


Office of Inspector General  
U.S. House of Representatives  
Washington, DC 20515-9990

MEMORANDUM

TO: The Honorable Bob Ney, Chairman  
Committee on House Administration

The Honorable Steny Hoyer, Ranking Minority Member  
Committee on House Administration

FROM:   
Steven A. McNamara  
Inspector General

DATE: February 7, 2002

SUBJECT: Advisory Report On The Fire Protection Systems In The House Complex  
(Report No. 02-HOC-02)

**INTRODUCTION AND BACKGROUND**

This is our second annual report update on the fire protection systems in the House Complex. In our initial report, *Fire Protection Systems Do Not Adequately Protect the House* (Report No. 98-HOC-20) issued on December 18, 1998, we concluded that the fire protection systems within the House Complex were deficient. This follow-up review was performed to comply with the request from the Committee on House Administration (CHA) that we closely monitor the Architect of the Capitol's (AOC) implementation of a comprehensive fire protection program for the House Complex.

**OBJECTIVES AND SCOPE**

The objective of our follow-up review was to monitor the progress the AOC had made to improve the fire protection systems in the House Complex during the past year (April 2000 through June 2001) in response to the significant deficiencies and issues identified in our prior reports. Specifically, our efforts were focused on the implementation of a comprehensive fire protection plan, development of a fire protection systems maintenance program, removal of Omega sprinkler heads, and improvements in emergency egress.

Our work was conducted during the period April 1, 2000 through June 30, 2001, and consisted of following up on prior findings and recommendations through meetings with AOC officials, attending bi-weekly fire status meetings, reviewing pertinent AOC contractor studies and reports, and observing AOC equipment installations, tests, and commissionings.

## **PRIOR REPORTS**

The OIG previously issued two reports related to fire protection systems in the House Complex. *Fire Protection Systems Do Not Adequately Protect the House* (Report No. 98-HOC-20), issued on December 18, 1998, concluded that the fire protection systems within the House Complex were deficient, and as a result made specific recommendations for corrective actions. *Advisory Report On The Fire Protection Systems In The House Complex* (Report No. 00-HOC-02), issued on May 1, 2000, was a follow-up on the status and progress of the implementation of the corrective actions made as of March 31, 2000. The follow-up review found that the AOC had improved the level of fire protection within the House Complex through the installation of additional fire protection system hardware, such as smoke detectors, sprinklers, and tamper and waterflow switches. Despite these physical improvements, we were still concerned about the AOC's progress in implementing the report recommendations we made regarding overall fire protection systems management, especially development of a comprehensive fire protection plan and systems maintenance, and key aspects of emergency egress within the House Complex.

In January 2000, the Office of Compliance (OOC) issued a *Fire Inspection Report* that addressed the same fire protection deficiencies initially reported in our December 18, 1998 report. As a result, our monitoring and follow-up of our prior reports also covers the deficiencies reported by the OOC.

## **RESULTS OF REVIEW**

We found that the AOC has taken aggressive action to improve the level of fire protection within the House Complex since our first follow-up report in May 2000. Improvements have been noted in the development of a comprehensive fire protection plan, installation of sprinklers and fire pumps, compliance with the American Disabilities Act, and improved egress planning and routes. One area needing immediate corrective action is the development of a comprehensive maintenance, inspection, and testing plan. The AOC has made a long-term commitment to improve the House's fire protection systems. Improving the House's fire protection systems is an ongoing activity with several of the key projects not scheduled to be completed until Fiscal Year (FY) 2005.

