End State Technical Review (ESTR)

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

Child Development Center, Infant/Toddler (Medium Size)

Building 4021
Fort Riley, Kansas

ESTR - Phase I (Project Review)
Project No 68850

April 2011

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CHAPTER 1 - GENERAL

1-1 Purpose

The intent of this document is to present the findings of the Phase I ESTR performed on Building 4021 at Fort Riley, Kansas. The ESTR was performed by the HNC team on 12-13 Apr 2011.

1-2 Facility Description

Building 4021 is a medium sized (232 children), infant/toddler Child Development Center (CDC) that was occupied in January 2010. Hours of operations for the facility are Monday thru Friday from 5:45 am to 6:00 pm (no weekend operations).

1-3 ESTR Team Members

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

- Jay Clark – Architectural
- Sandy Wood – Mechanical
- Andy Long – Mechanical
- Jason Page - Electrical

1-4 Meeting Contacts

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

- Rosalyn Wesley, CYS
- Laura Fitzpatrick, Facility Director; (785) 239-4488 (office phone)
- Larry Stillwagon, DPW
- Willie Mattos, Kansas City District

1-5 Construction

The design-build contractor for this project was MacTec. The following is a list of the major contract modifications issued during construction.

- The local fire marshal required the addition of smoke detectors in the outdoor storage areas. These smoke detectors weren't originally required in the construction plans (approximately $80,000 modification).

- CO sensors were also required to be installed in all classrooms. These sensors were also not specified in the construction plans. The sensors that have been installed are battery operated. If these sensors had been required in the construction plans they could have been hardwired, rather than battery powered which would have led to less building maintenance.

CHAPTER 2 - CIVIL/SITE

2-1 Existing Conditions

A large amount of site work was required to prepare the site for this facility. Due to its location (sits on top of a hill), it was not possible to provide an access drive to the mechanical room and kitchen. A road, separate from the parking lot was provided for busses and deliveries. However, the team saw that the 18-wheeler for the kitchen just blocked the parking lot to unload.

2-2 Functionality Issues

The following is a list of functionality issues discovered/discussed during the visit.

- The playgrounds are not flexible enough for the various age groups, especially when rooms are reconfigured. Sometimes groups have to walk through other spaces or around the building to get to an age appropriate playground. This has been the subject of several parent complaints.

- The location of the fencing for the playground does not follow the current standard. Installation personnel are concerned that the fence around the playground should have been taller due to its location next to a busy street and the woods.

- Sod would be preferred over seeding because of how quickly the building opened and the fact that the outdoor area is an integral part of this facility. Playgrounds need to be ready when the facility opens. It has been a year since the facility opened and the seeded grass is still not fully established.

- The dumpster screen provides no real screening from the facility, the parking area, or the main entry road.

- The fire lane around the facility had removal ballards to prevent entry however there were no curbs or fencing adjoining the lane; traffic could easily drive around the ballards.

2-3 Lessons Learned/ Standard Design Impacts

- The placement of sod in the playground turf areas should be recommended.

CHAPTER 3 - ARCHITECTURAL

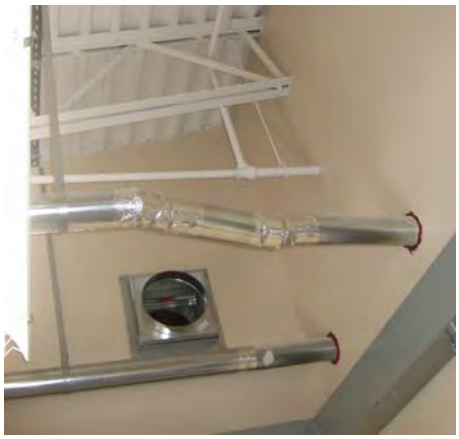
3-1 Existing Conditions

The facility was designed from an early version of the current standard, and there have been some changes to the standard design and criteria since this facility was designed and constructed. A 9' ceiling was provided in the waiting area and a raised accent ceiling area was provided at the end of each corridor.

3-2 Functionality Issues

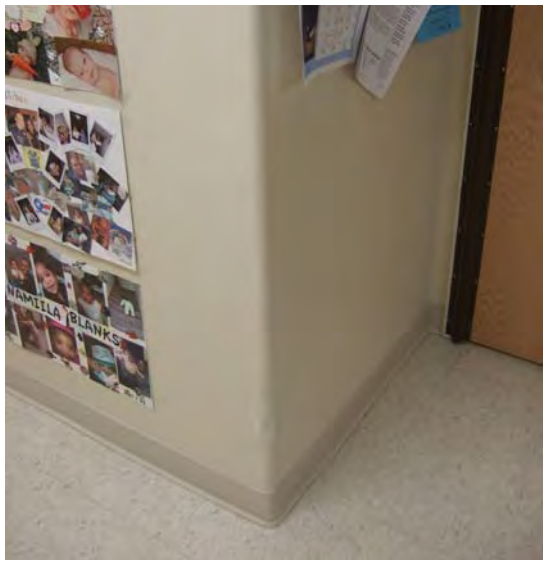
The following is a list of functionality issues discovered/discussed during the visit.

- The laundry room in this facility is not located on an exterior wall. The dryer vents have a number of bends in them as they pass through the electrical room to the exterior wall. This causes a fire concern with built up lint, and they are constantly cleaning the vents.



- Some of the infant rooms cannot accommodate 2 groups of toddlers as planned in the standard design. This is due to the dimensions of the room, location of the door, and the kitchen area. In addition, evaluators noted that columns occurred within the spaces, and that the cubbies were larger than allowed for in the standard.

- Corners on the walls are rounded, which is great for safety, however, the corners are damaged easily. Standard corner guards will not work since the corners are rounded. The construction contractor needs to be responsible for corner protection that is appropriate for the corners he constructs.



- Diaper changing station location is a concern as the care givers have their backs to the other children.

- Corners of the pre-school/pre-K/Kindergarten handicap toilet stalls are very weak due to the dual doors. They have screwed plates to the partitions that render the handicap door unusable in order to provide the stability. Toilet partitions are floor mounted only.

- Door handles on the inside of the child activity rooms doors that lead to the corridor are easy for the children to open due to the lever action. Need to have a different type of hardware. The round door knobs are better because you can put a child proof adapter on the handles. This is an ADA issue, so further research is required.

- Doors from corridor into activity rooms do not lock. Installation safety office has said these doors need to be lockable in case of an invasion or other hostile act.

- Doors from corridor into Training Room and Staff Lounge are very difficult to operate and are a maintenance nightmare. This is due to the fact that the installation has declared these 2 areas as tornado shelters, and the doors are designed for that purpose. The doors are not intended to be used numerous times a day. In addition, the areas designated as tornado shelters are inadequate for the load of the building.

- Pre-school/Pre-K/Kindergarten rooms do not have changing tables. This has already been added to the standard.

- Child sinks were not supplied with push-button faucets.

