

Main St. Fire Station Building

Preliminary Condition Survey Report

7.24.15



Prepared For: **Ketchikan Area Arts & Humanities Council**
330 Main St.
Ketchikan, Alaska 99901

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PREFACE

This preliminary building survey has been prepared for the Ketchikan Arts & Humanities Council to review the architectural and structural elements of the Main St. Fire Station Building in Ketchikan, Alaska. This historic building is owned by the City of Ketchikan but no longer is used as a fire station. The Arts Council is looking into the possibility taking over ownership of the building if approved by the Ketchikan City Council for use as a visiting artist residency facility. This proposed program would host visiting artists for a period of up to three months, with the artist living on the upper level and working in the studio below. The preliminary building review had the following goals:

- Identify areas of the exterior envelope that show signs of deterioration and make recommendations for their repair.
- Identify building code deficiencies that could impact safety of building users and make recommendations for repair for the proposed uses.
- Identify items that will preserve and extend the life of the building.
- Identify items that will enhance the usability of the facility.

On June 26, 2015, Linda Millard, Principal of Millard + Associates Architects LLC of Ketchikan visited the building to review the existing conditions. Kathleen Light, Director of the Ketchikan Area Arts & Humanities Council (KAAHC), attended the walk-through and discussed the proposed use by KAAHC. Weatherization consultant Samuel Bergeron inspected areas of water infiltration at the exterior walls and roof using an infrared camera. A later meeting was held on July 22, 2015 at the KAAHC offices to review the potential building code issues of the Fire Station Building with use as an Artists Residency. The meeting was attended by the City of Ketchikan Building Official, Matt Elbersen, Building Inspector Jim Nuzzo, City Fire Marshall Chris Grooms, Kathleen Light Director of KAAHC, Anna Shaffer, Board President for KAAHC, and Linda Millard, Principal Architect with Millard + Associates Architects. The meeting was followed by a walk-through of the Fire Station Building.

A. Building Background

The Main St. Fire Station Building is located on a rectangular site in downtown Ketchikan. Constructed in 1942 for the City of Ketchikan, the building was vacated by the Fire Department over three years ago and is used primarily as storage for the City of Ketchikan. Based on the original drawings, some minor modifications have been made to the building over the years, but the architectural character has changed little. Based on the existing condition of the Fire Station Building with few alterations, the building may be eligible for a listing on the National Register of Historic Places.



The existing two-story concrete building is rectangular in shape and approximately 50' x 82', filling most of the site. The east elevation of the building faces Main St. with three overhead doors and an entry door leading to the stairs accessing the upper floor. The fire station building is between existing building to the north and south, with the west elevation facing a narrow pedestrian alley that is used for emergency exiting. The main floor includes the apparatus room with three truck bays, and mechanical and storage rooms to the rear. A steep stair leads down from the storage area to the unoccupied concrete basement.

To access the upper floor, a small entry foyer and enclosed stairs are located to the south of the truck bays on Main St. elevation. The upper floor offers a large meeting room, offices, sleeping rooms, kitchen, bathrooms

and enclosed exit stair. The overall condition of the building is good to fair at the exterior, but with obvious signs that the roof is leaking at the interior. The original drawings for the building, designed by H.B. Foss Company, Architects of Juneau dated September, 1942, were found in the City of Ketchikan archives and assisted with determining the composition of the roof, walls, and floor and foundation construction. No destructive investigation was done as part of this condition survey, and the findings below are based on observations, with assumptions noted. Prior to moving forward with any work, further investigation of the existing construction assemblies should take place.

B. Existing Structure & Systems

The building is a mix of concrete and wood construction assemblies. The exterior is comprised of 12" thick solid concrete walls at the main level and 8" concrete walls at the upper floor founded on a concrete slab on grade on concrete columns extended to bedrock. At the west end of the building, there is a partial concrete basement. The original drawings do not indicated the use of reinforcement steel within the concrete. The upper floor framing is 3"x14" @ 16" OC supported by the exterior walls and wood or concrete girder beams at the interior, with concrete and steel columns supporting the girder beams at the apparatus room. Interior walls are of wood stud construction. The roof is slightly sloped behind the concrete parapet walls and is comprised of 2x wood rafters over the wood ceiling joists.

