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SECTION I, II
Introduction and Program Validation
I. INTRODUCTION

Stranahan High School is an existing school originally built in 1951 on approximately 38 acres of land in southwest Broward County. Through numerous expansions and renovations, the campus has grown from a five (5) building facility to currently encompassing in excess of twenty-seven (27) buildings with an approximate total square footage in excess of 268,000 square feet. The campus also includes nine (9) portable facilities with an additional square footage of approximately 7,260 square feet.

The project scope for this proposed General Obligation Bond (GOB) project has been developed from a Facility Conditional Assessment commissioned by SBBC in 2014, that established a comprehensive listing of needed campus-wide improvements with an emphasis on prioritizing those most critical needs and generally consists of improvements and renovations to existing facilities, including but not necessarily limited to building envelope improvements consisting of the replacement of non-ADA complaint access ramps and aluminum canopies; re-roofing of various buildings; the replacement of exterior envelope components such as windows; and storefront systems; HVAC improvements ranging from replacement of existing equipment that has outlived its projected service life to complete system replacements in certain buildings, including installation of campus wide state of the art direct digital controls (DDC) in various buildings; miscellaneous electrical systems upgrades, including replacement of exterior lighting; fire and security improvements consisting of the installation of fire sprinklers in non-protected buildings and/or non-protected spaces, and installation of a campus-wide fire alarm to serve all current buildings.

In addition, the project will provide for the renovation of existing Media Center, PE Weight Room as well as STEM Lab renovations throughout the campus.

Finally, the project will provide for the development of a “Single Point of Entry” component intended to create a path for all visitors to the school are required to go through a main administrative and screening portal prior to entering the facility, thus minimizing visitor’s ability to enter school grounds through other non-secured means. This proposed “Single Point Entry” component is being developed as a separate stand-alone project in order to allow SBBC to move forward with its implementation during summer 2017 while the documents for other aspects of the proposed scope of work are being developed.
III. PROGRAM VALIDATION

This report represents the A/E’s evaluation of SBCC’s proposed Program and Project Scope and is intended to verify and validate the requirements of the project, including proposed scope of work and most importantly the project’s established budget.

The information included in this report, and more specifically Sections III and IV are the result of the A/E’s observations with respect to the proposed scope, and are based on on-site observations of existing conditions as well as review of available the as-built information.

Information included in the Deficiency Summary Matrix in Section IV represents the A/E’s recommendations with respect to the project’s scope of work, and includes a comparison of the project’s construction budget (FLCC) and A/E’s estimate of probable cost for work which has been derived based on cost data for similar recently completed work supplemented by information obtained through industry sources.
IV. SCHEMATIC DESIGN NARRATIVE

ARCHITECTURAL

A. General / Site Level Deficiencies

1. Existing Conditions per Deficiency List:
   a. Aluminum Covered Walkway Requires Replacement – 15,451 ft²
   b. Aluminum Covered Walkway Requires Replacement – 5,481 ft²
   c. Aluminum Covered Walkway Requires Replacement – 3,200 ft²
   d. Single Point of Entry needs to be installed

2. Observed Field Conditions:
   a. There is an existing aluminum walkway between buildings 23 and 26, along with aluminum wall supported canopies on the rear of building 23. Cumulative total of canopies located was 1,343.5 ft², subject to further field verification. Based on usual observation, the canopies appear to be in good condition and not in need of replacement. The manufacturer has been located (Aluminum Solutions Group) and has visited the site with the CM at Risk and A/E. Manufacturer concurs that existing canopies are in good condition and should remain, and require only cleaning and unclogging of column drainage from organic debris.
   b. No additional aluminum canopies matching the square footage descriptions of SBBC ID# 314504 and 314505 could be located on campus.
   c. The Single Point of Entry scope has been separated as an accelerated work scope, and is currently in permit review. Wolfberg Alvarez delivered signed and sealed permit sets to Heery International on 2/1/2017.

3. Proposed Improvements:
   a. Clean identified aluminum walkway gutters and roofing. Corrugated roofing deck has organic debris, and gutters / downspouts may as well. Patch and repair existing aluminum canopies of any damage or deficiency identified by manufacture after field visit.

B. Building 1

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 23,850 ft²
   b. The Aluminum Window is Damaged and Requires Replacement – 3,840 ft²
2. Observed Field Conditions:
   
   a. Existing roof was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Slope is minimal to edges with a flashed fascia edge detail. The roof has an expansion joint built-up curb and 39 abandoned flashed mechanical curbs covered with a metal cap.

   b. The aluminum windows on Building 1 are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

3. Proposed Improvements:
   
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All abandoned roof penetrations should be patched utilizing a mechanically fastened corrugated deck under the deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. A new expansion joint curb should be installed to replace the existing curb.

   b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

   c. Aluminum windows are to be replaced based on square footage with new N.O.A. compliant fixed window systems.

C. Building 2

1. Existing Conditions per Deficiency List:
   
   a. Reroofing with New Decking Required (Broward CPS) – 3,783 Ft²

2. Observed Field Conditions:
   
   a. The building has 5 roof areas at different elevations. Existing roof was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board
and a roof system. All roofs have a parapet surround. The “lower” roofs on the east and west sides of the building have mechanical systems on the roof, and the top “upper” above the stage roof has a smoke damper and appears to be recently re-roofed. The “lower” roofs over the auditorium lobby and stage back-of-house have damaged decks and insufficient drainage resulting in long periods of ponding water. The roof over the primary auditorium space appears to have been recently re-roofed with a built-up system and new drainage.

3. Proposed Improvements:
   a. “Upper” and primary auditorium roofs should be inspected for damage with patch repairs to the roofing system provided on an as-needed basis in A/E opinion. They should remain as they are generally in good condition. The smoke vent that has corrosion should be addressed by mechanical cleaning and repainting.
   b. The “lower” roofs on the east and west should have all mechanical equipment removed along with existing roof system. Deck repairs should be performed to repair broken portions of gypsum deck with like material in line with NRCDA standards. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. Parapet extensions should be installed to provide an 18” parapet after new sloped roof is applied. Roof drains should be set in new slope to provide drainage without reducing capacity. Select areas of parapet will require fall protection railings to be installed based on adjacency of mechanical equipment, for a total of 32 linear feet. The large mechanical unit to be replaced on the west “lower” roof will also require a ships ladder over its support beams for access to the balance of the roof deck.
   c. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to repaired drains and overflow scuppers. This should then be topped with a roofing board and a new built-up roofing system. Flashing should be applied over the new parapet and around the edge laps at building walls.

D. Building 3

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) - 5,140 Ft²

2. Observed Field Conditions:
   a. Existing roof was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Roof has a parapet surround of
less than 12” as is accessed by wall ladder. The roof has two primary drains and overflow scupper in the parapets that appear new. The south primary drain appears to have failed resulting in ponding on the southern portion of the roof.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All abandoned roof penetrations should be patched utilizing a mechanically fastened corrugated deck under the deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. The drains should be reset for proper drainage.
   b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

E. Building 4

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 19,080 Ft²
   b. The Aluminum Window is Damaged and Requires Replacement – 38 ft²
   c. The Aluminum Window is Damaged and Requires Replacement – 35 ft²
   d. The Aluminum Window is Damaged and Requires Replacement – 4 ft²
   e. Media center requires renovation based on condition of rooms – 9,973 ft²

2. Observed Field Conditions:
   a. Existing roof has two levels, an “upper” with a parapet and a “lower” with drainage to edges. The roof system was field observed to be a 4” +/− gypsum deck assembly with bulb T’s every 4'-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. “Upper” roof has a parapet surrounding less than 12” with primary drains and no overflow drainage. It also has an abandoned mast antenna mounted to the deck. Both “upper” and “lower” roofs have patched deck penetrations that will need to be inspected once roof system is removed. Roof is contiguous with Building 8 roof with no expansion joint.
   b. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.
c. Existing media center renovations are not currently defined. A/E is awaiting meeting with owner’s consultant specialist on Media Centers with school staff to generate complete scope for these areas.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All abandoned roof penetrations should be inspected to ensure infill patches are structural in nature. Where not, the existing patch should be removed and re-patched utilizing a mechanically fastened corrugated deck under the roof deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. The drains should be reset for proper drainage on the “upper” roof, and new overflow scuppers should be installed in the existing parapet.

   b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges or drainage. This should then be topped with a roofing board and a new built-up roofing system.

   c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

   d. Media Center renovations cannot be defined until consultant meeting is held. Proposed Improvements will be provided after that meeting and it’s resulting documentation have been generated.

F. Building 5

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) - 25,531 Ft² 
   b. The Aluminum Window is Damaged and Requires Replacement – 84 ft² 
   c. Provide Renovation of Restrooms Associated with Educational Adequacy Renovations 
   d. STEM Lab Requires Renovation Based on Condition of Room(s)

2. Observed Field Conditions:
   a. Existing roof has two levels, an “upper” clearstory roof and a “lower” roof on each side, all with drainage to edges. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a
poured layer of gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system.

b. The existing clearstory has windows closed with painted plywood that will need to be properly blocked up for new roof slopes.

c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

d. Men’s and women’s restrooms do not have properly sized ADA stalls for access and turnaround areas. Stall partitions are in various states of deterioration.

3. Proposed Improvements:

a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a 1/4” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

b. The clearstory openings should be infilled with an assembly of metal stud(s), exterior sheathing and stucco. Metal blocking should be placed between the exterior sheathing and studs to anchor roof flashing to.

c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

d. Men’s and women’s restrooms are to have new ADA compliant stalls installed, resulting in relocation of all adjacent fixtures for both new stall and travel path. New stall partitions are to be installed throughout, with plumbing chase wall to be demolished and rebuilt with new tile finish. New floor tile finish sloped to drainage to be installed.

e. STEM lab scope of work has been relocated to Building 20, Room 561 per BCCS STEM consultant coordination with school staff. Refer to Building 20 narrative for information.

G. Building 6

1. Existing Conditions per Deficiency List:

a. *Reroofing with New Decking Required (Broward CPS) - 23,964 Ft²*

b. *The Aluminum Window is Damaged and Requires Replacement – 24 ft²*
c. *The Aluminum Window is Damaged and Requires Replacement* – 64 ft²

d. *The Aluminum Window is Damaged and Requires Replacement* – 18 ft²

e. *Provide Renovation of Restrooms Associated with Educational Adequacy Renovations*

f. *STEM Lab Requires Renovation Based on Condition of Room(s)*

2. Observed Field Conditions:

a. Existing roof has two levels, an “upper” clearstory roof and a “lower” roof on each side, all with drainage to edges. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system.

b. The existing clearstory has windows closed with painted plywood that will need to be properly blocked up for new roof slopes.

c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

d. Men’s and women’s restrooms do not have properly sized ADA stalls for access and turnaround areas. Stall partitions are in various states of deterioration.

3. Proposed Improvements:

a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

b. The clearstory openings should be infilled with an assembly of metal stud(s), exterior sheathing and stucco. Metal blocking should be placed between the exterior sheathing and studs to anchor roof flashing to.

c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.
 Men’s and women’s restrooms are to have new ADA compliant stalls installed, resulting in relocation of all adjacent fixtures for both new stall and travel path. New stall partitions are to be installed throughout, with plumbing chase wall to be demolished and rebuilt with new tile finish. New floor tile finish sloped to drainage to be installed.

e. STEM lab has been targeted for room 248 per school staff and BCCS STEM consultant. Scope is to upgrade building electrical service for additional computers to service this room. Install new carpet floor finish to mimic a business office. Patch / repaint walls as needed for new finish. FF&E not specified or selected by A/E to supplement room to create a mock business office environment.

H. Building 7

1. Existing Conditions per Deficiency List:

   a. Reroofing with New Decking Required (Broward CPS) - 20,900 Ft²
   b. The Aluminum Window is Damaged and Requires Replacement – 6 ft²
   c. Provide Renovation of Restrooms Associated with Educational Adequacy Renovations
   d. STEM Lab Requires Renovation Based on Condition of Room(s)

2. Observed Field Conditions:

   a. Existing roof has two levels, an “upper” clearstory roof and a “lower” roof on each side, all with drainage to edges. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4'-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system.

   b. The existing clearstory has windows closed with painted plywood that will need to be properly blocked up for new roof slopes.

   c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

   d. Men’s and women’s restrooms do not have properly sized ADA stalls for access and turnaround areas. Stall partitions are in various states of deterioration.

3. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. The
exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

b. The clearstory openings should be infilled with an assembly of metal stud(s), exterior sheathing and stucco. Metal blocking should be placed between the exterior sheathing and studs to anchor roof flashing to.

c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

d. Men’s and women’s restrooms are to have new ADA compliant stalls installed, resulting in relocation of all adjacent fixtures for both new stall and travel path. New stall partitions are to be installed throughout, with plumbing chase wall to be demolished and rebuilt with new tile finish. New floor tile finish sloped to drainage to be installed.

e. STEM lab has been targeted for room 263 per school staff and BCCS STEM consultant. Scope is to upgrade building electrical service for additional computers to service this room. School staff advises they experience brown-outs using computers. Patch / repaint walls as needed for new finish. FF&E and computer equipment not specified or selected by A/E to supplement room as a math lab.

I. Building 8

1. Existing Conditions per Deficiency List:

   a. *Reroofing with New Decking Required (Broward CPS) – 2,904 Ft²*

2. Observed Field Conditions:

   a. Existing roof contiguous with Build 4 roof with no expansion joint. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphalctic board and a roof system. Roof also has a masonry screen wall hiding two abandoned water expansion tanks.

3. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. The exposed and repaired deck should have a roof membrane applied over it. Over this a new
layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges or drainage. This should then be topped with a roofing board and a new built-up roofing system. Abandoned rooftop tanks should be removed.

J. Building 9

1. Existing Conditions per Deficiency List:

   a. Reroofing with New Decking Required (Broward CPS) - 15,111 Ft²
   b. Provide Renovation of Restrooms Associated with Educational Adequacy Renovations
   c. STEM Lab Requires Renovation Based on Condition of Room(s)
   d. STEM Lab Requires Renovation Based on Condition of Room(s)

2. Observed Field Conditions:

   a. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

   b. Rooftop has mechanical chiller lines on supports, and mechanical units with curbs that are less than 12” above existing roof deck.

   c. Men’s and women’s restrooms do not have properly sized ADA stalls for access and turnaround areas. Additionally, entry to rooms does not accommodate ADA approach and turning radius. Stall partitions are in various states of deterioration. Men’s shower stall has broken fixtures and no curtain. Shower in adjacent auto shop restroom is in the same condition. Both shower stalls have a curb entrance preventing ADA access.

3. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. Curb extensions should be installed on existing mechanical to remain. Chiller lines to be replaced under mechanical scope will require new engineered stands anchored to deck to achieve required clearance above roof.

   b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.
c. Men’s and women’s restrooms are to have new ADA compliant stalls installed, resulting in relocation of all adjacent fixtures for both new stall and travel path. New stall partitions are to be installed throughout, with plumbing chase wall to be demolished and rebuilt with new tile finish. New floor tile finish sloped to drainage to be installed.

d. STEM lab scope of work has been relocated to Building 20, Room 554 per BCCS STEM consultant coordination with school staff. Refer to Building 20 narrative for information.

e. STEM lab scope of work has been relocated to Building 23, Room 572 per BCCS STEM consultant coordination with school staff. Refer to Building 23 narrative for information.

K. Building 10

1. Existing Conditions per Deficiency List:
   a. *Reroofing with New Decking Required (Broward CPS)* - 8,770 Ft²
   b. *PE Weight Room equipment and flooring is in need of upgrade*

2. Observed Field Conditions:
   a. The roof system was field observed to be a concrete “Double T” roof deck and structure with slope in the deck less than ¼”: 12”. This is topped by an asphalitic board and a roof system. There is a single parapet along the southern edge of the building less than 8” above roof surface. Drainage is to roof edges.

   b. Weight room flooring is worn with apparent damage from dropped weights.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. A parapet extension should be installed along the southern roof edge for a minimum 12” parapet after new roof slope.

   b. The exposed deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

   c. Replace flooring with new monolithic rubber floor weight room system.

L. Building 11

1. Existing Conditions per Deficiency List:
   a. *Reroofing with New Decking Required (Broward CPS)* - 770 Ft²
2. Observed Field Conditions:

   a. The roof system was field observed to be a wood roof deck and structure with slope in the deck less than ¼": 12”. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

3. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The exposed deck should be inspected for damage and have patch repairs of new wood decking applied as needed. A fire resistant roof membrane or mechanically fastened board should be applied over the wood deck. Over this a new layer of sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

M. Building 12

1. Existing Conditions per Deficiency List:

   a. Reroofing with New Decking Required (Broward CPS) - 18,045 Ft²
   b. The Aluminum Window is Damaged and Requires Replacement – 800 ft²

2. Observed Field Conditions:

   a. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

   b. Rooftop has 7 mechanical units on curbs to remain, and 5 abandoned mechanical openings to be patched.

   c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

3. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All abandoned roof penetrations should be patched utilizing a mechanically fastened
corrugated deck under the deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. Curb extensions should be added to existing mechanical units to remain for required height, and new replacement mechanical units should have proper height curbs.

b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

4. Building 13

5. Existing Conditions per Deficiency List:

   a. Reroofing with New Decking Required (Broward CPS) - 5,798 Ft²

6. Observed Field Conditions:

   a. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

   The roof is joined with the building 14 roof, with visible deformation at the surface due to lack of an expansion joint.

   b. Rooftop has 5 mechanical fans on curbs to remain, and two rooftop mechanical units to remain with duct penetrations through the existing roof deck. The rooftop also has a set of mechanical service pipes on corroded stands. Two fans are close enough to the edge to require fall protection railings, and none are currently present.

7. Proposed Improvements:

   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All abandoned roof penetrations should be patched utilizing a mechanically fastened corrugated deck under the deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. Curb extensions should be added to existing mechanical units to remain for required
height, and new replacement mechanical units should have proper height curbs. New mechanical pipes stands should be installed to provide at least 12” clearance above new sloped roof. A new expansion joint curb is needed on the west portion where this building meets building 14. 5’ of fall protection railing should be provided at the noted mechanical units, for a total of 15 linear feet.

b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

N. Building 14

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) - 11,626 Ft²
   b. The Aluminum Window is Damaged and Requires Replacement – 32 ft²

2. Observed Field Conditions:
   a. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

   The roof is joined with the building 13 roof, with visible deformation at the surface due to lack of an expansion joint.

   b. Rooftop has 7 mechanical fans on curbs to remain, and two rooftop mechanical units to remain with duct penetrations through the existing roof deck. The rooftop also has a set of mechanical service pipes on corroded stands. The roof has 6 abandoned mechanical openings that are capped. 3 of the mechanical fans and one of the rooftop mechanical units will require fall protection and currently have none.

   c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface. All
abandoned roof penetrations should be patched utilizing a mechanically fastened corrugated deck under the deck. The void area should be infilled with insulation board or LWIC and topped with an asphaltic board equal to the slope of the surrounding deck. Curb extensions should be added to existing mechanical units to remain for required height, and new replacement mechanical units should have proper height curbs. New mechanical pipes stands should be installed to provide at least 12” clearance above new sloped roof. A new expansion joint curb is needed on the west portion where this building meets building 13. 5’ of edge protection railing should be provided at each mechanical unit near a roof edge, for a total of 20 linear feet.

b. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

c. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

O. Building 15

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) - 19,766 Ft²

2. Observed Field Conditions:
   a. The roof system was field observed to be a 4” +/- gypsum deck assembly with bulb T’s every 4’-0” on center supported by round chord open web joists. The roof assembly has a tectum or gypsum panel laid between the bulb T’s, covered by a poured layer of Gypsum with welded wire mesh or wire strands through the center of the pour to form a 4” assembly. This is topped by an asphaltic board and a roof system. Drainage is to roof edges.

   b. The roof has an “upper” portion over the gym with capped mechanical openings or skylights. South of that there is a “lower” roof over the lobby entry to the gymnasium. The “upper” roof appears recently re-roofed and in good condition. The “lower” roof appears to be deteriorated.

