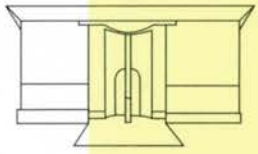
HEWLETT

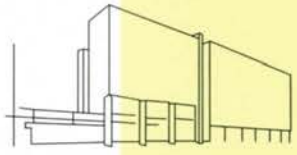
The Hewlett Gallery is located
in the College of Fine Arts
at Carnegie Mellon University

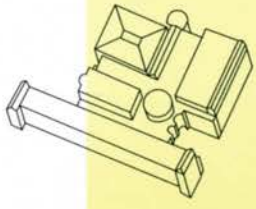
DECEMBER 3-21, 1996

A CAMPUS RENEWED

A DECADE OF BUILDING AT CARNEGIE MELLON 1986-1996

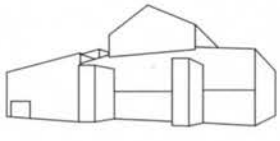






MARTIN AURAND

CARNEGIE MELLON
UNIVERSITY
ARCHITECTURE ARCHIVES



A CAMPUS RENEWED

A DECADE OF BUILDING AT CARNEGIE MELLON 1986-1996

AN EXHIBIT AT THE HEWLETT GALLERY
COLLEGE OF FINE ARTS,
CARNEGIE MELLON UNIVERSITY

DECEMBER 3-21, 1996

CURATED BY
MARTIN AURAND
ARCHIVIST,
CARNEGIE MELLON UNIVERSITY
ARCHITECTURE ARCHIVES

THE CARNEGIE MELLON UNIVERSITY ARCHITECTURE ARCHIVES WAS FOUNDED IN 1984 TO COLLECT, CONSERVE, AND PROMOTE THE USE OF ARCHITECTURAL DRAWINGS AND OTHER RECORDS THAT DOCUMENT THE ARCHITECTS AND ARCHITECTURE OF CARNEGIE MELLON UNIVERSITY, PITTSBURGH AND THE TRI-STATE AREA. AT THE ARCHIVES, COLLECTIONS ARE ACCESSIBLE TO CARNEGIE MELLON STUDENTS AND FACULTY, SCHOLARLY RESEARCHERS, AND THE GENERAL PUBLIC, AND ARE MADE AVAILABLE FOR PUBLICATIONS AND EXHIBITIONS. THE CARNEGIE MELLON UNIVERSITY ARCHITECTURE ARCHIVES WELCOMES RESEARCH INQUIRIES AND GIFTS OF ARCHITECTURAL RECORDS.

THE WILLIAM ARTHUR THOMAS MEMORIAL FUND AND THE LUCIAN CASTE FUND SUPPORT PUBLICATIONS OF THE CARNEGIE MELLON UNIVERSITY ARCHITECTURE ARCHIVES.

SINCE 1986 CARNEGIE MELLON UNIVERSITY HAS UNDERTAKEN A MAJOR BUILDING PROGRAM ON ITS PITTSBURGH CAMPUS, WHICH IS AMONG THE MOST AMBITIOUS SUCH EFFORTS BY AN AMERICAN UNIVERSITY DURING THIS PERIOD.

A CAMPUS RENEWED

MARTIN AURAND

The development of new buildings serving new needs within finite boundaries is a difficult reality of contemporary campus design–largely past are the days of massive territorial expansion, or brand-new suburban campuses. Carnegie Mellon faces this challenge, for its space needs are many and the boundaries of its traditional campus are tight. Numerous projects have been made to fit, however, and additional projects have been spun out to satellite locations within the surrounding city. This building program has substantially reshaped, extended, and renewed Carnegie Mellon's campus and has contributed significant new architecture to Pittsburgh.

Campus architecture is driven by institutional, technological, and cultural imperatives. In its first era of campus construction, Carnegie Tech embodied industrial-age technology and classical-revival culture, which found synthesis in the work of architect Henry Hornbostel. In its second era, an institution in the throes of post-war growth opted for an architecture of expediency and modernity. In the current era, a thriving information-age institution meets the new demands and aesthetics of high-technology and postmodern sensibilities for history and context. This time there has been little synthesis, but rather the decision to have it both ways, and the concurrent development of two major architectural languages for new buildings.

All buildings have private and public roles. In its private role, each building's internal functional attributes serve its immediate users. In its public role, each building contributes to the larger environment and the larger community through its relationships with other buildings and open spaces. Thus, each building assumes a public stance within what Michael Dennis and others have called the "public realm."

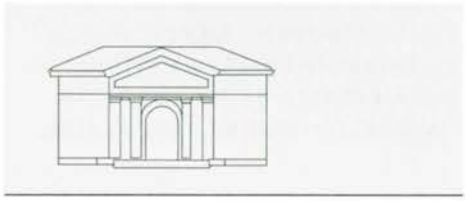
This exhibit explores the recent era of campus building at Carnegie Mellon, with a focus on the public realm. Selected projects receive individual treatment, with a look at the historical context, an investigation of the architects' creative processes, and some assessment of the results. Three of the projects are still on the drawing boards (and CAAD stations), and offer a view of things to come.

Many of these projects were first explored in two studies by CRS Sirrine, Inc.–the Long Range Campus Plan (1985) and the Junction Hollow Planning Study (1986)–which influenced campus development during the early years of this period. These projects became the substance of the campus plan that emerged from the 1987 University Center Competition, shaped campus development for a decade, and continues to govern the future of the campus. Finally, these projects made way for the Open Space Study (1995) by Sasaki Associates, Inc., which explores ways to enhance the land and the plantings that remain between all the buildings.

The new buildings give welcome definition to campus spaces old and new. They address the uneven terrain with vigor. They show ample craftsmanship in brick, metal, and glass. They have moments of Hornbostelian wit. Yet, provocative works by two world-class architects–Peter Eisenman and Pierre Zoelly–have been abandoned. Hornbostel's classical influence lies heavy at times. High-tech metal and glass curtain walls are hard for many people to love.

Not shown here are other projects of this period that have sought to restore and renew the university's historic buildings, including the remodeling of the former U.S. Bureau of Mines building into Hamburg Hall (L. P. Perfido Associates, 1986-1992); the carving of the stone niches on the facade of the College of Fine Arts and the construction of a complementary terrace (Bruce Lindsey and Paul Rosenblatt and the Architectural Design Practice Center, 1991-1995); the restoration of terra cotta at Margaret Morrison Carnegie Hall and Hamerschlag Hall (Lucian Caste, 1993-1996); and the renovation of the Gymnasium (Damianos Brown Andrews, 1994-).

All of these projects are the physical legacy of Carnegie Mellon presidents Richard Cyert and Robert Mehrabian. The decade also neatly corresponds with my years at Carnegie Mellon.



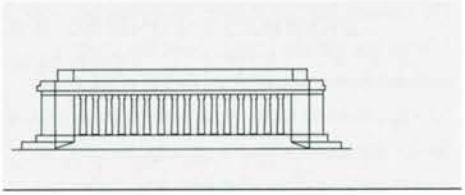
CARNEGIE TECH

HENRY HORNBOSTEL, ET. AL.
(NEW YORK AND PITTSBURGH)
1904-1932

In 1904, Palmer & Hornbostel won an architectural competition for the design of a new campus for the Carnegie Technical Schools (soon to be renamed Carnegie Institute of Technology). Henry Hornbostel, who had attended the Ecole des Beaux-Arts in Paris, was the design architect. A few years earlier Hornbostel had won second place in a design competition for the University of California; and he went on to design other campuses including Emory University. He revised the campus plan for Carnegie Tech in 1906 and 1911; and the three Hornbostel plans, though imperfectly realized, have shaped the campus to the present.

