Office of Inspector General | United States Postal Service

Audit Report

OFFICE OF INSPECTOR GENERAL

UNITED STATES POSTAL SERVICE

Ventilation and Filtration in Postal Service Facilities

Report Number 21-118-R22 | February 4, 2022

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Highlights

Background

The U.S. Postal Service owns over 8,400 facilities where it provides services, which includes maintaining proper ventilation and filtration in these facilities to ensure they are clean and safe. Ventilation and filtration are often provided by heating, ventilation, and air conditioning systems in a facility. Industry standards recommend minimum ventilation rates and inspection and maintenance activities.

What We Did

Our objective was to assess Postal Service efforts to ensure proper ventilation and filtration in facilities and identify opportunities for improvement. For this audit, we statistically sampled 193 Postal Service-owned retail and delivery facilities with an interior size ranging from 1,000 to 100,000 square feet from a universe of 6,709 facilities.

What We Found

To ensure proper ventilation and filtration in facilities, the Postal Service provided postmasters and maintenance personnel with guidance on increasing the volume of outside fresh air in facilities based on recommendations from the Centers for Disease Control and Prevention. However, we found some personnel were unaware of their ventilation and filtration responsibilities because messages were not always sent directly to postmasters at retail and delivery facilities. In addition, the Postal Service could not confirm if ventilation and filtration equipment was maintained, or filters were changed as required. In addition to not managing or monitoring ventilation and filtration at retail and delivery facilities, postmasters did not always know who was responsible for properly maintaining ventilation and filtration equipment. This occurred because the Postal Service did not set up an accountability process to monitor or manage the performance of required activities at retail and delivery facilities. Additionally, the Postal Service did not maintain an inventory of ventilation and filtration equipment which would allow management to review and evaluate maintenance activities.

Recommendations

We recommend management (1) review and revise the communication structure to send updated ventilation and filtration related guidance, recommendations, and responsibilities directly to postmasters; (2) implement an oversight process to manage and monitor the maintenance of ventilation and filtration equipment; and (3) update and maintain a current inventory of ventilation and filtration equipment.

Transmittal Letter



Results

Introduction/Objective

This report presents the results of our self-initiated audit of Ventilation and Filtration in U.S. Postal Service Facilities (Project Number 21-118). Our objective was to assess Postal Service efforts to ensure proper ventilation and filtration in facilities and identify opportunities for improvement. See Appendix A for additional information about this audit.

Background

The Postal Service's mission is to provide the nation with reliable, affordable, and universal mail service. For people and businesses to receive these services safely, the Postal Service must provide them in clean and secure spaces. The Postal Service is required to maintain a safe and healthy environment for both employees and customers in accordance with its internal policies and procedures.¹ The Postal Service owns over 8,400 facilities where it provides services and maintaining proper ventilation and filtration in these facilities is part of ensuring the spaces are clean and safe.

Ventilation is the removal of inside air from and introduction of outside air to any space by natural or mechanical means. This can be accomplished by opening doors and windows or installing fans and other portable equipment to circulate air. Filtration is passing air through a porous material in such a manner as to remove suspended matter from the air. Ventilation and filtration are typically provided by heating, ventilation, and air conditioning (HVAC) systems in a facility.

Industry standards from the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) recommend minimum ventilation rates to ensure that indoor air quality is acceptable.² These standards also recommend inspection and regular maintenance activities that include cleaning ductwork and keeping an updated inventory of ventilation equipment.³

The Postal Service has a wide variety of manufacturers and types of ventilation equipment installed in its facilities and some have reached or exceeded their service life. These systems must be maintained and operating properly to ensure the safety of the building and its occupants. Properly operating ventilation systems can also reduce the concentration of airborne viruses (e.g., novel coronavirus disease or COVID-19), thus reducing the risk of transmission through the air.