3. Proposed Improvements:
   a. “Upper” roof should be inspected for damage with patch repairs to the roofing system provided on an as-needed basis. It should remain as it is in generally in good condition. The “lower” roof to the south should be replaced.
b. The existing roofing and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels. The deck should be repaired where damaged, with areas of significant depression filled with a layer of gypsum to equal the surrounding sloped surface.

c. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

P. Building 16

1. Existing Conditions per Deficiency List:
   a. **Reroofing with New Decking Required (Broward CPS)** – 724 Ft²
   b. **The Aluminum Window is Damaged and Requires Replacement** - 2 Ft²

2. Observed Field Conditions:
   a. The roof system was field observed to be a wood roof deck and structure with slope in the deck less than ¼”: 12”. This is topped by an asphalthic board and a roof system. Drainage is to roof edges.

   b. The roof two exhaust fans to remain that have curbs less than 6” above existing roof deck. No fall protection is present.

   c. The aluminum windows are jalousie assemblies of underdetermined age and various levels of operability on a case by case basis. Some glass panes are cracked and repaired with clear packing tape. Window assemblies previously used as emergency egress have been bolted shut.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels.

   b. The exposed deck should be inspected for damage and have patch repairs of new wood decking applied as needed. A fire resistant roof membrane or mechanically fastened board should be applied over the wood deck. Over this a new layer of sloped insulation board should be applied to achieve a ¼” slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

   c. 42 linear feet of fall protection railing will required at roof edges.
d. Aluminum windows should be repaired with shop fabricated copies to match as repairs to existing for each field identified area. This includes new frames to replace damaged units, new glass panes, and repairs to operable window mechanisms.

Q. Building 17

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 2,501 Ft²
   b. Provide Renovation of Restrooms Associated with Educational Adequacy Renovations
   c. STEM Lab Requires Renovation Based on Condition of Room(s)

2. Observed Field Conditions:
   a. The building is a prefabricated pre-engineered metal building corrugated roof decking. The roof has 3 mechanical fan penetrations less than 6” above existing deck. The building has aluminum gutters in deteriorated shape.
   b. Restrooms each have a single fixture surrounded by a partition and lavatory and mop sink outside the stall.
   c. STEM scope relocated to Building 20, Room 553. Refer to narrative of Building 20 for additional information.

3. Proposed Improvements:
   a. A pre-engineered “roof hugger” system consisting of new purlin members to be installed over the existing deck, with insulation board laid between purlins, should be installed. Over the purlins and insulation a new interlocking standing seam roof is to be installed. The entire system should be an engineered system with certification for the Florida high wind zone areas.
   b. The 3 mechanical curbs should be raised to a minimum of 12” above the new roof deck surface.
   c. Restrooms each to have entry walls demolish and rebuilt for proper ADA access path of travel. Demolish stall partitions. Install new ADA accessible shower stall.

R. Building 18

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 653 Ft²
2. Observed Field Conditions:
   a. The roof system was field observed to be a wood roof deck and structure with slope in the deck less than \( \frac{1}{4}'' : 12'' \). This is topped by an asphaltic board and a roof system. Drainage is to roof edges. The roof is two levels with each level approximately half the square footage.
   b. The roof has one exhaust fan on a curb with less than 6” clearance above roof deck.

3. Proposed Improvements:
   a. The existing roofing and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels.
   b. The rooftop fan should be relocated to the building sidewall under mechanical scope, and the roof opening patched with additional wood framing and decking.
   c. The exposed deck should be inspected for damage and have patch repairs of new wood decking applied as needed. A fire resistant roof membrane or mechanically fastened board should be applied over the wood deck. Over this a new layer of sloped insulation board should be applied to achieve a \( \frac{1}{4}'' \) slope to edges. This should then be topped with a roofing board and a new built-up roofing system.

S. Building 20

1. Existing Conditions per Deficiency List:
   a. **Reroofing with New Decking Required (Broward CPS) – 9,300 Ft²**
   b. **Relocated STEM Lab scopes**

2. Observed Field Conditions:
   a. The roof system was field observed to be a built-up roof system on LWIC and corrugated metal deck supported by open web steel joists. The outer edges are a mansard roof of standing seam interlocked in good condition, but in need of new paint. The northern portion of the built-up roof has a raised portion with standing seam sheet walls and a sloped roof with an exposed felt layer and no top membrane. Drainage is to roof drains and adjacent overflow drains. The roof has two equal decks separated by a raised 10” section that is also roofed with built-up. It is unclear if there is an expansion joint under this, but there is evident roof membrane deformation.
   b. The roof has 27 mechanical curb penetrations, with at least 17 less than 6” clearance above roof deck. The roof also has two roof scuttle hatches with minimal curb clearance and corrosion.
c. Rooftop walking pads have delaminated from existing roofing surface and are partially missing.

3. Proposed Improvements:

a. The existing roofing depressed roofing surface and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels.

b. The roof deck should be inspected for damage and repaired as needed. New curbs should be installed at all identified units that will provide more than 12” clearance above proposed new roof slope. New roof scuttles providing at least 12” clearance above new roof slope should be installed at roof portion. The raised roof deck area should have an expansion joint curb built on each side (north and south) from mansard edge to mansard edge.

c. The raised sloped roof with exposed felt and asphalt should have all existing roof membrane sheets removed, and a new roof assembly of insulation and standing seam metal roof applied with associated flashing.

d. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to repaired drainage. This should then be topped with a roofing board and a new built-up roofing system.

e. STEM lab scope of work has been relocated to Building 20, Room 561 per BCCS STEM consultant coordination with school staff. Scope is to relocate all technology equipment, shop tools, and associated FF&E equipment to room 554 and 55A. Provide ceiling spool mounted electrical outlets and disconnects with emergency panic buttons for each piece of equipment. Room is then to be cleaned of all dust and wood particulate leftover from rooms use as a fabrication shop.

f. STEM lab scope of work has been relocated to Building 20, Room 554 per BCCS STEM consultant coordination with school staff. Scope is to demolish all built-in casework, remove and turn over to owner all installed equipment, and FF&E storage systems. Demolish installed chemical shower system and associated tile wall, floor, and drain. Remove VCT flooring in room 554 and refinish floor with epoxy surface with integral cove base. Install all shop fabrication power tools and equipment in room 554 with final layout TBD. Install new casework desks and 3d printers in room 554C. Demolish existing wall between 554 and 554C and install new 42” partition wall and interior storefront to 8’-0” AFF with new interior storefront door. Install new storefront partition and associated egress door at hall way between 554E and room 553 north wall. Install new dust vacuum system with equipment located outside adjacent to building to serve all power tools. Intent of room 554 is to serve as fabrication & wood shop. Intent of room 554C is to serve as digital fabrication lab.
g. STEM Lab Scope of work relocated to Building 20, Room 553. Demolish portion of north partition wall indicated in room 553 and wall dividing classroom spaces. Install new 8’-0” AFF storefront and double door between 553 and 554. Room 553 to receive new 24” AFF modular stage with integral ramp. Intent of room 553 is to serve as computer classroom associated with activities of 554 and 554C

T. Building 21

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 3,300 Ft²

2. Observed Field Conditions:
   a. The roof system was field observed to be a built-up roof system on LWIC and corrugated metal deck supported by open web steel joists. The roof has a parapet surround of less than 18”. Drainage is to roof drains and 2 undersized overflow scuppers. The roof also has a roof scuttle hatch with minimal curb clearance and corrosion.

3. Proposed Improvements:
   a. The existing roofing surface and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels.

   b. The roof deck should be inspected for damage and repaired as needed. New roof scuttle providing at least 12” clearance above new roof slope should be installed. New overflow scuppers should be cut into the existing parapet and flashed. The parapet should be extended all around to 18” above new roof slope surface.

   c. The exposed and repaired deck should have a roof membrane applied over it. Over this a new layer of LWIC or sloped insulation board should be applied to achieve a ¼” slope to repaired drainage. This should then be topped with a roofing board and a new built-up roofing system.

U. Building 22

1. Existing Conditions per Deficiency List:
   a. Reroofing with New Decking Required (Broward CPS) – 1,000 Ft²

2. Observed Field Conditions:
   a. The roof system was field observed to be a wood roof deck and structure with a pitched roof. This is topped by an asphalt shingle system. Drainage is to roof edges.
3. Proposed Improvements:
   a. The existing roofing surface and edge flashing should be removed, along with any existing insulation board. The existing deck should be exposed for new roof installation on all levels.
   b. The roof deck should be inspected for damage and repaired as needed with infill wood decking and wood structure. A fire resistant roof membrane or mechanically fastened board should be applied over the wood deck and then a new asphalt shingle system should be applied with edge flashing.

V. Building 23

1. Existing Conditions per Deficiency List:
   a. **Relocated STEM Lab scope**

2. Proposed Improvements:
   a. Room 572: Scope is demolition of all casework and chemical shower system. Demolish installed chemical shower system and associated tile wall, floor, and drain. Demolish doorways to adjacent classrooms and infill openings with new partition wall. Install new partition wall in north-east corner of room where indicated. Intent of room is to serve as a mock ER training facility with new medical simulation equipment.

W. Building 26

1. Existing Conditions per Deficiency List:
   a. **Reroofing with New Decking Required (Broward CPS) – 100 Ft²**

2. Observed Field Conditions:
   a. The roof system was field observed to be a built-up roof system on LWIC and corrugated metal deck supported by open web steel joists. School staff advised that a previous leak had already been addressed and there were no current leaks in the roof.

3. Proposed Improvements:
   a. As leak outlined in deficiency report has been addressed, recommend that no action be taken on existing roof in good condition.
X. Building 27

1. Existing Conditions per Deficiency List:
   a. *Reroofing with New Decking Required (Broward CPS) – 100 Ft²*

2. Observed Field Conditions:
   a. Building 27 is a fabric tent located adjacent to the cafeteria for outdoor dining. There is no built structure.

3. Proposed Improvements:
   a. Recommend that dining capacity and design be addressed under separate food service study scope. No current budget exists for this line item.

Y. Important Additional Observations and Notes

1. Construction Waste Management specification section 01572 contains requirements for recycling and salvage. Each subsequent specification then references this and contains additional requirement for a percentage of recycling. In regards to roofing, A/E requires clarification if it is the intent to recycle roofing materials demolished as this requires separation of waste materials such as roofing deck from insulation materials. This represents significant additional costs for disposal and recycling fees. Additional demolition scopes on site will also require similar waste separation action if this is required, such as separating demolished wall materials, concrete from rebar, etc. Given that the majority of scope is re-roofing, waste management requirements for recycling and salvage at 50 or 75 percent of roofing material cannot be achieved without significant additional cost. Costs proposed in the current A/E scope wide estimate do not include recycling or salvage.

   Please clarify if it is SBBC’s intent to require recycling or salvage. If so, please clarify if 50 or 75 percent is required, or another number provided by building ownership.

2. Restroom Renovation Scope: Based on occupancy load calculated using the FBC 2014, the total water closet count required is 65 female and 65 male for a population 6412 student on a square footage basis. This results in a deficit of 20 water closets for the female restrooms. However, the FISH inventory report has a student load of 2,375 requiring 24 female and 24 male water closets which current and proposed fixture count complies with.

   The design submitted complies with the FISH student occupant load.
3. Roofing observations are based on visual inspection of the top roofing layer and underside of deck on site which resulted in limited determination of existing roof assembly systems and their corresponding conditions. Testing, including core samples, moisture tests, and pull tests are required for continuing analysis and recommendations. They are currently being solicited for additional information.

4. The square footage of roofs provided on deficiency reports varies from both FISH documentation and as-built drawings of buildings where available. For validation purposes, the highest square footage available from documentation provided was used, either FISH or as-built documents. The deficiency list has a total of 245,084 ft² of roofing. An analysis of the documentation provided results in a total of 283,030 ft² of roofing. The variance between the deficiency report and the documentation produced a variance of 37,946 ft² of additional roofing surface as part of the scope of work. A copy of this analysis, which includes a comparison of budget and actual anticipated cost data is included in the Appendix to this report.

   The A/E has performed limited field measurement to check actual square footage and found the roofing square footage found in documentation to be closer to field conditions where checked. Additional field verification is required.

5. The site deficiency scope lists a total of 24,132 ft² of aluminum covered walkway on site. However, only 1,343.5 Ft², of aluminum covered walkway could be located. The site has a total of 29,015ft² +/- of wood covered walkway connecting buildings not listed in the current scope. A/E has excluded this wood walkway as not in scope as it is not listed. SBBC/Heery should clarify whether replacement of these wood covered walkways is to be considered as additional project scope or if it is to remain excluded as not covered in the deficiency report.
PLUMBING NARRATIVE

The following is based on field observations of the existing facility conducted during scope verification walk-through on December 2016 and early January 2017.

A. Building: 1 (42,345 SF)

1. Existing Conditions per Deficiency List:
   a. Replace two (2) existing 10,000 CFM chilled water air handling units.
   b. Replace one (1) existing 30,000 CFM chilled water air handling unit.
   c. Replace one (1) existing 5,000 CFM chilled water air handling unit.

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 1.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the air handling units to comply with new units discharge location provide proper condensate trap, slope, insulation, supports and discharge to existing receptor.

B. Building 2 – Auditorium (15,252 SF)

1. Existing Conditions per Deficiency List:
   a. Replace one (1) existing air handler unit at thirty thousand (30,000) CFM.
   b. Replace two (2) existing air handler units at five thousand (5,000) CFM each.
   c. Replace one (1) existing roof mounted air handling unit at twenty (20) tons cooling capacity. Reroofing with New Decking Required (Broward CPS) – 3,783 Ft²

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 2.
   b. Refer to Architectural observations for reroofing on Building 2.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the air handling units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.
   b. Replace roof drains in the “lower” roofs to match new roof slope.
C. Building 3 – Music

1. Existing Conditions per Deficiency List:
   a. Replace existing DX fan coil unit at fifteen (15) tons cooling capacity.
   b. Replace one (1) existing packaged rooftop unit at five (5) tons cooling capacity.
   c. Replace existing infrared gas radiant heater.
   d. Replace one (1) existing fifteen (15) ton packaged rooftop unit.
   e. Reroofing with New Decking Required (Broward CPS) - 5,140 Ft²

2. Observed Field Conditions:
   a. Refer to Mechanical observations for rooftop units on Building 3.
   b. Refer to Architectural observations for reroofing on Building 3.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for rooftop unit to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.
   b. Replace roof drains in the roofs to match new roof slope.

D. Building 4 – Library (17,600 SF)

1. Existing Conditions per Deficiency List:
   a. Replace eight (8) existing chilled water fan coil units
   b. Replace two (2) existing chilled water air handling units
   c. Replace one (1) existing chilled water air handling unit
   d. Reroofing with New Decking Required (Broward CPS) – 19,080 Ft²

2. Observed Field Conditions:
   a. Refer to Mechanical observations for fan & coil and air handling units on Building 4.
   b. Refer to Architectural observations for reroofing on Building 4.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for fan coil units (unit ventilators) and small horizontal suspended air handling units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.
   b. Replace roof drains in the roofs to match new roof slope.
E. **Building 5 – Classroom**

1. Existing Conditions per Deficiency List:
   
   a. *The Air Handler HVAC Component Requires Replacement*
   
   b. *The Air Handler HVAC Component Requires Replacement*

2. Observed Field Conditions:

   a. Refer to Mechanical observations for air handling units on Building 5.

3. Proposed Improvements:

   a. We propose to provide new condensate drain for new VAV air handler units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

F. **Building 6 – Classroom**

1. Existing Conditions per Deficiency List:

   a. *The Air Handler HVAC Component Requires Replacement*

   b. *The Air Handler HVAC Component Requires Replacement*

2. Observed Field Conditions:

   a. Refer to Mechanical observations for air handling units on Building 6.

3. Proposed Improvements:

   a. We propose to provide new condensate drain for new VAV air handler units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

G. **Building 7 – Classroom**

1. Existing Conditions per Deficiency List:

   a. *The Air Handler HVAC Component Requires Replacement*

   b. *The Air Handler HVAC Component Requires Replacement*

2. Observed Field Conditions:

   a. Refer to Mechanical observations for air handling units on Building 7.
3. We propose to provide new condensate drain for new VAV air handler units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

H. Building 9

1. Existing Conditions per Deficiency List:
   a. *The Air Handler HVAC Component Requires Replacement*
   b. *The Fan Coil (Chilled Water) HVAC Component Requires Replacement*
   c. *The Fan Coil HVAC Component Requires Replacement*
   d. *The Window AC Unit Component Requires Replacement*

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 9.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the two (2) chilled water systems air handling units and AC units to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

I. Building 10 – Physical Education Building

1. Existing Conditions per Deficiency List:
   a. *Complete HVAC System Wide Replacement*

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 10.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the three (3) chilled water constant volume air handling unit to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

J. Building 12 – Cafeteria

1. Existing Conditions per Deficiency List:
   a. *Complete HVAC System Installation for Non-Air Conditioned Facility*
   b. *Outdoor Air Handler HVAC Component Requires Replacement*
   c. *The Air Handler HVAC Component Requires Replacement*
2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 12.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for two (2) chilled water roof mounted air
      handling units and new split DX system to comply with new units discharge location
      provide proper condensate trap, slope, supports, insulation and discharge to existing
      receptor.

K. **Building 13 – Swimming Pool Locker Rooms**

1. Existing Conditions per Deficiency List:
   a. *The Window AC Unit Component Requires Replacement*

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 13.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the two (2) window AC units to comply
      with new units discharge location provide proper condensate trap, slope, supports,
      insulation and discharge to existing receptor.

L. **Building 15 – Gymnasium**

1. Existing Conditions per Deficiency List:
   a. *The Air Handler HVAC Component Requires Replacement*
   b. *The Air Handler HVAC Component Requires Replacement*
   c. *The Window AC Unit Component Requires Replacement*

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 15.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the two (2) air handling units and AC
      unit to comply with new units discharge location provide proper condensate trap, slope,
      supports, insulation and discharge to existing receptor.
M. Building 17 – Agriculture Labs

1. Existing Conditions per Deficiency List:
   a. The Fan Coil HVAC Component Requires Replacement
   b. The Package Unit HVAC Component Requires Replacement

2. Observed Field Conditions:
   a. Refer to Mechanical observations for air handling units on Building 17.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for the packaged HVAC unit to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to existing receptor.

N. Building 21 – Administration

1. Existing Conditions per Deficiency List:
   a. The Air Handler HVAC Component Requires Replacement
   b. Reroofing with New Decking Required (Broward CPS) – 3,300 Ft²

2. Observed Field Conditions:
   a. Refer to Mechanical observations for rooftop units on Building 21.
   b. Refer to Architectural observations for reroofing on Building 21.

3. Proposed Improvements:
   a. We propose to provide new condensate drain for new split DX system to comply with new units discharge location provide proper condensate trap, slope, supports, insulation and discharge to receptor.
   b. Replace roof drains in the “lower” roofs to match new roof slope.

O. Building 24

1. Existing Conditions per Deficiency List:
   a. The Fan Coil HVAC Component Requires Replacement
   b. The Package Unit HVAC Component Requires Replacement
2. Observed Field Conditions:
   a. Refer to Mechanical observations for rooftop units on Building 24.

3. Proposed Improvements:
   a. No action required.

P. **Building 85**

1. Existing Conditions per Deficiency List:
   a. *The Package Unit HVAC Component Requires Replacement*

2. Observed Field Conditions:
   a. Refer to Mechanical observations for rooftop units on Building 24.

3. Proposed Improvements:
   a. No action required.
FIRE PROTECTION NARRATIVE

The following is based on field observations of the existing facility conducted during scope verification walk-through on December 2016 and early January 2017.

