



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

## **TRAINING SUPPORT CENTER**

**Building 77680  
Fort Riley, KS**



**POTR – Phase 1  
Project No 19389**

**DATE: 20 March 2012**

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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 Building 77680 (TRAINING SUPPORT CENTER) at Fort Riley, Kansas. The POTR was performed by the HNC team on 20 March 2012.

## 1-2 Facility Description

Building 77680 is a Standard, Medium, and Local Mission Training Support Center that was occupied in two phases. The Warehouse was occupied July 2011 and the Administrative/Support areas were occupied October 2011. Hours of operations for the facility are M-F 0730 – 1600 hours. The facility services 80-100 troops and 15-20 civilians per day. Warehouse racks are tiered 3 high.

The users are overall indifferent with the facility.

## 1-3 POTR Team Members

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

- Juan Pace – Architectural

## 1-4 Meeting Contacts

The roster is attached in Appendix A

- Troy Russell, Chief, Training Support Center

## 1-5 Contract Modifications

The design-build contractor for this project was CTI- Creative Times Inc. The following is a list of the major contract modifications issued during construction. There were a total of thirteen (13) modifications.

## 1-6 Construction Issues

The major construction modifications list is attached in Appendix B.

The punch list dated, 2 November 2011, is attached in Appendix C.

The construction issues/on-going maintenance list s attached in Appendix D and Appendix E. The following are issues received from the staff as ongoing:

- HVAC. Way too cold in the support and administrative portions of the facility. Climate control is handled through the DPW for the installation. HVAC issues are continuing to be worked out.
- Large rocks are integrated with the top soil and creating a major hardship in maintaining the landscape.

- Downspouts and Splash Blocks. Improper drainage caused by some splash blocks being angled towards the structure and causing pooling and erosion.
- Cracking and displacement of hard tile in the restrooms. The hard tiles in the restrooms are improperly installed and will continuously cause tile cracking and displacement. Especially troublesome is the Warehouse toilet where the tiles are installed at the communion of the Warehouse finished floor and the column floor base.
- Cracking in the walls and ceiling of the Corridors.
- Eye Wash/Shower stations. Floor drains were omitted at all Eye Wash/Shower locations. Proper maintenance and flushing of the stations becomes problematic due to flooding of the floors.



- A door closure device is needed at the interior door of the Customer Service Area. Due to the high traffic at the Customer Service Area and varying heating/cooling loads of the Customer Service Area/Warehouse, automatic door closure is needed. Door framing should be constructed to support the loads of a door closing device.
- Exterior lights are located near the exhaust fans of the Warehouse and attract bugs which are sucked into the Warehouse. Bug excrements cause stains on the Warehouse floor and excessive floor maintenance. Bug screens have been installed on the outside housing of the exhaust fans to remedy the issues.



- The outlets in the Retail Sales Room, Conference Room, and some other rooms do not meet the 10 feet rule and causes issues when locating electrically powered equipment.
- In the Device Maintenance Repair Room, all but one of the ventilation hoses work. The one that works is considered to be too loud.



- In the Instructor's Room, The motion sensor allows the lights to shut-off while the room is occupied.
- A floor drain is not located in the Warehouse Toilet. Hard tile cracking is occurring on the floor.
- More outlets are needed in the corridors to support floor maintenance.
- The asphalt in the parking lot is not supporting the daily loads of vehicular traffic. Issues of deterioration and puncture are visually evident.

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- Visual flooding and erosion on the south-side of the facility. Poor drainage throughout the site.

### **1-7 Overall Satisfaction**

- Overall, everyone is indifferent with the facility.

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## CHAPTER 2 - ARCHITECTURAL

### 2-1 General Discussion

- Parking. The facility does not have enough troops parking to support the daily traffic.
- Break Room. The Break Room is not sized to support the TSC staff and incoming/outgoing troops.
- Rest Rooms/Toilets. Staff Toilets should be designed for the TSC staff and Rest Rooms designed for the incoming/outgoing troops.
- Customer Service Area. The TSC staff preference for this space is not the center of the warehouse because of the safety hazard. The staff major concern is conflict with troops and movement of equipment and vehicles.
- Customer Service Area. The TSC staff preference is for a door stop on the interior door to the Warehouse. Damage is being caused to the Warehouse wall on the out-swing and remaining open. When the door remains open large amounts of conditioned air is lost into the Warehouse because of the major temperature differences between the two spaces.
- Customer Service Area. The TSC staff prefers more seating space in this area due to occasional overcrowding.
- Classrooms. The TSC staff thinks the classrooms sizes are not adequate, they could have been larger and size accordingly to their student loads.
- The facility has two Outside Storage areas. The open storage area is adequate sized: the closed storage is undersized.



- The staff expressed that they would have preferred the loading dock to be 12 to 24 inches wider than what exists.
- Issues were raised with the manual crank overhead coil door. They wanted to know why the option of an automatic door was not offered commensurate to the other features of the facility.
- 2 X 4 Acoustical Ceiling Tile (ACT) was installed throughout the facility. The preference is for 2 X 2 ACT.



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

- A separate Break Room and toilets should be provided for the staff and a separate Break Room and Rest Rooms for the troops.
- The Customer Service Area should be located adjacent to the Warehouse to avoid conflicts with vehicular traffic and equipment processing and distribution traffic.
- Due to the high traffic at the Customer Service Area and varying heating/cooling loads of the Customer Service Area/Warehouse, automatic door closure is needed. Door framing should be constructed to support the loads of a door closing device
- Classrooms should be sized according to the largest worst case scenario of troops expected by TSC staff.

## CHAPTER 3 - MECHANICAL

### 3-1 General Discussion

#### HVAC

- The support and Administrative areas of the facility report a climate that is way too cold. In some areas the TSC staff members are utilizing heaters to combat the cold. The Instructor's Room is the only area with a comfortable climate due to being located adjacent to the Telecommunications room.
- HVAC related issues are handled by calling the DPW Service Order Desk. The DPW Service Order

Desk in turn contacts DPW Operations & Maintenance to conduct a service call to the TSC facility.

- All HVAC related issues are handled as follows: A call is placed to the DPW Service Order desk. The Service Order desk notifies the DPW, O&M to conduct a service call.
- Climate control of the facility is handled through DPW.

### PLUMBING

- The facility has waterless urinals installed. The user is responsible for day to day upkeep of the urinals. Waterless Urinals are and will continuously cause maintenance and sanitary issues.



- There are issues with visible water at/around the exterior hose bibs at the facility. The issue could be pipe leakage inside the wall, the hose bibb not completely closing, and are condensation in the wall in the area of the hose bibb.

### FIRE PROTECTION

- None

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

- The facility is still in the stage of trying to work the “bugs” out of the HVAC system. The plan is to review this issue on the Phase II Post Occupancy Technical Review.

## CHAPTER 4 - ELECTRICAL

### 4-1 General Discussion

- There appeared to be not enough electrical outlets in several of the rooms and in the corridors. The staff reported difficulties with floor maintenance in the hallways because of the distances between outlets.
- The battery charging stations throughout the Warehouse are inadequate.
- 24 hour lighting of the Vault door is required for visibility from a distance.



### 4-2 Lessons Learned/ Standard Design Impacts

- Ensure the requirements for outlet spacing are adhered to. Also ensure all user requirements for outlet spacing are included in the RFP.

## CHAPTER 5 - MISCELLANEOUS

### 5-1 CIVIL/SITE

- The asphalt in the parking lot is not supporting the daily loads of vehicular traffic. Issues of deterioration and puncture are visually evident.

- Visual flooding and erosion on the south-side of the facility. Poor drainage throughout the site.





- Large rocks are integrated with the top soil and creating a major hardship in maintaining the landscape. (Above photo and below photo).





- A sidewalk was later installed around the facility by the 94<sup>th</sup> Engineers located at Fort Riley. The splash blocks at the downspouts were removed. Flexible drainage pipes were attached to the downspouts and run underneath the sidewalks to better enhance drainage.





**5-2 STRUCTURAL**

- None

**5-3 FURNISHINGS**

- The staff gave accolades to the flexibility of the furnishing company in the installation of the systems furniture in the administrative area.
- The staff was concerned with furniture layout in respect to the windows and doors in the offices.

**5-4 Lessons Learned/ Standard Design Impacts**

- Ensure more civil oversight on design reviews and the possibility of site visits during construction.

**APPENDIX A - ROSTER**

**APPENDIX B - CONSTRUCTION MODIFICATIONS**

**APPENDIX C – PUNCH LIST**

**APPENDIX D – ON-GOING ISSUES**

**APPENDIX E – CONSTRUCTION NOTES**

## APPENDIX A

## Post Occupancy Technical Review (POTR) - Roster

Name: William SCHAAD (Bill)	Organization: COE
Phone: (785) 307-4893	Email: william.schaad@usace.army.mil
Professional Responsibility: QA WARRANTY	
Name: Tim Cowan	Organization: PW OFM
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Professional Responsibility: QCM	
Name: Marcus SEARLES	Organization: HNC COE
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Professional Responsibility: COS	
Name: Juan R. Pace	Organization: USACE HNC
Phone: (256) 895-1675	Email: juan.r.pace@usace.army.mil
Professional Responsibility:	
Name: John R. Bess	Organization: DPTMS TSC
Phone: (785) 239-5381	Email: john.r.bess.civ@mail.mil
Professional Responsibility: Supervisory Supply Technician	
Name: Troy RUSSELL	Organization: DPTMS, TSC
Phone: (785) 239-4735	Email: Troy.I.RUSSELL.CIV@mail.mil
Professional Responsibility: CHIEF of TRAINING SUPPORT CENTER	
Name: KRIS UPSON	Organization: USACE
Phone: (816) 389-3046	Email: kristofer.k.upsan@usace.army.mil
Professional Responsibility: Resident Engineer	

## Post Occupancy Technical Review (POTR) - Roster

Name: <i>Shawn Sullivan</i>	Organization: <i>DES/FIRE</i>
Phone: <i>(785) 240-2038</i>	Email: <i>shawn.sullivan5@us.army.mil</i>
Professional Responsibility: <i>Fire/Life Safety</i>	

Name: <i>Mark Schuler</i>	Organization: <i>USACE</i>
Phone: <i>(816) 389-3050</i>	Email: <i>mark.g.schuler@usace.army.mil</i>
Professional Responsibility: <i>Area Engineer/ACO</i>	

Name: <i>Tony Cady</i>	Organization: <i>COE</i>
Phone: <i>(816) 389-3477</i>	Email: <i>anthony.e.cady@usace.army.mil</i>
Professional Responsibility: <i>Program Manager - Forward</i>	

Name: <i>Alan C. Ingwersen</i>	Organization: <i>Ft. Riley Public Works</i>
Phone: <i>(785) 239-6903</i>	Email: <i>alan.ingwersen@us.army.mil</i>
Professional Responsibility: <i>Assistant Master Planner / Project Manager.</i>	

Name:	Organization:
Phone: (    )	Email:
Professional Responsibility:	

Name:	Organization:
Phone: (    )	Email:
Professional Responsibility:	

Name:	Organization:
Phone: (    )	Email:
Professional Responsibility:	

# APPENDIX B

Ref No	Mod No	Title	Mod/Sign Date	Mod Amount	Completed in RMS
R00001	P00001	Ductbank/Ductbox Changes	12/08/2010	\$18,080.00	Yes
R00002	P00003	Arms Vault Footing	12/16/2010	\$2,813.00	Yes
R00003	P00002	Grinder Lift Station Electrical Change	12/21/2010	\$1,948.00	Yes
R00004	P00004	Pallet Rack Storage System	01/12/2011	\$31,806.00	Yes
R00005	P00005	Add Remstar Vertical Lift Station	02/10/2011	\$9,646.00	Yes
R00006	P00006	Misc. Changes SF008, SF009, SF010, SF011	03/21/2011	\$5,923.00	Yes
R00007	P00007	Misc. Changes SF013, SF014	03/31/2011	\$14,832.00	Yes
R00008	P00008	Revise Sectionalizer Switch	04/12/2011	\$18,759.00	Yes
R00009	P00009	Revise 134 Standards	04/19/2011	\$1,782.00	Yes
R00010	P00010	Misc Changes SF012, SF017, SF019	05/10/2011	\$9,919.00	Yes
R00011	P00011	Duct work change	07/20/2011	\$14,755.00	Yes
R00012	P00012	Misc Changes	09/02/2011	\$5,691.00	Yes
R00013	P00013	Credit for Metal pannel	10/24/2011	-\$1,798.00	Yes
R00014	P00015	Insect Screens & Rain Hoods	10/31/2011	\$13,688.00	Yes

Final Inspection Punch list  
Training Support Center  
W912DQ-10-C-4010  
7-25-2011

Updated 11-2-11

Site

1. Grass not established. Monitor grass for establishment (reseeded early October)
2. ~~Repair erosion issues around the building (11-1-11)~~
3. ~~Fine grade/clean-up pond area at NW corner (11-1-11)~~
4. ~~Remove temporary power poles and then finish installing gravel drive (11-1-11)~~
5. ~~Replace PW's fuses~~

Warehouse

1. ~~Replace missing electrical outlet cover at SW corner (8-22-11)~~
2. ~~Paint holes at column west of overhead door 1 (8-22-11)~~
3. ~~Vinyl coming down on north side towards west end (8-22-11)~~
4. ~~Wire for overhead door 5 tore apart into two pieces (8-22-11)~~
5. ~~Red cap for overhead door 3 cord still missing (8-22-11)~~

Administrative Area

1. ~~Replace 2 sets of lights in the clearstory of corridor 133 were out during the final inspection.  
(Checked at 4 month)~~
2. ~~Investigate whether or not a door closer is needed for LEED points on Janitor's closet 109.~~
3. ~~Replace 2 damaged ceiling tiles in corridor 116 by vestibule 136. (8-22-11)~~
4. ~~Replace 3 damaged acoustical wall panels in Rooms 113/115. (10-24-11)~~
5. ~~Adjust door to room 130 so it self closes all the way and touch up the paint on the door~~
6. ~~Parking lot lights were still on. Insure that these are properly controlled by the photocell.~~
7. ~~Add strike cover plate to doors into Room 129.~~
8. ~~Label disconnects for unit heaters in Mechanical Room and fire pump room so that they are not  
mistaken for light switches.~~
9. ~~Room Signs~~
10. ~~Quad Box mod~~

