SOUTHCENTRAL FOUNDATION

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Design Development 65% R1 Narrative

ROOF REPLACEMENT & MECHANICAL UPGRADES

June 01, 2026

Southcentral Foundation

NEESER CONSTRUCTION, INC.

NORTHFORM ARCHITECTURE

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Architectural Narrative

Background

Southcentral Foundation (SCF) is undertaking a repair and upgrade project at the Anchorage Native Primary Care Center (ANPCC) to extend the life of the facility, improve safety, and enhance operational efficiency. The work primarily addresses roof replacement, rooftop access, and safety upgrades, with supporting repairs to protect against snow, ice, and long-term weathering. The scope of work also includes Improved energy performance from new and upgraded Mechanical Equipment

Project Goals

- Replace aging roof systems with durable, energy-efficient assemblies consistent with SCF standards.
- Improve roof drainage, insulation, and snow/ice management.
- Provide safe, reliable rooftop access for maintenance staff.
- Extend facility service life while minimizing future maintenance requirements.
- Improved energy performance from new and upgraded mechanical equipment. (See Mechanical)

Summary of Work

- Roof Replacement – Removal and replacement of roof systems at PCC 1, PCC 2, and PCC 3 (excludes 2019 & 2022 additions, the PCC 3 steep-sloped stair lens roof, and the existing stair to PCC2 roof).
- Snow & Ice Protection – Modular paver protection zones at Atrium, PCC2 roof boiler room, and PCC3 Lens roof snow-shed areas.
- Safety Systems – Fall-restraint systems at exposed roof edges and warning tape at daylight openings.
- Rooftop Access – Extension of existing Stair 2 to the roof level at PCC 3, and a new man door onto the roof.
- Replacement of roof seismic joint covers, parapet caps, and associated flashings.
- Thermal performance – new foam insulation in the wall cavity at parapet-roof intersections.
- Atrium Enhancements – New wall cavity foam insulation and aluminum-clad sidewall assemblies for improved snow/ice resistance and improved wall header insulation.
- Sky Light Improvement includes the demolition, structural reinforcement, and reconstruction required for the Skylight Improvement. The work includes removal of existing skylight components, selective demolition of surrounding assemblies, installation of a new insulated roof and vertical glazing system, structural upgrades, and reinstallation of owner-provided artwork.

- Improved energy performance from upgraded Mechanical Equipment (See Mechanical)

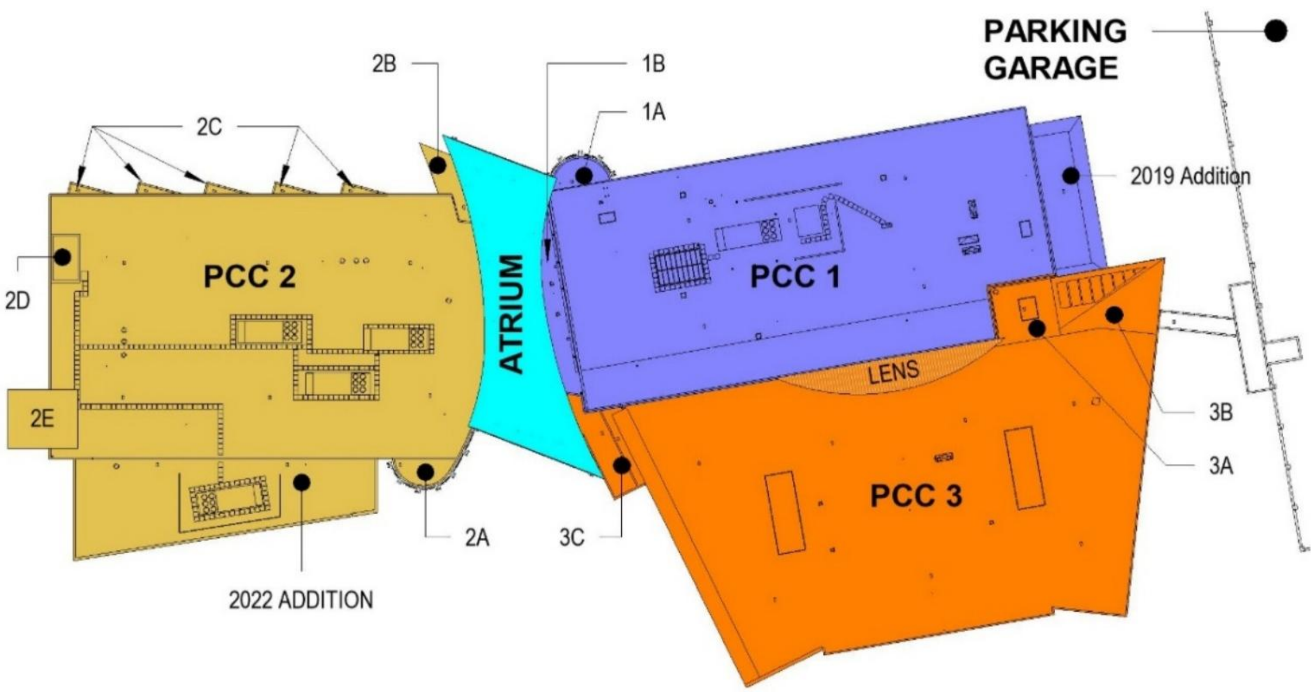
Facility Overview

The Anchorage Native Primary Care Center (ANPCC) is located at 4320 Diplomacy Drive on the Southcentral Foundation/Alaska Native Medical Center campus (Block 2, Lot 3B, Tudor Centre Subdivision).

- PCC 1 – Two stories, ~41,000 SF, built 1996.
- PCC 2 & Atrium – Two stories plus Atrium, ~52,000 SF, built 2002; expanded in 2022 with a two-story 6,000 SF addition.
- PCC 3 – Three stories, ~73,000 SF, built 2008–2009.

Construction & Code Summary Overview

- Construction Types – Generally equivalent to Type II-B, except Atrium (Type V-A).
- Fire Protection – Fully sprinklered throughout; Atrium separated from PCC 1 and PCC 2 by 2-hour fire-rated walls. PCC 1 and PCC 3 are treated as one building per the 2008 design.
- Occupancy – Primarily Group B; Atrium classified as Group A.
- See the Design Development 65% Drawings for more information and details.



