Jefferson High School
Building Condition Report

312 S Main Street, Boulder, Montana 59632
July 30, 2020

SMA ARCHITECTS
Helena | Bozeman
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SMA Project No. 2010

We are now at a point where we must educate our children in what no one knew yesterday, and prepare our schools for what no one knows yet.

– Margaret Mead (1901 - 1978)

Mission Statement

The Jefferson High School District #1's mission is to provide the best possible education for our youth for whatever path of life they choose; to be the school of choice for students, teachers, and staff; and to be the heart of the communities we serve.

Our Vision for the Future

Students:

– Achieve high test scores and graduation rates that are competitive nationally;
– Graduate with a plan for life that they feel well equipped to pursue;
– Choose our school over others because of our solid reputation;
– Feel happy, challenged, safe, and supported throughout their time here;
– Appreciate and fully engage in our activities that augment our core curriculum; and
– Have access to technology that enhances their learning opportunities.

Teachers:

– Actively support students with their time, attention and obvious commitment;
– Have the tools and resources necessary to do optimal work;
– Are proud to work here and of their contribution to the school;
– Are committed to continuing education and the use of best practices;
– Look at our District as a long-term career commitment; and
– Feel confident about the Board's decisions and plans.

Our Administration and Board:

-Commit to be knowledgeable about best practices
– Establish, devote themselves to, and evaluate their priority goals on a regular basis; and
– Work as a collaborative team to make decisions that always focus on what is best for students, teachers and our communities.

Our communities:

– Are knowledgeable of and highly respect our commitment to excellence; and
– Support our work in many ways – their time, funds, levy votes, ideas, and enthusiasm about our students and their activities.

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Introduction

In a small wood framed photograph, an old photo shows a two-story square brick schoolhouse quietly occupying a manicured corner of Main Street and East 4th Avenue in Boulder, Montana. In the sepia-tinted photo, now on display in the trophy case near the main office, school proudly displays tall windows, elaborate brick, and wrought-iron fences which complete the picture of a typical Old West schoolhouse.

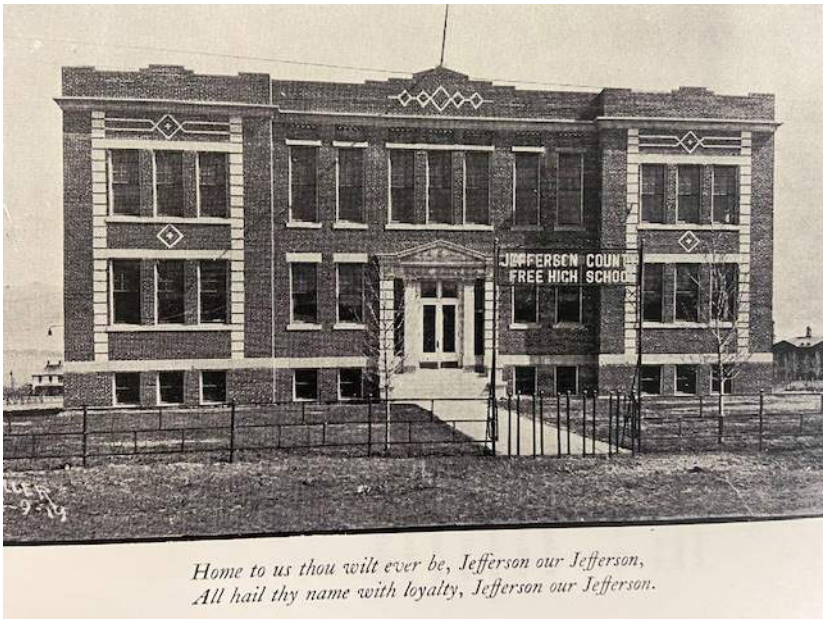
The current building on the same corner looks significantly different. What takes its place is now a composite of five different additions and renovations that occurred in the 80 years since that photo was taken. A new detached gym was constructed in the early 1950s, and twenty years after that, another classroom addition was placed to the east of the old school in the mid-1970s. Outgrowing these walls again in 1985 infilled most of the site with several masonry block and wood truss additions, another newer gym, and a new library. Finally, in the mid-1990s, a set of three modular classrooms were added further east.

The school continues to grow just as the surrounding area does. Jefferson County has increased in population since the 1990s and high school attendance now sits at just under 300 students. The Jefferson County communities of Montana City and Clancy are mirroring the recent growth in Helena and Lewis and Clark County. The town of Boulder is seeing growth as well, but not on the same scale as its northern neighbors. More students are driving over Boulder Hill every day to school, and the century-old campus is swelling in size. All this as county students from Basin and Elk Park continue to arrive from the south.

The burgeoning capacity at the school is evident in the feedback from the school district, the faculty, and the students. Classroom sizes are growing beyond the capacities of both Montana standard sizes and teaching capabilities of the staff. Athletics teams are at capacity, with the addition of a girl's wrestling team and increased football enrollment. Lockers are maximized and hallways are congested between class periods. Students are eating lunch in the classrooms because the cafeteria is full. Growth is the highest it has ever been. "Something's gotta give," and a nervous community is looking for answers.

In the spring of 2020, our team was engaged by Jefferson High School District #1 to evaluate the school building, its classrooms, finishes, and systems to provide this Building Condition Assessment reportIt is our intent that this report will help inform the District regarding possible future improvements to enhance the delivery of education to Jefferson County students. There were general concerns expressed to our team from the District administration regarding the building's existing interior conditions and how they pertain to the 21st Century Learning Environment. Education delivery methods have substantially changed in the years since the original school was built in 1909. It was deemed necessary, after over 100 years of service, that it was time to assess the entire JHS campus and evaluate how to proceed forward.

It is our hope that this report can provide a solid foundation of information for the District, the school, the students, and the people of Jefferson County to utilize in future decisions and planning for the path forward for its educational needs. ■



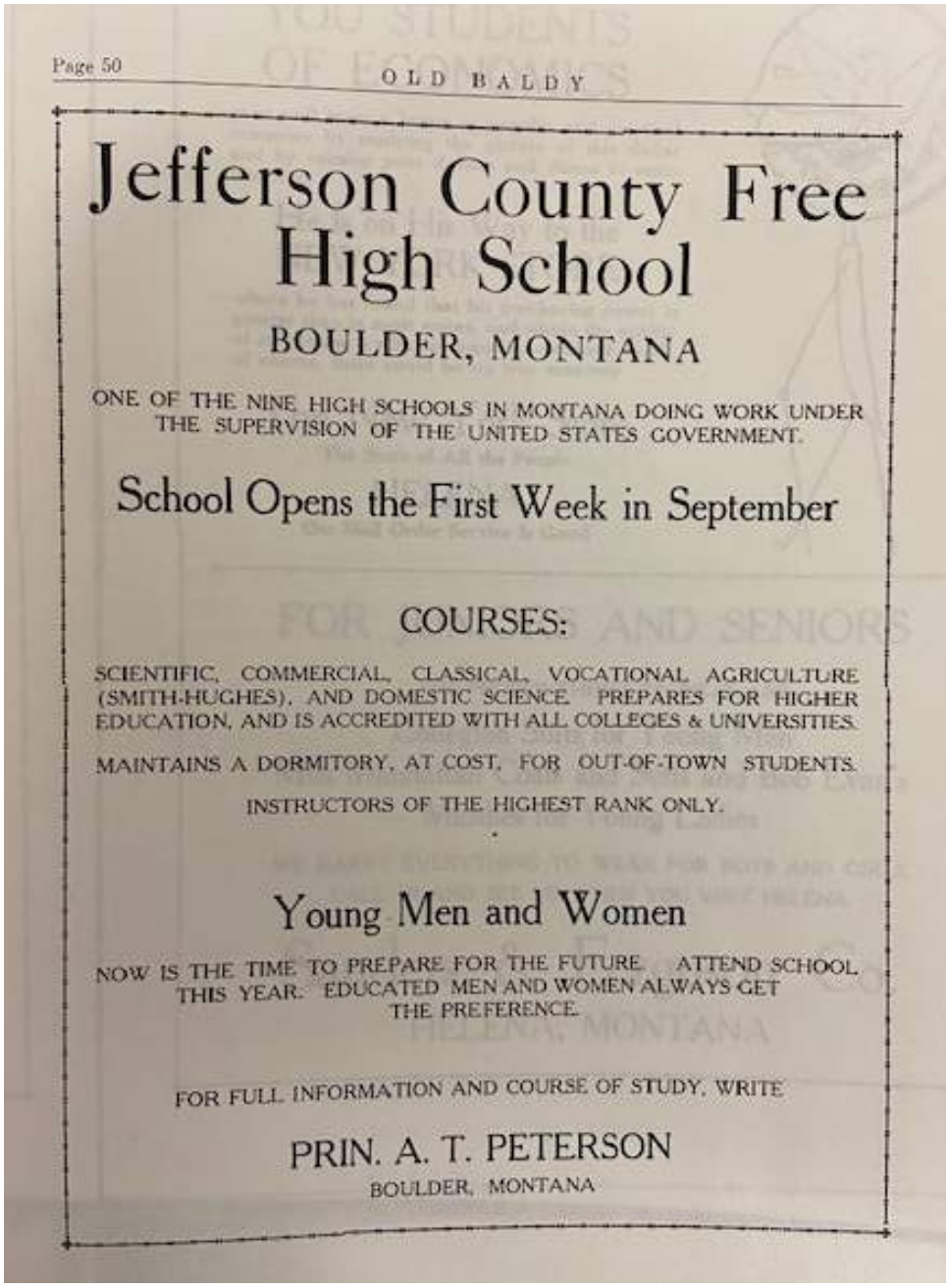
(image courtesy Jefferson High School)

Aerial view of Jefferson High School campus. (Image from Google Earth, retrieved June 2020)

Program Statement / Preface

The following document summarizes the findings of the Design Team and SMA Architects regarding the study of the existing Jefferson High School building. The members of the Design Team examined the existing building through several on-site observations and reviewed the available existing building plans.

The findings and recommendations in this Report are based upon field observations made during our walkthroughs. No invasive or destructive demolition occurred to further investigate the building or its systems; the original drawings used by the Design Team were essential in understanding the building's construction and materials. Unfortunately, several portions of the original plans are difficult to discern, due to their age and condition. There may be unseen conditions present that were not readily visible to the Team during the inspection, and this report does not attempt to speculate or address any potential issues that are unknown at this time. ■



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Jefferson County Free High School

BOULDER, MONTANA

ONE OF THE NINE HIGH SCHOOLS IN MONTANA DOING WORK UNDER THE SUPERVISION OF THE UNITED STATES GOVERNMENT.

School Opens the First Week in September

COURSES:

SCIENTIFIC, COMMERCIAL, CLASSICAL, VOCATIONAL AGRICULTURE (SMITH-HUGHES), AND DOMESTIC SCIENCE. PREPARES FOR HIGHER EDUCATION, AND IS ACCREDITED WITH ALL COLLEGES & UNIVERSITIES.

MAINTAINS A DORMITORY, AT COST, FOR OUT-OF-TOWN STUDENTS.

INSTRUCTORS OF THE HIGHEST RANK ONLY.

Young Men and Women

NOW IS THE TIME TO PREPARE FOR THE FUTURE. ATTEND SCHOOL THIS YEAR. EDUCATED MEN AND WOMEN ALWAYS GET THE PREFERENCE.

FOR FULL INFORMATION AND COURSE OF STUDY, WRITE

PRIN. A. T. PETERSON
BOULDER, MONTANA

Local newspaper advertisement, circa 1921. (Courtesy Jefferson High School)

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Acknowledgements

SMA Architects and the Design Team would like to thank Superintendent Tim Norbeck, Principal Mike Moodry, and the Jefferson High School staff for their patience and assistance during the preparation of this document. We would also like to thank all the staff, faculty, and community members for the comments, insight, and feedback during the research and compilation of this report. ■

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Executive Summary

Based upon field observations, studying existing drawings available to the Design Team, and using mapping tools, the design team finds that, considering its age and the multitude of additions and renovations, the overall school is in great condition. The care taken by the District to continually update and maintain the building is evident in many areas, from the new roof to the freshly painted locker room floors. Although deferred maintenance funding is reportedly a challenge, the funding that has been available has been invested in some of the critical systems of the building. Modern school districts quite often invest money and funds into projects that benefit the interior environment but defer maintenance to building envelope systems. This is not the case with Jefferson High School. The District has chosen to invest their funds into areas that might not be considered "exciting", but this thoughtful approach continues to keep a facility that is clean, dry, and well maintained. This will have a profound effect on the delivery of a high-quality education. However, given its age and the ever-evolving methods and new technology available to educate students, the building needs some updates and improvements.

The design team spent a dozen hours and several days visiting the school during the COVID-19 shutdown. Unfortunately this did not provide an opportunity for the Design Team to experience how students use the building during the school day. However, this did provide the opportunity for the Design Team to have unrestricted access to the entire school for an in-depth investigation. We worked closely with faculty and staff throughout the investigation phase to get a feel for how students use the building during a typical school day.

The school is built of incredibly durable materials, such as concrete floors, concrete masonry unit (CMU) blocks, and a new membrane roof. The team heard that this roof is a recent addition, only a few years old. The rest of the building exterior is a combination of brick, stucco, and CMU block. Although some of these areas are water damaged, stained, and peeling paint, most of the exterior is in good condition and shows very little sign of wear. The District reported that parking is plentiful, snow removal is good, and building security has been improved in recent years.

While the overall exterior of the building is in good condition, the interior has a few elements that are starting to show wear and age. Many of the ceiling tiles need replacement (although this is reportedly being fixed at the time of this writing). Some of the original flooring is in very worn condition, such as the damaged weight room floor slab and the worn tiles in the shop area. Paint can always use touch-up in high use areas. Lighting in many places is outdated, lacking modern energy efficiency, and too dim in some spaces. Like many schools of its age, there are always things that need improvement.

These needs are relatively minor, however, and distributed only in certain areas. The kitchen was incredibly clean and efficient, and many of the Vinyl Composition Tile (VCT) flooring in the major circulation areas were in good shape. Lockers in the classroom areas were in good shape and the gymnasiums had recently refinished floors. The Art Room was bright with natural light. Freshly painted walls were numerous. And the enormous wood trusses in the north gym and library were excellent aesthetic touches. Overall, and as previously mentioned, the school is very well maintained.

Of major concern from our observations and staff comments were the number of available electrical outlets in most classrooms and offices. There are some exceptions, but for the most part, the school is severely lacking in electrical connectivity for the teachers and modern teaching methods. Compound this with the proliferation of cell phones and digital equipment in the last 20 years, and there just are not enough outlets.

Classroom sizes are also a concern. While the average classroom size, by today's standards, varies from 900 square feet to 1,000 square feet or more, JHS's general classrooms are on the smaller size at approximately 650 square feet. Although these classrooms are smaller, most of the staff respondents to our survey reported their classroom spaces as being 'adequate' with a handful indicating the classroom sizes are a challenge. Of note, one of the two science classrooms fall below the suggested square footage required for science classrooms in today's school design. Although at 885 square feet, it is comparable in size to a general classroom, the National Science Teachers Association recommends 60 square feet per pupil for today's science classrooms. With thirty pupils per class, that would equate to 1,800 square feet per science class. As further described in this report, that size can vary greatly, depending on the type of science curriculum offered and enrollment.

While most general education classes seemed adequate to the teachers, there were significant problems with Special Education (SPED). SPED is a rapidly changing educational methodology in modern schools, and modern schools are designed to accommodate it. Most SPED classrooms in modern schools have several unique areas within the classroom, such as group learning, calming areas (sensory rooms), life skills teaching stations, and unique hygiene and

assistance requirements. Jefferson High School's SPED department offers almost none of these. Educators complained that it was difficult to fully provide for the needs of the students, given the small size and limited features of the room. Even though SPED students are inclusive into the student population, the SPED classroom and facilities are in desperate need of an overhaul.

Building security was improved last year, but there is one glaring challenge with security that many older schools face: the modular classrooms to the southeast of the main building. During the day, students leave and return to the main building through doors that are intended to be secure, but the risk of an unsecured visitor is still high. Given the unfortunate state of violence in schools, we recommend this be remedied.

Our overall building code review did not reveal any major code concerns that were not expected for a building of this age, in fact, many areas are up to code. Ramps and stairs are mostly in compliance, and the existing drawings note several 2-hour and even a 4-hour fire partition between major additions, as the building does not have a fire suppression system. The walls are built of mostly noncombustible material, but the new gym and library roofs are exposed timber structures. There are two areas of the school that no longer comply with the area and size allowed by the building code, due to the type of construction of these areas. There is a lack of automatic fire suppression system in the building, except for a very small system in the basement locker room area. It is very uncommon, per today's standards to not have an automatic fire suppression system in the school. The fact the building is separated by various rated walls, does help to meet code standards. In addition, the engineering reports included in this Building Condition Assessment include several items that do not meet today's building codes for electrical infrastructure, mechanical and plumbing infrastructure. Lastly, the structural analysis included in this report indicates the overall structural system of the school is in good condition. There are several recommendations regarding structural roof to wall connections that do not meet today's code standards, but they are indicated as 'voluntary' upgrades, at this time. The largest structural concern noted is the weight room floor, which has degraded over the years. The structural engineer is recommending this area be corrected as they do indicate some concern regarding its current condition. Please see the specific engineering reports included in this document for a more detailed analysis of these elements. Lastly, please refer to the Building Code Analysis section of this report for a more detailed analysis of the overall building code conditions.

Overall, ADA accessibility is good in many ways, but lacking in a few areas. Stairs and ramps appear to be mostly to code, and handrails are in good condition with correct diameters. Hallway widths are good but are not as wide as modern schools in some areas. One of the main ADA problems in the school is the restrooms, as there do not appear to be any restrooms that provide a fully accessible ADA stall. Most restrooms have a slightly wider stall that would be considered ambulatory size by today's standards. With a school of this size, students with mobility limitations are having a more difficult time than their counterparts in modern schools. We do have concern regarding the band room and the fact its only access is via a stair. Finally, the only second-floor classroom, the Art Room, has no elevator access, and the egress stairs on the exterior are in failing condition. While these are not the only major accessibility issues, they are significant enough worth mentioning.

The school has a very large athletics area to the south, including a tennis court, track, football field, and even a community pool. While these facilities were once adequate for the population, the growth in attendance has caused many of these to be outdated and insufficient for the students. The track is small and is made of finely crushed gravel, and the turf is reported to be in bad shape with a mosquito problem. The tennis courts are notably cracked. Inside, the wrestling room is too small, and there are conflicts with the basketball courts during drama and theater practice. Even the team locker rooms in the basement face several accessibility, ventilation, and privacy issues. For Jefferson High to continue to grow into the future, consideration should be given to improving the athletics areas of the school.

If the District contemplates renovations and possible additions to the school, there are potential challenges present. Due to the fact the building is made up of several additions and renovations over the years, the spaces are somewhat 'chopped up' in the building plan. This could create a challenge of adjacency planning of new spaces to existing spaces. The multitude of structural systems throughout could also present challenges. The fact the school does not have much room for expansion to the west, north and south will present possible challenges for expansion. In our review of the existing site conditions, we feel the best opportunity for possible growth will be to the east of the existing school. This does not come without challenges, however. Expansion to the east would remove

parking and bus loading area. In addition, if non-classroom functions were added to the east (athletics, performance, etc.) these functions would be removed from the historic areas of the school that currently house similar functions.

Jefferson High is a unique school in Montana, both in size, history, and condition. It is a medium sized school that is trying to serve a growing population. It has many of the features of a large school. Most of the responses from the staff indicated that there are numerous great things about the school and the school district: a close-knit community, low crime rate, excellent drama program, great extracurricular opportunities, and a geographically diverse population. With all of these in mind, the design team realizes that the school district has challenges in its future but has an excellent history and structure to keep that future bright. ■

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Building Description and Construction Building Code Review

Demolition of original schoolhouse, circa 1985. (Courtesy of Jefferson High School)

Building Description

The Jefferson High School is a combination of several independently constructed buildings that have been "infilled" during recent upgrades:

1. The original Jefferson High School building was first constructed in 1909.
2. As the demand for school athletics increased, a new gymnasium was added in 1956 that was detached from the original school, just south of the original building.
3. Turning into a small school complex, a new classroom addition and music shop/locker room was added in 1974. These were all connected by outside sidewalks.
4. Next, in 1985, another addition, consisting of a library and more classrooms, was constructed. At the same time, the old 1909 school was demolished, and second gymnasium and mechanical shop addition was created to infill the exterior sidewalks and create an entirely enclosed school.

Overall Building Organization

Key:

1. Area A – New Gymnasium Addition (placed over 1909 original school) – 1985.
2. Area B – Foyer, Admin, Cafeteria – 1985.
3. Area C – Existing Classrooms – 1974.
4. Area D – Library, Classrooms – 1985.
5. Area E – Music Room, Shops, Lockers, and Mechanical Room Addition – 1974 and 1985.
6. Existing Gymnasium, Drama Area – 1956.

Area A Description

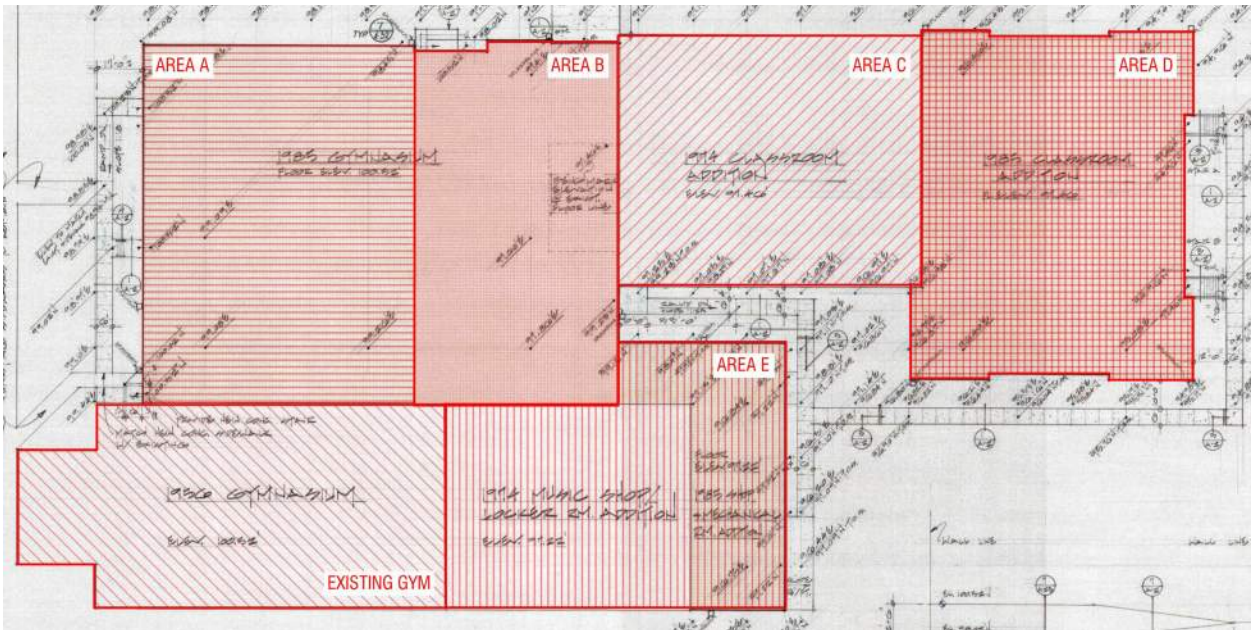
The 'new gymnasium' is constructed on a concrete slab-on-grade, precast and grouted concrete exterior walls, and an elaborate glulam truss and beam roof system. The gym has full-length and smaller cross-court basketball hoops and retractable bleachers. The walls are painted Concrete Masonry Units (CMU) and concrete. Lighting is recessed against the wooden roof deck and large diffusers and ductwork are suspended from the ceiling. The roof construction (from existing drawings) indicates composition shingles, placed over rigid insulation and wood decking, finished inside with glulam decking.

South of the existing gym in Area A is a two-story CMU structure with open-web steel joist construction. The lower level is circulation, training rooms, locker rooms and showers, and other utility and athletics rooms. The upper floor is a weight training room and wrestling room, with painted CMU walls. A stair serves this area.

Locker rooms and showers consist of hard-lid ceilings, painted CMU walls, and epoxy painted concrete floor in the showers, with carpet in the locker rooms.

Area B Description

Area B includes the Kitchen, Cafeteria (Foyer), front entrance, administration areas, counseling, and other associated rooms, and was part of the addition in 1985. This area is slab-on-grade concrete with CMU interior walls. Roof construction is prebuilt wood trusses with shingles, plywood deck, and batt



Jefferson High School overall floor plan with areas defined.

insulation under wood decking. Closer to Area C, the existing plans indicate a change to EPDM single-ply roofing membrane over 14" TJI trusses with batt insulation. This roofing change could not be verified.

Area B also contains connecting corridors between the south gym and the newer 1985 gym addition. These corridors change in elevation between areas, and there are several ramps along these areas.

Overall finishes in Area B include carpet in the entry/ admin areas, exposed brick walls with wrapped columns, and acoustical ceiling tiles. However, some spaces are a juxtaposition of finish materials where multiple existing structures have come together, such as the teacher's lounge, which has gypsum board, painted CMU walls, brick, and tile all in one room.

Area C Description

This area consists of the 1974 classroom addition, where a large portion of the classroom spaces are located. This area is not detailed on the drawings available to the Design Team, so the Design Team could not evaluate insulation or construction type during our visits.

Finishes in this area are acoustical ceiling tiles, painted CMU block walls, and Vinyl Composition Tile (VCT) flooring. Many rooms have exposed conduit on CMU walls. Some rooms have hollow metal glass between classrooms with the intent of providing more light. Restrooms have mosaic tile floors, masonry block walls, and hard-lid gypsum ceilings.

Area D Description

The newest addition to the school is the 1985 addition, which includes the library, additional classrooms, computer lab, and mechanical room. The library consists of large glulam truss system, which extends over 25 feet above floor level at its apex. The library floor is carpet, and the walls are painted gypsum. Lights are side mounted to the trusses with skylights in the roof to allow for natural light from above.

Existing drawings indicate a roof construction of composition shingles over rigid insulation. Exterior walls are shown as precast concrete walls filled with EPS insulation, similar to the Area A gymnasium walls.

The remaining Area D spaces include classrooms and restrooms, consisting of mosaic ceramic tile floors and CMU walls. Acoustical ceiling tile (ACT) ceilings are prevalent in most classrooms.

Area E Description

Area E consists of the Music Room, Wood Shop, Welding Shop, and Drafting classrooms. The exterior walls are insulated concrete panel walls per other areas of the 1985 addition. The slab on grade floor and steel bar joist construction are unique to this space, and the roof is a corrugated deck. In the shop areas, the flooring is Vinyl Composition Tile (VCT), with painted CMU walls throughout. Some areas of the shops are exposed concrete. Ceilings consist of acoustical ceiling tile with high fluorescent lighting.

The upper floor Music Room is a large open clear space with acoustical ceiling tiles, VCT floors, and painted CMU block walls with acoustic treatment on the upper half. This area is accessed via a stair from the hallway to the north. Lighting is high fluorescent lamps. Practice rooms are also constructed of CMU block walls but have partial acoustic treatment on the walls. The music room includes instrument storage, instruments, and book storage.

The CTE area of the school consists of several program offerings and the spaces to support these programs, such as welding and woodworking equipment, a paint spray booth, bathrooms, lockers, and materials storage. The wood shop is part of the Existing Gym addition, and the welding shop, small engines shop, and drafting lab are location in the addition from 1985. There is also a sectional overhead door to the outside which connects to the exterior yard which provides additional storage, materials, projects, and equipment. The CTE finishes are a very worn VCT floor, exposed concrete, and acoustic ceiling tiles. As expected in a shop environment, surfaces and equipment are stained and worn.

Existing Gym Description

The existing gym, a 1956 addition, originally was detached from the 1909 school. It has its own entrance from the public way to the west and other secondary access points from the hallways and exterior to the south. This area contains not only the original gymnasium, but also the Drama stage and storage, and the Art room is located above the main entry. Restrooms and utility rooms are on the main floor located adjacent to the main entry space.

The gymnasium construction consists of an engineered steel structure with curved flanges and are high above the floor level. Spray insulation has been applied to the roof joists above and a large portion of the exterior walls, presumably to assist with acoustics and temperature control. The walls are painted masonry block. Existing drawings are not available for this portion of the building.

This gym has several practice basketball hoops mounted at the ends and along the sides. Three levels of bleachers are on either side of the gym. Windows from the exterior consist of both operable glass and glass block infill. Poor acoustics are noticeable in this area with the reverberation within the open gym space.

The drama stage sits at the east end of the existing gymnasium and has a set of wood steps leading up from the gym floor. Inside, there are numerous pieces of drama equipment, such as sets, audio equipment, curtains, and scaffolding. A stair inside the stage leads up to a wardrobe storage room that is built in between the structural flanges.

The Art room is located above the main entrance to the gym. The finishes inside this room appear to be the most modern with newer-looking acoustical ceiling tile. Walls are painted CMU and the ceiling has a gypsum board ceiling above the ACT finish ceiling. Windows are glass block with operable windows below. A wooden stair leads out of the hollow metal door exit. ■

Building Code Review - 2018 International Building Code (IBC)

IBC Chapter 3: Use & Occupancy

Based on this chapter, the building may be divided into two distinct areas of Occupancy Classification A (Assembly) and E (Educational):

Per Section 303, Assembly Group 'A-2' - Assembly uses intended for food and/or drink consumption

This classification applies to the Commons/ Cafeteria located on the main level of the building.

Per Section 302, Assembly Group 'A-3' - Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A.

This classification applies to both the Library and Gymnasiums located on the main level of the building.

Per Section 305, Educational Group 'E' - Educational Group

The vast majority of the remaining building spaces in Jefferson High School can be classified as Group 'E' Educational spaces with include, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade.

Chapter 5: General Building Heights & Areas

Per Table 504.3 (Allowable Building Height in Feet Above Grade Plane), Table 504.4 (Allowable Number of Stories Above Grade Plan) and Table 506.2 (Allowable Area Factor), allowable unmodified heights and areas for the specified Occupancies and Building Construction Type are as follows for the assumed occupancies (A & E Occupancies). Various 'Construction Types' are assumed for the six existing areas of the building (Areas A, B, C, D, E, Old Gym), all areas considered 'non sprinkled' as they do not have an automatic fire sprinkler installed throughout. (see chapter 6 explanation below for Type of Construction Classification)

Due to the fact the existing school is made up of approximately seven different 'buildings' that have been added and expanded over the years; we have elected to conduct this code review in recognition of these areas. On a positive note, the 1985 work to the school recognized the code challenges present in the building and addressed many challenges with the addition and 'reinforcement' of fire rated walls separating the areas of the school. Per our review of the 1985 construction plans, the school areas appear to be separated by the following rated separation walls:

- 4-Hour area separation wall between Areas A and B
- 4-Hour area separation wall between Area A and the Existing Gymnasium ('old gym')
- 2-Hour area separation wall between Areas B and C
- 2-Hour area separation between Areas B and E
- 2-Hour area separation wall between Areas C and D

<u>IBC Table 504.3 – Allowable Building Height in Feet Above Grade Plane</u>

This analysis considered each area of the building as 'separated occupancies' per the area separations illustrated above. The International Building Code allows for the individual analysis of each separated area as a 'separate building' and therefore, we will utilize that provision of the IBC in our analysis.

- (Area A) Occupancy Classification: A (Assembly), Non-Sprinklered, Construction Type IV = 65 feet allowable building height. **Area of building complies with building code.**
- (Area B) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 50 feet allowable building height. **Area of building complies with building code.**
- (Area C) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 50 feet allowable building height. **Area of building complies with building code.**
- (Area D) Occupancy Classification: E (Educational) and A (Assembly for Library), Non-Sprinklered, Construction Type

V-B = 40 feet allowable building height. **Area of building complies with building code.**

- (Area E) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type II-A = 65 feet allowable building height. **Area of building complies with building code.**
- (Area Existing Gym 'Old Gym') Occupancy Classification: A (Assembly), Non-Sprinklered, Construction Type V-B = 40 feet allowable building height. **Area of building complies with building code.**

IBC Table 504.4 – Allowable Number of Stories Above Grade Plane

This table dictates the number of stories allowed above grade plane given type of occupancy, type of construction present in the building and whether the building has automatic fire sprinklers installed throughout the building. Similar to the previous table and analysis, we can look at each separated fire area as a separate building. The separated areas of the building contain two distinct types of occupancies, E (Educational) occupancies and A (Assembly) occupancies.

- (Area A) Occupancy Classification: A (Assembly) A-3 specifically, Non-Sprinklered, Construction Type IV = 3 stories allowed. **Area of building complies with building code.**
- (Area B) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 1 story allowed. **Area of building complies with building code.**
- (Area C) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 1 story allowed. **Area of building complies with building code.**
- (Area D) Occupancy Classification: E (Educational) and A (Assembly for Library) A-3 specifically, Non-Sprinklered, Construction Type V-B = 3 stories allowed. **Area of building complies with building code.**
- (Area E) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type II-A = 3 stories allowed. **Area of building complies with building code.**
- (Area Existing Gym 'Old Gym') Occupancy Classification: A (Assembly) A-3 specifically, Non-Sprinklered, Construction Type V-B = 1 story allowed. **Area of building complies with building code.**

IBC Table 506.2 – Allowable Area Factor

This table dictates the maximum building area given the type of occupancy, type of construction present in the building and whether the building has automatic fire sprinklers installed throughout the building. Similar to the previous tables and analysis, we can look at each separated fire area as a separate building. The separated areas of the building contain two distinct types of occupancies, E (Educational) occupancies and A (Assembly) occupancies.

- (Area A) Occupancy Classification: A (Assembly) A-3 specifically, Non-Sprinklered, Construction Type IV = 15,000 square feet of building area. **Actual area of building = 16,600 square feet. Non-Compliant.**
- (Area B) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 18,500 square feet of building area. **Actual area of building = 9,743 square feet. Complies.**
- (Area C) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type V-A = 18,500 square feet of building area allowed. **Actual area of building = 10,453 square feet. Complies.**
- (Area D) Occupancy Classification: E (Educational) and A (Assembly for Library) A-3 specifically, Non-Sprinklered, Construction Type V-B = 6,000 square feet of building area allowed. **Actual area of building = 12,940 square feet. Non-Compliant.**
- (Area E) Occupancy Classification: E (Educational), Non-Sprinklered, Construction Type II-A = 26,500 square feet of building area. **Actual area of building = 9,500 square feet. Complies.**
- (Area Existing Gym 'Old Gym') Occupancy Classification: A (Assembly) A-3 specifically, Non-Sprinklered, Construction Type V-B = 6,000 square feet of building area allowed. **Actual area of building = 10,939 square feet. Non-Compliant.**

As discussed above, some areas of the school do not comply with the allowable square footage requirements for each story in both the A or E occupancy areas. This is not uncommon for a school of this age. The lack of a fire sprinkler suppression system throughout the building decreases the allowable areas significantly, per today's modern building codes. Typically, a building of this size and occupancy would have both a fire suppression system and the building would be divided by fire walls into separate

'buildings' and 'fire areas'. While examining the construction documents from the 1985 addition, our theory is that the District did not want to invest in fire sprinklers, at that time, and instead elected to continue to divide the building into separate fire areas. This strategy was well within code compliance in 1985, but today's codes have grown increasingly mores stringent. This is particularly true when considering Educational occupancies. The International Building Code has placed an emphasis on the use fire sprinklers and therefore limits school sizes, if they aren't equipped with an automatic fire sprinkler system.

While possible to design and construct a school without a fire suppression system, it is somewhat rare. Most modern schools are equipped with fire suppression to limit, or eliminate, fire walls and fire area separations.

Per Table 508.4, Required Separation of Occupancies, there is no requirement for a rated separation between 'E' Educational Occupancies and 'A' Assembly Occupancies - the building is compliant with this section.

If the building were to undergo any significant renovations or new additions, further exploration of the allowable building areas would need to be conducted. Any new additions would most likely be separated from the remaining building by fire walls or an automatic fire sprinkler system would need to be installed throughout the school.

