

# NORTH KANSAS CITY

Schematic Design Booklet

Recreation Center

September 2016



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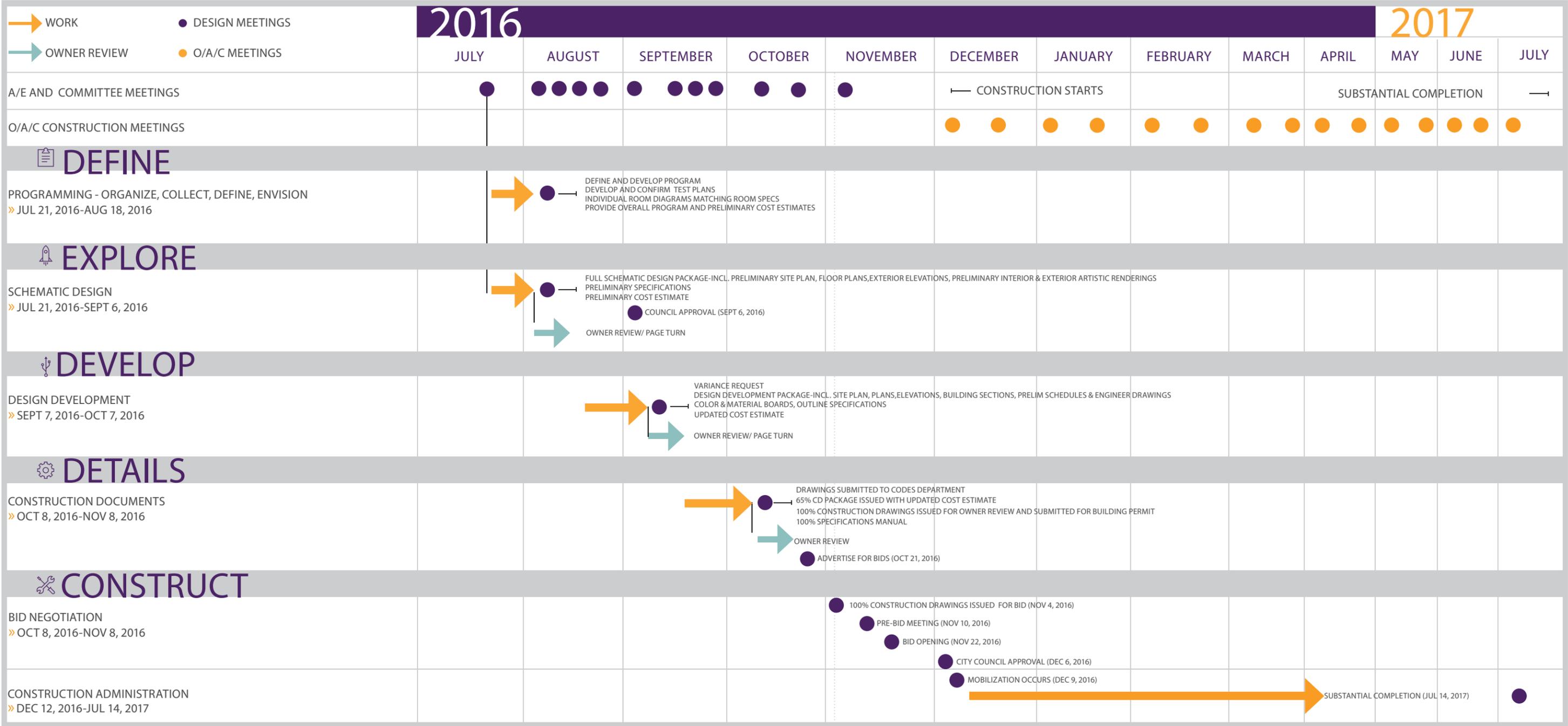
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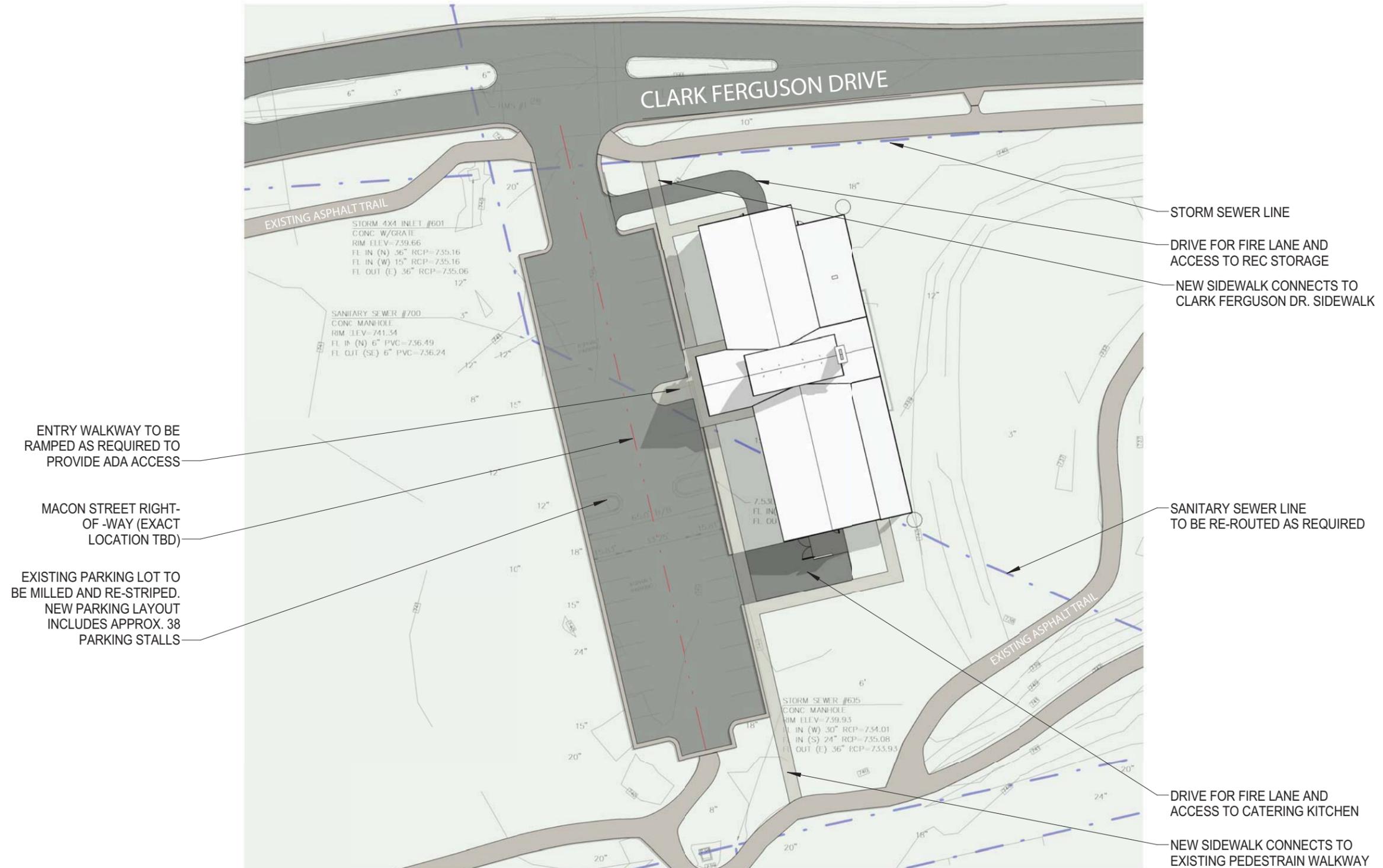
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SAFETY AND SECURITY SYSTEMS  
DESIGN NARRATIVE

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**A** **SITE DIAGRAM**  
 03-0.1 SCALE: 1" = 50'-0"  
 NORTH



PLAN PERSPECTIVE RENDERING

Offices are situated on the north-west corner to give sight lines to the west side of the park

Classroom, game room, and historical society space are accessed separately from administration areas

The gas fireplace acts as the hearth of the center and as a focal point for lounge seating areas

Covered outdoor patio can be utilized by the lobby space and the MPR

Multi-Purpose room seats 120 guests for a banquet function

Catering kitchen includes warming equipment for caterers, as well as equipment for cooking classes



VIEW OF EXTERIOR WEST ENTRY FROM PARKING LOT

Exterior lighting around parking lot and at the building exterior adds to safety at night

A small covered porch on the west provides space for outdoor seating and bike racks

Clerestory windows provide interior lighting and create a dramatic exterior aesthetic element

A trash enclosure is conveniently located near the catering kitchen access



VIEW OF COVERED OUTDOOR PATIO

Storefront windows and a double door provide direct access from the Multi-Purpose Room

Patio space is covered by a roof overhang and lit with exterior lights, so that it can be used in the evening



VIEW OF MULTI-PURPOSE ROOM

Glass garage door allows the room to open up to the pre-function/lobby for large events