- Child drinking fountain handle is a safety concern. Have had some injuries.

- Only adult drinking fountains were outside of the Active Play Room. They were not provided between the restrooms. This is now a requirement of the standard design.

- The Active Play Room has 2 doors to the outside, and one of them is not into a fenced area. In fact, it is at the corner of the building closest to the busy road. This door is alarmed.

- The installation safety office required the users to alarm the doors from the corridor into the fenced playground areas even though that is not required in the standard.

- The Director's Office is remote from the reception counter. The director does not have visual or audible contact with the reception desk or lobby area. This causes the director to be on the run a lot. Office needs to have direct line of sight to lobby and reception area, like in the old 198 design.

- The door from the Admin Area to the main corridor is very useful.
- Felt that the reception area for this facility is too small; too tight for 2 people. They felt the admin area in the 198 was better; however it did not include a lobby.
- Isolation area is too small and not located well. It should not be directly visible from the lobby. The child(ren) in the isolation area must have a care giver with them, so it is not required to have it open off of the reception desk. The video coverage does not completely cover the isolation area.
- Janitor closet should be by laundry, not right as you walk in the facility.
- Corridor width is barely 6', and items like the MSDS book, and fire extinguisher cabinets project into the hallway.

- The finish on the walls (paint) marks easily, and is easily damaged by tape. Need to provide cork strips or something to allow for hanging of children's artwork.
- Mechanical Room door, exterior Electrical Room door, and exterior Kitchen door all have windows and finger guards at the hinges. This is not required.
- The video system is able to record on the unit in the Director's Office. Video limitations include inability to view parking lot, and poor coverage at corner by Active Play Room. The corner by the Active Play Room is critical due to the door that is not into the fenced area. In addition they only get audio on the surveillance system, no audio.
- No duress alarm was provided.
- There are recycling bins located in various rooms. Difficult for the recycling people to gather it. Would

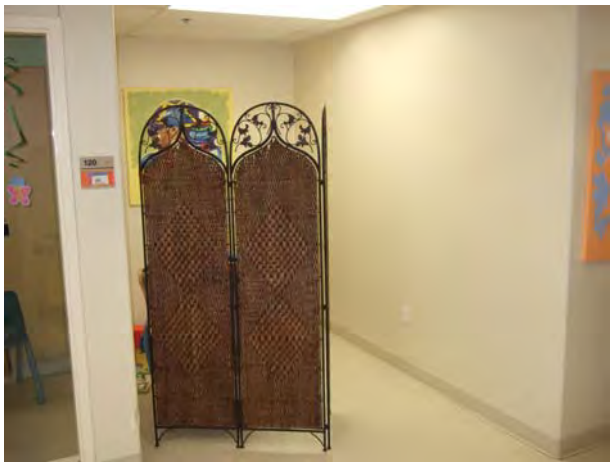
be better if all the recycling was located in one area.

- Grout was not sealed in the restroom and kitchen floors. Therefore, the grout is stained and looks bad. They were told it could not be sealed after the fact.

- VCT in corridor and open admin area had separated and some has already been replaced. It is possible that the tile had been laid without an adjustment period for temperature.

- Need to have storage for files off of the admin area. There are a lot of files on the children and staff that must be maintained for a fairly long period of time.

- Need a dedicated location for nursing mothers. Some mothers come by to nurse. They have converted one of the buggy storage areas into a make shift nursing area.



- Ceiling grid in active play room has come down a couple of times. Could either be from play or from the wind. They have issues with wind blowing rain in under some of the doors. They also had a roof leak one time from the blowing wind. In addition, the ceiling of the active play room was between 8' and 9'.

- Training Room and Break Room are too small for the staff of 61 - 70. Their staff at this point is 61 caregivers.

- Intercom system cannot be heard in kitchen (cannot hear phone buzz). Also cannot hear PA system on playground. Need to have intercom phones in each playground so that they do not lose ratio on the playgrounds if someone needs to call for help.

- Metal flashing under windows and around base of building is a safety hazard to children. The sharp corners heed to be corrected.

- The exterior door from the corridor to the playground on the infant/pre-tod/toddler end of the building has a unsealed gap above the door frame. This does not occur on the door at the base of the "T".

- Some of the flashing above doors and windows needs to be caulked. The crack was not completely filled with mortar. This could lead to water infiltration.

- The users found they did not use the food mixer. Their kitchen inspectors made them remove it since they were not using it.

- Cabinets were not provided in the laundry room. The users had to provide cabinets themselves.

- Ceilings were 2x4 standard edge acoustical tiles throughout the facility except for an "accent" area at the end of each corridor, where the ceiling was raised a few inches, and a different textured 2x2 tegular tile was used.

- The classrooms are provided with a floor drain directly in front of the diaper changing station. They are a bit of a nuisance for the caregivers due to the floor slope at the drains.

- The interior windows in the corridors were a big issue during construction. They had to be shifted due to cubbies, and resized based on clarifications to the requirements.

- A construction mod was to issued to provide locking hardware on the storage rooms and restrooms.

3-3 Lessons Learned/Standard Design Impacts

- Look at ways to improve the venting from the dryers

- Look to see if there is a way to rearrange the admin area to allow visual and physical access from lobby to Director's office, increase reception area, and improve isolation area.

- Ensure it's clear that cubbies cannot be larger than shown in the standards, or else capacities may be impacted.

- Require corner guards on all corners.

- Verify the need for floor drains in front of the diaper changing table, and if one is required, determine if it could be located off-center so as not to be a nuisance to the caregivers when they are changing diapers.

- Address the challenges with the ADA toilet stalls in the Pre-School/Pre-K/Kindergarten rooms.

- Research ADA requirements to determine if other types of door knobs, that are more child proof, may be used.

- Determine whether the doors from the corridor into the activity rooms can be lockable from the classroom side.

- Determine if there is a better drinking fountain for the activity rooms that do not have the protruding handle.

- Consider providing the door from the admin area to the main corridor again.

- Look at a better location for the Janitor's Closet,

- Consider mandating cork strips or other means for displaying children's work in both the corridors and the activity rooms.

- Need to ensure the standard criteria is not mandating windows and finger guards in the doors listed above.

- Discuss whether audio on the camera system should be required.
- Add a recycling area to the standard plan.
- Consider addition of a nursing mother's area.
- Determine whether the Break Room and Training Room increased in size from the previous standard layout to the current one. If not, examine if space can be added.
- Ensure the criteria require intercom phones in weather-proof boxes in each playground.
- Ensure the criteria require cabinets and shelving in the laundry room.
- Ensure the criteria require locking hardware on the storage rooms and restrooms.

CHAPTER 4 - STRUCTURAL

4-1 Existing Conditions

The facility is a single-story, fully-bricked structure with a standing seam metal roof.

4-2 Functionality Issues

The only structural issue discovered during the visit had to do with the impacts of the structural columns in the spaces. The internal columns take up space in the activity rooms and cause safety hazards in the Active Play Room.

