Section06 Fire**StationNo.3**

Background for Shawnee Fire Station 3

Shawnee Fire Station No. 3 was constructed on the northwest corner of East MacArthur Street and North Oklahoma Avenue in the early 1970's. It is stylistically related to Fire Station 1.

At the time of Fire Station 3's completion, the mission of the Shawnee Fire Department, and most other fire departments, consisted of little more than being ready to fight structure fires. EMS, HazMat, Vehicle Extrication, Confined Space Rescue, Dive Rescue, Fire Inspection, Fire Prevention Education, and Plans Review were rarely a part of a fire department's charge.

With a limited mission and a decline in the number of structure fires as a direct result of better building materials, building codes and required commercial building fire inspections, many stations were designed during this period stripped of any architectural character and constructed to be "out of sight and out of mind." Station 3, were it not for the measure of visibility afforded by being located on the major east-west MacAuthur Street artery, could be argued to fall into the "out of sight out of mind" fire station description.

Recognizing that Fire Station No. 3 was designed in the early 1970's to a set of codes and public law different in numerous ways from what is in force today, attention must be drawn nonetheless to some of the ways the building fails to meet current codes particularly with respect to The Americans with Disabilities Act (ADA), an Act which is enforced by the US Department of Justice. Modification to the fire station may, depending on the extent, require updating the entire fire station to meet the current ADA code. Not only does the station not meet current codes, it also does not meet, in a number of ways, the operational "best practices" found in expertly designed contemporary fire stations. Again, the station is over 40 years old.

Deficiencies are to be expected in a structure of that age. Indeed, many fire departments consider a station 40 years old to be at the end of its life cycle. In addressing the life cycle of a fire station, architects who specialize in fire stations will often speak of a fire station life-cycle as 40 to 100 years. Few reach the 100 year mark and those that do were most certainly expertly located, designed and constructed of quality materials when they were erected. Long lasting stations are almost always so inspiringly designed they become community icons that contribute to what urban designers call "pride of place."

The structural column components of Fire Station No. 3 are of cast-in-place, reinforced concrete. These columns are connected to roof structural members which are precast concrete "T's'." The structural system was , no doubt, engineered at the time to withstand any expected future tornadic forces. The same cannot necessarily be said of the columns designed resistance to seismic forces. Oklahoma seismic activity has increased in the last few years with a 4.5 Richter Scale magnitude event recently recorded. Since the time of the construction of the building a lot of new knowledge has been gained both empirically and by research methods on how to improve reenforced concrete columns and connections with respect to seismic loads. There is a windowless basement under part of the building which can and does serve as a tornado shelter for personnel assigned to Station 3 when the need arises.

The building does not have an automatic fire sprinkler system. Such a system is now required by the IBC based on the building "occupancy" and will be required as a retrofit with any significant modification to the building. No doubt any significant modifications will also require bringing the building's electrical service and wiring up to current electrical codes. A standby emergency generator to power the station was recently added.

Apparatus Assigned to and Quartered at Shawnee Fire Station No. 3

1 Engine (Engine Company 3)

1 Regional Disaster Response Trailer

1 One Crew-Cab Pick Up Tow Vehicle for above Trailer

1 Brush Pumper

Apparatus Normally at Station 3 but Not Quartered Inside

1 Training Officer's Response Vehicle (Standard Size Pick Up)

1 Utility Trailer

Personnel Assigned to Shawnee Fire Station No. 3

5 Firefighters as Engine Company Complement (5 is ideal)
(The fifth fire fighter is funded by a SAFER Grant.)

0 Firefighters to Regional Disaster Trailer and Tow Vehicle (Cross Staffed)

1 Training Officer(Weekdays)

Assessment Commentary

Assessment commentary on Station No. 3 and the other active stations will focus primarily on functional deficiencies. The assessment will break the discussion down into 7 areas. The areas include:

Station 3 Reference Plans: Original Floor Plan

The original Construction Documents for Shawnee FD Station No. 3 have not been located in any of the archived plans stored in the closet under the back stairwell that leads from the ground floor to the basement of Station 3.

The consultant, therefore, during the site visit hand measured Station 3 and subsequently commissioned CAD drawings of the Station. Site information and layout was constructed referencing satellite imagery. Digital files for the floor plan/site plan have already been forwarded to Chief Tischer who in turn provided the digital files to the Shawnee Engineering Department to archive.

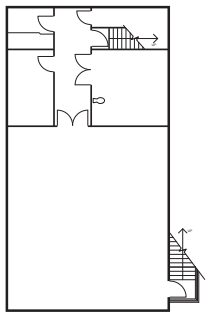
Any follow up design work on Station 3 undertaken by a building architect or a landscape architect working on a site plan or any type of engineering work to improve the building's systems must begin with a confirmation of what is currently shown on the plans as to location and measurements.

While there are similarities in design elements between Station 1 and Station 3, the latter is the work of architect Hugh W. Brown (Office location unknown.)

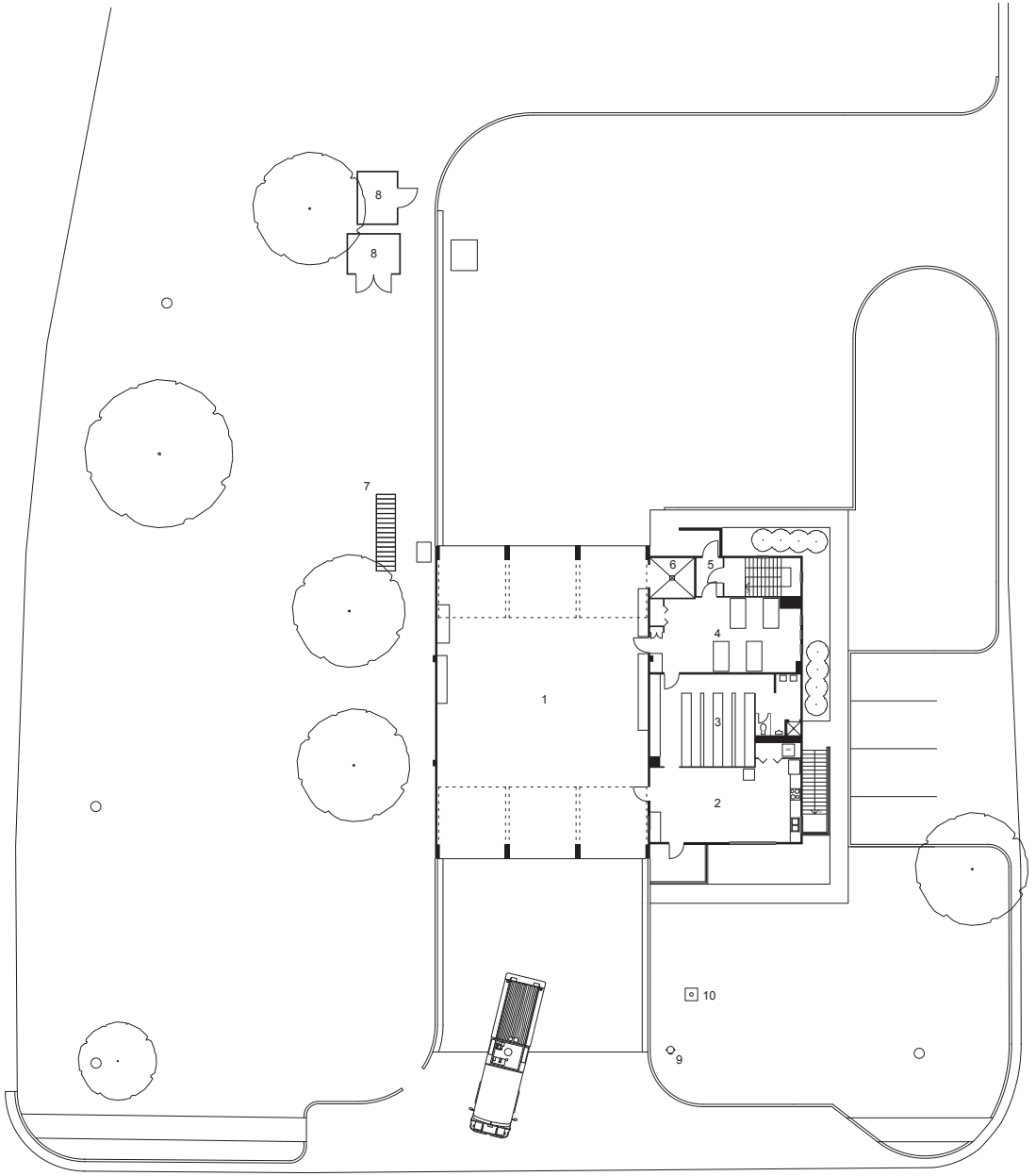
Having a different architectural firm do each station usually ensures that the stations to not take on a "franchise" look. Franchised stations often "institutionalize" the department preventing it from "connecting" to the neighborhood. It is better to erect a station uniquely design connected to and supported by the neighborhood the station serves. Station 3, in being so visually similar to Station 1 appears at first look to be a franchise station but actually is not having been done by a different architect. There is the possibility that the architect was at one time a member of the firm that did Station 1, which could account for the similarity of aesthetic.

The best outcome for a new station or major renovation of an existing station that chances the outward appearance is to have the neighborhood involved via public input sessions so they become proud of "their" fire station.

Station 3 Reference Plans: Consultant Prepared New CAD Site and Floor Plan



BASEMENT



FLOOR PLAN

1/8" = 1'-0"

0 4 8 16ft

1 APPARATUS FLOOR
2 KITCHEN / DAY ROOM
3 LOCKERS ROOM
4 BUNK ROOM
5 ELECTRICAL PANEL / ENTRY ROOM
6 HOSE TOWER
7 HOSE TACK
8 STORAGE SHED
9 HYDRANT
10 FLAG POLE

Fire Station 3 Site Commentary

Unlike Stations 1 and 2, the visitor's entrance to Station 3 is visible to the passerby from MacArthur. From the Oklahoma Avenue side visitor's parking spaces, however, the entrance is not discernible. A sidewalk leading from the visitor's spaces does lead to the front entry, but in a roundabout way. Any user of the side parking spaces must walk past the front landing, step down at the apron's curb, twist around the entry pad rail and step back over the very same curb to reach the entry pad. Awkward, to say the least.

