Eastport Health Care
Community Health Center

75 Key Street
Eastport Maine 04631

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Design Development Narrative

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A/E Project No.10310.001
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PROFESSIONAL SEALS PAGE

The recommendations presented in the following report were prepared by, or under the direct supervision of, the following Maine licensed professionals:

CIVIL ENGINEER	ARCHITECT
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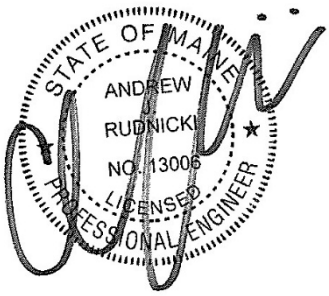
STRUCTURAL ENGINEER	**LANDSCAPE ARCHITECT**
Miguel Betancourt P.E., S.E. *Structural Engineer, Department Manager*	**David Woodward** PLA *Department Manager*
MECHANICAL ENGINEER	**ELECTRICAL ENGINEER**
 **Andrew Rudnicki** P.E., LEEP AP *Senior Mechanical Engineer, Senior Firm Associate*	**Philip Badger, III** P.E. *Senior Electrical Engineer, Department Engineer*

PROJECT OVERVIEW (SCOPE)

General:

Eastport Health Care, Inc. (EHC) operates a Federally Qualified Health Center in Eastport, Maine. EHC offers comprehensive primary care and related medical service and has been in operation since 1978.

EHC is undertaking this project to develop a new Community Health Center, to be located at 75 Key Street. This new facility will replace the existing Eastport facility at 30 Boynton Street. This new Community Health Center facility will allow EHC to expand services of several existing practices, allowing them to better serve the Washington County Community. EHC has expressed the desire for this facility to serve as a location for a "One Stop Shop" for patients' healthcare needs and offer the following services:

- Expanded Primary Care
- Behavioral Health Services
- Dental Services
- Diabetes Center
- Care Management
- Laboratory
- Patient Services and Navigation
- Retail Pharmacy
- Ophthalmology
- Chiropractic Services

BUILDING CODE ANALYSIS / LIFE SAFETY DESIGN NARRATIVE:

Applicable Building and Life Safety Codes:

- *The Life Safety Code* (NFPA 101-2018)
- Maine Uniform Building and Energy Code (MUBEC)
  - *International Building Code* (IBC-2021 *w/Amendments*)
  - *International Energy Conservation Code* (IECC-2021 *w/Amendments*)
- See discipline specific narrative sections for additional applicable codes

Proposed Square Footage (gross square feet):

Business – Outpatient Clinic.....	17,956 Sq Ft
Accessory Storage, Mechanical, Janitor.....	1,810 Sq Ft
Attic Mechanical Room	1,700 Sq Ft
Total	21,466 Sq Ft

Occupancy Type:

IBC:

304.1 - **Business Group B** – Outpatient Clinic

508.2.4 – No separation required between accessory occupancy and Main occupancy

Per IBC the building shall be classified Business Occupancy

NFPA 101:

6.1.11 - **Business**

Per NFPA the building shall be classified Single Occupancy – Business Occupancy

Occupant Load:

IBC (Table 1004.1.2)

Use	**Area**	**Occupant Load Factor**	**Occupant Count**
Business – Outpatient Clinic	18,033 Sq Ft	100 Gross	181 Occupants
Storage/Janitor/Mechanical	1,812 Sq Ft	300 Net	6 Occupants
Total	**19,845 Sq Ft**		**187 Occupants**

NFPA 101 (Table 7.3.1.2)

Use	**Area**	**Occupant Load Factor**	**Occupant Count**
Business	18,033Sq Ft	150 Gross	121 Occupants
Storage/Janitor/Mechanical	1,812 Sq Ft	500 Net	3 Occupants
Total	**19,845 Sq Ft**		**124 Occupants**

Construction Type:

Steel frame with open-web roof joists, girders, columns and premanufactured cold-formed steel roof gable trusses with steel braced frames.

- IBC – Type IIIB – Non-Combustible Exterior - Unprotected
  - 602.3 - Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any

material permitted by this code. Fire-retardant-treated wood framing complying with Section 2303.2 shall be permitted within exterior wall assemblies of a 2-hour rating or less.

- NFPA 220 – Type III (200) – Non-Combustible – Unprotected
  - 4.4.1 – Type III (211 or 200) construction shall be that type in which exterior walls and structural elements that are portions of exterior walls are of approved noncombustible or limited-combustible materials, and in which fire walls, interior structural elements, walls, arches, floors, and roofs are entirely or partially of wood of smaller dimensions than required for Type IV construction or are of approved noncombustible, limited-combustible, or other approved combustible materials
  - 4.1.1 - Exterior bearing walls are required to have a 2hr rating, all other construction does not need to be rated. The project does not include any exterior bearing walls.

Allowable Building Height & Number of Stories:

	Type IIIB
Table 504.3 - Height	75 ft
Table 504.4 – No. of Stories	4 Stories
Note: Eastport Zoning Dictates Maximum Height of 35 ft.	

IBC (Table 504.3)

Type III-B Business Occupancy building equipped throughout with Automatic Sprinkler Systems **= 75 Ft** allowable building height
Eastport Zoning Building Height Maximum = **35'-0"**
(Copula height is excluded from this calculation)

IBC (Table 504.4)

Type III-B Business Occupancy building equipped throughout with Automatic Sprinkler Systems = **4 Stories** above grade plane are allowable **(single story building is proposed)**

Allowable Area (square feet):

	Type IIIB Single Story	**Type IIIB Multi-Story**
Table 506.2 – Allowable Area	76,000	57,000

A 19,845 Sq Ft Building is proposed.

More detailed information on Sprinkler Systems is covered in the Fire Protection Portion of this Narrative.

Means of Egress:

NFPA 101
New Business Occupancy – Chapter 38
38.2.3 – Capacity of Means of Egress

38.2.3.2 – Corridor Width: Clear width of any corridor serving and occupant load of 50 or more shall not be less than 44 inches.

38.2.4 – Number of Means of Egress: 7.4.1.1 Any story shall have no less than (2) means of egress

38.2.5.2.1 – Dead-End Corridors: shall not exceed 50 ft in a building protected throughout by an approved, supervised automatic sprinkler system.

38.2.5.3.1 – Common Path of Travel: shall not exceed 100 ft in a building protected throughout by an approved, supervised automatic sprinkler system.

38.2.6.3 – Travel Distance to Exits: shall not exceed 300 ft in a building protected throughout by an approved, supervised automatic sprinkler system.

Plumbing Fixture Requirements

Uniform Plumbing Code, 2021, Table 422.1 – Minimum Plumbing Facilities			
B - Business	***Fixtures per Person***	***Total Req.***	***Total Provided***
Business Occupant Load = 121 Occupants			*60 Male & 61 Female*
Male Water Closets:	2 : 51-100, 3 : 101-200	2	**7** *Note 1*
Female Water Closets:	3 : 31-50, 4 : 51-100, 8 : 101-200	4	**8** *Note 1*
Urinals:	1 : 1-100, 2 : 101-200	1	**0** *Note 1*
Male Lavatories:	1 : 1-75, 2 : 76-150	1	**7** *Note 1*
Female Lavatories:	1 : 1-50, 2 : 51-100, 3 : 101-200	2	**8** *Note 1*
Drinking Fountain:	1: 150	1	**1** *Note 2*
Service Sink:	1 Service Sink or Laundry Tray	1	**1** *Note 3*

Note:

1. There are fifteen (15) total single user unisex toilet rooms proposed in this building – Eleven (11) Patient / Public Toilets and four (4) Staff Toilets, No urinals have been provided.
2. One (1) Hi-Lo water fountain with bottle filler provided in the waiting area.
3. One (1) Housekeeping Closet provided.

Energy Code - IECC 2021:

Climate Zone 6A

Table C402.1.3 – Thermal Envelope Insulation Components (R-Value Method)
Minimum Building Envelope R-Values

Roofs:
Insulation entirely above roof deck..... R-30ci
Attic and Other..... R-49

Walls, Above Grade
Metal Framed..... R-13 + R-12.5ci

Walls, Below Grade
Below Grade Wall..... R-10ci

Slab-On-Grade Floors
Unheated Slab..... R-20 for 48" Below

SITE/CIVIL DESIGN NARRATIVE:

Applicable Codes

- City of Eastport Zoning Requirements, Performance Standards, and Technical Manual
- MaineDEP Chapter 500
- MaineDEP Stormwater Management Law
- Natural Resources Protection Act

Existing Conditions:

The existing site is a former railroad facility. In general, the surface condition of the site is a previously developed gravel/imported fills site, now covered with field grasses and trees. Some remnant utilities and outbuilding foundations remain on site. Due to the industrial nature of the former facility, an environmental assessment of the site has been performed, identifying residual industrial pollutants on the parcel. Within this assessment is a plan to manage environmentally impacted materials off-site.

Several existing utilities cross the site. In general, existing utilities will be either removed or capped and abandoned in place. New utility connections within the public right of way are proposed for water and sewer, as well as for a proposed electric and communications line. The existing site is adjacent to wetlands, and advanced site design has avoided wetland impacts.

Selective Demolition (02 41 19)

Existing trees in the project area will be removed. Limited demolition will occur for any former foundations, plantings, and existing site impervious areas prior to construction. Utility demolition is covered in the respective utility sections.

Water Distribution Facility Water Distribution Piping (22 11 13)

The new development will require new water utility construction. Potable and fire suppression water services for the new facility has been confirmed with mechanical engineers. We have coordinated with the local water authority to confirm capacity is available in the water systems in the adjacent roadway Right-Of-Ways. A new fire hydrant is expected to be required by the fire department for the building.

Sanitary Sewer Facility Sanitary Sewers (22 13 13)

The new development will require a new sanitary sewer service to connect the proposed building to the municipal sanitary sewer system. Sewer size and location have been coordinated with the internal plumbing engineers and are awaiting confirmation of pipe capacity with the local sewer authority. An external grease trap may be required depending on the final building programming.

Stormwater Utility Drainage Piping Storm Utility Drainage (33 41 00)

Record documents and survey indicate there are three existing storm drains on the property, all generally conveying flows from the east side of the property towards the west. These pipes will be demolished within the limits of construction.

The proposed parking lot will require drainage conveyance. The new drainage conveyance system will connect the remaining portions of the existing storm drainage system and convey flows to the western portion of the campus.

The proposed project will be subject to stormwater quality and quantity management requirements through the MaineDEP. Stormwater management devices will be required for the facility as part of the Stormwater Management Law permit requirements. The preferred manner of stormwater management will depend on the final number of parking spaces required by the client; code requires 55-60 spaces based on the current building size, and the original request was to provide approximately 100 parking spaces.

Currently, the proposed roof has external gabled roof drains. These drains will be connected to a stormwater management system surrounding the building in the form of a roofline drip strips. Exterior impervious walkways, plaza, and parking areas will sheet off and be directed to Filterra Bioscape filters, and an underdrained soil filter. It is anticipated that underground detention and filters will require a 30mil impermeable liner.

The low portions of the project site to the plan south and west are delineated as wetlands, and as a potential vernal pool. As such, flow dissipation at any proposed surface drainage pipe outlet is likely required in the form of a riprap plunge pool or level spreader. This will be further detailed in future submissions.

Subdrainage (33 46 00)

The proposed building will have footings that extend 5’ minimum below the proposed finished grade. This foundation will require subdrainage in the form of a foundation underdrain, which will either tie into the parking lot drainage network; or will discharge independently towards the plan west.

Site Clearing (31 10 00)

Existing trees and limited infrastructure on the site will be removed prior to construction.

Earth Moving and Dewatering Earth Moving (31 20 00)

Site preparation includes removing the existing grassed areas, remnant building foundations, organic soils and topsoil to facilitate new building and parking construction. These areas will need to be excavated for new gravels and foundations prior to being constructed to finish grade.

The design intent for schematic design was to minimize soil transport off-site due to the presence of coal ash materials in portions of the site. A final geotechnical report has informed us that over-excavation of existing materials is required for parking areas as well as the new building. This over-excavation will result in a significant volume of material removal for the site. The site topography cannot be significantly altered as proposed for the following reasons:

- The existing site needs to connect into the existing roadway, and there are maximum allowable slopes for driveway entrances;
- The proposed building is at the limit for building height per City ordinance;
- The presence of parking areas requires relatively flat slopes as shown the plans.

If the building height and/or ground floor area and number of parking spaces are reduced, then we will be able to re-evaluate the net volume of soils being removed from the site.

The Environmental Media Management Plan from Haley-Ward characterizes soils in two locations on-site have been characterized as contaminated with residual coal and suspect ash, with an additional location characterized as residual petroleum-impacted soils. Soils characterized with these pollutants will be subject to a Voluntary Response Action Plan through MaineDEP; this effectively will require the Construction Manager to manage the soils in one of the following manners:

B) Removing excess material from the project site and landfilling this material at a facility slated to handle such wastes as identified in the Environmental Media Management Plan (EMMP). The nearest landfill to the site with the appropriate classification is Juniper Ridge in West Old Town, Maine.
B) Material excavated from the site can also be tested and, if below regulatory thresholds, landfilled at a lower-class clean fill location closer to the facility. Additional information on the testing limits is included in the enclosed Environmental Media Management Plan and Environmental Site Assessment.

Erosion and Sedimentation Control Devices Sedimentation and Erosion Control Measures (31 30 00)

Erosion and Sedimentation Control Devices will be installed as required by the Maine DEP to minimize off-site allocation of sediments. These devices will generally include interim project stabilization for grasses, as well as perimeter siltation fence or hay barrier, and a stabilized construction entrance.

Excavation Support and Protection

Excavation and support measures will be provided as necessary to meet OSHA requirements. Further identification of any sheet piling or intensive support needs will be identified in future deliverables.

Asphalt Paving (32 12 16)

Asphalt paving will be provided as indicated on the enclosed Site Layout Plan. A pavement cross-section is developed, incorporating base and surface gravels to support proposed construction. Base pavements will be compatible with typical MaineDOT gravel mixes. Parking lot pavements, and pedestrian paved areas, will be constructed of MaineDOT SuperPave pavement mixes.

Vehicle Circulation

The proposed parking lot will include parking stalls sized according to municipal standard parking requirements. Drive aisles will typically be 24’-wide to accommodate turning motions from passenger vehicles and allow for two 12-foot drive aisles within the parking complex. The main access routes will be sized to accommodate delivery trucks, fire apparatuses, and ambulance vehicles.

Pedestrian Circulation/Sidewalks

Pedestrian circulation is proposed between exterior doorways and accessible parking areas. An existing foot path on the north side of the parcel will be connected to the building’s northern entrance. Plazas are proposed at key gathering areas on the site.

Pavement Markings

Pavement markings will generally be limited to parking spaces, ADA aisle striping, and direction arrows and stop bars. These delineator markings will be specified in accordance with the Manual on Uniform Traffic Control Devices.

Site Concrete (32 13 13)

Site Concrete is included at a flagpole plaza and pedestrian plaza at the building entrance. Site concrete pads for utilities are sized to accommodate generators and transformers within the campus.

Flagpole

A 30’ flagpole, mounted 5’ deep, with finial lighting will be placed at the main entrance to the facility. This will be further detailed in future deliverables.

Fences and Gates (32 31 13)

No permanent fences or gates are proposed for this project. A temporary chain link fence with a vehicle access gate will be used to secure the site during construction.

Site Accessories

Site accessories, such as bicycle parking spaces, trash receptables, site lighting, benches, monumentation, donor recognition areas, and other similar items will be discussed during future deliverables.

Signage (10 14 53)

Site signage, if necessary, will be coordinated with the owner and the Architectural team to ensure consistency with other signage at other locations.

Directional signage will include stop signs, parking signs, and other devices consistent with the Manual on Uniform Traffic Control Devices.

Turfs and Grasses (32 92 00)

Turfs and grasses will be a standard park mixture of grass seed available locally to the project area.

Plantings

Shade trees will be proposed to provide shade to the parking areas & define the project’s street edges. Evergreen trees will be incorporated to provide visual screening for parking adjacent to residential properties and screening of utilities and the service area of the building. Foundation

plantings will be incorporated to enhance the building particularly along the building facades adjacent to parking & pedestrian areas.

Site Permitting:

Local Permitting – City of Eastport

The project will be permitted through the City of Eastport Code Enforcement Office and the Planning Board. Based on preliminary discussion with the City Code Enforcement Officer, it is assumed the CEO will refer project approval to the Planning Board. The Planning Board meets once a month on the 1st Wednesday of the month. For scheduling purposes, anticipate 60 days to after initial Site Plan Application is submitted to the City to gain approval.

Special care has been taken to coordinate the proposed work with the local codes, pursuant to the following anticipated requirements. The following requirements are based on anticipated building size, approved use, and other similar factors. Due to the variable nature of permitting and sensitive requests that may come from communities, we appreciate that the following may change through conversations or concerns identified from the community:

Zoning: B2 (Highway Business District)

Parcel ID: I6-B4-7

Site Area: 2.83 AC

Proposed Dev. Area: +/- 2.50 AC

Site Performance Criteria

Criterion	**Required**	**Proposed**
Min. Lot Size	40,000 SF	123,274 SF
Min. Lot Width	100’	512.64’
Front Setback	40’	See Plan
Side Setback	10’	See Plan
Rear Setback	20’	See Plan
Max Height	35’	TBD
Max Lot Coverage (Building)	30% (36,982 SF)	16.0% (19,765 SF)

Parking (Professional Building 1 Space/350 SF)	65 Spaces	92 Spaces

Stormwater Permitting – MaineDEP

The proposed project will be generating more than once acre, but fewer than three acres, of new impervious/structural surface area. As a result, the project will be subject to a Stormwater Management Law permit through the MaineDEP.

Stormwater Management Law regulations will include treating a large portion of the campus for stormwater quality. It is typically most economical to provide this treatment through roofline drip strips for building areas, and either Grassed Underdrained Soil Filters or proprietary bioretention facilities for parking lot areas. Final design of stormwater management systems may result in some parking spaces being removed to accommodate stormwater management.

Due to the presence of potentially contaminated soils, we expect the MaineDEP will require impervious liners for stormwater infrastructure. Due to the proximity of existing wetlands, we also anticipate stormwater quantity in the 2-year, 24-hour rain event will need to be reviewed.

Additional emphasis from the DEP's standpoint will be on stormwater management and erosion and sedimentation control during construction as well as post-development.

Information obtained during the permitting process may impact the proposed development's final design.

Natural Resources Permitting – MaineDEP and ACOE

The proposed development is on a parcel with delineated wetlands in the western corner. This wetland has one wetland finger located near the southern boundary adjacent to Key Street. The wetland was delineated on November 26, 2024 and determined to not be a wetland of special significance (WOSS). One potential vernal pool (PVP) was identified within the wetland area. Additional field observations determined that the PVP was in fact not a vernal pool.

The proposed Site Layout for the building and parking areas do not impact the large delineated wetland in the western corner, but do impact the wetland finger adjacent to Key Street with utility crossings as well as culvert outlet. Due to the classification that the wetland is not a WOSS and that the alteration will be less than 4,300 square feet, no additional natural resource permitting will be required through the Maine DEP.

Army Corps of Engineers permitting is required for any alterations to wetland areas. Since the alterations are less than the 5,000 square foot threshold compensation will not be required.

GROUND IMPROVEMENT DESIGN NARRATIVE:

S.W. Cole Engineering Inc. has performed subsurface exploration for this project and provided a report of the findings and geotechnical recommendations related to site work and building foundations. (Full Report included with Design Development package).

Based on their analysis, the construction of this project is infeasible from a geotechnical standpoint without site improvements. The general findings for the report indicate the site has previously been filled contains uncontrolled fills to depths of 10 – 12 feet, these fills are unsuitable for the direct support of traditional footings.

The report provides potential options to support the building include the over-excavation and replacement of uncontrolled fills or the ground improvement method.

Over-excavation would include the removal and disposal of approximately 8,200 cubic yards of uncontrolled fills. Soils removed from the site will need to be managed in accordance to the Voluntary Response Action Plan (VRAP) through MaineDEP.

Ground improvements would introduce rammed aggregate piers (or equal) to the site to improve the soil bearing capacity to 5,000 psf minimum. Estimated total long term settlement for footings to be less than 1 inch whereas adjacent footings to have an estimated long-term differential settlement of less than 1/2 inch.

Both of these options should be explored to provide pricing and assist the owner in decision making.

STRUCTURAL DESIGN NARRATIVE:

General:

The medical office facility will consist of a new, free-standing, single-story building with a sloped gable roof. The building's gross square footage will be approximately 19,760 sq ft. The new facility is planned to accommodate program space for patient care and support areas with access to an attic space accommodating mechanical equipment.

Applicable Codes:

The building structure will be designed using the 2021 International Building Code amended by the Maine Uniform Building and Energy Code (MUBEC). In addition, as referenced in the IBC, the following structural design codes will be incorporated in the design:

1. ASCE/SEI 7-16 "Minimum Design Loads for Buildings and Other Structures."
2. ANSI/AISC 360-16 "Specifications for Structural Steel Buildings."
3. AISI S100 "North American Specification for the Design of Cold-Formed Steel Structural Members."
4. ACI 318-19 "Building Code Requirements for Structural Concrete."

The new facility is considered "business use" and classified as a "Risk Category II" building per the 2021 Edition of the International Building Code. The Importance Factor for "Risk Category II" buildings for snow and seismic is 1.0, respectively.

Geotechnical Criteria:

A professional geotechnical report with foundation design recommendations has yet to be completed for this project. At this time, it is assumed that the existing soil sub-grade is suitable for traditional spread footing foundations and that no deep foundations or other special soil improvements will be necessary. A final determination of the building foundation design will be established when a geotechnical investigation is complete for this project.

An allowance should be included in the estimate for localized removal of bedrock, if encountered, to allow for the construction of the frost-protected foundations. In addition, provide an allowance for removal of unsuitable material, plus placement of engineered backfill for areas where the soil is not satisfactory.

Design Load Criteria:

The following design loads are based on minimum loads as governed by the building code:

1. Dead Loads: Estimated self-weight of structure and any equipment, components or fixtures considered permanent.
2. Live Loads:
    a. Office/Treatment Areas — 50 psf + 15 psf Partition Load
    b. Lobbies, First Floor Corridors — 100 psf
    c. Mechanical Rooms — 150 psf
    d. Light Storage — 125 psf
    e. Roof Live Load — 20 psf
3. Snow Loads:
    a. Ground Snow Load per Local Jurisdiction — 50 psf
    b. Importance Factor, I_s — 1.0
    c. Thermal Factor, C_t — 1.0, except 1.2 at Exterior Canopies
    d. Exposure Factor, C_e — 1.0
    e. Flat Roof Design Snow Load, P_f — 35 psf + Sliding and Drifting Snow
4. Wind Loads:
    a. Ultimate Wind Speed, V_u — 109 mph
    b. Exposure Category — C
    c. Internal Pressure Coefficient, GC_{pi} — +/- 0.18
    d. Components and Cladding Loads in accordance with ASCE 7-16
5. Seismic Loads:
    a. Site Classification (presumed) — D
    b. Seismic Importance Factor, I_e — 1.0
    c. Spectral Response Accelerations
        i. S_S / S_{DS} — 0.224 / 0.239
        ii. S_1 / S_{D1} — 0.063 / 0.100
    d. Seismic Design Category — B

In addition to the loads specified above, the concrete slab-on-grade will be designed to support a 5,000 lb lift load with the entire load concentrated on one axle. This is intended to cover construction equipment and maintenance equipment during the operation of the facility.

Foundation System:

The building structure will likely be supported by a conventional shallow foundation system bearing on well-compacted, granular-fill material.

Interior steel structural columns shall bear on isolated column footings placed 1'-0" below the slab-on-grade to accommodate sanitary and storm piping located within the footprint of the footing. Structural columns along the building perimeter shall bear on reinforced concrete piers and spread footings cast monolithically with the perimeter foundation walls and strip footings.

All footings along the building perimeter shall be placed below an anticipated frost depth of 5'-0" and provided with foundation drainage at the footing base consisting of perforated drain pipe wrapped in crushed stone and geotextile fabric.

Concrete Slabs-On-Grade:

The at-grade floor construction for the new building will consist of a 5" thick normal-weight concrete slab-on-grade reinforced with synthetic fibers for crack control.

The concrete slab-on-grade will be placed over a vapor barrier, 2" rigid insulation, and a minimum 12" compacted, free-draining granular fill material. Saw-cut control joints will be provided in the top of the slab to control shrinkage cracking. The joints will be spaced approximately 12' to 15' on center in each direction with diamond-shaped blockouts around the columns. Due to the use of a vapor barrier underneath the slab-on-grade, slab curling may occur, particularly at control joints at which grinding may be necessary.

The concrete slab-on-grade shall have a finish level within a flatness tolerance of FF25 and FL20, except where floor drains are located, in which case the floor shall slope to drains as shown on the drawings. Control joints shall be filled with joint sealant where required by the architect. A penetrating concrete densifier, such as EUCO Diamond Hard or approved equal, shall be specified for bare concrete floors exposed to public view.

Allowances shall be made for any recess requirements such as walk off mats at entrances, thick-set floor finishes, floor-mounted hardware, or any other items typically requiring recesses.

This structural narrative does not address site paving outside the building, including site retaining walls, flagpoles, and light pole foundations. Refer to the site narrative for descriptions of any concrete work exterior to the building footprint.

Structural Framing System:

Roof Framing:

The building roof framing system will consist of prefabricated cold-formed steel gable roof trusses spaced approximately 4 ft to 5 ft on center bearing on steel wide-flange girders. The roof decking will consist of 1 ½", 20 gauge wide-rib metal roof deck (e.g., Vulcraft 1.5B or approved equal) supported on the steel roof members. The metal roof deck will not support any suspended concentrated loads from the MEP systems. All attachments shall be made directly to structural members. Fire protection of the steel building frame is not anticipated.

Columns:

Structural columns for the new facility shall consist of HSS square steel columns with 4" to 5" nominal dimensions supporting the steel roof framing.

Lateral Bracing:

Steel concentrically braced frames shall be provided in each direction, with locations coordinated with the architectural layout and mechanical constraints. Diagonal brace members are expected to be 4" to 5" square HSS. The metal roof deck will be used as a horizontal diaphragm to transfer lateral loads to the vertical bracing elements.

Cladding Back-Up and Support:

The back-up structure for the typical exterior wall construction will consist of 6" non-load bearing cold-formed metal studs spaced at 16" on center. The size and gauge shall be determined by "delegated design" with a minimum base metal thickness of 43 mils.

Field Quality Assurance:

Testing programs following the Special Inspection Requirements of IBC Chapter 17 shall be indicated for each respective material on the drawings. These inspection and testing services shall be directly contracted by the owner and not by the individual contractors to avoid any potential conflict of interest. The foundation bearing materials shall be inspected and tested on site, preferably by the geotechnical engineer of record.

Specified concrete testing and inspection shall consist of at least the following: slump and cylinder strength testing, floor flatness inspections, and rebar placement inspections for foundations.

Steel testing and inspection shall consist of bolt tightening procedures, shear stud attachment, and shop and field weld inspections. Inspections of the roof deck attachments to the structural steel shall also be specified.

Building Materials Specifications:

Cast in Place Concrete – 033000

1. The mixing, handling, placing, and curing of concrete shall be in accordance with the ACI "Building Code Requirements for Structural Concrete" (ACI 318) and the ACI "Specifications for Structural Concrete for Buildings" (ACI 301).
2. Field quality control procedures shall be provided during placement of concrete. A set of cylinders shall be made and tested for each 50 yards of concrete, each 3000 square feet of surface area for slabs of walls and each class of concrete placed each day.
3. Concrete materials will be required to comply with the following characteristics:
    a. Cement shall be Portland Cement, ASTM C150 Type I/II.

b. Flyash meeting ASTM C618, Type C or F may be substituted for cement for up to 20% of the total cement content.
c. Coarse aggregates shall be clean gravel or crushed limestone meeting ASTM C33, Class 4S for air-entrained concrete mixes and ASTM C33, Class 2S for non-air-entrained concrete mixes.
d. Fine aggregates shall be well graded natural sand meeting ASTM C33.
e. Steel Reinforcing bars shall be deformed bars meeting ASTM A-615, Grade 60.
f. Synthetic fiber Reinforcing shall by 1 ½" minimum virgin nylon or polypropylene fibers with a minimum dosage of 3 pounds per cubic yard of cement.
g. Vapor barrier under slabs-on-grade will be 15 mil fabric by Stego Industries or approved equal.

4. The following concrete classes are anticipated for this project:

CLASS	STRENGTH	AIR CONTENT	LOCATION	REMARKS
3	3000 PSI	0-3%	Footings	Water reducing admixture
4	4000 PSI	0-3%	Walls, Piers, Slabs on composite metal deck	Mid-range water reducer
4SOG	4000 PSI	0-3%	Interior slabs-on-grade	Mid-range water reducer and synthetic fibers
45E	4500 PSI	6± 1%	Walls and Piers exposed to freeze/thaw	High-range water reducer
45ESOG	4500 PSI	6± 1%	Exterior slabs-on-grade	High-range water reducer and 6x6-W2.9xW2.9 WWF

5. Reinforcement materials:
   a. Reinforcing Bars: ASTM A615, Grade 60
   b. Welded Wire Fabric: ASTM A185

Structural Steel Framing - 051200

1. All structural steel construction shall conform to the American Institute of Steel Construction, AISC 360 "Specification for Structural Steel Building."
2. Structural steel shall be fabricated from the following materials.
   a. Angles, Channels & Bars: ASTM A36
   b. Structural W-Shapes: ASTM A992, Grade 50
   c. Steel Plate: ASTM A36
   d. Structural Tubing: ASTM A500, Grade C, Fy = 50 KSI
   e. Structural Pipes: ASTM A500, Grade B, Fy = 42 KSI

f. Anchor Bolts: ASTM F1554, Grade 36
g. Connection Bolts: ¾ inch diameter, ASTM A325N
h. Welding Rods: AWS E70xx

3. Steel surface preparation.
    a. All structural steel not scheduled to receive spray on fireproofing and/or exposed to view shall receive a surface preparation of SP-6 and be shop primed. Prime paint damaged during erection shall be touched up in the field.
    b. All structural steel scheduled to receive spray on fireproofing shall receive a surface preparation of SP-3 and shall not be primed.
    c. All steel exposed to the elements (i.e., steel lintels) shall receive a surface preparation of SP-6 and shall be galvanized. Any galvanized finish damaged during erection shall be touched up in the field.

ARCHITECTURAL DESIGN NARRATIVE:

General:

The new Medical Office Building will occupy a 19,766 sf footprint with 1,700 sf mechanical space at the attic level. The general building layout includes a central atrium with registration centrally located. Once a patient has registered, they will then move into the "Main Street" corridor which has access to all the services provided within the facility. Administration and Facilities spaces occupy either end of the building allowing patient services to be concentrated as close to the lobby/atrium as possible.

See included design drawings for current proposed building layout.

Applicable Codes:

- *The Life Safety Code* (NFPA 101-2018)
- Maine Uniform Building and Energy Code (MUBEC)
  - *International Building Code* (IBC-2021 *w/Amendments*)
  - *International Energy Conservation Code* (IECC-2021 *w/Amendments*)

Existing Conditions:

This new MOB is entirely new construction. The project site located at 75 Key Street is the former home of a railyard while there are no existing buildings onsite the remnants of the old facility will be encountered while doing site work. See the Civil portions of this narrative for additional information regarding the handling of existing materials onsite.

Exterior Wall Construction and Design:

The typical exterior walls will be nominal 6" studs with a combination of exterior cladding types expressing different elements of the building. The design team is exploring a combination of fiber cement siding profiles in both horizontal & vertical orientation, composite metal panels, PVC Trim, masonry veneer and phenolic resin panel accents.

The typical wall assembly in both options will include the following layers, listed from inside face to outside:

- 5/8" Type X GWB
- Stud Framing (6" metal studs @ 16" OC)
- 3 1/2" Mineral Wool Batt. Insulation within stud cavity
- 5/8" exterior gypsum sheathing
- Continuous air vapor barrier

- 3” Extruded Polystyrene continuous insulation with Z furring at 16” o.c. for siding attachment.
- Fiber Cement square channel siding or shiplap siding. (JamesHardie Artisan Series or similar)
- PVC Trim Boards

Exterior Wall Thermal Calculations: To be submitted once design is finalized.

Roof Construction and Design:

The gable roof will be asphalt shingles (Basis of Design: CertainTeed Landmark Pro) over coverboard over 6” (R-30) minimum rigid insulation over vapor barrier over roof deck (material to be determined). Gutters and downspouts may be utilized in selective areas pending final building exterior design.

Exterior design currently features a wraparound front porch which will have an uninsulated roof structure with standing seam metal roofing. The trim and fascia design will match the larger building roofs.

Canopies:

This typical canopy will be located at all egress doors for the facility. These will be prefabricated canopies of standard size. A custom finish material, such as Trespa wood-look panels to be provided for the canopy soffit finish. These canopies will include integral gutters & downspout tied to the subsurface drainage system.

Basis of Design Product: Awnex Inc. Colorado Canopy System

Openings:

Exterior Storefront Windows: Typical storefront window systems will consist of 2”x4 ½” thermally broken aluminum storefront. (Kawneer Trifab VersaGlaze 451T or similar) All openings to be provided with drywall jamb & head returns. Storefront frame to be anodized finish. All exterior windows to be provided with roller shades and solid surface window sills.

Exterior Storefront Entrances: Typical storefront entrances will consist of 2”x4 ½” thermally broken aluminum storefront. (Kawneer Trifab VersaGlaze 451T or similar) All openings will be provided with drywall jamb & head returns. Storefront frame to be anodized finish.

Exterior Glazing: Window and doors on the exterior of the building to be provided with Low-E Insulated Glazing Panels. Basis of Design: Vitro Solarban 70.

Interior doors: Typical interior doors are wood doors with 2” fully welded hollow metal frame. Doors between the entry lobby/waiting and the provider/exam room areas to include hollow metal

frames with side lites. Provide rated doors as required by wall construction. Doors are to include all necessary hardware including but not limited to hinges, lockset, floor/wall stop, silencers.

> **Note:** Provide necessary electrified hardware as required. Refer to the electrical portion of narrative for more info.

Interior Glazing: Interior glazing shall be fully tempered clear float glass. Requirements for rated partitions/glazing to be determined.

Decorative Glazing: It is anticipated that the design team will utilize 3Form Glazing (patterns and types to be determined) in select locations such as reception and potentially at nurse stations.

Vertical Transportation:

While the clinical space is limited to a single level, attic access will be required for service and maintenance of Air Handling Units. For pricing purposes assume that there will be metal grate stair located in the Mechanical Room or Maintenance Shop.

Sound Control:

Typical interior partitions will include sound attenuating insulation.

Hard gypsum ceilings to be provided above patient care space. This non-rated ceiling assembly will be provided for acoustic isolation only. This “ceiling” will be above the ACT ceiling finish visible to the room occupants.

Sustainable Design:

The goal in this project is to meet or exceed efficiency standards & code requirements. The owner has expressed that they have no desire to pursue LEED or any other building certification as part of this project.

Interior Design and Finishes:

Corridors:

Flooring: LVT
Walls: GWB with paint
Ceilings: Suspended 2x2 ACT
Millwork: None
Specialties: Decorative light fixtures at main street exit and custom panel signage mounted with stand-offs at clinic entrances.

Medical Exam Rooms:

Flooring: LVT
Walls: Wood look chair rail with paint
Ceilings: Suspended 2x2 ACT
Millwork: Solid surface counters with plastic laminate casework

Dental Operatories, Dental Lab, Sterile Processing, Med Room & Soiled Utility:

Flooring: Sheet Flooring with Integral Coved Base
Walls: Wood look chair rail with paint
Ceilings: Suspended 2x2 ACT
Millwork: Solid surface counters with plastic laminate casework

Waiting/Check-In/Lobby:

Flooring: Walk-off carpet in vestibule and primary circulation; carpet in waiting area, check-in station staff side and office.
Walls: GWB with paint
Ceilings: Suspended 2x2 ACT
Millwork: Assume custom check-in stations with solid surface counter tops, vertical wood cladding and vertical glass panels with custom printed film
Specialties: Decorative light fixtures at check-in stations and waiting areas.

