A Status Report to Congress on

The Renovation of the Pentagon

Prepared by
The Office of the Secretary of Defense

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Annual Status Report to Congress
March 1, 2000

10th Edition

This report is provided to the Congress in compliance with Title 10 United States Code, Section 2674. This requires the Secretary of Defense to submit an annual report on the status of the renovation of the Pentagon Reservation, and a plan for the renovation work to be conducted in the fiscal year beginning in the year in which the report is transmitted.

This is the tenth annual report submitted in compliance with 10 USC 2674. The report covers accomplishments to date and actions proposed for FY 2000. In addition, information is included on several related projects which support the overall objectives of operations and maintenance of the Pentagon Reservation.

MESSAGE FROM THE PROGRAM MANAGER

This is a landmark year for the Pentagon Renovation Program. Ten years ago, during the infancy of the Pentagon Renovation planning, the demise of the Soviet Union had not occurred nor the terrorist bombing of United States government facilities, both stateside and abroad. Also, the rapid expansion of information technology, which occurred during the 1990's was just on the horizon. These fact-of-life events, coupled with lessons learned during the execution of this formidable endeavor, have precipitated changes in the program.

Over the past year, internal program reviews, which utilized knowledge gained during performance of work in Basement/Mezzanine Segment 1 and Wedge 1, clearly demonstrated that dramatic changes needed to be made to comply with Congressionally capped cost limits and keep overall program costs to a minimum. Simply stated, if the program were to continue on its previous course, we were likely to exceed the cost parameters established by Congress - we needed to take strong measures. Briefings were provided late in the fiscal year to the Deputy Secretary of Defense who provided strong guidance to make the modifications necessary to achieve the budgetary goals for the program. Thus, very aggressive cost reduction initiatives are being implemented.

The restructured program will be more modest than we had hoped but it will achieve the major renovation and repair goals promised to Congress at the outset of the program. Unfortunately, it will not achieve some of the other work and goals that have previously been reported. For example, while the restructured program will remove all hazardous materials from the building, provide a new utilities infrastructure and flexible modern office space, it will not support continued work in the remaining basement segments other than demolition and abatement. The Renovation Program's ability to perform work related to repairs of the exterior light well concrete walls and to install the automated energy management and control systems as previously planned is at serious risk.

Key to minimizing the overall Renovation Program cost is focusing on core renovation and renovation related tasks. Projects such as repair and construction of external bridges and utility systems on the reservation and major realignment of tenant organizations within the Pentagon, while making good business sense and having worthy outcomes, are not directly tied to the renovation of the Pentagon and thus, cannot be accomplished through the Renovation Program under the current fiscal reality.

As part of our strategy to achieve our cost and quality goals, we are developing an innovative design/build incentivized contract for the remaining renovation work. If this contracting approach is successful, we will be able to reduce the renovation workforce significantly, dramatically reducing program operating costs. This will result in a phased drawdown of renovation workforce by approximately two-thirds over a four-year period.

Message from the Program Manager

Walker Lee Evey, Pentagon Renovation Program Manager

It is anticipated that this downsizing can be accomplished without a reduction-in-force, proceeding instead with an orderly transition of personnel back to the parent organizations from which they were originally drawn.

In summary, with the changes we are implementing, I believe that we can complete the Pentagon renovation and remain within the spending limits imposed by law. To do this, the Pentagon Renovation Program has developed a "Back-to-Basics" approach designed to achieve the basic elements of renovation that were promised to Congress. In order to control program costs, the revised program will not achieve other elements of renovation, which while certainly desirable from a life-cycle cost perspective are simply not affordable under current fiscal realities while absorbing inflation over the next 10 years. Nevertheless, there remains the opportunity to dramatically improve building operations and efficiency, to improve the quality of life for building tenants, and to provide the taxpayer with significant value for the monies we expend. No one should be under the illusion that accomplishing this program within the spending limits will be a trivial exercise - the management challenges alone are monumental. However, our goals remain the same: tenants will occupy a building that meets all applicable building codes, is free of hazardous material, has modern and flexible office space, is compliant with the Americans with Disabilities Act, is significantly more secure, contains a state-of-the-art information and telecommunications system, and has room for future expansion.

With the wholehearted support of everyone involved in this program, I am confident that we will be successful in completing the renovation *"On Cost, On Schedule, and Built for the Next Fifty Years."*

Walker Lee Evey

EXECUTIVE SUMMARY

As required by Section 2674 of Title 10, United States Code, the attached status report to the Congress on the renovation of the Pentagon is presented annually. This is the tenth report. This Report is a synopsis of where we are in the overall program, the work that has been completed during the past fiscal year and the work that is anticipated to be completed during the next fiscal year. In addition, this Report reviews the design and construction costs to date within the framework of the overall certified summary. The report reviews four categories as follows:

I. PROGRAM OVERVIEW

Since its completion in 1943, the Pentagon has been the headquarters for the U.S. Department of Defense (then known as the War Department), including the Army, Navy, and Air Force, all under a single roof.

During the course of the past 57 years, with the rapid advance of technology and military science, these organizations have undergone vast changes. The Pentagon itself has not. Since 1943, the building has never undergone a major renovation and, as a result, it is unable to meet the daily demands placed on it by its current tenants. All of the building's major utility systems need to be replaced, a process which is complicated by the presence of asbestos and other hazardous materials, and the need to work around fully occupied space - 25,000 people who cannot afford interruption in their daily operations.

In addition to renovation activities, an impetus has been placed on the need for security improvements as a direct result of the ever growing threat of terrorism. The Renovation Program has been tasked with ancillary projects outside of its original scope of work, such as the Remote Delivery Facility and the Metro Entrance Facility. This requires us to distinguish between renovation projects,that fall within the $1.222 billion budget limitation set by Congress, and "non-Renovation" projects which fall outside the defined scope of the Congressional limitation.

As the Program shifts in focus, so does its schedule. Changes to the schedule are made routinely as each individual project brings new challenges and the Program invents new ways to overcome them.

Recent changes to the budget and schedule have led the Program to adopt a "Back-to-Basics" approach that will allow us to complete renovation activities *"On Cost, On Schedule, and Built for the Next 50 Years."*

All of the Renovation Program's projects follow a similar renovation sequence:

- The move-out of the tenants in the area to be renovated to swing space areas in and around the Pentagon is the first phase of the renovation sequence.
- Temporary mechanical, electrical, plumbing, and communications installation (TempMEP/Comm). This phase also includes the construction of barrier walls to separate tenants from construction activity.
- Demolition and abatement of subcomponents of the existing structure, utilities, and all hazardous materials (Demo & Abate).
- The core and shell build-out of common elements such as the infrastructure and mechanical, electrical and plumbing systems.
- Tenant fit-out involves building the space to meet the intended tenants' requirements.
- Information telecommunications (IT) installation.
- Furniture, fixtures, and equipment (FF&E) installation.
- The Security process is included throughout construction and its accreditation is essential to acceptance of the completed space.
- The Commissioning process helps to define tenant requirements and ensure that they are met.
- The move-in of tenants to renovated office space in the Pentagon.

Beginning in FY 2000, both commissioning and acquisition and installation of post renovation furniture is to be programmed and budgeted as a non-renovation expense, within the Facilities Operations Program as reflected in the Congressional Budget Justification package.

II. PROJECT PROGRESS

Each project under construction in 1999 is broken down into the renovation sequence decribed in the Program Overview section. The left column of each page in the Projects in Progress section provides a thumbnail "snapshot" that will immediately update you on the current status of each of the Renovation's projects. Significant progress has been made in Phases 2 and 3 of the Renovation Program's 7-phase plan. The Basement Segment 1 areas, including the DiLorenzo TRICARE Clinic are nearing completion. Segments 2 and 3 of the basement and mezzanine areas will not be renovated past demolition and abatement under the new "Back-to-Basics" approach. Progress in Wedge 1 has made significant strides and is now in the tenant fit-out stage. The first South Terrace Bridge and the Loading Dock are complete and the second bridge is now under construction. Wedges 2 through 5 are in the planning phases. The Remote Delivery Facility (RDF) and the Metro Entrance Facility (MEF) are ancillary projects implemented to increase security. Construction on the RDF is progressing as scheduled with the first part of the move-in phase to occur in Fall 2000. The MEF is in the planning phase with the contract award anticipated by late July 2000.

III. PROCESS IMPROVEMENTS

The Renovation Program is constantly evolving, developing new and better ways of doing business. This section highlights our efforts in the areas of security, acquisition, construction, commissioning, the move process and the implementation of flexible systems furniture, and program management. Security improvements include the installation of blast-resistant windows in Wedge 1 and the construction of the RDF and MEF. The Renovation Program's acquistion process reflects the way the construction industry does business and is building the Renovation's reputation as an innovative program. This is complemented by the structure of Integrated Product Teams which stretch across every aspect of the renovation.

IV. APPENDIX

The appendices include a glossary of terms used throughout this report for easy reference and additional background information about the history of the Pentagon Renovation Program and the need for renovation. A description of projects completed prior to the scope of this report can also be found here. As required by the Fiscal Year 2000 Authorization Bill, Section 2881, a description of the use of the Navy Annex property is included here as well.

The Renovation Program has been repeatedly recognized in the past year for the importance of its work and innovative practices. The appendices include a sample of the media recognition the program has received, including articles in *USA Today* and *Engineering News Record.* Finally, important contact information is provided for those interested in learning more about the Pentagon Renovation Program and how to obtain a tour of Renovation projects.

ON COST, ON SCHEDULE, BUILT FOR THE NEXT 50 YEARS

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An aerial photo of the Pentagon Reservation taken in November 1999.

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PROGRAM BACKGROUND

THE NEED

The Pentagon, designated a National Historic Landmark in 1992, has never undergone a major renovation, and, after more than 57 years, renovation is essential in order to meet current health, fire and life safety codes, and provide reliable electrical, air conditioning and ventilating services. Absent a major renovation, the building infrastructure will become increasingly unreliable and unable to support the headquarters and nerve center of the national military establishment. Major building engineering systems have deteriorated to such an extent that repairs are no longer effective and entire systems need replacement. The presence of asbestos in the ceiling plaster, heating and ventilating ducts, pipes, and floor coverings is a hazard that makes repairs or alterations extremely disruptive and expensive.

From 1982 through 1990, the Department of Defense discussed with the General Services Administration (then owner of the building) renovation of the Pentagon and, in the mid 1980's, GSA supported the concept of transferring ownership of the building to the DoD in order to proceed with the much needed renovation.

View of the Pentagon under construction in 1942. The 29-acre structure has never undergone a major renovation.

Secretary of Defense, William Cohen (left) during a ceremony on the River Terrace Parade Field. Ownership of the Pentagon was transferred from the General Services Administration to the Secretary of Defense in 1991.

THE TRANSFER

Based on consultation within the Administration and with Congressional committees, legislation was prepared to transfer ownership of the Pentagon from the Administrator of General Services to the Secretary of Defense so that the renovation of the Pentagon could be undertaken.

The Defense Authorization Act of FY 1991 transferred control of the Pentagon Reservation from the Administrator of General Services to the Secretary of Defense. Under the same Act, Congress established the Pentagon Reservation Maintenance Revolving Fund for the expressed intent of renovating the Pentagon. This Act allows the Secretary of Defense to establish rent rates which will support the renovation.

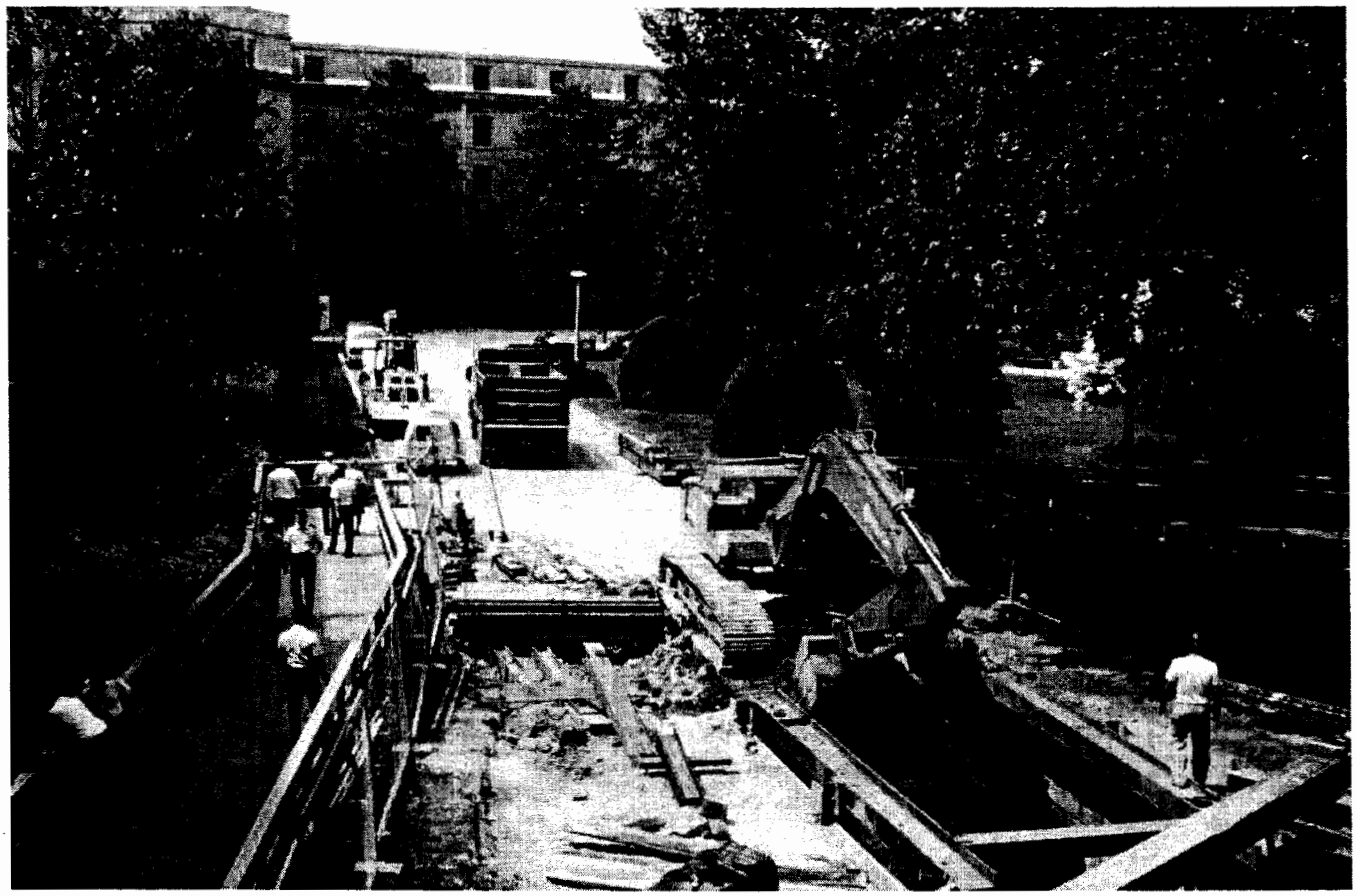
THE PROGRAM

In 1990, a Concept Plan for the Pentagon Renovation was approved based on renovating the building in five 1,000,000-gross-square-foot "wedges" with renovation of the basement as a separate endeavor. The plan envisioned the complete removal of all engineering systems (mechanical, electrical, plumbing) down to the base structure and construction of all new systems. This full-scale removal is dictated by the wide-spread presence of asbestos throughout the building. Replacement of the electrical, mechanical, and plumbing systems is based on the high probability of catastrophic failure.

The Renovation Program will provide all new engineering systems, sprinkler systems, vertical transportation, cable management systems, flexible ceiling, lighting, improvements in fire and life safety systems, and partition systems. The Renovation will also provide accessibility throughout for persons with disabilities. It will preserve historic elements, upgrade food service facilities, construct co-located operation centers, install modern telecommunications support features, comply with energy conservation and environmental requirements, reorganize materials handling, and provide safety improvements in vehicular and pedestrian traffic.

The renovation concept for the Pentagon includes, as a first phase, a new Heating and Refrigeration Plant (H&RP), which has been completed and is operational. In conjunction with the construction of the H&RP, a Center Courtyard Utilities Tunnel was con-

The Pentagon's five-acre Center Courtyard was excavated to clear the way for a new utility distribution system. The new system is now in place and the old antiquated system will be removed as each wedge is renovated.



structed. The tunnel houses mechanical, electrical, and plumbing lines which will distribute building utilities provided by the new plant.

The second phase of the Program is the renovation of the Basement and Mezzanine, which started in September, 1994. The third through seventh phases of the Program are the five wedges of the building from the first floor to the fifth floor. These areas have been determined to be the optimum divisions for renovation while continuing the operation of major utility systems. In order to vacate each wedge prior to renovation, tenants will be moved either to nearby leased office space or to swing space identified within the Pentagon.

In addition to the seven project phases, the Program is working on several ancillary projects, such as the Remote Delivery Facility, the Metro Entrance Facility, and the Heliport Fire Station and the Heliport Control Tower. The Renovation Program's organizational team structure, its in-house expertise and its ability to employ innovative procurement practices, allow it to take on related projects on the Reservation when required.

Aerial view of Wedge 1. Renovation activities have moved into full view of Pentagon personnel and the public.

STATUS

Fiscal Year 1999 was an exciting year for the Pentagon Renovation Program. Although a lot of work has been accomplished in prior years, much of it was preparatory. Previous projects concentrated on renovating office space for relocating people, developing the central utility infrastructure, and work in the basement, which, although substantial in terms of area, is hidden to most Pentagon tenants. This year saw the beginning of renovation work on the above-ground portion of the Pentagon and greatly increased the visibility and impacts of the project.

PROGRAM CHALLENGES

A complete renovation of the Pentagon is necessary to provide a modern, flexible, and efficient work environment that will endure well into the 21st century. Without a major renovation, the building will continue to deteriorate, ultimately rendering it unable to serve its mission.

A brief summary of each of the specific challenges facing the renovation team is presented below.

To better understand the challenges the renovation team faces, it is important to understand the unique features of the Pentagon itself. Unlike most large office buildings, the Pentagon is the command and control center for our nation's military establishment and headquarters to the senior leadership, including the Secretary of Defense, the Chairman of the Joint Chiefs of Staff and the heads of each of the armed services. It is from within the Pentagon walls that the Department of Defense monitors and deploys forces around the world. Yet, it is within these same walls that renovation activities, often involving heavy construction, must take place.

In terms of size, the Pentagon looks and operates much like a small city: it has its own heating and refrigeration plant, water and sewage facilities, police force, fire station, heliport, child care center, cafeterias, mini-mall, Metro station, and medical clinic. The building itself covers 34 acres and, overall, the Pentagon Reservation includes parking for 10,000 vehicles. In terms of population, the Pentagon's 25,000 employees make it larger than nine out of ten towns in the U.S. The large number of Pentagon personnel, the complexity and the critical nature of their missions, and the sheer magnitude of the building combine to create challenges that can be found in no other renovation project in the world.

Aerial view of the Pentagon's South Terrace as it appeared in February 2000. The Pentagon is often compared to a small city. It is home to 25,000 personnel and has its own medical facilities, post office, mini-mall, Metro station, heliport and fire station, heating and refrigeration plant, sewage treatment facility and parking for 10,000 vehicles.

CHALLENGE: RELOCATE 25,000 PEOPLE DURING THE COURSE OF RENOVATION

It was determined early in the planning process that the most efficient way to renovate the Pentagon was to vacate one fifth of the building (one wedge) at a time and then move ahead with demolition, abatement, core and shell, and tenant fit-out. Pentagon personnel would then be moved from the adjacent wedge into the renovated wedge, clearing the way for the renovation of the next wedge.

Relocating 5,000 employees from Wedge 1 posed significant challenges to the renovation team. To accomplish the task, three office buildings were leased within a three-mile radius of the Pentagon. Over a three-year period, 45 floors of building space were renovated to accommodate the mission-specific needs and security requirements of Pentagon personnel. In addition, new telecommunication lines were established to ensure employees in swing space maintain full and secured connectivity with the Pentagon.

Additional swing space was created in and around the Pentagon to minimize costs associated with leasing external office space. In all, swing space encompasses nearly one million square feet, the equivalent of the space in Wedge 1.

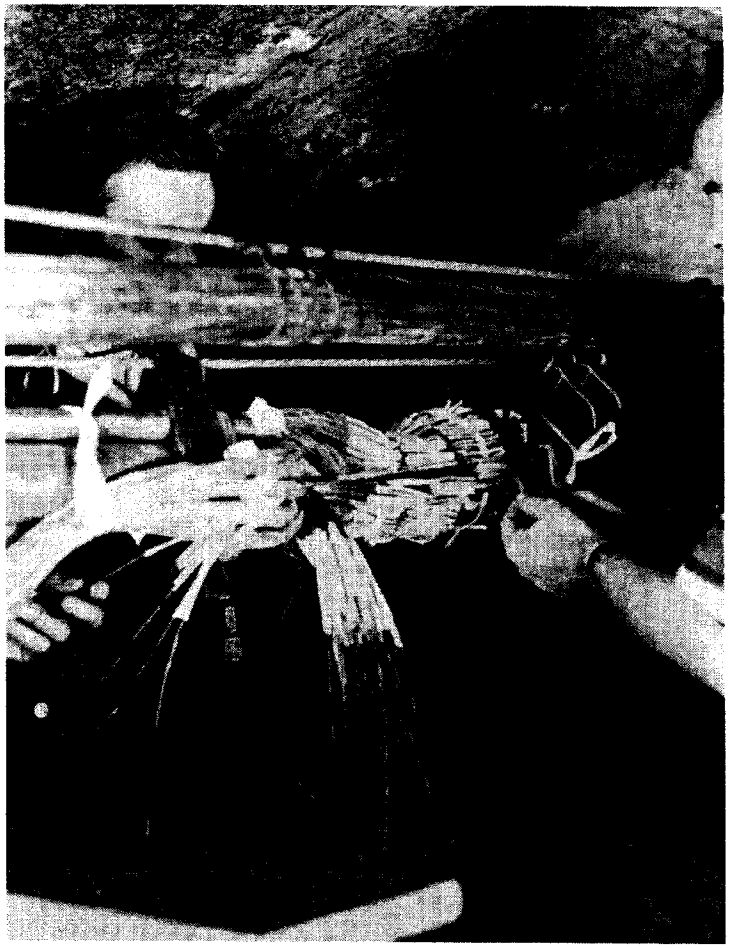
During the course of renovation, all 25,000 employees in the Pentagon, including the Secretary of Defense, will be relocated into new office space in the building.

25,000 military and civilian employees enter the Pentagon's doors each day. All personnel will be relocated to renovated space at some time during the renovation program.

CHALLENGE: KEEP THE PENTAGON OPERATIONAL AT ALL TIMES

By far, the most difficult challenge for the renovation team is to work around the nearly 20,000 Pentagon employees who must continue to execute critical Department of Defense missions uninterrupted.

However, the existing building utility systems are already unreliable. Before the renovation program began, none of the original major building systems had ever been replaced, nor have any been significantly upgraded. Records and documentation are incomplete, at best, and changes made during the last 57 years are seldom reflected on current building plans. Further, with the advent of computers and modern technology, the changing office environment has outstripped the capacity of deteriorated building systems. Electrical, plumbing, and heating, ventilation, and air conditioning systems need to be replaced and modernized to accommodate added loads to be more efficient and flexible. The information systems that were installed in the Pentagon are plagued with abandoned cabling and an unverifiable communications backbone for the building.



Technicians install original telephone wiring in the Pentagon. Much of it still exists as new systems were laid on top of old. Seldom are changes reflected on existing building drawings.

To meet the challenge of maintaining operations during the wedge-by-wedge renovation process, the renovation team first identifies every utility and communication line that needs to be rerouted around the wedge being renovated. This painstaking process is critical to ensure that no utility pathway or communication line is severed while it is still active. Without exception, new temporary and/or permanent utility and information systems are installed before old systems are removed. This requires that new pathways be established, which, in turn, requires the abatement of asbestos and other hazardous materials along the new pathways.

Keeping the Pentagon operational at all times also means minimizing disruption to personnel. This is particularly challenging because much of the renovation requires demolition and heavy construction activities that generate a significant amount of noise. Whenever and wherever possible, the renovation team works with senior officials and the tenants adjacent to construction activities to determine the most appropriate schedule for noise-generating activities. Notices are disseminated to provide tenants the schedule of upcoming activities and, in some cases, work is scheduled at night or on weekends when fewer personnel are in the Pentagon.

CHALLENGE: COORDINATE WITH ALL STAKE HOLDERS

Renovation activities impact a variety of offices and agencies, both inside and outside the Pentagon. Partnering with all the stakeholders is critical to the success of the program in terms of meeting budget and schedule requirements and, most importantly, the needs of the Pentagon tenants. To ensure that all key parties are involved in the renovation process, from early planning through construction, an Integrated Product Team (IPT) structure has been established.

The goal of an IPT is to bring together, at the earliest stage of the renovation process, representatives from all the offices or agencies that will be involved in a specific project. In addition to employees from the Renovation Program and contractors, an IPT includes representatives from the Pentagon Building Management Office (responsible for maintenance), the Defense Protective Service (responsible for physical security), and the tenant groups impacted by the specific renovation activity. Depending on the project, an IPT may also include members of local, state and county governments, area historical planning boards and commissions, and departments of public works and/or transportation.

Obtaining input from all stakeholders ensures that requirements and issues of concern are addressed early in the planning and design phases, where changes cost far less than during construction. Minimizing changes during construction is critical to keeping a project on budget and on schedule.

Through regularly scheduled IPT meetings, all parties are kept informed of project progress, potential risks, issues and changes, which effectively ensures customer satisfaction when a facility is turned over to the tenant.

Coordination meetings with all the stakeholders are critical to ensuring satisfied customers when a project is complete.

CHALLENGE: IMPROVE THE ENERGY EFFICIENCY OF THE BUILDING

The Pentagon was the first of 500,000 Department of Defense facilities to be designated as an "Energy-Efficient/Environmentally Sensitive Department of Defense Showcase Facility" - an initiative to improve both the energy efficiency and environmental performance of the Pentagon Reservation.

This initiative is particularly challenging in light of the Pentagon's National Historic Landmark status, which places certain restrictions on the extent of modifications that can be made to the building. Despite this, the Pentagon Renovation team has identified several opportunities to increase energy efficiency and reduce waste during the renovation. Selected recommendations made during the Energy Efficient, Environmentally Sensitive DoD Showcase Facility Session held in the first quarter of FY 1995 are being implemented. The renovation of the Pentagon includes improving energy efficiency through:

- Double-pane windows
- Economizer cycles for heating, ventilating and air conditioning equipment
- Energy efficient mechanical and electrical equipment
- Reduced overall lighting load and increased use of task lighting
- Automated energy management system
- Increased use of thermal insulation

In addition, the Pentagon Reservation will continue to comply with environmental regulations by testing soils and ground water for contamination, and by using appropriate soil erosion and sediment control. The Pentagon is now in compliance with the Clean Air Act after reducing emissions from the Heating & Refrigeration Plant and the Classified Waste Incinerator Plant. Both projects were completed during earlier phases of the renovation.

All 7,748 Pentagon windows need replacement. New double-paned thermal insulated units will greatly improve the energy efficiency of the building and enhance security.

Significant improvements to the working environment include replacement and upgrade of mechanical, electrical, plumbing, and all building support systems to modern standards. Interior spaces are being reconfigured to include vertical transportation systems. New space will be added, both through the conversion of ramp and corridor space to office and support space, and through the expansion of the Mezzanine areas.

In summary, the renovated Pentagon will benefit from improved indoor air quality, the new, highly efficient Heating & Refrigeration Plant, automated energy systems management, energy-efficient lighting, and an improved thermal building envelope. The renovation also will facilitate the reconfiguration of space to provide modern and flexible office space, readily adaptable to accommodate future organizational changes as well as technological advances in office equipment and work-space environments.

CHALLENGE: MAINTAIN AND IMPROVE ACCESSIBILITY FOR PEDESTRIANS AND PERSONS WITH DISABILITIES

Presently, the Pentagon fails to meet codes established by the Americans with Disabilities Act (ADA). Several initiatives within the renovation program will greatly improve accessibility and vertical mobility in and around the Pentagon for all personnel.

Along the South Terrace, pedestrians and persons with disabilities no longer need to cross three lanes of traffic to enter the Pentagon from South Parking. Two bridges will divert pedestrians over traffic, thereby improving safety and decreasing traffic congestion during the morning and evening rush hours. Two elevators in each bridge will provide access for persons with disabilities. The first bridge is now complete and provides access to the Corridor 2 lobby.

Along the River Terrace, wheelchair ramps were added providing wheelchair access to the River Terrace Parade Field from the upper River Terrace parking area. The new ramps marked the first time in 55 years that limestone was added to the Pentagon. To accommodate access to the River Terrace Entrance, a fully concealed handicap access lift was installed, which, at the turn of a key, raises a wheelchair-bound person to the entrance level from the lower parking level. Historical interest groups maintained that a ramp alongside the River Terrace façade would have altered the historical features of the façade. A similar lift was installed in the newly built health clinic.

Internal circulation will be enhanced by the installation of escalators and 40 personnel elevators. Today, persons with disabilities must use any of 12 original freight elevators, whose doors close vertically from the floor and ceiling. More than 40 head injuries have been reported during the last three years by building occcupants attempting to use the elevators. Because they must use freight elevators, persons with disabilities often ride alongside garbage dumpsters and electric freight vehicles, often resulting in collisions with motorized carts. New freight-only elevators will minimize vehicle/pedestrian conflicts.

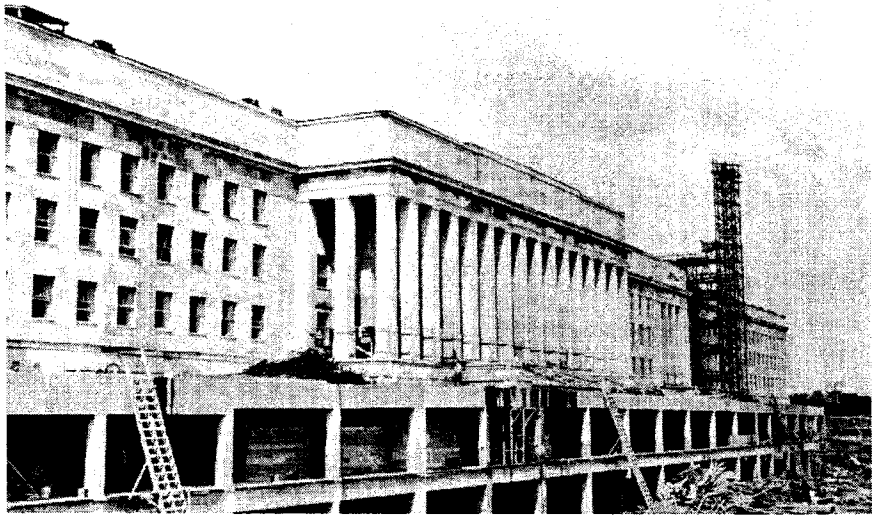
As each wedge is renovated, new restrooms will meet current ADA requirements, eliminating the need for persons with disabilities to travel long distances to access an ADA-compliant restroom. Internal workspace areas will also be more accessible as space is converted to an "open bay" environment with fewer ceiling to floor partitions and improved access to individual office stations.

Representatives from the Pentagon Renovation Program, Pentagon Building Management Office and the DoD Disability Manager's Office toured the Pentagon in March 1999 to examine existing hazards in the Pentagon for persons with disabilities.

CHALLENGE: PRESERVE HISTORICAL FEATURES

The Pentagon was declared a National Historic Landmark in 1992. This status places significant restrictions on external renovation activities and presents several challenges to the renovation team. The renovation team regularly coordinates and obtains approval from a variety of planning and historical review agencies, including the National Capital Planning Commission, the Fine Arts Commission, the Virginia Department of Historic Resources and the Advisory Council.

A new wheelchair ramp for persons with disabilities marked the first time in 55 years that limestone had been added to the Pentagon. The new stone was obtained from the Indiana quarry where the original limestone was cut for the Pentagon to match the color and texture of the River Terrace facade. Another ramp lies on the opposite side of the parade field.



Pentagon construction in 1942. As evidenced by the photo on the opposite page, the outer facades have changed little since the structure was completed in 1943. The Pentagon was declared a National Historic Landmark in 1992.

There are five historic elements of the Pentagon that are cited for special attention:

1. The five outer facades of the Pentagon.
2. The Center Courtyard and surrounding facades.
3. The terrace fronting the Mall Entrance.
4. The terrace fronting the River Entrance.
5. The Pentagon's distinctive five-sided shape.

Within budget constraints, renovations to or along the outer facades of the Pentagon must replicate existing conditions. Where allowances are made for changes, such as the two wheelchair access ramps on the River Terrace or pedestrian access bridges along the South Terrace, project teams paid special attention to architectural details so that all new additions match the style, color and ornamentation of existing Pentagon features. For example, to ensure a close color match with new limestone used on both the access ramps and new bridges, the renovation team purchased the needed limestone from the Indiana quarry where the original limestone was obtained for the Pentagon in 1942.

In Wedge 1, every window along the inner façade (A Ring) and outer façade (E Ring) will be replaced with new blast-resistant units, which match the historical details of the existing windows, including the location of the handles, even though the new units will be secured in a closed position to optimize the new HVAC system and to aid the improved safety system.

Throughout the program, the renovation team will continue to preserve and maintain the historical integrity of the original Pentagon design while ensuring that the "new" Pentagon will endure well into the 21st century.

PROGRAM SCHEDULE

Since last year's report, the completion date of the Program reflects a time growth of about two years. This growth is a result of the knowledge gained from work done on the first wedge and readjustment of calculations of requirments to complete the program. These experiences include:

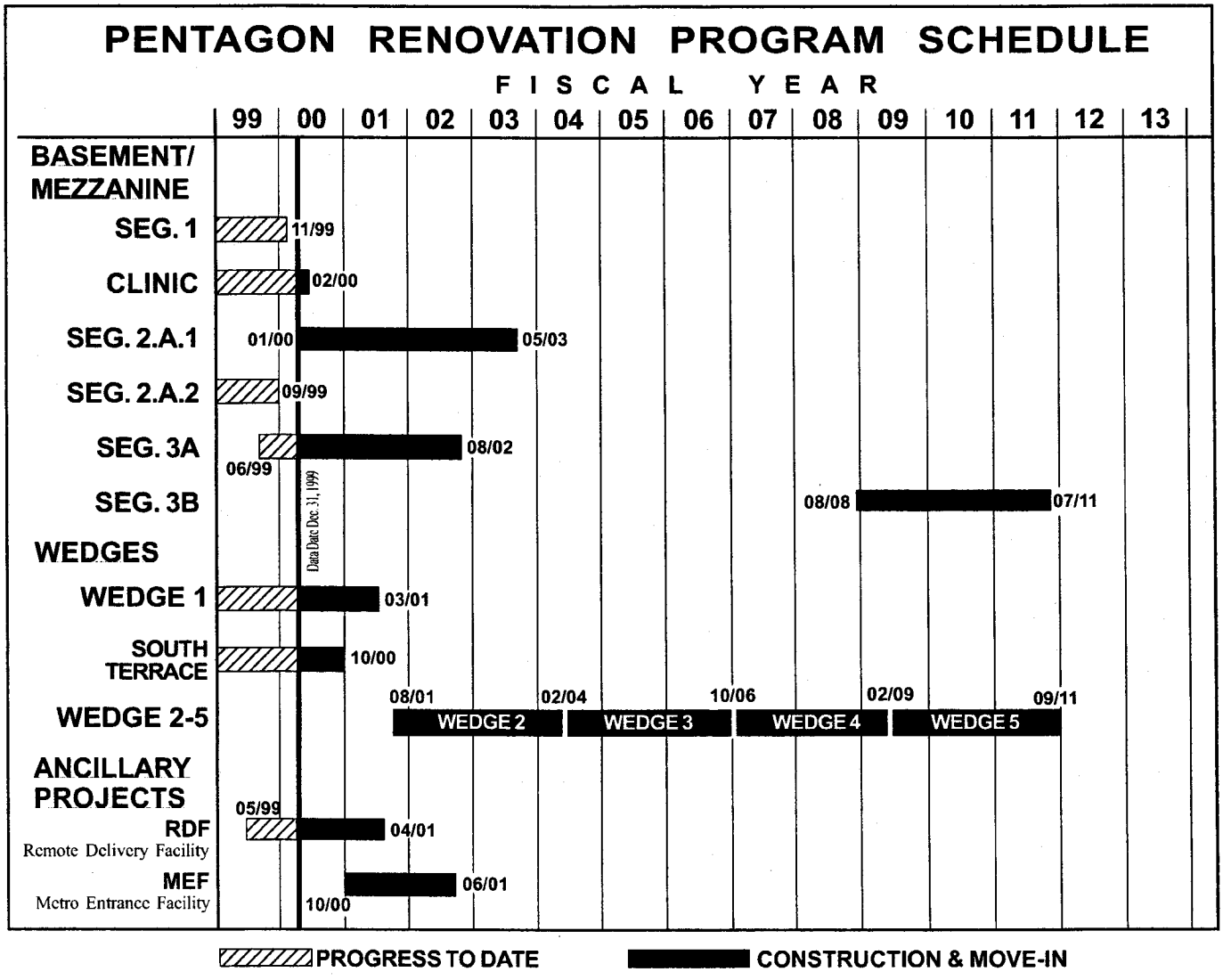
- The actual time required to relocate 5,000 tenants and removal of surplus materials prior to the start of demolition and abatement work. Over the life of the renovation more than 25,000 occupants will be relocated.
- The difficulties in removing 4,000,000 pounds of asbestos and 15,000,000 pounds of demolished construction debris for one wedge.
- The actual time required installing barrier walls, temporary mechanical, electrical, plumbing, and telecommunications systems.
- When actual conditions were exposed, more reliable information for the estimate of construction durations was realized.

