

## Design Southeast

Ryan M. Wilson, PE, SE  
Structural Engineering  
(907) 747-5424

403 Lincoln St., Suite 240  
Sitka, AK 99835

May 1, 2018



### **Wrangell Medical Center Building Condition Survey Structural, Building Envelope and Interior Finishes (15 Pages)**



5-1-2018

## Narrative

Per the request of SEARHC facilities staff, Ryan M. Wilson, PE recently participated in a condition survey of the Wrangell Medical Center. The general scope of work included the following:

1. Document any non-code compliant construction.
2. Document any major building maintenance deficiencies requiring immediate attention.
3. Prepare recommendations to correct non-code compliant work in such a way as to meet the minimum standards of the 2012 International Building Code.
4. Prepare recommendations to correct any major building maintenance deficiencies in such a way to make such construction new and serviceable.
5. Determine if a more thorough investigation is warranted.

This condition survey began during the afternoon of April 23 and ending late morning April, 25, 2018. Mr. Wilson's scope of work mainly included a brief visual condition assessment of the foundation, roof framing, roofing, siding, windows and basic interior finishes such as; flooring, suspended ceilings, etc. Only readily accessible areas were assessed. This condition assessment used noninvasive and nondestructive methods. Some of the recommendations in regards to finishes, listed as deficiencies, were based on the inspector's judgement. Structural analysis was outside the scope of work. Geotechnical and subsurface investigation were not performed. This report does not warrantee the building against settlement or subsidence of any kind. Environmental investigations such as for asbestos, lead paint, mold or carpenter ants were outside the scope of work. Brief visual assessments do not reveal all deficiencies, it is possible some may be found latter.

## Wrangell Medical Center Building Description

**Property location:** 310 Bennet Street, Wrangell, Alaska  
**Property owner:** City and Borough of Wrangell  
**Dates of inspection:** April 23-25, 2018  
**Building Description:** One main level with a partial basement. There are at least three known additions. The front of the building faces Reid Street.  
-1967 original construction + 1974 Addition = 17,898 sf  
-1988 Addition = 9,928 sf  
-1994 Addition = 2,770 sf  
**Total Building Area = 30,596 sf**

### **Description of Elements and Components:**

- 1967 Building:**
1. **Construction Type:** V, with sprinklers.
  2. **Foundation:** Creosote treated timber pilings with reinforced concrete pile caps and grade beams.
  3. **Structural Framing:** Conventional wood framing consisting of 2x floor joists, timber beams, 2x wood stud bearing walls, 2x roof rafters and timber purlins.
  4. **Roofing:** Built-up multi-ply tar roof. Note: see 1988 addition for over-framed standing seam metal roofing.
  5. **Siding:** Exterior Insulated Finished System (EIFS).
  6. **Windows:** Wood casement or fixed windows.
- 1974 Addition:**
1. **Construction Type:** V, with sprinklers.
  2. **Foundation:** Unable to verify. The 1974 structural design drawings show a shallow foundation supported by reinforced concrete basement walls, spread footings and a concrete slab on grade. All bearing on a soil embankment.
  3. **Structural Framing:** Unable to verify. The 1974 structural design drawings show 2x wood stud bearing walls, open web floor joists, structural steel floor beams, structural steel columns, open web joist roof rafters and glulam purlins.
  4. **Roofing:** Built-up multi-ply tar roof. Note: see 1988 addition for over-framed standing seam metal roofing.
  5. **Siding:** Exterior Insulated Finished System (EIFS).
  6. **Windows:** Wood casement or fixed windows.
- 1988 Addition:**
1. **Construction Type:** V, with sprinklers.
  2. **Foundation:** Creosote treated timber pilings with reinforced concrete pile caps and grade beams.
  3. **Structural Framing:** Combination of conventional modular wood framing and stick framed construction. The 1988 addition on the west side of the building using modular construction is supported by timber pilings. A stick framed roof was constructed over the entire building; original 1967 construction, 1974 addition and 1988 additions. The new roof Over-framing consists of engineered I joist rafters, glulam beam; purlins, hip and ridge beams. Factory built trusses over-frame the 1974 addition roof.
  4. **Lateral Force Resisting System:** Plywood shear walls and plywood

roof diaphragms.

5. **Roofing:** Standing seam metal roofing.
6. **Siding:** Exterior Insulated Finished System (EIFS).
7. **Windows:** Wood casement or fixed windows.

