



HARDIN COUNTY SCHOOLS
HELPING CHILDREN SUCCEED



March, 2015 Board Update

Hardin County Board of Education

GC Burkhead Elementary School



Overview

Budget:

Original Construction Cost: \$15,817,590.00
Change Orders: \$20,890.61
Present Construction Cost: \$15,838,480.00

Schedule:

Original Substantial Completion: 06/30/15
Final Completion: 07/30/15

The following notes highlight the activities over the last Thirty (30) days of the project:

Meetings

Progress Meetings are twice a month. Next meeting will be held on March 27, 2015.

Shop Drawings

One (1) shop drawing was submitted.

RFI's

A five (5) RFI's have been received and responded to by the Design Team.

ASI's

Sixteen (16) ASI's have been issued to date.

Attachments:

1. Marcum HVAC Start-Up Meeting Minutes
2. BFW Observation Report
3. MGT Field Report

Schedule

Construction Last 15 Days: (see attached Field Report)

1. Courtyard earthwork continued.
2. Ceiling grid continued in B areas.
3. Metal stud work continued in A area.
4. Drywall continued in B area.
5. Permanent power all panels complete.
6. Duct installation continued C and B areas, Complete Duct insulation In D and C areas at units tested.
7. Kitchen Plumbing complete.
8. Area A Plumbing complete.
9. Hydronic piping tapped at D and C areas.
10. Begin VET floor prep.
11. Grading N parking area.
12. Courtyard poured 50%.

Construction Snapshot next 15 Days:

1. Kitchen masonry complete.
2. Continue masonry weather permitting.
3. Continue concrete weather permitting.
4. Set exterior aluminum columns, roof drain tie ins complete D and C areas.
5. Ceramic Tile Complete in D and C area, continue in B.
6. Final grading N parking area continues (weather permitting).
7. Permanent power will energize.
8. Hydronic piping continue, Pumps will set in Mech. Rm.
9. Duct installation, testing, and insulating complete in Area D and C, continue in B and A.
10. Light installation to continue behind grid.
11. Drywall hang and finish continue.
12. Painter continues in area B (weather permitting).



MARCUM
ENGINEERING, LLC

500 South 17th Street
P.O. Box 120
Paducah, KY 42002-0120
Phone (270) 444-9274; Fax (270) 443-1904

HVAC START-UP MEETING NOTES

MARCH 16, 2015

PROJECT NAME: GC Burkhead Elementary School	PROJECT NO: 13519
DATE: March 12, 2015	TIME: 12:30 PM ET

A HVAC Start-up Meeting was held March 12, 2015 at the project site. Refer to the attached roster for those that attended.

Point of Contacts were established as follows:

Geothermal Contractor, Billy Withers, T&B Drilling
HVAC Contractor, Daniel Hagerman, Foster Mechanical
HVAC Equipment Supplier, John Hovekamp, Harshaw Trane
Water Treatment Contractor(s), Bill Ray, Bluegrass Kesco
Controls Contractor, John Hovekamp, Harshaw Trane
Electrical Contractor, Brian Downs, Heartland Electric
Architect, Maria Gillette, MGT
Engineer, Baccus Oliver, Marcum Engineering
General Contractor, Sam Gibson, DW Wilburn
Balance Contractor, Tim Thore, Thermal Balance
Owners Representative, David Wyatt, Hardin County Schools

1. Purpose of Meeting:

- a. To outline requirements for Start-up and Temporary Operation of HVAC System.

2. Envelope/Space Completion:

- a. Building must be closed and thermal/vapor barriers in place.
- b. Dust liberating activities must be complete.
- c. The General Contractor shall develop a procedure/permit for Dust Producing Activities (DPA) in which assurance is given that affected HVAC units are off.

