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CENWO-ED-DG

22 August 2013

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: End State Technical Review Report, Phase I, construction completed 2012.
Fort Bragg, NC, Freedom Chapel (PN 61035)

PART ONE, ASD FUNCTIONAL BASIS EVALUATION SUMMARY

This portion of the Memorandum will address the specific evaluations made as they relate to the Army Standard Design (ASD) for this facility type, discussed in the order observed. Because any completed facility also includes characteristics and features not part of the ASD requirements, not all of the potential Lesson's Learned have application to the ASD. The primary focus of this investigation is to improve the ASD and to do so in a way that reflects upon the underlying assumptions and theories (design concepts) upon which the ASD was developed. "PART TWO" of the Memorandum will include detail on the actual observations and take up the various issues unique to this facility as well as those applicable to the ASD. To assist perusal of the document the primary functional space type being discussed has been inserted (in parentheses) in between the appropriate groups of comments.

In general, all agreed that the completed facility is performing well in many ways; the building layout allows great flexibility. The users feel generally empowered to accomplish the Chaplaincy mission in ways that were just not possible before. This has been of tremendous value to the congregations being supported and the entire military community and Army mission.

Weaknesses of the facility focus primarily on a few components that are not functioning quite as intended. There were also a (very) small number of weaknesses that were rooted in all of the aspects of what puts a project together (contract, design, construction), as well.

Observations made that relate directly to the ASD requirements and the design concepts selected for use by the Office of the Chief of Chaplains (OCCH) are as follows:

1.1 In the group office, it was difficult to layout the desks as shown in the furniture floor plans. The chair rails shift the desks away from the wall just far enough to interfere with the door located near the furniture. The user shifted the configuration slightly to accommodate the desks without blocking doors and some of the furniture pieces will not be used. **This is not addressed (warned about) in the ASD text and adding appropriate verbiage could improve the problem for most facilities. (This comment is the same as 2.1)**

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1.2 The pendant lights in the worship space are too low and block the projection screens. The user has placed a projection screen on the raised platform to work around the problem and stated that it is doubtful they will ever use the original two projection screens. They would have preferred that the pendant lights be higher and retractable (to make it easier to change light bulbs). **The ASD stresses comprehensive good design and it does include information regarding the placement of projection screens and lighting in the Worship Center. However, any facility such as this is inherently complicated enough to make addressing every feature difficult for the designer/contractor. Adding appropriate verbiage could improve the problem for most facilities. (This comment is the same as 2.2)**

1.3 The user is having difficulty with the layout of the pews in the Worship Center. It is confusing to users with some of the aisles only going halfway up the rows of pews. They are also not able to close the partition closest to the Worship Center during some of the ceremonies because there would not be enough space between the back pew and the partition for circulation. **The ASD provides one of many possible solutions for the pew design; the designer/contractor is responsible for the final layout. Adding appropriate verbiage could improve this problem for most facilities. (This comment is the same as 2.3)**

1.4 The ASD should remove language that requires strobes near the raised platform. **Additional research and adding additional appropriate verbiage to the ASD text might improve this issue for other facilities. (This comment is the same as 2.10)**

1.5 The installation of the baptismal pool did not include handrails. **The ASD text will include additional information regarding handrails at this location. (This comment is the same as 2.15)**

1.6 The kitchen is very short on electrical support and outlet capacity. **The currently developing ASD does include more text to avoid having this happen again. (This comment is the same as 2.17)**

1.7 User would prefer better storage for linens and robes. The lockable storage rooms in the sacristy do not provide much storage and robes take up a lot of storage space. User created their own robe storage rack, but suggested adding a robe storage rack of some kind to the ecclesiastical furniture package to help alleviate some of the storage issues. **Additional appropriate verbiage to the ASD text could improve the problem for other facilities. (This comment is the same as 2.19)**

1.8 Taller and bigger storage cabinets are preferable in the sacristy suite. **Additional appropriate verbiage to the ASD text could improve the problem for other facilities. (This comment is the same as 2.20)**

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1.9 The users greatly appreciate the Janitor's Closet; however, a janitor's cart was not provided. The users purchased their own cart but recommend a janitor's cart be added to the furniture package. **Upon further research, the CoS is now aware HNC will not purchase janitors carts at this time. (This comment is the same as 2.28)**

