

**INVITATION TO BID
BID NO. 9838
FLOOR REPLACEMENT PROGRAM
TROY SCHOOL DISTRICT**

The Troy School District will receive firm, sealed bids for furnishing, delivering, removing and installing new Flooring at Athens and Troy High Schools, International Academy East High School and Larson Middle School, for Troy Schools.

Specifications and proposal forms can be obtained online at <http://www.troy.k12.mi.us>. From the main page click the "Business Services" tab listed under "Departments", then click "Purchasing" and go into the "Current Bids" tab, scroll down to locate and access the bid document.

Your proposal, and one copy marked '**BID 9838 Floor Replacement Program**' must be delivered no later than 1:30 p.m., Tuesday, February 28, 2017, to Troy School District, Purchasing Department, 1140 Rankin, Troy, Michigan 48083, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted.

A pre-proposal conference has been scheduled for Thursday, February 16, 2017, at 2:30 p.m., Troy High School, 4777 Northfield Pkwy, Troy, MI 48098. All questions regarding the services specified, the bid specified, or the bid terms and conditions will be accepted in writing ONLY and subsequently answered through an addendum to all interested parties. Questions must be received no later than noon, Monday, February 20, 2017; at no other time prior to the bid opening will questions/concerns be addressed or accepted and may be faxed to: 248.823.4077, or emailed as a Word document to: PurchasingOffice@troy.k12.mi.us.

The Troy Board of Education reserves the right to accept or reject any or all bids, either in whole or in part; to award contract to other than the low bidder; to waive any irregularities and/or informalities; and in general to make awards in any manner deemed to be in the best interest of the owner.

Purchasing Department
Troy School District
Troy, MI 48083

INSTRUCTIONS TO BIDDERS

PROPOSALS

1. The Troy School District will receive firm, sealed bids for furnishing, delivering, removing and installing new flooring at Athens and Troy High Schools, International Academy East and Larson Middle School, in accordance with the attached specifications.
2. Proposals will be submitted only on the forms provided, will be enclosed in a sealed envelope marked with the name of the bidder, the title of the work and must be delivered to the Troy School District, Purchasing Department, 1140 Rankin, Troy, Michigan 48083, no later than 1:30 p.m., Tuesday, February 28, 2017, at which time all bids will be publicly opened and read aloud immediately thereafter. Bid proposals received after this time will not be considered or accepted. Oral, telephone, fax or electronic mail bids are invalid and will not receive consideration. Submit one original and one copy.
3. Proposals will be made in conformity with all the conditions set forth in the specifications. All items of furniture and equipment must conform to the specifications.
4. A pre-proposal conference has been scheduled for Thursday, February 16, 2017, at 2:30 p.m., Troy High School, 4777 Northfield Pkwy, Troy, MI 48098. All questions regarding the bid specified, or the bid terms and conditions will be accepted in writing ONLY and subsequently answered through an addendum to all interested parties. Questions must be received no later than noon, Monday, February 20, 2017, at no other time prior to the bid opening will questions/concerns be addressed or accepted and may be faxed to: 248.823.4077, or emailed as a Word document to: PurchasingOffice@troy.k12.mi.us.
5. References in the specifications to any article, product, material, fixture, form or type of construction, etc., by proprietary name, manufacturer, make or catalog number will be interpreted as establishing a standard quality of design and will not be construed as limiting proposals.
6. The Troy Board of Education reserves the right to accept or reject any or all proposals either in whole or in part; to waive any irregularities and/or informalities; and in general to make awards or cancel this proposal, if deemed to be in the best interests of the owner.
7. A completed Familial Disclosure and an Iran Economic Sanctions form must be included with each proposal submitted or the proposal will not be accepted, please note these forms must be notarized.

SCOPE

This specification includes furnishing, delivering, removing and installing new Flooring at Athens and Troy High Schools, International Academy East and Larson Middle School, in accordance with the attached specifications. The awarded Vendor must follow the manufacturer recommended installation guidelines, as well as, remove and dispose of the existing flooring for this project.

CONTRACT AWARD

The contract will be awarded in the form of PURCHASE ORDERS mailed to the Vendor(s) selected. It is the intent to award the bid on March 21, 2017, at the regular monthly meeting of the Board of Education.

WITHDRAWAL OF BIDS

Any bidder may withdraw their bid at any time prior to the scheduled time for receipt of bids. No proposal may be withdrawn until after 45 days after bid opening.

INSURANCE

Satisfactory Workers' Compensation coverage of at least \$1,000,000.00 and General Liability and Property Damage Insurance of at least \$1,000,000.00 per occurrence and \$1,000,000.00 in Aggregate must be carried and paid for by the contractor(s) who undertakes the work on this contract. Insurance coverage must also include automobile insurance of at least \$1,000,000.00. Bid number and Troy School District as additional insured must be noted on the insurance certificate. Certificate holder will be Troy Schools.

BID GUARANTEE

Bidders must submit with their proposal a bid bond or certified check for not less than five percent of the bid. Failure to include a five percent bid guarantee will result in the rejection of your bid.

GUARANTEE BONDS

Prior to the issuance of a purchase order authorizing commencement of this project, and in all cases before beginning work under the contract, the Vendor/Contractor(s) selected will qualify for, sign and deliver to the Purchasing Office, an executed performance bond and executed labor and materials payment bond secured by the surety company. Each bond will be in the amount of 100 percent of the contract. Troy Schools requires that the bonding companies be limited to those listed on the U.S. Department of Treasury Circular 570, and must be licensed in the State of Michigan. The U.S. Department of Treasury Circular 570 can be viewed at the following web site: <http://www.fms.treas.gov/c570/c570.html>. Certificates of such insurance and bonds will be filed with the Purchasing Office within five working days of notification of bid award and before any work begins.

DELIVERY AND LOCATIONS

All shipments will be F.O.B. delivered to, Athens High School, 4333 John R, Troy, MI 48085, Troy High Schools, 4777 Northfield Pkwy, Troy, MI 48098, International Academy East High School, 1291 Torpey Drive, Troy, MI 48083 and Larson Middle School, 2222 E. Long Lake Road, Troy, 48085.

WARRANTY

All material and equipment will be guaranteed to be free from defects in both workmanship and materials for no less than one year from date of receipt/installation. If manufacturer warranty exceeds this minimum requirement, the manufacturer warranty will prevail. Any item(s) found to be defective will be replaced or repaired within seven working days at Vendor(s) expense. All items shall be quoted with an additional six-month warranty/freight/removal.

PERMITS

All necessary permits, tests, inspections and approvals will be procured by the contractor(s) and will be included in the proposal.

PAYMENTS

Payment in full will be due and payable within thirty days after delivery, providing all goods are approved and accepted by the Board of Education and the contract having been fully performed.

MSDS

COPIES OF MATERIAL SAFETY DATA SHEETS FOR ALL HAZARDOUS MATERIALS MUST BE INCLUDED WITH YOUR INVOICE.

MATERIAL SAFETY DATA SHEETS

Troy Schools expects MATERIAL SAFETY DATA SHEETS for all appropriate materials ATTACHED TO THE INVOICE and to appropriately label all products delivered according to Section 14 of Act 154, of the Public Acts of 1974 as amended. Any appropriate products not labeled will be refused and the vendor will be responsible for additional freight charges. Payment may be withheld until MSDSs are received by the school district.

BID NO. 9838
FLOOR REPLACEMENT PROGRAM
AND INSTALLATION
FLOORING SCOPE OF WORK
SPECIFICATIONS
TROY SCHOOL DISTRICT

Flooring Scope of Work – Drawings A1 – A12

Flooring removal and installation at Troy High School, Athens High School, International Academy East and Larson Middle School. For each school there is a composite plan showing the area of work and an enlarged plan detailing the scope and materials. See attachments below for these drawings listed A1 –A12.

- A1 Composite plan Troy High School (THS)
- A2 Enlarged plan THS
- A3 Enlarged plan THS (second location)
- A4 Composite plan Athens High School (AHS)
- A5 Enlarged plan AHS
- A6 Composite plan for International Academy East (IAE)
- A7 Enlarged plan option 1 IAE – demolition
- A8 Enlarged plan option 1 IAE – installation
- A9 Enlarged plan option 2 IAE – demolition
- A10 Enlarged plan option 2 IAE – installation
- A11 Composite plan Larson Middle School (LMS)
- A12 Enlarged plan LMS

Specifications

Demolition – Quarry Tile Areas

1. Remove existing tile and base – dispose of legally off site.
2. Contractor to remove tile and base material down to “solid” material to bond to. Contractor to fill areas of removed tile and base material with Ardex or similar. Top of slab to align with adjacent slab areas.
3. It is essential that all substrates be permanently dry, clean, smooth, and structurally sound. Substrates shall be free of all foreign materials such as dust, solvent, paint, wax, grease, oil, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might prevent adhesive bond. Substrate preparation should be done while the permanent HVAC is set at a minimum 68°F. Vacuuming the substrates with a commercial shop vacuum is a preferred method of removing dirt and dust. For concrete floors, damp mopping is an excellent way to remove fine dust. A clean substrate is essential for proper bonding of the adhesive to the substrate.

Demolition – VCT and Carpet Areas

1. Remove existing flooring and base – dispose of legally off site.
2. It is essential that all substrates be permanently dry, clean, smooth, and structurally sound. Substrates shall be free of all foreign materials such as dust, solvent, paint, wax, grease, oil, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that might prevent adhesive bond. Substrate preparation should be done while the permanent HVAC is set at a minimum 68°F. Vacuuming the

substrates with a commercial shop vacuum is a preferred method of removing dirt and dust. For concrete floors, damp mopping is an excellent way to remove fine dust. A clean substrate is essential for proper bonding of the adhesive to the substrate.

Installation – Rubber Flooring

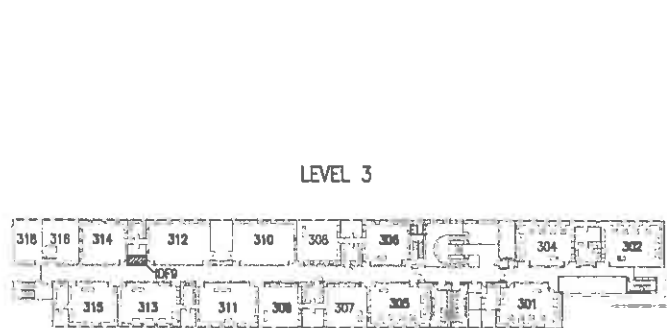
1. Provide new nora Environcare 3MM 24” X 24” tile or Grano 39” tile as shown on drawings. Colors TBD.
2. All installation will be per the manufacturer’s specification for these product, see Exhibit 1 and 2 below.
3. Grind smooth existing surface.
4. Skim coat all areas with Ardex or similar to receive nora.
5. Check Rh for 60 days prior to install.
6. Product will be installed with nora 485 one part adhesive.
7. Provide new 4" H Roppe rubber base color; TBD

Installation – Walk off carpet

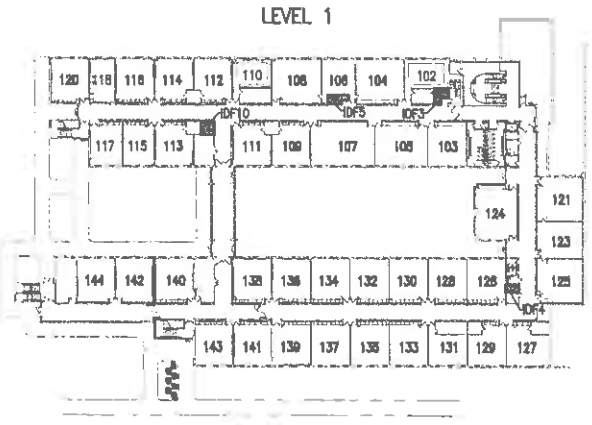
1. Provide new Forbo Coral Brush 24” X 24” tile. Color Hurricane Grey - extent as shown on drawings.
2. All installation will be per the manufacturer’s specification for this product, see Exhibit 3 below.
3. Grind smooth existing surface.
4. Skim coat all areas with Ardex or similar to receive Forbo product.
5. Check Rh for 60 days prior to install.
6. Product will be installed using Forbo Sustain 885 adhesive.
7. Provide new 4" H Roppe rubber base color; TBD