3. Temporary Operation:

- a. Obtain Owner approval to utilize building HVAC system for temporary space conditioning.
- b. Obtain manufacturer's approval in writing that HVAC units will be used for temporary space conditioning. NOTE: This will not change the Warranty periods.
- c. Engineer recommends only a portion of WSHPs be operated. The General Contractor to provide list of units for approval.
- d. Operation of OAUs is prohibited.
- e. Spaces which have multiple units (Gymnasiums for example) shall be restricted to only one unit in operation.
- f. The General Contractor shall provide name of person who will monitor and control HVAC system. This person (Operator) will be held responsible and shall be in responsible charge. This person must be knowledgeable of HVAC systems.

- g. Units shall only operate between 6 PM and 6 AM. Units shall be off during daytime construction activities.
- h. Set-point range is recommended to be 65degF heating and 75degF cooling.
- i. The Controls Contractor shall prohibit the agreed range from being exceeded.

4. Mechanically Complete:

- a. Air conveyance systems must be 100% complete.
 - i. Fabric ductwork shall not be installed during temporary operation.
 - ii. Fabric ductwork shall be installed just prior to final completion.
- b. Hydronic systems must be 100% complete and tested.
- c. Geothermal systems must be 100% complete and tested.
- d. HVAC controls must be 100% complete, tested, and operational.
- e. Electrical power for all HVAC systems must be 100% complete.

5. Start-up:

- a. Geothermal system must be tested and cleaned. Furnish reports.
- b. Interior hydronic system must be tested and cleaned. Furnish reports.
- c. Sequence of commissioning hydronic system and HVAC startup is:
 - i. Test, purge, and clean all geothermal fields.
 - ii. Test, purge, and clean geothermal mains to/from building and vault.
 - iii. Test, purge, and clean interior hydronic piping system.
 - iv. Complete air conveyance/ductwork systems.
 - v. Complete HVAC unit power systems.
 - vi. Complete HVAC controls.
 - vii. Connect interior HVAC units to hydronic piping system.
 - viii. Provide lab analysis to prove both indoor and outdoor systems are clean, free of bacteria, and suitable for comingling.
 - ix. All parties (Geothermal Contractor, HVAC Contractor, Water Treatment Company, and Engineer) must agree all systems are ready before mixing.
 - x. After combining the systems, The HVAC Contractor is in charge of the entire hydronic system. No invasive piping change, modification, or addition may take place. **BE SURE SYSTEM IS 100% COMPLETE BEFORE PROCEEDING WITH INITIAL CLEANING.**
 - xi. Water treatment must begin **immediately** and lab analysis performed to prove no trace of bacteria. Engineer recommends the Geothermal Contractor consider utilizing the HVAC Subcontractor for clear/sole responsibility.
 - xii. After clear report and prior to heating operation; antifreeze must be added to system.
 - xiii. Again, The HVAC Contractor is in charge of all aspects of the hydronic system and proper water treatment maintenance. The water system shall be tested at least monthly (or more per Water Treatment Contractor's recommendations).
 - xiv. After all the above is complete and the hydronic system is operational; begin Manufacturer start-ups. Provide Start-up Reports for Engineer approval.
 - xv. Equipment warranty will not start until Substantial Completion.**

6. Authorization:

- a. The following authorizations are required prior to temporary operation:
 - i. Letter(s) certifying and accompanying documentation to Engineer that the following are 100% complete, operational, and/or ready for temporary operation:
 - 1. Building Envelope is closed and controlled.
 - 2. Dust Producing Activities (DPA) have ceased.
 - 3. Air conveyance/ductwork systems.
 - 4. Power systems.
 - 5. Hydronic system.
 - 6. Pre-filter media installed on all RA openings.**

7. Pumping control system.
 8. HVAC control system.
 9. Water treatment.
 10. Manufacturers' Startup Reports.
 11. Manufacturers' acknowledgement (via letter) that Warranty periods do not start until Substantial Completion and understanding that the a certain list of units will be operated for temporary space conditioning.
 12. Owner written approval to operate.
- ii. After receipt of above, Engineer will authorize **in writing** to begin temporary operation.

