACE is a public art installation that aims to create an immersive environment and promote awareness of our surroundings. The installation extends and refracts a communal setting, prompting us to consider how we look, sound, and interact with others in a space we all share: a space, moreover, that symbolizes the hope and the warmth of spring. By engaging its viewers' physical and perceptual relationships with Low Steps, LUMINAL SPACE seeks to embody the contemplative experience of sitting on the steps, unlocking their overlooked goodness—as well as that of our community at large. We invite you to spend time in our illuminated space, to visit throughout the day as the space catches and responds to light from its surroundings.

LUMINAL SPACE

co-opts the intentions of Columbia’s yearly tree-lighting ceremony, seeking to fulfill the ceremony’s communal aspirations instead of its ultimately atomizing reality. We place blame, sometimes rightly but often not, on our physical surroundings and our fellow Columbians when the world seems to be crumbling around us. In the midst of our present sociopolitical climate, it’s important that we stop and interrogate our relationship to our environment. The tree-lighting ceremony presents a spectacle that’s more distracting than contemplative. This year’s iteration in particular proved alienating to hordes of students concerned not with what was happening up in the trees, but what was happening on the ground. LUMINAL SPACE occupies a similarly central location to the tree-lighting ceremony (Low Steps); however, the installation forces us not to watch the shared site passively but to engage with it, to examine the ways in which we look and sound and act in its confines, on our own and within our community.

LUMINAL SPACE comprises, in part, two rows of mirrors on Low Steps. The “mirrors” are sheets of mylar film affixed to eight-foot-tall panels of rigid insulation foam. The flexibility of the mylar allows its form to change as the wind and air density change, creating a random rotation of reflections and refractions. The rows of mirrors flank Columbia’s Alma Mater statue and face one another, reflecting infinitely the length of the steps in between. People sit between the mirrors, engulfed by their above-human-scale reflections. The typical Low Steps experience (sitting and working or socializing when it’s nice out; walking hurriedly up and down when it’s not) is interrupted by prompt to reflect upon one’s situation within their environment. The image shakes and shifts as you move through the space. It renders the commonplace abstract; the objective becomes subjective. You are forced to reckon with where you are and why, ne-

gotiating the real referents with their artificial manifestations before you. Within this sometimes-alienating space you find agency, the ability to embody your experiences both good and bad.