Q. Building: 1 (42,345 SF)

1. Existing Conditions per Deficiency List:
   a. Install fire sprinklers throughout Building 1 (1st & 2nd Floors).

2. Observed Field Conditions:
   a. Walkthrough of Building 1 during December 2016 and January 2017 confirmed that this building has no fire sprinklers as indicated in the Deficiency List.

3. Proposed Improvements:
   a. We propose to install new sprinklers supplied by two systems (first and second floor). Sprinkler layout will be designed primarily on the basis of a light hazard classification (design density of 0.10gpm/SF, with maximum coverage per sprinkler 225 SF) and in specific rooms (storage and mechanical rooms) where required, will be designed on the basis of Ordinary I hazard classification (design density of 0.15 gpm/SF, with maximum coverage per sprinkler 130 SF). Each system will have a system control valve with tamper switch, flow switch, inspector’s test and drain assembly and connected to the main supply through an alarm check valve and main control valve. The alarm check valve shall be installed with mechanical trim to activate a water powered motor gong installed on the exterior of the building in close proximity to the point of supply. A fire department connection with 2 No. 2 ½” inlets with protective caps and chains shall be provided and connected to the system piping downstream of the alarm check valve via a check valve. A main drain will be provided connecting the two system drains, the water motor gong drain and the alarm check valve test and drain ports and piped to outside the building. These two systems will be supplied from a proposed 6” underground fire line connected to an existing 8” fire line which runs north-south on the east side of the building.

R. Building: 2 – Auditorium (15,252 SF)

1. Existing Conditions per Deficiency List:
   a. Install fire sprinklers – 6001SF
   b. Install fire sprinklers – 15,252 SF

2. Observed Field Conditions:
   a. Walkthrough of Building 2 during December 2016 and January 2017 confirmed that this building has no fire sprinklers as indicated in the Deficiency List.
3. Proposed Improvements:

   a. We propose to install new sprinklers supplied by one system. Sprinkler layout will be designed on two separate areas: (i) the area above the stage up to the existing fire curtain to the east, and the adjoining areas to the west will be based on Ordinary II hazard classification per NFPA 13 – 5.3.2 (design density 0.20 gpm/SF, maximum coverage per head 130 SF)(ii) the area east of the stage beyond the existing fire curtain and including the lobby, on the basis of a light hazard classification (design density of 0.10gpm/SF, with maximum coverage per sprinkler 225 SF) and in specific rooms (storage and mechanical rooms) where required, will be designed on the basis of Ordinary I hazard classification (design density of 0.15 gpm/SF, with maximum coverage per sprinkler 130 SF). System will have a control valve with tamper switch, flow switch, inspector’s test and drain assembly and connected to the main supply through an alarm check valve and main control valve. The alarm check valve shall be installed with mechanical trim to activate a water powered motor gong installed on the exterior of the building in close proximity to the point of supply. A fire department connection with 2 No. 2 ½” inlets with protective caps and chains shall be provided and connected to the system piping downstream of the alarm check valve via a check valve. A main drain will be provided connecting the system drain, the water motor gong drain and the alarm check valve test and drain ports and piped to outside the building. This system will be supplied from a proposed 6” underground fire line extended from the 6” fire line supplying building 1.

S. Building 9

1. Existing Conditions per Deficiency List:

   a. Install fire sprinklers 12,132 SF

2. Observed Field Conditions:

   a. Walkthrough of Building 9 during December 2016 and January 2017 confirmed that this building has no fire sprinklers as indicated in the Deficiency List.

3. Proposed Improvements:

   a. We propose to install new sprinklers supplied by one system. Sprinkler layout will be designed on two separate areas: (i) the area designated for automotive repair will be based on Ordinary II hazard classification per NFPA 13 – 5.3.2 (design density 0.20 gpm/SF, maximum coverage per head 130 SF)(ii) the area designated as R.O.T.C. on the basis of a light hazard classification (design density of 0.10gpm/SF, with maximum coverage per sprinkler 225 SF) and in specific rooms (storage and mechanical rooms) where required, will be designed on the basis of Ordinary I hazard classification (design density of 0.15 gpm/SF, with maximum coverage per sprinkler 130 SF). System will have a control valve with tamper switch, flow switch, inspector’s test and drain assembly and connected to the main supply through an alarm check valve and main control valve. The alarm check valve
shall be installed with mechanical trim to activate a water powered motor gong installed on the exterior of the building in close proximity to the point of supply. A fire department connection with 2 No. 2 ½” inlets with protective caps and chains shall be provided and connected to the system piping downstream of the alarm check valve via a check valve. A main drain will be provided connecting the system drain, the water motor gong drain and the alarm check valve test and drain ports and piped to outside the building. This system will be supplied from a proposed 4” underground fire line connected to an existing 6” fire line on the west side of the building.

T. Building 20

1. Existing Conditions per Deficiency List:
   a. Install fire sprinklers – 1,040 SF

2. Observed Field Conditions:
   a. Walkthrough of Building 20 during December 2016 and January 2017 it was discovered the building is approximately 46,000 SF and no sprinkler protection is provided. The deficiency listing indicates a scope of 1,040 SF to provide sprinkler protection, however there is no corresponding Deficiency Detail to identify the location of the 1,040 SF of sprinkler protection to be provided.

3. Proposed Improvements:
   a. We propose to install new sprinklers supplied by one system. Sprinkler layout will be designed on the basis of the hazard classification per NFPA 13 – Chapter 5, upon clarification of the scope. System will have flow switch, inspector’s test and drain assembly and connected to the main supply through an alarm check valve and main control valve with tamper switch. The alarm check valve shall be installed with mechanical trim to activate a water powered motor gong installed on the exterior of the building in close proximity to the point of supply. A fire department connection with 2 No. 2 ½” inlets with protective caps and chains shall be provided and connected to the system piping downstream of the alarm check valve via a check valve. A main drain will be provided connecting the system drain, the water motor gong drain and the alarm check valve test and drain ports and piped to outside the building. This system will be supplied from a proposed 4” underground fire line extending approximately forty feet and connecting to an existing fire line on the east side of the building.
MECHANICAL (HVAC) NARRATIVE

For the purpose of establishing the load requirements for the air handling units to be replaced in the Stranahan Senior High School GOB Renovation Project, the Trane Company “Trace 700 Load” computer program has been used to perform the Heat Gain / Heat Loss calculations for each unit.

The following values shall be utilized to perform the Heat Gain / Heat Loss calculations for this project:

**Design Conditions**
The design conditions used for calculations and equipment selections are as listed below:

- **Summer Design Parameters:**
  - Outdoor: 91°F DB, 78°F WB
  - Indoor: 75°F / 50% RH

- **Winter Design Parameters:**
  - Outdoor: 47°F DB
  - Indoor: 68°F

Heating capacities are not reduced for lights or people.

- **Summer Clearness:** 0.90
- **Winter Clearness:** 0.90
- **Outdoor Air:** ASHRAE Standard 62.1-2010
- **People Load:** 250 BTUH sensible and 200 BTUH Latent
- **Classroom Density:** 25 Students plus 1 Teacher

**Assumptions:**
- **Lighting:** 2 Watts per Sq. Ft.
- **Existing Wall:** 0.338 Btu/h*ft² 0F
- **Existing Roof:** 0.088 Btu/h*ft² 0F
- **Existing Partition:** 0.319 Btu/h*ft² 0F
- **Existing Window:** 0.95 Btu/h*ft² 0F

0.95 Shading Coefficient

The specific improvements related to the HVAC systems are as follows:

**Chilled Water System**
The new sections of chilled water piping required to connect to the new units shall be Schedule 40, seamless black steel, with FOAMGLASS insulation and aluminum jacket where the system is exposed to the elements.
Airside Systems
All new air handling units for this facility shall be of the double wall modular construction, central station units with solid inner liner. The central station air handling units shall be provided with chilled water coils, variable frequency drives (VFD), blower section, filter section, cooling coils, mixed air plenum section and motor operated modulating dampers in the return and outside air intakes. The new units shall be of the variable air volume type with terminal VAV boxes or of the single zone VAV type.

All new supply air ducts required shall be galvanized sheet metal, with external duct wrap insulation.

Variable air volume (VAV) boxes shall be of the pressure independent type with electronic actuators, thermostats, and electric heaters.

Controls
A complete electric/electronic Direct Digital Control system as manufactured by TAC-Andover Controls “Continuum” or Johnson Controls “Metasys” shall be provided for each building. The design shall be provide remote control and monitoring for all pumps, air handling units, supply and exhaust fans. In addition the new DDC system shall be interface to the school based TAC-Andover Energy Management/Security (EM/S) System.

A. Building 1 (42,345 SF)

1. Existing Conditions per Deficiency List:
   a. Replace fifty (50) existing HVAC terminal units.
   b. Replace two (2) existing exterior condensing unit at three (3) tons cooling capacity each.
   c. Replace existing obsolete non-operational controls with new direct digital controls.
   d. Replace two (2) existing 10,000 CFM chilled water air handling units.
   e. Replace one (1) existing 30,000 CFM chilled water air handling unit.
   f. Replace one (1) existing 5,000 CFM chilled water air handling unit.
   g. Replace five (5) existing electric duct heater Requires Replacement.

2. Observed Field Conditions:
   a. Chilled water for this facility is provided by a central chiller plant (Building 8) consisting of two (2) water cooled chillers, two (2) cooling towers, two (2) chilled water supply pumps, and two (2) condenser water pumps.
   b. Walkthrough of Building 1 during December 2016 and January 2017, confirmed that this building is served by three (3) chilled water air handling units instead of four (4) units as indicated in the Deficiency List above.
c. The first floor has two chilled water, multizone, constant volume, floor mounted air handling units located in separate mechanical rooms, AHU-1 (14,000 CFM) in Mechanical Room 01-42 and AHU-2 (10,850 CFM) in Mechanical Room 01-04. AHU-1 has four (4) distinct zones and three (3) zones are provided with an electric duct heater. The mechanical room is used as a mixed air plenum where the outside and return air volumes are dumped, not directly ducted to the unit.

d. AHU-2 has three (3) distinct zones and two (2) zones are provided with an electric duct heater. The mechanical room is used as a mixed air plenum where the outside and return air volumes are dumped, not directly ducted to the unit.

e. The second floor has one chilled water, variable air volume, floor mounted air handling unit located in a mechanical room AHU-4 (29,300 CFM) with one (1) electric duct heater for all the zones. This unit AHU-4 has twenty two (22) VAV boxes downstream of the mechanical room and not fifty (50) as indicated in the Deficiency List above. VAV boxes serving the South portion of the building are dedicated to one classroom each, while the boxes on the North portion serve a classroom and the center circulation area each.

f. It appears that the fourth air handler listed in the Deficiency List as a 5,000 CFM unit is actually a roof mounted chilled water air handler serving the Auditorium Lobby and also listed under Building 2 deficiencies. Aside from the Auditorium roof mounted unit there is no other unit in this building.

g. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:

a. We propose to replace the two multizone units AHU-1 and 2 with variable air volume air handling units. These units shall be provided with, outside air supply fan, stacked dehumidification units, and low pressure VAV boxes with electric heat in each individual zone. This design will allow for individual control of each zone and will energize only the electric heat for one zone at a time.

b. We propose to replace AHU-4 with a variable air volume air handling units. These units shall be provided with, outside air supply fan, stacked dehumidification units, and low pressure VAV boxes with electric heat in each VAV box. This design will allow for individual control of each zone and will energize only the electric heat for one zone at a time.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.
B. **Building 2 – Auditorium (15,252 SF)**

1. **Existing Conditions per Deficiency List:**

   a. *Replace one (1) existing air cooled condenser at eighty (80) tons cooling capacity.*
   b. *Replace one (1) existing air cooled condenser at twelve (12) tons cooling capacity.*
   c. *Complete HVAC system wide replacement 1,000 SF.*
   d. *Replace existing obsolete non-operational controls with new direct digital controls.*
   e. *Replace one (1) existing air handler unit at thirty thousand (30,000) CFM.*
   f. *Replace two (2) existing air handler units at five thousand (5,000) CFM each.*
   g. *Replace one (1) existing roof mounted air handling unit at twenty (20) tons cooling capacity.*
   h. *Replace one (1) existing air cooled condenser.*

2. **Observed Field Conditions:**

   a. Walkthrough of Building 2 during December 2016 and January 2017, confirmed that there is only one (1) air cooled condenser at eighty tons of cooling capacity at this building instead of the three (3) mentioned in the Deficiency List above.

   b. There original design for this facility included a water cooled refrigerant system, a cooling tower, and four air handling units connected to the system. The four units consisted a an 80 ton air handler for the seating area of the Auditorium, two (2) units located at high at the sides of the stage at ten (10) tons each, and one (1) unit above the ceiling of Building 3 at twenty (20) tons serving the Choral and Music areas.

   c. This system was changed at some point in time. The 80 ton air handler was connected to an 80 ton condenser that was located in the same location where the cooling tower was. The two (2) units serving the stage were disconnected from any refrigeration system, and the twenty (20) system in Building 3 was replaced by a packaged rooftop unit.

   d. The roof air handler mentioned in the Deficiency List is a constant volume, chilled water coil, roof mounted air handling unit, providing conditioned air to the Auditorium Lobby.

      All of these units have exceeded their expected useful lifetime and need to be replaced.

   e. There is no other outdoor air handler at this facility.

   f. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. **Proposed Improvements:**

   a. Deficiency List calls for the complete HVAC system wide replacement for 1,000 SF. The Deficiency Detail indicates that this scope of work consists of adding air conditioning to
Restrooms and Stairwell Areas. It is not clear to what Restrooms and Stairwells the Deficiency Detail refers to. Clarification as to what areas are to receive additional air conditioning is required from SBBC in order to proceed. For this Schematic Design we will carry the SBBC budget amount for this task.

b. We propose to replace the existing condenser system with a one hundred (100) ton of cooling capacity packaged air cooled chiller, complete with dual pumps and expansion tank. This air cooled chiller is to be mounted in the same location where the 80 ton condenser is located. We also propose to replace the existing 80 ton direct expansion air handling unit and the two (2) 10 ton direct expansion units with new single zone VAV units with chilled water coils.

As an alternate to this solution, the new proposed chiller could be selected with a capacity of one hundred and twenty (120) tons and include the new unit that serves Building 3 in this chilled water system.

We request that SBBC reviews and provide a decision on how to proceed, with a 100 or a 120 ton chilled water system.

c. The existing roof mounted air handling unit serving the Auditorium Lobby, shall be replaced with a new single zone VAV chilled water roof mounted unit.

d. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

C. Building 3 – Music

1. Existing Conditions per Deficiency List:

   a. Replace existing DX fan coil unit at fifteen (15) tons cooling capacity.
   b. Replace one (1) existing packaged rooftop unit at five (5) tons cooling capacity.
   c. Replace existing infrared gas radiant heater.
   d. Replace one (1) existing fifteen (15) ton packaged rooftop unit.

2. Observed Field Conditions:

   a. Walkthrough of Building 3 during December 2016 and January 2017, confirmed that the following equipment is existing in this facility: DX fan coil unit, five (5) ton packaged rooftop unit, and infrared gas radiant heaters.

   b. There is an existing RHEEM twenty (20) tons of cooling capacity packaged rooftop unit. This unit shows many signs of deterioration and needs to be replaced.
3. Proposed Improvements:
   a. We propose to replace the existing packaged rooftop unit with a new packaged rooftop unit with electric duct heaters strategically located to control different portions of the building. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.
   b. As indicated above in Building 2 proposed improvements, a roof mounted air handling unit connected to a new 120 air cooled chiller is an alternative to the self-contained packaged rooftop unit.

D. Building 4 – Library (17,600 SF)

1. Existing Conditions per Deficiency List:
   a. The HVAC Terminal Device Requires Replacement.
   b. Complete HVAC System Wide Replacement.
   c. Replace eight (8) existing chilled water fan coil units.
   d. Replace existing obsolete non-operational controls with new direct digital controls.
   e. Replace two (2) existing chilled water air handling units.
   f. Replace one (1) existing chilled water air handling unit.
   g. Replace existing infrared gas radiant heater

2. Observed Field Conditions:
   a. Walkthrough of Building 4 during December 2016 and January 2017, confirmed that there are no Terminal Devices in this Building.
   b. The fan coil units are of the horizontal exposed type unit ventilators. These unit are provided with chilled water and outside air ducted to a space close behind the unit, but not connected to the units.
   c. The two (2) air handlers in this building are exposed horizontal units very similar to the fan coil units, with chilled water coils and outside air in the vicinity of the return intake.
   d. The larger air handling unit is a floor mounted constant volume unit installed circa 1986. This unit is now thirty years old and needs to be replaced.
   e. The existing pneumatic control system for this building is inadequate and needs to be replaced.
   f. There are no existing infrared gas radiant heaters in this building.
3. Proposed Improvements:

a. Complete HVAC System Wide Replacement. Deficiency Detail indicates that this scope of work consists of adding air conditioning to bathrooms (178 SF). The bathrooms in Building 4 are small individual bathrooms with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally an undercut or a door grille is provided so that the exhaust fan draws conditioned air through the bathroom. For this Schematic Design we will carry the SBBC budget amount for this task.

A decision from SBBC as to how to proceed is required.

b. We propose to replace the fan coil units (unit ventilators) and small horizontal suspended air handling units with units of the same type. Outside air shall be ducted to each unit and an electric heater shall be included in each system.

c. Air Conditioning or door grilles, door undercuts and/or transfer ductwork shall be specified for each bathroom in this facility, as decided by SBBC.

d. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

e. Heat Load/Heat Gain calculations shall be performed to select the new systems for this building.

f. We do not have any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task

E. Building 5 – Classroom (21,348 SF)

1. Existing Conditions per Deficiency List:

   a. Replace twenty (20) existing HVAC terminal units.
   b. Complete HVAC System Wide Replacement.
   c. Replace existing obsolete non-operational controls with new direct digital controls.
   d. Replace large HVAC circulating pump.
   e. The Air Handler HVAC Component Requires Replacement.
   f. The Air Handler HVAC Component Requires Replacement.
   g. Replace existing infrared gas radiant heater

2. Observed Field Conditions:

   a. Walkthrough of Building 5 during December 2016 and January 2017, confirmed that this building is provided with chilled water from the central chiller plant. The air conditioning system for this building consists of one (1) not two (2) floor mounted central station VAV
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Wolfberg Alvarez and Partners
February 15, 2017

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Stranahan High School
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air handling unit providing 28,630 CFM. Air is distributed through sheet metal ductwork to eighteen (18) not twenty (20) VAV boxes each serving a classroom via a sidewall grille. Return air is ducted from the classrooms to the mechanical room. The mechanical room however, is used as a plenum space to mix the return and outside air.

b. There is a large circulating pump in the room adjacent to the air handling room. This pump appears to have been associated with a boiler providing heating hot water for the hot water unit heaters located in each classroom. According to the school personnel, the heating hot water system has not been operational for years. In addition there is a deficiency listed to replace “existing infrared gas radiant heaters” which do not exist either, it is assumed that the non-operational hot water unit heaters are to be replaced.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:

a. Complete HVAC System Wide Replacement. Deficiency Detail indicates that this scope of work consists of adding air conditioning to bathrooms (1,094 SF). The bathrooms in Building 5 are large bathrooms with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally conditioned air is transferred from the circulation area to the bathrooms for exhaust. For this Schematic Design we will carry the SBBC budget amount for this task.

A decision from SBBC as to how to proceed is required.

b. We propose to replace the existing air handling unit with a new VAV air handler, with a main chilled water coil, a stacked dehumidification unit (SDU) dedicated to the outside air, filter section, access section, and a return plenum whenever the existing mechanical room size is sufficient.

c. The existing eighteen (18) terminal devices shall be replaced with electric/electronic VAV boxes including electric heaters. This design will allow for individual control of each zone served by the VAV box and will energize only the electric heater required for that individual zone.

d. All occupied spaces in this building are provided with air conditioning. Further clarification is required as to what areas the deficiency listed as “Complete HVAC system Wide Replacement” refers to. We are carrying the SBBC Budget amount for this item pending clarification of what is needed.

e. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.
f. We do not have any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.