Installation – Luxury tile

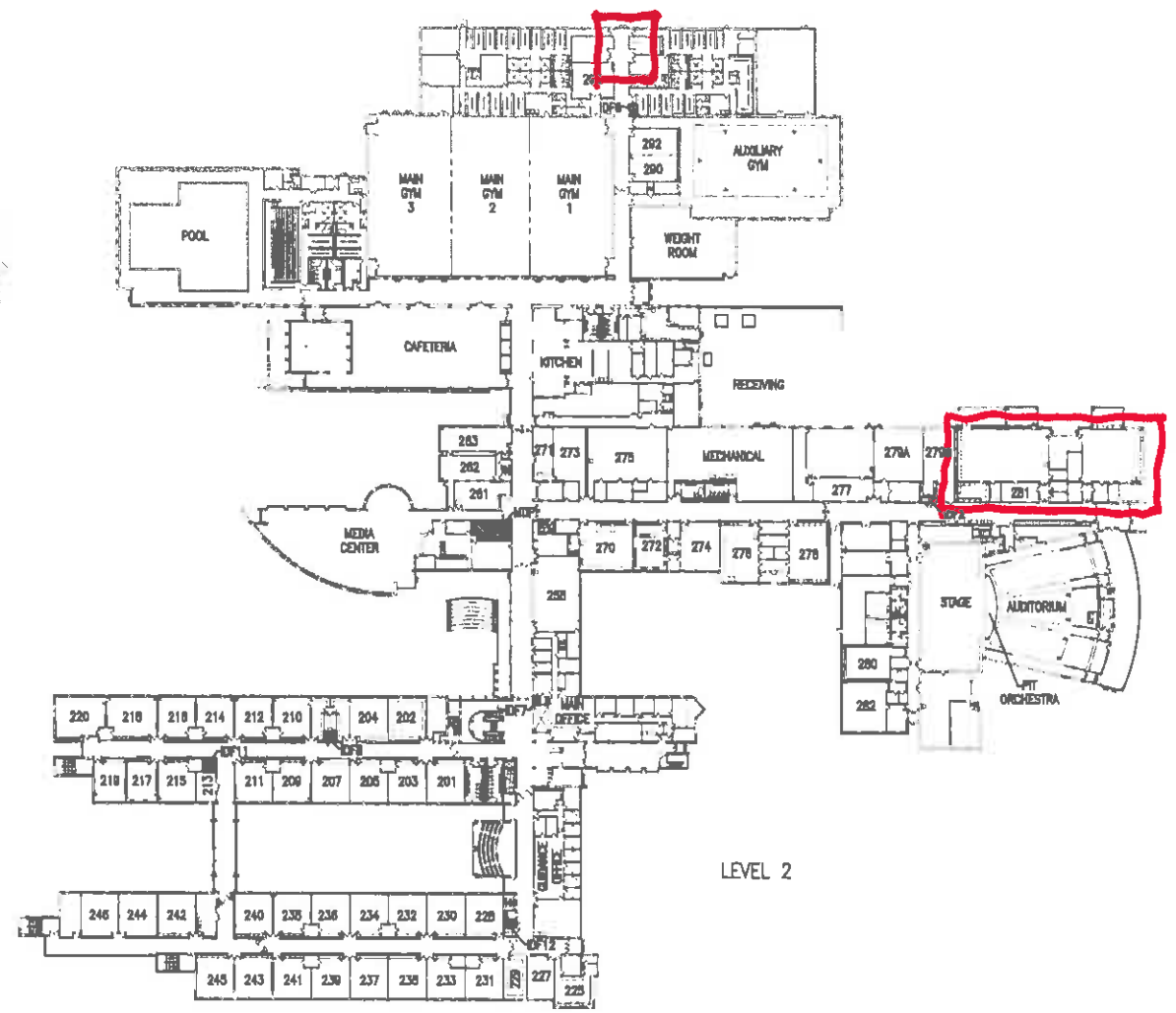
1. Provide new Forbo Marmolueum modular v1.01 10” X 20” color A and color B - extent as shown on drawings. Contractor to match pattern on site.
2. All installation will be per the manufacturer’s specification for this product, see Exhibit 4 below.
3. Grind smooth existing surface.
4. Skim coat all areas with Ardex or similar to receive Forbo product.
5. Check Rh for 60 days prior to install.
6. Product will be installed __ adhesive.
7. Provide new 4" H Roppe rubber base color; TBD



LEVEL 3



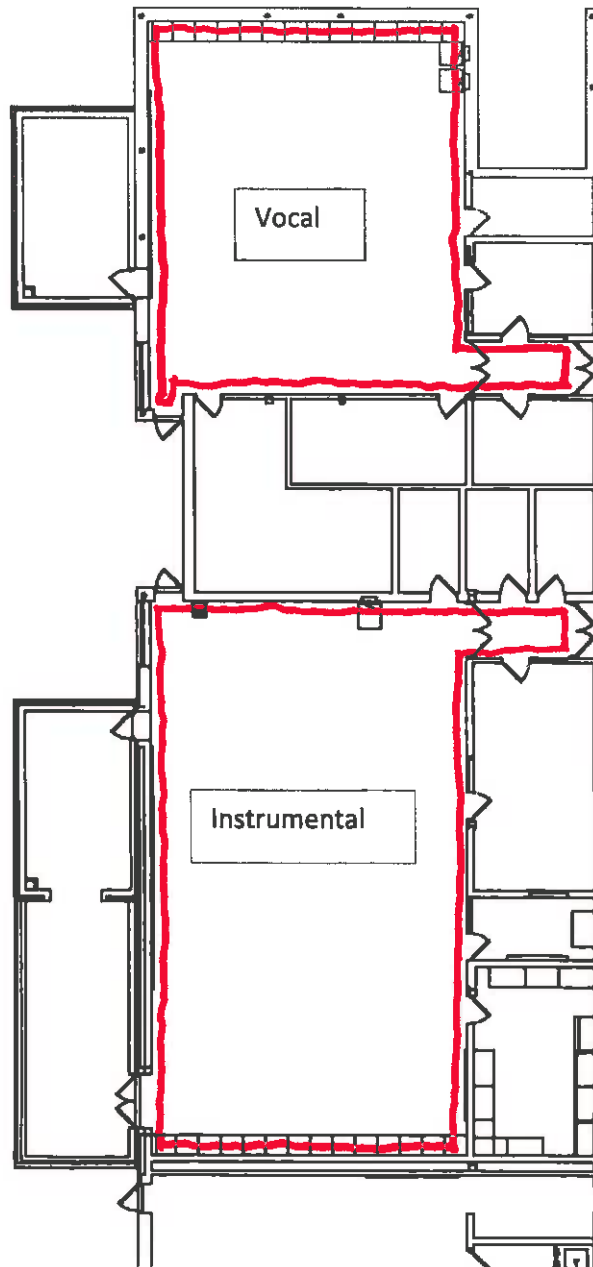
LEVEL 1



LEVEL 2



TROY HIGH SCHOOL
 4777 Northfield Parkway
 Troy, MI 48098
 (248) 823-2700

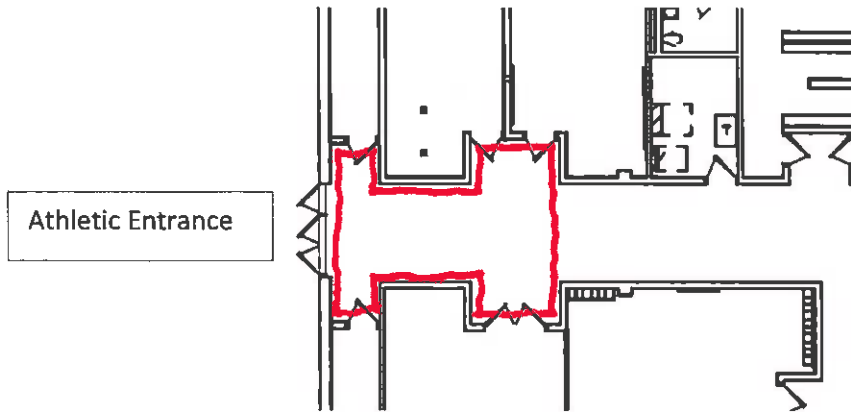


Troy High School

Scope of Work - Flooring

Instrumental and Vocal Music Rooms – remove existing VCT flooring and base. Prep floor by grinding/scraping smooth. Apply Ardex skimcoat in all areas to receive new flooring. Install nora Grano. Install new 4 1/2" rubber base at walls.

Extent of new flooring indicated by red line.

