

Women's restroom outside Section 114/115 is clean and well maintained:



The number of restrooms, water closets and urinals does not currently meet today's standards for public assembly facilities or guests expectations.

| Hartford CC Average (14 arenas) | Capacity | | Women | | Men | |
|---------------------------------------|----------|-----|-------|--------|-----|-----|
| | W C | Lav | W C | Urinal | W C | Lav |
| 16,500 | 50 | 42 | 29 | 64 | 44 | 44 |
| 16,850 | 140 | 47 | 39 | 109 | 40 | 40 |

As the table illustrates, the Hartford Civic Center has 54 fewer water closets for women and 45 less urinals than what exists in newer generations of facilities of similar size. Significant renovation to the concourse would be required to achieve parity with current generation facilities. Further study would be required to determine costs which we believe would be significant and probably prohibitive.

PREMIUM SPACES
Suites

The quality, level and condition of the suites is consistent with industry standards for comparable facilities.

While some carpet and seating upholstery is beginning to show signs of wear, their condition does not yet warrant upgrade or replacement.

Director's Club

The Director's Club is clearly the jewel of the facility. Its condition and level of maintenance is equal to or better than that of the suites. One concern for this space, should any upgrading/renovation work be done here, is the lack of ADA compliant wheelchair-accessible seating. Accommodations will need to be made for the minimum number of accessible seating should any work in this area be considered.

Director's Club:



Coliseum Club

The Coliseum Club appears to be the most utilized premium space in the building. Its condition and level of finish is consistent with the other premium areas. Due to more extensive use, the seating in the front of the club is showing more wear than seats in the suites or Director's Club. The finish on the wooden cup holders and flip-up trays is beginning to deteriorate and the upholstery is showing

signs of wear, though probably not yet to the point of needing to be replaced.

One improvement that should be considered is the lowering of the rails in front of the club seating. Current code should allow for a minimum height of 26" in lieu of the current height of approximately 36". This improvement would enhance the site lines and improve the fan experience.

Coliseum Club seating:



Coliseum Club bar:



CATWALKS

The condition of the catwalks was generally observed to be good. Carpet has been laid to cover the grate flooring, an obvious attempt to accommodate use of the area by people other than the facility's operations and engineering crews. The catwalks were generally observed to be free of debris and equipment. We did, however, observe a spotlight platform that had poor access capability that would probably constitute an OSHA violation. Spotlights were also observed not to be safetied to the platforms which may constitute another OSHA violation. All sports lighting fixtures on the catwalk were observed to be safetied to the railing of the catwalk.

Spotlight platform at SW corner – 2x8 inch board used to access platform from the catwalk:

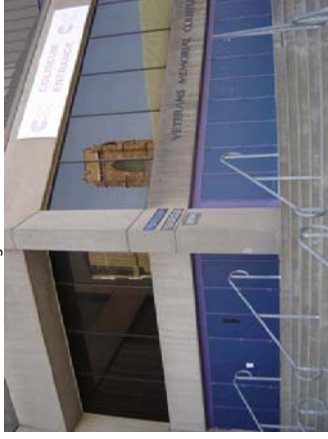


observed being operated were in good condition and seemed to operate smoothly.

EXTERIOR CONDITION

The condition of the exterior is generally well maintained, but there were areas where there was significant delamination of concrete steps and pads, especially at the designated smoking area. The main entrance to the facility along Trumbull Street is accessible and clearly marked by the presence of the LED marquee.

Northwest entrance of the facility where the steps have been re-concreted in the past year. The metal paneling on the backside is still left over from original construction. The facility management has talked about re-doing this back side to make it more appealing:



Southwest corner of the building used as a smoking section. There is significant wear and delamination of the concrete steps and pads:



SEATS & SEATING AREA

All of the seats in the seating area have been replaced within the last ten years. The seats and aisle ways are in very good condition and have been well maintained.

The aluminum retractable risers for the seating area were being used and were set up during our tour for the ice show. The decks are in good condition and the pieces we

V

Food Service



FOOD SERVICE: OVERVIEW
 GENERAL FINDINGS
 POINT OF SALE EQUIPMENT
 OFFICES
 KITCHENS
 CONCESSIONS
 PORTABLE CONCESSION STANDS
 PREMIUM FOOD SERVICES

FOOD SERVICE: OVERVIEW

These observations were gathered during two days of touring the Hartford Civic Center, on April 20 and 21, 2006. We toured the HCC with facility staff and performed a survey of the conditions of fixed concession stands and kitchen areas.

