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IMPROVING THE COMMUNITY ENVIRONMENT

For three decades after 1945, budget planners and politicians in Washington asserted that the U.S. military presence in Europe was temporary and that no long-term investment in permanent amenities for the soldiers and their families was either necessary or justified. During the American involvement in Vietnam, military budgets neglected the maintenance and repair of facilities in Europe. Between 1969 and 1977 increases in overall military spending failed to keep pace with the rate of inflation.[1]

With the change to an all-volunteer army in 1973, the quality of facilities became a significant component of military life. To a large extent, the Army's decision to improve the quality of life for U.S. forces in Europe grew out of self-interest. The characteristics of the soldiers serving in Europe changed quickly. The new recruits were better educated than conscript recruits and had higher expectations and ambitions. A far greater percentage of enlisted soldiers were married and had children. A growing percentage of soldiers were women, and in some families both husband and wife were in uniform. Single parents, especially, were concerned about care for their children during the working day.[2]

To attract and retain the best recruits, the Army had to offer better facilities than the run-down, barely adequate facilities that housed the conscript Army during the 1950s and 1960s. Despite programs such as Stem to Stern and Modernization of United States Facilities (MOUSF), living facilities desperately needed improvement. The Army began to understand that it could not retain the most qualified soldiers unless the soldiers and their families could see some hope of change. An Army publication asserted:

> If a soldier and family are forced to move into a cramped and dilapidated apartment in a shabby, ill-kempt military housing unit, and are then required to make do with inadequate heating and poor electrical and plumbing systems, the soldier is going to be miserable, and morale—and job motivation—will suffer.[3]

In both the short and the long terms, the Army also suffers. The soldier performs poorly, the Army appears unattractive as a career option, and the Army loses its investment in training during the soldier's initial tour.

In the late 1970s the U.S. military in Europe launched a series of programs designed to improve the quality of life for its service personnel, hoping that more comfortable living conditions would enhance morale and improve the commitment and productivity of its soldiers in their primary combat mission. Congress appropriated funds to improve and modernize both family housing and troop quarters. Other facilities serving soldiers and their dependents also received new monies. The Army and the Air Force expanded and improved medical and dental clinics, schools, day care centers for children, and recreation facilities. All these programs became a major part of the work of the Europe Division (EUD) in the 1980s.

Family Housing

By the late 1970s the United States Army, Europe (USAREUR), administered 53,000 family housing units in Europe, with properties in Britain, Belgium, the Netherlands, West Germany, Italy, and West Berlin. The Army leased 9,000 of these from local owners and maintained the other units as landlord for the soldiers who occupied them. Most of the housing units were in the Federal Republic and had been constructed with German funds in the early 1950s. Although sound at the time of construction, they had had thirty years of high occupancy and turnover—a new family moved in every twenty-one months on average—and had suffered from years of inadequate and underfunded maintenance. Over those years the expectations of soldiers had risen, and occupants expressed increasing frustration over the lack of amenities and the Spartan character of the 1950s construction. The electrical systems, for example, could not accommodate televisions, stereo systems, hair dryers, electric razors, and the host of small kitchen appliances that had become commonplace.

Ninety-five percent of the housing in USAREUR had been built as three-story structures with a center stairwell and two apartments on each floor. Such stairwell apartments were home to 155,000 residents. The design of the units created a high-density population; poor sound insulation and limited privacy compounded the problems inherent in integrating residents with diverse backgrounds and styles of life. Army Research Institute studies comparing the residents of duplexes with residents of stairwell apartments showed that the latter suffered from higher levels of stress; more medical problems that required treatment at a hospital or dispensary; and a higher incidence of alcohol and drug abuse, marital problems, child abuse, and general dissatisfaction.[4]

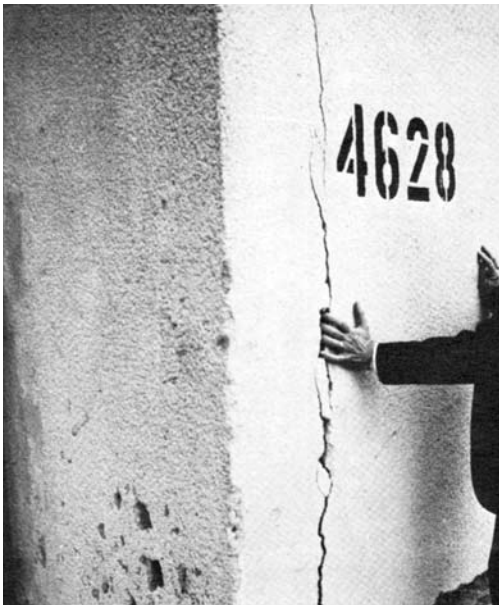
Pressure to continue using these housing facilities remained high. In 1981 USAREUR faced an immediate need for 5,000 additional housing units, and enlisted soldiers with families waited up to two years for

appropriate housing, by which time their tours might end. This undersupply did not even take into account those soldiers who lived with their families on the West German economy. The local housing market had a shortage of about 1.5 million units, which made affordable, conveniently located housing scarce and expensive for Americans. In the early 1980s a rent of $800 a month—more than twice the housing allowance most soldiers received for off-base living—was not uncommon, often for family quarters that Army inspectors judged to be substandard or even uninhabitable.[5]

Existing Housing Units

The Maintenance, Repair, and Improvement (MRI) program funded by the Department of the Army helped alleviate some of the housing problems. The program provided money to improve existing facilities; and USAREUR allocated a part of these funds to renovate existing family housing units, specifically targeting repair and replacement of bathrooms, kitchens, windows, and utilities.[6] Although the program was initiated in 1977, the architectural and engineering pilot studies were completed only in 1980. At that point, Headquarters, United States Army Corps of Engineers (USACE), approved an MRI engineering and architectural design guide for USAREUR that incorporated references and standards derived from the pilot studies. This allowed USAREUR to begin design work in 1981 on an MRI pilot project at the Adlingerstrasse housing area in Stuttgart.[7]

The MRI program enabled USAREUR to apply more resources to its existing backlog of maintenance and repair for family housing, but that backlog still stood at $246 million in 1981. USAREUR's overall backlog for all facilities other than housing amounted to $1.28 billion, or 54 percent of the Army's worldwide backlog.[8] The backlog for troop housing was even greater. An article that appeared in February 1984 noted "the troop-housing backlog in June 1982 was worth about $3.6 billion," an amount "21 times what the Army had been allowed to spend for troop housing in 1982." Faced with this



Housing suffered from a backlog of delayed repairs. This family housing unit in Giessen, Germany, shows signs of severe structural cracking.

backlog of repair work, in the absence of a clear indication of increasing support to reduce it, the commander in chief of USAREUR, General Frederick J. Kroesen, decided to press Congress more directly for funds.[9]

In 1982 General Kroesen followed up his first special report to Congress, which emphasized the need to fund facilities that supported the deployment and day-to-day operations of the combat troops, with a second report titled "Family Housing Facilities in United States Army, Europe." The report urged Congress to provide funds for the Army to improve those facilities that enhanced the quality of life for the troops.[10]

In the report and in personal appearances before Congress, General Kroesen argued forcefully that Congress should shift its attention to a new set of priorities. Over the years congressional leaders had responded to the argument for combat readiness that field commanders of front-line units had presented: Because the Soviets may come across the border at any time, I need money for training and weapons. General Kroesen transformed this argument to his advantage—and to catch the attention of the senators—by saying "If someone told me that the Russians were coming New Year's Day, I would still say our biggest problem is family housing." Kroesen's remark stuck in the memory of his contemporaries, who recalled his statement before Congress almost verbatim a decade later.[11] More important, it kept the pressure on Congress to provide additional funds.

