Development Services

From Concept to Construction

Phone: 503-823-7300 Email: bds@portlandoregon.gov 1900 SW 4th Ave, Portland, OR 97201
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APPEAL SUMMARY

Status: Hold for Additional Information

Appeal ID: 24389	**Project Address:** 5210 N Kerby Ave
Hearing Date: 11/25/20	**Appellant Name:** Andrew Pearson
Case No.: B-009	**Appellant Phone:** 503-902-6983
Appeal Type: Building	**Plans Examiner/Inspector:** Jeff Rago
Project Type: commercial	**Stories:** 4 **Occupancy:** E and A **Construction Type:** III-A and I-A
Building/Business Name: Jefferson High School	**Fire Sprinklers:** Yes - All except cafe, auditorium, aux gym, locker rooms
Appeal Involves: Alteration of an existing structure	**LUR or Permit Application No.:**
Plan Submitted Option: pdf [File 1] [File 2] [File 3]	**Proposed use:** Education (K-12 school)

APPEAL INFORMATION SHEET

Appeal item 1

Code Section	2019 OSSC, Section 1006.3.1 - Adjacent Story
Requires	The path of egress travel to an exit shall not pass through more than one adjacent story.
Code Modification or Alternate Requested	Install closely-spaced sprinkler heads and draft curtains at two stairways in place of enclosing the stairways.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escapes A and B located on the Main Building. Existing interior egress stairs available for use after removal of fire escapes A and B are unenclosed from the third floor down to the first floor exit, requiring building occupants to pass through more than one story before reaching an exit. To improve safety, the proposed design is to

	install closely-spaced sprinkler heads and draft curtains at each floor of the Main Building east and west stairs, so the openings between floors are in compliance with 2019 OSSC section 1019.3. Please refer to Recommendation #1 on the attached Code Evaluation Memorandum and Fire Life Safety plans for more information and the locations of the proposed improvements.
Reason for alternative	The unenclosed stairs are an existing deficiency independent of the fire escapes. However, these stairs will be relied on for a larger share of egress capacity after the fire escapes are removed. The additional sprinkler heads and draft curtains will improve the safety of the egress path along these stairs compared to the current stairway condition or to exiting via a fire escape. The two stairways proposed for these improvements are the closest stairways to fire escapes A and B that are proposed to be removed. Construction of fire-rated stair enclosures at these locations would be technically difficult and cost prohibitive due to the configuration of the stairs and corridors. The proposed stairway modifications are intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond.

Appeal item 2

Code Section	2019 OSSC, Section 905.4 - Location of Class I Standpipe Hose Connections
Requires	Class I standpipe hose connections shall be provided in all of the following locations: 1.) In every required interior exit stairway, a hose connection shall be provided for each story above and below grade plane. Hose connections shall be located at the main floor landing unless otherwise approved by the fire official.
Code Modification or Alternate Requested	Install three new wet standpipes in existing stairways to replace three dry standpipes that will be removed; modify one dry standpipe to locate hose connections on interior landings of adjacent stairway.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escapes A and B located on the Main Building, fire escape C located on the Classroom Addition, and fire escape D located on the Auditorium Addition. Existing dry standpipes are exterior to the building and located adjacent to the fire escapes. No standpipes are provided for the interior stairwells and the top floor of the building exceeds the 30-foot height above which standpipes are required per current code. Modificatons are proposed as follows: Fire Escape A and B: Two existing dry standpipes will be removed when fire escapes A and B are removed. Installation of two new wet standpipes in the nearest stairways is proposed as a replacement. The new wet

	standpipes will be located in the Main Building east and west stairways, in a corner of the intermediate landings adjacent to the exterior wall. The new standpipes will be interconnected with the existing fire sprinkler system and will be enclosed in fire-rated construction or fire-rated wrap. Hose connections will be located at each intermediate landing and at the roof. See Recommendation #2 on attached Code Evaluation Memorandum and Fire Life Safety Plans. Fire Escape C: One existing standpipe will be removed when fire escape C is removed. Installation of one wet standpipe in the nearest stairway is proposed as a replacement. The new wet standpipe will be located in the the Classroom Addition south stair in a corner of the landing. The new standpipe will be interconnected with the existing fire sprinkler system and will be enclosed in fire-rated construction or fire-rated wrap. Hose connections will be located at a landing corresponding to each story and at the roof. See Recommendation #6 on attached Code Evaluation Memorandum and Fire Life Safety Plans. Fire Escape D: The existing dry standpipe is proposed to remain after removal of fire escape D. The existing piping is proposed to be modified and extended to the inside of the adjacent interior stairway enclosure so that the standpipe has hose connections at each story. Since they are currently installed outside where they are subject to freezing, the existing standpipes are permitted to be dry. See Recommendation #8 on attached Code Evaluation Memorandum and Fire Life Safety Plans. A new FDC dedicated to the new wet standpipes will be provided. See attached Fire Alarm/Fire Sprinkler Assessment Report for additional discussion of the standpipes.
Reason for alternative	Wet standpipes will not be installed at every stair, but the three new wet standpipes correspond to the three dry standpipes proposed for removal at fire escapes A, B, and C. This directly compensates for the removed dry standpipes and provides a condition closer to code compliance than the existing condition. The existing fire department connections for standpipes located at fire escapes A, B, and C are not easily accessible for use by the fire department (the fire escape C standpipe is located in an interior courtyard with no vehicular access). The current standpipes are also dry which is not recommended per the NFPA 14 annex explanatory information section A5.2.1 and not permitted per code except in freezing areas. The new standpipes will improve safety by providing better fire department access and by providing wet standpipes in place of dry standpipes At the fire escape D location, the dry standpipe hose connections will be located at the main interior stairway landings in a similar position to the current code requirement for standpipes, providing equivalent or improved safety in comparison to the existing outlet locations on the fire escape landings. The proposed standpipe installation is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The Classroom Addition is anticipated to be demolished as part of the rebuilding project.

Appeal item 3

Code Section	2019 OSSC, Section 1017.2 - Limitations on Exit Access Travel Distance
Requires	Exit access travel distance shall not exceed the values given in table 1017.2 (250 feet for occupancy Group E with a sprinkler system).
Code Modification or Alternate Requested	

	Construct a stair enclosure at one stairwell, leaving existing stairs and surrounding existing construction in place; construct cross-corridor doors to connect the stair new stair enclosure to an existing stairwell leading directly to the exterior.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape B located on the Main Building. On the third floor of the Main Building, the path of egress travel exceeds 250 feet, the maximum allowed by 1017.2, when fire escape B is removed. The path of travel is measured from Classroom D31 in the northeast corner of the third floor down to the exterior exit at the bottom of the nearby Main Building east stair. The proposed design includes the following: Construct a stair enclosure at the Main Building southeast stair connecting floors 1 through 3, and recess two existing classroom doors on each floor so that they do not protrude into the egress path. Existing partitions and plaster finishes in the stairway, which cannot be verified to be fire rated, will remain, as will the existing wood-framed floor at the bottom of the stair on the first floor. New construction will be 1-hour rated per the requirements of 2019 OSSC section 1023.2 for interior exit stairways connecting three floors. See Recommendation #3 on attached Code Evaluation Memorandum and Fire Life Safety Plans. Install a 1 hour fire-rated pair of cross-corridor doors at an existing opening on the first floor between the Main Building and the Auxiliary Gym Addition. These doors will include electronic hold-opens connected to the fire alarm system. Installation of these doors will complete enclosure of the Main Building southeast stair and connect it to an existing enclosed stair leading from the first floor directly to the exterior at the basement level. See Recommendation #4 on attached Code Evaluation Memorandum and Fire Life Safety Plans.
Reason for alternative	The proposed stairway enclosure will improve the safety of the existing unenclosed stairway by separating it from the corridor system. The new cross-corridor doors also replace an existing disabled fire shutter at the fire separation between the Main Building and the Auxiliary Gym Addition, preventing potential spread of fire through the corridor system. Creating a new enclosure to join the southeast stair to the nearby enclosed stair between the first floor and basement will create a safer egress path for the top three floors of the Main Building by allowing occupants to exit directly from the stair enclosure to the exterior. Occupants must currently use the corridor system to pass from the Main Building southeast stair to an exterior exit. The proposed installation is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond.

Appeal item 4

Code Section

	2019 OSSC, Section 1006.2.1 - Egress based on occupant load and common path of egress travel distance
Requires	Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1 (49 maximum occupants for Group E occupancy).
Code Modification or Alternate Requested	At Resource Center B27, modify 2 existing doors to the corridor to accommodate egress for more than 49 occupants when fire escape exit is removed; post classroom C23 for maximum occupant load of 49 people when fire escape exit is removed.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape C located on the Classroom Addition. Exit doors leading to fire escape C currently exist in Resource Center B27, Classroom C23, and Classroom D22. These doors have illuminated exit signs. The doors will be removed along with the fire escape. The proposed design includes the following: Resource Center B27: This room has an occupant load greater than 49 (90 occupants). The room has two exit doors into the corridor, one swinging into the corridor in the direction of egress travel and one swinging into the room. Modifications will include installing two new 3-foot exit doors in the existing corridor door openings. Doors will be outswinging into the corridor, and each door will have panic hardware and illuminated exit signs. See Recommendation #5a on attached Code Evaluation Memorandum and Fire Life Safety Plans. Classroom C23: This room has an occupant load of 50 and is very close to meeting the criteria for requiring only one exit. The room has two exit doors into the corridor, one swinging into the corridor in the direction of egress travel and one swinging into the room. The proposal is for the classroom to be posted with signage for a maximum occupant load of 49 people. Existing doors leading to the corridor satisfy egress requirements for a space with one required exit. See Recommendation #5b on attached Code Evaluation Memorandum and Fire Life Safety Plans. Classroom D22: This room has an occupant load of 48 and meets the criteria for requiring only one exit. The existing 3-foot, inswinging door to the corridor will remain as is and meets the egress requirements.
Reason for alternative	For all three affected rooms, egress through the corridor system is a safety improvement compared to exiting via fire escape C, crossing the enclosed courtyard, re-entering the building, and then exiting the buildng to the south between the Auxiliary Gym and TV Studio additions. The proposed modifications to Resource Center B27 will provide code-compliant egress via the corridor system when the fire escape exit is removed.

	Posting Classroom C23 for a maximum occupant load of 49 after the fire escape is removed will provide code-compliant egress via the corridor system in line with a typical expected class size of fewer than 49 people. At Classroom D22, code-compliant egress via the corridor system will exist when fire escape C is removed. The proposed egress arrangement is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. This portion of the building is anticipated to be demolished as part of the rebuild.

Appeal item 5

Code Section	2019 OSSC, Section 1012.2 - Slope of Ramps
Requires	Ramps used as part of a means of egress shall have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope).
Code Modification or Alternate Requested	Leave existing ramps with slopes steeper than 8% in place and install handrails.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape C located on the Classroom Addition and fire escape D located on the Auditorium Addition. There are several ramps that are part of the egress system. At two of these ramps, the slopes are steeper than the allowed 8-percent maximum and the ramps do not have handrails. This is an existing deficiency independent of the fire escapes, but the ramps will be relied on for a larger share of the egress capacity after removal of fire escapes. Installation of handrails, meeting the requirements of 2019 OSSC section 1014, is proposed to improve the safety of the ramps. The ramps to receive new handrails are as follows: The ramp on the second floor at the south end of the Classroom Addition near fire escape C has a slope of 10% to 11%. This ramp is part of the enclosed exit stair for this part of the building. See Recommendation #7a on attached Code Evaluation Memorandum and Fire Life Safety Plans. The ramp at the bottom of the Auditorium Addition southeast stair near fire escape D has a slope of 8% to 15.5%. This ramp is part of the enclosed exit stair for this part of the building. See Recommendation #7c on attached Code Evaluation Memorandum and Fire Life Safety Plans.
Reason for alternative	Rebuilding the ramps to have a shallower slope is not practical due to space limitations in the existing building. Providing handrails will improve safety over the existing condition by providing a handhold for occupants navigating the ramps and by bringing the ramps closer to a code-compliant condition.

	The proposed egress arrangement is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The portions of the building where the ramps are located are anticipated to be demolished as part of the rebuild.

Appeal item 6

Code Section	2019 OSSC, Section 1010.1.10 - Panic and fire exit hardware
Requires	Swinging doors serving a Group H occupancy and swinging doors serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.
Code Modification or Alternate Requested	Allow existing vehicular gate, which does not have panic hardware, to remain as a part of the building egress system through a formal agreement that the gate must remain open and unlocked when the building is occupied.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape D located on the Auditorium Addition. There is a utility courtyard next to the Auditorium Addition that 846 people must exit through. The courtyard entrance has an existing chain link fence with a 12-foot vehicular gate (two 6-foot leaves) and a 3-foot pedestrian door. The door has panic hardware and swings in the direction of egress travel. However, the required egress capacity is 170 inches, which is not accommodated by the 36-inch pedestrian door. The vehicular gates are wider than allowed for swinging doors by 2019 OSSC section 1010.1.1, do not have panic hardware, and are locked by padlock. This is an existing deficiency independent of the fire escapes, but all egress from the southeast stair of the Auditorium Addition will be directed to the utility courtyard behind the fence after removal of fire escape D. The proposed method for providing safe egress is a formal agreement with PPS that the vehicular gates remain unlocked and open when the building is occupied. With the gates open, the overall egress width is 180 inches (exceeding the 170 inches required). The existing fence and gates are approximately 90 feet from the back wall of the utility courtyard, and it is not anticipated that fire department access to the courtyard will be required because the depth of the courtyard is less than 150 feet. See Recommendation #9 on attached Code Evaluation Memorandum and Fire Life Safety Plans for additional information.
Reason for alternative	Because of space constraints, adding code-compliant pedestrian egress doors or gates to accommodate the full egress load would preclude vehicular access to the courtyard. The proposed

	arrangement provides code-compliant egress width, and a requirement to leave the vehicular gates open when the building is occupied improves safety compared to the existing condition. The proposed egress arrangement is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The portions of the building surrounding the utility courtyard are anticipated to be demolished as part of the rebuild.

Appeal item 7

Code Section	2019 OSSC, Section 1006.2.1 - Egress based on occupant load and common path of egress travel distance
Requires	Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1 (49 maximum occupants and 75-foot maximum common path of egress travel for Group E occupancy).
Code Modification or Alternate Requested	Post TV Studio east and west balconies for a maximum occupant load of 49 people total at each balcony.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape E located on the TV Studio Addition. The TV Studio Addition was originally a gymnasium with spectator seating on balconies at the east and west ends of the space. Removal of fire escape E will leave the east TV Studio balcony with only one exit. When treated as an assembly space, the east balcony has an occupant load of over 49 and requires at least two exits. The current occupant load, when calculated based on the fixed, built-in bleacher seating, is 304 occupants. The balcony is no longer used for large assembly purposes. The proposal is for the east balcony to be posted with signage for a maximum occupant load of 44 people (49 people total including adjacent rooms that exit through the balcony) and for the similar west balcony to be posted for a maximum occupant load of 46 people (49 people total including adjacent rooms that exit through the balcony). The east balcony will also comply with the 75-foot maximum common path of egress travel requirement with the fire escape D exit removed, because egress is possible down to the TV Studio via an existing stairway toward the north end of the balcony. See Recommendation #10 on attached Code Evaluation Memorandum and Fire Life Safety Plans for additional information.
Reason for alternative	Posting the east and west TV Studio balconies for reduced maximum occupant loads after the fire escape is removed will provide code-compliant egress via the corridor system in line with the fact that the balconies are no longer used for large assemblies. With a reduced occupant load, safety

will be equivalent to or better than the current condition because there is sufficient exit capacity in the existing egress system that is directly adjacent to the north side of the balcony. In addition, this space is fully sprinklered, and the sprinkler heads were recently upgraded to quick-response heads, improving overall safety of the space.

The proposed egress arrangement is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The TV Studio building is anticipated to be demolished as part of the rebuild.

Appeal item 8

Code Section	2019 OSSC, Section 1011.12 - Stairway to Roof
Requires	In buildings four or more stories above grade plane, one stairway shall extend to the roof surface…. Such stairway shall be marked at street and floor levels with a sign indicating that the stairway continues to the roof. Exception: Other than where required by Section 1011.12.1, in buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device, a ship's ladder or a permanent ladder that is constructed of noncombustible material and is a minimum of 30 inches between handrails; has a rise and run of the stair or ladder of 12 inches maximum and 4 inches minimum, respectively; and has handrails provided on both sides of the stair or ladder.
Code Modification or Alternate Requested	Permit existing roof access points to be used for access to roof-level standpipe hose connections.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escapes A and B located on the Main Building, fire escape C located on the Classroom Addition, and fire escape D located on the Auditorium Addition. Section 905.4 of the 2019 OSSC requires a standpipe hose connection serving the roof, with roof access provided in accordance with section 1011.12. Existing roof access stairs and ladders do not meet the requirements of OSSC section 1011.12. Fire escapes A, B, C, and D, which are being removed, provide ladder access to the roof and to the existing dry standpipe connections at the roof level. It is proposed that existing roof access points be used for access to the rooftop hose connections for the three new standpipes proposed for installation and for the existing dry standpipe to remain on the Auditorium Addition. Existing roof access points are as follows: Main Building: Two stairways from the attic to rooftop penthouses exist in the Main Building. These stairways can be accessed from the top of the east and west stairways in the Main Building but are not directly connected to them as required by 1011.12. The attic stairways will provide fire

department access to new rooftop wet standpipe hose connections that will be installed adjacent to the existing rooftop penthouses. See Recommendation #2 on attached Code Evaluation Memorandum and Fire Life Safety Plans for information on proposed new wet standpipes in the Main Building.
Classroom Addition: There is no stairway extending to the roof per 1011.12 at the Classroom Addition. An existing vertical ladder and roof hatch at the top of the Classroom Addition south stair will provide fire department access to a new rooftop wet standpipe hose connection that will be installed adjacent to the existing roof hatch. However, the geometry of the existing ladder does not meet the requirements of the exception to 1011.12. See Recommendation #6 on attached Code Evaluation Memorandum and Fire Life Safety Plans for information on the proposed new wet standpipe in the Classroom Addition.
Auditorium Addition: There is no stairway extending to the roof per 1011.12 at the Auditorium Addition. An existing vertical ladder and roof hatch at the top of the Auditorium Addition north stair will provide fire department access to the existing dry standpipe hose connection which is about 200 feet away and can be accessed by walking across the roof. See Recommendation #8 on attached Code Evaluation Memorandum and Fire Life Safety Plans for information on the existing dry standpipe on the Auditorium Addition.
See Recommendation #11 on attached Code Evaluation Memorandum and Fire Life Safety Plans for additional information on roof access.

Reason for alternative At the Main Building, the attic stairs provide equivalent or improved safety compared to the existing vertical ladders on fire escapes A and B that are approximately three stories high and present a falling hazard. The attic is fully sprinklered, and the sprinkler heads were recently upgraded to quick-response heads, providing improved safety in the attic.

At the Classroom Addition, the existing roof ladder and roof hatch are located at the top of the south stair enclosure. The existing one-story vertical roof ladder provides equivalent or improved safety compared to the existing vertical ladder on fire escape C that is approximately three stories high and presents a falling hazard. The roof hatch is also easier to access than the fire escape, which is located in an interior courtyard that must be accessed through the building.

