

12 SHATTUCK MIDDLE SCHOOL

Shattuck Middle School provides a comprehensive program for 7th through 8th grade students.



S.F. SHATTUCK
MIDDLE
SCHOOL

BUILDING AREA: 224,923 sq. ft.

STUDENT POPULATION: 975 STUDENTS

SITE SIZE: 26.49 ACRES; 36% IMPERVIOUS SURFACE

GRADES SERVED: GRADES 7TH-8TH

PARKING: 145 STALLS (6 HANDICAP, 139 REGULAR)

BUS QUANTITY: 8 BUSES / 8 BUS ROUTES

(COMBINED MS/HS STUDENTS - 12 BUSES & 12 ROUTES)

SHATTUCK MIDDLE SCHOOL: BUILDING EVOLUTION

Shattuck Middle School was originally constructed in 1928. A series of additions were completed in the following years: a classroom addition in 1953, a gymnasium addition in 1955, a classroom/gymnasium addition in 1962, an office addition in 1979, and a storage addition in 1981.

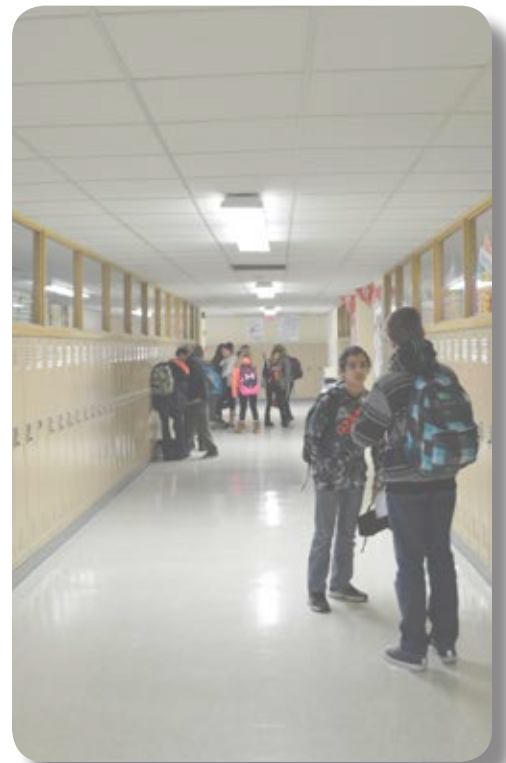
The following building evolution diagram outlines the additions made to the original building over time due primarily to student enrollment growth.



Shattuck Middle School Main Office

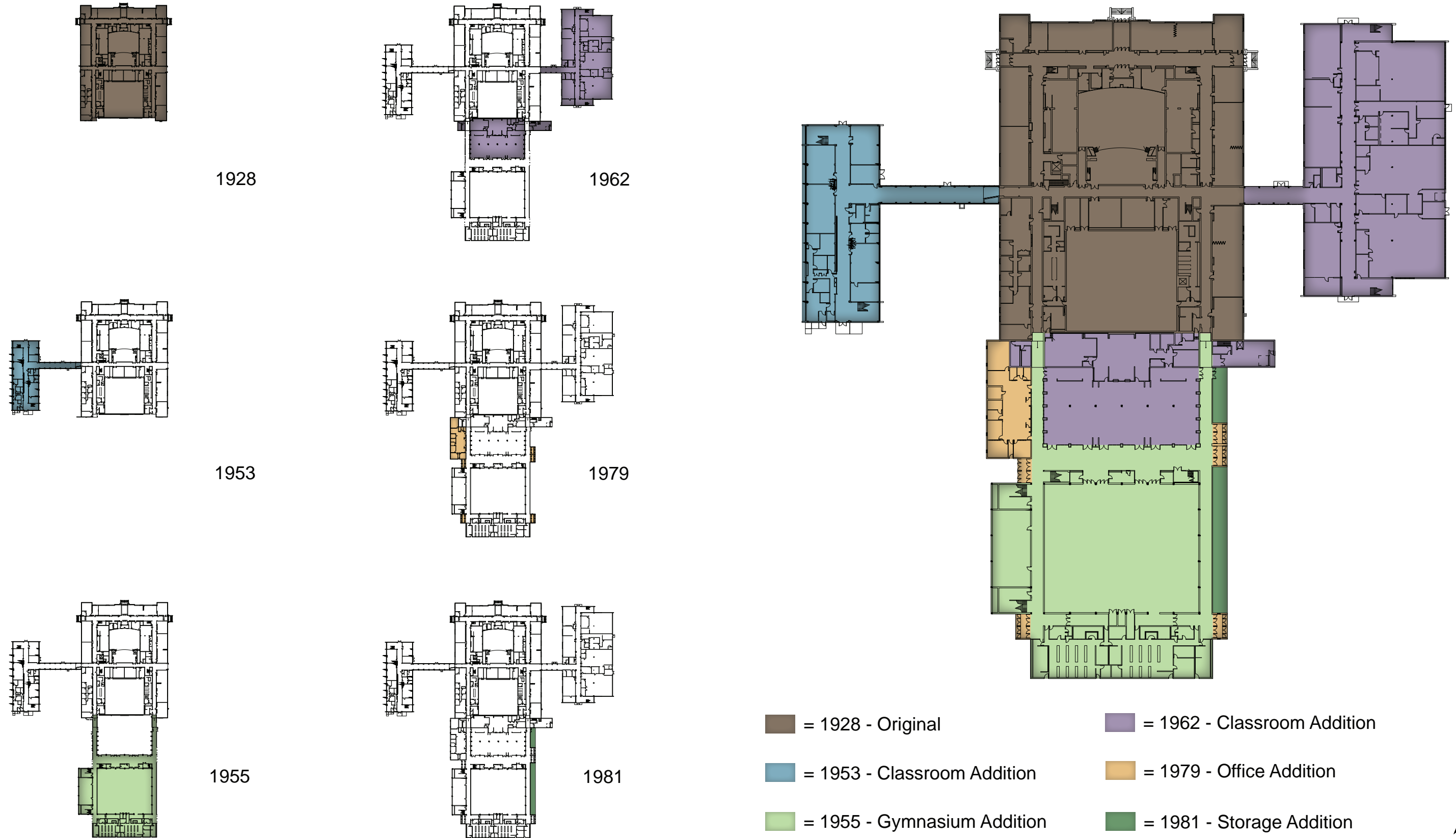


Shattuck Middle School Classroom



Shattuck Middle School Corridor

SHATTUCK MIDDLE SCHOOL: BUILDING EVOLUTION

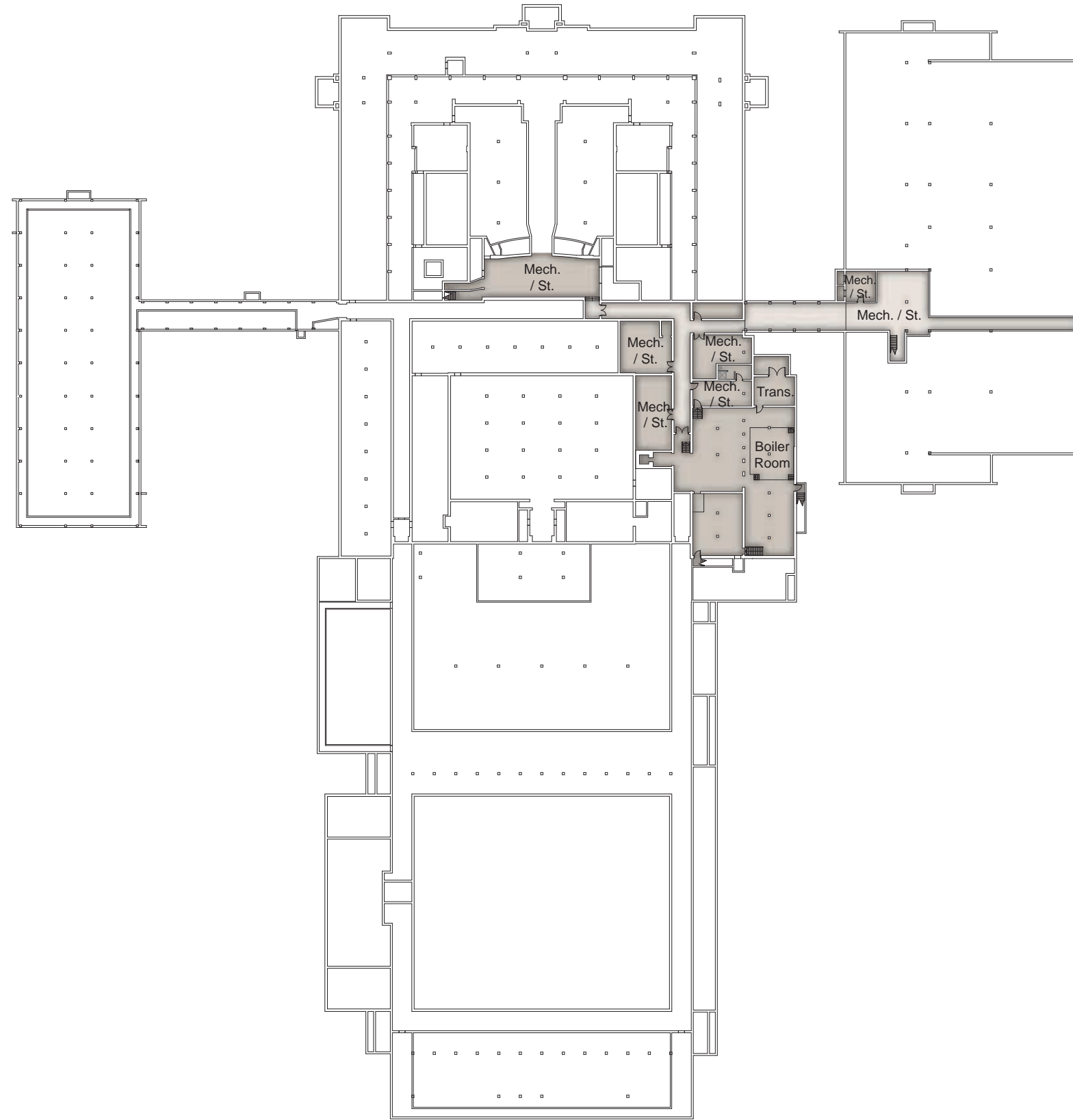


SHATTUCK MIDDLE SCHOOL: EXISTING SITE PLAN



SITE PLAN
not to scale

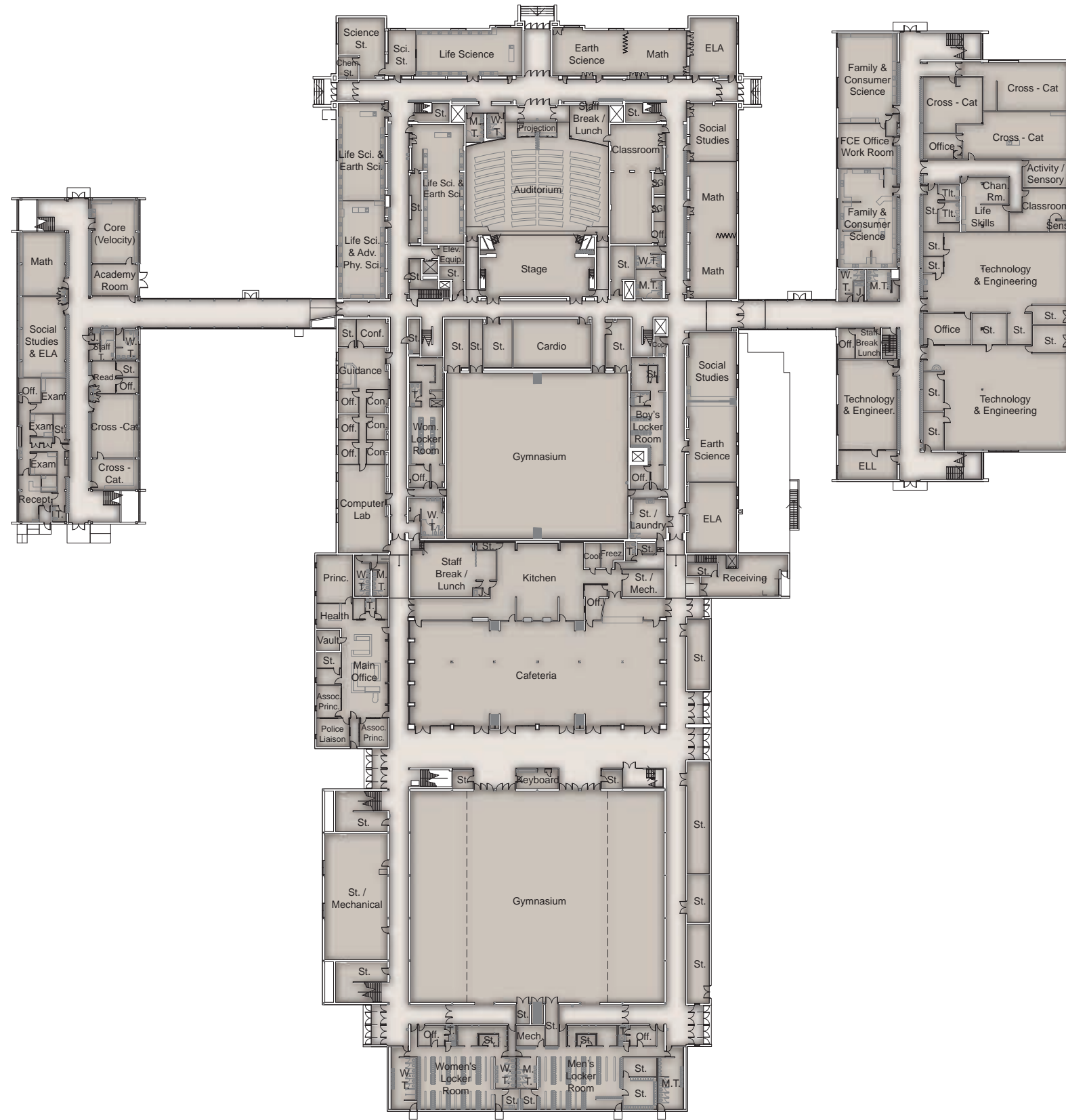
SHATTUCK MIDDLE SCHOOL: EXISTING FLOOR PLAN



