Yamhill-Carlton School District

Building Assessment

Carlton Elementary 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.

CARLTON ELEMENTARY 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

Architectural Recommendations Interior

- Conduct an ADA Assessment of building

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 $350,000.00 to $400,000.00.

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 $125,000.00.

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. One recommended approach is to install individual PTAC (Packaged Terminal Air Conditioning) units or heat pumps for each area.
    - Boiler replacement makes more sense for this school that the others. All the steam piping would have to be replaced. The boilers would be much smaller and higher efficiency that the current ones but there is a good chance that when the system is designed, existing coils in the cabinet unit heaters could be re-used. New control valves are required for hot water.
- 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

- Replace all siding that is showing signs of deterioration.

YAMHILL CARLTON ELEMENTARY SCHOOL EXTERIOR CIVIL / PAVING ASSESSMENT

The exterior assessment of the Elementary 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 lots 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.

WEST MAIN PARKING LOT – (AREA-A)

The overall condition of the parking lot areas on the West side of the main building are in fair to poor condition and a plan to making necessary improvements is recommended. The majority of areas throughout the main parking lot indicate signs of severe cracking and deterioration with selective areas of base rock and surface failure, which is in need of complete replacement and new paving. The majority of the parking lots needs asphalt overlay at a minimum. 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.

Elementary School – Area-A, Southwest Parking Lot Area; Note, this area is in fair to poor condition with the need for selective removal, replacement, and overlay. In addition, it is showing signs of excessive wear and cracking

Elementary School – Area-A, Southwest Parking Lot Area; Note, this area is in fair to poor condition with the curbing showing signs of severe degradation and damage over time.

Elementary School – Area-A, West Main Parking Lot Area; Note, this area is in fair to poor condition overall. A complete overlay is recommended for this area win addition to the complete removal and replacement of severely damaged areas in select locations of heavy use.

Elementary School – Area-A, West Main Parking Lot Area; Note, severely damaged areas in select locations due to heavy use and bus traffic.

Elementary School – Area-A, West Main Parking Lot Area; Note, severely damaged areas indicated by surface cracking.

Elementary School – Area-A, West Main Parking Lot Area; Note, severely damaged areas in select locations due to heavy use and bus traffic.

Elementary School – Area-A, West Main Parking Lot Area; Note, signs of base failure and areas with inadequate or misplacement of wheel stops. This picture also depicts areas of worn or faded striping and demarcation.

NORTH PERIMETER DRIVEWAY – (AREA-B)

The overall condition of the North perimeter asphalt emergency lane is fair with some noted surface wear and cracking. A plan to making necessary improvements such as crack repair, overlay of some areas, and sealing is recommended.

Elementary School – Area-B, North Perimeter Emergency Lane Area; Note, this area has signs of surface wear and minor cracking.

Elementary School – Area-B, North Perimeter Emergency Lane Area; Note, additional paving with signs of surface wear and minor cracking.

NORTHWEST COVERED ASPHALT PLAY AREA – (AREA-C)

The overall condition of the Northwest covered play area is in fair to poor condition with some noted surface wear and cracking and several areas of more serious degradation and pitting. A plan for making necessary improvements such as minor crack repair, complete overlay, and restriping is recommended.

Elementary School – Area-C, Northwest Covered Play Area; Note, this area is in poor condition due to severe surface pitting and is recommended for overlay of new asphalt.

Elementary School – Area-C, Northwest Covered Play Area; Note, additional view showing severe surface pitting and wear.

WEST ASPHALT PLAY AREA – (AREA-D)

The overall condition of the West outdoor asphalt play area is in good to fair condition with some noted surface wear and cracking and several areas of more serious degradation and pitting. A plan for making necessary improvements such as minor crack repair, selective overlay, and restriping of playground demarcation is recommended.

Elementary School – Area-D, West Play Area; Note, minor cracking and surface degradation, worn and faded playground striping.

Elementary School – Area-D, West Play Area; Note, minor surface degradation, worn and faded playground striping.

Elementary School – Area-D, West Play Area; Note, minor surface degradation, worn and faded playground striping.

Elementary School – Area-D, West Play Area; Note, selective areas of base rock and surface failure in need of replacement.

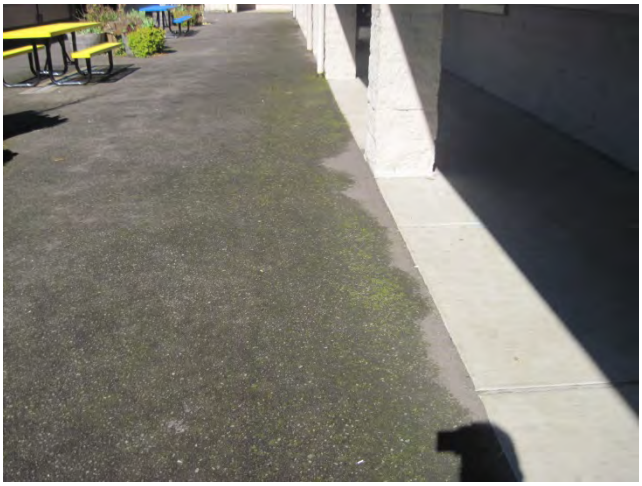
Elementary School – Area-D, Southwest Play Area; Note, selective areas of base rock and surface failure in need of replacement.

Elementary School – Area-D, South Courtyard Area; Note, this area indicates a complete failure of the base rock and surface asphalt in need of complete replacement.