Space can be easily divided with operable partition wall

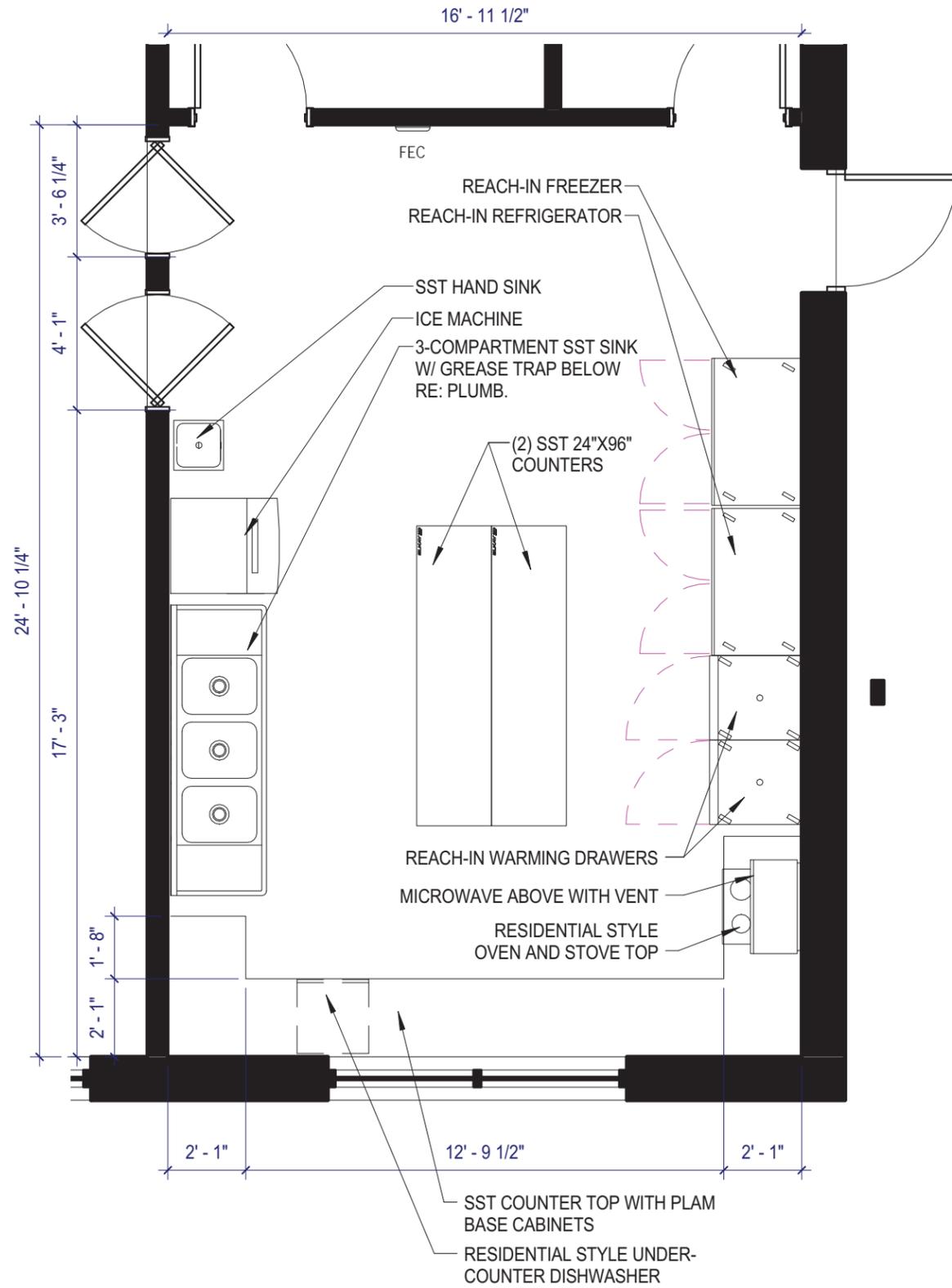


VIEW OF PRE-FUNCTION/LOBBY SPACE FROM WEST ENTRY

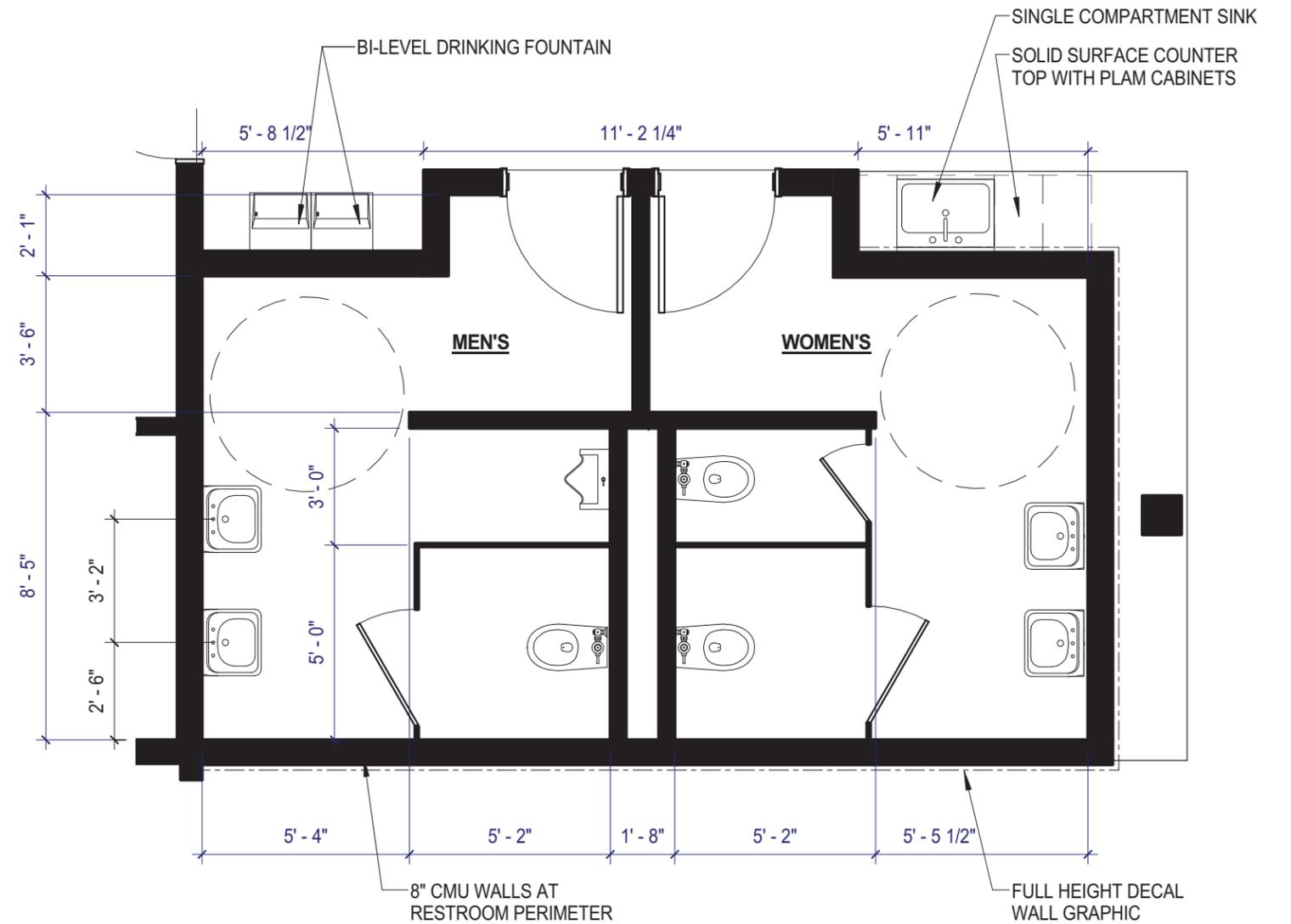


VIEW OF PRE-FUNCTION/LOBBY SPACE FROM SOUTH-EAST

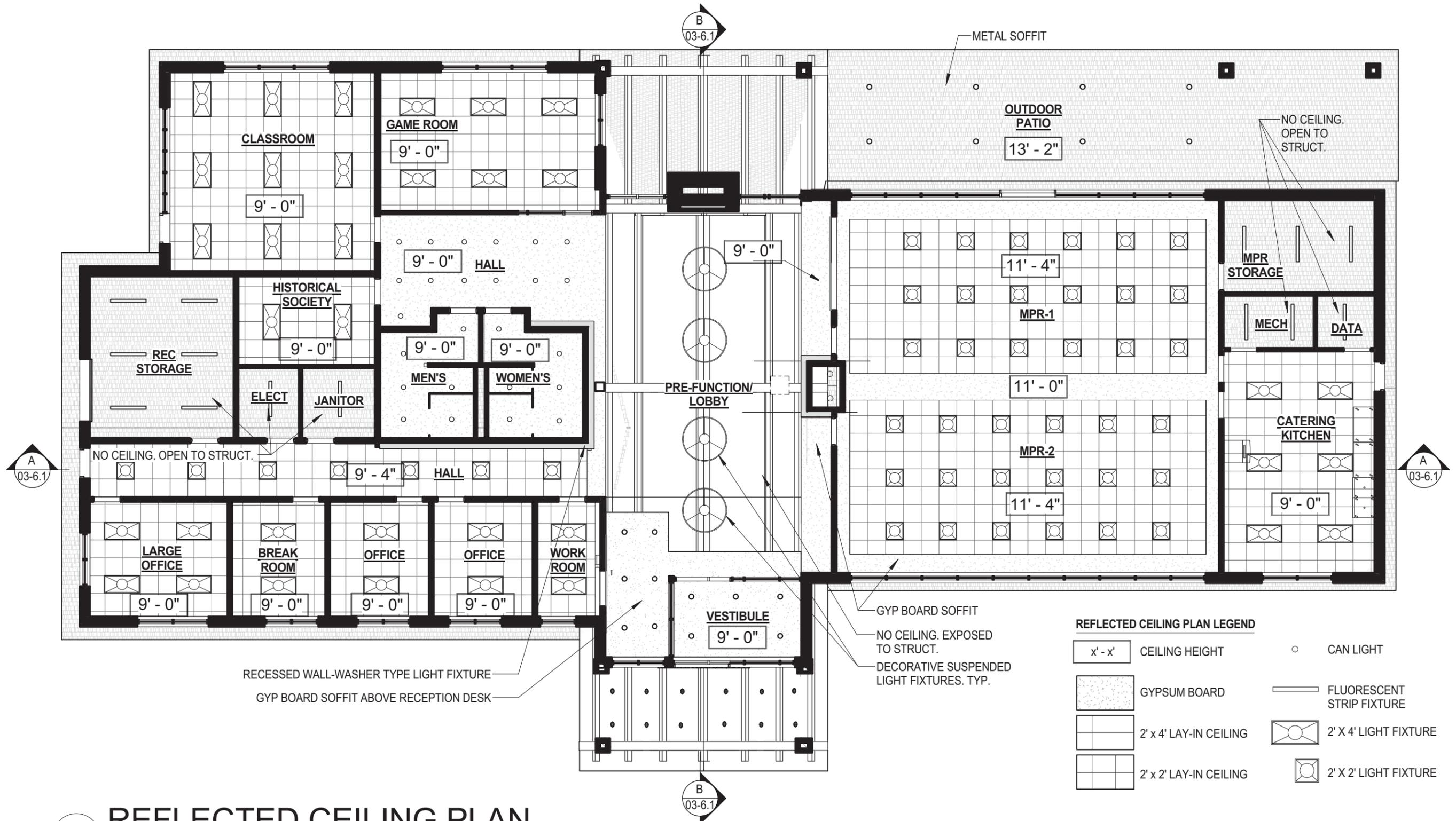




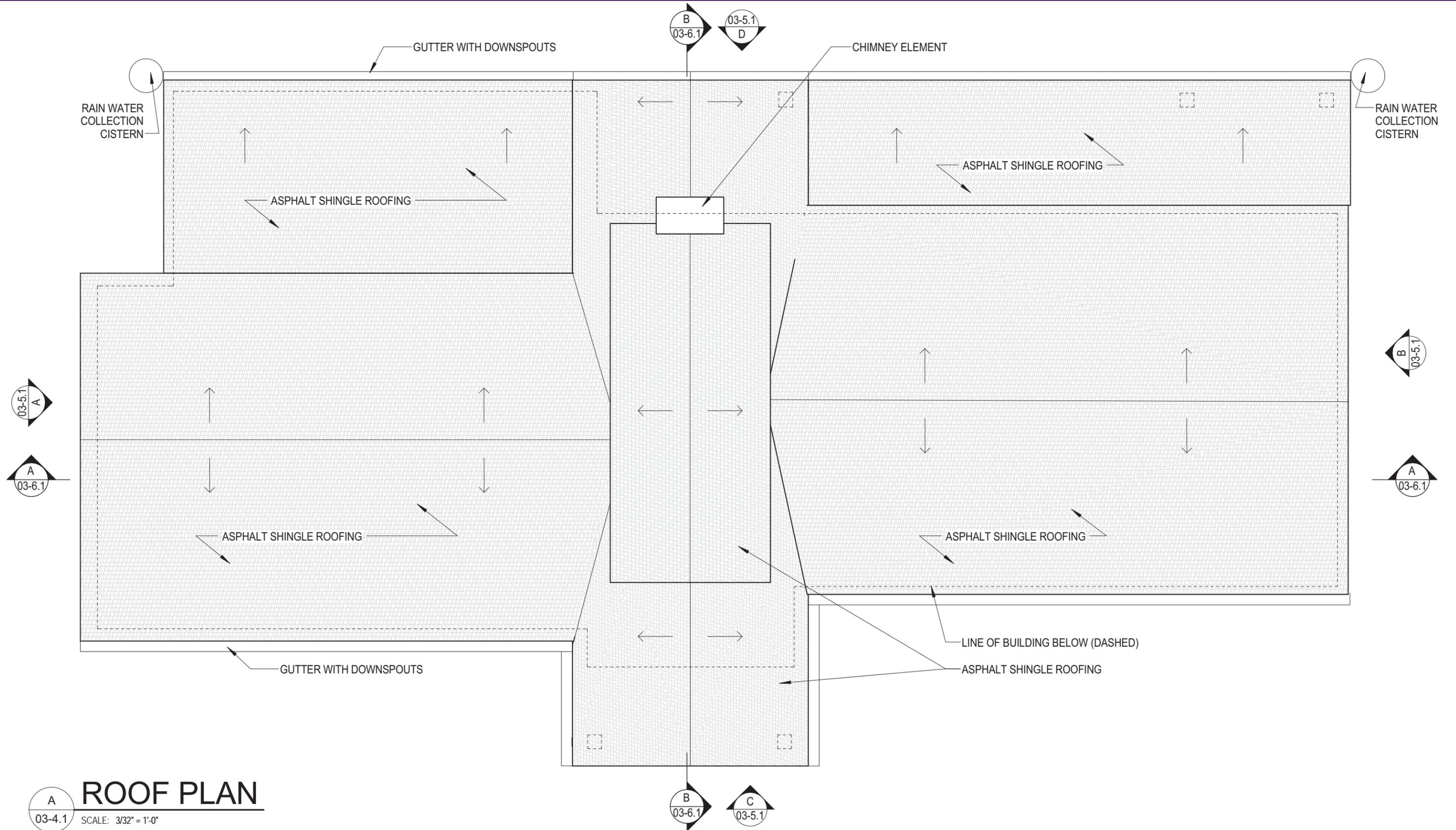
**A** ENLARGED KITCHEN PLAN  
03-2.1 SCALE: 1/4" = 1'-0"



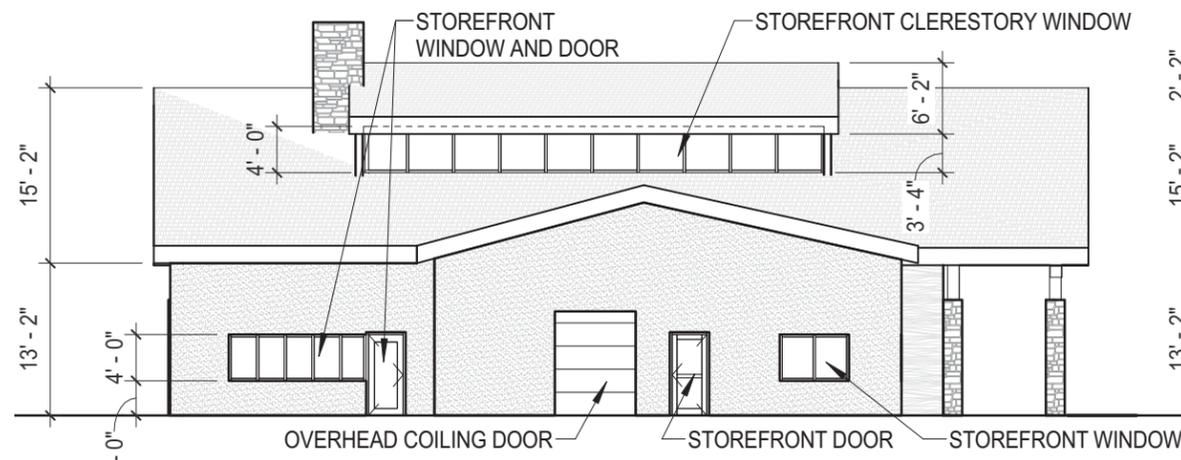
**B** ENLARGED RESTROOM PLAN  
03-2.1 SCALE: 1/4" = 1'-0"



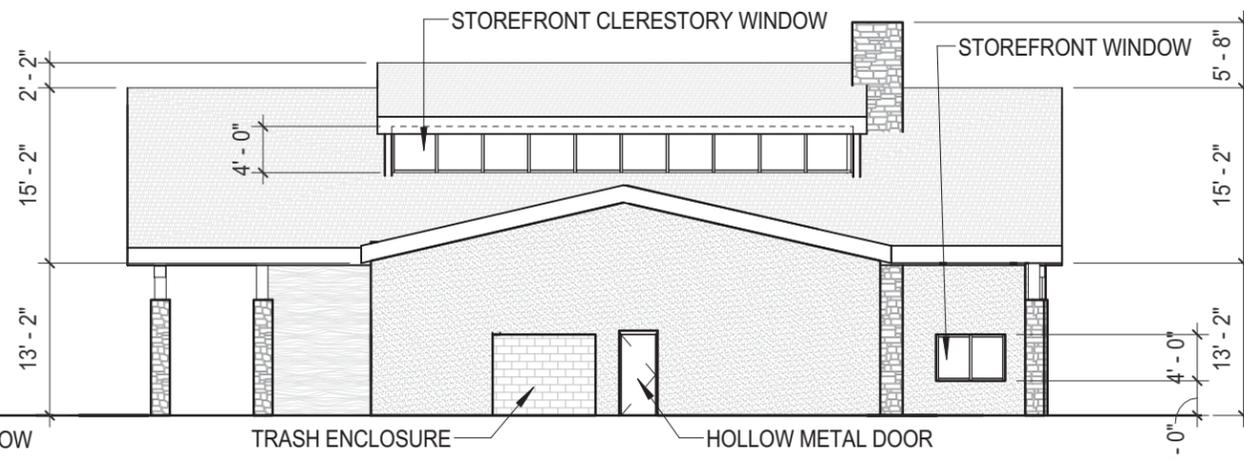
