

Fox Cities Exhibition Center
Appleton, Wisconsin

BUILDING PROGRAM

March 16, 2012

Fox Cities Exhibition Center, Inc.

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Prepared for:

Fox Cities Exhibition Center, Inc.

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EXECUTIVE SUMMARY

Introduction

After the completion of a market study for convention/exhibition facilities in Appleton (CSL, 2008), the Community Coalition Convention Center report (CCCC, December, 2010), and deliberations by Fox Cities Exhibition Center, Inc. (FCEC), it was decided to locate a new exhibition center in downtown Appleton just to the south of the existing Radisson Paper Valley Hotel. The logic of this site is based on its downtown location, ability to use existing Radisson facilities as part of a convention center, available land, and the surrounding area's road system.

The CSL market study recommended that the new exhibition hall contain 30,000 – 35,000 SF of contiguous, column free space. Using the industry standard of a 30' horizontal planning module, this building program is recommending a hall dimensioned at 150' x 210' – resulting in a hall of 31,500 SF (net usable space).

The types and amount of additional public and back-of-house support space that it takes to support a multi-purpose exhibit hall of this size is determined by four major factors: 1) market and operational criteria; 2) the relationship to the Radisson, including the nature of the separation/connection between new construction and the existing hotel; 3) facilities already contained in the Radisson and their suitability and availability to support the new facility; and 4) particular characteristics of the site that may affect programming of internal vertical and horizontal circulation areas, and site development.

This recommended building program outlines all of the spaces needed in the project, and serves as the basis for preliminary cost estimates and the design process moving forward. Based on interviews of project stakeholders, a user focus group meeting, internal consultant team analysis and consideration of industry standards, the overall gross area of the new structure was calculated by summing the individual square footage areas recommended for each space and applying a factor for shafts, walls and skin. The total gross enclosed area for the FCEC documented in this report is targeted at 65,544 SF. The bridge to the Radisson and construction at the Radisson north of Lawrence Street necessary to accommodate the bridge are not included in this figure. These are additional enclosed building areas that need to be built. While planning for future expansion of the FCEC is very desirable, it appears that this will not be possible given the constraints of the selected site and its surroundings.

This Building Program Report contains a summary of spaces and their size in a matrix format, followed by Room Data Sheets for each space that describe the recommended characteristics of each. Other topics such as exterior space, graphics and signage, etc. are presented in narrative format, followed by listing of programmatic recommendations for the center's technical systems.

Project Goals

Complimenting the quantitative program data and technical recommendations contained herein for the building's spaces, several key goals for the project also inform the building program. These key goals fall into the following categories:

Flexibility - With modest public assembly projects of this size, it is especially critical that the leasable spaces be very flexible to accommodate as wide a variety of events as possible. Only in larger buildings is it feasible to have single-purpose leasable assembly spaces. This program describes features to achieve the desired flexibility in a number of ways: air walls, multi-purpose rooms, adjacencies and separations, well positioned support spaces, finishes and systems. The

high degree of flexibility achieved in this project will make the project more marketable, which will have direct positive results on the success of its economic impact in the Fox Valley. Flexibility will be appreciated within the several days of a multi-day event, and it will enhance the ability of the new exhibition center to accommodate multiple simultaneous events.

Integrating the FCEC and the Radisson - Another key objective of this project is to create a single, integrated convention center, not two separate buildings that do not relate to each other as well as they can and should. The integration of the Radisson and FCEC has a “hard” side – this building program and the design solution which follows – and a “soft” side: the way in which the facility functions and is operated. The physical solution must support the mission to operate the facility as a single public assembly venue. While this program statement focuses on the FCEC itself, several suggestions are included in this report to address a potential scope of improvements that could be undertaken at the Radisson.

Efficiency and Productivity are terms that one hears with increasing frequency in observing and describing national trends in the meetings, exhibitions and convention industry. There is financial pressure to shorten the duration of events, to cram more programming in a shorter amount of time, because attendees and exhibitors have limits on the time they can spend away from their professional and personal lives. The FCEC, like a well-oiled machine, needs to assist the productivity of events by assisting with features such as quick move-in and move-out durations, flow between meeting spaces, room change overs, and close programming of food and beverage functions on either side of exhibition and meeting hours. When the efficiency of the building program and design solution fosters productive events, the new and repeat customers will be easy to attract to the Fox Valley.

Sustainability is of increasing concern to operators, event planners and attendees. The decision to hold an event in a particular city is now often made with “green” considerations in mind: is the building and its operation *sustainable* in the broadest sense of that word. This concept addresses not only the energy consumed on-site, the source of the materials out of which it is made, but also the ease of staffing the facility, and minimizing on-going maintenance costs. Achieving a Leadership in Energy and Environmental Design (LEED) Silver rating for this project is a good start in the process of achieving a sustainable convention and exhibition business in the Fox Valley.

Response to Context: A final goal for this project must be to develop it in a way that enhances downtown Appleton, and that strengthens the connections south to the river through Jones Park. This new structure is not simply an “addition” to the Radisson, but can be a significant enhancement of the College Avenue corridor. The new building must be conceived based on how it contributes to and works in the city beyond its immediate site. Creatively responding to and taking advantage of the Jones Park setting is also key to the building’s success. Additionally, it is also recognized that this project will contribute to the entire Fox Valley economy, enhancing its vibrancy, vitality and quality of life.

ABBREVIATIONS

The following abbreviations are used in this programming report:

A	Amperes
AC	Air Conditioning
ACT	Acoustic ceiling tile
AFF	Above finished floor
CA	Approximately
CCTV	Closed circuit television
CFM	Cubic feet per minute
CMU	Concrete masonry unit
CW	Cold water
DB	Dry Bulb
DALI	Digitally addressable lighting interface
F&B	Food and Beverage
FC	Foot candles
F	Fahrenheit
FF	Finished floor
GFIC	Ground fault interrupter circuit
GWB	Gypsum wall board
HW	Hot water
IR	Infrared
IT	Information technology
Max.	Maximum
Min.	Minimum
N/A	Not applicable
NC	Noise Criteria
NEMA	National Electrical Manufacturers Association
O.C.	On center
PA	Public address
PSF	Per square foot
SF	Square feet
STC	Sound transmission criteria
USGBC	United States Green Building Council
V	Volts
VAV	Variable air volume
W	Watts
WP	Weatherproof

JURISDICTION AND APPLICABLE CODES

Wisconsin Commercial Building Codes (Effective September 1, 2011)

International Code Council (ICC) codes adopted by Wisconsin include:

- 2009 International Building Code
- 2009 International Energy Conservation Code
- 2009 International Existing Building Code
- 2009 International Fuel Gas Code
- 2009 International Mechanical Code

Wisconsin Building Code changes to 2009 ICC codes include:

- SPS 360-366 Wisconsin Commercial Building Code (effective September 1, 2011)
- SPS 360 Erosion Control, Sediment Control and Storm Water Management
- SPS 361 Administration and Enforcement
- SPS 362 Buildings and Structures
- SPS 363 Energy Conservation
- SPS 364 Heating, Ventilating and Air Conditioning
- SPS 365 Fuel Gas Appliances
- SPS 366 Existing Buildings
- SPS 360-366 Appendix A
- SPS 360-366 Appendix B

Other Codes

- NFPA 101 Life Safety Code, 2006
- State of Wisconsin Administrative Code
- City of Appleton Municipal Code
- City of Appleton Zoning Ordinance

Specific codes and requirements for building systems such as HVAC, electrical and plumbing are listed in the Systems description section of this report.

If any program requirements stated in this report are in conflict with applicable codes, the code shall take precedence.

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Walt Rugland

Fox Cities Convention & Visitors' Bureau

Lynn Peters, Executive Director

Radisson Hotel

Jay Schumerth, General Manager

Fox Cities Performing Arts Center

Chad Hershner, VP of Advancement

User Focus Group Participants

Association Management Partners – Jeanne Rosen
Fox Cities Chamber of Commerce & Industry – Pam Hull
Humana – Naomi Tucker
League of Wisconsin Municipalities – Sherry Lee
Meetings & Incentives, Inc. – Paulette Henry
Morgan Data Solutions – Christopher Dyer
Pierce Manufacturing – Nicole Danner
Valley Home Builders Association – Christine Shaefer
Wisconsin Credit Union League – Linda Hale
Wisconsin Dental Association – Lani Beker
Wisconsin Grocers Association – Cheryl Lytle
Wisconsin Education Association Council – Dianne Hellenbrand
Wisconsin Petroleum Marketers; Convenience Store Association – Lori Gerber

Design/Builder

The Boldt Company - Oscar Boldt, Steve Ford, Doug Haas, David Delfosse

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Architectural Program Space Summary

			New Construction			
Type of Space	#	Functional Area	#	Size Each (SF)	Total Area (SF)	
BASE BUILDING						
PUBLIC	E-1	Exhibition Hall (210' x 150')	1	31,500	31,500	
	E-2	Pre-Function	1	11,000	11,000	
	E-3	Vestibules	2	200	400	
	E-4	Multi-purpose/Box Office/Information	1	300	300	
	E-5	Business Service Center	1	200	200	
	E-6	Restrooms - M	multiple		650	
	E-7	Restroom - W	multiple		1,250	
	E-8	Restroom - Unisex/Family	2	80	160	
	E-9	Multi-purpose/MR/Coat check	2	600	1,200	
	C-1	Lobbies/Horizontal Circulation	allowance		1,000	
	C-2	Vertical Circulation	allowance		500	
SERVICE & SUPPORT	S-1	Event Management Office/First Aid	1	250	250	
	S-2	Event Management Office	1	200	200	
	S-3	Storage - Building Maintenance	1	600	600	
	S-4	Storage - General/Exhibit Deliveries	1	2,000	2,000	
	S-5	Loading Dock	1	1,000	1,000	
	S-6	Service Corridors - Ground and upper level	1	5,500	5,500	
	S-7	Trash/Recycling	1	300	300	
	S-8	Restroom - Unisex	2	80	160	
	S-9	Janitor's closet	2	40	80	
	S-10	Air wall storage	multiple		400	
	S-11	Main Electrical Room	1	375	375	
	S-12	Electrical closets	multiple		375	
	S-13	MDF Room	1	375	375	
	S-14	IDF Rooms	multiple		375	
	S-15	Mechanical Room	1	375	375	
	S-16	Dock Master/Receiving/Maintenance	1	200	200	
	S-17	Audio-Visual Control Room	1	120	120	
	S-18	Fire Command Center	1	100	100	
	FS-1	Satellite plating kitchen	1	800	800	
	FS-2	Walk-in Refrigerator	1	200	200	
	FS-3	Liquor Storage	1	100	100	
	FS-4	Warewashing and Storage	1	400	400	
	C-3	Horizontal Circulation	allowance		1,000	
	C-4	Vertical Circulation	allowance		500	
			SUBTOTAL, New Construction			63,945
			Grossing factor for structure, skin, shafts	2.5%		1,599
			TOTAL GROSS ENCLOSED AREA			65,544
			NET LEASABLE AREA			31,500
			SERVICE and SUPPORT			34,044
			NET/GROSS RATIO			48.1%
		B-1	Pubic/Service Bridge to/from Radisson	1	1,600	1,600
			TOTAL, NEW CONSTRUCTION, BASE			67,144
ADD ALTERNATES						
Mid-Park level	M-1	Multi-purpose Meeting Room	1	2,000	2,000	
Mid-Park level	M-2	Pre-function	1	500	500	
Mid-Park level	M-3	Restroom - M	1	120	120	
Mid-Park level	M-4	Restroom - W	1	160	160	
Mid-Park level	S-19	Janitor's Closet	1	40	40	
Mid-Park level	S-20	Storage	1	200	200	
Mid-Park level	C-5	Vertical Circulation (elevator, stairway)	1	300	300	
Upper Level	B-2	Service Bridge to/from Radisson	1	1,600	1,600	
Upper Level	S-6	Delete Upper Level Service Corridor	1	-2000	(2,000)	
		Sub-total, Add Alternates			2,920	
		TOTAL NEW CONSTRUCTION, BASE + ADD ALTERNATES			70,064	
RADISSON HOTEL	R-1	Horizontal Circulation - New			1,200	
	R-2	Horizontal Circulation - Renovation			750	
	R-3	Vertical Circulation - New			400	

ARCHITECTURAL PROGRAM – DETAILED REQUIREMENTS

Function	Multi-purpose flat floor space for exhibits, large banquets, plenary sessions, lectures, fund-raising events, meetings, exams, receptions, and some sporting events that can work within the limit of the 24'-0" high clearance. Events may often be accompanied by audio-visual presentations, light entertainment, and/or F&B service. It is intended that this space be highly flexible, and during the design process the various use scenarios should be laid out and tested.
Area (SF)	31,500 SF (210' x 150')
Occupancy	Life safety occupancy: 10 SF/person; Total maximum allowable occupancy = 3,150 people
Key Dimensions and Proportions	<p>Horizontally dimensioned in both directions in modules of 30'-0"</p> <p>Proportions of overall hall and each permutation of its subdivisions should not exceed a 2:1 length to width ratio.</p> <p>Subdivision by air walls: Base Scenario: Three (3) subdivisions, each 70' x 150' = 10,500 SF each</p> <p>Add Alternate Scenario (recommended): 13,500 SF (1) 10,500 SF (1) 7,500 SF (1) further divided into 2,000 SF (3) and 1,500 SF (1); maintain 30' x 30' grid for subdivisions where possible.</p> <p>Vertical clearance to underside of structure, lighting, HVAC, moveable partition track: minimum 24'-0" Locate at 4'-0" above exterior truck parking apron.</p>
Adjacencies	<p>Lobby/Pre-Function Service corridor Moveable partition storage Provide drive-on floor capability through one door for trucks from exterior service apron.</p> <p>There will be no adjacent, permanent built-in concession stands.</p>
Security	No CCTV; doors to pre-function space shall be lockable.
Structural	<p>Clear-span, no columns Live load @ floor: 350 psf Ceiling rigging capacity: 1,500 lbs. per hanging point position. Provide hanging points for rigging banners, aisle signs, specialty lighting, audio-visual equipment, etc. every 15'-0" in both horizontal directions. Total hanging load shall not exceed 30,000 pounds in any 90' x 90' structural bay.</p> <p>Rigging system to be designed so that ceiling panels, if any, are not touched or moved by riggers.</p> <p>Deflection criteria for support line of movable partitions shall be</p>