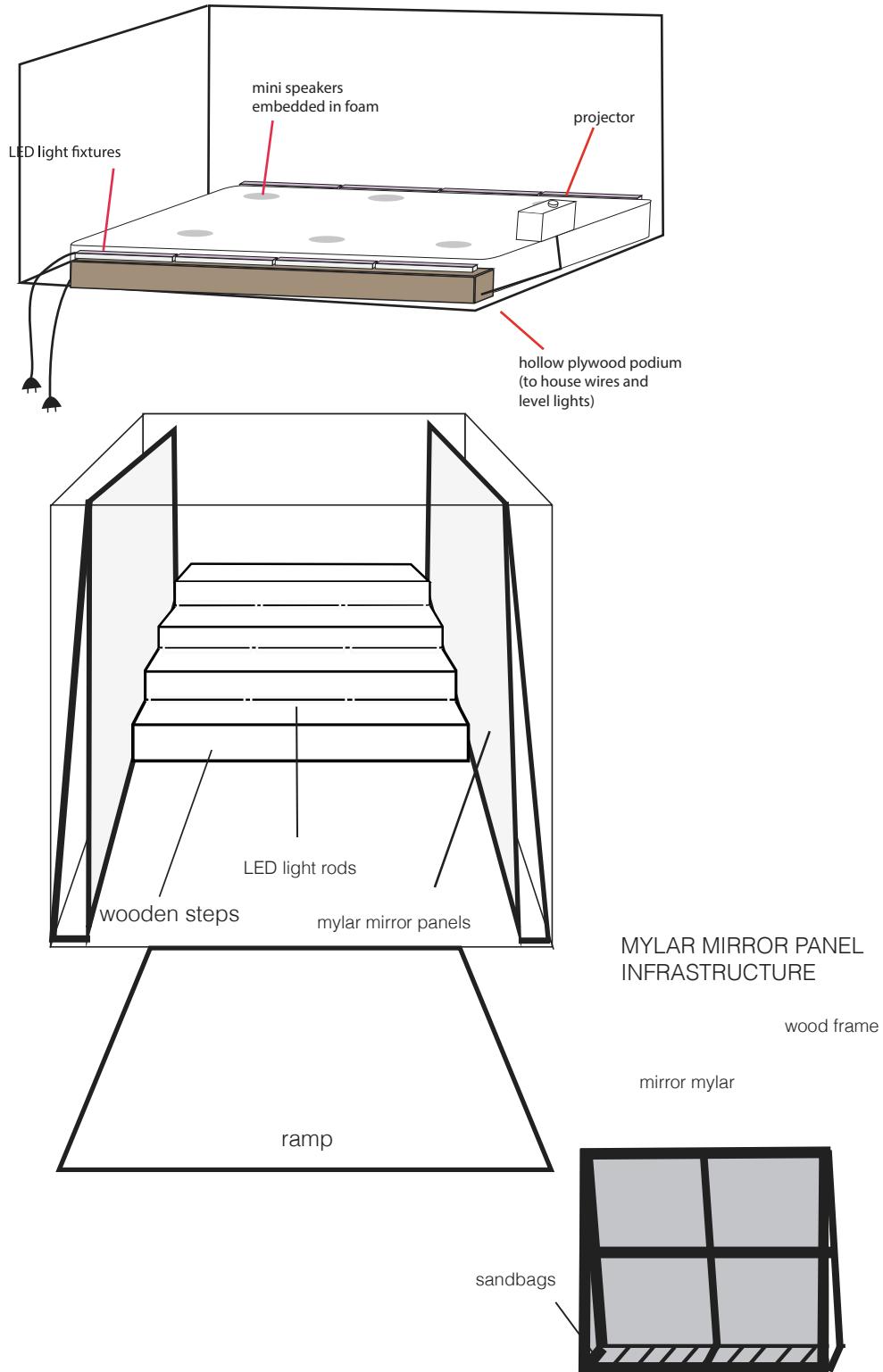
LUMINAL SPACE also comprises audio and video components. The audio takes in the space's ambient sound—the wind, the urban clatter, the voices of the piece's inhabitants—and processes it in real time, regurgitating a musical-but-distorted variation of these everyday noises. Played quietly, the sounds entice listeners to determine their origins: was that a car driving by, a door opening, my own voice? The mirrors disrupt and enhance our visual conceptions of ourselves. They collapse our community and our physical environment into our own bodies, in the context of an activity unique to our community (sitting on Low Steps). The audio similarly distorts our sensual experience of space.

LUMINAL SPACE's video component further enhances the effect. It takes visual data of the space and its inhabitants and projects the data back (with its colors distorted) onto the mirrors and the steps. In so doing, the projections more emphatically involve the bodies of the piece's inhabitants, forcing us to feel our movements through the space, to reconstruct our bodies (their shapes and colors) in the face of an image that works to distort them. LUMINAL SPACE is disorienting. The piece attacks your senses and flips your perceptual relationships to yourself and your surroundings.

LUMINAL SPACE finally strives to emphasize presence in a community that too often looks to the past and future. "Forever," writes Emily Dickinson, "is composed of nows." In a work that is defiantly present in its reconstitution of our community, we can reevaluate the intersection of time, place, and identity—examining a now that is a part of forever.

Ideas from the “U-Haul Project”

**Luminal Space came from the U-Haul Project.
We originally wanted to create light and sound
installations in 17ft U-Haul trucks, to be parked
on College Walk.**



Notes - 3/23/15 The day we decided to mirror Low

OR WE COULD JUST MIRROR LOW STEPS !!!!

