

# Fire Station-52 Assessment Report

## *CHELAN COUNTY FIRE DISTRICT 5*

JULY 30, 2012



**Assessment By: Chief Arnold Baker**

## A. Description

Station-52 sits on 1.16 acres located at 2010 Wapato Lake Road in Manson. The location was chosen for its central access to the main arterial roads of Fire District 5 and position on the route toward the back country of the north shore. Fire history in the region lacked staging and command post options. Thought was given to locate the facility to meet logistical needs to support large wildland fire efforts.

Station-52 was constructed approximately 2 miles from Station-51 (rented facility). The Fire District had outgrown S-51 being able to house all the planned equipment needed to serve the community of Manson's need. S-52 was not added to serve any area of the Fire District being more than 5 miles from a fire station (insurance purposes), as all structures in Fire District 5 in 1995 were within the 5 miles from S-51.

Station-52 is a 4996 square foot rigid metal building constructed in 1995. The facility consists of (4) 18' x 49' bays, entrance meeting room with radio area and kitchenette, men's and women's restrooms with showers, office/storage room, mechanical room and 990' mezzanine meeting area. In December 2009 the mezzanine was remodeled to add (2) sleep rooms. This remodel does not meet Chelan County occupancy requirements. Temporary occupancy was allowed by placing the rooms to the front of the building where secondary egress can be made through the windows installed in the original construction.



## B. Functions

Station-52 serves as a response station for the community of Manson: This station houses (1) active engine (Class A, Type 1), (1) active interface\* engine (Type 3), (1) brush truck (Type 6), (1) 3000-gallon water tender (Type 2) and (1) medic unit (Advanced Life Support). \*An interface engine is a fire apparatus that is designed from wildland fires entering structure areas.

Station-52 serves as a staffed duty station by contract with Chelan County Hospital District 2 Emergency Medical Services. Primary service of the staffing crew (1 paramedic and 1 emergency medical technician) is for Advanced Life Support medical services. Fire District 5 has partnered with Hospital District 2 to pay for one of the six FTE (Full Time Equivalent) positions in this staffing. Fire District staff will respond to fire calls when on duty. Some medical personnel have fire training and are allowed by the Hospital insurance provider to do all fire functions except entering a hazardous atmosphere. All other fire response is from volunteer firefighters.

The facility is also serving the Fire District by housing the breathing air compressor and breathing air storage, laundry for decontamination of personal protective equipment, hose storage, shop bench for light maintenance and storage for unissued personal protective equipment & miscellaneous items.

The mezzanine meeting area is also a workout area for volunteer firefighters and duty staff. The Fire District has a purchased hand weight set, workout bench and treadmill. A multi-position weight set along with other miscellaneous fitness items have been donated.



## **C. Operational & Functional Issues**

### **1) Operational Limitations:**

- Standby Power – During construction, Station-52 was wired with an emergency circuit for a few essential items (selected lighting and radio) that could power up with a 3000-watt portable generator. The Fire District received a used 8000-watt generator from another fire district that has not been hooked up. This generator is not portable and a storage enclosure is required. The emergency circuitry was upgraded to allow for a small heating unit to be included in the emergency power after a multi-day power outage in the past during a cold snap. These measures are far short of making this station fully operational.
- Sprinkler system/ Fire Alarm system – This facility is not equipped with a fire sprinkler system and only a few smoke detectors rather than a code compliant for occupancy fire alarm system, NFPA 72 Fire Alarm Code. During construction no provision was made to add these systems, additional costs would be incurred to upgrade the water main to meet NFPA 13 Fire Sprinkler Code.

### **2) Apparatus bay description:**

- Apparatus bay size – The bays meet current minimum code for width, depth and height. Responders have necessary room free of obstruction around the apparatus as noted in the Washington Administrative Code.
- Apparatus bay doors – The (4) bay doors are 12' wide by 12' high. This size is sufficient for any current or expected apparatus the District may utilize. The WAC does not specify minimum door size. National trends are for stations to have 14' wide by 14' high doors.
- Floor drains – The floors are sloped with long drain strips in each of the bays. All the drains flow to an outdoor manhole with water-oil separator.



### 3) Bay utilization:

- As described in section 2), the bay size is good for most apparatus. In Bay 2, there are a 1-ton Brush apparatus and an Ambulance. The bay length is not sufficient for two shorter vehicles. Whereas the Washington Administrative Code states that three feet of clear area be provided for each apparatus. (Six feet between apparatus) this bay has approximately 2 feet between apparatus and each end. This also has some risk for parking in the bay without spotters to visually check distances for the driver.



### 4) Storage limitations:

- This facility was designed to be simple with a rural volunteer fire department needs. Storage was not planned as part of the goal when the facility was conceptualized. Storage was an afterthought and utilized space and materials available to create some.
- Storage shelving was made available at no cost right after construction to provide storage for hose fittings and supplies. A workbench was added to the back wall behind Bays 1 & 2 with shelving and drawers built in.



- In the plans for the building, an officer's office was created. That has since changed to a Personal Protective Equipment (PPE) storage room that is too small. This room can be secured if valuables need protection.



- The December 2009 remodel adding two sleeping rooms, made an area on the mezzanine where personal effects of the duty staff could be stored. Metal shelving was made available by the Hospital to hold these personal effects. This storage is not secure from others that also have access to the building.



#### 5) Decontamination area:

- This facility does not have a separate decontamination room. The mechanical room has a floor janitorial basin capable of gross decontamination only.

#### 6) Contaminated bunker gear cleaning limitations:

- The mechanical room also has a residential model washing machine to wash PPE. It is not recommended to use residential units because of the wear on the gear and the inability to clean PPE as thoroughly extractor units. This residential washing machine is used for all the PPE in both stations within the District. Cleaning station clothing in the same washing machine as PPE is not allowed because of the possibility of transfer of contaminants.

## 7) Administrative & Public area limitations:

- The main entrance to the station leads directly into a day room for the duty personnel. This room holds the station base radio, kitchenette, duty administrative work area for both Fire and EMS staff, whiteboard for drill presentations and meal table.
- We welcome the public to the station. We run the risk of having medical patient reports unsecured in the first room the public enters. A lobby is necessary to provide a separation from administrative areas and where the public would enter to have a blood pressure taken.
- The day room/ kitchen/ dining area should be separated from public areas to allow duty staff, that many of which work 48-hour shifts, to have a personal area.



**8) Sleep rooms on temporary occupancy:**

- When the concept of adding sleep rooms to the facility, the Chelan County Fire Marshal was contacted. To get a Certificate of Occupancy, the Fire District would have to add an additional building to the main building to meeting the code requirements. The largest challenge was separation of apparatus areas and personnel areas. If the addition was attached to the main structure, the whole building would have to have NFPA 13 Fire Sprinkler System installed. The County Fire Marshal advised to continue with the plan for sleep rooms, provide 1-hour fire walls and secondary egress. With these measures the station could have a temporary occupancy until the District's administration could address long range level of service needs including personnel, equipment and facility plans to align.

**9) Laundry room limitations:**

- The existing laundry area would be satisfactory for personal clothing if the contaminated protective gear issue was addressed. A dryer could be added to the mechanical room, the dryer vent was installed when the station was built.

**10) Breathing air:**

- This facility houses a Bauer breathing air compressor purchased in the early 1990's. The compressor unit is maintained meeting all the minimum scheduled service requirements. Air samples are take each quarter and mailed to a testing laboratory for analysis. The unit is rated 8.4-cubic feet per minute at 4500-psi. Large air cylinder storage is connected to the compressor to fill self-contained breathing apparatus cylinders rapidly in the event of a large fire.
- The air intake is not ported outside the building, in which the compressor can draw in room air with contaminates from apparatus that may have run before the compressor turned on.





#### 11) Fitness room:

- On the mezzanine and outside the sleeping rooms, are several pieces of fitness equipment. While it is very convenient for those on duty, it is very concerning for off duty personnel intruding other than daytime hours. A fire station design should address fitness areas away from sleeping areas to benefit the whole department.



#### 12) Apparatus approach:

- The apparatus approach in front of this facility is very good. Sufficient room for most apparatus to turnaround without entering the street. The sight distances in both directions are also very good.