Space Summary

The following is a summary of spaces based on the program areas described above.

Total Building 7,720 gsf

Building Areas:	Total Net sf
<u>Main Level:</u>	
Apparatus Room:	2,857
Mechanical, & Storage:	832
Entry Foyer & Main Stair:	175
<u>Upper Level:</u>	
Meeting Room:	1,000
Offices	295
Shared Kitchen:	176
Dining Room:	445
Sleeping Rooms (4)	652
Bathrooms	275
Enclosed Exit Stair	200

Architectural: Construction Assemblies and Materials

The following outlines the materials and assemblies we were able to determine with the benefit of the original drawings, but without destructive investigation and include assumptions based on input from the City.

Exterior Wall Construction: The exterior consists of exposed 12" concrete walls at the lower level, and 8" concrete walls at the upper level with a 2x3 wood stud wall at the interior with 1/2" fiberboard insulation plank finish. The original drawings do not show any reinforcing steel within the concrete walls. The concrete is exposed and painted on the exterior, with a



reed detail between the windows on the Main St. elevation as well as other decorative elements. The name “Ketchikan Fire Department” is incised within the concrete at the parapet level.

Roof Construction: Roof construction was composed of the original 5-ply built up roof over shiplap wood sheathing on 2x8 roof rafters. The roof has been repaired or replaced in the past with a cap sheet in hot asphalt over a built-up roofing system which is in good to fair condition with the exception of flashing at penetrations and the parapet. At the parapet, cement board panels were used as part of the cap flashing. These have deteriorated, allowing water to seep under the roofing which is visible at the interior. Flashing at penetrations at equipment and vents also needs to be upgraded. Below the roofing sheathing the wood rafters are trussed to the wood ceiling joists at some locations. There is little, if any, insulation in the roof assembly. The roofing should be repaired as soon as possible to prevent deterioration of wood framing member and interior finishes. With proper repairs and maintenance, the existing roof could have another 5-10 years of serviceable life.



Interior Wall Construction: The original interior walls are standard wood stud construction with the original ½” painted fiberboard insulation plank, plywood or gypsum wall board finish covered to 8’-0” height by wood paneling at most locations. The original plywood wainscot appears to have been removed. At the original meeting room, several new partition walls were constructed of wood studs covered by wood paneling to create smaller office areas. These could be easily removed. None of the interior walls appear to be fire rated. A 1-hour fire separation wall will be required between sleeping rooms and at the corridor.

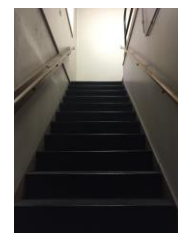
Foundation/Floor Construction: There is a concrete slab on grade floor at the lower level with a continuous concrete foundation wall at the perimeter extending to bedrock. Six concrete columns at the interior extend to bedrock to support the upper floor beams. The floor to floor height is 13’-0”. The upper floor is comprised of 3x14” with a 1x8 shiplap subfloor. It appears that the original solid wood flooring is still in place but has been covered with carpet with the exception of the kitchen and restrooms which have a composition tile floor. The floor assembly will need to have a 2-hour fire rating between the lower floor and upper floor due to the different occupancies.

Windows: The original double-hung wood windows on the upper floor have been replaced with double-hung vinyl window units of the same size. Most windows are approximately 3’-0”x 5’-6” and appear to meet egress requirements for the sleeping rooms. On the lower floor there are glass block filled openings on the north and west elevation that appear to be in fair condition.



Doors: The exterior entry door at the Entry Foyer is of hollow-metal construction with a relite which is rusting. At the interior, doors are solid flush wood doors if original. Doors are not fire rated, nor is hardware accessible. At the truck bays, there are three newer insulated overhead doors with relites with motorized operation that are in good condition.

Interior Stairs: The main entry stair is located along the south wall and accessed from Main St. The upper landing is enclosed and separated by a door from the upper floor corridor. The treads meet code requirements for rise and run, but there is only a handrail on one side. Another enclosed stair is located along the west wall and exits to the small shared alley space.





