

Project Summary

The purpose of the visit to Perry's in Sugarland was to evaluate temperature and humidity issues in the space and to complete a TAB on the equipment. Design airflows were not provided so target airflows were based on 400 CFM/ton with OA of no more than 20% ratio. The hood designs were based on a CFM/linear foot depending on cooking application.

Initially the space was found with a net airflow of -3161 CFM and -0.015" wc. This is a very high net negative airflow but the pressure is not very negative. This indicates that the building envelope could be leaky. The high negative airflow also causes a large unconditioned load on the building which can make humidity issues worse. The thermostats are also a non-programmable type which are not recommended for restaurant applications.

Initial space temperatures were measured throughout the space and were between 68 to 70 degrees with 60 to 70% humidity.

It was also found that most of the evaporator coils and condenser coils are corroding. The units are very old and past their life expectancy. The poor condition of the coils appears to be having an impact on the units cooling performance.

Other notes regarding specific pieces of equipment:

- RTU-8 (Private dining), DOAS-1 and DOAS-2 were not running and a service tech could not get on site in time to resolve.
- Several RTU's are missing OA filters
- EF-3 motor is loud at startup.
- A steamer is in between Hoods 2 and 3 and does not have proper coverage.
- Several RTU disconnect switch covers are missing and tape is being used instead.
- RTU-4 (Kitchen) gas piping is disconnected. RTU-9 (Private Dining) gas valve is off.
- RTU-6 (Dining) does not have an outside air intake installed.

RTU's 3, 4, and 5 airflow was increased for better performance. RTU-10 airflow in the main dining area is 879 CFM out of target of 1200 CFM.

The hood airflows were found to be on the low side of target, but are performing well so no changes were made.

After completion of balancing the net airflow in the building is much improved to -99 CFM and the pressure was measured as -0.0023" wc. The space comfort appeared to be improved.

Conclusion and Recommendations:

Overall, significant improvements were made to the building pressure. However a number of issues were identified and should be addressed related to the comfort issue.

1. CRITICAL - DOAS-1, DOAS-2, and RTU-8 (Private Dining) are not running. A service tech was unable to be on site in time to troubleshoot. Recommend these units be repaired and re-commissioned. Repairing DOAS-1 and 2 would allow for the outside air on all RTU's to be reduced which should have a significant impact on performance.
2. CRITICAL - Recommend replacing all RTU's as the evaporator and condenser coils are corroded and beyond their useable life. Recommend installing units with humidity control.
3. CRITICAL – The thermostats are non-programmable type and cannot be programmed for a temperature or fan on/auto schedule. Recommend replacing with fully programmable stats and ensuring that the fans are programmed for fan On while the restaurant is occupied.
4. RTU-10 airflow is currently at 293 CFM/ton and should be minimum 350 CFM/ton ideally. Recommend changing fan pulley to a 10" outside diameter with 1" bore. Then ensure that the measured amperage is below the FLA rating of the motor.
5. RTU-4 (Kitchen) gas piping is disconnected. RTU-9 (Private Dining) gas valve is off. If RTU's are to

remain, recommend resolving.

6. The hoods have a back return style MUA which is an old style of hood that is no longer used. They cause a lot of MUA to spill into the space which results in worse. The MUA's are also unconditioned. Recommend that an AC-PSP be installed in the front of the hoods and the back return capped off. Also recommend that the MUA's be replaced with conditioned units. Consult hood OEM for more details. This would be a lower priority item to be completed only after the other items above have been addressed.
7. Perry's requested information on if more tonnage was required but National TAB is unable to advise on this request. This requires a heat load analysis on the building which should be performed by an MEP engineer. It is probably best to complete the other items on this list prior to adding more tonnage.

Other items identified that should be addressed by not necessarily related to the comfort issue:

1. Several RTU's are missing OA filters. If RTU's are to remain, recommend installing.
2. EF-3 is loud at startup. Recommend servicing.
3. A steamer is located between Hoods 2 and 3 and does not have coverage. Recommend installing underneath a hood so that the steam is contained.
4. Several RTU disconnect switch covers are missing and tape is being used instead. If RTU's are to remain, recommend repairing.