In the 1982 report on family housing, Kroesen let the soldiers speak for themselves, quoting extensively from interviews with enlisted personnel and officers.[12] These residents of Army housing offered graphic and detailed testimony concerning the deplorable circumstances in which they lived.

Broken vapor seals made mold and mildew a constant problem. One officer's wife described her family's quarters:

> My son jokes about his pet slime, but it is terrible, really. My daughter hates sleeping near it and I don't blame her. You feel dirty even after you have worked hard all day to clean. I air all the rooms daily but now it is starting up there on the corner of the dining room ceiling over the dish hutch. The family eats with it.

Some situations were dangerous as well as uncomfortable. Inch-thick plaster that detached from ceilings because of moisture fell down in large pieces. Showing her bathroom in which plaster had already fallen, one sergeant's wife lamented, "I can't let my kids use [the bathtub] anymore. What if the ceiling falls on their heads?"

The only thing predictable about the heating systems was that they would fail sometime during the year. Despite efforts made by the Engineer Command under Stem to Stern and its boiler replacement efforts, the heating units for most USAREUR family housing had never been converted from the hand-fired coal boilers typical of the construction of the early 1950s. Residents put up with overheating on lower floors and inadequate heating on upper floors. Both the supply and the distribu-

tion of hot water were inadequate. Many water lines were nearly closed by the scale deposits because of corrosion and Germany's naturally hard water.

Shortages of personnel contributed to the backlog of maintenance and repair. The additional money in the early 1980s was not accompanied by an increase in personnel for the community-level engineering staffs. EUD alleviated the burden at the local level by acting as design agent for much of the new work. The assistant division engineer for the Directorate of Engineering and Housing, a position EUD commander General George K. Withers, Jr., established in January 1981, handled the division's efforts.[13] USAREUR also made adjustments to take account of the new volume of work: The Office of the Deputy Chief of Staff, Engineer, divided engineer staff functions with the Installation Support Activity, Europe.[14] In January 1983 the Department of the Army authorized USAREUR to establish a Senior Executive Service position in the Office of the Deputy Chief of Staff, Engineer, to manage the programs in facilities engineering and housing.[15]

In 1982 the Department of the Army responded to the need for more housing by approving an extension of the MRI program called the whole-house concept, which allowed the complete renovation of entire housing units. The Army provided over $19 million for fiscal year 1983 to be used for the military communities of Stuttgart (Adlingerstrasse, 72 units), Frankfurt (Gibbs, Betts, and Atterbury housing areas, 494 units), and Nuremberg (Pastoriusstrasse, 162 units). In February 1983 Headquarters, USACE, funded an upgrade of laundry rooms throughout USAREUR by shifting $9 million from the current year MRI program, thus delaying construction of three-quarters of the dwelling units in Frankfurt.[16]

As the workload for maintenance, repair, and renovation through new construction increased within USAREUR, the Europe Division aided the communities in two ways. First, because the communities lacked personnel with sufficient technical experience, EUD assisted in the very early stages to bring the concept design to the 35 percent level, making a project eligible for inclusion in USAREUR's budget request. Second, EUD acted as the design and construction agent once Congress approved the concept design in the Army's budget. Between 1983 and 1985 EUD completed designs and began some construction under the MRI program for housing in Stuttgart, Nuremberg, and Frankfurt. By 1985 the MRI program encompassed 1,250 family housing units at a cost of about $34 million.[17]

Initially, EUD processed MRI projects in its usual manner, beginning in the Engineering Division with work on design. As the volume of work increased and construction began, delays caused a bottleneck of design for fiscal years 1983, 1984, and 1985. Because facilities were old, design assumptions about the rehabilitation often did not match what contractors found behind the walls. Many of the earliest designs required extensive changes and redesign.[18]

In response to the growing program, the Engineering Division increased its Facilities Support Section from nine people to thirty-six in

Family housing was renovated in communities throughout Germany, including Nuremberg.

1982.[19] To deal specifically with MRI projects, EUD formed special teams, each consisting of a project manager from the Engineering Division, a construction manager from the Construction Division, a representative from the field office who knew the existing facilities and the local installation personnel, and engineers from the Technical Branch. Through the team approach the division hoped to apply lessons learned from each project and to maximize cooperation at every stage between the designers and builders.[20]

EUD's team approach proved highly successful. The division managed design and construction for renovations involving the installation of energy-efficient thermo-pane windows, additional insulation, new electrical wiring and plumbing, new kitchen cabinets and appliances, paint and plaster, and, in some cases, replacement of entire sections of interior and exterior walls and roofs. The greater efficiency of the units led to considerable savings in utility costs. By the end of fiscal year 1985, USAREUR had reduced the backlog of maintenance and repair from the high in 1981 of more than $1.25 billion to about $600 million.[21]

Factory-Built Housing

USAREUR also pressed Congress for money to build new off-post housing because only slightly more than 25 percent of the military families eligible for and requesting on-post housing in Europe could be accom-

modated.[22] During earlier years new housing for U.S. troops and their families had either been financed under the occupation or through the Alternate Construction program; in both cases, the West German government paid the costs.

In 1983, for the first time, Congress authorized funds for the construction of new family housing in Europe with the stipulation that the housing be manufactured in the United States for on-site construction in West Germany. The program for fiscal year 1984 called for 771 prefabricated housing units, with construction to begin in Wildflecken, Bayreuth, and Kitzingen. Quarters for two general officers were also authorized for Vicenza, Italy.[23]

On 21 September 1984, EUD awarded a contract for the first factory-built housing. The contract called for 153 two-bedroom units to be manufactured in modules in the United States by Corlite Building Systems of Weslaco, Texas, and delivered for final assembly and construction in Wildflecken. This was to be the start of work on 18,000 dwelling units constructed in twelve communities over the next four years. The contract for the housing in Wildflecken totaled $8.35 million, or $54,620 per unit. Philipp Holzmann, A. G., of Frankfurt won the contract to place the buildings on site; build roads, sewers, and playgrounds; and provide landscaping.[24]

The housing design incorporated new technology to manufacture relatively lightweight panels made of fiberglass-reinforced gypsum bonded to galvanized steel frames. Once assembled, the exterior of the panels

Modules manufactured in the United States were used to construct prefabricated housing in Wildflecken, Germany.

Prototype of Prefabricated Housing on Site in Wildflecken, Germany

received a stucco coating. Designers worked closely with German officials to ensure that the structures would fit well aesthetically with their surroundings. To demonstrate the quality and practicality of the product, Corlite constructed a prototype of the Wildflecken housing units at its plant in Texas that USAREUR officials and engineers from EUD inspected in October 1985. Corlite shipped the panels and complete bathroom and kitchen modules to Europe, where Holzmann constructed a second prototype on site in Wildflecken. Work on the prototype in Wildflecken began in November 1985; Holzmann constructed a tarpaulin-covered shelter to protect the structure from winter weather. Work then began on thirty-eight two-story buildings, each housing four two-bedroom apartments, and on one freestanding single-family dwelling.[25]

The Holzmann Company encountered numerous problems with the project. Because the module units were measured and manufactured to standard American scale, Karen Lippert, EUD's project manager on site, became an instructor to the German work crews, teaching them how to use tape measures calibrated in feet and inches. The modular design required many change orders. As the delays increased, the chief of construction, John Blake, finally insisted on a face-to-face meeting with Holzmann's chief executive officer to get the project on track. Once Holzmann's chief executive became personally involved, the project moved forward.[26] Straightening out the project cost the company dearly. Faced with financial and legal complications but eager to honor its commitments, Holzmann finally bought out the American provider, Corlite.