### **Fire Protection Improvements Accomplished**

The AOC has made significant improvements to the fire protection systems within the House Complex. The most noticeable improvements can be seen in the Rayburn House Office Building (HOB). During the past year, the AOC activated the smoke detectors and firefighter phones, and issued a contract for the installation of a sprinkler system throughout the Rayburn HOB that will take two years to complete. Furthermore, the AOC initiated initial system testing, a new long term planning process and procedures, and published a Fire Safety Improvements Time Line (Time Line) plan for the House Office Buildings in March 2001. Other significant improvements noted were:

## Comprehensive Fire Protection Plan

In our initial report on the Fire Protection Systems in the House, we recommended the AOC develop a comprehensive plan to correct the deficiencies in the systems. In our subsequent follow-up report, we found that the AOC's January 1999 plan provided to the CHA did not address the deficiencies we previously reported. Instead of a comprehensive plan, the AOC issued task orders for studies to determine the overall condition of the fire protection throughout the Capitol Complex. Since the majority of those requested studies have been completed, the AOC issued a plan, entitled Fire Safety Improvements Time Line, in March 2001 that addressed the major deficiencies. The Time Line sets forth the projects, actions, and goals of each major undertaking. It establishes timeframes for surveys and studies of key issues, design, and construction, which need to occur sequentially and in conjunction with the AOC's requests for associated funding for each phase of the project. As a result of this business process, the plan denotes that improving the House's fire protection systems will take time and demonstrates the AOC's long-term commitment to address the House's fire protection issues. Some of the projects that will take time are the egress improvements and Halon systems replacement, which will not be completed until FY 2004. Also, the complex-wide emergency alarm and evacuation monitoring system, which will consolidate the fire protection monitoring assets for the entire Capitol Complex in central locations, including the House Buildings, will not be completed until FY 2005.

The AOC Time Line provides a baseline to monitor the improvements to the fire safety of all House buildings. We will use the plan to monitor the AOC's progress and will work with the AOC to determine if the planning tools provide a basis to improve the schedule and timing of when projects are to be performed. The AOC will need to continue to update this plan as additional fire protection projects are identified.

### Sprinkler Installation

The AOC completed the Omega sprinkler replacement program for the House Complex. The Superintendent replaced over 5,200 defective sprinklers throughout the House Complex. Although most of the HOBs are fully protected, those areas in the Cannon and Longworth HOBs not protected with sprinklers are being addressed. The design for the Cannon HOB has been approved and installation is underway. Currently, sprinklers are being installed in the Longworth HOB basement. This includes not only the offices, but also the Office Supply Store, Gift Shop, and the remodeled Credit Union location. The completion of these projects and the Rayburn HOB sprinkler project will achieve full sprinkler protection throughout the House Complex.

### Fire Pumps Installation

The AOC has made significant improvements to the fire pumps used to support the sprinklers in the House Complex. New fire pumps have been installed, tested, and commissioned in the Cannon and Longworth HOBs. As part of the renovation of the sprinkler system in the O'Neill HOB, a new fire pump was installed. Furthermore, two fire pumps were installed in the Rayburn HOB as part of the current two-year sprinkler contract. Also, during the year the fire pump in

the Ford HOB was tested and found fully operational. These actions will ensure that adequate water pressure is available to the buildings' sprinkler systems in all of the HOBs.

### Americans With Disabilities Act (ADA) Compliance

The AOC is adding and moving fire protection devices to make the House Complex more compliant with the ADA. Strobe lights will signify an alarm to those individuals who are hearing impaired. In addition, lowering the fire alarm pull stations to the required height will also make the devices more accessible. Both actions will enhance fire protection and provide a greater degree of safety to all House Complex occupants.

### Emergency Egress Planning and Routes

In our initial report, we reported that inadequate emergency egress plans and routes hindered the evacuation of the House Complex. We recommended the AOC replace the revolving doors, install emergency exit hardware, ensure exit routes were clear of recycling bins and trash, review current signage and develop plans to improve the signage, determine building occupancy loads, and ensure the development of individual office evacuation plans. Subsequently, we reported that revolving doors remained on key egress routes, emergency hardware was installed on 37 emergency doors, but only connected to the fire alarm systems on 10 doors throughout the House, and existing signage and office evacuation plans needed to be addressed.

Egress in House Complex is an ongoing effort. Throughout the year, we observed that hallways formerly laden with recycled trash bins and furniture have been free of trash. The Chief Administrative Officer has taken appropriate actions to ensure upper floor hallways have been free of excess furniture. Continuing to keep the hallways free from obstacles is crucial to the timely evacuation of the buildings during an emergency.

