ARKOS DESIGN

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PROJECT SPECIFICATION

DESIGN DEVELOPMENT
PHASE

St. Joseph County Public Library

German Township Branch

Cleveland Road

South Bend, Indiana

ARCHITECT
Arkos Design, Inc
111 East Main Street
Niles Michigan 49120

OWNER
St. Joseph County Public Library
304. S. Main St.
South Bend, Indiana

PROJECT NO.
0615.01

DATE:
July 23, 2007

SJCPL

PROJECT DESCRIPTION

German Township Branch Library
South Bend, Indiana
July 23, 2007

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ELEMENT A - GENERAL

1. Project Description: The project consists of the construction of a new 15, 300 SF branch library for St Joseph County Public Library. Work includes all site work, general construction, plumbing, mechanical, electrical and fire suppression.

2. Total Square Footage:

Typical Floor Area:	15,300 Square Feet	
Canopies	192 Square Feet	*(canopies figured at ½)*
Total Gross Floor Area	15,492 Square Feet	

3. Total Parking Spaces: 71 public and 8 staff.

4. Special Project Requirements:

Alternates under consideration are as follows:
Alternate #1: Faux tree finishes in the Story Hour tower in the Children's Area.
Alternate #2: Fence surrounding Cemetery.
Alternate #3: Humidification System

5. Bidding and Contract Requirements:

a. Owner Contractor Agreement: AIA A101-1997 - Stipulated Sum.
b. General Conditions of the Contract: AIA A201-1997.
c. Bonds: A bid bond and performance and material bonds will be required.
d. Prevailing wage will be required.
e. Project will be divided into two bid packages:
    i. Bid Package #1 will include all general construction, plumbing, mechanical, electrical, fire suppression, and all site utilities, site grading and landscape.
    ii. Bid Package #2 will include all landscape, site irrigation, and site amenities.

ELEMENT B - SITE WORK

1. Subsurface Investigation: Investigation of subsurface materials and conditions is being done by Earth Exploration Inc.

2. Site Clearing: Clearing and removal of debris, vegetation, and trees. Preservation measures including tree protection fencing, minimizing compaction and root damage, shall be provided for trees and vegetation to remain.

3. Earthwork:

    a. Excavation, trenching and backfill including gravel subbase, crushed stone drainage fill under slabs and footings, and satisfactory soil for common fill.
    b. Excavation and shaping of the rain gardens, retention and detention ponds.

4. A minimum of 4" topsoil will be placed on all areas to receive landscape, sod or seed. Topsoil salvage from excavation may be used. Topsoil should be free of roots, weeds and debris greater than ½" diameter. Supplement if necessary with topsoil furnished from off-site. Topsoil to be fertile, friable sandy loam from a local source, capable of sustaining vigorous plant growth, with a ph levels between 5.4 and 7.0. Scarify existing soil prior to placement of topsoil.

5. Maintenance Strip: 30" wide, along building where no gutters are installed. 1-2" smooth stone, min. 3" depth with weed barrier fabric and steel edging.

6. Site Utilities: Extension of site utilities to accommodate new construction. Municipal sanitary sewer and water are being brought to this property by the City of South Bend.

    a. Sanitary waste.
    b. Domestic water supply.
    c. Storm water collection system.
    d. Gas service, by utility company.
    e. Telephone service, by utility company.
    f. Electric service, by utility company.
    g. Cable service, by utility company.

7. Paving and Curbs:

    a. Asphalt Paving: INDOT standards 8" compacted aggregate, 3" #8 base, 1-1/2" #11 surface.
    b. Vehicular Concrete Paving: 4000 psi concrete, fine bristled broom finish, 6" thickness, reinforced with wire mesh.
    c. Curbs: Concrete curbs over compacted gravel base, 6" by 20" with smooth form finish.
    d. Pedestrian Concrete Sidewalks: 3000 psi concrete, fine broom finish, 4" thickness, reinforced with wire mesh.
    e. Decorative Concrete Paving at west garden, entrance and employee patio: Stamped or embossed integral color with 25% coverage shake-on hardener and colored form release agent. Scofield Systems. 3000 psi concrete, 4" thickness, reinforced with wire mesh. Children's garden is to have bronze numbers and letters integrated into the decorative concrete for a sundial.
    f. Brick Paver: 4"x8"x2.25" paver on min. 4" compacted aggregate base and 1" sand setting bed. Whitacre Greer or similar.
    g. Decomposed Granite Paths at west garden: 3" thickness, stone size 3/8" minus with organic stabilizer binder, rustic granite color, Kafka Stabilizer Trail Mix or similar. Compact in 1.5" lifts. Thoroughly water each lift and compact only after a period of 6-12 hours.
    h. Stone Steppers at west garden: Natural stone, min. thickness 1.25", random pattern size range approx. 12"x12" to 24"x24".
    i. Parking Area Striping: Standard traffic paint, 4" wide stripe (yellow), handicap markings (blue).