> In the 1900s the Beaux Arts system of design and planning (developed at the Ecole des Beaux-Arts...) was being implemented into the design of many of the American campuses...The Beaux-Arts principle is of monumental organization–orderly planning on a grand scale. It was capable of incorporating many buildings or parts within a unified overall pattern. Over the years the Beaux-Arts system had created and refined many such patterns–or partis–which constituted a repertoire of solutions to complex problems of planning...[Hornbostel] handle[d] with ease and elegance the standard Beaux-Arts formulae of his time. The master plan for Carnegie Mellon University is a modification of the [Thomas] Jefferson pattern [at the University of Virginia] with the Beaux-Arts device of creating secondary axes and subsidiary groupings of buildings...Throughout the campus Hornbostel made use of Renaissance pavilions, with their tall round arched windows and low pitched roofs. They [were almost] a cliché among architects of the Beaux-Arts persuasion, useful for everything from hospitals to pumping stations. (Keating 1986)

> Henry Hornbostel, the architect of Carnegie Tech, expressed the highest ideals of the school in his master plan and his architecture. Baker Hall...is an outstanding example of his achievement. Although it is constructed of common materials, brick, fireproofing tiles, iron pipe railings and corner plates, these are handled with an extraordinary sense of craftsmanship...Hornbostel did not use industrial imagery to displace artistic tradition, [for] he employed the classical language of pilasters and pediments to organize and embellish the building's exterior. Hornbostel's architecture inspires the students and faculty of Carnegie Mellon University to create a world where art and technology are recognized as the foundations of civilization. (Cleary 1985)



MELLON INSTITUTE

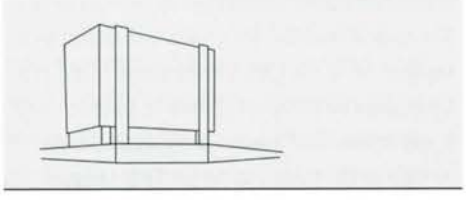
JANSSEN & COCKEN
(PITTSBURGH)
1931-1937

Carnegie Institute of Technology and the Mellon Institute for Industrial Research merged in 1967 to form Carnegie Mellon University. Mellon Institute was among the benefactions of Andrew Mellon. When Mellon served as Secretary of the Treasury of the U.S. during the 1920s and early 1930s, he occupied the Treasury Building in Washington, D.C., a building with a monumental ionic colonnade. Mellon specified a building with similar qualities for Pittsburgh, arguing that the architecture would evoke the origins of science and embody an ageless simplicity appropriate to a setting for the practice of modern science.

> In designing Mellon Institute the most unusual problem was to produce a monumental exterior which Mr. Mellon was particularly anxious to have, and at the same time preserve an absolutely practical laboratory building. The requirements of the building made necessary about six and one-half million cubic feet, which is the equivalent of a very large office building...Another wish of Mr. Mellon's was to have the building low and horizontal in proportion, the very opposite of a high building. In order to design a low building it was necessary to go down into the ground three very high stories so that the appearance from the outside world would be that of a monument. The proportions of the three street facades is very nearly the same as the long lateral facade of the Parthenon on the Acropolis at Athens...To start with we thought that this was a fine precedent. (Janssen & Cocken 1936)

A second important influence may have been the Alte Museum in Berlin by Carl Friedrich Schinkel, which also has a monumental ionic colonnade. This building's cross-axis plan may have generated a similar plan at Mellon Institute.

Mellon Institute's private face is largely one of utilitarian laboratories. Its public face, however, consists of four neoclassical facades composed of sixty-two monolithic columns (the proposed statuary was never realized). Detached from the rest of the Carnegie Tech campus, Mellon Institute's monumental exterior enables it to play a key public role in the Civic Center of Oakland.



CARNEGIE TECH

VARIOUS ARCHITECTS
1950-1970

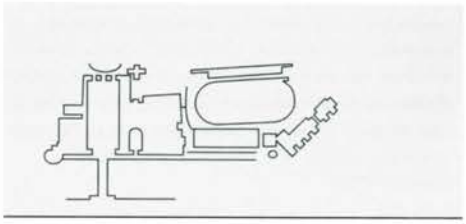
Some later campus architects built upon Hornbostel's beginning. The front end of Engineering and Science Hall [Doherty Hall] (1949-1950) mimicked Hornbostel. The Computer-Science Building [Wean Hall] (1968-1971) echoed the massing of the earlier buildings in a modern architectural language. Other campus buildings that were conceived or built between 1950 and 1970, however, took a different tact. They were self-consciously modern, a sharp contrast to the old. Donner Hall (1952-1954) in particular was highly praised in architectural journals:

> Donner Hall [is] a distinctive, distinguished building–imaginative in conception, outstanding in technical performance, carried through with taut and sensitive controls of planning, proportioning, and detailing...The architects have chosen to throw their weight toward as new a beginning architecturally as is possible at the moment. (McKee 1955)

Donner and the campus buildings that followed constituted a major building boom; but they were sited and designed with little or no reference to their context or each other, and no allegiance to any overall concept. They soon fell into disfavor.

> Sadly, subsequent architects [did not maintain] Hornbostel's standards or his idealism, and in the 1960s, the University's second sustained building campaign produced an architectural nightmare. The decade began with the construction of the hapless Skibo Hall (1960), a building in search of an axis, followed by Hunt Library (1961), a building in search of an entrance, and Scaife Hall (1962) with its sculptural lecture hall squeezed into an alley like a blister in an ill-fitting shoe. Warner Hall (1966), which brings to the campus all of the dignity and character of a speculative office building in Monroeville, concluded the boom. (Cleary 1985)

> Skibo, Hunt Library, and Warner Hall occupy what could be considered the three most prominent sites on the Carnegie Mellon campus. Skibo and Warner Hall flank the "cut" at the end that meets Forbes Avenue. Any structure that is given such importance should be a strong anchoring element that helps to define the edges of the green space...Neither building is a strong presence nor do they help to define the cut as open space. Hunt Library, which sits opposite Forbes Avenue at the termination of the cut, is also a weak element... (Keating 1986)



UNIVERSITY CENTER COMPETITION

DENNIS, CLARK & ASSOCIATES/TAMS (BOSTON) [WINNER]
1987

Among the buildings of the 1950s and 1960s, Skibo most quickly proved inadequate. Proposals for extending Skibo from Sasaki Walker Demay (1967) and Victor Christ-Janer (1969-1970) sought to improve the building's functionality and strengthen its presence along the cut. The 1985 CRS Sirrine master plan included a University Center Complex that retained Skibo at its core, and appended a sequence of Hornbostelian wings and expanded athletic facilities.

Subsequently, in 1987 the university conducted an architectural competition for the design of a University Center, and the conceptualization of a dormitory and dining facility, an athletic stadium, and a performing arts theater. Since the scope of this program entailed a major redesign and expansion of campus facilities, the university established careful parameters for the competition. The general direction for growth was shifted from the west (as in the CRS Sirrine plans) to the east. Development zones were plotted in advance. And it was a given that new buildings should relate directly to the historic Carnegie Tech campus.

> Because so much of the Hornbostel design was developed, the original plan continues to be a force in future planning...the plan of the original Tech complex, however often it may have changed, imposes upon any building the basic Beaux-Arts formulae of order and symmetry. (Keating 1986)

> [The University Center] should strengthen and enhance the "cut" as a clearly identifiable spatial axis for the campus. It should extend and have continuity with the architectural and spatial character of the Hornbostel Mall...It should be in scale with the campus. (Spreiregen 1986)

A new wrinkle was the establishment of a new pedestrian avenue linking the cut to the so-called hill dorms. This axis was established through consultation by noted architect Leon Krier, an advocate of traditional urban environments composed of public streets, public squares, and continuous urban facades. For Carnegie Mellon, Krier further recommended colonnaded facades to define outdoor spaces.

The competition participants were selected from a large international pool. Selection criteria included experience with university projects and relevant building types; experience with contextual design, especially within a classical context; and alumni participation. The field was chosen to include a mix of large capable firms and small creative firms. The invited competitors were Damianos & Associates (Pittsburgh) with Geddes Brecher Qualls Cunningham (Philadelphia); Dennis, Clark & Associates/TAMS (Boston); Jung/Brannen Associates, Inc. (Boston); Koetter, Kim & Associates (Boston); Machado and Silvetti Associates (Boston); and Skidmore, Owings & Merrill (New York). Leon Krier declined an offer to participate.