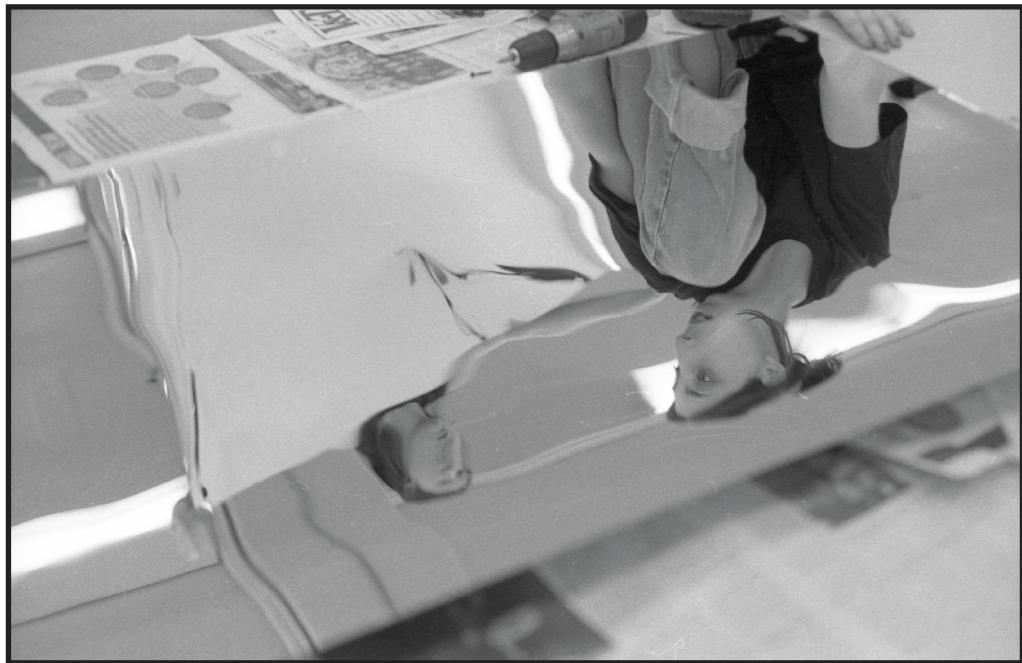
aluminum mirror glass****

http://www.sunrise-firm.com/html_products/Large-size-aluminum-mirror-19.html

- estimate and see if they can cut !
- ask shipping and how one assembles them
 - 5 mil
 - foam board
 - double mount backing tape
 - gloves
 - lemon pledge soft polishing cloth cloth diaper - smoother
 - 3 days 5/6 working days
 - headphones after amplified sound is turned off
 - foam adhesive
 - or we could just use mylar- illuminated polyester film ?

PANINI D'PARTI
fundraiser at Panini D'Parma



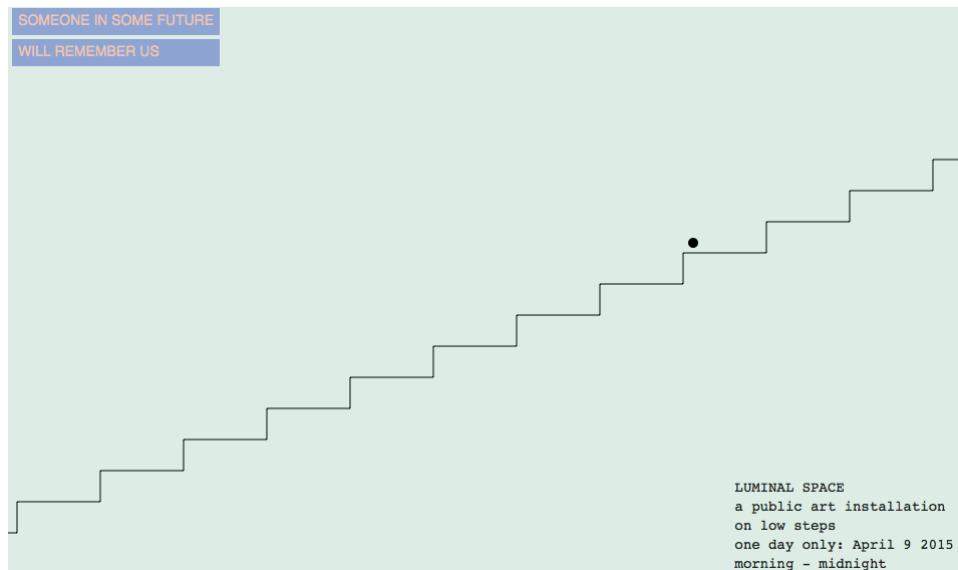


WWW.LUMINAL.SPACE

www.luminal.space/panini/



www.luminal.space/climb/



www.luminal.space/mirror/



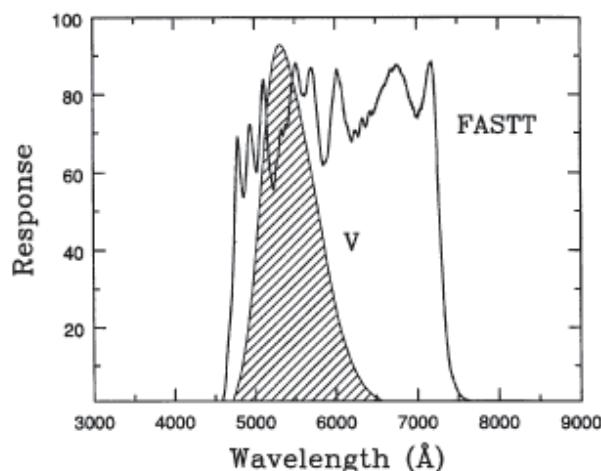


FIG. 1.—The passbands for the FASTT transit telescope and the Johnson V passband are shown. The irregular response of the former is caused by the interference filter used to define the passband.