8. Landscape:

   a. Plant Materials: Trees, shrubs, and groundcover; topsoil and mulch. Plant materials sizing shall incorporate ordinance requirements.
   b. Lawn areas: Sod areas between parking and building, hydromulch/seed remaining areas disturbed by construction.
   c. Landscape Edging: steel 3/16" thick x 4" ht. x 16' length, black. Sureloc or similar.
   d. Mulch: Shredded hardwood, 4" depth at tree rings and shrub beds, 2" thickness at perennial and annual beds. Tree mulch rings at all new trees installed in lawn areas, 6' diameter.
   e. Irrigation System: 100% coverage in all shrub beds and identified lawn areas. Below-grade irrigation and sprinkler system with pop-up heads and automatic low-voltage controller with timer, PVC pipe, 200 psi pressure rated. Manufacturer: Toro, Rainbird or Hunter. Irrigation contractor is to design system and submit shop drawings for landscape architect approval. Design and products shall be in accordance with industry standards.

9. Site Lighting:

   a. Parking Lot Light Fixtures: Overhead light posts for parking lot illumination. Decorative post and fixture comparable to style of building.
   b. Pedestrian Light Fixtures: 10'-12' decorative poles and decorative fixtures along pedestrian walks not connected to parking, and in garden/patio areas.
   c. Low voltage Landscape Lighting: in garden and entrance areas.

10. Site Furnishings:
   a. West Garden Fence: Classic Picket with Estate Post/Cap, Brattleworks or similar. 10' double gate for maintenance access.
   b. Cemetery Fence: 3'-0" Ht, ornamental steel fence, black powdercoat, Style: St. Charles Ave. 2-rail, Monumental Iron Works or similar. Alternate #2.
   c. Straight Benches: 6' Essex, shorea, Oxford Garden or similar
   d. Curved Benches: 83" Essex, shorea, Oxford Garden or similar
   e. Arbor Tunnel: 10' length, 6' width, vinyl Spindle-Top Freeport Collection gallery arbor, Walpole Woodworkers.
   f. Children's Garden Gate: 5' width, Crescent Arbor with Moon Gate, Walpole Woodworkers.
   g. Trellis: (2) 40"x7'Ht Somerset Cable Trellis, mounted on west garden masonry wall per manufacturer recommendations.
   h. Pole Trellis: (3) 8' Ht. cedar with aluminum pole structure, Trellis Structures. Steel rod inserted into poured concrete pier.
   i. Birdhouse: Cedar, large shingled house with eight compartments, Walpole Woodworkers.
   j. Topiary: Approx. 36" tall or wide animal topiary frame to support ivy. S.K703 Topiary or similar.

ELEMENT C - FOUNDATIONS AND SUBSTRUCTURE

1. Foundations: Reinforced concrete spread footings.

2. Substructure:

   a. Slab-On-Grade: 4” reinforced concrete over 8 mil vapor barrier and compacted gravel.
   b. Concrete Foundation Walls: 10” reinforced poured concrete walls.

ELEMENT D - SUPERSTRUCTURE

1. Building Frame:

    a. 6” metal studs at 16” o.c. for exterior partitions.
    b. Built-up light gauge metal columns for bearing of beam conditions.
    c. Steel beams and columns as necessary to create large span areas.

2. Roof Structure:

    a. Prefabricated wood trusses at 2’-0” o.c. with plywood sheathing.

ELEMENT E - EXTERIOR CLOSURE

1. Exterior Wall:

   a. Simulated stone veneer: Provide a complete manufactured stone system over plywood sheathing.
   b. Combination of a variety of Hardi plank siding. Patterns to be board and batten, horizontal lap and shingle shake.

2. Exterior Wall Specialties:

   a. Louvers and Grilles: Aluminum, Kynar 500 finish.
   b. Hardi plank, solid and ventilated soffit panels.
   c. Miratec accessories for wood fascia, corner and rake boards.

3. Exterior Windows: Thermally broken aluminum windows. Fixed window in patron areas and a combination of fixed and operable in offices and staff areas.

4. Exterior Glass Types: Tinted 1" insulating glass units with low-e coating.

5. Exterior Doors:

   a. Aluminum Entrance Doors: Pivoted entrance doors and vestibule doors.
   b. Automatic Entrance Doors: Swinging automatic entrance door (one leaf per set), ½" thick tempered safety glass, pneumatic or electro-mechanical operation.
   c. Hollow Metal Doors: 1-3/4" thick seamless flush doors, 14 gauge frames and 16 gauge doors, galvanized, welded construction with mitered corners.

6. Exterior Wall Insulation:

   a. Fiberglass Blanket Insulation: Walls, R-19, (including all voids in metal wall system).
   b. Loose Fill or Blown-in Insulation: Roof, R-38.
   c. Extruded polystyrene rigid insulation at perimeter of foundation, including 2' into building slab.