Dennis, Clark & Associates/TAMS submitted the winning design. Their proposal stuck closest to the architectural language of the existing campus and was judged to best incorporate the university's vision. The Dennis and Clark plan struck a balance between the urbanization of the campus and the enhancement of the natural landscape.

> The project centers around the idea of the "urbanization" of the campus through density of development and the definition of the public domain. Specifically, a measured and varied sequence of new outdoor spaces is designed to relate to and complete the original quadrangle by Henry Hornbostel. ("Kudos" 1995)

> Large public rooms will be embedded in a perimeter of contiguous buildings, which will provide definitive margins where there had once been an aggregate of object-buildings. (Arcidi 1990)

This scheme, with some revisions, ultimately gained the status of a master plan, and supplanted the CRS Sirrine plan. Though one of its most compelling features–a restored ravine, bridged as in Hornbostel's 1911 plan, rising from Junction Hollow to a new amphitheater–was set aside, the Dennis and Clark plan has been substantially realized over the subsequent decade.

ON CAMPUS PLANNING
MICHAEL DENNIS

MICHAEL DENNIS POSITS TWO ARCHITECTURAL AND URBAN MODES: TRADITIONAL AND MODERN.

"Traditionally, buildings and landscape cooperated to define and shape the space of the public realm. The facade of the building was especially important as it was the enclosing wall of the public space. It articulated the public realm, distinguishing it from the private realm inside." Courtyards and wings added typological variety.

On the other hand, "modern buildings, with their irregular shapes, appear to have been generated from the inside out, with no regard for the external environment." Modern architecture is anti-urban, with each building "serving its own ends but contributing nothing to the whole."

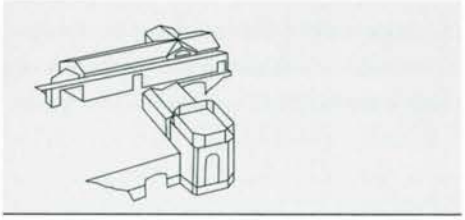
"To be a community requires density and proximity: that is, it requires urbanity." The most successful American campuses, such as the University of Virginia, have this quality. "As in the traditional city, the clarity and stability of the central public square and the clear pattern of the public streets allow, indeed promote, variation in the form of private pavilions and gardens."

"...campus design is urban design, and urban design is the design and management of the public realm of public spaces more than the private realm of individual buildings...precise control of public space allows for flexibility and change in individual buildings, and it should therefore be the principal instrument of physical planning. From Jefferson's time until recently this concept was thoroughly understood" and was reflected in college campuses like Hornbostel's Carnegie Tech.

Today, as campuses become increasingly dense, "We are now faced with the task of developing a modern architecture that acknowledges, and is compatible with, traditional environments. This requires a planning strategy that promotes the civic responsibilities of individual buildings." Buildings should indicate new patterns of development or reinforce an existing one.

The private realm is important, and even the modern tradition may have its place. Dennis calls for a "balance [between] the public interests of the larger environment and the private interests of users and donors."

Source: Michael Dennis, "On Campus Planning," **Modulus** 23 (1995), 108-119.



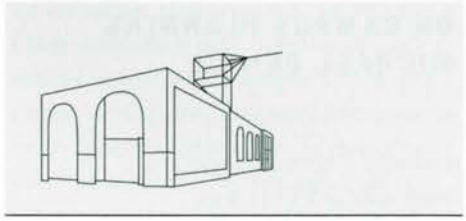
PHYSICAL PLANT BUILDING

IKM INC.
(PITTSBURGH)
1987-1988

The public role of the Physical Plant Building is to link the old Carnegie Tech campus and a portion of the campus–Hamburg and Smith Halls and attendant structures–acquired from the U.S. Bureau of Mines. Though Hornbostel himself once conceived a building to serve this same end, CRS Sirrine's Junction Hollow Planning Study determined the placement of the new building. The Physical Plant Building both fills and bridges the mouth of the ravine that rises from Junction Hollow into the campus. A public passageway enables pedestrian transit through the site without entry into the building, though the final link of this passage–a bridge connecting an upper-level terrace to the hillside at the west end of Wean Hall–remains unbuilt.

The building is a complex whole comprised of differentiated parts. The main axis shifts from east-west on the lower stories to north-south on the upper stories. The massing breaks apart both below–in a drive-through passage and a garage, and above–as the cooling tower of a chiller facility breaks free from the rest of the mass. Stairs, walkways, and a gable of steel openwork further break down the bulk of the building.

The building's earth-tone palette, round-arched openings, and metal roofs respond to the surrounding Hornbostel buildings. The cooling tower is a restatement of the Hamerschlag Hall tower that hovers above. Both are visual focal points and functional mechanical devices.

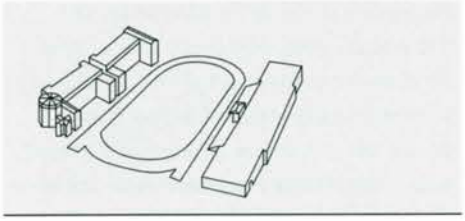


FIELD AND MOBILE ROBOTICS BUILDING

ARTHUR LUBETZ ASSOCIATES
(PITTSBURGH)
1986-1989

The former powerhouse of the U.S. Bureau of Mines complex shares a plaza with the Physical Plant Building. This plaza is the only realized element of a sequence of plazas planned by CRS Sirrine's Junction Hollow study. A rectilinear dumbbell in plan and massing, the building's walls are broken down by round-arched openings and large rectilinear bays, one of which accommodates a vehicular entrance. Roof level is at ground level on the north side, and two tall smokestacks that formerly announced the building have been cut off. Thus emasculated, it recedes into the ravine behind Hamburg and Smith Halls.

When Arthur Lubetz remodeled the building for the Robotics Institute he created a central high-bay space for making and exercising robots, flanked by multi-level cubes with offices and support facilities. He reset much of the glazing in the large openings, and resurfaced the building with stucco, establishing the walls as color planes, as is his wont. The color, however, is a subdued gray (as opposed, say, to the red that might be expected of Lubetz). The west entry is the only external indication that Lubetz was here. Here, within an arched opening, two distinct grids of glazing abut and clash, and a lime-green wedge bursts through the glass. This modest bit of drama gives a small jolt to the prevailing quietude of the public realm.



EAST CAMPUS

DENNIS, CLARK & ASSOCIATES/TAMS
(BOSTON)
1987-1990

Following the University Center Competition, the so-called East Campus project took precedence over the University Center itself. Tech Field (1960) was demolished, and the prevailing axis was changed from north-south to east-west, making eastward expansion possible. The dormitory and dining facility and the athletic stadium called for in the competition were supplemented by a parking facility and intramural fields.

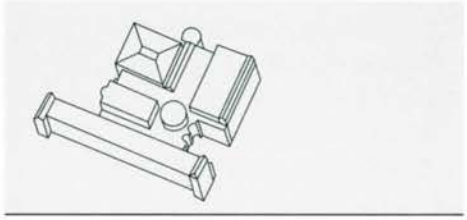
The result is an "athletic quadrangle" shaped by a parking garage, with integral stadium seating, on the north; and the dormitory and dining facility on the south. The field between is recessed at the foot of a six-foot earthen berm, an arrangement that Eliel Saarinen had used at his Cranbrook School for Boys (1926-1930). The parking garage shields campus activities from Forbes Avenue, and serves as a backdrop for Gesling Field. It has a high level of finish for such a facility, in order to mesh with the rest of the quadrangle and to mollify neighborhood concerns about its very existence.

