



**INVITATION TO BID
BID NO. 9905
FLOORING REPLACEMENT AND
POLISHING PROGRAM 2020
TROY SCHOOL DISTRICT**

The Troy School District will receive firm, sealed bids for all labor, material, equipment and all other services to complete Bid No. 9905 Flooring Replacement and Polishing Program 2020 at various locations, for Troy Schools.

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

Your proposal and two copies marked **"Bid 9905 Flooring Replacement and Polishing Program 2020"** must be delivered no later than 1:00 p.m., Monday, February 3, 2020, Troy School District Maintenance/Operations Purchasing Offices, 1140 Rankin, Troy, MI 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 **non-mandatory but strongly encouraged** pre-bid walk through has been scheduled for 1:00 p.m., Monday, January 20, 2020 at Athens High School, 4333 John R, Troy MI 48085. Interested parties should meet outside the main office.

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School Board or the Troy School Districts Superintendent. Also, a sworn and notarized Affidavit of compliance for the Iran Economic Sanctions Act certifying the vendor does and will comply with Public Act 517 of 2012 shall accompany all proposals. Both forms will be enclosed in the specification's booklet that shall be used for this purpose. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statement.

In accordance with Michigan Compiled Laws Section 129.201, successful bidders whose proposals are \$50,000 or more, for any bid category, will be required to furnish a U.S. Treasury Listed Company Performance and Payment Bond in the amount of 100% of their bid. The cost of the Bond shall be identified within each proposal.

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
1140 Rankin
Troy, MI 48083



**INVITATION TO BID
BID NO. 9905
2020 FLOORING REPLACEMENT AND FLOOR POLISHING BID
FOR TROY SCHOOL DISTRICT**

The Troy School District will receive firm, sealed bids for all labor, material, equipment and all other services to complete Bid No. 9905 with work at Services Building, Athens High School, International Academy, Smith Middle School, Wattles, Hill, Costello, Barnard and Martell Elementary Schools, 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 scroll down to locate and access the bid document.

Your proposal and two copies marked **"Bid No. 9905 Flooring Replacement and Floor Polishing Bid"** must be delivered no later than 1:00 p.m., Monday, February 3, 2020, Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 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-bid walk through has been scheduled for 1:00 p.m., Monday, January 20, 2020, at Athens High School 4333 John R Road, Troy, MI 48085 – meet in main lobby. **This meeting is NOT mandatory.** 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, Wednesday January 29, 2020; 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.

All bidders must provide familial disclosure in compliance with MCL 380.1267 and attach this information to the bid proposal. The bid proposal will be accompanied by a sworn and notarized statement disclosing any familial relationship that exists between the owner or any employee of the bidder and any member of the Troy School Board or the Troy School Districts Superintendent. Also, a sworn and notarized Affidavit of compliance for the Iran Economic Sanctions Act certifying the vendor does and will comply with Public Act 517 of 2012 shall accompany all proposals. Both forms will be enclosed in the specification's booklet that shall be used for this purpose. The District will not accept a bid proposal that does not include these sworn and notarized disclosure statement.

In accordance with Michigan Compiled Laws Section 129.201, successful bidders whose proposals are \$50,000 or more, for any bid category, will be required to furnish a U.S. Treasury Listed Company Performance and Payment Bond in the amount of 100% of their bid. The cost of the Bond shall be identified within each proposal.

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
1140 Rankin
Troy, MI 48083

INSTRUCTIONS TO BIDDERS

PROPOSAL/INTENT

1. The Troy School District will receive firm, sealed bids for all labor, material, equipment and all other services to complete Bid No. 9871 floor work at Services Building, Athens High School, International Academy, Smith Middle School, Wattles, Hill, Costello, Barnard and Martell Elementary Schools, for Troy Schools.
2. Proposals for two different bid divisions will be submitted 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 Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 48083, no later than 1:00 pm, Monday, February 3, 2020, 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. Indicate on the envelope the bid division you are bidding on.
3. Proposals will be made in conformity with all the conditions set forth in the specifications. All products must conform to the specifications.
4. A pre-bid walk through has been scheduled at 1:00 p.m., January 20, 2020, at Athens High School 4333 John R. Road, Troy, MI 48085. Questions must be received no later than noon, Thursday, January 30, 2020.
5. Bidder shall be reputable and a recognized organization, with at least five (5) years successful experience on work of this type and scope, of equal or better quality than this project.
6. 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.
7. Bid bond or certified check, for an amount not less than five (5%) percent of the amount of the bid, must accompany each bid. Failure to submit proper bid security shall constitute rejection of bid.
8. A performance bond shall be required for the project if the cost is in excess of \$50,000 and must be listed separately on the proposal form as an individual line item.
9. 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.
10. 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.

SCOPE

The two bids include flooring removal and installation per the attached documents AND terrazzo and concrete polishing. Proposals will be on a lump sum basis, according to the finish schedule included and where specified only the qualified products listed will be considered in this proposal. Note for flooring portion some rooms are alternates see room finish schedules.

WARRANTY

All material and equipment will be guaranteed to be free from defects in both workmanship and materials for no less than two years 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.

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.

FIRM PRICING

Unit pricing will prevail when computing total quantity on bids. No price allowance or extra consideration on behalf of the bidder will subsequently be allowed by reason of error or oversight on the part of the bidder. The successful bidder(s) will hold bid prices firm for all purchase orders placed for a period of approximately one full year.

PERMITS, FEES AND REGULATIONS

The Contractor shall obtain and pay for all permits, assessments, fees, bonds, and other charges as necessary to perform and complete the work of this contract, including disconnection charges, capping and unplugging utilities.

The Contractor shall be responsible for obtaining all permits and licenses necessary for the proper completion of project. Permits and licenses are available from the appropriate agencies having jurisdiction. The Contractor shall give all notices, pay all fees and comply with all laws, ordinances, rules and regulations bearing on the work. At the completion of the project, the Contractor will provide to the District all paperwork related to the full execution of the permits(s), including all payments and inspections.

If any of the work of the Contractor is done contrary to such laws, ordinance rules and regulations without such notice, he shall bear all costs arising therefrom. The Contractor shall include all cost and taxes in its bid, and make proper provisions for payment of all other State and Federal applicable taxes, fees or other costs.

TAXES

Troy School District is not automatically exempt from State of Michigan Sales and Use Taxes. The District must pay these taxes when materials are to be incorporated into reality. Materials that are permanently attached i.e lockers/flooring, built-in/attached, incorporated or otherwise made part of the structure all applicable taxes shall be paid by the Vendor. Troy School District shall not be responsible for any taxes that are imposed on the Vendor. Furthermore, the Vendor understands that it cannot claim exemption from taxes by virtue of any exemption that is provided to Troy School District.

DELIVERY/INSTALLATION

Time of delivery is part of the consideration. It is understood that the bidder agrees to deliver prepaid to the schools, specified from the resulting contract, all items. All cost of delivery, drayage, freight, packing, unpacking, and setup are to be included in the prices bid.

The Contractor is responsible for removing from the project all waste materials and rubbish resulting from his operations and installation including all packing cartons and debris. Removal is to occur on a daily basis. Failure to do so will result in the Owner doing so and the cost thereof shall be charged to the Contractor as a deduction in his contract price.

The Contractor shall provide an adequate number of qualified, experienced installers, in harmony with other works at the site.

BID BOND

Bid Bond or certified check, for an amount not less than five (5%) percent of the amount of the bid, must accompany each bid. The check or bond of each unsuccessful bidder will be returned within ten (10) days after

the bid is awarded. Failure of any accepted bidder to enter into a contract to complete the specified work may forfeiture of his bid security. Failure to submit proper bid security shall constitute rejection of bid.

PERFORMANCE BOND/PAYMENT BOND

Within fourteen (14) days after date of issuance of written notice of selection for the award of a contract, which shall be considered as the notice to proceed, the successful bidder shall enter into a contract with the Owner and shall execute and file with the Owner, the following in the amount 100% equal to full contract sum.

A performance bond shall be required for the project if the cost is in excess of \$50,000 and must be listed separately on the proposal form as an individual line item. The Performance Bond must insure the faithful performance of all provisions of the contract and satisfactory completion of the specified work, within the time agreed upon.

The payment bond must insure the payment and protection of claimants supplying labor or materials to the principal contractor or his subcontractors in the prosecution of the work provided for in the contract. The successful contractor's bond company must be listed by the State of Michigan as a licensed carrier and have an excellent or superior rating from AM Best Company.

SAFETY

Under the "General Conditions of the Contract for Construction" of the contract to be awarded, the Contractor;

- a) shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures;
- b) shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the contract;
- c) shall take reasonable precautions for safety of all persons who may be affected, including employees of the Contractor and Subcontractor; and
- d) shall have an accident prevention representative at the site.

The general conditions of the contract for construction and the agreement also require that the Contractor indemnify the Owner in the event of certain claims arising out of the performance of the work.

INSURANCE REQUIREMENTS

The Contractor shall protect, defend and indemnify the Owner, its officers, agents, servants, volunteers, and employees from any and all liabilities, claims, liens, demands, and costs of whatsoever kind and nature which may result in injury or death to any persons, and for any result in injury or death to any person, and for loss or damage to any property, including property owned or in the care, custody, or control of the Owner in connection with or in any way incident to or arising out of the occupancy, use, with this Agreement resulting in whole or in part from negligent acts or omissions of the Contractor, any Subcontractor, or any employee, agent or representative of the Contractor or any Subcontractor.

The Contractor shall maintain, at its expense, during the term of this contract the following insurance:

- a) Worker's Compensation Insurance with statutory limits and Employer's Liability Insurance with a minimum limit of \$1,000,000 each occurrence.
- b) Comprehensive General Liability Insurance with a minimum combined single limit of \$1,000,000 per occurrence, \$1,000,000 aggregate, in the same amount made for bodily injury and property damage. The policy is to include products and completed operations, cross liability, broad form property damage, independent contractors, and contractual liability coverage. The policy shall be endorsed to provide sixty (60) days written notice to the District of any material change of coverage, cancellation, or non-renewal of coverage.

- c) If Subcontractors are likely to be used, the Comprehensive General Liability policy shall include coverage for independent Contractors.
- d) Owner's Contractor's Protective Policy-comprehensive in the name of the Owner, with a minimum combined single limit of \$1,000,000 per occurrence in the same amount for bodily injury or property damage.
- e) Automobile Liability insurance covering all owned, hired, and non-owned vehicles with personal protection insurance and property insurance to comply with the provisions of the Michigan no-fault Insurance Law, including residual liability insurance with a minimum combined single limit of \$1,000,000 each occurrence of bodily injury and property damage.
- f) All insurance policies shall be issued by companies licensed to do business in the State of Michigan. The companies issuing the policies must be domestic (on-shore) companies and have an A rating by AM Best.
- g) The Contractor shall be responsible for payment of all deductibles contained in any insurance policy required in this contract.

COMPLIANCE WITH SCHOOL SAFETY INITIATIVE LEGISLATION

Meeting the requirements of the School Safety Initiative Legislation, being MCL 380.1230, 80.1230a, 380.1230c, 380.1230d and 380.1230g.

The Bidder acknowledges and agrees that the Bidder will have any and all of its installation personnel (including sub-contractors) subjected to criminal history and background checks. **Personnel that fall into this group will be working on District premises for more than one continuous week.** Criminal history and background checks will be done within a year of the beginning of the project and should be completed before worked begins on this project.

The Bidder is required to provide written documentation listing all personnel who fall into the group indicated in the above paragraph. The documentation will also verify that none of the personnel have a "listed offense" as indicated below. This documentation is to be provided before the beginning of the project and updated as necessary for any additions or subtractions from the list as long as the project lasts.

The Bidder shall indemnify, defend and hold the District, its employees, Board of Education, and each member thereof, agents and consultants, harmless from and against any and all claims, counter-claims, suits, debts, demands, actions, judgments, liens, liabilities, costs, expenses, including actual attorney's fees and actual expert witness fees, arising out of or in connection with any violation of, or the Bidder's failure to comply with the above paragraphs.

The Bidder shall be responsible for all costs and expenses associated with the above-required criminal history and background checks.

LISTED OFFENSES

1. MCL 750.145a - Accosting, enticing or soliciting child (less than 16 years of age) for immoral purposes.
2. MCL 750.145b - Accosting, enticing or soliciting child (less than 16 years of age) immoral purposes – second or subsequent offenses.
3. MCL 750.145c - Involvement in child sexually abusive activity or material, including possession of child sexually abusive material ("child" is a person less than 18 years of age who has not been legally emancipated.)
4. MCL 750.158 - Crime against nature (i.e., sodomy and bestiality) if the victim is an individual less than 18 years of age.

5. A third of subsequent violation of any combination of the following:
 - a. MCL 750.167(1)(f) - indecent or obscene conduct in a public place;
 - b. MCL 750.335a - indecent exposure;
 - c. A local ordinance of a municipality substantially corresponding to a section described in (a) or (b), *supra*.
6. Except for juvenile disposition or adjudication, a violation of:
 - a. MCL 750.338 - gross indecency between males; fellatio or masturbation;
 - b. MCL 750.338a - gross indecency between females; oral sex;
 - c. MCL 750.338b - gross indecency between male and female persons;if the victim is an individual less than 18 years of age.
7. MCL 750.349 - Kidnapping, if victim is an individual less than 18 years of age.
8. MCL 750.350 - Kidnapping; child under 14 years of age with intent to detain or conceal from child's parent or legal guardian.
9. MCL 750.448 - Soliciting or accosting by a person 16 years of age or older, if victim is an individual less than 18 years of age.
10. MCL 750.455 - Pandering
11. MCL 750.520b - First degree criminal sexual conduct.
12. MCL 750.520c - Second degree criminal sexual conduct.
13. MCL 750.520d - Third degree criminal sexual conduct.
14. MCL 750.520e - Fourth degree criminal sexual conduct.
15. MCL 750.520g - Assault with intent to commit criminal sexual conduct.
16. Any other violation of a law of the state or a local ordinance of municipality that by its nature constitutes a sexual offense against an individual who is less than 18 years of age.
17. MCL 750.10a - Offense by sexually delinquent person (i.e., "any person whose sexual behavior is characterized by repetitive or compulsive acts which indicate a disregard of consequences or the recognized rights of others, or by the use of force upon another person in attempting sexual relations of either a heterosexual or homosexual nature, or by the commission of sexual aggressions against children under the age of 16").
18. An attempt or conspiracy to commit an offense described in (1) through (17).
19. An offense substantially similar to an offense described in (1) through (17) under a law of the United States, any state, or any country or any tribal or military law.

TERMINATION BY THE DISTRICT FOR CONVENIENCE

The District may, at any time, terminate the Contract for the District's convenience and without cause.

Upon receipt of written notice from the District of such termination for the District's convenience, the Contractor shall:

- a) Cease operations as directed by the District in the notice;
- b) Take actions necessary, or that the District may direct, for the protection and preservation of the Work; and
- c) Except for Work directed to performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further Subcontracts and purchase orders.

Owner Is An Equal Opportunity Employer

The Owner is an Equal Opportunity Employer. Pursuant to the Executive Order 11246 as amended, you are advised that under the provisions of this order, Contractors and Subcontractors are obligated to take affirmative action to provide equal opportunity without regard to race, creed, color, national origin, age or sex.

Michigan Right to Know Law

Troy School District will comply with the Michigan Right to Know Law by informing Contractors of hazardous chemicals to which they may be exposed. All Contractors will be required to provide Material Safety Data Sheets for any hazardous chemicals brought to the workplace. The Contractor shall comply

with all applicable provisions of the Occupational Safety and Health Act for the duration of the specified work.

Asbestos Hazard Emergency Response Act

As required by the Environmental Protection Agency Asbestos Hazard Emergency Response Act, each school district is responsible for providing contractors with information regarding locations of known or assumed asbestos containing material prior to the Contractor entering a building under the school district's jurisdiction. The successful bidder will be required to complete the school district's Contractor Notification forms.

Notification of Assumed Lead-Containing Materials

The intent of this section is to formally notify all Contractors and Sub-Contractors applying for or bidding on work covered within this specification that, due to the age of the facilities within this District, there is the presumption that building components do contain lead-based paint pursuant to OSHA definition. The District has not conducted lead-based paint inspections. As a result, all Contractors and Sub-Contractors bidding must assume that building components do contain lead-based paint.

Furthermore, all awarded Contractors and Sub-Contractors shall be responsible to comply with all applicable Federal and Michigan State lead regulations including, but not limited to, 29 CFR Part 1926.62 of the OSHA Lead Construction Standard, (Part 603 of the Michigan State Standards). All costs associated with regulatory compliance shall be borne by the Contractor and/or Sub-Contractor.

General Conditions

The District reserves the right to accept or reject any or all proposals, to waive irregularities, and to accept a proposal which, in the District's opinion, is in the District's best interest.

The District reserves the right to declare as non-responsive, and reject, any bid which is incomplete or where material information requested is not furnished, or where indirect or incomplete answers or information is provided.

In the event, the Operations Building is closed due to unforeseen circumstances on the day Proposals are due, Proposals will be due at the same time on the next day that the District and/or the Operations Building is open.

Negligence in preparation, improper preparation, errors in, or omissions from, proposal shall not relieve a bidder from fulfillment of any and all obligations and requirements of the proposed Contract Documents.

The District expects that the awarded bidder will complete the work as outlined in the specifications for the amount bid by the bidder. Any additional costs above the amount bid and awarded, must be approved by the District in advance of any work.

Voluntary alternates for bids are acceptable but should NOT be put in the space for the Base Bid on the Bid Response Form but on an attached sheet, clearly labeled Voluntary Alternative. Such Alternates should be described in enough detail for the District to understand the Bidder's intent.

Owner may choose to conduct testing to verify correct products and installation. If the materials and installation are found not to be per spec, owner will require subsequent tests to be performed by Owners testing company at contractors' expense.

Any exceptions to the terms and conditions contained in this RFP or any special considerations or conditions requested or required by the Contractor MUST be specifically enumerated by the Contractor and be submitted as part of its Proposal, together with an explanation as to the reason such terms and conditions of this RFP cannot be met by, or in the Contractor's opinion should not be applicable to, the Contractor. The Contractor shall be required and expected to meet the specifications and the requirements as set forth in this RFP in their entirety, except to the extent exceptions or special considerations or

conditions are expressly set forth in the Contractor's Proposal and those exceptions or special considerations or conditions are expressly accepted by the District.

No responsibility shall attach to the District, or the authorized representatives of either one, for the premature opening of any proposal, which is not properly addressed and identified.

The Contract Documents, as outlined in the executed Agreement, shall imply the inclusion of the entire agreement between the parties thereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by an officer, agent or employee of the District or by any other person.

Include in your flooring bid \$25,000 at Wattles and \$25,000 at Hill Elementary Schools to be used at the owner's discretion. If no additional work is done this will be credited back to TSD. Include in your polishing bid \$5,000 at Costello and \$5,000 at Martell. If no additional work is done this will be credited back to TSD.

Opening and Awarding of Bids

Bids will be publicly opened and read aloud at the Troy School District Maintenance/Operations and Purchasing Offices, 1140 Rankin, Troy, MI 48083, at 1:00 p.m. Monday February 3, 2020.

The recommendation for award will be submitted to the Board of Education at the regular Board of Education Meeting to be held on Tuesday, February 25, 2020.

Scope of Work \ Specifications

See attached scope of work and drawing

We propose to furnish all material, labor and equipment, as per the specifications, for the Troy School District. and all other services to complete BID 9905 Flooring Replacement and Floor Polishing Program. **NOTE – There are 2 bid divisions you do NOT have to bid on both divisions. However, you must bid on all schools included in each bid division.**

Bid 1 – Flooring Demo and Replacement

Total Cost – Barnard Elementary School \$ _____ no alternates

Total Cost – Costello Elementary School \$ _____ no alternates

Total Costs – Martell Elementary School \$ _____ Alt 1 (gym) \$ _____

Total Costs – Hill Elementary School \$ _____ Alt 1 (gym) \$ _____
Alt 2 (added rooms) \$ _____

Total Costs – Wattles Elementary School \$ _____ Alt 1 (gym) \$ _____
Alt 2 (added rooms) \$ _____

Total Costs – International Academy \$ _____ no alternates

Total Costs – Services Building \$ _____ this entire building is an alternate

Bond Costs – All Schools Combined (base) \$ _____ **Bond Costs - (alternates)** \$ _____

Grand Total (w/o alts w/ bond w/ allowances) \$ _____

Grand Total (w/alts w/bond w/ allowances) \$ _____

Bid 2 – Floor Polishing

Total Costs – Martell Elementary School \$ w/o _____ w/ grout coat \$ _____

Total Costs – Costello Elementary School \$ w/o _____ w/ grout coat \$ _____

Total Costs – Hill Elementary School \$ w/o _____ w/ grout coat \$ _____

Total Costs – Smith Middle School \$ w/o _____ w/ grout coat \$ _____

Total Costs – Athens High School \$ w/o _____ w/ grout coat \$ _____

Bond Costs – ALL Schools Combined \$ _____ \$ _____

Grand total ALL SCHOOLS (w/bond w/allowances w/o grout coat) \$ _____

Alternate Pricing:

Cost increase (delta) for Forbo moisture resistant adhesive per 4 gallon bucket \$ _____

Provide labor rate per hour \$ _____

Cost to add moisture mitigation for MCT or Flotex (base on 900 sf room) \$ _____

Provide per classroom cost for 900sf of removal, prep and installation of Flotex \$ _____

Cost to add polishing of terrazzo per sf (base on min of 250 sf) \$ _____

Cost to add polishing of concrete per sf (base on min of 250 sf) \$ _____

DUE: 1:00 pm., Monday, February 3, 2020
PROPOSAL: BID 9905 2020 Flooring Replacement and Floor Polishing Bid

PROPOSAL FORM

BIDDER'S FIRM NAME _____

NAME _____

ADDRESS _____

CITY/STATE _____ **ZIP** _____

CELL NUMBER _____ **FAX #** _____

SIGNED BY _____ **TITLE** _____

TYPED NAME _____ **DATE** _____

E-MAIL ADDRESS _____

VENDOR: LIST FIVE RECENT REFERENCES, PREFERABLY SCHOOL DISTRICTS:

_____ School District	_____ Person to Contact	_____ Phone Number
_____ School District	_____ Person to Contact	_____ Phone Number
_____ School District	_____ Person to Contact	_____ Phone Number
_____ School District	_____ Person to Contact	_____ Phone Number
_____ School District	_____ Person to Contact	_____ Phone Number

Interested vendors will note in this space only any additional information, criteria or contingencies affecting their proposal, understanding that this additional information, criteria or contingency may be utilized in the evaluation process and subsequent award.

**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	_____
CELL NUMBER	_____
FAX NUMBER	_____
BY (SIGNATURE)	_____
PRINTED NAME	_____
TITLE	_____
SIGNED THIS	_____ DAY OF _____, 20 _____
E-MAIL ADDRESS	_____

Flooring Scope of Work

Project consists of:

Removal and installation of flooring materials and floor polishing at Barnard, Costello, Hill, Martell and Wattles Elementary Schools, Smith Middle School, Athens High School, International Academy and Services building. For each building there is a composite plan showing the areas of work – shaded by color, a composite, enlarged plan(s) and a room finish schedule. Room finish schedule contains information on desired materials and alternates. Some existing flooring is asbestos containing. These spaces will be abated by TSD. As such do not include demolition of these rooms. Spaces indicated on the room finish schedule in the demolition column with a “yes” means you are to include demolition in your bid.

This bid includes flooring work associated with building remodeling at some of the schools. See attached link for drawings to see scope. See link for drawings from that construction package.

<https://bartonmalow.box.com/s/gc5395bd6mdpd2cwftso7yh9stru6xx>

Note: Project is divided into two bid divisions. Bid division 1 is all the flooring replacement. Bid division 2 is concrete and terrazzo floor polishing.

Scope of work - Replacement:

Barnard – Install new flooring in 3 classrooms (demo by TSD).

Costello – Install new flooring and treads and risers at stage (demo by TSD).

Hill, Martell and Wattles - Remove and replace flooring in shaded rooms.

International Academy (IAE) – Remove and replace flooring in café. Install new flooring at stage.

Services – Remove and replace flooring in shaded rooms.

Scope of work - Polishing:

Costello and Martell – Polish existing terrazzo in corridors and restrooms as shown.

Smith – Polish concrete in science wing.

Hill – Polish art room floor and small section at gymnasium.

Athens – Polish concrete in art rooms and classrooms.

Specifications:

Demolition – VCT and Carpet Areas

1. Remove existing flooring and base as noted in room finish schedule – 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 (Green – Costello, Martell, Hill and IAE)

1. Provide nora Environcare 24" X 24" tiles. Colors TBD.
2. All installation will be per the manufacturer's guidelines for this product.
3. Sand/grind smooth the existing surface.
4. Install 5.5mm thick birch plywood laminate at wood stages as a substrate (Martell, Hill and IAE).
5. Skim coat all areas with Ardex or similar to receive nora product.
6. Check Rh for 60 days prior to install.
7. Provide Tandus metal edge at leading edge of stage.
8. Product will be installed with nora 485 one part adhesive.
9. Provide new 4 1/2" H Roppe rubber base color; TBD
10. Contractor must have manufacturer certified installer on site during installation.
11. See manufactures specifications for proper installation of product.

Installation – Walk off carpet (Yellow – Barnard, Hill, Wattles and Martell)

1. Provide Forbo Duo or Coral 24" X 24" tile. Color TBD - extent as shown on drawings.
2. All installation will be per the manufacturer's guidelines for this product.
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 1/2" H Roppe rubber base color; TBD
8. Contractor must have certified installer on site during installation.
9. See manufactures specifications for proper installation of product.

Installation – Luxury tile (Blue – multiple schools)

1. Provide Forbo MCT as the base bid.
2. All installation will be per the manufacturer's guidelines for this product.
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 with manufacturer's recommended adhesive.
7. Provide new 4 1/2" H Roppe rubber base color; TBD.
8. Contractor must have certified installer on site during installation.
9. See manufactures specifications for proper installation of product.

Installation – Flotex (Pink – multiple schools)

1. Provide Forbo Flotex modular v1.01 20" X 20" or 10" X 40" - extent as shown on drawings.
2. All installation will be per the manufacturer's guidelines for this product.
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 with FRT 950 adhesive.
7. Provide new 4 1/2" H Roppe rubber base color; TBD.
8. Contractor must have certified installer on site during installation.
9. See manufactures specifications for proper installation of product.

Installation – Taraflex Gymnasium Flooring (Purple – multiple schools)

1. Gerflor Taraflex Sport M Plus Standard Sports Flooring base bid and Taraflex Sport M Plus Drytex (100% RH) as the alternate.
2. All installation will be per the manufacturer's guidelines for this product.
3. Grind smooth existing surface.
4. Skim coat all areas with Ardex or similar that is acceptable to the Gerflor product.
5. Check Rh for 60 days prior to install.
6. No seams shall be "stacked" laterally. Must be off-set by 2' minimum and random.
7. Product will be installed with manufacturer's full-spread adhesive.
8. For alternate install with Gerflor high-moisture tolerance full-spread adhesive.
9. Provide new 6" H Roppe rubber base color; TBD.
10. Provide game lines per sketch - system complete including primer, compatible with flooring and installed per manufactures standards. Picture provided.
11. Field to be "wood" finish.
12. Contractor to provide game line shop drawing.
13. Contractor must have certified installer on site during installation.
14. See manufactures specifications for proper installation of product.