7. Hardware:

   a. Locksets and latches shall be similar to Schlage, heavy duty commercial, "D" series using lever handles. Finish: To be determined.
   b. Hinges shall be similar to Hager BB1279. Exterior hinges are to have non-removable pins.
   c. Thresholds similar to National Guard 425 Series.
   d. Closers similar to LCN4110 series heavy duty.
   e. Panic devices similar to Von Duprin Series 98/99.
   f. Door bumpers similar to Glynn-Johnson 50W and FB-14R.
   g. Weatherstripping similar to National Guard 2525.
   h. Flushbolts similar to Model FBW by Glynn-Johnson.
   i. Automatic Operator similar to Horton 4000 series. One leaf at each pair of vestibule doors shall receive and operator.
   j. A combination lockset: 5 digit combination lock set with level handle provided at exterior vestibule door at employee entrance.

ELEMENT F - ROOFING

1. Roof Materials:

   a. Asphalt shingle roofing: 30 year high definition asphalt shingle similar to Prestique 1 by Elk Corporation over felt paper and 32/16 plywood sheathing.
   b. Pac Clad or equal, metal standing seam roof at Tower areas, with Sno-Gem ice and snow guards.
   c. Ice and water shield at all valley and eave areas. Membrane should run a minimum of 30” on each side of valley and 2’ beyond exterior wall at eave conditions.
   d. Provide continuous ridge venting.

ELEMENT G - INTERIOR CONSTRUCTION

1. Interior Partitions:

   a. Gypsum Drywall and Metal Stud Partitions: 5/8", type X, gypsum drywall and 20 gauge screw-type steel studs at 16" o.c..

2. Interior Doors and Openings:

   a. Wood Doors: 1-3/4" thick solid core 5 ply wood door with factory applied wood finish to match maple wood trim throughout. Interior doors to be flush style in staff areas. Doors to be paneled in public areas. Meeting rooms, vestibule, and workroom doors to be ½ glass.
   b. Metal Doors: 1-3/4" thick, 16 gauge door with welded construction and mitered corners.
   c. Metal Frames: 1" profile metal frames, 16 gage, knock down style and painted. Refer to door schedule for areas which indicate 2" profile frames.

3. Hardware:

   a. Locksets and latches shall be similar to Schlage, heavy duty commercial, "D" series using lever handles. Finish: To be determined.
   b. Hinges shall be similar to Hager BB1279. Exterior hinges are to have non-removable pins.
   c. Closers similar to LCN4110 series heavy duty.
   d. Panic devices similar to Von Duprin Series 98/99.
   e. Door bumpers similar to Glynn-Johnson 50W and FB-14R.
   f. Flushbolts similar to Model FBW by Glynn-Johnson.
   g. Kick plates similar to Rockwood.

4. Interior Floor Finishes:

   a. Carpet: 26 oz. minimum, nylon, high performance flexible backing, 1/10 gauge patterned carpet, direct glue-down installation. 12 ft. width, multi-color fleck type pattern in general areas. Patterned carpet in Children/Adult/Meeting areas. Cushioned modular coordinate behind Service Desk. Price point to equal Lees: Basare II.
   b. Laminate flooring similar to Pergo Uniq for commercial use: Locations: public seating alcoves, Children's Story Hour, Program Room (kitchenette and coat area only), and Café.
   c. Sealed concrete: IT, Mechanical, and Custodial rooms.
   d. Stained concrete: Minimum of 4sf between cut joints. Located in Sunroom, Staff entry hall (extend down hall to west wall of toilets) Staff lockers, Lounge entry extended in front of cabinetry.
   e. Porcelain Tile: Mixed sizes of same color. Similar to Crossville Strong series. Locations: Vestibule, fireplace, and all toilet rooms.
   f. Vinyl Composition Tile: 12x12 Armstrong Imperial Texture or equal. Locate in Auto Sort room and Book Drop.
   g. Walk-off matt: Porous rubberized tile type. Provide full depth of Vestibule. Width to match double door width. Ecomax or equal.
   h. Transition strips:
      Carpet to Vinyl: Johnsonite CTA-XX-C vinyl or equal.
      Carpet to Concrete: Johnsonite CRS-XX-A vinyl or equal.
      Carpet to Porcelain: Schluter Schiene or equal.
      Vinyl to Concrete: Johnsonite SSR-XX-B vinyl or equal.

5. Interior Wall Base:

   a. Vinyl Base: 4" height. Typical in all areas including casework toe kicks except where specified otherwise.
   b. Vinyl Base: Johnsonite 6" Millwork in Reveal profile. Locations: All public areas not specified to be wood.

c. Stained wood: 5-1/2" x ¾" solid maple at Vestibule, Public seating alcoves.