APPENDIX C

TSC

Req Start	P	Func Loc	Order	Description	Est Cost Act	Entered by	System status	Mn. wk. clt
02/25/2011	2	20605.77680	100000300083	BLDG 77680 MEETING WITH ELCTRICIANS	130.63	1042064862	CLSD PCNF NMAT PRC SETC	1007
07/25/2011	3	20605.77680	100000545162	BLDG 77680 INSTALL CORES	43.56	1251370857	CLSD PCNF NMAT PRC SETC	1006
07/26/2011	2	20605.77680	100000548223	BLDG 77680 INSTALL CORES	0.00	1285507282	CLSD NMAT PRC SETC	1006
07/27/2011	2	20605.77680	100000551027	BLDG 77680 TROUBLE ON FIRE ALARM	16.22	1285507282	CLSD PCNF NMAT PRC SETC	1005
08/05/2011	3	20605.77680	100000566874	REF# 50067 / BLDG 77680	16.22	1285507282	CLSD PCNF NMAT PRC SETC	1005
08/23/2011	2	20605.77680	100000600073	ldbg. 77680 new act bldg. door at cust	21.79	1273745919	CLSD PCNF NMAT PRC SETC	1006
08/24/2011	2	20605.77680	100000602280	ldbg. 77680 change combo on arms room s	65.35	1273745919	CLSD PCNF NMAT PRC SETC	1006
08/26/2011	2	20605.77680	100000609222	BLDG 77680 REPAIR LOCK ON OFFICE DOOR	65.35	1041866930	CLSD PCNF NMAT PRC SETC	1006
09/09/2011	2	20605.77680	100000630842	BLDG 77680 EST CLASSROOM DOOR WILL NOT C	84.86	1042064862	CLSD PCNF NMAT PRC SETC	1006
09/09/2011	2	20605.77680	100000630843	BLDG 77680 OUTSIDE HOSE LEAKING	42.31	1042064862	CLSD PCNF NMAT PRC SETC	1006
09/21/2011	2	20605.77680	100000648158	BLDG 77680 TROOP SELF HELP	6.56	1287868665	CLSD GMPS MANC PRC SETC	1004
09/23/2011	2	20605.77680	200000038263	77680 SCHEDULE MAINTENENCE	70.32	1251370857	REL PCNF NMAT PRC SETC	1004
10/03/2011	2	20605.77680	100000663750	BDLG 77680 NEEDS CIRCUIT BREAKER RESET	21.56	1042064862	CLSD PCNF NMAT PRC SETC	1006
10/11/2011	3	20605.77680	100000676818	BLDG 77680 THE STOP ON THE EAST AND WES	121.85	1231382476	CLSD PCNF NMAT PRC SETC	1008
10/19/2011	2	20605.77680	100000692911	BLDG 77680 / ALARM SYSTEM	32.42	1285507282	CLSD PCNF NMAT PRC SETC	1005
10/26/2011	2	20605.77680	100000709544	BLDG 77680 MEED MORE THAN ONE KEY FOR T	62.05	1231382476	CLSD PCNF GMPS MANC PRC SETC	1006
10/27/2011	2	20605.77680	100000712130	BLDG 77680 RM 102 THRESHOLD IS DIGGING I	17.88	1042064862	CLSD PCNF NMAT PRC SETC	1006
11/01/2011	3	20605.77680	100000720012	BLDG 77680 DUPLICATE KEYS	42.32	1251370857	CLSD PCNF NMAT PRC SETC	1006
11/03/2011	2	20605.77680	100000726401	BLDG 77680 VENTILATION IS STAYING OPEN	60.65	1042064862	REL PCNF NMAT PRC SETC	1006
11/07/2011	2	20605.77680	100000729894	BLDG 77680 LIGHTOUT IN NORTH HALLWAY	37.48	1042064862	CLSD PCNF NMAT PRC SETC	1006
11/07/2011	2	20605.77680	100000730630	BLDG 77680 LIGHT IS INOP IN RM 135	37.48	1184453769	REL PCNF NMAT PRC SETC	1006
11/08/2011	2	20605.77680	100000732764	BLDG 77680 REPLACE CORE	21.17	1251370857	CLSD PCNF NMAT PRC SETC	1006
12/01/2011	2	20605.77680	100000771514	BLDG 77680 THE DOWNSPOUTS ARE SWING IN	37.48	1231382476	CLSD PCNF NMAT PRC SETC	1006
12/06/2011	2	20605.77680	100000778901	BLDG 77680 RM 115 SE CORNER WALLS SEPERA	21.47	1042064862	CLSD PCNF NMAT PRC SETC	1006
12/06/2011	2	20605.77680	100000778902	BLDG 77680 RESTROOM FLR IS CRACKED	21.47	1042064862	CLSD PCNF NMAT PRC SETC	1006
12/06/2011	2	20605.77680	100000778904	BLDG 77680 BAY #5 SUPPORT BAR HAS CREASE	262.80	1042064862	CLSD PCNF NMAT PRC SETC	1006
12/06/2011	2	20605.77680	100000778906	BLDG 77680 RM 127 EXHAUST FAN SWITCH DO	0.00	1042064862	REL NMAT PRC SETC	1006
12/06/2011	2	20605.77680	100000779016	BLDG 77680 RM 135 DOOR STOP ON FLR IS BR	21.47	1042064862	CLSD PCNF NMAT PRC SETC	1006
12/13/2011	2	20605.77680	100000793444	BLDG 77680 DUPLICATE KEYS	42.32	1251370857	CLSD PCNF NMAT PRC SETC	1006
12/20/2011	2	20605.77680	100000805417	BLDG 77680 NO HEAT IN FRONT OFFICE	60.65	1042064862	REL PCNF PRT NMAT PRC SETC	1006
12/21/2011	2	20605.77680	100000807017	BLDG 77680 HEATING SYSTEM IS SHUT DOWN	0.00	1042064862	REL NMAT PRC SETC	1006
12/28/2011	2	20605.77680	100000814743	BLDG 77680 TROOP SELF HELP	72.36	1287868665	REL GMPS MANC PRC SETC	1004
01/03/2012	3	20605.77680	100000820550	BLDG 77680 HALLWAY CEILING HAS A BIG CRA	38.08	1041866930	CLSD PCNF NMAT PRC SETC	1006
01/04/2012	3	20605.77680	100000823326	BLDG 77680 DUPLICATE KEYS	42.32	1251370857	CLSD PCNF NMAT PRC SETC	1006
01/04/2012	2	20605.77680	100000823455	BLDG 77680 WATER LESS URINAL IS CLOGGED	0.00	1184453769	CLSD NMAT PRC SETC	1006
01/05/2012	2	20605.77680	100000826061	BLDG 77680 / WATERLESS URNIAL	0.00	1285507282	REL NMAT PRC SETC	1006
01/10/2012	2	20605.77680	100000834581	BLDG 77680 TROUBLE ALARM	0.00	1184453769	CLSD NMAT PRC SETC	1006
01/10/2012	2	20605.77680	100000835045	BLDG 77680 HEAT PUMP WTW2 IS IN HIGHT PR	0.00	1184453769	REL NMAT PRC SETC	1006
01/25/2012	2	20605.77680	100000864870	BLDG 77680 DIAGNOSE PROBLEM WITH URINAL	42.31	1042064862	CLSD PCNF NMAT PRC SETC	1006
02/10/2012	2	20605.77680	100000900279	BLDG 77680 MENS LATRINE GROUT LINE IN TI	17.88	1042064862	TECO PCNF NMAT PRC SETC	1006
02/13/2012	3	20605.77680	100000901996	BLDG 77680 DUPLICATE KEYS	21.17	1251370857	TECO PCNF NMAT PRC SETC	1006
02/13/2012	3	20605.77680	100000904157	BLDG 77680 FIRE ALARM SYSTEM IS IN TROU	0.00	1231382476	REL NMAT PRC SETC	1006
03/09/2012	2	20605.77680	100000951544	BLDG 77680 DOWN SPOUTS SWINGING OVER THE	0.00	1042064862	REL NMAT PRC SETC	1006
03/13/2012	2	20605.77680	100000956537	BLDG 77680 TROOP SELF HELP	25.18	1287868665	REL GMPS MANC PRC SETC	1004

APPENDIX D

# APPENDIX E

## BLDG 77680 CONSTRUCTION NOTES

1. Once the bid has been accepted by the Corps of Engineers the remaining funds that were allocated and options should be presented to the end user (occupant of the facility), ie..... the TSC staff were under the impression that the Training Aids Devices Simulations Simulators (TADSS) racks were part of the contract when in fact they were not. Once the problem was identified it was extremely difficult to appropriate the funds to procure the rack system.
2. During the construction phase we noticed that the retail room had only one outlet in it. When we brought it up during the bi-weekly meeting we were informed that's the way it is and it was our responsibility to inform the Corps of Engineers during the initial planning process if we needed more than that. When we asked about standard outlet placement by National Electric Code we were told this does not apply to us as this is a commercial facility. This ended up costing us over \$2,000 to have a private company install after the building was accepted by Department of Public Works. BLUF- the end user must be part of the planning process and the Corps of Engineers and Department of Public Works cannot assume that the end user can read blueprints.
3. The North side of the building did not have adequate soil brought in to prevent erosion. All downspouts are ended at the base of the building allowing for heavy ground erosion. The ground was sloped in a concave manner four to five feet from the building along the entire North side of the building. This allowed for the drain water from the roof to gain momentum as it moved towards the culvert. Subsequently grass could not be established as the top soil was constantly being washed away. After the construction was completed the TSC had corrugated drain pipe attached to the downspouts, ran to the bottom of the slope and then had the entire slope filled in to prevent further erosion.
4. The South boundary along the fence line is not adequate enough to be able to drain off storm water. In the fall of 2011 during the construction phase all it took was one thunderstorm to wash off the top soil from the hillside of the adjacent land to the one storm drain available on the South side. This in turn plugged the storm drain and flooded the entire South side of the lot. Currently the fence line concrete is not visible anymore in places due the extreme amount of silt that has settled to the bottom. There is no grass growing along the hillside as the seeding took place in the middle of the summer (not advised in Kansas). The grass could not and is still not established. Another thunderstorm may wash the gravel road along the top of the hill side away.
5. Downspouts on South and East side of building drain directly onto a two foot strip of soil and then the sidewalk. One storm drain is eroding the soil between the walk thru gate and the ramp to the loading docks so badly that it is starting to erode the soil under the concrete. During the winter months as the snow or freezing rain melts it is refreezing on the sidewalks

as it has no where else to go. The downspouts are also eroding the soil between the foundation and the sidewalk terribly. The last storm drain on the Southwest side of the building is eroding the soil along the concrete at the loading docks. Even if grass was established the water runs off of the main warehouse so hard that it will still erode the soil at the foundation of the building.

6. The storm drains at the front of the building are set so low that the ground is eroding before the grass can get established. This is the ugliest eye sore that I have ever seen for the entrance of a premier facility.

7. The top soil that was brought in was substandard. It had so much rock in it that after CTI had an employee pick up rocks I picked up three wheel barrow loads myself in the area between the entrance sidewalks on the East side of the building alone. This is not small pea gravel either. These rocks are large enough to be picked up by a lawn mower and thrown into a parked car or the building. The top soil is like that all the way around the building. It was commented on by a Department of Public Works inspector when the building was accepted but no action was taken to correct it.

8. Waterless urinals in the men's restroom are not feasible. This is unsanitary and has already presented a problem as one got plugged up leaving full of urine.

9. The grout in the men's restroom and the unisex restroom has cracked. Tile had to be replaced in the unisex restroom due to cracking from settling. This is because no membrane has been placed between the concrete and the tile. Even though the cracked tiles have been replaced in the unisex restroom this will be an ongoing issue.

10. Standard 20 amp GFCI convenience outlets need to be added in the warehouse along the South side of the building. We are not able to plug in any shop vacuums or other equipment to perform functions such as cleaning or customer service.

11. No twenty four hour security light over the vault door. The vault door is required to have one light remain on at all times for physical security (must be able to see door from a distance to see if it has been tampered with). Currently all lights are on a sensor that turns them off after no activity in the area.

12. There are no relief cuts in the drywall on the ceilings in the front hallways of the building. We already have on crack across the ceiling that will have to be repaired.

13. The asphalt is extremely thin and loose. During the end of the summer we noticed that the kick stands on motorcycles were actually penetrating through the asphalt and getting stuck in it. We have tire tracks from the front wheels of cars and pickup trucks from backing out of parking spaces.

14. The door at the customer service station that leads into the warehouse is the wrong type. The current door is rated as interior with a door stop on the floor. Due to the high flow of customers on a daily basis the screw that secures the door stop to the concrete has been broken off. Subsequently the door swung fully open and hit the corner of the room and has cracked the drywall. This door needs to be of a design for exterior use with a return on it to force the door closed.

15. The eye wash/emergency shower stations throughout the building do not have floor drains with them. We are required to test them on a monthly basis and have to use a 55 gallon jug to catch the water. If anyone of the eye wash/emergency shower stations is actually used the water will cause damage to the facility.

16. The exhaust fans that were installed in the warehouse need to be set to suck the air out of the warehouse not blow the air in the warehouse. During the summer months the extremely high volume of bugs that accumulate around them due to the required night lights being on is astronomical. The bugs that were sucked through the fans were so bad that stains were left on the concrete floor. During thunderstorms depending upon their direction of travel water will blow through the fans and onto the walls and floors creating a safety hazard and eventually damage to the facility. Hoods have since been put on the outside with an additional screen to aid in keeping the bugs and water out.

17. A plan to capture rain water from the roof of the building could save money over time. The water could be used to keep the grass from going dormant or dying off. It could also be used to water the trees and shrubs. This would also help tremendously in preventing soil erosion from the downspouts.



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

## **TRAINING SUPPORT CENTER**

**Building 20190  
Fort Bliss, TX**



**POTR – Phase 1  
Project No 68662**

**DATE: 14 August 2012**

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August 14, 2012

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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 Building 20190 (TRAINING SUPPORT CENTER) at Fort Bliss, Texas. The POTR was performed by the HNC team on 14 August 2012.

### **1-2 Facility Description**

Building 20190 is a Standard, Medium, and Local Mission Training Support Center that was occupied in August of 2011. Hours of operations for the facility are M-F 0730 – 1600 hours. The average number of visitors per day at the facility is around 20-60 people, depending on the training events. The facility has one EST Classroom (1:15), and two Multi-Purpose Classrooms, Storage, Admin Area, Break Room and Restrooms. The Warehouse Area includes racks that are tiered 3 high, loading dock with 6 bay doors.

The users are overall dissatisfied with the facility.

### **1-3 POTR Team Members**

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

- Marcus Searles – Architectural
- Jackie White – Electrical
- Robert Jackson II - Mechanical

### **1-4 Meeting Contacts**

The roster is attached in Appendix A

- Miguel Del Hierro, Training Support Center

### **1-5 Contract Modifications**

The construction contractor for this project was VEMAC. A copy of the contract modifications issued during construction is included in Appendix B. There were a total of six (6) modifications.

### **1-6 Construction Issues**

The punch list dated, 20 December 2010, is attached in Appendix C.

The maintenance and warranty list is attached in Appendix D. The following are issues received from the staff as ongoing:

August 14, 2012

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- The height of the loading dock is too high and dock does not include a dock leveler.



- Main entrance sidewalk did not go directly to the parking lot. Original design had the sidewalk going to the drop off circle then proceeding back to the parking area. Installation has added an extension off the existing sidewalk to go directly to the parking area.



- They have no air conditioning in rooms connecting to the warehouse. They currently have work orders in for plugs to handle portable air conditioning units.
- Eye Wash/Shower stations. Floor drains were omitted at some Eye Wash/Shower locations. Proper maintenance and flushing of the stations becomes problematic due to flooding of the floors.

August 14, 2012

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- Roll up door in the Device Fabrication Room off the Warehouse was not connected to a switch.



- Having several issues with the central air conditioning settings. One room being hot while the room next to it is cool, and other rooms have no air. No temperature control in the EST Classroom.
- They have a problem with sand getting into the building during dust storms. The wind actually blew one of the fans on the roof over.

#### **1-7 Overall Satisfaction**

- Overall, everyone is indifferent with the facility. Several nagging issues need to be resolved but they are in a better place from what they previously had.

