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10 MISTAKES TO AVOID WHILE DESIGNING A COMMERCIAL KITCHEN

Experts lay out an essential design primer to avoid the errors that affect the functioning, utility and ROIs of commercial hotel kitchens

BY NISHA SHUKLA

The kitchen is considered the heart and soul of a hotel. A well-designed kitchen impacts its efficiency and success. Even a small flaw in kitchen planning and layout can impact its overall utility and functioning, staff efficiency, hygiene, safety, and a hotel's return on investment, resulting in an increase in cost and wastage of valuable resources.

Factors such as space planning, employee mobility, health and safety standards, equipment placement, ergonomics, energy efficiency, LEED concepts and flexibility are considered while planning the layout of a commercial kitchen. After understanding its range of operations, a state-of-the-art kitchen can be designed.

However, there are some unavoidable frequent errors and omissions that tend to occur during the design process. In a bid to make the kitchen operations flawless, industry experts and leaders share their expertise and learnings on the most common mistakes that occur while designing a hotel or a restaurant kitchen.

Space planning and utilisation

Effective space planning and utilisation are key factors to be considered while designing a layout for commercial establishments.



Jaideep Gupta, Consultant, Hospitality pre-opening and operations.

Hospitality pre-opening and operations consultant Jaideep Gupta says, "Adequate space planning is a must so that the kitchen can perform efficiently." Often, the promoters ignore the need for proper and accessible storage, prep area and adequate equipment for the chefs. "Ideally, the kitchen must be planned in a space that is a clean rectangle or square with no bends or obstructions," he adds, suggesting that kitchens should have access to external service space for gas banks, exhaust machinery and water resources. Besides, the design should ensure easy access to staff and vendors.

Another crucial factor to consider is the effective demarcation of work-

ing zones for different functions in the kitchen. Principal Architect and Founder of Chromed Design Studio, Abhigyan Neogi, states that an expert should define the kitchen's functions and scope of work, and create working zones for food cleaning, cutting, baking, frying, cooking and other such. Besides, these areas should be placed in proximity to support the cooking process and the movement of the team of chefs, thus avoiding unnecessary collision, tension and chaos.

A constant in the food service industry is a smaller prep area. Founder & Principal Architect Khozema Chitalwala of Designers Group advises that the pathways could be mapped as they help in highlighting the additional steps. "Vertical storage, movable shelves and wheels are just a few ways to optimise storage areas and save steps. Besides, shelving in walk-ins and dry storage offers another area to maximise space. The racks should be adjusted to minimise empty area above each product," he adds. The lack of free space for movement of kitchen trolleys, IRD trolleys and F&B equipment, according to Lalit Dadheech, Director of Engineering, Taj Hotel & Convention Centre, Agra, can be a fire hazard, besides hampering staff movement.

The lack of ample storage for raw materials and kitchen utility tools could lead to a cluttering of space and affect team efficiency, according to architect Love Choudhary, Founder Partner & CEO of AND Design Studio. Besides, keeping the materials and tools exposed for a long time may cause deterioration and even damage delicate tools. Highlighting the need for optimum utilization of storage space, Raghuvver Singh, Chief Engineer, The Oberoi Gurgaon says that placement of freezers near the oven or deep fat fryers will reduce unnecessary movement and will also help to improve the quality of the final product. There can be a provision of same space being used as a shared resource (like walk-ins can be opened from both the sides) as this will help to reduce the cost of making new equipment and limit unnecessary movement of people.

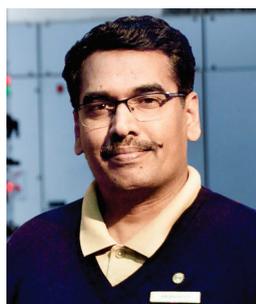
The irrelevant combination of kitchen areas or scattered kitchen areas can end up consuming large spaces, says Dadheech quoting sections such as butchery, bakery, grade manger, pot wash, dish wash, dry store, cold section area, bulk cooking and walk-ins that consume huge space due to operational requirements.



➔ Abhigyan Neogi, Principal Architect-Founder, Chromed Design Studio.



➔ Lalit Dadheech, Director of Engineering, Taj Hotel & Convention Centre, Agra.



➔ Raghuvver Singh, Chief Engineer, The Oberoi Gurgaon.

Ease of movement

Planning a kitchen involves not just design and layout, but also creating the right flow or the movement of product or people in an operation. An ergonomically designed commercial kitchen is one where employees can stand in one spot and do all of the work with minimal bending, reaching, walking or turning.