Finding #1: Communication of Ventilation and Filtration Guidance

Postal Service guidance intended to ensure proper ventilation and filtration in retail and delivery facilities did not always reach responsible personnel. The Postal Service's communication efforts were hindered because messages to increase ventilation and improve filtration at retail and delivery facilities were not always sent directly to postmasters.⁴

We surveyed a statistical sample of 600 postmasters at Postal Service-owned retail and delivery facilities to obtain information on ventilation and filtration activities. The survey included questions about the awareness of guidance and overall responsibilities, preventive maintenance, recordkeeping and reporting requirements, and actions taken to improve ventilation and filtration. We received "The Postal Service is required to maintain a safe and healthy environment for both employees and customers in accordance with its internal policies and procedures."

responses from 414 of 600 postmasters (69 percent) and found most — 330 of 414 (or 80 percent) — believed that ventilation and filtration equipment at their facilities was well maintained and operated as intended.

¹ Handbook MS-47, *Facility Cleaning*, TL-5, June 27, 2014.

² ASHRAE Standard 62.1-2019, Ventilation for Indoor Air Quality.

³ ASHRAE Standard 180-2018, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems.

⁴ The Postal Service defines this position as the senior postal official. This is the postmaster or officer-in-charge and at some facilities the manager or supervisor of Customer Services. For clarity, we use 'postmaster' throughout this report.

Postal Service management informed the U.S. Postal Service Office of Inspector General (OIG) that they made an effort in 2017 to train all postmasters on their general maintenance responsibilities. From May 2019 through April 2021, two Postal Service groups (Facilities and Maintenance Operations) communicated information about ventilation and filtration requirements at retail and delivery facilities. Specifically, the Facilities group distributed semiannual reminders to Postal Service Retail and Delivery Area vice presidents and maintenance personnel to schedule inspections and routine maintenance for ventilation equipment. This included requirements to ensure trouble free operation and peak performance such as:

- Checking and cleaning equipment.
- Cleaning coils.
- Checking filters monthly and changing every 90 days.
- Removing debris around outside equipment weekly.

The Maintenance Operations group issued weekly updates to maintenance personnel with technical guidance related to maintaining ventilation and filtration equipment. In addition, they issued two special bulletins during the COVID-19 pandemic that provided actions to ensure ventilation systems were fully functional. These bulletins included suggestions based on recommendations from the Centers for Disease Control and Prevention to increase the volume of outside air in facilities.⁵ This information was also posted to an internal Postal Service webpage.

Nevertheless, most postmasters surveyed did not believe they had daily responsibility for ventilation and filtration. Further, nearly half of postmasters — 192 of 414 (or 46 percent) — who responded to the survey were not aware of the updated guidance in the last two years. See Figure 1 for a breakdown on responses about the awareness of guidance to improve ventilation at their facilities.

Figure 1. Postmaster's Awareness of Guidance

"In the last year, I am aware of updated Postal Service guidance to improve ventilation at my facility."



Source: OIG analysis of survey results.

About one half of the postmasters — 183 of 414 (or 44 percent) — responded that improvements to ventilation were made at their facilities in the past year. These efforts, which aligned with issued guidance, included changing filters more frequently and opening doors and windows to improve ventilation at their facilities. See Table 1 for the actions taken by postmasters at retail and delivery facilities to improve ventilation.

⁵ Maintenance Update, Volume 22, No. 34, dated April 16, 2020, and No., 90 dated December 2020.

Table 1. Steps Taken to Improve Ventilation

Actions	Count of Responses	Percent of Responses	
Change filters more frequently	139	34%	
Open doors and windows	122	30%	
Clean equipment and ducts more thoroughly	55	13%	
Adjust settings	45	11%	
Run equipment longer	37	9%	

Source: OIG analysis.

Postal Service guidance outlines policies and procedures specific to the operation and regular maintenance of ventilation equipment. It includes requirements for postmasters at retail and delivery facilities to ensure ventilation systems are properly maintained to prevent failure.⁶ This guidance also identifies preventive maintenance frequency and maintenance activities based on categories and types of equipment. To accomplish these activities, postmasters may assign these tasks, contract for services, or request assistance from district maintenance personnel.

