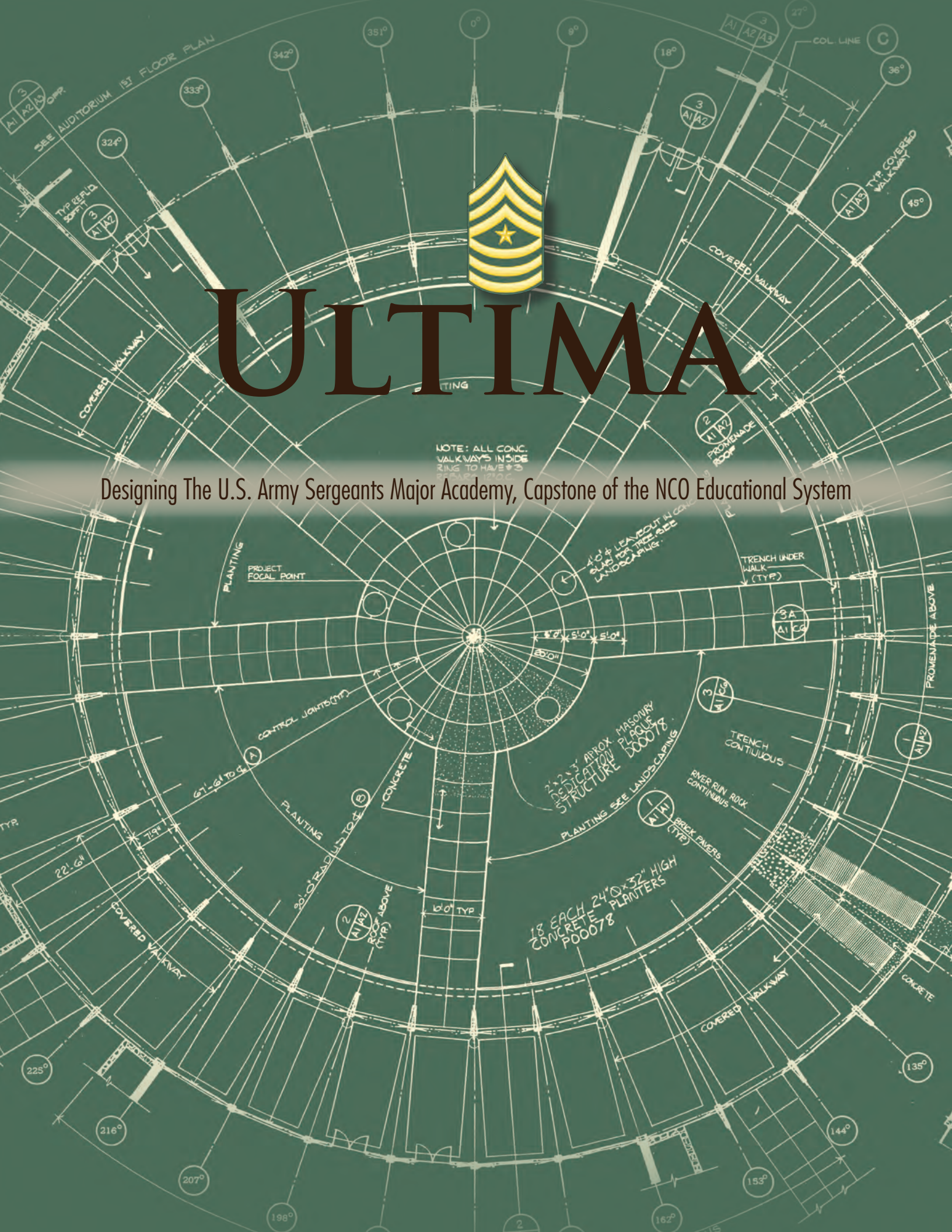

ULTIMA

Designing The U.S. Army Sergeants Major Academy, Capstone of the NCO Educational System

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By
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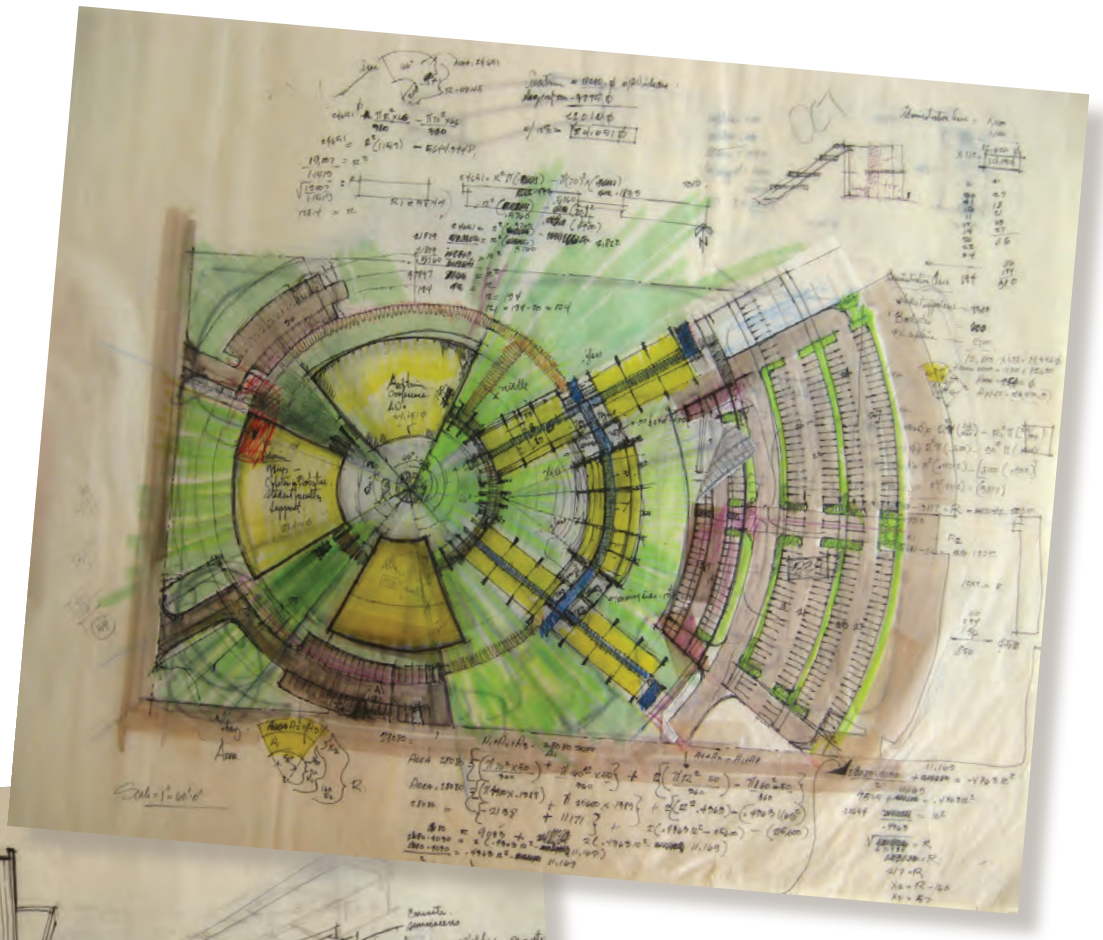
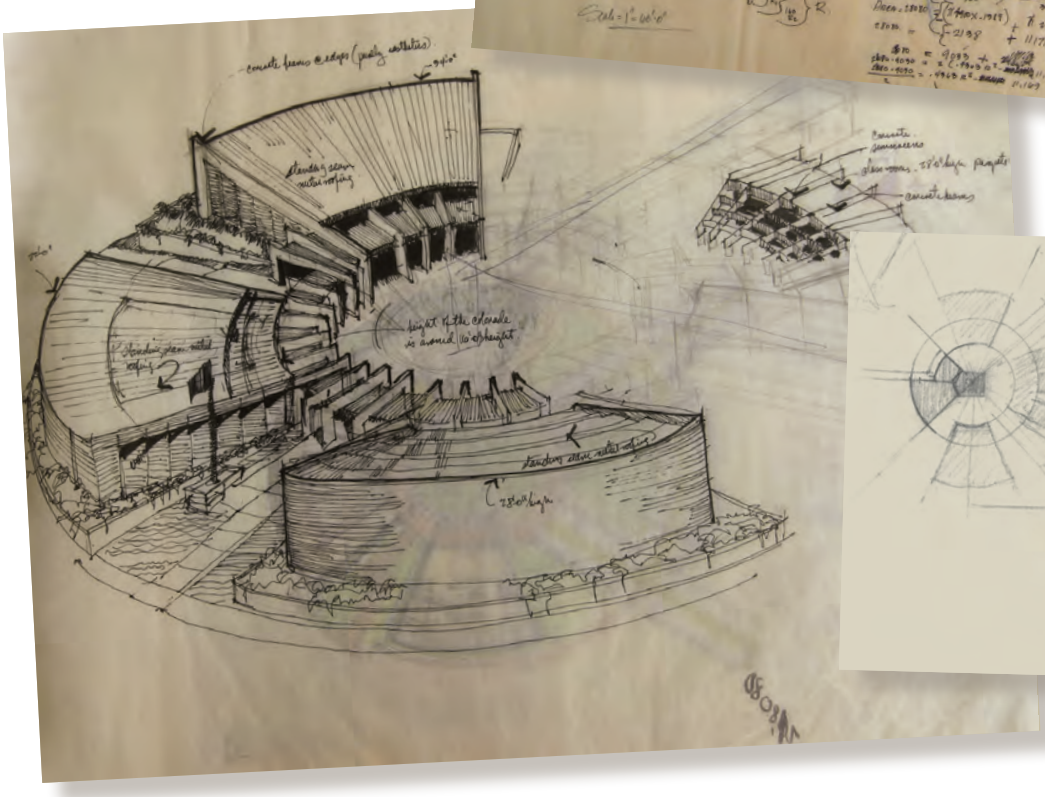
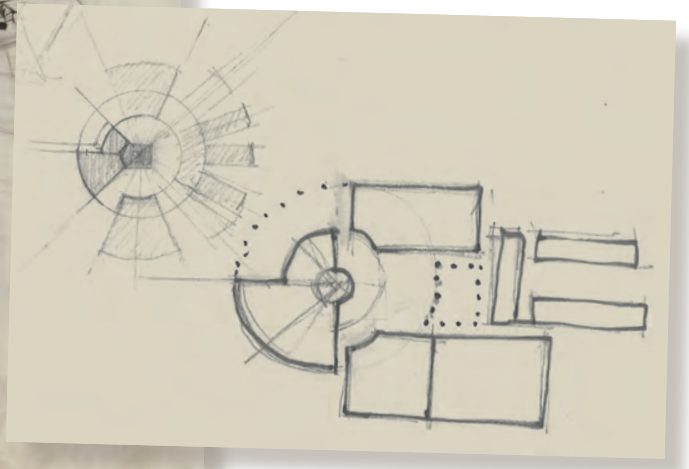






PROLOGUE 1

The rank of Sergeant Major has a long and distinguished history – it dates back at least to revolutionary war times, when the importance of non-commissioned officers to the training, care, and discipline of soldiers who had been hastily mustered to fight in the Continental Army was first recognized. This highest of ranks among non-commissioned officers (NCOs), the soldiers who act as liaisons between commissioned officers and infantrymen, did not have a formal educational curriculum until the latter half of the twentieth century. The Non-Commissioned Officer Educational System (NCOES) came into being in the late 1960s, and the highest educational level within that system, the coursework that would lead to promotion to the rank of Sergeant Major, did not come into being until 1973. This was the year when the U.S. Army Sergeants Major Academy was founded and given its own facilities at Fort Bliss, Texas.

For fifteen years after the founding of the Sergeants Major Academy, the Academy was housed in more than two dozen World War II temporary buildings at Biggs Army Airfield, located on Fort Bliss. Thousands of NCOs who had been deemed the very best – that is, the top four percent of NCOs in the United States Army - were selected and sent through the Academy to become eligible for promotion to the Sergeants Major ranks. By the 1980s, the Academy had outgrown its outmoded facilities at Biggs Field, and momentum had built for the Academy to receive its own facilities, with a tightly knit group of buildings and its own distinctive campus feel. The U.S. Army Sergeants Major Academy complex that resulted from the synergistic relationship between its civilian architects and the United States Army is like no other in the armed services. Completed in 1987, the facility possesses a forward-looking design and stature befitting the capstone institution of the NCOES. The story of the planning and design of this unique Academy building complex is told in the pages of this history.

The insignia of the U.S. Army Rank of Sergeant Major.