	<p>achieved as required by partition manufacturer. No catwalks.</p>
HVAC	<p>Provide independent VAV and coordinated zoning controls for all permutations of subdividing this space. Criteria for this space: 25 SF/person, 6W/SF equipment, 1.6W/SF lighting and meeting room 15 SF/person, 1 W/SF equipment and 1.8W/SF lighting.</p>
Electrical	<p>Provide recessed utility floor boxes on a 30' x 30' horizontal grid with the following electrical power in each box: 1 each, 60A, 208Y/120V, pin & sleeve; two 30A, NEMA L21-30R, 208Y/120V and one 20A, 120V, NEMA 5-20R, GFIC</p> <p>Provide on perimeter walls: 30' on center: 30A, 208Y/120V NEMA L21-30R wall-mounted outlets and 15' on center, 20A, 120V, NEMA 5-20R convenience outlets</p> <p>Provide at ceiling within each major hall subdivision (total of three (3): One (1) 100A, 480Y/277V, 3ph, 4W power supply terminated in disconnect switch.</p> <p>Diversity: plan on 24W/SF at the floor box, 12 W/SF at the step down transformer and 6 W/SF at the utility transformer.</p> <p>Provide 6" PVC for bailout system, connecting to each floor box and back to service corridor for each row of boxes.</p>
Plumbing	<p>Provide hose bib and drain in one (1) floor box for each major division of the hall (total of 3). Each of the three boxes will have one ¾" valve and quick-connect for water supply, a 3" main drain and two 2" auxiliary drains (one in the water supply compartment and one in the electrical compartment.)</p> <p>Provide one hose bib and drain at back wall (against service corridor) for each major division of the hall (total of 3).</p> <p>No compressed air or gas in floor boxes; these utilities will be provided by portable units on an event-by-event basis.</p>
Lighting	<p>Avoid hanging light fixtures and other hardware that would negatively affect sightlines to exhibits, signage and audio-visual productions.</p> <p>Lighting system to be switchable to at least three levels, maximum 60 fc at 30" AFF.</p> <p>Lighting to be controlled via a DALI (digital addressable lighting interface) technology so that each fixture is individually controlled. .</p>
Audio/Visual	<p>House PA system for voice announcements and program audio; not intended for concerts. 12" coaxial ceiling mounted loudspeakers spaced to create uniform coverage with 30% overlap at 4'-0" above finished floor.</p> <p>Loudspeaker, amplifiers, cabling and microphone input locations will allow configuration of sound systems within each sub-divisible space of this hall.</p>

	<p>Audio inputs and outputs to be located at walls or in floor boxes in proximity to probable lectern/head table positions. Provide ten (10) audio input/output panels distributed throughout hall, with minimal one (1) panel for smallest subdivision. Cat. 6A infrastructure to and from each subdivision to accommodate audio and video routing.</p> <p>Other AV equipment will be portable and set up on an event-by-event basis.</p> <p>Each hall subdivision shall include an RF assistive listening system. Devices and charging system to be stored and distributed at Multi-purpose/Box Office, (E-5).</p>
Data/Telecom	<p>Provide at each floor box located @ 30' o.c.:</p> <p>Six (6) Cat. 6A tele/data RJ45 outlets</p> <p>Provide extra empty 1" conduit between boxes and back to IDF rooms for future use.</p>
Acoustics	<p>Ambient Noise Criteria: NC-40; NC-35 is desirable and can be achieved using carpet.</p> <p>Reverberation time: <1.8 second</p> <p>Moveable partitions: STC-52, with adjustable seals at sides and bottom. Provide acoustic separation at ceiling above movable partitions.</p> <p>All penetrations through walls, ceiling and floors shall be sealed so that air-borne sound is blocked.</p>
Windows	<p>Natural light is encouraged, and if windows (view or clerestory) are provided as an Add Alternate, black-out capability is required.</p>
Doors	<p>To pre-function area: wood; consider using large pivot doors for part of the exhibit hall to maximize visual/spatial continuity with pre-function area and through to the exterior.</p> <p>Use "quiet-type" doors and hardware at both front- and back-of-house.</p> <p>Doors to pre-function area to have kick-plates with magnetic hold-open hardware. Doors to service corridor to include armor plates on lower half.</p> <p>To Service corridor: provide one (1) 12'-0" wide x 14'-0" rollup door to two of the major subdivisions, and one (1) 8'-0" wide x 10'-0" door to the third major subdivision</p> <p>Provide man doors in air walls between subdivided spaces.</p> <p>Operable partitions to be Advanced Equipment, Hufcor or equal.</p>
Finishes	<p>Floor: Polished concrete with metallic hardener; carpet set up on an event-by-event basis. Carpet to cover utility floor boxes when they are not in use.</p>

	<p>Add Alternate: carpet entire exhibit hall with custom patterned carpet tile.</p> <p>Walls: Precast, concrete block or masonry for lower 8'-0" above FF. Above this height fabric acoustic wall panels, GWB, and/or CMU may be used. Wood accents are encouraged.</p> <p>Ceiling: Exposed structure with acoustic clouds;</p> <p>Use corner guards at walls where appropriate.</p>
Casework	None
FF&E	<p>All exhibits are temporary and are set up and taken down on an event-by-event basis.</p> <p>Portable FF&E stored in building: Tables, chairs, lecterns, portable stage.</p>

Function	Entrance lobby and circulation to and from exhibition hall; gathering/networking space for attendees; registration (portable locations); receptions, including F&B; some light exhibits; lounge seating areas (portable). This is highly flexible space and will change event to event.
Area (SF)	1 @ 11,000 SF (approximately 1/3 of net area of exhibit hall; final SF amount will be a function of design solution on specific site.
Occupancy	Life safety occupancy: 10 SF/person
Key Dimensions and Proportions	Width: 25'-0" minimum; length according to dimension of adjacent exhibit hall Vertical: 18'-0" minimum, and may vary; this space does not need to be as high as the adjacent exhibit hall.
Adjacencies	Entrance vestibules, exhibit hall, restrooms, vertical circulation, multi-purpose/coat rooms. Provide direct access from back-of-house service corridor. In addition to the main entrances at the two vestibules, provide a door to Lawrence Street that is located in such a way that it leads as directly as possible to the back-of house service corridor. This door will serve exhibitors parked in the vicinity who are transporting light exhibits and collateral event materials that do not need to come through the loading dock.
Security	no CCTV
Structural	150 psf live load
HVAC	Constant volume air handling
Electrical	Provide power for registration, concession stands and light exhibits at 30'-0" intervals at both interior and exterior walls. 30A, 208Y/120V, NEMA L-21-30R at 30' on center on walls, 20A, 120V, NEMA 5-20R at nominal 15' on center on walls and each wall that is 24" or wider. Provide 60A, 208Y/120V recessed outlet at select locations (3 each) for portable concession carts
Plumbing	none
Lighting	Custom, DALI based lighting system Provide up lighting to ceiling and wall washing affects. Integrate lighting control system with day lighting sensors. 30 fc average at 30" AFF.
Audio/Visual	PA system in ceiling
Data/Telecom	Provide at 30' intervals Cat.6A data and voice RJ45 connections at interior and exterior walls. Co-locate with 30A power outlets
Acoustics	Reverberation time < 2 seconds
Windows	Required to have natural day light and views to exterior
Doors	To exhibit hall: wood
Finishes	Floor: patterned carpet; some stone or terrazzo accents are allowed. Walls - Exterior: curtain wall system Walls – Interior: GWB, acoustic panels, wood accents, wainscot; durable material base; corner wall guards Ceiling: GWB soffits with ACT panels, some wood accents
Casework	None

FF&E	All furniture (food service stations, lounge seating, tables, registration kiosks, etc.) shall be portable and set up on an event-by-event basis.
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Function	Thermal lock between out-of-doors and internal pre-function space to minimize heat loss/gain and wind infiltration.
Area (SF)	2 @ 200 SF each
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Height: minimum 10'-0"; horizontal dimensions to accommodate door swing and ADA requirements for wheelchair travel.
Adjacencies	Pre-function space; exterior sidewalk
Security	Lockable doors to exterior; no CCTV
Structural	100 PSF
HVAC	Heating only, no AC
Electrical	One (1) 20A/120v duplex, NEMA 5-20R plug (for maintenance)
Plumbing	none
Lighting	20 fc average
Audio/Visual	none
Data/Telecom	none
Acoustics	No special requirements
Windows	yes
Doors	Hinged doors, no revolving doors
Finishes	Floor: walk-off floor grate/mat system Walls: curtain wall Ceiling: metal or wood panels
Casework	none
FF&E	none

Function	This multi-purpose space at the entrance to the facility is intended to serve as a box office for ticketing transactions, or an event manager's office, or an information station, depending upon the event's needs.
Area (SF)	1 @ 300 SF
Occupancy	2-3 people
Key Dimensions and Proportions	Minimum vertical dimension: 8'-0"
Adjacencies	Exterior sidewalk; vestibule; pre-function space
Security	No CCTV; provide built-in lockable safe
Structural	100 psf
HVAC	VAV
Electrical	Six (6) 20A, 120V wall-mounted, duplex, NEMA 5-20 convenience receptacles
Plumbing	None
Lighting	Recessed 2x4 fluorescent luminaires, 50 fc average.
Audio/Visual	PA system: ceiling mounted loudspeaker
Data/Telecom	Four (4) Cat. 6A data outlets Two (2) Cat. 6A voice cable outlets Confirm IT requirements with final equipment list for this space.
Acoustics	No special requirements
Windows	Provide two transaction windows to exterior and one to vestibule. Day lighting is desirable
Doors	Hollow metal or wood
Finishes	Floor: Carpet Walls: glazing, painted GWB, vinyl base Ceiling: ACT
Casework	Built-in case work: counter, lockable drawers, lockable storage cabinets, storage shelving, literature storage rack, built-in lockable safe, computer work area, chairs
FF&E	Chairs, table, computers

Function	Contains business equipment for use by attendees and exhibitors. This space will be staffed on an event-by-event basis by event personnel. Can also function as a small package shipping center.
Area (SF)	1 @ 200 SF, including lockable storage and counter
Occupancy	3 people
Key Dimensions and Proportions	Vertical: 8'-0" minimum; horizontal dimensions may vary.
Adjacencies	Pre-function space
Security	Lockable door
Structural	100 psf live load
HVAC	VAV
Electrical	Eight (8) 20A, 120V wall-mounted, duplex, NEMA 5-20 convenience receptacles
Plumbing	None
Lighting	Recessed 2x4 fluorescent luminaires, 50 fc average.
Audio/Visual	PA system: ceiling mounted loudspeaker
Data/Telecom	Four (4) Cat. 6A data RJ45 outlets Two (2) Cat. 6A voice cable outlets Confirm IT requirements with final equipment list for this space.
Acoustics	No special requirements
Windows	none
Doors	Hollow metal or wood
Finishes	Floor: Carpet Walls: glazing, painted GWB, vinyl base Ceiling: ACT
Casework	Securable counter to pre-function space
FF&E	Shelving, tables, chairs, copy/print machine, computers

Function	Men's restrooms for use by attendees, exhibitors and others using public areas of the building.
Area (SF)	Total of 650 SF; multiple locations Size based on a maximum of 1,575 male occupants in the building requiring a total of 13 water closets/urinals and 8 lavatories.
Occupancy	Attendees, exhibitors and other members of the public
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Lobbies/public circulation/pre-function areas; janitor's closet Locate suites of restrooms remotely from each other. Drinking fountain immediately outside of restroom.
Security	None
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF; Maintain room with negative pressure
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20R receptacle for house keeping Two (2) GFI receptacles at lavatories
Plumbing	4 urinals, 1/8" gal flush 3 WC's 4 lavatories (above fixture count for each of two restrooms) Domestic CW and HW Floor drain near WC's Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror. 20 fc at mirror, 10 fc average
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Wooden
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Toilet partitions: metal Mirror above lavatories Hand dryer, waste disposal, baby change station

Function	Women's' restrooms for use by attendees, exhibitors and others using public areas of the building.
Area (SF)	Total of 1,250 SF; multiple locations Size based on a maximum of 1,575 female occupants in the building requiring a total of 25 water closets and 8 lavatories.
Occupancy	Attendees, exhibitors and other members of the public
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Lobbies/public circulation/pre-function areas; janitor's closet Drinking fountain immediately outside of restroom.
Security	None
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF; Maintain room with negative pressure
Electrical	One (1) 20A, 120V, NEMA 5-20R, duplex receptacle for house keeping Two (2) GFI receptacles at lavatories
Plumbing	13 WC's 4 lavatories (above fixture count for each of two restrooms) Domestic CW and HW Floor drain near WC's Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror; 20 fc at mirrors, 10 fc average
Audio/Visual	none
Data/Telecom	none
Acoustics	No special requirements
Windows	none
Doors	wooden
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Toilet partitions: metal Mirror above lavatories Hand dryer, waste disposal, baby change station

Function	Unisex restroom for use by attendees, exhibitors and other occupants of the building
Area (SF)	2 @ 80 SF = 160 SF
Occupancy	Attendees, exhibitors and other members of the public
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Lobbies/public circulation/pre-function areas; janitor's closet
Security	none
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF; Maintain room with negative pressure
Electrical	One (1) 20A, 120V, NEMA 5-20R, duplex receptacle for house keeping One (1) GFI receptacle at lavatory
Plumbing	1 WC 1 lavatory Domestic CW and HW Floor drain near WC Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror; 20 fc at mirror, 10 fc average
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Mirror above lavatory Hand dryer, waste disposal, baby change station

