# Shields Valley Public Schools
# Master Planning

November 18, 2022

# Junior High / High School Assessments

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CT Project No.: SHIELDS_MP

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## Introduction

Cushing Terrell was enlisted by the Shields Valley School District to provide an assessment of the Junior High / High School located in Clyde Park, Montana. The assessments are part of the Master Planning process that the School District has embarked on. Cushing Terrell breaks our comprehensive planning process into three phases: Assess, Explore, and Apply. One of the first steps in the Assess phase was to assist the Shields Valley Planning Committee in establishing your Guiding Principles which are the Goals, Priorities, and Vision of the School District which will guide the Planning Committee through the master planning to ensure we are staying within the boundaries defined by the stakeholders at each step along the planning process. Those Guiding Principles are included with this report for reference.

Cushing Terrell was not directed by the School District to do a comprehensive assessment of the existing conditions at the junior high/high school, in order to reduce professional fees. Our structural engineer and electrical engineer did however visit the school in Clyde Park in the Spring of 2022 and assessed those systems of the buildings to identify deferred maintenance items at the school. After evaluating the existing conditions at each school, Cushing Terrell compiled the identified deficiencies into this report. We also reviewed the Facility Conditions Inventory documents which were created by the State of Montana in 2008 and included any deferred maintenance items from those reports. And the School District provided us with a list of issues they are aware of at the facility in Clyde Park.

Cushing Terrell was not directed by the School District to do an assessment of the educational spaces in the junior high/high school, in order to reduce professional fees.

The scope of Cushing Terrell's evaluations did include providing cost estimates for each of the identified deficiencies so the Board of Trustees can make informed decisions on potential renovations and/or additions or new construction projects. The items will eventually be prioritized by the planning committee and the Cushing Terrell team and those priorities will be added to this report.

Cushing Terrell

**Prioritized Guiding Principles – Shields Valley School District Master Planning**

- High Quality Education
  - Socially, Emotionally, and Academically Connected Students
  - Inclusion for all kids; Accessible / ADA
- Meets Current Needs First, then address Future Needs
- School as a Community Center to maintain community involvement
  - Maintain Culture / Core Values / Community Pride
- Safety and Security
- Healthy Schools
- Sustainable – in both Longevity and Energy Efficiency
  - Build to Last / Build for Growth
  - Energy Efficient Facilities
- Honor History of the Valley, both Physical & Valley Environment
  - Maintain Agricultural Values
- Blend traditional teaching with modern teaching/learning.
  - Embrace Progress, Be Innovative but Maintain Traditions / Values

Prepared By: Ronda Carlson

# ARCHITECTURAL

## Junior High / High School

Cushing Terrell did not complete an architectural assessment but did note the following accessibility issues:

- Need ramp and/or vertical lift to allow ADA access throughout
- Need restrooms remodeled for ADA accessibility
- Asbestos abatement of floors and ceilings in any areas of remodel will be required

The deferred maintenance items listed here were provided by Superintendent Dan Johnston:

- The plumbing is bad throughout
- Internal roof drains are compromised and do not have a conforming place to drain into
- The ceiling fans in the gym cannot be maintained because we do not have a lift. This type of fan is not appropriate for such a facility.
- The insulation in the gym is deteriorating and not functional.
- The building is encapsulated in asbestos.
- Most of the floors and ceilings are asbestos.
- Windows are single pain, huge, and not safe.
- The concrete block the building is made out of is crumbling.
- The dome roof needs replacing.
- The irrigation system needs to be updated and to be automated.
- The underground fuel tank needs to be replaced or abandoned.
- Wiring is outdated.

The deferred maintenance items listed here were included in the Facility Conditions Inventory documents which were created by the State of Montana in 2008:

- Cracks and spalling at some isolated areas of foundation
- Cracks/voids in some isolated areas of masonry
- Single pane windows
- Some windows with loose weatherstripping
- Some doors out of alignment
- Rotting wood beams at East Gym
- Damaged acoustical ceiling tiles
- No centralized HVAC controls
- Some heating units in classroom wing non-functional
- Leaks at hydronic piping in gym and mechanical room
- No ventilation air in classroom wing
- Light fixtures have T12 bulbs in classroom wing
- Science classrooms lacking GFCI outlets

### Summary

Within Appendix A are Rough Order of Magnitude cost estimates for the architectural deficiencies identified within this report.

Prepared By: Patrick Todd

# ROOFING

## Junior High / High School

The single-ply roof on the dome needs to be replaced. The area of the dome roof is 8,063 square feet. We are aware that they are experiencing leaks in the principal's office. These leaks could be coming in from the single ply tie -in on the roof or to shingle issues. It is unknown at this time. The shingle roof area which is 17,179 square feet also needs replacement.

### Summary

Within Appendix A are Rough Order of Magnitude cost estimates for each of the following roofing issues which were identified within this report –

- Replace single-ply roof on the dome.
- Replace shingle roof.

Prepared By: Kevin Feldman

# STRUCTURAL

## Junior High / High School

From a structural perspective, the Clyde Park School building was found to be in generally good overall condition with little signs of significant movement. The majority of the observed issues consisted of deterioration related to deferred maintenance of the exterior of the buildings. In particular, peeling paint and rotting of the original wood fascia was observed at a length of approximately 90 feet along the North side of the building, in addition to deterioration of the CMU walls and concrete, in particular at exterior concrete stairs which is due to wetting combined with use of deicing salts which further deteriorates the concrete.

In addition, a few portions of CMU wall also showed signs of damage whereas the face shell appears to be popping due to the presence of high moisture and likely freezing within the wall. This was most significant below the Gymnasium exhaust louvers on the East side of the building and at the East wall of the South entrance near the middle of the West wing of the school. This location was investigated from the interior of the face and was found to be in the vicinity of an electrical penetration into the CMU from the interior of the building which is likely the source for a concentration of warm moist air from the school to enter and freeze in the exterior wall.

In addition to this observed deterioration, the ends of the main Gymnasium roof beams appear to have originally been exposed and have experienced dry rot near the attachment to the foundation which has previously been repaired/strengthened using steel. This area should be observed and a Structural Engineer notified if changes are observed to the current conditions.

Although not building related, sidewalks in particular at the Southwest corner near the main entrance were found to have significant cracking and surface deterioration.