According to Singh, the design of a hotel kitchen should ensure minimum movement, especially while dispensing of orders. Chefs need to have all the necessary ingredients and equipment in easy reach. Talking about the placement of appliances in the kitchen, Architect Neogi states, "The appliances to be used in the kitchen play a major role and they should be measured properly before deciding on the final layout. Besides, the cabinets and storages, doors and drawers should enable the employees to manage the entities well and allow faster movement without obstructing the flow of events in the kitchen area."

Safety and health concerns

Very little importance is given to safety, hygiene and efficiency while designing the kitchen, says Gupta. Essential features such as gas leak detection systems, firefighting systems and easy evacuation pathways are often ignored. A notional financial saving, in this case, could lead to bigger financial disasters if safety is ignored, he contends.

Agreeing with Gupta's point of view, Neeraj Kaushik, Director of Engineering,



➔ Show kitchen must reveal only the range, ingredients and the cooking-style of the chef; the rest of the aspects should be hidden from customers.

Renaissance Mumbai Convention Centre Hotel adds that adequate fire safety measures like self-cleaning exhaust hoods, Ansul integration with gas valves, and electrical breakers and gas detectors need to be added to the design layout. Gas pipelines should be provided in SS304/316 grade wherever water contact is imminent.

According to Singh, integrating the fire system with electrical panels in hotels, the link between the gas wall and electrical panels will be cut off without causing further damage.

The kind of flooring used in a hotel's kitchen can also add to accidents, says Syam Kumar, Chief Engineer of ibis Kochi City Centre. For instance, the use of tiles that are not anti-skid can lead to accidents in the kitchen, especially during rush hours. Dadheech points out that kitchens need to be checked constantly, especially in view of wood used in the door windows and partitions, plain glass, un-

covered lights, loose false ceiling, corners and gaps in the walls and the floor, drain designing, fire and gas detection, and extinguishing system; all of these can be potential safety hazards.

Use of the wrong materials has proven to be a big fire hazard in hotelabris. "Glossy marble or even porcelain floor tiles may look beautiful, but they are accidents waiting to happen. They are also hard to clean and can be easily damaged by heat," states Chitalwala. "For work surfaces, storage shelves and all the elements in a commercial kitchen, the materials used should be smooth, continuous, suitable for contact with food, easily washable and disinfect-able," adds Neogi.

TIPS TO INCREASE EFFICIENCY

- Proper training on usage and handling of equipment needs to be provided to operating departments. It is always good to use safety measures and procedures while handling kitchen equipment.
- Propose only the right category of equipment or structure required based on the usage so that there is a better utilization of space, conditions, equipment, etc.
- Thorough knowledge of safety and security in case of fire or burns can be tackled through certified Fire and Safety & First Aid courses.
- Create awareness on hygiene, cross-contamination and proper storage of food products at their right temperatures.
- A schedule should be made for proper sanitation and the cleaning of kitchens.



➔ Neeraj Kaushik, Director of Engineering, Renaissance Mumbai Convention Centre Hotel



➔ Syam Kumar, Chief Engineer, ibis Kochi City Centre.

Live kitchens

Many an architect leave errors while designing a show kitchen or the live kitchen, which is a trend these days. Dadheech suggests that the show kitchen must reveal only the range, ingredients and the cooking-style of the chef; the rest of the aspects should be hidden from customers.

Small wash stations

Wash stations play a big role in the food sanitation process. However,



➔ Designers need select equipment that can multi-task, which will help in energy-saving as well as make the cooking process easier.

many designers may focus too much on the cooking and serving areas and neglect the wash station. Vishwanath Pandey, CEO of THI Hospitality Consultants Private Limited, says that owing to this unplanned wash area, spilled water and moisture content leads to a lot of breakages in such sections, thereby making them unhygienic.

Electrical loopholes

In commercial kitchens, electrical wirings are concealed under flooring and electrical connections below the equipment. Kaushik states, "Cleaning and arranging of electrical connections can lead to damage to the equipment, which is a real challenge." The solution is to add false ceilings and hide the electricals under them. All electrical fittings and fixtures must be provided with industrial water-resistant quality for improving the life of any equipment and also to promote safe working practices. Electrical/HVAC/ miscellaneous service access should be provided to the employees so that they can be accessed by them without hampering operations.

Selection and placement of kitchen equipment

Suitable commercial equipment help create the necessary level of performance, efficiency and ease for the right output. Their placement and selection plays a key role in improving a kitchen's efficiency. Neogi says that architects should take into account the number of dishes, glasses, cutlery, and trays that the chefs would be using to serve guests at the time of design finalization. He also stressed on including the detailed measurements of equipment for food prep, display, refrigeration and storage.

