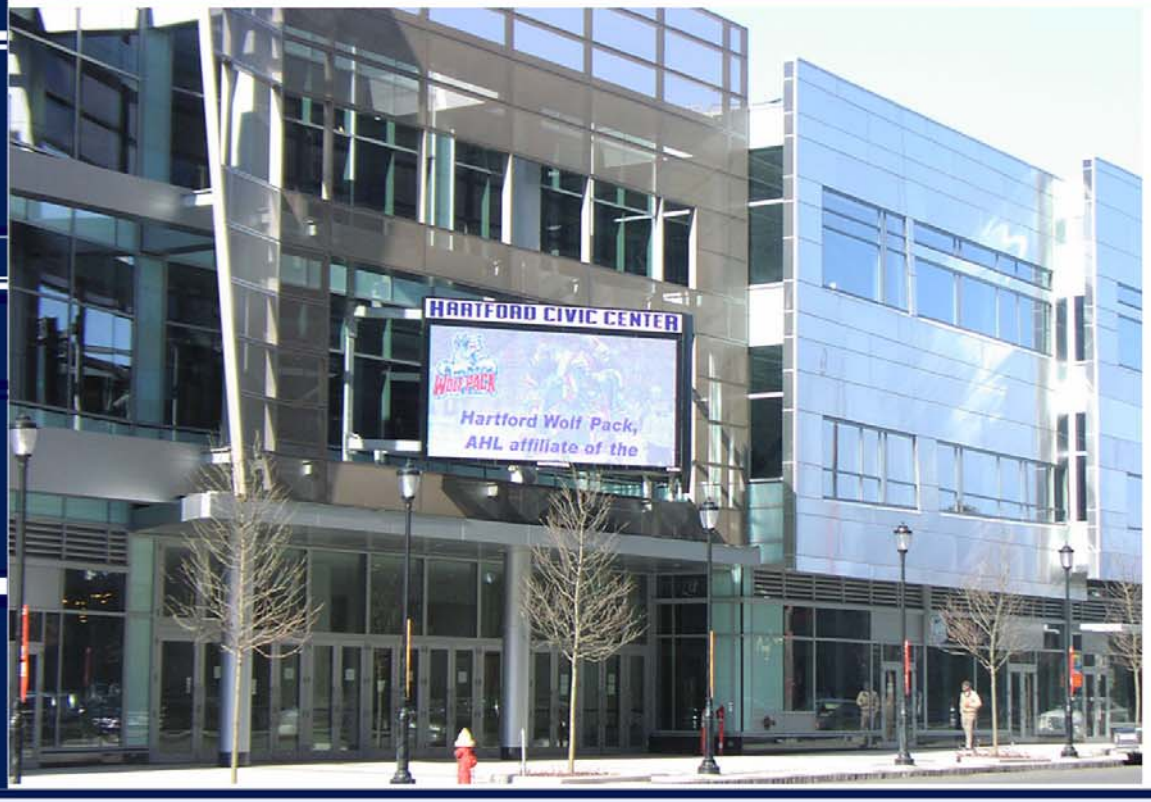
Addendum
Review of Hartford Civic Center

HOK
SPORT

Hartford Civic Center

Facility Analysis - Evaluation and Comments

June 2, 2006



Connecticut Development Authority

Hartford Civic Center
Managed by MADISON SQUARE GARDEN

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Introduction

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INTRODUCTION

The Hartford Civic Center Veterans Memorial Coliseum in Hartford, Connecticut, opened in January of 1975. It is owned by the city of Hartford, leased by the Connecticut Development Authority (CDA), and has been managed by Madison Square Garden since 1997. The 16,500-seat arena has nearly 1 million visitors come through its doors every year for a variety of events including concerts, family shows, ice-skating spectaculars, sporting events, and consumer events and trade shows. In its 30-year history, the Hartford Civic Center has hosted over 550 concerts played by more than 250 different performers. Visitors to the Hartford Civic Center enjoy such amenities as 16,500 new seats, a state-of-the-art video board, 46 luxury suites and a 310-seat Coliseum Club.

The Hartford Civic Center, Connecticut's home for premier sports and entertainment, has been the home ice for the American Hockey League's Hartford Wolf Pack since 1997 and is also the home-away-from-home for the University of Connecticut's Men's and Women's basketball teams.