However, none of the communications from Facilities and Maintenance Operations were sent directly to the postmasters responsible for ventilation and filtration. We found most postmasters were unaware of the requirements for routine inspections and maintenance frequencies or of the webpage guidance because it was included with COVID-19 related information and difficult to find. Further, we found no requirement for district Field Maintenance Operations (FMO)⁷ to communicate information related to maintenance guidance to postmasters.

Without a direct communication structure, important Postal Service information and guidance did not reach all postmasters, the individuals responsible for taking action at their facilities. Postmasters were more likely to act when they were aware of the updated guidance. Responses from the OIG survey identified that most postmasters —155 of the 220 (or 70 percent) — tried to improve ventilation at their facility when they were aware of their responsibilities and guidance. But only 80 of 192 (or 42 percent) postmasters took action to improve ventilation at their facility without awareness of the updated guidance.

Recommendation #1

We recommend the Vice President, Retail and Post Office Operations, in coordination with Vice President, Processing and Maintenance Operations, review and revise the communication structure to send updated ventilation and filtration related guidance, recommendations, and responsibilities directly to postmasters.

Finding #2: Oversight of Ventilation and Filtration Activities

The Postal Service could not confirm if ventilation and filtration equipment was maintained or that filters were changed as required. Specifically, we found no process for managing and monitoring ventilation and filtration at retail and delivery facilities to improve indoor air quality. Additionally, postmasters did not always know who was responsible for ensuring ventilation and filtration equipment was properly maintained.

Based on our survey, most postmasters — 245 of 414 (or 59 percent) — responded that they maintained records of completed maintenance activities. However, about one-third of postmasters —141 of 414 (or 34 percent) — responded

"Without a direct communication structure, important Postal Service information and guidance did not reach all postmasters, the individuals responsible for taking action at their facilities."

⁶ Maintenance Series Handbook MS-1, Operation and Maintenance of Real Property, Section 10.1.2, dated August 8, 2019.

⁷ The FMO maintains buildings and building systems and develops the overall maintenance policies for retail and delivery offices within their district.

to the survey by saying they were unaware of how often preventive maintenance occurred at their facility. About a quarter — 107 of 414 (or 26 percent) — did not know if filters were changed at the required frequency.

Additionally, less than half of postmasters answered that they were responsible for ventilation and filtration daily, stating that various other people were responsible. Figure 2 shows responses indicating that several people shared these duties.





Source: OIG analysis of survey results.

We requested supporting documentation for the operation and maintenance of ventilation and filtration equipment from a statistical sample of 193 Postal Serviceowned retail and delivery facilities. This included information on preventive maintenance, filter changes, cleaning records, and maintenance contracts for the 24-month period from May 1, 2019, through April 30, 2021. We selected the sample as a subset of the 600 facilities electronically surveyed. The selected facilities were from all four Postal Service retail and delivery areas and ranged in size from 1,000 to 100,000 internal square feet. Most postmasters could not provide documentation supporting that maintenance activities occurred. Nearly half or more of postmasters responded to the survey stating that these activities occurred, but only 10 percent or less could provide supporting documentation. See Table 2 for a comparison of survey responses to the documentation provided by postmasters at sampled retail and delivery facilities.

Table 2. Documentation Did Not Support Maintenance Activities

	Survey Responses			
Type of Activity	Survey Responses	Supporting Documentation Provided		
Preventive maintenance performed semiannually or more frequently	54%	10%		
Filters changed quarterly or more frequently	48%	3%		
Identified that FMO personnel responsible for ventilation and filtration	55%	16%		

Source: OIG analysis.