F. Building 6 – Classroom (20,658 SF)

1. Existing Conditions per Deficiency List:
   a. The HVAC Terminal Device Requires Replacement.
   b. Controls Require Repair.
   c. The Air Handler HVAC Component Requires Replacement.
   d. Controls are Inadequate and Should be Replaced with DDC Controls.
   e. The Air Handler HVAC Component Requires Replacement.
   f. The Infrared Gas Radiant Heater Requires Replacement.

2. Observed Field Conditions:
   a. Walkthrough of Building 6 during December 2016 and January 2017, confirmed that this building is provided with chilled water from the central chiller plant. The air conditioning system for this building consists of one (1) not two (2) floor mounted central station VAV air handling unit providing 23,350 CFM. Air is distributed through sheet metal ductwork to twelve (12) VAV boxes each serving a classroom via a sidewall grille. Return air is ducted from the classrooms to the mechanical room. The mechanical room however, is used as a plenum space to mix the return and outside air.

   b. The Deficiency List indicates that the “existing infrared gas radiant heaters” are to be replaced. The infrared gas radiant heaters do not exist either, what exists in this facility are hot water unit heaters that are not operational, it is assumed that the non-operational hot water unit heaters are to be replaced.

   c. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:
   a. We propose to replace the existing air handling unit with a new VAV air handler, with a main chilled water coil, a stacked dehumidification unit (SDU) dedicated to the outside air, filter section, access section, and a return plenum whenever the existing mechanical room size is sufficient.

   b. The existing twelve (12) terminal devices shall be replaced with electric/electronic VAV boxes including electric heaters. This design will allow for individual control of each zone served by the VAV box and will energize only the electric heater required for that individual zone.
c. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

d. We do not have any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.

G. **Building 7 – Classroom (17,902 SF)**

1. Existing Conditions per Deficiency List:
   
   a. The HVAC Terminal Device Requires Replacement.
   b. The HVAC Terminal Device Requires Replacement.
   c. Complete HVAC System Wide Replacement.
   d. Controls Require Repair.
   e. The Air Handler HVAC Component Requires Replacement.
   f. Controls are Inadequate and Should be Replaced with DDC Controls.
   g. The Air Handler HVAC Component Requires Replacement.
   h. The Infrared Gas Radiant Heater Requires Replacement

2. Observed Field Conditions:

   a. Walkthrough of Building 7 during December 2016 and January 2017, confirmed that this building is provided with chilled water from the central chiller plant. The air conditioning system for this building consists of one (1) not two (2) floor mounted central station VAV air handling unit providing 23,160 CFM. Air is distributed through sheet metal ductwork to fifteen (15) not thirty three (33) VAV boxes each serving a classroom via a sidewall grille. Return air is ducted from the classrooms to the mechanical room. The mechanical room however, is used as a plenum space to mix the return and outside air.

   b. The Deficiency List indicates that the “existing infrared gas radiant heaters” are to be replaced. The infrared gas radiant heaters do not exist either, what exists in this facility are hot water unit heaters that are not operational, it is assumed that the non-operational hot water unit heaters are to be replaced.

   c. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:

   a. Complete HVAC System Wide Replacement. Deficiency Detail indicates that this scope of work consists of adding air conditioning to bathrooms (578 SF). The bathrooms in Building 7 are large bathrooms with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally conditioned air is
transferred from the circulation area to the bathrooms for exhaust. For this Schematic Design we will carry the SBBC budget amount for this task.

A decision from SBBC as to how to proceed is required.

b. We propose to replace the existing air handling unit with a new VAV air handler, with a main chilled water coil, a stacked dehumidification unit (SDU) dedicated to the outside air, filter section, access section, and a return plenum whenever the existing mechanical room size is sufficient.

c. The existing fifteen (15) terminal devices shall be replaced with electric/electronic VAV boxes including electric heaters. This design will allow for individual control of each zone served by the VAV box and will energize only the electric heater required for that individual zone.

d. All occupied spaces in this building are provided with air conditioning. Further clarification is required as to what areas the deficiency listed as “Complete HVAC system Wide Replacement” refers to. We are carrying the SBBC Budget amount for this item pending clarification of what is needed.

e. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

f. We do not have any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.

H. Building 8 – Building Support (2,145 SF)

1. Existing Conditions per Deficiency List:

   a. *The Chiller HVAC Component is Damaged and Requires Replacement.*
   b. *The Exterior Metal Cooling Tower is Damages and Requires Replacement.*
   c. *Controls are Inadequate and Should be Replaced with DDC Controls*

2. Observed Field Conditions:

   a. Walkthrough of Building 8 during December 2016 and January 2017, confirmed that there are two chillers at this facility one is McQuay (now Daikin) with a nominal cooling capacity of 350 tons of refrigeration and the other is a Trane with a nominal cooling capacity of 350 tons of refrigeration. Both chillers were operational at the time of the site visit. We have obtained information from Daikin indicating that the original project consisted of two (2) 350 tons chillers piped in series, cooling 1680 GPM of water from 54 to 49 in the lead chiller and 49 to 44 in the second chiller. These chillers were apparently
installed in October 1997 as a replacement of the original chillers. Information obtained from the Trane Company indicates that their chiller was installed in 2004. This 350 ton Trane chiller was selected to operate at 760 GPM with a delta temperature from 56 to 45 degrees Fahrenheit. It appears that at that time the McQuay chiller must have been retrofitted to operate at approximately 840 GPM and temperature of 54 to 44 degrees Fahrenheit.

Based on the information above, the chiller that should be replaced is the McQuay chiller which is already 20 years old and have had some sort of retrofit, versus the Trane chiller which is only 13 years old and is operating as purchased.

We need clarification on which chiller to replace.

b. There are two (2) EVAPCO cooling towers at this facility. The Deficiency List indicates that one (1) of these towers is to be replaced. At the time of the site visit both towers were fully operational, and both towers show the same type of deterioration. We need clarification on which cooling tower to replace, or if the Deficiency List intended to refer to these towers as a single tower with two (2) cells.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:

a. We propose to replace one chiller with a new 350 tons centrifugal chiller using HFC-410A as required by the Deficiency List.

b. We do not have a clear definition of what to replace as far as the cooling tower is concerned. We are carrying the SBBC Budget amount for this item pending clarification from SBBC as to what is to be replace.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

I. Building 9

1. Existing Conditions per Deficiency List:

a. Complete HVAC System Wide Replacement.

b. Controls Require Repair.

c. Controls are Inadequate and Should be Replaced with DDC Controls.

d. The Air Handler HVAC Component Requires Replacement.

e. The Fan Coil (Chilled Water) HVAC Component Requires Replacement.

f. The Window AC Unit Component Requires Replacement.
2. Observed Field Conditions:

   a. Walkthrough of Building 9 during December 2016 and January 2017, confirmed that this building is served by two (2) chilled water air handling units. Existing unit AHU-9 is a constant volume system suspended from the structure above and provides air conditioning to three (3) Storage Rooms, a Teachers Planning Room, and the ROTC area formerly Drafting and an Electronics Lab Classroom. Existing unit AHU-11 is a floor mounted constant volume system separated from the classroom area by a low partition and it provides air conditioning to the automotive classroom area. Both of these air handlers are showing sign of deterioration and rust and shall be replaced.

   b. The third unit is a horizontal chilled water air handler serving the ROTC uniform storage area. The ROTC instructor has requested that a mini split system be added to this room to keep the uniforms and shoes from mold and mildew whenever the chiller plant is not operational. The same request was made for the small room containing the armory where the equipment in there rusts whenever the chilled water system is nonoperational.

   c. There is one old window AC unit serving room 306B. This unit is mounted on a section of plywood that will also need to be removed and the wall infill.

   d. Controls for the two (2) chilled water systems are non-operational and will be replaced.

3. Proposed Improvements:

   a. Complete HVAC System Wide Replacement. Deficiency Detail indicates that this scope of work consists of adding air conditioning to bathrooms (350 SF). There are multiple bathrooms in Building 9 with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally conditioned air is transferred from the circulation and/or adjacent areas to the bathrooms for exhaust. For this Schematic Design we will carry the SBBC budget amount for this task.

      A decision from SBBC as to how to proceed is required.

   b. The space available for the replacement of the two (2) chilled water systems is very limited.

   c. The replacement of the units serving these areas will need to be of the same type as the existing, without any additional sections as required by the SBBC Design Criteria. Any attempt to introduce a stacked dehumidification unit, face and by-pass section, and mixed air plenums shall result in infringing into the classroom area of the Automotive Classroom or lowering the ceiling in the Darkroom area or making a room available to introduce a floor mounted unit.

      A decision from SBBC as to how to proceed is required.
d. The window AC unit shall be replaced and the wall opening shall be infilled with new structural partition.

e. The decision of whether or not to provide the two (2) requested supplemental ductless split systems is to be provided by SBBC.

f. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

J. Building 10 – Physical Education Building

1. Existing Conditions per Deficiency List:

   a. Complete HVAC System Wide Replacement.

2. Observed Field Conditions:

   a. Walkthrough of Building 10 during December 2016 and January 2017, confirmed that the Physical Education Building consists of three (3) classrooms. Each room is served with a chilled water constant volume air handling unit suspended from the structure above. Two (2) of the rooms have an acoustical tile ceiling with the air conditioning duct running above the ceiling and the third room has the ductwork exposed in the space and there is no ceiling.

   b. Outside air is brought into these rooms via a wall intake louver and a section of ductwork terminating close to the return air filters but not connected to the unit. These outside air ducts have a motor operated damper installed.

   c. All three (3) units are Trane Modular units and appear to be in fairly good condition.

3. Proposed Improvements:

   a. As required by the Deficiency List all three (3) systems shall be completely replaced, including the chilled water valves, gages, thermometers, the air distribution ductwork, air distribution devices and the outside air ducts with new motor operated dampers. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

K. Building 12 – Cafeteria

1. Existing Conditions per Deficiency List:

   a. Complete HVAC System Installation for Non-Air Conditioned Facility.

   b. Controls Require Repair.

   c. Outdoor Air Handler HVAC Component Requires Replacement.

   d. The Roof Air Handler/Exhaust is Damaged and Requires Replacement.
e. Controls are Inadequate and Should be Replaced with DDC Controls.

f. The Air Handler HVAC Component Requires Replacement.

2. Observed Field Conditions:

a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that the existing kitchen area is not air conditioned. WA was informed that the Baker Storage area is to be vacated and that there are no plans to use that room. This is a perfect location to install a new air handling unit with its own condensing unit directly outside.

b. There are two (2) chilled water roof mounted air handling units of the constant volume type providing conditioned air to the dining areas. These units are old, show signs of deterioration and shall be replaced.

c. The third air handler mentioned in the Deficiency List was not found.

d. Controls are obsolete and shall be replaced with DDC Controls.

3. Proposed Improvements:

a. We propose to provide a new split DX system to air condition the Kitchen space. The reason that a split DX system has been selected is that the spare capacity if any at the chiller plant is unknown. Also the hours of operation of the kitchen do not merit the addition of any cooling capacity at the chiller plant as well as the increase in existing chilled water pipe sizes and pumping capacity.

b. The existing chilled water roof mounted air handlers shall be replace with new single zone VAV air handlers

c. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

1. Building 13 – Swimming Pool Locker Rooms

1. Existing Conditions per Deficiency List:

a. The Window AC Unit Component Requires Replacement.

2. Observed Field Conditions:

a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that there are two (2) window AC units at this facility. These units are old deteriorated and shall be replaced.

3. Proposed Improvements:

a. We propose to replace the two (2) window AC units with new window AC units.
M. Building 14 – Gymnasium Lockers

1. Existing Conditions per Deficiency List:
   a. Complete HVAC System Wide Replacement.

2. Observed Field Conditions:
   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that the two (2) HVAC systems at this facility are two (2) roof mounted heating and ventilating units and roof mounted exhaust fans. Distribution ductwork for the heating and ventilating units are running exposed on the roof.

3. Proposed Improvements:
   a. We propose to provide a new split DX system to air condition the Gym Locker Area. The reason that a split DX system has been selected is that the spare capacity if any at the chiller plant is unknown. Also any cooling capacity addition at the chiller plant will result in an increase of existing chilled water piping as well as the increase in pumping capacity.

   b. A storage area has been selected as the location for the new constant air volume air handler with the condensing unit at grade outside. Ductwork shall be routed exposed within the locker area with side wall type air distribution devices.

   c. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

N. Building 15 – Gymnasium

1. Existing Conditions per Deficiency List:
   a. Controls Require Repair.
   b. The Air Handler HVAC Component Requires Replacement.
   c. Controls are Inadequate and Should be Replaced with DDC Controls.
   d. The Air Handler HVAC Component Requires Replacement.
   e. The Window AC Unit Component Requires Replacement.

2. Observed Field Conditions:
   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that the two (2) HVAC air handlers at this facility are two (2) horizontal draw through constant volume chilled water units suspended from the structure above high over the bleachers area. Distribution ductwork for these units are routed exposed on the space, there is no ceiling in the Gym. These units shall be replaced.
b. The Athletic Director Office is cooled by a window AC unit. The window unit shall be replaced.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced.

3. Proposed Improvements:

a. The Athletic Director window AC unit shall be replace with a new unit.

b. The two existing air handling units shall be replaced with new chilled water draw through single zone VAV air handlers, suspended at the same location as the existing units.

c. The existing pneumatic control system for this building is inadequate and needs to be replaced. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.

O. Building 16 – Building Support

1. Existing Conditions per Deficiency List:


2. Observed Field Conditions:

   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that there is an existing TELEDYNE LARS gas fired hot water boiler with an output of 1,639,918 BTUH.

   b. It is apparent that this boiler has not been used for a few years, which is the same time that the swimming pool that this boiler serves has been out of commission.

3. Proposed Improvements:

   a. Since the swimming pool is not operational we are looking for a decision from SBBC as to how to proceed. If SBBC wants to replace the boiler, we will replace it with a new gas fired boiler of the same capacity. It is important that the equipment in the swimming pool pump room be inspected and determine if that equipment can be made operational or if it will also need to be replaced.

   b. For this Schematic Design we will carry the SBBC budget amount for this task while SBBC decides what is best to do.
P. **Building 17 – Agriculture Labs**

1. Existing Conditions per Deficiency List:
   a. *The Fan Coil HVAC Component Requires Replacement.*
   b. *The Package Unit HVAC Component Requires Replacement.*

2. Observed Field Conditions:
   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that there is an existing packaged HVAC unit as this facility. This unit is a RHEEM Heat Pump model number RLMA-A060C1 rooftop unit located on grade with front discharge supply and return ductwork into the building. This unit appears to be quite old, rusted, and deteriorated. This unit shall be replace.

   b. There is no existing fan coil unit at this facility. The other half of the building has a ventilation system only consisting of an inline supply fan and distribution ductwork.

3. Proposed Improvements:
   a. The packaged HVAC unit shall be replaced with the same type unit located in the same space and connected to the existing ductwork.

   b. New Direct Digital Controls shall be provided for this system.

Q. **Building 21 – Administration**

1. Existing Conditions per Deficiency List:

2. Observed Field Conditions:
   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that there is an existing seven and a half (7.5) ton Carrier split system air conditioning system. The indoor units is located in a mechanical room with doors to the outside and the condensing unit is located in a cage adjacent to the mechanical room door. The ductwork inside the mechanical room is deteriorated and should also be replaced.

3. Proposed Improvements:
   a. A new split DX system shall be provided for this building shall be provided. New Direct Digital Controls shall also be provided.
R. Building 24

1. Existing Conditions per Deficiency List:
   a. The Fan Coil HVAC Component Requires Replacement.
   b. The Package Unit HVAC Component Requires Replacement.

2. Observed Field Conditions:
   a. This building is already under renovations by another project.

3. Proposed Improvements:
   a. No action required.

S. Building 85

1. Existing Conditions per Deficiency List:
   a. The Package Unit HVAC Component Requires Replacement.

2. Observed Field Conditions:
   a. Walkthrough of Building 12 during December 2016 and January 2017, confirmed that this building is cooled by a Wall Mount BARD unit.
   b. According to the school staff this BARD unit was replaced at the end of the 2016 school year.

3. Proposed Improvements:
   a. No action required.
ELECTRICAL

A. Site

1. Existing Conditions per Deficiency List and Field Observations:

   a. The most extensive scope for the electrical trades in the renovation of Stranahan High School is the brand new campus wide fire alarm system. A walkthrough of the existing system was performed and concluded that the existing system is currently operational, but does not meet the current code requirements as far as operation, number, and location of devices required. Adding all the devices required by current code will overload the existing Fire Alarm Control Panel (FACP). Due to this, a new Fire Alarm Control Panel has to be installed along with the new devices. This leads us to the conclusion that we are in agreement with the assessment of the deficiency list in requiring a complete new fire alarm system for the campus.

   b. Another site wide Deficiency list requires the replacement of all metallic pole lights on site. The existing light fixtures are metal halide and inefficient and we agree with their replacement. The poles on the other hand seem to be structurally and aesthetically in a good shape. However, replacing only the fixtures and reusing the poles is only acceptable in limited situations since the pole and fixtures have to be certified as a complete system to withstand wind loading requirements. This will lead us to replace the poles along with the fixtures.

2. Proposed Improvements and Recommendations:

   a. As mentioned above, WA recommends installing a new fire alarm system for the campus. To that end, we recommend installing standalone systems in each of the buildings and tying all these systems in a Class A loop to the master panel in building 1. This will provide the redundancy, flexibility, and central monitoring of all buildings. Some of the smaller buildings that contain minimal devices, we recommend that they be served from a single panel in an adjacent building. This will provide better value and less maintenance requirements.

   b. For site lighting, we recommend replacing the fixtures with outdoor type energy efficient LED lights; and as mentioned earlier, this will require changing the poles in some cases in order to meet the structural requirements of pole lights.

B. Building 1

1. Existing Conditions per Deficiency List and Field Observations:

   a. The deficiency list requires replacement of switchgear in Building 1. After thorough investigation, the design team concluded that all switchgear on campus is located in Building 8 and this switchgear powers sub distribution panelboards in the rest of the
buildings on campus. Building 1 is no exception and does not have any switchgear as indicated in the deficiency list, however there is a 480V panelboard with a nameplate of 500A that seems to be in a good condition, there is also a 400A 208 panelboard that is also in good condition.

b. In addition to the switchgear, the deficiency list requires the replacement of 150, 15 KVA exterior transformers. This entry seems to be incorrect as far as quantity, description, and budget. There are no 150 exterior transformers for building 1. However, “Exterior transformers” more probably refers to the 3 transformers located in the standalone electrical rooms located between buildings, FISH numbers 26, 27, & 28. Two of these rooms have contain transformers rated at 150KVA and one rated at 112.5KVA.

c. The deficiency list mentions another interior 112.5 KVA transformer in Building 1 that requires replacement. This transformer was found in the main electrical room of Building 1 and seems to be in a good operating condition with minor exterior rusting.

2. Proposed Improvements and Recommendations:

a. Based on the findings described above, no switchgear was found in Building 1 and the main distribution panelboards are in a good condition and therefore, WA does not recommend replacing any of these panelboards.

On the other hand, we believe that the deficiency list reference to the exterior transformers is in fact a reference to the 3 transformers located in the standalone electrical rooms FISH numbers 26, 27, & 28 as mentioned previously. We strongly recommend replacing all 3 of these transformers along will all supporting equipment in the mentioned electrical rooms.

b. Building 1 transformer rated at 112.5 KVA and located in main electrical room was concluded to be in a good operating condition despite the minor exterior rusting. We believe that replacing this transformer at this time will not constitute the best use of resources since we believe this transformer will remain in good service for the foreseeable future.

