Norman Elementary School Site Summary

Address	4001 Tannehill Lane Austin, TX 78721
Number of Permanent Campus Facilities	2
Original Year of Construction	1969
Total Campus Building Area (combined)	58,519 SF

Introduction

The Norman Elementary School campus is located at 4001 Tannehill Lane in Austin, Texas. Norman Elementary School was established in 1969, and consists of one main building (100-wing) with two additions (200-wing and 300-wing). The first addition (200-wing) was built in 1998 and is considered part of BLDG-150A for the facility condition assessment. The second addition (300-wing) was built in 2008, and is referred to as BLDG-150B in the facility condition assessment.

Meeting Log		Revision Log		
Date	**Meeting**	**Revision**	**Date**	**Summary of Content**
6/7/16	Interview	00	7/29/16	Draft Issue
6/14/16 & 6/16/16	Assessment	01	11/15/16	Added comments from PM Randall Sakai as indicated on email dated 10/28/16. See page 27.
9/6/16	Cluster Meeting (Attended)	02	12/7/16	Added comment from PM Randall Sakai as indicated on email dated 10/28/16. See page 25.

Main School Building – BLDG-150A

Building Purpose	Administration, Classrooms (100-wing and 200-wing)
Building Area	44, 692 SF
Inspection Date	June 14 & 16, 2016
Inspection Conditions	June 14 - 93°F - Partly cloudy June 16 - 97°F - Sunny
Facility Condition Index	

System Deficiency Overview

The following table provides a summary of the systems and their respective conditions found by each discipline.

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
Exterior	Exterior Walls	The exterior of the building consists of a brick façade with a painted stucco finish surrounding the windows on the original building and the 200-wing addition. There were multiple locations on the exterior brick where graffiti had been removed. There was some graffiti located on the southeast corner of the 200-wing. The stucco on the 200-wing was discolored and stained. The small soffit at the stucco fascia did not appear to have an adequate drip edge to prevent water infiltration. There was evidence of water infiltration along the east side of the 200-wing. There was soil erosion on the east side of the 100-wing and cracking of the foundation surrounding the downspouts. Erosion was reported on the east elevation of the 100-wing as well. There was damage to the stucco fascia on the northeast corner of the freezer.	Average
	Exterior Windows	The window units are aluminum frames with single pane glazing that are original to the respective construction date per wing. The seals were deteriorated on the window units in the 100- and 200-wings.	Average
	Exterior Doors	The controlled main entrance on the west side is painted metal with glazing lites included in a window system, also of painted metal. All school exterior doors are painted metal with glazing lites. There are no automatic doors present in the facility. A majority of the doors were not plumb to the frame and	Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
		the weather stripping was in poor condition, leaving gaps around the frame and astragals. The exterior doors at mechanical rooms show signs of rust and deterioration and are difficult to open and close.	
Roofing	The roof coverings consist of modified bitumen and built-up roofing with painted metal on the north entrance canopy and the penthouse on the 200-wing. The west main entrance is covered by galvanized metal. There are skylights on the gymnasium roof and an atrium with clerestory windows in the 200-wing. The modified bitumen roofing over the kitchen storage and library was cracked and deteriorated throughout. The modified bitumen roofing over the 100-wing was reportedly replaced in 2008 and was in average condition due to age, sun exposure, and reports of leaks. The built-up roofing over the administration areas and 200-wing was in average condition due to age and reports of leaks throughout the facility. The main entrance roof cover was rusted throughout and some gutters were dented or damaged. There were areas of rust on metal flashing over the cafeteria and reported leaks in the kitchen area. The single roof ladder located on the north side of the building was not sufficiently secured to the building, as multiple bolts were missing.		Average
Interior Construction	Interior Walls	The interior walls consist mainly of painted concrete masonry units. There was a crack in the wall adjoining the mechanical AHU-2 room and computer room near the cafeteria.	Average
	Interior Doors	The interior doors are wood veneer with painted metal frames. There is an electric/motorized rolling gate separating the 200-wing from the rest of the school with a keyed on/off switch. There were several locations near restrooms where the metal frames of the doors were rusted and deteriorated in the 200-wing and the restrooms near the gymnasium. The paint finish was damaged and is peeling on various doorframes and some of the wood veneer doors had discoloration.	Average
	Interior Specialties	There are six painted metal lockers located in the kitchen that were installed in the last five to six years. They appear to be in average condition.	Average
Stairs	Exterior Stairs	System not present.	N/A
	Interior Stairs	System not present.	N/A