GENERAL FINDINGS

In general, we found the foodservice equipment and facilities to be old but in good operating condition, well maintained and operating under a high standard of sanitary condition. Due to the space limitations and original design of the permanent concession stands, the food offering is very limited and not to the standards that are currently observed in today's municipal facilities. Currently, there is only one stand with grills and fryers which limits the facility producing fresh and higher revenue product. On the other hand, it appears that converting so that 50% of the stands can grill and fry food may not be a sound investment due to the cost of renovation. Significant costs associated with expansion and venting systems may not provide the return on investment.

Current Permanent POS Ratios:

| Concourse | Hartford Civic Center | New Construction Industry Standard |
|----------------|----------------------------|------------------------------------|
| Lower | 1 POS per 209 Seats | 1 POS per 125 -150 Seats |
| Club/Suite | N/A | 1 POS per 100 Seats |
| Upper | 1 POS per 453 Seats | 1 POS per 175 - 200 Seats |
| Average | 1 POS per 331 Seats | 1 POS per 150 Seats |

As the table above illustrates, the Civic Center does not meet current standards for numbers and distribution of points of sale for concession stands. Although attempts

have been made to increase points of sale with portables, the sheer lack of concourse width makes it virtually impossible to add an adequate number of points of sale for a positive customer experience.

POINT OF SALE EQUIPMENT

The current Point of Sale system was installed in 1999 and is a Di/An model. The system does not currently accept credit cards and should be upgraded so cards could be accepted at all sales areas, as customers expect that of all retailers, even at smaller fast food chains. Visa and MasterCard studies show that credit card transactions are 15% to 25% greater than cash transactions, so adding credit card capabilities can increase sales. In observing the long lines at the Center's ATM machines, it is obvious that customers do not carry enough cash, and making it inconvenient to use their credit and debit cards only impedes sales and lessens the fan experience.

Di/An POS terminal in Brigham's Ice Crème stand:



Credit card transactions, if engineered correctly with Ethernet or wireless broadband, will also be quicker than a cash transaction, since there is no change and most

merchants do not require a signature for purchases under a specified amount.

The latest developments in POS technology is the contact-less transaction, where a customer just waves their credit card in front of a reader and the transaction is complete, using RFID readers and activated cards. Likewise, many facilities want to implement customer loyalty or frequent purchase programs, as well as customer discount programs, which can all be built into a modern POS system.

The four permanent merchandise booths currently are equipped with credit card machines.

OFFICES

The management staff indicated the foodservice offices were sufficient in size.

KITCHENS

The Hartford Civic Center has one kitchen on the suite level for food preparation for suites and clubs. The kitchen was observed to be clean and of sufficient size to handle the demand for the above mentioned spaces. The kitchen also is the place where catering is prepared and distributed for the exhibit space on the service level.

Kitchen on suite level has enough space to accommodate large scale cooking for premium areas and catering activities:



Pantry on the suite level used to service the suites is in good condition:



CONCESSIONS

The current concession food offered by the Civic Center is not consistent with today's standards in public assembly facilities. Due to the physical constraints relating to the size of the stands and the lack of grills and fryers, operators are hindered from being able to provide fans with a diverse menu. Only one stand currently allows for the cooking of food product in the stand, while the other stands are only able to receive prepared food product and, therefore, must store it in warmers. The expectation of the vast majority of consumers today is to view fresh food being prepared in an open area which does allow for the operator to charge more and in return increase revenue. The amount of remodeling and construction that it would take to bring the concession stands up to today's standards may in fact be so large that any return on investment may take 10 to 15 years to realize.

PORTABLE CONCESSION STANDS

The portable concession stands on the main and upper concourse are generally in good condition with the graphics viewed to be concise and eye catching. The major issue is the lack of queuing line space, which is true for the fixed stands as well. There is currently no course of action that can be taken by facility management that can remedy the situation.

The kitchen has sufficient storage and the remote condensers for coolers and freezers work well and reduce heat and noise inside the kitchen. Management indicated that the current equipment is functioning well and being repaired or replaced when necessary.

Ice crème portable section 113/114 is in good condition and properly placed on the concourse:



PREMIUM FOOD SERVICES

The premium food areas and services were viewed as strengths of the food and beverage operation at the Hartford Civic Center. The Nextel Club and the Director's Club were as good as what one might see in a facility 25 years younger. The kitchen is appropriately sized to service 40+ suites and a restaurant.