II
Glossary

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Term	Definition
360 degree fascia/ribbon board	LED communication medium encompassing the entire arena bowl. (See LED board).
720p/1080p production	HD (high definition) television production formats. With 720p production, the picture resolution is 1280x720 pixels, sent at 60 frames per second. With 1080p production, the picture resolution is 1920x1080 pixels, sent at 60 frames per second.
AC power	Alternating Current – Power that comes from a power plant (as opposed to a fuel cell or battery). In the United States, the direction of the current reverses, or alternates, 60 times per second.
ADA	Americans with Disabilities Act of 1990 forbids discrimination of those that are disabled.
AHU	Air Handling Unit – part of the mechanical systems of the arena that includes the fans, filters, and coils in the HVAC system.
aspect ratio	A method of describing proportions of a TV picture in terms of width and height. For example, in analog TV, the aspect ratio is 4:3, meaning the picture is four units wide by three units tall. The HD format for digital TV has a 16:9 aspect ratio.
air curtain	A mechanical device that creates an invisible barrier of high velocity air to stop cold or warm air from infiltrating interior areas.
attic stock	Extra units of finish material or furniture that is stored for later use as replacements for deteriorated or damaged units.
ATS	Automatic Transfer Switch – a device that automatically switches to emergency power on a loss of normal power.
back-of-house	A non-public, facility operations area.
baffle	A free hanging acoustical sound absorbing unit, normally suspended vertically in a variety of patterns to introduce sound absorption into a space so as to reduce reverberation and noise levels.
biometric door locks	A door lock that controls access by identifying users based on physical traits, using sensors, computers, and software.
bollards	A series of posts that prevents vehicle access into the facility.
broadband	A communications network in which the bandwidth can be divided and shared by multiple simultaneous signals (as for voice or data or video).
building program	The general purpose and detailed requirements of a building, including a list of rooms, their sizes and uses, special facilities, etc.
bus duct	Copper or aluminum bars, enclosed in a metal housing, that carry electrical power and are used instead of wire and conduit.
cam lock	A type of electrical connector that allows quick and safe connection of temporary cables to an electrical supply panel.
circuit interrupter	A safety device that interrupts the flow of electricity in a circuit whenever there is too much current flowing through that circuit.
CHW	Chilled Water – water that has had some heat removed so that it acts as the coolant as it is distributed in a building cooling system.
control joint	A groove which is formed, sawed, or tooled in a material to regulate the location and amount of cracking resulting from the dimensional change of different parts of the structure.
conduit	A metal or plastic pipe that houses electrical wiring.
CP	Chiller Central Plant - The area where chilled water is produced for use in building cooling systems. It includes equipment such as chillers, pumps, and water treatment systems.
crash bars	Metal and/or plastic rail systems that protect corridor walls from damage in high traffic areas.
dampers	Mechanical devices used to control air flow.
dry type transformer	An air-cooled electrical device that changes voltage from one level to another (e.g. 480 volts to 120 volts).
dt	delta T – the temperature difference between supply and return water in a chilled water system.
EMCS	Energy Management Control System – a system that controls electrical and mechanical devices to maximize the efficiency of the HVAC system. Demand and/or peak shaving of electrical power systems may be included.

Term	Definition
eng/sat pedestal	Electrical connection points for satellite truck operations.
flake flooring	An extremely durable, seamless flooring system made of acrylic chips or colored quartz sand in an epoxy medium, and sealed with a clear coat.
HDTV	High Definition Television – high-resolution digital television combined with Dolby Digital surround sound. Also known as HiDef.
headend equipment	The central distribution point in a cable television network.
HVAC	Heating, Ventilation and Air Conditioning – the system used to condition the air in the arena.
Lavatory	Generally referred to as a sink.
LED board	A high resolution, full-color, electronic display panel utilizing light emitting diodes.
MEP	Mechanical, Electrical and Plumbing – the collection of design disciplines in the contract and/or bid documents that includes, but is not limited to, air conditioning, power supply, wiring, location of light fixtures, surge protection, fire protection, water supply and draining, etc.
metal halide fixtures	A type of high intensity discharge light fixture that most closely approximates daylight. Always used for sports events or TV coverage.
millwork	Finished woodwork, including moldings, door frames, cabinetry, etc. Normally does not include flooring, ceilings, or siding.
nosing	The projection of a stair tread above a riser. (The tread is the horizontal surface of a step; the riser is the vertical face of a step.)
Order of Magnitude number	Estimated cost based on approximate cost models or expert analysis, to be used as information only.
OSHA	U.S. agency under that publishes and enforces safety and health regulations.
PBX telephone system	Private Branch Exchange – a switched network of telephone connections in which each telephone has an extension, and multiple phones share lines to a public switched telephone network (PSTN) outside.
plenum	Space used for the expressed purpose of conveying air in a Heating Ventilating and Air Conditioning system.
PM program	Preventative Maintenance program – a program of regular and systematic inspection, cleaning, and replacement of worn parts, materials, and systems, ensuring that they are in good working order, so as to help prevent failure.
POS system	Computerized point of sale system used to track sales and product usage.
Quad	Refers to an area of a building floor plan as divided into four quadrants, usually starting with Quad A at the top right and continuing clockwise.
raker	An inclined structural member, such as any one of the inclined beams (raker beams) that support the seating bowl.
RF	Radio Frequency – an alternating current that when supplied to an antenna, creates an electromagnetic field that propagates through space.
seating bowl	The entire spectator seating area in an arena, stadium, or amphitheater, that is open to the event floor or playing field.
shore power	Electricity provided to a vehicle by an external source other than the vehicle's batteries.
slab	A concrete mat poured on prepared and compacted soil, serving as a floor or pavement.
smart breaker	Circuit breaker with solid state electronic trip units that allow for multiple choices of operation.
soffit	Any overhead component in a building that extends below the main ceiling surface.
Stonhard	A manufacturer of corrosive-proof floor coatings.
sump basin	Depressed pit where water is collected and pumped out.
switchboard	An electrical device with circuit breakers, similar to an electrical panel, that is normally used for main distribution or large feeder circuits.
terrazzo	Marble-aggregate concrete that is cast in place or precast and ground smooth; used as a decorative surfacing on floors and walls.
undermining	The loss of supporting material from underneath a surface, causing the surface to fail. Often caused by sub-surface erosion or uneven settlement.
video walls	Large format displays consisting of several television screens arranged in a mosaic pattern.