2 HISTORIC CONTEXT: THE U.S. ARMY AND THE NEED FOR NCO TRAINING

Throughout its history, the United States Army has acknowledged the importance of the Non-Commissioned Officer, or NCO, who has been called the "backbone of the United States Army." It was not until the late twentieth century, however, that this importance was reflected in formal training for the members of these ranks. Until that time, the training of NCOs was based solely on field experience.

The rank of Sergeant Major, the highest rank attainable for an NCO in the United States Army, dates back to 1778 during the Continental Army's arduous winter at Valley Forge. A Prussian Army officer, Baron Friedrich Wilhelm von Steuben, had been charged with training the Continental troops, and out of this duty he distilled his thoughts into a pamphlet titled "Regulations for the Order and Discipline of the Troops of the United States." In this pamphlet, von Steuben emphasized the NCO's responsibilities for the care, discipline, and training of infantry troops, which still forms the basis of the NCO's responsibilities today. The Sergeant Major, as the highest-ranking NCO, is expected to provide experienced leadership and act as the liaison between the enlisted men and commanding officers.

Steuben at Valley Forge, Edwin Austin Abbey. From *The Sergeants Major of the Army*, Center of Military History, United States Army, Washington, D.C., 2003. p. 2.

Because the United States did not have a large standing army in the early nineteenth century, hastily mustered state militias provided the manpower to fight the British in the War of 1812, and NCOs trained the members of these militias. In 1824, a school of instruction opened at Fort Monroe, and in 1828 the Army published *Abstract of Infantry Tactics*, which was written to provide a text for NCOs on fitness and on the use of weapons. The NCO continued to be crucial to the training of volunteer militias through the Mexican-American War, and afterward NCOs led troops during Indian pacification efforts and Indian removal west of the Mississippi, and to guard settlers heading west. NCO combat skills proved invaluable during the Civil War, and NCOs subsequently played a major leadership role in the small, mobile cavalry units that staffed military outposts on the frontier of the westward-moving nation.

Although military leaders understood the importance of the NCO in the modern army, they lost prestige during a 1920 Congressional reorganization of the Army, at which time the rank of Sergeant Major was eliminated, with the duties of that rank being assumed by senior master sergeants. Through the end of World War II, NCOs received little or no classroom training.

In 1949, an NCO course was introduced at Fort Knox, Kentucky, signaling a change in fortune for the NCO ranks. NCO academies were also established in Texas, Hawaii, and South Korea, in addition to Bad Tölz, Germany. The rank of Sergeant Major was restored to the U.S. Army in 1958, and in 1966 a special administrative position was created, the Sergeant Major of the Army, a rank held by the top NCO who serves as an advisor to the Army Chief of Staff on NCO matters.

With the end to the Vietnam War also came an end to the draft, and in the era of the all-volunteer Army military leaders realized that there would soon be an acute shortage of both enlisted men and non-commissioned officers to train and lead them. To address this issue, an NCO Candidate Course was offered in 1967 at Fort Benning, Georgia, and in 1969 the Army began developing an NCO Education System (NCOES). The first Army-wide NCO course was being taught at Fort Sill, Oklahoma, by May 1971. According to an article in *The NCO Journal*, the NCOES had as its objectives the following:

- To increase the professional quality of the NCO Corps;
- To provide NCOs with opportunities for progressive, continuing professional development;
- To enhance career attractiveness; and
- To provide the Army with trained and dedicated NCOs to fill positions of increased responsibility.

U.S. Army Sergeants Major Academy insignia.

Aerial Photo, Biggs Army Airfield.

Home for the new NCOES was at the new U.S. Army Sergeants Major Academy at Biggs Army Airfield at Fort Bliss, Texas, beginning on July 15, 1972. Biggs Army Airfield was founded in 1916, when a squadron of Curtiss JN-4 biplanes, or "Jennies," was attached to General John J. Pershing's Punitive Expedition against Pancho Villa. The new Sergeants Major Academy was established in a collection of buildings at Biggs Field. An initial cohort of 105 students began instruction on January 15, 1973; these were generally experienced first sergeants or master sergeants, each with fifteen to twenty years of service.

Befitting an important new Army unit, the new school had its own heraldic symbols – an insignia, flag and device. The symbolism of the insignia is as follows: The colors Army green and yellow and the embowed chevrons are associated with the basic device for the noncommissioned officers' insignia of grade. The gold links refer to the role of the Sergeants Major as the link between the enlisted men and the organization commander. The star which signifies command also indicates the high evaluation required by senior noncommissioned officers for the advanced schooling and training in the Academy, the senior NCO school. The laurel wreath, signifying past meritorious performance needed for selection, and the star and chevrons are all emblems suggested by the highest insignia of grade for noncommissioned officers; they denote the Academy's continued endeavor in training for the highest personal and professional achievements.

THE FIRST SERGEANTS MAJOR ACADEMY FACILITIES AT FORT BLISS

3

For the first fourteen years of its existence, the U.S. Army Sergeants Major Academy was housed in twenty-six different World War II-era buildings in different locations at Biggs Army Air Field. At the time of the Academy's inception in 1972, it had no facilities of its own, and most of the buildings that had been chosen for the new academy were at that time occupied by the Defense Language Institute, Southwest (DLISW). This school specialized in Vietnamese language instruction, a mission it was believed would soon be discontinued due to the approaching end of the Vietnam War. In actuality, it took some time for the language institute to be phased out, and for a period of several months, the designated headquarters building of the new Academy, Building 11196, was the sole facility for the Academy.

Photo from the 1987 Sergeants Major Academy Yearbook, depicting the original Academy Administration Building at Biggs Army Airfield.

From the beginning, the planners' early vision included the "small group" approach to instruction in which groups of no more than 16 students would compose each class. To facilitate the small group size, the planners realized they needed conference room-style facilities to house the classes. Two DLISW facilities were identified that met this requirement – buildings 11238 and 11239 – which were also centrally located on Biggs Army Air Field, and thus in the vicinity of the Academy's headquarters building. Building 11300, a 144-seat auditorium on Biggs, was identified as the best facility to support a guest speaker program for the Academy; this building was renovated to accommodate this purpose and expanded in the process to seat 250, with audiovisual equipment being added for the Academy's use.

(Below) Photo from 1987 Yearbook, depicting original conference center, which housed classrooms geared toward the small group instruction method employed at the Academy.

(Bottom) The original Lecture Center at Biggs Army Airfield.

Original Othon O. Valent Learning Resource Center.

A library (which would come to be called the Learning Resource Center) was also considered to be an important initial facility for the Academy, and so Building 11203 was identified as the logical facility to house it; this existing building was chosen because it had a concrete floor, which would allow it to bear the load of heavy shelves of books.

According to a unit history from 1973, one of the main reasons that Biggs Field was chosen for the Academy was the availability of student housing. Family quarters existed at Biggs Field, in the housing area known as Aero Vista, which had about 800 housing units, and since the Sergeants Major candidates were older, career-oriented NCOs, many had families. At first, producing enough of these units for families was a problem, because the Fort Bliss commandant was unwilling to evict servicemen and their families who already occupied the required 100 sets of quarters necessary. Part of the necessity for involuntary evictions of some servicemen occurred because planners envisioned that Sergeants Major candidates would need to be housed in a consolidated block of quarters within Aero Vista. Eventually this requirement was met when orders came from the

House at Aero Vista Complex, to the south of the present-day Academy. These houses were built to standard Army plans and were a major reason for the location of the Academy at Biggs Field. The presence of large numbers of family housing units was vital for the Academy, which would educate many family men and women.

Continental Army Command (CONARC) to Fort Bliss to provide the block of housing for Sergeants Major candidate families. The Army believed that this approach eventually provided benefits to the students of the Academy. According to the Academy's unit history, "Using a block of quarters for Academy students has proved to be quite beneficial and has greatly sped the students' integration into the Academy community."

A need also existed for bachelor quarters for unmarried Sergeants Major candidates. The Academy provided these through a similar process of acquisition; at first, however, a tug-of-war between the Post and the Academy resulted in several Bachelor NCOs having to room elsewhere, both on and off-Post. Eventually the Post command relented and the Academy acquired a Senior Enlisted Bachelor Quarters to use for Sergeant Major candidates.

Senior Enlisted Bachelor Quarters.

Early hardships for the Academy also included problems with audiovisual systems to use in instruction. Although $89,000 (1973 dollars; about $425,000 in 2008 dollars) was eventually spent on the audiovisual system in the lecture center, even after installation there were equipment and software compatibility issues, and lack of training for AV equipment users also posed problems for the effective presentation of material to students. Early on, the Academy also requested television production capability for the lecture center, in order to film and present lectures and demonstrations for students, but this request was trimmed from the budget. In lieu of its own production capabilities, The Academy was offered mobile support from another unit, although because of scheduling conflicts it could not be provided on a 100 percent basis.

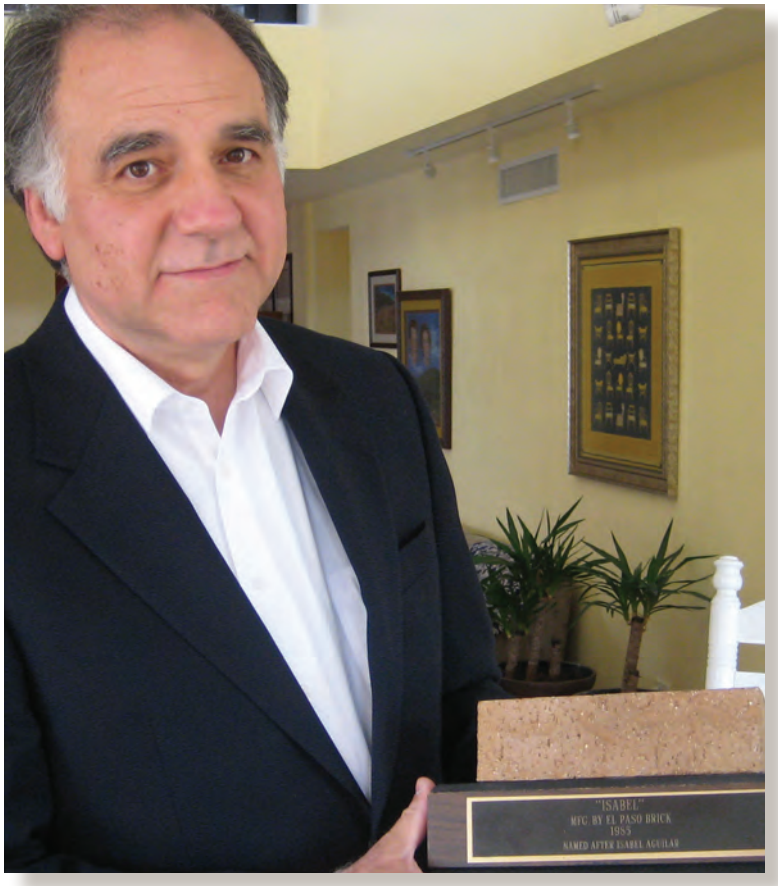
For the most part, the old buildings housing the Academy were standard, temporary structures of the 1940s, many of which bore the hallmarks of the Colonial revival style of architecture. The next step in the evolution of the Academy would take the capstone institution of the NCOES away from its outmoded facilities and into an entirely new, futuristic setting. Just how forward-looking the new facilities would become was a result of the vision of a commandant and his staff, and of an architecture firm and its willingness to innovate.

4 EVOLUTION OF THE IDEA FOR A DESIGNED CAMPUS

While the seeds of the idea for a new facility for the Sergeants Major Academy were planted early in the history of the Academy at Biggs Field – attempts to locate a site for a future facility are mentioned in unit histories of the early 1970s – the process of conceiving and carrying out a design did not actually go forward until the early to mid-1980s. Once the process was underway, the Army envisioned that the new building would comprise some 150,000 square feet of modern and expanded administrative, library, and classroom space, and would be a lasting statement of the Army's commitment to the importance and prestige of the rank of Sergeant Major.

The journey toward this architectural statement began with the decision to design and construct a new building complex. This building complex would consolidate all of the activities of the Academy, which had continued to be scattered in different buildings since 1973, into a single clustered facility.

Lorenzo Aguilar, the Project Architect. 2009 photo by VCHP.