He asks designers to select equipment that can multi-task, for instance, combination ovens that can bake, steam, roast, are stackable and preferably self-cleaning. "The use of induction as a tabletop or drop in hob, wok, grill, hotplate and an oven in a range, is cost-effective, safe to use, provides a more pleasant environment and reduces ventilation costs. A theatre-style showcase kitchen will add value to the guest experience and possibly result in a return visit. A ventilated ceiling, which also contains a discreet automatic fire suppression system, is required in show kitchens.

Choudhary informs that placing different cookers in different parts of the kitchen can increase energy consumption. Also, according to Singh "the Deep fryer should be linked to temperature control at all times. In a kitchen catering Pan Asian cuisine, the sprinkler system should be designed in such a way that the wok stove is never right beneath it. "When the wok is tossed, it reaches the sprinkler and sometimes results in a pipe burst." Other small mistakes pointed out by Dadheech include: RO water points not made available for equipment to make ice cubes, coffee machines, cooking ranges, milk boilers and water cooler.

Balaji Subramanian, Director, Middleby Celfrost Innovations (P) Ltd, who are providers of kitchen equipment, contends that "by using higher efficiency equipment, time and utility cost can be reduced. Commercial kitchen equipment go through a battery of tests and certifications that are more stringent than non-commercial equipment". Kitchen equipment are largely designed to aid the process by automating temperature control, reducing consumables and controlling cooking time. "This is necessary to achieve higher volume without a commensurate increase in personnel," he says.

For instance, a commercial fryer uses less oil and energy and improves the quality of output by maintaining set temperature and



➔ Vishwanath Pandey, CEO of THI Hospitality Consultants.



➔ Balaji Subramanian, Director, Middleby Celfrost Innovations (P) Ltd

time for frying. A conveyerized oven allows pizzas to be baked efficiently on a conveyerized band without constant monitoring, unlike baking them in a deck or other traditional ovens. Elaborating further, Subramanian adds, "Equipment design helps in multi-tasking, consistency and higher volume output at lower operating costs. In commercial kitchens, a HOUN combi-oven can be used to cook multiple dishes simultaneously. The recipes can be fine-tuned and controlled to ensure consistency in a multi-location setting with minimal training." According to Syam Kumar, deployment of under-capacity equipment can lead to kitchen inefficiencies, thereby adding to huge repair and maintenance costs.

Improper refrigeration space and cold storage

Inadequate refrigeration space is a hindrance to the seamless functioning of a commercial kitchen. "In case of low refrigerating storage space," says Pandey, "you end up having in-



➔ Equipment for food prep by Middleby Celfrost.



➔ Future-ready commercial kitchens must be able to adapt to design changes, given the dynamism in the F&B space.

adequate food storage space, causing food wastage. In case the storage is in excess, you end up having either half-filled up refrigerators that will generate higher electricity bills or you will have extra refrigerators that are dead assets."

Improper drainage and ventilation

It's important to consider air ventilation and effective drainage system while designing a kitchen. Indoor air quality — odours and air circulation — will suffer if there isn't proper ventilation. According to Khozema, inadequate ventilation can be a safety hazard for workers, besides allowing smoke and unpleasant odours to migrate into the dining space. Pandey says, "The right calculation of capacities of exhaust requirements and relative requirements of the fresh air system is a big challenge if not planned well. If the exhaust system is calculated precisely, then we save a lot on the power bill. If the CFM calculation of the system is higher, then not only is the power bill high but also the exhaust system ends up pulling in some air-conditioned air, leading to higher power bills and maintenance costs." He also recommends addressing any issues of drainage as they can leave behind a wet kitchen, which then would emanate a foul smell.

Improper garbage disposal

An insufficient area for trash and recycling placed far from the cooking and serving stations can prove to be a huge design mistake. "Garbage disposal stations must be placed in close proximity of cooking areas," says Architect Malcolm Daruwala of Seedle Architects. Effective garbage disposal helps in hygienic maintenance



Fire safety measures like self-cleaning exhaust hoods, Ansul integration with gas valves, and electrical breakers and gas detectors need to be added to the design layout."

and eliminates any foul smell. Also, segregation, right storage and disposed off garbage will drastically reduce unnecessary movement required to transfer it.

Future-ready spaces

Clearly, a lack of maintenance of hotel kitchens can add to the costs. According to Kaushik, services such as electrical distribution board, AHU, fresh air units and exhaust units are not easily accessible, which makes maintenance and cleaning extremely difficult. He suggests that hotel kitchens should use commercial grade plumbing and electrical fittings and fixtures to eliminate frequent breakdowns. Industrial-grade flooring should be provided to eliminate any maintenance issues due to floor breakages.

Future-ready commercial kitchens must be able to adapt to design changes, given the dynamism in the F&B space. Care must be taken to design flexible kitchens **H**