1.10 The user commented on how the wood chair rails look unfinished since the wood was only sealed, not stained. The wood color is different from the furniture wood color and wood paneling in the entrance and worship space. **While this is not been specifically addressed (warned about) in the ASD text, adding appropriate verbiage might improve the problem for other facilities. (This comment is the same as 2.39)**

1.11 The fabric used on the stacking chairs is very light in color and does not have a pattern. The fabric is already showing soiling in all rooms the stacking chairs are used. **This fabric was not originally specified in the FF&E. The CoS will consider adding verbiage to ASD to address that interior finish colors and patterns shall help hide soiling. (This comment is the same as 2.50)**

IN SUMMARY: In general, the results of this ESTR demonstrate that the underlying concepts behind the 2004 ASD were sound and effective. Each of the principle functional areas and features are supporting an excellent level of successful ministry. The completed facility appears to represent a very-close-to-optimum balance between aesthetics, function, cost, and maintainability. The completed facility also appears to represent a high-value long-term asset for the military community, the Garrison, the OCCH, and the Army.

PART TWO, ALL OBSERVATIONS AND DISCUSSIONS

This portion of the Memorandum will address each observation discussed in the order observed. Because any completed facility also includes characteristics and features not part of the ASD requirements, not all of the potential Lesson's Learned have application to the ASD. Some are project specific and related to project history, unique points-of-view, unique features, or unique functions that needed to be added to the general facility mission. This portion of the report allows all such observations and discussions to be recorded and applied to future projects as appropriate. The following observations and discussions were identified:

(Administrative Spaces)

2.1 In the group office, it was difficult to layout the desks as shown in the furniture floor plans. The chair rails shift the desks away from the wall just far enough to interfere with the door located near the furniture. The user shifted the configuration slightly to accommodate the desks without blocking doors and some of the furniture pieces will not be used. **This is not addressed**

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(warned about) in the ASD text and adding appropriate verbiage could improve the problem for most facilities. (This comment is the same as 2.51)

(The Worship Center)

2.2 The pendant lights in the worship space are too low and block the projection screens. The user has placed a projection screen on the raised platform to work around the problem and stated that it is doubtful they will ever use the original two projection screens. They would have preferred that the pendant lights be higher and retractable (to make it easier to change light bulbs). **The ASD stresses comprehensive good design and it does include information regarding the placement of projection screens and lighting in the Worship Center. However, any facility such as this is inherently complicated enough to make addressing every feature difficult for the designer/contractor. Adding appropriate verbiage could improve this problem for most facilities.**

2.3 The user is having difficulty with the layout of the pews in the Worship Center. It is confusing to users with some of the aisles only going halfway up the rows of pews. They are also not able to close the partition closest to the Worship Center during some of the ceremonies because there would not be enough space between the back pew and the partition for circulation. **The ASD provides one of many possible solutions for the pew design; the designer/contractor is responsible for the final layout. Adding appropriate verbiage could improve this problem for most facilities.**

2.4 The A/V storage consoles in the worship space are poorly made and the roll tops continue falling down. The user is planning on getting rid of the consoles and replacing them. **This standard features should not be failing. It may be due to a problem with the specific manufacturer and an investigation will help diminish this risk on future projects.**

2.5 It is not clear how to change the lights behind the stained glass windows in the Worship Center. **The CoS has not come across this situation before and the stained glass arrangement is one that is unique to the Fort Bragg chapel. This is not an issue at this point because none of these lights has gone out; however, Department of Public Works (DPW) needs to contact the designer, contractor, or installers, to clarify how the light bulbs are to be changed.**

2.7 The Activity Center and the Worship Center are on the same light switching circuit. **The ASD stresses comprehensive good design and requires the Worship Center and Activity Center include features that allow for the control of light with a maximum of ease and flexibility.**

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2.8 Recessed can lights are burning out frequently. **This is an isolated issue and the COS recommends DPW contact the contractor to replace these fixtures.**

2.9 One of the movable partitions is pulling away from the wall. **This is an isolated issue and the COS recommends DPW contact the contractor to address this problem.**

2.10 The ASD should remove language requiring strobes near the raised platform. **Additional research and adding additional appropriate verbiage to the ASD text might improve this issue for other facilities.**

