# Memo

Project: Willamette Activity Center Study
Subject: WAC Funding Committee October Design Team Report
Date: October 28, 2022
To: WAC Funding Committee
From: Curt Wilson, AIA

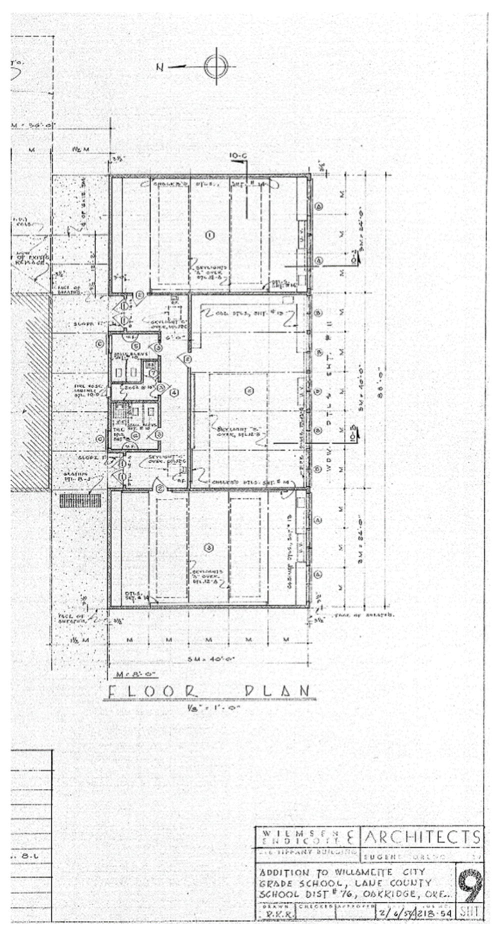
Bryan and Committee Members,

This report summarizes current activities of the design team.

Our focus is to identify the improvements and relative project costs to prepare the building for occupancy. At a minimum, we assume this includes replacing the roofing system, repairing/replacing or infilling windows, and repairing the damaged exterior siding. The electrical panel in the stage area needs to be addressed to respond to concerns from the insurance company. See below for a summary. Overall, the building circulation and code-mandated egress system is in working order, except accessibility to the gym, stage, and food service area. See below for thoughts about accessibility to that area.

## Building Documentation

We have captured sufficient measurements and photos from the building to generate drawings that will support our upcoming work. Attached is the overall floor plan.



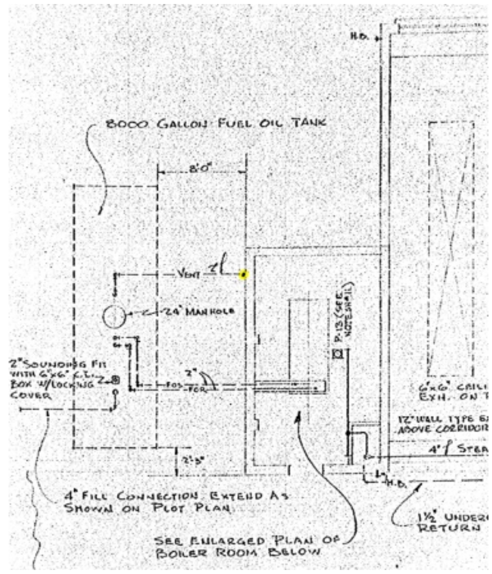

I recently discovered that the building module at the south end (Module D per the overall plan) was included in the 1954 drawing set (sheet 8-10). Therefore, the only module that we don't have original documentation for is Module E in the southeast corner.

## MEP Systems

The building Mechanical, Electrical, and Pluming systems are distinct conditions, and each is summarized below.

### Mechanical

The original building included a boiler at the north end of the school. The boiler provided the heat to a hydronic system that heated the spaces. The hydronic system was a system of small diameter, closely spaced pipes embedded in the concrete slab. The pipes carried a liquid that was heated by the boiler then traveled through the pipes, radiating heat to the spaces. This is a highly efficient heating system, but the pipes from this era often failed within a few decades. The system was abandoned and replaced with electric base board heat at some point in the past, with the exception of the courts in Building D, which were renovated in 1991. Two roof-top mechanical units with ductwork routed above the ceiling serves that space.




We recommend that subsequent tenant improvements include roof top mechanical units and duct work to replace the base board heat, as base board heat is an inefficient source of heat and does not provide fresh air ventilation. The quantity, size, weight, and location of the future mechanical units can vary significantly, therefore we don't recommend providing roof curbs for future units when the roofing is replaced. The recommended roof system can be modified and patched in the future without invalidating the warranty.

Sheet 10 of the 1952 drawing set shows the location of an 8,000-gallon fuel tank that served the boiler. Sheet 12 of the 1952 set shows a pipe vent that comes from below ground and against the building at the boiler room location. I believe that pipe is visible, which leads me to speculate that the oil tank remains. The drawings also show a manhole in that area, which I haven't found yet. We haven't discussed improvements in this area; therefore we won't encounter the tank, but the City should consider determining if the tank has been properly decommissioned.


