Designing a Safer Future

EHL
Advisory Services

How can the F&B industry be better prepared for another pandemic?
And...
What new standards are here to stay?

OVERVIEW

Change, as they say, is inevitable, but the rate of change has increased dramatically as a result of the COVID-19 global pandemic. One thing is clear, the Food & Beverage (F&B) sector will need to evolve quickly and effectively to ensure its long-term growth and sustainability.

Nearly all industries and businesses have been impacted by the pandemic, including community and public dining spaces. This paper seeks to understand the impact of the pandemic on the sector and to deliver 'future-proof' recommendations that address the changes required in the design and best practices for future developments.

Our paper is designed to provide guidelines and pragmatic solutions to enable landlords and tenants alike to successfully address both current challenges and future health crises that may test the F&B industry.

The ideas presented in this report are not focused on COVID-19, this is an overall "logical next step" towards enhanced and standardized hygiene practices in the F&B sector.

This is a solutions-driven paper that outlines the parameters for delivering an enhanced customer experience, which includes:

1. Dealing with a similar future crisis in a more productive manner
2. Putting in place effective preventative measures
3. Resolving any current operational shortcomings or obstacles
4. Mitigating any risks in both front-of-house and back-of-house
5. Implementing improvements to the design, functionality and operations of any F&B venture

Our recommendations are not meant for a specific location, type of restaurant or food hall, a certain size venue or a certain clientele.

The goals of this project are broad, generally applicable, and universally relevant in order to:

1. Establish best practices that are productive
2. Provide insights to assist developers in future developments
3. Educate food handlers on proven standards and safe processes
4. Provide clarity around best-in-class procedures and protocols
5. Create practical and functional recommendations that enable businesses to operate efficiently while maintaining international standards in hygiene

Some challenges hadn't been encountered before the pandemic, whilst others are long overdue for change. This paper is in response to a global shift in the needs and wants of the sector. Thus, it is focused on providing standards that can form the basis of a new paradigm on how to ensure the health and safety of individuals consuming food products in a common space.

1. DESIGN

A large part of a dining experience is the environmental design. F&B design has progressed in leaps and bounds over the years, and that spirit and momentum needs to be maintained. There is a need to address the changes in functionality of an F&B establishment, but it should not stifle the creative freedom of the designer.

The following points, however, have to be considered for a more thoughtful design process within the industry, while being careful that the experience, for the patrons, and the financial implication, for the operator, has minimal impact.
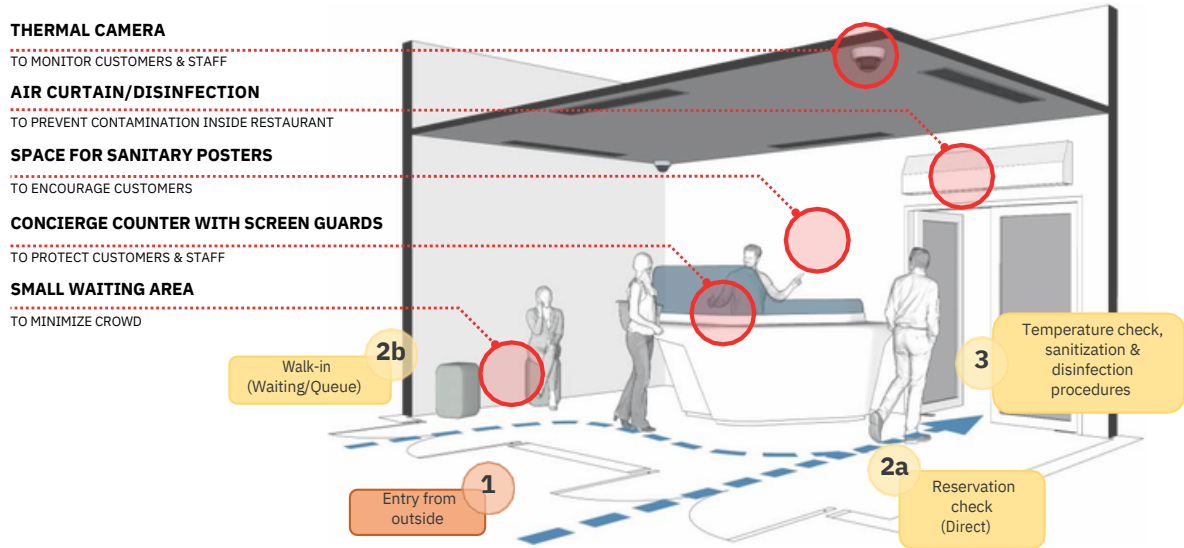
A. THE PROCESS OF ENTRY (AND EXIT)

We foresee that the importance of the vestibule, as an entry point to the restaurant floor, will be amplified to contain more functionality than it does currently. While the concept of a vestibule is as old as the Roman civilization - where it was simply used as a buffer space to separate the outdoor environment from the indoor space - its function has evolved over time. In restaurants today, vestibules often act as a waiting area where diners meet the host/hostess, as well as an entrance to the cloakroom should the restaurant have one. One of the more important functions of a vestibule is of course climate control, as it breaks the transmission of temperature. In essence, the vestibule becomes the transition zone in which you pause before entering the "front-of- house" area of the restaurant.