C. Building 2

1. Existing Conditions per Deficiency List and Field Observations:

a. In Building 2, the deficiency list identifies panelboards that require replacement. After the walkthrough, it was determined that the quantity and ratings listed are not accurate; but the condition of the branch circuit panels is in a bad shape. A lot of these panelboards are original to the building and manufactured by companies that are no longer in business or no longer produce panelboards similar to Federal Pacific & Frank Adam.
2. Proposed Improvements and Recommendations:
   a. Based on the condition of the branch circuit panelboards in Building 2, we strongly agree with the findings of the deficiency report and we recommend replacing all these panels with panelboards manufactured by a single manufacturer. Our design will identify the panels requiring replacement and reconnect all feeder and branch circuits.

D. Building 8

1. Existing Conditions per Deficiency List and Field Observations:
   a. Building 8 is the services building where the electrical service and the mechanical chillers are located. The deficiency list indicates that 3 panelboards and 2 transformers require replacement in Building 8. The design team located and identified the listed equipment and we agree with the recommendations of the list that this equipment requires replacement.

2. Proposed Improvements and Recommendations:
   a. Building 8 mechanical room contains the transformers and panels that are listed in the deficiency list and that are in a bad condition. We recommend replacing this equipment with NEMA 12 equipment to withstand the harsher conditions in the room.

E. Building 10

1. Existing Conditions per Deficiency List and Field Observations:
   a. Building 10 is the Physical Education Building and the deficiency list mentions replacing panelboards and transformers in this building too. The quantity listed is inaccurate, but the equipment mentioned is in bad repair and requires replacement.

2. Proposed Improvements and Recommendations:
   a. Even though the quantity of equipment in listed Building 10 is inaccurate, we recommend replacing some of the panelboards, exterior transformer and exterior panelboards. The same strategy will be used for the replacement with keeping the same ratings and rewiring all existing feeder and branch circuits.

F. Building 12

1. Existing Conditions per Deficiency List and Field Observations:
   a. The Cafeteria is housed in Building 12 and the deficiency list mentions that there is an issue with circuit capacity. The design team questioned the PPO and Cafeteria Staff and came to the conclusion that this issue came about when the gas powered kitchen
equipment was being replaced with electrical powered equipment, but this issue has since been resolved.

b. In addition to the circuit capacity, the list indicates that a panelboard requires replacement. Investigation concluded that one of the panelboards has some exterior rusting but is in good functional condition.

2. Proposed Improvements and Recommendations:

a. The circuit capacity issues experienced in Building 12 are not currently an issue and WA does not recommend any action regarding this item. We also do not recommend replacing the mentioned panelboard because the rusting is minimal and there are no functional problems. We believe this panelboard can remain in service for the foreseeable future.

G. Building 15

1. Existing Conditions per Deficiency List and Field Observations:

a. The Gymnasium is another building listed in the deficiency list to have insufficient circuit capacity issues. Based on PPO information, the breaker for the AHU trips when the filter has not been changed for a long time due to overloading. WA considers the breaker tripping as a proper and safe operation since it prevents overheating the circuit and causing fires. AHU filters have to be replaced at their scheduled times to avoid breaker tripping.

b. Another item listed for Building 15 are the transformers. After the walkthrough, it was concluded that the existing transformers are not in the best condition and that we agree with the assessment of the deficiency list to replace them.

2. Proposed Improvements and Recommendations:

a. The Gymnasium is another building listed in the deficiency list to have insufficient circuit capacity issues. Based on PPO information, the breaker for the AHU trips when the filter has not been changed for a long time due to overloading. WA considers the breaker tripping as a proper and safe operation since it prevents overheating the circuit and causing fires. AHU filters have to be replaced at their scheduled times to avoid breaker tripping.

b. Another item listed for Building 15 are the transformers. After the walkthrough, it was concluded that the existing transformers are not in the best condition and that we agree with the assessment of the deficiency list to replace them.
H. Incidental Electrical Work

In addition to the direct electrical scope listed in the deficiency list, the electrical scope is affected by the scope of other trades. The detailed effects of every item scope will not be listed, but can be inferred from the detailed scopes of the other trades. The following is a summary of the effects of the scope of the other trades on the electrical scope.

1. Replacement of HVAC equipment including roof top units, duct heaters, vav units, and exhaust fans require disconnecting and reconnecting power, providing new disconnect switches and starters, and installing new fire alarm duct detectors. In addition to the replacement of the equipment, the control panels of the equipment will require new power requirements.

2. Renovation of roofs will require the modification of electrical raceways installed on roof, specifically raising the raceways to meet the 18” minimum clearance above the roofs.

3. Installing a fire sprinkler system requires connection to the fire alarm system to monitor the flow and tamper switches on the new sprinkler risers.

4. Architectural renovations including restroom renovations require lighting, power, and fire alarm modifications.

I. Additional Observations

1. Building 1

Although no switchgear was found in Building 1, we do recommend replacing the branch circuit panelboards distributed in corridors on first and second floor due to the bad condition they are in. These panelboards are mostly from the original building and the manufacturers of these panels are mostly not in business anymore. The technicians have patched the panels and included parts and pieces from other manufacturers to make them operational, but the result is not ideal and we strongly recommend replacing them.

2. Building 2

The transformer in Building 1 was found to be in a good condition, but on the other hand, our investigation found a similar transformer in Building 2 that is in a bad condition with extensive humming and advanced rusting. We recommend replacing the Building 2 transformer.

3. Buildings 5, 6, & 7

We recommend replacing the branch circuit panelboards distributed in corridors due to the grave condition they are in. These panelboards have been patched for many years and their current condition is not sustainable.
4. Building 9

We recommend replacing the panelboards in Building 9 due to their age and due to the fact that they are manufactured by companies that have been discontinued and cannot be properly repaired.

5. Building 12

We do not recommend replacing the panel in Building 12, but there is a transformer with extensive rusting in the same room that seems to be a better candidate for replacement. We recommend replacing this transformer in lieu of the panel replacement listed in the deficiency list.

6. Building 13

We recommend replacing this transformer in Building 13 due to the extensive rusting and the deteriorated condition it is in.
SECTION IV
Deficiency Summary Matrix
(includes A/E observations and Estimate of Probable Construction Cost)
SECTION V
Photo Documentation
### Site Level Deficiencies

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Roofing</td>
<td>Aluminum Covered Walkway Requires Replacement</td>
<td>314504</td>
<td>15.451 SF</td>
<td>No aluminum walkway on campus related to item 1 located.</td>
<td></td>
<td>$ 77,100.00</td>
<td>$ -</td>
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<td>2</td>
<td>Roofing</td>
<td>Aluminum Covered Walkway Requires Replacement</td>
<td>314505</td>
<td>5.481 SF</td>
<td>No aluminum walkway on campus related to item 2 located.</td>
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<td>$ 27,350.00</td>
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<td>3</td>
<td>Roofing</td>
<td>Aluminum Covered Walkway Requires Replacement</td>
<td>314506</td>
<td>3,200 SF</td>
<td>Architectural walkway between Buildings 26 &amp; 23, and at rear of Building 23. Walkway(s) appear to be in good condition, and does not require replacement. The manufacturer visited the site and concurred.</td>
<td>003_001</td>
<td>$ 15,968.00</td>
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<td>4</td>
<td>Exterior</td>
<td>Single Point of Entry Needs to be Installed (SEE NOTE BELOW)</td>
<td>215111</td>
<td>1 LS</td>
<td>Currently under permit review per separate accelerated scope. FLCC budget is being included as part A/E estimate pending receipt of Construction Manager @ Risk 100% Construction Document Estimate.</td>
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<td>$ 364,627.00</td>
<td>$ 364,327.00</td>
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<td>5</td>
<td>Electrical</td>
<td>Pole Lighting is Damaged and Should be Replaced</td>
<td>204642</td>
<td>31 EA</td>
<td>We recommend replacing the fixtures with energy efficient LED lights. This might trigger pole replacements due to wind loading.</td>
<td></td>
<td>$ 122,166.00</td>
<td>$ 161,200.00</td>
<td></td>
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<td>6</td>
<td>Fire &amp; Security</td>
<td>Entire Fire Alarm System Needs to be Replaced</td>
<td>220885</td>
<td>1 LS</td>
<td>WA agrees with this assessment.</td>
<td></td>
<td>$ 949,827.00</td>
<td>$ 1,430,000.00</td>
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Subtotal for Site Level Deficiencies $ 1,548,038.00 $ 1,955,527.00

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### Building: 01 - Building 1

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<th>SBBC DEFICIENCY DETAIL</th>
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<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
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<tbody>
<tr>
<td>7</td>
<td>Site</td>
<td>Switchgear is Needed or Requires Replacement</td>
<td>204642</td>
<td>1 EA</td>
<td>800A - 120/208V - Per Deficiency Detail. There is no switchgear in Building 1, however there is a 480V paneboard with a nameplate of 500A that seems to be in good condition, there is also a 400A 208V paneboard that is also in good condition. We do not recommend replacing either one.</td>
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<td>$ 18,864.00</td>
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<td>8</td>
<td>Site</td>
<td>The Exterior Dry Type Transformer Requires Replacement</td>
<td>204591</td>
<td>150 EA</td>
<td>15 KVA Exterior Transformer - 480V Primary / 120/208V Secondary - Per Deficiency Detail - This entry seems to be incorrect as far as quantity, description, and budget. There are no 150 15KVA exterior transformers for building 1. There are no exterior transformers for building 1. &quot;Exterior transformers&quot; might refer to the 3 transformers located in the standalone electrical rooms, FISH numbers 26,27, &amp; 28. 2 of which are rated at 150KVA. We recommend replacing all 3 of them along with all equipment in the mentioned electrical rooms.</td>
<td></td>
<td>$ 641,565.00</td>
<td>$ 195,000.00</td>
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<td>9</td>
<td>Site</td>
<td>The Pole Lighting is Damaged and Should be Replaced</td>
<td>204588</td>
<td>4 EA</td>
<td>20 Foot Metal Poles w/ 1000W High Pressure Sodium (?) Lamps - Per Deficiency Detail. WA recommends replacing with new LED lights.</td>
<td></td>
<td>$ 15,783.00</td>
<td>$ 20,800.00</td>
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<tr>
<td>10</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208085</td>
<td>23,850 SF</td>
<td>Removal of existing roofing system (no exist. Insulation). Repair / infill deck as needed. Add new roof slope. Install new built-up roofing and flashings. 23,850 Ft²</td>
<td>010_001 to 010_005</td>
<td>$ 232,567.00</td>
<td>$ 561,904.00</td>
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<td>UoM</td>
<td>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</td>
<td>PHOTOS</td>
<td>SBBC BUDGET (FLCC)</td>
<td>A/E ESTIMATE</td>
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<tr>
<td>11</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>211981</td>
<td>2,288</td>
<td>SF</td>
<td>Approximately 191 Openings - Per Deficiency Detail. Based on budgeted cost and square footage listed, A/E interprets this line item to be complete replacement of windows on building with new NOA assemblies.</td>
<td>012_001</td>
<td>$265,551.00</td>
<td>$345,600.00</td>
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<tr>
<td>11A</td>
<td>Interior</td>
<td>The HVAC Terminal Device Requires Replacement</td>
<td>204635</td>
<td>50</td>
<td>EA</td>
<td>This unit AHU-4 has twenty two (22) VAV boxes downstream of the mechanical room and not fifty (50) as indicated in the Deficiency List. We propose to replace the pneumatic VAV boxes with electric/electronic low pressure VAV boxes with electric heat.</td>
<td>014_001</td>
<td>$151,943.00</td>
<td>$65,145.00</td>
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<td>12</td>
<td>Mechanical</td>
<td>The Exterior Condenser Requires Replacement</td>
<td>204600</td>
<td>1</td>
<td>EA</td>
<td>New air cooled condensing unit shall be provided</td>
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<td>$2,235.00</td>
<td>$6,640.00</td>
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<td>13</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>206563</td>
<td>42,345</td>
<td>SF</td>
<td>See Item #17, below. Controls should be replaced with DDC Controls</td>
<td>015_001</td>
<td>$154,699.00</td>
<td>$210,380.00</td>
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<td>14</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204633</td>
<td>2</td>
<td>EA</td>
<td>We propose to replace the two multizone units AHU-1 and 2 with variable air volume air handling units. These units shall be provided with, outside air supply fan, stacked dehumidification units.</td>
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<td>$170,411.00</td>
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<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204634</td>
<td>1</td>
<td>EA</td>
<td>We propose to replace AHU-4 with a variable air volume air handling units. These units shall be provided with, outside air supply fan, stacked dehumidification units. Cost of Test and Balance for all new systems is included in this line item</td>
<td>015_001</td>
<td>$154,699.00</td>
<td>$210,380.00</td>
</tr>
<tr>
<td>16</td>
<td>Mechanical,</td>
<td>The Electrical Transformer Requires Replacement</td>
<td>204644</td>
<td>1</td>
<td>EA</td>
<td>112.5 KVA 480 Primary / 120/208 Secondary - Per Deficiency Detail. Transformer is in good operating condition. There is minor exterior rusting but we do not recommend replacing at this time.</td>
<td>017_001</td>
<td>$8,028.00</td>
<td>$ -</td>
</tr>
<tr>
<td>17</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be Replaced with DDC Controls</td>
<td>204631</td>
<td>42,345</td>
<td>SF</td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td></td>
<td>$123,470.00</td>
<td>$ -</td>
</tr>
<tr>
<td>18</td>
<td>Mechanical</td>
<td>Duct Heater Requires Replacement</td>
<td>204636</td>
<td>5</td>
<td>EA</td>
<td>Electric duct heaters mounted downstream of the new VAV boxes</td>
<td>018_001, 018_002</td>
<td>$20,081.00</td>
<td>$101,790.00</td>
</tr>
<tr>
<td>19</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204601</td>
<td>3</td>
<td>EA</td>
<td>This appears to be the roof mounted Auditorium Lobby unit</td>
<td></td>
<td>$129,923.00</td>
<td>$ -</td>
</tr>
<tr>
<td>20</td>
<td>Mechanical</td>
<td>The Exterior Condensing Unit Requires Replacement</td>
<td>204632</td>
<td>1</td>
<td>EA</td>
<td>New air cooled condensing unit shall be provided</td>
<td>012_001</td>
<td>$5,010.00</td>
<td>$6,640.00</td>
</tr>
<tr>
<td>21</td>
<td>Electrical</td>
<td>The Electrical Disconnect Requires Replacement</td>
<td>211010</td>
<td>1</td>
<td>EA</td>
<td>400 Amps - Per Deficiency Detail</td>
<td></td>
<td>$1,271.00</td>
<td>$2,600.00</td>
</tr>
<tr>
<td>22</td>
<td>Fire &amp; Security</td>
<td>Install Fire Sprinklers</td>
<td>65402</td>
<td>42,345</td>
<td>SF</td>
<td>Complete sprinkler installation (light hazard) for non-protected building including new alarm check valve with water gong; control valves with tamper switches, and flow switches including fire alarm interface. Projected cost includes connection to existing fire line and approximately 65 linear feet of underground supply piping to serve Building 01.</td>
<td></td>
<td>$284,011.00</td>
<td>$242,550.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 01 Deficiencies: $2,154,865.00 $2,134,739.00
<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>Unit</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208468</td>
<td>11,029 SF</td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Repair roof deck. Add new roof slope. Install parapet extensions and fall protection railings. Repair roof drains. Install new built-up roofing and flashings. Recommend that upper roofs be existing to remain based on field survey by A/E, Roofing Contractor, and CM.</td>
<td>023_001 to 023_007</td>
<td>$107,537.00</td>
<td>$118,401.00</td>
</tr>
<tr>
<td>24</td>
<td>Mechanical</td>
<td>The Exterior Condenser Requires Replacement</td>
<td>204653</td>
<td>1 EA</td>
<td></td>
<td>We will replace the existing 80 ton condenser system with a one hundred twenty (120) ton of cooling capacity packaged air cooled chiller, complete with dual pumps and expansion tank.</td>
<td>024_001</td>
<td>$3,235.00</td>
<td>$219,025.00</td>
</tr>
<tr>
<td>25</td>
<td>Mechanical</td>
<td>The Exterior Condenser Requires Replacement</td>
<td>204665</td>
<td>1 EA</td>
<td></td>
<td>12 Ton Exterior Air-Cooled - Per Deficiency Detail was not found</td>
<td></td>
<td>$7,236.00</td>
<td>-</td>
</tr>
<tr>
<td>26</td>
<td>Mechanical</td>
<td>Complete HVAC System Wide Replacement</td>
<td>212007</td>
<td>1,000 SF</td>
<td></td>
<td>Add Air Conditioning to Restroom and Stairwell Areas - Per Deficiency Detail. It is not clear to what Restrooms and Stairwells the Deficiency Detail refers to. Clarification as to what areas are to receive additional air conditioning is required from SBBC in order to proceed.</td>
<td></td>
<td>$26,006.00</td>
<td>$26,006.00</td>
</tr>
<tr>
<td>27</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>206561</td>
<td>15,252 SF</td>
<td></td>
<td>See Item #31, below. Controls should be replaced with DDC Controls</td>
<td></td>
<td>$18,853.00</td>
<td>Included in new DDC System</td>
</tr>
<tr>
<td>28</td>
<td>Mechanical</td>
<td>Outdoor Air Handler HVAC Component Requires Replacement</td>
<td>204666</td>
<td>1 EA</td>
<td></td>
<td>Outdoor Air Handler HVAC was not found at this facility</td>
<td></td>
<td>$92,259.00</td>
<td>Unit not found</td>
</tr>
<tr>
<td>29</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204667</td>
<td>1 EA</td>
<td></td>
<td>New 80 ton single zone VAV air handling units with chilled water coil shall be provided. Cost of Test and Balance for all new systems is included in this line item</td>
<td>029_001</td>
<td>$154,699.00</td>
<td>$115,160.00</td>
</tr>
<tr>
<td>30</td>
<td>Mechanical</td>
<td>The Roof Air Handler/Exhaust is Damaged and Requires Replacement</td>
<td>204651</td>
<td>1 Ton AC</td>
<td></td>
<td>New chilled water rooftop unit for auditorium Lobby area.</td>
<td>030_001</td>
<td>$2,235.00</td>
<td>$52,730.00</td>
</tr>
<tr>
<td>31</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>204664</td>
<td>15,252 SF</td>
<td></td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td></td>
<td>$55,640.00</td>
<td>N/A</td>
</tr>
<tr>
<td>32</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204655</td>
<td>2 EA</td>
<td></td>
<td>Two (2) new 10 ton single zone VAV air handling units with chilled water coils shall be provided.</td>
<td></td>
<td>$86,349.00</td>
<td>$135,935.00</td>
</tr>
<tr>
<td>33</td>
<td>Mechanical</td>
<td>The Roof Condenser Requires Replacement</td>
<td>204650</td>
<td>1 Ton AC</td>
<td></td>
<td>80 Ton or 5 Ton (Both Sizes Listed) - Per Deficiency Detail. There were no additional roof condenser found</td>
<td></td>
<td>$1,282.00</td>
<td>N/A</td>
</tr>
<tr>
<td>34</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>204647</td>
<td>1 EA</td>
<td></td>
<td>277/480V - 100Amp 24 Circuits - Per Deficiency Detail - Refer to Item #36, below</td>
<td></td>
<td>$5,957.00</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>204673</td>
<td>6 EA</td>
<td></td>
<td>120/208V - 225Amp 32 Circuits - Per Deficiency Detail - Refer to Item #36, below</td>
<td></td>
<td>$26,308.00</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>204676</td>
<td>6 EA</td>
<td></td>
<td>277/480V - 400Amp 42 Circuits - Per Deficiency Detail. Quantity and ratings listed are not accurate; however, we do recommend replacing all original panelboards since they are in a bad condition. These panelboards are manufactured by companies that are no longer in business or no longer produce panelboards similar to Federal Pacific &amp; Frank Adam</td>
<td></td>
<td>$74,163.00</td>
<td>$31,200.00</td>
</tr>
<tr>
<td>37</td>
<td>Fire &amp; Security</td>
<td>Install Fire Sprinklers</td>
<td>Rollup</td>
<td>6,001 SF</td>
<td></td>
<td>Refer to Item #38, below</td>
<td></td>
<td>$ -</td>
<td>-</td>
</tr>
<tr>
<td>38</td>
<td>Fire &amp; Security</td>
<td>Install Fire Sprinklers</td>
<td>65403</td>
<td>15,252 SF</td>
<td></td>
<td>Complete sprinkler installation (light &amp; ordinary II hazard) for non-protected building including new alarm check valve with water gong; control valve with tamper switch, and flow switch including fire alarm interface. Projected cost includes for the extension of approximately 570 lineal feet of underground supply piping to serve Building 02.</td>
<td></td>
<td>$102,296.00</td>
<td>$245,490.00</td>
</tr>
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</table>

