

Franklin Elementary School Existing Conditions Report



The Franklin Elementary School is located at 125 Derby Street in Newton. The City experienced significant population growth at the end of the 19th century, but WW1 delayed the construction of new schools until later into the 20th century. The Franklin School was a WPA project and was built in 1938 as a neighborhood school consisting of 13 classrooms, a large small group break-out room, an auditorium, main office, 4 sets of boys and girls restrooms, 6 staff bathrooms, a kitchen, a staff break room, a staff work room, a public meeting room, 4,200 square feet of “play rooms”, a bicycle room, generous storage throughout the school, and a large wardrobe room. The original building was 45,406 square feet.

In 1950, due to increasing enrollment, and the desire for indoor gym space, a 12,400ft² addition was constructed on the northwest side of the school. A 3,000 square foot gym, 2 bathrooms, locker rooms, offices, a staff room, storage, and 4 classrooms were included in this addition. This addition was designed to mimic the 1938 design, and was constructed using the same quality and durability of materials used in the original building.



Seen at the center of this picture is the 1950 classroom and gym addition.

In 1953, due to enrollment pressure, a 4,940 square foot addition was constructed on the southeast side of the school. This project included 4 classrooms, and a very large lobby that was designed to be used for small group instruction. This addition is wood-framed, slab on grade, and was not designed or constructed to anywhere near the same level as the 1938 or 1950 projects.



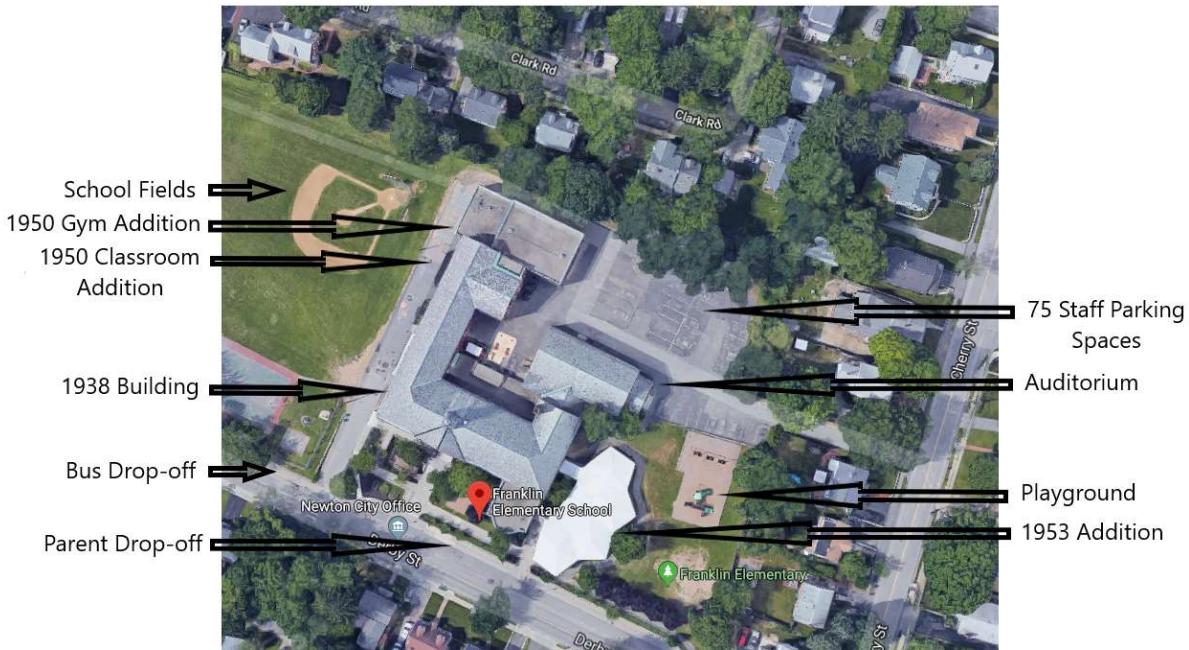
The 1953 addition was not well designed. The spaces are functional and spatially appropriate, but the quality of materials and systems result in a less than optimal learning environment.

The school currently has 21 classrooms being used for individual grades, but had as many as 24 classrooms at one time. One of the large play rooms, was converted to a classroom, and is now a 2,006 square foot library. The other 2,200 square foot play room is now the Art Room, Plowshares, storage, elevator, and elevator machine room. The music program does not have its own space, and currently occupies the stage in the cafetorium. The 1938 kindergarten classroom wing has been converted to Inclusion, ELL, offices, storage, and a staff break room. The main office has been expanded, and the original staff room was converted to the nurse's office.

