A New Academic Green Space for Ithaca College

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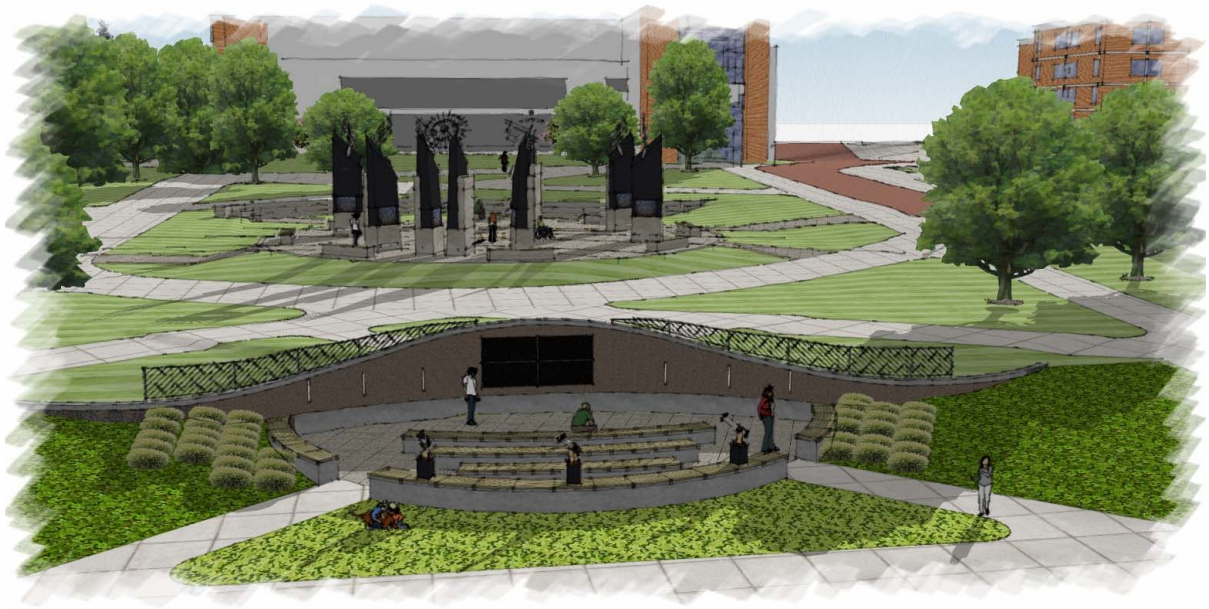
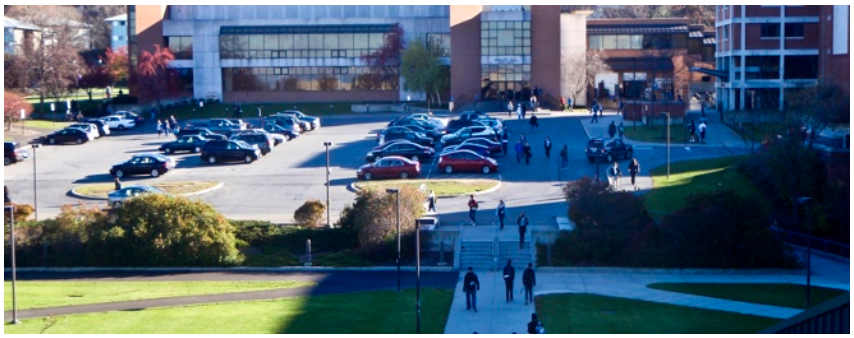
Project overview. We propose to develop an outdoor integrative teaching and learning environment as part of a new green space in a central location on the Ithaca College campus. Among the most prominent features of the green space will be an outdoor classroom and a *Naked Eye Observatory* (NEO), both of which will also accommodate outdoor programs and performances. The most remarkable and immediately visible feature will be the observatory, integrated into the new space to facilitate multidisciplinary teaching and learning across Ithaca College schools and academic programs. As a whole the facility will transform the unattractive, and potentially hazardous U parking lot—between Phillips and Williams Halls, the Center for Natural Sciences, and the Park School—into ***a new and inviting green space with academic purpose that will serve as a visible and functional demonstration of the IC20/20 vision and many of its defining initiatives.***



An architectural model of a planned new green space including the proposed classroom and Naked Eye Observatory to occupy the current location of the 'U' parking lot on the Ithaca College campus. This view looks south from the Park School of Communications towards the Emerson Suites, with Williams Hall just visible in the upper right. The Naked Eye Observatory structure is the circle of black pointed columns; the outdoor classroom is in the foreground. *Image by HOLT Architects of Ithaca, NY.*

Potential to capture the imaginations of the IC community and the general public. This new facility will challenge our individual and collective imaginations in its on-going use. Several informal conversations with faculty, students, and staff have identified significant uses of the new space in addition to outdoor class meetings and the celestial observations and investigations of time keeping enabled by the NEO. Theatrical performances, including Greek-style theater that is traditionally staged in similar spaces and monuments, will be possible. Faculty and students in the School of Music have dreamed of an outdoor performance space for some time and the new green space, if designed with performance-related technical details in mind, will meet their needs. As an example, the inner diameter of the proposed facility is 50 feet and the Ford Hall stage, at 60 feet by 36 feet, would nearly fit inside of the circle of stone columns so that the center of the observatory can serve as a significant performance space with seating arranged around the outside of the facility. Smaller musical groups can take advantage of seating on the south side of the observatory circle with a view of the



View of the U parking lot looking from the Park School of Communications south towards Emerson Suites, roughly the same view as in the architectural model presented on the previous page. Presently pedestrian and vehicular traffic compete for use of the space.

