gouldevans
ASSOCIATES, LC

MEMORANDUM

To:	Dave Corliss	*Date:*	17 October, 2012
From:	John Wilkins	*Project Name:*	Lawrence Sports Village – Recreation Center
Cc:	Paul Werner, Thomas Fritzel, Ernie Shaw	*Project No.:*	0112-0020
Subject:	Basis of Design		

Recreation Center – Basis of Design

An approximately 181,000 gross square foot regional recreation/wellness center located on the NW corner of Rock Chalk Park (refer to attached site plan, dated October 15, 2012). Accommodations for parking of 1,400 concrete paved spaces. Incorporation of public bus and parent drop off at front door to facility.

The recreation center will sit adjacent to a state of the art track/soccer/softball complex for the University of Kansas.

The Multi-level facility is situated with on-grade access at both levels. The upper level will consist of the main entry, wellness center, administration, cardio/dance, concessions, spectator viewing and walking track. The lower level will consist of the fieldhouse, turf area, gymnastics and support space. There will be direct on grade access to the fieldhouse and the turf area.

The facility will be designed such that it could be LEED certifiable with an emphasis on reducing energy and operating costs.

Space Program

Fieldhouse 92,880 nsf

- Court Layouts (Striping)
  - Total of 48 basketball backstops and 16 volleyball nets to be provided as detailed below.
    - The cost estimate for installation of 48 basketball backstops is $190,000 from Athco ($3,958 per backstop).
  - Eight (8) full size basketball courts (50'x84')
    - Ceiling suspended backswing basketball backstops – Porter Model No. 90923000 with rectangular glass backboard model no. 00208-000 or equal.

706 MASSACHUSETTS STREET
LAWRENCE, KS 66044
785.842.3800

        - goals fixed 10' to rim
        - backstops lowered and raised electronically and controlled with Powr-touch II Control Panel System (Singular control panel; refer to cut sheet)
    - Sixteen (16) half basketball courts (50'x74')
        - Ceiling suspended backswing basketball backstops – Porter Model No. 90952000 with rectangular glass backboard model no. 00208-000 or equal.
            - Total 16 provided to accommodate 16 half courts.
            - goals adjustable from 8' to 10' to rim
            - backstops and rims lowered and raised electronically same as above.
    - Sixteen (16) volleyball courts
        - Overhead supported Fold-up volleyball system with judges stand
            - Lowered and raised electronically same as above
            - Cost Estimate: $145,000
- Finishes
    - Wood Floor – Floating System by Connor or equal. Product: Neoshok (See attached cut sheet)
        - Slab Depressed 2-1/2" for 25/32" flooring x 2-1/4" second & better grade northern hard maple flooring over (2) layers of 15/32" APA rated plywood.
    - Performance System. Polyurethane Performance Pads ¾" hemispherical.
    - Polished Concrete Floors with an applied stain to provide color or (re: attached floor plan of fieldhouse) create pathways that subdivide fieldhouse into four (4) wood floor areas for traffic flow and easier phasing of refinishing floors in future.
    - Unfinished concrete walls with glass and translucent glazing
- (14) Gym Divider curtains (divisible into 8 courts) – Porter #675-000 roll-up gym divider curtains;
    - Lowered and raised with electric winches and Powr-touch 2.5 control system
    - E/W Curtains: Solid at 8' aff; Open Mesh above
    - N/S Curtains: Solid at 8' aff; Open above
    - Estimated cost: $120,000
- Scoreboards (16) full court basketball.
    - Fair-Play BB-1600-4 basketball / volleyball scoreboards with wireless control systems.

- Estimated cost: $60,000
- Wall Padding (16′ wide each) on east wall for (8) cross court basketball courts where clearance to wall is less than 10′.
    - Estimated cost: $6,500
- Infrastructure/Provisions for Video Monitors.
- Seating capacity – 1,920 (16 sets of tip and roll bleachers (capacity 120 each to be provided by City)

Wellness Center 7,000 nsf

- Shelled space; fit out per Lawrence Memorial Hospital's needs

Turf Area 21,600 nsf

- 90′ x 240′ clear area suitable for the following configurations (striping to be determined by City)
    - (3) 60 x 80 soccer fields (circulation and spectator seating at floor level)
    - (1) 75 x 175 to 200 indoor soccer field with portable walls by City
        - Indoor batting cages suspended from ceiling (full system (nets, motors; provided by City); Size: 17′-6″ wide x 89′ deep; (Std. sizes are 12′x70′; all other sizes are custom) Quantity to be determined.
        - Cost: $12,000 Each
- Flooring: Tarkett FieldTurf Synthetic Turf or equal.
    - FieldTurf Classic: split film fiber
    - 5lbs sand/rubber fill

Gymnastics 4,800 nsf

- Accommodate all the gymnastics apparatus (provided by City)
    - Floor Exercise Mat
    - Vault
    - Balance Beam
    - Uneven Bars

- Parallel Bars
- Pommel Horse
- Horizontal Bar
- Ceiling supported rings

- Viewing platform from above
- Flooring: Sealed concrete
- 20' Min. Ceiling

Walking/Running Track — 8 Laps to a mile

- 1/8th of a mile track
- 4 lanes; (1) 6' wide walking plus (2) 3' wide walk/jog lanes
- Rubber synthetic surface: Product: Beynon BSS 200 (see attached)
  - Typical installations: High School track facilities

Aerobics/Dance — 2,000 nsf

- Classes: Pilates, Slimnastics, Yoga, Zumba, Yogilates, Karate, Self Defense, Tae Kwon Do, Tai Chi
- Capacity Classes: 50 people
- Flooring: 12MM rubber synthetic flooring. Product: Mondo Advance or equal
- Minimal visibility
- Storage
- Infrastructure for a City provided Sound and Security Systems.

Fitness/Cardio — 2,500-3,000 nsf

- Area for Lockers/Cubicles provided by City and to be located in public areas around fitness, and cardio area
  - Flooring: Polished Concrete with applied colored stain at cardio equipment; 10MM rubber synthetic flooring at weight machines and free weights. Product: Mondo Sport Impact or equal. City to determine area for weight equipment.
  - Electrical: Appropriate electrical outlets and circuits in floor or walls for equipment.

- Individual/Family changing rooms
    - Quantity: 3
    - Shower included in each room

Administration Suite/Offices 1,000-1,500 nsf

- Staff area for 6 (2 adult sports, 2 youth sports, 1 tournament staff, 1 support staff
    - 3 individual offices
    - 3 cubicles (8x8 system furniture by City)
- Work/copy room
- Flooring: Carpet Tile

Front Desk/Control Area 600 nsf

- Accommodate 3-4 staff at given times with minimum of 2 computer hook-ups
- Access to storage of game equipment, balls, paddles, etc..
- Maximize visibility to entries/exits; supplemented by City provided security cameras (infrastructure by contractor)
    - Security cameras by City (facility and parking)
    - Automated Lighting controls located at desk.

Birthday Party/Multipurpose Rooms 1,000 – 1,500 nsf

- 2 rooms with small cabinet and sink
    - Outlets provided for City provided refrigerator and microwave.
- Accessible to gymnastics and turf area
- Flooring: Carpet tile with rubber backing. Product: Neofloor by Lees or equal.

Official's Locker Room 500 sf

- Men's and Women's
- Plastic lockers - 12" wide x 36" tall, 2 tier lockers. Total of 20 lockers each room.
- Lockers rooms to be multi-used by community as locker rooms when not in use for tournaments.

- Includes a shower, water closet and lavatory.

Concessions 1,000 – 1,500 nsf

- Consideration for multiple stands distribution on both levels.
- Consideration for ability to cook, including mechanical systems
- Concessions equipment to be provided by vendor or City.

Restrooms

- 4" CMU toilet partitions
- Polished Concrete or Granitex floors
- "Excel" electric hand dryers in all restrooms

Maintenance/Custodial/Storage 4,000 nsf

- Distributed throughout facility
  - An additional custodial/storage room to be added to upper level
- Space for operations and facilities staff

Tennis Courts

- (8) 78' x 27' concrete tennis courts
- Lighting
- 10' high perimeter chain link fence

Building Systems

Site

- Concrete paving: Drives, parking lots, walks
  - Parking Areas: 5" concrete
  - Driveways: 7" concrete
- Curb and Gutters

- Provided at islands
- Driveways to have lay-back curbs to define driveways and edge of parking areas

- Surface runoff to be directed to swales to help with storm water management
- Irrigation
  - Entrances to facilities and perimeter areas adjacent to all public spaces to be irrigated
  - Parking lot islands, and open spaces for overflow parking not to be irrigated
- Landscaping
  - Quantity per city requirements
  - Locations may be varied per an alternative compliance request during site plan stage
- Parking Lot Lighting
  - LED full-cutoff pole lighting (refer to attached memo from Henderson Engineers, dated 8/27/12.
  - Infrastructure for City provided exterior security cameras
- Site Maintenance Facility
  - Intent is to share space with KU operations area

Structure and Envelope

- Tilt-up load-bearing concrete exterior walls, insulated (R13) with a textured surface treatment to be determined.
- Concrete foundation walls
- Interior steel columns, painted
- Roof structure: Steel girders and Long span steel joists, painted
- Structural concrete floors and slab on grade floors
- Aluminum storefront with both low-e glazing and polygal translucent glazing
- 8' wide car showroom doors to allow vehicular access to fieldhouse from the east.

Roof

- A single ply membrane to be determined (TPO or Spray Foam)
- Metal roof deck, painted

Interior Partitions/Doors

- Concrete or Concrete Masonry Units (CMU)
- Painted walls and doors
- Hollow metal door frames
- Solid core wood doors and hollow metal doors appropriate for use of space.
- Medico locks

Interior Finishes

- Flooring: Polished Concrete or Granitx Coated Concrete Floors except as noted above in Space Program
- Walls: Painted CMU and Natural Finish Tilt-up Concrete Walls
- Ceilings: Painted Exposed structure except in administrative rooms, dance/aerobics, party rooms, restrooms/changing rooms, and official locker rooms. Rooms identified above would have acoustical lay-in ceilings.

Mechanical/Electrical/Plumbing

- Trane or Lennox, constant volume packaged roof top units with energy recovery and humidity control. Estimated 300 sf/ton
  - Refer to Memo from Henderson Engineers, dated August 27, 2012
  - Recommendation:
    - Constant Volume Packaged rooftop units with energy recovery and humidity control (option 1 – mechanical system types)
      - ❖ Consideration of Variable Air Volume Packaged rooftop units for smaller spaces such as birthday rooms.
    - Distributed ducted supply (ductsock) with high return at the unit in gymnasium (option 2 – mechanical ductwork distribution types)
    - Distributed ducted supply (sheetmetal ductwork) with low return at all other spaces (option 1 for ductwork distribution types)
    - VAV for smaller rooms; Constant volume everywhere else
- Anticipated operating costs: $1.25 - $1.50/sf.

- Systems to meet City of Lawrence energy codes.
- Building Management system comparable to other City Parks & Recreation facilities by Integrated Controls Systems.
- Consideration to zone spaces to accommodate times when spaces are not in use and reduce operating costs.

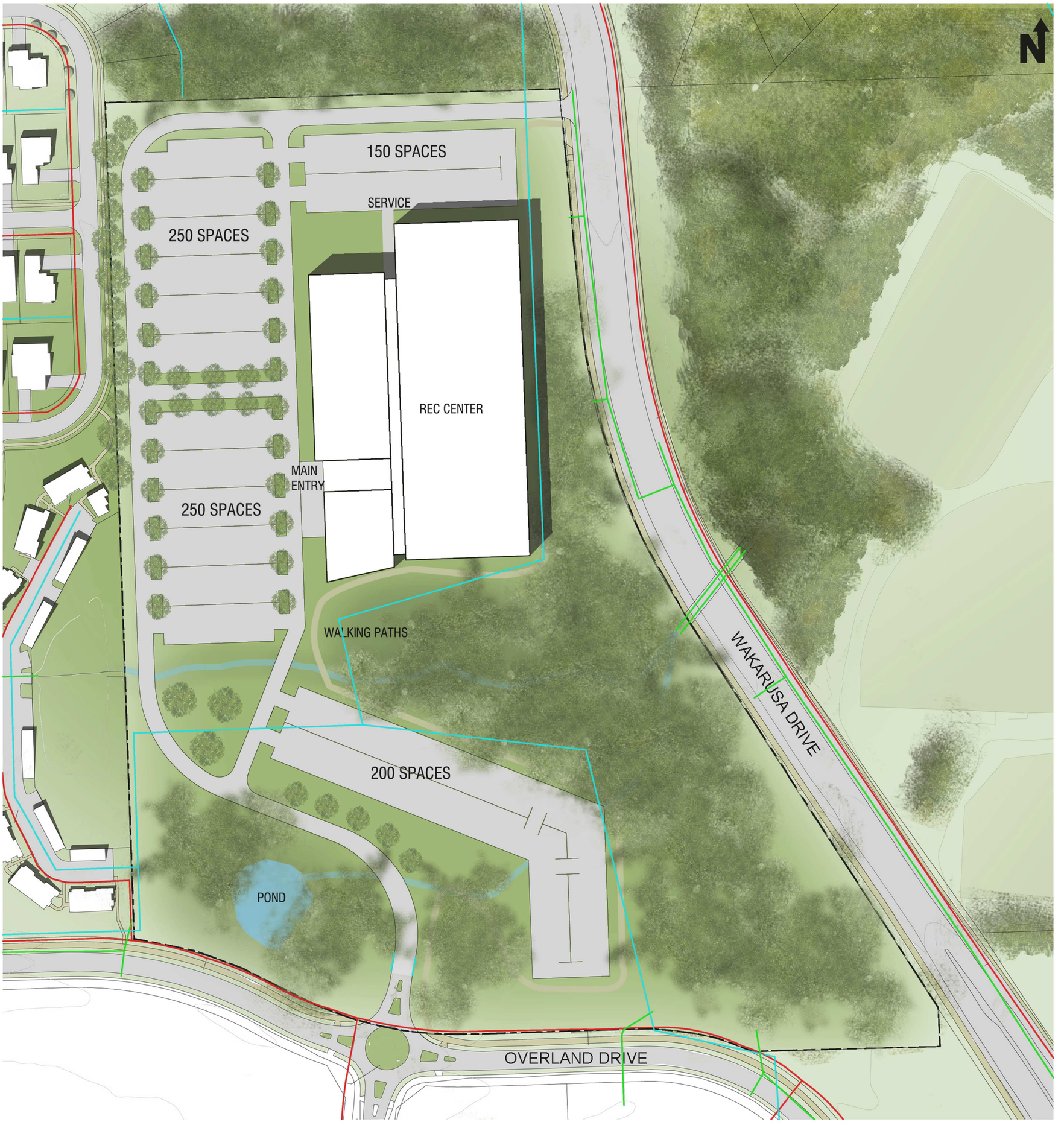
- Sprinkler System
  - Intent is to provide building sprinkler system for all spaces except the gymnasium per approval from authority having jurisdiction. Preliminary conversations suggest this will be acceptable.
- Electrical
  - Refer to Memo from Henderson Engineers, dated August 27, 2012
- Lighting: 4-lamp fluorescent high bay fixture with specular alzak reflector with wire guard (2) 2-lamp electronic ballast (this allows half the lamps to be switched off on each light**.** Incorporate daylighting strategies to minimize dependence on artificial lighting.
  - Lighting controls: Centralized relay based system with integral timeswitch and daylight harvesting functions.

gouldevans paulwerner ARCHITECTS

north

ROCK CHALK PARK MASTERPLAN

SCALE 1" = 150'
2012 OCTOBER 15



paulwerner ARCHITECTS gouldevans

WATER MAIN
STORM PIPE
SANITARY SEWER

RECREATION CENTER

ALTERNATE SITE STUDY
SCALE 1" = 100'
26 SEPTEMBER 2012

HENDERSON ENGINEERS INC

kansas city phoenix houston new york metro
tampa las vegas dallas bentonville

August 27, 2012

John Wilkins
Gould Evans

RE: Lawrence Recreation Center

Dear John:

Pursuant to your request, HEI has reviewed preliminary plans and conceptual narrative by GE. The following are mechanical and electrical design options and considerations for the Lawrence Recreation Center:

MECHANICAL SYSTEM TYPES
The following are options for system types along with options for ductwork distribution. The system types and distribution types can be mixed and matched to create multiple options with various pros and cons.

Option 1 – Packaged rooftop units with energy recovery and humidity control

These units will contain an air cooled condensing unit section and evaporator section. The condensing unit section shall contain a condenser fan, condenser coil, and compressors. The evaporator section shall consist of outside air economizer dampers, outside air filters, direct expansion cooling coil, natural gas or electric heat exchanger (depending on utilities available), and evaporator fan.

These units will also be equipped with an energy recovery wheel and hot gas reheat coil. The energy recovery wheel will preheat outside air in the winter months and precool outside air in the summer months. The hot gas reheat coil shall operate to maintain space humidity under part load cooling conditions. Winter humidification will not be provided by these units.

Pros and cons
- Lowest unit energy consumption.
- Excellent humidity control during cooling season.
- Highest first cost system.
- Aaon is the only manufacturer that provides units with integral energy recovery wheels. Other manufacturers will have to provide a separate energy recovery ventilator unit with their standard unit.

Option 2 – Packaged rooftop units with energy recovery

These units will contain all the components listed in option 1 except for the hot gas reheat coil.

Pros and cons
- Lowest unit energy consumption (Same energy consumption as option 1.)
- No humidity control during the cooling season when part load conditions exist.
- Lower first cost than system option 1.
- Aaon is the only manufacturer that provides units with integral energy recovery wheels. Other manufacturers will have to provide a separate energy recovery ventilator unit with their standard unit.

Option 3 – Packaged rooftop units with humidity control

These units will contain all the components listed in option 1 except for the energy recovery wheel.

Pros and cons
- Higher energy consumption than options 1 and 2.
- Excellent humidity control during cooling season.
- Lower first cost than system option 1. First cost may be on par with option 2 depending on manufacturers used.
- Multiple manufacturer's provide hot gas reheat coils as standard options.

Option 4 – Standard packaged rooftop units

These units will contain all the components listed in option 1 except for the energy recovery wheel and hot gas reheat coil.

Pros and cons
- Higher energy consumption than options 1 and 2.
- No humidity control during the cooling season when part load conditions exist.
- Lowest first cost system option.
- All manufacturers can meet this option's requirements.

MECHANICAL DUCTWORK DISTRIBUTION TYPES

Option 1 – Distributed ducted supply with low return

This distribution option shall provide overhead ductwork routed throughout the spaces with duct mounted supply air diffusers to evenly distribute the supply air to the building. Low return air shall be provided for each unit serving a high bay area.

Pros and cons
- Highest first cost installation.
- Best supply air distribution to the spaces.
- Low return helps to pull smells/contaminated air from the building at the level they are generated.
- Low return air ductwork will take up building area and reduce available area for programming spaces.

Option 2 – Distributed ducted supply with high return at the unit

This distribution option shall provide overhead ductwork routed throughout the spaces with duct mounted supply air diffusers to evenly distribute the supply air to the building. High return air located at the unit shall be provided for each unit serving a high bay area.

Pros and cons
- Lower first cost compared to option 1.
- Good supply air distribution to the spaces.
- High return air can cause supply air to short circuit near the location of the return opening.
- High return will pull less smells/contaminated air from the building since it is not located at the level they are being generated.

Option 3 – Non-ducted supply with low return

This distribution option shall provide supply diffusers located at the unit only. Low return air shall be provided for each unit serving a high bay area.

Pros and cons
- Lower first cost compared to option 1. First cost will likely be on par with first cost for option 2.
- Non ducted supply air will reduce supply air distribution effectiveness. Locating the low return away from the supply location will help improve the distribution.
- Low return helps to pull smells/contaminated air from the building at the level they are generated.
- Low return air ductwork will take up building area and reduce available area for programming spaces.

Option 4 – Non-ducted supply with high return at the unit

This distribution option shall provide supply diffusers located at the unit only. High return air located at the unit shall be provided for each unit serving a high bay area.

Pros and cons

Lowest first cost installation

Worst supply air distribution of all options. High return air located next to the supply air will maximize the amount short circuited air that will not be distributed to the space.

MECHANICAL CONTROL OPTION

We recommend exploring the possibility of zoning the HVAC systems in the court areas by individual small courts or individual large courts. If the units and lighting are zoned together there could be manual control for the court that would turn the lights on in the court and put the unit in occupied mode when the court was being used. When the courts are not being used the lights can be controlled off the unit put into unoccupied mode. The unoccupied mode would shut down the outside air damper and put the unit into a 100% return air scenario and help save energy.

ELECTRICAL

Power Systems Description

The facility would likely utilize (2) 480Y/277V, 3-phase, 4-wire electrical services fed from pad mounted utility transformers on the exterior of the building. Main switchboards will be located in the main electrical room located adjacent to an exterior wall. Power shall be distributed from the main switchboards throughout the building to various electrical closets; and major mechanical and kitchen equipment. Switchboard and panel boards shall be located in dedicated electrical rooms for code and safety reasons.

Surge Protective Devices (SPD) shall be provided for switchboards. Distribution panel boards that serve significant electronic equipment and/or circuits for equipment located exterior to the building shall be equipped with secondary level SPD protection. Branch protection shall be provided for panel boards serving IT loads and Computer Equipment loads.

As an option, a generator for life safety and stand-by power is recommended to be located on the exterior of the building adjacent to the incoming service – potentially in a service yard. If provisions for a generator are not to be provided as part of the facility it is recommended that provisions be made for a portable generator connection on the exterior of the building for standby loads.

On-site Power Concept: Provisions could be made for the future implantation of renewable energy elements**.**

Photovoltaic System (PV): Provisions could be made for dedicated space in the building for future accommodation of photovoltaic electrical equipment including inverters, AC/DC disconnect switches, and metering for a roof mounted array size based on Owner renewable energy goals.

Power for motorized curtains/court dividers in fieldhouse shall be provided. Flush floor boxes compatible with floor finish shall be utilized for scoreboard controllers. Dedicated power circuits for fitness equipment will be provided.

Lighting Systems Description

Lighting Control:
Centralized relay based system is recommended with integral timeswitch and daylight harvesting functions. It is recommended that fieldhouse, turf areas, gymnastics, fitness, and other applicable public areas utilize zoned switching to allow for 50% stepped control of fixtures via daylight sensing (based on amount of natural lighting in space) with automatic time sweep off. Manual keyed controls are recommended in each space for local override of the centralized control system. A common centralized point of control can also be provided for space control from the front desk/control area. Occupancy sensing can be integrated into the above described control based on intermittent use of spaces to reduce operating costs.

Admin Suite/Offices are recommended to utilize ceiling or wall mounted occupancy sensors with local manual control. Back of house and restroom spaces will utilize occupancy based controls.

Site lighting shall be controlled via photocell and time function in relay based system.

Site Lighting:
LED full-cutoff pole lighting (24'-30' mounting height) is recommended for parking lot illumination. Building mounted exterior lighting could also utilize LED for illumination of pedestrian paths and entries. LED provides the efficiency and performance with superior contrast ratios and will provide a sustainable first impression of the facility during evening use. Pulse start metal halide (320W) option for pole lighting is recommended if LED is not possible.

Fieldhouse/Turf Area/Gymnastics:
4-6 lamp T5HO high bay fluorescent light fixtures with wire guard are recommended for efficiency and performance. Fixtures provide flexibility in switching and instant on capabilities. Incorporate with two ballasts for dual level switching in conjunction with daylighting controls.

Admin Suite/Offices:
Recessed high efficiency troffer type lighting recommended for optimum efficiency and performance. Cost is very competitive.

We look forward to further discussion. Please contact John Pummill or myself with questions or concerns.

Sincerely,
HENDERSON ENGINEERS, INC.

Juliette A. Pierce, PE, LEED BD+C
Vice President