The current building is 62,746 square feet, which is significantly larger than the 56,764 square feet that was previously assumed as the gross building area.

The school sits on a 237,611 square foot site is comprised of 2 baseball fields, passive field space, 2 playgrounds, a basketball court, and 75 parking spaces. The school has recently had some flooding issues at the entrance to the 1950 addition, but this was just addressed by DPW through the replacement of a failed stormwater catch basin. The water table in this area is actually quite low and there has been no history of flooding in any of the basement areas. The site is ideal for a school, as it has no subsurface problems, geotechnical issues, or other challenges or restrictions that most school sites in Newton have.

Existing Site Conditions





The school property is accompanied by 3 acres of open space and recreational areas.

The school itself has seen modest non-reactive capital investment over the past 65 years.

Building System Existing Conditions

Roof:

The 1938 roof is almost all slate which is original, with the exception of the old kindergarten wing and boiler room roof, which are tar and gravel. Additionally, in 1993 the north-facing façade of the slate roof was replaced with asphalt shingles. The classroom portion of the 1950 addition is mostly slate which is original, with a very small section above the offices, and the gym addition being tar and gravel. The 1953 addition roof is rubber membrane that was replaced in 2008. Overall, the roof appears to be in very good condition considering the age. Maintenance records indicate there have been 5 individual roof leaks since 2005, with no reported roof leaks in the past 4 years. The annex had quite about 10 roof leaks reported before the roof was replaced, and none since then. The tar and gravel sections are not actively leaking, but will likely need to be replaced within the next 10 years.

Exterior Masonry:

The exterior masonry needs repairs in multiple locations. Stone retaining wall, egress stairs, ramps, and isolated areas of the brick façade all need a great deal of repair work. Most of the work is superficial, but if not corrected soon, it could become larger, more complicated, and more expensive projects. The recent project to repair the 1953 courtyard stormwater retention basin has addressed the flooding issues, but more work is needed around the perimeter of the building to address drywells and drainage systems, to help prevent future problems that occur when stormwater is left uncontrolled near the foundation.



Repairs have been made to this many times before, but clearly more work is needed.



Modest repairs are needed before these become larger replacement projects.

Windows:

The vast majority of the metal windows were installed in 1989 and are approaching their end of useful life. These windows have been repaired over the years, as the springs have failed, making the windows difficult to operate. The windows in the 1950 gym addition are original, and need to be replaced. The windows in the 1953 addition were replaced in 2000 with vinyl crank operated casement windows, and are functional, but inefficient from a thermal perspective.



Aside from the gym wing, and 1953 addition, all of the windows were replaced in 1989 as shown here.



These are the original windows in the 1950 gym.



These windows were installed in 2000 in the 1950 addition.



These are the locker room window systems. They were installed in 1950, and need to be replaced.

HVAC:

Franklin is served by a single gas fired Smith steam boiler installed in 1983. Terminal equipment includes steam unit vents and radiation in common areas. The 1953 addition is served by a hot water heat exchanger and pumps, which deliver heat to unit ventilators in the associated spaces. The gym is served by radiation, as well as a steam H&V unit. The majority of the building systems are controlled an aging electropneumatic control system with 18 control zones. Much of its functionality, however, is no longer operable. The HVAC terminal equipment is controlled by an aging, obsolete, and maintenance intensive pneumatic air system. Recently a new interior air handling unit was installed in the Library to improve the humidity and general air quality. In 2014, approximately \$500,000 was spent on building management systems, hvac equipment controls, steam trap replacements, and weatherization throughout the school.



The school has only one boiler. A second boiler should be installed to provide redundancy, and extend equipment life. In 2014, close to \$500,000 was spent on energy improvements in the school, including the new vacuum return system on the right in this picture.

Plumbing:

The majority of the plumbing in this building is original and in good working order. Upgrades were made a few years ago to improve the water efficiency of the fixtures. The bathrooms are in good working order, with the exception of the two adult bathrooms at the entrance to the Cafetorium, which appear functional, but look like they are not used at all. All of the sanitary lines are gravity drains, and the system meets the current plumbing codes.



It's not clear what they were trying to accomplish with these grab bars, but clearly there are areas for improvement in some of the bathrooms.

