A D D E N D U M # 1

TO: **ALL PROSPECTIVE Bidders**

FROM: **Sandra Auld, Director of Purchasing Department**

DATE: **April 5, 2016**

RE: **Lessner Building First Floor Addition & First Floor & Lower Level Rehabilitation BFY 16/17-29**

The following information is added to the bid documents for the aforementioned subject bid.
The original contract documents dated March 2016, for the above-mentioned project is amended as noted in this **Addendum**. This Addendum shall become part of said contract documents as if originally included therein.

Bidders must acknowledge receipt of this Addendum on their Bid Proposal Form. All bidders will receive notice of the posting of this and future Addendum by fax or by email, so that they can download the Addendum from the Union County College Vendor opportunities website.

Addendum #1 consists of the following documents:

Addendum #1	3 pages
Pre-bid Meeting Minutes	7 pages
Specification Section 035420	15 pages
	25 pages TOTAL

Rev#1 Drawings (61) 24”x36” sheets total

Project Items:

1. **Enclosed are the Pre-bid meeting minutes. All information noted in this Addendum amends as and is hereby made part of and incorporated in full force as part of the contract documents and shall be here modified to be appropriately identified as Addendum #1.**
2. **There are 61 revised drawings included as part of this Addendum #1:**

   26 Architectural Drawings: A001, A002, A003, A004, A005, AD101, AD102, AD103, AD201, AD202, AD302, A101, A102, A202, A303, A305, A307, A308,A309, A421, A511, A512, A522, A601, A602, A603

   17 M, P, FP Drawings: PD101, P101, P102, P103, P401, P601, MD101, MD102, M101, M102, M103, M104, M105, M401, M601, M602, FP103

18 Electrical & FA Drawings: E001, ED201, ED202, E101, E102, E103, E104, E201, E202, E203, E301, E302, E401, E501, E502, FA001, FA101, FA102

3. Regarding specification section 096500 Resilient Sheet Flooring- the Marmoleum Concrete/ Fresco line by Forbo is the basis of design.
4. Please provide (7) 16" wide,36" long, 35" high 3 compartment 18 gauge brushed stainless steel recycling containers. Basis of design to be "the Street-I" by Ecotrio, Inc. Locations to be coordinated with the owner.
5. Regarding the flooring underlayment and surface preparation, please find attached specification section 035420- CEMENT BASED SELF-LEVELING UNDERLAYMENT. The self leveler to be used on the entirety of the 1st floor interior construction, including additions
6. Regarding the double slab plaza construction, 2" of 100psi insulation is to be utilized above the waterproofing membrane and below the topping slab. The basis of design is to be Dow Highload 100 psi insulation.
7. Regarding the signage allowance, signage items in specification section 104300_Dimensional Lettering,104310_Cast Plaques,104400_Interior Modular Component Signage are NOT to be taken from the signage allowance and should be included as part of the lump sum bid.
8. Regarding Drawing A004, add the following to Detail 1/A004: "At all building exterior areas, "Temporary Partitions" are to be chain link fence as specified in Section 015000 – Temporary Facilities and Controls. The contractor is to provide all gates and access into the enclosed areas as required for the performance of their work."
9. Regarding Drawing A004, add the following to Detail 2/A004: "At all building exterior areas, "Temporary Partitions" are to be chain link fence as specified in Section 015000 – Temporary Facilities and Controls. The contractor is to provide all gates and access into the enclosed areas as required for the performance of their work."
10. Regarding project specification section 011000, add the following to paragraph 1.7.B: "1.7.B.1 At times when it is necessary for work to be performed during hours other than when the building is normally staffed by the Owner, the Contractor must request access to the areas no less than three business days prior to such work."
11. Regarding project specification section 011000, add the following to paragraph 1.7.A: "At times when it is necessary for work to be performed within the offices of the Elizabethtown Gas Company (gas company), that work shall be performed during times when the gas company is closed and after the Contractor has requested access to the areas no less than six business days prior to such work. Any work area within the gas company space must be fully restored at the end of each day's work and prior to the gas company's re occupancy of the area the following day."
12. Regarding project specification section 011000, add the following to paragraph 1.6.: "1.6.D The parking area at the rear of the building is for the exclusive use of College staff. Although the contractor has full use of areas enclosed on site for their use, they may not utilize the parking area for their parking, material and equipment staffing, storage, etc."
13. Regarding project specification section 011000, add the following to paragraph 1.10.: "1.10.A.1 All public areas located below the temporary scaffold enclosure must be free of loose materials, obstructions and other conditions which will result in a safety, security or other impact to those who will use these areas. In addition, this public area is to be constructed with adequate lighting, ventilation, signage and other components necessary to provide Code complaint safe passage by the building's occupancy and public at large.

1.10.F At all times, the contractor is to enclose the work area and provide exhaust, air exchange and other measures necessary to result in the area outside of the work area to be free from dust and a decreased level of air quality. The contractor's full compliance with this requirement must commence in advance of any demolition or construction work at the project.

1.10.G The contractor is to install all protective measures, including but not limited to site enclosure and controls prior to the commencement of the work and not remove them until later stages of construction when the new work is in place and compliant with all Code requirements."

1.10.H In order to provide safe egress from functioning areas of the building during all phases of the work, all work at the egress stairs identified as Stair 125 and Stair 127 must be sequenced so that one of the two stairs remain in full operation at all times for the building's occupants and the public at large. After award, the contractor shall submit a sequencing plan for this work which will be submitted to the Authority Having Jurisdiction for approval.