The "text" graphics applied to the facade at the entrance is a bit clumsy in that the Safe Place sign is in the shadow of the roof overhang while the letters used to identify the station are awkwardly mounted with respect to the "design relationships" created by the door, the window and the space between the door and window. While the front entrance has a "safe place" placard, the door is by necessity always locked, and blinds are drawn, creating an unwelcoming entrance for the "safe place."

Currently the public enters directly into the dayroom. As discussed before, this space is a semi-private living space for the firefighters. Only "invited" guest should gain access to the dayroom. The public should be able to enter the building via an unlocked control point easily accessible from a parking lot. They should be able to enter a small foyer or vestibule out of the weather. They should not be able to go no further into the station until contact is made with personnel manning the station. This "control" point will typically have a phone or a buzzer to gain the attention of on-duty personnel.

This staircase in the image above is the emergency exit from the basement and must be maintained.

The apron, having been recently replaced, is in excellent condition and adequate for the apparatus currently assigned to the station. The station will most likely not accommodate a rear-mount aerial device of any length because of door height and structure. Even if an aerial can be accommodated, aerial training and daily testing out front is limited because of the overhead power lines at the street ROW. In the images to the left, one can see the shadow line of the overhead power lines falling across the apron.

The station structural columns at the bay doors could be better protected by 2 bollards/column mounted in the apron a foot away from the columns. The column “boots” that are currently used to protect the columns have not been proven sufficient at other stations to prevent column damage from a backing accident. In considering the placement of bollards out from the columns, consideration should also be given to equipping the apparatus with a backup camera.

The construction joint sawed into the concrete, front to back, on the apron at the columns is helpful as a backing aid as it can most likely be seen in the rearview mirrors. It would have been better to have had also sawn two joints at each column with the joints set into the door opening about 6 inches from the columns. Doing so clearly defines the safe backing lane. The placement of “backing aid” joints 4.5 ‘ on each side of the centerline of the bay insures that they can be clearly seen in the cab mirrors.

The image of the station could be embellished somewhat by putting apparatus numbers or the station number or name on the spandrel panels or façade above the bay doors. This would further identify the buildings purpose to those who pass by the front of the station. Station identification and location is important. Being constantly reminded of it presence makes for easy recall if a situation requiring immediate attention ever arises.

The light on the corner column should point down or be a sconce style wall-wash style light. Lighting designed to illuminate the apron should be either indirect on the building or pole mounted to illuminate from above.

Space wise, the station can be easily expanded to the west. The support columns visible down the west side allow for the brick walls to be removed. Rooms for support functions such as a workshop, SCBA maintenance room, equipment storage, and facilities maintenance, could be added to the station without difficulty.

Note the car and truck in the picture. They belong to shift personnel. They are parked off an alley because there is not adequate parking for personnel at shift change within the defined parking areas.

While the ground slopes from the alley to the building, it would be possible nevertheless to add a longer bay to the west side of the building. A longer bay would accommodate the long regional emergency response trailer housed in the west stall and allow the tow vehicle to remain attached. The existing bays will not accommodate the response unit hooked up as a single unit. Having the apparatus pre-connected as a single unit will shorten response time for an incident as well as eliminate hooking the two pieces together while personnel are under stress knowing they are going into a disaster area.

This view affords a close up of the light discussed in a previous caption. If the columns are lighted, it should be by indirect, wall-wash sconce lights.

The vent stack on the side of the building is part of the diesel exhaust extraction system that has been retrofitted to the station. It is properly installed. New systems are typically integrated and are less obvious. This exhaust stack can possibly be more integrated if the building is expanded on the west side. To do so will certainly enhance the curb appeal of the station.

The mid-wall structural columns can be seen more clearly in this image as well as the non-load bearing brick infill walls that could be removed to expand the building.

In this view of the rear of Station 3 looking SE, the entry to the station from the rear parking is via a door in the extension next to the hose tower can be seen.. No fire exit doors, required by code, are found leading out of the apparatus floor.

A large concrete apron is provided at the rear to facilitate drive-thru returns to the station. The drive-thru feature does not function as the rear of the apparatus floor is blocked by vehicles, training props and other items.

The image to the left was taken looking SW. A large generator has been added to the lawn area just off this NE corner. The 3 window set is at the dorm while the single window is in the kitchen area. The lone “foundation” planting serves no purpose. From this view of the visitor parking area one can barely discern the pathway to the “front” door of Station 3.

This view of Station 3 from across MacAuthor shows more clearly the overhead power lines that are problematic to any attempt to use the front apron for ladder training. While no ladder apparatus is currently quartered at Station 3 it is within the realm of possibility should the character of the FRA change such that a ladder is required.

The Shawnee Fire Department's training officer works out of Station 3. The Department's only training classroom is located in the basement of the station. With training functions at Station 3, it is likely that an aerial could be brought from Station 1 or Station 2 for training. Any aerial training should take place on the rear apron.

In five images on these two pages, two features dominate the viewer's perception of the station. The glass overhead doors on the front of the apparatus floor and the hose tower. Many fire department add large station numerals to one or more sides of the hose tower to further proclaim the presence of the fire station to the passerby.

The image below shows recent gas line installation work for the new generator and repair work at the rear apron driveway.

A more detailed close up look at the site for Station 3 exposes two unsightly, mismatched sheds off the NW corner. The white shed contains equipment used to maintain the outside of the station, including two lawn mowers. These two sheds from the local DIY center, mismatched in style, shape and color distract from the cohesiveness of Station 3's appearance. The shed are an affront to the neighborhood by adding visual clutter.

The barn-like beige colored building, according to all personnel interviewed, contains "junk" that should be inventoried. Items of no further use to the department should be disposed of via recycling measures.

A yard maintenance outbuilding that matches the station could be constructed to house the maintenance equipment and perhaps also screen the dumpster. Better yet, apparatus support spaces could be added to Station 3 negating the need for these unsightly sheds.

The DIY concrete ramp patched in at the curb was added to enable the ridding lawn mover to mount the curb in going to and from the storage shed. It is not ADA compliant. It should be replaced with a proper curb cut and ramp even if the sheds are removed. Study very carefully, with respect to vehicular circulation and other "object" placements, just where the curb cut needs to be placed to be most effective and the least likely to be blocked.

The dumpster is unsightly and potentially impedes traffic flow in the parking lot. The dumpster should be set on a new concrete pad constructed in the lawn area behind the curb. A bigger dumpster could be used and serviced less often.

One thing the sheds do well is to prevent some items “stored” behind the sheds from being seen from the fire station. You cannot say the same with respect to the neighborhood.

The Athens-Clarke County Fire Department in Georgia enjoys great public support as evidenced by never having had a bond issue to build a fire station fail a referendum. One of the ways the fire department has gained so much public support is to position recycle bins at the rear of some of their more rural fire stations. Neighbors stopping by “their” fire station develop a sense of pride and “ownership” of what their tax dollars have accomplished.

The service vehicle located at Station 3 is not kept inside. It can not be kept inside as there is no room. Nothing deteriorates a vehicle faster that leaving it outside 24/7.

To the left can be seen the view to the backside of the storage sheds. The basketball goal and the picnic table are obviously not being used. They should be disposed of or repaired for use. The goal post could be put back up for exercise opportunities.

Hose is being dried on the ground because the station's built-in hose drying tower is being used for storage.

The red "ladder bar" playground equipment installed at Station 3 was intended to be used as fitness equipment to build upper body strength. In reality it does double duty from time to time as a hose drying rack. It is odd that a piece of playground equipment would be used for hose drying at a station that has a built-in hose tower specifically for drying hose.

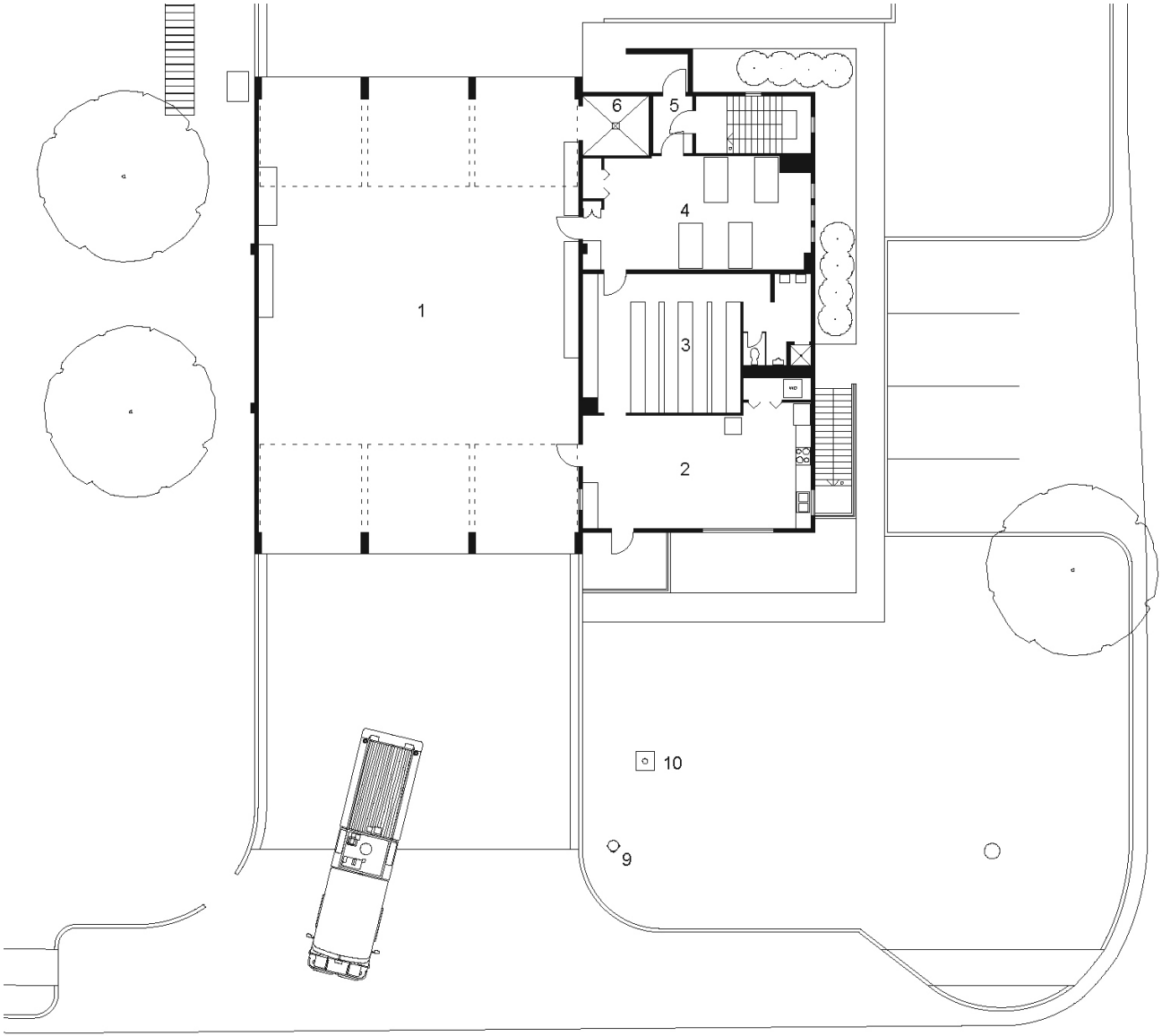
The rusty gray flammable liquids cabinet on the back exterior corner of the station is an eyesore for the neighborhood and should be replaced.