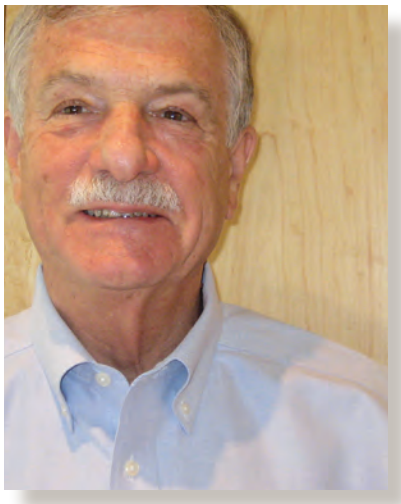
Letting the Contract

The U.S. Army Corps of Engineers, Fort Worth District, worked with the 4th Army and with the Sergeants Major Academy to find an architectural firm to design the new facility. Out of three firms invited to interview for the award of the contract, the Corps of Engineers chose an El Paso firm, Fouts, Gomez, and Moore. Mervin Moore was the principal in charge of the design, while Lorenzo Aguilar was Project Architect, and Bob Fouts was the architect in charge of specifications (measurements, materials, room capacities, etc.). Aguilar met weekly

with Colonel Joseph Ostrowidzki, the Sergeants Major Academy commandant from 1979-1983 who, with his staff, headed by Lt. Colonel Gary Mavis and Lt. Colonel Thomas Hoffert, oversaw the planning of the new facility. Meanwhile, Moore provided an overall vision of the facilities, and functioned as the contact with the Army Corps of Engineers who oversaw the design contract.

Colonel Joseph Ostrowidzki, the commandant of the Sergeants Major Academy at the time that the 1987 facility was being conceived and designed.

The architectural program for the new facility consisted of a list of room types and square footages. The central design tenet given the architects was the idea of the "small group" instruction approach that had been integral to the Academy's success from its inception in the early 1970s. Fifty small classrooms would be required that could accommodate approximately sixteen students each; each classroom would feature an additional "breakout" classroom where a smaller group from the class could go to work separately, in addition to an instructor's office. Elective classrooms that could hold between thirty and fifty students each were also included in the specifications. In addition, the architects knew that they needed to provide a facility for the library, or Learning Resource Center, sufficient to hold many thousands of books; a headquarters, or administrative facility, for the school's commandant and other administrative functions, including student support functions; and an auditorium, to accommodate the many guest speakers who came to address the NCOs en masse on a regular basis. From these limited specifications, Moore and Aguilar began to work together on a conception for the design of the Academy.



Mervin Moore, Principal in charge of the design of the U.S. Army Sergeants Major Academy. 2009 photo by VCHP.

Moore and Aguilar were asked by the Army Corps of Engineers to complete three design concepts. These would be reviewed by Army personnel, who would make a final decision on the form and style of the new Academy. From the beginning, the Army envisioned a "campus-like" facility for the new Academy complex. According to Colonel Hoffert, "The main issue really had to do with bringing everyone closer together in a compact setting…the new facility brought everything together."

The weekly meetings between Aguilar and the Army representatives helped to fine-tune the concepts and designs for the complex. From the general program requirements provid-

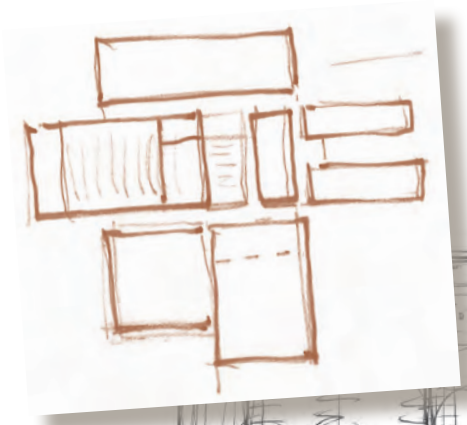
ed by the Army, Moore and Aguilar began to craft several design concepts. How they arrived at the final form of the Academy facility is a study in architectural evolution, shaped partly by the architects' initial reluctance to move beyond what they imagined to be a preferred Army "style" – rigid, disciplined, conforming to standardized specifications – and, as the process gathered momentum, increasingly guided by a sense of freedom, and by a sense of the importance and singularity of the facility they were helping to create.

Three Designs

From the beginning, Colonel Ostrowidzki envisioned an especially distinctive facility for the Sergeants Major Academy. He wanted the academy to resemble a university campus, and wanted it to instill in sergeant major candidates a sense of the special leadership qualities necessary to the rank. He conversed frequently with NCOs about the practical requirements for such a facility, and, along with Colonels Hoffert and Mavis, believed that the Academy should in its architectural qualities reflect an institutional importance comparable to other military academies.

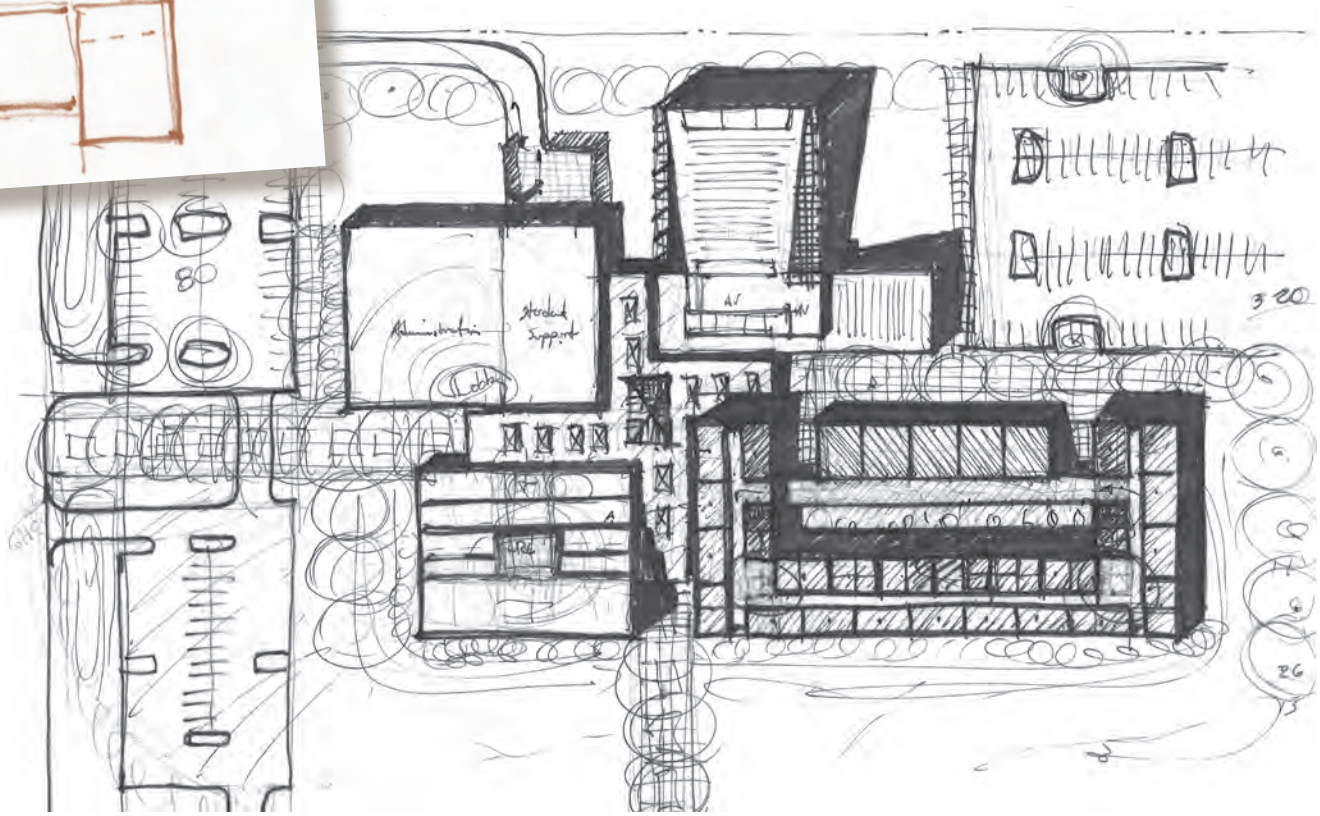
To accomplish this goal the Army and its architects had to "think outside the box" since the context of existing buildings at Fort Bliss and Biggs Field did not suggest architectural innovation so much as military standardization. The vast majority of buildings – barracks, administration buildings, and warehouses – are rectilinear structures that place function before form, often built on a standard Army plan. Where embellishment is employed at the installation, as in the officer residences on the Parade Grounds at the southwest corner of the post, it reflects prevailing architectural styles of the times, such as 1890s Queen Anne as well as Bungalow, Spanish Eclectic, and Prairie-style houses of the early 20th century. Therefore, Moore and Aguilar did not have a ready template upon which to begin to mold a campus-like institution for the Academy.

The first design that Moore and Aguilar developed employed rectilinear shapes and layout. Plainly visible even in this design is the concept of closely conjoined buildings with landscaped open spaces and walkways; the core buildings are already united in this early con-