$\lambda\lambda 3000$ – $10,000 \text{ \AA}$, which is important for many applications. Sections 2, 3, and 4 of this paper describe how this refraction can be computed, and in Sec. 5, this refraction is compared with tabulated values of refraction determined at the Pulkovo Observatory.

2. REFRACTION THEORY

In a pure sense, atmospheric refraction should be determined theoretically by tracing the path of light through the Earth's atmosphere, wherein the refraction will be just the difference in the directions of the light before it enters the atmosphere and as seen at the telescope. In order to make this tracing, detailed knowledge of the atmospheric temperature, pressure, and water vapor is needed along this path. Although these aerological data can be obtained from radio-

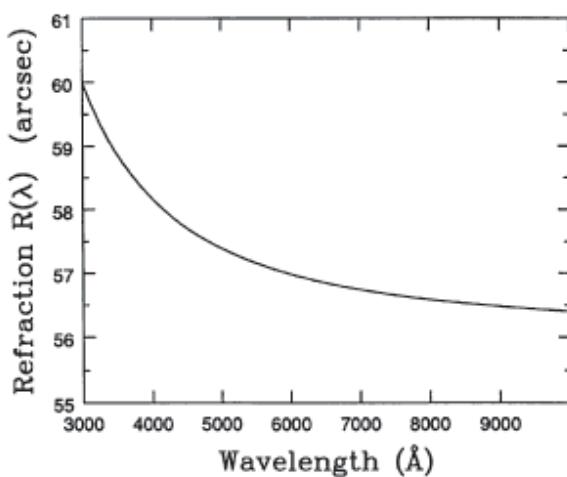


FIG. 2.—Atmospheric refraction as a function of wavelength is shown over the wavelength interval $\lambda\lambda 3000$ – $10,000 \text{ \AA}$, at a zenith distance of 45° , and ambient conditions characterized by temperature 15°C , atmospheric pressure 760 mm , and no water-vapor pressure. Refraction is stronger at shorter wavelengths.

sonde, radar, and lidar measurements, it would be impractical to do so on a nightly basis because of the high costs involved. Alternately, a model for the atmosphere can be assumed, and the aerological data assumed from it. The *U.S. Standard Atmosphere* (1976) is often chosen, and there have been several studies using this approach (Garfinkel 1967; Fukaya and Yoshizawa 1985; Yatsenko 1995). Also, refraction can be determined in a very straightforward manner, requiring only knowledge of the meteorological conditions (ambient temperature, atmospheric pressure, and water vapor) recorded at the observing site with each observation. Besides being very simple (only analytic expressions are used) and fast, this approach is also very accurate for zenith distances under 75° . The theory is described by Smart (1965) and Green (1985) and will be briefly discussed in this paper.

A good approximation is that the Earth's atmosphere is spherically symmetric, in which case, the atmospheric refraction $R(\lambda)$ at wavelength λ is given exactly by the refraction integral

$$R(\lambda) = r_0 n_0 \sin z_0 \int_1^{n_0} \frac{dn}{n(r^2 n^2 - r_0^2 n_0^2 \sin^2 z_0)^{1/2}}, \quad (1)$$

tracing the path of light from above the Earth's atmosphere to the observing site, where z_0 is the apparent zenith distance of a star (as seen by an observer at the observing site); n_0 is the index of refraction of air at the observing site; n is the index of refraction at some arbitrary point along the incoming path of light; r_0 is the geocentric distance of the observing site; and r is the geocentric distance at the arbitrary point. The subscript (0) corresponds to conditions at the Earth's surface. According to the Gladstone–Dale Law, the index of refraction n at an arbitrary point in the Earth's atmosphere can be expressed in terms of the densities of air at the arbitrary point ρ and at the Earth's surface ρ_0 with the expression

$$n = 1 + (n_0 - 1) \frac{\rho}{\rho_0}. \quad (2)$$

Equation (2) can be substituted into Eq. (1), and the latter expanded into a power series of the form

$$R(\lambda) = B_1 \tan z_0 + B_2 \tan^3 z_0 + B_3 \tan^5 z_0 + \dots, \quad (3)$$

where the first two terms in the expansion are given by

$$R(\lambda) = \kappa \gamma (1 - \beta) \tan z_0 - \kappa \gamma (\beta - \gamma/2) \tan^3 z_0 \quad (4)$$

with the definitions

$$\gamma = n_0 - 1, \quad (5)$$

$$\beta = \frac{H_0}{r_0}. \quad (6)$$

By retaining only the first two terms in Eq. (3) (which is a very good approximation for zenith distances $z_0 < 75^\circ$), the refraction can be easily computed with Eq. (4), which requires only knowledge of the meteorological conditions at the observing site and the apparent zenith distance of the object being observed. For a spherical Earth, the value of parameter κ is $\kappa = 1.0$.