VI

Major Systems



| | |
|--------------------------------|--|
| MAJOR SYSTEMS: OVERVIEW | |
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| ELECTRICAL | Primary Systems Secondary Systems Emergency Electrical Power Variable Frequency Drive Units |
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| FIRE PROTECTION SYSTEMS | Fire Extinguishers and Cabinets Sprinkler Systems |
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MAJOR SYSTEMS: OVERVIEW

This document is the result of an on-site field investigation that categorizes the major systems of the facility and the condition of the equipment inside the building including HVAC, Mechanical Electrical & Plumbing (MEP), Ice Making Systems and Ancillary equipment used for various shows and entertainment purposes at the Hartford Civic Center. This document does not include an engineering evaluation; however, there are several recommendations throughout this document for system alternatives that could lead to a more efficient operation of the facility.

OPERATIONS / MAINTENANCE STAFF

The maintenance staff should be commended for their efforts for maintaining all of the mechanical systems inside the facility. It is immediately obvious that the staff is concerned about the equipment in the facility, as well as the outward appearances in the public areas and the service levels of the facility. The overall appearance of the inside of the entire facility is well kept and free of debris and there appears to be a regular program to maintain the painted areas of the facility.

The janitorial staff is managed in-house through the Operations Department and seems to be maintaining the building properly. During the walk-through, no bad odors were noticed in the service area. The public areas including the lobby floors, seating area, restrooms and concession areas were clean and mostly free of debris or loose trash. The dumpster in the service area is the only area where a bad odor was noticed; however, the janitorial staff and the maintenance staff seemed to have some measures in place to help contain the area around the dumpster and keep the odor to a minimum.

During our walk-through and observations of the mechanical equipment throughout the facility, most of the

equipment was noticeably dingy and had an aged look. This "dingy" look is due to the actual age of the equipment, a result of human contact over the past thirty-one years of operation and from normal maintenance procedures. It should be noted that most of the mechanical equipment has been well maintained in the past but is now showing signs of deterioration due to its age and will need to be completely replaced in the near future. This issue and other issues concerning outdated and worn out equipment will be addressed in more detail in the HVAC sections of this report

HVAC

Air Handling Units

There are over twenty separate air handling units for the arena, associated concourses and meeting areas. These units use chilled water for cooling and steam / hot water for heating. There is also numerous DX type Freon units that cool areas in the service level and primarily the dressing rooms.

All of the DX units we observed were in good condition and most were operating. The units were obviously well maintained and were very clean. The condensing units were relatively free of dirt and dust build-up on the condenser fins and none were making any unusual noises or compressor straining sounds.

Generally, most of the units were in fair condition. As mentioned earlier, the maintenance staff has done a great job maintaining these units; however, due to the age of these units, it will be necessary to begin planning some type of retrofit for new units in the future. Most of the units observed appeared to be working properly and we were advised by the staff that all are used regularly for heating and cooling.

During our observations we did not find many dirty filters and there were replacement filters in most storage rooms indicating a good filter maintenance program. The



maintenance staff was actively working in two of the air handling units as we toured the facility and there were three units scheduled for cleaning and filter replacement during the next week.

As with most venues in this age range there are numerous problems in the mechanical and plumbing systems. Several serious problems are cooling coil deterioration, pipe and baton insulation in and outside the units, control / shut off valve deterioration and corroded steel piping.

On almost all units we observed piping insulation deterioration and insulation that has been removed for maintenance and repair purposes. There were several units that had saturated insulation with some type of liquid, most of which seemed to be condensation from CW pipes and possibly concession stand leakage. The staff informed us that the coils are also steam cleaned on a yearly basis. Many of the AHU's coils on both the cooling sides and the heating sides were damaged due to "mashed coils", this usually results from normal maintenance and these coils can be repaired to some extent.

AHU #s S3, S4 and S5 are units that have exposure to the outside air used to pressurize the building; they contain repaired coils which were previously damaged by freezing temperatures. The maintenance staff was able to repair the coils by simply plugging it with copper and solder. AHU # S3 cannot be used for cooling any longer due to extensive freeze damage to the cooling coils; the unit is now used for heat only.

Many of the air handling units observed have broken access door latches and hinges or were simply not closed. Also, many of the lights in the AHU's were not operating properly. The broken door latches can cause massive air leaks depending on which side of the AHU it is located. It was also observed that there were no door seals on many of the units to stop the flow of unwanted / nontreated air from

entering the facility. The outdoor louvers appeared not to be functioning, leaving equipment exposed to the low temperatures during winter months and hot temperatures during the summer months causing higher utility costs.



