

managing risk with responsibility

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|----------------------------|------------|-------------|
| Risk Management Department | Fax: | 754 321-191 |

September 27, 2011 Signature on File

TO: Ms. Roberta Ray, Principal

Tamarac Elementary School

FROM: Aston A. Henry, Supervisor

Risk Management Department

SUBJECT: Indoor Air Quality (IAQ) Assessment

FISH 133, 134, 135, 136, 621, 624 and 625

| For | Custodial Supervisor Use Only |
|-----|--------------------------------|
| | Custodial Issues Addressed |
| | Custodial Issues Not Addressed |
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On May 5, 2011 I conducted an assessment of FISH 133, 134, 135, 136, 621, 624 and 625 at **Tamarac 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. In an attempt to separate IAQ issues from general maintenance items, the attached assessment may contain direction for site based staff to generate a work order through COMPASS. 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 754-321-1900.

cc: Sharon Airaghi, Area Superintendent

Anne Dilgen, Area Director

Jeffrey S. Moquin, Executive Director, Support Operations

Mark Dorsett, Acting Director, Physical Plant Operations Division, Maintenance

Aston Henry, Supervisor, Risk Management

Dave Archer, Project Manager, Facilities and Construction Management

Ruby Fitzgerald, Broward Teachers Union

Roy Jarrett, Federation of Public Employees

Roy Norton, Manager Custodial/Grounds, Physical Plant Operations Division

AH/tc Enc.

| | | IAQ As | sessment | Location Number | 2621 |
|---|--|---|--|--|------------------|
| | Tamarac Ele | mentary School | | Evaluation Requested | April 18, 2011 |
| Time of Day | | | | Evaluation Date | May 5, 2011 |
| Outdoor Conditions | Temperatur | e | Relative Humidity | Ambi | ent CO2 |
| Fish Tempe 133 6 Noticeable Odor Ceiling Type Wall Type Flooring | Range 9.2 72 - 78 No 2 x 4 Lay In Drywall Tile | Relative Humidity 61.7 Visible water damage / staining Yes No | 30% - 60% Visible micro g? growth? No | 757 Max 70 Obial Amount material afform | |
| | Clean Minor / Del | | No No | Corrective Action F | |
| Ceiling | No Ye | Yes | Remo | ve and replace stain | ed ceiling tiles |
| Walls | Yes | No | | | |
| Flooring | Yes | No | | | |
| HVAC Supply Grills | Yes | No | | | |
| HVAC Return Grills | Yes | No | | | |
| Ceiling at Supply Grills | Yes | No No | | | |
| Surfaces in Room | Yes | No | | | |

Observations

Findings

- Temperature was low and humidity level was slightly elevated at the time of the assessment
- 2 stained ceiling tiles from previous roof leak

Site Based Maintenance:

- Remove and replace stained ceiling tiles
- 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:

- Evaluate HVAC system for proper operation and repair as appropriate to increase temperature and lower humidity level.