### Recommendations

The following items are recommended to repair the structural damage noted above:

- Repointing of mortar at West Gym Entry
- Replacement of damaged face shell at high moisture areas and proper sealing of penetrations
- Replacement of severely deteriorated sidewalk
- Repair of spalled concrete

In an effort to extend the remaining useful life of the structure to the greatest extent practical, it is recommended that the following maintenance items be completed:

- Replacement/Repainting of deteriorated fascia on North side of building and Arched roof of Gym
- Cleaning and sealing of exterior CMU

### Summary

Within Appendix A are Rough Order of Magnitude cost estimates for each of the structural deficiencies identified within this report.

Prepared By: Jeff Haidle

# ELECTRICAL

## Junior High / High School

### Electrical Power

The electrical main service panel is in fairly new condition. However, there is an original MDP and quite a few branch panels (approx. 4-6) that are aged and beyond their useful life and should be replaced. Depending on the backbox size, a contractor may be able to do a panel internal wiring change out to make this job less impactive.

### Lighting

Lighting systems appear to still be mainly fluorescent lighting. It is recommended that light fixtures be replaced entirely with new LED fixtures for energy efficiency and better overall lighting quality and performance. A new replacement fixture is a longer term solution than LED lamp retrofits, but a lamp retrofit is certainly an option as well. The Gym lighting has already been retrofitted to LED fixtures.

Lighting controls appear to be basic in nature with standard switching. For energy savings and to comply with current energy codes, it is recommended that occupancy sensing be installed in all areas except the gymnasium and dimming control desired for flexibility in lighting levels.

Exterior lighting appears to be a combination of incandescent and HID. We would recommend replacing light fixtures with new LED for energy savings and better light quality.

### Systems

The Fire Alarm panel is a Simplex 4010 addressable panel. The panel is in good condition. The fire alarm notification coverage is good in the newer part of the school; however of the older part of the school needs better coverage still to comply with NFPA and ADA.

A small scale security system was noted at the school. It is recommended that a security camera system be added. Schools in remote areas can still be a target and these systems will help keep staff and kids safe.

### Summary

Within Appendix A are Rough Order of Magnitude cost estimates for each of the following electrical deficiencies which were identified within this report –

- Replace main distribution panel and a few branch panels.
- Replace interior lighting with new LED light fixtures.
- Add lighting controls throughout the school to comply with the latest energy code.
- Replace exterior lighting with new LED light fixtures.
- Upgrade fire alarm system in the older part of the school with better coverage.
- Add a security camera system.

## Priorities and Summary

Based upon the information available for the junior high/ high school, in Cushing Terrell's professional opinion, the primary deficiencies are as follows:

The high priorities identified were:

- Ramp and/or Vertical Lift to allow ADA access throughout
- Restrooms remodel for ADA accessibility / fix plumbing issues too
- Asbestos abatement of floors and ceilings in areas of remodel work
- Window replacements
- Roof replacements
- Repointing of mortar at West Gym Entry
- Replacement of damaged face shell / proper sealing of penetrations
- Replacement of severely deteriorated sidewalk
- Correct drainage for internal roof drains
- Fix water line to wood shop (from 2008 FCI, if still applicable)
- Upgrade fire alarm system in the older part of the school
- Mechanical system upgrades (info from 2008 FCI)

The medium priorities identified were:

- Gym - remove deteriorating insulation and ceiling fans
- Repair of spalled concrete
- Replacement/repainting of deteriorated fascia
- Cleaning and sealing of exterior CMU
- Replace main distribution panel and a few branch panels
- Add a security camera system

And the low priorities identified were:

- Replace interior light fixtures with new LED light fixtures
- Add lighting controls throughout the school
- Replace exterior lighting w/ LED fixtures
- Insulation improvements (info from 2008 FCI)
- Ceiling tile replacements (info from 2008 FCI)

The final priorities of the improvements will be confirmed with guidance from the School District, upon their review of the draft version of this report. After receiving confirmation of the improvements the District selects, Cushing Terrell will provide cost estimates for each improvement project.

# Appendix A

| ELEMENTARY OPTIONS | Square Footage | Cost / SF | Addition Cost | Covered Walkway | Demo Ex. Boiler Bldg | 1913 Remodel Cost | 1967 Remodel Cost | Total Cost | Bonding Capacity |
|---|---|---|---|---|---|---|---|---|---|
| **Option 1 - Light Touch** | 3,500 | $650 | $2,275,000 | $100,000 | $0 | $925,000 | $2,180,000 | $5,480,000 | $7,939,515 |
| Keeps full use of White Bldg | | | | | | | | | |
| **Option 2 - Bridge Connector Addition** | 6,800 | $650 | $4,420,000 | | $200,000 | $925,000 | $2,180,000 | $7,725,000 | $7,939,515 |
| Keeps full use of White Bldg | | | | | with abatement | | | | |
| **Option 3A - Addition to '67 Bldg** | 9,950 | $650 | $6,467,500 | | $200,000 | $0 | $2,100,000 | $8,767,500 | $7,939,515 |
| Move out of White Bldg & moves 6th to JH/HS | | | | | with abatement | | | | |
| **Option 3B - Addition to '67 Bldg** | 10,250 | $650 | $6,662,500 | | $200,000 | $0 | $2,100,000 | $8,962,500 | $7,939,515 |
| Move out of White Bldg & moves 6th to JH/HS | | | | | with abatement | | | | |

| JUNIOR / HIGH SCHOOL OPTIONS | Remodel Cost | Total Cost | Bonding Capacity |
|---|---|---|---|
| **Option 1 - Remodel high priorities only** | $1,605,500 | $1,605,500 | $6,614,678 |
| **Option 2 - Comprehensive Remodel** | $2,395,000 | $2,395,000 | $6,614,678 |
| **Option 3 - Add 6th grade & high priorities** | $3,060,500 | $3,060,500 | $6,614,678 |
| **Option 4 - Add 6th grade & comp. remodel** | $3,850,000 | $3,850,000 | $6,614,678 |