At the Auditorium Addition, the existing roof ladder and roof hatch are located adjacent to the top of the north stair enclosure. The existing one-story vertical roof ladder provides equivalent or improved safety compared to the existing vertical ladder on fire escape D that is approximately three stories high and presents a falling hazard.

In addition, fire vehicles can access the roofs from west side of the building (N. Kerby Avenue), the east side of the building (N. Commercial Avenue), and the south and east sides of the Auditorium Addition via a paved drive. Refer to site plan A-001 that is included with the Fire Life Safety Plans.

The proposed roof access is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The Classroom Addition and the Auditorium Addition are anticipated to be demolished as part of the rebuild.

Appeal item 9

Code Section 2019 OSSC, Section 1020.4 - Dead Ends

Requires Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet in length.

Exception 2: In occupancies in Group E, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet.

Code Modification or Alternate Requested	Install cross-corridor doors to reduce the length of a dead-end corridor to less than 50 feet on each side of the new doors.
Proposed Design	Background: Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information. Proposed Design: This appeal applies to removal of fire escape C located on the Classroom Addition. An existing dead-end corridor on the first floor between the Classroom Addition and the Auditorium Addition is 71'-6" inches long, exceeding the maximum of 50 feet allowed in sprinklered buildings per 1020.4. This portion of the building is fully sprinklered and the sprinkler heads were recently replaced with quick-response heads. The dead end is an existing deficiency independent of the fire escapes. However, this corridor will be relied on for a larger share of egress capacity after fire escape C is removed. The proposed design is to install a pair of cross-corridor doors to shorten the length of the dead end to a maximum of 50 feet on each side of the new doors, meeting code requirements. Since the portion of the corridor beyond the proposed new doors does not access any rooms, it is anticipated that the new doors will remain closed and locked on the pull side. The doors will have panic hardware and an illuminated exit sign on the push side. Per request of Jeff Rago, the cross-corridor partition will be a 1-hour rated fire partition, and the doors will be 20-minute rated. See Recommendation #12 on attached Code Evaluation Memorandum and Fire Life Safety Plans for additional information.
Reason for alternative	Installation of cross-corridor doors will create a code-compliant condition because the length of the dead end will be 50 feet or less on each side of the new cross-corridor doors. This will improve safety compared to the existing condition. The proposed modification is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. This portion of the building is anticipated to be demolished as part of the rebuild.

Appeal item 10

Code Section	2019 OSSC, Section 1023.4 - Openings
Requires	Interior exit stairway and ramp opening protectives shall be in accordance with the requirements of Section 716.
Code Modification or Alternate Requested	Replace unlabeled wood doors and 20-minute wood doors on the lowest two stories of each enclosed stairway with new fire-rated doors; permit all other existing stair enclosure doors to remain as is.
Proposed Design	Background:

Jefferson High School includes five exterior fire escapes (designated A, B, C, D, E) as part of its egress system. These fire escapes have been evaluated for structural integrity and have been found to be unsafe as they have deteriorated significantly. Portland Public Schools is proposing to remove all five fire escapes. This package of appeals is intended to address deficiencies of the existing egress system that will accommodate all exiting once the fire escapes are removed, with the goal of providing an egress path with equivalent safety. In addition, the the fire sprinkler systems in the building were recently upgraded by replacing all sprinkler heads with quick response heads, improving overall building safety. Please see attached Code Evaluation Memorandum with photo appendix, Fire Life Safety Plans, and Fire Alarm/Fire Sprinkler Assessment Report, for additional information.

Proposed Design:

This appeal applies to removal of fire escapes A, B, C, D, and E.

Removal of the fire escapes will require increased use of the existing building egress system. Existing doors at stair enclosures are to remain in place although some doors do not have fire rating labels, have painted-over labels, or have labels that do not indicate a fire rating that meets current requirements of Section 716 of the IBC. The proposed design is to replace any unlabeled wood doors and 20-minute wood doors on the lowest two stories of each enclosed stairway with new fire-rated doors. Following is a summary of existing doors to remain and proposed modifications by stair location, subject to confirmation of door materials for permitting:

Main Building Southeast Stair:
Connects 2 floors; 1-hour fire barrier with 1-hour fire doors required

Basement: Wood door to be replaced with new 1-hour fire door
First Floor (1 pair of doors to remain): pair of doors with 1-hour label (one label painted over)
Classroom Addition South Stair:
Connects 4 floors; 2-hour fire barrier with 1.5-hour fire doors required

Basement (3 sets of doors):
Door to remain: one pair of doors with 1950s "Fire Door" label (minutes not specified)
Doors to be replaced with 1.5-hour fire doors: pair of wood doors with 20 minute label; one wood door with no label

First Floor (2 sets of doors - all doors to remain): door with label painted over; metal pair of doors with no label (from 1920s)
Second Floor (2 sets of doors - all doors to remain): pair of doors with no label; metal pair of doors with no label (from 1920s)
Third Floor (1 pair of doors to remain): pair of doors with 1 hour label
TV Studio West Stair:
Connects 3 floors; 1-hour fire barrier with 1-hour fire doors required

Basement (5 sets of doors):
Doors to remain: one door with 1.5 hour label, pair of doors with 1 hour label,
Doors to be replaced with 1-hour fire doors: pair of doors with no label, 2 wood doors with no label

First Floor (2 sets of doors):
Doors to remain: metal pair of doors with no label (from 1920s)
Door to be replaced with 1-hour fire door: one door with no label,

Second Floor (1 pair of doors to remain): metal pair of doors with no label (from 1920s)
Auditorium Addition North Stair:
Connects 4 floors; 2-hour fire barrier with 1.5-hour fire doors required

Basement (1 pair of doors to remain): pair of doors with 1-hour label
First Floor (6 sets of doors):

Doors to remain: four doors with painted-over labels
Doors to be replaced with 1.5-hour fire doors: one door with no label, one pair of doors with no labels

Second Floor (4 sets of doors - all doors to remain): three 1950s doors with "Fire Door" label (minutes not specified); one pair of doors with no label
Third Floor (2 sets of doors - all doors to remain): one door with 90 minute label; one pair of doors with no label
Auditorium Addition Southwest Stair:
Connects 3 floors; 1-hour fire barrier with 1-hour fire doors required

First Floor (4 sets of doors - all doors to remain): pair of doors with painted-over label, pair of doors with 1.5 hour label, pair of doors with 1 hour label, pair of 1950s doors with "Fire Door" label (minutes not specified; one label removed)
Second Floor (doors to remain): one pair of 1950s doors with "Fire Door" label (minutes not specified)
Third Floor (doors to remain): one pair of 1950s doors with labels painted over
Auditorium Addition Southeast Stair:
Connects 3 floors; 1-hour fire barrier with 1-hour fire doors required

First Floor (3 sets of doors):
Doors to remain: 2 pairs of doors with 1 hour label
Doors to be replaced with 1-hour fire doors: pair of doors with no label

Second Floor (doors to remain): one pair of 1950s doors with "Fire Door" label (minutes not specified)
Third Floor (doors to remain): one pair of 1950s doors with "Fire Door" label (minutes not specified)
See Recommendation #14 on attached Code Evaluation Memorandum and Fire Life Safety Plans for additional information. FLS plans indicate locations of labeled and unlabeled doors in enclosed stairways.

Reason for alternative

Replacement of unlabeled wood doors with new fire-rated doors at the lower stories will increase the safety of the existing stairways by reducing the hazard of fire spreading upward from the bottom of the stairways if existing combustible, unlabeled doors are exposed to fire.

Leaving existing unlabeled stair enclosure doors in place above the first two stories of the stairways will not change the level of safety from what it is currently. Existing doors at stair enclosures have been in place for many years and have closers that ensure they will be closed in the event of a fire. Existing doors without labels are steel or solid-core wood and would be expected to provide some resistance to the spread of fire even if they are not labeled. In addition, the fire sprinkler system was recently upgraded with quick-response heads, improving overall building safety.

Leaving existing doors in place is intended to be a short-term solution because Jefferson High School is slated for rebuilding within the next 5 years as part of the recently-passed PPS construction bond. The Classroom Addition, Auditorium Addition, TV Studio Addition, and Auxiliary Gym Addition are anticipated to be demolished as part of the rebuild. The portions of the building slated for demolition include all of the enclosed stairs covered in this appeal item.

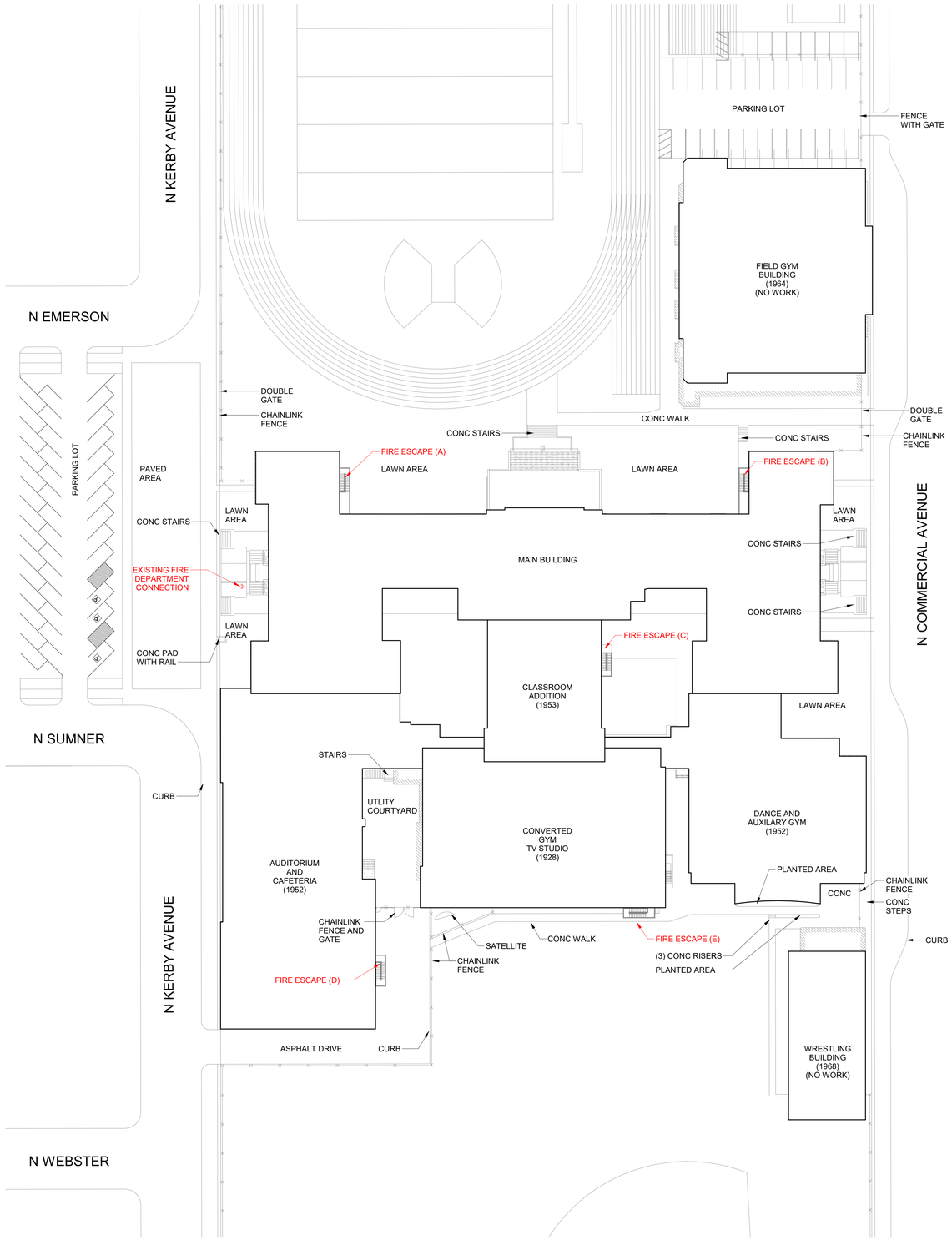
APPEAL DECISION

1. Protection of East and West open exit access stairs with draft curtains and closely spaced sprinklers: Hold for additional information.
2a. Removal of two exterior dry standpipes adjacent to Fire Escape A & B with replacement by interior wet standpipes: Hold for additional information.

2b. Removal of one exterior dry standpipe adjacent to Fire Escape C with replacement by interior wet standpipe: Hold for additional information.
2c. Existing dry standpipe to remain with alterations after removal of fire escape D: Hold for additional information.
3. Alternate 1 hour enclosure of existing Southeast stair: Hold for additional information.
4a. Single means of egress from Classroom B27 upon removal of fire escape C: Hold for additional information.
4b. Single means of egress from Classroom C23 upon removal of fire escape C: Hold for additional information.
4c. Removal of nonrequired 2nd means of egress from Classroom D22: Hold for additional information.
5a. Increase in maximum allowable slope for 2nd floor ramp at South end of Classroom Addition from 8 percent to 11 percent: Hold for additional information.
5b. Increase in maximum allowable slope for ramp at the bottom of the Auditorium Addition Southeast stair from 8 percent to 15.5 percent: Hold for additional information.
6. Use of vehicular gate without panic hardware to remain as part of egress system: Hold for additional information.
7a. East balcony within TV Studio with single exit with calculated occ load >49: Hold for additional information.
7b. West balcony within TV Studio with single exit with calculated occ load >49: Hold for additional information.
8a. Indirect access from stair to rooftop standpipe connection for Main Building: Hold for additional information.
8b. Indirect access from stair to rooftop standpipe connection for Classroom Addition: Hold for additional information.
8c. Indirect access from stair to rooftop standpipe connection for Auditorium Addition: Hold for additional information.
9. Installation of cross corridor doors in existing dead end corridor: Hold for additional information.
10. Unrated stair enclosure doors to remain: Hold for additional information.

Appellant may contact Jeff Rago (503-823-1079) for assistance.

Additional information is submitted as a no fee reconsideration, following the same submittal process and using the same appeals form as the original appeal. Indicate at the beginning of the appeal form that you are filing a reconsideration and include the original assigned Appeal ID number. The reconsideration will receive a new appeal number.
Include the original attachments and appeal language. Provide new text with only that information that is specific to the reconsideration in a separate paragraph(s) clearly identified as "Reconsideration Text" with any new attachments also referenced. No additional fee is required.



1 SITE PLAN - FIRE LIFE SAFETY PLAN
1/32" = 1'-0"

0 8' 16' 32'

Portland Public Schools

JEFFERSON HIGH SCHOOL

5210 N Kerby Ave, Portland, OR 97217

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115 NW 1st Ave, Ste. 300
Portland, OR 97209
t 503.280.8000
f 503.224.5442

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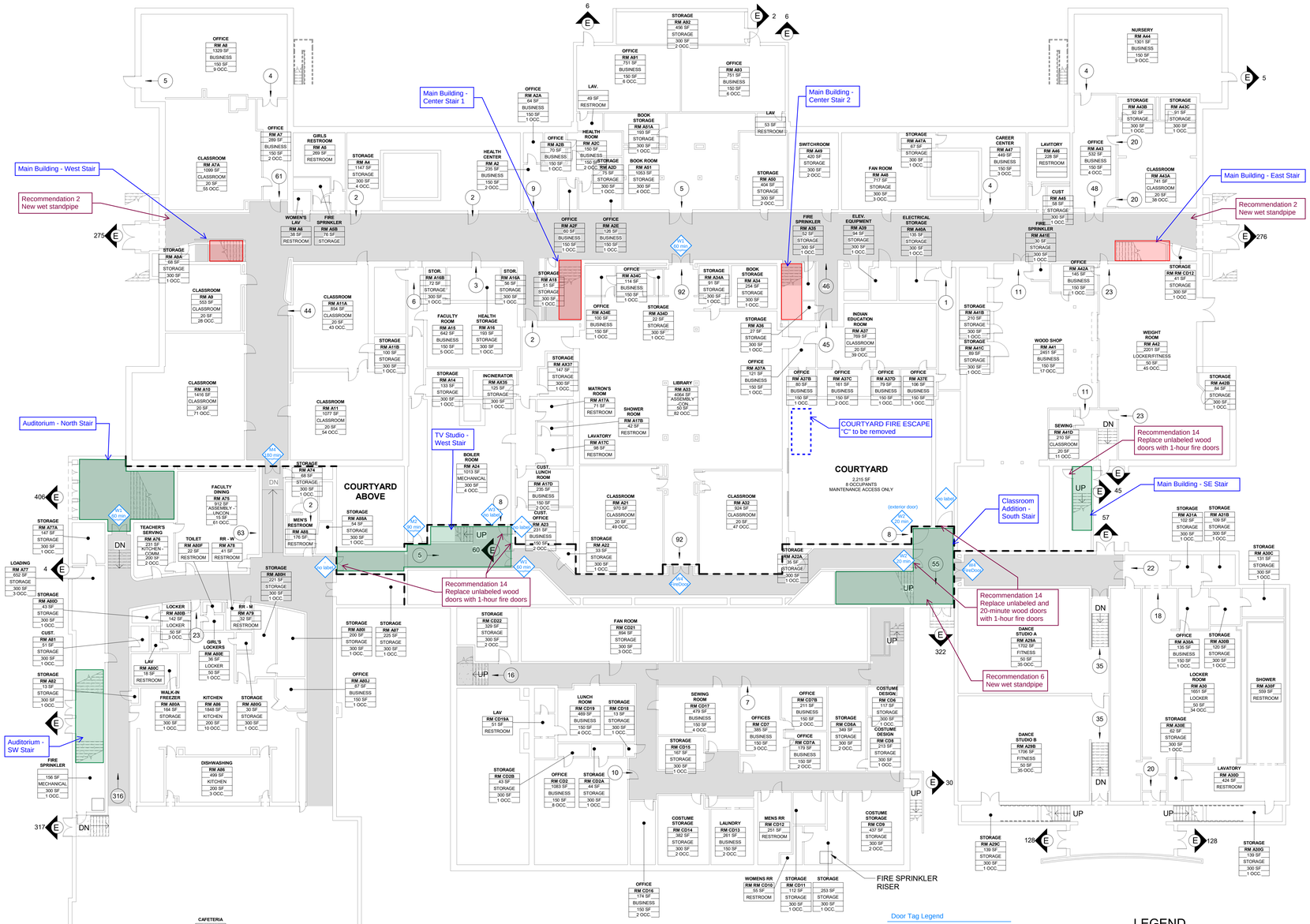
Date:
11/16/2020

Sheet Title:
SITE PLAN

Sheet Number:
A-001

FIRE ESCAPE ASSESSMENT

11/12/2020 8:39:21 AM



CONTACTS

PROPERTY OWNER:
PORTLAND PUBLIC SCHOOLS
501 N. DIXON, PORTLAND, OR 97221

PROJECT INFORMATION

NAME:	PPS - JEFFERSON FIRE ESCAPE REMOVAL
DESCRIPTION:	FACILITY IMPROVEMENTS; MODIFY EGRESS SYSTEM TO ENSURE CODE COMPLIANCE AFTER THE REMOVAL OF EXISTING FIRE ESCAPES

SITE INFORMATION

ADDRESS:	5210 N Kerby Ave, Portland OR 97217
PROPERTY #:	R210923
ZONE:	IR (INSTITUTIONAL RESIDENTIAL)

CODE SUMMARY

APPLICABLE CODES	**OSSC**: Oregon Structural Specialty Code, 2019 Edition (2018 IBC with Oregon Amendments) **OPSC**: Oregon Plumbing Specialty Code, 2017 Edition (2015 Uniform Plumbing Code, with Oregon amendments) **OZERCC**: Oregon Zero Energy Ready Commercial Code, 2019 Edition **OESC**: Oregon Electrical Specialty Code, 2017 Edition (2017 NEC with Oregon Amendments) **OFC**: Oregon Fire Code, 2019 Edition
CONSTRUCTION TYPE	1909 ORIGINAL MAIN BUILDING: TYPE III-A, SPRINKLERED 1928 CONVERTED GYMNASIUM TV STUDIO: TYPE III-A, SPRINKLERED 1953 CLASSROOM ADDITION: TYPE I-A, SPRINKLERED 1952 AUDITORIUM AND CAFETERIA TYPE I-A, PARTIALLY SPRINKLERED 1952 DANCE AND AUXILIARY GYM ADDITION: TYPE I-A, PARTIALLY SPRINKLERED 1964 FIELD GYMNASIUM BUILDING: TYPE III-A, PARTIALLY SPRINKLERED 1968 WRESTLING BUILDING: TYPE V-B, UNSPRINKLERED
OCCUPANCY	1909 ORIGINAL MAIN BUILDING: E EDUCATION 1928 CONVERTED GYMNASIUM TV STUDIO: E EDUCATION 1953 CLASSROOM ADDITION: E EDUCATION 1952 AUDITORIUM AND CAFETERIA A-1 ASSEMBLY 1952 DANCE AND AUXILIARY GYM ADDITION: A-3 ASSEMBLY 1964 FIELD GYMNASIUM BUILDING: NOT ADDRESSED IN THIS PROJECT 1968 WRESTLING BUILDING: NOT ADDRESSED IN THIS PROJECT

HEIGHT / FLOOR AREAS (TABLES 504.3, 504.4, & 506.2)

ALLOWABLE HEIGHT	EXISTING HEIGHT	ALLOWABLE AREA		EXISTING AREA			
1909 ORIGINAL MAIN BUILDING (TYPE III-A, SM)							
1953 CLASSROOM ADDITION (TYPE I-A, SM) - VALUES IN TABLE BASED ON TYPE III-A, SM							
HEIGHT	HEIGHT	BASE	PER FLOOR	BASEMENT	1ST FLOOR	2ND FLOOR	3RD FLOOR
85 FT	57 FT	70,500 SF	70,500 SF	49,891 SF	38,984 SF	39,988 SF	39,931 SF
STORIES	STORIES	FRONTAGE	ALL FLOORS	TOTAL			
4 STORIES	4 STORIES	NOT CALCULATED	282,000 SF	168,794 SF			
1928 CONVERTED GYMNASIUM TV STUDIO (TYPE III-A, SM)							
HEIGHT	HEIGHT	BASE	PER FLOOR	BASEMENT	1ST FLOOR	2ND FLOOR	3RD FLOOR
85 FT	44 FT	70,500 SF	70,500 SF	17,005 SF	15,133 SF	7,676 SF	
STORIES	STORIES	FRONTAGE	ALL FLOORS	TOTAL			
4 STORIES	3 STORIES	NOT CALCULATED	211,500 SF	39,814 SF			
1952 AUDITORIUM AND CAFETERIA (TYPE I-A, NS) (PARTIALLY SPRINKLERED - VALUES IN TABLE BASED ON TYPE I-A, NS)							
HEIGHT	HEIGHT	BASE	PER FLOOR	BASEMENT	1ST FLOOR	2ND FLOOR	3RD FLOOR
UL FT	59 FT	UL SF	UL SF	19,305 SF	21,148 SF	11,084 SF	6,782 SF
STORIES	STORIES	FRONTAGE	ALL FLOORS	TOTAL			
UL STORIES	4 STORIES	NOT CALCULATED	UL SF	58,319 SF			
1952 AUXILIARY GYM ADDITION (TYPE I-A, NS) (PARTIALLY SPRINKLERED - VALUES IN TABLE BASED ON TYPE I-A, NS)							
HEIGHT	HEIGHT	BASE	PER FLOOR	BASEMENT	1ST FLOOR	2ND FLOOR	3RD FLOOR
UL FT	49 FT	UL SF	UL SF	10,932 SF	10,596 SF		
STORIES	STORIES	FRONTAGE	ALL FLOORS	TOTAL			
UL STORIES	2 STORIES	NOT CALCULATED	UL SF	21,528 SF			
1964 FIELD GYMNASIUM BUILDING (TYPE III-A, NS) - PARTIALLY SPRINKLERED - NOT ADDRESSED IN THIS PROJECT							
1968 WRESTLING BUILDING (TYPE V-B, NS) - NOT ADDRESSED IN THIS PROJECT							

CORRIDORS	NOT RATED STANDARD Q: NO DOCUMENTATION AVAILABLE
GENERAL	CODE SUMMARY INFORMATION IS BASED ON THE FOLLOWING RECORD DOCUMENTS PROVIDED BY PPS: FFA - FACILITY IMPROVEMENT PROGRAM NORTH TEAM / PHASE 1 - 1997 RECORD DRAWING SET, DATED 11/10/1998

This sheet is for reference only. It has been prepared, in part, based on information furnished by others and is based on previous projects' as-built Contract Documents. The Architect does not ensure that all conditions have been noted or accurately documented. Users of these documents should independently verify all pertinent information and conditions. Do not construe information contained within this sheet to allow work not conforming to applicable codes or requirements of authorities having jurisdiction.

STAIR WIDTH SUMMARY

Stair	Required Width	Provided Width
Main Bldg West	195 * 3 =59"	69.75"
Main Bldg East	195* 3 = 59"	72.5"
Main Bldg Center 1	195* 3 = 59"	75"
Main Bldg Center 2	195* 3 = 59"	75"
Main Bldg SE B-1	163* 3 = 49"	72"
Main Bldg SE 1-3	93* 3 = 28" - 44" min	59.75"
Classrm Addn South	165* 3 = 50"	61.25"
TV Studio West	49* 3 = 15" - 44" min	61.25"
Auditorium North	192* 3 = 58"	63.5"
Auditorium SW	63* 3 = 19" - 44" min	59.75"
Auditorium SE	64* 3 = 20" - 44" min	60"

Door Tag Legend

M# - Metal Doors

- M1 (45 min) — UL Listed Hollow Metal Fire Door - 45 min - Temp Rise
- M2 (90 min) — UL Listed - Metal Door - with 90 min Temp Rise
- M3 (NO LABEL) — Original Metal doors with panic hardware - no label
- M4 (180 min) — UL Listed - Metal door with 180 min rating - Temp Rise

W# - Wood Doors

- W1 (60 min) — Warnock Hersey / UL - Listed Fire Door - Wood or Wood Composite - 60 min with 30 min Temp Rise
- W2 (20 min) — UL Rated - Wood Core - 20 min door label
- W3 (NO LABEL) — Wood Door with no label
- W4 (WELDED) — Weldwood Fire Door for Opening in Vertical Shaft label
- W5 (T1 Label) — Painted Door label - appears to match Weldwood Fire Door for Opening in Vertical Shaft label
- W6 (90 min) — Warnock Hersey / UL - Listed Fire Door - Wood - 90 min

Doors of unknown materials

- REMOVED (NO DOOR) — Removed door label
- NO LABEL — No door label
- T1 Label — Painted door label
- 60 min — 60 min- Temp Rise

LEGEND

- EGRESS CORRIDOR
- DISTANCE — LONGEST TRAVEL DISTANCE
- DISTANCE — DEAD END CORRIDOR PATH
- ROOM NAME / RM 101 / 999 SF / SPACE / XXX / XX OCC. — TOTAL ROOM AREA; FUNCTION OF SPACE; OCCUPANT LOAD FACTOR; TOTAL OCCUPANTS IN SPACE
- ROOM NAME / RM 101 / 999 SF / SPACE / XX / POSTED — NUMBER OF POSTED OCCUPANTS
- 0 — OCCUPANT LOAD FROM SPACE AND TRAVEL DIRECTION
- E 0 — EXIT WITH OCCUPANT LOAD
- APPARENT FIRE SEPARATION (RATING NOT DOCUMENTED ON RECORD DRAWINGS, TYP.)

Blue Text: General Information

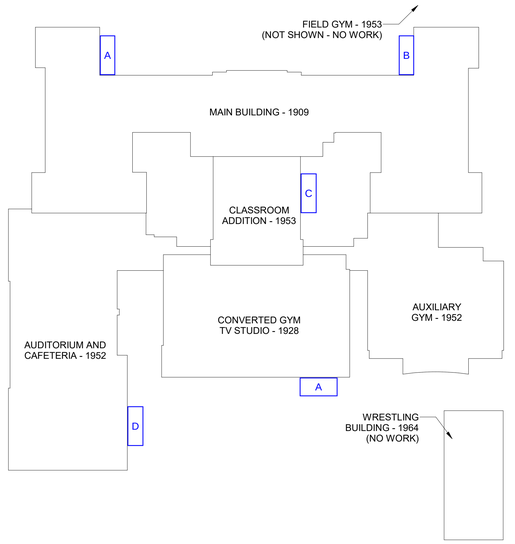
Magenta Text: Recommendations

Enclosed stair

Unenclosed stair

0 8' 16' 32'

1 BASEMENT FIRE LIFE SAFETY PLAN_DM
1/16" = 1'-0"



2 BUILDING KEY PLAN
1" = 50'-0"

FIRE ESCAPE ASSESSMENT

PPS Portland Public Schools
JEFFERSON HIGH SCHOOL

5210 N Kerby Ave, Portland, OR 97217

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Portland, OR 97209
t 503.280.8000
f 503.224.5442

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Date:
11/16/2020

Sheet Title:
BASEMENT FIRE LIFE SAFETY PLAN

Sheet Number:
A-100

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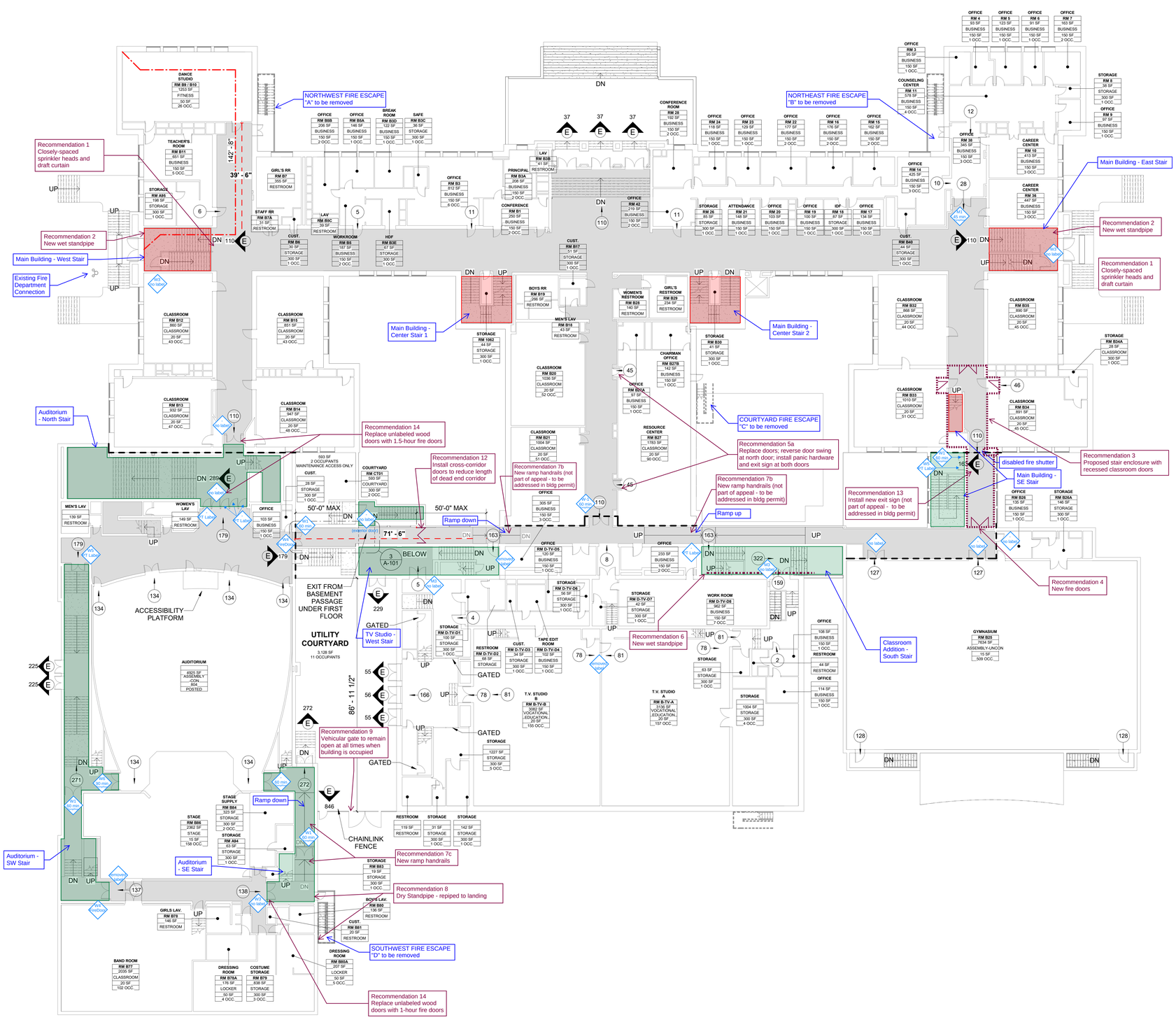

Door Tag Legend

M# - Metal Doors

- M1 — 45 min — UL Listed Hollow Metal Fire Door - 45 min - Temp Rise
- M2 — 90 min — UL Listed - Metal Door - with 90 min Temp Rise
- M3 — no label — Original Metal doors with panic hardware - no label
- M4 — 180 min — UL Listed - Metal door with 180 min rating - Temp Rise

W# - Wood Doors

- W1 — 60 min — Warnock Hersey / UL - Listed Fire Door - Wood or Wood Composite - 60 min with 30 min Temp Rise
- W2 — 20 min — UL Rated - Wood Core - 20 min door label
- W3 — no label — Wood Door with no label
- W4 — EyeDoor — Weldwood Fire Door for Opening in Vertical Shaft label
- W5 — T Label — Painted Door label - appears to match Weldwood Fire Door for Opening in Vertical Shaft label
- W6 — 90 min — Warnock Hersey / UL - Listed Fire Door - Wood - 90 min

Doors of unknown materials

- Removed — Removed door label
- No label — No door label
- T Label — Painted door label
- 60 min — 60 min- Temp Rise

LEGEND

- EGRESS CORRIDOR
- DISTANCE — LONGEST TRAVEL DISTANCE
- DISTANCE — DEAD END CORRIDOR PATH
- ROOM NAME / RM 101 / 999 SF / SPACE / XXX / XX OCC. — TOTAL ROOM AREA; FUNCTION OF SPACE; OCCUPANT LOAD FACTOR; TOTAL OCCUPANTS IN SPACE
- ROOM NAME / RM 101 / 999 SF / SPACE / XX / POSTED — NUMBER OF POSTED OCCUPANTS
- 0 — OCCUPANT LOAD FROM SPACE AND TRAVEL DIRECTION
- E 0 — EXIT WITH OCCUPANT LOAD
- APPARENT FIRE SEPARATION (RATING NOT DOCUMENTED ON RECORD DRAWINGS, TYP.)

Blue Text: General Information

Magenta Text: Recommendations

Enclosed stair

Unenclosed stair

3 PARTIAL MID LEVEL FIRE LIFE SAFETY PLAN
1/8" = 1'-0"

2 BUILDING KEY PLAN
1" = 50'-0"

1 FIRST FLOOR FIRE LIFE SAFETY PLAN_DM
1/16" = 1'-0"

0 8' 16' 32'

11/12/2020 8:39:25 AM

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115 NW 1st Ave, Ste. 300
Portland, OR 97209
t 503.280.8000
f 503.224.5442

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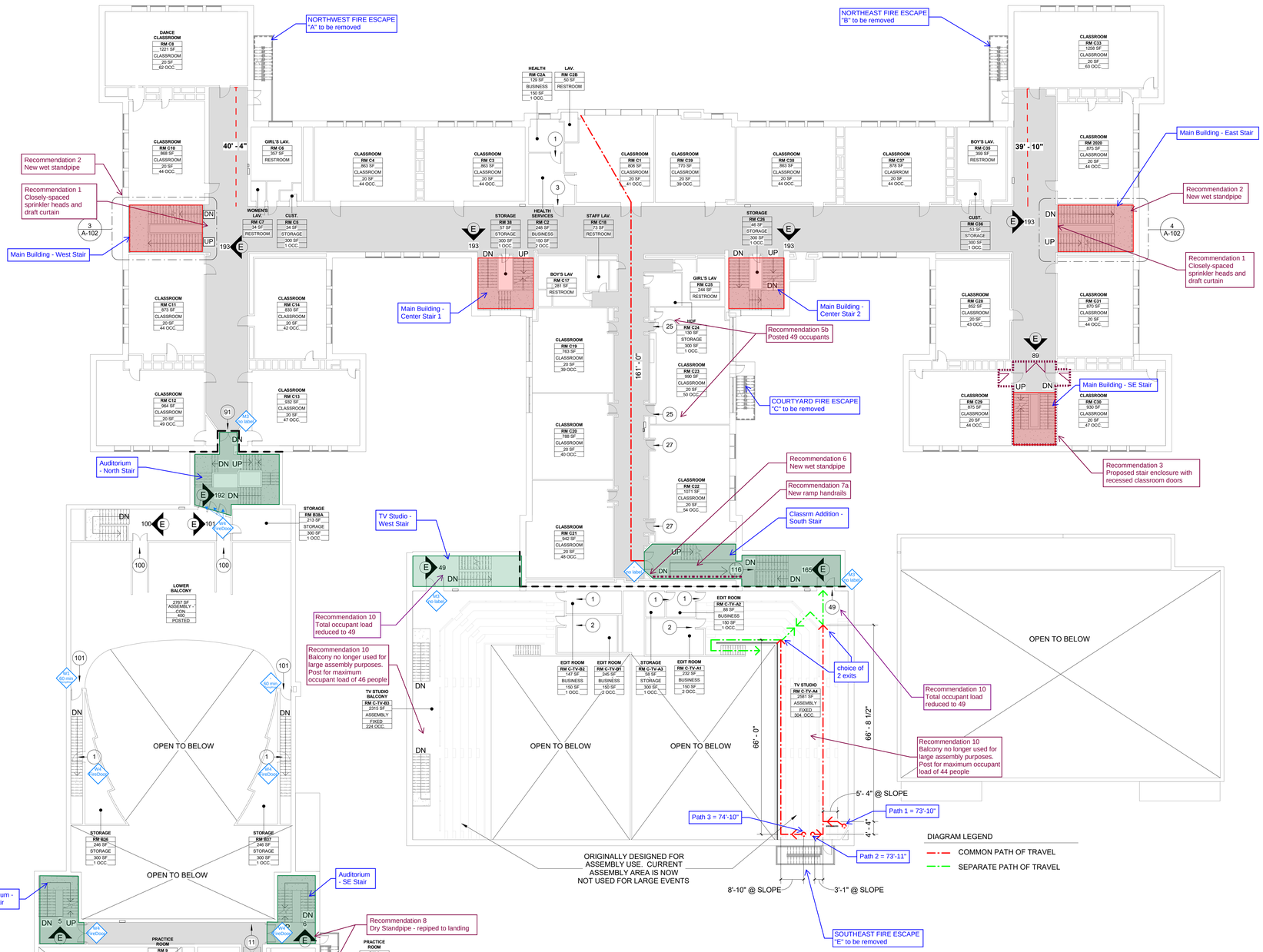
Date: 11/16/2020

Sheet Title: FIRST FLOOR FIRE LIFE SAFETY PLAN

Sheet Number: A-101

FIRE ESCAPE ASSESSMENT



1 SECOND FLOOR FIRE LIFE SAFETY PLAN_DM
1/16" = 1'-0"

0 8' 16' 32'

Door Tag Legend

M# - Metal Doors

- M1 (45 min) — UL Listed Hollow Metal Fire Door - 45 min - Temp Rise
- M2 (90 min) — UL Listed - Metal Door - with 90 min Temp Rise
- M3 (no label) — Original Metal doors with panic hardware - no label
- M4 (180 min) — UL Listed - Metal door with 180 min rating - Temp Rise

W# - Wood Doors

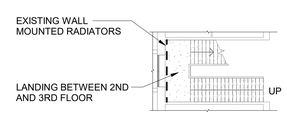
- W1 (60 min) — Warnock Hersey / UL - Listed Fire Door - Wood or Wood Composite - 60 min with 30 min Temp Rise
- W2 (20 min) — UL Rated - Wood Core - 20 min door label
- W3 (no label) — Wood Door with no label
- W4 (WeldDoor) — Weldwood Fire Door for Opening in Vertical Shaft label
- W5 (FT Label) — Painted Door label - appears to match Weldwood Fire Door for Opening in Vertical Shaft label
- W6 (60 min) — Warnock Hersey / UL - Listed Fire Door - Wood - 90 min

Doors of unknown materials

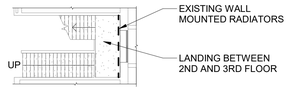
- (removed label) — Removed door label
- (no label) — No door label
- (FT Label) — Painted door label
- (60 min) — 60 min- Temp Rise

LEGEND

- EGRESS CORRIDOR
- DISTANCE — LONGEST TRAVEL DISTANCE
- DISTANCE — DEAD END CORRIDOR PATH
- ROOM NAME / RM 101 / 999 SF / SPACE / XXX / XX OCC — TOTAL ROOM AREA; FUNCTION OF SPACE; OCCUPANT LOAD FACTOR; TOTAL OCCUPANTS IN SPACE
- ROOM NAME / RM 101 / 999 SF / SPACE / XX / POSTED — NUMBER OF POSTED OCCUPANTS
- 0 — OCCUPANT LOAD FROM SPACE AND TRAVEL DIRECTION
- E 0 — EXIT WITH OCCUPANT LOAD
- APPARENT FIRE SEPARATION (RATING NOT DOCUMENTED ON RECORD DRAWINGS, TYP.)



3 MID-LEVEL STAIR PLAN - WEST
1/16" = 1'-0"



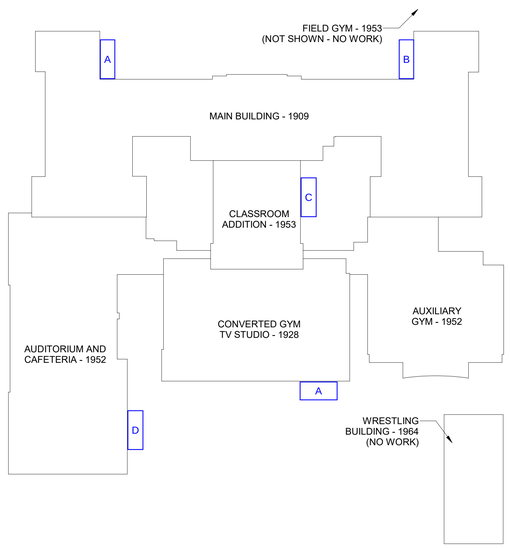
4 MID-LEVEL STAIR PLAN - EAST
1/16" = 1'-0"

Blue Text: General Information

Magenta Text: Recommendations

Enclosed stair

Unenclosed stair



2 BUILDING KEY PLAN
1" = 50'-0"

FIRE ESCAPE ASSESSMENT

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5210 N Kerby Ave, Portland, OR 97217

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115 NW 1st Ave, Ste. 300
Portland, OR 97209

t 503.280.8000
f 503.224.5442

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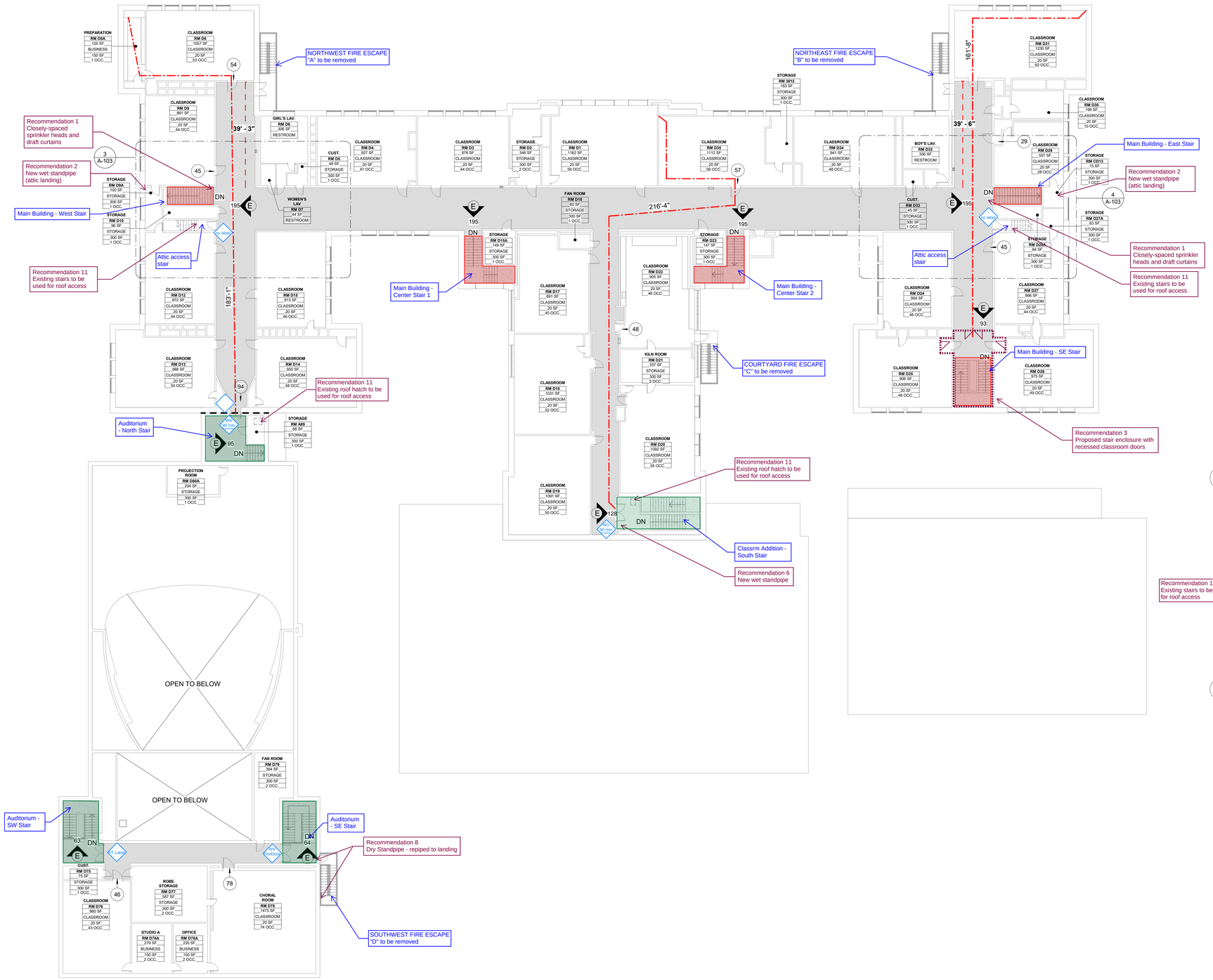
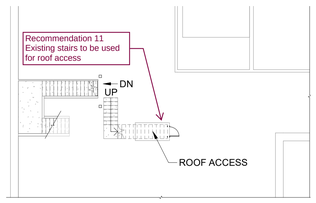
Date:
11/16/2020

Sheet Title:
SECOND FLOOR FIRE LIFE SAFETY PLAN

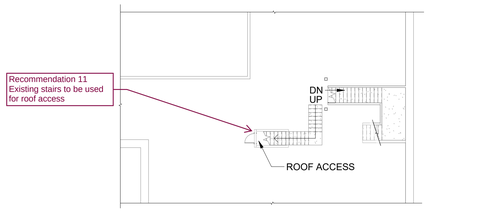
Sheet Number:
A-102

11/12/2020 8:39:26 AM

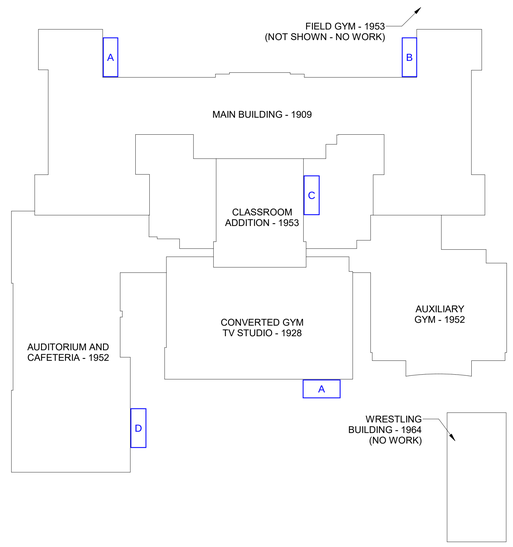




3 PARTIAL ATTIC FIRE LIFE SAFETY PLAN_WEST
1/16" = 1'-0"



4 PARTIAL ATTIC FIRE LIFE SAFETY PLAN_EAST
1/16" = 1'-0"



2 BUILDING KEY PLAN
1" = 50'-0"

1 THIRD FLOOR FIRE LIFE SAFETY PLAN_DM
1/16" = 1'-0"

0 8' 16' 32'

FIRE ESCAPE ASSESSMENT

11/12/2020 8:39:28 AM

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115 NW 1st Ave, Ste. 300
Portland, OR 97209
t 503.280.8000
f 503.224.5442

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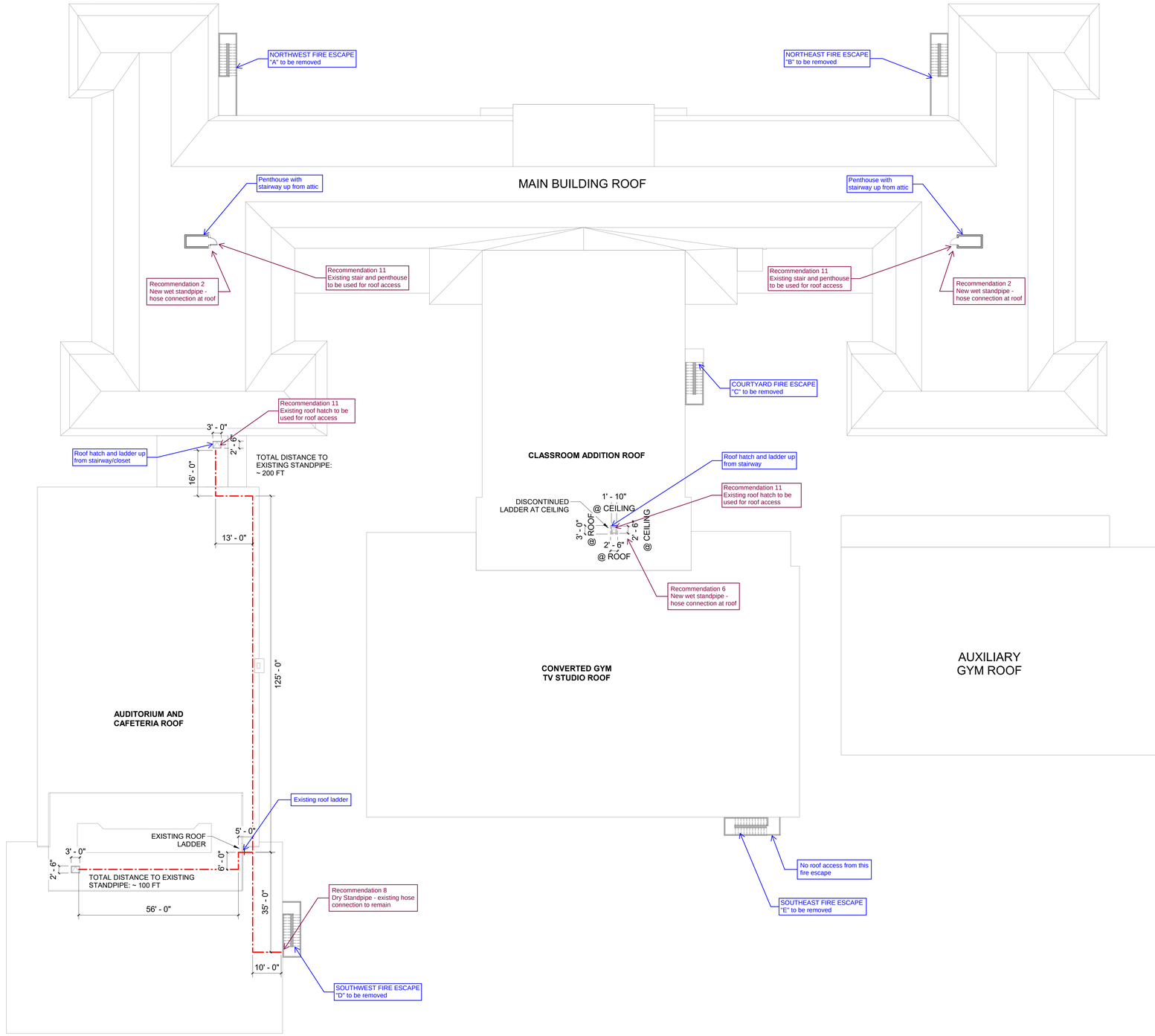
Date:
11/16/2020

Sheet Title:
THIRD FLOOR FIRE LIFE SAFETY PLAN

Sheet Number:
A-103



1 MAIN BUILDING ROOF
1/16" = 1'-0"

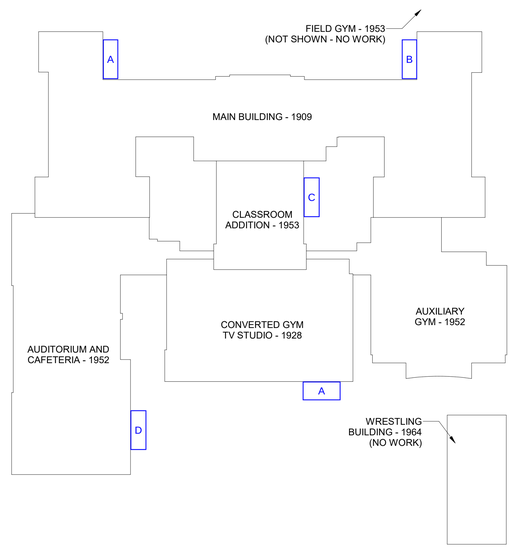
0 8' 16' 32'

Blue Text:
General Information

Magenta Text:
Recommendations

Enclosed stair

Unenclosed stair



2 BUILDING KEY PLAN
1" = 50'-0"

Portland Public Schools

JEFFERSON HIGH SCHOOL

5210 N Kerby Ave, Portland, OR 97217

OH PLANNING+DESIGN, ARCHITECTURE
115 NW 1st Ave, Ste. 300
Portland, OR 97209
t 503.280.8000
f 503.224.5442

NOT FOR CONSTRUCTION

Date:
11/16/2020

Sheet Title:
ROOF PLAN

Sheet Number:
A-104

FIRE ESCAPE ASSESSMENT

11/12/2020 8:39:29 AM

Architecture Planning Design LEED Consulting

115 NW First Ave, Suite 300
Portland, OR 97209
tel 503.280.8000
fax 503.224.5442

MEMORANDUM

OH PLANNING+DESIGN, ARCHITECTURE

Oh Project No.: 90057

Project Name:	Portland Public Schools – Jefferson High School Fire Escapes Portland, OR	Date: 11/16/2020
To:	Rebecca Winn	
Subject:	Jefferson High School Code Evaluation for Removal of Fires Escapes	
Prepared by:	Andrew Pearson	

The purpose of this report is to evaluate the extent of egress code compliance for Jefferson High School if five existing fire escapes are removed, and to recommend possible paths of compliance for egress deficiencies that are identified.

Background

Jefferson High School includes five exterior fire escapes as part of its egress system. These fire escapes have deteriorated significantly. PPS has reported that, based on a previous structural evaluation by ABHT Structural Engineers, the fire escapes are not safe for use without substantial structural strengthening or replacement. Rather than investing in repairs of fire escapes that are no longer allowed by code as part of an egress system, PPS has requested an evaluation of whether the fire escapes can be removed while maintaining adequate egress capacity and equivalent safety. This report, along with the attached Fire Escape Assessment Report by Interface Engineering analyzing the fire sprinkler system, fire alarm system, and standpipe systems, is intended to identify life safety deficiencies related to removal of existing fire escapes and to recommend methods to create equivalent safety. The analysis and recommendations are targeted toward the egress system with the intent of providing safety that is equal to, or better than, the existing conditions without bringing the building entirely up to current code requirements.

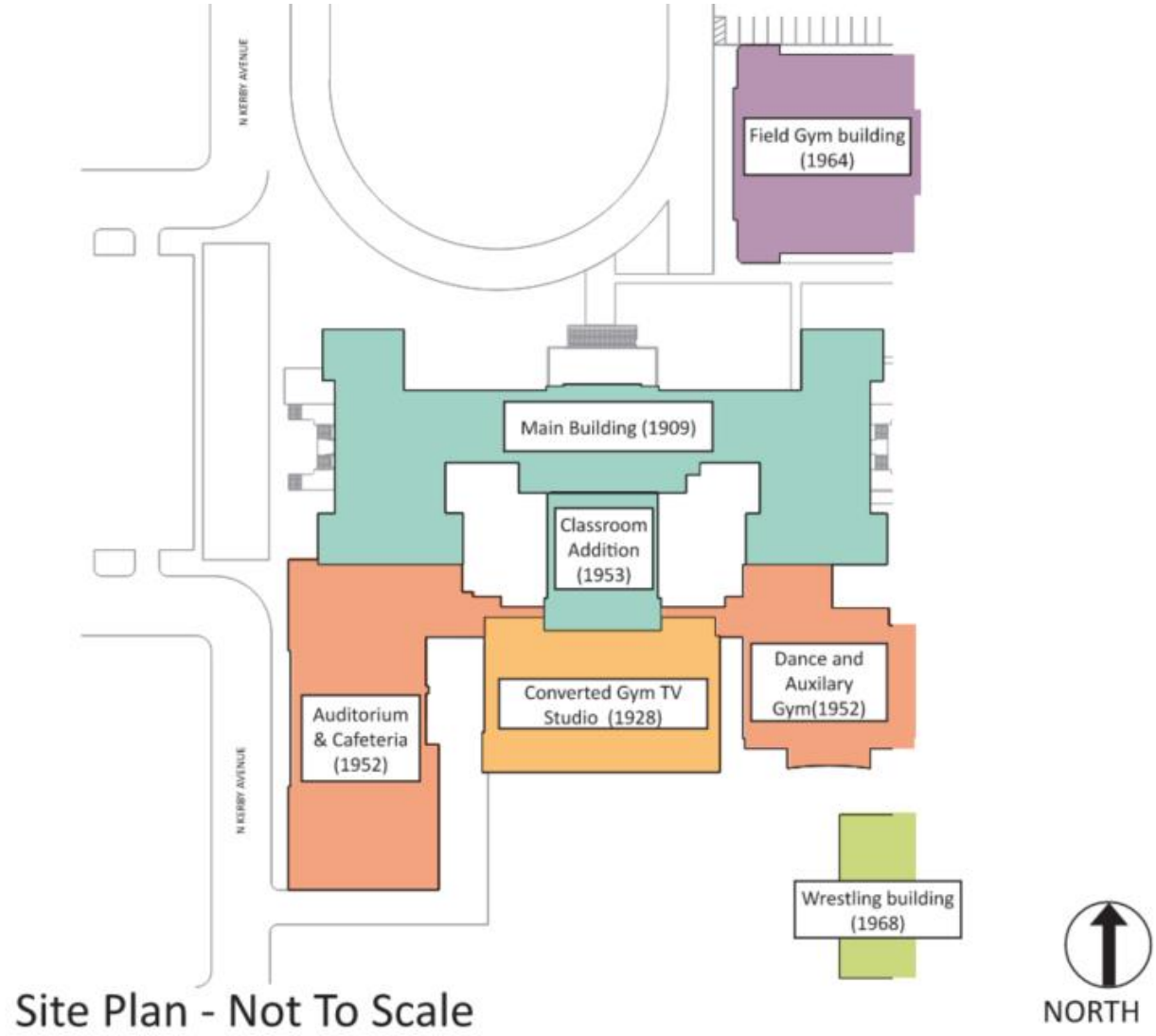
Based on Chapter 504 of the 2018 International Existing Building Code (IEBC), fire escapes are not permitted in new buildings (IEBC 504.1.1), but existing fire escapes are allowed to remain as a means of egress component in existing buildings only (IEBC 504.1.2). Removing the existing fire escapes and shifting egress paths to stairways will bring the building's egress system closer to compliance with current code.

In correspondence from October 24, 2019, Jeff Rago, life safety reviewer for the City of Portland Facility Permit Program (FPP), confirmed that the appeal process is an appropriate method for obtaining approval to remove the fire escapes. Once an approach for providing equivalent safety is determined, it is anticipated that the next step will be to review the proposed approach with the life safety and fire reviewers through the FPP. Feedback from this review will be incorporated into an appeal application to formally approve the proposed building modifications. Approval of the appeal would then be followed up with design of required building modifications and submission of construction documents for obtaining a building permit.

Building Description

Jefferson High School, located at 210 North Kerby Avenue in Portland, consists of a 4-story classroom

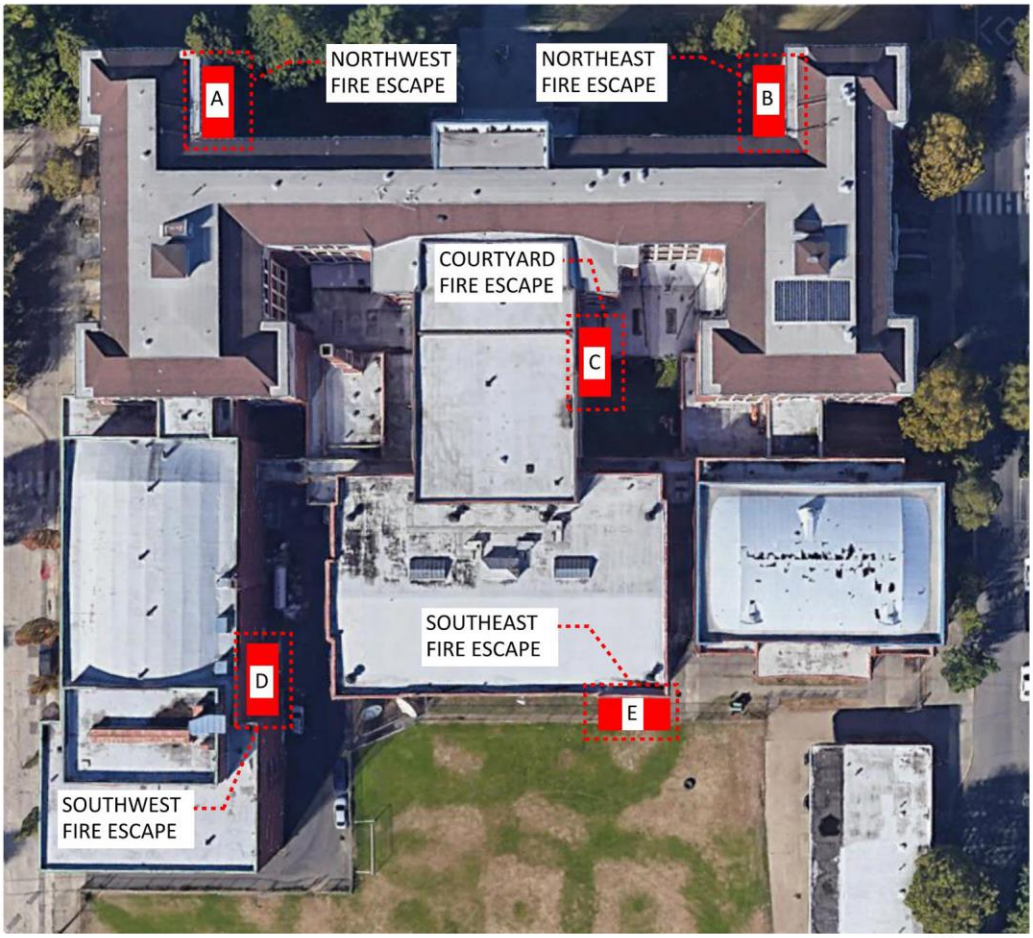
building and 4 connected additions that include additional classrooms, an auditorium, a cafeteria, a TV studio, a dance studio, and an auxiliary gym. The gross floor area of the main building and connected additions is approximately 289,600 square feet. The campus also includes two freestanding buildings that are not addressed in this report, the field (main) gym and the wrestling building, originally an auto shop.



Site Plan - Not To Scale

The Main Building and additions are constructed as follows:

- Main Building (1909): Masonry exterior walls; wood-framed floors, roof, and interior walls.
- TV Studio Addition (1928): Masonry exterior walls; wood-framed floors, roof, and interior walls.
- Auditorium and Cafeteria Addition (1952): Concrete walls, floors, and roof.
- Auxiliary Gym Addition (1952): Concrete walls, floors, and roof.
- Classroom Addition (1953): Concrete walls, floors, and roof.
- Note: The Main Gym/Field Gym and Wrestling Building are not addressed in this report.



Fire Escape Locations

Following is a summary of the fire escapes under consideration:

Northwest Fire Escape A and Northeast Fires Escape B (Main Building): These two fire escapes are located at the north end of the Main Building in symmetrical positions and serve floors one through three (they do not connect to the basement). The fire escapes connect to the corridor system at each floor via corridors that are approximately 40 feet long. The only exception is northeast fire escape B, which connects to a suite of counseling offices at the first floor only. There are nearby stairways with adequate capacity to serve the full occupant load in the area of the two fire escapes. Both fire escapes include dry standpipes that have hose connections on floors 1 through 3 and the roof. However, the siamese connections that feed these standpipes are not close to any fire department access lanes. See attached Fire Escape Assessment Report by Interface Engineering for additional discussion of existing standpipes.

Courtyard Fire Escape C (Classroom Addition): This fire escape is located within an interior courtyard. In an emergency, the exit path from the fire escape would cross the courtyard, enter the building through an egress door with panic hardware, and then cross through a stair enclosure at the basement level of the school to reach an exit from the building. The fire escape does not connect to the interior corridor system. Instead, it connects directly to three classrooms, one each on the first, second, and third floors. Each of these classrooms has the potential for safe egress through interior corridors without the fire escape. The fire escape includes a dry standpipe with hose connections on floors 1 through 3 and the roof. However, the siamese connection

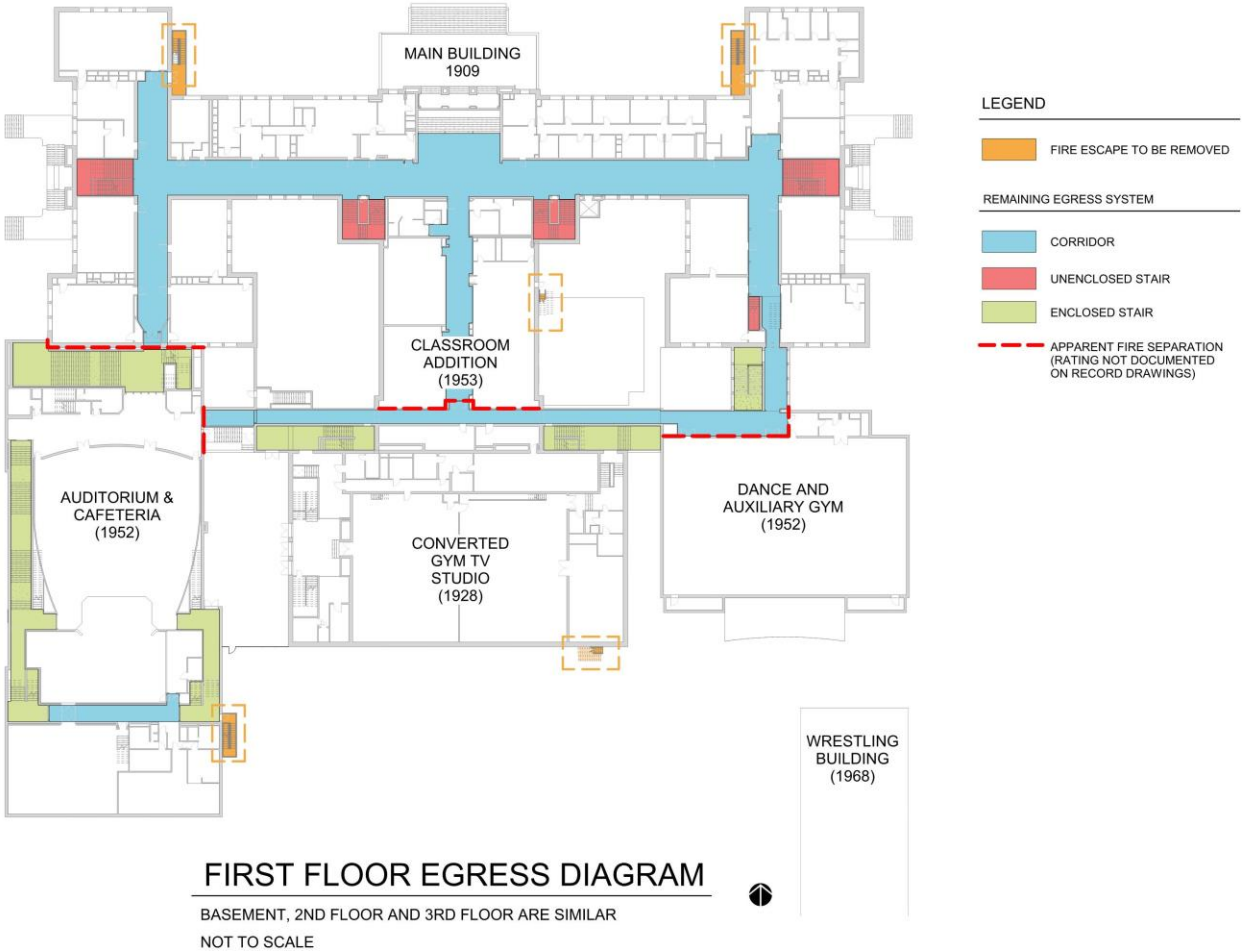
that feeds this standpipe is within the interior courtyard and cannot be accessed by the fire department without running a hose through the interior of the school and then across the courtyard. See attached Fire Escape Assessment Report by Interface Engineering for additional discussion of existing standpipes.

Southwest Fire Escape D (Auditorium and Cafeteria Addition): This fire escape is directly adjacent to an interior exit stairway and is accessed by doors in the stairwell on floors 1 through 3. The stairway is large enough to provide adequate egress capacity with the fire escape removed. The fire escape includes a dry standpipe with hose connections on floors 1 through 3 and the roof. The siamese connection that feeds the standpipe is adjacent to an existing fire lane. See attached Fire Escape Assessment Report by Interface Engineering for additional discussion of existing standpipes.

Southeast Fire Escape E (TV Studio Addition): This fire escape serves as a second means of egress for a balcony on the east side of the TV studio. The balcony was originally a spectator seating area when the TV Studio was a gymnasium. The balcony is no longer used as an assembly space, and a second means of egress is not needed. See "Conclusion and Recommendations" section for additional discussion.

Code Analysis Methodology

This code analysis is based on an examination of the building record drawings provided by Portland Public Schools, followed by on-site confirmation of the building plan and other architectural characteristics that can be observed without removal of finishes. Code references are from the 2019 Oregon Structural Specialty Code unless indicated otherwise.



FIRST FLOOR EGRESS DIAGRAM

BASEMENT, 2ND FLOOR AND 3RD FLOOR ARE SIMILAR

NOT TO SCALE

Code analysis approach:

- This building code analysis is based on the egress configuration with the existing fire escapes removed (see egress diagram on previous page). Some of the noted deficiencies arise from removal of the fire escapes, but other noted deficiencies already exist.

- It appears that Jefferson High School has several fire separations, though documentation of these separations does not appear to exist. As a result, the fire rating, if any, is unknown. The fire separations are apparent at doorways with electronic hold-opens connected to the fire alarm system. Some of these doors have intact fire rating labels, but others do not have labels. Most of the walls at the fire separations appear to be constructed of concrete or masonry based on record drawings. See attached Fire Life Safety Plans for locations of these fire separations.

- The Main Building and Classroom Addition are not fire separated from each other, but this portion of the school building appears to be fire separated from other adjacent additions, with the exception of one opening on the first floor leading to the Auxiliary Gym Addition. For purposes of this code analysis, the Main Building and Classroom Addition is treated as a fully sprinkled, separated building, since the existing fire separations make it less likely that a fire in one of the unsprinkled spaces would threaten this portion of the building.

- Seven interior stairways serve the Main Building and Classroom Addition, four of which lead directly to the exterior, and all of which are considered part of the proposed strategy. The capacity of these seven stairways is adequate for the occupant load.

- The portion of the Auditorium and Cafeteria Addition served by southwest fire escape D is limited to the classroom portion on the south side of building above the basement. Egress from the cafeteria (located in the basement) and the auditorium are mostly independent of the classroom portion of the building. This code analysis only addresses the southern classroom portion of the building above the basement.

- This code analysis only addresses fire-separated portions of the school building where the fire escapes affect the egress paths through corridors and stairways: the Main Building and Classroom Addition, and the Auditorium and Cafeteria Addition. The TV Studio Addition is only addressed in the Conclusion and Recommendation section because southeast fire escape E only serves one balcony space, and its removal has little effect on the larger egress system. Buildings and additions that are not affected by the fire escapes are not addressed in this code analysis.

- The fire escapes do not serve the basement level, and most of the basement exits function independently from the upper floor exits. However, the basement fire life safety plan is provided for completeness.

- The “Building Code Analysis” section of the report cites relevant code requirements related to egress and life safety and evaluates whether the school building complies once fire escapes are removed. Recommended safety improvements follow in the “Conclusion and Recommendations” section at the end of the report.

Attached Documents

Fire Escape Assessment Report by Interface Engineering
Annotated Fire Life Safety Plans for Basement, First Floor, Second Floor, Third Floor
Appendix with photographs of existing conditions

Clarifications

- This code evaluation relies on record drawings provided by PPS for some information that is concealed or not readily observable.
- Complete documentation of the original 1909 building was not available from PPS.
- This analysis focuses on basic exiting and life safety requirements related to potential fire escape removal. Additional elements of the building were not examined for compliance with current building codes.
- In this evaluation, the Main Building, Classroom Addition, and TV Studio Addition are treated as a Group E occupancy, though some portions of the building are Group B occupancy. The Group E requirements are more restrictive. Per 508.3, Group B and Group E occupancies do not need to be separated if the more restrictive requirements are applied. Per 303.1.3, a room or space used for assembly purposes that is associated with a Group E occupancy is not considered a separate occupancy. However, since assembly spaces such as the auditorium and auxiliary gym may be used for public activities and events, the Auditorium and Cafeteria Addition and the Auxiliary Gym Addition are conservatively treated as Group A occupancies.

BUILDING CODE ANALYSIS

Code Summary (Chapters 3, 5, and 6)

MAIN BUILDING AND CLASSROOM ADDITION

Building Type (602): III-A (Main Building) and I-A (Classroom Addition). Buildings are not fire separated and will be treated together as III-A, which is the most restrictive construction type.
Occupancy (302): E
Sprinklered: Yes
Allowable Height (Table 504.3): 85 ft
Actual Height: 57 ft (complies with allowable height)
Allowable Stories (Table 504.4): 4
Actual Stories: 4 (complies with allowable stories. Note that the basement counts as a story above grade plane because the next floor above is more than 6 feet above grade plane [10'-10"] and is more than 12 feet above finished ground level at any point [15'-2" at east and west entrances])
Allowable Area (Table 506.2):

- Allowable area per floor: 70,500 sf
- Frontage increase: Not calculated
- TOTAL allowable (506.2.3): 282,000 sf

Existing Area:

- Basement (A floor): 49,891 sf (complies with allowable area)
- First Floor (B floor): 38,984 sf (complies with allowable area)
- Second Floor (C floor): 39,998 sf (complies with allowable area)
- Third Floor (D floor): 39,931 sf (complies with allowable area)
- TOTAL floor area: 168,794 sf (complies with allowable area)

AUDITORIUM AND CAFETERIA ADDITION
Building Type (602): I-A
Occupancy (302): A-1 (Addition classified as assembly use due to use of auditorium for community events)
Sprinklered: Partial
Allowable Height (Table 504.3): Unlimited
Actual Height: 59 ft (complies with allowable height)
Allowable Stories (Table 504.4): Unlimited
Actual Stories: 4 (complies with allowable stories. Note that the basement counts as a story above grade plane because the next floor above is more than 6 feet above grade plane)
Allowable Area (Table 506.2):

- Allowable area per floor: Unlimited

Existing Area:

- Basement (A floor): 19,305 sf (complies with allowable area)
- First Floor (B floor): 21,148 sf (complies with allowable area)
- Second Floor (C floor): 11,084 sf (complies with allowable area)
- Third Floor (D floor): 6,782 sf (complies with allowable area)
- TOTAL floor area: 58,319 sf (complies with allowable area)

TV STUDIO ADDITION
Building Type (602): III-A
Occupancy (302): E
Sprinklered: Yes
Allowable Height (Table 504.3): 85 ft
Actual Height: 44 ft (complies with allowable height)
Allowable Stories (Table 504.4): 4
Actual Stories: 3 (complies with allowable stories. Note that the basement counts as a story above grade plane because the next floor above is more than 6 feet above grade plane)
Allowable Area (Table 506.2):

- Allowable area per floor: 70,500 sf
- Frontage increase: Not calculated
- TOTAL allowable (506.2.3): 211,500 sf

Existing Area:

- Basement (A floor): 17,005 sf (complies with allowable area)
- First Floor (B floor): 15,133 sf (complies with allowable area)
- Second Floor (C floor): 7,676 sf (complies with allowable area)
- TOTAL floor area: 39,814 sf (complies with allowable area)

AUXILIARY GYM ADDITION
Building Type (602): I-A
Occupancy (302): A-3
Sprinklered: Partial
Allowable Height (Table 504.3): Unlimited
Actual Height: 49 ft (complies with allowable height)
Allowable Stories (Table 504.4): Unlimited
Actual Stories: 2 (complies with allowable stories)
Allowable Area (Table 506.2):

- Allowable area per floor: Unlimited

Existing Area:

- Basement (A floor): 10,932 sf (complies with allowable area)
- First Floor (B floor): 10,596 sf (complies with allowable area)
- TOTAL floor area: 21,528 sf (complies with allowable area)

Chapter 7, Fire and Smoke Protection Features

712.1.12, Exit access stairways and ramps: Vertical openings containing exit access stairways or ramps in accordance with Sections 1019 shall be permitted.