Provider Offices:

Flooring: Carpet
Walls: Paint
Ceilings: Suspended 2x2 ACT
Millwork: None

Toilet Rooms:

Flooring: Porcelain Tile with porcelain tile base
Walls: GWB with paint
Ceilings: Suspended 2x2 ACT
Millwork: None

Break/Lounge:

Flooring: LVT
Walls: Paint
Ceilings: Suspended 2x2 ACT
Millwork: Solid surface counters with plastic laminate casework
Specialties: None

Small Team Room:

Flooring: Carpet
Walls: Paint
Ceilings: Suspended 2x2 ACT
Millwork: Solid surface counter with plastic laminate casework
Specialties: None

Maintenance / Mechanical Spaces:

Flooring: Sealed Concrete
Walls: Paint
Ceilings: Suspended 2x2 ACT – Omit Ceilings in Electrical and IT Rooms
Millwork: None

Janitorial:

Flooring: Welded sheet
Walls: FRP
Ceilings: Suspended 2x2 ACT
Millwork: None

FIRE SUPPRESSION DESIGN NARRATIVE:

General:

Facility defined as Business Occupancy.

Sprinkler system to be designed, furnished, and installed by the Fire Protection Contractor. Sprinkler system zoning shall match the smoke compartments and be integrated with mechanical, electrical, and fire alarm systems.

Applicable Codes:

Fire suppression sprinkler system shall be provided in accordance with NFPA 13-2019, 14, 20, and 101, the State Fire Marshal's Office, and City of Eastport.

Sprinkler System:

System shall consist of exterior municipal water service to building. A preliminary hydrant flow test was performed in January of 2025. Results indicated 50 psi static pressure, with 40 psi residual pressure when flowing approximately 1,000 gpm. While the flowrate is sufficient for the sprinkler system, the pressure is lower than required to adequately serve the building. An electric fire pump will be required to boost the pressure of the system and serve attic mechanical rooms. Available water volume is sufficient and on-site system storage is not expected.

Fire pump shall be provided with a fire pump control panel served by emergency power.

A jockey pump with dedicated control panel may be required to maintain pressure in the system.

Manual standpipes shall be provided per NFPA 13.

Sprinkler system to be designed, furnished, and installed by the Fire Protection Contractor. Sprinkler system zoning shall match the smoke compartments and be integrated with mechanical, electrical, and fire alarm systems.

Exterior fire department connection shall be located at the front of the building, easily visible and accessible to responding units. Coordinate connection type and size with local fire department.

Main unit drain and alarm bell shall be located adjacent to fire department connection. Provide splash block or stone below main drain.

In occupied areas with finished ceilings sprinklers shall be white recessed, semi-recessed, or sidewall, with matching escutcheon plates, and concealed piping.

In main lobbies and waiting rooms sprinkler heads shall be fully concealed, with cover plates matching adjacent ceiling finish.

In occupied areas with exposed structure sprinklers shall be exposed, brass upright heads on field painted exposed piping.

In unoccupied spaces sprinklers shall be exposed and piping exposed.

Where possible, exterior canopies of combustible construction shall be protected by sidewall dry-pendant heads. For larger exterior canopies, a dry-pipe sprinkler system shall be provided with a dedicated air compressor to maintain pressure.

Sprinkler system shall be tied into Fire Alarm System to indicate alarm or trouble condition.

Piping Material:

All new piping shall be black iron pipe with either threaded fittings, mechanical couplings with grooved pipe, or welded fittings.

Threaded fittings with sch. 40 pipe shall be used for piping 1-1/2" and smaller.

Mechanical couplings or welded fittings with schedule 20 pipe shall be used for piping 2” and larger.

PLUMBING DESIGN NARRATIVE:

General:

Building shall be connected to existing public utilities for domestic water, sanitary and storm water.

Applicable Codes:

Plumbing systems shall be in accordance with the City of Eastport, IAPMO 2021 Uniform Plumbing Code as adopted by the State of Maine, ADA, ASHRAE 90.1, and International Building Code.

Domestic Water Service:

A municipal water service shall be provided to the building by local water district. Service shall be provided with backflow prevention device and meter at building entrance. Service entrance requirements shall be coordinated with local water company. It is expected that available water supply will be sufficient and will not require an automatic water booster system.

Interior domestic water piping shall be Type L copper with lead free soldered fittings or mechanical joints approved for domestic water applications. Piping systems to be provided with required hanging and anchoring devices to support and allow for expansion and contraction movement. Branches and individual fixtures shall be provided with isolation valves for maintenance and service.

Water shall be supplied underslab to dental chairs. Underslab piping shall be continuous PEX tube without joints or copper piping installed in a floor duct, to be coordinated with dental equipment supplier.

Domestic Water Heating System:

Domestic hot water system shall be provided for general-purpose use at plumbing fixtures.

Domestic water heaters shall be either boiler plant fired indirect tanks, or hybrid electric tank-type heat pump units. Capacity and storage volume to be determined. Water shall be stored at 140°F, and a thermostatic mixing valve shall mix distribution temperature down to 120°F.

A domestic hot water recirculation loop and pump shall cycle water through the piping mains to reduce delivery time to fixtures.

Sanitary Drainage and Vent Systems:

Building shall be connected to municipal sanitary sewer system and pitched at no less than ¼"/ft slope (gravity drainage) to public system. Sanitary drainage, waste, and vent (DWV) piping systems within the footprint of the building, whether above or below grade, shall be solid wall Sch. 40 PVC with solvent welded joints.

A central amalgam separator in the sanitary line serving dental suite may be required based on dental equipment package and filter/trap accessories provided.

A sanitary pump station is not expected to be necessary to pump waste to public gravity system.

Condensate Drainage:

Condensate drains shall be provided for all mechanical equipment with cooling coils. Condensate drainage system shall be independently vented, terminate and discharge into the sanitary drainage system within the building via an indirect waste air-gap fitting. Condensate drain pumps shall be provided in all locations where gravity drainage is not feasible. Condensate drainage piping system shall be schedule copper tube with DWV pattern fittings and soldered joints.

Storm Water Drainage Systems:

Building roofs are pitched and sloped to drain. No piped interior storm water systems are required.

LP Gas:

Building shall be served by an underground LP tank array sized to provide a minimum of 2-3 weeks of fuel storage. Preliminary estimate of three (3) 2,000 gallon tanks. Piping between tanks and building shall be 10 psi through HDPE underground piping.

Main pressure regulator at the exterior of the building shall drop pressure to 2 psi for distribution throughout the facility to equipment.

Piping within the building shall be either Type L copper piping with soldered joints, or schedule 40 steel pipe with threaded fittings for 1-1/2" and smaller, or welded or flanged joints for 2" and larger pipe.

Propane gas supply to emergency generator to be coordinated with final generator size and fuel.

Medical Gas:

Medical oxygen manifold shall be provided by dental equipment package. Piping shall be extended to dental rooms and equipment as necessary to serve program. Proposed manifold size shall have two banks, with bank size/cylinder quantity to be determined based on Owner requirements. System shall be high pressure system with automatic bank changeover. Piping shall be cleaned copper ACR tube with brazed joints.

Medical Nitrous Oxide shall be provided on a space-by-space basis by the dental equipment supplier. A central system is not expected. Piping shall be cleaned copper ACR tube with brazed joints.

Dental equipment package shall include a central duplex vacuum system sized to serve dental suite. As part of the dental equipment shall be chair side amalgam traps as well a central amalgam separator at the inlet of the vacuum system.

A new duplex central medical air compressor with pre- and final filters and an air dryer shall be provided by the dental equipment package. Medical air shall be piped with Type L or M copper with soldered joints.

Provide a mixed function master alarm panel and local area alarm panel, installed in DA office, exact location to be determined. Provide a zone valve box with gauges and shutoff valves for patient rooms equal to Beacon-Medaes vertical valve box.

The following spaces shall receive med gas services:

a. Dental Exam Rooms: Vacuum, medical air.
b. Dental Procedure Rooms: Oxygen, nitrous, vacuum, medical air.

All medical gas systems shall be installed, tested, and certified per NFPA 99 and reports submitted prior to occupancy.

Plumbing System Insulation:

Piping systems shall be insulated with materials and thickness in accordance with and exceeding minimum ASHRAE 90.1-2019 requirements.

All interior domestic cold water piping and equipment indirect drainage shall be insulated for condensate control.

All domestic hot water piping, including recirculation piping, shall be insulated with fiberglass pipe insulation to minimize piping heat loss.

Plumbing Fixtures:

All fixtures shall have water conserving valves and controls. All faucets, valves and accessories shall be cast brass construction. All plumbing fixtures shall be ADA compliant where handicap accessibility is required.

Fixture considerations below to be reviewed with the Owner based on requirements of specific areas served.

Water Closets:

Floor mounted, tank-type, vitreous china, high-efficiency 1.28 gpf toilet with elongated bowl, open front seat with no cover.

Flush handle must be on access side of ADA fixtures.

Tank type toilets selected due to low water pressure at the site.

Lavatories:

Wall hung, vitreous china single bowl lavatories.

Drop-in vitreous china lavatory bowl.

Solid surface countertop with integral lavatory bowl.

Single hole, single mixing lever faucet with 1.0 gpm flow rate.

Short gooseneck faucet with dual wrist blade handles and 1.0 gpm flow rate.

Sinks:

Stainless steel drop-in or undermount bowl.

Single or double bowl arrangements.

Where required to be ADA compliant, sinks shall have a maximum depth of 6.5” with rear center drains.

Manual gooseneck faucet with 1.5 gpm flow rate and wrist blade handles.

Mop Receptor:

Floor mounted 24”x24” solid surface or molded stone bowl with 3” drain and stainless steel wall guards, wall mounted utility faucet with pail hook, lever blade handles, hose outlet, and support strut.

Electric Water Cooler:

Dual basin, dual height electric water cooler with inlet filter, water chiller, sensor activated bottle fill and stainless steel finish. Either surface or wall recessed with wall support carrier.

Single, sensor activated bottle filler with inlet filter, water chiller and stainless steel finish.

Wall Boxes:

Refrigerator: Domestic cold water with 1/2" connection, water hammer arrestor and white powder coated steel recessed wall box.

Washing Machine: Domestic hot and cold with 1/2" connections, water hammer arrestors, 2" drain standpipe connection, and white powder coated steel recessed wall box.

Wall Hydrants:

Exterior, frost proof, self draining wall hydrant with vacuum breaker with handwheel activation provided around the exterior of the building. Provide maximum wall hydrants spacing of 100' around building perimeter.

Interior wall mounted exposed wall hydrant with vacuum breaker and handwheel.

Interior wall recessed water box with hot and cold wall hydrant with lockable cover.

Floor Drains:

Cast iron body, with bronze strainer with either square or round profile depending on floor finish type.

Floor drains shall be located by all mechanical equipment, ice machines, laundry, bathrooms with more than one fixture and as shown in the drawings.

All floor drains shall be protected by an automatic trap primer, either operated on pressure fluctuations or electronic solenoid.

Emergency Plumbing Fixtures:

Emergency showers, eye and facewash stations and drench hose stations shall be located in janitor's closets, mechanical rooms, procedure rooms, and as required by the Owner, or the Owner's program. Emergency fixtures shall be provided with a mixing valve located above ceilings to deliver tepid water to fixtures per ANSI Z358.1.

MECHANICAL DESIGN NARRATIVE:

General:

All occupied spaces shall be mechanically ventilated. Occupied spaces shall be designed around a 70°F heating setpoint and 74°F cooling setpoint.

Applicable Codes:

Systems and equipment shall meet minimum efficiencies in ASHRAE 90.1-2019 based on system type and capacity. ASHRAE 62.1 Standard for Indoor Air Quality

Installed systems and equipment shall comply with NFPA 90A.

Facility shall comply with ASHRAE 62.1-2019 Standard for Indoor Air Quality. All occupied spaces shall be heated, cooled and mechanically ventilated. Indoor units shall be located to minimize noise and allow for ease of maintenance.

Heating Plant(s):

A dedicated mechanical room shall be provided for the new heating plant and accessories. Heating plant shall consist of multiple wall-hung LP gas fired condensing hot water boilers connected to a low-loss header serving building heat and domestic water heating. Boilers shall be direct vent units with combustion and vent air piped with polypropylene piping to either a wall or roof concentric terminal. Boiler plant capacity shall be sized to allow for redundancy. Three (3) boilers will be provided, each sized for approximately 50% of the peak building load. Basis of design: Viessmann Vitodens 200.

Hot water piping system shall consist of primary and secondary loop arrangements. Primary loop serving boilers shall provide constant volume pumps serving individual boilers. Secondary loop serving heating equipment shall utilize variable volume pumps with integral ECM motors. Basis of Design: Taco VR series.

All terminal heating equipment (VAV coils, unit heaters, fan coils) shall be provided with 2-way valves to promote maximum pump speed reduction when possible. Select equipment shall be provided with 3-way valves to permit some bypass for minimum pump operation. Hot water supply temperature shall be 140 deg F to terminal units to promote condensing at boilers and reduced system heat loss.

Chilled Water Plant:

Building shall be served by an air-cooled chiller located on an exterior concrete pad. Chiller shall have multiple scroll compressors for efficient part load operation. System to be charged with 40% propylene glycol to prevent freezing and allow chilled water system to be enabled year-round. Basis of Design: 40-ton Trane CGAM.

Chilled water pumps shall be variable speed base vertical inline pumps with variable speed drives. Basis of Design: Taco KV series.

A buffer tank shall be included in the chilled water system to provide adequate water volume and prevent short cycling of the chiller. Volume to be reviewed once chiller capacity and layout are established. Basis of design: Cemline CWB 200 gallon.

A 3-way valve may be installed on limited equipment in order to maintain minimum chiller flow rate as load requires.

Chilled water piping shall be Schedule 40 pipe with welded or flanged fittings.

All piping shall be insulated in accordance with ASHRAE 90.1. Exterior piping shall receive aluminum jacketing to protect insulation.

HVAC System:

Facility shall be served by indoor modular built up air handlers. Units shall have dual return fans, economizer section, air blender, MERV 8 & 13 filter section, hot water heating coil, chilled water cooling coil, and variable speed supply fan. Optional energy recovery device will be reviewed based on ventilation demands. Depending on size and physical requirements, capacity may be split into two air handlers. Preliminary sizing based on square footage one (1) 35 ton air handler, or roughly two (2) 20 ton units.

Air handler heating coils shall be provided with 3-way control valve and freeze pump to maintain flow through coils when ambient temperatures are below 40°F.

Spaces of similar use and solar exposure will be grouped together on a zone. This includes exam rooms, dental rooms, corridors, offices, and support spaces. Conference rooms, waiting rooms, and break rooms will be served by dedicated zones.

Each zone shall be served by a variable air volume (VAV) terminal unit with variable volume air damper, hot water reheat coil and room thermostat.

In general, VAV boxes will be located above corridors and storage rooms where possible to permit ease of maintenance and reduced noise potential.

IT Room Air Conditioning System:

The central IT room shall be served by a dedicated mini-split system with air-cooled condensing unit capable of cooling down to -20°F connected to a wall mounted indoor evaporator. Condensing unit shall be located on the flat roof on a 16" high stand. Basis of Design: Mitsubishi P-series, cooling only.

General Exhaust Systems:

A dedicated general exhaust system shall serve toilet rooms, janitor rooms, soiled utility rooms, break rooms and electrical rooms. Downblast exhaust fan shall be located on a 24" high roof curb.

Terminal Units:

Hot water cabinet unit heaters shall be provided in vestibules and similar areas. Hot water finned tube radiation shall be provided in areas requiring heat only or in spaces located along exterior glazed walls, for occupant comfort, such as waiting lobby or exterior bathrooms.

Large storage and mechanical rooms shall be provided with ceiling hung horizontal hot water unit heaters.

Hydronic Piping Systems:

Piping larger than 2" shall be Schedule 40 ASTM A53 seamless pipe with mechanical joint type fittings, flanged, or welded.

Piping 2" and smaller shall be Type L copper tube with soldered joints or Schedule 40 ASTM A53 seamless pipe with threaded joints.

All hot water piping shall be insulated with materials and thicknesses in accordance with ASHRAE 90.1-2019 requirements.

Refrigerant Piping System:

Refrigerant piping system shall be constructed with Type ACR copper with brazed or pressure sealed joints.

Refrigerant shall be non-ozone depleting R-454B.

All refrigerant piping shall be insulated with closed cell foam insulation with thickness per ASHRAE 90.1-2019 and manufacturer's recommendations.

Refrigerant volumes and mitigation controls shall be designed per ASHRAE 15-2022 requirements for A2L refrigerants.

Air Distribution System:

Ductwork shall be galvanized steel construction and be fabricated and installed per SMACNA standards. Ductwork layout shall be as direct as possible, with coordinated chases to minimize length, pressure drop restrictions, elbows and offsets.

In general, all ductwork shall be concealed above ceilings.

Exposed ductwork shall be provided with "paint grip" finish to allow for field painting.

Fire Dampers shall be provided where required, penetrating fire rated assemblies, and in accordance with NFPA 90A.

Duct access doors shall be provided at all coils, fire dampers, and other devices requiring inspection or service.

All supply and outside air ductwork shall be insulated with materials and thicknesses in accordance with ASHRAE 90.1-2019. Exhaust ductwork within 10' of building penetrations, as well as return air to energy recovery units shall also be insulated for energy conservation purposes.

Control Systems:

The boiler plant shall be provided with controls which can sequence the boilers, operate hydronic pumps and provide outdoor reset controls without third party integration. Connection to factory boiler controller shall permit monitoring and control of boiler plant through the BMS.

The remainder of the equipment shall be provided with digital controls for the purpose of controlling terminal devices, i.e. cabinet unit heaters, VAV terminals, finned-tube radiation, etc.

All equipment shall be connected back to a Building Management System (BMS). System to provide for occupied and unoccupied control of systems, zones and spaces. System shall provide remote monitoring and control capabilities, alarm conditions, system operation modification, and display long-term data and trends. System shall be capable of archiving decades of data to provide actual building performance information for educational teaching and research opportunities.

Non-Structural Seismic Controls:

Mechanical and Plumbing components are assumed exempt from the requirements of ASCE 7 Chapter 13 Seismic Design for Nonstructural Components based on assumed Facility Seismic Design

Category B (to be confirmed by the Structural Engineer when project the site geotechnical information is confirmed).