4-3 Lessons Learned/Standard Design Impacts

None Applicable

CHAPTER 5 - MECHANICAL

5-1 Existing Conditions

The building is serviced by four (4) air handling units (AHUs). One of the units, AHU-4, is a constant volume dedicated outdoor air unit which supplies the requisite outdoor air (OA) to all conditioned spaces except for the kitchen. AHU-1 and 2 provide for the additional mechanical requirements of these spaces as well. AHU-3 only conditions the kitchen. The central heating plant consists of one (1) gas fired condensing hot water boiler, one (1) circulation pump, and two (2) building pumps. The central cooling plant consists of one (1) air cooled chiller, and two (2) primary pumps. No major mechanical maintenance or repairs have been required.

5-2 Functionality Issues

An initial discussion of this CDC with the Director turned up a few issues with the mechanical system. The Director has found that the HVAC system to pose a few challenges:

- The office and reception areas have been described as being “stuffy” by their users.
- The Video Room cooling load appears to have been underestimated. The equipment located in that room has shut down due to overheating. The Director frequently checks the equipment to ensure that it is operating.
- The HVAC system adequately handles the heating and cooling loads for most of the classrooms. Transitional Care – Room 148, however, overheats in the summer. The staff working in this room have mounted oscillating fans on the walls in an attempt to maintain more comfortable conditions. The fans were in operation during our visit. The classroom was warmer than the other classrooms in the building.

- The Active Play Area – Room 147 has a very noticeable hum which comes from the mechanical room located directly next to it. The noise appears to be from AHU-1 which is located along the adjoining wall.

- The Plans call for the room temperature sensors to be installed at 12”AFF. The sensors were mounted at 48” AFF to keep them out of the children’s’ reach. The controls contractor calibrated the temperature sensors to account for the temperature stratification which would occur over the height difference. The temperature sensors have a “+/-“ toggle on them. They can be adjusted anywhere between the plus and the minus allowing the staff to control the room temperature by +/- 2 degrees. Widely, there is confusion over the use of these sensors.

During the walk-thru there were only two comments regarding plumbing fixtures:

- Drinking fountains in the classrooms have large handles. Staff would prefer to have push button drinking fountains for safety reasons. Additionally the orientation of the drinking fountains should be considered. Handles should be located on the side of the drinking fountain closest to the wall. They would be less exposed and less of a danger to a child should they happen to trip.

- There is a drinking fountain located in each classroom. There is only one drinking fountain located in the hallways of the building. It is located next to the active play area which is not in a central location to the building. Staff members would find it helpful to have another one or two drinking fountains more readily accessible throughout the building.

- The frost proof water hydrant installed on the exterior of the building in the front infant/toddler playground was not functional. It was speculated that the hydrant was installed but not connected to the potable water piping.

Observations regarding mechanical construction quality:

- The mechanical room was very large. There was significant amount of unused space. AHU-4, however, was not laid out as efficiently as it could have been. The contractor could have moved AHU-4 farther away from the wall which would have required fewer transitions in the supply duct.

5-3 Lessons Learned

The following are a few lessons learned from the survey:

- The staff should be trained on any mechanical equipment that they may use in the building. The temperature sensors would be one example of this. Explaining the use of these sensors could possibly lead to better occupant comfort and relieve any confusion over the sensor's purpose.

- Code requirements should be more closely coordinated with FMWRC. More coordination could have alleviated construction setbacks and change orders to install the additional smoke detectors and CO sensors.

- Smart Meters were installed on all utilities during the construction of the building. The facility, however, currently has no way of capturing any metering usage data. The written contract does not require the contractor to perform these duties. In future contracts more care should be taken to see that computer programs are written to capture this data.

5-4 Standard Design Impacts

- The mechanical room for this 0-5 CDC was much larger than it was required to be. The room could have been made smaller resulting in either more usable space for occupiable areas of the CDC or a smaller overall building footprint.

CHAPTER 6 - ELECTRICAL

6-1 General

Overall the electrical system was indicated by the user (Director) to be in good working condition. They had functional issues with the occupancy sensors (OS), but the installer fixed the issues. They have not had any further issues with the occupancy sensors. The automatic time clock feature for the building lighting was indicated to be working well and enjoyed due to not having to turn off lighting throughout during non-use hours (on at 5:30am and off at 6pm).

6-2 Existing Conditions

The exterior service was via a 500kVA transformer (480/277V secondary) located near front entrance over 33 ft from building. No fencing or aesthetic wall was used for the incoming service. The main electrical room housed a 150kVA transformer (208/120V). The secondary electrical located next to the receptionist desk off the main corridor also housed a 75kVA transformer (208/120V). The building lighting was controlled via a lighting control panel with automatic timer on/off in the main electrical room. Lighting control overrides were located across from the receptionist desk on the corridor wall with a lockable clear cover for access control. Additional overrides for the lighting control panel were in the main electrical room and mechanical room. Children rooms were locally controlled without occupancy sensors. Only storage rooms, electrical rooms, communication rooms, janitor closet, and public restrooms had occupancy sensor controls. Multilevel switching was provided in the children's rooms. A mass notification system and fire alarm system was provided. Cameras were provided to cover all areas where children will be present in the facility. Only the isolation room was not adequately covered by the camera system. Exterior lighting on building was controlled via photocell mounted outside electrical under the eave. Intercom/PA in kitchen is not functioning. The user will have to get maintenance to fix this issue. Lightning protection was installed on the building.

6-3 Functionality Issues

- The receptacles in several of the children's rooms were partially covered up by the larger than stated size of the cubbies in the design. The cubbies were closer to 15" in width versus the design of ~9" width. This caused the cubbies that were also 54" tall to half way cover some of the receptacles. The solution in the field was to cut the covers in half and mount the half cover to the box. This is an NEC NFPA 70 section 406.6 and 406.6(C) code violation. The contractor should have modified the cubbies, or moved the receptacle to allow for its intended function, or removed the receptacles and patched the wall. The architect will verify the size of the cubbies was nonstandard so as to not have this issue again.

- Carbon monoxide detectors were required in the project and the solution was plug-in type in the receptacles. This method of not hardwiring the CO detectors was allowed within the contract and is not unacceptable according to UFGS 28 31 49 Carbon Monoxide Detectors. This was not a desirable method for the user and should have been hardwired.

- User indicated the intercom in the entry room 101 should be mounted at adult level nearer 54" to 60" versus low mounting ~40". The exterior storage rooms did not have smoke detectors in the design. The contract was modified to include them in exterior storage areas. Smoke detectors are required in the exterior storage rooms in the room by room descriptions of the standard design for CDCs. NFPA 72 covers smoke detector locations and it lists several areas where they are required in 11.8.3 in the 2007 version. Several lights with rounded lenses in the active play room had lenses that could fall possibly injuring the child.

- The lightning protection installation was not in accordance with NFPA 780 section 4.9.4.1 (2008 Edition) which does not allow for a "U" or "V" (down and up) pocket. Bends were also more than 90 degrees which is also not allowed by NFPA 780 section 4.9.5. Drawings indicated a thru roof down conductor for the lightning protection system, but this was not the way the lightning protection was installed.

- The communication room 141 should have had a fire rated penetration for the communication cabling.

6-4 Lessons Learned/Standard Design Impacts

- The CO detectors should be hardwired versus plugging into a general receptacle.

- Ensure the intercom in the entry way is located minimum 54” AFF.
- Intercom/PA/Phone should be required on the exterior of the building inside each playground area in case of emergency since caregivers are unable to leave the children to get help.
- Active play rooms should have flat lenses on the lights that span the entire fixture opening to ensure balls don’t get stuck or easily pop the lens out. Possibly all kids areas should have flat lenses on the lights.

End State Technical Review (ESTR)

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

Indianhead Child Development Center (0-5);

Building 2389
Fort Benning, GA

ESTR – Phase 1
Project No 46676

June 2011

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CHAPTER 1 - GENERAL

1-1 Purpose

The intent of this document is to present the findings of the Phase I End State Technical Review (ESTR) performed on Building 2389 (Indianhead Child Development Center) at Fort Benning, Georgia. The ESTR was performed by the HNC team on June 1, 2011.

1-2 Facility Description

Building 2389 is a modified small sized (99 children), Child Development Center (CDC) for ages 6 weeks to 5 years that was occupied in June 2010. Hours of operations for the facility are Monday thru Friday from 5:30 am to 6:30 pm (no weekend operations).

The facility was a non-standard that was "custom designed" by HNC and FMWRC due to the 1391 being based on the outdated standard. The Standards FDT felt it was important to incorporate as many of the features of the new standard as possible into the square footage allowed by the 1391. Therefore, many of the findings and comments are not applicable to the current standard.

The users are overall pleased with the facility. They felt it could have been larger.

1-3 ESTR Team Members

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

- Jay Clark – Architectural
- Robert Jackson – Mechanical
- Mike Eisenzimmer - Electrical

1-4 Meeting Contacts

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

- Linda Berry, Ft. Benning CYS staff
- Quiann Huff, Center Director
- Allison Smith, Center Assistant Director
- Oscar Estrada, representing DPW

1-5 Construction

The design-build contractor for this project was ###. The following is a list of the major contract modifications issued during construction.

CHAPTER 2 - ARCHITECTURAL

2-1 General Discussion

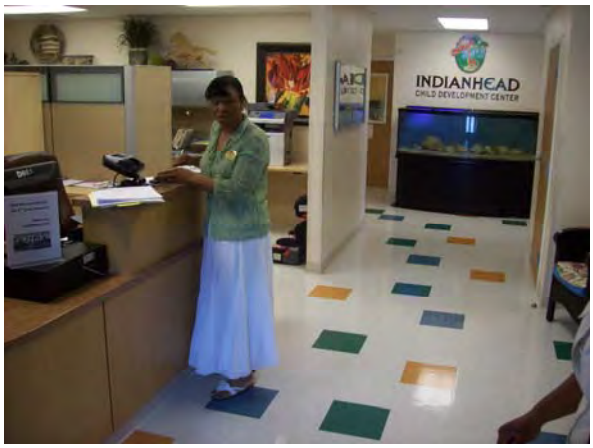
- There is no alarm on the doors at the ends of the corridor. This is a large concern since these doors do not lead to a fenced area.
- Never installed a duress alarm or an intercom in the Director's office.
- Sink in staff lounge is stainless steel, not integral.
- There is no training room nor is there space to store training materials.
- No Active Play Room (or Gross Motor Skills Room)
- Inadequate storage for supplies. Had to take shelves out of storage to accommodate cots. Had to put storage sheds outside the playground area for storage. Using the buggy storage area for storage instead of buggy storage. The buggies are stored in the one exterior storage room in the facility that is located on the front of the building.
- No storage for car seats and strollers
- The idea for the storage for the bye-bye buggies is great. Unfortunately using the space for storage in this facility.
- Since this was a modified design, the rooms are provided with corner closets with double doors.
- The individual classrooms versus the modules are great.
- The diaper changing tables are low quality, and in one instance, the plumbing is leaking causing the particle board to warp.
- Finger guards are good idea, but the ones installed are of poor quality and are not functioning. They were not provided on all doors.
- Kitchen set up is small; storage is inadequate; original range had no oven, had to buy new; had to buy separate oven to keep up with demand; kitchen sink capacity is inadequate. The dishwasher in the kitchen does not serve the capacity. It only holds 1 tray at a time, and the length of the cycles requires this to operate nearly continuously. In addition, there is no vent for the steam from the dishwasher, and this results in the steam activating the smoke detector in the kitchen. To remedy this situation, the exterior door of the kitchen must be kept open.

- Some durability issues with the sheet vinyl floor in the activity rooms. In one room it is coming up adjacent to the tile floor of the toileting area.

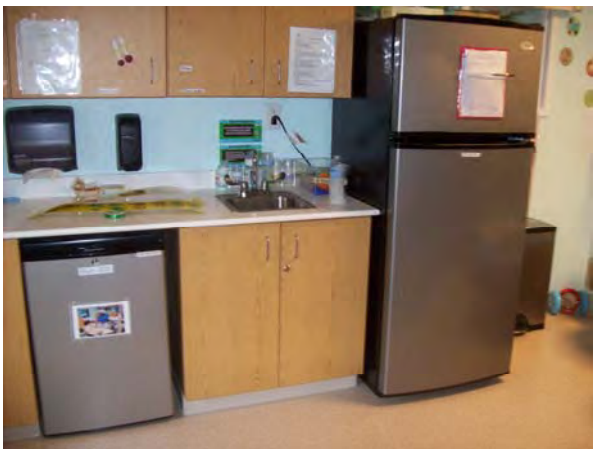
- Grout in quarry tile floor in kitchen is extremely discolored. At one time someone tried to “paint” the grout. It seems that the grout was not sealed when installed.

- Management staff has been increased, but not enough space. Not enough computer space either. Everyone on the staff must access information, etc. on line. The video surveillance room behind the admin area was converted to 2 offices. There is the Director’s Office, the Assistant Director and Trainer

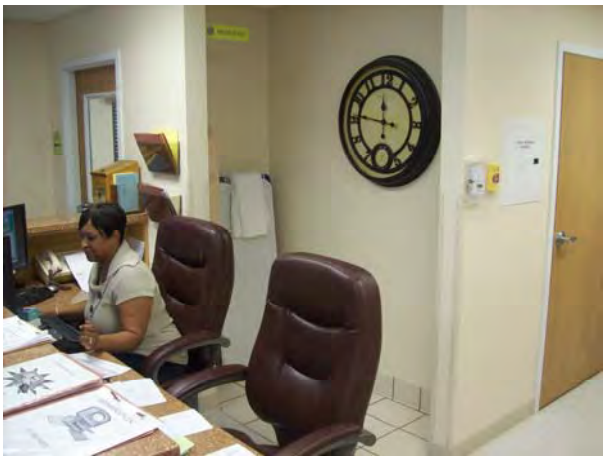
are both located in the video surveillance room, the supervisor lead and a clerk are located in systems furniture in the admin area, plus the clerk at the front desk.



