

# RISK MANAGEMENT...

managing risk with responsibility

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Risk Management Department

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September 10, 2007

**Signature on File**

TO: Ms. Victoria Thurston,, Principal  
**Morrow Elementary School**

FROM: Robert Krickovich, Coordinator, LEA  
Facilities and Construction Management

SUBJECT: Indoor Air Quality (IAQ) Assessment  
**FISH 130, 132, 134, 136, 138, 140, 142 and 167**

| <u>For Custodial Supervisor Use Only</u> |                                |
|--|--------------------------------|
| <input type="checkbox"/>                 | Custodial Issues Addressed     |
| <input type="checkbox"/>                 | Custodial Issues Not Addressed |
| _____                                    |                                |
| _____                                    |                                |

On August 9, 2007 I conducted an assessment of FISH 130, 132, 134, 136, 138, 140, 142 and 167 at **Morrow Elementary School**. This evaluation included observations of the flooring system, ceiling tiles, false ceiling plenum, environmental surfaces, interior and exterior walls, and the accessible ventilation equipment. Additionally, environmental parameter measurements were taken to include temperature, relative humidity, and carbon dioxide. The detailed findings, along with the recommended corrective action can be found on the attached IAQ Assessment Worksheets.

The IAQ assessment did identify one or more existing conditions impacting IAQ and has generated appropriate work orders to correct deficiencies in systems and maintenance that could contribute to decreased indoor air quality. At the time of the assessment, these concerns were not an immediate health or safety concern 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.

*Please ensure that your Head Facilities Serviceperson receives a copy of this correspondence so that the recommendations requiring their attention can be addressed. Within two weeks a representative from the Custodial/Grounds Department will conduct a follow-up visit to ensure that all issues have been appropriately addressed.*

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. Joanne Harrison, Area Superintendent  
Sharon Airaghi, Area Director  
Jeffrey S. Moquin, Director, Risk Management  
Paul Bach, Project Manager, Facilities and Construction Management  
Ruby Fitzgerald, Broward Teachers Union  
Roy Jarrett, National Federation of Public and Private Employees  
Mark Dorsett, Manager 1, Physical Plant Operations Division, Zone 1  
Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

RK/tc  
Enc.

# IAQ Assessment

Morrow Elementary School

Location Number

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

|                                  |  |                                      |                                   |  |  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|--|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range                                  | CO2  | Range   | # Occupants                    |
| <input type="text" value="130"/> | <input type="text" value="89.8"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="36.3"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="657"/>               | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?              |  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>        |  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     | <input type="text" value="Yes"/>     | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="Entire North Wall"/> |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Elevated moisture content in 2 West wall panels and 4 East wall panels on the North wall. The 2 panels in between are dry but show signs of water damage and delamination. Possible hidden damage behind wall mounted cabinets.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Have the roofing contractor remove and replace all wall materials on the North wall

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|                                  |  |                                      |                                   |  |  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|--|---|--------------------------------|
| Fish                             | Temperature                                    | Range                                | Relative Humidity                 | Range                                  | CO2  | Range   | # Occupants                    |
| <input type="text" value="132"/> | <input type="text" value="87.6"/>              | <input type="text" value="72 - 78"/> | <input type="text" value="37.3"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="668"/>               | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?              |  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>        |  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>      |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |
| Wall Type                        | <input type="text" value="Drywall/Tackboard"/> |                                      | <input type="text" value="Yes"/>  | <input type="text" value="No"/>        | <input type="text" value="Entire North Wall"/> |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/>     |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Elevated moisture content in entire North wall (drywall) - bottom 5 feet and West panels are wet from the floor to the ceiling. Possible hidden damage behind wall mounted cabinets.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - 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:**  
 - Remove and replace all water damaged drywall on the North wall. Sheet rock is very dense and will not dry out properly

**Facilities and Construction Management:**  
 - Have the roofing contractor reimburse for drywall replacement costs

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|                                  |  |                                      |                                   |  |                                  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|----------------------------------|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range  | CO2                              | Range   | # Occupants                    |
| <input type="text" value="134"/> | <input type="text" value="86.2"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="37.5"/> | <input type="text" value="30% - 60%"/>         | <input type="text" value="654"/> | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?                      |                                  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>                |                                  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="None"/>              |                                  |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     | <input type="text" value="Yes"/>     | <input type="text" value="No"/>   | <input type="text" value="Entire North Wall"/> |                                  |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="None"/>              |                                  |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Elevated moisture content in entire North wall. Entire wall is delaminating. 5 East panels are wet from floor to ceiling. Standing water on sink cabinet. Books on cabinet are wet. Markerboard on North wall is water damaged.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Have the roofing contractor remove and replace all wall materials on the North wall

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Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

|                                  |  |                                      |                                   |  |  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|--|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range                                  | CO2  | Range   | # Occupants                    |
| <input type="text" value="136"/> | <input type="text" value="86.7"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="38.7"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="712"/>               | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="3"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?              |  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>        |  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     | <input type="text" value="Yes"/>     | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="Entire North Wall"/> |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> | <input type="text" value="Yes"/>     | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="Along North Wall"/>  |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Elevated moisture content in entire North wall. Sink cabinet is water damaged. Wall cabinet is water damaged. Wall mounted shelving is water damaged along with books, boxes and papers on the shelves. Flooring is water damaged along North wall.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Have the roofing contractor remove and replace all wall materials on the North wall, replace flooring along North wall as necessary and replace all water damaged case work.

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Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

|                                  |  |                                      |                                   |  |                                  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|----------------------------------|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range  | CO2                              | Range   | # Occupants                    |
| <input type="text" value="138"/> | <input type="text" value="87.7"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="52.3"/> | <input type="text" value="30% - 60%"/>         | <input type="text" value="602"/> | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?                      |                                  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>                |                                  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="None"/>              |                                  |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     | <input type="text" value="Yes"/>     | <input type="text" value="No"/>   | <input type="text" value="Entire North Wall"/> |                                  |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> | <input type="text" value="No"/>      | <input type="text" value="No"/>   | <input type="text" value="None"/>              |                                  |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**

- Entire North wall is delaminating (dry at time of assessment).
- Urine odor near restroom. Restroom was clean and had an odor of bleach.

**-Recommendations:**

**Site Based Maintenance:**

- Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases
- Identify all water damaged materials and retain for replacement
- Identify all materials that have or appear to have microbial growth and document the materials and discard immediately
- Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**

- Have the roofing contractor remove and replace all wall materials on the North wall.

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|                                  |  |                                      |                                 |  |  |   |                                |
|----------------------------------|--|--------------------------------------|---------------------------------|--|--|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity               | Range                                  | CO2  | Range   | # Occupants                    |
| <input type="text" value="140"/> | <input type="text" value="87.2"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="51"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="584"/>               | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                 | Visible microbial growth?              |  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                 | <input type="text" value="No"/>        |  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  | <input type="text" value="No"/>      | <input type="text" value="No"/> | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     | <input type="text" value="Yes"/>     | <input type="text" value="No"/> | <input type="text" value="No"/>        | <input type="text" value="Entire North Wall"/> |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> | <input type="text" value="No"/>      | <input type="text" value="No"/> | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Entire North wall is water damaged and is wet 3 feet up on the West side of the exterior doors and dry on the east side of the doors. However, may be hidden damage behind wall mounted cabinets.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Have the roofing contractor remove and replace all wall materials on the North wall.

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Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

|                                  |  |                                      |                                   |  |  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|--|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range                                  | CO2  | Range   | # Occupants                    |
| <input type="text" value="142"/> | <input type="text" value="83"/>            | <input type="text" value="72 - 78"/> | <input type="text" value="40.6"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="688"/>               | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="1"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?              |  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>        |  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |
| Wall Type                        | <input type="text" value="Tackboard"/>     |                                      | <input type="text" value="Yes"/>  | <input type="text" value="No"/>        | <input type="text" value="Entire North Wall"/> |   |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        | <input type="text" value="None"/>              |   |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - Entire North wall is water damaged and delaminating and is wet 4 feet from the top.

**-Recommendations:**  
**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - Continue to monitor this location for any signs of microbial growth as well as dust and debris accumulation and clean as appropriate

**Facilities and Construction Management:**  
 - Have the roofing contractor remove and replace all wall materials on the North wall.

# IAQ Assessment

Location Number

Morrow Elementary School

Evaluation Requested

Time of Day

Evaluation Date

Outdoor Conditions      Temperature       Relative Humidity       Ambient CO2

|                                  |  |                                      |                                   |  |                                  |   |                                |
|----------------------------------|--|--------------------------------------|-----------------------------------|--|----------------------------------|---|--------------------------------|
| Fish                             | Temperature                                | Range                                | Relative Humidity                 | Range                                  | CO2                              | Range   | # Occupants                    |
| <input type="text" value="167"/> | <input type="text" value="78.2"/>          | <input type="text" value="72 - 78"/> | <input type="text" value="59.6"/> | <input type="text" value="30% - 60%"/> | <input type="text" value="625"/> | <input type="text" value="Max 700 &gt; Ambient"/> | <input type="text" value="3"/> |
| Noticeable Odor                  |  | Visible water damage / staining?     |                                   | Visible microbial growth?              |                                  | Amount of material affected                       |                                |
| <input type="text" value="No"/>  |  | <input type="text" value="No"/>      |                                   | <input type="text" value="No"/>        |                                  | <input type="text" value="None"/>                 |                                |
| Ceiling Type                     | <input type="text" value="2 x 4 Lay In"/>  |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        |                                  | <input type="text" value="None"/>                 |                                |
| Wall Type                        | <input type="text" value="Drywall"/>       |                                      | <input type="text" value="Yes"/>  | <input type="text" value="No"/>        |                                  | <input type="text" value="North Wall"/>           |                                |
| Flooring                         | <input type="text" value="12 x 12 Vinyl"/> |                                      | <input type="text" value="No"/>   | <input type="text" value="No"/>        |                                  | <input type="text" value="None"/>                 |                                |

|                          | Clean                            | Minor Dust / Debris              | Needs Cleaning                   | Corrective Action Required                                 |
|--------------------------|----------------------------------|----------------------------------|----------------------------------|--|
| Ceiling                  | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Walls                    | <input type="text" value="No"/>  | <input type="text" value="Yes"/> | <input type="text" value="Yes"/> | <input type="text" value="Repair/replace as appropriate"/> |
| Flooring                 | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Supply Grills       | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| HVAC Return Grills       | <input type="text"/>             | <input type="text"/>             | <input type="text"/>             | <input type="text" value="N/A through light fixtures"/>    |
| Ceiling at Supply Grills | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |
| Surfaces in Room         | <input type="text" value="Yes"/> | <input type="text" value="No"/>  | <input type="text" value="No"/>  | <input type="text"/>                                       |

**Observations**

**Findings:**  
 - East side of North wall has elevated moisture content 18 feet from floor to ceiling

**-Recommendations:**

**Site Based Maintenance:**  
 - Remove all materials (books, papers, etc.) from North wall, including inside of cabinets and bookcases  
 - Identify all water damaged materials and retain for replacement  
 - Identify all materials that have or appear to have microbial growth and document the materials and discard immediately  
 - 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:**  
 - Remove and replace all water damaged drywall on the North wall. Sheet rock is very dense and will not dry out properly

**Facilities and Construction Management:**  
 - Have the roofing contractor reimburse for drywall replacement costs