

Overall Summary

The purpose of the visit to Freddy's in Edmond, OK was to address smoke capture concerns.

Smoke capture was poor on the fryer hood and the main griddle hood. The following are the major findings and recommendations from the visit:

Findings and recommendations are below.

1. The MUA back supply style plenum is notorious for causing smoke capture issues and that is a major factor here. The pulley needs to be changed to reduce airflow by half to around 1000 CFM. It is a non heated/non conditioned MUA so this will also be better for comfort.
2. The MUA filter is clogged and is reducing airflow by about 50%. This needs to be cleaned. But, doing so will also cause the smoke capture to worsen. So it needs to be done at the same time as the pulley change.
3. Full vertical end panel needs to be added to the right side of the griddle hood. A quarter end panel needs to be added to the left of the griddle hood.
4. Outside air intakes need to be added to RTU's 1 and 3 to ensure positive building pressure. Additionally, this helps reduce return air paths in the kitchen which are contributing to the poor smoke capture.
5. The fryer hood capture is poor as well. There is a large amount of smoke escaping primarily on the left side but also on the right side. The griddle hood is the primary concern as that is what causes grease to accumulate on the return grilles and surfaces. But improving the fryer capture will reduce fry smell, and improve comfort in the building. Ideally, full vertical end panels would be added, but if that's not possible from an operational standpoint then quarter end panels should be added on both sides.

Above are the major recommendations and findings. Below is a technical summary with additional details and findings.

Technical Summary

Arrived on site and talked to the manager. They had not noticed any capture issues. However, grease accumulation was noted on the return grilles.

Measured all airflows in the building. Both dining Rtu's are operating at appropriate airflows. The hood exhausts were also found to be balanced. The MUA was very low (approximately 1000 CFM) and the building pressure was negative.

Performed an initial smoke test on all hoods. The main griddle hood was approximately 95% capture. Some minor loss was noted at the front of the hood perimeter. The backup griddle hood had 100% capture. The fryer hood had about 80% capture. There was significant smoke escaping out the left of the hood.

Went to the roof and found that the MUA intake air filter was clogged. Removed this temporarily and re-measured airflow to be close to the original design. Re-smoked all hoods and smoke was rolling out on the right side of the main grille hood. Mocked up a cardboard end panel and capture improved to 100%. A full stainless steel end panel is recommended on the right of the hood and a quarter end panel is recommended on the left of the hood.



End panel mockup on main griddle

The fryer hood capture is now poor. Reducing the MUA should help. But quarter end panels are also recommended. Full vertical end panels would be ideal if they don't effect Operations.



Fryer smoke capture loss

RTU's 1 and 3 are missing outside air intakes. This is creating a return path through the kitchen that is making the hood capture issues worse. Installing these and balancing the outside air should help reduce this effect.

Additionally found that the women's restroom exhaust fan rotation was backwards.

Before leaving the site, final performance data was gathered and the intake air filter was replaced on the MUA.



Recommend end panel locations

See following pages for additional insight into additional maintenance items that were found on site.