



**DESIGN NARRATIVE  
NEW PHILADELPHIA CAMPUS  
THE BARNES FOUNDATION**

**A. Design Concepts**

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**Gallery in a Garden, Garden in a Gallery**

The original concept of the “Gallery in a Garden, Garden in a Gallery” was predicated on an important observation made by Tod Williams and Billie Tsien when they were first studying the plans of the existing Merion Gallery during the process of consideration by the Barnes Foundation. They noted that the walls that separated the smaller end galleries from the rest of the larger galleries on the first and second floors were aligned with one another and could be significantly wider without compromising the Foundation’s mandate that any new design respect the arrangement of the rooms within the Gallery. This enabled the scheme to widen the previously 10” walls to 24’ thick walls that would accept the insertion of a Gallery Garden and a pair of Gallery Classrooms on each floor.

This early observation established a structure that would guide many other decisions made resulting in the creation of the Light Court to provide natural light through the windows of the Collection Gallery. Maintaining the solar orientation of the rooms in the Gallery required that they be entered from the north and face south toward the magnificent allée of London plane trees along the Benjamin Franklin Parkway.

**Simplify and Intensify**

Within the Collection Gallery the architects have simplified and intensified the design of the floors, walls and ceilings to brighten and clarify the viewing of the Collection while respecting the importance of the relationship of the architectural detailing to the ensemble compositions. After exhaustive study, measurement and research of the details within the Merion Gallery, the architects erected a full-scale mock-up in northern Philadelphia to test different material and finish concepts. Because of the dense, salon hang of the ensembles within each room, the size and proportion of the trim, base and picture rails needed to remain at or close to the original details. However, by simplifying and intensifying the details—lightening the finish on the wood, utilizing simple floor patterns and re-shaping the ceilings to distribute new artificial lighting and mechanical air from the picture rails—the Gallery has been given a new luminosity. The windows have been re-designed to be wood, as opposed to white-painted metal, with tinted clear glass as opposed to frosted, which regains the connection of the Collection to the gardens. On the second floor, all of the Gallery rooms have received a clerestory that draws in top-light, gently diffused through a set of louvers and acid-etched glass panels.

## Sustainability

The building is currently slated to achieve LEED Platinum certification from the United States Green Building Council. In addition to specifying and installing no- or low-VOC products, FSC certified woods, recycled products (tiles, gypsum wall board and many others) and employing building practices that emphasized life and health safety, the project offers the following highlights:

- **Demolition recycling:** The site the Barnes Foundation now occupies was previously the home of a Youth Study Center that was demolished in 2008. The Contractor, LF Driscoll, was able to recycle and thus divert from landfill 90% of the available materials. Because of the age of the existing building, there were certain materials that were covered in asbestos and other materials that could not be recycled and had to be remediated in other manners.
- **Energy savings:** The Barnes Foundation design process employed an integrated building environment and exterior wall, window and roof design process that resulted in the building's Mechanical, Electrical and Plumbing systems using 40% less energy than the mandated Energy Code. This iterative process quantified design concepts using computer models that tested the surface area of glass in relation to more thermally efficient solid wall and roof surfaces to ensure the design of the "skin" of the building, where energy is frequently wasted through loss, was as thermally robust as possible.
- **Photovoltaic Panels:** The roof of the Light Canopy is covered in twelve thousand square feet of photovoltaic panels that provide 8% of the building's electrical load.
- **Landscape irrigation cistern:** Rainwater from the green roof is collected in a 40,000-gallon cistern buried along the east side of the building. The cistern is used to irrigate all the plants, ground cover and trees on the 4.5-acre site. In the event that reduced rainwater is available, a secondary system draws ground water from around foundation drains that line the basement.
- **Reclaimed/Ipe floor:** The Light Court, a room designed as the living room of the building, is a vibrant space during the day and an events space at night. In order to facilitate the diverse activities, the space needed a durable floor that was also warm and inviting. The nearly 200-foot-long ipe wood "rug" is laid in a herringbone pattern from reclaimed boards taken from the renovation of Coney Island Boardwalks in Brooklyn, NY. The boards were provided by Provenance Millworks / Old Soul Architectural Salvage in Philadelphia, PA.