Testing, Adjusting and Balancing:

All water and air systems shall be tested, adjusted, and balanced at project completion. All TAB operations shall be coordinated with commissioning agent. TAB work shall be performed by an independent contractor within the contract

Commissioning:

Third-party commissioning agent will be contracted directly with Owner. Commissioning Agent RFP in progress.

ELECTRICAL DESIGN NARRATIVE:

Applicable Codes:

Electrical systems and installation shall comply the currently adopted versions of the following codes:

- ASHRAE 90.1 Energy Standards for Building Except Low-Rise Residential Buildings, 2016 edition
- NFPA 70 National Electrical Code, 2026 edition
- NFPA 72 National Fire Alarm and Signaling Code, 2019 edition
- NFPA 90A Standard for the Installation of Air-Conditioning and Ventilating Systems
- NFPA 99 Health Care Facilities Code, 2021 edition
- NFPA 101 Life Safety Code, 2018 edition
- NFPA 110 Standard for Emergency and Standby Power Systems, 2022 edition
- 2022 FGI Guidelines
- IESNA Lighting Handbook

Existing Conditions:

No known existing electrical on the site. Contractor shall provide a temporary electrical service for the construction of the building and contractor site trailers. Provide a temporary telecommunication service for the construction trailers. The temporary service shall come from the closest electrical utility pole that is not affected by the new construction of primary power to the site.

Primary Electrical Service

A 3-phase primary overhead utility extension will be required to serve the new building. The proposed system would include a new three phase primary connection to an existing utility pole at the corner of County Road and Staniels Road. Replace the first existing pole along Key Street with a new 45' pole and extend the three-phase utility power to the new pole. A guy wire and pole will be set across the street from the new pole on Key Street to support the system.

Power will run down from a utility pole, underground to a pad mounted transformer and will provide 3-phase power for the facility by Versant. Primary pathways will be provided by the contractor, and primary cabling will be by utility.

Secondary service feeders will be provided by the contractor and will run underground into the Electrical Room in the fleet parking area. Service size shall be reviewed as the design progresses, but is currently estimated as 3-phase, 4-wire 800A, 480/277Y Volt.

A dedicated Secondary service feeders to a fire pump controller will be provided by the contractor and will run underground into the fire pump room. Service size shall be determined by the locked rotor current of the fire pump and will be reviewed as the design progresses but is currently estimated as 25HP fire pump motor 3-phase, 4-wire 400A, 480/277Y Volt.

Emergency Electrical Service

The proposed emergency backup system is to provide a new 300kW LP gas generator to provide full building back up. The deduct alternate is to use the owner pre-purchased a 150kW LP gas Generac generator, and an 800-amp nonservice entrance rated Transfer switch. Refer to the EHC Generator information included in the appendix for additional information on the installation of the generator. Based on the overall size of the project and the anticipated loads, the 150kW generator would be limited to freeze protection and limited lighting power for the building.

If a fire pump is required and the AHJ deems the electric service not reliable, an additional generator would be required for the fire pump and would be sized based on that load.

Grounding and Bonding Systems:

Grounding electrodes shall be copper-clad steel, 3/4-inch diameter, and 10 feet long.

Grounding conductors shall be stranded copper, sized to meet NFPA 70 requirements.

Separate insulated equipment grounding conductors within each feeder and branch circuit raceway shall be provided, with each end terminated on a suitable lug, bus, or bushing.

Electrical Distribution:

Power shall be provided by a MDP and branch panelboards located within the Electrical Room. It is expected that an additional branch panel or two will also be required on the opposite side of the building to reduce branch circuit cabling at that side of the building. Care will be given to locate new panels in areas not publicly accessible to the extent possible. All new electrical panels shall be panelboard construction grade and provided with door-in-door fronts. Branch circuit breakers shall be bolt-on type. All feeders shall be installed in metallic conduit systems. Branch circuiting shall be in metallic conduit where exposed. Metal-clad (NEC Type MC) cabling where concealed will be allowed. All branch circuit conductors shall be cooper; aluminum feeder conductors shall be allowed.

Electrical Metering:

A single electrical metering shall be provided as required by Versant.

Lightning Protection:

It is anticipated that a lighting protection system will not be required for this project.

Arc Flash, Fault Current and Selective Coordination Study:

An Arc Flash, fault current, and selective coordination study is a requirement. The study shall be performed by a Maine licensed engineer and any adjustments in the system shall be provided by the electrical contractor based on the study findings. Proper training must be conducted for building maintenance employees. A written safety plan must be in place, Personal Protective Equipment (PPE) must be available for employees, and arc hazard degree calculations must be performed. Any piece of electrical equipment that may need examination, adjustment, service or maintenance while energized will need approved labels. These labels communicate the electrical hazards an employee may be exposed to, including the potential for an arc flash incident.

Electrical Power Systems:

All equipment connections shall be coordinated to provide a method of power disconnects as required by the Code. Electrical devices for convenience outlets shall be coordinated with Owner for power requirements, configuration and locations.

Motors shall be provided with starters and disconnects, or variable frequency drives as applicable, per manufacturers' recommendations.

Power connections, disconnects, overcurrent protection, etc. shall be coordinated with equipment provided (i.e. HVAC equipment, etc.).

All disconnects shall be heavy duty type, NEMA 1 in indoor locations and NEMA 3R in exterior locations. Acceptable Manufactures are Square D, GE, Eaton, and Siemens.

Provide Seismic restraint certificates for all electrical equipment.

Provide power and control wiring to all automatic doors.

Provide conduit and THHN cable, from all panels to a junction box located above an accessible ceiling with circuiting serving that area. Hospital Grade MC or AC may be used where concealed above suspended ceilings and in metal stud walls.

All devices shall be tamper-proof, white in color and be of specification grade, not located in patient care areas.

All devices in patient care areas shall be tamper proof hospital grade, white in color.

Provide GFCI receptacles with 6' of all sinks, regardless of height or use.

Provide a minimum of (8) eight receptacles in each exam room with at least (4) four of them convenient to the head of the table or stretcher.

Provide power as required for all equipment and coordinate the locations with the Architect/Owner prior to rough in.

Provide convenience receptacles in all corridors so that no more than 25' exists between devices.

Provide a receptacle on each wall of office spaces.

Provide duplex receptacles with (2) USB charging ports in the following locations.

A. (1) in each exam room next to the chair
B. (1) at each workstation of the Nurse Stations
C. In the waiting areas
D. Other areas as required by the facility.

Provide a minimum of (1) receptacle in each storage room.

Provide above counter receptacles in all lounges with a minimum of two circuits per counter space, not including dedicated coffee maker receptacles or microwave oven receptacles.

Provide dedicated circuit receptacles for all copiers.

All branch circuits shall be designed so that there is no more than 3% voltage drop from the panel to the last device, increase the conductor sizes as required to meet this requirement.

Provide a main ground bar, 4"x12" copper, in all electrical rooms with #6 minimum bonds to all panels in the electrical room and a main ground wire, matched to the service ground wire, to the MDP. Provide ground cables to the IT Ground Bar and the X-Ray equipment room as required.

Floor boxes will be required in conference rooms with respect to NEC Section 210.65.

Interior Lighting and Controls:

A simple, but energy-efficient lighting control system shall be provided for the lighting systems, designed to meet the current 2021 IECC energy codes.

A. Conference rooms shall be provided with decora-style dimmer switches for multi-zone, multi-level control with ceiling-mounted occupancy sensor for automatically turning lights off when the room is not in use.
B. Corridors shall be controlled via time clock with ceiling mounted occupancy sensors for after-hours use.
C. Offices shall be controlled by dual-relay vacancy sensors with manual on/auto off features for multiple lighting levels.

D. Storage rooms, toilets, and other support spaces shall utilize dual-technology occupancy sensors.
E. All occupancy and vacancy sensors will be provided with adjustable time delays for automatically turning lights off when areas are unoccupied.
F. All rooms with exterior windows shall be provided with a photosensor to automatically dim the lights upon available sunlight in the space.
G. Offices and conference rooms will be provided with plug load controllers on half of the receptacles to turn off receptacles in conjunction with the occupancy sensors.
H. Typical fixtures will be the following or similar:
    1) LED recessed flat panel troffer – Columbia CBT series
    2) LED recessed Architectural troffer – Columbia CLT Series
    3) 6" LED recessed downlight – Prescolite LFR-6RDS Series
    4) LED surface mounted strip –Columbia CSL Series
    5) LED undercounter – Columbia CUC Series
    6) LED Thermoplastic Exit light – Dual Lite EVE Series
    7) LED Edge lit Acrylic Exit light - Dual Lite LES Series
    8) Emergency Battery Unit - Dual Lite EV Series or integral battery units in fixtures
    9) Exterior Emergency Lighting – Dual Lite CUW series
    10) Exterior Wall Mounted Lighting – Beacon Viper series
    11) Exterior Area Lighting – Beacon Viper series
I. Light levels will be based on IESNA recommendations and Lighting Power Density will be based on ASHREA 90.1, 2018. The lighting levels shall be designed to mee the following requirements.
    a. Corridors:
        i. Average Maintained Illumination – Ambient – 10-15fc
        ii. Uniformity ration (avg/min) – 4:1
        iii. Color Temperature (CCT) – 4100 degrees Kelvin
        iv. Color Rendering (CRI) – 80+
    b. Medical Exam Rooms:
        i. Average Maintained Illumination – Ambient – 50fc
        ii. Average Maintained Illumination – Task Exam – 100fc
        iii. Uniformity ration (avg/min) – 3:1
        iv. Color Temperature (CCT) – 4100 degrees Kelvin
        v. Color Rendering (CRI) – 80+
    c. Dental Operatories / Sterile Processing:
        i. Average Maintained Illumination – Ambient– 50fc
        ii. Uniformity ration (avg/min) – 3:1
        iii. Color Temperature (CCT) – 4100 degrees Kelvin
        iv. Color Rendering (CRI) – 80+
    d. Waiting/Check-In/Lobby:
        i. Average Maintained Illumination – Ambient – 20fc