CENTRAL COURTYARD ASPHALT PLAY AREA – (AREA-E)

The overall condition of the central courtyard play area is in good to fair condition overall with some noted surface wear and moss growth. A plan for making necessary improvements such as cleaning and sealing is recommended.

Elementary School – Area-E, Central Courtyard Play Area; Note, minor surface wear



Elementary School – Area-E, Central Courtyard Play Area; Note, minor surface wear and moss growth.

YAMHILL CARLTON ELEMENTARY SCHOOL FLOORING ASSESSMENT

The interior assessment of the flooring consisted of a visual inspection of all areas throughout the building's Main Floor and Lower 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 main and lower 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 sheet vinyl and 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 main floor has been fairly recently remodeled with new 12'x12' vinyl floor tile in the main hallways and main entry. In addition the main office area and several classrooms on the main floor have new carpeting and new sheet vinyl has been installed in the restrooms. Some areas of the main floor appear to be the original exposed 9'x9' asbestos floor tiles; specifically the cafeteria area and 12'x12' suspect asbestos vinyl floor tile was also noted in the locker room entry ways. The lower floor is also a mixture of old carpeting, sheet vinyl, and 12'x12' vinyl floor tiles.

MAIN FLOOR

The corridors on the main floor have been remodeled with newer 12'x12' vinyl floor tile however; this tile is already showing signs of separation and delamination from the wood underlayment and is recommended to be replaced. Additional areas of flooring on the main floor that are recommended to be replaced include three classrooms, library and two southwest offices spaces that have worn and outdated carpeting, and the cafeteria area which still has the older 12'x12' vinyl floor tile which is showing signs of wear. No action is needed for the areas with newer carpeting in the remaining classroom areas.

LOWER FLOOR

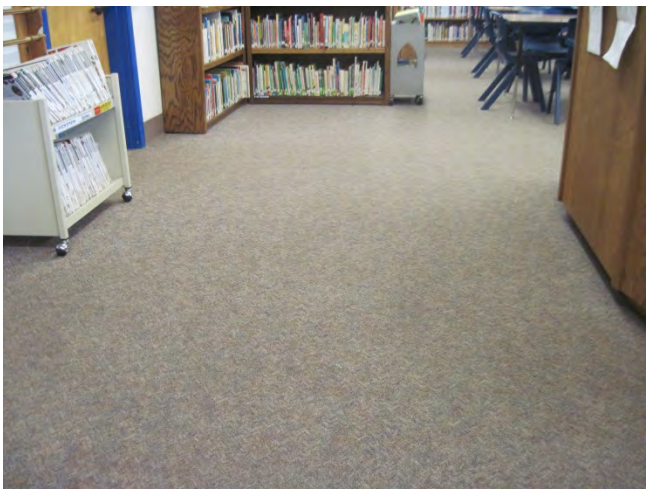
The majority of the floor coverings on the lower floor are in fair to poor condition and a plan for making necessary replacement is recommended. The carpeting, sheet vinyl, and 12'x12' vinyl floor tile in all classrooms is worn, showing signs of age and deterioration and is recommended to be replaced.

The corridor with the separating newer 12'x12' vinyl floor tile recommended to be replaced throughout the main floor is approximately 3,300 square feet. The older carpeting on the main floor recommended for replacement is approximately 5,200 square feet. The main floor area with older 12'x12' floor tile recommended for replacement is approximately 1,300 square feet.

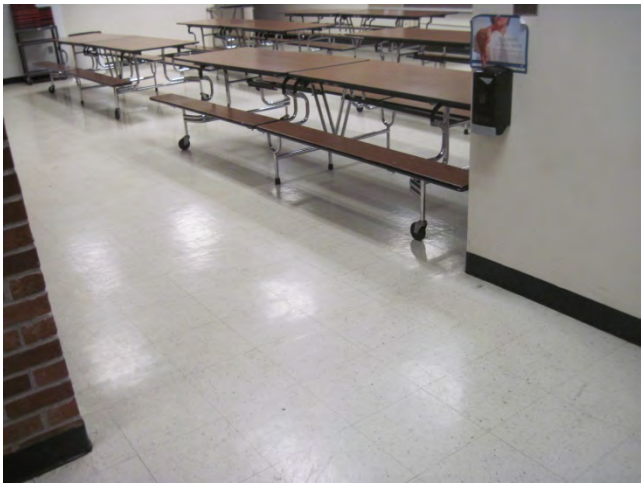
The combined areas of old carpeting, 12'x12' vinyl floor tile, and sheet vinyl on the lower level recommended for replacement is approximately 9,100 square feet.

Newer 12'x12' Vinyl Floor Tile showing separation, Main Floor Corridors

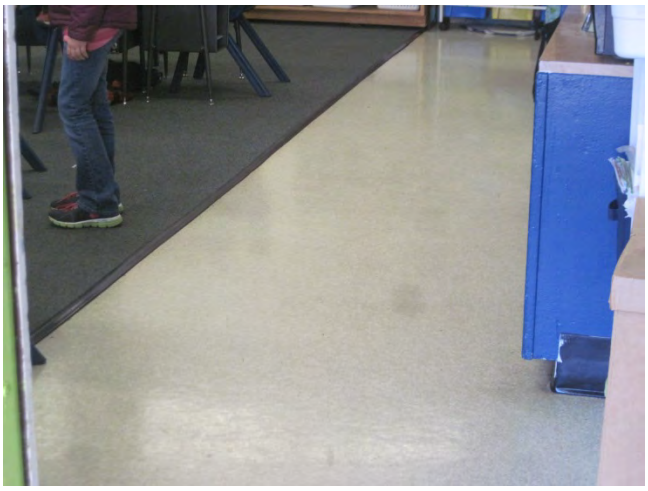
Warn and outdated carpeting Main Floor Classroom



Worn and outdated carpeting, Main Floor Library



Older 12'x12' Asbestos Floor Tile, Cafeteria, Main Floor



Typical classroom older carpeting and sheet vinyl, Lower Floor

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.