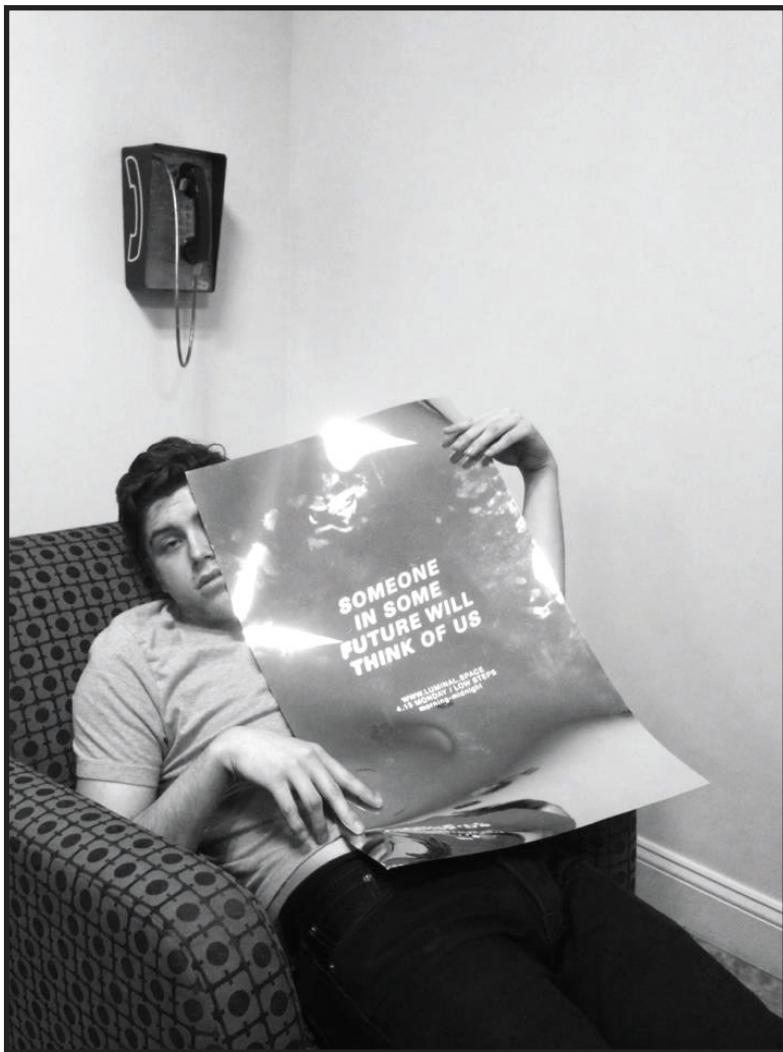


Mirror Piece

Instead of obtaining a mirror,
obtain a person.
Look into him.
Use different people.
Old, young, fat, small, etc.

1964 Spring

— YOKO ONO



A Memorable Fancy, from The Marriage of Heaven and Hell

The ancient tradition that the world will be consumed in fire at the end of six thousand years is true, as I have heard from Hell.

For the cherub with his flaming sword is hereby commanded to leave his guard at tree of life, and when he does, the whole creation will be consumed, and appear infinite, and holy whereas it now appears finite & corrupt.

This will come to pass by an improvement of sensual enjoyment.

But first the notion that man has a body distinct from his soul, is to be expunged: this I shall do, by printing in the infernal method, by corrosives, which in Hell are salutary and medicinal, melting apparent surfaces away, and displaying the infinite which was hid.

If the doors of perception were cleansed every thing would appear to man as it is, infinite.

For man has closed himself up, till he sees all things thro' narrow chinks of his cavern.

— WILLIAM BLAKE

Created by:

Kt Lee
Katie Giritlian
Joe Bucciero
Sam Williger
Will Church
Clement Gelly
Duncan Lomax
Annie Mesa
Julian Nebreda
Kevin Roark
Ione Wang
Uno Udo
Emma Lesher-Liao
Maddie Martin

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And our very own volunteers for helping out!



You may forget but

Let me tell you
this: someone in
some future time
will think of us

— Sappho