

ADDENDUM 3

Date August 4, 2023

To Prospective Bidders

Re Addendum No. 3 to the Construction Documents for:

EMCC
Katahdin Higer Education Center
Expansion and Renovation
East Millinocket, Maine
Project No. 22236

This Addendum forms a part of the Contract Documents and modifies the original Construction Documents dated June 23, 2023, Addendum 1 dated July 7, 2023 and Addendum 2 dated July 28, 2023. Acknowledge receipt of this Addendum in the space provided in the Bid Form.

This Addendum consists of thirteen pages, Table of Contents, Specification Sections 000200, 074100, 082110, 093100, 095113, 095426, 096500, 096813, 097831 and Drawings listed on page thirteen.

Harriman



Mark D. Lee
Principal, CEO

BID QUESTIONS AND RESPONSE

1. Does KHEC prefer that we utilize Maine Fire Protection for the sprinkler system as they currently service (and probably originally installed) existing sprinkler system?
RESPONSE: Maine Fire Protection does currently service the existing sprinkler system. All Maine certified fire sprinkler system contractors are acceptable.
2. Are any hazardous material present at the project site? (ex. Asbestos, lead based paint, etc.)
RESPONSE: Not to our knowledge.
3. Assume no ledge removal to be included and if encountered this will be handled on a per unit basis?
RESPONSE: See Addendum 3 for the Geotechnical Report. The Geotechnical Report is Appendix A within the Project Manual.
4. Assume no unsuitable soil excavation?
RESPONSE: See Addendum 3 for the Geotechnical Report. The Geotechnical Report is Appendix A within the Project Manual.
5. All furniture to be relocated by owner prior to construction?
RESPONSE: Yes, Owner will relocate furniture.
6. Will any cabinets be salvaged by the owner or will demo/disposal be responsibility of the contractor?
RESPONSE: The Owner will remove and salvage cabinets within the existing Early Childhood Classroom Spaces. All other cabinets to be removed per the Construction Documents will be the responsibility of the Contractor.
7. Are sheds to be relocated by contractor? If so, where are they to be moved?
RESPONSE: Yes, the sheds are to be relocated by the contractor. See Civil and Landscape plans for existing and new locations. Sheds can be temporarily located on site during construction. Specific temporary location to be coordinated with client.
8. Should the door of the mechanical room at the main entrance be fire rated?
RESPONSE: Yes, the door to Mechanical Room 111 must provide a 1-hour fire rating. Both the frame and the door panel must have a label indicating the rating. See Addendum 3.
9. Where will contractors storage/laydown area be?
RESPONSE: Contractors may use the area between the playground and the tree line to the Northwest, the area between the existing building and the tree line to the Northwest, North, and Northeast along with that area between the primary parking lot and Dirigo Drive.
10. Are there condensation naturalizing pot required for these boilers?
RESPONSE: See manufacturer install manual.

11. Will you accept an alternate boiler manufacture?
RESPONSE: Yes, equal alternates are acceptable. Alternates will be considered and reviewed after receipt of the completed SUBSTITUTION REQUEST FORM from the Contractor. The SUBSTITUTION REQUEST FORM can be found in section 016300 of the project manual.
12. Do you have a model for the Shot Feeder?
RESPONSE: See spec section 232500 – Section 2.3
13. Where do I find the number of zones required for the floors? It says to see radiant floor data drawing?
RESPONSE: There are a total of two zones as scheduled on M60-1 in the RADIANT MANIFOLD SCHEDULE. See M20-1 for location of zones.
14. C20-1 identifies 6" pipe bollards but detail C1 on C50-1 identifies 8". Is this to be 6" or 8"?
RESPONSE: The bollards are to be 6", See Addendum 3 for updated detail.
15. C50-1, detail A2 is for C.I.P. Concrete Surfacing. Where does this apply to this project? I do not see anywhere referencing this detail.
RESPONSE: Concrete Surfacing is to be used at the new concrete plaza at the new entrance to the Early Childhood facility. See C20-1.
16. C50-1 detail B3 for Concrete Pad. Where does this apply? I do not see anywhere that references this detail.
RESPONSE: The Concrete Pad is to be used for the generator (shown on C20-1), See Addendum 3 for updated detail.
17. L10-1 at Northwest corner of playground states "relocate shed". Where is this shed to be relocated and is this responsibility of owner or contractor?
RESPONSE: The location of the shed on L10-1 is the new location. See Civil drawings for original shed location. See Addendum 3, Civil Drawings for clarification. Relocation of shed is the responsibility of the Contractor.
18. L10-1 shows a 8'x8' storage shed at separation between playgrounds. Is this a new shed supplied by owner or contractor? If supplied by contractor can details be provided? If supplied by owner will contractor have any work associated with this?
RESPONSE: New shed supplied by Contractor. Coordinate final size with Owner, Contractor to prep base and coordinate delivery/install with construction.
19. L10-1 show shade sails/posts. Can a manufacturer and model # be provided for basis of bid if these are to be furnished and installed by the contractor.
RESPONSE: Shade Sails to be furnished and installed by Contractor. See Addendum 3 for shade sail details and manufacturer information.
20. L10-1, detail 10 shows transparent plexiglass on wood play tent. Is this to be full height of wall or only shaded area on drawing?
RESPONSE: Only on the upper shaded area- the plexiglass area is in color on the plans if printed in color.

21. L10-1 states 32" HT plastic double hill slide. Can manufacturer/model # please be provided for basis of bid. We cannot find anything from play ventures inc. detailed in the spec. **RESPONSE: Provider: Margie Salt, Park St Playgrounds, Triple Rail Toddler Slide (32" drop) with 3"x6" wood guardrail & platform, msalt@parkstreetplaygrounds.com, 978-664-0239.**
22. L10-1 shows "pretend kitchen infant." Is this to match detail 3 on L10-2 or is this to be different?
RESPONSE: This is the same detail except the height - see the dimension that specifies 24" ht for prek & 18" ht for infant.
23. L10-1 shows Kaplan-Tiger Swallow Play. Is this to be the Tiger Swallowtail? Item #PL1159? **RESPONSE: YES**
24. L10-1 shows Kaplan Enchanted play structure. Is this to be Enchanted Heights? Item #PL1126?
RESPONSE: YES
25. S10-1 shows slab with fibermesh concrete. It also details wwf with radiant tied to it. Would it be acceptable to staple radiant tubing to insulation board and install mesh middle of slab and remove the fibermesh?
RESPONSE: This is not acceptable. Radiant to be tied to WWF above the vapor barrier per detail in Construction Documents.
26. S10-1 wall dimensions are not rounded to the nearest inch. Concrete forms only come in 1" increments. Can size be adjusted to nearest inch to match form panels?
RESPONSE: No, please proceed per the Construction Documents.
27. S10-1, detail E5 shows "bond breaker". Can you please provide detail on bond breaker?
RESPONSE: Bond breaker can be roofing felt paper, vapor barrier, rigid insulation. The intent is to break the bond between the concrete slab being placed on the concrete infill.
28. S10-1, detail D4 shows 1/2" wall shts between new wall and existing wall. This is not possible with a 2" gap to fasten wall shts to framing members.
RESPONSE: Wall is intended to be built laying flat on the ground and lifted into place. Harriman takes no objection to installing the 1/2" WALL SHTG on the interior face of the stud wall instead of within the 2" gap although, 1/2" WALL SHTG will still be required above the existing roof line as seen in B2/S60-1 for installation of AVB.
29. S10-1, detail D4 states "provide blocking at all plywood panel edges. Provide (2) 2x6 where length is greater than 12'. Are we to install 2 pieces of horizontal blocking at plywood seams when the wall height is over 12'? Please provide clarification on this note.
RESPONSE: Where the height of the wall is below 12ft tall the wall is to be constructed with 2x6@16" o.c. studs. Where the height of the wall exceeds 12ft tall the wall is to be constructed with (2)2x6@16" o.c. studs. In both situations the blocking is intended to be (1)2x6 at all plywood panel seams.

30. S10-1, BP-C, BP-D, etc are shown. Abbreviations state this is beam pocket. Is this to be base plate? I do not see a detail for beam pocket?
RESPONSE: Correct, this is intended to be baseplate. It is noted in the foundation notes in the title block on S10-1.
31. S10-1, E3 shows L-bars between footing and wall. Not size, spacing or lengths is provided. Can this information be provided please?
RESPONSE: L-bars between the footing and the wall is to match the spacing and size of the wall reinforcement (#4@12" o.c.). The hook into the foundation is a standard hook with hook alternating sides.
32. S10-1, E3 L-Bars overlap? Are we to assume 24 bar diameters to match detail C3 or per rebar tension lap splice table on S00-1?
RESPONSE: The overlap is to match the rebar tension lap splice table on S00-1 (36" for a #4 rebar in 3,500psi concrete).
33. S10-1, E3 shows 8" dimension from top of slab to bottom of rigid insulation. Slab is 4" thick. Are we to assume 4" of rigid insulation below slab? Note states (See arch) A50-1, A5 shows 2" rigid insulation. What is thickness of rigid insulation below slab?
RESPONSE: Rigid insulation total R-15 MIN, See Addendum 3, A5/A50-1.
34. Addendum 1, C10-1 does not appear to have any changes. Can you provide what changes were made?
RESPONSE: Due to revisions made within the playground area, the extent of tree clearing and grading demolition was altered within this area.
35. Addendum 1, C20-1 does not appear to have any changes. Can you provide what changes were made?
RESPONSE: The new tree line was revised as well as updates within the playground area.
36. Is damproofing of the foundation required? I do not see any notes on the drawings or a spec for damproofing. Please confirm.
RESPONSE: Damproofing of the foundation is not required.
37. No ACT spec is provided. Please provide specification section for ACT.
RESPONSE: See Addendum 3 for ACT ceiling spec section 095113.
38. Can you confirm if the interior wood doors are to be stile & rail or solid core particle core, as both are listed in section 082110. If they are particle core, what veneer is the wood?
RESPONSE: Interior wood doors are to be Solid Core Particle Core. Veneer to be Closed-Grain Hardwood. Please include standard finish options within submittal.
39. Plans show sills are wood. The specs show a solid surface. Please clarify.
RESPONSE: Sills to be wood per plans and details. See spec for wood sills.
40. Who is the preferred or existing ATC (controls) contractor at this facility.
RESPONSE: All qualified ATC contracts are acceptable.

41. AV projectors. Is this an owner furnished and installed item?
RESPONSE: No projectors to be furnished or installed.
42. Does any part of the canopy system need to be painted?
RESPONSE: The columns and post needed to be painted. Metal roof edge, brake metal wrap, and T&G Wood Decking to be pre-finished. See manufacture requirements and recommendations for finishing joints and cut ends.
43. In the Miscellaneous Items Schedule are the mirrors to be furnished and installed by GC? **RESPONSE: Yes, mirrors to be furnished and installed by General Contractor.**
44. Is the testing by owner or by GC?
RESPONSE: Testing by General Contractor.
45. G00-2 shows the symbol for fire extinguishers/ cabinets but, there are not any indicated on the drawing. Please clarify on locations.
RESPONSE: One fire extinguisher and fire extinguisher cabinet to be provided in the kitchen and a second fire extinguisher and fire extinguisher cabinet to be provided in the breakout space.
46. Please confirm GC is to furnish and install generator.
RESPONSE: Confirmed, General Contractor to furnish and install generator.
47. Playground equipment. Please confirm all items are supplied and installed by GC.
RESPONSE: Confirmed.
48. Is there an intended start date for this project?
RESPONSE: Not specifically but as soon as all parties involved can finalize contracts and permits required. Please provide a suggested construction schedule that minimizes the impact of winter weather and downtime for spaces within the Community College facility. Project completion no later than August 31, 2024.
49. S50-1, detail A5 references B5 on drawing S30-1. There is no detail A5 on S30-1.
RESPONSE: Harriman assumes this question is regarding A5/S60-1. The following note, "SIMPSON HURRICANE TIES (SEE SECTION B5/S30-1 FOR ADD'L INFO)", is to be deleted and replaced with ""SIMPSON HURRICANE TIES (SEE SECTION D5/S60-1 FOR ADD'L INFO)".
50. A05-2- assume hashed area is concrete removal? Please confirm.
RESPONSE: See updated hatched area in Addendum 1. Vertical line hatching represents the area associated with note D29. Diagonal line hatching represents the area associated with note D27.
51. A05-2- assume the "vertical lined" area is roof removal? Please confirm.
RESPONSE: Correct, Vertical line hatching represents the area associated with note D29.

52. A05-2, D26 details wash and dryer to be removed. Please provide details as no washer or dryer is shown on drawing. Are we to assume 1 each washer and dryer in each bathroom?
RESPONSE: Bathroom 151 has a the only washer/dryer unit. It is a stack washer dryer and is to be removed from Bathroom 151 and reinstalled in Laundry 163.
53. Are we to assume fire caulking of penetrations at new fire rated walls only?
RESPONSE: Yes.
54. A40-1, stud partition type schedule- should R40 and R48 be 2x4 wood studs, not 2x6 as detailed? The wall thickness appears to be correct for a 2x4 wall.
RESPONSE: Yes, R40 and R48 are to have 2x4 studs. See Addendum 3.
55. A40-1, stud partition type schedule- What is meant by "to deck". It appears "to deck" is bottom of truss. Please confirm or clarify.
RESPONSE: See A40-1 in Addendum 3 for clarification.
56. Assume walls can be framed to bottom of trusses and not required to go to roof deck if not fire rated? Please confirm.
RESPONSE: Confirmed, See A40-1 in Addendum 3 for clarification.
57. A70-1, Are all non-shaded areas to have ceiling replaced? Ex. Lobby. No designation for ceiling type or height in this or other non-shaded areas. If not what is difference between shaded and non-shaded areas.
RESPONSE: Non-shaded ceiling areas are existing to remain but require modification to the grid and tiles for new light fixtures and partitions. Non-shaded ceiling areas with ceiling tags require ceiling per ceiling types on A70-1.
58. A70-1, no detail shown for ACT1
RESPONSE: See Addendum 3 for ACT1 spec.
59. A70-1, detail C4- how is shaftwall stud to be attached to wire? Can a detail be provided?
RESPONSE: See Addendum 3 for updated detail. Ceiling type "C4" is to span the clear width of the room with no hangers. Depth, Gauge, and Mil, of Shaft Wall Stud to be selected based on total span and manufactures requirements and technical information.
60. A70-1, detail C2- can manufacturer/product be provided? Please provide material spec.
RESPONSE: See Addendum 3 for C1 ceiling spec section 095426.
61. Drawings for framing in existing building "to deck". Please provide existing deck height.
RESPONSE: Deck varies in height per the pitch of the roof.
62. A11-1, we assume wall between room 135 and 137 is type R60-5. Please confirm or clarify.
RESPONSE: Wall between Room 135 and Room 137 is Type R60-S.

63. Is 2" rigid insulation required below slab only 2' wide at perimeter or under entire slab?
RESPONSE: Rigid insulation total R-15 MIN, See Addendum 3, A5/A50-1 for the follow updated notes, "R15 MIN, PERIMETER INS EXTEND DOWN TO TOP OF FOOTING" and "R15 MIN, RIGID INSULATION FROM FOUNDATION EXTEND 2'-0" UNDER SLAB IN ALL LOCATION U.N.O. - AT RADIANT SLABS INSULATION IS CONTINUOUS UNDER ENTIRE SLAB".
64. Can sheetrock ceiling be wood framed in lieu of suspended? This would also easier modifications in the future.
RESPONSE: No.
65. Can Armstrong or certainteed drywall suspensions sytem be utilized for suspended sheetrock ceiling in lieu of detail provided (C1 on A70-1)?
RESPONSE: Harriman takes no immediate objection to the Armstrong and Certainteed Drywall Suspension Systems. All equal alternates are acceptable. Alternates will be considered and reviewed after receipt of the completed SUBSTITUTION REQUEST FORM from the Contractor. The SUBSTITUTION REQUEST FORM can be found in section 016300 of the Project Manual.
66. A50-1, detail C4 shows breakaway clips. Can you please provide clip spacing?
RESPONSE: Clip spacing per UL assembly.
67. Are gable trusses acceptable in lieu of full height framed walls? This is the most common practice we see.
RESPONSE: No, walls and trusses per the Construction Documents.
68. S60-1, detail D3- "2x top flange nailer". Please provide size/spacing.
RESPONSE: Refer to detail A3/S60-1 for steel column/beam wood nailer and attachment.
69. A40-1, are we to assume no sound insulation in the wall partition if the column is blank in the table. Some say yes and some say no but many are blank. Please provide clarification.
RESPONSE: If the column is blank, no sound insulation is required.
70. A71-1, Is there a difference between shaded and non-shaded areas? Is this supposed to identify something?
RESPONSE: The Shaded areas without a floor finish tag do not have flooring Scope. The White areas without a floor finish tag do not have flooring scope but do have other Project Scope within the space.
71. A71-1, states "all exposed concrete floors to be sealed unless otherwise noted." Are we to assume this only applies to new concrete as part of this project? If not can you provide locations where existing concrete is to be sealed?
RESPONSE: All exposed concrete within the area of work is to be sealed unless otherwise noted.

72. Are cabinets to be manufactured cabinets or custom cabinets from millwork shop?
RESPONSE: See Spec Section 064000.
73. Can specifications be provided for cabinetry?
RESPONSE: See Spec Section 064000.
74. Would standard applied air-vapor barrier system be acceptable in lieu of fluid-applied? We could even look at self-adhering if that is acceptable. Fluid applied is very expensive and there are not a lot of contractors who do this type of work.
RESPONSE: All equal alternates are acceptable. Alternates will be considered and reviewed after receipt of the completed SUBSTITUTION REQUEST FORM from the contractor. The SUBSTITUTION REQUEST FORM can be found in section 016300 of the Project Manual. It is the Contractor's responsibility to identify and show adequate evidence of an alternative product being equal to or better than the originally specified product.
75. Drawing A81-1, note 4 states "See A82 series for interior details." I assume this is referencing a drawing A82? If so, no A82 exists.
RESPONSE: Replace "A82" with "A80". See Addendum 3.
76. Drawing A81-1, note 5 states "See A83 series for casework details." I assume this is referencing a drawing A83? If so, no A83 exists.
RESPONSE: Replace "A82" with "A80". See Addendum 3.
77. Drawing A81-1, note 8 states "all science room base cabinets to be metal – see specifications for mfg". Not specifications is provided for cabinets.
RESPONSE: Replace "ALL SCIENCE ROOM BASE CABINETS TO BE METAL - SEE SPECIFICATIONS FOR MFGR" with "SEE A80 SERIES AND SPEC SECTION 064000 FOR CABINETS." See Addendum 3 for updated A81-1 sheet.
78. Drawing A61-1 PWP-1 states plywood panel. Please provide thickness and grade of plywood to be utilized.
RESPONSE: Please provide 1-inch thick, grade A plywood.
79. Is the exterior wood (Thermory Benchmark, Ash) to receive any sort of field finish or just installed as purchased?
RESPONSE: Thermory Benchmark, Ash to be finished per manufacture recommendations and standards.
80. Drawing A15-1, B4 states" replace insulation in kind where removed for structural improvements. Please provide what is existing or what to be used for basis of bid.
RESPONSE: Replace "IN KIND" with ", R49 MIN,". See Addendum 3 for updated note.
81. A15-1 B3 shows T&G wood ceiling. Can details be provided on what is required for t&g ceiling here? Type of wood, size, finish, etc.
RESPONSE: See A3/A11-1 for wall section call out, See A4/A30-1 for detail call out, See B1/A50-1 and B2/A50-1 for requested details. Wood product finish and size to be "Thermory Benchmark, Ash" to match exterior siding.

82. Drawing A15-1, B4 states, "existing wood decking replace where removed for structural improvements see structural drawings". What is existing t&g size, species, etc that will need to be replaced or matched into.

RESPONSE: The existing wood deck is "5/8" ROOF SHEATHING" per the 2004 "EMCC CHILDCARE CENTER AT KRHEC" design drawings. Contractor to verify sheathing in field and meet requirements of Structural drawings. See S30-1.

83. Drawing A15-1, B2 shows standing seam metal roofing. Can a basis of design be provided, ex. Panel ga, rib spacing, etc. Would American Building Components Metal Roofing Lokseam 24ga. panel be acceptable? Panel width to be 12", 16", or 18"? Standard finish acceptable?

RESPONSE: See Addendum 1, details D1, D2, D3, D4 on A50-2. See Addendum 3 for specification 074100 – METAL ROOFING. Standing Seam Metal Roof per manufacture recommendations and requirements.

84. A15-1, B5 appears to show 3 layers of t&g ceiling. Is this correct? If not please clarify.

RESPONSE: T&G Wood Decking per Structural Drawings. See Addendum 3, Structural Drawings for clarification.

85. Drawing A20-1 shows siding pattern. Does pattern just repeat exactly what is shown for pattern "a"?

RESPONSE: Yes.

86. It appears a large amount of mechanical equipment is run in the attic space. Will "catwalks" be required? If so, please provide a detail and layout.

RESPONSE: No.

87. Drawing A40-1 shows sound rated partitions but no insulation is specified. Please provide insulation requirements for sound rated partition to meet STC38 for basis of bid.

RESPONSE: Sound attenuating batts to meet STC38 to be provided.

88. Drawing A40-1, gypsum board note D. states "provide 5/8" mold resistant GPDW from floor to roof or floor deck above on inside face of exterior walls." Please confirm mold resistant is required on inside face of exterior walls as this is not common practice and adds substantial cost.

RESPONSE: Confirmed.

89. Drawing A40-1, Drawing A40-1, gypsum board note D. states "provide 5/8" mold resistant GPDW from floor to roof or floor deck above on inside face of exterior walls." We assume GPDW is to extend to ceiling and not roof deck at exterior walls. Please confirm.

RESPONSE: On A40-1, Note D, replace "to roof" with "to ceiling". See Addendum 3. See details on A40-1 that define "to ceiling" as 8" above finish ceiling.

90. Is abuse resistant GPDW required anywhere on this project? I do not see where it is designated. If so, can you please provide where this is referenced.
RESPONSE: No, abuse GPDW is not required.
91. A40-1 Fire-Rated Partitions, note 2 states "all partitions extend to underside of floor or roof deck. Seal all partitions to deck for smoke & sound control. Fill all voids between top of partition and deck as specified and detailed in the A40-# series". Does this apply to fire rated assemblies or all assemblies?
RESPONSE: Fire rated assemblies only.
92. A50-1, D4 specifies 1x pt nailers. What is width of pt nailers to be?
RESPONSE: Nominal Size 1 inch, Actual Size $\frac{3}{4}$ ".
93. A50-1, C2 shows "2x on fla @ 16"o.c. see structural for more information. How far is this to extend up or down roof?
RESPONSE: See detail B5/S60-1.
94. Can details be provided for wood siding installation?
RESPONSE: See Manufacturer recommendations and requirements along with Detail W01/A40-1.
95. Drawings call for vented wood t&g soffit. Can details be provided please? Manufacturer/model, installation details, etc.
RESPONSE: See description of vent on B2/A50-1.
96. Drawings call for 30# roof felt below standing seam roof. Most roofing manufacturers require an ice and water shield high temp membrane or high temp synthetic membrane. Are we to follow manufacturers recommendations or drawings?
RESPONSE: Follow manufacture recommendations.
97. A55-1, D4 and D5 show horizontal girts at 2' on center. This is now shown anywhere else. Is this an error on the drawings or are girts to be installed horizontally at 2' on center at exterior of building?
RESPONSE: Replace "HORIZONTAL GIRTS AT 2'-0" OC MAX" with "RAINSCREEN ATTACHMENT SYSTEM PER MANUFACTURE REQUIREMENTS" Both vertical and horizontal girts are required.
98. Drawing A60-1 D2 states "provide operable window shade at office door locations." Can details be provided on this? Manufacturer/model #?
RESPONSE: Shades to be installed at the head of the window opening between the jambs. Provide horizontal aluminum mini blinds.
99. If any finishes have been discontinued, are we to assume equivalent material?
RESPONSE: Yes, and submit as alternate for considered and reviewed by submitting a completed SUBSTITUTION REQUEST FORM. The SUBSTITUTION REQUEST FORM can be found in section 016300 of the project manual.

100. A61-1 note 7 states “where rooms are scheduled to have MR4 and MRB. Wall talker surface, a finish level 5 is spec’d for surface. Please provide clarification. Does this apply to any walls on this project? I don’t see a MR4 or MRB surface. Also what is wall talker surface?

RESPONSE: Remove note 7 from A61-1. Note 7 is not applicable.

101. Drawing A70-1 references C1 at alcove/soffit. I do not see where any soffit is designated. Is there to be any soffit installed and if so can you please provide location?

RESPONSE: “TYPE C1 AT ALCOVE/SOFFIT” is not used. All “C1” or “GPDW” ceiling to be constructed of “TYPE C1 AT ROOM”.

102. In order to have sufficient time to review answers to questions and to review newly provided information, can an extension be provided for any additional questions of 1 week and a 1 week extension to the bid date? This would also allow any substitutes to be proposed for any answers to missing specifications, materials, etc. that were undetermined prior to the question due date.

RESPONSE: The bid date will not be extended.

CHANGES TO SPECIFICATIONS

1. TABLE OF CONTENTS
 - a. Revised and reissued with this addendum.
2. SECTION 000200 – INFORMATION AVAILABLE TO BIDDERS
 - a. Revised and reissued with this addendum.
3. SECTION 030000 – CAST IN PLACE CONCRETE
 - a. Deleted in its entirety.
4. SECTION 051200 – STRUCTURAL STEEL FRAMING
 - a. Deleted in its entirety.
5. SECTION 054000 – COLD FORMED METAL FRAMING
 - a. Deleted in its entirety.
6. SECTION 061000 – ROUGH CARPENTRY
 - a. Deleted in its entirety.
7. SECTION 061323 – HEAVY TIMBER FRAMING
 - a. Deleted in its entirety.
8. SECTION 061753 – SHOP FABRICATED WOOD TRUSSES
 - a. Deleted in its entirety.
9. SECTION 074100 – PREFORMED METAL STANDING SEAM ROOFING
 - a. Issued with this addendum.
10. SECTION 082110 – FLUSH WOOD DOORS
 - a. Revised and reissued with this addendum.

11. SECTION 093100 - TILE
 - a. Revised and reissued with this addendum.
12. SECTION 095113 – ACOUSTICAL PANEL CEILING
 - a. Issued with this addendum.
13. SECTION 095426 – ACOUSTICAL WOOD CEILINGS
 - a. Issued with this addendum.
14. SECTION 096500 – RESILIENT FLOORING
 - a. Issued with this addendum.
15. SECTION 096813 – MODULAR FLOORING
 - a. Issued with this addendum.
16. SECTION 097831 – THERMALLY MODIFIED WOOD WALL AND CEILING CLADDING
 - a. Issued with this addendum.

DRAWINGS REVISED AND REISSUED WITH THIS ADDENDUM, DATED 08-04-2023:

1. DRAWING C10-1 EXISTING SITE CONDITIONS AND DEMOLITINO PLAN
2. DRAWING C20-1 SITE LAYOUT PLAN
3. DRAWING C30-1 SITE GRADING AND EROSION CONTROL PLAN
4. DRAWING C50-1 SITE DETAILS
5. DRAWING L10-1 PLAYGROUND LAYOUT PLAN
6. DRAWING L10-2 PLAYGROUND GRADING PLAN
7. DRAWING L10-3 PLAYGROUND PLANTING PLAN
8. DRAWING S00-1 GENERAL NOTES
9. DRAWING S10-1 FOUNDATION PLAN
10. DRAWING S30-1 ROOF FRAMING PLAN
11. DRAWING S60-1 FRAMING SECTIONS AND TYPICAL DETAILS
12. DRAWING A10-1 FIRST FLOOR PLAN
13. DRAWING A15-1 ROOF PLAN
14. DRAWING A40-1 PARTITION LEGEND AND DETAILS
15. DRAWING A50-1 EXTERIOR DETAIL
16. DRAWING A60-1 DOOR SCHEDULE, DOOR TYPES AND DETAILS
17. DRAWING A61-1 ROOM FINISH SCHEDULE
18. DRAWING A81-1 INTERIOR ELEVATIONS
19. DRAWING E60-1 ELECTRICAL SCHEDULES

EMCC
KATAHDIN HIGHER
EDUCATION CENTER
EXPANSION AND RENOVATION
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SECTION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

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1. A digital copy of the existing building drawings furnished by the Owner are to be provided for reference.

B. Appendix A – Geotechnical Report.

1. Appendix A – Geotechnical Report is attached.

END OF SECTION 000200

**EMCC
KATAHDIN HIGHER
EDUCATION CENER
EXPANSION AND RENOVATION
EAST MILLINOCKET, MAINE**

APPENDIX A

GEOTECHNICAL REPORT



REPORT

23-0397 S

May 9, 2023

Explorations and Geotechnical Engineering Services

Proposed Katahdin Higher Education/Early
Childhood Center Expansion
1 Dirigo Drive
East Millinocket, Maine

Prepared For:

Eastern Maine Community College
Attention: Cynthia Kasprzak, Director of Finance
354 Hogan Road
Bangor, ME 04401

Prepared By:

S. W. Cole Engineering, Inc.
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23-0397 S

May 9, 2023

Eastern Maine Community College
Attention: Cynthia Kasprzak, Director of Finance
354 Hogan Road
Bangor, ME 04401

Subject: Explorations and Geotechnical Engineering Services
Proposed Katahdin Higher Education/Early Childhood Center Expansion
1 Dirigo Drive
East Millinocket, Maine

Dear Cynthia:

In accordance with our Proposal, dated March 8, 2023, we have performed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations, and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations, earthwork, and pavement associated with the proposed construction. Our scope of services included four test boring and two test pit explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is located at Eastern Maine Community College's Katahdin Higher Education/Early Childhood Center at 1 Dirigo Drive in East Millinocket, Maine. Based on the provided Geotechnical Services Request (GSR), dated February 17, 2023, from Harriman and the included Exhibit 1 plan (Plan), we understand the proposed development area is located on the northern side of the existing building within open

pavement areas. Based on the Plan, we understand the site generally slopes downward from south to north from about elevation 100 to 99 feet (project datum).

Based on the provided GSR and Plan, we understand development plans call for the construction of a building addition, occupying a footprint on the order of about 1,200 square feet. We understand the addition will be a one-story, wood framed structure including on-grade floor slabs and spread footing foundations. We understand the addition will match the Finish Floor Elevation (FFE) of the existing building at an elevation of 101 feet, requiring tapered fills of about 1 to 2 feet to achieve the proposed FFE. Details regarding proposed structural loading are unknown at this time.

Existing and proposed site features are shown on the “Exploration Location Plan” attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Four test borings (B-1 through B-4) were made at the site on April 12, 2023, by S. W. Cole Explorations, LLC. Two test pits (TP-1 and TP-2) were made at the site on April 12, 2023 by Emery Lee and Sons, Inc. working under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The exploration locations were generally selected by Harriman and established in the field by S.W.COLE using measurements from existing site features. The approximate exploration locations are shown on the “Exploration Location Plan” attached in Appendix B. Logs of the explorations and a key to the notes and symbols used on the logs are attached in Appendix C. The elevations shown on the logs were estimated based on topographic information shown on the “Exploration Location Plan.”

2.2 Field Testing

The test borings were drilled using hollow-stem auger techniques. The soils were sampled at 2-to-5-foot intervals using a split-spoon sampler and Standard Penetration Testing (SPT) methods. SPT blow counts are shown on the logs.

2.3 Laboratory Testing

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Laboratory testing included two moisture content and two gradation tests. Moisture content test results are noted on the logs and results of the gradation tests are attached in Appendix D.

3.0 SUBSURFACE CONDITIONS,

3.1 Soil and Bedrock

The test borings, B-1 through B-4, encountered a soils profile generally consisting of surficial topsoil or bituminous pavement overlying undocumented fill to depths of about 5 to 7.5 feet. The undocumented fill generally consisted of loose to medium dense silty sand with varying portions of gravel and cobbles. Underlying the undocumented fill, the explorations encountered glacial till generally consisting of medium dense to dense gravelly sand and silt with occasional cobbles. The test borings encountered refusal surfaces (probable bedrock) at depths ranging from about 11 to 15.4 feet.

The test pits, TP-1 and TP-2 were performed adjacent to the existing building to expose and document the depth of the existing footing. The existing underdrain pipes, surrounded in stone and geotextile fabric, were observed above the top of the footings at both test pit locations. Underlying surficial topsoil or stone, the explorations generally encountered granular foundation wall backfill materials to the top of the underdrain stone. At TP-1, the top of footing was encountered at a depth of about 5.5 feet below the bottom of the exterior siding and extended outward about 9.5 inches from the foundation wall. At TP-2, the top of footing was encountered at a depth of about 6.2 feet below the bottom of the exterior siding and extended outward about 10.5 inches from the foundation wall. A portion of the underdrain pipe was observed to be broken at TP-2.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

Free water was observed at test boring B-2 at a depth of about 13 feet. At test borings B-1, B-3 and B-4, the split-spoon sampler was observed wet below depths ranging from about 3 to 5 feet and likely indicative of perched water. Additionally, free water was

observed at TP-2 at a depth of about 3 feet, which was likely perched and unable to drain based on the broken/faulty underdrain pipe. Groundwater likely becomes perched on the relatively impervious glacial till encountered at the site. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principal geotechnical considerations include:

- The site has been previously developed and filled. The proposed building site is underlain by undocumented fill extending to depths varying from about 5 to 7.5 feet and may extend deeper in areas not explored. Undocumented fills must be over-excavated and removed where encountered below foundations. The over-excavated area should be backfilled with compacted Crushed Stone or Structural Fill. We recommend the undocumented fills below on-grade slab areas be densified with a smooth drum roller having a static weight of at least 10 kips prior to the placement of site grading fills or Structural Fill.
- Probable perched water was encountered within the central and northern explorations performed at the site. We recommend a drainage trench be excavated from the eastern portion of the site prior to excavating for foundations or performing over-excavations to drain perched water conditions. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction.
- Following removal of undocumented fills below foundations and densification of on-grade slab areas, spread footing foundations and slab-on-grade floors bearing on properly prepared subgrades appear suitable for the proposed building addition. Footings should bear on new compacted fills or 3-inches of compacted Crushed Stone overlying properly prepared subgrades. On-grade floor slabs should bear on at least 12-inches of properly compacted Structural Fill overlying properly prepared subgrades.

- Undocumented fills encountered below the proposed paved areas are problematic for support of pavements and utilities. We recommend removal and replacement of undocumented fills to at least 1 foot below pavement subbase gravels as well as pipe and utility bedding.
- Subgrades across the site will consist of moisture sensitive soils. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native soils when wet. Excavation of soil bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

4.2 Site and Subgrade Preparation

We recommend site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, roots, topsoil and pavement should be completely removed from areas of proposed fill and construction. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Building Pad and Footings: As discussed, the site was previously developed and filled. Undocumented fills must be completely removed from beneath the proposed building foundations. The extent of removal should extend 1 foot laterally outward from the outside edge of perimeter footings for every 1-foot of excavation depth (1H:1V bearing splay). The over-excavated area should be backfilled with compacted Structural Fill or Crushed Stone.

Based on the composition of the undocumented fills, some risk of future settlement may be incurred if the undocumented fills remain in-place below on-grade slabs, however, this may be warranted based on the high cost for removal. Following removal of the existing pavement, we recommend the existing fills below the on-grade slab area be densified before placing Structural Fill. The densification must be observed by S.W.COLE and performed with a smooth drum roller having a static weight of at least 10 kips. Areas that become soft or continue to yield after densification must be removed and replaced with compacted Granular Borrow or Structural Fill.

We recommend that excavation to soil subgrades be completed with a smooth-edged bucket to lessen disturbance of subgrade soils. We recommend that footings be underlain by new compacted fills in over-excavated areas or at least 3 inches of compacted Crushed

Stone overlying undisturbed native glacial till. We recommend floor slabs be underlain by at least 12 inches of compacted Structural Fill overlying densified undocumented fills.

Paved Areas: Undocumented fills encountered beneath proposed paved areas should be removed to a depth of at least 1 foot below pavement gravels. Following excavation to at least 1 foot below pavement gravels, the undocumented fills should be densified. Areas that become soft or continue to yield after densification should be removed and replaced with compacted Subbase Gravel.

4.3 Excavation and Dewatering

Excavations will generally encounter surficial topsoil and pavement, undocumented fills, and glacial till. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should ideally occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native soils, when wet. Final cuts to soil subgrades should be performed with a smooth-edged bucket to help reduce strength loss from soil disturbance.

Based on the probable perched water observed, we anticipate wet soils and water seepage will be encountered during foundation excavation. We recommend a drainage trench be excavated from the eastern portion of the site prior to excavating for foundations or performing over-excavations to drain perched water conditions. Controlling the water levels to at least 1 foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities and roadways. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.4 Foundations

Based on the subsurface findings and our understanding of the proposed construction, spread footing foundations founded on properly prepared subgrades appear suitable for the proposed building. For foundations bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

| Geotechnical Parameters for Spread Footings and Foundation Walls | |
|---|---------------------|
| Design Frost Depth (100-year AFI) | 6 feet |
| Net Allowable Soil Bearing Pressure | 3 ksf |
| Base Friction Factor | 0.35 |
| Total Unit Weight of Backfill | 125 pcf |
| At-Rest Lateral Earth Pressure Coefficient | 0.5 |
| At-Rest Equivalent Fluid Earth Pressure | 62.5 |
| Internal Friction Angle of Backfill | 30° |
| Seismic Soil Site Class | C (IBC 2015) |
| Total Settlement | 1-inch |
| Differential Settlement | ½-inch over 40 feet |

4.5 Foundation Drainage

We recommend an underdrain system be installed on the outside edge of perimeter footings. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drainpipe bedded in Crushed Stone and wrapped in non-woven geotextile fabric, Mirafi 160N or equal. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the buildings for positive surface water drainage. General underdrain details are illustrated on the “Foundation Detail Sketch” attached in Appendix B.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill placed over properly prepared subgrades. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function, as well as prevention of slab cracking and curling.

We recommend a sub-slab vapor retarder particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer’s recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant

should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 6 feet below the top of entrance slabs. This thickness of Structural Fill should extend the full footprint of the entrance slab, thereafter, transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are shown on the “Foundation Detail Sketch” attached in Appendix B.

4.8 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in paved and landscape areas should be non-organic compactable earth meeting the requirements of 2020 MaineDOT Standard Specification 703.18 Common Borrow. Where used beneath paved areas, Common Borrow fills shall be capped with a 12-inch layer of Granular Borrow prior to installing Pavement Subbase materials.

Granular Borrow: Fill to raise grades in building and paved areas, as well as to repair soft areas, should be sand or silty sand meeting the requirements of 2020 MaineDOT Standard Specification 703.19 Granular Borrow.

Structural Fill: Fill to raise grades in building areas and backfill for foundations, over-excavated areas, slab base material, and material below exterior entrances slabs and

sidewalks should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

| Structural Fill | |
|-----------------|-------------------------|
| Sieve Size | Percent Finer by Weight |
| 4 inch | 100 |
| 3 inch | 90 to 100 |
| ¼ inch | 25 to 90 |
| No. 40 | 0 to 30 |
| No. 200 | 0 to 6 |

Crushed Stone: Crushed Stone, used for underdrain aggregate, over-excavated areas and beneath footings should be washed ¾-inch crushed stone meeting the requirements of 2020 MaineDOT Standard Specification 703.13 Crushed Stone ¾-Inch.

Reuse of Site Soils: The non-organic on-site soils are unsuitable for reuse in building areas but may be suitable for reuse as Common Borrow in paved and landscape areas, provided they are at a compactable moisture content at the time of reuse.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.9 Paved Areas

We anticipate paved areas will be subjected primarily to passenger vehicle and light delivery truck traffic. Considering the site soils, and proposed usage, we offer the following pavement section for consideration.

| FLEXIBLE (HMA) PAVEMENT SECTION 2020 MaineDOT Standard Specs | |
|---|---------------------------|
| Pavement Layer | Material Thickness |
| MaineDOT 9.5 mm Hot Mix Asphalt | 1 ½ inches |
| MaineDOT 19.0 mm Hot Mix Asphalt | 2 ½ inches |
| MaineDOT 703.06 Aggregate Base Type A | 6 inches |
| MaineDOT 703.06 Aggregate Subbase Type D | 12 inches |
| MaineDOT 703.19 Granular Borrow | 12 inches** |
| ** NOTE: Over densified undocumented fills and common borrow fills, where present | |

The base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

We recommend pavement gravels be positively drained by daylighting to ditches or installation of underdrains. Consideration should be given to the development of both surface and subgrade drainage. Paved areas should be graded to promote surface drainage away from the buildings and design should consider sloping of the subgrade to enhance drainage.

It should be understood that frost penetration can be on the order of 6 feet in this area. In the absence of full depth excavation of frost susceptible soils below paved areas and subsequent replacement with non-frost susceptible compacted fill or adequate drainage of roadway base and subbase gravel, frost penetration into the subgrade will occur and some heaving and distress of pavement must be anticipated.

4.10 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.11 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork, foundation, and pavement recommendations have been properly interpreted and implemented.

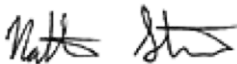
A construction material testing, and quality assurance program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, including over-excavations and densification operations, the preparation of foundation bearing surfaces and pavement subgrades, as well as to provide testing and IBC Special Inspection services for soils, concrete, steel, spray-applied fireproofing, structural masonry, and asphalt construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.

A handwritten signature in black ink, appearing to read 'Nathan D. Strout'.

Nathan D. Strout, P.E.
Senior Geotechnical Engineer

NDS:rec



APPENDIX A

Limitations

This report has been prepared for the exclusive use of Eastern Maine Community College for specific application to the proposed Katahdin Higher Education/Early Childhood Center Expansion at 1 Dirigo Drive in East Millinocket, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures

APPENDIX C

Exploration Logs and Key



BORING LOG

BORING NO.: B-1
SHEET: 1 of 1
PROJECT NO.: 23-0397
DATE START: 4/12/2023
DATE FINISH: 4/12/2023

CLIENT: Eastern Maine Community College
PROJECT: Proposed Katahdin Higher Education/Early Childhood Center Expansion
LOCATION: 1 Dirigo Drive, East Millinocket, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 100' +/- **TOTAL DEPTH (FT):** 15.3 **LOGGED BY:** Nate Strout
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Bussey **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A/N/A **CORE BARREL:** N/A
HAMMER CORRECTION FACTOR: 1.51 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Soil sampler wet below 5 feet (probable perched water)

GENERAL NOTES:

KEY TO NOTES Water Level
AND SYMBOLS: At time of Drilling D = Split Spoon Sample Pen. = Penetration Length W OR = W eight of Rods S_v = Field Vane Shear Strength, kips/sq.ft.
At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length W OH = W eight of Hammer q_u = Unconfined Compressive Strength, kips/sq.ft.
After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation Ø = Friction Angle (Estimated)
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|----------------|-------------------|------------------------|-------------------------------------|---|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | | 0.3-2.3 | 24/17 | 8-12-8-6 | | 0.3 | Bituminous Pavement (4") Medium dense, brown SAND and GRAVEL, some silt with occasional cobbles (Base/Subbase) | |
| | | | 2D | | 2.3-4.3 | 24/10 | 5-4-3-2 | ID 29015B w = 13.4% | 2.0 | Loose, brown gravelly silty SAND (Fill) | |
| 95 | 5 | | 3D | | 5-7 | 24/15 | 6-8-6-7 | | 5.0 | Medium dense to dense, brown gravelly SAND and SILT with occasional cobbles (Glacial Till) | |
| 90 | 10 | | 4D | | 10-12 | 24/16 | 7-20-13-22 | | | | |
| 85 | 15 | | | | | | | | 14.5 | Probable weathered Bedrock | |

Auger Refusal at 15.3 feet (Probable Bedrock)

BORING / WELL 10-12-2022 23-0397.GPJ SWCE TEMPLATE.GDT 5/7/23

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-1**



BORING LOG

BORING NO.: B-2
SHEET: 1 of 1
PROJECT NO.: 23-0397
DATE START: 4/12/2023
DATE FINISH: 4/12/2023

CLIENT: Eastern Maine Community College
PROJECT: Proposed Katahdin Higher Education/Early Childhood Center Expansion
LOCATION: 1 Dirigo Drive, East Millinocket, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 100' +/- **TOTAL DEPTH (FT):** 14.0 **LOGGED BY:** Nate Strout
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Bussey **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A/N/A **CORE BARREL:** N/A
HAMMER CORRECTION FACTOR: 1.51 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): 13 ft Free water observed at 13 feet +/-

GENERAL NOTES:

KEY TO NOTES Water Level
AND SYMBOLS: At time of Drilling D = Split Spoon Sample Pen. = Penetration Length W OR = W eight of Rods S_v = Field Vane Shear Strength, kips/sq.ft.
At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length W OH = W eight of Hammer q_u = Unconfined Compressive Strength, kips/sq.ft.
After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation Ø = Friction Angle (Estimated)
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | | 0.5-2.5 | 24/16 | 12-14-18-8 | | 0.3 Bituminous Pavement (4") Medium dense, brown silty gravelly SAND with occasional cobbles (Base/Subbase) | | |
| | | | 2D | | 2.5-4.5 | 24/8 | 5-5-4-3 | | 2.0 Loose, brown silty gravelly SAND (Fill) | | |
| 95 | 5 | | 3D | | 5-7 | 24/3 | 9-5-4-4 | | | | |
| | | | 4D | | 7-9 | 24/4 | 4-7-9-11 | | | | |
| 90 | 10 | | 5D | | 10-11.6 | 19/19 | 22-41-48-50/1" | | 7.5 Medium dense to dense, brown gravelly SAND and SILT with occasional cobbles (Glacial Till) | | |
| | | | | | | | | | 13.5 Probable weathered Bedrock | | |
| | | | | | | | | | Auger Refusal at 14.0 feet (Probable Bedrock) | | |

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-2**



BORING LOG

BORING NO.: B-3
SHEET: 1 of 1
PROJECT NO.: 23-0397
DATE START: 4/12/2023
DATE FINISH: 4/12/2023

CLIENT: Eastern Maine Community College
PROJECT: Proposed Katahdin Higher Education/Early Childhood Center Expansion
LOCATION: 1 Dirigo Drive, East Millinocket, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 100' +/- **TOTAL DEPTH (FT):** 11.0 **LOGGED BY:** Nate Strout
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Bussey **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A/N/A **CORE BARREL:** N/A
HAMMER CORRECTION FACTOR: 1.51 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Soil sampler wet below 3 feet (probable perched water)

GENERAL NOTES:

KEY TO NOTES Water Level D = Split Spoon Sample Pen. = Penetration Length W OR = W eight of Rods S_v = Field Vane Shear Strength, kips/sq.ft.
AND SYMBOLS: At time of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length W OH = W eight of Hammer q_u = Unconfined Compressive Strength, kips/sq.ft.
At Completion of Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation Ø = Friction Angle (Estimated)
After Drilling V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|-------------------|-------------|--|------------------------|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | | 0-2 | 24/16 | 1-2-7-4 | | 0.2 Topsoil Loose to medium dense, brown silty gravelly SAND (Fill) | | |
| | | | 2D | | 2-4 | 24/4 | 3-5-7-11 | | | | |
| 95 | 5 | | 3D | | 5-7 | 24/17 | 5-3-3-3 | | 5.0 Loose, brown SILT and SAND, some gravel (Fill) | | |
| | | | 4D | | 7-9 | 24/20 | 5-9-14-23 | | 7.0 Medium dense to dense, brown gravelly SAND and SILT with occasional cobbles (Glacial Till) | | |
| 90 | 10 | | 5D | ⊗ | 10-10.3 | 4/3 | 50/4" | | | | |

Auger Refusal at 11.0 feet
(Probable Bedrock)

BORING / WELL 10-12-2022 23-0397.GPJ SWCE TEMPLATE.GDT 5/7/23

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-3**



BORING LOG

BORING NO.: B-4
SHEET: 1 of 1
PROJECT NO.: 23-0397
DATE START: 4/12/2023
DATE FINISH: 4/12/2023

CLIENT: Eastern Maine Community College
PROJECT: Proposed Katahdin Higher Education/Early Childhood Center Expansion
LOCATION: 1 Dirigo Drive, East Millinocket, Maine

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 99' +/- **TOTAL DEPTH (FT):** 15.4 **LOGGED BY:** Nate Strout
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Bussey **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic **HAMMER WEIGHT (lbs):** 140 **CASING ID/OD:** N/A/N/A **CORE BARREL:** N/A
HAMMER CORRECTION FACTOR: 1.51 **HAMMER DROP (inch):** 30
WATER LEVEL DEPTHS (ft): Soil sampler wet below 5 feet (probable perched water)

GENERAL NOTES:

KEY TO NOTES Water Level
AND SYMBOLS: At time of Drilling D = Split Spoon Sample Pen. = Penetration Length W OR = W eight of Rods S_v = Field Vane Shear Strength, kips/sq.ft.
At Completion of Drilling U = Thin Walled Tube Sample Rec. = Recovery Length W OH = W eight of Hammer q_u = Unconfined Compressive Strength, kips/sq.ft.
After Drilling R = Rock Core Sample bpf = Blows per Foot RQD = Rock Quality Designation Ø = Friction Angle (Estimated)
V = Field Vane Shear mpf = Minute per Foot PID = Photoionization Detector N/A = Not Applicable

| Elev. (ft) | Depth (ft) | Casing Pen. (bpf) | SAMPLE INFORMATION | | | | | Graphic Log | Sample Description & Classification | H ₂ O Depth | Remarks |
|------------|------------|-------------------|--------------------|------|------------|-----------------|------------------------|-------------|-------------------------------------|--|---------|
| | | | Sample No. | Type | Depth (ft) | Pen./ Rec. (in) | Blow Count or RQD | | | | |
| | | | 1D | | 0.5-2.5 | 24/15 | 7-7-6-2 | | 0.3 | Bituminous Pavement (4") Medium dense, brown silty gravelly SAND with occasional cobbles (Base/Subbase) | |
| | | | 2D | | 2.5-4.5 | 24/16 | 2-2-6-10 | | 2.0 | Loose, brown SILT and SAND, some gravel (Fill) | |
| 95 | 5 | | 3D | | 5-7 | 24/20 | 7-9-9-7 | | 3.5 | Medium dense, brown silty gravelly SAND (Fill) | |
| | | | | | | | ID 29016B w = 10.1% | | 5.0 | Medium dense, brown gravelly SAND and SILT with occasional cobbles (Glacial Till) | |
| 90 | 10 | | 4D | | 10-12 | 24/18 | 8-10-13-14 | | | | |
| 85 | 15 | | | | | | | | 14.3 | Probable weathered Bedrock | |

Auger Refusal at 15.4 feet
(Probable Bedrock)

BORING / WELL 10-12-2022 23-0397.GPJ SWCE TEMPLATE.GDT 5/7/23

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: **B-4**



TEST PIT LOGS

PROJECT NO.: 23-0397
 LOGGED BY: Nate Strout
 CONTRACTOR: Emery Lee & Sons Inc.
 EQUIPMENT: CAT 307.5

CLIENT: Eastern Maine Community College
 PROJECT: Proposed Katahdin Higher Education/Early Childhood Center Expansion
 LOCATION: 1 Dirigo Drive, East Millinocket, Maine

TEST PIT TP-1

DATE: 4/12/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 100' +/- COMPLETION DEPTH (FT): 5.5
 WATER LEVEL DEPTHS (FT): No free water observed REMARKS:

| Depth (feet) | Graphic Log | Stratum Description | H ₂ O Depth | Sample No. | Type | Sample Depth (ft) | Field / Lab Test Data |
|--------------|-------------|--|------------------------|------------|------|-------------------|-----------------------|
| | | Topsoil | | | | | |
| 0.5 | | Brown gravelly SAND, some silt with cobbles (Foundation wall backfill) | | | | | |
| 5 | | | | | | | |

Bottom of Exploration at 5.5 feet
 Top of footing at depth of 5.5 feet below bottom of exterior siding. Footing extended outward 9.5 inches from outside edge of foundation wall.

TEST PIT TP-2

DATE: 4/12/2023 LOCATION: See Exploration Location Plan SURFACE ELEVATION (FT): 100' +/- COMPLETION DEPTH (FT): 6.0
 WATER LEVEL DEPTHS (FT): Probable perched water at 3 feet +/- REMARKS: Underdrain not working, pipe previously broken at TP location.

| Depth (feet) | Graphic Log | Stratum Description | H ₂ O Depth | Sample No. | Type | Sample Depth (ft) | Field / Lab Test Data |
|--------------|-------------|---|------------------------|------------|------|-------------------|-----------------------|
| | | Stone | | | | | |
| 0.5 | | Brown silty gravelly SAND with cobbles and occasional boulders (Foundation wall backfill) | | | | | |
| 5 | | | | | | | |

Bottom of Exploration at 6.0 feet
 Top of footing at depth of 6.2 feet below bottom of exterior siding. Footing extended outward 10.5 inches from outside edge of foundation wall.

TEST PIT 23-0397.GPJ SWCE TEMPLATE.GDT 5/7/23

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

KEY TO NOTES AND SYMBOLS:
 Water Level
 √ At time of Digging
 ▼ At Completion of Digging
 ▽ After Digging

q_p = Pocket Penetrometer Strength, kips/sq.ft.

KEY TO THE NOTES & SYMBOLS

Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

| | | |
|----------------|---|--|
| w | - | water content, percent (dry weight basis) |
| q _u | - | unconfined compressive strength, kips/sq. ft. - laboratory test |
| S _v | - | field vane shear strength, kips/sq. ft. |
| L _v | - | lab vane shear strength, kips/sq. ft. |
| q _p | - | unconfined compressive strength, kips/sq. ft. – pocket penetrometer test |
| O | - | organic content, percent (dry weight basis) |
| W _L | - | liquid limit - Atterberg test |
| W _P | - | plastic limit - Atterberg test |
| WOH | - | advance by weight of hammer |
| WOM | - | advance by weight of man |
| WOR | - | advance by weight of rods |
| HYD | - | advance by force of hydraulic piston on drill |
| RQD | - | Rock Quality Designator - an index of the quality of a rock mass. |
| γ _T | - | total soil weight |
| γ _B | - | buoyant soil weight |

Description of Proportions:

| | |
|--------|------------------|
| Trace: | 0 to 5% |
| Some: | 5 to 12% |
| “Y” | 12 to 35% |
| And | 35+% |
| With | Undifferentiated |

Description of Stratified Soils

| | |
|-------------|-------------------------------------|
| Parting: | 0 to 1/16” thickness |
| Seam: | 1/16” to 1/2” thickness |
| Layer: | 1/2” to 12” thickness |
| Varved: | Alternating seams or layers |
| Occasional: | one or less per foot of thickness |
| Frequent: | more than one per foot of thickness |

REFUSAL: Test Boring Explorations - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: Test Pit Explorations - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

Laboratory Test Results



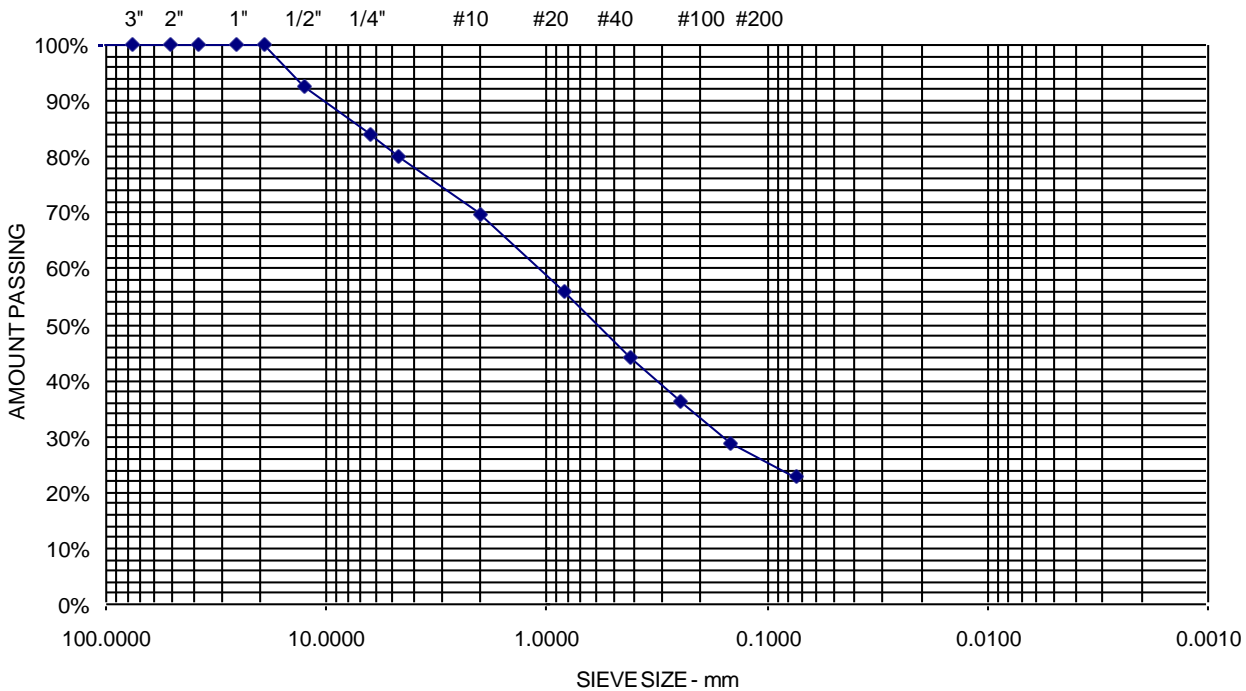
Report of Gradation

ASTM C-117 & C-136

Project Name EAST MILLINOCKET ME - PROPOSED KATAHDIN HIGHER
 EDUCATION EARLY CHILDHOOD CENTER EXPANSION -
 Client EASTERN MAINE COMMUNITY COLLEGE
 Exploration 2D
 Material Source B-1, 2.3-4.3 FEET

Project Number 23-0397
 Lab ID 29015B
 Date Received 4/19/2023
 Date Completed 4/25/2023
 Tested By SHARON CUEVAS-STANTON

| <u>STANDARD DESIGNATION (mm/μm)</u> | <u>SIEVE SIZE</u> | <u>AMOUNT PASSING (%)</u> | |
|-------------------------------------|-------------------|---------------------------|--------------|
| 150 | 6" | 100 | |
| 125 | 5" | 100 | |
| 100 | 4" | 100 | |
| 75 | 3" | 100 | |
| 50 | 2" | 100 | |
| 38.1 | 1-1/2" | 100 | |
| 25.0 | 1" | 100 | |
| 19.0 | 3/4" | 100 | |
| 12.5 | 1/2" | 92 | |
| 6.3 | 1/4" | 84 | |
| 4.75 | No. 4 | 80 | 19.9% Gravel |
| 2.00 | No. 10 | 70 | |
| 850 | No. 20 | 56 | |
| 425 | No. 40 | 44 | 57.2% Sand |
| 250 | No. 60 | 36 | |
| 150 | No. 100 | 29 | |
| 75 | No. 200 | 22.9 | 22.9% Fines |



Comments:



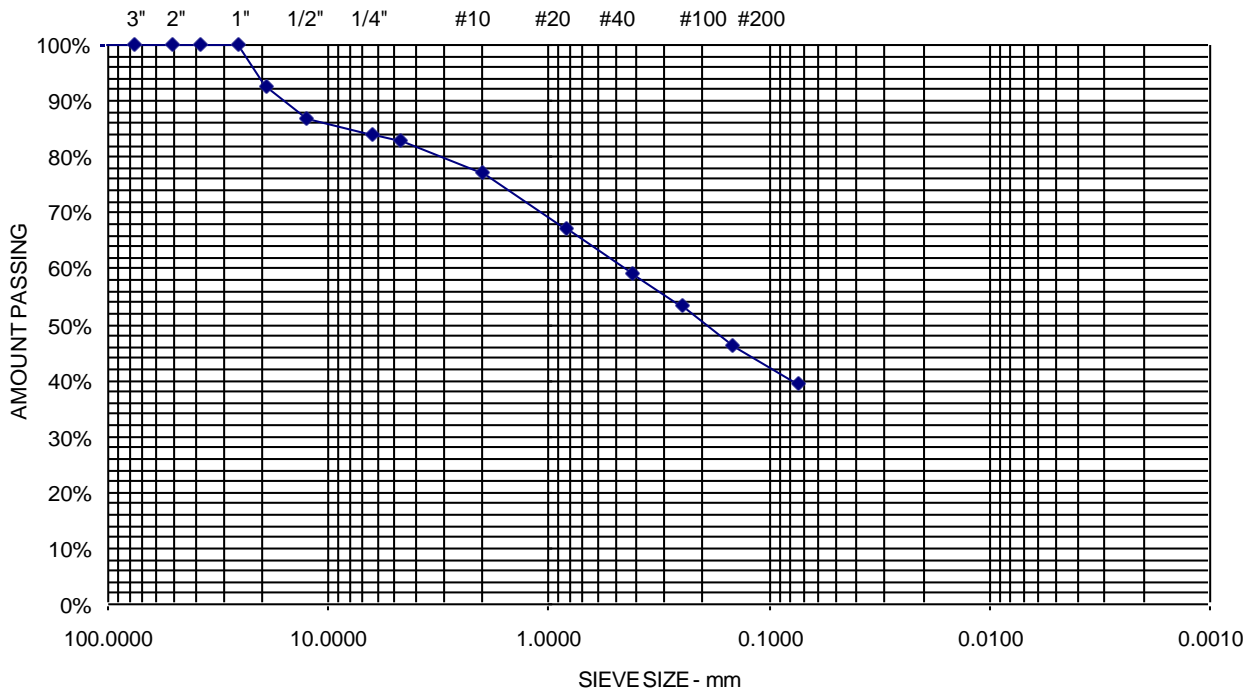
Report of Gradation

ASTM C-117 & C-136

Project Name EAST MILLINOCKET ME - PROPOSED KATAHDIN HIGHER
 EDUCATION EARLY CHILDHOOD CENTER EXPANSION -
 Client EASTERN MAINE COMMUNITY COLLEGE
 Exploration 3D
 Material Source B-4, 5-7 FEET

Project Number 23-0397
 Lab ID 29016B
 Date Received 4/19/2023
 Date Completed 4/26/2023
 Tested By LOGAN HENDERSON

| <u>STANDARD DESIGNATION (mm/μm)</u> | <u>SIEVE SIZE</u> | <u>AMOUNT PASSING (%)</u> | |
|-------------------------------------|-------------------|---------------------------|-------------|
| 150 | 6" | 100 | |
| 125 | 5" | 100 | |
| 100 | 4" | 100 | |
| 75 | 3" | 100 | |
| 50 | 2" | 100 | |
| 38.1 | 1-1/2" | 100 | |
| 25.0 | 1" | 100 | |
| 19.0 | 3/4" | 93 | |
| 12.5 | 1/2" | 87 | |
| 6.3 | 1/4" | 84 | |
| 4.75 | No. 4 | 83 | 17% Gravel |
| 2.00 | No. 10 | 77 | |
| 850 | No. 20 | 67 | |
| 425 | No. 40 | 59 | 43.5% Sand |
| 250 | No. 60 | 53 | |
| 150 | No. 100 | 46 | |
| 75 | No. 200 | 39.5 | 39.5% Fines |



Comments:



SECTION 074100 - PREFORMED METAL STANDING SEAM ROOFING

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. This section covers the pre-finished, pre-fabricated Architectural standing seam roof system. All metal trim, accessories, fasteners, insulation and sealants indicated on the drawings as part of this section.
- B. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specifications, apply to this section.
- C. Related Work Specified Elsewhere
 - 1. Roof Deck structural steel, flat roof systems, perimeter edge systems. Roof hatches, firestopping not included in this section.

1.2 SUMMARY

- A. Section Includes
 - 1. Factory formed Standing Seam metal roof panels
- B. Related work specified elsewhere. (Note: select from the below or add appropriate sections)
 - 1. Section 07600 - Flashing and Sheet Metal

1.3 DEFINITIONS

- A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal, and accessories necessary for a complete weathertight roofing system.
- B. References:
 - 1. American Society for Testing and Materials (ASTM)
 - a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
 - b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
 - c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
 - d. ASTM B370 Standard Specification for Copper Sheet and Strip for Building Construction
 - 2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
 - a. SMACNA Architectural Sheet Metal Manual, 1993 edition
 - 3. American Iron and Steel Institute (AISI)
 - a. AISI Cold Formed Steel Design Manual
 - 4. Aluminum Association
 - a. Aluminum Design Manual
 - 5. Metal Construction Association
 - a. Preformed metal Wall Guidelines
 - 6. Code References
 - a. ASCE, Minimum Loads for Buildings and Other Structures
 - b. BOCA National Building Codes
 - c. UBC Uniform Building Code
 - d. SBC Standard Building Code

1.4 QUALITY ASSURANCE

- A. Petersen Aluminum Corp, Elk Grove Village, IL, 800-323-1960 products establish a minimum of quality required.
- B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
- C. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.5 SUBSTITUTIONS

- A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.

1.6 SYSTEM DESCRIPTION

- A. Material to comply with:
 - 1. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process

1.7 ROOF SYSTEM PERFORMANCE TESTING

- A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
- B. Roof System shall be designed to meet Standard Building Code Wind Load requirements.
- C. Panels to meet:
 - 1. Water Penetration: When tested per ASTM E-283/1680 and ASTM E-331/1646 there shall be no uncontrolled water penetration or air infiltration through the panel joints.
 - 2. UL 2218 - Impact Resistance rated.
 - 3. Roof System shall be designed to meet a UL Class 90 wind uplift in accordance with UL standard 580.

1.8 WARRANTIES

- A. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace standing seam metal roof panels that show evidence of deterioration of factory-applied finish within specified warranty period.
 - 1. Exposed Panels Finish – deterioration includes the following:
 - a. Color fading more than 5 hunter units when tested according to ASTM D 2244
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
 - c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.
 - 2. Warranty Period: 20 Years from the date of substantial completion
- B. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition.

1.9 SUBMITTALS

- A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.
- B. Provide finish samples of all colors specified.
- C. Shop drawings: Show fabrication and installation layouts of metal roof panels, metal wall panels or metal soffit panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work
- D. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, base don input from installer of the items involved:
 - 1. Roof panels and attachments
 - 2. Metal trusses, bracings and supports
 - 3. Roof-mounted items including snow guards and items mounted on roof curbs.

1.10 DELIVERY, STORAGE AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.
- B. Deliver components, sheets, metal roof panels and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.
- C. Unload, store and erect metal roof panels in a manner to prevent bending, warping, twisting and surface damage.
- D. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting or other surface damage.
- E. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

- A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed.
- B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.12 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.
- B. Coordinate metal roof panels with rain drainage work, flashing, trim and construction of decks, parapet walls and other adjoining work to provide a leakproof, secure and noncorrosive installation.

PART 2 - PRODUCTS

2.1 PANEL DESIGN

- A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates and accessories required for a weathertight installation.
- B. Roof panels shall be Redi-Roof Standing Seam in 16" widths with 1 9/16" high seams with offsets.
- C. Panels to be produced Smooth - Factory Standard. Specifier note: Factory standard is smooth unless specified.
- D. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads, while allowing for the expansion and contraction of the entire roof system resulting from variations in temperature.
- E. Forming: Use continuous end rolling method. No end laps on panels. No portable rollforming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Architect to provide Factory-Manufactured panel systems only for this project.

2.2 ACCEPTABLE MANUFACTURERS

- A. This project is detailed around the roofing product of Petersen Aluminum Corporation Petersen Aluminum Corp, Elk Grove Village, IL, 800-323-1960, Redi-Roof Standing Seam.

2.3 MATERIALS AND FINISHES

- A. Preformed roofing panels shall be fabricated of 24 GA Steel
- B. Color: TBD by Architect.
- C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.
- D. If Strippable coating to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.
- E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer of their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.
- F. Closures: use composition or metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.
- G. Accessories/Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates. Accessories and their fasteners shall be capable of resisting the specified design wind uplift forces and shall allow for thermal movement of the roof panel system. Exposed fasteners shall not restrict free movement of the roof panel system resulting from thermal forces, except at designed points of roof panel fixity
- H. Substrate shall be Plywood
- I. Roofing Underlayment

1. On all surfaces to be covered with roofing material, furnish and install a 40 mil Peel & Stick membrane, required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, high temperature. Basis of design: Carlisle WIP 300 HT High Temperature Protection Self Adhering Roofing Underlayment. Other acceptable manufacturers include:
 - a. W.R Grace "Ice & Water Shield"
 - b. Cetco Strongseal
 - c. Interwrap Titanium PSU-30
 - d. Tamko TW Tile and Metal Underlayment
2. Underlayment shall be laid in horizontal layers with joints lapped toward the eaves a minimum of 6, and well secured along laps and at ends as necessary to properly hold the felt in place. All underlayment shall be preserved unbroken and whole.
3. Peel and Stick Underlayment shall lap all hips and ridges at least 12 to form double thickness and shall be lapped 6 over the metal of any valley or built-in gutters and shall be installed as required by the Standing Seam Panel Manufacturer to attain the desired 20 Year Weathertightness Warranty.

J. Sealants

1. Provide two-part polysulfide class B non-sag type for vertical and horizontal joints or
2. One part polysulfide not containing pitch or phenolic extenders or
3. Exterior grade silicone sealant recommended by roofing manufacturer or
4. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.

2.4 FABRICATION

- A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.
- B. Fabricate components of the system in factory, ready for field assembly.
- C. Fabricate components and assemble units to comply with fire performance requirements specified.
- D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Examine alignment of structural steel and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.
- B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FASTENERS

- A. Secure units to supports
- B. Place fasteners as indicated in manufacturer's standards.

3.3 INSTALLATION

- A. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.
- B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
- C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

3.4 DAMAGED MATERIAL

- A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Architect and Owner.

END OF SECTION

SECTION 082110 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Solid-core doors with wood-veneer faces.
2. Factory finishing flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.
4. Factory glazing of wood doors with glazed openings.

- B. Related Requirements:

1. Section 087100 "Door Hardware" for hardware and templates, and door hardware preinstallation conference.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to door installation including, but not limited to, the following:

1. Meet with Owner, Architect, door installer, hardware installer, door supplier and door manufacturer's representative. Provide 7 business days minimum advance notice to participants prior to convening preinstallation conference. Door preinstallation conference shall run concurrently with door hardware preinstallation conference.
2. Review methods and procedures related to door installation, including manufacturer's written instructions.
3. Review installation of fire doors, including hinge screw application to fire rated doors and requirements for door removal from frame if required after installation.
4. Review door swing and closer installation to permit maximum swing without binding at frame opening.
5. Review floor covering requirements to provide proper door undercut clearance.
6. Review fire rated door requirements regarding no field modifications to labeled doors.
7. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

- A. General: Submit in accordance with Division 01 Section "Submittal Procedures."

1. Submittals for Division 08 Sections "Hollow Metal Doors and Frames," "Wood Doors," "Aluminum-Framed Entrances and Storefronts," and "Door Hardware" shall be made concurrently.
- B. Product Data: For each type of door. Include details of core and edge construction and trim for openings. Include factory-finishing specifications.
- C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:
1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
 2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
 3. Details of frame for each frame type, including dimensions and profile.
 4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
 5. Dimensions and locations of blocking for hardware attachment.
 6. Dimensions and locations of mortises and holes for hardware.
 7. Clearances and undercuts.
 8. Requirements for veneer matching.
 9. Doors to be factory finished and application requirements.
- D. Samples:
1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches (200 by 250 mm), for each material and finish. For each wood species and transparent finish, provide set of three Samples showing typical range of color and grain to be expected in finished Work.
 2. Corner sections of doors, approximately 8 by 10 inches (200 by 250 mm), with door faces and edges representing actual materials to be used.
 3. Louver blade and frame sections, 6 inches (150 mm) long, for each material and finish specified.
 4. Frames for light openings, 6 inches (150 mm) long, for each material, type, and finish required.

1.5 INFORMATIONAL SUBMITTALS

- A. Preinstallation conference meeting notes.
- B. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Special warranties.
- B. Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.
- C. Record Documents:

1. For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.
 2. For egress doors, list of door numbers and applicable room name and number to which door accesses.
- D. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections for fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1 and the following:
1. Fire and Egress Assembly Inspector (FDAI) certification.
- E. Egress Door Inspector Qualifications: Inspector for field quality-control inspections for egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
1. Fire and Egress Assembly Inspector (FDAI) certification.

1.7 QUALITY ASSURANCE

- A. Certified Wood: Provide an invoice including vendor's chain-of-custody number, product cost, and entity being invoiced.
- B. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.
- C. Owner Inspection of Door Installation: A representative of FOM, with Contractor and Installer present, shall review and approve the installation of the first six doors. Do not proceed with the balance of the Work until initial installation is approved by FOM.
1. Contractor shall make necessary corrections to door installations.
- D. Fire-Rated Door Inspector Qualifications: Inspector for field quality-control inspections of fire-rated door assemblies shall comply with qualifications set forth in NFPA 80, Section 5.2.3.1.
- E. Egress Door Inspector Qualifications: Inspector for field quality-control inspections of egress door assemblies shall comply with qualifications set forth in NFPA 101, Section 7.2.1.15.4.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Protect wood doors during transit, storage, and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standard, manufacturer's instructions, and recommendations of WDMA I.S.1, Appendix, "How to Store, Handle, Finish, Install and Maintain Wood Doors."
1. Package doors at factory prior to shipping.
 2. Protect doors from extremes of heat and cold. Relative humidity shall not be less than 30 percent nor more than 60 percent.
 3. Compare prefinished doors to approved finish sample upon delivery. Notify Architect if sample does not match.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.

1.10 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Marshfield-Algoma.
 - 2. Eggers Industries.
 - 3. VT Industries, Inc.
- B. Source Limitations: Obtain flush wood doors from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Fire-Rated Wood Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction, for fire-protection ratings and temperature-rise limits indicated on Drawings, based on testing at positive pressure in accordance with UL 10C or NFPA 252.
 - 1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
 - 2. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.

- B. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control by a qualified testing agency acceptable to authorities having jurisdiction, based on testing in accordance with UL 1784 and installed in compliance with NFPA 105.

2.3 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with WDMA I.S.1-A, "Architectural Wood Flush Doors."
- B. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.
- C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C (positive pressure), Category A.
 - 1. Cores: Provide core specified or mineral core as needed to provide fire-protection rating indicated.
 - 2. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
 - 3. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.
- D. Smoke-Control Door Assemblies: Listed and labeled for smoke control, based on testing according to UL 1784.
- E. Structural-Composite-Lumber-Core Doors:
 - 1. Structural Composite Lumber: WDMA I.S.10.
 - a. Screw Withdrawal, Face: 700 lbf.
 - b. Screw Withdrawal, Edge: 400 lbf.
- F. Mineral-Core Doors:
 - 1. Core: Noncombustible mineral product complying with requirements of referenced quality standard and testing and inspecting agency for fire-protection rating indicated.
 - 2. Blocking: Provide composite blocking with improved screw-holding capability approved for use in doors of fire-protection ratings indicated as needed to eliminate through-bolting hardware.
 - 3. Edge Construction: At hinge stiles, provide laminated-edge construction with improved screw-holding capability and split resistance. Comply with specified requirements for exposed edges.
 - a. Screw-Holding Capability: 550 lbf per WDMA T.M.-10.

2.4 VENEER-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 - 1. Grade: Premium, with Grade A faces.
 - 2. Species: Maple
 - 3. Cut: Plain sliced (flat sliced).
 - 4. Match between Veneer Leaves: Book match.
 - 5. Assembly of Veneer Leaves on Door Faces: Balance match.

6. Match: Provide door faces of compatible color and grain for doors hung in same opening or separated only by mullions.
7. Exposed Vertical Edges: Same species as faces.
8. Core: Structural-composite-lumber, except as noted otherwise.
 - a. Provide mineral cores for fire-protection rated doors.
 - b. Provide structural composite lumber cores for stile and rail configured doors.
9. Construction: Five plies. Stiles and rails are bonded to core, then entire unit is abrasive planed before veneering. Faces are bonded to core using a hot press. No substitutions.
10. WDMA I.S.1-A Performance Grade: Extra Heavy Duty.

2.5 LIGHT FRAMES

- A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.
 1. Wood Species: Same species as door faces.
 2. Profile: Manufacturer's standard shape.
 3. At wood-core doors with 20-minute fire-protection ratings, provide wood beads and metal glazing clips approved for such use.
 4. Glazing beads for rated and non-rated doors shall have the same profile.
- B. Wood-Veneered Beads for Light Openings in Fire-Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire-protection rating indicated. Include concealed metal glazing clips where required for opening size and fire-protection rating indicated.
 1. Glazing beads for rated and non-rated doors shall have the same profile.

2.6 GLAZING IN DOORS

- A. Safety Glass for Non-Rated Doors: ASTM C 1048; Kind FT (fully tempered), Condition A (uncoated), Type I (transparent flat glass); Class 1 (clear); Quality q3 (glazing select).
 1. Thickness: 6.0 mm (0.23 inch) thick minimum.
 2. Safety Glazing Labeling: Permanently mark glazing with certification label of the SGCC. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- B. Clear Laminated Glass, General: ASTM C 1172, and complying with testing requirements in 16 CFR 1201 for Category II materials, and with other requirements specified. Use materials that have a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after fabrication and installation.
- C. Laminated Glass: ASTM C 1172, Kind LT (two lites of fully tempered float glass), Class 1 (clear), polyvinyl butyral interlayer, of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.
 1. Laminate lites in autoclave with heat plus pressure to produce glass free of foreign substances and air or glass pockets.
 2. Glass Lite Thickness: Each lite shall be 3.0 mm thick.
 3. Interlayer Thickness: 0.050 inch minimum,
 4. Type II safety glass material.
 5. Interlayer Color: Clear.

- D. Laminated Ceramic Glazing for Fire-Rated Doors: Laminated glass made from 2 plies of clear, ceramic flat glass; not less than 5/16-inch total nominal thickness; complying with testing requirements in 16 CFR 1201 for Category II materials.
 - 1. Fire-Protection Rating: As indicated for the assembly in which glazing material is installed.
 - 2. Fire-Protection-Rated Glazing: Listed and labeled by Underwriters Laboratories (UL), for fire-protection ratings indicated, based on testing according to NFPA 252 for door assemblies.
 - a. Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg F, and the fire-resistance rating in minutes.
 - 3. Products:
 - a. Nippon Electric Glass Co., Ltd. (distributed by Technical Glass Products); FireLite Plus.
 - b. Schott North America, Inc.; Laminated Pyran Platinum L.
 - c. Vetrotech Saint-Gobain; SGG Keralite FR-L.

2.7 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 - 1. Comply with NFPA 80 requirements for fire-rated doors.
 - 2. Coordinate sizing of pairs of doors to provide the following maximum gap between leafs to permit proper functioning of dead latching feature:
 - a. Rated Doors: Maximum 1/8-inch gap.
 - b. Non-Rated Doors: Maximum 3/16-inch gap.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
 - 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Openings: Factory cut and trim openings through doors.
 - 1. Light Openings: Trim openings with moldings of material and profile indicated.
 - 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable installation requirements in Division 08 Section "Glazing."

2.8 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on bottom edges, edges of cutouts, and mortises.
- B. Factory finish doors.

- C. Transparent Finish:
 - 1. Grade: Custom.
 - 2. Finish: WDMA TR-6 catalyzed polyurethane.
 - 3. Staining: Marshfield stain color Honey 26-95 or approved equal from other manufacturers.
 - a. Confirm stain color prior to ordering.
 - 4. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 - 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Division 08 Section "Door Hardware."
 - 1. Hinges shall be shimmed with metal shims at each door to provide equal clearance at each jamb.
 - 2. Locks, exit devices, door closers and other hardware shall be installed in accordance with the manufacturer's instructions. Pilot holes of recommended size, for wood screws required to fasten hardware, shall be drilled by installing Contractor before screws are fastened to wood doors.
- B. Installation Instructions: Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
 - 1. Install fire-rated doors according to NFPA 80.
 - 2. Install smoke-control doors according to NFPA 105.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge. Coordinate pairs of doors to provide the following maximum gap between leafs and accurate alignment of strike to permit proper functioning of dead latching feature:
 - 1. Rated Doors: Maximum 1/8-inch gap.
 - 2. Non-Rated Doors: Maximum 3/16-inch gap.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 OWNER INSPECTION

- A. Owner Inspection: A representative of Facilities Operations & Management (FOM), with Contractor and Installer present, shall review and approve the installation of the first six doors. Do not proceed with the balance of the Work until initial installation is approved by FOM.

1. Contractor shall make necessary corrections to door installations.

3.4 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 082110

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SECTION 093100 - TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Ceramic mosaic tile.
 - 2. Glazed wall tile.
 - 3. Stone thresholds installed as part of tile installations.
 - 4. Waterproof membrane for tile installations.
- B. Related Sections include the following:
 - 1. Division 09 Section "Gypsum Board Assemblies" for glass-mat, water-resistant tile backer board.

1.3 SUBMITTALS

- A. General: Submit in accordance with Division 01 Section "Submittal Procedures."
- B. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating VOC content.
 - 2. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
 - 3. Laboratory Test Reports: For sealers, indicating compliance with requirements for low-emitting materials.
- C. Product Data: For each type of product indicated.
- D. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces, both floors and walls.
- E. Samples for Initial Selection: For each type of grout indicated consisting of actual products showing full range of colors available. Include Samples of accessories involving color selection.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
 - 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.

- B. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- C. Source Limitations for Other Products: Obtain each of the following products specified in this Section through one source from a single manufacturer for each product:
 - 1. Stone thresholds.
 - 2. Waterproofing.
 - 3. Metal edge strips.
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."
 - 1. Review requirements in ANSI A108.01 for substrates and for preparation by other trades.
 - 2. Assemble all trades working at Project site to coordinate the work and to prevent workers from walking on newly installed tiles for required setting bed and grout cure times. Large tile will require additional time for the mortar bed to cure. Contractor to coordinate project schedule to complete work by other trades and vacate areas receiving floor coverings, stopping pedestrian traffic over newly installed flooring installation until curing and drying period is complete. Contractor shall conduct periodic coordination meetings with all trades to review schedule and procedures to prevent interference and damage during installation and curing and drying periods of floor coverings.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
 - 1. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Store liquid materials in unopened containers and protected from freezing.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install tile until construction in spaces is complete and ambient and substrate temperatures and humidity conditions are maintained at the levels indicated in referenced standards and manufacturer's written instructions.
 - 1. Maintain temperatures at 50 deg F or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.
- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.
 - 2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
 - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCA installation methods specified in tile installation schedules, and other requirements specified.
- C. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- D. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.
 - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.3 TILE PRODUCTS

- A. Floor Tile, T-1: Flat tile as follows:
 - 1. Composition: Colorbody Porcelain.
 - 2. Thickness: 5/16 inch.
 - 3. Face: Plain with modified square edges or cushion edges.
 - 4. Surface: Smooth, without abrasive admixture.
 - 5. Finish: Matte.
 - 6. Product: Dal-Tile Portfolio Vivid; Daltile, Div. of Dal-Tile International Inc.
 - a. Color: As indicated on Materials Legend.
- B. Wall Tile, T-2: Flat tile as follows:
 - 1. Module Size: 12- by 24- inches.
 - 2. Thickness: 5/16 inch.
 - 3. Face: Plain with modified square edges or cushion edges.
 - 4. Finish: Matte.
 - 5. Mounting: Factory back-mounted.
 - 6. Products:
 - a. Wall Tile: Daltile, Div. of Dal-Tile International Inc., Portfolio, Matte.

- 1) Color: As indicated on Materials Legend.
- b. Base Trim & Outcorner Trim, T-3: Daltile, Div. of Dal-Tile International Inc., Portfolio, Matte.
 - 1) Cove Base 6- by 12- inches. Shape: P36C9, PC36C9
- c. Wainscot Top Trim: Daltile, Div. of Dal-Tile International Inc., Portfolio, Matte.
 - 1) Bullnose 3- by 12- inches. Shape P43C9

2.4 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes. Provide stone that is uniform in color and finish.
 - 1. Bevel edges at 1:2 slope, aligning lower edge of bevel with adjacent floor finish. Limit height of bevel to 1/2 inch or less, and finish bevel to match face of threshold.
- B. Marble Thresholds: ASTM C 503 with a minimum abrasion resistance of 12 per ASTM C 1353 or ASTM C 241 and with honed finish.
 - 1. Comply with MIA Group "A" for soundness.
 - 2. Size: 2 inches wide by full width of opening; one-piece length.
 - 3. Description: Uniform, fine- to medium-grained stone with veining. Color to be selected by the Architect from manufacturer's standard colors.
 - a. Basis of Design: Marble, Crema Marfil

2.5 WATERPROOF MEMBRANE FOR THIN-SET TILE INSTALLATIONS

- A. General: Manufacturer's standard product that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Waterproofing and Tile-Setting Adhesive: One-part, fluid-applied product intended for use as both waterproofing and tile-setting adhesive in a two-step process.
 - 1. Verify adhesives have a VOC content of 65g/L or less.
 - 2. Verify adhesive complies with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
- C. Fabric-Reinforced, Fluid-Applied Membrane: System consisting of liquid-latex rubber or elastomeric polymer and continuous fabric reinforcement.
 - 1. Products:
 - a. LATICRETE International Inc.; Laticrete 9235 Waterproof Membrane.
 - b. MAPEI Corporation; Mapelastc HPG with MAPEI Fiberglass Mesh.
- D. Waterproofing Sheet Membrane and Substrate: System consisting of 0.008 inch (0.2 mm) thick, orange polyethylene membrane, with polypropylene fleece laminated on both sides, which is listed by cUPC to meet or exceed requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467). With Rigid extruded polystyrene foam building element panel, with

reinforcement material and polypropylene fleece webbing laminated on both sides for thin-set ceramic tile and dimension stone Installations.

1. System Products:
 - a. Membrane: KERDI; Schluter
 - 1) Provide matching preformed inside corners.
 - 2) Provide matching preformed outside corners
 - b. Seams and Transitions: KERDI-BAND; Schluter
 - 1) Thickness: 0.004 inch (0.1 mm) thick
 - 2) Width: Width as required by manufacturer per locations
 - c. Panel Board: KERDI-BOARD; Schluter
 - 1) Panel Thickness: 3/16"
 - 2) Panel Size: 48 inch by 96 inch (122 by 244 cm).

2.6 SETTING AND GROUTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set) and Grout: ANSI A118.4 and ANSI A118.6 respectively, consisting of the following:
 1. Prepackaged premium dry-mortar mix combined with acrylic resin liquid-latex additive.
 - a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.
 - 1) Products:
 - a) LATICRETE; Laticrete 254 Platinum.
 - b) MAPEI; Ultraflex 3.
 2. Grout Colors: As indicated on Materials Legend; in locations not indicated, as selected by Architect from manufacturer's full range of colors.

2.7 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.
 1. Products:
 - a. Bostik, Inc.; CeramaSeal Grout & Tile Sealer.
 - b. C-Cure; Penetrating Sealer 978.
 - c. MAPEI Corporation; KER 004, Keraseal Penetrating Sealer for Unglazed Grout and Tile.
 - d. TEC; a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone Grout Sealer.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions, including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing

containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

- B. Obtain and use type of mixing equipment, mixer speeds, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Check flatness of substrate by laser. Level floor to provide a base for thin set that allows for a smooth, flat floor without irregularities.
 - 2. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 3. Verify that concrete substrates for tile floors installed with thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 4. Verify that gypsum board substrates for wall tile comply with the surface finish requirements in ANSI A108.01 for installations indicated and the following:
 - a. For Tile with all Edges less than 15 Inches: Flatness shall not vary more than 1/4-inch in 10 feet with no more than 1/16-inch variation in 12 inches when measured from the high points in the surface.
 - b. Verify that substrate is properly supported in corners.
 - c. Verify that fasteners are properly spaced and covered.
 - d. Verify that joint treatment is fully cured.
 - 5. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Grind existing concrete topcoat on first floor to remove existing adhesives and setting materials where floor coverings have been removed.
- B. Remove coatings, including substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- C. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.

- D. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.
- E. Where wall tile is to be applied to concrete masonry units with bullnose edge, build square corner with mortar and allow to cure before setting tile.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. Lay tile in patterns indicated. When field conditions conflict with indicated pattern, notify Architect in writing prior to installation for review and approval of revisions.
- D. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- E. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile. Top setting of coved base is not permitted.
- F. Tile shall lay flat and each edge flush with adjacent tile, free of tilting and skewed tile. Provide additional setting material to shim accent tiles that are thinner than field tiles so face is in same plane.
- G. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area, unless indicated otherwise. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
- H. Lay out tile wainscots to next full tile beyond dimensions indicated.
- I. Grout tile to comply with requirements of the following tile installation standards:
 - 1. For ceramic tile grouts (latex-portland cement grouts), comply with ANSI A108.10.

3.4 WATERPROOFING INSTALLATION

- A. Install waterproofing to comply with ANSI A108.13 and waterproofing manufacturer's written instructions to produce waterproof membrane of uniform thickness bonded securely to substrate.
 - 1. Install continuous fabric reinforcement over entire floor.
 - 2. Turn membrane with fabric reinforcement up walls as follows to keep water from traveling under partitions:

- a. Baths and Toilet Rooms with Tile Floors on Elevated Slabs: 2 inches minimum at perimeter walls of rooms.
- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in the Floor Tile Installation Schedule, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
 - 1. For installations indicated below, follow procedures in ANSI A108 Series tile installation standards for providing 95 percent mortar coverage.
 - a. Tile floors in wet areas.
- B. Joint Widths: Install tile on floors with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch.
- C. Stone Thresholds: Install stone thresholds in same type of setting bed as abutting field tile, unless otherwise indicated.
 - 1. Do not extend waterproofing under thresholds set in latex-portland cement mortar. Fill joints between such thresholds and adjoining tile set on waterproofing with elastomeric sealant.
- D. Grout Sealer: Apply grout sealer to cementitious grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.6 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in the Wall Tile Installation Schedule, including those referencing TCA installation methods and ANSI setting-bed standards.
- B. Joint Widths: Install tile on walls with the following joint widths:
 - 1. Glazed Wall Tile: 1/16 inch.

3.7 CLEANING AND PROTECTING

- A. Remove and replace material that is stained or otherwise damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.
- B. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect

metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

- C. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
- D. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
- E. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.8 TILE INSTALLATION SCHEDULE

- A. Ceramic Tile over Fiber-Reinforced, Water-Resistant Gypsum Underlayment over Existing Subfloor: Thin-set latex portland cement mortar tile setting bed over waterproof membrane over entire floor, similar to TCA F170. Apply joint sealer to tile joints.
 - 1. At toilet rooms and baths, seal perimeter of room by running waterproof membrane up wall 2 inches minimum.
- B. Glazed Ceramic Wall Tile on Glass-Mat, Water Resistant Backer Board, Thin Set: Latex portland cement mortar tile setting bed, TCA W245. Apply joint sealer to tile joints.

END OF SECTION 093100

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SECTION 095113 - ACOUSTICAL PANEL CEILINGS

1.1 SUMMARY

- A. Acoustical panels and exposed suspension systems.

1.2 PRODUCTS

- A. Acoustical Ceiling Panels, ACT1: ASTM E 1264.
 - 1. Size: 24 inches x 24 inches.
 - 2. Thickness: Not less than 3/4-inch thick.
 - 3. Composition: Mineral Fiber with acoustically transparent membrane.
 - 4. Surface Finish: Factory-applied latex paint; white.
 - 5. Surface Texture: Fine texture.
 - 6. Edge: Tegular.
 - 7. NRC Range: Not less than 0.75.
 - 8. Dimensional Stability: Sag resistant at high humidity.
 - 9. Antimicrobial Treatment: Coating based, front and back.
 - 10. Basis-of-Design: Optima No. 1911 by Armstrong World Industries, Inc.
- B. Metal Suspension Systems: ASTM C 635.
 - 1. Wire hangers, braces, and ties.
 - 2. Hold-down clips.
 - 3. For ACT1: Hot-Dip Galvanized Steel: Intermediate duty.
 - a. Basis-of-Design Product: Prelude XL by Armstrong World Industries, Inc.
- C. Metal Edge Moldings and Trim: Roll-formed sheet metal.

1.3 INSTALLATION

- A. Installation: ASTM C 636.

END OF SECTION 095113

SECTION 095426 - ACOUSTICAL WOOD CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Suspended acoustical wood ceiling.
 - 2. Metal suspension system.
- B. Related Requirements:
 - 1. Division 09 Section "Acoustical Panel Ceilings."
 - 2. Division 09 Section "Acoustical Gypsum Board Ceiling System."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include the following:
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Manufacturer's written installation instructions and recommendations.
 - 3. Manufacturer's storage and handling requirements and recommendations.
- B. Shop Drawings: Include the following:
 - 1. Acoustical Wood Ceiling Panels:
 - a. Dimensioned plans of ceiling panels showing layout of panels, pattern of end joints, perimeter trim and locations of access panels.
 - b. Dimensioned sections showing attachment of ceiling panel cliprail system to metal suspension system; attachment of ceiling panels to cliprail system; and acoustical batt.
 - c. Dimensioned details of edge trim.
 - 2. Minimum Drawing Scales: 1/4 inch = 1 foot for plans and elevations; 1-1/4 inch = 1 foot for sections and details.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below:
 - 1. Panel Board for Transparent Finish: Samples of solid wood panel board in the same size and thickness specified, not less than 12 inches long, for each species; sample shall be finished as specified.
 - 2. Sound Absorber: Sample of each type, 6 inches square.
- D. Samples: For each finish product specified, two samples, minimum size 12 inches long, representing specified product and finish.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings for Acoustical Wood Ceiling Panels: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Structural members to which suspension systems will be attached.
 - 3. Method of attaching hangers to building structure.
 - 4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
 - 5. Size and location of initial access modules for acoustical wood ceiling panels.
 - 6. Items penetrating finished ceiling panels and ceiling-mounted items including the following:
 - a. Lighting fixtures.
 - b. Diffusers.
 - c. Grilles.
 - d. Speakers.
 - e. Sprinklers.
 - f. Access panels.
 - g. Perimeter moldings.
 - 7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
 - 8. Minimum Drawing Scale: 1/4 inch = 1 foot.
- B. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and adjustment and periodic cleaning and maintenance of all components.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Linear Wood Panels: Full-size panels used for ceiling and wall panels equal to 2 percent of quantity installed for use by Owner in building maintenance and repair.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Minimum 2 years documented experience installing projects of similar size and complexity.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical wood ceiling, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes. Store materials flat elevated above floor.

- B. Before installing acoustical wood ceiling, move panels into space where they will be installed not less than 72 hours prior to installation to permit them to acclimatize to room temperature and a stabilized moisture content.
 - 1. Open sealed packages to allow acoustical wood ceiling and wall panels to acclimatize immediately on moving them into spaces in which they will be installed.
 - 2. Maintain ambient temperature between 65 and 85 deg F and the relative humidity planned for building occupants in spaces to receive acoustical wood ceiling and wall panels is maintained between 25 and 55 percent.
 - 3. Do not install acoustical wood ceiling and wall panels until they adjust to relative humidity of, and are at same temperature as, space where they are to be installed.
- C. Handle acoustical wood ceiling and wall panels carefully to avoid damaging units in any way.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical wood ceiling until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings and in walls is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Manufacturer: Rulon International; St Augustine, FL; phone: 800-227-8566; e-mail: [request info \(info@rulonco.com\)](mailto:info@rulonco.com); Web: rulonco.com
 - 1. Linear Ceiling & Wall Systems, LCP-4.5 Module and associated matching wood trim and border treatments. Wood Ceiling Type C2.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface-Burning Characteristics: Acoustical wood ceiling and wall panels shall conform to Class 1, or A flame spread rating, tested according to ASTM E 84; Flame Spread: 25 or less. Smoke Developed: 450 or less.

2.3 ACOUSTICAL WOOD CEILING PANELS

- A. Acoustical Wood Ceiling Panels:
 - 1. Panel Style: Linear Open provided in random length modules in lengths between 3 feet and 10 feet.
 - 2. Module Size: 4-1/2 inch module; solid wood boards 3-3/4 inch wide by 3/4 inch thick and a 3/4 inch reveal between boards; boards shall have tongue-and-groove ends. Back of boards shall have routed grooves to receive factory-attached barbed installation clips at prepositioned locations.
 - 3. Sound-Absorbent Fabric Spacers: Manufacturer's standard black, fire retardant, fiber felt spacers factory applied to one edge of each wood board.
 - 4. NRC Rating: ASTM C 423, 0.65.
 - 5. Wood Species: Maple, smooth sawn with sanded faces.
 - 6. Finish: Clear satin.

7. Access Panels: Provide two "lift and shift" access panels manufactured by ceiling manufacturer to match ceiling; see drawings for locations.
 - a. Size: 16 inches by 16 inches; size and location to be confirmed during Shop Drawings.
8. Trim and Border Treatment: Provide end caps or junction trims as indicated; trim and borders shall match species and finish.

B. Acoustical Wood Ceiling Panel Accessories:

1. Cliprail System: Attachment clips shall be spring-steel with phosphate pre-treatment and corrosion-resistant coating and are attached at pre-spaced intervals to heavy-duty ceiling suspension system.
2. C-Hangers: Suspension hangers that are direct-screwed to the panel and hang over the heavy duty-grid. Hangers are made of spring-steel with phosphate pre-treatment and corrosion-resistant coating.
3. Torsion Springs and Saddle Clips: Two parts of a suspension system in which the torsion spring is direct-screwed to the panel and compressed to attach to the saddle clip that is fitted over the heavy duty-grid. Springs and clips are made of spring-steel with phosphate pre-treatment and corrosion-resistant coating.
4. Alignment Strip: Steel strips, 1/16 inch thick, for insertion in groove on back of module at tongue-and-groove ends to assure alignment of modules.

- C. Touch-Up Finish: Provide touch-up kit for each finish provided to seal cut ends or damaged finish.

2.4 METAL CEILING SUSPENSION SYSTEM

- A. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C635/C635M and designated by type, structural classification, and finish indicated.
- B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.
1. Structural Classification: Heavy-duty system.
 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 3. Face Design: Flat, flush.
 4. Cap Material: Cold-rolled steel.
 5. Cap Finish: Painted black.
1. Products:
 - a. Armstrong World Industries, Inc.; Prelude XL Exposed Tee System, 7300 Series.
 - b. Chicago Metallic Corporation; 1200 System.
 - c. USG Interiors, Inc.; DX System.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
1. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

- D. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
 - 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch-diameter wire.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical wood ceiling panels, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling and wall panel installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical wood ceiling and wall panels.
- B. Examine acoustical wood ceiling panels and panelized acoustical wood wall panels before installation. Reject damaged panels.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF CEILING SUSPENSION SYSTEM

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Hangers shall be single lengths of wire without splices; coordinate lengths in deep ceiling cavities.
 - 2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 3. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 4. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 - 5. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. Do not attach hangers to steel deck tabs.
 - 8. Do not attach hangers to steel roof deck. Attach hangers to structural members.

9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 10. Exposed pop rivets for grid alignment purposes shall not be permitted.
- C. Suspension system shall be reinforced to support diffusers, light fixtures and any additional members. Install hanger wires to grid at each corner of light fixtures. Coordinate location with electrical and other trades.
1. Each individual fixture and attachment with combined weight of 56 pounds or less shall have two 12-gage wire hangers attached at diagonal corners of the fixture. These wires shall be slack. Fixtures and attachments with a combined weight of greater than 56 pounds shall be independently supported from the structure at all four corners.

3.3 INSTALLATION OF ACOUSTICAL WOOD CEILING

- A. General: Install acoustical wood ceiling panels in accordance with manufacturer's written installation instructions and approved Shop Drawings. Acoustical wood ceilings shall be in proper relationship with adjacent construction.
1. Use a laser leveling device to lay out and install the perimeter trim as specified.
- B. Cliprail system for acoustical wood ceiling panels shall be attached to ceiling suspension system in accordance with acoustical wood ceiling panel system manufacturer's installation instructions and ASTM C 636.
1. Cliprail system shall be installed plumb and free from contact with other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 2. Provide additional hanger wires where imposed loads could cause deflection exceeding 1/360 span.
- C. Suspend wood slats from the cliprail system using integrated linear clips in accordance with manufacturer's installation instructions.
- D. Make final adjustments required to level acoustical wood ceiling panels.

3.4 FIELD QUALITY CONTROL

- A. Technical Service: Manufacturer shall provide a local Technical Service Representative for on-site training and assistance during the installation process.
- B. Environmental Monitoring: Manufacturer shall provide a temperature and humidity sensor to actively monitor the room in which the wood slats shall be installed for a minimum of one week before and up to two weeks after installation has been completed including all of the weeks in between.
- C. Upon completion of ceiling installation, the owner's representative shall inspect all finished surfaces to ensure that the work has been completed in a manner satisfactory to the owner. Any deficiencies in the install of the ceiling shall be corrected prior to substantial completion.

3.5 ADJUSTING AND CLEANING

- A. Clean exposed surfaces of acoustical wood ceiling, panelized acoustical wood wall panels and trim in accordance with manufacturer's instructions using manufacturer's recommended products. Remove dirt, dust, grease, oils and fingerprints.
- B. Remove and replace acoustical wood ceiling and panelized acoustical wood wall panels, which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage as determined by Architect.

END OF SECTION 095426

SECTION 096500 - RESILIENT FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient sheet vinyl with cove base.
 - 2. Resilient base.
 - 3. Resilient molding accessories.
 - 4. Skim coating of existing floors where previous flooring material has been removed.
 - 5. Testing of concrete.
- B. Related Sections:
 - 1. Section 024119 "Selective Structure Demolition and Alterations" for removal of existing floor coverings.

1.3 SUBMITTALS

- A. General: Submit in accordance with Division 01 Section "General Requirements."
- B. Product Data: For each type of product indicated.
- C. Samples for Initial Selection:
 - 1. Resilient Accessories: Actual pieces of strips of resilient accessories showing full range of colors available for each product exposed to view.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver resilient flooring materials and installation accessories to Project site in original manufacturer's unopened cartons and containers each bearing name of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store resilient flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F. Store floor tiles on flat surfaces and rolls upright.

1.5 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient flooring during the following time periods:
 - 1. 48 hours before installation.

2. During installation.
 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
 - C. Close spaces to traffic during resilient flooring installation and for 48 hours after installation.
 - D. Install resilient flooring after other finishing operations, including painting, have been completed.

1.6 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.
 2. Accessories: Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

2.1 RESILIENT SHEET FLOORING

- A. Linoleum Sheet Resilient Flooring: homogeneous floor covering, ASTM F 2034 Standard Specification for Linoleum Sheet Flooring, Type RF-1, RF-2 & RF-3.
 1. Manufacturer: Forbo Flooring Systems.
 2. Product: Marmoleum, Fresco
 3. Color: as indicated in drawings or to be selected from manufacturer's full color line.
 4. Wearing Surface: Topshield2
 5. Thickness: 1/10 inch.
 6. Backing: Jute
 7. Width: 79 inches.
 8. Seam Method: Heat Weld
 9. Heat Weld Color: to be selected from manufacturer's full color line.
 10. Patterns: As indicated on materials plan legend.
 11. Integral cove: 4-inch or as indicated in drawings. Provide cove termination trims as indicated. Color to be selected from manufacturer's full color line.

2.2 RESILIENT WALL BASE

- A. Resilient Base – B-1 & B-2 : ASTM F 1861.
 1. Manufacturer: Forbo
 2. Material Requirement: Type TP Rubber
 3. Manufacturing Method: Group I (solid, homogeneous).
 4. Style: Cove (base with toe).
 5. Minimum Thickness: 0.125 inch.
 6. Height: 4 inches, except as indicated otherwise.
 7. Lengths: Coils in manufacturer's standard length.

8. Outside Corners: Job formed.
9. Inside Corners: Job formed.
10. Color: As indicated in Materials Legend.

2.3 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 1. Manufacturer: Forbo
- B. Material: TP Rubber
- C. Transition Strips: The following product identification numbers are for products manufactured by Forbo. Provide listed products or equal from one of listed manufacturers.
- D. Colors and Patterns: As selected by Architect from manufacturer's full range of colors.

2.4 INSTALLATION MATERIALS

- A. Concrete Slab Primer: Nonstaining type as recommended by flooring manufacturer.
- B. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
 1. Product: Ardex; SD-F Feather Finish.
- C. Adhesives: Premium grade, water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
- D. Floor Finish:
 1. Sealer (2 Coats): Hillyard Seal 341. No substitution.
 2. Finish (5 Coats): Hillyard Discovery 20. No substitution.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- C. Verify existing substrates comply with manufacturers requirements for adhesion and moisture requirements.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: ASTM F 710, manufacturers requirements for adhesion and moisture requirements, and the following:
 - 1. Verify that substrates are dry and free of curing compounds, sealers, hardeners, and other materials whose presence would interfere with bonding of adhesive. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by flooring manufacturer.
 - 2. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits of any kind.
- C. Existing Floor Slabs: Scrape and remove adhesive from floor where existing floor covering are removed. Trowel apply underlayment compound over entire floor to smooth substrate surface and prevent telegraphing of surface irregularities, fully covering and concealing existing adhesive residue.
- D. Do not install resilient flooring until it is same temperature as space where it is to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 RESILIENT FLOORING INSTALLATION, GENERAL

- A. Install in accordance with manufacturer's written instructions and requirements of this Section.
- B. Scribe, cut, and fit flooring to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.
- C. Extend flooring into toe spaces, door reveals, closets, and similar openings. Extend flooring to center of door openings.

3.4 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls. Provide on fronts and exposed sides and backs of floor-mounted casework. Where toe space is less than base height, cut down base to proper height.
 - 1. Provide on wall behind removable sink bases and on sides of casework that will be exposed when sink base is removed.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners: Provide job-formed corners everywhere, except as noted, as follows:
 - 1. Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.
 - 2. Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.
 - 3. Adhere base to substrate with contact adhesive 12 inches each side of outside corner to properly hold base in permanent proper position in tight contact with wall. Base shall run continuous around corners with butt joints 12 inches minimum for corner.

3.5 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor coverings that would otherwise be exposed.

3.6 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient floorings and accessories.
- B. Perform the following operations immediately after completing flooring installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces using cleaner recommended by resilient floor covering manufacturers.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash surfaces until after time period recommended by manufacturer.
 - b. Prepare surface to receive sealer.
 - 4. Not less than 7 days after completion of installation, apply 2 coats of sealer and 3 coats of finish to a clean, dry floor covering per manufacturer's requirements, protecting surface with uniform coating and gloss. Work shall be done by a floor care subcontractor.
 - a. Mask wall base, adjacent transition strips and protect carpet and other surface from application of sealers and finish.
 - b. Floor tile shall be clean and dry before application of sealer and finish. Do not over wet surface that could cause damage to tile installation.
 - c. Apply one coat of sealer to entire floor, including appliance spaces using a clean synthetic mop. After first coat is thoroughly dry, apply second coat of sealer.

- d. After sealer coats are thoroughly dry, apply one coat of finish to entire floor, including appliance spaces and spaces that will be visible when removable sink bases are removed using a clean synthetic mop. Apply 2 more topcoats of finish, allowing finish to thoroughly dry between coats. The 2topcoats shall run into the front of the appliance spaces approximately 6 inches and into spaces that will be visible when removable sink bases are removed.
- C. Protect flooring products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.
- D. Cover resilient flooring with undyed, untreated building paper until Substantial Completion.
 - 1. Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

END OF SECTION 096500

SECTION 096813 – MODULAR FLOORING

PART 1 - GENERAL

1.1 WARRANTY

- A. Warranties: Lifetime Product Performance, Colorfastness to Light & Crocking, Stain Removal, Static Protection, Protection from Edge Ravel and Delamination Failure; Lifetime Dimensional Stability .

PART 2 - PRODUCTS

2.1 Carpet Tile, TFC1 & TFC2: Shall be Kinetex, a brand of J+J Flooring, Network Modular 1842.

1. Product: Network Modular 1842
2. Colors: As indicated on Materials Legend
3. Backing: Polyester Felt Cushion
4. Dye Method: Solution Dyed
5. Wear Layer: 100% Polyester.
6. Total Weight (Nominal Average): 4.5 oz - 5.2 oz / square foot.
7. Pattern Repeat: N/A.
8. Soil Release: Yes.
9. Standard Size: 24" x 24".
10. Installation Method: As selected by Architect.

2.2 ADHESIVES

- A. Kinetex® Adhesive, an aggressive, pressure-sensitive adhesive designed for the installation of Kinetex textile composite flooring modules is required.
- B. Kinetex PreFix®, a quick installation for all Kinetex textile composite flooring products. The release liner easily peels away to reveal a series of pre-applied adhesive strips that securely anchor the Kinetex module in place, (PreFix Primer is required).

2.3 ACCESSORIES

- A. Kinetex requires protective transition 3/16-inch to other floor covering thickness. Provide transition/reducing strips tapered to meet abutting materials as indicated in the drawings.
- B. Provide aluminum edge with lip to protect Kinetex edge.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine and verify that sub-floor surfaces are smooth and flat within tolerances specified for that type of work and are ready to receive installation of modules.
- B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive installation of modules.

- C. Verify that sub-floor surfaces are dust-free and free of substances that could impair bonding of adhesive materials to sub-floor surfaces.
- D. Verify that concrete sub-floor surfaces are dry enough and ready for flooring installation by testing for moisture emission rate and alkalinity in accordance with ASTM F 710; obtain instructions if test results are not within limits recommended by J+J Flooring.
- E. Verify that required floor-mounted utilities are in correct location.
- F. J+J Flooring requires that Kinetex textile composite flooring be inspected prior to installation for proper style, color and potential defects. No claims will be honored if the modules are installed with visible defects. Should there be a problem, call J+J Flooring's Customer Relations Department at 800.241.4586.

3.02 PREPARATION

- A. Starting installation constitutes acceptance of sub-floor conditions.
- B. SURFACE PREPARATION- Dust, dirt, debris and non-compatible adhesive must be removed before the installation begins. Surfaces must be smooth and level with all holes and cracks filled with Portland cement-based patch reinforced with polymers. Kinetex Adhesive cannot be applied to any substrate where chemical or solvent-based cleaners have been used.
- C. LATEX ADHESIVES - Old latex adhesives must be mechanically scraped down to a bare residue. Latex adhesive residues must be smooth and level with all holes and cracks filled with a Portland cement-based patch reinforced with polymers, or encapsulated with APAC ENCapSeal.
Note: Failure to remove or seal, old latex adhesive may cause installation failure, shifting, buckling or edge curling; these conditions will not be covered under warranty.
- D. CUT BACK ADHESIVES - Must be wet mechanically scraped to a minimum residue and encapsulated with APAC ENCapSeal.
Note: Failure to remove or seal old cut back adhesive may cause installation failure, shifting, buckling or edge curling; these conditions will not be covered under warranty.
- E. CONCRETE MOISTURE TESTING and pH TESTING - Substrate surfaces must be tested for moisture emission. It is the responsibility of the owner or owner's representative to perform moisture testing prior to starting the installation. ASTM-F 2170-2 relative humidity probe moisture testing is required. Acceptable relative humidity probe testing results are up to 100% RH when using Kinetex Adhesive or Kinetex PreFix. Alkalinity tests should also be performed per ASTM F 710. The maximum acceptable pH is 11.0 when using Kinetex Adhesive or Kinetex PreFix. *Note: pH readings of 9.0 - 11.00, Commercial on Premium Sealer is required.*
- F. SUBFLOORS
 1. New Concrete - New concrete must be fully cured and free of moisture (see ASTM F 710). New concrete requires a curing period of approximately 90 days.
 2. Old Concrete - Old concrete must be checked for moisture. Dry, dusty, porous floors must be primed. *Note: Primers will not correct a moisture problem. For complete information, refer to CRI-104 Installation Standard.*

3. Wood - Wood floors must be APA flooring grade smooth and level, or CanPly Select Grade. If the floor is uneven, an approved underlayment will be required. Old finishes must be tested for compatibility with adhesives or removed and porous wood primed. Wood floors must receive a roll-on application of Commercialon® Premium Sealer. Follow instructions on the Commercialon® Premium Sealer label.

3.03 INSTALLATION OF TEXTILE COMPOSITE FLOORING

A. Install flooring in strict accordance with the finish drawings and J+J Flooring's Kinetex installation instructions.

B. ADHESIVE SYSTEM - Kinetex requires use of Kinetex Adhesive or PreFix pre-applied adhesive for all Kinetex flooring modules.

1. Full Spread Kinetex Adhesive: The spread rate for Kinetex Adhesive is approximately 1080 square feet per four-gallon pail must be spread using a 1/16" x 1/32" x 1/32" U-notched trowel. Allow to dry until transparent or adhesive does not transfer to finger when touched. Drying time will vary with temperature, humidity and air velocity, however modules must be installed within two hours after adhesive has dried.

Note: Inadequate amounts of adhesive can cause modules to shift and move and will not be covered by warranty. J+J Flooring will not be responsible for the adhesive bond where other adhesives have been used.

2. PreFix Pre-Applied Adhesive

- a. PreFix Primer Application (REQUIRED) *Note: Read all installation instructions thoroughly.*

- i. Pour the diluted primer onto the substrate and roll on using 3/8" nap or foam roller. Do not puddle. Additional coats may be required upon visual inspection over extremely porous concrete.
- ii. Allow the material to dry to the touch. Lower substrate temperatures and/ or higher humid conditions could extend the drying time

- b. Installing PreFix Kinetex Modules

After the PreFix primer has dried, begin the installation at the intersection of the central module anchor lines. Peel off the release film and save it to be recycled. Complete the installation one quarter area at a time laying the modules firmly and accurately along the anchor lines. *Follow approved installation method(s) for each specific product.*

C. MODULE PLACEMENT - Arrows are printed on the module backing to show pile/machine direction. A tight installation without compression is mandatory for optimum performance and appearance of the modular installation. It is critical that each module uniformly touch each adjoining module without a gap. To ensure a clean tight fit, do not pull/tug or slid-in modules, but instead lay each module into its location against the adjoining module. Use your hands to press/form the module into place where the new module meets the previously installed module. See specific product specifications for approved installation method(s). *Note: To reposition a Kinetex module during installation, remove it by gently lifting all four sides of the module with a spatula or putty knife, rotating around each side of the module doing a little at a time. The very center of the module should be the last part of the module touching the floor upon removal. Do not stretch a module while it is in the adhesive in order to align next to an adjoin modular. An attempt to stretch will likely result in the module pulling back to its original position. NEVER ATTEMPT TO REMOVE A MODULE ALL AT ONCE BY PULLING ONE OR ONLY TWO SIDES OF THE MODULAR. DOING SO MAY LEAD TO DISTORTING THE MODULE.*

D. PALLET AND BUNDLE SEQUENCING - It is very important to install Kinetex modules in the order they were manufactured; this is easily accomplished by selecting pallets in sequential order and following the numbers located on each bundle of modules. Typically, an installation will begin with the lowest bundle numbers and progress through the highest numbers until the project is complete. Installing modules by bundle sequence will assure the most even uniform look possible. (For layout and installation instructions refer to J+J Flooring's Kinetex Installation Instructions.)

E. STAIRS - Use single or double undercut stair nosing and cut modules. Then, using full spread Kinetex Adhesive or SRT Tape, install modules on steps and risers, inserting the stair nosing edge and the top of the riser edge of each module into the vinyl undercut.

F. COMPLETING INSTALLATION - To avoid dislodging modules, do not walk on or move furniture onto modules until the area is completely anchored. Roll entire area with 75-100 lb. roller in both directions (north-south and east-west) after completion of installation. It is also required that sheets of plywood or hardboard be laid over the new modular surface when transporting heavy furniture on carts or dollies. As a final step, vacuum the entire area with an upright vacuum.

3.04 INSTALLATION OF ACCESSORIES

A. Install accessories as required by drawings and per manufacturer's specifications.

3.05 CLEANING AND PROTECTION

A. Use a moist cloth when wet; if dry, use a solvent based product applied to a towel then worked onto the Kinetex module for removal of contaminants such as adhesive, paint, oil and grease. Follow J+J Flooring's maintenance guidelines.

B. Clean and vacuum surfaces.

END OF SECTION 096813

SECTION 097831 – THERMALLY MODIFIED WOOD WALL AND CEILING CLADDING

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Action Submittals:
 - 1. Product Data: Manufacturer's descriptive data and product attributes for wood materials.
 - 2. Samples: Verification samples.

1.2 QUALITY ASSURANCE

- A. Installer Qualifications: Firm specializing in work of this Section, with minimum 2 years' experience.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Contract Documents are based on products by ThermoryUSA, www.thermoryusa.com.
- B. Substitutions: Not permitted.

2.2 MATERIALS

- A. Thermally Modified Wood Wall and Ceiling Cladding:
 - 1. Species: White Ash.
 - 2. Nominal size: 1 x 4 inches.
 - 3. Actual size: 0.79 x 3.7 inches.
 - 4. Coverage: 3.5 inches.
 - 5. Profile: Tongue and groove edges, joint end matched (JEM).
 - 6. Color: Exotic Brown.
 - 7. Surface texture: Smooth.
 - 8. Finish: Pre-oiled with Cutek Extreme.
- B. Thermally Modified Wood Wall and Ceiling Cladding:
 - 1. Species: White Ash.
 - 2. Nominal size: 1 x 5 inches.
 - 3. Actual size: 0.79 x 4.4 inches.
 - 4. Coverage: 4.2 inches.
 - 5. Profile: Tongue and groove edges, joint end matched (JEM).
 - 6. Color: Exotic Brown.
 - 7. Surface texture: Smooth.
 - 8. Finish: Pre-oiled with Cutek Extreme.
- C. Thermally Modified Wood Wall and Ceiling Cladding:
 - 1. Species: White Ash.
 - 2. Nominal size: 1 x 6 inches.
 - 3. Actual size: 0.79 x 6.1 inches.
 - 4. Coverage: 5.9 inches.
 - 5. Profile: Tongue and groove edges, joint end matched (JEM).

6. Color: Exotic Brown.
 7. Surface texture: Smooth.
 8. Finish: Pre-oiled with Cutek Extreme.
- D. Thermally Modified Wood Wall and Ceiling Cladding:
1. Species: White Ash.
 2. Nominal size: 1 x 4 inches.
 3. Actual size: 0.79 x 3.7 inches.
 4. Coverage: 3.5 inches.
 5. Profile: C20 shadow gap, joint end matched (JEM).
 6. Color: Exotic Brown.
 7. Surface texture: Smooth.
 8. Finish: Pre-oiled with Cutek Extreme.
- E. Fasteners: Type 305 stainless steel screws.

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Installation Method: Screws.

END OF SECTION