- Windows are operable, with the top sash operable.
- Space in the pre-toddler rooms is difficult to store evacuation cribs and have learning space.
- In the Infant/Pre-Toddler room, there is no place for storage of cots along with needing high chairs and regular chairs, etc. This can cause space challenges in rooms with mixed age groups.
- The under counter refrigerator in the Infant Room is insufficient in size. They have added a full size refrigerator to meet their needs. The under counter refrigerators are, however, lockable.



- There is no real isolation area. There is a tile area behind the receptionist that puts the child out in the open of the reception area with no privacy. The bathroom door to serve the isolation area is around the corner which is not convenient.



- Laundry equipment is residential style, but it has enhanced cleaning/disinfecting capabilities.
- Only vision panels (high windows) are provided between the classrooms and the corridor.

- The Director's Office is right inside the front door. Would prefer it further away (similar to where it is currently located in the standards).
- No space for car seat storage was provided, and could be used.
- This design has windows between some of the classrooms. They like the windows as it is a means to communicate between caregivers in adjacent classrooms.
- Sign-in area is used primarily by the caregivers. They use the top of the cubbies next to the door for sign-in/sign-out.
- Cubbies are Kaplan, and they appear to be 12" wide.

- They do not have an issue about locking the individual classrooms in case of an active shooter since the front door is locked.

- The vestibule has a quarry tile floor, no recessed mat. The vestibule is large enough to have a sofa and area rug in it.

- Comm Room opens to outside and has been provided with glass in the door. It does, however, open into a playground. The Kitchen and Mechanical Rooms also have exterior doors that were provided with glass panels, but these do not open into areas where children are located.

- Mechanical Room is very small. It contains fire risers, main electrical panels, and water heater.

2-2 Feedback/Lessons Learned/Standard Design Impacts

- Need to have a place for breast feeding.
- Would like to have the ceilings in the storage rooms at 9' so that there is more storage capacity.
- Diaper changing station needs to be turned around so that staff does not have back to the room. In addition, the walls behind the station are too tall to enable staff to look into the toileting area.
- Inadequate storage for diapers around the diaper changing table (especially in Infant Room) based on the number of diapers brought by parents and used on a daily basis. Also need space to store bleach and other cleaning supplies at the diaper changing table. Need to have a large built-in trash receptacle as part of the diaper changing table.

- Could use recessed first aid cabinets in each classroom. They had to add surface mounted cabinets as a result of an inspection.

- If entry door were more in the center of the room, it could eliminate a blind spot for the care givers if they are located by the food prep/arts & crafts sinks or the toilet area. Right now, it is possible for a child to be at the door or someone enter the room, without being seen by the caregiver.

CHAPTER 3 - MECHANICAL

3-1 General Discussion

- The air conditioning is the largest problem with the facility. The facility administrators stated that they feel the load is too much for the air conditioning system that is installed; it is too small. Activity Rooms may be either too hot or too cold, as well as higher humidity levels. The facility administrators stated that the humidity issues were very noticeable in the Infant and pre-toddler rooms. Kitchen air conditioning goes out every 2-3 months.

- Each classroom has its own thermostat, but they are locked. There is no HVAC sensor at 1' A.F.F. Thermostats are located right next to return grills.

- Exhaust was not provided above the diaper changing table except in one room. In that room, then there was no exhaust above the toilet area. In the other rooms, the exhaust fan was basically above the lavatories in the toileting area.

- One of the infant room sometimes has a raw sewage smell. To remedy it, they were instructed to flush

the toilets and run the sinks on occasion.

- There domestic cold and hot water lines were not labeled in the mechanical room in accordance with RFP paragraph 6.8.2.1.1.
- There was no mixing valve verified in the mechanical room for the domestic water piping. The mixing valve should be verified to be installed and verify that the hot water heater is being generated and stored at 140 degree F in accordance with RFP paragraph 6.8.2.2.1.
- Mr. Estrada submitted a copy of the recent work orders submitted to his office for the facility.

3-2 Lessons Learned/ Standard Design Impacts

- Insure exhaust is provided over diaper changing tables.
- Insure trap primers are installed during design phase.

CHAPTER 4 - ELECTRICAL

4-1 General Discussion

- When the kitchen is in “full operation”, breakers for the classrooms will trip.
- The kitchen has a power panel just inside the door. There are signs in both the comm room and the mechanical room saying equipment in them runs off the panel in the kitchen.
- Only closets have occupancy sensors on the lighting
- Camera system is good, except there are no cameras in the staff lounge or the office areas.
- No smoke detector was provided in the laundry.
- Local fire marshall required heat detectors in the kitchen. The contractor installed smoke detectors instead and the steam from the dish washer sets them off.
- Electrical outlets are standard height (18”) in the corridor.
- There is no phone in the kitchen.
- A Honeywell sensor/relay in the duct in the comm room is off.
- The Honeywell sensor/relay in the duct in the mechanical room is missing.
- Teachers have to enter their lessons online and there are not enough computers.
- There is an unknown control in the activity rooms!

4-2 Lessons Learned/ Standard Design Impacts

CHAPTER 5 - MISCELLANEOUS

5-1 CIVIL/SITE

- Resilient surfacing in playground is starting to crack and crumble in some areas. Not sure if its from children picking at the little pieces.

- Infant/Toddler playground was provided with a shelter over the grass area with nothing under it. They have placed picnic tables under it.

- Need to have intercoms in the playgrounds.

- The doors at the ends of the corridor do NOT open into the fenced area. At this time they are also not alarmed, but they are getting alarms for those doors.

5-2 STRUCTURAL

- It appears that the facility is built on a crawl space.

- The overall height of the facility seems unreasonably tall for the type of construction, size of facility, and ceiling heights within.

End State Technical Review (ESTR)

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

Cooper Child Development Center (0-5);

Building 4122
Fort Sill, OK

ESTR – Phase 1
Project No 64810

July 2011

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CHAPTER 1 - GENERAL

1-1 Purpose

The intent of this document is to present the findings of the Phase I End State Technical Review (ESTR) performed on Building 4122 (Cooper Child Development Center) at Fort Sill, Oklahoma. The ESTR was performed by the HNC team on July 28, 2011.

1-2 Facility Description

Building 4122 is a medium sized (232 children), Child Development Center for ages 6 weeks to 5 years that was occupied in October, 2010. Hours of operations for the facility are Monday thru Friday from 5:30 am to 5:30 pm.