Roof Numbers depict Prime and Sub Roof Areas

Primary Care Center 1 Existing Conditions

The roof of PCC 1 is approximately 21,578 square feet and consists of a PVC membrane, recovery board, rigid insulation, vapor retarder, and metal deck surrounded by parapet walls 39" high from top-of-deck to top-of-parapet framing (source: Sheet A5-1, Anchorage Native Medical Office Building drawings, April 30, 1996). Record drawings indicate the roof structure is flat, with the top of metal roof decking at +27'-9". Main roof drainage is accommodated by four sets of roof drains. Two smaller roof areas – identified as subsections 1A and 1B in Figure 1 – are located at the west end of the building, adjacent to the Atrium and separated from the main roof by parapet walls. Subsections 1A and 1B are each served by individual roof drain sets. An addition to the east end of PCC 1 was built in 2019 and is separated from the main roof by a seismic joint and that is served by a separate set of roof drains. The 2019 addition contains an additional rooftop air handler (RTU-1.3). The roof of the 2019 addition is a white EPDM membrane that is in good condition, although dust and debris have accumulated in corners and edges that should be removed to prevent organic growth. Thermal imaging of this roof indicates minor heat loss where the exterior wall meets the roof overhang.

PCC1's boilers and heating equipment are currently housed in a rooftop mechanical enclosure, approximately 10' x 12' in size, located centrally on the roof. A large air handler (RTU-1.1) is located adjacent to the mechanical enclosure, and another smaller unit (RTU-1.2) is located near the northwest corner of the roof. Two large steel-framed cosmetic screens are mounted on the roof and intended to shield RTU-1.1 and the mechanical enclosure from view. A large sloped-glass skylight, approximately 20'x13', is located west of RTU-1.1. User groups report condensation occasionally forming on the underside of the skylight and dripping/flowing down the interior walls of the skylight well. Several smaller condensing units and rooftop exhaust fans are present on the roof. Access to the PCC 1 roof is via ship ladder and access hatch approximately 3' wide by 8.5' long at the east side of the roof. Seismic joints separate PCC1's roof from the adjacent exterior walls of PCC 3. A seismic joint also separates the main PCC 1 roof from the smaller separate section of roof adjacent to the Atrium. Based on record drawings, a continuous portion of PCC 1 roof adjacent to PCC 3, approximately 18 feet wide, was reinforced structurally with an additional layer of 3" metal deck to accommodate additional snow drift load during the construction of PCC 3.

In addition to the roof, the existing Boiler Room 1890 and Facilities Office 1877 were observed during the site visit. Boiler Room 1890 houses the central heating plant for PCC 3. Based on record drawings for PCC 3, Boiler Room 1890 is separated from the remainder of both PCC 1 and PCC 3 by non-rated wall assemblies capable of resisting the passage of smoke. Based on record drawings, Facilities Office 1877 is surrounded by non-rated walls, although fire-stopping sealant was observed at pipe and duct penetrations inside the room.

Primary Care Center 2 Existing Conditions

The roof of PCC 2 is approximately 22,461 square feet and consists of a PVC membrane, recovery board, rigid insulation, vapor barrier, and metal deck surrounded by parapet walls approximately 42" from top-of-steel to top-of-parapet framing (source: sheets A3.20 and A8-1.3, PCC II Shell and Core Package Volume II, October 9, 2000). The most current record drawings indicate a flat structure with top of metal roof decking at +27'-9" (source: sheet S102, PCC II West Expansion & Renovation (SCF22-1068), May 20, 2022). The main area of roof over PCC 2 accommodates three large air handlers and seven exhaust fans and is served by six sets of roof drains. The three air handlers are mounted on a raised "platform," approximately 8" higher than the rest of the roof. Based on available record drawings, the platform consists of a concrete-on-metal deck pad with fire-treated 2x4 wood joists @24" on center on top of the concrete, finished with 5/8" fire treated plywood. The membrane roof system continues over the top of the platform.

A smaller roof area – identified as subsection 2A on Figure 1 – is located on the south side of PCC 2 adjacent to the Atrium and is separated from the main PCC 2 roof by a parapet wall. To the north, over the ground floor main entrance to the Atrium, is a small roof area – identified as subsection 2B on Figure 1. Also, on the north side of PCC 2, a series of five triangular projecting elements – identified as subsections 2C on Figure 1 – have slightly lower roofs and are separated from the main roof by a parapet wall finished with thin brick veneer on the outer/exposed wall surface. The 2C subsections have insulated membrane roofs with individual roof drain sets serving each one.

The 2022 addition to PCC 2 contains an additional rooftop air handler and cosmetic equipment screen surrounding it and two sets of roof drains. This 4,500 square foot EPDM membrane roof is separated by a parapet wall but accessible from the main roof by a fixed steel ship ladder. The roof and the screen of the 2022 addition appear to be in good condition. SCF indicates that there have been complaints from the user group of PCC 2 about the noise generated by the rooftop air handler at this addition.

Access to the PCC 2 roof occurs through Stair S1 on the west side of the building. This is the only stair at the ANPCC complex that extends up to the roof and enables access to the rooftop without having to climb a ladder. The rooftop of Stair S1 – identified as subsection 2D on Figure 1 – is finished with a membrane system and drains onto the main roof through a parapet wall scupper. The replacement of this 2D roof is not in new scope.

A rooftop boiler room containing two large boilers is located at the southwest corner of the main PCC 2 roof. The roof of the boiler room – identified as subsection 2E on Figure 1 – is finished with a standing seam metal roof system that shed drains onto the main roof.

Primary Care Center 3 Existing Conditions

The roof of PCC 3 is approximately 27,902 square feet and consists of a mechanically-fastened TPO membrane, cover board, tapered rigid insulation, GWB sheathing, vapor retarder, and metal deck surrounded by parapet walls that average in height of 36" from top-of-metal deck to top-of-parapet framing (source: sheets G1.12, A3.21, and A3.31, Southcentral Foundation PCC III Clinic CA Conformed Set, November 21, 2008). Record drawings indicate a flat roof structure, with the top of the metal roof decking at +42'-0". Billowing was observed in certain parts of the roof membrane, which is typically caused by building ventilation pressure exceeding atmospheric pressure. The main area of roof over PCC 3 accommodates two large air handlers and three exhaust fans and is served by seven sets of roof drains. A separate area of roof at the northeast corner – identified as subsection 3A on Figure 1 – accommodates a large DX condensing unit; this sub-section is separated from the main room by a short parapet wall and is served by a single roof drain set. Adjacent to the condensing unit – on subsection 3B on Figure 1 – is a series of roof openings to allow daylight through to the pedestrian walkway below.

A long, narrow daylight monitor with south-facing glazing – identified as the "lens" in available record drawings as well as on Figure 1 – is located along the north side of the PCC 3 roof. The top of the lens is sloped to drain to the north, onto the roof of PCC 1. The lens roof is finished with standing seam metal roofing that appears to be in good condition, and its replacement is not in the new scope.

Another small portion of the roof – identified as subsection 3C – is located two stories below the main roof over the ground floor West Vestibule 1115. This portion of the roof has a raised seismic joint running through it to isolate the PCC3 structure from the structure attached to the Atrium. Two sets of roof drains serve this portion of roof – one on either side of the seismic joint.