7. Quality Control:

- a. No Dust Producing Activities may occur in any area until units in the immediate area are shut down by the designated Operator. **Offenders will be required to pay for NADCA certified ductwork/equipment cleaning.**
- b. Routine monitoring and replacement of unit filters.
- c. Operator must monitor HVAC Control system daily for notifications and/or alarms. It is the Operator's responsibility to rectify all alarms and operate the HVAC system properly.
- d. Engineer and Architect must be informed in writing of any upsets or problems to the HVAC system during the temporary operational period.

8. Required Submittals:

- a. The following is a list of submittals due from the Contractor. These should be copied to the Engineer.
 - i. The Geothermal Contractor's designated Water Treatment Subcontractor for Engineer's approval.
 - ii. Designated name of HVAC system Operator for Engineer's approval. The Operator must monitor, control, trouble-shoot, correct, and be in ultimate charge.
 - iii. List of Units that will be operated for temporary conditioning.
 - iv. Start-up Plan Report.
 - v. Start-up Schedule.
 - vi. Hydro-test Reports for:
 1. Geothermal Field
 2. Interior Hydronic System
 - vii. Signatures/agreement that subcontractors are ready to comingling indoor system with outdoor system (see 5.c.ix above).
 - viii. Water Treatment Reports for both indoor system and outdoor system. These include:
 1. Flush/Clean/Purge
 2. Water Treatment
 3. Antifreeze Addition
 4. Lab Analyses for:
 - a. Cleanliness and presence bacteria of Outdoor system.
 - b. Cleanliness and presence bacteria of Indoor system.
 - c. Final water addition after Chemical Cleaning.
 - d. Final water analysis and presence of bacteria check after Chemical Treatment.
 - e. Final antifreeze solution (10% by solution).
 - f. Monthly water testing reports.
 - ix. Authorization documentation listed in Section 6.a.i.
 - x. Reports of any upsets or problems to the HVAC system during the temporary operational period.

9. Schedule:

- a. Start-up is not known at this time. DW Wilburn will advise.
- b. Substantial Completion is scheduled for approximately 5/2015.

10. Other Discussion:

- a. Daniel Hagerman will be the HVAC system Operator.
- b. DW Wilburn stated that start-up will occur after floor preparation.
- c. DW Wilburn agreed to create a Dust Permit process for safe guarding HVAC systems.
- d. DW Wilburn will prepare a list of units proposed for temporary operation.
- e. Unit filters shall meet or exceed specified filter.
- f. Using MERV 8 filters at Return Air Grilles.
- g. Both Geothermal Contractor and HVAC Contractor are utilizing Bluegrass Kesco.
- h. Geothermal flushing and indoor system flushing will be performed with purge cart.
- i. T&B Drilling will perform flush for Foster Mechanical.
- j. Antifreeze is 10% (by solution) Propylene Glycol.

The above constitutes the Engineer's understanding of all items discussed and/or items noted. All concerned parties shall review these Meeting Notes and comment within 7 days if any of the items require clarification, correction and or require additional discussion.

Distribution: All Meeting Attendees
Chuck Trimble, MGT
Maria Gillette, MGT
Andrea Bradford, MGT
Rob Crouch, MGT
Jim Leake, MGT
Micah Cope, Marcum Engineering
Baccus Oliver, Marcum Engineering

G.C. BURKHEAD ELEMENTARY SCHOOL

HARDIN COUNTY SCHOOLS

HVAC START-UP MEETING

FEBRUARY 26, 2015

NAME	COMPANY	E-MAIL
Bruce L. Oliver	Marvin Engineering	boliver@marvinengineering.net
James O'Brien	Hagerman Trane	jobrien@trane.com
Billy Withers	T-B Drilling	
David Wyatt	HCS	david.wyatt@hardin.kyschools.us
Bruce Daniel	HCS	bruce.daniel@hardin.kyschools.us
David Hagerman	Hagerman Electric	
Kevin Don	Heartland Electric	
Tim Thore	Thermal Balance	Kevin.thoreway@thermalbalance.com
Daniel Hagerman	Foster Mech	Hagermant@msn.com
Russ Taylor	HCS	Russ.Taylor@hcs.kyschools.us
Sherry Dilbert	D.W.W.T.	sdilbert@dwwilbur.com
Sam Gibson	D.W.W.T.	sgibson
Shannon Frealey	D.W.W.T.	SFrealey
BILL RAY	BLUEGRASS KESCO	bill@bluegrasskesco.com
Maria Givette	MGT	maria@mgtky.com
Chuck Trimore	MGT	chuck@mgtky.com



BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.

