



Yamhill-Carlton School District

Building Assessment

Yamhill Carlton Intermediate School

The following report summaries recommendations contained within this report. The summary is organized by report area for each building; architectural civil, flooring, mechanical, and structural. The Electrical and Roofing summary are separate documents included at the end of this report.

YAMHILL CARLTON INTERMEIDATE SCHOOL

Architectural Recommendations Exterior

- Tuckpointing of all brick and installation of a high quality masonry water repellant anti-graffiti guard like Prosoco or Professional Products of Kansas. Both of these products come with a factory certified warranty. We recommend requesting quotes from masons experienced in tuckpointing.
- Exterior painting of all wood surfaces, repair of any dry rot found
- Replacement of LP Siding with new horizontal lap siding
- Dryrot repair of covered pay area awning
- Continue with window replacement

Architectural Recommendations Interior

- Conduct an ADA Assessment of building
- With bond planning campaign review classroom casework, marker boards, tack boards, and interior doors of main building
- With bond planning review of exterior doors for replacement
- Provide adequate power and data drops to computer labs

Civil Recommendations

- Asphalt driveways are in poor to failing condition. District should hire civil and geo-technical engineers to evaluate pavement sections, base rock, and soil conditions in determining upgrades to driveways. We estimate paving improvements at \$275,000.00 to \$325,000.00.

Flooring Recommendations

- Removal of all remaining VAT and replacement with new VCT, Vinyl, or carpet.
- Carpet throughout the High School is nearing end of life. We would recommend installing new carpet using a Tandus Powerbond product that carries a 25 year non pro-rated labor and material warranty. Estimated cost for flooring abatement and replacements is \$105,000.00.

Mechanical Recommendations

- Replace the existing heating system with high efficiency HVAC. The steam piping will continue to fail and the steam trap maintenance is ongoing. Because of the configuration of the building with substantial attic space, this school is a good candidate for a Variable Refrigerant Flow system that takes advantage of the temperature diversity by moving heat from hot areas to areas that need heat and cooling hot areas in the same way.
 - And alternate and recommended approach is to install individual PTAC (Packaged Terminal Air Conditioning) units or heat pumps for each area. Note that installation of PTACs or heat pumps will most probably require and upgrade to the electrical service to the campus.
 - Boiler replacement is a possibility but will require a complete replacement of all piping and coils in the building. Much of the heating water piping is most probably installed in 1957. High efficiency boilers would also require installation of propane to provide the best efficiency. This is NOT a recommendation.
- Retro-commissioning of the DDC system. This has been done before however, the results did not correct many of the issues noted above.
- Turn on the exhaust fans and ensure all restrooms and locker rooms are exhausted to meet current code.

Structural Recommendations

- Conduct periodic observation of the cracked north CMU wall in the boiler room.
- Conduct further investigation to determining whether proper ties have been installed between the roof and walls

YAMHILL CARLTON INTERMEDIATE SCHOOL EXTERIOR ASSESSMENT

The exterior assessment of the building consisted of a visual inspection of the exterior building elements including the brick exterior, wood siding, windows, doors, sidewalks, and accessibility. This report did not conduct a complete American Disability Act (ADA) Assessment; the review was cursory with the items noted in this report as considerations for additional improvements. The overall building exterior is in fair condition and appears to have ongoing maintenance work done as well as upgrades to windows and wood siding.

The exterior skin of the building is a combination of brick veneer and wood siding. The overall condition is fair; there are a number of areas that need immediate attention.

The brick veneer has two primary areas of concern need for tuckpointing of mortar joints and installation of a good quality water repellant anti-graffiti guard. The pictures below show cracking of brick and mortar. These areas unprotected overtime will allow moisture to penetrate into the wall system promoting mold, mildew, and potential dry rot. Tuckpointing will remove the cracked and missing mortar. Installation of water repellant will seal the brick stopping water penetration.



Both of these pictures on the west side of the school show areas of mortar cracking. Cracking was observed at the inside corner and both faces of the outside corner. These types of areas especially on the prevailing weather side of the building are concern for water penetration.



Both of these pictures depict mortar cracking. I also suspect that over prolonged periods due to freeze thaw conditions mortar is actually degrading opening larger gaps 1/4" and larger. The picture to the left is on the west side of the building. The picture to the right is at the Westerly entry on the south side of the building.

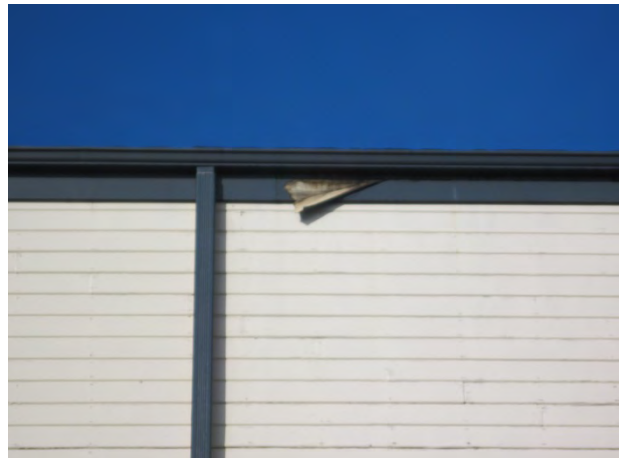


Picture are of the south side of the building showing additional areas where mortar is cracking, separating from the brick, and missing.



The picture shows moss and growth on south side of building behind shrubs. Mold, moss, and mildew needs to be treated and removed, with brick water repellent applied.

On the South Side of the building as well as on the gym, we observed what appears to be LP Lap Siding. The siding is showing signs of delamination. The district should replace all LP Siding immediately. If funds are not available for immediate replacement the district could apply Elastomeric coating to all exposed edges and surfaces, providing the district with 5 years additional life until the replacement could be budgeted.



YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
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Another area needing attention is exterior paint of all wood siding, trim, and doors. Many areas have peeling paint, missing caulking, and raw wood exposed to the weather. Prolonged exposure of the exterior wood surfaces to the weather will experience dry rot. You will note some of the pictures in this report show various forms of paint degradation. We recommend that the entire building, all wood surfaces, doors, and trim receive paint.



These pictures depict the exterior siding and trim degradation observed around the building.





This area is at an overhand where the brick was stopped short



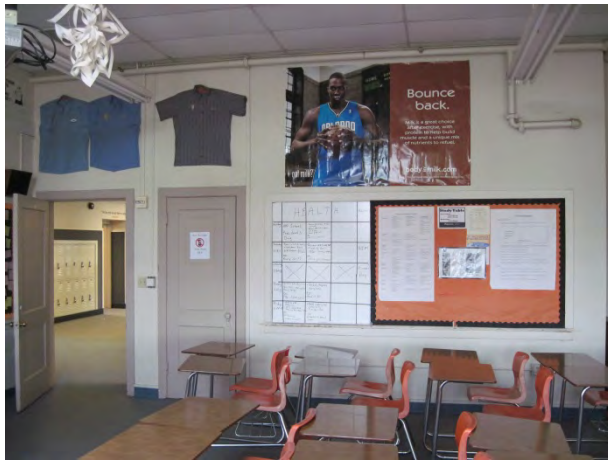
Door to wrestling room no longer opens and closes without using tremendous force.

YAMHILL CARLTON HIGH SCHOOL BUILDING ASSESSMENT

The High School building given its age is in good condition. There are a number of deficiencies throughout the building that are worthy of consideration.

ADA throughout the building is inconsistent. The building has only one ADA complaint entry; there are no ADA compliant restrooms on the main floor, the building still has knob door hardware. Interior doors are original in most basement and main floor locations, considered in fair condition.