Fire Protection and Detection:

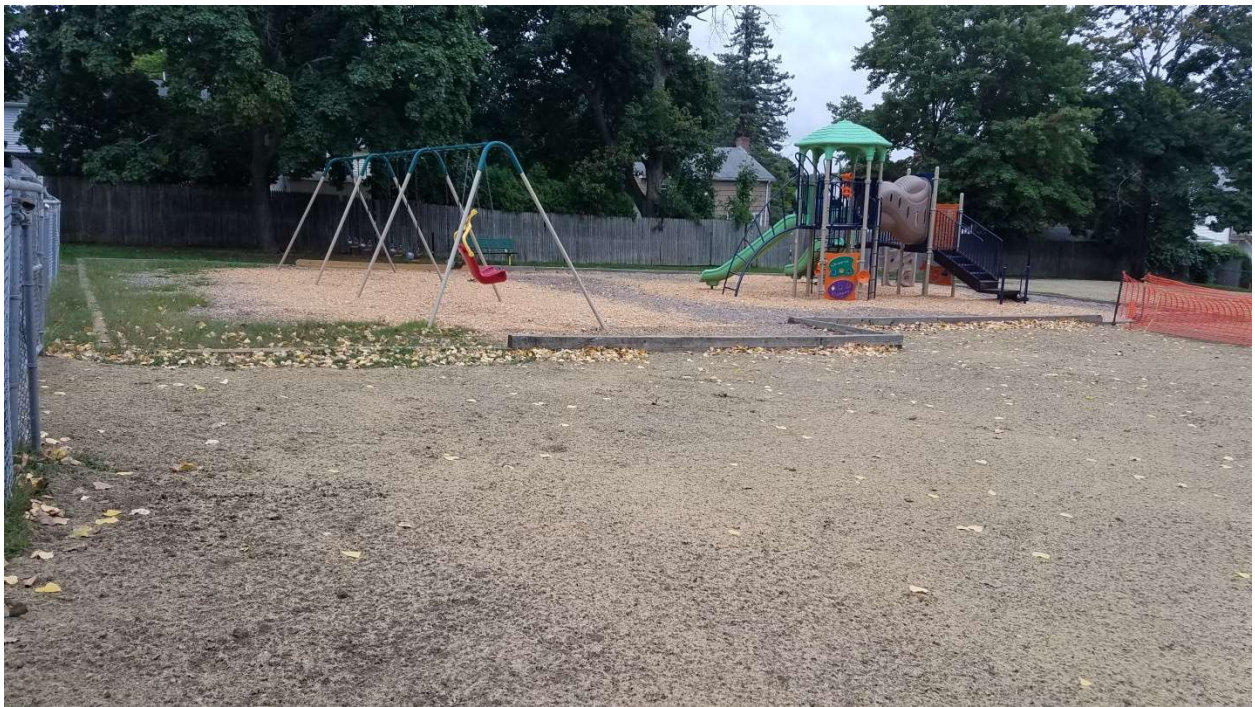
The fire alarm panel and devices in the building have been updated and are addressable. Distribution will need updating, but is in good working order. The building has no fire suppression.

Accessibility:

The Franklin School is programmatically accessible. A hydraulic 3-stop elevator was installed in 1990's, and the bathrooms have appropriate clearance and accessible features. The door hardware and signage have been sporadically updated, but additional work is needed in this area. The west side playground is somewhat accessible with very little accessible features, while the east side playground is accessible and has limited accessible features.



Bathrooms throughout the school are mostly accessible.



The playgrounds are somewhat accessible, but lack sufficient accessible features.

Electrical:

In 2012, minor electrical improvements were made to the Franklin school as part of a broad capital project. That being said, the service, panels, and distribution are original, beyond useful life, and should be replaced. The main switchgear is located in a very small utility room in the basement. This room does not have the proper clearances for safe work, and when the panels are replaced, they should be moved to another more appropriate location within the building. In 2014, \$65,000 was spent upgrading the lighting and lighting controls. In 2017, \$70,000 was spent upgrading the lighting and lighting controls.