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
Interior Finishes	Interior Wall Finishes	The interior wall finishes consist of paint throughout the school with ceramic tile in the restrooms and kitchen. There were various locations of replaced tiles throughout the administration areas, 100-wing, and 200-wing. The paint finish was peeling on the interior of the cafeteria west wall. There was also visible peeling paint in the gymnasium.	Average
	Interior Floor Finishes	The interior floor finishes are made up of vinyl composition tile with vinyl base throughout with ceramic tile in the restrooms. There is vinyl strip flooring in the gymnasium and wood flooring on the stage in the cafeteria. The flooring was in average condition due to age, but has been well maintained. There were instances of minor deterioration and patching and repair work.	Average
	Interior Ceiling Finishes	The ceiling finish is acoustic ceiling tile and metal grid throughout the facility with painted gypsum board in restrooms and various locations in the 200-wing atrium and library. The gymnasium has acoustic panels at the roof structure. The ceiling tile in the kitchen is vinyl faced. The cafeteria is not vinyl faced. There was visible evidence of water damage in the storage area across from the gymnasium. It was reported that a pest issue exists, damaging the ceiling tile. There was evidence of this in the 100-wing storage closet.	Average
Conveying	System not present.		N/A
Plumbing	Plumbing Fixtures	The building contains predominantly single-use restrooms throughout the facility, with multi-use restrooms located near the gymnasium. Typical restrooms have floor- and wall-mounted vitreous china water closets with manual flush valves. Additionally, wall-hung vitreous china urinals with manual flush valves are located in the dedicated male restrooms. Typical classrooms contain a single basin stainless steel sink with a drinking fountain attached. Stainless steel and vitreous china drinking fountains can be found throughout the buildings, typically in the corridor close by to the hall restroom facilities. A commercial kitchen, which was upgraded in the last five to six years, is located in the school's cafeteria. The kitchen contains stainless steel kitchen equipment, including a three basin prep sink. It also has various wall-mounted vitreous china sinks for personal use. The	Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
		building also has service sinks located in various janitorial closets. The restroom plumbing fixtures were in average condition. The fixtures were typically aged, but still operational. There was evidence of small leaks under some of the classroom sinks. The sink in classroom 204 made a rumbling sound when on and showed evidence of leaks underneath. The sink in room 203 appeared to be clogged and the faucet leaked at the connection to the sink when turned on. Some sinks were observed to have a hot and a cold valve, but only the cold delivered water (classroom 205 and 202). Multiple drinking fountains and sinks were observed to have low or no flow. Janitor's sinks were in average to poor condition, some showing signs of leaks and corrosion around the base. Majority of plumbing fixtures were in working condition, but show minor signs of deterioration. Multiple plumbing fixtures showed signs of corrosion around their base. Plumbing and fixtures in the 100-wing of the building were reported by staff to be original to the building, with some not functioning properly.	
	Domestic Water Distribution	Domestic hot water to the kitchen is provided by a 97 gallon, 0.199 MBH gas water heater stored in the mechanical room (MAINMECH) located on the outside of the building just outside of the kitchen. Various smaller gas and electric hot water heaters are located throughout the building in order to provide heated domestic water to specific locations in the school (i.e. nurse's office and gymnasium shower). Electric water heaters in the nurse's restroom and WKRM200 have aged past its typical design service life. The domestic water system was in average condition with typical wear and tear associated with the system's age and general daily use.	Average
	Other Plumbing	Multiple restrooms were emitting an unpleasant odor. Additionally, it was reported by staff during interviews that various floor drains were not draining properly. Visual inspection did not show any obvious clogs. The plumbing distribution equipment was observed to be in average condition. Some damaged insulation and corroded piping was seen in some of the spaces.	Poor
Mechanical/ HVAC	The building's HVAC (heating, ventilating, and air conditioning) system is composed of geothermal heat pumps, RTUs (roof top units), roof top and indoor		Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
		AHUs (air handling units) and split systems for individual zone temperature controls. The temperature control systems designated for the individual classrooms are determined by the date they were constructed. The original building containing the administration office, gymnasium, cafeteria, and 100-wing classrooms are controlled using RTUs, and roof top and indoor AHUs. Classrooms in the 200-wing were constructed in 1998, and are temperature controlled partially using a geothermal heat pump system designated for each classroom and partially using heating and cooling air handling system located outside the building on an enclosed slab (OAU 2-06). Water source heat pumps in each classroom were not accessible, assumed to be in the ceiling and working properly. The HVAC system in the 200-wing was reported to be having functionality issues and the geothermal well system is approaching end of useful life. AHUs appeared to be in average working condition. AHU-2 was making a loud vibration and knocking noise and appeared to have fluid leaking from underneath the unit. This unit has also been reported by staff to have operational issues. RTU-4 was reported to be making a loud grinding noise when in operation. Additionally, several of the AHUs use R-22 refrigerant, which is an outdated refrigerant that is being phased out of use. Multiple roof top exhaust fans ranging in size serve the building and appear to be in average working condition, but show signs of age. The exhaust fan supporting the kiln room could not be accessed due to blocked access. The HVAC system was in average condition; however, some pieces of equipment were past their expected design life and show signs of degradation and minimal signs of rust and corrosion.	
Fire Protection	Fire Alarm	The building's fire alarm and detection system consists of pull stations, smoke detectors, strobe lights, annunciators, and a control system. The control system was reported to be in an inaccessible room. Detection and indication is present in all major living areas. No major deficiencies were observed during inspection.	Average
	Fire Protection/ Suppression	A single sprinkler head was found in the janitorial closet (CC200). Remaining fire suppression system consists of fire extinguishers throughout the building. Visual inspection showed these were in average condition.	Average
Electrical	Electrical Distribution	The electrical service entrance for the facility is located on the north end of the complex, outside of the BLDG-150A MAINMECH room. 208Y/120-volt power appears to enter the facility through a 1600-amp switchboard located near the utility transformer. This switchboard feeds the original 1200-amp motor control center (MCC) for the facility along with two newer panels for the kitchen, installed 5-6 years ago. Power is distributed	Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
		from these main panels to smaller 225-amp main lug panel boards and larger 400-amp/800-amp main panels through the facility. The electrical distribution equipment throughout the facility was in average condition. The building featured a variety of switchboards and panelboards, most of which were replaced or added in the past ten to 20 years. Several panels are considered to be past their life expectancy or in poor condition. The original MCC, located in BLDG-150A's MAINMECH room was in poor condition and has a life expectancy of zero years. Panel P, a 100-amp panel, is located next to the original MCC. Panel P was missing a breaker cover plate and has severe corrosion located on the main housing and the breakers. If corrosion exists within the breakers, it is possible their overload protection was compromised and could be a major safety issue. Panel K, a 225-amp panel, located within the kitchen area on the west end. This panel appeared original to the building. Faculty also reported issues with the breakers tripping in this panel during rain events due to water infiltration. An original GE 225-amp panel was located within the MECH room in the C1 corridor. Panel LC was located in the CUSTOFC room and was beyond its typical service design life. This panel appeared to be manufactured by QC, but had no data plate or circuit information available. Panel A, located in the administration office next to the AHU-3 MECH room, appeared original. There was a small 3-circuit panel, labeled 'Fire Alarm Circuit Breaker', next to the original MCC in the MAINMECH room. The panel breaker was in the off position and believed to be decommissioned.	

