

managing risk with responsibility

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September 22, 2005

Signature on File

| TO: | Ms. Mary Lou Ridge, Principal Bethune Elementary School |
|----------|--|
| FROM: | Robert J. Krickovich, Coordinator, LEA Facilities and Construction Management, Environmental Divisior |
| SUBJECT: | Indoor Air Quality (IAQ) Assessment FISH 710, 805, 806, 807, 809, 810, 817, and 818 |

On September 15, 2005 the IAQ Assessment Team conducted an assessment of FISH 710, 805, 806, 807, 809, 810, 817 and 818 at **Bethune Elementary School**. The evaluation consisted of a walkthrough of the identified areas to assess the current condition of the location with regard to indoor air quality. This assessment included observations of the carpet, floor tile, ceiling tile, interior walls, false ceiling plenum, and accessible ventilation equipment.

Attached are the findings of this assessment along with recommendations for further assessment, remediation, or corrective actions, if needed.

Generally, the IAQ Assessment did not identify any existing conditions significantly impacting IAQ and thereby presenting immediate health and safety concerns to building occupants. However, due to individual sensitivities and predisposing health factors, it is possible that some building occupants may elicit a health response to agents and / or conditions identified during the evaluation. Therefore, to further improve IAQ, prevent development of future IAQ-related problems, and to reduce the potential for IAQ-related complaints by building occupants, the IAQ Assessment Team recommends appropriate follow up of each item identified and listed in the attached evaluation.

Should any questions arise, or if the current concerns continue after the attached recommendations have been addressed, please feel free to contact me at 754-321-1638.

cc: Sam Gregg, Area Superintendent Margaret Underhill, Area Director Jeffrey S. Moquin, Director, Risk Management Bertram Lewars, Project Manager II, Facilities and Construction Management Jerrod Neal, Broward Teachers Union Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1 Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc Enc.

| | | | IAQ As | sessment | Locati | on Number | 0341 | |
|--------------------------|---------------|------------------------|----------------------------------|----------------------|-----------|--------------------------|-----------|-------------|
| | Bet | thune Elementa | ry School | | Evaluat | tion Requested | Septemb | er 15, 2005 |
| Time of Day | 3:50 pm |] | | | I | Evaluation Date | Septemb | er 15, 2005 |
| Outdoor Cond | litions Ter | nperature | 88.9 | Relative Humic | ity 58.5 | 5 Ambie | nt CO2 | 433 |
| Fish | Temperature | Range Rela | ative Humidity | Range | CO2 | Ran | ige # | Occupants |
| 710 | 70.2 | 72 - 78 | 57.4 | 30% - 60% | 627 | Max 700 | > Ambien | t 3 |
| Noticeable Oc | dor No | | Visible water nage / staining | Visible m I? grow | | Amount of ma affected | terial | |
| Ceiling Type | Plaster/2 x 4 | Lay In | No | No | | | None | |
| Wall Type | Drywa | I | No | No | | | None | |
| Flooring | New Carp | pet | No | No | | | None | |
| | Clean | Minor Dust / Debris | Needs Cleaning | | Corre | ctive Action Re | equired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply | Grills Yes | No | No | | | | | |
| HVAC Return | Grills No | Yes | Yes | | Clean wit | th Wexcide dis | infectant | |
| Ceiling at Sup Grills | oply Yes | No | No | | | | | |
| Surfaces in R | oom No | Yes | Yes | | Cle | an as appropri | ate | |

Findings:

- Excessive dust on books and book shelves
- Dust and debris on environmental surfaces throughout room
- Visible minor microbial growth on 5 books
- Dust and debris on HVAC return grills
- Dust and debris in return air duct at return air grill. Heavy dust build up on turning vanes.
- AHU #4 in FISH 703 is holding water in pan and is overflowing onto the floor of the mechanical room

Recommendations:

Site Based Maintenance:

- Clean and vaccuum books and book shelves as appropriate
- Clean environmental surfaces as appropriate
- Clean or discard books with minor microbial growth
- Clean HVAC return grills with Wexcide disinfectant solution
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate and clean return air duct at return air grill and turning vanes
- Evaluate and clean AHU #4 (drain pan and condensate drain) in FISH 703

| | | | IAQ As | sessment | Locati | on Number | 0341 | |
|--------------------------|---------------|------------------------|--------------------------------|---------------------|---------|--------------------------|----------|-------------|
| | Beth | une Elementary | y School | | Evaluat | tion Requested | Septemb | er 15, 2005 |
| Time of Day | 1:00 pm | | | | l | Evaluation Date | Septemb | er 15, 2005 |
| Outdoor Condi | tions Tem | perature 8 | 8.9 | Relative Humid | ty 58.5 | 5 Ambie | nt CO2 | 433 |
| Fish | Temperature F | Range Relat | ive Humidity | Range | CO2 | Ran | nge # | Occupants |
| 805 | 74.7 7 | 2 - 78 | 50.4 | 30% - 60% | 656 | Max 700 | > Ambien | t 23 |
| Noticeable Od | or No | - | isible water age / staining | Visible mi growt | | Amount of ma affected | terial | |
| Ceiling Type | 2 x 4 Lay | In | Yes | No | | | One tile | |
| Wall Type | Drywall | | No | No | | | None | |
| Flooring | NEW Carpo | et | No | No |] | | None | |
| | Clean | Minor Dust / Debris | Needs Cleaning | | Corre | ctive Action Re | equired | |
| Ceiling | Yes | Νο | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | Νο | No | | | | | |
| HVAC Supply | Grills Yes | Νο | No | | | | | |
| HVAC Return (| Grills Yes | Νο | No | | | | | |
| Ceiling at Sup Grills | ply Yes | No | No | | | | | |
| Surfaces in Ro | oom Yes | No | No | | | | | |

Findings:

- One stained ceiling tile on west side (6th tile from secondary exit door)

Recommendations:

Site Based Maintenance:

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate for leak (cause of stained ceiling tile on west side) and repair as appropriate and replace stained ceiling tile

| | | | IAQ Ass | sessment | Locati | on Number | 0341 | |
|-----------------------------|----------------|------------------------|-----------------------------------|-----------------------|---------|---------------------------|------------|-------------|
| | Bethu | ne Element | ary School | | Evaluat | tion Requested | Septemb | er 15, 2005 |
| Time of Day | 1:10 pm | | | | l | Evaluation Date | Septemb | er 15, 2005 |
| Outdoor Condition | s Temp | erature | 88.9 | Relative Humid | ty 58.5 | 5 Ambie | nt CO2 | 433 |
| Fish Tem | perature Ra | ange Re | elative Humidity | Range | CO2 | Ran | ge # | Occupants |
| 806 | 70.1 72 | - 78 | 58.3 | 30% - 60% | 523 | Max 700 | > Ambient | 3 |
| Noticeable Odor | Yes | da | Visible water amage / staining | Visible mi ? growt | | Amount of mat affected | terial | |
| Ceiling Type | 2 x 4 Lay In | | No | No | | | None | |
| Wall Type | Drywall | | Νο | No |] | | None | |
| Flooring | NEW Carpet | | No | No |] | Odor fro | om New Car | pet |
| | Clean | Minor Dust / Debris | t Needs Cleaning | | Corre | ctive Action Re | equired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply Grill | s Yes | No | No | | | | | |
| HVAC Return Grill | s Yes | No | No | | | | | |
| Ceiling at Supply Grills | Yes | No | No | | | | | |
| Surfaces in Room | No | Yes | Yes | | Cle | an as appropria | ate | |

Findings:

- Noticeable odor from new carpet

- Dust and debris on environmental surfaces throughout the room

- Non-approved SBBC chemicals in room (Ace house and garden bug killer under cabinet)

Recommendations:

Site Based Maintenance:

- Thoroughly clean environmental surfaces throughout the room

- Remove non-approved chemicals from room

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

| | | IAQ As | sessment | Location Number | 0341 |
|-----------------------------|----------------------|------------------------------------|-----------------------------|-------------------------------|--------------------|
| | Bethune Ele | mentary School | | Evaluation Requested | September 15, 2005 |
| Time of Day 1: | :20 pm | | | Evaluation Date | September 15, 2005 |
| Outdoor Conditions | 5 Temperatur | e 88.9 | Relative Humidity | 58.5 Ambie | ent CO2 433 |
| Fish Tempo | erature Range | Relative Humidity | Range | CO2 Rar | nge # Occupants |
| 807 7 | 72.7 72 - 78 | 56.6 | 30% - 60% | 540 Max 700 | > Ambient 3 |
| Noticeable Odor | Yes | Visible water damage / staining | Visible micro g? growth? | bial Amount of ma affected | terial |
| Ceiling Type | 2 x 4 Lay In | No | No | | None |
| Wall Type | Drywall | No | No | | None |
| Flooring | NEW Carpet | No | No | Odor fr | om New Carpet |
| | Clean Minor / Del | | I | Corrective Action Re | equired |
| Ceiling | Yes | No | | | |
| Walls | Yes | No | | | |
| Flooring | Yes | No | | | |
| HVAC Supply Grills | S Yes N | No | | | |
| HVAC Return Grills | Yes | No | | | |
| Ceiling at Supply Grills | Yes | Νο | | | |
| Surfaces in Room | Yes | No | | | |

Findings:

- Noticeable odor from new carpet

- Wall on both sides of secondary exit door has elevated moisture content - latch side is wet from top to bottom and hinge side is wet one foot up from the floor

Recommendations:

Site Based Maintenance:

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

| | | IAQ As | sessment | Location Number | 0341 |
|-----------------------------|---------------------|------------------------------------|-----------------------------|-------------------------------|--------------------|
| | Bethune Ele | mentary School | | Evaluation Requested | September 15, 2005 |
| Time of Day | :40 pm | | | Evaluation Date | September 15, 2005 |
| Outdoor Conditions | 5 Temperatur | e 88.9 | Relative Humidity | 58.5 Ambie | ent CO2 433 |
| Fish Temp | erature Range | Relative Humidity | Range | CO2 Rar | nge # Occupants |
| 809 7 | 73.1 72 - 78 | 57.2 | 30% - 60% | 532 Max 700 | > Ambient 3 |
| Noticeable Odor | Yes | Visible water damage / staining | Visible micro g? growth? | bial Amount of ma affected | terial |
| Ceiling Type | 2 x 4 Lay In | Yes | No | 2 c | eiling tiles |
| Wall Type | Drywall | No | No | | None |
| Flooring | NEW Carpet | No | No | Odor fr | om New Carpet |
| | Clean Minor / De | | J | Corrective Action Re | equired |
| Ceiling | Yes | o No | | | |
| Walls | Yes | o No | | | |
| Flooring | Yes | o No | | | |
| HVAC Supply Grills | s Yes N | o No | | | |
| HVAC Return Grills | Yes | o No | | | |
| Ceiling at Supply Grills | Yes | o No | | | |
| Surfaces in Room | Yes | No | | | |

Findings:

- Noticeable odor from new carpet

- Stained ceiling in northeast corner of room over teacher's desk and one stained ceiling tile over entry doors

- Wall on right side of secondary exit door has elevated moisture content - wet one foot up from the floor

Recommendations:

Site Based Maintenance:

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate for leak (cause of stained ceiling tiles northeast corner above teacher's desk and over entry door) and repair as appropriate and replace stained ceiling tiles

- Evaluate cause of elevated moisture content on right side of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

| | | | IAQ As | sessment | Location N | umber | 0341 | |
|----------------------------|---------------|------------------------|----------------------------------|-----------------------------|--------------|-------------------------|------------|-------------|
| | Beth | nune Elementa | ry School | | Evaluation I | Requested | Septembe | er 15, 2005 |
| Time of Day | 2:00 pm | | | | Evalu | uation Date | Septembe | er 15, 2005 |
| Outdoor Conditio | ons Tem | perature | 38.9 | Relative Humidity | 58.5 | Ambie | nt CO2 | 433 |
| Fish Te | mperature | Range Rela | tive Humidity | Range | CO2 | Ran | nge # | Occupants |
| 810 | 70.1 7 | 2 - 78 | 59.1 | 30% - 60% | 508 |] Max 700 | > Ambient | 3 |
| Noticeable Odo | r Yes | | /isible water nage / staining | Visible micro g? growth? | | nount of ma affected | terial | |
| Ceiling Type | 2 x 4 Lay | In | No | No | | | None | |
| Wall Type | Drywall | | No | No | | | None | |
| Flooring | NEW Carp | et | No | No | | Odor fro | om New Car | pet |
| | Clean | Minor Dust / Debris | Needs Cleaning | | Corrective | Action Re | equired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply G | rills Yes | No | No | | | | | |
| HVAC Return G | rills Yes | No | No | | | | | |
| Ceiling at Suppl Grills | y Yes | No | No | | | | | |
| Surfaces in Roo | m Yes | Νο | No | | | | | |

Findings:

- Noticeable odor from new carpet
- Visible microbial growth on two wood desks
- Non-approved SBBC chemicals in room (Simple Green)
- Dust and debris on HVAC supply grill and wall at supply grill in FISH 810C
- Wall on right side of secondary exit door has elevated moisture content frame is rusted through on the hinge side

Recommendations:

Site Based Maintenance:

- Dispose of two wood desks
- Remove non-approved chemicals
- Clean HVAC supply grill and wall at supply grill in FISH 810C with Wexcide disinfectant solution

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Evaluate cause of elevated moisture content on right side of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls and rusted door frame as appropriate

| | | | IAQ As | sessment | Location N | umber | 0341 | |
|--------------------------|---------------|------------------------|----------------------------------|--------------------------|--------------|-------------------------|-------------|-------------|
| | Betl | nune Elementa | ry School | | Evaluation F | Requested | Septemb | er 15, 2005 |
| Time of Day | 2:20 pm | | | | Evalu | uation Date | Septemb | er 15, 2005 |
| Outdoor Condi | tions Terr | nperature | 88.9 | Relative Humidity | 58.5 | Ambie | nt CO2 | 433 |
| Fish | Temperature | Range Rela | ative Humidity | Range | CO2 | Ran | ige # | Occupants |
| 817 | 75.8 7 | 2 - 78 | 53.8 | 30% - 60% | 913 | Max 700 | > Ambient | 24 |
| Noticeable Od | or No | | Visible water nage / staining | Visible micro growth? | obial An | nount of ma affected | terial | |
| Ceiling Type | 2 x 4 Lay | In | Yes | No | | 1 c | eiling tile | |
| Wall Type | Drywall | | No | No | | | None | |
| Flooring | 12 x 12 Vir | ıyl | No | No | | | None | |
| | Clean | Minor Dust / Debris | Needs Cleaning | | Corrective | Action Re | equired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply | Grills No | Yes | Yes | C | lean with W | excide disi | infectant | |
| HVAC Return (| Grills No | Yes | Yes | C | lean with W | excide disi | infectant | |
| Ceiling at Sup Grills | ply Yes | No | No | | | | | |
| Surfaces in Ro | oom Yes | No | No | | | | | |

Findings:

- One stained ceiling tile in center of room
- Visible growth on filter in paint spray booth (817A)
- Damper on kiln hood is not working (817B) stuck wide open
- Paint booth exhaust hood shows signs of water intrusion
- Dust and debris on HVAC supply and return grills
- Wall at windows has elevated moisture content

- Wall on both sides of secondary exit door has elevated moisture content - frame is rusted through on the hinge side

Recommendations:

Site Based Maintenance:

- Dispose of filter in paint spray booth (817A)
- Clean HVAC supply and return grills with Wexcide disinfectant solution

- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Replace filters in paint booth (817A)

- Evaluate and repair/replace damper on kiln hood (817B) stuck wide open
- Evaluate and repair paint booth exhaust hood for water intrusion
- Evaluate for leak (cause of stained ceiling tile) and repair as appropriate and replace stained ceiling tile
- Evaluate cause of elevated moisture content on wall at windows and repair exterior of building and caulk windows to stop water intrusion and repair/replace interior walls as appropriate

- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate

| | | IAQ As | sessment | Location Number | 0341 |
|-----------------------------|----------------------|------------------------------------|-----------------------------|-------------------------------|--------------------|
| | Bethune Eler | nentary School | | Evaluation Requested | September 15, 2005 |
| Time of Day 2: | 50 pm | | | Evaluation Date | September 15, 2005 |
| Outdoor Conditions | Temperature | 88.9 | Relative Humidity | 58.5 Ambie | ent CO2 433 |
| Fish Tempe | erature Range | Relative Humidity | Range | CO2 Ran | nge # Occupants |
| 818 7 | 7.9 72 - 78 | 51.3 | 30% - 60% | 1028 Max 700 | > Ambient 20 |
| Noticeable Odor | No | Visible water damage / staining | Visible micro g? growth? | bial Amount of ma affected | terial |
| Ceiling Type | 2 x 4 Lay In | Yes | No | 1 c | ceiling tile |
| Wall Type | Drywall | No | No | | None |
| Flooring | 12 x 12 Vinyl | No | No | | None |
| Ceiling | Clean Minor / Deb | ris Cleaning | | Corrective Action Re | equired |
| Walls | Yes No | | | | |
| Flooring | Yes | No | | | |
| HVAC Supply Grills | Yes | No | | | |
| HVAC Return Grills | Yes | No | | | |
| Ceiling at Supply Grills | Yes | No | | | |
| Surfaces in Room | Yes | No | | | |

Findings:

- One stained ceiling tile in center of room
- Visible growth on filter in paint spray booth (818A)
- Damper on kiln hood is not working (817B) stuck wide open
- Paint booth exhaust hood shows signs of water intrusion
- Wall at windows has elevated moisture content
- Windows do not close properly
- Wall on both sides of secondary exit door has elevated moisture content frame is rusted through on the hinge side
- Temperature elevated

Recommendations:

Site Based Maintenance:

- Dispose of filter in paint spray booth (818A)
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

Physical Plant Operations Division:

- Replace filters in paint booth (818A)
- Evaluiate and repair/replace damper on kiln hood (817B) stuck wide open
- Evaluate and repair paint booth exhaust hood for water intrusion
- Evaluate for leak (cause of stained ceiling tile) and repair as appropriate and replace stained ceiling tile
- Evaluate cause of elevated moisture content on wall at windows and repair exterior of building and caulk windows to stop water intrusion and
- repair/replace interior walls as appropriate
- Evaluate and repair windows as appropriate
- Evaluate cause of elevated moisture content on both sides of secondary exit door and repair exterior of building to stop water intrusion and repair/replace interior walls as appropriate
- Evaluate and repair HVAC system for elevated temperature