Main Building: Five existing stairways are unenclosed. See 1009.3 for discussion of unenclosed stairs.

Chapter 9, Fire Protection Systems

See attached Fire Escape Assessment Report by Interface Engineering for analysis of fire sprinkler system, fire alarm system, and standpipe systems. Note that standpipes are required for this building, although the existing dry standpipes at the northwest (A), northeast (B), and courtyard (C) fire escapes will be removed.
DOES NOT COMPLY – see Deficiency 2/Recommendation 2 on page 15, Deficiency 6/Recommendation 6 on page 16, and Deficiency 8/Recommendation 8 on page 17

Chapter 10, Means of Egress

1005, Means of Egress Sizing

1005.3.1, Stairways: The capacity, in inches, of means of egress stairways shall be calculated by multiplying the occupant load served by such stairways by a means of egress capacity factor of 0.3 inch per occupant.

Main Building and Classroom Addition: The largest load on the stairways is at the third floor, with 195 people per stairway, or 59 inches. The Main Building stairway widths range from 59.75 to 75 inches, and the Classroom Addition stairway width is 61 inches.
COMPLIES

Auditorium and Cafeteria Addition: The largest load on the stairways is at the first floor, with 138 people per stairway or 41.4 inches. The typical stairway width is approximately 60 inches.
COMPLIES

1005.3.2, Other Egress Components: The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch per occupant.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: Exit doorways are compliant with minimum width requirements throughout the building. However, the 36-inch egress door through the utility courtyard fence is not wide enough to accommodate the occupant load in the utility courtyard.
DOES NOT COMPLY – See Deficiency 9/Recommendation 9 on page 17

1005.5, Distribution of Minimum Width and Required Capacity: Where more than one exit, or access to more than one exit, is required, the means of egress shall be configured such that the loss of any one exit, or access

to one exit, shall not reduce the available capacity or width to less than 50 percent of the required capacity or width.

Main Building and Classroom Addition: Seven egress stairways and six exits are distributed throughout the building.
COMPLIES

Auditorium and Cafeteria Addition: Two stairways and two exits serve floors 1, 2, and 3 on the south end of the building, and each has capacity to serve at least 50 percent of the occupant load.
COMPLIES

1006, Number of Exits and Exit Access Doorways

1006.2.1, Egress Based on Occupant Load and Common Path of Egress Travel Distance: Two exits or exit access doorways from any space shall be provided where the design occupant load or the common path of egress travel distance exceeds the values listed in Table 1006.2.1 (49 occupants and 75 feet for E Occupancy).

Main Building and Classroom Addition: See 1006.2.1.1 for discussion of number of exits.

Auditorium and Cafeteria Addition: The classroom area at the south end of the building has a total occupant load greater than 49 but smaller than 500. Two exits exist at each floor.

TV Studio Addition: With fire escape "E" removed, the common path of egress travel for the east balcony ranges from 73'-10" to 74'-10", depending on the route taken.
COMPLIES

1006.2.1.1, Three or More Exits or Exit Access Doorways: Four exits or exit access doorways shall be provided from any space with an occupant load greater than 1,000.

Main Building and Classroom Addition: The occupant load is greater than 1000. There are 6 exits from the portion of the building above the basement level.
COMPLIES

1006.3.1, Adjacent Story: The path of egress travel to an exit shall not pass through more than one adjacent story.

Main Building and Classroom Addition: Five stairways are open to the first, second, and third floors, so occupants of the third floor must pass through two adjacent stories. Two additional stairways are enclosed.
DOES NOT COMPLY – see Deficiency 1/Recommendation 1 on page 15

Auditorium and Cafeteria Addition: The two stairways serving floors 1, 2, and 3 on the south end of the building are enclosed on all floors.
COMPLIES

1006.3.2, Egress Based on Occupant Load: Each story and occupied roof shall have the minimum number of separate and distinct exits, or access to exits, as specified in Table 1006.3.2 (2 exits for 1-500 occupants and 4 exits for more than 1000 occupants).

Main Building and Classroom Addition: The second and third floors each have an occupant load greater than 1,000 (the third floor has the largest occupant load at 1,096). The second and third floors each have 7 egress stairways, and there are 6 exits on the first floor.
COMPLIES

Auditorium and Cafeteria Addition: The first and third floors at the south end of the building each have occupant loads greater than 49. Two exits exist at each floor.
COMPLIES

1007, Exit and Exit Access Doorway Configuration

1007.1, Two Exits or Exit Access Doorways: Where two exits, exit access doorways, exit access stairways or ramps, or any combination thereof, are required from any portion of the exit access, they shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between them.

Auditorium and Cafeteria Addition: The two existing exits serving floors 1, 2, and 3 on the south end of the building meet this requirement.
COMPLIES

1007.1.2, Three or More Exits or Exit Access Doorways: Where access to three or more exits is required, not less than two exit or exit access doorways shall be arranged in accordance with the provisions of Section 1007.1.1. Additional required exit or exit access doorways shall be arranged a reasonable distance apart so that if one becomes blocked, the others will be available.

Main Building and Classroom Addition: At least two of the existing exits meet the separation requirement of 1007.1.1, and exits are distributed around the building.
COMPLIES

1009, Accessible means of egress

Per IEBC 305.6, Alterations, Exception 2, accessible means of egress required by Chapter 10 of the Building Code are not required to be provided in existing facilities.
NOT APPLICABLE

1010, Doors, Gates and Turnstiles

1010.1.2.1, Direction of Swing: Pivot or side-hinged swinging doors shall swing in the direction of egress travel where serving a room or area containing an occupant load of 50 or more persons.

Classroom Addition, Resource Center B27 and Classroom C23: These rooms have an occupant load of 50 or more and currently have three doors: one door to courtyard fire escape C, one outswinging door to the corridor, and one inswinging door to the corridor. If the fire escape door is removed, there will be two remaining doors as required for a space with over 49 occupants, but one of the doors is inswinging.
DOES NOT COMPLY – see Deficiencies 5a and 5b/Recommendations 5a and 5b on page 16

1010.1.10 Panic and Fire Exit Hardware: Swinging doors…serving rooms or spaces with an occupant load of 50 or more in a Group A or E occupancy shall not be provided with a latch or lock other than panic hardware or fire exit hardware.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: Doors serving the corridor system and egress stairways have panic hardware where serving 50 or more people.
COMPLIES

Utility Courtyard between TV Studio Addition and Auditorium and Cafeteria Addition: The existing fence incorporates a 36-inch egress door with panic hardware, but it is not of sufficient width to accommodate the egress load. The vehicular gate is locked by padlock and does not have panic hardware.
DOES NOT COMPLY – see Deficiency 9/Recommendation 9 on page 17

Classroom Addition, Resource Center B27 and Classroom C23: These rooms have an occupant load of 50 or more and currently have three doors: one door to courtyard fire escape C and two to the corridor. If the fire escape door is removed, there will be two remaining doors as required for a space with over 49 occupants, but neither door has panic hardware.
DOES NOT COMPLY – see Deficiency 5/Recommendation 5 on page 16

1011, Stairways

1011.7.3, Enclosures Under Interior Stairways: The walls and soffits within enclosed usable spaces under enclosed and unenclosed stairways shall be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater. Access to the enclosed space shall not be directly from within the stairway enclosure

Main Building and Classroom Addition: Enclosed usable spaces under stairways are protected with plaster or gypsum finish similar to 1-hour construction.
COMPLIES

Auditorium and Cafeteria Addition: Stairways are constructed of concrete and are equivalent to 2-hour rated construction.
COMPLIES

1011.11, Handrails: Flights of stairways shall have handrails on each side and shall comply with Section 1014.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: Stairways have handrails on each side. Handrails do not meet 1014 requirements for extensions and returns to wall.
DOES NOT COMPLY, but adequate for basic safety

1011.12 Stairway to Roof: In buildings four or more stories above grade plane, one stairway shall extend to the roof surface unless the roof has a slope steeper than four units vertical in 12 units horizontal.

Exception: Other than where required by Section 1011.12.1, in buildings without an occupied roof, access to the roof from the top story shall be permitted to be by an alternating tread device, a ship's ladder or a permanent ladder that is constructed of noncombustible material and is a minimum of 30 inches between handrails; has a rise and run of the stair or ladder of 12 inches maximum and 4 inches minimum, respectively; and has handrails provided on both sides of the stair or ladder.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: Stairways do not extend to the roof, though existing fire escapes do (northwest [A], northeast [B], courtyard [C], and southwest [D] fire escapes). Roof access is via a stairway from the attic of the Main Building to a penthouse, and via roof hatches and vertical ladders at the Classroom Addition and the Auditorium and Cafeteria Addition. The vertical ladders do not comply with the requirements of the 1011.12 exception.
DOES NOT COMPLY – see Deficiency 11/Recommendation 11 on page 18

1012, Ramps

1012.2, Slope: Ramps used as part of a means of egress shall have a running slope not steeper than on unit vertical in 12 units horizontal (8-percent slope).

Main Building and Classroom Addition: There is a ramp that is part of the egress system on the 2nd floor by the south stairs of the Classroom Addition. The slope ranges from 10 to 11 percent.
DOES NOT COMPLY – see Deficiency 7a/Recommendation 7a on page 17

Auditorium and Cafeteria Addition: There is a ramp that is part of the egress system at the bottom of the southeast stair. The slope ranges from 8 to 15 percent.
DOES NOT COMPLY – see Deficiency 7c /Recommendation 7c on page 17

1012.8, Handrails: Ramps with a rise greater than 6 inches shall have handrails on both sides. Handrails shall comply with Section 1014.

Main Building and Classroom Addition: Ramp on the 2nd floor by the south stairs of the Classroom Additions does not have handrails.
DOES NOT COMPLY – see Deficiency 7a/Recommendation 7a on page 17

Main Building and Classroom Addition: Ramp on the 1st floor at the south end of the Classroom Addition does not have handrails.
DOES NOT COMPLY – see Deficiency 7b/Recommendation 7b on page 17

Auditorium and Cafeteria Addition: Ramp at the bottom of the southeast stair does not have handrails.
DOES NOT COMPLY – see Deficiency 7c/Recommendation 7c on page 17

1013, Exit Signs

1013.1, Where Required: Exits and exit access doors shall be marked by an approved exit sign readily visible from any direction of egress travel. The path of egress travel to exits and within exits shall be marked by readily visible exit signs to clearly indicate the direction of egress travel in cases where the exit or the path of egress travel is not immediately visible to the occupants. Intervening means of egress doors within exits shall be marked by exit signs.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: The egress system is marked with illuminated exit signs throughout. However, there is no exit sign at the egress stair at the southeast corner of the Main Building on the first floor.
DOES NOT COMPLY – see Deficiency 13/Recommendation 13 on page 18

Classroom Addition, Resource Center B27 and Classroom C23: These rooms have an occupant load of 50 or more but have no exit signs at the two doors to the corridor. There is an exit sign at the courtyard fire escape C door.
DOES NOT COMPLY – see Deficiency 5/Recommendation 5 on page 16

1017, Exit Access Travel Distance

1017.2, Limitations: Exit access travel distance shall not exceed the values given in Table 1017.2. (For E occupancy buildings, Table 1017.2 allows 250 feet of exit access travel distance with a sprinkler system and 200 feet without a sprinkler system).

Main Building and Classroom Addition: With the northwest (A) and northeast (B) fire escapes removed, exit access travel distance exceeds 250 feet from the northeast corner of the building on the third floor down the east exit access stairway to the exterior exit door.
DOES NOT COMPLY – see Deficiency 3/Recommendation 3 on page 16

Auditorium and Cafeteria Addition: Travel distance is less than 200 feet.
COMPLIES

1019, Exit Access Stairways and Ramps

1019.3, Occupancies other than Groups I-2 and I-3: In other than Group I-2 and I-3 occupancies, floor openings containing exit access stairways or ramps that do not comply with one of the conditions listed in this section shall be enclosed with a shaft enclosure constructed in accordance with Section 713.

Exceptions:
4. Exit access stairways and ramps in buildings equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the stairway or ramp and the opening is protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13. In other than Group B and M occupancies, this provision is limited to openings that do not connect more than four stories.

Main Building and Classroom Addition: Five exit access stairways are unenclosed. The stairways connect no more than four stories. Exception 4 could apply except that there are no draft curtains or closely spaced sprinklers in accordance with NFPA 13 (8.15.4.1).
DOES NOT COMPLY – see Deficiency 1/Recommendation 1 on page 15

1020, Corridors

1020.1, Construction: Corridors shall be fire-resistance rated in accordance with Table 1018.1

Main Building and Classroom Addition: By Table 1018.1, footnote c, no fire rating required due to automatic sprinkler system.
COMPLIES

1020.2, Width and Capacity: The required width of corridors shall be determined as specified in Section 1005.1, but the minimum width shall be not less than that specified in Table 1020.2.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition: Per Table 1020.2, minimum corridor width in Group E for corridors having a required capacity of 100 or more is 72 inches. Corridors are wider than 72 inches.
COMPLIES

1020.4, Dead Ends: Where more than one exit or exit access doorway is required, the exit access shall be arranged such that dead-end corridors do not exceed 20 feet in length.

Exceptions:

2. In occupancies in Groups B, E, F, I-1, M, R-1, R-2, S and U, where the building is equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1, the length of the dead-end corridors shall not exceed 50 feet.

Main Building and Classroom Addition: If the northwest (A) and northeast (B) fire escapes are removed, the resulting dead-end corridors range from 39'-6" to 40'-11" in length. The dead-end corridors remaining after removal of the fire escapes are shorter than the code maximum of 50 feet if the Main Building is considered a fully-sprinkled building separate from other portions of the school that are partially sprinkled. However, an existing dead-end corridor on the first floor between the Classroom Addition and the Auditorium is 71'-6" inches long.
DOES NOT COMPLY – see Deficiency 12/Recommendation 12 on page 18

Auditorium and Cafeteria Addition: No dead-end corridors.
COMPLIES

1023, Interior Exit Stairways and Ramps

1023.2, Construction: Enclosures for interior exit stairways and ramps shall be constructed as fire barriers in accordance with Section 707 or horizontal assemblies constructed in accordance with Section 711, or both. Interior exit stairway and ramp enclosures shall have a fire-resistance rating of not less than 2 hours where connecting four stories or more and not less than 1 hour where connecting less than four stories.

Main Building: Five stairways are not enclosed. Per 1006.3.1, egress stairways are required to be enclosed so that egress travel to an exit does not pass through more than one adjacent story.
DOES NOT COMPLY – see Deficiency 1/Recommendation 1 on page 15

Classroom Addition; Auditorium and Cafeteria Addition: From record drawings, it appears that the existing enclosed stairs are constructed primarily of concrete that is the equivalent of 2-hour construction.
COMPLIES

1023.3, Termination: Interior exit stairways and ramps shall terminate at an exit discharge or a public way.

Classroom Addition; Auditorium and Cafeteria Addition: The existing enclosed stairs terminate at an exit discharge or public way. The enclosed stairway at the Classroom Addition offsets horizontally between the second floor and the basement exit discharge, but it appears to have a continuous enclosure.
COMPLIES

1023.4, Openings: Interior exit stairway and ramp opening protectives shall be in accordance with the requirements of Section 716.

Classroom Addition; Auditorium and Cafeteria Addition: Most doors do not have labels. Some doors have 1-hour labels but should have 1.5-hour labels by current code.
DOES NOT COMPLY – see Deficiency 14/Recommendation 14 on pages 18-19

1028, Exit Discharge

1028.1, General: Exits shall discharge directly to the exterior of the building. The exit discharge shall be at grade or shall provide direct access travel to grade. The exit discharge shall not reenter a building.

Main Building and Classroom Addition; Auditorium and Cafeteria Addition All exits discharge to the exterior with direct access travel to grade.
COMPLIES

Conclusion and Recommendations

If the five fire escapes are removed at Jefferson High School, several code deficiencies will be created, and building occupants will be directed to means of egress that have existing code deficiencies. Following is a summary of the code deficiencies along with measures recommended as alternative compliance paths to provide equivalent safety when the fire escapes are removed. The attached fire life safety plans include annotations indicating the location of each recommendation. See attached Fire Escape Assessment Report by Interface Engineering for additional discussion of recommendations related to fire alarm, fire sprinkler, and standpipe systems.

A. Northwest Fire Escape A and Northeast Fire Escape B (Main Building)

Deficiency 1: Interior egress stairs available for use after fire escape removal are not enclosed per code for multi-story open stairs or per exit requirements (1006.3.1, 1019.3, 1023.2). This is an existing deficiency independent of the fire escapes, but these stairs will be relied on for a larger share of the egress capacity after fire escapes are removed.

Recommendation 1: Provide closely-spaced sprinkler heads and draft curtain per 1019.3 to create a code-compliant opening between floors. This will improve safety compared to current conditions, though it does not satisfy the code requirement that a path of egress travel shall not pass through more than one adjacent story per 1006.3.1. See attached Fire Escape Assessment Report by Interface Engineering for additional information on this recommendation. The recommended approach is to construct this upgrade at the east and west stairways in the Main Building near the northwest (A) and northeast (B) fire escape locations.

Deficiency 2: Existing dry standpipes will be removed when the northwest (A) and northeast (B) fire escapes are removed. Standpipes are required for this building per Chapter 9.

Recommendation 2: Install two wet standpipes in Main Building, one each in the east and west stairways in a corner of the landing adjacent to the exterior wall. This would directly compensate for the removal of the two dry standpipes at the two fire escapes closest to these stairs. The new standpipes would be enclosed in fire-rated construction or fire-rated wrap and existing wall mounted radiators will need to be modified to accommodate the new wet standpipes. See Fire Escape Assessment Report by Interface Engineering for additional discussion of standpipes.

Deficiency 3: Path of egress travel exceeds 250 feet, the maximum allowed by 1017.2, without northeast fire escape B. The path of travel is measured from Classroom D31 on the third floor down to the exterior exit at the bottom of the east stair.

Recommendation 3: Construct a stair enclosure at the Main Building southeast stair and recess the existing classroom doors so that they do not protrude into the egress path.

Deficiency 4: There is a disabled fire shutter at the fire separation between the Main Building and the Auxiliary Gym Addition on the first floor. This is an existing deficiency independent of the fire escapes. However, this fire separation separates the fully-sprinkled Main Building from the partially-sprinkled Auxiliary Gym Addition, supporting the argument that the Main Building should be treated as a fully-sprinkled building. Removal of the northwest (A) and northeast (B) fire escapes creates dead-end corridors that exceed the length allowed by code unless the Main Building is considered fully sprinkled.

Recommendation 4: Install a fire-rated pair of doors on electronic hold-opens connected to the fire alarm system.

B. Courtyard Fire Escape C (Classroom Addition)

Deficiency 5a: Resource Center B27 has an occupant load of 90, requiring two exits once fire escape C is removed. The two doors to the corridor do not have panic hardware or exit signs (1010.1.2.1, 1010.1.10, 1013.1). Also, one of the doors swings into the room but should swing outward into the corridor. Removal of the courtyard fire escape, which provides an additional exit for this room, will trigger upgrades of the remaining exit doors.

Recommendation 5a: Install two new exit doors, outswinging into the corridor, with panic hardware and exit signs.

Deficiency 5b: Classroom C23 has an occupant load of 50. The two doors to the corridor do not have panic hardware or exit signs (1010.1.2.1, 1010.1.10, 1013.1). Also, one of the doors swings into the room but should swing outward into the corridor. Removal of the courtyard fire escape, which provides an additional exit for these rooms, will trigger upgrades of the remaining exit doors. However, this room is very close to meeting the criterion for requiring only one exit (maximum occupant load of 49).

Recommendation 5b: Post the classroom with signage limiting the occupant load to a maximum of 49 people so only one exit is required. The existing doors leading to the corridor satisfy egress requirements for a space with one required exit. A typical class size is not expected to exceed 49 people.

Deficiency 6: The existing dry standpipe will be removed when courtyard fire escape C is removed. Standpipes are required for this building per Chapter 9.

Recommendation 6: Install one wet standpipe in Classroom Addition stairway in a corner of the landing. This would directly compensate for the removal of the dry standpipe at fire escape. The new standpipes would be enclosed in fire-rated construction or fire-rated wrap. See Fire Escape Assessment Report by Interface Engineering for additional discussion of standpipes.

Deficiency 7a: The ramp on the 2nd floor at the south end of the Classroom Addition is steeper than allowed by 1012.2. In addition, the ramp has no handrail as required by 1012.8. This is an existing deficiency independent of the fire escapes, but this ramp will be relied on for a larger share of the egress capacity after the Courtyard Fire Escape C is removed.

Recommendation 7a: Rebuilding the ramp to have a shallower slope is not practical due to space limitations in the existing building. Installation of handrails is recommended as a method of improving safety.

Deficiency 7b: The ramps on the 1st floor at the south end of the Classroom Addition have a rise greater than 6 inches but have no handrails as required by 1012.8. This is an existing deficiency independent of the fire escapes, but these ramps will be relied on for a larger share of the egress capacity after the Courtyard Fire Escape C is removed.

Recommendation 7b: Install handrails to improve safety and comply with section 1012.8. An appeal will not be required for this modification since the ramps will be code-compliant when the handrails are added.

C. Southwest Fire Escape D (Auditorium and Cafeteria Addition)

Deficiency 7c: The ramp at the bottom of the southeast stair is steeper than allowed by 1012.2. In addition, the ramp has no handrails as required by 1012.8. This is an existing deficiency independent of the fire escapes, but this ramp will be relied on for a larger share of the egress capacity after southwest fire escape D is removed.

Recommendation 7c: Rebuilding the ramp to have a shallower slope is not practical due to space limitations in the existing building. Installation of handrails is recommended as a method of improving safety.

Deficiency 8: Southwest fire escape D includes a dry standpipe that will not be usable when the fire escape is removed. Standpipes are required for this building per Chapter 9.

Recommendation 8: Modify the existing standpipe so that it has outlets at each landing of the adjacent interior stairway. See Fire Escape Assessment Report by Interface Engineering for additional discussion of standpipes.

Deficiency 9: An exterior fence and gate exists in the utility courtyard adjacent to the Auditorium and Cafeteria Addition. All egress from the southeast stair will be directed to the utility courtyard behind the fence if southwest fire escape D is removed. Existing gates through the fence include a 12-foot set of vehicular gates, secured with a padlock, and a 36-inch egress door with panic hardware. The existing egress door is not wide enough to accommodate the occupant load in the utility courtyard per 1005.3.2.

Recommendation 9: Formalize a requirement that the existing vehicular gate remain unlocked and open at all times when the building is occupied.

D. Southeast Fire Escape E (TV Studio Addition)

Deficiency 10: Removal of southeast fire escape E will leave the east TV Studio balcony with only one exit. When the balcony was an assembly space, it had an occupant load of over 49 and required at least two exits.

Recommendation 10: Post the east balcony with signage limiting the occupant load to a maximum of 44 people (49 people total including adjacent rooms that exit through the balcony) so only one exit is required. The balcony is no longer used for large assembly purposes, and a lower posted occupant load is sufficient for current use. A similar posted occupant limit of 49 people would also be appropriate at the west balcony.

E. Additional Observations and Recommendations

Deficiency 11: There is no stairway extending to the roof per 1011.12 at the Classroom Addition or the Auditorium and Cafeteria Addition. Roof hatches with vertical ladders exist but are not compliant with code requirements for access to standpipe hose connections at the roof level. A stairway from the attic to the roof exists in the Main Building but is not directly connected to existing stairways. This is of concern because the fire escapes that are being removed provide ladder access to the roof and to the existing dry standpipe connections at the roof level. Fire department access will be required for new standpipes at the roof level.

Recommendation 11: Use existing roof access points for access to the rooftop hose connections for the three new standpipes proposed for installation and for the existing dry standpipe to remain on the Auditorium Addition. The existing stairways, roof hatches, and ladders that access the roof provide equivalent or improved safety compared to the existing vertical ladders on the fire escapes, which are approximately 3 stories high and present a greater falling hazard.

Deficiency 12: An existing dead-end corridor on the first floor between the Classroom Addition and the Auditorium is 71’-6” inches long, exceeding the maximum of 50 feet allowed in sprinklered buildings per 1020.4. Though not related directly to removal of the fire escapes, this is a hazardous condition that needs to be corrected.

Recommendation 12: Install a pair of cross-corridor doors to shorten the length of the dead end to meet code requirements (50 feet maximum on each side of the new doors).

Deficiency 13: There is no exit sign (1013.1) at the egress stair at the southeast corner of the Main Building on the first floor.

Recommendation 13: Install illuminated exit sign at stair doorway. An appeal will not be required for this modification since the condition will be code-compliant when the exit sign is installed.

Deficiency 14: Some doors at stair enclosures and fire separations are not labeled (1024.4). Some doors have labels, but the fire rating is not sufficient to meet current code.

Recommendation 14: Replace any unlabeled wood doors or 20-minute wood doors on the lowest two stories of each enclosed stairway with new fire-rated doors, and leave all other existing stair enclosure and fire separation doors in place. Due to the hazard of fire spreading upward from

the bottom of a stairway if existing combustible, unlabeled doors are exposed to fire, replacement of unlabeled wood doors with new fire-rated doors at the lower stories is recommended to provide safety in the existing stairways. Leaving existing unlabeled stair enclosure doors in place above the first two stories will not change the level of safety from what it is currently. Existing doors at stair enclosures have been in place for many years and have closers that ensure they will be closed in the event of a fire. Existing doors without labels are steel or solid-core wood and would be expected to provide some resistance to the spread of fire even if they are not labeled.

END OF MEMORANDUM

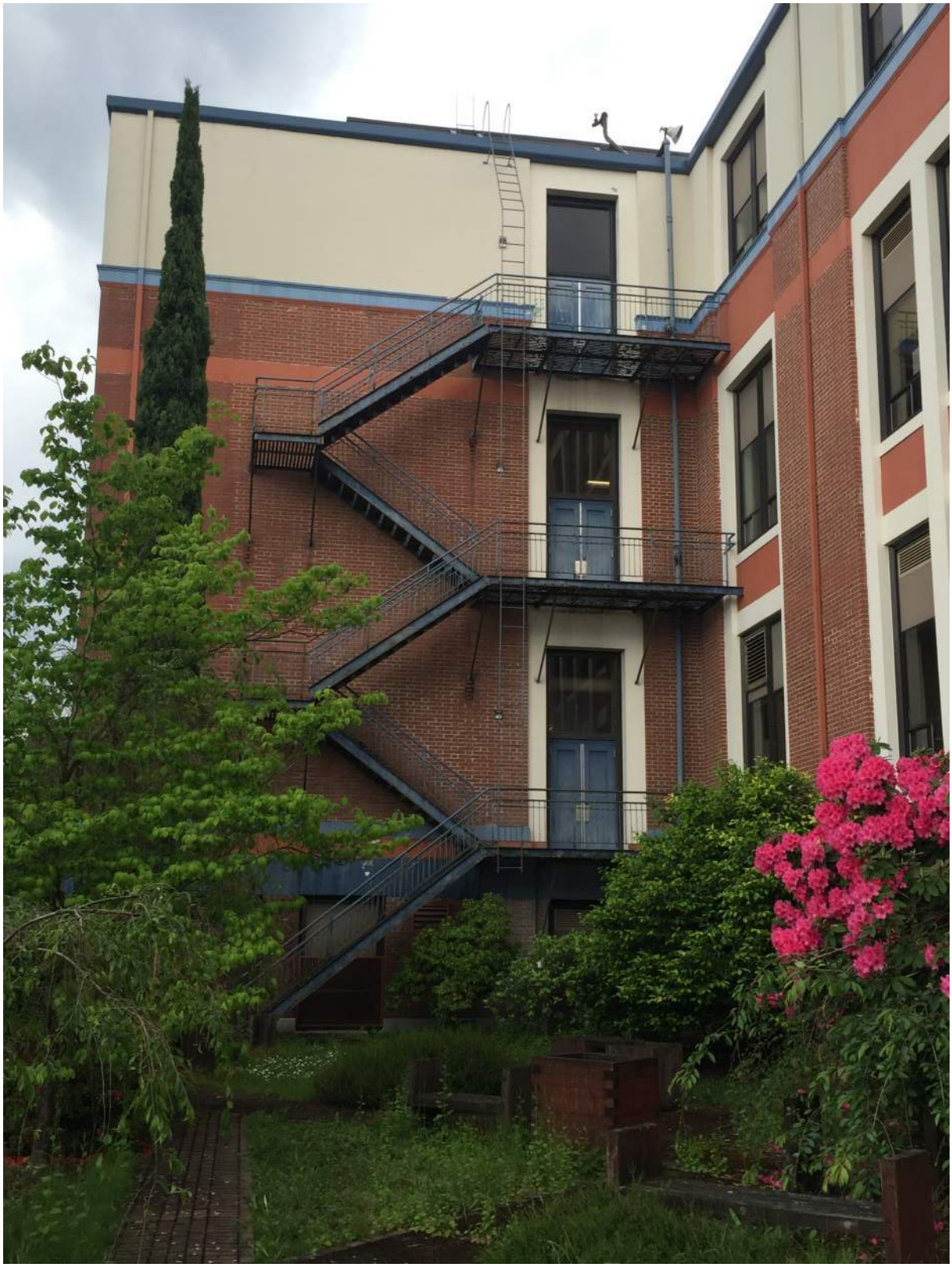
Architecture Planning Design LEED Consulting

115 NW First Ave, Suite 300
Portland, OR 97209
tel 503.280.8000
fax 503.224.5442

APPENDIX – Photographs of Existing Conditions

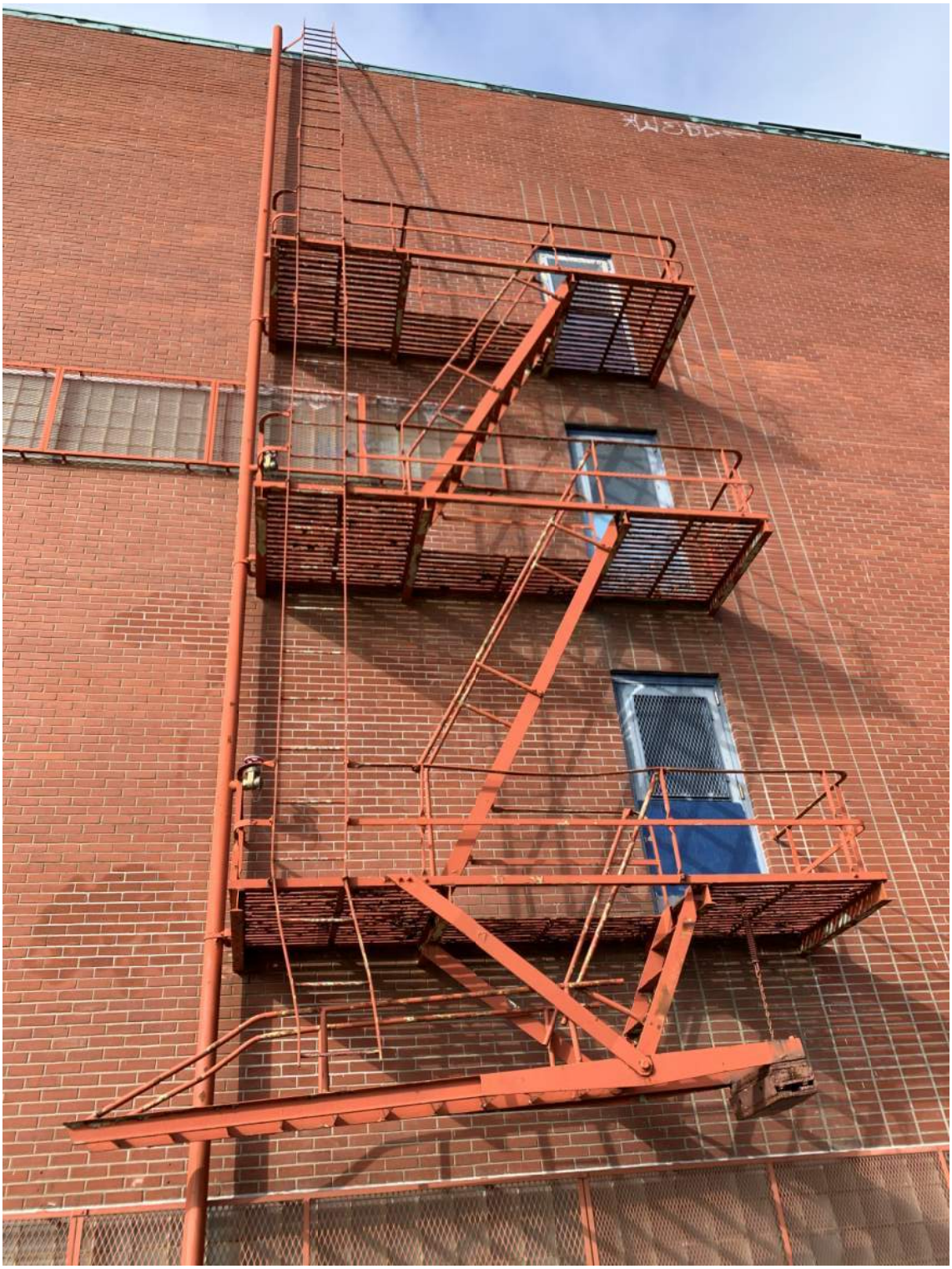
Northwest Fire Escape A

Northeast Fire Escape B



Courtyard Fire Escape C

Southwest Fire Escape D

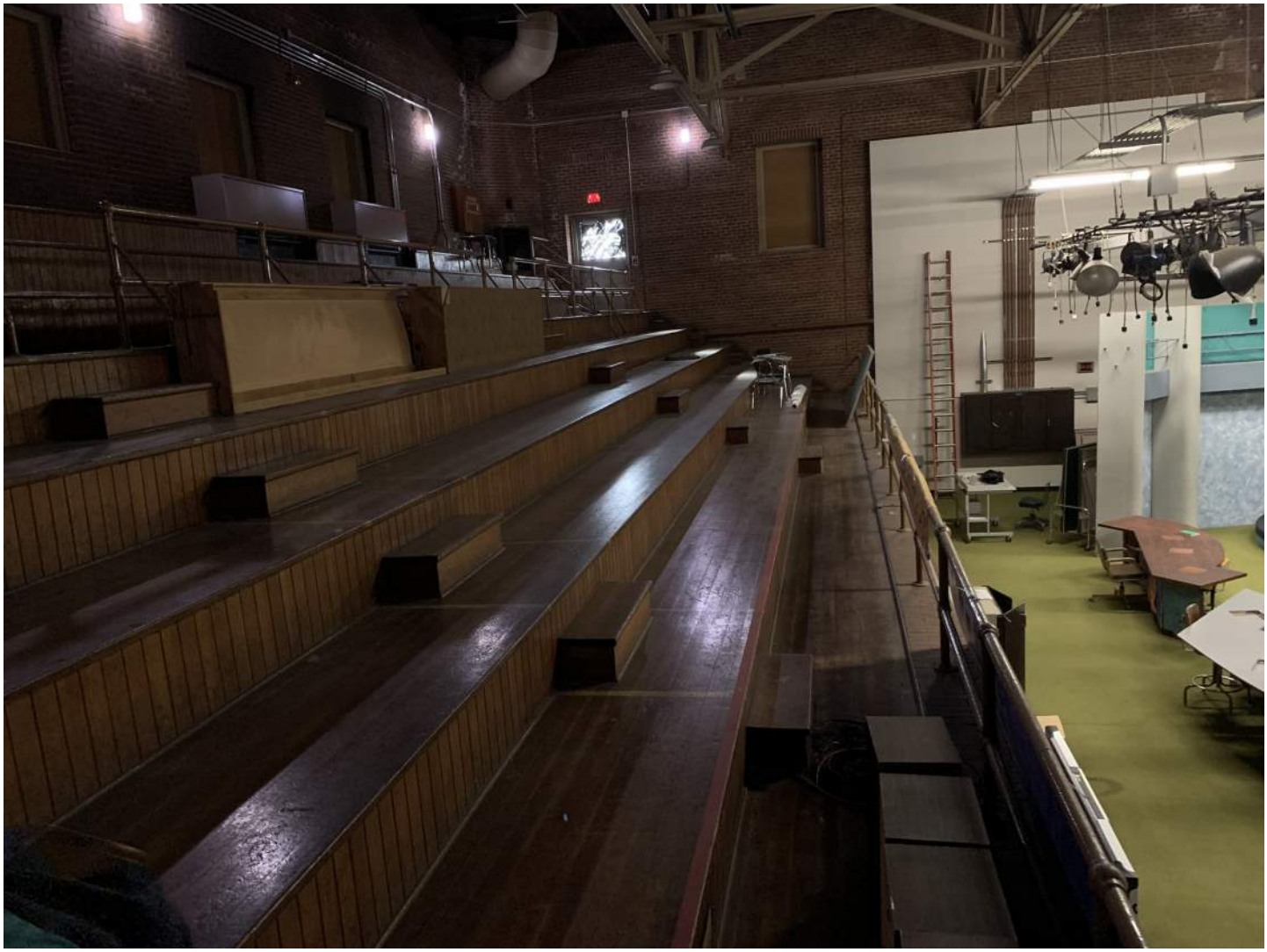


Southeast Fire Escape E

Utility Courtyard Egress Door

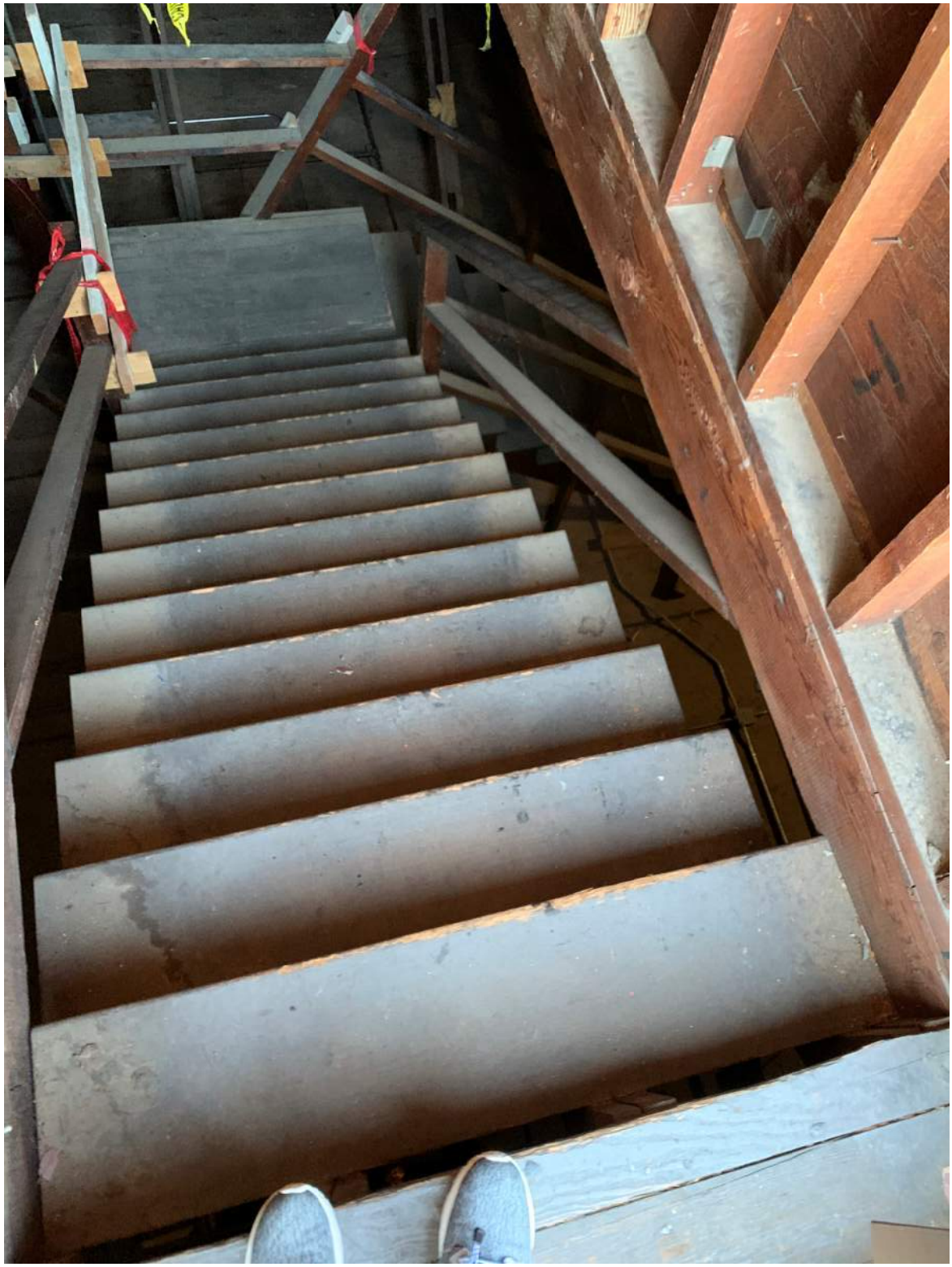
Utility Courtyard – Vehicular Gate

TV Studio – East Balcony



Main Building Roof access – Interior

Main Building Roof Access – Top of Stairs



Main Building Roof Access – Penthouse door

Roof hatch – North Auditorium

Roof Hatch – Classroom Addition

Fire Escape Assessment Report

Portland Public Schools Jefferson Fire Escape Removal
2019-0797

Prepared for:
Oh Planning + Design

Prepared by:
Kenton Aikens, PE, CFPS

October 6, 2020

Expires: 12/31/21

Table of Contents

INTERFACE ENGINEERING

General

The fire sprinkler and fire alarm systems at Jefferson High School were examined to determine the general condition and capabilities of these systems based on current code requirements and as relates to the proposed removal of the building exterior fire escapes and associated exterior dry standpipe systems. Existing drawings, site observations and the State of Oregon adopted building codes were used to assess the systems. Based on the assessment, recommendations are provided in consideration of equivalent or improved life safety, and where appropriate, compliance with current code.

Codes and Standards

Oregon Codes

- Oregon Fire Code (OFC), 2019 Edition
- Oregon Structural Specialty Code (OSSC), 2019 Edition

NFPA Standards (National Fire Protection Association)

- NFPA 13 – Standard for the Installation of Sprinkler Systems, 2016 Edition
- NFPA 14 – Standard for the Installation of Standpipe and Hose Systems, 2016 Edition
- NFPA 72 – National Fire Alarm and Signaling Code, 2016 Edition

Other Reference Documentation

- January 2016 Stipulated Agreement Between Portland Public School and the City of Portland Fire and Rescue

The current, adopted building codes were used for the assessment and as a basis for recommendations for the fire alarm and fire sprinkler systems; although, until the building changes use or occupancy, undergoes alterations or additions, or as part of an agreement with the City of Portland for removal of the fire escapes and standpipes, there is no retroactive, code-driven requirement for the installation or the modernization of the fire sprinkler or fire alarm systems in the school. In addition to the code review, recommendations are provided for achieving equivalent life/safety for non-compliant conditions associated with the removal of the fire escapes.

The school is an Educational, Group E occupancy. The fire areas of the occupancies and occupant loads dictate the requirements for the installation of fire sprinkler and fire alarm systems.

Existing Conditions

Fire Sprinkler Systems

Several fire sprinkler riser rooms connect to the lowest level main corridor as well as one located below the TV Studio and one located adjacent to the cafeteria.

The sprinkler systems were installed at various periods over the life of the building and as additions were constructed. The original installation appears to have been in 1930.

Fire sprinkler protection is installed throughout a majority of the structure with the exception of the cafeteria and the auditorium which have partial sprinkler protection. The southeast gym and associated locker, shower, and storage rooms on the lower level, do not have fire sprinkler coverage.

The building appears to have several fire-resistance rated separations between the areas of the building which are fully sprinklered and not sprinklered. Refer to the architectural report for additional information concerning the condition and locations of the fire rated separations.

The system was recently improved (2019) by the voluntary replacement and upgrade of all the sprinklers to quick-response sprinklers. Additional improvements in 2019 included replacement of several risers and valves.

Fire Alarm System

The fire alarm system installation was completed in approximately 2005 and utilizes a Farenhyt model IFP 1000 addressable control panel. The system includes manual pull stations, smoke and heat detection devices, and audible and visual alarm notification appliances. At the time of the assessment, the panel indicated it was in normal operating condition.

Manual fire alarm boxes are provided near the exits throughout the building and at the entrance to the stairwells.

Heat detection and/or smoke detection is located in almost all rooms throughout the building.

Fire alarm notification for the building is provided by strobes and combination fire alarm horn/strobes. Strobes are located in the corridors, bathrooms, common office spaces, and other common use and public spaces with the exception of almost all the classrooms. The existing fire alarm system is not expected to provide audible and visual alarm notification in all locations sufficient to notify occupants of an alarm condition in accordance with current code.

Current Code Summary and Evaluation

General

Where the evaluation identifies compliance non/compliance with code, it is with respect to current code, not the code at the time of construction/installation. **It is assumed the existing systems were approved under the original code in effect at the time of installation.** There is no known requirement or mandate for replacing or upgrading the fire alarm system or sprinkler system for the school. **Code is in bold and italicized.**

Automatic Sprinkler System

Chapter 9, Fire Protection Systems

903 Automatic Fire sprinkler Systems

903.2 Where required. Approved automatic sprinkler systems in new buildings and structures shall be provided in the locations described in Sections 903.2.1 through 903.2.11.7.

903.2.3, Group E: An automatic sprinkler system shall be provided for Group E occupancies as follows:

1. ***Throughout all Group E fire areas greater than 12,000 square feet.***
2. ***The Group E fire area is located on a floor other than a level of exit discharge serving such occupancies.***
3. ***The Group E fire area has an occupant load of 300 or more.***

903.3.1.1, NFPA 13 sprinkler systems: Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13 except as provided in section 903.3.1.1.1.

Evaluation

The fire areas exceed the maximum allowable thresholds requiring a fire sprinkler system per current code for a new building. A full coverage, automatic fire sprinkler system is provided throughout the structure with the exception of the cafeteria, auditorium, and southeast gym which have partial coverage. The classroom areas where the fire escapes are considered for removal have complete coverage and are located remotely from the areas which are not sprinklered. Additionally, for all fire escapes except at the auditorium wing, the previously noted fire separations are located between the unsprinklered areas and the location of the fire escapes which are proposed to be removed, adding a level of passive fire protection isolation.

Automatic sprinkler system does not provide coverage throughout all fire areas in accordance with NFPA 13.
DOES NOT COMPLY.

905.5 Standpipe Systems

905.1 Standpipe systems shall be provided in new buildings and structure in accordance with Section 905.2 through 905.10.

Class III standpipe systems shall be installed throughout buildings where any of the following exist:

2. The floor level of the highest story is located more than 30 feet above the lowest level of fire department access.

903.5.1, Exception 2 allows Class I standpipes in group B and E occupancies.

905.4 requires the Class I standpipes to be located in every required interior exit stairway. The hose connections are required at the main landings unless otherwise approved by the code official.

905.8 Dry standpipes.

Dry standpipes shall not be installed.

Exception: Where subject to freezing.

NFPA 14, A.5.2.1

A5.2.1 A Dry pipe system should be installed only where heat is not adequate to prevent freezing of water in all parts of, or in sections of, the system.

Evaluation

The standpipes are exterior to the building and located adjacent to the fire escapes. No standpipes are provided for the interior stairwells and the building exceeds the minimum 30-foot allowance which then requires them per current code. The fire department connections for standpipes located at Fire Escapes A (Northwest), B (Northeast), and C (Courtyard) are not easily accessible for use by the fire department.

The current standpipes are also dry which is not recommended per the NFPA 14 annex explanatory information section A5.2.1 and not permitted per code except in freezing areas.

Since they are currently installed outside where they are subject to freezing, the existing standpipes are permitted to be dry; however, current code would also require the installation of standpipes in the stairwells, which is heated, and therefore required to be wet type. It should be noted, the intent of this project is to remove the fire escapes and the standpipes.

Standpipes are not installed in the building in accordance with NFPA 14.
DOES NOT COMPLY.

Fire Alarm System

Chapter 9, Fire Protection Systems

907, Fire Alarm and Detection Systems

907.2, Where required – new buildings and structures. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72 shall be provided in new buildings and structures in accordance with Sections 907.2.1 through 907.2.23 and provide occupant notification in accordance with section 907.5, unless other requirements are provided by another section of this code. Not fewer than one manual fire alarm box shall be provided in an approved location to initiate a fire alarm signal for fire alarm systems employing automatic fire detectors or waterflow detection devices. Where other sections of this code allow elimination of fire alarm boxes due to sprinklers, a single fire alarm box shall be installed.

907.2.3, Group E: A manual fire alarm systems that initiates the occupant notification signal utilizing an emergency voice/alarm communication system meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall be installed in Group E occupancies. When an automatic sprinkler systems or smoke detectors are installed, such systems or detectors shall be connected to the building fire alarm system.

Exceptions:

1. ***A manual fire alarm system is not required in Group E occupancies with an occupant load of 50 or less.***

2. ***Emergency voice/alarm communication systems meeting the requirements of Section 907.5.2.2 and installed in accordance with Section 907.6 shall not be required in Group E occupancies with occupant loads of 100 or less, provided that activation if the manual fire alarm system initiates an approved occupant notification signal in accordance with Section 907.5***

3. ***A manual fire alarm system is not required in Group E occupancies where all the following apply:***

    3.1 Interior corridors are protected by smoke detectors.

    3.2 Auditoriums, cafeterias, gymnasiums and similar areas are protected by heat detectors or other approved detection devices.

    3.3 Shops and laboratories involved dusts or vapors are protected by heat detectors or other approved detection devices.

4. ***A manual fire alarm system is not required in Group E occupancies where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, and where the emergency voice/alarm communication system activate on water flow and manual activation is provided from a normally occupied location.***

Evaluation

Alarm Notification:

Per OSSC §907.2.3 an emergency voice/alarm communication system (EVACS) is required for Group E Occupancies which have an occupant load of more than 100. The current system does not meet the requirements for a Group E occupancy because the system uses a horn system that emits tone alarm signals instead of voice alarm messaging generated by an EVACS.

Fire alarm EVACS system alarm notification.
DOES NOT COMPLY. It should be noted that, per the Stipulated Agreement between the City of Portland and Portland Public Schools, the replacement of the existing fire alarm system with an EVACS system was not required for the schools in the agreement. Although, not part of the listed schools, the system at Jefferson would comply with the Stipulated Agreement.

Per OSSC §907.5.2.3.1 visible alarms are required in public use and common areas. Strobes are provided in accordance with the City of Portland Agreement but not as required by current code. Visual alarms are not provided in the classrooms. To comply with current code, strobes would need to be installed in the classrooms and any other common use spaces not currently outfitted with a strobe. Strobe appliances are also combined with the horns (combination horn/strobes) in

many locations so replacement of the horn system with an EVACS would necessitate replacement of the strobes, even if the strobe was adequate otherwise for the space.

Visual fire alarm notification.
DOES NOT COMPLY.

Alarm Initiating Devices:

The occupant load exceeds the minimum threshold of 100 requiring a manual fire alarm system.

Manual alarm boxes are provided at the building exits as required by current code for a non-sprinklered building. Although fire sprinklers were recently replaced with quick-response sprinklers, the lack of coverage in portions of the building is not compliant with code requirements for complete coverage. For the purposes of determining fire alarm requirements, the building was conservatively assessed as "not sprinklered".

Manual Fire Alarm Boxes.
COMPLIES.

With the installation of a manual fire alarm system, automatic initiating devices are not required except in specific locations and for specific functions noted by NFPA 72. The locations and functions include:

- Smoke detection at the panel.
- Smoke detection in the elevator lobbies and machine rooms for elevator recall
- Smoke detection for air handling units (AHU) with air flow rates over 2000 cubic feet/minute to initiate AHU shutdown
- Smoke detection at fire smoke dampers for controlling damper closure, and in other locations as needed for fire life safety functions.
- Heat detection in the elevator machine room for elevator shutdown related functions and in the elevator hoistway, when those areas are provided with fire sprinklers.
- Monitoring of the sprinkler system flow, tamper and pressure switches.

Smoke detection appears to be provided for all required locations and functions. The fire sprinkler system is monitored. Additionally, smoke detection or heat detection is located throughout the building.

Automatic Alarm Initiating Devices:
EXCEEDS CODE REQUIREMENTS.

The system is also required to transmit fire alarm signals to a supervising station or at constantly attended location. Personnel at the remote supervising station receiving the signal would then initiate the appropriate emergency response, e.g., call the fire department. The current system uses telephone lines which is no longer permitted by NFPA 72 for new systems.

Supervising Station Transmitter.
DOES NOT COMPLY.

Alternative Compliance Considerations

Automatic Sprinkler System and Fire Alarm Systems

Options for removing the fire escapes and exterior standpipes while improving fire/life safety as an alternative could include the following, either separately, or collectively:

1. Install three new manual wet standpipes in the east and west stairwells of the main building and one at the south stairway of the center classroom wing. These would correspond to the three dry standpipes that are proposed to be removed. Because the standpipes would be dedicated standpipes, not providing fire sprinkler service to the floor, they would be permitted to use 4" diameter mains. These mains would be interconnected as required by NFPA 14 and could also be connected to the existing fire sprinkler system to prime them wet; however, the existing fire department connection serving the sprinkler system is inadequate and so it is recommended a single new FDC be provided that is dedicated to the new wet standpipes.

   The existing dry standpipe located adjacent to the Choral Room is proposed to remain; however, it would be extended to the inside of the adjacent stairwell of the building to allow access by the firefighters from within the structure since the associated fire escape would be demolished. If this is not permissible to the AHJ, a new wet standpipe may be required, similar to the proposed solution for the other stairwells.

   Three roof hose connections will be provided. Two will be located on the main building and one will be at the classroom addition. The hose connections will be supplied via piping from through the attic space to the flat roof area. Normally closed shutoff valves would be located within the envelope of the building so the pipes serving each roof connection are dry to avoid potential freeze issues. The fire fighters would open the valves during an event. The roof access is via roof hatches shown on the drawings and would need to be approved by the AHJ.

   All standpipes would be provided with protection either from a fire-rated wrap or enclosure.

   This option is recommended due to the elimination of the exterior dry standpipes, excluding the one extended into the hall, and the need to still provide hose valve connections for the responding firefighters. This should provide a much-improved condition for fire/life safety.

2. Improve the level of separation/protection of the stairwell: Since the stairwells are currently open and not rated, a draft stop and closely spaced sprinklers could be installed around open stairwell entrances to increase the level of protection associated with those egress paths. This would be installed in compliance with NFPA 13 as required for the protection of vertical openings and would provide an enhanced level of fire safety for both occupant egress and firefighter protection. The intent would be to install the sprinklers for protecting the stairwell opening in conjunction with the addition of fire protection standpipes in the stairs. See option #1.

   (NFPA 13) 9.3.5 Vertical Openings.

9.3.5.1 General.
Unless the requirements of 9.3.5.4 are met, where moving stairways, staircases, or similar floor openings are unenclosed and where sprinkler protection is serving as the alternative to enclosure of the vertical opening, the floor openings involved shall be protected by closely spaced sprinklers in combination with draft stops in accordance with 9.3.5.2 and 9.3.5.3.

9.3.5.2 Draft Stops.

Draft stops shall meet all of the following criteria:

(1) The draft stops shall be located immediately adjacent to the opening.

(2) The draft stops shall be at least 18 in. (450 mm) deep.

(3) The draft stops shall be of noncombustible or limited-combustible material that will stay in place before and during sprinkler operation.

9.3.5.3Sprinklers.

9.3.5.3.1 Sprinklers shall be spaced not more than 6ft (1.8m) apart and placed 6in. to 12in. (150mm to 300mm) from the draft stop on the side away from the opening.

Additional items to consider for the removal of the fire escapes which contribute to not reducing the level of fire/safety include:

1. The recent improvement to the fire sprinkler system with the installation of quick response sprinklers. This provides an expectation that the fire sprinkler system will be more responsive to a fire, reducing the expected fire size and impact.
2. In the areas adjacent to the fire escapes and stairwells, fire sprinklers are provided. The unsprinklered portions of the school are remote from the fire escapes and stairwell exits. In addition, an existing level of separation is provided between the sprinklered and unsprinklered areas. A fire in one of the unsprinklered spaces would not likely threaten areas near the fire escapes during the occupant evacuation from the building.
3. Evacuation procedures are well defined and planned.
4. Fire drills are routinely conducted.