PADUCAH OFFICE
500 South 17th Street,
Paducah, KY 42002
Phone: (270) 443-1995
Fax: (270) 443-1904

MURRAY OFFICE
1215 Diuguid Dr
Murray, KY 42071
Phone: (270) 753-7307
Fax: (270) 759-4950

MARION OFFICE
403 North Court Street
Marion, Illinois 62959
Phone (618) 997-9190
Fax: (618) 993-6717

LEWISBURG OFFICE
966 Double Bridge Road
Lewisburg, TN 37091
Phone (931) 359-4882

CHAMPAIGN OFFICE
505 W University Ave, Ste 224
PO Box 8188
Champaign, IL 61826
Phone: (217) 433-2172

OBSERVATION REPORT

Project Name: GC Burkhead Elementary School	
BFW Project No: 13038	Time: 2:15 pm – 4:45 pm (+ travel)
Weather: Partly Cloudy & Cool	Date: 3/12/15

Steve Gamblin arrived on site to review the Contractor's progress on the Civil and Structural items and to attend the Monthly Progress Meeting.

Storm Water Piping and Structures are installed and appear to be functioning properly.

Courtyard decorative concrete is being placed.

Cafeteria masonry has apparently frozen and cracked around structural steel columns and beams at F/26 and H/28. I recommended that replacement of damaged CMU be done once the space is properly conditioned above freezing temperatures.

High-strength bolts are not installed in column H/28. This needs to be completed.

Above window lintels in several locations, as mentioned, in my February Observation Report, have been installed improperly. The long leg of the lintel should be installed up in the vertical position, (LLV), per the LOOSE LINTEL SCHEDULE on Drawing S0.2.

This concludes today's observation.

REPORT BY: Steve Gamblin, BFW Engineers
DISTRIBUTION: MGT

PHOTOS 3-12-15 pg 1



COURTYARD CONCRETE IS BEING INSTALLED



CMU FROZE AND CRACKED AT COLUMN F/26

PHOTOS 3-12-15 pg 2



CMU FROZE AND CRACKED AT COLUMN H/28



DAMAGED MASONRY AT COLUMN F/26



**HIGH-STRENGTH BOLTS NEED TO BE INSTALLED AT COLUMN
H/28**



**LOOSE LINTEL ABOVE WINDOW SAGING DUE TO NOT BEING
INSTALLED CORRECTLY**



**LOOSE LINTEL INSTALLED IMPROPERLY WITH LONG LEG
HORIZONTAL**



**LOOSE LINTEL TO BE INSTALLED (LLV) LONG LEG VERTICAL
NOT HORIZONTAL**



OBSERVATION REPORT: February 26, 2015

Prepared by:	Chuck Trimble
Company:	Murphy + Graves + Trimble
Project:	GC Burkhead Elementary
Location:	Project Site
Arch. Project Number:	1264
Date/Time:	Thursday February 26, 2015
Weather:	Sunny / approx... 35 deg.

<u>Parties Present</u>	<u>Organization</u>	<u>Email Address</u>
Maria Gillette	M+G+T	maria@mgtky.com
Chuck Trimble	M+G+T	chuck@mgtky.com
General Observation	<ul style="list-style-type: none"> • Temporary Heat is being provide in areas where finish products are being installed. • 	
Work in Progress	<ul style="list-style-type: none"> • Gypsum Board is being installed in the soffit areas and on walls in the areas of the building that is dried in. • Ceiling Grid is installed in classrooms and starting to be installed in the corridors in Area "D" • Tile in Restroom are installed but floor protection by the Contractor is required. • Electrical rough in is continuing. • HVAC ductwork is being installed and tested in Area "D" • Exterior window heads were reviewed and discussed with Shannon. DW Wilburn is going to review with the window manufacture and provide proposed trim piece for each window. 	