1.10.I Although the identification of existing services to ensure that they remain in service during the work is part of the contractor's responsibility, the Owner will assist the contractor where possible in the identification of existing services."

QUESTION #1: Please provide list of manufacturers for specification section 123560

ANSWER #1: The basis of design is LSI corporation Series L44 (Flush Overlay).

(Note drawings and specification **SECTION 035420 – CEMENT BASED SELF LEVELING UNDERLAYMENT** attached.)

Please complete below. A signed copy of this addendum, SIGNED BY AN OFFICER OF THE BIDDER AUTHORIZED TO DO SO, must be included with your bid submission.

Submitted by_____

Signature: _____

Title: _____

Company or Corporation: _____

Phone #: _____ Email: _____

Date: _____

THE MUSIAL GROUP ARCHITECTURE

191 Mill Lane
Mountainside, NJ 07092
t. 908.232.2860
f. 908.232.2845

PRE-BID MEETING MINUTES

UCC FIRST FLOOR ADDITION & LOWER LEVEL REHABILITATION

Pre-Bid Meeting Location: Rm 514 Lessner Building
Pre-Bid Meeting Date: March 30, 2016
Pre-Bid Meeting Time: 11:00 a.m.

Attendees:

REFER TO ATTACHED SIGN IN SHEETS

DISCUSSION:

Sandra Auld (**SA**), Director of Purchasing for Union County College introduces the design team as well as Union County College representatives.

Introduction:

1. Noel S. Musial Sr. (NSM): President of The Musial Group Architects
2. Noel S. Musial Jr. (NM) :Project Manager The Musial Group Architects
3. John Krupka (JK): Mechanical and Plumbing Engineer
4. Mitul Patel (MP): Electrical Engineer
5. Bill Costello (BC): Epic Management
6. John Hone (JC): Union County College Facilities Department and Building Manager for Lessner Building

1. SA requests those who have arrived to sign in and those who have picked up plans to verify that the drawings and specifications are enclosed within the brown envelope. Please contact purchasing department if there is a problem.
2. SA notes and reiterates that reading the bid is imperative.
3. The list of drawings is noted on the final pages of the bid form.

4. SA reviews key dates and RFI procedure. Any RFI must be sent to the Purchasing department with the questions written in the body of the email or as a word document file attached to the email. The purchasing department will not transcribe and/or re-type content.

QUESTIONS TO BE SENT TO: PURCHASING@UCC.EDU

KEY DATES

- Site walk through today. Additional opportunities to walk the site with subcontractors will be afforded. Dates are to be coordinated with JH.
- Addendum #1 will be issued April 5th. Addendum #1 will include the Pre-Bid meeting minutes as well as revised drawings and specifications. Bidders will be notified of the availability of ADDENDUM #1 from the vendor opportunities site by email and fax April 5th by the end of the day.
- Questions are to be received by noon, WEDNESDAY APRIL 6th. These will be addressed in ADDENDUM #2 which will be made available April 11th by the end of the day.
- The BID OPENING will occur WEDNESDAY, APRIL 20th in the Admiral Stanley, 2nd Floor of the Mackay Library in the Cranford Campus at 12:30 P.M. E.S.T.
- Bids will be reviewed and recommendations made to the Board of Trustees on May 24th.
- Tentative Contract to be signed on June 8th.
- Project Duration is 350 Calendar Days.

5. Bidders shall submit a copy of a valid and active notice of classification DPMC 008 or 009- with the bid
6. BC notes that parking is difficult on the Cranford Campus. There is parking nearby in the residential area but ample time should be given. NSM suggests delivering with 2 people- driver and a runner- to ensure timely bid submission. SA reiterates that late bids will not be received.

Project Description:

1. BC initiates the project description. Notes that the upper levels of the building will be occupied during project. Temporary scaffolding and other means will be required to ensure safe egress and access from the building entrances to the elevators and escalators. These means of egress and passage must be kept dust free and have positive pressure so as to not reduce air quality for the students and occupants during construction.
2. NSM continues the description of the building conditions. The drawing set includes a proposed and suggested phasing plan, though the Design team and Construction Manager will sit down, review, and entertain any suggestions the contractor has. BC notes that there are project milestones described within the specifications that must be adhered to.