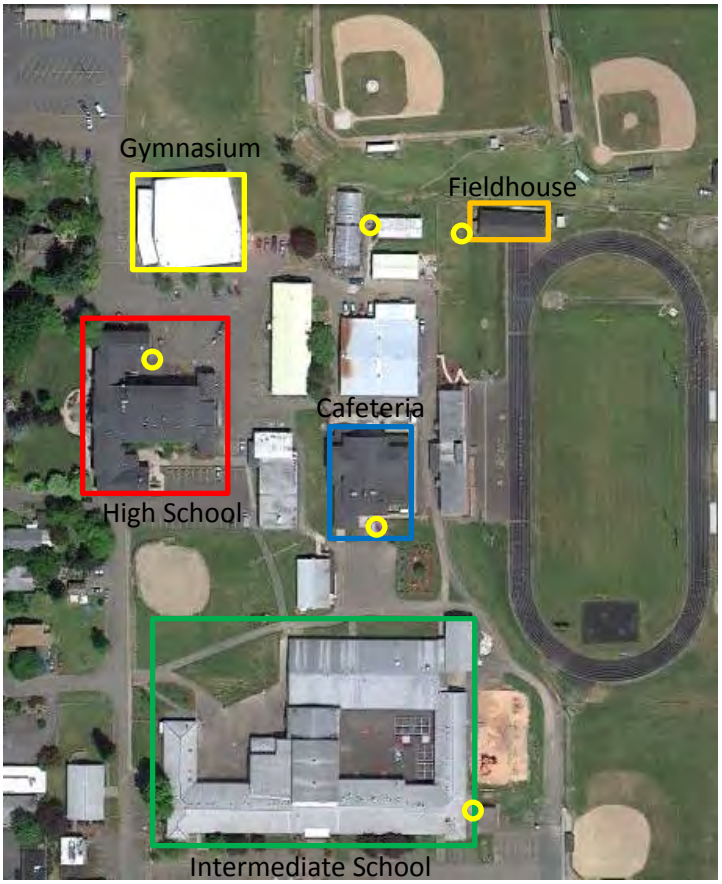


Figure 1: Yamhill Carlton School District - Yamhill Campus
(Known electric meter locations shown with yellow circles)

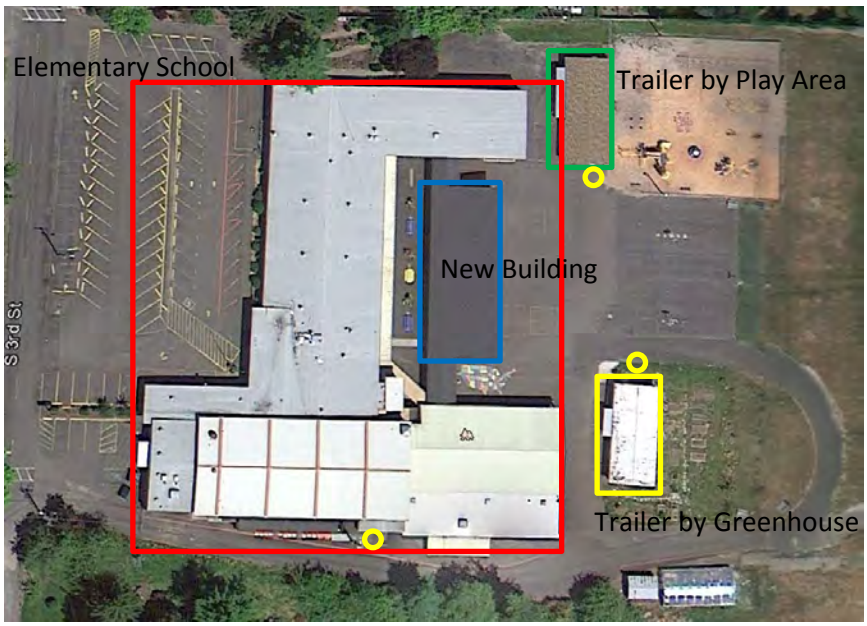


Figure 2: Yamhill Carlton School District - Carlton Campus

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.

CARLTON CAMPUS

ELEMENTARY SCHOOL

The Elementary School is located on the Carlton Campus. The electrical service is provided by Meter: 09782964

GENERAL POWER DISTRIBUTION

The switchgear consists of an MDP, MDP2 and SDP located in the Boiler Room and Mechanical Room. A sign on each MDP states there is more than one service feeding this building, which is a violation of current Code. Only one service is allowed for buildings such as schools so a single MDP able to supply all the loads should be installed. In the current configuration there is disagreement between the labeling on MDP2 and SDP, and how they are represented on the 2002 electrical drawings. Both MDP and SDP use fused disconnects while the newer MDP2 uses circuit breakers. One issue posed by fuses is that one phase may open and the other two phases remain energized, which can lead to failures in loads served. All of these issues will be corrected by installing one service for the building. The conductors should also be evaluated when the equipment is replaced to determine if they too should be replaced. Panelboards in the Elementary School range from original installation to relatively new panels installed with recent upgrades. The original equipment is now obsolete and should be replaced along with the modified panels to meet Code. See Appendix C for further detail. The “Emergency Switch” label near the MDP should be removed if the circuit is no longer utilized.