Almost half of postmasters responded to our document request that the FMO maintained the equipment at their facility. However, FMO managers at 29 of 38 Postal Service districts contacted reported that they are not responsible for maintaining ventilation and filtration equipment at most retail and delivery offices. Overall, we found that FMO personnel performed ventilation and filtration maintenance for about a quarter — 52 of 193 (or 27 percent) — of the facilities in our sample. In addition, we learned most FMOs do not provide maintenance records to the postmaster. Further, only 13 FMOs stated that they maintain a complete or partial inventory of ventilation equipment for the facilities in their district.

⁸ The survey had five multiple choice response but did not include 'I do not know" as an option.

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About a quarter of postmasters in our sample — 45 of 193 (or 23 percent) — reported that they rely on a contractor to provide preventive maintenance and change filters. However, only 13 of the 45 (or 29 percent) could provide records confirming these activities occurred over the 24-month sample period. The remaining 32 postmasters had incomplete contractor maintenance records. The Postal Service requires a contractor to provide the facility with a summary report of the work performed during each visit.⁹ We found that some postmasters maintained complete records of HVAC contracts, maintenance agreements, invoices, checklists, and contractor results. However, others could only provide partial invoices, repair, or inspection documents, but no evidence to support the required preventive maintenance and periodic filter changes.

The Postal Service could not identify whether ventilation and filtration equipment was maintained because they did not set up an accountability process to monitor or manage the performance of required activities. In our survey, most postmasters responded that they do not send evidence of completed work to any higher level of management. Although the FMOs developed maintenance policies at retail and delivery facilities in their districts, they do not have oversight responsibility to ensure activities were completed. Postal Service policy requires postmasters to maintain records identifying the equipment and the required maintenance activity and frequency.¹⁰ They also must maintain records of the work and the name(s) of those performing the work.

Additionally, oversight of maintenance activities did not occur because the Postal Service did not have a complete inventory of ventilation equipment at retail and delivery facilities. The Postal Service maintained an electronic database with equipment inventory for all mail processing facilities as well as equipment for some retail facilities.¹¹ However, Postal Service management indicated that the existing electronic database is not able to store information for all retail and delivery facilities.

Postal Service policy requires that FMOs maintain an inventory of building equipment for the facilities in their geographic area.¹² However, management did not enforce this policy and direct FMOs to fulfill this requirement. Industry standards for ventilation and filtration maintenance also state that a program needs to have an inventory of items to be inspected and maintained.¹³ This is intended to preserve the condition and capability of systems and equipment and aid with maintenance planning and replacement.

Without a process to monitor and manage the upkeep of ventilation and filtration equipment, the Postal Service

cannot ensure whether maintenance and filter changes occurred and may risk paying contractors for services not provided. Management also does not have visibility into whether equipment is operating as designed and risks premature breakdowns, which can result in uncomfortable and/or unsafe conditions for employees and customers.

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the Postal Service

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Recommendation #2

We recommend the **Vice President, Retail and Post Office Operations**, in coordination with the **Vice President, Processing and Maintenance Operations**, implement an oversight process to manage and monitor the maintenance of ventilation and filtration equipment.

¹⁰ Administrative Support Manual, Issue 13, Section 531.313b, Recordkeeping, dated July 1999, updated through July 31, 2021.

¹¹ The electronic Maintenance Activity Reporting & Scheduling system (eMARS) is a computerized maintenance management system that provides tools to manage maintenance operations and maintain inventories. 12 Maintenance Series Handbook MS-45, *Field Maintenance Program*, Section 6, Field Maintenance Office Record Keeping, dated October 10, 2018.

¹³ ASHRAE, Standard 180-2018.

Recommendation #3

We recommend the **Vice President, Processing and Maintenance Operations**, in coordination with **Vice President, Facilities**, update and maintain a current inventory of ventilation and filtration equipment.

Other Matters: Ventilation Assessments at Selected Post Offices

During the audit, the OIG contracted with an engineering company to assess the current condition of HVAC equipment at eight of the 193 Postal Service-owned retail and delivery facilities in our sample.¹⁴ We judgmentally selected these facilities based on several factors, including:

- Responses from the electronic survey.
- Maintenance records.
- The number and type of ventilation and filtration repair calls.