The Department's Hazardous Materials response trailer is parked behind Station 3. Staging this trailer on the back apron affects how the apron can be used by fire apparatus maneuvering or parking. It is an obstacle like the dumpster.

When purchased and placed in service, this trailer was bright red, not dull pink. The fade demonstrates the detrimental effect of storing fire equipment in the sun. The sun and heat have a negative effect on more than just the paint. Equipment stored inside may be sensitive to heat damage, as well. For this reason, the trailer should be staged inside if possible. Ideally it would have a pick-up truck parked in front of it or pre-hitched so that it could be responded quickly. All fire service equipment should be maintained where it is environmentally controlled and ready for immediate deployment.

Alternately, this trailer could be painted white to reflect the maximum amount of heat from sun light. An additional concrete slot or "outdoor bay" could be constructed next to the apron exclusively for this trailer so that it would not be in the way of traffic flow and parking.

Fire Station 3 Apparatus Floor Commentary



Station 3 has a 3 bay drive-thru apparatus floor by design. It does not function as a drive-thru due to mobile equipment and training props housed on the apparatus floor. The only Apparatus Floor Support Space is the hose tower off the NE corner. The hose tower hardly functions as a hose tower as the floor of the hose tower is currently being used for storage of apparatus floor service equipment.

Above is an interior view of the center bay looking south showing Engine 3 positioned on the front apron. Station 3 houses the Shawnee Fire Department's Region 6 Disaster Response Trailer which can be seen to the right.

The trailer cannot be kept attached to the tow vehicle because the bay is not long enough to accommodate both the tow vehicle and the trailer. Extending this bay reward would alleviate this problem, allowing the tow vehicle and trailer to be stored in a response-ready state. Note the storage of equipment behind the trailer which will prevent it from being returned to its position in the station via a drive-thru return to quarters. The trailer is stored with the jacks down to prevent flat spots on the tires.

Note in the image above the small trailer blocking the drive-thru function of the center bay. It may be possible with the current station footprint to move the regional disaster trailer forward and put the training trailer behind it. It may. however, have to be turned sideways to the bay centerline. Turning the trailer sideways to the bay will require it to be hand jockeyed into position whenever it is used on an assignment.

The tow vehicle for the Region 6 Response Unit is pointed in the opposite direction of the trailer. It is positioned in the bay next to the crew quarters. The truck must be driven clockwise around the station to be coupled to the trailer. Apparatus bay extensions would alleviate this problem. A larger apparatus floor footprint would allow this apparatus to remain connected to the trailer. There is no exhaust system drop available for the tow truck in this position.

The image top right shows PPE lockers for personnel not on duty. These sturdy wall lockers, while properly mounted can and do receive too much direct sunlight. UV radiation over the long run is detrimental to the yarn in the fabrics used in the manufacture of the garment. Off-duty personnel PPE is best kept in a well ventilated, dark room or rooms directly off the apparatus floor. Such room or rooms typically have door activated lighting.

A close up of the door to the right of the lockers is shown in the bottom right hand image. This is the door from the dayroom/kitchen. Take note of how the apparatus floor appears to have settled about 2 inches. This unintended and unperceived step down creates a possible fall hazard for anyone coming from the dayroom. Conversely, the unperceived step up creates a possible trip hazard for anyone moving from the apparatus floor to the dayroom. The settlement, if actual, is most likely caused by soil shrinkage during drought periods over time.

While a raised floor elevation for the crew area is desirable in a station, an intentional difference in elevation is best taken up with a shallow sloped ramp fitted to a short hallway leading from the crew area to the apparatus floor. This solution for the grade differential is not possible at Station 3.

This is not an easily correctable flaw. A short “patch” ramp can be just as problematic, as exemplified by the short “patch” ramp that has been added to the doorways going from the apparatus floor to the dayroom at Station 1.

Again, the step at station 3 is such that the difference in elevation is barely perceptible to someone passing through the door way. While those working at the station may become accustomed to the step difference, visitors and newly assigned personnel may suffer a fall injury on entering or a hyper extension injury to the knee on moving through the doorway to the apparatus floor.

In the image above, the window to the right of the door to the dayroom was intended to serve as the “Watch Room” for the station as there is a built-in desk on the other side. At the time Station 3 was constructed, most stations had a Watch Room. The purpose of the Watch Room was to have someone man the room to insure the security of the apparatus floor and to insure the station personnel knew when there was a “Visitor in the House.” This Watch station fails because it is combined with the semi-private dayroom/kitchen area and in effect dissolves the privacy of these “home” areas. To deal with this shortcoming, drawn blinds block the window.

The images to the right show how the floor slab has been properly separated from the outside of the apparatus bay door by a thermal break. The spalling of the concrete on the old grade beam adjacent to the new concrete apron is most likely the result of an inadequate expansion joint thickness between the old and new concrete surfaces.

The cast steel “column protectors” at Station 3 do not adequately protect the column from impact. Does the slight difference in paint on the column reveal where a repaint has been accomplished after chip damage of the corner has been repaired? The force of a large impact could damage the structural column.

The cast steel corner protection should be augmented with tall steel pipe bollards set away from the building.

While this light fixture may be antiquated with respect to performance, recessed lighting such as this for illuminating bay doors is the way to do it. The recessed“can” light fixture used should be a design without a lens. A lensed fixture will simply create long term cleaning issues because insects will invariably fill the inside of the fixture on the top side of the lens and occlude the light.

While continuing to look upward, but this time from the inside, two issues are revealed. On the left is evidence of a roof leak revealed by the stain on the steel girder. The second is broken pipe insulation.

The purpose of the looped hose dangling overhead in the apparatus bay is to refill an apparatus' water tank from the top of the apparatus. All apparatus water tanks have a vent/surge stack on top. The stack has a hinged cover. The hose in the picture can be placed in the stack to refill the tank. But apparatus tanks can also be refilled from a inlet valve mounted on the pump panel.

Most fire departments have an SOG that requires a pump operator, if not already connected to a hydrant, to stop at the nearest hydrant to refill the tank after it has been drawn down. Doing so means the unit is back in service and ready for the next call rather that having to return to the station for a top-off before returning to unlimited service.

Most fire departments are doing away with these overhead mounted fill stations. They are doing so in the name of personnel safety. There have been numerous accidents and even a few deaths from falls off apparatus resulting from firefighters trying to perform task, including tank refill, on top of fire apparatus.

Most stations today are being designed with at least one 1-1/2" connection on the apparatus floor at what amounts to fire hydrant level. Fire apparatus tanks can also be topped off at the fire station using the station's yard hydrant.

At Station 3 there are any number of head-banging opportunities for anyone performing a task on top of a fire apparatus.

Station 3 is equipped with ceiling mounted gas-fired infrared heaters on the apparatus floor. Gas-fired infrared heaters are considered the most environmentally appropriate heat source for an apparatus floor as the technology method heats the objects on the apparatus floor rather than the air of the apparatus floor.

The system at Station 3, however, has a possible flawed layout in that the units are not mounted to hang between the apparatus stalls or between the apparatus stalls and flanking walk. I have never seen an infrared system where a heater unit is bent 90 degrees to cross over the apparatus position.

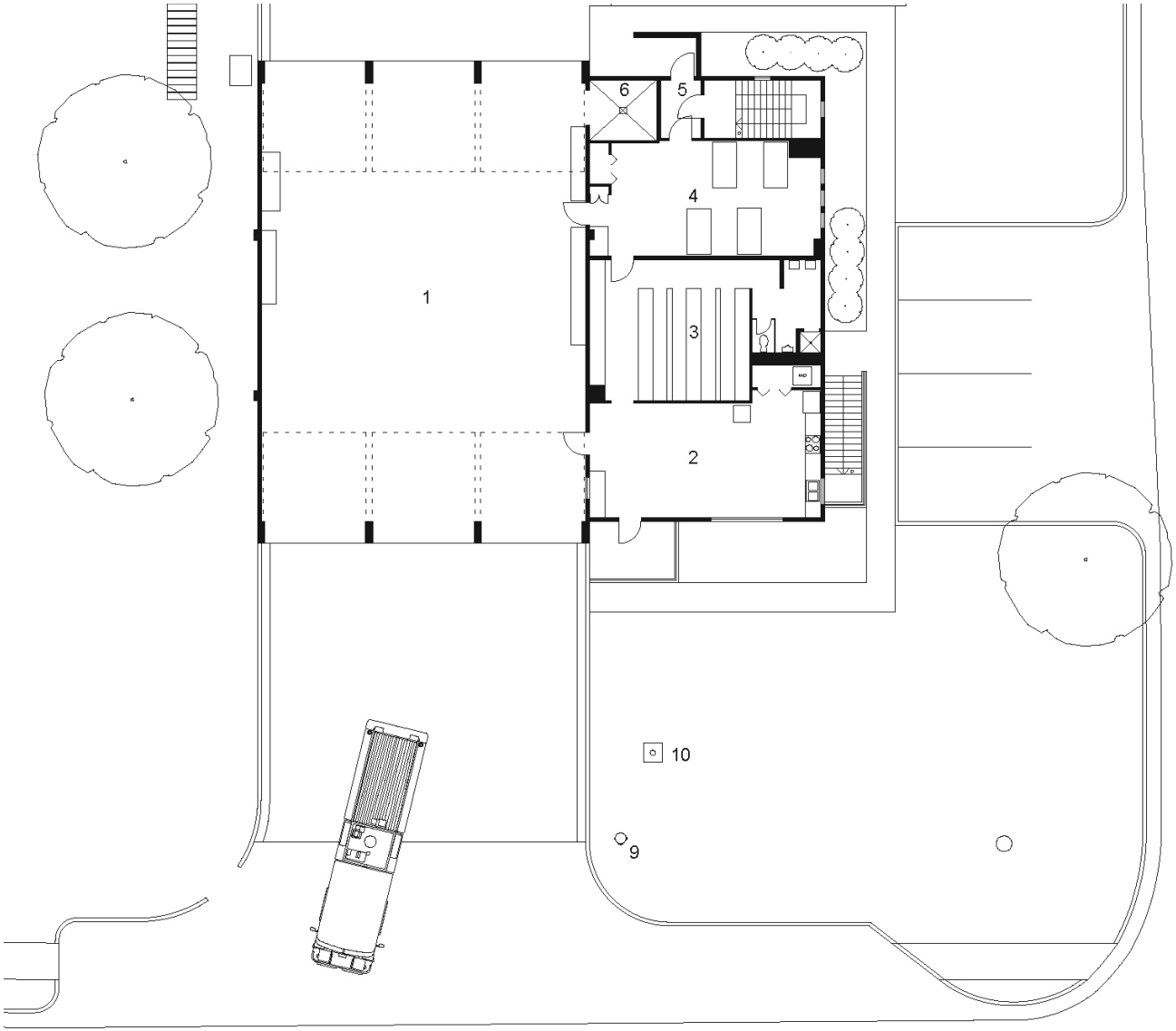
The two images below show a shield installed to the bottom side of the heater to protect the trailer from too much heat. While the shield might protect the trailer it reduces the efficiency of the heater segment.