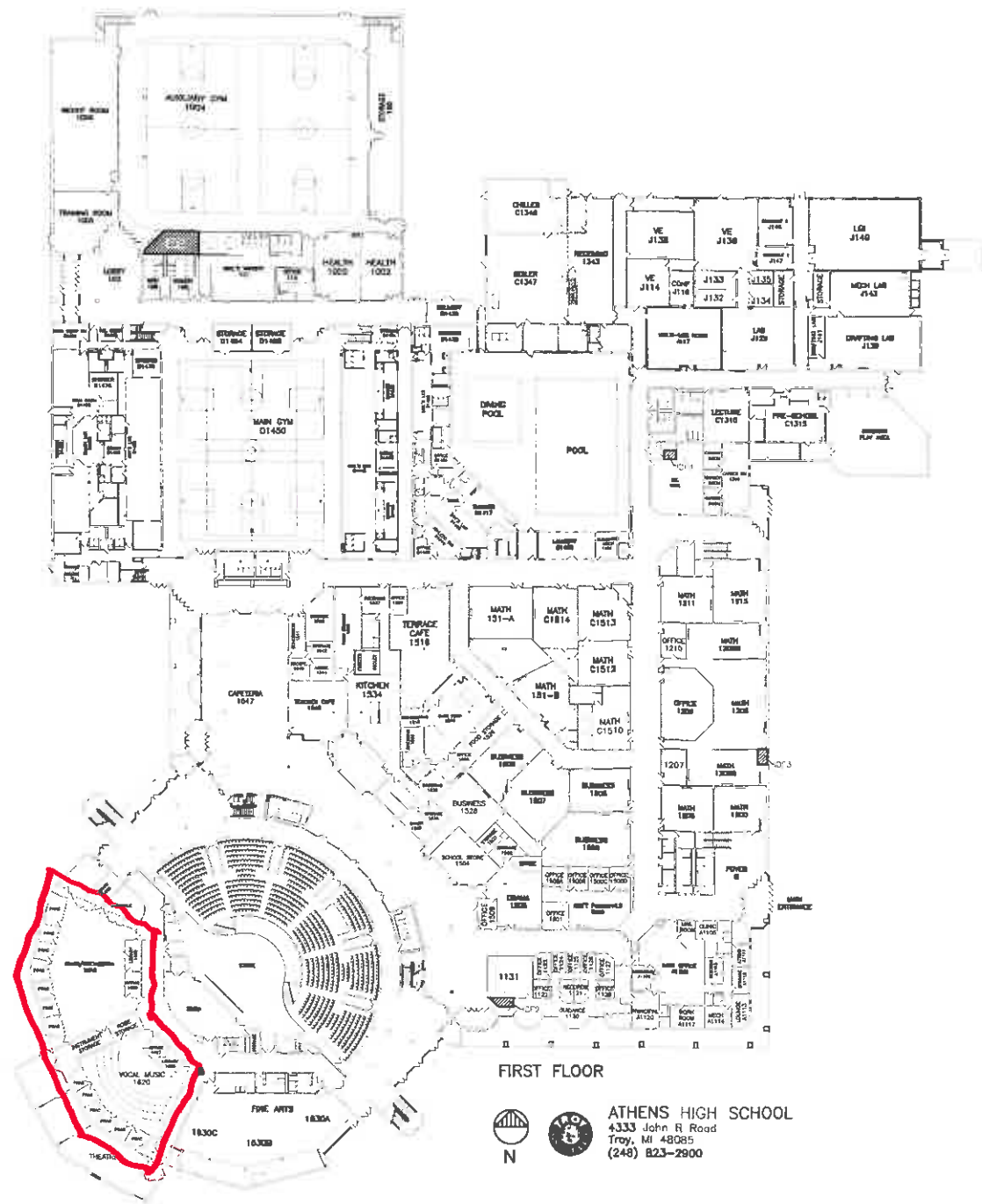


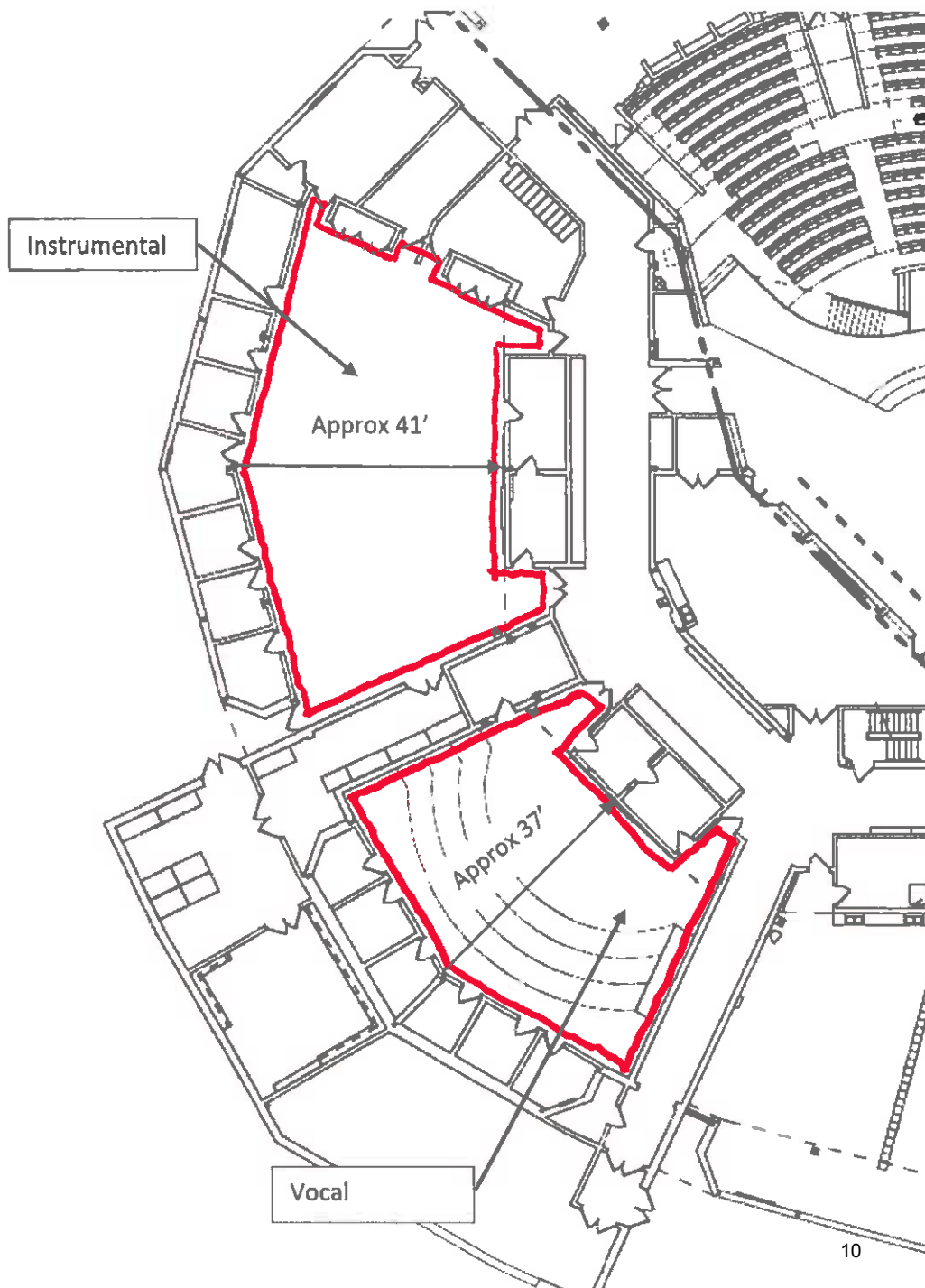
Troy High School

Scope of Work - Flooring

Athletic Entrance – Remove existing carpet and VCT same extent as new. Grind/scrape smooth concrete. Skimcoat floor with Ardex or similar. Install Forbo Brush 24" X 24" tile - Hurricane Grey 5721.

Extent of new flooring indicated by red line.





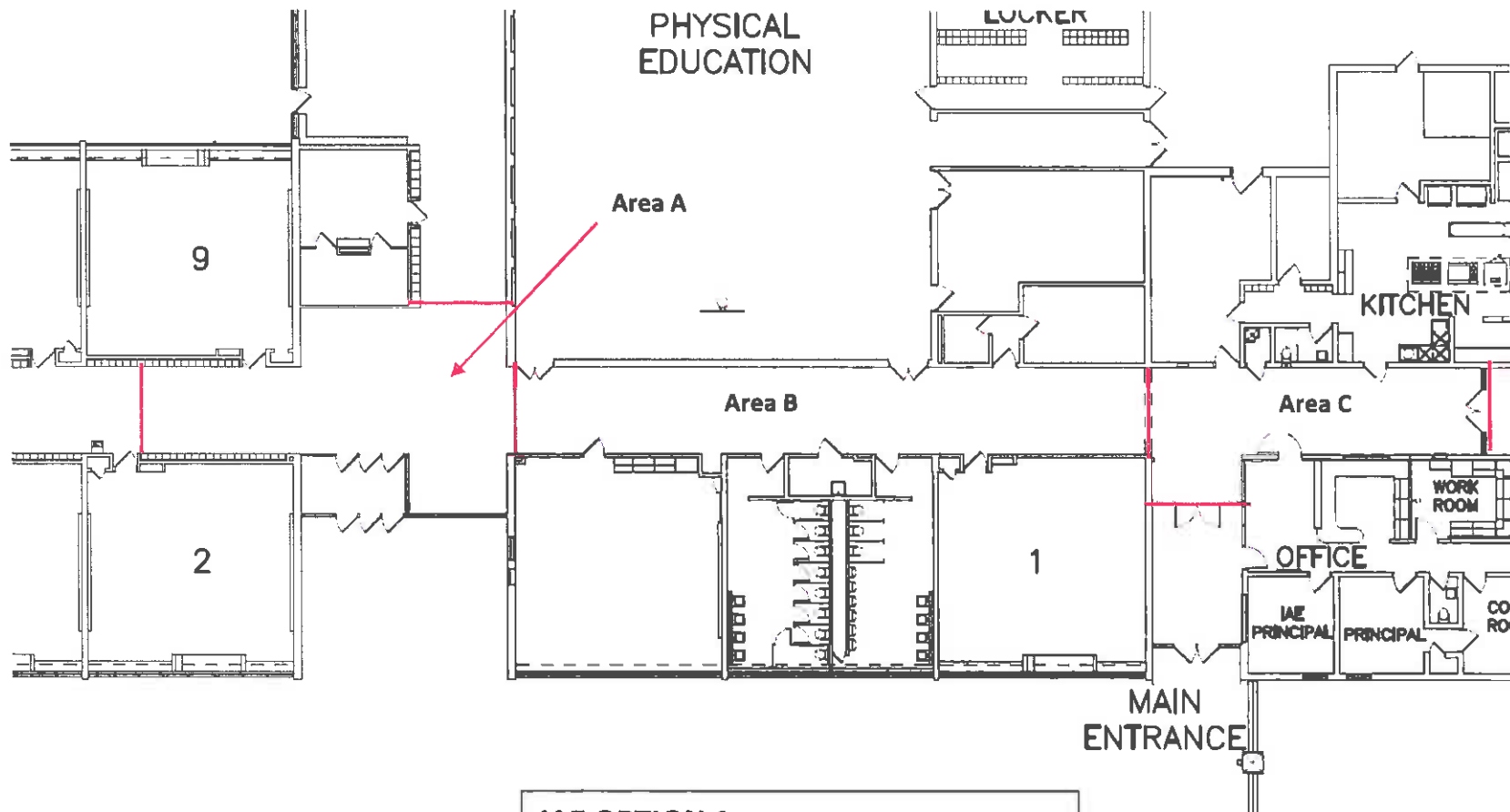
AHS Scope of Work - Flooring

Instrumental and Vocal Music Rooms – remove existing VCT flooring and base. Prep floor by grinding/scraping smooth. Apply Ardex skimcoat in all areas to receive new flooring. Install nora Grano tile. Install new 4" rubber base at all walls. In Vocal Room apply 6" rubber base to face of steps and Roppe rubber nosing number #1 to match rubber base at all steps.

Extent of new flooring indicated by red line.



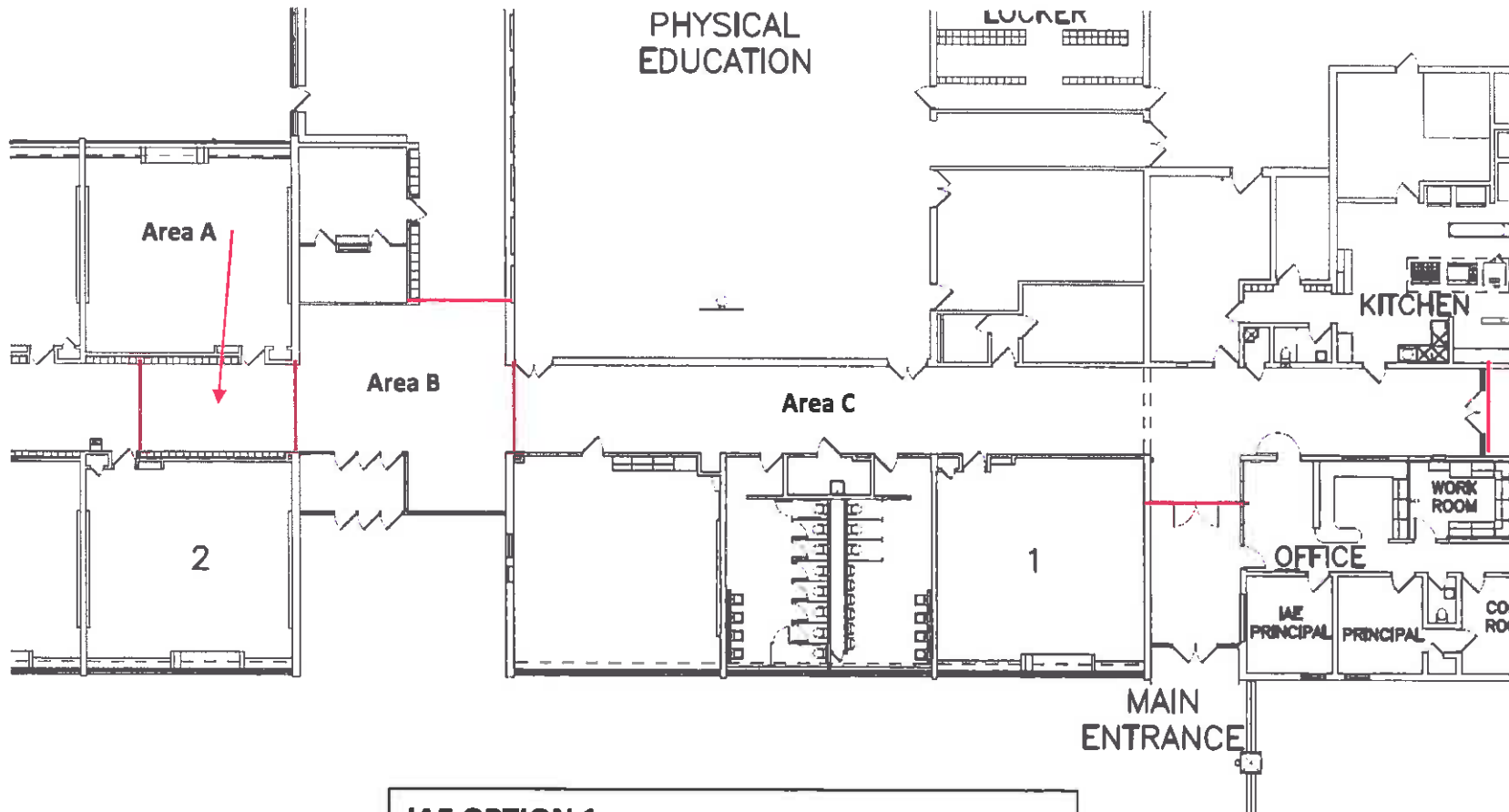
1291 Torpey Drive
Troy, MI 48083
(248) 823-8300



IAE OPTION 1

Scope of Work – Flooring Demolition

In Area A remove existing quarry tile floor complete including vestibule to allow for new flooring. In Area B remove existing carpet and base and in Area C remove VCT and base. Removal extent to allow for new flooring and base.

