



**U.S. Army Corps  
of Engineers**  
Engineering and Support  
Center, Huntsville

## **Fire Station #2**

**Building 68328  
Fort Huachuca, AZ**



**POTR – Phase 1  
Project No 60550**

**DATE: February 26, 2013**

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## CHAPTER 1 - GENERAL

### 1-1 Purpose

The intent of this document is to present the findings of the Phase I Post Occupancy Technical Review (POTR) performed on Fire Station #2 (Building 68328) at Fort Huachuca, AZ. The POTR was performed by the HNC team on February 26, 2013.

### 1-2 Facility Description

Building 68328 is a 2-company satellite fire station that was occupied in July, 2012. The facility operates 24 hours a day. This facility has an EMS mission, which resulted in the addition of 2 more dorm rooms to the design. The total staff is around 10 – 12 people at most. There are very few visitors with the exceptions of soldiers that may have to go there for their mission. Fire fighter shifts are 48 hours on, 72 hours off. Inspectors work a regular work week with one day being a 24 hour day. Medic shifts are 24 hours on, 72 hours off.

The firefighters who are housed at the facility are overall pleased with the facility. The facility has excellent sound proofing. There have been other fire fighting type missions added to the complex resulting in cramped conditions. These other missions are not as pleased.

### 1-3 POTR Team Members

The following is a list of HNC's team members that participated in the POTR:

- Jay Clark – Architectural
- Rod Bridgeman – Mechanical
- Jackie White - Electrical

### 1-4 Meeting Contacts

The roster is attached in Appendix A

### 1-5 Feedback on Contractors

The design-build contractor for this project was Cobblestone Construction. The personnel located on site were easy to work with. However, the home office was not so easy to work with and is not responsive. The home office is not responding to warranty issues in a timely fashion. They did well; large items went well, but some smaller things like communication and MNS are issues. Some concerns with lack of coordination and paying attention to detail. Company may have had experience with Fire Stations, but not team that was on the ground. Also, the company did not have much COE experience.

### 1-6 Contract Modifications

The following is a list of the major contract modifications issued during construction. They did not require a lot of change orders. A lot of things were handled without the contractor demanding a change order.

- Sprinkler protection in the attic
- LED lights on exterior. However, the fixtures provided are not lasting very long
- Added water softener due to the hard water and high calcium content of the water.
- Added door locks on the restrooms
- Additional voice and data in the training room. The original plan did not have any voice outlets.

## 1-7 Construction Issues

- The day room door is a maintenance issue due to the heavy use. Due to its proximity to the parking area, this is the primary door used by the users.
- Exterior LED lights are flickering.
- All exterior doors except for one has issues regarding the panic hardware and CAC reader.
- Water pump that sends recycled water (captured rain water) to hose bib for washing trucks is not working.
- Apparatus bay flooring is not resisting oil stains. Seems coating is allowing the oil to penetrate. May need to look at RFP working to be more prescriptive.



- Glass tile in the restrooms are cracking in some areas. The glass tile is more fragile than ceramic tile.



## 1-8 Changes to the Standard Design

- The computer training room is now the Inspector Office
- Recycling Room has been converted to an office
- Hose drying tower was added. Made an agreement with HNC to add this during the RFP preparation.



- OSHA says PPE must be in a separate room due to vehicle exhaust. Users insisted in dedicated room. Right now problem is fumes are being sucked into the PPE storage room by the ventilation system. The fumes then go through a filter and sent back into the apparatus bay.
- General storage room (room 112) is used as an office.
- SCBA Compressor Room and Maintenance Room have been combined into one larger room. They said the compressor would not have fit in the room allowed in the standard.
- Converted one dorm room into storage.



## 1-9 General Comments

- Fire alerting is separate from the fire alarm
- The Fire Fighter union would not let them move into the facility was totally finished, to include Cable TV.
- The union also requires a 30 day notification period before moving.
- Furniture coordination was an issue. Furniture came in 3 shipments. Last one was delayed. The first delivery was the dorm furniture, and it was early.
- They really like the hose drying tower. They wanted to make sure that is a part of the standard. The tower needs a door to the hardstand area outside where the trucks are parked to wash for ease of hanging the hoses.

- The main entrance door is rarely used. The primary door used by the users is the door off of the dayroom.
- Regulations say they are to open the bay doors before starting the trucks. This does not always happen.
- The apparatus bays are drive through.
- The vehicle apron is concrete.
- The attic has a catwalk system to access the HVAC units.



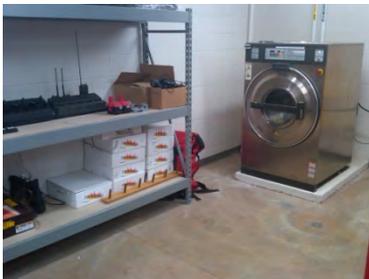
**CHAPTER 2 - ARCHITECTURAL**

**2-1 General Discussion**

- Would prefer stained concrete floor to the VCT. The VCT pattern in this facility is very “unique”, and takes some getting used to. On the other hand, it appears that the pattern and texture would allow for repairs to be done to the VCT when required without being as apparent as on a solid single-color VCT floor.



- By relocating the PPE storage, they gave up the protective clothing laundry and fire extinguisher inspection/maintenance and Storage areas. They have no issues with losing those areas. There is an industrial extractor in the PPE storage room.



- They have an icemaker in the laundry room for use in emergencies. Ice for consumption is handled through the refrigerators in the kitchen.

**2-2 Feedback/Lessons Learned/Standard Design Impacts**

- Need a larger kitchen sink with a high gooseneck faucet.



- Not able to shave due to the water saving faucets. Can't plug sink. Metered and pre-mixed water. Cannot get enough hot water. Have to wait in between pushes of faucet for water to come back on. Needs to be a residential style faucet.
- Individual room sheets in the standard indicate only data in the training room, which conflicts with I3A which requires voice as well.
- Need stripes on the apparatus bay floor for a guide when pulling into the bays.
- Facility needs more storage.
- Need to locate the microwaves either on or above the counters as opposed to below the counters. They are too low.



- They need a work bench area in the SCBA room.



- Need better guidance on what kitchen equipment is to be provided as part of construction. Some issues regarding items such as built-in ovens and ranges (i.e. drop-in range) and dishwasher. Needs to be clarified in the RFP and criteria. Dishwasher was delivered, but not installed. Fire fighters had to install.



- The medical supply storage needs to be larger.



## CHAPTER 3 - MECHANICAL

### 3-1 General Discussion

#### HVAC

- Apparatus Bay uses a dilution ventilation general exhaust system energized by one carbon monoxide (CO) sensor. Exhaust makeup air is introduced through Apparatus Bay overhead door openings that are not interlocked with the CO sensor. Providing an exterior wall louver near floor level at each end of the Apparatus Bay with motorized dampers interlocked with the CO sensor would ensure makeup air is provided should the Apparatus Bay doors fail to open and to remove residual CO if the doors are closed just after the returning vehicle shuts down.



- While one CO sensor in the apparatus bay should fall within area of coverage specifications by manufacturer, another CO sensor on the other side of the double bay would allow quicker detection of excessive CO levels to bring on the exhaust system.
- A disadvantage of the Apparatus Bay general exhaust system is that exhaust fumes travel through the PPE Storage Room and leave residual contaminants on and in the PPE. A tailpipe source capture type exhaust system would eliminate this problem.
- Split system heat pumps are used and appear to provide satisfactory temperature control.
- It does not appear that ventilation air is being provided to the Dorm Rooms in accordance with ASHRAE 62.1. There are operable windows which could be used when no heating or cooling is being provided to the rooms but this does not meet the requirements of ASHRAE 62.1.
- The attic catwalk provides very good access to the HVAC equipment located in the attic.

- Self-powered VAV supply diffusers with individual thermostats are used in the Dorm Rooms for individual temperature control. There does not appear to be any bypass duct to maintain minimum airflow. One of the refrigerant lines frosted up when the system was first operated and has been corrected. Running the unit below minimum supply air requirements could be problematic over time.