3. NSM notes that security desk must be maintained during construction. The physical location of the security desk may need to be relocated temporarily during construction.
4. BC notes that there will be a number of parking spaces reserved for the college, the CM, and the architect during construction, but a portion of the rear parking area will be made available to the contractor for staging and storage.
5. NSM provides a project overview. Everything on the first floor is to be removed and gut renovated. In addition to the removal of the interior walls, portions of the low roof and supporting trusses are to be demolished back to the column lines.
6. NSM notes that the challenging part of the project is maintaining building systems operational during construction. NSM describes the sprinkler work required. In addition to sprinkler heads, a number of sprinkler mains, risers, and standpipe cabinets that must be relocated to accommodate the new conditions. This is especially true in the area surrounding the escalator. With the roof structure being removed back to the escalator, the sprinkler lines must be re-routed out of the open space prior to the structural steel demolition.
7. In addition to the fire suppression system, the data service and fire alarm service must be kept operational throughout the duration of the project. A fire watch may be required and secured at the contractor's expense if service is interrupted. Some work will have to be done after normal hours and the contractor should plan for this. JH notes that the building is open at times as late at 10 PM
8. MP notes that similar considerations must be made regarding the Fire alarm system. The Fire alarm system must be operational throughout the duration of the project. The cabinet & panel behind the security desk will be relocated locally by swinging the panel about a foot. Splices connections must be made to extend the cable to allow for final configuration.
9. In addition to the interior demolition and renovations, new egress stair, addition and curtainwall, the low roof is to be replaced.
10. Unit prices are listed within the Bid Form. Add and deduct shall not vary by more than 10%.
11. There are 6 alternates on the project. Please refer to the project specification section 0123000 for a description of the alternates
12. There are a number of allowances on the project. The contractor is required to hire testing of steel, concrete, soils, etc. out of the testing allowance.
13. NSM notes that there is a tenant in the building on the ground floor. Elizabethtown gas has offices and there is also an ATM present. Elizabethtown Gas currently has an exit from their space into the College space. It has been determined that this means of egress is not required by code and will be removed. The conditions of the ATM lease are such that they will be required to vacate within 30 days of notice. The ATM will be removed. Introducing new storefront to replace the ATM is part of the construction contract. NSM notes that it is the contractor's responsibility to ensure that the tenant operations are not impacted. Temporary entrances will be required during the front plaza construction. This may involve a new walkway access.
14. NSM notes that original building, built in 1964, was constructed with elements that contained asbestos. There was a renovation in 1990 that replaced items that contained asbestos, though the college cannot locate those records. Within the past year, the college has contracted Saban Engineering to perform testing in the areas that will be affected by the construction. Out of the 30 locations tested throughout the interior and exterior of the building on steel fireproofing, caulk, beam enclosures, as well at the low roof, one (1) location- on the Eastern portion

of the low roof- was deemed to contain asbestos. A copy of the report will be made available to the contractor if requested.

15. NSM notes that there is a significant amount of HVAC on this project requiring a high degree of coordination both with other trades and existing conditions. This is most notable on the lower level.
16. NSM describes the new egress stair. The existing building in 1964 was constructed such that the core exited out to an exterior plaza. The 1990 addition created a non-conforming condition where the stairs exited into the building. This project corrects that condition.
17. NSM describes exterior improvements-Note that lower level extends under a portion of the exterior plaza. The topping slab is to be removed and patched to accept a new waterproofing membrane, insulation and topping slab.

Contractor Questions:

Q: Are permit fees waived?
A: NM states that Elizabeth presently has the drawings and has been verbally informed that there are no fees for construction permits. Any permit fees will be taken out the owner's allowance.

Q: What is considered "after hours?"
A: JH notes that classes may be scheduled as late as 10 pm. JH also notes that "Summer Fridays" are enacted in June through August that provide opportunities for contractor to schedule work when the building is not in use. The college requests notice of after hour/ Summer Friday work 3 business days in advance.

Site Walkthrough:

The second component to the Pre-Bid meeting entailed a walkthrough of the existing conditions. Described below are items discussed during the walkthrough and do not constitute the entirety of the scope of work.

LOWER LEVEL

1. NSM begins discussion by pointing out the demolition and replacement of the open stairwell. The floor opening will need to be modified. The new stairwell will be located where the original gas fountains were located. In addition to the removal of the toilet rooms, the original valves/ piping, and infrastructure for these fountains still exist above the existing toilet room ceilings and must be demolished and capped back at the mechanical room.
2. NSM points out the location of the existing security room behind the existing janitor's closet. The janitor's closet, including all fixtures and lines and drains, is to be demolished in its entirety with the floor repaired and patched to be an acceptable substrate in accordance with the finish floor material's manufacturer's requirements. The contractor is to make provisions to ensure that the security room is to remain operational. The existing fire alarm infrastructure is within this room.
3. NSM notes that there is minimal work in the auditorium. The hollow metal entrance is removed and a new entrance with relocated doors introduced.

4. Walk through continues to raised slab area of lower level. Future testing rooms L41, 43, 44 are located here. NSM notes that the 1990 addition extended the upper slab. Part of this project is to remove a portion of this upper concrete slab and sand fill; and to patch, repair, and prepare the lower slab to be suitable to accept the new finish flooring material.
5. Existing Mechanical Room. Air handlers are to be demolished and new units are part of the project. Curbs are to be modified, added and /or demolished to suit new unit locations. Slab is to be trenched to bury any existing lines at the floor level that are to remain as they are a hazard. Floor drains will be relocated. NSM points out the areaway that opens up to the rear plaza. New intake and return will be routed through this and up into the rear plaza.
6. Data Room. NSM notes that new double doors will be introduced to separate the "back of house" activities from the general, student accessible space. The ceiling in this back corridor is to be removed and a cable tray installed with cabling run to the new data room. MP discusses the intention of the cabling with respect to the existing and new conditions.
7. Electrical Room MP discusses the incoming service.
8. New Data Room Location. This existing classroom will be demolished. NSM points out ductwork at far wall which limits height. Also points out existing sanitary and domestic water lines that will need to be relocated on the Plan North wall of the room. New makeup air grill will need to be introduced in this wall as well. This is the wall that adjoins the Auditorium. Grill location is to be coordinated to align with the acoustical panel layout in the auditorium.
9. New Toilet Rooms are to be added at this raised level. Trenching and patching of the slab will be required to accommodate the sanitary piping as well as a new sewer ejector pump.
10. Security panel and standpipe cabinet. NSM & MP note the security panel behind the green board. With a portion of this wall being demolished, the cabinet and panel will need to be relocated.