15,000,000 pounds of debris have been removed from Wedge 1. Actual time tables for debris removal and other activities in the wedge allow program shedulers to more accurately predict the project duration.

Factoring in the experience and actual conditions referenced above, the estimated time duration to complete the renovation of each wedge was increased. This estimate includes tenant move-out, demolition and abatement, core and shell construction, tenant fit-out construction, telecommunications backbone installation, installation of systems furniture and furnishings, security systems installation, migration of command center systems, and tenant move-in.

Further factoring in the limitation of swing space to accommodate tenant moves, the renovation of wedges is being performed in a sequential manner. We have also increased the schedule for contingency at the end of each wedge, 2 through 5, to allow for unforeseen conditions.

As a result of program shedule and budget matters, the Renovation Program is being restructured. We are currently developing performance-based requirements coupled with design/build contracts. This new approach will preserve flexibility in our requirements and contracts so that we can take advantage of cost and progress efficiencies that the successful offeror may provide.



PROGRAM BUDGET

SOURCE OF FUNDS

Section 2804 of the Department of Defense Authorization Act, 1991 (Public Law 101-510, see Appendix), established the Pentagon Reservation Maintenance Revolving Fund (PRMRF). The Act transferred responsibility for the operation, maintenance, protection, repair, and renovation of the Pentagon Reservation from the General Services Administration to the Secretary of Defense. The PRMRF is the funding source for the Pentagon Renovation Project. In addition, it finances a full range of building services for DoD components, including the military departments, and other activities housed within the Pentagon Reservation.

Soil removed from the Remote Delivery Facility site north of the Pentagon's Mall Terrace is being stored on the grounds surrounding the Pentagon just one quarter mile away. Typically, dump trucks would have been required to bring the soil to a dump site 20 miles away. By significantly reducing the hauling distance, the Program saved close to $1,000,000. The soil will be returned to its original site during the final phase of the project.

The renovation was designed to be budget-neutral to the Department of Defense in that the Department could operate, maintain, protect, and renovate the Pentagon for the rent the Department would have paid to the General Services Administration over a 12- to 14 year period.

Accordingly, the PRMRF has been designed to operate on a break-even basis over the long term. Revenue for the PRMRF may be generated from various sources; however, the fund depends primarily upon monies collected from a user charge for space and building services. These charges are paid by the DoD components and other tenants using Pentagon Reservation facilities or land, with rates corresponding to six categories of space: office, storage, special, joint use, commercial support, and outside parking. The rates are established to recover the cost of day-to-day operations, maintenance, protection of the Reservation, and essential capital improvements, including all costs associated with the Pentagon Renovation Project.

CERTIFICATION OF COST

Based on early estimates of the costs to be incurred, the Defense Appropriations Acts for FY 1995 and FY 1996 required that the Secretary of Defense certify that the total cost for the planning, design, construction and installation of equipment for the renovation of the Pentagon Renovation shall not exceed $1,218,000,000.

Subsequently, the Department of Defense Appropriations Act for FY 1997 reduced the cost certification for the renovation to $1,118,000, 000. This certification requirement was $100,000,000 less than the certification ceiling initially supported by the Department and the Congress. The Department of Defense Appropriations Act for FY 2000 increased the certification ceiling amount to $1,222,000,000 for specific security improvements.

At this early state in the construction process, it is difficult to determine the full impact of the revised certification ceiling on the ultimate design of the renovated Pentagon. The total program cost will depend heavily on inflation of construction costs over the next 10 to 12 years and the effectiveness of management and contracting initiatives undertaken by the Program. Internal management controls are in place to insure accurate tracking and monitoring of costs associated with the certification ceiling and to segregate costs of ancillary projects.

TOTAL ANNUAL PROGRAM COSTS FOR DESIGN & CONSTRUCTION

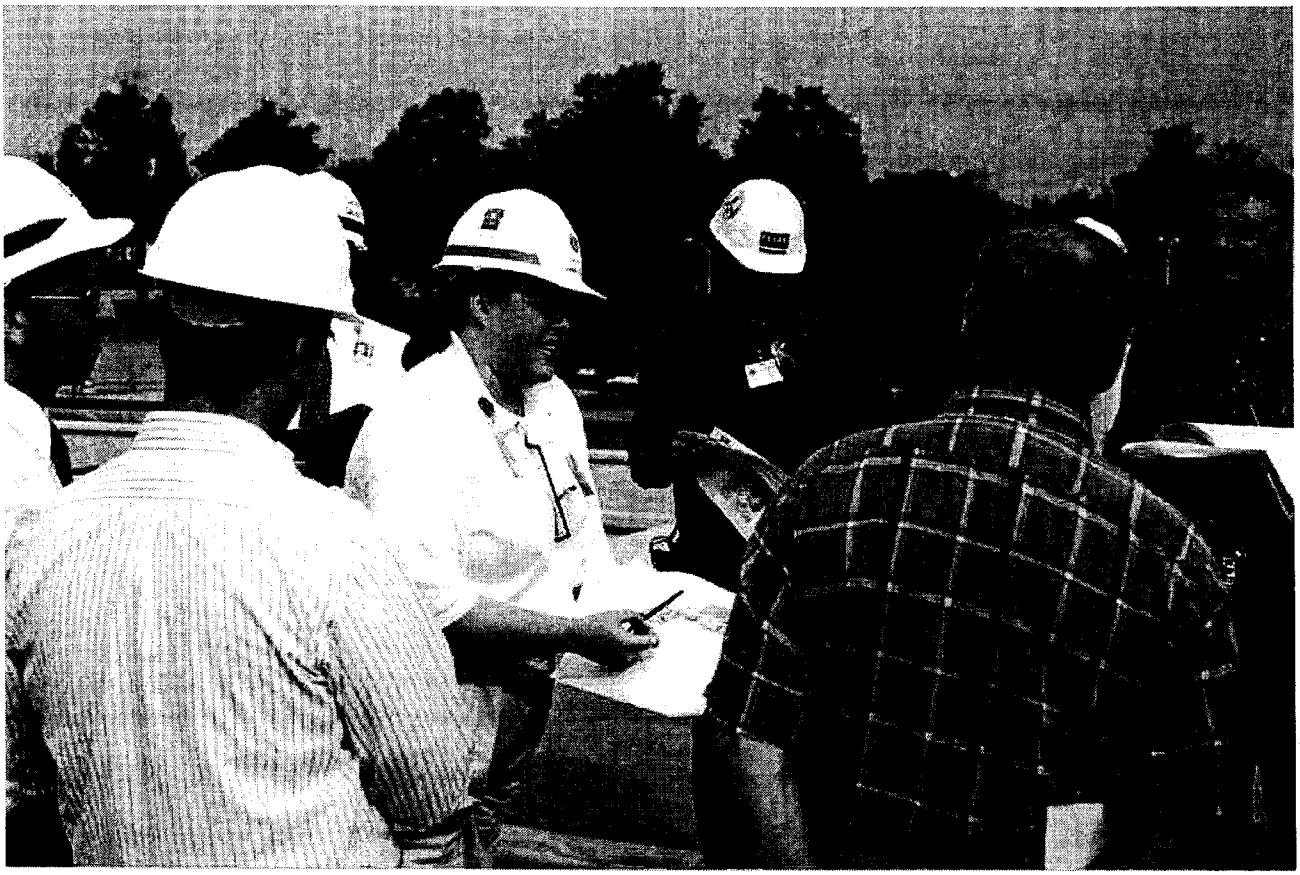
Fiscal Year	Design & Construction	Cumulative Totals	Items
1994	77,900,000	77,900,000	Obligations
1995	50,200,000	128,100,000	Obligations
1996	64,500,000	192,600,000	Obligations
1997	59,000,000	251,600,000	Obligations
1998	97,100,000	348,700,000	Obligations
1999	131,000,000	479,700,000	Obligations
2000	138,900,000	618,600,000	Budgeted
2001	160,100,000	778,700,000	Budgeted
2002			
2011	443,300,000	1,222,000,000	Program
Total	1,222,000,000	1,222,000,000	

Consistent with cost estimates for projects in a military construction program, this estimate does not include the cost of: 1) design and construction of the Heating & Refrigeration Plant, the Classified Waste Incinerator, the Remote Delivery Facility, and the Metro Entrance Facility; 2) purchase and installation of Information Management and Telecommunications (IM&T) equipment; 3) rental and operation of leased swing space; 4) purchase and installation of furniture; 5) some recently required security enhancements and 6) costs prior to FY 1994. The Department of Defense Appropriations Act for FY 1999 and the required certification are included in the Appendix.

In order to continue critical programs, the Program will endeavor to constrain the cost of project design and construction to within the current limitation through increased efficiency.

Fundamental changes have been made to meet this challenge. These have included restructuring the three organizations responsible for supporting the Renovation Program into geographic and functional Integrated Product Teams. Each geographic project within the program has a Geographic Integrated Product Team responsible for the entire renovation activity within that geographic area. Coupled with these internal management changes are procurement changes which have streamlined the whole process. Construction awards, previously based on firm fixed-price low bids, resulted in continuous conflicts between the general contractor

A renovation program team leader describes project site conditions to construction contractors who will team with the project designer during a portion of the design phase.



and the Renovation Program. These conflicts included multiple claims, contract changes, increased costs, and delays.

Contract awards, negotiated between the government and the contractor, are now based on best value to the taxpayer and the government, not necessarily the lowest proposed cost. Best-value determination is based on an analysis of factors including past performance, management approach, technical approach, probable cost, and small and disadvantaged business support. Oral proposals and page limits on proposals reduce time and help gain additional insight into contractor capabilities.

Active partnering is being used with general contractor offers in multi-phase source selections. The most promising offerors are brought on board to team with architect/engineers (A/E) in the design and development of areas to be constructed. Sophisticated contracting vehicles are being used to reinforce team partnering. Savings incentives reward efficient contract performance. Award fees are used to reward creativity and efficiency on the part of contractors. The intention is to secure superlative contract performance at reasonable cost by fundamentally changing the relationship between the government and the contractor. The Program is working hard to form partnerships with industry which will improve contractor performance, reduce cost, and meet schedule parameters.

RENOVATION SEQUENCE

One of the 5,500 employees to move out of the Pentagon and into swing space as of February 2000.

New telecommunication conduits in Wedge 1. Old conduits have been terminated and rerouted.

The Pentagon Renovation consists of several individual projects that all follow a similar sequence towards completion. In the following section, this sequence will be identified with icons to outline the progress of each project.

MOVE-OUT

One of the major challenges faced by the Renovation Program on a daily basis is the necessity of working around 25,000 people. Before renovation of an occupied area can begin, the people in that space must be moved to leased office space, temporary space built out within the Pentagon, or new permanent space after the completion of Wedge 1. This move includes all of the tenants personal belongings, computer equipment and telephones. A major factor in the move-out process is the fact that Pentagon employees cannot afford any downtime in their daily activities. Therefore, the swing space must be renovated and operational to meet the needs of the displaced Pentagon tenants before the move-out process can occur. After the move, tenants are typically up and running at normal speed within a 24-hour period.

TEMPORARY MECHANICAL, ELECTRICAL, PLUMBING AND COMMUNICATIONS (TEMP MEP/ COMM)

Temporary mechanical, electrical, plumbing, and communications are necessary to keep the Pentagon tenants surrounding the area under construction operational with minimal disruption. Temporary barrier walls, constructed to ensure the safety and security of the tenants, prevent noise, dust, and hazardous work conditions from being a distraction.

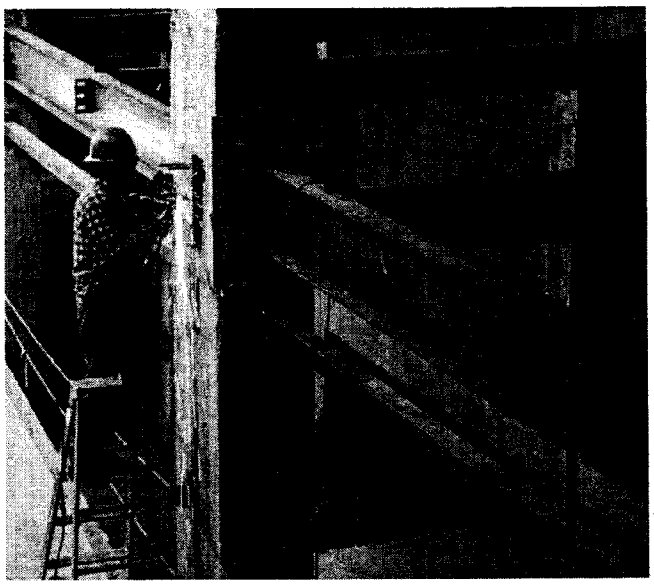
DEMOLITIOIN & ABATEMENT (DEMO & ABATE)

Before construction can begin, the area must undergo the demolition of all existing utilities and the abatement of hazardous materials including asbestos, lead-based paint, and PCBs. This is a very expensive and time consuming effort but absolutely essential in order to assure the health and safety of Pentagon tenants.

Demolition in the Pentagon's basement included excavation of 45,000 cubic yards of soil.

CORE & SHELL

Core and shell refers to the build-out of common elements in an area, including walls and public corridors, and the rebuilding of main utility systems.

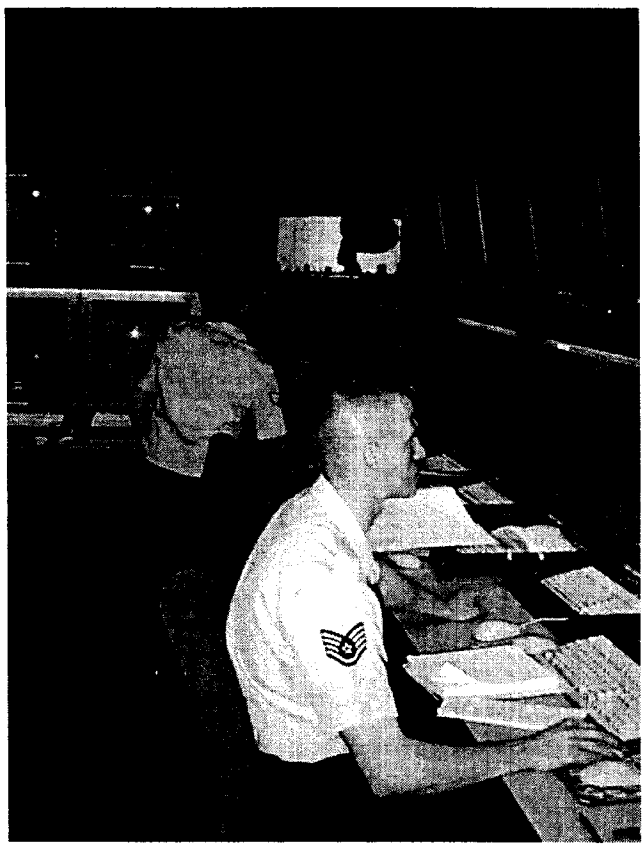


Worker installs support for new beam in Wedge1.

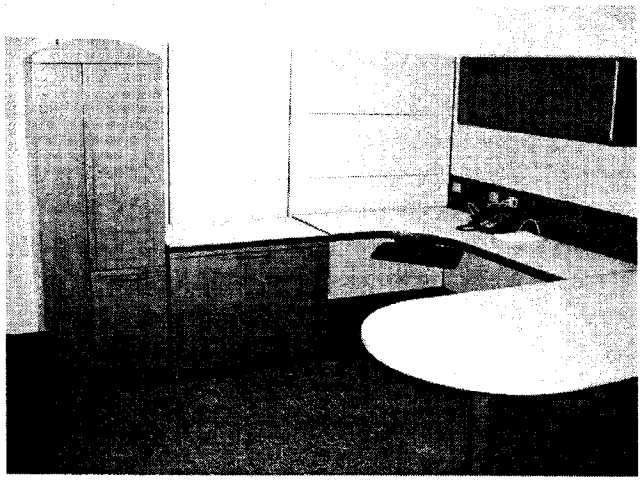
TENANT FIT-OUT (TFO)

Tenant fit-out is the building of interior office space based on the requirements of the intended tenants.

Tenant space is defined as workers in Wedge 1 construct new stud walls.



Control area in the Network Systems Management Center.



Systems furniture installed in the basement is composed of just 19 basic components.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

The information management and telecommunications group works to meet the requirements of the intended tenants while ensuring that the technological needs of future tenants can be met without another major renovation. Modern telecommunications and information management sources are provided throughout the Pentagon with access to global networks. Backbone communications are renovated to support voice, data, video, and other user requirements such as local area networks (LANs).

FURNITURE, FIXTURES AND EQUIPMENT

After the interior office space has been fitted-out and the information technology equipment installed, flexible systems furniture is installed to facilitate the operation of a modern office environment. The systems furniture includes a spine-wall work station configuration, providing easily accessible race-ways for telecommunications. This allows much greater flexibility in both the initial furniture layout and future reconfigurations.

SECURITY

Before commissioning can be completed, the area must obtain security accreditation by several different organizations.

COMMISSIONING

Commissioning is the process of verifying and documenting the performance of building systems in accordance with the design and the owner's functional and operational needs. Commissioning starts in the design phase and extends through the construction process and warranty period.

MOVE-IN

After the space has been completely renovated and is ready for occupancy, the move-in effort occurs. As with the move-out, the Renovation Program strives to minimize any tenant downtime in their daily operation. Tenants are typically back to full operation within 24 hours of vacating their temporary offices in swing space for their newly renovated space in the Pentagon. This includes the relocation of all personal items and the reattachment of computers and telephones to IM&T infrastructure.

PHASE NOT STARTED or NOT APPLICABLE

If the phase of the project being discussed has not yet been started, than "Not Started" will appear with the icon. If the phase does not apply to the project being discussed than "Not Applicable" will appear with the icon.

Police officers on duty at the main security station in the renovated Corridor 8 entrance area.

Employees use the new pedestrian bridge at Corridor 2 to safely enter the Pentagon from South Parking.

More than 1,200 personnel have moved into renovated space in the Pentagon's basement/mezzanine.

II. Project in Progress

Assembling new partition walls in the basement

Work on new chilled water lines near the Heliport

Finishing work on new South Terrace bridge steps

Under a new cafeteria floor between rings in Wedge 1

June 1999, a panoramic view of the site work for the new Remote Delivery Facility.

Note: For security purposes the exact site location of some individual projects are not included in this report. Any additional information can be furnished upon request.

II. PROJECTS IN PROGRESS

SWING SPACE

BASEMENT/MEZZANINE

Basement/Mezzanine Segment 1
- DiLorenzo TRICARE Health Clinic
- Segment 2A2

Basement/Mezzanine Segment 2-3

WEDGES

Wedge 1
- Floors 1-5
- South Terrace

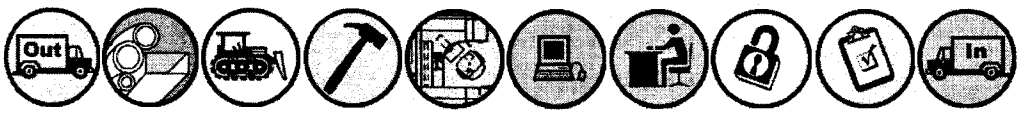
Wedges 2-5
- Floors 1-5

POWER/SITE

Replacement of Underground Water Lines
Access Road Widening
Chilled Water Line Feeders

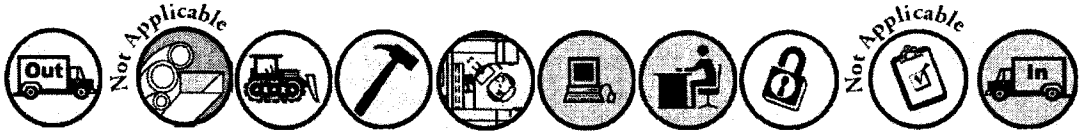
ANCILLARY PROJECTS

Remote Delivery Facility (RDF)
Metro Entrance Facility (MEF)
Heliport Firestation and Control Tower



The Pentagon Renovation Team leased three office buildings within a three-mile radius of the Pentagon to relocate the more than 5,000 personnel who vacated Wedge 1. In all, 45 floors of "swing space" were renovated to accommodate the unique requirements of Pentagon tenants.

SWING SPACE

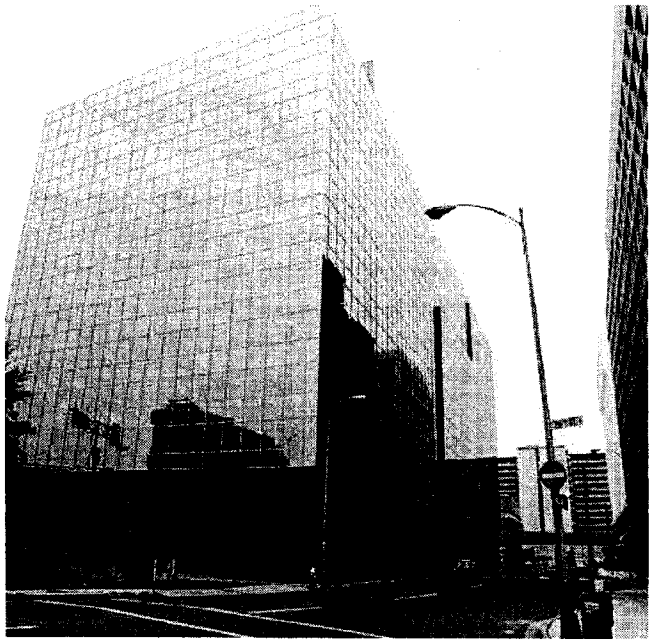


The Pentagon is "the office" for over 25,000 people every day. Hundreds of discrete offices have legitimate individual needs concerning such things as space allocation, specialized communications, security and safety. There are medical facilities, private concessionaires, and food service facilities. All of these people and offices will experience at least one major relocation before the renovation is complete. Thousands must be moved out of the building for extended periods, requiring leased space outside the Pentagon, warehouses, and move planning.

In addition to internal space within the Pentagon, several leased buildings in the vicinity of the Pentagon now house the 6,300 employees relocated from the basement and Wedge One.

Swing space buildings provide amenities and features found in typical modern office towers.

In most cases, personnel relocated to swing space, vacated the Pentagon on a Friday and were up and running in their new office the following Monday.



Swing space in nearby office buildings provides a modern office environment and many local area amenities.

All swing space has been built out to provide full connectivity to the Pentagon through classified and unclassified backbones, local area networks (LANs), telephone lines, and electronic mail. The three large buildings have been built-out to meet the former Pentagon tenants' mission requirements, and feature modern office space with new systems furniture, state-of-the-art voice and data communications systems, and sophisticated security systems.

It is anticipated that the three large buildings will be occupied by displaced Pentagon employees throughout the entire renovation, while the smaller amounts of space can be vacated after the completion of Wedge Three.

MOVE-OUT

Up to now the focus of swing space activities has been moving Pentagon tenants into external and internal space. The first swing space move-outs into newly renovated areas of the Pentagon will be experienced in FY00 when approximately 75 people will move into the Remote Delivery Facility.

TEMP MEP/COMM

The Temp MEP/Comm process does not apply to swing space.

DEMO & ABATE

A minimum amount of asbestos abatement was required to convert internal (A-Ring) Pentagon space to habitable swing space areas.

More extensive demolition and abatement work will be completed in FY00 when the old DiLorenzo Clinic is vacated and then renovated to provide temporary housing for assorted tenants moving out of Wedge 2.

II. Projects in Progress — Swing Space

CORE & SHELL

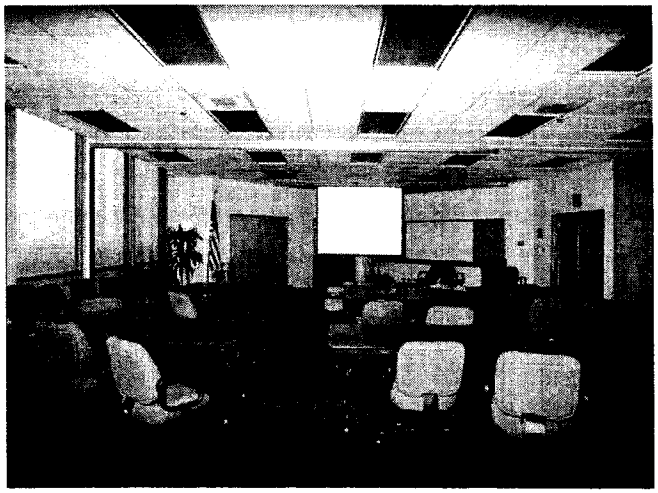
The majority of swing space was built-out and occupied by FY99.

TENANT FIT-OUT

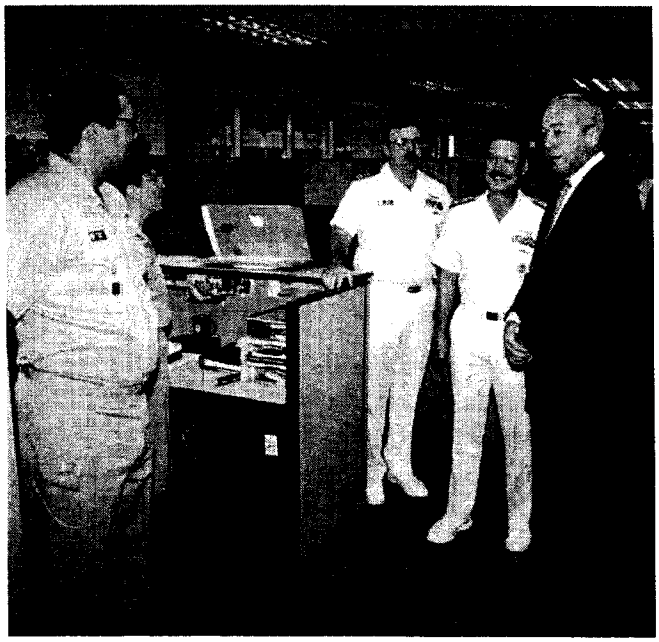
With the anticipated vacating of Wedge 2, additional fit-out work is scheduled for FY00. Areas to be renovated as swing space will include the DiLorenzo Clinic (approx. 30,000 sf) and the public cafeteria at Corridors 1 & 2.

Following the move-in, swing space customers were visited by the Pentagon Renovation program manager (left).

Above: A swing space area ready for new stud walls that will define the tenant space. Inset: Systems furniture in place.



Swing space buildings feature modern conferences room and audio/visual capabilities.



In 1997, former Secretary of the Navy John Dalton (right) visited with Navy swing space tenants after they first moved to their new offices.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

IM&T support was provided during the tenant fit-out phase of swing space construction. The Pentagon Renovation Program incurs an on-going cost at all external swing space buildings to maintain and upgrade the IM&T infrastructure. This maintenance and monitoring service is provided by the Network Infrastructure Services Agency-Pentagon (NISA-P), formerly known as Single Agency Manager (SAM).

FURNITURE, FURNISHINGS & EQUIPMENT (FF&E)

Prior to FY 1999, the Pentagon Renovation Program had contracted with a furniture manufacturer to furnish and install systems furniture in the three major swing space buildings, which are now fully furnished and occupied.

This process continues as swing space is added and the primary source for furnishings becomes "attic stock," and will be supplemented with new furniture only as necessary.

SECURITY

Measures were taken throughout the construction and move-in process to ensure that the temporary swing space areas obtained the same high level of security as required in the permanent tenant offices.

COMMISSIONING

The Commissioning process, designed for use inside the Pentagon proper, was not in place during the build-out of external swing space.

MOVE-IN

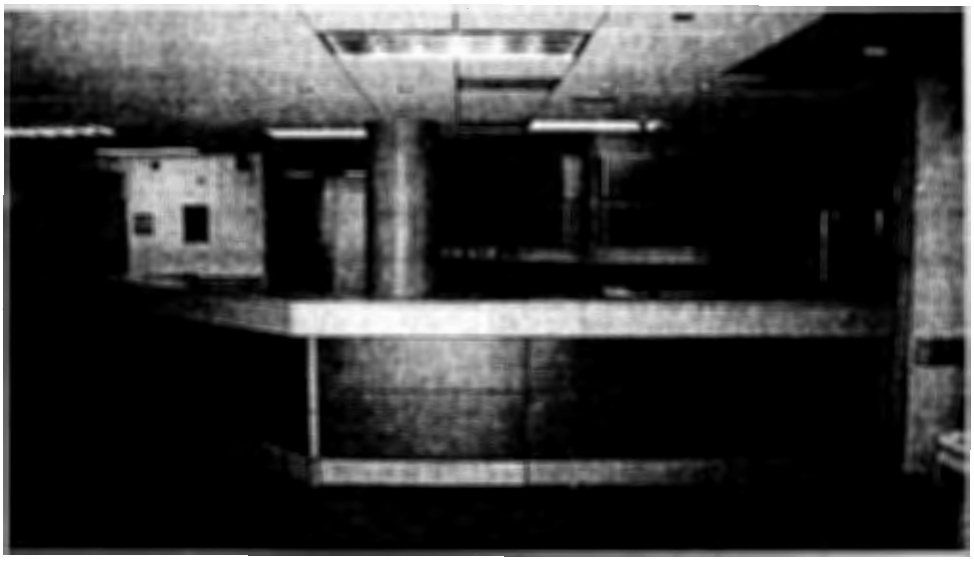
Prior to FY 1999, 4,959 Pentagon tenants were relocated to external and internal swing space.

During FY 1999, 1,184 people were moved into both external and internal swing space .

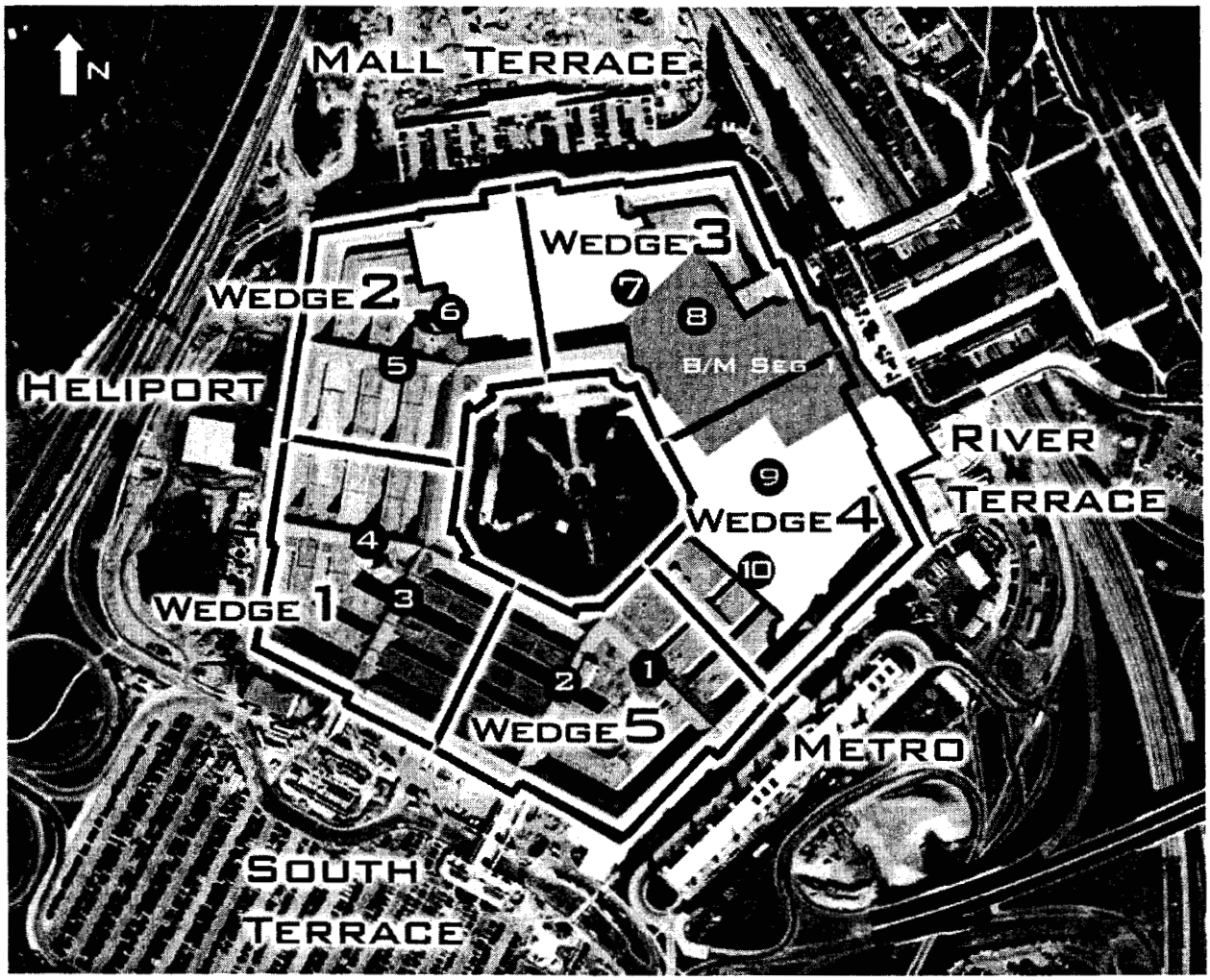
Occupancy of the renovated DiLorenzo Clinic and Cafeteria area at Corridors 1 & 2 will account for the majority of the 300-400 swing space move-ins during FY 2000.

Air Force personnel unpack files in their new swing space offices. Swing space moves typically occur over a weekend and most personnel can begin working Monday morning after moving from an old office the previous Friday.

An Air Force Lt. Col. enjoys the view from his office on the 10th floor of a newly renovated swing space building .

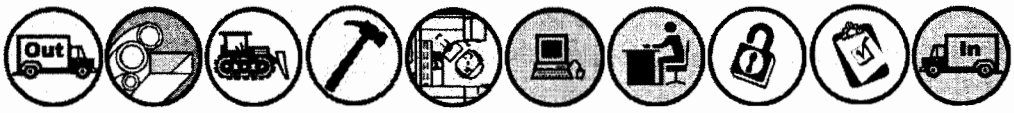


The main reception area of the new DiLorenzo TRICARE Health Clinic near the Corridor 8 entrance. The clinic was turned over to the Pentagon medical community in January 2000.



Basement/Mezzanine Segment 1 Locator

BASEMENT/MEZZANINE SEGMENT 1



THE DILORENZO TRICARE HEALTH CLINIC

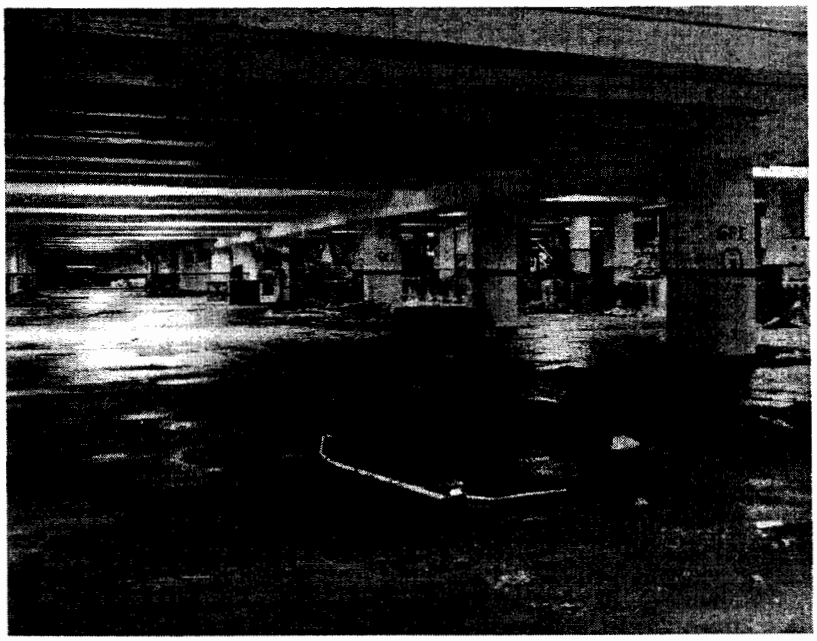
The DiLorenzo TRICARE Health Clinic was constructed as part of the Segment 1 Mezzanine and is now nearly complete. The space formerly housed a motor pool and has been transformed into a state-of-the-art health care facility. This consolidated facility will eliminate redundancy of services, including pharmacies, radiology suites, file centers, and other ancillary support functions while saving valuable personnel time. The construction contract for the clinic was awarded on August 21, 1997.

SEGMENT 1 HIGHLIGHTS

- 800,000 square feet renovated
- 1,200 personnel moved into renovated space
- 1,800 piles driven to support new slab
- 45,000 cubic yards of soil removed
- Basement slab lowered
- New Mezzanine level created an additional 320,000 square feet of space

MOVE-OUT

The occupants of the existing DiLorenzo Clinic will move directly to the new DiLorenzo TRICARE Clinic. Due to the internal nature of the move, the use of swing space is not a factor. The move is currently in progress. The key challenge for the clinic personnel will be to maintain daily operations while transitioning into the new facility. The vacated space will be evaluated for hazardous material abatement and then renovated for use as swing space.



The Pentagon motor pool below the River Terrace as it appeared in 1997 before its transformation into a state-of-the-art health facility began.

Ambulance access to the clinic is made through the entrance to the former motor pool below the River Terrace.

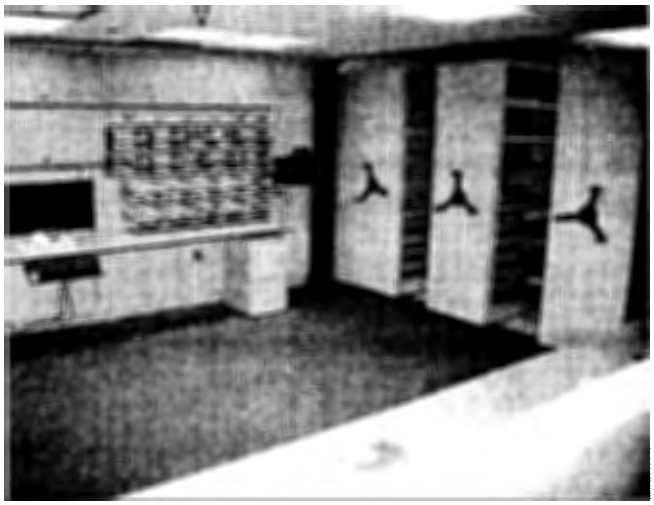
TEMP MEP/COMM

For the DiLorenzo TRICARE Clinic, the temporary mechanical, electrical and plumbing work was accomplished by a combination of the demolition and abatement contractor and the prime clinic construction contractor. The demolition and abatement contractor rerouted and/or removed the majority of the old motorpool electrical services and provided the barrier walls to the adjacent occupied areas of the Pentagon. The prime clinic construction contractor provided the mechanical demolition and relocation as part of the main construction contract. Since the area was previously a motorpool, there was no communications infrastructure to be demolished and relocated. As part of the move-out of the existing drivers lounge, IM&T coordinated the relocation of the drivers phone lines to the temporary drivers lounge.

Clinic personnel receive new software training in newly completed clinic space.

DEMO & ABATE

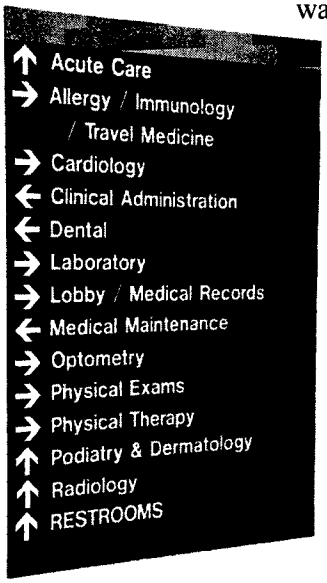
The site for the DiLorenzo TRICARE Clinic was formerly the Pentagon motorpool and was rife with lead-based paints, petroleum-soaked concrete, mercury and PCB contaminated light ballasts, and asbestos pipe insulation and plasters. The abatement of the clinic was performed by a local abatement firm during FY 1997-98. Work included full abatement of the old motorpool, leaving a clean site for follow-on construction.



The reception area in the clinic's new dental facility . Pentagon personnel will be accommodated in any of 30 dental rooms. Previously, only 12 dental chairs existed in the Pentagon.

CORE & SHELL

Core and shell construction for the DiLorenzo TriCare Clinic was accomplished by a combination of the Basement Segment 1 construction contract and as part of the main clinic construction contract. The Basement Segment 1 contractor provided the floor slab and penetrations for mechanical and electrical systems. The prime clinic contractor completed the mechanical systems within the new clinic space, including the construction of clinic mechanical rooms located in the 2A2 area of the Pentagon basement. Other core and shell items such as hallways, electrical and telecommunication closets, and restroom facilities were completed concurrently with the tenant fit-out portion of the construction contract.



A sign in the new clinic points out the direction to some of the 21 areas of medicine available in the facility.

Optometry exam room in the new clinic.

Exam room in the new clinic.

TENANT FIT-OUT

The tenant fit-out phase was accomplished as a combination of the prime clinic construction contract, an independent carpet contract and coordinated Health Affairs contracts. The clinic construction contractor completed the general infrastructure construction. A flooring contractor provided carpeting, installed the furniture and much of the actual medical equipment. The work required close coordination between all parties to ensure a successful project. The program schedule did not allow the luxury of each contractor completing his efforts in ideal sequence. Despite complicated planning and multiple contractors sharing a space, the project was brought to successful completion. The completed clinic consists of specialized areas such as pharmacy, radiology, optometry, audiology, physical therapy, minor surgery, trauma center, dental, podiatry, and others. A common theme throughout the clinic is the ability to make full use of tele-medicine. The clinic's state-of-the-art communication system allows both internal communications as well as worldwide connectivity.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

The IM&T has been completed. The required facilities were incorporated in both design and construction.

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

Furniture installation was completed in February 2000.

SECURITY

The Security is complete. Security has been incorporated in both design and construction. The majority of the work relates to access control.

The clinic includes facilities to clean medical instruments.

COMMISSIONING

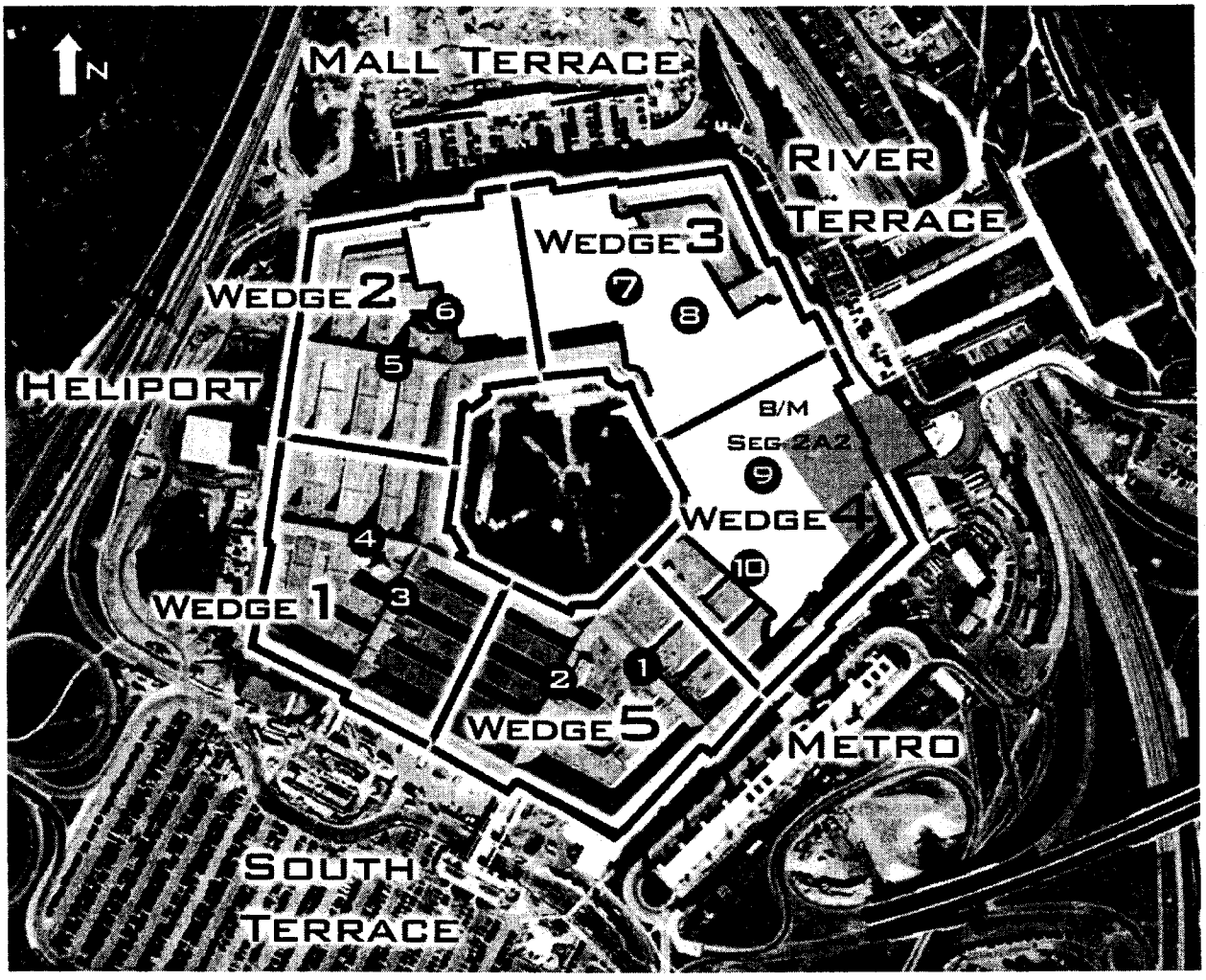
The commissioning occurred concurrently with the design and construction of the clinic and will be carried into the warranty period. Because the area is highly specialized, commissioning includes medical gas, medical vacuum specialized exhaust, miscellaneous medical systems and extensive electrical/mechanical/ plumbing requirements. Successful commissioning of the clinic is being achieved through extensive integrated cooperation with general contractors, specialized contractors, medical personnel, and Pentagon Renovation team members.

MOVE-IN

Move-in of the new facility will be an internal move. The use of swing space was not a factor. The move-in process is in progress. The key challenge for the clinic personnel is to maintain daily operations while transiting into the new facility. The "first patient" date is scheduled for March 2000.

A ribbon-cutting ceremony was held in the new TRICARE Clinic in February 2000.

Aerial view of the "mug handle" roadway, which serves as the roof over a portion of renovated space in the Pentagon's basement.



Basement/Mezzanine Segment 2A2 Locator

BASEMENT SEGMENT 2A2

Due to the crossing of shared utility lines, Segment 2A2 was expedited to complete work along with the Segment 1 projects.

New electrical lines and ductwork is being installed in a portion of the Pentagon basement known as "2A2." Renovation of 2A2 is now complete and the space is fully occupied.

MOVE-OUT

The move outs were from a mix of internal and external spaces. They came from various spaces in the Pentagon as well as two external buildings. The move process occurred over a span of 4 months in mid 1999. This was done because the construction was broken into two phases and involved nine different tenants.

TEMP MEP/COMM

The Temp MEP for 2A2 was accomplished by a local small and disadvantaged business demolition and abatement contractor. The contractor installed the needed barrier walls and performed the necessary isolation and relocation of utilities to prepare the area for demolition and subsequent construction. Temp Comm. was accomplished by a local small and disadvantaged business. This work was performed during fiscal years 97/98.

The ceiling grid is installed in the Segment 2A2 basement area. The curved wall at right is the foundation for the roadway above.

Worker sands the sheetrock to prepare the surface for painting.

DEMO & ABATE

The demolition and abatement for Segment 2A2 was also accomplished as part of the same contract noted previously. The abatement contractor removed all asbestos insulation, asbestos-bearing plaster, PCB and mercury-contaminated light ballasts and asbestos- contaminated floor tiles. In conjunction with the general demolition, lead paints and any other contaminates were removed, leaving the area clean and ready for the core and shell phase of the project.

CORE & SHELL

The core and shell portion of the Segment 2A2 project was accomplished by a local contractor during FY 1998 and 1999. It included the demolition of the floor slab, the excavation of the soil to allow for a lower floor slab to match the new adjacent Basement Segment 1 floor elevation. The work continued with the driving of new foundation piles to support a new floor and the construction of a new mezzanine floor. The contractor completed the installation of the new mechanical systems, electrical closets, telecommunications closets, restroom facilities, and main hallways.

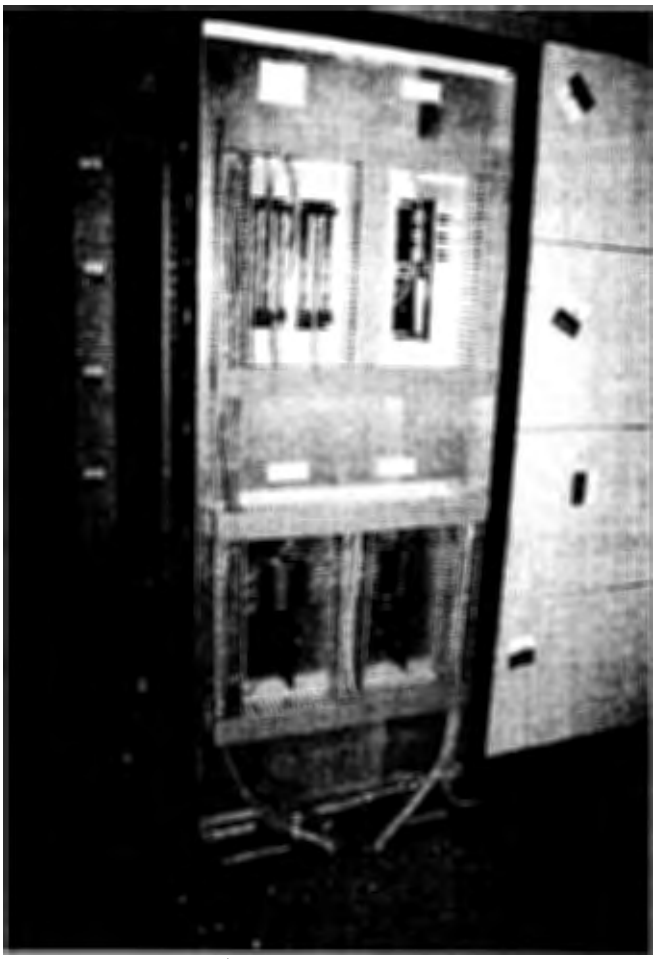
A crew installs the raised floor that will support a new technical facility in the basement.

II. Projects in Progress Basement/Mezzanine - Segment 2A2

TENANT FIT-OUT

The tenant fit-out of 2A2 space was accomplished by a local small and disadvantaged construction firm during FY 1998 and FY 1999. While the contractor finished the hallways and basic infrastructure, another contractor worked to complete each individual tenant area within Segment 2A2 space. Work included the installation of room-specific HVAC, telecommunications and electrical conduits and cables, raised flooring, carpeting, dropped ceilings, and general room finishes. The contractor also worked with the furniture suppliers and installers (a separate Pentagon Renovation contract) to assist in connecting the furniture to the building power system. After work was completed in the common areas, new terrazzo flooring was installed.

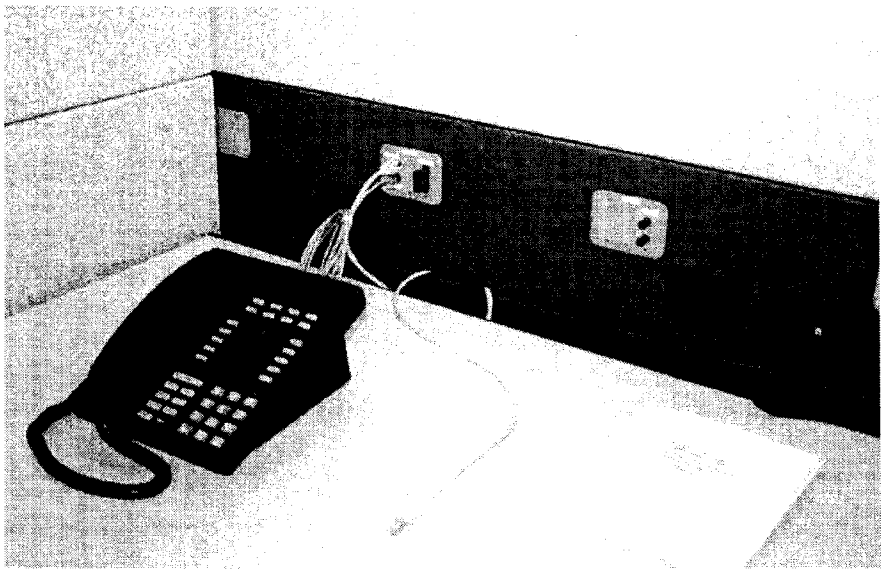
A crew readies concrete for the curing process. The site is directly above renovated space and will serve as a parking area adjacent to the new clinic entrance.



New "spine-wall" systems furniture features a communications wire panel for easy access to an office's telecommunications lines. Wires originating from one main panel like the one shown above can feed up to 12 work stations.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

- The Optical Remote Switching Module was installed as a part of the first phase of the General Purpose Switch upgrade and cutover of the Switch to the Army Operation Center.
- The installation of equipment and upgrades for the Business Automated Data Processing Center has been completed.
- Relocation of the Command and Control Automated Data Processing Center to its newly renovated facility has been completed.
- Installation of Basement/Mezzanine Segment 1 Backbone has been completed.
- Final operational capability and cut-over of the Network Systems Management Center has been completed.
- Final operational capability and initial cut-over of the Pentagon Consolidated Technical Control Facility has been completed.



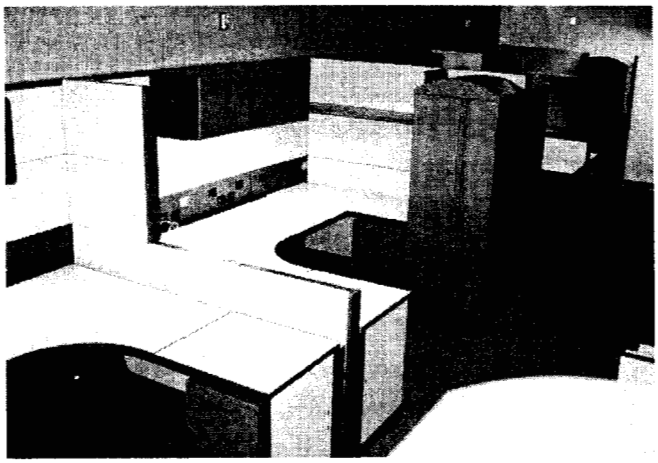
Telephone and electrical connections at the desktop level facilitate access and minimize the number of wires running along the floor.

II. Projects in Progress — Basement/Mezzanine - Segment 2A2

New fiber optic cabling is installed below the raised floor grid.

A view below the raised floor grid.

Inside a new data tape storage facility.



New modular furniture in the basement maximizes the use of available space.

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

The second phase of the project used furniture conforming to the new Pentagon Renovation standards. It incorporates the use of a spine wall (this wall is the pathway for the power and communications to the stations). The spine wall also allows for easier configuration of stations. This is achieved by not only having the ability to install panels at any point along the spine wall (in traditional systems furniture you have to have a break point to install a new panel). In addition, since the wiring is down the spine, no wires have to be moved to allow for the change. This furniture was purchased under a new contract. It included an incentive package for the furniture vendor based on its performance. The vendor performed above our expectations and earned a substantial award fee.

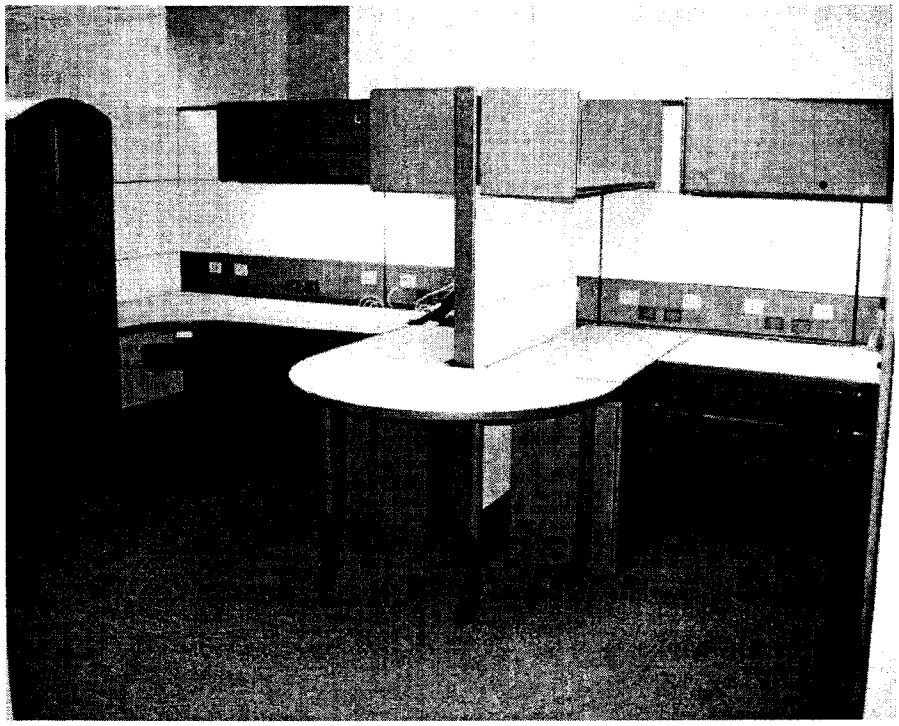
SECURITY

The Security is complete and has been incorporated in both design and construction. The majority of the work relates to access control.

An information management and telecommunications worker removes a floor panel to run new fiber optic lines. The raised floor configuration facilitates changes to office space even after furniture is in place.

COMMISSIONING

The commissioning of the Segment 2A2 space was accomplished through extensive multi-contractor coordination. Three separate contractors combined to provide the main HVAC and plumbing systems, the point-of-use and tenant space sub-systems, and the controls for the entire package. All three contractors worked together in the commissioning effort as all of their individual portions had to function properly and work with the others' equipment to provide a fully functional system that would supply the tenants' needs. Although there were some initial problems and compatibility issues to be worked out, the commissioning process went smoothly and has resulted in a system that has been used as an example of how a system should be designed and installed for the rest of the renovation.



New systems furniture provides the flexibility to easily reconfigure an office space. Above, the semi-circular table at center can be rolled away from the adjacent desktops and can then be combined with another unit to make a round conference table.

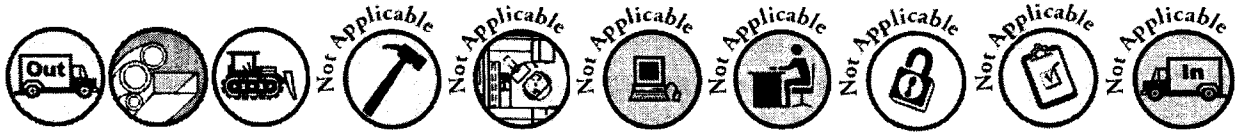
MOVE-IN

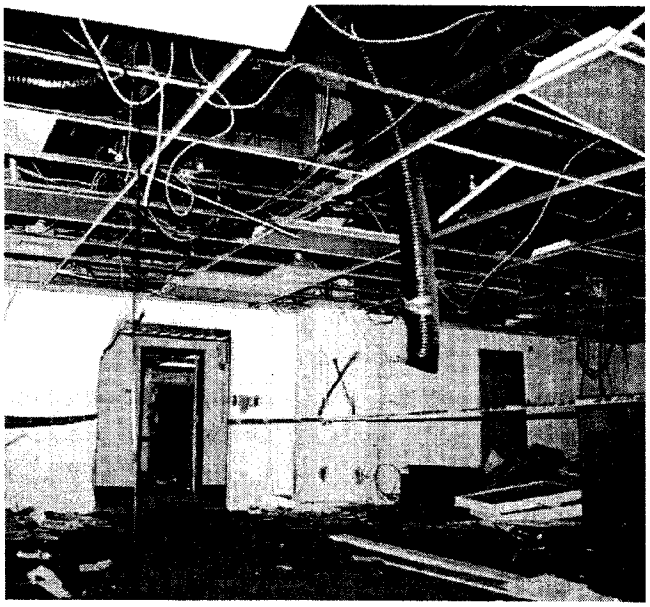
The move into Segement 2A2 came from various spaces in the Pentagon and two external buildings. The move process occurred over a span of 4 months in mid 1999. Due to the construction being broken into two phases and involving nine different tenants.

The Pentagon's basement lies below the River Terrace and below portions of both the Mall (top right) and Metro (bottom left) sides.

Basement/Mezzanine Segment 2-3 Locator

BASEMENT/MEZZANINE SEGMENT 2-3





Demolition has begun in a vacated area in the basement. The exposed ceiling grid reveals a maze of wires, which was poorly documented on building drawings.

To minimize dust, a worker sprays water on debris as it falls during the demolition process.

Segments 2A1 and 3 comprise approximately 500,000 square feet of below ground space. Current plans are to complete demolition and abatement and improve life safety elements in these areas. At this time, the Renovation Program is not planning to continue work in the basement after the completion of the demolition and abatement process due to budget restrictions.

MOVE-OUT

Segment 3 is divided into two areas, 3A and 3B. Move-out of 3A, previously occupied by 411 tenants, was completed in the spring of 1999. Segment 3B will not be vacated until 2007. Segment 2A1 was originally occupied by 924 tenants. The final tenants were moved from the area in January 2000.

TEMP MEP/COMM

Segment 3A Temp MEP/Comm was completed in the summer of 1999. Segment 2A1 Temp MEP/Comm began on January 15, 2000.

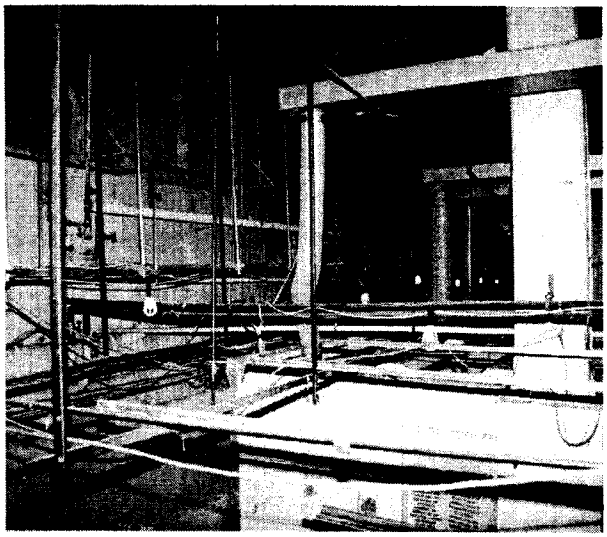
DEMO & ABATE

Segment 3A demolition and abatement began in May 1999 and was completed in January 2000. Segment 2A1 demolition and abatement began in January 2000 and will be completed in January 2001.

CORE & SHELL

None planned at this time.

II. Projects in Progress — Basement/Mezzanine - Segment 2-3



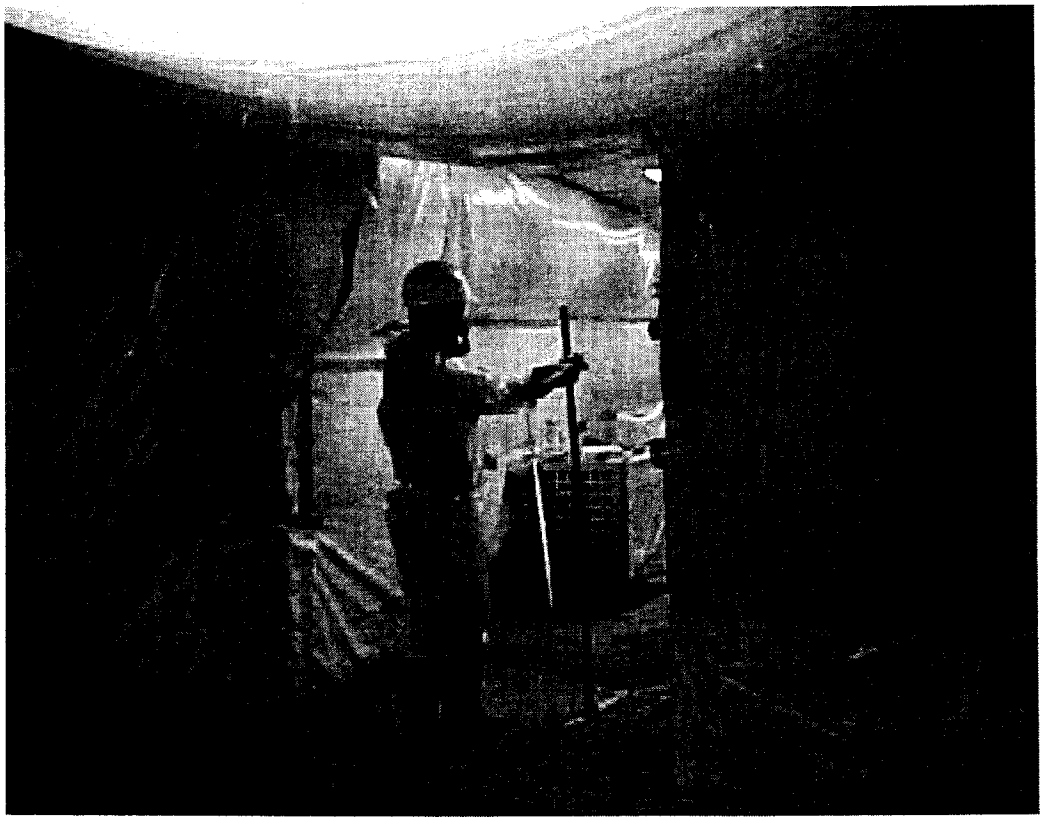
A view above a basement ceiling grid reveals a network of utility conduits, ductwork and wires.

TENANT FIT-OUT

None planned at this time.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

In coordination with the Pentagon Renovation Program office, IM&T will continue to operate with the newly defined Pentagon Renovation Back-to-Basics program. The redefinition of the level of renovation scheduled for Basements Segments 2 and 3 has resulted in the relocation of command centers from the basement to above-ground locations. The primary IM&T challenge in FY 00 will be the development of final designs resulting from the decision necessary to relocate remaining Command Centers to above-ground locations.



View inside an absestos containment area. Operatives are removing asbestos containing mastic from the floor.

II. Projects in Progress — Basement/Mezzanine - Segment 2-3

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

None planned at this time.

SECURITY

None planned at this time.

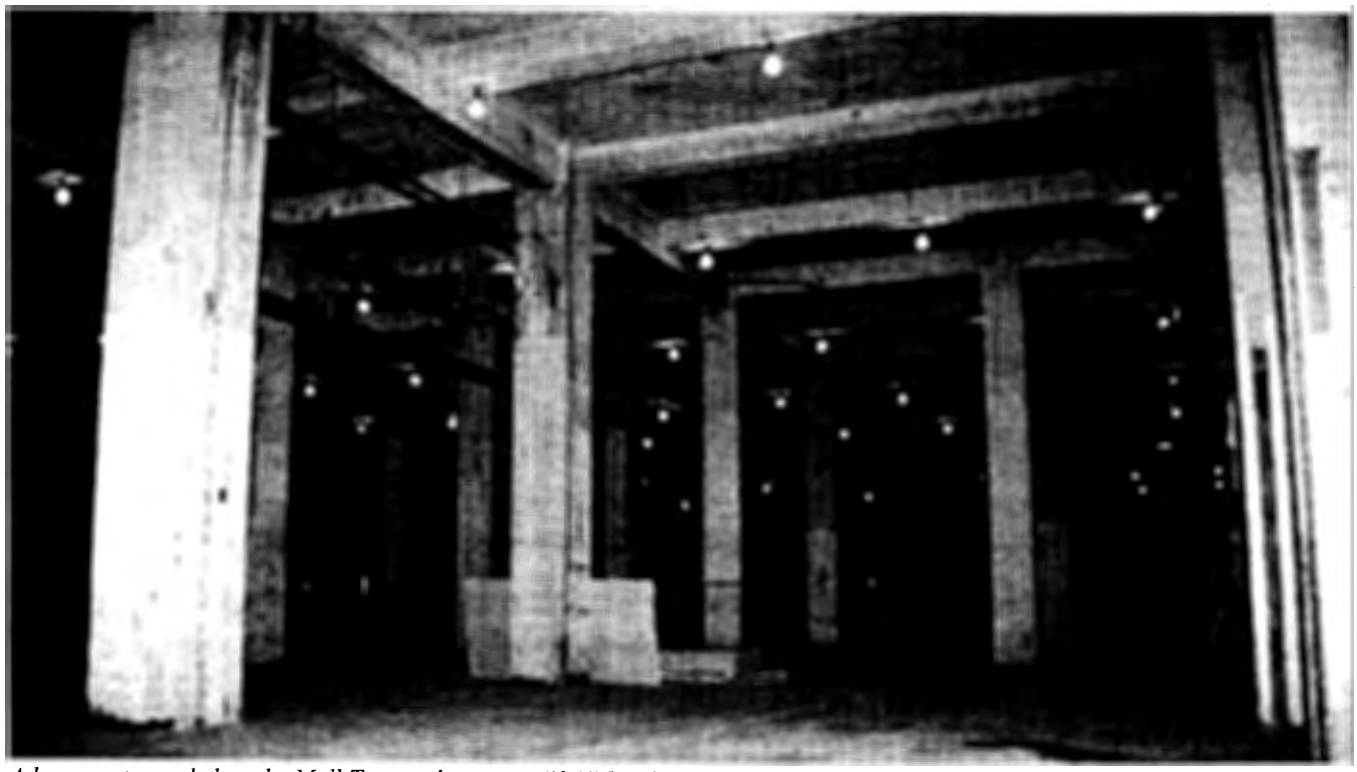
COMMISSIONING

None planned at this time.

MOVE-IN

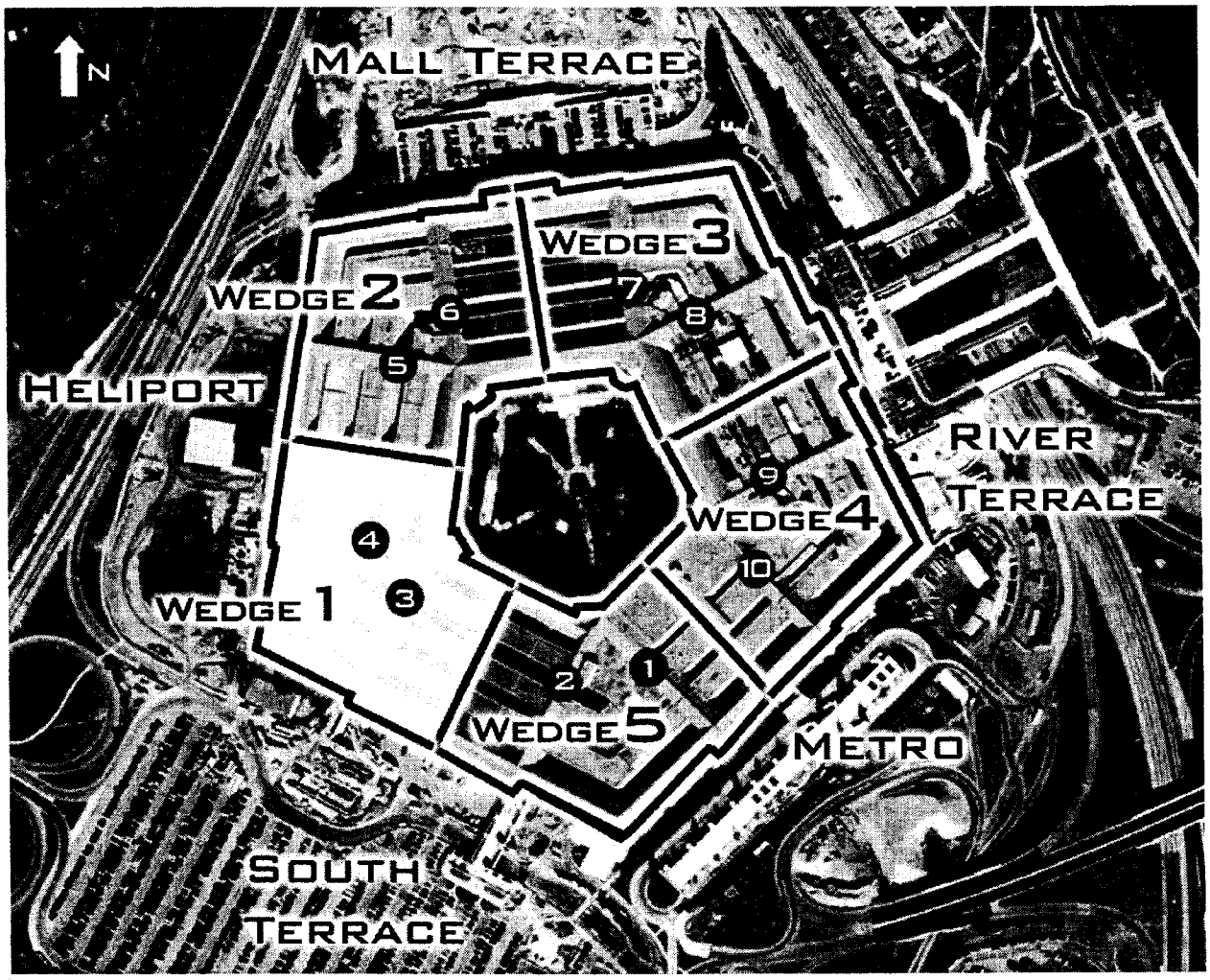
None planned at this time.