Station 3's apparatus bay is equipped with its original florescent light fixtures. Most new station coming on line are equipped with LED fixtures as an energy saving measure.

Mounting the PPE lockers on each sidewall of Station 3 has reduced the aisle width. Spotters engaged in backing the apparatus into the station must use extra caution least they inadvertently bounce themselves off the corner of the locket and into the path of the backing apparatus.

On the opposite wall, the PPE lockers are currently being used to store supplies that should be stored in an apparatus support room.

Fire Station 3 Apparatus Floor Support Space Commentary



FLOOR PLAN

0 5 15 25ft

1 APPARATUS FLOOR
2 KITCHEN / DAY ROOM
3 LOCKERS ROOM
4 BUNK ROOM
5 ELECTRICAL PANEL / ENTRY ROOM
6 HOSE TOWER
7 HOSE TACK
8 STORAGE SHED
9 HYDRANT
10 FLAG POLE

Space 6 in the plan above, the hose tower, is the only apparatus support space at Station 3. More typically you will find spaces for DeCon, SCBA refill and service, vaults for off-duty personnel's PPE, small engine service and repair, site and building maintenance, a storage room for any training props use at the station, a room or space for radio charging stations, PPE laundry equipment, toilet facilities, storage of supplies for the station and apparatus housed at the station. A Watch Room that doubles as a report writing space could also be considered as an apparatus floor support space. Federal law on patient privacy in effect requires a report writing room to insure confidentiality for EMT's filling out patient contact forms.

This view shows how the exiting hose drying tower is being used to house a vending machine, apparatus service equipment and other items. While recent LDH technology does not require it to be washed before repacking on the apparatus, many departments today are finding they can get longer life for attack hose if the hose is washed to removed debris and then dried thoroughly before returning to a hose rack or being repacked on an apparatus. In many modern fire stations hose towers are being designed as training towers as well. In some 2 story station they serve as a stairwell.

The apparatus bay is a semi-public space, meaning that the public will sometimes have access to the bay floor. They can see in when doors are open. And despite having a clearly discernible public entry to the station will head straight to the apparatus floor when calling on the fire station for a casual visit or in need of emergency assistance or simply directions.

The lack of apparatus floor spaces at Station 3 is a cause of concern because of the large number of items stored on the apparatus floor that is potentially a trip hazard not only to firefighters at the station but also to any visitor.

In the images, we see a whole host of equipment used to maintain the apparatus, apparatus equipment, the station and the station's site cluttering the apparatus floor.

On the next page, note the unsecured chainfall on top of the locker.

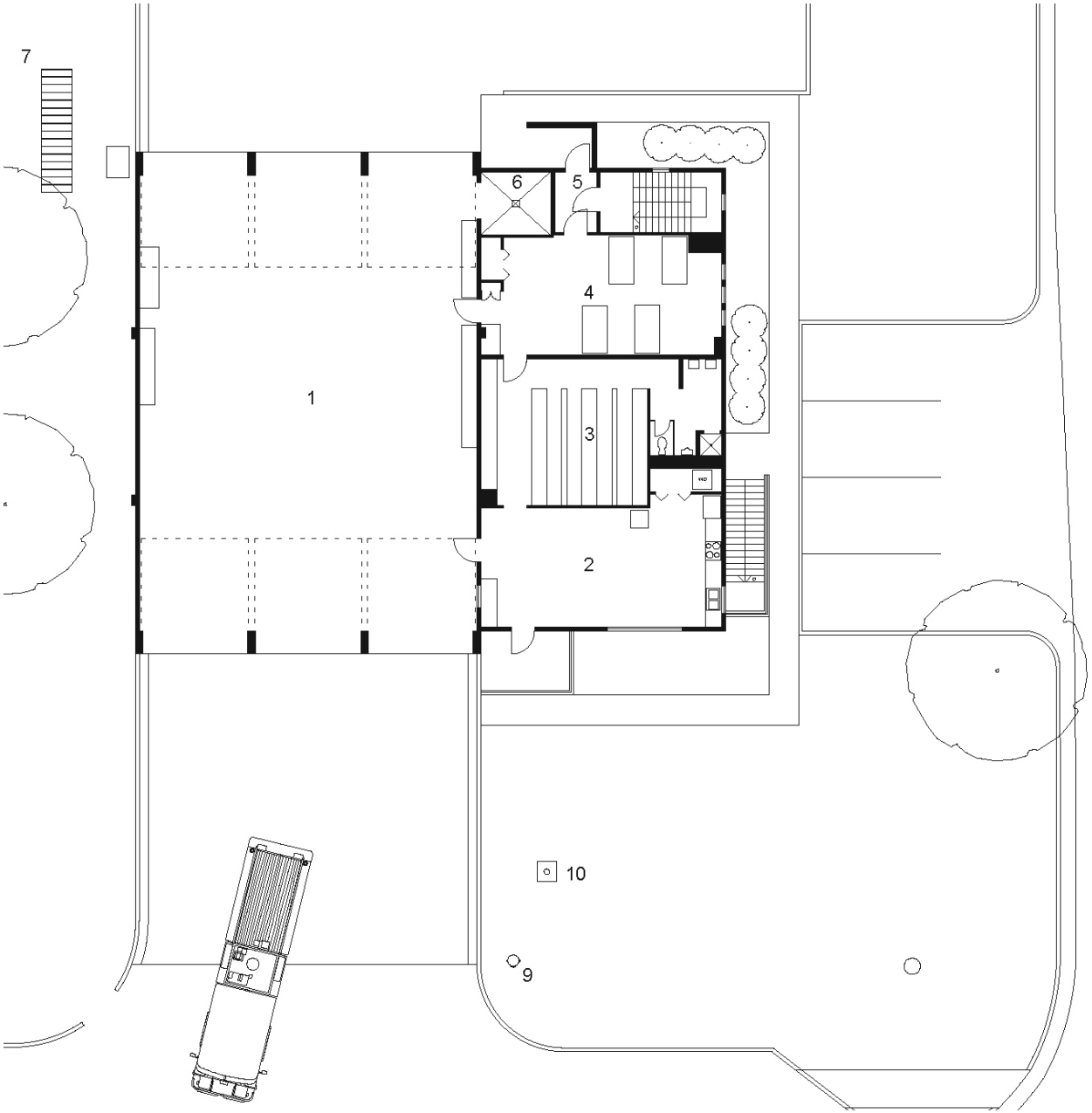
Service hoses for air to maintain air brake pressures and power cords to maintain apparatus batteries are best on reels mounted to the ceiling with automatic "shore-line" disconnects on the apparatus.

This view also shows racks for rolled hose storage best placed in a niche or separate room and lawn maintenance equipment best stored in a room with outside access.

The view above shows a training prop with the station's gas grill in the background. These items should be stored out of the way, preferably in areas appropriate for their use. The current arrangement defeats the ability to drive through the apparatus bays.

The image to the left shows a device used for drying PPE. This equipment on the apparatus floor shows further the need for a room or rooms dedicated to turnout gear cleaning, maintenance and storage. Appropriate drying of turnout gear out of the light maximizes the life cycle of expensive PPE.

Fire Station 3 Duty Crew Space Commentary



NORTH OKLAI

FLOOR PLAN

0 5 15 25ft

1 APPARATUS FLOOR
2 KITCHEN / DAY ROOM
3 LOCKERS ROOM
4 BUNK ROOM
5 ELECTRICAL PANEL / ENTRY ROOM
6 HOSE TOWER
7 HOSE TACK
8 STORAGE SHED
9 HYDRANT
10 FLAG POLE

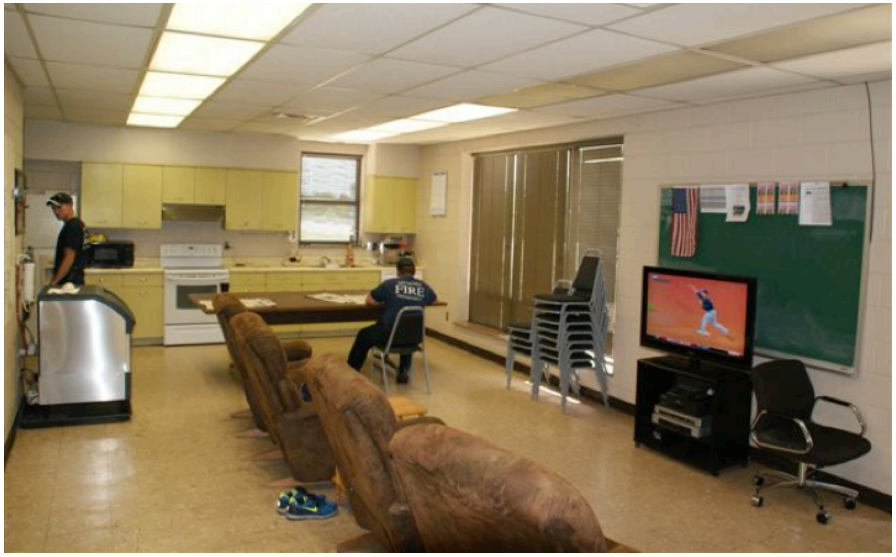
The Duty Crew Space Commentary is focused on room 2, the Dayroom and room 4, the sleeping dorm.