FIRST FLOOR

1. Cafeteria NSM reviews the existing cafeteria which is adjacent to the Tenant space and ATM. The college will notify the Bank that they are to remove the ATM. Conditions of the lease is such that the bank has 30 days to leave. The exit door from the tenant space will be removed and patched. While there is not work to be done in the tenant space there are items that will affect the space. New roof and roof drains are being introduced. The drain and water lines from the tenant restroom and kitchen sink will need to be re-routed so as to not be within the new data room. This work is to be carried out after hours so as to not impact tenant
2. The kitchen behind the cafeteria is similarly gut renovated. The grease trap is to be removed and capped. As the ceiling is removed in this location, NSM points out the low roof truss demolition required and sprinkler mains which must be relocated before truss removal. The low roof / soffit is to be demolished back to the column line.
3. Walkthrough continues to the existing ramp at the rear of the building. Ramp is to be re-sloped with new exit doors introduced directly to the exterior. A block wall is to be introduced to separate the Elevator lobby from the stairwell. A new door and required lintel are to replace the existing elevator vestibule door.

4. At the rear parking lot, there is discussion of the lay down area available to the contractor. The owner will require a number of spaces to be reserved for their purposes. There are to be designated spaces for the Construction manager and the Architect as well. BC notes that the contractor may position a fence that aligns with the elevator vestibule wall.
5. The rear plaza work will entail the demolition of the existing bridge and widening the concrete area, both in front of the vestibules and at the bridge replacement surface- to provide safe egress out of the building. The deciduous magnolias are to be protected during construction and are to remain. The evergreen hedges and bushes are to be removed. The existing trench drain grates are to be replaced. NSM points out the location of the areaway – discussed earlier in the walkthrough- in the rear of the building that leads to the mechanical room on the lower level. New grating will replace the existing and will be penetrated by an outside air duct. A portion of the brick wall will need to be removed to allow for the wider egress path. This will also require relocations or new vertical and top support of the wall. New planting is to replace the existing. New site lighting and seating will be included.
6. A new rear exit stairwell is being introduced and will be hung from the existing girders. The stairwell will tie into intermediate landings at the core and create two fire rated exit corridors and stairs at a mezzanine level that will exit directly to the rear exterior plaza
7. At the Western portion of the low roof area, NSM notes that in addition to the overhang of the low roof trusses, the mechanical chase is to be demolished and floor installed. The fire suppression cabinets on each side of the core are to be relocated.
8. The escalator operation is to be maintained throughout construction, though the college will work with the contractor to facilitate construction. A portion of the low roof is being demolished between the escalator and the core to open the space up. A new sprinkler curtain and smoke baffles will be installed accordingly at the high roof adjacent to the escalator, at the low roof adjacent to the escalator and at the lower level around the front monumental stair
9. At the existing security desk, MP discusses the Fire alarm panel. All of the components and items that the desk needs are located on the architectural and electrical drawings. The Fire alarm panel is to be rotated around the column. MP also discusses the security camera infrastructure highlighting the stacked data closets at the building core while noting the existing infrastructure is to be operational while the new system is introduced.
10. Discussion continues to the front plaza. NSM points out the extent of the basement below which will require a double slab construction with waterproofing. Given the addition of the interior space, new grades will need to be established at the plaza to meet the interior finish floor level. Existing granite curbs, flagpoles, trash cans are to be demolished. Existing structural slab is to be patched and repaired, with a new waterproofing membrane, 100 psi insulation, and topping slab introduced. The sidewalk is to be removed and existing foundation wall to receive waterproofing down to 1’ below the joint with the original foundation. A new concrete sidewalk is to be installed. A new stainless steel railing, illuminated College signage and concrete planters are to be installed. NSM notes the concrete bases at the columns will need to be modified to not interfere with the new construction. NSM points out the housetraps, cleanouts, vents, and standpipe in the plaza and plaza wall that will need to be modified to accommodate the new construction.

11. With the site walkthrough concluded, JH notes that he will be available 4/1/16 @ 11:00 am should any contractors wish to visit the site again.

END OF PRE-BID MEETING

SECTION 035420 – CEMENT BASED SELF LEVELING UNDERLAYMENT

PART 1

1.01 SUMMARY OF WORK

A. The Work of this Section shall include, but not be limited to, installation of hydraulic cement-based self-leveling underlayment (SLU) on slabs to the elevation required to place finish material at the contract elevation. Prepare substrate to receive the SLU and install as per this Section and per manufacturer's recommendations. Multiple substrate conditions exist including a number of existing substrates as well as new construction. SHOT BLAST AND/OR SCARIFICATION WILL BE REQUIRED AT THE EXISTING TERRAZZO TO REMOVE SEALERS AND ACCEPT PRIMER AS WELL AS AT THE CONCRETE SLAB TO REMOVE EXISTING ADHESIVES. PRIME WITH CMP AS100 OR APPROVE EQUAL. BARREL MIX, GAUGE RAKES AND SMOOTH LEVEL 1 BY CMP OR APPROVED EQUAL

B. Provide on all slabs to provide a uniform surface to receive finish.

C. Moisture content of the concrete slabs shall be checked and documented in writing by the Contractor to ensure the moisture content is acceptable for all materials to be placed on the slab (SLU, finish flooring).

1. Slabs shall be tested utilizing the calcium chloride moisture test and, if required by the floor finish manufacturer, using in-situ test probe method for relative humidity.

2. New concrete slabs shall be cured a minimum of twenty-eight (28) days for normal weight concrete and 56 days for lightweight concrete prior to testing.

1.02 RELATED SECTIONS

A. Resilient Sheet Flooring……Section 096500
B. Cast-in-Place Concrete…… Section 033000
C. Selective Demolition……..Section 024119
D. Resilient Flooring……Section 096500

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM), latest editions.

C31 Standard Testing Method How to Cast the In-Field F_c and F_i Test Cubes
C94 Standard Specification for Ready-Mixed Concrete

C109 Standard Test Method for Compressive Strength of Hydraulic Mortars Using 2-inch or [50mm] Cube Specimens

C157 Standard Test Method for Length Change of Change of Hardened Hydraulic-Cement Mortar and Concrete

C191 Test Using Vicat Needle to Determine Final Setting Time of (SLU) Mix

C596 Standard Test Method to Determine Amount of Water Content in Concrete and Concrete Coatings of Hydraulic Cement Grout (Non-Shrink)

C1583 Test Method Standard for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Surfaces

F1869 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride

F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

1.04 SUBMITTALS

A. **035420_01 Product Data**

Submit manufacturer's technical data for all materials, including repair material, primer, self-leveling underlayment, epoxy, and moisture mitigation membrane.

B. **035420_02 Shop Drawings**

Plans indicating substrates, locations, and average depths of cement-based underlayment based on survey of substrate conditions.

C. **035420_03 Quality Control Submittals**

1. Test Reports:

   a. Submit independent laboratory test reports for the performance criteria specified in Part 2 for the SLU (For products not listed).

   b. Moisture testing:

      1) Calcium chloride moisture test indicating substrate moisture content is within acceptable limits to receive SLU and finish flooring.

      2) Relative Humidity moisture test indicating substrate moisture content is within acceptable limits to receive SLU and finish flooring.

2. Certificates

   Furnish single-source Manufacturer's certification that materials meet or exceed Specification requirements.

3. Manufacturer's Instructions: Furnish manufacturer's printed material, specifications, and application instructions for installation of all component materials to complete the Work of this Section.

4. Written Repair Procedure

   Submit written copies of procedures of actual process to be utilized to install self-leveling underlayment, including surface preparation and mixing procedures. Procedure is to be signed by manufacturer's representative for locations where drawings require manufacturer's representative to inspect and certify compatibility of manufacturer's product with substrate.

5. Manufacturer's Field Reports

   Manufacturer's representative of single-source cement-based self-leveling underlayment shall submit field reports of surface preparation inspection and underlayment placement.

6. Qualifications

   Provide proof of Manufacturer and Installer qualifications and experience specified under "Quality Assurance".

7. Installer's Field Schedules

   a. Appendix A Schedule completed, dated and signed by individual certified Installer-Applicator.

   b. Appendix B Schedule completed, dated and signed by individual certified Installer-Applicator.

035420_04 Guarantee

Installer's installation guarantee and manufacturer's material warranty.

035420_05 Mock-up

Provide mock-up of SLU installation.

1.05 QUALITY ASSURANCE

A. Qualifications

1. Installer/Applicator: An experienced installer/ applicator, trained by the manufacturer to install their system, who has completed cement-based underlayment applications similar in material and extent to that required for this Project, and whose work has resulted in construction with a record of successful continuous in-service performance for a minimum of three (3) years.

2. Manufacturer: A minimum of four (4) years successful continuous experience in the manufacturer of hydraulic cement-based self-leveling underlayments capable of being applied over the varied substrates of existing buildings.

B. Mockups

1. Before installing self-leveling underlayment, apply mockups to demonstrate quantities of materials and execution. Comply with the following requirements, using materials indicated for the completed Work.

a. Architect will select one area or surface to represent surfaces and conditions for application on each substrate required.

1) Mock-up of installed underlayment shall be no less than 3’-0” X 3’-0” and preferably shall be 6’-0” X 6’-0”.

2) Mock-up of installed underlayment shall be prepared *in-situ* and shall be retained in-situ as example of quality of installation as well as underlayment mix.

3) Mock-up of installed underlayment will be inspected no less than 7 days old.

b. Notify Authority seven days (7) in advance of dates and times when mockups will be applied.

c. Obtain Authority's approval of mockups before starting underlayment application.

d. Maintain mockups, during underlayment application and until installation of finish flooring, in an undisturbed condition as a standard for judging the complete work.

e. Approved mockups may become part of the completed work if undisturbed when finish flooring is installed.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage, mixing with other components, and application. Do not break open manufacturer’s factory seals of any component packaging until installation.

B. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental conditions.

C. Keep all self-leveling underlayment components on a clean dry pallet raised up from the floor the pallet is sitting on in a temperature-controlled and humidity-controlled, secured and locked room until actual incorporation into the Work of this Section.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not install self-leveling underlayment until floor penetrations and peripheral work is completed. Where placed on new concrete, concrete slab shall have cured a minimum of 28 days for normal weight concrete and 56 days for lightweight concrete and is dependant on results of moisture testing for both SLU and finish flooring. Testing shall be done under the conditions described in B below.

B. Maintain ambient conditions to which the floor will be maintained under in-situ conditions. Buildings that are or will be air conditioned shall have conditions maintained at a temperature of 78^{o}F together with 50% relative humidity for seventy-two (72) hours continuously prior to installation of underlayment and for the same period after in the space below as well as the space in which the material is being placed. Provide temporary equipment to provide such conditions. Do not utilize forced cooling or heating that produces rapid air movement, which will result in premature wicking of moisture affecting setting and surface of the SLU setting for the first 24 hours after placement. Do not install in temperatures below 50^{o}F or over 90^{o}F. Comply with manufacturer's written recommendations for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting self-leveling underlayment material’s performance.

C. Close areas to traffic during underlayment application and for a minimum twenty-four (24) hour period after installation-application (longer if needed due to actual installation conditions or material type as recommended in writing by manufacturer).

1.08 COORDINATION

A. Coordinate cement-based underlayment with requirements of finish flooring products, including adhesives, specified in Division 9 Sections.

1. Before installing surface sealers recommended by underlayment manufacturer, if any, verify compatibility with finish installation adhesives.

2. For existing construction, coordinate use of ACM materials encapsulant used under requirements of section 02081 with SLU manufacturer’s requirements for substrate preparation and use of primer/bonding agent.

1.09 GUARANTEE

A. Provide Manufacturer’s five-year warranty covering defects in materials.

B. Provide Contractor's two-year guarantee covering materials and workmanship that self-leveling material will not fail or cause failure of finish material.

C. For surfaces receiving moisture mitigation membrane, manufacturer's ten-year material and labor warranty against failure of those materials placed on the material due to the affects of moisture migration or bond.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Self-leveling underlayment and repair material

1. LEVEL-1 self leveling underlayment
   CMP Specialty Products, Inc
   601 South 10th Street, Allentown, PA 18103

2. Ardex Inc.
   400 Ardex Park Dr, Aliquippa, Pennsylvania 15001

3. Dayton Superior Chemical Division
   4226 Kansas Avenue, Kansas City, KS 66108.

4. Silpro LLC
   2 New England Way, Ayer, MA 01432

5. Dramatic Surface Products/ H.B. Fuller Company
   1200 Willow Lake Boulevard, St. Paul, MN 55164

B. Moisture Mitigation Membrane

1. Koester American Corp.
   2585 Aviator Drive, Virginia Beach, VA 23453

2. Sinak
   1949 W. Walnut Ave, San Diego, CA 92101

3. Ardex
   400 Ardex Park Dr, Aliquippa, Pennsylvania 15001

4. CMP
   1200 Willow Lake Boulevard, St. Paul, MN 55164

C. Material Coordination

Contractor shall provide systems and materials compatible with and acceptable to the SLU manufacturer. Where moisture mitigation membrane is placed, the Contractor shall test the installation of the SLU on the moisture mitigation membrane

with the moisture mitigation membrane manufacturer to ensure proper bond is achieved and ensure the warranty against failure will be received.

2.02 MATERIALS

A. General: All self-leveling underlayments are to be hydraulic cement based capable of being installed in spaces subject to moisture without degradation underwet conditions and able to receive floor covering in 16 hours under climate controlled conditions ("self-drying"). The products listed have been tested by the Authority's testing laboratory consultant by laboratory mock-ups and ASTM testing or through successful field testing. No other products will be accepted without going through the testing procedure, which is to be at the manufacturer's cost. Use of materials specified is also dependant on manufacturer's requirements, in which they may not permit the installation on certain substrates due to their material properties. Moisture mitigation membranes, installed prior to application of the SLU, must be acceptable to the SLU manufacturer.

B. Material/Performance Testing to be performed for product not listed – Authority will compare the following against accepted materials

1. Sulfate testing per ASTM C114

2. Compression strength test as per ASTM C109- For both specified amount of water and with additional 1 quart listing testing at 7 days and 28 days.

3. Shrinkage testing per ASTM C596 - For both specified amount of water and with additional 1 quart listing testing at 7 days, 14 days, 21 days, and 28 days.

4. Bond tensile pull in accordance with ASTM C1583.

5. Mixing and placement - For both specified amount of water and with additional 1 quart – Petrographic analysis in accordance with ASTM C1324

   a. Material Segregation during mixing

   b. Material segregation after placement and hardening. Sections taken shall clearly show the bond line and the aggregate within matrix.

6. In-situ testing - For both specified amount of water and with additional 1 quart:

   Placement on a 4x4 slab of lightweight structural concrete, with photographs. If deemed appropriate by the Authority, photographic evidence from other projects may be acceptable.

B. Self-Leveling Underlayment for placement on Hard Concrete Surface (Minimum $f'c$ = 4,000 psi)

1. Primers:

   a. CMP — AS-100 Primer

   b. Ardex — Primer P-51

   c. Dayton Superior — J-42 Primer

   d. Silpro — C-21, Silflo Primer

   e. Dramatic Surface Products — DSP 500 Primer

2. Flash Patch:

   a. Ardex — SD-F Feather Finish

   b. Dayton Superior — Sure Finish

   c. Silpro — Skim Pro

   d. Dramatic Surface Products — DSP 502 Skim Coat

   e. CMP — Ultra Finish

3. Self-Leveling Underlayment (depending on Build up Thickness):

   a. Ardex — K-15

   b. Dayton Superior — Levelayer I & II

   c. Silpro — Silflo 230

   d. Dramatic Surface Products — DSP 520

   e. CMP — Level Finish

C. Strengthening Underlayment for placement on Soft Cementitious Material – Installation of strengthening membrane to reinforce substrate

1. Strengthening Membrane (normal setting):

   a. Dayton Superior — Conspec Special Patch/ Special Bond Acrylic with fiberglass mesh

b. Silpro — Masco/C-21 with fiberglass mesh

c. Dramatic Surface Products — DSP 504/DSP 501 with fiberglass mesh

2. Strengthening Membrane (fast setting):

a. Dayton Superior — Conspec Special Patch/ Special Bond Acrylic with fiberglass mesh

b. Silpro — Fasco/C-21 with fiberglass mesh

c. Dramatic Surface Products — DSP 506/DSP 501 with fiberglass mesh

d. CMP — SR-P/Polybond with fiberglass mesh

D. Aggregates:

1. Provide aggregates when recommended in writing by underlayment manufacturer for underlayment thickness required.

2. Mixed with self-leveling material: Well-graded, washed 1/8” to 1/4" stone or coarse sand as recommended by underlayment manufacturer.

3. Preplaced Stone: 3/8” or 3/4" clean, crushed, washed stone of a single gradation as recommended by manufacturer.

E. Water: Shall be clean New York City (potable) water free of injurious foreign matter conforming to the requirements for water specified in ASTM C94 at a temperature of not less than 50˚F nor more than 70˚F.

G. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

H. Moisture Mitigation Membrane: Material that when placed will prevent moisture and alkalydes from affecting adhesives and materials and shall be placed at a rate to mitigate up to 25 pounds per 1,000 square feet in 24 hours.

1. Sinak HLQ- V-Poxy -Relay system

2. Koester Vap 2000

3. ARDEX MC Rapid or ARDEX MC Plus

4. CMP V-20 Plus or V-25

I. Moisture Test Kits:

1. Vinyl Plastics, Inc. Sheboygan, WI 53082
2. Sealflex Industries Costa Mesa, CA
3. Floor Seal Technology, Inc. San Jose, CA 95112
4. Wagner RH
5. Tramex RH

2.03 PRE-INSTALLATION MEETING

A. Conduct a pre-installation meeting with the manufacturer's representative to review the methods and procedures, including surface preparation, for a satisfactory self-leveling underlayment installation.

B. Meeting shall occur with sufficient time to have submittal, procedures, and test panels completed prior to work progressing.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates, with Installer present for conditions affecting performance of underlayment including substrate moisture content. Begin underlayment application only after unsatisfactory conditions have been corrected and substrate condition inspected and approved by the manufacturer's representative and by Architect/Engineer. SLU installer shall not proceed until above required environmental conditions can be verified and recorded on provided Schedules for a minimum of seventy-two (72) hours prior to SLU application in respective space.

B. Perform moisture tests on concrete subfloors to determine if surfaces are sufficiently cured and dry by the two following test methods. The values indicated shall be verified with the manufacturer of the actual floor finish material:

1. Tests in accordance with ASTM F1869**:** Moisture vapor transmission shall not exceed 3 pounds per 1,000 square feet in 24 hours.
2. Tests in accordance with ASTM F2170**:** Relative Humidity shall not exceed 75%.

3.02 PROTECTION

A. Protect substrate and materials from freezing before and after installation.

B. Protect adjacent finish materials and previously poured concrete slabs and SLU against spatter during SLU placement.

3.03 REMOVAL/DEMOLITION

A. The pattern and extent of the demolition and removal of the deteriorated materials shall be per engineer's recommendations. The following shall be followed:

1. Overcut: The removal of the deteriorated material shall extend laterally at least 6" into sound material. A pattern outlines the extent of removal shall be established so when removal is complete, there will be no loose material left. The new substrate will be built on and around sound materials.

2. Undercut: When metal, rebar or reinforcing mesh are encountered, at least ¾" of the substrate material under the reinforcing shall be removed to allow proper bond between the reinforcing bars and the new material.

3. Cutback: Residual mastic on old surface shall be removed.

1

3.04 SURFACE PREPARATION

A. General: The surface of the existing substrate where the new self-leveling underlayment is to be applied shall be thoroughly shot-blasted and cleaned to an ICRI CSP3-5 minimum surface preparation, or greater if required by SLU manufacturer. Machine grinders with HEPA attachments such as the Hilti DG150 are acceptable for those substrates that are subject to asbestos abatement or where shot blasting equipment use is not feasible, such as cinder fill concrete, and will be able to produce the profile required by the SLU manufacturer. Use of a scarifier or scabbler is prohibited. The surfaces that are to receive new substrate material shall be free of laitance, asphalt, old paint, mastic, etc. that may inhibit bond between the old and the new material. Chemical treatment of the substrate (acid etching, citrus cleaner) is prohibited. After shot blasting/grinding the surface, notify the engineer for inspection.

1. Prepare and clean substrate according to manufacturer's written instructions for substrate indicated. Provide clean, dry, neutral-pH substrate for underlayment application.

2. Treat nonmoving substrate cracks to prevent cracks from telegraphing (reflecting) through underlayment. Rout any cracks and fill the cracks with the epoxy, scraping smooth and level with the substrate while broadcasting sand to allow for bonding of the SLU. After set, remove all loose sand.

a. Sikadur 52 epoxy by Sika

b. Sure-inject J-56 by Dayton Superior

c. Ardex ArdiSeal 2C Semi-Rigid Epoxy

d. CM-10 by CMP Specialty Products, Inc.

3. Fill substrate voids, holes and patch the low spots with the following products to prevent underlayment from leaking:

a. Sika top 122 plus patching grout by Sika

b. Ardex SD-P by Ardex

c. HD-50 or Conspec Special Patch/Special Bond Acrylic by Dayton Superior

d. Fastcrete, Mascrete, or Patchco by Silpro

e. DSP 506 by Dramatic Surface Products

f. CMP SR-P by CMP

B. New Concrete Substrates: Mechanically remove laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond according to manufacturer's written instructions.

C.

1. Install underlayment reinforcement recommended in writing by manufacturer.

D. Metal stair pan Substrates: Mechanically remove rust, foreign matter, and other contaminants that might impair underlayment bond according to manufacturer's written instructions. Apply corrosion resistant coating compatible with underlayment if recommended in writing by underlayment manufacturer.

