ARCHITECTURE TOUR

CONTENTS

INTRODUCTION

This discussion-based tour encourages a deeper understanding of the Getty Center, its architectural design and history, and explores the artistic and sensory experiences of moving through and around the site.

Objectives

- Explore ways in which the architect manipulates material and technology to relate the Getty Center to its geographical surroundings.

- Provide insight into the architectural use of materials in constructing form, space and ambience that reflect functional and aesthetic considerations.

- Encourage discussion and commentary to foster increased knowledge of the site, its architecture and landscape.

- Create an experience that combines learning and enjoyment.

KEY ELEMENTS

HISTORY AND SITE

The Getty Center sits on a dramatic, 742-acre hilltop site in the Santa Monica Mountains overlooking the greater Los Angeles area.

The purchase of the property (in two land deals - one in the late 70's and the other in the early 80's) gave the Getty's Board of Trustees an opportunity to provide a unique, cultural resource for the city of Los Angeles and to integrate the Getty's growing departments and programs into a comprehensive architectural plan. After a lengthy selection process, the trustees named Richard Meier as the architect for the project in 1984. However, developing a site zoned for residences presented a challenge and depended on securing the approval of local residents and the Los Angeles Planning Commission. Working closely with homeowner representatives and elected officials, a basic framework for the design and operation of the Center was established that included a Conditional Use Permit containing 107 written conditions. The master plan was approved in 1987 and site preparation began.

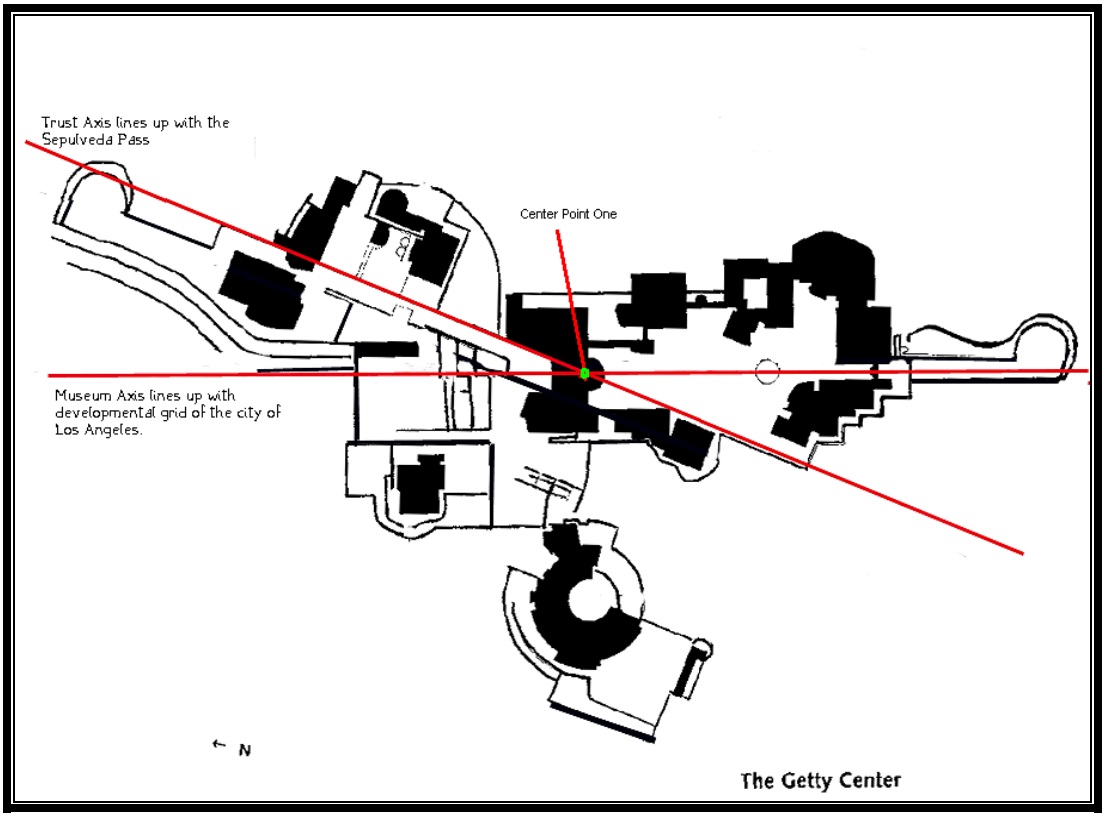
A 24-acre plot in the southernmost part of the main site of 110 acres houses the campus and two ridges provide a natural canyon as they diverge to the south. When Meier described his concept for the site in 1984, he was clear that he saw the land and the building as an integral part of the urban fabric of Los Angeles. He wrote,

> The spectacular site of the Getty Complex invites the architect to search out a precise and natural topography. … In my mind's eye, I see a classical structure, elegant and timeless, emerging, serene and ideal, from the rough hillside, a kind of Aristotelian structure within the landscape. Sometimes I think that the landscape overtakes it, and sometimes I see the structure as standing out, dominating the landscape. The two are entwined in a dialogue, a perpetual embrace in which building and site are one.[1]

In 1987, the Getty Center was the largest single-phase building project in the history of Los Angeles and ultimately cost approximately $1.3 billion. The buildings needed to be approachable in scale to promote the humanistic pursuits at the heart of the Getty's mission. Furthermore, their placements needed to foster mutual exchange and enrichment while reflecting – both functionally and aesthetically – the distinctive nature and purpose of each program. The buildings occupy 5 of the 24 acres; gardens or terraces occupy 19 acres. The rest of the main site's 110 acres are left in their natural state while all remaining acreage is preserved natural land in the adjacent hills.

[1] Meier, Richard. Building the Getty. (New York: Alfred A. Knopf, 1997) 36-37

RIDGES AND GRIDS



> The topography gave me clues about the organization of the complex- when I began working on the design, I noticed there are two ridges on the hilltop, which intersect at an angle of 22.5 degrees. Nearby there was a built environment that matched those contours perfectly: the freeway and the Los Angeles street grid. I felt we should take advantage of that coincidence and site most of the buildings on the intersecting ridges. That way the Getty Center sets up a dialogue between the street grid and the hilltop, between the project's place in L.A. and its place in the Santa Monica Mountains.[2]

A grid, the underlying structure behind the chart and graph, is a mathematical device that organizes space according to X and Y coordinates. It acts as an adaptive scaffolding, a skeleton on which the content of the architecture is scaled and hung. At the Getty Center, two superimposed grids with a displacement of 22.5 degrees and scaled at 15'x15' align with the two ridges. The scale is further reduced to 30"x30" in the built environment. Meier grounds the architecture to the two grids suggested by the intersecting ridges but notes, "As architects, we frequently use a grid as a tool to create some sense of order at the inception of a design and then gradually abandon it

[2] Meier, Richard. Interview with Getty Public Affairs. Los Angeles. 1998.

as the design progresses; it has served its purpose in breaking the barrier that delay making those first marks on paper."[3]

BUILDING MATERIALS

Concrete and steel form the structural foundation of the buildings. Three main elements of travertine, aluminum panels and glass interplay with Meier's use of light, color, texture, framed views, outdoor rooms, space, scale and landscape.

Travertine

> I wanted something that would offer the substance and surface texture of traditional masonry. I had seen rough cut, richly textured samples of limestone, which were too soft and too expensive for our purposes, so we sought to achieve a similar effect with travertine.[4]

The 1.2 million square feet of beige, cleft-cut, textured, fossilized travertine was installed inside and outside as building cladding or paving. 290,000 pieces of travertine catch the Southern California daylight, reflecting sharply during morning hours and emitting honeyed warmth in the afternoon.

> I remember flying over the Grand Canyon on my way to Los Angeles and thinking that the rock of the canyon had a particularly magical texture that responded to the warm tone of the light with heightened intensity.[5]

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[3] Brawne, Michael. The Getty Center Richard Meier and Partners. (London: Phaidon Press, 1998) 42
[4] Williams, Harold M. et al. Making Architecture: The Getty Center. (Los Angeles: The J Paul Getty Trust, 1997) 35
[5] Meier, Richard. Building the Getty. (New York: Alfred A. Knopf, 1997) 94

The approximately 16,000 tons of travertine used in the project were quarried in Bagni di Tivoli, Italy, fifteen miles east of Rome. A splitting process was invented that broke the stone along its natural flaw lines, resulting in a rough textured surface in which exposed fossilized elements such as leaves and feathers can be seen.

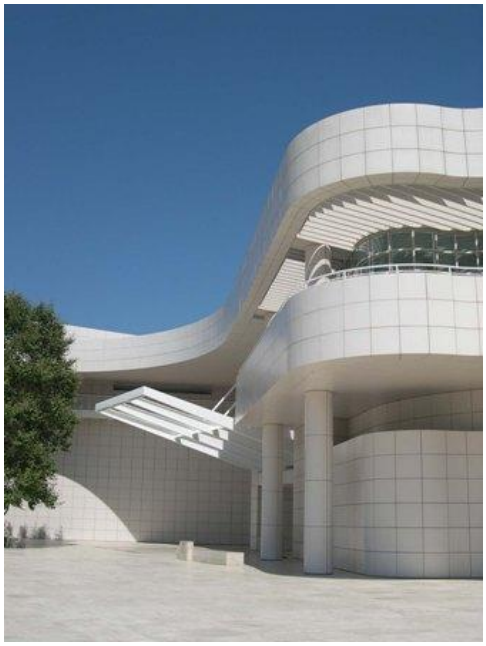
Travertine Feature Stones

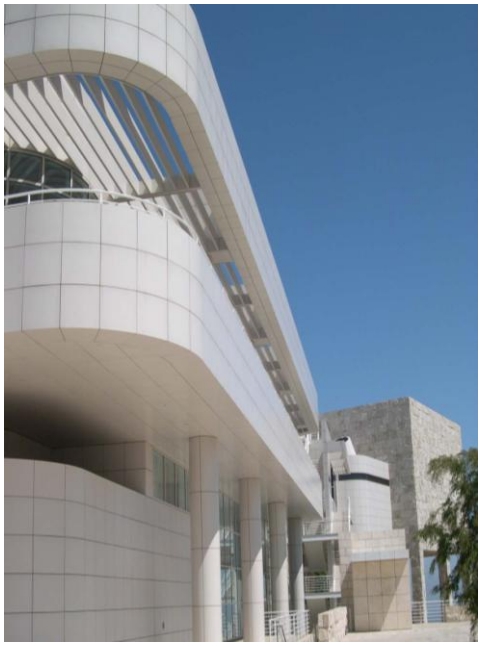
Feature stone along the fire access ramp, tram arrival level

I had spotted these discarded, malformed, fossilized fragments when I first visited Carlo Mariotti's travertine quarry near Rome. I asked Carlo to give us one, with the understanding that I would name it after him and insert it into the travertine wall flanking the pool in the second pavilion cluster. Thereafter I indulged in a game of incorporating similar stones into different parts of the fabric, first cryptically commemorating Carlo's family, his wife and his sons, and then certain key members of the Getty team. This was, in truth, a kind of secret Duchampian puzzle, since the stones are not inscribed and the names are only registered on the drawing. Only I and my staff know which stone is meant to honor whom. All of these stones were inserted in the dressed-stone surfaces at eye level or below, and provide a heightened awareness of the material by their subtle contrast.[6]

[6] Meier, Richard. Building the Getty. (New York: Alfred A. Knopf, 1997) 170, 186

Aluminum





> I had several criteria for the cladding on these buildings. The opaque surfaces require a material that is simple, pliable, panelized, and relatively light – one that will complement both the glazing and the stone-clad site walls below. In answer to these demands, we expect to use porcelain-enameled paneling. Like stone, this material is permanent, and it will lend a uniform scale to the buildings it will cover. Such panels have a particular advantage in that they can easily be molded to fit the structures' fluid, sculptural forms. The panels will provide an elegant surface. The enameled finish will emphasize the light, transparent qualities of the buildings without being highly reflective – without being shiny. At the same time this material will offer both a contrast and a complement to the Museum's stone surfaces. And it will be a subtle reminder of the landscape with which I have become so familiar; I see these buildings absorbing the greens and blues of the surrounding hills and sky.[7]

Enameled aluminum panels, a trademark of Richard Meier, comprise the outer surfaces that are not stone or glass. The flexible nature of the material enabled him to design both organic and geometric shapes. The neutral tone of the panels allows reflection of the surrounding environment.

Aluminum panels are evident in other notable Richard Meier designed buildings such as The High Museum in Atlanta, Georgia; The Atheneum in New Harmony, Indiana; Hartford Seminary in Connecticut; The Museum of Modern Art in Barcelona, Spain; The Museum of Decorative Arts in Frankfurt, Germany; City Hall in The Hague,

[7] Williams, Harold M. et al. The Getty Center Design Process. (Los Angeles: The J Paul Getty Trust, 1991) 23

Netherlands; The Paley Center for Media in Beverly Hills, California; Ara Pacis Musuem in Rome, Italy; and Canal Plus headquarters in Paris, France.