# Appendix B

# Shields Valley 5 Year Enrollment Study

| Year | 2017 | 2018 | 2019 | 2020 | 2021 | Avg |
|---|---|---|---|---|---|---|
| K | 12 | 11 | 14 | 10 | 14 | 12 |
| 1 | 16 | 13 | 13 | 16 | 11 | 14 |
| 2 | 19 | 13 | 17 | 13 | 12 | 15 |
| 3 | 17 | 19 | 16 | 18 | 14 | 17 |
| 4 | 11 | 16 | 20 | 16 | 14 | 15 |
| 5 | 21 | 11 | 18 | 20 | 12 | 16 |
| 6 | 12 | 19 | 11 | 20 | 19 | 16 |
| Total | 108 | 102 | 109 | 113 | 96 | 106 |
| Year/Year # | | -6 | 7 | 4 | -17 | -3 |
| Year/Year % | | -5.6% | 6.9% | 3.7% | -15.0% | -3% |
| | | | | | | |
| 7 | 21 | 11 | 17 | 13 | 18 | 16 |
| 8 | 15 | 21 | 10 | 16 | 16 | 16 |
| 9 | 21 | 14 | 21 | 10 | 12 | 16 |
| 10 | 11 | 20 | 14 | 17 | 12 | 15 |
| 11 | 19 | 9 | 16 | 16 | 15 | 15 |
| 12 | 15 | 16 | 10 | 15 | 14 | 14 |
| Total | 102 | 91 | 88 | 87 | 87 | 91 |
| Year/Year # | | -11 | -3 | -1 | 0 | -4 |
| Year/Year % | | -10.8% | -3.3% | -1.1% | 0.0% | -4% |
| | | | | | | |
| TOTAL | 210 | 193 | 197 | 200 | 183 | 197 |
| Year/Year # | | -17 | 4 | 3 | -17 | -7 |
| Year/Year % | | -8.1% | 2.1% | 1.5% | -8.5% | -3% |

# 5 Year Summary

| Elementary School | | Junior High/HighSchool | |
|---|---|---|---|
| Max ES Class Size | 21 | Max JH/HS Class Size | 21 |
| Low ES Class Size | 10 | Low JH/HS Class Size | 9 |
| Max Avg ES Class Size | 17 | Max Avg JH/HS Class Siz | 16 |
| Low Avg ES Class Size | 12 | Low Avg JH/HS Class Siz | 14 |
| Avg ES Class Size | 15 | Avg JH/HS Class Size | 15 |
| Max Total ES | 113 | Max Total JH/HS | 102 |
| Avg ES Total | 106 | Avg JH/HS Total | 91 |

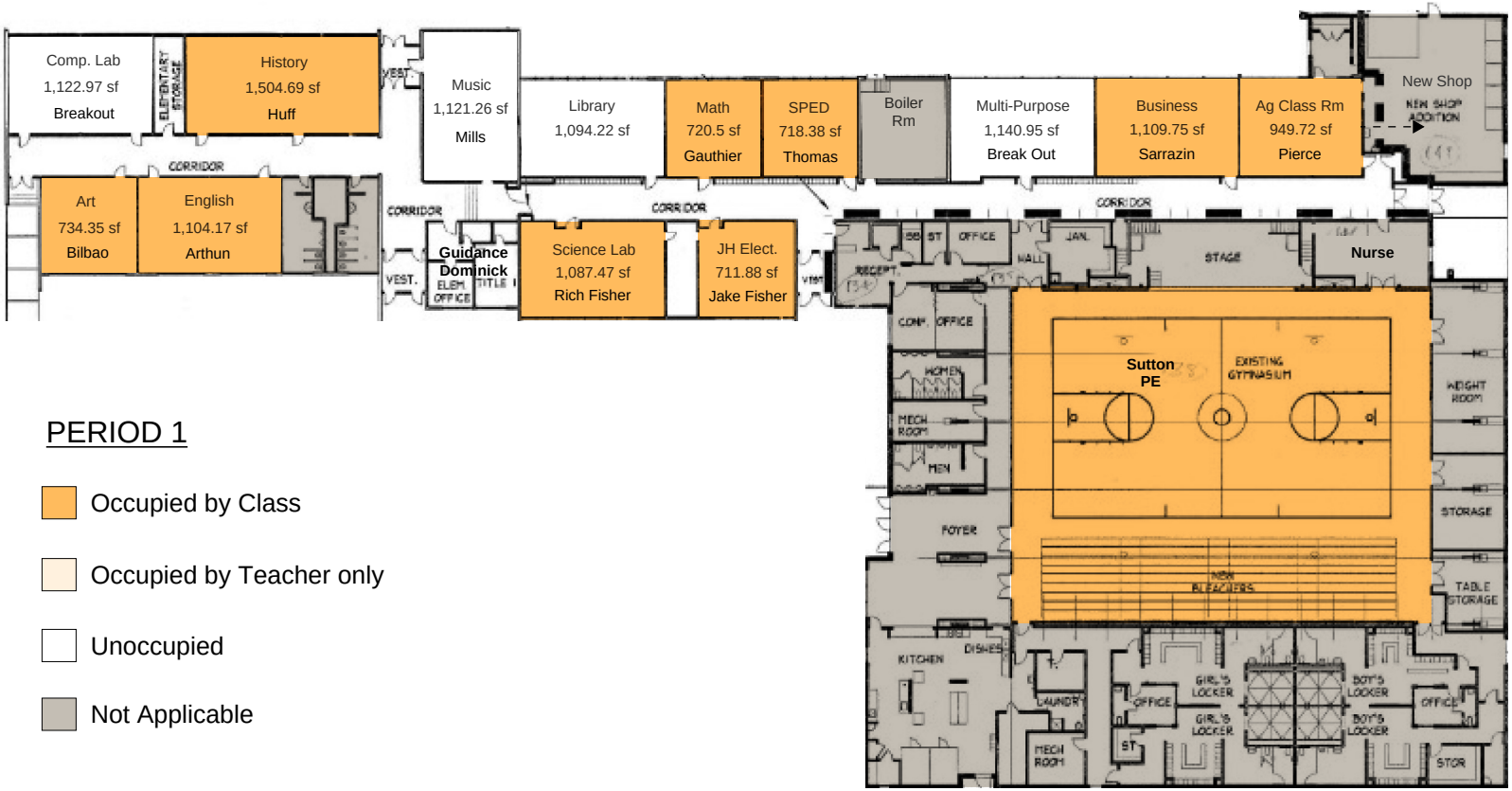
| | |
|---|---|
| Max District TOTAL | 210 |
| Min District TOTAL | 183 |
| Avg District TOTAL | 197 |

# Shields Valley JH/HS Space Study

| (Existing) | | (Industry Standards) | | (Enrollments) | (Comparisons) | | |
|---|---|---|---|---|---|---|---|
| Room | SF | SF/Student | #Students | Max Class Size | #Students vs Max Class | SF/Student x Max Class Size | SF Delta |
| Comp. Lab | 1122 | 36 | 31 | 21 | 10 | 756 | 366 |
| History | 1504 | 28 | 53 | 21 | 32 | 588 | 916 |
| Music | 1121 | 35 | 32 | 21 | 11 | 735 | 386 |
| Library | 1094 | 14 | 78 | 102 | -24 | 1428 | -334 |
| Math | 720 | 28 | 25 | 21 | 4 | 588 | 132 |
| SPED | 718 | 28 | 25 | 21 | 4 | 588 | 130 |
| Multi-Purpose | 1140 | 42 | 27 | 21 | 6 | 882 | 258 |
| Business | 1109 | 28 | 39 | 21 | 18 | 588 | 521 |
| Ag Class Rm | 949 | 28 | 33 | 21 | 12 | 588 | 361 |
| Art | 734 | 42 | 17 | 21 | -4 | 882 | -148 |
| English | 1104 | 28 | 39 | 21 | 18 | 588 | 516 |
| Science Lab | 1087 | 58 | 18 | 21 | -3 | 1218 | -131 |
| JH Elect. | 711 | 28 | 25 | 21 | 4 | 588 | 123 |
| SUM: | 13113 | | | | | 10017 | 3096 |

# Shields Valley JH/HS 2022-23 Master

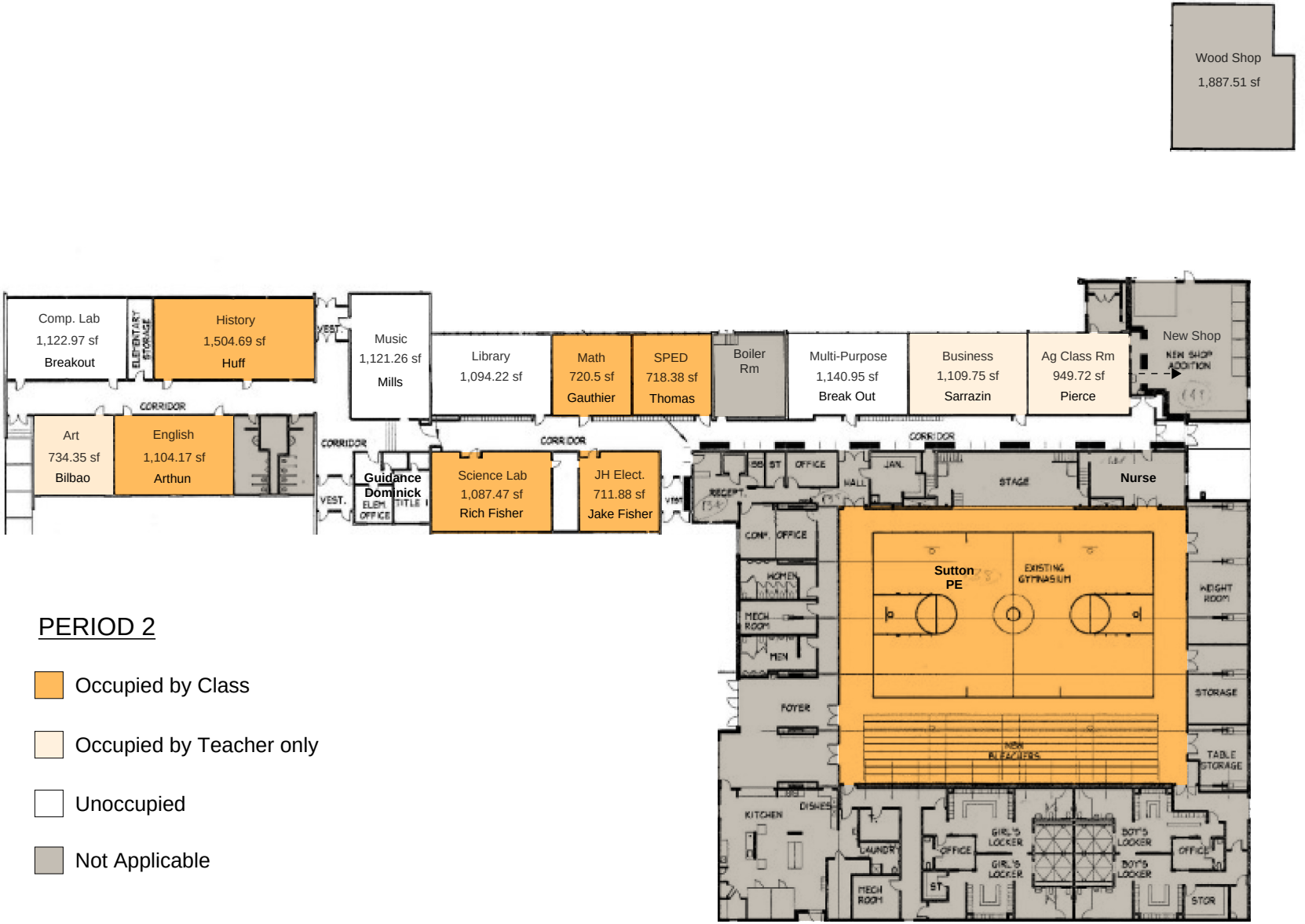
| | First<br>8:00-8:57 | Second<br>9:00-9:57 | Third<br>10:00-10:57 | Fourth<br>11:00-11:57 | Fifth<br>12:30-1:27 | Sixth<br>1:30-2:27 | Seventh<br>2:30-3:27 | Eighth<br>3:30-4:00 | Utilization<br>% |
|---|---|---|---|---|---|---|---|---|---|
| Arthun, L | JH Lit & writing | English 12 | Eng. Foundations | English 9 | English 11 | Prep | English 10 | SH | 88% |
| Library | Elem | Elem | Elem | Elem | Elem | | DA/Library | Title SH | 25% |
| Fisher | JH English Skills | English 8 | Prep | History 7 | PE 8 | English 7 | JH Math Skills | Title SH | 75% |
| Thomas | SPED | SPED | SPED | SPED | SPED | SPED | SPED | SPED SH | 100% |
| Huff | Economics | US Hist | Prep | World Hist. | Government | 8th History | Psychology | SH | 88% |
| Dominick | Elem | Elem | Elem | Elem | Guidance | Guidance | Life After HS | Guidance | 50% |
| Gauthier | Geometry | Algebra 1 | Algebra 2 | Stats | 7th Math | Geometry | Prep | SH | 88% |
| Mills | Elem | Elem | Elem | Elem | Elem | H.S. Band | JH Band | Choir | 38% |
| Pierce | AgEd 3/4 | Prep | AgED 1 | Animal Sci. | AgEd 2 | Construction/ Mechanics | JH Ag Tech | SH | 88% |
| Bilbao | JH Art | Prep | Art | Graphic Design | Elem | Elem | Elem | Elem | 38% |
| Sarrazin | JH Math/Business | Prep | Math 8 | Accounting | Publishing | Personal Finance/Bus. | Tech Aps 1 | SH | 88% |
| Science | Advanced Biology | 7th Science | Biology | 8th Science | Science | Prep | Physics | SH | 88% |
| Sutton | HS PE | HS PE | 7th PE | Weights/Life Sports | Elem | Elem | Elem | Elem | 50% |
| | | | | | | | | AVG | 69% |




Wood Shop
1,887.51 sf

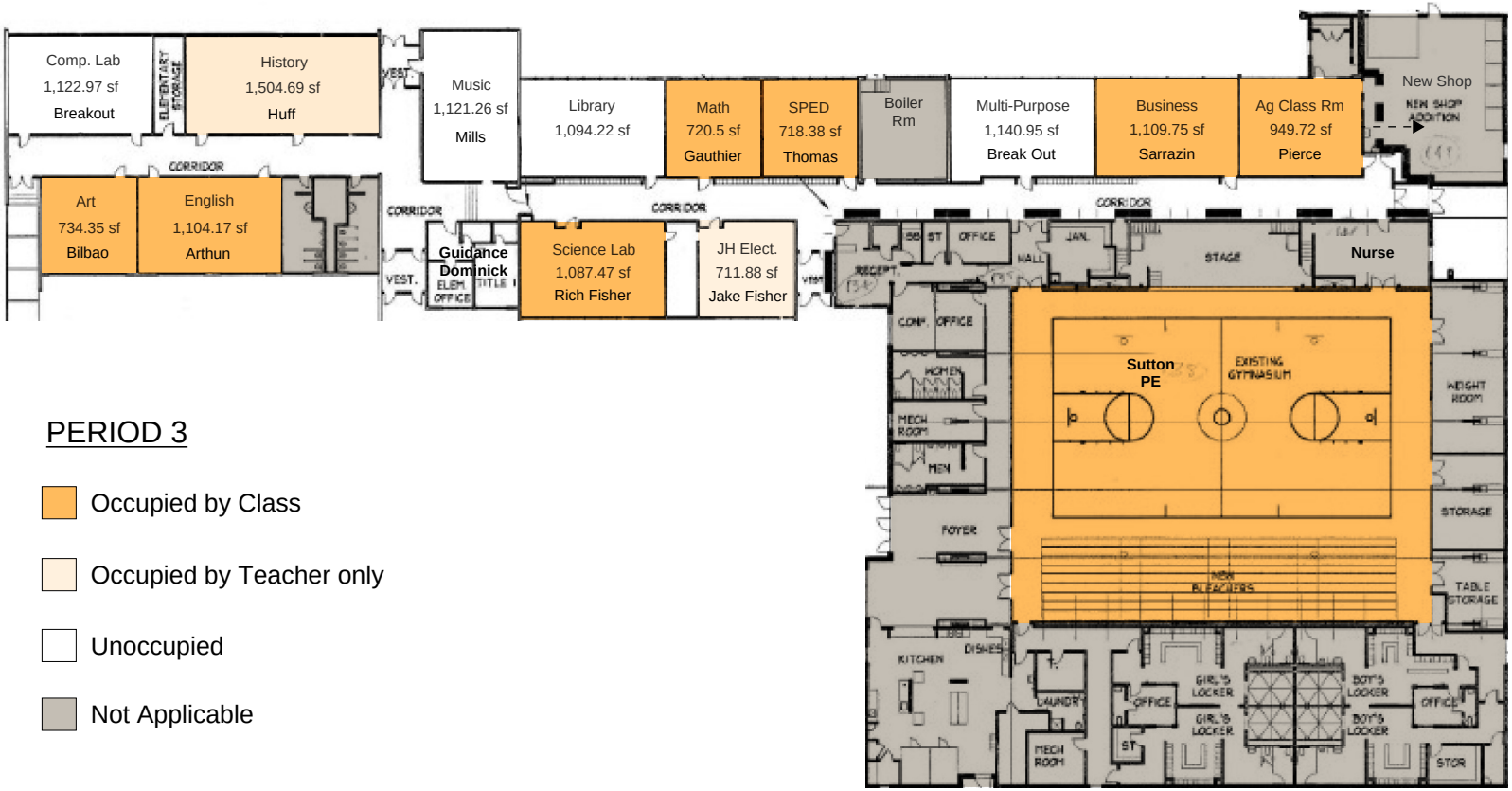
## PERIOD 1

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




## PERIOD 2

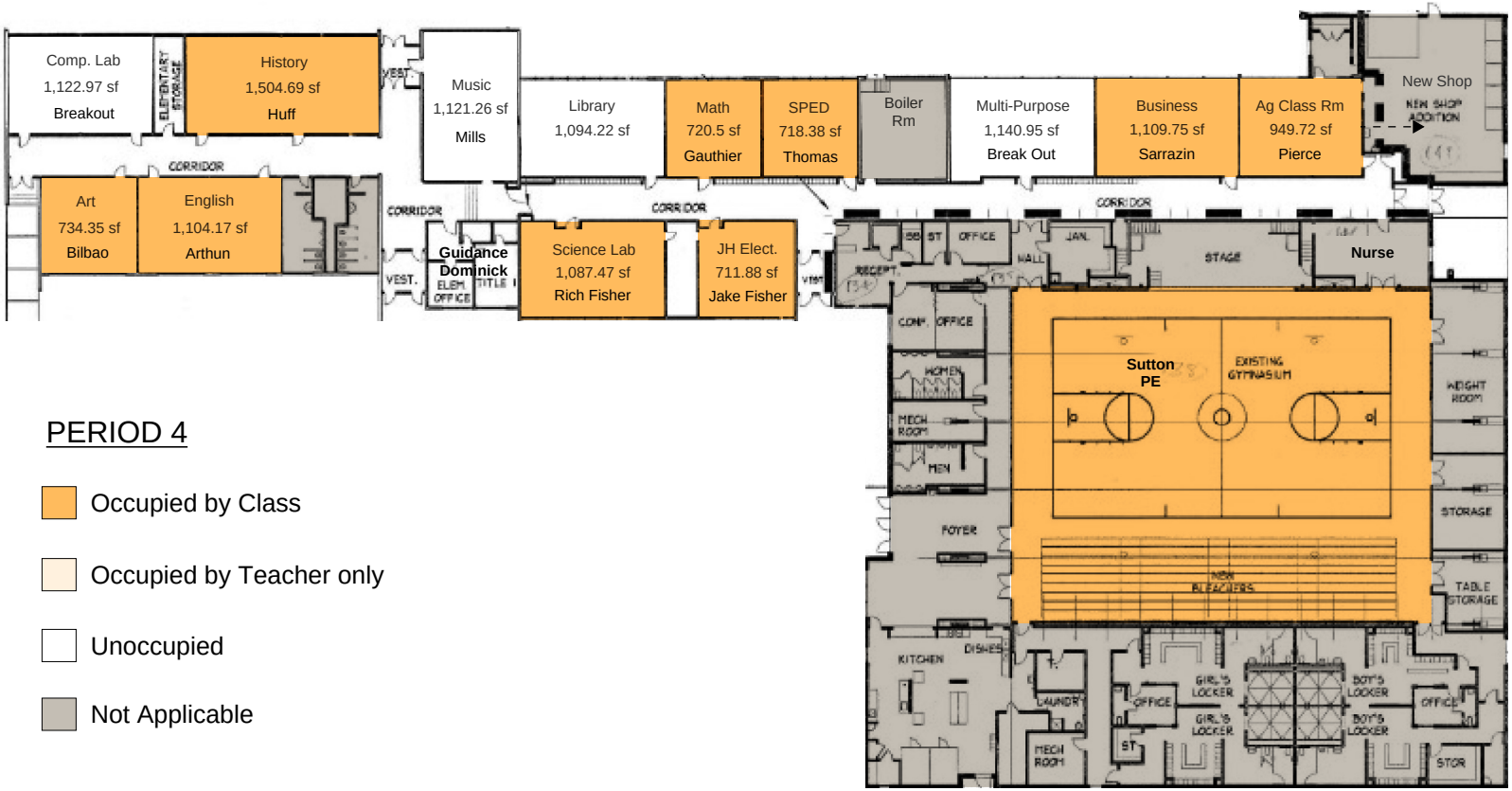
- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




Wood Shop
1,887.51 sf

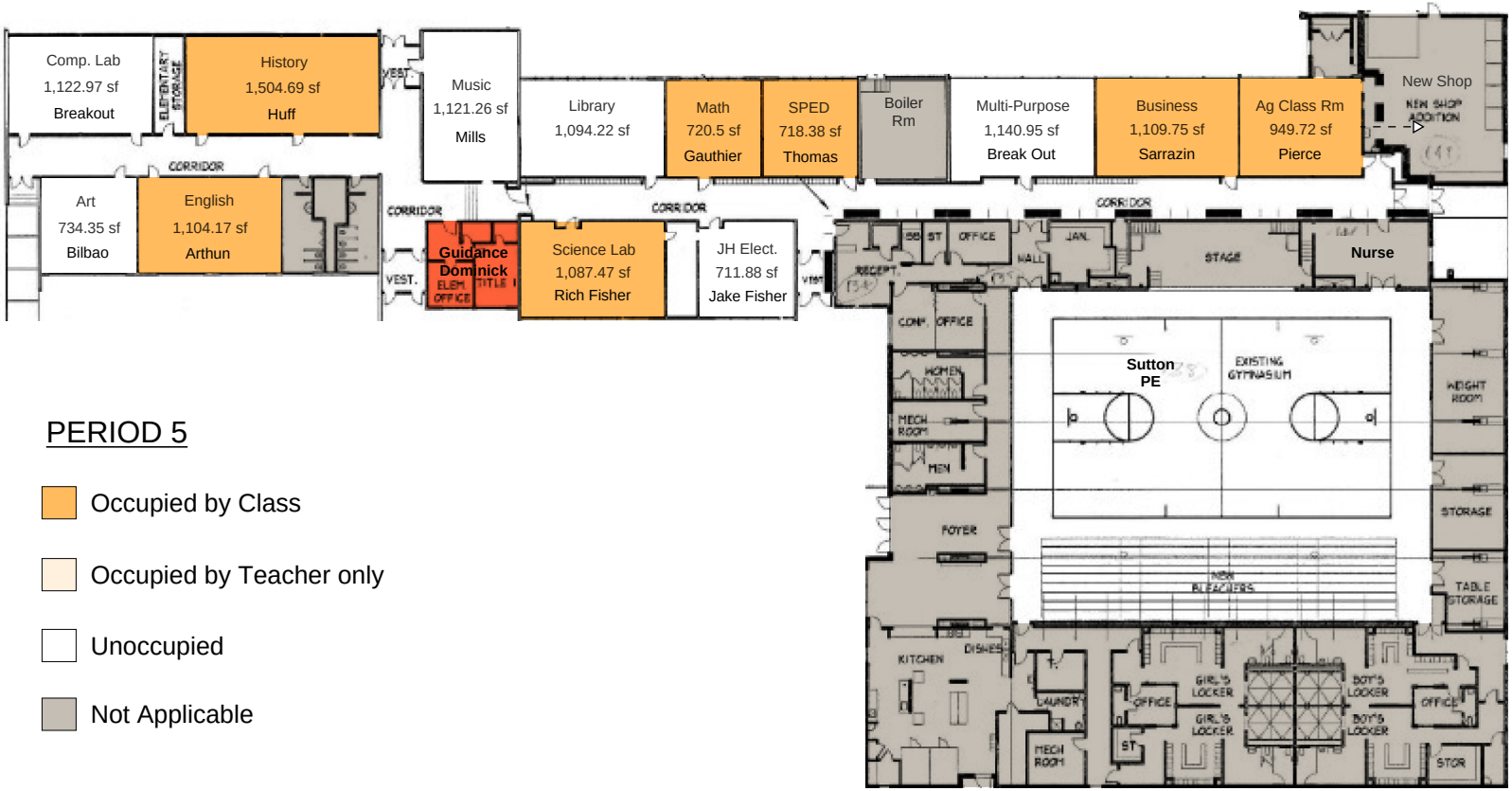
## PERIOD 3

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




## PERIOD 4

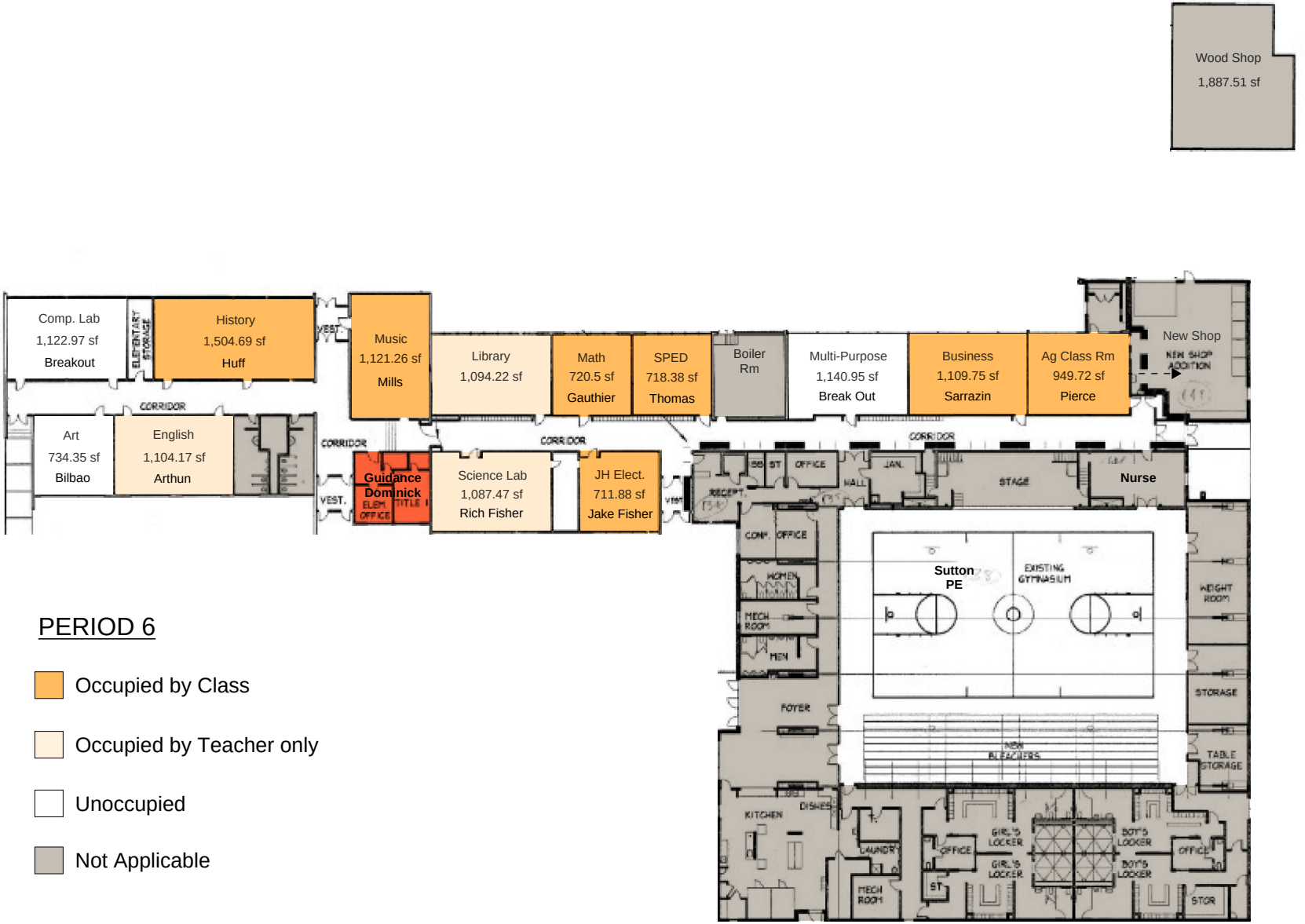
- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




Wood Shop
1,887.51 sf

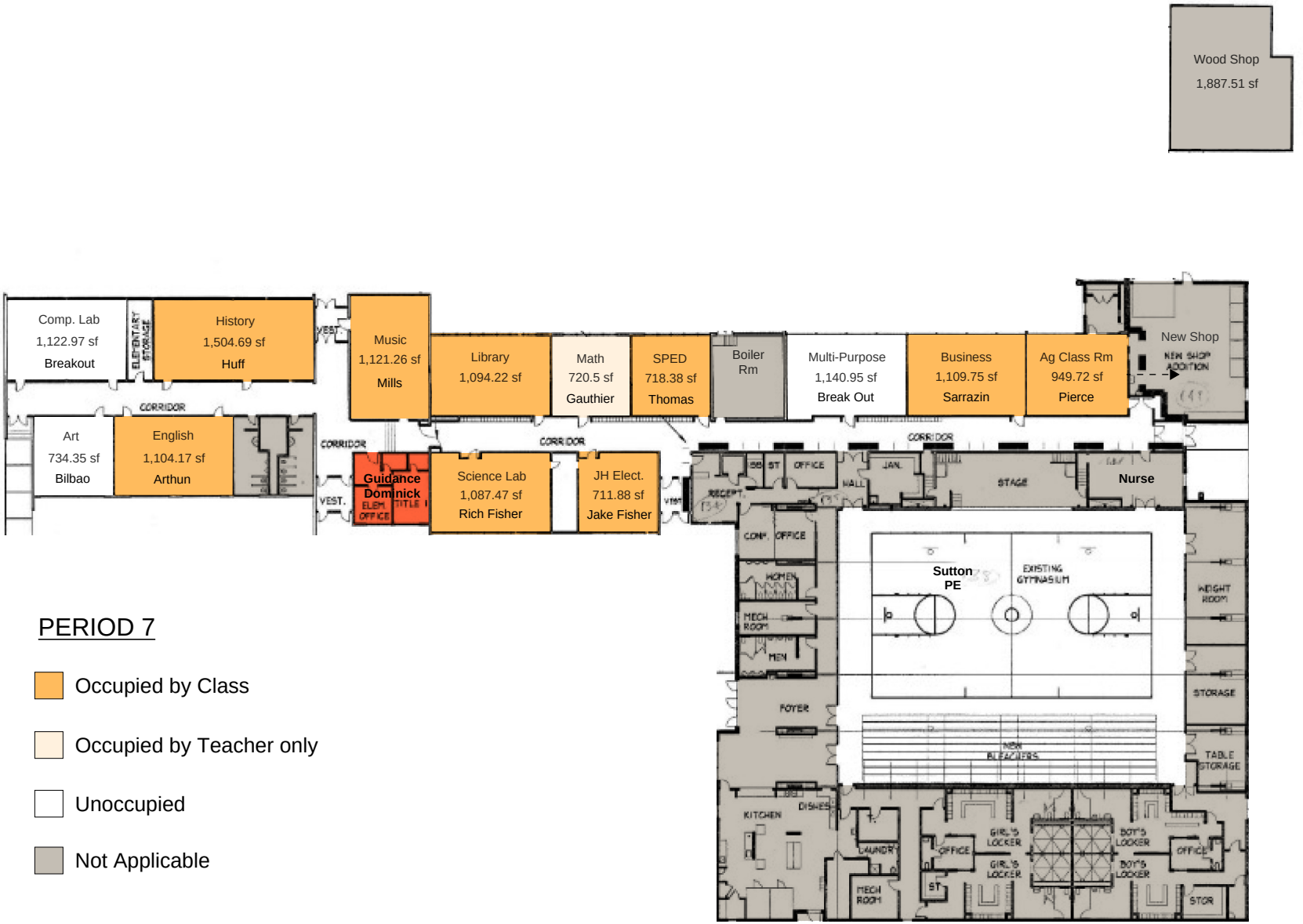
## PERIOD 5

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable



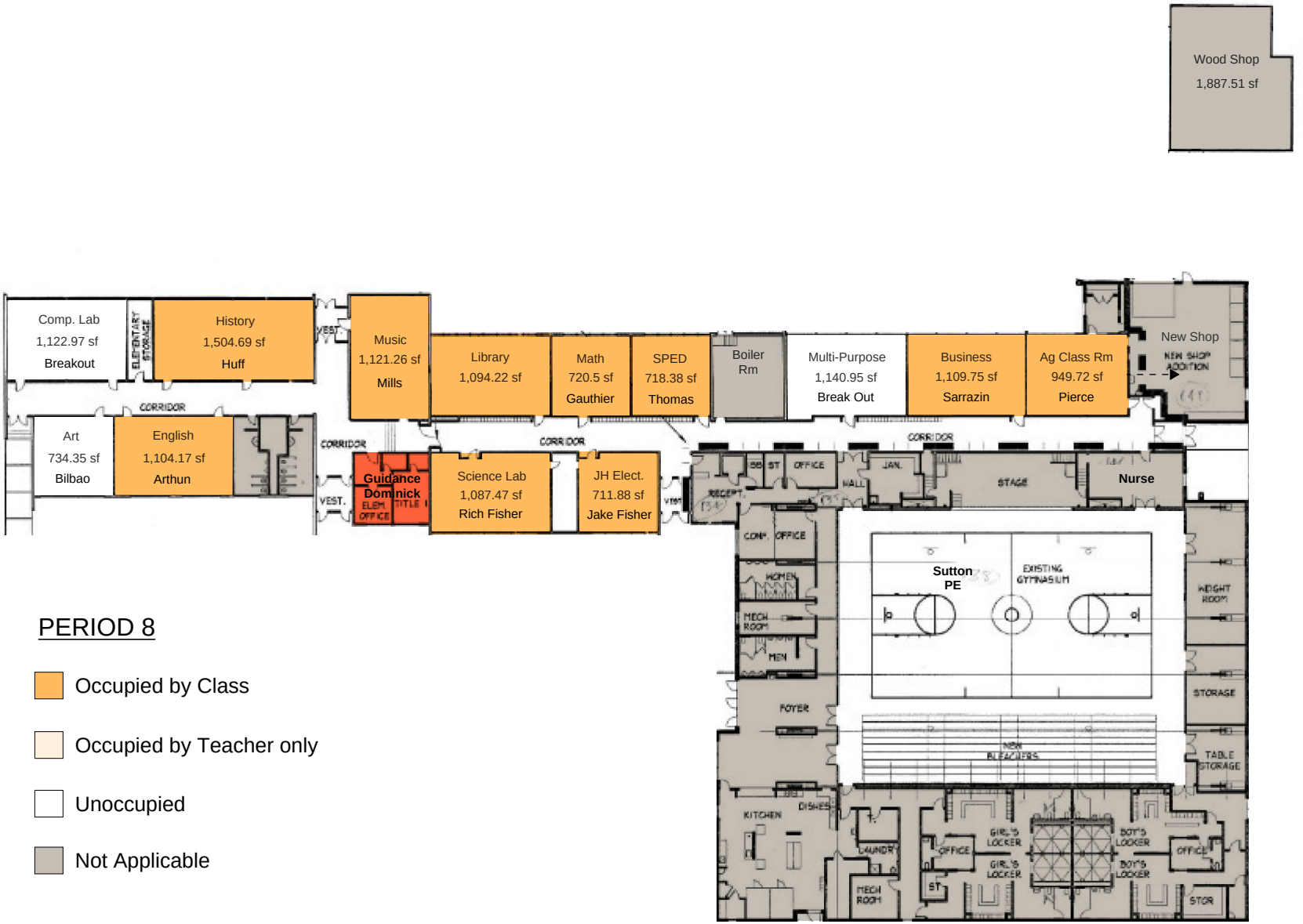

## PERIOD 6

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




## PERIOD 7

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable




## PERIOD 8

- Occupied by Class
- Occupied by Teacher only
- Unoccupied
- Not Applicable