Term	Definition
VAV boxes	Variable Air Volume Boxes – used for zone control in an HVAC system.
variable frequency drive	A speed control device for induction motors that controls the speed of the motor by changing the frequency of the applied voltage.
VCT	Vinyl Composition Tile – a commercial-grade type of vinyl flooring that is less flexible than vinyl tile or sheet vinyl flooring.
vomitory	An entrance or opening into the seating area of an arena, stadium, or amphitheater.
Water Closet	Generally referred to as a toilet.
Zolatone	A brand name of multicolor textured paint that is applied in a two-step process with a pressure spray system that atomizes the product.

III

Executive Summary

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EXECUTIVE SUMMARY: OVERVIEW

HOK Sport was engaged by Convention Sports & Leisure International to assess the condition of the exterior walls, roof, windows, public restrooms, premium areas, concession stands, dressing rooms and interior finishes of the Hartford Civic Center. A survey of mechanical systems including HVAC, plumbing, and fire suppression to assess their respective general conditions was performed as part of the review as well. The review team did not assess the condition of every mechanical room or piece of equipment, but did review a representative sample on each level of the facility. The facility's technology including scoreboard, back-lit panels, audio and video systems, data and phone systems were reviewed by HOK Sport to assess their condition and whether the appropriate preventive maintenance has been performed.

The assessment team has established some recommendations based on the observed condition of the facility. The information contained in this document represents the professional opinion of the assessment team comprised of representatives of HOK Sport.

METHODOLOGY

HOK Sport assessment personnel performed an on-site review of the Hartford Civic Center on April 20 & 21, 2006. Patrick Delly, a 20 year veteran of arena operational and engineering systems, was engaged to survey the facility's mechanical, electrical, plumbing and fire safety systems.

ARCHITECTURE & FACILITY

Overall, the entries and concourses are in relatively good condition, clean and well maintained for a facility of this type and age. While there are some improvements that could be made to improve the facility's appearance and others that could result in increased revenue, we do not believe the revenue generated through these improvements is enough to justify the capital investment required.

As it relates to concourses, the main entrances are small by today's standards and in good condition. We recommend that the event merchandise kiosks in these 4 areas be converted to concession stands to increase revenue and result in more queuing space. To help increase the fan experience and bring more energy to the concourse, the concourse walls should be painted in brighter colors that would help reflect the light, rather than the current monochromatic scheme. Also, the concrete floor needs a new concrete coating that would help improve the light quality and conceal the large quantity of shrinkage cracks. Due to the structural limitations of the 300 level concourses and the limited number of seats it serves, it is not economically feasible to make significant capital improvements to this level.

The premium spaces of the Hartford Civic Center are clearly the facility's strongest assets. The level of finish, lighting and amenities in these spaces is on par with many newer facilities of similar capacity. Some carpet and seating upholstery in the suites are beginning to show signs of wear, but this does not yet warrant replacement. The Director's Club is the most appealing of the three premium spaces, with a condition and level of maintenance equal to or better than that of the suites. The Coliseum Club's finishes are consistent with those of the other premium spaces, but it appears to be the most utilized premium space in the facility due to the amount of wear shown in the seats.