August 14, 2012

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## CHAPTER 2 - ARCHITECTURAL

### 2-1 General Discussion

- Parking. The facility does not have enough parking to support the daily traffic.
- Break Room. The Break Room is not sized to support the TSC staff and incoming/outgoing troops.
- Rest Rooms/Toilets. There are no Staff Only Toilets. Restrooms are undersized for the amount of occupants in the building.
- Outlet locations are not ideal for the function of the rooms.
- Multipurpose classrooms do not have moveable wall in between them to offer the flexibility that the newer facility design includes.
- User has not had any issues with the waterless urinals.

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

- A separate Break Room and toilets should be provided for the staff and a separate Break Room and Rest Rooms for the troops.
- Multipurpose Classrooms should include a moveable wall to give the users some flexibility.
- Need more user input during design to verify outlet locations and room functions.

## CHAPTER 3 - MECHANICAL

### 3-1 General Discussion

#### HVAC

- All HVAC related issues are handled as follows: A call is placed to the DPW Service desk. The Service desk notifies PRIDE the maintenance Contractor who in turn calls King Aire for HVAC issues.

#### PLUMBING

- The facility has waterless urinals installed. The user is responsible for day to day upkeep of the urinals. The user has not had any issues to date with the urinals.

August 14, 2012

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- There is an issue with the water pressure in the building. Team noticed the water pressure in the water fountains were low.

#### FIRE PROTECTION

- There were some fire alarm issues when they first got in the building. What was expected of the Construction contractor was hard to resolve due to the UFC being updated at the time. Also had issues with the mass notification system not synchronizing with the fire alarm.

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

- The facility is still in the stage of trying to work the “bugs” out of the HVAC system. The plan is to review this issue on the Phase II Post Occupancy Technical Review.

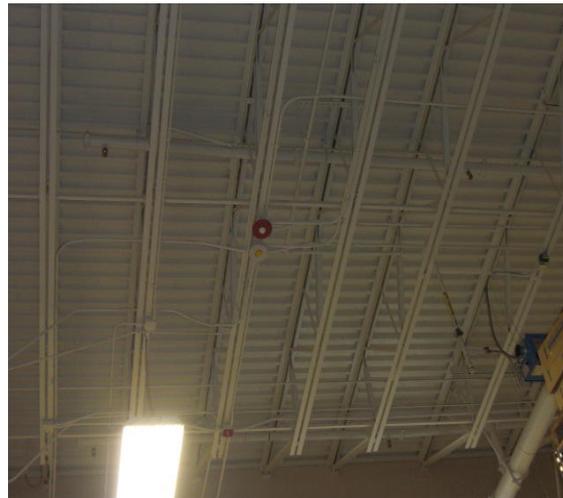
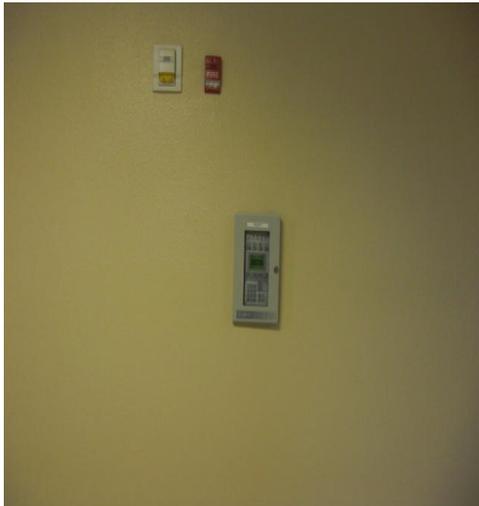
### **CHAPTER 4 - ELECTRICAL**

#### **4-1 General Discussion**

- Mass notification for the facility consist of audio speakers located to provide intelligible instructions at all locations in and around the buildings and at the hardstand.



- Separate individual strobes were provided at each location: one clear strobe for fire alarm and one amber strobe for the mass notifications system to alert the hearing-impaired occupants of the facility



- The mass notification system serves as the building-wide zoned public address system. A remote microphone station/control is located in Room 106. No remote microphone station/control in room106. Remote microphone station/control is in the warehouse.



#### 4-2 Lessons Learned/ Standard Design Impacts

- None

### CHAPTER 5 - MISCELLANEOUS

#### 5-1 CIVIL/SITE

- Main entrance sidewalk did not go directly to the parking lot. Original design had the sidewalk going to the drop off circle then proceeding back to the parking area. Installation has added an extension off the existing sidewalk to go directly to the parking area.



- Loading dock entrance was set up with two entrances with swing arms. Nothing was placed in between the two swing arm entrances to keep anyone out.



#### **5-2 STRUCTURAL**

- None

#### **5-3 FURNISHINGS**

- There was an issue with the funding of the racks in this facility.

#### **5-4 Lessons Learned/ Standard Design Impacts**

- Ensure more civil oversight on design reviews and the possibility of site visits during construction.

## **APPENDIX A – ROSTER**

# Post Occupancy Technical Review (POTR) - Roster

Name: Robert E. Jackson, II	Organization: USACE - Huntsville
Phone: (256) 895-1704	Email: Robert.E.Jackson@usace.army.mil
Professional Responsibility: Mechanical Engineer	

Name: Jackie White	Organization: CEHNC
Phone: (256) 895-1742	Email: jackie.white@usace.army.mil
Professional Responsibility:	

Name: MARCUS SEARLES	Organization: USACE - HUNTSVILLE
Phone: (256) 895-1672	Email: MARCUS.J.SEARLES@USACE.ARMY.MIL
Professional Responsibility: ARCHITECT	

Name: Antonio De Anda	Organization: DPW-ESD
Phone: (915) 568-1752	Email: antonio.deanda.civ@mail.mil
Professional Responsibility:	

Name: MIGUEL DE/HIERRO	Organization: DPTMS/TSC
Phone: (915) 741-3920	Email: MIGUEL.DE/HIERRO.CIV@mail.mil
Professional Responsibility:	

Name: ELISA BECK	Organization: USACE
Phone: (915) 496-2763	Email: elisa.a.beck@usace.army.mil
Professional Responsibility: Project Engineer	

Name:	Organization:
Phone: ( )	Email:
Professional Responsibility:	

## **APPENDIX B – Construction Modifications**

PE to QA



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
Fort Worth District, CORPS OF ENGINEERS  
6380 Morgan Avenue, Suite A  
El Paso, TX 79906

November 4, 2009

Medical and Special Projects Resident Office

Serial Letter No. RFP-0001

Subject: Request for Proposal, Contract No. W9126G-09-C-0040, Task Order No. NA, Training Support Center, Fort Bliss, TX

Venegas Engineering Management & Const  
1919 E Rio Grande Ave  
El Paso, TX 79902  
USA

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK001, "Concrete encased Commo ductbank and conn".

Concrete encasement for communications duct bank  
Provide materials, labor, and equipment to encase in 3000 PSI concrete approximately 400 Linear Feet of communications duct bank shown on page ES-101 of the construction drawings. Concrete placement must be in accordance to detail on typical concrete encased duct bank shown on page ES-502 of the construction drawings.

Changes in Drawings  
ES-101.

Changes in Specs  
N/A.

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than November 10, 2009.

Please mail your proposal to the following address:

Fort Bliss Program Office  
P.O. Box 6310  
Fort Bliss, TX 79906

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: LTC Paul N. Dux

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

If you have any further questions or concerns, please do not hesitate to call Elisa Beck at 915-892-4101

Sincerely,

A handwritten signature in black ink, appearing to read "Richard W. Severson". The signature is fluid and cursive, with a large initial "R" and "S".

Richard W. Severson, P.E.  
Administrative Contracting Officer



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
Fort Worth District, CORPS OF ENGINEERS  
P.O. Box 6310  
Fort Bliss, TX 79906

December 14, 2009

Medical and Special Projects Resident Office

Serial Letter No. RFP-0002

Subject: Request for Proposal, Contract No. W9126G-09-C-0040, Task Order No. NA, Training Support Center, Fort Bliss, TX

Venegas Engineering Management & Const  
P201B Menue Drive  
Fort Bliss, TX

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK002, "TSC elec. infrastructure & trail reloc."

**1 TSC electrical infrastructure extension**

Provide materials, labor, equipment, and supervision to construct electrical service infrastructure according to attached plans and specifications titled "Training Facility Infrastructure Extension, PN 068662, LDE Design Package 084".

Provide cost proposal indicating the cost for each individual option as specified in the drawings.

**2 Tank trail / Service Road Relocation.**

Coordinates provided to contractor in contract specifications were inaccurate. For this reason, the existing tank trail portion is encroaching in the loading dock area; in addition, there is an existing light pole, making it necessary to relocate existing and new tank trail / service road. Furthermore, the requested new manhole cover for the sewer system should be changed to a traffic rated cover as it will be located over the service road portion.

**Changes in Drawings**

- **Electrical Service:** Please see attached Drawings for electrical service. Please see attached drawings. These drawings DO NOT replace current set; they are in addition to existing.
- **Tank Trail / Service Road Relocation:** Please see attached sketch 1 and drawings indicating necessary changes to tank trail / service road relocation and related work.

**Changes in Specs**

- **Electrical Service:** Please see attached Specifications for electrical service. These specifications DO NOT replace current set; they are in addition to existing.

- Tank Trail / Service Road Relocation: N/A

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than December 28, 2009.

Please mail your proposal to the following address:

Fort Bliss Program Office  
P.O. Box 6310  
Fort Bliss, TX 79906

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: LTC Paul N. Dux

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

If you have any further questions or concerns, please do not hesitate to call Elisa A Beck at 915-892-4101

Sincerely,



Michael J. Vonasek, P.E.  
Administrative Contracting Officer





30' 15' 0" 30' 30' 60' 90'  
 GRAPHIC SCALE 1" = 30' 0"



US Army Corps  
 of Engineers  
 Fort Worth District

**LEGEND**

LOCATION POINT COORDINATE

RELOCATE TANK TRAIN  
 BEAVER ROAD PER ATTACHMENT 3

**NOTES**

1. BUILDING COORDINATES ARE BASED ON FOUNDATION WALL. SEE STRUCTURAL PLANS FOR DETAILS.
2. LOCATION POINTS FOR PARKING LOT AREA ARE BASED ON EDGE OF PAVEMENT/FACE OF CURB.
3. SEE SHEET CS-400 FOR LOCATION POINT COORDINATES.
4. SEE SHEET CS-100 FOR DIMENSIONS AND MARK.


U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS FORT WORTH, TEXAS	DESIGNED BY E. SALAS	DATE 20 MAY 88	PER [Signature]
HSW ENGINEERING, INC. 3820 Springdale, Dallas, TX 75218 MASON & MANAGER 300 West View Street Suite 1000 Fort Worth, Texas 76102	DRAWN BY E. SALAS	CHECKED BY R. J. [Signature]	PROJECT NO. W0080-01-5-0700
			PROJ. NO. W0080-01-5-0700

U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS FORT WORTH, TEXAS	DATE 20 MAY 88
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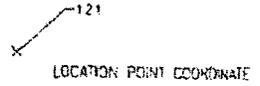
CS-400

NOTE:  
 THE ABOVE MAPPING FOR FORT BIRD PROJECT WAS PROVIDED TO FORT WORTH BY THE CORPS OF ENGINEERS. THIS MAPPING WAS BASED ON COORDINATE SYSTEM ASSIGNED BY THE CORPS OF ENGINEERS. THE COORDINATE SYSTEM THAT THEY USED WAS THE 1982 TEXAS STATE PLANE COORDINATE SYSTEM (GCS-TX) WITH ZONE 4201. THE ABOVE MAPPING WAS PROVIDED TO THE CORPS OF ENGINEERS BY THE MAPPING ENGINEER FOR THE PROJECT. THE CORPS OF ENGINEERS WILL BE USING THIS DATA TO LOCATE FROM THE COORDINATE SYSTEM FOR THE PROJECT.



FUTURE BUILD

LEGEND



CCTT  
(FUTURE CONSTRUCTION TO  
BE COMPLETED PRIOR TO  
TSC PROJECT)

NOTES

BUILDING COORDINATES ARE BASED ON FOUNDATION WALL. SEE STRUCTURAL PLANS FOR DETAILS.

COPY EXISTING TANK 124  
AS INDICATED ON ATTACHMENT 1

NOTE.  
THE AERIAL MAPPING FOR FORT BLISS PROJECT PROVIDED TO MULTI-ZOLLARS BY THE CORPS OF ENGINEERS THIS MAPPING WAS BASED ON COO SYSTEM ASSEMBLED BY P.B.S. & CO. (CONSULTANT PROVIDED MAPPING TO THE CORPS OF ENGINEER COORDINATE SYSTEM THAT THEY USED WAS THE TEXAS STATE PLANE COORDINATE SYSTEM, GCS ZONE 4200, U.S. SURVEY FEET, ADJUSTED TO 1 USING A FACTOR OF 1.00019896248. ALL SURVEY WORK WILL BE DONE USING THIS DATUM TO C FROM THIS COORDINATE SYSTEM BACK TO STATE MULTIPLY BY 0.99980107629.

CS-401

RED  
ED

TRAIL

DTSC  
SF  
662

MATCHLINE SHEET CS-400





REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
Fort Worth District, CORPS OF ENGINEERS  
P.O. Box 6310  
Fort Bliss, TX 79906

December 22, 2009

Medical and Special Projects Resident Office

Serial Letter No. RFP-0003

Subject: Request for Proposal, Contract No. W9126G-09-C-0040, Task Order No. NA, Training Support Center, Fort Bliss, TX

Venegas Engineering Management & Const  
P201B Menue Drive  
Fort Bliss, TX

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK003, "Concrete encasement for electrical UP".

Concrete Encasement for electrical underground primary duct bank  
Provide concrete encasement (detail on sheet ES-502 of contract drawings) for electrical primary underground ductbank (shown on sheet ES-101 of contract drawings).

Changes in Drawings

Please see attached portion of sheet ES-101 where changes are indicated.

Changes in Specs

N/A.

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than January 4, 2010.

Please mail your proposal to the following address:

Fort Bliss Program Office  
P.O. Box 6310  
Fort Bliss, TX 79906

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: LTC Paul N. Dux

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

If you have any further questions or concerns, please do not hesitate to call Elisa A Beck at 915-892-4101.

Sincerely,



Michael Vonasek  
Administrative Contracting Officer



### GENERAL NOTES

1. REFER TO ELECTRICAL ONE-LINE ON SHEETS 1EP-801 THROUGH 1EP-802 AND PANEL SCHEDULES ON SHEETS 1EP-701 THROUGH 1EP-704 FOR POWER WIRING INFORMATION.
2. REFER TO COMMUNICATIONS RISER ON SHEET 1TT-801 AND 1TT-802 FOR COMMUNICATION WIRING INFORMATION.
3. ALL CONDUIT BENDS AND CHANGES IN DIRECTION SHALL UTILIZE LONG RADIUS ELBOWS
4. ALL CONDUIT DUCT BANKS LOCATED BELOW AN AREA OF VEHICLE TRAFFIC SHALL BE CONCRETE ENCASED. REFER TO SHEET ES-502 FOR DUCT BANK DETAIL.
5. GROUND FENCES IN ACCORDANCE WITH THE SPECIFICATIONS. REFER TO CIVIL PLANS FOR FENCE LOCATIONS.