Installation – Stair treads and risers (Green - Costello, Martell and Hill)

1. Provide nora combo treads/risers with hammered finish. Treads to be full width. If a seam is required (due to limitations of product) it will be in the middle.
2. Grind smooth existing surface.
3. All installation to be per the manufacturer's specification for this product.
4. Skim coat all areas with Ardex or similar to receive Johnsonite product.
5. Check Rh for 60 days prior to install.
6. Provide matching material at the mid landing for all locations.
7. Provide new 4 1/2" H Roppe rubber base color; TBD
8. Contractor must have certified installer on site during installation.
9. See manufactures specifications for proper installation of product.

Schedule:

Abatement schedule is as follows:

Athens 4/3 to 4/8

Costello 6/13 (one day)

Hill 6/15 to 7/10

Wattles 6/29 to 7/1

Barnard 7/1 to 7/10

Smith 7/10 to 7/17

Flooring schedule is as follows:

Martell – June 16 to June 30, 2020.

Wattles – First 2 weeks of July

Hill – Second 2 weeks of July

IAE – Café and stage must be done by August 7. Stage will not be available until August date TBD.

Barnard – Must be done by August 14. Duration not more than one week.

Costello – Stage will not be available until August date TBD

Services – Phase 1 - 10 days (4 phases) in March – May, Phase 2 - 10 Days (3 phases) in March – May.

Polishing schedule is as follows:

Hill – June 15 to June 22, 2020

Costello - By August 14 More info to follow in addendum

AHS – June 15 to June 26 More info to follow in addendum

Martell - By August 14 More info to follow in addendum

Smith – By August 14 More info to follow in addendum

General Notes

TSD will address all moving needs.

Color schedule will be issued as an addendum.

Contractor to provide rubber transitions strips by Tandus MetalEdge at all transitions from soft to hard surface, height differences or at the edge of exposed flooring. Contractor to verify locations with owner prior to install. Color TBD.

Contractor to remove ALL metal Schluter trim in rooms/spaces where work is taking place. This is between CT and carpet, VCT to walk off, VCT to recessed mat and other conditions. In a few locations where the recessed mats are being filled in the metal can be ground down below the level of the prep. Must be 1/8" below prep so as not to telegraph through..

For all rooms being abated by TSD they will be ground. Contractor to include floor prep.

For rooms with moveable partitions – carpet will extend under the partitions. TSD will open partitions.

When installing base in rooms include installing base on casework.

In all rooms where a pedigrid type mat exists contractor to remove mat, remove Schluter strip, infill flush with adjacent surface then grind/sand smooth to accept new finishes.

If flooring demo is called for include demo of base.

Provide 3% for attic stock.

At Hill and Martell Elementary Schools assume existing gymnasium wood system is 2 1/2" thick. Contractor to provide cementitious fill with pea gravel or smaller stone compared to traditional aggregate for first 2 – 2" with 1/2" of Ardex k-15 over that top. Contractor to protect access point and path to gym for this process.

Building specific notes:

Barnard - Contractor to remove CT outside restrooms – include patching/prep after demo. All other demo by TSD.

Costello – refer to bidpak 26 drawings to understand scope of work related to ramp.

Athens – polishing contractor to remove existing CT in art room and vinyl base. Flooring contractor to include demo of carpet and vinyl base in H1 and H2 classrooms. Flooring contractor to include ALL new rubber base ALL rooms.

At Costello and Martell TSD will remove toilet partitions and toilets to allow for polishing.

IAE – Existing stage is wood. VCT to be removed at exterior door and entire café.

END

SECTION 03 35 00
POLISHED CONCRETE FINISHING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polished Concrete.
 - 1. Polished concrete finishing including grout coat, repairs, joint filler, densification and polish guard.
 - 2. Grind, hone and polish concrete starting from a minimum of #25 grit progressing to #1500 grit.
 - 3. Polish concrete according to the Concrete Polishing Council, ASCC.
 - a. Aggregate Exposure: Class C Coarse Aggregate 80- 90 % Coarse Aggregate.
 - b. Polished Concrete Appearance: Level 3 Polished with a Distinctness-of-Image (DOI) Gloss reading between 65 – 70 %.
 - 4. Procedure:
 - a. Grinding and honing concrete surface to receive a concrete densifier.
 - b. **ALTERNATE PRICING:** Full application of resin-based grout coat over entire floor surface. Base bid amount shall include Prosoco Consolideck Grind-N-Fill full grout coat.
 - c. Resin-based floor repairs.
 - d. Filling of all joints utilizing a polyurea joint filler.
 - e. Application of concrete densifier.
 - f. Progressively refining and polishing of the concrete surface with not less than 10 diamond tool steps with full refinement of each diamond tool starting at 25 grit progressing up to 1500 grit resin bonded pad.
 - 5. Field testing floor surface for ANSI DCOF and ASME Surface Texture.
 - 6. Application of polished concrete protective treatment with dry burnishing.
- B. Joint Fillers & Repairs
 - 1. Provide semi-rigid, two-part, 100% solids polyurea control and construction joint fillers.
 - 2. Fill all contraction (control) and construction (formed) joints in the interior concrete floor slab.
 - 3. Repair all cracks, spalls, popouts, scratches, gouges and other floor imperfections using resin-based Metzger/McGuire SRG or DiamoPro DiamoGrout Plus.
- C. Filed Testing
 - 1. Contractor shall be responsible for all field-testing including equipment rental and calibration. Fields tests shall be performed prior to and after any coating application.
 - 2. ANSI Standards B-101.3 Test Method for Measuring Wet DCOF of Common Hard Surface Floor Materials.
 - a. It is the contractor's sole responsibility to ensure the finished polished floor conforms to the ANSI B-101.3 standard of not less than Wet DCOF 0.42.
 - 3. ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay).

1.2 RELATED SECTIONS

- A. Section 03 31 70 – Concrete Floor Joint Fillers

1.3 DEFINITIONS

- A. Coefficient of Friction:
 - 1. Static Coefficient of Friction (SCOF): The frictional resistance between two objects

- when beginning motion from a stationary position.
2. Dynamic Coefficient of Friction (DCOF): The frictional resistance between two objects when one is already in motion.
- B. Cross Hatch: A multi-directional pass with grinding or polishing equipment.
- C. Diamond Tooling - Metal Bond, Hybrid, Transitional and Resin Bonds:
1. Metal Bond Tooling: Diamond tooling typically used in the grinding and early honing stages that contains industrial grade diamonds with a metallic bonded matrix that is attached to rotating heads to refine the concrete surface.
 2. Hybrid Tooling: Diamond tooling that combines metal bond and resin bond, or specially hardened resin that has the characteristics of both types of tooling and used as transitional tooling from metal to resin bond tools or as a first cut tool on smooth concrete surfaces.
 3. Transition Tooling: Diamond tooling used to refine the scratch pattern of metal bond tooling prior to the use of resin bond tooling in an effort to extend the life of resin bond tooling and create a better surface for the polishing process.
 4. Resin Bond Tooling: Diamond tooling typically used in the honing and polishing stages that contains industrial grade diamonds within a resinous bonded matrix (poly-phenolic, ester-phenolic, and thermoplastic-phenolic) that is attached to rotating heads to refine the concrete surface.
- D. Distinction of Image (DOI): The sharpness of light reflections or reflected images.
- E. Gloss: also known as specular gloss, is the quantity of light reflecting from the concrete or terrazzo surface.
- F. Gloss (Finished): Processing a concrete or terrazzo floor surface to achieve a specified level of finished gloss prior to application of any protective treatment; Flat (ground), satin (honed), semi polished, and highly polished are measured in reflective clarity (DOI), and reflective sheen (specular gloss). Finished Gloss is classified as levels 1, 2, 3 and 4 with varying degrees of reflective clarity, and sheen.
- G. Gloss Measurement: A determination of specular gloss that incorporates distinction of image, haze and reflection.
- H. Gloss Meter: A device to measure specular gloss at 20, 60, or 85 degrees.
- I. Gloss Reading: A Gloss reading shall consist of the average of a group of three (3) readings taken within a 12-inch diameter of each other using an 85-degree angle Gloss Meter.
- J. Gloss Restoration/Polishing Levels - Levels 1, 2, 3 and 4:
1. Level 1 (flat): A level 1 ground polish usually can be obtained by stopping below the 100-grit resin bond. When you look directly down at the floor, it will appear somewhat hazy with little if any clarity or reflection.
 2. Level 2 (satin): A level 2 honed polish is obtained by stopping at the 400-grit resin bond, producing a low-sheen finish. When you look directly down at the finished floor and at a distance of roughly 100 feet, you can start to see a slight overhead reflection. This grit level produces a low-luster matte finish and typically has an average Gloss reading between 40 and 50 when measured using a Gloss Meter prior to any sealer or polish guard application. Sometimes this is referred to as an Industrial grade polish.
 3. Level 3 (semi-polished): A level 3 polish is achieved by going up to an 800-grit or higher diamond abrasive. The surface will have a much higher sheen than that of level 2 finish, and you'll start to see good light reflectivity. At a distance between 30 to 50 feet, the floor will clearly reflect side and overhead lighting and typically has an average Gloss reading between 50 and 60 when measured using a Gloss Meter prior to any sealer or polish guard application. . Sometimes this is referred to as a

- Commercial grade polish.
4. Level 4 (highly polished): This level of polish produces a high degree of shine, so that when standing directly over the surface, you can see your reflection with total clarity. Also, the floor appears to be wet when viewed from different vantage points. A level 4 polish is obtained by going up to a 3,000-grit resin-bond diamond or by burnishing the floor with a high-speed burnisher outfitted with specialty buffing pads and typically has an average Gloss reading between 60 and 80 when measured using a Gloss Meter at a 85 degree angle setting prior to any sealer or polish guard application. Sometimes this is referred to as a Showroom grade polish.
- K. Maximum refinement: The point in time when the diamond tool has refined the surface to the degree to which it no longer cuts or cuts very little under its current weight and variables as defined by the Concrete Polishing Association of America (CPAA) .
- L. Reflective Clarity: The DOI (distinction of image) value of the degree of sharpness and crispness of the reflection of overhead objects when measured by a device in accordance to ASTM D5767.
- M. Reflective Sheen: The specular gloss value of the degree of gloss reflected from a surface, at specified angles of illumination, when measured by a device in accordance to ASTM D523-08.
- N. Shine is the quality of light.

1.4 REFERENCES

- A. American Concrete Institute (ACI): ACI 302.1R - Guide for Concrete Floor and Slab Construction.
- B. American Society of Concrete Contractors (ASCC) Subgroup - Concrete Polishing Council (CPC) Polished Concrete Definition: D 100.1.
- C. Concrete Polishing Council (CPC), formerly the Concrete Polishing Association of America (CPAA), a specialty council of the American Society of Concrete Contractors (ASCC).
- D. American National Standards Institute (ANSI): Standards B-101.3 Test Method for Measuring Wet DCOF of Common Hard Surface Floor Materials.
- E. American Society of Mechanical Engineers (ASME)
1. ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)
- F. ASTM International (ASTM):
1. ASTM F 2509-2011 – Standard Practice for Validation and Calibration of Walkway Tribometer using Reference Surfaces.
- G. National Floor Safety Institute (NFSI): NFSI Test Method 101-A - Standard for Evaluating High-Traction Flooring Materials.

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting: Convene before the start of work on new concrete slabs, patching of existing concrete slabs, and start of application of concrete finish system.
1. Require attendance of parties directly affecting work of this section, including the Owner's Representative, Contractor, Architect, concrete installer, and surface treatment/polishing contractor. Meeting should only convene when required parties are present.
2. Review the Following:
a. Physical requirements of completed concrete slab and slab finish.

- b. Locations and time of test areas.
- c. Protection of surfaces not scheduled for finish application.
- d. Surface preparation.
- e. Application procedure.
- f. Quality control.
- g. Cleaning.
- h. Protection of finish system.
- i. Coordination with other ongoing work.

B. Submittals

1.6 SYSTEM DESCRIPTION

- A. Polished concrete floor, progressively refining and polishing of the concrete surface with not less than 10 diamond tool steps with full refinement of each diamond tool starting at 25 grit progressing up to 1500 grit resin bonded pad.
- B. Performance Requirements: Provide polished flooring that has been designed, manufactured and installed to achieve the following:
 - 1. ANSI B101.3 Wet (DCOF) Rating: Not less than 0.42.
 - 2. ASME B46.1 Surface Texture minimum Ra value of 0.41 micrometer.

1.7 SUBMITTALS

- A. Shop Drawings: Indicate information on shop drawings as follows:
 - 1. Typical layout including dimensions and floor grinding schedule.
 - 2. Plan view of floor and joint pattern layout.
 - 3. Areas to receive colored surface treatment (if applicable).
 - 4. Joint filler, hardener, sealer, densifier identified in notes.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
 - 1. Material Safety Data Sheets (MSDS).
 - 2. Preparation and concrete grinding procedures.
 - 3. Colored Concrete Surface, Dye Selection Guides (if applicable).
 - 4. Joint Filler Color Selection Guides.
- C. Quality Assurance Submittals:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.
 - 2. Certificates:
 - a. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements of ANSI B101.3 Standard.
 - b. Current contractor's certificate signed by manufacturer declaring Contractor as an approved installer of polishing system.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions.
- D. Warranty: Submit warranty documents specified.
 - 1. Contractor shall provide written two (2) year warranty covering all labor and materials for entire scope of work performed.
 - 2. Contractor shall provide two (2) year maintenance bond prior to final acceptance of project by Owner.
- E. Operation and Maintenance Data: Submit operation and maintenance data for installed products.
 - 1. Manufacturer's instructions on maintenance renewal of applied treatments.

2. Protocols and product specifications for joint filing, crack repair and/or surface repair.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications:
 1. Experience: Company Installer with a minimum of 4 years' experience in performing specified work similar in design, products and extent to scope of this Project.
 2. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman or Master Craftsman by CPPA.
 3. Current Certification from the CPAA stating that the technicians are trained craftsmen.
- B. Dynamic Coefficient of Friction: Comply with ANSI B101.3 Standard Test Method for Measuring Wet Dynamic Coefficient of Friction (DCOF) of Common Hard Surface Floor Materials of not less than Wet DCOF 0.42.
- C. Average Roughness Profile: Comply with ASME B46.1 Surface Texture (Surface Roughness, Waviness and Lay), using ISCS test methods, during the polishing process to ensure the floor has a minimum Ra value of 0.41 micrometer.
- D. Manufacturer Qualifications:
 1. Manufacturer capable of providing field service representation during construction and approving application method.
- E. Mock-Ups:
 1. Mock-Up Size: A minimum of 100 sf sample at jobsite at location as directed under conditions similar to those which will exist during actual placement. Mock-up shall be performed in Athens High School B137 Office area.
 2. Mock-up will be used to judge workmanship, concrete substrate preparation, operation of equipment, material application, color selection and shine.
 3. Allow 24 hours for inspection of mock-up and written approval from Owner before proceeding with work.
 4. When accepted, mock-up will demonstrate minimum standard of quality required for this work.
 - a. Approved mock-up may remain as part of finished work.
 5. Mock-Up will demonstrate required level of cut:
 - a. Class Level 3 - Medium Aggregate: Exposing more of the overall girth of the coarse aggregate within the concrete. Generally, this level of cut can be achieved within 1/8" of the surface.
 - b. Sheen Level B: Sheen (high gloss) as determined by a gloss reading of 60 - 7 exposure of aggregates.
- F. Pre-installation Meetings: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Review the following:
 1. Environmental requirements.
 2. Scheduling and phasing of work.
 3. Coordinating with other work and personnel. Remind all trades that they are working on a surface that is to become a finished surface.
 4. Protection of adjacent surfaces.
 5. Surface preparation.
 6. Repair of defects and defective work prior to installation.
 7. Cleaning.
 8. Installation of polished floor finishes.
 9. Application of liquid hardener, densifier.
 10. Protection of finished surfaces after installation.
 11. placing of materials on the concrete surface that may cause staining, etching or

scratching

1.9 DELIVERY, STORAGE AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original packaging with identification labels and seals intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.10 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
- B. Protect Concrete Slab:
 - 1. Protect from petroleum stains during construction.
 - 2. Diaper hydraulic power equipment.
 - 3. Restrict vehicular parking.
 - 4. Restrict use of pipe cutting machinery.
 - 5. Restrict placement of reinforcing steel on slab.
 - 6. Restrict use of acids or acidic detergents on slab.
- C. Waste Management and Disposal:
 - 1. Dispose of all waste and other construction debris in accordance with all Federal, State and Local requirements.
 - 2. Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.11 PROJECT AMBIENT CONDITIONS

- A. Installation Location: Comply with manufacturer's written recommendations.
 - 1. Do not proceed with work when project ambient conditions are not within the manufacturer's requirements.

1.12 SEQUENCING

- A. Sequence with Other Work: Comply with manufacturer's written recommendations for sequencing construction operations.

1.13 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.
- B. Contractor shall provide written two (2) year warranty covering all labor and materials for entire scope of work performed.
- C. Contractor shall provide two (2) year maintenance bond prior to final acceptance of project by Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
 - 1. DiamoPro
 - 2. Husqavarna/HTC
 - 3. Lavina
 - 4. Metzger/McGuire
 - 5. Prosoco
- B. Substitutions: Not permitted.

2.2 POLISHED CONCRETE

- A. Products/Systems:
 - 1. Hardener, Densifier:
 - a. Acceptable Material:
 - 1) Prosoco Consolideck LS Densifier.
 - 2. Grout Coat Application & Repairs
 - a. Acceptable Material (BASE BID)
 - 1) Prosoco Consolideck Grind-N-Fill.
 - b. Acceptable Material (ALTERNATE)
 - 1) Metzger/McGuire SRG (Surface Refinement Grout)
 - 2) DiamoPro DiamoGrout
 - 3. Joint Filler: Semi-rigid, 2-component, self-leveling, 100% solids, rapid curing, polyurea control joint and crack filler with Shore A 80 or higher hardness.
 - a. Acceptable Material:
 - 1) Metzger/McGuire Spal-Pro RS-88. Color to be matched to mock-up sample.
 - 2) DiamoPro DiamoJointFill Plus
 - 4. Polish Guard:
 - a. Acceptable Material:
 - 1) Prosoco Consolideck LSGuard.

2.3 POLISHING EQUIPMENT

- A. Field Grinding and Polishing Equipment:
 - 1. Variable speed, multiple head, counter-rotating, walk-behind machine with not less than 450 pounds of down pressure on grinding pads.
 - 2. Acceptable Equipment:
 - a. HTC Duratiq 6
 - b. Lavina L25E
 - c. Approved equal
- B. Dust Etraction System for Grinding/Sawing:
 - 1. HEPA filtration dust extraction equipment with a minimum of 130 CFM flow rate suitable for the amount of dust generated.
 - 2. Acceptable Equipment:
 - a. S36 by Pullman-Ermator
 - b. D30/D60 by HTC
 - c. Lavina D25
 - d. Approved equal
- C. Edge Grinding and Polishing Equipment: Hand-held or walk behind machines which utilize the same diamond tooling and produces same results, without noticeable differences, as the field grinding and polishing equipment.
- D. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating

1000 to 2000 revolutions per minute and with sufficient head pressure of not less than 20 pounds to raise floor temperature to manufacturer's requirements.

- E. Metal Bonded Pads: Grinding pads with embedded industrial grade diamonds of varying grits fabricated by either HTC, Lavina or Diamapro for mounting on equipment.
- F. Hybrid Bonded Pads:
 - 1. DT Series grinding pads fabricated by HTC.
- G. Resin Bonded Pads:
 - 1. DX Series grinding pads fabricated by HTC.
 - 2. Husqavarna Hyperflex resin pads or polishing pucks.
 - 3. Diamapro resin polishing pucks.
- H. Burnishing Pads: Maintenance pads for use with high speed burnishing equipment.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions:
 - 1. Verify that concrete substrate conditions, which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of concrete finishing materials.
- B. Do not begin installation until substrates have been properly prepared.
 - 1. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
 - 2. Verify overall floor flatness is a minimum of Ff 40.
 - 3. Starting work within a particular area will be construed as acceptance of surface conditions by polishing contractor.

3.2 PREPARATION

- A. Cleaning Concrete Surfaces:
 - 1. Prepare and clean concrete surfaces.
 - 2. Ensure surfaces are clean and free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter and other foreign matter harmful to performance of concrete finishing materials.
- B. Examine surface to determine soundness of concrete for polishing.

3.3 POLISHING CONCRETE FLOOR INSTALLATION

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions.
- B. Floor Surface Polishing and Treatment:
 - 1. Provide polished concrete floor treatment in entirety of slab indicated by drawings. Provide consistent finish in all contiguous areas.
 - 2. Contractor shall achieve maximum refinement with each grinding step before proceeding to finer grit tools.
 - 3. Floor shall be thoroughly scrubbed utilizing an auto scrubber between each grit pass to remove all loose material.
 - 4. Initial Diamond Grinding
 - a. Machine grind floor surfaces to receive polished finishes level and smooth and to depth required to reveal aggregate to match approved mockup. Grind concrete floor surfaces starting with at least a #25 grit metal diamond tooling

and proceeding to a minimum of a #80 grit metal diamond tooling. Installer shall determine the optimum starting grit in order to achieve the specified aggregate exposure.

5. Grout Coat (Pinholes and Micro-defects) **BASE BID**
 - a. Apply Consolideck Grind-N-Fill as required by manufacture.
 - b. Product shall be applied with the first hybrid transitional diamond tool and after the last metal bond diamond tool.
6. Grout Coat (Pinholes and Micro-defects) **ALTERNATE**
 - a. Utilize Metzger/McGuire Co SRG (Surface Refinement Grout). Grout coat shall be applied to entire concrete floor surface scheduled to receive a polish finish.
 - b. Color shall match mock-up sample from manufacture's color chart.
 - c. Apply grout coat application in accordance with manufacturer's requirements. Concrete shall be clean and dry prior to material installation.
 - d. Apply material generously on the entire floor and work into the surface using a metal smoother or rigid-edged trowel. Monitor surface for air holes resulting from entrapped air and re-apply as needed.
 - e. Removal of grout coat application in accordance with manufacture's requirements and no less than # 80 grit metal diamond tooling.
 - f. Removal of cured SRG cap/film should be performed as soon as cure allows and within the latest recommended removal time after placement.
 - g. Comply with the material manufacturer's recommended polishing grits size minimums for all grout, repairs and joint filler installation applications. Joint filler, grout coats or repairs shall not take place prior to the # 40 grit metal grinding step.
 - h. Approved Equal: DiamoPro DiamoGrout Resinous Concrete Grout.
7. Joint Filler
 - a. Comply with Section 03 31 70 Concrete Floor Joint Fillers.
 - b. Utilize Metzger/McGuire Co Spal-Pro RS 88 Rapid Set Polyurea Joint Filler.
 - 1) Install all joint filler in accordance with manufacture's requirements.
 - 2) Contractor shall utilize Metzger/McGuire Co SPF (Stain Preventing Film) for all joint filling.
 - 3) Joint Filler color shall match mock-up sample from manufacture's color chart.
 - 4) Fill joints flush to surface prior to the start of polishing operations.
 - 5) Approved Equal: DiamoPro DiamoJoint Fill Plus.
8. Transitional Diamond Grinding:
 - a. Machine grind concrete floor surfaces utilizing DT3 transitional diamond tooling.
 - b. Machine grind concrete floor surface utilizing DT5 transitional diamond tooling.
9. Resin Diamond Grinding:
 - a. It is the sole responsibility of the contractor to determine if a lower grit resin diamond tooling is required to achieve the required floor finish.
 - b. Machine grind concrete floor surface starting with a minimum of #150 grit resin diamond tooling.
 - c. Machine grind concrete floor surface with #200 grit resin diamond tooling.
10. Hardener and Densifier Application:
 - a. Floor shall be cleaned utilizing an auto scrubber with brush pads prior to the application of the densifier and any resin residue shall be removed from the floor surface.
 - b. First coat of densifier shall be applied following the #200 grit resin step. For soft concrete (between 2-3 Mohs), contractor shall apply two (2) coats of densifier.
 - c. Follow manufacturer's recommendations for drying time between successive coats and polishing steps.
11. Honing:
 - a. Machine grind concrete floor surface using #400 grit resin diamond tooling.
12. Polishing:

- a. Machine grind concrete floor surface using #800 grit resin diamond tooling.
 - b. Machine grind concrete floor surface using #1500 grit resin diamond tooling.
 - c. Clean the concrete surface floor utilizing a resin-free diamond impregnated pad (DIP) to ensure all resin residue has been removed.
 - d. Contractor shall measure the ASME B46.1, "Average Roughness Profile" to verify if the floor has a minimum Ra value of 0.41 micrometer and an average DOI reading between 65 – 70 prior to the application of any sealers, protective finishes or the polish guard.
13. Polish Guard:
- a. Apply floor finish prior to installation of fixtures and accessories.
 - b. Uniformly apply two (2) coats of Consolideck PolishGuard as required by the manufacture.
 - c. Dry burnish polish guard between each application coat.
 - d. Contractor shall utilize burnishing pads as recommended by polish guard manufacture.

3.4 ADJUSTMENTS

- A. Re-polish those areas not meeting specified DOI, gloss levels and DCOF per mock-up and specifications.

3.5 FINAL CLEANING

- A. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.6 PROTECTION

- A. Protect finish polished concrete floor from damage during construction in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 09 6613
POLISHED TERRAZZO RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Polished Terrazzo.
 - 1. Polished terrazzo finishing including grout coat, crack repairs, densification and polish guard.
 - 2. Grind, hone and polish concrete starting from a minimum of #100 grit (Braze Lippage Removal pad) progressing to #1500 grit.
 - 3. Caution: Divider strips may be coated instead of solid composition. Coated strips should not be ground. Grinding may cause coated divider strips to lose their coating and discolor. Exercise caution when grinding near coated divider strips. It is the contractor's sole responsibility to repair any damage they caused to the Owner's sole satisfaction.
 - 4. Polish terrazzo according to the Concrete Polishing Council, ASCC.
 - a. Polished Terrazzo Appearance: Level 3 Polished with a Distinctness-of-Image (DOI) Gloss reading between 65 – 70 %.
 - 5. Procedure:
 - a. Grinding and honing terrazzo surface to receive a concrete densifier.
 - b. **ALTERNATE PRICING:** Full application of resin-based grout coat over entire floor surface. Base bid amount shall not include "grout" coat.
 - c. Filling of all cracks utilizing a resin-based repair material color matched to terrazzo matrix color.
 - d. Application of concrete densifier.
 - e. Progressively refining and polishing of the concrete surface with not less than 7 diamond tool steps with full refinement of each diamond tool starting at #100 grit metal lippage progressing up to 1500 grit resin bonded pad.
 - 6. Field testing floor surface for ANSI DCOF and ASME Surface Texture.
 - 7. Application of Polished Terrazzo protective treatment with dry burnishing.
- B. Crack Repairs
 - 1. Repair all cracks, spalls, pop outs, scratches, gouges and other floor imperfections using resin-based Metzger/McGuire SRG or Diamapro DiamagROUT Plus.
- C. Filed Testing
 - 1. Contractor shall be responsible for all field-testing including equipment rental and calibration. Fields tests shall be performed prior to and after any coating application.
 - 2. ANSI Standards B-101.3 Test Method for Measuring Wet DCOF of Common Hard Surface Floor Materials.
 - a. It is the contractor's sole responsibility to ensure the finished polished floor conforms to the ANSI B-101.3 standard of not less than Wet DCOF 0.42.
 - 3. ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay).

1.2 RELATED SECTIONS

1.3 DEFINITIONS

- A. Coefficient of Friction:
 - 1. Static Coefficient of Friction (SCOF): The frictional resistance between two objects when beginning motion from a stationary position.
 - 2. Dynamic Coefficient of Friction (DCOF): The frictional resistance between two objects when one is already in motion.
- B. Cross Hatch: A multi-directional pass with grinding or polishing equipment.