Although they completed the contract, Holzmann chose not to bid again on contracts for factory-built housing.[27]

Despite the problems, the first twenty-five buildings in Wildflecken, containing 100 apartments, were ready for occupancy in January 1987. Wiring and electrical outlets accommodated both 110- and 220-volt current, so that either German or American electrical appliances could be used. Each unit contained built-in closets, a dishwasher, a clothes washer and dryer, and a kitchen furnished with American equipment.[28]

As construction began in Wildflecken, EUD awarded contracts for six other communities scheduled for factory-built family housing; by late 1986 site work was under way in Kitzingen, Bayreuth, Dexheim, Vilseck, and Mainz in Germany and in Livorno, Italy, in preparation for assembly of more housing units. Waiting to occupy these new facilities were 3,890 families eligible for military housing and living in substandard private rental units.[29]

Construction began on 186 townhouses for noncommissioned officers in the Mainz military community in September 1986. A new company, the RADVA Corporation of Radford, Virginia, provided the modules to the German consortium of Zueblin/Aegis. Like Corlite, RADVA built a prototype for inspection at its plant before shipping the materials to Germany. The townhouse designs included three- and four-bedroom apartments as well as two-bedroom units. RADVA used expanded polystyrene bonded to galvanized steel frames in a patented process, creating a structure that was stronger than conventional wood-frame construction and provided excellent thermal insulation. The units had double-paned thermal windows for added energy efficiency, hardwood floors in the living and dining rooms, and built-in hardwood cabinets and closets with adjustable shelves. Each unit had a patio, a carport with a storage room, and a laundry utility room furnished with a washer, dryer, and laundry sink. The kitchen equipment and other features such as the wiring for both European and American appliances were comparable to the units in Wildflecken.[30]

At each of the subsequent communities that received factory-built housing, EUD applied lessons learned from the previous project. At Marshall Heights in Kitzingen, where 103 units went up in 1988, EUD insisted that the contractor replace the softwood handrails used for stairwells in the homes in Mainz with hardwood rails for better durability. Responding to suggestions by the occupants, the contractor installed two peepholes in each entrance door, one at a child's eye level.[31]

Projects in the new communities included the earthwork, roads, and landscaping. About 40 percent of the costs went into infrastructure built to local German construction standards—electrical service, street lights, plumbing and sewers, and district heating for the houses, all with underground conduits. The communities also received recreational and playground facilities. By the summer of 1988 EUD had awarded a total of $380 million in factory-built housing projects and had another $320 million still under design, of which $75 million (23 percent) was for the Air Force.[32]

Family housing projects in Soesterberg, Netherlands, included landscaping.

In constructing factory-built housing in Germany, EUD engineers became convinced that they could save time and money and reduce maintenance difficulties by using more German products and techniques. Some of the adaptations were easy, such as using German-style interlocking paving stones in carport driveways. But others required reinterpreting the congressional mandate to have the units manufactured in the United States. Scott Bearden, who took over as chief of the division's housing team in 1988, became an important catalyst for changing procedures to facilitate construction. He learned that in four out of five projects released for bid, German contractors had submitted proposals averaging 144 percent of the amounts authorized for construction. Bearden thought that if contractors had more latitude to use local products for interior finishes, cabinetry, and fixtures, they would bid more aggressively. He also contended that the program ought to present the companies with designs that were 90 to 95 percent complete rather than only 35 percent complete. By so doing EUD could avoid the cushion—as much as Deutschmark (DM) 1 million ($569,000 at the prevailing exchange rate)—that contractors had been adding to their bids to cover the remaining costs of design.[33]

Bearden's suggestions caught the attention of the deputy assistant secretary of defense for installations and logistics, Robert A. Stone, who gave Bearden a chance to present his ideas at the U.S. European Command Conference in February 1989. Stone approved Bearden's proposal to allow EUD more flexibility in accepting local fixtures, as long as the construction stayed within the intent of the law that all feasible effort be made to use

American products. Bearden also won approval to modify the procedures so that contracts would be awarded with 90 percent of the design complete.[34]

Bearden's efforts earned him honors as EUD Engineer of the Year for 1988, and the changes brought the desired response from the contractors—more competitive bids. By incorporating German fixtures, cabinets, doors, and windows and eliminating the cost of shipping furnishings from the United States, bidders could lower their contract estimates. The change also contributed to lower maintenance costs, because items for repair or replacement could be purchased locally.[35]

Attic Conversion

One innovative idea used in USAREUR to create new housing units involved converting attic areas in multiple-apartment housing facilities into small apartments. An idea advanced in 1984 by the director of engineering and housing in Göppingen, the plan called for renovating a standard stairwell apartment building and redesigning the space under the roof to create two-bedroom apartments. These small apartments, 772–933 square feet each, would be suitable for a family with one child under five years of age. The work involved raising sections of the roof to add headroom, but buildings retained their original footprint and much of the original profile. The conversions began in 1987, and by the end of that fiscal year EUD had awarded contracts for the creation of 260 attic apartments in seven different communities.[36]

Attics in existing apartment buildings, like this one in Aschaffenburg, Germany, were converted into two-bedroom apartments.

Each of the new apartments contained a clothes washer and dryer, a convenience unavailable to occupants of the lower apartments, who used a common basement laundry room. The attic apartments also had loggias, inset balconies, that offered a measure of private access to the outdoors. The loggias also represented an important safety feature: In the event of a fire, they provided level space accessible to rescue equipment mounted on fire trucks on the ground below. The additional amenities and the on-post location served as inducements to soldiers and their families to accept the small attic apartments. USAREUR calculated that by 1990 attic conversion could add over 1,700 apartment units to the military's housing inventory in Germany at a cost of about $60,000 a unit.[37]

Attic conversions were awarded as an additional contract to MRI renovations of entire buildings. Because the West German government allowed the U.S. military to contract for maintenance work directly rather than requiring indirect contracting, EUD intended to handle attic conversion the same way. The initial design for attic apartments anticipated completely removing the roof, constructing a full wall under it, and then replacing the roof. The German government objected that this really represented building a new top story on each of the buildings and thus constituted new construction, which required indirect contracting. To avoid having to award separate contracts for the renovation of buildings (direct) and the conversion of the attics (indirect), EUD redesigned the attic plans. The new design raised the walls less than three feet, expanded the existing dormers to provide more interior space, and kept the origi-

Although the roof line of this housing unit in Mannheim, Germany, was altered to add apartments in the attic space, the footprint of the building remained the same.

nal slope and general outline of the roof. With these modifications, the German government agreed to consider the attic apartments as conversions rather than as new construction. All the attic conversion projects were thus completed under direct contracting procedures except the work in Bremerhaven, where EUD placed the contracts indirectly as a stimulus to the depressed local economy.[38]

Despite all of this construction and special new programs such as the government rental housing program that allowed landlords to contract directly with the U.S. government, as late as 1989 USAREUR still reported a shortage of over 8,000 housing units out of a total need for nearly 100,000 units.[39]

Barracks

Although family housing represented a major concern for USAREUR in the 1980s, fully half the troops lived in barracks; the backlog on maintenance and repair of troop housing was substantial. Despite programs such as Stem to Stern and MOUSF, many of the barracks still suffered from deterioration due to lack of adequate maintenance over many years; they remained in embarrassingly bad condition even into the 1980s. Leaking roofs, faulty wiring, inadequate heating and plumbing, and overcrowding were the normal conditions in barracks. *Time* magazine reported in July 1981 that American service personnel in Europe "live and work in conditions that could cause riots in U.S. prisons."[40]

John Blake arrived at EUD as chief of construction about the time this article appeared, and he voiced to a colleague his irritation about the tendency of American journalists to exaggerate for dramatic effect. In reply, the colleague brought Blake a thick folder of photographs he had assembled. The pictures illustrated the claims in the article in *Time*. Blake recounted:

> The ground floor of this three-story barracks could not be used at all; four inches of water were standing in the total ground floor. Only half of the second floor could be used because only half of it had [running] water.… Only half of the third floor could be used because only half of it had electricity.… [Where] there were supposed to be nine urinals, there were only two or three; the rest of them had been broken off the wall.[41]

In barracks constructed in the 1950s, sixteen to twenty men slept in a single large room and used a common bathroom with one shower, one urinal, and one toilet for every twenty men. Committed to improving living conditions, USAREUR sought to provide the authorized minimum of ninety square feet per enlisted soldier in four-person rooms in existing facilities or in two-person rooms in new barracks. Each of the two- and four-person rooms designed for the 1980s had adjacent toilet and bath; two-person units shared these facilities with no more than one other

Construction of the barracks in Kaiserslautern, Germany, included two-person rooms for unaccompanied personnel.

room.[42] Through new construction and renovation the command set out to assure structurally sound, weather-tight buildings with comfortable and healthy heating and ventilation, as well as sufficient electrical wiring to allow safe operation of modern appliances. Design and construction also took into account the growing number of women soldiers in USAREUR, either with accommodations on floors separate from the men or in separate areas at the ends of floors. Even the name used to designate the facilities changed, from bachelor enlisted quarters to unaccompanied enlisted personnel housing (UEPH).[43]

With over $50 million available through USAREUR in 1984, EUD awarded twelve contracts for housing construction for unaccompanied personnel—two for modernization of existing barracks and ten for construction of new barracks. In the next two years contracts were awarded for similar housing at twenty-eight sites, including five projects in Greece and one in Turkey. The need was pressing: As late as December 1986, 100,000 USAREUR soldiers still lived in barracks classified as inadequate.[44]

In March 1986 a project valued at $1.38 million began in Karatas, Turkey, about forty-five miles south of Adana, to provide a 71-person three-story barracks with associated access roads, utilities, and other support services. The construction contract went to Kolin Insaat in early May. Five months later a contract modification added a new sewage disposal system and a separate, roofed trash and wash space. In October 1988

construction started at Hahn Air Force Base on five UEPH units, ranging from 96- to 288-person buildings. The German contracting group of Hochtief, A. G.; Wiemer und Trachte; and P. A. Budau worked on the barracks units for two years, completing the facilities in 1990.[45] EUD supervised 100 similar barracks renovation projects for the Army and the Air Force and had about thirty more in design by March 1989.[46]

Schools and Child Care Centers

The dependents of the military communities in West Germany needed schools and child care facilities as well as hospitals and clinics. The Europe Division managed design and construction for the Department of Defense dependent schools and for child care centers, presenting military communities with a succession of school buildings, additions, and renovations. In October 1976 the Southwest Area Office (Kaiserslautern) turned over to the 21st Support Command a new 80,000-square-foot middle school facility for Patrick Henry Village in Heidelberg. The new facilities contained a classroom building with cafeteria, two gymnasiums with showers and locker rooms, and multipurpose rooms.[47] Two new schools opened in Würzburg and one in Nuremberg in 1977; school projects continued in West Germany in Sembach, Ludwigsburg, Heilbronn, Schweinfurt, Neu Ulm, Kitzingen, Augsburg, Stuttgart, Hohenfels, Hahn, Bremerhaven, and Ramstein and in Italy in San Vito. By the summer of 1979 EUD had twenty-five school projects under construction or design

The Patch elementary and high school in Stuttgart, Germany, incorporated a variety of materials and almost no right angles.

and expected from $30 to $40 million a year for school construction beginning with fiscal year 1980.[48]

One of the projects completed in time for the opening of school in 1979 was the Alexander M. Patch Elementary and High School complex in Stuttgart. This facility accommodated about 1,500 students in more than seventy classrooms and had unusual design elements. Two buildings occupied a nine-acre wooded plot of land donated by the West German government and adjacent to U.S. European Command headquarters. The design used brick, galvanized steel, stone, and concrete with a great deal of glass; and the buildings were constructed with almost no right angles. A waterfall, a small zoo, a barbecue area, and vegetable gardens surrounded the physical plant. The landscape encouraged the designers to make one whole side of the gymnasium in glass, opening the room visually to the woods. The gardens gave students an opportunity to plant fruits and vegetables as a part of their educational experience. The zoo was designed in harmony with a greenhouse and included three rabbit houses for children to learn the responsibilities associated with caring for animals. The entire complex was designed and constructed in just over fifteen months by a consortium that included the German-U.S. Architect Group and four construction firms—Klee, Holzmann, Zueblin, and Wachter—all from the Stuttgart area. Construction cost about $6.5 million.[49]

To end overcrowding, EUD broke ground for a new middle school in the Pattonville Housing Area in Ludwigsburg, near Stuttgart, on 4 September 1979. The company handling construction of this $6 million school was M. F. Wachter, one of the builders of the Patch schools. Financial limits on the project mandated omitting the sports grounds from the initial phase of the construction, and the gymnasium was erected only as an improved structural shell.[50]

Similar construction in other communities continued throughout the 1980s. By 1982 the expectation of funding for the school improvement program in USAREUR had risen to between $40 and $60 million a year. EUD had twelve new school projects in West Germany programmed for fiscal year 1983 and seven more for fiscal year 1984, including additions to the elementary and high schools in Incirlik, Turkey.[51] In 1985 EUD had fifty-eight active projects involving schools.[52]

One project from 1985 illustrates the critical deficiencies that threatened USAREUR schools with possible loss of accreditation. The elementary school in Wiesbaden held its special education classes in storage rooms. A DM 1.8 million ($611,000) addition to the school, begun in September 1985 and completed the following August, provided new space for a library, a speech therapy room, an administrative office, and a supply storage room. All utilities were renovated in the same project, as were the playground and the intercommunications and bell system. The prime contractor, Fillibeck and Sons, also landscaped and repaved around the school.[53]

Improvements at the Frankfurt American High School on the former I. G. Farben property cost about $5.1 million and provided new laboratories

for classes in chemistry, physics, biology, and industrial arts. The project began in June 1986. Contractors completed renovations in the existing building in 1987 and a new 22-room facility in 1988.[54]

Construction for the schools program suffered in the mid-1980s because of the declining value of the dollar against European currencies. Many of the school construction projects authorized by Congress remained unfinanced; in 1986–1987 the program had more than $108 million worth of deferred projects and at prevailing rates of exchange needed almost $500 million to address the full needs of the schools.[55]

In fiscal year 1988 EUD awarded $62.6 million in contracts for eighteen schools projects—new buildings, additions, and renovations—in Germany, Belgium, the Netherlands, and Turkey.[56] The elementary school in Soesterberg, Netherlands, was one of these projects. Before the construction of the new $2.33 million elementary school, one building served all students, mostly dependents of personnel of the Air Force's 32d Tactical Fighter Squadron stationed at the Soesterberg Air Base. The elementary school provided 53,750 square feet of new space, and an alteration to the high school provided another 4,800 square feet. The project, handled indirectly through the Dutch government's construction office, engaged five different contractors: a general contractor and one each for mechanical, electrical, civil (paving and sewers), and landscape work. Although the Dutch construction office coordinated the work, EUD provided oversight of the multiple contractors. Construction began on the elementary school in 1987, and the school was transferred to the users in February 1989.[57]

In 1988 EUD confronted a new problem concerning work for the schools in Europe—the need to mount an aggressive asbestos abatement program. By December preliminary assessments had identified twenty situations that required asbestos abatement, many involving ongoing design contracts and indirect construction projects. Because OMA money funded the renovation and expansion projects, EUD had to review concept and final design, advertise projects, and award contracts for the asbestos abatement within the fiscal year. Initial estimates forecast that between 80 and 100 schools in the Netherlands, Belgium, West Germany, and Turkey might