FIRE ALARM

The Silent Knight Fire Alarm Panel has been updated, however the Fire Alarm initiating and notification devices do not meet current Code.

VOICE/DATA

Existing equipment consists of CAT-5 cable. 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

There are approximately 12 security cameras installed in entries and hallways and outside of the building. A Honeywell security system is also installed.

LIGHTING/LIGHTING CONTROL

Interior lighting has been upgraded to electronic T8 efficient fixtures. Some external fixtures have also been upgraded. T5HO fixtures were observed in the covered play area and some motion sensors were observed throughout the building for either lighting or security systems. It is likely lighting controls overall do not meet Energy Code.

EMERGENCY POWER/LIGHTING

Emergency lighting is provided by battery backup fixtures. There is no emergency generator.

INTERCOM

The intercom system utilizes a Bogen MCP35A control panel with Rauland units in the classrooms. The system is in fair condition and refurbished parts are still available. Current design standards include emergency lock-down, earthquake, other tones, and features that are not found in this facility.

OTHER DETACHED BUILDINGS NOT SHOWN ON ELECTRICAL RECORD DRAWINGS

TRAILER NEAR PLAY AREA

As the electrical equipment is newer construction provided with the structure it will likely provide reliable service for the life of the trailer. The electrical service is provided by Meter: 26932415

TRAILER NEAR GREENHOUSE

The occupants of the trailer stated it was for community service and was not associated with the school. As the electrical equipment is newer construction provided with the structure it will likely provide reliable service for the life of the trailer. The electrical service is provided by Meter: 26932413

ELEMENTARY SCHOOL PANELBOARDS

Yamhill Carlton Elementary School Panelboards								
Panel	Campus	Meter	Area	Equipment	Condition	Recommendation	Estimated Service Years Remaining	Estimated Upgrade Cost
Main Distribution	Carlton	9911817	Mechanical Room	CH 120/208V 1000A 1P 3W	Obsolete	Replace	0	$26,000
Main Distribution 2			Boiler Room	CH 208V 600A 3P 3W	Fair	Plan for Replace	10+	$20,000
Sub Distribution			Boiler Room	CH 120/208V 600A 1P 3W	Obsolete	Replace	0	$20,000
A			2nd Floor Center Hall	Coast 120/208V 100A 1P	Obsol/Modif	Replace	0	$3,000
C			Boiler Room	Coast 120/208V 200A 1P	Obsolete	Replace	0	$3,000
F			Stage	Square D 120/208V 200A 1P	Obsolete	Replace	0	$3,000
G			Kitchen	CH 120/208V XXXA 1P	Good	None	10+	$0
H			Kitchen	CH 208V XXXA 3P	Good	None	10+	$0
J (E on Dwgs)			2nd Floor Center Hall	Siemens 120/208V XXXA 1P	Modified	Replace Cover	10+	$500
K			Hall 205	CH 120/208V 225A 1P	Fair	Plan for Replace	5	$3,000
L (Assumption)			Outside Library, Hall 206	Coast 120/208V 200A 1P	Obsolete	Replace	0	$3,000
M			Boiler Room	CH 120/208V 225A 1P	Good	Blank cover missing	10+	$0
N			Janitor Closet	Siemens 120/208V 250A 3P	Good	None	20+	$0
P			Outside New Building	120/208V 100A feed 1P	Good	Not Observed	20+	$0
Main		26932415	Trailer by Play area	Not Observed				$0
Main		26932413	Trailer by Greenhouse	ITE				$0
							Total	$81,500

Carlton Elementary School – Mechanical, HVAC, Controls

Observations:

The primary heating system for the Carlton Elementary School is two Pacific oil-fired, steam boilers. The serial number is 114877 and they are both 15 gph boilers (4200 MBH total). There is one oil-fired water heater in the boiler room – a Beck 113 gal heater. The boilers supply steam heat to 21 unit ventilators, 11 cabinet unit heaters and 7 fan coil units. Each unit is controlled by a single JCI thermostat connected to the DDC system.

All of the Unit Ventilators in the classrooms supply 1000 cfm air with 250 cfm of outside air. The air distribution in the gym is large diffusers on one end and air return on the opposite end. The air volume is adequate at 5 air changes/hr.

There was concern that the existing boiler was oversized for the building. Based on the building size of 52,625 sq.ft the existing boiler supplies 79 BTU/sq.ft which is excessive for a building of this construction.

The Building Control System is Siemens DDC installed in 2006. The controls appear to not be able to control some of the classrooms to the specifications in the Carlton Elementary School. All temperature sensors are Johnson Controls sensors with no local indication or adjustment. One of the FCUs in the office area has a new programmable Honeywell thermostat. The room temperatures indicated on the DDC system computer showed all rooms were controlled in the comfort zone.

There are 13 exhaust fans in the building, but the fans in the areas we surveyed were off.

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.

There are two modular classrooms on site – one that is not used by the District and one that is used for Special Ed. The HVAC for these are as supplied as part of the modular.

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 80% and the boilers are oversized for the application
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. One recommended approach is to install individual PTAC (Packaged Terminal Air Conditioning) units or heat pumps for each area.
    a. Boiler replacement makes more sense for this school that the others. All the steam piping would have to be replaced. The boilers would be much smaller and higher efficiency that the current ones but there is a good chance that when the system is designed, existing coils in the cabinet unit heaters could be re-used. New control valves are required for hot water.
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.