Access to the main PCC 3 roof occurs via a fixed vertical ladder and a small access hatch inside Stair 2. This is the only means of maintenance access to the rooftop equipment on PCC 3. The hatch has a telescoping extendable safety post, but no perimeter guardrail.

Scope of Work

The following Architectural Scope is outlined per building. See the 65% Design Development Drawings for more information and details.

Primary Care Center 1

- Replace the roof system in its entirety, including the main roof and subsections 1A and 1B. [do not replace 2019 addition]. Demolish the existing roof system down to the metal deck. Replace with SCF's standard low slope roof system, including glass-mat sheathing, self-adhered vapor retarder, expanded polystyrene insulation (R-40 average), polyisocyanurate cover board, and fully adhered black EPDM membrane (60 mils thick). Improve roof slopes to drain with tapered insulation, sloped 1/4" per foot minimum at the valleys. Insulation thickness at roof drains shall be 3 inches minimum. Use SPF insulation at roof-to-parapet wall intersections to reduce heat loss. Install new parapet cap flashings and sealant. Replace all roof drain bodies and covers, and locate overflow drain 2" in elevation upslope from the primary drain, and without an overflow dam.

- Remove and infill existing abandoned mechanical openings, roof access hatches, and mechanical screens and their support posts.

- Create a "snow shed protection zone" where the accumulation of snow shedding from the Atrium roof occurs. Install a modular concrete paver system (approximately 890 square feet) on top of an EPDM protection mat/walk pad on top of the new roof assembly per item A1-1.

- Replace all seismic joint covers.

- Install travel restraint system per SCF standards Section 07 72 00, paragraph 1.g full length of roof along exposed north and east edges. [Basis of design: Guardian CB-18 anchor post, 2,000 lb stainless steel wire rope, and orange PVC safety flags.] Attach anchor posts at 15 feet on center, 15 feet from parapet walls, using simple screw connections to wood thermal break pads. No structural upgrades are required.

- Partial demolition of existing skylight and reconfiguring into a daylight monitor with vertical glass and sloped roof.   Replace with new metal stud walls and roof framing with new punched windows in the walls.

- Provide a protective layer over the new roof membrane zone to mitigate accumulation of snow shedding from the PCC 3 lens roof. Install paver system (approximately 1,568 square feet) on top of an EPDM protection mat / walk pad on top of the new roof assembly per item A1-1.

Skylight Improvement

Overview

- This scope of work outlines the demolition, structural reinforcement, and reconstruction required for the Skylight Improvement. The work includes removal of existing skylight components, selective demolition of surrounding assemblies, installation of a new insulated roof and vertical glazing system, structural upgrades, and reinstallation of owner-provided artwork.

Demolition and Removal

- The Contractor shall perform selective demolition and removal of the following components in preparation for new construction:
- Remove the existing horizontal skylight glazing system in its entirety.
- Remove portions of adjacent vertical partitions as indicated, with most existing studs to remain in place for reuse or sistering.
- Remove the existing exterior façade assemblies surrounding the skylight.
- Remove damaged interior gypsum wallboard (GWB) surfaces to a minimum of 4 feet below deck level.
- Remove and safely store existing artwork for reinstallation, coordinate removal and storage logistics with the Owner.
- Remove a minimum of 6 feet of the existing roofing assembly on all sides of the skylight to facilitate new deck reinforcement and tie-in of new roof assemblies.

New Construction

- Following demolition, the Contractor shall furnish and install new assemblies and systems as follows:

Roof and Skylight Assemblies

- Provide a new insulated roof assembly with a minimum R-40 thermal value, sloped to drain, and equipped with a new scupper system.
- Provide a new triple-pane vertical glazing system to replace the existing skylight vertical elements.
- Provide new structural roof decking reinforcement as required by the Structural Engineer.
- Install a new roof system designed to accommodate and support reinstallation of the existing art, including structural plywood backing as needed.
- Repair existing roof assembly as required for a complete, watertight installation.

Primary Care Center 2

- Demolish existing roof system in its entirety, including main roof and subsections 2A, 2B, and 2C. Replace with SCF's standard low slope roof system, including glass-mat sheathing, self-adhered vapor retarder, expanded polystyrene insulation (R-40 average), polyisocyanurate cover board, and fully adhered white EPDM membrane (60 mils thick). Improve roof slopes to drain with tapered insulation, sloped 1/4" per foot minimum at the valleys. Insulation thickness at roof drains shall be 3 inches minimum. Use SPF insulation at roof-to-parapet wall intersections to reduce heat loss. Install new parapet cap flashings and sealant. Install SPF insulation in line with the roof insulation at the parapet wall that separates the 2022 addition from the main roof. Replace all roof drain bodies and covers, and locate overflow drain 2" in elevation upslope from the primary drain, and without an overflow dam.

- Create a "snow shed protection zone" where the accumulation of snow shedding from the Boiler room roof occurs. Install a modular concrete paver system (approximately 364 square feet) on top of an EPDM protection mat/walk pad on top of the new roof assembly per item A2-1.

  Create a "snow shed protection zone" where the accumulation of snow shedding from the Atrium roof occurs. Install a modular concrete paver system (approximately 464 square feet) on top of an EPDM protection mat/walk pad on top of the new roof assembly per item A2-1.

- Install galvanized steel steps on both sides of Boiler Room doors (interior and exterior).

- Install travel restraint system per SCF standards Section 07 72 00, paragraph 1.g full length of roof along exposed north and east edges. [Basis of design: Guardian CB-18 anchor post, 2,000 lb stainless steel wire rope, and orange PVC safety flags]. Attach anchor posts at 15 feet on center, 15 feet from parapet walls, using simple screw connections to wood thermal break pads. No structural upgrades are required.

- Replace the standing seam metal roof at subsection 2E (Boiler Room roof). Replace with SCF's standard metal roofing assembly, including self-adhering, high-temperature underlayment and factory-finished standing seam roofing with 20-year finish warranty and 5-year weather-tightness warranty. Install non-penetrating snowguards at 36" on center, eave to ridge.

Primary Care Center 3

- Demolish existing roof system in its entirety, including main roof and subsections 3A, 3B, and 3C [do not replace Lens roof]. Replace with SCF's standard low slope roof system, including glass-mat sheathing, self-adhered vapor retarder, expanded polystyrene insulation (R-40 average), polyisocyanurate cover board, and fully adhered white EPDM membrane (60 mils thick). Improve roof slopes to drain with tapered insulation, sloped 1/4" per foot minimum at the valleys. Insulation thickness at roof drains shall be 3 inches minimum. Use SPF insulation at roof-to-parapet wall intersections to reduce heat loss. Install new parapet cap flashings and sealant. Replace all roof drain bodies and covers, and locate overflow drain 2" in elevation upslope from the primary drain, without an overflow dam.