Function	Multi-purpose, to serve as optional meeting or conference room, small F&B function, event office, light exhibit annex, coat room, event book store, registration storage, etc. Use will vary by event.
Area (SF)	2 @ 600 SF = 1,200 SF
Occupancy	10 SF/person = 60 people each
Key Dimensions and Proportions	Proportions of room shall not exceed a 2:1 length to width ratio. Minimum ceiling height: 10' – 0"
Adjacencies	Pre-function
Security	Lockable door
Structural	150 psf live load
HVAC	VAV
Electrical	6 (6) 20A.120V duplex, NEMA 5-20R receptacles
Plumbing	None
Lighting	Recessed fluorescent luminaires, 30 fc at 30" AFF.
Audio/Visual	None
Data/Telecom	Four (4) Cat 6A data cable RJ45 outlets (box at wall) Four (4) Cat 6A voice cable outlets (box at wall)
Acoustics	NC-40
Windows	Desirable, but not required
Doors	Wood; consider use of overhead sky-wall for wall at pre-function
Finishes	Floor: carpeted Walls: GWB, acoustic panels; provide chair rail Ceiling: ACT/GWB
Casework	None
FF&E	Chairs, tables, lounge furniture, coat racks, etc. – all portable varying by event

Function	This space doubles as an enclosed offices available for use on a temporary, event-by-event basis by visiting show/event management staff, or when required, as a first aid room. Office to be staffed by event personal, service provider or others designated by building operator. This flexible space can also be used on a temporary basis for VIP green room, registration material storage, luggage storage, etc.
Area (SF)	1 @ 250 SF
Occupancy	Two-three people
Key Dimensions and Proportions	Maximum length:width proportion 2:1 Vertical: 8'-0" minimum
Adjacencies	Back-of-house/as near front-of house as possible, or Front-of-house/as near back-of-house as possible. Provide unisex toilet accessible directly off of this space.
Security	Lockable door (changeable key card)
Structural	100 psf live load
HVAC	VAV
Electrical	Four 20A, 120V, NEAM 5-20R duplex receptacles (two per work station)
Plumbing	Provide immediately adjacent unisex toilet (same criteria as other unisex toilets; see E-8.
Lighting	Recessed 2x4 fluorescent luminaires, 50 fc at 30" AFF
Audio/Visual	PA system in ceiling-mounted speakers
Data/Telecom	Two (2) locations in room, each consisting of one (1) Cat. 6a data cable and 1 Cat 6A voice cable in combined box
Acoustics	Ambient Noise Criteria: NC-35
Windows	Desirable, but not required
Doors	Hollow metal
Finishes	Floor: Carpet Walls: GWB with vinyl base Ceiling: ACT Unisex toilet finishes to match other unisex toilets; see E-8
Casework	None
FF&E	Table, chairs, shelves, bulletin board

Function	Similar to S-1, but without first aid function. This office is available for use on a temporary, event-by-event basis by visiting show/event management staff. Office to be staffed by event personal, service provider or others designated by building operator. This flexible space can also be used on a temporary for VIP lounge, registration material storage, luggage storage, etc.
Area (SF)	1 @ 200 SF
Occupancy	Two-three people
Key Dimensions and Proportions	Maximum length:width proportion 2:1 Vertical: 8'-0" minimum
Adjacencies	Back-of-house/as near front-of house as possible, or Front-of-house/as near back-of-house as possible.
Security	Lockable door (changeable key card)
Structural	100 psf live load
HVAC	VAV
Electrical	Four 20A, 120V, NEAM 5-20R duplex receptacles (two per work station)
Plumbing	None
Lighting	Recessed 2x4 fluorescent luminaires, 50 fc at 30" AFF
Audio/Visual	PA system in ceiling-mounted speakers
Data/Telecom	Two (2) locations in room, each consisting of one (1) Cat. 6a data cable and 1 Cat 6A voice cable in combined box
Acoustics	Ambient Noise Criteria: NC-35
Windows	Desirable, but not required
Doors	Hollow metal
Finishes	Floor: Carpet Walls: GWB with vinyl base Ceiling: ACT
Casework	None
FF&E	shelves, bulletin board

Function	For general building storage (consumables, cleaning products, rest room supplies, spare parts, light bulbs, cleaning equipment, snow removal equipment, chair repair, light power tools, etc.)
Area (SF)	1 @ 600 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: 12'-0" minimum
Adjacencies	Near loading dock, service corridor
Security	Lockable
Structural	150 psf
HVAC	Ventilation and freeze protection heat only
Electrical	2 each, 20A, 120V, duplex NEMA 5-20R on walls for maintenance
Plumbing	Floor drain
Lighting	Industrial fluorescent strips, 30 fc
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None required, but allowable
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU Ceiling: exposed to structure
Casework	None
FF&E	Vertical storage racks Scissor lifts (2) Floor washing machines (2)

Function	For storing building-owned furniture (tables, chairs, risers, lecterns, staging, portable concession stands); and for storing some exhibit materials (750 SF max) that are shipped to site prior to designated event move-in period. Design as single, contiguous space rather than two separate spaces to maintain flexibility; chain link fence can be used to separate the two storage function types.
Area (SF)	1 @ 2,000 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: 12'-0" minimum
Adjacencies	Loading dock and service corridor
Security	Lockable doors
Structural	350 psf
HVAC	Ventilation and freeze protection only
Electrical	2 each, 20A, 120V, duplex, NEMA 5-20 receptacles on walls for maintenance
Plumbing	One CW hose bib for wash down, floor drain
Lighting	Suspended industrial fluorescent luminaires, 30 fc at 30" AFF
Audio/Visual	None
Data/Telecom	Provide one (1) Cat.6A voice cable outlet near entry door for house phone.
Acoustics	No special requirements
Windows	none required; day lighting allowed
Doors	Provide two 8'-0" wide x 10' high roll-up or sliding access doors.
Finishes	Floor: sealed concrete Walls: CMU Ceiling: exposed to structure
Casework	None
FF&E	<p>To be stored and used in the FCEC: 120 Round tables; 100 classroom tables (8' x 18"); 50 banquet tables (8' x 30"); 1,200 chairs; 320 SF of staging with steps and ramp. Furniture for events requiring more than these amounts will be rented on an event-by-event basis.</p> <p>Also for storage of lounge chairs, trash cans and recycling containers, stanchions and ropes, signage stands, storage racks and other FF&E deployed around the FCEC on an temporary basis.</p> <p>Size of this space should be re-confirmed during the design process by actual layout studies.</p>

Function	Clear floor area for receiving/loading of exhibition freight; this space is exclusive of immediately adjacent and contiguous service corridor.
Area (SF)	1 @ 1,000 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Width: 45'-0" minimum (3 truck bays @ 15'-0" each; 1 truck bay per 10,000 SF of exhibition space is the broadly-used industry standard. Vertical: 14'-0" minimum
Adjacencies	Contiguous with service corridor; aligns with three (3) exterior truck parking positions. Provide adjacent stairs to exterior truck apron.
Security	CCTV
Structural	350 psf, same as exhibition hall
HVAC	IR heaters
Electrical	2 each, 200A, 208Y/120V company switches (for broadcast trucks), 60A, 480Y/277V, WP disconnect switch (compactor), 30A, 208Y/120V recessed, WP, NEMA L21-30R per pair of bays (refrigeration truck), 20A, 120V, duplex, WP, NEMA 5-20R convenience outlets at 15' on center on wall. 30A, 120V, outlets for charging stations
Plumbing	One hose bib for wash down
Lighting	General illumination: 30 fc at 30" AFF. Pairs of task lights on adjustable stanchions for aiming into rear of trailers; one (1) for each dock position
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Three (3) truck parking positions with truck seals at exterior building wall. Provide horizontal roof overhanging truck parking positions, minimum 10'-0".
Finishes	Floor: polished concrete Walls: CMU Ceiling: exposed to structure
Casework	None
FF&E	Provide load leveler for each of the three (3) truck positions

Function	<p>The lower level service corridor will be for the movement of exhibition freight, furniture, AV equipment and other material needed for exhibits and other events held in the exhibit hall. Forklifts will operate in this area. Also for wait staff circulation and movement and mobilization of hot boxes (Queen Mary's) when hall is used for F&B functions.</p> <p>The upper level service corridor is primarily for F&B operations to connect to the main kitchen in the Radisson.</p>
Area (SF)	Two (2) corridors (one upper, one lower) totaling approximately 5,500 SF. This is an estimate only, and SF will vary with actual design solution's organization and response to specific site.
Occupancy	Varies
Key Dimensions and Proportions	<p>Width: nominal 20'-0", minimum 15'-0" for lower level corridor</p> <p>Width: minimum 10'-0" for upper level corridor</p> <p>Vertical: minimum 12'-0"</p>
Adjacencies	Loading dock, exhibit hall, storage, satellite plating kitchen, trash/recycling; provide direct connection to publicly accessible pre-function area; other back-of-house support spaces
Security	CCTV
Structural	350 psf for ground level service corridor; 150 psf for upper service corridor; column-free
HVAC	VAV
Electrical	<p>100A, 208Y/120V company switch with mouse hole access to E-1, Exhibition Hall</p> <p>Two each, 20A, 120V, duplex, NEMA 5-20R for each coffee station mounted 42". One each, 20A, 120V, simplex, NEMA 5-20R at 54" AFF for each hotbox.</p>
Plumbing	<p>Provide three (3) remote coffee stations against exhibition hall wall with hand sink.</p> <p>HW, CW, drains</p> <p>Provide floor drains at coffee and ice station locations</p>
Lighting	Ceiling hung fluorescent luminaire. 30 fc AFF
Audio/Visual	House PA
Data/Telecom	Provide one (1) Cat.6A data and voice cable outlets every 60'-0"
Acoustics	Provide noise isolation to adjacent Exhibit Hall (E-1) at STC 55
Windows	Not required; day lighting is desirable
Doors	Provide two (2) 12'-0" wide x 14'-0" high metal doors to two main divisions of the exhibit hall. Provide one (1) 8'-0" wide x 10'-0" high metal door to the third main hall subdivision. These can be either sliding or roll-up doors. Quiet-type man doors to be located next to roll-up doors. Include sliding finish panel in exhibit hall to cover service door when in closed position. Use corner guards.
Finishes	<p>Floor: sealed concrete</p> <p>Walls: CMU with guardrails and corner guards</p> <p>Ceiling: exposed to structure; coordinate with health department requirements</p>
Casework	None
FF&E	<p>Coffee-making units; Glass and cup racks (mobile)</p> <p>Food carts (Queen Mary's)</p> <p>Freight, fork lifts</p>

Function	For the mobilization and sorting of the waste stream from the facility.
Area (SF)	1 @ 300 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 12'-0"
Adjacencies	Adjacent to service corridor; near loading dock and dumpsters
Security	None
Structural	150 psf
HVAC	VAV
Electrical	One (1) 20A, 120V, NEMA 5-20R convenience outlet for maintenance
Plumbing	CW hose bib and floor drain
Lighting	Ceiling hung fluorescent luminaire. 30 fc AFF
Audio/Visual	None
Data/Telecom	None
Acoustics	
Windows	Not required
Doors	6'-0" wide opening with double hung hollow metal doors
Finishes	Floor: sealed concrete Walls: CMU with guardrails and corner guards Ceiling: exposed to structure
Casework	None
FF&E	Trash bins and barrels

Function	Unisex restrooms for use by back-of-house personnel
Area (SF)	2 @ 80 SF = 160 SF
Occupancy	Event staff, exhibitors and other service personnel
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Back-of-house service corridor
Security	None
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF; Maintain room with negative pressure
Electrical	One (1) 20A, 120V, NEMA 5-20R, duplex receptacle for house keeping One (1) GFI receptacles at lavatory
Plumbing	1 WC 1 lavatory Domestic CW and HW Floor drain near WC Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror; 20 fc at mirror, 10 fc average
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Mirror above lavatory Hand dryer, waste disposal

Function	Maintenance support of restroom clusters; storage of cleaning materials/tools for restrooms
Area (SF)	2 @ 40 SF each = 80SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Men's and women's restrooms
Security	lockable
Structural	100 psf
HVAC	Exhaust: 1.5 cfm
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20 receptacle for housekeeping
Plumbing	HW and CW; janitor's mop sink; floor drain
Lighting	Suspended industrial fluorescent luminaire. 20fc at 30" AFF.
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: sealed concrete Walls: CMU/ moisture-resistant GWB, epoxy paint Ceiling: ACT or exposed to structure
Casework	None
FF&E	Storage shelving for cleaning materials; cleaning equipment

Function	For storage of air walls when not deployed to divide exhibit hall spaces
Area (SF)	Multiple storage pockets; total SF approximately 400 SF. Coordinate area requirements and other criteria with air wall manufacturer.
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Per air wall manufacturer; varies according to height of partition
Adjacencies	Exhibit hall; lower level multi-purpose meeting room if included as Add Alternate
Security	None
Structural	Hanging load and deflection limits per air wall manufacturer
HVAC	None
Electrical	1 each, 20A, 120V, duplex, NEMA 5-20R on wall
Plumbing	None
Lighting	1 each, wall mount, strip fluorescent, local control
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements; provide noise isolation between adjacent spaces at ceiling
Windows	None
Doors	per air wall manufacturer
Finishes	Floor: same as adjacent assembly space Walls: GWB; extend upwards above track to isolate one hall division from another. Ceiling: exposed
Casework	None
FF&E	Air walls

Function	For main electric switch gear, distribution panels, meters. Main electrical feed from street enters this room.
Area (SF)	1 @ 375 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum = 9'-0"
Adjacencies	Back-of-house service corridor
Security	Lockable
Structural	100 pf
HVAC	Ventilation and freeze protection
Electrical	480Y/277V, 1200A service and switch boards, 480-208Y/120V transformers and distribution panels
Plumbing	none
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF.
Audio/Visual	none
Data/Telecom	One (1) RJ45 data outlet
Acoustics	no special requirements
Windows	none
Doors	Hollow metal
Finishes	Floor: concrete Walls: CU/GWB Ceiling: exposed to structure
Casework	none
FF&E	none

Function	Distributed around the building for electrical sub-panels
Area (SF)	Multiple; total 375 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum = 8'-0"
Adjacencies	As required for electrical engineering requirements and efficiency
Security	lockable
Structural	100 psf
HVAC	
Electrical	Provide 480Y/277V panel boards for power and lighting, 208Y/120V panel boards for receptacles and incandescent lighting. Provide 150 kVA, 208Y/120V step down transformer and panel boards for exhibitor floor boxes.
Plumbing	None
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF. Half on emergency power.
Audio/Visual	none
Data/Telecom	none
Acoustics	No special requirements
Windows	none
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU/GWB Ceiling: exposed to structure, or GWB
Casework	none
FF&E	none