VESTIBULE/ENTRY
FLOWCHART DIAGRAM
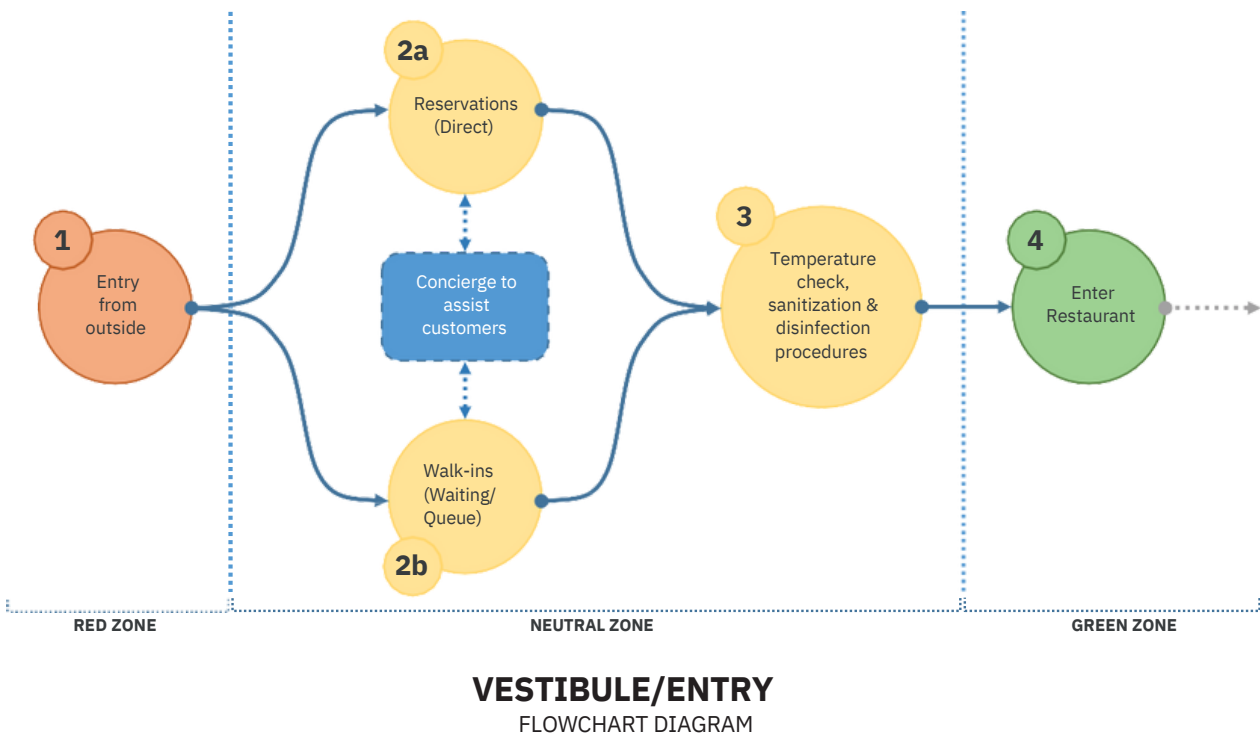
Therefore, the vestibule, being the point of entry and typically small and congested, becomes the initial area of concern in a health crisis. The key change of the vestibule will need to be the separation of ingress and egress. This can be achieved through a physical separation with seepage air handling systems. This is important in order to avoid contact between guests leaving and arriving in the premises, and therefore minimizes the chances of cross contamination.

Vestibule sizes will have to be stipulated as per code, depending on the establishment's total gross floor area (GFA) or seating capacity. There will be a required ratio that will determine the number of people that can occupy this space. In addition, the establishment may also introduce a queue management system as further protection.

The planning of the vestibule will need to consider the placement of a thermal camera used to monitor the temperature of the guests upon arrival. We would also assume the implementation of "Sanitization Stations" to be mandatory. Guest education, through clear and transparent communication, (a key part of reassuring and building trust with your customers), and hygiene certifications can also be presented in this area.

THERMAL CAMERA
TO MONITOR CUSTOMERS & STAFF

AIR CURTAIN/DISINFECTION
TO PREVENT CONTAMINATION INSIDE RESTAURANT

SPACE FOR SANITARY POSTERS
TO ENCOURAGE CUSTOMERS

CONCIERGE COUNTER WITH SCREEN GUARDS
TO PROTECT CUSTOMERS & STAFF

SMALL WAITING AREA
TO MINIMIZE CROWD

2b Walk-in (Waiting/Queue)

1 Entry from outside

2a Reservation check (Direct)

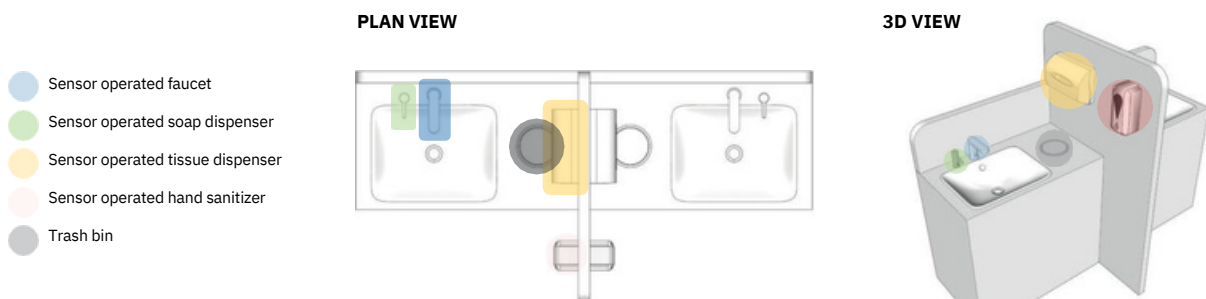**3** Temperature check, sanitization & disinfection procedures

VESTIBULE/ENTRY
3D DIAGRAM

The Planning and Design challenge will be to ensure that the entry process is as non-invasive as possible and it is key that the designer maintains efficient circulation. While the vestibule is an "in-between space" the decor should not be lacking and a strong sense of arrival should be established.

B. HAND WASH AREAS AND RESTROOM DESIGN

Washing one's hands with soap has been identified by global healthcare experts to be one of the most effective ways to prevent contamination. While washing hands before and after eating food has sometimes been restricted due to cultural conditioning and/or cuisine types, it will become imperative for anyone who enters a dining establishment.

Historically, with the exception of select restaurants, hand-wash basins have always been contained within the establishment's restrooms. These will now have to be treated as a separate entity in the design and should be introduced in more locations with access to liquid soap and hand drying provisions (the integration of MEP to address airflow and drainage needs to be considered here as well).

PLAN VIEW

3D VIEW

Sensor operated faucet

Sensor operated soap dispenser

Sensor operated tissue dispenser

Sensor operated hand sanitizer

Trash bin

HAND-WASH STATION
PLANNING & NECESSITIES

While this would cover the functional requirements of the hand wash facility, careful attention should be given to the aesthetic quality of the same. This is important to consider so these facilities don't become a hindrance.

The number of the basins can be calculated by a ratio to the number of seats of the establishment. It is also important that these facilities are distributed strategically around the outlet based on circulation, visibility and adjacency to amenities.
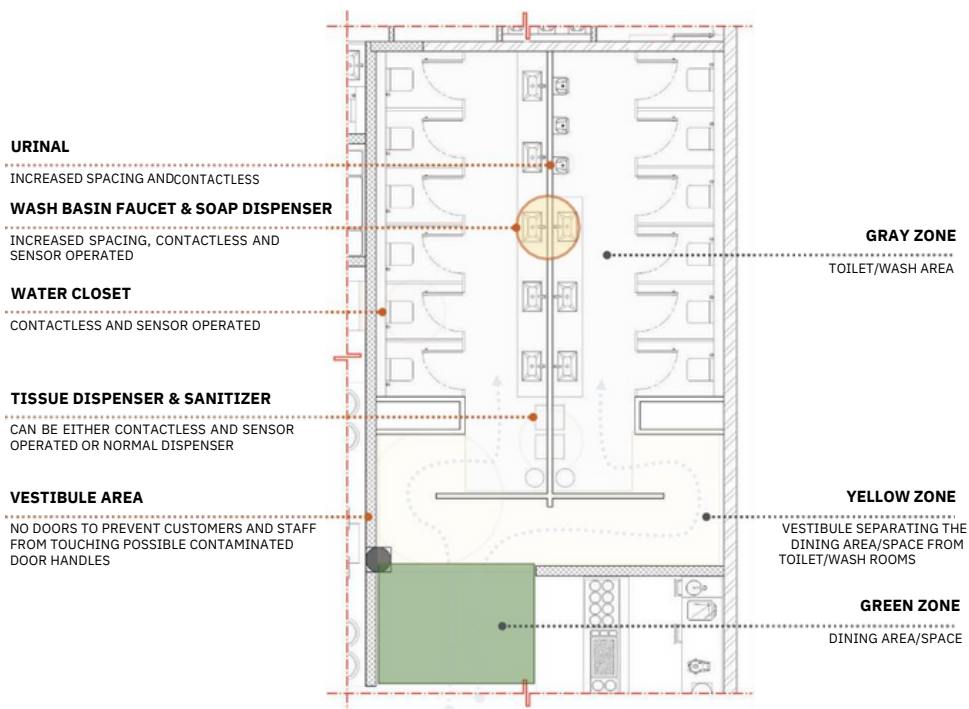
HAND WASH STATIONS
EFFECTIVE RADIUS
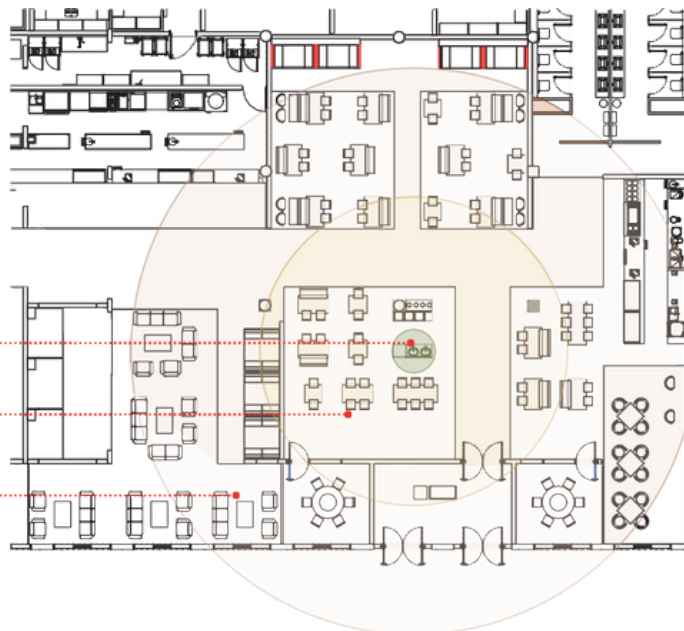
GREEN ZONE
WASH STATIONS

YELLOW ZONE
5 METERS PROXIMITY FROM WASH STATION
MOST EFFECTIVE DISTANCE/AREA

ORANGE ZONE
10 METERS PROXIMITY FROM WASH STATION
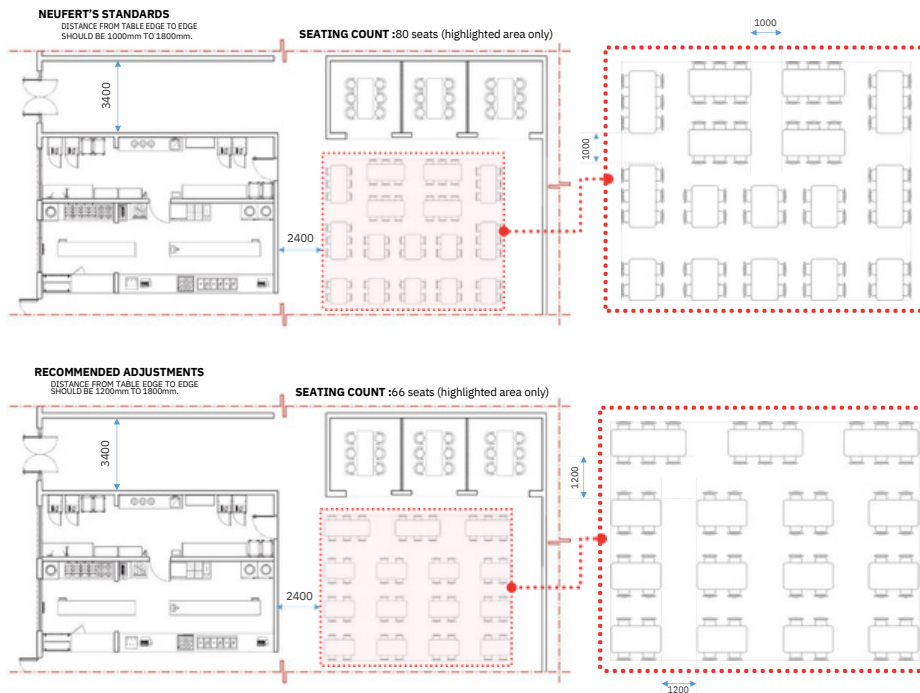MAXIMUM EFFECTIVE DISTANCE/AREA

The planning of restrooms will need to include open entry vestibules (similar to airports) so that there is zero contact with entrance doors and minimal interaction with other customers. The hardware of the hand wash areas and toilets should ideally be contactless and sensor operated. This applies to all hardware including, but not limited to: flush toilets, urinals, faucets and soap dispensers. Air-flow hand dryers are not recommended as recent studies have shown that these dryers increase the circulation of airborne viruses.

The planning and design challenge will be to integrate the hand wash areas within the floor areas and to maintain a convenient walking distance for every patron in the establishment. The design will also have to be consistent with the rest of the space so that it is viewed as an integral part of the space and not as an afterthought.