## B. Important Spaces

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### Education Spaces

To supplement the teaching that takes place within the Collection Gallery, the Lower Level of the building houses a hub of educational spaces centered on a generous Lobby with comfortable seating and a library shelf for Collection books. Visitors and students can access a 150-seat auditorium, two seminar rooms, a coffee bar and a library that wraps the Gallery Garden. From the Lower Lobby, visitors can clear their heads by stepping into the Gallery Garden for a breath of fresh air. Each education space is designed with discussion, lecture and digital instruction in mind.

**The Lower Lobby** floor is 3"-strip white oak ringed in German Renaissance Grey limestone in a bush-hammered and brushed finish. The walls of the lobby are sand-blasted concrete revealing a blue angular stone aggregate. Sound is softened by way of a large acoustical wall panel made from Belgian linen that supports a 20-foot-long solid oak bookshelf that displays Barnes Collection books and catalogs. The ceiling is a 14½-foot-

high lightly sand-blasted concrete surface up-lit by continuous daylight fluorescent fixtures that draws light from the Garden farther into the space.

**The 150-seat auditorium** has a white oak floor in the seating area with German Renaissance Grey limestone flooring along the side seating wings and stage. The walls of the auditorium are primarily 6'x3' panels of Ramon Gold limestone in a linear chiseled finish interwoven with acoustic panels wrapped in dyed Belgian linen and white oak wood battens that help to break up sound reflection. The seating in the auditorium is from the Pitagora line of the Poltrona Frau Italian seating company. It is covered in a cognac-colored Italian leather that is as comfortable as it is beautiful. The ceiling of the auditorium is a wool and plaster seamless acoustic panel called Baswaphon. It is sustainable and sound absorbing.

**The Library** is one wall of white oak shelves, containing the Barnes Foundation's circulating art book collection, and another wall of wood-framed glass windows looking into the Gallery Garden. The floor in the library is 3" strip white oak like the lobby and the furniture is a mixture of solid oak custom millwork and manufactured tables by the Wilkahn Group with chairs by Martin Van Severen. A pair of Hans Wegner upholstered easy chairs beckons visitors to spend some time reading.

### **Entry Experience**

The effort to ensure that the entry experience is as tranquil as possible extended not only to the design of the gardens but also to the process and infrastructure for buying tickets and requesting information.

After exhaustive discussions with the Barnes staff to ensure a dignified and serene entry experience, the architect produced a small building near the perimeter of the site that is a first option for visitors inquiring about access to the Collection Gallery. Within this structure made of transparent glass, wood frames and a translucent green curtain, a visitor can print a ticket, buy a ticket and inquire about available times to visit the Collection Gallery or the Exhibition Gallery.

Moving past the Gatehouse to the **Pavilion**—the structure that houses the building's service functions—a visitor is first greeted in the **Main Entry Lobby** by concierge staff seated at a long solid walnut desk that can serve ticketing and membership needs, as well as provide a space to answer any questions the visitor may have prior to proceeding further into the building. The ubiquitous LCD panels that adorn most cultural institutions have been excluded, replaced instead by delicate, projected white text on an architectural concrete wall listing relevant programs and events occurring on a particular day.

The Main Entry Lobby contains walls of sand-blasted architectural concrete, a wall of Belgian linen and oak wood battens and a walnut staircase surrounding in the same Ramon Gray limestone that exists on the exterior of the building. A massive custom-printed rug softens the sound of the space and evokes the feeling of an entry foyer rug of a house.

### **The Light Court**

The Light Court is the living room of the Barnes Foundation. During the day, the Light Court will be primarily used for the orientation of groups and for casual seating and conversation as one moves into and out of the Collection Gallery. In the evenings, the space can be easily configured to accommodate a variety of events.

The Light Court is capped by the Light Canopy, a voluminous light diffuser that brings natural light into the Court, the Gallery and offices in a controlled manner. As one leaves the Pavilion and enters the Light Court, the quantity and dominance of natural light replicates the feeling of being outside before entering the Collection Gallery. The floor is re-claimed ipe (a Brazilian walnut) in a herringbone pattern bordered in bush-hammered

and brushed Renaissance Grey Limestone from Germany. The walls of the Court are a warm Ramon Gold limestone with a hand-chiseled texture inset with artisan wool felt acoustic panels made by the Dutch artist Claudy Jongstra.

A delicately detailed “veil” of acid-etched glass adorns the second floor of the Pavilion, drawing natural light into the offices. The ceiling of the Court has been designed for sound absorption and is made from wool acoustic panels covered in plaster. At the end of the Court is a large bronze-clad vestibule leading to the exterior terrace that also serves as the return air for the Court.

Furniture, designed by the architects and fabricated by Knoll International, is deployed throughout the space and can be easily removed for events. The entrance to the Collection Gallery is marked by two 2,000-pound bronze-and-glass ornamental screen doors that pivot open to welcome visitors and can be closed to isolate the climate of the Gallery from the rest of the building at night. This is an energy-saving measure that contributes to the LEED Platinum certification of the project.

### **Exhibition Gallery**

The Exhibition Gallery is a contemporary room, very different in use from the Collection Gallery but echoing the material choices nevertheless. The Exhibition Gallery has nearly 16-foot ceilings throughout, a height that enables many different types of contemporary sculpture and digital projection.

The ceilings are designed to take full advantage of the fact that air is only delivered from the perimeter walls (traditionally it would be delivered at the ceiling). Steel beams housing lighting and other building infrastructure create attachment points for a translucent plastic sheet that becomes luminous when internal daylight fluorescent fixtures are dimmed on from within the ceiling. This has the effect of creating daylight in the gallery without the potentially harmful effects. The traditional exhibition wall construction for hanging paintings stops at the corners to expose architectural concrete alcoves that can highlight or display sculpture or other objects. The floor of the Exhibition Gallery is constructed from edge-grain blocks of white oak to provide a delicate textural counterpoint to the flat luminous ceiling above. This same flooring detail exists in the Collection Gallery.

### **Garden Restaurant**

The Garden Restaurant is a 75-seat room with a wide horizontal vista onto an adjacent garden and the western end of the reflecting pool. The walls are a mixture of white oak veneer paneling, light gray welded acrylic solid surface paneling, Belgian linen acoustic panels and sand-blasted architectural concrete framing the window opening. The window opening is a series of 8'x8' sliding oak-and-glass doors that afford natural ventilation during the fall and spring months when the weather is more temperate. Above the window opening is a homage to Matisse's *La Danse* in the form of a wool felt tapestry created by the Dutch artist Claudy Jongstra. Woven by hand from wool and silk and naturally dyed with crushed flowers and vegetables, it was commissioned specifically for the building.

The seats within the restaurant are gray leather Catifa chairs by the Arper furniture company. The tables are solid oak manufactured in Philadelphia by a local millworker. A credenza for housing linens and menus along with an entry podium were handcrafted by Steven Lino, a woodworker from New York.

### **The Offices**

The offices are located on the second floor of the Pavilion, distributed across two open spaces that encourage communication among the education and curatorial staff and the administration, development and marketing

staff. A group of conference and board rooms lies between the two sets of offices for large meetings and an accompanying visitor reception area. Along one end of the floor is a fully equipped painting conservation lab that enjoys a massive north-facing window for the treatment of the works in the Collection under optimal light.

## **C. Materials**

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### **Stone**

The stone that wraps the exterior of the Barnes Foundation is a fossilized, Israeli limestone called Ramon Gray. It is quarried in the Negev desert in southern Israel and is cut and finished in the West Bank by an Israeli/Palestinian consortium. The stone is a subtle nod to Paul Phillippe Cret's original material selection of a French limestone for the Merion Gallery and was selected for its durability in winter conditions as well as its remarkable visual variety and depth. The cadence of the façade was informed by the patterning found in African Kuba cloths, while the deep stainless steel recesses between the stone panels suggest a connection to the ornamental metal objects that contribute to the symmetry of the Collection Gallery ensembles. The 12'-tall stone super-panels are an assemblage of individual pieces of 3"-thick Ramon Gray limestone that vary in size from 3' x 5' to 4' x 8'. The average weight of a stone super-panel is approximately 4,800 pounds. 110 shipping containers were needed to bring the stone across the Atlantic Ocean.