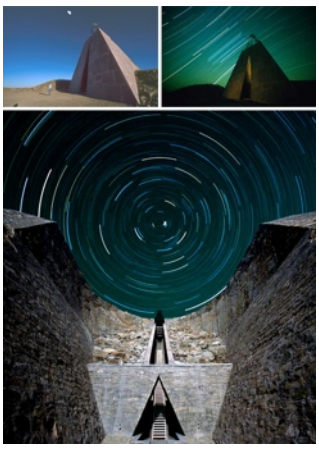
musicians and stone columns as a backdrop. Students and faculty can also explore the particular acoustics of the facility and compositions or arrangements inspired by the space and observatory monuments. The current design provides for the option of temporarily covering the space inside the observatory circle of columns when needed.

Conversations with members of the School of Health Sciences and Human Performance have identified several uses with a human performance focus. The openness of the facility is attractive and can accommodate people in wheelchairs and those with gross motor issues so that they can participate fully without special accommodations. The facility will also serve as an excellent destination for field trips where physical science students host Longview residents and other groups. Recreation and Leisure Studies students can use the facility to enhance their understanding of the motion of the stars and basic celestial navigation before heading out into the wilderness.

A professor of anthropology suggests using the NEO while teaching about Stonehenge and other sites with astronomical alignments in World Archaeology, a core course offered every semester in the Anthropology Department. This semester alone there are approximately 150 students taking World Archaeology from across the College. *This is just one of many specific ideas from different academic disciplines for using this facility as a teaching aid.*

A unique observatory. The *Naked Eye Observatory* is an astronomical observatory with *no telescope*. The proposed 60-foot-diameter installation has nine concrete and stone columns each precisely aligned with the Earth and the heavens to allow naked-eye observations (*i.e.* unaided by any optical devices like telescopes or cameras) of stars, the moon, the daily motion of the sun, and the motion of the earth in its annual orbit around the sun. Atop each column is a metal structure designed to guide users and aid specific celestial observations.

Outdoor classroom. The green space includes an amphitheater-style classroom with audio-visual capabilities that will provide an outdoor teaching facility for the entire campus. The outdoor classroom can stand alone for academic use and for presentations and performances and can also be used for observatory public open house events in conjunction with the Ithaca College Clinton Ford Observatory. The entire facility is designed to intentionally incorporate and encourage awareness of multicultural and observable dimensions of people's sense and awareness of place and time. It's primary purpose is to integrate classroom disciplinary learning with experiential and integrative learning.



Three naked eye observatories that inspired design features of the proposed Ithaca College NEO: (left) Star Axis, 21st century, under construction in Mew Mexico, USA; (center) Jantar Mantar, 18th century NEO located in India; and (right) Gaocheng, 13th century, located in China.

Historical and cultural inspiration of the green space and observatory. People have used naked eye observatories for centuries to study and track celestial objects. In many cases, these observatories were used for time keeping, as clocks and calendars. Some began as monuments in part for worshiping celestial objects, or the deities they represented, and were therefore also deeply integrated into the culture of the geographical region. The design of the Ithaca College Naked Eye Observatory and amphitheater began with a study of several contemporary and historical naked eye observatories and celestial time keeping instruments located in Asia, Europe, North America, and South America. The physical forms of these observatories emphasize a geometrical relationship between Earth and the sky and are often minimalist in nature, designed to aid human observers in tracking the locations and movement of celestial objects. The design of the IC NEO will follow a similar approach and will be informed not only by celestial observations but also in a very contemporary educational and regional context. Like all NEOs, our observatory will illustrate for its users (and passers by) the physical connection between our positions and local time on Earth and the motion and appearance of easily observable objects in the heavens. For some visitors to the IC NEO, it may conjure images of Jantar Mantar in India, Teotihuacan in Mexico, the Big Horn Medicine Wheel in Wyoming**,** the Chinese Gaocheng, stone circles in England, or instruments like the astrolabe, sextant, quadrant, or armillary sphere. In fact IC NEO's design is inspired by all of these celestial observatories and instruments and by the cultures who devised and used them. Many of the forms, materials, and construction methods will be contemporary interpretations of historical forms and symbolic representations of other naked eye observatories and instruments, but the IC NEO is much more than a historical monument to celestial observations: its design is **a deliberate invitation to people *here and now* to appreciate and pay attention to their terrestrial and celestial surroundings** as they learn about the natural world.