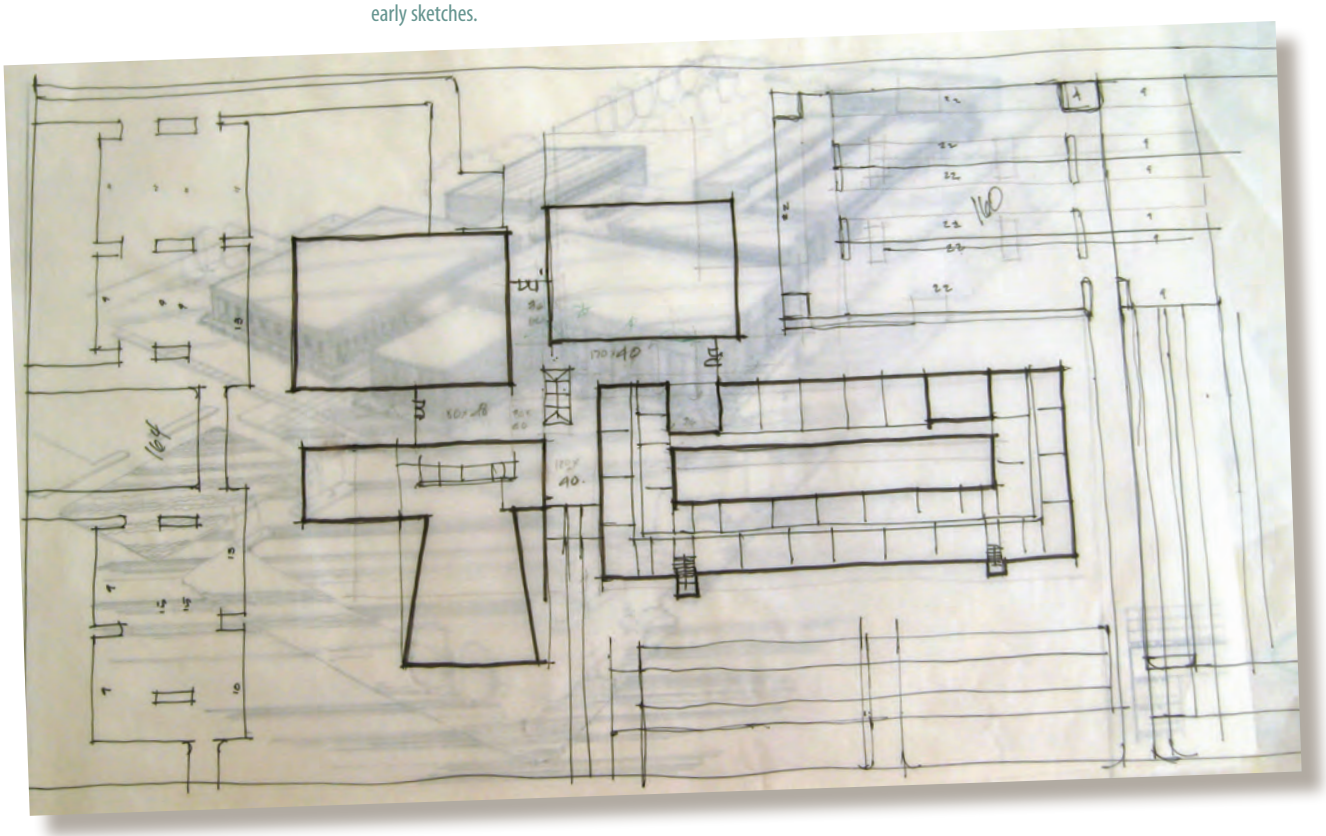


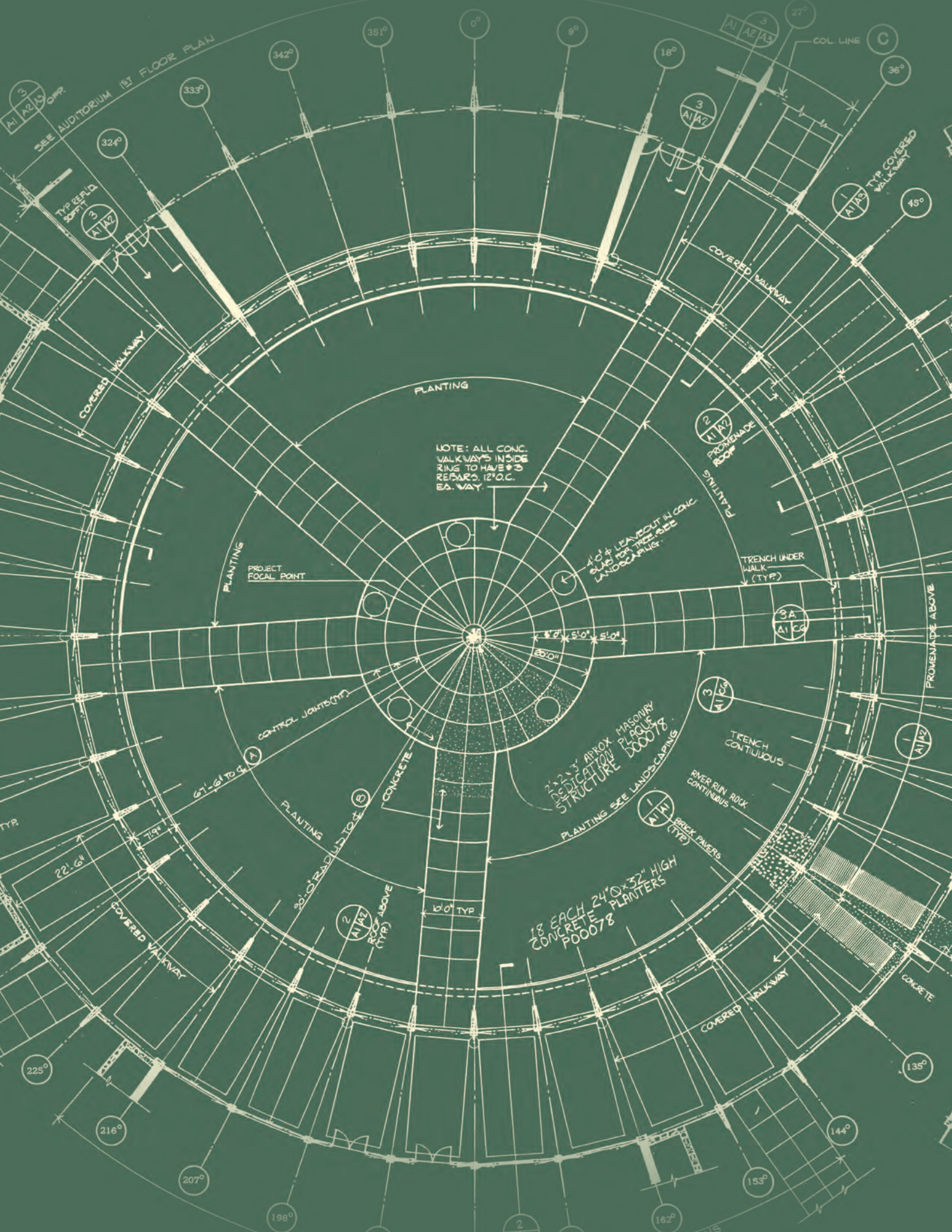
(Left) The first sketch by Mervin Moore shows a tight and formal, rectilinear design, in keeping with Moore and Aguilar's initial conception of the kind of design that would be acceptable to the Army.

(Below) The second sketch shows that Moore was formalizing this concept further. The idea of a tight cluster of buildings was already present in these earliest drawings.



(Below) Aguilar's first sketch follows the contours of Moore's early sketches.




SEE AUDITORIUM 1ST FLOOR PLAN
COL. LINE C
TYP COVERED WALKWAY
TYP REFLD SOFFIT
COVERED WALKWAY
PLANTING
NOTE: ALL CONC. WALKWAYS INSIDE RING TO HAVE #3 REBARS. 12" O.C. EA. WAY.
PROMENADE ROOF
PLANTING
PROJECT FOCAL POINT
4'-0" ø LEAVEOUT IN CONC. SLAB FOR TREE SEE LANDSCAPING
TRENCH UNDER WALK (TYP.)
PROMENADE ABOVE
5'-0"
5'-0"
5'-0"
25'-0"
CONTROL JOINTS (TYP.)
67'-6" TO ℄
2'-2 x 3' APPROX MASONRY PLAQUE DEDICATION STRUCTURE D00078
TRENCH CONTINUOUS
CONCRETE
PLANTING
7'-9"
22'-6"
80'-0" RADIUS TO ℄
PLANTING SEE LANDSCAPING
RIVER RUN ROCK CONTINUOUS
BRICK PAVERS (TYP.)
ROOF ABOVE (TYP.)
16'-0" TYP
18 EACH 24"Ø x 32" HIGH CONCRETE PLANTERS P00078
COVERED WALKWAY
COVERED WALKWAY
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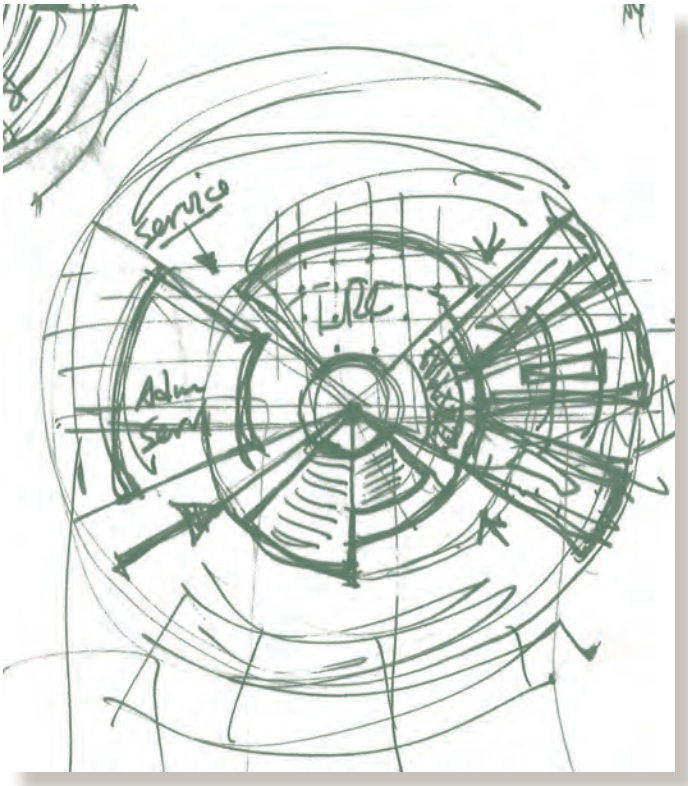
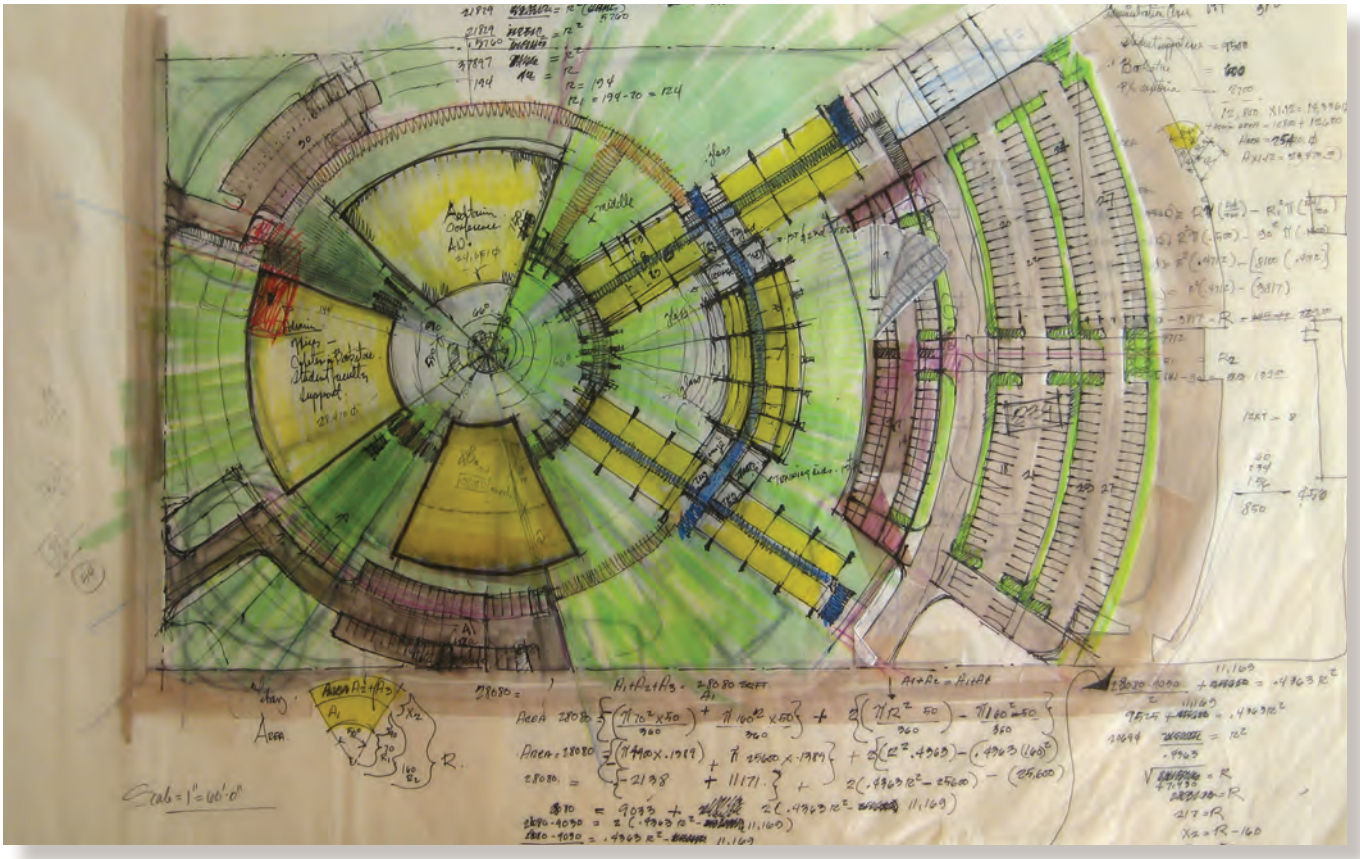
nade surrounding the central courtyard in the second design. As if to reinforce the idea that the buildings are now hurtling "outward" from the center point of the courtyard, one of the buildings retains a foothold at the center of the courtyard while the remainder of the building broadens outwards in two overlapping "wedges" toward the outward rim of the circle, as if driven there by centrifugal force. Clerestories have become more prominent in the buildings, as have vertical concrete columns suggestive of classical architectural antecedents.

Conversations with the Academy's team during this second design phase convinced Moore and Aguilar that the Army representatives were open to a new and innovative approach, of a kind never seen before in an Army facility. Partly inspired by the imagination and encouragement of the Army representatives and partly by their own immersion in Modernist practices of the preceding decades, Moore and Aguilar began to think of the Academy as a truly different kind of military facility.

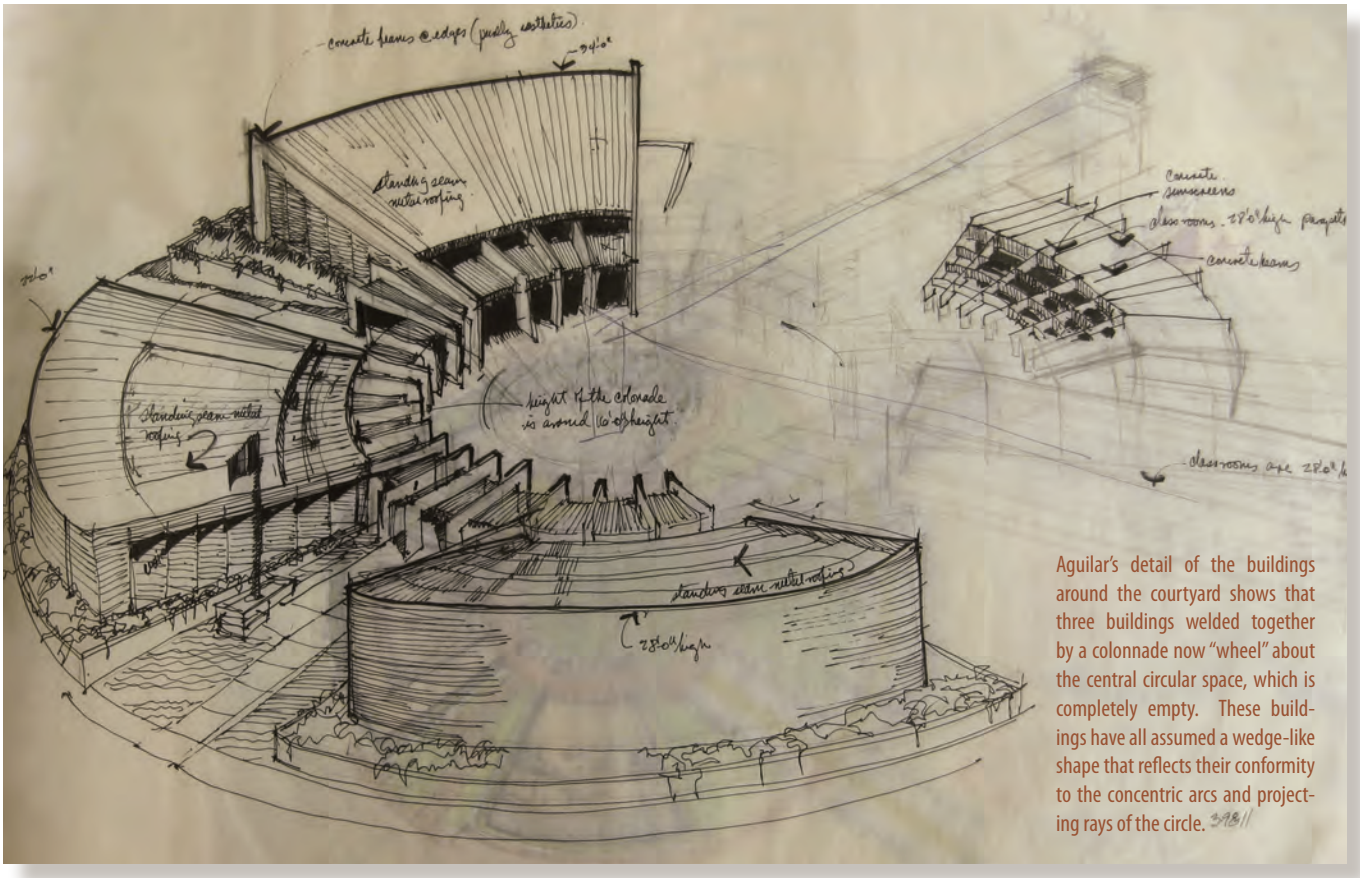
With their third design, the architects allowed the circle to break the rigid linearity of the original concept and become the organizing principle of the academy. All of the buildings now take their cue from the circle; in some form, all conform to the concentric arcs of the central circular courtyard or to rays extending outward from the center point of the courtyard; some structures conform to both rays and arcs. Around the central court stand three "wedge"-shaped buildings connected by a circular concrete colonnade, which protects the circular walkway surrounding the central courtyard and leads to the entrances of the three buildings along their inward-facing elevations. The side elevations of these buildings conform to lines radiating from the center point of the courtyard; the inner and outer elevations of these buildings conform to imaginary concentric arcs emanating from the circular courtyard.



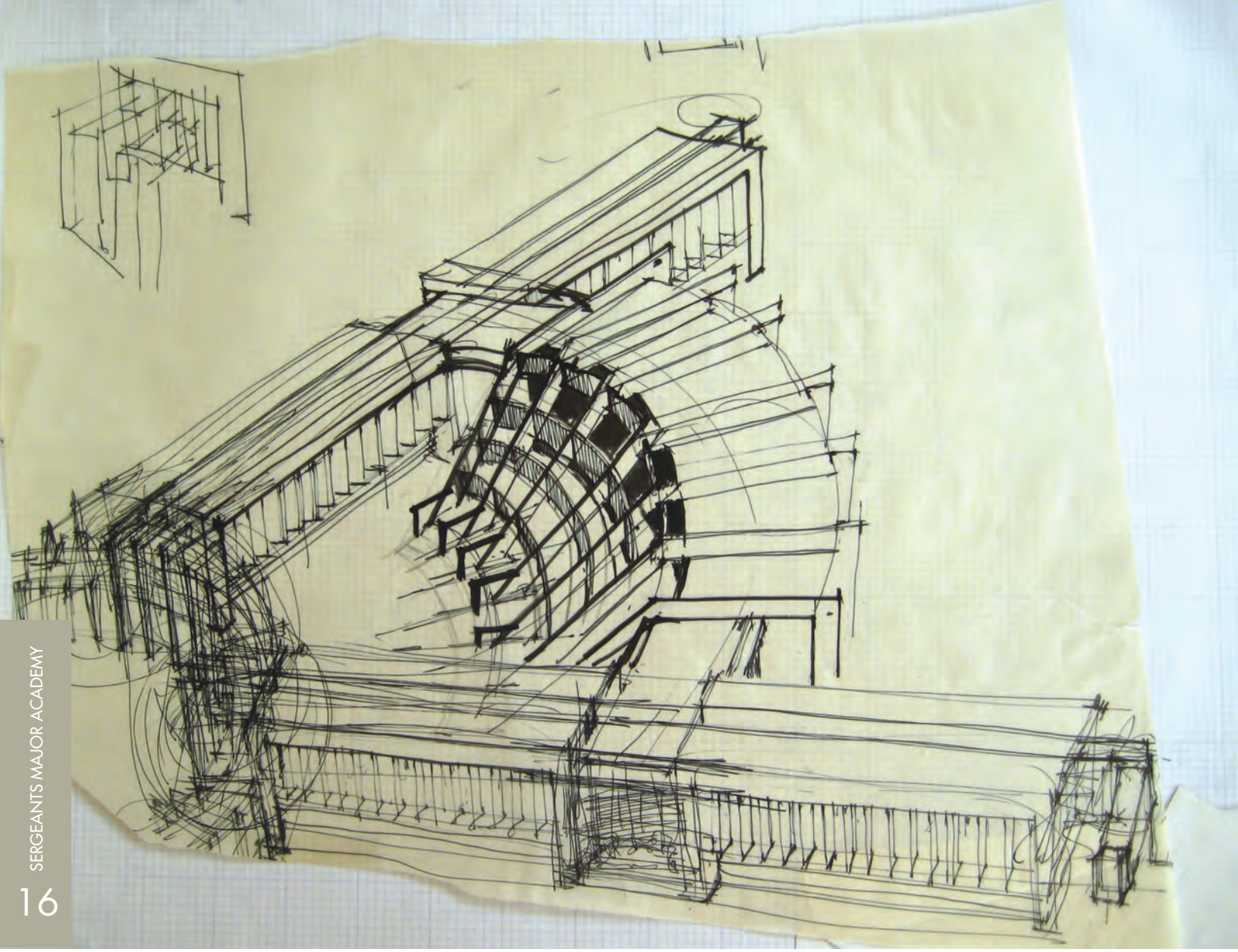
As the third concept developed, Moore began to see more clearly that the circle could not only determine the layout of the buildings, but also their shapes.



Aguilar took Moore's idea of the circle as organizing principle for both layout and buildings and worked to formalize it. In this sketch the final form of the finished USASMA complex begins to take shape.



Aguilar's detail of the buildings around the courtyard shows that three buildings welded together by a colonnade now "wheel" about the central circular space, which is completely empty. These buildings have all assumed a wedge-like shape that reflects their conformity to the concentric arcs and projecting rays of the circle.



Aguilar formalizes the appearance of the main classroom wings. These remain rectilinear in form, although now they conform to imaginary "rays" projecting outward from the focal or center point of the circular courtyard. This detailed drawing shows the full debt of the design to classical architectural models, with its columnar side elevations and the central connecting classroom wing's system of daylighting buttresses on the west elevation.

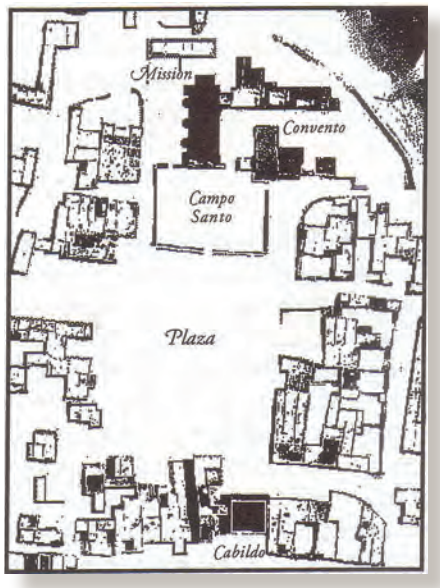
Moore's sketches, and Aguilar's finished designs, show that they were thinking in terms of a kind of Modernist homage to Classical temple forms, with simplified white concrete columns supporting a hint of an entablature. The two long classroom wings, which are each about 300 feet in length, are slender rectilinear forms radiating outward along imaginary rays from the center point of the courtyard. They are joined halfway along their lengths by an arc-shaped classroom wing that spans the gap between the two wings. In Aguilar's architectural sketches the vertical columns along the long elevations of the classroom wings are clearly a nod to classical forms and classical unity.

Daylighting also assumed a front and center position in the third design. The architects and the Army representatives were mindful of the harsh desert climate of west Texas. The notion that the facility could make the desert sun work on its behalf to provide a high degree of natural lighting for the interior of the building while shielding its inhabitants from the worst

of the heat and direct radiance was built into the idea of the inward-turned campus with open courtyard spaces. The Army had told the architects that they wanted to have open courtyard spaces for mingling that would be conducive to socializing and camaraderie; they wanted the courtyards to be places where students could spend unstructured time, rather than function as additional outdoor classroom spaces.

As a graduate of the University of New Mexico's architecture program, Aguilar was aware of the importance of courtyards or plazas as social spaces during the Spanish Colonial period in the American Southwest, as well as their importance in Pueblo Indian cultures. Plazas in both the Spanish and the Pueblo architectural traditions are inward-turned spaces centered within blocks of houses, sacred structures, and government buildings, with access from the outside limited by controlled entries. Historically, plazas in both traditions were often developed for defensive purposes, but they also played important roles for social functions and, especially in the Pueblo tradition, ritual purposes. Aguilar mentioned that he was also influenced by the Moorish palace the Alhambra in Granada, Spain, which makes frequent use of courtyards as peaceful spaces for introspection. He was also guided by his admiration for Louis Kahn's Salk Institute in La Jolla, California. Aguilar was struck by the fact that the Salk Institute's courtyard had "nothing" in it, and it was this vacant space that brought a sense of peace and reflective tranquility to the courtyard.

Isleta Pueblo Plaza, New Mexico, 1976. The room blocks of the Pueblo are arranged around a ceremonial open space, with limited entrance and egress points around the perimeter of the open space. The architects envisioned a similar kind of ceremonial space for the Sergeants Major Academy. Map: *National Park Service*



Courtyard of the Lions, Alhambra, Granada, Spain.

The Salk Institute, La Jolla, California. Designed by Louis Kahn.

Although the courtyard of the Sergeants Major Academy would obviously not be used for defensive purposes, it would convey the notion of a social space and even a contemplative space for sergeant major candidates to reflect upon what it means to be a leader.

Both Moore and Aguilar mentioned that their largest influence in the design of the Academy was the desert environment encompassing the El Paso region. The complex buildings form enclosed spaces that protect their users from the intense light and heat of the sun. The interior spaces also form green, landscaped areas that are cool, peaceful places for students to spend quiet moments before, during, and after classes.

Choice of the Final Design

Colonels Hoffert and Ostrowidzki both recall how the final design for the Academy was selected. After the architects delivered the final sketches of the three designs to the Academy, Ostrowidzki and Hoffert both retired to Colonel Ostrowidzki's home and, with their wives in attendance, laid the designs out on the living room floor.

A model conception of the USASMA, with romanticized snow-capped mountains in the background bearing a greater resemblance to the Alps than to the arid Franklin range near El Paso. The innovative quality of the design – with its circles and rays, its courtyards and buttresses – is readily apparent.

Both men clearly recall being drawn to the third design because it was both innovative and different from anything else that had been done before. The third design, Ostrowidzki felt, most clearly summed up his initial conception that the Academy should be a collegiate-like setting and an "oasis in the desert."