During the past year, the AOC has completed a design for the critical revolving door in the Longworth HOB; however, funds have not been identified for the construction.<sup>1</sup> In addition, the AOC and Capitol Police have studied the existing entrances and made changes to improve egress routes to the existing revolving doors. Screening devices have been moved, where possible, to increase the flow of personnel through the revolving doors during an emergency. Emergency hardware has been installed and connected to the fire alarm system on 40 of the 61 doors armed with emergency hardware within the House Complex. Since the signage study was completed, the AOC has added and repositioned signs where necessary.

To facilitate emergency egress planning, the AOC used a contractor to determine the maximum occupancy of the House buildings based on the size, number of exits, and square footage of the buildings in order to develop a preliminary building evacuation plan. Furthermore, the AOC has recently begun initial efforts to develop egress diagrams for installation in the HOBs. Once these efforts are completed, the final product will require House Building Commission approval before installation can begin. These egress diagrams will provide initial information to House tenants to develop or revise individual office evacuation plans.

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<sup>1</sup> Subsequent to the audit fieldwork, funding was approved in August 2001, a contract was awarded in September 2001, and completion of construction is anticipated in late 2002.

Accurate occupancy numbers are critical to ensure that the building evacuation plans do not overload a door or stairwell access, which could cause panic in an emergency situation. All of the AOC's efforts to develop occupancy estimates for evacuation planning have been based on square footage. Although this is permissible under the fire code, it may not accurately represent actual occupancy. Determining the actual number of personnel in each of the House buildings is difficult because the number of full and part-time staff, as well as visitors, occupying the House Complex varies daily. As a result, more accurate occupancy projections should be developed to account for the unique circumstances affecting the House versus square footage occupancy ratios. Knowing as closely as possible the House's actual occupancy rate, along with the egress study results, would minimize the risk of building evacuation plans not meeting their fire safety goals.

### **Comprehensive Maintenance, Inspection, And Testing Plan Needed**

As described in our original report on fire protections systems for the House in December 1998 and subsequently in our May 2000 follow-up report, the AOC had still not developed a comprehensive maintenance, inspection, and testing plan for the House Complex. In 1998, we recommended the AOC develop and implement a comprehensive maintenance, inspection, and testing plan for each of the fire protection systems. Presently, contractors are completing the initial inspection and testing of the fire protection systems that will serve as a baseline for a comprehensive plan. There is an immediate need on the part of the AOC to develop and implement a comprehensive maintenance, inspection, and testing plan.

In the past year, the House Superintendent has installed numerous fire protection devices that have improved the overall safety of the House Complex. However, the continued success of the existing and recently installed devices is dependent on an active maintenance and testing plan that complies with the requirements of the National Fire Protection Association (NFPA). The NFPA guidelines establish required maintenance and inspection time periods. The task to complete the required maintenance and inspections in a complex the size of the House Complex is monumental and requires a well thought-out process and procedures to complete the work within the guidelines.

As of July 2001, the House Superintendent, with the assistance of contractors, is completing the initial inspection, testing and commissioning of the systems. This will serve as a baseline for a comprehensive maintenance, inspection, and testing plan. In addition, the House Superintendent is searching for a House fire protection engineer to provide the in-house expertise needed to develop and implement their comprehensive maintenance, inspection, and testing plan. This plan should consist of published guidelines and procedures that clearly delineate the goals, objectives, resources, and scope of the program, to include the entities that will complete each type of maintenance and inspection. This plan is needed to comply with NFPA standards that require existing fire protection systems be tested on a weekly, monthly, semiannual, or annual basis depending on the specific fire protection system requirement. A comprehensive maintenance, inspection, and testing plan would provide the AOC with additional assurances that the existing systems will function properly when called upon during an emergency.

## **Conclusion**

The AOC is taking aggressive action within business process parameters it must follow to correct the House's fire protection systems. The process to correct the House's deficiencies is a long-term process and will require continued vigilance on the part of the AOC. However, immediate action is needed on the part of the AOC to develop and implement a comprehensive maintenance, inspection, and testing plan. We will continue to closely monitor the AOC's implementation of a comprehensive fire protection program for the House Complex and offer any suggestions or recommendations for improvement, when warranted.