2.11 The light-well above the raised platform leaks sometimes. **The CoS has not come across this situation before and the light-well is one that is unique to the Fort Bragg chapel. The COS recommends DPW contact the contractor to address this problem.**

(The Activity Center)

2.12 This design did not incorporate storage under the stage in the Activity Center. The user stated storage under the stage for tables and chairs would have been incredibly helpful since they do not have enough storage space as it is. After going through comments made during the design process, it was decided at the 100% design meeting that the design would not incorporate storage under the stage. **The introduction of under-stage storage began in 1985 but this sort of interpretation conflict, miss-coordination of storage dollies and other issues has led to the decision to discontinue their use in the current ASD.**

2.13 Lights have been accidentally switched off by users leaning against wall. It is likely the switch location and switch types are to blame. **The ASD does not include this level of detail. Any facility such as this is inherently complicated enough to make addressing every feature difficult for the designer/contractor.**

(The Baptistery Suite)

2.14 The baptismal pool works really well; however, the changing rooms are seldom in use. **The congregation needs of faith groups vary widely and that other groups do use all of the stalls for this event regularly and have even requested more of them.**

2.15 The installation of the baptismal pool did not include handrails. **The ASD text will include additional information regarding handrails at this location.**

(Audio/Visual System Issues)

No comments.

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(The Kitchen Suite)

2.16 The Kitchen includes one sink and two dishwashers that are rarely used, but it did not include an icemaker that would be very helpful for all of the gatherings and activities that occur there on a regular basis. Additionally, the kitchen design did not include the center island. **During the design of this facility, it was unclear that Huntsville would purchase ice machines as part of the furniture package. This has since been clarified. Better coordination needs to occur during the design process to verify the procurement of equipment.**

2.17 The kitchen is very short on electrical support and outlet capacity. **The currently developing ASD does include more text to avoid having this happen again.**

(The Blessed Sacrament Space)

2.18 In the Blessed Sacrament Chapel, the user will likely remove the partition and white board and install small Stations of the Cross because Roman Catholics solely and regularly use this space. The user commented on how convenient it is that all of the Catholic areas are located close to each other. **The goal is to keep the ASD fully compatible with all faith groups and to allow each congregation or community group the optimum usable features for their activities in an environment where all share the benefits of a relatively flexible and extremely functional facility.**

(The Sacristy and Robing Suite)

2.19 User would prefer better storage for linens and robes. The lockable storage rooms in the sacristy do not provide much storage and robes take up a lot of storage space. The user created their own robe storage rack, but suggested adding a robe storage rack of some kind to the ecclesiastical furniture package to help alleviate some of the storage issues. **Additional appropriate verbiage to the ASD text might improve the problem for other facilities.**

2.20 Taller and bigger storage cabinets are preferable in the sacristy suite. **Additional appropriate verbiage to the ASD text might improve the problem for other facilities.**

(Multi-purpose/Classroom Spaces)

2.21 The user commented on how flexible the Multi-Purpose Rooms are since they have the sinks. They really appreciate this feature and the flexibility in these rooms. **The goal of the ASD is to allow each congregation or community group the optimum usable features for their activities in an environment where all share the benefits of a relatively flexible and extremely functional facility.**

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2.22 The motion sensors are a blessing and a curse. Often, the lights will turn off when the room is occupied with a small number of people sitting relatively still. **To meet LEED, the design includes sensors on the lighting circuit to conserve energy. Design goals for sustainability are project specific. The COS recommends contacting the designer/contractor to address this item.**

2.23 The classrooms, adjacent to the Activity Center stage, are very small and are used for storing chairs. **The 2004 ASD was hampered by outside restrictions that have recently been relaxed. The 2012 ASD will significantly improve on this situation.**

(The Toddler Nursery Accommodations)

2.24 The users really like this space; however, some of the safety features are missing. **The COS recognizes that some facilities have a high demand for a child watch system. The goal of the ASD is to provide optimum usable features for all users' activities in any environment, where all share the benefits of a relatively flexible and extremely functional facility. Additionally, the ASD provides the appropriate references to address safety features.**

2.25 Nursing Mothers Room is rarely in use; additionally, the shape of the room is awkward. **The congregation needs of faith groups vary widely and congregants at other chapels do use the Nursing Mothers Room.**

(Vestibules/Lobbies/Corridors/Stairways)

(Storage Spaces)