Basement and main floor classrooms do not have adequate storage. Marker boards are inadequate with the porcelain writing surface nearing end of life. Many rooms do not have bulletin boards or have surfaces not made for pinning display materials; teachers use creative ways to display items even when pinnable surfaces are not available. (Pictures below are of room 206)



Contrast the pictures above as a typical basement and main floor classroom with pictures of the 2nd floor classrooms having storage, marker and bulletin board accommodations appropriate to a high school standard.

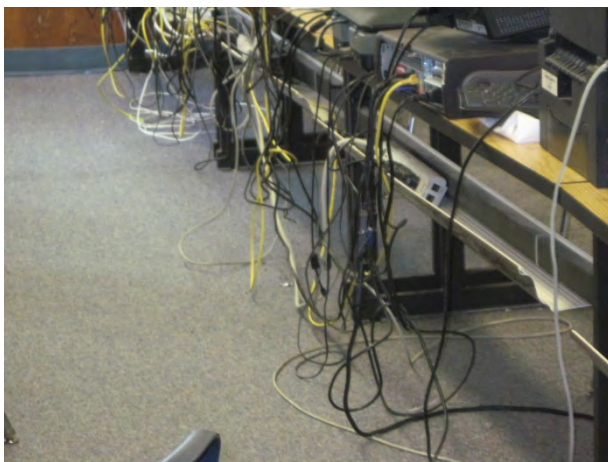
YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
ARCHITECTURAL ASSESSMENT



The following pictures are of classroom 310, are typical of the 6 second floor classrooms, show teaching accommodations more in line with a current High School educational standard.



Computer labs are converted classrooms. The labs in basement and on the main floor could use improvements to power, data, and cooling upgrades to better accommodate the educational program served. Power and data cords are potential trip hazards.



Comfort in the basement computer lab is poor, excessively hot needing additional fans to provide air movement



Science rooms need upgrading with new labs, vented fume hood, chemical storage, and improved science prep area. Many of the science labs do not have working fixtures, water faucet, air & gas connections. Lab casework is old drawer locks are missing, door and drawer handles are broken or missing, electrical outlets do not meet current code for GFI protection, and acid resistant tops need upgrading. The student lab configuration of peninsula style casework does not provide the flexibility desired in modern science rooms. (Pictures are of room 212)



The lab above no longer has water faucet or gas and air connections. Of the 6 student labs in the classroom only 2 had working fixtures.

Storage is inadequate and should be considered a hazard both fire and occupant safety.





Science prep room storage is inadequate. Chemical storage cabinets are not rated. It is recommended to have a person familiar with the chemical stored to survey age, volatility, and grouping of chemicals in cabinets to determine proper storage and whether chemicals are beyond their allowable shelf life. The teaching wall, room 212, needs upgrading, new storage cabinets, marker board, and teaching lab would make noticeable improvements to the space.

YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
ARCHITECTURAL ASSESSMENT

Earth Science room 210, countertops and casework are in poor condition and not constructed out of materials typically used in science classrooms. The teaching wall, teacher's lab needs upgrading. Classroom does have whiteboards although the porcelain finish is at end of life. Storage is inadequate needs significant upgrading allowing for science materials to be stored away.

Both science classrooms share one chemical shower housed in room 210. Installation of another emergency shower in room 212, providing immediate adjacency to the space is recommended.



Floors in restrooms on all three floors are in good condition. A number of areas depicted in the following pictures having cracks, tears, or separation of the welded seams. These conditions need repair by a trained floor technician who can use vinyl floor welding techniques to repair these areas. The concern is water over prolonged periods will move migrate beneath the surface promoting mold, mildew, and dry rot.



These pictures are of the basement restrooms. This condition was also noted in 2nd floor restrooms.

The restrooms in the building have had some improvements, upgrades installing low water flow fixtures was completed as part of the Energy Performance Contract. Restrooms have had improvements made improving ADA accessibility, although most are not ADA fully compliant.

OTHER BUILDINGS

Theatre Wood Shop

Another area of major concern is the Theatre Wood Shop building. The current structure presents a serious safety risk to students, staff and theatre patrons. The exits are not clearly marked, there are large amounts of combustibles, and in cases during a theatrical show, a large number of people that are unfamiliar with the exit layout. This occurs in a building that is not fire sprinkled. These functions need to be relocated to appropriate buildings providing the required exiting and occupancy separation.

Ag Shop, Maintenance Office Storage

Both the Ag Shop and Maintenance Office Storage building are both aged and beyond use life. The school district should consider replacing these buildings with new. Because of similar use it is possible to utilize a new shared building located elsewhere on the site.

YAMHILL CARLTON INTERMEDIATE SCHOOL EXTERIOR CIVIL / PAVING ASSESSMENT

The exterior assessment of the Intermediate School site paving areas consisted of a visual inspection of all the exterior asphalt driveways, parking lots, and miscellaneous play areas. The overall condition of these asphalt drives and parking is fair to poor with many of the areas showing signs of extreme surface wear, cracking, complete base and surface failure, and the absence of proper parking demarcation signage and striping. Many of the parking lots and street frontage also have inadequate parking stops and curbing or these protective barriers were missing all together. Please note; this civil / paving investigation consisted of a visual inspection of all paved driveways and asphalt parking lots and play areas on site. Budget estimates for repair and replacement were made from this visual inspection. If the District was to move forward with the repair or replacement of the asphalt areas indicated in this assessment the WESD would strongly recommend a thorough and detailed civil engineering and geo-technical assessment and physical testing be performed by a licensed geo-technical engineering firm.

NORTH PATHWAYS AND NORTHWEST ASPHALT PLAY AREA – (AREA-A)

The overall condition of the Northwest asphalt play area is fair with some noted surface wear and cracking. A plan to making necessary improvements such as crack repair, overlay of some areas, and seal coating is recommended. The paved asphalt driveway through the North field area is showing signs of complete base rock and surface failure and is in need of complete removal and replacement. This condition is due to the original design not being adequate for the garbage and recycling truck traffic that uses this path as a driveway.



Intermediate School – Area-A, Northwest Play Area; Note, excessive surface wear, cracking, and minor base failure.

YAMHILL-CARLTON SCHOOL DISTRICT
YAMHILL CARLTON INTERMEDIATE SCHOOL - BUILDING ASSESSMENT
CIVIL / PAVING ASSESSMENT



Intermediate School – Area-A, Northwest Play Area; Note, excessive surface wear, cracking, and minor base failure.



Intermediate School – Area-A, North Field Driveway Area; Note, excessive base failure due to large truck traffic.

NORTHEAST ASPHALT PLAY AREAS – (AREA-B)

The overall condition of the Northeast asphalt play area and covered play area is good to fair with some noted surface wear and cracking. A plan for making necessary improvements such as surface cleaning, minor crack repair, and sealing is recommended.



Intermediate School – Area-B, Northwest Covered Play Area; Note, this area is in good condition with the need for only surface cleaning, sealing, and new striping.



Intermediate School – Area-B, Northwest Courtyard Play Area; Note, this area is in good condition with the need for only surface cleaning, sealing, and new striping.

EAST ASPHALT PLAY AREAS AND EAST PERIMETER DRIVEWAY– (AREA-C)

The overall condition of the East asphalt play area and the East perimeter driveway is good to fair with some noted surface wear and minor cracking. A plan for making necessary improvements such as surface cleaning minor crack repair, and sealing is recommended. Some of these areas may need additional asphalt overlay if additional investigation warrants.

YAMHILL-CARLTON SCHOOL DISTRICT
YAMHILL CARLTON INTERMEDIATE SCHOOL - BUILDING ASSESSMENT
CIVIL / PAVING ASSESSMENT



Intermediate School – Area-C, Northeast Play Area; Note, this area is in fair condition with the need for mostly surface cleaning, sealing, and new striping.



Intermediate School – Area-C, Northeast Play Area; Note, this area is in fair to poor condition with the need for crack and minor base repair, overlay, and new striping.



Intermediate School – Area-C, Northeast Perimeter Driveway; Note, this area is in poor condition with the need for crack and base repair, overlay, and new striping.

SOUTH MAIN PARKING LOT – (AREA-D)

The overall condition of the parking lot areas on the South side of the main building are in poor or critical condition and a plan to making necessary improvements is recommended. The majority of areas throughout the main parking lot indicate signs of severe cracking, deterioration, base rock and surface failure, which is in need of complete replacement and new paving. In addition, most of the curbing and wheel stops show signs of deterioration or are missing all together and should be addressed. Inadequate parking demarcation and striping is also noted in this parking lot area.



Intermediate School – Area-D, Southeast Parking Lot Area; Note, this area is in fair to poor condition with the need for selective removal and replacement due to the failure of the base rock and surface asphalt. In addition it is showing signs of excessive wear and lacking proper wheel stops.



Intermediate School – Area-D, South Parking Lot Area; Note, this area is in fair to poor condition with the need for complete removal and replacement of some areas due to the failure of the base rock and surface asphalt. In addition, the curbing is showing signs of severe degradation and damage over time.

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Intermediate School – Area-D, South Parking Lot Entry Area; Note, this area is in poor condition with the need for complete removal and replacement of some areas due to the failure of the base rock and surface asphalt. In addition, the curbing and stairway are showing signs of severe degradation and damage over time.



Intermediate School – Area-D, Southwest Parking Lot Area; Note, this area is in poor condition with the need for complete removal and replacement of some areas due to excessive cracking and the failure of the base rock and surface asphalt.



Intermediate School – Area-D, Southwest Parking Lot Area; Note, this area is in very poor condition with the need for complete removal and replacement of most areas due to excessive cracking and the failure of the base rock and surface asphalt.

SOUTHWEST PARKING LOT AND MODULAR PARKING LOT AREAS – (AREA-E)

The majority of the asphalt paved parking areas in Area-E are in poor to critical condition and a plan to making necessary improvements is recommended. These areas are located on the Southwest corner of the main building and the modular building parking area directly across the street from the school. The inspection noted that both of these parking areas are in need of complete replacement indicated by signs of complete base rock and surface failure. In addition, the majority of the parking areas are showing signs of extreme surface wear, lack of proper curbing, and a lack of proper demarcation and striping.



Intermediate School – Area-E, Southwest Parking Lot Area; Note, excessive surface cracking, and base failure.



Intermediate School – Area-E, Southwest Modular Parking Lot Area; Note, excessive surface cracking, and base failure. In addition, this area indicates a lack of proper curbing, and drainage.

YAMHILL-CARLTON SCHOOL DISTRICT
YAMHILL CARLTON INTERMEDIATE SCHOOL - BUILDING ASSESSMENT
CIVIL / PAVING ASSESSMENT



Intermediate School – Area-E, Southwest Modular Parking Lot Area; Note, excessive surface degradation and moss growth. In addition, this area indicates a lack of proper curbing or protective wheel stops and striping.

YAMHILL CARLTON INTERMEDIATE SCHOOL FLOORING ASSESSMENT

The interior assessment of the flooring consisted of a visual inspection of all areas throughout the two levels of the building's first floor and second floor. A review of the Districts Asbestos Hazard Emergency Response Act (AHERA) Manual indicated that suspect asbestos containing flooring was installed during the original construction of the Main Building's first and second floors. Because no abatement records could be found indicating these flooring materials were removed it is assumed the original suspect asbestos containing floor tile and mastic materials are still present in the building both exposed and located under newer flooring materials.

The essential elements of the flooring replacement and asbestos removal projects are as follows:

- Replace existing asbestos containing floor tile and mastic with new vinyl composition tile or other modern non-hazardous flooring materials
- Removal and replacement of old or worn carpeting or sheet vinyl flooring
- Replacement of rubber cove base in all areas being upgraded

ASSESSMENT; the review was cursory with the items noted in this report as considerations for additional improvements. The results of the assessment indicate the building flooring is a mixture of old and new materials due to the building's recent upgrades and different remodels. The second floor has been fairly recently remodeled with new flooring located in the hallway corridors and in several classrooms. Some areas of the second floor appear to be the original exposed 9'x9' asbestos floor tiles, specifically the science classroom, several smaller custodial areas, and the locker room entry's. The first floor appears to be mostly older carpeting and sheet vinyl. It is unknown whether there is existing assumed asbestos containing flooring under the newer second floor corridor sheet vinyl or under the first floor classroom carpeting and sheet vinyl.

MAIN BUILDING - SECOND FLOOR

The corridors and restrooms of the second floor consist of new sheet vinyl and ceramic tile and no action is recommended in these areas. In addition several classrooms were observed to have new carpeting installed which do not need to be addressed at this time. The remaining classrooms which appeared to have older carpeting are showing signs of age and deterioration are recommended to be replaced.

MAIN BUILDING - FIRST FLOOR

The majority of the floor coverings on the first floor are in fair to poor condition and a plan for making necessary replacement is recommended. The carpeting and sheet vinyl flooring material in all classrooms is worn, showing signs of age and deterioration, and beyond its useful life. In addition, this flooring may have been installed over the original asbestos floor tile, which will need to be addressed when the carpeting is replaced.

The classrooms with carpeted area or a combination of carpet and sheet vinyl in need of replacement is approximately 20,400 square feet. The majority of this carpeting may have been installed over the original 9'x9' asbestos floor tile and mastic which may require abatement during the carpet replacement. The smaller restroom areas and miscellaneous custodial and storage areas with 9'x9' asbestos containing floor tile or asbestos containing sheet vinyl flooring in need of replacement is approximately 1,800 square feet.

YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
INTERMEDIATE SCHOOL FLOORING ASSESSMENT



Newer sheet vinyl, Second Floor Corridors



Typical area of worn and outdated carpeting
Second Floor Office Area



Damaged delaminating 9'x9' asbestos floor tile
Second Floor Locker Rm. Entry

YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
INTERMEDIATE SCHOOL FLOORING ASSESSMENT



Older worn carpeting and sheet vinyl, Typical -
First Floor Classroom



Damaged delaminating 9'x9' asbestos floor tile
Second Floor Custodial Rm.

PROJECT OVERVIEW

Fluent Engineering completed an electrical assessment of the Yamhill Carlton School District campuses located at 275 N. Maple Street in Yamhill, Oregon and 420 S. Third Street in Carlton, Oregon. Site visits conducted on February 4 and 5, 2013 are the basis of the following Electrical Analysis. The Electrical Analysis focused on:

- Code violations and conditions outside standard industry practice
- Condition of existing equipment
- Description of function for equipment
- Estimated remaining equipment service life
- Budgetary upgrade cost estimates

For the purpose of this report the campuses are separated into the High School and Intermediate School on the Yamhill Campus and the Elementary School on the Carlton Campus. The Yamhill Campus shown in Figure 1 consists of multiple buildings, some with independent electrical meters and others that may be fed from larger buildings. The Carlton Campus shown in Figure 2 consists of the main school building fed by one or two electrical meters and two trailers with their own electrical meters.