- Extend Stair 2 to the roof. Finish stair enclosure exterior walls with insulated metal panels.
- Install a low slope membrane roof, low parapet walls, and a sidewall roof scupper.

- HSS4x4x1/4 columns to be added to the top of the PCC 3 roof structure to extend the stair enclosure upward. The exterior walls of the new enclosure are plywood sheathed metal studs and act as the lateral system in both directions (shear walls).

- The intermediate landing is framed with steel beams connecting to the existing steel columns.

- The new stair stringers will be HSS12x2x3/16, extending from the 3rd floor to a new intermediate landing, and from that landing up to the roof level. New stairs and hand/guard rails are to match the existing stair system below.

- The portion of the roof deck that will serve as the new stair landing at the roof level will be covered with concrete.

- Install travel restraint system per SCF standards Section 07 72 00, paragraph 1.g full length of roof along exposed north and east edges. [Basis of design: Guardian CB-18 anchor post, 2,000 lb stainless steel wire rope, and orange PVC safety flags.] Attach anchor posts at 15 feet on center, 15 feet from parapet walls, using simple screw connections to wood thermal break pads. No structural upgrades are required.

- Install striped warning tape at the perimeter of daylight openings at the northeast corner of the roof.

- Replace seismic joint cover at subsection 3C.

Atrium

- Remove all rough-sawn plywood sheathing from Atrium sidewalls. Install SPF insulation in wall cavity joint where the Atrium sidewalls meet the underside of the Atrium roof. Install new 0.125” solid aluminum panels (to better resist snow/ice damage) over new plywood sheathing at Atrium sidewalls.

Structural Narrative

Construction & Code Summary Overview

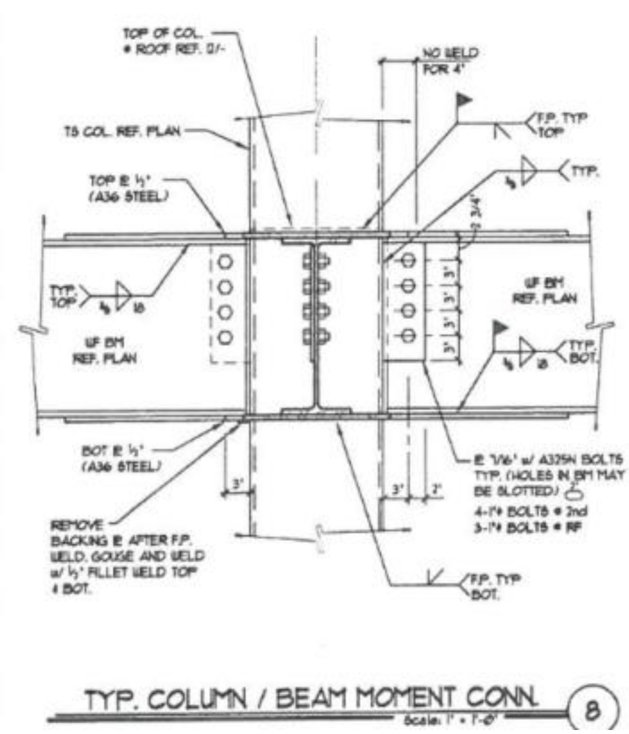
- 2018 IBC & IEBC
- AISC 341-16
- AISC 360-16
- ASCE 7-16
- ACI 318-14

Primary Care Center 1 Existing Conditions

PCC 1 was originally designed in 1996 under the 1994 UBC.

- Snow Load = 40 psf
- Live Load = 50 psf
- Wind Load = 100 mph, Exp C
- Seismic = Zone 4, Z=0.4, Rw=6.0, Ie=1.0

The building is two stories tall. The gravity and lateral framing system consists of wide-flange steel beams and tube-steel columns. All of the primary girders, in both directions, at both floors, are moment-connected to all of the tube steel columns using a cover plate design that extends out 1’-10” from the face of the column. The area from the face of the column to 2’-9” away from the face of the column is a protected zone and cannot be welded to or modified (which can limit renovation opportunities).



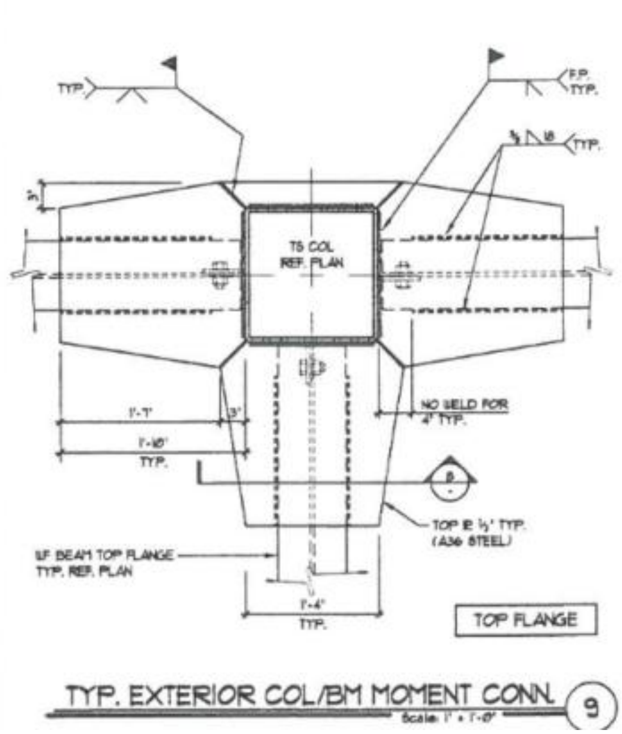


Figure 2.02-1: Existing PCC1 Moment Frame Connections and Protected Zone

The roof framing is 3" x 20ga metal deck over wide flange steel beams. Adjacent to the skylight, an 18 ga deck is used. At the two pieces of mechanical equipment, RTU-1.1 and the Rooftop Boiler Container, a concrete pad is poured on top of the roof deck. The permit set of drawings indicates that the roof structure is flat.

At the second floor, a composite concrete deck (2.5" concrete over 3" metal deck) is supported by steel wide-flange beams.

The first floor is a concrete slab on grade with the columns founded on pilasters and isolated spread footings.

- The PCC 2 (2000) addition framed in a portion of roof between PCC 1 and the Atrium, to the west of the PCC 1 building, separated by a seismic joint.

- The PCC 3 (2006) addition framed in a new roof to the east of PCC 1 (level with the PCC 1 roof), with the main (taller) PCC 3 to the south of PCC 1. The PCC 3 addition also upgraded the PCC 1 roof deck adjacent to the new taller building to deal with the added snow drift/dump.