The Dennis and Clark competition plan sited the dormitory and dining facility in a development zone along Margaret Morrison Street, but it was relocated to the south side of the athletic field when tennis courts were removed from the East Campus program. Here, raised on an earthen podium, it helps to shape the athletic quadrangle and to delineate the east-west axis between the hill dorms and the cut. The dormitory portion is split into two C-shaped buildings–Resnick Hall and West Wing–which are set side by side along the athletic field. The dining portion encompasses two geometric volumes at the east end of the complex. In the schematic design, these volumes were arranged freely on a one-story base. In the final design, they are pulled together and grafted onto the overall massing. A cruciform element is subordinated to a large polygonal rotunda. This rotunda is the main dining room, and anchors a pivot point in the pedestrian walkway.

The break between the dormitory buildings allows a cross-axial view into the stadium. At the break, engaged brick columns emerge iconographically from the walls to recall Hornbostel's vocabulary and wit. As for the architecture as a whole:

> [The buildings] are successful as placemakers, strengthening every part of the campus they address...the architects used materials and forms similar to those of the Hornbostel buildings, but developed a language compatible with contemporary construction methods [and] gave the buildings just enough personality to engage the viewer while still allowing them to recede into the campus. (Branch 1991)

The East Campus project set the stage for the University Center. In turn, the University Center's gymnasium ultimately anchored the main axis of the athletic field and completed the athletic quadrangle.



UNIVERSITY CENTER

UDA/MDA ARCHITECTS:
UDA ARCHITECTS/
MICHAEL DENNIS & ASSOCIATES
(PITTSBURGH AND BOSTON)
1989-1996

The University Center is the largest and most complex project among the university's recent additions and serves many urbanistic and functional roles. Since the competition scheme it has shrunken in square footage and has enfolded an auditorium that was originally cast as a separate towered building; but it has changed little in concept.

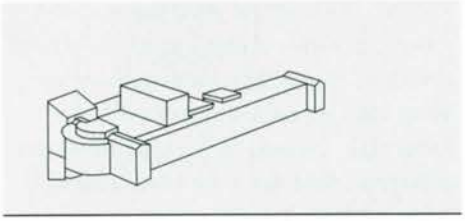
Architect Michael Dennis is the author of **Court and Garden: From the French Hôtel to the City of Modern Architecture** (1986) in which he explored the potential lessons of historic French hotels for contemporary urbanism and asserted that the "city of contiguous solids is [well-]served by the principles of the Baroque hotel type." Dennis utilized some of these lessons in his competition-winning design for the University Art Museum at the University of California, Santa Barbara (1983, unbuilt), and subsequently adapted that design for Carnegie Mellon's University Center.

Dennis' "city of contiguous solids" is the traditional city of streets and squares, the city of Paris and of Hornbostel and of Krier. The French hotels in question feature continuous facades that make definitive margins in the public realm, and screen internal courtyards, making semi-public rooms out of outdoor spaces. The University Center's monumental colonnade delineates the eastern margin of the cut and shapes it as a public space. The south facade defines the east-west pedestrian axis and the related outdoor space of the tennis courts (as rebuilt at virtually their original site). This facade is broken only by a partially screened courtyard, which, with its surrounding linear volumes, is modeled after a similar configuration at the Hôtel de la Vrillière (1635-).

The freedom of plan at the Hôtel de Beauvais (1652-1655) shows what Dennis calls a "hierarchy of locally symmetrical figures," connected by asymmetrical secondary and tertiary spaces. Overall, this plan utilizes a "principle of discontinuity to demonstrate that independence and identity of the part can be achieved without sacrificing the unity of the whole." The floor plans of the University Center reflect these principles, though some of their most asymmetrical and discontinuous aspects were ironed out during design development. The plans accommodate an array of social, recreational, commercial, and institutional functions deployed in a series of pavilions. The rotunda-form commons, pool, gymnasium, ballroom and auditorium, loggia wing, and courtyard have their own distinct functions and volumes. Each is a "locally symmetrical figure" joined one to another by secondary and tertiary spaces.

The difficult dichotomy of the "unity of the whole" and the "independence and identity of the part" is apparent on the exterior as well. The building's materials (yellow brick, concrete, and metal), forms, and careful detailing are sympathetic to the Hornbostel campus. The exterior styling specifically evokes the rational but expressive eighteenth-century neoclassicism of Claude-Nicolas Ledoux. Yet with each shift in volume comes changes in elevation and detail. The colonnade has its own overscaled order. Unity is stretched thin around many of the building's numerous corners.

The University Center is itself an urban microcosm. It has three major pedestrian streets (the loggia and the principal hallways), a public square (the commons and courtyard), and urban facades both inside and out. Even so, the University Center is only a part of a larger whole. Only when a corresponding colonnade is built along the west side of the cut will this outdoor room be shaped as envisioned, and wholly transformed into an urban space. Only then will the "city of contiguous solids" take full shape, and only then will the public intentions of the University Center be made whole.



PURNELL CENTER FOR THE ARTS [FUTURE]

DDF ASSOCIATES:
MICHAEL DENNIS & ASSOCIATES/
DAMIANOS + ANTHONY/
JOHN SERGIO FISHER & ASSOCIATES
(BOSTON, PITTSBURGH, AND LOS ANGELES)
1991-

The Purnell Center for the Arts will be the realization of a desire that was felt as early as the 1950s when a performing arts center was slated for a site behind the College of Fine Arts. This impulse reawakened in the 1960s in grandiose plans for a new arts facility behind Morewood Gardens. Finally, the CRS Sirrine master plan tucked a new theater into its proposed University Center Complex. Nothing was built, however.

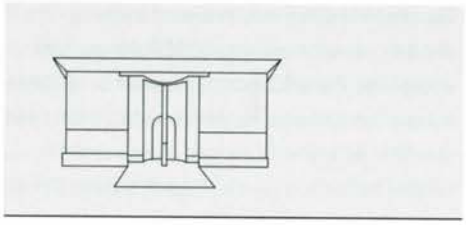
The University Center Competition, too, incorporated a performing arts center, to be sited on the west side of the cut. A 1990 study by Damianos Brown Andrews and theater specialist John Sergio Fisher reviewed the project's program and location, but the site remained the same. The commission was finally awarded in a selection process won by Michael Dennis in association with Damianos and Fisher, over firms such as Venturi and Scott Brown, and Hardy Holzman Pfeiffer.

The selection committee expressed a strong desire to complete the entire 1987 campus plan wherein the Purnell Center is intended to complete the quadrangle begun by the University Center and give final definition to the cut. It will provide balance to the heavy mass of the University Center across the way. However, the timing of a phase-two extension, including an art gallery, remains uncertain. This would extend the building northward toward and in front of Warner Hall and reprise the full length of the University Center colonnade.

Away from the cut, the site overlooks a steep ravine. Michael Dennis' designs emphasize the building's posture above and within the ravine, with a rotunda projected out into the void on a masonry podium. The rotunda also acts as the western terminus for the east-west pedestrian axis, in counterpoint to the dining-facility rotunda.

In the competition design, a virtually free-standing rotunda adjoined a gabled theater that featured a large lunette taken from Ledoux's Pavillon de Mademoiselle Guimard (1770). In the grander schematic design, the theater itself was turned slightly off axis and was itself given a billowing rotunda-like form, while a recital hall was added in the body of the building. In the current design, the axis has been restraightened, the theater has receded into the bulk of the building, the recital hall has yielded to a small studio theater, and the rotunda has diminished to a smallish vestibule and lobby.

The Purnell Center has been called the jewel of the campus building program; and a jewel may result. But jewels are expensive, and this one has lost some of its luster in the effort to make budget. The setting remains, however, and the building will be pivotal in linking the East Campus to the west, the upper campus to the lower, the University Center colonnade to its alter ego.