URINAL
INCREASED SPACING ANDCONTACTLESS

WASH BASIN FAUCET & SOAP DISPENSER
INCREASED SPACING, CONTACTLESS AND SENSOR OPERATED

WATER CLOSET
CONTACTLESS AND SENSOR OPERATED

TISSUE DISPENSER & SANITIZER
CAN BE EITHER CONTACTLESS AND SENSOR OPERATED OR NORMAL DISPENSER

VESTIBULE AREA
NO DOORS TO PREVENT CUSTOMERS AND STAFF FROM TOUCHING POSSIBLE CONTAMINATED DOOR HANDLES

GRAY ZONE
TOILET/WASH AREA

YELLOW ZONE
VESTIBULE SEPARATING THE DINING AREA/SPACE FROM TOILET/WASH ROOMS

GREEN ZONE
DINING AREA/SPACE

C. DESIGN STANDARDS AND SPACE REQUIREMENTS

This is bound to be a contentious topic for restaurant owners. There are calls to reduce the number of tables within the dining space, but this can realistically only be seen as a short-term solution as it is not financially sustainable. However, certain standards can be altered to minimize contact between diners. It will be crucial that guests are comfortable while dining and that there is enough space between them while seated on the same table. Certain seating permutations can be encouraged over others. For example, large communal tables will be discouraged in the near future for obvious reasons, while tables of four will be encouraged as they can be moved at will. Similarly, primary and secondary corridor spaces/circulation paths should be wide enough to promote throughway traffic without the incidence of unintentional contact.

NEUFERT'S STANDARDS
DISTANCE FROM TABLE EDGE TO EDGE SHOULD BE 1000mm TO 1800mm.
SEATING COUNT : 80 seats (highlighted area only)

RECOMMENDED ADJUSTMENTS
DISTANCE FROM TABLE EDGE TO EDGE SHOULD BE 1200mm TO 1800mm.
SEATING COUNT : 66 seats (highlighted area only)

Most establishments have open-plan seating with minimal physical separation between tables. While booth seating solves several problems and may be encouraged in the future, the open hall will not go away. These spaces can be compartmentalized either through well designed physical barriers or through wider space buffers between the groups. The goal is to minimize the numbers of people grouped within a particular zone. The planning and design challenge is to maintain the number of seats to ensure the restaurant is economically viable.

SIMPLE SEPARATORS

DESIGNED PODS
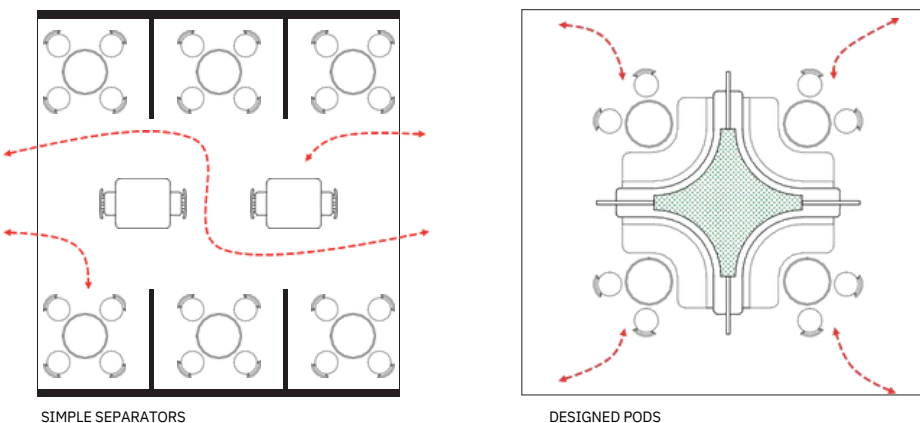
D. MATERIAL CHOICES

Material science is developing rapidly and will be one of the more important fields of study as we move forward. Naturally, this will be considered in the food industry, with a particular focus on a material's hygiene properties. In the F&B sector, antimicrobial surfaces and materials will no longer be a choice and will sooner or later be required as per code. Silver and copper and its alloys are inherently antimicrobial, these materials will be preferred for use in high contact areas such as door handles, push plates, handrails etc. Newer materials like Crisalite and Silesone Volcano have proven to be less expensive and more hygienic than granite and marble. Corian is currently an industry favorite due to its easy-clean properties and flexibility to meet design requirements and considering the circumstances, its popularity will only increase. Any material that come into contact with customers, should be easily washable with alcohol based substances (disinfectants), not be porous or absorbent, and be as smooth as possible. Any type of grouting or cracks as part of the design should be discouraged.

Crisalite Silesone Volcano

In addition to these material choices, there have been microbe killing coatings that have been developed, such as organosilanes and quaternary ammonium, to be applied on surfaces to make them antimicrobial. The design challenge will be to specify the right materials that achieve the optimal hygienic properties. However, they need to be carefully curated to ensure that the desired aesthetic qualities are not compromised. The technology is rapidly evolving as investment flows into R&D in response to market demands. It is imperative that designers keep well-informed by continually researching new products and materials.

E. OPTICS

One of the biggest issues of a pandemic is the fear that a customer carries it with them into any establishment. This is largely psychological and understandable. Open see-through kitchens could alleviate some of those concerns by ensuring that the customer can see where and how their food is being prepared. A clean and hygienic workspace will be a standard expectation going forward.

The only design challenge here is to ensure that the designer can curate what the patron sees. Surfaces facing the see through window should always be clean and it should also be ensured that the window is large enough to see through. These are, however, optional and such design options may not be viable for certain establishments.

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2. MEP & TECHNICAL

MEP/PROJECT AND COST MANAGEMENT:

The recent global pandemic pushed many economies to near collapse, which reawakened some of the ways in which we should procure, build, and improve facilities and operations. Mechanical, Electrical, and Plumbing (MEP) services were generally designed to only meet the minimum requirements in accordance with industry standards. These standards will no longer be accepted due to an improved understanding of the causes and effects of airborne pathogens.

Current and future establishments will have to adhere to stricter regulations with improved safety measures. These will potentially include new technologies to alert building management of potential health-orientated risks before people enter a facility. Higher rates of air circulation, ventilation and air purification requirements will demand higher rates of air changes for any space where people formally or socially congregate. The rise in demand for increased quality mechanical and electrical equipment that sanitizes facilities, and items that are being shared, will be a major comfort factor to attract more customers.

Improved sanitization procedures can affect MEP designs on facility upgrades and new builds as follows:

1. Establishments can be equipped with Bio-sensors that will detect airborne pathogens on people/animals prior to entering the establishment.