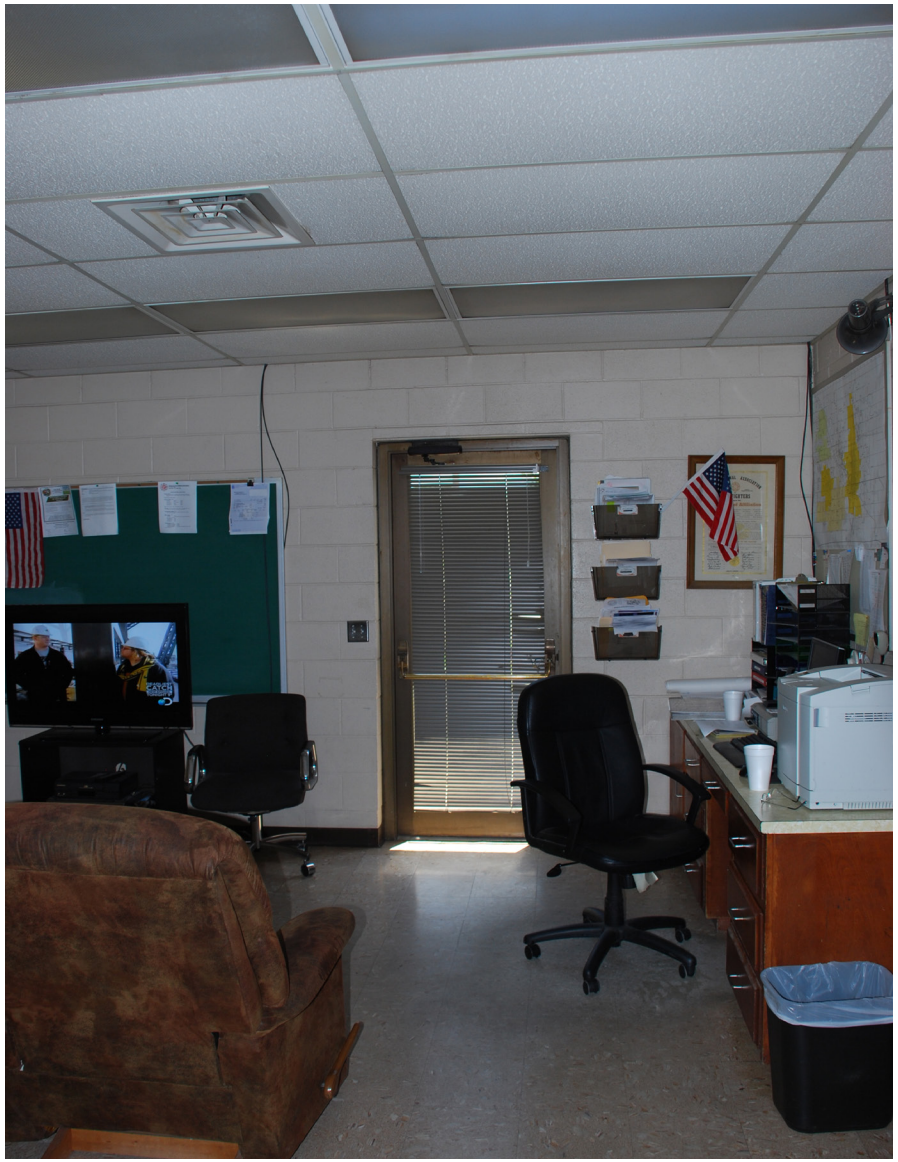
A multi-use dayroom facility used for crew briefings, training, incident debriefing, meal preparations, meals, and department allowed rest time is commonly found in fire stations. The dayroom, aside from the apparatus floor, is the most important space in the fire station be it career or volunteer. The dayroom is the primary space where the camaraderie, basic to the fire service “brotherhood,” is developed and nurtured. A strong bond between company members translates into an effective, harder working, cohesive emergency incident force. It is important to remember that the dayroom should be a semi-private space, one where the members can be at ease at all times to be themselves.

At Station 3 the dayroom is the public entrance to the fire dept. There should be a buffer (vestibule, foyer, entrance hall, etc.) between this room and the public entrance. While it is generally understood by city administrations that firefighters are allowed rest and sleep periods during a 24 duty tour it is difficult for the tax-paying public to reconcile the idea of a firefighter watching TV in a recliner during duty hours. The public’s collective mind generally has an 8 hour work day. Few even realize that the duty crew is on for 24 hours. The public , therefore, should not have direct access to this semi-private area. Firefighters should have the opportunity to present themselves to the public in a public space and them extend an invitation to the dayroom.

A large sofa with built-in recliners, love seats, chairs tables and table lamps around the TV imitating a residential living room seem to be more acceptable to the public than a line of recliners in front of a TV.

The ice-machine, which is usually very noisy, and dining table chairs when not arranged around the table should be in a closet space adjacent to the dayroom or kitchen. The blinds remain drawn in this room because the window faces south, bringing too much heat into the room.

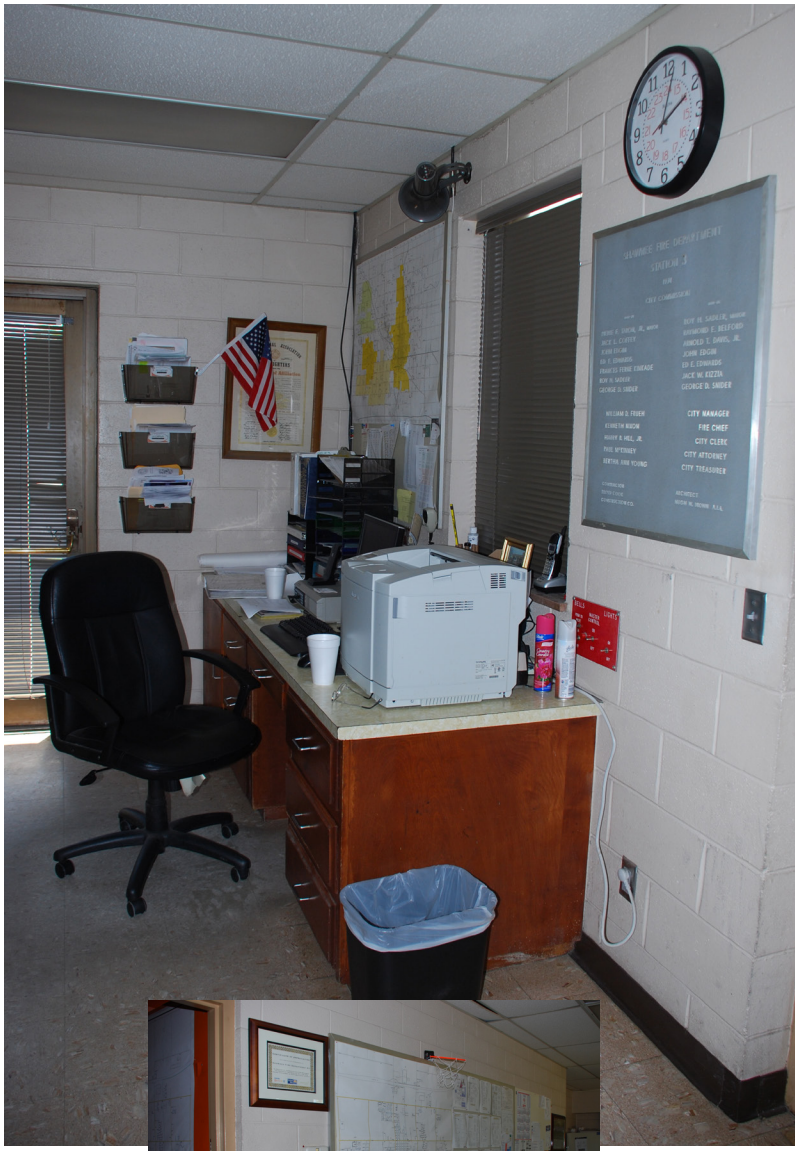




The blinds on Station 3’s front door remain drawn at all times to afford a measure of privacy for the dayroom.

The “Watch Room” functions intrude into the dayroom as can be seen by the Watch Desk and computer on the right in the image above.

The wall space of the dayroom functions as a bulletin board.



The Watch Room in the past was a “control point” room in a fire station. Strategically placed to keep a watch over the apparatus floor when bay doors were open and the front entrance to the fire station, it was the place where a fire station visitor could check in with someone to have their presence known and recorded. While visitors did not enter the Watch Room directly, the Watch Room did have direct communication with the station entrance vestibule. The Watch Room in the past was considered a semi-public space in that the public had visual contact with the space.

Station 3 does not have such a Watch Room. Instead, it was designed and constructed with a “Watch Desk.” The Watch Desk was strategically placed in a corner of the Day Room to afford control of the front door of the station and enjoy a window view to the apparatus floor. The Watch Desk as a concept at Station 3 has been a failure as can be seen in the photo. The view to the Apparatus Floor has been cut off with the blanked out window. Drawn blinds have been added to the front door. Why, because as configured, the public has immediate visual access to Day Room/Kitchen areas which by definition are a semi-private space - meaning visitors do not enter the space visually or physically unless specifically invited into the space by a department member controlling the Watch Desk area.

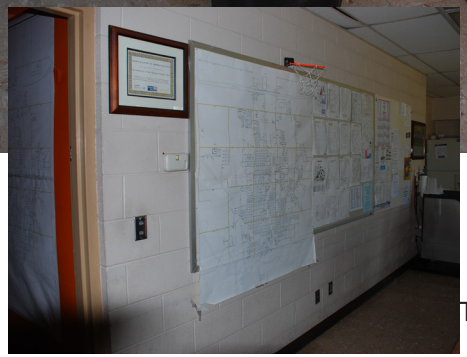
Inasmuch as there is no separate office space at Station 3 for the duty officers, the Watch Desk has become the Duty Officer’s “office space.” As such it functions poorly in many ways. For instance, there is no way to have a private and confidential one-on-one performance evaluation discussion with a subordinate.

