

MARK ALAN KRAFT AIA, INC

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Mr Ron Bradt, Project Manager
Division of State Facilities
P.O. Box 7866
Madison, WI 53707-7866

03.23.2009

Re: **Elevator Evaluation Study**
Wisconsin Historical Society – Madison, WI
DSF 08L1M
MAK.AIA.INC – 09.180

Ron:

With respect to the referenced project, we offer the following recommendations based upon our review of the installation, available data and drawings. We have visited the site on three occasions and have discussed the current status of the elevator with Mr John Kees.

The State of Wisconsin ID for this elevator is ID 502790, Tag Number: 12308. This elevator was installed in 1963 per Comm 18, IND 4 subject to the 1959 Elevator code. It was installed as a replacement for the lift at that time. It is an electric traction elevator with a “basement” traction machine driven by a DC motor. There is limited headroom at the top of the hoistway. Component age has increased the need for diligent periodic maintenance. All components are dated and in need of replacement/up-grading.

It should be noted that the building and its interior architectural detailing and design are historic in nature. The open stairs adjacent to the elevator landings present the same Fire Alarm (elevator fire service) issues as those present in the State Capitol. The picture in Figure 1 presents the original elevator lobby and is very similar to the original State Capitol elevator installation.

In light of the existing conditions, we offer the following recommendations;

- All elevator control equipment should be removed and completely replaced. New/replacement equipment should include a solid state controller complete with integral soft start VVF motor starter. All DC equipment (motor and MG set) should be removed and replaced with AC equipment.
- The basement traction machine should be retained, serviced, restored and equipped with a new AC motor as indicated above. The machine drive sheave/deflector sheave arrangement will have to be structurally modified to accommodate a rope gripper. This device is required by the new code (as is fire service). The wire ropes should be replaced in conjunction with this work. All hoistway sheaves and bearings should also be removed and replaced.

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DESIGN MATTERS - PERFORMANCE COUNTS

- The elevator car panels, floor, and door packages should be removed and replaced. Car door and hoistway door equipment, including tracks and rollers should all be replaced at this time.
- The fixtures, though recently replaced, too will have to be re-worked as a result of the new (recently enacted) 2006 elevator code.
- Fire Service will be required by the code, thus a fire alarm system with lobby and machine room detection, similar to the VESDA system presently installed in the Capitol will be required.

Essentially, all elevator related components should be removed and replaced. The recommended project budget for this work is \$305,000.00. This value includes all fees and contingencies and is detailed in the attachment budget.

Should you have any questions, please call to discuss.

Thank you for your continued confidence in MAK.AIA.INC.

Respectfully Submitted;
Mark Alan Kraft AIA, Inc.
Mark Alan Kraft AIA
President

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Budget Detail:**Construction**

General Construction	\$5,000.00
Elevator	\$215,000.00
Plumbing & Fire Protection	\$0.00
HVAC	\$0.00
Electrical	\$5,000.00
Fire Alarm/VESDA	\$25,000.00
Utility Extensions	\$0.00
Other	\$0.00
Construction Subtotal:	\$250,000.00

Contingency (%) **\$20,000.00**

Design

A/E Fees	\$25,000.00
Other Prime Consultant Fees	\$0.00
DSF Management Fees	\$10,000.00
Geotechnical Investigation	\$0.00
Site Survey	\$0.00
Printing	\$0.00
Plan Review Fees	\$0.00
Other	\$0.00
Design Subtotal:	\$35,000.00

Bldg Automation System/EMS \$0.00

HVAC Testing and Balancing \$0.00

Construction Testing \$0.00

Hazardous Material Abatement \$0.00

\$0.00

Work By Agency \$0.00

Subtotal: **\$0.00**

Equipment

Movable Equipment	\$0.00
Special Equipment	\$0.00
Communications Equipment	\$0.00
Systems Furniture	\$0.00
Other	\$0.00
Equipment Subtotal:	\$0.00

Percent for Art **\$0.00**

Land Purchase **\$0.00**

TOTAL PROJECT COST **\$305,000.00**

Elevator Evaluation Study

Wisconsin
Historical Society
DSF
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MAK.AIA.INC -
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Date: 03.23.2009

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DESIGN MATTERS - PERFORMANCE COUNTS

System Description and Summary of Recommended Work:

Description:

SBD Registration #:ID502790/Tag#:12308

Capacity: 2,500#

Speed: 200 FPM

Travel: Existing shall be retained.