E. Nonporous Substrates: For ceramic tile, quarry tile, and terrazzo substrates, remove waxes, sealants, and other contaminants that might impair underlayment bond according to manufacturer's written instructions.

F. Adhesion Tests: After substrate preparation, test substrate for adhesion with underlayment according to manufacturer's written instructions.

3.05 APPLICATION

A. General: Mix and apply underlayment components according to manufacturer's written instructions.

1. Coordinate application of components to provide optimum underlayment-to-substrate and intercoat adhesion.

2. At substrate expansion, isolation, and other moving joints, allow joint of same width to continue through underlayment.

B. Mixing and installation of moisture mitigation membrane. Choice of material must be based on compatibility to self-leveling material selected to provide the proper bond.

1. Mix material in accordance with manufacturer's instructions.

2. Provide mix and applications to provide resistance up to 25 pounds per 1,000 square feet in 24 hours, including application of materials to provide bond to the SLU.

C. Mixing of SLU

1. Provide water of exact quantity as required by manufacturer.

2. Provide mechanical mixer for mixing SLU material with water at project site. Equip mixer with a suitable water-measuring device.

3. Use only mixers that are capable of mixing the dry SLU mix and water (and aggregate where required) into a uniform self-leveling mix.

D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.

E. Installation

1. Apply self-leveling underlayment, in accordance with the manufacturer's instructions, to a minimum thickness of 1/8" over high points. Utilize a gage rake to provide a uniform average thickness and finish with a smoother to provide a level, smooth plane finish, free of score marks, grooves, depressions and ripples. Finish tolerance shall be as required for finish flooring:

c. All Other finishes (tile, poured floors, etc): Finish tolerance no greater than $\pm$3/16" in ten feet.

2. Where joints are required, construct to match and coincide with joints in base slab. Provide other joints as shown.

3. Where depth of material will be over 3/4" deep(or less depending on manufacturer's printed literature for that product), place in two lifts by providing aggregate in the mix to extend the material of the first lift, followed by a finish pour of 1/4" without aggregate. The proportion of aggregate to SLU shall be as recommended by the manufacturer in writing. If acceptable and recommended in writing by the manufacturer, place uniform stone loose (after priming of substrate) and place self-leveling on stone. As an alternative, place non-extended mix in 3/4" maximum lifts (or less depending on manufacturer's recommendations for that product). Allow time between lifts as recommended by manufacturer to allow for curing and shrinkage. Prepare surface of each lift as recommended by manufacturer.

4. Provide for transition between adjacent area not scheduled to receive underlayment.

3.06 PROTECTION

A. Cure underlayment according to manufacturer's written instructions. Prevent contamination during application and curing processes. Protect all freshly deposited underlayment from premature drying and excessively hot or cold temperatures and maintain it with minimal moisture loss at a relatively constant temperature for the period of time necessary for the hydration of the cement and proper hardening of the underlayment.

B. Protect underlayment against damage by covering with suitable protective materials such as kraft building paper, plywood, masonite or similar or in accordance with manufacturer’s recommendations until installation of finish material.

C. Protect underlayment from concentrated and rolling loads for remainder of construction period.

D. Do not walk on or install finish flooring over underlayment for a minimum of 24 hours after placement, or longer if required by the SLU manufacturer due to material type or environmental conditions.

3.07 FIELD QUALITY CONTROL

A. Field Samples

Periodically throughout placement as recommended by manufacturer, conduct “Patty” or “Flow Ring” test to confirm proper water/cement ratio. If requested, cast three brass-molded cubes in the presence of manufacturer’s representative for compressive strength documentation.

B. Inspection

Notify the Authority of the beginning of each phase of work so the Engineer or Architect-of-Record and other Authority Representatives can make inspections. Do not proceed with installation of materials until substrates have been prepared and approved by the Engineer/Architect-of-Record and the manufacturer’s representative. The Authority may also elect to engage a licensed laboratory to take samples of the material and witness the mixing.

D. Manufacturer's Field Service

Obtain services of self-leveling underlayment manufacturer's representative to inspect and supervise substrate preparation and placement of the material. The manufacturer’s representative is to inspect the substrate to ensure their material is appropriate for the application, that jobsite environmental conditions for placement are met, and to ensure the substrate preparation is adequate and shall provide a written report of such inspection.

3.08 ACCEPTANCE OF SELF-LEVELING UNDERLAYMENT WORK

A. General

1. Completed underlayment work that meets all applicable requirements will be accepted without qualification.

2. Completed underlayment work that fails to meet one or more requirements but which has been repaired to bring it into compliance will be accepted without qualification.

3. Failure of self-leveling underlayment to bond to substrate (as indicated by a hollow sound when tapped), or disintegration or other failure of underlayment to perform in accordance with product data, will be considered failure of materials and workmanship. Repair or replace underlayments in areas of such failures. Underlayment work judged inadequate or deemed unacceptable due to appearance shall be replaced if so directed by the Engineer at the Contractor's expense.

4. Pay all costs incurred by the Authority in providing additional testing and/or analysis required by this Section.

5. The Authority will pay all costs of additional testing and analysis made at its own request that is not required by this Section or which shows concrete is in compliance with the Contract Documents.

B. Dimensional Tolerances

Finished underlayment exceeding the tolerances may be repaired provided that strength, durability, or appearance is not adversely affected. High spots may be removed with a terrazzo grinder, low spots filled with a cement-based patching compound, or other remedial measures performed as permitted and as acceptable to the self-leveling underlayment manufacturer.

END OF SECTION