LOWER FLOOR PLAN
not to scale



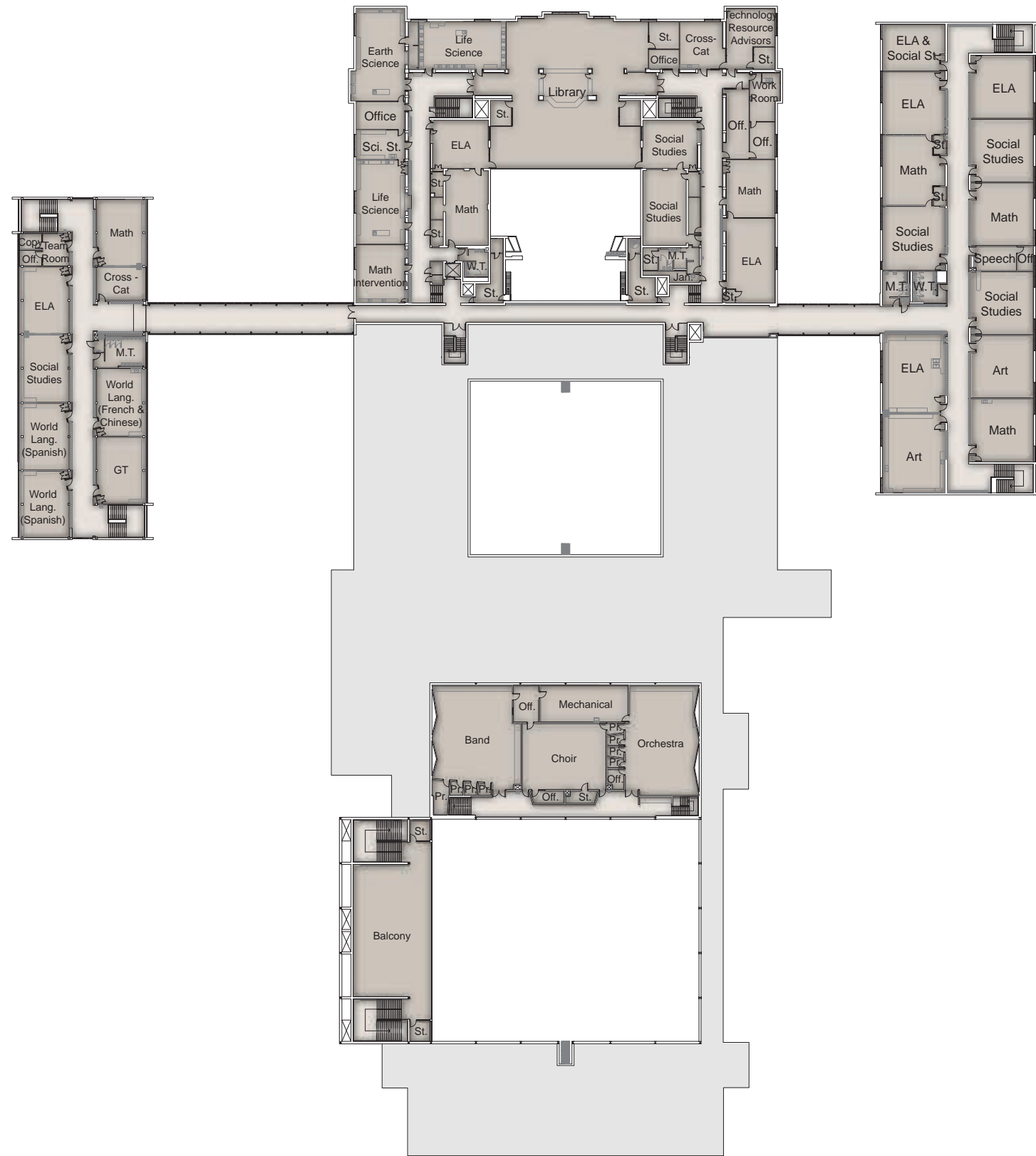
SHATTUCK MIDDLE SCHOOL: EXISTING FLOOR PLAN



FIRST FLOOR PLAN
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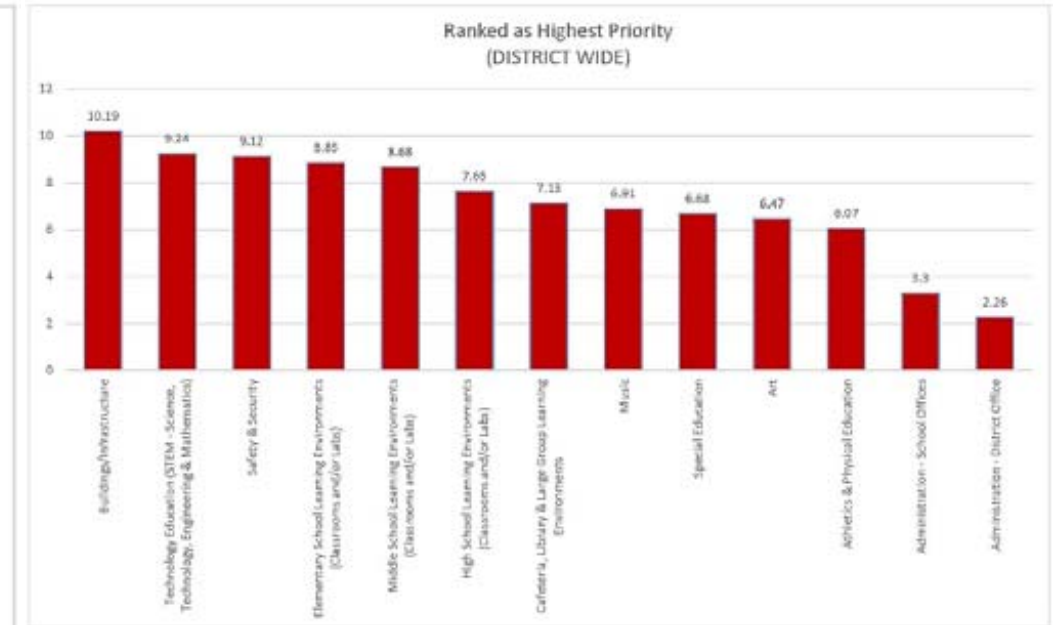
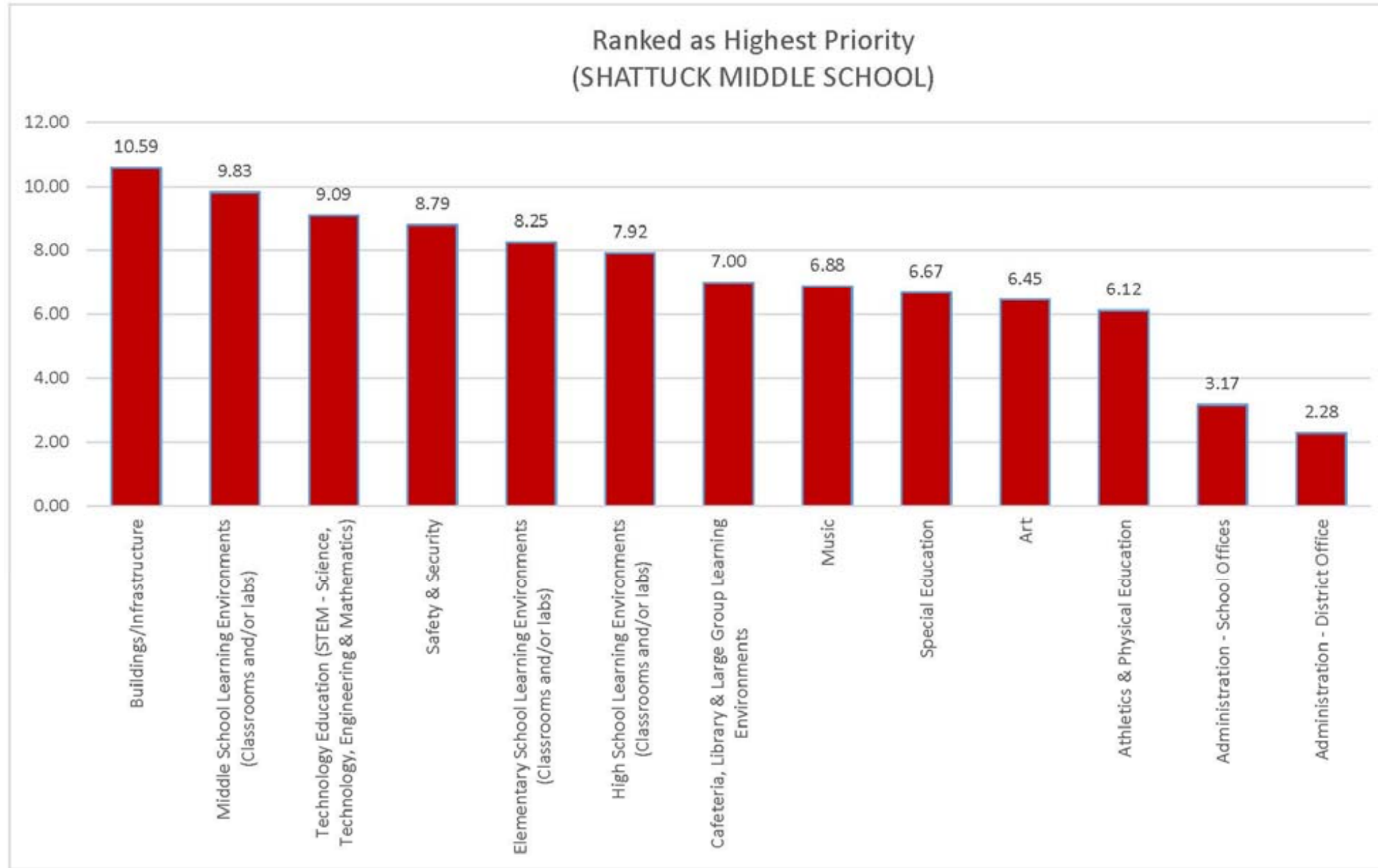
SHATTUCK MIDDLE SCHOOL: EXISTING FLOOR PLAN



SECOND FLOOR PLAN
not to scale



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SHATTUCK MIDDLE SCHOOL: SUMMARY OF STAFF SURVEY FEEDBACK

The following is a summary of potential improvements at Shattuck Middle School. This is not intended to be a comprehensive list, but a summary of possible upgrades as identified by staff. The following information was obtained from staff survey responses and numerous meetings and listening sessions held by district leadership and Bray Architects with the objective of casting a broad net to try and gather as much feedback regarding needs as possible.

1. Academic & Educational Improvements:

CLASSROOMS

- Undersized; difficult to move around within the room with a full class of (30) students
- Additional classrooms desired; multiple teachers need to use the same classroom at the same time
- Pod/house configuration of classrooms desired to better support curriculum
- Additional outlets and charging stations desired; current lack of outlets does not support one-to-one devices
- Sound system/audio enhancement within the classroom desired
- Blinds/control of daylight within the classroom desired
- Access to natural daylight for all classrooms desired
- Sound-proof walls between classrooms desired
- Additional storage desired within the classroom for supplies, book storage, etc.
- Variety of flexible/movable/modular furniture desired

SCIENCE/STEM & TECHNOLOGIES

- Undersized; current classrooms are limited with certain activities due to safety concern with inadequate space (ex: can't use Bunsen burners in all science classrooms)
- Additional science rooms desired (currently lacking (1) classroom for science)
- Science/STEM center/centralized science department with adequate space, casework/lab stations, sinks, gas jets, and furnishings to support science and STEM curriculum desired
 - (8-10) classrooms
- Renovation/upgrading of existing science rooms to include adequate casework, (16) lab stations, (8-14) sinks, etc. desired, especially rooms C57, C68, and 503; many existing lab spaces lack working gas jets (C17)
- Greenhouse desired near the Science/STEM area; to be used by 7th grade science and Velocity
- Growing areas within the science classrooms desired
- Exhibit areas within the science classrooms desired (Earth Science/History)
- Smartboards and additional white boards within the science classrooms desired
- (1) common science storage room and additional storage space within science classrooms desired
- Dedicated CTE lab/FAB Lab/maker space desired for exploration, design and construction curriculum
 - CTE to be utilized by Business Education, Family Consumer Science, Technology, Engineering and Art

- Existing Tech. Ed. is dated, and not up to 21st century learning standards
 - Updated labs and classrooms desired
 - Separate/designated "clean" and "dirty" spaces desired

FAMILY AND CONSUMER EDUCATION

- Casework and countertops in the cooking room are dated, worn, peeling, and have burn marks
- Tables in the cooking and sewing rooms are dated and in need of replacement; multi-functional/flexible furniture desired that could serve both sewing and classroom needs
- Updated/adequate power and electrical wiring desired; fuses are often blown when utilizing multiple electrical devices (microwaves)
- Lecture space with arena-style seating desired for food demonstrations

CONFERENCE ROOMS & LARGE/SMALL GROUP INSTRUCTION

- Small group instruction spaces desired
 - Dedicated rooms/space for specialists desired
 - Dedicated rooms/space for counselors desired
 - (1+) dedicated room/space per department or academy desired
- Large group instruction/multi-purpose/commons space desired
 - Adequate space to accommodate large group presentations desired (125+ people)
 - Adequate space to accommodate interdisciplinary/academy-wide projects or activities desired
 - Centrally located and accessible from the building's main entrance desired
- Dedicated conference rooms desired for parent staff meetings, guidance dept., and teacher office area
- Literary lounge/space desired, for classroom and reading specialist use
- Outdoor learning classroom/space desired

CAFETERIA

- Undersized; larger, updated space desired to allow for serving a greater number of students and in a more efficient manner
- Tables properly sized for middle-school aged students is desired

SHATTUCK MIDDLE SCHOOL: SUMMARY OF STAFF SURVEY FEEDBACK

GYMNASIUM & ATHLETICS

- Existing gymnasiums
 - Dated; acoustical panels are worn and crumbling/flaking off
 - Mounted projectors desired for OJ Gymnasium
 - Sound system desired for North Gymnasium
- Additional gymnasium desired for before/after school activities, intramural sports, wellness, etc.; Phy. Ed. and athletic programs are limited due to lack of space
- Weight room/strength training area desired
- Larger fitness/cardio room desired that can accommodate a full class size and all (37) machines; community accessibility desired
- Updated wellness room desired
- Balcony area
 - Not desirable for classroom activities
 - Safety concern due to dated railings and gates
 - Sound barrier/separation between the balcony and OJ Gymnasium desired
 - Mounted projectors desired
- Health/wellness room E69 is dated, with cracking/broken finishes and furnishings
- All locker rooms and coaches offices
 - Undersized
 - Dated, with cracking/broken finishes, and sewage smell during rainy/snowy conditions
 - Showers are dated and finishes/ceiling is damaged and rotting
 - Lockers are damaged/broken and undersized
- Additional athletic facilities/fields desired
 - Hockey rink
 - New stadium with turf field
 - Outdoor basketball courts, volleyball courts, fitness jungle gym, disc golf, four square, etc.
- Additional, centralized athletic storage desired

LIBRARY

- Improved circulation/space boundaries desired; currently students cut through the second floor of the library to access other spaces and the elevator, which is disruptive, not ideal, and a safety concern in the event of a lock-down
- Multiple/variety of small group meeting/instruction rooms desired for student collaboration
- Upgrade/replace existing fluorescent lighting
- Limited access to an elevator makes transporting large equipment from the library to other areas of the building difficult
- More centralized location within the building and/or near the building's main entrance desired

AUDITORIUM

- Undersized; larger auditorium desired for large performances, activities, parent programs and community use
- Finish upgrades desired, including replacing the curtain
- Repair to the fire wall and areas in the ceiling where water leaks through is desired

MUSIC

- Larger performance space desired that is adjacent to music classrooms for ease of moving equipment/instruments and is available as a practice space; current stage/auditorium is often unavailable for practice prior to a concert/performance
- Lack of temperature/climate control in the music classrooms is a concern and damaging to instruments/equipment
- Larger band room desired; current space is at capacity, and student interest in band is growing
- Dedicated vocal/choral classroom to accommodate large group and individual lessons desired
 - Adequate technology (projector, sound system) desired
 - Whiteboards/writing surfaces desired
 - Adequate storage desired
- Larger practice rooms desired to accommodate (3+) people; (8-10) total practice rooms desired
- Adequate ensemble rooms/space desired to accommodate larger group practices
- Additional music classroom/midi lab desired to accommodate keyboards, music composition, and music theory
- Mirror/stage/performance room desired for Theater/Drama classes
- Additional storage desired
- Larger/freight elevator at the music area desired for accessibility and moving large equipment throughout the building; current music location has limited accessibility with a lift

SPECIAL EDUCATION

- Small group instruction/testing/sensory rooms that are attached to each Special Ed. classroom desired; dedicated space for autism students desired
 - Currently Special Ed. is forced to use available office space for teaching purposes
- Larger Special Ed. classrooms that can accommodate wheelchairs desired
- Accessible bathrooms near Special Ed. classrooms desired
- Adjustable/flexible furniture desired; sensory furniture and equipment desired
- Disbursement of Special Ed. classrooms throughout the building, so that they are less isolated and more integrated with general classrooms is desired

HEALTH ROOM

- Undersized; dedicated room with ample space to accommodate the health aide
- Privacy for ill students desired
- Restroom and/or sink within the health room desired

MAIN OFFICE & GUIDANCE

- Some separation/security between the public and main office desired
- In-school-suspension (ISS) rooms desired
- Dedicated conference room for the main office desired
- Waiting room/"cool-down" space for students waiting to meet with an advisor desired

STORAGE

- Adequate storage desired for classroom libraries and teaching materials
- Adequate storage desired for student items and personal belongings
- Locker assignments/organization by academy desired; currently students carry backpacks due to having lockers located far from their classrooms
- Adequate storage desired for shared after-school and extra-curricular activities

2. Facility & Site Improvements:

TECHNOLOGY

- Improved WiFi capabilities
- Centrally-located printer/copier machines for student use desired
- Smartboards/projectors in all classrooms/teaching spaces desired; existing smartboard locations within the classrooms are not desirable; larger screens to project on
- New/improved P.A. system desired that is audible throughout the building
- Speakers/sound systems within all classrooms desired
- T.V.'s/monitors within classrooms/learning spaces desired for student collaboration and ability to upload/share their work with the class

INFRASTRUCTURE

- Windows
 - Blinds desired for all first-floor windows; updated, better light-blocking blinds throughout the building
 - Old, drafty, and allow snow/frost into the building; more efficient and operable windows desired
 - Adequate screens on windows to allow for windows to be opened; some existing windows have torn, damaged or missing screens that allow bees and pests to enter the building
 - Replacement of windows and blinds at the library is desired
 - Some windows have cracking or bullet holes don't close properly and are in need of replacement
- Doors
 - Handicap accessible push-button activated doors desired
 - Doors are old and drafty; more efficient doors desired
 - Exterior doors on the Northeast side of the building are in need of replacement
 - Auto-locking doors desired, especially for security/lock-down purposes
 - Red entry doors into OJ Gymnasium are not functional and require repair of dead bolts
- Finishes - Flooring, Ceiling, etc.
 - Updated finishes and/or repair of existing finishes desired
 - Updated/replaced carpeting desired throughout the building; existing carpeting is worn/damaged
 - Repair of ceilings that are leaking water desired (room C212); roofs leaking water into the building is a constant concern
 - Updated signage throughout the building desired
 - Newly painted interiors desired; some interior spaces have paint that is peeling

SHATTUCK MIDDLE SCHOOL: SUMMARY OF STAFF SURVEY FEEDBACK

BUILDING SYSTEMS

- HVAC
 - Air conditioning throughout the building desired, especially in cafeteria, library, weight room and lounge/common areas; extreme heat and heat stroke is a concern in the warmer months, and summer programs are limited/non-existent due to - Adequate ventilation/fans in the classroom and athletic spaces - Temperature/climate control throughout the building desired; especially within the classrooms and on the second floor
 - Consistent temperatures/heating/cooling throughout the building desired
- Lighting
 - Improved, less harsh lighting throughout the building desired; existing fluorescent lighting is not ideal
- Electrical
 - Improved/adequate power throughout the building desired

SITE

- Improved drop-off/pick-up areas desired; separation between students/parents, buses and staff desired for safety purposes
- Playground equipment/outdoor recreation areas desired
 - Basketball/athletic courts
 - Climbing equipment

MISCELLANEOUS

- Overall layout/building design
 - Current layout has multiple sections of the building that require long paths of travel to get from one end of the building to another, and resources and support spaces are not evenly distributed throughout the building
 - Current layout allows for multiple nooks and crannies that are difficult to supervise/safety concern
 - Corridors are undersized; wider corridors desired
 - Stairwells are narrow and often become congested
- Overall appearance of the building is a concern, especially when bringing in potential new students/families
- Bathrooms
 - Upgraded fixtures and finishes for all bathrooms desired
 - Additional/larger bathrooms, dispersed throughout the building desired
 - Additional dedicated staff bathrooms desired, especially at the second floor classroom wings
 - Handicap-accessible bathrooms, dispersed throughout the building desired
 - Displeasing odor/sulfur smell reported coming from existing plumbing fixtures; especially in the East wing and near C-59
- Adequate/updated water fill stations and drinking fountains desired that are evenly distributed throughout the building; higher quality drinking water desired
- Improved handicap accessibility desired
 - Push-button accessible main entrance doors desired
- Mold and lead exposure throughout the building is a concern; further investigation required to confirm and determine potential remediation
- Pest are a concern (bats, mice, ants, silverfish, bees, etc.); remediation/removal desired
- Secure Entry
 - Buzzer/locking system for entry doors to the main office desired
- Improved handicap accessibility throughout the building desired
 - Exterior door near handicap bus pick-up/drop-off is not handicap accessible, but desired
 - Second floor and Music areas are difficult to access; lift has never been reliable

SHATTUCK MIDDLE SCHOOL: SUMMARY OF STAFF INTERVIEW FEEDBACK

The following is a summary of potential improvements at Shattuck Middle School. This is not intended to be a comprehensive list, but a summary of possible upgrades as identified by staff. The following information was obtained from staff interviews and numerous meetings and listening sessions held by district leadership and Bray Architects with the objective of casting a broad net to try and gather as much feedback regarding needs as possible.

1. Academic & Educational Improvements:

CLASSROOMS

- Undersized; difficult to move around within the room with a full class of (30) students
- Additional classrooms desired; multiple teachers need to use the same classroom at the same time
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- Variety of flexible/movable/modular furniture desired

SCIENCE/STEM & TECHNOLOGIES

- Undersized; current classrooms are limited with certain activities due to safety concern with inadequate space (ex: can't use Bunsen burners in all science classrooms)
- Additional science rooms desired (currently lacking (1) classroom for science)
- Greenhouse desired near the Science/STEM area; to be used by 7th grade science and Velocity
- Dedicated CTE lab/FAB Lab/maker space desired for exploration, design and construction curriculum
- Existing Tech. Ed. is dated, and not up to 21st century learning standards
 - Updated labs and classrooms desired
 - Separate/designated "clean" and "dirty" spaces desired

GYMNASIUM

- Undersized; additional space needed for all sections
- Wrestling space is not ADA accessible
- OJ gym wall doesn't work as a partition
- Larger weights/fitness room desired
- Existing locker rooms are undersized, and outdated; larger updated lockers, restrooms desired + one unisex changing room

MUSIC

- Existing music rooms are on second floor and accessible via stairs and chair lift; chair lift causes safety concerns and is insufficient
- Additional practice rooms desired
- Existing classes have large class sizes
- More career/exploratory curriculum where Music rooms could be utilized desired

HEALTH ROOM

- Dedicated health room desired
- Privacy desired

SPECIAL EDUCATION

- Disbursement of Special Ed. classrooms throughout the building, so that they are less isolated and more integrated with general classrooms is desired
- Additional sensory/decompression rooms desired throughout building
- Existing CDS and adaptive phy. ed. share same space; dedicated separate spaces desired
 - Flexible/movable furniture desired
 - Conference room desired
 - Additional offices off of conference room desired
- More centrally located/ more accessible to main entrance desired
- OHD life skills area desired
- OHD classrooms and small group instruction spaces desired

CONFERENCE ROOMS & LARGE/SMALL GROUP INSTRUCTION

- Small group instruction spaces desired
 - Dedicated rooms/space for specialists desired
 - Dedicated rooms/space for counselors desired
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- Outdoor learning classroom/space desired

CAFETERIA

- Undersized; larger, updated space desired to allow for serving a greater number of students and in a more efficient manner
- Tables properly sized for middle-school aged students is desired
- Additional break out/commons space desired

2. Facility & Site Improvements:

TECHNOLOGY

- 1 to 1 chromebooks

BUILDING SYSTEMS

- Plumbing
 - Additional drinking fountains with bottle fillers desired; concern that current drinking water is unsafe
- Electrical
 - Improved/adequate power throughout the building desired

MISCELLANEOUS

- Additional restrooms desired; specifically on second floor

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SHATTUCK MIDDLE SCHOOL: NEEDS ASSESSMENT

The following is a summary of potential improvements at Shattuck Middle School. This is not intended to be a comprehensive list. The following information was obtained through notations made by Bray Architects at extensive tours of the building and grounds, as well as needs identified by school maintenance personnel.