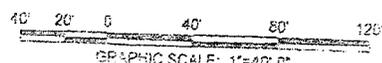
### SHEET NOTES

- 1 TO LIGHTING CONTACTOR, C4. REFER TO SHEET 1EP-114 FOR LOCATION. REFER TO SHEET 1EL-601 FOR CONTACTOR SCHEMATIC.
- 2 EXTEND FIRE ALARM CIRCUIT FOR P.I.V. TO FIRE ALARM CONTROL PANEL LOCATED IN TSC BUILDING
- 3 PE-89 COPPER TELEPHONE CABLE AND SINGLE MODE FIBER OPTIC CABLE SHALL BE INSTALLED TO EXISTING MANHOLE ECMH-12F. SEE SHEET ES-102 FOR LOCATION.
- 4 PE-89 COPPER TELEPHONE CABLE AND SINGLE MODE FIBER OPTIC CABLE SHALL BE INSTALLED IN EXISTING DUCT BANK
- 5 UMCS CONDUIT SHALL BE EXTENDED TO THE UMCS OUTLET LOCATED IN THE MECHANICAL/ ELECTRICAL ROOM 121. REFER TO SHEET 1TT-114 FOR LOCATION. COORDINATE CABLE REQUIREMENTS WITH THE MECHANICAL CONTRACTOR
- 6 REFER TO SHEET ES-102 FOR CONTINUATION.
- 7 OPTION 3: ALL POLE MOUNTED LIGHTS, DUCTBANKS, CONDUCTORS, CONDUITS HANDHOLES, AND CONCRETE ASSOCIATED WITH CIRCUIT LP-1 17.

PROVIDE CONCRETE ENCASEMENT FOR UNDERGROUND PRIMARY REFER TO DETAIL ON PAGE ES-502.

### SITE LEGEND

- UMCS — UNDERGROUND UMCS CONDUIT
- LP — UNDERGROUND PRIMARY
- US — UNDERGROUND SECONDARY
- LIC — UNDERGROUND COMMUNICATIONS
- — — EXISTING UNDERGROUND TRIMART
- FIB — EXISTING UNDERGROUND COMMUNICATIONS
- S-E SHOEBOX LIGHT POLE
- D-D DOUBLE LIGHT POLE
- T TRANSFORMER
- SW EXISTING SWITCH
- EC-1 EXISTING ELECTRICAL MANHOLE
- EC-2 EXISTING COMMUNICATIONS MANHOLE
- EH ELECTRICAL HANDHOLE
- L LOCATION




Drawn by C. JACOBSON	Checked by C. JACOBSON	Reviewed by R. DELOACH	Approved by R. DELOACH
DATE 08/11/11	DATE 08/11/11	DATE 08/11/11	DATE 08/11/11
PROJECT TSC BUILDING	PROJECT TSC BUILDING	PROJECT TSC BUILDING	PROJECT TSC BUILDING
DATE 08/11/11	DATE 08/11/11	DATE 08/11/11	DATE 08/11/11

PROJECT NO. 11-11-11-11	DATE 08/11/11

ES-101



REPLY TO  
ATTENTION OF:

**DEPARTMENT OF THE ARMY**  
Fort Worth District, CORPS OF ENGINEERS  
P.O. Box 6310  
Fort Bliss, TX 79906

May 24, 2010

Medical and Special Projects Resident Office

Serial Letter No. RFP-0006

Subject: Request for Proposal, Contract No. W9126G-09-C-0040, Task Order No. NA, Training Support Center, Fort Bliss, TX

Venegas Engineering Management & Const  
P201B Menue Drive  
Fort Bliss, TX

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK006, "Additional Telecom Outlets".

Scope of Work

Additional telecom outlets

Contractor shall provide materials, labor, and equipment to install three additional telecommunications outlets with conduit and cable on the building exterior walls adjacent to doors in rooms 104 - classroom, 101 - Vest, and 126 - warehouse, with the following characteristics: One (1)- 4 pair category six cable for wall mounted exterior telephone; route cable in 1" conduit from device to the cable tray. Extend cable in cable tray back to communications room #106 or room #130. Refer to sheet 1TT-502 for detail.

Changes in Drawings

- 1TT-112
- 1TT-113

Please see attached sheets for additional information

Changes in Specs

- N/A

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than June 7, 2010.

Please mail your proposal to the following address:

Fort Bliss Program Office  
P.O. Box 6310  
Fort Bliss, TX 79906

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: Eleuterio Fuentes.

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

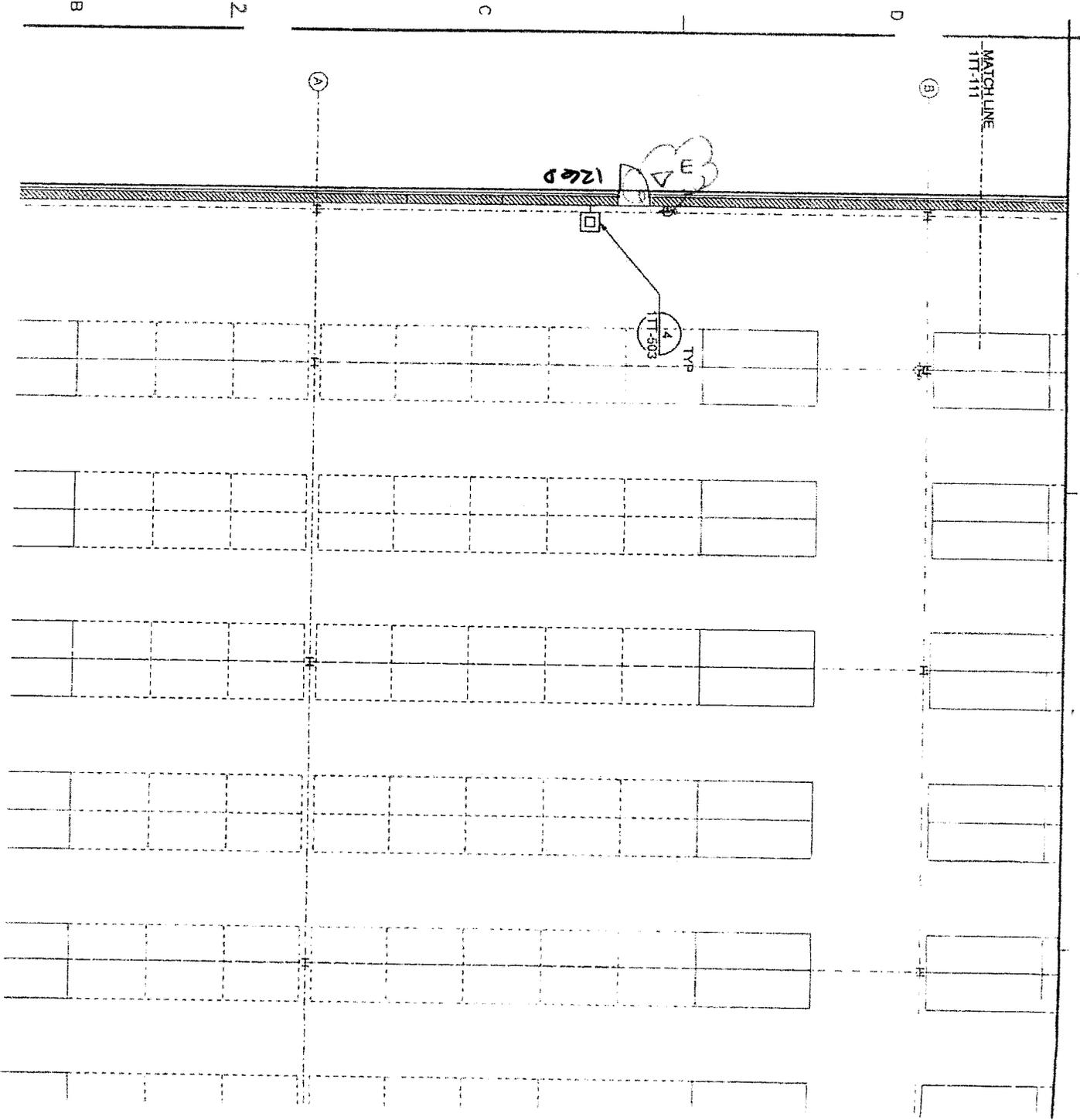
If you have any further questions or concerns, please do not hesitate to call **Elisa Beck** at **915-892-4101**.

Sincerely,



Michael Vonasek, P.E.  
Administrative Contracting Officer

SECTION OF PAGE JTT-112  
PARTIAL FLOOR PLAN -  
COMMUNICATIONS







REPLY TO  
ATTENTION OF

## DEPARTMENT OF THE ARMY

Galveston District, CORPS OF ENGINEERS  
Medical & Special Projects Office  
P.O. Box 6310  
Fort Bliss, TX 79906

August 11, 2010

Medical and Special Projects Resident Office

Serial Letter No. RFP-0007

Subject: Request For Proposal  
Contract No. W9126G-09-C-0040 NA  
Training Support Center  
Fort Bliss, TX

Venegas Engineering Management & Const  
1919 E Rio Grande Ave  
El Paso, TX 79902  
USA

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK007, "Re-locate floor outlets and overhead lights".

### Scope of Work:

1 Re-located floor outlets

Relocate floor outlets to provide better functionality for the E.S.T Training room as indicated on revised drawing 1EP-113.

2 EST Light Re-location

Re-located lighting fixtures to accommodate the modified firing lane configuration changed by this modification as indicated on revised drawing 1EL-113.

3 EST Compressed Air Piping

Re-locate pneumatic quick disconnects to accommodate the modified firing lane configuration changed by this modification as indicated on revised drawing 1PP-119.

### Change in Drawings:

1 1EP-113

2 1EL-113

3 1PP-119

**Change in Specifications:**

No change in specifications will occur as a result of this modification.

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than August 25, 2010.

Please mail your proposal to the following address:

Fort Bliss Program Office  
P.O. Box 6310  
Fort Bliss, TX 79906

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: Telo Fuentes

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

If you have any further questions or concerns, please do not hesitate to call Jose Hurtado at 915-838-4800.

Sincerely



Michael Vonasek, P.E.  
Administrative Contracting Officer

Enclosures: Revised drawing 1EP-113  
Revised drawing 1EL-113  
Revised drawing 1PP-119



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**FORT WORTH DISTRICT, CORPS OF ENGINEERS**  
Medical & Special Projects Ofc  
P.O. Box 6310  
Fort Bliss, TX 79906-6310  
915-569-8208

December 22, 2010

Fort Bliss Hospital Construction Mgt Office

Serial Letter No. RFP-0009

**SUBJECT:** Request for Proposal, Contract No. W9126G-09-C-0040, NA, Training Support Center, Fort Bliss, TX

Venegas Engineering Management & Const  
1919 E Rio Grande Ave  
El Paso, TX 79902  
USA

Gentlemen:

In accordance with the Contract Clause, "Changes", we request a proposal to perform the following work. This pending change may be referenced as MK009, "18 kV Surge Arrestors".

**Scope of Work:**

Surge Arrestors

Provide 18kV dead front shielded elbow type surge arrestors.

**Change in Drawings:**

Change is noted on revised drawing ES-502.

**Change in Specifications:**

No changes in specifications will occur as a result of this change.

Your proposal containing a complete itemized breakdown must be submitted in sufficient detail to permit an analysis of all material, labor, equipment, subcontract, overhead costs (including extended overhead costs), and profit. It shall cover all work involved in the modification, whether such work is deleted, added, or changed, and shall include the effects of the changes on unchanged work (impact) if any. It is requested that this be submitted to this office no later than January 5, 2011.

Please mail your proposal to the following address:

Medical & Special Projects Office  
Fort Bliss, TX 79906-6310

Please ensure that if your cost proposal (aggregate value) is above \$100,000, that the proposal is mailed to this address and marked: Attn: Mr. Eleuterio Fuentes

Please include a Time Analysis Fragnet with your cost proposal that shows how this additional work will be reflected in your Network Analysis System. Your fragnet should also reflect any schedule impacts that will result from subject change. Your fragnet will be evaluated to determine whether or not a time extension will be required.

This is not a Notice to Proceed with this work and you are not to begin working on the above-described change until such time you receive a signed modification. Upon completion of negotiations a formal change order will be issued. All other terms and conditions of the contract as it heretofore may have been modified shall be and remain the same.

Please direct inquiries to Jose Hurtado or Elisa Beck at (915)838-4800 or (915)892-4101, respectively.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Vonasek". The signature is fluid and cursive, with a long horizontal stroke at the end.

Michael Vonasek  
Administrative Contracting Officer

Enclosure: Attachment 1 "revised ES-502 Drawing"  
Attachment 2 Cooper Power Systems Surge Arresters cut sheet

## **APPENDIX C – Punch List**

Warehouse

- Reflective heater housing damaged, N.E. Station
- North reflection cap dented
- Paint around auxiliary drain, NW side
- Clean out the top of the outlet by the middle west door, CMU, and pull stations
- Check the automatic drain of evap. Coolers. Seem to be running all the time
- Water leak at eyewash station

Secure operations room (room 119)

- Piece of loose insulation material on top of a light
- Paint around light switch leading into armory

Armory

- Touch up paint needed on walls and arms vault door frame
- Clean up residue on wall, where coring for the fire sprinkler was done.
- Need caulking around drain pipe

Fabricated device storage (room 123)

- Paint fire caulk on south end of room and concrete patch next to fire penetration
- Paint around ladder and the second bolt from the top down on the right side.
- The second bolt from the top down on the right side is missing.

Maintenance room (room 125)

- Need GFCI outlet near sink
- Need to put relay inside box for protection
- Fix conduit for heater thermostat farthest south side and missing label.
- Remove tape from middle heater ball valve
- Remove tape from ball valve, domestic cold water

Storage room (Room 118)

- Direction label for return and supply of heater
- Patch insulation near heater

Men's restroom

- Tighten escutcheon first toilet

- Clean floor
- Need grout beneath toilet
- Replace trim for shower
- Tape handicap protector under sink
- Need access panel cover
- Replace tile near paper dispenser (there is a drilled hole)
- Touch up grout on right side of sinks
- Replace tile with hole on right side entry to the shower

#### Hallway

- Drinking fountain on the left side not working
- Paint and caulk around annunciate near vestibule

#### Women's restroom

- Replace transition
- Clean floor
- Caulk tile on right side toilet at bulkhead
- Paint ceiling near register

#### Administration area (Room 108)

- Caulk and paint second window from right to left
- Vacuum carpet around north door
- Paint above second window
- Caulk third window top left corner
- Caulk first window top and bottom right corner
- Close ceiling tiles

#### Conference room (Room 109)

- Paint left side first window
- Caulk top partition of window
- Close ceiling tiles
- Vacuum carpet under white board
- Dust white board tray

#### Break room (room 107)

- No hot water at sink
- Fix floor tile near sink
- Touch up paint in left corner above cabinets

#### EST Room (Room 117)

- Flip switch for firing lanes – power pole
- Remove covers fire alarms and strobes – south wall

#### Storage room (Room 115)

- Missing saddles
- Refrigerant pipe missing bracket – strap down
- Caulk holes and paint
- Paint fire caulk
- Remove plastic from HVAC diffuser
- Patch CMU block
- Remove paint spots on baseboard

#### Compressor room (Room 116)

- Compressed air pipe needs to be strapped down

#### Vestibule

- Emergency light bulb needs to be replaced
- Door closer leaking hydraulic fluid
- Touch up paint at corners
- Paint ceiling
- Clean windows at transition

#### Classroom (Room 102)

- Caulk right window, top right corner
- Mechanical room
- Remove tape from sprinkle heads
- Concrete around gas vent line above pumps
- Open J box on middle air handler on supply end
- J box missing cover on south side of air handler.