- 1994 Addition:**
1. **Construction Type:** V, with sprinklers.
  2. **Foundation:** Creosote treated timber pilings with reinforced concrete pile caps and grade beams.
  3. **Floor Framing:** Elevated structural concrete slab consisting of composite metal floor deck with concrete topping slab.
  3. **Structural Framing:** Pre-Engineered metal building. Primary steel consists of structural steel rigid frames. Secondary cold formed metal girts and purlins span between the rigid frames to support the wall and roof elements.
  4. **Lateral Force Resisting System:** Structural steel rigid frames and ordinary concentrically braces frames. Roof diaphragm consists of steel rod cross bracing.
  5. **Roofing:** Standing seam metal roofing.
  6. **Siding:** Metal siding panels oriented vertically.
  7. **Windows:** Aluminum casement or fixed windows.



**Main Entry – Southwest Elevation**



**West Elevation**



**North Elevation**



**East Elevation**



**North Elevation – Shop Vestibule  
Shop to the Left  
1994 Addition**



**East Elevation - Shop  
1994 Addition**

## Wrangell Medical Center Deficiency List

1. Refer to appendix A photo log for photos of some of the deficiencies listed below.
2. Refer to construction cost estimate prepared by Estimations Incorporated for item costs.

ITEM	TITLE	DESCRIPTION OF DEFICIENCY	PROPOSED CORRECTION	CODE / CRITERIA	NOTES
S01	Metal Roofing	There are (2) major roof leaks at the roof ventilation turrets and approximately (12) minor leaks throughout the metal roofing. The metal roofing was originally installed in 1988 (30 years old) and is at the end of it's useful life. The leaks at the ventilation turrets have resulted in approximately 120 sf of rotten plywood roof sheathing.	Like-kind replacement of the existing standing seam metal roofing. Replace approximately 120 sf of decayed plywood roof sheathing.	RECOMMENDATION	
S02	Seamless Metal Gutter System	Replacement is required during a reroof project.	Replace existing gutters with an new seamless metal gutter system	RECOMMENDATION	
S03	Air Handler Hoods	The existing air handler hoods are at the end of their life. The protective paint coating has failed allowing significant corrosion of the base metal to begin.	Like-kind replacement of air handler hoods.	RECOMMENDATION	
S04	Soffit sheathing	The roof eave soffit sheathing appears to consist of exterior gypsum or cementitious based sheathing. Approximately 800 sf has extensive water damage and needs replacement.	Like-kind replacement of approximately 800 sf of soffit sheathing.	RECOMMENDATION	
S05	EIFS Facia	Some sections of facia have fallen off the building and are missing.	Like-kind replacement of approximately 200 lin. ft of EIFS facia.	RECOMMENDATION	

ITEM	TITLE	DESCRIPTION OF DEFICIENCY	PROPOSED CORRECTION	CODE / CRITERIA	NOTES
S06	EIFS Siding	Some sections of the exterior insulated finish system (EIFS) has damage from water infiltration, freeze-thaw or impacts.	Like-kind replacement of approximately 1,000 sf of EIFS siding.	RECOMMENDATION	
S07	Exterior Paint	The existing exterior paint finish is in fair condition. The caulking is in poor condition with some joints failing.	Paint the exterior of the building including siding, facia and underside of soffit. Remove and replace any failed caulking sealant.	RECOMMENDATION	
S08	Windows	There are at least (6) windows with either failed seals (fogging) or broken panes. Approximately (46) casement windows have malfunctioning hardware.	Replace approximately (52) windows.	RECOMMENDATION	
S09	Skylights	The (2) skylights near the main entry are in poor condition. (1) skylight has a broken pane.	Replace (2) skylights.	RECOMMENDATION	
S10	Window Blinds	During the window replacement project item S08, approximately half of the window blinds will need to be temporarily removed to facilitate replacement of the new windows. The existing blinds are worn and dated, It would be more efficient to replace with new instead of reinstalling the existing blinds.	Replace the existing window blinds.	RECOMMENDATION	
S11	Flooring	Most of the flooring in the facility is worn and nearing the end of its life. A large percentage of vinyl seams have failed. There are also several patches that have been installed with staples fastened through the face of the vinyl flooring.	Replace the existing flooring	RECOMMENDATION	