Building Automation System

The facility has added a Carrier Comfort Works building automation system. This system is not a true Energy Management System, but the system allows the operator to monitor all of the main air handling units and set temperature parameters as well as on / off capabilities. The system is also tied into the Ice Plant and its associated systems such as Glycol temperature & slab temperature.

Electrical usage can be monitored by the staff but only on a limited basis. Daily electrical usage readings are manually recorded at the building KWH meter in the mail electrical room.

This system is currently being utilized by the staff but it has limitations, such as true verification monitoring. Examples would be turning on an AHU and the computer gives you the indication the unit is running; however, the unit did not turn on and the operator cannot verify proper operations of the unit until a visual check is completed. This would also be true with the controlling of temperature. The unit is connected to alarms in the security office should any type of emergency arise during off hours. The ice plant alarms are also tied into the system in case of an emergency.

Central Plant / Pump Room

The central plant in this facility is maintained by the in-house maintenance personnel and does not contain chillers for production of chilled water nor boilers for hot water or steam production. All of the chilled water, steam and hot water are purchased from an off-site plant and piped into the facility.

The central plant contains two pumps for the chilled water circulation throughout the facility. The steam comes into the facility at high pressure and then the steam pressure is reduced or “stepped down” before being regulated at different locations. According to the staff, the primary steam regulator was recently replaced.

The central plant room and its equipment have been well maintained and we noticed that several pieces of equipment such as small pumps and regulating valves have been replaced. However, as the picture below illustrates, the equipment and its support system is old and showing signs of deterioration such as numerous leaks, evidenced by the buckets catching water leaks from overhead pipes and previous leaks around the chilled water pump pads.



ELECTRICAL

Primary Systems

Primary Electrical service for the facility is provided by three separate pad mounted utility transformers located inside the facility. These transformers are owned and operated by the local utility company. The transformers are original equipment and seem to be operating properly and are rated for 3,000 amps each @ 480 Volts. There was no evidence of PCB testing and the operations staff did not know if a load test had ever been performed.

Due to the age of these transformers, it is recommended that proper documentation be obtained from the utility company to determine if the equipment meets local and federal standards. It is also recommended that a written contingency plan be instituted to insure a replacement transformer can be obtained in a timely manner should a failure be encountered.



Secondary Systems

Most of the electrical rooms consist of 277/ 480 volt lighting panels and dry type transformers serving 120/208 volt branch circuit panels. It appeared that most of the 277/480 Volt panels and dry type transformers were fed

from the bus ducts; however, no electrical prints were reviewed to confirm this assessment

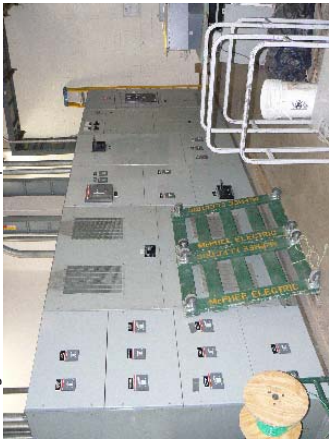
Most of the electrical rooms appeared clean but some rooms had a build-up of dust and were currently being used for storage of event equipment and various items.

All of the secondary electrical equipment in the facility, excluding the dry transformers, was manufactured by Federal Pacific Electrical (FPE). FPE has been out of business for more than twenty years, thus creating a problem with replacement parts. The smaller breakers and low amperage parts are usually available and not too difficult to obtain through local electrical distributors. Most of the high amperage parts, however, are very difficult to secure in a timely manner.

Should part of a low voltage or high voltage electrical box be partially destroyed due to a failure, the entire panel box or feeder box will have to be replaced. The low amperage electrical panels should not pose much of a problem; however, the high amperage distribution and feeder panels could cause the facility to be shut down for several days or possibly weeks depending on severity and location of the problem.



Note the storage of event equipment and the dust / grease residue coming out of the vents in this panel:



Emergency Electrical Power
Caterpillar Engine 500 KVA Generator
The emergency generator is original equipment and seems to be in good working order. The maintenance staff exercises the unit once a week as evidenced in the logs placed near the generator. According to the staff, the generator runs well and has no apparent problems.

H.O. Penn & Company is hired to maintain, repair and test the entire unit once a year. It appears that there have been several modifications to the unit such as a secondary fuel filter system and fuel distribution hoses. The generator is air cooled, thus causing a heating problem inside the room housing the generator. There are two large ventilator units that remove the hot air produced by the heat from the engine. These two units are automatically engaged as soon as the engine starts.