#### 13) Property size:

- Station-52 was constructed on 1.16 acre parcel. The station, apron and parking areas cover about 0.6 of an acre with the remaining slightly larger than half acre as lawn and landscaped area. The lot configuration is approximately 288 feet of frontage on Wapato Lake Road by approximately 178 feet lot depth. The lot corners are not square, the shape can be described as a parallelogram.
- The lot, when purchased for the Fire District was intended to have unused space for future development.

#### **14) Utilities:**

- Domestic water is serviced from the Lake Chelan Reclamation District domestic water system. The service meter is located in the southeast corner of the lot.
- Irrigation water allotment is also provided by the Lake Chelan Reclamation District through the domestic water system. The irrigation service meter is located near the center of the south side along Wapato Lake Rd.
- Septic system is located in the lawn area toward the northwest corner. Future expansion may have to expand or relocate the current septic system.
- Electric power is provided from a pole in the southeast corner and serviced into the building underground. The electric meter is on the east end of the building.
- Phone and cable service is provided in the southeast corner of the lot and underground service to the same location with electricity on the east wall. These services are then conduit back underground into the building and are available in the mechanical room.
- Fiber has been requested and is still unavailable.

#### **D. Washington Administrative Code Compliance & Limitations**

##### **1) Emergency lighting:**

WAC 296-305-06503(2) states that fire stations "shall be equipped with an approved emergency lighting system that will light dormitories, hallways, and apparatus bay areas in case of electrical power failure."

- Station-52 is equipped with emergency lighting over the stairwell, in the hallway and in the front meeting room over the radio area. Station-52 is not fully in compliance with the intent of this law; the dorm rooms, nor the apparatus bays have emergency lighting.

##### **2) Fire sprinklers:**

WAC 296-305-06503(5) "All new fire stations and other new fire department facilities which contain sleeping quarters shall be fully protected with automatic sprinkler systems."

- Station-52 does not have automatic fire sprinklers to protect the sleeping quarters.

**3) Cooking disconnect:**

WAC 296-305-06503(15) "New stations containing a kitchen, and station kitchens remodeled after the date of this chapter, shall have an alarm activated service disconnect of fixed cooking appliances."

- Shortly after the staffing started in 2009, the kitchenette was electrically modified to meet this code. When a tone is received for Fire or EMS, the cooking appliance's power is disconnected.

**4) Sanitation, disinfecting, cleaning and storage areas:**

WAC 296-305-06505(1) "Fire departments shall provide facilities for disinfecting, cleaning, and storage."

(2) " A designated cleaning area shall be provided for under the fire department's exposure control plan for the cleaning and disinfecting of protective equipment, portable equipment, and other clothing.

(a) Fire departments that engage in emergency medical operations shall provide or have access to disinfecting facilities for the cleaning and disinfecting of emergency medical equipment.

(b) Disinfecting shall not be conducted in fire station kitchen, living, sleeping, or personal hygiene areas.

(c) Disinfecting facilities in fire stations shall be vented to the outside environment, and designed to prevent contamination of other fire station areas.

(d) The disinfecting facility shall contain a sink with hot and cold water faucets. All surfaces shall be nonporous surfaces.

(e) Handwashing facilities shall be readily accessible to members. Handwashing facility means a facility providing an adequate supply of running potable water, soap and single use towels or hot air drying machines. When provision of handwashing facilities is not feasible, the employer shall provide either an appropriate antiseptic hand cleaner in conjunction with clean cloth/paper towelettes or antiseptic towelettes."

- Station-52's mechanical room provides a contaminated PPE washing machine away from living and cooking areas and storage for cleaning chemicals. The janitor's basin can be used for bulky gross decontamination, but the station doesn't have designated disinfecting facilities for PPE or medical equipment, ventilated to the outside.

(3) "Protective clothing or equipment that is contaminated or potentially contaminated shall not be allowed in any kitchen, living, sleeping, personal hygiene or other non-work area."

- A firefighter returning after a fire incident will have to walk through the kitchen area to get to the apparatus bay or mechanical room. The configuration of this station makes compliance of the statute unavoidable.

(4) "The designated cleaning area shall be physically separate from areas used for food preparation, cleaning of food and cooking utensils, personal hygiene, sleeping, and living areas."

- The intent of this statute is being met at this facility.

(5) "Drying areas for protective clothing shall be well ventilated."