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.

STRUCTURAL
REGISTERED PROFESSIONAL
ENGINEER
8510
OREGON
AUGUST 22, 1975
WILLIAM R. PEAGE, III
EXPIRES: 12/31/14

ELEMENTARY SCHOOL

The original Carlton Elementary School appears to have been constructed about 1956.

Subsequent additions were built in 1959, other unknown dates and 1997. In 2001 the three east classrooms and a covered walkway were added as well as locker rooms adjacent to the gymnasium and a partial seismic upgrade to the main classroom area. The majority of the original building and smaller additions appear to be of conventional wood framed construction with considerable brick veneer. The covered play area in the southeast portion is a PEMB and the east classrooms constructed in 2001 have CMU walls.

EXECUTIVE SUMMARY

Overall, the building appears to be in reasonably good condition and no serious structural deficiencies were noted. There are stained ceiling tiles denoting past water intrusion in several locations, particularly the library, computer lab, northeast stairwell and multi-purpose rooms. Whether these are currently continuing to leak is unknown.

Numerous areas of the exterior wall wood siding are showing deterioration, particularly at the east end of the north wing, the east wall of the main building and at the southeast exit cover. If not addressed, these can become structural issues. Also near the front entry, an area of wood framed wall is in contact with soil.

The brick veneer appears to be in good condition, with no cracks or significance noted. Likewise, the CMU walls at the east addition and covered play area have no observed serious defects.

ELEMENTARY SCHOOL EXECUTIVE SUMMARY (continued)

Drainage adjacent to the building appears minimal at a portion of the north wall, most of the east and particularly portions of the south wall. Along the south, projecting portions of the wall, higher levels of the paving appear to drain and accumulate against building walls. This is a concern for long term structural viability.

ROOF INSPECTION REPORT

(Limited – Visual)

Inspection Date: February 6, 2013
Project #: 13053

Inspection #: V-01
Report Date: 2/22/13
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**
Carlton Elementary School
420 S 3rd Street
Carlton, 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 taken at built-up Roofs A & H to determine roof construction data.

B. GENERAL ROOF/BUILDING INFORMATION:

1. Built-up Roof:
   a. Roofs A & B:
      (1) Surface:..... Mineral Grain Cap Sheet
      (2) Manufacturer:..... Unknown
      (3) Insulation:.....
         (a) ¾" Perlite
         (b) ¾" Polyisocyanurate
      (4) Deck:..... Plywood
      (5) Age: ..... Unknown *(estimated 15 years)*
      (6) Warranty: ..... Unknown
      (7) Contractor: ..... Unknown
      (8) General Condition: ..... Good to fair
   b. Roof H:
      (1) Surface:..... Mineral Grain Cap Sheet
      (2) Manufacturer:..... Unknown

(3) Insulation:..... None
(4) Deck:..... Plywood
(5) Age: ..... Unknown *(estimated 20+ years)*
(6) Warranty: ..... None
(7) Contractor: ..... Unknown
(8) General Condition: ..... Poor

2. Metal Roof:

a. Roofs C, D, G & N:

(1) Surface:..... Metal
(2) Manufacturer:..... Unknown
(3) Insulation:..... Unknown
(4) Deck:..... Unknown
(5) Age: ..... 2001 *(12 years)*
(6) Warranty: ..... Unknown
(7) Contractor: ..... Unknown
(8) General Condition: ..... Good

b. Roof E, L, S, T, U & W:

(1) Surface:..... Metal
(2) Manufacturer:..... Unknown
(3) Insulation:..... None
(4) Deck:..... Unknown
(5) Age: ..... Unknown *(estimated 20+ years)*
(6) Warranty: ..... Unknown
(7) Contractor: ..... Unknown
(8) General Condition: ..... Fair

3. Shingle Roof:

a. Roof I, J, M, O & Q:

(1) Surface:..... Composition shingle
(2) Manufacturer:..... Unknown
(3) Insulation:..... Unknown
(4) Deck:..... Plywood
(5) Age: ..... 2001 *(12 years)*
(6) Warranty: ..... None
(7) Contractor: ..... Unknown
(8) General Condition: ..... Good

b. Roof V:

(1) Surface:..... Composition shingle
(2) Manufacturer:..... Unknown
(3) Insulation:..... Unknown
(4) Deck:..... Plywood
(5) Age: ..... Unknown *(estimated 20+ years)*
(6) Warranty: ..... None
(7) Contractor: ..... Unknown
(8) General Condition: ..... Fair to poor

4. Single-ply Roof:

   a. Roof F:

      (1) Surface:..... Single-ply *(mechanically attached)*
      (2) Manufacturer:..... Unknown
      (3) Insulation:..... Unknown
      (4) Deck:..... Unknown
      (5) Age: ..... Unknown *(estimated 15 years)*
      (6) Warranty: ..... Unknown
      (7) Contractor: ..... Unknown
      (8) General Condition: ..... Fair

   b. Roof K, P & R:

      (1) Surface:..... Single-ply *(mechanically attached)*
      (2) Manufacturer:..... Unknown
      (3) Insulation:..... Unknown
      (4) Deck:..... Unknown
      (5) Age: ..... 2001 *(12 years)*
      (6) Warranty: ..... Unknown
      (7) Contractor: ..... Unknown
      (8) General Condition: ..... Good to fair