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
	Lighting	The interior lighting is comprised of a variety of fluorescent fixtures. Exterior lighting for BLDG-150A is limited to building entrances. The lighting for BLDG-150A was in average condition. The interior lighting in the majority of mechanical and storage rooms was found to be inadequate. Faculty reported the exterior lights on the south façade of the 200-wing were not functioning. The power feed for these lights was reported to have been cut during previous building renovation work and never restored. Norman faculty reported that the electrical outlets within the 100-wing had corrosion in various spaces. During the facility condition assessment, several outlets were found to have corrosion present on the contacts.	Average
	Communications & Security	BLDG-150A is equipped with tele/data/cable systems with the main backbone equipment located in MDF-A. BLDG-150A has a variety of older coaxial and phone-networking systems throughout the building that appear no longer in use. The building utilizes a VOIP (Voice Over Internet Protocol) telecommunication system that was reportedly installed in the last year. The timeclock system was reported to be functioning well. BLDG-150A has interior surveillance cameras located in all corridors. Exterior surveillance cameras are located near all building egresses. The communication and security systems equipment within BLDG-150A was in good condition. Several areas of the building exterior lacked surveillance coverage. The faculty also reported that some of the existing cameras did not fully cover some of the entrances to the building.	Good

Exterior System Deficiency Examples

Exterior Walls






Exterior Windows


Exterior Doors

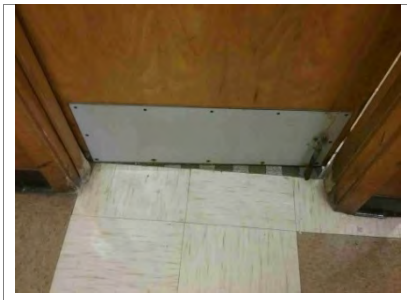
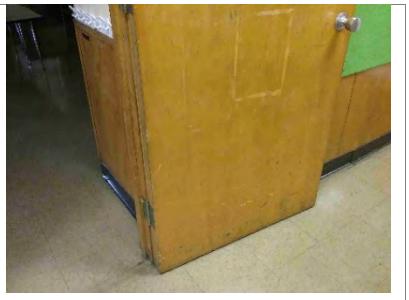
Roofing Deficiency Examples



Interior Construction Deficiency Examples

Interior Walls

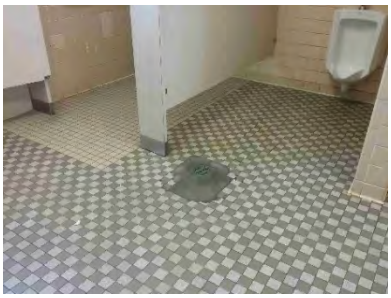
Interior Doors

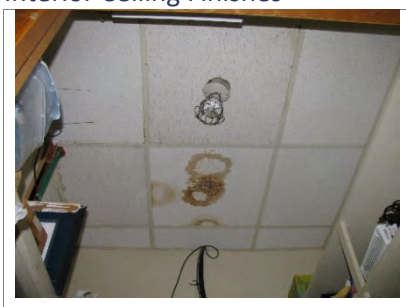
Interior Finishes Deficiency Examples

Interior Wall Finishes

Interior Floor Finishes

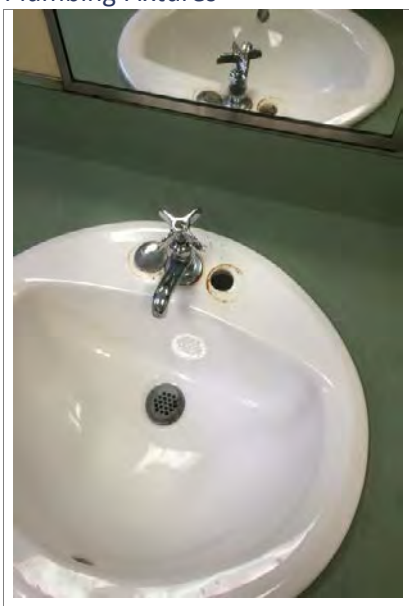
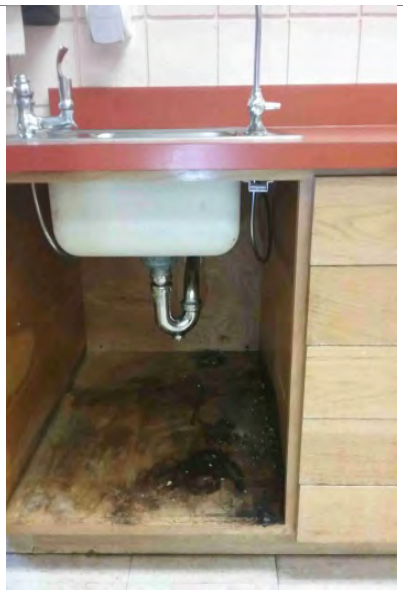