Table 3. Contractor Site Visits and Assessment

- Facility age.
- Interior square footage.
- Geography and climate locations.

The contractor visited the facilities with the OIG in September 2021 and inspected the ventilation equipment including air handler units, condensers, boilers, fans, coils, and filters. The results of the contractor assessments included technical ventilation calculations and identified deficiencies, lack of conformance with industry and Postal Service standards, and the condition of equipment and filtration.

The contractor found that the condition of equipment ranged from good to fair and many were near the end of the Postal Service estimated 15-year life expectancy. See Table 3 for a detailed listing of the eight facilities, including the contractor's overall condition assessment.

Retail and	Post Office	State	ZIP Code	Date Occupied	Interior Square	Contractor Assessment	
Delivery Area					Footage	Date Visited	Condition of Ventilation Equipment
Atlantic	Concord Main Post Office	MA	01742	6/1/1938	13,324	9/22/21	Good
Atlantic	Danvers Main Post Office	MA	01923	9/1/1937	7,748	9/21/21	Fair
Central	Bettendorf Main Post Office	IA	52722	11/1/1997	13,433	9/13/21	Fair
Central	Mount Pleasant Main Post Office	IA	52641	6/1/1936	7,598	9/14/21	Good
Southern	Red Springs Main Post Office	NC	28377	6/1/1939	6,340	9/21/21	Good
Southern	Wagram Main Post Office	NC	28396	9/6/2002	1,475	9/21/21	Good
WestPac	Mira Loma Main Post Office	CA	91752	5/1/1997	7,572	9/8/21	Fair
WestPac	Stanton Main Post Office	CA	90680	12/1/1974	7,816	9/9/21	Fair/Good

Source: Postal Service electronic Facility Management System and contractor reports.

¹⁴ The OIG contracted with Wood Programs, Inc. on August 31, 2021.

The equipment at all eight facilities had similar issues with lack of maintenance and repairs, extremely clogged filters, drain pans with standing water, coils clogged with dust and debris, and closed outside air dampers. Lastly, none of the facilities had a preventive maintenance program. See Figure 3 for examples of issues identified during the contractor site visits.

Figure 3 Ventilation Observations



Overgrown vegetation near ventilation unit at Danvers Main Post Office, Danvers, MA. Photograph taken on September 21, 2021.



Dirty diffuser at Concord Main Post Office, Concord, MA. Photograph taken on September 22, 2021.



Return grille with no duct work at Wagram Main Post Office, Wagram, NC. Photograph taken on September 21, 2021.



Clogged filtration at Red Springs Main Post Office, Red Springs, NC. Photograph taken on September 21, 2021.



Clogged condensate pan and dirty filters at Stanton Main Post Office, Stanton, CA. Photograph taken on September 9, 2021.



Clogged coils at Mount Pleasant Main Post Office, Mount Pleasant, IA. Photograph taken on September 14, 2021.

Source: Contractor photographs taken from September 8-22, 2021.

The contractor reports contained general observations, significant issues, and recommendations for each facility. These recommendations suggested repairs and preventive maintenance to improve ventilation and addressing



Closed outside air dampers at Mira Loma Main Post Office, Mira Loma, CA. Photograph taken on September 8, 2021.



Dirty exhaust grille at Bettendorf Main Post Office, Bettendorf, IA. Photograph taken on September 13, 2021.

Ventilation and Filtration in Postal Service Facilities Report Number 21-118-R22 equipment not working properly. This included changing filters, rebalancing outside air dampers to meet ventilation calculations, and removing excessive plant growth and debris surrounding condenser units. The contractor also recommended the Postal Service establish an inventory of equipment to monitor equipment maintenance and replacement schedules. We provided the reports to Postal Service management so that they could address facility-specific issues.

Management's Comments

Management generally agreed with all the recommendations but disagreed with some of the findings in the report. Further, management agreed with the importance of communicating ventilation and filtration guidelines to offices and are committed to providing continued guidance in that oversight.