Glass

> A wall of glass is as strong and as powerful a membrane as any material in describing the limits of enclosed space.[8]
>
> I think it is important in any museum design. You should know where you are within the building.[9]

The reflective and refractive nature of glass offers multiple viewing experiences. As light moves through and across the 164,000 square feet of exterior glass, images are reflected and views revealed.

[8] Meier, Richard. Prospecta 24 (New York: Rizzoli, 1988) 104-105

[9] Slatin, Peter, ed. Richard Meier and Frank Stella: A Conversation Between Architect and Artist. Arte e Architettura. Exh. cat. Palazzo delle Esposizioni. (Rome, 1993). 233

DESIGN FEATURES

Light

> The most powerful aspect of the Getty site is the quality of light that is natural to it, which is astonishingly beautiful. That clear, golden California light is, I must say, intoxicating to an Easterner. I long to make walls that have openings for the glorious light to flood through, casting crisp, delicious shadows. I am eager to see built structures set against that brilliant blue sky of southern California.[10]
>
> What pleases me now is that both the stone and the off-white metal paneling reflect the light of day in a different way, changing hour by hour and taking on an earthy hue when they catch the rays of the setting sun.[11]

Natural light, experienced both inside and outside, is one of the Getty Center's important architectural design features. Richard Meier's use of glass, aluminum panels and travertine takes full advantage of the interplay between light and geometry.

[10] Meier, Richard. Building the Getty. (New York; Alfred A. Knopf, 1997) 36
[11] Ibid, 189

Color

White conventionally has always been seen as a symbol of perfection, of purity and clarity. If we ask why this is the case, we realize that where other colors have their relative values dependent upon their context, white retains its absoluteness. At the same time, it may function as a color itself. It is against a white surface that one best appreciates the play of light and shadow, solids and voids. Goethe said, "Color is the pain of light." Whiteness is perhaps the memory and anticipation of color. For me, the contrast becomes the definition – that which is natural, organic, changing, contains at different times, all of the colors of the rainbow. And that which is man-made should help to focus and intensify one's perception of all that is around us.[12]

The lavender pergola adjacent to the Restaurant Plaza is reminiscent of the hues in the distant hills. Jacaranda trees and other flora such as Spanish Lavender intensify this visual reference.

[12] Meier, Richard. Speech. Pritzker Architecture Prize Laureate. The National Gallery of Art, Washington, D.C. 1984

Texture

> I also wanted something that would have a roughness and a texture to it – a tactile quality. The travertine we found was ideal. It had warmth and a texture people could respond to and feel comfortable with.[13]

The materials and their varied treatments present visual and tactile contrasts. For example, the smoothness of the polished travertine, glass panes and enameled surfaces contrasts with the rough texture of the cleft-cut stone.

Framed Views

> Throughout the complex, framed views of the surrounding landscape focus one's attention and provide extraordinary views in every direction.[14]
>
> The challenge was to bring the distant horizons into the space, not as a continuous panorama but as landscape vistas that come in and out of view.[15]

Framed views provide a link between the architecture and its surroundings. In essence, the architect has created an inside-out museum; the art is Los Angeles and its terrain.

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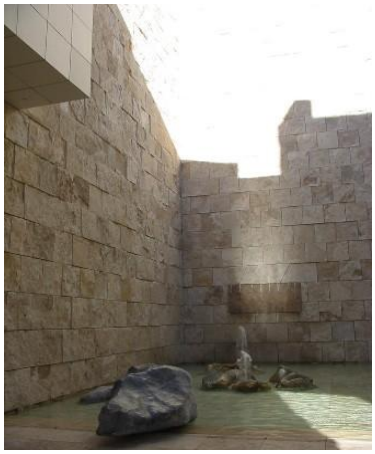
[13] Meier, Richard. Interview with Getty Public Affairs. Los Angeles. 1998.
[14] Meier, Richard. Building the Getty. (New York; Alfred A. Knopf, 1997) 204
[15] Ibid, 167

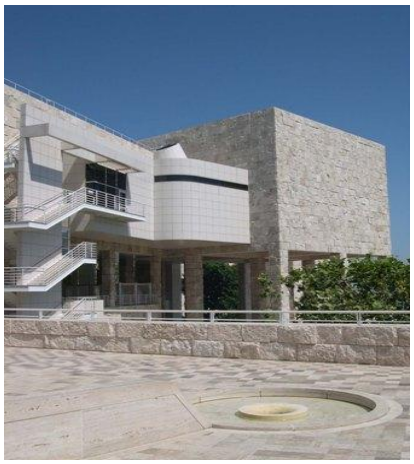
Outdoor Rooms

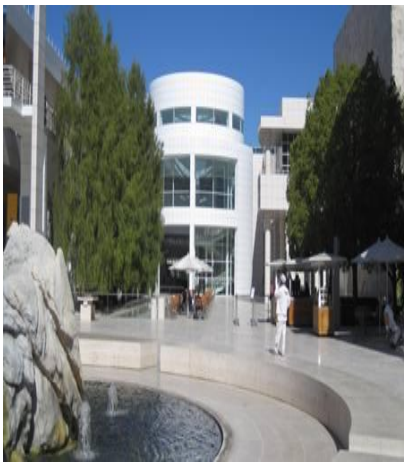


> The museum had been expressly designed to provide a series of transitional and optional outdoor spaces.[16]

Outdoor rooms, as well as courtyards and terraces, maximize the fluid relationship between interiors and exteriors creating an experience designed to avoid museum fatigue.

Space and scale





> Architecture at its best is an integration of human scale with civic grandeur, decorative simplicity with material richness, and interest in technical innovation with respect for historical precedent.[17]

[16] Meier, Richard. Building the Getty. (New York; Alfred A. Knopf, 1997) 167
[17] Ibid 37

LANDSCAPE

> In collaboration with landscape architects Dan Kiley, Laurie Olin, and Emmet Wemple, we developed a plan for the landscape that is, in some ways, as important as the buildings themselves. In time, when the plantings assert themselves, they will help define the spaces between the buildings.[18]

North Entry



At the tram station level, wisteria covers a lavender trellis shading a picnic area. The Ray and Fran Stark Sculpture Garden contains a variety of drought-tolerant plants and beyond is a California Pepper grove. Across from the sculpture garden, Jacaranda trees line the wall alongside the tram tracks. Poverty weed, local chaparral and shrubs on the hillside prevent soil erosion, discourage fire and serve as a natural habitat for deer, birds and other local wildlife. In addition, the slopes are planted with native oak trees in a 15'x15' grid to set the tone for the geometric order. This grid provides a transition from the natural environment to the architectural grid on the hilltop.

Tram Arrival Plaza


Four mature Italian stone pines, their large canopies trimmed flat to preserve views, are under-planted with India hawthorn. Aleppo pines can be seen beyond Martin Puryear's sculpture, "*That Profile*". A waterfall cascades alongside the stairway in

[18] Williams, Harold M. et al. Making Architecture The Getty Center. (Los Angeles: The J Paul Getty Trust, 1997) 34

perfect alignment with the Museum Entrance Hall and the Museum courtyard fountains. The water flows into a long narrow pool in the Plaza floor where jets create a soothing sound, which, Richard Meier explains, "helps create the sense that one has indeed arrived in a refreshing place."[19]

Cascading effects are achieved along the stairway with rosemary, cape plumbago, wild lilac and Australian tea trees (glimpsed through breaks in the travertine wall) and a series of containers (on the center stairs) planted with sweet alyssum, rosemary, and Santa Barbara daisy.

Museum Entrance/Sycamore Grove

The California sycamores, under-planted with star jasmine, were chosen for their spotted, textured barks that echo the varied colors and rough surfaces of the travertine. A fungus (anthracnose) gives the leaves a curled, dry appearance. Because both tree and fungus are native to California this is a natural process. The sycamores allude to the landscape at the Getty Villa.

North Walkway

White flowering crape myrtle trees are trimmed into an aerial hedge that aligns with the architectural geometry. Spanish lavender and star jasmine conceal the trees' root balls. A Japanese privet hedge shaped in the 30"x30" module lines the east wall of the North Walkway.

The Crape myrtles are planted in a 36" deep bed with the soil mounded around the trunks to approach a 48" depth.

East Building

[19] Meier, Richard. Building the Getty. (New York; Alfred A. Knopf, 1997) 133

Coral Tree

Chinese Flame Tree

Trumpet Tree

A coral tree, Chinese flame tree, and two trumpet trees frame the GCI entrance. The trees are under planted with Star jasmine, Australian tree fern, lily turf, mondo grass, and sweet olive.

Palm Court

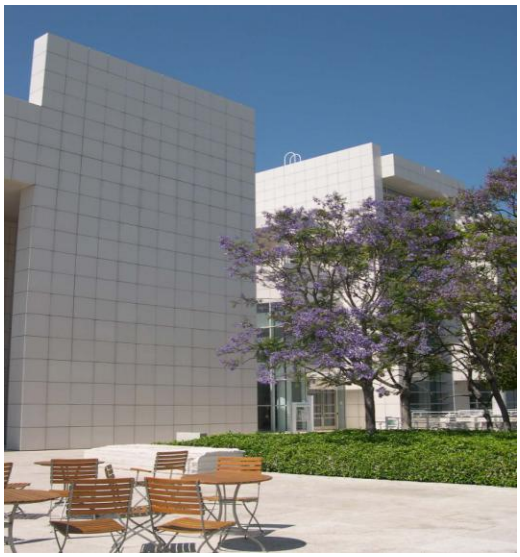
Kentia Palm

Australian Tree Fern

Tasmanian Tree Fern

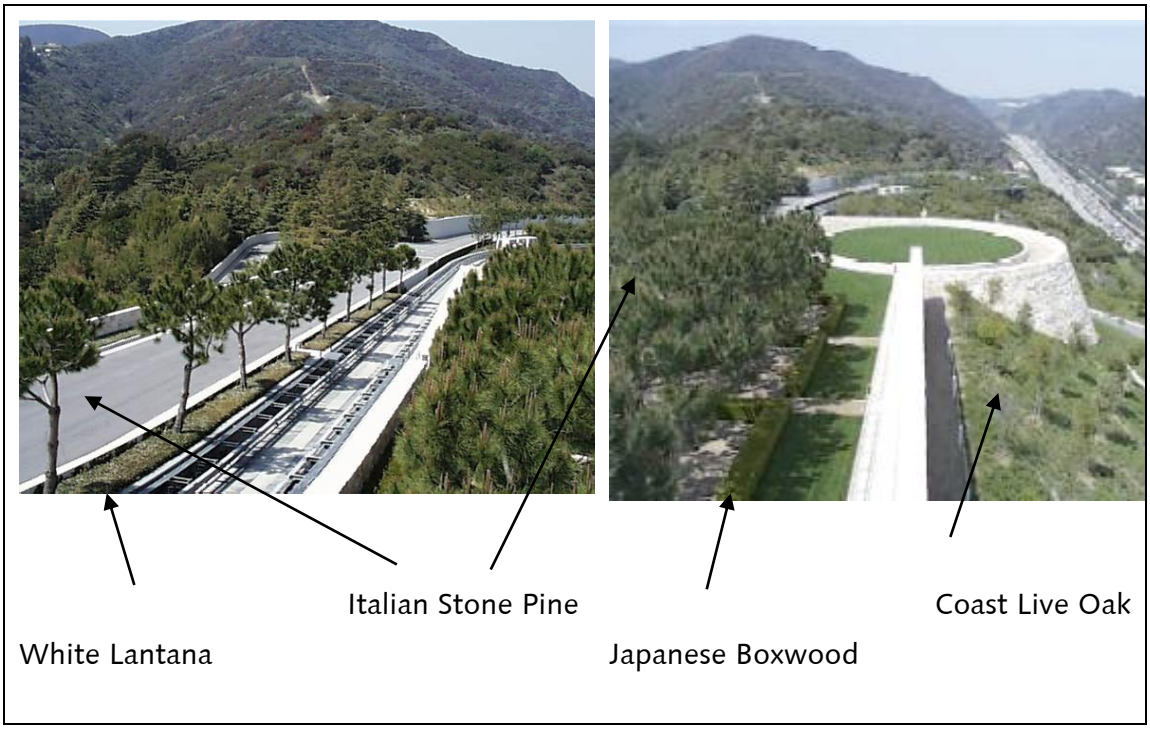
The Palm Court, designed to be viewed from above, displays a variety of palms and shrubs native to Australia, Brazil and southeastern Europe: Tasmanian tree fern, Australian tree fern, and Kentia palm are under planted with mother fern and jasmine. At the northwest corner of the Palm Court alongside the North Building are two strawberry trees.