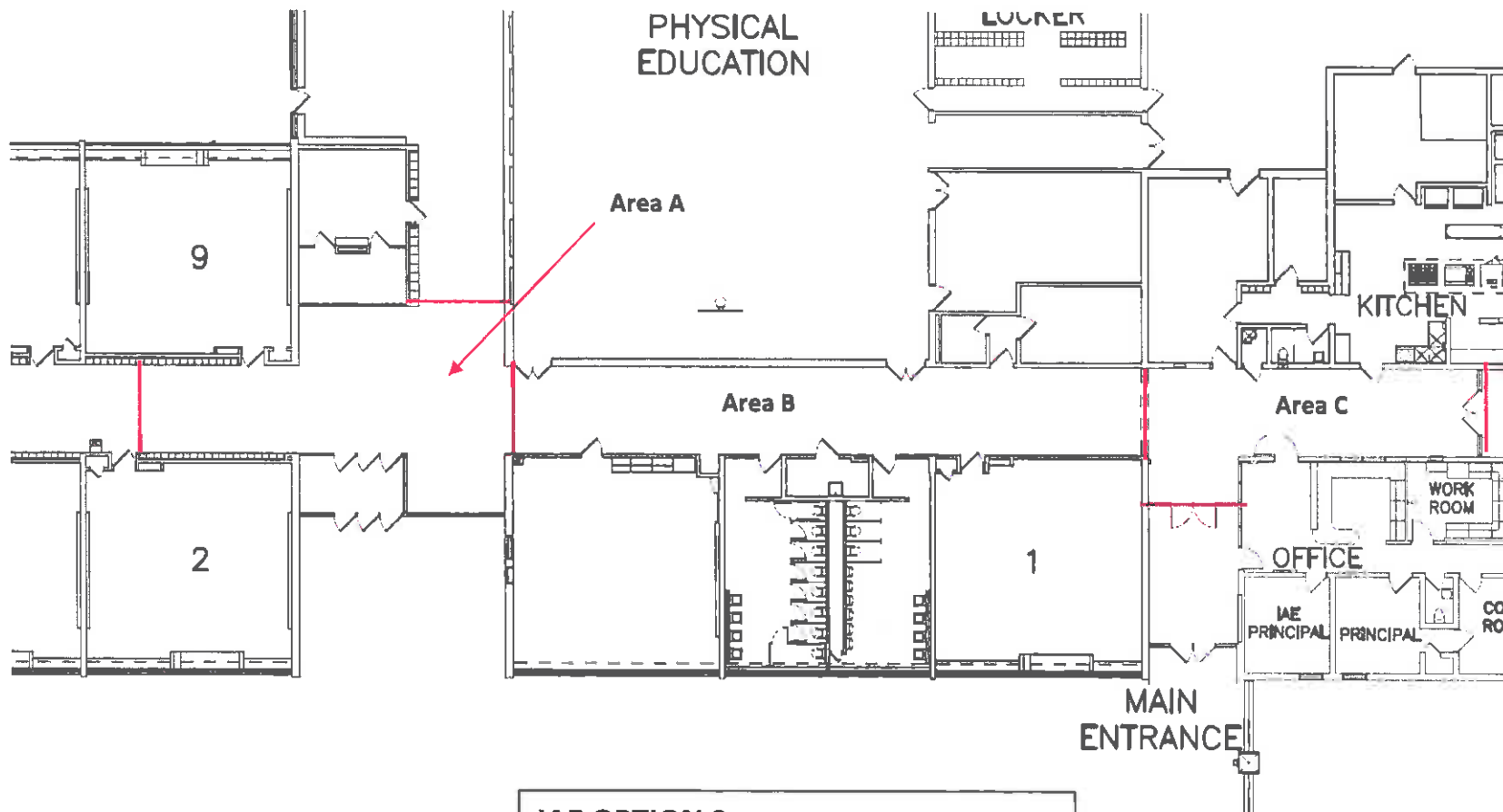


IAE OPTION 1

Scope of Work – Flooring Installation

In all areas skimcoat floor complete. Depth to be based on demolition, new flooring thickness and adjacent material. In Area A install Forbo Marmoleum and in Area B install Forbo Brush 24" X 24 tile color: Hurricane Grey 5721 and in Area C install Marmoleum. Provide rubber base per specifications.

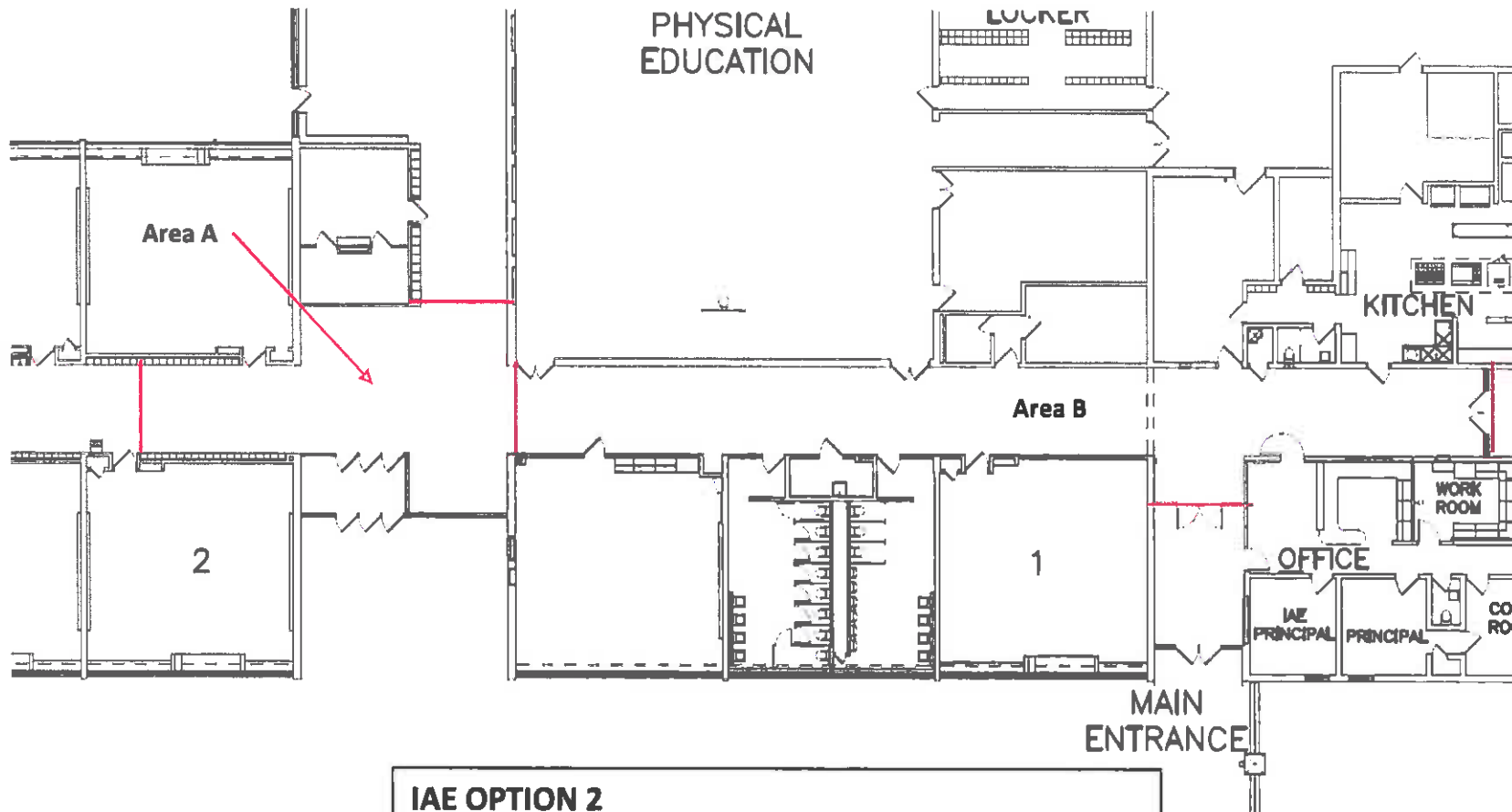
Note contractor will have to remove a portion of existing flooring to provide for a smooth and gradual transition.



IAE OPTION 2

Scope of Work – Flooring Demolition

In Area A remove vinyl base only, in Area B remove existing carpet and base and in Area C remove VCT. Extent of demolition to allow for new flooring and base.



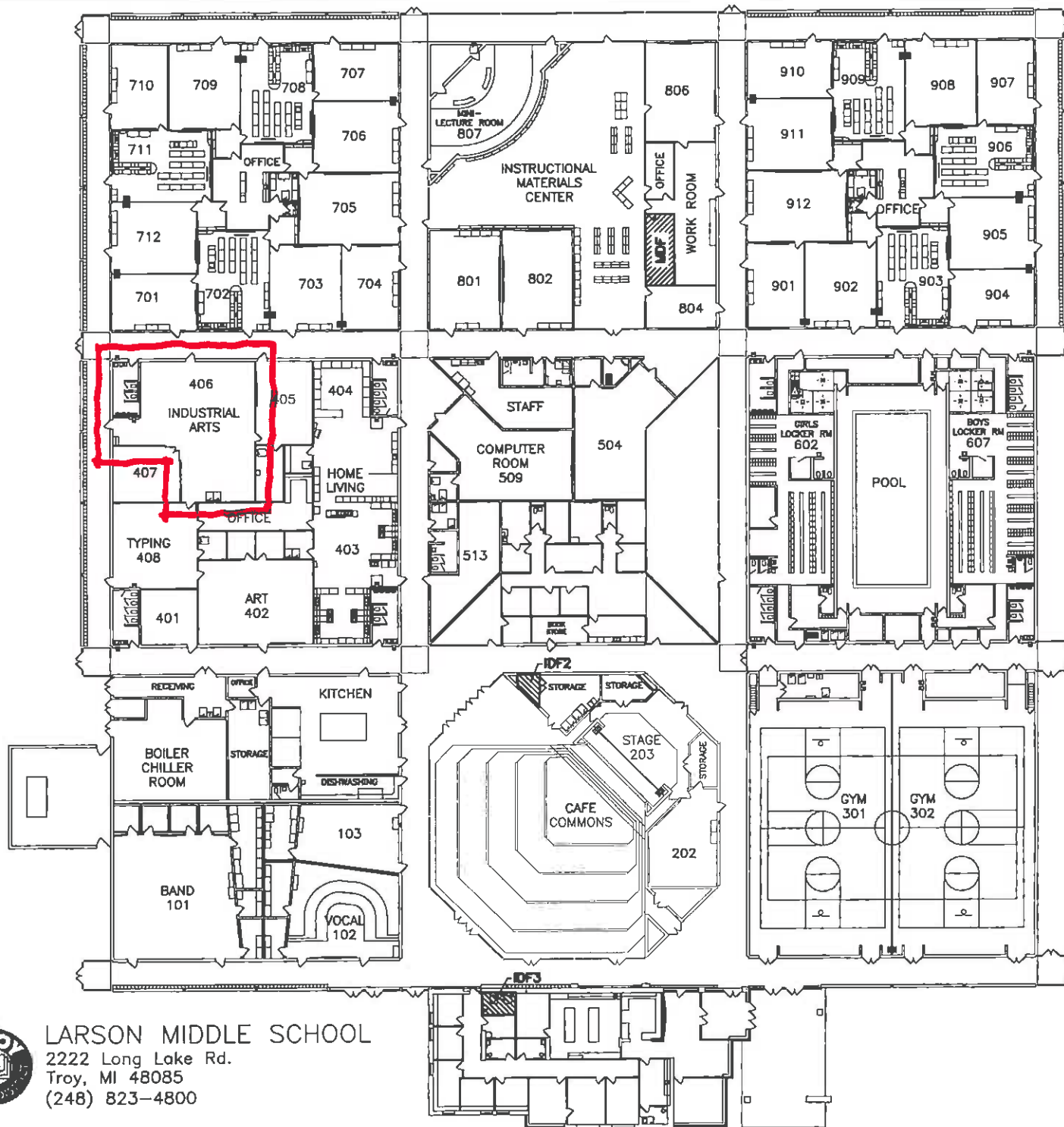
IAE OPTION 2

Scope of Work – Flooring Installation

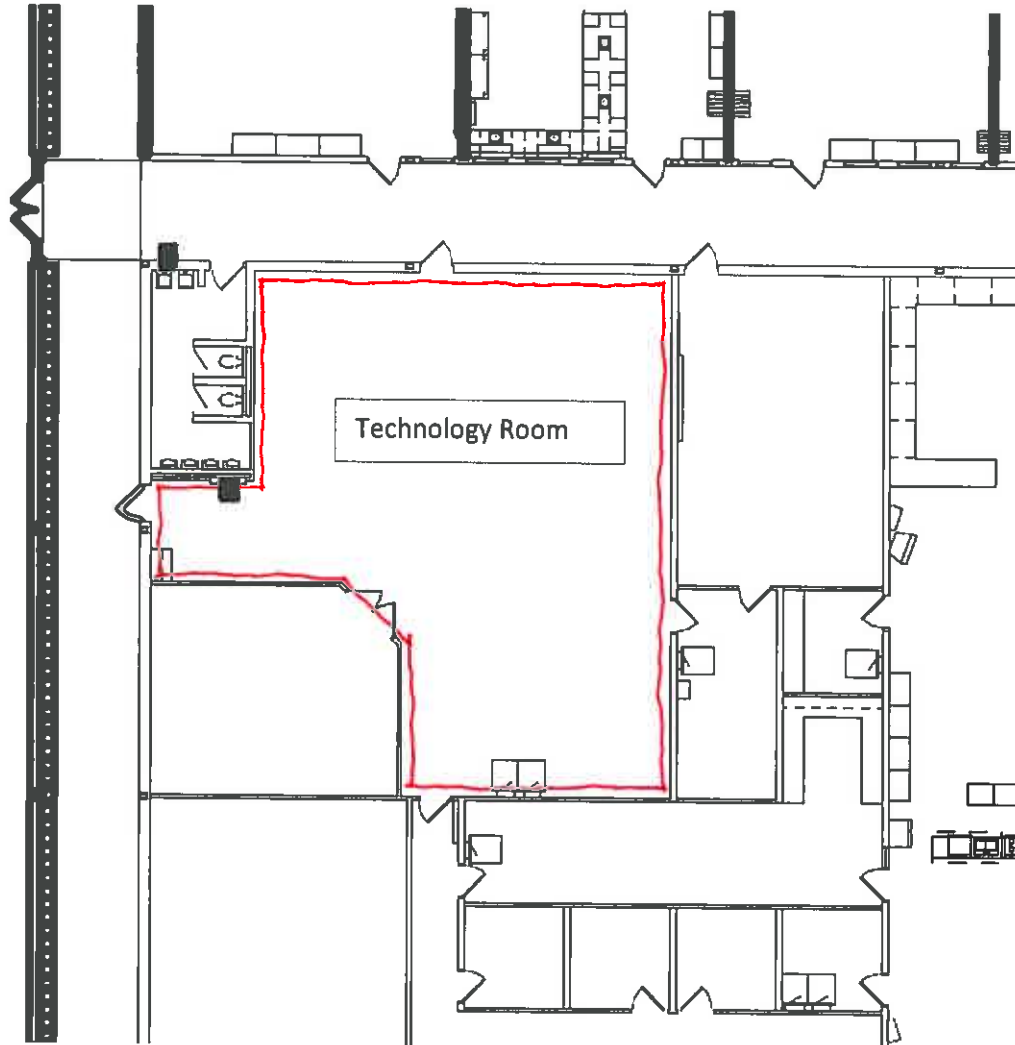
In area A skimcoat all quarry tile up to ¼" to accept new carpet. Transitions must be feathered down over 4' to adjacent finishes. In Area B skimcoat floor complete. Depth to be based on new flooring thickness and adjacent material. Transitions must be feathered up or down to adjacent finishes. In Area A install Forbo Brush 24" X 24" tile color: Hurricane Grey 5721 and in Area B install Forbo Marmoleum. Provide rubber base per specifications.