5. Square Footage *(Approx.)*

   a. Built-up Roof Total: ..... 20,430 *sq. ft.*

      Roof A:..... 18,905 *sq. ft.*
      Roof B:..... 1,300 *sq. ft.*
      Roof H:..... 225 *sq. ft.*

   b. Metal Roof Total:..... 14,518 *sq. ft.*

      Roof C:..... 65 *sq. ft.*
      Roof D:..... 6,292 *sq. ft.*
      Roof E:..... 4,147 *sq. ft.*
      Roof G: ..... 374 *sq. ft.*
      Roof L: ..... 1,623 *sq. ft.*
      Roof N:..... 240 *sq. ft.*
      Roof S:..... 221 *sq. ft.*
      Roof T: ..... 1,316 *sq. ft.*
      Roof U:..... 80 *sq. ft.*
      Roof W:..... 160 *sq. ft.*

   c. Shingle Roof Total:..... 7,417 *sq. ft.*

      Roof I ..... 562 *sq. ft.*
      Roof J: ..... 43 *sq. ft.*
      Roof M: ..... 4,825 *sq. ft.*
      Roof O: ..... 28 *sq. ft.*
      Roof Q: ..... 16 *sq. ft.*
      Roof V:..... 1,943 *sq. ft.*

   d. Single-ply Roof Total:..... 2,312 *sq. ft.*

      Roof F:..... 2,024 *sq. ft.*
      Roof K:..... 232 *sq. ft.*

Roof P:..... 23 *sq. ft.*
Roof R:..... 33 *sq. ft.*

C. INTERIOR LEAKAGE:

1. No current interior leakage was reported.

D. HVAC UNITS:

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

E. GENERAL CONDITION SUMMARY/REVIEW:

1. LIFE EXPECTANCY: *(Refer to attached as-built drawing for roof identification)*
   a. Built-up Roof:
      (1) Roofs A & B: These roofs are estimated to be approximately fifteen years old (*15 yrs)* and have approximately four to six years *(4-6 yrs)* of their life expectancy remaining with maintenance.
      (2) Roof H: This roof is estimated to be approximately twenty + years old (*20+ yrs)* and is at the end of its original life expectancy. This roof has approximately one to two years *(1-2 yrs)* of its life expectancy remaining with maintenance.
   b. Metal Roof:
      (1) Roofs C, D, G & N: These roofs are estimated to be approximately twelve years old (*12 yrs)* and have approximately sixteen to eighteen years *(16-18 yrs)* of their life expectancy remaining with maintenance.
      (2) Roofs E, L, S, T, U & W:: These roofs are estimated to be approximately twenty + years old (*20+ yrs)* and have approximately three to five years *(3-5 yrs)* of their life expectancy remaining with maintenance.
   c. Shingle Roof:
      (1) Roofs I, J, M, O & Q: These roofs are reported to be approximately twelve years old (*12 yrs)* and have approximately fourteen to sixteen years *(14-16 yrs)* of their life expectancy remaining with maintenance.
      (2) Roof V: This roof is estimated to be approximately twenty + years old (*20+ yrs)* and is at or near the end of its original life expectancy. This roof has approximately one to two years *(1-2 yrs)* of its life expectancy remaining with maintenance.
   d. Single-ply Roof:
      (1) Roofs F: These roofs are estimated to be approximately fifteen years old (*15 yrs)* and have approximately three to five years *(3-5 yrs)* of their life expectancy remaining with maintenance.
      (2) Roofs K, P & R: These roofs are reported to be approximately twelve years old (*12 yrs)* and have approximately six to eight years *(6-8 yrs)* of their life expectancy remaining with maintenance.
2. ROOF DRAINS:
   a. The roofs drain via gutters.
      (1) The gutters appear to be in good to fair condition and working adequately.

3. PERIMETER METAL:
   a. The perimeter metal is a drip edge metal system.
      (1) The metal system at the perimeter appears to be in good to fair condition and working adequately.

4. GENERAL SUMMARY:
   a. Roofs H & V on this facility are considered to be currently manageable for a short period of time; however, minor maintenance and cleaning is required. Roofs A, B, E, F, L, K, P & R, S, T, U and W on this facility are considered to be manageable for a few more years; however, minor maintenance and cleaning is required. Roofs C, D G, I, J, M, N, O & Q are considered to be currently manageable for several more years; however, minor maintenance and cleaning is required.
   b. Major work is recommended as follows:
      (1) Roofs H & V should be scheduled for replacement within the next one to two years *(1-2 yrs).*

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

A. BUILT-UP ROOF SYSTEM:

1. Roof A:
   a. Voids in sealer at Chem-curb near AC at the west section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace sealer. *(contractor item)*
   b. Split in previous mastic repair at abandoned pipe penetration near AC at west section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Repair split. *(contractor item)*
   c. Wood pipe support in valley is restricting water flow at west section of the roof. This is considered a minor problem at this time.
      (1) ***ACTION:*** Replace support with smaller support. *(contractor item)*
   d. Voids in sealer at Chem-curb at the north section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace sealer. *(contractor item)*

2. Roof B:
   a. Base flashing is not tight at east parapet at the center section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Repair base flashing. *(contractor item)*
   b. Voids in sealer at pitch pan at the southwest section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace sealer. *(contractor item)*

3. Roof H:
   a. Holes in membrane at the northeast corner of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Repair holes. *(contractor item)*

B. METAL ROOF SYSTEM:

1. Roof D:
   a. Voids in caulking at chimney at the northeast corner of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace caulking. *(contractor item)*
2. Roofs S & T:
   a. Metal is rusting in the roof field. This is considered a minor problem at this time.
      (1) ***ACTION:*** Monitor rusting for changes. *(in-house item)*

C. SHINGLE ROOF SYSTEM:

1. Roof V:
   a. Missing shingle at the southeast section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace missing shingle. *(contractor item)*
   b. Fiberglass is showing thru shingle at the west section of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Repair shingle. *(contractor item)*

D. SINGLE-PLY ROOF SYSTEM:

1. Roof F:
   a. Hole in membrane at the west of the roof. This is considered a potential future interior leakage problem.
      (1) ***ACTION:*** Replace hole. *(contractor item)*

E. SHEET METAL:

1. Roof H:
   a. Metal flashing is loose along the north wall. This is considered a minor problem at this time.
      (1) ***ACTION:*** Reattach loose metal. *(contractor item)*

F. HVAC:

1. No problems reported or noted during this inspection.

G. GENERAL MAINTENANCE:

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

2. As the roof ages, it will require periodic maintenance. With proper maintenance, there is a high probability that the Roofs A, B, E, I, L, K, P, R, S, T & U can be cost-effectively and successfully managed for a few more years. Roofs C, D, G, J, M, N, O & Q can be cost-effectively and successfully managed for several more years. Roofs H & V should be scheduled for replacement within the next one to two years.

PART III - RECOMMENDATIONS:

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

1. Built-up Roof:
   a. Repair Chem-curbs and pitch pans.
   b. Repair pipe penetrations.
   c. Repair base flashing.
   d. Repair holes.
   e. Reattach loose metal flashing.
2. Metal Roof:
   a. Replace caulking at chimney.
3. Shingle Roof:
   a. Replace missing shingle.
   b. Repair shingles.
4. Single-ply Roof:
   a. Repair hole in membrane.

B. MAJOR MAINTENANCE:

1. Schedule Roofs H & V for replacement in 2013 to 2014.

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 2014.

PART IV - BUDGET ESTIMATE:

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

1. Roofs H & V: ..... *$* 3,500.00 *(estimated)*
2. Roofs A & B: ..... *$* 160,000.00 *(estimated)*
3. Roofs E, L, S, T, U & W:..... *$* 75,000.00 *(estimated)*
4. Roofs F, K, P & R:..... *$* 25,000.00 *(estimated)*

B. REPAIR MAINTENANCE *(2013)*:

1. Contractor repairs: ..... *$* 650.00 *(estimated)*

C. GENERAL MAINTENANCE:

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

Sec. 1.01 – View to southeast of west elevation at front of school.

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

Sec. 1.03 – Roof A: View to south across roof field at west section of the roof.

Sec. 1.04 – Roof A: View of voids in sealer at Chem-curb near AC at west section of the roof.

Sec. 1.05 – Roof A: View of splits in mastic at abandoned pipe penetration near AC at west section of the roof.

Sec. 1.06 – Roof A: View of debris on roof at south section of the roof.

Sec. 1.07 – Roof A: View of wood support that is blocking water flow in valley at west section of the roof.

Sec. 1.08 – Roof A: View of ponding at west section of the roof.

Sec. 1.09 – Roof A: View to east of organic debris at south section of the roof.

Sec. 1.10 – Roof A: View of voids in Chem-curb sealer at south section of the roof.

Sec. 1.11 – Roof B: View to south across roof field from Roof A.

Sec. 1.12 – Roof B: View of base flashing that is not tight at east parapet at center section of the roof.

Sec. 1.13 – Roof B: View of water in voids in pitch pan sealer at southwest section of the roof.

Sec. 1.14 – Roof C: View to south across roof field from Roof B.

Sec. 1.15 – Roof D: View to east across roof field at north section of the roof.

Sec. 1.16 – Roof D: View to east across roof field at south section of the roof.

Sec. 1.17 – Roof D: View of voids in caulking at chimney at northeast corner of the roof.

Sec. 1.18 – Roof E: View to east across roof field at south section of the roof. Note some staining at screws.

Sec. 1.19 – Roof E: View to east across roof field at north section of the roof. Note some staining at screws.

Sec. 1.20 – Roof F: View to east across roof field. Roof E is at left.

Sec. 1.21 – Roof F: View of hole in membrane at west section of the roof.

Sec. 1.22 – Roof F: View of void in caulking at plumbing vent at north section of the roof.

Sec. 1.23 – Roof F: View to west across roof field. Roof E is at right and Roof G is at left.

Sec. 1.24 – Roof H: View to east across the roof field.

Sec. 1.25 – Roof H: View of hole at the northeast corner.

Sec. 1.26 – Roof H: View of loose metal flashing at the north wall.

Sec. 1.27 – Roof I: View to west across the roof field.

Sec. 1.28 – Roof K: View to east across the roof field.

Sec. 1.29 – Roof L: View to north across the roof field. Roof A is at left and Roof M is at right.

Sec. 1.30 – Roof M: View to northeast across the roof field. Roof N is at bottom of photo.

Sec. 1.31 – Roof M: View to south across the roof field.

Sec. 1.32 – Roof S: View to southeast across the roof field. Note rusting.