Number of landings: Six

Number of Entrances: Two

Car platform dimensions: Existing shall be retained

Car doors/Hoistway Doors: Existing openings shall be retained

Power supply: Existing shall be retained and reworked, provide a new disconnect.

Traction Equipment:

The existing basement traction machine should be retained, serviced restored and equipped with a new AC motor

Brake: To be restored in conjunction with machine work.

Rope Gripper/Unintended Motion Device: Provide and install a rope gripper as required of the code.

Power drive: Provide a VVVF control drive system for the AC hoist motor and comply with ANSI/ASME A17.1, Safety Code for Elevators, latest edition. The system shall provide comprehensive means to access the computer memory for elevators diagnostic purposes. Controller shall have permanent indicators to indicate important elevator statuses as an integral part of the controller. Systems that require hook up of external devices for troubleshooting are acceptable

The controller shall use a solid-state drive unit. The solid-state power control shall be a closed loop feed design. The controller shall be a compact, self-contained unit that shall provide stepless acceleration, deceleration, and regulation at all speeds.

Operational Systems:

The existing control equipment should be removed and completely replaced.

The elevator controller shall utilize a microprocessor based logic system and shall comply with ANSI A17.1, "Safety Code for Elevators and Escalators", latest edition and CAN/CSA B44.1/ASME A17.5-1991 "Elevator and Escalator Electrical Equipment". The system shall provide comprehensive means to access the computer memory for elevator diagnostic purposes and shall have permanent indicators to indicate important elevator statuses as an integral part of the controller.

Firemen's Phase I emergency recall operation, alternate level Phase I emergency recall operation, and Phase II emergency in car operation shall be provided in accordance with ANSI A17.1, "Safety Code for Elevators and Escalators", latest edition and applicable local codes.

Independent service operation shall be provided such that actuation of a key switch in the car operating panel will cancel any existing car calls and hold the doors open at the landing. The car will then respond only to car calls and will ignore hall calls. Car and hoistway doors will only close by constant pressure on car call buttons or a door close button until the car starts to move. While on independent service hall arrival lanterns and gongs shall be inoperative.

Simplex selective collective automatic operation shall be provided for all single car installations. Operation of one or more car or hall pushbuttons shall cause the car to start and run automatically, provided the hoistway door interlocks and car door contacts are closed. The car shall stop at the first car or hall call set for the direction of travel. Stops shall be made in the order in which car or hall calls set for the direction of travel are reached, regardless of the order in which they were registered. If only hall calls set for the

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DESIGN MATTERS - PERFORMANCE COUNTS

opposite direction of travel of the elevator exist ahead of the car, the car shall proceed to the most distant hall call, reverse direction, and start collecting the calls.

Hoistway Equipment:

The platform, sling, safety, rails and counter weights should be retained; all other equipment shall be removed and replaced.

Equipment to be replaced includes, but is not limited to; guide devices, buffers, limit switches, terminal stopping devices, traveling cables, governor, landing systems and related equipment and hardware.

Hoistway Entrances:

The "entrances" are existing and to be retained, all equipment, including door panels should be removed and replaced.

Hoistway entrance systems include, but not limited to; door panels, operating devices, interlocks, restrictors, and related mounting hardware and components.

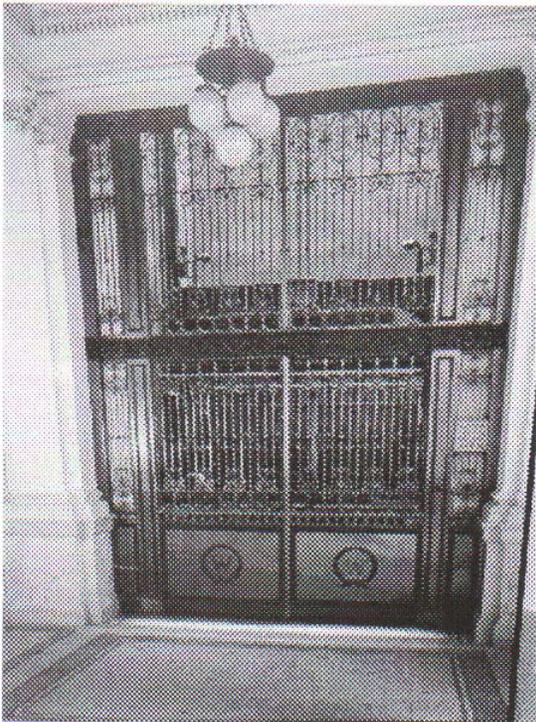
Car Enclosure:

The elevator car enclosure shall be refurbished to include, but is not limited to; wall panels, ceiling construction, front returns and transom panels, car door panels, operators and safety devices, finished flooring, illumination, ventilation, emergency exit, and related components and hardware.

Signal Equipment/Fixtures:

Provide and install signal equipment for the elevator to replace the existing devices, hall stations, hall lanterns, position indicators, and car station.

Original Installation:



Elevator Systems Detail

Elevator History Scroll Down To See Inspection History Below

Site and Owner

Site Information

WI STATE HISTORICAL SOCIETY
 HEADQUARTERS
 816 STATE ST
 MADISON WI 53706

County & Municipality

DANE
 CITY OF MADISON

Owner

ID:502744
 WI DEPT HISTORICAL
 SOCIETY
 816 STATE ST RM 324
 MADISON WI 53706

Elevator

Status: **ACTIVE**

Regulated Object ID: **502790**

Tag Number: **12308**

Last Investigation Date: **11/17/2008**

Permit Expires Date: **12/07/2009**

Location on Property:

Contact: **TOM TODD**

Contact Phone: **608-264-6431**

Use Type: Passenger

Rated Load (lbs): 2500

Manufacturer: Dover

Speed Up (fpm): 200

Speed Down (fpm): 200

Number of Landings: 6

Number of Car Entrances: 2

Number of Ropes: 6

Size of Rope: 1/2"

Type of Drive Unit: Traction

Number of Chains: 0

Size of Chains:

Working Pressure (psi): 0

Relief Pressure (psi): 0

Fire Service: none

5 Year Safety Gov. Test Date: 10/01/2007 Annual Hydraulic Test Date:

Valve Sealed: N/A

Machine Roomless Traction: N

Basement Traction:

Hydraulic Test Result:

Serving Dwelling Unit: N

Inspection Agency: STATE OF WI DISTRICT INSPECTOR: NEIS
 (262) 560-6220

WINEIS.MAIL@US.BUREAUVERITAS.COM

*yes - m6 set.
 DC - motor.*

Inspection History (To See Order Information - Click on Underlined Link Below of Transaction Id Column - if applicable)							
Investigation Action	Reg Obj Status	Date Entered	Actual Invs Date	Investigation Type	Investigation Source	Inspector	Transaction Id
Investigate	Complete	11/26/2008	11/17/2008	Requested	Permit to Operate	ADAM DONALD SMITH	1614096
Investigate	Complete	04/14/2008	03/07/2008	Requested	Permit to Operate	RONALD PAUL MUELLER	1526229
Order	Not Approved	09/11/2007	03/06/2008	Requested	Permit to Operate	RONALD PAUL MUELLER	1458766
Order	Not Approved	11/09/2005	08/15/2006	Not Approved	Permit to Operate	THOMAS J FROMMELL	1213233
Order	Not Approved	05/16/2005	09/26/2005	Requested	Permit to Operate	KENNETH JOSEPH JOHNSON	1138402
Investigate	Complete	05/14/2004	09/24/2004	Requested	Permit to Operate	THOMAS J FROMMELL	1000758
Investigate	Complete	11/15/2002	07/31/2003	Requested	Permit to Operate	THOMAS J FROMMELL	812258
Investigate	Complete	08/08/2000	02/20/2002	Requested	Permit to Operate	KENTON J JOHNSON	426838