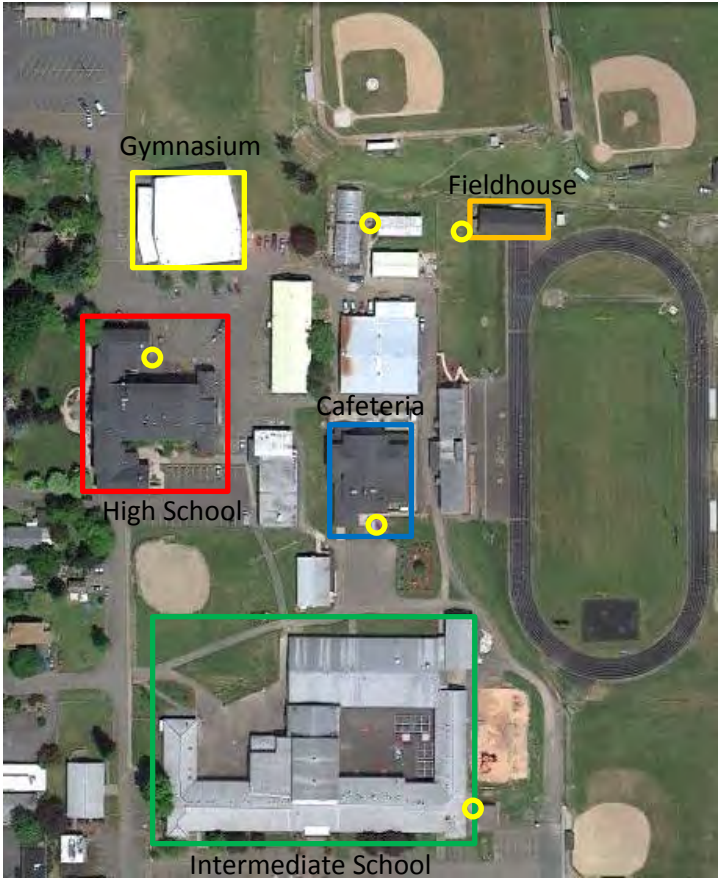


Figure 1: Yamhill Carlton School District - Yamhill Campus
(Known electric meter locations shown with yellow circles)

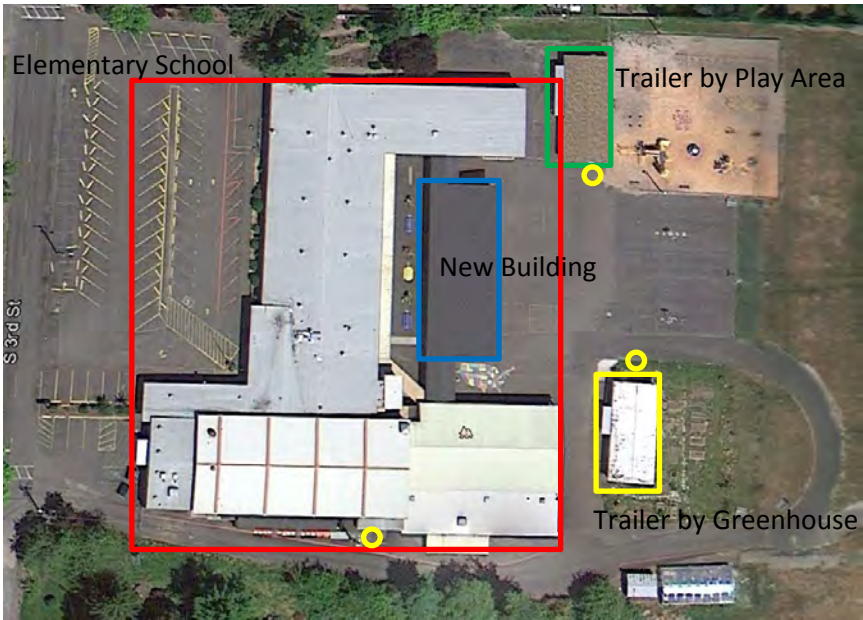


Figure 2: Yamhill Carlton School District - Carlton Campus

EXECUTIVE SUMMARY

For the purposes of this report the Yamhill Carlton School District has been divided into a Yamhill Campus and a Carlton Campus. The analysis of the Yamhill Carlton School District has been further divided into several distinct electrical systems, each by their respective utility meter. The purpose of segmenting the facilities in this manner was to provide a detailed assessment of the main electrical systems: General Power Distribution, Voice/Data, Fire Alarm, Security/Intrusion, Emergency Power/Lighting, Lighting/Lighting Control, and Intercom. Further, the analysis addresses the condition and capacity of each of the main electrical systems within the buildings that comprise the Yamhill Carlton School District. Equipment in each of the buildings has been categorized as obsolete, poor, fair, good, or new. The following recommendations have been offered to provide detail as to the service life remaining, overall condition, and if equipment meets current Code. Some of the more significant issues to address include:

1. The gymnasium and elementary school main services should be updated to current Code.
2. Obsolete panelboards should be replaced with new as existing protection may not be adequate.
3. Security and intrusion systems may be upgraded to add capabilities not currently available.
4. Converting to a primary meter system on the Yamhill Campus may reduce electric cost.

GENERAL POWER DISTRIBUTION

The power distribution system in each of the schools is a mixture of new and obsolete equipment. A portion of the equipment at each school was upgraded in 2002 and is in good condition, while approximately half does not meet current Code and is classified as fair to obsolete. Each of the systems is currently functional, however a review is recommended before any future expansion is initiated. A comprehensive overview, providing further detail as to the state of individual panelboards has been provided in the attached Tables. The construction cost for updating the normal power distribution system within both Campuses, to current Code, should be budgeted at \$200,000 +/- 20%. The cost to upgrade the General Power Distribution does not include Emergency Power Distribution system upgrades.

TRANSFORMERS

The transformers on both Campuses are all owned and maintained by the electric utility rather than the school district.

VOICE/DATA

Cable was observed to be in good condition. Currently CAT-5 cabling is used throughout both Campuses, however an upgrade to CAT-6 is recommended if additional bandwidth, to enable functionality such as Voice Over Internet Protocol (VOIP) or video broadcast, is needed in the future. Fiber optic cables were also observed running between buildings.

FIRE ALARM

The fire alarm systems on both Campuses have some upgraded features and although Code compliant when installed, do not meet all requirements of the current Fire Alarm Code NFPA 72. Most of the facilities have new master panels; however, many of the fire alarm notification devices (horns/strobes) do not meet the current Fire Alarm Code NFPA72 or ADA Requirements. Total cost for Fire Alarm Upgrades is \$48,000.

SECURITY/INTRUSION

The elementary school has cameras monitoring the entries and some halls. The intermediate school has a security system for use when the school is unoccupied. The high school has no security system installed. Upgraded systems are available over a wide price range depending on the needs of the schools.

EMERGENCY POWER/LIGHTING

Neither campus has a generator so the only emergency lighting is from battery packs (self-contained egress lighting). While some areas have new fixtures installed many areas do not meet Code. The estimated construction cost for replacing the emergency lighting system equipment is \$75,000.

LIGHTING/LIGHTING CONTROL

Overall lighting controls do not meet current Energy Code standards. Most lighting fixtures have been upgraded to T8 efficient lamps on both Campuses and a few T5 fixtures in limited areas. However, some incandescent bulbs and T12 lamps with magnetic ballasts are still in limited use. All magnetic ballasts should be upgraded to electronic ballasts to meet the current Energy Code.

INTERCOM

The intercom systems utilize Dukane and Bogen systems. Overall the systems are reported to be functional although they lack features found in newer technologies. The current systems are likely expandable with limited parts availability. Today's design standards include emergency lock-down, earthquake, other tones, and features that are not found at any of these facilities. Upgrades to the Intercom system will be in the range of \$55,000 to \$85,000 depending on the options selected.

INTERMEDIATE SCHOOL (FORMERLY YAMHILL ELEMENTARY SCHOOL)

The meter number was not noted during this visit.

GENERAL POWER DISTRIBUTION

The equipment located at the Intermediate School is a mixture of updated panels and obsolete panels. The MDP, SDP (Sub Distribution Panel) and some of the panelboards were replaced in 2002. Given the age of the obsolete panels and that parts are no longer available, reliable operation should no longer be expected. It is recommended that the obsolete panels be

replaced, especially the EXIT "E" Panel in Hall 148 and B Panel on the Library stage. See Appendix B for further detail.

FIRE ALARM

The Silent Knight Fire Alarm Panel has been updated, however the Fire Alarm initiating and notification devices do not meet the current Code. Fire doors were found propped open so the magnetic holds may not be working properly.

VOICE/DATA

Cable was observed to be in good condition. Currently CAT-5 cabling and fiber optic cable is used throughout the Intermediate School, however an upgrade to CAT-6 is recommended if additional bandwidth, to enable functionality such as VOIP or video broadcast, is needed in the future.

SECURITY/INTRUSION

The Honeywell security system provides intrusion detection when the building is not occupied, but was not tested during this visit. Cameras were not observed for monitoring entry doors or halls.

LIGHTING/LIGHTING CONTROL

Lighting has been upgraded to T8 lamps and electronic ballasts in many rooms. In some locations new fixtures were installed and in others existing fixtures were retained. However, lighting controls overall do not meet current Energy Code.

EMERGENCY POWER/LIGHTING

The Emergency Lighting system does not meet current Code and it is recommended that it be upgraded. Emergency Lighting is provided from battery backup fixtures and there is no generator or UPS.

INTERCOM

The intercom system utilizes a Dukane Compact 3200 system. The system is in fair condition and parts are still available. Current design standards include emergency lock-down, earthquake, other tones, and features that are not found in this facility.

CAFETERIA BUILDING

The Cafeteria is located on the Yamhill Campus serving meals to both High School and Intermediate School students. The electrical service is provided by Meter: 09912830

GENERAL POWER DISTRIBUTION

The panelboards were installed new when the Cafeteria was built in 2002. They should provide reliable operation and allow for reasonable future electrical capacity. See Appendix B for further detail.

FIRE ALARM

The fire alarm panel was installed in 2002 and meets NFPA Code requirements. Initiating and notification devices may need to be upgraded to meet current Code.

VOICE/DATA

Cable was observed to be in good condition. Currently CAT-5 cabling and fiber optic cable is used in the Cafeteria Building. An upgrade to CAT-6 is recommended if additional bandwidth, to enable functionality such as VOIP or video broadcast, is needed in the future.

SECURITY/INTRUSION

Not observed.

LIGHTING/LIGHTING CONTROL

Fixtures with electronic ballasts and T8 lamps are newer than many found on the Campus. Lighting controls likely do not meet the current Energy Code.

EMERGENCY POWER/LIGHTING

Emergency lighting is provided by battery backup fixtures.

INTERCOM

Not applicable.

YAMHILL-CARLTON SCHOOL DISTRICT
BUILDING ASSESSMENT
ELECTRICAL ASSESSMENT

INTERMEDIATE SCHOOL PANELBOARDS

Yamhill Carlton Intermediate School Panelboards								
Panel	Campus	Meter	Area	Equipment	Condition	Recommendation	Estimated Service Years Remaining	Estimated Upgrade Cost
Main Distribution	Yamhill	Unknown	Boiler Room	GE 120/208V 1200A 3P 4W	Good	Post One-Line	20+	\$0
A			South Hall 131	Fouch 120/208V 400A 1P	Obsolete	Replace	0	\$3,000
A1			South Hall 131	Square D 120/208V XXXA 1P	Fair	Plan to replace	5+	\$3,000
A2			Not Observed	Fed by 225A in PNL A				
B			Library Stage	Fouch 120/208V 100A 1P	Obsolete	Replace	0	\$2,000
C			South Hall 148	Square D 120/208V 100A 1P	Fair	Plan to replace	5+	\$3,000
E			South Hall 148	Fouch 120/208V 62A 1P	Obsolete	Replace	0	\$2,000
G			South Hall 111	Square D 120/208V 200A 1P	Obsolete	Replace	0	\$3,000
H			South Hall 131	Square D 120/208V 200A 1P	Obsolete	Replace	0	\$2,000
J			Gym/Stage	Square D 120V 200A 1P	Obsolete	Replace	0	\$5,000
K			West Hall 108	Fouch 120/208V 200A 1P	Obsolete	Replace	0	\$3,000
L			West Hall 108	Fouch 120/208V 200A 1P	Obsolete	Replace	0	\$3,000
M			Janitor 123	GE 120/208V 225A 3P	Good	None	20+	\$0
N (Possibly 88)			North Bldg Janitor 179	GE 120/208V 225A 1P	Good	None	20+	\$0
N1			North Bldg Janitor 179	GE 120/208V 225A 1P	Good	None	20+	\$0
O			North East Classroom	Siemens 120/208V 150A 1P	Good	None	10+	\$0
P			Classroom 181	Not Observed				
Q			Boiler Room	GE 120/208V 225A 3P	Good	None	10+	\$0
R (Possibly 91B)			Boiler Room	Square D 120/208V 400A 1P	Fair	Plan to replace	5+	\$3,000
V			Janitor 123	Square D 120/208V 100A 1P	Obsolete	Replace	0	\$3,000
W1 (91C)			Janitor 123	Square D 120/208V 100A 1P	Good	None	10+	\$0
W2 (91A)			North Bldg Vest 187	Square D 120/208V 225A 1P	Good	None	10+	\$0
SHOP			Garage	Square D 120V 100A 1P	Good	None	10+	\$0
Sub Distribution			Janitor 123	GE 120/208V 600A 3P 4W	Good	Post One-Line	20+	\$0
Sub A			Janitor 123	Square D 120/208V 100A 1P	Good	None	10+	\$0
K1 (MDP)		9912830	Boiler Room	GE 120/208V 800A 3P	Good	None	20+	\$0
K2			Boiler Room	GE 120/208V 225A 3P	Good	None	20+	\$0
K3			Boiler Room	GE 120/208V 225A 3P	Good	None	20+	\$0
K4			Boiler Room	GE 120/208V 225A 3P	Good	None	20+	\$0
							Total	\$35,000

Yamhill Carlton Intermediate School – Mechanical, HVAC, Controls

Main Building

Observations:

The primary heating system for Yamhill Middle School is two 12.5 GPH oil-fired boiler. These 1750 MBH steam boilers are West Coast American boilers with no nameplate or model number installed in 1957. Steam is provided underground to 25 Pace Fan Coil Units with steam coils in the attic, In addition there is a heat exchanger for the west addition and six Fan Coil Units with hot water coils. Some of the FCUs serve multiple rooms. The computer lab and two adjacent classrooms in addition to the three rooms in back of these are served by one air handler and there was a single thermostat to control the entire area. The Facilities Manager noted that the steam lines run under the concrete slab of many of the classrooms and may provide some radiant heating. On the west end of the building the heating lines are overhead and these areas are typically colder than the others.

The water heater in the boiler room is a PVI model #20N-125A-MVO 125 gallon oil-fired unit. The second water heater is a Simplex Reliant 100. The combustion air for both the boiler and the water heaters is approximately 14 Sq. Ft. in the doors and above the doors.

The drawings indicate that most of the classrooms get 850 -1100 CFM supply air but each room has only two diffusers in the T-bar ceiling. The air distribution in the gym is 4 large diffusers which distribute the heat over the entire area of the gym. The return air grills are at floor level. The air volume is adequate at 5 air changes/hr. The Facilities Manager said that the Outside air dampers were set at a percent of total supply air and not adjustable.

There was concern that the existing boiler was oversized for the building. Based on the building size of 73,363 Sq. Ft. the existing boiler supplies 11 BTU Sq. Ft. that is low for a building of this construction type.

The Building Control System is Siemens DDC installed in 2006. The controls appear to work pretty well in the Middle School although some of the teachers we interviewed noted that some rooms and offices were often too hot or too cold. All temperature sensors are Johnson Controls sensors with no local indication or adjustment. The room temperatures indicated on the DDC system computer showed all rooms were controlled in the comfort zone.

There are 9 exhaust fans in the building for restrooms; the only fans that could be verified as running were in the two “adult” restrooms next to the main office.

The Domestic water in the building is clear. Hot water was available within one minute of turning on a tap and was within the correct temperature range. No leaks were noted in the domestic or heating water systems anywhere in the building.





Concerns:

1. The boilers and the steam system infrastructure and piping are old and failure should be anticipated. Many of the leaks recorded by the Facilities department have been “pinhole” leaks in the steam piping.
2. The boiler efficiency is only 78%.
3. The exhaust fans in the restrooms are not operating.
4. The building control system cannot control within specifications.
5. Combustion air to the boiler room does not meet current code requirements.

Recommendations:

The systems are in generally very good shape and are well maintained. The District should consider the following:

1. Replace the existing heating system with high efficiency HVAC. The steam piping will continue to fail and the steam trap maintenance is ongoing. Because of the configuration of the building with substantial attic space, this school is a good candidate for a Variable Refrigerant Flow system that takes advantage of the temperature diversity by moving heat from hot areas to areas that need heat and cooling hot areas in the same way.
 - a. And alternate and recommended approach is to install individual PTAC (Packaged Terminal Air Conditioning) units or heat pumps for each area.

Note that installation of PTACs or heat pumps will most probably require and upgrade to the electrical service to the campus.
 - b. Boiler replacement is a possibility but will require a complete replacement of all piping and coils in the building. Much of the heating water piping is most probably installed in 1957. High efficiency boilers would also require installation of propane to provide the best efficiency. This is NOT a recommendation.
2. Retro-commissioning of the DDC system. This has been done before however, the results did not correct many of the issues noted above.
3. Turn on the exhaust fans and ensure all restrooms and locker rooms are exhausted to meet current code.

Cafeteria

Observations:

The Cafeteria was built in 2002. The primary heating for the gym building is a 965 MBH Burnham oil-fired, hot water boiler- Model #CR2-0A. There is a single heating water pump. The water heater is 125 gallon PVI Model 20N-125A-MXO. The boiler serves two Heating-Ventilating units on the mezzanine. HV-2 which serves the kitchen has both a heating and cooling coil but no return air from the kitchen. The exhaust hood in the kitchen was operating when we were there and the kitchen was not being used.

Outside air for the cafeteria area is controlled by a SO₂ sensor. HV-2 has a nameplate and model #CAH003FDAC. HV-1 had no nameplate.

The Building Control System is Siemens DDC installed in 2006. There were control problems noted in the 2007 Commissioning Report by Siemens however, they were corrected.



Concerns and Recommendations:

The building is relatively new and the mechanical systems appear to be operating well. If Retro-commissioning is part of the budget, this building should be included. No other upgrades are being recommended.

OVERALL STRUCTURAL SCOPE & LIMITATIONS

BMGP Engineers, Inc. was retained to provide an overall Structural Systems Assessment for Yamhill Carlton School District Facilities. These include the High, Intermediate, and Grade schools.

Each of these schools has undergone renovation/remodels since original construction and the High School Complex included several accessory buildings in addition to the main building.

Our observations were limited and purely visual. No demolition of finishes was performed, therefore no comments can be made regarding hidden conditions.

While on site, we also had the opportunity to review construction plans for significant portions of each school. Again, time constraints allowed for only limited review of these plans.

We wish to acknowledge the valuable input provided by Bobby Dixon, the District Facilities Manager. His input on issues that he was familiar with allowed us to use our time more effectively.

The schools all had varying degrees of work done in the past ten years or so. Each facility included partial seismic upgrading as part of this work.

Our work was strictly limited to the structural aspects of the subject buildings. Others involved dealt with Electrical, Mechanical, Roofs and General Architectural conditions. The following pages contain comments other than structural that we deemed significant and that could possibly have structural impacts if not remedied. However, these issues should be further dealt with by other disciplines. In particular, site drainage appears to be negatively impacting several of the buildings. Numerous downspouts and/or leader lines are also in need of attention.

On the following pages all dates shown are based upon dates on plans located or as provided by district personnel. Actual construction may have been slightly different.



INTERMEDIATE SCHOOL

The Intermediate School began as Yamhill Elementary School in 1949. We were able to document six (6) additions to the original building between 1957 and 1991. These may not be all inclusive as available drawings are incomplete. A partial seismic upgrade of older portions of the building was part of the 2001 facilities upgrade.

The vast majority of the building is of conventional wood frame construction with brick veneer on the exterior walls. For the most part, particularly older portions, the roof framing is of conventional trusses and sheathed. Portions appear to utilize glu-laminated beams and decking.

EXECUTIVE SUMMARY

Overall structural condition of the intermediate school building appears to be good. Although a question was risen regarding the roof structure in an isolated area adjacent to the gym, we found no evidence of a structural issue. Signs of previous moisture intrusion were observed but are not at a level of structural concern.

Exterior wood siding and brick veneer show signs of weathering but again are not a serious structural concern at this time. Regular maintenance should be kept up and portions of the exterior brick may require tuck pointing in the next several years.

The north CMU wall of the boiler room in the southeast corner of the building has a significant vertical crack. This appears to have been present for quite some time and we could not verify any recent movement. This crack should be monitored, but unless additional movement is detected, no repair is required. The wall finish on the opposite side of the wall has a crack in the finish and should also be monitored. A smaller crack was noted in the south wall of the boiler room concrete wall which is not deemed significant.



The covered play area north of the gymnasium does not appear to have proper ties between roof and walls, however this could not be confirmed. We suspect that if this were a significant concern, it would have been addressed when other portions of the building were strengthened.

At several locations wood siding is quite close to finish grade. As the surfacing is AC or concrete this is not a code violation, however minor deterioration was noted that is likely to progress.

Exterior grading is such that it does not appear to have proper drainage away from the building in several areas, especially the courtyard. This can possibly result in structural deterioration over time.

ROOF INSPECTION REPORT

(Limited – Visual)

Inspection Date: February 4, 2013
Project #: 13053

Inspection #: V-01
Report Date: 3/25/13
RMS Reference #: n/a

Company: WILLAMETTE EDUCATION SERVICE DISTRICT
2611 Pringle Road SE
Salem, OR 97302

Attn: David McKay
Director
503-385-4788
503-540-2952 (fax)

Inspected Facility: YAMHILL-CARLTON SCHOOL DISTRICT
Yamhill Intermediate School
310 E Main Street
Yamhill, Oregon

Present at Inspection: Doug Coddington..... A-Tech/Northwest, Inc.
David Anderson A-Tech/Northwest, Inc.

PART I - DISCUSSION:

A. PURPOSE:

1. The purpose of the inspection is to review the existing condition of the roof system, applicable warranties, etc. and develop recommendations and budgets for any necessary repairs and/or replacement.
 - a. The available history of the building was limited. The majority of this report is based on the visual inspection alone.
 - b. Core samples were cut at Roofs B, D, F & G to determine roof construction data.

B. GENERAL ROOF/BUILDING INFORMATION:

1. Shingle Roofs:

a. Roofs A & I:

- (1) Surface:..... Composition Shingle
- (2) Manufacturer:..... Unknown
- (3) Insulation:..... None
- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 25+ years*)
- (6) Warranty: None
- (7) Contractor: Unknown
- (8) General Condition: Poor

b. Roof J:

- (1) Surface:..... Composition shingle
- (2) Manufacturer:..... Unknown
- (3) Insulation:..... None above deck
- (4) Deck:..... Plywood

- (5) Age: Reported 1 year (2012)
- (6) Warranty: Unknown
- (7) Contractor: Unknown
- (8) General Condition: Good

2. Built-up Roofs:

a. Roofs B & C:

- (1) Surface:..... Mineral grain cap sheet
- (2) Manufacturer: Unknown
- (3) Insulation:..... 2" Fiberglass
- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 25+ years*)
- (6) Warranty: None
- (7) Contractor: Unknown
- (8) General Condition: Poor

b. Roofs D & E:

- (1) Surface:..... Mineral grain cap sheet
- (2) Manufacturer: Unknown
- (3) Insulation:..... None above deck
- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 25+ years*)
- (6) Warranty: None
- (7) Contractor: Unknown
- (8) General Condition: Fair to poor

c. Roofs F:

- (1) Surface:..... Mineral grain cap sheet (*Roof over roof*)
- (2) Manufacturer: Unknown
- (3) Insulation:..... None above deck
- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 25+ years*)
- (6) Warranty: None
- (7) Contractor: Unknown
- (8) General Condition: Fair to poor

d. Roofs G & H:

- (1) Surface:..... Mineral grain cap sheet
- (2) Manufacturer: Unknown
- (3) Insulation:..... None above deck
- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 25+ years*)
- (6) Warranty: None
- (7) Contractor: Unknown
- (8) General Condition: Fair to poor

3. Single-ply Roof:

a. Roof K:

- (1) Surface:..... Single-ply (*mechanically attached*)
- (2) Manufacturer: Unknown
- (3) Insulation:..... Unknown (*no core cut due to possible warranty*)

- (4) Deck:..... Wood
- (5) Age: Unknown (*estimated 15 years*)
- (6) Warranty: Unknown
- (7) Contractor: Unknown
- (8) General Condition: Fair

4. Square Footage (*Approx.*)

- a. Shingle Roof Total:..... 37,775 sq. ft.
 - Roof A..... 28,418 sq. ft.
 - Roof I 2,391 sq. ft.
 - Roof J 6,966 sq. ft.
- b. Built-up Roof Total: 29,280 sq. ft.
 - Roof B:..... 3,612 sq. ft.
 - Roof C:..... 757 sq. ft.
 - Roof D:..... 4,200 sq. ft.
 - Roof E:..... 2,904 sq. ft.
 - Roof F: 17,157 sq. ft.
 - Roof G: 312 sq. ft.
 - Roof H:..... 338 sq. ft.
- c. Single-ply Roof Total: 330 sq. ft.
 - Roof K:..... 330 sq. ft.

C. INTERIOR LEAKAGE:

- 1. Current interior leakage was reported at scattered locations during most rain with wind.

D. HVAC UNITS:

- 1. The majority of the units are mounted on roofed-in curbs with typical penetrations, etc.
- 2. The condition of the roof mounted equipment, visually, is fair to poor.

E. GENERAL CONDITION SUMMARY/REVIEW:

- 1. LIFE EXPECTANCY: (*Refer to attached as-built drawing for roof identification*)
 - a. Shingle Roofs:
 - (1) Roofs A & I: These roofs are estimated to be approximately twenty+ years old (25+ yrs) and are considered to be at or near the end of their life expectancy and have approximately one to three years (1-3 yrs) of their life expectancy remaining with maintenance.
 - (2) Roof J: The roof is reported to be approximately one year old (1 yr) and has approximately twenty six to twenty eight years (26-28 yrs) of its life expectancy remaining with maintenance.
 - b. Built-up Roofs:
 - (1) Roofs B, C, D, E, F, G & H: These roofs are estimated to be approximately twenty five+ years old (25+ yrs) and are considered to be at or near the end of their life expectancy and have approximately one to three years (1-3 yrs) of their life expectancy remaining with maintenance.

- c. Single-ply Roof:
 - (1) Roof K: The roof is estimated to be approximately fifteen years old (15 yrs) and has approximately four to six years (4-6 yrs) of its life expectancy remaining with maintenance.
- 2. ROOF DRAINS:
 - a. The shingle, built-up and single-ply roofs drain via gutters. The exception is Roof G and it drains via internal drain.
 - (1) The gutters appear to be in fair condition and working adequately.
- 3. PERIMETER METAL:
 - a. The perimeter metal is a drip edge metal system.
 - (1) Some of the gutters are rusting.
 - (2) The metal system at the perimeter appears to be in fair condition and working adequately.
- 4. GENERAL SUMMARY:
 - a. Roofs A, B, C, D, E, F, G, H & I on this facility is considered to be currently manageable for a short period of time; however, minor maintenance and cleaning is required. Roof K on this facility is considered to be manageable for a few more years; however, minor maintenance and cleaning is required. Roof J on this facility is considered to be manageable for several more years.
 - b. Major work is recommended as follows:
 - (1) Roofs A, B, C, D, E, F, G, H & I should be scheduled for replacement within the next one to three years (1-3 yrs).

PART II - PROBLEMS/CONDITIONS NOTED w/Action Items:

A. SHINGLE ROOF SYSTEM:

- 1. Roof A:
 - a. Shingles are cracking in the roof field. This is considered a potential future interior leakage problem.
 - (1) **ACTION:** Inspect shingles and repair as required. (*contractor item*)
 - b. Shingles are damaged or missing in the roof field. This is considered a potential future interior leakage problem.
 - (1) **ACTION:** Inspect shingles and repair as required. (*contractor item*)
 - c. Nails are backing out at vent flashing at several locations. This is considered a potential future interior leakage problem.
 - (1) **ACTION:** Inspect vents and repair as required. (*contractor item*)
 - d. Voids in mastic repairs at penetrations at several locations. This is considered a potential future interior leakage problem.
 - (1) **ACTION:** Inspect penetrations and repair as required. (*contractor item*)
- 2. Roof I:
 - a. Shingles are missing at the southwest section of the roof. This is considered a potential future interior leakage problem.