Furthermore, Federal Law requires all patient treatment reports be handled with the utmost regards to privacy. Without a secure office at Station 3, patient medical reports, must be completed at the kitchen table or at the Duty Officers Desk by the attending EMT which constantly exposes such reports to unauthorized eyes. This is a potential legal issue for the Shawnee Fire Department.

Finally, the Watch Desk window, shown in front of the desk, looks out into the apparatus bays, but it is not fire rated. The fire code requires windows and door to the apparatus floor be “fire rated” to protect the living quarters should there be a fire in the apparatus bay. Every year in the US there are a number of fires in fire stations that have their origin in the apparatus bays, usually from an apparatus fire.

The number of electrical outlets for the electronics in use today are not adequate for the number of devices typically in use in a Watch Room or Duty Officer’s office.

The wall-mounted “Dedication Plaque” is good to have politically and to commemorate the event, but it is best mounted in an separate entry lobby or vestibule. Short of a dedicated entrance space, it would be best mounted on the other side of the wall in the apparatus floor as the apparatus floor in the de facto “museum” and focal space for most fire station visitors.



The wall space of the dayroom functions as a bulletin board.

Located at the end of the dayroom opposite the watch desk is the kitchen for Station 3. The kitchen is barely adequate for the size of the duty crew. It would be totally inadequate should Shawnee Fire Department put another company in to service at Station 3 due to increases in call volume.

While there are surely several generation of appliances at Station 3, it is believed that the yellow cabinets are original to the station. There is inadequate counter top space. The hood over the range lacks a required fire suppression system. There is no shut-off "palm switch" button at the door leading to the apparatus floor from the dayroom to shut down the kitchen should an alarm have to be responded to while cooking, nor is there any remote way for the 911 dispatch center to shut down the kitchen.

Current acceptable standards for fire station kitchens include all stainless steel cabinets, high-end residential grade stainless steel appliance including gas range top and oven, dual dishwashers, triple refrigerators, deep draw double sinks with drain boards on both side and a built in grinder. State of the art also includes under the counter trash compactor, waste containers and well as containers for sorted recycle items. Microwave unit(s) should be built into the wall space and not take up counter space.

Most station kitchen today will have a large island with a sink so that meal preparation can be an "all hands working" experience.

You have to think of this kitchen as being for a family of 12 or more, especially when it comes to refrigerator capacity despite the duty crew being smaller.

The refrigerator at Station 3 is hinged backward. It is hinged on the right. It should be hinged left so that items can be removed from the refrigerator and placed on the counter without having to work around the open door. The refrigerator capacity is inadequate for 3 "families" of 4 or 5 working at the station.

Commercial-grade refrigerators are not recommended for fire stations because they are very noisy compared with a residential appliance. The largest high-end residential refrigerator is the best choice.

If the station is remodeled, consideration should be given to providing a refrigerator for each shift. Providing a refrigerator for each shift allows personnel to keep items specific to their shift. Stations with a single refrigerator have a constant problem related to "who ate the leftovers from our shift's last big cooked meal?" Any thing left in the refrigerator is consider

“fair game” to subsequent shifts. What was once a very adequate kitchen pantry has been converted into the station’s domestic laundry. If the building is renovated, the washer and dryer should be moved to a better location nearer the sleeping quarters as it is from that area where most of the soiled laundry is generated. The bifold doors are broken and should be repaired or completely removed.

The built in “folding” table for laundry is barely adequate. Note also the unsightly kitchen waste container sitting out in the open kitchen floor space.

The dorm space is also functioning as the physical fitness training area. While fire fighting companies may have regularly scheduled physical fitness times scheduled into their daily routine by their company officer – at or away from the station, some firefighters will nonetheless want to develop their own additional workout routines. Firefighters, however, have different "favorite" times of the day when they want to work out. Some may want to work on exercise or strength building routines at 6 AM while others may want to do so at 9 PM. When the workout space shares the bed space, the most desirable workout time on a personal level is not always available.

A dedicated workout space with at least one wall of glass situated on a high traffic area is the preferred way of provided physical fitness training areas. Placing the workout space along a high traffic area adds to the security of the space in that other eyes can observe the workout space. The extra eyes can help prevent serious injury or a death due to overexertion in the workout area. At least two LODD have occurred within an unobservable workout space.

The bedroom is dormitory style with no partitions between beds. This configuration allows for more utilization of the space but less privacy for the occupants.

An open dorm sleeping area or an open dorm space with sleep cubicles are much less likely to cause trouble when male and female firefighters share a sleeping area.

The dorm space, with the TV in place, serves as a defacto second day room.

Under current building code, the windows are too high off the floor to count as "a second means of egress." But it is possible under current code to have a windowless sleep space if the buidling is sprinklered and the sleep area has a higher "hour" fire rating.

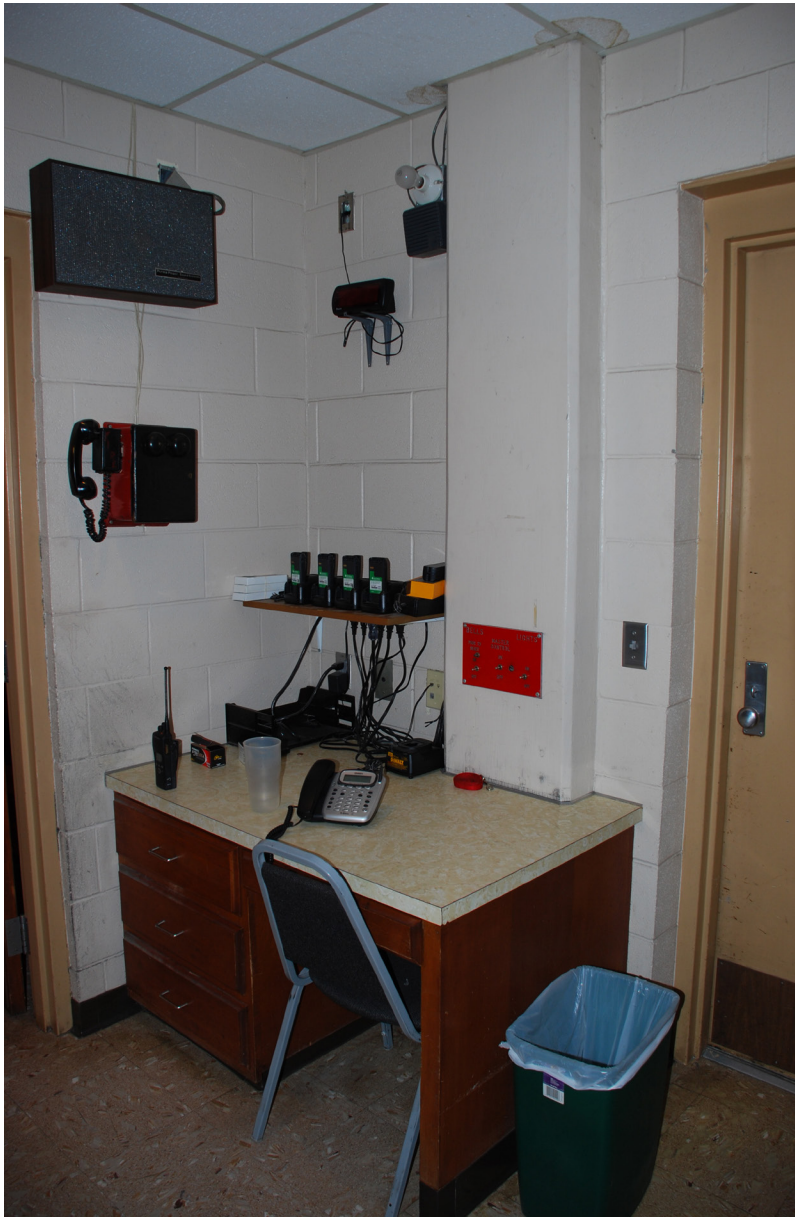
The recessed "can" lighting bears no relationship to the bed or chair placements.

Use of the sleeping room to house workout equipment crowds the space, impeding movement to the apparatus floor responding to an alarm. It creates hazards for firefighters. A responding firefighter could hit his/her head on the end of the weight bar as he/she rolls out of bed.

Any remodel should incorporate a dedicated fitness room.

The door at the far end leads directly to the apparatus floor. There should be a transitional corridor to the apparatus floor. The door to the right is an unmarked exit door leading to a vestibule at the back entrance.

All foot traffic entering the station from the rear parking area must come through this door and cross the sleeping dorm to reach the hallway leading to the dayroom.



The desk is in the SW corner of the dorm is used for communication equipment and radio chargers. The exit door should have a push bar rather than a door knob style latch to make a quick exit smoother for firefighters responding to calls. Note that the trash can is in the path of travel.

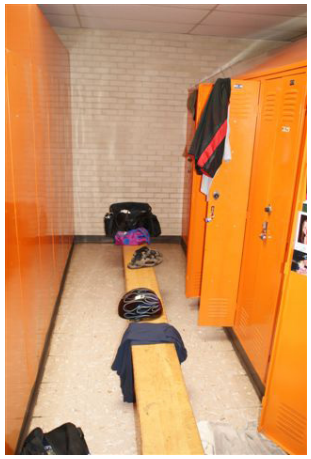
The bedroom linen closet proved inadequate for storage of bed linens for each shift . It has been converted to a janitorial closet and holds miscellaneous supplies. Any remodel should provide appropriate space for bed linens and other storage needs of the occupants.

The bedroom door should be an exit door only. As this view shows, it opens to the hall leading to the back door of the station, a public entrance, allowing the public access to the bedroom. Measures should be taken to limit entrance to semi-private areas of the station. The public should not have direct access to the bedroom.

Fire Station 3 Duty Crew Support Space Commentary

The primary duty crew support space is the toilet/shower room just beyond the locker area.

The lockers are adequate but a bit narrower than what is usual for a fire station. The lockers should be able to accommodate on hangers several changes of station wear including sweat shirts and duty jackets and a change of civilian clothes as well. This is where bedding will also be stored between shifts if there is not other bedding storage provided such as an under the bed drawer. Additionally, toiletries and other personal items should be accommodated.



