

managing risk with responsibility

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Jeffrey S. Moquin, Director Risk Management Department

August 2, 2005

TO: Ms. Olivia Vega, Principal

Riverland Elementary School

FROM: Robert J. Krickovich, Coordinator, LEA

Facilities and Construction Management, Environmental Division

SUBJECT: Indoor Air Quality (IAQ) Assessment

FISH 137, 142, 200, 202 and 208

On July 26, 2005 and August 1, 2005 the IAQ Assessment Team conducted an assessment of FISH 137, 142, 200, 202 and 208 at **Riverland 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: Dr. Verda Farrow, Area Superintendent
Dr. Roberta Insel, Area Director
Jeffrey S. Moquin, Director, Risk Management
Steve Dowling, 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.

| | Rive | erland Element | ary School | | Evaluat | ion Requested | July 2 | 26, 2005 |
|---------------------------|-------------|----------------|----------------------------------|--------------------------|---------|-------------------------|--------------|-----------|
| Time of Day | 12:20 pm |] | | | E | Evaluation Date | July 2 | 26, 2005 |
| Outdoor Condit | ions Tei | mperature [| 92 | Relative Humidity | 53.2 | Ambier | nt CO2 | 412 |
| Fish T | emperature | Range Re | lative Humidity | Range | CO2 | Ranç | ge # | Occupants |
| 137 | 71.7 | 72 - 78 | 71.8 | 30% - 60% | 413 | Max 700 > | > Ambien | t 2 |
| Noticeable Odd | or Yes | da | Visible water mage / staining | Visible micro growth? | bial | Amount of mate affected | erial | |
| Ceiling Type | 2x2 Lay | In | No | No | | | None | |
| Wall Type | Tackboard/[| Drywall | Yes | Yes | | All Wall | ls at Ceilin | g |
| Flooring | 12x12 Vi | nyl | No | No | | | None | |
| | Clean | Minor Dus | Needs Cleaning | | Correc | ctive Action Red | quired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | No | Yes | Yes | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply (| Grills Yes | No | No | | | | | |
| HVAC Return G | Grills Yes | No | No | | | | | |
| Ceiling at Supp Grills | oly Yes | No | No | | | | | |
| Surfaces in Ro | om Yes | No | No | | | | | |

Observations

Findings:

- All walls have 20-50% moisture content
- Wall surface above range is wet
- Visible microbial growth near ceiling on several wall panels
- Duct above ceiling sweating and wet
- Heavy dust and debris in AHU room (137C) and on coils
- Humidity level elevated

Recommendations:

Site Based Maintenance:

- Wipe down all walls 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 repair cause of water intrusion at range hood and remove and replace damaged wall as appropriate
- Evaluate cause of duct work sweating above ceiling
- Clean coils and AHU room 137C
- Evaluate and repair HVAC system to lower humidity level

Project Manager:

- Expedite IAQ project building repairs

| | | Rive | rland Elem | entary School | | Evaluat | ion Requested | July 26, 2005 |
|--------------------------|-----------|----------|--------------------|---------------------------------|--------------|--------------------|---------------------------|----------------|
| Time of Day | 12:20 | pm |] | | | I | Evaluation Date | July 26, 2005 |
| Outdoor Cond | litions | Ter | nperature | 92 | Relative Hum | nidity 53.2 | 2 Ambier | nt CO2 412 |
| | | | | | | | | |
| Fish | Temperate | ure | Range | Relative Humidity | Range | CO2 | Ran | ge # Occupants |
| 142 | 73.5 | | 72 - 78 | 58.3 | 30% - 60% | 442 | Max 700 : | > Ambient 2 |
| Noticeable O | dor | No |] | Visible water damage / staining | | microbial owth? | Amount of mat affected | erial |
| Ceiling Type | 2) | x2 Lay | In | No | | No | | None |
| Wall Type | Tackb | oard/[| Drywall | Yes | Y | 'es | Ove | er Range |
| Flooring | 12 | 2x12 Vii | nyl | No | | No | | None |
| | Cle | an | Minor D / Debri | | l | Corre | ctive Action Re | quired |
| Ceiling | Y | 'es | No | No | | | | |
| Walls | N | No | Yes | Yes | | | | |
| Flooring | Y | 'es | No | No | | | | |
| HVAC Supply | Grills Y | 'es | No | No | | | | |
| HVAC Return | Grills Y | 'es | No | No | | | | |
| Ceiling at Sup Grills | oply Y | 'es | No | No | | | | |
| Surfaces in R | oom Y | 'es | No | No | | | | |

Observations

Findings:

- Visible microbial growth and 90% moisture content on wall surface over range
- Six live plants with visible microbial growth on soil

Recommendations:

Site Based Maintenance:

- Clean wall over range with Wexcide disinfectant solution
- Remove live plants from room
- 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 repair cause of water intrusion at range hood
- Remove and replace damaged wall over range

Project Manager:

- Expedite IAQ project building repairs

| Riverland Elementary School Evaluation Requested July 2 | | | | | | | | |
|--|----------------|-----------------------|-------------------|-------------------|--------|-----------------|----------------|--|
| Time of Day 12 | ::20 pm | | | | E | valuation Date | July 26, 2005 | |
| Outdoor Conditions | Temper | rature 92 | 2 F | Relative Humidity | 53.2 | Ambier | at CO2 412 | |
| Fish Tempo | erature Ran | ge Relativ | e Humidity | Range | CO2 | Ranç | ge # Occupants | |
| 200 71.9 72 - 78 53.7 30% - 60% 428 Max 700 > Ambient 6 | | | | | | | | |
| Noticeable Odor Yes Visible water Visible microbial Amount of material damage / staining? growth? affected | | | | | | erial | | |
| Ceiling Type | 2x2 Lay In | | No | No | | | None | |
| Wall Type Ta | ackboard/Drywa | all [| Yes | No | | All Ta | ackboard | |
| Flooring | 12x12 Vinyl | | Yes | No | [| Ent | ire Floor | |
| | | inor Dust / Debris | Needs Cleaning | | Correc | tive Action Red | quired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | No | Yes | Yes | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply Grills | Yes | No | No | | | | | |
| HVAC Return Grills | Yes | No | No | | | | | |
| Ceiling at Supply Grills | Yes | No | No | | | | | |
| Surfaces in Room | Yes | No | No | | | | | |

Observations

Findings:

- Tackboard walls are stained throughout entire room
- Floor tile is delaminating from floor

Recommendations:

Site Based Maintenance:

- Wipe down all walls 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 repair cause of floor tile delaminating and replace floor tiles as appropriate

Project Manager:

Expedite IAQ project building repairs

| | River | land Elementa | ry School | | Evaluation | Requested | July 26, 2005 | |
|---|---------------|------------------------|----------------------------------|----------------------------|-------------|--------------------------|---------------|--|
| Time of Day | 12:20 pm | | _ | | Eva | aluation Date | July 26, 2005 | |
| Outdoor Condi | tions Tem | perature | 92 | Relative Humidity | 53.2 | Ambient | CO2 412 | |
| Fish | Temperature F | Range Rela | ative Humidity | Range | CO2 | Range | # Occupants | |
| 202 | | 2 - 78 | 71.1 | 30% - 60% | 396 | Max 700 > A | | |
| Noticeable Od | lor No | | Visible water nage / staining | Visible micro ? growth? | - | Amount of mater affected | al | |
| Ceiling Type | 2x2 Lay I | | No | No | | No | one | |
| Wall Type | Tackboard/Dr | rywall | No | No | | No | one | |
| Flooring | 12x12 Viny | yl | No | No | | N | one | |
| | Clean | Minor Dust / Debris | Needs Cleaning | | Correcti | ve Action Requ | ıired | |
| Ceiling | Yes | No | No | | | | | |
| Walls | Yes | No | No | | | | | |
| Flooring | Yes | No | No | | | | | |
| HVAC Supply | Grills Yes | No | No | | | | | |
| HVAC Return | Grills Yes | No | No | | | | | |
| Ceiling at Sup Grills | ply Yes | No | No | | | | | |
| Surfaces in Ro | oom Yes | No | No | | | | | |
| Dbservations | | | | | | | | |
| Findings: - Humidity level | is elevated | | | | | | | |
| Recommendat | ions: | | | | | | | |
| Site Based Mai | intenance: | | | | | | | |
| | | n for any signs | of microbial gr | rowth as well as dus | st and debr | is accumulation | and clean as | |
| Physical Plant Operations Division: - Evaluate and repair HVAC system to lower humidity level | | | | | | | | |
| | | | | | | | | |
| Project Manager: - Expedite IAQ project building repairs | | | | | | | | |
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| | Riv | erland Eleme | ntary School | | Evaluat | ion Requested | July 26, 2005 |
|--------------------------|-------------|----------------------|------------------------------------|---------------|-------------------|-------------------------|---------------|
| Time of Day | 12:20 pm | | | | I | Evaluation Date | July 26, 2005 |
| Outdoor Cond | itions Te | emperature | 92 | Relative Humi | dity 53.2 | 2 Ambier | nt CO2 412 |
| E | Tomporotura | | | | | | |
| | Temperature | | Relative Humidity | ago | CO2 | Rang | |
| 208 | 72.2 | 72 - 78 | 80.3 | 30% - 60% | 428 | Max 700 : | > Ambient 3 |
| Noticeable O | dor No | | Visible water damage / staininç | | nicrobial wth? | Amount of mate affected | erial |
| Ceiling Type | 2x2 La | y In | No | N | 0 | | None |
| Wall Type | Tackboard/ | Drywall | No | N | 0 | l l | None |
| Flooring | 12x12 V | inyl | No | N | 0 | | None |
| | Clean | Minor Du / Debris | | I | Corre | ctive Action Re | quired |
| Ceiling | Yes | No | No | | | | |
| Walls | Yes | No | No | | | | |
| Flooring | Yes | No | No | | | | |
| HVAC Supply | Grills Yes | No | No | | | | |
| HVAC Return | Grills Yes | No | No | | | | |
| Ceiling at Sup Grills | oply Yes | No | No | | | | |
| Surfaces in Ro | oom Yes | No | No | | | | |

Observations

Findings:

- Condensation in light fixtures
- Tackboard walls have 30-40% moisture content
- Wall between 208 and 209 has 50% moisture content
- Rust on all metal surfaces in room
- Humidity level is elevated

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 and repair cause of condensation in light fixtures as appropriate
- Evaluate and repair cause of water intrusion at walls and repair/replace walls as appropriate
- Evaluate and repair HVAC system to lower humidity level

Project Manager:

- Expedite IAQ project building repairs