- PCC 1 underwent significant renovation in 2017 that extended the bridge in the Atrium, infilled a portion of the second-floor openings, replaced RTU 1.1, added the ships ladder to the roof, and restructured the windows in the second-floor director's office.

Primary Care Center 2 Existing Conditions

PCC 2 was originally designed in 2000 under the 1997 UBC.

- Snow Load = 40 psf plus drift around the Atrium, Penthouse and RTUs
- Live Load = 60 psf office, 100 psf corridor
- Wind Load = 90 mph, Exp B
- Seismic = Zone 4, Z=0.4, Rw=6.4, Omega=2.2, Ie=1.0

The building is two stories tall with a Penthouse at the west wall and an Atrium between PCC 1 and 2 that are both an additional story tall. The lateral framing system consists of wide-flange steel beams and columns with tube steel braced frames at select locations.

The roof framing is 3" x 18 gage metal deck over wide flange steel beams. At the three pieces of mechanical equipment, and in the rooftop boiler room, a concrete pad is poured on top of the roof deck, and this area is designed for 125 psf live load. The permit set of drawings indicates that the roof structure is flat. The Atrium roof is a twisted-plate shape (opposite corners of the roof are high/low and the slope changes gradually from one end to the other) constructed from glue-laminated beams and columns.

At the second floor, a composite concrete deck (2.5” concrete over 3” metal deck) is supported by steel wide-flange beams.

The first floor is a concrete slab on grade with the columns founded on pilasters and isolated spread footings.

- PCC 2 underwent significant renovation in 2022 that added square footage to the building to the south. This renovation extended both the first and second floors. The addition is seismically connected to the original PCC 2 (no seismic joint) and continued the use of the tube steel braced frames. This addition also extended the western stairwell to the roof level.

Primary Care Center 3 Existing Conditions

PCC 3 was originally designed in 2006 under the 2006 IBC.

- Snow Load = 40 psf plus drifting snow load at parapet, skylight and RTUs
- Live Load = 60 psf office, 100 psf corridor
- Wind Load = 120 mph, Exp B, Enclosed
- Seismic = Sds=1.01, Sd1=0.49, Site Class C, SDC D, Ie=1.0, R=6.0

The building is three stories tall. The lateral framing system consists of wide-flange steel beams and columns (wide-flange and tube-steel) with tube steel braced frames at select locations.

The roof framing is 3” metal deck over wide flange steel beams. At the two pieces of mechanical equipment, RTU-3.1 and 3.2, and the mechanical room, a concrete pad is poured on top of the roof deck. The drawings indicate that the roof structure is flat.

At the third and second floor, a composite concrete deck (2.5” concrete over 3” metal deck) is supported by steel wide-flange beams.

The first floor is a concrete slab on grade with the columns founded on pilasters and isolated spread footings.

PCC 3 includes a skybridge at the second floor connecting to a Parking Garage. The skybridge is laterally connected to PCC 3 in the longitudinal bridge direction and uses field-welded wide-flange beam to tube-steel column moment frames in the transverse direction. The skybridge is laterally separated from the Parking Garage with a seismic joint.

Scope of Work

The following Structural Scope is outlined per building. See the 65% Design Development Drawings for more information and details.

Primary Care Center 1

Skylight Improvement

- The new skylight framing will consist of ¾" fire-treated plywood deck over 8" cold-formed metal joists at 1'-4" on-center spacing. The joists will bear on 6" metal stud walls supported by existing wide flange beams at the PCC1 roof level.
- The skylight walls will be sheathed with plywood to resist lateral loads. New holdowns will be installed to the existing wide flange beams at the pier ends of each shear wall.
- Drifting around the skylight will be mitigated via deck strengthening. A new layer of 3" 20 gage metal roof deck will be applied on all four sides of the skylight. Reference the 65% design development drawing for extents.
- Provide new travel restraint system, basis of design is per the architect. If custom system is selected, provide 3'-0" tall, 4" diameter extra-strong pipes at approximately 15'-0" on-center with ¼" steel base plate fastened to existing decking with (52) #12 screws. If a proprietary system such as lifeline or guardian is selected, design will be per the manufacturer.

Support for Mechanical Upgrades

- Provide new openings greater than 1'-3" square with C5x6.7 channels on all four sides. Where opening edges are within 0'-4" of an existing beam flange, the reinforcing on that side may be omitted.
- Openings less than 0'-4" in diameter require no reinforcing
- Openings between 0'-4" and 1'-3" are to be reinforced using L2x2x1/4 angles on the sides that run perpendicular to the deck ribs. Extend angles 2'-0" past the edge of opening.
- Design of RTU curbs, framing, and seismic anchorage will be provided as a deferred submittal by the mechanical subcontractor.

Primary Care Center 2

Support for Mechanical Upgrades

- Provide new openings greater than 1'-3" square with C5x6.7 channels on all four sides. Where opening edges are within 0'-4" of an existing beam flange, the reinforcing on that side may be omitted.
- Openings less than 0'-4" in diameter require no reinforcing
- Openings between 0'-4" and 1'-3" are to be reinforced using L2x2x1/4 angles on the sides that run perpendicular to the deck ribs. Extend angles 2'-0" past the edge of opening.

- Design of RTU curbs, framing, and seismic anchorage will be provided as a deferred submittal by the mechanical subcontractor.
- Provide new travel restraint system, basis of design is per the architect. If custom system is selected, provide 3’-0” tall, 4” diameter extra-strong pipes at approximately 15’-0” on-center with ¼” steel base plate fastened to existing decking with (52) #12 screws. If a proprietary system such as lifeline or guardian is selected, design will be per the manufacturer.

Primary Care Center 3

Stair 2 Extension

- Extend Stair 2 to the roof. Provide (4) new HSS4x4x1/4 columns at the corners of the extended stair tower. The columns will be welded to the existing HSS column caps below. New stair roof framing will consist of 3” 20 gage metal roof deck supported by W8x10 wide flange joists at 6’-0” on-center spacing. W8x10 girders will be constructed on all four sides. 6” metal stud walls will frame from the PCC3 roof level to the underside of these girders. Lateral loads will be resisted by sheathing on the metal stud walls.
- The intermediate landing is framed with steel beams connecting to the existing steel columns. The intent is to match the existing stair framing.
- The new stair stringers will be HSS12x2x3/16, extending from the 3rd floor to a new intermediate landing, and from that landing up to the roof level. New stairs and hand/guard rails are to match the existing stair system below.
- The intermediate landing will be slab-on-metal deck over top of steel joists and stringers.
- Provide new travel restraint system, basis of design is per the architect. If custom system is selected, provide 3’-0” tall, 4” diameter extra-strong pipes at approximately 15’-0” on-center with ¼” steel base plate fastened to existing decking with (52) #12 screws. If a proprietary system such as lifeline or guardian is selected, design will be per the manufacturer.

Support for Mechanical Upgrades

- Provide new openings greater than 1’-3” square with C5x6.7 channels on all four sides. Where opening edges are within 0’-4” of an existing beam flange, the reinforcing on that side may be omitted.
- Openings less than 0’-4” in diameter require no reinforcing
- Openings between 0’-4” and 1’-3” are to be reinforced using L2x2x1/4 angles on the sides that run perpendicular to the deck ribs. Extend angles 2’-0” past the edge of opening.
- Design of RTU curbs, framing, and seismic anchorage will be provided as a deferred submittal by the mechanical subcontractor.
- Provide a new support frame for the chiller located between Grids SF.6 and NH. The new framing will consist of new W8x10 beams at 5 locations. These wide-flange frames will be welded to existing wide-flange beams with 1-4” fillet skip welds 3” in length every 12” of beam.

- Provide new travel restraint system, basis of design is per the architect. If custom system is selected, provide 3’-0” tall, 4” diameter extra-strong pipes at approximately 15’-0” on-center with ¼” steel base plate fastened to existing decking with (52) #12 screws. If a proprietary system such as lifeline or guardian is selected, design will be per the manufacturer.
- At the level 1 boiler room, provide new concrete housekeeping pads where it is indicated by mechanical. Housekeeping pads are to be a minimum of 3-1/2” thick but may be thicker if required by mechanical. Seismic anchorage of the boilers is to be provided as a deferred submittal by the mechanical subcontractor.
- At the new chiller, provide a new W8x10 frame atop the existing steel frame as indicated on the design development drawings. Ensure that the rust on the existing steel frame is removed prior to installing the new frame. Once the new frame is installed, spray-galvanize the new and existing frames prior to chiller installation.

Atrium

- No structural scope

Mechanical Narrative

Referenced Codes

The latest adopted version of the following codes and standards, as amended by the Municipality of Anchorage, are currently applicable for this project:

International Building Code 2024 (IBC)
International Energy Conservation Code 2024 (IECC)
International Fire Code 2024 (IFC)
International Fuel Gas Code 2024 (IFGC)
International Mechanical Code 2024 (IMC)
Uniform Plumbing Code 2024 (UPC)
National Electrical Code 2023 (NEC)
Americans with Disabilities Act (ADA)
NFPA 13 Standard for the Installation of Sprinkler Systems in Commercial Buildings
Sheet Metal & Air Cond. Contractors (SMACNA) – HVAC Duct Construction Standards

Introduction

Design conditions for determining building loads and equipment sizing will be in accordance with climatic conditions as indicated in the 2021 ASHRAE Fundamentals Handbook, Climatic Design Data Tables. The climate conditions for Anchorage, Alaska are as follows:

Heating Degree-Days:	10,115
Winter Design (99.6% Occurrence):	-15°F DB
Winter Indoor Heating Design	70 °F
Extreme Annual Minimum:	-36 °F DB
Summer Design (0.4% Occurrence):	75 °F DB, 59 °F WB
Summer Indoor Cooling Design	75 °F

Plumbing

Existing domestic water piping mostly remains. New domestic water piping will be necessary for water heating capacity at the PCC3 boiler room. All new domestic water piping will be Type L copper, joined with soldered, brazed or a listed press-fit joining system.

All existing roof drains and connected piping will be demolished. New roof drains and rain leader piping from the roof drains will be installed and connected to the existing rain leader piping systems. All new rain leader piping will be installed to meet local code amendment criteria. All VTR’s will be demolished below the roof deck and then new vent piping shall be installed to extend a minimum of 24” above the roof surface. Rain leader and vent piping will be hubless cast iron piping with no-hub neoprene couplings. Cleanouts will be provided as necessary above the ceiling.

No new significant waste piping is anticipated at this time. Equipment condensate drains will be plumbed as necessary with PVC or Copper.

Domestic hot water will be provided to the facility using two 400MBH high output 115-gallon natural gas condensing water heaters, heated to 140°F, PVI Conquest or equal. A digital thermostatic mixing valve will be installed at the water heaters to temper water down to 120°F for distribution to building fixtures. A recirculation pump will be installed at the water heaters along with new recirculation piping within the boiler room to provide immediate hot water at the furthest fixtures.

Insulation will be installed on all piping and equipment as required by the energy conservation code (IECC). This will include piping for domestic water, VTR's, and rain leader piping. Insulation will be pre-formed fiberglass for piping. Insulation with integral vapor barrier will be provided for cold water piping. Pipe exposed in mechanical equipment rooms, or in finished spaces below ten feet above finished floor will have protective jacketing.

Heating

The boiler container on the roof of PCC1 containing natural gas fired cast iron boilers and water heater is to be demolished. The existing natural gas fired cast-iron boilers and water heater within the PCC3 boiler will also be demolished. All piping, pumps, expansion tanks, and air separators fans within the PCC3 boiler room are to be demolished. The existing building water-to-glycol heat exchanger must be salvaged for re-use as part of deductive alternate M3.2.

PCC3 and PCC1 will be served by two new boilers, each sized for approximately 100% of the building heating load (building heat loss + ventilation + snowmelt) with one boiler acting as a redundant standby in an N+1 configuration based on SCF feedback at 35% schematic design. The boilers will be natural gas fired high-efficiency condensing boilers with a minimum of 95% annual fuel utilization efficiency (AFUE). Boiler trim and controls will include high water shut offs, redundant high limits, and ASME rated pressure relief valves. The boilers will be individually direct vented to the outdoors. The boilers will be provided with an outdoor reset schedule so the boiler temperature may be adjusted based on ambient temperature to reduce energy consumption during warm weather and to provide condensing operation as often as possible. The boilers will be piped into the main building heating loop in a primary-secondary fashion. Each boiler must be provided with a variable speed pump to maintain adequate flow through the boiler. The main heating loop will be provided with variable speed pumps that will vary their flow based on the heating demand of the building, with one pump running as the primary, and the other operating as redundant standby pump.

Heating supply and return piping will be Type L copper, joined with soldered, brazed or a listed press-fit joining system up to 3”, with black steel piping and welded fittings for 4” and over. Heating piping will be insulated in accordance with the IECC throughout the building and supported in accordance with industry standards. The building heating fluid will be 100% water. All snowmelt systems and all RTU heating coils will be re-fed via water-to-glycol heat exchangers and will utilize a new working fluid comprised of 50% water and 50% propylene glycol with inhibitors. A glycol storage/pumping tank will be installed in the boiler room to maintain pressure and provide make-up for both glycol systems.

New glycol heating piping will be routed from the PCC3 boiler room to the heating coils of the PCC3 RTU’s. New glycol heating piping will be routed from the PCC3 boiler room to the area below RTU-1.1 in the event that SCF wants to install a future heating coil at the RTU. New water heating piping will be routed from the PCC3 boiler room to refeed the PCC1 heating mains on the 2nd floor of PCC1.

Gas piping to the new boilers will utilize the existing 3” medium pressure main outside the mechanical room with new gas distribution piping inside the boiler room.

Cooling

Both PCC1 mini-split condensing units and indoor evaporators serving the Electrical and Comm rooms will be demolished and replaced with new identical 3-ton units utilizing new commercial refrigerants such as R-32 or R-454B. All new refrigerant piping will be installed. Refrigeration piping will be Type ACR. All refrigeration piping will be insulated with a minimum of 1” closed cell foam with UV-resistant jacketing for exterior piping.

The DX condensing unit serving PCC3 AHU-3.3, all associated refrigerant piping, and AHU cooling coil are to be demolished. A new 52-ton DX condensing unit will replace it. Vibration isolators shall be provided with a new structural housekeeping frame. A new DX cooling coil shall be provided in the new built up air handler AHU-3.3. All new refrigerant piping will be installed. Refrigeration piping will be Type ACR. All refrigeration piping will be insulated with a minimum of 1” closed cell foam with UV-resistant jacketing for exterior piping.

Ventilation

The existing PCC2 RTU-1.1, RTU-1.2 and RTU-1.3 will have their curbs demolished and replaced with new acoustic sheet metal fabricated curbs. Their supply and return duct risers will be reconnected and extended as necessary.

The existing PCC2 RTU-2.1 and RTU-2.4 will have their curbs demolished and replaced with new acoustic sheet metal fabricated curbs. Their supply and return duct risers will have new sound attenuators installed and will be reconnected and extended as necessary.

PCC2 RTU-2.2 and RTU-2.3 and their curbs will be demolished and replaced with identical performing units and new acoustic sheet metal fabricated curbs. Supply and return air duct risers will have new sound attenuators installed and be reconnected and extended as necessary. Heating glycol supply and return piping will be re-connected to the hydronic heating coil.

Both PCC3 RTU-3.1 and RTU-3.2 and their curbs will be demolished and replaced with identical performing units and new acoustic sheet metal fabricated curbs. Supply duct risers will have new sound attenuators installed and reconnected and extended as necessary. Heating glycol supply and return piping will be re-connected to the hydronic heating coil.

PCC3 AHU-3 (in the fan room) and its associated DX condensing unit located on the PCC3 roof, will be replaced entirely. The new DX condensing unit will utilize R-454B and the new AHU-3 will come with supply fans only and no relief fans as well as all code required refrigerant safeties necessary to comply with new refrigerant standards. Separate square in-line relief fans will be provided in the fan room to provide relief from the fan room plenum space.

All ductwork connected to the RTU's will be constructed for medium pressure operation. All supply air ductwork will be insulated, complete with vapor barriers, in accordance with the IECC and supported/installed per SMACNA. All return air ductwork will be lined with a closed-cell or fiber-free insulation to attenuate sound.

The boiler room will have an engineered combustion air system, utilizing the existing exterior louver as well as the existing relief duct up to the louver in the fan room. A new ventilation fan will be installed in the boiler room to provide cooling.

The boiler and water heater flues shall all be a UL-1738 listed and insulated double wall stacks with inner jackets constructed of AL 29-4C stainless steel and outer jackets constructed of 316 stainless steel.

Building Pressure Control

The multi-building pressurization strategy is based on maintaining independent airflow pressurization offsets at each air handling unit and PCC3 return air shaft zone rather than controlling all systems from a common building pressure loop. Building pressure sensors are utilized to verify that pressure relationships between PCC1, PCC2, PCC3, and the Atrium are maintained and to allow the BAS to selectively trim airflow offsets in accordance with the established trim priority sequence. Relief airflow, return airflow, and dedicated exhaust airflow are continuously coordinated to maintain the required building pressure relationships while minimizing instability and control hunting between interconnected systems.

2 square inline relief fans will be located in the PCC3 fan room to assist with building pressure control.

Multiple transfer air openings will be provided at the rated chases at PCC3. Ebtron Airflow Bleed Sensors for airflow measurement and motorized dampers will be installed at the rated chases in PCC3. Outside, return, and supply airflow monitoring will be provided on all existing and new air handling units (RTU-1.1,2.1,2.2,2.3,2.4,3.1,3.2, AHU-3.3).

Controls

The DDC system will provide equipment supervision and control, alarm management, energy management, and historical data collection and archiving. The new controls will consist of standalone DDC panels and application-specific controllers (ASCs), fully networked with the JCI BAS to allow remote operator access.

The system will be modular in design, allowing for expansion of capacity and functionality through additional sensors, actuators, and operator devices to accommodate future facility growth or remodeling. Each DDC panel will perform its own control logic, alarm management, and data collection, ensuring continued operation even in the event of a single device or network failure.

The new boiler system will be provided with packaged controls which will integrate with the direct digital controls (DDC) for complete operation and monitoring. All existing boiler controls will be removed, and new DDC controls will be installed and integrated into the facility’s existing Johnson Controls (JCI) building automation system (BAS).

PCC2 RTU-2.2 and 2.3 as well PCC3 RTU-3.1 and 3.2 will be specified with Trane External Capacity Controls so that the BAS can control all internal RTU components except for the DX section which will still have a packaged controller. PCC2 RTU-2.1 and 2.4 will have their existing controllers replaced and retrofitted with Trane External Capacity Controls so that the BAS can control all internal RTU components except for the DX section which will still have a packaged controller.

For systems with DX cooling utilizing A2L refrigerants, controls will be coordinated with the AHU/DX condensing unit manufacturer, and all applicable codes and standards, including ASHRAE Standard 15, IMC, applicable product safety standards, and manufacturer requirements, to implement all required refrigerant safeties, detection, alarm, mitigation, control interlocks, and reset sequences. The third-party controls will perform all required refrigerant safety functions, including but not limited to refrigerant leak detection, high- and low-pressure safeties, compressor protection, required airflow or ventilation mitigation, safety shutdown, alarm annunciation, fan or damper interlocks, and required reset logic. Controls will be coordinated between the BAS, BAS contractors RTU/AHU controller, and manufacturer's DX controller as required by the installed refrigerant type, unit configuration, installed refrigerant charge, occupancy classification, and installation conditions. The final installed control sequence will comply with the manufacturer's requirements and all applicable codes and standards.

Fire Protection

The building is protected by an NFPA 13 wet fire sprinkler protection system throughout. The facility is primarily Light Hazard occupancy, with mechanical spaces designated as Ordinary Hazard 1. New sprinkler piping will be specified as schedule 40 black iron and sprinkler heads will be quick response. Architectural and mechanical revisions requiring sprinkler modifications are located at PCC1 skylight, PCC3 fan room, PCC3 boiler room, PCC3 stairwell. Regular heads will be installed in the new stairwell extension for PCC1.