Adjacent to the generator system is a 400-gallon diesel fuel tank to feed the generator fuel. According to the staff, a larger tank located outside the generator room was recently removed due to space constraints.

Emergency Generator:



Fuel Storage Tank:



Variable Frequency Drive Units

Most of the large and medium sized motors on the major systems in the facility have a VFD installed. These units are of great assistance to reduce the electrical energy being used to produce proper environmental conditions for low load demand events and off event days. Many of the air handlers and associated pumps have these units installed.

In addition to the AHU's having a VFD, the ice floor glycol circulating pumps and the main chilled water circulating pumps also have a VFD installed.

PLUMBING
Overview

The restrooms in the lobby, service level and the suites were generally in good condition. The "flushing systems" we observed were operated by a manual system utilizing a vacuum breaker and all of these fixtures seem to be in good working order.

Other areas observed were the ice making / snow pit area and various parts of the service level where janitorial personnel were working. Most of the potable water piping was not accessible; however, some of the pipe observed were of the steel galvanized type and were generating sufficient water pressure in the service levels. The water closets in the public areas seemed to be operating properly also. The higher levels of the building seemed to have less pressure and the building staff confirmed that low water pressure during high usage periods in these areas becomes a problem. The lower water pressure in the upper areas indicates restrictions in the piping due to corrosion and scale and is not uncommon in buildings of this age. This also indicates possible future pipe failure and all of the piping should be inspected by a qualified plumber that has experience with this type of problem.

Please see the recommendations section for possible short term solutions.

De-Ionizer / Ice Making Water System

A Jet Ice water treatment system is being used to clean and condition the water for the hockey floor. These systems have been used with good results and produce a hard sheet of ice. The system used here seems to be in need of general maintenance and cleaning. We have been advised



the system is working properly but did not test any of the ice making water. The covers on the automatic mixers were missing and the internal piping was exposed. Both tanks of acid and caustic soda are stored in front of the unit and could cause problems should there be a leak and maintenance personnel need to make emergency repairs quickly.



Ice Floor / Hockey Rink System

The chillers and all ice making systems were being used and there seemed to be no apparent problems with any of the equipment.

The dasher wall and Plexiglas were in good condition and the staff advised us the dasher wall had been replaced three or four years earlier. The glass was in good condition but needed cleaning which is always the case after a full season.

The ice floor is cooled and maintained by two Carrier skid mounted "Screw Type" chiller packages. The two pumps that circulate the cooling medium Ethylene Glycol throughout the ice floor seemed to be operating properly. The two pumps have Variable Frequency Drives connected to them for electrical efficiency, and the chiller packages are

connected to the building controls system and alarms are mounted inside the security office in case of an emergency. The facility is using two ice floor re-surfacers that are manufactured by Olympia. One of the units is older than the other and was in need of cleaning and maintenance. The newer unit seemed to be in good operating condition and we were able to observe the unit in operation after the practice concluded.

FIRE PROTECTION SYSTEMS

Fire Extinguishers and Cabinets

All of the fire hose cabinets and dry type chemical fire extinguishers in the facility have been properly tested and tagged accordingly by a licensed inspection company. All of the fire hose cabinets were clean and free of debris and none appeared to have any type of leaking which indicates a good maintenance program. There were, however, some hand-held chemical extinguishers that were not properly hung on the wall and had no marking indicating their location.

Sprinkler Systems

All of the fire protection systems seemed to be maintained to a high standard and the dry system was observed to be almost new. There were four separate locations we observed, though none of the systems we observed had any type of inspection tags indicating testing dates or any type of flow certification associated with any of the units. There were also numerous pieces of equipment stored in some of these areas leaving little access to the units or controllers in case of an emergency. According to the staff, plans were in place to start a bid process to have this work completed by a licensed testing company. The main water backflow-preventer had been recently repaired and has a current certification tag attached.



ELEVATORS / ESCALATORS

The elevators and escalators observed are operated and controlled by relay type systems. The elevators and escalators seemed to be of original equipment and were observed while operating. Considering the age of the equipment, there was nothing noted out of the ordinary concerning the elevators other than normal wear and tear and the age of the entire systems.

The escalators are showing signs of deterioration due to usage and age, especially the escalators near the entrance to the main office. They were observed to be loose and

making noises near the top of the landings. These noises may be an indicator of loose or worn out roller bearings and guides in the steps and the support railings.



Montgomery Elevator & Otis Systems is currently contracted to maintain the elevators and escalators. There are numerous elevator parts and escalator parts in many of the elevator mechanical areas indicating that the systems are being repaired and maintained on a regular basis.

A complete mechanical survey conducted by an independent contractor is advised due to the age & condition of these systems. It would not be unusual for complete replacement in the near future due to the age. Other problems can arise when new components are incorporated with older components causing conflicts with electronic and mechanical parts and systems resulting in a shut down.

CATWALK & CATWALK AREA Overview

The catwalk area was clean and obviously a program was in place to maintain the areas in and around the catwalk. There were some miscellaneous cables and wiring on the catwalk floor but this would be considered to be

consistent with the current condition of a facility of this type and age.

Metal Halide lighting manufactured by Musco Lighting was installed for arena lighting. There are no blackout shutters or instant re-strike bulbs installed on this system. The lights and associated fixtures are properly installed and safetied to the catwalk railing to prevent accidental falling.

Mounted on the ceiling of the roof structure is the center hung scoreboard / video and its winch system. The scoreboard is a four-sided system manufactured by Daktronics and is operated by a control system in the lobby. The control system for the video production is also housed in the lobby and can accommodate almost any type of video production. There are also patch panels and feeders for video feeds from production trucks outside the facility.



Fall protection cables have been installed within the catwalk system. According to the staff, the system is checked annually and had been inspected in March of 2006. The system is clean and looks well maintained.

According to the staff, the scoreboard system and winch are inspected annually by a certified company. Even

though the scoreboard system was not operating at the time of our tour, building personnel indicated that the system was operating properly.

Spotlights

There are numerous areas on the catwalk and adjacent areas that support the spotlights for entertainment purposes. The Supertrooper spotlights are manufactured by Strong Industries and powered by a Xenon electronic lighting system. Most of the spotlights were observed to be in good condition.

All of the spotlight platforms we observed were dangerous and none of the spotlights were safetied to the catwalk. The platforms were dirty and there were large amounts of garbage accumulated around and inside many of these platforms. Some platforms had little railing, thus making the potential for falling objects, equipment or operators a threat, especially as some of the operators must traverse areas over the audience to get to the platform. There was also no evidence that spotlight operators are using a safety harness nor was there any evidence that any type of fall protection is being used in these areas. Some of the spotlight platforms had arena chairs for the operators to sit in during shows, though none of the chairs were safetied.

ROOF & ROOF SYSTEMS

A visual inspection of the roof was conducted and there were no evident problems noted with the roofing system. The roof was clean of debris and some of the exhaust fans were turned on and operating properly. There was some minor patching but nothing out of the ordinary.



SPORT



systems for smaller events. There are also controllers on walls in the meeting areas for sound and lighting control.

TECHNOLOGY

Telephone System

The telephone system is of the analog type. There is one fiber optic cable system inserted into the main telephone room, but it is not utilized at this time. All of the offices and other systems that require telephone service use the analog system. Since the fiber optic cabling is inserted into the facility, there may be a chance to utilize it should upgrades require a fiber optic system.

Sound System

The sound system for the arena is controlled in the catwalk. The system is spread throughout the arena in a series of speaker clusters hung from the ceiling trusses and some of the support beams. There are also numerous speakers in the public areas tied to the system for announcements and event activity. According to the staff, the system works properly and the arena has a full time sound engineer. The arena staff demonstrated a pre-recorded emergency message and the system worked very well. There are also numerous connections in meeting areas and the facility has several independent small portable

VII

Event Operations



EVENT OPERATIONS: OVERVIEW
LOADING DOCK & BACKSTAGE SPACES
BOX OFFICE
CONCOURSE CONGESTION / RESTROOMS

EVENT OPERATIONS: OVERVIEW

The following observations were made as a result of a facility walk-through at the Hartford Civic Center and while attending Champions on Ice and the Billy Joel concert at the facility on April 20 and 21.

LOADING DOCK & BACKSTAGE SPACES

Due to the lack of overall space and functional event-related facilities located on the event level, as well as the lack of a dedicated loading dock and marshalling space, event operations at the Hartford Civic Center are conducted at a significant disadvantage. As show requirements and technical requirements continue to increase, the Center will find it increasingly difficult to meet promoter and producer expectations.

Roll up door from loading dock to marshalling area. Production trucks must be loaded and unloaded with ramps, which increases labor costs and time for loading and unloading equipment:



BOX OFFICE

The box office area at the main entrance off Trumbull Street is sufficient to handle crowds purchasing tickets or picking up will call. The area/lobby provides a sufficient

space for a large crowd to gather in cases of inclement weather.