Note contractor will have to remove a portion of existing flooring to provide for a smooth and gradual transition.

A10



LARSON MIDDLE SCHOOL
 2222 Long Lake Rd.
 Troy, MI 48085
 (248) 823-4800



Larson Scope of Work - Flooring

Technology Room – remove existing carpet/VCT and base. Prep floor by grinding/scraping smooth. Apply Ardex skimcoat in all areas to receive new flooring. Install nora Environcare 3MM tile (color A 80% color B 10% color C 10%). Install new 4" rubber base on all walls except glazed base walls.

Extent of new flooring indicated by red line.

DIVISION 09 - FINISHES
SECTION 09 65 00 RESILIENT FLOORING

noraplan environcare™ 3.0 mm

This document is provided to assist in the preparation of a Project or Master Specification and has been formatted in accordance with the Construction Specifications Institute (CSI)'s MasterFormat®.

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the **CONTRACT AND GENERAL CONDITIONS** and all Sections within **DIVISION 01 - GENERAL REQUIREMENTS** which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Resilient tile flooring for commercial traffic.
2. Resilient plank flooring for commercial traffic with pre-applied adhesive.
3. Resilient sheet flooring for commercial traffic.
4. Resilient sheet flooring for commercial traffic with pre-applied adhesive.
5. Resilient tile flooring for special fire requirements.
6. Resilient tile flooring for extra heavy traffic, ice skate and golf spike resistant.
7. Resilient tile flooring for pre-installed raised access flooring, or releasable application.
8. Resilient tile flooring for electrostatic dissipative protection.
9. Resilient sheet flooring for electrostatic dissipative protection.
10. Resilient stair treads (one-piece nosing, tread and riser).
11. Resilient stair accessories.
12. Resilient wall base, sanitary base and accessories.
13. Substrate preparation.

- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:

- | | | |
|----|------------------|---|
| 1. | Section 03 30 00 | CAST-IN-PLACE CONCRETE for concrete substrate; slab surface tolerances; vapor retarder for applications on or below grade; requirement for 83/90 degree riser and tread edge angle for stair tread and nosings. |
| 2. | Section 05 51 00 | METAL STAIRS AND RAILINGS; requirement for 83/90 degree riser and tread edge angle for stair tread and nosings. |
| 3. | Section 06 10 00 | ROUGH CARPENTRY for plywood substrate and surface tolerances. |
| 4. | Section 09 69 00 | ACCESS FLOORING for resilient floor covering for access panels. |

- C. References (Industry Standards):

1. American Association of Textile Chemists and Colorists (AATCC):
 - a. AATCC 134 Electrostatic Propensity of Carpets
2. American National Standards Institute (ANSI):
 - a. ANSI ESD S97.2 Floor Materials and Footwear – Voltage Measurement on a Person
3. ASTM International (ASTM):
 - a. ASTM C518 Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - b. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

- | | | |
|-----|------------|---|
| c. | ASTM D2047 | Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine |
| d. | ASTM D2240 | Standard Test Method for Rubber Property – Durometer Hardness |
| e. | ASTM D3389 | Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double Head Abrader) |
| f. | ASTM D6499 | Standard Test Method for the Immunological Measurement of Antigenic Protein in Natural Rubber and its Products |
| g. | ASTM E84 | Standard Test Method for Surface Burning Characteristics of Building Materials |
| h. | ASTM E648 | Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source |
| i. | ASTM E662 | Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials |
| j. | ASTM E1745 | Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs |
| k. | ASTM E2179 | Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors |
| l. | ASTM E2180 | Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) in Polymeric or Hydrophobic Materials |
| m. | ASTM F150 | Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring |
| n. | ASTM F155 | Method of Test for Temper of Strip and Sheet Metals for Electronic Devices |
| o. | ASTM F386 | Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces |
| p. | ASTM F710 | Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring |
| q. | ASTM F925 | Standard Test Method for Resistance to Chemicals of Resilient Flooring |
| r. | ASTM F970 | Standard Test Method for Static Load Limit |
| s. | ASTM F1344 | Standard Specification for Rubber Floor Tile |
| t. | ASTM F1482 | Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring |
| u. | ASTM F1514 | Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change |
| v. | ASTM F1515 | Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change |
| w. | ASTM F1859 | Standard Specification for Rubber Sheet Floor Covering Without Backing |
| x. | ASTM F1860 | Standard Specification for Rubber Sheet Floor Covering With Backing |
| y. | ASTM F1861 | Standard Specification for Resilient Wall Base |
| z. | ASTM F2055 | Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method |
| aa. | ASTM F2169 | Standard Specification for Resilient Stair Treads |
| bb. | ASTM F2170 | Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes |
| cc. | ASTM F2199 | Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat |
| dd. | ASTM F3010 | Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings |
| ee. | ASTM G21 | Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi |
4. European Norm (FTM):
 - a. FTM 101 C 4046 Static Decay.
 5. International Organization for Standardization (ISO):
 - a. ISO 140 Measurement of sound insulation in buildings and of building elements
 6. National Fire Protection Association (NFPA):
 - a. NFPA 253 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

- b. NFPA 258 Test Method for Specific Density of Smoke Generated by Solid Materials

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation guide and maintenance guide for each material and accessory proposed for use.
- B. Samples: Submit three representative samples of each product specified for verification.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide resilient flooring manufactured by a firm with a minimum of 10 years' experience with resilient flooring of type equivalent to those specified.
 - 1. Manufacturer's quality management system must have ISO 9001:2000 approval.
 - 2. Provide resilient flooring products, including wall base, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
 - 3. Manufacturer shall be capable of providing technical training and technical field service representation.
- B. Installer Qualifications: Acceptable to manufacturer of resilient flooring or INSTALL (International Standards & Training Alliance) resilient certified for the requirements of the project.
- C. Sustainable Design Requirements:
 - 1. ISO 14001 Environmental Management Systems certification.
 - 2. Construction waste take back program for the purpose of reducing jobsite waste by taking back uninstalled waste flooring. Details of the nora[®] program are available at www.nora.com/us.
 - 3. Flooring surfaces that are easily cleaned and do not require coatings and stripping, or use chemicals that may be hazardous to human health.
 - 4. Supply all required products that are CA 01350 compliant.
 - 5. Flooring that is free of materials known to be teratogenic, mutagenic or carcinogenic.
 - 6. Flooring that contains no polyvinyl chloride or plasticizers.
 - 7. Flooring that contains no halogens.
 - 8. Flooring that contains no asbestos.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

1.6 PROJECT CONDITIONS

- A. Maintain temperature and humidity at service levels or the ambient temperature must remain steady ($\pm 10^{\circ}\text{F}$) and be between 59°F and 80°F for at least 48-hours prior, during and 72-hours after installation.) The ambient relative humidity is recommended to be $50\% \text{ RH} \pm 10\%$; however, dew point must be avoided.

1.7 WARRANTY

- A. Provide manufacturer's standard limited warranty for wear, defect and conductivity.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. Basis-of-Design: nora systems, Inc., 9 Northeastern Blvd., Salem, NH 03079; telephone 800-332-NORA or 603-894-1021; fax 603-894-6615.

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

2.2 RESILIENT TILE FLOORING FOR COMMERCIAL TRAFFIC

A. Rubber Floor Tile:

- | | |
|---|--|
| 1. Product Name: | noraplan environcare™ 3.0 mm, Article 2463 |
| 2. ASTM Specification:
ASTM F1344 Standard Specification for Rubber Floor Tile | Type I and Grade 1 |
| 3. Limited Wear Warranty: | 5 years |
| 4. Material: | nora vulcanized rubber compound 913 with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium or mercury |
| 5. Composition: | Homogeneous rubber compound with a random scattered design |
| 6. Color: | 48 standard colors |
| 7. Surface: | Smooth |
| 8. Back of Tile/Sheet/Nosing: | Double-sanded smooth |
| 9. Material Size (ASTM F2055):
± 0.018 (± 0.45mm) is required | ~24 inches by 24 inches (610mm by 610mm) |
| 10. Squareness (ASTM F2055):
± 0.018 inches (± 0.45mm) is required | Meets requirements |
| 11. Thickness (ASTM F386):
± 0.005 inches (± 0.127mm) is required | ~0.12 inches (3mm) |
| 12. Dimensional Stability (ASTM F2199):
≤ 0.15% in both directions is required | Meets requirements |
| 13. Flammability (E648/NFPA 253):
≥ 0.45 watts/sq. cm for Class 1 is required | NBSIR 75 950, 1.03 |
| 14. Smoke Density (ASTM E662/NFPA 258):
< 450 is required | NBS, 376 (flaming) and 256 (non-flaming) |
| 15. CAN/ULC-S102.2: | Surface Burning, FSC1 of 125 and SD of 370 |
| 16. Burn Resistance: | Resistant to cigarette and solder burns |
| 17. Slip Resistance (ASTM D2047):
≥ 0.5 is required | Static coefficient of friction, Neolite dry 0.93, Neolite wet 0.91 (not recommended for ramps) |
| 18. Bacteria Resistance (ASTM E2180/ASTM G21): | Resistant to bacteria, fungi, and micro-organism activity |
| 19. VOC's: | This flooring is GREENGUARD Gold Certified for Low VOC Emissions, Blue Angel Certified and CA 01350 compliant |
| 20. Latex Allergies (ASTM D6499): | Inhibition Elisa, results are below detection level |
| 21. Sound Absorption (ASTM E2179/ISO 140): | Δ IIC 14, Δ Lw 10 dB (compare only Δ values) |
| 22. Sound Generation: | 67.2 dBA, 68.9 dBC and 20.9 Sones, Independently tested |
| 23. Hardness (ASTM D2240):
≥ 85 is required | Shore type "A", 92 |
| 24. Static Load (ASTM F970):
≤ 0.005 inches with 250 lbs. is required | Residual compression of 0.003 inches with 800 lbs. |
| 25. Rolling Load Limit: | ≤ 550 lbs. / sq. inch, with no forklift traffic |
| 26. Abrasion Resistance (ASTM D3389):
≤ 0.035 oz. (1.0g) is required | 1.1 lbs. (500g) load on H-18 wheel with 1000 cycles, 0.003 oz. (0.09g) weight loss |

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

27. Elongation (ASTM D412): ≥ 300 lbs. per sq. inch is required	Modulus @ 10% is 1,299.0 lbs. per sq. inch
28. Oil & Grease Resistance:	No
29. Heat Resistance (ASTM F1514): Avg. $\Delta E \leq 8.0$ is required	Easily achieved with all batches and regular maintenance
30. Light Resistance: Avg. $\Delta E \leq 8.0$ is required	Easily achieved with all batches and regular maintenance
31. Static Generation (AATCC 134):	< 2000 Volts at 20% RH
32. Thermal Transmission (ASTM C518):	R-value of 0.04
33. Cleaning:	Cleaned and maintained effectively using water, nora cleaning pads and a suitable cleaning machine, without the use of any factory and/or field-applied coatings. Also without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic.
34. Shine:	Higher shine achieved by buffing without any artificial topical applied coatings
35. Stain Removal:	Samples of the product must be provided for stain removal testing by the owner. Sample size must be 24 inches by 24 inches, pre-cleaned by manufacture per published recommendations. Samples must have no coatings, sealers, floor finish or other manually or mechanically applied finish on the surface of the product. Stain testing must consist of application of common healthcare related disinfectants and chemicals to include, but not limited to, Betadine, Methylene Blue, Silver Nitrate and alcohol based hand sanitizer. Duration of test period must be no less than one week. Removal of chemicals must be in accordance with manufacturers published cleaning and maintenance recommendations.
36. Substrate Preparation:	Per ASTM F710 and the nora Installation Guide

2.3 RESILIENT SHEET FLOORING FOR COMMERCIAL TRAFFIC

A. Rubber Sheet Floor Covering:

1. Product Name:	noraplan environcare™ 3.0 mm, Article 1463
2. ASTM Specification: ASTM F1859 Standard Specification for Rubber Sheet Floor Covering Without Backing	Type I
3. Limited Wear Warranty:	5 years
4. Material:	nora vulcanized rubber compound 913 with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium or mercury
5. Composition:	Homogeneous rubber compound with a random scattered design
6. Color:	48 standard colors
7. Surface:	Smooth
8. Back of Tile/Sheet/Nosing:	Double-sanded smooth
9. Material Size (ASTM F2055):	~39.37 feet by 48 inches (12m by 1.22m), ≥ amount specified

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

10. Thickness (ASTM F386): ± 0.006 inches (± 0.15mm) is required	~0.12 inches (3mm)
11. Dimensional Stability (ASTM F2199): ≤ 0.15% in both directions is required	Meets requirements
12. Flammability (E648/NFPA 253): ≥ 0.45 watts/sq. cm for Class 1 is required	NBSIR 75 950, 1.03
13. Smoke Density (ASTM E662/NFPA 258): < 450 is required	NBS, 376 (flaming) and 256 (non-flaming)
14. CAN/ULC-S102.2:	Surface Burning, FSC1 of 125 and SD of 370
15. Burn Resistance:	Resistant to cigarette and solder burns
16. Slip Resistance (ASTM D2047): ≥ 0.5 is required	Static coefficient of friction, Neolite dry 0.93 Neolite wet 0.91 (not recommended for ramps)
17. Bacteria Resistance (ASTM E2180/ASTM G21):	Resistant to bacteria, fungi, and micro-organism activity
18. VOC's:	This flooring is GREENGUARD Gold Certified for Low VOC Emissions, Blue Angel Certified and CA 01350 compliant.
19. Latex Allergies (ASTM D6499):	Inhibition Elisa, results are below detection level
20. Sound Absorption (ASTM E2179/ISO 140):	Δ IIC 14, Δ Lw 10dB (compare only Δ values)
21. Sound Generation:	67.2 dBA, 68.9 dBC and 20.9 Sones, Independently tested
22. Hardness (ASTM D2240): ≥ 85 is required	Shore type "A", 92 achieved
23. Static Load (ASTM F970): ≤ 0.005 inches with 250 lbs. is required	Residual compression of 0.003 inches with 800 lbs.
24. Rolling Load Limit:	≤ 550 lbs. / sq. inch, with no forklift traffic
25. Abrasion Resistance (ASTM D3389): ≤ 0.035 oz. (1.0g) is required	1.1 lbs. (500g) load on H-18 wheel with 1000 cycles, 0.003 oz. (0.09g) weight loss
26. Elongation (ASTM D412): ≥ 300 lbs. per sq. inch is required	Modulus @ 10% is 1,299.0 lbs. per sq. inch
27. Oil & Grease Resistance:	No
28. Heat Resistance (ASTM F1514): Avg. ΔE ≤ 8.0 is required	Easily achieved with all batches and regular maintenance
29. Light Resistance: Avg. ΔE ≤ 8.0 is required	Easily achieved with all batches and regular maintenance
30. Static Generation (AATCC 134):	< 2000 Volts at 20% RH
31. Thermal Transmission (ASTM C518):	R-value of 0.04
32. Cleaning:	Cleaned and maintained effectively using water, nora cleaning pads and a suitable cleaning machine, without the use of any factory and/or field-applied coatings. Also without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic.
33. Shine:	Higher shine achieved by buffing without any artificial topical applied coatings
34. Stain Removal:	Samples of the product must be provided for stain removal testing by the owner. Sample size must be 24 inches by 24 inches, pre-cleaned by manufacture per published recommendations. Samples must have no coatings, sealers, floor

Exhibit 1

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

finish or other manually or mechanically applied finish on the surface of the product. Stain testing must consist of application of common healthcare related disinfectants and chemicals to include, but not limited to, Betadine, Methylene Blue, Silver Nitrate and alcohol based hand sanitizer. Duration of test period must be no less than one week. Removal of chemicals must be in accordance with manufacturers published cleaning and maintenance recommendations.

35. Substrate Preparation:

Per ASTM F710 and the nora Installation Guide

PART 3 - EXECUTION

3.1 GENERAL CONTRACTOR RESPONSIBILITIES

- A. Supply a safe, climate controlled building and subfloor as detailed in the nora Installation Guide (available at www.nora.com/us).
- B. A subfloor that meets the requirements of ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring is required, or as detailed in the nora Installation Guide or nora® nTx Installation Guide as appropriate.
- C. A secure storage area that is maintained permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or 68°F ± 5° F and 50% ± 10% relative humidity, for at least 48-hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials is required.
- D. An installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or 68°F ± 5° F and 50% ± 10% relative humidity, for at least 48-hours prior to, during and 72-hours after the application of the flooring is required.
- E. Areas with direct prolonged exposure to sunlight should be protected with the use of Low E glass doors and windows or facades.
- F. Areas of the flooring that are subject to direct sunlight through doors or windows should have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.
- G. Prevent all traffic for a minimum of 12-hours and rolling loads for 72-hours to allow the adhesive to cure. If required, after 12-hours protect the flooring from damage during construction operations using Masonite, plywood or a similar product, ensuring first that the flooring surface is free of all debris. Lay panels so that the edges form a butt joint and tape the joint to prevent both movement and debris entrapment underneath them. Inspect immediately before covering and after removal for final acceptance.
- H. Have the flooring cleaned no sooner than 72-hours (unless given written permission from the nora® Technical Department) after the installation using either the nora pro clean® system or a standard method as detailed in the appropriate nora® Maintenance Guide.

3.2 FLOORING CONTRACTOR RESPONSIBILITIES

- A. Provide trained installers that have at least one of the following:
 - 1. Approved by nora systems, Inc. for all of the requirements of the project or INSTALL (International Standards & Training Alliance) certified for the requirements of the project.
 - 2. An effective installation manager, to manage the project, installers, and ensure that all of the required procedures are followed as detailed in the nora Installation Guide (available at www.nora.com/us).
- B. Follow all requirements in the appropriate nora Installation Guide or nora nTx Installation Guide.

END OF SECTION

DIVISION 09 - FINISHES
SECTION 09 65 00 RESILIENT FLOORING

norament® grano

This document is provided to assist in the preparation of a Project or Master Specification and has been formatted in accordance with the Construction Specifications Institute (CSI)'s MasterFormat®.

PART 1 - GENERAL**1.1 GENERAL PROVISIONS**

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

- A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Resilient tile flooring for commercial traffic.
2. Resilient plank flooring for commercial traffic with pre-applied adhesive.
3. Resilient sheet flooring for commercial traffic.
4. Resilient sheet flooring for commercial traffic with pre-applied adhesive.
5. Resilient tile flooring for special fire requirements.
6. Resilient tile flooring for extra heavy traffic, ice skate and golf spike resistant.
7. Resilient tile flooring for pre-installed raised access flooring, or releasable application.
8. Resilient tile flooring for electrostatic dissipative protection.
9. Resilient sheet flooring for electrostatic dissipative protection.
10. Resilient stair treads (one-piece nosing, tread and riser).
11. Resilient stair accessories.
12. Resilient wall base, sanitary base and accessories.
13. Substrate preparation.

- B. Related Work: The following items are not included in this Section and are specified under the designated Sections:

- | | | |
|----|------------------|---|
| 1. | Section 03 30 00 | CAST-IN-PLACE CONCRETE for concrete substrate; slab surface tolerances; vapor retarder for applications on or below grade; requirement for 83/90 degree riser and tread edge angle for stair tread and nosings. |
| 2. | Section 05 51 00 | METAL STAIRS AND RAILINGS; requirement for 83/90 degree riser and tread edge angle for stair tread and nosings. |
| 3. | Section 06 10 00 | ROUGH CARPENTRY for plywood substrate and surface tolerances. |
| 4. | Section 09 69 00 | ACCESS FLOORING for resilient floor covering for access panels. |

- C. References (Industry Standards):

1. American Association of Textile Chemists and Colorists (AATCC):
 - a. AATCC 134 Electrostatic Propensity of Carpets
2. American National Standards Institute (ANSI):
 - a. ANSI ESD S97.2 Floor Materials and Footwear – Voltage Measurement on a Person
3. ASTM International (ASTM):
 - a. ASTM C518 Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - b. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension

Exhibit 2

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

- | | | |
|-----|------------|---|
| c. | ASTM D2047 | Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine |
| d. | ASTM D2240 | Standard Test Method for Rubber Property – Durometer Hardness |
| e. | ASTM D3389 | Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double Head Abrader) |
| f. | ASTM D6499 | Standard Test Method for the Immunological Measurement of Antigenic Protein in Natural Rubber and its Products |
| g. | ASTM E84 | Standard Test Method for Surface Burning Characteristics of Building Materials |
| h. | ASTM E648 | Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source |
| i. | ASTM E662 | Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials |
| j. | ASTM E1745 | Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs |
| k. | ASTM E2179 | Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors |
| l. | ASTM E2180 | Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) in Polymeric or Hydrophobic Materials |
| m. | ASTM F150 | Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring |
| n. | ASTM F155 | Method of Test for Temper of Strip and Sheet Metals for Electronic Devices |
| o. | ASTM F386 | Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces |
| p. | ASTM F710 | Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring |
| q. | ASTM F925 | Standard Test Method for Resistance to Chemicals of Resilient Flooring |
| r. | ASTM F970 | Standard Test Method for Static Load Limit |
| s. | ASTM F1344 | Standard Specification for Rubber Floor Tile |
| t. | ASTM F1482 | Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring |
| u. | ASTM F1514 | Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color Change |
| v. | ASTM F1515 | Standard Test Method for Measuring Light Stability of Resilient Flooring by Color Change |
| w. | ASTM F1859 | Standard Specification for Rubber Sheet Floor Covering Without Backing |
| x. | ASTM F1860 | Standard Specification for Rubber Sheet Floor Covering With Backing |
| y. | ASTM F1861 | Standard Specification for Resilient Wall Base |
| z. | ASTM F2055 | Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method |
| aa. | ASTM F2169 | Standard Specification for Resilient Stair Treads |
| bb. | ASTM F2170 | Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes |
| cc. | ASTM F2199 | Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat |
| dd. | ASTM F3010 | Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings |
| ee. | ASTM G21 | Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi |
4. European Norm (FTM):
 - a. FTM 101 C 4046 Static Decay.
 5. International Organization for Standardization (ISO):
 - a. ISO 140 Measurement of sound insulation in buildings and of building elements
 6. National Fire Protection Association (NFPA):
 - a. NFPA 253 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source

Exhibit 2

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

b. NFPA 258

Test Method for Specific Density of Smoke Generated by Solid Materials

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product data, installation guide and maintenance guide for each material and accessory proposed for use.
- B. Samples: Submit three representative samples of each product specified for verification.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Provide resilient flooring manufactured by a firm with a minimum of 10 years' experience with resilient flooring of type equivalent to those specified.
 - 1. Manufacturer's quality management system must have ISO 9001:2000 approval.
 - 2. Provide resilient flooring products, including wall base, accessories and subfloor preparation products from one manufacturer to ensure color matching and compatibility.
 - 3. Manufacturer shall be capable of providing technical training and technical field service representation.
- B. Installer Qualifications: Acceptable to manufacturer of resilient flooring or INSTALL (International Standards & Training Alliance) resilient certified for the requirements of the project.
- C. Sustainable Design Requirements:
 - 1. ISO 14001 Environmental Management Systems certification.
 - 2. Construction waste take back program for the purpose of reducing jobsite waste by taking back uninstalled waste flooring. Details of the nora[®] program are available at www.nora.com/us.
 - 3. Flooring surfaces that are easily cleaned and do not require coatings and stripping, or use chemicals that may be hazardous to human health.
 - 4. Supply all required products that are CA 01350 compliant.
 - 5. Flooring that is free of materials known to be teratogenic, mutagenic or carcinogenic.
 - 6. Flooring that contains no polyvinyl chloride or plasticizers.
 - 7. Flooring that contains no halogens.
 - 8. Flooring that contains no asbestos.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.
- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature for 48-hours prior to installation.

1.6 PROJECT CONDITIONS

- A. Maintain temperature and humidity at service levels or the ambient temperature must remain steady ($\pm 10^{\circ}\text{F}$) and be between 59°F and 80°F for at least 48-hours prior, during and 72-hours after installation.) The ambient relative humidity is recommended to be $50\% \text{ RH} \pm 10\%$; however, dew point must be avoided.

1.7 WARRANTY

- A. Provide manufacturer's standard limited warranty for wear, defect and conductivity.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

- A. Basis-of-Design: nora systems, Inc., 9 Northeastern Blvd., Salem, NH 03079; telephone 800-332-NORA or 603-894-1021; fax 603-894-6615.

Exhibit 2

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

2.2 RESILIENT TILE FLOORING FOR COMMERCIAL TRAFFIC

A. Rubber Floor Tile:

- | | |
|---|---|
| 1. Product Name: | norament® grano, Article 1880 |
| 2. ASTM Specification:
ASTM F1344 Standard Specification for Rubber Floor Tile | Type IB and Grade 2 |
| 3. Limited Wear Warranty: | 10 years |
| 4. Material: | nora® vulcanized rubber compound 926 with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium or mercury |
| 5. Composition: | Homogeneous rubber compound with a random scattered design |
| 6. Color: | 32 standard colors |
| 7. Surface: | Hammered |
| 8. Back of Tile/Sheet/Nosing: | Double-sanded smooth |
| 9. Material Size (ASTM F2055):
± 0.02 inches (± 0.5mm) is required | ~39.53 inches by ~39.53 inches (1004mm by 1004mm) |
| 10. Squareness (ASTM F2055):
± 0.010 inches (± 0.254mm) is required | Meets requirements |
| 11. Thickness (ASTM F386):
+ 0.015/-0.005 inches (+ 0.381/- 0.127mm) is required | ~0.14 inches (3.5mm) |
| 12. Dimensional Stability (ASTM F2199):
≤ 0.15% in both directions is required | Meets requirements |
| 13. Flammability (E648/NFPA 253):
≥ 0.45 watts/sq. cm for Class 1 is required | NBSIR 75 950, 0.92 |
| 14. Smoke Density (ASTM E662/NFPA 258):
< 450 is required | NBS, 256 (flaming) and 138 (non-flaming) |
| 15. CAN/ULC-S102.2: | Surface Burning, FSC1 of 70 and SD of 470 |
| 16. Burn Resistance: | Resistant to cigarette and solder burns |
| 17. Slip Resistance (ASTM D2047):
≥ 0.5 is required | Static coefficient of friction, Neolite dry 0.99, Neolite wet 0.95 (not recommended for ramps) |
| 18. Bacteria Resistance (ASTM E2180/ASTM G21): | Resistant to bacteria, fungi, and micro-organism activity |
| 19. VOC's: | This flooring is GREENGUARD Gold Certified for Low VOC Emissions, Blue Angel Certified and CA 01350 compliant |
| 20. Latex Allergies (ASTM D6499): | Inhibition Elisa, results are below detection level |
| 21. Sound Absorption (ASTM E2179/ISO 140): | Δ IIC 11, Δ Lw 11 dB (compare only Δ values) |
| 22. Sound Generation: | 66.3 dBA, 68.5 dBC and 19.6 Sones, Independently tested |
| 23. Hardness (ASTM D2240):
≥ 70 is required | Shore type "A", 82 |
| 24. Static Load (ASTM F970):
≤ 0.005 inches with 250 lbs. is required | Residual compression of 0.005 inches with 800 lbs. |
| 25. Rolling Load Limit: | ≤ 850 lbs. / sq. inch |
| 26. Abrasion Resistance (ASTM D3389):
≤ 0.035 oz. (1.0g) is required | 1.1 lbs. (500g) load on H-18 wheel with 1000 cycles, 0.002 oz. (0.05g) weight loss |

Exhibit 2

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

27. Oil & Grease Resistance:	Yes
28. Heat Resistance (ASTM F1514): Avg. $\Delta E \leq 8.0$ is required	Easily achieved with all batches and regular maintenance
29. Static Generation (AATCC 134):	< 2000 Volts at 20% RH
30. Thermal Transmission (ASTM C518):	R-value of -0.90
31. Cleaning:	Cleaned and maintained effectively using water, nora® cleaning pads and a suitable cleaning machine, without the use of any factory and/or field-applied coatings. Also without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic.
32. Shine:	Higher shine achieved by buffing without any artificial topical applied coatings
33. Stain Removal:	Samples of the product must be provided for stain removal testing by the owner. Sample size should be $\sim 1\text{m}^2$, pre-cleaned by manufacture per published recommendations. Samples must have no coatings, sealers, floor finish or other manually or mechanically applied finish on the surface of the product. Stain testing must consist of application of common healthcare related disinfectants and chemicals to include, but not limited to, Betadine, Methylene Blue, Silver Nitrate and alcohol based hand sanitizer. Duration of test period must be no less than one week. Removal of chemicals must be in accordance with manufacturers published cleaning and maintenance recommendations.
34. Substrate Preparation:	Per ASTM F710 and the nora® Installation Guide

PART 3 - EXECUTION

3.1 GENERAL CONTRACTOR RESPONSIBILITIES

- A. Supply a safe, climate controlled building and subfloor as detailed in the nora Installation Guide (available at www.nora.com/us).
- B. A subfloor that meets the requirements of ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring is required, or as detailed in the nora Installation Guide or nora® nTx Installation Guide as appropriate.
- C. A secure storage area that is maintained permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or $68^{\circ}\text{F} \pm 5^{\circ}\text{F}$ and $50\% \pm 10\%$ relative humidity, for at least 48-hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials is required.
- D. An installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or $68^{\circ}\text{F} \pm 5^{\circ}\text{F}$ and $50\% \pm 10\%$ relative humidity, for at least 48-hours prior to, during and 72-hours after the application of the flooring is required.
- E. Areas with direct prolonged exposure to sunlight should be protected with the use of Low E glass doors and windows or facades.
- F. Areas of the flooring that are subject to direct sunlight through doors or windows should have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72-hours after the installation to allow the adhesive to cure. Note: These areas should be installed using wet adhesives only.

Exhibit 2

GUIDE SPECIFICATIONS IN CSI FORMAT: RESILIENT FLOORING 096500

- G. Prevent all traffic for a minimum of 12-hours and rolling loads for 72-hours to allow the adhesive to cure. If required, after 12-hours protect the flooring from damage during construction operations using Masonite, plywood or a similar product, ensuring first that the flooring surface is free of all debris. Lay panels so that the edges form a butt joint and tape the joint to prevent both movement and debris entrapment underneath them. Inspect immediately before covering and after removal for final acceptance.
- H. Have the flooring cleaned no sooner than 72-hours (unless given written permission from the nora[®] Technical Department) after the installation using either the nora pro clean[®] system or a standard method as detailed in the appropriate nora[®] Maintenance Guide.

3.2 FLOORING CONTRACTOR RESPONSIBILITIES

- A. Provide trained installers that have at least one of the following:
 - 1. Approved by nora systems, Inc. for all of the requirements of the project or INSTALL (International Standards & Training Alliance) certified for the requirements of the project.
 - 2. An effective installation manager, to manage the project, installers, and ensure that all of the required procedures are followed as detailed in the nora Installation Guide (available at www.nora.com/us).
- B. Follow all requirements in the appropriate nora Installation Guide or nora nTx Installation Guide.

END OF SECTION

CORAL® BRUSH PURE TECHNICAL DATA

1. PRODUCT NAME / MANUFACTURER

1.1 Product:

Coral® Brush Pure entrance flooring

1.2 Manufacturer:

Forbo Flooring Systems
Humboldt Industrial Park
Hazleton, PA 18202

www.forboflooringna.com

Phone: +800 842 7839

+570 459 0771

Fax: +570 450 0258

1.3 Product Description:

Construction: Coral® Brush Pure entrance flooring incorporates three types of 100% Econyl® regenerated solution dyed polyamide yarns ensuring a clean appearance – capillary yarns for absorbing moisture, active dirt scraping yarns to quickly brush off soil, and heavy duty textured yarns which retain its appearance. The innovative EVERFORT® vinyl backing is a solid vinyl which is flexible, strong, and heavy in weight. It lays flat, making installation easier. It is impervious to water, making it suitable for intensive wet cleaning.

1.4 Physical Characteristics: (dimensions are approximate)

Gauge ----- 0.354" (9 mm)

Backing ----- EVERFORT® vinyl

Width ----- Approx. 80.7" (2 meters) with edging

Length ----- 90.22' (27.5 meters)

Roll Size ----- 65.78 yards² (55 meters²)

For information on custom sized mats, contact the local Forbo Sales Representative.

2. PRODUCT PERFORMANCE AND TECHNICAL DATA

2.1 Application Areas:

Zone 2: Inside entrances to the building.

Zone 3: Circulation areas, such as reception, lobby, or adjoining corridors areas.

For additional information, refer to Forbo's Entrance Systems brochure.

2.2 Environmental:

Compliant with CHPS 01350 requirements for VOC emissions and indoor air quality.

Contributes to the following LEED® credits:

Indoor Environmental Quality

Credit 4.3: Low-Emitting Materials

Credit 4.1: Low-Emitting Materials (Adhesive complies with SCAQMD Rule #1168)

2.3 Durability:

Wear Classification of 33 when tested in accordance to EN 1307.

2.4 Castor Resistance:

Suitable for office chairs with castors when tested in accordance with EN 985, Castor Chair Test.

2.5 Electrostatic Propensity

0.00 kv when tested in accordance to AATCC 134, Electrostatic Propensity of Carpets.

2.6 Fire Testing:

Class 1 when tested in accordance with ASTM E 648 / NFPA 253, Standard Test Method for Critical Radiant Flux.

Meets 450 or less when tested in accordance with ASTM E 662 / NFPA 258, Standard Test Method for Smoke Density.

Passes when tested in accordance to ASTM D 2859, Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials/Pill Test.

2.7 Color Fastness:

Rated 5.0 when tested in accordance to AATCC 129-01, Colorfastness to Ozone in Atmosphere Under High Humidity.

Rated 5.0 when tested in accordance to AATCC 164-01, Colorfastness to Oxides of Nitrogen in Atmosphere Under High Humidity.

3. INSTALLATION

3.1 Site Conditions:

The installation should not begin until the work of all other trades has been completed, especially overhead trades. Areas to receive flooring should be clean, fully enclosed and weathertight with the permanent HVAC must be fully operational, controlled and set at a minimum of 68° F (20° C) for a minimum of seven days prior to, during, and seven days after the installation. The flooring material (including adhesive) should be conditioned in the same manner for a minimum of 48 hours prior to the installation. Areas to receive flooring shall be adequately lighted to allow for proper inspection of the substrate, installation and seaming of the flooring, and for final inspection.

3.2 Substrates:

Floors shall be sound, smooth, flat, permanently dry, clean, and free of all foreign material including, but not limited to, dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt and old adhesive residue. Wood floors should be double construction with a minimum total thickness of 1 Inch. Wood floors must be rigid, free from movement and have at least 18" of well-ventilated air space below. Forbo floor coverings should not be installed over wooden subfloors built on sleepers over on or below grade concrete floors without first making sure that adequate precautions have been taken to ensure the structural integrity of the system, and to prevent moisture migration from the concrete slab. Concrete substrates should be prepared in accordance with the latest version of ASTM F 710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. Concrete shall have a minimum compressive strength of 3,000 psi. Patch and repair minor cracks and other imperfections using only the highest quality patching and leveling compounds in strict accordance to the manufacturer's recommendations for their use and application. Floor covering should not be installed over expansion joints. Suitable expansion joint covers should be used. It is essential that moisture tests be conducted on all concrete floors regardless of the age or grade level. Conduct calcium chloride tests in accordance with the latest version of ASTM F 1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride. Measure the internal relative humidity of the concrete slab in accordance with the latest version of ASTM F 2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. One test of each type should be conducted for every 1,000 square feet of flooring (minimum of 3). The tests should be conducted around the perimeter of the room, at columns, and anywhere moisture may be evident. Concrete moisture vapor emissions must not exceed 8.0 lbs. per 1,000 square feet in 24 hours when using Forbo Sustain 885m adhesive. Concrete internal relative humidity must not exceed 85% when using Forbo Sustain 885m adhesive. A diagram of the area showing the location and results of each test should be submitted to the Architect, General Contractor or End User. If the test results exceed these limitations, the installation must not proceed until the problem has been corrected.

Note: Moisture tests indicate conditions at the time of the test only. The absence of an acceptable vapor retarder under the slab, changes in the environment, or other circumstances beyond Forbo's control, may lead to adverse changes in the moisture condition of the concrete. Forbo's warranty shall not be extended to cover damage or failures caused by moisture conditions in excess of specified limits that occur after the time of initial testing or installation.

3.3 Adhesive:

Use Forbo Sustain 885m adhesive.
Use a 1/16" x 1/16" x 1/16" square notch trowel.
Spread Rate: Approximately 125 square feet/gallon.

3.4 Installation Guidelines:

Refer to Forbo Flooring's Installation Guide for complete installation guidelines.

4. AVAILABILITY AND COST

Available through authorized Forbo Flooring suppliers throughout North America. Contact Forbo Flooring or an authorized supplier for cost information.

5. WARRANTY

Limited 5-year warranty. For complete details, contact Forbo Flooring.

6. CARE AND CLEANING

After installation is completed, allow a minimum of 5 days for the adhesive to properly bond and cure before conducting wet cleaning procedures. See Forbo Flooring's Floor Care Guide for additional information.

7. SUPPORT SERVICES

Submittal samples for verification and approval are available upon request from Forbo Flooring. Samples shall be submitted in compliance with the requirements of the Contract Documents. Please fax all sample requests to +570 450 0229 or visit our website at www.forboflooringna.com. Accepted and approved samples shall constitute the standard materials that represent materials installed in the project.

For current installation and floor care guidelines, guide specifications, and other technical information, visit our website at www.forboflooringna.com.

1. PRODUCT NAME & MANUFACTURER

1.1 Product:

Marmoleum® Modular linoleum tile resilient floor covering

1.2 Manufacturer:

Forbo Flooring Systems
Humboldt Industrial Park
Hazleton, PA 18202
www.forboflooringna.com
Phone: +800 842 7839
+570 459 0771
Fax: +570 450 0258



1.3 Product Description:

Construction: Marmoleum® Modular is a homogeneous floor covering made from natural ingredients including linseed oil, rosin binders, wood flour, limestone and dry pigments which are mixed and then calendared onto a polyester backing to ensure optimum dimensional stability.