ITEM	TITLE	DESCRIPTION OF DEFICIENCY	PROPOSED CORRECTION	CODE / CRITERIA	NOTES
S12	Non-Compliant Suspended Ceiling System	Most of the existing suspended acoustic ceiling system is not constructed in such a way to meet the current seismic detailing requirements.	Replace the suspended ceilings in all rooms exceeding 144 sf.	2012 IBC, ASCE 7-10 13.5.6, ASTM E 580/E580M	
S13	Interior Paint	Interior paint finishes are in fair condition.	Paint interior walls, gypsum sheathed and adhesive tiled portions of ceiling.	RECOMMENDATION	
S14	Casework and Workstations	Casework and workstations are worn. The Formica seams and backsplash details create an infection control cleanliness issue.	Replace casework and work stations in patient care areas.	RECOMMENDATION	
S15	Elevated Exterior Deck	The deck is slightly uneven (possible settlement). The rim board is wavy when sited down. The guardrails do not meet current code. The spacing of the horizontal rails exceed 4". Connection of guardrail to deck not capable of resisting a 200 lb. load.	Rebuild and replace the existing deck framing, decking and guardrails	2012 IBC 1013.4	
S16	Activities Room Addition	The addition bump out was added over top of an existing elevated exterior timber deck and is poorly built. The foundation piers supporting the outer perimeter wall have settled. Water runs down the exterior wall, beneath the wall sole plate saturating the floor framing.	Demo the addition back to the original perimeter wall line and infill frame the opening.	RECOMMENDATION	

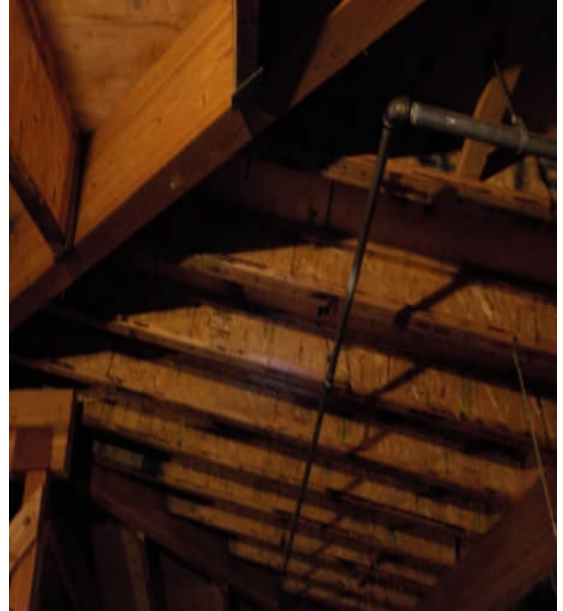


ITEM	TITLE	DESCRIPTION OF DEFICIENCY	PROPOSED CORRECTION	CODE / CRITERIA	NOTES
S17	Timber Piling	Approximately 60% of the creosote treated timber pilings were visually inspected. In addition, 20% were inspected by sounding with a metal rod and probing with an ice pick. Generally the pilings appeared to be in good condition however (1) piling with severe decay was found. Water entered the untreated center portion of this piling through large vertical checks.	<ol style="list-style-type: none"> <li>1. Repair decayed timber piling found during nondestructive visual inspection.</li> <li>2. Recommend a more thorough piling inspection using additional nondestructive testing such as ultrasound to check for additional bad pilings.</li> </ol>	RECOMMENDATION	

Appendix A  
Photo Log



Deficiency Item S01. Decayed plywood roof sheathing typical at (2) roof ventilation turrets. Nontypical condition of framing.



Typical structural roof framing in good condition. 1988 roof over-framing addition.



Deficiency Item S01. Minor roof leak creating moist condition for mildew growth (white).



Deficiency Item S01. Example roof ventilation turret above major roof leak.



Deficiency Item S03. Air handler hood with corrosion.



Deficiency Item S04. Example water damaged roof soffit sheathing.



Deficiency Item S05. Missing EIFS fascia.



Deficiency Items S06, S07 and S08. Example damaged EIFS (freeze-thaw), fogged window, caulking sealant failure, siding in need of exterior paint



Deficiency Item S09. Broken skylight glazing.



Deficiency Item S11. Example of existing vinyl flooring repair.



Deficiency Item S11. Example vinyl Flooring seam failure.



Deficiency Item S12. Rooms over 144 sf, metal grid runners are fastened to angle on all four sides of ceiling. Only one side shown in photo.





Deficiency Item S15. Note dip in deck rim board. Guardrails non-code compliant. Space between horizontal rails exceeds 4". Connection to deck not capable or resisting a force of 200 pounds.



Deficiency Item S16. Addition bump out to activities room. Water runs down beneath the wall sole plate and runs across the floor. Foundation piers have settled.



Deficiency Item S17. Decayed creosote treated timber piling. Nontypical condition, not representative of average piling condition. Most pilings were found to be in good condition.



Typical creosote treated timber piling beneath 1988 addition, below emergency room. In good condition.



Typical creosote treated timber piling beneath 1968 Construction, beneath kitchen. In good condition. Reinforced concrete pile cap and grade beams in good condition.