Ticket windows in main entry lobby:



CONCOURSE CONGESTION / RESTROOMS

Long lines at the restrooms and concession stands were observed throughout the night at the Billy Joel concert. The one public concourse is not sufficient to accommodate pedestrian flow of a crowd of 15,000. Public restrooms, whose numbers were designed to accommodate 10,000, are woefully deficient in servicing a crowd of 15,000. A renovation of the facility to meet current code and design standards for public assembly facilities for public restrooms may be prohibitive. The renovation would consequently require upgrades to all facility's spaces to ADA compliance.

One line for a Women's restroom. This was typical of most restrooms at the HCC:



ADDENDUM TO MAJOR SYSTEMS: OVERVIEW
OPERATIONS / MAINTENANCE STAFF

HVAC

- Air Handling Units
- Building Automation System
- Central Plant / Pump Room

ELECTRICAL

- Primary Systems
- Secondary Systems
- Emergency Electrical Power
- Variable Frequency Drive Units

PLUMBING

- De-Ionizer / Ice Making Water System
- Ice Floor / Hockey Rink System

FIRE PROTECTION SYSTEMS

- Fire Extinguishers and Cabinets
- Sprinkler Systems
- ELEVATORS / ESCALATORS
- CATWALK & CATWALK AREA

SPOTLIGHTS

ROOF & ROOF SYSTEMS

TECHNOLOGY

- Telephone System
- Sound System

SUMMARY

ADDENDUM TO MAJOR SYSTEMS: OVERVIEW

Approximately one year ago the Major Systems of the Hartford Civic Center underwent an evaluation and visual inspection of the mechanical systems and sub-systems. The facility analysis was prepared for the Connecticut Development Authority and a copy is enclosed with this report.

In February 2007, HOK Sport was contracted by the City of Hartford to perform a study of a new civic center to include an update of our previous document and determine changes that have taken place since our last review. The follow-up visit was scheduled and took place with previously involved HOK staff. The following changes, or lack thereof, are noted and presented below. Please note that the format was not changed from the original report so that direct comparisons could be made to the past year.

OPERATIONS / MAINTENANCE STAFF

The maintenance staff was commended for their efforts for maintaining all of the mechanical systems inside the facility in the previous report. Again, they have worked to do there best with the resources and manpower they have. Many of the systems are at or near their useful life expectancy. The limited capital funding and resources have made replacing equipment difficult for the staff. As equipment has failed, repairs have been and are continuing to be made.

HVAC

Air Handling Units

Our investigation included most of the air handling rooms and we observed most of the facility's air handling units. Generally, the units continue to be in fair condition. Two units were found to be in poor condition due to frozen coils during this winter season. The broken coils have been capped off to stop the leaks; however, this is a re-occurring

problem that will not stop unless steps are taken to repair the cold air leaks around the units. The units were taken out of service and not operational. It was also noted that some new water shut off valves have been installed in some of the AHU's supply lines. Some of the rusted/corroded piping around the new shut off valves have been cleaned and new pieces of insulation have been installed.

As mentioned in the first report, many of the air handling units observed have broken access door latches and hinges or were simply not closed, and many of the lights in the AHU's were not operating properly. The broken door latches cause massive air leaks depending on which side of the AHU it is located. We noticed none of these have been repaired since our last visit.

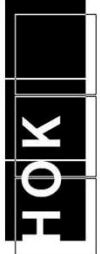
Overall, the conditions of the Hartford Civic Center air handling units have deteriorated since our last visit.

Building Automation System

No changes were noted with this system. According to the staff, the system is working as was the case last year. The system is a Carrier Comfort Works building automation system. Staff stated that no updates have been made to this system since our last visit. Upgrades should be considered to the building automation system as no software upgrades or training has been made in the last year. A fully operational building automation system with well trained staff would improve efficiency of existing systems.

Central Plant / Pump Room

The central plant was operational as we toured. Other than a few new pneumatic valves in the chilled water system, nothing was noted that would indicate a change in the operations of this facility. Several water pipe unions were leaking and were scheduled for future replacement. The main air compressors for the pneumatic systems were being repaired and a new air storage tank was being



SPORT

installed at the time of our visit. This was being repaired due to a total failure of one compressor and a rusted out tank since our last visit.

The chilled water and hot water piping insulation has deteriorated from last year. This is a result of being disturbed by major maintenance to the units and deterioration attributed to age of the material.

ELECTRICAL

Primary Systems

No changes were observed or noted.

Secondary Systems

There were numerous electrical breaker panels being systematically replaced on the service and the event level. All of the new panels were replacing the old FPE systems that were original equipment. All of the new breaker panels we observed were low voltage type 120 /220 volts. The FPE equipment has not been manufactured or supported in over twenty years. As this equipment fails, it must be replaced by completely new non-compatible equipment. In other words, complete replacement of breaker boxes must occur and the old parts are used as attic stock of the older equipment. This is a very expensive way to maintain the equipment.

Emergency Electrical Power

Caterpillar Engine 500 KVA Generator.

This generator is original equipment and is at the end of its expected useful life. They continue to maintain the equipment and have it on a maintenance program with an approved vendor.

No changes were observed or noted.

Variable Frequency Drive Units

The VFD was observed to be operating properly and no changes were observed. The only issue noted at our last

visit was that the fans that cool the units needed to be cleaned. Keeping the fans clean will extend the life of these drives by protecting them from overheating.

PLUMBING

Water pressure issues continue to plague the facility. No changes were observed or noted in equipment, but the staff informed us that the problems of low water pressure on the suite and concourse level is getting worse. The reduction in flow is due to the age of the piping in the facility and the corrosion buildup inside the piping. This problem is common for a facility of this age. No changes have been made since our last visit to remedy the flow problem. Corrosion within the piping will continue to worsen until piping is systematically replaced. Catastrophic failure or blockage is possible with the aging of the piping.

De-Ionizer / Ice Making Water System

The existing water treatment system no longer works and has been taken out of service. A good water treatment plant is essential to producing a good consistent sheet of ice. Replacement of this unit would need to be complete as no part of the old system is salvageable. A new Jet Ice system would cost approximately \$35,000.

Ice Floor / Hockey Rink System

No changes were observed or noted. According to staff, the system is working well.

FIRE PROTECTION SYSTEMS

Fire Extinguishers and Cabinets

No changes were observed or noted. All of the inspection tags were current and all the systems appeared to be in good working order.

Sprinkler Systems

A new dry sprinkler system was installed in the service area due to a rupture since our last visit. No changes were observed or noted except for the new dry system installed in the service area. All inspection tags were current and the equipment appeared to be in good working order.

ELEVATORS / ESCALATORS

Since our visit last year, the escalators at the main entrance were flooded. None of the units were working at the time of our visit and there were no firm plans for repairs or replacement. The repairs of these units will be expensive and require some major downtime.

The escalators leading to the service floor from the main entrance are running; however, these are also in need of major repair due to wear. All escalators were observed to be in poor condition since our last visit. Major repairs are not taking place due to cost. These units should be assessed for replacement.

Elevators were observed to be functioning with no major issues.

CATWALK & CATWALK AREA

No changes were observed or noted.

SPOTLIGHTS

No changes were observed or noted. Please see the 2006 report for proposed changes.

ROOF & ROOF SYSTEMS

No inspection of the roof systems was performed due to weather conditions. According to the staff, the roof is in good condition and no leaks were reported.



TECHNOLOGY

Telephone System

No changes were observed or noted.

Sound System

No changes were observed or noted.

SUMMARY

Maintenance staff continues to maintain aging equipment with limited resources for replacement. Undoubtedly, the challenges facing the maintenance staff due to the age of the building and its systems are formidable. The mechanical systems are showing more wear and are going to require much more maintenance and/or eventual replacement. Many of the major systems are at or past their useful life expectancy. Systems such as chilled water piping and shut off valves are failing on a regular basis. Leaking of unions and valves were observed in the central plant/pump room. Ongoing repairs and replacement are being made on an as-needed basis or upon complete failures.

The escalators are showing major signs of wear and will require significant funding going forward. AHU's are susceptible to significant failures due to age and breakdowns of systems to protect units from freezing winter air infiltration.

The overall piping in the facility is experiencing flow reduction due to internal corrosion. This problem is causing major issues in the upper levels of the facility during events. Problems with flush valves are common because of pressure reduction. Unfortunately, this problem cannot be remedied without systematic replacement of piping throughout the facility.

Although some recommendations offered from last year's report are proceeding, there have been no noticeable efforts to address the larger issues for long term operation

of this facility. Overall conditions are continuing to deteriorate with age. Replacement of aging equipment will need to continue as outdated equipment fails. Repairing equipment may not be an option for many pieces of equipment. Current building staff is now replacing major components on a regular basis.

Catastrophic failures should be expected in the major systems of this facility. All equipment is at the end of its expected usable life. Failure to replace major systems will result in significant equipment down time and may impact events.