- C. Diamond Tooling - Metal Bond, Hybrid, Transitional and Resin Bonds:
1. Metal Bond Tooling: Diamond tooling typically used in the grinding and early honing stages that contains industrial grade diamonds with a metallic bonded matrix that is attached to rotating heads to refine the concrete surface.
 2. Hybrid Tooling: Diamond tooling that combines metal bond and resin bond, or specially hardened resin that has the characteristics of both types of tooling and used as transitional tooling from metal to resin bond tools or as a first cut tool on smooth concrete surfaces.
 3. Transition Tooling: Diamond tooling used to refine the scratch pattern of metal bond tooling prior to the use of resin bond tooling in an effort to extend the life of resin bond tooling and create a better surface for the polishing process.
 4. Resin Bond Tooling: Diamond tooling typically used in the honing and polishing stages that contains industrial grade diamonds within a resinous bonded matrix (poly-phenolic, ester-phenolic, and thermoplastic-phenolic) that is attached to rotating heads to refine the concrete surface.
- D. Distinction of Image (DOI): The sharpness of light reflections or reflected images.
- E. Gloss: also known as specular gloss, is the quantity of light reflecting from the concrete or terrazzo surface.
- F. Gloss (Finished): Processing a concrete or terrazzo floor surface to achieve a specified level of finished gloss prior to application of any protective treatment; Flat (ground), satin (honed), semi polished, and highly polished are measured in reflective clarity (DOI), and reflective sheen (specular gloss). Finished Gloss is classified as levels 1, 2, 3 and 4 with varying degrees of reflective clarity, and sheen.
- G. Gloss Measurement: A determination of specular gloss that incorporates distinction of image, haze and reflection.
- H. Gloss Meter: A device to measure specular gloss at 20, 60, or 85 degrees.
- I. Gloss Reading: A Gloss reading shall consist of the average of a group of three (3) readings taken within a 12-inch diameter of each other using an 85-degree angle Gloss Meter.
- J. Gloss Restoration/Polishing Levels - Levels 1, 2, 3 and 4:
1. Level 1 (flat): Level 1 ground polish usually can be obtained by stopping below the 100-grit resin bond. When you look directly down at the floor, it will appear somewhat hazy with little if any clarity or reflection.
 2. Level 2 (satin): Level 2 honed polish is obtained by stopping at the 400-grit resin bond, producing a low-sheen finish. When you look directly down at the finished floor and at a distance of roughly 100 feet, you can start to see a slight overhead reflection. This grit level produces a low-luster matte finish and typically has an average Gloss reading between 40 and 50 when measured using a Gloss Meter prior to any sealer or polish guard application. Sometimes this is referred to as an Industrial grade polish.
 3. Level 3 (semi-polished): Level 3 polish is achieved by going up to an 800-grit or higher diamond abrasive. Surface will have a much higher sheen than that of level 2 finish, and you'll start to see good light reflectivity. At a distance between 30 to 50 feet, the floor will clearly reflect side and overhead lighting and typically has an average Gloss reading between 50 and 60 when measured using a Gloss Meter prior to any sealer or polish guard application. Sometimes this is referred to as a Commercial grade polish.
 4. Level 4 (highly polished): This level of polish produces a high degree of shine, so that when standing directly over the surface, you can see your reflection with total clarity. Also, the floor appears to be wet when viewed from different vantage points. A level 4 polish is obtained by going up to a 3,000-grit resin-bond diamond or by burnishing the floor with a high-speed burnisher outfitted with specialty buffing pads and typically has an average Gloss reading between 60 and 80 when measured using a Gloss Meter at a 85 degree angle setting prior to any sealer or polish guard application. Sometimes this is referred to as a Showroom grade polish.

- K. Maximum refinement: The point in time when the diamond tool has refined the surface to the degree to which it no longer cuts or cuts very little under its current weight and variables as defined by the Concrete Polishing Association of America (CPAA) .
- L. Reflective Clarity: The DOI (distinction of image) value of the degree of sharpness and crispness of the reflection of overhead objects when measured by a device in accordance to ASTM D5767.
- M. Reflective Sheen: The specular gloss value of the degree of gloss reflected from a surface, at specified angles of illumination, when measured by a device in accordance to ASTM D523-08.
- N. Shine is the quality of light.

1.4 REFERENCES

- A. American Concrete Institute (ACI): ACI 302.1R - Guide for Concrete Floor and Slab Construction.
- B. American Society of Concrete Contractors (ASCC) Subgroup - Concrete Polishing Council (CPC) Polished Concrete Definition: D 100.1.
- C. Concrete Polishing Council (CPC), formerly the Concrete Polishing Association of America (CPAA), a specialty council of the American Society of Concrete Contractors (ASCC).
- D. American National Standards Institute (ANSI): Standards B-101.3 Test Method for Measuring Wet DCOF of Common Hard Surface Floor Materials.
- E. American Society of Mechanical Engineers (ASME)
 - 1. ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)
- F. ASTM International (ASTM):
 - 1. ASTM F 2509-2011 – Standard Practice for Validation and Calibration of Walkway Tribometer using Reference Surfaces.
- G. National Floor Safety Institute (NFSI): NFSI Test Method 101-A - Standard for Evaluating High-Traction Flooring Materials.
- H. National Terrazzo and Mosaic Association, Inc. (NTMA):

1.5 ADMINISTRATIVE REQUIREMENTS

- A. Pre-Installation Meeting: Convene before the start of work on new concrete slabs, patching of existing concrete slabs, and start of application of concrete finish system.
 - 1. Require attendance of parties directly affecting work of this section, including the Owner's Representative, Contractor, Architect, concrete installer, and surface treatment/polishing contractor. Meeting should only convene when required parties are present.
 - 2. Review the Following:
 - a. Physical requirements of completed concrete slab and slab finish.
 - b. Locations and time of test areas.
 - c. Protection of surfaces not scheduled for finish application.
 - d. Surface preparation.
 - e. Application procedure.
 - f. Quality control.
 - g. Cleaning.
 - h. Protection of finish system.
 - i. Coordination with other ongoing work.
- B. Submittals

1.6 SYSTEM DESCRIPTION

- A. Polished Terrazzo floor, progressively refining and polishing of the concrete surface with not less than 7 diamond tool steps with full refinement of each diamond tool starting at 100 grit metal lippage removal progressing down to hybrid transitional DT3, DT5 and up to 1500 grit resin bonded pad.
- B. Performance Requirements: Provide polished flooring that has been designed, manufactured and installed to achieve the following:
 - 1. ANSI B101.3 Wet (DCOF) Rating: Not less than 0.42.
 - 2. ASME B46.1 Surface Texture minimum Ra value of 0.41 micrometer.

1.7 SUBMITTALS

- A. Shop Drawings: Indicate information on shop drawings as follows:
 - 1. Typical layout including dimensions and floor grinding schedule.
 - 2. Plan view of floor and layout of crack repairs.
 - 3. Repair material, grout, hardener, sealer, densifier identified in notes.
- B. Product Data: Submit product data, including manufacturer's SPEC-DATA product sheet, for specified products.
 - 1. Material Safety Data Sheets (MSDS).
 - 2. Preparation and concrete grinding procedures.
 - 3. Colored Terrazzo Matrix, Dye Selection Guides (if applicable).
- C. Quality Assurance Submittals:
 - 1. Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties as cited in Performance Requirements.
 - 2. Certificates:
 - a. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements of ANSI B101.3 Standard.
 - b. Current contractor's certificate signed by manufacturer declaring Contractor as an approved installer of polishing system.
 - 3. Manufacturer's Instructions: Manufacturer's installation instructions.
- D. Warranty: Submit warranty documents specified.
 - 1. Contractor shall provide written two (2) year warranty covering all labor and materials for entire scope of work performed.
 - 2. Contractor shall provide two (2) year maintenance bond prior to final acceptance of project by Owner.
- E. Operation and Maintenance Data: Submit operation and maintenance data for installed products.
 - 1. Manufacturer's instructions on maintenance renewal of applied treatments.
 - 2. Protocols and product specifications for joint filing, crack repair and/or surface repair.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Experience: Company Installer with a minimum of 4 years' experience in performing specified work similar in design, products and extent to scope of this Project.
 - 2. Supervision: Maintain competent supervisor who is at Project during times specified work is in progress, and is currently certified as Craftsman or Master Craftsman by CPPA.
 - 3. Current Certification from the CPAA stating that the technicians are trained craftsmen.
- B. Dynamic Coefficient of Friction: Comply with ANSI B101.3 Standard Test Method for Measuring Wet Dynamic Coefficient of Friction (DCOF) of Common Hard Surface Floor Materials of not less than Wet DCOF 0.42.

- C. Average Roughness Profile: Comply with ASME B46.1 Surface Texture (Surface Roughness, Waviness and Lay), using ISCS test methods, during the polishing process to ensure the floor has a minimum Ra value of 0.41 micrometer.
- D. Manufacturer Qualifications:
 - 1. Manufacturer capable of providing field service representation during construction and approving application method.
- E. Mock-Ups:
 - 1. Mock-Up Size: A minimum of 100 sf sample at jobsite at location as directed under conditions similar to those which will exist during actual placement. Mock-up shall be performed in location determined by Owner.
 - 2. Mock-up will be used to judge workmanship, terrazzo substrate preparation, operation of equipment, material application, color selection, DOI, DCOF and shine.
 - 3. Allow 24 hours for inspection of mock-up and written approval from Owner before proceeding with work.
 - 4. When accepted, mock-up will demonstrate minimum standard of quality required for this work.
 - a. Approved mock-up may remain as part of finished work.
 - 5. Mock-Up will demonstrate required level of sheen:
 - a. Sheen Level: Sheen (high gloss) as determined by an average gloss reading of 55 – 60.
 - 1) If a grout coat is applied, the Sheen Level shall have an average gloss reading of 60 – 70.
- F. Pre-installation Meetings: Conduct a pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Review the following:
 - 1. Environmental requirements.
 - 2. Scheduling and phasing of work.
 - 3. Coordinating with other work and personnel. Remind all trades that they are working on a surface that is to become a finished surface.
 - 4. Protection of adjacent surfaces.
 - 5. Surface preparation.
 - 6. Repair of defects and defective work prior to installation.
 - 7. Cleaning.
 - 8. Installation of polished floor finishes.
 - 9. Application of liquid hardener, densifier.
 - 10. Protection of finished surfaces after installation.
 - 11. placing of materials on the concrete surface that may cause staining, etching or scratching

1.9 DELIVERY, STORAGE AND HANDLING

- A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.
- B. Delivery: Deliver materials in manufacturer's original packaging with identification labels and seals intact.
- C. Storage and Protection: Store materials protected from exposure to harmful weather conditions and at temperature conditions recommended by manufacturer.

1.10 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

- B. Protect Terrazzo Floor:
 - 1. Protect from petroleum stains during construction.
 - 2. Diaper hydraulic power equipment.
 - 3. Restrict vehicular parking.
 - 4. Restrict use of pipe cutting machinery.
 - 5. Restrict placement of reinforcing steel on slab.
 - 6. Restrict use of acids or acidic detergents on slab.
- C. Waste Management and Disposal:
 - 1. Dispose of all waste and other construction debris in accordance with all Federal, State and Local requirements.
 - 2. Remove from site and dispose of packaging materials at appropriate recycling facilities.

1.11 PROJECT AMBIENT CONDITIONS

- A. Installation Location: Comply with manufacturer's written recommendations.
 - 1. Do not proceed with work when project ambient conditions are not within the manufacturer's requirements.

1.12 SEQUENCING

- A. Sequence with Other Work: Comply with manufacturer's written recommendations for sequencing construction operations.

1.13 WARRANTY

- A. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and does not limit, other rights Owner may have under Contract Documents.
- B. Contractor shall provide written two (2) year warranty covering all labor and materials for entire scope of work performed.
- C. Contractor shall provide two (2) year maintenance bond prior to final acceptance of project by Owner.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer:
 - 1. DiamoPro
 - 2. Husqavarna/HTC
 - 3. Lavina
 - 4. Metzger/McGuire
 - 5. Prosoco
- B. Substitutions: Not permitted.

2.2 POLISHED TERRAZZO

- A. Products/Systems:
 - 1. Hardener, Densifier:
 - a. Acceptable Material:
 - 1) Prosoco Consolideck LS Densifier.
 - 2. Grout Coat Application & Repairs
 - a. Acceptable Material (ALTERNATE)
 - 1) Metzger/McGuire SRG (Surface Refinement Grout)
 - 2) DiamoPro DiamoGrout
 - 3) Portland cement, ASTM C150, Type I Nonstaining, except as modified to comply with NTMA requirements for compressive strength.
 - 4) Approved equal.

3. Crack Repairs: Resin-based Cementous, two-component material.
 - a. Acceptable Material:
 - 1) Metzger/McGuire SRG.
 - 2) DiamoPro DiamoGrout.
 - 3) General Polymers 3746 100% Solids Epoxy
 - 4) Color to be match terrazzo matrix.
4. Polish Guard:
 - a. Acceptable Material:
 - 1) Prosoco Consolideck LSGuard.

2.3 POLISHING EQUIPMENT

- A. Field Grinding and Polishing Equipment:
 1. Variable speed, multiple head, counter-rotating, walk-behind machine with not less than 450 pounds of down pressure on grinding pads.
 2. Acceptable Equipment:
 - a. HTC Duratiq 6
 - b. Lavina L25E
 - c. Approved equal
- B. Dust Etraction System for Grinding/Sawing:
 1. HEPA filtration dust extraction equipment with a minimum of 130 CFM flow rate suitable for the amount of dust generated.
 2. Acceptable Equipment:
 - a. S36 by Pullman-Ermator
 - b. D30/D60 by HTC
 - c. Lavina D25
 - d. Approved equal
- C. Edge Grinding and Polishing Equipment: Hand-held or walk behind machines which utilize the same diamond tooling and produces same results, without noticeable differences, as the field grinding and polishing equipment.
- D. Burnishing Equipment: High speed walk-behind or ride-on machines capable of generating 1000 to 2000 revolutions per minute and with sufficient head pressure of not less than 20 pounds to raise floor temperature to manufacture's requirements.
- E. Metal Bonded Pads:
 1. #100 grit metal Brazed Lippage grinding pads with embedded industrial grade diamonds of varying grits fabricated by Lavina for mounting on equipment.
- F. Hybrid Bonded Pads:
 1. DT Series grinding pads fabricated by HTC.
- G. Resin Bonded Pads:
 1. DX Series grinding pads fabricated by HTC.
 2. Husqavarna Hyperflex resin pads or polishing pucks.
 3. DiamoPro resin polishing pucks.
- H. Burnishing Pads: Maintenance pads for use with high speed burnishing equipment.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions:
 1. Verify that terrazzo substrate conditions, which have been previously installed under other sections or contracts, are acceptable for product installation in accordance with manufacturer's instructions prior to installation of concrete finishing materials.

- B. Do not begin installation until substrates have been properly prepared.
 - 1. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
 - 2. Starting work within a particular area will be construed as acceptance of surface conditions by polishing contractor.

3.2 PREPARATION

- A. Cleaning Terrazzo Surfaces:
 - 1. Prepare and clean terrazzo surfaces.
 - 2. Strip and remove all existing floor wax coatings.
 - 3. Ensure surfaces are clean and free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, paint splatter and other foreign matter harmful to performance of terrazzo finishing materials.
- B. Examine surface to determine soundness of terrazzo for polishing.

3.3 POLISHING TERRAZZO FLOOR INSTALLATION

- A. Compliance: Comply with manufacturer's written data, including product technical bulletins, product catalog installation instructions, product carton installation instructions.
- B. Floor Surface Polishing and Treatment:
 - 1. Provide Polished Terrazzo floor treatment in entirety of floor indicated by drawings. Provide consistent finish in all contiguous areas.
 - 2. Contractor shall achieve maximum refinement with each grinding step before proceeding to finer grit tools.
 - 3. Floor shall be thoroughly scrubbed utilizing an auto scrubber between each grit pass to remove all loose material.
 - 4. Initial Diamond Grinding
 - a. Machine grind floor surfaces to receive polished finishes level and smooth and to depth required to reveal aggregate to match approved mockup. Grind terrazzo floor surfaces starting with at least a #100 grit brazed metal lippage removal diamond tooling.
 - 5. Grout Coat (Pinholes and Micro-defects) **ALTERNATE**
 - a. Utilize Metzger/McGuire Co SRG (Surface Refinement Grout), DiamaPro DiamaGrout or Non-staining Portland Cement Sand mixture. Grout coat shall be applied to entire concrete floor surface scheduled to receive a polish finish.
 - b. Color shall match mock-up sample from manufacture's color chart.
 - c. Apply grout coat application in accordance with manufacturer's requirements. Terrazzo shall be clean and dry prior to material installation.
 - d. Apply material generously on the entire floor and work into the surface using a metal smoother or rigid-edged trowel. Monitor surface for air holes resulting from entrapped air and re-apply as needed.
 - e. Removal of grout coat application in accordance with manufacture's requirements and no less than DT3 transitional hybrid diamond tooling.
 - f. Removal of cured SRG cap/film should be performed as soon as cure allows and within the latest recommended removal time after placement.
 - g. Comply with the material manufacturer's recommended polishing grits size minimums for all grout and repairs applications.
 - 6. Transitional Diamond Grinding:
 - a. Machine grind concrete floor surfaces utilizing DT3 transitional diamond tooling.
 - b. Machine grind concrete floor surface utilizing DT5 transitional diamond tooling.
 - 7. Resin Diamond Grinding:
 - a. It is the sole responsibility of the contractor to determine if a lower grit resin diamond tooling is required to achieve the required floor finish.
 - b. Machine grind concrete floor surface starting with a minimum of DX5 (#150 grit) resin diamond tooling.
 - c. Machine grind concrete floor surface with DX6 (#200 grit) resin diamond tooling.

8. Hardener and Densifier Application:
 - a. Floor shall be cleaned utilizing an auto scrubber with brush pads prior to the application of the densifier and any resin residue shall be removed from the floor surface.
 - b. First coat of densifier shall be applied following the DX6 (#200 grit) resin step. For soft concrete (between 2-3 Mohs), contractor shall apply two (2) coats of lithium densifier.
 - c. Follow manufacturer's recommendations for drying time between successive coats and polishing steps.
9. Honing:
 - a. Machine grind concrete floor surface using DX7 (#400 grit) resin diamond tooling.
10. Polishing:
 - a. Machine grind concrete floor surface using DX8 (#800 grit) resin diamond tooling.
 - b. Machine grind concrete floor surface using DX9 (#1500) grit resin diamond tooling.
 - c. Clean the concrete surface floor utilizing a resin-free 1500 grit or higher diamond impregnated pad (DIP) to ensure all resin residue has been removed.
 - d. Contractor shall measure the ASME B46.1, "Average Roughness Profile" to verify if the floor has a minimum Ra value of 0.41 micrometer and an average DOI reading between 65 – 70 prior to the application of any sealers, protective finishes or the polish guard.
11. Polish Guard:
 - a. Apply floor finish prior to installation of fixtures and accessories.
 - b. Uniformly apply two (2) coats of Consolideck PolishGuard as required by the manufacture.
 - c. Dry burnish polish guard between each application coat.
 - d. Contractor shall utilize burnishing pads as recommended by polish guard manufacture.

3.4 ADJUSTMENTS

- A. Re-polish those areas not meeting specified DOI, gloss levels and DCOF per mock-up and specifications.

3.5 FINAL CLEANING

- A. Upon completion, remove surplus and excess materials, rubbish, tools and equipment.

3.6 PROTECTION

- A. Protect finish Polished Terrazzo floor from damage during construction in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 03317

CONCRETE FLOOR JOINT FILLERS

PART 1 – GENERAL

1.01 GENERAL DESCRIPTION OF WORK

- A. Provide all labor, products and equipment required to properly install semirigid filler in joints in the interior concrete floor slabs.

1.02 SCOPE OF WORK

- A. Fill all contraction (control) and construction (formed) joints in the interior concrete floor slab where the joints will be exposed to material handling vehicle wheels.
- B. Refer to drawings for additional joints possibly requiring filler, such as joints under racks, joints at column diamonds and pads, etc.

1.03 RELATED WORK

- A. Division 3, Section 03300 – “Cast-In-Place Concrete”
- B. Division 3, Section 03930 – “Concrete Floor Crack and Joint Repair”
- C. Division 7, Section 07900 – “Joint Sealants”

1.04 APPLICABLE STANDARDS

- A. Products and installation shall be in compliance or exceed the joint filling criteria established in the latest ACI 302 and ACI 360 Committee published documents.

1.05 CONTRACTOR QUALIFICATIONS

- A. Installer shall have a minimum of three (3) years experience in the installation of semi-rigid fillers on industrial floors.
- B. Installers must be Approved Applicators from the manufacturer for work covered by this section.
- C. Approved Applicator shall use tools and equipment specifically designed for the preparation and placement of industrial joint fillers.

1.06 SUBMITTALS

- A. Joint Filler Materials: Submit Manufacturer’s data describing joint filler proposed for use on the project.
- B. Submit Manufacturer’s Approved Applicator Certificate.

PART 2 – PRODUCTS

2.01 CONTROL JOINT FILLER:

- A. Provide semi-rigid, two-part, self-leveling, 100% solids content polyurea control and construction joint fillers intended for each condition listed.

- B. Utilize products with physical properties meeting the following minimum values.

PROPERTY	TEST METHOD	PROPERTY VALUE
Shore A Hardness.....	ASTM D2240.....	86 or greater
Tensile Strength.....	ASTM D638.....	970 psi “
Adhesion to Concrete	ASTM D4541.....	350 psi “
Solids Content.....		100%
Acceptable for use in USDA/FDA/CFIA regulated facilities		

- C. Products: Subject to compliance with requirements, utilize products manufactured by Metzger/McGuire Co., Concord, NH (800) 223-6680.

1. Joint filler for all areas with operating temperatures of 32°F or higher, shall be “**SPAL-PRO RS 88 Rapid Set Polyurea Joint Filler**”. D. No joint filler substitutions will be allowed.

2.02 ACCESSORIES

- A. The use of compressible foam backer rod is strictly prohibited in ALL saw-cut control joints.
- B. Compressible foam backer rod may be used in through slab construction joints only but must be placed at a minimum depth of 2”. No other use of backer rod will be allowed. Refer to installation section & product technical data for additional information

2.03 DUST FREE PREPARATION EQUIPMENT

- A. Subject to compliance with project requirements, provide equipment manufactured by the following:
 1. U.S. Saws
 2. Gorilla Concrete Tools
 3. Pulman-Ermator
 4. Diamatic
 5. Husqvarna
 6. HTC
 7. Perfect-Trac
- B. DUST EXTRACTION SYSTEM FOR GRINDING/SAWING:
 1. HEPA filtration vacuum, designed for use with all hand tools when grinding sawing concrete (minimum 125CFM air flow).
 2. Provide one of the following:
 - a. S26/S36, by Pullman-Ermator
 - b. D30/D60, by HTC
 - c. Approved equal
- C. JOINT FILLER REMOVAL AND PREPARATION
 1. Dust Buggy (MKIII or Standard) by U.S. Saws
 2. GCT-10/X Tank by Gorilla Concrete Tools
 3. JS-130/JS-100E by U.S. Saws
 4. Perfect-Trac Saw by Perfect-Trac.
 5. Approved equal

PART 3 – EXECUTION

3.01 PROJECT CONDITIONS

- A. Work area should be free of obstructions and other trades.
- B. Slab should be visibly dry and all floor scrubbing/washing activities should be suspended at least 48 hours prior to filler installation.

3.02 TIMING OF INSTALLATION

- A. The American Concrete Institute (ACI) recommends that filling be deferred as long as possible to allow for maximum slab shrinkage and joint widening. Deferring filler installation as long as possible will help to minimize the occurrence of joint filler separation due to excessive joint widening during concrete cure (and shrinkage).
- B. For ambient temperatures a 90-120 day slab cure is advisable. Deferring filling until after facility is under permanent temperature control is best, if possible. At a minimum slab cure time should exceed 28 days per ACI 302.
- C. If building is to have HVAC/climate control it is recommended that such system be activated for a minimum of 7 days prior to filler installation.

3.03 EXAMINATION OF CONDITIONS

- A. It is the responsibility of the installer to inspect project and joint conditions and notify on-site management in writing of any deficiencies that might adversely affect the quality or durability of the work performed or his contract price.
- B. Start of work by the installer implies acceptance of conditions.

3.04 PRE-INSTALLATION SAMPLE

- A. Before start of actual work the applicator shall install samples to demonstrate his intended procedures and finished product. Sample shall include at least 25' each of both contraction and construction joints and be performed in the presence of on-site management.
- B. If procedures and finished product are approved they will be considered a standard for the entire project.

3.05 JOINT PREPARATION

- A. Prior to installation of joint fillers, all saw-cut joints shall be thoroughly cleaned to their full original depth. Typically 1 ¼ - 1 ½" in a 6" slab, 2" in an 8" slab. Where the original saw-cut depth exceeds 2", joint preparation and filling must be performed to a minimum depth of 2".
- B. Construction (formed, through slab) joints that are not saw-cut shall be cleaned to a minimum depth of 2".
- C. Preparation shall be performed using a vacuum-equipped saw that will reach the base of the saw-cut joint or to a depth of 2" in the case of through slab construction joints, and shall be used in a manner that takes both joint walls back to bare concrete, removing all saw laitance, curing compounds, sealers, debris, etc. Joint cleaning may be performed using two cleaning passes, one along each side of the joint. Or, if only one cleaning pass is performed, the diamond blade width must be slightly wider than the joint to be cleaned.

- D. Where joints have minor edge chips, said chips shall be “squared off” and filled along with the joint itself.
- E. Keep prepared joints free of dust, moisture, and jobsite debris prior to filling.

3.06 CHOKING-OFF JOINT BOTTOM

- A. Compressible backer rod is prohibited in saw-cut joints unless they exceed 2” deep.
- B. Compressible backer rod may be used in through-slab (non-sawn) construction joints but must be recessed at least 2” below the slab surface.

Caution: The use of backer rod in any saw-cut joints less than 2” deep will result in the rejection of all saw-cut joints work.

3.07 JOINT FILLER INSTALLATION

- A. Installation of **SPAL-PRO RS 88 Rapid Set Polyurea Joint Filler:**
 - 1. Pre-mix Part “A” component (polyol) to re-distribute any settlement that may have occurred during shipping or storage.
 - 2. Because of extremely short pot life, “Spal-Pro RS 88” must be dispensed using dual-component power dispensing equipment or through dual-component cartridge units. Pump, reservoir tanks and dispensing wand should be heated for all freezer work.
 - 3. Fill joint in one pass, from bottom to top, slightly overfilling the joint.
 - 4. After “Spal-Pro RS 88” has fully cured, razor off excess to leave a flush filler profile. Timing of the razoring (30 min. to 1 hour typically) can affect flushness; test for shave time that will result in flush shave.
 - 5. If low spots exist or if the finish profile is not flush, abrade the filler surface with a wire brush, wire wheel, or other means and apply an additional cap bead of RS 88 filler. Allow to cure, and razor flush to the floor surface.

PART 4 -QUALITY ASSURANCE

4.01 JOINT FILLER DEFICIENCIES:

- A. Installer is advised that significant deficiencies in workmanship, including: less than proper filler depth, inadequate joint cleaning, concave filler profile, etc., shall be removed and properly replaced.
- B. Joint filler installed to depths less than specified in this Section shall be removed and replaced at no additional cost to the General Contractor or Owner. As each sector of work is completed the general contractor, using a 1/8” drill bit, shall drill through the filler to verify filler depth. GC shall test drill at an approximate rate of 1 core every 500 lineal feet. Location of core and filler depth found shall be recorded and provided to the owner prior to project completion.