- (1) **ACTION:** Replace missing shingles. *(contractor item)*

B. BUILT-UP ROOF SYSTEM:

1. Roof B:

- a. Fiberglass is showing thru cap sheet at the west section of the roof. This is considered a potential future interior leakage problem.
(1) **ACTION:** Repair cap sheet. *(contractor item)*
- b. Cap sheet ridging in the roof field. This is considered a potential future interior leakage problem.
(1) **ACTION:** Keep foot traffic to a minimum and repair ridging as required. *(contractor item)*

2. Roof D:

- a. Voids in mastic repairs at vent curbs in roof field. This is considered a potential future interior leakage problem.
(1) **ACTION:** Repair voids. *(contractor item)*

3. Roof F:

- a. Voids in mastic repairs at vent curbs in roof field. This is considered a potential future interior leakage problem.
(1) **ACTION:** Repair voids. *(contractor item)*
- b. Voids in mastic repairs at pipe penetrations in roof field. This is considered a potential future interior leakage problem.
(1) **ACTION:** Repair voids. *(contractor item)*

4. Roofs G & H:

- a. Cap sheet ridging in the roof field. This is considered a potential future interior leakage problem.
(1) **ACTION:** Keep foot traffic to a minimum and repair ridging as required. *(contractor item)*

C. SHEET METAL:

1. Roof A:

- a. Gutters are rusting at a few locations. This is considered a minor problem at this time.
(1) **ACTION:** Replace gutters when major work is conducted. *(contractor item)*

D. HVAC:

1. There is no HVAC equipment mounted on these roofs.

E. GENERAL MAINTENANCE:

1. Other than the items noted within this report, as action items and recommendations, Roofs A, B, C, D, E, F, G, H & I on this facility is considered to be manageable for a short period of time. Roof K on this facility are considered to be manageable for a few more years. Roof J on this facility is considered to be manageable for several more years. No crisis is pending, but minor maintenance and cleaning is required to extend the life and performance of this roof.

2. As the roof ages, it will require periodic maintenance. With proper maintenance, there is a high probability that the Roof K can be cost-effectively and successfully managed for a few more years. Roof J can be cost-effectively managed for several more years. Roofs A, B, C, D, E, F, G, H & I should be scheduled for replacement within the next one to three years.

PART III - RECOMMENDATIONS:

A. REPAIR & MAINTENANCE: (*Roofing Contractor*)

1. Shingle Roofs:
 - a. Inspect and repair or replace shingles as required.
 - b. Inspect vent flashings and penetrations and repair as required.
2. Built-up Roof:
 - a. Repair cap sheet.
 - b. Inspect and repair metal flashing and penetrations as required.

B. MAJOR MAINTENANCE:

1. Schedule Roofs A, B, C, D, E, F, G, H & I for replacement in 2013 to 2015.

C. GENERAL MAINTENANCE: (*In-house*)

1. Clean all debris from roof and gutters and inspect on a regular basis and keep clear.
 - a. Refer to action items within this report.
2. VISUAL INSPECTIONS:
 - a. In-house twice annually (*minimum*).
 - b. Independent professional inspection conducted a minimum of every other year.
 - (1) Next scheduled RMP inspection in 2015.

PART IV - BUDGET ESTIMATE:

A. REPLACEMENT BUDGET (*Refer to Part I-E-1 for Life Expectancy*):

1. Roofs A & I:..... \$ 140,000.00 (*estimated*)
2. Roofs B, C, D, E, F, G & H: \$ 250,000.00 (*estimated*)

B. REPAIR MAINTENANCE (2013):

1. Contractor repairs: \$ 2,500.00 (*estimated*)

C. GENERAL MAINTENANCE:

1. In house (*roof cleaning*):..... 8 hours (*annually*)



Sec. 1.01 – View to northeast of west elevation at left and south elevation at right.



Sec. 1.02 – Roof A: View to south across roof field at west section of the roof.



Sec. 1.03 – Roof A: View of typical vent at west section of the roof.



Sec. 1.04 – Roof A: View of typical shingle cracking in the roof field.



Sec. 1.05 – Roof A: View of typical nails backing out at vent flashing.



Sec. 1.06 – Roof A: View of missing shingles at west section of the roof.



Sec. 1.07 – Roof A: View of typical moss at north section of the roof.



Sec. 1.08 – Roof A: View of typical mastic repair at vent at northwest section of the roof.



Sec. 1.09 – Roof A: View of organic debris restricting water flow at the south gutter.



Sec. 1.10 – Roof A: View of shingle staining at chimney at southeast section of the roof.



Sec. 1.11 – Roof A: View of nails backing out at metal flashing at southeast section of the roof.



Sec. 1.12 – Roof A: View of damaged shingle at northeast section of the roof.



Sec. 1.13 – Roof B: View to north across the roof field. Note cap sheet deterioration.



Sec. 1.14 – Roof B: View of fiberglass showing thru cap sheet at west section of the roof.



Sec. 1.15 – Roof B: View of previous repairs at tie-in between Roofs B & C.



Sec. 1.16 – Roof B: View of cap sheet ridging in the roof field.



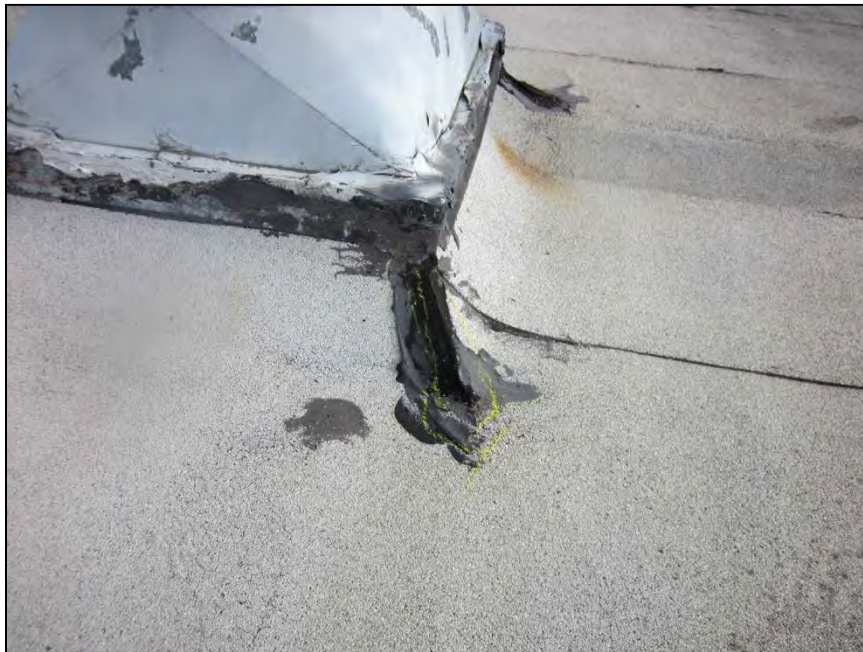
Sec. 1.17 – Roof C: View of east across the roof field.



Sec. 1.18 – Roof D: View to east of previous repairs at tie-in between Roofs A & D.



Sec. 1.19 – Roof D: View to north across the roof field. Note cap sheet deterioration.



Sec. 1.20 – Roof D: View of typical void in mastic repair at vent curb.



Sec. 1.21 – Roof E: View to northeast across the roof field.



Sec. 1.22 – Roof F: View to west across roof field at south section of the roof.



Sec. 1.23 – Roof F: View of typical voids in mastic repair at a pipe penetration.



Sec. 1.24 – Roof F: View of typical mastic repair at vent in the roof field.



Sec. 1.25 – Roof F: View of typical voids in mastic repair at vent in the roof field.



Sec. 1.26 – Roof G: View of ridging in the roof field.



Sec. 1.27 – Roof H: View to north across the roof field. Note cap sheet ridging in the roof field.



Sec. 1.28 – Roof I: View to north across roof field at west section of the roof.



Sec. 1.29 – Roof I: View of missing shingles at southwest section of the roof.



Sec. 1.30 – Roof J: View to east across roof field of new shingles.



Sec. 1.31 – Roof K: View to east across the roof field.