Locker rooms are by nature a private space not in the semi-private or semi-public realm. At Station 3 however, the door to the locker room has been removed, so the room cannot be isolated from the more public spaces in the station.

A minor point perhaps, but at Station 3 in the locker room there are three bays of lockers and two benches. Two bays of lockers must share a common bench while the third bay does not have to share a bench. Inequalities such as this should be avoided in the layout of a fire stations support spaces assigned to individual firefighters. Lighting, including sky lighting is not uniformly applied in the locker area.

The locker room and toilet facilities were built in 1971. They are not compliant with current ADA requirements. Major renovation to the station will require both to meet ADA standards for access.

Fire stations, as publicly funded facilities, must have wheel chair accessible toilets, showers, water fountains, lockers, kitchen sink, etc.

Station 3 does not meet the test for gender equality. To do so will require a separate shower/toilet facility for female firefighters or individual gender-neutral bathrooms.

To the left is the view to the shower from the locker room. Above is the view to the single toilet provided at the station. The toilet and urinal lack automatic flush valves. It appears that ventilation is also inadequate. Lighting for the toilet stall and the shower stall is nonexistent. Two roll toilet paper dispensers are in order here.

The shower/toilet space is on an outside wall. A high window would have improved the space with natural lighting.

The shower is small by modern standards and lacks a toiletries shelf. Cleaning supplies should have a storage closet or cabinet. MSDS sheets should be on file for all chemicals found in the fire station including all the cleaning materials seen in the photo.

The sinks are barrier free but some modification would be needed for ADA compliance. For example, at least one mirror would need to be lowered.

There is a short corridor connecting the dayroom with the sleeping room. Note that the door remains propped open. It no doubt interferes with travel in responding to an alarm. The door swing also makes the lockers behind the door less desirable.

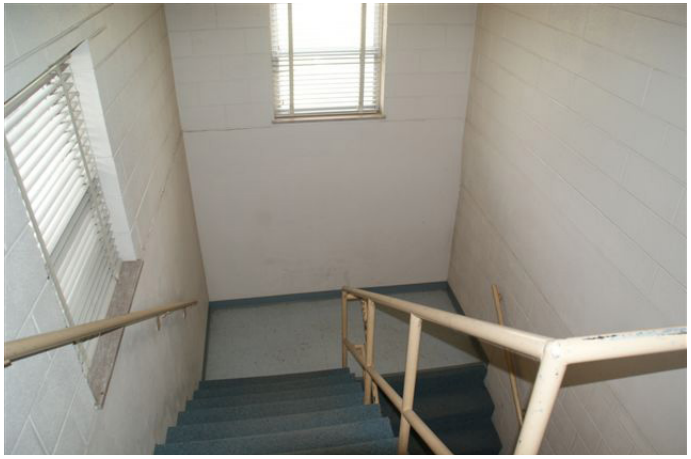
One wall of the corridor is lined with response maps while the other side is occupied with small personal lockers. Consideration should be given to consolidating all maps and map boards on the apparatus floor.

This view illustrates the need for the locker room door to remain closeable to maintain privacy. The front door to the station afford a view straight through the dayroom and the locker area directly into the dorm space.

Fire Station 3 “Other” Space Commentary

This view shows the obscured rear “staff” entrance to the station.

Civilians entering the station for shelter sometimes are confused in “reading” the doors. The wood door ahead reads as the primary path one should take. The metal door to the right leads to the stairwell to the basement of Station 3. The wood door leads directly into the sleeping area. Duty crews report that they have returned from an emergency run during a tornado warning to find civilians asleep on their beds rather than being in the basement classroom/shelter.



The interior basement staircase is a scissor stairs. The basement is not barrier free. An elevator is required.

This view looks into the basement training room. The mechanical room is where the furnace for the station's heat system is located. Just inside this space to the right sits a very neglected toilet that is supposed to serve anyone seeking shelter in the basement of the station. It does not qualify for the "Public, but not public Toilet."

The door to the right is to the SFD Training Officer's office. It is a windowless room as are all other spaces on the lower level with the exception of the stairwell.

The training classroom at Station 3 is seen as a training asset for the entire Shawnee Fire Department. It has adequate space and facilities to conduct classes professionally without distraction.

The doorway on the far left is an exit door leading to the outside stairwell. The exit meets the code requirement for secondary means of egress from “a place of assembly.”

As demonstrated by the materials and training props along the sidewalls, the room lacks adequate storage space. As a consequence, the training room always looks cluttered.

In this basement view looking north, the mechanical room, exit door, and a closet door are on the right side of the corridor. The closet under the stairwell is where the old station drawings for Stations 1 and 2 were uncovered by Chief Tischer. On the left side are doors to the Training Officer's office and the SCBA service and repair room. Serviced SCBA packs ready for use are stored in the basement hall.

The SCBA service and repair room at Station 3 serves as the SCBA maintenance point for the entire Shawnee FD. SCBA service and repair should not be in the basement. Nor should it be in a "clean" area. SCBA equipment in for service may be contaminated with debris from a working fire or chemicals from a HazMat incident. The SCBA area should be accessible from directly outside or directly off the apparatus floor or directly off the DeCon area. Moving this equipment up and down the steps creates inefficiency and an unnecessary hazard posed by carrying bulky equipment up and down stairs.

The SCBA work room could best be used for training purposes as a support room for the classroom. It could be designated for training props; office space for training materials, books and records; and additional storage for things currently kept in the training room.

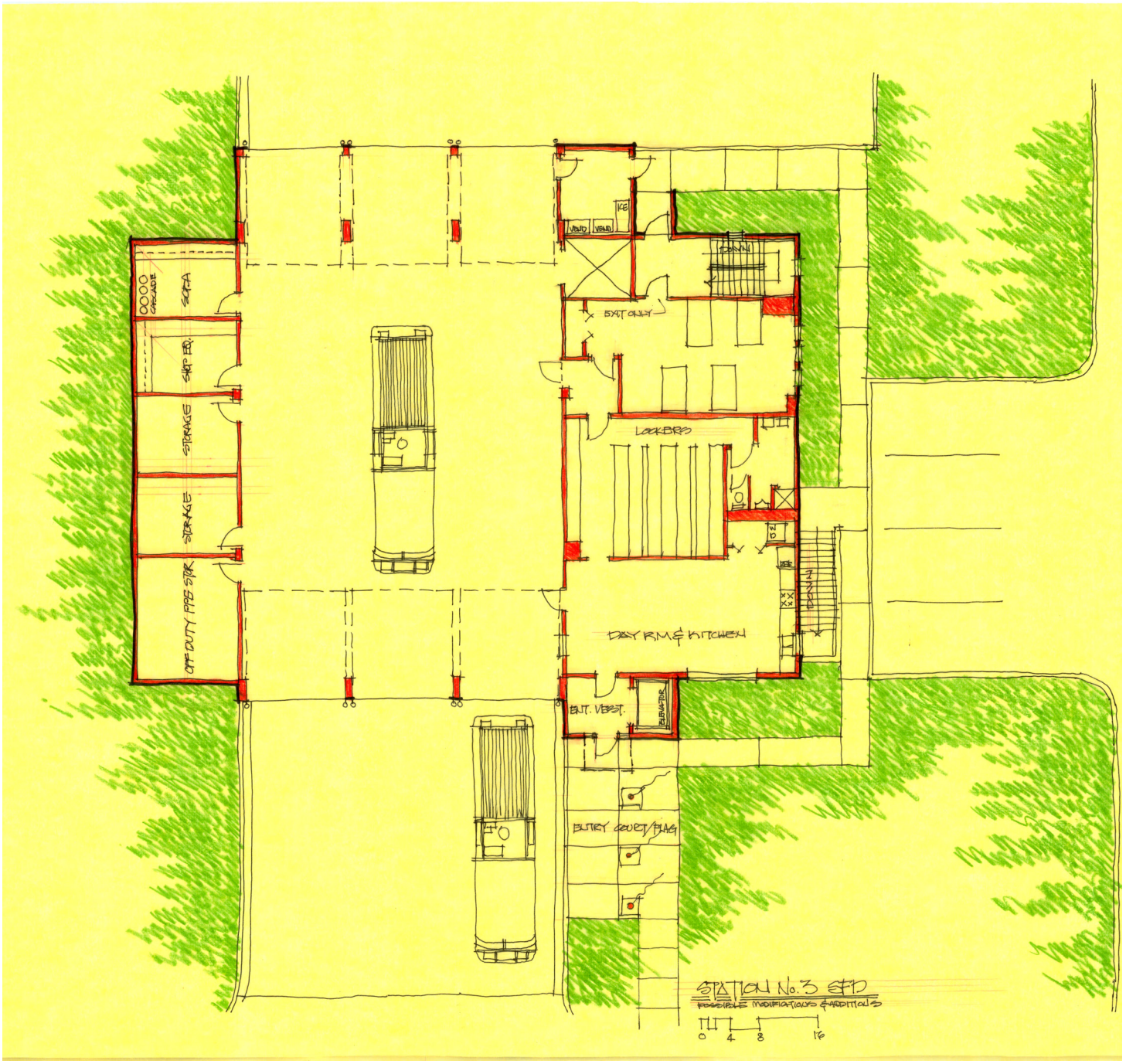
An Illustrative Plan of One Possible Future at Fire Station 2

The narrative for the possible changes are on the follow page.

The illustrative plan shown is only intended to show the Shawnee Fire Department and other City Officials what can be done to add to the usefulness and therefor possible life extension of Station 3.

If any project or projects go forward as a result of this study, the plan needs to be studied further by an architect licensed to practice in Oklahoma with input and further review from the officers and fire fighters of the Shawnee Fire Department.

The consultant would be interested in being involved as a liaison between an architect selected for a Station 2 project and the Shawnee Fire Department as an advisor to the architect retained by the architect or retained by the City of Shawnee as the Owner's Representative (OR).



Site

Site changes at Station 3 are minor. The illustrative plans envisions changes to the sidewalk from the visitor's parking area to the front entry and a new "3-flag court" at the front to help identify the front entry. Some changes are made to the site space by building extensions.