END OF SECTION

Wattles

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4	Finish 5	Base	Color	Demo	Notes
1	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
2	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
3	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
4	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
5	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
6	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
7	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
8	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
9	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
10	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
11	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
12	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
13	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
14	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
15	Flotex, Grey 90	Flotex, Ash 10		Coral, Duo	MCT see plan	4 1/2"		Yes	Include CT demo, fill recessed mat
16	MCT, Warm Gray 80	MCT, Red 20		Coral, Duo		4 1/2"		No	Flotex, Metro Grey 12' X 15'
17	MCT, Warm Gray 80	MCT, Red 20				4 1/2"		No	Flotex, Metro Grey 12' X 15'
18	Flotex, Grey 90	Flotex, Ash 10				4 1/2"		No	
19	MCT, Warm Gray 80	MCT, Red 20				4 1/2"		No	
20	MCT, Warm Gray 80	MCT, Red 20		Flotex 12'X15'		4 1/2"		No	
21	MCT, Warm Gray 80	MCT, Red 20		Flotex 12'X15'		4 1/2"		No	
22	MCT, Warm Gray 80					4 1/2"		No	
26	MCT, White Birch			Coral, Duo		4 1/2"		Yes	Demo at recessed mat only
27	MCT, White Birch			Coral, Duo		4 1/2"		Yes	Demo at recessed mat only
34	Gym	Taraflex				None		Yes	Existing 8" h. glazed base
N/A	Near LGI					4 1/2"		No	Install 90' of base at new rooms.

Alternates

23	Flotex, Greywood					4 1/2"		Yes	
24	Flotex, Greywood					4 1/2"		No	
25	Flotex, Greywood					4 1/2"		Yes	
28	Flotex, gray 80	Flotex, Ash 10	Flotex, Cherry 10			4 1/2"		Yes	
29	Flotex, gray 80	Flotex, Ash 10	Flotex, Cherry 10			4 1/2"		Yes	
30	Flotex, gray 80	Flotex, Ash 10	Flotex, Cherry 10			4 1/2"		No	
31	Flotex, Greywood					4 1/2"		Yes	
32	Flotex, Greywood					4 1/2"		Yes	
33	Flotex, Greywood					4 1/2"		Yes	

Hill

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4	Finish 5	Base	Color	Demo	Notes
1	MCT Warm Grey 70	MCT, Grey Dust 20	MCT, Blu Bell 10	Flotex, Metro Grey 100		4 1/2"		No	
2	MCT Warm Grey 70	MCT, Grey Dust 20	MCT, Blu Bell 10			4 1/2"		No	
3	MCT Warm Grey 70	MCT, Grey Dust 20	MCT, Blu Bell 10			4 1/2"		No	
4	MCT Warm Grey 70	MCT, Grey Dust 20	MCT, Blu Bell 10	Coral		4 1/2"		No	Flotex, Metro Grey 12' X 15'
5	MCT Warm Grey 70	MCT, Grey Dust 20	MCT, Blu Bell 10	Coral		4 1/2"		No	Flotex, Metro Grey 12' X 15'
9	Flotex, Grey 100					4 1/2"		No	
10	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
11	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
12	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
13	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
14	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
15	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
16	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
17	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
18	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
19	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
20	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
21	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
22	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
23	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
24	Flotex, Grey 100	MCT, White Birch		Coral		4 1/2"		No	
Lounge	Flotex, Grey 100	MCT, White Birch				4 1/2"		No	
Stage	nora					4 1/2"		Yes	nora combo treads and risers
Gym	Taraflex					4 1/2"		No	Polish at entry 120 sf
Art	Polish					4 1/2"		Yes	
Conf A	Flotex, Greywood					4 1/2"		No	

Alternates

Kind Centrum	Flotex, Metro Grey 80	Flotex, Metro Lagoon 20				4 1/2"		No	
Conf C	Flotex, Greywood					4 1/2"		No	
Conf C	Flotex, Greywood					4 1/2"		No	
Cond D	Flotex, Greywood					4 1/2"		No	
Conf E	Flotex, Greywood					4 1/2"		No	
LGI	Flotex, Metro Grey 70	Flotex, Metro Lagoon 20	Flotex 10			4 1/2"		Yes	
6	Flotex					4 1/2"		No	

Smith

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
Science wing	Polish					4 1/2"		No	Base by flooring contractor

IAE

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
Café	MCT	MCT	MCT			4 1/2"		Yes	Note existing black adhesive
Stage	nora					4 1/2"		Yes	Provide transition at front

Barnard

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
19	MCT, Warm Gray 80	MCT, Bluebell 20	Flotex, Metro Grey 90	Flotex, Metro Ash 10	Coral see plan	4 1/2"		No	
20	MCT, Warm Gray 80	MCT, Bluebell 20	Flotex, Metro Grey 90	Flotex, Metro Ash 10	Coral see plan	4 1/2"		No	
21	MCT, Warm Gray 80	MCT, Bluebell 20	Flotex, Metro Grey 90	Flotex, Metro Ash 10	Coral see plan	4 1/2"		No	Contractor to remove 25' of CT by restrooms

Services

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
Area 1	Flotex					4 1/2"		Yes	Will be completed in phases
Area 2	Flotex					4 1/2"		Yes	Will be completed in phases

Costello

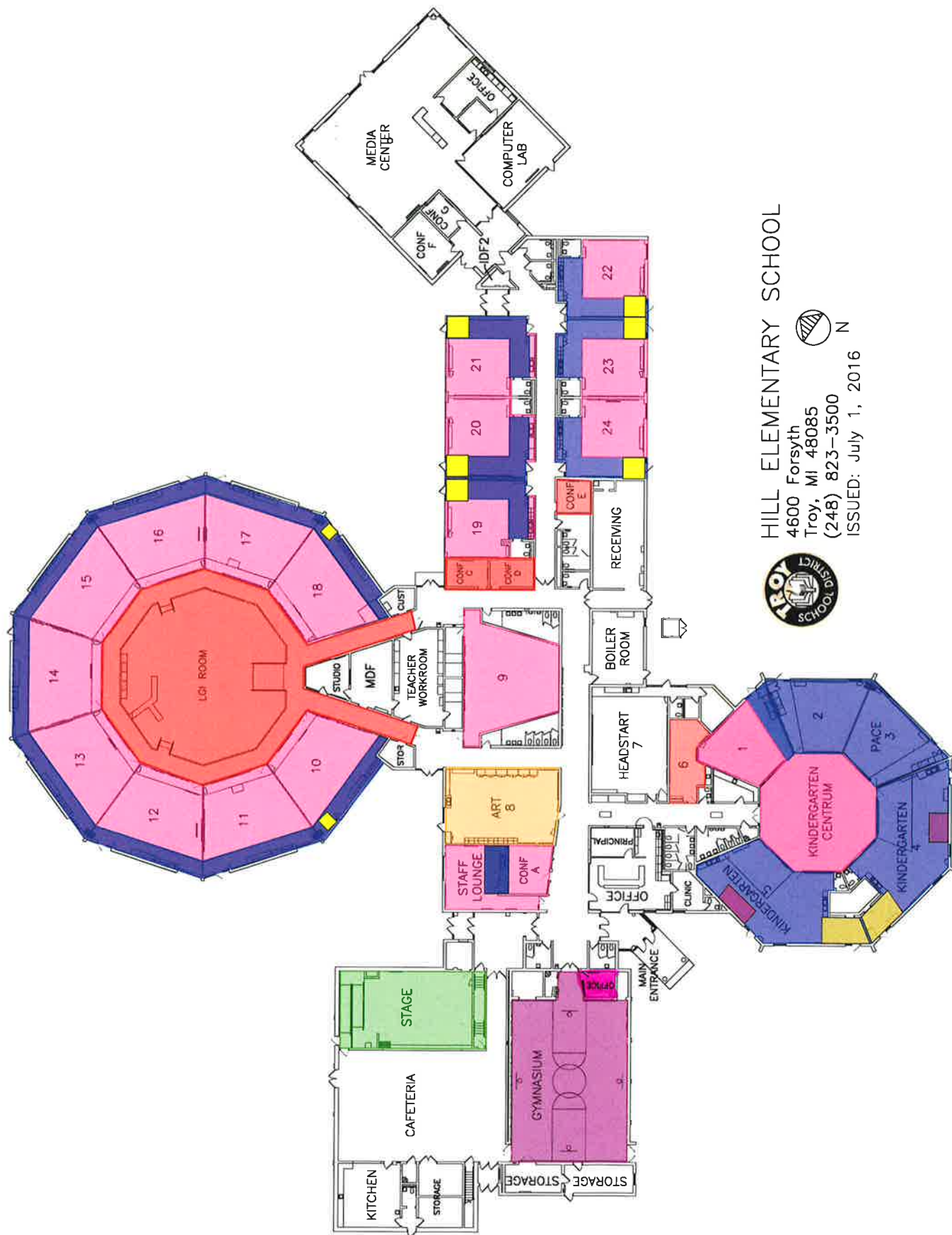
Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
Stage ramp	nora					4 1/2"		No	
Treads/risers	nora					4 1/2"		No	

Athens

Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
Art rooms/off.	Polish					4 1/2"		No	Base by flooring contractor
Health1 and 2	Polish					4 1/2"		Yes	Demo & base by flooring contractor
Hall at gym	Polish					4 1/2"		Yes	Demo & base by flooring contractor
Storage	Polish					4 1/2"		No	Base by flooring contractor

Martell

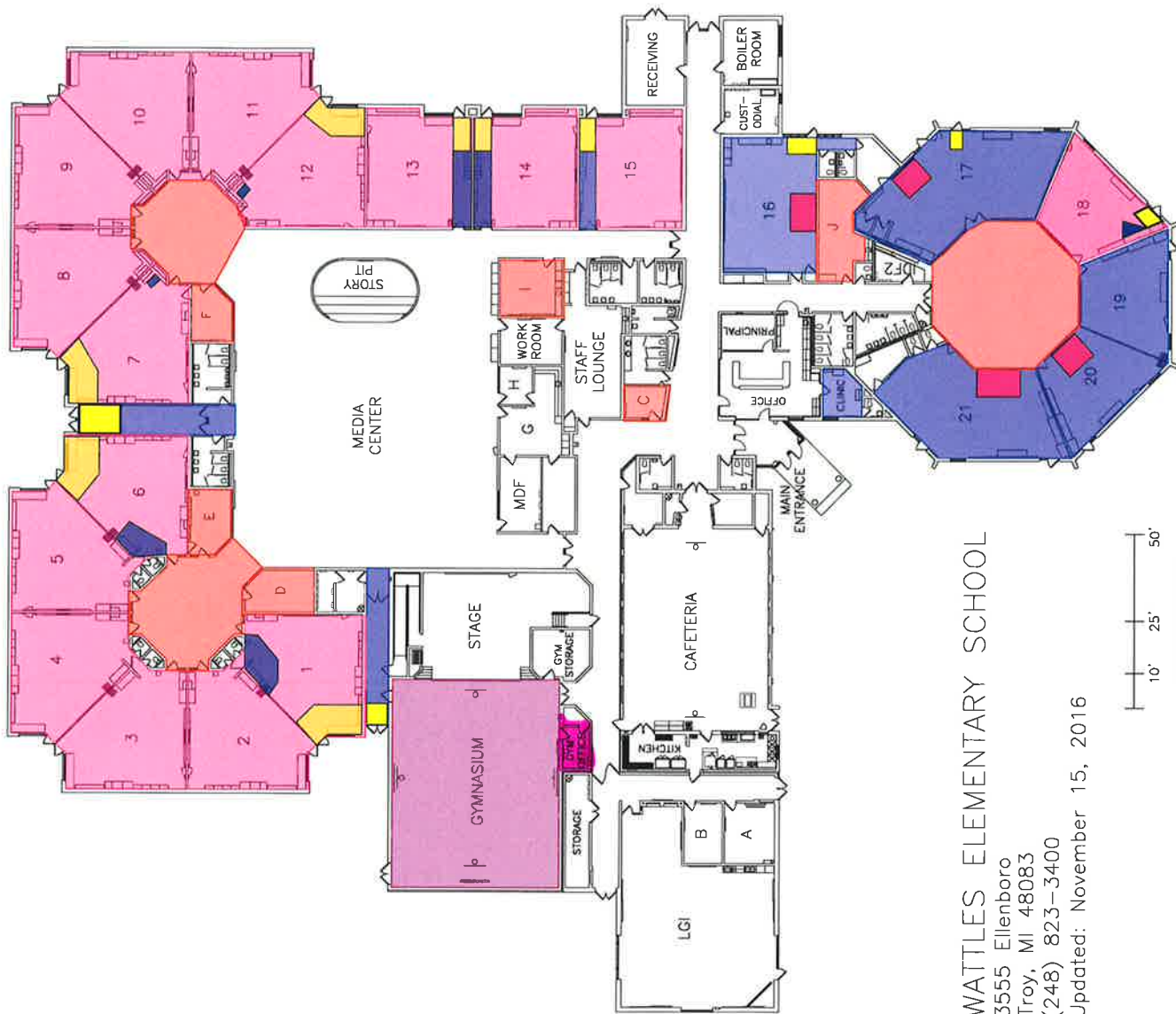
Room number	Finish 1 and %	Finish 2 and %	Finish 3 and %	Finish 4 and %	Finish 5	Base	Color	Demo	Notes
22	MCT, White Birch 100	Flotex, Greywood 90	Flotex, Cherry 10			4 1/2"		Yes	
23	MCT, White Birch 100	Flotex, Greywood 90	Flotex, Cherry 10			4 1/2"		Yes	
24	MCT, White Birch 100	Flotex, Greywood 90	Flotex, Cherry 10			4 1/2"		Yes	
24A	Flotex, Greywood					4 1/2"		Yes	
24B	Flotex, Greywood					4 1/2"		Yes	
Conf 1	Flotex, Greywood					4 1/2"		Yes	
Conf 2	Flotex, Greywood					4 1/2"		Yes	
Corridor	MCT, Warm Grey 90	MCT Poppy Red 10	Coral			6"		Yes	
Gym	Taraflex					4 1/2"		Yes	
Stage	nora					4 1/2"		Yes	



HILL ELEMENTARY SCHOOL

4600 Forsyth
Troy, MI 48085
(248) 823-3500
ISSUED: July 1, 2016

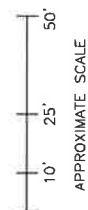


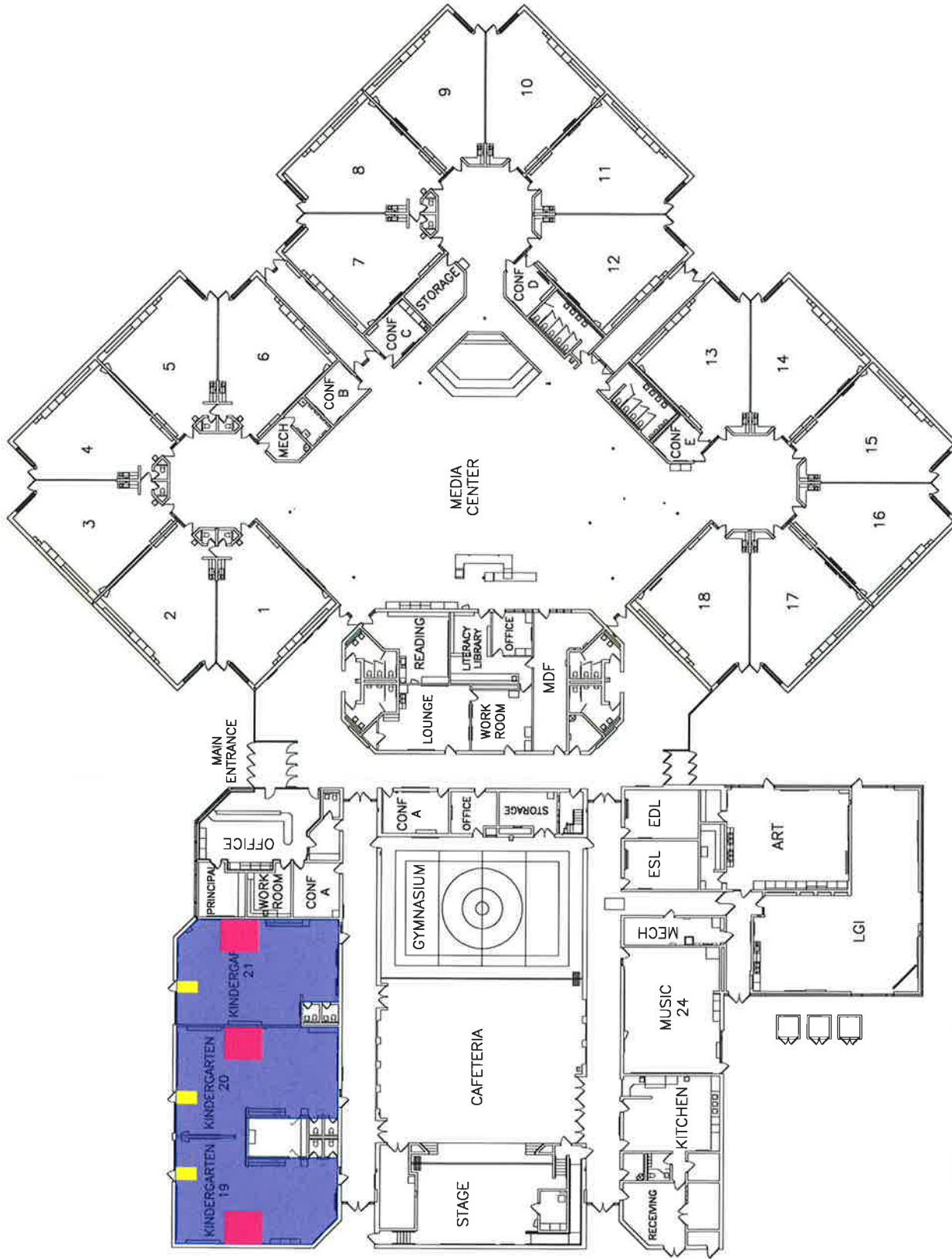


WATTLES ELEMENTARY SCHOOL

3555 Ellenboro
Troy, MI 48083
(248) 823-3400

Updated: November 15, 2016

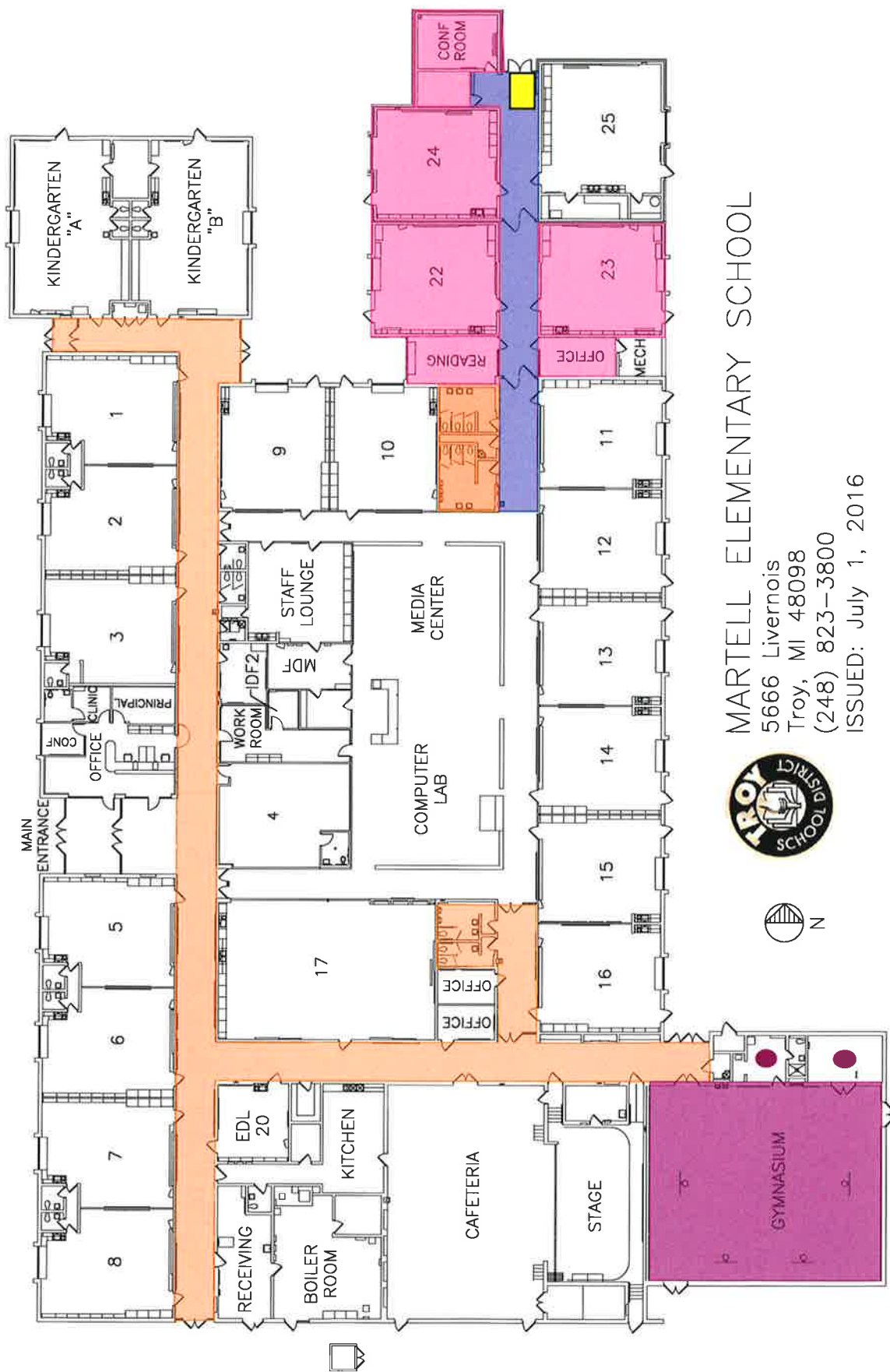




BARNARD ELEMENTARY SCHOOL

3601 Forge
Troy, MI 48063
(248) 823-4300
ISSUED: July 1, 2016





MARTELL ELEMENTARY SCHOOL

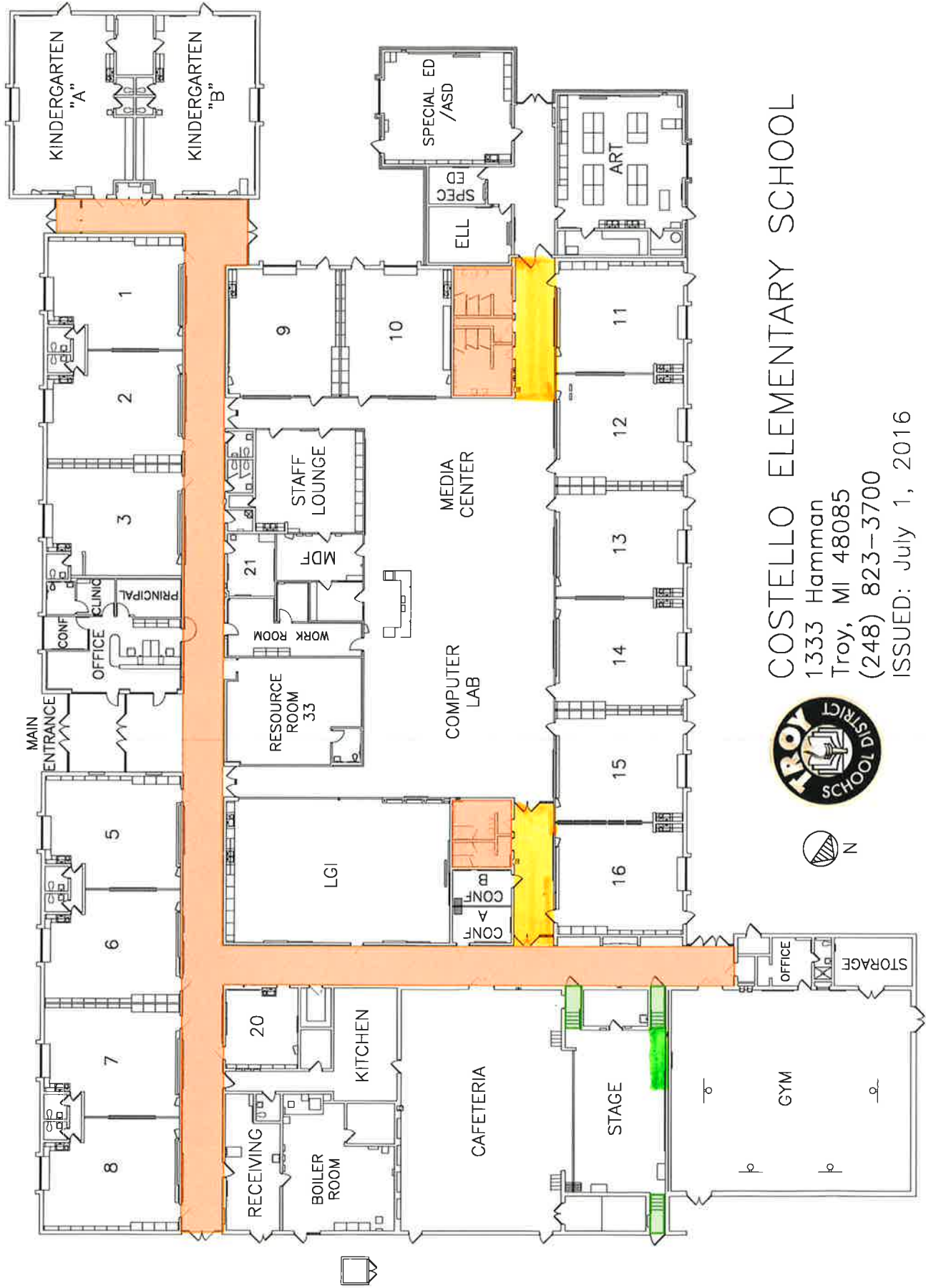
5666 Livernois

Troy, MI 48098

(248) 823-3800

ISSUED: July 1, 2016





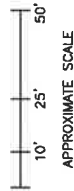
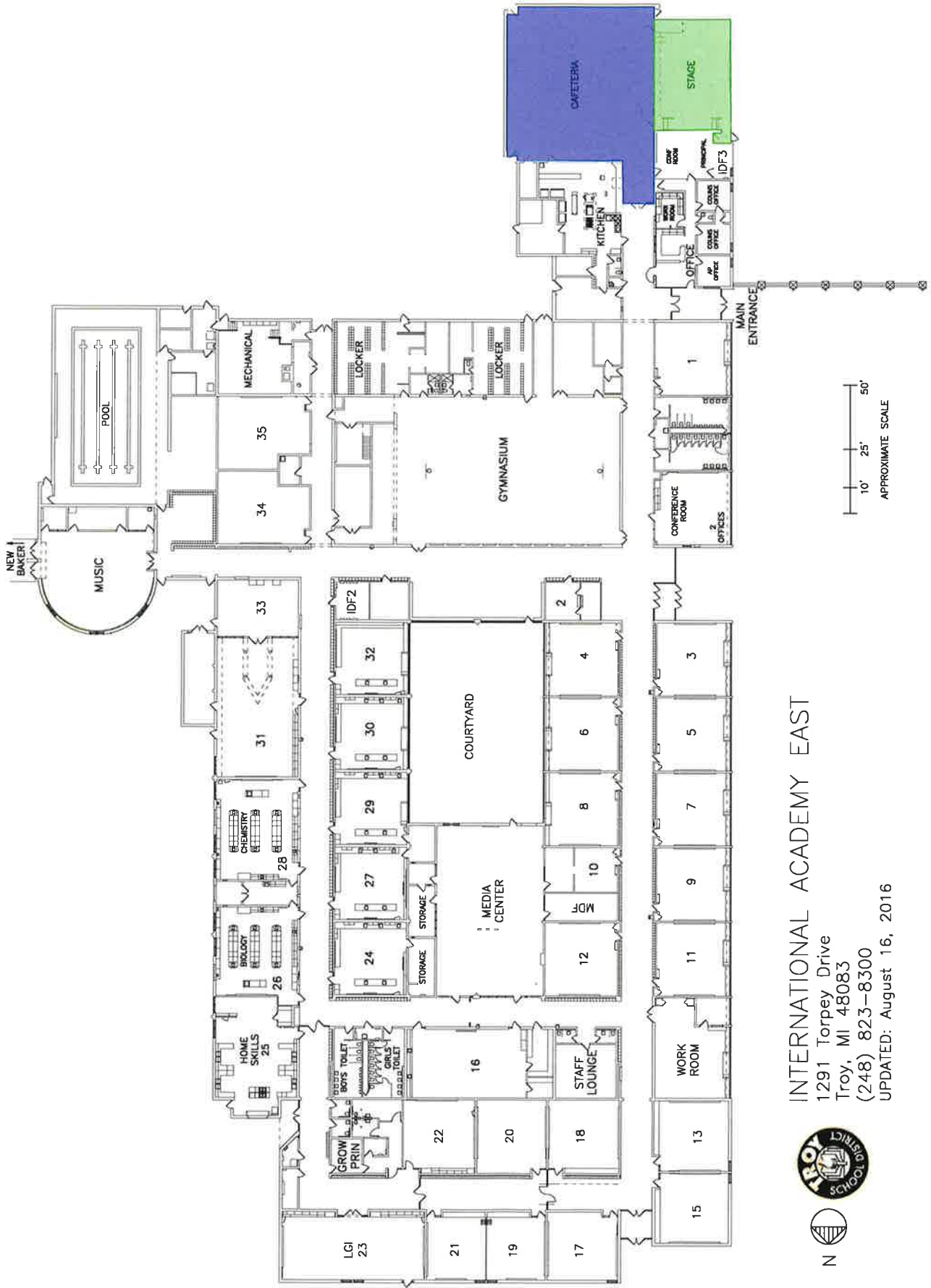
COSTELLO ELEMENTARY SCHOOL