Academic purpose. Use of the space and NEO as educational facilities at Ithaca College will involve substantial and on-going collaboration and work on the part of students, faculty, and staff in disciplines like philosophy, physics, astronomy, science education, music, theater, photography and film, mathematics, art & architecture, history, and anthropology to name a few examples. IC Facilities Grounds and Maintenance personnel and IC administration have and will continue to play central roles in the planning, design, construction, and maintenance processes. Its use also has tremendous value as an educational destination for **K-12 students and teachers from Ithaca and surrounding communities** and it will have synergy with the highly popular and successful *Sciencenter* of Ithaca and may become a site in the *Sagan Planet Walk*. A unique aspect of the NEO is its versatility as a facility for both formal and informal education: people of all ages will learn by simply wandering around the facility on their own and students will use the NEO in formal courses and for individual projects.

The Ithaca College Naked Eye Observatory will

- provide a facility for formal and informal investigation of culture, history, and science;
- be an educational destination for local and regional K-12 students and teachers;
- be an aesthetically interesting and provocative artistic structure;
- be central to a new green space and walkways between campus buildings;
- facilitate college and public events and performances;
- be used for performance-based learning in formal courses across campus;
- be accessible to anyone at any time without supervision or special equipment;
- be useful even in partly cloudy weather as long as the sun and/or moon are visible;
- be the first such facility in the Northeast (and second in the nation after the MTSU *Uranidrome*, an award-winning educational facility); and
- include a fully functional outdoor classroom located adjacent to the observatory structure.

Formal education learning outcomes. The IC NEO will serve as a focus for formal teaching and learning in many IC disciplines with **clear and measurable student learning goals.** Regardless of the specific disciplines using the NEO, after exploring and using the facility students will be able to

- explain how past cultures viewed the heavens and understood the workings of the universe;
- explain how human understanding of nature has evolved through history from an exercise of pure logical reasoning to contemporary scientific reasoning using observational and experimental methods;
- experimentally determine the latitude and longitude of Ithaca;
- locate and use the North Star and surrounding constellations to tell direction and time;
- examine sunrise and sunset points to explain the Earth's tilt and the seasons;
- identify the first days of spring, summer, fall, and winter;
- explain lunar phases by examining the positions of the Sun, Moon, and Earth;
- identify the apparent paths of the planets through the night sky;
- calculate relative distances from Earth to the Sun and moon; and
- measure the Earth's rotation rate (the length of a day) and its rate of revolution around the Sun (the length of a year).

Informal education learning outcomes. Once the observatory is open to the public, both at IC and beyond, we will work with the Ithaca College Partnership in Teaching program and with the Ithaca *Sciencenter* to tap into their vast experience connecting with the Ithaca area public and local schools. IC physics professor Bruce Thompson has been involved with the *Sciencenter* for over 20 years and will serve as our contact.

Aesthetic value and a focus for community development. In addition to its educational utility across schools and disciplines, our Naked Eye Observatory will

- be a beautiful and compelling piece of interactive art on campus;
- be an inviting place to meet, study, visit, or just pass through;
- be a compelling combination of ancient and contemporary architecture;
- be a focal point to encourage/acknowledge financial contributions to this and other projects;
- capture the imaginations of the campus community and our visitors;
- be useful in both marketing and admissions recruiting efforts; and
- replace an unattractive and somewhat dangerous parking lot with a pedestrian friendly network of walkways, green space, and educationally significant architecture in the very heart of campus.

Design and construction of the new green space, classroom, and NEO will serve as a physical illustration of the IC20/20 philosophy, by enabling our community to leverage our current strengths through integrative learning, fulfill our mission of institutional excellence and academic achievement in immediately visible and tangible ways, and expanding our vision. The project has and will continue to focus on:

- The ***artistic and architectural*** layout of the facility, aesthetic integration into the campus grounds, the building materials and appearance of the standing columns, as well as materials and appearance of the observation guides capping the columns, and materials used in the classroom and NEO plaza.

- The ***integration of the facility into the campus master plan***, designing the physical structures and details of their construction, gathering cost estimates for construction, determining the on-going maintenance and its cost, and determining the necessary infrastructure (e.g. electrical and lighting, public safety for nighttime observations).

- Work on designing the ***experiments and observations*** that will be possible with the facility, on calculations of required orientation and placement of the columns and observation guides for each of the planned experiments and observations, and on calculations of construction tolerances to insure that observations have the required precision to facilitate our student learning goals. This work is largely complete since we have the excellent example of the MTSU *Uranidrome* as a guide.

- The ***study of naked-eye observatories, monuments, and astronomical structures throughout history and pre-history***, focusing on the contribution of naked-eye astronomical observations to the development of time keeping, human exploration of the heavens, science, and scientific methods. These investigations help the Ithaca College community identify instructional areas across campus that could use the facility as part of their curricula.

- The investigation of ***education and public outreach*** collaborations with the City of Ithaca, local school districts, and the Ithaca *Sciencenter* and the investigation of the pedagogical utility of the NEO across academic disciplines.

Close in view of the Ithaca College Naked Eye Observatory, looking south, showing students interacting with the space and structure. Stone columns are roughly 20 feet high including the metal observing instruments mounted at their tops.