Function	For main servers and other IT equipment; storage of IT equipment and parts used elsewhere in the facility
Area (SF)	1 @ 375 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Back-of-house service corridor
Security	lockable
Structural	100 psf
HVAC	VAV 24 x 7 hour cooling
Electrical	20A, 120V, duplex, NEMA 5-20R on walls at 7'-6" centers
Plumbing	None
Lighting	Industrial strip fluorescents, 50 fc at 30" AFF; half on emergency power.
Audio/Visual	None
Data/Telecom	Two (2) RJ45 data outlets
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU/GWB Ceiling: GWB or exposed to structure
Casework	None
FF&E	Equipment racks, computer servers, IT switch gear

Function	For IT switches and panels
Area (SF)	Multiple locations throughout the facility; total = 375 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum = 8'-0"
Adjacencies	As required
Security	Lockable
Structural	100 psf
HVAC	VAV
Electrical	20A, 120V, duplex, NEMA 5-20R on each wall
Plumbing	None
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF
Audio/Visual	None
Data/Telecom	Two (2) RJ45 data outlets
Acoustics	no special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU/GWB Ceiling: GWB
Casework	None
FF&E	Computer switch gear, cabling, panels

Function	Provide indoor space for pumps and compressors, domestic HW tank and other mechanical and plumbing equipment. The sizing of this space is based on the assumption that there are roof top HVAC units.
Area (SF)	375 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Minimum ceiling height: 11'-0"
Adjacencies	Back-of-house service corridor
Security	Lockable
Structural	100 psf
HVAC	
Electrical	480Y/277V for equipment and lighting, 208Y/120V for controls and receptacles
Plumbing	CW and floor drain
Lighting	Industrial strip fluorescents in work areas. 30 fc average at 30" AFF. Half on emergency power.
Audio/Visual	None
Data/Telecom	One (1) RJ45 data outlet
Acoustics	Isolate noise leakage to public spaces.
Windows	None
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU or precast Ceiling: exposed to structure
Casework	None
FF&E	None

Function	Multi-purpose office to be staffed on an as-needed basis. For dock master when freight delivery or pick-up operations are underway. This office is the point of contact for all shipping deliveries to the FCEC. Also used as necessary by maintenance staff.
Area (SF)	1 @ 200 SF
Occupancy	2 people
Key Dimensions and Proportions	Vertical: minimum = 8'-0"
Adjacencies	Back-of-house service corridor; near storage and loading dock
Security	Lockable door
Structural	100 psf live load
HVAC	VAV
Electrical	3 each, 20A, 120V, duplex NEMA 5-20R outlets on wall
Plumbing	None
Lighting	Recessed fluorescent strip lighting, 50 fc at desk, half on emergency power
Audio/Visual	None
Data/Telecom	Two (2) CAT 6A Tele/data RJ45 outlets on walls
Acoustics	no special requirements
Windows	Desirable but not necessary
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU/GWB Ceiling: GWB
Casework	None
FF&E	Work table, desks, chairs, file cabinets, plan rack

Function	For house PA amplifiers and temporary AV equipment used in the center. Used for recording of sessions.
Area (SF)	1 @ 120 SF
Occupancy	2 people
Key Dimensions and Proportions	Vertical: minimum = 8'-0"
Adjacencies	Back-of-house service corridor
Security	Lockable door
Structural	100 psf live load
HVAC	VAV
Electrical	6 each, 20A, 120V, duplex NEMA 5-20R outlets on wall; isolated ground
Plumbing	None
Lighting	Fluorescent strip lighting, 50 fc at desk, half on emergency power
Audio/Visual	Provide AV cabling to exhibit hall subdivisions and one truck position
Data/Telecom	Six (6) CAT 6A Tele/data RJ45 outlets on walls
Acoustics	no special requirements
Windows	none
Doors	Hollow metal
Finishes	Floor: concrete Walls: CMU/GWB Ceiling: GWB
Casework	None
FF&E	Equipment racks, amplifiers, AV equipment

Function	For use by first responders when there is an emergency involving activation of the fire alarm system.
Area (SF)	1 @ 100 SF
Occupancy	No permanent occupancy; Fully equipped fire fighters
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Provide easy direct access from outside the building
Security	lockable
Structural	100 psf
HVAC	VAV
Electrical	1 each, 20A, 120V, duplex, NEMA 5-20R on each wall
Plumbing	none
Lighting	Recessed linear fluorescents, 50 fc at 30" AFF; half on emergency power
Audio/Visual	None
Data/Telecom	One (1) Cat. 6A RJ-45 data/tel outlet box
Acoustics	no special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: concrete Walls: GWB Ceiling: GWB
Casework	None
FF&E	Fire annunciation panels and switches

Function	For the completion of food preparation begun in the main kitchen in the existing Radisson hotel. Food will be brought to this space in bulk, and then plated here. It is not anticipated that cooking will take place here except for incidental use of the 4-burner range/oven.
Area (SF)	1 @ 800 SF
Occupancy	ca. 15-20
Key Dimensions and Proportions	Vertical: minimum 10'-0"
Adjacencies	<p>Directly accessible to ware washing, walk-in refrigerator and back-of-house service corridor; near elevator accessing service bridge across Lawrence.</p> <p>Provide one (1) adjacent exterior truck dock and parking position (for max. 20' long truck). This will be used for beverage deliveries and other F&B items that do not need to be delivered to the main kitchen at the Radisson.</p>
Security	None
Structural	150 psf
HVAC	Exhaust: 3 CFM/SF; Make-up: tempered 2.5/CFM/SF; kitchen grease exhaust 200 cfm.
Electrical	480Y/277VV and 208Y/120V for equipment as required. 20A, 120V, duplex, NEMA 5-20 outlets on wall at 15' on center. Provide 20A, 120V, simplex NEMA 5-20R ceiling-drop power for hotboxes
Plumbing	HW, CW, drains, floor drain, exhaust flue Sinks
Lighting	Industrial strip fluorescents, 30 fc at counter
Audio/Visual	None
Data/Telecom	House telephone; provide one (1) RJ45 data outlet
Acoustics	No special requirements
Windows	Not required; day lighting desirable
Doors	Double swing doors to service corridor
Finishes	<p>Floor: seamless flooring on concrete base</p> <p>Walls: CMU or GWB with moisture resistant paint</p> <p>Ceiling: GWB with moisture resistant paint</p>
Casework	None
FF&E	4-burner range/oven, stainless steel tables, hot boxes (Queen Mary's), grease exhaust fire suppression system

Function	For the storage of food items requiring refrigeration, such as pre-plated salads, deserts, dairy products, etc. Also serves as refrigeration for beer and wine.
Area (SF)	1 @ 200 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Directly accessible from satellite playing kitchen
Security	None
Structural	150 psf
HVAC	Per refrigerator manufacturer
Electrical	Per refrigerator manufacturer
Plumbing	CW, internal floor drain; condenser drain
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF
Audio/Visual	none
Data/Telecom	none
Acoustics	No special requirements
Windows	none
Doors	Lockable door with emergency release from inside
Finishes	Floor: seamless flooring on concrete base Walls: CMU or GWB with moisture resistant paint Ceiling: GWB with moisture resistant paint
Casework	none
FF&E	Food and beverage racks and carts

Function	For the secure storage of non-refrigerated alcoholic beverages
Area (SF)	1 @ 100 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Directly accessible from service corridor; near satellite plating kitchen
Security	none
Structural	150 psf
HVAC	VAV
Electrical	Six (6) 20A, 120V convenience duplex NEMA 5-20R outlets
Plumbing	CW, internal floor drain
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF
Audio/Visual	none
Data/Telecom	none
Acoustics	No special requirements
Windows	none
Doors	Lockable door
Finishes	Floor: concrete Walls: CMU or GWB with moisture resistant paint Ceiling: GWB with moisture resistant paint
Casework	none
FF&E	Beverage racks and carts

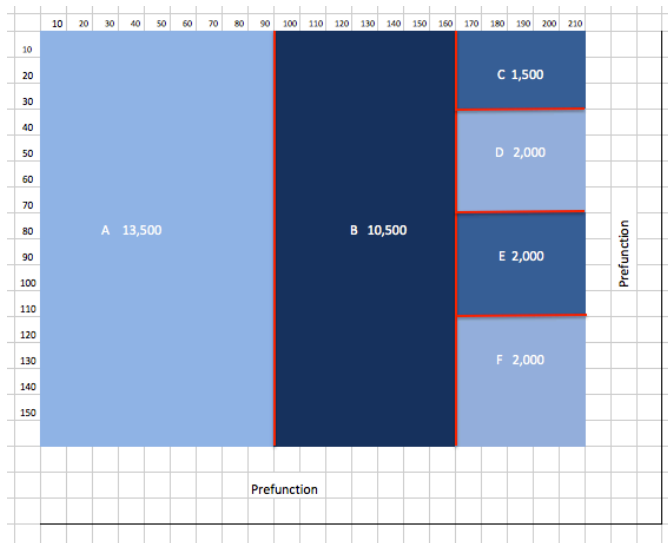
Function	For the cleaning and storage of dishes and tableware used in the exhibition hall. This will eliminate the need to take soiled dishes back to the central kitchen in the Radisson and return them for storage and set up in the FCEC. Can also be used for incidental storage of other items used in F&B operations such as linens, table accessories, etc.
Area (SF)	1 @ 400 SF
Occupancy	4-5 people
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Directly accessible from service corridor; adjacent to satellite plating kitchen
Security	none
Structural	150 psf
HVAC	Exhaust: 3 CFM/SF; Make-up: tempered, 2.5 CFM/SF. Maintain at negative pressure
Electrical	Six (6) 120V duplex NEMA 5-20R convenience outlets
Plumbing	HW, CW, internal floor drain Gas-fired booster water heater
Lighting	Industrial strip fluorescents, 30 fc at 30" AFF
Audio/Visual	None
Data/Telecom	None
Acoustics	Isolate noise from assembly areas in building
Windows	None
Doors	Lockable door
Finishes	Floor: concrete with applied seamless epoxy coating Walls: CMU or GWB with moisture resistant paint Ceiling: GWB with moisture resistant paint
Casework	None
FF&E	Dish and ware racks

Function	Multi-purpose, dual bridge: Single bridge connecting Radisson north/south public corridor adjacent to Ballroom over Lawrence Street to new exhibition hall complex. Also provides separate service access connecting Radisson service corridor to FCEC's back-of-house service corridor.
Area (SF)	Approximately 1,600 SF
Occupancy	10 SF/person
Key Dimensions and Proportions	Width: minimum 10'-0" for each portion (public and service)
Adjacencies	Public circulation at exhibition center and Radisson Service circulation at exhibition center and Radisson
Security	CCTV in public area
Structural	150 psf
HVAC	VAV
Electrical	Four (4) 20A, 120V, duplex, NEMA 5-20R at 30'-0" o.c., staggered on opposite walls.
Plumbing	None
Lighting	Recessed, linear fluorescents at ceiling, 20 fc at 30" AFF, half on emergency power if provided.
Audio/Visual	None
Data/Telecom	None
Acoustics	no special requirements
Windows	Required; provide for views from/to the bridge on the public side
Doors	Automatic double swing doors at each end of bridge
Finishes	Public side: Floor: carpet Walls: exterior glazing; masonry or tile base Ceiling: metal panel Service side: Floor: concrete Walls: GWM with guard rail Ceiling: GWB
Casework	None
FF&E	None

ADD ALTERNATES

Given the budget constraints of this project, certain amenities that would be desirable to have in the project are being identified as “Add Alternates” so that decisions about including them or not in the project can be based on a cost/benefit analysis that includes isolating the individual cost of each. These add alternates fall into the following categories:

1. Lower (Park) Level Multi-Purpose Room and Support Spaces, including access to Jones Park and terraced landscaping (see Program spaces M-1 through M-5). It is anticipated that the elevation of this multi-purpose room would still be above the base level of Jones Park. The volume of this space would take advantage of the site’s existing topography. These spaces are described on room data sheets beginning with M-1.
2. Extended vertical circulation down to lower level of Jones Park. This would allow access to the lower level of Jones Park, and would facilitate holding FCEC-related events in the park. The vertical circulation elements would be a downward extension of those provided for accessing the multi-purpose room (Item #1 above). This solution will require additional retaining walls.
3. Division by air walls of Main Hall into 6 instead of 3 Sub-Spaces, using the configuration diagrammed below. This hall division will increase the FCEC’s market penetration, improve flexibility, allow some meetings to take place adjacent to exhibits, and increase the overall ability of the FCEC/Radisson complex to accommodate multiple simultaneous events.



4. Central Plant in place of Roof-top Air Handling Units. While this solution requires a slight increase in constructed enclosed space, it results in a cleaner roof with less dead weight, and avoids the maintenance and repair challenges of roof-top units. It may also help with securing the LEED goals for the project.
5. Carpeted Exhibit Hall in lieu of exposed finished concrete. This will make the hall more multi-purpose, reduce set-up time, and improve acoustics and aesthetics. Rolling stock and load-in/load-out practices can be implemented to accommodate the heavier exhibit needs of the space.

6. Two bridges across Lawrence Street, one public and one service (with commensurate elimination of the upper level service corridor). Instead of one combined wide public/service bridge, this alternative will allow a more direct service access to be created, reducing the overall length of travel between the Radisson's central kitchen and the satellite plating kitchen. This alternative will also result in a more aesthetically pleasing public bridge that in this case would be able to have exterior glazing on both of its exterior sides.
7. Electronic Signage System in just the FCEC, or ideally, including the Radisson as well. This system would have programmable information displayed on screens outside each assembly/meeting room space. Event schedules, speaker information, exhibitor and sponsor advertisements and other event-related information can be displayed by programming on a single central computer. Such a system will help to unify the FCEC and Radisson into a single operation.
8. Emergency Generator to power life safety features in the FCEC, including lighting, PA system and other emergency systems. Can also power elevators and communications systems, but is not intended to allow for the full continued operation of the facility.
9. LEED® Gold Certification - This Add Alternate, going beyond the required LEED Silver certification level, would result in additional energy saving and other features throughout the facility, some of them visible to the public, and others hidden from view.
10. Escalators – Alternate to add two (2) escalators for simultaneous travel in both directions in lieu of having single escalators operating in alternate directions based on traffic flow.