1333 Hamman

Troy, MI 48085

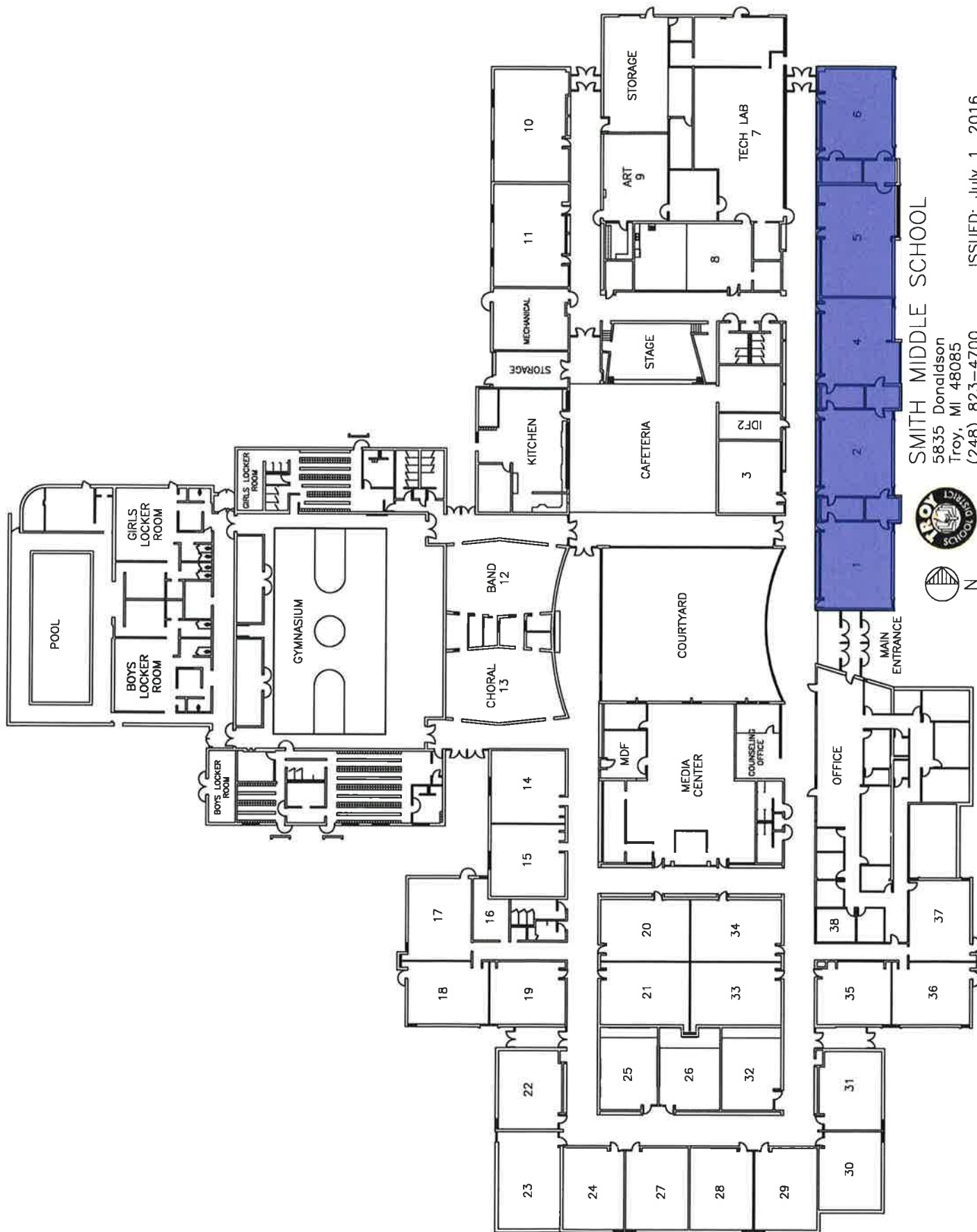
(248) 823-3700

ISSUED: July 1, 2016



INTERNATIONAL ACADEMY EAST
 1291 Torpey Drive
 Troy, MI 48083
 (248) 823-8300
 UPDATED: August 16, 2016





SMITH MIDDLE SCHOOL

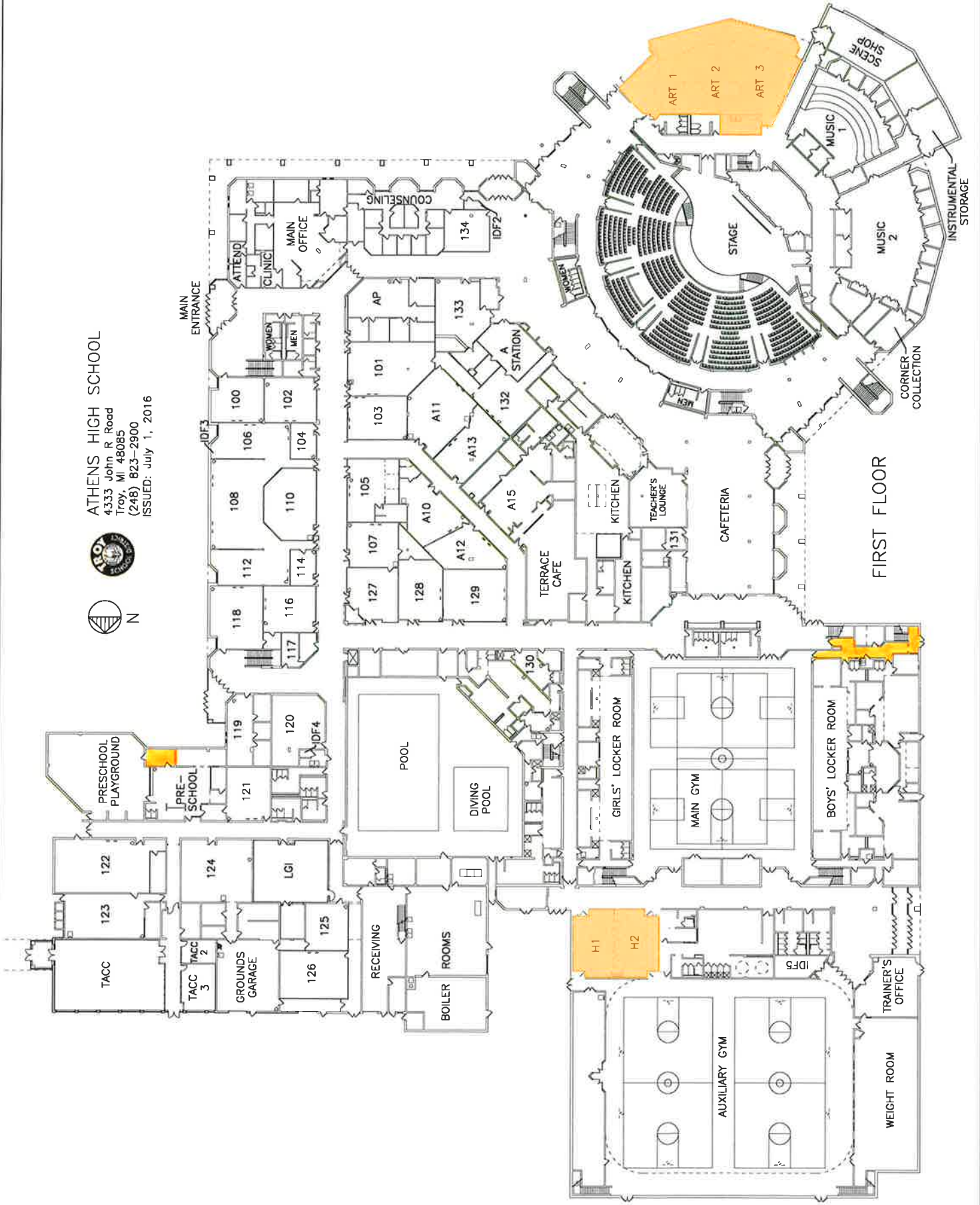
5835 Donaldson
Troy, MI 48065
(248) 823-4700



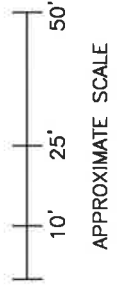
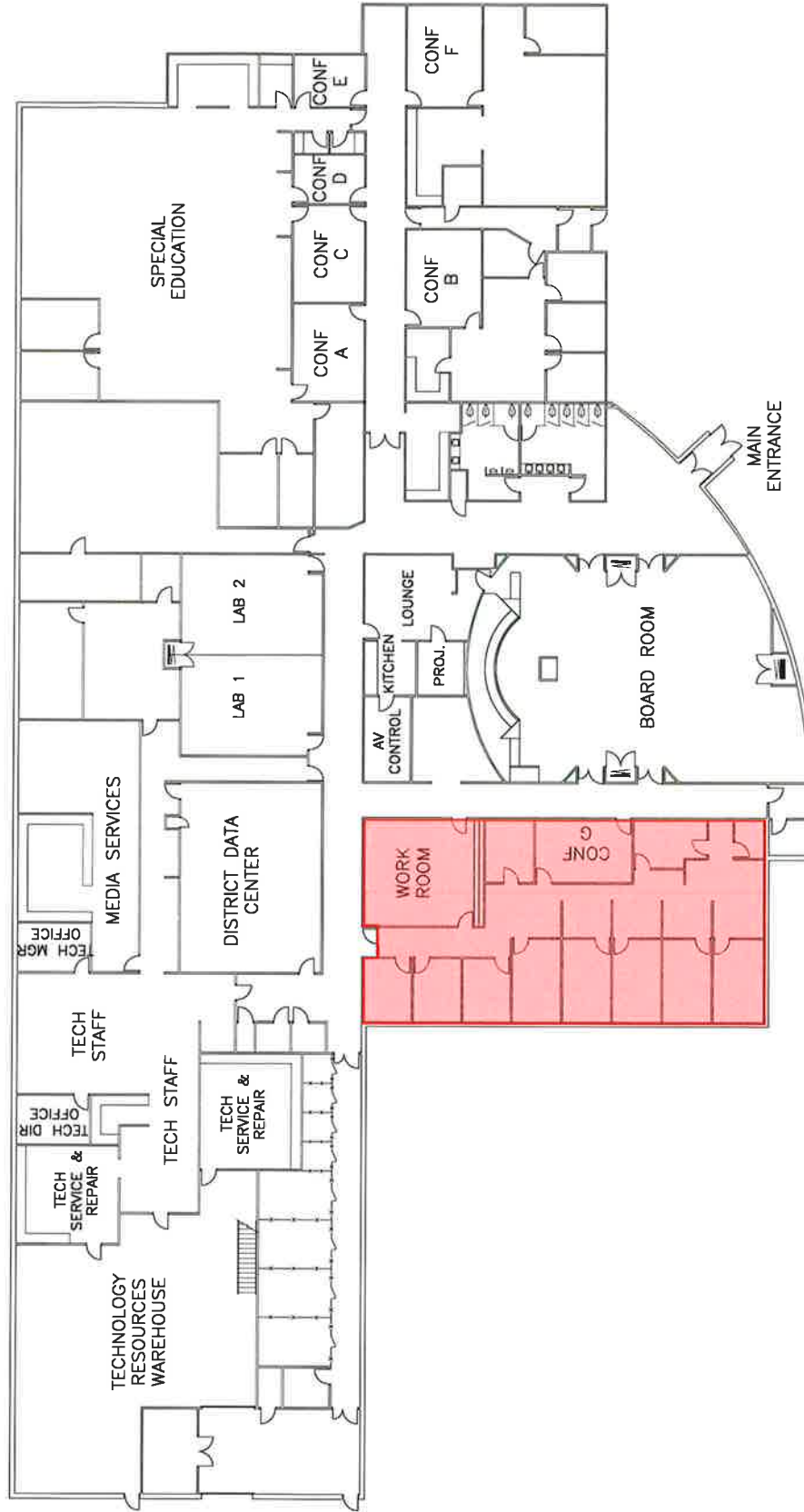
ISSUED: July 1, 2016

ATHENS HIGH SCHOOL

4333 John R Road
Troy, MI 48065
(248) 823-2900
ISSUED: July 1, 2016



FIRST FLOOR



SERVICES BUILDING

4400 Livernois

Troy, MI 48098

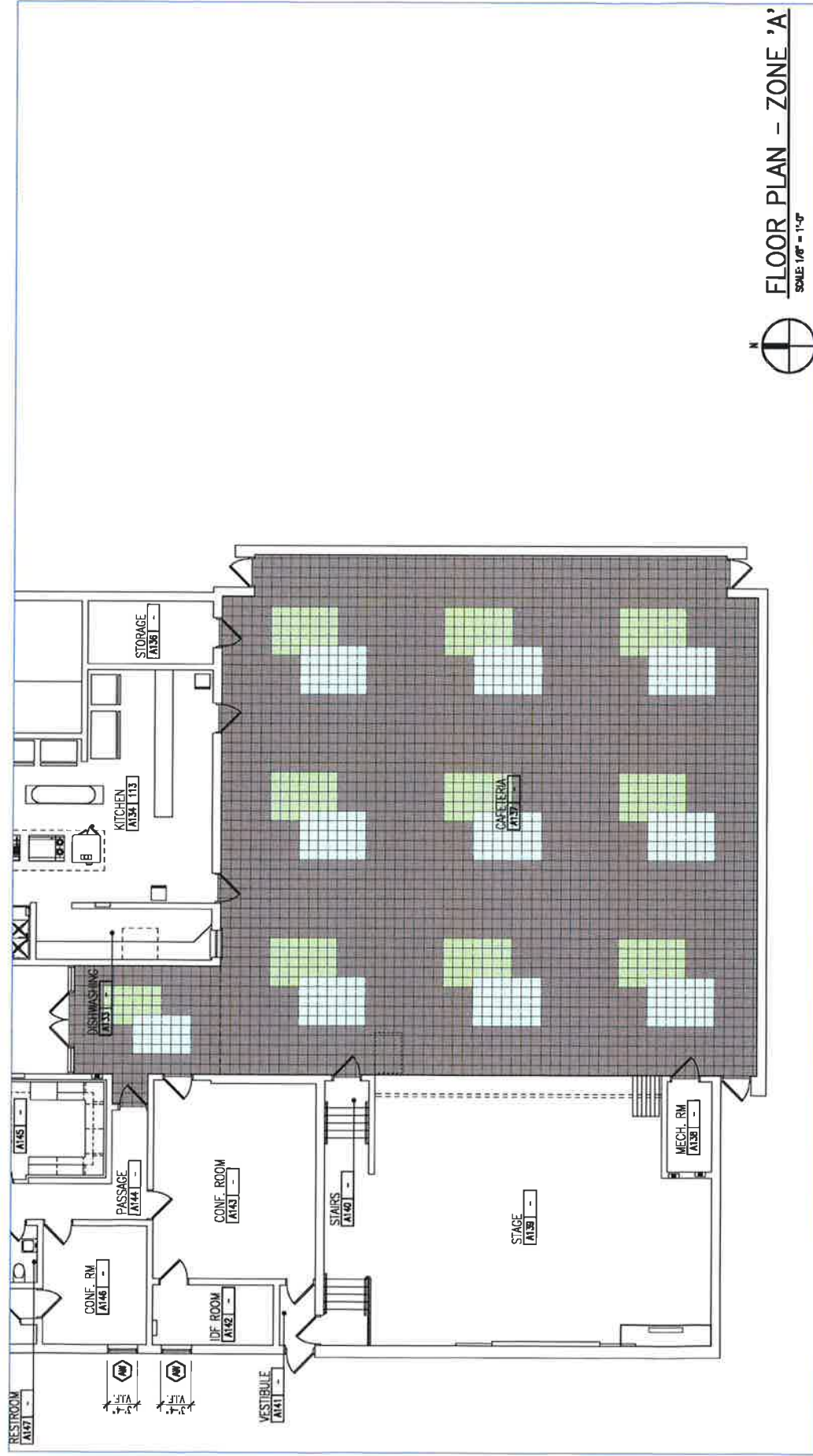
(248) 823-4000

ISSUED: September 8, 2016

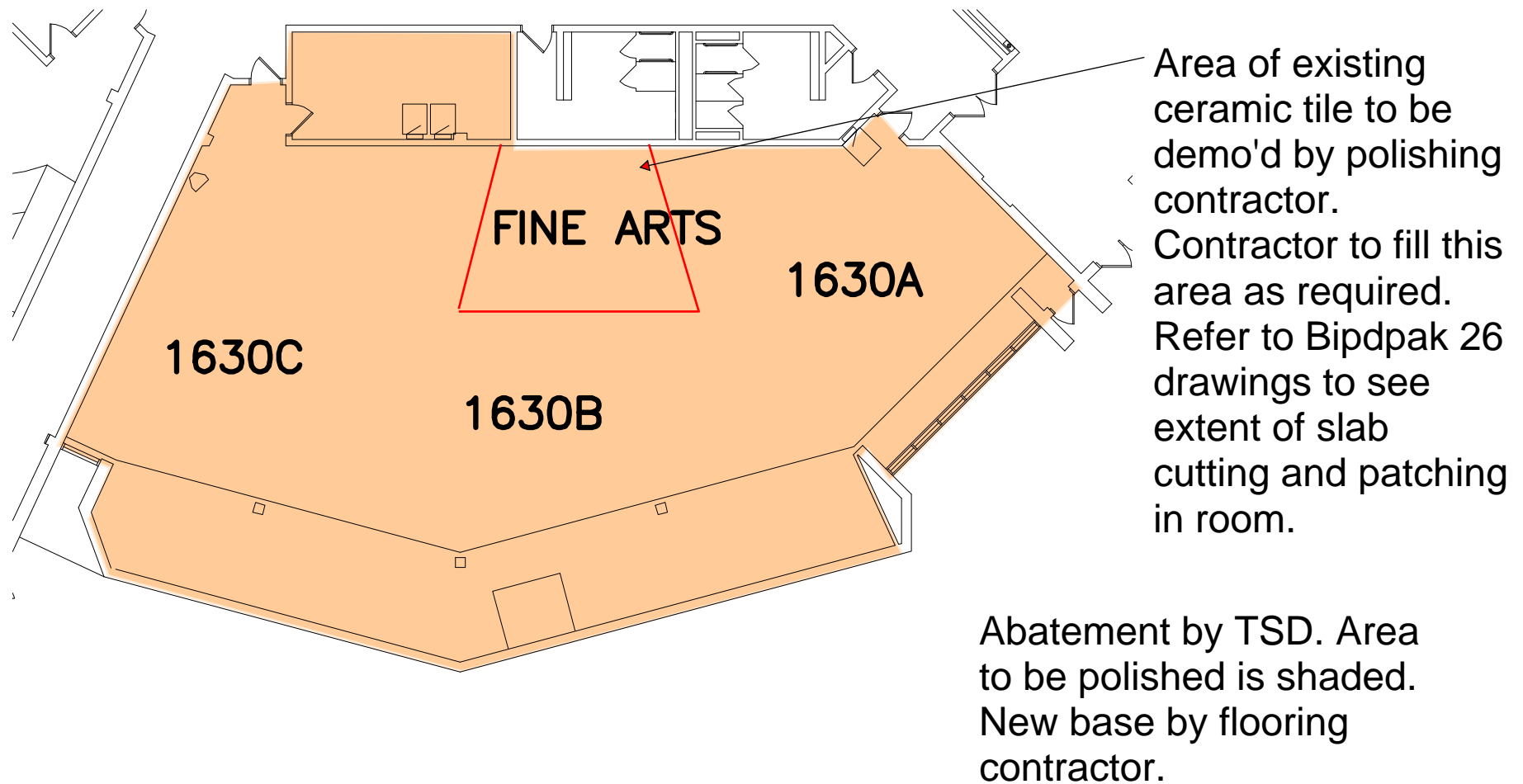


 Forbo MCT 13" Tile Main Color Dove Grey

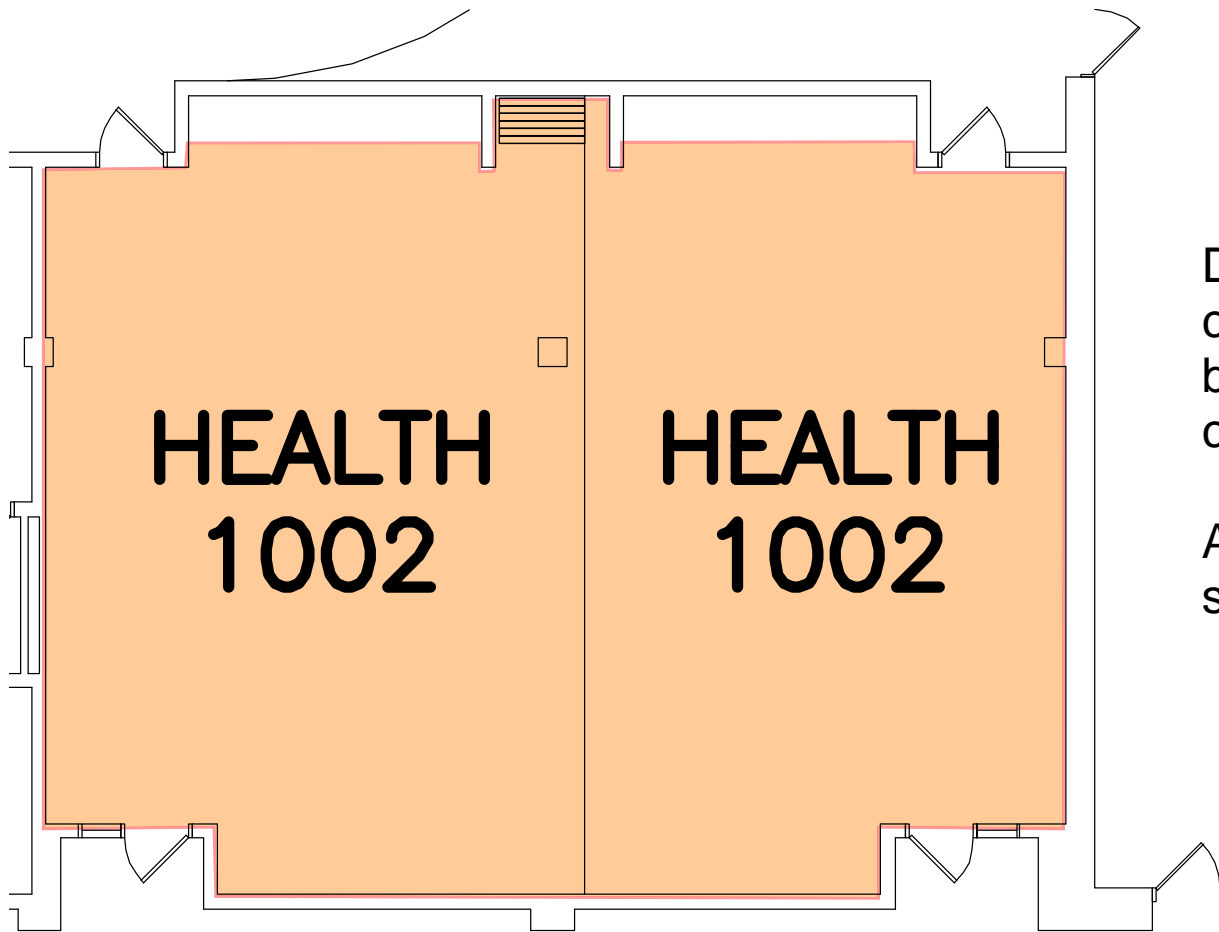
Scale 1:190 (original drawing scale 1:96)



 **FLOOR PLAN - ZONE 'A'**
SCALE 1/8" = 1'-0"



Athens High School - Art



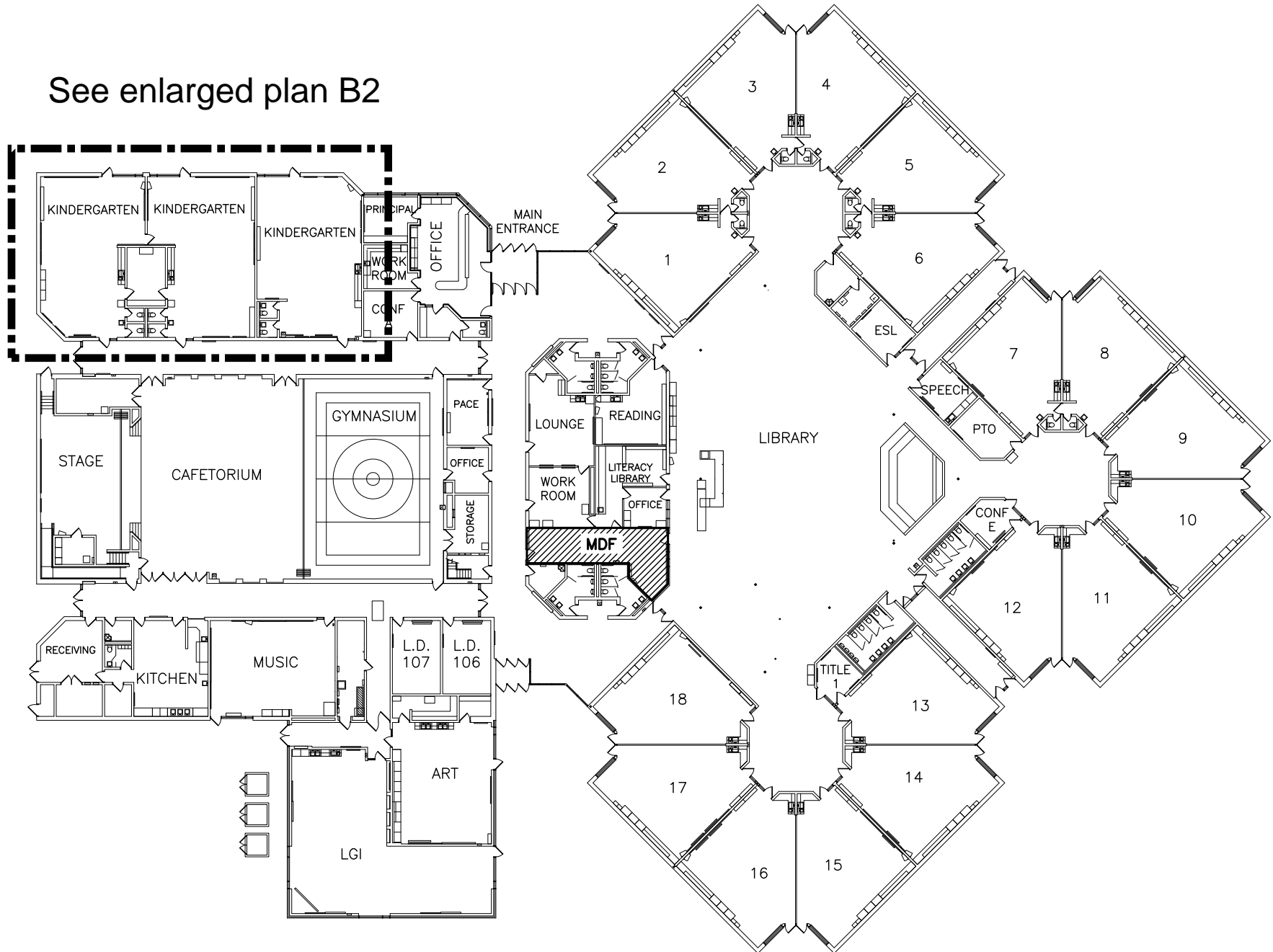
Demo by flooring contractor. New rubber base by flooring contractor.