Within the Court is a warmer stone taken from a lower stratum of the same part of the Negev desert as the Ramon Gray limestone. This stone is appropriately called Ramon Gold limestone. This stone is softer and more yellow in color and has been limited to just the interior and covered portion of the exterior terrace.

Throughout the building these stones are finished in a variety of methods including random hand chiseling, a rigorous linear chisel that is evocative of cuneiform text and a simple brushed finish that draws out the color and fossilized inclusions that offer a wonderful surprise when investigating the stone close up.

### **Architectural Concrete**

The Pavilion and lower level of the building are structured with cast-in-place concrete, carefully batched and selected with aggregate and sands that can be architecturally treated by sand-blasting to produce finishes that are exposed to view. Tod Williams and Billie Tsien are known for using architectural cast-in-place concrete in their work (American Folk Art Museum, Neurosciences Institute), a material that expresses weight and permanence and is a subtle structural expression of what literally holds up the building.

In the Exhibition Gallery, Garden Restaurant, Lower Lobby and Main Entry Lobby the underside of the structural slab (ceiling of the spaces) is exposed as well. It is lightly sandblasted and up-lit to create more vertical volume within the spaces. Staff stairs, not available to the public, are also exposed architectural concrete on the walls and ceilings with the floors having been ground to expose and smooth the surface to look very similar to a terrazzo topping. Site walls are also architectural concrete, having been heavily sand-blasted to create a more monolithic and permanent land form within the soft green landscape. Using heavy material conveys a sense of timelessness.

### **Glass / Windows**

The windows are largely white oak wood framing 16 different types of glass that respond to the different thermal, lighting and security needs of their particular wall locations. The windows were selected to be wood framed to give the building walls a domestic and human quality. The windows use FSC (Forest Stewardship Council) certified white oak that is custom manufactured by the Duratherm Window Company in Vassalboro,

Maine. The glass utilizes a combination of gray tinting and reflective surfaces to reduce the visual light transmission to approximately 15% (similar to wearing sunglasses) while still animating the windows by reflecting the sky and trees on the exterior.

The glass that makes up the Light Canopy is nearly 17-foot-tall, 5/8"-thick sheets of low-iron monolithic glass (creating a whiter, cooler color) that have been acid-etched on the exterior to reduce reflection for aesthetic reasons as well as to discourage birds from flying into the glass wall. At night, a continuous strip of fluorescent lights provides a soft glow to the entire Light Canopy.

## D. Design Elements

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**Light Canopy:** The Light Canopy is a 300-foot-long, 45-foot-wide and 27-foot-tall acid-etched glass box with 12,000 square feet of photovoltaic panels covering the roof. The interior of the Light Canopy is shaped to sculpt natural light through large vertical window openings, providing the Light Court and the spaces adjacent to it with a soft, indirect light. The west end of the Light Canopy cantilevers 60 feet to cover a generous planted terrace accessible to all visitors. The inner ceilings are made of plaster, with the interior ceiling made from a sustainable wool acoustic panel coated in plaster that absorbs sound in the space.

### Roofs

The roof of each of the three main building volumes performs a particular function.

**Pavilion Roof:** The 15,000-square-foot roof of the Pavilion is covered in an extensive (shallow soil) sedum green roof. This material assists the building in offsetting the contributing heat island effect many urban structures typically possess as well as filtering the rain water into a rainwater collection system used to irrigate all the landscape on the site.

**The Light Canopy Roof:** The Light Canopy roof is covered in 12,000 square feet of photovoltaic panels that provide 8% of the building's electrical load.

**The Collection Gallery Roof:** The Collection Gallery roof is covered in white gravel to ensure it has a reflective surface to reduce the heat island effect within an urban area and is punctuated by zinc-coated copper and glass clerestory windows that bring diffused natural light into the ceilings of the Collection Gallery below.