Topshield2™ is a high performance finish. Its double UV cured double layer technology delivers extraordinary performance and clear and vibrant colors that remain over time. Topshield2™ creates a 'ready to use' Marmoleum® that requires no initial maintenance or polymer application. The surface can be repaired or refreshed in cases of accidents or after years of intensive use.

1.4 Physical Characteristics: (dimensions are approximate)

Size ----- Approx. 10" x 10" (25 cm x 25 cm)
Approx. 10" x 20" (25 cm x 50 cm)
Approx. 20" x 20" (50 cm x 50 cm)
Gauge ----- 1/10" (2.5 mm)
Backing ----- Polyester
Packaging ----- 10" x 10": 40 tiles (26.91 feet², 2.5 meters²)
10" x 20": 40 tiles (53.82 feet², 5 meters²)
20" x 20": 20 tiles (53.82 feet², 5 meters²)

2. PRODUCT PERFORMANCE & TECHNICAL DATA

2.1 Reference Specification:

Meets or exceeds all technical requirements as set forth in ASTM F 2195 Standard Specification for Linoleum Tile Flooring Type I

2.2 Environmental:

Platinum certified in accordance with SMaRT® Sustainable Products Standard, led by the Institute for Market Transformation to Sustainability (MTS).

100% USDA Certified BioBased Product

Compliant with CHPS 01350 requirements for VOC emissions and indoor air quality.

Contributes to the following LEED® v4 credits:

Materials & Resources

Credit 4, Option 1: See Forbo's LEED v4 sheet for additional information.

Credit 4, Option 2: Recycled Content (60% Pre-Consumer)

Prerequisite 2: 100% Recyclable Packaging

Indoor Environmental Quality

Credit 2: Low-Emitting Materials (www.chps.net)

Credit 2: Low-Emitting Materials (Adhesives comply with SCAQMD Rule #1168)

2.3 Static Load Limit:

1,500 pounds per square inch when tested in accordance with ASTM F 970-00, Standard Test Method for Static Load Limit

2.4 Slip Resistance:

Meets or exceeds A.D.A. recommendation of 0.6 for flat surfaces when tested in accordance with ASTM D 2047, Standard Test Method for Static Coefficient of Friction

2.5 Castor Resistance:

Suitable for office chairs with castors when tested in accordance with EN 425, Castor Chair Test.

2.6 Impact Sound Reduction:

6db when tested in accordance with ISO 717-2, Impact Sound Insulation Test

2.7 Resistance to Bacteria:

Provides a self-sanitizing quality in the form of a bactericidal effect. Independent testing has shown that a sterile zone around the material inhibits the growth of organisms such as staphylococcus aureas (Staph Infection), Clostridium Difficile (C. difficile) and Carbapenem-Resistant Enterobacteriaceae (CRE).

2.8 Anti-Static Properties:

Naturally anti-static. This property makes cleaning easier because dirt and dust does not cling to the surface as it may with other materials.

2.9 Dimensional Stability:

Due to the polyester back, providing a strong durable foundation, the product is dimensionally stable in all directions when properly installed. It resists cracking, drying, and peeling.

2.10 Fire Testing:

Class 1 when tested in accordance with ASTM E 648/NFPA 253, Standard Test Method for Critical Radiant Flux.

Meets 450 or less when tested in accordance with ASTM E 662/NFPA 258, Standard Test Method for Smoke Density.

2.11 Cigarette Resistance:

Resists cigarette burns. Burning cigarettes will leave only a brown mark, which can be rubbed out using steel wool or a scouring pad.

2.12 Chemical Resistance: (Exposure Time One Hour)*

Diluted Acids – Sulfuric, Nitric, Hydrochloric, Acetic,	
Lactic, Citric	-----No Change
Isopropyl Alcohol (70%)	-----No Change
Sodium Hydroxide (5%)	-----Softening
Ammonia (5%), Acetone	-----Possible Softening/Staining
Phenol (5%)	-----No Change
Soda Solution, Soap Solution (Slightly Alkaline)	-----No Change
Gasoline, Kerosene, White Spirit, Paraffin	-----No Change
Benzene, Toluene, Methyl Alcohol, Ethyl Acetate	-----No Change
Methyl Ethyl Ketone, Ether	-----No Change
Mineral Oil, Olive Oil, Vegetable Oil, Animal Fat	-----No Change
Blood, Urine, Excrement	-----No Change
Lipstick	-----No Change
Formaldehyde, Hydrogen Peroxide 3%	-----No Change
Hot Chili Paste, Iodine, Betadine, Hair Dye	-----No Change
Shoe Polish	-----Staining
Silver Nitrate	-----Staining/Possible Softening
Bitumen, Salt Water	-----No Change
Methylene Blue	-----Staining
Gel-Based Hand Sanitizer, Bleach	-----No Change

Tested in accordance with ASTM F 925, Standard Test Method Resistance to Chemicals of Resilient Flooring.

*Marmoleum® Modular is NOT resistant to prolonged exposure to high alkalis

3. INSTALLATION**3.1 Site Conditions:**

The installation should not begin until the work of all other trades has been completed, especially overhead trades. Areas to receive flooring should be clean, fully enclosed and weathertight with the permanent HVAC must be fully operational, controlled and set at a minimum of 68° F (20° C) for a minimum of seven days prior to, during, and seven days after the installation. The flooring material (including adhesive and welding rod) should be conditioned in the same manner for a minimum of 48 hours prior to the installation. Areas to receive flooring shall be adequately lighted to allow for proper inspection of the substrate, installation and seaming of the flooring, and for final inspection.

3.2 Substrates:

Floors shall be sound, smooth, flat, permanently dry, clean, and free of all foreign materials including, but not limited to, dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt and old adhesive residue. Wood floors should be double construction with a minimum total thickness of 1 inch. Wood floors must be rigid, free from movement and have at least 18" of well-ventilated air space below. Forbo floor coverings should not be installed over wooden subfloors built on sleepers over on or below grade concrete floors without first making sure that adequate precautions have been taken to ensure the structural integrity of the system, and to prevent moisture migration from the concrete slab. Concrete substrates should be prepared in accordance with the latest version of ASTM F 710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. Concrete shall have a minimum compressive strength of 3,000 psi. Patch and repair minor cracks and other imperfections using only the highest quality patching and leveling compounds in strict accordance to the manufacturer's recommendations for their use and application. Floor covering should not be installed over expansion joints. Suitable expansion joint covers should be used. It is essential that moisture tests be conducted on all concrete floors regardless of the age or grade level. Conduct calcium chloride tests in accordance with the latest version of ASTM F 1869, Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride. Measure the internal relative humidity of the concrete slab in accordance with the latest version of ASTM F 2170, Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes. One test of each type should be conducted for every 1,000 square feet of flooring (minimum of 3). The tests should be conducted around the perimeter of the room, at columns, and anywhere moisture may be evident. Concrete moisture vapor emissions must not exceed 5.0 lbs. per 1,000 square feet in 24 hours when using Forbo T 940 adhesive, 8.0 lbs. per 1,000 square feet in 24 hours when using Forbo Sustain 885m adhesive. Concrete internal relative humidity must not exceed 75% when using Forbo T 940 adhesive or 85% when using Forbo Sustain 885m adhesive. A diagram of the area showing the location and results of each test should be submitted to the Architect, General Contractor or End User. If the test results exceed these limitations, the installation must not proceed until the problem has been corrected.

Note: Moisture tests indicate conditions at the time of the test only. The absence of an acceptable vapor retarder under the slab, changes in the environment, or other circumstances beyond Forbo's control, may lead to adverse changes in the moisture condition of the concrete. Forbo's warranty shall not be extended to cover damage or failures caused by moisture conditions in excess of specified limits that occur after the time of initial testing or installation.

3.3 Adhesive:

Use Forbo T 940 adhesive or Forbo Sustain 885m adhesives. Use a 1/16" x 1/16" x 1/16" square notch trowel. Spread Rate: Approximately 125 square feet/gallon.

3.4 Heat Welding (OPTIONAL):

For seamless, hygienic watertight installation requirements, use Forbo Marmoweld welding rod. Welding rod dimensions: 4 mm; 165 linear feet per spool.

3.5 Installation Guidelines:

Refer to Forbo Flooring's Installation Guide for complete installation guidelines.

4. AVAILABILITY & COST

Available through authorized Forbo Flooring suppliers throughout North America. Contact Forbo Flooring or an authorized supplier for cost information.

5. WARRANTY

Limited 5-year warranty. For complete details, contact Forbo Flooring.

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After installation is completed, allow a minimum of 5 days for the adhesive to properly bond and cure before conducting wet cleaning procedures. See Forbo Flooring's Floor Care Guide for additional information.

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DUE: 1:30 p.m., Tuesday, February 28, 2017
PROPOSAL: BID 9838 Floor Replacement Program

PROPOSAL FORM

We propose to furnish, deliver, remove and install new Flooring at Troy High School, Athens High School, International Academy East and Larson Middle School, in accordance with theses specifications:

Athens High School	_____
Troy High School	_____
International Academy East	_____
Larson Middle School	_____
Grand Total	_____

BIDDER'S FIRM NAME _____

ADDRESS _____

CITY/STATE _____ ZIP _____

TELEPHONE NUMBER _____ FAX # _____

SIGNED BY _____ TITLE _____

TYPED NAME _____ DATE _____

E-MAIL ADDRESS _____

SWORN AND NOTARIZED FAMILIAL DISCLOSURE STATEMENT

FAMILIAR DISCLOSURE AFFIDAVIT

The undersigned, the owner or authorized office of the below-named contractor (the ‘Contractor’), pursuant to the familial disclosure requirement provided to Troy Schools, hereby represents and warrants that, excepts as provided below, no familial relationship exists between the owner or key employee of the Contractor, and any member of the Troy School Board or the Troy School Superintendent. A list of the School District’s Board of Education Members and its Superintendent may be found at <http://www.troy.k12.mi.us>.

List any Familial Relationships:

Contractor:

Print Name of Contractor

By: _____

Its: _____

Subscribed and sworn before me, this _____

Seal:

day of _____, 20 ____, a Notary Public

in and for _____ County, _____

(Signature)
NOTARY PUBLIC

My Commission expires _____

CERTIFICATION OF COMPLIANCE – IRAN ECONOMIC SANCTIONS ACT

Michigan Public Act No. 517 of 2012

The undersigned, the owner, or authorized officer of the below-named Company, pursuant to the compliance certification requirement provided in Troy School District's Request For Proposal, the "RFP", hereby certifies, represents, and warrants that the Company and its officers, directors and employees, is not an "Iran Linked Business" within the meaning of the Iran Economic Sanctions Act, Michigan Public Act No. 517 of 2012 (the "Act"), and that in the event the Company is awarded a contract by Troy School District as a result of the aforementioned RFP, the Company is not and will not become an "Iran Linked Business" at any time during the course of performing any services under the contract.

The Company further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or two (2) times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of Troy School District's investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on a request for proposal for three (3) years from the date the it is determined that the person has submitted the false certification.

NAME OF COMPANY

NAME AND TITLE OF AUTHORIZED REPRESENTATIVE

SIGNATURE

DATE

Acceptance of Proposal

The undersigned agrees to execute a Contract for work covered by this Proposal provided that he is notified of its acceptance within thirty days after the opening of the Proposal.

It is agreed that this bid will not be withdrawn until after forty-five (45) days after receipt of bids.

The undersigned affirms that the bid was developed without any collusion, undertaking, or agreement, either directly or indirectly, with any other bidder(s) to maintain the prices of indicated work or prevent any other bidder(s) from bidding the work.

BIDDER’S FIRM NAME	_____
BUSINESS ADDRESS	_____ _____
TELEPHONE NUMBER	_____
FAX NUMBER	_____
BY (SIGNATURE)	_____
PRINTED NAME	_____
TITLE	_____
SIGNED THIS	_____ DAY OF _____, 20 _____
E-MAIL ADDRESS	_____

Bid Tabulation

BID 9838 Floor Replacement Program

Vendors	Athens High School Total	Troy High School Total	International Academy Total	Larson Middle School Total	Grand Total
Conventionalal Carpet, Inc.	\$ 76,380.00	\$ 66,887.00	\$ 35,676.00	a) \$ 22,437.00	\$ 201,380.00
Master Craft Carpet Services, Inc.	\$ 81,500.00	\$ 73,000.00	\$ 39,000.00	b) \$ 28,000.00	\$ 221,500.00
Shock Brothers Floorcovering, Inc.	\$ 93,725.00	\$ 70,500.00	\$ 46,300.00	c) \$ 27,500.00	\$ 238,025.00
a) Option 2 - IAE Work Scope Change - Deduct \$ 3,096.00 b) Option 2 - IAE Work Scope Change - Deduct \$ 3,500.00 a) Option 2 - IAE Work Scope Change - Deduct \$ 9,000.00					