2. HVAC equipment components that can improve air quality and enhance protection against airborne diseases.

3. Increase in ventilation requirements (more than 12 air changes per hour) will lead to an increase in equipment size. This might lead to new innovative solutions for the existing Fresh Air Handling Unit (FAHU) or Outdoor Air Handling Unit (OAHU) designs.

4. Heat recovery wheels/pipes might be made redundant due to airborne particles that might re-enter the space.

5. Facilities should be equipped with high-tech, advanced washing/sanitizing stations within the establishments.

6. Electrical loads increase due to additional equipment, leading to a potential increase in the research for more energy efficient operational electronics.

7. Storage and handling areas will require higher sanitization and screening equipment.

8. Restaurants in the US are installing germicidal UV-C lights in the air ducts to destroy bacteria and viruses, air purifiers in the dining room, and heavy-duty UV-C light fixtures that purify the air and surfaces overnight. UV-C light, a form of ultraviolet light with a short wavelength, damages pathogens' DNA and RNA, which stops them from reproducing. Studies have shown it to be effective in killing coronavirus in the air and on surfaces, according to Penn Medicine. (Source: Restaurant Business)

Improved sanitization processes will also affect project and cost management services for facility upgrades and new builds as follows:

PROJECT MANAGEMENT

1. In the planning of projects, it will be important to take into consideration that additional time may be needed to comply with potential extra regulations which would allow less work force per square unit during the construction phase.

2. Teams will have to wear more advanced PPE (Personal Protection Equipment) which will place restrictions on, or challenge, the conventional way of collaborative workshops. This may lead to increased project design phases.

3. Regular screening and testing of staff might need to be implemented and will result in more time off duty to go for screenings.

4. Less site meetings and more virtual meetings will save travel time, however more meetings may be needed to compensate for the limitations of virtual collaboration.

5. An increase in HSE requirements on sites might affect the progress rate of works executed due to additional safety precautions that need to be put in place.

6. Vendors or contractors may need to have medical clearance certifications for site access. This will require additional systems to be put in place to ensure all members adhere to the regulations

COST MANAGEMENT

1. Additional cost elements for enhanced virus protection e.g. PPE will impact build and operational costs.

2. Budget allowances will need to include regular/precautionary medical testing of employees for new build and operational projects.

3. Higher demand for virtual progress tracking to release interim payment certifications. All facility MEP enhancements and upgrades will contribute to the customers' safety, but the cost related to implementing these additions might not necessarily be favorable to the vendor. Proper project and cost management services can however prove to be invaluable during the implementation and execution of these upgrades for any type of facility.

FOOD AND BEVERAGE OPERATIONS

Food hygiene, HACCP and health and safety protocols are all concepts that the industry has been continuously developing and strictly implementing for many years.

The customer rarely notices the processes that have been carefully put in place to ensure that food poisoning, cross contamination and many other common kitchen issues, are avoided in a food preparation and service area.

Nevertheless, if we have learned anything in the last pandemic, it is that we have to acknowledge that more can and must be done to improve food safety.

In reality, it is simply not possible to create a 100% hazard free environment due to a plethora of external factors, however businesses can reduce the risk by implementing processes that will make it harder for hazards to occur, contaminate, multiply or survive.

In addition to following governmental guidelines, our view with respect to handling future outbreaks with more confidence and efficacy, includes the following:

1. Front of House
2. Back of House Design and Functionality
3. Hygiene and Safety
4. Financials

3. FRONT OF HOUSE

A. GUEST AND STAFF FLOW

The transmission of viruses and other airborne diseases between humans has recently proven to be a serious challenge. It is human nature to socialize and gather with other human beings; it is part of what makes us human and not robots. Therefore, we should refer to the term "social distancing" as "physical distancing", a much more suitable description as to what we should be practicing.

Restaurants, bars, staff canteens, food courts, food halls, and food markets are all sensitive areas for cross contamination and transmission of viruses due to the density and movement of people. F&B businesses will need to look at the flow of guests and staff to minimize physical proximity. Risk mitigation will become one of the most talked about topics for the foreseeable future.

Here are some areas where operators and investors can make significant adjustments:

FOOD COURTS, FOOD HALLS AND STAFF CANTEENS

- Separate entry and exit channels into the venue.

- The establishment of a maximum capacity in each zone to avoid queuing or crowding.

- Every zone should contain no more than 50 people. Adjacent zones require a clearance distance of at least two meters.

- Tables of four only; larger, communal tables will require special conditions and additional precautions.

- Tables can be pushed together to a maximum of eight people only (two tables of four).

- Guidance arrows on the floor showing safe circulation routes will be required in large food establishments.

RESTAURANTS AND BANQUETING HALLS

- Buffets will need to be carefully reviewed: more live stations with freshly prepared food, less self-serve counters with chafing dishes and large salad and dessert buffets.

- The introduction of the "table or family style buffet" whereby food is placed in the middle of the table, preventing the intermingling found at a regular buffet table.

- Food stations should be located in opposite areas of the room, or even over multiple rooms, to split up large groups of people gathering in one area at the same time.

We question whether restrictions of seating capacity are sustainable in the long term for three reasons:

- Firstly, the experience of sitting in a dining room with tables being two meters apart is truly awful. Remember that restaurant visits are as much about the social experience as it is about eating food.

- A half empty restaurant looks and feels wrong; it is a marketing disaster for restaurants that depend on foot fall.

- No restaurant can survive on 50% capacity; rents, payroll and other fixed costs have to be paid and some sort of profit needs to be achieved for investors and shareholders to sustain a business.

If we, as an industry, want to survive in the future, we need to look at minimizing the risk through reasonable and realistic solutions, not knee-jerk reactions that aggravate customers, eliminate jobs and decrease financial results which also, in turn, impact jobs.

B. THE ARRIVAL EXPERIENCE

First impressions last forever, and the manner in which a customer arrives and is treated will set the tone for the rest of their visit. The arrival experience in the future must combine two aspects: safety and comfort/convenience.

Those businesses that can shape the arrival experience in such a way that the customer doesn't notice the extra hygiene and safety precautions in place will be a step ahead of the competition.