### PLUMBING

- Rainwater collection system for washing fire trucks was provided. System worked when building turned over but the pump is not working.
- Waterless urinals and metering lavatory faucets provided. Metering lavatory faucets in Men's Toilet are problematic when men are trying to shave.
- Water softener was added due to high mineral content of potable water.
- Solar hot water system provided and is working.



- Where natural gas is supplied to the building, provide natural gas line with capped and valved outlet for gas grille by others in the courtyard area outside.

### FIRE PROTECTION

- The Mass Notification System is not coordinated and it does not work as designed. It will be repaired in March. The Fire Alert System was hard to understand.



- The wet pipe sprinkler system was extended to cover the attic also in the event that combustible items are stored up there in the future.

### **3-2 Lessons Learned/ Standard Design Impacts**

- Where natural gas is supplied to the building, provide natural gas line with capped and valved outlet for gas grille by others in the courtyard area outside.
- Do not provide metering lavatory faucets in Men's Toilet.

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**CHAPTER 4 - ELECTRICAL**

**4-1 General Discussion**

- There is adequate an exterior lighting systems provided for parking areas, sidewalks, building entrances and perimeter for safety, evacuation and security measures.
- The lighting is controlled by motion sensors.
- The facility has 100% emergency generator back-up power. The emergency generator has been provided with 72 hour on-site fuel storage.
- The Apparatus Bay does have self-retracting electric drop cords between vehicles that reach to either end of each bay.
- The Apparatus Bay has Red/Green signaling system for each door to indicate whether the bay door is fully raised.



- Cathodic Protection System was installed.



- Lightning Protection System was installed.



- The Day/Training Room does have dimming controls for the lighting.
- The Station Officer's Office/Watch Desk has been provided with operational control to open the Apparatus Bay Doors.



- The Firefighter Alert System correctly control audible alert and dedicated alert lighting in Dorm Rooms, corridor lights from Dorm Rooms to Apparatus Bay, and Apparatus Bay.



- There are adequate working clearance for electrical and communication panels.
- The Communication Rooms are adequately heated/cooled and no prohibited equipment/systems passed through these rooms.

## 4-2 Lessons Learned/ Standard Design Impacts

- There are no Firefighter Alerts on the outside of the facility.

- The transformer is not metered.



- The transformer meter, gas meter, and water meter have not been integrated with the post-wide UMCS/EMCS. DPW is not monitoring gas, water and electric usage. See appendix for record of utility usage.
- The Station Officer's Office/Watch Desk has been provided with operational control of the Firefighter Alert System, but it is not used.
- The wiring is not concealed from view in this finish area. A concealed/flush box is used for a device on an exterior wall.



- Doors do not latch.
- The lighting in the Communication Room is below the recommended foot candle.



- The designer should add lights to the east side of building near the wash rack area.

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**CHAPTER 5 - MISCELLANEOUS**

**5-1 CIVIL/SITE**

- There are approximately 30 POV parking spaces and 3 handicapped spaces. Parking is located so that you don't have to cross the apparatus drive to access the building.
- There is a patio off of the dayroom.



- A large number of the plants have been uprooted and eaten by wild Javelina.
- The grass did not grow too well.



**APPENDIX A - ROSTER**

# Post Occupancy Technical Review (POTR) - Roster

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Professional Responsibility: Mechanical (HVAC, Plumbing, Fire Protection)			
Name:		Organization:	
Phone: ( )	Email:		
Professional Responsibility:			

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**APPENDIX B – ENERGY & WATER USAGE**

The beneficial occupancy date for the building was 18 July 2012.

**Electrical Energy Usage**

July	15240 kWh
August	18280
September	18120
October	16900
November	13800
December	13940
January	14600

**Natural Gas Usage**

18 Jul 12 thru 28 Feb 13      162,800 cu ft

**Potable Water Usage**

18 Jul 12 thru 28 Feb 13      15,080 gal