POSNER HALL

KALLMANN MCKINNELL AND WOOD
(BOSTON)
1990-1993

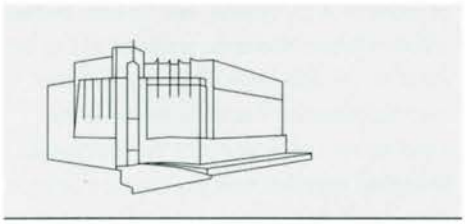
The firm of Kallmann McKinnell and Wood was chosen to design the Posner Hall addition to the Graduate School of Industrial Administration because of its previous projects done for business schools, its demonstrated expertise in designing contextual buildings on university campuses, and the wide respect that the firm enjoys for the quality of its buildings.

CRS Sirrine's master plan envisioned a smallish underground addition to GSIA, but the eventual program yielded a three-story building that is capable of supporting an additional story. A double-loaded passage lined with classrooms, lecture halls, and offices could have yielded a simple rectangular building. The building broadens in both width and depth, however, as the site drops in grade toward the south, setting the scene for a dramatic entry off a raised podium.

Kallmann McKinnell and Wood devotes special attention to matters of entry and exit and internal circulation, as reflected in the monumental entry, formal stair, and two-story interior atrium of Posner Hall. The entry configuration echoes that of the firm's Shad Hall at the Harvard School of Business (1989). The atrium has a counterpart at the Washington University School of Business (1983).

The work of Kallmann McKinnell and Wood also commonly features something difficult or idiosyncratic (which could also be said about Hornbostel's work). At Posner Hall (and Shad Hall), this quirky element is the single column that splits and blocks the otherwise welcoming entryway. Both the concavity of the entry and its partial blockage also have significance in the local context, echoing the facade of Margaret Morrison Carnegie Hall across the street. Posner Hall's brickwork, ornamental striping, and overhanging eaves also allude to Hornbostel's buildings. The metal grilles that form the eaves are a lighter contemporary take on Hornbostel's highly ornamented terra-cotta eaves.

Most of this happens far from the progenitor GSIA building, now extended for the third time, to which Posner Hall turns its back. The new work dominates the old in both scale and stance. Posner Hall is an elegant part, but the whole is a somewhat awkward whole.



SOFTWARE ENGINEERING INSTITUTE

BOHLIN POWELL LARKIN CYWINSKI/
BURT HILL KOSAR RITTELMANN
(PITTSBURGH)
1984-1987

The Software Engineering Institute stands on a complex urban site in a precinct of monumental buildings. It faces the gabled nave and gothic spires of St. Paul's Cathedral across a broad avenue, and adjoins the neoclassical Mellon Institute to the west. In response to the site and the program, the architects established a tripartite massing scheme consisting of an entry pavilion, an office and laboratory block, and a parking garage that bridges a street to the south.

The entry pavilion and the office and laboratory block comprise the main facade. They are joined by a curved indentation that provides a forecourt for the main entry, and allows the entire design to flow smoothly from side to side. Though it eschews historicism, the facade establishes relationships with the neighboring buildings.

The entry pavilion is placed on axis with St. Paul's. It is an upright element, in counterpoint to the facade of the cathedral. Its crowning element evolved from a gabled skylight to a rectilinear capstone that still peaks slightly in deference to St. Paul's. At the curved linkage, aluminum beams spring outward and downward from the building's upper reaches like the flying buttresses of St. Paul's.

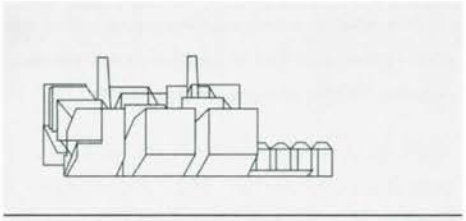
The office and laboratory block emulates Mellon Institute's massing and extends the building line of Mellon Institute's facade. It is wrapped with a modern glass curtain wall above a limestone base. The curtain wall reflects Mellon Institute's colonnade, literally and figuratively, in its two-toned glass and insistent vertical members.

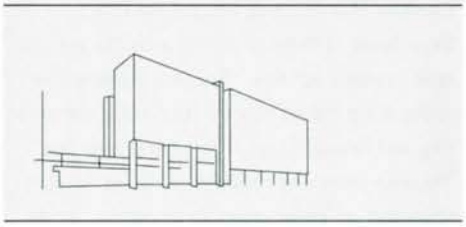
> ...SEI is respectful of both place and program; there is a kind of architectural hum as aspects of its heterogeneous neighbors resonate throughout. (Russell 1989)

While the building warms to its setting, its program is quite introverted. SEI is a joint project of Carnegie Mellon University and the U.S. Department of Defense, and its activities are not open to public scrutiny. Thus, the building communicates a special concern for privacy and security, and its public face is a rather private one. The main entry and forecourt are faced largely in stone and are unwelcoming to passersby. At the rear, however, the stone is eroded by glass, and a rear entry into the same pavilion, bridged by a trellis of steel columns and beams, is more friendly. Inside, the pavilion opens into a two-story lobby where a monumental stair climbs the convex wall of the facade, and a standing light fixture serves as a technological totem. After the lobby, hallways lined with cable trays recede into privacy.

In the changing regional economy, the high-tech laboratory is heir to the region's earlier generations of industrial research facilities, such as Mellon Institute. In the words of an awards jury, SEI "is a modern-day temple honoring a new technology."

Bohlin Powell Larkin Cywinski (now Bohlin Cywinski Jackson) was the primary design architect. The firm's experience with SEI led to subsequent projects for Carnegie Mellon.





CARNEGIE MELLON RESEARCH INSTITUTE

BOHLIN CYWINSKI JACKSON
(PITTSBURGH)
1991-1995

The Pittsburgh Technology Center entails the transformation of a highly visible site along the Monongahela River from a steel mill into a high-technology research center. A governing site plan by UDA Architects (1987) features a roughly east-west sequence of building sites, parking facilities, walkways, and swaths of plantings, and an intersecting sequence of hedgerows.

In 1987, Carnegie Mellon commissioned avant-garde architect Peter Eisenman to design a building here in a joint venture with the Oxford Development Company. Challenged by Carnegie Mellon president Richard Cyert to design a world-class building that "symbolizes man's capacity to overcome knowledge," Eisenman developed a design based on the complex geometry of the Boolean cube, a model for computer design in the field of artificial intelligence. His project was extremely popular with architectural publishers, but it ultimately foundered on Oxford's inability to lease its space. Perhaps sloping walls and ceilings had something to do with it.

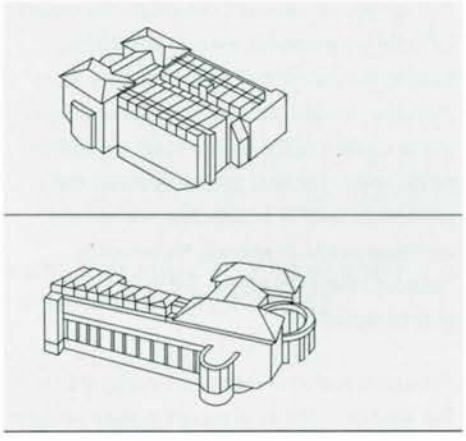
The university subsequently abandoned Eisenman, flirted briefly with Kohn Pedersen Fox, and finally turned to Bohlin Cywinski Jackson, which had already designed the first building at the PTC site, the University of Pittsburgh's Biotechnology and Bioengineering Center. Early versions of CMRI built upon themes begun at the Pitt Biotech building, employing metal-panel walls, bright colors, and irregular extensions of the south facade.

In opting for BCJ, however, new Carnegie Mellon president Robert Mehrabian promoted SEI as the model for the university's off-campus buildings, much as Hornbostel's buildings are (now) the model for most development on the main campus. Mehrabian requested more glass and less color–in keeping with the standards set at SEI. As built, the building mass is more simple than in early concepts and the north and south facades are almost entirely glass. On the river (south) side, however, the curtain wall is more complex and active. It is articulated as an assemblage of parts, with sunscreens carried on metal extrusions.

There is a very close fit between materials, massing, plan, and program. CMRI is composed of upended layers stacked parallel. The layers have different claddings, volumes, footprints, and functions.