View inside Phase 1 showing mechanical demolition and debris removal.



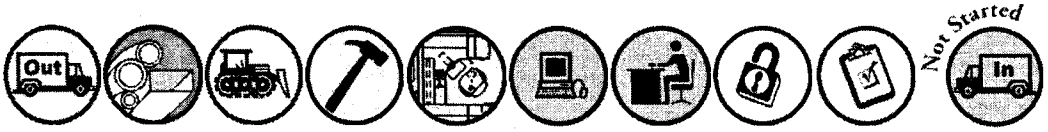
A basement area below the Mall Terrace known as "3A" has been cleared of asbestos and all office partitions.

Aerial view of Wedge 1. The wedge encompasses 1,000,000 square feet of building space. Demolition and abatement of hazardous materials are now complete. New construction and tenant fit-out are ongoing.



Wedge 1 Locator

WEDGE 1



FLOORS 1-5

The five floors of Wedge 1 are accessed by the Pentagon's 3rd and 4th corridors.

WEDGE 1 HIGHLIGHTS

- 1,000,000 square feet of building space
- 1,500 new energy efficient windows
- 5,000 personnel relocated to swing space
- 15 million pounds of debris removed
- 4 million pounds of asbestos removed
- 70 percent of removed materials recycled
- New escalators and elevators
- New energy management control system
- New heating and cooling system
- New telecommunications infrastructure

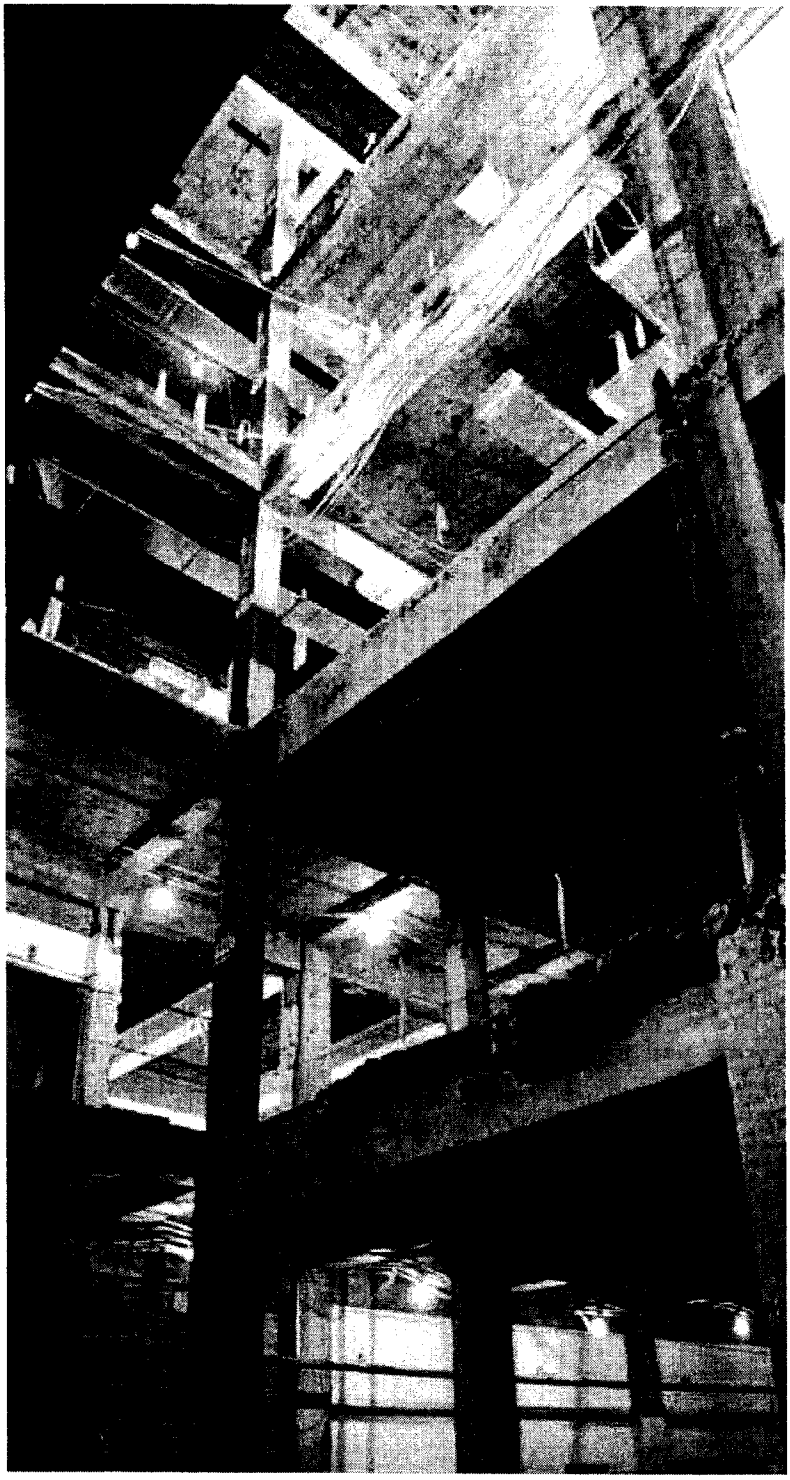
MOVE-OUT

The 5,000 occupants of Wedge 1 moved out of the wedge between January 1, 1998, and December 31, 1998 into new quarters in several locations. Some moved to other areas of the Pentagon, but most were relocated to temporary leased space. Part of the relocation process involved design and modification of these leased spaces.

TEMP MEP/COMM

This phase of the project included the separation of Wedge 1 from the rest of the building. To accomplish this task, mechanical, electrical, plumbing and communications systems had to be disconnected in Wedge 1 while ensuring that the rest of the building remained operational. A sound attenuating barrier wall was constructed to separate Wedge 1 from the two adjacent wedges (2 & 5). The barrier wall was mostly built in occupied spaces at night. The work was completed by the end of 1998.

After all utilities have been rerouted, workers begin removal of old wires and conduits hidden within the walls of Wedge 1.



View inside of Wedge 1 where floor slabs have been removed to clear the way for a new escalator bank. New elevators in each wedge will also improve the vertical mobility of Pentagon personnel and make the building compliant with the Americans with Disabilities Act.

DEMO & ABATE

Demolition and abatement of asbestos and lead was a massive project in itself. Work began as soon as the various tenants moved out. Once the areas were cleared of non-toxic rubbish, they were enclosed to prevent the escape of asbestos fibers and abatement was carried out by "moon-suited" workers under strict safety precautions. In all, 350 dumpsters of debris, 221 tractor-trailer loads of asbestos waste and 25 truck-loads of lead waste were removed. Items with salvage value were sold, with the proceeds reverting to the Government. Abatement was completed in September of 1999.

CORE & SHELL

In January 1999, the actual construction of the new space began. Much of the first year was devoted to completing necessary structural demolition and installation of additional pile foundations, underslab vaults, tunnels, piping, and other work which was out of sight, however, very necessary to the rest of the building. By fall 1999, much of the new structural steel was erected and installation of plumbing, heating, air conditioning, electrical, and communications in areas not affected by structural work was well underway. Column and partition framing followed the above-ceiling work, and drywall installation has begun in many of these areas on the upper floors. Window replacement is also well underway, with 80% of the new window units installed. The majority of the core and shell work will be done by late summer 2000.

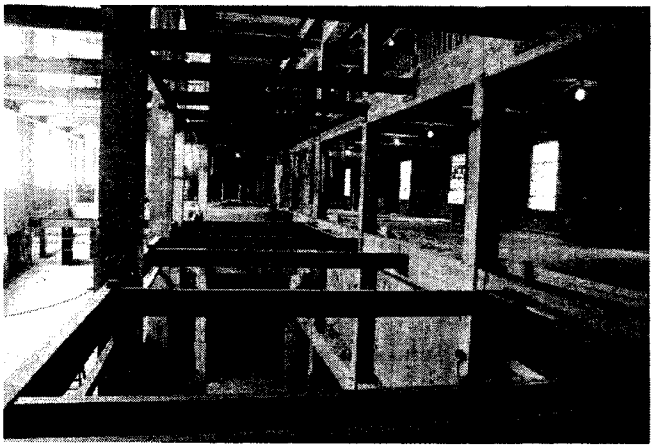
II. Projects in Progress — Wedge 1 - Floors 1-5

TENANT FIT-OUT

Tenant fit-out design work is largely complete. This work will be done in phases with construction expected to start in March 2000 and completed approximately one year later.

A skylight has been installed in an area built out between rings in Wedge 1 to accommodate a new cafeteria.

The E-Ring in Wedge 1 is redefined with stud walls.



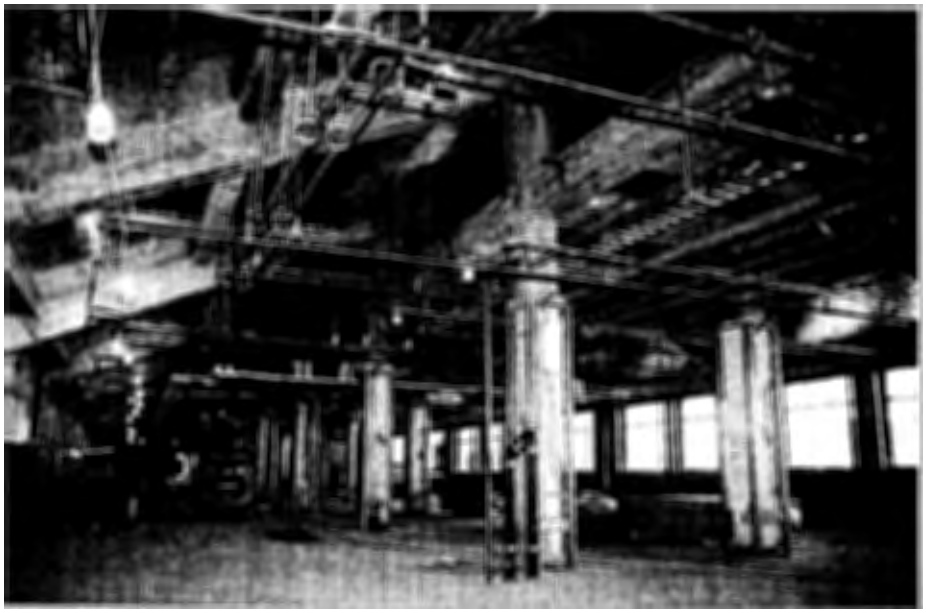
Steel beams now occupy an area where ramps once traversed all five floors in Wedge 1. The area will become office space.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

IM&T, from a construction standpoint, involves providing the necessary pathways for the communication cables. Since today's state-of-the-art communication technology changes so frequently, the installed communication pathways are designed to allow technology upgrades, without major changes to the initial pathways.

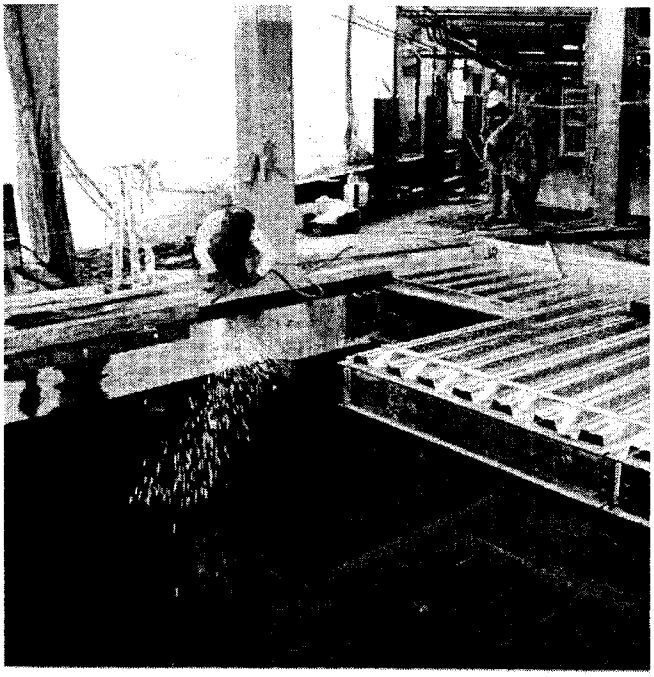
A Wedge 1 Above-Ground Telecommunications Backbone (ATB) Implementation Plan was recieved in June 1999. A Proof of Solution continues to be conducted.

The installation of the initial ATB as a part of the renovation of Wedge 1 has been started.



The pitched roof of the 5th floor in Wedge 1. Electrical conduits have been installed.

Workers in Wedge 1 frame out a new utility trench.



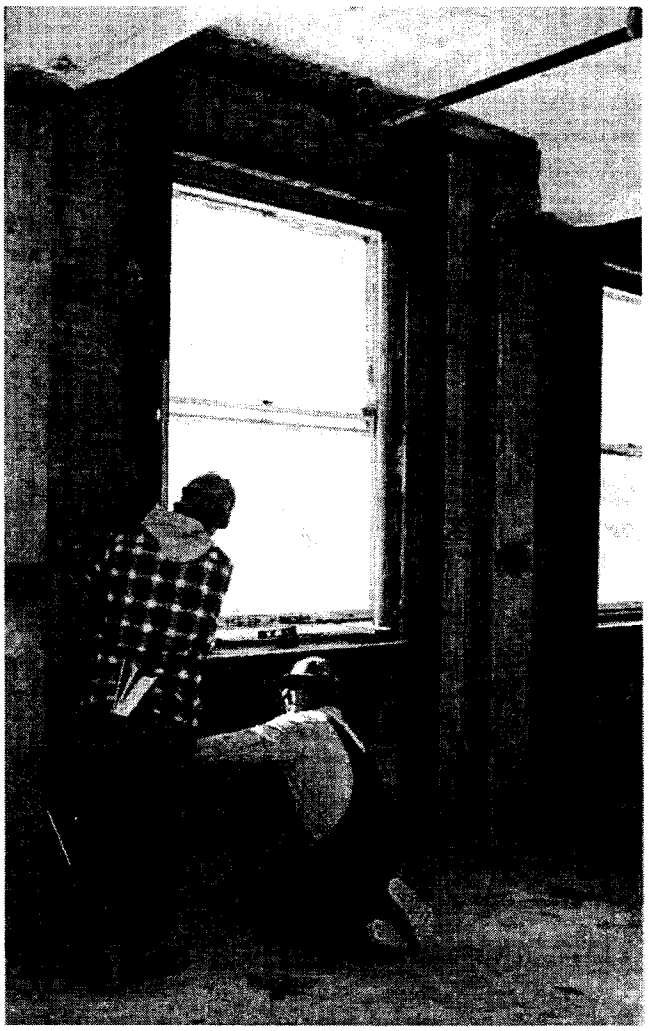
A welder in Wedge 1 secures a framing beam for a new escalator bank.

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

Most of the desks, chairs, carpet, etc., will be manufactured and shipped in accordance with the scheduled move-in dates.

SECURITY

Security has been incorporated in both design and construction.



Workers in Wedge 1 install framework that will strengthen the walls around new blast-resistant windows.

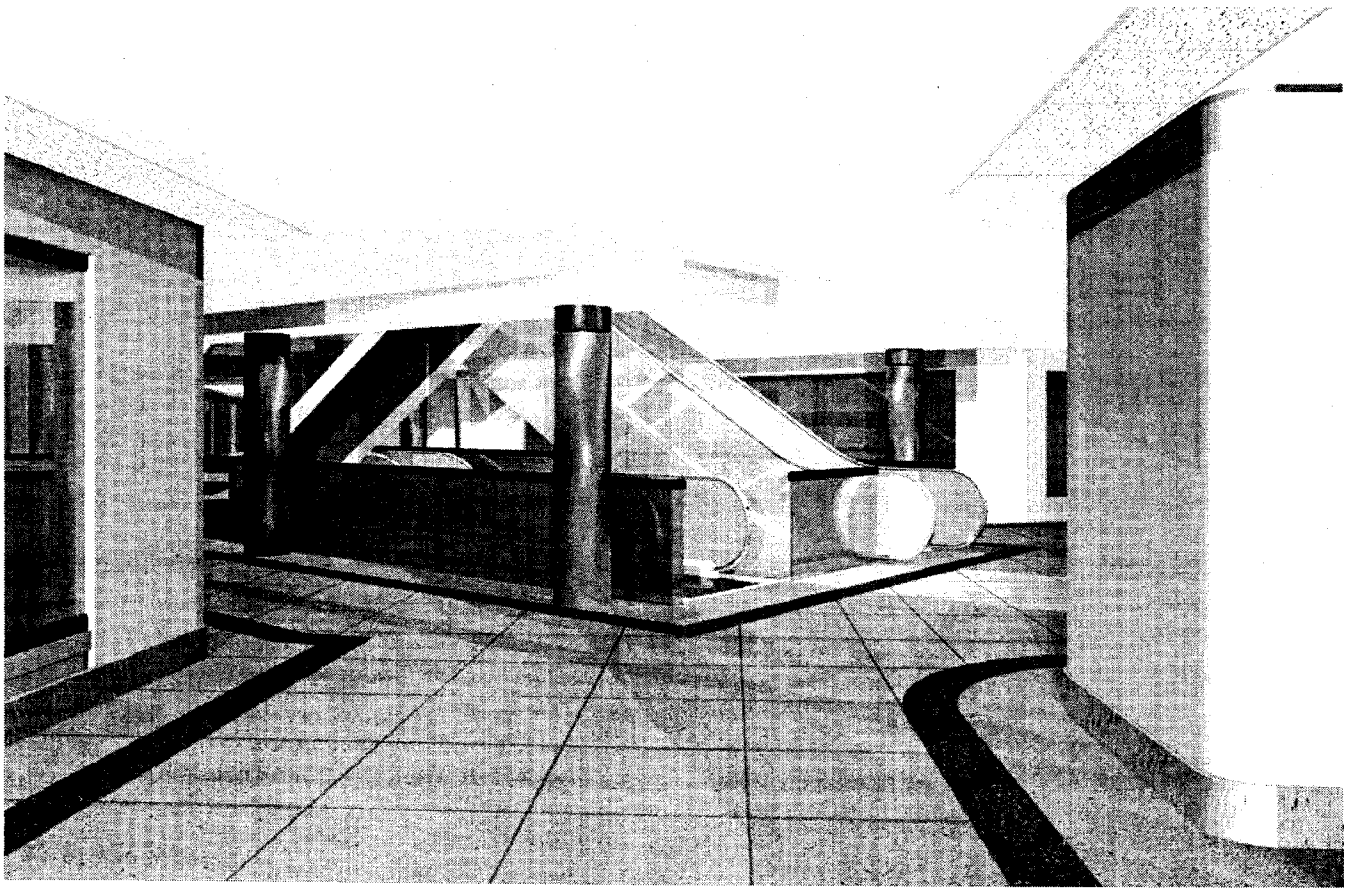
COMMISSIONING

The Commissioning process will occur throughout construction and is essential to having the space ready for move-in.

MOVE-IN

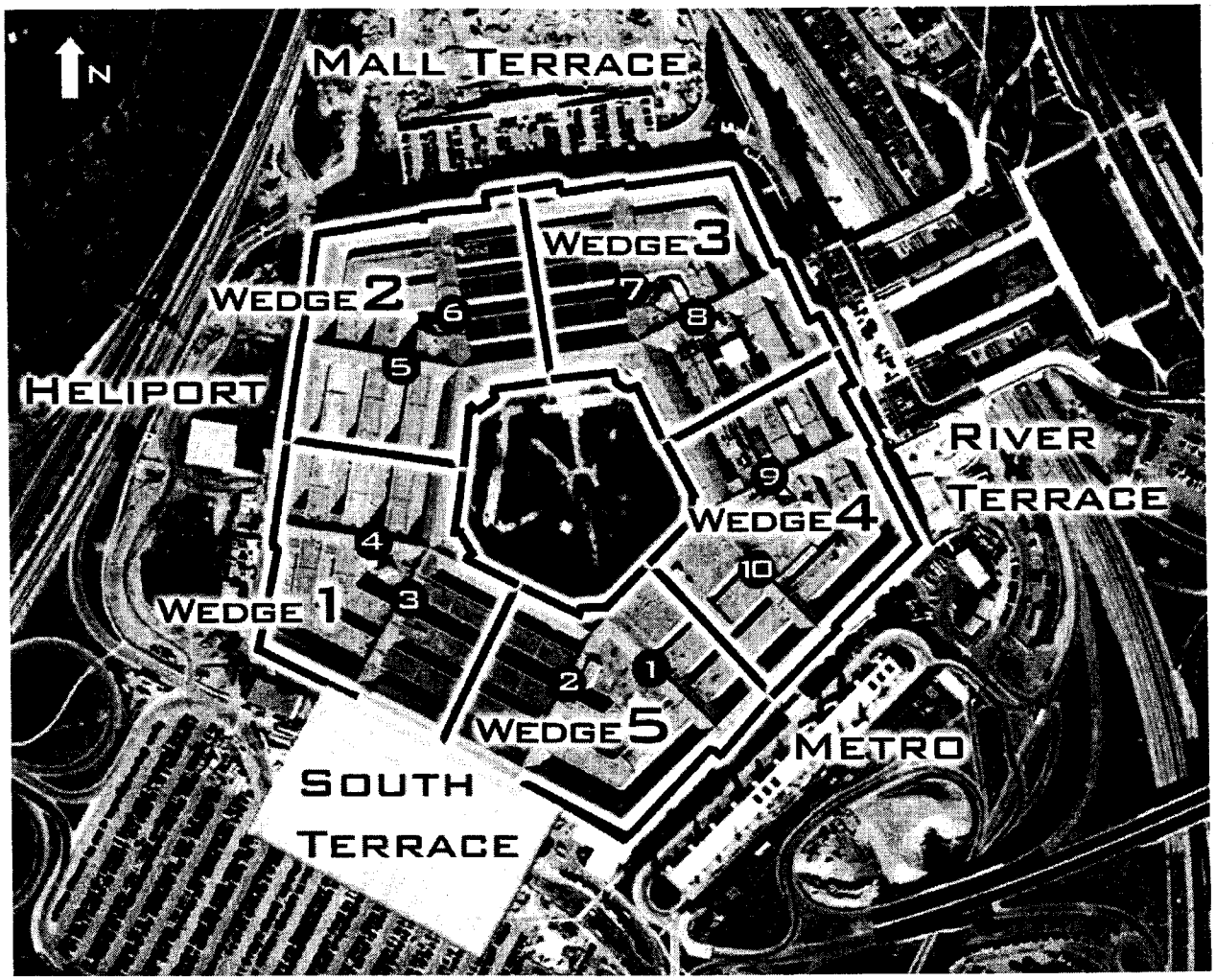
The culmination of the renovation of Wedge 1 is moving the new occupants into new office space. The new occupants, as currently planned, will be from Wedge 2. 5,000 people will be moved in phases, starting as early as the beginning of 2001 and ending around fall 2001.

Proposed Wedge 1 corridor with integrated display cases.

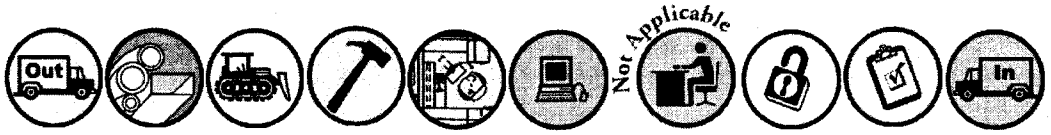


A computer generated rendering of escalators in the A-ring of Wedge 1.

Aerial view taken in February 2000 of the South Terrace Pedestrian Bridge at Corridor2 (right), the adjacent South Terrace loading dock and the South Terrace Pedestrian Bridge at Corridor 3 under construction.



South Terrace Locator



SOUTH TERRACE

The South Terrace Pedestrian Bridges Project includes two pedestrian bridges over Rotary Drive, renovation of the loading dock, and connection to the 2nd Floor of the Pentagon at Corridors 2 and 3. The main purpose is to provide separation of vehicular and pedestrian access while easing traffic congestion along Rotary Drive. The first of the two bridges is now complete.

A five-phased construction plan was conceived for the South Terrace. Phases 1-3 included the Corridor 2 bridge and lobby entrance, new dockmaster offices, and the renovation of the Wedge 5 half of the existing South Terrace loading dock. Phases 1-3 were substantially completed by December 1999. Phases 4 and 5 include the bridge at the Corridor 3 building entrance and the bus stop wall connecting the two bridges, which also provides a visual and security barrier to the loading dock operation. Completion of the entire project is expected in fall 2000.

South Terrace Bridge at Corridor 3 under construction in February 2000. The bridge will open concurrently with Wedge 1.

Formwork surrounds the truck bays of The South Terrace loading dock during renovation in June 1999.

MOVE-OUT

The dockmaster moved from the Wedge 5 loading dock in late October 1998, and operated at the Wedge 1 side during renovation of the Wedge 5 side. Upon completion of the renovation of the Wedge 5 loading dock in December 1999, the dockmaster moved the loading dock operation from the Wedge 1 side into the new Wedge 5 side. Approximately 20 administrative and 50-80 dock personnel were involved in the relocation.

The South Terrace loading dock as it appeared in February 2000. Eventually, all trucks will be diverted to a new Remote Delivery Facility being constructed north of the Mall Terrace.

Aerial view of The South Terrace loading dock in June 1999.

Pile work began for the South Terrace bridge at Corridor 3. The bridge will open concurrently with Wedge 1.

TEMP MEP/COMM

Temporary utilities were provided to the Wedge 1 dock operation while the Wedge 5 side of the dock was being renovated. Permanent utilities have been installed and are in operation on the Wedge 5 side, while all existing utilities at the Wedge 1 loading dock have been cut. New permanent utilities should be completed at the Wedge 1 dock by July, 2000.

DEMO & ABATE

Work was completed at the Wedge 5 dock in March, 1999, and is currently in progress at the Wedge 1 dock side.

CORE & SHELL

The Wedge 5 loading dock was completed in September 1999. The Wedge 1 work has been deleted from the South Terrace contract.

Workers construct the formwork that will give shape to the outer staircases of the Corridor 3 pedestrian bridge.

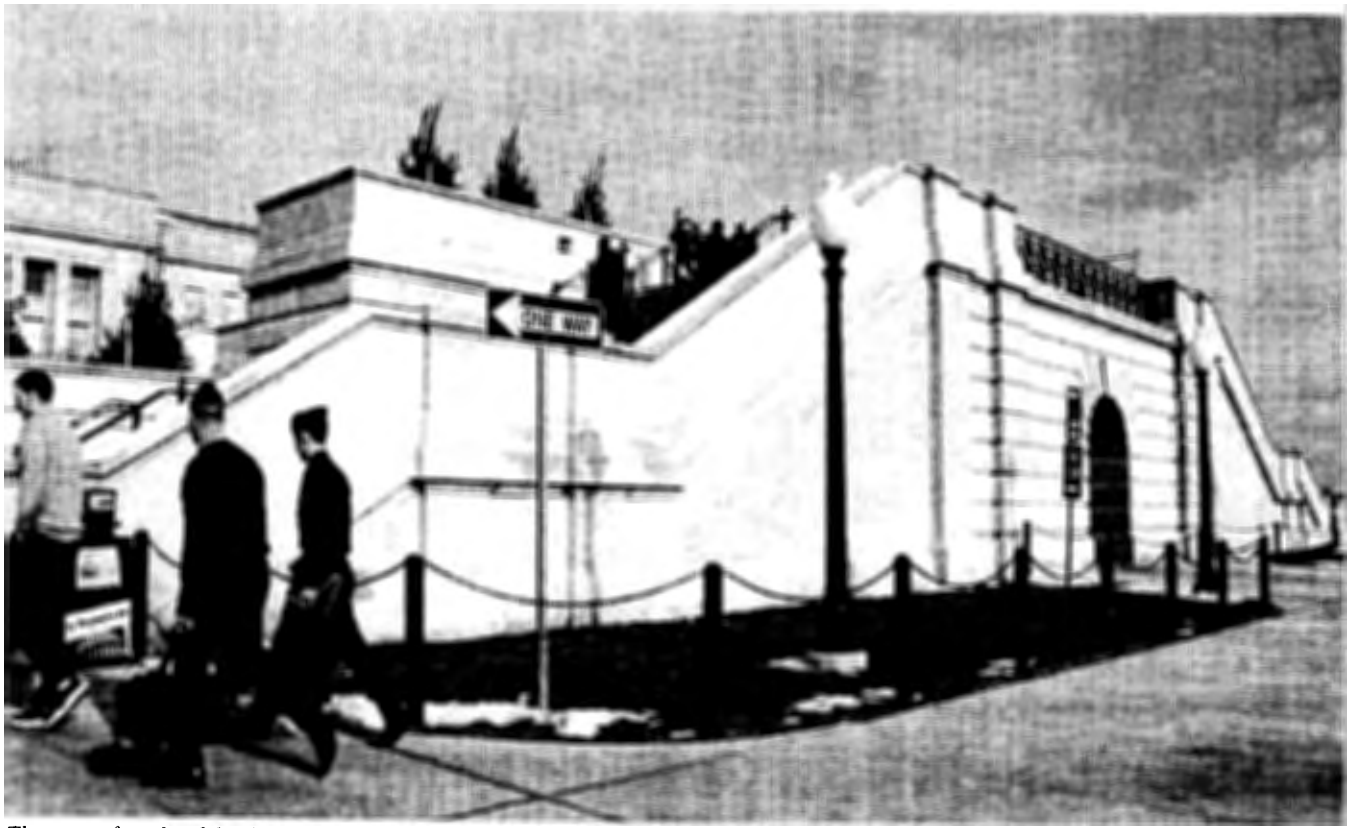
TENANT FIT-OUT

Tenant fit-out in the Wedge 5 loading dock office areas was substantially completed during November, 1999.

Pentagon employees take advantage of the new pedestrian bridge at Corridor 2 to bypass three lanes of traffic on Rotary Road, which lies between the Pentagon and South Parking.

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

IM&T in the Wedge 5 loading dock office areas was substantially completed during November, 1999. The Wedge 1 scope of work will be deleted from the South Terrace contract and added to the Wedge 1 contract.



The outer facade of the Corridor 2 pedestrian bridge echoes the architectural style and color of the Pentagon. The final design was completed in concert with recommedations from the National Capital Planning Commission and other historical review agencies.

Workers install traction plates on the steps of the pedestrian bridge at Corridor 2.

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

N/A

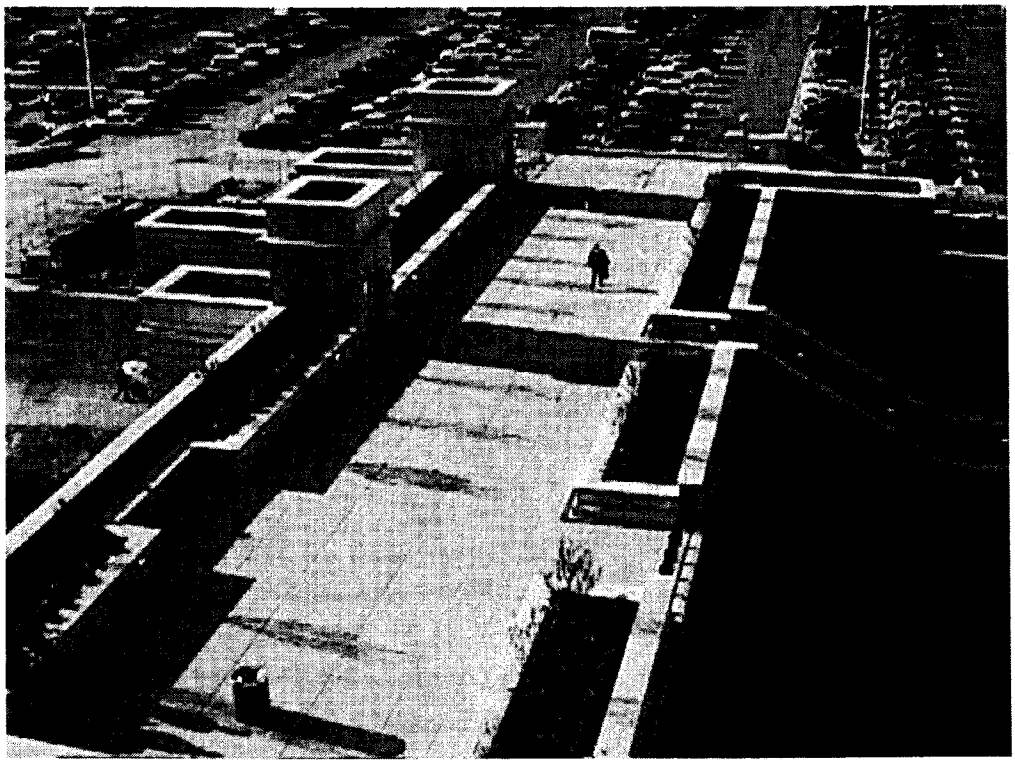
SECURITY

Pedestrian safety and builing security were the main reasons for the construction of the pedestrian bridges. Security in the Wedge 5 perimeter areas was substantially completed during December, 1999. The Wedge 1 scope of work will be deleted from the South Terrace contract and added to the Wedge 1 contract.

COMMISSIONING

Wedge 5 office areas were substantially completed during December, 1999.

A view of the pedestrian bridge at Corridor 2 from the Pentagon. South Parking can be seen at the top of the photo.



II. Projects in Progress — Wedge 1 - South Terrace

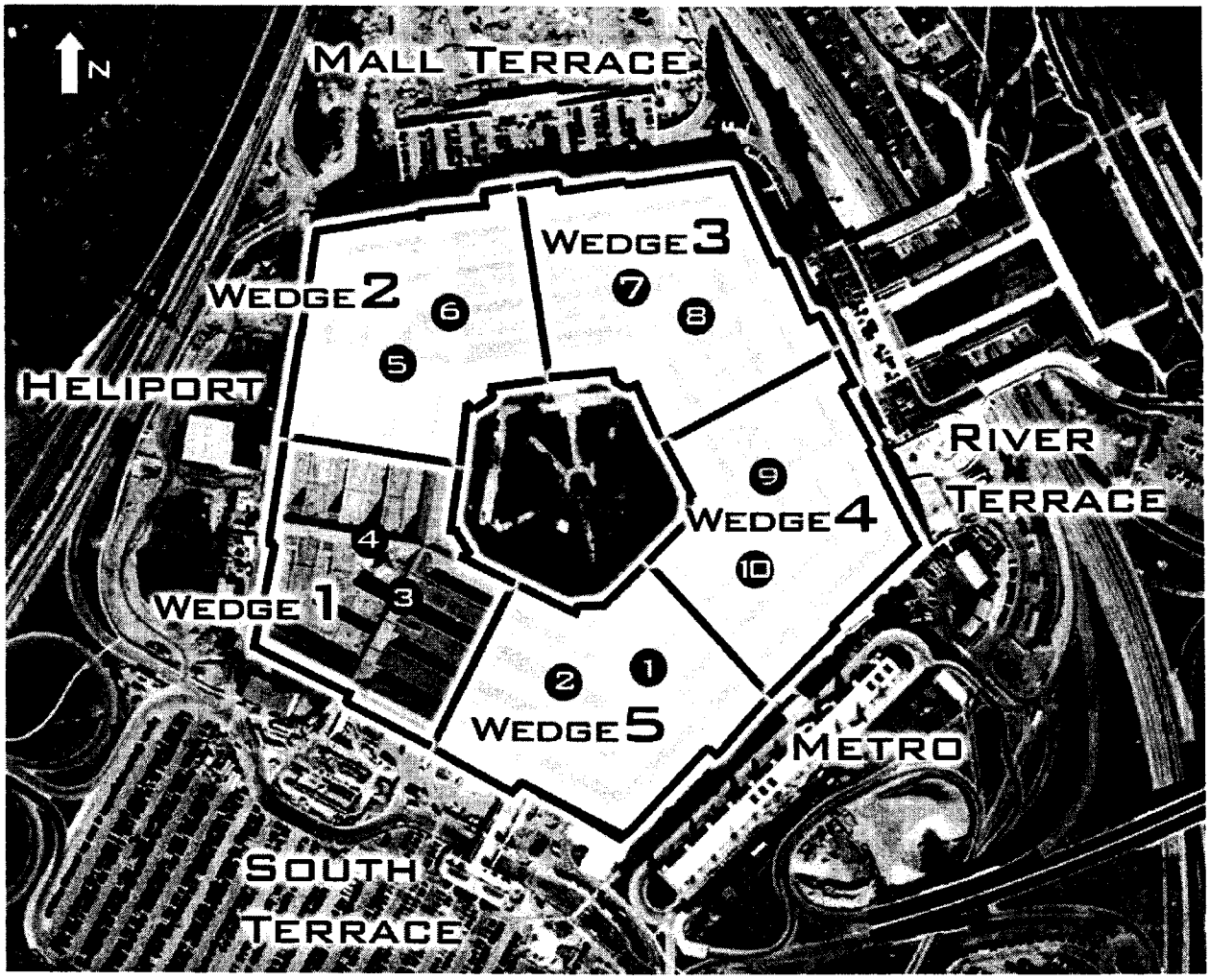
MOVE-IN

The Dockmaster moved into the newly completed Wedge 5 side of the loading dock area from the Wedge 1 side in January 2000.

ADDITIONAL NOTE: Completion of the Corridor 3 pedestrian bridge is projected for July 2000 and will include completion of the reconfigured Rotary Road bus pick-up and drop-off lanes.

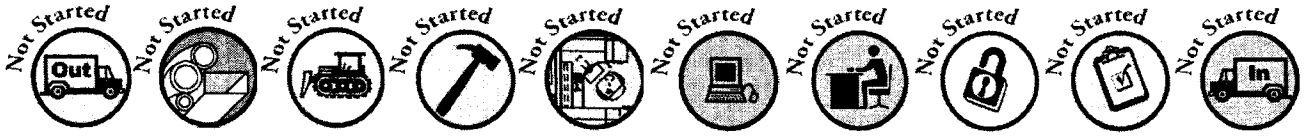
A close aerial view of the pedestrian bridge at Corridor 2. Two elevators in the bridge provide access for persons with disabilities.

Aerial view of the Pentagon at the corner of the Metro (left) and River Terrace (right) facades. The point marks the center of Wedge 4.



Wedges 2-5 Locator

WEDGES 2-5



FLOORS 1-5

Aerial view of the Mall Terrace, which lies at the midpoint between Wedges 2 and 3.

Wedges 2 through 5 (all five floors) are currently being planned as a single acquisition, with phased construction. The approved acquisition strategy will utilize a design/build project delivery method, with performance based requirements. The objective is to realize cost savings with one prime construction contractor through the benefits of a true partnering environment by minimizing the learning curve on each wedge. The Pentagon Renovation's primary schedule risks are working around and moving tenants to accomplish construction. Thus the construction contractor's input during design will be instrumental in providing a truly constructable and coordinated solution.

Construction will be phased, with completion scheduled one wedge at a time. This includes: moving tenants from Wedge 2 into Wedge 1, Wedge 3 into Wedge 2, etc.; installing temporary utilities needed to keep the other wedges operational; demolition/abatement; core & shell construction; tenant fit-out construction; and move in. The use of one construction contractor will help to identify and plan work in portions of other wedges, potentially resulting in schedule and budget improvements.

II. Projects in Progress — Wedges 2-5 - Floors 1-5

The Metro Entrance and South Terrace facades meet at the center point of Wedge 5.

The Wedge 2-5 team is currently developing the project's performance requirements to reflect the Program's "Back to Basics" goals. This effort will become part of the project "requirements package" which will be used to obtain construction contractor proposals. One of the challenges the team faces is to reduce first costs (construction cost) to meet the Renovation's "cap" cost, while attempting to minimize the life-cycle cost of operating the Pentagon in future years. Reducing first costs does not always provide an efficient and cost-effective solution for reducing future building operational expenses, which in the end, could increase the taxpayer's burden by increased energy or maintenance expenses. However, to meet the Pentagon Renovation's cap cost, the first cost reduction approach has become a controlling criteria.

The Wedge 2-5 acquisition approach will use two-phased design-build procurement procedures in accordance with FAR 36.3. Phase I is the Request for Qualifications leading to the establishment of a pool of contractors to compete in Phase II. Phase II is the Request for Proposals leading to contract award, currently planned for the 2nd quarter of Fiscal Year 2001. The start of actual construction for the first portion of the next renovation phase (Wedge 2) is directly tied to the completion of Wedge 1.

Minimizing disruptions to the Secretarial offices along the Mall and River Terraces will pose unique challenges to the renovation team.

II. Projects in Progress — Wedges 2-5 - Floors 1-5

MOVE-OUT

Wedge 2 tenants are scheduled to move into the renovated Wedge 1 in conjunction with the Wedge 1 tenant fit-out completion schedule. Temporary utilities and demolition/abatement will start immediately after the wedge is vacated.

Wedge 2-5 Highlights

- 4,000,000 gross square feet of building space
- 20,000 people occupy Wedges 2-5, requiring 20,000+ moves
- 5,000 tenants to be coordinated/relocated during each phase
- Communication connectivity required for relocated tenants
- Design-build project delivery method planned
- Temporary utilities required for each phase to maintain existing building
- Demoliton/abatement removal:
  -60 million pounds of debris
  -12 million pounds of hazardous material
  -Goal of 70% material to be recycled
- New building elements:
  - energy saving building elements/ materials
  - elevators/escalators
  - automated building control systems
  - thermal insulated and blast resistant windows
  - security upgrades
  - Building code and ADA compliance
- Relocation and build out for Defense Secretaries/Operation centers
- Relocation and planning for food service and retail building functions

A view inside Wedge 1 where floor slabs have been removed to clear the way for new elevators. Eventually, each wedge will be gutted and cleared down to the bare column structure seen here.

Aerial view (Feb. 2000) of the Pentagon's heliport and fire station showing excavated trenches for new water lines.

Underground Water Line Locator

POWER/SITE

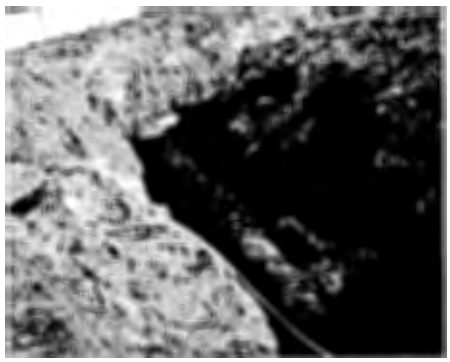
REPLACEMENT OF UNDERGROUND WATER LINES

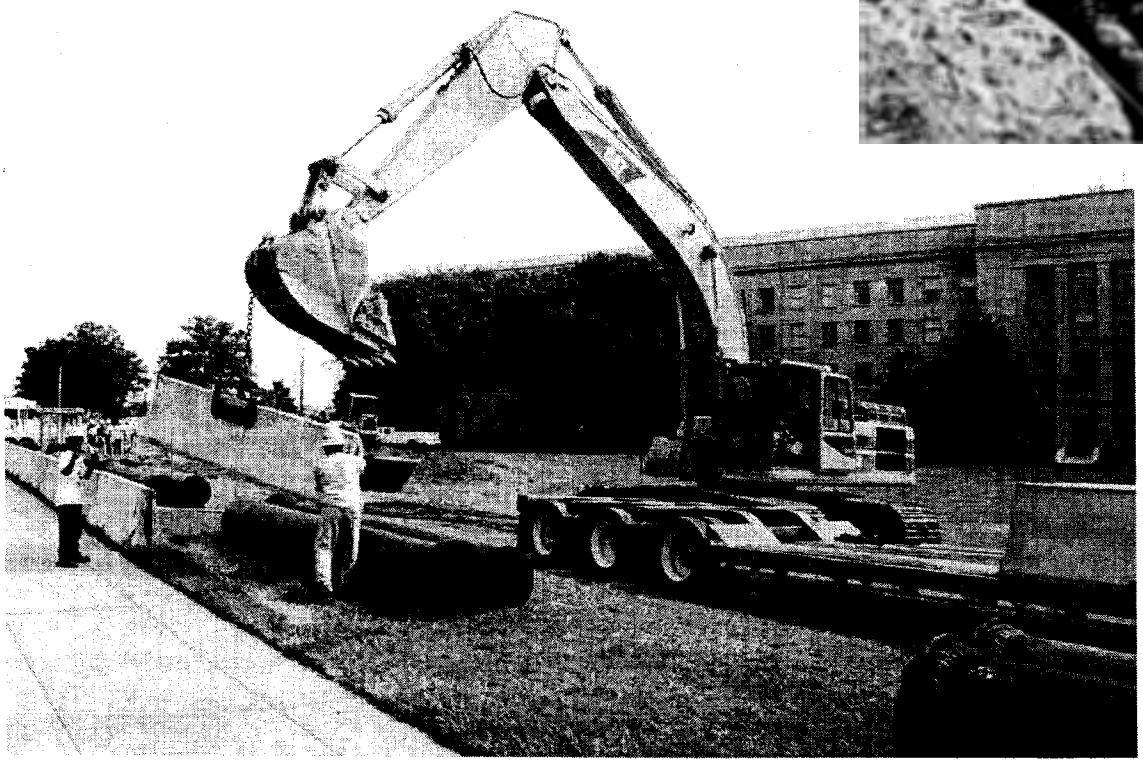
The Underground Water Lines project was awarded on June 9, 1999, to replace federally-owned water mains serving the Pentagon. These lines provide domestic water to the building, process water for the heating and refrigeration plant, and water for fire protection. The existing lines, first installed in the 1940's, were badly deteriorated and near the end of their service life. The contractor constructed four new water meter vaults, replaced 1,100 feet of 24-inch water main, and provided four new 10- inch water lines into the building.

CHILLED WATER LINE HIGHLIGHTS

- 1,100 feet of 24-inch water line
- 4 new 10-inch feeds into building
- 3 new water meters
- Small and Disadvantaged Business contract

A new 24-inch water line lies in a trench near the Pentagon heliport.





A back-hoe is used to place a Jersey Barrier along the walkway around the Pentagon heliport. The area is being restricted to clear the way for placement of new water lines.

The River Terrace bypass lane has been prepped for asphalt paving. Crash bollards, a card reader and gate arm shells have been placed on the concrete island.

Access Road Widening Project Locator

ACCESS ROAD WIDENING

HIGHLIGHTS:

- Security improvements to River Terrace Access Road
- Completed in 30 days
- Small and Disadvantaged Business contract

The Access Road Widening Project consists of the excavation and installation of an asphalt-covered bypass lane to allow authorized vehicles to gain access to the Pentagon utilizing an alternate lane during traffic tie-ups at the guard booths. The modifications were performed at the River Terrace and Mall Annex entrances. A third entrance at the Mall Terrace will be completed under another contract. Concrete islands, crash bollards, and conduit for DPS forces to install road gates and control devices, were installed by the contractor. The Pentagon Building Management Office will complete land scaping and the Defense Protection Service (DPS) will complete installation of security devices.

The majority of the physical construction associated with these lanes and the landscaping is complete. The installation of security devices continues. The DPS contractor is performing the balance of the work.

This was a design-build contract, awarded on September 17, 1999. It required only 30 days from contract award to construction completion.

Island at River Terrace for gate arm and card reader has been formed. Concrete placement is underway. Crash bollards to the left of the formwork were installed during the pour.

A trench was dug in South Terrace Parking to accommodate the rerouting of a chilled water line.

Chilled Water Line Locator

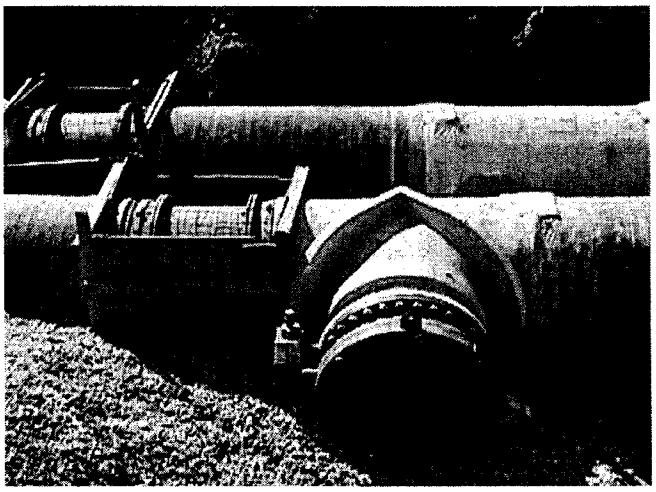
CHILLED WATER LINE FEEDERS

The installation of new chilled water line feeders into the building is nearly complete. This project connects the chilled water lines of the Heating and Refrigeration Plant from their termination point in South Parking to the new chilled water loop installed in the Center Courtyard. The two new 36-inch lines will complete the chilled water main piping for the building's air-conditioning system.

HIGHLIGHTS:

- 900 feet of new 36-inch pipe
- Half of the line is below ground
- Half of the line is installed in existing utility tunnel
- Small and Disadvantaged Business contract

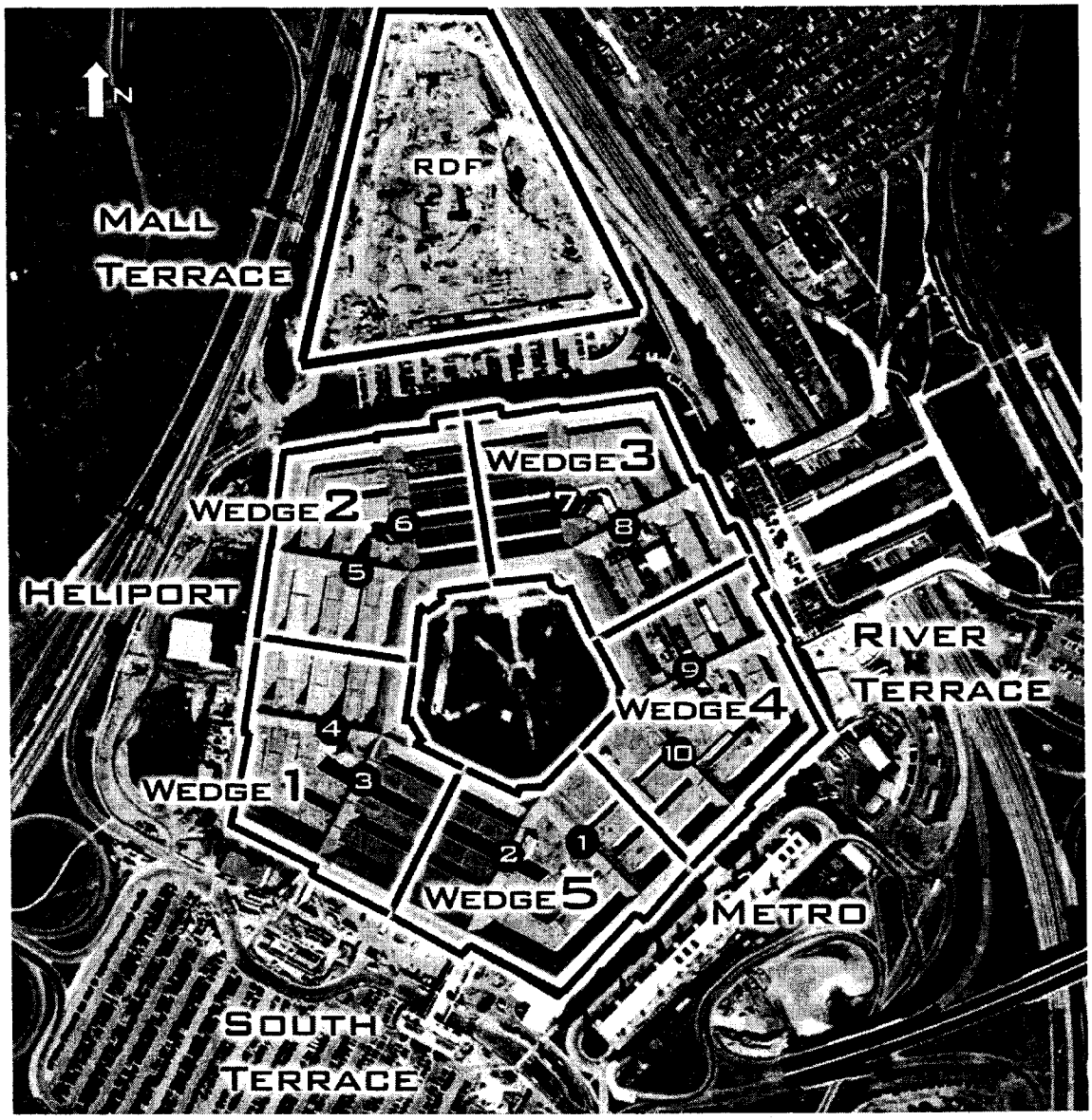
A trench was excavated for a new 36-inch chilled water line.



Installation of the new chilled water line.

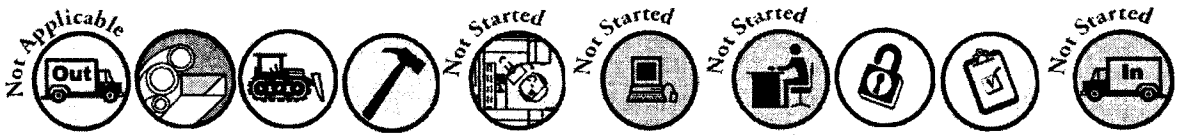
New chilled water line connections near the South Terrace Pedestrian Bridge.

The new Remote Delivery Facility will divert trucks and other large vehicles away from the Pentagon and serve as a secured screening facility for all items entering the building. Truck bays in the foreground begin to take shape.



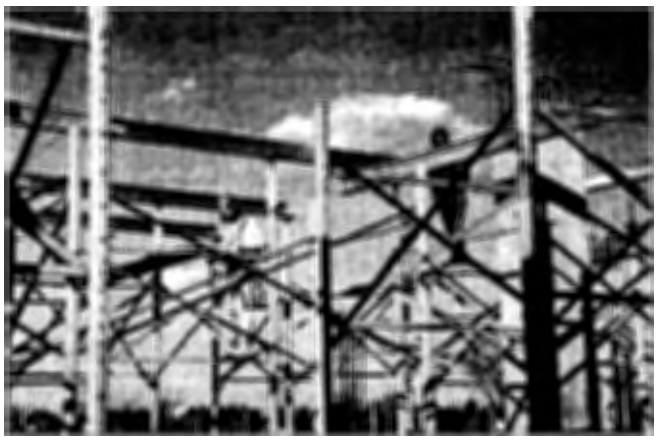
Remote Delivery Facility (RDF) Locator

ANCILLARY PROJECTS



REMOTE DELIVERY FACILITY (RDF)

The Remote Delivery Facility is a new 250,000-square foot building being constructed adjacent to the Pentagon's Mall Terrace. When completed, the RDF will significantly improve the physical security of the Pentagon by providing a secure consolidated location for receiving and screening thousands of items shipped to the building each day. The new one-story facility, which will be connected to the Pentagon via an access tunnel, includes thirty-eight loading docks, an x-ray area, and space for associated material handling functions. Additionally, the building will house the Pentagon's maintenance shops and other light industrial operations.



Workers construct shoring for the roof structure of the new Remote Delivery Facility.

The RDF, which is on a 24 month fast-track schedule for security reasons, is the first major project to be accomplished at the Pentagon utilizing a design/build project delivery system. Following a highly competitive two-phase best-value source selection, the design/build contract was awarded in April 1999. The winning design exceeds all of the established performance criteria, and successfully integrates the building into the site through the use of extensive berming and landscaping. The contract type is unique in that although it is fixed-price, it contains incentive provisions. These provisions provide the opportunity for the sharing of cost overruns or underruns and award fee provisions which provide the opportunity for the contractor to earn profit based on the government's satisfaction with his overall performance.

Heavily reinforced columns rise on the Remote Delivery Facility site.

Workers install a complex system of roof beams and slabs for the Remote Delivery Facility.

The Remote Delivery Facility will include 38 truck bays. In the foreground, concrete has been placed for several of the bays.

Design of the RDF was completed in December 1999 and construction is well underway.

MOVE-OUT

A tenant move-out is not applicable to this project. However, it was necessary to inform tenants of the loss of approximately 600 parking spaces from the Mall parking lot. This was accomplished through the Renovation Program's web site, posters, hand delivered notices, and meetings.

TEMP MEP/COMM

Foundation work and installation of underground utilities began in late August 1999, and are now nearly complete.

DEMO & ABATE

Before construction of the RDF could begin, a section of Mall Terrace parking had to be removed. By storing the excavated soil at sites around the Pentagon Reservation instead of moving it to a dump site 20 miles away, the Program saved close to $1,000,000.

CORE & SHELL

Placement of structural floor slabs, columns, walls, and roof slabs is underway.

TENANT FIT-OUT

INFORMATION MANAGEMENT & TELECOMMUNICATIONS (IM&T)

FURNITURE, FIXTURES, & EQUIPMENT (FF&E)

II. Projects in Progress — Ancillary Projects - RDF

SECURITY

Security is the reason for the existence of the RDF. Careful attention has been paid to security needs and requirements throughout design and construction.

COMMISSIONING

The RDF is the first project to completely integrate the commissioning process from the start of planning and design. As a result, the project is on schedule and within budget.

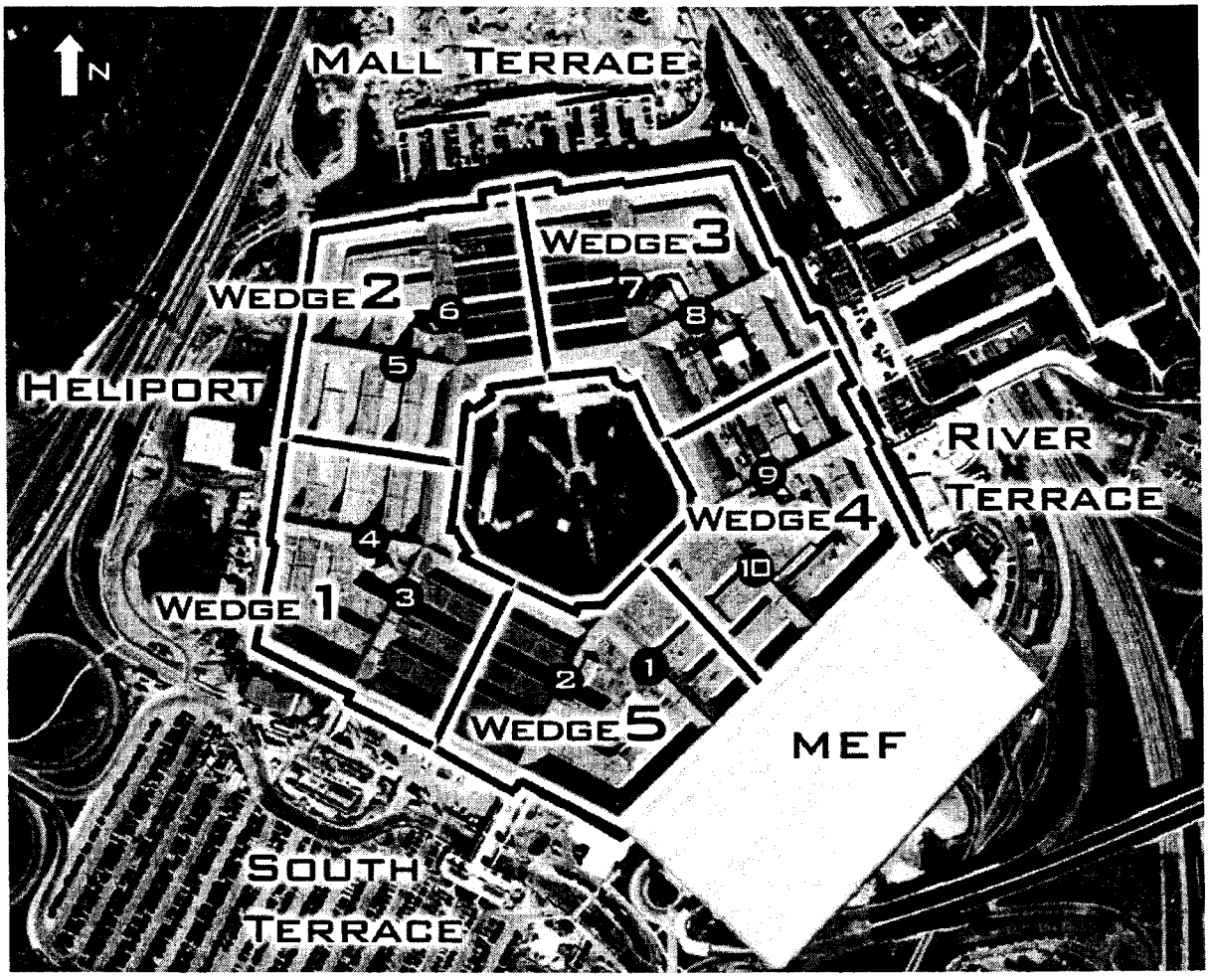
MOVE-IN

The project is currently within budget and on schedule for first phase occupancy by Fall 2000 and second phase occupancy by Winter 2000. Final completion will occur by Spring 2001.

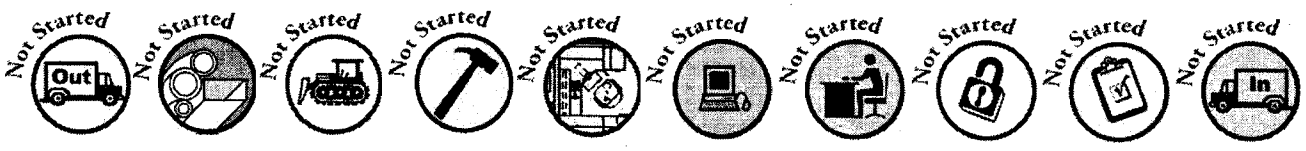
Workers excavate soil near new pilings.

An artistic rendering of the completed Remote Delivery Facility. After landscaping has been complete, the RDF will be almost undectable from the surrounding roadways.

Aerial view of the Pentagon Metro Entrance looking east. 16,000 employees enter the building from this facility. Thousands more use the station as a transfer point.



Metro Entrance Facility (MEF) Locator



METRO ENTRANCE FACILITY (MEF)

Based on recent security assessments, the need for a new Metro Entrance Facility (MEF) has become evident. This new facility will improve the physical security of the Pentagon by eliminating the existing direct entry into the building and providing maximum standoff of vehicles and pedestrians from the building. The project objectives are as follows:

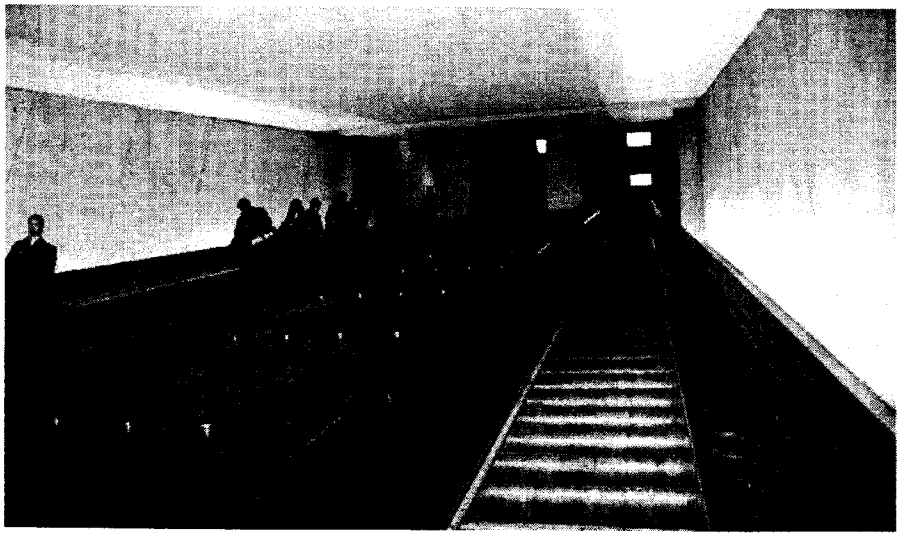
- Achieve security of the Metro entrance.
- Organize Pentagon arrival, access, and circulation areas to create a more secure environment and entrance.
- Balance security concerns against a welcoming front entrance.
- Phase and synchronize facility construction to maintain current transportation functions, Pentagon access, and minimize impacts to other construction efforts.
- Minimize the visual and physical impact of the MEF on the Pentagon.

The existing Metro bus loop allows vehicles to be within close proximity to the Pentagon and occupied office space. Current security initiatives require the loop to be relocated farther away from the building.

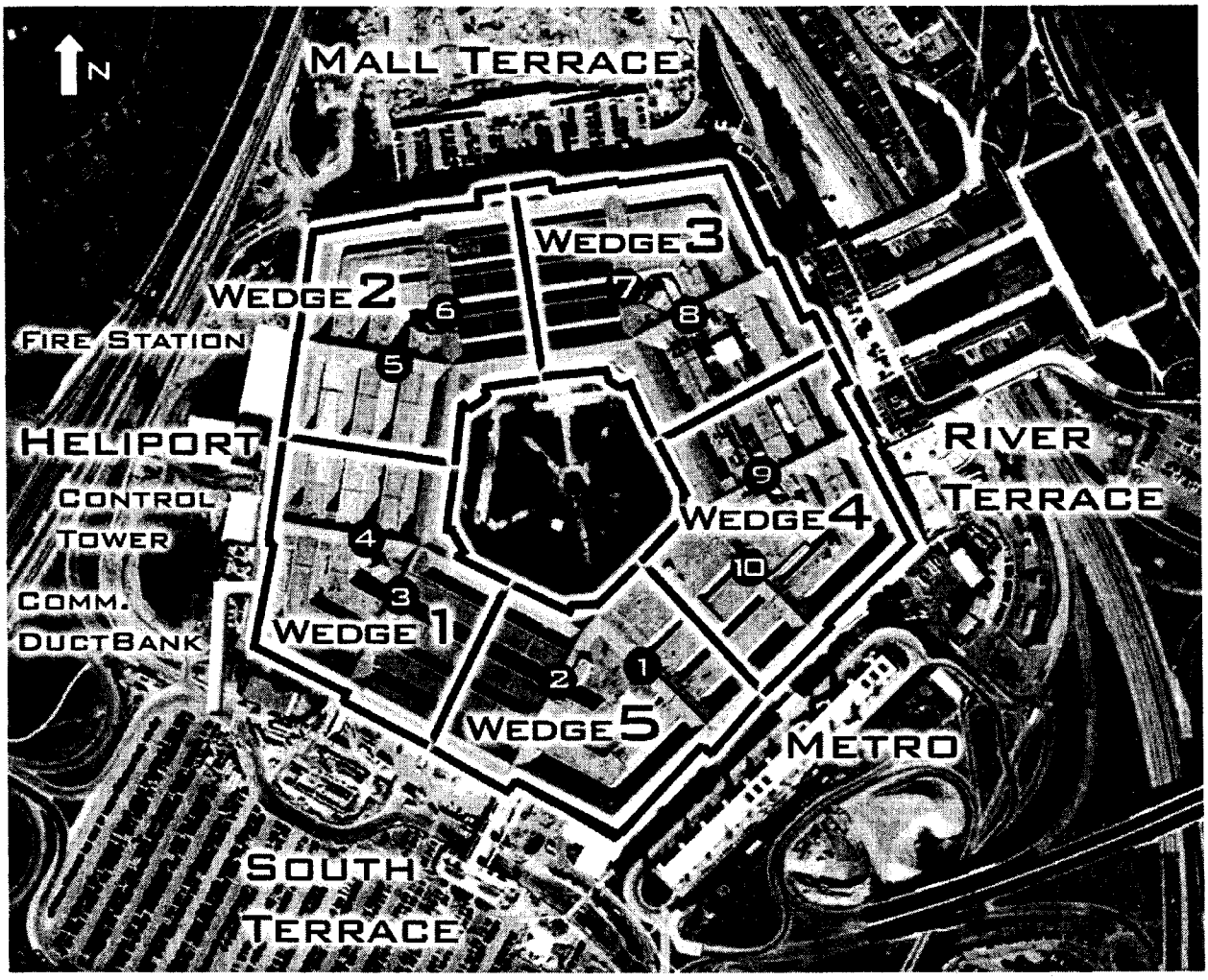
View of the escalators leading from the Metro station and into the Pentagon. The top of the escalators are within the building perimeter.

The Government intends to award a design-build, fixed price, incentive (firm target) contract with an award fee. The MEF acquisition and source selection are being conducted in accordance with the Federal Acquisition Regulation (FAR), Part 15.

A two-phase, best-value approach will be utilized for this source selection: Phase One is a Request for Qualifications (RFQ) and Phase Two is a Request for Proposals (RFP). Contract award is anticipated by the end of July, 2000.



Aerial view of the Pentagon Heliport Fire Station and Control Tower.



Heliport Fire Station and Control Tower Locator

HELIPORT FIRESTATION AND CONTROL TOWER

Under negotiation is a Small and Disadvantaged Business (8a) contract to upgrade the Heliport Fire Station and Control Tower. The fire station is being extended to improve berthing facilities and provide access for newer fire-fighting equipment. The control tower project will upgrade electrical and mechanical systems, and bathroom facilities. The roof will also be replaced. A third part of this contract will install a new 500-foot communications ductbank from the building near the heliport to connect with a contractor trunk line at South parking. Contract award is anticipated by February 1, 2000.

HIGHLIGHTS:

- Expands fire station for berthing of new equipment
- Upgrades mechanical/electrical systems in Control Tower
- New 500-foot communication duct bank for connection to Bell Atlantic
- Small and Disadvantaged Business contract

Aerial view looking north at the Pentagon Heliport Fire Station and Control Tower. Renovations are needed to meet the current needs of both facilities.

III. Process Improvements

Aerial view of the Pentagon looking over Wedges 2 (foreground) 3, 4. Wedges 2 through 5 are currently being planned as a single acquisition, with phased construction. The objective is to realize cost savings with one prime contractor through the benefits of a true partnering environment.

III. PROCESS IMPROVEMENTS

Security

Acquisition

Information Management and Telecommunications

Construction

Commissioning

Tenant Moves

Systems Furniture Implementation

Program Management

The Pentagon Renovation Program Manager points out to the Secretary of the Army, Louis Caldera (front), some of the unique structural features of the Pentagon's building frame during a tour of Wedge 1.

SECURITY

Perimeter access at Utility Plant with crash-rated barrier protection.

Card reader stanchion with CCTV, intercom, and multi-badge capabilities.

The Pentagon Renovation Program security upgrades include maintaining the existing security afforded to the entire building, while upgrading perimeter access control, building access control, and expanding the closed circuit television system (CCTV) to include areas under construction. The security upgrade measures are based on an overall master security program upgrade process enhanced by additional protection requirements based on terrorist threats and force protection issues.

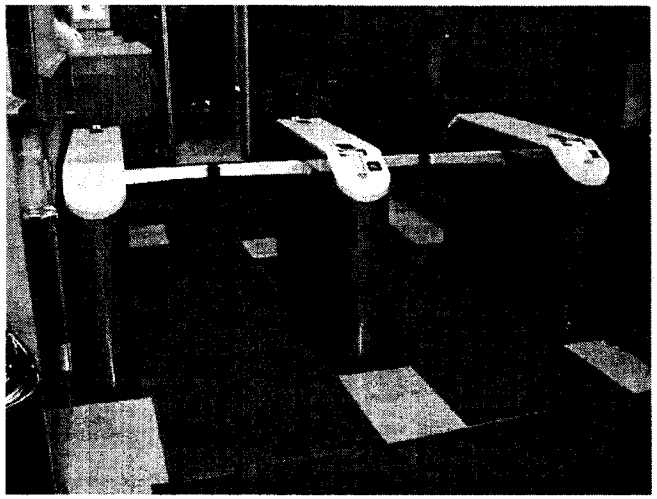
PERIMETER ACCESS CONTROL

A system of crash gates and bollards were upgraded in 1999 to control vehicle access to Pentagon entrances. The vehicle access control is now activated by using the building pass, which is issued to approved personnel.

Crash-rated pop-up barriers.

BUILDING ACCESS CONTROL

All personnel entrances have been upgraded to a turnstile access control system that utilizes the building pass (badge) of individuals. This provides the Pentagon Defense Protective Service with the capability of positive access control and visitor control. Reports can be generated to reflect the user population at any given time.



Automated access control has been installed at all Mall, River, and Metro entrances.

CLOSED CIRCUIT TELEVISION SYSTEM (CCTV)

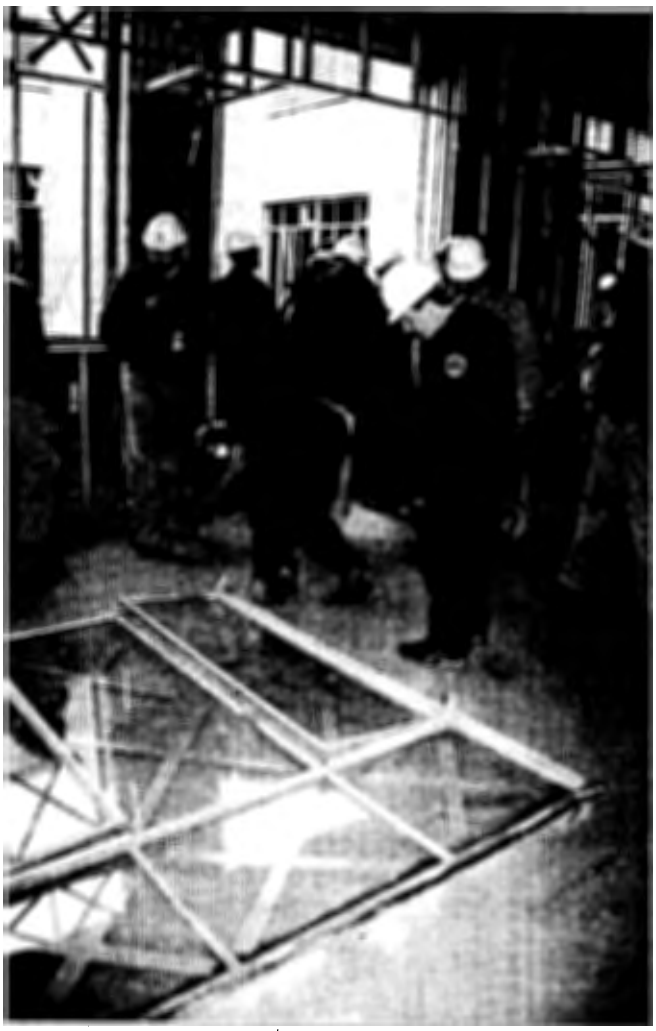
The Pentagon's CCTV security systems were substantially improved during 1999. A major emphasis was placed on improving the lighting and CCTV coverage of the parking lots. Additionally, motion-activated CCTV cameras were placed to monitor the Highway110 traffic.

A state-of-the-art security station with CCTV, Video Image Recognition, Communication, and Bullet Resistance Protection capabilities.

Aerial view of the Pentagon. Wedges 1-5 encompass 5,000,000 square feet of building space above ground.

WEDGES 1-5

Wedge 1 and Wedges 2-5 are receiving the majority of the Pentagon's security upgrade attention. The first, core and shell security, deals primarily with the building's standard security requirements, i.e., CCTV in corridors, securing the electrical and mechanical rooms, and the building perimeter doors (entrances and emergency exits). All the output from the devices performing these security functions are sent to the Defense Protective Service Records Control Center where these devices are monitored 24 hours a day.

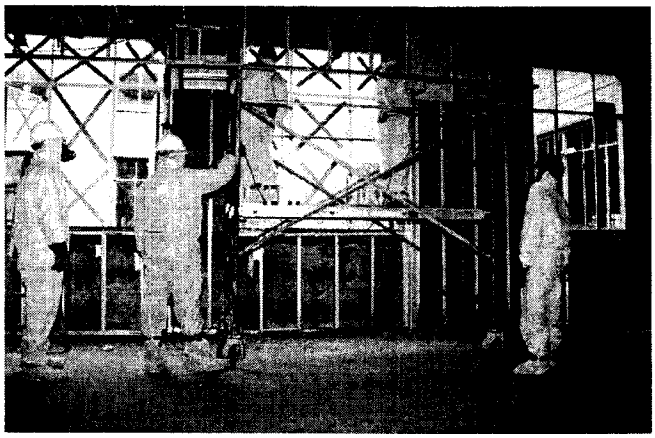


Engineers examine features of the first of 7,748 windows that will be removed during the course of renovation.

WINDOWS

There are 7,748 windows in the Pentagon. They consist of steel casements largely embedded in the perimeter walls of the concentric inner courts, and steel double-hung units in the outermost perimeter and in the Center Courtyard walls. The double-hung units in the central pavilions of the Mall and River Entrances are steel. The casements are rusted and corroded at the joints, racked out of shape, and cannot be properly closed.

The new windows on the A and E rings will be blast-resistant and permanently closed. This will not only increase the energy efficiency of the building, but will also serve to protect the tenants against an external attack.



Lead paint around Pentagon window frames requires workers to wear protective clothing during the window removal process.

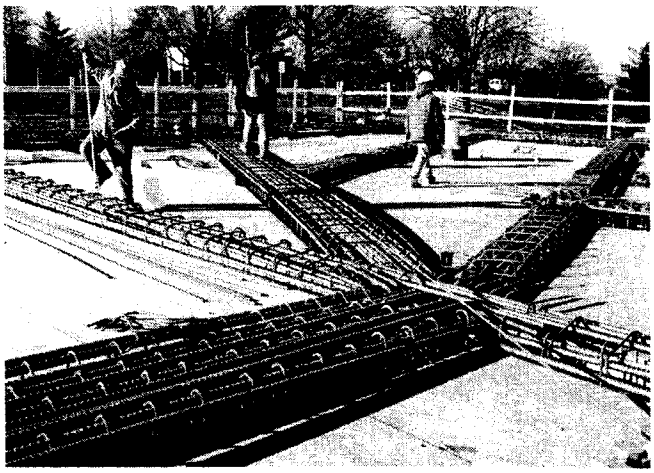
TENANT SECURITY

Tenant security requirements are determined by tenant needs and must meet National Security Policy. The requirements can range from a lock on a facility entrance door to an area that requires combination door locks, a secure area access control system, and an Intrusion Detection System . The tenant has the option of monitoring these systems or having the monitoring done by the Defense Protective Service.

Electronic turnstiles ensure the validity of DoD passes.

FY1999 ushered in additional Pentagon security requirements based on numerous international and domestic terrorist attacks. Two major projects were started as counter-terrorism measures to enhance the security of the Pentagon. These are the Remote Delivery Facility (RDF) and the Metro Entrance Facility (MEF).

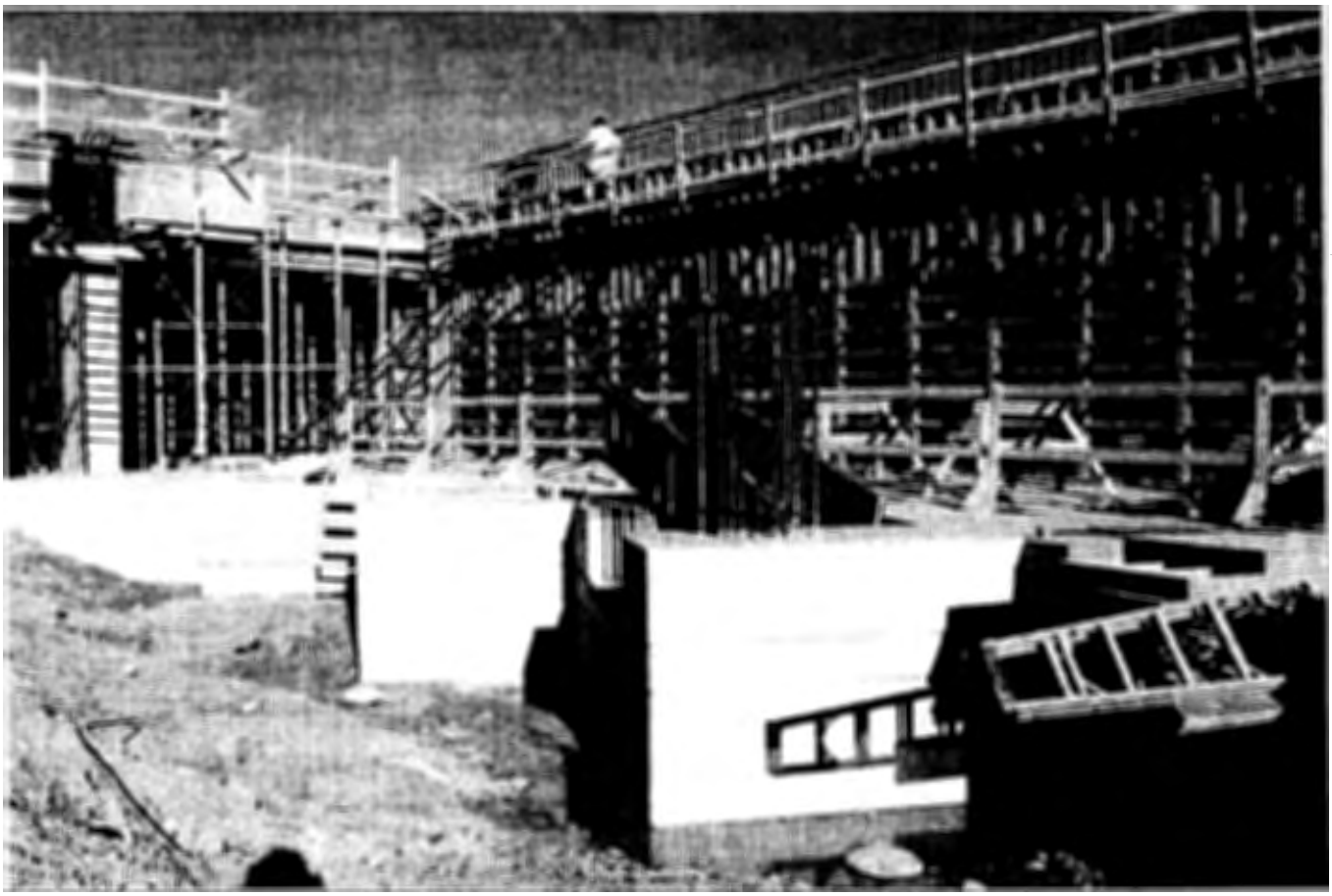
Heavily reinforced concrete walls continue to rise on the site of the Pentagon's new Remote Delivery Facility.



This portion of the Remote Delivery Facility is marked by tightly meshed rebar.

REMOTE DELIVERY FACILITY (RDF)

The RDF will be an external facility whose function will be to security-screen all material being delivered to the Pentagon. This will involve the use of large x-ray units, explosive material detection equipment (including specially-trained dogs), under-vehicle closed circuit television systems, and incoming material physical inspections performed by highly trained Defense Protective Service personnel. The magnitude of this effort can be expressed in the number of deliveries, which now are being screened at a remote site. The daily average is over 220 deliveries for a normal work day.



Formwork has been removed from the new concrete truck bays of the Remote Delivery Facility.

METRO ENTRANCE FACILITY (MEF)

The security assessment recommended a separate visitor and receiving center for the Pentagon. The Metro Entrance Facility (MEF) will allow for a more secure processing of visitors into the Pentagon. The concept is to isolate potentially dangerous people from gaining access into the building. The primary objective of the MEF is to improve the level of safety and security of the Pentagon building, while continuing to provide convenient access to the Metro and the various means of above ground transportation along the southeast side of the building. The MEF project includes:

The Metro Station bus loop at the Pentagon.

- The relocation of the existing bus facility away from the Pentagon building.
- The construction of a new secured Pentagon building entrance structure, which would include the building pass office and a visitor's center.
- An alternative means of access to the existing Pentagon Metro Station.
- Improved facilities for private vehicle and taxi service.

Aerial view looking southwest toward the Pentagon Metro Station. New security initiatives require that the bus loop to be moved farther away from the building.

ACQUISITION

Business as usual is not an option. The size and complexity of the task at hand, renovating an occupied building exceeding six million square feet without disrupting the critical work of the Department of Defense, demands an acquisition approach that is far more flexible, efficient, and responsive than the public sector design and construction model in use for much of the last century. The business and contracting practices of the Renovation Program bear little resemblance to those of the not-too-distant past and must continue to evolve to meet the constantly changing challenges of renovating the Pentagon.

Key stakeholders are involved in the renovation process at the early planning stages.

The traditional public construction paradigm - design, bid, build - produces designs that are complete far in advance of construction and even farther in advance of actual occupancy. Changes in project requirements can then only be accommodated by costly and inefficient change orders. The award is made to the low bidder under intense competitive pressure and contractors frequently bid at or below the cost of performance. After award, contractors then seek to maximize the number of change orders in a sole source negotiation environment that is historically unfavorable to the Government. Significant cost overruns, delays, adversarial jobsite relationships and litigation frequently result. The design-bid-build approach is particularly unsuited to renovation where new design elements must be incorporated into an existing structure and the ability to respond swiftly to unforeseen site conditions revealed during construction without excessive change order activity is of paramount importance.

The Renovation Program has abandoned the traditional government paradigm. Contracts are no longer awarded to the low bidder, but to the contractor who can provide the best value, with heavy emphasis placed on the contractor's past performance on similar work. In addition, most renovation contracts now contain cost incentive provisions that permit the contractor to share in both underruns and overruns (the Government's liability on overruns is capped). In addition, renovation contracts now contain subjective award fee provisions that provide the contractor with incentive to earn a profit-based reward of up to 10% of the bid price for superior construction quality, schedule performance, etc. Award fee evaluations are conducted quarterly and provide contractors with the opportunity to realize a significant profit or an immediate and unambiguous message (i.e. little or no fee) when performance is poor. The award fee is a powerful tool. It discourages frivolous change order requests and permits the Gov-

ernment to motivate the contractor to excellence on particular elements of contract performance that are critical to the project success.

In addition, the Renovation Program has changed its design and specification practices. In the traditional approach, the Government provides hundreds of pages of drawings and specifications that describe, in detail, not only where every switch plate, doorknob and outlet is to be placed but *how* it is to be placed. This prescriptive or "cookbook" specification method increases design costs, and creates a contractual straitjacket that denies industry the opportunity to take advantage of economies that present themselves during the construction phase. Using performance requirements that describe "what" performance characteristics are required, not "how" these characteristics are to be achieved, the Renovation Program is increasingly able to take advantage of efficiencies long utilized in commercial construction, but slow to take hold in the public sector. In addition, performance-based requirements are far better suited to the uncertainties inherent in renovating a 58-year-old building in an advanced state of deterioration.

In January 2000, the Pentagon Renovation Deputy Program Manager (right) signed a memorandum of agreement with officials from the Washington, D.C. Board of Trade to encourage participation of small, disadvantaged, and "Hub-Zone" firms in the Renovation Program.

The Remote Delivery Facility is an outstanding example of how innovative acquisition methods that break down the barriers between design and construction can reduce costs and speed project delivery. In the traditional paradigm, the design is performed by an architect-engineer firm and implemented, after bidding, by a construction firm. Construction cannot begin until the design is complete in every detail and the construction contractor plays no role in design, allowing valuable constructibility expertise to go unutilized. Further, the Government bears responsibility for errors and omissions in the design documents. The RDF, in sharp contrast, was procured using a design-build methodology in which a single entity, a construction firm in partnership with an architect-engineer firm, is responsible for both design and construction.

This approach, increasingly popular in the private sector, shortens delivery times by permitting construction to begin before the design is complete because it is not necessary, for example, to know the color of the carpet in order to pour the foundation. A corollary advantage of this single point of responsibility is that the Government is no longer the middleman between the designer and the constructor and bears no responsibility for errors and omissions in design. The RDF, on an extremely aggressive, 24-month, schedule because of building security concerns, has benefitted greatly from this approach and is proceeding on cost and on schedule. The extremely high award fee scores earned by the contractor/joint venture bear witness to a change in an acquisition culture where contractors are motivated to seek, and achieve, excellence in public sector design and construction.

In May 1999, groundbreaking began on the site of the new Remote Delivery Facility. The "incentivized" design-build contract was the first of its kind to be used during the renovation program.

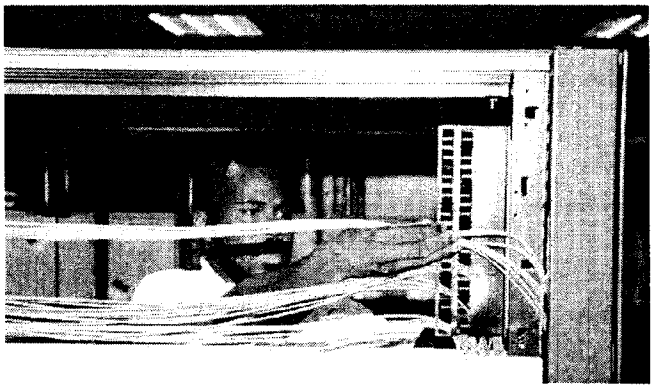
The centerpiece of the ongoing and future acquisition reform efforts is the Wedges 2 through 5 procurement. Wedges 2 through 5 will be procured as a single design/build contract (i.e. Wedge 2 will be the base contract and Wedges 3 through 5 will be contract options) and will contain the incentive and award fee provisions described above. The contractor, in addition to providing design and construction services, will be responsible for orchestrating tenant moves, and installing temporary utilities and sound dampening barrier walls to isolate occupied areas from noise, dust, etc. This single contractor approach ensures reduced design costs, minimization of the learning curve new contractors experience when first working in the unique environment of the Pentagon, construction economies of scale and the inherent efficiency in having a single contractor responsible for the renovation of the entire building.

A corollary advantage of this approach is a design-to-budget methodology in which the potential contractors will propose design and construction plans to accommodate known budget limitations and minimum requirements. The Government will provide a prioritized list of items that specify a range of preferred requirements. Each of the contractors will identify, in its proposal, which of the additional items or features it will provide. This will permit the Government to identify, on a finite basis, which design/build contractor offers the best value for the available funds.

Because the impact of the innovative acquisition approaches described above has yet to be fully felt, it is difficult to define the cost and schedule benefits with precision. However, new contracts are substantially outperforming old contracts in quality, value and timeliness and current indications suggest that trends should continue to be favorable. There is synergy between the various acquisition innovations the Renovation Program has implemented and the whole is greater than the sum of its parts. In particular, the combination of design/build requirements, shared savings implicit in the incentive fee provisions, and judicious use of the award fee offers the promise of a more efficient, less adversarial, and more flexible business approach to renovating an enduring symbol of American public life.

Nevertheless, although substantial progress has been made, much work remains to be done. More than four million square feet remain to be renovated and many challenges lay ahead. The Program's ability to sustain its recent successes will depend, in large measure, on our ability to improve further on the innovations implemented to date.

INFORMATION MANAGEMENT AND TELECOMMUNICATIONS (IM&T)



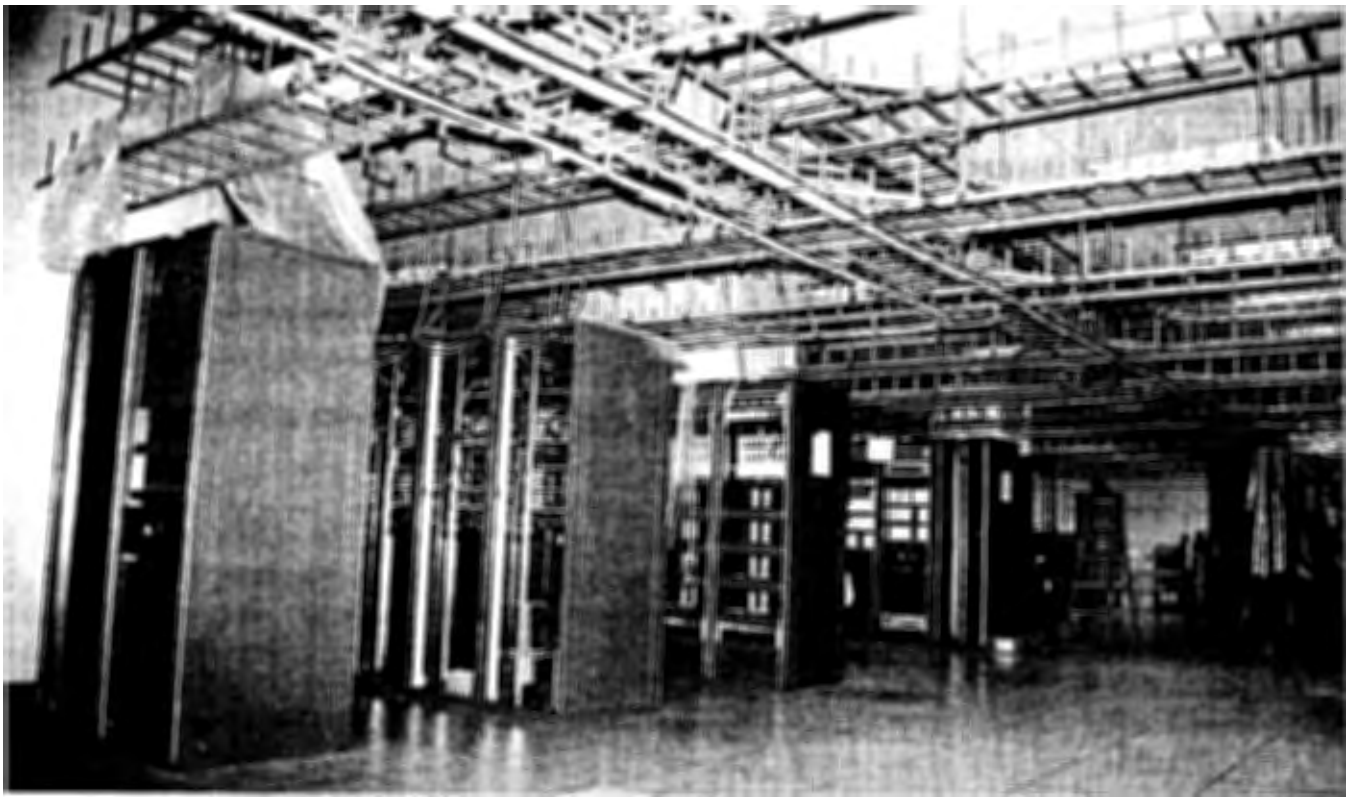
A telecommunications technician installs fiber optic lines inside new spine-wall furniture.

An IT specialist installs data wiring harnesses inside a new telecommunications closet in the Pentagon's basement.

Separate but related to the Pentagon Renovation Program is a necessary modernization of the building's information management and telecommunications infrastructure and systems. The basic information system infrastructure in the Pentagon was installed long before the advent of personal computers, facsimile machines, video teleconferencing, and digital telephone service, and has evolved without a design plan. As requirements emerged, facilities and systems were added with little or no regard to existing capabilities or long term requirements. The individual military departments and agencies engineered and installed equipment and cables to meet their specific requirements.

The objective of the IM&T effort is to provide cost-effective services and capabilities that will best serve the needs of the pentagon tenants and DoD senior leadership by leveraging technology advancements and designing and developing integrated systems. The Program Manager for IM&T derives acquisition authority from the Deputy for Systems Acquisition, Communications and Electronics Command. It operates under a Project Manager Charter issued by the Army Material Command and authorized by the Army Acquisition Executive. The office of the Director of Information Systems, Command, Control, Communications, Computers, (DISC4) is the Milestone Decision Authority. The IM&T modernization will be accomplished in conjunction with the building renovations. The first phase began with replacement of the heating and refrigeration plant in December 1992. This was followed by the current renovation activities in the basement and mezzanine areas, begun in August 1994. The third phase addresses renovation of the above-ground portion of the Pentagon, including renovation of the Above-ground Telecommunications Backbone infrastructure.

In 1943, there was one telephone for every three employees. Over the last 57 years, new IM&T capabilities have emerged and the systems have been laid on top of the old. Over time, this merging of IM&T capabilities has become unmanagable and not easily upgraded. Today, the 25,000 workers in the Pentagon are largely 'Information Age' workers with *at least* one telephone and desktop computer system per person. They require immediate access to local as well as worldwide networks and need the tools to rapidly collect data, analyze it, and present it to decision makers in a timely manner. This requirement defines the objectives of the IM&T Pentagon Renovation project:



A portion of the Pentagon Consolidated Technical Control Facility (PCTCF). Above: The PCTCF during floor installation.

IT specialists review designs during wiring installation.

A technician pulls new fiber optic lines from large spools.

An IT specialist connect data lines to a new spine-wall panel.

- Provide modern telecommunications and information management services throughout the Pentagon with access to global networks. Backbone communications will support voice, data, and video at varying security levels.
- Define, procure, integrate, and test hardware and software items required to meet functional requirements of the Pentagon's consolidated Network Systems Management Center.
- Modernize the telecommunications infrastructure and consolidate the functions and responsibilities of the seven technical control facilities in the Pentagon Consolidated Technical Control Facility.
- Relocate the Defense Information Systems Agency, Joint Staff Support Center, Command and Control Automated Data Processing (C2ADP) Centers from existing facilities into one new facility located in renovated space.
- Paralleling the C2ADP efforts, the Business ADP Center will provide a modernized data processing facility for Army and Air Force systems. Business ADP #1 will be used primarily to house mainframe processors, large servers, and their peripheral equipment, including storage devices and network processors. Systems were operating in multiple centers within the Pentagon.
- Four distributed server facilities will be built in each wedge. These server facilities will allow for a total of 18 service and agency servers to be consolidated into common facilities without the need to build hundreds of special purpose facilities throughout the building.

III. Process Improvements

IM&T

A computer specialists tests equipment in the new Network Systems Management Center.

- Provide the renovated Pentagon with improved voice communications currently provided by 22 Command and Control, Tactical, and Administrative telephone switches located in 12 different facilities. Refurbish, upgrade and install the primary and secondary red and black Command and Control switches. Install the Main Distribution Frame in the General Purpose Switch Room and reduce the number of switches in the Pentagon from 22 to eight.

- Replace the 166 radio systems distributed throughout the building with 1 Consolidated Radio Room (CRR) in each wedge.

The renovated Pentagon will include a 30,000-line telephone switch providing voice services through optical fiber-based distributed telephony; common user systems such as e-mail and messaging; collocated automatic data-processing facilities; an information infrastructure of fiber optic and copper cable; a common user data, voice, video backbone (4 levels of classification); and a single Network Systems Management Center. The backbone provides interoperability between legacy and renovation commercial networks; is secure, scaleable, upgradeable, and flexible; in no way degrades current user network capabilities; and is standards-based. IM&T recently completed the move of over 7,000 Pentagon users during a six-month period with no degradation of service. IM&T will enable the Pentagon's success in information warfare.

CONSTRUCTION

The Network Systems Management Center was successfully turned over early in 1999.

In order to keep a project running smoothly, submittals, requests for information, and contract modifications all need to be processed in a timely manner. This past year the Renovation Program started using a program that integrates with the renovation schedule, combines all paperwork into a single database and allows direct e-mail or written communication with the contractors. Over 90% of paperwork is now completed within established time targets. Daily reports also allow the Program to identify upcoming deadlines and apply additional resources as required.

TURNOVER AND COMMISSIONING OF RENOVATED SPACE

A physical therapy room in the new TriCare Clinic. The facility was turned over to the Pentagon medical community in January 2000.

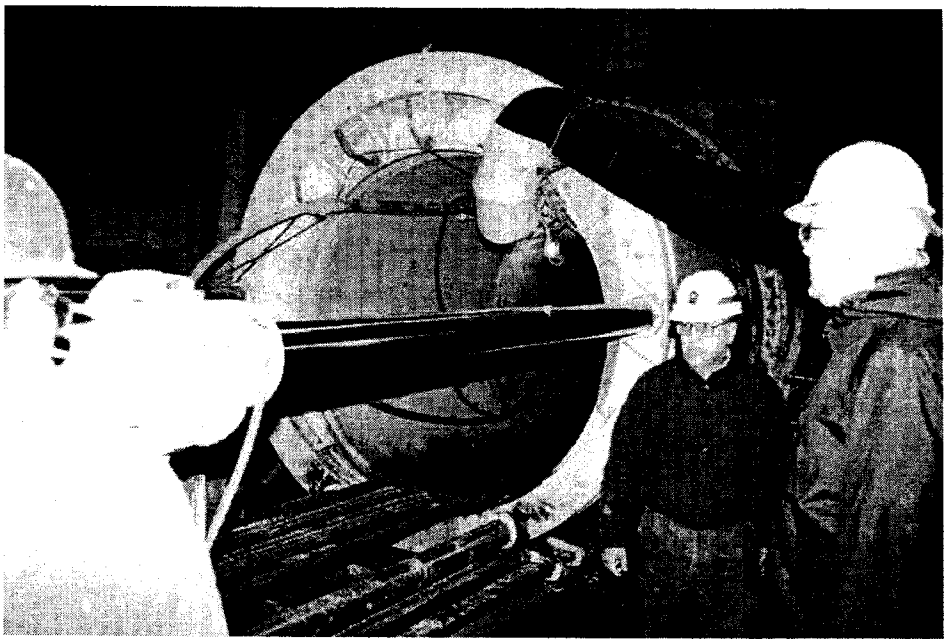
The Construction IPT has worked very closely with the Pentagon Building Management Office, commissioning specialists, and the Program's customers to facilitate the turnover process. The Renovation Program is now performing joint inspections in order to reach a complete understanding of the work being accomplished. These inspections allow the Program to take advantage of the broad range of specialized experience of the group members to be sure equipment and systems work as designed and to minimize warranty calls later. Punchlists and correction schedules are prepared and every attempt is made to complete the work before move-in. Tenant feedback indicates the Renovation Program has improved greatly in this area over the last year, but it will continue to refine this process and expects to show further improvement in the years to come.

REDUCING THE NEGATIVE IMPACT ON BUILDING TENANTS

Reducing the negative impacts to building tenants is one of the main challenges of the Renovation Program's construction efforts. Construction is often loud, wet, dusty and creates hazardous environments requiring protective clothing and equipment. Building tenants occupy areas adjacent to the barrier walls separating them from hazardous site conditions. Deliveries of construction material and equipment have been disrupting traffic flow on the exterior of the building. It is impossible to eliminate all of the impacts of the surrounding work, but the Program is minimizing the impacts and maintaining a safe environment.

An external hoist facilitates the safe removal of hazardous materials from Wedge 1 by eliminating the need to transport it through the Pentagon.

Excessive noise accounts for the majority of complaints received by the Renovation Program. To eliminate this problem, the loudest work is done at night whenever possible. A hotline has been set up so tenants can call the Renovation Office when disruptions do occur. Every attempt is made to correct the situation within 30 minutes. A particular challenge for the Renovation Program is the fact that the concrete building structure that transmits and amplifies noises long distances. Tracking down an intermittent noise source is sometimes difficult but noise issues are always resolved.



Renovation team members in front of a tunnel opening on the site of the new Remote Delivery Facility. Microtunneling technology was used instead of more time-consuming traditional tunneling excavation methods.

COMMISSIONING

Commissioning is the process of achieving, verifying and documenting the performance of building systems in accordance with the design intent and the owner's functional and operational needs. Commissioning starts in the design phase and extends through the construction process and into the warranty period. In brief, the commissioning process entails developing clear and complete design and operational intent documentation, verifying and documenting proper equipment and system performance, ensuring that appropriate operations and maintenance documentation is left with the building operating staff and ensuring that the building operators are sufficiently trained. Building commissioning is a team effort and requires cooperation by all parties to succeed.

The ribbon cutting ceremony for the Command and Control Automated Data Processing area.

Commissioning goes beyond testing, adjusting, and balancing and traditional inspection services. Commissioning involves functional performance testing to determine how well building systems, such as fire safety, mechanical and electrical systems, work together. Commissioning seeks to determine whether equipment meets a facility's operational goals or whether it needs to be adjusted to improve efficiency and overall performance.

These activities are not, as many owners and managers believe, part of the typical design and construction process or part of standard operations and maintenance procedures.

The ribbon cutting ceremony in the Air Force Council Room marked the turnover of both the Council Room and the Air Force Operations Group area.

COMMISSIONING BENEFITS

The benefits most often cited for conducting commissioning are:

- Improved system performance
- Improved operation and maintenance
- Improved indoor air quality
- Improved energy efficiency

REQUIREMENT

Executive Order 12902, March 8, 1994, Energy Efficiency and Water Conservation at Federal Facilities, Section 306, requires that a facility commissioning program be established for all new or renovated buildings, but refers specifically to ensuring that performance standards , as set forth in 10 CFR 435, are met.

IMPLEMENTATION

The integration of the Commissioning process into Pentagon Renovation Projects was accomplished in phases. The three major projects underway or planning were the Tricare Clinic, Wedge One, and the Remote Delivery Facility. The TRICARE Clinic project was near the end of core and shell construction. Commissioning activities consisted of reviews of required submittals including operations and maintenance manuals, training plans, equipment startup checklists, functional performance tests, and 'as built' drawings. In many cases, commissioning included writing test procedures where there was no requirement for these under the pre-existing construction contract. The Wedge One project had completed the design phase and was just beginning the core and shell construction phase when commissioning activities commenced. Commissioning here included building system design reviews, and equipment and product data submittal reviews.

The Remote Delivery Facility project is the first project for which the commissioning process was fully integrated from the start. Commissioning activities here began with technical reviews of the Conceptual Design, Basis of Design, and the Design Intent documents, and continued throughout all design phases and into the construction phase.

TENANT MOVES

Three office buildings within a three-mile radius of the Pentagon were leased for swing space. A massive renovation effort was needed to ensure that the 45 floors of office space acquired meet the unique requirements of Pentagon personnel.

Due to the logistical constraints presented by the Pentagon building, its security requirements, and the necessity to minimize downtime and disruption to employees' daily activities, the Renovation Program implemented a unique and innovative process of relocate tenants within the Pentagon in order to meet the renovation schedule. This approach removes much of the guesswork associated with relocating and turning over space and, by coordinating with the tenant, minimizes disruption to tenant operations. The Program established a Relocation Planning Team (RPT). The primary responsibility of the RPT is to prepare the tenants for the move. This includes:

- Providing agency-specific relocation checklists, which give the tenants an "itemized" list of tasks to be accomplished prior to and after the move; Relocation Handbooks, which instruct the tenant on packing and labeling procedures, move timeframes, etc.; "Move Packets", which have pre-printed labels and check-out sheets; post move questionnaires, which give the tenants an opportunity to provide the Program feedback on the relocation process, new space, furniture, systems, etc. These documents and forms have been made accessible to all Pentagon employees electronically, thus saving the government printing costs.

- Coordinating the logistical and security requirements between the movers and the affected agencies, such as the Defense Protective Service, Information Management & Telecommunications, the Dockmaster, and the Pentagon Building Management Office.

The RPT has saved the government money on moves when compared to industry standards through up-front planning with the tenant, its understanding of the customers' needs, their working environment and the dynamics of the Pentagon building.

The decision to procure moving services through a multiple award contract has allowed flexibility in move assignments and removed constraints on resources. Some notable accomplishments are:

- Negotiating the cost for each move activity and overseeing the move activity to ensure the Government's instructions are adhered to.
- Tracking, coordinating and overseeing the delivery and installation of furniture, furnishings, and equipment for tenants being relocated to renovated space as well as coordinating and overseeing the removal of surplus items.
- Coordinating the cleaning of the new space immediately after the move and prior to occupancy, as well as the removal of trash at the old space once the move has been completed.
- The relocation of over 7,000 personnel from various wedges to external swing space locations, as well as internal moves within the Pentagon
- The consolidating of the Army Library while maintaining its operability and minimizing disruption to operations in support of the renovation of Wedge 1;
- The relocation of command and control operations over nine phases within the basement while maintaining operations and minimizing disruption;
- An emergency cleaning of the TRICARE clinic in order to maintain the equipment delivery schedule.

An employee with the Policy Automation Directorate was one of the first of 1,200 employees to be relocated to permanent renovated space in the the Pentagon's basement.

The process developed by the Relocation and Planning Team has resulted in saving the government money by establishing moving services contracts that allow the Program to handle activities that may not usually fall under a mover's purview. For example, the movers can provide cleaning services, subcontracting services for specialty equipment with warranties that require a certain vendor to perform the services, personal computer decertification and recertification services, etc. This flexibility allows the Program to handle a variety of tenant requirements.

Understanding the difficulty in adhering to schedules of the magnitude the Pentagon renovation requires, the Program procured a 60,000-square-foot warehouse to temporarily store new construction materials, furniture, furnishings, and IT equipment in support of the renovation. The Program also acquired a 10,000-square-foot warehouse to store artwork, artifacts, and historical displays removed from public areas of the Pentagon during renovation. Upon completion of a renovated Wedge, the inventoried and catalogued artifacts and displays are placed back into the building.
Things to note about the Program:

An employee moves into renovated space in the Pentagon's basement.

- Currently, warehousing and monitoring the delivery and installation of the Clinic equipment;

- Beginning a recycling program for cardboard trash at the warehouse. To date, the Renovation Program has recycled over 30,000 lbs. of cardboard.

To many, the successful relocation of the tenant to temporary or permanent space represents the end of the process. For the Program, however, the activities following the relocation are critical to the overall success of the renovation. The space vacancy and turnover process has been the "long pole in the tent" for the renovation schedule. The coordination between the Renovation Program and all stakeholders to de-certify a space for demolition has been honed into a finely tuned process. The Program is responsible for removing the surplus furniture, furnishings, and equipment from vacated tenant space. To do this, the Program must inventory, surplus, and present to potential customers any furniture, furnishings, and equipment not being relocated to renovated space. Based on the condition of the surplus items, PenRen has to determine if the items will be presented for re-use within the government, donated to charitable organizations or deemed excess property and officially disposed of. The Renovation Program must then coordinate the various other "partners" in order to allow the shutting off of utilities, removal of secure lines, telephone lines and equipment, etc. The Program then coordinates a trash removal activity with its cleaning contractor in order to officially turn over a space to the demolition and abatement contractor to begin renovating. This myriad of coordination activities has been reduced to one month after tenant move out.

ACTIVITY STATUS - PROJECTS IN DESIGN

The Renovation Program has a "Back-to-Basics" approach to upcoming activities. Based on the "lessons learned" from the Wedge 1 move-outs and subsequent moves into swing and/or permanent space, the Program will perform the following activities by simplifying our move process, and begin to work closely with the design/build contractor in support of the following activities:

- **FY 2001** – The Renovation Program will handle the furniture tracking, delivery, and installation oversight, as well as the relocation planning, moves, and surplus removal services as it relates to Wedge1and Internal/External Swing Spaces. The Renovation will also procure the services of a cleaning contractor to provide pre-move cleaning services for renovated Pentagon space. The Renovation Program will also continue to use its three moving services contractors in support of the moves.

- **Outyears** - The possibility of the Renovation Program transitioning some of the Interior Standards and Relocation Activities to the design/build contractor and other government agencies is being considered upon the completion of move-ins to Wedge 1. These will include the move services contract, which will be maintained by the design/build contractor, the surplus removal services, and the Artwork and Artifact services oversight, which will be turned over to the Office of the Secretary of Defense (OSD). However, during this transition period and immediately following, a number of critical relocations will occur which will require careful coordination between the Renovation and the parties listed above. Some of these moves include, but are not limited to:

  - NMCC
  - Secretary of Defense
  - Deputy Secretary of Defense
  - Chairman, Joint Chiefs of Staff
  - Secretary of the Army
  - Secretary of the Navy
  - Secretary of the Air Force
  - Commandant of the Marines

This transition must seem "invisible" to the affected parties listed above and the high level of service that customers of the Renovation Program have come to expect must be maintained.

SYSTEMS FURNITURE IMPLEMENTATION

A technician connects communication lines below a raised floor in the Pentagon's basement.

WORKSTATIONS

In partnership with GSA, a systems workstation schedule contract was awarded in January of 1999 to five workstation manufacturers.

QUANTITY DISCOUNTS

Because of the large number of workstations to be procured during the renovation, discounts were negotiated with each of the five furniture manufacturers to obtain cumulative quantity discount thresholds exceeding the maximum discount available from the GSA schedule.

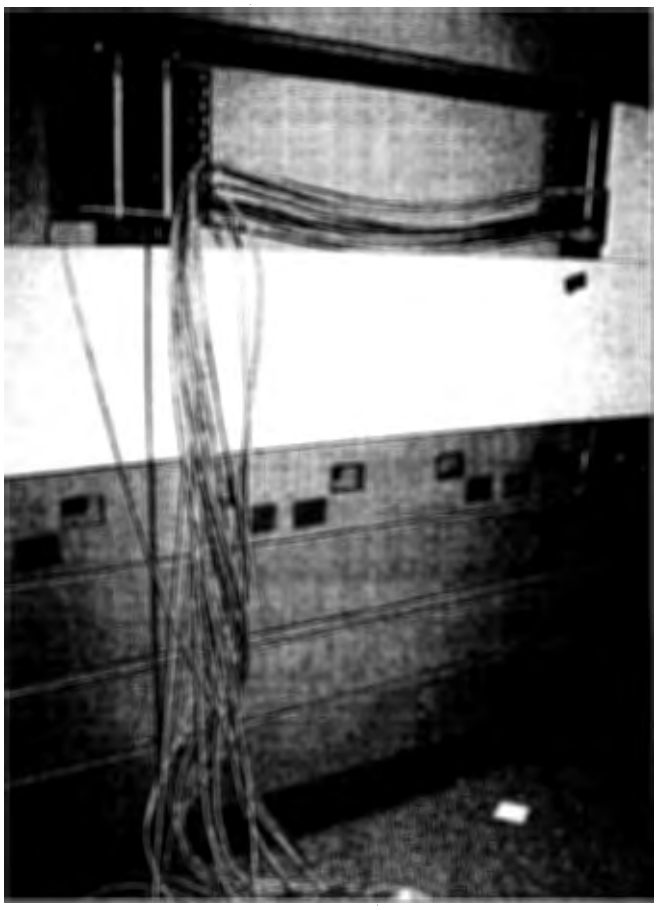
New spine-wall technology allows a technician easy access to communications wiring.

AWARD FEE PROVISION

An award fee provision was included to help ensure that furniture design and installation services are given the emphasis required to successfully integrate the furniture installation schedule into the construction schedule.

SPINE-WALL TECHNOLOGY

The advantages of using a spine-wall workstation configuration are: (1) Telecommunications are run within the furniture in easily accessible raceways; (2) Power and telecommunications are accessed at a "belt-line" level rather than at the floor, making desk connections much quicker and simpler; and (3) "Wing" wall panels connect anywhere along the length of the spine wall, not only at the panel intersections as in older style system furniture. This allows much greater flexibility in both initial furniture layout and future reconfigurations.



A spine-wall with an open panel displaying the telecommunications raceway.

PROGRAM MANAGEMENT

Renovation team members brief Dr. John Hamre, Deputy Secretary of Defense, (left) on design details for building interiors. The Pentagon Renovation Program Manager reports directly to the Deputy Secretary.

Like any major project, the Pentagon Renovation involves multiple, often competing interests. The project has a variety of organizations each with an important stake in the outcome of the renovation. Beyond the traditional owner-contractor interests, the project owner (the Department of Defense) is itself a huge amalgam of organizational components and interests. The oversight of the entire Legislative and Executive Branches of Government is constant as cost and defense interests are continually rebalanced. In addition, there are regional energy, transportation, historical and planning groups and their considerations that must be incorporated into the renovation process.

A major challenge for the Renovation Program is the coordination of all of the projects and processes described in this report, each with its own vitally important issues, in an on-going construction environment. The success of the Program requires an innovative management approach to accommodate the many interrelated and simultaneous construction efforts.

The use of Integrated Product Teams (IPTs) to manage manufacturing, research, and major systems acquisition programs has had a significant history, but such teams had not been adopted previously for a complex construction project. The IPT brings together representatives from all the parties with significant interests in a particular activity.

It is often important to enlist construction contractors, or others traditionally considered adversarial to the traditional owner, as members of an IPT. Team members are encouraged to share information with the

group. They are all assumed to share the same goal of providing the best value and best quality product available. Innovative contracting incentives, such as the award fee process and underrun cost sharing, ensure that contractors also have an important interest in finding the most effective solution to problems.

The IPT meeting is a critical component in the Renovation Program's business plan. In stark contrast to the traditional construction contract progress meeting, IPT meetings promote vigorous interaction and the best ideas normally gain a consensus, regardless of the proponent's sponsor.

There are several management teams on the Pentagon Renovation Project. Representatives of the basic Government team including the Washington Headquarters Services, the U. S. Army Communication-Electronic Command, and specialized Government contractor employees form the core of most IPTs. The IPTs are managed in groups and group leaders report to the Renovation Program Manager who, in turn, reports to the Deputy Secretary of Defense on all matters relating to the program.

Representatives from user organizations, private contractors, or other entities are often added to particular teams to reflect important interests in an activity. Legal, engineering, telecommunications, tenant activities, contracting, and other key interests must be accommodated. An aim of the IPT approach is to keep everyone informed while also obtaining the benefit of their ideas at the earliest possible point. Changes can be agreed upon, implemented, and adhered to more easily when all interested parties have meaningful input throughout the process.

Team members become part of either functional or geographic IPTs.

The functional IPTs are responsible for the processes involved in executing a specific project, such as planning, design and contracting, among many others. Their goals include providing process management and planning expertise to the geographic teams.

The role of a geographic IPT leader is similar to that of the traditional "project manager" in terms of overseeing a project from its inception through to completion. The geographic teams "own" schedule and budget, which means that they are responsible for the day-to-day execution of project activities, ensuring that costs and schedules are maintained. Other IPTs may be established to deal with the facets of a particular contract or set of contracts.

In addition to the IPTs discussed above, special short-term teams, called project or process action teams, are formed to deal with temporary problems. As always, the early involvement of various interest groups provides the best opportunity to reach a mutually acceptable solution or to define the full range of issues.

A renovation team member describes a technical facility to senior Pentagon officials.

IV. Appendix

Aerial view of the Pentagon looking northwest. Office buildings within a three-mile radius of the Pentagon, like those seen in the background, provide swing space for most of the 5,000 employees that were relocated from Wedge 1 .

IV. APPENDIX

Glossary of Terms

Program History - The Need for Renovation

Completed Projects

Public Affairs

Federal Building 2 (FB2)

FY 1991 Legislative Authorization

FY 2000 Department of Defense Appropriations Act with Certification

Contact Information

GLOSSARY OF TERMS

Backbone
Major telecommunications components.

Best value
Best value determination is typically based on an analysis of factors including past performance, management approach, technical approach, probable cost, and small and disadvantaged business support.

Core and Shell
Building common elements in an area, including walls and public corridors and rebuilding the main utility systems.

Design-Bid-Build
The standard procedure for construction contracts.

Design/Build
The Renovation Program's approach to construction contracts that allows the design and construction to operate simultaneously to best meet the requirements of the intended tenant.

External swing space
Temporary office space outside of the Pentagon in nearby office buildings.

Fit-out
Building interior office space for the intended tenant.

Internal swing space
Temporary office space built-out inside the Pentagon.

PERTOC
Pentagon Environmental Remediation Task Order Contract

Punchlist
A list of outstanding construction items.

Spine-Wall
The demountable wall found in systems furniture that carries electrical and telecommunications wiring.

Swing space
Temporary tenant space built-out in areas in and around the Pentagon. Occupied while the existing space is being renovated.

Systems Furniture
Demountable partitioned office furniture that provides greater flexibility than standard office furniture.

Aerial view of the Pentagon as it appeared in February 2000. Construction of the second pedestrian bridge at Corridor 3 continues along the South Terrace (right). Trailers dedicated to the Wedge 1 team can be seen to the left of the bridge construction area (center of photo). The Wedge 1 construction staging area can be seen on the Heliport side (left).

PROGRAM HISTORY – THE NEED FOR RENOVATION

The Pentagon is one of the most recognizable buildings in the world. It has been inseparably linked with the United States Military since its construction during World War II.

During the first half of 1941 the War Department found it increasingly difficult to provide space for the headquarters staff of an expanding army. In May, the Public Buildings Administration proposed erecting temporary structures for various agencies on the outskirts of the city. In July 1941, 24,000 personnel were scattered among seventeen buildings in Washington, D.C., with others in Fort Myer and Alexandria, Virginia. By the beginning of 1942, the number of personnel was expected to reach 30,000. The President, therefore, asked Congress for authority to construct additional buildings within or near the District of Columbia. The War Department's Chief of Construction, Brigadier General Brehon B. Somervell, had a better idea, a scheme to house the entire War Department under one roof. He talked to General Moore, Deputy Chief of Staff, and to U.S. Representative Woodrum (D-Virginia) about his idea.

The Pentagon under construction in 1942. The 29-acre structure was completed in just 16 months. The building has never undergone a major renovation and today, after 58 years, all its building systems need complete replacement.

CONGRESSIONAL APPROVAL

At a Thursday, July 17, 1941, hearing on construction projects before the House Subcommittee on Appropriations, the Chairman, Mr. Woodrum of Virginia, suggested to Brigadier General Eugene Reybold and Brigadier General Somervell that the War Department find an overall solution to its space problem rather than the partial solution proposed by the Public Buildings Administration. Somervell directed Architect G. Edwin Bergstrom to place on his desk, by 9 o'clock Monday morning, basic plans and architectural perspectives for an office building to house 40,000 people. Five days later, on Tuesday, July 22, 1941, Reybold and Somervell presented the plan to the Subcommittee. The plan was approved by the House on July 28, 1941, and by the Senate on August 14, 1941.

On August 25, 1941, President Roosevelt signed the bill appropriating funds for construction. However, because of considerable controversy over the proposed location at the foot of Arlington National Cemetery, he reserved the right to pick the site. The following day, the President directed that the construction site be moved south to the Pentagon's present location.

THE DESIGN

The Pentagon's unusual five-sided configuration was dictated by the site originally proposed (adjacent to Memorial Drive, about three-fourths of a mile north of where the building was actually constructed). An early plan called for a square structure with one corner cut off to accommodate an existing road. This resulted in a skewed Pentagon shape. Serious objections were raised to locating the building on open land directly between Arlington Cemetery and Washington's Monumental Core, and discussions ensued regarding selection of a building site resulting in less visual and physical impact from the project. During the debate on the site, the project's chief architects, George Edwin Bergstrom and David J. Witmer, continued to refine the design. The final design retained the five sides, in the form of a true pentagon, which gave rise to the building's name. That shape resulted in the most efficient use of available space. The concept of using several concentric rings to contain the space evolved during further refinement of design. Preliminary design and drafting took just 34 days. A project of this magnitude and urgency demanded the rapid assembly of an unprecedented design and production effort.

The office of the chief architect rapidly grew to 327 architects and engineers who were supported by 117 field inspectors. The weekly output of prints ranged from 12,000 to 30,000 with reproduction machines running on a 24-hour basis. For periods of time, new drawings were issued nightly. The reproduction effort consumed 15,000 yards of print paper per week.

Construction began on September 11, 1941, and was completed on January 15, 1943. At one stage of construction, 15,000 people were employed on the job working three shifts, 24 hours a day. At night, they worked under floodlights. Construction took just 16 months, a remarkable feat of engineering and management.

THE PENTAGON BUILDING

The Pentagon is the Headquarters of the Department of Defense and the national defense establishment. It houses the Offices of the Secretary of Defense, the Joint Chiefs of Staff, and the Secretaries of the three Military Departments. The Pentagon building, at 6,500,000 square feet, provides approximately 3,800,000 square feet of occupiable space. At the peak of World War II, 33,000 people were provided working space in the building.

Aerial view of the Pentagon in November 1999. The Pentagon building covers 29 acres and has three times the office space of the Empire State Building.

SIZE

The Pentagon building is composed of five concentric pentagonal rings connected by ten radial corridors. Each of its outer walls is 921.6 feet long. The building covers 29 acres, the largest ground area of any office building in the world. A five-acre pentagonal courtyard is located in the building's center. The building and its central courtyard cover 34 acres. There are 17.5 miles of corridors in the building. The structure is three times the size of the Empire State Building and 50 percent larger than Chicago's Merchandise Mart. The building rests on 41,492 concrete piles, the combined length of which would stretch 200 miles. The five concentric pentagonal rings are separated by interior courts which serve as light wells. This design feature increases the number of windows allowing natural light. Each ring has five stories. The Mall and River sides of the building have a Basement area which includes a partial Mezzanine. The innermost and outermost rings have sloping slate roofs, while the other three rings have flat, built-up roofs. The rings are connected at each floor level by a series of ten radial corridors extending from the "A" ring (innermost) to the "E" ring (outermost).

EXTERIOR

The exterior walls of the concentric rings and the interior courtyard are exposed concrete. They appear to have a wood-grain texture because they were poured into wooden forms made of 8-inch boards. A gap was left between boards enabling concrete to ooze and form a slight ridge. From a distance this gives an appearance of limestone.

Clockwise from its northern point, the Pentagon's five facades are the Mall Terrace Entrance facade, the River Terrace Entrance facade, the Concourse Entrance (or Metro Station) facade, the South Parking Entrance facade, and the Heliport facade. The outer facades of the Pentagon are simple, with a minimum of ornamental embellishment. Although the ornamentation style is classical in origin, it has been greatly simplified. The outer walls are limestone, as a direct result of a restriction by President Roosevelt that there be no marble in the building.

MATERIAL SHORTAGES

The shortages of materials required for war production raised many design and construction problems. The use of reinforced concrete in lieu of formed steel for the building made possible a saving of 43,000 tons of steel, more than enough to build a battleship. The use of concrete ramps rather than elevators further reduced steel requirements. Drainage pipes were concrete; ducts were fiber, interior doors were wood. An unusual wall design - concrete spandrells carried to window sill level - eliminated many miles of through-wall copper flashing. When Somervell was asked to make still more drastic reductions, he agreed to "striptease" the entire structure. Bronze doors, copper ornamentation, and metal partitions in rest rooms were among the first to go. The stripping process continued throughout construction.

The Pentagon's River Terrace as it appeared in April 1999.

THE SITE

The Pentagon Reservation is located in southeastern Arlington County, Virginia, and is situated between a large man-made lagoon (the Pentagon Lagoon, formed during construction) and the southeastern corner of Arlington National Cemetery. The northeastern and eastern facades have unobstructed vistas of the Monumental Core of the Nation's Capital across the Potomac River. The Pentagon's relatively low profile also permits clear vistas of Washington from the highlands of Arlington National Cemetery.

TERRACES

There are large ceremonial terraces in front of the Pentagon's Mall and River Entrances. The River Entrance terrace extends 900 feet to the Pentagon Lagoon bounded by a ceremonial landing dock and two monumental stairways. The maximum width of the River Terrace is 450 feet. The terrace in front of the Mall Entrance is smaller, measuring 600 feet by 125 feet.

For many, the network of roads around the Pentagon is often as confusing as the maze of rings and corridors inside the building.

ACCESS

The Pentagon site originally contained three cloverleaf interchanges that were among the earliest such structures constructed in the United States. These freeway-scale interchanges were necessary to handle traffic associated with the large number of people working in the building.

LAGOON

The Pentagon Lagoon was created during construction of the building as a result of dredging sand and gravel for concrete, and to obtain fill for landscaping. The lagoon is also the location of the water intake for the Pentagon's Heating & Refrigeration Plant. The Roaches Run Waterfowl Sanctuary lagoon, created during construction of the George Washington Parkway in the early 1930's, is used for the Heating & Refrigeration Plant's water discharge outfall.

The Pentagon Reservation has been altered over the years. A heliport was added; Shirley Highway (now I-395), a limited access Interstate Highway and interchange, infringed on the Pentagon site on the south side; a major Metro station and transfer point was added, and under-building bus and taxi tunnels were converted to offices.

BUILDING CONDITION

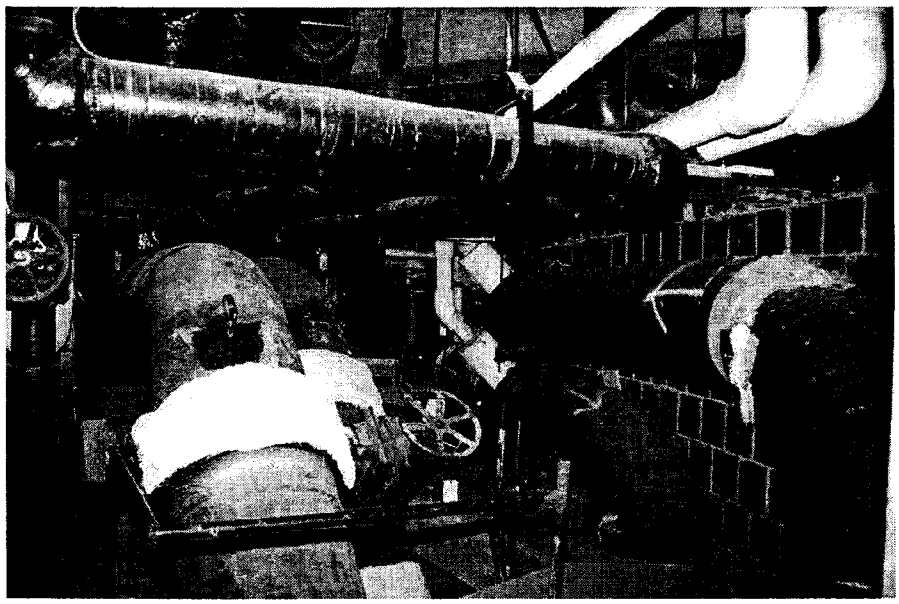
The Pentagon has suffered from decades of neglect and under-funded maintenance and repair programs. Many of the building systems have deteriorated beyond economical repair and require complete replacement. Building code violations and unsafe conditions have been brought about by the Pentagon's non-compliance with the fire protection and life safety standards established over the last 50-plus years. Structural deficiencies also need to be corrected. Some areas of the Basement have settled as much as 12 inches due to the poor load bearing capacity of the soil under the floor slab.

INTERIOR SPACE LAYOUT

The Pentagon's original interior space layout has been modified over the years. Walkways and service corridors have been closed and converted to office and storage space. Original office areas that were large open spaces have been chopped up and enclosed with full height partitions that make the building functionally inefficient. This adversely affects heating, ventilating, and air conditioning system controls and distribution.

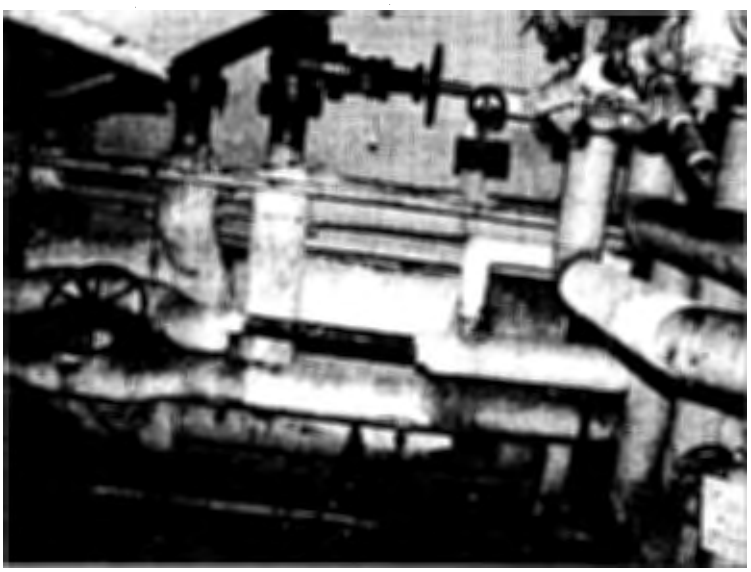
BUILDING SYSTEMS

Before the Renovation Program began, none of the original major building systems had ever been replaced nor had they been significantly upgraded. The wide-spread use of computers and modern technology has overwhelmed the capacity of deteriorated building systems. Electrical, plumbing, heating, ventilation, and air conditioning (HVAC) systems need to be replaced and modernized to accommodate added loads and to provide efficiency and flexiblity. The building has individual packaged air conditioning units providing cooling for special use areas in addition to the chilled water provided by the Pentagon Heating & Refrigeration Plant. The overloaded secondary electrical circuits result in as many as 20 localized power outages every day, which increases to between 30-40 a day in the winter when people bring unauthorized space heaters into the building to compensate for the deteriorated HVAC system. Regular plumbing failures occur as a result of the deteriorating piping systems, which are 58 years old. Of the 691 drinking fountains in the Pentagon, approximately 30 are out of service on a daily basis.



The Pentagon's existing utility distribution system is in "a potential state of catastrophic failure" according to an independent consultant. In addition to their antiquated condition, most pipes are insulated with asbestos.

During Desert Shield/Desert Storm, a fire broke out in the Joint Chiefs of Staff area of the Pentagon. Arlington County, which provides fire protection to the Pentagon, pressurized a standpipe and, consequently, blew out a four foot section of ten inch pipe. Water flooded approximately 350,000 square feet of the Pentagon basement, nearly causing the Army and Air Force Operations Centers to shut down. The water flowed through a steam tunnel to the Heating & Refrigeration Plant basement, where the water reached a height of seven feet.



Old corroded pipes result in frequent leaks throughout the Pentagon.

Frequent leaks, breaks in pipes, and clogged pipes not only escalate operation and maintenance costs, but also create potential health hazards.

The basement has been flooded as the result of condensate leakage, inoperable sump pumps that were unable to accommodate rising ground water, and rusted and corroded valves. Only valves that have been replaced are operable.

The HVAC systems are original and in need of replacement. Of the Pentagon's 150 miles of ductwork, approximately 17.5 miles of it is made from asbestos, typical of the time when the Pentagon was built.

The electrical system was designed for a manual office and does not support the demands of today's high-tech office environment. Obsolete components make maintenance and repair difficult. Panel boards are loaded beyond maximum capacity and do not meet code, thereby creating a fire and safety hazard. The information systems that were installed in the Pentagon are plagued with abandoned cabling and an unverifiable backbone for the building. Consequently, there are numerous local area networks that are operated independently of one another, which causes problems.

EXTERIOR WALLS

Architectural and structural elements of exterior walls have shifted and settled. Moisture is penetrating cracks, causing damage to the concrete and reinforcement. Cracking and evidence of movement is apparent on all perimeter walls. The exterior walls are not thermally efficient. The limestone facade is in need of cleaning and repair to insure its weather tightness.

There are two types of courtyards at the Pentagon: (1) interior courts (light wells) between concentric rings of the building and, (2) the Center Courtyard.

Much of the Pentagon's exterior concrete is in disrepair.

All courtyard walls are of concrete with fair to failing surface conditions. Concrete is spalling, particularly where rusting reinforcing bars are exposed. Patch material is failing; cracks, efflorescence, and water stains are evident everywhere. In addition to problems cited in the courtyard walls, cornices are disintegrating, especially between Corridors 7 and 10. There are also problems due to use of non-conforming materials and poor construction.

Access bridges span several interior courts at the approximate mid-point of the court length. Originally, these bridges were open, crossing the court at each floor level. A number of the bridges have been enclosed and incorporated into secondary corridor systems while others open directly from individual offices. All of these bridges are in poor condition. Attempts made to control leaks at the interior spaces have been unsuccessful. At a minimum, replacement of the roof/bridge drainage system will be required at each bridge. Concrete surfaces and waterproofing will have to be repaired and interior surfaces restored.

BASEMENT FLOOR

The Basement floor of the Pentagon was constructed as a slab on grade, designed to carry a light storage load. A 1983 report on the stabilization of the depressed floors states that the basement floor slab was placed directly on the underlying soil fill, which consists of surface fill materials overlying compressible organic soil. The subsidence has been gradual over the years and was aggravated by voids under the slab, leaking utility lines, and at times by the dewatering during the construction of Metrorail. These subsurface conditions, along with the assignment (and re-assignment) of special purpose activities and the storage of heavy loads of material and equipment, have caused the basement slab to settle up to 12 inches in some areas, causing severe damage to critical communication centers. Repairs were made to correct the distressed areas by pumping concrete under the floor, or by adding leveling slabs, but these repairs were unsuccessful. The only recourse is to remove entirely some 300,000 to 500,000 square feet of slab and reframe the floor as an independent floor slab bearing on new and existing pile foundations. A large portion of this deficient slab has been replaced during the renovation of Basement Segement 1. Lowering the Basement slab in some areas will allow maximum expansion of the Mezzanine space.

Garbage containers and buckets catch water leaking from pipes overhead in the Pentagon's basement. In addition to a sinking floor slab, water-stained ceiling tiles and dark corridors are commonplace in the lower levels of the building.

RIVER AND MALL TERRACE

The River and Mall terraces extend beyond the exterior perimeter of the building and the occupied areas beneath have experienced considerable damage from water intrusion. Extensive reworking of major building expansion joints, deteriorated waterproofing and concrete elements is required to make these areas watertight. The River Terrace waterproofing has been completed as part of the basement renovation activities.

The entire River Terrace parking lot and a portion of the parade field were excavated to clear the way for waterproofing and repair to the area.

NORTH PARKING PEDESTRIAN RAMP

The pedestrian ramp, leading into the Corridor 8 Entrance from the North Parking lot has undergone serious deterioration as a result of failure of one of the abutments. Temporary jacks were installed as an emergency measure to support this failing structure. Complete replacement of this ramp was accomplished in 1997.

HEATING AND REFRIGERATION PLANT

The original Heating & Refrigeration Plant (now fully demolished) that was built in 1943 provided utility services (heating steam and chilled water) to the Pentagon as well as to other parts of the Pentagon Reservation. The plant became obsolete and was no longer efficient and serviceable. Temporary chillers and boilers were being rented to support the needs of the Pentagon, Federal Building #2 (Navy Annex), and Henderson Hall (Marine base). Three rental boilers and six rental chillers were used from 1989 to 1996 for a cost of over $2,000,000 per year. This antiquated plant was replaced in 1998 with the new Heating and Refrigeration Plant.

INFORMATION MANAGEMENT AND TELECOMMUNICATIONS

The current Pentagon information and telecommunications infrastructure is an accumulation of systems and networks, which have been installed, in a piecemeal fashion, since 1943. There are multiple deficiencies specific to the information management and telecommunications posture of the Pentagon. These include outdated and overworked communications systems, an enormous number of single user-oriented and user-unique data systems, inadequate wiring systems, obsolete and congested wire closets, risers, cable pathways, and protected distributed systems, poor quality grounding systems, and limited wiring system access due to asbestos hazards. As information management requirements and technology changed throughout the years, new telecommunications systems were added in an ad hoc manner, often over existing wiring. This has produced a collection of independent and largely non-interoperable systems and networks, many of which are poorly documented.

Before renovation, a person's entire hand and arm could fit through this crack in a concrete beam below the North Parking pedestrian ramp. The bridge has now been completely repaired.

SITEWORK

Traffic conditions, especially in the South Parking areas, are very hazardous. Reconfiguration of roadways, bus, and truck access areas and parking is necessary to provide safety for pedestrians. Parking lots are in poor condition with minimal landscaping. Wide spread failure of pavement base and sub-base is evident. Roads, walks, fences, bridges, and other structures and elements exhibit significant deterioration. Bridge concrete and stonework is crushed and spalled. Exterior steps and terraces are spalled, joints are open, and the occupied areas below these elements have experienced water leakage on a continual basis.

SUMMARY

Generally, the Pentagon's problems requiring a full scale renovation can be grouped into seven categories:

1. Changing requirements for fire and life safety.

2. Miscellaneous systems failure.

3. Engineering systems failure.

4. Changing technology with an increased demand for services.

5. Security.

6. Compliance withe environmental standards.

7. Compliance with the Americans with Disabilities Act.

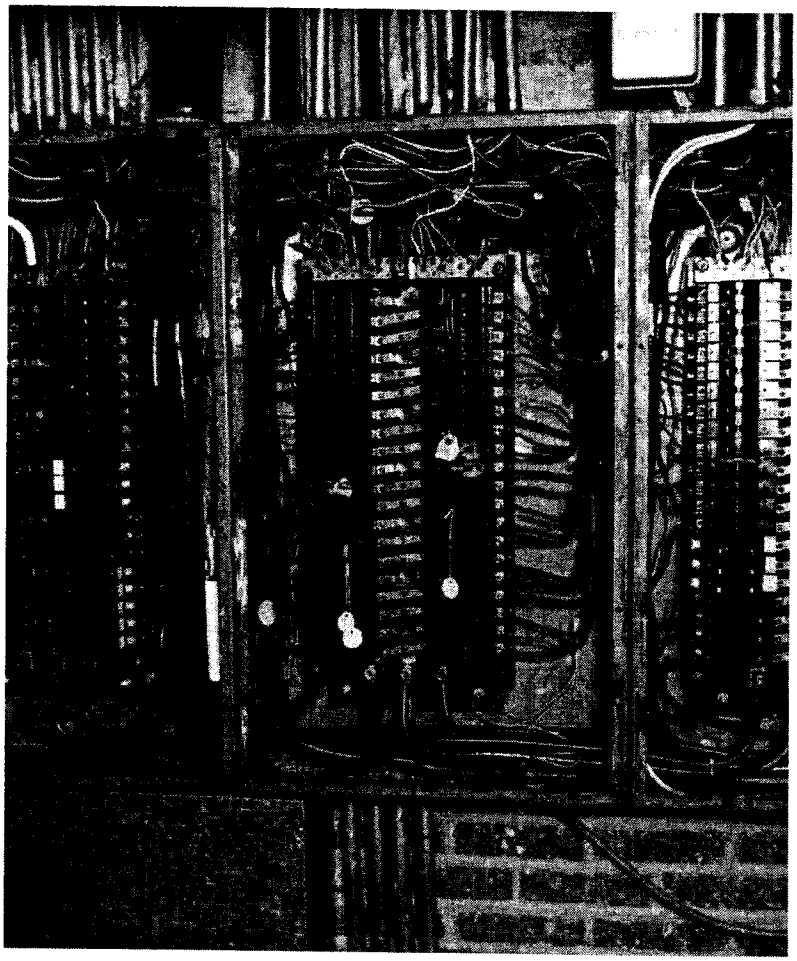
The Pentagon's old Heating and Refrigeration Plant was demolished when the new facility became operational. The original plant was coal-fired until the mid-1980s and each of its boilers and chillers were mechanically unreliable and of insufficient capacity.

FAILURE TO KEEP PACE WITH CHANGING STANDARDS FOR HEALTH, FIRE, AND LIFE SAFETY

Pervasive asbestos and lead contamination of interior surfaces and pipe insulation requires the use of asbestos and lead abatement for even minor repairs to avoid possible health risks to building occupants when these materials are disturbed. This is a significant time and cost restraint to the maintenance and repair program.

The Pentagon's antiquated building systems pose present many potential hazards, including:

- Inadequate sprinkler systems to protect the entire building.
- Numerous emergency diesel generators are currently located inside the Pentagon presenting a potential fire and carbon monoxide gas hazard.
- Excessively long fire egress routes in the building.
- Vehicle/pedestrian conflicts exist throughout the reservation.



Old electrical circuits can not accommodate the energy demands of today's modern technology. An average of 30 localized outages are experienced each day in the Pentagon.

The deterioration of the Pentagon structure and its support systems is marked by the characteristics listed below and on the opposite page.

MISCELLANEOUS SYSTEMS FAILURE

- Rusted and corroded casement window frames in most of the 7,748 windows.
- Shifting and cracking of architectural and structural elements deteriorated expansion joints, cracking of building elements, and water penetration.
- Spalling of concrete, rusting reinforcement bars in the concrete, and deteriorating cornices.
- Deterioration of beam/girder connections.
- Failure of the basement floor due to lack of stable ground support.
- Intrusion of water through deteriorated expansion joints and deteriorated surface waterproofing.
- Deterioration of roadway bridges and their drainage systems.

ENGINEERING SYSTEMS FAILURE

- Severely undersized, inflexible and unreliable, heating, ventilation, and air conditioning (HVAC) systems.
- Unreliability of current building HVAC systems has resulted in independent air conditioning (A/C) units having been installed in certain areas.
- Deteriorated and overloaded secondary electrical circuits result in daily failures of electrical systems.
- Deteriorated and undersized electrical closets prohibit proper wiring and management of electrical systems.
- Deteriorated undersized plumbing, hot water, domestic water and other mechanical systems.

CHANGING TECHNOLOGY REQUIREMENTS

- Increased electrical and HVAC loads due to office equipment such as computers and copy machines, and special equipment such as video and graphics production equipment.
- Current wire chases cannot accommodate cabling systems for telephones, computer networks, and audio/video information systems.
- Inflexible and inefficient space arrangements limit the continued utility of the Pentagon office and support space.

SECURITY

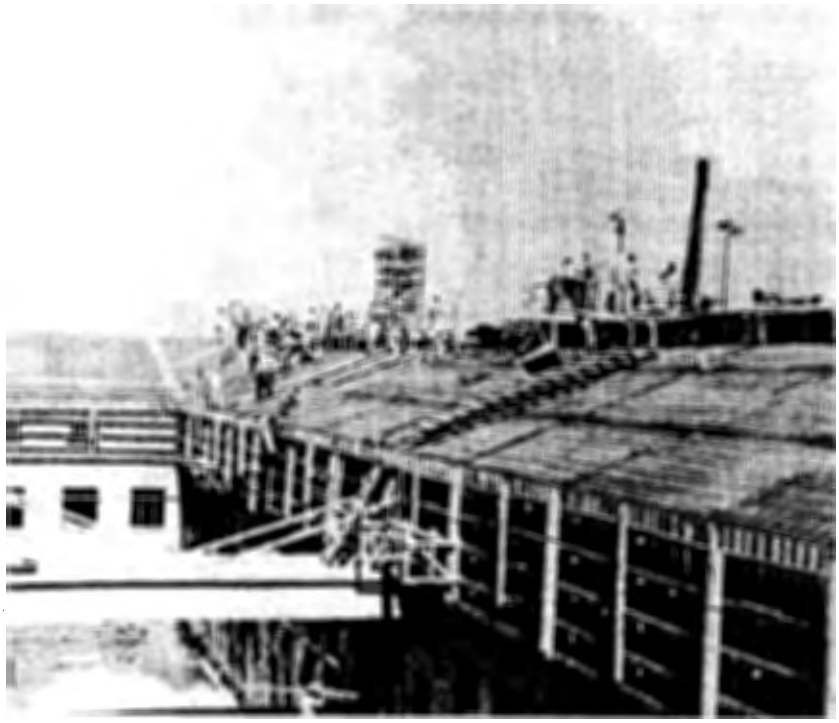
- Metro escalators penetrate into the building envelope forcing the security perimeter inward.
- The dispersed loading docks are difficult to secure. Numerous delivery vehicles penetrate the building security perimeter daily.
- Limited approachways hinder security control at loading docks and delivery entrances (distance from non-control to control areas is so short that guards have no response time before vehicle has reached the guard position).

A typical office in the Pentagon as it appeared in the 1970s. Makeshift conditions continue to plague the building as improvements to building systems have failed to keep pace with technological advances.

The Pentagon's original bus terminal was located within the building's perimeter. Security requirements and air quality concerns forced its closure and relocation to the outside. New security initiatives will push the existing bus loop even farther away from its present location.

The Pentagon is a building of interest to local, state, federal, and architectural historians for the following reasons:

- It is associated with events that have made a significant contribution to the geo-political role of the United States as a superpower during the period from World War II to the present.
- It is associated with the lives of persons who are significant in American history from the time of construction in 1941 to the present day.
- It embodies the distinctive characteristics of the "stripped classical" variant of architectural classicism. This stylistic mode flourished during the second quarter of the 20th century, and was a major theme in federal architecture.
- It is currently classified as the largest low-rise office building in the world.
- It was constructed during an important historical period.
- It was built in 16 months, requiring a monumental effort in design and construction.
- It is located adjacent to Arlington National Cemetery.
- It is in proximity to the Nation's Monumental Core.
- It is situated along a major gateway to the Nation's Capital.



At the peak of construction in 1942, 15,000 workers labored around the clock to construct the Pentagon in just 16 months from September 1941 to January 1943.

The Secretary of Defense, the Honorable Richard Cheney, was notified by the Secretary of the Interior, the Honorable Bruce Babbit, that the Pentagon had been designated as a National Historical Landmark on October 5, 1992. This designation also automatically placed the Pentagon in the National Register of Historic Places.

There are five historic elements of the Pentagon that are cited for special attention:

- The five outer facades of the Pentagon.
- The Center Courtyard and surrounding facades.
- The terrace fronting the Mall Entrance.
- The terrace fronting the River Entrance.
- The Pentagon's distinctive five-sided shape.

A ceremony celebrating the 50th Anniversary of the Pentagon in May 1993 included presentation of a bronze plaque stating "THIS PROPERTY POSSESSES NATIONAL SIGNIFICANCE IN COMMEMORATING THE HISTORY OF THE UNITED STATES OF AMERICA." This ceremony was hosted by Les Aspin, the Secretary of Defense, and General Colin Powell, Chairman of the Joint Chiefs of Staff.

PROGRAM DEVELOPMENT

Control of the design process over the life of the project requires the development of design guidelines and criteria. This control is necessary because of the size and duration of the project, the multi-acquisition approach, and design activities occurring throughout the project as each increment is renovated. The revised Pentagon Renovation Plan must be translated into appropriate design guidelines and criteria that will establish design parameters.

A Management Support Architect-Engineer, has prepared design guidelines and criteria; has prepared the Reservation Master Plan, which addresses environmental issues; has prepared the Pentagon Building Master Plan; has developed prototypical designs for architectural standards, heating, ventilating and air conditioning systems, plumbing systems, fire protective systems, electrical systems, and security systems; is developing programming and swing space requirements; is developing schedules and cost estimates; is providing technical and management support; and is completing Computer-Aided Design Documents for record drawings, shop drawings, and shop drawing reviews. Broad-scale design criteria, which are equivalent to a concept stage, will ensure that each individual increment will be compatible with the rest of the work. The goal is to achieve a completed project that has uniform and compatible materials and systems that are economic to maintain.

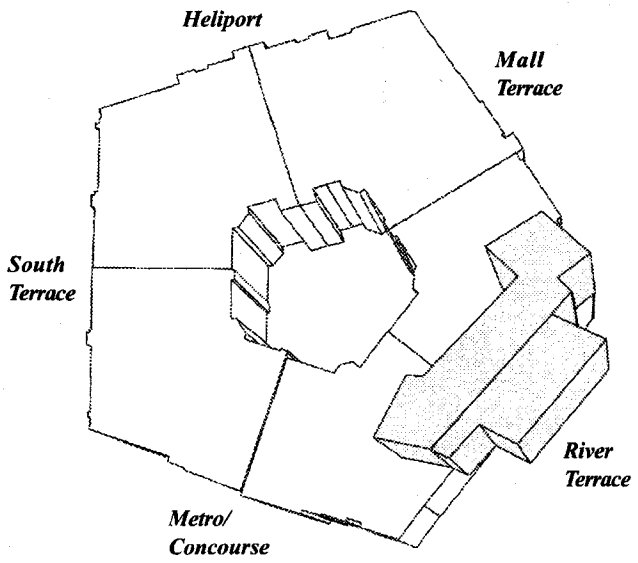
Aerial view of the Pentagon's South Terrace in February 2000. Renovation activities now can be seen in or around all five sides of the building.

In the mid-1990's the importance of information management and telecommunications (IM&T) within the Pentagon was recognized and the United States Army was tasked with establishing a project office for Information Management and Telecommunications, renovation related tasks. The Pentagon IM&T project office was established in 1991.

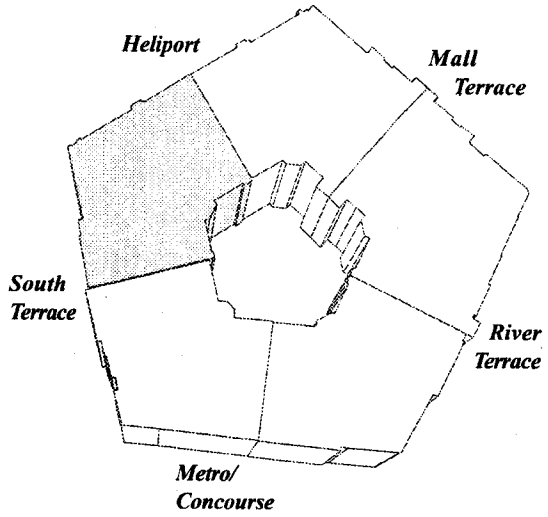
The IM&T objective is to provide cost-effective IM&T services/capabilities that will best serve the needs of the Pentagon tenants and DoD Senior Leadership by leveraging technology advancements and designing/developing integrated systems, well into the 21st Century.

BASEMENT RENOVATION

The design of the Segment 1 renovation of the Basement was completed in mid-FY 1994 with the construction beginning October 1994. The construction of Segment 1 of the Basement, preceded by the temporary re-routing of utilities, was completed in FY 1999. The design of the remaining segments began in FY 1997.



The Basement and Mezzanine levels lie under the Pentagon's Mall and River Terraces.



Wedge 1 is accessed by Corridors 3 and 4.

WEDGE 1

In December 1996, the Deputy Secretary of Defense directed that Wedge 1 be vacated by December 1997, and the construction of Wedge 1 to start by FY 1998. Renovation of above-ground areas of the Pentagon began with Wedge 1. Work is centered around Corridors 3 and 4.

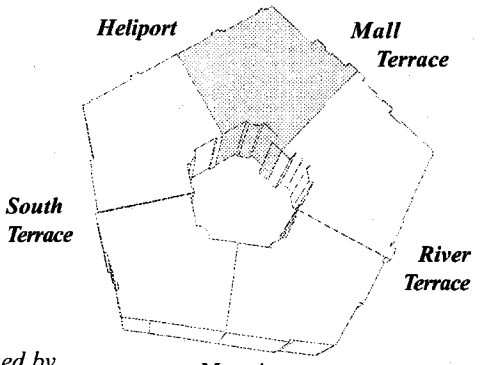
The renovation work involves the demolition and removal of all partitions, ceilings, floor finishes, mechanical, electrical, plumbing, fire protection, and communications systems. The basic structural system, as well as the stairwells and their enclosing walls, will remain. All electrical, mechanical, and plumbing systems will be replaced and a modernized telecommunication back-bone infrastructure will be installed. Utility connections will be made through the new Center Courtyard Utilities Tunnel without affecting the rest of the building. Wedge 1 will have a new food service facility, new vertical transportation service, and enhanced foyers. Much of the renovated space will be configured as "open office" space consistent with the Concept Plan. The improvements include the new South Terrace Pedestrian Bridges, which will connect South Parking to Corridors 2 and 3. The South Terrace structure consists of two bridges accommodating pedestrian traffic entering the Pentagon at the second floor at Corridors 2 and 3. This work incorporates some of the security improvements by re-routing public access to the second floor and improves safety by separating pedestrians from the vehicular traffic on the very busy Rotary Road in South Parking.

The design of Wedge 1 began in January 1994, and the last revisions were completed in FY 1999. Construction activity began in January 1998, with a "wall bashing" ceremony in February 1998, to symbolically signify the start of the above-ground work activity. Construction is scheduled for completion in FY 2001.

The River Terrace entrance marks the midpoint between Wedges 3 and 4.

WEDGE 2

Wedge 2 is also a complete slab-to-slab reconstruction of the space. Replacement of all electrical, mechanical, and plumbing systems will occur in accordance with the new design and a modernized telecommunication back-bone infrastructure will be installed.

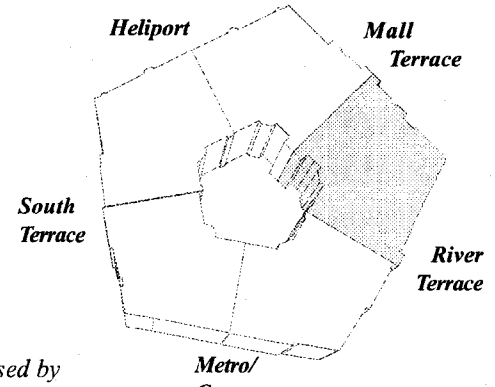


Wedge 2 is accessed by Corridors 5 and 6.

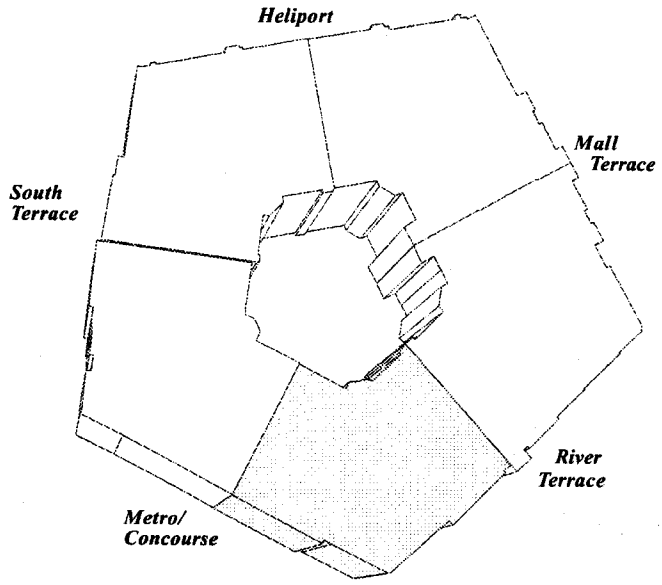
WEDGE 3

Wedge 3 includes a complete slab-to-slab reconstruction of the space. All electrical, mechanical, and plumbing services will be replaced in accordance with the new design and a modernized telecommunication infrastructure will be installed. The removal of non-masonry partitions will open the space to an "open office" concept. The work will be centered around Corridors 7 and 8.

This work also incorporates some of the security improvements by re-orienting public access to the 2nd floor.



Wedge 3 is accessed by Corridors 7 and 8.



Wedge 4 is accessed by Corridors 9 and 10.

WEDGE 4

A slab-to-slab reconstruction of the space in Wedge 4 is programmed. All electrical, mechanical, and plumbing services will be replaced and a modernized telecommunication infrastructure will be installed. The removal of non-masonry partitions will open the space to an "open office" concept. The work will be centered around Corridors 9 and 10.

This incremental area houses portions of the cafeteria facilities, the Concourse, and the Metro entrance.

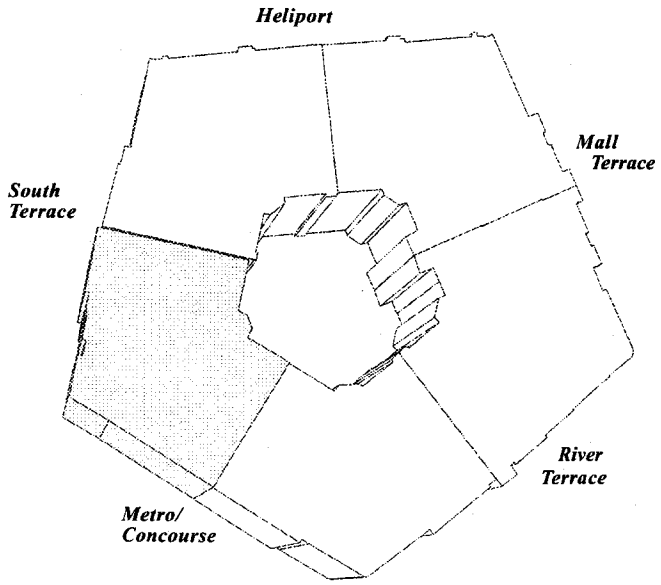
This area also incorporates some of the security improvements by re-orienting public access to the 2nd floor. Existing ramp space to upper floors will be redistributed to incorporate expanded multi-purpose facilities as well as additional office space.

The Metro/Concourse entrance marks the dividing line between Wedge 4 and Wedge 5.

WEDGE 5

This last area will also undergo a slab-to-slab reconstruction. All electrical, mechanical, and plumbing services will be replaced and a modernized telecommunication infrastructure will be installed. The removal of non-masonry partitions will open the space to an "open office" concept. This last incremental area is centered around Corridors 1 and 2.

The area houses the remaining portions of the cafeteria facilities and the Concourse. Existing ramp space to upper floors will be redistributed to incorporate auditorium facilities.



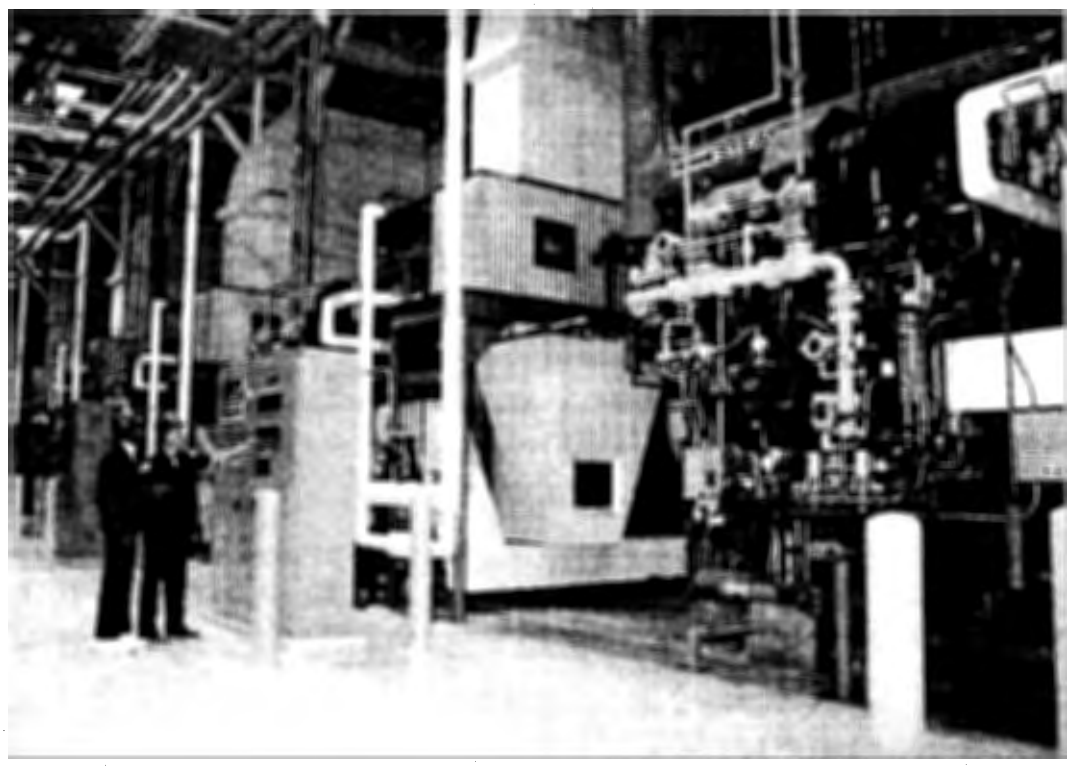
Wedge 5 is accessed by Corridors 1 and 2.

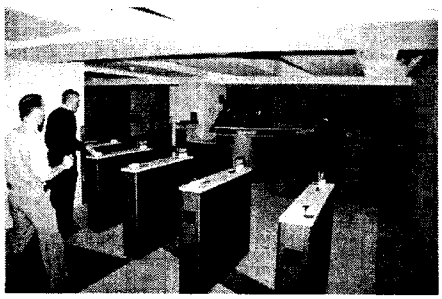
COMPLETED PROJECTS

- Basement/Mezzanine Segment 1
- Heating & Refrigeration Plant
- Center Courtyard Utilities Tunnel
- Classified Waste Incinerator Plant
- Sewage Lift Station
- River Terrace Renovation
- River Terrace Handicapped Access
- River Terrace Vehicle Bridge
- Corridor 8 Entrance Renovation
- Wedge 1 Temporary Construction
- Navy Annex Security Upgrades
- Renovation and Furnishing of Swing Space Facilities (857,872 square feet)
- Mug Handle Infill
- Basement Segment 2A2 Core & Shell
- Basement Segment 2A2 Tenant Fit-out
- Wedge 1 Demolition & Abatement

A demolition crew tears down a partition wall in Wedge 1. Demolition and abatement activities in the wedge are complete.

A view inside the new Heating & Refrigeration Plant. The plant was completed in 1997 and has save more than $1,000,000 in lower utility costs.





(Clockwise from top left): Aerial view of new Classified Waste Incinerator (left) and Heating & Refrigeration Plant (right and inset); room inside the Network Systems Management Center; ramp on the River Terrace to provide access for persons with disabilities; the River Terrace Vehicular Bridge; swing space lobby; Air Force Council Room; new telecommunication lines installed, and the new Corridor 8 Entrance area.

PUBLIC AFFAIRS

The Public Affairs Integrated Product Team is responsible for communicating information related to Pentagon renovation activities to the 25,000 employees of the Pentagon, the general public, military personnel, local government officials, the media and groups affected by the project.

Toward this end, the public affairs team disseminates information through a dedicated website, http://renovation.pentagon.mil, informational brochures and notices, presentations, open forums, displays, and signs. In 1999, public affairs staff also conducted more that 100 tours of renovation sites for Pentagon personnel, senior military leadership, political officials, and the media. Renovation e-mail and telephone "helplines" also serve to maintain open lines of communication.

A reporter with ABC News interviews Lee Evey, Pentagon Renovation Program Manager about the renovation project in June 1999.

The increased visibility of Pentagon renovation activities both inside and around the Pentagon resulted in significant and overwhelmingly positive media attention in 1999. While most of that attention focused on the magnitude and complexity of the renovation itself, several trade publications were particularly interested in the innovative procurement practices being employed by the program acquisition team. Following are some of the key highlights of the Pentagon Renovation public affairs program in 1999.

CBS News reporter, David Martin (center, facing right) interviews the Pentagon Renovation program manager inside Wedge 1. The interview will be used in a 60 Minutes II segment about the project expected to air in the spring of 2000.

- April 1999 – An open forum was held in the Pentagon auditorium to address accessibility issues for persons with disabilities. All Pentagon personnel were invited to attend. The presentation was made available on the program website.

- June 1999 –A new asbestos-removal robot was tested in Wedge 1 as part of an initiative to explore more efficient ways to remove the 15 million pounds of asbestos in the Pentagon. The event was covered by ABC News and CNN. Segments later appeared on both stations including a 6-minute segment on CNN's Science and Technology Week program.

- July 1999 – An open forum was held in the Pentagon auditorium to update Pentagon personnel on all renovation activities, answer questions, and address any issues of concern to personnel.

The public affairs program often involves coordination of groundbreaking or ribbon-cutting ceremonies. Above, senior Pentagon officials take part in a ceremonial "wall-bashing" ceremony to mark the beginning of Wedge 1 demolition.

Film crews from ABC and CNN were on hand to record an asbestos removal robot being tested in Wedge 1 in June 1999.

- August 1999 - *The Discovery Channel*, a national cable station, conducted the first of two full-day shoots of renovation activities for an hour-long program on the Pentagon for its building documentary series. The program aired February 7, 2000, and featured several minutes of renovation activities as well as an interview with the program manager, Lee Evey.

- September 1999 - The project was the feature cover story in *Building Operating Management* magazine.

- October 1999 - *The Learning Channel*, a national cable station, conducted a full-day shoot of renovation activities for an hour-long program titled "The Ultimate 10" featuring segments on the world's 10 largest structures. The program included a six-minute segment on the Pentagon and is expected to air in late March 2000.

- October 1999 - *Engineering News Record*, a weekly construction magazine, featured an article titled "Procurement – The Pentagon Pumps Up Performance," which focused on the Renovation Program's program manager, Lee Evey, and his new approaches to negotiating federal contracts.

- November 1999 - CBS News reporter, David Martin, interviews the Renovation's program manager, Lee Evey, during an all-day "walk-and-talk" video shoot through renovation activities. The footage will be used for a *60 Minutes II* piece that focuses on the Pentagon Renovation Program and the myriad challenges facing the renovation team. The 12-minute segment is expected to air in February/March 2000.

- November/December 1999 – The Renovation Program provided two tours for Andrea Stone of USA Today. The renovation program was given a full page of coverage in this national newspaper that is more typically known for its short, concise articles. The article appeared in the January 28, 2000 edition.

- December 1999 – Engineering News Record named program manager, Lee Evey as one of the magazine's top 25 newsmakers of 1999 for his implementation of innovative procurement practices.

Additional print coverage included features in the March 1999 issue of Today's Facility Manager and the December issue of Building Design and Construction magazine.

Among the key public affairs initiatives for 2000 will be the revival of the Pentagon Renovation newsletter, *The Renovator*, which will be made available at distribution points throughout the Pentagon. A redesigned web site will improve access to information and the availability of images depicting renovation activities. These efforts will most directly keep our primary customers, the 25,000 employees in the Pentagon, informed of significant activities and their associated impacts.

In early 2000, the chronological proximity of three television segments airing on national television (60 Minutes II, The Discovery Channel, The Learning Channel) will most likely prompt interest in the Pentagon Renovation Program from other regional and national news outlets. The public affairs team stands ready to provide the media information, images, tours and interviews to enhance the image of the Pentagon Renovation Program as one that is responsive, open, and accessible.

The Renovation Program caught the attention of a number of print journals including USA Today, which ran a full page story about the project in January 2000.

FEDERAL BUILDING 2 (FB2)

Subtitle F—Expansion of Arlington National Cemetery

SEC. 2881. TRANSFER FROM NAVY ANNEX, ARLINGTON, VIRGINIA.

(a) LAND TRANSFER REQUIRED- The Secretary of Defense shall provide for the transfer to the Secretary of the Army of administrative jurisdiction over three parcels of real property consisting of approximately 36 acres and known as the Navy Annex (in this section referred to as the 'Navy Annex property').

(b) USE OF LAND- (1) Subject to paragraph (2), the Secretary of the Army shall incorporate the Navy Annex property transferred under subsection (a) into Arlington National Cemetery.

(2) The Secretary of Defense may reserve not to exceed 10 acres of the Navy Annex property (of which not more than six acres may be north of the existing Columbia Pike) as a site for—

(A) a National Military Museum, if such site is recommended for such purpose by the Commission on the National Military Museum established under section 2901; and

(B) such other memorials that the Secretary of Defense considers compatible with Arlington National Cemetery.

(c) REDEMPTION OF LAND FOR CEMETERY USE- Immediately after the transfer of administrative jurisdiction over the Navy Annex property, the Secretary of Defense shall provide for the removal of any improvements on that property and shall prepare the property for use as a part of Arlington National Cemetery.

(d) ESTABLISHMENT OF MASTER PLAN- (1) The Secretary of Defense shall establish a master plan for the use of the Navy Annex property transferred under subsection (a).

(2) The master plan shall take into account (A) the report submitted by the Secretary of the Army on the expansion of Arlington National Cemetery required at page 787 of the Joint Explanatory Statement of the Committee of Conference to accompany the bill H.R. 3616 of the One Hundred Fifth Congress (House Report 105-436 of the 105th Congress), and (B) the recommendation (if any) of the Commission on the National Military Museum to use a portion of the Navy Annex property as the site for the National Military Museum.

(3) The master plan shall be established in consultation with the National Capital Planning Commission and only after coordination with appropriate officials of the Commonwealth of Virginia and of the County of Arlington, Virginia, with respect to matters pertaining to real property under the jurisdiction of those officials located in or adjacent to the Navy Annex property, including assessments of the effects on transportation, infrastructure, and utilities in that county by reason of the proposed uses of the Navy Annex property under subsection (b).

(4) Not later than 180 days after the date on which the Commission on the National Military Museum submits to Congress its report under section 2903, the Secretary of Defense shall submit to Congress the master plan established under this subsection.

(e) IMPLEMENTATION OF MASTER PLAN- The Secretary of Defense may implement the provisions of the master plan at any time after the Secretary submits the master plan to Congress.

(f) LEGAL DESCRIPTION- In conjunction with the development of the master plan required by subsection (d), the Secretary of Defense shall determine the exact acreage and legal description of the portion of the Navy Annex property reserved under subsection (b)(2) and of the portion transferred under subsection (a) for incorporation into Arlington National Cemetery.

(g) REPORTS- (1) Not later than 90 days after the date of the enactment of this Act, the Secretary of the Army shall submit to the Secretary of Defense a copy of the report to Congress on the expansion of Arlington National Cemetery required at page 787 of the Joint Explanatory Statement of the Committee of Conference to accompany the bill H.R. 3616 of the One Hundred Fifth Congress (House Report 105-736 of the 105th Congress).

(2) The Secretary of Defense shall include a description of the use of the Navy Annex property transferred under subsection (a) in the annual report to Congress under section 2674(a)(2) of title 10, United States Code, on the state of the renovation of the Pentagon Reservation.

(h) DEADLINE- The Secretary of Defense shall complete the transfer of administrative jurisdiction required by subsection (a) not later than the earlier of—

(1) January 1, 2010; or

(2) the date when the Navy Annex property is no longer required (as determined by the Secretary) for use as temporary office space due to the renovation of the Pentagon.

Under the current schedule for the renovation of the Pentagon, it is anticipated the Navy Annex property and facility will be used as temporary and permanent office space until the conclusion of the renovation program. After that time, all the facility occupants will be relocated to either the Pentagon and/or other government controlled space.

(2) The Secretary of Defense shall include a description of the use of the Navy Annex property transferred under subsection (a) in the annual report to Congress under section 2674(a)(2) of title 10, United States Code, on the state of the renovation of the Pentagon Reservation.

Washington Headquarters Service (WHS), Real Estate & Facilities Division (RE&FD) Response to Section 2881

It is currently planned that, in accordance with Section 2881 of the FY 2000 Defense Appropriations Act, the Secretary of Defense will assign administrative jurisdiction of the Navy Annex property to the Secretary of the Army by January 1, 2010.

Further, in accordance with Section 2881 of the FY 2000 Defense Appropriations Act, by September 2001, the Secretary of Defense will establish a master plan for the use of the Navy Annex property that will take into account (A) the report submitted by the Secretary of the Army on the expansion of Arlington National Cemetery required at page 787 of the Joint Explanatory Statement of the Committee of Conference to accompany the bill H.R. 3616 of the One Hundred Fifth Congress, and (B) the recommendation of the Commission on the National Military Museum to use a portion of the Navy Annex property as a site for the National Military Museum.

FY 1991 - LEGISLATIVE AUTHORIZATION

SEC 2804. OPERATION AND CONTROL OF THE PENTAGON RESERVATION

(a) IN GENERAL - (1) Chapter 159 of title 10, United States Code, is amended by inserting after section 2673 the following new section:

"§2674. Operation and control of the Pentagon Reservation

"(a)(1) Jurisdiction, custody, and control over, and responsibility for, the operation, maintenance, and management of the Pentagon Reservation is transferred to the Secretary of Defense.

"(2) Before March 1 of each year, the Secretary of Defense shall transmit to the Committees on Armed Services of the Senate and the House of Representatives, the Committee on Environment and Public Works of the Senate and the Committee on Public Works and Transportation of the House of Representatives a report on the state of the renovation of the Pentagon Reservation and a plan for the renovation work to be conducted in the fiscal year beginning in the year in which the report is transmitted.

"(b) The Secretary may appoint military or civilian personnel or contract personnel to perform law enforcement and security functions for property occupied by, or under the jurisdiction, custody,

Nov. 5 DEFENSE AUTHORIZATION ACT P.L. 101-510

Sec. 2804 and control of the Department of Defense, and located at the Pentagon Reservation. Such individuals—

"(1) may be armed with appropriate firearms required for

personal safety and for the proper execution of their duties,

whether on Department of Defense property or in travel status; and

"(2) shall have the same powers as sheriffs and constables to

enforce the laws, rules, or regulations enacted for the protection of persons and property.

"(c)(1) The Secretary may prescribe such rules and regulations as the Secretary considers appropriate to ensure the safe, efficient, and secure operation of the Pentagon Reservation, including rules and regulations necessary to govern the operation and parking of motor vehicles on the Pentagon Reservation.

"(2) Any person who violates a rule or regulation prescribed under this subsection is liable to the United States for a civil penalty of not more than $1000.

"(3) Any person who willfully violates any rule or regulation prescribed pursuant to this subsection commits as Class B misdemeanor.

"(d) The Secretary of Defense may establish rates and collect charges for space, services, protection, maintenance, construction, repairs, alterations, or facilities provided at the Pentagon Reservation-

"(e)(1) There is established in the Treasury of the United States a revolving fund to

be known as the Pentagon Reservation Maintenance Revolving Fund (hereafter in this section referred to as the'Fund'). There shall be deposited into the Fund funds collected by the Secretary of space and services and other items provided an organization or entity using any facility or land on the Pentagon Reservation pursuant to subsection (d).

"(2) Monies deposited into the Fund shall be available, without fiscal year limitation, for expenditure for real property management, operation, protection, construction, repair, alteration, and related activities for the Pentagon Reservation.

"(f) In this section:

"(1) The term 'Pentagon Reservation' means that area of land (consisting of approximately 280 acres) and improvements thereon, located in Arlington, Virginia, on which the Pentagon Office Building, Federal Building Number 2, the Pentagon heating and sewage treatment plants, and other related facilities are located, including various areas designated for the parking of vehicles.

"(2) The term 'National Capital Region' means the geographic area located within the boundaries of (A) District of Columbia, (B) Montgomery and Prince Georges Counties in the State of Maryland, (C) Arlington, Fairfax, Loudoun, and Prince William Counties and the City of Alexandria in the Commonwealth of Virginia, and (D) all cities and other units of government within the geographic areas of such District, Counties, and City."

(2) The table of sections at the beginning of such chapter is amended by inserting after the item relating to section 2673 the following new item:

"2674. Operation and control of the Pentagon Reservation."

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(b) TRANSFER OF FUNDS FOR FISCAL YEAR, 1991.—For fiscal year 1991, the Secretary of Defense may transfer into the Pentagon Reservation Maintenance Revolving Fund (established by section 2674(e) of title 10, United States Code), from funds appropriated to the military departments and the Defense Agencies, amounts equal to the amounts that would otherwise be paid by the military departments and the Defense Agencies to the General Services Administration for the use of the Pentagon Reservation.

FY 2000 - DEPARTMENT OF DEFENSE APPROPRIATIONS ACT WITH CERTIFICATION

The Department of Defense Appropriations Act, 2000, Public Law 106-79, Section 8064 (Oct. 25, 1999)

SEC. 8064. (a) None of the funds appropriated in this Act may be transferred to or obligated from the Pentagon Reservation Maintenance Revolving Fund, unless the Secretary of Defense certifies that the total cost for the planning, design, construction and installation of equipment for the renovation of the Pentagon Reservation will not exceed $1,222,000,000.

(b) The Secretary shall, in conjunction with the Pentagon Renovation, design and construct secure secretarial offices and support facilities and security-related changes to the subway entrance at the Pentagon Reservation.

COST CERTIFICATION LETTERS SENT TO:

United States Senate

Honorable Albert Gore, Jr., President of the Senate
Honorable John C. Warner, Chairman , Committee on Armed Services
Honorable Carl Levin, Ranking Minority Member, Committee on Armed Services
Honorable Bob Smith, Chairman, Committee on Environment and Public Works
Honorable Max Baucus, Ranking Minority Member, Committee on Environment and Public Works
Honorable Ted Stevens, Chairman, Committee on Appropriations
Honorable Robert C. Bryd, Ranking Minority Member, Committee on Appropriations

United States House of Representatives

Honorable J. Dennis Hastert, Speaker
Honorable Floyd Spence, Chairman, Committee on Armed Services
Honorable Ike Skelton, Ranking Minority Member, Committee on Armed Services
Honorable Bud Shuster, Chairman, Committee on Transportation and Infrastructure
Honorable James L. Oberstar, Ranking Minority Member, Committee on Transportation and Infrastructure
Honorable C.W. Bill Young, Chairman, Committee on Appropriations
Honorable, David R. Obey, Ranking Minority Member, Committee on Appropriations

OFFICE OF THE SECRETARY OF DEFENSE
PENTAGON RENOVATION PROGRAM
100 BOUNDARY CHANNEL DRIVE
ARLINGTON VA 22202-3712

Honorable Albert C. Gore, Jr.
President of the Senate
Washington, DC 20515

1 MAR 2000

Dear Mr. President:

The Department of Defense Appropriations Act, Fiscal Year 2000, Public Law 106-79, §§8064 (Oct. 25, 1999) requires the Secretary of Defense to certify that the total cost for the planning, design, construction and installation of equipment for the renovation of the Pentagon will not exceed $1,222,000,000.

In order to continue with this critical program, I certify that the Department will constrain the specified costs of the renovation to $1,222,000,000. At this stage in the construction process, we have accomplished a preliminary determination on the impact of the current ceiling on the design of the renovated Pentagon. We can renovate the remaining areas of the Pentagon within the $1,222,000,000 under aggressive cost savings initiatives that are being implemented. This will result in a restructured program that will achieve the basic elements of renovation which were promised to Congress and which form the basis on which the program was originally initiated. However, the program will not always achieve some of the other elements of the renovation that we have previously reported and which would be cost effective from a life-cycle perspective. The total cost of the renovation depends heavily on inflation in construction costs over the next decade and our ability to institute more cost effective contracts. The Department will seek adjustment of the ceiling, as appropriate, as it proceeds with the program.

Consistent with cost estimates for projects in the Military Construction Program, this certified amount does not include the cost of: 1) purchase and installation of information management and telecommunications equipment, 2) rental and operation of leased swing space, and 3) purchase and installation of furniture for the renovated Pentagon. The certification also does not cover ancillary projects including the design and construction of the Heating and Refrigeration Plant, the Classified Waste Incinerator, the Remote Delivery Facility, other recently required security enhancements and costs prior to Fiscal Year 1994.

If you have any questions about the Pentagon Renovation Program, please have your staff contact me at (703) 693-8954.

Sincerely,

Walker Lee Evey

Walker Lee Evey
Program Manager
Pentagon Renovation

ON COST, ON SCHEDULE, BUILT FOR THE NEXT FIFTY YEARS

CONTACT INFORMATION

The Pentagon Renovation Program frequently provides tours through renovation activities for Pentagon personnel.

If you would like more information about the Pentagon Renovation Program, or if you would like to set up a tour of renovation activities, please call the Public Affairs Office at (703) 693-8935 or (703) 693-8933 during business hours, or call our helpline at (703) 693-4357 (HELP). To e-mail us or read more about the renovation program, visit our website at: http://renovation.pentagon.mil