ii. Average Maintained Illumination – Task Sitting Area– 50fc
iii. Uniformity ration (avg/min) – 4:1
iv. Color Temperature (CCT) – 4100 degrees Kelvin
v. Color Rendering (CRI) – 80+

e. Provider Offices:

i. Average Maintained Illumination – Ambient – 30fc
ii. Average Maintained Illumination – Task Reading – 50fc
iii. Uniformity ration (avg/min) – 2:1
iv. Color Temperature (CCT) – 4100 degrees Kelvin
v. Color Rendering (CRI) – 80+

f. Toilet Rooms:

i. Average Maintained Illumination – Ambient – 20fc
ii. Average Maintained Illumination – Task Vanity – 30fc
iii. Uniformity ration (avg/min) – 2:1
iv. Color Temperature (CCT) – 4100 degrees Kelvin
v. Color Rendering (CRI) – 80+

g. Break/Lounge:

i. Average Maintained Illumination – Ambient – 20fc
ii. Average Maintained Illumination – Task Food and Drinks – 30fc
iii. Uniformity ration (avg/min) – 3:1
iv. Color Temperature (CCT) – 4100 degrees Kelvin
v. Color Rendering (CRI) – 80+

h. Small Team Room:

i. Average Maintained Illumination – Ambient – 30fc
ii. Average Maintained Illumination – Task Reading – 50fc
iii. Uniformity ration (avg/min) – 2:1
iv. Color Temperature (CCT) – 4100 degrees Kelvin
v. Color Rendering (CRI) – 80+

i. Maintenance / Mechanical Spaces:

i. Average Maintained Illumination – Ambient – 30fc
ii. Uniformity ration (avg/min) – 3:1
iii. Color Temperature (CCT) – 4100 degrees Kelvin
iv. Color Rendering (CRI) – 80+

J.

1) Emergency Egress 1 fc minimum in the path of egress

K. The emergency egress lighting will be provided by battery backed up fixtures with UL924 listed devices to bypass all controls upon loss of normal power. The egress path will be illuminated to meet the current code requirements or an average of 1fc along the path of egress.

L. All lighting shall be dimmable, and dimmers shall be provided in office areas and exam rooms.

Exterior Lighting and Controls:

Site lighting will be achieved utilizing LED luminaires which will be DLC and Dark Sky Approved. These fixtures will be designed to achieve an average of 1 fc on the driveway surfaces and walkways. These fixtures will be controlled using a central photo sensor to control all of the fixtures.

Multiple fixture distribution types may be called for and shall be oriented to direct the light towards the parking lot and pedestrian areas, and away from any surrounding neighbors.

Various exterior fixtures may be required to light canopies and building entrances as well.

It is also assumed that a flagpole fixture and a single illuminated building sign will be required. These will be controlled through a central photo sensor as well.

Emergency Lighting and Exit Signage:

Emergency lighting shall be achieved with battery packs to illuminate the path of egress, andwill be provided in bathrooms and at exterior life safety exits.

COMMUNICATION SYSTEM DESIGN NARRATIVE:

Data:

(2) 4-inch conduits shall be extended to the main data closet, following the path of the electrical service to bring in data service.

A copper ground bar will be provided in the IT room with a dedicated #6 ground back to the Maine Service grounding bond. #6 copper grounds will be provided to ground the IT equipment

All new patch panels, racks, punch blocks, and other communication equipment shall be provided by the contract.

The IT rooms will be designed to meet the Eastport Health Care IT standards with a single IT room that will also serve as the local utility demarcation room. A minimum of three racks will be provided with ladder-style cable trays in the IT rooms, wire basket trays located in the hallways and J-hook support from the rooms to the cable tray in the hallway.

All cabling shall be Berk-Tek Lanmark SST Cat6A plenum rated, and color-coded to match the Eastport Health Care IT standards.

All penetrations through fire rated walls shall be done using STI Fire Rated Sleeves.

Any servers, phone systems or other equipment shall be provided by the Owner.

Telecommunications Service:

(2) 4-inch conduits shall be extended to the main data closet, following the path of the electrical service to bring in telephone service. Lines shall then run above the ceiling to the server room. A plywood backboard will be provided for mounting telecommunications equipment.

Cable TV Service:

It is not anticipated that cable TV service will be provided as part of this project.

Emergency Alert System:

Each restroom will be provided with an “Call for Assistance” system that will consist of an emergency pull cord located next to each toilet, a dome light in the ceiling or on the wall above the door to the restroom, a low voltage transformer and buzzer to alert the staff.

ELECTRONIC SAFETY AND SECURITY SYSTEM DESIGN NARRATIVE:

Video Surveillance:

The system shall include IP cameras, network video recorder, monitor and all associated switches, cables and accessories. Cameras shall be installed to monitor all building entrances and exits and corridors. Pathways for cameras will be provided and devices as listed above will be provided by the owner.

Access Control:

The system shall include proximity card readers and request to exit devices at all exterior doors and at cross-corridor doors. Additional card readers can be provided in other areas of the building as requested. Public entrances will be provided with ADA accessible paddles and motorized door openers.

Provide a local security system for access control, refer to the architectural drawings for location of controlled doors, system shall be compatible with the owners existing systems at other facilities.

Provide Card access readers at all required doors.

Provide Magnetic locks or electric strikes for all secure access doors.

Provide security cameras as required by the owner.

Provide connection to and communication with the fire alarm system to unlock all doors in the path of egress as required by code.

FIRE DETECTION AND ALARM DESIGN NARRATIVE:

General:

An addressable fire alarm system will be provided and shall include manual & automatic detection consisting of smoke and heat detectors and manual pull stations. Notification to occupants shall be comprised of horn/strobe devices in all normally occupied areas except for individual toilets. Individual toilets will receive visual only (strobe) devices. Carbon monoxide detectors shall be provided in the mechanical rooms and in the fleet parking area. Fire alarm system shall monitor the sprinkler system for alarm and trouble conditions (if applicable). It shall be interconnected to air handling equipment (if applicable).

Applicable Codes:

In accordance with NFPA 72, NFPA 101 and the State Fire Marshall's Office

Fire Alarm System Requirements:

A. All Fire Alarm junction boxes shall be painted red and labeled, "FIRE ALARM". Conduit and/or couplings shall be painted red prior to installation, so that no more than 10' is between the red markings.
B. Visual devices shall be installed in all exam rooms in addition to all other NFPA required areas.
C. Provide all required components to extend the existing system into the renovated area, this shall include all required power and signal extenders if required.
D. All duct smoke and detectors in rooms that are normally locked shall have a remote indicating device and testing device located on or near the ceiling adjacent to the unit and clearly marked as to what and where the unit it controls is.
E. Components:
    1) All Fire Alarm equipment shall be UL listed and labeled for the intended use and/or FM approved where applicable.
F. Testing:
    1) The Fire Alarm system shall be tested in accordance with NFPA 72 and recorded on the contractor's material and test certificate.
    2) Certify installation with the successful completion of all associated NFPA72 test and measure the sound pressure levels in all rooms within the scope of this project. Submit the test reports for review prior to request for final punch list inspection.
G. Fire Alarm and Initiation shall be by one or more of the following devices:
    1) Manual Stations
    2) Heat Detectors

3) Smoke Detectors
4) Automatic Sprinkler water flow

H. Fire Alarm signal shall initiate the following actions:
1) Alarm notification appliances shall operate continuously.
2) Identify alarm at the FACP and all annunciator panels.
3) De-energize electromagnetic door holders
4) Transmit alarm signal to the remote receiving stations
5) Unlock electric door locks in designated egress paths.
6) Release fire and smoke doors held open by magnetic door holders
7) Activate voice communication system(s), if required.
8) Switch HVAC equipment control to Fire Alarm mode.
9) Close smoke dampers in air ducts of systems serving the zone where the fire alarm was initiated
10) Record events in the system memory

I. Supervisory signal initiation shall be by one or more of the following devices or actions.
1) Operation of a fire protection system valve tamper switch

J. System trouble signal initiation shall be by one or more of the following devices or actions:
1) Open circuits, shorts and grounds of wiring for initiating device, signal line and notification appliance circuits.
2) Opening, tampering or removal of alarm-initiating and supervisory signal initiating devices.
3) Loss of primary power at the FACP
4) Ground or a signal break in FACP internal circuits
5) Abnormal AC voltage at the FACP
6) A break in standby battery circuit
7) Failure of battery charging
8) Abnormal position of any switch at the FACP or Annunciator
9) Low air pressure switch operation on a Dry-Pipe or Preaction sprinkler system.

K. System trouble and supervisory actions:
1) Ring trouble bell, activate amber beacon and annunciate at the FACP.