From a hygiene and safety point of view, communication with the customer is vital as early as possible in the process; a designated person at the entrance will need to explain the safety precautions you have taken and what safety measures will be taken while you are dining. It is also important to explain to the customer what the business is expecting from them in terms of hygiene and safety. In other words: what are the rules of the game for both parties. These could include:

- Thermal imaging cameras that scan each customer upon entry.
- Required handwashing while in the restaurant, especially if you have used your hands to touch your food (i.e. oysters, lobster tails, bruschetta, etc.).
- Groups of more than eight people will be split over more than one table.
- Electronic payment is preferred over cash and card payments.
- Digital menus are available through QR codes displayed on your table or at the entrance.
- If at any moment, a guest feels unwell or develops a temperature, they are expected to notify a senior team member immediately who will implement a predetermined action plan.
- Tables will be wiped clean with a disinfectant before and after the meal.
- Cutlery or chopsticks will not be allowed to dip into sharing dishes, the waiter will provide service cutlery. Sharing drinks and food is discouraged when no service cutlery is being provided.
- Hand sanitizer will be positioned at every entrance, exit and washroom and customers are requested to use it before entering the premises.
- Servers can come around your table with a stylishly designed hand sanitizer to wash your hands.
- During pandemics, a restaurant could hand its customers a branded disposable mask upon living the premises, to ensure that they follow government guidelines when leaving the premises.

Full-service restaurants should change traditional menu folders and replace them with either individually disposable printed menus, digital tablets or iPads that are wiped down by your server after every use, or they can embrace technology and use QR codes that lead to a menu page on your phone. The wording and tone of voice from the front of house team will play a big role in creating the right ambience and making every guest feel as comfortable as possible during the implementation of these new practices.

C. INTERACTION BETWEEN PERSONNEL AND CUSTOMER/GUEST

Limiting interaction between the team of front-of-house personnel and its customers in a full-service restaurant or bar will be challenging. Human interaction is the embodiment of hospitality; you can't be a hospitable person without interacting with your guest, certainly not from a distance. In order not to rip the heart and soul out of our industry, we must focus on small changes and solutions without creating awkwardness between the guest and the wait staff.

Human contact must be kept to a minimum and should only be encouraged when absolutely necessary. The member of staff must keep a safe distance but be close enough to be able to communicate without any issues or misunderstanding. To counteract the physical distance, we should look at the verbal interaction. Introducing yourself as your waiter, supervisor along with showing empathy towards your customer will help in adjusting to the new normal for dining out. Service personnel are as much affected by the new rules as the customers themselves. Therefore, both parties need to share the responsibility of optimizing this relationship to make the experience as positive as possible without endangering one another. The interaction between customers and cashiers in food courts / food halls is already far more limited by default and can be minimized further. With the right software in place, the need to queue at a food counter can be eliminated altogether. Ordering and paying through your phone with an app, and collecting your food at the counter when a phone signal warns you, will minimize any interaction you have with the cashier and the people around you at the cashier's counter. This system may be even more productive than the current ordering system, as cashiers will not have to wait for a customer to decide on their order while there are people waiting behind them. People order when they are ready, and the next order will not be affected by the customer in front.
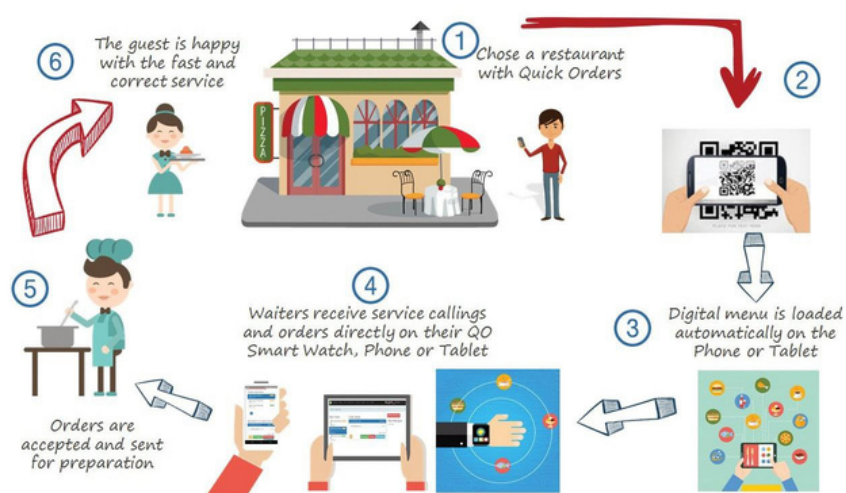
Today, it goes without saying that every member of staff, both front and back-of-house, must be tested regularly for any existing and new viruses. We must be proactive to avoid panic reactions in the event of a positive test. The wellbeing of every team member should become the number one concern for every business. Chef brigades often see themselves as military personnel: tough, hardworking, not complaining about the working conditions and never letting the team down, even if they are not feeling too well. We have now learned that this needs to become a thing of the past in order to protect other team members as well as customers.

D. TECHNOLOGY IN THE WORKPLACE

Since COVID-19 appeared, so did many tech companies with new software that can help companies manage their business efficiently and safely according to local guidelines.

a) Cashless payments

Cashless payment is not a new invention and was around long before COVID-19; it is only now that their importance is coming to the forefront. Payment systems are available in three formats:

- RFID technology: which operates on waves
- Mobile payments: such as Google Pay and Apple Pay
- Credit cards

Cash transactions were already in decline prior to COVID-19, but have now come under greater scrutiny as banknotes and coins can easily contain viruses that can be transmitted. Prior to the pandemic, 80% of customers already preferred to pay with a credit card for transactions. Today, this number has increased even further. A survey in the US by Restaurant Business, showed that 43% of customers in restaurants are expecting restaurants to provide mobile or table-top payment capabilities.

Smart phone	Card	Smart watch

b) QR code ordering

Digital ordering systems using QR codes are becoming increasingly common in restaurants, both casual and upmarket dining outlets. Admittedly, this may not be suitable for every type of restaurant, but we have observed that it is becoming the norm even in the finer dining establishments. A study amongst restaurant customers in the UK during the pandemic showed that:

- 42% would avoid handling cash
- 48% would avoid physical menus
- 59% would be more likely to use their own device to order to their table compared to pre-COVID-19

The QR code ordering can be made as stylish as you wish and by doing so, restaurants can differentiate themselves from their competitors. Casual outlets may place a table talker with the QR code on both sides, while the more expensive restaurants can place nicely designed cards on every table or even at every seat. We have also seen restaurants create a different QR codes for different menu categories. This could be a card for starters and appetizers, a card for mains, a card for desserts, a card for the wine list and a card for the bar list. Again, the experience can be customized.

