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# DUCT CLEANING FINAL REPORT

Report Approved by Alberto Amezcua



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## First Floor



1<sup>st</sup> Floor AHU #1



Unit scrubbed and steamed cleaned. Process also eliminates organic growth



Unit steamed cleaned. Process also eliminates organic growth



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--Before--

Unit with heavy debris and organic growth



---After---

Unit steamed cleaned. Process also helps kill organic growth



--Before--



---After---



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--Before--



---After---



Steam cleaning in progress



Unit cleaned



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--Before--  
Unit with heavy debris and organic growth



---After---  
Unit cleaned



--Before--  
Deteriorating insulation is part of cause for  
debris



---After---  
AstroShield repair to resolve debris issue from  
doors



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--Before--  
Deteriorating insulation is part of cause for  
debris



---After---  
AstroShield repair to resolve debris issue from  
doors



--Before--  
Deteriorating insulation is part of cause for  
debris



---After---  
AstroShield repair to resolve debris issue from  
unit



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--Before--  
Deteriorating insulation is part of cause for  
debris



---After---  
AstroShield repair to resolve debris issue from  
unit



---After---  
AstroShield repair to resolve debris issue from  
unit



---After---  
AstroShield repair to resolve debris issue from  
unit



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---After---  
AstroShield repair to resolve debris issue from  
unit



---After---  
AstroShield repair to resolve debris issue from  
unit



Access created to inspect and clean



Access created to inspect and clean

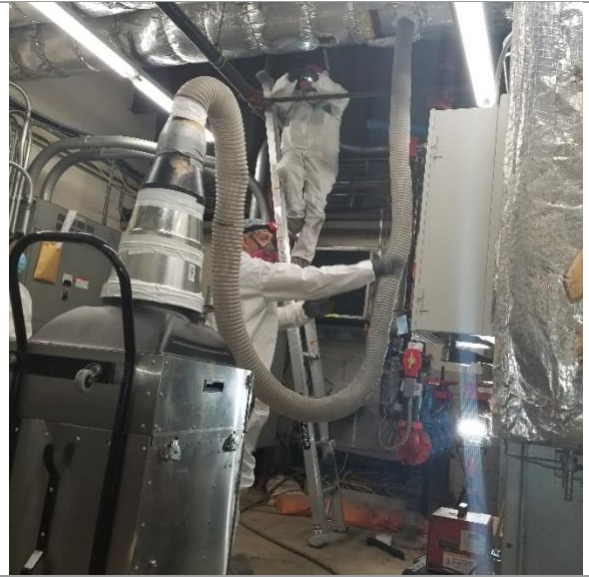




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HEPA negative air used to clean mechanical area



HEPA negative air used to clean



--Before--  
Sample of Mechanical Area Ducts



---After---  
Sample of Mechanical Area Ducts



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--Before--  
Sample of Mechanical Area Ducts

---After---  
Sample of Mechanical Area Ducts



Sample of furniture protection -Before- daily cleaning

Sample of furniture protection -Before- daily cleaning



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Flex duct deterioration, interior fabric a host for debris



Taking down, location meeting room, 1<sup>st</sup> floor



Flex duct replacement (old duct and new duct), meeting room



Flex duct replaced (new duct put in)



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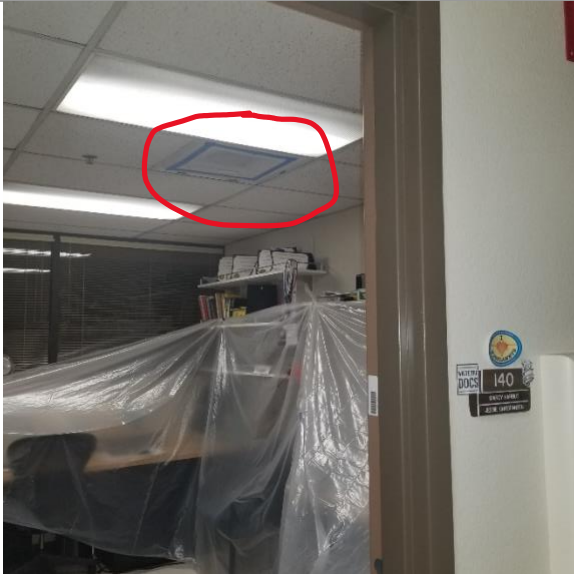
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Flex duct replacement (old duct and new duct)



Flex duct replaced (new duct put in)



Sample of furniture and register protection -  
Before- daily cleaning



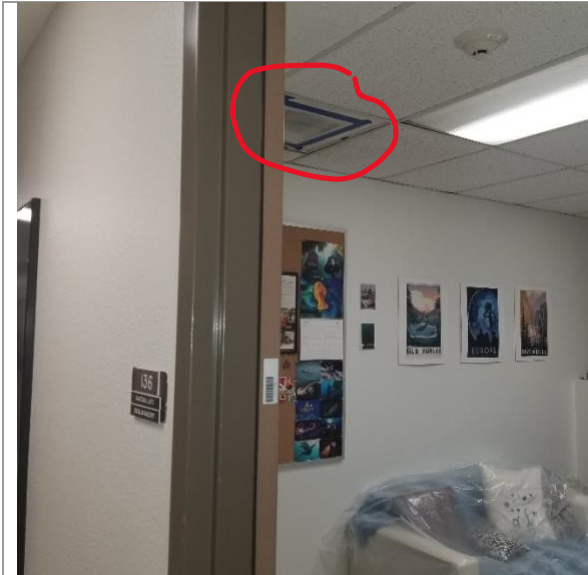
Sample of furniture protection -Before- daily  
cleaning



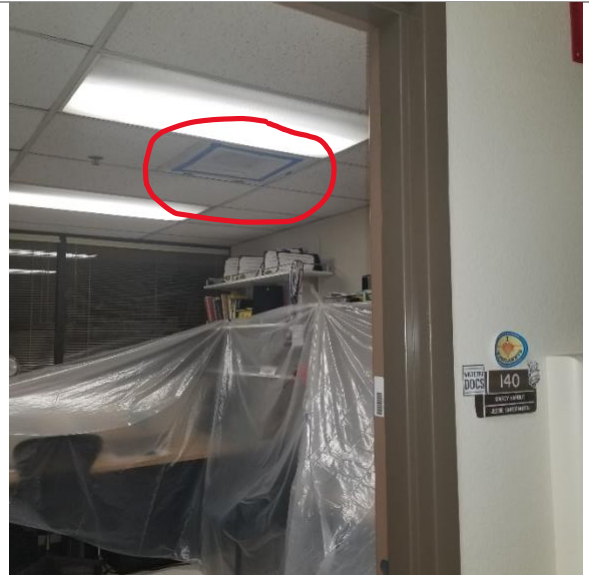
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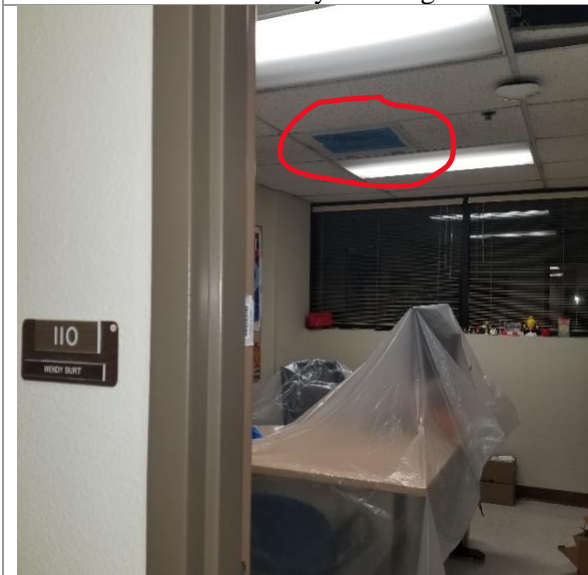
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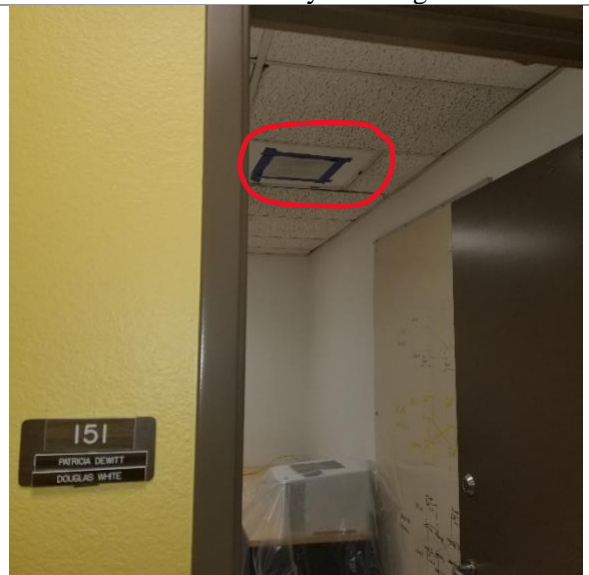
Sample of furniture and register protection -  
Before- daily cleaning



Sample of furniture and register protection -  
Before- daily cleaning



Sample of furniture and register protection -  
Before- daily cleaning



Sample of furniture and register protection -  
Before- daily cleaning



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-Methodology-  
cleaning ducts, HEPA negative air



-Methodology-  
cleaning ducts, HEPA negative air



--Before--  
Access to main ducts (Typical for all access  
points)



---After---  
Sealed (Typical for all access points)



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--Before--  
Main Duct



--After--  
Main Duct



--Before--  
Main Duct



--After--  
Main Duct



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--Before--  
Registers dirty



--After--  
Registers cleaned



--Before--  
Registers dirty



--After--  
Registers cleaned





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--Before--  
Screens dirty



--After--  
Registers cleaned



--Before--  
Debris on registers



--After--  
Clean



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--Before--  
Flex duct with heavy debris



--After--  
Difficult to remove debris from these interior fabric flex ducts. Should consider they be replaced. Mostly found in 1<sup>st</sup> floor offices



--Before--  
Debris on register housing



--After--  
Cleaned



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--Before--



--After--



--Before--



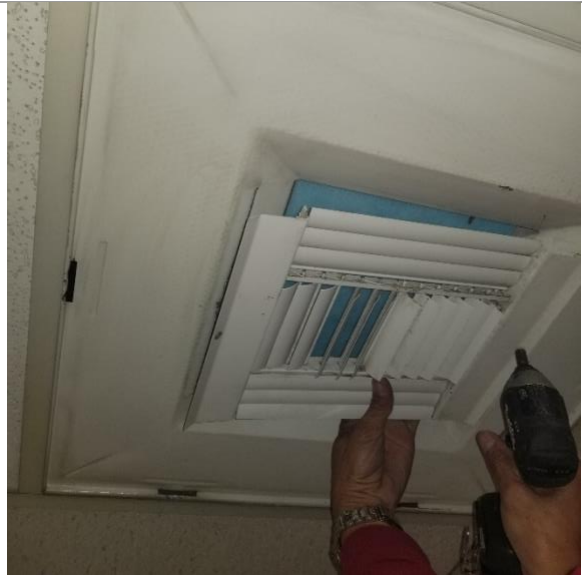
--After--



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--After-- cleaning filter media added