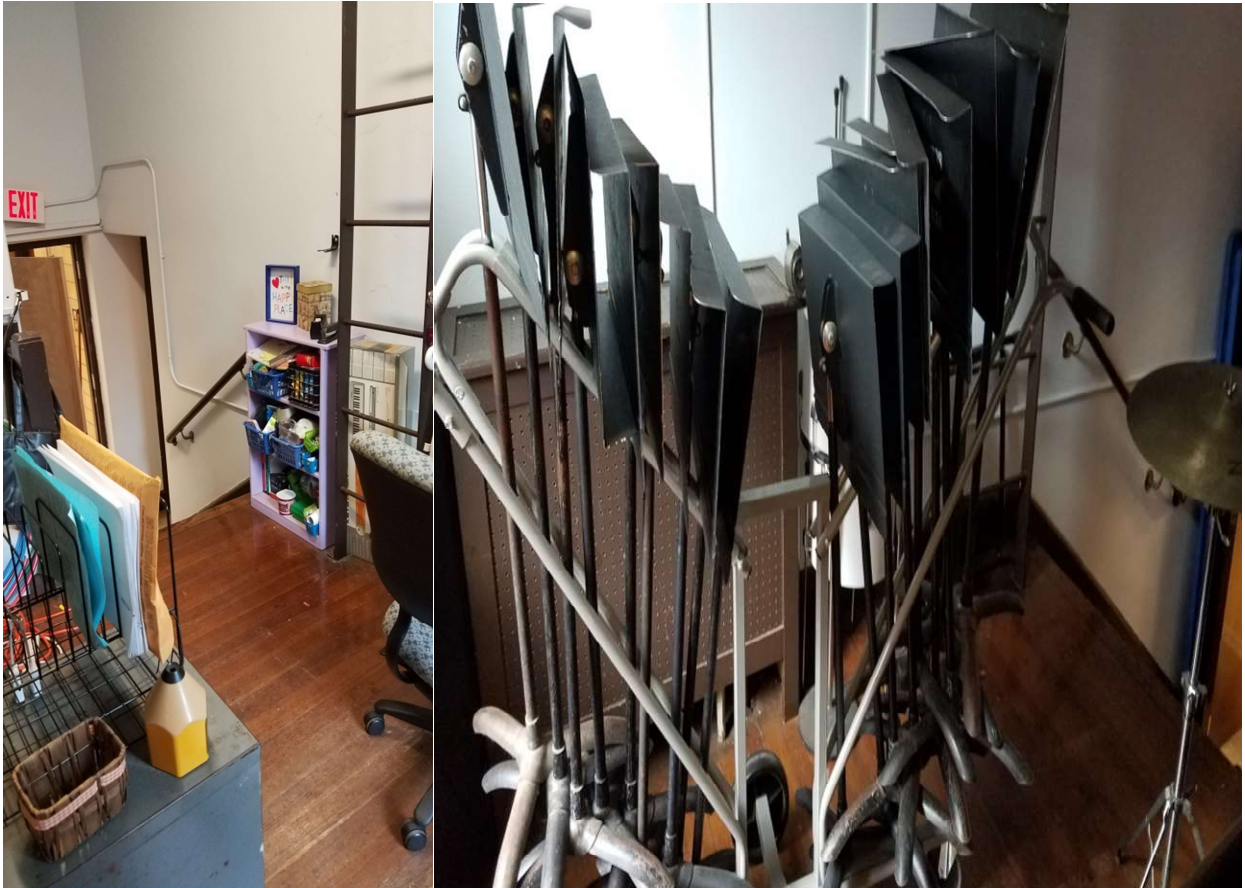


This space is extremely small and does not meet current electrical code requirements.



This generator is beyond its useful life, and no longer code compliant. The exhaust stack needs to be well above the building, or the generator needs to be much further away. This is now required to prevent exhaust fumes from entering the building. The oil tanks shown in this picture are no longer used, and need to be removed.

Spatial Programmatic Challenges



The music program has no teaching space, so the stage acts as the classroom and office. This blocks egress paths, and is not allowed. Overall, this program requires a space three times that which is currently being provided.