The users are overall pleased with the facility.

1-3 ESTR Team Members

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

- Jay Clark – Architectural
- Jason Page - Electrical

1-4 Meeting Contacts

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

[redacted] Ft. Sill, OK
End State Technical Review ESTR - 7/26/11
Cooper Child Development Center 0-5 Large 232

Phone	Name	Organization	email
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405-413-3819	Wilona Simmons	USACE	wilona.h.simmons@usace.army.mil

1-5 Construction

The design-build contractor for this project was Nationview/Bhate. The following is a list of the major contract modifications issued during construction.

- None noted.

The following list are concerns expressed regarding the design and construction phases.

- Lots of contractor issues, which started at the design phase. Due to design questions, etc., the design phase was extended 90 – 120 days.
- Half of the trusses blew down in a storm over Christmas.
- A water line mod almost killed the project.
- Contractors were slow responding to RFP questions.
- Contractor did not have a Project Manager on site, which led to more problems such as no one on site to answer questions. Each question caused a delay. Can the RFP mandate the PM be on site? Need someone who has authority to deal with subs and be able to make descisions.
- Horrible time knowing when subs were coming because it was handled out of main office in Birmingham.
- The designer was in Nashville, contractor in Birmingham, and project at Ft. Sill.
- Approx. 75% of the subs were from the east coast and they only wanted to work Tuesday-Thursday so they could be home over the weekends.
- Foundation issues; contractor used a floating slab, but at Ft. Sill due to soils they prefer piers and grade beams or structural slab. This was noted in chapter 6 of the RFP, but the contractor still tries to change.
- Weather days in the contract was based on Huntsville and not Ft. Sill. They had to shut down construction due to wind. Have wind days and heat days as well.

CHAPTER 2 - ARCHITECTURAL

2-1 General Discussion

- Entry door, especially the inside door of the vestibule, is dragging and has had a lot of issues. When windy, the door really gets yanked by the wind. Have one leaf that remains locked due to the wind. The problems seem to be the leaf that has the handicap button to push to open the door. The push button for the handicap access will only last a certain period of time.

- Can hear conversations in the open office that are taking place in the private offices.

- They have a safe room for tornados, but it was a big fight to get it. They used one of the classrooms, and it required a special door. The door had to be retrofit to accommodate a window as required. There was not enough room for a sidelite.

- Food prep/arts & crafts counter is lower than the standard (at 34”), thereby greatly reducing the ability to place an undercounter refrigerator in the opening (opening was 32 5/8” tall) as planned.

- Outlets in infant rooms are a challenge due to cribs and blocking off of outlets where the cribs are located.

- Lots of key issues. Toddler side they installed locks backwards. Keys and locks got all messed up. Can CDC have master key?

- They couldn’t get the temperature right in the freezer in the kitchen. They finally discovered a part is bad.

- Kitchen equipment is not short-person friendly. In addition, the diaper changing station is too high for shorter people.

- Water fountains had to be moved during construction since you couldn't get to some of them.

- Thresholds are allowing water to come in during driving rains. Putting a French drain across the sidewalk in front of the door as well as installing a shield on the door will greatly help.

- Two of the hose bibs had problems with leaking.

- Adhesive on sheet flooring shows through when using a trowel. Needs to be rolled on instead. Flooring manufacturers accept rolling the adhesive, however it's not in their specs. It shows up on light colored floors that are buffed.

- Office furniture was delayed for 6 months. And there are still some pieces of furniture missing.

- They like the colors in the center and the furniture provided. They did a change order to change from SW scheme to primary scheme.

- Pre-occupancy evaluation results:

    - Caulking a lot more than originally expected.

    - Rename edible caulk to the USDA/NSF name.

  - Lighting controls.

- Toilet partitions will not stand up to use. Needs to be more durable.
- Some plumbing walls at the diaper changing stations were too tight; had to go to 2x6 construction.
- Had a gas leak in the kitchen.
- Kitchen has had issues with blowing breakers. Also same problem in Break Room. There are larger loads in these areas.
- Threshold at kitchen door to corridor creates problems for carts.

- Grout in kitchen floor was a problem. Kitchen floor is very difficult to clean.
- Paper towel holders that come with the building are great. However, the contractor needs to coordinate with the installation to ensure they are providing the correct holder for the towels provided on the installation.
- They have grass area between the building and the perimeter sidewalk.
- They love no sand and no trees in the playground. And they love the playground surfacing.
- Some areas of the infant playground are in the sun. In addition, some of the slides are in the sun. Needs more shade.
- Play structure in the Pre-K/Kinder playground is a little small for the Kindergarten children. However, the label shows for ages 5 – 12.

- Toddler playground gate is not 50’ from the face of the building.
- Each playground has 1 hose bib and 1 telephone. But no electrical.
- Sidewalks beyond the gates out of the playground are needed. They finally got them constructed.
- Some gates are not located well; they create some blind spots. Some classrooms go into a small fenced area before into the playground. After further investigation it was noticed by the evaluators that the standard was not followed in this regards.
- Concerned about the durability of the Little Tykes equipment installed. Typically not considered commercial quality.
- Instead of providing a stop sign, just painted stop on the sidewalk.

- Installed bumper guards on the window sills outside for safety.

2-2 Feedback/Lessons Learned/Standard Design Impacts

- Two people share the Assistant Director's office. This is very difficult due to limited space. Plus it creates privacy issues.
- Originally planned for the trainer to be located in the Training Room, but with all the other training requirements, the trainer cannot function in there. Really need a private office for the trainer. Right now they are located in the open office.
- Not enough office space for all the leads (authorized 3), who are Supervising Program Specialists.
- Trainer could use more storage. They need storage space for mannequins, etc.
- Active Play Room. They are constantly adapting the room for the age group, which results in a lot of down time. They would like Active Play Rooms for each age group (at least 1 or 2 more).
- Steps on diaper changing stations do not recess fully into the cabinet. This reduces program area and creates a safety hazard. Need to ensure standard requires steps be fully retractable.

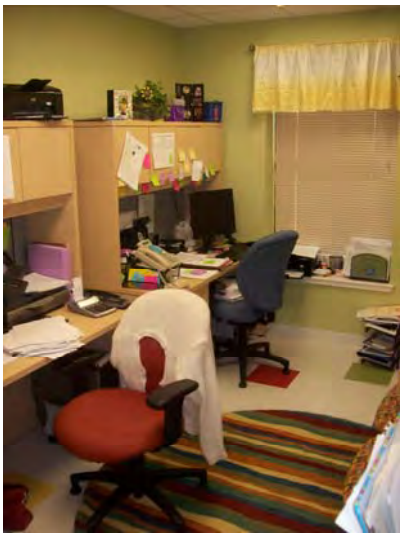
- Do not like the caregivers having their backs to the rest of the room at the diaper changing stations.