Interior Finishes: In general, the existing floor, wall, and ceiling finishes are in poor condition and beyond their useful life. They should be removed or replaced. Floors are covered by carpet at most locations which could be removed and the original wood floor below refurbished. Walls are covered with wood paneling to 8'-0" height over the original fiber board finish. Both should be removed and replaced with 1/2" or 5/8" Type "X" fire rated gypsum wall board depending on the location. There is an acoustic panel ceiling system at most of the upper level including bedrooms which is in poor condition and could be removed, increasing the height to the original 9'-0" and exposing the original painted plywood ceiling finish.

Exterior Marquee: A flat marquee with angled steel rod supports extends 5'-0" from the face of the building on Main St. and provides protection from the rain for the doors below. The marquee construction appears to be original and is constructed primarily of wood with steel rod supports at the building.

Exterior Exit Stairs & Landing: The joint use wood exit stairs at the west elevation of the building are in fair to poor condition. There are very few metal connectors or ties visible, and some members are deteriorated. This shared exit way should be upgraded in conjunction with the adjacent property owners that depend on this as an emergency exit.

Mechanical Systems

Existing Heating System: The original oil-fired boiler system is still in place and operational. Upgrades should be made in the future to a more energy efficient system.

Existing Plumbing System: No investigation was made of the existing plumbing system but it was reported to be in working order. Plumbing fixtures at the restrooms and kitchen are well-used but serviceable, and meet the requirements for the amount of occupants.

Fire Sprinkler System: There is no fire sprinkler system.

Ventilation Air Systems: There is no ventilation system. The operable windows offer natural ventilation to spaces where they are located. Some type of ventilation system should be installed at interior spaces with no operable windows.

Electrical Systems & Telecommunications

General Power: Power outlets are primarily surface mounted receptacles at the exterior and interior walls, with receptacles and wiring within some of the newer interior walls. The electrical service and panels should be reviewed by an engineer prior to any construction.

Lighting Fixtures: Existing light fixtures are old and use inefficient incandescent or old fluorescent lamps. General lighting is provided by ceiling mounted fluorescent fixtures. Some of the fixtures did not appear to work, and lenses were missing on several of the fixtures. These fixtures should be replaced.

Egress: Egress routes and building exits are not indicated by illuminated exit signs, though emergency lighting is provided at some locations.

Exterior lighting: Lighting fixtures mounted on the building walls provide the exterior lighting. These fixtures are old, and it could not be determined if they are functional.

Fire Alarm: There is no fire alarm.

Data and Communications: There is wiring for data and communications systems within the building.

Accessibility:

A preliminary review of accessibility was made during the site visit. As with much of Ketchikan, it is difficult to meet ADA access requirements due to our steep streets and sidewalks. The lower floor of the Fire Station Building can be made accessible with a new ADA restroom installed. There is no elevator within the building so the upper floor would not be fully accessible. To see that those with disabilities can attend and participate in the proposed programs, accommodations can be made to relocate any meetings to the lower level or house visiting artists at nearby hotels offering accessible rooms.

Proposed Artist Residency Program

The Artist Residency program will bring together artists, writers, and builders and other creators, giving them opportunities to meet and learn from one another in an atmosphere that encourages collaboration and provides provide our community with an environment to think big and affect positive change through creative action. The Arts Council is committed to retaining the historic integrity of the building with any proposed renovation. The following code analysis is based on the proposed program at the Fire Station Building.

2012 International Building Code Analysis

Building code review is based on the 2012 Edition of the International Building Code (IBC) as adopted by the City of Ketchikan for an Artist Residency Program. This preliminary analysis is based on discussions with the City Building Official, Matthew Elberson, and addresses issues noted in a memo dated 6.15.15 regarding potential building code issues with the building. The building may be reviewed under *Chapter 34: Existing Building, Section 3412- Compliance Alternatives* which allows some of the existing conditions to remain without substantial upgrades as long as the project maintains or increases the current degree of safety, health and general welfare in existing buildings.

Construction Type: Type III-B

Occupancy Classification: Main Floor- Business Group B: Educational Occ. For Students Above 12th Grade
Upper Floor- Residential Group R-3: Boarding House (No Change)

Required Separations: One hour separation required at Mechanical Room and proposed art studios on the lower floor, and two hour separation between the upper floor residential and the lower floor studios.