Interior Ceiling Finishes



Plumbing System Deficiency Examples

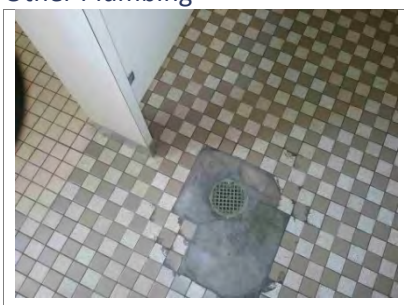
Plumbing Fixtures



Domestic Water Distribution


Other Plumbing







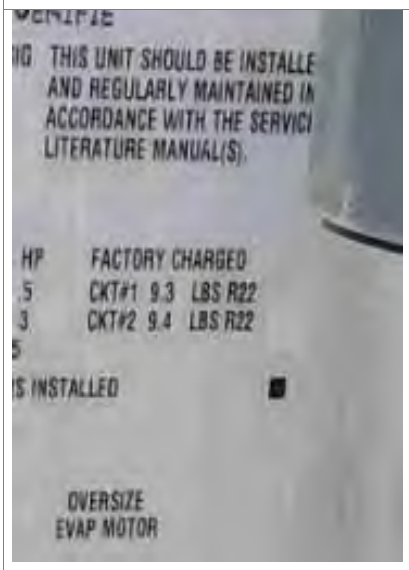
Mechanical/HVAC System Deficiency Examples





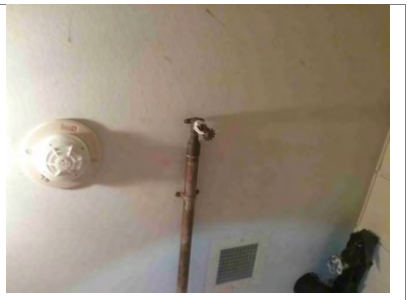






Fire Protection System Deficiency Examples

Fire Protection/Suppression

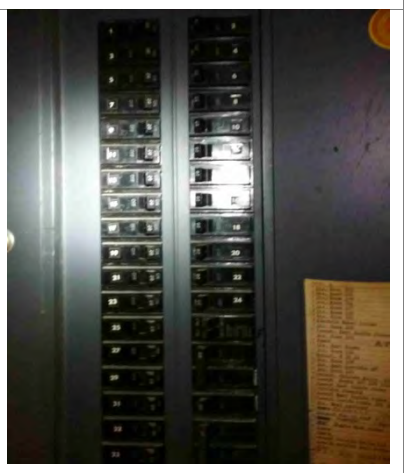



Electrical System Deficiency Examples

Electrical Distribution

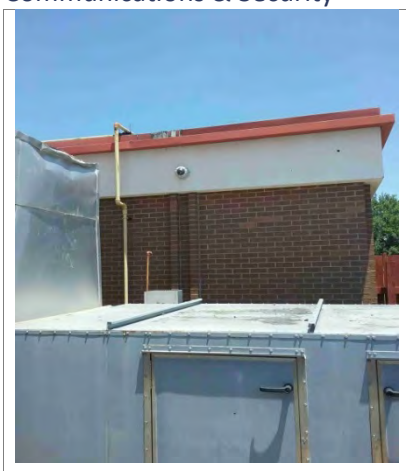






Lighting

Communications & Security



Classroom – BLDG-150B Summary

Building Purpose	300-wing classrooms, computer lab
Building Area	13,827 SF
Inspection Date	June 14 & 16, 2016
Inspection Conditions	June 14 - 93°F - Partly cloudy June 16 - 97°F - Sunny

System Deficiency Overview

The following table provides a summary of the conditions and deficiencies found by each discipline.

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
Exterior	Exterior Walls	The exterior of the building consists of a brick façade on the 300-wing addition. There are multiple locations on the exterior brick where graffiti has been removed. There was evidence of erosion and soil deterioration at the north side of the 300-wing.	Good
	Exterior Windows	The window units are aluminum frames with double pane glazing that are original to construction of 2008. There were no observed deficiencies.	Good
	Exterior Doors	All exterior doors are painted metal with glazing lites. The doors were not plumb to the frame and the weather stripping was in poor condition leaving gaps around the frames and astragals. The interior doors at the vestibules did not have weather stripping.	Average
Roofing	The roof covering is modified bitumen roofing over the 300-wing. The roof was cracked and deteriorated throughout and was in poor condition due to age, sun exposure, and reports of leaks throughout the facility.		Poor
Interior Construction	Interior Walls	The interior walls consist mainly of painted gypsum board. They were in good condition.	Good
	Interior Doors	The interior doors are wood veneer with painted metal frames. Various doors in the 300-wing did not fully close. Several of the vision lites have been damaged causing a blur in the glass. It was reported it has been difficult to maintain flush and plumb doors when adding new card readers to existing doors.	Average
	Interior Specialties	System not present.	N/A
Stairs	Exterior Stairs	System not present.	N/A