2.26 The Resource Center is currently in use as a copy room and the user commented that they do not plan to use the mail sorter provided. **The goal of the ASD is to allow each congregation or community group the optimum usable features for their activities in an environment where all share the benefits of a relatively flexible and extremely functional facility.**

2.27 There is not enough storage in the facility. **The 2004 ASD was hampered by outside restrictions that have recently been relaxed. The 2012 ASD will significantly improve on this situation.**

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(Toilet Rooms and Janitor's Closets)

2.28 The users greatly appreciate the Janitor's Closet; however, a janitor's cart was not provided. The users purchased their own cart but recommend a janitor's cart be added to the furniture package. **Upon further research, the CoS is now aware HNC will not purchase janitors carts at this time.**

2.29 Baby changing station is too low. **The ASD does not include this level of detail.**

2.30 Toilet paper dispenser is mounted too low and is difficult to operate. **The ASD does not include this level of detail**

2.31 Feminine hygiene receptacles are in men's restroom. **The ASD does not include this level of detail.**

2.32 Trash cans have an inconvenient locking device. **The ASD does not include this level of detail.**

2.33 Janitor's Closet door is always unlocked because the hardware is too inconvenient to unlock. **The ASD does not include this level of detail.**

2.34 The toilet rooms with the most fixtures are located away from the main entrance and high traffic areas. **The 2004 ASD was hampered by outside restrictions that have recently been relaxed. The 2012 ASD will significantly improve on this situation.**

2.35 Patrons are using too many paper towels; the user prefers air hand dryers. **The ASD text does not describe specific building component requirements; this is likely a project specific issue.**

2.36 The soap dispensers are leaking. **The ASD text does not describe specific building component requirements; this is likely a project specific issue.**

(Building Features and Finishes)

2.37 The user preferred hard surface flooring, such as porcelain tile, in high traffic areas such as the main corridor and sanctuary. Hard surface flooring is easier for them to maintain than carpet in heavy use areas, such as corridors, and in areas where food is allowed, such as the activity center. The floors are also easier to clean when spills occur. At a minimum, in corridors adjacent to lobbies, it is recommended that hard surface flooring be used instead of carpet. **Some finish decisions always occur during the design and construction process that vary slightly for a variety of reasons. Any facility such as this is inherently complicated enough**

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to make addressing every feature difficult for the designer/contractor and cost issues aggravate things.

2.38 The user is having issues with the carpet tiles shifting slightly when heavy equipment is rolled across the carpet. The carpet tile tends to bunch at the seams and make the edges and corners come up. **This might possibly be cleared up under warranty.**

2.39 The user commented on how the wood chair rails look unfinished since the wood was only sealed, not stained. The wood color is different from the furniture wood color and wood paneling in the entrance and worship space. **While this is not been specifically addressed (warned about) in the ASD text, adding appropriate verbiage might improve the problem for other facilities.**

2.40 There is no valence on the stage or baptistery curtains. While it is not affecting the performance or usability of the curtains, they do appear unfinished because the curtain hardware is visible from below. **The ASD does not include this level of detail; it is possible that this was missed.**

2.41 The variance in color and pattern of the carpet is hiding soiling well. **The interior color schemes are always subject to a great many opinions. Consensus is not always possible. This facility demonstrates the benefits of good consensus among interiors professionals and other Project Delivery Team Members.**

2.42 Overall, the user was pleased with both the exterior and interior appearance of the building. **Appearance characteristics and special items are prescriptive features in the ASD, which provide the guideline for creating a facility most everyone will enjoy.**

2.43 The response to the keyless access control is very positive and increases building flexibility and security as temporary access codes can be issued to user instead of building keys. However, sometimes after a rain, the electronics on the keypad will malfunction. **This is good to see; both the RFP and the ASD require a keyless type (digital keypad) lockset on one exterior door of the local chaplains choosing.**

2.44 The weather-stripping on the exterior doors is failing; the strips are difficult to reinstall after they start coming loose. Additionally, the closer on some of the doors are starting to fail. **The ASD does not include this level of detail. DPW needs to address the hardware deficiencies with the contractor.**

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(Furniture, Appliances, and Equipment Items)

2.45 The user was only provided with stacking chairs as opposed to the combination of stacking chairs and upholstered folding chairs that was specified in the FF&E. While the user is ok with just the stacking chairs, with storage space at a premium, upholstered folding chairs may have been a more storage-efficient choice. **The COS will make HNC aware of what happened so this does not happen at another Chapel facility.**