Fire Resistance Rating: Exterior concrete walls meet the fire resistance requirements per Table 601 & 602.

Allowable Height Group B:	3 Story, 55ft.
Existing Building:	2 Story, 28 ft. +/-
Allowable Floor Area Group B:	19,000 sf Basic, One Level
Existing Floor Area:	7,730 gsf 3,865 Each Level

<u>E. OCCUPANT LOAD</u>	Area /Occ. Load Factor	Occ.
<u>Level 1:</u>		
Art Studios- Shop Spaces:	2,857 sf /50 sf	57
Mechanical & Storage:	832 sf /300 sf	<u>3</u>
Total Occupants Level 1:		60

Level 2:

Residential:	2,820 gsf /200 sf	10* Max.
Meeting Room (Accessory):	1000 sf /15 sf	39* Max.
Total Occupants Level 2:		49

Total Building Occupants: 109

*Occupant load will be reduced for spaces at upper floor to allow for one exit.

C. Recommended Next Steps

The following lists a recommended scope of work to determine future repairs and renovations to the building to accommodate the Artists Residency Program; prevent further deterioration of the building envelope; address code deficiencies and safety concerns; increase accessibility; and weatherize the building for energy savings and sustainability of the facility.

- Condition Survey: Have a complete building condition survey with structural, mechanical and electrical systems as well as architectural elements reviewed for building code compliance for the proposed Artists Residency. Have the hazardous materials survey completed with recommendations for any required abatement.
- Concept Design: Develop a conceptual design that addresses the required life safety code upgrades and repairs for the building as well as creative options for use of the building for artist studios and housing. An important element of the design is to retain and strengthen the historic integrity of the building with any renovation work. Generate a conceptual cost estimate for the proposed scope of work.
- Construction Documents & Permitting: Further develop the selected concept design to become the detailed construction documents for the project. The scope of work would include repair of the roof flashing and any deteriorated framing; new ADA restroom on the lower level; fire separation between the main floor and upper level; fire rated walls and doors between sleeping rooms and between sleeping rooms and corridor; new exit and emergency lighting; and associated upgrades to the electrical and mechanical systems. If the building is reviewed under *Chapter 34: Existing Building, Section 3412- Compliance Alternatives* the scope of work may change and some of the existing conditions may remain without substantial upgrades as long as the project maintains or increases the current degree of safety, health and general welfare in existing buildings.
- Contractor Selection: The contractor for the work can be selected based on low bid for the defined scope of work or a combination of low bid for a guaranteed maximum cost, experience and references. Using this second approach (called Best Value) a contractor could be selected prior to the completion of the construction documents and provide input on the final design that could decrease costs. Volunteer labor could be used to clean up the building and remove finishes such as carpeting that will be replaced as part of the project decreasing the cost of the overall project.

In addition to the work noted above, the City Building Official and Fire Marshall have indicated they would work with the Arts Council to allow for temporary use of the lower level of Fire Station starting in October 2015 for two local master carvers, Nathan Jackson and Donald Varnell, while the Edwin DeWitt Carving Shed is being renovated. Completion of the new carving shed is expected to be at the end of April 2016. Before the carvers can relocate to the Fire Station Building, the space will have to have storage items removed by the City, the area cleaned, and additional fire extinguishers installed. The carvers will need access to a restroom which could be those on the upper floor of the Fire Station, a new ADA restroom on the lower floor, use of the restrooms at the Arts Council Building across the street, or a portable unit.

D. Attachments: Support Documents

The following attached documents were reviewed for the condition survey and code analysis:

- Original Construction Drawings, H.B. Foss Company- Architects of Juneau, Alaska, dated September, 1942, 10 Sheets
- Memorandum from City of Ketchikan Public Works Dept. Building Official, Matthew Elberson, to Assistant City Manager David Martin, dated 6.15.15 regarding building code issues with the Fire Station Building-319 Main St.
- *What is an Artist Residency?* Written by Kathleen Light, Director of the Ketchikan Area Arts and Humanities Council (KAAHC) to describe the vision for use of the Fire Station Building as an Artists Residency Facility.