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
	Interior Stairs	System not present.	N/A
Interior Finishes	Interior Wall Finishes	The interior wall finishes consist of paint throughout with ceramic tile in the restrooms. There were no observed deficiencies.	Good
	Interior Floor Finishes	The interior floor finishes are made up of vinyl composition tile with vinyl base throughout with ceramic tile in the restrooms. There were no observed deficiencies.	Good
	Interior Ceiling Finishes	The ceiling finish is acoustic ceiling tile and metal grid throughout the facility. It was reported that a pest issue exists, damaging the ceiling tile and equipment wiring.	Good
Conveying	System not present in the facility.		N/A
Plumbing	Plumbing Fixtures	Typical classrooms contain a single basin stainless steel sink with a drinking fountain attached. Sinks were enclosed from the bottom; therefore, inspection of the connecting plumbing could not be completed. Each pair of classrooms has two single-use restrooms containing floor-mounted vitreous china water closest in the connection between the two classrooms. Plumbing fixtures are in average working condition. Multiple fixtures contained a faucet to allow hot water flow, when the hot water handle was turned to the on position no water flow was observed. It is suspected that these fixtures do not have a hot water source.	Average
	Domestic Water Distribution	A small water heater of approximately eight gallons was found in the janitorial closet (CC300). The heater was mounted above head, making it difficult to inspect. It is estimated to be original to this wing (2008) and in good working condition.	Good
	Other Plumbing	Damaged insulation and corroded piping existed in some of the spaces. Floor drains appeared in average condition. No major deficiencies were observed.	Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
Mechanical/ HVAC	The 300-wing uses a split-system for classroom temperature controls, which was installed during construction in 2008. Roof top condenser units connect to blowers and compressors inside the building to distribute airflow to each classroom. A single roof top AHU sources the building and appears to be original to the building. Multiple roof top exhaust fans serve the building. The HVAC system in BLDG-150B is in average condition. The split systems in the 300-wing of the school were in average condition. Multiple units appeared to have significant condensation when inspecting from the interior of the building. OHP 4-6 appeared to have wires sticking out above the fan grate. OHP 1-06 was making a loud vibrating noise. Slight signs of corrosion and rust are visible on the AHU. The unit appears to be working well. One of the four roof top exhaust fans was observed to be louder than the others and water damage on the interior ceiling was observed.		Average
Fire Protection	Fire Alarm	Pull triggers are located at the building entrances, including the corridor connection with BLDG-150A. Strobe lights and detectors are located periodically through the main corridor. All classrooms feature detectors and strobe indicators. The fire detection system was found to be in good condition.	Good
	Fire Protection/ Suppression	The fire pump was not located during the inspection. It is thought to reside in the crawl space, which was not a part of this assessment. No sprinkler systems were detected in building BLDG-150B. Visual inspection of the fire extinguishers determined they were in good condition.	Good
Electrical	Electrical Distribution	The electrical distribution for BLDG-150B is made up of two 600 amp main panels and four 225-amp main panels located in the ELEC300 space (C9 corridor). All panels are from 2008 and were in good condition. Both 600-amp panels were found to have deficiencies due to open breaker ports. It should be noted Panel TPIC Section 1 had 3 breakers in the tripped position (circuits 26, 27, and 28). These circuits each feed computer lab receptacles. It is possible these circuits were shorting or being overloaded by equipment in the computer lab.	Good
	Lighting	Interior lighting is predominately comprised of fluorescent luminaires. Exterior lighting is comprised of metal-halide and fluorescent luminaires. BLDG-150B's lighting system is in average condition. Several rooms had burned out fluorescent bulbs that need replacement. Exterior lighting was limited to building egresses and on the west side of the building.	Average

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
		One exterior light was found to have a shattered luminaire lens.	
	Communications & Security	BLDG-150B is equipped with modern data systems with the main backbone equipment located in IDF-C. The building also utilizes a VOIP for telecommunications. The timeclock system was reported to be functioning well. Interior surveillance cameras are installed at the ends of the corridor, overlooking building egresses. Exterior surveillance cameras are located near the building egresses. The communications and security systems were found to be in good condition. Faculty reported that the data signal within BLDG-150B was weak and inconsistent. Faculty has also reported that the exterior surveillance camera coverage was insufficient.	Good

Exterior System Deficiency Examples

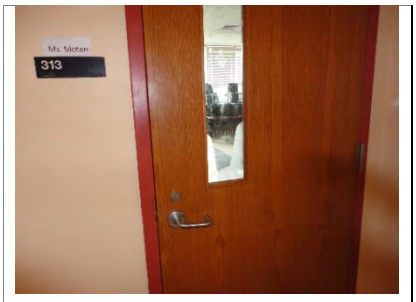
Exterior Walls

Exterior Doors

Roofing Deficiency Examples

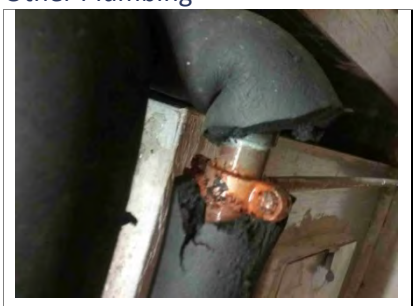
Interior Construction Deficiency Examples

Interior Doors

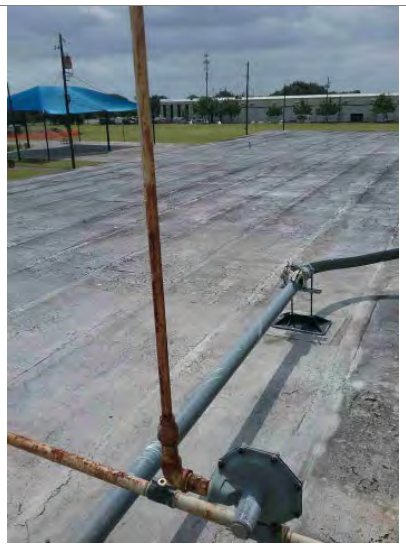


Plumbing System Deficiency Examples

Other Plumbing



Mechanical/HVAC System Deficiency Examples



Electrical System Deficiency Examples

Electrical Distribution

Lighting

Norman Elementary School Campus Summary of Recommendations

This document is based on current conditions observed during fieldwork and provides recommendations for corrective actions by each discipline. The following recommendations provide a summary of the findings.

Campus Recommendations

Exterior

1. Replace weather-stripping, repaint, and realign all exterior doors.

Interior

1. Further investigate reports of pest issues.

Plumbing

1. Repair or replace any damaged or missing piping insulation as needed at all facilities.
2. Repair or replace fixtures that have separated hot water handle, but do not have a hot water connection.

Mechanical/HVAC

1. Address any rust or corrosion observed to the equipment, its associated piping, or any other sub-asset in all facilities by cleaning, re-painting, and/or repairing by any other means to prevent further deterioration.
2. Address any equipment noted with excessive noise/vibration by repairing the motor, changing the belt, or any other means to promote efficiency.
3. Perform annual preventative inspections and necessary maintenance of the exhaust fans to ensure proper functionality.