6. Interior Wall Finishes:

a. Paint: Primer plus 2 coats; latex. All walls to be eggshell unless noted otherwise.
b. Vinyl wall covering: 54" patterned Type II similar to DL Couch: Source One, Minos or equal. Locations: Staff Toilets and Family Toilet.
c. Porcelain Tile: Rectangular running bond pattern 2/3 wall height in Vestibule Toilet Rooms.
d. Protective vinyl sheet similar to IN/Pro at mop sinks.
e. Ribbed acoustical wall material 4'-0" high in Auto Sort room by MDC or Equal.

7. Interior Ceiling Finishes:
a. Painted Gypsum Board: Primer plus 2 coats flat. Located in raised/feature areas and bulkheads.
b. Acoustic Ceilings: 2x2 Tegular, with 15/16" grid in all areas unless noted otherwise.
c. Acoustic Ceilings: 2x4 Square lay-in; in storage areas with 15/16" grid.
d. Custom wood veneer w/ stained trim feature in Vestibule.
e. Custom wood panels at seating alcoves (stained) and Sunroom (painted).
f. Suspended ceiling cloud above Service Desk with 2x2 tegular ceiling tile.
g. Teen area ceiling feature to be Juxtaform stretched fabric panels or equal.

8. Interior Millwork:
a. Countertops: Plastic laminate with integral backsplash, typical. Pre-molded cast-plastic fabricated tops in restrooms with integral bowls. Formed stained concrete trough to be used at vestibule toilet rooms. Cast-plastic fabricated tops at Service Desk. Cast plastic to be Corian or equal.
b. Cast-plastic fabricated baby changing station at Vestibule toilets and Family Toilet. Cast plastic to be Corian or equal.
c. Window sills: ¾" veneer substrate with solid wood edge. Some areas will be painted and some will be stained. Graham Ceramic Paint is to be used on painted trim.
d. Casework: high pressure plastic laminate, typical. Stained trim and cabinetry at Service Desk. All casework to be AWI premium grade.
e. Painted picture rail in both Program Room, Meeting Room, Entry Hall, Adult, and Children. Graham Ceramic Paint is to be used on painted trim.
f. Stained maple wainscot: ¼" veneer plywood with ½" x 1-1/2" vertical "battens" to be located throughout vestibule, and reading alcoves.
g. Stained wood slatwall sections on each side of meeting room as indicated on plan. Trim each side with stained solid maple.
h. Painted bead board panels and trim at outside perimeter of ½"high walls in Café. Graham Ceramic Paint is to be used on painted trim. Stained bead board accent at Service Desk.
i. Stained wood trim at ceiling surface in Program room to visually connect slatwall features.
j. Stained solid wood lattice panels suspended over fireplace seating and Café.
k. Painted 4" trim at all windows and doors and fireplace surround. Graham Ceramic Paint is to be used on painted trim. 4" trim to be stained in Vestibule and reading alcoves.
l. Stained wood mantel and supports at fireplace.
m. Painted battered columns and cap trim at half walls of reading alcove entries. Graham Ceramic Paint is to be used on painted trim.
n. Painted wood shelf and various hooks for coats in Program Room.

9. Building Specialties:
a. Fire Extinguishers: semi-recessed baked enamel cabinets. Bracket mounted extinguishers in non-public areas. Quantity to be determined by code.
b. Fire rated ceiling access door for entrance into attic.
c. Toilet Accessories:
Grab bars, nylon with steel core.
Package shelves, stainless steel.

Full length mirrors in each Vestibule toilet.
Individual mirrors at each bowl with decorative frame.
Counter mounted soap dispensers at each bowl.
Hook at each stall.

d. Janitor closet accessories, stainless steel:
Mop hooks, broom hooks, and dust mop hooks.
14” deep adjustable shelves.

10. Signage:
a. Code/life safety signage.
b. Exterior building signs,

ELEMENT H - EQUIPMENT AND FURNISHINGS

1. Equipment and Furnishings:
   a. Projection screen ceiling mounted, electronically operated in Program Room.
   b. Tackboards: Public use in vestibule, 2 in Program room, 1 in entry hall for library info, OSHA board at staff entry, tack/dry erase combo in Lounge.
   c. Markerboard: 4x8 in Program Room.
   d. Plastic laminate lockers triple tier. (15) with hasp for user provided locks.
   e. Wall mounted conference center. Cabinet with tackable surface on inside of doors and marker board on interior. Located in Small Meeting Room.
   f. Lighted Display Case: Vestibule 4’-0”h x 6’-0” w max.
   g. Corner Guards: 2” surface applied rigid PVC similar to IPC 160 at all external corners.
   h. Window Treatments: Provide room darkening shades in Program Room. Provide privacy shade in Manager’s Office, Provide glare reducing shades in Staff work areas and in public spaces only as necessary.
   i. Book Return: Stainless steel chute and cart equal to Kingsley Kwik Drop.

DIVISION 15 - MECHANICAL

15010 GENERAL PROVISION

A. All work shall be furnished and installed in strict accordance with all National, State, and Local Codes, Rules and Regulations.

B. Contractor is responsible for protection of life and property within the construction limits during the course of the project.

C. Listed manufacturers are intended to indicate quality standard, other manufacturers complying with specifications will also be considered if applicable.

D. Operating And Maintenance Manuals And Instruction

1. Contractor will prepare three (3) bound sets of complete Installation, Operating, and Maintenance Instructions. Manuals shall also include complete parts lists, operating instructions, copies of original shop drawings, Subcontractor Lists, Warranties, Warnings, etc. Generic instructions shall highlight applicable sections when needed to differentiate from non-relevant equipment.

2. Upon completion of the Work and at a designated time, Contractor shall provide instructions to the Owner's representative in Operation and Maintenance of all mechanical equipment. Provide minimum training as follows, provide additional time as needed and as required for warranty work if problems are encountered:

   Heating & Cooling Systems---------- 8 hours (total)

   Temperature Control System---------- 16 hours minimum onsite

   General Mechanical ---------- 2 hours

3. Video tape main onsite instruction periods if requested by Owner

E. Turn over to Owner all tools supplied with equipment. Mark each item and identify use and function.

F. Design Conditions:

1. Heating: -10 deg. F outside, 70 deg. F inside

2. Cooling: outside conditions: 89 deg F DB, 76 deg. F WB
   Inside conditions: 75 deg.F DB, 63 deg. F WB

3. Ventilation: 15 CFM per assumed typical occupant load in normally occupied spaces

15042 TESTING AND BALANCING

A. An independent testing and balancing agency shall perform and adjust the air system and equipment and the hydronic system and equipment to match the design criteria.

B. AABC certified (NEBB certification may also be considered)

15050 BASIC MATERIALS AND METHODS

A. All materials shall be new, unused and are to be of the same manufacturer for similar functions.

B. Piping and ductwork shall generally be run concealed within building wall, ceiling and attic.

C. Tests shall be conducted to prove work satisfactory (i.e. pressure tests)

D. Building HVAC will not be used for temporary heat unless the Contractors have taken adequate precautions to protect equipment. All equipment will be cleaned as necessary prior to turning over to Owner

E. Provide fire stopping at all penetrations through fire rated floors, ceilings and walls. Fire stopping system shall use approved materials and shall be installed in accordance with UL assembly requirements. Refer to architectural specifications for approved materials. Intumescent fire stop shall be used for plastic piping, plastic tubing and cable penetrations.

15110 PIPE AND PIPE FITTINGS

A. All pipe and fittings shall conform with American Standards Institute and American Society for Testing and Materials.

B. Materials:

1. Potable water:

a. ASTM B88, Seamless type L copper with wrought copper solder joint fittings. Rigid Pro-Press mechanical fittings may also be considered.

2. Soil, Waste, and Vent Schedule 40:

a. Cast iron hubless, CISPI 301 with elastomeric sealing sleeve and

stainless steel shield and clamp assembly conforming to CISPI 310.

b. PVC, schedule 40 with DWV socket type solvent weld fittings

3. Natural Gas:

a. ASTM A53, Black steel, schedule 40. Screwed malleable iron fittings up to 2" and butt welded fittings 2-1/2" and larger.

4. Cooling coil condensate:

a. ASTM B88, Seamless type L or Type K copper with wrought copper solder joint fittings.

b. PVC, schedule 40 with DWV socket type solvent weld fittings (where not exposed to physical damage)

15120 VALVES

A. Valves will be provided to isolate and adjust the domestic water systems.

B. Valves will be gate, globe, ball and butterfly. Valves less than 2- ½" line size will be bronze body, threaded. Valves 2-1/2" line size or larger will be iron body, flanged (or lug-wafer type in the case of butterfly valves)

C. Valves shall have manufacturer's name or trademark and working pressure cast into the body. Valves shall be of one manufacturer for each type of valve unless approved otherwise.

D. Valve tags will be provided for all valves. A directory outlining valve numbers and function will also be provided.

E. Materials:

1. Shut off or stop

a. Gate

b. Ball - smaller than 2".

c. Butterfly - larger and 2-1/2".

2. Balancing.

a. Ball or Globe for domestic hot water return.

3. Natural Gas

a. Gas Cock up to 1-1/2" size and less than 1 lb service only

b. Lubricated plug valve

F. Manufacturers:

1. Crane

2. Lunkenheimer

3. Apollo

4. Milwaukee

5. Nibco

6. Stockham

15130 PIPING SPECIALTIES

A. Gauges and instrumentation will be provided for Owner/Operator diagnostic and maintenance use.

1. Pressure gauges will be provided at incoming water service, sprinkler connection, circulating pumps, and other applicable locations. Gauges equal to Ashcroft or Trerice or Marsh.