## **APPENDIX D – Maintenance & Warranty Issues**

183547	20190	Training Center	NA	No heat in entire building	Warranty	Forrest 741-3928	11/28/11	Elisa Beck	
196642	20190	Training Center	PIV	PIV leaking underground (no fire protection)	Warranty	Mike 915 497- 5868	12/30/2011	Elisa Beck	
199115	20190	Training Center	NA	T-Stat INOP / as per Kings Air the AVA boxes are not opening	Warranty	Larry Grim 741-3925	01/05/12	Joe Hurtado, Elisa Beck	
252236	20190	Training Center	HVAC	AC not communicating & PC automated	Warranty	Don 915-741- 3924	04/11/12	Elisa Beck	

120634	20190	Training support center	NA	RPR/RPL Circulating pump on new boiler	NA	Larry Grant 741-3295	05/16/11	Joe Hurtado & Elisa Beck	7/8/11	Completed - (
122586	20190	Training Center	NA	RPR/RPL 6 Ducts detectors disabled due to constant false alarms	Warranty	Peter Lindsey 915-744-2830	05/23/11	Joe Hurtado & Elisa Beck	5/24/11	Duct detector
127265	20190	TSC	NA	AC INOP in Training Office Area of BLDG	NA	Larry Graham 915-741-3925	06/08/11	Joe Hurtado	6/10/11	Fuse replacer
131277	20190	Training Support Center	NA	Inspect landscaping grass growing thru rocks might be missing cloth mesh	Warranty	Lonny Wright 915-568-7866	06/22/11	Joe Hurtado & Elisa Beck	6/22/11	This is part of covered with
132063	20190	Training center	NA	AC INOP entire BLDG . King Aire the BLDG has multiple problems with electric wiring and water pumps.	Warranty	Larry Gramhams 915-741-3925	6/23/11	Joe Hurtado	7/8/11	Completed- C
143275	20190	TSC	122	Lock was left on passage mode & latch is getting stuck inside lock	Warranty	Peter Lindsey 915-744-2830	07/28/11	Joe Hurtado	7/29/11	Door lock was

## **APPENDIX E – FIELD NOTES**

# Post Occupancy Technical Review (POTR) - Roster

## FIRE STATIONS TRAINING SUPPORT CENTER

Installation: FT. BLISS

Project Number: 68662 Building Number:

Name of Facility: TRAINING SUPPORT CENTER

### Type of Facility:

~~HEADQUARTERS:  One Company  Two Company  
 Three Company  Two Company, Two Story  
 Three Company, Two Story~~

~~SATELLITE:  One Company  Two Company  Three Company~~

Standard  Non-standard  Modified

Other: \_\_\_\_\_

Hours of Operation: 24 Hours

Other:

<sup>TSC</sup>  
~~Fire~~ Chief:

Construction Contractor: VEMAC

Date Occupied: Aug 2011

Date Visited: 14 Aug 12

### Overall:

1 Very Dissatisfied  2 Dissatisfied  3 Indifferent  4 Satisfied  5 Extremely Satisfied

- RESTROOMS - UNDESIGNED. VERIFY THE RATIO
- LOADING DOCK - TOO HIGH + NO LEVELER
-

## Post Occupancy Technical Review (POTR) - Roster

Feedback regarding the Contractors:

- GAVE A GOOD CCASS REVIEW
- No ISSUES.

Construction modifications that were required:

WILL GET COPIES

- No ISSUES w/ THE FLOW

# Post Occupancy Technical Review (POTR) - Roster

Construction issues/On-going maintenance:

- DONT KNOW RIGHT NOW
- MAIN SIDEWALK NOT GOING STRAIGHT TO THE BLDG.

Major issues from the Pre-occupancy inspection:

- FIRE ALARM ISSUES.
  - WHAT WAS EXPECTED WAS HARD TO RESOLVE.
  - UFC WAS BEING UPDATED @ THE TIME.
  - MASS NOTIFICATION NOT SYNCHRONIZING TO THE FIRE ALARM.

- 125, 123,

- NO A/C IN RM'S CONNECTED TO THE WAREHOUSE.
- WORKORDER FOR 230 V PLUGS. FOR PORTABLE A/C

# Post Occupancy Technical Review (POTR) - Roster

Does the facility meet your needs and expectations:

OTHER THAN RESTROOMS + LOADING DOCK.

What feedback have you received from the staff:

- ROOFING LEAKING.
  - CHECK HISTORY
- EYEWASH HAS NO DRAINAGE
- ROLLUP DOOR WAS NOT CONNECTED TO A SWITCH.
- SEVERAL PROBLEMS W/ CENTRAL AIR. - SETTINGS + TEMP GETTING REAL HOT.
- STRONG WINDS HAVE FLIPPED THE FAN ON THE ROOF OVER

Any overall (big picture type) comments:

N/A

# Post Occupancy Technical Review (POTR) - Roster

~~Does the reception/service window function well?~~

0-5

~~Is the flow from all rooms to the Apparatus Bay acceptable for fire response times?~~

What is the approximate number of visitors per day?

20-60 PEOPLE.

1-10 EST CLASSROOM

Is there adequate Staff Parking?

POSSIBLY A LITTLE BIGGER

Does the facility offer flexibility?

NO FLEXIBILITY.

~~Is an adequate amount of public vs. public/private vs. private accomplished with the layout?~~

Does the facility support the full time staff and their missions efficiently?

YES

~~Does the PPE Gear storage work better in the Apparatus Bay or in a separate room?~~

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

~~Performance of the Air Cleaning System in the Apparatus Bay?~~

Is the Site Approach to the ~~Apparatus~~ <sup>WAREHOUSE</sup> Bays adequate?

YES

Is the Site Exit to the ~~Apparatus~~ <sup>WAREHOUSE</sup> Bays adequate?

YES

~~What type of system is used to halt traffic when trucks are exiting the site?~~

~~Does the Generator provide 100% back-up power?~~

~~EMS Equipment Storage (Including Lockable Medical Cabinet):~~

~~Is the space provided for the medical supply storage sufficient in size and secured to meet AR 190-51 requirements?~~

~~Fire Extinguisher Inspection:~~

~~Does the design for the outdoor storage area for fire extinguishing agents sufficiently limit access to the area?~~

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

Dispatch's Suite (Headquarters Fire Stations only) / Station Officer's Office/Watch Desk (Satellite Fire Stations only):

Is there adequate console space for the Closed Circuit Television (CCTV) monitors to monitor the facility?

Does the pin pad/cipher electric lock with remote push button release and manual key override function properly? Does it meet the need/requirement?

If so equipped, are duress buttons installed in covert, easy to access, locations?

Should additional areas in the facility be provided a duress button?

UPS Room:

Is there adequate space provided for the CCTV, network, communication, UPS, and computer equipment for the facility?

Does the cipher lock adequately limit access to this area and function properly?

Does the UPS adequately power the Dispatch equipment?

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

Telecom Room (TR):

Does the provided locking mechanism adequately limit access to this area and function properly?

YES

~~CCTV System:~~

~~Should additional areas in the facility be monitored by CCTV?~~

Does the user feel the HVAC system is doing the job of providing a comfortable environment?

~~NO~~ OVERALL YES WITH SOME MINOR ISSUES

Is there a space(s) that seem to get too hot within the facility while at the same time a nearby space seems to be too cold?

YES, MAIN ADMIN AREA + CLASSROOMS.

CLASSROOMS / TRAINING SPACE

Does the ~~Computer Training/Testing Room~~ seem to get too hot or too cold when the room is unoccupied?

YES

Are the thermostats working properly? If not, have the user to describe how or why it seems not to be working properly.

NOT SURE IF ANYONE HAS TOUCHED IT.

- POSSIBLY YES

Can the user identify any miscommunication between what was described in the RFP and what was actually built?

PROJECT WAS D-B-B

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

Is there anything in particular about the HVAC that stands out to the user that they like (Example: they like the particular thermostat b/c of all the information it displays, etc.).

~~NO~~ NONE

User- Do you understand how the system is supposed to work (not from a technical perspective, but from functionality perspective)?

YES

Is the user happy with the HVAC system installed?

YES. w/ ISSUES

~~What type of vehicle exhaust system/ air cleaning system is installed in the Apparatus Bay?~~

~~Does the user feel the system does an adequate job of removing 100% of the vehicle exhaust emissions?~~

~~Does the user feel that PPE Gear Storage Room properly exhausted to remove gaseous emissions from personal protective equipment?~~

Are maintenance schedules of the HVAC system being properly followed?

- WILL ASK DPW PERSONNEL

~~Are maintenance schedules of the exhaust system/air cleaning system installed in the Apparatus Bay being properly followed?~~

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

\* SAND GETS IN THE BUDA DURING DUST STORMS.

# Post Occupancy Technical Review (POTR) - Roster

\* ~~Is it easy to access equipment for maintenance and inspection?~~

~~YES, VERY SPACIOUS.~~

\* ~~Identify any other issues and or problems encountered with the HVAC system.~~

Identify any other issues and or problems encountered with the <sup>HVAC</sup> Apparatus Bay air cleaning system.

No,

No Temp Controller in the EST TRAINING Rm.

Who are the points of contact for HVAC related issues?

- DPW TO SUBMIT SERVICE ORDER <sup>THRU</sup> ~~TO~~ PRIDE  
TO KINGS AIRE FOR HVAC.

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days.

YES, PROVIDED

Were there any change orders that affected the HVAC and plumbing?

No

Can any after action reports or lessons learned be provided?

No

Describe the commissioning process for the facility. What issues were discovered and resolved?

\* WILL SEE IF ANOTHER COPY IS AVAILABLE

NO MAJOR ISSUES.

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

\* OUTLET LOCATIONS NEED TO BE LAYED OUT BETTER

# Post Occupancy Technical Review (POTR) - Roster

Do plumbing fixtures function properly?

YES.

HAVE NOT HAD PROBLEMS W/ WATERLESS URINALS.

Is there anything in particular about the plumbing system that stands out to the user that they like (Example: they like the automatic fixtures and the manual flush option on it, etc.).

No

Is the user happy with the plumbing system installed?

YES

Is the hot water being stored at a temperature of 140 degree F.?

YES, WILL CHECK WHEN WE GET THERE

Are maintenance/service schedules of the plumbing equipment being properly followed (pumps, flush valves, etc.)?

- WILL VERIFY.

- YES,

Identify any other issues and or problems encountered with the plumbing system.

No

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days.

YES

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

Who are the points of contact for any plumbing related issues?

- DPW

Are there any new and innovative technologies planned to be installed (solar, grey water, etc.)?

No

Are high efficiency mechanical equipment installed as part of the HVAC system (Example: chiller, boiler, pumps, etc)?

??

Can documentation of the energy usage of the facility from the past six months be provided (gas, water, etc.)? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days. After receipt of the information compare the values to the Utility Demands Estimate spreadsheet.

What types of plumbing fixtures are installed in the facility (Example: high efficiency toilets/urinals, waterless urinals, low flow lavatories)?

Verify that high efficiency water heaters (min. 93%) being used to supply domestic hot water?

Is all the piping in the mechanical room labeled and legible?

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

\* BUDG IS BEING MONITORED. WILL SEE ABOUT GETTING CONSUMPTION REPORTS.

# Post Occupancy Technical Review (POTR) - Roster

Are plenum return's used or ducted returns used?

What kind of fire protection system is installed (dry pipe, wet pipe, etc.)?

Verify the location of the emergency shutoff (shuts off the HVAC)?

Verify the submission of the Commissioning report.

Verify the submission of the TAB report.

Verify where pilot transverses were done (refer to TAB report if necessary).

If possible, verify the position of the manual outside air damper (likely located in the mechanical room near the roof).

Were there any suggestions made in the commissioning report for the user to take action on as a benefit for when the building became occupied. If so point those out to the user and ask if they were implemented.

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

- Hazmat on Exterior
- Wet Pipe System
- Has Intercom System (Two Way)

# Post Occupancy Technical Review (POTR) - Roster

Are adequate exterior lighting systems provided for parking areas, sidewalks, building entrances and perimeter for safety, evacuation, and security measures?

+ LOADING DOCK AREA?

~~If near flight line, is the site lighting installed so that night time aircraft operations are not impacted?~~

~~Does emergency lighting switch OFF when area not occupied or during unoccupied hours?~~

~~Has 100% emergency generator back-up power been provided?~~

~~Has emergency generator been provided with 72 hour on-site fuel storage?~~

~~Does Firefighter Alert System provide simultaneous visible and audible alerts inside and outside?~~

~~"Does Apparatus Bay have self retracting electric drop cords between vehicles that reach to either end of each bay?"~~

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

\* COUPLE FALSE ALARMS ON THE FIRE ALARM SYSTEM  
25 JUN. WAS THE LATEST.

# Post Occupancy Technical Review (POTR) - Roster

~~Does Apparatus Bay have all outlets minimum of 36" AFF?~~

~~Does Apparatus Bay have functioning Red/Green signaling system mounted 6' AFF for each door to indicate whether the bay door is fully raised?~~

~~Does Apparatus Bay Hose Drying Rack have dedicated outlets to support drying equipment?~~

~~Was a Cathodic Protection System provided?~~

Document if the transformer is metered?

Does the transformer meter, gas meter, and water meter appear to be connected to the Building Monitoring System?

At a minimum, has the transformer meter, gas meter, and water meter been integrated with the post-wide UMCS/EMCS and are the required data logging being recorded/stored for the facility?

Was an adequate Lightning Protection System installed?

~~Does the Dispatcher's Suite UPS serve all Dispatch computers, telephones, and firefighter alert system to provide a fully functional dispatch when transitioning from normal to emergency power?~~

~~Does the Day/Training Room (including kitchen) have dimming controls for the lighting?~~

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

~~Does the Reerecation Room have dimming controls for the lighting?~~

~~Are general use duplex wall outlets provided not less than 10' on center and located to eliminate the need for extension cords?~~

~~Has the Station Officer's Office/Watch Desk been provided with operational control to open the Apparatus Bay Doors?~~

~~Has the Station Officer's Office/Watch Desk been provided with operational control of the Firefighter Alert System?~~

~~Does 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?~~

Is wiring concealed from view in finished rooms/areas?

Are concealed/flush boxes used for devices in finished areas and on exterior walls?

Is there adequate working clearance for electrical and communication panels?