Fire Protection

1. Continue annual inspections of the fire protection system and the portable fire extinguishers.

Electrical

1. Replace burned out interior lighting bulbs.
2. Install additional exterior lights in areas that are poorly lit and repair existing damaged light fixtures.
3. Install additional exterior security cameras for improved coverage.
4. Install breaker slot covers in all panels with open ports.

Main School Building - BLDG-150A Recommendations

Exterior

1. Repair water damaged stucco fascia and soffit on 200-wing. Install appropriate drip edge and vent on soffit portion.
2. Repair deteriorated seals on the windows in the 100- and 200-wings.
3. Provide soil stabilization at 100-wing on all sides, repair foundation, and provide support at downspouts. Additional investigation should be conducted in the crawl space and storm drain system.
4. Remove graffiti on southeast corner of the 200-wing.

Roofing

1. Replace west main entrance canopy with new metal canopy system.

2. Replace roof ladder access with new secure ladder. Provide an accessible walk path from ladder to roof areas or relocate ladder.
3. Install guardrails due to proximity of HVAC equipment to roof edge.

Interior Construction

1. Further investigate possible structural issues at cracked concrete masonry unit in mechanical room.

Interior Finishes

1. Replace damaged or discolored acoustic ceiling tiles in administration, 100- and 200-wing areas after roofing has been replaced.
2. Replace acoustic ceiling tiles and grid in restroom areas due to rust.
3. Remove existing paint, properly prep and prime the existing wall, and provide new paint to match in portions of the cafeteria and gymnasium.
4. Repair instances of deterioration or missing ceramic tile in restrooms.

Plumbing

1. Replace aged plumbing fixtures in order to maintain a functioning system.
2. Repair or replace drinking fountains and sinks that are not functioning properly.
3. Repair sinks where there is evidence of leaks and clogs.
4. Replace water heaters that are showing signs of deterioration and are beyond their typical design service life before failure occurs.
5. Inspect, clean, and repair plumbing in multiple restrooms that are emitting an unpleasant odor.
6. Clean and flush out all floor drains to ensure adequate drainage.

Mechanical/HVAC

1. Replace AHUs that use R-22 refrigerant, which is an outdated refrigerant that is being phased out of use. These systems may need to be replaced before the meet their typical design service life due to refrigeration restrictions.
2. Repair or replace the HVAC system in the 200-wing. The A/C and air handling system was reported to be having functionality issues and the geothermal well system that is partially still in use is approaching end of useful life.
3. Replace HVAC equipment that is beyond their expected design life before failure occurs.

Electrical

1. Replace corroded electrical outlets throughout the 100-wing classrooms in BLDG-150A.
2. Replace original panelboards that are beyond their typical design service life.
3. Seal or route the wiring conduit of Panel K in such a way that water cannot enter the panel. It reportedly experiences issues during rain events.
4. Properly decommission or remove the out of service ‘Fire Alarm Circuit Breaker’ located in BLDG-150A MAINMECH room. This breaker is off and appears not to be in use.
5. Repair the electrical cable feed to 200-wing exterior lights on south façade.

Classroom - BLDG-150B Recommendations

Exterior

1. Further investigate storm drain system on north wall causing soil erosion and possibly impacting the crawl space under the building.

Roofing

1. Replace aged and failing roof system throughout facility.

Interior Construction

1. Replace vision lite in classroom doors that have damage.

Plumbing

1. Complete routine inspection of the plumbing underneath the enclosed classroom sinks in the 300 wing. Repair as necessary.

Mechanical/HVAC

1. Repair cooling units that showed significant condensation accumulation on the surface of the units to prevent further maintenance or deterioration.
2. Repair wiring pulled over the fan grate of OHP 4-06.
3. Address and repair exhaust fans making excessive vibrating noise and observed water damage to the ceiling around exhaust fans.

Electrical

1. Troubleshoot tripped breakers on circuits 26, 27, and 28 in Panel TPIC.
2. Improve data signal for the 300-wing classrooms.

Norman Elementary School Planned Future Improvements

The following are any known planned and funded improvements scheduled to take place at this campus in the future. Their scope and schedule are subject to change.

2017 Bond Planned Improvements from PM Randall Sakai on 10/28/16.

- June 2017.
  - Replace AHU-2.
  - Replace HVAC equipment in 200-wing.
  - Install wheelchair lift to improve stage accessibility.
  - Replace sidewalk ramps to improve accessibility.
  - Replace concrete at entrance thresholds to improve accessibility.
  - Renovate one restroom in 100-wing to improve accessibility for special needs children.
  - Replace selected electrical panelboards.
  - Administration counter is being replaced to include wheelchair accessible counter.

CRAWL SPACE – Norman ES – Main School Building (150-A)

Building Purpose	Administrative, Classrooms, Gym, and Cafeteria
Inspection Date	November 2, 2016, Morning
Inspection Conditions	75° - Cloudy & Dry

Crawl Space System Deficiency Overview

NOTES CONCERNING CRAWL SPACE OBSERVATIONS: The access hatch in the 1988 addition could not be opened due to lack of necessary tools. Custodian was asked if they had the proper tool to open the access hatch but they did not know of any tool that would open it.

The following table provides a summary of the systems and their respective conditions found by each discipline.

System	Subsystem	Condition and Deficiency Overview	System Condition Rating
Soil, Drainage, Ventilation & Access	Soil Below Building, Site Drainage in Crawl Space	The soil under the building was generally damp throughout the crawl space and saturated in one location. The saturated soil was caused by a large leak under the kitchen (discussed further under the pipe section below). Water intrusion from building perimeter and resulting soil erosion was observed around the edges of the crawl space. Drains were present scattered throughout the crawl space; some drains were partially clogged with dirt and debris. Soil/Drainage deficiencies: • Standing water below leaking kitchen pipe • Damp soil in most areas • Water intrusion from perimeter of building • Partially clogged drain	Average
	Soil Retainers	Soil retainers were located around the entire school. There was approximately 1 to 2 feet of clear space below the perimeter beams. Concrete soil retainers were found under the café, kitchen, gym, administration offices, library, and the 100 classrooms. Plastic soil retainers were found under the 300 classrooms. The concrete soil retainers were often cracked and had occasionally slipped or collapsed. Describe any soil retainer deficiencies. • Slipped or collapsed concrete soil retainers • Cracked concrete soil retainers	Average
	Areaways/Ventilation	Condensation was observed on concrete framing and pipes. Areaways around the entire school provide ventilation for the	Average

		crawl space. A few observed areaway grates had foliage blocking ventilation. Areaway/ventilation deficiencies: • 1988 classroom addition crawl space could not be accessed because special tools were required • Poor ventilation, condensation on pipes and concrete framing • Foliage clogging areaway grates	
	Access Hatches	Access to the crawl space is achieved through floor hatches located throughout the school. One is located in the main mechanical room. Another is located in a storage room in the 100 classroom wing. The 2006 addition crawl space access floor hatch is located in the custodial closet. The 1988 addition floor hatch is located in a storage room accessed through the exterior; this floor hatch could not be opened due to lack of necessary tools. All access hatches showed signs of mild corrosion. Access hatch deficiencies: • Mild corrosion on floor hatch frames/doors	Average
Exposed Structure	Exposed Columns & Tops of Foundations	Exposed columns were generally in good condition. Mild honeycombing and small spalls were observed on few columns. Tops of piers were below ground and could not be observed. Column/Foundation deficiencies: • Mild Honeycombing • Small spalls with exposed/corroded reinforcing	Average
	Exposed Faces of Perimeter Walls / Beams	Cast-in-place suspended perimeter beams span between columns. Honeycombing was observed on a few perimeter beams. Perimeter wall/beam deficiencies: • Honeycombing	Average
	Exposed Portions of Interior Floor Beams Above	Cast-in-place suspended floor beams span between columns and support precast channels. Honeycombing was observed on few beams throughout the crawl space. Observed interior beams were generally in good condition with the exception of one large spall observed on a former perimeter beam located adjacent to the library expansion. Beam deficiencies: • Honeycombing	Average

		• One large spall at beam adjacent to library addition with exposed/corroded reinforcement	
	Underside of Suspended Floor Slabs Above	The floor system consists of precast channels on most of the original construction. The library expansion and the 100 wing mechanical room are framed with cast-in-place flat slabs. The 2006 classroom addition has a hollow core panel floor system supported by cast-in-place suspended beams. Spalling on the precast channels at pipe penetrations was observed in many areas. Some observed precast channels had longitudinal cracks along the bottom of the channel legs. Inadequate clear cover resulted in longitudinal spalling with exposed/corroded rebar on a few precast channel legs. The flat slab supporting the mechanical room in the 100 wing has exposed and corroded rebar. Slab deficiencies: • Longitudinal cracking and spalling along bottoms of precast channels • Corrosion and scaling of channel leg longitudinal reinforcement • Exposed and corroded rebar on underside of flat slab	Average
Pipes, Ducts, Equipment & Fireproofing	Suspended Pipes & Hangers	The crawl space had many suspended pipes. Advanced corrosion on cast iron pipes and pipe hangers was observed throughout the crawl space. A large leak observed under the kitchen is possibly a result of a broken or detached pipe -- there is a broken pipe and broken pipe hanger in close proximity to the leak. Upon entering the crawl space, a large amount of water was heard falling to the ground and there was a lot of steam in the air in the direction of the leak. By the time inspectors could reach the location, the water had stopped falling but a large puddle was visible on the ground. Pipe deficiencies: • Large hot water pipe leak under kitchen • Severely rusted pipes & pipe hangers • Degrade pipe insulation	Average
	Exposed Ductwork	Most of the mechanical ductwork is located under the 100 wing. The ductwork typically ran around the perimeter of the wing. Torn/degraded insulation was observed in some locations Ductwork deficiencies: • Degraded/torn duct insulation	Average
	MEP Equipment	No deficiencies were observed in the areas observed.	Good

	Spray Fireproofing/ Insulation	Rigid board insulation was present under the hollow core panels in the 2006 classroom addition. There were few detached and fallen boards in the area observed. Fireproofing/Insulation deficiencies: • Detached/fallen rigid boards	Average

Crawl Space Deficiency Examples

Soil, Drainage, Ventilation & Access

Damp soil, Small areas with standing water

Damp soil, water intrusion from building perimeter

Partially clogged drain

Cracked soil retainers

Failed soil retainers

Poor ventilation, Condensation under slab

Corroded floor access hatch frame & door

Foliage partially clogging areaway

Exposed Structure

Concrete mushroom at top of pier

Honeycombing on column

Spalling at column corner, Exposed/corroded column reinforcement

Honeycombing on face of perimeter beam

Large spall under former perimeter beam (adjacent to library addition)

Honeycombing on interior beam

Longitudinal cracking along bottom of precast channel leg

Exposed/corroded longitudinal rebar at bottom of precast channel leg

Channel slab spalling & corroded reinf at pipe penetration

 Exposed/corroded rebar and honeycombing under flat slab		

Pipes, Ducts, Equipment & Fireproofing

 Pipe leak in slab, broken pipe, and broken pipe hanger. Mistiness of picture is due to steam in the air.	 Water under kitchen pipe leak	
 Rusted pipes & pipe supports	 Rusted pipe hangers	 Torn/degraded pipe insulation
 Torn/degraded duct insulation	 Falling rigid board insulation	

Norman ES – Campus Summary of Crawl Space Recommendations

This document is based on current conditions observed during fieldwork and provides recommendations for corrective actions by each discipline. The following recommendations provide a summary of the findings.

