

REPORT OF TECHNICAL SUBCOMMITTEE OF THE ARCHITECTURAL COMMITTEE

PHILADELPHIA HISTORICAL COMMISSION

**Arlene Matzkin, Chairperson
Commission Conference Room
Suite 1301, 1401 Arch Street**

11 November 1994

Present

Arlene Matzkin, Chairperson, Architectural Committee
Michael Henry, Watson Henry Associates
Stephen Finkelman, Miyahara Associates

Richard Tyler, Historic Preservation Officer
Lori Plavin Salganicoff, Historic Preservation Specialist

Also

Tom McGimsey, NPS, INDE
Doris Fanelli, INDE
Eleonora Balibar, NPS, MARO (National Park Service, Mid-Atlantic Regional Office)
Kurt von Rosenberg, NPS, DSC (National Park Service, Denver Service Center)
Mike Eissenberg, NPS, DSC
Jean Marra, Maintenance Chief, INDE (Independence National Historical Park)
Hyman Myers, Vitetta Group (VG)
George Skarmas, VG
Kathy Jensen, VG
Michael Barford, VG
Bill Weber, VG
Jim A. McClellan, VG

INDEPENDENCE SQUARE GROUP OF BUILDINGS

The Vitetta Group, Inc.

National Park Service

PROPOSAL: Changes to Systems

Several issues were discussed at this 100% draft review meeting including smoke detectors, lighting, and Assembly Room closets. Discussion of the mechanical systems, however, dominated the meeting.

Smoke Detectors

In her notes to the Sub-Committee, Ms. Penelope Batchelor questioned the accessibility of smoke detectors for maintenance. Ms. Batchelor also noted that the Supreme Court Chamber cornice described as being from the 1960's is actually 18th-century fabric with 1960's triglyphs. Mr. Tyler stated that the Park has already indicated its intention to put these detectors in the Chamber ceiling.

Lighting

Ms. Batchelor's notes pointed also to the lights planned for the Independence Hall stairway steps, stating that they would shine into people's faces. Ms. Matzkin concurred and requested that the Vitetta Group find a wood louver cover for the 2"x8" faceplate. Dr. Skarmas stated that he would send this and a picture of the currently proposed faceplate configuration to the Committee for consideration.

Other Issues

Ms. Batchelor also requested in her notes that great care be taken in removing the modern shelves from the 18th century slots in the Assembly Room closet.

Mechanical Systems

Mr. Henry asked if the proposed algorithm for the resetting of temperature and humidity set points had been checked for performance against actual weather data. Mr. Eissenberg replied that they had and Mr. Barford provided a plot of outdoor temperature, glass condensation temperature, and proposed reset humidity set points.

Mr. Henry noted that the algorithm proposed to control the mechanical systems is based on temperatures between January and March and that the low outdoor temperature was higher than 10°F. He stated that, while condensation is of the utmost importance, the rate of temperature change must also be addressed; the January to March data does not take into account the widely swinging temperature changes of the seasonally transitional months. Furthermore, the proposed maximum daily change of 2°F, 1% relative humidity might not allow the mechanical system to respond to rapidly changing outdoor conditions.

Mr. Eissenberg and Mr. Barford indicated that the plotted data were not for Philadelphia; that an appropriate plot could be generated. Mr. Eissenberg stated that the algorithm also assumes an absolute low of 10°F, a typical low which is nevertheless sometimes exceeded in extreme winters.

Mr. Henry noted that the extreme conditions must also be accounted for, noting that the lowest interior humidity of 20% might still cause condensation on the window. Both Mr. von Rosenberg and Mr. McGimsey stated that wood in the building and in the collections would be damaged by a lower humidity. Mr. Henry stated that the 20% low is typical in museums. Mr. Eissenberg, the mechanical engineer currently detailed to this project by the National Park Service, stated that he would provide a projected temperature plot mapped against last year's extreme winter.

Mr. Henry noted also that the control algorithm is based on ASHRAE data for condensation. This data assumes that no localized infiltration exists, a condition which is present at the Independence Square buildings.