The arena seating areas were very clean and facility management mentioned that the seats and associated hardware were replaced approximately eight years ago. The aisle ways were clean and non-skid had been applied to the aisle way steps to help prevent slip and falls. The arena staff has a program to re-coat the non-skid treated areas once a year. There was few spalling and cracks noted in the lobby

concrete but nothing out of the ordinary. Only one expansion joint was observed and it appeared to be normal.

The condition of the catwalks was observed to be good, while the overall condition of the exterior was also observed to be well maintained. However, there were areas outside the facility where there was significant delamination of concrete steps and pads.

While there are areas of the public and premium spaces that could benefit from minor improvements, our conclusion is that for an extensive renovation to result in significant increase in event revenue, the work would need to include additional concession points of sale, new shops and restaurants that are found in newer facilities, and significantly more toilet rooms/fixtures. Unfortunately, there is little or no opportunity for expansion to include these types of amenities. While there is work that could be done to improve the overall appearance, it is unlikely that it would result in enough increased revenue to justify the capital investment

FOOD SERVICE

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 offerings are 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's ability to produce fresh and higher revenue producing product. However, 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 will not provide the return on investment over the long term.

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.

The Hartford Civic Center currently falls short in terms of current standards for numbers and distribution of points of sale for concession stands. The physical limitations of the concourse space, however, make it virtually impossible to add an adequate number of points of sale for a positive customer experience. 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 the system should be upgraded so debit or credit cards could be accepted at all sales areas, as customers expect that of all retailers, even at smaller fast food chains. Credit card company studies have shown that consumers will spend 15% to 25% more with a credit or debit card versus a cash transaction.

The Civic Center's only kitchen, located on the suite level, serves as the food preparation area for suites and clubs, as well as the place where catering is prepared and distributed for the exhibit space on the service level. The kitchen was observed to be clean and of sufficient size to handle the demand for the above mentioned spaces.

MAJOR SYSTEMS

The facility's mechanical equipment inside and outside are well maintained; however, most of the HVAC equipment is deteriorating and seems to have reached the end of its useful life and will need to be replaced. Not only is the HVAC equipment in danger of failing, but the support systems such as the cooling water pipes and hot water / steam pipes and their shut off valves, air compressors, regulating control valves and insulation are failing. Some of these components have been or are scheduled for replacement.

The plumbing and associated systems such as flush valves inside the restrooms and potable water piping are outdated, and it would not be cost effective to completely replace, leaving the maintenance crews to replace or repair as necessary. This is evidenced by the lack of water pressure in upper level suites due to pipes that have corroded inside and caused restrictions of the water flow to these levels. Simply boosting pressure in these systems will not help the flow of water and would tax the system more than necessary.

The lighting systems in lower level meeting areas is outdated and in need of replacement. The current system uses one large lamp to span a large area, creating areas that become washed out and dingy looking. The lighting system in the arena has been updated properly and appears to meet the needs of the sports team and other entertainment activities.

The building and roof structure appeared sound and no evidence of leaks from the roof were observed during our walk-through. All of the steel supports and roof trusses were in good condition and no rust or corrosion was observed.

Recommendations

An engineering study should be commissioned to determine the feasibility of installing all new air handling equipment into one or possibly two locations of the facility. This would eliminate the large number of units and mechanical support needed to house these units, reduce energy costs and reduce the amount of maintenance currently needed.

The potable water system is failing in the upper parts of the building. The probable cause of this is buildup of corrosion inside the piping. An industrial plumbing company should investigate the severity of this problem using a fiber

optic camera system. Should the problem be too extensive to repair, a booster pump with a bladder type tank system can be installed in various areas to help assist with water flow problems.

All of the primary and secondary electrical equipment should be evaluated & properly tested by a qualified electrical contractor that specializes in commercial and industrial electrical systems. As mentioned later in the electrical portion of this report, the manufacturer of the existing electrical equipment is no longer in business and parts for the larger distribution systems and switch gears are no longer readily available.

An electrical engineer should be retained to write testing specifications and review all the testing results.

Most of the elevators are controlled by the older type relay control systems. During our walk-through we did not observe any other type of control systems for the elevators or escalators. The electrical circuitry for these systems looks to be at the end of its useful life. Plans should be made to begin some type of retrofit for all of these systems.

A structural engineer should be retained to inspect all of the building support structures and seating support systems.

Replace all of the old air compressors used for the pneumatic control systems.

Evaluate and add as necessary new lighting in the meeting areas and the main lobby entrances to the arena from the street levels.