### Light control

The Collection Gallery possesses an intelligent lighting control system that modulates the artificial and natural light entering the windows and clerestories of each room. The windows, clerestories and lighting control system have been customized for each room, designed to respond to the appropriate light exposure level established in consultation with the Head Conservator, Head Curator and lighting consultant (Fisher Marantz Stone Partners). The windows in the Gallery rooms eliminate all but 14% of the natural light through the use of tinted and reflected glass layers. When necessary, a combination of exterior "solar-veil" shades reduces the natural light a further 5% while an interior "black-out" shade can be deployed to eliminate daylight when the Gallery is closed to the public. Photo sensors directed at the walls within each room measure the light levels and respond by first reducing the artificial light and then, if required, lower the exterior "solar veil" shades. A scale replica of the rooms within the Collection Gallery sits on the roof, where similar photo sensors measure

the exterior light levels and prevent the potential constant up-and-down motion of the shades when there is a partly cloudy day.

## Artisans

Creating a building that echoed the domestic quality of the original Gallery in Merion was an early goal of the architects. By working with artisans, many local to the new building, the spaces possess a balance of refined, impressive architectural gestures with furniture, tapestries and fabrics that evoke the hand and human scale of the building. Some of these elements utilize African motifs similar to those that Albert Barnes and Paul Cret employed in their building in Merion. Some of these artisan pieces include:

**A stone tile mosaic tapestry**, fabricated by a Long Island, NY artisan named Nelson Londono, greets visitors at the threshold of the Court. The mosaic is based on a sketch drawn by Billie Tsien derived from the African Kente “liar’s cloth” pattern.

Above the public entry stair to the lower level is a grand **tapestry of prisms** made from acrylic that reflects and refracts the natural light from the entry alcove. The architects worked with Kurt Bonk, a Philadelphia metal fabricator known for glass and metal screens and light fixtures. Axis Group Limited, in Shanghai, fabricated the prisms.

**The couches in the Light Court**, intentionally arranged to form small group discussion alcoves, are designed by the architects specifically for the Barnes Foundation and fabricated by Knoll International, headquartered in East Greenville, Pennsylvania. The leather bench of the couch is topped by a bolster wrapped in a woven African fabric made by the Senegalese weaver Aissa Dionne.

The Light Court between the Collection Gallery and the Pavilion will be a place of communication and orientation during the day and an events space in the evening. Accordingly, acoustics were critical to the success of the space. The Barnes commissioned the Dutch textile artist Claudy Jongstra to create a series of **silk and wool felt panels** that visually unify the Light Court and acoustically dampen the space, and are a subtle nod to the texture and colors of the Ramon Gold Israeli limestone that lines the walls.

New Collection Gallery **chandeliers** have been designed by the architects and lighting designer, Fisher Marantz Stone, to balance the artificial light in the center of the first floor rooms. Fabricated by Aurora Lampworks in Brooklyn, New York, the chandeliers are delicate blown-glass bowls, softly etched to diffuse the light into the room and suspended by delicate bronze details.

**Furniture within the Gallery** has been created by the woodworker Stephen Lino from New York, New York. Generous walnut benches are located in nearly all of the rooms of the Collection Gallery. Bolsters double as a housing for information cards designed by Pentagram Design in New York. In the first floor gallery classroom, a massive 13-foot-long walnut table, made from one sheet of wood, serves students and visitors who wish to pause and explore the Collection catalogs or speak about the experience of viewing the Collection.

## E. Landscape

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### Gardens

The original concept of the “gallery in a garden, garden in a gallery” informed the architects’ early decision-making process regarding the landscape design. Working in collaboration with Laurie Olin of OLIN, Tod Williams and Billie Tsien sought to create a landscape experience that filtered out the sights and sounds of the city to “drop the shoulders” of the visitor before they entered the building. The architects were inspired early on by a similar walk through the Arboretum in Merion prior to entering the Gallery. However, given that the gardens on the Parkway would be decidedly smaller than those in Merion, the concept of the “gallery in a garden, garden in a gallery” led to the introduction of a garden within the Gallery building that would occur within the natural flow of walking through the rooms. OLIN spent months searching for and eventually selecting a mature array of columnar Gingko and Sweetgum trees that will eventually grow to fill the vertical Gallery Garden.