Regarding recommendation 1, management stated that they will review and revise the communication structure to send updated ventilation and filtration related guidance, recommendations, and responsibilities directly to postmasters. The target implementation date is November 30, 2022.

Regarding recommendation 2, management stated that they will implement an oversight process to manage and monitor the maintenance of ventilation and filtration equipment. The target implementation date is November 30, 2022.

Regarding recommendation 3, management stated that they will collaborate to explore the development of an inventory tracking system that will allow management to update and maintain a current inventory of ventilation and filtration equipment and implement. Management also stated that moving the Facilities Maintenance Operations duties to Post Office Operations will add to the facilitation of this process. The target implementation date is November 30, 2022.

See Appendix B for management's comments in their entirety.

Evaluation of Management's Comments

We consider management's comments to all recommendations responsive and the corrective actions stated should resolve the issues identified in the report.

All recommendations require OIG concurrence before closure. Consequently, the OIG requests written confirmation when corrective actions are completed. All recommendations should not be closed in the Postal Service's follow-up tracking system until the OIG provides written confirmation that the recommendations can be closed.

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Appendix A: Additional Information

Scope and Methodology

The team assessed the Postal Service's efforts to provide proper ventilation and filtration in facilities from May 2019 through April 2021. The team statistically sampled 193 Postal Service-owned retail and delivery facilities with an interior size ranging from 1,000 to 100,000 SF from a universe of 6,709 facilities. This included a review of maintenance requirements, repair calls, and documentation.

To accomplish our objective, we:

- Reviewed applicable policies and procedures to gain an understanding of how the Postal Service provides for and manages ventilation and filtration at retail and delivery facilities. The team also reviewed documentation to identify internal controls related to the overall management of maintenance activities.
- Reviewed and compared Postal Service policies to industry standards as well as Centers for Disease Control and Prevention guidance and Occupational Safety and Health Administration recommendations for improving ventilation.
- Interviewed Postal Service management including Facilities, Maintenance Operations, and Retail and Delivery personnel to gain an understanding of the management, responsibilities, and monitoring of ventilation and filtration operations and maintenance. The team also discussed information system capabilities, limitations, and reporting with responsible officials.
- Visited 19 retail and delivery offices in CA, CT, IA, MA, and NC; and observed the general condition of facilities and equipment. The team also interviewed postmasters and supervisors, field maintenance managers, area maintenance technicians, and custodians about the operation and maintenance of facilities and ventilation and filtration equipment.

- Requested and reviewed documentation from a statistical sample of Postal Service-owned retail and delivery facilities proportional to the universe based on the four Postal Service retail and delivery areas.
- Conducted and analyzed results from an electronic survey of postmasters at 600 statistically selected retail and delivery facilities.
- Contracted an engineering firm to assess the current condition of HVAC equipment at eight judgmentally selected sites.
- Interviewed National Association of Letter Carriers personnel to obtain their perspective on ventilation and filtration in Postal Service facilities.

We conducted this performance audit from March 2021 through February 2022 in accordance with generally accepted government auditing standards and included such tests of internal controls as we considered necessary under the circumstances. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective. We discussed our observations and conclusions with management on January 11, 2022 and included their comments where appropriate.

We assessed the reliability of computer-generated data from the Postal Service's electronic Facility Management System. Although we did not test the validity of controls over these systems, we assessed the accuracy of the data by reviewing existing information, comparing data from other sources, and interviewing Postal Service officials knowledgeable about the data. Therefore, we determined that the data were sufficiently reliable for the purposes of this report.

Prior Audit Coverage

Report Title	Objective	Report Number	Final Report Date	Monetary Impact (in millions)
Postal Service's Heating, Ventilation, and Air Conditioning Preventive Maintenance Process	To evaluate the HVAC PM process at mail processing facilities.	SM-AR-19-006	August 22, 2019	None

Appendix B: Management's Comments









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