- Currently protective clothing drying after cleaning is done on the railing of the mezzanine. The apparatus bays have 4 ceiling fans that run continuously for ventilation. This drying on the railing does violate having protective clothing in personal living areas.

(6) "Storage areas: Emergency medical supplies and equipment stored in fire stations, other than that stored on vehicles, shall be stored in a dedicated enclosure and maintained per manufacturer's instructions."

- There are no medical supplies stored in this facility. The EMS staff drives to the Hospital daily to restock medical items.

(7) "Reusable emergency medical supplies and equipment, protective clothing, and protective equipment shall not be stored in kitchen, living, sleeping, or personal hygiene areas, nor shall it be stored in personal clothing lockers."



- Unissued protective clothing is stored in an enclosed room. Firefighters issued protective clothing is stored behind the apparatus. It is potential for vehicle exhaust to contaminate the protective clothing. It is also potential for protective clothing contaminates to drift to personal areas.

**5) Sleeping areas:**

WAC 296-305-06507 (1) "All sleeping areas in fire stations shall be separated from vehicle storage areas by at least one-hour fire resistive assemblies."

- The sleeping areas are protected by one-hour fire resistive construction.

(2) "Sleeping areas shall be protected by smoke and carbon monoxide detectors.

- When the sleeping rooms were constructed in December 2009, smoke detectors were added. During the initial construction in 1995, the station received 2 carbon monoxide monitors that are interlocked to ventilation systems.

**6) Indoor air quality:**

WAC 296-305-06511 "Air quality shall be consistent with chapter 296-841 WAC, Airborne contaminants"

(1) "If indoor air monitoring indicates over-exposure to contaminant PEL's, engineering controls shall be utilized to reduce firefighter exposure to the lowest feasible level."

- Carbon monoxide is the only contaminant that is monitored to the air monitoring system.

**7) Restrooms:**

- This station is compliant with Men's & Women's restrooms with showers meeting American Disabilities Act requirements.

**8) Apparatus bay clearance:**

- All bays meet the three foot minimum clearance around apparatus, except bay-2 with two apparatus sharing the bay where distances are approximately two feet between apparatus and two feet in front and behind the apparatus.

**9) Apparatus floor free of trip hazards:**

- The facility has sufficient area to keep it free of trip hazards.

**10) Environmental & life safety:**

- There is no floor to ceiling wall separation between apparatus bays and the mezzanine meeting room/living area. Contaminates and odors from apparatus can be noticed well before the monitoring system engages to remove them. The Fire District would incur extensive costs to modify this facility to provide adequate environmental controls.

**11) Carbon monoxide exhaust system:**

- The carbon monoxide exhaust system installed when the facility was constructed is below current standards. New fire facilities exhaust systems utilize direct source capture to not allow the exhaust to become airborne inside the facility. Systems vary slightly, but most utilize hoses on trolley systems with internal fans. As an apparatus starts, a fan is engaged, the hose system follows the apparatus to the door where a magnet at the exhaust pipe releases.
- Personnel can do vehicle checks and run engines inside the facility without contaminating the air.

**E. Facility Improvements & Maintenance Issues**

**1) Siding:**

- The metal siding and roofing are in good condition. The siding has open voids in the eaves that allow birds to nest. This is another environmental issue that can be reduced with the installation of screens over these voids.

**2) Generator:**

- The generator room that was initiated should be finished. This generator that was donated to the Fire District is very under sized. The generator can deliver a continuous load of 8000 watts, and would be better to have complete and useful rather than having nothing.

**3) Waste oil drums:**

- The few oil collection drums should be removed as Fire District vehicle maintenance is no longer done on sight.

## F. Recommendation

The long term plan should be to use the facility as it was intended during the time of construction. A rural volunteer fire station and a command post for the large wildland fire event. These are significant benefits to the Fire District. The quality of the facility now 17-years old, is still very good. It can be expected that this facility should last many years when used as was intended.

The costs to bring the facility up to standard are not known. Upgrading with an attached structure will require more improvements to the existing structure. Upgrading a detached structure will reduce some costs and incur others.

Level of Service will weigh upgrades to this facility in a rural setting verses facilities in the downtown corridor where documentation shows most of the calls happen. Staffing is a significant consideration to locate in the vicinity of the highest call volume.