Chapter 6: Types of Construction

Per Section 602, Construction Classification: For this report we have classified the existing building as several construction types including: **Type V-A, Type IV, Type V-B, Type II-A Type III-B, with 'A' indicated areas as 'protected' and 'B' indicated areas as 'unprotected'**. 'Unprotected' construction simply means that structural and load carrying components of the building may not be fully fire rated to a certain 'hours' of protection. A more in-depth prescriptive analysis of the existing construction materials could be performed to possibly improve their ratings to reclassify the building to all 'protected' construction, but is beyond the scope of this report and would include destructive investigation of walls, floors, etc. The determination of 'protected' vs. 'unprotected' was partially gleaned from the 1985 building addition construction drawings.

Types of construction are more specifically defined as follows:

According to 602.5 'Type V Construction' is that type of construction in which the structural elements, *exterior walls* and interior walls are of any materials permitted by this code.

According to 602.4 'Type IV construction' is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid wood, laminated wood, heavy timber (HT) or structural composite lumber (SCL) without concealed spaces. The minimum dimensions for permitted materials including solid timber, glued-laminated timber, structural composite lumber (SCL), and cross-laminated timber and details of Type IV construction shall comply with the provisions of this section and Section 2304.11. Exterior walls complying with Section 602.4.1 or 602.4.2 shall be permitted. Interior walls and partitions not less than 1-hour fire-resistance rating or heavy timber complying with Section 2304.11.2.2 shall be permitted.

According to 602.3 'Type III Construction' is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code. *Fire-retardant-treated wood* framing and sheathing complying with Section 2303.2 shall be permitted within *exterior wall* assemblies of a 2-hour rating or less.

According to 602.2 'Types I and II Construction' are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code. More specifically, table 601 dictates that Type II construction shall have the following noncombustible elements: structural frame, bearing walls, non-bearing walls, floor construction and roof construction.

Per Table 602, the required fire-resistance rating for exterior walls based on fire separation distance, in this case exceeding 30' on all sides of the building, is 0. The fire separation distance is measured to the centerline of the streets and to the adjacent building, all of which exceed 30'.

Due to existing fire separation distances, the building is not required to have fire rated exterior walls or protected/rated structural elements to comply with fire-resistant separation challenges.

Chapter 8: Interior Finishes

Per Table 803.13, interior finishes in a non-sprinkled building of A-2 and A-3 occupancy areas must have Class A finishes at exit components, and Class B finishes at other rooms and enclosed spaces. Per Table 803.9, interior finishes in a non-sprinkled building of E occupancy areas must have Class A finishes at exit stairways, Class B at corridors and exit enclosures and Class C at other rooms and enclosed spaces. While testing and documentation of all existing finishes in this case (paint, flooring, trim, ceiling finishes, etc.) is beyond the scope of this report, it is believed from field observations that the existing materials and finishes meet this requirement. Any new finishes and materials must meet the requirements of this section.

Chapter 10: Means of Egress

Per Table 1004.1.2, the building's occupant load is as follows:

A-2, cafeteria/ commons area:	2,300 sf/ 15 sf/ occupant	=153 occupants
A-3, library area:		
Stacks:	1,000 sf/ 100 sf gross/ occupant	=10 occupants
Assembly (table & chairs)	900 sf/ 15 sf/ occupant	=124 occupants
A-3, Gymnasium area:	Bleacher seating	= 1,095 occupants (est.)
A-3, Gymnasium Area:	5,600 sf/ 50 sf gross/ occupant	=112 occupants
E, educational area:		
Floor areas:		
Classrooms:	17,477 sf/ 20 sf/ occupant	= 840 occupants
Shops and Vocational areas:	5,138 sf/ 50 sf/ occupant	= 103 occupants
Locker Rooms:	3,500 sf/ 50 sf/ occupant	= 70 occupants
Kitchen:	1,186 sf/ 200 sf/ occupant	= 6 occupants
Second Floor areas:		
Classrooms (art/ band):	3,650 sf/ 20 sf/ occupant	= 183 occupants
Athletic Areas:	3,150 sf/ 50 sf/ occupant	= 63 occupants
Lower Level Floor areas:		
Locker Rooms:	5,000 sf/ 50 sf/ occupant	= 100 occupants
Total Occupants:		
Main Floor Area:		=2,859 occupants (est.)
Second Floor Area:		=246 occupants (est.)
Lower Level Floor Area:		=100 occupants (est.)
Total Building Occupancy:		**=3,205 occupants (est.)**

The existing building appears to provide adequate existing from the larger spaces that require more than one exit. (Gymnasiums, band, etc.) However, as noted in this report, several upper floor areas do not provide an accessible means of egress for exiting. Notably, the art room and band rooms do not have accessible ingress or egress capability. This is a code concern and a potential liability for the District. As noted later in this report, the art room does have a second egress via and exterior wood stair, but code challenges are present with that stair, and again, this is not an accessible means of egress.

In our opinion, that the building does have existing egress and accessibility challenges present in the building. These challenges are not uncommon in schools of this age. In our experience, the building code does not require a District to alter their building to comply with all existing codes. In other words, they are typically 'grandfathered' into the existing codes. However, it is important to note several areas within the 2018 International Existing Building Code:

- Per 302.2 Dangerous Conditions: The *code official* shall have the authority to require the elimination of conditions deemed *dangerous*.
- Per 305.6 Alterations:
- A facility that is altered shall comply with the applicable provisions in Chapter 11 of the International Building Code, unless technically infeasible. Where compliance with this section is technically infeasible, the alteration shall provide access to the maximum extent technically feasible.
- Exceptions:
    1. The altered element or space is not required to be on an accessible route, unless required by Section 305.7.
    2. Accessible means of egress required by Chapter 10 of the International Building Code are not required to be provided in existing facilities.
- Per 305.7 Alterations affecting an area containing a primary function:
- Where an alteration affects the accessibility to, or contains an area of primary function, the route to the primary function area shall be accessible. The accessible route to the primary function area shall include toilet facilities and drinking fountains serving the area of primary function.
- Exceptions:
    1. The costs of providing the accessible route are not required to exceed 20 percent of the costs of the alterations affecting the area of primary function.
    2. This provision does not apply to alterations limited solely to windows, hardware, operating controls, electrical outlets and signs.
    3. This provision does not apply to alterations limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
    4. This provision does not apply to alterations undertaken for the primary purpose of increasing the accessibility of a facility.

There is a bit of 'gray area' when it comes to existing buildings and the potential of renovating these buildings. If renovations were undertaken in the future, we would recommend the use of the 2018 International Building Code, as it can help to minimize major code renovations to existing buildings; it recognizes the challenges associated with buildings of age. However, the code renovation requirements are based on three levels of renovations: Level 1, Level 2 and Level 3 renovations

More specifically, these levels are defined as follows:

- Level 1: Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose.
    - In short, Level 1 renovations will not require many additional code compliance work to be completed.
- Level 2: Level 2 alterations include the reconfiguration of space, the addition or elimination of <u>any</u> door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.
    - Level 2 renovations will require additional work be completed to the existing building areas, but not full compliance.
- Level 3: Level 3 alterations apply where the work area exceeds 50 percent of the building area.
    - Level 3 renovation will require more substantial work be completed to the existing building areas. Level 3 renovations essentially recognize most areas of the 2018 IBC, with a few exceptions.

It would be very difficult to list all code requirements within this report. If the District contemplates renovations in the future, additional code studies would need to be conducted, in consultation with the Authorities Having Jurisdiction (AHJ) to determine all required existing building upgrades necessary. In existing buildings, the AHJ has the ability to judge specific elements and determine whether they will need to be altered to meet today's codes. In short, every existing building situation is different. The International Existing Building Code works to address all issues, but in our experience, it typically comes down to the architect working closely with the AHJ.

Consultation with the chief building official will be required prior to commencing any alterations or modifications to the building and must be included in the scope of any future projects.

Administrative Rules of Montana: Minimum Required Plumbing Fixtures

According to 24.301.351, the 'Educational Occupancies' required number of water closets per sex is 1 per 100 for male students, 1 per 45 for female, with 1 lavatory required for every 2 water closets.

Taking the total building occupant load total of 3,205/2 gives 1,602 male occupants, 1,603 female occupants.

The facility should have 16 fixtures (toilets and urinals) for males with 13 lavatories for males. It should also have 36 fixtures (toilets) and 13 lavatories for females.

Per the building codes, a percentage of these fixtures must be accessible for each sex, however, it was observed while on site, that all existing ADA stalls do not meet today's ADA requirements. This is not uncommon, as ADA clearance requirements have evolved to be larger over the years.

Currently, the building has approximately 12 toilets and 14 urinal fixtures for males with approximately 16 lavatories and 20 toilets for females with approximately 15 lavatories. Overall, it appears there is adequate plumbing fixtures for male occupants but lacks plumbing fixtures for female occupants.

As this is an existing facility, it is not required that the facility be upgraded to meet the above requirements, despite being deficient, unless significant remodeling occurs, and even then, it is up to the discretion of the chief building official. In addition, it is important to note that the occupant load calculated above is a general occupant load and errs on the side of conservative. ■

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Exterior Findings

Main street Boulder, looking south. The school is the last building visible on the left.
(Courtesy of Helena Independent Record, May 31, 2014)

Exterior Findings

Generally speaking, the condition of the building envelope reflects sound maintenance investments by the Jefferson High School District. Proper maintenance has kept the exterior of the building in good condition, and it has retained its integrity, showing no signs of excessive wear or disrepair.

Modular Classrooms

The modular buildings on the east side of campus are a source of several problems identified in our investigation. The design team heard concerns from staff, students, and teachers regarding the modular buildings. These concerns included safety and security, accessibility, heating challenges, cooling challenges, capacity, construction quality and noise levels. The modular buildings do provide desperately needed teaching space, but, in our opinion, they can no longer serve as a long-term solution. Modular classrooms can be a great 'temporary' solution to a school's space needs, but often they become permanent classrooms space, similar to what we are seeing at Jefferson High School. While the modular classrooms have helped the District for many years, they do pose a potentially serious safety and security risk to the students and staff located in those structures. In addition, their physical separation from the main building can lead to staff and students not feeling connected to the 'community' of Jefferson High School. The design team strongly recommends removing the modular classrooms and investing in a permanent structure designed for expansion and growth. This structure would likely be an addition to the existing school and would be sized to replace the exiting modular spaces along with potential growth opportunity.

Site & Exterior Athletics Conditions

The building location on South Main Street allows direct access for the majority of the immediate community, as well as commuters from outside city limits. A small open space west of the main structure, which includes picnic tables and a grassy area, adds to the sense of community the school grounds offer. A lot on East 4th Avenue provides accessible parking, and another lot to the south has more parking near the gym and community pool. The design team did not receive any negative comments about access, bus drop-off, or pick-up, other than a comment from the librarian regarding diesel exhaust issues when buses are in the east parking lot.

A few metal bridges span a small drainage ditch south of the site, immediately behind areas D & E and the Existing Gym. Despite its proximity to the Existing Gym, the team did not receive any concerns or comment regarding problems with flooding or access across the ditch. Mr. Norbeck commented that the water level never rises higher than it was during my visit with him.

The design team did receive considerable feedback regarding the exterior sports facilities:

- The school cannot host track events because the track was built without an all-weather surface and is not 10 lanes wide. The user group participants expressed a high desire for the District to investigate the possibility of replacing the existing track with an all-weather track.
- According to our user group meeting participants, the football field has a poor reputation within its conference; wear and tear degrade the field from fair to poor condition every season, and mosquitoes are a nuisance during hot weather. In their opinion, a turf field would remedy these points and they would very much like to see a turf field installed.
- The tennis court is shared with the City, but maintenance is the responsibility of the school. There are also scheduling conflicts with the City when trying to get the teams out for practice. The courts are in good condition, however.
- The athletics department is concerned with the recruiting efforts of Helena schools, as well as the new East Helena High School. Improving the athletics facilities would help bring more students to JHS and remain competitive.

Exterior Foundation and Drainage

Where visible, the foundation appears to be in good condition. Exterior drainage adjacent to the building appears to be positive and sloped away from the building. However, some roof drains fail to direct water away from the foundation in some areas. This could cause water infiltration and long-term damage. We recommend reviewing these areas and revising drainage, and possibly adding large splash blocks or other items to direct water away from the building foundation.

Exterior Stairs, Ramps, and Sidewalks

Spalling and cracking could be seen on the exterior concrete stairs where the steel handrails connect to the concrete. This is not uncommon in schools of this age and with the winter freeze/ thaw and use of salt or other snow removal agents. We do not see this spalling and cracking as affecting the safety or structural integrity of the railings, but continued exposure will increase damage over time and these areas should be monitored for continued degradation. Patching the spalled areas with an epoxy patching system could be a reasonably

simple and low-cost solution to push the lifespan of these areas.

For emergencies, exterior wooden stairs on the east end of the school connect the upper Art room to the ground floor. These stairs are aging and do not appear to meet current codes for emergency egress. The architectural team did not assess either the capacity or the construction of the stairs.

With the exception of worn and aged concrete, exterior ramps appear to be in good condition. Ramps appear to satisfy ADA guidelines for slope and capacity, as do railings and curbs.

There are some problem areas with the exterior concrete flatwork. Cracking and spalling on the west side could reduce accessibility. On the north end, the loading dock shows severe spalling and cracked concrete. In spite of this, entrance accessibility appears satisfactory.

Exterior Roof Drainage, Soffits, and Fascia

Open downspouts discharge large volumes of water onto the lawn, leading to possible foundation damage and freezing. The downspouts themselves appear to be acceptable condition. Overall, the fascia and soffit of the roofs are in good condition. Some notable challenges include:

1. Some exterior fascia has damage and staining, and some wood trim is peeling. Most painted fascia show signs of wear.
2. Smaller downspouts have splash blocks that lead to concrete, which is vulnerable to ice problems.
3. On the east side, railing freeze-thaw has cracked corners on exterior steps, which now show spalling concrete.
4. Exposed structural beams at the library show water damage and rot on the exterior. This does not appear to affect bearing capacity.
5. Exterior stucco shows water damage from downspouts, where water drains against the foundation on the southeast corner.
6. Another 8x10 large downspout on the southeast corner of Area B/C drains to a splash block against the foundation. The turf shows evidence of severe runoff, forming drainage swales in the grass. These could cause low spots in the grass and cracking and damage to the asphalt parking lot where the water flows into it.

Roof Condition

The design team walked the roof surface on a second visit. The roof is composed of several different types: Asphalt shingles over steep sloped areas, newer adhered single-ply membrane roof over the older flat roofs, and a ballasted roof over the shop space. All roofs appear to be in very good condition, owing to a recent re-roofing project. The slope of shingle roofs appeared to be effective for proper drainage, and edges were in good condition.

The membrane roof areas are also in very good condition. The roof appears to be less than 10 years old. The roof is crafted, welded, and attached well, and fascia and coping caps are all sealed and in good condition. Mechanical units are placed on curbs.

Shingles on the south-facing roof appear to be relatively new, where solar panels are installed. Oil canning appears in some areas of metal fascia, but are otherwise in good condition. There are no gutters in this area; all water drips down to grass areas.

Overall, the design team is impressed with the quality and condition of the roof across the entire school, a testament to the hard work and money the District has spent on critical building maintenance items.

Exterior Finishes

There are a few noticeable areas of damage or discoloration in exterior finishes, which are otherwise in good condition. The existing brick has minimal efflorescence (scaly white staining), except in the south side of Area C. Efflorescence is typically and indication of water infiltration behind masonry walls. Painted soffits and fascia are worn, but otherwise appear to be in good condition. Stucco on the south side of Area D is discolored and stained due to a short roof drainpipe; we recommend correcting this downspout and repainting the stucco behind. The corrugated metal above the west entrance of the Existing Gym is in good condition. Stucco on the west side of Area A has been patched and painted, but overall, the exterior is in good condition, all of which is evidence of continued staff maintenance to the outside of the school.

Windows and Doors

Exterior windows are uniform throughout the school and are newly installed. Most are vinyl windows with either single-hung vertical panels or horizontal sliding panels. All are fitted with insect screens. The design team did not test the windows for compliance with ADA graspability codes.

Most exterior doors are flush hollow metal, with several assorted narrow vision lites, tall vision lites, full- and half-glass

doors. Most appear to be in working order despite time wear, especially on the south side, which receives full sun exposure. Not every door was evaluated, but several were marked as insulated, and trim and weatherstripping appeared to be in good condition.

The north main entrance from East 4th Avenue is a large aluminum-framed storefront with two double-door pairs. The entry doors and aluminum framing appears relatively new, appeared to be in good working order.

Exterior Security

The proximity of the building to Main Street in central Boulder is not ideal for modern school security practices. The Existing Gym entrance is 25 feet from the street and is vulnerable to intrusion. From an anti-terrorism or force protection perspective, this distance provides zero protection from car explosions, and does not provide adequate time to see a hostile individual approach the building from the street. These challenges are not easily solved and are noted here only to keep an awareness of the potential security challenge.

The main entry from East 4th Avenue sees the most use and is the most convenient access point for the existing parking stalls. Security upgrades within the last year have further secured the entrance; these reduce but do not eliminate the possibility of intrusion. The new security features include locked doors and a camera and speaker to identify visitors and the opportunity to restrict entry. However, the main office area does not have direct views to the exterior of the school, which limits their ability to see a potential threat approaching the school. Other entrances have seen upgrades to their security with keyless entry and cameras, which increase visibility and all-around security. The design team visited the school immediately before summer break and during the COVID-19 shutdown, and therefore was unable to observe student or staff movement through secure areas. However, based on observation of traffic patterns in all areas, the team recommends further security upgrades to technology and architecture.

Observations and recommendations for interior security or views to the main entry doors will be discussed in the "Interior Findings" section of this report. ■

Directly across the street from the school is he original Jefferson High School dormitory, for students who would travel to Boulder and spend the week in town going to school, then return to remote ranches and communities. This building is converted into apartments. (Image courtesy of "Montana's Historical Landscapes", https://montanahistoriclandscape.com/2016/03/10/jeffersons-jewels/, retrived June 23, 2020)

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Interior Findings

Interior Findings and Recommendations

The interior of Jefferson High School is, for the most part, in good maintained condition, given the age and the many students it has served for years. The design team noted that while many components are outdated and no longer implemented in modern schools, the school is for the most part well maintained. Despite the fact that it is a combination of six different buildings, areas, and additions, it still presents the warm, cohesive feeling of a smaller school. It was immediately apparent to the Design Team that Jefferson High School is a community school, with a lot of community pride surrounding the school.

Finishes, overall, are in fair to good condition, but due to age and changes in educational delivery methods, some areas need improvement. This is not uncommon for many schools in the State of Montana. The ceilings in most of the school are acoustical ceiling tile, but are dated, worn, and could use replacement. Lighting is sufficient, but the dated fluorescent fixtures are not as clear or sharp as modern fixtures and certainly aren't as energy efficient as today's LED lights. The walls are a collection of materials from the original school buildings, intermixed with newer masonry block and gypsum board finishes. Floors are also a mix of vinyl composition tile, wood gym flooring, exposed concrete, and carpet. Many of these finishes are starting to show their age. Although a hazardous material inspection was not included in the scope of this report, our experience in these materials leads us to believe there are a number of flooring materials that are likely Asbestos Containing Materials. In addition, conversations with maintenance staff also confirmed that suspicion. The existing Asbestos Containing Materials in the building are common to buildings of this age and do not constitute a safety risk to building occupants, if they are not disturbed and made friable.

Hallways/Corridors

Overall, hallway conditions are in good condition, although they are slightly narrow for modern schools. Most hallways were between six and eight feet wide, with some wider exceptions around the administrative area and the lockers in Area C. The school appears to have been infilled with hallways between older existing buildings, evident from ramps up and down throughout Areas A, B, and E. Most modern designed schools will have a minimum of eight-foot-wide hallways, and in many high schools, these will be ten to twelve feet, dependent on occupancy level. Due to Covid-19, we were not able to observe student circulation and congestion challenges during normal school class changes, etc.

The acoustic ceiling tile, while probably not original to the building, is showing its age, and over the years moisture has damaged it somewhat. These ceilings could be removed and replaced with newer products that would provide a fresher feel for the hallways and improve acoustics. In several areas, the acoustical ceiling grid is black with white tiles – a dated look that is no longer used in modern schools. If the ceiling tiles are replaced, we recommend a Hazardous Material Survey of the existing tiles be completed. While not common, we do occasionally see acoustic ceiling tiles that are Asbestos Containing.

Walls in the hallways are almost exclusively concrete masonry unit (CMU) blocks, painted white. CMU block is incredibly durable and vandal-resistant, but in a school, it causes two major problems: echoing (sound reverberation) and an institutional look. Of course, the trade off is in its long life and durability.

Flooring in the hallways is almost exclusively vinyl composition tile, which holds up well over time but requires significant maintenance, such as stripping and polishing. Many locations have been replaced, and mismatched tiles or worn accent borders are visible.

Hallway lockers in Area C were in very good condition and appear to be new. The staff had no comments about the noise between classes of lockers opening and closing, which suggested the lockers are fitted with rubber stops to dampen noise. There were no comments to suggest locker access prevented traffic through the hallways.

The Hallways also contained notable amount of historical memorabilia, old photos, plaques, and awards. These pieces of memorabilia really enhance the sense of community pride and overall District pride in their graduates and alumni.

The design team agrees with staff feedback suggesting student common areas are missing from hallways. Modern schools almost always focus on common areas or 'breakout spaces' for students to use, creating a flexible space for studying, meeting, eating, and relaxing. 21st Century Learning principles show that common spaces promote student relationships, student and staff relationships, creativity, and camaraderie. A recommendation for future growth at JHS would be to include a few student-focused flexible spaces to promote this growth. These could possibly be several small breakout spaces' adjacent to classrooms and at corridor intersections. In addition, the District may want to consider the addition of a true Student Commons space. Currently, the commons area appears to be the multi-function space directly adjacent to the kitchen and new gym. While this space has served its

purpose for many years, in our opinion, it is a small space and without exterior views and other features, it does not function well as a true Student Commons space.

Main Office Area

The main office area is in Area B and is surrounded by a brick interior wall on 3 sides. Within this space are the main administrative functions, such as Principal, Administration, and Counselor. There is an overhead coiling door that faces the main entry vestibule. This is a busy location within the building with high traffic throughout the day. The corridor width directly in front of the main transaction desk is spacious and a benefit to the circulation in this area.

Offices in this space are small and mostly CMU block walls. There is carpet in this area, which helps with acoustic control. Acoustic ceiling tiles, although dated and worn, also help mitigate sound.

The seating and waiting area for students in this set of offices is small and does not provide privacy for students waiting; any visitor or student to the office can see that another student is waiting here. Also, there is no conference room or separate room for private conversations, so large gatherings are pressed for space. The lack of conference space and student confidentiality challenges were major challenges reported by the staff. Also, the district offices are compressed within this administrative space, and while there are benefits to that, the overall arrangement is very tight, and is the source of interruptions which degrade the work environment. The principal's office could be larger and more welcoming, similar to what is seen in larger more modern schools.

Finally, the Main Office Area is not positioned within the school entry sequence to provide the level of security typical in 21st Century Learning schools, and feedback from the Secretary was that an intruder has immediate and uncontrolled access to this area, once they are allowed through the main entry doors. Currently the Main Office Area is detached from the front entrance and does not provide access control to entering visitors, other than the security camera and intercom on the main set of doors. Last year's security upgrades have helped improve security, but the main office location is the biggest liability in our opinion. In modern school design, it is typical that a visitor is allowed limited access and must interface with front office staff before they are "cleared" into the school. After a person's identity is verified, they are cleared access through a second, electronically controlled set of doors into the main school. This sequence does not exist at JHS; therefore, it is the design team's strongest recommendation that Jefferson High School prioritize this secure entry sequence in future improvements. Lastly, in modern school design, architects typically place the main office on an exterior wall with windows to the exterior to provide office staff the ability to see visitors approaching the school, prior to the visitor actually reaching the main doors. Studies have shown that intruders that intend to do harm to a school may be deterred simply by the feeling they are being watched at all times when they approach the school.

Classrooms – General

Although smaller than most modern classrooms, generally speaking, the classrooms are functioning well for the class sizes currently at Jefferson High School. From our user group meetings and correspondence, most of the teachers spoke positively regarding their classroom size, although a few did indicate their classroom is too small for current instructional needs.

Finishes in the general classrooms followed suit with rest of the school: black grid and white panel acoustical ceiling tiles, painted CMU walls, and vinyl composition tile (VCT) floors. Ceiling and floors were all in worn condition, but overall met the needs of a durable school well.

Most classrooms measured out at around 750 square feet, which are on the small side of 21st century learning environment standards. While most educators did not complain about the classroom sizes, this square footage does not allow for larger classrooms or increases in class size. Modern schools typically strive for classroom sizes of 900-1000 square feet, not only to accommodate larger desks and tables, but also flexible spaces for varied teaching methods.

Modern clock/bell systems are remotely synchronized and can include messaging, emergency notifications, and extras such as weather and news.

Technology in most classrooms appeared to be minimal, but it was reported and observed that the I.T. Manager has made great technology strides in recent years. Pull-down projector screens and ceiling-mounted overhead projectors seemed common, with flanking whiteboards on teaching walls. Most modern schools are moving to technology-heavy teaching walls, with wall-mounted smart boards, short-throw interactive projectors, and multiple flat-screen monitors in each classroom. Mobile media and computer carts were evident in certain areas, but not typical in most general classrooms. Lastly, the existing clock/ bell system appeared to be aged. These systems have improved in our modern times and now offer many opportunities for written messages, school lock down features and remote teaching cameras.

The biggest complaint received during our user group meeting regarding almost all classrooms was the lack of electrical outlets. This is very common in schools of this age. Several staff and educators described the challenges associated with only having a single duplex outlet per side in a typical four-sided classroom. While a lack of electrical outlets is a very common complaint with older schools, it appears Jefferson High School is at the extreme end of the spectrum, as most classrooms simply do not have enough power required by today's modern teaching methods. The design team prioritizes this as one of its highest recommendations.

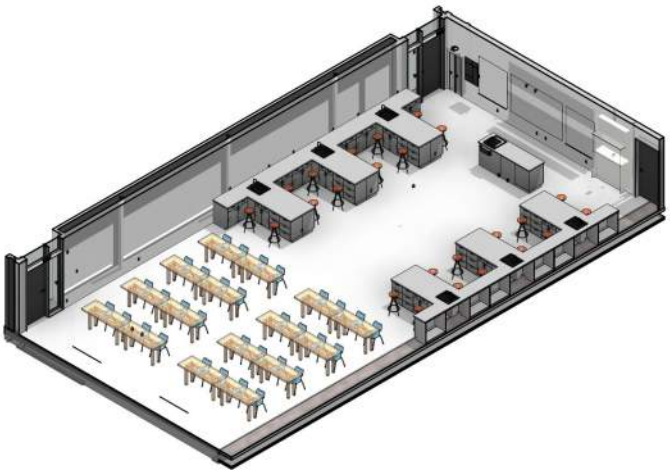
Classrooms – Sciences

Jefferson High School currently has two science rooms: one large physical science lab and a smaller Life Sciences classroom. These rooms are in the southeast corner of Area C / southwest corner of Area D and are adjacent to each other.

During our site visit, the design team measured the Physical Sciences room at 1450 square feet in size. This room includes both lab and lecture space, which is sized closely to modern schools. However, future school growth could pinch this space and require a larger room. This room has two exit doors to assist in exiting, and there is an eyewash station in this room.

The Life Sciences room is much smaller, measuring at 885 square feet in size, and includes lecture and lab space. This room is significantly undersized by modern school standards. Newer schools have Science classrooms approaching 1800 square feet to hold 30 students, and using this same ratio, the Life Sciences room should be at least the size of the Physical Sciences room. The design team recommends increasing the size of this room.

The finishes in both rooms are on par with the rest of the school: older and worn, but well maintained. A noticeable impediment to rolling chairs and equipment is retrofit trenching of utilities for lab casework, which are covered in plate steel. Ceilings are black grid with white acoustical tiles, with many tiles are damaged and worn. Casework in both rooms ranges from old and worn to some very new looking equipment, and some in between.



A typical science classroom in newer schools.

Chemical storage is a separate location between the two rooms, but to access it from Physical Sciences requires a walk around a corner. Even after a recent cleaning and purging, the room is filled to capacity.

Staff input was generally positive for both rooms, but size is a concern. Any increase in enrollment means another science room will be needed, and the school was bringing on a third science teacher at the time of this report. Notable feedback was:

1. Additional power/data outlets are greatly needed.
2. Sometimes the hallways get crowded, and with the two exits in the room, students will cut through this room to get to the next class.
3. Because of the limited space in the Cafeteria, students will often each lunch in this room.
4. The Life Sciences room struggles with adequate exhaust.
5. The lecture portion of the Physical Sciences room is too small, because class sizes can reach 20 students.
6. Additional screens, whiteboards, and technology are all needed for modern teaching methods.

Classrooms – Family and Consumer Sciences (FCS)

The large FCS room measured at approximately 1800 square

feet, which is very large compared to most modern schools. However, this room holds a large assortment of cooking equipment, sinks, appliances, tables, and even clothing racks and chair storage. The design team noted from our user group meetings that a food pantry and breakfast program are coordinated from the FCS, which further increases the room usage.

Room finishes were typical of the rest of the school: black and white acoustical ceiling tile, painted CMU block walls, and vinyl composition tile floors. Casework appeared in moderate to worn condition due to the increased use, including laminate countertops peeling away and worn areas on cabinets. Large windows could bring in a lot of natural light, but were covered with outdated horizontal blinds that were worn and damaged in areas. Most appliances were consumer-grade white units, with a few commercial-grade storage units and a three-compartment sink. Even though finishes were worn, they were still well maintained.

Overall, staff feedback was positive of this space. Some additional improvements were finished last year which greatly helped this room. Staff felt the room size was adequate, and only sometimes became crowded. Per our user group meetings, it was discussed that additional kitchen units are needed, and additional ventilation could be challenging, because the room currently has ventilation problems. It is our understanding that the culinary program has grown in popularity over the years. The design team felt that this space was a great size for FCS education, but a bit of investment in new appliances and better ventilation would go a long way.

Classrooms – Special Education (SPED)

The staff had considerable feedback for the Special Education Room (SPED), mostly expressing a need for more space and privacy for troubled students. Modern schools have made major improvements in Special Education, including separation spaces, calming rooms, life skills teaching opportunities, private bathroom for student dignity, and a more open concept to encourage development of life-skills. Visual connection, inclusion into the rest of the student body, and dedicated recreational spaces are also seen in newer schools. Jefferson High School's special education has very few of these.

Additional feedback from the staff:

1. The room has significant crowding issues, as there can be up to 16 students at one time in the room.
2. The staff would like to increase the size of the sensory room, and it would be good if the two spaces could see each other.
3. The sensory room is neither welcoming nor inviting, and it is always too hot.
4. The room needs better ventilation: Odors are an issue.
5. Closer restrooms, or restrooms dedicated to Special Ed students, would be a comfort to students who have accidents or need to clean up. This is a frequent embarrassment, as students have to walk with teachers to the larger community restrooms, which are not private.
6. Life-skills opportunities would be a benefit, such as a small kitchenette.

Vocational Classrooms (CTE)

The CTE rooms are in Area "E" which was also part of the 1985 addition to the school. A 2500 square foot addition added a Welding/Small Engine space, a Materials Storage room, and a classroom for drafting (CAD Lab) expanded the size of the original wood shop. An additional mechanical room was added to the north of this space.

The design team's experience in assessing vocational classrooms varies greatly from school to school, dependent on types of classes offered in the curriculum. In most of the schools we have designed, it is common design practice to allow for 50 square feet minimum per pupil for vocational spaces. At approximately 1200 square feet, the current wood shop space is sized for approximately 25 students. The scope of this report did not include the investigation and recommendations of current and expected curriculum.

Overall, the location of the vocational spaces within the school are well suited to their uses, which tend to be loud and messy. Room finishes in the shop space are utilitarian and severely worn in places. Throughout this area, floor tiles are damaged or missing, concrete is discolored or damaged, walls are repainted, and acoustical ceiling tiles are stained or damaged. While no one expects a vocational shop to be in perfect condition, many architectural treatments and finish selections could enhance the maintenance, aesthetics, functionality, and cleanliness of this space. For example, floor treatments, resilient wall treatments, upgraded dust collection systems, and high-contrast lighting, to name a few.

Extensive feedback from the staff about the Vocational Classrooms included:

Wood shop:

1. The floor finish is hazardous in work conditions: Floors becomes slippery when sawdust is present.
2. Light control, such as blinds in classroom, would be nice

for video presentations.

3. Storage issues in the spray room causes overspray issues.
4. Classroom size in wood shop and small engines varies from 4 to 14 students. This is ample space and there is plenty of room around equipment.

Small Engines:

1. Ventilation of fuel vapors, etc., are the main concern, as well as proximity to a welding station. There is the danger of fire or explosion.

Welding:

1. The room arrangement is the best that can be achieved at this small size. Space is limited.
2. Only 12 students can take the class, because with only six booths, students must double-up and may only weld for half the time. Twelve booths would be ideal for the current curriculum.
3. The shop is limited in size for fabrication.

CAD Lab (Drafting):

1. Room is great, up to 16 students, and has great computer hardware.
2. Access into the CAD lab is difficult because students must walk through other spaces to get to the CAD lab. Circulation during busy times is a challenge.

Overall area:

1. Electrical outlets are severely limited.
2. Lighting is dated and uses inefficient fluorescent tubes. A more efficient and brighter LED system would improve visibility for the space.
3. Storage space is a major issue. Materials storage is incredibly undersized.
4. There are five different electrical panels in shop area, creating a challenge to track down if breakers fail during class, which reportedly happens occasionally.

Drama & Theater

A major draw to Jefferson High School is its exceptional Drama and Theater program, which plays a part in the school and the community. Currently, the drama and theater stage are incorporated into the original existing gym, and the school uses the older gym floor to place folding seats during performances. While this accommodates a large audience, using the existing gym for seating is an acoustical challenge, given the hard surfaces in the existing gym. In addition, when the gym is being used for performances, it reduces the opportunity for other functions to take place in that space.

The design team did not analyze the stage area for finishes, because the room is constantly changing and is painted black for visual contrast. Lighting and curtains are all indicative of the functions of theater usage.

Space is severely limited for this program, and every square foot of the stage is used. A set of wooden stairs to an upper-level room within the stage area is used for storing costumes and props. Sound and lighting equipment are packed into this space. This leaves very little room for an actual stage area. The needs of the drama club to access construction materials and equipment to build sets and props compounds this problem. Storage for paint, fabrics, lumber, metals, and other materials is a major challenge.

Feedback from the educators about the drama area was sizable.

1. Materials storage is an ongoing challenge and a cause of crowding.
2. Both the sound and lighting equipment need an upgrade.
3. The overcrowded and confined space will make future growth difficult for the drama department.
4. Hard surfaces are a problem for acoustics, and there does not appear to be any acoustic treatment in the gym, except spray insulation at the underside of the roof deck and upper wall surfaces. This creates a challenge during performances because the acoustics echo. In addition, older sprayed insulation can produce excessive smoke and is very flammable. The design team recommends protecting this spray insulation with Type “X” gypsum board and acoustical treatment.
5. There is no physical divider between the existing gym and drama area, so loose basketballs and volleyballs could end up within the stage.

Considering the great student interest and community praise for the school’s drama department, the district should consider this space an exclusive performance and seating center. The design team also recommends that the stage and drama area, which is undersized, be expanded and increased. One possible solution is to renovate the gym space to serve entirely as a drama and theater space; another is to build a new home for this department. Any plan should allow for expansion and improvement of seating, acoustics, lighting, storage, and sound. A new drama space could take on many different forms. One options could be a true auditorium dedicated to drama and other school performances. The only potential

challenge with an auditorium space is that these spaces are historically under-utilized. Meaning, they are vacant a large portion of time. Another possible option for the District to consider, is a dual purpose student commons/ performance space. While these types of spaces are not typically as strong as a true auditorium space for performances, they do offer a higher space utilization.

The central commons space at the new East Helena High School includes a performance area. Reverse-fold bleachers will close off the stage area when not in use.

Music/Band

The music room at JHS is large and roomy. At over 750 square feet, the room appeared to have a lot of space for seating, equipment storage, chair layout, and office space.

Finishes in this room are the same as the rest of the school, with painted CMU block walls, black and white acoustical ceiling tile, and vinyl composition tile flooring. All were well maintained, and the ceiling tiles in this space did not show near the amount damage and wear of many other areas of the school. Lighting appeared adequate and most equipment, storage lockers, and casework seemed to be in good condition.

Acoustical treatment for this room appeared adequate but the room was lacking the true music-room treatment that many schools provide. A band of acoustical treatment extended from about 5 feet above the floor level to the ceiling. This, combined with the acoustical ceiling tiles, probably provides decent sound isolation. However, modern schools include a variety of hard- and soft-surface wall treatments, as well as pyramidal diffusers and acoustic baffles to improve tonal quality. Some schools even modify the shape of the classroom to reduce reverberation and resonance in the space. If sound quality is a concern in this room, any of these modifications could provide a significant difference.

Finally, the Music room only has stair access with no ramp, lift, or elevator to service it. A student with mobility issues or bound to a wheelchair cannot participate in classes in this space. This is a potential liability for the District.

Main Gymnasium (Area A)

The main gymnasium in Area A is one of the most noticeable and beautiful features of Jefferson High School. Constructed in 1985, this newest addition to the school is large and holds full size and practice basketball nets. There is significant fold-out bleacher space and the floor is nicely finished. The gym sits directly west of the cafeteria and kitchen.

The most significant and architecturally interesting part of the gym is the enormous glue-laminated wood roof structure, which is of significant size and span. To the design team, this is an amazing space, not only because of the sheer volume of the room but the warm wood aesthetic. This space is a great asset to Jefferson High School.

Egress and safety appear to be acceptable in this gym, with plenty of exiting directly to the outside and into the school cafeteria space. Finishes, paint, and lighting all appeared to be in good condition.

Staff feedback on the gym was minimal, as most agreed it was a nice gymnasium and served its purpose well. Most of the comments related to the weight room and wrestling room directly above this gym and the connection between the two. It was the understanding of the design team that the new gym was reserved for athletics competitions, while the older existing gym was used for practice or smaller sports, which makes large classes or practices difficult with the demands from the drama and theater department.

Weight and Wrestling Rooms

The weight room and wrestling room are both located in an upstairs mezzanine over the locker and changing rooms in Area A. Access is via stairs at each end of the mezzanine. The newer Area A gym can be seen from the weight room and wrestling rooms through small windows. The wrestling room has a hoist beam for raising and lowering mats to the gym below.

Finishes in these rooms were well maintained, but the ceiling tiles in the wrestling room were significantly damaged, warped, and stained. Either there is roof damage directly above this space, or the excessive humidity from the wrestlers is causing moisture damage.

To the design team, it was strange to see these two rooms in upper-floor locations with minimal access. The stairs up to these spaces were wide, but original plans showed the east

weight room stair facing the opposite direction, which is an indication that it was changed during construction, therefore access is from the south hallway, moving upstairs to the north. The design team's biggest recommendation is accessibility; these spaces are only accessible via stairs opens the District up for a possible ADA liability. The design team recommends relocating these spaces to an area that can be accessed for all students, regardless of mobility ability.

The stairs also have riser heights that are taller than allowed by current codes: typical riser heights cannot exceed 7 inches, while these stairs measured at 7-1/2" riser heights. As such, these stairs could be challenging to use by someone with disabilities.

The composite floor slab has significant cracks and damage under the sports flooring. The design team feels the mezzanine was not designed as a weight room; in fact, drawings show the original room name as "Multi-Purpose Room." The weight of equipment and heavy plates repeatedly striking the composite slab is likely causing damage faster than intended. Refer to the structural section of this report for more information and analysis, and recommendations for the floor slab.

Staff feedback was also significant for this area. These included:

1. The weight room was undersized for the number of students and equipment. Additional bikes and equipment are needed that would double the size of the weight room. 25-30 students in a weight training class means that some of the students are doubling up and only getting half of a workout.
2. The wrestling room is also too small, growth is up to 30 students. The school recently added women's wrestling, thus there is simply not enough room to practice.
3. There is no communication between the weight and wrestling rooms except through telephone, creating a hindrance when coordinating equipment or mat use with the gym below.

Main Level Locker Rooms

The locker rooms directly below the mezzanine floor are accessed from the corridor between Area A and the existing gym. These locker rooms are mostly used by general students for gym, weight room, wrestling, and intramural users. These rooms are spacious and appeared clean, with well-maintained finishes of gypsum board ceilings, painted CMU block walls, and painted or carpeted floors.

These lockers room toilet areas were one of the few places in the school with true ADA accessible toilet stalls, complete with correct turning space, grab bars, and properly swinging doors. This area was part of the 1985 addition; accessibility requirements now are similar to the requirements of 35 years ago.

The design team questions the use of carpet in school locker rooms, and both the men's and women's rooms had carpet in the changing area. As a rule, carpet is not recommended in wet areas, because of the high probability of mold and fungus growth, even in carpet manufactured for these spaces. It is nearly impossible to clean a carpet in a locker room, and for those reasons, sealed concrete or tile is more commonly used to reduce the risk of cross-contamination, improve infection control and sanitization challenges.

In both locker rooms, a large ADA hand wash station was located very close to a wall. This makes it impossible to properly utilize the station, as no one can stand around the wall side. This was particularly noticeable in the men's locker room.

Both locker rooms had 'gang' type showers, which are a relic of the past, as most students today do not feel comfortable showering in this setting; gang-type showers set up the potential for body shaming and bullying. Furthermore, an entire team or class will not shower at the same time, to avoid being too close to another person, so they are not an efficient use of space when large groups need to shower.

The design team did not receive much feedback about the main floor locker rooms, suggesting the rooms served their purpose and met expectations for capacity and function. The design team's only recommendations would be to remove the carpet, size the toilets for proper accessibility, and remove the gang showers.

Lower Locker Rooms (below Existing Gym)

Aside from the Modular classrooms, one of the most criticized spaces in the school is the locker rooms below the existing gymnasium. These locker rooms are outdated in layout and functionality, and have significant problems with adjacencies, ventilation, and overall function. The lower level locker rooms are the lockers used by athletics teams such as football, tennis, and track.

Overall finishes in the lower locker rooms were very good. The floors appear recently painted with an epoxy-based paint in the locker and restroom areas. Walls and ceilings are also painted and clean. Lockers in the Girl's Locker Room are

newer, while the Boy's Locker Room lockers are older and worn. Shower areas contain older tiles that show wear and signs of deterioration.

These lower-level showers do not have ADA access from the floor above, so it is impossible to accommodate a disabled person in this area. In addition, the lower level locker rooms are far removed from the main school and create a supervision issue for the staff and faculty. This may be a reason why they have been so heavily vandalized. The showers also have a step to control water, which prevents ADA access. These 'gang' type showers, similar to the locker rooms above, are undesirable, for privacy and bullying reasons.

Toilet stalls are not sized for accessibility. In the men's locker room, stall doors have been removed due to vandalism and damage, again suggesting privacy and bullying issues. Both toilets are clearly visible from the entire first row of lockers. Although the Design Team understands why these were removed, there are potential District liability issues with the doors removed.

Staff comments about the locker rooms included:

1. Ventilation is a major problem, particularly when large teams, classes, or groups are using these all at once.
2. Track storage is downstairs to the side of the boy's locker room. Female coaches are uncomfortable going down there, because of proximity to the boy's locker room. This creates a potential liability for the District.
3. The football team uses the lower-level locker room. If the freshman team is full next year, JHS could have as many as 55 football players. The locker room cannot accommodate that many players.
4. In addition, football equipment storage for the players is lacking. Lockers cannot accommodate pads, helmet, equipment, and clothing.
5. Training benches are significantly worn; padding and vinyl is torn and in disrepair.

The design team's recommendation is that the school focus on relocating or greatly improving the access, finishes, ventilation, and overall condition of these locker rooms to allow for better usage and access for athletics users. Reconfiguration of this space would be costly, so a better solution might be to build a new athletics locker room in a different location and repurpose this space for a different function.

Kitchen and Cafeteria Seating Area

The gym Foyer, or seating space outside the Cafeteria, is a large multi-purpose space that connects to the newer gymnasium in Area "A". This space is smaller than most schools, and the kitchen serving window is directly north of this space. Both sides of the room are lined with trophy cases. This area serves as a connection point from the new gym to the administrative main office and the hallways heading to the south.

The design team was unable to observe this area while school was in session and cannot comment to the capacity served, but it was reported in our user group meetings that it is too small to serve the current student population. Conversations with staff about their spaces indicate that it might be full during mealtimes because some students will eat meals in classrooms or outside.

Finishes in this room are the same as the rest of the school: vinyl composition tile floors with a decorative border pattern, painted CMU block walls, and acoustical ceiling tile. Fluorescent lights are surface mounted in this space and provide adequate but outdated lighting. This space connects the rest of the school with a set of steps and a wheelchair ramp to the south.

The Kitchen area was clean and well-maintained during the time of our visit. The kitchen had undergone a small renovation, upgrading the hoods and adding a suppression system. The dish drop system seemed adequate, and a three-compartment sink was in new condition. Storage and loading dock was also reported as adequate.

Existing Gymnasium (South Gym)

The existing gym on the south end of the building was the first major addition to the original 1909 school, which has since been demolished. This tall, expansive area holds the Drama & Theater area (see Drama & Theater section of report), and includes full-sized and practice basketball courts. This structure also contains the west entry vestibule, upstairs Art Room (see Art Room section of report), a few offices, and restrooms.

The structural analysis of the gym can be reviewed in the structural section of this report, but as a note, the large engineered trusses have a very industrial aesthetic. The entire upper half of the building is covered in spray foam insulation for fire protection and assuming sound control, as the roof framing system appears to be wood above the steel trusses. The gym floor is in good condition and was reportedly recently refinished. Lighting in the space is high-bay fluorescent, with

sufficient lumen output. Four tiers of bleachers are located in the space for small audiences.

Acoustics are a major concern from both Drama and Theater, as well as Athletics. Spray fireproofing on the upper half of the gym helps, but does not adequately control the loud sound quality in this space.

The small restrooms in the entry area of the gym lack privacy and are inadequately arranged. These large rooms also do not offer ADA accessible toilet stalls. Sight lines are mitigated by the addition of privacy screens in the Men's room, but an open door puts the entire Women's room on display. Fixtures are in good condition and lighting is adequate, with frosted glass windows for additional daylighting.

The overall impression of the existing gym is mixed. While providing sufficient space for practice basketball and physical education, the staff has mentioned that there is a lot of demand for this space. The impression was that Drama and Theater had taken over much of this area, so basketball teams cannot practice here. This compresses most athletics activities into the newer Main Gym. As noted in the Drama and Theater section, errant basketballs on the east end could end up hitting Drama and Theater equipment on the east opening. During our walkthrough, some of this equipment was being placed on the gym floor because they were out of space.

Art Room

The JHS Art Room is located above the west entrance to the existing gym and Drama/Theater area. This room is one of the few areas that sits on a second floor, aside from the mezzanine area of the weight and wrestling room. As such, access is via a single stair that originates in the west entry area.

The Art Room has ample natural lighting using both operable windows and glass block masonry along two walls. This abundance of natural light promotes creativity and color balance for students. The acoustical ceiling tile and recessed lighting are some of the newest and are in the best condition. The floor finish is VCT and is in good condition, considering it is an art room with lots of spills. Casework and cabinets are all in good and newer condition. There is a cabinet here for flammable storage.

One significant problem with the location of the Art Room is accessibility. While serviced by only one interior stair, it would be impossible to accommodate any student with mobility challenges. The Exterior Findings section discusses the egress stair to the outside, and its questionable condition. There does not appear to be elevator or lift access to this room, which is a potential ADA liability for the District.

This is one of the few rooms in the building that appears to have ample power outlets, suspended from the ceiling.

Staff feedback regarding the Art Room was minimal, but it was noted that it felt separated from the rest of the school, likely because of the long distance from the general classrooms and its location on the upper level.

Library & Computer Lab

The Library and Computer Lab are located in, and take up the majority of, the space in Area "D", on the far east side of the school. These were major additions during the 1985 renovation that also added more classrooms to this area. Similar to the new gymnasium in Area "A", the library has an enormous high wood truss roof structure and ceiling. It also has large diffusers and lighting fixtures side-mounted to the bottom chord of the roof trusses. The Computer Lab is a smaller area within this space, partitioned off from the rest of the Library by a partial-height wall.

Finishes in the Library and Computer Lab are "softer" than the rest of the school. The warm feel of the high roof truss provides a feeling of a tall space, and the floor is carpet, helping to reduce noise. The perimeter walls are painted CMU block, like the rest of the school. Book stacks take up most of the eastern half of the room, while the western half has more tables and chairs, along with the partitioned Computer Lab space.

The Library and Computer Lab locations within the school place it close to a large number of the general classrooms.

The main circulation counter does not meet current ADA codes for height, and should be modified to allow for ADA transactions.

Staff feedback of the Library and Computer Lab is both positive and negative. On a positive note, the space is large and bright, and has ample space for books, tables, and chairs. However, some challenges identified include:

1. The staff noted that noise levels from the Computer Lab into the Library are a significant problem. The noise of a large computer class will reverberate into the Library space, and students lose concentration or are distracted. The opposite is also true: During classes and meetings in the Library (which is common, as there is no staff conference room), students in the Computer Lab have a hard time focusing.
2. The Library space can get very hot, even in mild weather, due to both occupant heat and Computer Lab equipment fans. During warm spring months, windows are opened to increase ventilation. However, buses queue outside these

windows, and windows must be closed while they idle, which heats the room again. An upgraded HVAC system would improve this, as the design team noted that there is no overhead mechanical system to ventilate hot air. See the Mechanical report for more information on this space.

3. The amount of book stacks is adequate, and the librarian estimates that they are about 80% full.

The design team's recommendation would be to focus on improving acoustics between the Library and Computer Lab areas. This will further exacerbate the ventilation problem, so an upgraded HVAC system with sufficient air exchanges would need to keep the space comfortable.

Administration, Counseling, and Nurse

Additional offices for counseling, CSCT, and nurse functions were south of the Main Office area. These small rooms appear to have been retrofitted into existing rooms. For example, there is a large IT rack mounted to the wall above the Nurse's desk. The school Secretary reported that the nurse is part-time; when a student is sick and the nurse is not available, the Secretary becomes the nurse. As such, there is no visibility into the sick bay by front desk staff. In modern schools, the nurse's office has visibility from the front desk, which is another set of "eyes on" in case of emergencies.

Front desk staff has views into the nurse's room and beds via a window. This gives the staff better monitoring in case of a problem.

The Counselor reported that there is very little privacy for student consultation and discipline. Troubled students that need to be transported to a behavioral facility must wait for transport in the main lobby, or in his office. Students that need to talk to the Counselor must walk through the main lobby, which is not private or discreet. This could create a privacy/liability issue for the District.

A recurring comment from many of the admin staff is the lack of a conference room in the administrative area. This would help the staff have internal discussions, parent/teacher conferences, and provide an isolated room for unique student interactions.

Restrooms

Most of the restrooms in JHS are in adequate condition, but have a few noticeable problems, such as ADA accessibility, finishes, and odor. The design team visited the school during a long shutdown, so the restrooms were not in use during our visit. However, some staff commented on inadequate ventilation in the restrooms.

The primary concern with the general restrooms is ADA accessibility. In almost all restrooms, door clearances and clear widths were too narrow. Modern restrooms require up to 60 inches of clear space on the interior side of a door, but most restrooms had 40 inches. This means a person with a disability would have a difficult time opening the door when leaving.

Another ADA concern was that most of the restrooms did not have enough clear space in the accessible stalls. Current ADA standards require a 60-inch width in these stalls, which creates room for transferring from a wheelchair to the toilet seat. Most ADA stalls at JHS were smaller than this. Not having adequate ADA-compliant toilet facilities in a school of this size is a significant problem and for that reason, it has been added to our list of recommended upgrades.

Finishes in the restrooms were dated, but in good condition. Ceilings were 'hard-lid' gypsum board and in good condition. Sight lines from hallways were also good, preventing peeking into restrooms from the hall. Painted CMU walls showed minimal damage or vandalism. The mosaic floor tiles in the restrooms, although aesthetically questionable, seemed to hold up well to traffic. Several locations showed damage to ceramic floor base tiles and some water damage was evident.

Fixture count appears adequate, aside from the issue of accessibility listed above. Most restrooms were missing urinal screens, which reduce privacy for users. Toilet partitions were in adequate condition, but some were damaged or flexing, and not closing correctly.

Restrooms at the west entry into the existing gym are covered in the Existing Gym portion of this report.

Interior Stairs and Ramps

The history of Jefferson High School and analysis of the 1985 addition project shows an assortment of existing structures

that have existed on the site since 1909, when the original school was completed. Since then, JHS has seen many additions and a few demolitions on the site. As a result, the interior hallways and access points are at several different levels and are served by numerous ramps and stairs. Per our code review of the existing school, there appears to be adequate stair and ramp exiting in the building.

Almost all ramps in the building meet, or are very close to meeting, current codes for slope, landings, railing requirements, and protection. Current code requires a maximum 1:12 slope (4.76 degrees). Using mobile device measurements, all ramps were indicated to be at 4 degrees or less, except for the main hallway to the west, which measured at 6 degrees. Most railings had adequate handrail extension, railing diameters, and clearances from the walls.

Stairs in the building also appeared to meet code Notable exceptions were the stairs to the weight room (see that section), and the stairs within the drama space up to the storage room. However, most stairs within egress paths also had adequate handrails, clearances, and diameters.

Stairs at the south side of the existing gym and Area "E" leading down to the lower level locker rooms appear to meet ADA code, but exiting to the public way would require a gate or barrier to keep disoriented occupants from exiting all the way down the stairs. Head heights in these back stairs were tight but appeared to be within the required code.

Entry Doors and Visibility

The building's aluminum entry doors appear to be in good working order and appear new; they should be serving the building well now and should into the future. Additional information about entry doors can be found in the Exterior Findings and Recommendations section.

Building Safety and Security

In general, the District has responded well to the unfortunate safety and security challenges we face in today's educational facilities. Most of our staff feedback indicated that the staff feel safer within the school, but improvements can still be made. The recent installation of entrance security and monitoring has certainly added a level of security and comfort to the teachers and staff of Jefferson High. Given the size of Boulder and the small population, there was some sense of "it can't happen here", but the staff also seemed aware of the growing news stories of occurrences in schools in the nation and the world.

As previously discussed, it is a recommended daily practice that all entries to the school remain locked, except for the main doors from East 4th Avenue and the door leading to the back of the building, north of the CTE shop area, south of the Main Office. In addition, the installation of door position sensors would allow for constant monitoring of all entrances to the school. Per discussions with office staff, most visitors are coming into the school from the main entrance vestibule. The office felt it had good visibility to the front entrance, but not enough access control, as a visitor must enter the school before he or she can be identified.

21st Century Learning

While there have been many discussions and much publicity among education and design communities regarding 21st Century Learning Environments, it is a concept not easily understood or explained. It remains a somewhat nebulous idea, with different definitions from school to school and district to district.

In short, the traditional concept of a school has transformed. Previous generations felt schools were classrooms and specialized teaching spaces, with a fixed school day and curriculum, centralized at a designated school site. Modern perspectives have moved toward flexible learning spaces, with fluid timetables and individual learning plans, hosted in a variety of locations through the neighborhood.

This opens the concept of a school to a variety of possible provisions, with some common themes emerging from the discussion. These suggest learning environments of the future should be:

1. Flexible at different scales and time scales, allowing for variation in use, occupancy, and layout.
2. Inspiring to those working, learning, and visiting, and embodying organization aims.
3. Supportive of effective teaching and learning, accommodating a wide range of experiences and activities.
4. Inclusive of the users and the wider community and linking with other learning places.

Our experiences and involvement with educational planning throughout the state of Montana indicate that every school and district deliver education in their own way. However, where new projects are planned and constructed, we can agree that there is a general shift in the types of spaces dedicated to instruction.

The traditional row-and-column arrangement with desks

facing the teacher is increasingly rare. Classrooms are evolving to become more flexible – to allow for changes through the school year, to encourage peer learning, and to spark interest from lesson to lesson.

Multi-function commons areas are more frequent in modern educational planning. Group learning takes place in spaces within and around vertical circulation areas, corridors, and elsewhere. Many of these locations cannot allow for traditional desks, but instead provide comfortable, soft-seating areas. When they are not in use as teaching spaces, they double as interactive social areas.

Unfortunately, the size and scope of this Building Condition Assessment prevents extended discussion of 21st Century Learning Environments. But we are enthusiastic about prospects at JHS, because our observations suggest it is possible to accommodate the changes the District is contemplating, while considering 21st Century Learning Environments. Some of these changes would be simple and easy to accomplish, while others would be more difficult and costly. ■

21st Century Learning Environments promote bright, flexible spaces that allow for varied use and teaching experiences.

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Architectural Recommendations

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Architectural Recommendations

After review of the school and compilation of this report, the design team recommends the District consider the following building upgrades, in the order of prioritization. These recommendations pertain to both the interior and exterior of the school.

Modular Classroom Replacement

We recommend the modular classrooms on the east side of the campus be removed. The modular buildings are aged, but still in relatively good condition from a finishes and comfort standpoint. However, the issue of security for students going to and from the modular buildings is difficult to solve. Although the modular buildings are receiving maintenance improvements on a regular basis, the design team encourages a plan for a permanent addition to the school that offers capacity and flexibility for future growth, but provides the safety and security of being within the school building at all times. In addition, connecting these existing classrooms to the school will improve student and staff feeling of 'being a part' of the school. We often hear from staff that are in modular classrooms that they feel disconnected from the school community. We recommend an addition to the school of a minimum of 2-3 classrooms to replace these modular rooms.

Continued Safety & Security Upgrades

We recommend the District continue to pursue security improvements at all exits and egress elements at Jefferson High School, including door position sensors, security cameras, access control, and a school-wide security system. The design team recommends architectural upgrades as well, to include security bollards, better visibility of the front entrance, and an upgraded clock/bell system with messaging and intruder/lockdown alerts.

Moving the front reception area to a secure vestibule entry system is also highly recommended for improved safety of students and staff. In this scenario, a visitor entering the school is granted secure access into an intermediate vestibule, and interfaces with a front desk receptionist to gain entry to the entire school. Once the visitor's credentials are verified, the front desk staff can unlock a second entry door, which allows the visitor into the school. This two-step process provides a secure control point and helps minimize unknown, upset, or questionable visitors. An example of this sequence is shown in the Interior Recommendations section.

ADA Accessibility for Art, Band, Wrestling, and Weight Room Students

The Art room, Band room, Wrestling room, and Weight room can only be accessed via a set of stairs. From the viewpoint of the Americans with Disabilities Act (ADA), these spaces cannot be regularly accessed by anyone with mobility issues, which could present a liability for the District. In newly constructed schools, second floor levels are accessible by a ramp or an elevator but providing these means of access in this school would be incredibly challenging, if not impossible. Therefore, the design team recommends, at a minimum, relocating these spaces to other locations in the building where they are accessible by everyone.

The exit stairs from the upstairs Art Room were not assessed for ADA compliance, but as they are constructed of wood, they do not provide the long-term stability of metal or concrete stairs and are prone to rot and weathering. We recommend the school install permanent metal stairs with handrails, treads, risers, landings, and supports that fully comply with ADA design guidelines.

ADA Accessibility for Toilet Compartments, Restrooms, and Fixtures

The design team noted that almost every restroom was lacking in ADA stalls and clearances. Chapter 6 of the 2010 ADA Design Guidelines have clearly defined sizes and widths of toilet compartment stalls that are intended for use by those with disabilities. In addition, toilet rooms have reach range requirements, clearances around sinks and drinking fountains, and turning circle requirements that must be followed. The design team recommends modifying the toilet fixtures in the entire school to comply with current ADA design guidelines.

Lower Level Locker Rooms, Showers, and Restrooms

The issue of accessibility is again apparent in the lower level locker rooms in the Existing Gym/Area E. The design team heard numerous complaints about these spaces, but the glaring problem is access for those with mobility issues. Besides being impossible to access other than using a stair, these restrooms have toilet stalls that are not wheelchair accessible and showers that do not allow for 'roll-in' access. Additionally, the gang shower layout in Jefferson High School is outdated and not used in current school design. Poor ventilation and line-of-sight into toilet stalls are further nuisances, and the proximity of the equipment storage room to the men's locker room suggests possible harassment issues,

as well the potential for Title IX violations. Female coaches expressed a concern regarding access to equipment storage near the men's locker room. This storage adjacency could be a potential liability for the District. Therefore, the design team recommends relocating these locker rooms to a more accessible location.

Special Education Upgrades

The Special Education department at Jefferson High School is severely undersized and does not contain many of the modern teaching methods available in newer schools, such as Life Skills areas, Occupational Therapy/Physical Therapy (OT/PT) rooms, dedicated calming rooms, multi-sensory areas, dedicated toilet rooms, and lifting systems. While some of these may not be fully required at Jefferson High School, the existing SPED room is severely undersized and lacking in many of these. Staff feedback at the User Group meetings echoed these findings. As a result, the design team recommends that the Special Education curriculum be moved to a larger room with better privacy, better staff visibility and interaction, and more room to develop the needs of these students.

Drama and Theater

The Drama and Theater department reportedly involves between 20 to 30 percent of the entire student body at Jefferson High. The design team heard several times in our User Group meetings that these performances are incredibly popular with the students and community, enough to warrant many performances during the year. With this amount of notoriety, the location of the drama and theater space within the school conflicts with the Existing (Old) Gym and its uses. The design team heard that the acoustics were very poor to audience members in this space, and the drama and theater department was too small. The design team recommends considering moving the drama and theater space out of the old gym into a dedicated auditorium or performance center. This will open the gym space to be used purely for athletics and practices. It will also increase the attractiveness for the drama program and promote growth of this department.

Upper Level Locker Rooms, Showers and Restrooms

The locker rooms located south of the New Gym (Area A) are much more easily accessed by those with mobility issues. They are located on a route that has ramps and there is no curb at the shower location. However, the toilet compartments are not sized to modern ADA requirements. In addition, there are several hand sinks that are within inches of a wall, preventing access. The design team recommends reconfiguring these toilet areas for the clearances required by the ADA Architectural Guidelines (ADAAG). The team also recommends replacing the carpet in these locker rooms with a resilient tile or coating, as carpet has a tendency to mold, provide an opportunity for cross contamination, lacks infection control capabilities and causes fungus problems.

Athletics Upgrades

To promote future athletics development and increased attendance, the design team recommends considering improving many aspects of athletics, such as an all-weather track, a turf field to mitigate mosquito problems, improved practice areas for basketball and tennis, and the relocated locker rooms mentioned above. These were large concerns to the staff and coaches and could increase the attractiveness for recruiting students to JHS sports.

Student Commons

The area of the Foyer (Cafeteria Seating) space is very small for the number of students attending the school. The staff reported students eating lunches in other areas of the school and even in some classrooms. To accommodate future growth, the design team recommends the District consider creating a larger dining space, or "Student Commons" to alleviate the crowded cafeteria area. In modern schools, these spaces are often combined with other common school areas, such as performance spaces, grab-and-go cafes, soft seating areas, and meeting spaces.

Fireproofing Mitigation in the Existing Gym

The spray foam material in the existing gymnasium was not tested by the team, but we advise caution of having older spray foam exposed in these locations. The team assumes that this was done to increase insulation values and acoustics, but older open-cell spray foams are prone to flame- and smoke-spread during a fire. The design team advises the District to verify the composition of this material, and if it is flammable, to mitigate by either removing the material or covering with a fire-resistant board, such as Type "X" Gypsum Wall Board. It may also be possible to mitigate this with a fire-resistant paint product.

Exterior Concrete Repair at Stairs and Sidewalks

Repairs are needed for cracked, spalled, or broken concrete, particularly in high-traffic areas or along paths through accessible areas. Cracked concrete is not currently a safety issue, but small, less costly repairs now could save the District from much larger replacement costs in the future.

Exterior Drainage Corrections at Downspouts

The design team recommends adding larger splash blocks and permanent water routing from downspouts, especially larger ones that drain to grass or are against existing foundation. Water draining against a foundation can cause damage to walls or foundations, or freeze-thaw damage. Longer concrete splash blocks, or the installation of diversion piping can help mitigate this risk.

Engineering Recommendations

Please refer to engineering sections of this report for recommendations regarding building mechanical, plumbing, electrical and structural recommendations. ■

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Annotated Photographs - Exterior

Front entry with overhead canopy and parking, facing East 4th Avenue.

West entrance at existing gym and Art Room, facing Main Street. The entrance is very close to the street edge. Art Room egress stairs are on the right.

Wood fascia that is worn and coming apart.

South side of Existing Gym, next to irrigation canal from the Boulder River. Masonry block is holding up well, and paint appears new.

South Library roof, looking towards modulars and storage sheds. Shingles on the Library roof appeared in good condition. Modular roofs had shingles damaged and torn off, mostly from high winds over the previous weekend. Solar panels did not appear damaged.

The majority of the existing roofs appeared to be in good condition. This roof, over the Existing (South) Gym, had very little damage and transitions and termination bars were in good working order.

A large roof downspout and overflow on the north side of the building. Most of these large downspouts did not have a splash block or other method of diverting large quantities of water away from the foundation, and most runoff soaks into the grass area.

The roof looks relatively new. This area over the Kitchen space had welds and wrapping of membrane applied correctly.

The egress stairs from the Art Room, as seen from the South Gym roof. The wood appears deteriorated and is secured to the building with cables. This stair does not comply with current accessibility codes and needs to be replaced with a more permanent stair.

An area of spalling concrete around handrail posts. While not dangerous or against accessibility codes, continued wear will eventually lead to the handrail dislodging from the concrete. This could give way under lateral load when in use and cause injury.

Another large downspout that drains to a splash block in the back of the building. This spout is partially shaded by the wall adjacent to it. During heavy rains, water could flood around the condenser unit here. The drainage swale is visible in the grass leading out to the parking lot.

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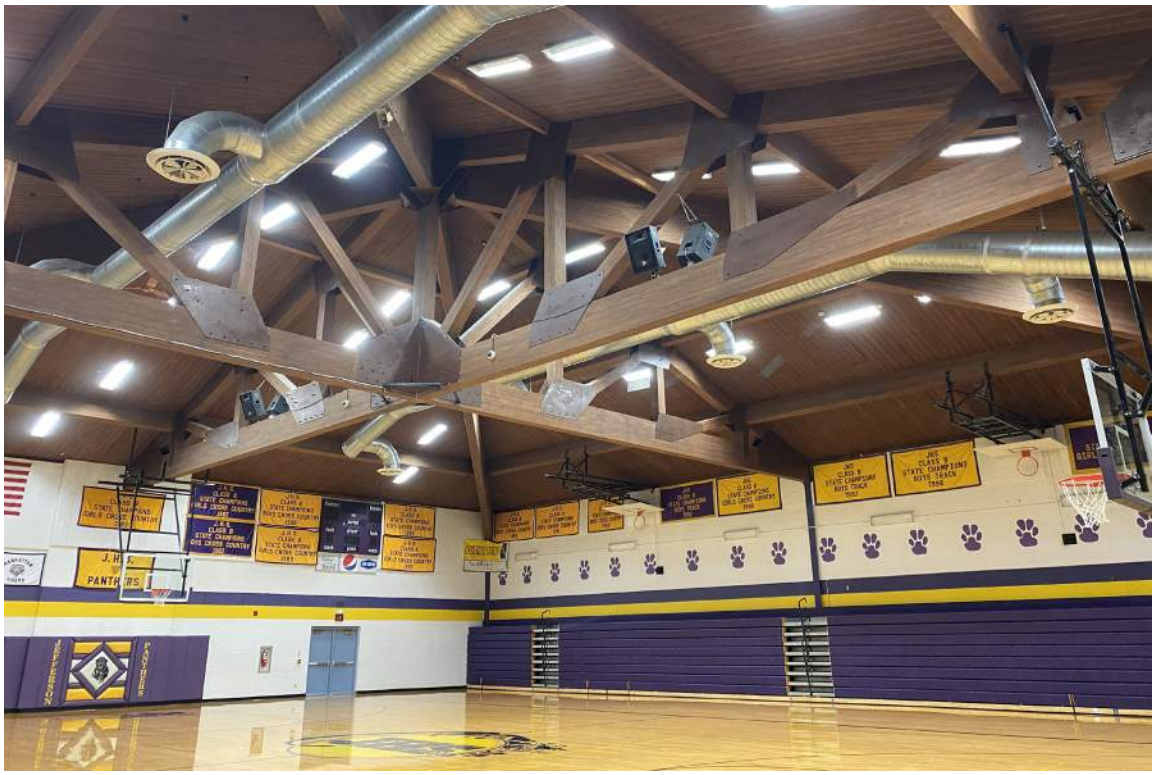
Annotated Photographs - Interior

The FCS room. This space was noted to have ventilation problems and the finishes were slightly dated. However, the room had ample space for students and functions.



North (New) Gymnasium. Finishes and flooring are new and roof trusses are an attractive touch to this space.

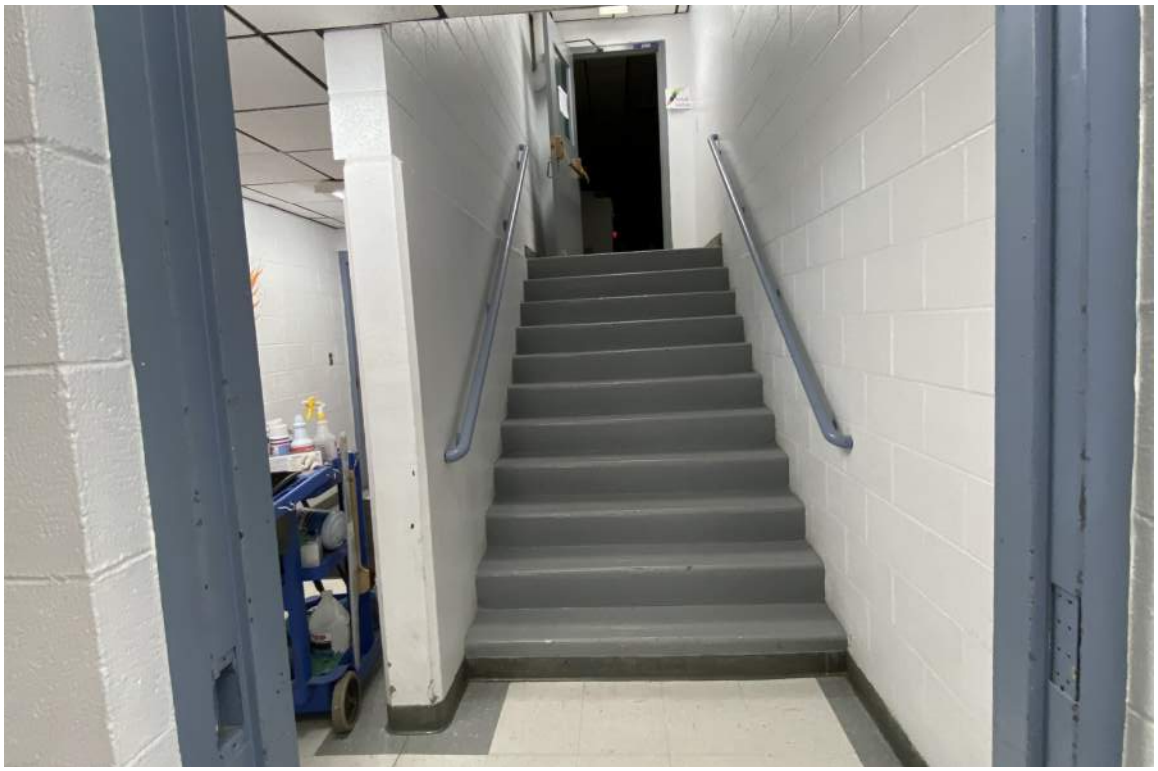
Cafeteria seating area, adjacent to the North Gym. Kitchen is against back wall. Staff comments were that there is not enough seating in this room; some students will take lunches and sit in other parts of the school.