> Viewed along its transverse [east-west] axis, CMRI forms a pair of aluminum-wrapped volumes encasing two vertical slots of horizontal mullioned glass that hold a dark blue core of ribbed siding...The planes also summarize Bohlin Cywinski Jackson's parti: CMRI is a sandwich of fixed and flexible spaces within clearly demarcated spatial blocks. The north and south volumes house dry labs...and offices respectively, and bracket double-loaded, end-glazed corridors enclosing a central core of fixed wet labs and services. (Kroloff 1996)

At first glance, each PTC building stands independently in a modern anti-urban context; yet numerous aspects of the architecture and the site plan provide linkages and define axes and outdoor spaces. At CMRI, the architecture reinforces the linear qualities of the site. A pedestrian arcade, projecting walls, and extruded aluminum moldings that extend beyond the ends of the building suggest connectivity to companion buildings, including a possible phase-two addition to CMRI. In its own way, the public realm of the PTC is nearly as ordered as Hornbostel's.



INTELLIGENT WORKPLACE

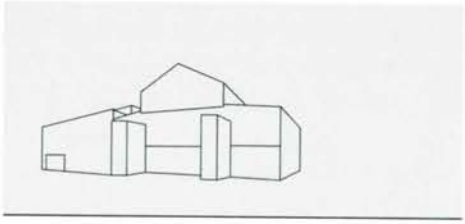
BOHLIN CYWINSKI JACKSON
WITH PIERRE ZOELLY
(PITTSBURGH AND ZURICH)
1990-1996

Henry Hornbostel designed Margaret Morrison Carnegie Hall in 1905-1906, extended it in 1913, and planned even greater extensions that were never built. In 1991 Pierre Zoelly, a noted Swiss architect with close ties to Carnegie Mellon, revisited the concept of a greater MMCH. Zoelly proposed an east wing to parallel the existing west wing, a penthouse story on the west wing, and a six-story atrium between. The sides of the atrium were cantilevered inward floor by floor as the atrium climbed in height. The steel skeleton provided the salient architectural vocabulary. Zoelly also experimented with a major concert hall and theater wing to the east.

This project did not find favor with the University; but it ultimately issued in the Intelligent Workplace. The IW, a project of the Center for Building Performance and Diagnostics, is a living laboratory of the advanced workplace that serves as a test bed for innovations in building enclosure, interior, HVAC, and telecommunications systems. Because of its special requirements, the IW was shaped by a multidisciplinary team including CBPD faculty, architects Zoelly and Bohlin Cywinski Jackson, and structural, mechanical, and electrical engineering consultants. The team identified performance issues, set standards for integrating building systems, and explored innovative solutions.

For a time, the project retained the original scope of work for the entire west wing of MMCH, but it ultimately receded to just the penthouse level. Zoelly conceived the massing modules, which were employed in various schemes before the design was simplified to its final form of nine modules, differing only in breadth. The design was also driven in part by the characteristics of major components donated by building industries. The Mahle flooring system, for instance, uses a 600mm module that helped to establish the dimensions of the massing modules. The sophisticated curtain wall, which refines themes explored at SEI and CMRI, is a variant of the Gartner product line. It is related to the curtain wall of Gartner's own corporate headquarters in Gundelfingen, Germany (1988-1992).

The IW serves internal purposes foremost, and its presence in the public realm is a secondary concern. Nevertheless, its coloration and its roof forms are benign gestures toward the Hornbostel building below. More importantly, the IW brings the high-tech vocabulary of SEI and CMRI to the historical campus, in keeping with the contemporary identity of the university.



NASA ROBOTICS ENGINEERING CONSORTIUM

BURT HILL KOSAR RITTELMANN
(PITTSBURGH)
1994-1996

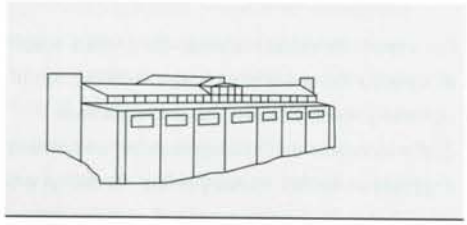
What has been said of SEI–that it symbolizes Pittsburgh's metamorphosis from an industrial giant to a research–led economy-might even better be said of this project, a high-technology rehabilitation of an existing industrial complex in Pittsburgh's Lawrenceville neighborhood.

Samuel Diescher, a prominent civil and mechanical engineer, designed the earliest building on the site in 1898. Of steel construction faced in brick, the building was massed like a basilica, with lower side "aisles" and a raised central space with clerestory. In 1925 a major addition was wrapped around three sides of the original building, shearing off its westernmost bay. Further additions ultimately extended the complex over a two-block area.

In recent work, large portions of the complex were demolished to secure open land and leave facilities suited to new purposes. Most of the 1925 addition is gone; yet the oldest part of the complex remains. This has been given a new western front: a glass curtain wall that mimics the profile of the original building. New stair towers flank the entry. With floors of offices and support facilities adjoining a high-bay staging area for robots, the building is a larger version of the Field and Mobile Robotics Building on campus.

Unusual site requirements include fields for testing agricultural robots, a pool for testing aquatic robots, and a robust system of fencing, including a so-called "tank wall" barrier, to stop the occasional out-of-control robot.

It is hoped that this project will attract other high-tech businesses to underutilized industrial buildings nearby. Together, these facilities may comprise "Robocity," as envisioned by scientists and architects.



GEORGE A. ROBERTS ENGINEERING HALL

PAYETTE ASSOCIATES, INC.
(BOSTON)
1993-1996

CRS Sirrine's master plan envisioned an Electronic Materials Technology Building behind Hamerschlag Hall. The project was subsequently studied by Williams Trebilcock Whitehead (1985) and Michael Dennis Associates (1990) before the building was renamed and commissioned from Payette Associates, a firm with extensive experience with laboratory buildings.

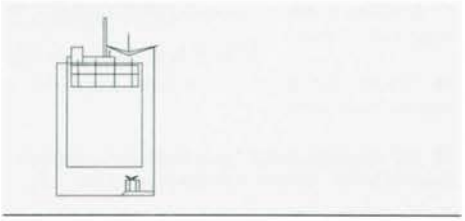
Roberts Hall is located on a difficult site, though Hornbostel, too, originally conceived of building here. It scales down a steep hillside, and provides a visual plinth for Hamerschlag Hall, the University's most important visual icon.

Two abandoned schematic designs for the project reflected programmatic goals to link the new building with Wean Hall on one hand (by way of a circular "headhouse" and extensive walkways), and to create a public terrace above the building on the other. The final scheme dismisses these concerns in favor of architecture, wherein the architects sought to embrace Hamerschlag "without concealing science and program in historic fashion."

The west elevation overlooking Junction Hollow is five monolithic stories of poured-in-place concrete. Triangular concrete stair towers anchor the ends of the building and double as exhaust flues. The concrete walls respond to the concrete foundation of Hamerschlag and the concrete walls of Wean Hall nearby. They were equally inspired by the concrete buildings of architect Louis Kahn. The concrete is discontinuous, however, and the building as a whole is not so monolithic. A metal and glass top story sits lightly on the concrete base, and a cylindrical conference room that rides the crest of the building is a flattened offspring of the Hamerschlag tower. It carries the prow of the U.S.S. Pittsburgh–previously a ground-level artifact on the site–like a tiara. Large portions of the side and rear elevations are composed of brick, block, metal, and glass. An orange-colored cast concrete appears throughout as dressing.

As at CMRI, there are three ranges of occupied spaces. Offices line the west facade, and laboratories are located in the center and along the building's inner edge. Walkways cross above and below an adjoining road to connect to Hamerschlag and its "clean room."

Roberts Hall may be one story too high. Hornbostel's buildings nearly always sit high on exposed basements as a matter of proportion and a practical acknowledgment of the variable terrain. When viewed from the west, Roberts Hall blocks Hamerschlag's lower levels in a way that disturbs the proportions of the older building. The buildings share breadth and posture, however, setting them in partial balance.



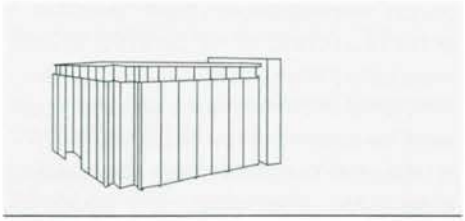
UNDERGRADUATE CHEMISTRY LABORATORIES [FUTURE]

BURT HILL KOSAR RITTELMANN
(BUTLER, PA.)
1994-

This project addresses two sensitive questions: whether to fill one of the gaps between the projecting wings that characterize Hornbostel's earliest campus buildings; and if so, whether to do it in sympathy with Hornbostel's architectural language, or to emphasize the newness of the infill.

Since the site is the back (north) side of Doherty Hall, and overlooks a parking lot instead of the public space of the Hornbostel mall, the first decision came easier. The university chose infill to secure the square footage necessary for the program. The architects toyed with a traditional brick facade, with classical detailing, and a modern glass facade, which would have virtually disappeared from sight, before they chose a middle course–a facade that acknowledges the dominance of the flanking wings, but is unquestionably contemporary.

A central brick panel with cut-out windows repeats the fabric and fenestration pattern of the Hornbostel wings. But this section is surrounded by lighter contemporary materials. Vertical strips of glass screen a stair tower on one side, and an atrium on the other. The atrium drops natural light into the lower floors and gains emphasis at the roofline with a skylight in the form of an inverted V. A step-wise sequence of metal-clad forms further articulates the top of the facade. Thus the addition seeks to establish its own identity, while respecting its context and its role as infill.



ENGINEERING AND SCIENCE LIBRARY [FUTURE]

BOHLIN CYWINSKI JACKSON
(PITTSBURGH)
1996-

The new Engineering and Science Library will be part of the sequence of new buildings that scales the slope of Junction Hollow at the western edge of the campus. It holds the linchpin positioned between the Physical Plant Building and Roberts Hall, previously envisioned for the Roberts Hall "headhouse." Thus far, the architects have prepared a feasibility study as part of a grant application that seeks funding for the project. The study concludes that it is feasible to build a small library distributed over five stories on this difficult site. Site conditions–including the severity of the slope, buried utility lines, and the need for above-ground connections to Wean and Roberts Halls–drive the design.

The building is massed as a cube, with a circulation tower articulated as a separate slab-like volume. The lower stories of the principal facades are concrete, with accentuated vertical ribs, and act as a monolithic plinth for the campus above. The highest story rides lightly on top. The division between these elements continues a datum line established at Scaife and Roberts Halls. The cube is eroded, however, on its inner edge where it meets the hillside. Here, light shafts introduce natural light deep into the interior and bridges and stairs come and go. The building is entered from the top, primarily from bridges that connect into the circulation tower. The bridge from the fourth floor of Wean Hall will conform to ADA ramp requirements. Its entry point into the site is a jumping-off point for the entire design.

A CAMPUS RENEWED

A DECADE OF BUILDING AT CARNEGIE MELLON 1986-1996

MAJOR EXHIBITS

UNLESS OTHERWISE NOTED, ITEMS ARE PART OF THE COLLECTIONS OF THE CARNEGIE MELLON UNIVERSITY ARCHITECTURE ARCHIVES. MANY WERE GIFTS OF PARTICIPATING ARCHITECTS, OR WERE TRANSFERRED FROM OTHER UNIVERSITY OFFICES. THE EXHIBIT INCLUDES ADDITIONAL EXHIBITS NOT LISTED HERE.

1. Carnegie Mellon University, 1986-1996, computer model (1996). Courtesy of John Decker.

2. CRS Sirrine, Inc., Carnegie Mellon University, Long Range Master Plan, site plan, poster of rendering (1985)

3. Michael Dennis & Associates, Carnegie Mellon University, Campus Plan (1987-), site plan, drawing (1992)

4. Sasaki Associates, Inc., Carnegie Mellon University, Open Space Plan, site plan, print of rendering (1995). Courtesy of Facilities Management Services.

5. Henry Hornbostel and CIT Building Bureau, Baker Hall, east elevation, drawing (1914)

6. Janssen & Cocken, Mellon Institute, north elevation, rendering (ca. 1931)

7. Charles Luckman Associates, Administration Building [Warner Hall], perspective rendering (1966)

8. Dennis, Clark & Associates/TAMS, University Center Competition, site plan, rendering (1987)

9. Dennis, Clark & Associates/TAMS, University Center Competition, west and south elevation, rendering (1987)

10. Leon Krier, Carnegie Mellon University, colonnade mock-up (1986)

11. IKM Inc., Physical Plant Building, schematic design, sections, print of drawing, detail (1987)

12. Arthur Lubetz Associates, Field and Mobile Robotics Building, perspective drawing (ca. 1986)

13. Dennis, Clark & Associates/TAMS, East Campus parking building, perspective rendering (1988)

14. Dennis, Clark & Associates/TAMS, East Campus dormitory and dining facility, south elevation, rendering (1988). Courtesy of Michael Dennis & Associates.

15. Dennis, Clark & Associates/TAMS, University Center, preliminary design, perspective rendering (1988)

16. UDA/MDA Architects, University Center, schematic design, sections, rendered drawing (1990)

17. UDA/MDA Architects, University Center, schematic design, model (1990)

18. UDA/MDA Architects, University Center, partial west elevation, model (1991)

19. DDF Associates, Purnell Center for the Arts, perspective rendering (1996). Courtesy of College of Fine Arts.

20. Kallmann McKinnell and Wood, Posner Hall, schematic design, perspective rendering (ca. 1990). Courtesy of Kallmann McKinnell and Wood.

21. Bohlin Powell Larkin Cywinski/Burt Hill Kosar Rittelmann, Software Engineering Institute, perspective rendering (1986). Courtesy of Bohlin Cywinski Jackson.

22. Bohlin Powell Larkin Cywinski/Burt Hill Kosar Rittelmann, Software Engineering Institute, model (1985). Courtesy of the Heinz Architectural Center, Carnegie Museum of Art.

23. Eisenman Architects, et. al., Carnegie Mellon Research Institute, north elevation, plate of rendering [from marketing brochure] (1989)

24. Bohlin Cywinski Jackson, Carnegie Mellon Research Institute, perspective rendering (ca. 1993)

25. Bohlin Cywinski Jackson, Carnegie Mellon Research Institute, partial south elevation, model (1992)

26. Pierre Zoelly, Margaret Morrison Building Extension, model (1991). Courtesy of Center for Building Performance and Diagnostics.

27. Bohlin Cywinski Jackson with Pierre Zoelly, Intelligent Workplace, prints of perspective renderings (ca. 1992)

28. Burt Hill Kosar Rittelmann, NASA Robotics Engineering Consortium, print of perspective rendering (1994)

29. Payette Associates, Inc., Roberts Hall, schematic design III, perspective sketches (1993)

30. Payette Associates, Inc., Roberts Hall, model (1994)

31. Burt Hill Kosar Rittelmann, Undergraduate Chemistry Laboratories, design development, elevation, print of drawing, detail (1995)

32. Bohlin Cywinski Jackson, Engineering and Science Library, feasibility study, west elevation, rendering (1996). Courtesy of Bohlin Cywinski Jackson.

SELECTED BIBLIOGRAPHY

Allen, Jane. "Postmodernizing Junction Hollow." **Focus** 18:2 (October 1988), 5.

The Architecture of Bohlin Cywinski Jackson. Rockport, Mass.: Rockport Publishers; Washington, D.C.: AIA Press, 1994.

Arcidi, Philip. "Inquiry: Campus Infill." **Progressive Architecture** 71:4 (April 1990), 100.

"Bohlin Cywinski Jackson: Software Engineering Institute." **Architecture+Urbanism** 259 (April 1992), 88-94.

Branch, Mark Alden. "Coherence Regained [East Campus]." **Progressive Architecture** 72:10 (October 1991), cover, 90-95.