Function	Meetings, receptions, food and beverage service, VIP events, and other types of support of activities in adjacent Jones Park
Area (SF)	1 @ 2,000 SF
Occupancy	10 SF/person = 200 people max.
Key Dimensions and Proportions	Proportions of overall room and its subdivisions shall not exceed a 2:1 length to width ratio. Two subdivisions @ 1,000 SF each = 2,000 SF Vertical: 14'-0" minimum
Adjacencies	Pre-function area; Jones Park; possible external patio
Security	Lockable
Structural	150 psf
HVAC	VAV maximum box size 2500 CFM
Electrical	30A, 208Y/120V, NEMA L21-30R receptacles on each hard wall. 20A, 120V duplex NEMA 5-20R outlets spaced 15'-0" o.c. on walls. Avoid floor boxes. Access to 100A, 208Y/120V company switch.
Plumbing	None
Lighting	Troffers and compact fluorescent down lights, dimmable, maximum 50 FC at 30" AFF. Controlled by DALI.
Audio/Visual	None
Data/Telecom	One (1) RJ45 data wall outlet for each hard wall
Acoustics	Reverberation time < .75 seconds
Windows	Required
Doors	Wooden doors to pre-function; possible French or sliding door to exterior patio
Finishes	Floor: carpeted Walls: GWB on lower portion with acoustic panels above; chair rail Ceiling: ACT with integrated HVAV, lighting and PA systems
Casework	None
FF&E	Tables, chairs, lectern

Function	Lobby and pre-function space in support of the adjacent multi-purpose room
Area (SF)	1 @ 500 SF
Occupancy	10 SF/person = 50 people max.
Key Dimensions and Proportions	Vertical: 10'-0" minimum
Adjacencies	Multi-purpose room; possible external patio
Security	None
Structural	150 psf
HVAC	<i>Constant volume</i>
Electrical	Provide 20A, 120V NEMA 5-20R outlets at 15'-0" o.c.
Plumbing	None
Lighting	Custom, DALI based lighting system. Provide up lighting to ceiling and wall washing effects. Integrate lighting control with day lighting sensors. 30 fc average at 30" AFF.
Audio/Visual	None
Data/Telecom	Two (10) data RJ45 wall outlets House phone outside door to multi-purpose room
Acoustics	
Windows	Required
Doors	Wooden doors to multi-purpose room; Metal doors to exterior
Finishes	Floor: carpeted Walls: GWB on lower portion with acoustic panels above; chair rail Ceiling: ACT with integrated HVAV, lighting and PA systems
Casework	None
FF&E	Portable furniture set up on an event-by-event basis

Function	Men's restrooms for use by users of the lower level multi-purpose room.
Area (SF)	1 @ 120 SF Size based on a maximum of 100 male occupants in the adjacent multipurpose room, therefore requiring a total of 2 water closets/urinals and 1 lavatory.
Occupancy	Attendees, and support staff
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Pre-function area; janitor's closet
Security	None
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF. Maintain room with negative pressure
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20R receptacle for house keeping One (1) GFI receptacles at lavatory
Plumbing	1 urinal, 1/8 th gal flush 1 WC 1 lavatory Domestic CW and HW Floor drain near WC Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror. 20 fc at mirror, 10 fc average
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Wooden
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Toilet partitions: metal Mirror above lavatories Hand dryer, waste disposal

Function	Women's restrooms for use by users of the lower level multi-purpose room.
Area (SF)	1 @ 160 SF Size based on a maximum of 100 female occupants in the adjacent multipurpose room, therefore requiring a total of 2 water closets and 1 lavatory.
Occupancy	Attendees and support staff
Key Dimensions and Proportions	Vertical: minimum height = 8'-0"
Adjacencies	Pre-function area; janitor's closet
Security	None
Structural	100 psf
HVAC	Exhaust: 3 CFM/SF; Maintain room with negative pressure
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20R receptacle for house keeping One (1) GFI receptacles at lavatory
Plumbing	2 WC's 1 lavatory Domestic CW and HW Floor drain near WC Battery powered IR sensors
Lighting	Recessed compact fluorescent down lights in ceiling; Strip fluorescent luminaire in cove above mirror. 20 fc at mirror, 10 fc average
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Wooden
Finishes	Floor: ceramic tile Walls: ceramic tile (lower section) and painted moisture-resistant GWB (upper section) Ceiling: Moisture-resistant GWM All finishes to be durable and easy to clean
Casework	Lavatory counter
FF&E	Toilet partitions: metal Mirror above lavatories Hand dryer, waste disposal

Function	Maintenance support of adjacent restroom; storage of cleaning materials/equipment for restrooms
Area (SF)	1 @ 40 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Men's and women's restrooms
Security	Lockable
Structural	100 psf
HVAC	Exhaust: 1.5 cfm
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20 receptacle for housekeeping
Plumbing	HW and CW; janitor's mop sink; floor drain
Lighting	Suspended industrial fluorescent luminaire. 20fc at 30" AFF.
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: sealed concrete Walls: CMU/ moisture-resistant GWB, epoxy paint Ceiling: ACT or exposed to structure
Casework	None
FF&E	Storage shelving for cleaning materials; cleaning equipment

Function	For the storage of furniture used in the adjacent multi-purpose room
Area (SF)	1 @ 200 SF
Occupancy	No permanent occupancy
Key Dimensions and Proportions	Vertical: minimum 8'-0"
Adjacencies	Multi-purpose room
Security	Lockable
Structural	100 psf
HVAC	VAV
Electrical	One (1) 20A, 120V, duplex, NEMA 5-20 receptacle for housekeeping
Plumbing	None
Lighting	Suspended industrial fluorescent luminaire. 20fc at 30" AFF.
Audio/Visual	None
Data/Telecom	None
Acoustics	No special requirements
Windows	None
Doors	Hollow metal
Finishes	Floor: sealed concrete Walls: CMU and/or GWB Ceiling: exposed to structure
Casework	None
FF&E	Furniture racks; tables and chairs

Function	Connects Radisson's existing back-of-house service corridor with new FCEC back-of house-service corridor. Connected by elevators at each end. With this add alternate second bridge the other bridge would be for the public only, and the upper level service corridor would be eliminated.
Area (SF)	1 @ ca. 1,600 SF
Occupancy	10 SF/person
Key Dimensions and Proportions	Width: minimum 10'-0" Height: 8'-0"
Adjacencies	Service circulation areas at exhibition center and Radisson
Security	No CCTV
Structural	150 psf
HVAC	VAV
Electrical	20A, 120V, duplex, NEMA 5-20R at 15 centers staggered on walls.
Plumbing	None
Lighting	Recessed, linear fluorescents at ceiling, 20 fc at 30" AFF, half on emergency power
Audio/Visual	None
Data/Telecom	None
Acoustics	no special requirements
Windows	No direct view into bridge is desirable; clerestory lighting is desirable
Doors	Manual double swing doors at each end of bridge
Finishes	Floor: concrete Walls: GWB with chair rail protector; possible clerestory windows Ceiling: GWB
Casework	None
FF&E	None

EXTERIOR SPACE

While it is expected that the FCEC's footprint will take up most of the available site, the careful development of the small amount of exterior site development is a critical part of the project. Exterior space for this project on the selected site falls into the following categories:

Public Entries/ Pick-up and Drop-off Zone along Lawrence Street – The FCEC will have multiple entrances. This zone has to function for vehicles that temporarily pull over on either side of Lawrence going either east or west to discharge or pick-up passengers, pedestrians crossing at grade between the FCEC and the Radisson, and periodically, exhibitors who are parking in a dedicated non-traffic lane over a short term to take their exhibits in through an entry door leading to the back-of-house service corridor. This public realm should be user friendly with appropriate weather-protecting roof overhang, street furniture, lighting and signage. A traffic calming strategy should be explored at Lawrence Street, perhaps by a special, wide pedestrian treatment of the road surface between the Radisson and main entrance of the FCEC. A marquee programmable digital sign should be considered for this area.

Service Entries and Buffers to Surrounding Development - An architectural or landscape buffer to the nearby church on the north side of Lawrence should be considered if it is necessary to screen any of the back-of-house service functions that may face this direction. It is not anticipated that buffers to Elm or 8th Street will be required; Elm Street will require a sidewalk, and access to the back-of-house service corridor should be provided here for exhibitors who are bringing in light exhibits to the facility.

Truck Movement and Parking Areas - To accommodate the load in and out of exhibit materials, the dimensions, turning radii and configuration of the truck apron near the loading docks is critical. Each of the three docks will have to accommodate up to 65' tractor trailer rigs, and it would be ideal if there were several parking positions for smaller trucks, although these do not have to be dock positions. It is anticipated that the FCEC will provide no public parking on-site. Successful solutions for positive drainage, easy snow removal, artificial night lighting and direct indoor/outdoor access are critical in this exterior area.

Park Open Space – The FCEC needs to engage and interact with Jones Park, not simply ignore it. The eastern side of the FCEC will interface to some extent with the slope on the western side of Jones Park. Preservation of this slope with minimal construction is desirable, but may not be fully possible. The objective is to make the relationship between the new center and the Jones Park feel as natural and poetic as possible, and there are many design strategies available to achieve this. An additional goal of the project is to have the FCEC be regarded as a positive contributor to the transition between the downtown (College Avenue) and Jones Park.

SUSTAINABILITY

As a minimum, the FCEC will seek USGBC LEED® Silver certification through the design and construction process. The following draft of the LEED scorecard shows a preliminary approach as to how this can be achieved for this project.



LEED 2009 for New Construction and Major Renovation Project Checklist

PRELIMINARY

Proposed Fox Cities Exhibition Center (FCEC)
3/9/2012

18	2	6	Sustainable Sites	Possible Points: 26
Y	N	T		
Y			Prereq 1 Construction Activity Pollution Prevention	
1			Credit 1 Site Selection	1
5			Credit 2 Development Density and Community Connectivity	5
1			Credit 3 Brownfield Redevelopment	1
6			Credit 4.1 Alternative Transportation—Public Transportation Access	6
1			Credit 4.2 Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3 Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4 Alternative Transportation—Parking Capacity	2
1			Credit 5.1 Site Development—Protect or Restore Habitat	1
1			Credit 5.2 Site Development—Maximize Open Space	1
1			Credit 6.1 Stormwater Design—Quantity Control	1
1			Credit 6.2 Stormwater Design—Quality Control	1
1			Credit 7.1 Heat Island Effect—Non-roof	1
1			Credit 7.2 Heat Island Effect—Roof	1
1			Credit 8 Light Pollution Reduction	1

6				4				Water Efficiency				Possible Points: 10	
Y		N		T		P		Prereq 1					
4								Credit 1		Water Use Reduction—20% Reduction		2 to 4	
2								Credit 2		Water Efficient Landscaping		2	
2								Credit 3		Innovative Wastewater Technologies		2 to 4	
2								Credit 3		Water Use Reduction		2 to 4	

10	25	Energy and Atmosphere	Possible Points: 35
Y		Prereq 1 Fundamental Commissioning of Building Energy Systems	
Y		Prereq 2 Minimum Energy Performance	
Y		Prereq 3 Fundamental Refrigerant Management	
3	16	Credit 1 Optimize Energy Performance	1 to 19
7		Credit 2 On-Site Renewable Energy	1 to 7
2		Credit 3 Enhanced Commissioning	2
2		Credit 4 Enhanced Refrigerant Management	2
3		Credit 5 Measurement and Verification	3
2	2	Credit 6 Green Power	2

7	4	3	Materials and Resources	Possible Points: 14
Y	N	T		
Y			Prereq 1 Storage and Collection of Recyclables	
3			Credit 1.1 Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
1			Credit 1.2 Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2 Construction Waste Management	1 to 2
2			Credit 3 Materials Reuse	1 to 2

Y	N	T	Materials and Resources, Continued	Possible Points: 15
2			Credit 4 Recycled Content	1 to 2
2			Credit 5 Regional Materials	1 to 2
1			Credit 6 Rapidly Renewable Materials	1
1			Credit 7 Certified Wood	1

9	2	4	Indoor Environmental Quality	Possible Points: 15
Y	N	T		
Y			Prereq 1 Minimum Indoor Air Quality Performance	
Y			Prereq 2 Environmental Tobacco Smoke (ETS) Control	
1			Credit 1 Outdoor Air Delivery Monitoring	1
1			Credit 2 Increased Ventilation	1
1			Credit 3.1 Construction IAQ Management Plan—During Construction	1
1			Credit 3.2 Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1 Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2 Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3 Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4 Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5 Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1 Controllability of Systems—Lighting	1
1			Credit 6.2 Controllability of Systems—Thermal Comfort	1
1			Credit 7.1 Thermal Comfort—Design	1
1			Credit 7.2 Thermal Comfort—Verification	1
1			Credit 8.1 Daylight and Views—Daylight	1
1			Credit 8.2 Daylight and Views—Views	1

4	2	Innovation and Design Process	Possible Points: 6
	1	Credit 1.1 Innovation in Design: EAc3 - EP for envelope commissioning	1
1		Credit 1.2 Innovation in Design: MRc2 - EP for 95% waste diversion	1
1	1	Credit 1.3 Innovation in Design: MRc4 - EP for 30% or more recycled content	1
1		Credit 1.4 Innovation in Design: MRc5 - EP for 30% or more regional materials	1
1	1	Credit 1.5 Innovation in Design: possible of 5 pts for innovation	1
1		Credit 2 LEED Accredited Professional	1

2	2	Regional Priority Credits	Possible Points: 4
	1	Regional Priority: 55c2 - development density	1
	1	Regional Priority: 55c4.2 - bicycle storage & showers	1
	1	Regional Priority: 55c4.4 - parking capacity (no new parking added)	1
	1	Regional Priority: WEC-3 water use reduction by 30%	1

56	8	46	Total	Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

GRAPHICS AND SIGNAGE

The graphics and signage system at the FCEC will consists of several typologies:

- building identification signage
- room identification signs
- way finding signs
- event-specific signage (schedule, sponsorship, advertising, etc.)

The first two categories of signage will be permanent, attached to the building, while the later is temporary and changes on an event-by-event basis. There is a strong need for the signage system currently used in the Radisson to be upgraded in a manner that develops a unified signage system for the entire facility. With a unified approach to signage, attendees will have a stronger sense of the integration of the hotel and FCEC, and the overall successful identity and branding of the facility will be more achievable.

ARTWORK

While the scope and process for a public art program has not yet been defined for this project, several important principles should guide the program. It is important that artist(s) be selected early in the design process and work closely with the design team so that the art installations can be integrated with and not merely additive to the building.

SYSTEM DESCRIPTIONS

HVAC

DESIGN CRITERIA

CODES AND STANDARDS

The HVAC systems will be designed to conform, as a minimum, to the following codes and standards:

- International Building Code (IBC)
- International Mechanical Code
- Wisconsin Administrative Code
- Appleton Municipal Code
- Energy Code - ASHRAE 90.1
- The National Fire Protection Association (NFPA).
- American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE).
- American Society for Testing and Materials (ASTM).
- American National Standards Institutes (ANSI).
- Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).
- American Society of Mechanical Engineers (ASME).
- Air Conditioning and Refrigeration Institute (ARI).
- U. S. Green Building Council, LEED Reference Guide, Version 2009

CLIMATE

The HVAC systems design will be based on the following climatic factors:

- Outdoor Temperatures (Based on the 0.4% design temperatures ASHRAE Climatic Data for Green Bay, WI).
- Summer: 88°F DB, 73 °F WB.
- Winter: -13°F DB

SPACE CONDITIONS

Indoor Design Temperatures:

All occupied in the building:

- Summer: 72°F - 78°F.

- Winter: 65°F - 72°F.

- No humidification

Unoccupied Conditioned Areas:

Electrical rooms, elevator machine rooms, and mechanical rooms.

- Summer: 85°F, Winter: 55°-60° F

- No humidity control

A/V control room:

- Summer: 75 °F

- Winter: 72°F

Other Areas:

- Heating and ventilation as required

VENTILATION REQUIREMENTS

- Public areas - Assume that the FCEC is a non-smoking building.

Outside air: Per ASHRAE 62.1-2010 for positive pressurization.

○ Exhibition Hall	7.5 CFM/person*
○ Ballroom	7.5 CFM/person*
○ Meeting Rooms	7.5 CFM/person*
○ Corridors	0.5 CFM/Square foot
○ Offices	20 CFM/person

* Variable occupancy per ASHRAE 62.1- 2004, para. 6.2.6.2, Table 6-1, Note 4.

Toilets: 12 air changes per hour or 3 CFM/SF

FILTRATION

- Air-conditioned areas:

- 25% pre-filters

DESIGN OCCUPANCY (FOR MECHANICAL DESIGN)

- Exhibit Halls

- 25 SF/person. (life safety exiting is based on 10SF/person)

- Meeting Rooms

- 15 SF/person
- Offices
 - 100 SF/person
- Lobbies, Registration, Pre-function areas
 - 20 SF/person
- Plating kitchen
 - 200 SF/person

OCCUPANCY SCHEDULES

Depending on show schedule; can be 7 a.m. to 1 a.m. the following morning, seven days per week. There will be intermittent occupancy beyond the design values shown above. Occupancy may vary from 5% to 100% of capacity on any given day.

LIGHTING AND EQUIPMENT LOADS

The following lighting and equipment loads shall be used for the design of the air conditioning system:

- Exhibit Hall:

Lights	1.6 watts/SF
Equipment	6 watts/SF
- Meeting Rooms:

Lights	1.8 watts/SF
Equipment	3 watts/SF
- Administration:

Lights	1.5 watts/SF
Equipment	2 watts/SF
- Lobbies, Concourse and Pre-function Areas:

Lights	3 watts/SF
Equipment	2 watts/SF
These vary, but the sum is about 5W/SF.	
- Other Areas: as required

A diversity factor will be figured into the calculation of air handling unit cooling capacities, e.g.: pre-function space will not have maximum number of people load coinciding with the time of maximum solar gain.

VENTILATION

Ventilation is provided by exhaust fans discharging to atmosphere or fan coils for the following areas:

- Toilets and locker rooms
- Mechanical equipment rooms
- Electric equipment rooms
- Electric closets
- Storage areas

EXHAUST

Toilets rooms
Plating kitchen
Exhibit hall set-up

SMOKE CONTROL

Roof hatches will be provided for smoke control.

NOISE CONTROL

The systems will be designed to meet the noise criteria indicated (these levels should be verified with acoustical consultant during design phase).

Exhibit Hall	NC 35-45
Meeting rooms	NC 35-40
Service/Support Area	NC 40-45
Offices/Administration	NC 25-30
Lobbies/Pre-function/Public Circulation	NC 35-40
Back-of-House	NC 45

HVAC SYSTEM DESCRIPTION

THERMAL ENERGY

In lieu of a central plant, roof top HVAC units will be used.

The very modest amount of cooking in the satellite plating kitchen will be by gas. Portable concession stands will use electric heating for warming; cooking at the portable locations is not anticipated. Unit heaters will also be gas fired. Natural gas is not anticipated as a permanently installed exhibitor utility.

AIR DISTRIBUTION

The meeting rooms, lobbies, pre-function areas and administration areas are provided with variable air volume terminal units, thermostatically controlled by zones as required. These will be pressure independent, single inlet variable volume type with damper capable of varying volume from a maximum setting to a minimum setting of 40% (adjustable) to maintain airflow at low loads, for those terminals equipped with reheat coils. The conditioned air will be delivered into terminals via medium pressure insulated ductwork. Air is distributed through conventional square, round or rectangular ceiling diffusers and/or linear type diffusers depending on air quantity, ceiling type and space aesthetics. Air is supplied and returned at the ceiling level or possible at a low level in non-public spaces.

Since the exhibit hall will be divisible into smaller spaces, the supply air to the exhibit hall is distributed from exposed ductwork located within the exhibit hall truss system from variable air volume units. Return air will be collected from the truss area and will be routed back to the air handling units.

Velocities of duct mains will be approximately 1,800 FPM. Velocities on branch mains inside noise sensitive spaces, such as meeting rooms, will not exceed 1,000 FPM and recommendations of acoustical review.

NOISE CONTROL

Air Handling Units: All air handling units will be provided with duct linerboard on both the supply and return plenums. Ducts connection to the air handling units shall be provided with duct liner and sound traps as shown on table below:

Units serving area	Supply Duct lining	Supply silencer type	Return Duct Lining	Return Silencer Type
Exhibit Halls	All ducts	IAC 5 LFM	All ducts	IAC 5 LFM
Meeting rooms	50'	IAC 3 LFM	50'	IAC 3 LFM
Ballrooms	50'	IAC 3 LFM	40'	IAC 3 LFM

Note that this is a generic chart. Units with long supply or ducts probably may not need silencers.

Terminal Units: All terminal units will be sized for minimum pressure drop. A minimum of 10' lined duct will be provided between each terminal unit and the first diffuser served by that terminal unit.

Diffusers: Each diffuser in the exhibit halls will be provided with a separate branch with a balancing damper upstream a minimum of 5 times the least dimension of duct.

Return air transfer ducts: Acoustical return air transfer ducts will be provided for all return ducts crossing full height walls.

Vibration Isolation: All air handling units shall be provided with interior vibration isolation having a minimum static deflection of 2.0". The ductwork and pipes will have the same vibration isolation as the mechanical equipment it serves. The deflection of the duct and pipe isolator will be the same as the equipment for the first 3 hangers and half the deflection thereafter.

AIR HANDLING SYSTEMS

Supply air quantities delivered to the spaces will be based on either space thermal requirements or ventilation air requirements, whichever is larger.

The following areas will be served by constant air volume systems:

- Satellite kitchen areas
- Pre-function areas
- Lobbies and concourse areas

The following areas will be served by variable air volume systems:

- Exhibition hall
- Meeting room
- Office areas

Each air handling system will consist of a rooftop air handling unit containing supply and return air plenums, supply and return air fans, sound attenuating section, heating coil, cooling coil, mixing box, automatic dampers and an airside economizer capable of providing 100% outside air. Reheat will be added to systems as required to control humidity levels.

Areas having 24-hour air conditioning needs (control room, security, etc.) will be provided with split systems consisting of a fan coil unit in the room and a compressor/condenser package located on the roof.

Smoke ionization detectors will be installed where applicable, and located in path of supply and return air and as may be required by governing authority

Variable Frequency Drives: Will be provided for systems requiring variable speeds on motors 7-1/2 HP and larger. All motors will be premium efficiency motors.

EXHAUST VENTILATION

Ventilation will be provided by centrifugal exhaust fans collecting the air at or near the ceiling level and discharging to the atmosphere.

Generally, make-up air for toilet exhaust, electrical closets, and elevator machine rooms will be drawn from the adjacent areas.

WATER PIPING

Piping systems includes chilled water, heating hot water, condensing water, condensate drains, indirect drains from equipment and relief valves.

Piping sizes are based on the following maximum gallons per minute flow rate:

PIPING SIZING TABLE			
SIZE	GPM FLOW	VELOCITY FPS-MAX.	MAX. PRESSURE DROP FT/100 FT
3/4"	4	2.4	6.9
1"	8	3.0	7.7
1-1/4"	16	3.4	7.3
1-1/2"	24	3.8	7.3
2"	50	4.8	8.5
2-1/2"	80	5.4	8.5
3"	150	6.8	9.5
4"	300	7.6	9.1

PIPING SIZING TABLE			
SIZE	GPM FLOW	VELOCITY FPS-MAX.	MAX. PRESSURE DROP FT/100 FT
6"	700	8.0	6.3
8"	1300	8.3	4.9
10"	1900	7.8	3.3

*3/4" is minimum pipe size except at equipment connections.

Swing joints, bends, offsets or expansion loops will be specified to account for expansion and contraction in piping systems. Appropriate anchors and guides will also be included.

Valves will be provided for isolation of major areas, at inlet and outlet of each piece of equipment, on all branches serving more than one piece of equipment, for shut off of mains, on equipment drains and on each strainer. All drains shall be extended to a direct waste receptor. Valves for drains or flushing will be globe type.

Manual air vents and relief valve drain piping is provided as required for proper venting and pressure relief of each system, and extended to nearest drain receptor.

Thermometers and pressure gauges at inlet and outlet of each chiller and boiler will be provided.

Pressure and temperature test plugs at inlet and outlet of each air system coil, where piping from central system enters and leaves the facility, at inlet and outlet of pumps, and as required for test balance will be provided.

FREEZE PROTECTION

Required in Appleton for:

Utilities below occupied floors
Storage areas
Sprinklers
Air curtains at doors
Exposed hose bibs

ENERGY CONSERVATION

All systems will be designed to reduce the consumption of energy and operate as efficiently as possible. The project will be designed and constructed so as to achieve USGBC LEED® Silver certification.

Energy conservation features include the following:

- Air handling systems with full-air economizer operation provisions to permit "free cooling" when outside air temperatures are suitable.
- Variable air volume supply systems for areas with diverse utilization.

- Computer based automation system compatible with existing facility system for energy optimized operation of mechanical systems. Programs will include: Chiller optimization, economizer optimization, demand limiting, optimized start-stop of all equipment and actual occupancy planned programs, VAV controls, pump and fan speed controls, supply air temperature reset, etc.

ACCEPTABLE MANUFACTURERS

Air Handling Units	York, Trane, Carrier, McQuay
Air Distribution	Kruege, Titus
Pumps	Bell & Gossett, Paco, Taco
General Exhaust Fans	Cook, Greenheck
Controls	Johnson Controls – Metasys Seimens Controls Landis & Gyr Powers - System 600

Electrical

GENERAL

The building will receive power from the serving utility. One (1) 15KV class, 1000kVA, 480Y/277V, pad mounted transformer is anticipated to be provided by utility company to serve the building.

CODES AND STANDARDS

The electrical systems will be designed to conform, as a minimum, to the following codes and standards:

- National Electrical Code (NEC), 2011 Edition
- Wisconsin Electrical Code, current edition
- Underwriters' Laboratories, Inc., Standards for Safety (UL).
- National Fire Protection Association (NFPA -70).
- Illuminating Engineering Society (IES).
- Association of Edison Illumination Companies (AEIC).
- American Society of Testing and Materials (ASTM).
- Institute of Electrical and Electronic Engineers (IEEE).
- National Electrical Manufacturers Association (NEA).
- Occupational Safety and Health Act (OSHA).
- State Building Code, IBC 2009
- Energy Code – IECC 2009
- American National Safety Institute (ANSI)
- U. S. Green Building Council, LEED Reference Guide, Version 2009
- International Dark Sky Association (IDSA)

DESIGN PARAMETERS

The following lighting and floor power loads will be used for the design of the electrical distribution system:

Exhibition Hall:

Floor Power at 208Y/120V:

- 24 watts per square foot at the points of use 30' on center.
- 12 watts per square foot at distribution transformer.
- 6 watts per square foot at utility transformer

Exhibitor Power at 480Y/277V

- 5 watts per square foot distributed overhead, in truss space, 90 feet on center via receptacles or company switches or through bailout system

Exhibit Hall Lighting:

- 3 watts per square foot capacity.(target: 1.6 w/sf)
- 50 fc with at least three levels by switching.

Meeting Room:

- Floor Power: 3 watts per square foot.
- Lighting: 50 fc (target: 1.8 w/SF)

Exhibition Support:

- Floor Power: 1 watt per square foot.
- Lighting: 20 fc nominal (target: 0.6w/sf)

Storage/Operations:

- Floor Power: 1 watt per square foot.
- Lighting: 20 fc nominal (target: 0.6w/SF)

Plating Kitchen:

- Floor Power: 20 watts per square foot.
- Lighting: 50 fc nominal (target: 1.2w/SF)

Administrative and Other Offices:

- Floor Power: 2 watts per square foot.
- Lighting: 50 fc minimum. (target: 1.4w/SF)

Loading Dock:

- Floor Power: 1 watt per square foot at wall.
100A, 208Y/120V company switch
30A, 208Y/120V receptacle per two (2) dock spaces.
- Lighting: 20 fc nominal, with additional task light per dock space.

Mechanical/Electrical:

- Floor Power: 1 watt per SF
- Lighting: 20 fc minimum (target: 0.6w/SF)

Multi-Purpose Office/Box Office, Dock Office, Event Manager Office/First Aid:

- Floor Power: 2 watts per SF

- Lighting: 50 fc minimum. (target 1.4w/SF)

Lobbies, Pre-Function, Public Circulation:

- Floor Power: 4 watts per square foot.
- Lighting: 20 fc nominal for lobbies and circulation
50 fc nominal for pre-function (target: 1.1w/SF)

Service Access, Exiting:

- Floor Power: 1 watt per square foot.
- Lighting: 20 fc minimum (target: 0.6w/sf)

ELECTRICAL SYSTEMS DESCRIPTION

PRIMARY SERVICE

Service is anticipated to be provided by the serving utility by a 15kV class, 1000kVA, 480Y/277V, pad-mounted transformer. Metering and main 1200A, 480Y/277V switchboard will be in the main electrical room. No electrical power interconnection to the Radisson Hotel is anticipated.

NORMAL DISTRIBUTION

The one (1) 1200A, 480Y/277V main switchboard will distribute the power throughout the building for general lighting, power and HVAC equipment.

From the switchboards, power will be distributed as follows:

- 480Y/277 volt power to the panel boards for fluorescent and H.I.D. light fixtures.
- 480Y/277 volt power to the distribution boards serving meeting rooms and satellite kitchen area.
- 480 volt power to the motor control centers.
- 480 volt power to three 150 kVA, 480-208Y/120 volt dry-type transformers, to derive 208Y/120 volt for exhibit hall floor boxes usage.
- 208Y/120 volt power to receptacles and incandescent lighting.
- 208Y/120V power for company switches located near exhibit hall/meeting rooms and truck dock.
- Electrical rooms and closets will be located as near to the loads that they serve as practical.

EMERGENCY SERVICE: ADD ALTERNATE

In case of loss of normal power, emergency power will be provided by a 200 kW diesel engine-generator set. The emergency system will include complete fuel, cooling, exhaust and starting systems as well as automatic transfer switches and distribution equipment. Separate automatic transfer switches will be provided for life safety systems and for other emergency loads. It is recommended that the generator be housed indoors.

Equipment and systems connected to the emergency power system will include the following:

- Exit signs and egress lighting in corridors, stairwells and exit paths
- Portions of general lighting in parking, public, mechanical, and electrical equipment spaces
- Building automatic control system
- Motorized smoke and fire dampers
- Security systems
- Fire life safety system
- Fuel oil pump

- Operation of pre-selected elevator(s) per local fire department requirements
- Telephone system.
- Motorized fire doors.

LIGHTING DESIGN CONCEPTS

· Exhibition Hall:

The design pattern of the H.I.D. or fluorescent fixtures within the multi-purpose exhibition hall will be flexible enough to accommodate a range of exhibition conditions, including set-up, operation and tear-down circumstances. These ranges and considerations will include the following:

- A range of 25% minimum and 100% programmable illumination during exhibits and setup activities.
- Power and means of support for spot and floodlighting to supplement booth lighting, highlight special features and accent graphic communication systems.
- Lighting fixtures equipped with emergency restrike quartz lamp to have lighting control override capabilities for re-start of H.I.D. lamp sources.

· Meeting Room:

A variety of lighting conditions will be provided to satisfy the full range of meeting room functions as follows:

- Indirect/ambient, comfortable for most conditions, with less glare and shadowing.
- Down lighting, darker, more neutral and dimmable.
- Multi-outlet assembly for adjustable and removable accent lighting at head table locations with separate dimming control.
- Night time banquets, color corrected, social or candlelight levels.
- Instant restart capabilities for all levels.
- The lighting system will be organized with other services for maximum flexibility and efficiency.

· Public Restrooms:

- General illumination to be provided with fluorescent.
- Restroom lighting control will be infrared sensor switches and central lighting controls.
- Public telephone area lighting to be controlled by central lighting control system.

· Show Manager, Multi-Purpose/Box Office and Event Office/First Aid Room:

- General illumination will be provided by fluorescent luminaries with local control.

· Offices:

- General illumination will be provided by fluorescent luminaries with local control.
- Accent and cove lighting to be provided in the reception area and boardroom with local control.

· Truck Docks:

- General illumination to be provided by H.I.D. luminaries.
- Task illumination to be provided by incandescent, fluorescent or LED luminaries.
- Lighting to be flexible enough to accommodate day and night operations, a range of show set-up and tear-down conditions controlled by programmable lighting system.

· Pre-function and Corridor Spaces:

The design will establish a clear orientation between the convention spaces through integration of lighting with architectural form and graphics systems. Lighting levels of 20 fc for the corridors and 30 fc for the pre-function areas will be achieved by switching with removable accent lighting controlled by the programmable lighting system.

· Controls:

The lighting control system will be designed to provide the ability to create a full range of lighting levels, meeting the various functional requirements of ballroom, meeting rooms and exhibition halls. A DALI (digital addressable lighting interface) based lighting control system is recommended. In a DALI system each fixture is individually controlled. Conventional "whole-room" dimming controls for each meeting and ballroom room subdivision will provide typical preset lighting potentials. Localized plug-in programmable control systems operable from subdivision will allow individual control of the fixture groupings, including separate switching of H.I.D., incandescent and fluorescent elements.

EXTERIOR LIGHTING

Exterior lighting will consist of decorative, landscape and security lighting. After hours illumination will be reduced to that required by security. Control will be by programmable lighting system. Exterior lighting shall comply with IDSA standards.

LIFE SAFETY PROVISIONS

Note: The final concepts must be approved by the City of Appleton

A multiplexed, addressable fire alarm system will be used. It will be separate from other computer-based systems.

The system to be composed of, but not limited to, the following equipment, devices and operations.

- Smoke detectors in supply and return air paths.
- Smoke detectors in corridors.

- Heat detectors where applicable.
- Monitoring of all sprinkler flow and supervision of sprinkler valves.
- An evacuation paging system, including audio p.a. speakers in all areas of the building, to permit fire alarm signals and emergency public address announcements. With the concurrence of the local Fire Marshal, the public address speakers can be used for occupant notification. 24 x 7 cooling for amplifiers and fire alarm wiring for speakers will have to be provided.
- Dry contact for audio-visual speaker system override. Supplementation of fire system speakers will be provided by this feature.
- Electric/magnetic door holders.
- Elevator capture and control.
- Emergency strobe visual devices located per ADA requirements.
- Dry contact for motorized fire door operation.
- Fire Command Center must be on grade with direct access from street with the following features:
 - Master fire alarm control and annunciator panels.
 - Separate annunciator panel with control(s) for pre-selected elevators (s).
 - Sprinkler flow and supervision alarm.
 - Separate annunciator, control and supervision station for the emergency generator.
 - Smoke removal fans manual on-off controls.

Utility Floor Boxes

Utility floor boxes will be provided for exhibit hall areas. These boxes to be located throughout the exhibit halls on 30 foot center grid pattern. The are to be approximately 24" x 24" x 25" and contain electrical and telecom.

Services will include:

- 1 each 60A, 208Y/120V, 5 wire, weatherproof, pin and sleeve receptacle
- 2 each 30A, 208Y/120V, 5 wire, weatherproof, locking receptacle with 3 pole breaker.
- 1 each 20A, 120v, duplex, NEMA 5-20, weatherproof GFI protected receptacle with 1 pole breaker
- 6 each RJ-45 jacks
- 2 each Type SC multimode fiber optic connectors

GENERAL CONVENIENCE AND SPECIAL PURPOSE OUTLETS

Electrical provisions for general convenience outlets throughout the project as required.

Provide special purpose outlets as follows:

- Truck Dock: Provide 30A, 120V 1-phase outlets along dock apron for battery chargers. Provide 30A, 208Y/120V recessed in dock for refrigerated trucks. Provide one, 200A, 208Y/120V company switch for broadcast trucks.
- At Jones Park level: provide a waterproof, 100A, 208Y/120V outlet to support outdoor events.

Bail-out System

A bail-out conduit of 6" diameter Sch. 40 PVC will be provided between adjacent boxes and connect to various locations at the back-of-house service corridor. This will be used to provide utility access to the floor for special purpose services not regularly required by exhibitors.

Vertical. There will be a 6" (in vertical run) and 18" center supported cable tray (in horizontal runs) pathway connecting the truck dock, the exhibit hall (floor and ceiling) and the roof.

Lighting Control System

A microprocessor based, DALI (digital addressable lighting interface) system will be used to control the on-off/override and dimming functions of all lighting in the building. The system consists of a PC workstation, a controller and several transducer panels distributed throughout the building. All lighting fixtures will be interconnected with a twisted pair of conductors for communications run in the same conduit as the power. In addition to providing energy savings, since it controls each fixture individually, it provides a convenient method of controlling lighting levels throughout the building.

DIMMING SYSTEM

Dimming will be provided by the DALI system. Each space will have a four scene preset and off, four to six channels. Each divided room will be able to control the combined rooms via a dividable room controller. The dividable room controller will tell the DALI system the room configuration and the DALI will determine the controls.

COMMUNICATION SYSTEM

Voice and data outlets will be provided throughout the building including conduits, terminal cabinets and backboards as required.

WIRELESS COMMUNICATION

In order to maintain clear and uninterrupted signal for wireless communication, provide internal antenna system designed to overcome signal limitations due to the building construction. The entire building will have WiFi service.

COMMUNITY ANTENNA TELEVISION SYSTEM

Provide conduit-only sized and located per local CCTV company requirements. Fiber optic cable backbone installed for telecom will have ability to carry CCTV signal. Provide conduit only and other auxiliary telecom raceway methods to connect two (2) locations on roof for external antennas.

LIGHTNING PROTECTION

None required

MISCELLANEOUS SYSTEMS

- Electrical power provisions for illuminated building interior and exterior signage.
- Electrical provisions for HVAC controls, 120V 1-phase power and disconnect for low voltage control transformers.
- Electrical provisions and raceways for a CCTV system.
- Electrical power provisions for kitchen, concession, central sound room and vending machines.
- Electrical provisions and raceways for expanding music/page system equipment.
- Electrical provisions and raceways for door alarm system.

EQUIPMENT AND MATERIAL DESCRIPTION

Equipment and material incorporated into the electrical work will be new and of the same type and manufacture for similar uses. Where industry or trade standards are in force, equipment and material will comply with these standards as a minimum criteria of quality and workmanship.

The building low voltage switchboards will be of the floor standing metal clad type and supplied with sub-feeder circuit breakers of frame size and rating required.

Motor control will be provided by variable frequency drives (VFD) furnished along with the driven equipment. Drives will be powered from 480V distribution boards or panel boards.

Add Alternate emergency engine-generator set will be diesel or gas-driven engine drive type with direct-coupled generator. Automatic transfer equipment will be provided which will transfer the load from the normal to the emergency source in the event of voltage loss.

Panel boards will be of the molded case bolt-on circuit breaker type unless otherwise noted on drawings and will be surface mounted or flush mounted as required. Panel boards will be provided with approximately 20 percent spare breakers for future.

Transformers will be of the air-cooled dry type with Class "H" insulation and 150C rise. Locate units and mount properly to achieve sound and vibration isolation.

Conduit:

- Conduit will be rigid (IMC) where used in damp or exposed locations or where specifically required by code.

- Electrical metallic tubing (EMT) will be used in dry concealed locations and furred ceiling spaces.
- Flexible conduit will be used for final connections to recessed lighting fixtures and to motor driven equipment and vibrating equipment.

- PVC schedule 40 conduit will be used for concrete encased feeders, and rigid PVC conduit for underground branch circuit electrical or signal extensions. All non-metallic electrical runs will include a ground conductor.
- Minimum size branch circuit home run to be 3/4" conduit.

Generally, low voltage conductors will be copper with 600 volt insulation for low voltage distribution. Aluminum conductors are permitted on runs of at least 150 feet in sizes 1/0 AWG and larger where ends are terminated in compression lugs. Conductors No. 8 AWG and larger will be stranded, Type THHN/XHHW. Smaller conductors will be THHN/THWN. Conductors for use in high temperature locations will be insulated as required by code. Minimum size of power conductors will be No. 12 AWG.

Wiring devices will be specification grade. Color of visible external parts will be grey or as selected by the Architect. Interchangeable or combination devices will not be used.

- Switches will have a quiet, positive action, with contacts rated at 15 or 20 amperes, 277 volts inductive loads without de-rating. Handles will be of the toggle type except locking type should be used in public areas. The number of poles and throws will be as required for the application.

Lighting fixtures will generally be of the recessed type with surface mounted or pendant type fixtures being additionally utilized. Approval by the Owner of all proposed lighting fixtures will be required.

- Illuminated exit signs will be provided on all floors and should be of the fluorescent or electroluminescent type with separately circuited lamps.
- DALI compatible, energy efficient lamps and ballasts.

Ballasts: DALI compatible, high power factor bearing the ETL label certifying that the ballasts comply with the CBM specifications and standards. Ballasts will be Underwriters Laboratories "P" rated where applicable. Ballasts to have 5-year warranty.

Fluorescent lamps will be the high efficiency rapid start "Warm White" type. T-8 lamps will be supplied for public areas. Four-foot lamps will be rated 3050 lumens with a ballast/lamp maximum power input of 35 watts per lamp.

Plumbing

DESIGN CRITERIA

CODES AND STANDARDS

The Plumbing Systems will be designed to conform, as a minimum, to the following codes and standards:

- City of Appleton Municipal Code
- International Plumbing Code
- American Society for Testing Materials (ASTM).
- American National Standards Institute (ANSI).
- American Society of Plumbing Engineers (ASPE).
- American Water Works Association (AWWA).
- Underwriters Laboratories (UL).
- FM Global
- U. S. Green Building Council, LEED Reference Guide, Version 2009

ENGINEERING CRITERIA

- Domestic water will be sized based on available pressure with a maximum velocity of eight feet per second at design flow conditions.
- A minimum of 30 psi will be provided at all plumbing fixtures, including floor boxes.
 - Hot water will be provided to fixtures at the following temperatures:
 - Public lavatories, 95°F
 - General building fixtures, 110°F
 - Kitchen equipment and kitchen sinks, 140°F.
- Storm drainage design will be based on a rainfall of 4" per hour.

PLUMBING SYSTEM DESCRIPTION

DOMESTIC WATER

- A metered connection from the street main water supply line will provide domestic water for the entire facility. The system will be designed to prevent water hammer conditions by providing shock arrestors for quick closing valves. Isolation valves will be provided for each group of fixtures.
- A backflow preventer will be provided on the site main line under the civil engineering scope of work.
- Hot water to main toilets and concession areas will be provided by local electric storage type heaters.
- Isolated plumbing fixtures will be provided with instantaneous type electric water heaters.
- Hot water temperature will be maintained on long runs of distribution piping by use of self regulating electric trace strip or hot water return circulation systems.
- All water piping, subject to heat loss or sweating, will be provided with insulation and a fire retardant jacket.
- Drinking water will be provided by individual drinking fountains. These fountains will be located throughout the building near restroom groups and will not be provided with chillers.
- Piping will be type "L" copper and/or PEX fusing
- Valved connections will be provided for irrigation contractor at outdoor planter areas.

SUBSOIL DRAINAGE

- Foundation drainage may be required, but there will be no under floor drainage.

SANITARY DRAINAGE AND VENT SYSTEMS

- Plumbing fixtures will be drained by gravity through soil stacks and house drains to five feet outside building.
- Adequate gradients will be maintained to ensure a self-cleansing velocity. Cleanouts will be provided per code.
- Piping will be Sch. 40 PVC.
- All piping subject to "sweating", such as from ice machines, will be provided with vapor barrier insulation.

HEATED SPACES

There will be several areas where there will be a concentration of water and waste piping that will be exposed to freezing weather. Those areas will require being enclosed and heated.

STORM WATER DRAINAGE SYSTEM

- Roofs will be drained by gravity via roof drains through inside leaders and house drains to the site storm drain system. Where parapet scuppers are not provided, separate overflow drains will be provided adjacent to each roof drain and will be piped independently through the building to the site storm system. It is assumed that all storm water from the site will empty into the City's storm sewer system.
- All piping subject to "sweating" will be insulated.
- Piping will be Schedule 40 PVC or Schedule 10 galvanized steel for above grade piping of 10" diameter and above.
- Planter drains from landscape areas and planter boxes will be provided and connected to the storm system.

PLUMBING FIXTURES

- Fixtures will be provided with chromium plated brass trim and stop valve (tempered water).
- Water closets and urinals will be vitreous china, siphon jet pattern with ultra low flow water conserving flush valves.
- Urinals, water closets and lavatories will be provided with battery powered infrared sensors.
- Water closets will be wall hung.
- Showers will include balanced pressure mixing valves with 2.5 GPM flow restrictors in the head.
- Hose bibs connected to the buildings potable water system will be provided throughout the building utility areas and recessed wall hydrants around the exterior of the building's perimeter and at the truck dock adjacent to the dumpster areas.
- Appropriate "Barrier Free" fixtures will be provided in accordance with ADA requirements, for handicapped use.
- Sinks provided by the kitchen equipment contractor will be provided with chromium plated brass supply fixtures stops and traps as required.
- Public lavatories will be provided with single temperature faucets with 0.5 gpm flow restrictors.
- Emergency showers and eye washers will be provided as required for hazardous areas in mechanical rooms.

Natural Gas

- A connection to the city gas main will provide natural gas for the project. The gas meters and pressure regulators will be located at the building exterior. From the meter location, medium-pressure gas lines will be routed above grade through the structure to gas fired equipment as required.
- Piping will be Schedule 40, black steel.

WATER HEATING SYSTEM (SATELLITE KITCHEN)

Three instantaneous water heaters will be provided for supplying the hot water demand for the plating kitchen area. The water heaters will deliver 140F water for food service use.

FUEL OIL SYSTEM

Not required

Fire Protection

DESIGN CRITERIA

CODES AND STANDARDS

The Fire Protection systems will be designed to conform, as a minimum, to the following codes and standards:

- City of Appleton Fire Department
- City of Appleton Municipal Code
- International Building Code (IBC) 2009
- The National Fire Protection Association (NFPA)
- The National Electrical Manufacturers Association (NEMA)
- American Society for Testing Materials (ASTM)
- American National Standards Institutes (ANSI)
- American Water Works Association (AWWA)
- Underwriters Laboratories (UL)
- International Fire Code
- U. S. Green Building Council, LEED Reference Guide, Version 2009

ENGINEERING CRITERIA

- The Class II standpipe system will be provided for exhibition areas and designed in conformance with Uniform Building Code Standard 38-2, and sized per N.F.P.A. standards to deliver a minimum of 100 gpm at 65 psi at the hydraulically most remote outlet.
- Building layout and emergency access will necessitate the provision of a Class I standpipe system in required exit stairs and adjacent to horizontal exits.
- The Class I standpipe system flow and pressure requirements will be provided from the fire department inlet Siamese (pumper) connections.

The automatic sprinkler system for the building will be designed to meet the design densities and flow rates of the following Hazard Classifications:

AREA	HAZARD CLASSIFICATION
Exhibit Hall	Extra Hazard Group 1*
Meeting Rooms	Ordinary Group 2*
Exhibition Support	Ordinary Group 2*
Storage/Operations	Ordinary Group 2*
Kitchen/Food Service/Concessions	Ordinary Group 1
Administrative and Other Offices	Light
Lobbies, Pre-Function, Public Circulation	Light
Service Access, Exiting	Ordinary Group 2*

The above is for a reference to help anticipate what may be required by the design team's code specialist.

* Sprinkler densities and areas of operation for these locations will take into account ceiling heights, combustible loading and other special hazards. Working drawings will be subject to review and approval by the Fire Department and Owner's Insurance Carrier.

FIRE PROTECTION SYSTEM DESCRIPTION

SPRINKLER AND FIRE STANDPIPE SYSTEM

- Two fire services to the building will be extended from city water mains and connected independently to the building fire suppression system.
- System operation will be under pressure provided by public water main.
- System will be a combined Class I standpipe and automatic wet sprinkler with 2-1/2 inch outlets for fire department use where required.
- Class II hose racks equipped with 100-feet of listed fire hose installed in recessed cabinets will be provided in the exhibition areas hall.
- If required by the structure, roof manifold with hose valves will be provided for each Class I standpipe.
- Branches to individual sprinkler systems will be provided with monitored control valves and water flow switches as well as a system drain/test connection. All control valves and water flow switches will be annunciated at the life safety control panel.
- All isolating and sectionalizing valves on the fire protection system will be provided with tamper switches that will be annunciated at the life safety control panel.

- 2-1/2" valves for fire department use will be provided in exit stairs throughout the building and on each side of horizontal exits.
- Fire extinguishers will be located throughout the building and around the perimeter of the Exhibit Hall areas. ABC dry powder extinguishers will be provided with the exhibit areas, meeting rooms, general areas, and mechanical rooms, loading docks and kitchen areas.
- Siamese (pumper) connections will be provided in two locations at the building's exterior in accessible areas to enable the Fire Department to pump water directly into the system.
- The fire pump test header at the existing building's exterior will be relocated to suit new construction.

Security

The FCEC will be a secure facility through a locking system on all of its exterior doors. There will be no door position annunciators, and only a modest amount of CCTV cameras will be used at critical interior and exterior locations. These will be interconnected back to the Radisson's security office.

Audio-Visual

The AV systems – projectors, screens, etc. will be rented by the users of the facility, but they will be able to take advantage of the building's AV cable plant that will accommodate broadcast trucks parked outside, and recording in the AV control room.

POTENTIAL IMPROVEMENTS TO THE RADISSON HOTEL

The selected site was chosen in large part because the adjacent Radisson hotel already offered many of the amenities required to make a successful convention center. The functional and aesthetic integration of the FCEC and the Radisson into a single entity is needed both operationally and from a market and branding perspective. The design solution needs to make the travel distance and perceived sense of separation between these two facility components go away. Although lying outside the scope of the FCEC project itself, there are several types of improvements to the Radisson that would greatly contribute to the overall project:

Pedestrian Passageway to Garage Ramp to East – The public path of travel from the bottom of the escalator serving the parking ramp to the east of the Radisson over to the Ballroom pre-function area could be upgraded. This improvement would help some of the pedestrian traffic using the garage to bypass the Radisson lobby and would provide a more direct, visible and enjoyable connection to the FCEC.

Revised Radisson Entrance at College Avenue – The possibility of developing a convention center identity along Appleton's main street exists at the existing Radisson entrance. A more civic gesture that suggests the extent of the public assembly facilities beyond would be appropriate. This improvement could also be accompanied by renovations to the Radisson lobby to improve pedestrian flow and way finding to the south.

Renovate Exterior Wall at Ballroom Pre-Function – The exterior wall that runs parallel to the ballroom pre-function space along the western side of the courtyard could be converted to a curtain wall system, thereby allowing a good relationship with the out-of-doors and introducing natural light to the interior. This improvement will dramatically improve the pre-function area and the connection to the FCEC.

Improve the Exterior Courtyard – If either one or both of the improvements to walls along the courtyard described above were implemented, the courtyard itself becomes part of the experience of moving through the Radisson on the way to or from the FCEC. In such a case, improvements to the materials, lighting and vegetation to the courtyard could be of great value. Furthermore, the landscaping of the courtyard could be conceived of as an extension of Jones Park, extending northward into the built fabric of downtown and therefore strengthening the city – park connection.

Comprehensive Signage Program - Paralleling the new signage system that will be part of the FCEC, the Radisson could upgrade its room identification and way finding signage to create a comprehensive and integrated approach across the entire convention center. This will help to alleviate any distinction between the two facilities, and will make it easier to market and use the whole complex.

APPENDIX

Notes from User Focus Group Meeting held in Appleton on February 7, 2012

A user group meeting was held on February 7, 2012 in Appleton, Wisconsin. The following meeting report is a brief, bullet point summary of building programming ideas that were discussed:

Public Experience - Arrival

- Parking nearby (3,000 parking stalls available downtown)
- Where do you arrive
- Check-In / Luggage
 1. Check-in first, get settled
 2. Luggage flow
 3. Coat check area / room
- Drop off / weather
- Consumer shows - more drop offs
- Exhibitor drop off
 1. Covered
 2. Front door delivery?
 3. Secondary entrance for freight
- Retail show arrival
 1. Guest traffic central
- Box office
 1. Portable or permanent
 2. As information desk
- Registration
 1. Computerized counters
 2. Portable / flexible
 3. Located in Radisson
- Gathering space / pre-function
 1. Signage / Directional / Way finding
 2. Brand identity
 3. Coats
 4. Seating / network
 5. Box office
- Registration
- Lockable work room adjacent to registration
 1. Speaker prep room
 2. Dressing area
 3. Business Center
 4. Community Info Center
 5. Food / vending
 6. Bookstore
- Public restrooms

Exhibition Hall

- 24 ft Ceiling
- +/- 30,000 square feet
- How should exhibition hall divide?
 1. Flexibility

- 2. Sound proofing
- Floor comfort / carpet
- Hanging points for banners, lights, etc.
- Sport flooring is secondary; exhibition is primary
- Services
 - 1. Electric power flexibility
 - 2. Lighting flexibility / dimming
 - 3. Natural gas not a necessity
 - 4. Compressed air not a necessity
 - 5. Water / drainage not needed on 30' grid
 - 6. Ice
- Upper level viewing space
- Plenary session in 30,000 SF space

Technology

- IT Throughout
- Cellphones
- Live stream video
- Portable video screens or built in?
- House phone to Radisson
- Security

Loading Docks

- Dock master
- Staging / Marshaling
- Drive in capability
- Forklifts & jacks
- Multiple Docks

Back-of-House

- Staff restrooms
- Office space

Food Service

- Coffee
- Breaks & lunch buffets
- Both hot & cold lunches
- Alcohol / liquor storage
- Exhibitor food / vendors
- Sit down menu
- Limited menu
- Ice Service
- Dishwashing capability?
- Current large banquet functions
 - 1. Red Smith Banquet (1,400)
 - 2. Women's Fund
- Voucher for restaurants @ hotel & College Ave
- Cash transactions – IT Ability
- Hold cooler (could it be used by exhibitors?)
- Back of Radisson...another entry
- Staff @ peak
- Single point of entry

- Design to mimic hotel?
- Jones Park connection for food service
- Sustainability & recycling
- Credit card processing / Point-of-Sale / Cashless
- 16-18ft ceiling height @ pre-function
- Access from exhibition hall to pre-function

Outdoor Programming

- Pavilion or tent to cover
- Deck for outdoor event @ main level

Character / Aesthetics

- Organic
- Modern
- Clean Lines
- Reference Radisson aesthetics
- Lots of natural daylight
- "Solar tubes"
- Urban Character
- Bus drop off / weather protection for large groups
- Friendly / inviting
- Connection to park
- Difficult exhibitor move-in experience here in Radisson; move-in must flow
- Manage parking in public lots
- Smaller vehicle loading docks
- Cart storage?
- Unity of properties (Radisson/FCEC)

Benchmarking

- Avoid bad carpet
- Innisbrook Resort
- Chandelier feel @ entrance area
- Electronic / touch screen identification + way finding + wireless
- Business center
- Control lighting & temperature
- Exhibit hall next to annual meeting
- Friendly people
- Wow factor

Favorite Places

- Kalahari (many responded as favorite)
- Talking Stick Resort (Scottsdale, AZ)
- New Orleans
- Wilderness / Dells
- KI Center / Compact
- Las Vegas
- Nashville
- Appleton / Green Bay (Price)
- Marriot Madison West (have outgrown)
- Grand Geneva