OLIN has also been responsible for the design of the adjacent Logan Square landscape refurbishment to the east and Rodin Museum garden renovation to the west. This enabled OLIN to transition some of the adjacent landscape decisions into the Barnes Foundation site to create a more cohesive experience for pedestrians along the Parkway.

The design of the gardens has added 168 new trees to the Parkway, reflecting not only species native to the area but also those in the Arboretum in Merion to create an explicit link between the two places. Ornamental trees, ground cover and wall vines have been selected for their beauty, diversity and scale in relation to the garden spaces and building. The gardens are laid out with a very linear processional quality from the South Fountain Plaza lined in horse chestnuts, transitioning to a gradually ramped terrace lined in 30-foot-tall deodar cedars and culminating in a striking allée of Japanese red maples and dramatically limbed katsura trees. The power of this composition is expanded by its adjacency to the north reflecting pool.

Perhaps the most important other landscape element is the “plinth” landscape south of the Collection Gallery. Named the “plinth” for its elevation four feet above the Parkway, the plinth is a verdant collection of ornamental trees and broadleaf shrubs that evoke the Merion Arboretum and other private gardens in the Delaware valley. This “gardenesque” planting mediates the traffic of the Parkway, providing garden views from within the rooms of the Gallery building.

### Site Planning

The Barnes Foundation sits within a vibrant urban area. From the beginning the architects conceived of the building as having four sides rather than a front and a back. As such, the layout of the gardens and distribution of site elements including a parking lot, drop-off and pedestrian entries reflected the adjacent city. To the south and east, a generous public park space greets pedestrians from Center City and various shuttle buses that traverse the Benjamin Franklin Parkway. To the east, along 20<sup>th</sup> Street, an entry forecourt of stone cobbles and a welcoming entry canopy afford drop-off by private car, taxi or shuttle. To the northeast, a generous pedestrian entry gate welcomes visitors from the largely residential area to the north known as Fairmount Park. Along the north side of the building is also a 76-car parking lot with 3 electric charging stations, 4 handicapped parking spaces, 5 carpooling spaces and 5 energy-efficient-vehicle parking spaces. The west side of the site, the least public among many very public faces, is used for a loading dock and a central utility plant.

Whether one enters the gardens on foot, by taxi or by car, all paths lead to the specially commissioned sculpture *The Barnes Totem* standing at Neubauer Plaza, which begins the journey into the building. It was important that all visitors experience a similar process of serenity and orientation when entering the building so the experience is at once personal and shared.

## **Water**

Water plays a critical role in creating a sense of serenity within the gardens and the Light Court of the Barnes Foundation building. Entering the gardens from the Benjamin Franklin Parkway, a 140-foot-long tabletop fountain made from solid Canadian black granite greets visitors. The fountain, which spills equally along the west and east sides onto a stone surface, lightly shields the sounds of cars on the Parkway. In spring, summer and fall the fountain is adorned in water lilies that delicately float along the top surface.

As visitors move farther into the gardens, they are greeted by a 200-foot-long reflecting pool laid out behind the recently installed *Barnes Totem* by Ellsworth Kelly. The fountain is approximately 6" deep and covered in gray, polished Mexican beach pebbles that give the surface a dark luminous quality whether covered in water in the warmer months or empty in the winter months. The pool is interrupted at two points, first at a "bridge" that leads visitors to the front doors and again when it tucks beneath a cantilevered concrete wall to flow into the sheltered restaurant garden.

Water re-appears inside the building within the Court, where a 45-foot-long black granite stone basin anchors the west end. A shallow 1" layer of water will fill the basin, reflecting the landscape of the exterior terrace to the west and affording a brief tactile memory of the tabletop fountain at the entry garden along the parkway.