Ostrowidzki had thought throughout the process that the Academy should not only be emblematic of the importance of the rank of Sergeant Major, it should also make a statement the way that other major military educational institutions do – institutions such as the Army War College in Pennsylvania, West Point in New York, The Air Force Academy in Colorado Springs, and the Naval Academy in Annapolis, Maryland. While all of these institutional campuses differ from each other as to style, they share in common a sense of the importance of the educational mission that they have been constructed to serve. All have certain monumental qualities – and all possess important centralized plaza-like spaces for students to mingle in and spend unstructured time.

Colonel Hoffert remembers that the three designs reflected three very different styles. " Basically one was a Southwestern-style design, one was a futuristic design, and one was an old-style square box standard military-type design. We ultimately chose the futuristic design, because we wanted something distinctive for the Academy." The components that Hoffert and Ostrowidzki were seeking in a design were all present in the third concept: a forward-looking, modern facility that also acknowledged its historic context, that included courtyard spaces within which students could mingle or rest, and that had auditorium, administrative, library, and classroom facilities customized to accommodate the requirements of the Sergeants Major curriculum.

Once he and Hoffert had chosen the third design for the Academy, Ostrowidzki knew that he might be subject to criticism for choosing what some might consider an exotic design. But he knew from the beginning of the process that he wanted a building that would not only reflect the importance of the NCO and of the rank of Sergeant Major, he wanted it to be an important building.

In an interview from 1987, Colonel Ostrowdikzi asserted that "This was not the facility that was recommended by the Corps of Engineers…There were two other recommendations as far as architectural design. I selected this one because to me it makes a statement. NCOs have been waiting for 200 years to get [a distinctive educational facility]. Some people challenged me and said that's going to be the nicest facility in the Army and it's going to belong to noncommissioned officers" (*Fort Bliss Monitor*, 1-5-87).

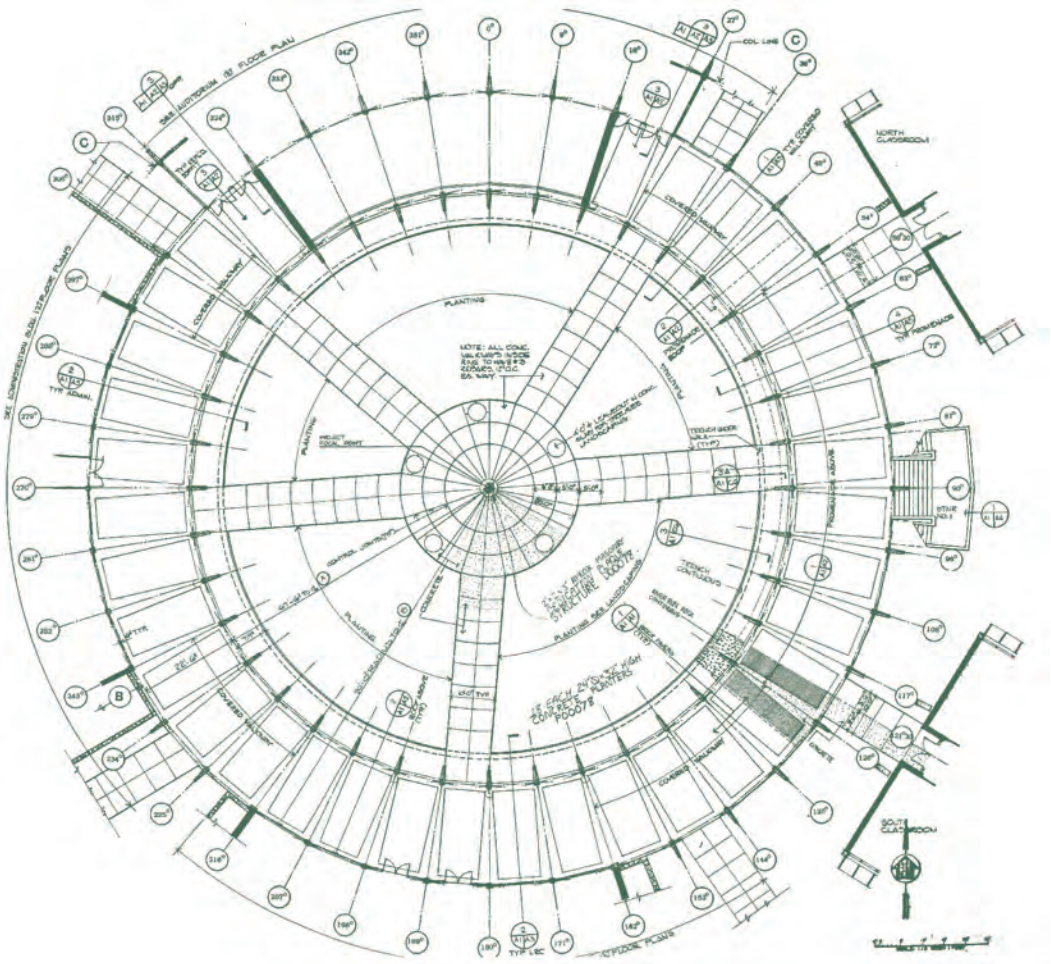
The Chosen Design and Its Construction

Despite some negative reaction to the notion of giving "the nicest facility in the Army" to the education of NCOs, the project went ahead as scheduled. Blueprints were drawn up by Fouts, Gomez, and Moore and delivered in July of 1985 to the Army Corps of Engineers, which was charged with executing the design.

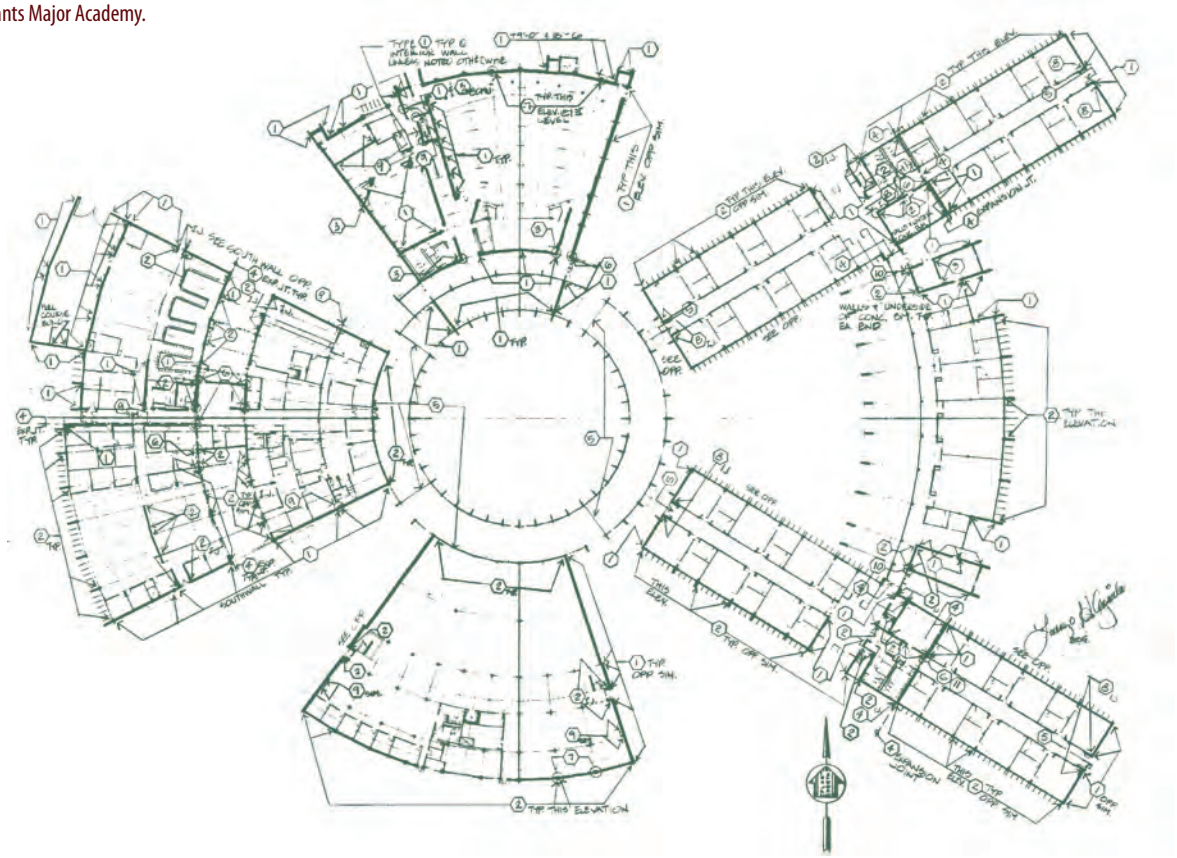
The third, and most modern, design having been chosen, it was now time to work on the details of the complex. An evaporative cooling system was chosen for the complex, despite the architects' preference that in the long run, a refrigerated air system would be more cost effective and would take up less room in the complex. The complex's elevations were to be clad in a light brown or reddish brick, which was a nod to the dominant architectural detail of many of the existing buildings at Biggs Field and at Fort Bliss. The white concrete comprised the formal architectural elements and was the primary material of the daylighting elements of the complex's buildings; it forms the upright support columns of the buildings, the horizontal beams that run through the buildings, the columns of the colonnades and buttresses, and the shelves and baffles of the window daylighting system.

Aerial view of construction, 1987.

Groundbreaking for the new U.S. Army Sergeants Major Academy took place on November 26, 1985. The construction of the building took from late 1985 until August of 1987, when the building was initially occupied. The formal dedication of the complex took place on November 12, 1987, fifteen years after the initial Academy courses began at Biggs Field.



(Above) Center Ring Plan for the Sergeants Major Academy. (Below) Masonry Details and Location Plan for the Sergeants Major Academy.



(Far Left) Ground view of construction. (Left) Aerial view of construction of new Sergeants Major Academy, with old USASMA buildings west of the new complex at left in the photo. The "H"-shaped building at the left edge of the photo is the old Sergeants Major Academy Headquarters building.

The new Academy complex was recognized in 1987 with the TRADOC Installation of Excellence Award. TRADOC (Army Training and Doctrine Command), the Army agency charged with overseeing personnel training and education, seeks to recognize a building or institution which, according to a contemporary report in the , "generates pride and increases human accomplishment." The three criteria for the award included

- Appearance of the facilities;
- Quality of services; and
- Installation's commitment to excellence.

Aerial view of the 1987 complex prior to the 1997 addition. Clearly visible in this photo are the brown brick infill areas on the elevations, as well as the prominent white concrete features, including window baffles and shelves, colonnades, and beams.

(Above) South elevation, North Classroom Wing. Shelves (horizontal elements) and baffles (vertical elements) form the daylighting system around many of the windows at the Sergeants Major Academy. (Below) Shelf and Baffle Detail, south elevation, North Classroom Wing.

Daylighting at the Sergeants Major Academy

The most innovative aspect of the Sergeants Major Academy design is the daylighting strategies that it employs. Given the fact that in the 1980s, when the Academy was designed and constructed, concerns about the 1970s Energy Crisis had somewhat faded, and few people were concerned as yet about climate change, Moore and Aguilar's emphasis on daylighting as a strategy to reduce energy usage and heat gain was remarkably unconventional.

At the Sergeants Major Academy, daylighting strategies are used to provide internal lighting to classrooms, offices, and corridors without producing undesirable glare or heat gain due to the intensity of the west Texas desert climate. The strategies include a system of white concrete horizontal elements or shelves, which are positioned above and below bands of aluminum windows along most of the elevations of the Academy facility. The shelves are supported by vertical concrete elements or "baffles." Together the shelves and baffles produce a honeycomb or egg carton-like construct that hangs from the elevations and surrounds the windows, protecting them from the direct rays and heat of the desert sun. By virtue of the white concrete that they are made of, they also *conduct* indirect sunlight by *bouncing* it into the windows and into the interiors of the building.

In addition to the shelf-and-baffle system, there are white concrete colonnades and buttresses arranged in strategic locations in the interior courtyards of the complex. The circular colonnade in the central courtyard forms a canopy that shades the surrounding walkway. It is constructed of unadorned rectilinear columns that wrap over the top of a concrete canopy. The white concrete of the colonnade protects pedestrians on the encircling walkway from sun and rain, while also providing a means by which indirect sunlight reflects into the interior of the buildings.

Colonnade, Central Courtyard. It provides protection to pedestrians against rain and direct sunlight. The white concrete helps to reflect sunlight into the buildings' interiors without admitting direct sunlight and the attendant heat gain.