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR) - Roster

1. ~~Fire Chiefs Suite:~~ ADMIN AREA :
2. ~~Fire Chiefs Dorm Room:~~ <sup>PRIVATE</sup> OFFICE :
3. ~~Fire Chiefs Toilet:~~ CONFERENCE Rm :
4. ~~Chiefs Conference Room:~~ BREAK Rm :
5. ~~Deputy Chief's Office:~~ ~~COMM Rm (TVE):~~ :
6. ~~Station Officer's Office/Watch Desk:~~
7. ~~Assistant Chief/Shift Supervisor's Suite:~~
8. ~~Assistant Chief/Shift Supervisor's Dorm Room:~~
9. ~~Assistant Chief/Shift Supervisor's Toilet:~~
10. ~~General~~ Administration Storage:
11. Lobby:
12. Public ABA Toilet:
13. ~~Dispatch Suite:~~
14. Dispatch ABA Toilet:

# Post Occupancy Technical Review (POTR) - Roster

15. ~~Dispatch Kitchenette:~~ **SECURE OPERATIONS STORAGE:**
16. ~~UPS Room:~~ **ARMS VAULT:**
17. Telecommunications Room:
18. ~~Assistant Chief of Fire Protection:~~ **WEAPONS REPAIR:**
19. ~~Inspector(s) Office:~~ **WEAPONS STORAGE:**
20. ~~Training Officer's Office:~~
21. ~~Department~~ **EST** Training Room:
22. **EST** Training Room Storage:
23. ~~Computer Training/Testing Room:~~ **GTA STORAGE:**
24. ~~EMS Office:~~ **FABRICATED DEVICE STORAGE**
25. ~~HAZMAT/ Safety Office:~~
26. Recycle Room/Space:
27. Canopy- Half Square Footage:
28. ~~SCBA Maintenance Room:~~

# Post Occupancy Technical Review (POTR) - Roster

29. ~~Day/Training:~~

30. ~~Dormitory Rooms:~~

31. Men Bathrooms/ Showers/ Changing:

32. Women Bathrooms/ Showers/ Changing:

33. ~~Fitness Room:~~ DEVICE MAINTENANCE REPAIR AREA

34. ~~Additional Toilet/Shower:~~ DEVICE FABRICATION

35. ~~Laundry Room:~~

36. Janitor's Closet:

37. ~~Recreation Room:~~

38. Vending:

39. ~~Station Captain's Suite:~~ WAREHOUSE

40. ~~Station Captain's Dorm Room:~~ WAREHOUSE RACKS.

41. ~~Personal Protection Equip. (PPE) Storage:~~

42. ~~Hose Storage:~~

# Post Occupancy Technical Review (POTR) - Roster

43. ~~SCBA Maintenance Room:~~

COMPRESSOR Rm:  
44. ~~SCBA Compressor Room:~~

45. ~~Protective Clothing Laundry:~~

46. ~~Equipment Wash/Disinfection:~~

47. ~~Work Room/Equipment Maintenance:~~

48. ~~EMT Storage (incl. Lockable Med. Cabinet):~~

49. ~~HAZMAT/GBRNE Equipment Storage:~~

50. ~~Logistics Office:~~

51. ~~Fire Extinguisher Inspection (Flight Line/ Non Flight Line):~~

52. ~~Ratio~~

53. ~~Apparatus Bay~~

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

**General**

1. Document Building Number (Bldg 20190)

Document Facility Name



2.



3. Document Facility Type (TSC, Small, **Medium**, Large, etc.)

4. Document if the facility design is **Standard**, Non-Standard, or Other.

5. Document hours of operation (Monday - Friday as well as Weekends)

6. Document Center Director Miguel (Mike) Del Hierro

7. Document Construction Contractor is VEMAC

8. Document date occupied. Aug 2011

9. Document date visited August 14, 2012

10. Document overall facility satisfaction (**Dissatisfied**, Indifferent, Satisfied, Extremely Satisfied)

11. Document meeting attendees/persons contacted. See attendance sheet

12. Document major issues from G9 Pre-Occupancy Inspection.

13. Document whether the facility meets customer's need/expectations. Yes

14. Document feedback received from customers. There are too few bathrooms in this facility. The parking lot could be bigger.

15. Document overall (big picture type) comments. The contractors did a good job.

**Construction**

1. Document major construction modifications

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

2.	Document construction delays/schedule impacts
3.	Obtain copies of after action reports on facility
Civil	

1. Document overall site conditions.

2. Document satisfaction with traffic and pedestrian flow. A sidewalk was added to the front of the building.



3. Document satisfaction with parking design. Provided designated handicapped parking spaces in all major parking lots and drop-off zones for persons with mobility impairments

Document satisfaction with dumpster location(s). The dumpster should be located in the back. The trash has to be carried to the front of the building. This is not Convenient for the workers.

4.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

5.

Document Hazardous Material Storage Area: A separate facility will be required for this storage area.



5. Document any ATRP issues. None

**Structural**

1.

Document any structural related problems/concerns. The loading Dock is too high for 18 wheelers trucks to unload. The loading dock needs an adjustable ramp.



2. Document any unique seismic design features.

**Fire Protection/Life Safety**

1. Document any apparent life safety issues

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

Document the type of fire protection system installed (dry pipe, wet pipe, etc)

2.



3.

A transmitting combination fire alarm/mass notification fully addressable system were installed. Yes, installed but not working well together.

4.

A mass notification remote station and eight pre-recorded messages were installed

5.

A combined FACP/MNCP and pre-action releasing panel is installed in the mechanical room.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

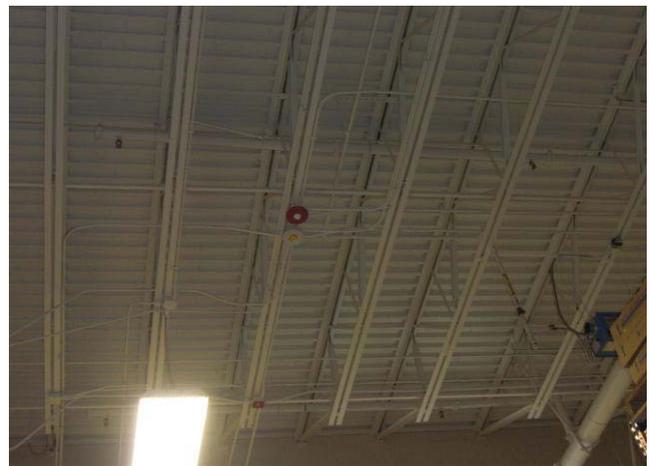
6.

Mass notification for the facility consist of audio speakers located to provide intelligible instructions at all locations in and around the buildings and at the hardstand.



7.

Separate individual strobes were provided at each location: one clear strobe for fire alarm and one amber strobe for the mass notifications system to alert the hearing-impaired occupants of the facility.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

The mass notification system serves as the building-wide zoned public address system. A remote microphone station/control is located in Room 106. No remote microphone station/control in room 106. Remote microphone station/control is in the warehouse.

8.



Pull stations, smoke detectors, heat detectors, are provided IAW NFPA 72.

9.



10. Document any false alarms/trips. Yes, there were two false trip alarms. These were clear up.

11. Document any issues with performing inspection, testing and maintenance (accessibility)

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

Categories & Checklist Items	
Architectural	
1.	Document the location of the duress alarm(s).
2.	Document adequacy of admin space (enough space, used as designed, etc). The Fire Alarm/Mass Notification Panel should not be inside the admin space. These panels could be located outside in the hallway. The Admin space could not be locked because these panels were in there.
3.	Document if taller walls in storage areas is desired to allow more storage. No, taller walls is not
4.	The communications rooms will consist of a special static dissipative solid vinyl tile floor and rubber base.
5.	Separating between the warehouse and administration areas were separated by one hour fire rated fire wall.
6.	Document which doors require access codes
Plumbing	
1.	Document overall satisfaction with plumbing system
2.	Document satisfaction with plumbing fixtures installed (high efficiency type used)
3.	Document whether manual or automatic flush valves installed
4.	Document hot water storage temperatures
5.	Document general maintenance procedures performed
Mechanical	
1.	Document overall satisfaction with HVAC systems
2.	Document hot/cold areas
3.	Document thermostat type and locations (height above floor)
4.	Document if carbon monoxide monitors are installed
5.	Document issues related to facility pressurization
6.	Document any equipment accessibility issues
7.	Document any maintenance issues
8.	Document if mechanical systems were commissioned
9.	Document if duress alarm is designed to shutoff HVAC systems
10.	Document if utility meters are remotely monitored/logged
11.	Document if the facility makes use of any renewable (solar arrays, gray water, etc)
12.	Document if HVAC systems use plenum return or ducted
13.	Document if remote monitoring is performed by a EMS/UMCS
14.	Request metering logs of facility (peak demand, monthly usage, etc)
15.	Document if EMS/UMCS provided is satisfactory

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

**Electrical**

1. Document if all interior lighting is either linear or compact fluorescent type. 2'x4' fluorescent troffers



2. Document if the lighting fixture is damage or hanging open? None

3. Document if the lighting is controlled IAW ASHRAE 90.1 (time clock, [motion sensors](#), etc)

3.



4. Document light pollution. None

**Post Occupancy Technical Review (POTR) Checklist**  
**Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

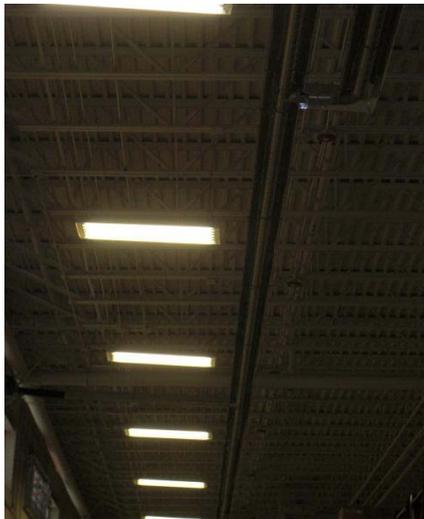
5.

Incandescent fixtures were used above firing station in the EST training room. Yes



6.

Fluorescent high bay fixtures were used in the Warehouse area.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

7.

Exterior lighting consist of metal halide lamps



8.

Dimming ballasts and dimmer switches were provided in the conference, training areas.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

9.

Exterior lighting consist of pole mounted parking lot lighting and wall mounted wall pack type fixtures.



10. Emergency lighting were provided as required by NFPA Life Safety Code. Yes

11. Exit lights were provided as required by NFPA Life Safety Code. Yes

12.

Dimming ballasts and dimmer switches were provided in there rear of the weapons simulator room above the benches. Yes



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

13.

Dimmable track lighting were provided above the firing positions. Yes



14.

Special switching were provided in the weapons simulator that switches lights in rows such that the rows near the screen and firing positions can be switched off while keeping the rows in the rear on. Yes

Document if Lightning Protection System is installed (appear adequate?)

15.



**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

Document if there a Service Entrance Panel metering (EMS/UMCS connection?) Conduit with pull wire are provided from the meters on the pad mounted transformers to communications room.  
No EMS/UMCS connection. Conduit is provide will pull wire.



16.



17. Document if wiring is concealed from view in finished rooms/areas. Yes

18. Document if concealed/flush boxes are used for devices in finished areas and on exterior walls. Yes

19. Document the purchase of Green Power. Green Power generated from wind turbines can be purchesed from EL Paso Electric Company in 100 KWh block for \$3.04 per block. Purchasing this power will allow the project to claim a point toward the LEED requirement. No.

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

GFCI receptacles are located in the mechanical rooms and all areas required by NFPA 70



20. Document adequate working clearance for electrical and communication panels. Yes

**Communications**

1. Document satisfaction with intercom system (announcements understandable) Yes

2. Interior communications equipment consist of a backboard, equipment rack, conduit and cable tray, category six copper horizontal cabling, and RJ-45 modular jacks. Yes

3. The building is wired for cable TV. Yes

4. Communications cabling were provided from the mechanical rooms to the communications room for future installation of an UMCS system. Ft. Bliss does not monitor small building energy consumption.

A 2 way intercom system is installed for communications between the warehouse and the Administration Room 108. The master station is installed in the Admin. Room with several slave stations installed in the warehouse. Yes

5.



6. Document type of intercom system installed ([wall mounted](#), free standing, etc.)

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

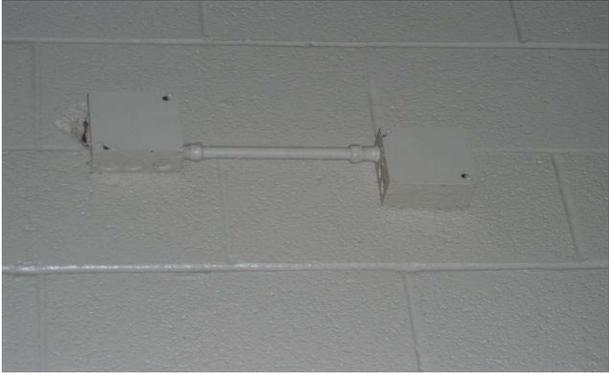
- 7. Document if Telephone/Data/Power outlets meet needs at reception and admin areas. Yes
- 8. Document if Communication Rooms are adequately heated/cooled. Yes
- 9. Document if prohibited equipment/systems passed through Communication Rooms. No

**Security**

- 1. Document satisfaction with security systems. No security system provided.

Electronic Security, Surveillance and Intrusion Detection: A conduit system with boxes and pull wire were provided for future installation of an IDS on the secure vault area.

2.





- 3. A conduit system with boxes and pull wire will also be provided for future installation of access controls at some of the exterior door to the building.

3.





**Notes**

**Post Occupancy Technical Review (POTR) Checklist  
Training Support Center (PN 68662), Ft. Bliss, TX**

**Categories & Checklist Items**

1.

The roll up door is not connected to the electrical switch. These doors fold up instead of rolling up.



2.

The training area lighting needs to be controlled separately.

3

Some of the receptacles had to be relocated.



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

## **Training Support Center**

**Building 6075**  
**Fort Campbell, KY**



**POTR - Phase I (Project Review)**  
**Training Support Center (TSC) - Medium**  
**Project No 68775**

**20 September 2012**

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## **CHAPTER 1 - GENERAL**

### **1-1 Purpose**

The intent of this document is to present the findings of the Phase I POTR performed on Building 6075 at Fort Campbell, KY. The POTR was performed by the HNC team consisting of Molly Richardson and Robert Jackson II on 20 Sep 2012.

### **1-2 Facility Description**

Building 6075 is a Standard Medium Training Support Center with a Silver LEED Certification. Occupied in March 2011, the hours of operations for the facility are Monday thru Friday from 0800 to 1630. The average number of visitors per day for the entire facility is 100 people. The warehouse receives approximately 50 visitors per day and the classroom visitors can range from 50 to 150 people. The main facility has two EST Classrooms, a multipurpose classroom, a call room, a retail/storage area, office space, a reception area, and restrooms. The Warehouse Area includes racks that are tiered 3 high, charging stations, fabrication and woodworking shops, restrooms, and 6 loading bay doors.

### **1-3 POTR Team Members**

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

- Molly Richardson – Structural Engineer
- Robert Jackson – Mechanical

### **1-4 Meeting Contacts**

The following is a list of individuals that were contacted during the POTR:

- Steve Zuercher – DPTMS – TSC
- Jason Phillips – USACE, CRL-CD-C

A roster for meeting attendees and contact information is attached in Appendix A.

### 1-5 Design and Construction Modifications

The design-build contractor for this project was Better Built Construction Services Inc. The following is a list of the major modifications during the project. A Change Request and Funding Report can be found in Appendix B.

- Reworked the lobby and reception area (Design)



- Changed rack configuration to leave room for next day's outputs and more classroom space. No racks were installed against walls to avoid spider problems. (Construction)



- During construction there were unsuitable soil replacements that were not accounted for in design and communication and electrical cables were rerouted multiple times.

**1-6 Construction and Ongoing Issues**

- There was leakage in the roof system during construction between the administrative area and the warehouse. This was fixed during construction.
- The fire alarm system went off frequently at first and, with only one alarm responder, there was a slow response to fix warnings and false alarms.

**1-7 Overall Satisfaction**

The user of the facility is extremely satisfied with the building and was very pleased with the final product. There are still some minor issues being resolved, but overall the facility meets their demands. They were very pleased with the contractor and local district office's assistance and attention to their needs.

---

**CHAPTER 2 - ARCHITECTURAL**

**2-1 General Discussion**

- Parking: There are not enough parking spots to fully support troops on high demand days. Currently, the facility has approximately 85 parking spots.
- Break Room/Admin Area: Not used on a full-time basis except for the main Support Chief.
- Restrooms: There is a slightly inadequate amount of restrooms, especially during high occupancy days.
- Retail Space: Contains vertical storage bins and extra offices and classrooms.



- Waiting Room: There is not enough space for troops waiting to go into classrooms, call room, etc. No sound proofing was installed.



- The doors between temperature controlled and non-temperature controlled rooms swell/shrink due to temperature variance and causes gaps and/or doors do no shut properly.

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

- Entry to the Communications Room is through the Mechanical Room. This is not ideal because each room has a different set of keys and different owner.
- At building completion, the dust collector is located outside and since then they had built an enclosure for both architectural and functional purposes.
- The doors in the warehouse should be steel instead of wood. The doors get banged frequently by items and vehicles coming in and out of the facility. Also, a way to prop them open for more efficiency during loading/unloading times.
- The users and staff have complained that the floors are slippery when wet and with troops coming in from the field this is a safety hazard.

---

## CHAPTER 3 - MECHANICAL

### 3-1 General Discussion

The user is happy with the HVAC system installed in the facility overall and feels that it is doing the job of providing a comfortable environment. All the spaces feel adequately air conditioned. The thermostats are functioning properly. The maintenance schedule of the HVAC system are said to not be properly followed to the best of the user's knowledge (DPW was not represented at the meeting). The heaters are doing an adequate job of providing a comfortable warm environment in the warehouse. The user understands how the HVAC system is suppose to function and have not experienced major issues with the system.

The user is happy with the plumbing system installed. All plumbing fixtures are stated to be functioning properly throughout the facility Hot water is not being stored at 140 degree F. It is being stored at 120 degree F. by a high efficiency water heater. Water conserving fixtures are installed in the facility (automatic lavatories, low flow urinals, low flow toilets). No issues have been encountered with the plumbing system thus far.

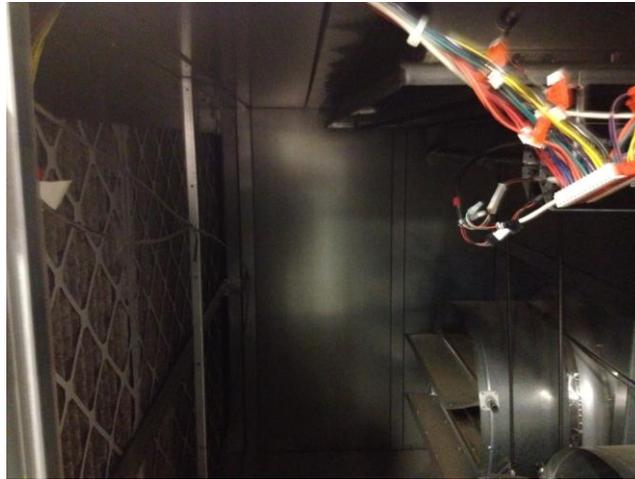
The user does not have any issues with the wet pipe sprinkler system that services the facility. A dry pipe sprinkler system services the warehouse portion of the facility and no issues have been encountered with it. There have been no issues with performing inspection, testing and maintenance of the overall fire protection systems. The user stated that the fire pump is required to be tested, but no one is testing it. The user stated that DPW, nor the contractor, nor the fire department is testing the fire pump. The user stated that the alarm panel went into alarm multiple times when they first moved into the facility. The user stated that it was the warning alarm that kept going off and not the emergency fire department alarm. It hasn't happened the past few months.

### HVAC

- The main air handler is AHU-1, which has a VFD fan, and it ties into the VAV boxes to supply air throughout the facility.



- Maintenance/service schedules of the HVAC system needs to start being properly followed. Currently the air filters are not being replaced as frequently as they should.



- There were no change orders that affected the HVAC
- The commissioning report was not available; (likely boxed up and shipped out).
- To the user's knowledge the facility is not being monitored for energy usage.
- The POC for HVAC related issues the user encounters is DPW.

#### PLUMBING

- The POC for plumbing related issues the user encounters is DPW.
- Water is not being stored at 140 degree F. It is instead being stored at 120 degree F. UFC 3-420-01 requires the storage hot water heater to store the water at a temperature of 140 degree F.



---

FIRE PROTECTION

- No one at the facility/installation knows who is supposed to test the fire pump. This needs to be resolved.



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

- No Standard Design Impacts identified for this facility mechanically or plumbing related.
- Located inside the Fabrication/Woodworking space is a saw dust dryer/dust collector that randomly makes a loud “compressed air” popping sound. This is a hazard. It’s a hazard because the random sound can startle the employee and therefore cause an accident when working with saws and cutting equipment.



---

**CHAPTER 4 - ELECTRICAL**

**4-1 Existing Conditions**

- Lighting. Occupancy sensors are on light switches. The user agreed that emergency lights have come on in the event of a power loss.
- Lightning Protection System. Installed at unknown depth.
- Wiring. Concealed and adequately labeled for finished rooms. Some exposed wiring in the mechanical/electrical room was low on exterior walls and if flooding occurred it would be vulnerable.



- Outlets: Adequate amount of outlets throughout facility.

**4-2 Functionality Issues**

- N/A

**4-3 Lessons Learned/ Standard Design Impacts**

- N/A

## CHAPTER 5 - MISCELLANEOUS

### 5-1 Civil/Site

- The approach and entry to the loading docks has adequate clearance and turning room. Two of the loading bays were converted into additional parking.



### 5-2 Structural

- No Structural issues have been reported or were discovered.

### 5-3 Lessons Learned/ Standard Design Impacts

- No Structural issues have been reported or were discovered.

# **APPENDIX A**

# **ROSTER**

# Post Occupancy Technical Review (POTR)

<b>Name:</b> Jason Phillips	<b>Organization:</b> USACE CRL-CD-C
<b>Phone:</b> (270 ) 798-7225	<b>Email:</b> jason.b.phillips@usace.army.mil
<b>Professional Responsibility:</b>	

<b>Name:</b> Steve Zuercher	<b>Organization:</b> DPTMS-TSC
<b>Phone:</b> (270 ) 798-7640	<b>Email:</b> <del>steve</del> steven.l.zuercher.civ@
<b>Professional Responsibility:</b>	

<b>Name:</b> Molly Richardson	<b>Organization:</b> USACE HNC
<b>Phone:</b> ( 256 ) 895-2501	<b>Email:</b> molly.e.richardson@usace.army.mil
<b>Professional Responsibility:</b> POTR Scheduler / Structural	

<b>Name:</b>	<b>Organization:</b>
<b>Phone:</b> (     )	<b>Email:</b>
<b>Professional Responsibility:</b>	

<b>Name:</b>	<b>Organization:</b>
<b>Phone:</b> (     )	<b>Email:</b>
<b>Professional Responsibility:</b>	

<b>Name:</b>	<b>Organization:</b>
<b>Phone:</b> (     )	<b>Email:</b>
<b>Professional Responsibility:</b>	

# **APPENDIX B**

# **CHANGE REQUESTS/ MODIFICATIONS**



US Army Corps of Engineers

# Change Request / Modification Funding

Training Support Center  
W912QR-09-C-0025 NA

20 Sep 2012

Fort Campbell, Kentucky

TITLE AND LOCATION: Training Support Center Fort Campbell, Kentucky		ORIGINAL COMP DATE: 04/17/2011	ORIGINAL CONTRACT AMOUNT:	ORIGINAL CONTRACT AMOUNT:					
CONTRACTOR: Better Built Construction Services Inc		CURRENT COMP DATE: 04/17/2011	CURRENT CONTRACT AMOUNT:	CURRENT CONTRACT AMOUNT:					
CONTINGENCY: \$0.00									
CHANGE REQUEST NO.	REFERENCE NO.	MOD NO.	DESCRIPTION	GOVT SIGNED	AGENCY /REASON /TYPE	TIME	STATUS	INCREASE/ DECREASE	CONTINGENCY AMOUNT
WORK ITEM: DB072L C0121-Contract #W912QR-09-C-0025 [149091] FUNDING ACCOUNT: H2293165									
00002	R00001	A00001	CH2MHill Impact Fee	11/10/2009	C/V/B		6L	\$31,989.00	\$823,299.05
00001-1	R00002	A00002	Communications Reroute, Part I NTP	11/12/2009	C/V/B		6L	\$55,000.00	\$768,299.05
00001-2	R00003	A00003	Communications Reroute, Part I Suppl I	12/08/2009	C/V/B		6L	\$150,000.00	\$618,299.05
00004-1	R00004	A00004	Unsuitable Soil Replacement, Part I NTP	02/02/2010	C/7/B		6L	\$125,000.00	\$493,299.05
00007	R00006	A00006	Dust Collector Color Change	03/29/2010	C/V/B		6L	\$3,500.00	\$489,799.05
00005	R00008	A00007	Relocation of Underground Electric	05/10/2010	C/7/B		6L	\$9,385.00	\$480,414.05
00001-3	R00009	A00008	Communications Reroute, Part II Final	05/26/2010	C/V/B		6L	\$190,000.00	\$290,414.05
00003	R00010	A00009	Call For Fire Room	06/24/2010	C/V/B		6L	\$30,639.31	\$259,774.74
00004-2	R00007	A00010	Unsuitable Soil Replacement, P II Final	07/26/2010	C/7/B		6L	\$283,067.22	-\$23,292.48
00008	R00011	A00011	Electrical Changes	08/19/2010	C/1/B		6L	\$913.52	-\$24,206.00
00009	R00012	A00012	Knox Box	10/18/2010	C/1/B		6L	\$558.00	-\$24,764.00
00010	R00013	A00013	Electrical Changes II	12/08/2010	C/V/B		6L	\$840.00	-\$25,604.00
00011	R00014	A00014	Electrical Changes III	01/06/2011	C/V/B		6L	\$2,035.00	-\$27,639.00
00012	R00015	A00015	Security Changes	01/31/2011	C/V/B		6L	\$14,000.00	-\$41,639.00
00014	R00016	A00016	GFCI Warehouse Racks	06/13/2011	C/V/B		6L	-\$41,639.00	\$0.00

# **APPENDIX C**

## **NOTES**

# Post Occupancy Technical Review (POTR)

## TRAINING SUPPORT CENTER

Installation: Ft. Campbell

Project Number: 68775 Building Number: 6075

Name of Facility: TSC

Type of Facility:

Standard  Non-standard  Modified

Other: \_\_\_\_\_

Medium

Hours of Operation: 0800  
1630

Other:

TSC Chief:

Construction Contractor: Better Built

Date Occupied: <sup>Signed</sup> March 2011

Date Visited: 20 Sep 2012

Overall:

moved in a month  
1 Apr 2011 operate

1 Very Dissatisfied  2 Dissatisfied  3 Indifferent  4 Satisfied  5 Extremely Satisfied

# Post Occupancy Technical Review (POTR)

Feedback regarding the Contractors:

Better Built

Design-Build

↳ Architect Emersion  
reworked lobby space

Good communication, relationship

worked well  
and catered to  
specific needs

Fir plan  
meeting

Subcontractor  
issues

Construction modifications that were required:

needed steel  
doors not wood! See above  
- less wood in  
warehouse, more durable  
- propped open

# Post Occupancy Technical Review (POTR)

## Construction issues/On-going maintenance:

Just did and probable should be in standards  
dust collector open to outside ← enclosed

- doors swell b/c temperature difference, make  
sure ~~door~~ open/close

## Major issues from the Pre-occupancy inspection:

roof problem - leak at <sup>Yes</sup>  
low wall and warehouse

warranty  
battles

# Post Occupancy Technical Review (POTR)

Does the facility meet your needs and expectations:

~~Refer room management~~

Yes

What feedback have you received from the staff:

Racks installed as fast as possible

not near well  
b/c of spider  
problems

Any overall (big picture type) comments:

~~WAS~~ Better Room management, no waiting room  
of sound proofing

9' door - maybe bigger to warehouse  
or 10'

# Post Occupancy Technical Review (POTR)

0-5

Does the reception/service window function well?

What is the approximate number of visitors per day?

50 in warehouse <sup>~ shipping/receiving</sup>  
~ 100 ~~200~~ classrooms

Is there adequate Staff Parking?

No - about 85 parking space

Does the facility offer flexibility?

Yes

Does the facility support the full time staff and their missions efficiently?

Is the Site Approach and Exit to the Warehouse adequate?

Excellent, 6 loading docks, closed off 2 of them  
used for parking

Telecom Room (TR):

Does the provided locking mechanism adequately limit access to this area and function properly?

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR)

Does the user feel the HVAC system is doing the job of providing a comfortable environment? *Yes*

Is there a space(s) that seem to get too hot within the facility while at the same time a nearby space seems to be too cold?

Does the Classroom/Training Space seem to get too hot or too cold when the room is unoccupied?

Are the thermostats working properly? If not, have the user to describe how or why it seems not to be working properly:

*Yes, individual thermostats ± 2  
very simple*

Can the user identify any miscommunication between what was described in the RFP and what was actually built?

Is there anything in particular about the HVAC that stands out to the user that they like (Example: they like the particular thermostat b/c of all the information it displays, etc.). *warmer than expected*

User- Do you understand how the system is supposed to work (not from a technical perspective, but from functionality perspective)?

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

*slippery  
when  
wet*

# Post Occupancy Technical Review (POTR)

Is the user happy with the HVAC system installed?

Are maintenance schedules of the HVAC system being properly followed?

No - issues with warranties

Identify any other issues and or problems encountered with the HVAC system.

late filter changes

Who are the points of contact for HVAC related issues?

DFW - submit service order

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days.

Were there any change orders that affected the HVAC and plumbing?

fire pump

Can any after action reports or lessons learned be provided?

Describe the commissioning process for the facility. What issues were discovered and resolved?

went smooth

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

pw  
not  
present

huge  
rooms

# Post Occupancy Technical Review (POTR)

Silver

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Do plumbing fixtures function properly? *works fine*

Is there anything in particular about the plumbing system that stands out to the user that they like (Example: they like the automatic fixtures and the manual flush option on it, etc.).

Is the user happy with the plumbing system installed?

Is the hot water being stored at a temperature of 140 degree F.?

Are maintenance/service schedules of the plumbing equipment being properly followed (pumps, flush valves, etc.)?

Identify any other issues and or problems encountered with the plumbing system.

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can obtained at a date after leaving site, preferably at least 7 to 10 business days.

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Are plenum return's used or ducted returns used?

What kind of fire protection system is installed (dry pipe, wet pipe, etc.)?

Verify the location of the emergency shutoff (shuts off the HVAC)?

Verify the submission of the Commissioning report.

Verify the submission of the TAB report.

Verify where pilot transverses were done (refer to TAB report if necessary).

If possible, verify the position of the manual outside air damper (likely located in the mechanical room near the roof).

Were there any suggestions made in the commissioning report for the user to take action on as a benefit for when the building became occupied. If so point those out to the user and ask if they were implemented.

alarm  
cutoff  
a lot at  
first  
↓  
alarm  
guy

fire pump needs to be ran every so often - who is responsible?

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Who are the points of contact for any plumbing related issues?

Are there any new and innovative technologies planned to be installed (solar, grey water, etc.)?

Are high efficiency mechanical equipment installed as part of the HVAC system (Example: chiller, boiler, pumps, etc.)?

Can documentation of the energy usage of the facility from the past six months be provided (gas, water, etc.)? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days. After receipt of the information compare the values to the Utility Demands Estimate spreadsheet.

