



Commercial Venting CASE STUDY

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Factory-Built Grease Duct - 5 Years Later...

In January 2001, major renovations were completed at Texas A&M University's Sbisa Dining Hall, an 87-year-old building located on the north side of the university's campus. Sbisa Dining Hall served its first meal in 1913, and was originally designed to house the university's Corp. Cadets. It served as their meeting place for several years and was the largest building on campus at the time of its construction. The original wood framed structure has been in continuous use since it was built. Last remodeled in the 70's and showing deterioration, Texas A&M began to develop renovation plans in 1997. The plans included upgrading the existing kitchen ventilation system.

The new food service design called for a departmentalization of food stations, as well as installing 15 hoods and accompanying ductwork through the various kitchen areas. The amount of wood used in construction and constraints resulting from earlier structural changes presented multiple problems for the architects, mechanical engineers and contractors. Problems encountered while designing the grease duct systems included clearances to combustibles due to the amount of wood used throughout the building, complex routings as well as congested duct locations. A major concern was system maintenance.

The engineers determined that using a traditional square duct-and-chase approach would not be cost effective and virtually impossible due to the complexity of the project. "Having a separate duct-and-chase for each station throughout the building wasn't cost effective. We had to



Texas A&M University's Sbisa Dining Hall.

go through tight corners and wooden spaces. We decided to go with a round grease duct incorporating an integral chase," said Rick Eicher, of the Texas-based engineering firm Day Brown Rice Engineering Inc.

The engineers specified Metal-Fab® Series 4G Grease Duct, a factory-built round duct with 4 inches of ceramic insulation enclosed in an integral steel chase. The duct is constructed of 304 stainless steel, is easier to maintain than rectangular carbon steel duct and is quieter. It is UL listed for zero clearance to combustibles.

The zero clearance listing eliminated the need for an additional chase to be constructed around the duct. This made it easier to install in tight spaces, especially within the new mechanical mezzanine where air handling equipment and HVAC ducting dominated the available space.



Sbisa offers a wide variety of cuisine.



Fifteen new hoods were installed.

Sbisa Dining Hall REQUIREMENTS

- Ease of installation in congested areas
- Zero clearance to combustibles
- Easy to clean
- Quiet operation
- Stainless steel construction

Metal-Fab SOLUTION

- Series 4G Grease Duct
- Round duct – quiet and easy to clean
- Integral chase – zero clearance to combustibles, easier installation



Metal-Fab Series 4G Grease Duct is leak-free.

At the time of the renovation, Frankie Jaster, the university's current food services facilities manager stated, "The original duct systems were not user friendly. I wanted round duct; it's quieter and easier to clean. I also wanted stainless steel. Stainless steel is normally used for steam type ducts, but it cleans better and lasts longer than mild steel, and won't rust."

Metal-Fab, Inc. helped with the design process, providing engineering and sizing data to assist with code compliance and assure a properly designed system.

Now, five years after completion of the renovation in 2001, the newly renovated dining hall prepares a massive volume of food and serves its patrons from 7 a.m. to 7:30 p.m. every day, plus later hours for pizza. Every type of cooking takes place from deep frying to grilling and baking, chicken to steaks and corn dogs. And with all that cooking under one roof there are lots of grease laden vapors, gases, smoke and oil going up through the hoods and duct.

One of the important considerations was the ability to clean this rather complex grease duct system. Jaster commented, "The complexity of the system required many different elbows and cleanouts, but even so it's easier to clean, probably because it's round. Cleaning is faster, and the system has met my expectations."



Quick access cleanout covers speed cleaning time.



Cleaning process requires no brushing or scraping.

Triple B Cleaning, Inc., headquartered in Mexia, Texas, had been cleaning Sbisa Dining Hall grease ducts prior to the renovation and the factory-built system since it was installed. Prior to the renovation, the process involved removing the cleanout covers, spraying cleaning chemicals into the hood and ducts, brushing and scraping, rinsing and replacing the cleanout covers. Plenty of plastic sheeting was needed to protect the facilities from leaks in the old welded duct system.

"It takes less than a day now, where it used to take about four days to clean the old black iron duct in Sbisa Dining Hall. Accessibility is easy and all we have to do is chemical spray and rinse, and there are no leaks in the duct. I also think the regular cleaning schedule makes cleaning easier," Kurt McCoslin, Triple B president stated.

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The cleanout covers on the Metal-Fab 4G duct require no tools, so removal and replacing is fast and easy. Triple B foreman Justin Sullivan commented, "The covers with the wing nuts make it real easy."

Carbon steel normally used in conventional square welded duct systems is relatively porous and difficult to clean. The combination of stainless steel material and round shape makes the 4G duct easier and faster to clean.

"Round duct washes easier and doesn't stick as much, and the stainless steel is a factor. This system cleans real nice and it's definitely easier than square," said Sullivan.

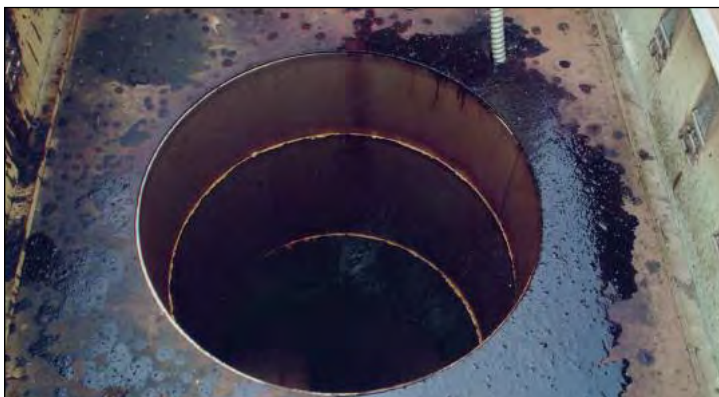


Spraying from roof down, no leaks below.

"Sbisa takes about one day to clean. Other equivalent jobs with square duct take about two days, this round duct takes about half the time to clean. Also, this system has water wash hoods, and when you use a non-stainless duct with this type hood you normally see the bottom of the duct rusted out."

By facilitating zero clearance to combustibles and requiring no welding, Series 4G eliminated the cost of welding and insulating duct, fabricating a chase, and provided contractors extra room to work ducting into tight spaces. Sbisa Dining Hall required ducting up to 26" in diameter and was installed with zero clearance to combustibles with no problem.

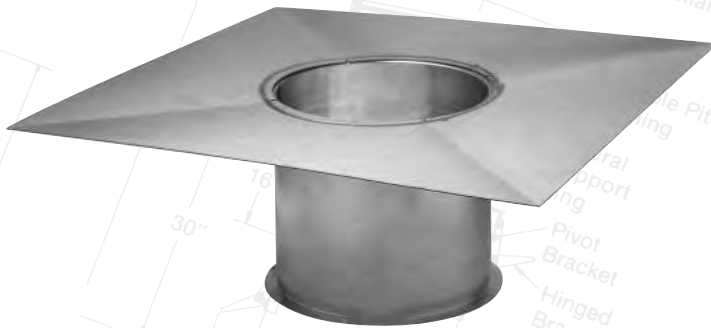
Metal-Fab Series 4G Grease Duct is available in sizes from 6" to 36" in diameter. G Series factory-built grease ducts are available in a variety of cost effective configurations and complies with current model mechanical codes and the requirements of NFPA 96, Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations.



Before cleaning.



After cleaning.



Fan Adapter Plate



Square-To-Round



Eccentric Tapered In creaser



Variable Offset Kit



Toolless Access Panel

Specify...



GAS VENTS

- Type B
3"-30" Diameter
- Type BW
Oval 4"-6"

SPECIAL GAS VENTS

- Corr/Guard® (AL29-4C)
- Condensing Appliance Vent
- Single Wall & Double Wall
- 3"-24" Diameter

CLASS A CHIMNEY

- Temp/Guard®
- 6"-18" Diameter

PRESSURE STACK

- BOILER EXHAUST**
- ENGINE EXHAUST**
- FUME EXHAUST**

- PSW-Single Wall
- PIC-1" Air Insulated Double Wall
- IPIC-1 1" Ceramic Insulated Double Wall
- IPIC-2 2" Ceramic Insulated Double Wall
- IPIC-4 4" Ceramic Insulated Double Wall
- 6"-48" Diameter

FACTORY-BUILT GREASE DUCT

- PSW-Single Wall
- PIC-1" Air Insulated Double Wall
- 1G-1 Hour Rated
- 2G-2 Hour Rated
- 4G-2 Hour Rated-Zero Clearance
- 6"-48" Diameter

Lowest Overall Clearances

**The Most Choices...
Better Solutions!**

**Leading the Industry
to Higher Standards!**



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