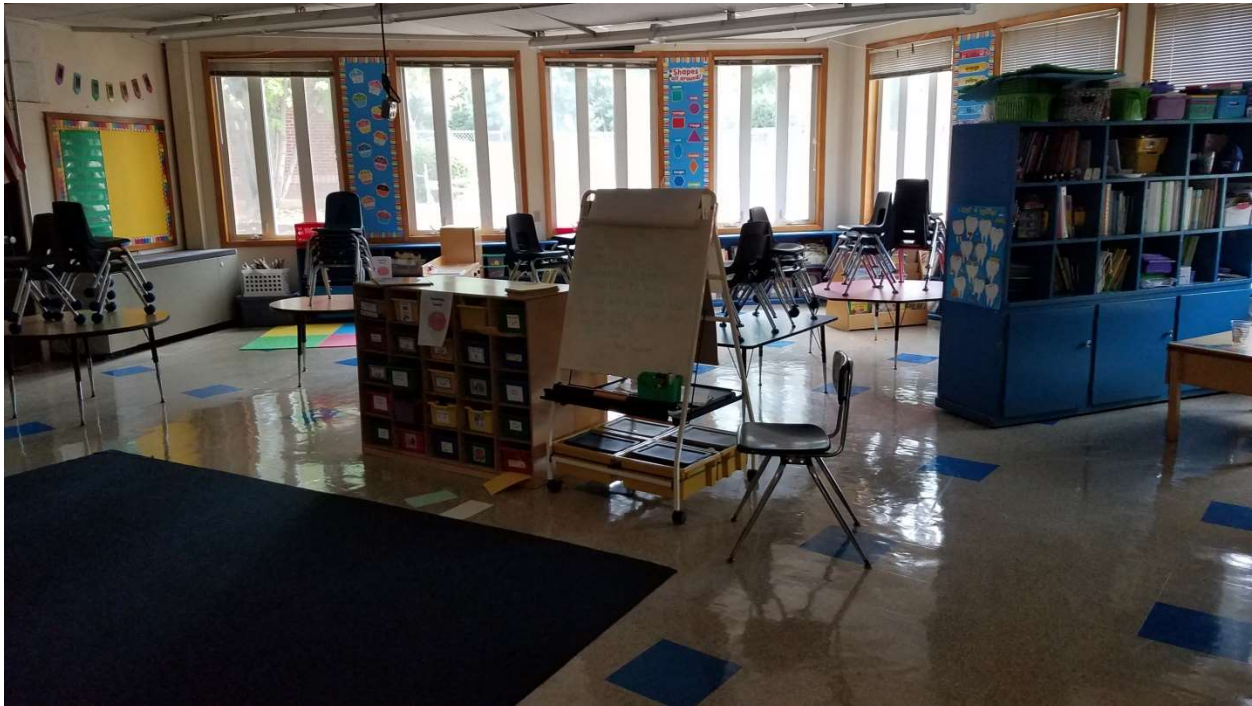
The Art Room is appropriately sized, but is below grade so the natural light levels are not ideal. Window opening could be redesigned to increase daylight.



This is currently a 2nd grade classroom, but was designed as the bicycle storage room in 1938. It was previously used for after care, and music, but enrollment pressure required it's conversion to a traditional classroom. The space is below grade, and abuts a partially excavated crawl space with aging steam lines. Humidity levels have caused historic air quality challenges in this space. Investments have been made to improve this area, but a new hvac system with dehumidification and/or air conditioning would greatly improve the conditions in this classroom. Window opening could be redesigned to increase daylight. The other challenge with this space is that it is separated from the rest of the classrooms, which presents programmatic inefficiencies, and there are no accessible bathrooms on this floor.



The afterschool program is located in a 500 square foot room in the basement, outside of the elevator machine room and main electric room, and has no access to bathrooms on this floor. This space has no windows, and limited air exchange.



The 1953 addition created 4 of these kindergarten classrooms. They are about 2 feet smaller in each direction than they ideally would be, but the bigger issue is the chronic heating issues. The heating systems can maintain comfortable temperatures, but struggle to recover temperatures during drop-off in the winter when the exterior door in the lobby is open for 20 minutes. This issue could be resolved with heat curtains, interior vestibules, supplemental heat in the classrooms, or operational changes to only allow the main entrance to be used for drop-off.



This is the lobby in the 1953 addition. As you can see, the classrooms being slightly undersized, has led to storage in the lobby.



The “retrofits” over the years have not always been done in a way to protect the aesthetic nature of the school. This does not create a warm, welcoming, professional appearance.

Existing Franklin Program Areas

The following is a breakdown of the net usable areas for each of the major programmatic spaces. Classroom #7 was about 1,400 square feet, and has been split into 3 separate special educational spaces.

Classroom Room #	Classroom Size in sqft	Year Built
1	842	1950
2	842	1950
3	866	1938
4	866	1938
5	866	1938
6	858	1938
8	866	1938
9	910	1953
10	910	1953
11	910	1953
12	910	1953
21	842	1950
22	842	1950
23	866	1938
24	866	1938
25	866	1938
26	678	1938
27	866	1938
28	866	1938
29	866	1938
31	1121	1938
Art	1203	1938
Music	Stage	1938
Library	2006	1938
Cafetorium	4038	1938
Gym	3000	1950
FASP	500	1938