To the east of the central courtyard is the first of the two wedge-shaped courtyards formed by the wings of building 11293, the Classroom Wing. At the east side of this courtyard, against the connecting classroom wing that spans the north and south classroom wings, stands a system of buttresses. These are composed of columns that lean at a 45-degree angle into the connecting wing, meeting the building at the roofline. The columns support horizontal white concrete bands that provide shade to the glass curtain wall behind them.

This buttress system allows indirect light into the interior corridor on the other side of the glass curtain wall, while allowing views from the interior of the landscaped courtyard. A similar buttress system also exists on the west-facing elevation of the East Classroom Addition, within the easternmost courtyard of the complex.

The administration building features another wrinkle on the theme of daylighting. It is actually composed of two concentrically arranged wedges, joined by an articulation that carries

Buttresses on the west elevation of the 1997 East Classroom wing.

a corridor from the eastern to the western wedge of this building. To either side of this corridor is an arc-shaped, landscaped outdoor area, which is partially shaded from the sun by white concrete beams that carry over the open spaces from the front wedge to the rear wedge of the Administration Building. The exterior elevations of the corridor and of the east and west wedge that front the outdoor spaces are tall windows that allow indirect sunlight into the interior office spaces.

An additional daylighting feature incorporated into the design of the Academy is the use of clerestories. For example, a double clerestory band can be observed atop the library, one band set back atop the other. The clerestories admit indirect sunlight into the main two-story interior space of the library.

Finally, the Academy makes use of glass block in some areas, such as the exterior elevations of the classroom wings at stairwells, and in bands along the exterior elevations of the Administration, Learning Resources Center, and Auditorium buildings.

Daylighting in the Administration Building. The righthand wing in the photo is the easternmost wing of the building; to the left is the western wing. The two are joined by a corridor with window bands, visible at the rear of the open space behind the horizontal white concrete beams. Note also the beams that carry over the open space between wings, providing both shade and daylighting to the window bands

The Othon O. Valent Learning Resources Center. Visible above the first-story colonnade is the double-band of clerestories, the top band set back from the bottom. Both are shielded from direct sun by a white concrete overhang.

To arrive at these various strategies of daylighting, Moore and Aguilar worked closely with renowned architect Benjamin H. Evans, who was the foremost expert in architectural daylighting at the time. The architectural team built a scaled model of the Academy that was tested in Evans' daylighting laboratory and at their own offices in El Paso, using a sun angle device to quantify the effects of sunlight on the designed spaces. The model was placed in a simulated sunlight environment to learn how to employ sunlight for maximum benefit for light, shade, and thermal variation at different times of the day and of the year. As a result, the building is a union of form and function, due in part to the emphasis on daylighting strategies.

DAYLIGHTING

A central and important factor in the design and construction of the Sergeants Major Academy is Daylighting – that is, the use of windows, skylights, and/or structural elements to provide natural internal illumination to buildings. Deployed skillfully, daylighting can be a cost-effective strategy to provide natural lighting in place of artificial lighting, while also managing undesired heat gain.

Principles of Daylighting

Daylighting as a strategy for illuminating building interiors is as old as architecture itself. If it seems to be a somewhat novel concept now, that is because for a time in the mid to late 20th century it was forgotten and ignored after the introduction of various artificial lighting strategies and technologies, particularly fluorescent lighting, that seemed to make reliance on natural lighting a quaint and old-fashioned approach. Since the energy crisis of the 1970s, architects have been paying attention once again to daylighting as a way to be cost-effective, and with current concerns about global warming, reducing carbon footprints, and creating more sustainable buildings, daylighting strategies have become ever more relevant in the 21st century.

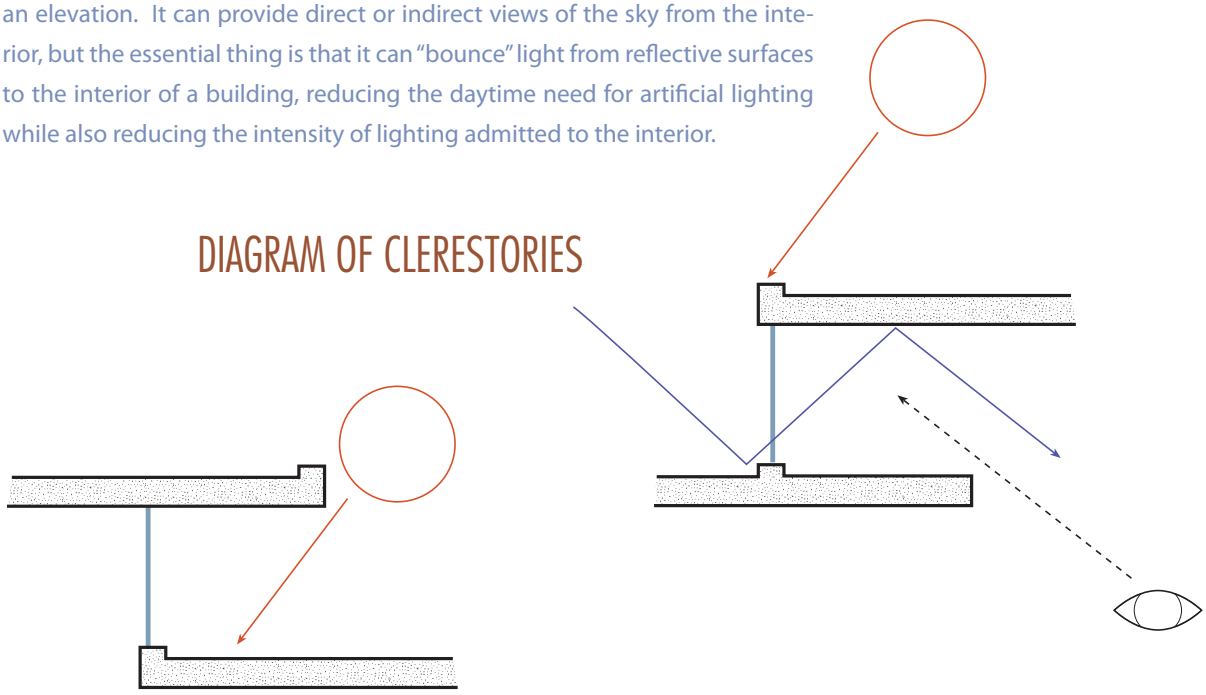
Various other considerations come into play in understanding the principles and applications of daylighting. One is the 'biological need' for daylight that was cited early on in the regeneration of daylighting as an architectural technique by the 1970s pioneer of daylighting experimentation Benjamin E. Evans, an architect who was consulted on the Sergeants Major Academy. Evans, who wrote Daylight in Architecture (published 1981 by McGraw Hill), had experimentally investigated different techniques for bringing natural light into the interior spaces of various buildings, and also emphasized the human need for natural lighting to be healthy, both psychologically and physically. The full spectrum of sunlight, which is not represented in artificial lighting, helps the body produce vitamin D to strengthen bones and ward off rickets, among other things. Workers in buildings with an adequate supply of natural lighting also tend to be happier and more productive, an outcome that has been tested and measured.

Evans also worked to balance the need for natural lighting against the need to be able to see and concentrate on indoor tasks, which, if direct natural light is too bright, becomes difficult or impossible (a page illuminated by direct light, for example, can be intolerable to the eyes; by the same token, facing a window with too much direct or reflected illumination can make for uncomfortable working conditions). Particularly in a desert environment, where most days of the year the sun shines brightly, it is necessary for a building design to account for both heat gain and illumination.

Three things that Evans experimented with to provide tolerable, reflected light to the interiors of buildings are clerestories, recessed windows, and light shelves. A clerestory is much like a

skylight except that it occurs on a "vertical plane" of a building, sometimes on a high part of an elevation (or wall), sometimes in a setback from the top of an elevation. It can provide direct or indirect views of the sky from the interior, but the essential thing is that it can "bounce" light from reflective surfaces to the interior of a building, reducing the daytime need for artificial lighting while also reducing the intensity of lighting admitted to the interior.

DIAGRAM OF CLERESTORIES



Recessed windows, another technique that Evans explored, reduce the intensity of direct sunlight by producing a "light well" effect, reducing the amount of direct light coming into an interior while still allowing indirect light to enter via the reflective qualities of the sill and jamb materials.

Finally, light shelves can provide an overhanging protection against direct overhead sunlight while permitting indirect light to enter the interior of the building via reflection, again depending on the degree of reflectivity of the shelf material.

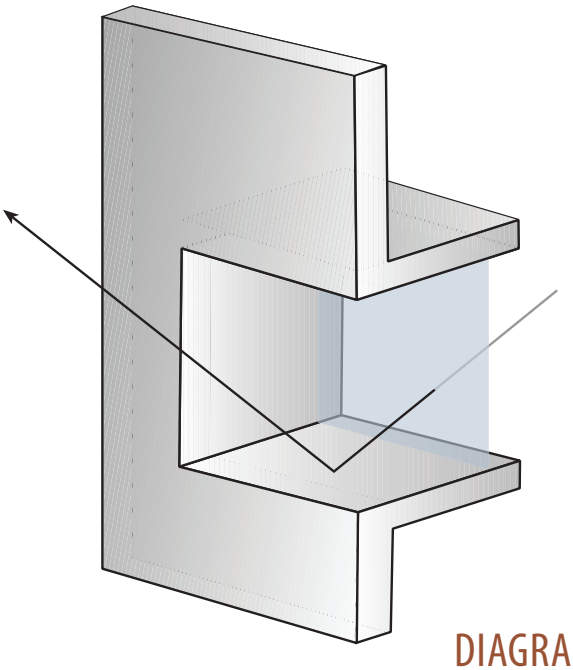
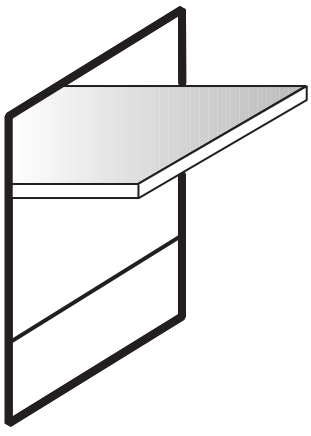


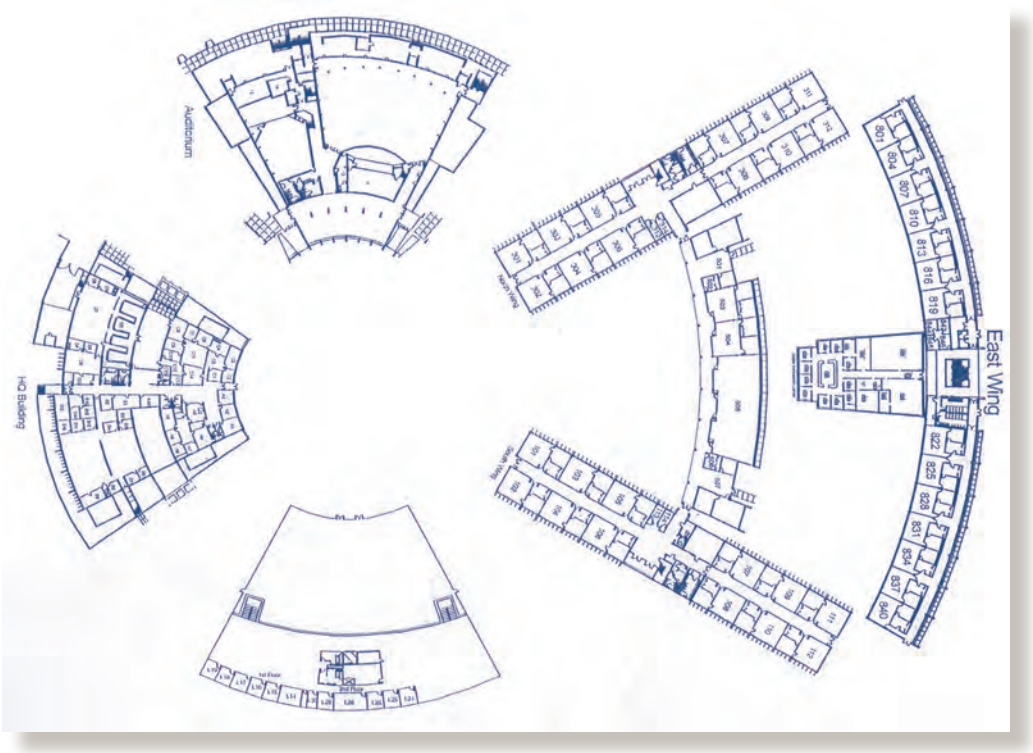
DIAGRAM OF RECESSED WINDOW

DIAGRAM OF LIGHT SHELVES



The 1997 Addition

In 1997, it was deemed that the classroom space for the Academy needed to expand to include larger class cohorts and additional classroom space. In envisioning future additions to the Academy, Lorenzo Aguilar had imagined that when the time came for the school to expand, a third "ray" would project outward from between the north and south classroom wings, which formed the first two rays projecting from the focal point of the circular courtyard. Moore and Aguilar were not, however, asked to be a part of the design of the expansion; and when the chosen firm, Martinez Architects, Inc., of Playa del Rey, California, produced a design for the addition, they pictured an additional arc spanning the space between the eastern ends of the existing classroom wings, instead of a ray bisecting the angle between them.