**A** REFLECTED CEILING PLAN  
 03-3.1 SCALE: 3/32" = 1'-0"



**A** **ROOF PLAN**  
 03-4.1 SCALE: 3/32" = 1'-0"



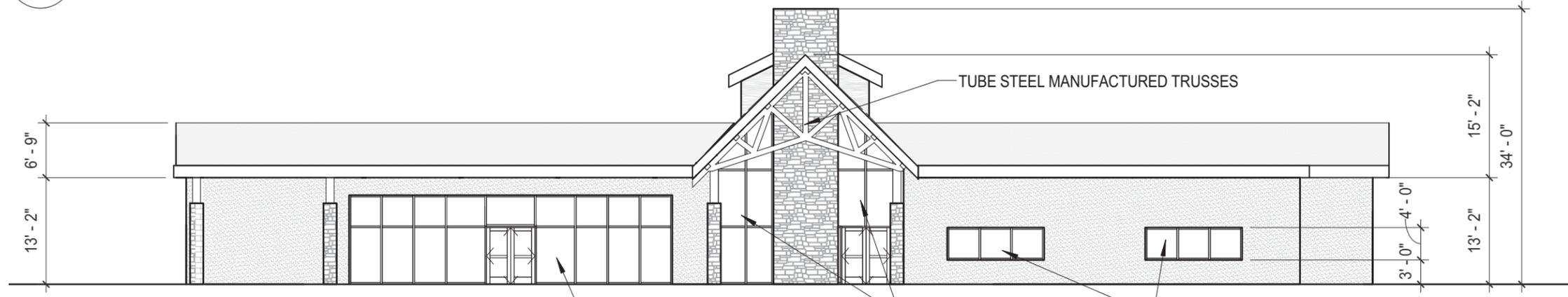
**A NORTH ELEVATION**  
03-5.1 SCALE: 1/16" = 1'-0"



**B SOUTH ELEVATION**  
03-5.1 SCALE: 1/16" = 1'-0"



**C WEST ELEVATION**  
03-5.1 SCALE: 1/16" = 1'-0"



**D EAST ELEVATION**  
03-5.1 SCALE: 1/16" = 1'-0"

- EXTERIOR ELEVATION MATERIALS**
-  MANUFACTURED MASONRY VENEER
  -  CEMENTITIOUS HARDY BOARD TYPE "A"
  -  CEMENTITIOUS HARDY BOARD TYPE "B" (WOOD VENEER)
  -  ASPHALT SHINGLE ROOFING

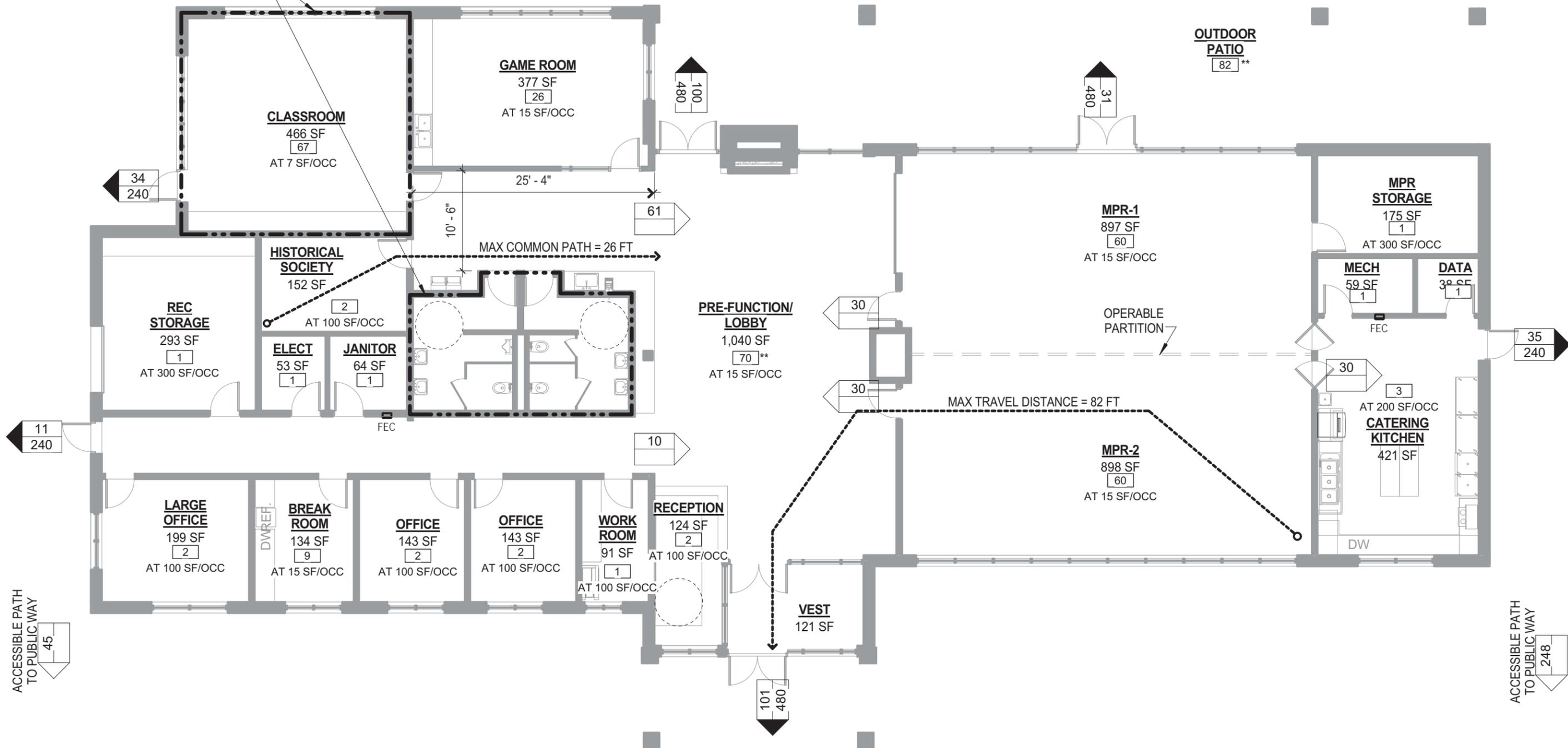


**BUILDING SECTION AA**  
A 03-6.1 SCALE: 3/32" = 1'-0"



**BUILDING SECTION BB**  
B 03-6.1 SCALE: 3/32" = 1'-0"

OPTION TO CREATE TORNADO SAFE ROOM/ AREA OF REFUGE AT CLASSROOM AND RESTROOMS FOR 100+ OCCUPANTS



1 F SCHEMATIC CODE PLAN  
SCALE: 3/32" = 1'-0"

# GENERAL INFORMATION

LOCATION

1201 CLARK FERGUSON DRIVE  
NORTH KANSAS CITY, MO 64116

OWNER INFORMATION

CITY OF NORTH KANSAS CITY  
2010 HOWELL STREET  
NORTH KANSAS CITY, MO 64116

JURISDICTION HAVING AUTHORITY

CITY OF NORTH KANSAS CITY  
BUILDING AND PLANNING DEPARTMENT  
2010 HOWELL STREET  
NORTH KANSAS CITY, MO 64116

PROJECT DESCRIPTION

NEW PARKS AND RECREATION FACILITY FOR THE CITY OF NORTH KANSAS CITY

# SITE DATA (PER NKC 2016 ZONING ORDINANCES)

ZONING: ZONE R-1A: LOW DENSITY SINGLE FAMILY RESIDENTIAL  
USE: "C - PARKS AND PLAYGROUNDS, INCLUDING RECREATION OR SERVICE BUILDINGS AND SWIMMING POOLS WHICH ARE OWNED OR OPERATED BY A GOVERNMENTAL AGENCY"

REQUIRED PARKING:

NOT SPECIFIED PER ZONING REQUIREMENTS

PROVIDED PARKING:

38 TOTAL PARKING STALLS = 36 STANDARD STALLS + 2 VAN ACCESSIBLE ADA STALLS

LANDSCAPING REQUIREMENTS:

- PLANTED GRASS OR OTHER GROUND COVER REQUIRED AT NON-PAVED DRIVES, PATIOS, AND PARKING
- TREES AND SHRUBS IN REASONABLE QUANTITY AND SIZE REQUIRED AT AREAS 6'-0" OR MORE IN WIDTH.
- TRASH ENCLOSURE REQUIRED

# CODE DATA (PER NORTH KANSAS CITY 2016 CODE OF ORDINANCES)

APPLICABLE CODES:

- 2012 INTERNATIONAL BUILDING CODE
- 2012 INTERNATIONAL PLUMBING CODE
- 2012 INTERNATIONAL MECHANICAL CODE
- 2012 NATIONAL ELECTRICAL CODE
- 2012 INTERNATIONAL FIRE CODE
- 2012 INTERNATIONAL FUEL GAS CODE

REFERENCED STANDARDS (REQUIRED PER IBC 2012)  
ICC/ANSI A117.1, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES  
2012 INTERNATIONAL ENERGY CONSERVATION CODE

# IBC 2012

## CH 3 OCCUPANCY USE AND CLASSIFICATION

ASSEMBLY GROUP A - A2 = MULTI-PURPOSE ROOM, GAME ROOM, AND AUXILIARY SPACES  
BUSINESS GROUP = OFFICE AREA AND AUXILIARY SPACES  
EDUCATION GROUP = CLASSROOM

MIXED USE - NON-SEPARATED USES

## CH 4 SPECIAL OCCUPANCIES

SAFE ROOM/ AREA OF REFUGE

## CH 5 GENERAL BUILDING HEIGHTS AND AREAS

MAXIMUM AREA/ STORIES/ HEIGHT (PER IBC 2012 TABLE 503, OCCUPANCY A-2)

9,500 SF/ 2 STORIES/ 65'-0" HEIGHT  
AUTOMATIC SPRINKLER SYSTEM INCREASE = 200% AREA INCREASE /1 STORY/20 FT

MAXIMUM AREA/ STORIES/ HEIGHT (PER ZONING ORDINANCES)

AREA NOT SPECIFICIED / 2.5 STORIES/ 35'-0" HEIGHT

ACTUAL AREA/ STORIES/ HEIGHT

7,700 SF/ 1 STORY/ 34'-0" (CHIMNEY HEIGHT)

## CH 6 TYPE OF CONSTRUCTION

CONSTRUCTION CLASSIFICATION  
TYPE IIB

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS

STRUCTURAL FRAME (INCL. COLUMNS, GIRDERS, AND TRUSSES)	0 HR
BEARING WALLS	
EXTERIOR	0 HR
INTERIOR	0 HR
NONBEARING WALLS AND PARTITION	
EXTERIOR	0 HR
INTERIOR	0 HR
FLOOR CONSTRUCTION (INCL. SUPPORTING BEAMS AND JOISTS)	0 HR
ROOF CONSTRUCTION (INCL. SUPPORTING BEAMS AND JOISTS)	0 HR

## CH 7 FIRE RESISTANCE RATED CONSTRUCTION

EXTERIOR WALLS (704) - NO FIRE RESISTANCE REQUIRED  
FIREWALLS (705) - NONE REQUIRED  
FIRE BARRIERS (706) - NONE REQUIRED, 2-HR PROVIDED AT AREA OF REFUGE  
SHAFT ENCLOSURES (707) - NONE REQUIRED  
FIRE PARTITIONS (708) - NONE REQUIRED  
SMOKE BARRIERS (709) - NONE REQUIRED  
SMOKE PARTITIONS (710) - NONE REQUIRED  
OPENING PROTECTIVES (715) - NONE REQUIRED

## CH 8 WALLS AND CEILING FINISHES

IBC 2012 (TABLE 803.5)  
EXIT ENCLOSURES/ PASSAGEWAYS = B  
CORRIDORS = B  
ROOMS AND ENCLOSED SPACES = C

## CH 9 FIRE PROTECTION SYSTEMS

AUTOMATIC SPRINKLER SYSTEM	PROVIDED
STANDPIPE SYSTEM	NOT PROVIDED
PORTABLE FIRE EXTINGUISHERS	PROVIDED (CLASS A, 75 FT MAX TRAVEL DIST.)
FIRE ALARM & DETECTION SYSTEMS	PROVIDED
EMERGENCY ALARM SYSTEMS	NOT PROVIDED
SMOKE COMPARTMENT SYSTEMS	NOT PROVIDED
SMOKE AND HEAT VENTS	NOT PROVIDED
FIRE COMMAND CENTER	NOT PROVIDED
FIRE DEPARTMENT CONNECTIONS	PROVIDED
EXIT SIGNS	PROVIDED
EMERGENCY LIGHTS	PROVIDED

## CH 10 MEANS OF EGRESS

ALLOWABLE MAX TRAVEL DISTANCE: 250 FT  
ACTUAL MAX TRAVEL DISTANCE: 82 FT  
MAX COMMON PATH ALLOWED: 75 FT  
MAX COMMON PATH PROVIDED: 26 FT  
MIN. CORRIDOR EGRESS WIDTH REQUIRED: 44"  
ACTUAL EGRESS WIDTH PROVIDED: 84"

**IPC** PLUMBING FACILITIES PER TABLE 2902 - 2012 INTERNATIONAL PLUMBING CODE

**OFFICE AREAS (OCCUPANCY CATEGORY B)**

LAVATORIES = 1 PER 40  
 MALE WATER CLOSETS = 1 PER 25  
 FEMALE WATER CLOSETS = 1 PER 25

TOTAL PERSONS	MALE			FEMALE			DRINKING FOUNTAINS
	MEN	WATER CLOSETS	LAVATORIES	WOMEN	WATER CLOSETS	LAVATORIES	
10	5	0.2	0.125	5	0.2	0.125	0.1

**GAME ROOM/ MULTI-PURPOSE ROOM/CLASSROOM (OCCUPANCY CATEGORY A-2)**

LAVATORIES = 1 PER 200  
 MALE WATER CLOSETS = 1 PER 75  
 FEMALE WATER CLOSETS = 1 PER 75

TOTAL PERSONS	MALE			FEMALE			DRINKING FOUNTAINS
	MEN	WATER CLOSETS	LAVATORIES	WOMEN	WATER CLOSETS	LAVATORIES	
217	108.5	1.45	0.54	108.5	1.45	0.54	0.43

BUILDING TOTAL OCCUPANCY (FOR PLUMBING CALCS) = 227 OCCUPANTS\*\*

\*\* PRE-FUNCTION SPACE AND OUTDOOR PATIO SPACE ARE NOT INCLUDED IN PLUMBING CALCULATIONS - DURING MAXIMUM OCCUPANCY, SPACES WILL NOT BE USED SIMULTANEOUSLY WITH MULTI-PURPOSE ROOM

**TOTAL REQUIRED FIXTURES:**

MALE WATER CLOSETS = 1.65  
 MALE LAVATORIES = 0.67

FEMALE WATER CLOSETS = 1.65  
 FEMALE LAVATORIES = 0.67

DRINKING FOUNTAINS = 0.53

**TOTAL PROVIDED FIXTURES:**

MALE WATER CLOSETS = 2  
 MALE LAVATORIES = 2

FEMALE WATER CLOSETS = 2  
 FEMALE LAVATORIES = 2

DRINKING FOUNTAINS = 2

**IECC**

CLIMATE ZONE (PER SECTION C301.1): 4

REQUIRED R-VALUES/U-FACTORS (PER SECTION C402):

ROOFS (INSULATION OVER METAL DECK)	R-25 ci
WALLS (METAL STUD ABOVE GRADE)	R-13 + R-7.5 ci
SLAB-ON-GRADE FLOORS (INSULATION AT PERIMETER)	R-15 FOR 24" BELOW
OPAQUE DOORS	U-0.61
VERTICAL FENESTRATION (FIXED)	U-0.38
VERTICAL FENESTRATION (OPERABLE)	U-0.45
ENTRY DOOR FENESTRATION	U-0.77

MAXIMUM FENESTRATION AREA = 30% OF GROSS ABOVE-GRADE WALL AREA  
 ACTUAL FENESTRATION AREA = 28.9%

## Architectural

### I. Project Design Team

- A. The following professional consultants have been retained for this project:
1. Architectural: incite Design Studio, LLC.
  2. Civil: Kaw Valley Engineering
  3. Structural: Toth & Associates.
  4. Mechanical, Electrical & Plumbing: VUEngineering, LLC.

### II. Codes and Standards

- A. The following codes are applicable to this project:
1. International Building Code (IBC) – 2012
- B. Publications from the following standards organization will be used as design guidelines for the project:
1. National Fire Protection Association (NFPA)
- C. The project will be designed to conform to the Americans with Disabilities Act and Architectural Guidelines (ADAAG).
1. ADA Standards for Accessible Design – ICC/ANSI A117.1 Accessible and Usable Buildings and Facilities
- D. Construction Type - II-B, automatic sprinkler system
- E. Occupancy Group – Mixed Use, Non Separated Uses
- A2 (Assembly) and B (Business)
- F. Allowable Area/Height - Per Table 503: 9,500 SF/2 Stories/65'
- G. Allowable Area/Height Increases
1. Sprinkler: + 200% area increase + 1 story/20'
  2. Sprinkler: + 9,500 \* 2.0 = 19,000 SF
- H. Total Actual Area/Height – 7,400 SF/ 1 Stories at 34'-0"

### III. Project Description

#### A. Site

The proposed location for the new North Kansas City Parks & Recreation building is located within Macken Park, south of Clark Ferguson Drive. The building will be located on the east side of the existing parking lot and site walks will tie into the existing asphalt walking trail. Drive access will utilize an existing curb cut to the parking spots. The parking lot will target 38 total parking stalls (including 2 handicap spaces) and each will be a minimum of 10' wide. Accommodations can be made along the existing service drive for bus/van drop off. Sidewalks will connect the building to both the parking lot and the drop off point. All walks will be less than 5% slope with a maximum cross slope of 2%. An exterior patio will be provided to the east of the facility.

#### B. New Parks & Recreation Facility

The facility will be an approximately 7,400 square foot new building to serve the citizens of North Kansas City and those staff and patrons that utilize the Parks & Recreation programs. The programs offered are varied among a wide range of age-ranges from bitty soccer to cards for the senior citizens. The facility will include a community gathering space, offices, an open, multi-use activity/learning area, a kitchen with multiple cooking set ups for instruction, a "classroom" style learning space, an activity/ game room, storage spaces, mechanical, electrical, and data rooms, a receptionist area, a work room and break room for the staff, two ADA compliant toilet rooms, and an exterior learning patio.

### IV. Building Exterior Finishes and Construction

- A. The exterior of the Parks & Recreation facility will be load bearing framing with exterior grade sheathing, cement board, glazing and a limited amount of stone veneer.
- B. Exterior openings shall be clear anodized aluminum frames and doors with clear, low-e coated insulated glazing. Some doors will be provided key card access and tied back to the main building's secure access system. Windows into the offices shall be operable.
- C. The roof will be framed with pre-manufactured wood trusses, wood joists and clad with exterior grade sheathing on the exterior face. The cavity of the wood studs will be filled with closed cell sprayed insulation and will provide a minimum of R-38. The roof will be clad with a standing seam metal roof with a color that matches the existing building cladding (green). Gutters, downspouts, trim, and soffits will be provided.

### V. Building Interior Finishes and Construction

- A. The flooring in the open activity area and kitchen spaces shall be resilient, durable, and cleanable with low maintenance. Ideas for this flooring are a micro-topping or a lapidolith sealed concrete. Options will be reviewed with the district. The offices, classroom, game room, and historical society space will be a durable carpet tile. All flooring materials will have a 4" rubber base.
- B. Interior walls will be studs and will be clad with high abuse gypsum board. Moisture resistant gypsum board will be used at wet locations. All walls will receive paint. Walls in the toilet rooms will receive a porcelain tile at a portion of the wet wall.
- C. Interior doors shall be pre-finished wood doors with painted hollow metal frames.

## Civil and Site Improvements

Site and utility improvements for the proposed NKC Parks building will consist of the following items below. See architectural overall site plan (Sheet A1.0) for additional clarification.

### I. Demolition

- A. Minimal demolition work will be required at the proposed site. The existing concrete slab on site will be demolished in place and the rubble will be used as fill material.

### II. Earthwork

- A. The site is relatively flat at the parking lot and proposed building location. The site generally slopes to the east where the grade steepens and lowers into an existing detention basin. The proposed building location is in a flood plain and the finished floor elevation will be set two feet above the flood elevation.
- B. Substantial fill will be required to raise the site to two feet above the flood elevation and prepare it for construction of the building foundation.

### III. Utilities

- A. Sanitary Sewer: An existing 6" sanitary sewer runs under the parking lot and proposed building. This line will be rerouted and will act as the service line for the proposed building.
- B. Water: An existing water main is located along the north side of Clark Ferguson Drive. A connection will be made to this main for domestic water and fire protection service for the proposed building. The proposed building will feature an internal fire suppression system and a fire hydrant will be located at the parking lot entrance.
- C. Storm Sewer: Gutters from the proposed building will drain into storage barrels where storm water will be recycled. Remaining site runoff will drain via overland flow to the existing drainage basin located east of the proposed building. This drainage basin will be enlarged during site preparation and the excavated material used as fill. An existing grate inlet will be converted into a field inlet and will accept the runoff from the parking lot, as it currently does. The existing drainage pipe that drains the parking lot will be replaced with an open flow channel.
- D. Communications: Telephone and fiber optic service to the proposed building will be coordinated with the City and Parks Department. Telephone Service is anticipated to be routed from 25<sup>th</sup> St. Existing fiber optic lines are located along Ozark St. and additional lines will need to be routed to the site.
- E. Natural Gas: Further investigation is necessary to determine the best means to provide natural gas to the proposed building. A service line is anticipated to be routed from 25<sup>th</sup> St.
- F. Electric: An existing transformer is located north of Clark Ferguson Drive. Electric service is anticipated to be routed underground from the transformer to the site.

### IV. Paving

- A. A concrete side walk is planned to run around the front of the proposed building. This sidewalk will tie into the existing sidewalk located along Clark Ferguson Drive and walking trail south of building in Wheel Park.
- B. The existing parking lot will be milled, overlaid and restriped in accordance with the new parking layout.
- C. A concrete drive located at north of the building will act as a fire lane and employee access. A concrete drive located at the south of the building will act as access to the trash enclosure. These drives and sections of the parking lot which will be used to access them will be constructed of heavy duty concrete and asphalt respectively.

### V. Drainage

- A. The existing detention basin will be enlarged to accommodate the increased runoff generated by the proposed site.

## Structural

The design narrative is based on discussions and preliminary plans provided by the Architect.

### I. General

A. The project consists of a 8000 sq. ft. one-story building utilizing a combination of steel framing, LGMF stick built construction, and masonry wall systems. Roof system will generally be LGMF trusses, with a metal deck roof.

### II. Foundation and Slab

A. The foundation system will most likely be reinforced concrete strip footings with concrete stem walls bearing on undisturbed soil or engineered fill. This will be coordinated with the recommendations in the geotechnical engineering report for the site.

B. The main level will be standard concrete slab-on-grade construction.

### III. Building Structure

A. The primary roof structure will be pre-manufactured LGMF Trusses. Secondary roof trusses will be LGMF trusses or conventional LGMF rafter framing.

B. Exterior walls will be a combination of LGMF load bearing walls in conjunction with steel framing as necessary.

C. The lateral force resisting system will be conventional shear walls using wood sheathing and wood stud wall framing or steel x-bracing if required.

D. The main entry corridor and high roof section will most likely be steel columns in conjunction with steel roof framing or (heavy timber trusses) to create the roof structure.

E. Hardened Room / Safe Room – The restroom area and one classroom will be evaluated for the feasibility of creating a hardened area to increase safety and potentially meet the requirements of FEMA 361. These rooms will most likely consist of solid filled masonry walls with a concrete roof system.

## Mechanical and Plumbing Systems

### I. Applicable Reference Standards

All work, materials, and installations shall conform to appropriate codes, regulations, and enforcing agencies as listed below:

- Americans with Disabilities Act (ADA)
- American Refrigeration Institute (ARI)
- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
- American Society of Mechanical Engineers (ASME)
- Local and State Mechanical and Plumbing Codes
- National Fire Protection Association (NFPA)
- Occupational Safety and Health Act (OSHA)
- Regulations of Local Utility Companies
- Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

### II. Plumbing System

#### A. Domestic Water System:

1. Hot and cold water will be provided to all fixtures required.
2. Domestic water piping will be Type L copper piping with lead-free solder joints or mechanical coupling similar to pro-press.
3. Insulation: Cold and hot water will be insulated using fiberglass with kraft jacketing. The insulation thickness will be specified to be consistent with local energy code requirements.
4. Pipeline Supports: Domestic water pipeline supports will be specified to be consistent with the requirements of the applicable plumbing code.
5. Identification: Pipelines will have identification tags and flow arrows. Pipeline identification tags will be adhesive markers that are commercially available.

#### B. Domestic Hot Water:

1. The domestic water heating system will comply with the requirements of ASHRAE Standard 90.1-2004.
2. Two domestic hot water heaters will be extended to serve the new construction. One unit will serve the kitchen area. The other will serve the rest of the building.
  - a. Domestic hot water will be generated by gas-fired water heaters with integral storage tanks.
  - b. A recirculation pump will be provided for each hot water system with a network greater than 75 feet of piping to maintain hot water to the fixtures.

#### C. Plumbing Fixtures:

1. All plumbing fixtures will be selected in accordance with the use of the facility and will meet all ADAAG, state, and local regulations.
2. Water closets constructed from vitreous china with wall hanger and backing plate. Water closets will have an elongated bowl, siphon jet action, and open-front seat. Flush valves will be battery operated infrared type. Water consumption will not exceed 1.28 gallons per flush.

American Standard – AFWall Water Closet / Selectronic Flush Valve



3. Lavatories will be vitreous china with center-set faucets, open drain type waste outlet, flexible supplies with angle stops, and adjustable 1¼-inch cast brass P-trap. Faucet will be automatic type with a battery operation infrared feature. Water flows will be limited to 0.5 gallons per minute.

American Standard – Lucern Lavatory / Sloan – Optima IQ Faucet



4. Urinals to be wall-hung blow out type, vitreous china with flush valve, wall hanger and backing plate. Flush valves will be battery operated infrared type. Water flow will be limited to 0.5 gallon per flush.

American Standard – Washbrook Urinal / Selectronic Flush Valve



5. Handicapped- and ADA-accessible fixtures will be provided, as required.

D. Sanitary Waste and Vent System:

1. Aboveground sanitary and vent piping will be cast iron, hub and spigot. Belowground piping will be PVC. Sanitary and vent pipelines will not be insulated.
2. Floor drains will be provided in toilet rooms, and as required. In unfinished areas, cast iron floor drain strainers will be provided. Finished areas will be supplied with polished brass floor drain strainers.
3. Floor drains and/or floor sinks will be provided in mechanical equipment rooms, as required. In unfinished areas, cast iron floor drain strainers will be provided.
4. Pipeline Supports: Sanitary waste and vent pipeline supports will be specified to be consistent with the requirements of the applicable plumbing code.
5. Identification: Pipelines will have identification tags and flow arrows. Pipeline identification tags will be stencil painted.

E. Natural Gas System:

1. Natural gas piping will be extended to provide gas to new HVAC equipment.
2. Piping will be Schedule 40 carbon steel with threaded connections for sizes 2 inches and less. Piping will be specified with butt-welded connections for sizes 2½ inches and greater.
3. Pipelines will not be insulated.
4. Pipeline Supports: Gas pipeline supports will be specified to be consistent with the requirements of the applicable fuel gas code.
5. Identification: Pipelines will be painted yellow.

III. Fire Protection System

- A. An automatic wet pipe sprinkler system will be installed throughout the new portions of the building.
- B. A Siamese connection will be provided on the exterior of the building.
- C. Pipelines will be specified in accordance with the requirements of NFPA 13.
- D. Sprinkler pipelines will be grooved end steel in compliance with the requirements of the NFPA 13.
- E. Sprinkler pipelines will not be insulated.
- F. Pipeline Supports: Sprinkler pipeline supports will be specified to be consistent with the requirements of the NFPA 13.
- G. Identification: Pipelines will be painted red, and will have identification tags and flow arrows. Pipeline identification tags will be press-on labels.

IV. Heating, Ventilating and Air Conditioning (HVAC)

A. System Summary:

1. It is intended that the building will be served by split-system equipment with DX-refrigeration and gas heat. A life-cycle cost analysis will be completed to determine the payback for a more energy efficient system. If the payback is good, and the funding is available, the system type may be changed to a more efficient system.

B. The following summarizes the design temperature set-point conditions within this facility:

Description	Summer (° F)	Winter (° F)
Lobby	74	70
Offices	74	70
Classrooms	74	70
MPR	74	70

C. Split Systems:

1. There will be 4 split system units serving this building, for each of the following areas:
  - a. Zone 1: MPR/Kitchen
  - b. Zone 2: Interior
  - c. Zone 3: Northwest exterior
  - d. Zone 4: South exterior
2. The approximate capacity of the HVAC systems is 5 tons each.
3. The HVAC systems will be split system with direct expansion refrigeration, gas-fired heat. The airflow will be constant volume.



- D. Entries and service type areas; i.e., vestibules, mechanical rooms, etc., will be heated with cabinet or horizontal unit heaters with remote thermostats for local control of the equipment.

# System Types

## A: Split System – Code Min. Efficiency

13 SEER – Cooling  
80% - Heating



## B: Split System – High Efficiency

15 SEER – Cooling  
94% - Heating



## C: Air Source Heat Pumps

17 SEER - Cooling  
3.0 COP – Heating



## D: Variable Refrigerant Flow (VRF)

21 SEER – Cooling  
4.1 COP – Heating



E. HVAC System Summary:

1. Ductwork:

- a. All supply and return ductwork will be galvanized sheet metal, and will have all joints sealed with fire retardant duct sealer. Supply air ductwork will be constructed to a 2-inch static pressure design standard. Exhaust, return, and outside air ductwork will be constructed to a 2-inch static pressure design standard.
- b. Supply and outside ductwork will be insulated for sound and moisture control. Return and exhaust ductwork will be insulated in critical areas for sound control. The insulation shall be external wrapped, fiberglass type with a reinforced jacketing.

2. Pipelines:

- a. Condensate drains will be constructed from Type L, copper tubing in plenum rated areas and PVC in non-plenum areas. Condensate drains will not be insulated, unless specific conditions justify.

3. Exhaust Requirements:

- a. General exhaust will be provided for custodial closets, toilet rooms, and other areas, as required.

F. HVAC Test and Balance:

- 1. Air Balance: Balancing will be accomplished by a firm with a minimum of three years of experience on similar projects.

<input type="checkbox"/> SECTION 221319	SANITARY WASTE PIPING SPECIALTIES
<input type="checkbox"/> SECTION 221323	SANITARY WASTE INTERCEPTORS
<input type="checkbox"/> SECTION 221413	STORM DRAINAGE PIPING
<input type="checkbox"/> SECTION 221423	STORM DRAINAGE PIPING SPECIALTIES
<input type="checkbox"/> SECTION 222123	NATURAL GAS PIPING
<input type="checkbox"/> SECTION 223400	FLUE-FIRED DOMESTIC WATER HEATERS
<input type="checkbox"/> SECTION 224000	PLUMBING FIXTURES
<input type="checkbox"/> SECTION 224500	EMERGENCY PLUMBING FIXTURES
<input type="checkbox"/> SECTION 224700	DRINKING FOUNTAINS AND WATER COOLERS
<input type="checkbox"/> SECTION 230500	COMMON WORK RESULTS FOR HVAC
<input type="checkbox"/> SECTION 230519	METERS AND GAGES FOR HVAC PIPING
<input type="checkbox"/> SECTION 230523	GENERAL-DUTY VALVES FOR HVAC PIPING
<input type="checkbox"/> SECTION 230529	HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 230548	VIBRATION AND SEISMIC CONTROLS FOR HVAC PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 230553	IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 230593	TESTING, ADJUSTING, AND BALANCING FOR HVAC
<input type="checkbox"/> SECTION 230700	HVAC INSULATION
<input type="checkbox"/> SECTION 230900	INSTRUMENTATION AND CONTROL FOR HVAC
<input type="checkbox"/> SECTION 233113	METAL DUCTS
<input type="checkbox"/> SECTION 233300	AIR DUCT ACCESSORIES
<input type="checkbox"/> SECTION 233423	HVAC POWER VENTILATORS
<input type="checkbox"/> SECTION 233713	DIFFUSERS, REGISTERS, AND GRILLES
<input type="checkbox"/> SECTION 235400	FORCED AIR FURNACE AND CONDENSING UNITS
<input type="checkbox"/> SECTION 238239	UNIT HEATERS

V. Preliminary Specification Sections

The following list summarizes the specification sections that are anticipated to be prepared for this project:

<input type="checkbox"/> SECTION 210500	COMMON WORK RESULTS FOR FIRE SUPPRESSION
<input type="checkbox"/> SECTION 210548	VIBRATION AND SEISMIC CONTROLS FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 211000	WATER-BASED FIRE-SUPPRESSION SYSTEMS
<input type="checkbox"/> SECTION 220500	COMMON WORK RESULTS FOR PLUMBING
<input type="checkbox"/> SECTION 220519	METERS AND GAGES FOR PLUMBING PIPING
<input type="checkbox"/> SECTION 220523	GENERAL-DUTY VALVES FOR PLUMBING PIPING
<input type="checkbox"/> SECTION 220529	HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 220548	VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 220553	IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
<input type="checkbox"/> SECTION 220700	PLUMBING INSULATION
<input type="checkbox"/> SECTION 221116	DOMESTIC WATER PIPING
<input type="checkbox"/> SECTION 221119	DOMESTIC WATER PIPING SPECIALTIES
<input type="checkbox"/> SECTION 221316	SANITARY WASTE AND VENT PIPING

## System Cost Estimates

System Type	Typical \$/SF Cost	Potential Rebates	Estimated Cost
System A:	\$19	\$1,000	\$151,000
System B:	\$20	\$1,000	\$159,000
System C:	\$22	\$1,500	\$174,000
System D:	\$24	\$2,000	\$190,000

## System Energy Usage

System Type	Energy Usage				Energy Costs			Total Annual Cost
	kWh	kW	Therms	Total kBtu	\$/kW	\$/kW	\$/Therm	
System A	67,464	43	1446	374,787	\$0.088	\$19.80	\$1.40	\$8,814
System B	65,225	40	1231	345,648	\$0.088	\$19.80	\$1.40	\$8,257
System C	94,143	91	0	321,216	\$0.088	\$19.80	\$1.40	\$10,089
System D	90,290	91	0	308,069	\$0.088	\$19.80	\$1.40	\$9,749

# Discounted Payback Analysis

## LCCA - Discounted Payback

### North Kansas City - Parks and Recreation Building

System Type	First Cost	Energy Cost	Maintenance Cost
Min. Eff. Split System: Sys-A	\$151,000	\$8,814	\$1,500
High Eff. Split System: Sys-B	\$159,000	\$8,257	\$1,500
Air-Source Heat Pumps: Sys-C	\$174,430	\$10,089	\$1,500
VRF: Sys-D	\$190,045	\$9,749	\$1,800

Discount Rate 3%

Year	Cash Flow													Present Value Factor	Discounted Cash Flow				Cumulative Cash Flow			
	Equipment Costs				Projected Price Escalation	Utility Costs				Maintenance Costs					Sys-A	Sys-B	Sys-C	Sys-D	Sys-A	Sys-B	Sys-C	Sys-D
n	Sys-A	Sys-B	Sys-C	Sys-D		Sys-A	Sys-B	Sys-C	Sys-D	Sys-A	Sys-B	Sys-C	Sys-D	Sys-A	Sys-B	Sys-C	Sys-D	Sys-A	Sys-B	Sys-C	Sys-D	
0	\$151,000	\$159,000	\$174,430	\$190,045	1.01	\$8,902	\$8,339	\$10,189	\$9,847	\$1,500	\$1,500	\$1,500	\$1,800	1.0000	\$161,402	\$168,839	\$186,119	\$201,691	\$161,402	\$168,839	\$186,119	\$201,691
1	\$0				1.01	\$8,902	\$8,339	\$10,189	\$9,847	\$1,500	\$1,500	\$1,500	\$1,800	0.9709	\$10,099	\$9,553	\$11,349	\$11,308	\$171,502	\$178,392	\$197,468	\$212,999
2	\$0				1.03	\$9,079	\$8,504	\$10,391	\$10,042	\$1,500	\$1,500	\$1,500	\$1,800	0.9426	\$9,971	\$9,430	\$11,209	\$11,162	\$181,473	\$187,822	\$208,677	\$224,161
3	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.9151	\$9,842	\$9,307	\$11,067	\$11,015	\$191,315	\$197,128	\$219,744	\$235,177
4	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.8885	\$9,556	\$9,035	\$10,744	\$10,695	\$200,871	\$206,164	\$230,488	\$245,871
5	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.8626	\$9,277	\$8,772	\$10,431	\$10,383	\$210,148	\$214,936	\$240,919	\$256,254
6	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.8375	\$8,933	\$8,448	\$10,043	\$9,999	\$219,081	\$223,384	\$250,963	\$266,253
7	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.8131	\$8,673	\$8,202	\$9,751	\$9,708	\$227,754	\$231,586	\$260,713	\$275,961
8	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.7894	\$8,420	\$7,963	\$9,467	\$9,425	\$236,175	\$239,548	\$270,180	\$285,386
9	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.7664	\$8,175	\$7,731	\$9,191	\$9,150	\$244,350	\$247,279	\$279,371	\$294,536
10	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.7441	\$8,003	\$7,567	\$8,998	\$8,957	\$252,352	\$254,846	\$288,369	\$303,493
11	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.7224	\$7,770	\$7,347	\$8,736	\$8,696	\$260,122	\$262,193	\$297,105	\$312,189
12	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.7014	\$7,543	\$7,133	\$8,482	\$8,442	\$267,665	\$269,325	\$305,587	\$320,631
13	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.6810	\$7,324	\$6,925	\$8,235	\$8,196	\$274,989	\$276,250	\$313,822	\$328,827
14	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.6611	\$7,052	\$6,669	\$7,928	\$7,893	\$282,041	\$282,919	\$321,750	\$336,721
15	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.6419	\$6,847	\$6,474	\$7,697	\$7,663	\$288,887	\$289,393	\$329,447	\$344,384
16	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.6232	\$6,647	\$6,286	\$7,473	\$7,440	\$295,534	\$295,679	\$336,920	\$351,824
17	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.6050	\$6,454	\$6,103	\$7,255	\$7,223	\$301,988	\$301,782	\$344,175	\$359,048
18	\$0				1.03	\$9,079	\$8,504	\$10,391	\$10,042	\$1,500	\$1,500	\$1,500	\$1,800	0.5874	\$6,214	\$5,877	\$6,985	\$6,956	\$308,202	\$307,659	\$351,160	\$366,004
19	\$0				1.03	\$9,079	\$8,504	\$10,391	\$10,042	\$1,500	\$1,500	\$1,500	\$1,800	0.5703	\$6,033	\$5,705	\$6,781	\$6,753	\$314,234	\$313,364	\$357,942	\$372,757
20	\$0				1.03	\$9,079	\$8,504	\$10,391	\$10,042	\$1,500	\$1,500	\$1,500	\$1,800	0.5537	\$5,857	\$5,539	\$6,584	\$6,557	\$320,092	\$318,903	\$364,525	\$379,313
21	\$0				1.03	\$9,079	\$8,504	\$10,391	\$10,042	\$1,500	\$1,500	\$1,500	\$1,800	0.5375	\$5,687	\$5,378	\$6,392	\$6,366	\$325,778	\$324,281	\$370,918	\$385,679
22	\$0				1.04	\$9,167	\$8,587	\$10,492	\$10,139	\$1,500	\$1,500	\$1,500	\$1,800	0.5219	\$5,567	\$5,264	\$6,259	\$6,231	\$331,345	\$329,545	\$377,176	\$391,910
23	\$0				1.05	\$9,255	\$8,670	\$10,593	\$10,237	\$1,500	\$1,500	\$1,500	\$1,800	0.5067	\$5,449	\$5,153	\$6,127	\$6,099	\$336,794	\$334,698	\$383,303	\$398,009
24	\$0				1.06	\$9,343	\$8,752	\$10,694	\$10,334	\$1,500	\$1,500	\$1,500	\$1,800	0.4919	\$5,334	\$5,043	\$5,999	\$5,969	\$342,128	\$339,741	\$389,302	\$403,978
25	\$0				1.06	\$9,343	\$8,752	\$10,694	\$10,334	\$1,500	\$1,500	\$1,500	\$1,800	0.4776	\$5,179	\$4,896	\$5,824	\$5,795	\$347,307	\$344,638	\$395,126	\$409,774

## Electrical Systems

### I. Codes and Standards

#### A. The following codes are applicable to this project:

1. National Electrical Code (NEC)
2. International Building Code (IBC)
3. International Building Standards organizations will be used as design guidelines for the project:
4. National Fire Protection Association (NFPA)
5. Illuminating Engineering Society of North America (IES)
6. Building Industry Consulting Services International (BICSI)
7. Americans with Disabilities Act (ADA)
8. National Electrical Manufacturer's Association (NEMA)
9. Electrical Industries Alliance (EIA)
10. Telecommunications Industry Association (TIA)

#### B. The project will be designed to conform to the Americans with Disabilities Act and Architectural Guidelines (ADAAG).

### II. Cables and Conductors

#### A. All conductors will be copper; aluminum conductors will not be used.

#### B. Cables with Type XHHW-2 insulation will be provided for services entrances conductors and feeder conductors to panelboards

#### C. Cables with Type THHN-THWN insulation will be used for other feeders and all branch circuit conductors.

### III. Grounding and Bonding

#### A. Grounding of the service entrance equipment will be performed in accordance with NEC and will include all optional forms of supplemental electrodes.

#### B. Telecommunications system grounding will be provided according to BICSI guidelines. Grounding will include a main telecommunications grounding busbar (MTGB) in the main telecommunications room (building distributor, BD).

#### C. A grounding electrode will be provided for each exterior pole supporting lighting fixtures.

### IV. Hangers and Supports

#### A. Hangers and supports will be constructed of steel in all areas.

### V. Raceways and Boxes

#### A. The following types of raceways as defined by NEC are proposed:

1. Electrical Metallic Tubing (EMT)
2. Intermediate Metallic Tubing (IMC)
3. Rigid Metallic (Steel) Conduit (RMC)
4. Rigid Nonmetallic Conduit (RNC)
5. Flexible Metallic Conduit (FMC)
6. Liquid-Tight Flexible Metallic Conduit (LFMC)

#### B. Application of raceway and box products in exterior locations will be as follows:

1. Exposed Raceway: IMC or RMC
2. Concealed Raceway, Aboveground: IMC or RMC
3. Underground Conduit: RNC
4. Connections to Vibrating Equipment: LFMC
5. Boxes, Above Ground: NEMA Type 3R or Type 4

#### C. Application of raceway and box products in interior locations will be as follows:

1. Exposed, Not Subject to Physical Damage, Dry Locations: EMT
2. Exposed, Subject to Physical Damage: RMC
3. Damp or Wet Locations: RMC
4. Concealed: EMT
5. Connections to Vibrating Equipment, Dry Locations: FMC
6. Connections to Vibrating Equipment, Wet Locations: LFMC
7. Boxes, Dry Locations: NEMA 250, Type 1
8. Boxes, Damp and Wet Locations: NEMA 250, Type 4 stainless steel

### VI. Cable Trays

#### A. Cable trays will not be provided.

### VII. Lighting Control

#### A. Lighting control will consist of a combination of manual and automatic control.

- B. The following types of occupancy sensors are proposed:
1. Switch-Box Occupancy Sensors: Passive infrared device mounted in a standard switch box. These devices will be used in small rooms where sensors have a direct line of sight to the occupants
  2. Ceiling Mounted Occupancy Sensors: Low voltage sensor with remote relay pack for control of load.
    - a. Ultrasonic Type: Devices of this type will be used in rooms with walking-type movements, such as restrooms
    - b. Dual Technology Type - Passive Infrared and Ultrasonic: Devices of this type will be used in rooms with fine motor skill movements, such as desk and office workspace activities
- C. Control for individual interior spaces will be as follows:
1. Classrooms: Occupancy sensor and switch.
  2. Offices: Occupancy sensors.
  3. Workrooms: Occupancy sensors.
  4. Kitchen: Switches.
  5. Restrooms: Occupancy sensors.
  6. Storage Rooms: Occupancy sensors.
  7. Utility Rooms: Occupancy sensors except for spaces where, due to room configuration and type of equipment, occupancy sensors may not be ideally suited
  8. Corridors: Keyed switches.
  9. Commons: Keyed switches.
  10. MPR room: Switches with time clock on-off.
- D. Control for exterior spaces will be as follows:
1. Parking: Time clock via Relay panel.
  2. Building Exterior: Time clock via Relay panel.
  3. Photocell input to relay panel is required to ensure lights turn during storms when sky is darkened.
- VIII. Switchboards
- A. Switchboards will consist of multiple sections, rear aligned requiring access from the front only. Switchboards shall contain fusible switches for mains and branch devices.
  - B. The service entrance switchboard will contain digital metering that will be monitored by the building management system (BMS).
  - C. The service entrance switchboard will contain integral factory-installed Transient Voltage Surge Suppression (TVSS).
- IX. Panelboards
- A. Panelboards will be provided throughout the building to serve mechanical, lighting, and receptacle branch circuits. Typically, panelboards will be located in dedicated electrical rooms. Panelboards serving kitchen loads will be located (recessed) in the kitchen walls, if wall space is available.
  - B. With the possible exception of fractional motor loads, mechanical equipment will not be served from the same panelboards serving lighting or receptacle loads.
  - C. Panelboards will have bolt-on type branch breakers. Plug-in type breakers will not be permitted.
  - D. Panelboards will be fully rated for the calculated available fault current. Series rated devices will not be permitted.
- X. Wiring Devices
- A. Wiring devices will be specification grade.
  - B. Standard receptacles will have a NEMA 5-20R configuration rated for 20 amps.
  - C. Standard toggle switches will be rated for 120/277 volts and 20 amps.
  - D. Wiring device faceplates will be Type 302 stainless steel.
- XI. Fuses
- A. Fuses will be NEMA FU 1, non-renewable cartridge type.
  - B. Fuses greater than 600 amps will be Class L time delay. All other fuses will be Class J time delay.
- XII. Lightning Protection
- A. Lightning protection is not included in the scope of work.
- XIII. Interior Lighting
- A. Light Levels: Designed average maintained lighting levels are as follows:
    1. Classrooms: 50 foot-candles (fc)
    2. Offices: 50 foot-candles
    3. Workrooms: 50 foot-candles
    4. Kitchen: 60 foot-candles
    5. Restrooms: 30 foot-candles
    6. Storage Rooms: 20 foot-candles
    7. Utility Rooms: 20 foot-candles
    8. Corridors: 20 foot-candles
    9. MPR: 50 foot-candles
  - B. Fixture Types:
    1. Classrooms: Lensed 2x4 troffers
    2. Offices: Direct/Indirect 2x4 troffers
    3. Workrooms: Lensed 2x4 troffers
    4. Kitchen: Lensed 2x4 troffers
    5. Restrooms: Linear fluorescent fixtures and compact fluorescent downlights

6. Storage Rooms: Lensed 2x4 troffers in rooms with finished ceiling and industrial troffers in rooms with no ceiling.
7. Utility Rooms: Industrial troffers
8. Commons: Pendant direct/ indirect fluorescent

- C. Lamps and Ballasts: Fluorescent lighting will consist of low mercury T8/3500K lamps with electronic ballasts.
- D. Exit Lighting: Exit light fixtures for egress lighting will be provided to meet applicable codes and will use LEDs as a light source.
- E. Emergency Lighting: Emergency egress lighting will be provided as required by code. Secondary power source for emergency lighting will be batteries.
- F. LED lighting will be priced as an alternate for as many fixtures as possible. If a fixtures led equivalent is too cost prohibitive, it will remain fluorescent.

#### XIV. Exterior Lighting

- A. Light Levels: Designed average maintained lighting levels are as follows:
  1. Surface Parking Lots, Uncovered: 1 foot-candle (fc)
- B. Lamps and Ballasts: Metal halide lighting with pulse-start lamps and ballast shall be used for all exterior lighting.
- C. Pole Heights: 25 foot poles will be utilized.
- D. LED lighting will be priced as an alternate for as many fixtures as possible. If a fixtures led equivalent is too cost prohibitive, it will remain fluorescent.

#### XV. Specifications

- A. The following sections are expected to be used for this project:
  - SECTION 260500 COMMON WORK RESULTS FOR ELECTRICAL
  - SECTION 260519 LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES
  - SECTION 260526 GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS
  - SECTION 260529 HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS
  - SECTION 260533 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
  - SECTION 260553 IDENTIFICATION FOR ELECTRICAL SYSTEMS
  - SECTION 260923 LIGHTING CONTROL DEVICES
  - SECTION 262413 SWITCHBOARDS
  - SECTION 262416 PANELBOARDS
  - SECTION 262726 WIRING DEVICES
  - SECTION 262813 FUSES
  - SECTION 262816 ENCLOSED SWITCHES AND CIRCUIT BREAKERS
  - SECTION 265100 INTERIOR LIGHTING
  - SECTION 265600 EXTERIOR LIGHTING

## Communications Systems

### I. Codes and Standards

A. Publications from the following standards organizations will be used as design guidelines for the project:

1. Building Industry Consulting Services International (BICSI)
2. Electrical Industries Alliance (EIA)
3. Telecommunications Industry Association (TIA)

### II. Telecommunications rooms

A. Rooms dedicated for communications systems equipment will be provided throughout the building. One main telecommunications room (building distributor, BD) will be provided. Typical branch telecommunications rooms (horizontal distributors, HD) will be sized to contain one wall mounted full rack.

### III. Pathways

A. Pathways will be provided to allow relocations, additions, and changes to occur in the future.

B. Conduits will be provided from the main telecommunications room to the property line for incoming telecommunications services. Quantity of conduits will be as required by serving utilities plus two empty 4-inch conduits for future use.

### IV. Telecommunications Cabling – Horizontal

A. Horizontal data cabling will be unshielded twisted pair (UTP) copper cable, category to be determined. Horizontal data cabling will be terminated on RJ45 8-position jacks at the workstation and on rack mounted patch panels at the designated telecommunications room (TR). Color of horizontal data cabling will be any available unless the Owner has a preference. Color of data jacks will be gray.

B. Horizontal voice cabling will match horizontal data cabling. Horizontal voice cabling will be terminated on RJ45 8-position jacks at the workstation and on rack mounted patch panels in the designated telecommunications room (TR). Color of horizontal voice cabling will be any available unless the Owner has a preference. Color of voice jacks will be black.

C. Horizontal video cabling will be RG6 coaxial cable. Cable will be terminated on F-connectors at the workstations and rack mounted passive combiner in the designated telecommunications room.

D. Wall plates at workstation outlets will be plastic with ID tags under clear plastic windows. Color of wall plates will match wiring devices.

E. Stations cords will be provided by the Owner.

### V. Master Antenna Television Systems

A. Master Antenna Television System equipment is not in the contract.

### VI. Sound Reinforcement Systems

A. Stand-alone sound reinforcement systems will not be included for this project.

### VII. Intercom System

A. An intercom system is not included in this contract.

### VIII. Telephone System

A. Telephone system equipment, including the telephone switch and handsets, will be provided by the Owner.

### IX. Clock System

A. A clock system is not included in this contract.

### X. Specifications

A. The following sections are expected to be used for this project:

- |                          |                   |   |
|--------------------------|-------------------|---|
| <input type="checkbox"/> | SECTION 270500    | COMMON WORK RESULTS FOR COMMUNICATIONS              |
| <input type="checkbox"/> | SECTION 271100    | COMMUNICATIONS EQUIPMENT ROOM FITTINGS              |
| <input type="checkbox"/> | SECTION 271300    | COMMUNICATIONS BACKBONE CABLING                     |
| <input type="checkbox"/> | SECTION 271500    | COMMUNICATIONS HORIZONTAL CABLING                   |
| <input type="checkbox"/> | SECTION 275123.50 | EDUCATIONAL INTERCOMMUNICATIONS AND PROGRAM SYSTEMS |

## Safety and Security Systems

### I. Codes and Standards

A. The following codes are applicable to this project:

1. National Electrical Code (NEC)
2. International Building Code (IBC)
3. International Mechanical Code (IMC)

B. Publications from the following standards organizations will be used as design guidelines for the project:

1. National Fire Protection Association (NFPA)
2. Illuminating Engineering Society of North America (IES)
3. Building Industry Consulting Services International (BICSI)
4. Americans with Disabilities Act (ADA)
5. National Electrical Manufacturer's Association (NEMA)
6. Electrical Industries Alliance (EIA)
7. Telecommunications Industry Association (TIA)

C. The project will be designed to conform to the Americans with Disabilities Act and Architectural Guidelines (ADAAG).

### II. Intrusion Detection Systems

A. Scope of work is to be determined.

### III. Video Surveillance Systems

A. Scope of work is to be determined.

B. Power will be provided for cameras requiring a 120volt power source.

### IV. Access Control Systems

A. Scope of work is to be determined.

B. Power will be provided for power supplies requiring a 120volt power source.

### V. Fire Detection and Alarm Systems

A. The building will be provided with a fire detection and alarm system. The system shall be designed to meet IBC, UMC, NFPA, ADA and other applicable local codes.

B. Signaling line circuits shall be wired per NFPA class B / style 4.

C. Notification appliance circuits shall be wired per NFPA class B / style Y.

D. The system shall contain automatic and manual alarm initiation. Automatic alarm initiation will be limited to areas requiring this function as mandated by code, i.e. the building will not have complete smoke detection.

E. Manual alarm initiation will be provided at each building exit and other locations as required by code.

F. Alarm annunciation including audible and visual annunciation will be provided throughout the building.

G. Plenum rated cabling not in conduit will be allowed where installed above accessible finished ceilings.

H. Allowable manufacturers for fire detection and alarm systems will include Edwards, Notifier, Siemens and Simplex

### VI. Specifications

A. The following sections are expected to be used for this project:

- SECTION 280500 COMMON WORK RESULTS FOR SAFETY AND SECURITY
- SECTION 283100 FIRE DETECTION AND ALARM

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