EVENT OPERATIONS

Event operations at the Hartford Civic Center are conducted at a significant disadvantage due to the lack of a dedicated loading dock and marshalling space, as well as a lack of overall space and functional event-related facilities located on the event level.

The fact that the Hartford Civic Center continues to do the type and number of events that it does is a testimony to the effects of facility management and operations staff.

As show requirements and technical requirements continue to increase, the Hartford Civic Center will find it increasingly difficult to meet promoter and producer expectations.

IV
Architecture & Facility

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ARCHITECTURE & FACILITY: OVERVIEW

This document is a field investigation narrative describing the condition of the architectural spaces and facility equipment at the Hartford Civic Center. Also included are recommendations and alternatives to aid in the long term operation of the facility. Following are observations and recommendations made during the walk-through of the arena, illustrated with snapshots of the issues being discussed.

Overall, the entries and concourses are in relatively good condition, clean and well maintained. The two main entrances could be better utilized by converting the event merchandise kiosks to concessions. Fan experience can be enhanced by updating the finishes on the walls and floors with a new, more inviting color scheme. The current color scheme makes the concourses appear dim. With the existing indirect lighting, a brighter color palette will reflect more light and raise the overall lighting level.

The premium spaces (suites, Director's Club and Coliseum Club) are clearly the facility's strongest assets. The level of finish, lighting and amenities is on par with many newer facilities of similar capacity.

CONCOURSES

Main Entry Lobbies

The main entrances for ticketed fan entry are moderately spacious and in good condition. Large kiosks for event merchandise are located directly in front of the entry doors. Because queuing space is limited in front of the concourse concession stands, and because concession sales are typically higher than merchandise sales, we propose that the CDA consider converting these kiosks to concession points of sale that would allow more queuing space. It would present immediate opportunity for fans to purchase concession items upon entry. Careful attention would have to be paid to avoid conflicting with high volume entry traffic prior to events. The additional POS would reduce the amount of queuing in the very narrow concourse concession areas. A smaller concession stand in the concourse could be converted to a memorabilia stand.

Merchandise kiosk in entry lobby:

Concourse Walls

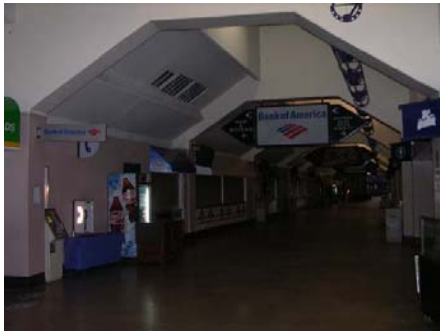
While the existing CMU walls and paint are in good condition, the wall color is a bit dim, causing the concourses to appear less inviting. New paint in brighter colors will help reflect more of the existing indirect light. Using multiple colors in lieu of the current monochromatic scheme will help to energize the space and improve fan experience.

Concourse Floors

The existing floor is sealed concrete and is in need of updating. Application of a new concrete coating will serve multiple purposes. First, it will help to improve the light quality in the corridor in concert with the new wall colors. Next, if a seamless, built-up coating were to be installed to a thickness of approximately ¼", the large quantity of shrinkage cracks would be concealed. Coatings such as Stonhard are relatively cost effective when compared to

more premium coatings such as tile or terrazzo, and are very durable and easily maintained. They are also capable of spanning most concrete control joints and cracks without telegraphing through to the surface.

Main concourse:



Concourse Lighting

Currently, the main source of lighting in the concourse areas is indirect fluorescent fixtures that reflect light off the bottom of the precast seating bowl above. These fixtures, in combination with lighted sponsorship, concession and way-finding signage provide an adequate and comfortable level of light throughout the concourse areas. We believe the proposed new color scheme for walls and floors is all that is needed to improve concourse lighting.

Concourse lighting fixture:

300 Level Concourses

The 300 Level Concourses are very narrow with minimal amenities. Due to structural limitations and the limited number of seats served by these concourses, it is not economically feasible to invest in significant capital improvements which might include larger concourses, expanded concession stands and increased number of restrooms. However, additional way-finding and concession signage may be added at minimal cost to improve the overall feel of the spaces. Beyond that, there is little that can be done to increase revenue generated in these areas.

Improvements in the Main Concourse areas may help to draw upper level ticket holders to the Main Concourse concessions by possibly offering better food and merchandise amenities.

300 level concourse:

Public Restrooms

The public restrooms off the main and upper concourse are in excellent condition and have been well maintained. Fixtures were observed to be working properly in the sinks and toilets. Paper towel and soap dispensers were observed to be functioning properly as well.