The design for the monitoring of the system, requested several months ago by the Sub-Committee, has not yet been proposed. Mr. von Rosenberg stated that it is part of a separate contract and will be brought before the Sub-Committee later. Mr. Finkelman expressed concern about leaving this, and the related alarm system, undeveloped. He wondered about the logistics of the alarm system, asking where and how it will sound, who will hear it, and how they will be instructed to respond. He also worried that untrained personnel could skew the system. Mr. Tyler stated that the Commission was assured it would receive monthly readings and could check for such a case. Mr. Eissenberg assured sub-committee members that an "O & M" manual will be written for those with access to the system.

Mr. Finkelman asked that the specifications be updated to reflect this discussion.

Mr. Eissenberg asked if another meeting would be necessary. Mr. Tyler responded that Mr. Henry and Mr. Finkelman would guide that decision; owing to a misunderstanding about the character and attendance of this technical sub-committee meeting, that sub-committee chose to remain in meeting after the others had gone. Mr. Eissenberg then suggested that the mechanical engineers meet to work out further issues.

Dr. Skarmas and Mr. von Rosenberg asked whether the drawings could be released to be sent out to bid while the specifications are being ironed out. Mr. Henry stated that the sub-committee must first meet alone. Mr. von Rosenberg stated that Mr. Eissenberg could provide a response to the issues detailed at the meeting within 1-2 weeks. Mr. Tyler responded that the Commission's response could come within 1-2 weeks of the receipt of Mr. Eissenberg's work.

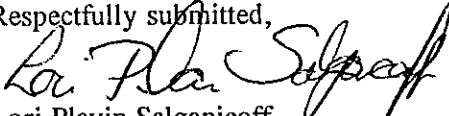
Dr. Skarmas noted that the Park could send the drawings out to bid without the full approval of the Commission, amending the bid with any subsequent changes. Mr. von Rosenberg stated that the National Park Service intends to wait for full approval. Mr. Myers requested a letter outlining the sub-committee's concerns.

The Technical Sub-Committee requested the following:

1. *Using last year's temperature and humidity data, adjust algorithms to guarantee that no condensation will occur, even during transitional periods. Interior lows may remain at 55°, 20% relative humidity. Extremes may be prepared for by:*
 - a) *keeping the buildings dryer in anticipation of extreme winters,*
 - b) *allowing for greater daily swings than the 2°F and 1% relative humidity currently*

- c) *proposed, and/or operating the system with an algorithm that is based on average weather patterns with the capacity to impose a second algorithm should outdoor temperatures become more severe than the typical.*
2. *Provide an analysis of these algorithms over a full year, using last year's temperature and humidity data, plotting proposed temperature and humidity set points, reset points, and corresponding window glass condensation temperature.*
 3. *Create a control schematic, logic diagram, or decision tree diagram that illustrates the interior temperature and relative humidity set points and the exterior conditions that affect these set points.*
 4. *M3-4.1, Detail #11, Air Flow Diagram. Bring this drawing into conformance with the system operation described in the specifications and expand it to show the reheat coil, space humidity and temperature sensors. Provide a psychrometric chart showing the airflow process diagram. This is necessary to assure that the physical relationship of equipment and controls can accomplish what the controls specification describes.*
 5. *Acknowledge the discussion that the rate of change, especially temperature, in the specification would have to be relaxed.*
 6. *Provide a better description of the monitoring and alarm system. The DDC should monitor and record exterior wet bulb temperature or by exterior relative humidity.*
 7. *Provide better description of summer humidity controls and monitoring. The basis for averaging both winter and summer humidity readings should be elaborated. The references to summer and winter modes of system operations should be deleted from the specification since there may be periods when the system alternates between modes.*
 8. *Describe the "unoccupied mode" in the specification. Mr. von Rosenberg stated at the meeting that the only change will be the closing off of dampers -- all other controls will remain on, however the specification does not reflect this.*
 9. *Provide enough detail within the Sequence of Operations of the Control Specifications to describe the system functions as discussed and approved, and as described in the NPS narratives.*
 10. *As stated above, Ms. Matzkin requested that the Vitetta Group find a wood louver cover for the 2"x8" faceplates of the Independence Hall stairway step lights and provide a picture of the currently proposed faceplate configuration.*

Respectfully submitted,



Lori Plavin Salganicoff