Subtotal for Building 02 Deficiencies $708,415.00 $999,587.00
### Building: 03 - Building 3

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<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFSBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208087</td>
<td>4,800 SF</td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Repair infill deck as needed. Add new roof slope. Install new built-up roofing and flashings. 5,140 Sq. Ft.</td>
<td>039_001</td>
<td>$ 44,856.00</td>
<td>$ 97,811.00</td>
</tr>
<tr>
<td>40</td>
<td>Mechanical</td>
<td>The Fan Coil HVAC Component Requires Replacement</td>
<td>204714</td>
<td>1 EA</td>
<td></td>
<td>15 Ton DX Unit - Per Deficiency Detail. This unit was not found</td>
<td>040_001</td>
<td>$ 8,951.00</td>
<td>N/A</td>
</tr>
<tr>
<td>41</td>
<td>Mechanical</td>
<td>Package Rooftop Unit Requires Replacement</td>
<td>204683</td>
<td>1 EA</td>
<td></td>
<td>3-Ton Rooftop - Per Deficiency Detail. This unit was not found</td>
<td>041_001</td>
<td>$ 13,862.00</td>
<td>N/A</td>
</tr>
<tr>
<td>42</td>
<td>Mechanical</td>
<td>The Infrared Gas Radiant Heater Requires Replacement</td>
<td>204718</td>
<td>1 EA</td>
<td></td>
<td>There are no gas fired infrared heaters at this facility. Electric duct heater shall be provided with the new air handling unit.</td>
<td>042_001</td>
<td>$ 2,565.00</td>
<td>-</td>
</tr>
<tr>
<td>43</td>
<td>Mechanical</td>
<td>The Package Unit HVAC Component Requires Replacement</td>
<td>204688</td>
<td>1 Ton AC</td>
<td></td>
<td>A new 20 ton single zone VAV air handling units with chilled water coils shall be provided. Cost of Test and Balance for the new system is included in this line item</td>
<td>043_001</td>
<td>$ 1,846.00</td>
<td>$ 96,750.00</td>
</tr>
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</table>

**Subtotal for Building 03 Deficiencies** $ 72,080.00 $ 194,561.00

### Building: 04 - Building 4

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<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFSBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208088</td>
<td>17,599 SF</td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Repair infill deck as needed. Add new roof slope. Install parapet extensions and fall protection railings. 24,442 Sq. Ft.</td>
<td>044_001 to 044_004</td>
<td>$ 171,612.00</td>
<td>$ 448,873.00</td>
</tr>
<tr>
<td>45</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>204733</td>
<td>38 SF</td>
<td></td>
<td>3 Openings - Per Deficiency Detail. Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td>045_001</td>
<td>$ 4,410.00</td>
<td>$ 4,750.00</td>
</tr>
<tr>
<td>46</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>204734</td>
<td>35 SF</td>
<td></td>
<td>3 Openings - Per Deficiency Detail. Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td>046_001</td>
<td>$ 4,062.00</td>
<td>$ 4,500.00</td>
</tr>
<tr>
<td>47</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>204735</td>
<td>3 SF</td>
<td></td>
<td>0&quot; Openings - Per Deficiency Detail. Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td>047_001</td>
<td>$ 348.00</td>
<td>$ 250.00</td>
</tr>
<tr>
<td>48</td>
<td>Interior</td>
<td>The HVAC Terminal Device Requires Replacement</td>
<td>204726</td>
<td>8 EA</td>
<td>VAV Boxes - Per Deficiency Detail. There were no VAV boxes found in this facility.</td>
<td>048_001</td>
<td>$ 24,311.00</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Mechanical</td>
<td>Complete HVAC System Wide Replacement</td>
<td>212013</td>
<td>178 SF</td>
<td></td>
<td>Add HVAC to Bathrooms - Per Deficiency Detail. The bathrooms in Building 4 are small individual bathrooms. Normally an undercut or a door grille is provided so that the exhaust fan draws conditioned air through the bathroom. For this Schematic Design we will carry the SBBC budget amount for this task. A decision from SBBC as to how to proceed is required.</td>
<td>049_001</td>
<td>$ 4,629.00</td>
<td>$ 4,629.00</td>
</tr>
<tr>
<td>50</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>206558</td>
<td>17,599 SF</td>
<td></td>
<td>See Controls should be replaced with DDC Controls below</td>
<td>050_001</td>
<td>$ 21,754.00</td>
<td>Included in new DDC System</td>
</tr>
</tbody>
</table>

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### Building: 04 - Building 4 (continued)

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>Mechanical The Air Handler HVAC Component Requires Replacement</td>
<td>204756</td>
<td>1 EA</td>
<td></td>
<td></td>
<td>We do not have nor found any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.</td>
<td>051_001</td>
<td>$85,206.00</td>
<td>$85,206.00</td>
</tr>
<tr>
<td>52</td>
<td>Mechanical The Fan Coil (Chilled Water) HVAC Component Requires Replacement</td>
<td>204752</td>
<td>8 EA</td>
<td></td>
<td></td>
<td>We do not have nor found any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.</td>
<td></td>
<td>$73,491.00</td>
<td>$73,491.00</td>
</tr>
<tr>
<td>53</td>
<td>Mechanical Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>204749</td>
<td>17,599 SF</td>
<td></td>
<td></td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td>Included</td>
<td></td>
<td>$51,525.00</td>
</tr>
<tr>
<td>54</td>
<td>Mechanical The Air Handler HVAC Component Requires Replacement</td>
<td>204724</td>
<td>2 EA</td>
<td></td>
<td></td>
<td>We do not have nor found any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.</td>
<td></td>
<td>$86,349.00</td>
<td>$86,349.00</td>
</tr>
<tr>
<td>55</td>
<td>Mechanical The Air Handler HVAC Component Requires Replacement</td>
<td>204755</td>
<td>1 EA</td>
<td></td>
<td></td>
<td>We do not have nor found any information as to the current capacity of the HVAC equipment in this building, therefore, for this Schematic Design we will carry the SBBC budget amount for this task.</td>
<td></td>
<td>$43,174.00</td>
<td>$74,060.00</td>
</tr>
<tr>
<td>56</td>
<td>Mechanical The Infrared Gas Radiant Heater Requires Replacement</td>
<td>204757</td>
<td>16 EA</td>
<td></td>
<td></td>
<td>There are no gas fired infrared heaters at this facility. Electric duct heater shall be provided with the new air handling unit.</td>
<td></td>
<td></td>
<td>$41,039.00</td>
</tr>
<tr>
<td>57</td>
<td>Other Media Center Requires Renovation Based on Condition of Room(s)</td>
<td>316311</td>
<td>1 LS</td>
<td></td>
<td></td>
<td>Room Design Code = 389 9973 Sq. Ft. Scope not yet determined. FLCC budget is being included as part A/E estimate pending receipt final scope definition</td>
<td>057_001</td>
<td>$402,685.00</td>
<td>$402,685.00</td>
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</table>

**Subtotal for Building 04 Deficiencies**: $963,070.00

### Building: 05 - Building 5

<table>
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<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>58</td>
<td>Roofing Renooting with New Decking Required (Broward CPS)</td>
<td>208089</td>
<td>21,348 SF</td>
<td></td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Infill exist casentry openings. Add new roof slope. Install new built-up roofing and flashings. 25,531 Sq. Ft.</td>
<td>058_001, 058_002</td>
<td>$208,170.00</td>
<td>$480,008.00</td>
</tr>
<tr>
<td>59</td>
<td>Exterior The Aluminum Window is Damaged and Requires Replacement</td>
<td>212015</td>
<td>84 SF</td>
<td></td>
<td></td>
<td>7 Openings - Per Deficiency Detail 4 openings identified on site. 101E (1), 220 (2), 224 (1). Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td>059_001</td>
<td>$9,749.00</td>
<td>$10,500.00</td>
</tr>
<tr>
<td>60</td>
<td>Interior The HVAC Terminal Device Requires Replacement</td>
<td>204783</td>
<td>20 EA</td>
<td></td>
<td></td>
<td>We propose to replace eighteen (18) existing pneumatic VAV boxes with new electric/electronic low pressure VAV boxes with electric heat.</td>
<td>060_001</td>
<td>$60,777.00</td>
<td>$40,435.00</td>
</tr>
<tr>
<td>61</td>
<td>Mechanical Complete HVAC System Wide Replacement</td>
<td>212020</td>
<td>1,094 SF</td>
<td></td>
<td></td>
<td>Add HVAC to Restrooms - Per Deficiency Detail indicates that this scope of work consists of adding air conditioning to bathrooms (1,094 SF). The bathrooms in Building 5 are large bathrooms with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally conditioned air is transferred from the circulation area to the bathrooms for exhaust. For this Schematic Design we will carry the SBBC budget amount for this task. A decision from SBBC as to how to proceed is required.</td>
<td></td>
<td>$28,451.00</td>
<td>$28,451.00</td>
</tr>
<tr>
<td>62</td>
<td>Mechanical Controls Require Repair</td>
<td>206556</td>
<td>21,348 SF</td>
<td></td>
<td></td>
<td>See Controls should be replaced with DDC Controls below</td>
<td>Included</td>
<td></td>
<td>$26,389.00</td>
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## Building: 05 - Building 5

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<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
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<tbody>
<tr>
<td>63</td>
<td>Mechanical</td>
<td>Large HVAC Circulating Pump Requires Replacement</td>
<td>204781</td>
<td>1</td>
<td>EA</td>
<td>There is a large circulating pump in the room adjacent to the air handling room. This pump appears to have been associated with a boiler providing heating hot water for the hot water unit heaters located in each classroom. We are carrying the cost of a new pump. SBBC needs to advise if they really want to replace this non-operational pump.</td>
<td></td>
<td>$40,384.00</td>
<td>$62,760.00</td>
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<tr>
<td>64</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204782</td>
<td>1</td>
<td>EA</td>
<td>30,000 CFM Indoor VAV Air Unit - Per Deficiency Detail</td>
<td></td>
<td>$154,699.00</td>
<td></td>
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<tr>
<td>65</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>204779</td>
<td>21,348</td>
<td>SF</td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td>065_001 065_002</td>
<td>Included</td>
<td>$62,050.00</td>
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<tr>
<td>66</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204764</td>
<td>1</td>
<td>EA</td>
<td>We propose to replace the existing air handling unit with a new VAV air handler, with a main chilled water coil, a stacked dehumidification unit (SDU) dedicated to the outside air, filter section, access section, and a return plenum whenever the existing mechanical room size is sufficient. We do not have any information on this system except for the volume of air supplied by the air handler. Cost of this system has been based on supply CFM found in As-Built Plans. Cost of Test and Balance for this building has been added to this line item</td>
<td>066_001</td>
<td></td>
<td>$43,174.00 $173,530.00</td>
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<tr>
<td>67</td>
<td>Mechanical</td>
<td>The Infrared Gas Radiant Heater Requires Replacement</td>
<td>204780</td>
<td>16</td>
<td>EA</td>
<td>There are no infrared gas radiant heater to replace in this facility. This facility has non-operational hot water unit heaters. Cost of new electric heaters added to the new VAV boxes.</td>
<td></td>
<td>$41,039.00</td>
<td>In included in new VAV boxes</td>
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<tr>
<td>68</td>
<td>Other</td>
<td>Provide Renovation of Restrooms Associated with Educational Adequacy Renovations</td>
<td>316418</td>
<td>1</td>
<td>LS</td>
<td>Room Design Code = 815/816 Renovate men's and women's restroom fixture locations to accommodate new ADA stall in each facility. Replace all stall partitions.</td>
<td>068_001 to 068_007</td>
<td>$106,437.00</td>
<td>$68,932.00</td>
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<tr>
<td>69</td>
<td>Other</td>
<td>STEM Lab Requires Renovation Based on Condition of Room(s)</td>
<td>316005</td>
<td>1</td>
<td>LS</td>
<td>Room Design Code = 12 Scope reallocated to BLDG 20, Room 561 tool shop relocation. Refer to narrative for description. FLCC budget is being included as part A/E estimate</td>
<td>069_001 to 069_004</td>
<td>$10,973.00</td>
<td>$10,973.00</td>
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Subtotal for Building 05 Deficiencies: $730,242.00 $937,639.00

## Building: 06 - Building 6

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<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208090</td>
<td>21,728</td>
<td>SF</td>
<td>Removal of existing roof system (no exist. Insulation). Infill exist clearstory openings. Add new roof slope. Install new built-up roofing and flashings. 23,964 Sq. Ft</td>
<td>070_001 070_002</td>
<td>$211,875.00</td>
<td>$431,459.00</td>
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<tr>
<td>71</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>212023</td>
<td>20</td>
<td>SF</td>
<td>2 Openings - Per Deficiency Detail 5 Openings identified. 232 (3), 236 (2) Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td></td>
<td>$2,785.00</td>
<td>$3,000.00</td>
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<tr>
<td>72</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>212024</td>
<td>64</td>
<td>SF</td>
<td>5 Openings - Per Deficiency Detail 6 openings identified. 246 (3), 252 (3) Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td>072_001</td>
<td>$7,428.00</td>
<td>$8,000.00</td>
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<td>NO.</td>
<td>SYSTEM</td>
<td>SBBC DEFICIENCY DETAIL</td>
<td>SBBC ID #</td>
<td>QTY</td>
<td>UoM</td>
<td>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</td>
<td>PHOTOS</td>
<td>SBBC BUDGET (FLCC)</td>
<td>A/E ESTIMATE</td>
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<td>---------------------------------------------------------------</td>
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<td>-------------</td>
</tr>
</tbody>
</table>
| 73  | Exterior | The Aluminum Window is Damaged and Requires Replacement | 212025  | 18  | SF  | 2 Openings - Per Deficiency Detail  
2 Openings identified, 230 (2)  
Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information. |        | 2,089.00 | 2,250.00 |
| 74  | Interior | The HVAC Terminal Device Requires Replacement | 204915  | 12  | EA  | We propose to replace twelve (12) existing pneumatic VAV boxes with new electric/electronic low pressure VAV boxes with electric heat. Same as 060_001 | 076_001 | 36,466.00 | 26,960.00 |
| 75  | Mechanical | Controls Require Repair | 206552  | 20.658 | SF  | See Controls should be replaced with DDC Controls below |        | 25,536.00 | Included in new DDC System |
| 76  | Mechanical | The Air Handler HVAC Component Requires Replacement | 204916  | 1  | EA  | We propose to replace the existing air handling unit with a new VAV air handler, with a main chilled water coil, a stacked dehumidification unit (SDU) dedicated to the outside air, filter section, access section, and a return plenum whenever the existing mechanical room size is sufficient. | 077_001 | 126,555.00 | 172,315.00 |
| 77  | Mechanical | Controls are Inadequate and Should be replaced with DDC Controls | 204911  | 20.658 | SF  | A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided. |        | Included | 60,115.00 |
| 78  | Mechanical | The Air Handler HVAC Component Requires Replacement | 204788  | 1  | EA  | This additional air handler was not found. |        | 43,174.00 | N/A |
| 79  | Mechanical | The Infrared Gas Radiant Heater Requires Replacement | 204922  | 14  | EA  | There are no infrared gas radiant heater to replace in this facility. This facility has non-operational hot water unit heaters. Cost of new electric heaters added to the new VAV boxes. | 080_001 to 080_004 | 35,909.00 | Included in new VAV boxes |
| 80  | Other | Provide Renovation of Restrooms Associated with Educational Adequacy Renovations | 316380  | 1  | LS  | Room Design Code = 815/816  
Renovate men’s and women’s restroom fixture locations to accommodate new ADA stall in each facility. Replace all stall partitions. | 085_001 to 085_004 | 49,035.00 | 85,940.00 |
| 81  | Other | STEM Lab Requires Renovation Based on Condition of Room(s) | 316028  | 1  | LS  | Room Design Code = 23  
RM 248. Room finishes to be remodeled as business office with FF&E. Includes carpet floor, repaint room. Remove wall and patch / repaint walls. School staff has identified electrical upgrade / rewire for technology as needed. FLCC budget is being included as part A/E estimate |        | 134,500.00 | 134,500.00 |

Subtotal for Building 06 Deficiencies $675,352.00 $924,539.00
<table>
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<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
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<th>UoM</th>
<th>WOLFBERG ALVAREZ</th>
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<tbody>
<tr>
<td>82</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208091</td>
<td>20900</td>
<td>SF</td>
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<tr>
<td>83</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>204936</td>
<td>05</td>
<td>SF</td>
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<tr>
<td>84</td>
<td>Interior</td>
<td>The HVAC Terminal Device Requires Replacement</td>
<td>204932</td>
<td>20</td>
<td>EA</td>
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<tr>
<td>85</td>
<td>Interior</td>
<td>The HVAC Terminal Device Requires Replacement</td>
<td>204961</td>
<td>13</td>
<td>EA</td>
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<td>86</td>
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<td>Complete HVAC System Wide Replacement</td>
<td>212037</td>
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<td>87</td>
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<td>206551</td>
<td>17902</td>
<td>SF</td>
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<td>88</td>
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<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204959</td>
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<td>EA</td>
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<tr>
<td>89</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>204952</td>
<td>17902</td>
<td>SF</td>
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<td>90</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>204931</td>
<td>1</td>
<td>EA</td>
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<tr>
<td>91</td>
<td>Mechanical</td>
<td>The Infrared Gas Radiant Heater Requires Replacement</td>
<td>204965</td>
<td>17</td>
<td>EA</td>
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<td>92</td>
<td>Other</td>
<td>Provide Renovation of Restrooms Associated with Educational Adequacy Renovations</td>
<td>316388</td>
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<td>LS</td>
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<td>93</td>
<td>Other</td>
<td>STEM Lab Requires Renovation Based on Condition of Room(s)</td>
<td>316058</td>
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### SBBC Budget (FLCC)

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<td>$174,850.00</td>
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### A/E Estimate

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<td>93</td>
<td>$174,850.00</td>
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**Subtotal for Building 07 Deficiencies:**

- **SBBC Budget (FLCC):** $833,573.00
- **A/E Estimate:** $988,506.00
### Building: 08 - Building Support

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<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
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<tbody>
<tr>
<td>94</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208092</td>
<td>14,500 SF</td>
<td>Removal of existing roofing system (no exist. Insulation). Repair infill deck as needed. Add new roof slope. Install new built-up roofing and flashings. 2,904 Sq. Ft.</td>
<td>094_001</td>
<td>141,393.00</td>
<td>$64,704.00</td>
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</tr>
<tr>
<td>95</td>
<td>Mechanical</td>
<td>The Chiller HVAC Component is Damaged and Requires Replacement</td>
<td>204989</td>
<td>1 EA</td>
<td>We propose to replace one chiller with a new 350 tons centrifugal chiller using HFC-410A as required by the Deficiency List. We assume that the oldest McQuay chiller (over 20 years) is the one to be replaced. We need confirmation from SBBC. Also regardless of which chiller is replaced, do not SBBC desire to have both chillers from the same manufacturer. Not knowing which chiller to replace, we are carrying the SBBC budget cost.</td>
<td>095_001, 095_002, 095_003</td>
<td>184,682.00</td>
<td>$184,682.00</td>
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<tr>
<td>96</td>
<td>Mechanical, Electrical</td>
<td>The Electrical Transformer Requires Replacement</td>
<td>205004</td>
<td>2 EA</td>
<td>2 Transformers will be replaced</td>
<td></td>
<td>13,286.00</td>
<td>$13,286.00</td>
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<tr>
<td>97</td>
<td>Mechanical</td>
<td>The Exterior Metal Cooling Tower is Damaged and Requires Replacement</td>
<td>204988</td>
<td>1 EA</td>
<td>There are two (2) EVAPCO cooling towers at this facility. The Deficiency List indicates that one (1) of these towers is to be replaced. At the time of the site visit both towers were fully operational, and both towers show the same type of deterioration. We need clarification on which cooling tower to replace. The cost reflected here is for one 350 ton cooling tower.</td>
<td>097_001</td>
<td>51,056.00</td>
<td>$51,056.00</td>
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<tr>
<td>98</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>204987</td>
<td>2,145 SF</td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided. The cost of Test and Balance for the new system is included in this line item.</td>
<td>098_001</td>
<td>Included</td>
<td>$14,950.00</td>
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</tr>
<tr>
<td>99</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>205005</td>
<td>1 EA</td>
<td>Refer to Items #96, above and #100, below</td>
<td></td>
<td>2,186.00</td>
<td>$2,186.00</td>
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<tr>
<td>100</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>205007</td>
<td>2 EA</td>
<td>Quantity is inaccurate, but compromised panelboards will be replaced.</td>
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<td>$11,914.00</td>
<td>$10,400.00</td>
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Subtotal for Building 08 Deficiencies $404,517.00 $338,792.00

### Building: 09 - Building 9

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<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
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<td>101</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208093</td>
<td>14,232 SF</td>
<td>Removal of existing roofing system (no exist. Insulation). Repair infill deck as needed. Add new roof slope. Install mechanical supports and curb extensions. Install new built-up roofing and flashings. 15,111 Sq. Ft.</td>
<td>101_001, 101_002</td>
<td>138,780.00</td>
<td>$332,386.00</td>
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<tr>
<td>102</td>
<td>Mechanical</td>
<td>Complete HVAC System Wide Replacement</td>
<td>212041</td>
<td>350 SF</td>
<td>Deficiency Detail indicates that this work consists of adding air conditioning to bathrooms (350 SF). There are multiple bathrooms in Building 9 with air exhausted to the outside. This type of bathroom normally is not provided with direct air conditioning. Normally conditioned air is transferred from the circulation and/or adjacent areas to the bathrooms for exhaust. Schematic Design we will carry the SBBC budget amount for this task. A decision from SBBC as to how to proceed is required.</td>
<td></td>
<td>$9,102.00</td>
<td>$9,102.00</td>
<td></td>
</tr>
<tr>
<td>103</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>205012</td>
<td>12,335 SF</td>
<td>See Controls should be replaced with DDC Controls below</td>
<td></td>
<td>15,000.00</td>
<td>Included in new DDC System</td>
<td></td>
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<tr>
<td>104</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>205028</td>
<td>12,332 SF</td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided. The cost to provide Test and Balance for these new systems is included in this line item.</td>
<td></td>
<td>Included</td>
<td>$57,450.00</td>
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<td>NO.</td>
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<td>SBBC ID #</td>
<td>QTY</td>
<td>UofM</td>
<td>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</td>
<td>PHOTOS</td>
<td>SBBC BUDGET (FLCC)</td>
<td>A/E ESTIMATE</td>
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</tr>
<tr>
<td>105</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>205031</td>
<td>1</td>
<td>EA</td>
<td>The space for the replacement of the units is very limited. Replacement serving these areas will need to be of the same type as the existing, without any additional sections as required by the SBBC Design Criteria. Any attempt to introduce a stacked dehumidification unit, face and by-pass section, and mixed air plenums may result in infringing into the classroom areas or lowering the ceiling in the classroom areas. Capacities for this systems could not be found, for this reason this Schematic Design we will carry the SBBC budget amount for this task. A decision from SBBC as to how to proceed is required.</td>
<td>105_001</td>
<td>$43,174.00</td>
<td>$43,174.00</td>
</tr>
<tr>
<td>106</td>
<td>Mechanical</td>
<td>The Fan Coil (Chilled Water) HVAC Component Requires Replacement</td>
<td>205017</td>
<td>2</td>
<td>EA</td>
<td>See item 105 above</td>
<td></td>
<td>$3,077.00</td>
<td>$3,077.00</td>
</tr>
<tr>
<td>107</td>
<td>Mechanical</td>
<td>The Fan Coil HVAC Component Requires Replacement</td>
<td>205035</td>
<td>2</td>
<td>EA</td>
<td>See item 105 above</td>
<td></td>
<td>$5,956.00</td>
<td>$5,956.00</td>
</tr>
<tr>
<td>108</td>
<td>Mechanical</td>
<td>The Window AC Unit Component Requires Replacement</td>
<td>205019</td>
<td>1</td>
<td>EA</td>
<td>The window AC unit shall be replaced, the plywood section acting as a wall shall be removed and the wall opening shall be infilled with new structural partition.</td>
<td>108_001</td>
<td>$1,664.00</td>
<td>$2,460.00</td>
</tr>
<tr>
<td>109</td>
<td>Fire &amp; Security</td>
<td>Install Fire Sprinklers</td>
<td>65420 12,132 SP</td>
<td></td>
<td></td>
<td>Complete sprinkler installation (light &amp; ordinary hazard) for non-protected building including new alarm check valve with water gong; control valves with tamper switches, and flow switches including fire alarm interface. Projected cost includes connection to existing fire line and approximately 150 lineal feet of underground supply piping to serve Building 09.</td>
<td></td>
<td>$81,370.00</td>
<td>$122,690.00</td>
</tr>
<tr>
<td>110</td>
<td>Technology</td>
<td>Room has Insufficient Data ports</td>
<td>Rollup</td>
<td>88</td>
<td>EA</td>
<td></td>
<td></td>
<td>$-</td>
<td>$-</td>
</tr>
<tr>
<td>111</td>
<td>Other</td>
<td>Provide Renovation of Restrooms Associated with Educational Adequacy Renovations</td>
<td>316354</td>
<td>1</td>
<td>LS</td>
<td>Room Design Code = 815/816 Convert women's restroom to single ADA accessible stall. Add ADA stall and relocate wall to accommodate ADA turning radius.</td>
<td>111_001 to 111_008</td>
<td>$28,993.00</td>
<td>$31,422.00</td>
</tr>
<tr>
<td>112</td>
<td>Other</td>
<td>STEM Lab Requires Renovation Based on Condition of Room(s)</td>
<td>316094</td>
<td>1</td>
<td>LS</td>
<td>Room Design Code = 241 Scope reallocated to building 20, RM 554. Scope includes demolition, new interior storefront 1/2 walls and doors, new finishes, new millwork, dust collection system, and FF&amp;E. FLCC budget is being included as part A/E estimate</td>
<td>112_001 to 112_007</td>
<td>$296,572.00</td>
<td>$296,572.00</td>
</tr>
<tr>
<td>113</td>
<td>Other</td>
<td>STEM Lab Requires Renovation Based on Condition of Room(s)</td>
<td>316123</td>
<td>1</td>
<td>LS</td>
<td>Room Design Code = 245 Scope reallocated to building 23 RM 572. Design and installation of new mock ER classroom. Includes demolition, new partition, new lighting, FF&amp;E, medical equip. FLCC budget is being included as part A/E estimate</td>
<td>113_001 to 113_003</td>
<td>$114,325.00</td>
<td>$114,325.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 09 Deficiencies | $738,013.00 | $1,018,614.00 |
## Building: 10 - Physical Education Building

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>114</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208094</td>
<td>8.770 SF</td>
<td>Removal of existing roofing system and insulation. Add new roof slope. Install parapet extensions. Install new built-up roofing and flashings. 8,770 Sq. Ft.</td>
<td>114_001, 114_002</td>
<td>$85,518.00</td>
<td>$163,235.00</td>
<td></td>
</tr>
<tr>
<td>115</td>
<td>Mechanical</td>
<td>Complete HVAC System Wide Replacement</td>
<td>212047</td>
<td>7,508 SF</td>
<td>All three (3) existing chilled water systems shall be completely replaced, including the chilled water valves, gages, thermometers, the air distribution ductwork, air distribution devices and the outside air ducts with new motor operated dampers. A new state of the art Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided. Capacities for this systems could not be found, for this reason this Schematic Design we will carry the SBBC budget amount for this task. A decision from SBBC as to how to proceed is required. The cost to provide Test and Balance for these new systems is included in this line item.</td>
<td>115_001, 115_002, 115_003</td>
<td>$196,815.00</td>
<td>$213,210.00</td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>205065</td>
<td>12 EA</td>
<td>Refer to Item #117, below</td>
<td></td>
<td>$26,227.00</td>
<td>$26,227.00</td>
<td></td>
</tr>
<tr>
<td>117</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>205066</td>
<td>15 EA</td>
<td>Quantity is inaccurate, but we recommend replacing panelboards, exterior transformer and exterior panelboards.</td>
<td></td>
<td>$124,581.00</td>
<td>$65,000.00</td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>Specialties</td>
<td>PE Weight Room Equipment and Flooring is in Need of Upgrade</td>
<td>Rollup</td>
<td>1 EA</td>
<td>Remove existing overlayed weight room floor finish. Install new monolithic rubber weight room floor system. Weight room equipment by others.</td>
<td></td>
<td>$81,703.00</td>
<td>$81,703.00</td>
<td></td>
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</table>

Subtotal for Building 10 Deficiencies $514,844.00 $523,148.00

## Building: 11 - Building 11

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>119</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208095</td>
<td>770 SF</td>
<td>Remove existing roof system. Install new fire resistant board layer and sloped insulation. Deck repair may be required. Install new built-up roofing and flashings. 770 Sq. Ft.</td>
<td>119_001</td>
<td>$7,508.00</td>
<td>$15,800.00</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal for Building 11 Deficiencies $7,508.00 $15,800.00

## Building: 12 - Cafeteria

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>120</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>20896</td>
<td>17,850 SF</td>
<td>Removal of existing roofing system (no exist. Insulation). Repair / infill deck as needed. Install new curb extensions and fall protection railings. Add new roof slope. Install new built-up roofing and flashings. 18,045 Sq. Ft.</td>
<td>120_001</td>
<td>$172,110.00</td>
<td>$334,196.00</td>
<td></td>
</tr>
<tr>
<td>121</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>211420</td>
<td>800 SF</td>
<td>Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td></td>
<td>$92,850.00</td>
<td>$100,000.00</td>
<td></td>
</tr>
<tr>
<td>122</td>
<td>Mechanical</td>
<td>Complete HVAC System Installation for Non-Air Conditioned Facility</td>
<td>205096</td>
<td>6,500 SF</td>
<td>We propose to provide a new split DX system to air condition the Kitchen space. The reason that a split DX system has been selected is that the spare capacity if any at the chiller plant is unknown. Also the hours of operation of the kitchen do not merit the addition of any cooling capacity at the chiller plant as well as the increase in existing chilled water pipe sizes and pumping capacity</td>
<td></td>
<td>$ -</td>
<td>$190,800.00</td>
<td></td>
</tr>
<tr>
<td>123</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>205097</td>
<td>12,540 SF</td>
<td>See Controls should be replaced with DDC Controls below</td>
<td></td>
<td>$15,001.00</td>
<td>Included in new DDC System</td>
<td></td>
</tr>
</tbody>
</table>
### Building: 12 - Cafeteria (continued)

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>124</td>
<td>Mechanical</td>
<td>Outdoor Air Handler HVAC Component Requires Replacement</td>
<td>205124</td>
<td>2</td>
<td>EA</td>
<td>The existing chilled water roof mounted air handlers shall be replace with new single zone VAV air handlers. The cost to provide Test and Balance for these new systems is included in this line item.</td>
<td>124_001, 124_002</td>
<td>$362,125.00</td>
<td>$278,450.00</td>
</tr>
<tr>
<td>125</td>
<td>Mechanical</td>
<td>The Roof Air Handler/Exhaust is Damaged and Requires Replacement</td>
<td>205094</td>
<td>2</td>
<td>Ton</td>
<td>AC</td>
<td>The two existing kitchen roof mounted exhaust hood fans and the one roof mounted supply fan shall be replaced. Included</td>
<td>125_001, 125_002</td>
<td>$4,470.00</td>
</tr>
<tr>
<td>126</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>205123</td>
<td>12,540</td>
<td>SF</td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>127</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>205101</td>
<td>2</td>
<td>EA</td>
<td>This air handling unit was not found in this facility.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>128</td>
<td>Electrical</td>
<td>The Electrical Circuit Capacity is Inadequate</td>
<td>212050</td>
<td>2</td>
<td>EA</td>
<td>Staff indicated that this issue came about when the gas powered kitchen equipment were being replaced with electrical powered kitchen, but has since been resolved</td>
<td></td>
<td>$86,349.00</td>
<td></td>
</tr>
<tr>
<td>129</td>
<td>Electrical</td>
<td>The Panelboard Requires Replacement</td>
<td>205133</td>
<td>1</td>
<td>EA</td>
<td>Panelboard has some exterior rusting but is in good functional condition. We do not recommend replacing it.</td>
<td></td>
<td>$8,305.00</td>
<td></td>
</tr>
</tbody>
</table>

Subtotal for Building 12 Deficiencies $743,027.00 $969,966.00

### Building: 13 - Swimming Pool Locker Rooms

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208097</td>
<td>5,600</td>
<td>SF</td>
<td>Removal of existing roofing system (no exist. Insulation), Repair / infill deck as needed. Install new curb extensions and fall protection railings. Install roof expansion joint. Add new roof slope. Install new built-up roofing and flashings. 5,798 Sq. Ft</td>
<td>130_001, 130_002</td>
<td>$54,607.00</td>
<td>$133,500.00</td>
</tr>
<tr>
<td>131</td>
<td>Mechanical</td>
<td>The Window AC Unit Component Requires Replacement</td>
<td>205141</td>
<td>2</td>
<td>EA</td>
<td>The window AC unit shall be replaced.</td>
<td></td>
<td>$3,329.00</td>
<td>$4,914.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 13 Deficiencies $57,936.00 $138,414.00

### Building: 14 - Gym Lockers

<table>
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<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>132</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208098</td>
<td>10,765</td>
<td>SF</td>
<td>Removal of existing roofing system (no exist. Insulation), Repair / infill deck as needed. Install new curb extensions and fall protection railings. Install roof expansion joint. Add new roof slope. Install new built-up roofing and flashings. 11,626 Sq. Ft</td>
<td>132_001</td>
<td>$104,972.00</td>
<td>$253,344.00</td>
</tr>
<tr>
<td>133</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>205152</td>
<td>32</td>
<td>SF</td>
<td>Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td></td>
<td>$3,714.00</td>
<td>$4,000.00</td>
</tr>
<tr>
<td>134</td>
<td>Mechanical</td>
<td>Complete HVAC System Wide Replacement</td>
<td>212057</td>
<td>5,883</td>
<td>SF</td>
<td>The two (2) HVAC systems at this facility are two (2) roof mounted heating and ventilating units and roof mounted exhaust fans. We propose to provide a new split DX system to air condition the Gym Locker Area. Ductwork shall be routed exposed within the locker area with side wall type air distribution devices. A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided. the cost to provide Test and Balance to this new system is included in this line item</td>
<td>134_001, 134_002</td>
<td>$152,995.00</td>
<td>$222,550.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 14 Deficiencies $261,681.00 $479,894.00
## Building: 15 - Gymnasium

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLLC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>135</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208099</td>
<td>14,544 SF</td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Add new roof slope. Install new built-up roofing and flashings. Recommend that upper roof be existing to remain based on field survey by A/E, Roofing Contractor, and CM. 19,766 Sq. Ft.</td>
<td>135_001, 135_002</td>
<td>$141,822.00</td>
<td>$92,983.00</td>
</tr>
<tr>
<td>136</td>
<td>Mechanical</td>
<td>Controls Require Repair</td>
<td>205162</td>
<td>14,544 SF</td>
<td></td>
<td>See Controls should be replaced with DDC Controls below</td>
<td></td>
<td>$17,978.00</td>
<td>Included in new DDC System</td>
</tr>
<tr>
<td>137</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>205170</td>
<td>2 EA</td>
<td></td>
<td>The two existing air handling units shall be replaced with new chilled water drawn through single zone VAV air handlers, suspended at the same location as the existing units. The cost to provide Test and Balance for the new systems is included in this line item.</td>
<td>137_001 137_002</td>
<td>$170,411.00</td>
<td>$174,925.00</td>
</tr>
<tr>
<td>138</td>
<td>Mechanical, Electrical</td>
<td>The Electrical Transformer Requires Replacement</td>
<td>205159</td>
<td>2 EA</td>
<td></td>
<td>Refer to item #121, below</td>
<td></td>
<td>$16,057.00</td>
<td>-</td>
</tr>
<tr>
<td>139</td>
<td>Mechanical, Electrical</td>
<td>The Electrical Transformer Requires Replacement</td>
<td>205160</td>
<td>1 EA</td>
<td></td>
<td>Refer to item 121, below</td>
<td></td>
<td>$8,028.00</td>
<td>-</td>
</tr>
<tr>
<td>140</td>
<td>Mechanical, Electrical</td>
<td>The Electrical Transformer Requires Replacement</td>
<td>205171</td>
<td>2 EA</td>
<td></td>
<td>Transformers will be replaced.</td>
<td></td>
<td>$6,643.00</td>
<td>$13,000.00</td>
</tr>
<tr>
<td>141</td>
<td>Mechanical</td>
<td>Controls are Inadequate and Should be replaced with DDC Controls</td>
<td>205168</td>
<td>14,544 SF</td>
<td></td>
<td>A new Direct Digital Control System to be interfaced with the existing Andover Main Control Panel shall be provided.</td>
<td></td>
<td>Included</td>
<td>$42,950.00</td>
</tr>
<tr>
<td>142</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>205164</td>
<td>2 EA</td>
<td></td>
<td>A third air handling unit was not found at this facility.</td>
<td></td>
<td>$86,349.00</td>
<td>N/A</td>
</tr>
<tr>
<td>143</td>
<td>Mechanical</td>
<td>The Window AC Unit Component Requires Replacement</td>
<td>205169</td>
<td>1 EA</td>
<td></td>
<td>The Athletic Director window AC unit shall be replace with a new unit</td>
<td></td>
<td>$4,993.00</td>
<td>$2,460.00</td>
</tr>
<tr>
<td>144</td>
<td>Electrical</td>
<td>The Electrical Circuit Capacity is Inadequate</td>
<td>212058</td>
<td>2 EA</td>
<td></td>
<td>Based on PPO information, the breaker for the AHU trips when the filter has not been changed for a long time due to overloading. WA considers this item as a safe operation since it prevents overheating the circuit and causing fires. AHU filters have to be replaced at their scheduled times to avoid breaker tripping.</td>
<td></td>
<td>$1,317.00</td>
<td>-</td>
</tr>
</tbody>
</table>

Subtotal for Building 15 Deficiencies $453,598.00 $326,318.00

## Building: 16 - Building Support

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLLC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>145</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208100</td>
<td>700 SF</td>
<td></td>
<td>Removal of existing roofing system (no exist. Insulation). Add new roof slope. Install new built-up roofing and flashings.</td>
<td>145_001</td>
<td>$6,826.00</td>
<td>$19,353.00</td>
</tr>
<tr>
<td>146</td>
<td>Exterior</td>
<td>The Aluminum Window is Damaged and Requires Replacement</td>
<td>205178</td>
<td>1 SF</td>
<td></td>
<td>Based on small scope areas, damaged window glass and frames to be repaired on case by case basis, not replaced. Refer to Narrative description for additional information.</td>
<td></td>
<td>$116.00</td>
<td>$250.00</td>
</tr>
<tr>
<td>147</td>
<td>Mechanical</td>
<td>The Cast Iron Water Boiler Requires Replacement</td>
<td>205184</td>
<td>1 EA</td>
<td></td>
<td>Since the swimming pool is not operational we are looking for a decision from SBBC as to how to proceed. If SBBC wants to replace the boiler, we will replace it with a new gas fired boiler of the same capacity. It is important that the equipment in the swimming pool pump room be inspected and determine if that equipment can be made operational or if it will also need to be replaced. For this Schematic Design we will carry the SBBC budget amount for this task while SBBC decides what is best to do.</td>
<td>147_001</td>
<td>$86,988.00</td>
<td>$86,988.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 16 Deficiencies $93,930.00 $106,591.00
### Building: 17 - Agriculture Labs

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>148</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208101</td>
<td>2.400 SF</td>
<td></td>
<td>Install new &quot;Roof Hugger&quot; or equal re-roofing system over existing deck. Install new curb extensions. 2,501 Sq. Ft.</td>
<td>148_001</td>
<td>$23,403.00</td>
<td>$36,670.00</td>
</tr>
<tr>
<td>149</td>
<td>Mechanical</td>
<td>The Fan Coil HVAC Component Requires Replacement</td>
<td>205208</td>
<td>1 EA</td>
<td></td>
<td>A fan coil unit was not found at this facility</td>
<td></td>
<td>$2,978.00</td>
<td>N/A</td>
</tr>
<tr>
<td>150</td>
<td>Mechanical</td>
<td>The Package Unit HVAC Component Requires Replacement</td>
<td>205192</td>
<td>1 Ton AC</td>
<td></td>
<td>The packaged HVAC unit shall be replaced with the same type unit located in the same space and connected to the existing ductwork. New Direct Digital Controls shall be provided for this system. The cost to provide Test and Balance for this system is included in this line item.</td>
<td>150_001</td>
<td>$1,846.00</td>
<td>$22,420.00</td>
</tr>
<tr>
<td>151</td>
<td>Other</td>
<td>Provide Renovation of Restrooms Associated with Educational Adequacy Renovations</td>
<td>316342</td>
<td>1 LS</td>
<td></td>
<td>Room Design Code = 815/816 Convert each restroom to single occupant ADA accessible room with accessible shower stall.</td>
<td>151_001 to, 151_006</td>
<td>$19,458.00</td>
<td>$34,426.00</td>
</tr>
<tr>
<td>152</td>
<td>Other</td>
<td>STEM Lab Requires Renovation Based on Condition of Room(s)</td>
<td>316043</td>
<td>1 LS</td>
<td></td>
<td>Room Design Code = 201 Scope relocated to Building 20, room 553. Demolish portion of northern wall and install new interiors storefront and double door. Add 24&quot; stage and access ramp to front of room. FLCC budget is being included as part A/E estimate</td>
<td></td>
<td>$77,310.00</td>
<td>$77,310.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 17 Deficiencies: $124,995.00 $170,826.00

### Building: 18 - Storage

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>153</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208102</td>
<td>600 SF</td>
<td></td>
<td>Remove existing roofing system. Install new slopped roofing. Install new built-up roofing and flashings. 653 Sq. Ft.</td>
<td></td>
<td>$5,851.00</td>
<td>$12,296.00</td>
</tr>
</tbody>
</table>

Subtotal for Building 18 Deficiencies: $5,851.00 $12,296.00

### Building: 20 - Building 20

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>154</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208103</td>
<td>28,700 SF</td>
<td></td>
<td>Remove existing roofing system. Install new sloped deck. Install curb extensions and new scuttle. Install built-up roofing and flashings. 37,715 Sq. Ft.</td>
<td>154_001</td>
<td>$297,000.00</td>
<td>$202,512.00</td>
</tr>
<tr>
<td>155</td>
<td>Fire &amp; Security</td>
<td>Install Fire Sprinklers</td>
<td>Rollup</td>
<td>1,040 SF</td>
<td></td>
<td>Sprinkler installation for 1,040 SF of non-protected building area (per deficiency listing) including new alarm check valve with water gong, control valve with tamper switch, and flow switch including fire alarm interface. Projected cost includes connection to existing fire line and approximately 40 lineal feet of underground supply piping to serve Building 20.</td>
<td></td>
<td>-</td>
<td>$22,275.00</td>
</tr>
<tr>
<td>156</td>
<td>Technology</td>
<td>Room has Insufficient Data ports</td>
<td>Rollup</td>
<td>30 EA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subtotal for Building 20 Deficiencies: $297,000.00 $224,787.00
### Building: 21 - Administration

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>157</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208104</td>
<td>3,300 SF</td>
<td>Removal of existing roofing system and insulation. Install new roof scuttle. Add new roof slope. Install new built-up roofing and flashings.</td>
<td>157_001</td>
<td>$32,179.00</td>
<td>$67,604.00</td>
<td></td>
</tr>
<tr>
<td>158</td>
<td>Mechanical</td>
<td>The Air Handler HVAC Component Requires Replacement</td>
<td>205247</td>
<td>1 EA</td>
<td>A new split DX system shall be provided to replace the existing system for this building. A new Direct Digital Controls shall also be provided. The cost to provide Test and Balance for this new system is included in this line item</td>
<td>158_001 158_002 158_003 158_004</td>
<td>$43,174.00</td>
<td>$41,450.00</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal for Building 21 Deficiencies** | $75,353.00 | $109,054.00 |

### Building: 22 - Storage

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>159</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208105</td>
<td>1,000 SF</td>
<td>Remove existing roofing system. Repair of deck may be required. Install new shingle roofing system and flashings.</td>
<td></td>
<td>$9,751.00</td>
<td>$6,960.00</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal for Building 22 Deficiencies** | $9,751.00 | $6,960.00 |

### Building: 24 - Building 24

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>160</td>
<td>Mechanical</td>
<td>The Fan Coil HVAC Component Requires Replacement</td>
<td>205270</td>
<td>1 EA</td>
<td>During site visits in December 2016 and January 2017 we were advised by School staff that this work is being performed by another project, and is currently ongoing.</td>
<td></td>
<td>$2,978.00</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>161</td>
<td>Mechanical</td>
<td>The Package Unit HVAC Component Requires Replacement</td>
<td>205264</td>
<td>1 Ton AC</td>
<td>During site visits in December 2016 and January 2017 we were advised by School staff that this work is being performed by another project, and is currently ongoing.</td>
<td></td>
<td>$1,846.00</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal for Building 24 Deficiencies** | $4,824.00 | - |

### Building: 26 - Classroom

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>162</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208106</td>
<td>100 SF</td>
<td>Existing roofing system less than 10yrs old. All leaks already repaired. Recommend no work scope for patching. 90 Sq. Ft.</td>
<td></td>
<td>$975.00</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>163</td>
<td>Roofing</td>
<td>Roof Equipment Requires Cabling</td>
<td>208107</td>
<td>4 EA</td>
<td></td>
<td></td>
<td>$538.00</td>
<td>$750.00</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal for Building 26 Deficiencies** | $1,513.00 | $750.00 |

### Building: 27 - Cafeteria Patio

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UofM</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>164</td>
<td>Roofing</td>
<td>Reroofing with New Decking Required (Broward CPS)</td>
<td>208108</td>
<td>100 SF</td>
<td>Existing area is canvas tent. A/E recommendation is to cover under separate scope related to food service upgrades.</td>
<td>164_001</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Subtotal for Building 27 Deficiencies** | - | - |
### Building: 85 - Classroom

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>UoM</th>
<th>WOLFBERG ALVAREZ FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>165</td>
<td>Mechanical</td>
<td>The Package Unit HVAC Component Requires Replacement</td>
<td>205278</td>
<td>1</td>
<td>Ton AC</td>
<td>The unit serving this building is new. According to the school staff this BARD unit was replaced at the end of the 2016 school year</td>
<td>$1,846.00</td>
<td>$1,846.00</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Subtotal for Building 85 Deficiencies**: $1,846.00

**PROJECT BUDGET - CONSTRUCTION COSTS (FLCC)**: $11,481,222.00

**A/E INITIAL ESTIMATE OF PROBABLE CONSTRUCTION COSTS**: $13,813,626.00

**VARIANCE (PROJECT BUDGET - A/E ESTIMATE)**: $2,331,804.00

**PROJECT CONSTRUCTION BUDGET (Per Fixed Limit of Construction Cost (FLCC) Table issued for A/E Negotiations)**: $11,375,673.00

**NOTES:**

1. Items reflected in BLUE TEXT represent scope of work included and highlighted (enclosed within a "box") in the School Deficiency Listing for which a corresponding "Deficiency Detail" description does not exist. Budget amounts (FLCC) for these items have been extrapolated from information in the School Deficiency Listing by applying a "soft cost adjustment" multiplier consistent with that applied to other listed items in the Deficiency Detail.

2. Items reflected in RED TEXT represent scope of work which is not highlighted (enclosed within a "box") in the School Deficiency Listing, but appears in the "Deficiency Detail".

3. Items reflected in PURPLE TEXT represent scope of work described in the "Fixed Limit of Construction Cost (FLCC)" description of scope Table issued for A/E Negotiations.

4. Budget amounts reflected in GREEN TEXT represent Budge Amount (FLCC) listed in the "Fixed Limit of Construction Cost (FLCC)" Table issued for A/E Negotiations.
**OTHER DEFICIENCIES FOUND DURING SITE WALK-THROUGHS.**

The Items or deficiencies listed below are NOT part of the Project Scope or Project’s FLCC. They are included in this Report only for informational purposes and to provide SBBC an opportunity to determine whether they should be addressed as part of this, or other future project.

<table>
<thead>
<tr>
<th>NO.</th>
<th>SYSTEM</th>
<th>SBBC DEFICIENCY DETAIL</th>
<th>SBBC ID #</th>
<th>QTY</th>
<th>Unit</th>
<th>FIELD OBSERVATIONS AND SCOPE RECOMMENDATIONS</th>
<th>PHOTOS</th>
<th>SBBC BUDGET (FLCC)</th>
<th>A/E ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Branch Circuit PANELBOARD REPLACEMENTS</td>
<td>N/A</td>
<td>8</td>
<td>EA</td>
<td>Building #1 - Branch circuit panelboards are in a very bad shape and we recommend replacing them.</td>
<td>E1-001</td>
<td>-</td>
<td>$52,000.00</td>
</tr>
<tr>
<td>E2</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Transformer</td>
<td>N/A</td>
<td>1</td>
<td>EA</td>
<td>Building #2 - Transformer has extensive rusting and buzzing.</td>
<td>E2-001</td>
<td>-</td>
<td>$13,000.00</td>
</tr>
<tr>
<td>E3</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Panelboards</td>
<td>N/A</td>
<td>4</td>
<td>EA</td>
<td>Building #5 - Panelboards are in bad shape and mostly made by manufacturers that are out of service.</td>
<td>E3-001</td>
<td>-</td>
<td>$20,800.00</td>
</tr>
<tr>
<td>E4</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Panelboards</td>
<td>N/A</td>
<td>4</td>
<td>EA</td>
<td>Building #6 - Panelboards are in bad shape and mostly made by manufacturers that are out of service.</td>
<td>E4-001 &amp; E4-002</td>
<td>-</td>
<td>$20,800.00</td>
</tr>
<tr>
<td>E5</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Panelboards</td>
<td>N/A</td>
<td>4</td>
<td>EA</td>
<td>Building #7 - Panelboards are in bad shape and mostly made by manufacturers that are out of service.</td>
<td>E5-001</td>
<td>-</td>
<td>$20,800.00</td>
</tr>
<tr>
<td>E6</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Transformer</td>
<td>N/A</td>
<td>1</td>
<td>EA</td>
<td>Building #7 - Transformer has extensive rusting and should be replaced</td>
<td>E6-001</td>
<td>-</td>
<td>$10,400.00</td>
</tr>
<tr>
<td>E7</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Panelboards</td>
<td>N/A</td>
<td>8</td>
<td>EA</td>
<td>Building #9 - Panelboards are in bad shape and mostly made by manufacturers that are out of service.</td>
<td>E7-001 &amp; E7-002</td>
<td>-</td>
<td>$52,000.00</td>
</tr>
<tr>
<td>E8</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Transformer</td>
<td>N/A</td>
<td>2</td>
<td>EA</td>
<td>Building #12 - Both transformers have extensive rusting and should be replaced</td>
<td>E8-001 &amp; E8-002</td>
<td>-</td>
<td>$20,800.00</td>
</tr>
<tr>
<td>E9</td>
<td>ADDITIONAL ELECTRICAL</td>
<td>Replace Transformer</td>
<td>N/A</td>
<td>1</td>
<td>EA</td>
<td>Building #13 - Transformer has extensive rusting and should be replaced</td>
<td>E9-001</td>
<td>-</td>
<td>$5,200.00</td>
</tr>
</tbody>
</table>

**ESTIMATE OF PROBABLE CONSTRUCTION COSTS FOR THESE REPAIRS:** $215,800.00
SECTION V
Project Schedule
### DESIGN PHASE ( thru Permitting Phase )

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>Calendar Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorization to Proceed (ATP)</td>
<td>12/16/16</td>
<td>01/04/17</td>
<td>28</td>
</tr>
<tr>
<td>Kick-Off Meeting / Initial Site Visit</td>
<td>12/16/16</td>
<td>01/04/17</td>
<td>28</td>
</tr>
<tr>
<td>Phase I - Schematic Design Submittal</td>
<td>12/16/16</td>
<td>01/12/17</td>
<td>28</td>
</tr>
<tr>
<td>Phase I Submittal Review</td>
<td>12/16/16</td>
<td>01/12/17</td>
<td>28</td>
</tr>
<tr>
<td>Phase II - Design Development Submittal</td>
<td>02/28/17</td>
<td>03/28/17</td>
<td>30</td>
</tr>
<tr>
<td>Phase II Submittal Review</td>
<td>03/28/17</td>
<td>04/28/17</td>
<td>30</td>
</tr>
<tr>
<td>Phase III - 90% Construction Documents</td>
<td>04/16/17</td>
<td>05/16/17</td>
<td>21</td>
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<tr>
<td>Phase III - 95% CD Plan Review</td>
<td>05/16/17</td>
<td>06/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Phase III - 100% Construction Documents</td>
<td>06/16/17</td>
<td>07/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Submit - 100% documents to Building Dept</td>
<td>07/16/17</td>
<td>08/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Phase III - 100% CD Plan Review</td>
<td>08/16/17</td>
<td>09/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Building Department Initial Plan Review</td>
<td>09/16/17</td>
<td>10/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Plan Revision / Re-Submit to Bldg Dept</td>
<td>10/16/17</td>
<td>11/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Building Department Follow-Up Review</td>
<td>11/16/17</td>
<td>12/16/17</td>
<td>21</td>
</tr>
<tr>
<td>Plan Approval</td>
<td>12/16/17</td>
<td>01/16/18</td>
<td>0</td>
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### PROCUREMENT

<table>
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<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>Calendar Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement &amp; Award</td>
<td>07/20/17</td>
<td>09/20/17</td>
<td>30</td>
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</table>

### CONSTRUCTION

<table>
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<tr>
<th>Activity</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>Calendar Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction through Closeout (TBD)</td>
<td>07/30/17</td>
<td>10/30/17</td>
<td>90</td>
</tr>
</tbody>
</table>

### LEGEND

- **Blue Bar**: Milestone (Start / Completion)
- **Red Bar**: Production / Document Development Task
- **Green Bar**: SBBC Document Review Timeline
- **Yellow Bar**: Building Department Review Timeline
- **Pink Bar**: Proposed Schedule Recovery / Acceleration
- **Orange Bar**: Projected / Scheduled Timeline (Baseline Schedule)
- **Black Bar**: Actual / Progress Timeline
- **Red and Black Bar**: Schedule Recovery / Acceleration

### Notes

- *Stranahan SHS Schedule - Updated 01-31-17.xls*

- *Updated: 1/31/2017*
### Project Management Plan - Stranahan High School Single Point of Entry

**SBBC Project No:** P001683  
**WOLFBERG ALVAREZ and PARTNERS**

**Updated:** 1/31/2017

#### LEGEND:
- **Milestone (Start / Completion)**  
- **Production / Document Development Task**  
- **SBBC Document Review Timeline**  
- **Building Department Review Timeline**

#### Activity / Task Start Finish Calendar Gaps

<table>
<thead>
<tr>
<th>Activity / Task</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>Calendar Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-Off Meeting / Initial Site Visit</td>
<td>10/04/16</td>
<td>10/04/16</td>
<td>0</td>
</tr>
<tr>
<td>Conceptual Design Submittal</td>
<td>10/04/16</td>
<td>10/04/16</td>
<td>0</td>
</tr>
<tr>
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#### SBBC Document Review Timeline

- **Initial Site Visit**
- **Conceptual Design Submittal**
- **95% Construction Documents**
- **95% Construction Document Review**
- **100% Construction Document Submittal**
- **100% Construction Document Review**
- **Building Department Initial Plan Review**
- **Plan Review / Re-Submittal to Bldg Dept**
- **Building Department Follow-Up Review**
- **Plan Approval**

#### Production / Document Development Task

- **Kick-Off Meeting / Initial Site Visit**
- **Conceptual Design Submittal**
- **Conceptual Design Review**
- **95% Construction Documents**
- **95% Construction Document Review**
- **100% Construction Document Submittal**
- **100% Construction Document Review**
- **Submittal - 100% Documents to Building Dept**
- **Building Department Initial Plan Review**
- **Plan Review / Re-Submittal to Bldg Dept**
- **Building Department Follow-Up Review**
- **Plan Approval**

#### Milestone (Start / Completion)

- **Kick-Off Meeting / Initial Site Visit**
- **Conceptual Design Submittal**
- **95% Construction Documents**
- **95% Construction Document Review**
- **100% Construction Document Submittal**
- **100% Construction Document Review**
- **Building Department Initial Plan Review**
- **Plan Review / Re-Submittal to Bldg Dept**
- **Building Department Follow-Up Review**
- **Plan Approval**

#### Projected / Scheduled Timeline (Baseline Schedule)

- **Kick-Off Meeting / Initial Site Visit**
- **Conceptual Design Submittal**
- **95% Construction Documents**
- **95% Construction Document Review**
- **100% Construction Document Submittal**
- **100% Construction Document Review**
- **Building Department Initial Plan Review**
- **Plan Review / Re-Submittal to Bldg Dept**
- **Building Department Follow-Up Review**
- **Plan Approval**

#### Actual / Progress Timeline

- **Kick-Off Meeting / Initial Site Visit**
- **Conceptual Design Submittal**
- **95% Construction Documents**
- **95% Construction Document Review**
- **100% Construction Document Submittal**
- **100% Construction Document Review**
- **Building Department Initial Plan Review**
- **Plan Review / Re-Submittal to Bldg Dept**
- **Building Department Follow-Up Review**
- **Plan Approval**
SECTION VI
Appendix
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<th>Building</th>
<th>Projected Cost Based on SBC Acres</th>
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<th>Budget Per Square Foot</th>
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<th>Deficiency Min - Roof Replacement</th>
<th>Deficiency Min - Roof Replacement (by Area)</th>
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*Note: The table above represents the projected costs for various buildings based on different parameters such as acres, budget per square foot, and projected costs per roof replacement. The costs are listed in dollars, with each row indicating a building number and its corresponding details.*