- They like not having the diaper changing station in the Pre-school/Pre-K/Kinder rooms.
- They would like larger closets in the classrooms, or provide more than 1. They need storage for cots, carts, etc. One option would be to reduce the size of the exterior storage to increase the interior storage.
- Tall coat closet at the sign in desk should also be lockable, and it should be keyed differently from the 6 “cubbies” at the sign in desk.
- Doors to playground would be better in the center of the wall so you don’t block the door and enhances flexibility.
- Blinds are not hold up well, and also the metal blinds can cut. Should look into the heavier imitation wood blinds.
- Toddler playground – contractor installed some equipment that is too tall; therefore it’s not used. Playground designs may need to be revalidated right before playground construction.
- Janitor closet is so small there is no place for things like paper towels, toilet paper, etc. They gave up a storage room off the corridor for janitorial supplies.

- Not much storage space in kitchen. Also, some areas are very narrow.
- Security gates to keep infants and toddlers away from the sign in desk area are not supplied. They should be funded by G9 or put in the construction contract.

- Need more hose bibs in the playgrounds. Only have 1 hose bib in each playground.
- Could use more file cabinets in the admin area.
- Down spouts should go underground because of the sharp edge at the end of the down spout at the splash block.

- Kitchen equipment, like tables, are not sealed underneath. Safety has complained about this. Need to see if some manufacturers have tables and equipment that is sealed underneath.
- Admin space is too small; there are 3 in open office and 2 in the Assistant Director's office. They did like the Director's office away from the desk. In addition, they like the door from the open office to the main corridor.



- They had intercom at the sign in desk in the activity rooms, but moved it to the main part of the room so it does not require caregiver to go to blind spot to use it.

- Kinder rooms could be larger; 24 children that age take a lot of space.

CHAPTER 3 - MECHANICAL

3-1 General Discussion

- HVAC issue – was not cooling. Have had several issues with HVAC
- In the open office during the winter you can feel the cold air coming through the diffusers continuously.
- They did not provide sensors at 1' above the floor for the thermostat.
- When kitchen exhaust is on, the interior door is very hard to open. Has to do with someone messing with a damper.

3-2 Lessons Learned/ Standard Design Impacts

- Sink in Break Room needs to be manual control with the ability to change the temperature of the water.

CHAPTER 4 - ELECTRICAL

4-1 General

Overall the electrical system was indicated by the user (Director) to be in good working condition. The automatic time clock feature for the building lighting was indicated to be working well. The manual override of the time clock for one hour for janitorial service was indicated to work well. All services entering the building including electrical, water and natural gas were metered. The HVAC system is remotely monitored/managed via TAC controls which is now Schneider-Electric.

4-2 Existing Conditions

The exterior service was via a 300kVA transformer (480/277V secondary) located on south end of building from the front entrance fed the Main Switch Board (MSB) in the main electrical room. An aesthetic wall was used for the incoming service and chiller. The main electrical room housed the MSB as well as two transformers (208/120V) - one fed the kitchen panel KP-1 and the other fed power receptacles/equipment panel RP-1 (two sections). The secondary electrical located next to the receptionist desk off the main corridor also housed a transformer (208/120V) that fed a panel RP2 for additional receptacles. The building lighting was controlled via a lighting control panel with automatic timer on/off in the main electrical room. Lighting control overrides were located across from the receptionist desk on the corridor wall with a lockable clear cover for access control. Additional overrides for the lighting control panel were in the main electrical room and mechanical room. Children rooms were locally controlled via two three way switches for multilevel controls without occupancy sensors. Only storage rooms, electrical rooms, communication rooms, janitor closet, and public restrooms had occupancy sensor controls. A mass notification system and fire alarm system was provided. Cameras were provided to cover all areas where children will be present in the facility. Exterior lighting on building was controlled via photocell. Intercom/PA is functioning. Lightning protection was installed on the building.

4-3 Functionality Issues

- The staff lounge room 110 has issues with throwing breaker due to overload on the circuit. The area within the staff lounge had seven receptacles on a single circuit 31 of panel RP-1 throughout the room. Two of those receptacles were being used by vending machines which were not identified as such in the drawings on page E-105. These should typically be dedicated circuits. The room-by-room description indicates vending machines but does not specify them being on a dedicated circuit. I did not verify the circuit was installed in this fashion, but it would explain the overloading of the circuitry identified by the user.

- The kitchen was having similar issues with the circuited receptacles on circuit 41 of RP-1. I was unable to verify the reason for overloading of the four receptacles on the circuit.

- Computers could only be located at one location in the kindergarten rooms due to the amount of plugs. This will continue to be an issue unless the computers are placed on separate desks or a comparative surge protector with multiple plugs is utilized. The room-by-room indicates four outlets are to be evenly spaced along these pertaining walls.

- The freezer has been an issue with it not keeping adequate temperature. The issue with the freezer has been resolved now.

- Active Play room 147 had about half of the troffer lights as a grid type and the other half a troffer light with an overlapping flange. The grid style was called out on the drawings E-602, E-103. This is a difference in appearance and most likely a difference in installation method of the fixture.

- Exterior telephones were located along the wall within the play areas. One exterior wall telephone was located on drawing T-103, but must have been modified to be placed in two separate locations centralized in each play area.

- Speakers are mounted on the exterior walls of the building as shown on drawing FA-101 and have the bottom conduit hole left open. These holes should be plugged using a conduit plug from the wall box manufacturer and installer of the intercom system.

- Conduits should have been sealed in accordance with specifications 33 70 02.00 10 Electrical Distribution System Underground 3.7.1.2 Sealing indicates the conduits should have a sealing compound applied. For the empty conduit, 26 20 00 Interior Distribution System 3.1.4.7 Stub-Ups indicates a plug should be provided where no equipment connections are made and 3.1.3.1 indicates a pull wire should be provided in empty conduits. Ensure the empty conduit and open conduits are sealed properly to keep gases from entering facility.

- The screws had come out of the bottom section of some of the downspouts. This one has lost both screws. Also the plastic band that had been placed on the downspout was coming off in several locations. They need to be reattached and in a more permanent way. Also they were no splash blocks under some downspouts causing erosion and possible structural issues over time.

- Fence in several locations had been torn up due to mowing which could be dangerous for children.

- This area was open in ceiling inside the mechanical room. It seemed work was not complete. Ensure fire rating is kept after completion of work.

End State Technical Review (ESTR)

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

Po Valley Child Development Center (0-5);

Building 4225
Fort Drum, NY

ESTR – Phase 1
Project No 62577

August 2011

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CHAPTER 1 - GENERAL

1-1 Purpose

The intent of this document is to present the findings of the Phase I End State Technical Review (ESTR) performed on Building 4225 (Po Valley Child Development Center) at Fort Drum, NY. The ESTR was performed by the HNC team on August 2 and 3, 2011.