In QSR outlets, the QR code ordering system has the added advantage of cutting down on order taking as every guest with a smartphone can place an order directly to the kitchen and the digital payment service means you will limit human interaction. Moreover, a recent study showed that the average spend per head is 10-30% higher with mobile ordering.

c) Digital menus

Some years ago, full-service restaurants introduced iPad menus instead of traditional leather or paper menu holders. At the time this was seen as a novelty, and they disappeared as soon as they appeared due to cost. However, they have recently made a strong comeback as this is seen as a safer alternative and now being considered again as it one of the suitable options in terms of health and safety regulations.
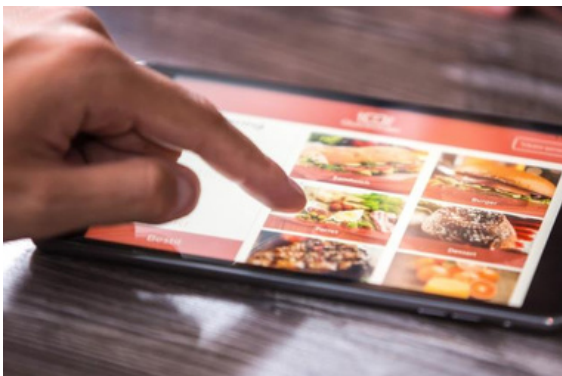
d) Apps and gimmicks

Coca-Cola recently launched its first touchless fountain service. Customers can use their phones to select and pour a drink by scanning a QR code on the drink dispenser. This is a great feature in food courts and certainly gives food companies something to think about how this can be enhanced to other food and drink groups in our daily lives. (Source: Restaurant Business)
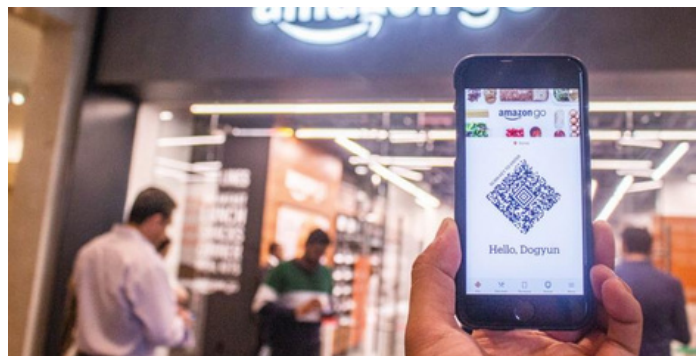
In a world that is managed by technology that is advancing at an exponential rate, we can clearly see how today's technology could play a much larger functional and operational role both front and back of house. A balance will need to be struck between the utilization of technology to its maximum advantage and retaining the benefits of human interaction.

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4. BACK OF HOUSE DESIGN AND FUNCTIONALITY

A. DESIGN

If you haven't designed or built the back of house area yet, this is the time to pause, review your drawings and specifications and ensure you are on the right track. Although the HACCP legislation in most countries is already very strict, there will be areas that you can improve to mitigate risks even further:

- Delivery areas must provide enough space to de-box and sanitize any product that enters the building.

- A separate entrance and exit for staff and deliveries should now become the standard for new builds, especially for larger businesses where the number of people coming in and going out is sizeable.

- It is now imperative that personnel change into their uniforms at work and not outside. Businesses must take responsibility for the proper cleaning of uniforms and make changing rooms available that are disinfected on a regular basis.

- Although the separation of raw and cooked food has always been a part of the HACCP processes, it has become even more important now. Separation alone is not enough though, disinfection before storage into respective areas is now also a must.

- Large catering facilities may want to consider a disinfectant gateway at the entrance for all staff to pass through.

- Every entrance and exit into back of house should have an air curtain to keep any physical and airborne hazards out and to ensure that the temperature inside the working environment does not fluctuate.

B. MATERIAL SPECIFICATIONS

As you can find in fire regulations, the health and safety code should now consider an inclusion of specifications of certain materials and finishes. There are surfaces commonly available today that either have antibacterial properties mixed into the composite material or can be modified with coating or sprays to increase antimicrobial characteristics.

WALLS:

Surfaces must be flush and smooth (no grouting) and suitable for easy cleaning, panels instead of tiles are a suitable solution.


FLOORS:

Epoxy flooring is now an industry standard in larger commercial kitchens and should be considered for smaller outlets as well. Existing floor tiles should be replaced with antimicrobial tiles. Another alternative is antimicrobial resin flooring that is used in many hospitals.

CEILINGS:

Similar to walls, minimal grout or assembly pits are important as they enable easy cleaning. A few large panels are preferable to a large number of small tiles.

DOORS:

Internal and external doors can be fitted with antimicrobial push plates, while door handles can have antimicrobial grips; both can be retrofitted to existing doors and handles. The use of the right materials is of even greater importance in open kitchens that expose the full kitchen to the customers' view. Customers can, and should, be able to see inside the kitchen to observe how food is prepared and how clean the kitchen is. In fact, we would encourage all kitchens to be visible to the customer through a glass window. This will remove all doubt in the customer's mind about any possible unhygienic and unsafe practices.

| | 2 HOURS | 16 HOURS | 20 HOURS | 24 HOURS |

Unprotected Surface

Surface with Antimicrobial Protection
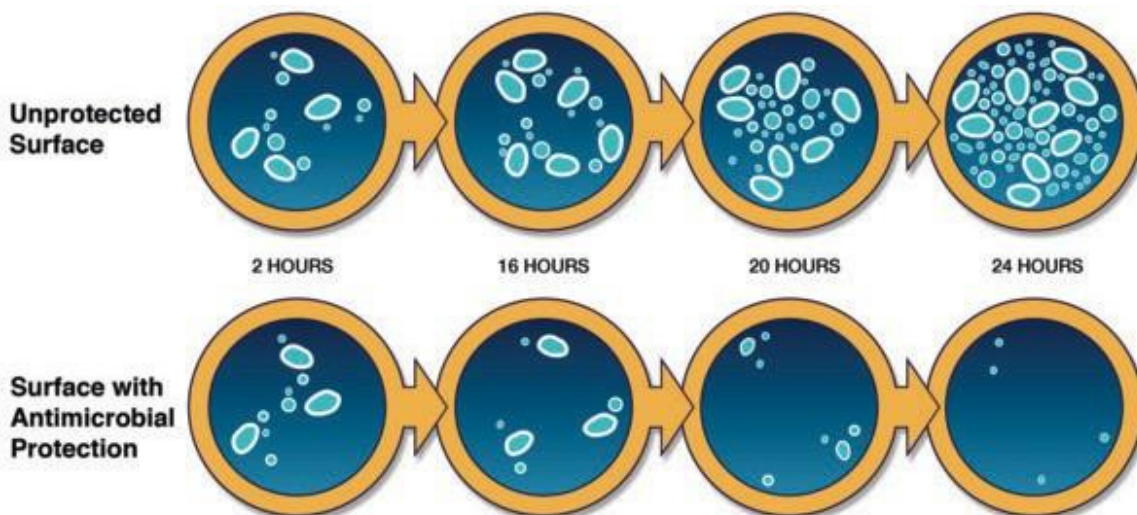
C. ANTIBACTERIAL UTENSILS

There are many cleaning agents on the market today to ensure that utensils and larger equipment can be cleaned appropriately and safely. When it comes to utensils, there are options to go a step further:

- The use of heat-resistant silicone in kitchen equipment is a much safer option than wood, plastic or, in some cases, even stainless steel.
- Knives should always be sterilized overnight in a knife sterilizer.