Main School Building Recommendations

Soil, Drainage, Ventilation & Access

1. Investigate need for improved site grading so water drains away from building and does not infiltrate crawl space.
2. Replace collapsed/slipped soil retainers. Restore soil grading above the retainers.
3. Investigate need for improved ventilation at all crawl spaces.
4. Provide access to 1988 classroom crawl space.
5. Clean corrosion from floor hatch frames/doors and paint to prevent further corrosion.

Exposed Structure

1. Repair large spall at interior beam adjacent to library addition. Clean exposed reinforcing beforehand.
2. Clean corrosion from exposed reinforcement and remove unsound concrete along bottoms of cracked/spalled channel legs. Patch damaged areas with a repair mortar. Enlarge leg section as needed to establish adequate clear cover to the channel rebar.
3. Clean corrosion from exposed slab & column reinforcement and paint with a rust-inhibitive coating to protect from further corrosion

Pipes, Ducts, Equipment & Fireproofing

1. Repair kitchen pipe leak immediately.
2. Clean corrosion from pipes and paint to prevent further corrosion.
3. Replace heavily corroded pipe hangers.
4. Replace degraded pipe insulation.
5. Replace torn/degraded duct insulation.
6. Reattach or replace fallen rigid insulation boards.

DRAFT

DEFICIENCIES OBSERVED AT THIS LOCATION:
1) DAMP SOIL, SMALL AREAS OF STANDING WATER, WATER INTRUSION FROM PERIMETER OF BUILDING
2) PARTIALLY CLOGGED DRAIN
3) DAMAGED SOIL RETAINERS
4) POOR VENTILATION, CONDENSATION ON PIPES & CONCRETE FRAMING
5) CORRODED ACCESS HATCH FRAME & DOOR
6) LONGITUDINAL CRACKING AND SPALLING ALONG BOTTOMS OF PRECAST CHANNEL LEGS, EXPOSED/ CORRODED BOTTOM REBAR
7) CHANNEL SLAB SPALLING AT PIPE PENETRATIONS & HANGER CONNECTIONS
8) MILD HONEYCOMBING ON CONCRETE FRAMING
9) LARGE AMOUNT OF HOT WATER LEAKING FROM KITCHEN ABOVE INTO CRAWL SPACE THROUGH PIPE IN FLOOR
10) POSSIBLE FAILED/BROKEN PIPE CAUSING CONDITION LISTED IN DEFICIENCY #9 ABOVE
11) SEVERELY CORRODED PIPES & PIPE HANGERS
12) DEGRADED PIPE INSULATION

DEFICIENCIES OBSERVED AT THIS LOCATION:
1) DAMP SOIL
2) FAILED SOIL RETAINERS
3) POOR VENTILATION, CONDENSATION ON CONCRETE FRAMING
4) RUSTED ACCESS HATCH FRAME & DOOR
5) COLUMN HONEYCOMBING & SPALLING, EXPOSED/CORRODED REBAR
6) SPALLS AT INTERIOR BEAM
7) RUSTED PIPES & PIPE HANGERS
8) TORN/DEGRADED PIPE INSULATION

CRAWL SPACE ACCESS

CRAWL SPACE ACCESS

CRAWL SPACE ACCESS

CRAWL SPACE ACCESS

CRAWL SPACE ACCESS

1988 CLASSROOM ADDITION (HOLLOW CORE PANELS ON SUSPENDED BEAMS)

ORIGINAL CONSTRUCTION (DATE UNKNOWN) (PRECAST CHANNELS ON SUSPENDED CONC. BEAMS)

DEFICIENCIES OBSERVED AT THIS LOCATION:
1) DAMP SOIL, WATER INTRUSION FROM PERIMETER OF BUILDING
2) FAILED SOIL RETAINERS
3) POOR VENTILATION, CONDENSATION ON PIPES AND CONCRETE FRAMING
4) AREAWAY GRATE PARTIALLY CLOGGED WITH DEBRIS
5) CONCRETE MUSHROOMING AT TOPS OF PIERS
6) HONEYCOMBING ON INTERIOR BEAM
7) LONGITUDNIAL CRACKING ALONG BOTTOMS OF PRECAST CHANNEL LEGS
8) SPALLING & EXPOSED/RUSTED REBAR ON UNDERSIDE OF PRECAST CHANNEL SLAB
9) RUSTED PIPES & PIPE HANGARS
10) DEGRADED/TORN DUCT INSULATION

DEFICIENCIES OBSERVED AT THIS LOCATION:
1) HONEYCOMBING ON COLUMN
2) HONEYCOMBING ON PERIMETER BEAM
3) RUSTED PIPE HANGERS
4) DETACHED/FALLEN RIGID INSULATION BOARD

2006 CLASSROOM ADDITION (HOLLOW CORE PANELS ON SUSPENDED CONC. BEAMS)

APPROXIMATE LIMITS OF CRAWLSPACE OBSERVED DURING SITE VISIT

APPROXIMATE LIMITS OF CRAWLSPACE PER AVAILABLE PLANS AND SITE OBSERVATIONS

NORTH

AUSTIN I.S.D.

DEPARTMENT OF CONSTRUCTION MANAGEMENT

NORMAN ELEMENTARY SCHOOL

4001 Tannehill Ln
Austin, Texas

FLOOR PLAN
1ST FLOOR

APPROVALS		
DRAWN	CHECKED	APPROVED
R.A		
05/03/13		
DWG: 150-FLR-01		SHEET
DRAWING SCALE		1 OF 1
1" = 20'		