Station Exterior

The Illustrative plan envisions a new front entry vestibule to solve the dayroom privacy issues. An elevator has been added to service the basement level and make the basement level ADA compliant. Not shown, but the vestibule/ elevator lobby could be extended further toward the street to create enough space for a pseudo watch room. The illusion of a watch room often will be all that is necessary to make casual visitors believe there presence is known or soon will be.

Windows and doors should be upgraded for energy efficiency and appearance. Considering the roof leaks, consideration should be given to adding a gabled roof over the apparatus floor with flanking hip roof sections over the crew areas and the new apparatus support spaces. If the flat roof is to remain, the option of adding a "green roof" should be explored as it has been demonstrated that plants in light soil containers over a conventional built-up membrane roof do extend the life of the membrane by shading the membrane from damaging sun light.

Apparatus Floor

The apparatus bays are extended rearward to make the bays long enough to accommodate the disaster response trailer and tow vehicle in the same bay. Extending all the bays gives enough room for the storage of reserve apparatus and even a tiller type aerial should such an apparatus ever become desirable for the City of Shawnee. With apparatus floor support spaces added, the apparatus floor becomes a neat, clean and safer space ready for visitors.

The rearward extension also includes a room that could be used to house vending machines and an ice maker. If these items can be located elsewhere in a revised plan the room could become a DeCon room for cleaning contaminated equipment and personnel.

Apparatus Floor Support

On the west side, apparatus floor support spaces have been added. These spaces could provide for SCBA service and repair, small equipment service and repair, storage of off-duty PPE and general storage. The largest room added and labeled PPE storage could, with a glass wall and door to the apparatus bay, be the location for the station exercise equipment although this location would not meet the "best practices" of having the workout equipment in a high traffic area. PPE, in this scenario would move to one of the storage rooms.

Crew

The Illustrative Plan as shown envisions no changes to the day room. However any future architectural study should consider expanding southward at the kitchen area to the new sidewalk. The added space could be used for an office for the Duty Officer or for a reconfigured kitchen.

In the sleeping quarters, a vestibule has been added to better separate the sleeping area from the apparatus floor and the linen closet has been restated.

Crew Support

The locker room remains unchanged.

A lockable door has been added to the toilet/shower room to make the facility unisex. Making this small change will allow Station 3 to accommodate female firefighters.

Office

No changes shown in the plan, but as suggested above, an office could be added off the kitchen or the front entry vestibule could be expanded to include a watch room/office.

Miscellaneous

Graphic enhancements should be made to clearly identify both access points to the basement shelter if the basement is to remain a designated shelter for the area.

An Illustrative Plan of One Possible Future at Fire Station 3 (Scheme 2)

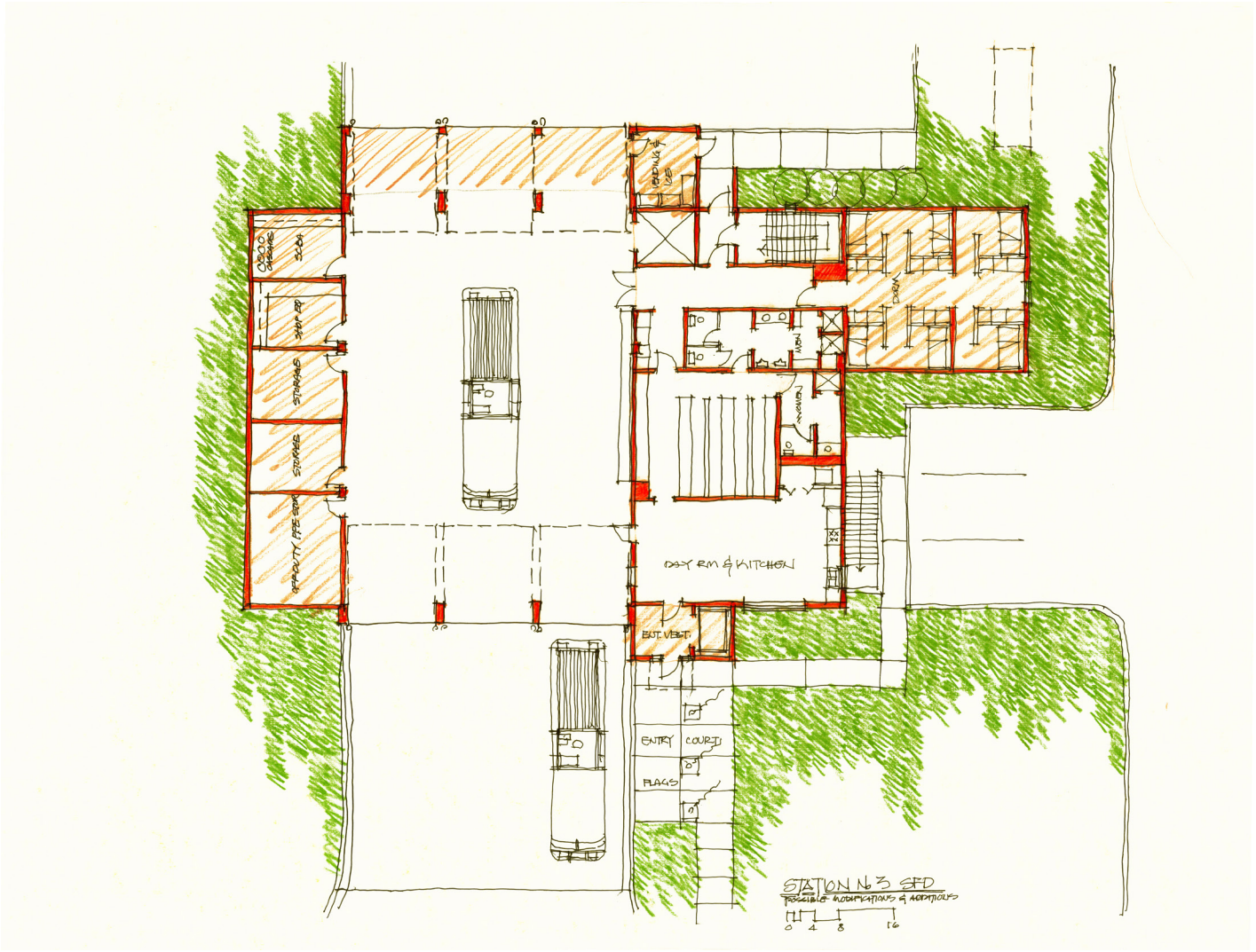
The narrative for the possible changes are on the following page was added at the request of Chief Tsicher. The primary change is in the dorm area.

The illustrative plan on the preceding page was filed with Acting Chief Tischer prior to this report. After reviewing the plan, the question was asked if it would be possible to have separate toilet/shower facilities at Station 3 and could the sleeping area be expanded. The plan shown on this page is a result of that review and conversation.

The illustrative plan shown is only intended to show the Shawnee Fire Department and other City Officials what can be done to add to the usefulness and therefore possible life extension of Station 3.

If any project or projects go forward as a result of this study, the plan needs to be studied further by an architect licensed to practice in Oklahoma with input and further review from the officers and fire fighters of the Shawnee Fire Department.

The consultant would be interested in being involved as a liaison between an architect selected for a Station 3 project and the Shawnee Fire Department as an advisor to the architect retained by the architect or retained by the City of Shawnee as the Owner's Representative (OR).



Site

One visitor parking space is lost. The station's new standby generator may have to moved northward. The illustrative plans envisions a new "3-flag court" at the front to help identify the front entry. Some changes are made to the site space by building extensions.

Station Exterior

The Illustrative plan envisions a new front entry vestibule to solve the dayroom privacy issues. An elevator has been added to service the basement level and make the basement lever ADA compliant. Not shown but the vestibule/ elevator lobby could be extended further toward the street to create enough space for a pseudo watch room. The illusion of a watch room often will be all that is necessary to make casual visitors believe there presence is known or soon will be.

Windows and doors should be upgraded for energy efficiency and appearance. Considering the roof leaks, consideration should be given to adding a gabled roof over the apparatus floor with flanking hip roof sections over the crew areas and the new apparatus support spaces. If the flat roof is to remain, the option of adding a "green roof" should be explored as it has been demonstrated that plants in light soil containers over a conventional built up membrane roof do in fact extend the life of the membrane by shading the membrane from damaging in sun light.

Apparatus Floor

The rear apparatus bays are extended rearward to make the bays long enough to accommodate the disaster response trailer and tow vehicle in the same bay. Extending all the bays gives enough room for the storage of reserve apparatus and even a tiller type aerial should such an apparatus ever become desirable for the City of Shawnee. With apparatus floor support spaces added, the apparatus floor becomes a neat, clean and safer space ready for visitors.

The rearward extension also includes a room that could be used to house vending machines and an ice maker. If these items can be located elsewhere in a revised plan the room could become a DeCon room for cleaning contaminated equipment and personnel.

Apparatus Floor Support

On the west side, apparatus floor support spaces have been added. These spaces could provide for SCBA service and repair, small equipment service and repair, storage of off-duty PPE and general storage. The largest room added and labeled PPE storage could, with a glass wall and door to the apparatus bay, be the location for the station exercise equipment although this location would not meet the "best practices" of having the workout equipment in a high traffic area. PPE, in this scenario would move to one of the storage rooms.

Crew

The Illustrative Plan as shown envisions no changes to the day room. However any future architectural study should consider expanding southward at the kitchen area to the new sidewalk. The added space could be used for an office for the Duty Officer or for a reconfigured kitchen.

In the sleeping quarters, an extension has been added to the east side to provide for 6 sleeping cubicles and 18 dorm corridor lockers. A new fire rated corridor leads directly from the new sleeping arrangements to the apparatus floor. With the new sleeping area broken down into cubicles new code legal windows (with respect to height above the floor) can be incorporated.

Crew Support

The old dorm space has been reconfigured into a new and larger toilet/ shower area for male firefighters while the old toilet/shower has been reconfigured to accommodate female firefighters.

The locker room remains unchanged.

Making this small change will allow Station 3 to accommodate more equally female firefighters.

Office

No changes shown in the plan, but as suggested above, an office could be added off the kitchen or the front entry vestibule could be expanded to include a watch room/office.

Miscellaneous

Graphic enhancements should be made to clearly identify both access points to the basement shelter if the basement is to remain a designated shelter for the area.

An oil and water separator should be installed between the apparatus floor drain and the sanitary system.

Without much change in the Apparatus Support Spaces layout, a 4th apparatus bay could be added to the west side of the station west of the support space.