What types of plumbing fixtures are installed in the facility (Example: high efficiency toilets/urinals, waterless urinals, low flow lavatories)?

Verify that high efficiency water heaters (min. 93%) are being used to supply domestic hot water?

Is all the piping in the mechanical room labeled and legible?

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Are adequate exterior lighting systems provided for parking areas, sidewalks, building entrances and perimeter for safety, evacuation, and security measures? ✓

If near flight line, is the site lighting installed so that night time aircraft operations are not impacted?

*not under flight line*

Does emergency lighting switch OFF when area not occupied or during unoccupied hours?

Document if the transformer is metered?

Does the transformer meter, gas meter, and water meter appear to be connected to the Building Monitoring System?

At a minimum, has the transformer meter, gas meter, and water meter been integrated with the post-wide UMCS/EMCS and are the required data logging being recorded/stored for the facility?

Was an adequate Lightning Protection System installed?

*Modified for roof size but good*

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Is wiring concealed from view in finished rooms/areas? ✓

Are concealed/flush boxes used for devices in finished areas and on exterior walls?

some mods required it

Is there adequate working clearance for electrical and communication panels?

very tight, corr B

Access to comm room through  
mechanical room



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

## **Training Support Center**

**Building A5514**  
**Fort Bragg, NC**



**POTR - Phase I (Project Review)**  
**Training Support Center (TSC) - Large**  
**Project No 68773**

**18 September 2012**

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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 performed on Building A5514 at Fort Bragg in Fayetteville, NC. The POTR was performed by the HNC team consisting of Molly Richardson, Bryan Merry, and Blake Terry on 18 Sep 2012.

### **1-2 Facility Description**

Building A5514 is a Large Training Support Center that was occupied in April 2011. Hours of operations for the facility are Monday thru Friday from 0730 to 1630. The facility has a staff of approximately 25 personnel. Some parts of the building and the classrooms are available after hours and on the weekends by smart card entry. Reservation can be made and the responsible party is issued an access card. The average number of visitors per day for the entire facility is 200 people. The facility has two EST Classrooms, a multipurpose classroom, storage, and restrooms. The Warehouse Area includes a lobby, racks that are tiered 3 high, several vertical storage units, a secure storage center, a charging center, and 6 loading bay doors.

### **1-3 POTR Team Members**

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

- Molly Richardson – Structural Engineer
- Bryan Merry – Mechanical Engineer
- Blake Terry – Mechanical Student Intern

### **1-4 Meeting Contacts**

The following is a list of individuals that were contacted during the POTR:

- Bob Lucero – DPTMS, Training Integration Branch Chief
- Keith R. Cass – DPTMS, Training Support Officer
- Coby Jones – DPW, Energy/HVAC

A roster for meeting attendees and contact information is attached in Appendix A.

### 1-5 Design and Construction Modifications

The design-build contractor for this project was Osborne Construction. The following is a list of the major modifications during the project.

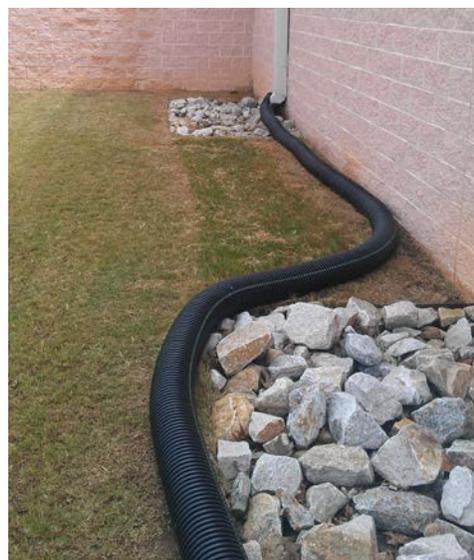
- Drywells were designed to handle the storm water from the roof.



- Removed the lobby/reception and retail areas from the standard design.

### 1-6 Construction and Ongoing Issues

- The drywells continually hold water and the poorly drained water has seeped into the building in several locations. The drywells that retain water are also growing mold and/or algae. To mitigate some of the issues, they have installed piping to divert the water and some are now connecting to the sewer line.



- There is leakage in the warehouse roof which is oftentimes hard to identify and could be a result of a large roof system.



- The users were forced into the building before the racking system was installed due to a tornado taking out other facilities. This created hardship when moving in and then during rack installation because the equipment was on the ground and the racks had to be installed around the containers.
- The fire alarm system has signaled a false alarm 3-4 times due to water pressure issues concerning the sprinkler system. When the water pressure increases the sprinkler system thinks that they have been turned on and signals the system.

### **1-7 Overall Satisfaction**

The user of the facility is very happy with the building and was very pleased with the final product. There are a couple ongoing issues they are still working to resolve, but overall the facility meets their demands and is in a perfect location for the troops. They were very pleased with the contractor and local district office's assistance and attention to their needs.

---

## CHAPTER 2 - ARCHITECTURAL

### 2-1 General Discussion

- Parking: There are not enough parking spots to fully support troops on high demand days. Currently, the facility has approximately 50 parking spots and overflow parking is located across the street in a grass field.
- Break Room: N/A
- Restrooms: There are an adequate amount of restrooms available throughout the facility. They did note that the hand soap dispensers underneath the sinks were inaccessible due to covering.



- Outlets: Plenty of outlet availability throughout facility.
- Multipurpose classrooms. There is a moveable wall present for room flexibility as well as high-end technology tools, accessories and capabilities making the classroom function seamlessly.

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

- When the user has input during the design/construction process, the resulting facility better fulfills the installation's specific needs.
- They removed the reception area/service window from their design and have been functioning just fine without one. The user did mention they might consider a waiting room if they went through the process again.
- The rooms built for this support center fit perfectly into what was needed for the installation, but more rooms are always desired.

## CHAPTER 3 - MECHANICAL

### 3-1 Existing Conditions

- The facility consists of three distinct space types: heated warehouse, training areas, and administrative areas.
- The warehouse is heated by gas fired radiant heaters. Ventilation is provided by ventilation fans and wall louvers. Cooling is provided by the ventilation system.



- The training and administrative areas are cooled by a chilled water air handlers. Chilled water is provided by an air cooled chiller.



- Zone control is provided by VAV air terminal units with hot water reheat.
- Heating is provided by high efficiency condensing boilers.



- The facility is equipped with a wet pipe sprinkler system and fire pumps.



### 3-2 Functionality Issues

- The building occupants were pleased with the HVAC system that was installed.
- The occupants noted that the fire alarm system has had many false alarms due to site water pressure fluctuations.

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

- The sprinkler system needs to adequately handle pressure surcharges to minimize false fire alarms.

## CHAPTER 4 - ELECTRICAL

### 4-1 Existing Conditions

- Lighting. Occupancy sensors are on light switches. The user agreed that emergency lights have come on in the event of a power loss.
- Lightening Protection System. Installed at unknown depth.
- Wiring. Concealed and adequately labeled.

### 4-2 Functionality Issues

- Occupancy sensors are quirky and some are not working properly.
- The user cannot turn all of the warehouse lights off.

### 4-3 Lessons Learned/ Standard Design Impacts

- Occupancy sensors need to be looked at during the pre-inspection to ensure correct installation.

## CHAPTER 5 - MISCELLANEOUS

### 5-1 Civil/Site

- They determined stairs from the main building to the loading docks were necessary and since construction they have added a walkway with stairs.
- Some drywells had undermined and lifted some of the sidewalks and had to be filled in with concrete to stabilize the walkways.

### 5-2 Structural

- No Structural issues have been reported or were discovered.

### 5-3 Lessons Learned/ Standard Design Impacts

- N/A

# **APPENDIX A**

# **ROSTER**

## Post Occupancy Technical Review (POTR)

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<b>Professional Responsibility:</b>	

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<b>Phone:</b> ( 910 ) 396-7080	<b>Email:</b> robert.d.lucero.civ@mail.mil
<b>Professional Responsibility:</b> Training Integration Branch Chief	

<b>Name:</b> Keith R. Cacc	<b>Organization:</b> DPTMS TSC
<b>Phone:</b> (910) 396-9007	<b>Email:</b> Keith.R.Cacc@civ@mail.mil
<b>Professional Responsibility:</b> Training Support Officer	

<b>Name:</b> COBY JONES	<b>Organization:</b> OPW
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<b>Professional Responsibility:</b> ENERGY/HVAC	

<b>Name:</b> Bryan Merry	<b>Organization:</b> USACE-HAL
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# **APPENDIX B**

# **NOTES**

# Post Occupancy Technical Review (POTR)

## TRAINING SUPPORT CENTER

Installation: Fort Bragg

Project Number: 68773 Building Number: ~~A5514~~

Name of Facility: TSC A5514

Type of Facility:

Standard  Non-standard  Modified

Other: \_\_\_\_\_

Large Tier I 25 ppl

masonry  
steel

Hours of Operation: 0730  
1630

Other:

TSC Chief:

Construction Contractor: Osborne - Virginia? Raleigh?

Date Occupied: 20 Apr 11

Date Visited: 18 Sep 2012

Overall:

Out of warranty phase

1 Very Dissatisfied  2 Dissatisfied  3 Indifferent  4 Satisfied  5 Extremely Satisfied

Design Modifications  
- design spots, drywell - wasn't large enough  
↳ Tie into sewer line

HVAC Hours of ODP  
500  
1900

Gold Leed

## Post Occupancy Technical Review (POTR)

Feedback regarding the Contractors:

Awesome  
Responsive, open  
Interested in max functionality

Construction modifications that were required:

None during construction.

Stairs installed - sidewalk to loading dock

Adding in pumping stations - CO<sub>2</sub>, propane

Wooded/forest - vertical, need for multistories

## Post Occupancy Technical Review (POTR)

Does the facility meet your needs and expectations:

What feedback have you received from the staff:

wish maybe a little larger  
- more classrooms

need 40'x40'

Any overall (big picture type) comments:

location perfect for troops.  
Space was limited - bigger parking lot.  
Pike field across road for overflow  
parking  
fire alarm false 3-4 times  
w/ve to water pressure issues  
sprinklers think they're on

## Post Occupancy Technical Review (POTR)

Construction issues/On-going maintenance:

water penetration  
in classroom

- seeping up  
ground ✓

leakage in roof  
- battle to identify  
- too large roof  
system?

Major issues from the Pre-occupancy inspection:

forced into building - tornadoes knocked out  
other building

accelerated movement into building

# Post Occupancy Technical Review (POTR)

0-5

Does the reception/service window function well?

N/A, don't have one, but on second thought  
maybe should have

What is the approximate number of visitors per day?

200

Is there adequate Staff Parking?

See gen. comment

Does the facility offer flexibility?

Mostly

Does the facility support the full time staff and their missions efficiently?

Is the Site Approach and Exit to the Warehouse adequate?

Very Good

Telecom Room (TR):

Does the provided locking mechanism adequately limit access to this area and function properly?

Yes, key card access by staff personal  
to all rooms

Smart

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR)

First summer - hot winter brought in portable heaters

calibrated temps but thermostats are off

Does the user feel the HVAC system is doing the job of providing a comfortable environment?  
*- subcontractor - halfway through went bankrupt  
no commissioning*

Is there a space(s) that seem to get too hot within the facility while at the same time a nearby space seems to be too cold?  
*- all good now  
- 3 no. uncomfortable*

*W/B on the high / set points low*

Does the Classroom/Training Space seem to get too hot or too cold when the room is unoccupied?

*the thermostats not in good locations*

Are the thermostats working properly? If not, have the user to describe how or why it seems not to be working properly.

Can the user identify any miscommunication between what was described in the RFP and what was actually built?

Is there anything in particular about the HVAC that stands out to the user that they like (Example: they like the particular thermostat b/c of all the information it displays, etc.).

User- Do you understand how the system is supposed to work (not from a technical perspective, but from functionality perspective)?

*training, pretty simple system*

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR)

*design build*

Is the user happy with the HVAC system installed?

Are maintenance schedules of the HVAC system being properly followed?

*↳ Once every 6 months*

Identify any other issues and or problems encountered with the HVAC system.

Who are the points of contact for HVAC related issues?

*gas problems in boiler*

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days.

Were there any change orders that affected the HVAC and plumbing?

Can any after action reports or lessons learned be provided?

Describe the commissioning process for the facility. What issues were discovered and resolved?

*most likely did not happen*

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Do plumbing fixtures function properly?

hand soap dispenser, can't set to them

Is there anything in particular about the plumbing system that stands out to the user that they like (Example: they like the automatic fixtures and the manual flush option on it, etc.).

Is the user happy with the plumbing system installed?

Is the hot water being stored at a temperature of 140 degree F.?

Are maintenance/service schedules of the plumbing equipment being properly followed (pumps, flush valves, etc.)?

Identify any other issues and or problems encountered with the plumbing system.

Can documentation of any after action reports or maintenance service/work orders of the facility from the past six months be provided? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can be obtained at a date after leaving site, preferably at least 7 to 10 business days.

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Who are the points of contact for any plumbing related issues?

Are there any new and innovative technologies planned to be installed (solar, grey water, etc.)?

already Gold

Are high efficiency mechanical equipment installed as part of the HVAC system (Example: chiller, boiler, pumps, etc.)?

Can documentation of the energy usage of the facility from the past six months be provided (gas, water, etc.)? If yes obtain documentation before leaving site, if no, discuss a means in which the documentation can obtained at a date after leaving site, preferably at least 7 to 10 business days. After receipt of the information compare the values to the Utility Demands Estimate spreadsheet.

What types of plumbing fixtures are installed in the facility (Example: high efficiency toilets/urinals, waterless urinals, low flow lavatories)?

Verify that high efficiency water heaters (min. 93%) being used to supply domestic hot water?

Is all the piping in the mechanical room labeled and legible?

Air Barrier

## Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Are plenum return's used or ducted returns used?

What kind of fire protection system is installed (dry pipe, wet pipe, etc.)?

Verify the location of the emergency shutoff (shuts off the HVAC)?

Verify the submission of the Commissioning report.

Verify the submission of the TAB report.

Verify where pilot transverses were done (refer to TAB report if necessary).

If possible, verify the position of the manual outside air damper (likely located in the mechanical room near the roof).

Were there any suggestions made in the commissioning report for the user to take action on as a benefit for when the building became occupied. If so point those out to the user and ask if they were implemented.

Lighting

## Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Are adequate exterior lighting systems provided for parking areas, sidewalks, building entrances and perimeter for safety, evacuation, and security measures?

If near flight line, is the site lighting installed so that night time aircraft operations are not impacted?

Does emergency lighting switch OFF when area not occupied or during unoccupied hours?

lights on when occupied

Document if the transformer is metered? yes

Does the transformer meter, gas meter, and water meter appear to be connected to the Building Monitoring System?

At a minimum, has the transformer meter, gas meter, and water meter been integrated with the post-wide UMCS/EMCS and are the required data logging being recorded/stored for the facility?

- working on

Was an adequate Lightning Protection System installed? ✓

don't know how deep

all but water currently metered

# Post Occupancy Technical Review (POTR)

Attach other sheets of notes from the walkthrough that include the specific notes from each area.

Is wiring concealed from view in finished rooms/areas?

Are concealed/flush boxes used for devices in finished areas and on exterior walls?

Is there adequate working clearance for electrical and communication panels?

Good to go

- Can't turn all warehouse lights off
- emergency lights come on in event of power loss

- some occupancy sensors not working

- pipes, boxes, etc. labeled well  
cement used in drywells to protect side walls