NOTE: Work order EQ01681 generated on 5/11/2011

| | | | | | IAQ As | sessi | ment | | Locati | on Numbe | er | 2621 | |
|--|--------|----------|----------------|----------|----------------------------------|----------|-----------|-------------------|-----------|----------------|---------------------|------------------|--------|
| | | Та | marac Ele | menta | ry School | | | | Evaluat | ion Reque | ested | April 18, 2 | 011 |
| Time of Day | | | | | | | | | I | Evaluation | Date | May 5, 20 |)11 |
| Outdoor Cond | itions | To | emperatur | e | | Relat | ive Hu | ımidity | <i>,</i> | | Ambie | nt CO2 | |
| Fish | Tempe | | Range | Rela | tive Humidity | Ra | nge | | CO2 | | Ran | ge # Occ | upants |
| 134 | 7 | 1.1 | 72 - 78 | | 58.5 | 30% | - 60% | | 847 | Ma | x 700 | > Ambient | |
| Noticeable Oc | dor | No | | | Visible water nage / staining | g? | | e micro rowth? | | Ame materia | ount of al affec | | |
| Ceiling Type | | 2 x 4 La | ay In | | No | | | No | | | | None | |
| Wall Type | | Dryw | all | | No | | | No | | | | None | |
| Flooring | | Tile | | | No | | | No | | | | None | |
| | | Clean | Minor / Del | | Needs Cleaning | l | | | Corre | ctive Acti | ion Re | equired | |
| Ceiling | | Yes | N | 0 | No | | | | | | | | |
| Walls | | Yes | N | o | No | | | | | | | | |
| Flooring | | Yes | N | 0 | No | | | | | | | | |
| HVAC Supply | Grills | Yes | N | 0 | No | | | | | | | | |
| HVAC Return | Grills | Yes | N | 0 | No | | | | | | | | |
| Ceiling at Sup Grills | ply | Yes | N | D | No | | | | | | | | |
| Surfaces in Ro | oom | Yes | No | <u> </u> | No | | | | | | | | |
| L bservations | | | | | | | | | | | | | |
| Findings - Temperature | was lo | w and hi | ımidity lev | al was | slightly eleva | ted at t | he tim | e of the | 22222 | ment | | | |
| Temperature | was io | w and m | armany love | n was | ongritty cicva | iou ui i | | o or are | 000000 | inont | | | |
| Site Based Mair - Continue to mappropriate | | | ation for an | / signs | s of microbial | growth | as we | ll as du | ust and o | debris acc | umula | tion and clean a | as |
| Physical Plant Control | - | | roper oper | ation a | and repair as | approp | oriate to | o increa | ase temp | perature a | nd low | er humidity lev | el. |
| NOTE: Work | | | | | | · | | | · | | | - | |
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| | | | IAQ As | sessment | Locati | on Number | 2621 |
|---|---------------|----------------------|------------------------------------|-------------------|-------------------|---------------------------|---------------------|
| | Tar | narac Eleme | ntary School | | Evalua | tion Requested | April 18, 2011 |
| Time of Day | | | | | | Evaluation Date | May 5, 2011 |
| Outdoor Conditi | ons Te | mperature | | Relative Hum | idity | Ambie | nt CO2 |
| Fish Te | emperature | Range F | Relative Humidity | Range _ | CO2 | Ran | ge # Occupants |
| 135 | 69 | 72 - 78 | 62 | 30% - 60% | 755 | Max 700 | > Ambient |
| Noticeable Odo | | | Visible water damage / staining | | nicrobial wth? | Amount of material affect | ted |
| Ceiling Type | 2 x 4 Lay | | No | N | _ | | None |
| Wall Type | Drywa | \[\] | No | N | <u>o</u> | | None |
| Flooring | Tile | | No | N | 0 | | None |
| | Clean | Minor Du / Debris | | | Corre | ctive Action Re | quired |
| Ceiling | Yes | No | No | | | | |
| Walls | Yes | No | No | | | | |
| Flooring | Yes | No | No | | | | |
| HVAC Supply G | Grills Yes | No | No | | | | |
| HVAC Return G | rills Yes | No | No | | | | |
| Ceiling at Supp Grills | ly Yes | No | No | | | | |
| Surfaces in Roc | om Yes | No | No | | | | |
| Dbservations | | | | | | | |
| Findings - Temperature wa | as low and hu | midity level w | as slightly elevat | ed at the time o | of the assess | sment | |
| Site Based Mainter-Continue to mo appropriate | | ion for any si | gns of microbial | growth as well a | as dust and o | debris accumula | tion and clean as |
| Physical Plant Op - Evaluate HVAC | | oper operation | on and repair as a | appropriate to ir | ncrease tem | perature and low | ver humidity level. |
| NOTE: Work or | der EQ01681 | generated o | on 5/11/2011 | | | | |
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| | | | IAQ As | sessment | Locati | on Number | 2621 |
|---|---------------|----------------------|------------------------------------|-------------------|-------------------|--------------------------|--------------------|
| | Tar | narac Eleme | ntary School | | Evalua | tion Requested | April 18, 2011 |
| Time of Day | | | | | 1 | Evaluation Date | May 5, 2011 |
| Outdoor Conditi | ons Te | mperature | | Relative Hum | idity | Ambie | nt CO2 |
| Fish Te | emperature | Range F | Relative Humidity | Range _ | CO2 | Ran | ge # Occupants |
| 136 | 68.6 | 72 - 78 | 62 | 30% - 60% | 739 | Max 700 | > Ambient |
| Noticeable Odo | | | Visible water damage / staining | | nicrobial wth? | Amount of material affec | ted |
| Ceiling Type | 2 x 4 Lay | | No | N | <u>o</u> | | None |
| Wall Type | Drywa | | No | N | <u>o</u> | | None |
| Flooring | Tile | | No | N | 0 | | None |
| | Clean | Minor Du / Debris | | | Corre | ctive Action Re | quired |
| Ceiling | Yes | No | No | | | | |
| Walls | Yes | No | No | | | | |
| Flooring | Yes | No | No | | | | |
| HVAC Supply G | irills Yes | No | No | | | | |
| HVAC Return G | rills Yes | No | No | | | | |
| Ceiling at Supp Grills | ly Yes | No | No | | | | |
| Surfaces in Roc | om Yes | No | No | | | | |
| Dbservations | | | | | | | |
| Findings - Temperature wa | as low and hu | midity level w | as slightly elevat | ed at the time o | f the assess | sment | |
| Site Based Mainter - Continue to more appropriate | | ion for any si | gns of microbial | growth as well a | is dust and o | debris accumula | tion and clean as |
| Physical Plant Op - Evaluate HVAC | | oper operatio | on and repair as a | appropriate to ir | crease temp | perature and low | er humidity level. |
| NOTE: Work or | der EQ01681 | generated o | on 5/11/2011 | | | | |
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| | | | | IAQ As | sessment | Lo | ocation Number | 2621 |
|---|---------|------------|-------------------|--------------------------------|----------------|-----------------------|-------------------------------|-------------------|
| | | Ta | marac Elem | entary School | | Eva | aluation Requested | April 18, 2011 |
| Time of Day | | | | | | | Evaluation Date | May 5, 2011 |
| Outdoor Cond | itions | Te | emperature | | Relative Hu | ımidity 🗌 | Ambie | nt CO2 |
| Fish | Tempe | rature | Range | Relative Humidity | Range | СО | D2 Ran | ge # Occupants |
| 621 | 7: | 3.1 | 72 - 78 | 65.1 | 30% - 60% | | | > Ambient |
| Noticeable Oc | dor | No | | Visible water damage / stainin | | e microbial rowth? | I Amount of material affec | |
| Ceiling Type | | 2 x 4 La | ıy In | No | | No | | None |
| Wall Type | | Drywa | all | No | L | No | | None |
| Flooring | | Tile | | No | | No | | None |
| | | Clean | Minor D / Debr | | 9 | C | orrective Action Re | equired |
| 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 | | | | |
| L Observations | | | | | | | | |
| Findings - Humidity leve | l was s | lightly el | evated at the | e time of the asse | ssment | | | |
| Site Based Mair - Continue to mappropriate | | | tion for any | signs of microbial | growth as we | ll as dust a | and debris accumula | tion and clean as |
| Physical Plant (- Evaluate HVA | | | roper operat | tion and repair as | appropriate to | o lower hur | midity level. | |
| NOTE: Work | order I | EQ01681 | generated | on 5/11/2011 | | | | |
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| | | | | IAQ | Assess | sment | | Locati | on Number | 262 | 21 |
|---|---------|------------------|-------------------|------------------|-----------|-----------|-------------------|-----------|-----------------------|-------------|--------------|
| | | Ta | marac Elem | entary School | | | | Evaluat | ion Requeste | dA Ap | ril 18, 2011 |
| Time of Day | | | | | | | | i | Evaluation Dat | e M | ay 5, 2011 |
| Outdoor Condi | itions | Te | emperature | | Rela | ntive Hu | midity | | Amb | ient CO2 | |
| Fish | Tempe | rature | Range | Relative Humic | dity R | ange | | CO2 | R | ange | # Occupants |
| 624 | 7: | 3.6 | 72 - 78 | 64.1 | 30% | - 60% | | 655 | Max 70 | 00 > Ambi | ent |
| Noticeable Od | dor [| No | | Visible was | | | e micro rowth? | | Amount material af | ected | |
| Ceiling Type | | 2 x 4 La | | No | | L | No | | | None | |
| Wall Type | | Drywa | | No | | L | No | | | None | |
| Flooring | | Tile | | No | | | No | | | None | |
| | | Clean | Minor D / Debr | | | | | Corre | ctive Action | Required | |
| 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 | | | | | | | |
| Observations | | | | | | | | | | | |
| Findings - Humidity level | l was s | lightly el | evated at the | e time of the as | sessmer | nt | | | | | |
| Site Based Main - Continue to m appropriate | | | tion for any | signs of microb | ial growt | h as wel | ll as du | ist and c | debris accumu | ılation and | l clean as |
| Physical Plant C - Evaluate HVA | | | roper operat | tion and repair | as appro | priate to | lower | humidit | y level. | | |
| NOTE: Work | order E | E Q0168 1 | l generated | on 5/11/2011 | | | | | | | |
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| | | | | IAQ A | ssessment | | Location Nu | mber | 2621 |
|--|----------|------------------|-------------------|--------------------------------|------------------|------------------------|--------------|---------------------------|-------------------|
| | | Ta | marac Elem | entary School | | E | valuation R | equested | April 18, 2011 |
| Time of Day | | | | | | | Evalua | tion Date | May 5, 2011 |
| Outdoor Condi | itions | Te | emperature | | Relative H | umidity [| | Ambie | nt CO2 |
| Fish | Tempe | rature | Range | Relative Humidit | y Range | С | O2 | Ran | ge # Occupants |
| 625 | 7 | 3.9 | 72 - 78 | 64 | 30% - 60% | | 688 | Max 700 | > Ambient |
| Noticeable Od | dor [| No | | Visible water damage / stainir | | le microbia growth? | | Amount of terial affec | |
| Ceiling Type | | 2 x 4 La | | No | | No | | | None |
| Wall Type | <u> </u> | Drywa | all | No | _ | No | | | None |
| Flooring | | Tile | | No | | No | | | None |
| | | Clean | Minor D / Debr | | | (| Corrective | 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 | ply | Yes | No | No | | | | | |
| Surfaces in Ro | oom | Yes | No | No | | | | | |
| Dbservations | | | | | | | | | |
| Findings - Humidity level | l was s | lightly el | evated at the | e time of the asse | essment | | | | |
| Site Based Main - Continue to mappropriate | | | tion for any : | signs of microbia | I growth as we | ell as dust | and debris | accumulat | tion and clean as |
| Physical Plant C - Evaluate HVA | | | roper operat | tion and repair as | appropriate t | o lower hu | umidity leve | l. | |
| NOTE: Work | order I | E Q0168 1 | generated | on 5/11/2011 | | | | | |
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