**INDOOR AIR QUALITY ASSESSMENT**

**Post-Occupancy Assessment**

**Massachusetts Rehabilitation Commission**

**101 Munson Street**

**Greenfield, Massachusetts**



Prepared by:

Massachusetts Department of Public Health

Bureau of Environmental Health

Indoor Air Quality Program

December 2017

# Background

|  |  |
| --- | --- |
| Building: | Massachusetts Rehabilitation Commission (MRC) |
| Address: | 101 Munson Street, Greenfield, MA |
| DCAMM Project Manager: | Jamie Merrill Blood |
| Reason for Request: | Post-occupancy assessment |
| Date of Assessment: | December 15, 2017 |
| Massachusetts Department of Public Health/Bureau of Environmental Health (MDPH/BEH) Staff Conducting Assessment: | Michael Feeney, Director, Indoor Air Quality (IAQ) Program |
| Building Description: | The MRC is located in an office park in a building constructed in the 2000s. The space is composed of private offices, open work areas, and conference rooms. It has wall-to-wall carpeting and dropped ceiling tiles. |
| Windows: | Windows are not openable. |

# Methods

Please refer to the IAQ Manual for methods, sampling procedures, and interpretation of results (MDPH, 2015).

# Results

The following is a summary of indoor air testing results (Table 1).

* ***Carbon dioxide levels*** were below 800 parts per million (ppm) in all areas assessed.
* ***Temperature*** was within the recommended range of 70°F to 78°F in all areas.
* ***Relative humidity*** was below the recommended range of 40% to 60% in all areas, and reflective of outdoor (dry) conditions.
* ***Carbon monoxide*** levels were non-detectable (ND) in all indoor areas assessed.
* ***Fine particulate matter (PM2.5)*** concentrations measured were below the National Ambient Air Quality Standard (NAAQS) level of 35 micrograms per cubic meter (μg/m3) in all areas.
* ***Total Volatile Organic Compounds (TVOCs)*** were ND in all areas.

# Discussion

## Ventilation

Mechanical ventilation is provided by a heating, ventilation, and air conditioning (HVAC) system. The air-handling units (AHUs) are located on the roof. Ductwork connects the AHUs to ceiling-mounted supply diffusers. By design, diffusers are equipped with fixed louvers that direct air along the ceiling to flow down the walls and create airflow. Ceiling or wall-mounted return vents return air to the AHUs through via ductwork.

To maximize air exchange, the MDPH recommends that both supply and exhaust ventilation operate continuously during periods of occupancy. In order to have proper ventilation with a mechanical supply and exhaust system, the systems must be balanced to provide an adequate amount of fresh air to the interior of a room while removing stale air from the room. It is recommended that HVAC systems be re-balanced every five years to ensure adequate air systems function (SMACNA, 1994).

## Microbial/Moisture Concerns

No water damage was observed at the time of assessment.

## Other Conditions

The floor is covered with wall-to-wall carpeting. The Institute of Inspection, Cleaning and Restoration Certification (IICRC), recommends that carpeting be cleaned annually (or semi-annually in soiled high traffic areas) (IICRC, 2012).

# Conclusions/Recommendations

Based on the observations made during the visit, the following is recommended:

1. For buildings in New England, periods of low relative humidity during the winter are often unavoidable. Therefore, scrupulous cleaning practices should be adopted to minimize common indoor air contaminants whose irritant effects can be enhanced when the relative humidity is low. To control for dusts, a high efficiency particulate arrestance (HEPA) filter equipped vacuum cleaner in conjunction with wet wiping of all surfaces is recommended. Avoid the use of feather dusters. Drinking water during the day can help ease some symptoms associated with a dry environment (throat and sinus irritations).
2. Refer to resource manuals and other related IAQ documents for further building-wide evaluations and advice on maintaining public buildings. Copies of these materials are located on the MDPH’s website: <http://mass.gov/dph/iaq>.

References

IICRC. 2012. Institute of Inspection Cleaning and Restoration Certification. Institute of Inspection, Cleaning and Restoration Certification. Carpet Cleaning: FAQ. Retrieved from <http://www.iicrc.org/consumers/care/carpet-cleaning>.

MDPH. 2015. Massachusetts Department of Public Health. “Indoor Air Quality Manual: Chapters I-III”. Available at: <http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/exposure-topics/iaq/iaq-manual/>.

SMACNA. 1994. HVAC Systems Commissioning Manual. 1st ed. Sheet Metal and Air Conditioning Contractors’ National Association, Inc., Chantilly, VA.

| **Location** | **Carbon****Dioxide****(ppm)** | **Carbon Monoxide****(ppm)** | **Temp****(°F)** | **Relative****Humidity****(%)** | **PM2.5****(µg/m3)** | **TVOCs****(ppm)** | **Occupants****in Room** | **Windows****Openable** | **Ventilation** | **Remarks** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Intake** | **Exhaust** |
| Background (outdoors) | 384 | ND | 34 | 22 | 6 | ND |  |  |  |  |  |
| Waiting room | 547 | ND | 73 | 11 | 4 | ND | 0 | N | Y | Y |  |
| 102 | 635 | ND | 73 | 12 | 5 | ND | 0 | N | Y | Y |  |
| 105 | 550 | ND | 73 | 11 | 4 | ND | 0 | N | Y | Y |  |
| 107 | 550 | ND | 73 | 11 | 4 | ND | 0 | N | Y | Y |  |
| 108 | 628 | ND | 73 | 12 | 5 | ND | 1 | N | Y | Y |  |
| 111 | 675 | ND | 70 | 16 | 2 | ND | 0 | N | Y | Y |  |
| 112 | 645 | ND | 70 | 14 | 3 | ND | 0 | N | Y | Y |  |
| 113 | 629 | ND | 70 | 15 | 2 | ND | 0 | N | Y | Y |  |
| 114 | 725 | ND | 71 | 15 | 2 | ND | 1 | N | Y | Y |  |
| 116 | 707 | ND | 70 | 17 | 3 | ND | 1 | N | Y | Y |  |
| 117 | 649 | ND | 70 | 15 | 2 | ND | 0 | N | Y | Y |  |
| 121 | 723 | ND | 71 | 16 | 4 | ND | 1 | N | Y | Y |  |
| 123 | 789 | ND | 72 | 16 | 3 | ND | 1 | N | Y | Y |  |
| 126 | 685 | ND | 72 | 17 | 5 | ND | 1 | N | Y | Y |  |
| 129 | 683 | ND | 72 | 13 | 5 | ND | 0 | N | Y | Y |  |
| 130 | 673 | ND | 72 | 13 | 5 | ND | 0 | N | Y | Y |  |
| 131 | 693 | ND | 72 | 14 | 5 | ND | 1 | N | Y | Y |  |
| 132 | 687 | ND | 72 | 14 | 6 | ND | 1 | N | Y | Y |  |
| 134 | 664 | ND | 73 | 13 | 7 | ND | 0 | N | Y | Y |  |
| 137 | 653 | ND | 73 | 15 | 6 | ND | 1 | N | Y | Y |  |
| ppm = parts per million | ND = non-detect | µg/m3= micrograms per cubic meter |