Plan of the 1997 Addition. The new East Classroom Wing is the arc-shaped area at the left side of the drawing.

The East Classroom Wing, as the addition is known, echoes in shape the elective classroom wing that spans the area between the north and south classroom wings. The earlier arc-shaped wing, which joins the north and south wings at their approximate midpoints, forms

with these two wings a landscaped courtyard to its immediate west. The new 1997 wing, because it spans the distance between the far eastern ends of the north and south classroom wings, is of necessity roughly twice as long as the central connecting elective classroom wing. Like the original connecting wing, it too forms (with the north and south classroom wings) a courtyard to its immediate west. Like the original connecting wing, it also features buttresses on its western elevation that project into its courtyard and protect the glass curtain wall behind it from direct sunlight, while reflecting indirect natural lighting into the corridor behind the curtain wall. The East Classroom Wing also provides a new, two-story monumental entryway on its east elevation that pierces the width of the building and carries through to a central wing that projects into the interior landscaped courtyard. This projecting wing houses the Battle Simulation Center.

US Sergeants Major Academy, 1997. The white-roofed wing in the foreground is the new east wing addition. The Aero Vista housing area is visible in the upper left hand corner of the photo, immediately left (south) of the main thoroughfare (Sergeant Major Boulevard).

Encompassing 52,000 square feet, the new classroom wing accommodated its first cohort of students in July 1997. In addition to housing the Battle Simulation Center, it also houses twenty classrooms for Battle Staff NCO and First Sergeant courses.

INTERFACE BETWEEN CURRICULUM AND ARCHITECTURE

Evolution of Academy Curriculum

When the US Army Sergeants Major Academy opened at Fort Bliss in January 1973, 105 senior NCOs at the first and master sergeants levels were selected by the Department of the Army for training as Command Sergeants Major. They were to be trained in four broad academic areas: human relations, military organization and operations, world affairs, and military management. In addition to attending the core curriculum pilot course of the Academy, they were also slated to participate in a college electives program through El Paso Community College, which was intended to provide the foundation to an Associate of Applied Science Degree with a major in Industrial Management. Of the 105 students who matriculated, 100 graduated from the Academy following 22 weeks of instruction.

Beginning with Class 2, subsequent classes at the Academy would total about 200 students each. In the larger context of the NCO Education System, or NCOES, the course at the Academy was the top echelon course for NCOs. As the system is constructed today, NCOs who seek promotion to the rank of Sergeant need to attend Primary Leadership Development Course (PLDC), which is conducted at sixteen NCO Academies (NCOAs) worldwide. The next level is the Basic NCO Course (BNCOC), which is designed for NCOs seeking promotion to the rank of Sergeant First Class. The level following BNCOC is the Advanced NCO Course (ANCOC), completion of which is necessary for promotion from Sergeant First Class to the rank of Master Sergeant. Finally, the U.S. Army Sergeants Major Course (USASMC) is a nine-month resident course designed for Master Sergeants aspiring to the top rank of Sergeant Major, and is held only in Fort Bliss, Texas, at the Sergeants Major Academy.

In 1973, the hierarchy of coursework was not appreciably different. At that time, 16,000 soldiers went through the entire NCOES; 11,000 went through the 1973 equivalent of BNCOC, which was for Privates First Class, Corporals, and Sergeants; 4,000 attended ANCOC, which was for Staff Sergeants and Sergeants First Class for promotion to Master Sergeant; and 400 attended USASMA, the top NCO course, during an academic year. It was not until 1993 that

promotion to the rank of Sergeant Major became contingent upon mandatory attendance in and completion of the Sergeant Major Academy course.

Using the Classrooms

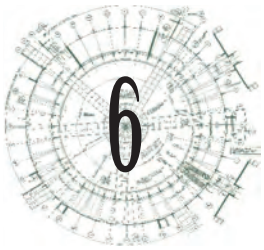
From the beginning, the Sergeants Major Academy was designed especially with one curriculum requirement in mind – that Sergeants Major candidates be educated in small cooperative groups, in classrooms designed for small groups and equipped with audio-visual equipment and, eventually, computers. Each group of sixteen candidates would occupy a suite of three rooms consisting of a main classroom, a breakout room where smaller groups can go to engage in split class exercises, and an instructor/faculty advisor office. The North Classroom wing housed 12 classrooms of the Sergeants Major Course, Leadership Division; the South Classroom wing housed 24 more classes of the Sergeants Major Course, Resource Management and Military Operations Divisions. Elective classes, which were taught to larger groups of up to 35 students at a time, were housed in the connecting wing between the North and South Classroom buildings.

Graduation ceremony for non-resident Command Sergeant Major class in the main auditorium at the Sergeants Major Academy.

In 1997, the addition of the East Classroom wing created 20 more classrooms for the First Sergeants and Battle Staff courses. The "centerpiece" of this addition – literally and figura-

tively -- is housed in a one-story wing that juts into the courtyard from the center of the west elevation of the East Classroom addition. This piece is the Battle Simulation Center, where soldiers conduct 72-hour "war games" on computers. Until 1997, this aspect of Academy training had been conducted at the old World War II buildings around Biggs Field.

Lt. Colonel Thomas Hoffert, who has kept tabs on the developments at the Academy since his time as part of the commandant's office, believes that the arrangement of classrooms apportioned to small groups of NCOs working in cooperative and competitive teams has continued to benefit the NCOs who are educated under this system. As Director of Instruction and Assistant Commandant (under Colonel Ostrowidzki), Colonel Hoffert helped conceive of the design of the 1987 Academy facilities. "The 'Small Group Process' was the basis of [the design of the facilities], by which groups of sixteen men with different specialties and different kinds of experience within the Army could all provide input to the group," said Hoffert. He said that the Small Group Process was set up in such a way that career soldiers with decades of experience in various specialties could work together, each one getting his or her chance to shine in team problem-solving activities, depending upon when the need arose for a particular specialty.

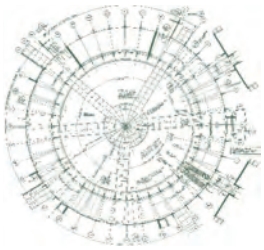


EPILOGUE: THE IMPORTANCE OF THE US ARMY SERGEANTS MAJOR ACADEMY TO TODAY'S WARRIORS

The inception and formation of the U.S. Army Sergeants Major Academy came at a critical moment in the history of the United States Army, as the armed forces were about to become all-volunteer services and the draft was coming to an end, following the end of the Vietnam War. Today the U.S. military services are still all-volunteer, but the professionalism of its NCOs is not in doubt, as educational institutions under the aegis of the NCOES continue to produce top-notch NCOs to act as the link between common soldiers and commissioned officers, and to oversee the conduct, the care, the discipline, and the training of rank-and-file servicemen.

When General Ralph Haines, who had been CONARC commandant at the time of the Academy's original inception in 1972, spoke at the dedication to the 1987 facility, he mentioned that the lack of sufficient training for NCOs in the 1960s led directly to casualties suffered among the rank and file. General Haines, sometimes called the "father of the Academy" for his role in advocating for NCO education, said that the classroom education of NCOs and of Sergeants Major had led directly to the saving of many lives, and a much higher level of professionalism among soldiers since the end of the Vietnam War.

The formalization of the education of NCOs not only highlights the importance of the vital link between the officer ranks and the rank-and-file enlisted men that NCOs represent, it also sends the important message that NCOs are a highly valued part of today's armed forces. The recognition of the professionalism of the NCO ranks, and of the Sergeant Major ranks in particular, has significantly elevated the status of the highest NCO ranks and of NCOs in general. The U.S. Army Sergeants Major Academy, as the capstone institution of the NCOES, is emblematic of the U.S. Armed Forces' recognition of the importance of the NCO in today's military hierarchy. Fittingly, the Academy facilities at Fort Bliss, as the symbol of the highest level of NCO education, are still among the truly original and unique building complexes not only in the Army, but throughout the Armed Forces.



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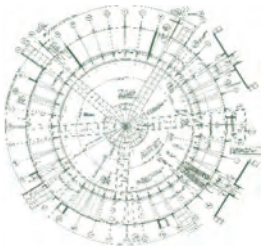
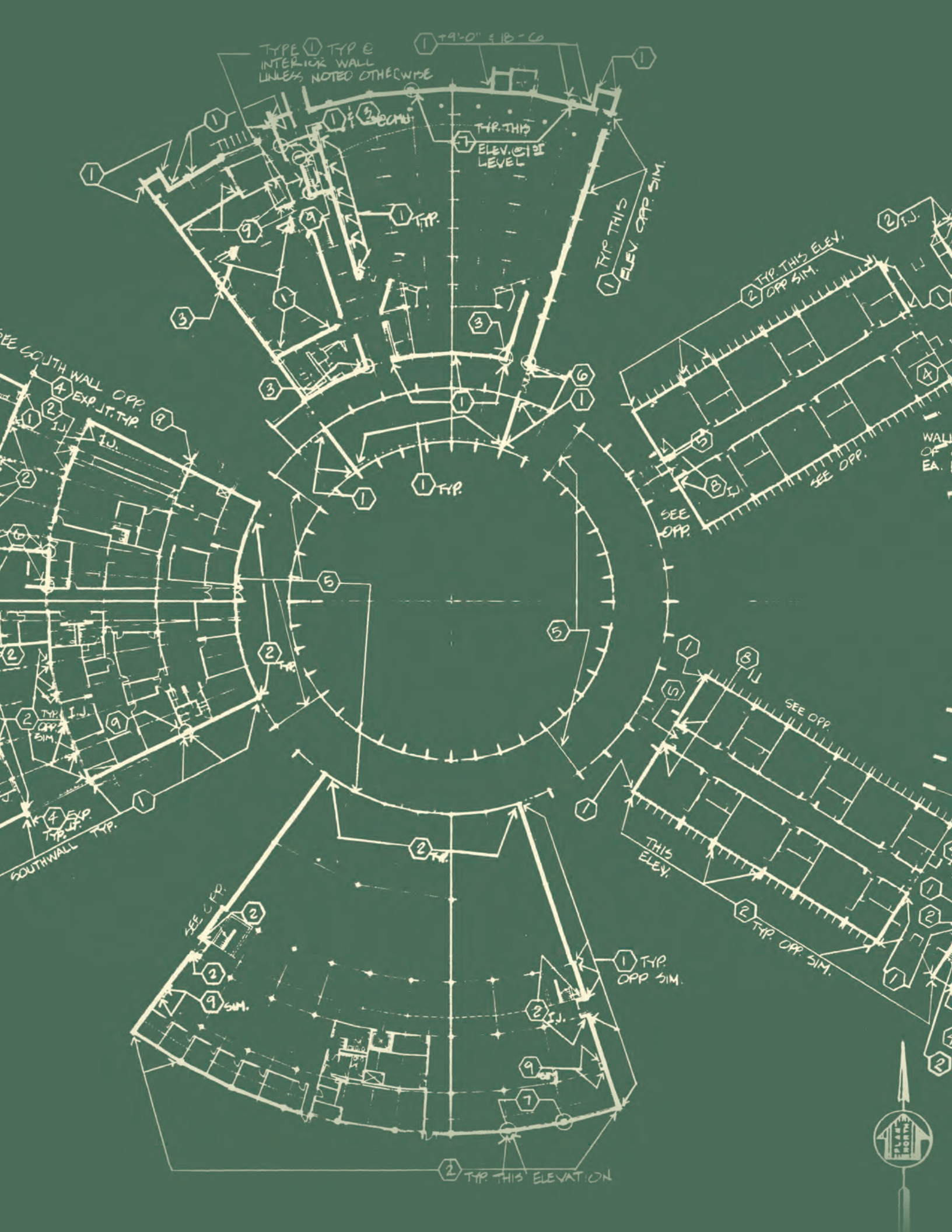


ACKNOWLEDGEMENTS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