Area to be polished is shaded.

Athens High School - Classrooms

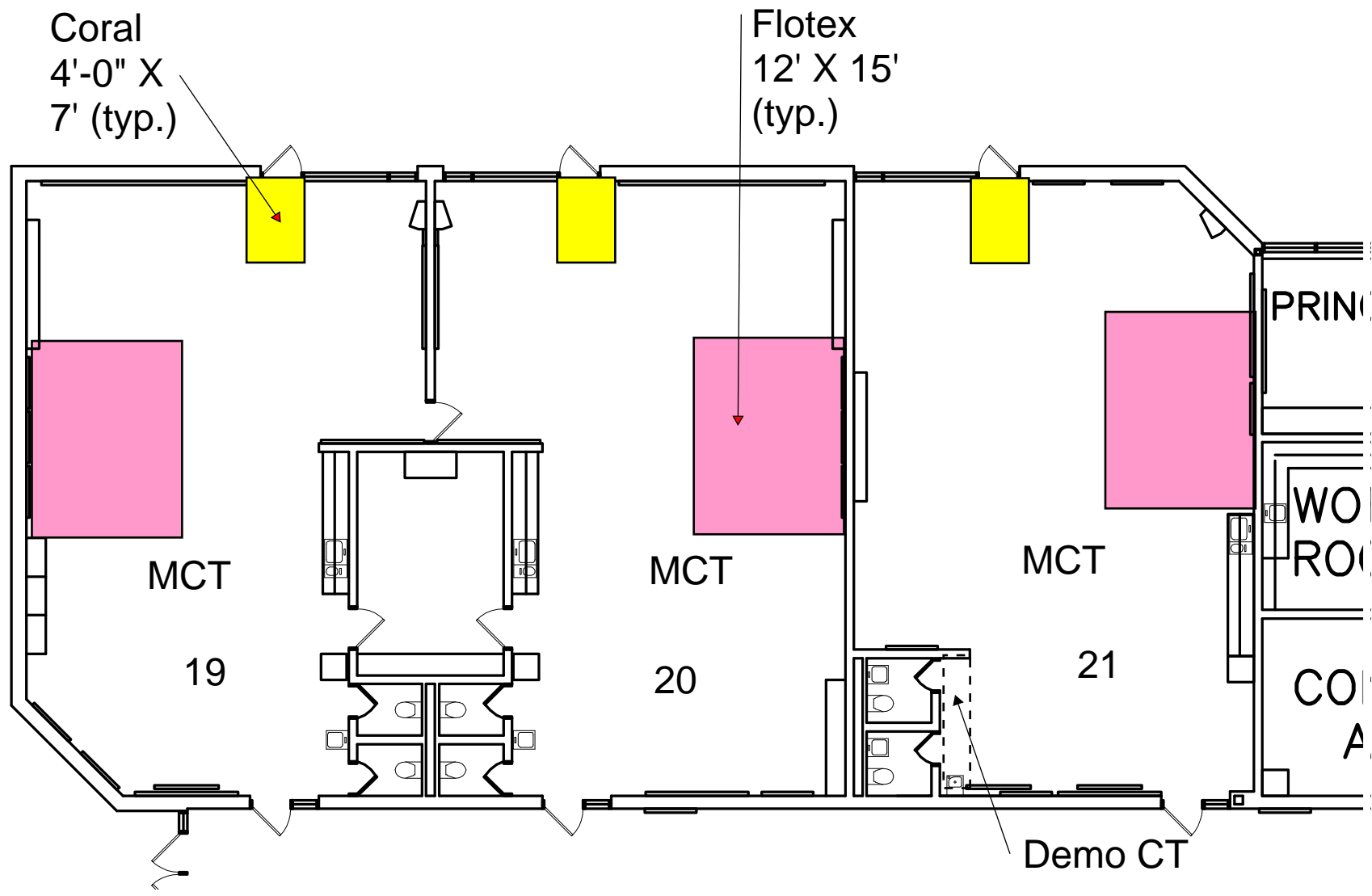
A3

See enlarged plan B2

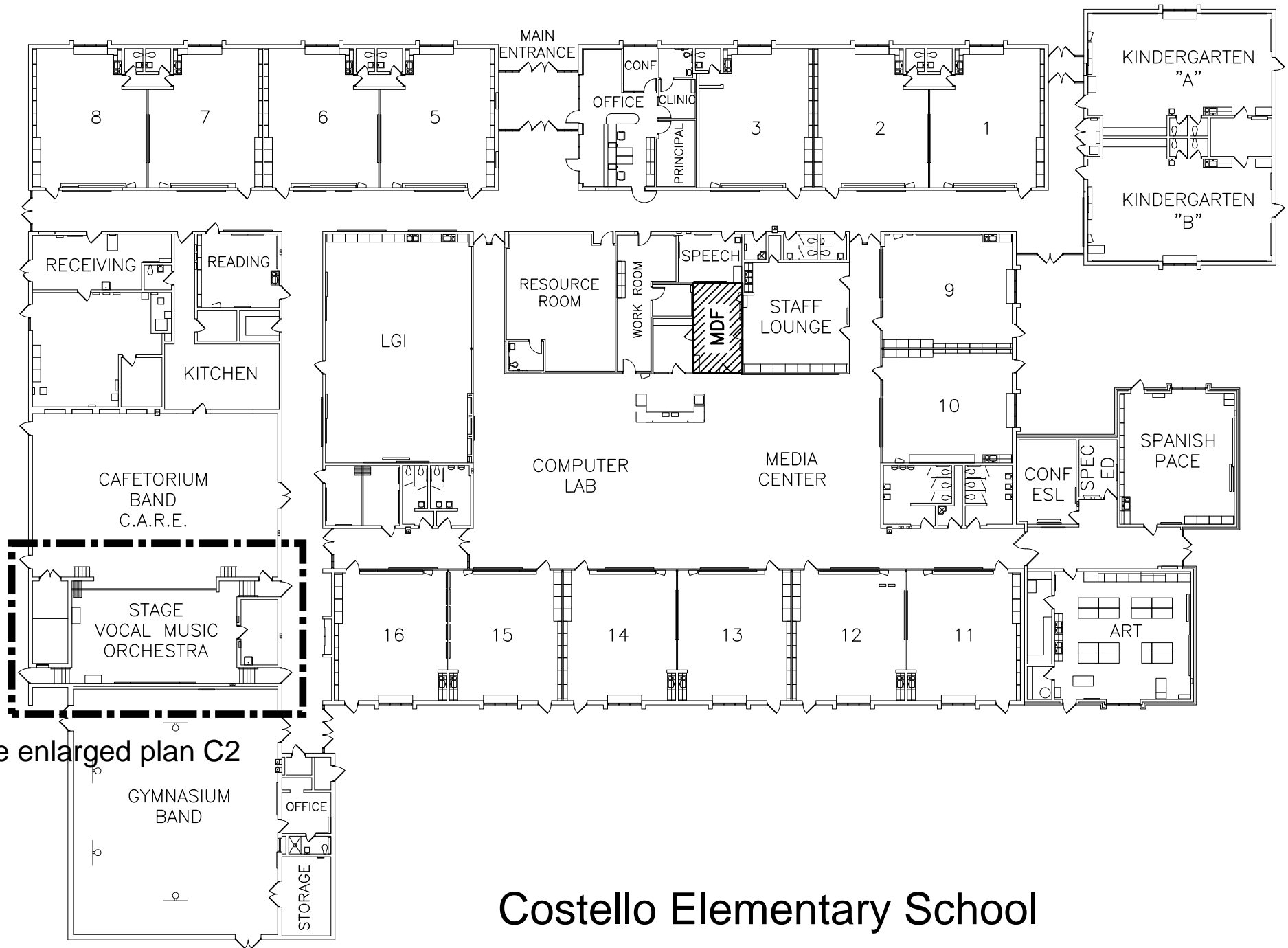


Barnard Elementary School

B1

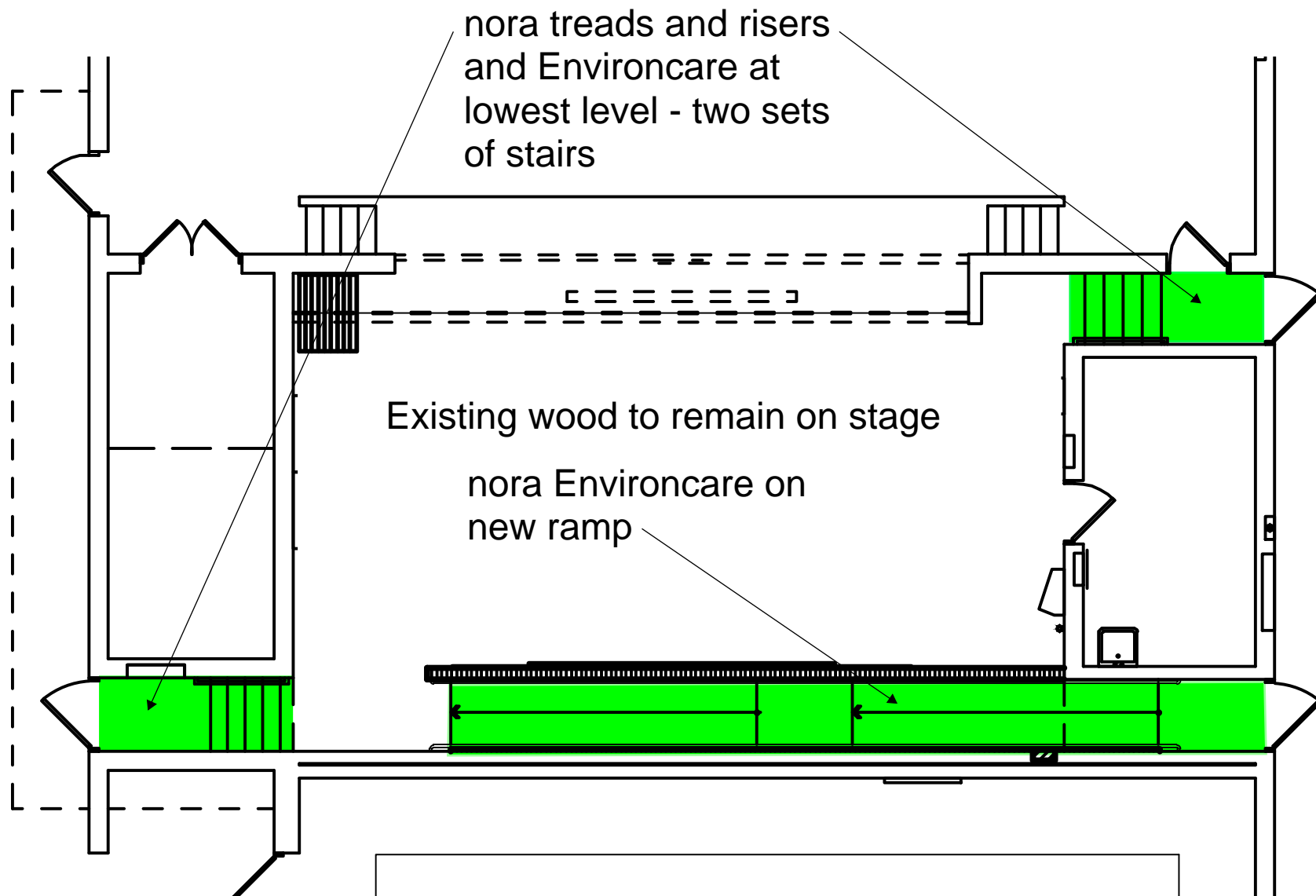


Barnard Elementary School



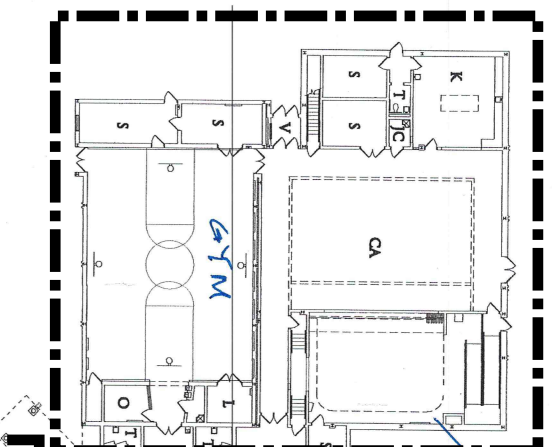
See enlarged plan C2

Costello Elementary School

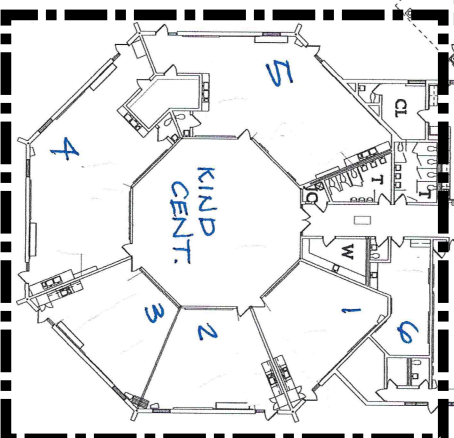


Costello Elementary School

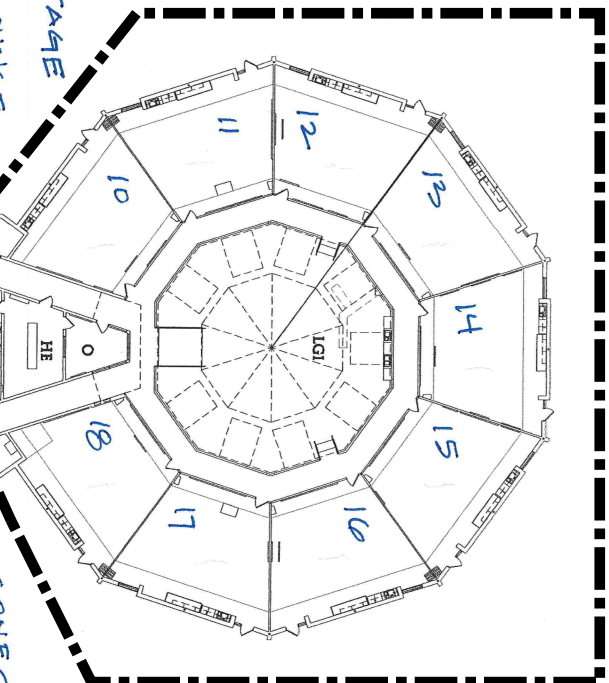
See sheet H 4



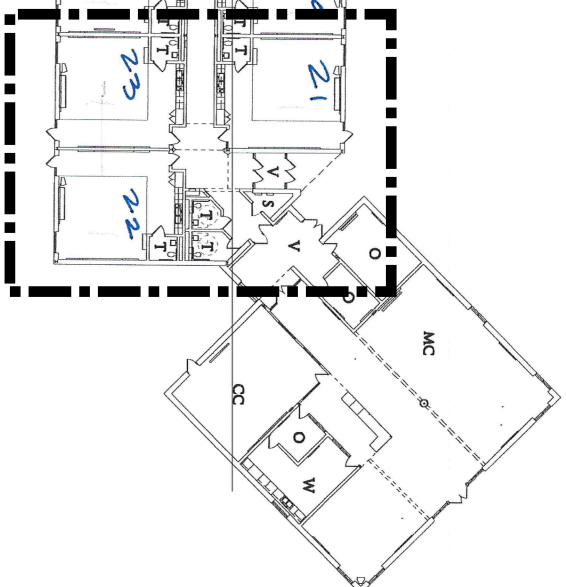
See sheet H 3



See sheet H 2

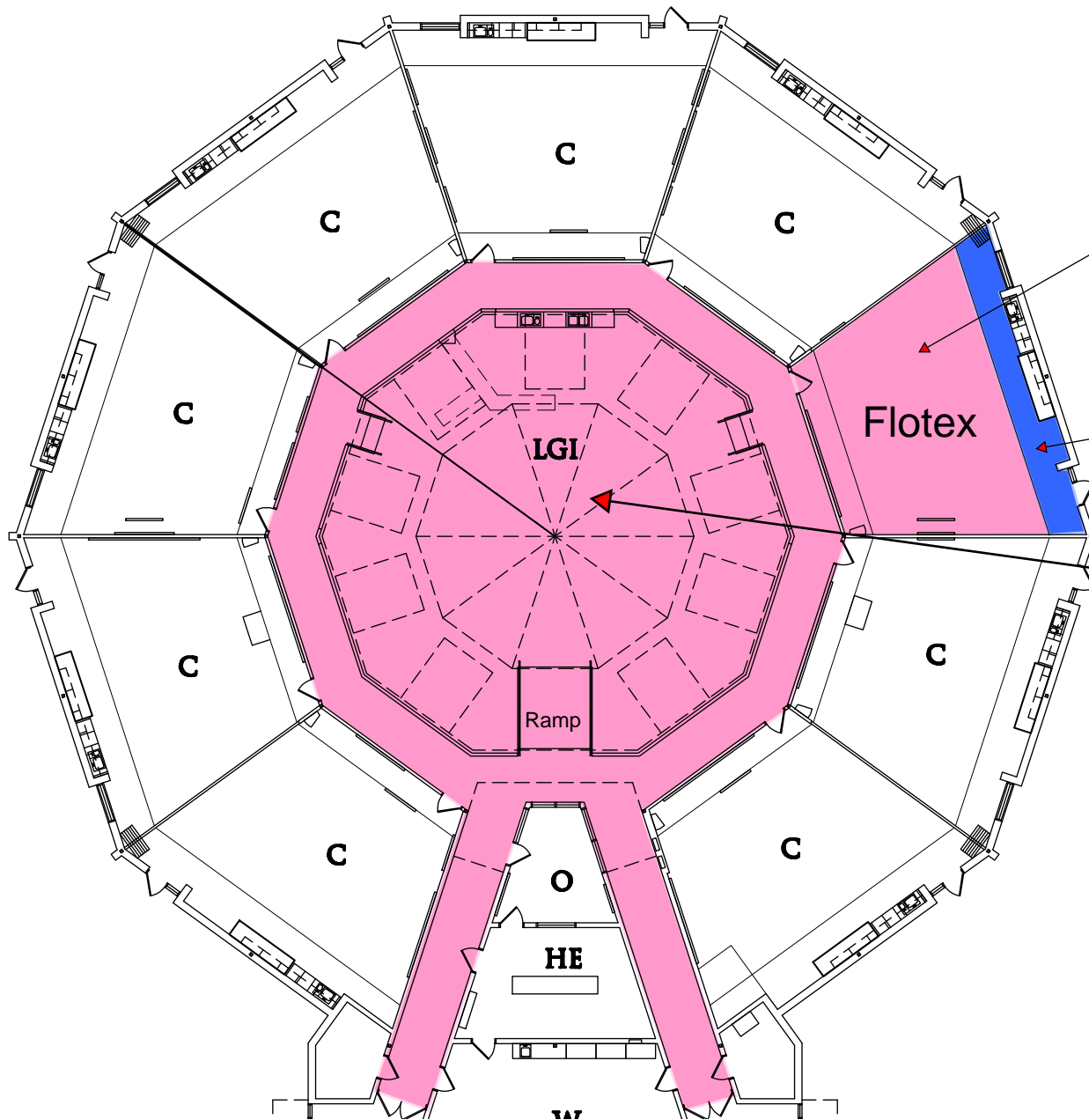


See sheet H 5



Hill Elementary School

H1



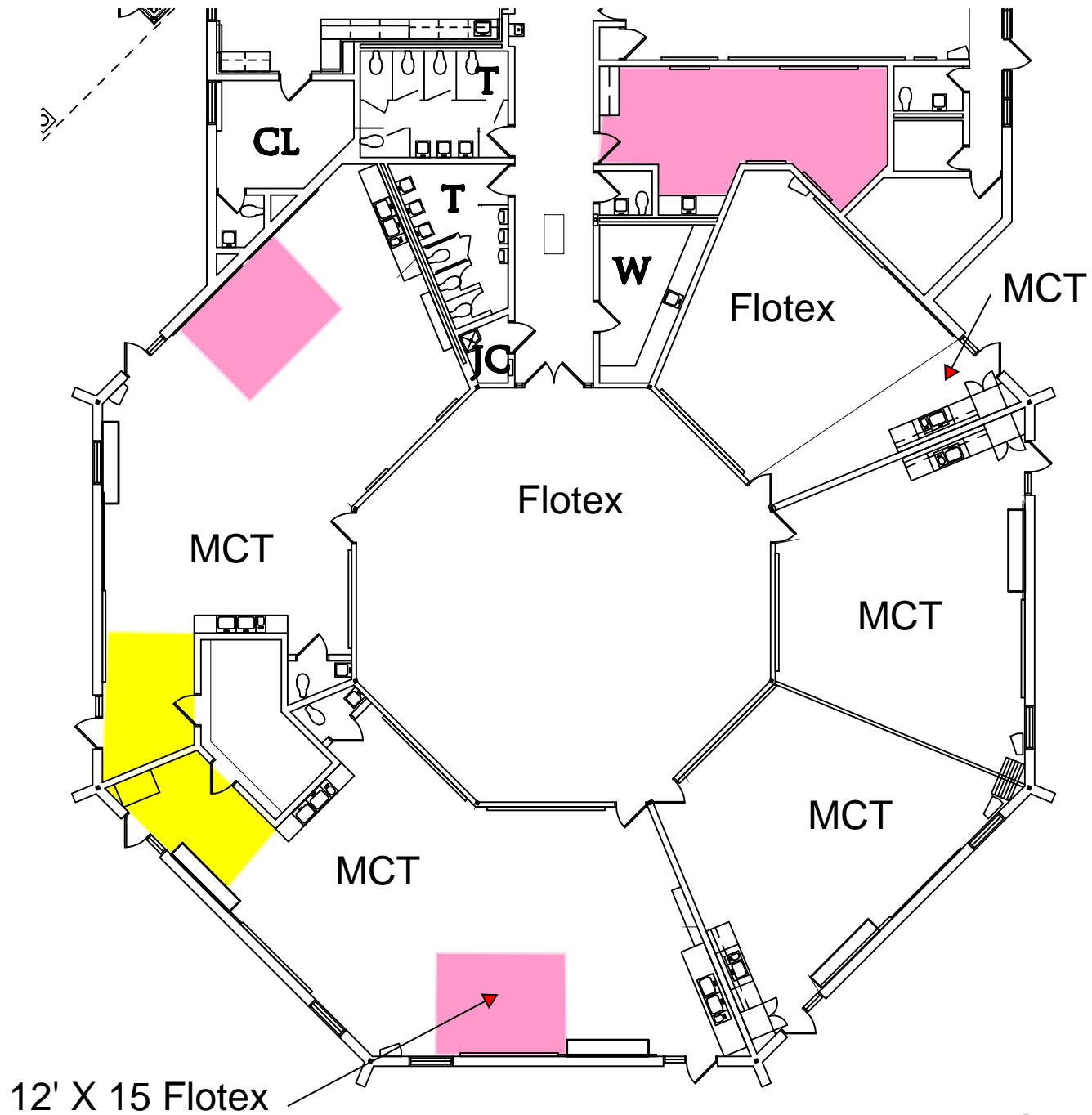
This layout
typical all
classrooms this
wing

Install MCT 6'
from wall

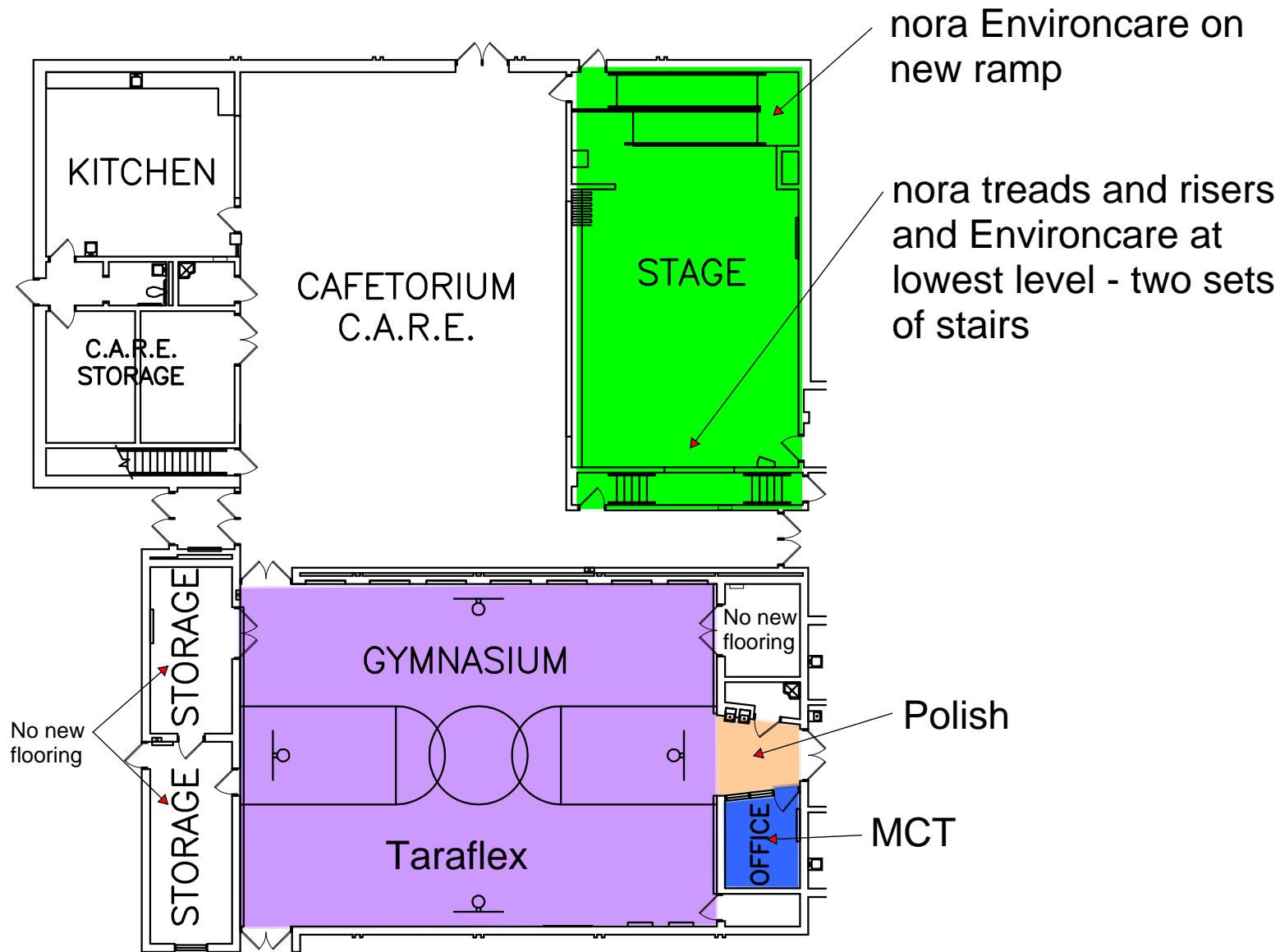
Alternate: Flotex 3
colors. nora combo
treads and risers at
stairs. Provide
transitions, edge
trims and reducers
at ramp and steps.
Install flooring on
sides of steps and
ramp. Trim around
all exist floor boxes
and hatches.

Hill Elementary School

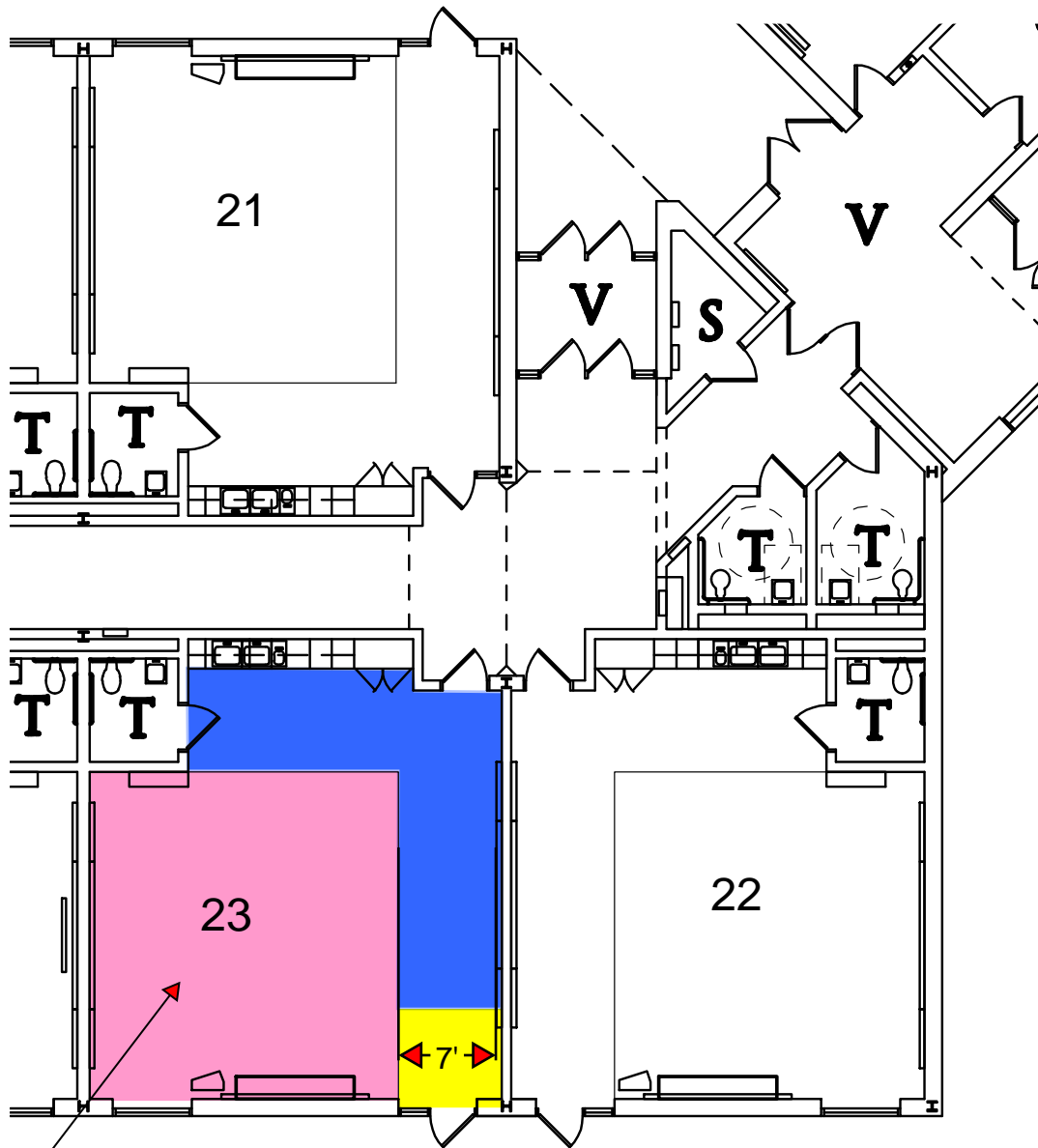
H2



Hill Elementary School



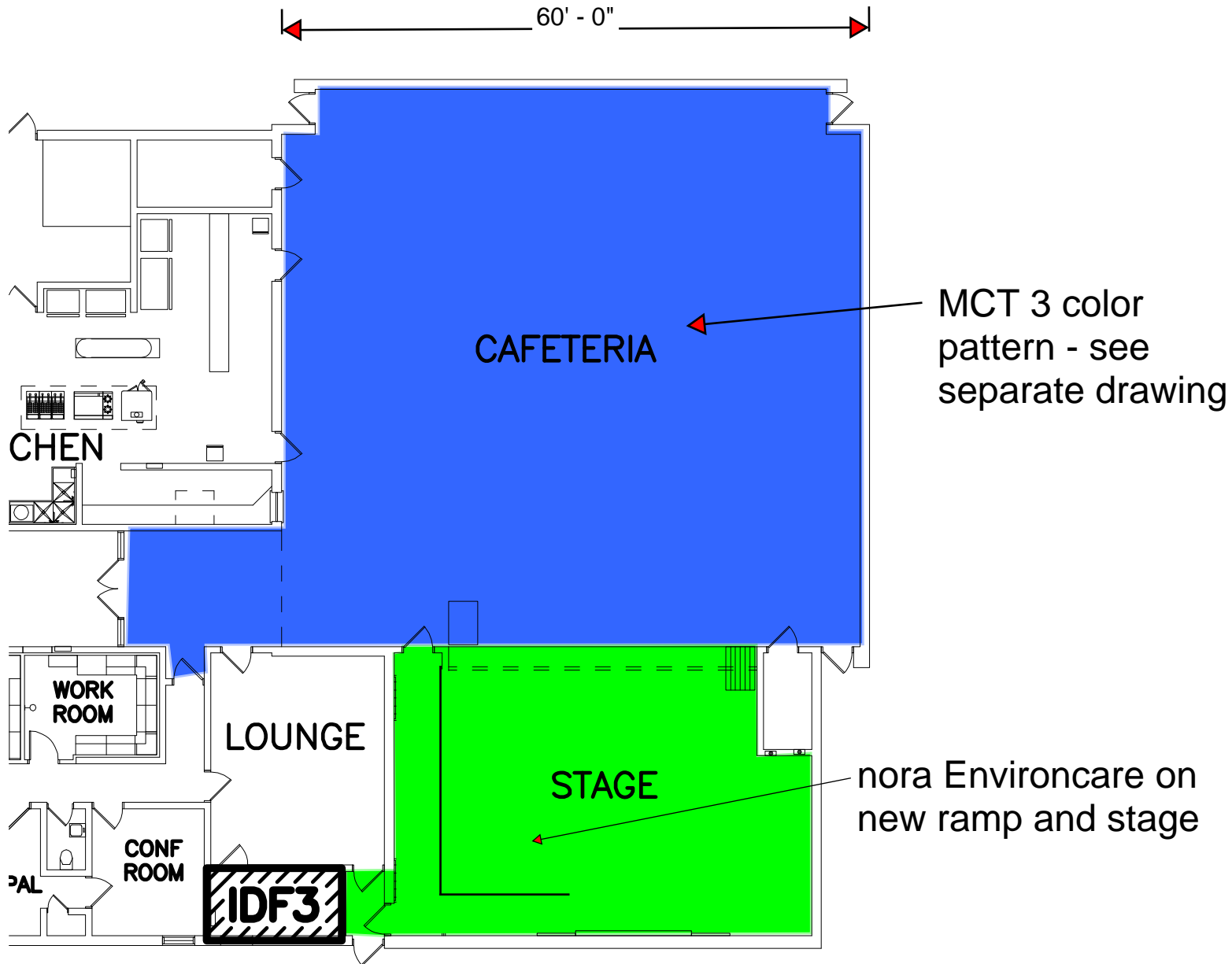
Hill Elementary School



All 6 classrooms this wing same layout.
Coral 7' X 8'

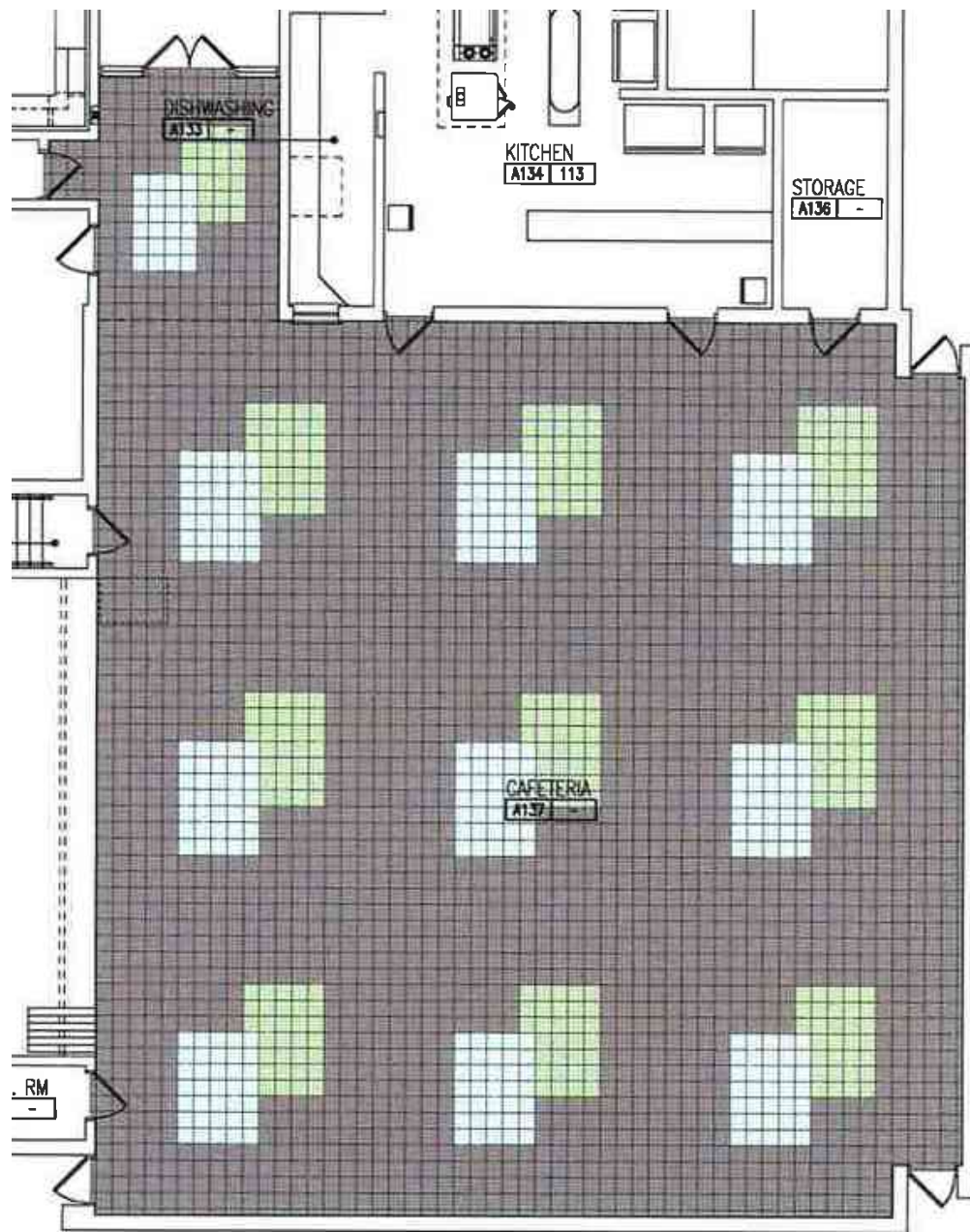
Hill Elementary School

H5

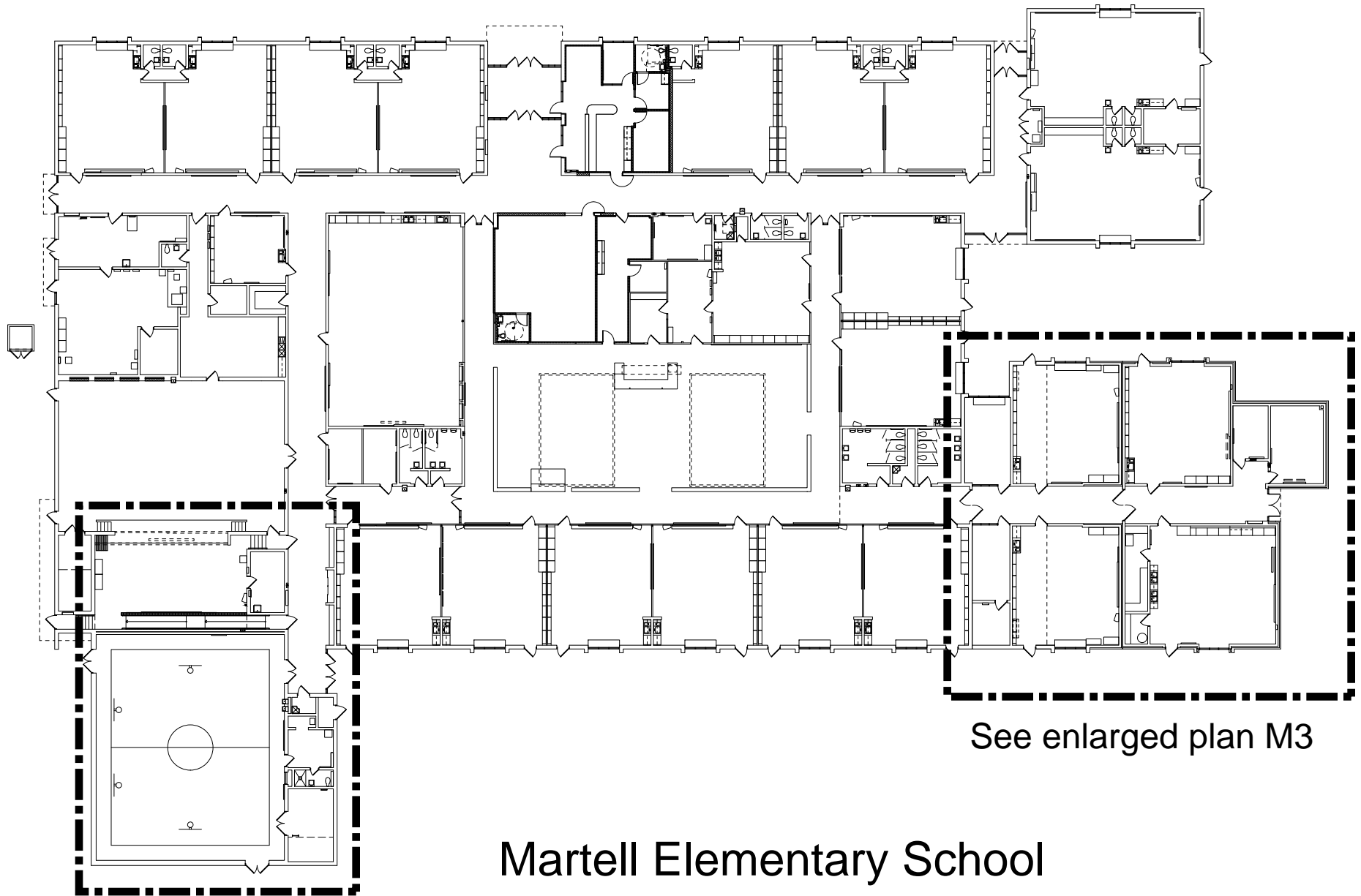


International Academy

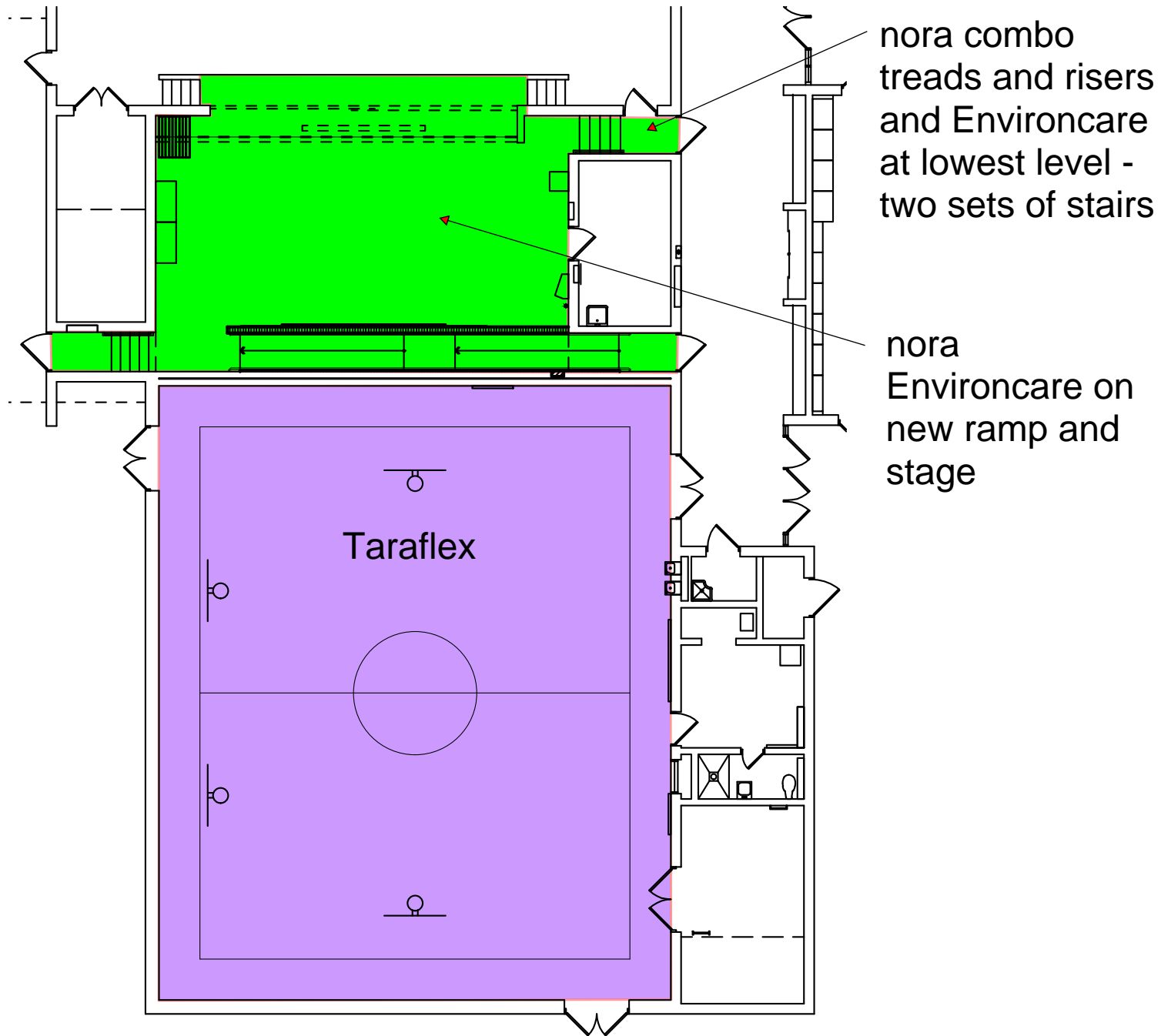
IA2



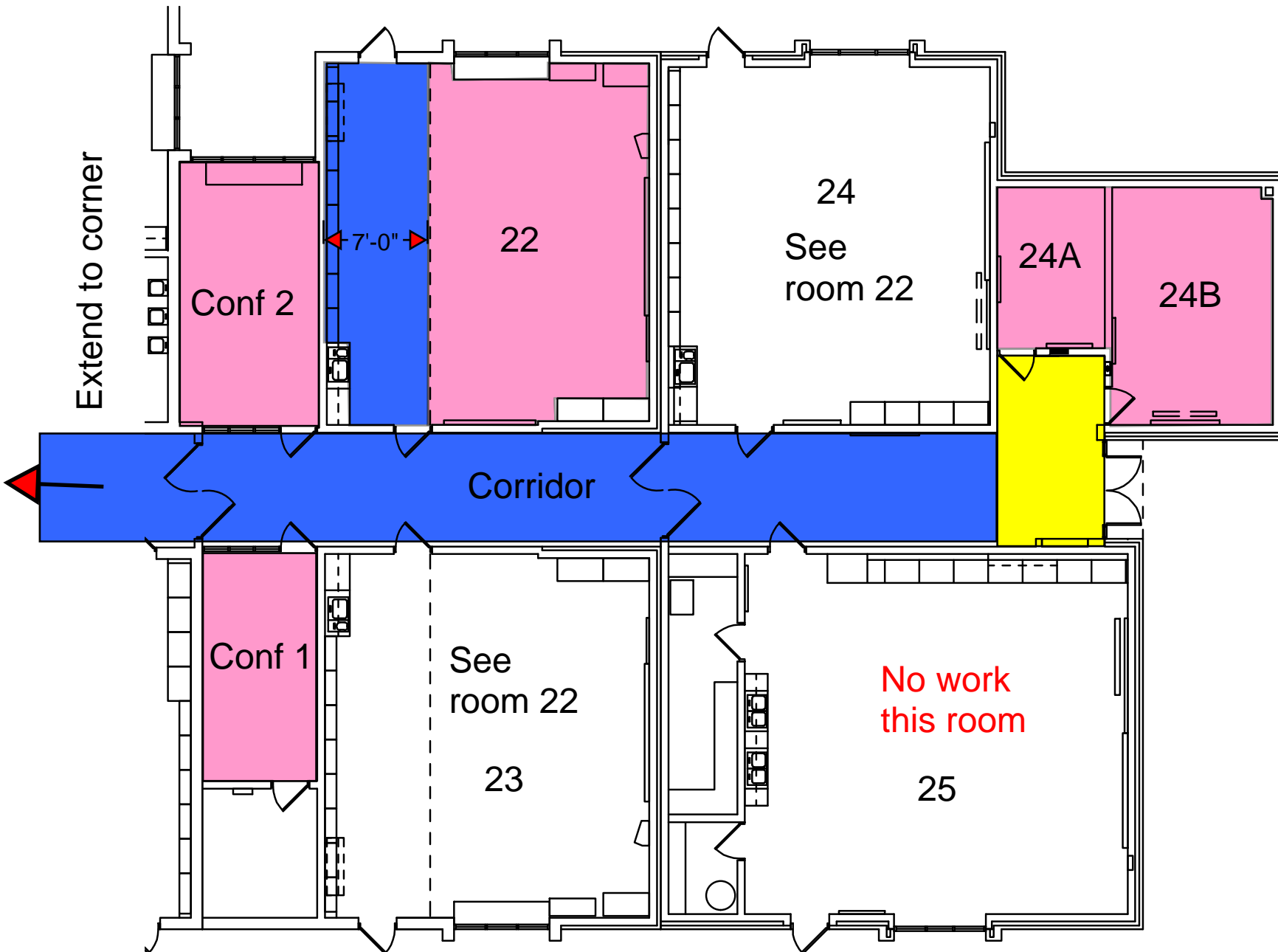
Floor Pattern International Academy



M1

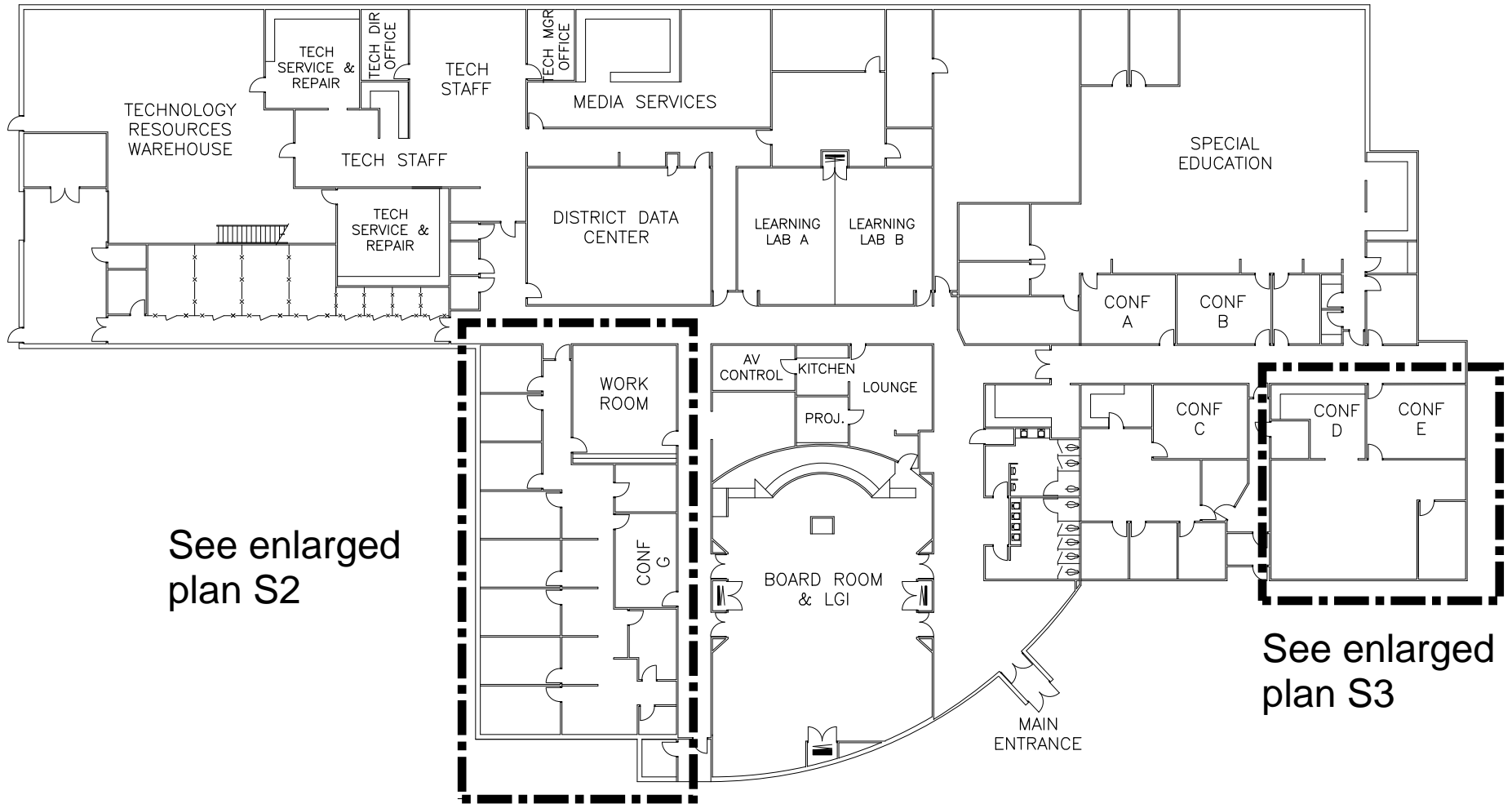


Martell Elementary School



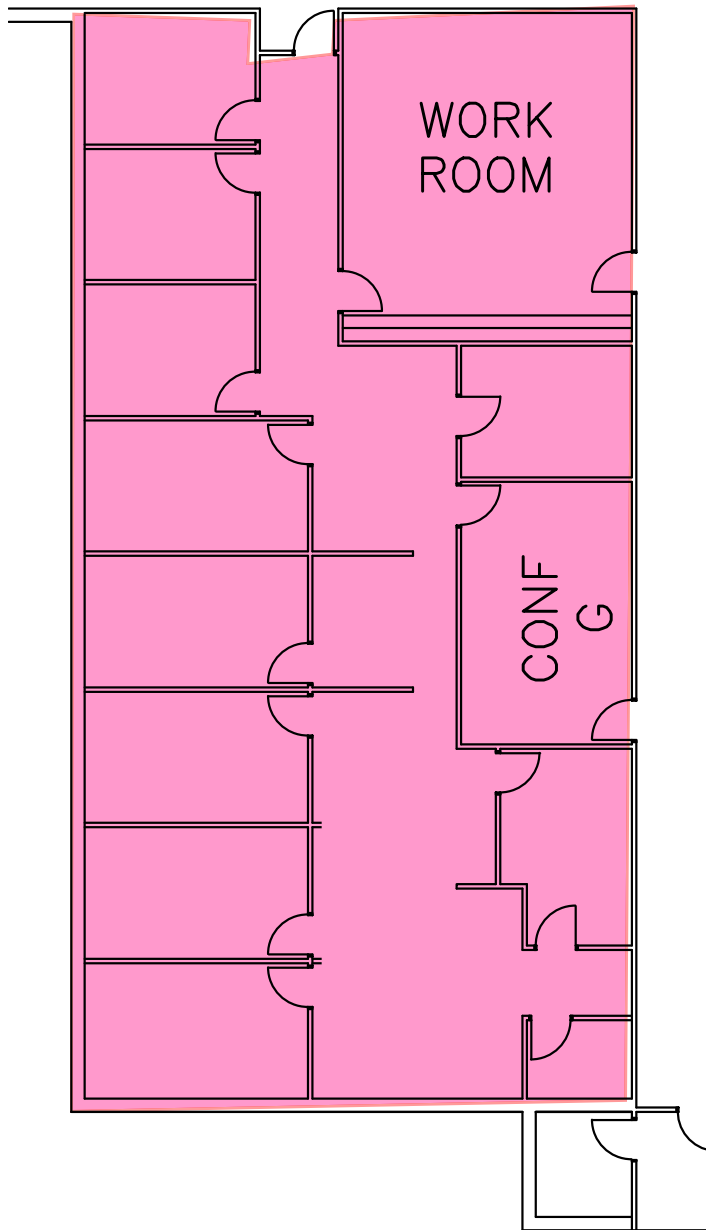
Martell Elementary School

M3



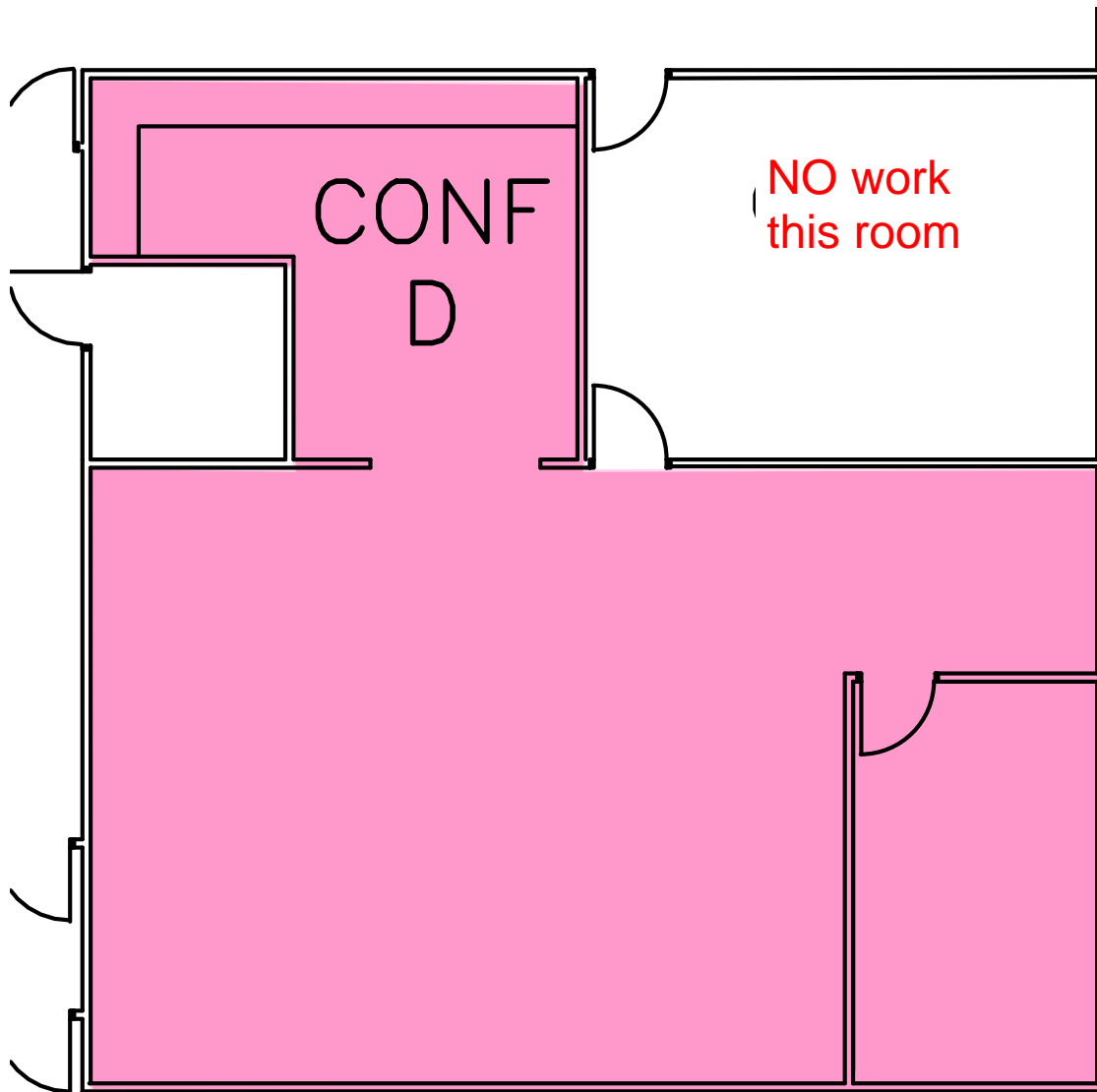
Services Building

S1



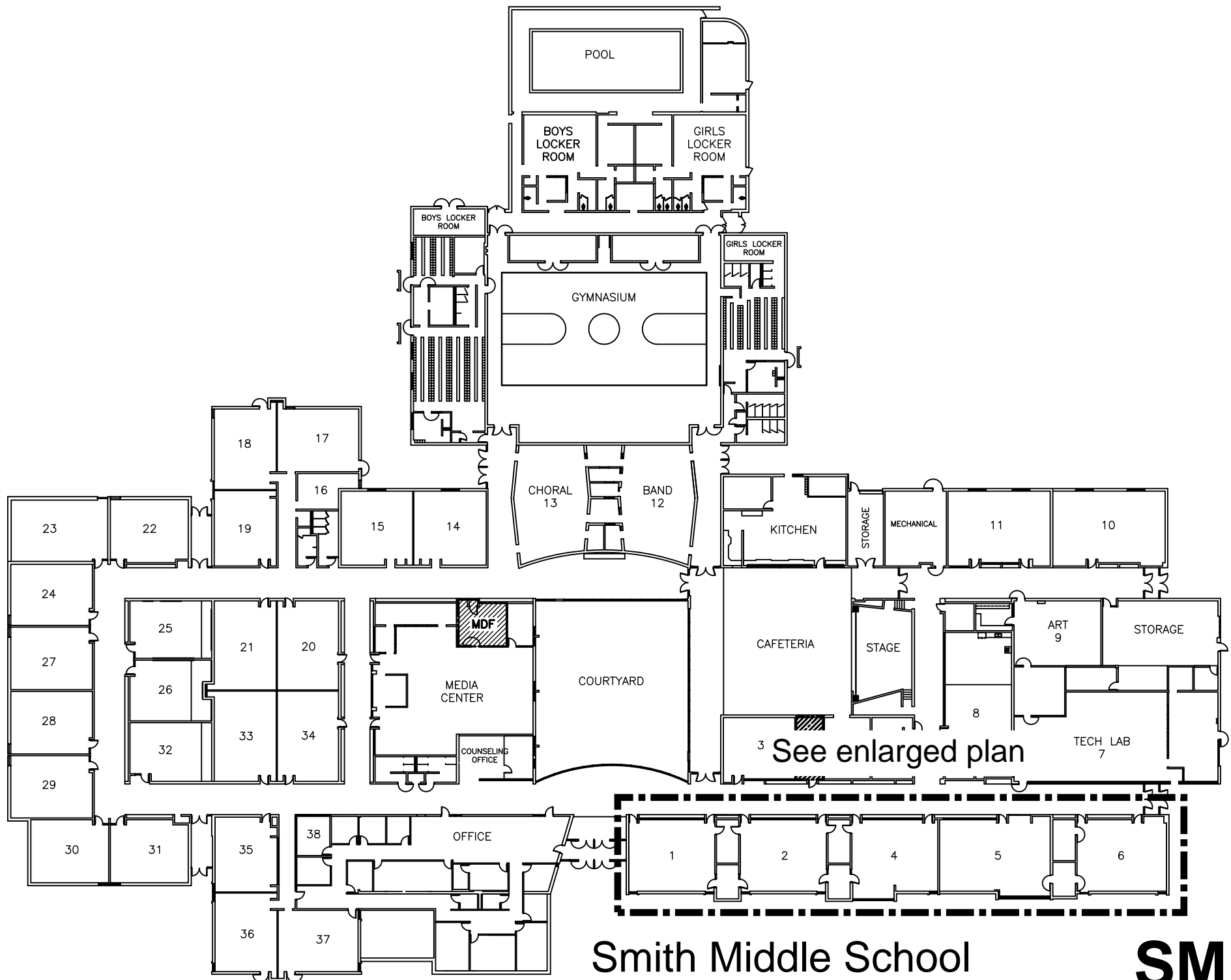
Flotex -
throughout with
4 1/2" base.
Orientation of
grain of product
to be verified with
owner.

Services Building - Area 1



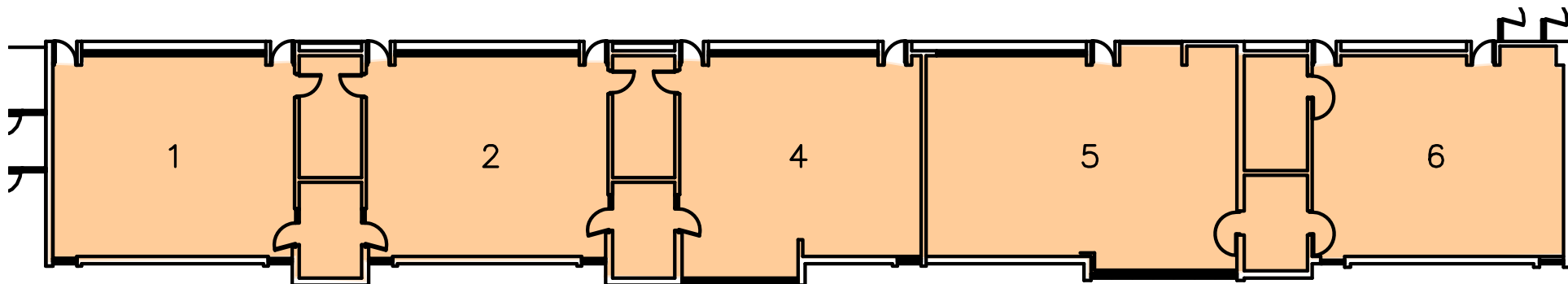
Flotex -
throughout with
4 1/2" base.
Orientation of
grain of product
to be verified with
owner.

Services Building - Area 2



Smith Middle School

SM1



Abatement by TSD. Area
to be polished is shaded.
New base by flooring
contractor.

Smith Middle School

SM2

See enlarged plan W3

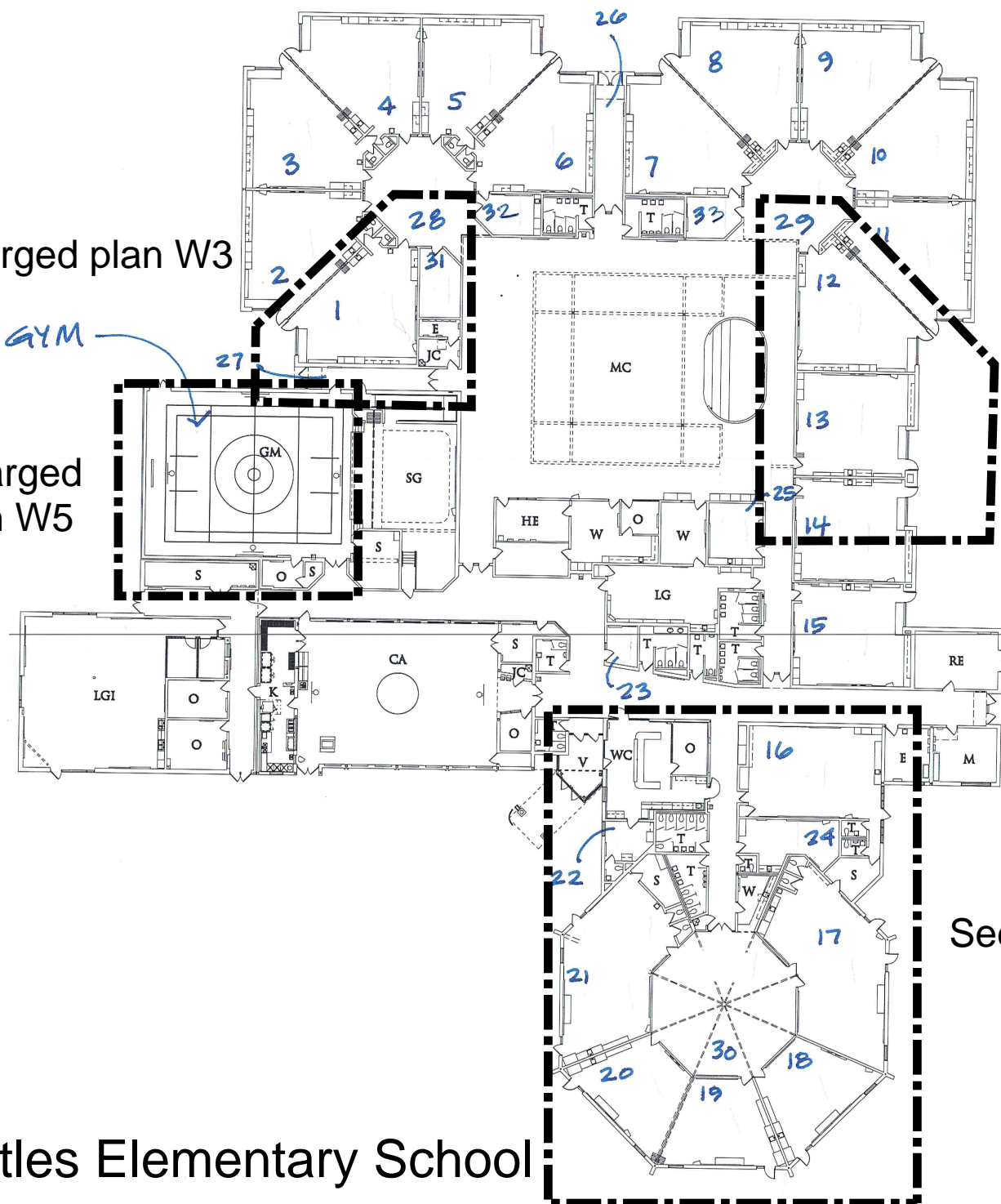
See enlarged plan W5

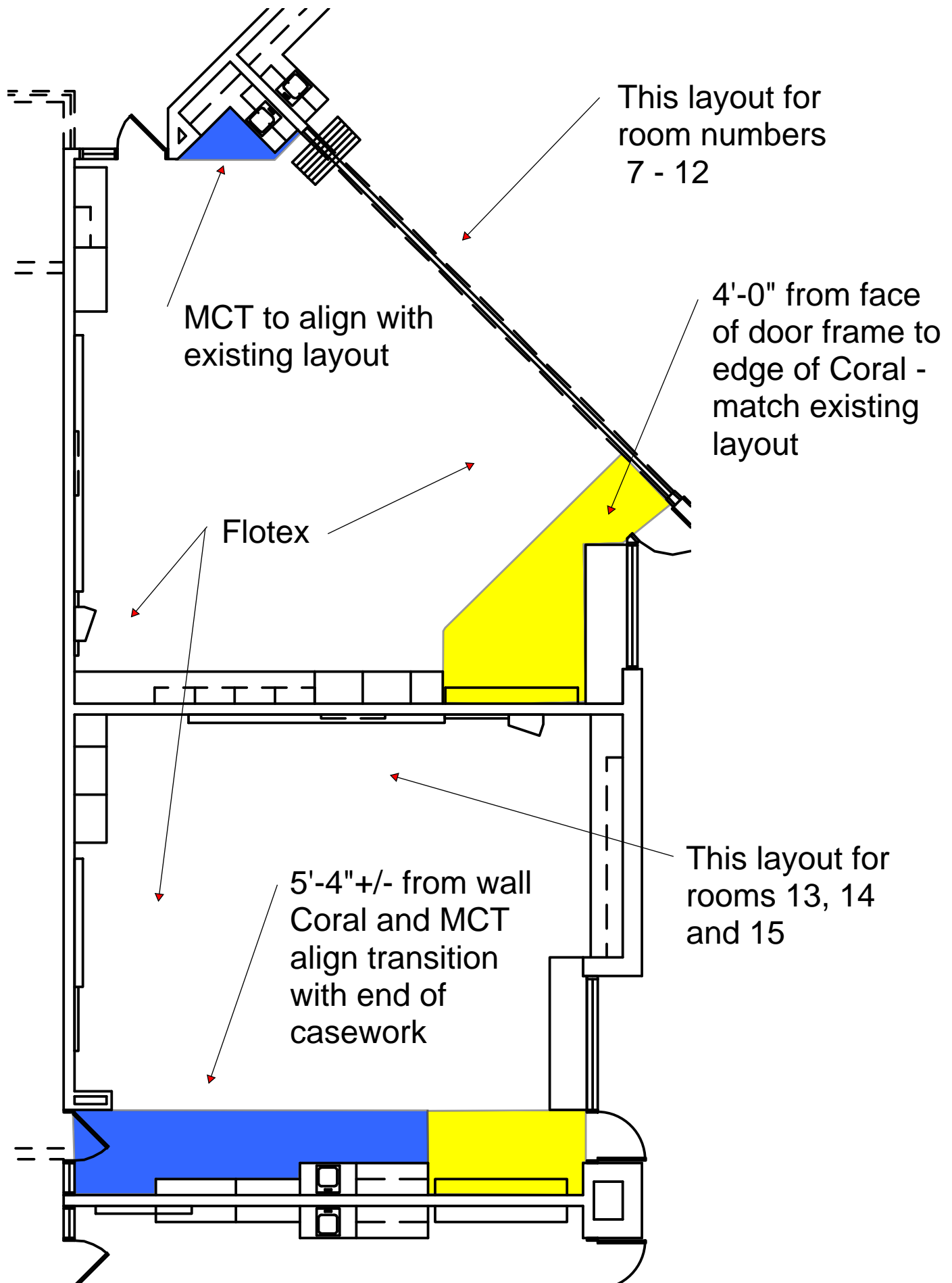
See enlarged plan W2

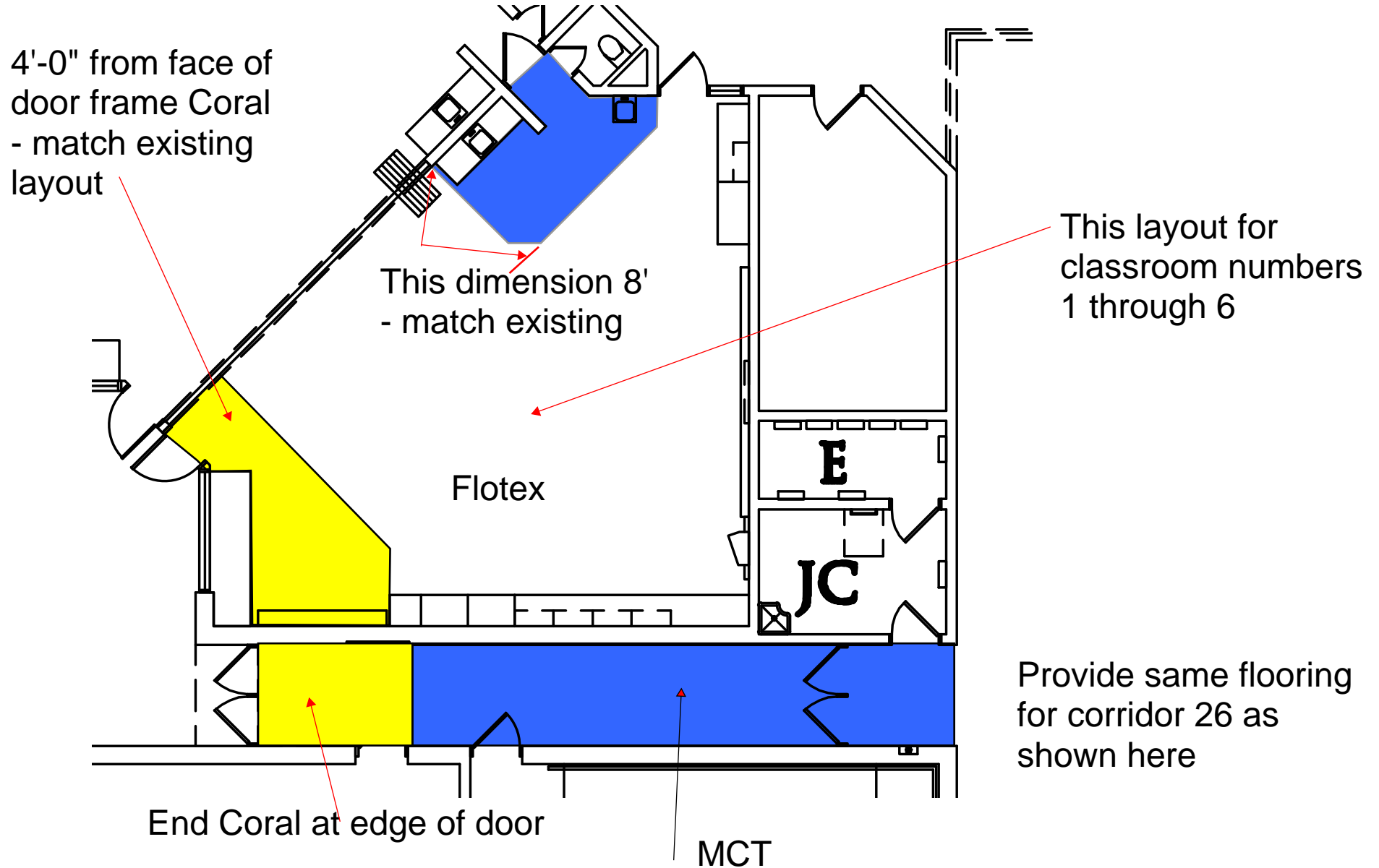
See enlarged plan W4

Wattles Elementary School

W1

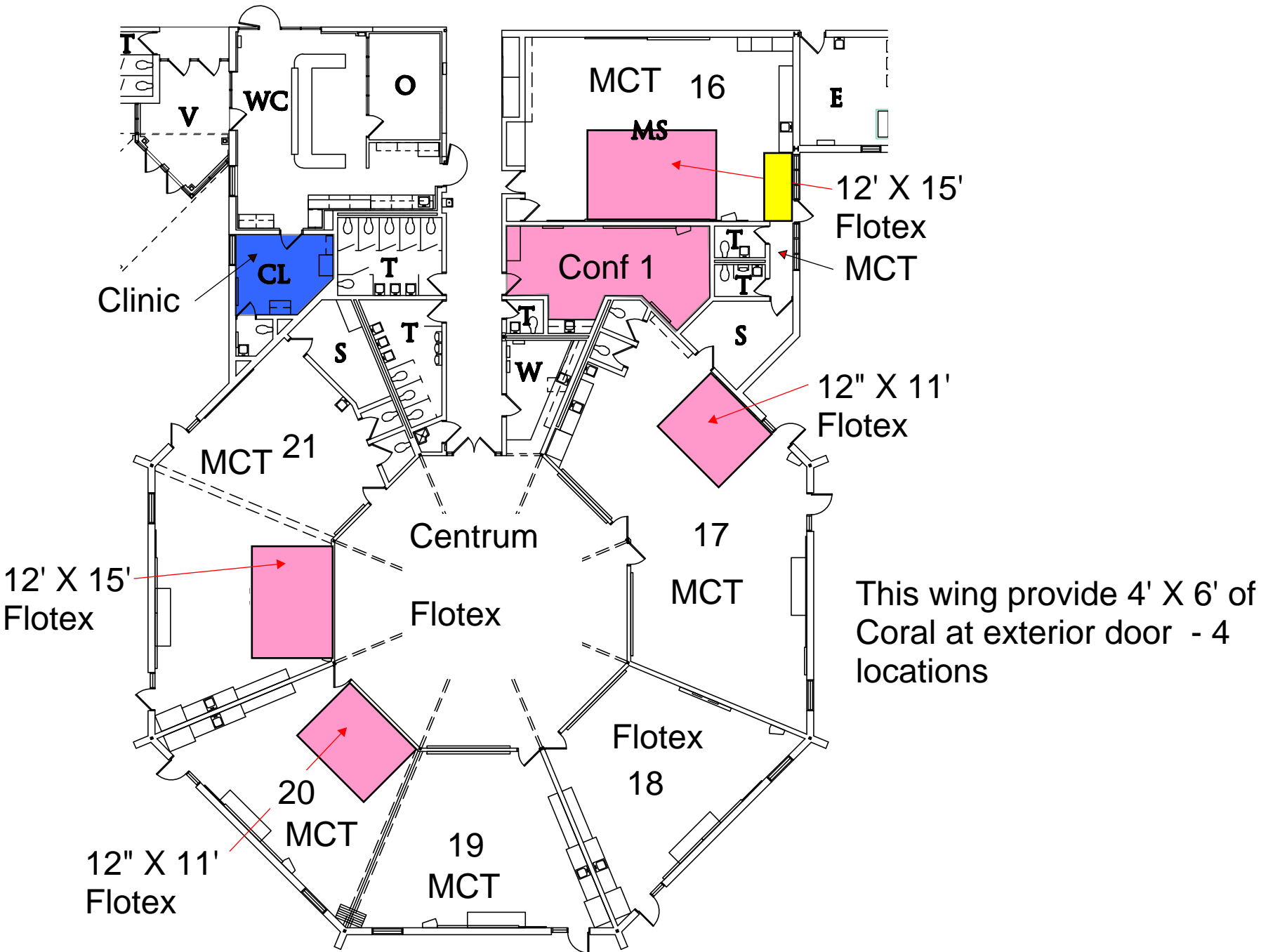






Wattles Elementary School

W3



Wattles Elementary School