#1:



#2:



#3:



#4:



#5:



#6:



#7:



#8:



#10:



#11:



#12:



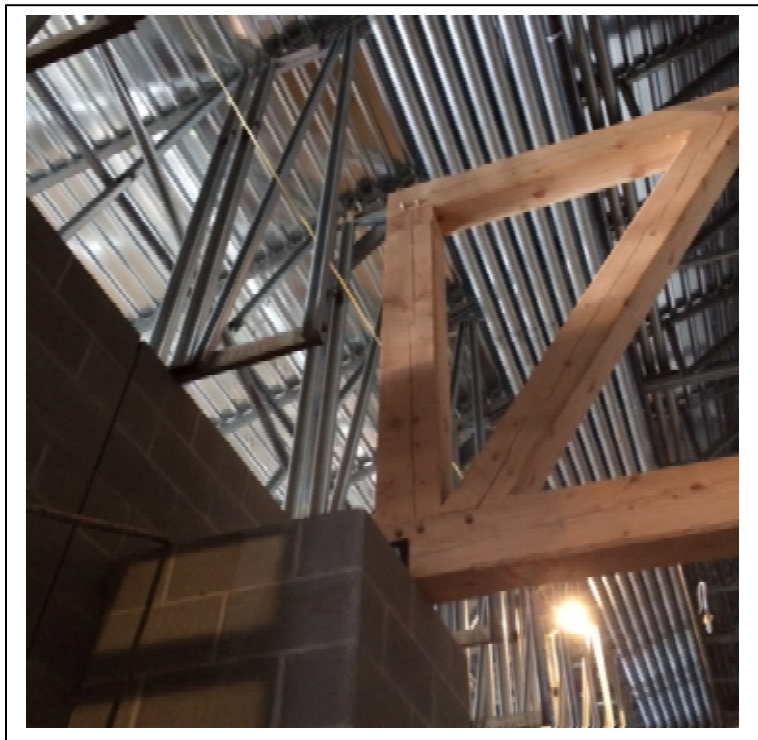
#13:



#14:



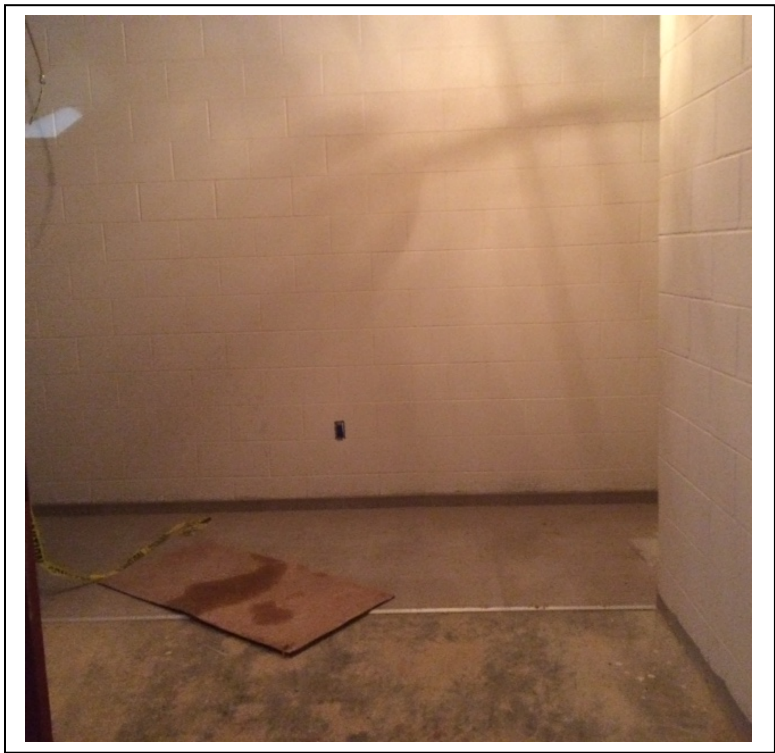
#15:



#16:



#17:



#18:



#19: