NATIONAL TAB
INTELLIGENCE

1329 E Kemper Rd
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Summary:

The purpose of the visit to True Food in Santa Monica was to address hood capture issues.

Tech arrived on site and discussed the issue with the operations staff. After interviewing the staff it appears that the hood capture issue has been ongoing for at least the last 5 years. Per the staff member that has been here the longest the hoods and grease ducts were thoroughly cleaned pre 2019 and for a brief period hood capture was adequate. They are leaving the doors open to the space to help clear smoke out of the building. During heavy periods of cooking it was observed that the space gets hazy with smoke. Ceiling tiles and diffusers near the hood are stained.

While cooking was occurring hood capture was observed to be around 60-70%. A smoke test with a smoke emitter was also used and similar capture observed. The smoke primarily escapes once entering the canopy and then billows out on all sides. The airflow was read out with a velocity matrix which totaled out to 4144 CFM of exhaust which is 69% of design. There are dampers installed at the hood risers and it was confirmed that these were fully open. It was also confirmed that the riser sizes matched design.

EF-1 is running at 6 amps out of and FLA of 9 amps. The motor is set to run at 70hz out of a maximum of 75hz. Did not want to increase the speed further as the fan is already vibrating and airflow could only be increased slightly anyway. The static pressure was measured at the fan as -3.5”. After the MUA was inspected and read out the ductwork above ceiling for EF-1 was inspected. The static pressure at the clean out door immediately before the duct leaves true foods space is -1.1” which is significantly lower than what was read on the roof. There is also grease build up in the ductwork.

The remaining accessible exhaust duct run was inspected except for the second floor section of ductwork. Not all transitions are visible, but it appears there are between 6 to 8 transitions in the ductwork. There is also about a half of an inch of grease build up at one of the 90 degree transitions outside of True Foods. (see photos and sketches on the following pages).

The MUA was traversed as 3487 CFM (68% of design). Appears that the intake louver is causing restriction. The discharge of the hood is also an old style that could potentially cause capture issues when airflow is increased.

Building pressure was measured to be slightly positive.

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Recommendations/Next steps:

1. The main hood EF is 4144 CFM out of original design of 6400 CFM. The airflow is low primarily due to pressure loses from multiple 90 degree transitions (some back to back) and system effect losses. A new larger fan will likely be required, however the pressure would have to double based on fan law to achieve the original design (7” @ 6400 CFM). This pressure may not be realistic. Also the more you increase velocity in the duct, the higher the impact due to system losses is. This means that airflow may not increase as much as predicted due to these transitions. Either way, It looks like a larger fan is needed. But there may be a need to have some of the ductwork modified if we cannot overcome the back to back 90 degree transitions to get optimum performance. Recommend consulting an OEM to discuss options.
2. Grease duct is extremely dirty both in True Food space and out side of it. Recommend the ductwork be thoroughly cleaned. This buildup could be having an impact on airflow, so cleaning thoroughly may increase flow some.
3. Vertical end panels need to be installed on both ends of the hood. Mocked up cardboard to temporarily test and this improved capture.

4. The shelving and salamander above the equipment creates more adverse effects on hood performance at the cooking surface. Especially the shelving that is over equipment then continues to the left to go outside the hood. All smoke under shelving will travel left, continue out of the hood and then into space. The shelving needs to stop 12" from left end of hood and then at least partial end panel-30" wide & down 6" below the shelving in hood.

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5. HVAC system is a plenum style return and there are returns located in close proximity to the hood. They are clogged with grease right now so they are not causing any issue. But they need to be cleaned and then relocated towards the front of the kitchen at least 8 feet from the hood.

6. MUA airflow is 3487 CFM (68% of design). Part of the reason is that the intake louver appears to be clogged. Recommend cleaning (wait until after changes to exhaust

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system are addressed)

7. The MUA perforated discharge at the hood is an old style and has fairly uneven velocities. Increasing the airflow will cause velocities to get more uneven and more turbulent which could worsen hood capture issues. Recommend installing a new PSP and widening to reduce the velocities and creating a more even curtain of air. Recommend contacting a hood OEM.

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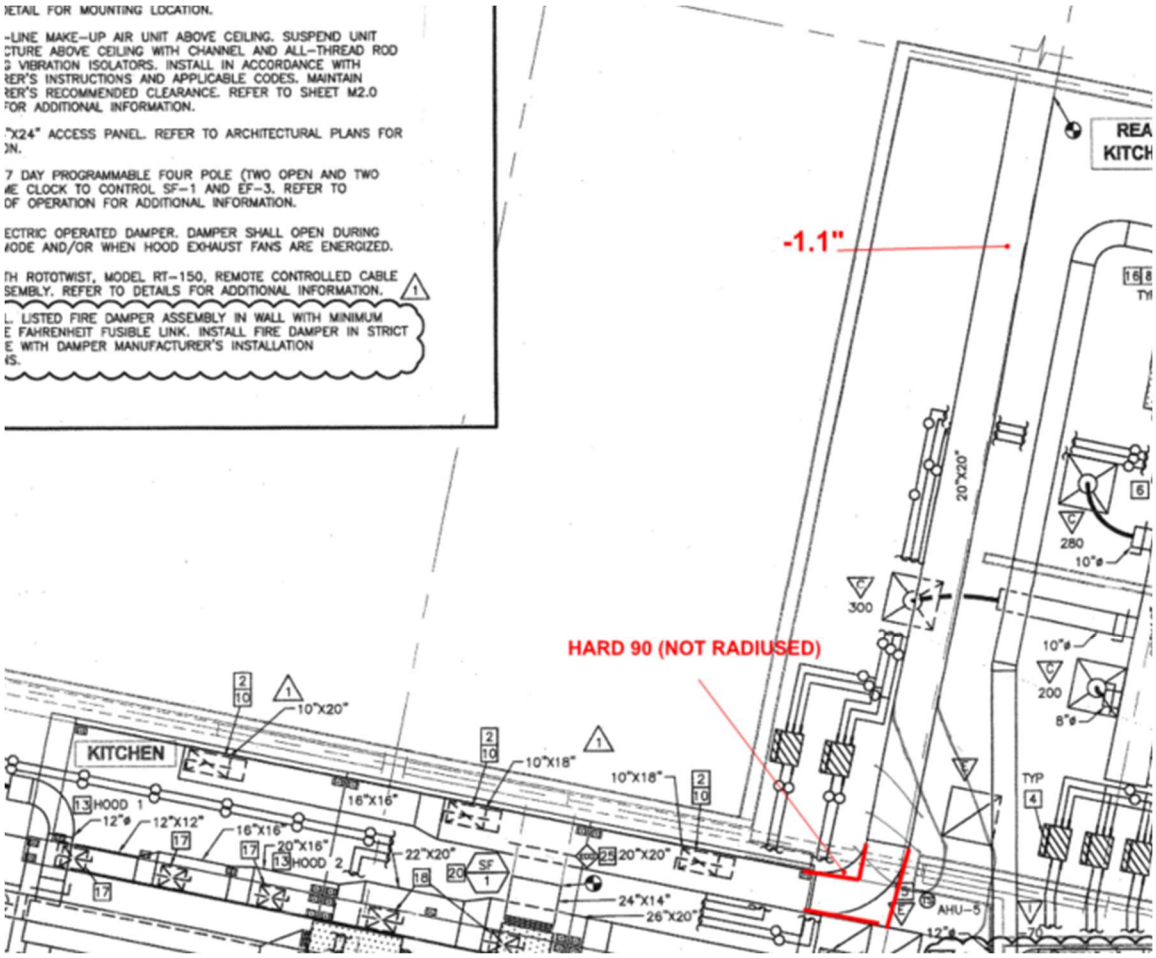
Static pressure locations / Duct sketch



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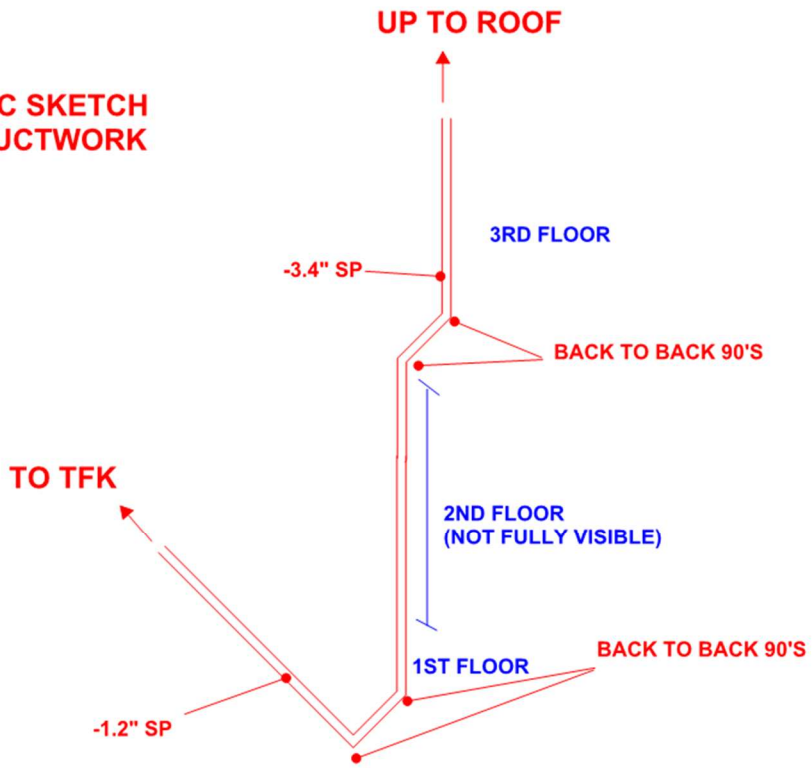
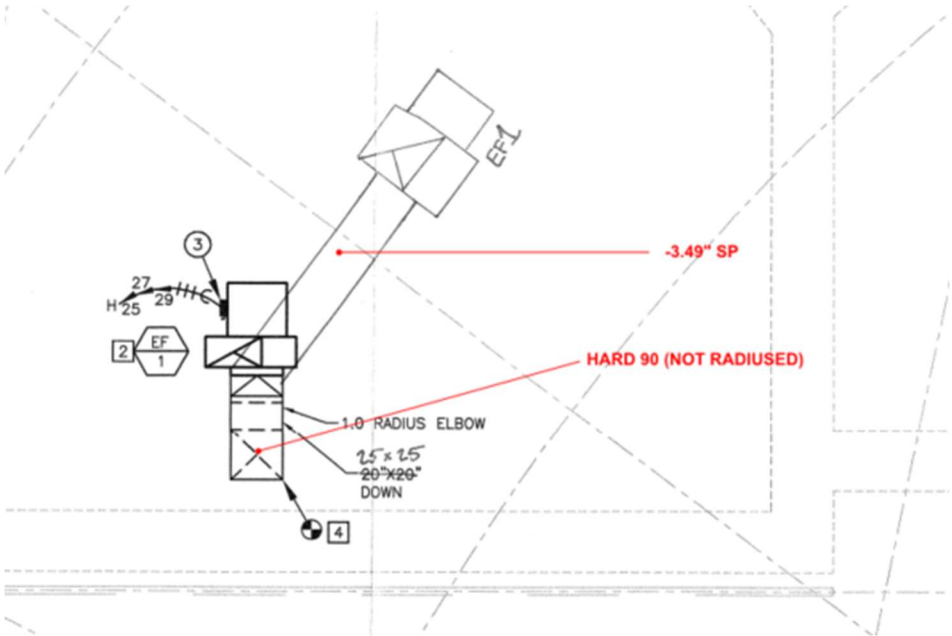
VERTICAL ISOMETRIC SKETCH OF MALL GREASE DUCTWORK





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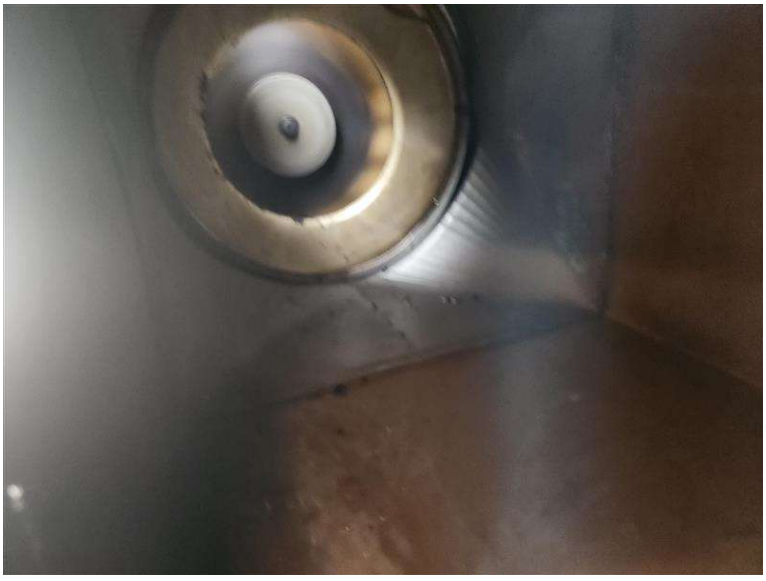
Pictures

Roof top grease duct/exhaust fan:

Fan inlet is clear and unrestricted



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Ductwork at roof towards the 90 is unrestricted:

3rd floor back to back 90's:

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3rd floor inside the 90's

1st floor looking upwards:

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1st floor back to back 90's

1st floor inside the duct. Pools of grease

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Duct inside True Food space:

At hood riser:

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Hood pictures: