

# APPENDIX 2: DETAILED BUILDING DESCRIPTION NARRATIVE

## Purpose of this document

Project planning identified the need for several data points in order for the Board to make an informed decision. These include describing and estimating three building types:

- Code Compliant Building
  - 25 year life span
  - 50 year life span
- Institutional Building
  - 25 year life span
  - 50 year life span
- Concept Building
  - 25 year life span
  - 50 year life span

For each building type, the base case will be the 25 year life span option. The 50 year life span components will be noted as upgraded elements, where applicable.

## Outline Architectural Specifications: CSI Uniformat

Information about the site and each of the building structure is provided below. While it is impossible to offer final decisions regarding the selection of materials and systems at the early design stages, assumptions are needed based on best judgments for the purpose of developing cost estimates. Specification information is provided in the following format reflecting the best information available at this early stage.

A. Substructure  
A10 Foundations  
A20 Basement Construction

B. Shell  
B10 Superstructure  
B20 Exterior Closure  
B30 Roofing

C. Interiors  
C10 Interior Construction  
C20 Stairways  
C30 Interior Finishes

D. Services  
D10 Conveying Systems  
D20 Plumbing Systems  
D30 HVAC Systems  
D40 Fire Protection Systems  
D50 Electrical Systems  
D60 Low Voltage Systems

E. Equipment & Furnishings  
E10 Equipment  
E20 Furnishings

F. Other Building Construction  
F10 Special Construction  
F20 Selective Demolition

G. Building Site work  
G10 Site Preparation  
G20 Site Improvements  
G30 Site Development  
G40 Site Amenities  
G50 Site Utilities  
G60 Landscape and Irrigation

## Project Description

The general scope of the work includes building a new 7000 SF Community Center with a 4250 SF covered kitchen and dining/event area. Site work will include ADA parking and access walks, along with standard gravel parking spaces for building users.

## Construction Contract Method

The procurement process has not been completely resolved, however it is likely that a CM/GC contract will be used. An AIA Agreement between Owner and Contractor and AIA General Conditions will be followed. Separate bidding procedures will be followed for each Phase.

## Schedule

Buildings and Site Improvements  
Construction Start: April 2019  
Construction Complete: December 2019

Separate Contracts:

1. Furniture
2. Computers and IT Equipment
3. AV Equipment
4. Commissioning Services by separate contract with Owner

## Code Summary (See also code research performed during the SD Phase)

- Construction Type: Type VB
- Occupancy: A
- Number of Stories: One Story
- Building Areas: See plan
- Fire Sprinklers: Yes
- Emergency Power: No

## Responsibilities for Cost Estimating

**Cost Estimates provided by Cost Estimating Consultant: Construction Focus, Inc.**

Responsibilities for items not marked in these specifications are to be provided by Construction Focus

Architectural  
Structural  
Site and building demolition  
Data/Communications/Security  
Food Service  
Civil including earthwork  
Landscape including earthwork

**PAE Engineers**  
Mechanical & Electrical

**Budget**

The budget has yet to be finalized. The purpose of this document is to establish two price options for each category of building type.

**Specifications: Code Compliant Building – 25 and 50 Year Life span**

Narrative: This building type is meant to provide only a Code compliant building solution. This means the building will only support the basic functions required in the Program, and will be constructed with the lowest cost materials that satisfy the Code and the building life span expectations.

The following specifications are provided following CSI Unifomat for building systems.

**Substructure**

A10. Foundations

1. Concrete
  1. 3,000 psi
2. Excavation – As needed to accommodate new work
3. Fills – 18” compacted crushed rock below slab and paved surfaces.
4. Slab on Grade
  1. Thickness: 5”, with slab edge footing 1’-6” deep x 1’ wide.
  2. Reinforcing: #4 at 16” O.C., each way. (4) #4 Bar cont. at footings
  3. Finish: Light broom finish
  4. Provide Underslab Vapor Barrier; 15 mil thickness, directly over subgrade.

**B. Shell**

B10. Superstructure

1. Walls
  1. Light wood frame construction, 2x6 Hem/Fir 24” OC, ½” ply sub siding/shear panel. Assume 20% of wall surface as shear wall.
2. Roof:
  1. Pre-engineered wood trusses, ½” CDX plywood roof decking.

B20. Exterior Closure

1. Walls
  1. Structure: 2x6 wood studs 24” OC
    - a. **50 Year Building: 2x6 studs 16” OC**
  2. Sheathing: ½” OSB, exterior rated.
    - a. **50 Year Building: 1/2” CDX plywood**

3. Weather barrier: Mechanically attached water resistant barrier. Product: Tyvek Commercial Wrap WRB system.
  4. Insulation: R-19 fiberglass batts in stud cavity, 2" rigid insulation over sheathing.
  5. Rain screen system: 1x4 pressure treated furring strips at each stud, mechanically fastened.
  6. Flashing: Pre-coated sheet metal.
    - a. **50 Year Building: Stainless steel 20 G flashing**
  7. Exterior finish: Vinyl siding system. Product: Certainteed Monogram Horizontal Siding and Vinyl Trim.
    - a. **50 Year Building: 4" CMU Veneer walls, pre coated sheet metal soffits, trims, and fascia.**
2. Windows
    1. Glazing: Dual pane IGU
    2. Frame System:
      - a. Vinyl window system. Product: Jeld Wen Premium Vinyl windows.
      - b. **50 Year Building: Aluminum Clad wood windows. Product: Pella Architect Series clad wood windows.**
    3. Window operation:
      - a. 50% fixed, 50% double hung windows.
  3. Doors
    1. Door: Hollow metal doors, insulated core. 50% glazed.
    2. Door Frame: Hollow metal frames.
    3. Door Hardware:
      - a. Stainless steel lever type with panic hardware at assembly spaces.
    4. Glazing: Tempered dual pane IGU.
- B30. Roofing
1. Sloped roof areas – minimum 4 in 12 slope
    1. Roofing: 25 year shingle system. Product GAF Timberline asphaltic shingles.
      - a. **50 Year Building: Standing seam metal roof system. Product AEP Span Span Lok standing seam metal roof.**
    2. Weather barrier. Water resistant sheeting below shingle system. Product GAF Tiger Paw WRB sheeting.
      - a. **50 Year Building: Polypropylene roof underlayment. Product GAF Deck Armor.**
    3. Insulation: R-30 fiberglass batt insulation in truss space.
    4. Drainage: Roof edge 26G sheet metal gutters and downspouts.
      - a. **50 Year Building: Stainless Steel 20G sheet metal gutter and downspouts.**

## C. Interiors

### C10. Interior Construction

1. Interior frame partitions:
  1. Solid walls
    - a. Frame/structure: 2x4 hem/fir studs 24" OC
    - b. Finish: See "Interior Finishes" below.
2. Interior Doors:
  1. Door: Solid core hardwood veneer
    - a. **50 Year Building: Hollow metal doors**
  2. Door Frame: Hollow Metal
  3. Door Hardware: Stainless steel lever type
  4. Glazing: Tempered
  5. Access Control: Keyed mechanical hardware.
3. Casework
  1. Cabinetry: Hardwood veneer plywood
    - a. **50 Year Building: Solid wood face frames, plywood boxes, commercial quality hardware, mortise & tenon construction.**
  2. Counters: Plastic laminate over particle board substrate
    - a. **50 Year Building: Solid surface material. Product solid granite countertop or 16 G stainless steel over plywood substrate.**
4. Interior Specialties – Toilet Rooms
  1. Restroom accessories:
    - a. Stainless steel toilet paper dispensers
    - b. Stainless steel grab bars at ADA stalls.
  2. Toilet partitions: Solid phenolic
5. Interior Specialties - Misc.
  1. Fire extinguishers and cabinets: - painted sheet metal surface mount.

### C20. Interior Finishes

1. Floors
  1. Light broom finish concrete.
  2. Base: 4" rubber base
    - a. **50 Year Building: Wood base.**
2. Walls
  1. Gypsum wall board, taped, textured and painted.
    - a. **50 Year Building: lower 4' of wall clad in 3/4" plywood wainscoting, above with high impact gypsum board, plaster finish.**
3. Ceilings
  1. Acoustic Ceiling Tile in sheet metal painted grid.
4. Trim & Misc. Carpentry Allowance - \$25,000

## D. Services

### D10. Conveying Systems – not used.

### D20. Plumbing Systems – Narrative by PAE

1. Sanitary System - ABS waste and vent piping, 4-inch main, kitchen grease waste to drain to 100 gpm exterior hydro-mechanical grease interceptor, Schier or approved.
  - a. **50 Year Building: Anticipate one replacement of the grease interceptor.**
2. Storm System – Exterior downspouts to downspout boots and cast iron laterals to 5 ft from building.
3. Potable Water System - Assumed 2-inch service to kitchen and restrooms. Copper mains with PEX branches except to water closets.
4. Water Heating System - Two 120-gallon, 30kW commercial electric water heaters with recirculating pump and recirc piping. Expected life of water heaters is 20 years.
  - a. **50 Year Building: Two replacements of water heaters, as technology advances, are anticipated.**
5. Fixtures - Standard-flow fixtures: 1.6 gpf water closets, 2 gpm lavatories, manually operated
  - a. **50 Year Building: Same as 25 year building except that one replacement is anticipated.**

### D30. HVAC Systems – Narrative by PAE

1. Multipurpose Room - 20 ton light commercial packaged rooftop heat pump with electric resistance backup coil. Single zone heating/cooling. CO2 control of ventilation air.
  - a. **50 Year Building: Two replacements of the rooftop unit are anticipated.**
2. Support Spaces – Electric wall heater for office, exhaust fan for restrooms, ductless split cooling system for IT Room.
  - a. **50 Year Building: Three replacements of the exhaust fan and split system.**
3. Kitchen
  1. 3000 cfm Type 1 grease exhaust fan
  2. 1000 cfm Type 2 dish exhaust fan
  3. 2000 cfm exhaust from miscellaneous Type 2 hoods
  4. 6000 cfm makeup air unit with electric heat, evaporative cooling.
  5. 500 cfm restroom shower exhaust fan.
  6. 2 electric wall heaters for morning warmup.
  7. **50 Year Building: One replacement of fans and makeup air unit anticipated.**

### D40. Fire Protection Systems

D50. Electrical Systems – Cost & narrative by PAE

1. Normal Power Distribution
  1. 208Y / 120V electric service:
    - a. 25 Year Building: (3) 4" PVC conduit with THWN wiring from utility service point underground to main panel board location.
    - b. **50 Year Building: Same as 25 year building.**
  2. 800A main panel board and associated branch panel boards:
    - a. 25 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent. It is anticipated that no replacement would be required.
    - b. **50 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent. It is anticipated that (1) replacement would be required for the 50 year building, at approximately the mid-life point.**
2. Emergency Power Distribution
  1. 25 Year Building: Local batteries for all life safety systems (egress lighting, fire alarm, security). Continual maintenance will need to be performed on the batteries to ensure proper operation during normal power outages or emergency events. It is anticipated that the batteries in each system would need to be replaced (5) times.
  2. **50 Year Building: Same configuration as 25 year building. It is anticipated that the batteries in each system would need to be replaced (10) times.**
3. Wiring and Conduit
  1. 25 Year Building: Type NM (Romex) wiring with no conduit for branch circuit. Type THHN/THWN within conduit for feeders and equipment connections. No exposed wiring. EMT conduit for interior, above grade locations, PVC for underground locations.
  2. **50 Year Building: Same as 25 year building.**
4. Interior luminaires
  1. 25 Year Building: Fluorescent luminaires of different lamp types based on space programming. It is anticipated that the lamps and ballast would need to be replaced every (7) years, or a total of (4) times.
  2. **50 Year Building: Same product as the 25 year building. It is anticipated that the lamps and ballast would need to be replaced (8) times.**
5. Lighting controls
  1. Common spaces
    - a. 25 Year Building: Step dimming via (2) light switches. Extra heavy duty grade line voltage switches. Product: Leviton brand.
    - b. **50 Year Building: Same as 25 year building.**
  2. Code required whole-building automatic shutoff

- a. 25 Year Building: Automatic shutoff via time-of-day time switch with manual override. 4 circuit digital time switch with pushbutton override. Product: Intermatic ET90000 Series.
- b. **50 Year Building: Same product as the 25 year building. It is anticipated that (1) replacement would be required.**
3. Non-common space
  - a. 25 Year Building: Extra heavy duty grade line voltage switches. Product: Leviton brand.
  - b. **50 Year Building: Same as 25 year building.**
6. Exterior luminaires
  1. 25 Year Building: LED luminaires. It is anticipated that (1) replacement would be required.
  2. **50 Year Building: LED luminaires. It is anticipated that (2) replacements would be required.**
7. Exterior lighting controls
  1. 25 Year Building: All exterior lighting grouped into (1) zone and controlled via an astronomic time switch. Product: Tork Astro Skip A Day mechanical time switch. It is anticipated that (1) replacement would be required.
  2. **50 Year Building: Same product as 25 year building. It is anticipated that (2) replacement would be required.**
8. Photovoltaic (PV) system – None provided
9. Plug load control – None provided
10. Fire alarm system – Minimum required by the Oregon Fire Code.

D60. Low Voltage and IT Systems - Owner provided, cost not included

## E. Equipment & Furnishings

### E10. Equipment

1. Display surfaces – Owner provided
2. Information Technology equipment – Owner Provided
3. Backup power equipment – Owner provided
4. Allowance for classroom accessories, flag holder, etc.
5. Digital & Computer Equipment: None separate contract.
6. Chute fed industrial trash compactor

E20. Furnishings – Owner provided, cost not included

E30. Window Blinds – none included

E40. Furniture: Owner provided, cost not included



E50. Food Service Equipment – Owner provided, cost not included

**F. Other Building Construction**

F10. None

**G. Building Site work**

G10. Site Preparation

1. Excavation:
  1. Stripping: Strip the existing ground  $\pm 4$  inches, or as required to remove roots, sod or unsuitable soil.
  2. Building Pad: Excavate to 18 inches below the finished floor elevation based on an assumed building slab thickness of 6 inches. Compact the subgrade.
  3. Footings: Excavate for 24 inch wide and 24 inch deep footings to 36 inches below the finished floor elevation.
  4. Vehicular and Pedestrian Pavements: Excavate 18" of top soils at new paved areas.
  5. Vehicular gravel parking areas: Excavate 12" of top soils at new gravel parking areas.
  6. Landscape areas: Excavate to 18 inches below the finished grade elevations.
2. Fills:
  1. Materials:
    - a. Select Fill consisting of 1½ or ¾-inch minus, clean (i.e., less than 5% passing (by weight) the #200 U.S. Sieve), well-graded, durable, crushed rock that is free of plastic clay, organic matter and construction debris.
  2. Placement: Compact all Select Fill and Granular Site Fill in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  3. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
  4. Quantities:
    - a. Building Pad and Footings: 12 inches of Select Fill.
    - b. Gravel paved areas: 12 inches of Select Fill.
3. Erosion Control Procedures:
  1. Sediment fencing or bark/mulch bio-berms.
  2. Inlet protection, straw mulch cover.
  3. Temporary seeding.
  4. Wheel washing.
  5. Concrete wash areas.

6. Construction access roads.

G20. Site Signs & Markings

1. Traffic Signage: Stop signs at internal traffic crossings, handicapped and van accessible parking signs, bus only sign at bus entry, sign reading “Authorized Vehicles Only” at entry to utility court drive.
2. Address sign: Code required sign at building entry with building identification and street number. Metal letters mounted to building façade.

G30. Site Development

1. Site Lighting – Cost & narrative by Electrical
2. Vehicular & Pedestrian Pavements and Curbs –
  1. Light Pavements: Install 4” 4000 PSI concrete paving at ADA parking and walk ways over 12” minimum depth Select Fill, over geotextile, over approved subgrade.

G40. Site Amenities

1. Covered outdoor areas
  1. Structure: Treated wood columns, engineered wood trusses.
  2. Envelope: Roofing Material to match 25 and 50 year building.
  3. Lighting: Lighting to match 25 and 50 year building.

G50. Site Utilities -

1. Utility Trenching:
  1. Backfill:
    - a. Pipe Base and Pipe Zone: ¾”-0 crushed rock.
    - b. Above Pipe Zone: Select Fill.
  2. Placement: Compact in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  3. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
2. Storm Drainage: Covered By Civil Engineer Estimate
  1. Connect to existing public storm drain manhole located at the south side of the intersection of Grove Street and Howard Avenue.
  2. Stormwater Treatment:
    - a. Grassy Swales and Rain Gardens. These are provided to comply with storm water treatment requirements.
3. Sanitary Sewer
  1. Construct on-site septic drain field.
4. Domestic Water
  1. Connect to existing water main.

5. Fire Protection Water
  1. Construct water storage tank.
  
6. Natural Gas
  1. Propane will connect to on site propane storage tank.

G60. Landscaping and Irrigation

1. Storm water swales will be planted per Code and irrigated for the first 5 years to insure plant success. Assume installation of temporary system for those areas only. Landscape outside of the Code required swales will be by Owner.

**END OF SECTION**

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### **Specifications: Institutional Building – 25 and 50 Year Life span**

Narrative: This building type is designed to be robust, low maintenance, and simple. Materials are commonly used and performance tested over long periods of time in a variety of projects. This building type is meant to last with a minimum of operational expenditures over the planned life of the facility.

**The following specifications are provided following CSI Unifomat for building systems.**

#### **Substructure**

##### **A10. Foundations**

1. Concrete
  1. 3,500 psi
2. Excavation – As needed to accommodate new work
3. Fills – 24” compacted crushed rock below slab and paved surfaces.
4. Slab on Grade
  1. Thickness: 5”, with slab edge footing 1’ deep x 1’ wide.
  2. Strip footings at perimeter of building 2’ wide x 1’-6” deep.
  3. Reinforcing: #4 at 16” O.C., each way. (4) #4 Bar cont. at footings
  4. Finish: Light broom finish
  5. Provide Underslab Vapor Barrier; 15 mil thickness, directly over subgrade.

#### **B. Shell**

##### **B10. Superstructure**

1. Walls
  1. Steel frame columns and horizontal beams.
2. Roof:
  1. Open web steel trusses K series, steel decking, steel beams at collectors and lateral support structures.

##### **B20. Exterior Closure**

1. Walls
  1. Structure: 8” metal studs 16” OC
  2. Sheathing: ¾” fiberglass matt gypsum panel
  3. Insulation: R-19 fiberglass batts in stud cavity, 2” rigid insulation over sheathing
  4. Weather barrier: Self adhered waterproof membrane
  5. Flashing: stainless steel
  6. Exterior finish: Concrete masonry unit, factory finished steel panels
  7. Interior Finish: See “Interior Finishes” below
2. Windows
  1. Glazing: Dual pane Low E coated glazing. Product: PPG Solarban or similar.

2. Frame System:
  - a. Thermally broken aluminum storefront window systems. Product: Kawneer IR 501 T window systems.
  - b. **50 Year Building: Thermally broken aluminum curtain wall systems. Product: Kawneer 1600 Wall System 4 Curtain Wall**
3. Window operation:
  - a. 90% Fixed, 10% awning operable.
3. Doors
  1. Door: Hollow metal doors, insulated core. 50% glazed.
  2. Door Frame: Hollow metal frames.
  3. Door Hardware:
    - a. Stainless steel lever type with panic hardware at assembly spaces.
  4. Glazing: Tempered dual pane IGU.

**B30. Roofing**

1. Sloped roof areas – minimum 4 in 12 slope
  1. Roofing: Standing seam metal roof system. Product AEP Span Span Lok standing seam metal roof
  2. Polypropylene roof underlayment. Product GAF Deck Armor.
  3. Insulation: R-30 Rigid insulation over metal decking.
  4. Drainage: Stainless Steel 20G sheet metal gutter and downspouts.

**C. Interiors**

**C10. Interior Construction**

1. Interior frame partitions:
  1. Solid walls
    - a. Frame/structure: 2x4 hem/fir studs 24" OC
    - b. Finish: See "Interior Finishes" below.
2. Interior Doors:
  1. Door: Solid core hardwood veneer
    - a. **50 Year Building: Hollow metal doors**
  2. Door Frame: Hollow Metal
  3. Door Hardware: Stainless steel lever type
  4. Glazing: Tempered
  5. Access Control: Keyed mechanical hardware.
3. Casework
  1. Cabinetry: Plam veneer plywood
    - a. **50 Year Building: Solid wood face frames, plywood boxes, commercial quality hardware, mortise & tenon construction.**
  2. Counters: Plastic laminate over particle board substrate

- a. **50 Year Building: Solid surface material. Product solid granite countertop or 16 G stainless steel over plywood substrate.**
- 4. Interior Specialties – Toilet Rooms
  - 1. Restroom accessories:
    - a. Stainless steel toilet paper dispensers
    - b. Stainless steel grab bars at ADA stalls.
  - 2. Toilet partitions: Solid phenolic
- 5. Interior Specialties - Misc.
  - 1. Fire extinguishers and cabinets: - painted sheet metal surface mount.

C20. Interior Finishes

- 1. Floors
  - 1. Polished concrete floor system.
  - 2. Base: 4" rubber base
    - a. **50 Year Building: Solid wood integral base.**
- 2. Walls
  - 1. Gypsum wall board, taped, textured and painted.
    - a. **50 Year Building: lower 4' of wall clad in 3/4" plywood wainscoting, above with high impact gypsum board, plaster finish.**
- 3. Ceilings
  - 1. Acoustic Ceiling Tile in sheet metal painted grid.
- 4. Trim & Misc. Carpentry Allowance - \$25,000

D. Services

D10. Conveying Systems – not used.

D20. Plumbing Systems – Narrative by PAE

- 1. Sanitary System – Cast iron waste and vent piping, 4-inch main, kitchen grease waste to drain to 100 gpm exterior hydro-mechanical grease interceptor, Schier or approved.
  - a. **50 Year Building: Anticipate one replacement of the grease interceptor.**
- 2. Storm System – Exterior downspouts to downspout boots and cast iron laterals to 5 ft from building.
- 3. Potable Water System - Assumed 2-inch service to kitchen and restrooms. Copper piping.
- 4. Water Heating System - Two 120-gallon, 30kW commercial electric water heaters with recirculating pump and recirc piping. Expected life of water heaters is 20 years.
  - a. **50 Year Building: Two replacements of water heaters, as technology advances, are anticipated.**

5. Fixtures - Standard-flow fixtures: 1.28 gpf water closets with sensor operation, 0.5 gpm lavatories, sensor operated
  - a. **50 Year Building: Same as 25 year building except that one replacement is anticipated.**

D30. HVAC Systems – Narrative by PAE

1. Multipurpose Room – 15-ton semi-custom outdoor air handler with heat pump and electric resistance backup coil. Single zone heating/cooling. Heat recovery wheel or plate. MERV-13 filtration.
  - a. **50 Year Building: One replacement of the air handler is anticipated.**
2. Support Spaces – Electric wall heater for office, exhaust fan for restrooms, ductless split cooling system for IT Room.
  - a. **50 Year Building: Three replacements of the exhaust fan and split system.**
3. Kitchen
  1. 3000 cfm Type 1 grease exhaust fan
  2. 1000 cfm Type 2 dish exhaust fan
  3. 2000 cfm exhaust from miscellaneous Type 2 hoods
  4. 6000 cfm makeup air unit with electric heat, dx cooling.
  5. 500 cfm restroom shower exhaust fan.
  6. 2 electric wall heaters for morning warmup.
  7. **50 Year Building: One replacement of fans and makeup air unit anticipated.**

D40. Fire Protection Systems – Cost & narrative by KPFF

D50. Electrical Systems – Cost & narrative by PAE

1. Normal Power Distribution
  1. 208Y / 120V electric service:
    - a. 25 Year Building: (3) 4" PVC conduit with THWN wiring from utility service point underground to main panel board location.
    - b. **50 Year Building: Same as 25 year building.**
  2. 800A main panel board and associated branch panel boards:
    - a. 25 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent.
    - b. **50 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent. It is anticipated that (1) replacement would be required for the 50 year building, at approximately the mid-life point.**
2. Emergency Power Distribution
  1. Emergency Lighting Inverter
    - a. 25 Year Building: 10 kVA emergency inverter. Product: Myers Power Products Illuminator Series CIII D-4-S emergency lighting inverter system, three-phase, 120/208 input, 120/208 output. It is anticipated

- that the associated batteries will need to be replaced (3) times during the 25 years.
- b. **50 Year Building: Same product as 25 year building. It is anticipated that the inverter will need to be replaced once during the 50 years, at approximately the mid-life point, and the associated batteries will need to be replaced (6) times.**
2. Emergency branch panel boards:
    - a. 25 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (1) replacement would be required for the 50 year building, at approximately the mid-life point.**
  3. Wiring and Conduit
    1. 25 Year Building: All branch circuits, feeders, and equipment connections will be type THHN/THWN wiring within conduit. No exposed wiring. EMT conduit for interior, above grade locations, PVC for underground locations.
    2. **50 Year Building: Same as 25 year building.**
  4. Interior luminaires
    1. 25 Year Building: LED luminaires. It is anticipated that (1) replacement would be required.
    2. **50 Year Building: LED luminaires. It is anticipated that (2) replacements would be required.**
  5. Lighting controls
    1. Common spaces
      - a. 25 Year Building: Automatic shutoff via time-of-day time switch with manual override. 4 circuit digital time switch with pushbutton override. Product: Intermatic ET90000 Series.
      - b. **50 Year Building: Same product as 25 year building. It is anticipated that (1) replacement would be required.**
    2. Non-common spaces
      - a. 25 Year Building: Room controller system with occupancy sensor(s) and low-voltage switches, configured as manual on/automatic off. Product: Wattstopper LMRC system with associated ceiling or wall-mounted occupancy sensor and low-voltage switches. It is anticipated that (1) replacement would be required.
      - b. **50 Year Building: Same product as 25 year building. It is anticipated that (2) replacements would be required.**
  6. Exterior luminaires
    1. 25 Year Building: LED luminaires. It is anticipated that (1) replacement would be required.
    2. **50 Year Building: LED luminaires. It is anticipated that (2) replacements would be required.**



7. Exterior lighting controls
  1. 25 Year Building: Exterior lighting grouped into (3) or more zones, each zone with a dedicated astronomic time switch. Product: Tork Astro Skip A Day mechanical time switch. It is anticipated that (1) replacement would be required for each switch.
  2. **50 Year Building: Same product as 25 year building. It is anticipated that (2) replacements would be required for each switch.**
8. Photovoltaic (PV) system – An approximately 23 kW south facing, 10 degree tilt PV system will be provided and will utilize approximately 15% of the available roof area. It is anticipated that this size array will offset approximately 10% of peak load.
  1. Solar Panel:
    - a. 25 Year Building: Product: SunPower E20-327 solar panel.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (1) replacements would be required.**
  2. Solar Inverter:
    - a. 25 Year Building: Product: SMA Sunny Tripower 24000TL-US inverter. It is anticipated that (2) replacements would be required.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (4) replacements would be required.**
9. Plug load control – None provided. Recommendation is to provide all EnergyStar compliant kitchen appliances.
10. Fire alarm system – Minimum required by the Oregon Fire Code.

D60. Low Voltage and IT Systems - Owner provided, cost not included

## E. Equipment & Furnishings

### E10. Equipment

7. Display surfaces – Owner provided
8. Information Technology equipment – Owner Provided
9. Backup power equipment – Owner provided
10. Allowance for classroom accessories, flag holder, etc.
11. Digital & Computer Equipment: None separate contract.
12. Chute fed industrial trash compactor

E20. Furnishings – Owner provided, cost not included

E30. Window Blinds – none included

E40. Furniture: Owner provided, cost not included

E50. Food Service Equipment – Owner provided, cost not included

**F. Other Building Construction**

F10. None

**G. Building Site work**

G10. Site Preparation

4. Excavation:
  7. Stripping: Strip the existing ground  $\pm 4$  inches, or as required to remove roots, sod or unsuitable soil.
  8. Building Pad: Excavate to 18 inches below the finished floor elevation based on an assumed building slab thickness of 6 inches. Compact the subgrade.
  9. Footings: Excavate for 24 inch wide and 24 inch deep footings to 36 inches below the finished floor elevation.
  10. Vehicular and Pedestrian Pavements: Excavate 18" of top soils at new paved areas.
  11. Vehicular gravel parking areas: Excavate 12" of top soils at new gravel parking areas.
  12. Landscape areas: Excavate to 18 inches below the finished grade elevations.
5. Fills:
  5. Materials:
    - a. Select Fill consisting of 1½ or ¾-inch minus, clean (i.e., less than 5% passing (by weight) the #200 U.S. Sieve), well-graded, durable, crushed rock that is free of plastic clay, organic matter and construction debris.
  6. Placement: Compact all Select Fill and Granular Site Fill in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  7. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
  8. Quantities:
    - a. Building Pad and Footings: 12 inches of Select Fill.
    - b. Gravel Paved areas: 12 inches of Select Fill.
6. Erosion Control Procedures:
  1. Sediment fencing or bark/mulch bio-berms.
  2. Inlet protection, straw mulch cover.
  3. Temporary seeding.
  4. Wheel washing.
  5. Concrete wash areas.
  6. Construction access roads.

G20. Site Signs & Markings

3. Traffic Signage: Stop signs at internal traffic crossings, handicapped and van accessible parking signs, bus only sign at bus entry, sign reading “Authorized Vehicles Only” at entry to utility court drive.
4. Address sign: Code required sign at building entry with building identification and street number. Metal letters mounted to building façade.

G30. Site Development

1. Site Lighting – Cost & narrative by Electrical
2. Vehicular & Pedestrian Pavements and Curbs –
  1. Light Pavements: Install 4” 4000 PSI concrete paving at ADA parking and walk ways over 12” minimum depth Select Fill, over geotextile, over approved subgrade.

G40. Site Amenities

2. Covered outdoor areas
  4. Structure: Galvanized steel columns and roof framing.
  5. Envelope: Roofing Material to match 25 and 50 year building.
  6. Lighting: Lighting to match 25 and 50 year building.

G50. Site Utilities -

1. Utility Trenching:
  1. Backfill:
    - a. Pipe Base and Pipe Zone: ¾”-0 crushed rock.
    - b. Above Pipe Zone: Select Fill.
  2. Placement: Compact in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  3. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
2. Storm Drainage: Covered By Civil Engineer Estimate
  3. Connect to existing public storm drain manhole located at the south side of the intersection of Grove Street and Howard Avenue.
  4. Stormwater Treatment:
    - a. Grassy Swales and Rain Gardens. These are provided to comply with stormwater treatment requirements.
3. Sanitary Sewer
  1. Construct on-site septic drain field.
4. Domestic Water
  1. Connect to existing water main.

5. Fire Protection Water
  1. Construct water storage tank.
  
6. Natural Gas
  1. Propane will connect to on site propane storage tank.

G60. Landscaping and Irrigation

1. Storm water swales will be planted per Code and irrigated for the first 5 years to insure plant success. Assume installation of temporary system for those areas only. Landscape outside of the Code required swales will be by Owner.

**END OF SECTION**

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## **Specifications: Concept Building – 25 and 50 Year Life span**

Narrative: This building type is meant to be constructed of traditional materials (wood, stone, steel, glass) configured in usual ways. Assume longer spans, less points of contact at the ground, and curving forms. This building type will incorporate more sustainable strategies, including use of local materials, high recycled content materials, and prohibition of Living Building Red List materials.

**The following specifications are provided following CSI Unifomat for building systems.**

### **Substructure**

#### **A10. Foundations**

1. Concrete
  1. 4000 psi
2. Excavation – As needed to accommodate new work
3. Fills – 24” compacted crushed rock below slab and paved surfaces.
4. Pier footings: Assume building will be supported by piers. Goal is to disturb the smallest amount of site.

### **B. Shell**

#### **B10. Superstructure**

1. Columns
  1. CLT columns with structural steel moment frames.
2. Load Bearing Walls and Floors
  1. CLT panels, assume 5.5 inch thick floor and wall panels.
  2. Sheathing: 2” lightweight concrete floors at kitchen areas.
3. Roof:
  1. Structure: Curved CLT or Glulam beams, steel moment frames.
  2. Sheathing: 2” T&G roof decking.

#### **B20. Exterior Closure**

1. Walls
  1. Structure: CLT wall panels, assume 20% 2x8 hem/fir studs at 16” OC infill walls.
  2. Sheathing: ¾” fiberglass matt gypsum panel
  3. Insulation: R-19 mineral wool batts in stud cavity, 2” mineral wool insulation over sheathing. Products ROXUL Cavity Rock.
  4. Weather barrier: Self adhered waterproof membrane
  5. Flashing: stainless steel
  6. Exterior finish: Assume 30% natural stacked stone walls, 30% exterior plaster wall, 40% 1” thick solid wood cladding.
    - a. **50 Year Building: Assume replacement of 20% of exterior cladding.**
7. Interior Finish: See “Interior Finishes” below

2. Windows
  1. Glazing: Dual pane Low E coated glazing. Product: PPG Solarban or similar.
  2. Frame System:
    - a. Assume 50% aluminum window systems as noted:  
Thermally broken aluminum storefront window systems. Product: Kawneer IR 501 T window systems.  
**50 Year Building: Thermally broken aluminum curtain wall systems. Product: Kawneer 1600 Wall System 4 Curtain Wall**
    - b. Assume 50% metal clad solid wood frame window systems.  
**50 Year Building: Assume replacement of 50% of the wood window systems.**
  3. Window operation:
    - a. 50% Fixed, 50% operable.
3. Doors
  1. Door: Solid wood doors. 50% glazed.
  2. Door Frame: Solid wood frames.
    - a. **50 Year Building: Assume replacement of 20% of wood door systems.**
  3. Door Hardware:
    - a. Custom metal lever type with panic hardware at assembly spaces.
  4. Glazing: Tempered dual pane IGU.

### B30. Roofing

1. Sloped roof areas:
  1. Roofing: Copper or Slate Tile roof.
  2. Roof underlayment: Synthetic Felt roof underlayment system. Ice and water shield at all transitions and roof edges.
  3. Insulation: R-40 Rigid insulation over wood decking.
  4. Drainage: Copper 20G sheet metal gutter and downspouts.

## C. Interiors

### C10. Interior Construction

1. Interior frame partitions:
  1. Solid walls
    - a. Frame/structure: 2x6 hem/fir studs 16" OC
    - b. Finish: See "Interior Finishes" below.
2. Interior Doors:
  1. Door: Solid hardwood doors.
    - a. **50 Year Building: Assume replacement 20% of doors.**
  2. Door Frame: Solid wood.

3. Door Hardware: Custom metal lever type hardware.
4. Glazing: Tempered
5. Access Control: Keyed mechanical hardware.
3. Casework
  1. Cabinetry: Solid wood face frames, plywood boxes, commercial quality hardware, mortise & tenon construction.
  2. Counters: Solid surface material. Product solid granite countertop or 16 G stainless steel over plywood substrate.
4. Interior Specialties – Toilet Rooms
  1. Restroom accessories:
    - a. Stainless steel toilet paper dispensers
    - b. Stainless steel grab bars at ADA stalls.
  2. Toilet partitions: Solid phenolic or solid wood floor to ceiling partitions.
5. Interior Specialties - Misc.
  1. Fire extinguishers and cabinets: - painted sheet metal surface mount.

#### C20. Interior Finishes

1. Floors
  1. Polished concrete at kitchen area. Solid hardwood at other areas.
  2. Base: Solid wood or stone integral base.
2. Walls: Assume 50% walls solid hardwood cladding, 50% walls lathe and plaster.
3. Ceilings
  1. Open to structure. Kitchen areas to have solid plaster ceilings.
4. Integral Art allowance at interiors - \$50,000

### D. Services

#### D10. Conveying Systems – not used.

#### D20. Plumbing Systems – Narrative by PAE

1. Sanitary System – Cast iron waste and vent piping, 4-inch main, kitchen grease waste to drain to 100 gpm exterior hydro-mechanical grease interceptor, Schier or approved.
  - a. 50 Year Building: Anticipate one replacement of the grease interceptor.
2. Storm System – Exterior downspouts to downspout boots and cast iron laterals to rainwater treatment manholes and 3000 gallon underground fiberglass cistern. Rainwater harvesting system to filter (bag filters) and treat (chlorine) and pump to water closets and for irrigation.
3. Graywater System – On-site treatment of drainage water for use as outdoor washing and irrigation.
4. Potable Water System - Assumed 2-inch service to kitchen and restrooms. Copper piping.

5. Water Heating System - Two 120-gallon, 30kW commercial electric water heaters with recirculating pump and recirc piping. Expected life of water heaters is 20 years. Include solar thermal preheat system with three panels and glycol loop.
  - a. 50 Year Building: Two replacements of water heaters, as technology advances, are anticipated.
6. Fixtures – New or recycled low-flow fixtures: 1.28 gpf water closets and 0.5 gpm lavatories.
  - a. 50 Year Building: Same as 25 year building except that one replacement is anticipated.

D30. HVAC Systems – Narrative by PAE

1. Multipurpose Room – 10-ton semi-custom outdoor air handler with heat pump and electric resistance backup coil. Single zone heating/cooling. Heat recovery wheel or plate. MERV-13 filtration. Integrate natural ventilative cooling to minimize energy consumption (manually operable windows, skylights)
  - a. 50 Year Building: One replacement of the air handler is anticipated.
2. Support Spaces – Electric wall heater for office, exhaust fan for restrooms, ductless split cooling system for IT Room.
  - a. 50 Year Building: Three replacements of the exhaust fan and split system.
3. Kitchen
  1. 3000 cfm Type 1 grease exhaust fan
  2. 1000 cfm Type 2 dish exhaust fan
  3. 2000 cfm exhaust from miscellaneous Type 2 hoods
  4. 6000 cfm makeup air unit with electric heat, evaporative cooling. Unit recirculates when hoods are not in operation. CO2 control on hoods and makeup air unit.
  5. 500 cfm restroom shower exhaust fan.
  6. 2 electric wall heaters for morning warmup.
  7. 50 Year Building: One replacement of fans and makeup air unit anticipated.

D40. Fire Protection Systems – Cost & narrative by KPFF

D50. Electrical Systems – Cost & narrative by PAE

1. Normal Power Distribution
  1. 208Y / 120V electric service:
    - a. 25 Year Building: (3) 4" PVC conduit with THWN wiring from utility service point underground to main panel board location.
    - b. **50 Year Building: Same as 25 year building.**
  2. 800A main panel board and associated branch panel boards:
    - a. 25 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent.
    - b. **50 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or**



**equivalent. It is anticipated that (1) replacement would be required for the 50 year building, at approximately the mid-life point.**

2. Emergency Power Distribution
  1. Diesel Engine Generator Set
    - a. 25 Year Building: 30 kW / 37.5 kVA emergency generator with 24 hour day tank. Product: Cummins Power Generation C30 D6, three-phase, 120/208 output generator.
    - b. **50 Year Building: Same as 25 year building.**
  2. Automatic Transfer Switches
    - a. 25 Year Building: (1) for the emergency distribution system, and (1) for the optional standby distribution system. Product: ASCO Series 300 Group G Power Transfer Load Center.
    - b. **50 Year Building: Same as 25 year building. It is anticipated that (1) replacement would be required at approximately the 25 year mark.**
  3. Emergency branch panel boards:
    - a. 25 Year Building: Commercial grade electrical equipment with bolt-on breakers and copper bussing. Product: Square D or equivalent.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (1) replacement would be required for the 50 year building, at approximately the mid-life point.**
3. Wiring and Conduit
  1. 25 Year Building: All branch circuits, feeders, and equipment connections will be type THHN/THWN wiring within conduit. No exposed wiring. EMT conduit for interior, above grade locations, PVC for underground locations.
  2. **50 Year Building: Same as 25 year building.**
4. Interior luminaires
  1. 25 Year Building: LED luminaires. It is anticipated that (1) replacement would be required.
  2. **50 Year Building: LED luminaires. It is anticipated that (2) replacements would be required.**
5. Lighting controls
  1. 25 Year Building: Full building networked lighting control system including low-voltage occupancy sensors, vacancy sensors, daylight harvesting photosensors, switches, and time-of-day controls. This will also serve the exterior luminaires and controlled plugs. Leviton GreenMax system.
  2. **50 Year Building: Same product and configuration as 25 year building. It is anticipated that (1) replacement would be required.**
6. Exterior luminaires

1. 25 Year Building: LED luminaires. It is anticipated that (1) replacement would be required.
2. **50 Year Building: LED luminaires. It is anticipated that (2) replacements would be required.**
7. Exterior lighting controls – See interior lighting controls above.
8. Photovoltaic (PV) system – An approximately 113 kW south facing, 10 degree tilt PV system will be provided and will utilize approximately 75% of the available roof area. It is anticipated that this size array will offset approximately 50% of peak load.
  1. Solar Panel:
    - a. 25 Year Building: Product: SunPower E20-327 solar panel.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (1) replacements would be required.**
  2. Solar Inverter:
    - a. 25 Year Building: Product: (4) SMA Sunny Tripower 30000TL-US inverter. It is anticipated that (2) replacements would be required per inverter.
    - b. **50 Year Building: Same product as 25 year building. It is anticipated that (4) replacements would be required per inverter.**
9. Plug load control – 50% of all plugs (receptacles) installed would be controlled by the networked lighting control system, see interior lighting controls above. Recommendation is to provide all EnergyStar compliant kitchen appliances.
10. Fire alarm system – Minimum required by the Oregon Fire Code.

D60. Low Voltage and IT Systems - Owner provided, cost not included

## **E. Equipment & Furnishings**

### E10. Equipment

13. Display surfaces – Owner provided
14. Information Technology equipment – Owner Provided
15. Backup power equipment – Owner provided
16. Allowance for classroom accessories, flag holder, etc.
17. Digital & Computer Equipment: None separate contract.
18. Chute fed industrial trash compactor

E20. Furnishings – Owner provided, cost not included

E30. Window Blinds – none included

E40. Furniture: Owner provided, cost not included

E50. Food Service Equipment – Owner provided, cost not included

## F. Other Building Construction

F10. None

## G. Building Site work

G10. Site Preparation

7. Excavation:
  13. Stripping: Strip the existing ground  $\pm 4$  inches, or as required to remove roots, sod or unsuitable soil.
  14. Building Pad: Excavate to 18 inches below the finished floor elevation based on an assumed building slab thickness of 6 inches. Compact the subgrade.
  15. Footings: Excavate for 24 inch wide and 24 inch deep footings to 36 inches below the finished floor elevation.
  16. Vehicular and Pedestrian Pavements: Excavate 18" of top soils at new paved areas.
  17. Vehicular gravel parking areas: Excavate 12" of top soils at new gravel parking areas.
  18. Landscape areas: Excavate to 18 inches below the finished grade elevations.
8. Fills:
  9. Materials:
    - a. Select Fill consisting of 1½ or ¾-inch minus, clean (i.e., less than 5% passing (by weight) the #200 U.S. Sieve), well-graded, durable, crushed rock that is free of plastic clay, organic matter and construction debris.
  10. Placement: Compact all Select Fill and Granular Site Fill in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  11. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
  12. Quantities:
    - a. Building Pad and Footings: 12 inches of Select Fill.
    - b. Gravel Paved areas: 12 inches of Select Fill.
9. Erosion Control Procedures:
  1. Sediment fencing or bark/mulch bio-berms.
  2. Inlet protection, straw mulch cover.
  3. Temporary seeding.
  4. Wheel washing.
  5. Concrete wash areas.
  6. Construction access roads.

G20. Site Signs & Markings

5. Traffic Signage: Stop signs at internal traffic crossings, handicapped and van accessible parking signs, bus only sign at bus entry, sign reading “Authorized Vehicles Only” at entry to utility court drive.
6. Address sign: Code required sign at building entry with building identification and street number. Metal letters mounted to building façade.

G30. Site Development

1. Site Lighting – Cost & narrative by Electrical
2. Vehicular & Pedestrian Pavements and Curbs –
  1. Light Pavements: Install 4” 4000 PSI concrete paving at ADA parking and walk ways over 12” minimum depth Select Fill, over geotextile, over approved subgrade.

G40. Site Amenities

3. Covered outdoor areas
  7. Structure: Steel columns, CLT or steel roof frame.
  8. Envelope: Roofing Material to match 25 and 50 year building.
  9. Lighting: Lighting to match 25 and 50 year building.

G50. Site Utilities -

1. Utility Trenching:
  1. Backfill:
    - a. Pipe Base and Pipe Zone: ¾”-0 crushed rock.
    - b. Above Pipe Zone: Select Fill.
  2. Placement: Compact in loose lifts not exceeding 12 inches. Thinner lifts will be required if light or hand-operated equipment is used.
  3. Compaction: Compact the fill to a minimum of 95% relative compaction per ASTM D 698.
2. Storm Drainage:
  5. Connect to existing public storm drain manhole located at the south side of the intersection of Grove Street and Howard Avenue.
  6. Stormwater Treatment:
    - a. Grassy Swales and Rain Gardens. These are provided to comply with stormwater treatment requirements.
3. Sanitary Sewer
  1. Construct on-site septic drain field.
4. Domestic Water
  1. Connect to existing water main.
5. Fire Protection Water

1. Construct water storage tank.
  
6. Natural Gas
  1. Propane will connect to on site propane storage tank.

G60. Landscaping and Irrigation

1. Storm water swales will be planted per Code and irrigated for the first 5 years to insure plant success. Assume installation of temporary system for those areas only.
  
2. Assume 10,000 SF of new landscape to integrate building and site. Landscape design will reflect the care and intent of the building design.

**END OF SECTION**

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