2.46 Folding tables specified and used in this project are too heavy. The user noted that many times, it is the women who setup spaces for activities and move tables. The weight of the tables makes it difficult for women to easily move and setup tables. **The ASD has recently been revised to require tables that are lighter weight in design. The COS will make the Huntsville Corps of Engineers (HNC) purchasing group aware of these issues so HNC can apply these lessons learned to future chapel furniture purchases.**

2.47 Initial table carts purchased for the project were not functional with the tables purchased. The table carts were meant to stack the tables on the cart, but the tables did not stack well. The user ended up purchasing new tree stacking carts for tables. **The COS will make HNC aware of what happened so this does not happen at another Chapel facility.**

2.48 The stacking chair carts are functional but the user stated that they do not have enough. They have ten stacking chair carts that each holds ten chairs. The user would have preferred twenty or so stacking chair carts. **Better coordination needs to occur during the design process to verify the procurement of equipment.**

2.49 When loaded, the chair feet on the stacking chair carts are scratching the floors where the floor transitions from carpet to the wood flooring by stage. The cart is the correct cart for the stacking chairs, but the chairs sit too low on the cart and the chair feet scratch the floor. The user is considering altering the stacking chair cart to have the chairs sit higher on the cart. **Better coordination needs to occur during the design process to verify the correct fit of equipment.**

2.50 The fabric used on the stacking chairs is very light in color and does not have a pattern. The fabric is already showing soiling in all rooms the stacking chairs are used. **This fabric was not originally specified in the FF&E. The CoS will consider adding verbiage to ASD to address that interior finish colors and patterns shall help hide soiling.**

2.51 In the group office, it was difficult to layout the desks as shown in the furniture floor plans. The chair rails shift the desks away from the wall just far enough to interfere with the door located near the furniture. The user shifted the configuration slightly to accommodate the desks without blocking doors and some of the furniture pieces will not be used. **This is not addressed (warned about) in the ASD text and adding appropriate verbiage could improve the problem for most facilities. (This comment is the same as 2.1)**

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2.52 Designers need to understand the importance of specifying the correct size and type of chair and table dollies to allow loaded dollies to fit into storage areas and be maneuverable in corridors and through doors. HNC also needs to be made aware of this so the correct types are purchased. **The introduction of under-stage storage began in 1985 but this sort of interpretation conflict, miss-coordination of storage dollies and other issues has led to the decision to discontinue their use in the current ASD.**

2.53 The original alter was too short, subsequently the users have replaced with a more suitable alter. **Better coordination needs to occur during the design process to verify the correct fit of equipment.**

(Equipment Rooms and Systems)

2.54 Heating went out for several spaces during the winter; the contractor returned and repaired the system. **The ASD text does not describe specific building component requirements; this is likely a project specific issue.**

2.55 Water is not always hot and the water heater needs to be accessible to building occupants to adjust the temperature setting. **The ASD text does not describe specific building component requirements; this is likely a project specific issue.**

(Site Issues)

2.56 An irrigation system used for plant establishment was installed for temporary use only; the user wants to continue using the system. Currently, the system is inoperable. **This facility achieved LEED Gold, likely predicated on the use of a temporary irrigation system. If not, the system can be repaired and put back to use.**

PART THREE, UNIQUE ISSUES

No issues to report.

PART FOUR, THE REVIEW PROCESS AND PARTICIPANTS

The following team of participants gathered at the Fort Bragg Chapel on August 22, 2013. The review process began with a meeting and continuation of previous discussions of lessons learned related issues, building operations, descriptions of what congregations are being served and their usage patterns, etc. Once general discussion reached an appropriate point, the team shifted to a tour of the facility with further items brought up as we went.

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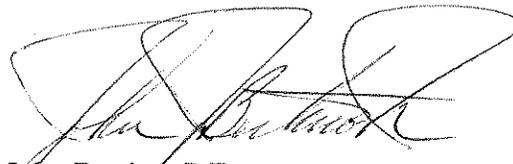
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Any other questions, comments, or concerns on the aforementioned items may be directed to Mr. Askelon Parker, (402) 995-2173 or email address at Askelon.M.Parker@usace.army.mil.

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