Contractors wore special protective suits while removing asbestos from school buildings in Europe.

need the work; additional testing established that asbestos problems were more widespread. In Germany alone, construction materials containing asbestos were found in 145 of 166 schools and offices and in 415 of 671 buildings tested. The division's immediate concern was removal of asbestos-bearing materials that had become damaged and friable; the asbestos abatement program in school construction and renovation occupied the division's attention for several years.[58]

School construction did not slacken because of the problems with asbestos. Using preengineered, precast, reinforced concrete, EUD completed schools and school additions at a rapid pace through the end of the decade. Early in 1990 work began on a new kindergarten at the elementary school in Baumholder. Contractors completed the elementary/junior high school at Robinson Barracks in Stuttgart in the summer of 1990. In September 1990 EUD held a ribbon-cutting and turnover ceremony for a $5.4 million project at the junior high school at Kessler Field in Schweinfurt. The new $9 million middle school at Leighton Barracks in Würzburg, begun in October 1988, celebrated its completion with a ceremony in October 1990.[59]

The Army's concern about facilities for school-age children paralleled its growing concern for preschoolers. Child care always existed within the military communities, but it had been handled informally, with no direct Department of Defense responsibility. Officers' wives often organized programs of day care.[60] When Brig. Gen. Kenneth W. Kennedy commanded the Engineer Command between 1967 and 1971, for instance, his wife headed the board for the Frankfurt nursery for children of servicemen. Child care had been priced at 35 cents an hour, plus an additional 15 cents an hour for a second child, and she insisted on maintaining that price throughout her four years as board president. New board members coming from the United States and other military communities pointed out that the cost of babysitting had risen to 75 cents an hour, but Mrs. Kennedy argued that the Frankfurt nursery could provide the service at its 35-cent rate and still break even. She was concerned because many people using the service were working wives of enlisted men who were having a hard time making ends meet.[61]

In the absence of any formal program, babysitting services, preschools, and child care centers sprang up according to need, finding space in housing areas, chapels, and hospital wards. The engineers assisted, but often unofficially; a post engineer might build or paint something as an act of community goodwill. Col. Claude Roberts, who served with the Training and Doctrine Command in the mid-1970s, recalled having been "laughed out of the Pentagon" in 1976 when the command proposed building a nursery.[62]

By late in the decade the Army's attitude changed and EUD had design contracts for child care centers. Blink housing area in Bremerhaven was scheduled to receive a new child care center that would take the place of facilities located in a hospital ward. A child care center that EUD designed for Katterbach Caserne in Ansbach allowed the existing cen-

ter to move out of the chapel where it had operated. Such projects were financed in the early 1980s by nonappropriated funds.[63]

As the Army began to address the well-being of its troops in the barracks, in family quarters, and in the schools, child care facilities came under greater scrutiny. In the 1980s the Army began to see its role in the matter of child care as minimizing the conflict between the responsibilities of soldiers as parents and the requirements of their mission. Inspections of day care facilities revealed that many of them failed to meet even rudimentary safety regulations or fire codes. USAREUR took on more and more responsibility for the facilities, and EUD became increasingly involved in their design and construction.[64]

Safety in the child care facilities remained a major concern. When engineers learned that paint used in two of the centers under construction in 1984 contained unacceptable levels of lead, the division alerted the commander of the Installation Support Activity, Europe, and suggested random testing of paints used in residential facilities to ensure compliance with U.S. government specifications. The commander also initiated paint sampling programs for those facilities where EUD had acted as construction agent, with priority given to facilities used by small children.[65]

By the mid-1980s USAREUR began to reinterpret its responsibility: Child care meant not just providing babysitting services but furnishing nutritious food and a certain amount of instruction. The Army's changing attitude influenced its vocabulary: Child care and day care centers became child development centers.[66] By the end of the decade a Department of the

The changing role of child care led to the building of child development centers during the 1980s, like this one in Bad Kreuznach, Germany.

Army spokesman described "reliable, affordable child care" as a "readiness issue." USAREUR adopted the position that "the knowledge that one's child is receiving professional, concerned care in an adequate facility is perhaps the single most important factor in determining the individual's long-term job performance."[67]

When litigation in the United States focused attention on alleged sexual abuse in child care centers, the centers in Europe received additional scrutiny. The rapidly changing standards created problems for EUD, including cost increases and complications in administration and execution of the contracts. Each time the standards for child development centers changed in the United States, the centers in design or under construction through EUD had to be modified. This became a particularly vexing problem in the late 1980s as the number of projects increased and as tighter standards were applied.[68]

The child care center at Patrick Henry Village in Heidelberg was an example of the delays that could develop. Although completed in January 1988, the facility could not be turned over to the community until August because transparent observation panels had to be fitted to bathroom doors to allow the staff to monitor activity in toilet stalls. At the same time, contractors added an additional sink and a sprinkler system for fire protection.[69]

Some regulations proved redundant in Germany. For example, the requirement to raise wall plug sockets to fifty-four inches off the ground was designed to reduce the possibility that a child would receive a shock by jamming something into the socket. In Germany, however, all electrical outlets in classrooms had to be equipped with ground-fault interrupters. Similarly, U.S. guidelines stipulated that radiators, if present, should be covered. This provision prevented injury from steam radiators, but German construction used only hot water radiators that never achieved the same intensity of heat. If the regulations addressing wall outlets and radiators were too specific, others were too vague. One EUD engineer observed that the regulation that playground equipment "should be 'appropriate for the child's age' wasn't helpful if you didn't have a playground specialist at every office."[70]

Even late in the 1980s, USAREUR recognized that it was short of its goal of alleviating soldiers' concerns about their children and that "many of our child care facilities are widely held to be inadequate at best."[71] As a result, child development centers remained a focus of construction into the 1990s. A $1.6 million center for 145 children opened at East Camp, Grafenwöhr, in April 1990. A center at Wetzel Barracks in Baumholder celebrated a grand opening on 11 July. The facility at Old Argonner Caserne in Hanau opened on 14 September to serve 198 children. The Panzer Housing Area in Böblingen near Stuttgart opened its center for 145 children late in 1990.[72]

EUD also supervised construction in the late 1980s of a growing number of youth activity centers for school-age dependent children from six to nineteen years old. These centers provided space for dance, karate, and

Youth activity centers in Germany included this facility in Wiesbaden.

other recreational classes; TV and teen lounge areas; stages for theater productions; video game rooms; and gymnasiums for sporting events such as gymnastics, volleyball, basketball, and public gatherings. All facilities built in the late 1980s were fully equipped for access and use by physically disabled persons.[73]

Medical Facilities

Like the family housing and the barracks, many of the medical facilities that served the U.S. Army in Europe dated from before the war or from the period of rapid and austere construction in the early 1950s; by the 1970s they needed repair and modernization. The hospital in Nuremberg, for example, served the German military during World War II. The facility in Landstuhl was built as a 1,000-bed U.S. Army emergency field hospital in 1952. Beginning in the 1970s the Europe Division managed major renovations at both facilities.

The Nuremberg Army hospital provided medical support for sixty thousand service personnel and dependents in northern Bavaria. During the summer of 1975 EUD estimated the cost of renovation between $35 and $43 million. Design moved forward, and on 12 July 1978 contractors broke ground on the planned 250-bed facility. The construction provided an emergency clinic; a food service division; new facilities for radiology, physical therapy, and pathology; a sixteen-bed intensive/coronary care unit; a central materials section; an operating suite; and a nursery.[74]

In Nuremberg the engineers adapted a facility designed and constructed in the 1930s to new specialized medical equipment. Oxygen had to be readily available, as did steam for sterilization, and electrical capacity had to be adjusted to accommodate the new machines. When the U.S. medical community insisted on 110-volt, 60-cycle equipment, designers initially solved the problem of converting from the 220-volt net to the 110-volt equipment by using several small step-down transformers. As the hospital began to operate the new equipment, the users discovered that these transformers delivered consistently higher voltages at less than full load, exceeding the maximum that the medical equipment was designed to handle and damaging the equipment. EUD returned to the American company that had designed the electrical system, demanded a solution, and insisted on greater involvement by the parent company in the designs prepared by its German affiliate.[75]

Cost estimates for the renovations proved woefully inadequate. Because the hospital remained open to care for patients throughout construction, designers used very little destructive testing to determine the material composition of the walls and ceilings. When the construction workers in Nuremberg found plaster bound to the ceiling with a woven mesh of straw, a "minor ceiling repair" turned into a major job of replacing the entire ceiling with wire mesh and plaster.[76]

The Nuremberg hospital renovation project was fully under way by 1979 at a cost of over $31 million, making it the largest single construction project, measured in dollar value, undertaken to that date for the U.S. Army in Europe. By 1981, when Blake arrived at EUD, change orders and contract modifications had elevated the costs and delayed the work. He gave the project his personal attention and brought the work back within budget. Construction continued in Nuremberg throughout the 1980s.[77]

The U.S. military hospital in Landstuhl dated from the 1950s, but it too needed renovation. The hospital's basic construction was sturdy enough, even though it had been built with a life expectancy of only fifteen years, but the design was outmoded. Built as an emergency-care field hospital to handle up to one thousand casualties at a time, it evolved into a full-care hospital for soldiers and their dependents. Additional facilities were haphazardly patched together, much like Nuremberg, rather than added according to any systematic plan. Late in the 1970s EUD began a comprehensive renovation of Landstuhl, starting with the dining hall. The work, undertaken in 1979, increased food service to eighteen hundred meals a day and incorporated tables and seating for wheelchair-bound patients.[78]

In 1980 a German project engineer from the Kaiserslautern Area Office, Hartwig Braun, took over management of the renovation in Landstuhl. Braun had worked on the construction of the hospital in 1952 in his first position with the U.S. Army engineers. He recalled the American insistence that the construction be temporary, so he found a certain irony in assuming responsibility almost thirty years later for managing a six-phase expansion and addition to the hospital to prepare it to serve future generations of U.S. military personnel.[79]

The original Landstuhl hospital had a long central hallway from which six wings extended at right angles on each side of the axis. Converting several patient wings at the center of the structure created a central core that included operating amphitheaters, obstetrics/gynecological facilities, and radiation laboratories. Contractors increased the electrical capacity and added an emergency generator. This work in 1983 opened the way to more extensive interior renovation through 1987. During all of this construction the Landstuhl hospital continued to provide medical services; by the end of the decade it resumed full operation as a medical center.[80]

Braun's involvement with the Landstuhl hospital in the 1950s and again in the 1980s illustrates the important role that German employees played in the Europe Division's work. Braun and scores of others provided continuity and stability, an intimate knowledge of German standards and methods of construction, and an understanding of U.S. specifications developed in years of experience in the field. They were particularly effective at the construction sites.

In the 1980s USAREUR programmed renovations for the 97th General Hospital in Frankfurt, the Army hospital in Würzburg, and the hospital in Bremerhaven. In Augsburg a new $22 million addition was completed in early 1989.

The 97th General Hospital in Frankfurt was built in 1938–39 for the German Luftwaffe. Since taking control of the hospital in July 1945, the U.S. military had kept it in constant use. Supplementary facilities and wings were added in the 1950s. Patchwork repairs kept the hospital running during the 1960s and 1970s, but by 1982 the overall deficit of standard maintenance that plagued military facilities in Europe brought the hospital to a crisis.[81] Water, heat, and sewage lines, clogged with mineral deposits from the local water, delivered only 20 percent of their intended capacity. Valves within the system were not locatable, inoperable, or nonexistent where they were needed. The entire roof needed repair, and 15 percent of it had to be replaced completely.

The hospital had a staff of over one thousand people and a daily average of more than two hundred overnight patients and nearly eight hundred outpatients; the needs of the U.S. military community dictated that staff work and patient treatment continue uninterrupted throughout the renovations. In addition, the Germans insisted that construction at Frankfurt General preserve the building's architectural integrity and interior features such as wall murals and marble work. Exterior renovation had to preserve historical and architectural features, including the marble work and tiling on porches.[82]

EUD planned the construction in six phases over seven years, but work continued for more than a decade. The construction program added a new wing for the hospital's intensive care and coronary care units. All utilities were replaced, including electrical wiring and plumbing. Interior rooms were stripped to the frame and then refurbished. Contractors restored doors that had original marble frames and replaced other doors and windows; thermal-pane windows helped control interior tempera-

Construction began in March 1987 on the addition to the Army hospital in Würzburg, Germany.

tures. The development of new medical equipment and procedures during the project led to redesign of some aspects of the construction. By mid-1988 work on the Frankfurt hospital had grown to a $58 million project, using Military Construction, Army (MCA), and Operations and Maintenance, Army (OMA), funds.[83]

Similar work on the hospital in Würzburg was conceived in 1984 as a renovation/repair project to modify the existing building. When the Army learned, however, that the old building could not meet the certification standards for the U.S. Joint Commission for Accreditation of Hospitals, plans changed to construction of a new six-story building that would be linked with the old one by a passageway. The EUD team reviewing the design found twelve hundred objectionable items in the original design and rejected it. Karl Schaffner, an engineer in the Würzburg Area Office chairing the team, was a native German who emigrated to Chicago in the 1950s and returned to work at EUD as an American citizen. Schaffner described the original design as "a total mess." It lacked standard elements of military hospital construction and detailed specifications concerning sterile installations and the purging of oxygen, nitrogen, and other gasses from the tube and pipe system. Designers overlooked the need for training to operate and maintain specialized equipment. The second submission was not much better. After the second rejection, the Europe Division commander, Brig. Gen. James W. Ray, personally called the president of the design firm to emphasize the division's dissatisfac-

Front Lobby of the Hospital in Bremerhaven, Germany, in September 1988

tion. Ray's intervention brought the desired results. After 4,820 comments, the division accepted the third design package.[84]

With a satisfactory design in hand, EUD let the construction contract for $49.4 million, the largest direct contract that the division awarded to that date. Construction began in March 1987. The contractor, a joint venture of Philipp Holzmann, Dyckerhoff-Widmann, and Wayss-Freytag, won an award under the value-engineering program for suggesting an alternate treatment of the surgical gas columns that saved almost $30,000 in the construction. In addition to the recognition, the joint venture received a cash return of more than $16,000 for the innovation. The contractor transferred the addition to the hospital administration in late September 1990.[85]

Contractors completed a comprehensive six-phase renovation at Bremerhaven hospital in 1989 at a cost of $22 million. Designers incorporated original stained glass windows depicting vintage German airplanes, battleships, blimps, and trains into the remodeled facility.[86] Construction plans to rearrange partitions in large rooms changed when the walls turned out not to be wood but rather peat moss that had been cut in bricks, dried, and then plastered over.[87]

Renovation of USAREUR hospitals in the 1980s was spurred by challenges to the facilities' accreditation. By 1984 the U.S. Joint Commission on Accreditation of Hospitals had revoked or denied accreditation to seven hospitals. In the hospital construction program, the command sought to correct the most blatant structural and mechanical defects and to provide

up-to-date medical services—modern emergency treatment centers and operating rooms, semiprivate patients' rooms to replace the open-bay wards, and support services that incorporated the most current technologies.[88] Despite the construction program, USAREUR reported in 1988 that "there are many Army installations in Europe that sorely need updated medical facilities if they are to adequately serve their communities."[89]

Community Support Projects

The Europe Division also supervised design and construction for facilities to provide food, clothing, and recreational outlets for American military personnel and their families. Commissaries and specialized facilities such as bakeries provided food; post exchanges for the Army and base exchanges for the Air Force offered clothing, necessities, and amenities such as appliances, tools, toys, and day-to-day supplies. The wide range of the construction projects included movie theaters; libraries with audiovisual centers; bookstores; officers' and enlisted personnel clubs; gymnasiums; bowling alleys; courts for tennis, racquetball, and basketball; physical fitness centers; swimming pools; rod and gun clubs; outdoor obstacle courses; playing and sports fields; and roller-skating rinks. In addition, EUD supervised construction of chapels to support the spiritual life of the community.

The money for these facilities came from a variety of sources, primarily nonappropriated funds generated as the profits from activities run

Community support facilities for U.S. troops, such as the NCO club in Göppingen, Germany, under construction in 1985, remained a consistent part of the division's workload.

Table 12

Europe Division Design Accomplishments
Fiscal Years 1980 and 1984

Program	Precent of Total Budget Fiscal Year 1980	Fiscal Year 1984
Military Construction, Army	61	41.7
Military Construction, Air Force	13	23.2
Modernization of U.S. Forces	2	0
Operation and Maintenance, Army, family housing, and other	3	*5.9
Nonappropriated funds	0	1.8

*Operation and Maintenance, Army, only.

by the Army and Air Force Exchange Service (AAFES), which paid a fee to the Armed Services, or from the profits of the *Stars and Stripes* bookstores. In certain circumstances community support facilities received funding from the MCA or the Military Construction, Air Force (MCAF, often referred to as MCP), budgets, and even occasionally from the OMA budget. The West German government also provided funds under the Alternate Construction program.[90]

The percentage of any annual budget that went to these community facilities remained small. In projections for fiscal year 1976, less than 0.5 percent of the dollar value of EUD design effort went into projects supported by nonappropriated funds. By contrast, EUD projected over 80 percent of the dollar value of its design effort to go for MCA, MCAF, and MOUSF. The Construction Division showed the same pattern in its projections for fiscal year 1976: 25.9 percent for MCA, 20.5 percent for MCAF, 42.6 percent for MOUSF, and only 2.7 percent for nonappropriated funds and OMA combined.[91]

The effort to supply communities with facilities that enhanced the quality of life for soldiers and their families increased dramatically in the mid-1980s, but even in fiscal year 1984—a high point for programs devoted to projects such as schools, commissaries, post exchanges, day care centers, clubs—neither in design nor construction did this part of EUD workload reach 9 percent.[92] The design work for fiscal years 1980 and 1984 indicate that even as the tempo of work for recreational or community support programs increased during the 1980s, the design work accomplished on these projects remained a small part of the division's overall budget, even if one assumes that some of the design work charged under MCA or MCAF went to such programs.[93] (*Table 12*) Between fiscal

years 1984 and 1987, work on projects involving nonappropriated funds increased from 1.8 percent to about 3.5 percent of the EUD workload.[94] Though still small in relation to EUD's overall commitment of funds, the money expended on upgrading facilities to serve soldiers and their families had enormous potential for improving morale.

Commissaries and Post Exchanges

In 1969 AAFES entered into an agreement with the Office of the Chief of Engineers (OCE) to have Corps districts provide supervision and inspection of AAFES construction. In August 1977 AAFES Europe and EUD signed a similar protocol. The first two projects under this arrangement were shopping centers in Ramstein and Vogelweh, scheduled for award in 1978. The two parties anticipated one or two shopping centers a year. Within the year, projects began for new or enlarged post and base exchanges in Mannheim, Karlsruhe, Spangdahlem, and Hahn.[95] Even before this agreement, EUD had been overseeing the construction of a modern post exchange at Perlacher Forest Caserne in Munich, financed by the West German government under the Alternate Construction program. Between 1976 and 1978 the Alternate Construction program funded $8 million of completed community service construction where EUD provided technical review of the design and the construction. The program included an addition and an automobile service station in Augsburg, a rod and gun club, and facilities in Wildflecken and Karlsruhe.[96]

In May 1976 EUD accepted the task of supervising a commissary project in Iran, completed in 1977–1978 at a cost of $5.6 million. This was part of a much larger project that included a theater, an administrative building, and an Army Post Office facility. Work continued until the political upheaval of the 1979 revolution in Iran.[97]

In Europe EUD continued to supervise work on commissaries and post exchanges. In 1979 AAFES requested designs for new facilities in Schweinfurt and preliminary planning for a $4 million exchange in Stuttgart and an $8 million consolidated bakery in Grünstadt. AAFES plans also called for two additional base exchanges near Kaiserslautern and commissaries in Erlangen, Hanau, and Kitzingen.[98] In 1985 Louis Berger International prepared designs for a new commissary and additions to the post exchange at Smith Barracks in Baumholder and for the modernization of the exchange facilities in Frankfurt and Babenhausen.[99]

In September 1985 EUD awarded a contract for the first completely new building to house a main post exchange store outside the United States. The contract went to Wilhelm Druecker for a facility in Heilbronn valued at over $3 million. The decision to build a new facility rather than renovate a building designed for other use represented a new policy in keeping with the Army's growing concern with the quality of life available to soldiers and their dependents.[100] The same policy led to the construction between November 1986 and February 1991 of ten commissaries and to the expansion and renovation of more than a score of others. In fis-

Construction of this exchange mall in Nuremberg, Germany, was completed in 1988.

cal years 1989 to 1991, EUD programmed twelve post exchanges that used technology such as the electronic scanner checkout system introduced at the commissary in Hanau in 1986. The new facilities generally replaced commissaries housed in much older buildings: The Hanau commissary had operated from a building constructed in 1938 as a training area for horses, and the commissary in Würzburg's Leighton Barracks had operated from an aircraft hangar built in 1936. New construction afforded more modern and energy-efficient refrigeration, heating, and cooling systems, leading to economies in operation and maintenance. The added facilities also increased the space for shopping; the new commissary in Garlstedt provided an air-conditioned sales area six times the size of the previous commissary, itself hardly a decade old. To accommodate increased traffic, parking areas were resurfaced and furnished with designated spaces for disabled drivers.[101]

Sports and Recreational Facilities

Recreational facilities offered another avenue to enhance the quality of life for soldiers of the modern volunteer Army. Living standards for U.S. soldiers had seriously declined because of the erosion in the early 1970s of the value of the dollar in comparison with the Deutschmark. As a result, soldiers found the cost of living mounting each year and outstripping their pay. Because they could not afford to leave the military community to seek recreation and entertainment, on-post facilities became increas-

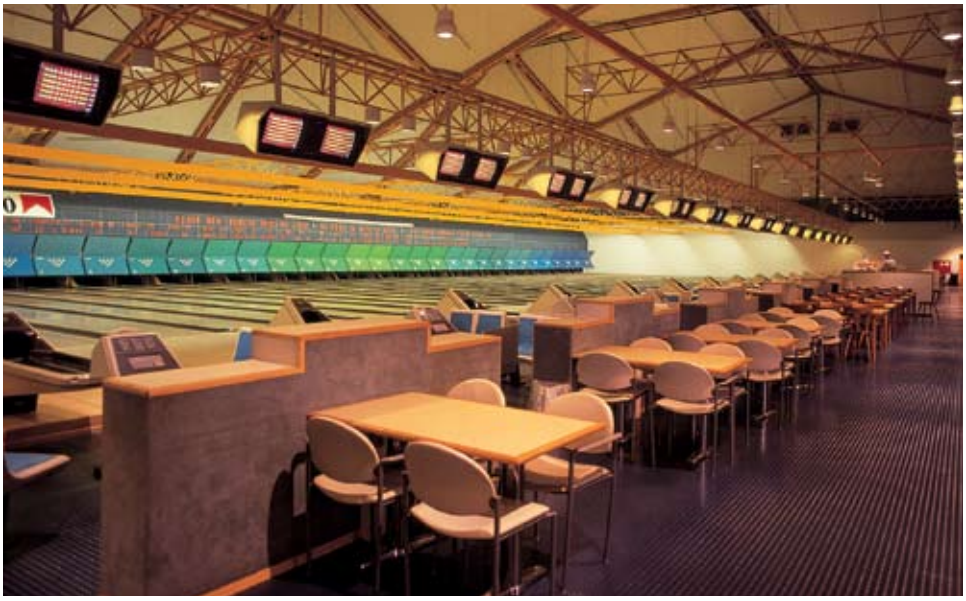
ingly important. When troops found gymnasiums, theaters, and clubs run down and overcrowded—where they existed at all—morale suffered.[102]

In fiscal year 1974 the Office of the Chief of Engineers in Washington launched a major effort to replace standard drawings used since the 1960s for outdoor sports facilities. The Corps issued sixteen new standard drawings containing layouts and construction details for twenty-one different sports fields and courts. As the drawings were distributed, EUD began preparing a technical manual on outdoor sports facilities.[103]

Gymnasium projects had long been a part of engineer activity in Europe; almost forty gymnasiums were erected in the 1950s.[104] In the 1960s and early 1970s the Engineer Command erected gymnasiums too, but these were under inflatable bubbles with an asphalt base covered with rubberized flooring. The construction had not always gone well. After a windstorm blew away the $10,000 inflatable cover being installed over the gymnasium at a Frankfurt school in 1972, ENGCOM's commander, Brig. Gen. Carroll LeTellier, learned that the troops installing the structure had failed to tighten the bolts on the anchor lines attached to the concrete. LeTellier lamented, "A 15-minute job left undone will now cost us about a week's construction time."[105]

EUD built gymnasiums throughout the 1970s and early 1980s, including one at the Sigonella Naval Air Base in Italy, but for the most part athletic facilities were patched and expanded haphazardly on a year-by-year basis.[106] Funding was uncertain. In December 1981 Congress deleted funds for gyms from the construction program, thereby disrupting the

Gymnasiums, like this one in Stuttgart, Germany, helped to improve morale of U.S. troops stationed overseas.



The Frankfurt Area Office managed the construction of this modern bowling facility in Hanau, Germany.

EUD schedule for awarding contracts in the subsequent months.[107] In 1982 gymnasiums figured in the plans for five sites in Turkey, and a separate contract was let in June 1983 for an addition and renovations to the gymnasium at the Ankara Air Station.[108]

In the mid-1980s USAREUR began to use money more systematically under programs aimed to enhance morale, welfare, and recreation. Bowling alleys gained renewed support. Between 1983 and 1988 the Frankfurt Area Office supervised construction of 100 bowling lanes at five locations. The bowling facility at Wolfgang Caserne in Hanau included automatic pin-setting equipment and automated scoring monitors manufactured by the AMF Company. It also featured a roof design that allowed an unsupported span of 165 feet under a dome 44 feet high, placing the facility "at the very forefront of the state of the engineering arts." Similar facilities went up in Bamberg, Baumholder, Dexheim, Kitzingen, Schweinfurt, and Vilseck between 1988 and 1990, incorporating equipment for automated pin-setting and electronic scoring.[109]

Racquetball courts became a major part of the sports and recreation program in the 1980s with the introduction of a project to build thirty-three courts throughout Europe, including Turkey. EUD wrestled with many frustrations managing the construction of these courts. USAREUR had ordered a large shipment of prefabricated racquetball court equipment from the United States and stored it at various places around Europe. Given the task of gathering the materials and erecting the courts,

EUD recovered mostly broken and weather-damaged pieces and discovered that much of the material was lost.[110]

Recreation centers became more prominent in the division's construction program as the military recognized the contribution of fitness activities to morale. In December 1985 EUD turned over to the 1st Infantry Division (Forward) at Göppingen a multipurpose recreation facility that included an outdoor recreation center, a bowling alley, a game room with video games, a sports shop, a rod and gun facility, locker rooms, and a snack bar and bar area. The outdoor recreation center rented skis and boots, bicycles, and tents and other camping gear. A few months later the U.S. Air Force took over a new physical training center in Incirlik, Turkey. At a cost of $1.1 million, the facility provided 13,749 square feet of space for basketball, exercise rooms and equipment, separate saunas and locker facilities for men and women, and administrative space.[111]

A similar multipurpose recreation center at the Carl Schurz Caserne in Bremerhaven reopened in late 1988 after extensive renovation of a pre–World War II aircraft hangar. The contractors replaced all electrical, heating, and plumbing systems; remodeled stage and seating space in the theater; repartitioned the interior space; replaced metal siding with masonry; changed all windows and doors to energy-efficient products; remodeled the bowling alleys and gymnasium facilities; and created entrance vestibules. When completed, the center also featured a snack bar, a food shop, arts and crafts shops, a travel agency, a billiards hall, and a music studio.[112]

Chapels

Just as the Army's far-reaching effort to improve the community life at military bases in Europe sought to provide modern shopping facilities and leisure-time activities, it also encompassed chapels for religious worship. Building and renovating chapels had been a part of the engineer responsibility in Europe since the 1940s. In the early 1950s the Army engineers built or renovated about 250 chapels for the military communities in Germany. These chapels were based on standard designs drawn up by Army engineers at European Command (later USAREUR) headquarters. In 1973–1974 OCE issued a new set of standard designs for chapels. Planned for a capacity of 200–300 persons, the design was simple, flexible, and appropriate for multidenominational use.[113]

In the 1970s EUD built chapels that served as centers for social services as well as religious observances. The chapel at Katterbach Caserne near Ansbach, for instance, housed the child care center until EUD built a new child care facility in the community.[114] In 1983 the Würzburg Area Office completed work on a chapel for Wildflecken; this chapel also had classrooms.[115]

EUD's services included interior design and planning for use of space in the chapel. In the early 1980s Sherry Sizemore served as an inte-

In the 1980s the division abandoned stock designs and built more custom chapels, like this one completed in 1987 in Cakmakli, Turkey.

rior designer on a new chapel at the Army base in Cakmakli, Turkey. Her responsibility was "to select all the material, from the stained glass windows to light fixtures and the designing of furnishings." The task required special creativity because the Turkish government insisted that all furnishings and decorative items be purchased in Turkey. In 1987 the Southern European Task Force's design office received a design award for this project; contractors completed the chapel the following year.[116] In that same year the division also finished a chapel for the Air Force community at Hahn Air Base. A larger facility than the chapel in Cakmakli, it used construction materials such as slate shingling on the roof, an oak ceiling, oak cabinetry, and marble floors.[117]

Chapels, recreational facilities, and shopping centers all figured as part of efforts intensified in the 1980s and extended into the 1990s to provide U.S. military personnel in Europe with a satisfying community environment. With increased funding in the first half of the decade, the military commanders had the resources to improve and expand facilities that supported the morale, recreational needs, and welfare of the soldiers and airmen to a degree beyond anything achieved in earlier years. Still, the expenditures for such amenities never amounted to more than 5 percent of the annual budget for military construction programs in Europe.

The momentum from funding for community improvements sustained EUD's construction activities into the late 1980s. Many of the divi-

sion personnel expected the intense pace of construction to continue into the next decade. Budget pressures in the United States, already evident in the mid-1980s, worked against that. A totally unanticipated geopolitical revolution at the end of the decade completely changed the division's future.