1. Interior Infrastructure/Maintenance:

WALLS

- a. Staff reported that the wall at the dishwashing station in the Kitchen consistently leaks water into the Cafeteria space on the other side of the wall; this wall is discolored/stained, possibly due to water damage
- b. Some walls are cracking and have paint peeling/rubbing off, especially in the showers in the Locker Rooms where there is also rust and effervescence present
- c. North Gymnasium walls show heaving/uneven brick near the top portion of the walls; brick in these areas appear to be old windows/openings that were filled in over time.
- d. Acoustical wall panels throughout the Gymnasium are dated, worn and peeling

DOORS

- e. Bathroom stall doors in the O.J. Gymnasium are too close to fixtures, resulting in not being able to open the doors fully to allow users to enter the stall

CEILING

- f. Ceiling tiles are dated, with some tiles stained/showing signs of water damage and many bowing, bending and separating from the ceiling grid; there is various tile throughout the building
- g. Staff reported concern with the acoustical ceiling panels in the music rooms not being sufficient/absorptive
- h. Staff reported that the soffit in the Cafeteria has had problems with water leaking into the building, resulting in the ceiling being painted multiple times to hide the damage

FLOORING

- i. Much of the hard-surface flooring is stained, worn, and cracking/heaving; there are multiple types of flooring throughout the building
- j. Carpeting throughout the building is worn, dated and stained, especially on the second floor
- k. Staff indicated areas of potential asbestos tile throughout the building; some of these areas have tile that is peeling/chipping off and appear to have been patched over time
- l. North Gymnasium wood flooring is dated and worn, especially at floor to wall conditions; wood base is also dated, worn, and damaged, especially at the drinking fountain locations and possibly due to water damage
- m. Tile flooring in the O.J. Gymnasium Locker Rooms is stained and there is effervescence present

MISCELLANEOUS

- n. Seating in the Auditorium is dated/worn; veneer is chipping off
- o. Staff reported that partitions in the Auditorium don't work properly and are therefore not used
- p. Partition wall in the North Gymnasium has difficulty opening/closing as reported by staff
- q. Locker Rooms are dated, and lockers are worn and dented/damaged
- r. Much of the casework throughout the building is dated, damaged, peeling, and stained

2. Building Envelope:

WALLS

- a. Exterior walls are stained, possibly due to water damage; this is especially prevalent at the window sills and foundation wall
- b. Exterior brick is crumbling/cracking, especially at building corner conditions and near the foundation wall, and there are some areas where tuckpointing is present; bricks at the top of the building appear to be falling out
- c. Stairs at exterior doors are cracking, crumbling, and missing large pieces of concrete, especially where stair meets the sidewalk
- d. Receiving area is worn and concrete is cracking at the concrete pad and underside of overhang; owner reported that damage is caused by trucks unloading at this location

WINDOWS

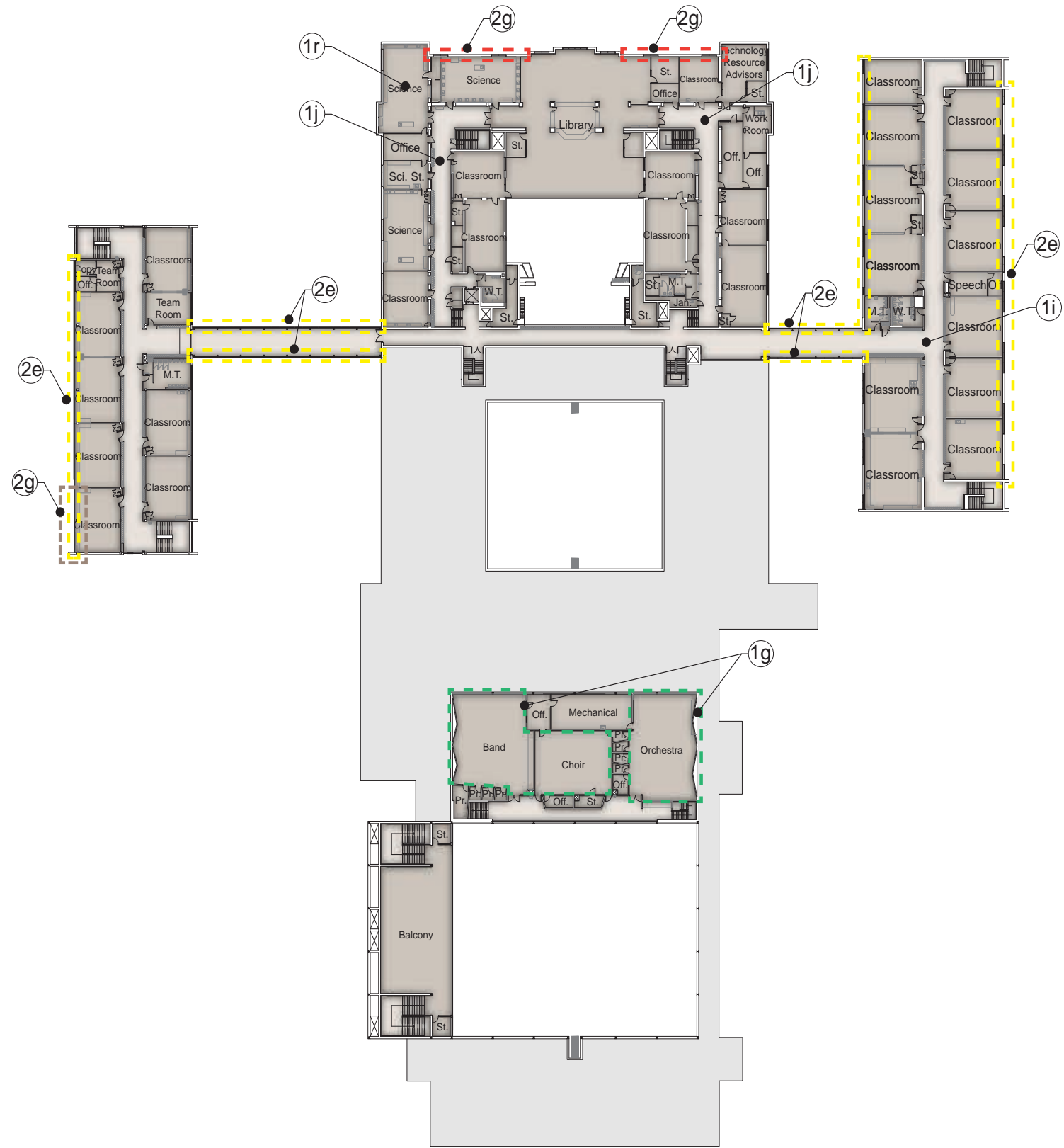
- e. Some windows appear to be newer, but most windows are dated/worn, rusting and peeling at the frame; staff reported that these windows are drafty and have issues leaking water into the building
- f. Some windows have holes or cracks in the glazing
- g. Some windows have staining on the glazing

DOORS

- h. Many exterior doors are dated/worn and rusting; staff reported that door #8 is scheduled for replacement
- i. Aluminum exterior doors are original to the building and have large gaps at the frame that allow snow and frost to penetrate into the building in the winter months as reported by staff, especially at the main entry doors
- j. Exterior doors at connecting wings are difficult to open/close

ROOFS

- k. Concrete roof overhangs and canopies are stained, cracking/crumbling, possibly due to water damage



SECOND FLOOR PLAN
not to scale



SHATTUCK MIDDLE SCHOOL: BUILDING SYSTEMS SUMMARY

The following is summary of Plumbing, HVAC and Electrical needs. This is not intended to be a comprehensive list, but a summary of existing building system needs and possible recommendations as identified by the engineering team. Full engineers' reports are located later in this document.

Plumbing:

- Water is supplied by a 6" water service which connects to the Municipal water system; new additions or major renovation would require a new larger water service.
- Water distribution piping is mostly copper tube and fittings with some galvanized pipe and fittings in the original building, appears to be in fair condition, and piping in the original building, 1953 addition, 1955 addition, and 1962 addition is at the end of its life expectancy; replacement of existing pipe and fittings with new type "L" copper tube and fittings is recommended.
- There is no sprinkler system; if a complete fire sprinkler system is desired, a new 6" water service may be required.
- Sanitary waste flows by gravity out of the building and connects to the Municipal sanitary sewer system. Sanitary waste and vent piping in the original building and additions is cast iron pipe and fittings, and sanitary sewer systems in the original building and pre-1970's additions are nearing the end of their life expectancy; inspection of the existing sewer located below the floor is recommended; replacement pending outcome of scope.
- The full-service commercial kitchen does not have an interior grease interceptor.
- One art room has sinks with interceptors, while the other art room has sinks that do not have solids interceptors, which is not code compliant; art room sinks without solids interceptors should have them installed.
- Roof water is collected by internal roof drains and conductors which connect to the Municipal storm sewer system.
- There are multiple clearwater sump pumps in fair to good condition, some of which have been replaced with new pumps; monitor and repair/replace as necessary.
- Storm sewer systems in the original building and pre-1970's additions are nearing the end of their life expectancy, and inspection of the existing sewer located below the floor is recommended; replacement pending outcome of scope.
- The domestic water heater system consists of a steam boiler with heat exchanger; only food grade chemicals are used in this system, the burner was replaced in 2016, and the system appears to be in good condition. Some piping is not insulated and should be insulated.
- Domestic water is not softened.

- Plumbing fixtures are a combination of various styles and ages, with most of the fixtures original to the building age they were installed and some of the fixtures having been replaced with newer water efficient and ADA compliant fixtures. Water closets, urinals, and lavatories should be replaced with new water conserving and ADA compliant fixtures, and older drinking fountains should be replaced with new ADA compliant fixtures with a bottle filler. Faucets on sinks should be replaced with new ADA compliant faucets. Showers have been abandoned and should be removed, along with all associated fixtures, piping and drains.

HVAC:

- Boiler plant was installed in 1987, is in fair condition, has exceeded its estimated life expectancy of 30 years, and has two Kewanee steam boilers that are fired with natural gas. Continue preventative maintenance on the system, and plan for the eventual replacement of the aging steam boilers with hot water boilers.
- The piping and pumping system has a steam circuit with heat exchanger and a second hot water circuit with stand-by pump. While the ages of the heat exchanger and hot water pumps are unknown, they appear to be in fair condition and seem to have exceeded their estimated life expectancy. Plan for the eventual replacement of the aging heat exchanger and hot water pumps if the system remains steam. If existing boilers are replaced with hot water boilers, all steam and condensate piping, along with all steam equipment should be converted to hot water piping and equipment.
- Unit ventilators serving the majority of classrooms are original to the building, are in fair condition, and have exceeded their estimated life expectancy of 25 years; plan for their eventual replacement.
- Constant volume air handling units serving the gymnasiums and auditorium are original, in fair condition, and have exceeded their estimated life expectancy of 30 years; plan for their eventual replacement.
- Packaged rooftop unit serving the health and wellness center was installed in 2016, is in good condition, and has an estimated life expectancy of 15 years.
- Packaged rooftop units serving the offices and classrooms were installed in 1996, are in fair condition, and have exceeded their estimated life expectancy of 15 years; plan for their eventual replacement.
- Constant volume, multi-zone air handling unit serving the center classrooms on the first floor is original, in poor condition, and has exceeded its estimated life expectancy of 30 years; plan for its eventual replacement.

HVAC (cont.):

- Constant volume air handling unit serving the music rooms is original, in fair condition, and has exceeded its estimated life expectancy of 20 years; plan for its eventual replacement.
- Dust collector serving the wood shop is original, in poor condition, and has exceeded its estimated life expectancy of 20 years; plan for its eventual replacement and locate the new dust collector on the outside of the building to comply with current code requirements.
- Plan to install an appropriately sized air conditioning system for the IT office, as currently it is served by a heating only unit ventilator and a window AC unit, and occupants indicated the room is always warm.
- With any renovation, plan to replace the door transfer grille relief system with a code approved system, as door transfer grilles are currently used to transfer relief air from the classrooms to the corridor, and current building code does not allow transfer air into a path of emergency egress.
- The building has a mixture of pneumatic and digital temperature controls. The pneumatic control system has limitations that result in comfort complaints and requires frequent calibration to maintain accuracy; continue to maintain and operate the system as long as the current mechanical equipment remains. When renovations to the existing equipment are made, a changeover to digital controls is strongly recommended.

Electrical:

- Main electric service is nearing the end of its useful lifespan, has no capacity for future loads, and should be scheduled to be replaced within the next 10 years. Provide surge suppression, as none exists.
- Panelboards vary in age, with some nearing the end of their useful lifespan, and some having been replaced or added and are in good condition; vintage circuit breaker panelboards should be scheduled for replacement within the next 5 years.
- Utility service consists of a pad mounted transformer adjacent to the building with an underground electrical service.

- 2 natural gas generators located in the basement provide emergency lighting for one half of the facility, have reached the end of their useful lifespan, and have had issues with starting according to staff; transfer switches serving the generators have also reached the end of their useful lifespan. Replace the existing generators with a new generator and remove the transfer switches and replace with 2 new transfer switches, 1 for life safety loads and 1 for optional loads.
- 3-pole loads being served by multiple single-pole breakers physically connected together via wiring are a code violation and potential fire hazard. Replace single pole breakers serving 2 and 3-pole loads with appropriate breaker type in all existing panels.
- Ensure proper working clearances are maintained in front of all panelboards at all times by using safety tape to physically indicate clearances on floor/wall around panelboards. Working clearance area may not be used for storage.
- Much of interior lighting throughout the building consists of a variety of T8 fluorescent or incandescent light fixtures that range in age and are in good condition, one of the gymnasiums has high bay metal halide fixtures, and the other gymnasium uses linear fluorescent fixtures. Auditorium lighting consists of metal halide recessed lighting, and the facility manager indicated changing to LED. Replace fixtures with LED equivalents and provide dimming controls and occupancy sensors to maximize on energy savings.
- General lighting controls in rooms consist of toggle switches with no occupancy sensors or dual level lighting, most classrooms utilize split area zones, and corridors consist of occupancy sensors with sensor coverage lacking in some corridors.
- Schedule exterior light fixtures with LED equivalents and control via existing timeclock/photocell controls.
- Emergency lighting throughout is minimal, with some areas lacking emergency lighting, and neither of the two gymnasiums having provisions for emergency lighting. Emergency lighting coverage should be confirmed and supplemented as necessary in areas lacking coverage.
- Replace existing 15A rated receptacles with 20A rated type and provide additional receptacles throughout working spaces as necessary, as there is currently a general lack of receptacles throughout the building. Replace existing receptacles within 6'-0" of plumbing fixtures with GFI protected type.
- ShoreTel IP based phone system is in good working condition; no recommendations.

Electrical (cont.):

- Data service is provided via fiber optic utility service, is in good working condition, and fiber optic wiring interconnects all schools to the main district network. While it is unknown if the facility has ceiling plenums, riser rated data cabling should be replaced with plenum rated cabling if there are plenums in the ceiling.
- Data cabling consists of a variety of Cat5e and Cat6 cabling, in plenum and riser rated varieties, and the data rack has spare rack capacity for future needs. Data cabling at the data rack should be reinstalled in a clean workmanlike manner with proper labeling. Main data rack has provisions for backup power supply via a UPS, and facility management indicated they would prefer to have backup power via a generator for prolonged power outages.
- Keyless entry system is in good working condition; access controlled doors are controlled via electric strikes and card readers, and none of the exterior doors have door position contacts. Provide door monitor contacts on all exterior doors to help monitor and control access to the facility.
- Dukane intercom system is nearing the end of its useful lifespan and does not have the capacity to cover the entire school, intercom speakers are nearing the end of their useful lifespan, and staff reported faulty call-in switches getting stuck in the "call" position. Bell schedule system is controlled via timeclock and has no reported issues. Schedule the existing intercom system for full replacement with a new IP-based intercom system, schedule speakers for replacement, and provide additional speakers in areas lacking coverage.
- CCTV system has about 25 cameras, seems to be in good working condition, and the District plans to add about 10 more cameras to the system in the future; provide new cameras where additional coverage is necessary.
- Honeywell fire alarm system is about 15 years old and in good working condition, but lacking in notification coverage; provide additional fire alarm notification devices in areas where coverage is lacking. There is a set of doors that use magnetic door locks as magnetic door holds; replace these devices for the correct devices.
- Add a security system to control and monitor access to the facility, as none exists.
- Replace existing clocks with a synchronized clock system such as a GPS wireless clock system.
- Building has a monitoring system to ensure boilers in the facility are operational.
- Theatrical lighting system is nearing the end of its useful lifespan, and theatrical lighting system racks have reached the end of their useful lifespan; replace theatrical lighting system and racks within the next 5-10 years.
- Auditorium lacks egress step lighting and emergency lighting provisions; if auditorium seating is replaced, seat lighting should be installed to provide egress lighting through aiseways.
- Science classrooms have emergency gas shut-offs, but no emergency power shut-off provisions; reconfigure electrical in the science rooms to provide emergency shut-off provisions.
- Shop area has emergency power shut-off provisions.

SHATTUCK MIDDLE SCHOOL: SITE SUMMARY

The following is a summary of potential improvements at Shattuck Middle School. This is not intended to be a comprehensive list, but a summary of possible upgrades as identified by Bray Architects and the engineering team. The following information was obtained through notations made by architects and engineers at extensive tours of the building and grounds, as well as needs identified by maintenance personnel.

4. Site Improvements:

AREA 1 - DROP-OFF LOOP, NORTH OF SCHOOL

- Distresses Present:
 - Thermal cracking
 - Surface weathering
 - Raveling
 - Fatigue cracking due to base failure
 - Depressions due to base settling
- Recommended Repair:
 - Remove existing pavement and 12 inches of base and/or subgrade
 - Place 12 inches of base aggregate dense
 - Remove and replace curb & gutter
 - Pave 4 inches of asphaltic pavement

AREA 2 - STAFF PARKING, EAST SIDE OF SCHOOL

- Distresses Present:
 - Thermal cracking
 - Raveling
 - Surface weathering
 - Fatigue cracking due to base failure (10% of the area)
 - Base settling around an inlet
- Recommended Repair:
 - Remove existing pavement and 12 inches of base and/or subgrade
 - Place 12 inches of base aggregate dense
 - Fix settling issues around inlet
 - 4 inches of asphaltic pavement
 - Paint all pavement markings for a parking lot

AREA 3 - BASKETBALL COURT NEAR STAFF PARKING

- Distresses Present:
 - Edge failure
 - Thermal cracking
 - Surface weathering
- Recommended Repair:
 - Pavement removal
 - Pave 3 inches of asphaltic pavement
 - Paint markings for a basketball court

AREA 4 - VISITOR PARKING NEAR MAIN ENTRANCE

- Distresses Present:
 - Thermal cracking
 - Raveling
 - Surface weathering
 - Depressions due to base settling
- Recommended Repair:
 - Remove existing pavement and 12 inches of base and/or subgrade
 - Place 12 inches of base aggregate dense
 - Pave 4 inches of asphaltic pavement
 - Paint all pavement markings for a parking lot

AREA 5 - TRACK

- Distresses Present:
 - Fatigue cracking due to base failure
 - Thermal cracking
 - Surface weathering
 - Standing water on north end of the track (drainage concerns)
- Recommended Repair:
 - Remove existing pavement and 12 inches of base and/or subgrade
 - Place 12 inches of base aggregate dense
 - Fix water retention issues on north end of the track/field by adding an inlet and grading
 - Pave 3 inches of asphaltic pavement
 - Paint markings for a track

AREA 6 - BLEACHERS/STORAGE AREA UNDER THE BLEACHERS

- Distresses Present:
 - Spalling on the concrete stairs
 - Large cracks in the walls
 - Tops of bleachers missing
- Recommended Repair (*With storage below the bleachers):
 - Remove existing bleachers, storage area and press box
 - Replace with new bleachers with enclosure for storage
 - Replace Press Box
- Recommended Repair (*Without storage below the bleachers):
 - Remove existing bleachers, storage area and press box
 - Replace with new aluminum bleachers
 - Replace Press Box

AREA 7 - TENNIS COURTS

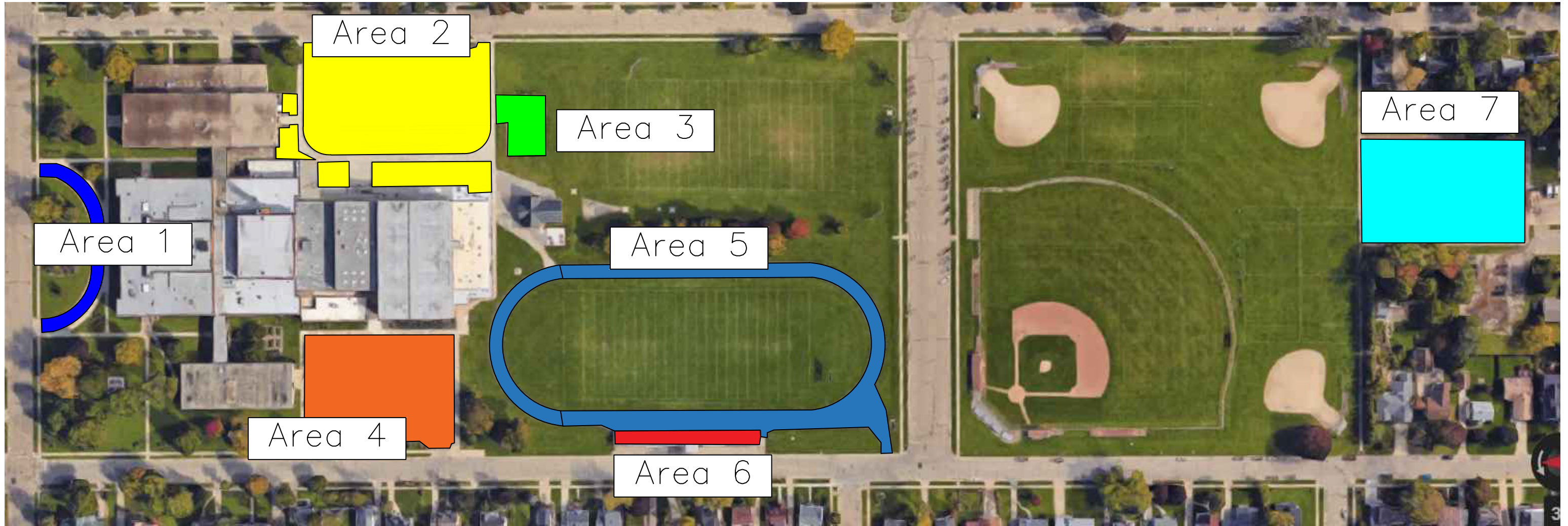
- Reconstructed last year and in excellent condition

AREA 2 - SITE CONCRETE

- Distresses Present:
 - Spalling at edges of sidewalk in areas
 - Large cracks in sidewalk
 - Vaulted sidewalk poses a tripping hazard
 - Water retention issues with low areas
 - Pieces of concrete missing on stairs on northeast corner of the building
- Recommended Repair:
 - Remove and replace the areas of sidewalk that have spalling or cracked
 - Remove and replace areas where water retention occurs
 - Mill and replace stairs

ADDITIONAL NOTES

- No dumpster enclosure exists
- The boys'/girls' locker building located on site is dated; concrete walls and floors are cracking and stained, and lockers and benches are worn and dated
- Staff reported track bleachers are dated and in poor condition



SITE PLAN
not to scale

SHATTUCK MIDDLE SCHOOL: ADA ACCESSIBILITY ASSESSMENT

The following is an analysis of Shattuck Middle School in regards to meeting building code requirements under the Americans with Disability Act (ADA) and regulated by the American National Standard (ANSI) Accessible and Usable Buildings and Facilities. This is not intended to be a comprehensive list, but an analysis as identified by Bray Architects and engineers gathered through extensive tours and assessment of the existing building facility.

1. Building Entrance:

There is at least (1) accessible route of travel. Entry at grade level or ramps with slope no greater than 1:12, and has 5'-0" long landings every 30'-0".

1a. The building has multiple accessible entrances at this level that meet the above criteria.

2. ADA Parking:

Designated/marked ADA stalls are located near the entrance of the building and have 5'-0" access aisles between stalls (502.4.1; 502.4.2).

2a. The site contains marked ADA stalls located near the nearest accessible entrance.

3. Ramps & Lifts:

There is at least (1) accessible route to each floor level. Changes in level greater than 1/2" in height shall be ramped (303); ramps have a slope no greater than 1:12 and have 5'-0" long landings every 30'-0" (405.2).

3a. There are areas of limited accessibility where the building does not meet the criteria for accessibility standards.

4. Railings:

Handrails shall be provided on both sides of stairs and ramps, except for aisle stairs and ramps, which may be provided with a handrail either at the side or within the aisle width (505.2). Ramp runs with a rise greater than 6 inches shall have handrails (405.8).

Ramp handrails shall extend horizontally above the landing 12 inches minimum beyond the top and bottom of ramp runs. Extensions shall return to a wall, guard, or floor, or shall be continuous to the handrail of an adjacent ramp run.

Handrails shall be continuous within the full length of each stair flight or ramp run. Inside handrails on switchback or dogleg stairs or ramps shall be continuous between flights or runs, except for handrails in aisles serving seating (505.3).

At the top of a stair flight, handrails shall extend horizontally above the landing for 12 inches minimum beginning directly above the nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight (505.10.2).

At the bottom of a stair flight, handrails shall extend at the slope of the stair flight for a horizontal distance equal to one tread depth beyond the bottom tread nosing. Extensions shall return to a wall, guard, or the landing surface, or shall be continuous to the handrail of an adjacent stair flight (505.10.3).

4a. There are handrails that do not meet the above criteria for accessibility standards.

5. Maneuvering, Thresholds, & Push/Pull:

On the pull side, a minimum clearance of 18" is required parallel to the doorway. On the push side, a minimum of 12" is required parallel to the doorway (404.2.3.1). Distance between two hinged or pivoted doors in series shall be 48" minimum plus the width of any door swinging into the space (404.2.5). Doors have a minimum 32" wide clearance. Maneuvering clearances on either side of the door are a minimum of 60" from the pull side and 48" from the push side.

Thresholds at doorways shall be maximum 1/2" high otherwise a ramp is required (303.2; 303.3).

5a. There are areas where the requirements for push/pull do not meet the above criteria for accessibility standards.

5b. There are areas where the requirements for maneuvering do not meet the above criteria for accessibility standards.

5c. There are areas where the requirements for thresholds do not meet the above criteria for accessibility standards.

6. Door Hardware & Panic Hardware:

Doors have open, lever-styled hardware (no round/knob hardware) (404.2.6). Egress doors have panic hardware.

6a. There are doors that do not meet the above criteria for accessibility standards

7. Restrooms:

Public restrooms have at least 5'-0" clearance space for a wheelchair to turn around, at least (1) ADA accessible stall (sized 60" min. depth x 56" min. width, for wall-mounted stalls, and 59" min. depth for floor-mounted stalls) with 5'-0" clearance (604.3.1), and at least (1) sink at a 34" maximum height (606.3). The compartment door clearance between the door side of the compartment and any obstruction shall be 42" minimum. Compartment doors shall not swing into the required minimum area of the compartment (604.9.3)

There is at least (1) unisex restroom per floor level, and unisex restrooms have at least 5'-0" clearance space for a wheelchair to turn around, as well as a sink/counter-top height at a maximum of 34".

Mirrors located above the sink or counter shall have the bottom edge at a maximum height of 40" above the floor. Mirrors not located above a sink or counter shall have a bottom edge at a maximum height of 35" above the floor (603.3).

Fixed stall grab bars shall be 42" minimum in length located 12" maximum from the rear wall. Vertical fixed grab bars shall be 18" minimum in length, the bottom edge of the bar shall be 39" to 41" above the floor, and 39" to 41" from the rear wall (604.5.1). Rear fixed grab bars shall be 36" minimum in length and extend 12" from the centerline of the toilet. Rear grab bars shall be 24" minimum in length centered from where wall space doesn't permit 36" grab bar (604.5.2).

Bottom edge of urinals shall be 17" maximum above the floor (604.10.4).

ADA showers shall be 36" by 36" minimum with an entry of 36" by 48" minimum. A 36" minimum depth shall be provided adjacent to the open face of the compartment (608.2.1). A roll in shower shall be 60" x 30" minimum with a 60" minimum opening adjacent to the stall (608.2.2). A seat shall be 24" minimum to 36" maximum in length shall be provided at the entry side of the compartment (608.2.3).

Horizontal shower grab bars shall be provided across the control wall and on the back wall to a point 18" from the control wall (608.3.1.1). Vertical shower grab bars shall be 18" minimum in length on the control wall and 3" minimum to 6" maximum above the horizontal grab bar and 4" maximum inward from the front edge of the shower (608.3.1.2).

7a. There are restrooms that do not meet the above criteria for accessibility standards.

8. Drinking Fountains & Protruding Objects:

At least (1) fountain has a clear foot space of at least 30" x 48" in front and has a spout height at a maximum of 36" off the ground. Children's fountain spout shall be 30" maximum above the floor. Wheelchair fountain spout shall be 36" maximum and standing 38" to 43" above the floor (602.4).

Objects more than 27" and not more than 80" above the floor shall protrude 4" maximum into the circulation path (307.2). Objects shall not reduce clear width required for accessible routes (307.5). Guardrails or other barriers shall be provided where object protrusion is beyond the limits allowed, and where the vertical clearance is less than 80 inches above the floor. The leading edge of such guardrail or barrier shall be 27 inches maximum above the floor (307.4).

8a. Drinking fountains do not meet the above criteria for meeting accessibility standards.

9. Casework, Transaction Counters, & Counters with Sinks:

Counter-tops have a maximum 34" height, and transaction counters have an accessible portion that is at a maximum 34" height for wheelchair accessibility (606.3). Counters and work surfaces for children's use shall be 26" minimum and 30" maximum above the floor (902.4.2).

9a. There are counter-tops that do not meet the above criteria for meeting accessibility standards.

SHATTUCK MIDDLE SCHOOL: ADA ACCESSIBILITY ASSESSMENT

The following is an analysis of Shattuck Middle School in regards to meeting building code requirements under the Americans with Disability Act (ADA) and regulated by the American National Standard (ANSI) Accessible and Usable Buildings and Facilities. This is not intended to be a comprehensive list, but an analysis as identified by Bray Architects and engineers gathered through extensive tours and assessment of the existing building facility.

1. Building Entrance:

There is at least (1) accessible route of travel. Entry at grade level or ramps with slope no greater than 1:12, and has 5'-0" long landings every 30'-0".

1a. This criteria does not apply at this level.

2. ADA Parking:

Designated/marked ADA stalls are located near the entrance of the building and have 5'-0" access aisles between stalls (502.4.1; 502.4.2).

2a. This criteria does not apply at this level.

3. Ramps & Lifts:

There is at least (1) accessible route to each floor level. Changes in level greater than 1/2" in height shall be ramped (303); ramps have a slope no greater than 1:12 and have 5'-0" long landings every 30'-0" (405.2).

3a. There are areas of limited accessibility where the building does not meet the criteria for accessibility standards.

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Handrails shall be provided on both sides of stairs and ramps, except for aisle stairs and ramps, which may be provided with a handrail either at the side or within the aisle width (505.2). Ramp runs with a rise greater than 6 inches shall have handrails (405.8).

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5a. There are areas where the requirements for push/pull do not meet the above criteria for accessibility standards.

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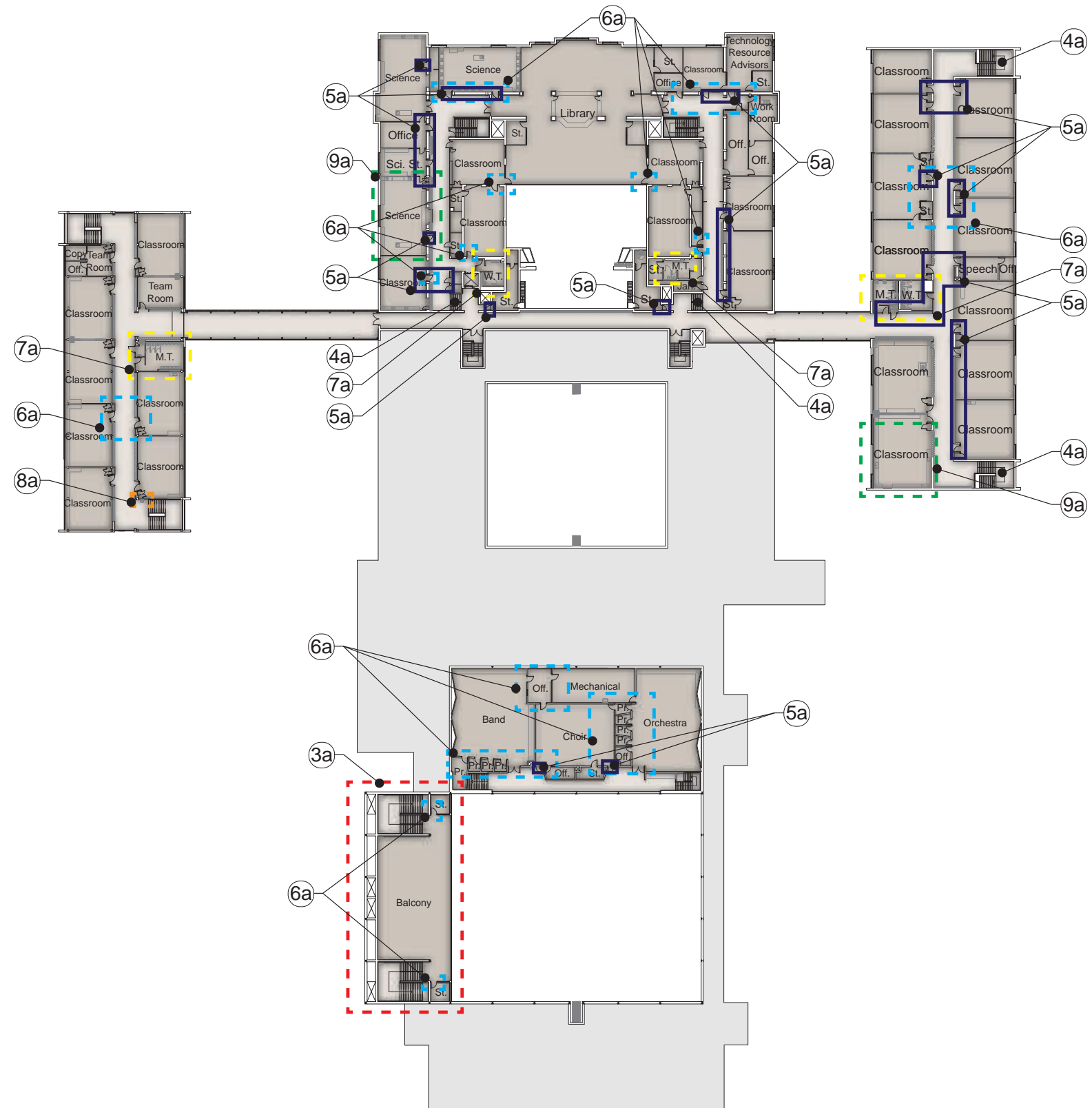
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9a. There are counter-tops that do not meet the above criteria for meeting accessibility standards.



SECOND FLOOR PLAN
not to scale

SHATTUCK MIDDLE SCHOOL: ROOF PLAN

Roof Timeline

- = (1) Installer Manville, Modified BUR, Installation 1997, 20 years old, Warranty Expires 2017
- = (2) Installer Siplast, Modified BUR, Installation 1997, 20 years old, Warranty Expires 2017
- = (3) Installer Unknown, Modified BUR, Installation 1998, 19 years old, Warranty Unknown
- = (3a) Installer Unknown, Modified BUR, Installation 1998, 19 years old, Warranty Unknown
- = (3b) Installer Unknown, Modified BUR, Installation 1998, 19 years old, Warranty Unknown
- = (4) Installer GAF, Modified BUR, Installation 2005, 12 years old, Warranty Expired 2015
- = (5) Installer Unknown, Modified BUR, Installation 1990, 27 years old, Warranty Unknown
- = (5a) Installer Unknown, Modified BUR, Installation 1990, 27 years old, Warranty Unknown
- = (5b) Installer Unknown, Modified BUR, Installation 1990, 27 years old, Warranty Unknown
- = (6) Installer Unknown, Modified BUR, Installation 1990, 27 years old, Warranty Unknown
- = (7a) Installer Unknown, Modified BUR, Installation 1997, 20 years old, Warranty Expired 2017
- = (7b) Installer Garland, Modified BUR, Installation 2016, 1 year old, Warranty Expires 2046
- = (7c) Installer Unknown, Modified BUR, Installation 1997, 20 years old, Warranty Expired 2017
- = (7d) Installer Garland, Modified BUR, Installation 2016, 1 year old, Warranty Expires 2046
- = (8) Installer Unknown, Modified BUR, Installation 1992, 25 years old, Warranty Unknown
- = (9) Installer Unknown, Modified BUR, Installation 1994, 24 years old, Warranty Unknown
- = (10) Installer Schuller, Modified BUR, Installation 1996, 21 years old, Warranty Expired 2016
- = (11) Installer Fibertite, Thermoplastic Polyolefin, Installation 2007, 10 years old, Warranty Expires 2022
- = (12) Installer Unknown, Modified BUR, Installation 1997, 20 years old, Warranty Expires 2017
- = (13) Installer GAF, Modified BUR, Installation 2005, 12 years old, Warranty Expired 2015
- = (14) Installer Unknown, Thermoplastic Polyolefin, Installation 2012, 5 years old, Warranty Unknown
- = (15) Installer Unknown, Metal Roof, Installation Unknown, Age Unknown, Warranty Unknown
- = (16) Installer Unknown, Thermoplastic Polyolefin, Installation 2007, 10 years old, Warranty Unknown



ROOF PLAN
not to scale

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SHATTUCK MIDDLE SCHOOL: EXTERIOR DOOR ANALYSIS

No.	Door Type	Frame Type
1	Wood	Wood
2	Wood	Wood
3	Hollow Metal	Hollow Metal
4	Hollow Metal	Hollow Metal
4A	Hollow Metal	Hollow Metal
5	Hollow Metal	Hollow Metal
6	Hollow Metal	Hollow Metal
7	Hollow Metal	Hollow Metal
8	Hollow Metal	Hollow Metal
9	Hollow Metal	Hollow Metal
10	Hollow Metal	Hollow Metal
11	Hollow Metal	Hollow Metal
12	Hollow Metal	Hollow Metal
13	Hollow Metal	Hollow Metal
14	Wood	Wood
15	Wood	Wood
16	Wood	Wood
17	Wood	Wood
18	Hollow Metal	Hollow Metal
19	Hollow Metal	Hollow Metal
19A	Aluminum	Hollow Metal
20	Hollow Metal	Hollow Metal/Wood
20A	Hollow Metal	Hollow Metal
21	Hollow Metal	Wood
21A	Wood	Wood
22	Wood	Wood
23	Hollow Metal	Wood



② WOOD DOORS & WOOD FRAME



③ HOLLOW METAL DOORS & HOLLOW METAL FRAME



④A HOLLOW METAL DOOR & HOLLOW METAL FRAME



②② WOOD DOORS & WOOD FRAME



②① HOLLOW METAL DOORS & HOLLOW METAL FRAME WITHIN WOOD FRAME

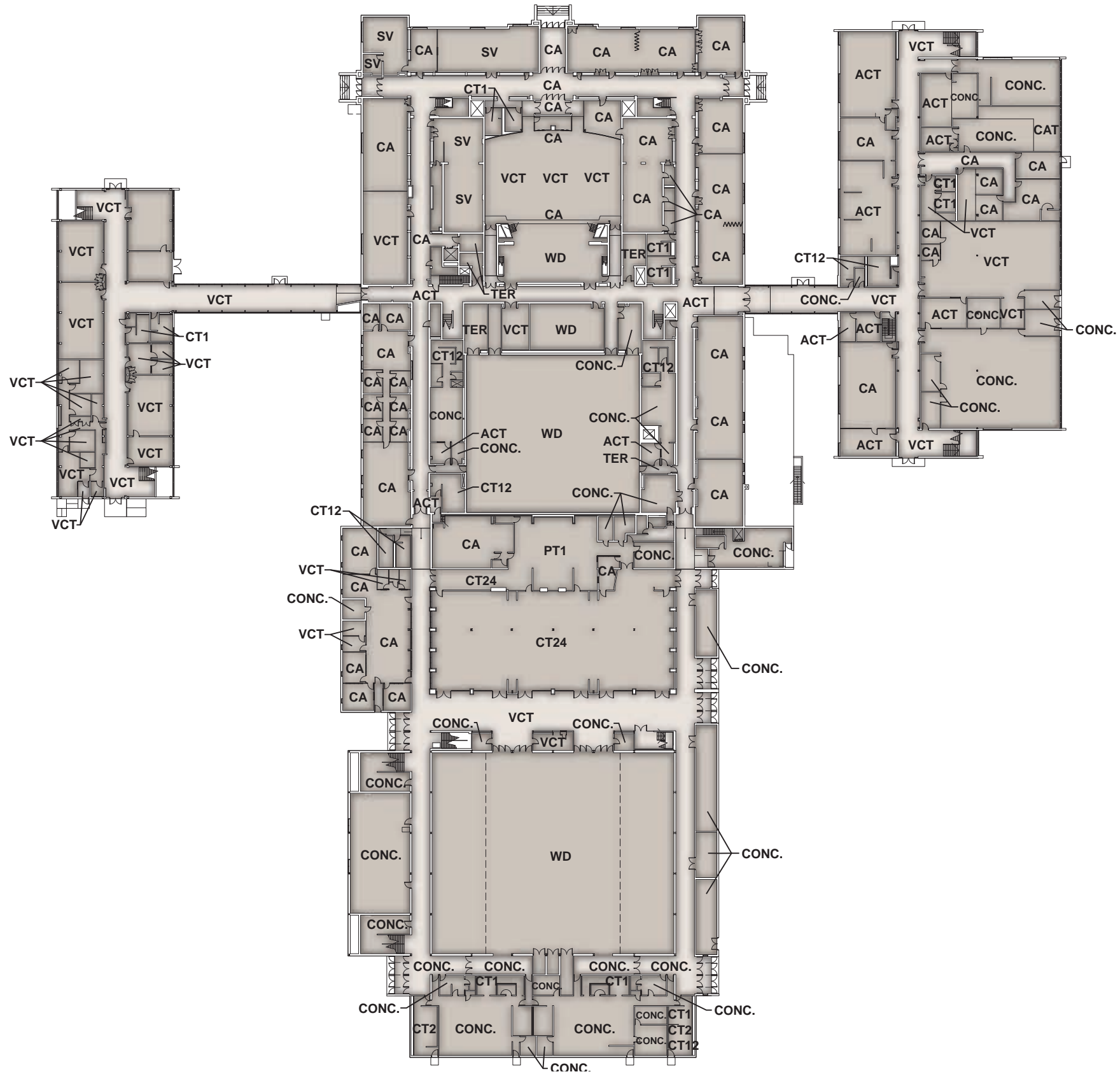


⑧ HOLLOW METAL DOOR & HOLLOW METAL FRAME, STAFF INDICATED SCHEDULED FOR REPLACEMENT

SHATTUCK MIDDLE SCHOOL: FLOORING ANALYSIS

- ACT** - 9x9 (Asbestos)
- ACT1** - 12x12 (Asbestos)
- ACT2** - 6x6 (Asbestos)
- CA** - Carpet Broadloom
- CAT** - Carpet Tile
- CT1** - 1x1 Ceramic Tile
- CT2** - 2x2 Ceramic Tile
- CT12** - 1x2 Ceramic Tile
- CT24** - 24x24 Ceramic Tile
- CTH** - Hex Ceramic Tile
- CONC.** - Concrete
- EPX.** - Epoxy
- PT** - 8x8 Paver Tile
- PT1** - 6x6 Paver Tile
- PT2** - 3x3 Paver Tile
- PT3** - 3x6 Paver Tile
- RT** - Rubber Tile
- RTT** - Rubber Tile Tread
- SS** - Seamless Synthetic
- SV** - Sheet Vinyl
- TER** - Terrazzo Tile
- TER1** - 12x12 Terrazzo Tile
- VCT** - 12x12
- VCT2** - 24x24
- WD** - Wood
- WDP** - 4x4 Wood Parquet
- WM** - Walk-off Mat

* Flooring Types Identified by Gries Architectural Group

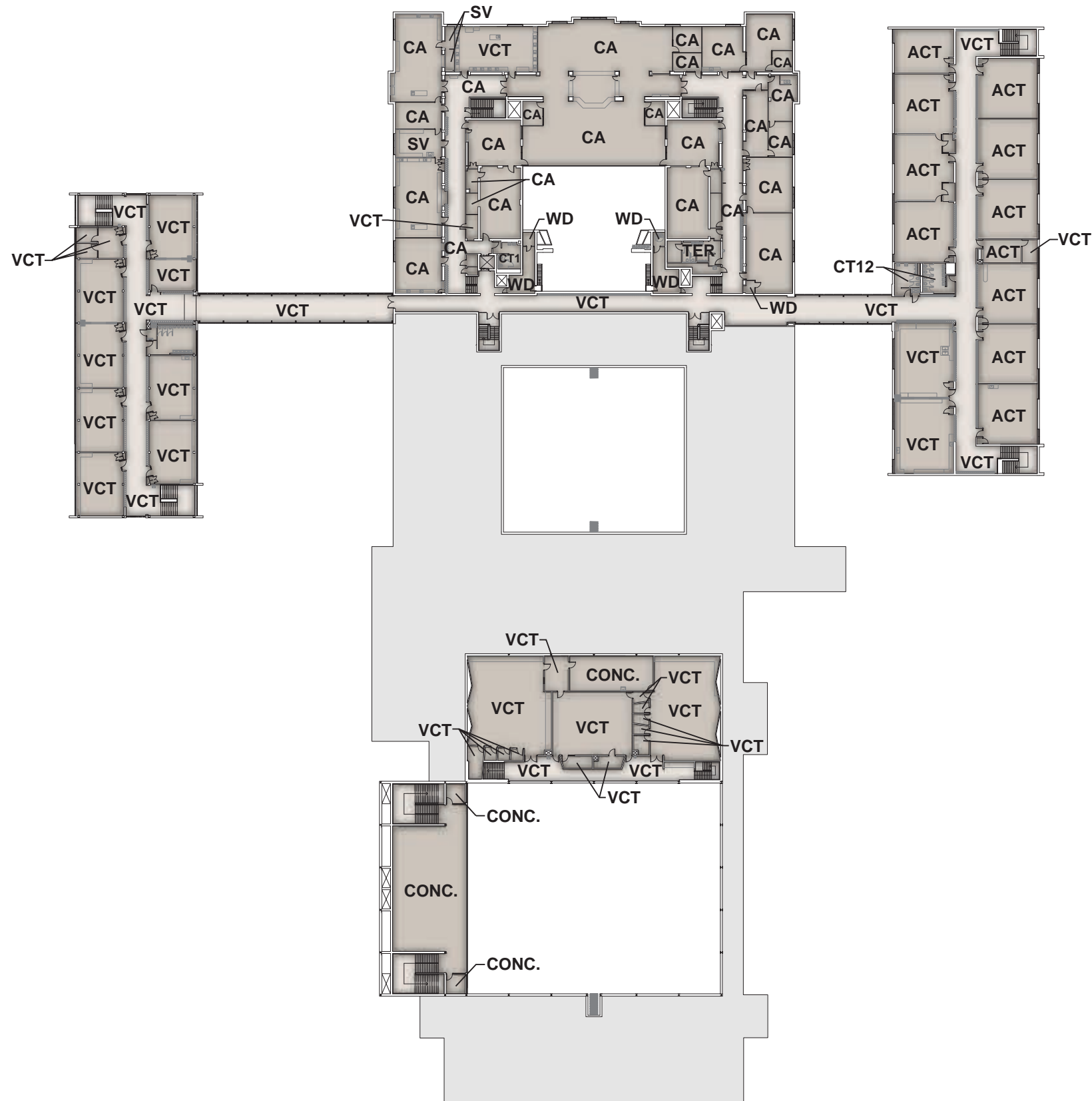


FIRST FLOOR PLAN
not to scale

SHATTUCK MIDDLE SCHOOL: FLOORING ANALYSIS

- ACT - 9x9 (Asbestos)
- ACT1 - 12x12 (Asbestos)
- ACT2 - 6x6 (Asbestos)
- CA - Carpet Broadloom
- CAT - Carpet Tile
- CT1 - 1x1 Ceramic Tile
- CT2 - 2x2 Ceramic Tile
- CT12 - 1x2 Ceramic Tile
- CTH - Hex Ceramic Tile
- CONC. - Concrete
- PT - 8x8 Paver Tile
- PT1 - 6x6 Paver Tile
- PT2 - 3x3 Paver Tile
- PT3 - 3x6 Paver Tile
- RT - Rubber Tile
- RTT - Rubber Tile Tread
- SS - Seamless Synthetic
- SV - Sheet Vinyl
- TER - Terrazzo Tile
- TER1 - 12x12 Terrazzo Tile
- VCT - 12x12
- WD - Wood
- WDP - 4x4 Wood Parquet
- WM - Walk-off Mat

* Flooring Types Identified by Gries Architectural Group



SECOND FLOOR PLAN
not to scale

SHATTUCK MIDDLE SCHOOL: ENGINEER REPORT - PLUMBING

Plumbing System Review:

The following report is the result of a site visit by Leslie Fry of Muermann Engineering, LLC that occurred in January 20, 2017. Site observations and interviews with staff were used in the preparation of this report.

The original buildings were built in 1928 with additions built in 1953, 1955, 1962, 1980, and 1981.

Domestic Water

Observations

- A. Water is supplied to the building by what appears to be 6" water service which connects to the Municipal water system. There is a water meter located the basement. The water service is at its limit and could not support any future additions.
- B. The majority of the water distribution piping in the building appears to be copper tube and fittings with some galvanized pipe and fittings in the original building. The water distribution piping appears to be in fair condition.
- C. The building has no fire sprinkler system.

Recommendations

- A. The water distribution piping in the original building and 1953, 1955, 1962 additions are at the end of their life expectancy. We would recommend replacing the existing pipe and fittings with new type "L" copper tube and fittings.
- B. If there are any new additions or major remodeling planned, a new larger water service will need to be provided.
- C. If a complete fire sprinkler system is preferred for the building, a new larger water service may need to be provided.

Sanitary and Storm Piping

Observations

- A. The sanitary waste from the building flows by gravity out the building and connects to the Municipal sanitary sewer system.
- B. The sanitary waste and vent piping in the original building and the additions appears to be cast iron pipe and fittings.
- C. The building has a full service kitchen commercial cooking with no interior grease interceptor.
- D. There are two art rooms. One room has sinks with interceptors, the other has sinks that do not have solids interceptors. This is not code compliant.
- E. The existing roof water is collected by internal roof drains and conductors which flow by gravity out the building and connect to the Municipal storm sewer system.
- F. There are multiple clearwater sump pumps located in the basement level for removing groundwater. Some of the pumps have been replaced with new pumps. The sump systems appear to be in fair to good condition.



Recommendations

- A. The sanitary sewer system in the original building and pre-1970's additions are nearing the end of their life expectancy. We would recommend the existing sewer located below the floor be inspected with a camera and may need to be replaced, pending outcome of scope.
- B. The art rooms sinks that do not have solids interceptors should have them installed.
- C. The storm sewer system in the original building and pre-1970's additions are nearing the end of their life expectancy. We would recommend the existing sewer located below the floor be inspected with a camera and may need to be replaced, pending outcome of scope.
- D. The existing clearwater sump pumps should be monitored and repaired or replaced as necessary.

Plumbing Equipment

Observations

- A. The building has one domestic water heater system consisting of a steam boiler with heat exchanger. Only food grade chemicals are used in this system. The burner was replaced in 2016. The system appears to be in good condition however some piping is not insulated.
- B. The domestic water is not softened.

Recommendations

- A. Insulate piping not currently insulated.

Plumbing Fixtures

Observations

- A. The existing plumbing fixtures in the building are a combination of various styles and ages. Most of the fixtures are original to the building age they were installed. Some of the fixtures have been replaced with newer water efficient and ADA compliant fixtures.
- B. The majority of the water closets are floor set with flush valves. Some have sensors. A few tank type toilets are present. Most do not appear to be water conserving or ADA compliant. The fixtures are old and in fair condition.
- C. The urinals in the building are floor set; most have sensor operated flush valves. The fixtures are old and are in fair condition.
- D. The lavatories in the building are wall hung with multiple styles of faucets. Most do not appear to be water conserving or ADA compliant and are in fair condition.
- E. The showers in the building have been abandoned.



SHATTUCK MIDDLE SCHOOL: ENGINEER REPORT - PLUMBING

- F. The drinking fountains in the building are a mix of wall hung electric water coolers and vitreous china drinking fountains. They are not ADA compliant and are in fair condition.
- G. The science room sinks have recently been renovated and are in good condition. They are code compliant and reported to be in good working order.

Recommendations

- A. The water closets should be replaced with new water conserving and ADA compliant fixtures.
- B. The urinals should be replaced with new water conserving and ADA compliant fixtures.
- C. The lavatories should be replaced with new water conserving and ADA compliant fixtures.
- D. The older drinking fountains should be replaced with new ADA compliant fixtures with a bottle filler.
- E. The faucets on the sinks should be replaced with new ADA compliant faucets.
- F. Remove existing showers including fixtures, piping, and drains.



HVAC SYSTEM

The following report is the result of a site visit by Jason Testin of Frederickson Engineering that occurred on January 19, 2017. Site observations, construction plan review, and interviews with staff were all used in the preparation of this report.

The original building was constructed in 1928, with additions being constructed in 1953, 1955, 1962, 1980 and 1981.

1.1 Heating System

A. Existing Data

1. The boiler plant, installed in 1987, consists of two Kewanee steam boilers each fired with natural gas. Each boiler has a capacity of 8,369,000 btu.
2. The piping and pumping system for the boiler plant is comprised of two heating circuits, the first being a steam circuit and the second being a hot water circuit.
3. A heat exchanger on the steam side is used to transfer heat to the hot water circuit. That hot water circuit also has a stand-by pump. If the primary pump fails, the secondary (stand-by) pump will provide hot water circulation to the system.

B. Observations

1. According to information obtained by the Owner, the boiler plant has reserve capacity at this point, as one boiler can heat the building in the winter.
2. The Kewanee boiler plant is in fair condition but has exceeded the estimated life expectancy of 30 years.
3. While the age of the heat exchanger and hot water pumps is not specifically known, they appear in fair condition and seem to have exceeded the estimated life expectancy.

C. Recommendations

1. Continue preventative maintenance on the system.
2. Plans should be made for the eventual replacement of the aging steam boilers. At the time of replacement, it is recommended that hot water boilers be installed in lieu of steam boilers. All steam and condensate piping, along with all steam equipment would be converted to hot water piping and equipment.
3. Plans should be made for the replacement of the aging heat exchanger and hot water pumps (if the system remains steam).

1.2 Ventilation and Air Conditioning Systems

A. Existing Data

1. There are two systems that provide ventilation for the facility. The two systems are unit ventilators and constant volume air handling systems.
2. The majority of the classrooms are ventilated using unit ventilators. Unit ventilators house a fan, steam heating coil, fresh air damper, return air damper and controls in a single cabinet mounted in the space. Steam and condensate piping is run to each unit ventilator.
3. The gymnasiums and auditorium are served by individual constant volume air handling units. Constant volume systems consist of a central supply fan, which contains a steam heating coil, fresh air damper, return air damper and controls. A room thermostat is used to control the temperature of the air supplied to the space.



4. The health and wellness center and some classrooms are served by multiple packaged, constant volume rooftop units. A packaged, constant volume rooftop unit consists of a central supply fan, gas fired heat exchanger, DX cooling section, fresh air damper, return air damper and relief fan. A room thermostat is used to control the temperature of the air supplied to the space.
5. The offices are served by a packaged, constant volume rooftop unit. A packaged, constant volume rooftop unit consists of a central supply fan, gas fired heat exchanger, DX cooling section, fresh air damper, return air damper and relief fan. Booster coils are installed in the ductwork to provide individual room temperature control.
6. The center classrooms on the first floor are served by an indoor constant volume, multi-zone air handling unit. A constant volume, multi-zone unit consists of a central supply fan, a steam heating coil, hot deck, cold deck and zone dampers for each zone. Each zone has a room thermostat that controls the hot deck and cold deck zone dampers for that space. The dampers are modulated to control the temperature of the air supplied to each space.
7. The music rooms are served by an indoor constant volume air handling unit. A constant volume air handling unit consists of a central supply fan, hot water heating coil, fresh air damper, return air damper and controls. Hot water booster coils are installed in the ductwork to provide individual room temperature control.

B. Observations

1. The unit ventilators are original to the building and are in fair condition. The units have exceeded the estimated life expectancy of 25 years.
2. The constant volume air handling units serving the gymnasiums and auditorium are original and are in fair condition. The units have exceeded the estimated life expectancy of 30 years.
3. The packaged rooftop unit serving the health and wellness center was installed in 2016 and is in good condition. The estimated life expectancy is 15 years.
4. The packaged rooftop units serving the offices and classrooms were installed in 1996 and in fair condition. The units have exceeded the estimated life expectancy of 15 years.
5. The constant volume, multi-zone air handling unit is original and in poor condition. The unit has exceeded the estimated life expectancy of 30 years.
6. The constant volume air handling serving the music rooms is original and in fair condition. The unit has exceeded the estimated life expectancy of 30 years.
7. The dust collector serving the wood shop is original and is in poor condition. The unit has exceeded the estimated life expectancy of 20 years.
8. Currently the IT office is served by a heating only unit ventilator and a window AC unit. The room is always warm according to the occupants.
9. Door transfer grilles are currently utilized to transfer relief air from the classrooms to the corridor.

C. Recommendations

1. Plans should be made for the eventual replacement of the aging unit ventilators.
2. Plans should be made for the eventual replacement of the aging constant volume air handling units.

3. Plans should be made for the eventual replacement of the aging packaged rooftop units
4. Plans should be made for the eventual replacement of the aging constant volume multi-zone air handling unit.
5. Plans should be made for the eventual replacement of the aging constant volume air handling unit.
6. Plans should be made for the eventual replacement of the aging dust collect. It is recommended that the new dust collector be located outside the building to comply with current code requirements.
7. Plans should be made to install an appropriately sized air conditioning system for the IT office.
8. With any remodel or renovation, plans should be made to replace the door transfer grille relief system with a code approved system. The current building code does not allow transfer air into a path of emergency egress.

1.3 Control Systems

A. Existing Data

1. A mixture of pneumatic temperature controls and digital temperature controls serve the building.

B. Observations

1. The limitations of the pneumatic system do result in comfort complaints. Pneumatic systems require frequent calibration to maintain accuracy. The newer digital controls are more accurate and more flexible. In addition, the industry has made such a complete changeover to digital controls that it is becoming difficult to find good pneumatic service technicians.

C. Recommendations

1. Continue to maintain and operate the pneumatic control system as long as the current mechanical equipment remains. When any renovations to the existing equipment are made, a changeover to digital controls is strongly recommended.

SHATTUCK MIDDLE SCHOOL: ENGINEER REPORT - ELECTRICAL

Electrical System Review:

The following report is the result of a site visit by Daniel Cedeno of Muermann Engineering, LLC that occurred on January 20, 2017. Site observations, existing plan review and interviews with staff were all used in the preparation of this report. The facility was built in 1928, with additions occurring in 1953, 1955, 1962, 1980, and 1981.

Electric Service

Observations

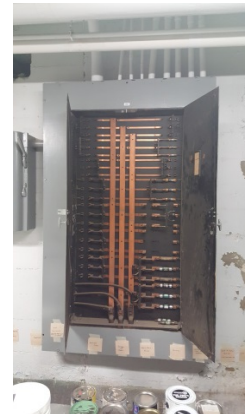
- A. The facility has a 3000-amp, 120/208V 3-phase 4 wire main electric service that is nearing the end of its useful lifespan. The main switchboard has no capacity for potential future loads. There is also no surge suppression provision on the main electric service.
- B. The electric panelboards throughout the facility vary in age between old circuit breaker panelboards that are nearing the end of their useful lifespan, and some panelboards that were replaced or added that are in good working condition.
- C. Utility service to the building consists of a pad mounted transformer adjacent to the building with an underground electric service terminating at an interior wall mounted CT cabinet and electric meter.
- D. The building has 2 natural gas generators located in the basement. Each generator provides emergency lighting for one-half of the facility. Both units have reached the end of their useful lifespan. It was reported by facility management that both units have issues with starting on the occasion.
- E. The transfer switches serving the generators have reached the end of their useful lifespan.
- F. It was noted that there are 3-pole loads being served by multiple single-pole breakers physically connected together via wiring (see picture). This is a code violation and potential fire hazard.

Recommendations

- A. The main electric service is nearing the end of its lifespan and should be scheduled for replacement within the next 10 years.
- B. Provide surge suppression to prevent equipment damage in the building during power surges.
- C. Vintage circuit breaker panelboards should be scheduled for replacement within the next 5 years.
- D. It is highly recommended that the existing generators be replaced with a new exterior generator. The transfer switches would also be removed and replaced with 2 transfer switches, 1 for life safety loads and 1 for optional loads.
- E. Replace single pole breakers serving 2 and 3-pole loads with the appropriate breaker type in all existing panels.



Main Electric Service



Old Fusible Panelboard



Old Generator Set



Single Pole Breaker Fire Hazard



- F. Ensure proper working clearances are maintained in front of all panelboards at all times. Working clearance area may not be used for storage. Recommendations include using industrial vinyl safety tape to physically indicate clearance on floor/wall around panelboards.

Light Fixtures & Controls

Observations

- A. Much of the interior lighting throughout the facility consists of a variety of T8 fluorescent or incandescent light fixtures, including recessed, surface, and pendant mounted varieties. The fixtures range in age but all are in good working condition.
- B. One of the gymnasiums uses high bay metal halide fixtures to provide general lighting in the space. The other gymnasium uses linear fluorescent fixtures. Neither of the two gymnasiums have provisions for emergency lighting.
- C. General lighting controls in rooms consist of toggle switches with no occupancy sensors or dual level lighting. Most classrooms utilize split area zones to split lighting controls in room.
- D. Auditorium lighting consists of metal halide recessed lighting. Facility manager indicated changing to LED.
- E. Corridor lighting controls consist of occupancy sensors. It was noted that sensor coverage is lacking in some corridors.
- F. Emergency lighting throughout was minimal, some areas lacked emergency lighting.
- G. Exterior lighting consists of high pressure sodium wall packs.
- H. Exterior lighting is controlled via a combination of photocell and time clock controls.



Classroom Lighting



Gymnasium Lighting



Corridor Lighting

Recommendations

- A. Recommendations to interior lighting include replacing fixtures with LED equivalents, providing dimming controls and occupancy sensors to maximize on energy savings.
- B. Schedule existing exterior light fixtures with LED equivalents and control via existing timeclock/photocell controls.
- C. Emergency lighting coverage should be confirmed and supplemented as necessary in areas lacking coverage.

Wiring Devices

Observations

- A. Most receptacles throughout the facility are 15A rated.
- B. There was a general lack of receptacles throughout the facility. Facility staff indicated they have problems finding available receptacles often. Some classrooms only have 4 receptacles in the whole room.



- C. There are receptacles within 6' of plumbing fixtures that are not GFI protected.

Recommendations

- A. Recommendations include replacing existing 15A rated receptacles with 20A rated type.
- B. Provide additional receptacles throughout working spaces as necessary to meet needs of space.
- C. Replace existing receptacles within 6' of plumbing fixtures with GFI protected type.



Non-GFI Receptacles

Phone System

Observations

- A. The facility has a Shoretel IP based phone system that is in good working condition.

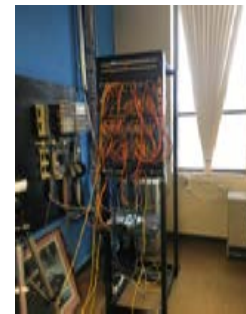
Recommendations

- A. No recommendations at this time.

Data System

Observations

- A. Data service is provided via fiber optic utility service. The system seems to be in good working condition.
- B. Fiber optic wiring interconnects all of the schools to the main district network.
- C. General data cabling consists of a variety of Cat5e and Cat6 cabling, both in plenum and riser rated varieties.
- D. The school has (1) data racks, which have spare rack capacity for future needs. Data cabling management at the racks are run in a disorganized fashion with no labeling.
- E. The main data rack has provisions for backup power supply via a UPS. Facility management indicated they would prefer to have backup power via a generator for prolonged power outages.



Data Rack

Recommendations

- A. It was unknown at the time of the site visit if the facility has ceiling plenums, but if there are plenums in the ceiling spaces, the riser rated data cabling should be replaced with plenum rated cabling.
- B. Data cabling at the data racks should be reinstalled in a clean workmanlike manner. Proper labeling of data cabling should also be considered to facilitate cable management and traceability.



Keyless Entry System

Observations

- A. The building has a keyless entry system that is in good working condition.
- B. Access controlled doors are controlled via electric strikes and card readers.
- C. None of the exterior doors have door position contacts to monitor if doors are shut or left open.

Recommendations

- A. It is recommended to provide door monitor contacts on all exterior doors to help monitor and control access to the facility at all times.

Intercom System

Observations

- A. The building has a Dukane MCS350 intercom system that is nearing the end of its useful lifespan.
- B. The intercom system does not have the capacity to fully cover the entire school; various classrooms don't have speakers.
- C. Intercom speakers throughout are nearing the end of their useful lifespan.
- D. Issues reported by secretary with faulty call-in switches getting stuck on "call" position in some rooms.
- E. The bell schedule system is controlled via a timeclock. Staff reported no issues with system.

Recommendations

- A. The existing intercom system should be scheduled for full replacement with a new IP based intercom system. Existing speakers should be scheduled for replacement in addition to providing additional speakers in areas lacking coverage.

CCTV System

Observations

- A. The building has a CCTV system consisting of about 25 cameras throughout the facility. The system seems to be in good working condition. The district plans to add about 10 more cameras to the system in the future.

Recommendations

- A. Provide new CCTV cameras where additional coverage is necessary.



Intercom Speaker



Intercom System Handset



CCTV Monitor

Fire Alarm System

Observations

- A. The building has a Honeywell fire alarm system that is about 15 years old and is in good working condition.
- B. The system is monitored and dials out to the fire department during a fire alarm event.
- C. Notification coverage is lacking by today's standards.
- D. There is a set of doors that uses magnetic door locks as magnetic door holds. These devices should be replaced for the correct devices.



Fire Alarm Control Panel

Recommendations

- A. A possible recommendation would be to provide additional fire alarm notification devices in areas where coverage is lacking.

Other Low Voltage Systems

Observations

- A. The building does not have a security system.
- B. The building has a monitoring system to ensure the boilers in the facility are operational. The system is programmed to dial facility management in the event of a boiler failure.
- C. The building does not have a synchronized clock system.
- D. Science classrooms have emergency gas shut-offs, but no emergency power shut-off provisions.
- E. Shop area had emergency power shut-off provisions.
- F. The theatrical lighting system is nearing the end of its useful lifespan and should be scheduled for replacement within the next 5-10 years.
- G. The auditorium is lacking egress step lighting, nor does it have emergency lighting provisions.



Science Room Gas Shutoff

Recommendations

- A. Recommendations include adding a security system to control and monitor access to the facility.
- B. Replacing the existing clocks with a synchronized clock system such as a GPS wireless clock system may be a recommended upgrade to minimize labor efforts required when updating clocks during daylight savings time changes.
- C. It is recommended that the theatrical lighting system racks be replaced within the next 5-10 years as they have reached the end of their useful lifespan.
- D. It is recommended that if the auditorium seating is replaced, seat lighting be installed to provide egress lighting through aisles.



Theatrical Dimmer Rack

- E. It is recommended that the electrical in science rooms be reconfigured to provide emergency shut-off provisions.