Toilet fixture and stall in restrooms adjacent to Cafeteria seating area. Even though it has several grab bars, this restroom, like most in the school, does not meet current codes for accessibility.

East entry door, looking east towards Area C classrooms and Area D Library. Recent security upgrades have improved access control for students and staff.

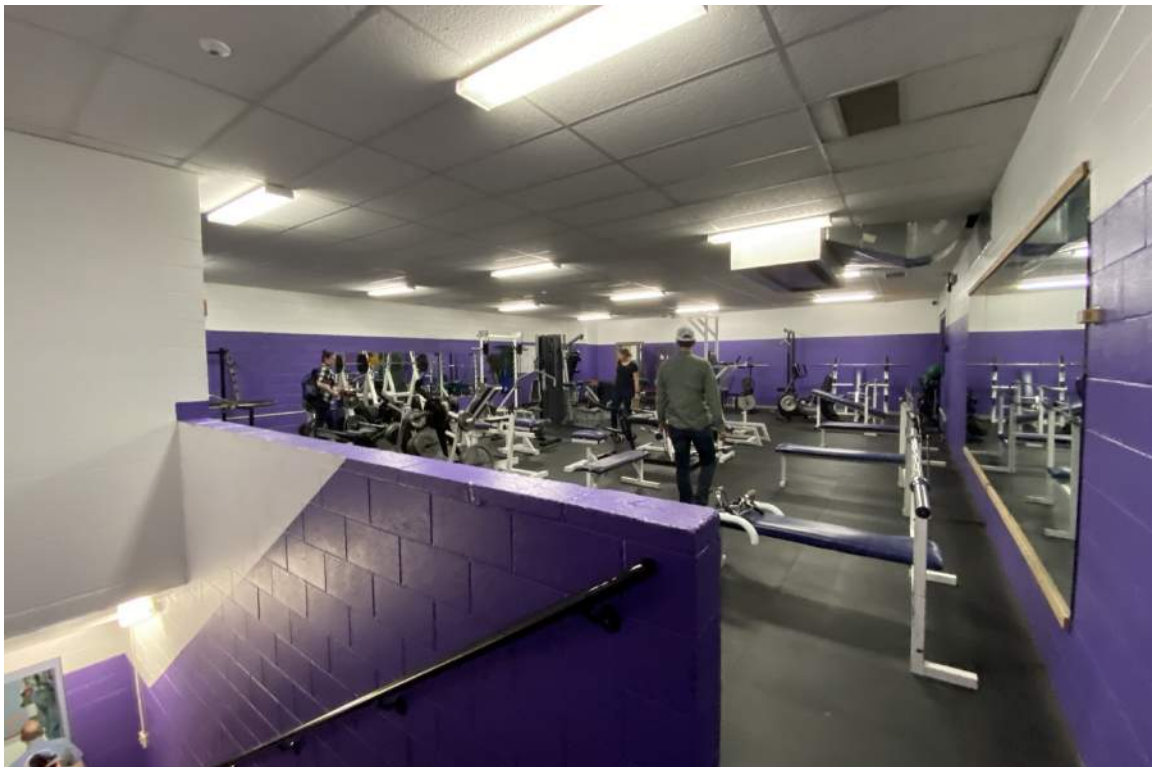
Looking north from the previous entry door location, down the ramp toward the front entry. Staff input was that this area is excessively busy between class periods and becomes a bottleneck. This intersection is the most direct way to access the gym, band room, shops, and weight room from the classroom areas.

Nurse's Office. The large computer rack hangs above on the wall. Finishes in many of these offices are clean but small and outdated.



Stairs leading up to the Band Room from the Hallway. There is no accessible route to the Band Room, limiting access to those with mobility issues.

Ramps in main hallway running east-west. Landings, handrails, and slopes all appear to be within current ADA requirements.



Weight room mezzanine above locker rooms and North gym. Top of stair landing area is too small for current codes.

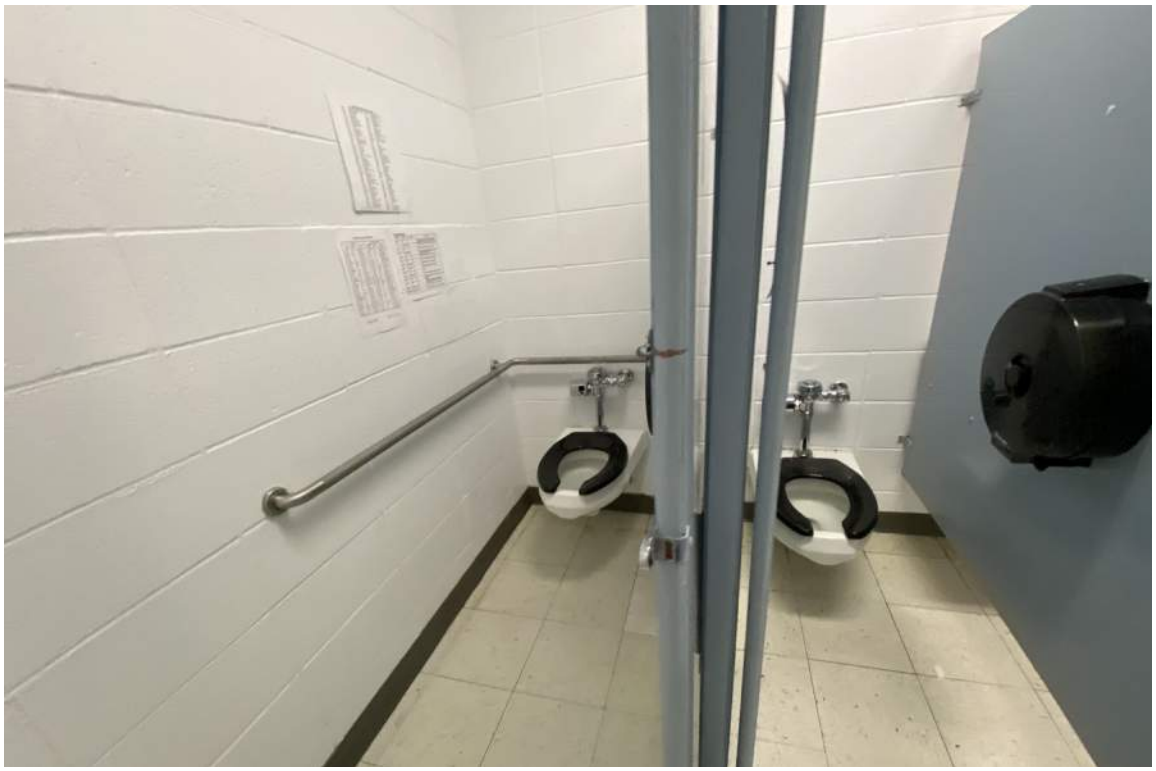
Crumbling composite concrete deck of weight room. Heavy plates and dropping of weights has resulted in severe deterioration of the deck. While this is not a structural problem, it is recommended that the weight room be moved to a floor with a thicker concrete slab.

Ceiling tiles in the wrestling room are severely warped and discolored, from previous roof leaks and excessive moisture. Many areas in the school have the same issue and need to have the tiles replaced.

View of computer lab within library space. The large gap above the walls allows sound to travel between spaces.

The library space with exposed wood trusses.

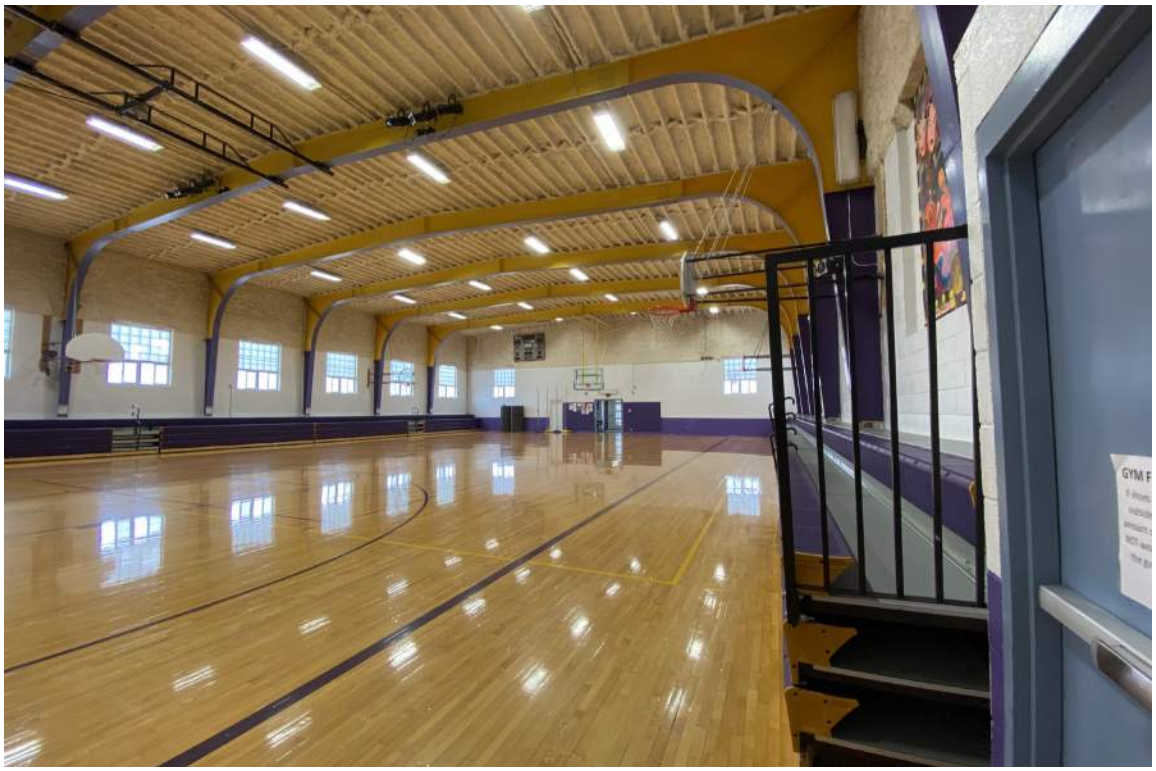
The library windows have to be opened in warm weather to cool the space. During bus loading times, this can make this area noisy.



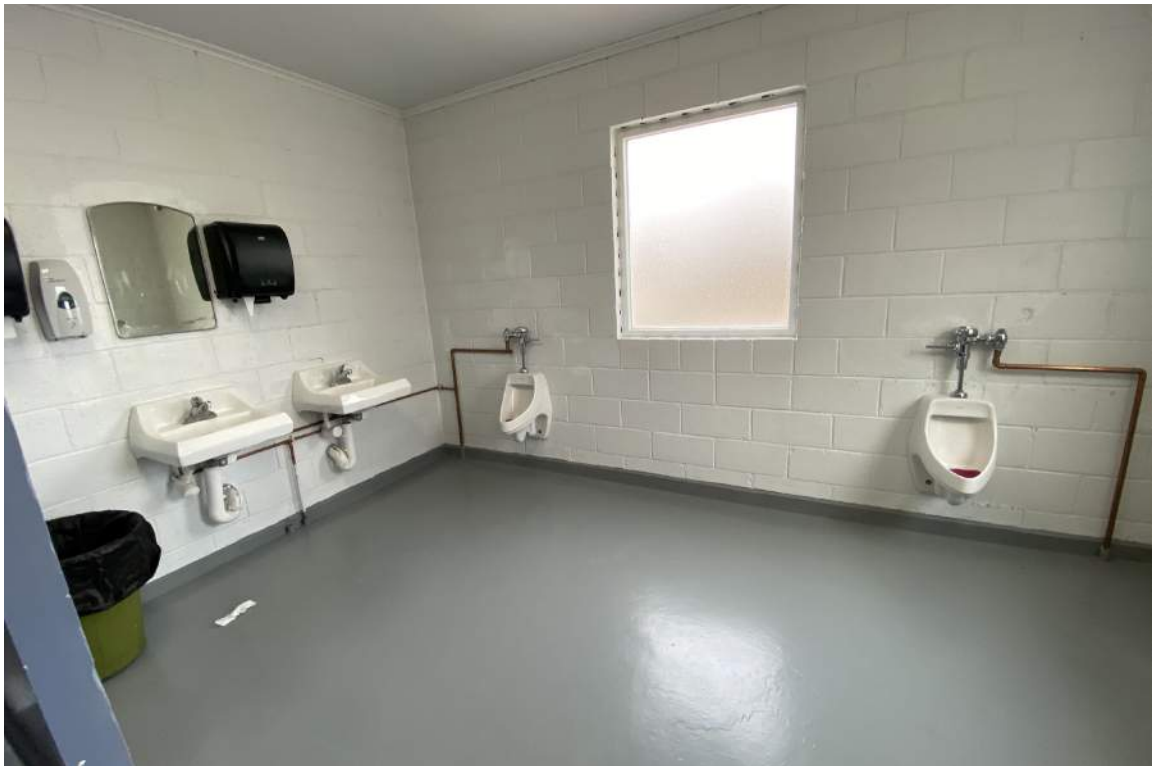
A typical ADA stall in the school. While the grab bars do provide assistance in transferring to the seat, these stalls are not up to current ADA design guidelines.

The kitchen dish drop area and prep table. Most of the kitchen equipment appeared to be in good condition.

The main floor locker rooms with hand wash station. These stations are designed to serve students around its perimeter, but placement next to the CMU block wall limits access. This reduces the number of required lavatories per the International Building Code (IBC) and amendments per the Administrative Rules of Montana.



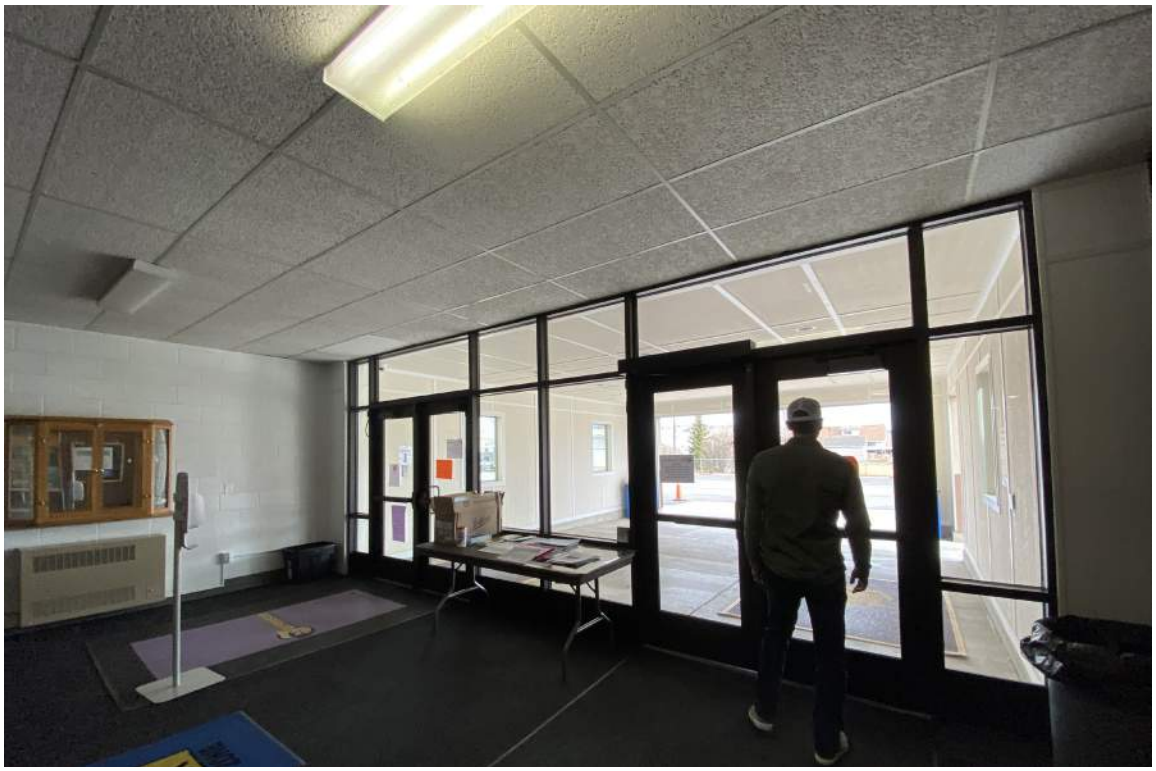
Existing (South) gym. This space is reportedly loud for drama and theater presentations, and is shared with athletics. The spray insulation on the ceiling needs to be verified for flammability and smoke spread, as the design team is not confident it should be left exposed.



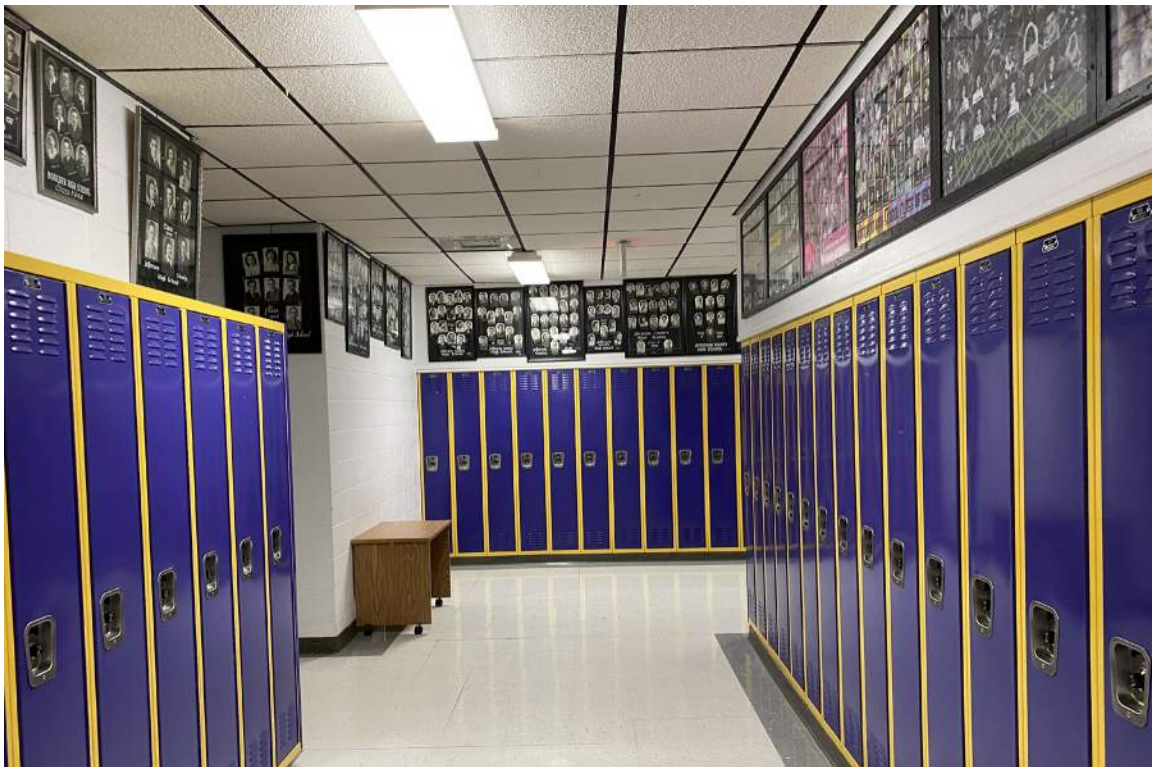
Men's restroom at the west entrance by the Existing Gym. While this room has plenty of turning and clearance space, these restrooms could be better configured to serve more students.

The Art Room, on the second floor. This room is only accessible by stair.

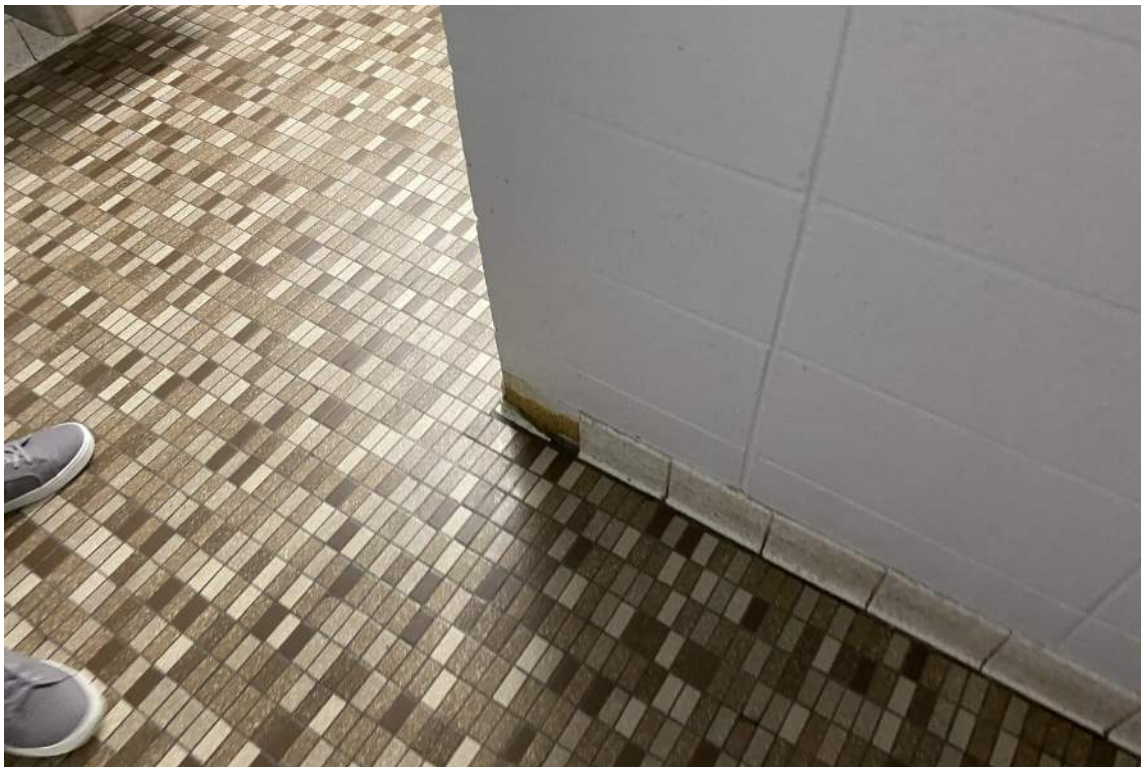
The Music/Band room, also only accessible by stair. This limits access to students and staff with mobility issues.



North-facing front entry doors. These have also been upgraded with enhanced security, including a camera and intercom to verify visitor access.



Hallway in Area C, the 1974 addition. Lockers appear clean and new, and hallway widths are acceptable for a school of this size.



Most restrooms were in good condition, with minor areas of repair needed. However, this CMU block wall makes accessibility difficult for wheelchair users.

View of the Physical Sciences room. This room is a good size for a science room, based on current design guidelines.

Casework and countertops in the Life Sciences room. While most of these are in good condition, there are areas of wear. This room is too small for a typical science room.

Front entry with overhead canopy and parking, facing East 4th avenue. This large covered entrance provided exceptional weather protection for students entering the building.

Women's lockers in the lower level of the Existing (South) Gym area. These locker rooms were reported to have issues with accessibility, ventilation, and adjacency to the Men's locker room. These are only accessible by stair.

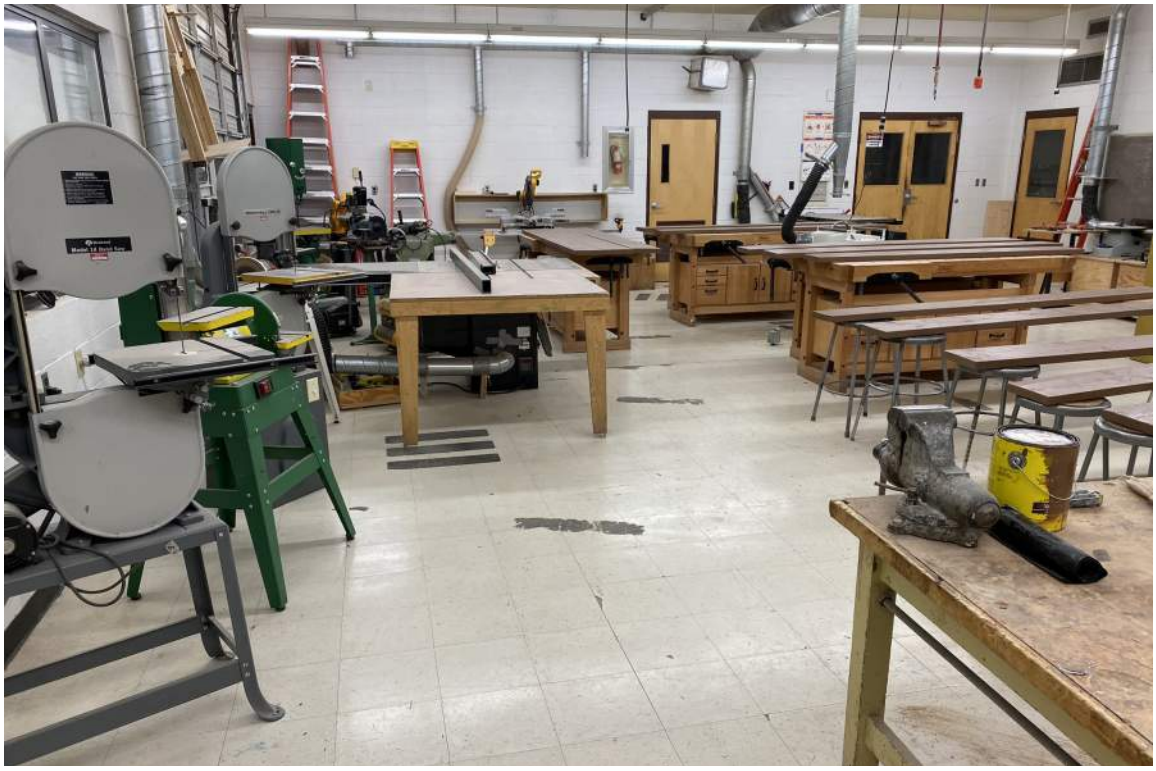
Women's lower level locker room. Floor and walls are in good condition but the training bench is very worn.

Gang showers in the lower level locker rooms are no longer designed in schools due to bullying and body shaming issues.

Men's locker room in the lower level of the gym. There are multiple issues in this space, such as accessibility, ventilation problems and doors missing from the stalls. Equipment storage outside this room poses potential Title IX problems.

The welding space has a close proximity to the small engines space. Gas fumes are smelled in this room and there are questions of flammability.

Spray booth in the CTE space. Problems of overspray are reported.



Another view of the shop space. Flooring and tables are worn as expected. The users of this space report slick floor surfaces when covered in sawdust.

View of one of the modular classrooms. These classrooms are detached from the school building, which poses major security issues.

Another modular classroom. Maintenance has been kept up in these rooms and they have floors, ceilings, and casework in good condition.

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Utilization Study

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Utilization Study

SMA conducted several meetings and participated in walkthroughs of the building with staff and administrators, who provided enrollment numbers and class schedules at our request. From this information, we calculated the "utilization" figures for the school – the number of periods out the eight daily that each room in Jefferson High School is occupied, on each of the four days in a Jefferson High School week. Most schools seek utilization rates between 70 and 85 percent through the school day. Most General Education spaces within Jefferson High School are utilized more than this.

Utilization does not consider the space afforded to furniture, equipment, or storage in a classroom, and are intended only as a baseline for evaluating school and facility needs.

The table also shows average class sizes reported for JHS's 2019-2020 school year, and the accompanying chart shows average area available to each student, in square feet. Those figures are compared to our recommended area of 45 to 55 square feet per student – which is typical of general education classrooms – with smaller areas shown in red. Those calculations show rooms that are more cramped than is recommended in a modern classroom.

While many of the learning spaces at JHS meet or exceed the recommended areas, several do not: Classrooms D118 (English) and D112 (Science/Biology Combined Lab) fall short, and C103 (English), D114 (Government) and D115 (World American History) will become crowded if enrollment increases.

As discussed in User Group Meetings with JHS staff, student learning experiences could suffer if there is an increase in the student body, and classroom space cannot accommodate it. ■

JEFFERSON HIGH SCHOOL - BOULDER, MONTANA

Facility Utilization Summary

		# STUDENTS / CLASS (2019-2020 School Year)									UTILIZATION (70-85% Recommended)			AREA / STUDENT (45 - 55 SF / student in Gen. Ed. classrooms recommended)		
Room Name	Room #	Zero (Homeroom)	First	Second	Third	Fourth	Fifth	Sixth	Seventh	TOTAL	Periods Used / Day (out of 8)	% Utilization per Room	Average % Utilization for Entire Area	Room Net Area (SF)	Average # of Students per Class	Average Area / Student (SF)
AREA C CLASSROOMS (GENERAL EDUCATION)																
FAMILY & CONSUMER SCIENCE (FCS)	C101	18	18		16	6	18	18	8	**102**	7	88%		1,790	14.6	**122.8**
BUSINESS/COMPUTERS LAB	C102	15	21	10	7	16		15	13	**97**	7	88%		1,032	13.9	**74.5**
ENGLISH	C103	17	26	13	14	6	7		21	**104**	7	88%	**85%**	694	14.9	**46.7**
MATH	C104	15	18	26	17	11	1	4		**92**	7	88%		712	13.1	**54.2**
MATH	C105	15		16	13		3	20	4	**71**	6	75%		794	11.8	**67.1**
PHYSICAL SCIENCE/CHEMISTRY/PHYSICS LAB	C108	9	16		8	24	5	18	23	**103**	7	88%		1,462	14.7	**99.4**
AREA D CLASSROOMS (GENERAL EDUCATION, LIBRARY)																
SPECIAL EDUCATION (SPED)/LEARNING CENTER	D109	6	4	3	7	2	7	4	11	**44**	8	100%		575	5.5	**104.5**
LIFE SCIENCE/BIOLOGY LAB	D112	11		22	18	24	26	23	21	**145**	7	88%		885	20.7	**42.7**
ENGLISH	D113	6	6	20	3	14	19	15		**83**	7	88%		770	11.9	**64.9**
GOVERNMENT	D114	13	13		20	17	10		24	**97**	6	75%	**86%**	741	16.2	**45.8**
WORLD/AMERICAN HISTORY	D115	15	18	16	17		30	27	17	**140**	7	88%		836	20.0	**41.8**
LIBRARY	D117		15	10	8	7	10	16	18	**84**	7	88%		2,576	12.0	**214.7**
ENGLISH	D118	20	20	30		17	25	14		**126**	6	75%		809	21.0	**38.5**
MODULAR CLASSROOMS																
HEALTH/DRIVER EDUCATION	MOD 1		13	13	26	26	13	10	17	**118**	7	88%		900	16.9	**53.4**
MATH	MOD 2	11	5	23	24		8	8	33	**112**	7	88%	**71%**	900	16.0	**56.3**
SPANISH/ENGLISH	MOD 3		5			9		15		**29**	3	38%		900	9.7	**93.1**
AREA E CLASSROOMS (CTE, SHOPS CLASSES)																
CAD LAB [COMPUTERS]	E122 & WELD	11	11	6	7	11	14		13	**73**	7	88%	**88%**	563	10.4	**54.0**
DRAFTING ROOM	E123 & WOOD	9	9	4	6	7	9		11	**55**	7	88%		608	7.9	**77.4**
AREA G CLASSROOMS																
BAND/CHOIR	G125	13	11	10	7	28				**69**	5	63%	**72%**	2,700	13.8	**195.7**
ART	G127	8	10		7	7	19	17	15	**83**	7	88%		950	11.9	**80.1**
GYMNASIUM	S. GYM	10	9			9	15			**43**	4	50%		9,300	10.8	**865.1**
WEIGHTS	WEIGHT RM	18	18	13	21	12	29		23	**134**	7	88%		1,591	19.1	**83.1**
DRAMA																
INTRODUCTION TO DRAMA	S. GYM					10				**10**	1	13%	**13%**	1,675	10.0	**167.5**
ADVANCED DRAMA	S. GYM	20								**20**	1	13%		1,675	20.0	**83.8**

Yellow Text	Indicates within recommended range
Red Text	Indicates beyond recommended range
Blue Text	Indicates non-General Education classrooms, recommended sf/student does not apply

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Mechanical, Plumbing & Electrical Findings and Recommendations

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ACE INC
ASSOCIATED • CONSTRUCTION • ENGINEERING

EXECUTIVE SUMMARY

Mechanical

The building is served with a central boiler system with (3) medium efficiency hot water boilers that replaced the original, single hot water boiler. These boilers are all Lochinvar Copper Fin II units manufactured in 2005 with an output capacity of 1,209 mbh each and are reported to function without issue, but they are 15 years old and should probably be replaced in the near future. I was informed the boilers do not run on an outdoor air reset schedule and run at a constant temperature. Two boilers typically handle the heating load unless it is very cold outside or cold with a large domestic hot water load (since they heat domestic water as well). The hot water is circulated throughout the building by a pair of heating water pumps, that appear to be original and are in need of replacement. The boiler system provides heat to the air handler serving the common core and admin areas and to fintube, cabinet unit heaters and unit heaters serving the entry areas, kitchen area, locker rooms, weight room, old gym, stage and exterior areas of the shop spaces. It appears some of theses control valves are not functioning correctly and cause spaces to drastically overheat. This system also provides the heating source for the domestic hot water system for the majority of the building. A third pump provides hot water to a heating coil located in a 1,500 gallon domestic hot water tank which serves the majority of the building. The remainder of the building is heated with gas fired air handlers or gas fired furnaces. The heating water supply and return lines are not insulated with the exception of the piping in the mechanical room. As a result of these uninsulated lines, a lot of uncontrolled heat is lost and released throughout the building in areas not needing heat. This piping should be insulated to improve comfort and efficiency.

The building does not have Air Conditioning with the exception of the IT data room, which is served by a newer split system AC unit. Heating and Ventilation (H&V) air is provided by air handlers or furnaces throughout most spaces in the building except the stage, old gym, old gym restrooms, ceramics classroom and old lower level locker room/storage area (which only has an exhaust fan). The units I looked at were all provided with an outdoor air connection to provide ventilation air to the spaces. The original hot water H&V units which served the new gym have been replaced with a single rooftop, gas fired air handler manufactured in 2002. The original multizone hot water H&V air handler serving the common core and admin areas is still in place and functioning. The main complaint about this unit is that it is loud so as a result it is not run that often. The original gas fired rooftop H&V air handler that served area C has been abandoned in place and replaced with gas fired furnaces, last replaced in 2011. The main complaint about the furnaces located in the exterior classroom spaces is that while these units have their vents thru the roof, the combustion air is taken from the space and they have openings thru the exterior wall for that combustion air. As a result of these openings, the room is very cold and throws off the thermostat which is mounted on the wall of the utility space. The dampers for these furnaces are older pneumatic style and have a tendency to leak cold air into the room thru the return duct causing comfort issues. These issues should be corrected. The Library is provided with H&V by the

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original duct furnaces installed in 1985. The area D classrooms are provided with H&V air by gas fired furnaces last replaced in 2011. The area D furnaces in the exterior classrooms have the same issues as outlined above. The area E Shop spaces are still served with H&V air from their original gas fired rooftop units, which are in poor condition and should be replaced. The Music room is served with H&V by a pair of gas fired furnaces that were last replaced in 2011. The stage, old gym, old gym rest rooms, ceramic classroom and lower level locker rooms do not have an air handler and are not provided with any H&V air. An air handler should be installed to provide ventilation for these spaces.

The temperature control system is a combination of older pneumatics and electronic controls and stand alone electric thermostats. Parts availability for the pneumatics is difficult and the controls overall should be upgraded to a DDC system with the heating water control valves replaced.

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Plumbing

The main 4" water entrance comes in the West side of the building near the new locker rooms and is not provided with a backflow preventer or water meter. This 4" galvanized line is then routed above the ceiling and down the hall heading East, with taps coming off for each area served. There are numerous leaks in this section of line and it is very much in need of replacement. I was informed that at some point the city installed a water meter, but its location is down the hall and is after the taps for the old gym, new locker rooms and main restrooms, and as a result it does not reflect the buildings actual water usage. The cold water line then continues to the boiler room and connects as makeup to the 1,500 gallon domestic hot water generation and storage tank which serves areas A, B, E and G. This tank is provided with a tube bundle and is heated with hot water from the boilers, which causes the boilers to cycle all year long to maintain domestic hot water temperature. This is not an efficient system and should be reviewed for replacement. In general, the domestic hot water, hot water recirc and domestic cold water lines are not insulated with the exception of some lines in the boiler room. In my review of the building, I did not see any mixing valves to limit the temperature of the hot water as is currently required for lavatories and showers. Area C is equipped with a stand alone tank water heater (I believe this is electrical and may be original) and Area D is also equipped with a stand alone gas fired 40 gallon/40mbh water heater. I am not sure of the installation date, but it is listed as 2006 or newer.

In general, the plumbing fixtures are in good condition with some fixtures having been replaced over the years and they appear to function properly. The water closets are flush valves with sensors. The majority of the urinals are flush valve with sensors except the urinals in the old gym restrooms which are manual flush valves. The lavatories have a mixture of faucet types and should be updated with ADA faucets and tempering valves to limit the temperature of the hot water. It appears some of the lavatories do not meet ADA and will need to be replaced. The showers in the Newer gym are either 2 or 3 station stainless steel wall packs and the showers in the lower level old locker rooms are individual stainless steel wall mounted showers in a stainless steel panel. These fixtures appear to be fairly new and in good condition, but I did not see any evidence of a master mixing valve to limit hot water temperature which should be included. The drains in these areas should be reviewed to make sure the water from one bather does not run across the adjacent bathers space.

The building does not have a fire protection system installed with the exception of the lower level locker rooms. Looking at the system in the lower level, it is apparent that many of the sprinkler heads are obstructed by adjacent surface mounted light fixtures which should be corrected. Adding fire sprinklers to the entire facility would be expensive and challenging.

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Electrical

The campus at Jefferson High School is served by a 120/208V, 3-phase, 4-wire 1200A service. The main distribution board is a Westinghouse Switchboard installed in 1975. The main Westinghouse switchgear is original to the building and shows sign of liquid leaking onto the equipment (See E1). These items appear to be in good working order, but are past their typical life expectancy. Replacement parts may be hard to come by for equipment of this age.

Many of the downstream panels are original to the 1975 building or part of the 1985 renovations and are past their typical useful life expectancy of 30-50 years. Replacement parts may be difficult to locate for these older panels. However, some newer panels have been installed during various renovations. Panels appear to be in good working condition. Working space code requirements are not met in many instances throughout the facility due to items being stored within the working space requirements.

Facility has a Seimens-Allis motor control center (MCC) rated at 208V, 3-phase, 4-wire, 600A in the boiler plant to serve equipment within that areas. Equipment appears to be in good working condition, but as reached it useful life expectancy.

The electrical service entrance at the wood shop exterior within the dust collector space doesn't appear to be installed and mounted to industry standards. Materials and methods used don't appear to be of workmanship like manner. Potential for conduit damage from lawn maintenance where PVC conduits are exposed above grade. White conduit fitting doesn't appear to be rated for outdoor exposed installation and could be a code violation if not the proper material. (See E4)

Panels located off the gym lobby area in storage space that are within custom built cabinets are a code violation. The cabinets do not maintain the 30" width at each panel required by the National Electric Code. (See E14)

Conduit leaving Panel D1 shows signs of an electrical fire within the conduit. Conduit and/or wiring has been compromised and should be inspected by a licensed electrical contractor. (See E5)

Lighting systems throughout the campus vary from original fixtures to somewhat newer T8 fixtures where renovations have taken place. Most fixtures are fluorescent types. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Many light fixtures were in working, but poor condition. Control systems include local switching and occupancy sensors. Site lighting is present throughout the campus and consists of pole-mounted and building-mounted high-intensity discharge (HID) type fixtures with photocell control. Exterior fixtures have dirty or faded lenses that are reducing the light output from fixture. We recommend replacing fixtures with new LED type lighting.

Emergency lighting bug eye lighting in corridors and is lacking throughout some other areas. Certain areas around campus would require emergency lighting systems under current codes. These areas include, but not limited to, exterior areas at exit doors, assembly areas, areas or spaces that are along the path of egress, and spaces with multiple entrances/exits. It is also

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recommended that electrical and mechanical spaces be equipped with emergency lighting for maintenance staff safety.

Most of the areas throughout campus have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide. The fire alarm control system is a Simplex and was installed in May of 2019. Fire alarm devices appear to be in good working condition and maybe approaching their expected life of 10-20 years, excluding the fire alarm control panel. The systems appear to be operational but they were not tested as part of this report. Current code requirements for educational facilities require a voice evacuation fire alarm system.

The access controls systems are limited but appear functional. The campus has a fairly new video surveillance systems, but has reached its maximum capacity. The surveillance system appears to be in good operating condition. The security systems should have an expected life of around 20 years.

The campus is connected by an optical fiber data network and copper telephone cables with two service providers. The campus data network appears to be continuously updated, including wireless access points, as technology changes and available resources allow. The network appears to be well-maintained and in good working condition. The campus data network is approximately 5 years old. The telephone cabling system is old but these systems have an indefinite useful life.

The campus has a public address (PA) system that is present throughout. The PA system appears to be original to the building. Testing of the PA system was not performed; however, system appears to be in working condition. PA system should be tested and inspected by a PA system provider to obtain more information and condition of system. The PA system also included a clock and bell function. Within the classrooms this was a single device. The clock system was working and reflected accurate time.

Please note: No testing was performed on any of the above equipment during this site inspection. Therefore, working conditions and code requirements are not verified.

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EXISTING FACILITY NARRATIVE

EXISTING (SOUTH) GYM (1956)

MECHANICAL

Existing Equipment and Systems: The existing Gym space does not have any HVAC or H&V air provided. There were two exhaust fans in the ceiling originally, but I was informed they are no longer functional. (See M1) The gym space was originally heated by three hot water unit heaters. Two of these units are still in place and are recessed and located high in the East wall of the auditorium/stage. (See M2) They pull air from the stage area and blow it thru the coil and into the Gym area. They are barely functional, only work on rare occasions and it appears the controls do not operate correctly. A third unit heater was suspended in the Gym space at the West end. It has since been removed and the heating water supply and return lines have been abandoned in place and capped. The associated main floor restrooms and office spaces are heated by hot water cabinet unit heaters. These spaces do not have supply air and appear to only have marginal exhaust air installed for the restrooms.

Age and Existing Conditions: The heating units are original to the 1956 gymnasium and are in need of replacement.

PLUMBING

Existing Equipment and Systems: There is a single electric water cooler located by the West entry to the Gym. The associated main floor restrooms at the West end of the Gym space do not meet ADA. They do have wall mounted china lavatories with single handle faucets and insulated supply and waste lines, but they do not have ADA toilets or the required clearances for the toilet stalls. (See M3) The mens restroom has two wall mounted china urinals but they do not have stalls or dividers installed and the proximity from one unit to the sink does not appear to meet code. (See M4) The hot water and cold water lines serving these fixtures are racked on the wall, uninsulated and exposed in the room. The main service lines for this area are uninsulated and routed in common with the heating water lines thru the crawlspace below the Gym floor which results in all of the water lines being warm or hot until the cold water line runs long enough to flush out the stagnant hot water.

Age and Existing Conditions: I was not able to determine the age of the fixtures, they are an older style, but in decent condition. They are flush valve and appear to be functional.

LIGHTING

Existing Equipment and Systems: Light fixtures in the Gymnasium are fluorescent high-bay type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and occupancy sensors. Fixtures were protected with wire guards.

Emergency lighting units mounted at exit doors.

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EXISTING FACILITY NARRATIVE

Stage lighting present within the gym space.

Age and Existing Conditions: The age of lighting system appears to be newer than other fixtures on campus. Fixtures appear to be well-maintained and in good operating condition. Fixtures have some useful life left in them , but unable to determine how many years that may be.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to the Gymnasium is provided local breaker panels.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution equipment has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving this location.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns.

Age and Existing Conditions: The fire alarm system in this area is well past its expected life of 10-20 years with exception of the control equipment installed in 2019. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: Video Surveillance is present in gym.

Age and Existing Conditions: System appears to be newer and updated with current technology.

COMMUNICATIONS SYSTEMS

System serves stage and back of house areas of gymnasium. System appears to be in working condition.

Existing Equipment and Systems: Phone and both wired and wireless data are present.

Age and Existing Conditions: The data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

ART ROOM (1956)

MECHANICAL

Existing Equipment and Systems: This space located on the second floor at the West end of the Old Gym does not have any HVAC or H&V air provided. It does have operable windows, but it would need to be reviewed to see if the sqft of opening meets the code requirements for natural ventilation. Heat is provided by perimeter hot water heat which is controlled by one common valve located in the womens restroom on the level below.

Age and Existing Conditions: The fixtures and devices in this area appear original and show significant use.

PLUMBING

Existing Equipment and Systems: The art room is equipped with counters and two sinks. These sinks show significant use and do not appear to have a plaster trap installed.

Age and Existing Conditions: The fixtures and devices in this area appear original and show significant use.

LIGHTING

Existing Equipment and Systems: Lighting systems was replaced with the roof. Light fixtures are recessed fluorescent troffers. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology.

No emergency lighting was observed. Emergency lighting should be installed within the stairwell leading up to the art room as this is considered a path of egress and requires emergency egress lighting.

Age and Existing Conditions: Fixtures are newer than most fixtures on the campus. Light fixture still have some useful life left in them.

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EXISTING FACILITY NARRATIVE

AUDITORIUM/STAGE (1956)

MECHANICAL

Existing Equipment and Systems: This area does not appear to have any HVAC or H&V air provided. It is heated by two pieces of exposed hot water fintube installed on the East wall without a cover. The fintube is dented and damaged and the South unit has had the TC valve replaced. (See M5)

Age and Existing Conditions: The fixtures and devices in this area appear original and are in need of replacement.

LIGHTING

Existing Equipment and Systems: Lighting systems throughout the auditorium vary from original fixtures to somewhat new fixtures where renovations have taken place. This area contains multiple types of fixtures, including fluorescent, metal halide and specialty lighting. Most of these fixtures are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and wall-mounted occupancy sensors within the Auditorium lobby.

No emergency lighting was observed. Emergency lighting is required in assembly spaces. Due to the darkness of the stage area, multiple stairs, and the amount of equipment on the stage, emergency lighting is highly recommended in this area.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to these areas is provided by local breaker panels located backstage as well as in the corridor behind the stage.

Dimmer panel was observed on the stage and appears to be in working condition. Wire management needed to reduce loose and coiled up wires. Numerous extension cords hanging on walls and laying of floor create safety hazards. (See E7)

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in the panels serving this location.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

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EXISTING FACILITY NARRATIVE

Age and Existing Conditions: The fire alarm system in this area is well past its expected life of 10-20 years with exception of the control equipment installed in 2019. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: There is a video surveillance systems in the gym/stage area.

Age and Existing Conditions: The video systems appear newer and in good operating condition. The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: Phone and both wired and wireless data are present. Overhead speakers and scoreboard communication system present as well.

Age and Existing Conditions: The data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

OLD LOCKER ROOMS (1956/1974)

MECHANICAL

Existing Equipment and Systems: The locker rooms on the East under the Stage and Music rooms are served with H&V ventilation air provided by a gas fired American Standard furnace located on the main floor in the furnace room inside room E110. This furnace brings outdoor air in thru the roof and is a separated combustion unit with ducted combustion air and vent thru the roof. This air is supplied into the locker rooms and then transfers thru the showers, storage rooms and other spaces before being exhausted thru the showers. The West end of the basement locker room area (from 1956 construction) is currently primarily used for storage. This area lacks ventilation air and builds up humidity and odor with football equipment and other items being stored. A larger exhaust fan was added in the football equipment storage area and it provides some exhaust and helps reduce odors.

Age and Existing Conditions: The original heating unit serving the east end was replaced with a gas fired sealed combustion furnace in 2011. The furnace appears to be working correctly with no reported issues. The remainder of the items appear original.

PLUMBING

Existing Equipment and Systems: The locker rooms on the East have rest rooms and shower rooms included. The shower rooms have had the shower valves and heads replaced, but both shower rooms are group showers and the drains are located so that water from one person drains across other shower spaces. (See M6) There is no ADA access to this lower level.

Age and Existing Conditions: The fixtures and devices in this area appear original with the exception of new shower valves and heads and a few fixture replacements.

FIRE SPRINKLER

Existing Equipment and Systems: The locker rooms under the Stage and Music rooms are the only area in the building that has fire sprinklers. Unfortunately the sprinkler heads are obstructed in many areas by surface mounted light fixtures located right next to the heads. (See M7)

LIGHTING

Existing Equipment and Systems: Lighting is fluorescent vapor-tight fixtures surface mounted to ceiling. Most of these fixtures are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and wall-mounted occupancy sensors within the locker rooms.

No emergency lighting was observed.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy.

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EXISTING FACILITY NARRATIVE

POWER DISTRIBUTION

Existing Equipment and Systems: Very minimal power within the locker rooms.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years. The system appears to be operational but it was not tested as part of this report. System consist of manual pull stations and horn strobes.

SECURITY SYSTEMS

Existing Equipment and Systems: None present

Age and Existing Conditions: The video systems appear newer and in good operating condition. The security systems should have an expected life of around 20 years.

Old Locker Rooms - 13

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EXISTING FACILITY NARRATIVE

MUSIC ROOM (1974)

MECHANICAL

Existing Equipment and Systems: This area is served with H&V ventilation air distributed and recirculated within the space. The original air handler serving the Music room has been replaced with a pair of gas fired American Standard furnaces located in a mechanical room in the space. These units are twinned together to supply a common duct and are controlled by a single thermostat. These furnaces bring outdoor air in thru the roof and are separated combustion units with ducted combustion air and vent thru the roof.

Age and Existing Conditions: The original heating unit was replaced with a pair of gas fired sealed combustion furnaces in 2011. The furnaces appear to be working correctly with no reported issues.

LIGHTING

Existing Equipment and Systems: Lighting systems for the music room are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include: local switching and some occupancy sensors. Numerous fixtures within classrooms are showing signs of age. Different color bulbs on the fixtures are present. Fixtures controlled by wall mounted occupancy sensors.

No emergency lighting was observed. A space of this size and occupancy is required to have emergency lighting.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy. At a minimum lenses and ballast shall be replaced as needed.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service is provided by local breaker panels located throughout the campus. Receptacle quantities appeared to be adequate for the spaces use.

Age and Existing Conditions: The campus power distribution system is original to the building construction or upgraded in 1985 with a few exceptions. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: Most of the areas have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide and in good working condition.

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EXISTING FACILITY NARRATIVE

Age and Existing Conditions: Most of the fire alarm systems are approaching their expected life of 10-20 years, excluding the fire alarm control panel which appears to be rather new. The systems appear to be operational but they were not tested as part of this report.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables.

Public Address system is present in classroom. System was not tested but appears to be original to the construction of the building.

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

Music Room - 15

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EXISTING FACILITY NARRATIVE

AREA A - NEW GYM (1985)

MECHANICAL

Existing Equipment and Systems: This space was originally served with H&V ventilation air from a pair of interior air handlers served with hot water for heat. These units have since been replaced with a single gas fired rooftop air handler manufactured by Greenheck. The unit has 3 stages of heat. (See M8) The air is distributed to the gym thru two main duct runs with round downflow diffusers. Return air is taken on the North East end of the gym and exhaust air is taken out the South East End. Some of the air from the gym cascades into and thru the locker rooms for ventilation for those areas.

Age and Existing Conditions: The current air handler was manufactured in 2002 and appears to function correctly with no reported issues.

LIGHTING

Existing Equipment and Systems: Light fixtures in the Gymnasium are fluorescent high-bay type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and occupancy sensors on each fixture.

Emergency lighting units mounted at exit doors.

Age and Existing Conditions: The age of lighting system appears to be newer than original construction of the building. Fixtures appear to be well-maintained and in good operating condition.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to the Gymnasium is provided by local breaker panels.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving this location.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns.

Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years except the control equipment installed in 2019. The system appears to be operational but it was not tested as part of this report.

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EXISTING FACILITY NARRATIVE

SECURITY SYSTEMS

Existing Equipment and Systems: Video Surveillance is present in gym.

Age and Existing Conditions: System appears to be newer and updated with current technology.

COMMUNICATIONS SYSTEMS

Minimal communication systems are present in the gymnasium. System for gymnasium events/functions are present and appears to be in good working condition. Testing of systems was not done during this visit.

Existing Equipment and Systems: Scoring system, scoreboard, phone and both wired and wireless data are present.

Age and Existing Conditions: The data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

AREA A - WEIGHT ROOM/WRESTLING (1985)

MECHANICAL

Existing Equipment and Systems: This area is served with H&V ventilation air thru two surface mounted ceiling fan/coil units with hot water heat. Originally these units pulled air from the gym, supplied to the space and exhausted out the roof. They have since been modified to pull air in thru the roof. (See M9)

Age and Existing Conditions: The current fan/coils appear to be original and function correctly with no reported issues. One of the units was missing its bottom panel and may need to be replaced.

LIGHTING

Existing Equipment and Systems: Light fixtures in the weight are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and occupancy sensors. Many light fixtures have signs of damage to lenses, adjacent ceiling tiles, and t-bar grid supporting the fixtures. (See E15)

No emergency lighting is present within weight room. Emergency lighting is recommended.

Age and Existing Conditions: The age of lighting system appears to be somewhat new. Fixtures appear to be well-maintained and in good operating condition.

POWER DISTRIBUTION

Existing Equipment and Systems: Minimal power is present in the weight room and consist of standard receptacles. System is served by local breaker panels.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns.

Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: Video surveillance system is present.

Age and Existing Conditions: System appears to be newer and updated with current technology.

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EXISTING FACILITY NARRATIVE

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: N/A

Age and Existing Conditions: N/A

Area A – Weight Room/Wrestling - 19

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EXISTING FACILITY NARRATIVE

AREA A - NEW LOCKER ROOMS (1985)

MECHANICAL

Existing Equipment and Systems: These areas are served with H&V ventilation air thru two recessed ceiling mounted fan/coil units with hot water heat. These units pull air from the gym and supply to the space. The supply air is exhaust thru the shower and toilet room areas and discharged out the roof.

Age and Existing Conditions: The current fan/coils appear to be original and function correctly with no reported issues.

PLUMBING

Existing Equipment and Systems: The restroom area fixtures appear to be in good condition. ADA fixtures are installed. The shower room showers appear to be in good condition with either 2 or 3 station stainless steel shower wall packs. Floor drains are located in the corners.

Age and Existing Conditions: The fixtures and devices in this area appear original and in good condition.

LIGHTING

Existing Equipment and Systems: Light fixtures in these areas are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and fixture-mounted and ceiling-mounted occupancy sensors. Lighting in this space has reached its end of useful life. Many fixtures not working or have discolored, missing, or broken lenses. Women's locker room/visitors' locker room had newer light fixture that still have life left in them.

Age and Existing Conditions: The age of lighting system appears to be at the end of its life except for Women's locker room fixtures which appear to be newer and have some life left in them.

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EXISTING FACILITY NARRATIVE

AREA B - COMMON/LUNCH (1985)

MECHANICAL

Existing Equipment and Systems: The common areas/lunch room of the school are served with H&V ventilation air from the original 1985 Trane air handler suspended in the boiler room. This unit is a 6 head multizone unit with pneumatic operators and a hot water coil. The suspended unit distributes the supply air thru ducts routed below grade, over to the common and admin areas, and then routed above grade and transitioning into above ceiling supply and return air ductwork.

Age and Existing Conditions: The air handler is original from the 1985 addition and is still running fairly well without any specific issues. The main complaint about the unit is that it runs constantly and can be drafty and loud. As a result, it is only turned on when additional heat is needed, which is not very often.

PLUMBING

Existing Equipment and Systems: The only plumbing fixture in this area are a high and a low electric water cooler located at the bathroom entrance to satisfy both ADA and non ADA requirements. (See M10) These appear to be in good condition.

Age and Existing Conditions: The fixtures and devices in this area appear original.

LIGHTING

Existing Equipment and Systems: Lighting systems throughout the common areas vary from original fixtures to somewhat new fixtures where renovations have taken place. Most fixtures are T8 fluorescent surface mounted fixtures to ceiling tile. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching with occupancy sensors.

Age and Existing Conditions: The age of lighting systems varies greatly. Some are original and others have been upgraded in recent renovations. Many fixtures have broken or missing lenses that need to be replaced.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to these areas is provided by local breaker panels throughout the building.

Age and Existing Conditions: The campus power distribution system is original to the building construction. Some equipment has been replaced and updated in 1985. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations. Replacement parts for equipment of this age are generally tough to find.

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EXISTING FACILITY NARRATIVE

FIRE ALARM SYSTEMS

Existing Equipment and Systems: Most of the areas have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide with a new control panel installed in May of 2019.

Age and Existing Conditions: Most of the fire alarm devices are approaching or past their expected life of 10-20 years, excluding the fire alarm control panel which appears to be rather new. The systems appear to be operational but they were not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: Most of the campus is equipped with a video surveillance system. The system appears to be newer and fully functional. The system has reached it maximum capacity and will need to be upgraded if more devices are needed. There are access controls at each of the entry points and appear to be in good working condition.

Age and Existing Conditions: The video systems appear newer and in good operating condition. The access controls systems are limited but appear functional. The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables. The data network is supplied by two providers, Century Link and Montana Internet.

Age and Existing Conditions: The campus data network is approximately 5 years old appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life. PA system appears to be original to the building, testing was not done on the system.

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EXISTING FACILITY NARRATIVE

AREA B - KITCHEN (1985)

MECHANICAL

Existing Equipment and Systems: This area is served with some H&V ventilation air from the same unit serving the Common/Lunch area. When the kitchen range and hood are running, it is also served with makeup air from a roof mounted gas fired makeup air unit. The kitchen has a new Type I exhaust hood over the cooking line and has an additional Type II exhaust hood over the dishwasher. I was told these units (hoods, exhaust fans and makeup air unit) have been replaced recently and are in good working condition. (See M11)

Age and Existing Conditions: The makeup air unit, hoods and exhaust fans have recently been replaced and are in good condition.

PLUMBING

Existing Equipment and Systems: The kitchen has a 3 compartment sink, prep sink and dishwasher. The kitchen plumbing equipment is in good condition with a few exceptions. The grease trap is in poor condition and needs to be replaced. The kitchen prep sink is not piped as an indirect waste with an air gap. Other indirect drains from the dishwasher and ice machine need to have the drain shortened so there is an air gap to the floor sink.

Age and Existing Conditions: The equipment and fixtures appear to be in good condition with the exception of the grease trap, which needs to be replaced, and the piping revisions outlined above.

LIGHTING

Existing Equipment and Systems: Light fixtures in these areas are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and fixture-mounted occupancy sensors.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to these areas is provided by local breaker panels.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving this location.

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EXISTING FACILITY NARRATIVE

The quantity of receptacles throughout the kitchen is less than expected based on current commercial kitchen requirements. Additional receptacles though-out the kitchen would be advised.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: There is a video surveillance system in the cafeteria/kitchen area

Age and Existing Conditions: The video systems appear newer and in good operating condition. The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: Phone and both wired and wireless data are present.

Age and Existing Conditions: The data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

AREA B – ADMIN (1985)

MECHANICAL

Existing Equipment and Systems: The administration areas of the school are served with H&V ventilation air from the original 1985 Trane air handler suspended in the boiler room. This unit is a 6 head multizone unit with pneumatic operators and a hot water coil. The suspended unit distributes the supply air thru ducts routed below grade, over to the common and admin areas, and then routed above grade and transitioning into above ceiling supply and return air ductwork.

Age and Existing Conditions: The air handler is original from the 1985 addition and is still running fairly well without any specific issues. The main complaint about the unit is that it runs constantly and can be drafty and loud. As a result, it is only turned on when additional heat is needed, which is not very often.

PLUMBING

Existing Equipment and Systems: The only plumbing fixtures in this area are two sinks and a restroom in the office area. These appear to be in good condition.

Age and Existing Conditions: The fixtures and devices in this area appear original.

LIGHTING

Existing Equipment and Systems: Lighting systems throughout the Administration area are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include: local switching and some occupancy sensors. Fixtures controlled by wall mounted occupancy sensors.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy. At a minimum lenses and ballast shall be replaced as needed.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service is provided by local breaker panels located throughout the campus. The appears to be a lack of power receptacles needed for today's technology.

Age and Existing Conditions: The campus power distribution system is original to the building construction or upgraded in 1985 with a few exceptions. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations.

FIRE ALARM SYSTEMS

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EXISTING FACILITY NARRATIVE

Existing Equipment and Systems: Most of the areas have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide and in good working condition.

Age and Existing Conditions: Most of the fire alarm systems are approaching their expected life of 10-20 years, excluding the fire alarm control panel which appears to be rather new. The systems appear to be operational but they were not tested as part of this report.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables.

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

AREA C - CLASSROOMS (1974)

MECHANICAL

Existing Equipment and Systems: This area was originally served with H&V ventilation air from a gas fired rooftop unit. (See M12) That unit has since been abandoned in place and replaced with numerous gas fired American Standard furnaces located in mechanical or storage rooms. Three furnaces are located in C112 with one serving the corridor, one serving C102 Commercial Lab and one serving C101 Home Ec. (See M13) These furnaces bring outdoor air in thru the roof and are separated combustion units with ducted combustion air and vent thru the roof. Room C118 houses two additional gas fired furnaces with one serving C103 and one serving C104. (See M14) These furnaces bring outdoor air in thru the roof and are separated combustion units with ducted combustion air and vent thru the roof. Room C105 is served with H&V ventilation by a gas fired furnace located in a small utility closet in the space. This unit has its vent thru the roof, but combustion air is taken from the space and it has openings thru the exterior wall for combustion air. As a result of these openings, the room is very cold and throws off the thermostat which is mounted on the wall of the utility space. The dampers for the furnace in C105 are older pneumatic style and have a tendency to leak cold air into the room thru the return duct. (Similar to M15 & M16) Room C108, Science Lab is served with H&V ventilation by a gas fired furnace located in a mechanical space D116 in area D. This furnace is a separated combustion unit with ducted combustion air and vent thru the roof.

Age and Existing Conditions: The furnaces were all replaced in 2011 and they appear to function correctly with no reported issues other than the issues outlined above for the furnace in C105. The furnace in C105 is a model that can be installed as separated combustion and pull its combustion air in thru the roof.

PLUMBING

Existing Equipment and Systems: The restroom fixtures in this area appear in good condition. Room C108 Science Room has HW, CW, Gas and Waste lines routed a trench in the floor and out to each science table. These lines are very rusted and appear to be in poor condition. (See M17) There is an emergency gas shut off valve located in a wall cabinet at the front of the room. (See M18)

Age and Existing Conditions: These fixtures appear original and in good condition. The services routed in the Science rooms appear to be in poor condition and should be replaced.

LIGHTING

Existing Equipment and Systems: Lighting systems throughout the Classrooms are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include: local switching and some occupancy

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EXISTING FACILITY NARRATIVE

sensors. Numerous fixtures within classrooms have faded or broken lenses. Fixtures controlled by wall mounted occupancy sensors.

No emergency lighting was observed within the classroom.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy. At a minimum lenses and ballast shall be replaced as needed.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service is provided by local breaker panels located throughout the campus. One major concern within the Classrooms is the lack of power receptacles needed for today's technology. Laptop charging stations are out in the corridors. Some classrooms are utilizing extension cords/power strips. Existing breaker panels lack space to provide additional receptacle circuits. Replacement to larger breaker panel and/or additional breaker panels would be required.

Age and Existing Conditions: The campus power distribution system is original to the building construction or upgraded in 1985 with a few exceptions. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long

functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: Most of the areas have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide and in good working condition.

Age and Existing Conditions: Most of the fire alarm systems are approaching their expected life of 10-20 years, excluding the fire alarm control panel which appears to be rather new. The systems appear to be operational but they were not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: There are motion detectors in most classrooms for lighting controls.

Age and Existing Conditions: The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables.

Public Address system is present in classrooms. System was not tested but appears to be original to the construction of the building.

Area C – Classrooms - 28

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EXISTING FACILITY NARRATIVE

More data ports within the classrooms are needed to accommodate new technology. Long exposed cabling runs observed. (See E13)

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

Area D - Classrooms - 29

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EXISTING FACILITY NARRATIVE

AREA D - CLASSROOMS (1985)

MECHANICAL

Existing Equipment and Systems: These spaces are served with H&V ventilation by gas fired American Standard furnaces located in small utility closet in each space. These units have their vents thru the roof, but combustion air is taken from the space and they have openings thru the exterior wall for combustion air. As a result of these openings, the room is very cold and throws off the thermostat which is mounted on the wall of the utility space. The dampers for the furnaces are older pneumatic style and have a tendency to leak cold air into the room thru the return duct. (See M15 and M16)

Age and Existing Conditions: The furnaces were all replaced in 2011 and they appear to function correctly with no reported issues other than the issues outlined above. These furnaces are a model that can be installed as separated combustion and pull its combustion air in thru the roof

PLUMBING

Existing Equipment and Systems: The restroom fixtures in this area appear in good condition.

Age and Existing Conditions: These fixtures appear original.

LIGHTING

Existing Equipment and Systems: Lighting systems throughout the Classrooms are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include: local switching and some occupancy sensors. Numerous fixtures within classrooms have faded or broken lenses. Fixtures controlled by wall mounted occupancy sensors.

No emergency lighting was observed.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy. At a minimum lenses and ballast shall be replaced as needed.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service is provided by local breaker panels located throughout the campus. One major concern within the Classrooms is the lack of power receptacles needed for today's technology. Laptop charging stations are out in the corridors. Some classrooms are utilizing extension cords/power strips.

Age and Existing Conditions: The campus power distribution system is original to the building construction or upgraded in 1985 with a few exceptions. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety

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risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: Most of the areas have some form of fire alarm (mainly consisting of manual pull stations and local horns). The original system appears to have been campus-wide and in good working condition.

Age and Existing Conditions: Most of the fire alarm systems are approaching their expected life of 10-20 years, excluding the fire alarm control panel which appears to be rather new. The systems appear to be operational but they were not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: There are video cameras in most areas.

Age and Existing Conditions: The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables.

Public Address system is present in classrooms. System was not tested but appears to be original to the construction of the building.

More data ports within the classrooms are needed to accommodate new technology. Long exposed

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

Area D - Classrooms - 31

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EXISTING FACILITY NARRATIVE

AREA D - LIBRARY (1985)

MECHANICAL

Existing Equipment and Systems: This area is served with H&V ventilation air from two interior gas fired duct furnaces. These units are located on an upper mezzanine accessible from D116 and one unit serves the South half with the other unit serving the North half. These units bring in outdoor air thru the roof and vent thru the roof.

Age and Existing Conditions: The units appear to function correctly with no reported issues

LIGHTING

Existing Equipment and Systems: Light fixtures in these areas are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and fixture-mounted and ceiling-mounted occupancy sensors. Lighting in this space has reached its end of useful life. Many fixtures not working or have discolored or broken lenses. (See E10)

No emergency lighting was observed.

Age and Existing Conditions: Fixtures need to be replaced.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service is provided by local breaker panels. Library lacked sufficient receptacles to serve how the space was being used. Due to the spaces use as a meeting room, numerous extension cords and plug strips were present on the floor and intersecting walking paths. (See E11)

Age and Existing Conditions: The campus power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in most panels serving these locations.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

Age and Existing Conditions: N/A

SECURITY SYSTEMS

Existing Equipment and Systems: There are video cameras throughout the space.

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Age and Existing Conditions: The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables with the data rack located in one corner of the library's computer lab.

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained but not adequately protected from physical damage. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

AREA E - WOOD/METAL SHOP (1974)

MECHANICAL

Existing Equipment and Systems: The Wood shop is served with H&V ventilation air from a rooftop gas fired air handler manufactured by Tjernlund that was installed in 1985. (See M19) This unit provides air into the space thru a set of sidewall supply diffusers. Exhaust air is taken out thru an overhead dust capture system with spiral drops at each piece of equipment. (See M20) This exhaust is routed outside to a cyclone type separator.

The Welding shop is served with H&V ventilation air from a rooftop gas fired air handler manufactured by Applied Air. This unit provides air into the space thru a combination 4 way supply air/central return air assembly. Exhaust air is taken out thru an overhead fume capture system with spiral drops at each piece of welding equipment. The in line exhaust fan for this system is suspended in the room and it either has bad bearings or misaligned belts causing it to be very loud and squeal. (See M21) Based on the noise, I would think the belts are out of alignment. Additional exhaust is taken out by a large central overhead hood. Supplemental heat is provided by two hot water cabinet unit heaters suspended near the ceiling.

There is an additional gas fired rooftop unit in this area manufactured by Janitrol that appear to be abandoned and was installed in 1985.

The drafting room in this area is served with H&V ventilation air by a gas fired American Standard furnace located in small furnace room in the space. One additional furnace serves the hallway and a third unit serves the basement locker room.

Additional exterior classroom spaces in this area are provided with either floor mounted or ceiling mounted hot water unit ventilators ducted with outdoor air. These units seem to run ok, but the controls do not and as a result, the rooms greatly overheat.

Age and Existing Conditions: The rooftop air handlers have been in service a long time. They are wearing out and have numerous issues with performance and temperature control. The exhaust systems appears to function correctly with the exception of the belt or bearings listed above.

PLUMBING

Existing Equipment and Systems: There is a set of bathrooms in the area that are very small, do not meet ADA and the fixture are very old and in need of replacement.

Age and Existing Conditions: The plumbing fixtures in this area are in poor condition and are in need of replacement.

LIGHTING

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Existing Equipment and Systems: Light fixtures in this area are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and wall-mounted occupancy sensors.

Lighting in woodshop and metal consist of continuous strip fluorescent fixtures with exposed lamps. Due to the activities in this room, wire guards are recommended for the light fixtures. (See E8)

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to these areas is provided by a 208/120V panels. Panel in the metal shop did lot latch properly and had an aftermarket latch attached. Latch allowed panel door to be slightly opened. Recommend getting new latch or door for panel to help keep dust and foreign materials out of panel. (See E9). Working space clearances not met at shop panel. 30" width and 42" clear in front of panel shall be maintained. It is recommended to have emergency stop button(s) within the shops to cut power to the machines in the case of an emergency.

Age and Existing Conditions: Some of the power distribution system is original to the building construction, while some has been upgraded Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in the panels serving this location.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: There are video cameras present in all the shops.

Age and Existing Conditions: The video systems appear newer and in good operating condition. The security systems should have an expected life of around 20 years.

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: Phone and data are present.

Age and Existing Conditions: The data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

AREA E - BOILER ROOM (1985)

MECHANICAL

Existing Equipment and Systems: The boiler room contains three Lochinvar Copper Fin II boilers sized at 1,209,600 Btu/hr each. The date code on these units indicate they were manufactured in 2005. The boilers can typically provide enough hot water heat and domestic hot water for the building with only 2 units running. On very cold snaps or cold times combined with high hot water demand, the third boiler will kick on. These boilers provide heating water for the areas with hot water coils, fintube or cabinet unit heaters and they also heat the 1,500 gallon domestic hot water storage tank by means of a tube bundle in the tank. I was told the boilers run at 140 – 160 degrees and do not have an outdoor air reset schedule. Some of the original load was removed from these boilers when the Gym heating units were replaced with the gas fired rooftop unit. Two base mounted hot water circulation pumps deliver the hot water to the building with one pump running and the second pump as backup. One of these pumps appears to be leaking from the seal. A third base mounted pump supplies hot water to the domestic water tank tube bundle equipped with a three way valve. The domestic hot water system is equipped with a recirc pump which has recently been replaced. Additional gas fired water heaters are located in Room C118 and D116 to provide hot water for their respective areas. Also located in the boiler room is an air handler (with a hot water coil and coil pump) suspended above the domestic hot water tank. This air handler serves the common and admin spaces.

The temperature control system is a combination of electronic, some older pneumatics and stand alone electric thermostats. Parts availability for the pneumatics is difficult and the controls overall should be upgraded.

Age and Existing Conditions: The boilers are 15 years old and appear to work fine but they are showing their age and are only 85% efficient. The pumps are nearing the end of their usefull life and should be replaced. The domestic hot water system is not very efficient and requires a heating water boiler to continually cycle all year long to maintain temperature in the large domestic water tank. A more efficient system should be considered. The control system is a combination of old pneumatic and electronic and should be upgraded to DDC with the control valves replaced.

LIGHTING

Existing Equipment and Systems: Lighting systems are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include: local switching and some occupancy sensors.

Age and Existing Conditions: The age of lighting systems appears be approaching a useful life expectancy. Lighting is still operational

POWER DISTRIBUTION

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Existing Equipment and Systems: Electrical service is provided by local 208/120V motor control center and panelboards located within the boiler room.

Age and Existing Conditions: The motor control center appeared to be in good working condition, but needs to cover plates over the buckets that are currently label 'SPACE'. (See E2) This is a code violation and should be addressed. The motor control center also has a fail cabinet mounted to the face of the equipment. File cabinet shall be removed and any hardware removed and holes fixed. (See E3) Equipment appeared to be in good working condition, but has reached it's expected useful life of 20-30 years.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: No fire alarm system was observed.

Age and Existing Conditions: N/A

SECURITY SYSTEMS

Existing Equipment and Systems: No security systems were observed.

Age and Existing Conditions: N/A

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: The campus is connected by an optical fiber data network and copper telephone cables.

Age and Existing Conditions: The campus data network appears to be continuously updated as technology changes and available resources allow. The network appears to be well-maintained. The telephone cabling system is old but these systems have an indefinite useful life.

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EXISTING FACILITY NARRATIVE

RESTROOMS

MECHANICAL

Existing Equipment and Systems: The common restrooms have some supply air provided by the adjacent air handler and are provided with exhaust taken from the far end of the room.

Age and Existing Conditions: The ductwork and fans appear original

PLUMBING

Existing Equipment and Systems: The plumbing fixtures appear original and are in decent shape overall but are obviously dated. There is a mixture of faucets and some of the lavatories do not have the traps insulated or do not provide the proper ADA access. I did not see an indication of mixing valves to limit the hot water temperature. The urinals do not have partitions between them and I did not see an ADA height unit.

Age and Existing Conditions: The fixtures appear original and are in decent shape, but they are obviously dated and there is a mixture of different types of faucets.

LIGHTING

Existing Equipment and Systems: Light fixtures in these areas are fluorescent type. These are generally considered to be energy-efficient light sources but not nearly as efficient as the latest LED technology. Control systems include local switching and ceiling-mounted occupancy sensors.

No emergency lighting was observed.

Age and Existing Conditions: Fixtures are approaching or have passed their useful life expectancy.

POWER DISTRIBUTION

Existing Equipment and Systems: Electrical service to these areas is provided by local breaker panels and contain minimal power requirements.

Age and Existing Conditions: The power distribution system is original to the building construction. Some equipment has been replaced and updated. Distribution equipment has a typical expected life of 30-50 years so all of the original distribution equipment has exceeded its useful life. In practice, power distribution has a very long functional life but failures often have serious impacts on facility operations and may have safety risks. The original equipment has been well-maintained and generally appears to be in operable condition. There is minimal additional breaker space in the panels serving this location.

FIRE ALARM SYSTEMS

Existing Equipment and Systems: The fire alarm system consists of manual pull stations and local horns. The original system appears to have been campus-wide.

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Age and Existing Conditions: The fire alarm system is well past its expected life of 10-20 years. The system appears to be operational but it was not tested as part of this report.

SECURITY SYSTEMS

Existing Equipment and Systems: No security systems were observed.

Age and Existing Conditions: N/A

COMMUNICATIONS SYSTEMS

Existing Equipment and Systems: No communications systems were observed.

Age and Existing Conditions: N/A

Restrooms - 40

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SITE PHOTOS

APPENDIX A: Site Photos

Mechanical Photos:

M1: Old Gym Exhaust Fan

M2: Old Gym Unit Heater

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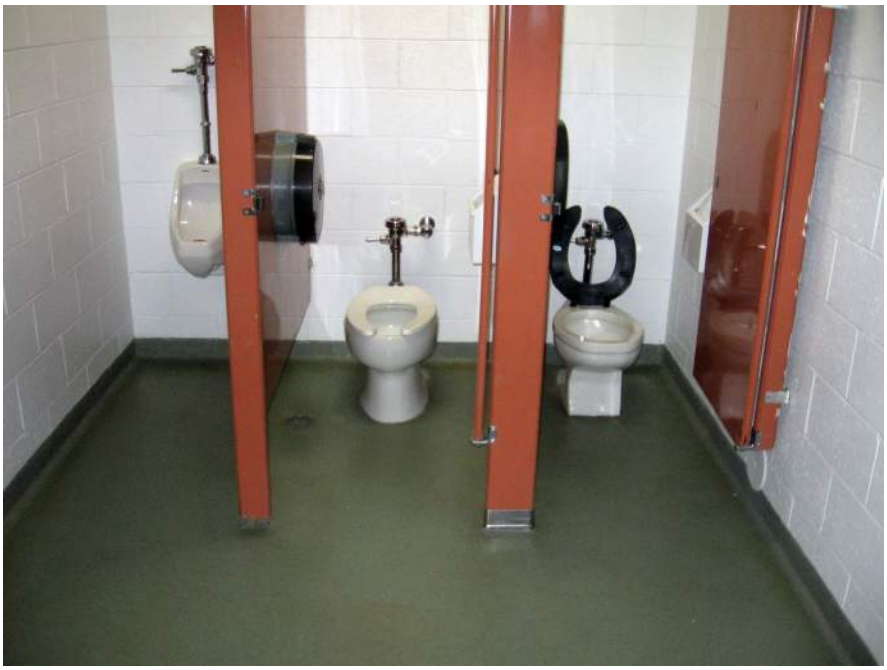
SITE PHOTOS



M3: Old Gym Area Rest Rooms

M4: Old Gym Area Urinal

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SITE PHOTOS

M5: Stage Fintube

M6: Lower Level Locker Room Showers

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SITE PHOTOS

M7: Lower Level Locker Room Fire Sprinkler

M8: New Gym H&V Unit

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SITE PHOTOS

M9: Weight Room Fan Coil

M10: Electric Water Coolers

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SITE PHOTOS

M11: Kitchen Makeup Air and Exhaust Fan

M12: Abandoned Rooftop Unit

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SITE PHOTOS

M13: Room C112 Furnace

M14: Room C118 Furnace

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SITE PHOTOS

M15: Classroom Room Furnaces

M16: Furnace Outdoor Air Pneumatic Damper

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SITE PHOTOS

M17: Science Room Trench Piping

M18: Science Room Gas Shut Off

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SITE PHOTOS

M19: Wood Shop Rooftop Unit

M20: Wood Shop Exhaust

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SITE PHOTOS

M21: Welding Shop Exhaust Fan

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SITE PHOTOS

Electrical Photos:

E1: Main Distribution Board showing liquid substance leaking from/onto equipment.

E2: Missing cover plates on MCC buckets need to be repaced.

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SITE PHOTOS

E3: File cabinet mounted to front of Motor Control Center

E4: Conduit entrance at dust collector. Shows change in materials at fittings, conduit runs and sealant used.

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SITE PHOTOS

E5: Conduit shows signs of electrical fire and should be investigated by Electrician and replaced.

E6: Laptop charging station out in the hallway.

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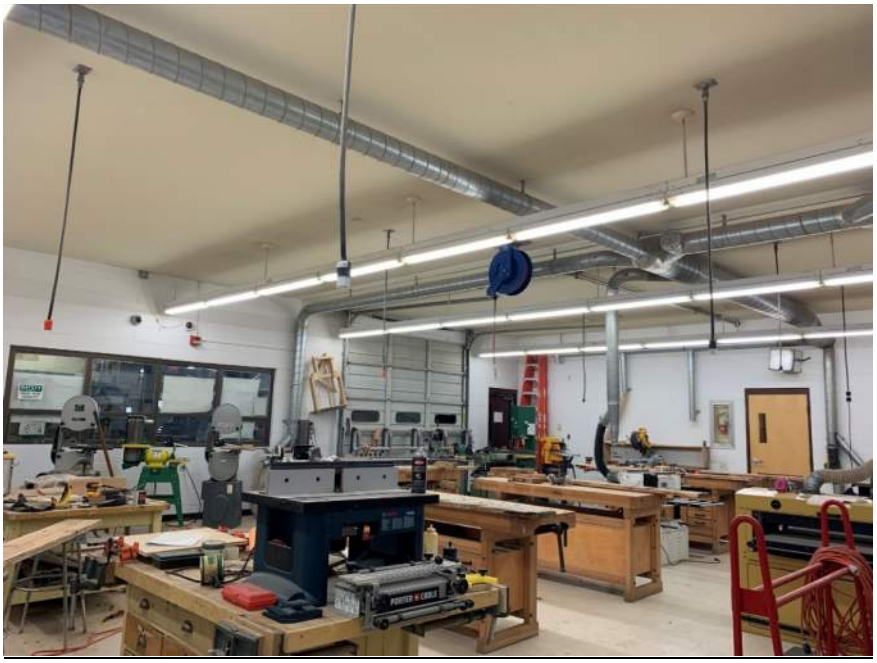
SITE PHOTOS

E7: Extenstion cords at stage area.



E8: Image of lighting in wood shop.Wire Guards are recommended.

Appendix A: Site Photos - 55

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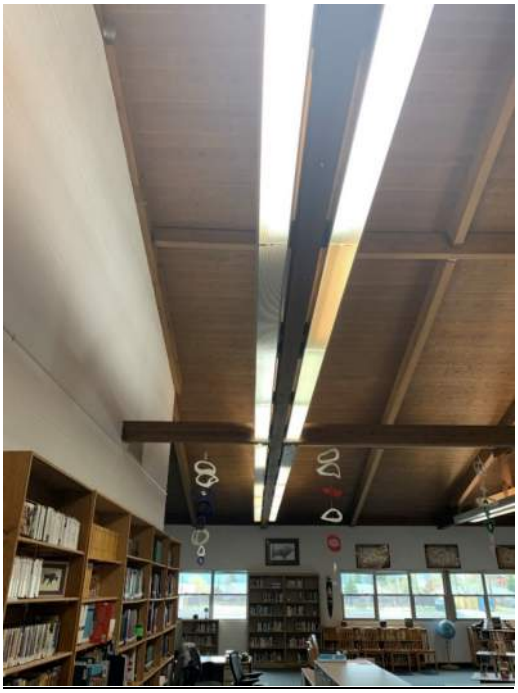
SITE PHOTOS

E9: Panel in Metal shop with door latch not properly working.



E10: Lighting lens discoloration in the Library

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SITE PHOTOS

E11: Extension cords and power strips at meeting area in Library

E12: Light in Locker room missing lens

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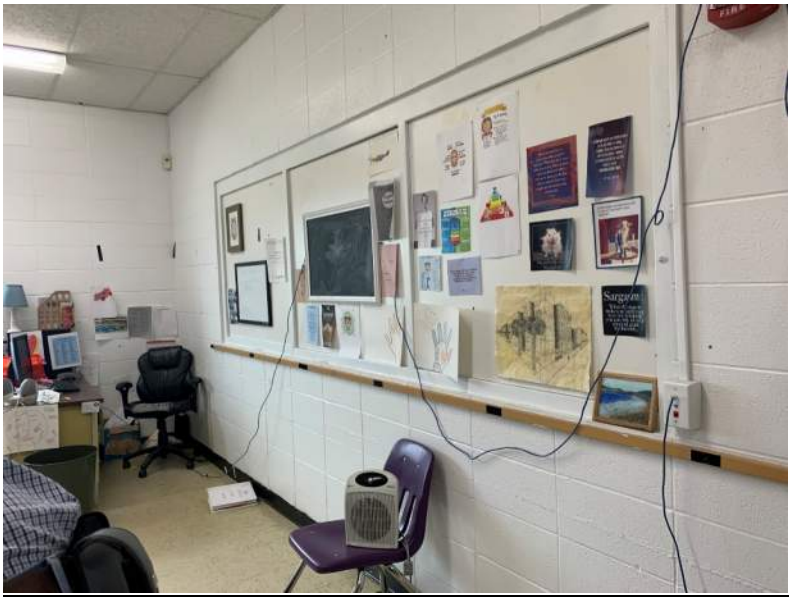
SITE PHOTOS



E13: Communication cable draped across teaching wall to desk.

E14: Panels off of Gym lobby enclosed in cabinets. Working space clearances not met.

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SITE PHOTOS

E15: Damaged fixture in weight room.

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10

Structural Findings and Recommendations

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May 29, 2020

Jason Davis
SMA Architects
920 Front Street, Suite 101
Helena, MT 59601

RE: Jefferson High School FCI – Structural Assessment
Boulder, MT

Dear Jason:

At your request, we have performed a general structural conditions assessment for Jefferson High School located in Boulder, Montana. Samantha Fox and Risa Benvenga visited the site on April 10, 2020 in order to assess the building's condition. Our intent was to evaluate the general structural condition and basic life-safety of the building in order to inform future building improvement plans. The findings and recommendations in this report are based on visual observations made at the site and a general review of the 1985 Gym and Classroom Addition construction documents. Our assessment is based on the 2018 International Existing Building Code (IEBC) and the 2018 International Building Code (IBC).

The enclosed report details our observations and recommendations. We understand that this report is general in nature. A more in-depth structural analysis and design effort will be required for any remodel or upgrade efforts. If you have any questions regarding the enclosed report, or if we can be of further assistance, please contact Samantha Fox at (406) 602-4024.

Sincerely,

DCI Engineers

Risa Benvenga, EI
Project Engineer

Samantha Fox, PE, SE
Project Manager

Enclosure: Jefferson High School – Structural Conditions Assessment

1060 Fowler Avenue, Suite 202 Bozeman, MT 59718

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Jefferson High School – Structural Conditions Assessment

It is our understanding that the intent of this report is to provide a facility conditions assessment as a background and reference for future remodel or upgrade projects. Jefferson High School has had multiple additions and upgrades over the years. The current building consists of additions from 1956, 1974, and 1985. The exterior walls of the high school consist of concrete masonry units (CMU), both in running bond and stack bond. The roof structure is a combination of plywood sheathing over wood framing and metal roof decking over open-web steel joists (OWSJ).

The sections of this report describe each of the additions of the building. The labels in parenthesis in the following list correspond to the area labels shown in Figure 1 of the attached Appendix. The building has been split into these sections: 1985 Gymnasium (A); 1985 Foyer and Cafeteria (B); 1974 Classrooms (C); 1985 Classrooms and Library (D); 1974 Music Room & Wood Shop and 1985 Weld Shop & Mechanical Room (E); and the 1956 Gymnasium (Existing Gym).

Method of Investigation

Investigation was by visual observation only and limited to those structural elements that were exposed to view. No destructive investigation or materials testing was performed at the time of the visit. Assumptions were made concerning the elements that could not be observed directly based on our understanding of the surrounding structure and our experience with buildings of a similar nature.

The original 1985 addition and renovation documents were made available for our use. The plans were prepared by Crossman-Whitney-Griffin P.C. Architects. These documents were reviewed and referenced for applicable areas within the high school. Based upon our site visit, these documents appear to be generally consistent with the actual construction of the building. It should be noted that based upon our on-site observations, the concrete composite panels referenced in the drawings were not used; instead, the alternate exterior wall construction on sheet A-33 showing CMU walls was utilized throughout the building.

Structural Observations

Jefferson High School is primarily constructed of CMU walls with wood and steel roof structures. The exterior walls of the building sit on either concrete or CMU foundation walls that extend below grade. The majority of the structure is single story, but there are areas where a basement and/or a second floor is present as discussed below.

1985 Gymnasium

The 1985 Gymnasium structure consists of two large intersecting roof trusses constructed of glued-laminated timbers (glulams). These trusses intersect at the center of the gymnasium along with four glulam hip beams that span from the center to the corners of the gym area (Figure 2). Smaller glulam purlins span between the trusses and glulam hips and support the 3x6 heavy timber decking roof diaphragm.

Based on observations on site and a review of the 1985 drawings for this area, the trusses and ridge beams are supported at the walls by steel W12x40 columns that are partially or fully encased in the running bond CMU walls. The walls and columns are supported on concrete spread footings at frost

depth. The gym floor is constructed of wood planking over a 4-inch concrete slab on grade. All of these elements appear to be in good condition.

The south wall of the gym is shared with a two-story area consisting of locker rooms on the first floor, and a weight room and wrestling room on the second floor. The roof framing above this area consists of OWSJs spaced at 5-feet on-center supporting a metal roof deck. These joists bear on CMU walls on both ends and appear to be in good condition, as seen in Figure 3. It should be noted that signs of roof leaks could be seen at the interface between the metal decking above the weight room and the wood decking above the gym (Figure 4). At the time of the site visit, none of the structural elements showed signs of water damage.

The floor framing of the weight room and wrestling room consists of shallower OWSJ spaced at approximately 4-feet on-center supporting a concrete slab over metal floor deck. The slab was observed from above in the weight room and found to have severe cracking and degradation in multiple locations. In one location, shown in Figure 5, the concrete slab has been reduced to rubble in an area approximately 4 feet in diameter. When observed from below, the metal deck under the slab showed signs of permanent deformation. This appears as a crinkle or dent in the metal deck, which can be seen mid-span on three consecutive flutes in Figure 6.

Foundation elements could not be observed below grade, but no cracking of the exterior façade was visible. In addition, no cracking was observed at the mortar joints on the interior of the walls. In one location on the exterior, the face shell of the foundation wall appears to have deteriorated so that the grout-filled cells are visible (Figure 7). This could be due to the freeze-thaw cycles of water infiltrating the foundation at this area.

1985 Foyer and Cafeteria

The cafeteria, foyer, and administrative offices were also part of the 1985 addition. The bearing walls for this area are running bond reinforced CMU that bear on spread footings. These footings are at frost depth around the exterior and below the slab on grade on the interior. This area is a single-story with wood framing for the roof structure. The roof framing consists of a mix of sawn lumber over the kitchen, wood trusses over the cafeteria area, and TJI joists over the foyer and administrative offices. The roof diaphragm is 5/8” plywood sheathing over this entire area. All observed elements were in good condition.

1974 Classroom Addition

This classroom addition is a single story with CMU bearing walls at the exterior and interior, arranged in stack bond. The roof framing consists of plywood sheathing over TJL joists spaced at 36-inches on-center spanning to the CMU walls, as seen in Figure 8. At the exterior walls, the joists are bottom chord bearing and extend past the wall to form the cantilevered soffit seen from the exterior of the building. The joists and plywood appeared to be in good condition where observed.

The exterior CMU walls bear on concrete foundation walls that are assumed to extend to frost depth based on the 1985 drawings. The floor is most likely a concrete slab on grade and interior walls are assumed to bear on concrete spread footings, but these assumptions could not be confirmed at the time of the site visit.

1985 Classroom & Library Addition

The 1985 classroom and library addition has running bond reinforced CMU bearing walls with wood roof framing. The exterior walls bear on concrete spread footings at frost depth and the floor in this addition is a 4-inch concrete slab on grade. Over the classrooms, TJI joists are sloped with the roof pitch and supported on glulam beams and CMU bearing walls (Figure 9). The roof diaphragm is a 5/8" plywood sheathing supported by the roof joists in these areas. Where observed, these elements were in good condition.

Over the library, the roof framing consists of 3x6 decking over glulam joists and purlins. These are supported by 3 large trusses that span between CMU bearing walls, as seen in Figure 10. At the exterior, some of the tails of the trusses and joists are showing signs of weathering (Figure 11). This weathering is not yet extreme but, if left untreated, could continue to deteriorate the structural members and eventually compromise the structural integrity.

1974 Music Room & Wood Shop Addition and 1985 Weld Shop & Mechanical Room

The roof framing above the music room and the wood shop is OWSJs supporting metal deck. The joists bear of CMU walls stacked in running bond (Figure 12). The wood shop floor is a concrete slab on grade. The music room is above a basement locker room that connects to the 1956 gymnasium locker room. The walls are CMU laid in running bond and assumed to bear on spread footings. The floor of the locker room is a concrete slab on grade. In this area, the floor framing for the music room could not be observed from below.

The weld shop and mechanical room were added to this area in 1985. The construction matches the 1974 addition, with OWSJ supporting a metal roof deck. The exterior walls are reinforced CMU in running bond and bear on spread footings at frost depth with a 4-inch concrete slab on grade for the floor. At the interface between the 1974 and 1985 additions, the OWSJ from the newer addition bear on a channel ledger attached to the wall of the 1974 addition and supported by channel columns also bolted to the wall. One channel column and the bottom of the channel ledger are visible in Figure 13.

1956 Gymnasium

The 1956 Gymnasium addition also includes a two-story entrance area with bathrooms and storage on the first floor and an art room above. Within the gym is an auditorium stage with two second-story lofts that serve as storage. Below the stage is a basement locker room area that connects to an adjacent locker room from the 1974 addition. The exterior walls consist of running bond CMU for the entire area.

The gym has large steel frames spaced at approximately 15-feet on-center that support the roof structure above, seen in Figure 14. The roof structure is covered in a coating assumed to help with acoustic damping. Based on the diagonal blocking visible between the roof joists, we assume that these are wood members spaced at approximately 24-inches on-center. While not visible, we assume that the roof diaphragm consists of diagonal 1x planking based on framing in other areas of the gym. The gym floor, as well as the entrance area, is a slab on grade.

The roof framing and floor framing of the art room were not visible during this visit. Based upon the framing in other areas of this addition, the roof and floor are most likely wood members with diagonal planking that span between CMU walls.

The stage in the gym is raised about 4 feet above the gym floor (Figure 15). The floor framing of the stage is 2x12 at 24-inches on-center supporting diagonal 1x wood planking, as seen in Figure 16. The two storage areas above the stage are assumed to have similar framing.

Below the stage is a basement that serves as locker rooms. The basement walls are CMU in running bond and the floor is a concrete slab on grade. The foundation walls and piers supporting the exterior walls of the gym could be seen through the maintenance tunnel access in the basement (Figure 17). The exterior walls are supported on concrete foundation walls and piers that are assumed to bear on spread footings at or below frost depth. From the exterior, minor shrinkage cracking in the exposed foundation wall was visible. This is expected and not of structural concern. Minor cracking of the CMU walls was also observed originating from the corners of exterior windows and around the Gymnasium plaque, as seen in Figure 18 and Figure 19. These are believed to be due to shrinkage as well since the cracks follow the mortar joints and are minimal in size.

Structural Code Review and Recommendations

This investigation was based on the life-safety requirements of the 2018 International Existing Building Code (IEBC) and the 2018 International Building Code (IBC). Boulder is considered an area of high seismicity as Jefferson High School falls under Seismic Design Category D. In addition, it is an area of high snow load with a ground snow load of 50 pounds-per-square-foot (psf), according to the Montana Ground Snow Load Finder.

In general, the school was in good condition. There were few signs of deterioration, damage, or overstress observed during the site visit. The exterior CMU walls and their connection to the light-framed diaphragms would likely not meet all current code requirements for a design-level earthquake; however, the structure has been performing adequately throughout the history of the building. We did not observe anything in the building that is in need of immediate repairs with the exception of the weight room floor as described below.

Per the IEBC, no lateral or gravity upgrades are required if the structural elements of the building are not altered or removed. In general, the IEBC allows for minor changes and alterations to the structure without upgrading the gravity or lateral systems to current-day code standards. These allowances are in place to recognize that the building has served its purpose for a similar use and occupancy and has performed well in the past. Any structural upgrades to the building performed as part of a remodel would be considered voluntary unless triggered by alterations to the existing structure. These triggers can include a change of occupancy, modifications to more than 33% of the structure, reduction in capacity or increase in demand for specific members, or significant changes in the load path. The recommended voluntary upgrades included in the following sections are intended to increase life-safety and reduce structural and architectural damage to the building in the event of a design-level or smaller earthquake.

We do not anticipate the future remodel effort to trigger any mandatory IBC-level upgrades for the building. However, we do anticipate some level of alteration to the existing structure for architectural or mechanical upgrades. These could include new openings in existing bearing walls and support for new mechanical units on the existing roof structure. As long as these alterations remain minor, they will not trigger a full upgrade of the existing building but will require some localized structural upgrades.

In general, we recommend upgrading the connections between the existing roof framing and CMU shear walls for better lateral resistance during a seismic event. In addition to upgraded connections, we recommend adding blocking between the joists at the exterior walls if it is not already present,

which will increase the lateral stability of the joists. The majority of the structure has reinforced CMU walls that will perform well as shear walls if the connection to the roof diaphragm is strengthened. These upgrades are strictly voluntary and are not required at this time. Improving the out-of-plane connections of the CMU walls to the light-framed diaphragms would also improve the performance of the building in a seismic event.

1985 Gymnasium

In the main gym area, repair to the roof where leaks are apparent is recommended. While not a structural issue yet, continued exposure to excess moisture could compromise the connections and strength of the wood framing supporting the roof above.

In the weight room, we recommend replacement of the damaged areas of concrete floor slab. The large area of failed slab over metal deck reduces the capacity of the floor. Stress cracking originating at this spot and extending outward in all directions along with permanent deformation observed in the metal deck below indicates that the area of failure will continue to grow and further compromise the integrity of the floor structure if not repaired. Where permanently deformed, we recommend removing the existing metal deck and replacing the slab and metal deck in its entirety. It may be possible to remove the concrete slab and replace the slab on the existing metal deck where the deck is in good condition as confirmed from below. We recommend that repairs are made to an entire span of deck, and that the new concrete is tied into the existing remaining slab with epoxy doweled rebar.

Replacement with a more resilient floor system is recommended if the space is to continue use as a weight room to prevent further damage from occurring.

1985 Foyer and Cafeteria

This area was found to be in good condition based on our observations. Aside from general recommendations for roof connection upgrades, no structural work is recommended in this area at this time.

1974 Classroom Addition

This area was found to be in good condition based on our observations. Aside from general recommendations for roof connection upgrades, no structural work is recommended in this area at this time.

1985 Classroom & Library Addition

The same lateral upgrade recommendations given for stack bond masonry walls in the 1974 Classroom Addition section also apply to this area. In addition, treating the exposed ends of the wood framing with a weather-proofing agent is recommended to stop deterioration from continuing. Deteriorated ends can be removed and replaced with new members that are spliced onto the existing roof framing.

1974 Music Room & Wood Shop Addition and 1985 Weld Shop & Mechanical Room

This area was found to be in good condition based on our observations. Aside from general recommendations for roof connection upgrades, no structural work is recommended in this area at this time.

1956 Gymnasium

This area was found to be in good condition based on our observations. Aside from general recommendations for roof connection upgrades, no structural work is recommended in this area at this time.

Summary

Jefferson High School was found to be in good structural condition. There were very few areas requiring repair at this time. Unless any remodel effort alters the existing structure, no retrofits to the building are required by code, with the exception of the weight room floor. Repair and replacement of the concrete over metal deck floor should be considered a high priority for the safety of the structure.

Upgrades outside of those triggered by the IEBC are considered voluntary and are intended to increase the life-safety of the building and reduce the extents of damage in the event of a design-level seismic event. We recommend upgrading the connections between the CMU walls and the light framed diaphragm for better performance during a seismic event. These upgrades are strictly voluntary and are not required at this time.

The recommended upgrades described above are intended to be incorporated into a larger architectural remodel project. These are likely best completed in phases as they correspond to the future plans and use of the building. DCI would be happy to investigate further and expand on these recommendations as they relate to the future remodel work on this building.

Please find photos from our site visit in the attached Appendix.

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Appendix of Figures:

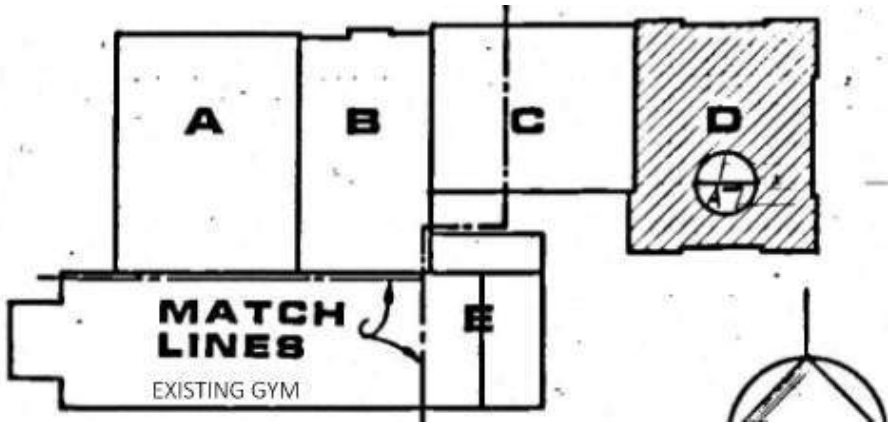

Figure 1. Areas of Jefferson High School

Figure 2. 1985 Gym Roof Trusses

Figure 3. Roof Framing Above Wrestling Room (1985 Addition)

Figure 4. Water Stains on south CMU wall of 1985 Gym

Figure 5. Deteriorated Concrete Floor Slab in Weight Room (1985 Addition)

Figure 6. Deformed Metal Deck Below Weight Room (1985 Addition)

Figure 7. Exterior Foundation Wall Damage at 1985 Gym

Figure 8. TJL Bearing on Interior CMU Wall (1974 Classroom Addition)

Figure 9. TJI Joist Support at Interior CMU Wall (1985 Classroom Addition)

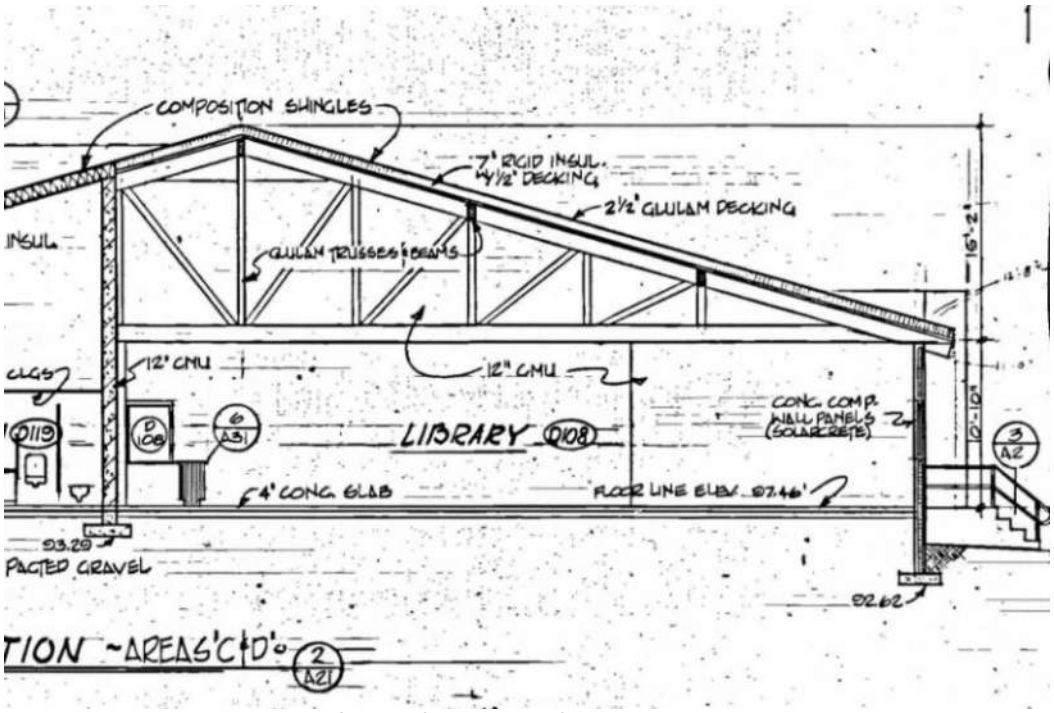

Figure 10. Section of Library Truss from 1985 Addition Drawings

Figure 11. Exterior Ends of Trusses and Joists at Library (1985 Addition)

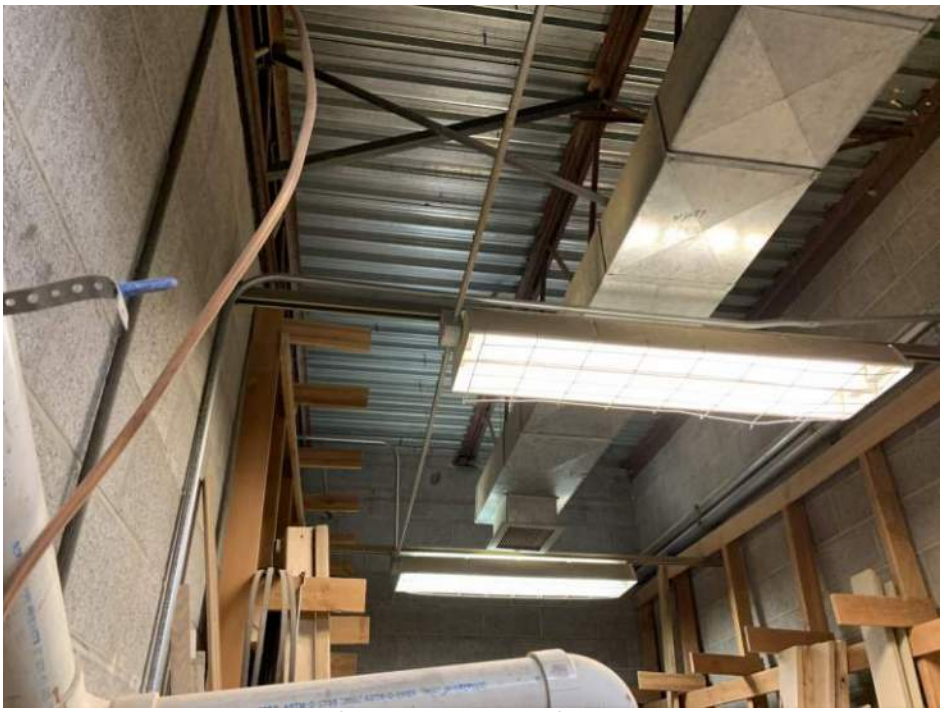

Figure 12. Roof Framing Above Wood Shop (1974 Addition)

Figure 13. Channel Ledger and Column at Interface Between Mechanical Room and Wood Shop

Figure 14. 1956 Gymnasium Overall Structure

Figure 15. Raised Stage in 1956 Gym

Figure 16. Flooring Framing Below Stage (1956 Addition)

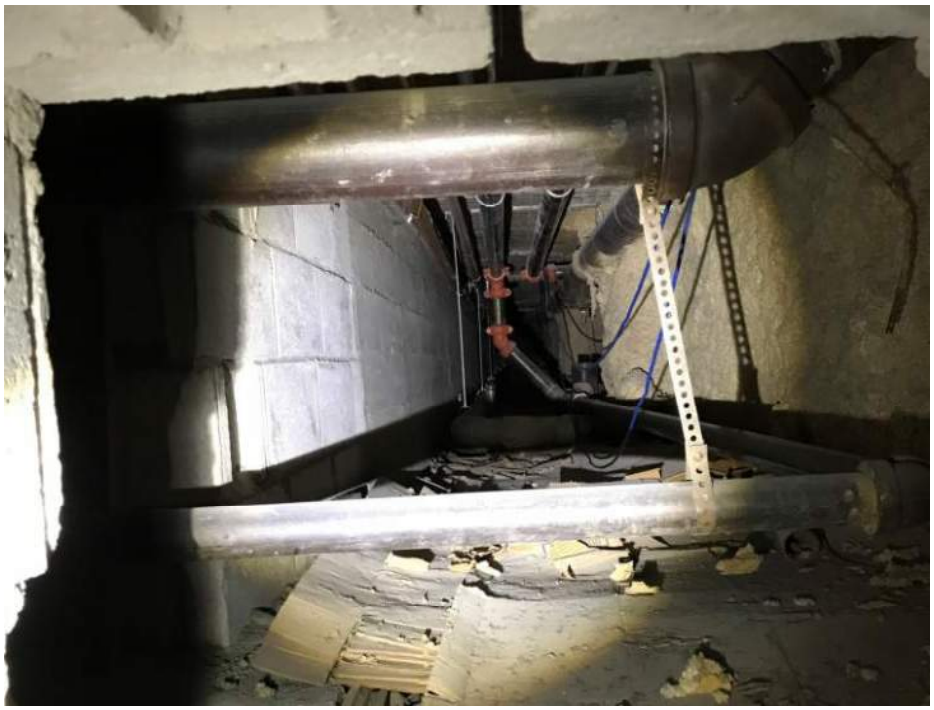

Figure 17. Maintenance Tunnel Under 1956 Gym Floor

Figure 18. Cracking in Exterior Wall Along Mortar Joints (1956 Addition)

Figure 19. Cracking in Exterior Wall Around Plaque (1956 Addition)

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Appendix A - Existing Building Plans

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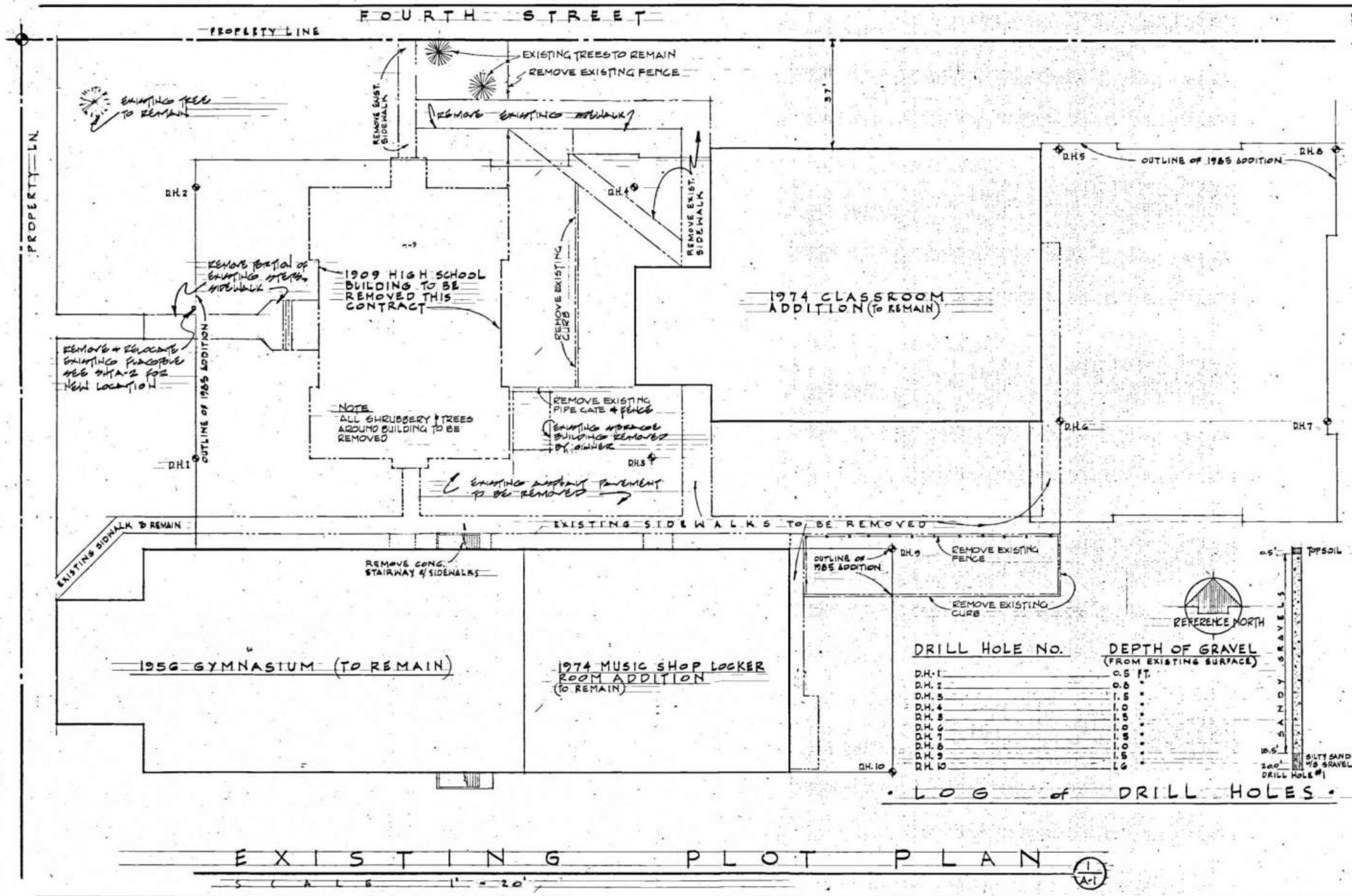

EXISTING PLOT PLAN

SCALE 1" = 20'

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CODE REVIEW

CODE REVIEW
(1982 Uniform Building Code)

OCCUPANCY GROUP
Area A - Occupancy Group A, Division 2.1
Area B - Occupancy Group E, Division 1
Area C - Occupancy Group E, Division I
Area D - Occupancy Group E, Division 1
Area E - Occupancy Group E, Division 1
(Existing gymnasium (A-2.1) previously separated from band room/shop (E-1) addition by 2-hr. wall.)
No occupancy separations required.

TYPE OF CONSTRUCTION
Area A - Type IV 13,100 sf 1st floor, 3,500 sf 2nd floor - new
Area B - Type V, 1 hr. 9,743 sf - new
Area C - Type V, 1 hr. 10,453 sf - exist.
Area D - Type V, N 12,940 sf - new
Area E - Type II, 1 hr. 6,840 sf - exist, 2,660 sf - new
Exist. Gym- Type V, N 10,939 sf - exist.
Mechanical Room- Type II, 1 hr 1,210 sf - new

LOCATION ON PROPERTY
Building faces Fourth Street to the north, property line 287 feet to the east, existing swimming pool over 20 feet to the south and Montana Highway 69 to the west. No opening protection required.

ALLOWABLE FLOOR AREAS
Area A - 13,500 sf greater than 13,100 sf - actual
- 27,000 sf greater than 16,700 sf - total
Area B - 15,700 sf greater than 9,825 sf
Area C - 15,700 sf greater than 10,453 sf
Area D - 9,100 sf + 100% increase (separation 3 sides) = 18,200 sf greater than 12,940 sf
Area E - 20,200 sf greater than 9,500 sf

4-hour area separation wall between Areas A and B and between Area A and existing gymnasium.

2-hour area separation wall between Areas B and C and between Areas B and E.

2-hour area separation wall between Areas C and D.

HEIGHT AND NUMBER OF STORIES

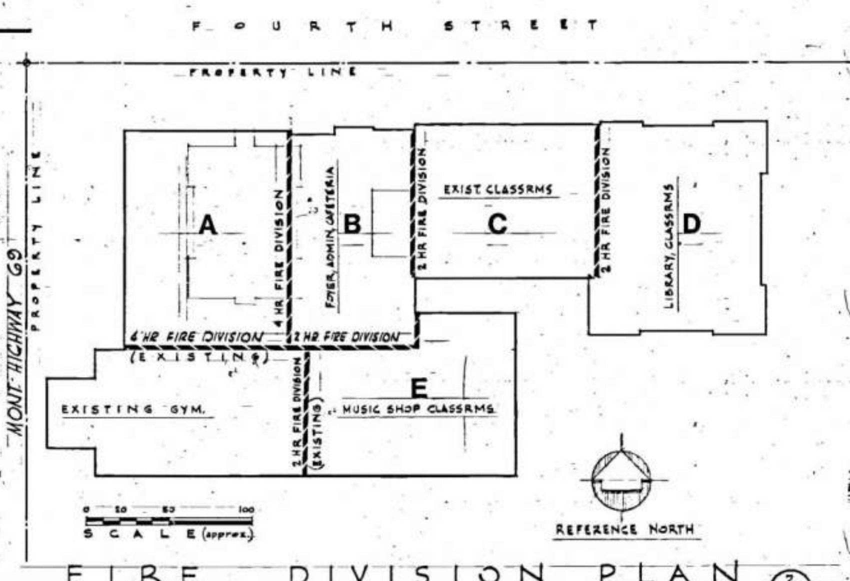
	Height Allowable	Height Actual	Stories Allowable	Stories Actual
Area A	65	36	2	2
Area B	50	22	2	1
Area C	50	15	2	1
Area D	40	26	1	1
Area E	65	16	2	1

OCCUPANT LOAD
Area A
Second Floor
3,233 sf ÷ 15 = 215 occupants
2 exits required - 2 provided
Width = 215 ÷ 50 = 4.31' - 6' provided
First Floor
Gym - 9,600 sf ÷ 15 = 640 occupants (seating in bleachers - 1,100 occupants)
Lockers - 1,575 sf ÷ 50 = 32 occupants
Gym - 4 exits required - 4 provided
Lockers - 2 exits required - 2 provided
Width required, Gym - 1,100 + 107 = 1,207 ÷ 50 = 24.14' - 24' provided.
Width required, lockers - 32 ÷ 50 = 0.64 - 6' provided.
Area B
Foyer
2,277 sf ÷ 7 = 325 occupants
2 exits required - 2 provided
Offices
2,301 sf ÷ 100 = 23 occupants
1 exit required - 2 provided
Kitchen
813 sf ÷ 200 = 4 occupants
1 exit required - 2 provided
Width required - 352 ÷ 50 = 7.04' - 18' provided
Area C
Classrooms
7,521 sf ÷ 20 = 376 occupants
2 exits required - 2 provided
Width required - 376 ÷ 50 = 7.52' - 16' provided
Area D
Classrooms
6,187 sf ÷ 20 = 309 occupants
2 exits required - 3 provided
Library
2,352 sf ÷ 50 = 47 occupants
1 exit required - 2 provided
Width required - 356 ÷ 50 = 7.12' - 18' provided

Due to design of exits, assume the following criteria:
A. All of Area B and one-half of Area C must exit thru "B" doors - width required, 352 + 188 = 540 ÷ 50 = 10.8' - 18' provided.
B. All of Area D and one-half of Area C must exit thru "D" doors - width required, 356 + 188 = 544 ÷ 50 = 10.88' - 12' provided.

Area E
Band Room
2,475 sf ÷ 20 = 124 occupants
2 exits required - 2 provided (existing)
Shops
2,835 sf ÷ 50 = 57 occupants
2 exits required - 2 provided
Classrooms
1,202 ÷ 20 = 60 occupants
2 exits required - 2 provided
Width required - 241 ÷ 50 = 4.82' - 12' provided
Assume one-half of Area E also exits thru "B" doors - width required, 540 + 121 = 661 ÷ 50 = 13.22' - 18' provided.
Mechanical Room
2 exits required - 2 provided

HANDICAP ACCESSIBILITY
1. Ramps provided at north, east and west elevations of building and within building between various levels.
2. Handicap toilet facilities for both sexes located in Areas A, B and D.
3. Handicap showers for both sexes located in Area A.



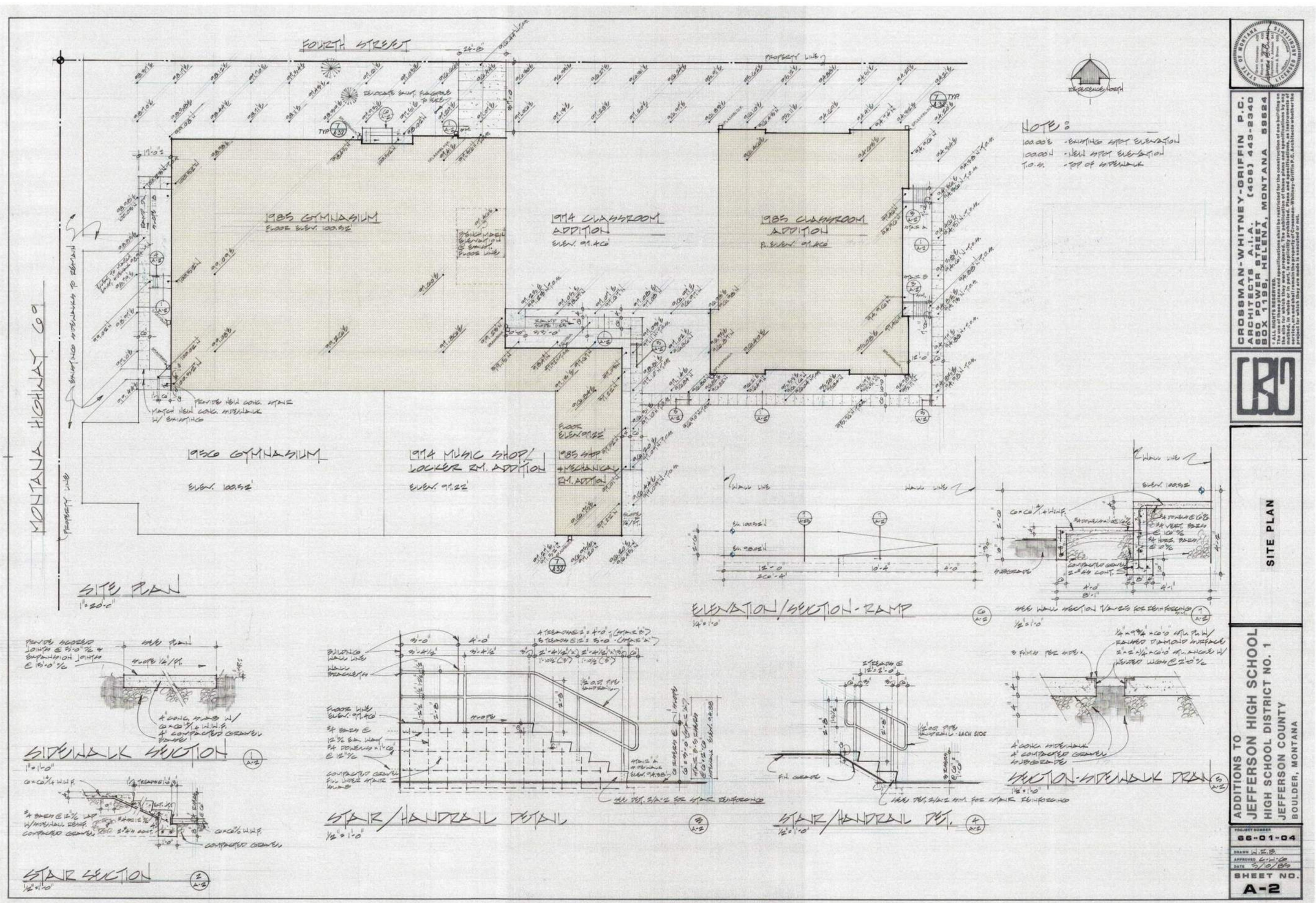
FIRE DIVISION PLAN

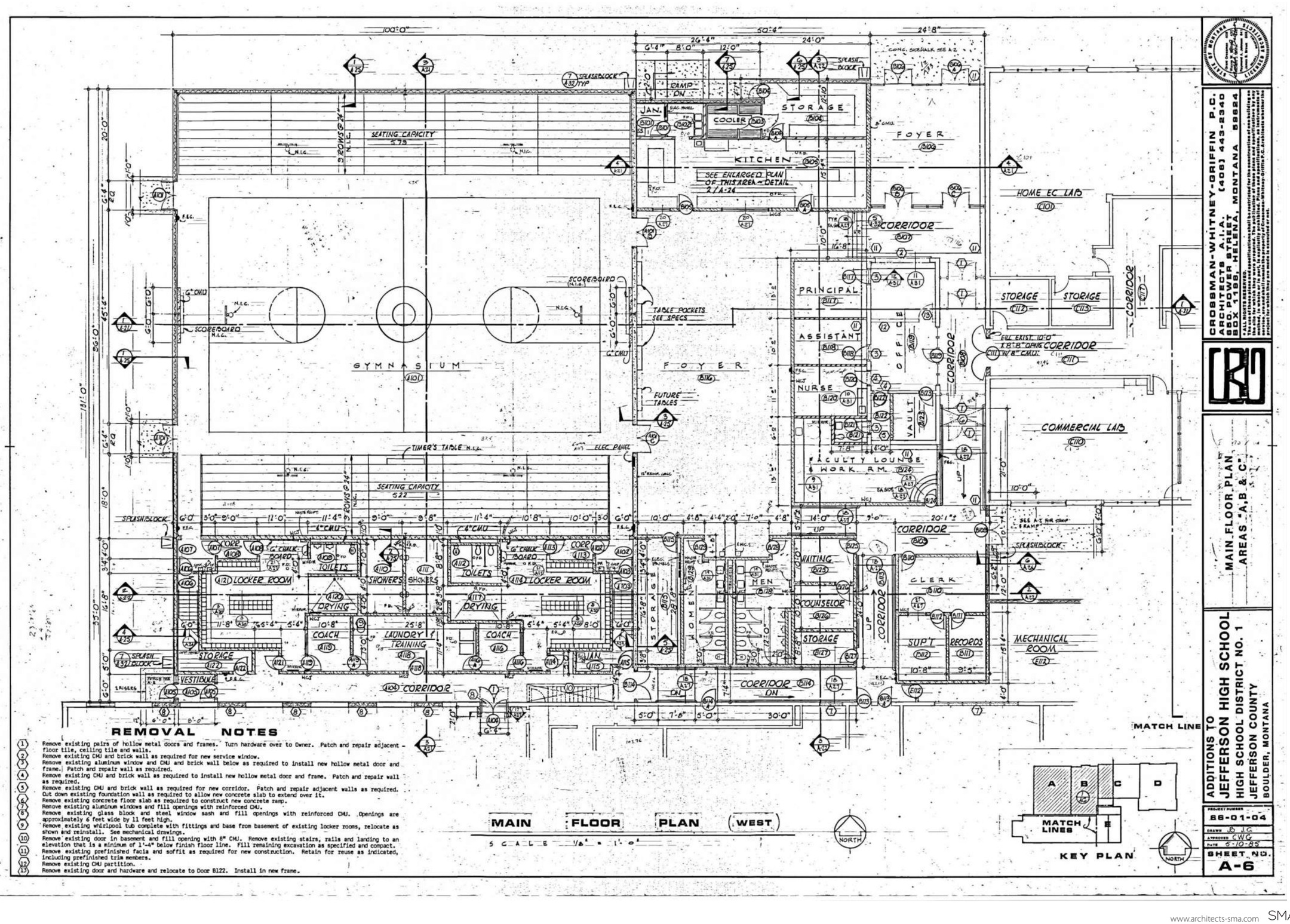
CROSSMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A. (406) 443-2340
650 POWER STREET
BOX 1198, HELENA, MONTANA 59624

DEMOLITION SITE PLAN, CODE REVIEW

ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA

PROJECT NUMBER 86-01-04
DRAWN J.C./J.B.
APPROVED C.W.G.
DATE 5/10/85
SHEET NO. A-1


FOURTH STREET
PROPERTY LINE
1985 GYMNASIUM
FLOOR ELEV. 100.92
1914 CLASSROOM ADDITION
ELEV. 99.46
1985 CLASSROOM ADDITION
FLOOR ELEV. 99.46
MONTANA HIGHWAY 69
PROPERTY LINE
1956 GYMNASIUM
ELEV. 100.52
1914 MUSIC SHOP/ LOCKER RM. ADDITION
ELEV. 99.22
1985 SHOP & MECHANICAL RM. ADDITION
FLOOR ELEVATIONS
SITE PLAN
1" = 20'-0"
NOTE:
100.00E - EXISTING SPOT ELEVATION
100.00N - NEW SPOT ELEVATION
T.O.W. - TOP OF SIDEWALK
ELEVATION/SECTION - RAMP
1/4" = 1'-0"
SIDEWALK SECTION
1" = 1'-0"
STAIR SECTION
1/2" = 1'-0"
STAIR/HANDRAIL DETAIL
1/2" = 1'-0"
SECTION - SIDEWALK DRAIN
1/2" = 1'-0"
CROSSMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A.
650 POWER STREET
BOX 1198, HELENA, MONTANA 59624
(406) 443-2340
SITE PLAN
ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA
PROJECT NUMBER 66-01-04
DRAWN W.E.B.
APPROVED C.W.G.
DATE 5/10/85
SHEET NO. A-2



REMOVAL NOTES

1. Remove existing pairs of hollow metal doors and frames. Turn hardware over to Owner. Patch and repair adjacent floor tile, ceiling tile and walls.
2. Remove existing CMU and brick wall as required for new service window.
3. Remove existing aluminum window and CMU and brick wall below as required to install new hollow metal door and frame. Patch and repair wall as required.
4. Remove existing CMU and brick wall as required to install new hollow metal door and frame. Patch and repair wall as required.
5. Remove existing CMU and brick wall as required for new corridor. Patch and repair adjacent walls as required. Cut down existing foundation wall as required to allow new concrete slab to extend over it.
6. Remove existing concrete floor slab as required to construct new concrete ramp.
7. Remove existing aluminum windows and fill openings with reinforced CMU.
8. Remove existing glass block and steel window sash and fill openings with reinforced CMU. Openings are approximately 6 feet wide by 11 feet high.
9. Remove existing whirlpool tub complete with fittings and base from basement of existing locker rooms, relocate as shown and reinstall. See mechanical drawings.
10. Remove existing door in basement and fill opening with 8" CMU. Remove existing stairs, rails and landing to an elevation that is a minimum of 1'-4" below finish floor line. Fill remaining excavation as specified and compact.
11. Remove existing prefinished facia and soffit as required for new construction. Retain for reuse as indicated, including prefinished trim members.
12. Remove existing CMU partition.
13. Remove existing door and hardware and relocate to Door B122. Install in new frame.

CROSSMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A.
880 POWER STREET
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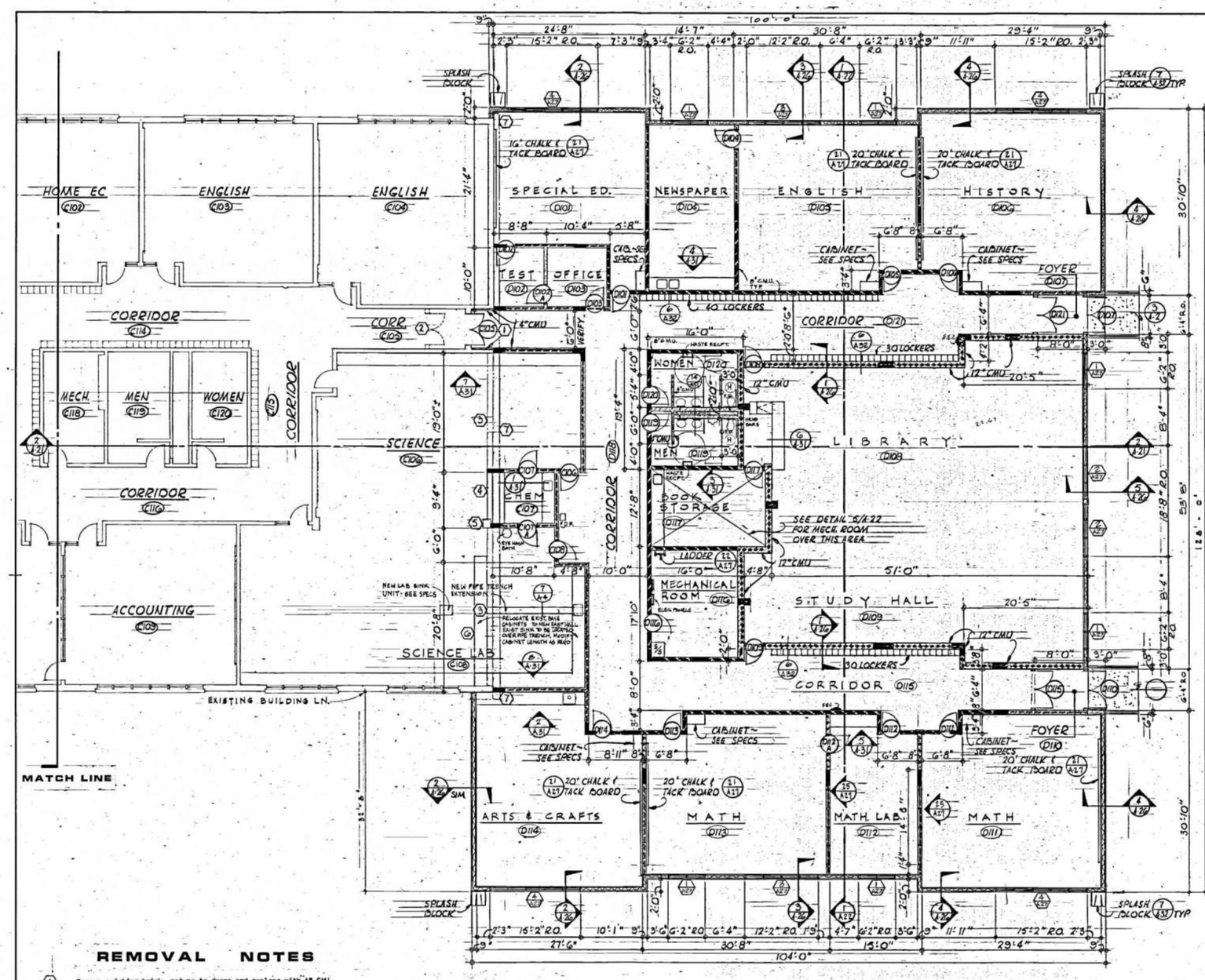
ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA

PROJECT NUMBER 86-01-04
DRAWN BJC
APPROVED CWG
DATE 5/10/86

MAIN FLOOR PLAN
AREAS "A, B & C"

SHEET NO. A-6



REMOVAL NOTES

1. Remove existing brick, return to doors and replace with 4" CMU.
2. Remove existing pair of hollow metal doors and frame. Patch and repair floor tile, ceiling tile, walls and paint.
3. Remove existing CMU and brick wall. Patch and repair adjacent walls. Cut existing foundation wall down to allow new concrete slab to extend over it.
4. Existing CMU and brick wall to remain in place. Patch and repair as required.
5. Existing CMU pilaster to remain in place. Patch and repair as required.
6. Remove existing base cabinets, relocate to new east wall of Room C108 - Science Lab, modify as required and reinstall.
7. Remove existing prefinished soffit and facia as required for new construction. Retain for reuse as indicated, including prefinished trim members.

STRUCTURAL NOTES

DESIGN CODES
1. I.C.B.O. Uniform Building Code 1982 Edition.
2. A.C.I. Standard Building Code Requirements for Reinforced Concrete Buildings, ACI 318-83.
3. A.I.S.C. Manual of Steel Construction, 8th Edition; Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

DESIGN LOADS
1. SEISMIC: Zone 3
2. LOADS:

Weight Room	Roof Snow	50 psf
Weight Room	Floor Live	50 psf
Weight Room	Concentrated Load	2500 lbs.
Stair	Live Load	100 psf

FOUNDATION DESIGN
1. Allowable Bearing Pressure:
   Continuous Footings = 6000 psf
   Column Footings = 7800 psf
2. Bearing Depth: Bearing on natural sandy gravels 1.5 feet below existing grade.

MECHANICAL OPENINGS
Mechanical openings are not dimensioned on these structural sheets. See mechanical drawings for size and locations.

STRUCTURAL MATERIALS

Materials used in the structural elements of this building shall conform to the specifications and the following general criteria:
1. STRUCTURAL STEEL - ASTM A36.
2. WELDING - All welding shall conform to the AWS Structural Welding Code 1981. Qualification of welders shall be in accordance with the Specifications For Standard Qualification Procedure of the AWS.
3. BOLTS - All bolts shall be ASTM A325, Anchor Bolts shall be Low Carbon Steel, ASTM A307. All bolts are on member gage lines unless otherwise noted.
4. CONCRETE - All concrete shall be proportioned to attain a minimum 28 day compressive strength of 3000 psi.
5. REINFORCING STEEL - All reinforcing steel shall conform to ASTM A615 Grade 60.
6. WELDED WIRE FABRIC - All welded wire fabric shall conform to ASTM A185.
7. METAL DECKING - All metal decking shall be equal to the following types as manufactured by ASC Pacific.
   ROOF DECK - Type A, 1-1/2", 22-gage, galvanized, Ixx=.140, Sxx=.122
   FLOOR DECK - Type BR, Composite, 1-1/2", 22-gage, galvanized, Ixx=.183, Sxx=.209
8. STEEL JOISTS - Steel joists shall be manufactured in accordance with the Steel Joist Institute Standard Specifications. Horizontal Bridging shall be provided in accordance with the SJI.
9. STRUCTURAL LUMBER - All lumber shall be No. 2 Douglas Fir - Larch or better.
10. PLYWOOD SHEATHING - All roof sheathing shall be Exterior Grade Structural II, 5/8 in. thick plywood.
11. GLUED LAMINATED TIMBER - All structural glued laminated timber beams shall meet the requirements of Product Standard PS 56-73 and shall provide allowable stress values of:

	Area D	Area A
Extreme Fiber in Bending	Fb = 2000 psi	2400 psi
Tension Parallel to Grain	Ft = 1000 psi	1100 psi
Compression Parallel to Grain	Fc = 1600 psi	1650 psi
Compression Perpend. to Grain	Fc = 410 psi	450 psi
Horizontal Shear	Fv = 165 psi	165 psi
Modulus of Elasticity	E = 1700000 psi	1800000 psi

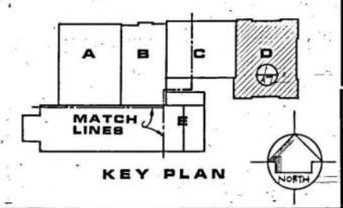
For wet condition of service.

CONCRETE DETAILS
1. Except as otherwise called for on the drawings all reinforcing steel shall have the following concrete cover:
   Beams and Columns 1-1/2"
   Slabs and Walls
   Interior 1"
   Exterior & against earth with forms 1-1/2"
   Slabs & footings on grade 3"
2. Chamfer all exposed corners and fillet entrant angles 1" unless otherwise noted on the drawings.
3. Tolerances in placing reinforcement shall be:
   +/- 3/8 in. for members with d less than 8 in.
   +/- 1/2 in. for members with d greater than 8 in.
4. Metal clips or supports shall not be placed in contact with the forms or the subgrade. Concrete blocks or dobbies supporting bars on subgrade shall be in sufficient numbers to support the bars without settlement, but in no case shall such support be continuous.
5. Dowels shall be wired or otherwise held in position. They shall NOT be shoved into freshly placed concrete.
6. Unless otherwise noted on the plans, all bar splices shall be lapped at least 32 bar diameters.
7. At all corners and wall intersections, corner bars shall be provided to match the horizontal bars.

LEGEND

WALL	REINFORCING Vert.	Bond Bms.	Durowall
12" CMU	2 #5 @ 32" (1 E.F.)	1 #6 @ 48"	#12 std. @ 16"
8" CMU	2 #5 @ 24" (1 E.F.)	1 #5 @ 48"	#8 std. @ 16"
8" CMU	2 #5 @ 48" (1 E.F.)	1 #5 @ 48"	#8 std. @ 16"
8" CMU	1 #5 @ 48"	1 #5 @ 48"	#8 std. @ 16"

Solid grouted wall below beam bearings. See Brg. Det. for Vert. Reinf.)



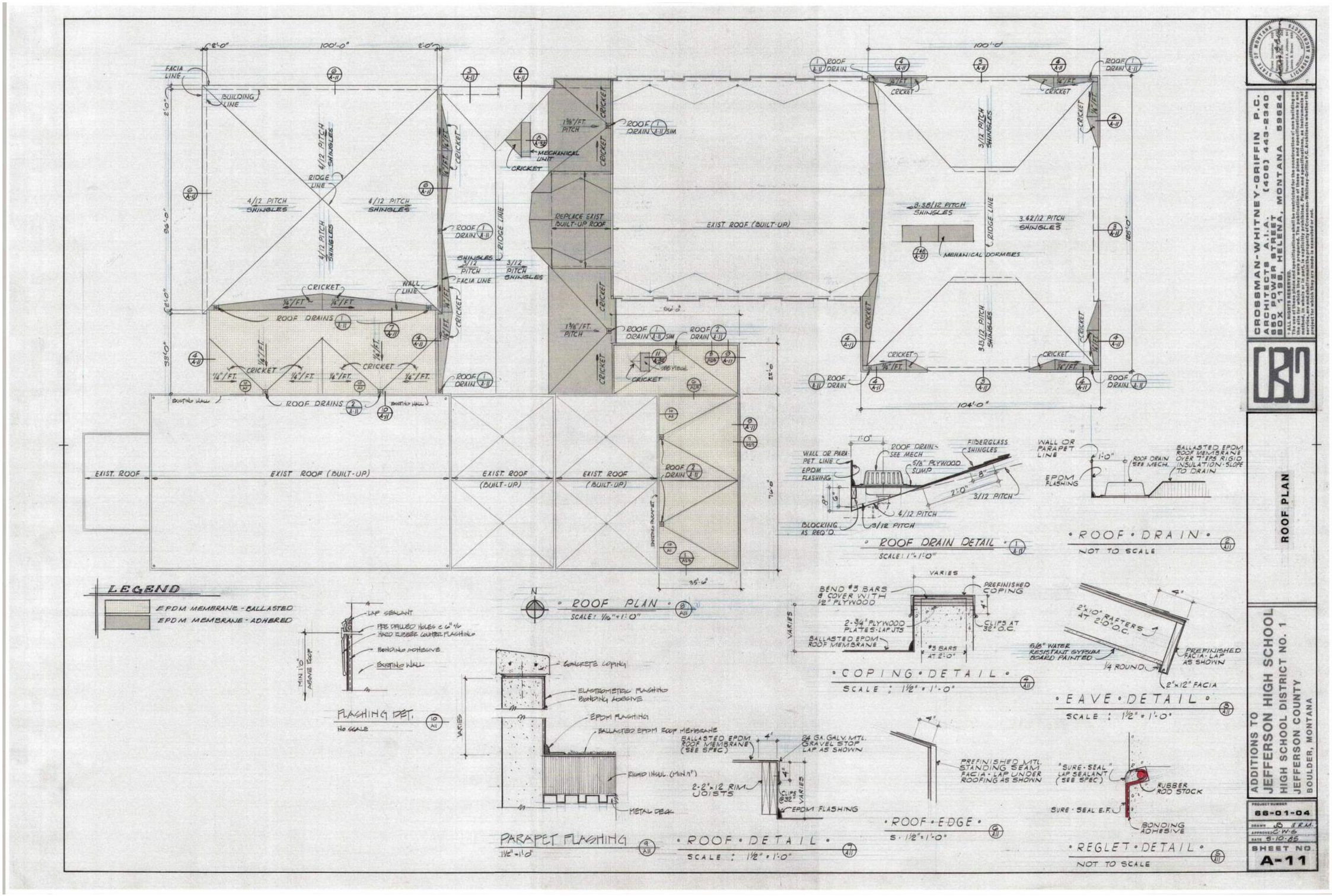
KEY PLAN

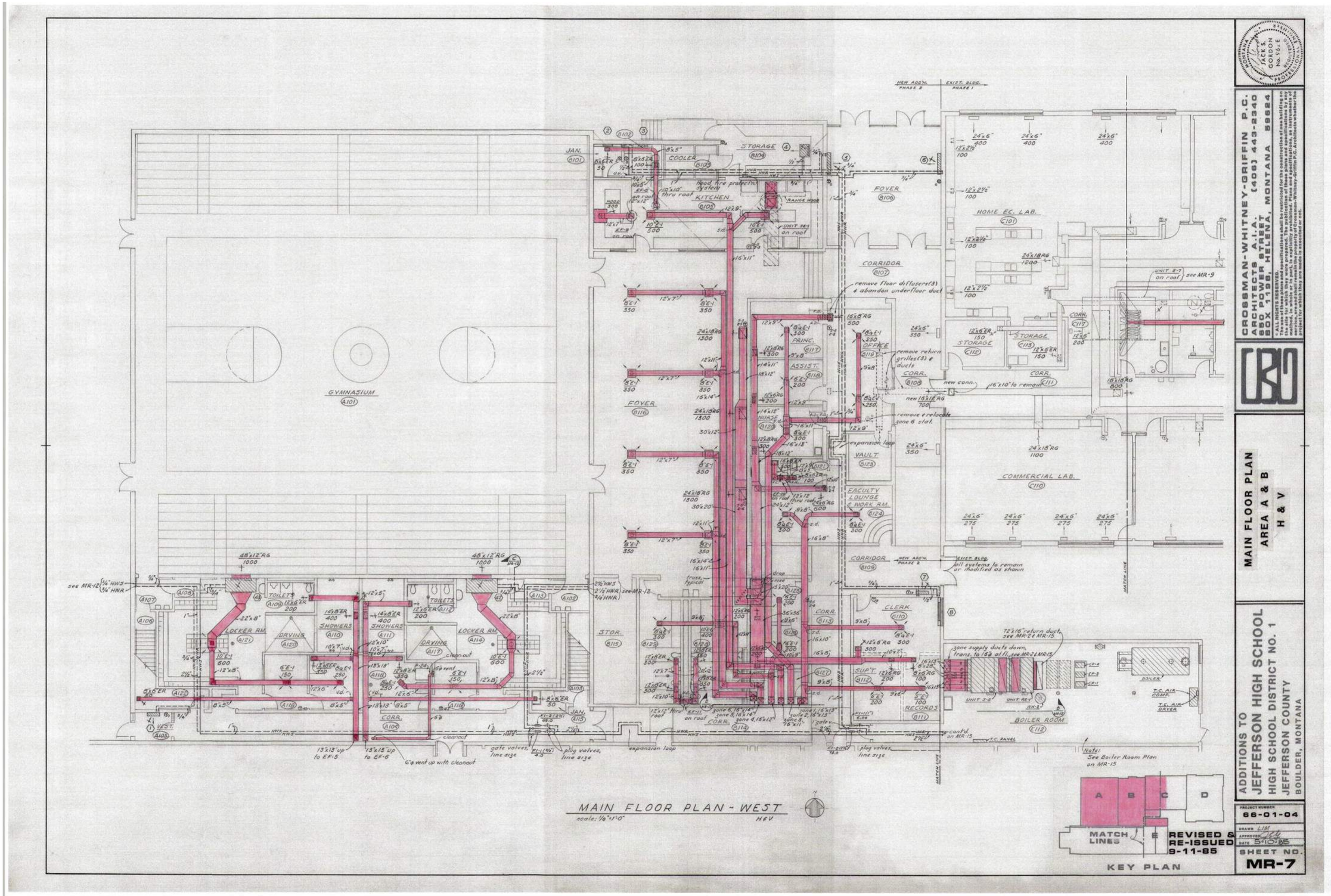
CROSBMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A.
(406) 443-2340
BOX 1198 HELENA, MONTANA 59624

MAIN FLOOR PLAN
AREAS "C & D"

ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA

PROJECT NUMBER 86-01-04
DRAWN JB JC
APPROVED CWG
DATE 5-10-85
SHEET NO. A-7


FACIA LINE
BUILDING LINE
4/12 PITCH SHINGLES
RIDGE LINE
CRICKET
ROOF DRAINS
WALL LINE
ROOF DRAIN
REPLACE EXIST BUILT-UP ROOF
EXIST ROOF (BUILT-UP)
MECHANICAL UNIT
SHINGLES 3/12 PITCH
FACIA LINE
3/12 PITCH SHINGLES
3:38/12 PITCH SHINGLES
3:42/12 PITCH SHINGLES
3:13/12 PITCH SHINGLES
MEHANICAL DORMERS
EXIST. ROOF
EXIST ROOF (BUILT-UP)
EXIST. ROOF (BUILT-UP)
EXIST. ROOF (BUILT-UP)
EXISTING PARAPET
ROOF DRAIN
LEGEND
EPDM MEMBRANE - BALLASTED
EPDM MEMBRANE - ADHERED
ROOF PLAN
SCALE: 1/16"=1'-0"
LAP SEALANT
PRE DRILLED HOLES @ 6" c/c
HARD RUBBER COUNTER FLASHING
BONDING ADHESIVE
EXISTING WALL
MIN 1'0" ABOVE ROOF
FLASHING DET.
No SCALE
CONCRETE COPING
ELECTROMETIC FLASHING
BONDING ADHESIVE
EPDM FLASHING
BALLASTED EPDM ROOF MEMBRANE
RIGID INSUL. (MIN 1")
METAL DECK
PARAPET FLASHING
1 1/2"=1'-0"
BALLASTED EPDM ROOF MEMBRANE (SEE SPEC)
24 GA. GALV. MTL. GRAVEL STOP LAP AS SHOWN
2-2"x12" RIM JOISTS
EPDM FLASHING
ROOF DETAIL
SCALE: 1 1/2"=1'-0"
ROOF DRAIN DETAIL
SCALE: 1 1/2"=1'-0"
WALL OR PARAPET LINE
EPDM FLASHING
FIBERGLASS SHINGLES
5/8" PLYWOOD SUMP
4/12 PITCH
3/12 PITCH
BLOCKING AS REQ'D
ROOF DRAIN
SEE MECH.
BALLASTED EPDM ROOF MEMBRANE OVER 7" EPS RIGID INSULATION - SLOPE TO DRAIN
NOT TO SCALE
BEND #3 BARS & COVER WITH 1/2" PLYWOOD
2-3/4" PLYWOOD PLATES-LAP JTS
BALLASTED EPDM ROOF MEMBRANE
#3 BARS AT 2'-0"
PREFINISHED COPING
CLIPS AT 32" O.C.
COPING DETAIL
SCALE: 1 1/2"=1'-0"
2"x10" RAFTERS AT 2'-0" O.C.
5/8" WATER RESISTANT GYPSUM BOARD PAINTED
1/4 ROUND
PREFINISHED FACIA-LAP AS SHOWN
2"x12" FACIA
EAVE DETAIL
SCALE: 1 1/2"=1'-0"
PREFINISHED MTL STANDING SEAM FACIA-LAP UNDER ROOFING AS SHOWN
ROOF EDGE
SCALE: 1 1/2"=1'-0"
"SURE-SEAL" LAP SEALANT (SEE SPEC)
RUBBER ROD STOCK
SURE-SEAL E.F.
BONDING ADHESIVE
REGLET DETAIL
NOT TO SCALE
CROSSMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A.
650 POWER STREET
BOX 1198, HELENA, MONTANA 59624
(406) 443-2340
ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA
PROJECT NUMBER 86-01-04
DRAWN JG SRM
APPROVED C.W.G
DATE 5-10-85
SHEET NO A-11
ROOF PLAN


MAIN FLOOR PLAN - WEST
scale: 1/8"=1'-0"
HEV
KEY PLAN
MATCH LINES
A
B
C
D
E
REVISED & RE-ISSUED 9-11-85
JACK S. GORDON No. 9565E REGISTERED PROFESSIONAL ENGINEER MONTANA
CROSSMAN-WHITNEY-GRIFFIN P.C. ARCHITECTS A.I.A. 650 POWER STREET BOX 1198, HELENA, MONTANA 59624 (406) 443-2340
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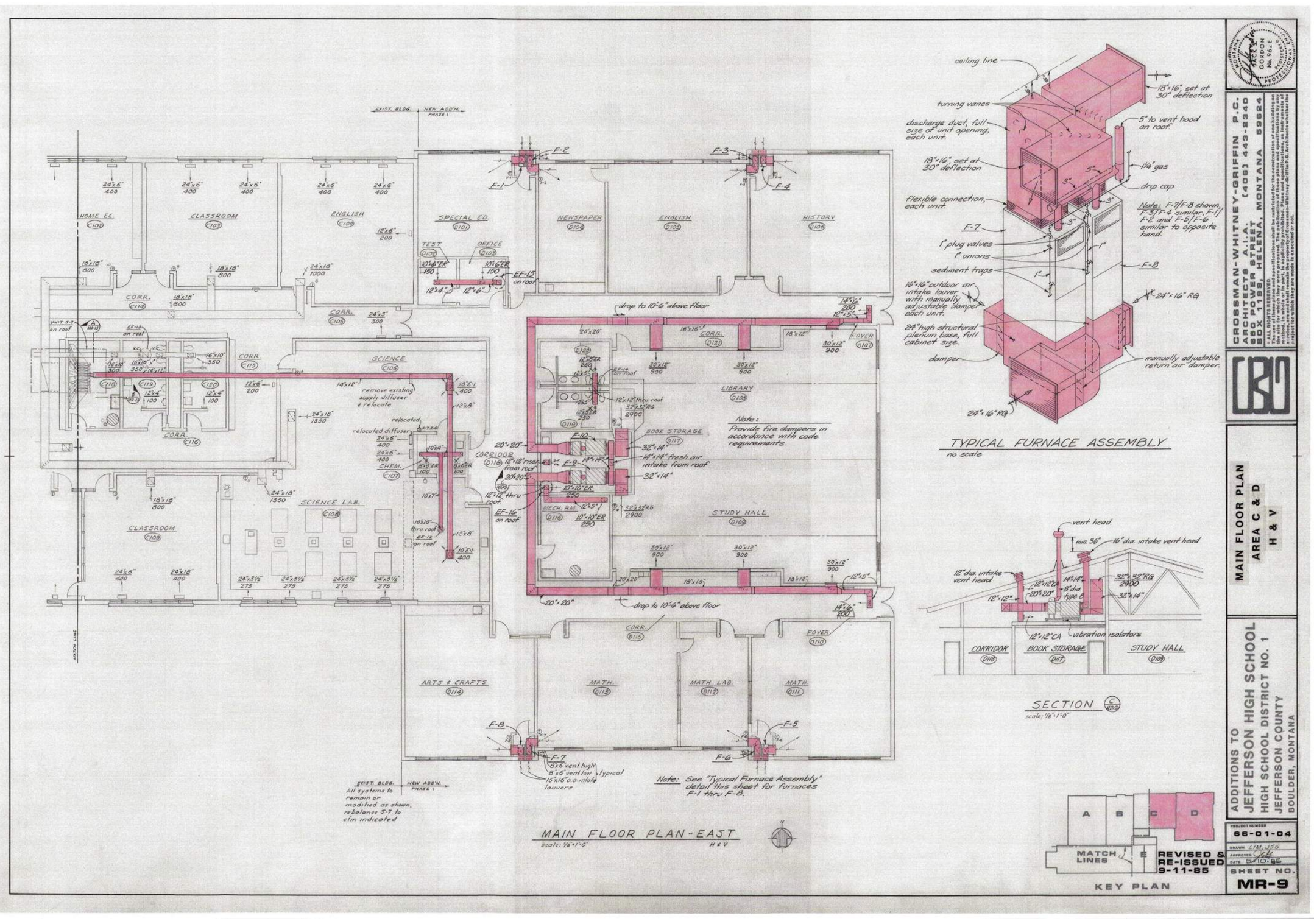
MAIN FLOOR PLAN
AREA A & B
H & V
ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA
PROJECT NUMBER 66-01-04
DRAWN LJM
APPROVED
DATE 5-10-85
SHEET NO. MR-7


EXIST. BLDG.
NEW ADD'N. PHASE I
HOME EC. (C102)
CLASSROOM (C103)
ENGLISH (C104)
SPECIAL ED. (C101)
NEWSPAPER (C104)
ENGLISH (C105)
HISTORY (C106)
TEST (C102)
OFFICE (C103)
CORR. (C119)
CORR. (C103)
CORR. (C121)
FOYER (C110)
SCIENCE (C108)
CORR. (C116)
CHEM. (C107)
SCIENCE LAB. (C108)
CLASSROOM (C109)
CORRIDOR (C118)
LIBRARY (C103)
BOOK STORAGE (C117)
MECH. RM. (C116)
STUDY HALL (C109)
CORR. (C115)
FOYER (C110)
ARTS & CRAFTS (C114)
MATH. (C113)
MATH. LAB. (C112)
MATH. (C111)
drop to 10'-6" above floor
20"x20"
18"x16" CORR.
30"x12" 900
14"x16" 200
12"x5"
EF-15 on roof
EF-16 on roof
EF-12 on roof
EF-14 on roof
12"x12" thru roof
10"x10"ER 250
32"x32"RG 2900
32"x14"
14"x14" fresh air intake from roof
12"x12" riser from roof
F-1
F-2
F-3
F-4
F-5
F-6
F-7
F-8
F-9
F-10
Note: Provide fire dampers in accordance with code requirements.
Note: See "Typical Furnace Assembly" detail this sheet for furnaces F-1 thru F-8.
8'x6' vent high
8'x6' vent low typical
15"x15" o.a. intake louvers
All systems to remain or modified as shown, rebalance S-7 to cfm indicated
MAIN FLOOR PLAN - EAST
scale: 1/8"=1'-0"
H & V
ceiling line
turning vanes
discharge duct, full size of unit opening, each unit.
18"x16" set at 30° deflection
flexible connection, each unit.
1" plug valves
1" unions
sediment traps
16"x16" outdoor air intake louver with manually adjustable damper each unit.
24" high structural plenum base, full cabinet size.
damper
5" to vent hood on roof.
1¼" gas
drip cap
Note: F-7/F-8 shown, F-3/F-4 similar, F-1/F-2 and F-5/F-6 similar to opposite hand.
manually adjustable return air damper.
24"x16" RG
TYPICAL FURNACE ASSEMBLY
no scale
vent head
min. 36"
16" dia. intake vent head
12" dia. intake vent head
12"x12" CA
vibration isolators
8" dia type B
SECTION
scale: 1/8"=1'-0"
A B C D E
MATCH LINES
KEY PLAN
CROSSMAN-WHITNEY-GRIFFIN P.C.
ARCHITECTS A.I.A.
650 POWER STREET
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MAIN FLOOR PLAN
AREA C & D
ADDITIONS TO
JEFFERSON HIGH SCHOOL
HIGH SCHOOL DISTRICT NO. 1
JEFFERSON COUNTY
BOULDER, MONTANA
PROJECT NUMBER 66-01-04
DRAWN LJM, JJG
APPROVED
DATE 5-10-85
REVISED & RE-ISSUED 9-11-85
SHEET NO. MR-9

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B

Appendix B - User Group Meeting Minutes

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SMA ARCHITECTS
HELENA
920 Front Street, Suite 101
Helena, MT 59601 | ph. 406.442.4933
www.architects-sma.com
BOZEMAN
109 East Oak Street, Suite 2E
Bozeman, MT 59715 | ph. 406.219.2216
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Jefferson High School
Building Condition Report

Project:	**Jefferson High School Building Condition Report**	**Day/Time:**	May 5, 2020 2:00-3:30 PM
		Project #:	2010
Subject:	User Group Meetings: SpEd, Counseling + Student Services	**Location:**	Zoom
Attendees:	Mary Drynan, Joe Michaud	**Submitted by:**	**SMA Architects**
Attachments:	(none)	**Meeting No.:**	1-6

Group 1: Core Instruction (Math, History, English, Science)
Group 2: Art / Music / Drama
Group 3: P.E. / Athletics / Health
Group 4: Special Education / Counseling / Student Services
Group 5: CTE / Library / Technology
Group 6: Food Services / Building Support / Administrative Office

Purpose of Meeting/s:

To gain an understanding of the types of spaces Jefferson High School currently has.

Goals:

Identify what spaces are functioning well; identify spaces that are too small/too big; identify spaces that are underutilized; identify spaces that JHS does not currently have but needs.

Agenda (1.5 hours per meeting) – Round Robin Style (goes around to each person individually)

1. **Introductions**
    a. Names / Positions / Class Taught
    b. Mary Drynan – Special Ed Teacher – has 5 Paraprofessionals
    c. Joe Michaud – School Counselor, Scheduling, Teacher Location Assignments
2. **Current Programs / Offerings / Spaces**
    a. Room 109- Special Ed Next to Library
        i. Next to bathrooms; size is adequate normally but still small
        ii. Calming Room – Sensory Room
    b. Sometimes use Career Center for overflow, sometimes Cafeteria
        i. Regular students
        ii. Sometimes administer texts/worksheets with Paras
    c. Storage space
    d. Case load has grown- have moved storage elsewhere (student files) needs easy, close access
        i. Typically 12 students max; 2 minimum
        ii. 1 period - # ranges
        iii. Paras in classrooms typically
    e. Life Skills

SMA ARCHITECTS
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www.architects-sma.com

i. Depends on student
ii. Uses FACS space
iii. Doesn't need dedicated space – integrated preferred

f. Counseling – office in main office next to front door
i. 240/48 need to see Mary – 10 are high needs
ii. Confidentiality issues – space for SpEd not adequate
iii. Students can't see counselor without seeing a lot of people first, not discreet
1. Main office is busy; no confidentiality;

g. Nurse office/ storage office
h. CSCT – next to Science
i. Good confidentiality in room;

3. Functioning / Too Small / Too Big / Underutilized

a. Inventory of spaces JHS has that are working well, too small, too large, or underutilized.
b. No Conference Room: 8-10 people needed
c. Scheduling wise: no theater, stage
i. Shared with weights, lifting, theater in gym
ii. Drama: 30-50 kids, 20-30% of student body
iii. Auditorium needed or MP room
d. Art room/band is good, stairs not good;
e. Small upgrades; lab space;
f. 70-80% come from nice schools
g. Public sits on cafeteria tables; not great for elderly or community

4. Favorite Programs / Things that Make JHS

a. Gym
b. Community support + surrounding community
c. 3 top programs: band, drama, FACS (favorite program) – waiting list
d. FACS space: lots of community use, needs rooms still
e. CTE: program on way out a bit; freshman all spend a day in shop; small but strong; healthy
i. Lose a lot of students to Helena
ii. Leadership made effort to offer everything Helena Schools offer

5. Future Programs / Offerings / Spaces

a. Are any spaces or program offerings needed or planned to be added in the future?
b. Close bathroom- shower
c. Student common area; foyer gathering; pods
d. Have a student store-portable cart

6. Final Comments

a. Any outstanding items of business / comments.
i. Downstairs locker room not good (mens)
1. No door on stalls
2. Not great for out of town teams
ii. Lockers good
iii. Space right outside of office is crowded – only way to get from art/gym/CTE etc. after lunch;

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Jefferson High School
Building Condition Report
5/8/20

Project:	**Jefferson High School Building Condition Report**	**Day/Time:**	May 8, 2020 8:30-10:00 AM
		Project #:	2010
Subject:	User Group Meetings: Core Instruction	**Location:**	Zoom
Attendees:	Mary Williams	**Submitted by:**	**SMA Architects**
Attachments:	(none)	**Meeting No.:**	1-6

Group 1: Core Instruction (Math, History, English, Science)
Group 2: Art / Music / Drama
Group 3: P.E. / Athletics / Health
Group 4: Special Education / Counseling / Student Services
Group 5: CTE / Library / Technology
Group 6: Food Services / Building Support / Administrative Office

End of Report

Purpose of Meeting/s:

To gain an understanding of the types of spaces Jefferson High School currently has.

Goals:

Identify what spaces are functioning well; identify spaces that are too small/too big; identify spaces that are underutilized; identify spaces that JHS does not currently have but needs.

Agenda (1.5 hours per meeting) – Round Robin Style (goes around to each person individually)

1. **Introductions**
    a. Names / Positions / Class Taught
    b. Mary Williams – Physical Science, Big Science Classroom
2. **Current Programs / Offerings / Spaces**
    a. Lab Space is great, big, lecture side is small
    b. 28 kids in class (typical 7-28, sometimes 4 or 5); average 20 (freshman class); 20; 10 for Physics and Chem 2
    c. Class used every period next year
    d. Mary will be part time, new teacher will be full time- need space for 2 desks
    e. Will need 3 classrooms with 2.5 teachers if enrollment continues to increase
    f. Not space for ongoing labs
    g. Lab portion used every week; lecture side used more; often mixed between lab and lecture
    h. Other Science lab: Biology, Ecology, - Life Sciences – larger classes
        i. All sophomores, ecology 1-2 sections
        ii. No lecture space, only lab space
        iii. Difficult to have kids sit at lab tables all the time

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iv. Exhaust is a challenge – sets up fan

i. Mary's room is lacking a safety shower, has eye wash
j. Small lab has a shower, probably an eye wash
k. Lab benches – have power, a bit aged, not all outlets work
    i. Leaking faucets sometimes
    ii. Veneer coming off
    iii. Drawers ok
    iv. Plexi glass
l. More outlets near front by screen
m. Metal grate comes down middle of classroom, issue in lecture area with rolling chairs
n. Windows nice, blinds can't reach
o. Separate room for materials, equipment, chemicals, acid cabinets - quite full, more storage, all full
    i. Shared; don't throw out materials

3. Functioning / Too Small / Too Big / Underutilized / Challenging

a. Hall is crowded, use science to circulate
b. Cafeteria not too small, spread out all over school during lunch, might be crowded, line up towards south gym, kids eat in science classroom (social)
c. Picnic tables needed outside

4. Great things
    a. Small compared to other high schools, good drama, good band, accessible, sports can participate
    b. Community feel, people, kids
    c. Kids often eat in teachers classrooms
    d. More personalized education, smaller class sizes

5. Future Programs / Offerings / Spaces

a. Lacking conference room, currently used library
b. No in school suspension, currently in office, Mr. Moodry's or counselors room
c. New classroom more/deeper storage; different kids of storage; more whiteboard space on wall with sink; can't see screen
d. White boards on all walls
e. Rolling desks for grouping up and creating different groups/combinations
f. Some like solid desks fr large surface
g. Maker Space-did not get grant, modular would be good for Maker Space, Science Club
    i. Great for Science
    ii. Maker Cart - $5-6k; 3D Printers

6. Final Comments

a.

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Jefferson High School
Building Condition Report

May 13, 2020

Project:	**Jefferson High School Building Condition Report**	**Day/Time:**	May 13, 2020
		Project #:	2010
Subject:	User Group Meetings	**Location:**	Zoom
Attendees:	See sign-in sheet	**Submitted by:**	**SMA Architects**
Attachments:	(none)	**Meeting No.:**	1-6

Group 1: Core Instruction (Math, History, English, Science)
Group 2: Art / Music / Drama
Group 3: P.E. / Athletics / Health
Group 4: Special Education / Counseling / Student Services
Group 5: CTE / Library / Technology
Group 6: Food Services / Building Support / Administrative Office

Purpose of Meeting/s:

To gain an understanding of the types of spaces Jefferson High School currently has.

Goals:

Identify what spaces are functioning well; identify spaces that are too small/too big; identify spaces that are underutilized; identify spaces that JHS does not currently have but needs.

Agenda (1.5 hours per meeting) – Round Robin Style (goes around to each person individually)

1. **Introductions**
    a. Names / Positions / Class Taught
        i. Joey Michaud – Asst. Golf Coach & Counselor
        ii. Troy Humphrey—Wrestling Coach, Life Skills
        iii. Dave Ternes—P.E. Teacher, Coach, Health
            1. Modular for 25 years, heating/AC doesn't work, safety issues, parking icy
            2. Classroom space needed
            3. Handicap, ADA issues, really difficult in modular and not safe
            4. Locker rooms in old gym not accessible
            5. Intercom system does not work in old gym (safety/security issue)
            6. Weight/wrestling upstairs – only telephone communications
        iv. Sarah & Clint Layng – Head Track & Field, Head Volleyball / Weight Training / Head Football
        v. Erika Morris – Head Coach
2. **Current Programs / Offerings / Spaces**
    a. Inventory of spaces JHS has at present.
        i. Troy:

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1. Attendance is growing, weight room is too small
2. Need pads on wall, current 40x40, need 40x100 (room for bikes, tables, etc.)
3. Girls wrestling added, weight program grown
4. Critically undersized, programs expanding
5. Flooring weightroom not holding up
6. Upstairs, not ADA
7. Wrestling: 20-30 (with girls);

ii. P.E. – 6 classes – 100 students per day; Health 15-20
iii. All storage is not enough; P.E. Storage is converted shower
iv. Outgrown all facilities
v. Basketball/Track & Field- 24 girls;
   1. Old gym can't be used during Basketball season because of Drama
   2. Shared new gym for all basketball practices
   3. Ladders or dots painted on side of gym
vi. Training Room – inept
   1. Whirlpool does not work
   2. Does not work for training purposes
vii. Track & Field ~30 kids
viii. Sharing one gym for tennis, track and field, and golf – impossible to have practice
ix. Need two dedicated gyms
x. Storage
xi. Track needs to be all weather; jumping pit; runway for jump is not long enough for triple jump; dirt tracks obsolete
   1. Have to double mileage to attend a track meet on an all-weather track
xii. 5 weight classes, 24-30 students per class- room too small
   1. Needs to not be upstairs
   2. Include wrestling in a new building
xiii. Football uses downstairs locker room
   1. Football growing a lot (55 players potentially); lockers too small, room too small
xiv. Not enough offices for coaches/teachers and storage
xv. Football Field is bad certain times of year (water, mosquitos, etc.); grass doesn't hold up
   1. Need turf – expensive
   2. Better athletics are a good recruiting tool
xvi. Tennis courts
   1. 3 nice courts, storage, bathrooms
   2. Courts shared by City, City doesn't pay maintenance
      a. Causes conflicts with City
xvii. Adding Girls Wrestling might require added Boys Tennis
   1. Not enough courts if that happens
   2. Generally enough tennis space most years
xviii. Would like bubble on tennis courts
xix. Courts behind school (5) were bid t have work done, cannot use – maybe consider working on in the future—good for P.E.

3. What is working / good?
   a. Troy: lots of support from staff, coaches, community, etc. and helps a lot
      i. Good wrestling reputation in outlying areas
      ii. Word of mouth, positivity, excitement

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iii. School size gives students opportunities to participate in varsity/compete
iv. Get to know teachers really well – positive

b. Two gyms are a plus, everything in same building
c. Need to do something with new EHHS
d. Long history of success
    i. No outside basketball hoops, would be nice to have
e. People and lots of support, buy-in, lots of interest
f. Gyms good for games; sound in north gym is bad; sound from weight room carries into gym
g. Support from administration; encourage participation
h. Coaches work together; support one another
i. Constant recruiting battle with EHHS and Helena
j. Turf – look at cost effectiveness with maintenance
k. Tennis bathrooms are a big draw
l. Administration & staff are great
m. JHS is in a great spot – facilities can continue to secure students, need to invest in infrastructure
    i. No better time than now for support
    ii. Need to stay ahead of EHHS

4. Functioning / Too Small / Too Big / Underutilized

a. Inventory of spaces JHS has that are working well, too small, too large, or underutilized.

5. Future Programs / Offerings / Spaces

a. Are any spaces or program offerings needed or planned to be added in the future?

6. Final Comments

a. Any outstanding items of business / comments.
b. Downstairs locker rooms don't have ventilation; vent fills with sawdust from shop
c. Kids uncomfortable in open showers; girls wont use
d. No door on bathrooms
e. P.E. insultation might not be safe – School Districts must do a bi-annual report and test

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Jefferson High School
Building Condition Report

May 18, 2020

Project:	**Jefferson High School Building Condition Report**	**Day/Time:**	May 18, 2020
		Project #:	2010
Subject:	User Group Meetings	**Location:**	Zoom
Attendees:	Math, History, English, Art, Music, Drama	**Submitted by:**	**SMA Architects**
Attachments:	(none)	**Meeting No.:**	1-6

Group 1: Core Instruction (Math, History, English, Science)
Group 2: Art / Music / Drama
Group 3: P.E. / Athletics / Health
Group 4: Special Education / Counseling / Student Services
Group 5: CTE / Library / Technology
Group 6: Food Services / Building Support / Administrative Office

Purpose of Meeting/s:

To gain an understanding of the types of spaces Jefferson High School currently has.

Goals:

Identify what spaces are functioning well; identify spaces that are too small/too big; identify spaces that are underutilized; identify spaces that JHS does not currently have but needs.

Agenda (1.5 hours per meeting) – Round Robin Style (goes around to each person individually)

1. **Introductions**
    a. Names / Positions / Class Taught
        i. Jane Erickson- instructional Literacy
        ii. Matt Bowman –
        iii. Fritz – Government
        iv. Alan Smith – IT
        v. Kelsey Voeller – English (main building)
        vi. Anne Joliff – English (main bld)
        vii. Katrine Setterstrom – Therapist, CSCT
        viii. Nicole Strozewski – Math
        ix. Mrs. Smartnick –
        x. Cathy Cary – Math
        xi. Steve McCauley – Science
        xii. Cody Ottman – History
        xiii. Lynssey Williams – Para, Volleyball/Tennis Coach
        xiv. Jennifer Scott – Para, SpEd
        xv. Michael Hesford – English, Theater

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xvi. Emma Heimann - Art

2. Current Programs / Offerings / Spaces

a. Inventory of spaces JHS has at present.

i. Jane – small office next to SpEd, former store, space for specialists, centrally located (good for current position), very small, window, privacy matters for students, larger space would be more practical – difficult to have several adults, need to accommodate multiple adults, lighting and outlets not adequate,

1. Position is currently grant funded – not sure of future

ii. Matt Bowman – space is nice size, program growing, band class, carpet preferable for sound, practice rooms, closet space for storage, would be better to be near, program growing not enough classroom space, access to stage could be better, storage not enough

iii. Fritz – Government/Social Studies – has everything he needs currently, classroom seating is adequate, Drivers Ed cars not garaged, activity car not garaged

iv. Kelsey Voeller – math room, next to FCS, when class sizes are too large classroom is small, but overall good, gets crowded with more paras, etc., outlets not adequate, next to FCS gets noise, if class size continues to grow there would be space difficulty across the board

v. Anne Joliff – echoes Kelsey's concerns with class sizes, outlets difficult for testing, storage for books needed, sound level not bad, computer room next door

vi. Katrine – big room, sometimes small with large group, need 2 tables and more flexibility for groups, happy with space, need sink, need sound proof corner, need private area for suicide assessments, 14-15 max group, possible additional

vii. Nicole – math room, class size small for increasing numbers, may need to spread out students more, outlets a concern, share door with computer lab (former science room) – windows between and noise is a concern, this year class size/desk availability is a concern, backload students re-taking classes,

viii. Cathy – History – echoing concerns of many gen ed, insultation would be good in between classrooms for sound

ix. Steve – Science, like room but smallest in school, ventilation bad need exhaust fan, no lab/classroom setup like Mary, chemical storage is ok, electrical issues in storage and no ventilation, outlet hooked in to motion sensor in hallway, have eye wash and shower, safety shower right on top of eye wash

x. Cody – History, very south portion of school near parking, tables, etc. are all utilized, up to 30 students, quiet, growth would require additional teacher in history dept., space is good in general

xi. Michael – up to 30 can be tight, film class/club, classroom is good, blackout curtains would be good, outlets, theater has some issues

1. Theater: make it work but not ideal, not equipped for type of program they currently have, outgrown, lighting bad, sound from gym not good, need auditorium, Band does not have rehearsal space because theater always occupied, use Mother Lode/Myrna to utilize outside resources

xii. Emma Heimann – Art- sinks not adequate (not enough) always need, affects class size, outlets enough, photography lab off-site, moved into CAD lab shared with Mr. Heimann – very loud with welding, need photography lab, accessibility to room not ideal through gym sometimes gets locked and isn't aware, location and light is great, ADA (not a concern

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yet, but could be), classroom size is good but anything over 18, only 16 computers in CAD lab

xiii. Alan Smith – IT, infrastructure is good and recently replaced, 2 internet providers, wouldn't need additional infrastructure to add on to building

xiv. Wendy Shultz – modulars English,

3. What is working / good?
4. **Functioning / Too Small / Too Big / Underutilized**
5. **Future Programs / Offerings / Spaces**
    a. Are any spaces or program offerings needed or planned to be added in the future?
6. **Final Comments**
    a.

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Jefferson High School
Building Condition Report

May 26, 2020

Project:	**Jefferson High School Building Condition Report**	**Day/Time:**	May 26, 2020
		Project #:	2010
Subject:	User Group Meetings	**Location:**	Zoom
Attendees:	Staff 2	**Submitted by:**	**SMA Architects**
Attachments:	(none)	**Meeting No.:**	1-6

Group 1: Core Instruction (Math, History, English, Science)
Group 2: Art / Music / Drama
Group 3: P.E. / Athletics / Health
Group 4: Special Education / Counseling / Student Services
Group 5: CTE / Library / Technology
Group 6: Food Services / Building Support / Administrative Office

Purpose of Meeting/s:

To gain an understanding of the types of spaces Jefferson High School currently has.

Goals:

Identify what spaces are functioning well; identify spaces that are too small/too big; identify spaces that are underutilized; identify spaces that JHS does not currently have but needs.

Agenda (1 hour per meeting) – Round Robin Style (goes around to each person individually)

1. **Introductions**
    a. Names / Positions / Class Taught
    b. Don Smart – Business Education
    c. Linda - School Secretary
    d. Tim Norbeck
    e. Director of Maintenance
    f. Lindsey Williams – Para, Tennis
    g. Ester Kirsch - SpEd
    h. Alan Smith
    i. Samantha – Mental Health Care, Altacare
    j. Mike Moodry – Principal
    k. Mike Robbins – Woodshop, Small Engines
    l. Sarah Layng – Library, Yearbook
    m. Cassidy Nordahl – FACS
    n. David Heimann – Drafting, CAD

2. **Current Programs / Offerings / Spaces**

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a. Inventory of spaces JHS has at present.
b. What is working / good?

3. **Functioning / Too Small / Too Big / Underutilized**
   - **a.** Mike Moodry – need window, office works well, could be more welcoming, office space layout not great, ventilation/too hot, good central location
     - **i.** School security has been improved
   - b. Samantha – near back door, outlets going out, need more than one spot for students, privacy issues when dealing with sensitive matters, size too small, up to 18, cannot do 1 counseling session and see other students, need private office with several adults + student, needs to accommodate up to 24 at a time in classroom
   - c. Need conference room for IEPs, meetings
   - d. Mike – concrete floors in shop would be good, floors very slippery, needs blinds, storage needed, spray room in storage, small engines too close to welding – volatile things, ventilation not great, dangerous, 12 students max for size
     - i. Woodshop space is good, workspace, equipment
     - ii. Storage for projects is needed
     - iii. Woods – cutting board, keepsake box, wood laiths, milling, computer operated, residential construction
     - iv. Drafting taught by David Heimann
   - e. Drafting – technology and room is good, up to 16 students, welding shop size is limiting, programs are growing, fabrication, would like to add tools
     - i. need 12 booths
     - ii. move small engines shop elsewhere
     - iii. welding popular, wood is also increasing
     - iv. circulation – small engines has to walkthrough other shops to get outside, using restrooms
     - v. need more outlets
     - vi. LED lighting needed (fluorescent lighting not good)
     - vii. Consolidation
   - f. Sarah – Library is great space, sound is a issue/bad acoustics, class in lab sound comes through
     - i. Can't use library for instruction if there is a class in lab
     - ii. 20 students at a time, crowded
     - iii. Library storage
     - iv. Ventilation / too hot / get bus exhaust with windows open
     - v. Number of volumes is increasing – demand
       1. Don't utilize a lot of online resources, no e-readers, could improve that
       2. 3,000-4,000 volumes; around 80% full
   - g. Cassidy – FACS, last year major improvements, added kitchen unit, 15 students best but takes up to 19 (group up for kitchen spaces); outlets don't consistently work; not a lot of interest in sewing, more interest in culinary, cook breakfast for school, pantry takes up lots of space but is good to have, no space for more students, add kitchens on walls, 1 fan, windows, 2 vents – 2nd doesn't have switch
     - i. Room too hot, things don't stick to walls
   - h. Business Ed – computer lab, great space, needs flexibility for setup, difficult to move with power/outlets, need cabinets, first lab on right, all desktops, laptops could help versatility, ventilation needed

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i. Linda – School secretary – office works well, need sick room, also is school nurse 3x week, can see everyone coming to door, foyer is cold, secure vestibule could be good on one side
j. Tim Norbeck- office at top of ramp, office next to Business Clerk, busy space, lots of confidential files, next to boiler- hot and loud, nice to be in building but lots of interruptions, no window
k. Dan – Athletic Director / Maintenance – M/E outdated, flooded, potential grants for lighting, not enough storage
l. SpEd – safety issue in classroom, 6 adults + 16 students with variable needs, all in 1 classroom, difficult to accomplish 1:1 work; ½ wall needed with windows to create space for 1:1 work or sensory room too small; add kitchenette or bathroom; not enough space; currently no runners/violent students , students with noise sensitivities, room too hot
m. Alan Smith: Technology – activating a panic switch main office for all doors “do not disturb” mode, outlets needed, office in middle of building

4. Future Programs / Offerings / Spaces
a. Are any spaces or program offerings needed or planned to be added in the future?

5. Final Comments

END OF REPORT