Electrical

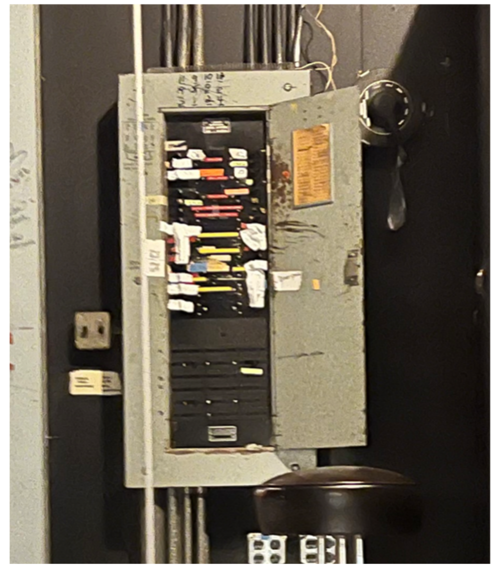
The electrical system includes a variety of components. This report discusses the electrical service entering the building at the boiler room, sub-panels, power distribution, and lights.


It appears that most of the electrical service was upgraded during the 1991 project. It's still in good shape and should be useful for many more years. The electrical service has an overall capacity that appears sized for the base board heat and current lighting system. The new mechanical system and new LED light fixtures should consume less power than the current systems, therefore we expect the electrical service will be sufficient for uses consistent with recent uses in the building.

Power is distributed from the electrical service to the subpanels in each module. Most of the subpanels are original, or at least 35 years old, but in reasonable working order.

The subpanel in the stage was set up to control the lighting system for the stage and gym by turning breakers on and off. Each time a breaker is "thrown" a small arc occurs, which causes wear and tear.

This is presumably the reason the insurance inspector reacted negatively during their site visit. We recommend replacing this panel soon, and to incorporate a separate lighting control system.



Electrical panels contain breakers, and each breaker serves a circuit with about 6-12 outlets. Depending on the future improvements, the number of breakers in the panel may need to increase. This can be done with a sub-subpanel, or a new panel.

The existing lighting is does not meet current energy requirements. The energy code mandates that when more than 10% of the fixtures in a space are modified (relocated) in a renovation project, then all fixtures in the space need to be replaced. Given that most rooms have less than 10 fixtures, moving one fixture often triggers this requirement. The tenant improvement budgets should assume replacement lighting.

Plumbing

The plumbing system throughout the building, include domestic water and waste, appears to be in working order. The distribution of sinks in all classrooms provides flexibility for future uses of the space. We recommend testing for lead in the water system at each faucet, as lead can be a result of lead pipes at any point in the distribution system and/or in the solder at the joint connecting the faucets.

Structural System

I provided a brief overview in my verbal presentation at the September meeting, and this is a summary:

Building structural systems are engineered to resist the forces, or loads imposed on the building. This includes gravity loads (downward) and lateral loads (side to side). Loads are classified as either constant (aka dead loads) or dynamic (aka live loads). The weight of the building material is an example of dead loads. Snow on the roof and people moving across an elevated floor structure are examples of live loads. The building is adequately designed for gravity loads.

Lateral loads are imposed by wind and earthquakes. The scientific and engineering communities in the 1950s didn't understand earthquakes like we do now, therefore the building needs to be improved to resist seismic forces. The structural engineer who assisted the city engineer recommends adding plywood to the roof structure during the reroof project, rebuilding some sections of perimeter walls to create "shear walls", and to increase the size of some of the sub-surface concrete footings. This work will be invasive, and we are working through the extent of necessary shear walls and enlarged footings.

I've noted previously that I prefer to remove the penthouse assemblies on the roof to improve drainage. I recently discovered the extent of the penthouse units and how they were created. We are working on options to mitigate if removed, or strengthened if left in place. More to come on this one.

## Circulation and Accessibility

The elements outlined above are building systems that should be replaced either soon or as part of tenant improvements. Generally, spatial improvements and replacement of interior finishes should be part of tenant improvements as they will need to be designed specifically for the tenant and use.

The one spatial improvement we recommend prior to occupancy and tenant improvements is improved access to the gym, stage, and food service area. This module (Module C) is elevated above the exterior grade and other spaces in the building. There are four points of access (three exterior and one interior), but none of these access points are accessible as defined by the building code, or by ADA civil rights law.

The interior ramp in the lobby area that is the interior access is too steep* and leads directly into a room with limited access to two locations. One of those locations is a group shower with raised curbs at doors, therefore not accessible, and the other direction leads to a restroom. The east access into the hall that leads to the kitchen is a sloping surface that is also too steep and does not meet the code requirements for landings.

* The maximum include for an accessible ramp is 1 unit vertically for every 12 units horizontally. For example, an elevation change of 1 ft would require a ramp horizontal length of 12 feet. The elevation change from the lobby to the gym level is approximately 21 ½ inches, therefore an appropriate ramp length of 21 ft., 6 in. is required. The current ramp is about 11 ft, 6 in.

The gym area is one of the more public areas of the building, therefore providing appropriate accessibility for everyone is important. Improvements to that module will mandate improved access. The building code mandates that at least 51% of required exits be accessible, therefore priority improvements should include providing ramps in at least two locations.

A ramp from the concrete landing at the west entrance can be added to the south of the landing and integrated with the sidewalk at the bottom.

I recommend replacing the existing ramp in the lobby with a ramp of an appropriate slope, which will require about twice the length of the current ramp. In addition, the spaces from the top of the ramp should be modified to provide an accessible path to the gym, kitchen, and dressing rooms without passing through other spaces. This will probably impact the existing restroom south of the stage, which is an opportunity to better utilize the spaces east of the stage.

The stage is located at an elevated level as well. The building code will not mandate providing access to the stage as a base requirement for improvements of Module C, but use of the stage should be evaluated for ADA compliance and risk to the city. Options to access the stage, including motorized lifts should be evaluated. For reference, the stage is slightly more than 44 in. above the gym level, therefore a ramp of more than 44 ft would be required.