1-2 Facility Description

Building 4225 is a modified medium sized (232 children), Child Development Center (CDC) for ages 6 weeks to 5 years that was occupied in June 2010. Hours of operations for the facility are Monday thru Friday from 6:00 am to 6:00 pm (no weekend operations).

The facility was a non-standard that was "custom designed" by HNC and FMWRC due to the 1391 being based on the outdated standard. The Standards FDT felt it was important to incorporate as many of the features of the new standard as possible into the square footage allowed by the 1391. One of the main adaptations was a significant reduction in the size of the mechanical room.

The users are overall pleased with the facility.

1-3 ESTR Team Members

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

- Jay Clark – Architectural
- Karen Shockley - Electrical

1-4 Meeting Contacts

A roster is attached at Appendix A

1-5 Construction

The following is a list of the change orders issued during construction.

- WD001 – No outlets shown for CCTV
- WD002 – Job started with just 2 playgrounds, had to add the 3rd.
- WD003 – Ft. Drum specific (not part of RFP)
- WD004 – Additional fencing and sidewalks for 3rd playground.

- WD005 – Video Room cooling was not in original contract and had to be added.
- WD006 – Had to run fiber a mile farther.
- WD007 – Main kitchen equipment like stove, convection oven, etc., had to be added.
- WD008, WD 009 – Dealing with change of site (not part of RFP)
- WD010 – Kitchen called for CT wainscot or FRP; changed to full height. Also, need to add patterned surface in the Quarry Tile floor in the kitchen for slip resistance.
- WD011 – Site issue (not part of RFP)
- WD012 – RFP does not indicate fencing around the retention basin.
- WD013 – RFP did not show half height walls around child toileting areas.
- WD014, WD015 – Not part of RFP
- WD016 – Remove motion detectors for lights.
- WD017 – Issue with emergency lights.

CHAPTER 2 - ARCHITECTURAL

2-1 General Discussion

- There were problems with the concrete slab; contractors had quality issues.
- Radiant floor issue – slab may need to be thicker. Location of tubing within the slab is critical. On this project, the tubing was not placed deep enough as tubing was cut during construction. It appears it was designed correctly, but not constructed per the drawings.
- They also had problems with getting the spacing of control joints. The ACI recommends control joint spacing, and contractors should follow this guidance. The contractors try to reduce the number of joints and create areas that are too large. Joint spacing was designed correctly, but they cut out a number of the joints during construction.
- Floor unevenness causes buffer to burn off high and low areas resulting in having to replace VCT.

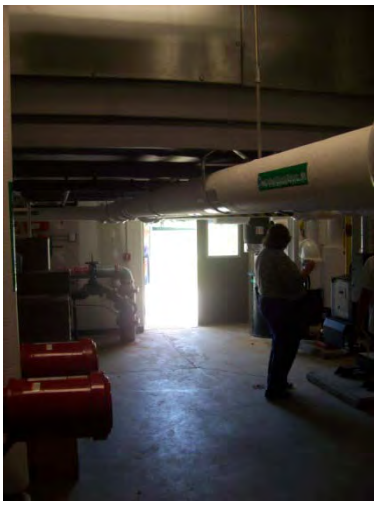
- Gates need to be as wide as the sidewalks around the building for snow blowers.
- Sidewalk cannot be against the building in this location due to snow removal.

- Diaper changing stations are not desired in the older rooms.
- Computers are not allowed in the activity rooms, so question the need for all the data drops at the sign-in desk.
- Credit card machine at reception counter is located on the corridor side. They felt this was a good location since it avoids congestion for those trying to enter the main corridor.
- The Director took the Asst. Director's office and put the 2 Asst. Director's in the original Director's office.
- In the open office there are 3 staff members. Two are sharing one workstation.
- The facility has wood window sills.
- Laundry room has VCT floor with Ceramic Wall full-height on the walls.

- Staff toilet room does not have key lock door or an electrical outlet in the room.
- Quarry tile in kitchen was cracked and some had to be replaced. Has full-height Ceramic Tile on walls.

- No air conditioning was provided for the kitchen.
- There is no ice maker in the facility.
- No under counter refrigerator was provided in the rooms.

- Using Tot Lok magnetic locks on diaper changing tables.
- Doors into fenced area are alarmed.
- The mechanical room was very small. An airhandling unit is suspended from the roof as you walk into the mechanical room allowing about a 6' clearance underneath.



2-2 Feedback/Lessons Learned/Standard Design Impacts

- Need to revise the Room by Room to indicate duplex outlets where we refer to receptacles.
- Need to address the issue with the outlets around the cribs.
- Seamless sheet vinyl should be renamed per the industry standard (ie. Fused floor, etc.).
- Replace the term edible caulk with the NSF/USDA description.
- Need a place to store cots – cots are approximately 2' x 4' and are stackable. They can be visible, and would actually be better if not behind a door due to worker's comp concerns and little children trying to help.
- Could use a lockable box on the playground side of the wall for medication. Perhaps one box per playground.
- Consider making the standard for the surfacing in the playground to be the poured in place sand-filled synthetic carpet (determine industry name for this). Right now this is a sole-source item. They have concern over surface temperatures of surfacing. Need to look at materials with higher thermal conductivity so that the material underneath can become a heat sink.

- LEED – carpool parking, fuel efficient vehicles, green cleaning, etc. should not be allowed. Carpooling does not work with little kids. Each parent brings their own child.

- Consider utilizing a “mondo” or other resilient type flooring in the Active Play Room to provide more cushioning.

- Toilet partition door in Active Play Room should swing in to avoid any safety concerns when the door is opened.

- Sign-in desks, as currently designed, are not usable as sign-in desks. They are too low for people to write on, and you don’t want a staff member sitting there. Consider raising to counter height and then providing cot storage underneath.

- Criteria needs to be clear how many walls are to receive shelves in the storage rooms.
- Criteria needs to be clear on height of grab bar in handicapped child toilet stall.
- Indicate which sink is to be ADA accessible in the pre-school/pre-k/kindergarten rooms.
- Look at verbiage in standards about making the main entrance more recognizable through architectural features.
- Button at Reception Desk to open door is located away from the workers. Needs to be more conveniently located.
- CCTV should be available in both the Director's and the Asst. Director's offices.
- Door from open office into main corridor would be great!
- Would be good to have windows between activity rooms.
- Would be good to have a water table where the diaper changing table should be in the older age rooms.
- Would be good to have 2 intercoms in the classrooms, with one of them located in the activity area.
- Wood like to have art rails in classrooms and corridors. Tape peels off the paint and finish.
- Need to look at wording about shade structures. Water proof fabric is very expensive. Ensure that is really required.

- Need to see if any “edible” caulk is paintable. If not, how do they seal things while making them look nice. The contractor on this project used paintable caulk, painted it, then covered it with clear “edible” caulk.

- Need some sort of foot pedal to open the trash containers at diaper changing stations.

APPENDIX A - ROSTER

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