"Capsule Review of Tech's Development Program." **Carnegie Alumnus** 42:4 (June 1957), 3-7.

"Carnegie Tech to Spend $25 Million." **Charette** 37:4 (April 1957), 12-13, 34.

Cleary, Richard. "The High-Teching of Henry Hornbostel." **Focus** 15:2 (October 1985), 7.

Cleary, Richard. "A Kindler Gentler Approach to Campus." **Carnegie Mellon Magazine** 9:2 (Winter 1990), 16-17.

Cleary, Richard. "Looking at SEI." **Focus** 18:5 (February 1989), 3.

Cleeton, Glen Uriel. **The Doherty Administration, 1936-1950.** Pittsburgh: Carnegie Press, Carnegie Institute of Technology, 1965.

CRS Sirrine, Inc. "Long Range Campus Plan." Carnegie Mellon University, 1985.

CRS Sirrine, Inc. and Eichleay Engineers, Inc. "Junction Hollow Planning Study." Carnegie Mellon University, 1986.

Curran, Ann. "Campus Readied for Its Second Century." **Carnegie Mellon Magazine** 13:1 (Fall 1994), 20-23.

Dennis, Michael. "On Campus Planning." **Modulus** 23 (1995), 108-119.

Eisenman, Peter. "Carnegie Mellon Research Institute." **Architecture+Urbanism** 220 (January 1989), 33-52.

Fanzo, Michelle. "What's New at CMU." **Columns** 8:8 (September 1994), 18-19.

Fisher, Thomas. "New Plan for Carnegie Mellon." **Progressive Architecture** 68:8 (August 1987), 25-26.

Githens, Alfred Morton. "The Group Plan. I. A Theory of Composition: The Carnegie Technical Schools." **Brickbuilder** 15 (July 1906), 134-138.

Henderson, David L. "The Hornbostel Plan." **Carnegie Technical** 29:1 (October 1964), 24-31.

"Intelligent Workplace." ABSIC, Carnegie Mellon University, n.d.

"The Intelligent Workplace." [Online]. Available WWW: http://www.arc.cmu.edu/cbpd/iw.html

Janssen & Cocken. "General Description of New Building [Mellon Institute]." 1936.

Keating, Patrick J. "The Quality of Architecture and the American Campus." University Planning, Carnegie Mellon University, 1986.

Kidney, Walter C. **Landmark Architecture of Pittsburgh and Allegheny County.** Pittsburgh: Pittsburgh History & Landmarks Foundation, 1985. 232-233, 237-238.

Kroloff, Reed. "Pittsburgh's Progress: Carnegie Mellon Research Institute." **Architecture** 85:3 (March 1996), 94-99.

"Kudos for the Campus Plan." **Plan** 42 (March 1995). [Online]. Available WWW: http://alberti.mit.edu/plan/plan42/plan42.html#Kudos

Lewis, David. "Designing the Carnegie Mellon Campus." **Carnegie Magazine** 59:1 (January/February 1988), 12-19.

"A Look At the Future." **Carnegie Review** 15 (April 1968). 8-9.

"Man with The Plan: University Architect Paul Tellers." **Focus** 25:3 (January 1996), 1, 3.

McKee, Tally. "Carnegie Tech's New Donner Hall." **Charette** 35:4 (April 1955), 10-13, 21.

Neely, Peggy. "A Romantic, Poetic, Serene New Plan for Campus." **Carnegie Mellon Magazine** 6:1 (Fall 1987), 20-21.

Nesmith, Lynn. "A.I.A. Honor Awards, 1990: Software Engineering Institute." **Architecture** 71:3 (March 1990), 109.

Oechslin, Werner. "Peter Eisenman: The Cube and Its Deviations." **Daidalos** 35 (March 15, 1990), 46-57.

Ringel, Susan S. "A Campus Under Construction." **Carnegie Mellon Magazine** 8:1 (Fall 1989), 18-25.

Russell, James S. "Soft Machine: Software Engineering Institute." **Architectural Record** 172:3 (March 1989), cover, 78-83.

Sasaki Associates, Inc. "Open Space Plan." Carnegie Mellon University, 1995.

Schaefer, Ludwig Frederick. **Evolution of a National Research University, 1965-1990: The Stever Administration and the Cyert Years at Carnegie Mellon.** Pittsburgh: Carnegie Mellon University Press, 1992.

Spreiregen, Paul D. "Design Program for a University Center." 2 vols. Carnegie Mellon University, 1986.

Tarbell, Arthur Wilson. **The Story of Carnegie Tech; Being a History of Carnegie Institute of Technology from 1900 to 1935.** Pittsburgh: Carnegie Institute of Technology, 1937.

"37th Annual P/A Awards: Carnegie Mellon Research Institute." **Progressive Architecture** 71:1 (January 1990), 104-106.

"36th Annual P/A Awards: Carnegie Mellon University." **Progressive Architecture** 70:1 (January 1989), 113-115.

Toker, Frank. **Pittsburgh: An Urban Portrait.** University Park, Pa.: Pennsylvania State University Press, 1986. 88-89, 105-106.

Turner, Paul Venable. **Campus: An American Planning Tradition.** Cambridge, Mass.: MIT Press, 1984.

Valyo, Cheryl Collins. "Unprecedented Building Boom Continues on Campus." **Carnegie Mellon Magazine** 14:2 (Winter 1995), 26-30.

Van Trump, James D. "Henry Hornbostel: The New Brutalism." **Charette** 46:5 (May 1966), 8-11.

Van Trump, James D. and Barry Hannegan. "The Stones of Carnegie Tech: Of Temples and Technology: The Drama of Henry Hornbostel's Buildings at Carnegie Institute of Technology." **Charette** 38:9 (September 1958), 23-27; 38:11 (November 1958), 26-29. Reprinted as: "Henry Hornbostel and His Campus/Technology's Temple." **Carnegie Alumnus** 45:3 (December 1959), 4-7; 45:5 (April 1960), 2-7.

Wilson, Cathy A. "Building a Temple of Science: Pittsburgh's Mellon Institute." **Pittsburgh History** 77:4 (Winter 1994/95), 151-158.

Wright, Austin. **The Warner Administration at Carnegie Institute of Technology, 1950-1965.** Pittsburgh: Carnegie Press, 1973.

[Document Designed and Illustrated by Christina Hagopian]

College of Fine Arts #111
Carnegie Mellon University
Pittsburgh, PA 15213-3890

Petra Fallaux, coordinator
(412) 268-3877

Gallery Hours
Monday-Friday 11:30 - 5:00
Saturday & Sunday 11:30 - 4:00

Gallery Phone
(412) 268-3618

A CAMPUS RENEWED

ACKNOWLEDGEMENTS

Paul Tellers
Pat Keating
Ed Schatz
Richard Cleary
Arthur Lubetz
Dick Myers
Michael Dennis
Eric Thorkildsen
Connie Saienga
Bruno Pfister
Peter Bohlin
Jon Jackson
Greg Matolla
Karl Backus
Natalie Gentile
Rob Pfaffmann
Pierre Zoelly
Steve Lee
Volker Hartkopf
Georg Suter
Jim Martin
Jim Platt
Oscar Meyer
Doran Abel

George Marsh
Peg Hart
Pamela Eager
Jim Secosky
Jim Hunt
Vivian Loftness
John Decker
Pablo Preece
Henry Pisciotta
Gabrielle Michalek
Evangeline Levis
Richard Wilcox
Jeff Macklin
Gary Thomas
Petra Fallaux
Christina Hagopian
Martha Harris
Jenny Good
Gregory Cinna

Arthur Lubetz Associates
IKM, Inc.
Michael Dennis & Associates
Kallmann McKinnell and Wood
Payette Associates, Inc.
Bohlin Cywinski Jackson
Burt Hill Kosar Rittelmann
Center for Building Performance
and Diagnostics
Heinz Architectural Center

This exhibit is supported in part by a grant from the Pennsylvania Council on the Arts.