--After-- cleaning filter media added



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## Second Floor



2<sup>nd</sup> floor unit



--Before--  
Fan with debris and organic growth

--After--  
Cleaned



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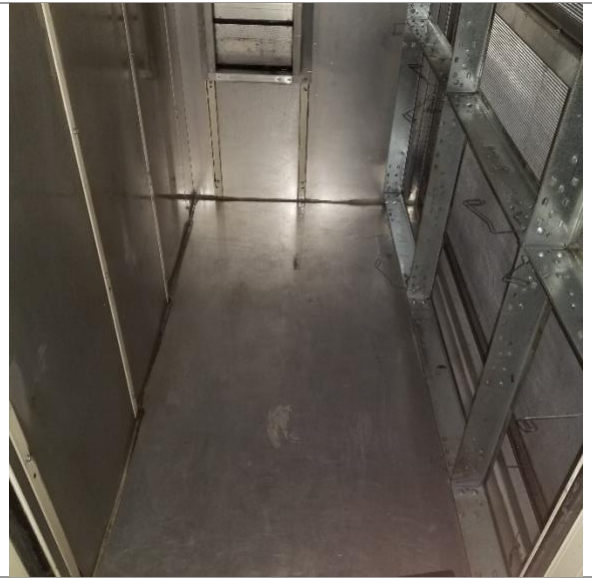
--Before--  
Interior of fan compartment with debris



--After--  
Cleaned



--Before--  
Interior of fan compartment with debris



--After--  
Cleaned



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--Before--  
Fan with debris and organic growth



--After--  
Cleaned



--Before--  
Fan area with debris and organic growth



-Before-  
Fan with debris and organic growth



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--Before--  
Plenum area with debris and organic growth



--After--  
Cleaned



--Before--  
Plenum area with debris and organic growth



--After--  
Cleaned





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--Before--  
Plenum area with debris and organic growth



--After--  
Cleaned



--Before--  
Fan dirty



--After--  
Cleaned



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--Before--  
Fan area with debris and organic growth



--After--  
Cleaned



--Before--  
Dirty flex duct



--After--  
Cleaned



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--Before--  
Dirty flex duct



--After--  
Cleaned



--Before--  
Dirty flex duct



--After--  
Cleaned



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--Before--  
Dirty flex duct



--After--  
Cleaned



--Before--  
Dirty flex duct



--After--  
Cleaned



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--Before--  
Dirty flex duct



--After--  
Cleaned



-Before-  
Dirty duct



--After--  
Cleaned



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--Before--  
Dirty main duct



--After--  
Cleaned



--Before--  
Dirty main duct



--After--  
Cleaned



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-Before-  
Dirty flex duct



--After--  
Cleaned



-Before-  
Dirty main duct



--After--  
Cleaned



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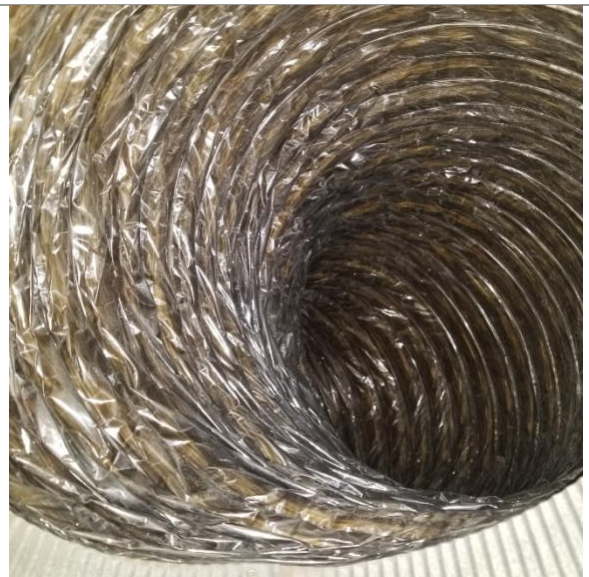
-Before-  
Dirty flex duct



--After--  
Cleaned



-Before-  
Dirty flex duct



--After--  
Cleaned





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-Before-  
Dirty flex duct



--After--  
Cleaned



-Before-  
Dirty main duct



--After--  
Cleaned



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-Before-  
Dirty flex duct



--After--  
Cleaned



-Before-  
Dirty flex duct



--After--  
Cleaned



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Furniture Protection



Furniture Protection

### Findings:

1. Origin of black debris was from unit insulation deterioration. AstroShield was added to interior of unit to resolve this issue.
2. Flex ducts in common meeting area and conference room were switched out for new ducts. These old flex ducts with fabric interior are notorious for retaining and spreading old debris, please review pics on report. It is recommended they be changed. Approximately 60 of these flex ducts are located on the first floor and none on second floor.
3. We will have a team return approximately a month from today to remove media filter from registers.