Harold M. Williams Auditorium Plaza



Jacaranda trees are framed against the metal, cream wall of the Auditorium and under-planted with star jasmine.

North Promontory



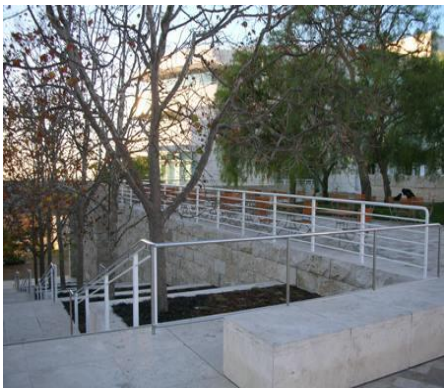
At the north side, in between the grass-topped anchor of the helipad and the Auditorium, a series of terraces serve as shaded 'outdoor rooms', separated by trimmed boxwood hedges and Italian stone pines, from which to observe the hillside and the northern face of the Getty Center. The 15'x15' planting pattern of the oaks on the hillside becomes increasingly obscure as the trees mature and die. Over 100 Italian stone pines line Getty Center Drive with white lantana or mulch serving as ground cover below.

Food Services Building

Bougainvilleas grow on the Café level of the building to buffer areas that overlook neighboring homes and purple wisteria covers a white pergola. On the Restaurant level, white-blooming wisteria covers a lavender-colored pergola.

The Yarwood Sycamores on this level are pollarded, which is a pruning technique described in the article, *Trees! From Concept to Finish*, found under the *Useful Information* section. The whole area under the grove is a 48" deep root zone for the trees. Aluminum grates around the trees are designed to break away allowing for trunk growth. The trees were chosen because they are disease resistant and the appearance of their bark relates to the color and texture of the travertine.

Runnel and Central Garden Entrance



The runnel, designed by Richard Meier and Partners, is a travertine sculpture where a flow of water rises as if from an eternal spring. When evaporation causes a lowering of the water level, a mechanism automatically shuts off until the water level increases. The water runs down the front of the sculpture, along the runnel and empties into a shallow basin where a hole allows the water to enter a grotto resembling the shape of an amphora. The runnel and Mayten trees align with the centerline of the Central Garden serving as a connection between gardens and buildings. To the right of the Central Garden entrance is a grove of California Pepper trees. The Yarwood Sycamores alongside the Central Garden steps are pruned conventionally. Beneath the trees are

mop-headed sedge grasses and black Mondo Grass. Boston Ivy covers the opposite wall.

Getty Research Institute (GRI)

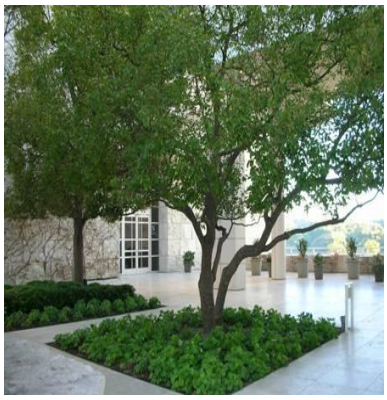
A Coast Live Oak (under-planted with a wild lilac cultivar) and a trellis (covered with Trumpet Vine and under-planted with Fortnight Lilies) frame the entrance to the GRI. To the right, Birds of Paradise (the city flower of Los Angeles) frequently attract hummingbirds, while below New Zealand tea trees are under-planted with lantana.

Museum Courtyard

A variety of trees and water features reflect the California outdoor lifestyle, taking advantage of the temperate climate and diverse plant materials. Gardens between the pavilions become outdoor rooms connecting the urban courtyards with the city below.

The eastern edge of the 120' linear water basin aligns with the axis running through the centers of the Museum Entrance Hall and boulder fountain. Emphasizing that axis are 46 water jets forming symmetrical arcs which flow into the basin. A row of Mexican Cypress trees along the western edge have a 48"-deep root zone and accommodate a 5'-root length.

Container plants are changed seasonally.



Camphor trees at the outdoor room between North and East Pavilions appear in two forms, the standard specimen and a surprise multi-trunk specimen. Their trunks take on a glossy black sheen in the rain. Plants in the bed below are seasonally rotated and Boston Ivy on the walls is intentionally maintained to a room-like height to relate with gallery entrance-ways.

Tucked between the East and South Pavilions, a small boulder fountain rests in a shallow pool that appears to be an extension of the lobby close by. Designed to surprise visitors, the space resonates with shadows and colors that change hourly as the sun filters down from above.

Outside the South Pavilion is a grove of Chinese Elms. Throughout the year, Liquid Amber trees and Boston Ivy echo the colors of the wall coverings in the Decorative Arts galleries.

Inspired by traditional Asian gardens, the Boulder Fountain provides an opportunity for reflection. Off-white, blue veined marble is arranged in a shallow basin of water and Mexican beach stone. The marble presents a sculptural contrast to the texture of the pavilion's travertine and glass. The flowing water of the surrounding fountains reflects light, animating the surface of each rock.

The pool reflects the curvature of the West Pavilion, outside the circular divide that separates it from the waters of the fountains.

Stairway to Cactus Garden Overlook

Chalk Sticks, Tree Aloe, San Pedro Cactus

Cactus Garden Overlook

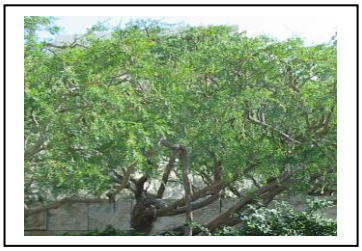
Golden Barrel Cactus, Kalenchoe thrysiflora, Apple Cactus, Century Plant

Mirroring the North Promontory's helipad, the Cactus Garden anchors the site on its southern end. The placement of cacti plants is inspired by the natural and manmade vistas that make up Southern California. The garden also serves as a metaphor for the region's arid climate and echoes the surrounding built environment.

The neighboring hillside is planted with eucalyptus trees, Mexican sage, and autumn sage. Native chaparral covers the canyon east toward the freeway.

Plant Glossary

APPLE CACTUS (*Cereus peruvianus*) - Tall, branching, treelike cactus eventually reaching 15 feet. Striking bluish green, especially when young; ribbed with scattered spines. Flowers white 6–7 inches long, 5 inches across, in June. Night blooming. Striking outline. Native to South America.



AUSTRALIAN TEA TREE (*Leptospermum laevigatum*) - To 30 feet high and wide with a rounded but irregular shape, drooping branchlets, and shaggy-barked, multiple trunks. Has small, somewhat prickly leaves and flowers like little roses distributed along the stems. Gray-green to matte green, 1 inch leaves. Single white flowers in spring. Commonly grown in California.

AUSTRALIAN TREE FERN (*Alsophila australis / Cyathea cooperi*) - Fastest growing of the fairly hardy tree ferns to an eventual 20 ft. tall, 12 ft. wide. Broad fronds are finely cut, bright green. Brownish hair on leafstalks and undersides can irritate skin.

BIRD OF PARADISE (*Strelitzia reginae*) - Grown for its spectacular flowers which bear a startling resemblance to tropical birds. Flowers combine orange, blue, and white and are borne on long, stiff stems. They appear intermittently throughout the year, but flowering is best in cool season. (*Also South Pavilion Level 2 Garden Plaza overlooking city)*

BLUE CHALK STICKS / BLUE ICE PLANT (*Senecio mandraliscae*) - Succulent perennial. Somewhat shrubby, with branches to 1–1 ½ ft. tall, spreading wider. Leaves cylindrical, 3–3 ½ inches long, slightly curved, strikingly blue grey. Native to South Africa.

BOSTON IVY (*Parthenocissus tricuspidata*) - Clings to walls by sucker discs at ends of tendrils. Superb and dependable orange to burgundy fall leaf color. Glossy leaves to 8 inches wide are usually three-lobed. This covers brick or stone in areas where English ivy freezes. Differs from Virginia creeper (*quinquefolia), which* has 5 separate leaves. Native to China and Japan.

BOUGAINVILLEA - The plant's vibrant colors come not from its small inconspicuous flowers but from the three large bracts that surround them. *'Tahitian Dawn'*- Big vine with gold bracts aging to rosy purple. *'Rosenka'*- Can be held to shrub proportions if occasional wild shoot is pruned out. Gold bracts age pink.

CALIFORNIA PEPPER (*Schinus molle*) **-** Leaves from this tree can cause dermatitis. Fast growth to 25-40 feet tall and wide. Trunks of old trees are heavy and fantastically gnarled with knots and burls that often sprout leaves or small branches. Heavy limbs; light, gracefully drooping branchlets. Bright green leaves divided into many narrow leaflets to 2 inches long. Rosy berries follow drooping clusters of tiny, yellowish white summer flowers in fall, winter.

CALIFORNIA SYCAMORE (*Platanus racemosa*) - Grows naturally along stream banks. Fast growth to 50-100 feet, often with multiple or leaning trunks. Bark flakes off in attractive patchwork of gray, white, green, and brown. They appear more gnarled than European trees due to anthracnose, a fungus native to California.

CAMPHOR TREE (*Cinnamomum camphora*) - Grows slowly to 50 ft or more. Aromatic foliage smells like camphor when crushed. Winter foliage is shiny yellow green. New foliage in early spring may be pink, red, or bronze depending on the tree. Usually strong structure, heavy trunk, and heavy, upright spreading limbs. Tiny, fragrant yellow flowers in profusion in May, followed by small blackish fruits. Drops leaves quite heavily in March; flowers, fruits, and twigs drop later. Native to China and Japan.

CENTURY PLANT (*Agave Americana* 'Marginata') - Succulent with large clumps of fleshy, strap-shaped leaves to 6 ft. long, hooked spines along the edges, and a wicked spine at the tip; blue green in color edged in yellow. Flower clusters are big, but not colorful. Produces a branched 15-40 foot flower stalk bearing yellowing green flowers after 10 years or so. The foliage clumps then dies, usually leaving behind suckers that make new plants. The plants shrivel from serious drought but plump up again when watered or during rain. Native to Mexico.

CHINESE ELM, LACEBARK ELM (*Ulmus parvifolia*) - Semi-evergreen or deciduous, depending on winter temperatures. Fast growth to 40-60 feet tall. Variable in form, but generally spreading with long, arching eventually weeping branchlets. On trunks of older trees, bark sheds in patches creating beautiful mottling in many specimens. Leathery dark green leaves are ¾ to 2 ½ inches long, evenly toothed. The leaves are yellowish to reddish orange in the fall. Good resistance to Dutch elm disease, elm leaf beetle, and Japanese beetle.

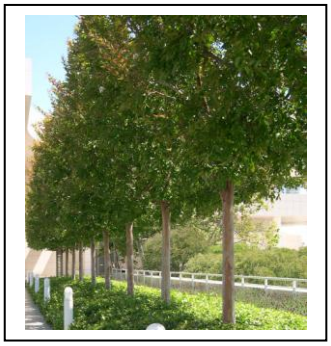
CHINESE FLAME TREE (*Koelreuteria bipinnata*) - To 20-40 ft. or taller; spreading and eventually flat topped. Leaves 1–2 ft. long, divided into many oval leaflets; turn yellow for short time before dropping. Flower clusters in late summer are similar to those of *K. Paniculata*, but 2 inch fruit capsules are more colorful: orange, red, or salmon, appearing soon after flowers and persisting into fall. Roots are deep, not invasive. Native to South America. *(North Promintory)*

CHINESE WISTERIA (*Wisteria sinensis*) - Most widely planted throughout the west. Leaves divided into 7-13 leaflets. Plants bloom before leaves expand in April - May. Flower clusters are shorter than those of Japanese wisteria but make quite a show by opening nearly full length of cluster at one time. 'Alba' is white-flowered form.

COAST LIVE OAK (*Quercus agrifolia*) - The oaks comprise 600 or so species of widely varying appearance and hardiness. Their common feature is the production of acorns - single nuts more or less enclosed in a cup-like organ made up of many closely set scales. Coast live oak is native to California's Coast Ranges. Round-headed, dense foliaged tree to 20-70 feet high, often with greater spread. Smooth dark gray bark; rounded, 1-3 inch leaves. Attractive green all year unless leaves are devoured by oak moth larvae. Has greedy roots and drops almost all its old leaves in early spring.

CORAL BELLS (*Heuchera sanguinea*) - Compact, evergreen clumps of roundish 1-2 inch leaves with scalloped edges. Slender, wiry stems 1-2 ½ ft. high bear open clusters of nodding, bell-shaped bright red or coral pink flowers ¼ inch or more across. Various types bloom between April and August. Flowers dainty, long lasting in cut arrangements, attractive to hummingbirds. Native to Mexico and Arizona.

CORAL TREE (*Erythrina crista galli*) - Deciduous shrub or small tree 15–20 ft. high and wide. First flowers form after leaves come in spring—at each branch tip is a big, loose, spike like cluster of velvety, birdlike blossoms in warm pink to wine red (plants vary). At the Getty Center, the tree blossoms wine red. Depending on environment, there can be as many as three distinct flowering periods, spring through fall.



CRAPE MYRTLE (*Lagerstroemia indica*) - Crape myrtles are among the most satisfactory of all plants for hot-summer regions; showy summer flowers, attractive bark, and in many cases brilliant fall color make them year-round garden performers. All crape myrtles bloom on new wood and should be pruned in winter or early spring to increase next summer's flowers. Crinkled, crepe-paper-like, 1–1 1/2 inch wide flowers in white or shades of pink, red, or purple are carried in dense clusters. Trained as a tree, it develops an attractive trunk and branch pattern. Smooth gray or light brown bark peels off to reveal smooth, pinkish inner bark; winter trunk and branches seem polished. Mildew can be a problem.

FORTNIGHT LILY, AFRICAN IRIS (*Dietes bicolor*) - Fan-shaped clumps of narrow, stiff iris-like, evergreen leaves. Flowers like miniature Japanese iris appear on branched stalks throughout spring, summer, and fall, sometimes well into winter (in mild areas). Each flower lasts only a day but is quickly replaced by another. Bloom bursts seem to come at 2-week intervals - hence the name "fortnight lily." To 2 ft. Flowers light yellow about 2 inches wide with maroon blotches.

GOLDEN BARREL CACTUS (*Echinocactus grusonii*) - The golden barrel cactus grows slowly to 4 ft. high, 2 ½ ft. in diameter, with showy, stiff, yellow, 3 inch spines and yellow 1½-2 inch flowers at top of plant in April-May. Native to Mexico and the Southwest U.S.

ITALIAN STONE PINE (*Pinus pinea*) - 40-80 feet. In youth, a stout, bushy globe; in middle life, a thick trunk topped with umbrella crown of many branches; in age, broad and flat topped. Needles in 5-8 inches in pairs, bright green to gray green and stiff. Cones 4–6 inches, broadly oval and glossy chestnut brown. The pines of Rome and Renaissance paintings; source of pignolias (pine nuts). Native to Southern Europe and Turkey.

INDIA HAWTHORN (*Rhaphiolepis indica*) - Among the most widely planted shrubs due to their glossy, leathery, pointed leaves and compact growth habit, they bloom profusely from late fall or midwinter to late spring with flowers white tinged with pink.

JACARANDA (*Jacaranda mimosifolia*) - Grows 25–40 feet high, 15–30 feet wide. Open, irregular, oval headed; sometimes multi-trunk or even shrubby. Finely cut, fernlike leaves, usually dropping in late winter. New leaves may grow quickly or branches may remain bare until tree comes into flower - usually in mid-to late spring, though blossoms may appear earlier to open at any time through the summer. Blossoms lavender blue, tubular, 2 inches long, in many 8-inch long clusters. Seed capsules are roundish and flat. Often fails to flower in path of ocean winds or where heat is inadequate. Native to Brazil.

JAPANESE BOXWOOD (*Buxus microphylla japonica*) - Widely used for edging and hedging. When not clipped, most grow soft and billowing. Compact foliage, small 1/3-1" round-tipped leaves, is lively bright green in summer, brown or bronze in winter. *(East ramp in Garden)*

JAPANESE PRIVET, WAX-LEAF PRIVET, PRIVET (*Ligustrum japonicum*) - Most widely used as hedges since it is an evergreen shrub. Dense, compact, growth habit. Roundish oval leaves 2–4 inches long, dark to medium green and glossy above, distinctly paler to almost whitish beneath; have thick, slightly spongy feel. Clusters of white flowers spring through summer.

LANTANA (*Lantana montevidensis*) - Fast growing, valued for profuse show of color over long season - every month of the year in frost-free areas. Light frosts keep plants in check. Heavier freezes may seriously damage or kill plants in some winters. Prone to mildew in shade or prolonged overcast weather. Spreading kinds are excellent bank covers controlling erosion. Crushed foliage has a pungent odor that some people find objectionable. "Lavender Swirl" is larger form that produces lavender, white, and mixed flower clusters. "White Lightnin" is similar but has pure white flowers.

LONDON PLANE TREE (*Platanus acerifolia* 'Yarwood') - All grow large with heavy trunks and sculptural branch patterns. Older bark sheds in patches to reveal pale, smooth, new bark beneath. Big leaves to 10 inches across are rough surfaced and maple-like with three to five lobes. Autumn color is yellowish to brown. Ball shaped brown seed clusters hang on stringlike stalks from bare branches through winter.

MEXICAN CYPRESS (or MONTEZUMA) (*Taxodium mucronatum*) - Conifers of great size with shaggy, cinnamon-colored bark and graceful sprays of short, narrow, flat, needle-like leaves. Female flowers produce round, fragrant 1-inch cones. This species is evergreen in mild climates and partially or wholly deciduous in cold regions. Extremely graceful with strongly weeping branches. Grown near streams in the wild.

NEW ZEALAND TEA TREE (*Leptospermum scoparium* 'Ruby glow') - Leaves are tiny (almost needlelike), pointed, densely set. Showy flowers. *(GRI Plaza)*

PARADISE PALM **(***Howea forsterana*) - These feather palms are the kentia palms of the florists. Slow growing to an eventual 35 feet tall; with age, leaves, to 9 feet long, drop to show clean, green trunk ringed with leaf scars. Native to Lord Howe Island in the South Pacific.

ROSEMARY (*Rosmarinus officinalis* 'Corsican Prostrate') - Arching, spreading, 1-11/2 ft., with dark blue flowers. Narrow aromatic leaves glossy dark green above, grayish white beneath. Endures hot sun, cool ocean spray, cool temperatures, and poor soil but requires good drainage.

SAN PEDRO CACTUS (*Trichocereus pachanoi*) - Multi-stemmed columnar cactus, often with 6-8 bluish-green, shallow ribs growing to 20 feet tall by 6 feet wide. San Pedro produces very fragrant white nocturnal flowers and grows relatively fast. Native to Ecuador.

SILVER DOLLAR PRICKLY PEAR CACTUS (*Opuntia robusta*) - Plant has spines or sharp edges and yellow blooms. Develops very rounded, bluish-grey frosted pads with few spines and in the ground can reach 10-15 feet. Native to Mexico.

SPANISH LAVENDER (*Lavendula stoechas*) - Prized for its fragrant lavender or purple flowers; those of some species are used for perfume or sachets. Aromatic grayish or gray-green foliage. Stocky plant 1½-3 feet tall with narrow gray leaves ½-1 inch long. Flowers dark purple about 1/8 inch long in dense, short spikes, each topped with big tuft of purple petal-like bracts. Blooms in late spring or early summer. Lavenders require full sun, well-drained soil, and little or no fertilizer. Native to Mediterranean region.

STAR JASMINE, CONFEDERATE JASMINE (*Trachelospermum jasminoides*) - Delightfully fragrant, pinwheel-shaped blossoms in spring or early summer. New foliage is glossy light green, mature leaves are lustrous dark green to 3 inches long. Profusion of flowers in small clusters on short side branches.

STRAWBERRY TREE (*Arbutus unedo)* – All types have ornamental bark, clusters of little urn-shaped flowers, decorative and edible fruit and handsome foliage. 8–35 feet tall and wide; tends to be small shrub in Southeast, much larger in California. Trunk and branches become twisted and gnarled with age. Clusters of flowers and fruit often appear simultaneously in fall and winter. Small white or greenish white flowers; red and yellow fruits resemble strawberries but are mealy and bland tasting. Native to Southern Europe and Ireland.

SWEET GUM (*Liquidamber styraciflua*) - Grows to 60-75 feet in gardens and much taller in the wild. Narrow and erect in youth, with lower limbs eventually spreading to 20–25 feet. Branching pattern, furrowed bark, corky wings on twigs, and hanging fruit provide winter interest. Leaves five to seven lobed, 3–7 inches wide; deep green in spring and summer, turning purple, yellow, or red in fall. Native to Eastern U.S.
(Outside South Pavilion)

TASMANIAN TREE FERN (*Dicksonia Antarctica*) - Hardiest of tree ferns. Thick, red-brown, fuzzy trunk grows slowly to 15 ft. From top of trunk grow many arching, 3–6 ft. fronds. Native to Southeastern Australia and Tasmania.

TREE ALOE (*Aloe bainesii*) – Slow growing tree with heavy, forking trunk and branches. Rosettes of 2–3 foot leaves, spikes of pink flowers on 1½-2 feet stalks. This dwarf form of tree aloe grows up to fifteen feet. Native to South Africa. *(Cactus Garden)*

TRUMPET TREE (*Tabebuia impetiginosa)* – Fast growth to 25–30 feet: tend to have a gangly irregular habit, especially in youth. Showy, trumpet-shaped flowers grow in rounded clusters that become larger and more profuse as trees mature. Leaves dark olive green, usually divided into three to seven leaflets arranged like fingers of a hand. Lavender pink, 2 – 3 inch long flowers have white throats banded with yellow. Bloom late winter, sometimes again late summer to fall.

TRUMPET VINE (*Distictis buccinatoria*) - Climbs by tendrils and has trumpet-shaped flowers. Grows to 20–30 ft. tall. Leaves have two oblong to oval leaflets 2–4 inches long. Clusters of 4-inch long flowers stand out well from vine. Color is orange-red (blood-red) fading to bluish red with yellow throat. Flowers appear in bursts throughout the year when weather warms.

WILD LILAC (*Ceanothus griseus horizontalis*) – 1½-2½ feet tall, 5–15 feet wide. Glossy, oval, 2" bright green leaves and light blue 1" clusters. *(Arrival Plaza Planters and GRI)*

OBSERVING ARCHITECTURE AND LANDSCAPE

Looking Activities

1. Walk the length of the Getty Center on the Plaza Level from the north point anchor to the south point anchor. Note the architecture and surrounding environment.

2. Describe 2 distinctive features of the site.

3. Study the site model in the Museum Entrance Hall. Note the 2 axes and then visit a location where they meet.

4. List 2 framed views. Which is your favorite and why?

5. Find 2 feature stones and consider their effect in that location.

6. Are there architectural features that surprise you? In what way?

7. Look carefully at the travertine and list what you observe.

8. Visit your favorite location at 2 different times of day and note any similarities and differences between the 2 visits.

9. On a separate sheet of paper, sketch an exterior view of any building at the Getty Center. This is for your eyes only. Spend no more than 15 minutes.

Architectural Aspects

1. Consider the use of the three basic materials. What attributes of the materials make them good choices for their locations?

2. Do any elements of the architecture suggest permanence and tradition? If so, which and how?

3. Do any elements of the architecture suggest lightness and fluidity? If so, which and how?

4. Describe the patterns evident in the architecture. How do they affect your experience of the architecture?

5. How is the use of glass similar or different from building to building? Where do you find light to be very important to a space?

6. What role do you think scale plays in architecture? Give an example of how Richard Meier uses scale at the Getty Center.

7. Where do you find the grid reduced to 7½ x7½? What effect does the size of the grid have on the space?

8. Which buildings and pavilions have canopies? What is their purpose? What are the similarities and the differences in each canopy?

Contrasts and Connections

1. Identify 2 contrasts between the architecture and the site.

2. Identify 2 connections between the architecture and the site.

3. What contrasts can be observed between the buildings?

4. What connections can be observed between the buildings?

Personal Observations

American architect Frank Lloyd Wright said "...No house should be ever on any hill ... rather it should be of the hill, belonging to it, so hill and house live together ---each happier for the other."

1. Do you think Richard Meier subscribes to this philosophy? Give examples of spaces where you find this to be true and examples where you find this to be untrue.

2. What is your favorite aspect of the architecture of the Getty Center?

TOUR SUGGESTIONS

Purpose

- To introduce the architecture of the Getty Center

Fundamental Content

- History and Site
- Ridges and Grids
- Building Materials
    - Travertine
    - Aluminum Panels
    - Glass
- Design Features
    - Light
    - Color
    - Texture
    - Framed Views
    - Outdoor Rooms
    - Scale
- Landscape

Related Topics and Relationships to Consider

- Positive and Negative Space
- Connections and Contrasts
- Man-made and Natural
- Form and Function
- Harmony and Balance

Possible stops

- North Promontory
- Harold M. Williams Auditorium
- GRI
- Lavender Pergola
- Tram Arrival Plaza
- Museum Courtyard
- South Promontory
- South Terrace
- Please do not stop:
    - In the Rotunda
    - On the walkway to the North Promontory

USEFUL INFORMATION

RICHARD MEIER

Biography

Richard Meier was awarded the commission to design the Getty Center in October 1984. In September 1986, Richard Meier and Partners opened a Los Angeles office, not far from the Getty Center site.

Meier received his architectural training at Cornell University. He established his practice in New York in 1963. The practice has included major civic commissions such as courthouses and city halls in the United States and Europe, museums, corporate headquarters, housing and private residences. Among his most well known projects are the High Museum of Art in Atlanta, Georgia; the Frankfurt Museum for Decorative Arts in Frankfurt-am-Main, Germany; Canal Plus Television Headquarters in Paris, France; The Hartford Seminary in Connecticut; the Atheneum in New Harmony, Indiana and the Bronx Development Center in New York. All of these received National Honor Awards from the American Institute of Architects (AIA), of which Meier is a Fellow.

Meier has taught at Cooper Union, UCLA, Harvard University, Yale University, and Princeton University and has lectured throughout the United States, Europe, South America, and Japan. He has received honorary degrees from the University of Naples, New Jersey Institute of Technology, and the New School for Social Research in New York. His work is widely published in international journals and books. His artwork has been shown in numerous group and solo exhibitions.

In 1984, Meier became the youngest architect to be honored as a Pritzker Architecture Prize Laureate, considered the profession's highest accolade. He also received the AIA Gold Medal, the highest award from the American Institute of Architects, and the Praemium Imperiale from the Japanese government in recognition of a lifetime achievement in the arts. His design awards include 12 National AIA Honor Awards and 32 New York City AIA Design Awards, as well as the Arnold W. Brunner Memorial Prize from the American Academy and Institute of Arts and Letters. In 1989, Meier received the gold medal from the Royal Institute of British Architects. In 1992, the French government honored Mr. Meier as a Commander of Arts and Letters and then in 1995, he was elected Fellow to the American Academy of Arts and Sciences.

Meier says,

> Le Corbusier was a great influence, but there are many influences and they are constantly changing. Frank Lloyd Wright was a great architect, and I could not have done my parent's house the way I did without being overwhelmed by Falling Water. We are all affected by LeCorbusier, Frank Lloyd Wright, Alvar Aalto, and Mies van der Rohe. But no less than Bramante, Borromini and Bernini. Architecture is a tradition, a long continuum. Whether we break with tradition or enhance it, we are still connected to that past. We evolve.[20]

[20] Meier, Richard. Press Release. Communications, The J. Paul Getty Trust. 1997

Pritzker Architecture Prize Laureate - Acceptance Speech

I am extremely pleased and deeply honored to receive the 1984 Pritzker Architecture Prize. It never occurred to me that I would be in the running this year. I would like to thank The Hyatt Foundation for this prize for the art of architecture; it is profoundly significant in influencing the quality of architecture throughout the world.

I would like to share with you, tonight, the ongoing conversation that I have with my children, Joseph and Ana. It revolves around the question "What is your favorite color?" Joseph, who is four and three-quarters, always replies green, and states when asked why, that "green is the color of grass, the trees are green, green is all around us, it's the color of spring and dollar bills."

Ana, who is three and doesn't like to be outdone by Joseph, replies that her favorite color is blue, and that, "the sky is blue, and the pools and ponds and lakes are blue."

And then they turn to me and ask, "Daddy, what is your favorite color?" And every time we play this game, my response is the same: "White is my favorite color."

"But Daddy," Joseph says, "You can't have white. White is not a color; white isn't in the rainbow; you have to take a color that is in the rainbow, like red or green, or blue or yellow.

And I have to explain that for me, white is the most wonderful color because within it you can see all the colors of the rainbow. For me, in fact, it is the color which in natural light, reflects and intensifies the perception of all the shades of the rainbow, the colors which are constantly changing in nature, for the whiteness of white is never just white; it is almost always transformed by light and that which is changing - the sky, the clouds, the sun and the moon.

White conventionally has always been seen as a symbol of perfection, of purity and clarity. If we ask why this is the case, we realize that where other colors have their relative values dependent upon their context, white retains its absoluteness. At the same time, it may function as a color itself. It is against a white surface that one best appreciates the play of light and shadow, solids and voids. Goethe said, "Color is the pain of light." Whiteness is perhaps the memory and anticipation of color. For me, the contrast becomes the definition – that which is natural, organic, changing, contains at different times, all of the colors of the rainbow. And that which is man-made should help to focus and intensify one's perception of all that is around us.

As I have said many times in describing my own aesthetic, mine is a preoccupation with light and space; not abstract space, not scaleless space, but space whose order and definition are related to light, to human scale and to the culture of architecture. Architecture is vital and enduring because it contains us; it describes space, space we move through, exist in and use. I work with volume and surface, manipulating forms in light, changes of scale and view, movement and stasis.

In this way whiteness has been one means of sharpening perception and heightening the power of visual form. This is one of many ways of achieving this and I hope to be

able to explore a range of choices in the future. My sources include many from the history of architecture, but my quotes and allusions are never literal; my meanings are always internalized, my metaphors purely architectural.

For me, part of the significance of an awareness of architectural history is that we again value permanence, continuity and, therefore, quality. I am deeply concerned with the making of a building and prefer to think of myself more as a master builder than as an artist, for the art of architecture ultimately demands this.

Mine is an attempt to find and redefine a sense of order, to understand, then, a relationship between what has been and what can be – to extract from our culture both the timeless and the topical. This, to me, is the basis of style, the decision to include or exclude, choice, the final exercise of the individual will and intellect. In this way, one might say that my style is something that is born out of culture, and yet is profoundly connected with personal experience. But to gain any sense of my involvement, it is necessary to consult the work.

Fundamentally, my meditations are on space, form, light and how to make them. My goal is presence, not illusion.

I pursue it with unrelenting vigor and believe that it is the heart and soul of architecture.

Richard Meier Interview
This conversation was conducted by Getty Public Affairs as the Getty Center in Los Angeles approached completion in 1998

Q: *Now that the Getty Center is finished, what are your impressions?*

RM: The spaces feel intimate and human – not what people might imagine when they see the Center from a car moving 40 miles an hour on the freeway. The open spaces within buildings and between buildings are an important element of that feeling of intimacy. The garden spaces, and courtyards and terraces are starting to come alive, as well, and visitors are discovering the great variety of spatial experiences at the Center. Of course, people often relate to the stone, the travertine. It offers a connection with the landscape no other material can provide.

Q: *It's interesting to hear you talk about the stone, since your architecture has been so identified with the white metal panels. What is good stone, and how did you finally choose the travertine?*

RM: We searched the world. We had a whole storehouse of stones, so we could compare. Cost was one criterion. I found great granite from Canada, an intense black, but it was about $2,000 a square foot. Availability was another issue. Red sandstone from India is inexpensive, but they couldn't quarry enough. I also wanted something that would have a roughness and a texture to it – a tactile quality. The travertine we found was ideal. It had warmth and a texture people could respond to and feel comfortable with.

Q: *The Getty, as an institution, is very concerned with the classical roots of Western culture. With that in mind, did you choose the stone to give the Center an antique look?*

RM: People bring their own associations to the material. For example, I've heard some visitors say they were reminded of Jerusalem stone. What they respond to, I think, is the way the stone picks up the light. In the morning it's very light, almost white. In the afternoon, it's golden. People find it pleasing.

Q: *Does the permanence and solidity that the stone implies contradict your allegiance to modernist architecture?*

RM: I think there is a contradiction, but not between modern architecture and so-called classical values. American culture, in general, seems to value only the ephemeral these days. There's an assumption that movies are essential to American life; TV is essential; sports are essential; but museums and theater and dance are not. They're tagged as elitist. Yet great museum exhibits outdraw some baseball stadiums. Nothing's more popular. I believe the Getty Center is important as a public place of discovery – of art, of Los Angeles. When [former] Mayor Tom Bradley came to the site, he was overwhelmed. He said he'd never seen Los Angeles that way before. And if the mayor hadn't, then who has?

Q: *Can you tell us something about how you developed your design?*

RM: Many of the cues came from the site – its light, its landscape, its topography. We could have bulldozed the hilltop, but we wanted to preserve something that was beautiful. Also, the topography gave me clues about the organization of the complex-when I began working on the design, I noticed there are two ridges on the hilltop, which intersect at an angle of 22.5 degrees. Nearby there was a built environment that matched those contours perfectly: the freeway and the Los Angeles street grid. I felt we should take advantage of that coincidence and site most of the buildings on the intersecting ridges. That way the Getty Center sets up a dialogue between the street grid and the hilltop, between the project's place in L.A. and its place in the Santa Monica Mountains.

Q: *Will ordinary people respond to that as well, or is this concentration on lines and angles something peculiar to architects?*

RM: I am confident that most people will be able to see those relationships clearly. In fact, we have gone out of our way to make them visible. For instance, when you take the tram, you come up through the double axis. First you follow what we might call the Sepulveda Pass line. Then the tram jogs as it approaches the arrival plaza, to follow the street-grid line. The elements for changing exhibitions are on the Sepulveda Pass line. This helps people distinguish those functions. Also, by shifting the axis, you create a certain dynamism, an openness in the relationship between the buildings.

Q: *Between the different pavilions of the Museum?*

RM: Yes, and between the Museum and the building that houses the Research Institute across the way. It wasn't something we imposed; we drew it out of the topography.

Q: *Are there other ways the forms of the buildings echo the forms of the site?*

RM: The side of the North Building that faces the freeway takes the form of a big arc, which fits the contour of the hill. You find the same arc, with the same orientation, in the arrival plaza, where you get off the tram. Then, farther along, the Research Institute's building forms a corresponding arc. I could give you more examples, but it's probably interesting for people to discover these relationships on their own.

Q: *You've talked about "discovery" as an important part of visiting the Getty Center.*

RM: By discovery I am really thinking of a certain freedom of movement. The climate here allows for an exchange between the interiors of the buildings and the landscape. You can go from a covered walkway under trees to a gallery space in the Museum.

Q: *The scheme for the Museum seems to foster a sense of freedom as well.*

RM: The Museum is not really a single building. It's five different gallery pavilions, each two stories high, connected by walkways and clustered around a series of courtyards. Visitors can make their own choices about how to proceed. They might walk through the pavilions clockwise, which will let them see the collections in chronological order. Or they might go straight to the central courtyard and start on the right-hand side, with the pavilion for temporary exhibitions. They might decide that today they want to see photographs, or 19th century sculpture, or Baroque painting, and go directly to whatever interests them.

Q: *How did you decide on this kind of organizational scheme?*

RM: From the start, [former] Museum Director John Walsh felt the new Museum should be consonant with the existing one in Malibu. Not with the way the Malibu Villa looks, but rather with the possibility of going inside and outside, of walking from garden to gallery to garden, which is quite wonderful. We transferred the concept here. One moment you're inside, focusing on works of art, lit with natural light, in the paintings galleries. The next, you're outside, getting a framed view of downtown L.A., or the mountains, or the ocean. The Museum allows you intense moments of concentration on art, but you are also aware of the city.

Q: *How are the Museum's decorative arts galleries distinguished from the architectural design?*

RM: The décor of the decorative arts galleries was done by Thierry Despont, who also worked very closely with John Walsh. The idea was to create wall finishes and floor finishes and textures and colors that vary from gallery to gallery, depending on the art that's exhibited. That way, the rooms are not repetitive. They're modulated, just as the collection is varied in period, in medium, in scale.

Q: *How does the flow of space in the Museum compare with the work you've done elsewhere?*

RM: The last three museums I designed – the High Museum in Atlanta, the Museum of Decorative Arts in Frankfurt, and the Museum of Contemporary Art in Barcelona – are all of a piece. Even though they differ from each other, there's continuity within them. Here, the plan and the organization are based on discontinuity. For instance, each of the Museum's pavilions has a central space – a courtyard, you might say. But in the north pavilion, that space is glazed, with a stair running up from the ground level; that space becomes a focus. In the east pavilion, that courtyard space is still the focus, but it's outside. In the south pavilion the space is inside the building again, and you look across it from gallery to gallery. In the west pavilion, the central space is eroded; you're expecting it, but it doesn't exist. Each pavilion has different relationships between the gallery and circulation spaces. And the gallery spaces themselves vary in scale.

Q: *Is this a departure for you?*

RM: Yes, this is something new for me. But I think it's going to work for people. I also think the Getty Center as a whole will provide the same kinds of choices that people find within the Museum. For example, there's a tendency to think of the restaurant/café as the place to eat your lunch. But in fact there are hundreds of places where you can eat your lunch, if you bring it with you. The Getty Center is full of breathing spaces-every place here is a place to go, sit down, have a discussion. I'm sure people will find places to enjoy that I haven't even thought about whether it is a terrace, an overlook, or someplace in the landscape.

Q: *You've been working on the Getty Center since 1984. How do you feel now that the work is done?*

RM: I love the Getty Center. On any day when I walk around the site, I'm thrilled to see it and to be there.

LAURIE OLIN
Principal, Olin Partnership
Practice Professor of Landscape Architecture, University of Pennsylvania

Biography
Laurie Olin is one of America's most distinguished Landscape Architects practicing today. Mr. Olin's numerous award winning design projects include campuses, urban design, and parks. His work extends to Bryant Park and Battery Park City in New York, the Getty Center in Los Angeles, and social housing in Frankfurt, Germany. Mr. Olin's major planning and design projects at academic institutions include the University of Pennsylvania, Yale University, Stanford University, MIT, and most recently a new campus for Harvard University in Allston. Working across the United States and abroad, he has collaborated with many prominent architects and artists.

Mr. Olin is a John Simon Guggenheim Fellow, an American Academy of Rome Fellow, an honorary member of the American Institute of Architects, a Fellow of the American Academy of Arts and Sciences, the 1999 Wyck-Strickland Award recipient, and a Fellow of the American Society of Landscape Architects. Mr. Olin won the Rome Prize in Landscape Architecture in 1974 and is currently a trustee of the American Academy in Rome. He was the recipient of the 1998 Award in Architecture from the American Academy of Arts and Letters, and was recently inducted into the American Academy of Arts and Letters (May 2005).

Mr. Olin has written widely on the history and theory of architecture and landscape, receiving the Bradford Williams medal for best writing on Landscape Architecture. Mr. Olin co-authored La Foce: A Garden and Landscape in Tuscany, which includes a historical essay, along with photographs, sketches, and a critical analysis of the early 20th century garden in Italy. Across The Open Field (1999), is both a memoir and series of essays on the evolution of the English landscape. He is also author of Transforming the Commonplace (1996).

Throughout his career, Mr. Olin has been involved in professional education. He received a B.Arch. from the University of Washington and has served as Chairman of the Department of Landscape Architecture at Harvard University and the Thomas Jefferson Professor of Architecture at the University of Virginia. He is currently Professor of Practice in Landscape Architecture at the University of Pennsylvania (since July 1998).

FUN FACTS

Aluminum

- About 51,000 panels, of which 16,000 cover the façade of the Museum.
- Because of the large number of panels required, several manufacturers were used, including firms in Atlanta, Seattle and Wisconsin as well as France and Germany.
- The white panels at the Lower Tram Arrival Plaza have a white baked porcelain coating, while the off-white panels are painted. To ensure that the panels used throughout the site were uniform, before leaving the factory each panel underwent rigorous quality control, which included a laser scan that tested for consistency of color.
- If all the aluminum panels used at the Center were placed end to end, they would form a line 24 miles long.

Auditorium

- Richard Meier wanted the auditorium to have a large picture window that would look west and frame the Santa Monica Mountains; the Getty did not want one so as a compromise the window was installed and sealed off with sheetrock.

Boulder Fountain Rocks

- The rocks are from Columbia, Tuolumne County, located in northern California in the foothills of the Sierra Nevada. Sierra Nevada is a 400-miles long mountain range that extends along the eastern border of California. The name Sierra Nevada is derived from the Spanish "sierra"— jagged range, and "nevada"— snowed upon. When gold was discovered in the area in 1850, Columbia's population swelled to 30,000. At that time Columbia was the second most populous town in California. Between 1850 and 1870 over a billion dollars in gold was mined in the Columbia district. The rocks in the area host the historic "Mother Lode" gold belt thus the name of the large rock in the boulder fountain. (The flat extended rock, due to its shape, is known as the "Enterprise" as in the "Starship Enterprise" from an early TV show, *Star Trek.)* The "Mother Lode" is approximately a mile-wide network of gold-bearing rock, which extends about 120 miles along the western edge of the Sierra Nevada, from Mariposa in the south, to Georgetown in the North. These rocks are approximately 180 million years old.

Building Cost

- Approximately $1.3 billion.
- Original Getty Villa was approximately $17 million.

Courtyard

- 61,000 square foot

Flooring

- The wood on the Restaurant and Café floors is hemlock.

Fauna

- Includes mule deer, coyotes, red-tailed hawks, snakes, humming birds, bees, lizards, insects and the occasional mountain lion.
- Thin strips with upright bristles are attached to the edges of some roofs to deter birds from roosting there.

Gardens

- About 8,000 trees were planted of which 7,000 are native oaks; other species include eucalyptus, citrus and jacaranda.
- Mexican Cypress trees sometimes develop "knees" above ground in search of more oxygen.
- Liquid Ambers and Boston Ivy were chosen for their seasonal coloring that reflects the wall coverings in the Decorative Arts galleries. Also, the architectural shape of Liquid Ambers (when bare) resembles that of candelabra found in the galleries.

Helipad

- Landing pad serves as a water filling station for firefighters (45 second turn-around for a fire copter) and the grass is reinforced with plastic rings in the soil so the helicopter will not sink in.
- Mule deer feast on the grass each night.

Land

- Sits about 890 feet above sea level.

Museum

- At a height of 65 feet, it is the tallest structure at Getty Center.
- 55,000 square foot of exhibition space.
- Central core of Entrance Hall, if inverted, would fit exactly into the rounded (empty) space created in the center of the GRI.

Parking

- 1,200 spaces NEP.
- 350 spaces TOH.

Railings

- 5 miles of stair railing

Tram

- Ride length is about ¾ mile and takes about 5 minutes.
- Top speed is 14 mph.
- Each car holds 33 people.
- Designed by Otis Elevator and works on an electric horizontal elevator system. It floats on a cushion of air and is pulled by cables that run below the tracks.

Travertine

- Shipped from Italy across the Mediterranean, through the Strait of Gibraltar, over the Atlantic Ocean to the Caribbean Sea, through the Panama Canal into the Pacific Ocean, before arriving in San Pedro, California.
- Each tile is fixed to the walls without mortar, using instead four 'L' hooks that hold it firmly in position.
- Replacing a stone takes about 2 hours of labor.
- If all the travertine tiles used at Getty Center were placed end to end, they would form a line182 miles long.

Site

- Older than the material brought onto it: 25-30 million years old, part of the Modello formation.
- One of the safest building sites in LA history. Most common incidents were bee stings.

Water Tank

- Located underneath the upper parking garage is a 1,000,000 gallon water tank for fire protection services for the Getty and surrounding areas of Los Angeles. It is connected to fire pumps that have 38,500 gallons per minute pumping capacity and can be operated with emergency power.

Wiring

- 339 miles of conduit. If all the wiring in the conduit were laid out, it would measure about 1,300 miles in length – long enough to stretch from the Center into Oregon.

GLOSSARY OF ARCHITECTURAL TERMS

Abutment: Solid masonry placed to counteract the lateral thrust of a vault, arch or canopy.

Aesthetic: Theory and vocabulary of an individual artistic style.

Arch: Spanning of an opening by means other than that of a lintel (horizontal beam). True arches are curved and constructed with wedge-shaped blocks at their crowns. There are many different types.

Axis: Imaginary straight line passing centrally through a composition, ground-plan or façade to give an impression of balance.

Balance: Aesthetically pleasing equilibrium in the combination or arrangement of elements.

Beam: Horizontal piece of supporting structure.

Buckle: Bend, heave, warp or kink under the influence of some external force.

Buttress: Mass of masonry or brickwork projecting from or built against a wall for additional strength, usually to counteract the lateral thrust of an arch, roof or vault.

Caisson: Air chamber, resembling a well, driven down to firm foundation material and filled with concrete.

Cantilever: Horizontal projection (e.g. balcony, beam, canopy, step or truss) supported at one end only.

Cleft Cut: Rough surface achieved by splitting material such as stone along its natural weak point.

Column: Vertical structural post, which can be isolated, engaged or attached to a wall.

Compression: Process through which a material, such as travertine, is geologically formed.

Cor-ten steel: Type of steel in which natural oxidation has sealed the surface, protecting it from deterioration and providing a coppery patina.

Curtain Wall: Non-load-bearing wall suspended from the frame of a structure to keep out the weather or provide a specific aesthetic.

Curvilinear: Composed of, or bounded by, curved lines.

Dome: Vault of even curvature erected on a circular base or drum often forming a roof on a building.

Drum: Vertical wall supporting a dome; it may be circular, square, or polygonal in plan. Also, a cylindrical block of stone forming a column.

Elevation: Two-dimensional diagram showing one face of a building.

Engaged Column: Half-column set against or into a wall, usually non-load bearing.

Exo-skeletal: Structural aspects on the exterior of the building.

Façade: Front or face of a building, usually emphasized architecturally.

Facing: An outer covering or sheathing.

Fulcrum: Support about which free rotation is possible or about which rotation occurs.

Geometric: Based on mathematical shapes such as the circle, square, or rectangle.

Grid: Framework or network of horizontal and vertical lines forming squares of uniform size, like a checkerboard.

Jamb: Vertical face of an archway, doorway, or window.

Keystone: Central wedge-shaped stone of an arch or rib vault, put in last.

Linear: Of, pertaining to, or resembling a line.

Lintel: Horizontal beam or stone spanning an opening.

Load-bearing construction: Construction in which walls, posts, columns, or arcades support the weight of the ceilings and upper floors.

Motif: Recurring element or theme in a work of art.

Mullion: Vertical element dividing a window or other opening into separate lights, or panes of glass.

Negative Space: Empty space created by a surrounding form.

Niche: Vertical recess in a wall, etc., usually arched and containing a decorative object.

Oculus: Circular opening in a wall or at the apex of a dome.

Organic architecture: Term loosely applied to structures organized on a biological analogy or recalling natural forms. Also used by Frank Lloyd Wright and others for architecture that is both visually and environmentally compatible, closely integrated with the site, and which reflects the architect's concern with the processes of nature and the forms they produce.

Palette: Range of colors used by an artist.

Parapet: Low wall placed at the edge of a sudden drop, for instance at the edge of a roof.

Pergola: Long, narrow, linear structure with pillars to support flat crossbeams and an open lattice work that is often covered with vines to shade a walkway. Pergolas were first used in ancient Egyptian gardens and introduced to Italy during the Renaissance, where pergola translates as "a close walk with boughs." Pergola comes from pergula – a Latin term for projecting eave.

Pier: Freestanding, solid masonry support, usually thicker than a column.

Portal: Imposing door or entrance.

Portico: Roofed space, open or partly enclosed to form an entrance.

Positive Space: Solid form.

Post: Vertical support element. Posts are the main verticals of walls or doorways that support lintels.

Proportion: Relationship between the dimensions of a building and of its parts to the whole.

Rectilinear: Moving in, made up of, bounded by, or marked by a straight line or lines.

Rotunda: Building or room circular in plan and usually domed.

Running Bond: When blocks of a wall are staggered.

Rustication: Masonry cut in massive blocks, sometimes in its crude, quarry-dressed state to give a rich and bold texture to an exterior wall.

Saw Cut: Smooth surface achieved by cutting material such as stone with a saw.

Scale: Proportionate size.

Stacked Bond: When blocks of a wall are lined up.

Style: Manner of execution characteristic of an individual or other identifiable group.

Tension: Act of stretching or being stretched to stiffness.

Three-dimensional: Measure of spatial extent especially width, height or length.

Travertine: Italian limestone used as a building material.

Trellis: Small free-standing structure usually of wood or metal, with a framework of crossbars used to support, train and display climbing plants. It can also be flat attached to a wall. They were first used in 17th century Dutch gardens and have been popular in American and German garden since the 19th century.

Truss: Framing element composed of several members joined together to form a rigid structure.

Vault: Arched ceiling or roof of stone, brick, or concrete, sometimes imitated in wood or plaster.

DESIGN CREDITS AND SPECIFICATIONS

Design Team Credits

Owner
The J. Paul Getty Trust, 120O Getty Center Drive, Los Angeles, California 90049

Architect
Richard Meier & Partners Architects, 1001 Gayley Avenue, Los Angeles, California 90024

Acoustical
Paul S. Veneklasen Associates, Santa Monica, CA

Audio-Visual
Paoletti Associates, Inc., San Francisco, CA

Civil Engineer
B&E Engineers, Arcadia, CA
RBA Partners Inc., Los Angeles, CA

Color Consultants
Kaufman/Dahl, Inc., New York, NY

Cost Estimating
Hanscomb Associates

Curtainwall Consultant
Curtainwall Design Consultants, Inc., Dallas, TX

Decorative Arts Galleries Design Consultant
The Office of Thierry Despont, New York, NY

Disabled Access
California Access Consultants, Inc., Woodland Hills, CA

Elevator Consultant
Hesselberg, Keesee & Associates, Laguna Hills, CA

Exterior Maintenance
Lerch, Bates Engineering, Temecula, CA

Fire Protection
Rolf Jensen & Associates, Inc., Walnut Creek, CA

Food Service
Cini-Little International, So. Pasadena, CA

General Contractor
Dinwiddie Construction Company, Los Angeles, CA

Geotechnical Services
Woodward-Clyde Consultants, Santa Ana, CA
Pacific Soils & Engineering, Inc., Garden Grove, CA

Graphics Consultant
Bass/Yager Citigate, Los Angeles, CA

Hardware
Finish Hardware Specifiers, Inc., Covina, CA

Interior Designer
Richard Meier & Partners Architects, Los Angeles, CA

Laboratory Consultants
Earl Walls Associates, San Diego, CA

Landscape Architect
Olin Partnership, Philadelphia, PA
Emmet L. Wemple & Associates, Los Angeles, CA
The Office of Dan Kiley, Boston, MA

Library Equipment Consultant
Burt C. Gentle Co., Inc., Tustin, CA

Lighting Designer
Fisher Marantz Renfro Stone, Inc., New York, NY

Mechanical/Electrical/Plumbing Engineer
Altieri Sebor Wieber, Norwalk, CT

Roofing & Waterproofing
Roofing & Waterproofing Forensics, Inc., Yorba Linda, CA

Security Consultant
The ECE Group, Ltd., Don Mills, Ontario, Canada

Solid Waste Management
Cini-Little International, San Francisco, CA

Specifications
American Nova, Inc., Newbury Park, CA

Structural Engineer
Robert Englekirk, Inc., Los Angeles, CA

Traffic Consultant
Linscott, Law & Greenspan, Inc., Pasadena, CA

Water Feature Design
CMS Collaborative, Santa Cruz, CA

Product - Vendor/Location

Acoustical Ceiling Panel
Celotex, Tampa, FL
Hutchison Corporation, Rancho Dominguez, CA

Architectural Metal
Architectural Material Resources,Irvine, CA

Curtainwall
Painted aluminum panels, Harmon Contract, Inc., Bloomington, MN
Clear and tinted insulated glass (see "Glazing")
Cladding fasteners Harmon Contract, Inc.,
Panel and extrusions, Wausau, Wausau, WI
Fenpro, Mississauga, Ontario, Canada

Custom Cabinetry/Woodwork
Brochsteins (wood), Houston, TX
Fink & Schindler (manufacturer), San Francisco

Doors
Entrance – Balanced Doors, aluminum and glass Ellison Bronze Co., Inc., Falconer, NY
Fire-controlled doors, security grilles The Cookson Company, Phoenix, AZ

Exterior Cladding
Masonry – Classic Roman travertine Mariotti & Figli, Bagni a Tivoli, Italy
DBM/Hatch, Inc. (installation), La Verne, CA

Fabric
Pallas Textiles, Los Angeles, CA
Donghia, Los Angeles, CA
Maharam, Studio City, CA
Spinneybeck, Los Angeles, CA
Gretchen Bellinger, Inc., Cohoes, NY
Rogers & Goffigon, Ltd., Greenwich, CT

Flashing
Paller & Goldstein, Gardena, CA

Flooring Materials
Custom woods, Brochsteins, Houston, TX

- Food Service/Labs (End-grain hemlock)

- Auditorium (Quartered maple)
- Galleries (European quartered White Oak)
- Carpet, Shaw Contract Group, Santa Fe Springs, CA; Hokanson, Inc., Los Angeles, CA; Paul Singer Floor Coverings, Sherman Oaks, CA
- Linoleum, Deutsche Linoleum Works (DLW), Lancaster, PA; Armstrong, Lancaster, PA; Burke Flooring Products, City of Commerce, CA
- Tile, Graniti Fiandre Rep'd by Eurowest Decorative Surfaces, Anaheim, CA

Furniture
Custom Office Furniture

- Reception Furniture, Fink & Schindler, San Francisco, CA
- Chairs, Fink & Schindler
- Tables, Fink & Schindler

Auditorium/Lecture Halls, Poltrona Frau USA, Tolentino, Italy
Fabric, Unika Vaev, Norwich, CT
Custom Benches, Brochsteins/Fink & Schindler
Upholsterer, Classic Design, Los Angeles, CA
Lateral Files, Steelcase, Santa Monica, CA
Additional providers: Knoll, Los Angeles, CA
Herman Miller, Inc., Los Angeles, CA
ISEC, Inc., Los Alamitos, CA
Jules Seltzer Associates, Los Angeles, CA
Lowensteins Rep'd by Thogmartin Associates, Los Angeles, CA
West Coast Industries, Los Angeles, CA

- Custom Upholstery Martin Brattrud, Inc., Gardena, CA
- Museum Display Cases Till H. Hahn, Frankfurt am Main, Germany

Glazing
Clear insulated and grey-tinted, insulated, Viracon, Owatonna, MN; Hehr International, Los Angeles, CA
Curved glass Dlubak, Natrona Heights, PA

- Custom Glass, GlassTech Industries, Culver City, CA
- For doors/panels Architectural Glass Design, Pittsburgh, PA
- Tram Stop Canopies, C/S Architectural Panels, La Verne, CA; Architectural Glass Design, Napa, CA; UltraGlas, Inc., Chatsworth, CA

Hardware
Calinco, Buena Park, CA

Illuminated Exits
Custom (for Galleries) Lithonia Lighting, Conyers, GA

Interior Finishes
Perforated panels, LaVigne-Muffie, Santa Fe Springs, CA
Custom A/C Tile, Celotex (Cashmere), Tampa, FL
Suspension Grid - Fine Line, Chicago Metallic, Chicago, IL

Kitchen Equipment
Subzero Freezer Co., Madison, WI
U-Line, Milwaukee, WI

Lighting Fixtures
Zumtobel Rep'd by Prudential Lighting, Los Angeles, CA
Edison Price Lighting, New York, NY
Genlyte/Lightolier, Secaucus, NJ
BEGA/USA, Carpinteria, CA
- Dimming Systems, Lutron Electronics Company, Coopersburg, PA

Louvers
Harmon Contract, WSA, Inc., Bloomington, MN
- Sun Control Louvers, Conspec Systems, Inc., Cranford, NJ

Ornamental Metals
Blakeway Metal Works, Inc., San Francisco, CA
Meddco Metals, Hayward, CA

Paint
ICI Sinclair Paints, Los Angeles, CA
- Architectural Coatings Tnemec Company, Inc., Kansas City, MO
- Aluminum Panel Coatings, The Valspar Corporation, Garland, TX
- Sealants Dow Corning Corporation, Irvine, CA

Plastic Laminate
Pionite-Pioneer Plastics, Pomona, CA
Formica Corporation, Brea, CA

Plaster, Architectural
The Hopper Company, Phoenix, AZ

Restroom Accessories
Stumbaugh & Associates, Inc., Glendale, CA

Roofing
Irma roof with American Hydrotech 6125 hot rubberized asphalt membrane, Eberhard & Troyer
Curved metal roofing – standing seam painted aluminum sheets, Paller & Goldstein

Shade Systems
Levolor, Garden Grove, CA
Mechoshade Systems, Inc.Rep'd by Architype, Los Angeles, CA

Signage
Carlson and Company, Sunland, CA
Neiman and Company, Van Nuys, CA

Skylights
Insulated glazing, O'Keeffe Skylights, Inc., San Francisco, CA

Stone
Mariotti & Figli, Bagni a Tivoli, Italy
DBM/Hatch Inc. (install), South El Monte, CA
- Stone Sealant ProSoCo, Inc., Kansas City, KS

Structural System
Combination structural concrete and moment-resisting steel frames, Herrick Corp. San Bernardino, CA

Switchgear
Cutler-Hammer/Westinghouse, Pittsburgh, PA

Tram System
Otis Elevator Company, Los Angeles, CA

Trellises
Harmon Contract, WSA, Inc., Bloomington, MN

Window Wall Systems
Harmon Contract, WSA, Inc., Bloomington, MN
- Stainless steel windows, A. Zahner Sheet Metal, Kansas City, MO

Wood Veneers
Dooge Veneers, Inc., Grand Rapids, MI

Woodwork, Architectural
Wigand Corporation, Colorado Springs, CO
Fink & Schindler, San Francisco, CA
R.S. Bacon Veneer, Hillside, IL

TIMELINE

1982	The Getty Trust acquires (in 2 purchases) 750 acres in the Santa Monica Mountains for the creation of the Getty Center arts complex.
1983	October - the search for the Getty Center's architect begins: **33 architects are invited to submit designs**. November - **7 semi-finalists are selected; 3 finalists emerge**. The 3 finalists are Fumihiko Maki and Associates; James Stirling, Michael Wilford and Associates; and Richard Meier & Partners.
1984	October - **Richard Meier is selected as project architect**: he has designed museum; has a passion for art; is articulate about both the site and materials; and is committed to opening a Los Angeles office.
1985	Getty staff and architects tour sites in United States, Canada and Europe to examine existing museums, libraries, research institutes, and gardens. March - Los Angeles City Planning Commission grants Conditional Use Permit, establishing broad planning and operational parameters.
1986	March - the Getty delivers the architectural program to Richard Meier & Partners. September - **Richard Meier & Partners opens Los Angeles office.**
1987	February - **Dinwiddie Construction Company**, the firm responsible for building the Getty Villa, is named project general contractor. September - site preparation begins.
1988	**Getty selects an automated tram as transportation from the parking structure to the Center**. September - the Getty approves Meier's schematic design.
1989	June - **Thierry Despont, an architect specializing in historical restorations and museum projects, hired to design Decorative Arts galleries in collaboration with Decorative Arts curator, Gillian Wilson.** November – Lower parking facility construction begins
1990	January - representatives from Getty, Richard Meier & Partners, and Dinwiddie visit stone quarries in Italy. May - **Richard Meier & Partners' cladding choices – travertine combined with metal panels – are approved.** Grading begins.
1991	April - Getty approves Center design. **October - the design is unveiled to the public** December - the hillsides are planted with some 3,000 California Oaks

1992	June - **the Getty selects Robert Irwin, a renowned California artist, to design the Central Garden.** Additionally, foundation work for the North and East Buildings, Harold M. Williams Auditorium, and the Food Services Building begins. October – Foundation work for the Museum complex begins.
1993	August – the steel structures for the East and North Buildings begin to be erected and the first travertine stone piece is set in the East Building. November – **Olin Partnership, a landscape-architecture firm founded by Laurie D. Olin begins collaboration with Richard Meier & Partners on the Getty Center landscape**. The Auditorium's structural steel framing begins.
1994	January – after the Northridge earthquake inspections reveal that the steel joints must be retrofitted and new welding procedures are implemented. August - Foundation work for Research Institute and erection of structural steel for Museum complex begins. December - Parking structure and tram station complete.
1995	April - Getty approves Robert Irwin's *Central Garden* design. July - Erection of structural steel for Research Institute begins.
1996	January - **Construction of *Central Garden* begins**. June through August – Some Getty staff begin move to Center.
1997	February through June - Museum and Getty Research Institute staff moves to the Center and begin gallery installations. November - ***Central Garden*** **completed.** **December 16 – Getty Center opens.**

TRAVERTINE AT THE GETTY CENTER

Doehne, Eric. The Getty Conservation Institute Newsletter. Volume 11, Number 2, Summer. 1996.

A Getty Center exterior wall faced with travertine stone. Photo: Vladimir Lange.

As a geologist and conservation scientist, I am often asked about the remarkable travertine stone exterior of the Getty Center. What kind of stone is travertine? Why are there fossils in it? How will it look in 20 years? Travertine is a product of the earth's water and carbon cycles. As carbon dioxide-rich rainwater percolates through soil and stone, it slowly dissolves tremendous quantities of limestone along underground fissures. Reemerging at the surface as a spring (now saturated with dissolved limestone), this water releases carbon dioxide gas into the atmosphere—much like carbonated mineral water. Because of this "Perrier effect," the limestone can no longer remain in solution. It recrystallizes, typically as the water cascades over organic films made of bacteria, algae, and mosses. A dense, banded carbonate stone is built up over time as new material covers older layers. Calcite and gypsum, the minerals that make up about 99 percent of travertine stone, are colorless. The beautiful honey color of the Getty Center travertine actually has its origin in the other 1 percent of the stone: traces of yellow sulfur, brown iron compounds, and organic pigments. The intricate "Swiss cheese" texture of travertine is partly the result of gas bubbles, which are often trapped between layers of stone, creating spherical voids. Minerals crystallizing on the ever-present bacteria in travertine deposits—like granular snow blanketing a miniature landscape—preserve organic growth forms, called "shrubs," and produce much of the rugged relief evident across the stone's surface. In some cases, travertine layers are similar to tree rings, with lighter and darker laminations representing seasons of growth.

Travertine is found in greatest abundance where hot and cold springs have been active for tens of thousands of years. The most famous travertine location, and the source of the stone used for the Getty Center, is Bagni di Tivoli, 20 kilometers east of Rome, where travertine deposits over 90 meters thick have been quarried for over two thousand years.

Because travertine is plentiful, weighs less than marble or granite, and is relatively easy to quarry, it was the stone most commonly used by the ancient Romans. Famous structures constructed with Tivoli travertine include the Colosseum, the Trevi Fountain, the colonnade of Saint Peter's Basilica, and many Roman aqueducts. In our century, Lincoln Center in New York and the ABC Entertainment Center in Los Angeles are faced with travertine from the same Tivoli quarries. While the age of the stone used for the Getty Center is unknown, it probably dates from about 8,000 to 80,000 years ago. The Center's travertine is split with the grain of the stone, making visible many more fossils than are seen in the more common banded travertine, which is cross- sectioned and polished. At least two species of fossilized leaves are fairly common at the Center—evidence of a lakeside environment at the time of the stone's formation. The impression of a feather is preserved in stone at the foot of the curved East Building wall; an unusual bone embedded in a travertine block has also been discovered. The rapid deposition of the travertine layers acts as a natural preservative for these traces of evanescent prehistoric

life. Paleontologists at the George C. Page Museum in Los Angeles are working with Getty scientists to identify these fossils.

A view of the Italian quarry that is the source of the travertine stone used at the Getty Center. Photo: Jim Mawson.

Over 108,000 square meters of Roman Classic travertine from the Lippiello family quarry at Bagni di Tivoli were used at the Getty Center. In order to remove the travertine from the vertical quarry face, workers drill holes into the stone, outlining a block 6 meters high, 12 meters wide, and 2 meters deep. A diamond-studded cable is then threaded through the holes, lubricated, and pulled against the stone with a set of pulleys. A large cut may take a day and a half, but eventually diamond wins out over the softer travertine. When the cuts are completed, the slab is pushed away from the quarry wall and falls onto mounds of earth, which help cushion the fall. The slab is then broken up into more manageable cubes, which are taken to the Carlo Mariotti factory for honing and splitting. An automated guillotine was created by Mariotti to split the stone along its natural bedding plane. On the average, each block at the Getty Center is 76 x 76 centimeters and weighs 115 kilograms, with a typical thickness of 8 centimeters. About three hundred thousand pieces of stone were used for facades and paving.

Fossilized imprints of a feather and leaves in two of the Center's travertine stone blocks. Photos: Dusan Stulik.

The travertine floor surfaces are anticipated to last at least 50 years before replacement in high-traffic areas is needed. High-quality travertine is very durable, since it is formed at the earth's surface in relative equilibrium with the environment. Most other building stones are formed under different conditions, deep underground. Accelerated aging tests of the travertine stone were undertaken by two consulting firms and the GCI to determine the suitability of the stone, the mounting system, and the chemical treatments. Each stone block at the Getty Center has been treated with a silicon-based water repellent that is expected to ease cleaning. Paving stone and walls in public areas up to a height of 2.1 meters have also been treated with an oil-resistant coating to reduce soiling. The frequency and methods used to remove dust and soot from the cleft-cut stone will depend on soiling and weathering rates that have yet to be studied fully. Over time, the honey color of the fresh travertine on the Getty Center will change as the stone weathers and a natural patina forms.

An electron micrograph of calcite crystals in a block of travertine stone. Photo: Eric Doehne.

In short, the beautifully colored and textured travertine at the Getty Center will offer visitors a wonderful opportunity to appreciate the structure, genesis, and natural history of the stone.

TREES! FROM CONCEPT TO FINISH
Coate, Barrie D. ISA Certified Arborist. Los Gatos, California. January 13, 2003.

In summer of 1994, Bob Irwin and Richard Naranjo came to San Jose to look at trees with me.

We discussed which species of trees should be used as the double row in the lower garden. We discussed and went to see mature specimens of Chinese elm, London plane tree, European hornbeam and others but since Bob wanted these trees to reach 40 feet in height and 27 feet in spread, tolerate pruning well and retain a complete branching structure from 7 feet above grade, and be available in large sizes, the only one which could conform to all the requirements was London plane tree. Unfortunately, the most commonly available selected form of London plane tree (*Platanus acerifolia* "Bloodgood') is so susceptible to sycamore mildew, that the trees begin turning brown in August and drop off from August to October. The 'Bloodgood' cultivar is also highly susceptible to sycamore scale insects and sycamore lace bug. Fortunately, there is another London plane cultivar that is resistant to all of those pests. That is the 'Yarwood' sycamore (*Platanus acerifolia* 'Yarwood'). After looking at large specimens of 'Yarwood' sycamore with me in Menlo Park, Bob decided that was the tree for the lower garden.

So, the process began in March of 1995 when Richard Naranjo and I went to Blue Heron Nursery to select and watch the digging of the 'Yarwood' sycamores. They were transported to Valley Crest Nursery yard near here and installed in 72-inch boxes. At this point they were 20-feet tall, perfectly pyramidal trees while the ultimate form desired was a 40-foot tall, 27-foot wide flat-topped, rectangular form.

In May 1995, Martin and his excellent tree pruning crew did the first pruning. This was, in my opinion, another of Richard's excellent management decisions to get the crew involved with care of these trees from the beginning to instill a sense of ownership in them. Since our mandate was to convert these 20-foot tall pyramidal trees into 40-foot tall rectangles, we began the first pruning with a thorough explanation for the pruning crew of the goals of their pruning, and those goals have been repeated several times per year since then.

Since the normal form of a London plane tree is an 80-foot tall pyramidal structure which gradually broadens out at the top, and which loses its lower branches, it is obvious that we are asking both the trees and the pruning crew to create a form which the tree is not genetically designed to become. The challenge lies in allowing some of the naturally most vigorous top growth to develop, both to create the desired height, and to allow the vigor produced with that strong vertical growth to continue to invigorate the tree's vascular system while not sacrificing the continued health of the lower branches. The process involves reducing the annual 6 feet of vertical growth to 2 feet or less and thinning the upper crown to allow light to enter the middle of the canopy. This is done in winter. Next, in mid to late April, the new shoots produced in March are pruned to direct them and make them branch. If this is done too early in spring, they will not have produced enough new growth. If done too late (as in June) they will not produce enough new growth after the pruning. So, every year the 'Yarwood' London plane trees are pruned to produce more even branching and every year that increased branching is thinned. In

2003, these trees are now 30-35 feet tall, and beginning to develop the flat top, which is the ultimate goal.

The Crape Myrtles which surround the azalea pond are perhaps the next most important tree species. Bob knew he wanted crape myrtle trees to form the double circle at the upper elevations of the lower garden "bowl." I warned him, however, that Indian crape myrtle (*Lagerstroemia indica*) was so susceptible to mildew that the flower and juvenile foliage would be ruined by the disease in this location above the pond. The hybrid crape myrtles, introduced by the National Arboretum in the 1980s after many years of selection by Dr. Donald Egolf, combine mildew resistance with superior fall color and beautiful bark. The hybrid parents are Indian crape myrtle (*Lagerstroemia indica*) and Japanese crape myrtle (*Lagerstroemia fauerii*) which is entirely resistant to mildew and contributes beautiful bark to the progeny. The largest of seventeen cultivars which were introduced are *Lagerstroemia x* 'Natchez' with pure white flowers and brilliant red fall color, 'Muskogee' with light pink flowers, bright orange-red fall color and beautiful patchy bark as it matures, and 'Tuscarora' with brilliant cerise-red flowers, an upright habit and red-orange fall color. Bob decided that the round head and light pink flowers of 'Muskogee' would best suit his design.

In April 1995, Bob Irwin and I inspected 15-gallon 'Muskogee' crape myrtle trees in every wholesale nursery which claimed to have them available. Two of the nurseries had a mixture of Indian crape myrtle and hybrids which we felt could not be trusted to be accurately identified. The total quantity needed finally came from 3 different nurseries after we selected and tagged the individually acceptable trees. They were transported to Valley Crest Nurseries growing grounds and transplanted into 24-inch boxes in May of 1995. Pruning to remove crossing branches and to select the main structural limbs which would form the basic architecture of the crowns was begun immediately by Martin's fine crew. Since that time they have been pruned each winter to enhance the main structural form and again after 75% of the flower spikes have bloomed in September. In some years, they are pruned to reduce shoot growth in April as well. It must be understood that crape myrtles bloom at the ends of current season's shoots, not from buds created the previous year (as flowering pears for instance) so pruning too late in the spring would reduce the length and quantity of flower spikes. In order to produce the largest flower spikes, the tree's annual shoot growth from the previous year must be pruned fairly heavily in winter.

The Pollarded Sycamores which provide shade for the outside seating for the restaurant area are an important part of the landscape. They are also 'Yarwood' sycamores. Even though 'Yarwood' sycamore is resistant to most diseases, they will lose the first set of leaves in March to sycamore anthracnose when an unusually prolonged, humid spring occurs. This defoliation lasts only 4 -6 weeks, after which a new set of healthy foliage is produced.

Their training began in 24-inch boxes at Berylwood Nursery in Somis in 1994. The "building" of a pollarded tree is more complex than it may appear, so Richard and the tree crew and I did a tour of established, pollarded tees in San Francisco with our knowledgeable tour guide Michael DeHart, after a list of pollarded tree locations had been prepared for us by San Francisco plants-man, Ted Kipping. By September 1997 they were ready for their first structural pruning. The pruning procedure must be directed from the beginning to provide structural support for the great weight of whips and foliage

which will emerge annually from the ends of the pollarded branches. As the "knobs" of tissue increase in size every year with annual pruning, the cuts which remove the previous year's whips must be carefully made so that they don't cut into "branch bark ridge" tissue, since that leads to decay in the "knob." We will be doing this during the week of January 15. As the pollarded trees age, the character of the structure becomes more interesting. In this case, these trees must be pruned during the summer as well, to retain the canopy below the sight lines of the Boardroom.

The Italian Stone Pines along the entry road have been an especially challenging pruning task. The goal is to develop the tall, broad canopy typical of this species in Italy.

The trees which were selected for this planting were composed of whorls of 4 - 6 branches representing each year's growth, with 80% of the foliage below 115 feet of height. The challenge is to satisfy two opposite requirements at once. On the one hand, encouraging increasing height as rapidly as possible is desirable, but on the other hand, removing too much leaf surface at one time would starve the vascular system and slow total growth. The only way to accomplish both goals is to remove 2-3 of the branches in each whorl, the remaining branches being distributed evenly over the height of the tree. The following pruning can remove all but one branch in each whorl, leaving that foliage to feed the trunk at that point while still removing some of the competition with vertical growth. Many of these trees have looked very strange after some of the first 3 years pruning, but thanks to the patience and trust given us by the management, these trees are finally beginning to look like Italian stone pines. Annual thinning will be necessary to maintain a thin enough foliage mass to allow air movement through the canopy and avoid blow-down, but nobody does a better job on Italian stone pines than Martin and his crew.

The Montezuma Cypress have not agreed to grow in precisely the form which was intended by the landscape architects.

These trees were grown from seed as opposed to cuttings or grafting and they are extremely variable in growth habit. This is a characteristic called heterozygous and the main reason for producing ginkgos and southern magnolias by grafting is to avoid this extreme variability. An inspection of the upper 15 feet of each of these trees will demonstrate that no two of them have the same vigor or tendency to retain the single leader that creates the pyramidal tree which was imagined by the designers. With diligent annual pruning and attachment of ever-taller stakes, Martin has made all of them appear as though they naturally have a pyramidal habit.

The Western Sycamore grove at the Museum entrance has an interesting history. These five trees did not begin life or even spend their juvenile years within sight of each other. They were assembled from a backyard in Los Angeles County, from a creek area in East Los Angeles combined with nursery stock from Valley Crest Nursery. Dennis Hickok, landscape architect, Richard Naranjo and I inspected many western sycamores, to eventually choose these to assemble into an artificial grove. Very talented pruning each winter and late spring have gradually made them appear a natural grove. The pruning crew must thin the perimeter of the canopy sufficiently in late spring to allow enough light to reach the center of the canopy to keep those interior branches alive and healthy while not removing so much foliage that the vascular system begins to starve. Note that

the crew must wear dust masks while pruning any of the sycamores to avoid inhaling the tomentum which is rubbed off the underside of the leaves by contact.

The Four Large Italian Stone Pines at the upper tram landing were installed in 1996 as very large specimens. The intent is to make them a very broad combined canopy. They will require a twice per year thinning to enhance the beautiful, angular character, of which their canopy is capable.

I feel blessed to be able to work with people like Bob Irwin, Richard Naranjo, Michael DeHart, and the excellent and very professional tree crew and to contribute to the fine horticulture being practiced at the J. Paul Getty Museum.

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