Electrical Narrative

Design Parameters:

The latest adopted version of the following codes and standards are currently applicable for this project:

International Building Code
International Fire Code
International Energy Conservation Code
National Electrical Code
NFPA 72 National Fire Alarm Code
Americans with Disabilities Act (ADA)
National Electrical Safety Code
TIA/EIA Telecommunications Building Wiring Systems
IES Lighting Handbook, Tenth Edition
ASHRAE/IES Standard 90.1

The design parameters listed in this narrative may be considered a working document. As the design progresses, the parameters in this document may be revised as a result of changing technology, payback analysis and/or feedback from the Owner.

Power Distribution

PCC1

PCC1 has numerous items with electrical connections to equipment located on the roof. The electrical drawings show these items and designate which items are to be disconnected from their power source and reserved for connection to the same equipment once the roof is replaced and which items are to be disconnected from their power source and reserved for reconnection to new equipment with similar electrical loads once the roof is replaced. The drawings indicate which mechanical items on the roof do not have their NEC required local disconnect and upon re-installation of these items a local disconnect will be provided. Mechanical items to be replaced on PCC1 include CU-1.1 and CU-1.2. Both CU-1.1 and CU-1.2 are currently fed from panel '2LD' located on the 2nd floor electrical closet adjacent to the roof access. Both units are fed with 35A, 2pole breakers and are sized adequately for the new units, therefore existing breakers and feeders can be salvaged for reuse. Their associated AC units will also be replaced as a 1 for 1. EF-1.5 will be demolished in its entirety and will have its conductors demolished back to the panel where the breaker will be labeled as a spare.

The boiler plant on the roof will be demolished in its entirety. The boiler plant module contains a 480:240V, single phase, 10KVA, step down transformer that feeds (2)6 space load centers. These load centers feed all items within the boiler plant. All electrical connections, load centers and transformer will be demolished and the feeder to the transformer will be demolished back to the Main Distribution Panel (MDP) located in the first floor electrical room 1864 where the breaker will be labeled as spare.

PCC2

PCC2 has numerous items with electrical connections to equipment located on the roof. The electrical drawings show these items and designate which items are to be disconnected from their power source and reserved for connection to the same equipment once the roof is replaced and which items are to be disconnected from their power source and reserved for reconnection to new equipment with similar electrical loads once the roof is replaced. RTU-2.4 will be removed and raised onto a pad that will elevate the unit such that the feeder will need to be extended and re-terminated at the RTUs new lug locations. The drawings indicate which mechanical items on the roof do not have their NEC required local disconnect and upon re-installation of these items, a local disconnect will be provided. Mechanical items to be replaced on PCC2 include RTU-2.2 and RTU-2.3 which are both fed from the MDP located on the first floor in the back of the pharmacy. Asbuilts indicate that RTU-2.2 is fed from a 250A, 3pole breaker and that RTU-2.3 is fed from a 125A, 3pole breaker. The breaker for RTU-2.1 is oversized for the new equipment, and the unit will need to have their overcurrent protection reduced to 110A to not exceed the manufactures maximum overcurrent protection ratings. This can be achieved by providing a fused disconnect at the units or by swapping out the breakers at the MDP. The existing breaker feeding RTU2-2 is seized appropriately for the new RTU and can be reused.

PCC3

PCC3 has numerous items with electrical connections to equipment located on the roof. The electrical drawings show these items and designate which items are to be disconnected from their power source and reserved for connection to the same equipment once the roof is replaced and which items are to be disconnected from their power source and reserved for reconnection to new equipment with similar electrical loads once the roof is replaced. The drawings indicate which mechanical items on the roof do not have their NEC required local disconnect and upon re-installation of these items, a local disconnect will be provided. Mechanical items to be replaced on PCC3 include RTU-3.1, RTU-3.2, and CU-3.1. RTU-3.1, RTU-3.2, and CU-3.1 are all fed from the MDP located in the first floor in room 1209. Both RTU-3.1 and RTU-3.2 are fed from 300A, 3pole breakers and are sized adequately for the new units. Therefore, the existing breakers and feeders can be salvaged for reuse. CU3.1 is fed from a 125A, 3pole breaker and is sized adequately for the new unit. Therefore, the existing breaker and feeders can be salvaged for reuse

The boiler plant will be demolished and replaced. New electrical connections will be made to all new equipment in this room from the existing panels located in the room.

The abandoned dry cooler will be demolished in its entirety and will have its conductors demolished back to the panel where the breaker will be labeled as a spare.

The AHU-3 will be demolished and replaced with a new AHU-3.3 which will have multiple electrical connections to it. The existing feeder to AHU-3 will be salvaged and extended to a feed a new panel that will supply all new loads in the space.

Utilization Devices

GFCI duplex receptacle outlet with heavy-duty-in-use weatherproof cover will be provided for the one receptacle on PCC3 east parapet that is currently broken. All other receptacles will be disconnected and salvaged for reinstallation.

Lighting

All lighting will meet current Illuminating Engineering Society (IES) lighting standards per the IES Lighting Handbook. Although not required by this project, the lighting design will attempt to comply with the Lighting Unit Power Densities in accordance with ASHRAE/IES Standard 90.1 and LEED where practical.

PCC1

Lighting will be provided for the new skylight via wall mounted, linear, up-light spanning the long lengths of the skylight and will be controlled via the local area lighting control with an additional daylight harvesting device to reduce light output dependent on light provided from the skylight's ambient light. Additionally, there will be 12 new LightGlass, daylight simulating luminaires on the ceiling of the skylight protrusion. These lights will be controlled via a 365 day controller designed to simulate Anchorage sky. There will be an override switch to allow a manual override of the controller.

PCC3

Lighting will be provided in the new stairwell via linear wall mounted up/down fixtures with battery backup. The lighting will be controlled and powered via the local existing stairwell circuit. One man door light will be provided on the exterior of the door leading to the roof and will be controlled via integral occupancy sensor and powered from the existing stairwell circuit.

Fire Alarm System

PCC1

All air handling units with a CFM greater than 2000cfm will have its duct mounted smoke detector disconnected during construction, reserved for reuse and reinstalled in the existing unit when the unit is reinstalled.

PCC2

All air handling units with a CFM greater than 2000cfm will have its duct mounted smoke detector disconnected during construction, reserved for reuse and reinstalled in the existing or new unit when the unit is installed.

PCC3

All air handling units with a CFM greater than 2000cfm will have its duct mounted smoke detector disconnected during construction, reserved for reuse and reinstalled in the new unit when the unit is installed. The stairwell will be provided with a new fire alarm horn strobe to provide visual and audible alarm and shall be connected to the existing fire alarm system.

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