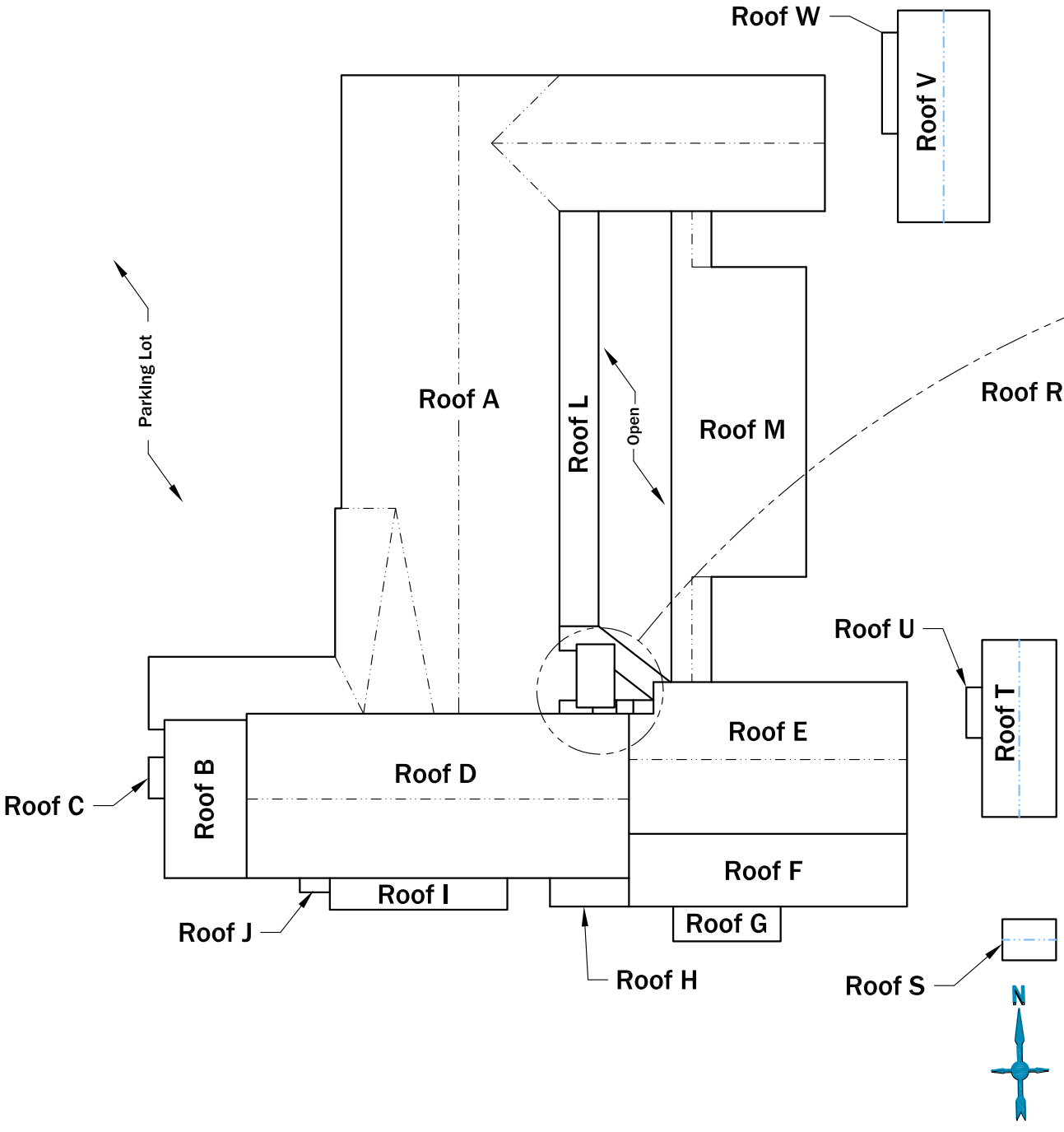
Sec. 1.33 – Roof T: View to northeast across roof field. Roof U is at left.

Sec. 1.34 – Roof V: View to north of west elevation at left and south elevation at right.

Sec. 1.35 – Roof V: View to north across the roof field.

Sec. 1.36 – Roof V: View of missing shingle at southeast section of the roof.

Sec. 1.37 – Roof V: View of fiberglass showing thru shingle at west section of the roof.



B.U.R.
ROOF AREA SQ.FT.
(Approximate)

Roof A:	18,905 sf
Roof B:	1,300 sf
Roof H:	225 sf
Total:	20,430 sf

Single-Ply
ROOF AREA SQ.FT.
(Approximate)

Roof F:	2,024 sf
Roof K:	232 sf
Roof P:	23 sf
Roof R:	33 sf
Total:	2,312 sf

Metal
ROOF AREA SQ.FT.
(Approximate)

Roof C:	65 sf
Roof D:	6,292 sf
Roof E:	4,147 sf
Roof G:	374 sf
Roof L:	1,623 sf
Roof N:	240 sf
Roof S:	221 sf
Roof T:	1,316 sf
Roof U:	80 sf
Roof W:	160 sf
Total:	14,518 sf

Shingle
ROOF AREA SQ.FT.
(Approximate)

Roof I:	562 sf
Roof J:	43 sf
Roof M:	4,825 sf
Roof O:	28 sf
Roof Q:	16 sf
Roof V:	1,943 sf
Total:	7,417 sf

Total:	44,677 sf

YAMHILL - CARLTON SCHOOL DISTRICT
Carlton Elementary School - Carlton, Oregon

SCALE: NTS	1 of 1	DRAWN BY: D.K. / J.W.
DATE: 03/25/13		REVISED: 03/27/13

A-TECH/NORTHWEST, INC.
Portland & Prineville, Oregon 503 - 628 - 2882

As-Built Drawing

PROJECT NUMBER: 13053