2. Thermometers will be provided at all domestic water heating equipment. Range as required with minimum 5" column.

3. Expansion joints to be provided in piping as required and will be equal to Metraflex, Flexonics or equal.

15140 HANGERS, SUPPORTS AND ANCHORS

A. Hangers and supports will be provided for all pieces of mechanical equipment with 2" of vertical adjustment where applicable. Insulation shields will be provided on insulated piping.

B. Equipment will be supported from the structural system at appropriate points.

C. All vibrating equipment shall be supported on spring isolators.

D. All ductwork shall be isolated from fan equipment by means of flexible connectors.

15250 INSULATION

A. All heat transfer equipment and components will be insulated to minimize energy losses. Also, storm laterals will be insulated to prevent condensation.

1. Refrigerant Piping.

a. 1" closed cell foamed plastic or fiberglass - smaller than 2" pipe size

b. 1-1/2" closed cell foamed plastic or fiberglass - larger than 2-1/2".

2. Hydronic Hot and Chilled Water Piping.

a. 1" closed cell foamed plastic or fiberglass - smaller than 2" pipe size

b. 1-1/2" closed cell foamed plastic or fiberglass - larger than 2-1/2".

3. Domestic Tepid and Hot Water pipe.

a. ½" foamed plastic.

b. 1" fiberglass

4. Ductwork.

a. 2" fiberglass, foil face adhered with adhesive and stick-pins.

b. Double thickness indicated in un-heated areas (attic).

c. 1" fiberglass duct liner may be used where sound attenuation is a concern

B. Manufacturers:

1. Knauf.

2. Owens-Corning.

3. Johns-Manville.

4. Armstrong

5. Rubatex

6. Schuller

15300 SPRINKLER SYSTEM

A. The entire building will be provided with an automatic fire protection sprinkler system, extended from the existing system. The existing fire department siamese connection and alarm bell are expected to remain, as approved by the local Fire Department. Still under review.

B. Heads:

1. Recessed in finished areas. Type to be coordinated with Architect

2. Pendent, upright, or sidewall in unfinished areas.

15350 GAS PIPING SYSTEM

A. Complete natural gas distribution system will be provided, and arranged through the gas utility. In general, piping will be extended to boilers and water heaters.

15400 PLUMBING FIXTURES

A. Plumbing fixtures shall comply with State of Indiana and ADA requirements as applicable. Fixtures shall have “above rim supply” or shall be furnished with backflow preventors or vacuum breakers as required.

B. Fixture Types:

1. Water closets

a. Vitreous China, wall mounted, flush valve, siphon jet action, except that Family Restroom may be floor mounted due to space limitations

2. Lavatories

a. Integral with counter. Corian or similar (to be coordinated with the Architect). Single lever faucet.

3. Sinks

a. Stainless steel, single lever kitchen faucet or gooseneck type to be coordinated with Architect

4. Mop Basin

    a. Floor mounted 2 ft x 2 ft, terrazzo or molded stone, wall mounted lever handle faucet, hose, vacuum breaker

6. Electric Water Cooler

    a. Stainless steel top, wall hung (bi-level type where required)

B. Manufacturers:

1. Water closets, lavs

    a. American Standard

    b. Kohler

    c. Eljer

    d. Crane

2. Sinks

    a. Elkay

    b. Just

3. Mop Basin

    a. Fiat

    b. Williams

    c. Florestone

    d. Zurn

4. Faucets

    a. Delta

    b. Sloan

    c. Symmons

d. American Standard

e. Kohler

5. Flush valves

a. Sloan

b. Zurn

6. Electric Water Cooler

a. Halsey-Taylor

b. Oasis

15410 STORM AND WASTE SYSTEM

A. Roof drainage system to site storm system where required. The sanitary system will discharge into the city sewer.

B. Materials:

1. Cleanouts

a. Brass, flush
b. Complete with chrome plated, center screw type cover in walls

2. Floor drains

a. Cast iron with brass or bronze tops in finished areas and cast iron tops in unfinished areas

3. Roof drains

a. Heavy cast iron with separate overflow drains, where applicable.

C. Manufacturers:

1. Josam

2. Blake

3. Wade

4. Zurn

15420 WATER SUPPLY SYSTEM

A. Domestic (potable) water will be distributed to all points of use throughout the new building. Hot water will be provided by a high efficiency gas-fired water heater. Exterior sillcocks will be provided for lawn irrigation or other exterior uses.

B. The existing softened water may be extended to the addition and new building, or it may be replaced. This is still being reviewed.

C. Materials:

1. Domestic Hot Water Expansion Tank

a. Bladder type.

2. Sillcocks

a. Non-freeze, flush or semi-flush type

3. Hose Bibbs

a. Cast brass (chrome plated where applicable)

4. Hot water circulators

a. In-line

5. Water heater

a. Gas fired, tank type

D. Manufacturers:

1. Expansion Tanks

a. State

b. Amtrol

c. Conbraco

2. Sillcocks

a. Wade

b. Zurn

c. Josam

3. Tepid water controller

a. Symmons

b. Power

c. Leonard

4. Water Heater

a. Bradford-White

b. State

c. Lochinvar

d. A O Smith

15500 HEATING AND AIR CONDITIONING SYSTEM

A. Materials:

1. High efficiency hot water boiler, sealed combustion, gas fired

2. Circulating Pump

a. In-line type

3. Air Handling Unit

a. Variable air volume type with hot water heating coil and refrigerant cooling coil, 2" pleated filters

b. Provide a matching outdoor condensing unit with scroll or screw type compressors

4. Cabinet Heater

a. Hydronic hot water, Recessed or console type

5. Unit Heater

a. Hydronic hot water, suspended with propeller fan

B. Manufacturers:

1. Boiler

a. Aerco Modulex

b. Additional manufacturers still being investigated

2. Circulating Pump

a. Bell and Gossett

b. Taco

3. Air Handling Unit and Condensing Unit

a. Trane

b. York

c. McQuay

3. Cabinet Heaters

d. Trane

e. York

f. McQuay

g. International Environmental

4. Unit Heaters

h. Trane

i. York

j. McQuay

15850 VENTILATING SYSTEM

A. Toilet rooms will be exhausted.

B. Outside air will be introduced to the building through the air handling system

C. Materials:

1. Ductwork will be galvanized steel (except as noted) and in accordance with current SMACNA requirements

2. Fire dampers will be provided for ductwork penetrating fire separation walls and will be UL listed type. Type A and type B will be used as applicable.

3. Exhausters

a. Roof mounted, ceiling, or in-line type as required.

4. Variable air volume terminal units

a. Units provide local zone control via operation of an integral modulating damper and a hot water heating coil

5. Grilles, registers and diffusers

a. Steel or aluminum construction as required

6. Water Heater Venting Systems

a. As recommended by manufacturer (probably stainless steel lined B vent)

D. Manufacturers:

1. Exhausters

a. Penn Ventilators

b. Loren Cook

c. Power Line

d. Acme

2. Variable air volume terminal units

a. Tuttle and Bailey

b. Titus

3. Grilles, Registers and Diffuser

a. Titus

b. Tuttle and Bailey

c. Anemostat

15950 TEMPERATURE CONTROL-FACILITIES MANAGEMENT SYSTEM

A. Digital type, LonMark open protocol, with a Web-based interface, local room sensors will be equipped with warmer/cooler slidebar sensor controls

B. Main DDC panel will be equipped with an ethernet port, and be capable of remote viewing and control from web based systems. Data line and TCP/IP to be furnished by Owner.

C. Manufacturers

a. T. A. C.

b. Staefa

DIVISION 16 - ELECTRICAL

16010 GENERAL REQUIREMENTS

A. All work shall be furnished and installed in strict accordance with National, State, and Local Codes, in force at time of bidding.

B. Contractor is responsible for protection of life and property within the Construction Limits during the course of the Project.

C. Listed manufacturers are intended to indicate quality standard, other manufacturers complying with specifications will also be considered if applicable.

D. Operating And Maintenance Manuals And Instruction

1. Contractor will prepare three (3) bound sets of complete Installation, Operating, and Maintenance Instructions. Manuals shall also include complete parts lists, operating instructions, copies of original shop drawings, Subcontractor Lists, Warranties, Warnings, etc. Generic instructions shall highlight applicable sections when needed to differentiate from non-relevant equipment.

2. Upon completion of the Work and at a designated time, Contractor shall provide instructions to the Owner's representative in Operation and Maintenance of all mechanical equipment. Provide minimum training as follows, provide additional time as needed and as required for warranty work if problems are encountered:

Electrical Systems, General ---------- 4 hours

3. Video tape main onsite instruction periods if requested by Owner

4. Turn over to Owner all tools supplied with equipment. Mark each item and identify use and function.

16050 BASIC MATERIALS AND METHODS

A. All materials shall be new, unused and are to be of the same manufacturer for similar functions.

B. Provide fire stopping at all penetrations through fire rated floors, ceilings and walls. Fire stopping system shall use approved materials and shall be installed in accordance with UL assembly requirements. Refer to architectural specifications for approved materials. Intumescent fire stop shall be used for plastic piping, plastic tubing and cable

penetrations.

16110 RACEWAYS AND FITTINGS

A. Wiring will be installed in EMT, IMC, or GRC conduit as applicable. Flexible conduits will be allowed at final connections (six feet maximum) to light fixtures and equipment subject to vibration. Underground conduit will be Rigid Galvanized Steel or Schedule 40 PVC. Raceways on existing walls will be metallic surface raceway (wiremold)

B. Provide minimum three-quarter inch (3/4") conduit or as required for the number of conductors installed within raceway.

C. Provide cable tray were indicated

D. Manufacturers:

1. Rigid steel, IMC, and EMT

a. Allied Tube and Conduit

b. Republic Steel

c. Steel duct

2. PVC

a. Carlon

b. Robintch

c. Sedco

3. Metallic Surface Raceway

a. Wiremold

16120 WIRES AND CABLES

A. Branch circuit wiring shall be #12 AWG copper (minimum) with THHN or THWN jacket. All cables and wire shall be installed in conduit. Conductors shall be oversized for runs greater than 100 feet.

B. Provide individual neutral conductors for each circuit carried in a raceway. Feeders to high-harmonic load panels shall have 200% rated neutrals.

C. Provide Grounding conductors in all raceways. Size conductors as required by the National Electrical Code.

D. Materials

1. Conductors, copper

a. No. 10 or larger; shall be copper, stranded.

b. Smaller than No. 10; shall be copper, solid.

16130 BOXES

A. Materials:

1. Outlet

2. Junction

3. Pull

B. Manufacturers:

1. Steel City

2. Appleton

3. Raco

4. Wiremold

5. AMP

16140 WIRING DEVICES AND PLATES

A. Wiring devices (switches and receptacles) will be specification grade, minimum rating 20 amp unless otherwise required.

B. Materials:

1. Cover Plates

a. Zinc coated steel for unfinished walls

b. Stainless steel for finished walls (to be coordinated)

2. Switches

a. Toggle type

3. Receptacles

a. Self grounding

b. Hospital grade in patient and treatment areas

c. GFCI where applicable

C. Manufacturers:

1. Pass and Seymour

2. Hubbell

3. G.E.

4. Bryant

5. Arrow-Hart

16150 MOTOR AND MOTOR PROTECTION

A. Manually reset overload devices.(except where included as internal to motor)

16400 SERVICE AND DISTRIBUTION

A. A new main distribution panel, in new building, will provide distribution to new equipment, transformer, branch panels.

16440 SWITCHES

A. Disconnect switches will be heavy duty safety switches. Indoor enclosures shall be NEMA 1. Outdoor enclosures shall be NEMA 3R.

B. 20 amp toggle switches and/or thermally protected manual motor starters will be allowed at small fractional horsepower, 120 volt motors.

C. Each motor or electrically operated piece of equipment shall be provided with a disconnecting means.

D. Manufacturers:

1. Square D

2. General Electric

3. Siemens

4. Cutler-Hammer

16450 GROUNDING

A. Grounding shall be provided for all non-current carrying metallic parts of electrical equipment and communications systems in accordance with the NEC.

B. Contractor shall conduct ground conductance test for all new services grounds.

C. Services grounds shall include driven ground rods and service grounding electrode connections to water service and building steel

16470 PANELBOARDS

A. Branch panelboards will be located throughout the building as indicated on the Drawings.

1. Flush mounted

2. Recessed mounted

B. Bolt-On circuit breaker type with 20% spare capacity.

C. Panels with high-harmonic loads shall have 200% rated neutrals

D. Manufacturers:

1. Square D

2. General Electric

3. Siemens

4. Cutler-Hammer

16475 OVERCURRENT PROTECTIVE DEVICES

A. Overcurrent protective devices, including fuses and circuit breakers, shall be provided for all feeders, branch circuits and equipment. Overcurrent devices will be of the classes and types required for the particular application.

B. Circuit breakers shall be specifically listed for the panel in which they are installed.

C. Manufacturers:

1. Circuit breakers

a. Square D

b. General Electric

c. Siemens

d. Cutler-Hammer

2. Fuses

a. Littelfuse

b. Bussman

16485 STARTERS AND CONTACTORS

A. Starters shall be full voltage type with integral thermal overload protection in each ungrounded phase. Hand-Off-Auto selector switches and auxiliary control contacts shall be furnished with each starter.

B. Manufacturers:

1. Square D

2. General Electric

3. Siemens

4. Cutler-Hammer

16500 LIGHTING

A. In general, interior light fixtures shall be specification grade fluorescent fixtures.

B. All fluorescent light fixtures shall be provided with T8 lamps and electronic ballast shall

have THD less than ten percent (10%).

C. Exterior light fixtures will consist of building mounted fixtures, canopy fixtures, and parking lot lighting mounted on an approximately 25 to 40 foot high round or square steel poles. Exterior lamps shall be metal halide.

D. All fluorescent and HID ballasts shall be low-noise, high power factor type

E. Manufacturers:

1. Varies greatly by product. Typical manufacturers would include:

a. Lithonia

b. Holophane

c. Cooper

d. Daybrite

e. Halo

16740 TELEPHONE AND DATA SYSTEMS

A. Materials:

1. Empty conduit system where concealed in building construction. Cable tray provided at locations requested by Owner. J-hooks, termination systems and other supports and cable management provided by telephone and data system installers.

2. Outlets, generally 2-gang boxes or multi-compartment wiremold and plugmold.

3. Data outlets as indicated on drawings

4. Plywood backboards to be provided by General trades where requested.

5. Data Cabling to be provided and installed.

END OF SECTION