D. PROCUREMENT AND DELIVERY OF GOODS

Apart from all the material changes you can make for safety and hygienic reasons; internal processes can also play a vital role in stopping potential hazards at the door.

- Know your supplier! Have you seen your supplier's storage and production facilities, are they designed to HACCP specifications, and are they complying with the latest governmental guidelines?
- Are their distribution trucks clean and in good condition, is there a cleaning schedule present in the trucks, are temperature checks on the truck carried out and monitored?
- Have truck drivers and delivery personnel been fully trained, are they wearing clean uniforms, are they following the hygiene procedures?
- Do you need to order goods as often as you do, or can you re-schedule to a less frequent system?
- Are you in a position to reduce the number of suppliers in order to avoid overcrowding in the delivery area? Delivery time slots for suppliers can be introduced to avoid overcrowding in small delivery areas.

E. STAFF PLANNING

As a result of physical distancing, the kitchen area will need to review the number of people present at any given time. If possible, shifts should be split with as little overlap as possible. You may have to consider having a night shift that does only food prep so the day and evening shift can focus purely on finishing. This may be a complete change in mindset of how your business operates but it may be necessary to reduce the risk of infection.

F. PREREQUISITE PROGRAMS (PRP)

For those that are familiar with HACCP, prerequisite programs are one of the building blocks of the implementation for a successful HACCP system. Businesses have no choice but to check that all their PRP's are up-to-date and that all requirements have been addressed. Specific attention needs to be given to auditing, disinfection programs and cleaning schedules. Stringent audit procedures must be exercised to ensure that no deadline is missed, no AMC (Annual Maintenance Contract) can expire and that all outcomes of PRP processes are diligently analyzed and corrected in a timely manner.

Additional cleaning processes should be implemented outside operational working hours, in particular so that the next shift has a clean and fully disinfected kitchen, restaurant or bar. There are ample software programs and apps on the market that can organize temperature and cleaning tracking and reporting. An investment in one of these should be a priority.
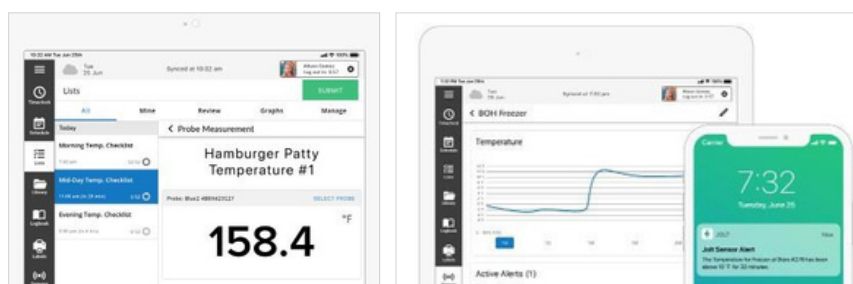
5. HYGIENE AND SAFETY

A. HAND SANITIZING

Contactless hand sanitizer or disinfectant labeled dispensers (sensor or foot pedal devices) should be installed in the following areas:

- Entrance point to the facility, the food preparation and storage rooms

- Handwashing stations

- Staff changing room and locker rooms

- Customer washrooms entrance/exit

- Retail and display room entrance/exit
- POS system and cashier stations
- Office entrances/exits
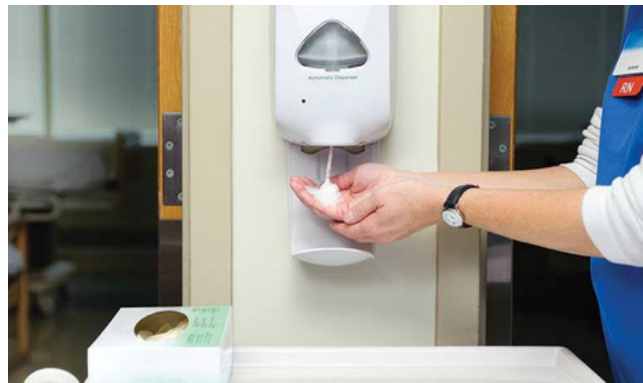
Alcohol-based hand rubs (ABHR) are commonly used in various industries and are the recommended substances by international references such as the FDA and CDC. ABHR's should have a greater than 60% ethanol or 70% isopropanol substance as active ingredients.

They may not be as effective when hands are visibly dirty or greasy and therefore staff should properly handwash first when their hands have visible dirt, followed by the use of an ABHR. Proper handwashing is efficient against any type of germs, however since this cannot be supervised 24/7, it is recommended that every hand wash basin also has a hand sanitizer device adjacent so that the combination of both will remove any possibility of germ survival.

For parents concerned about their children developing rashes or skin allergies because of ABHR's, there should be a provision of wipes with a lower percentage of alcohol at the outlet and washrooms' entrances. However, a sign reminding guests to rub thoroughly and stating that "the use of hand wipes with reduced alcohol percentage might not be as efficient as using ABHR's with the recommended concentration of alcohol on germs including bacteria and viruses" should be displayed.

B. PRP'S ON CLEANING AND DISINFECTION PROGRAMS

Definition of cleaning:
The process of removing soil, food residues, dirt, grease and other objectionable matter.

Definition of disinfection:
The reduction, by means of chemical agents and/or physical methods, of the number of microorganisms in the environment, to a level that does not compromise food safety or suitability.

Cleaning and disinfection have a crucial role in controlling and preventing contamination and the spread of infections in the facility. When establishing your cleaning and disinfection culture, we encourage you to consider the following aspects:

- The cleaning crew can be outsourced or hired by the facility, and their training on the importance of the proper use of cleaning and disinfection chemicals is imperative. Such training can be provided by an approved chemicals' supplier.
- The procurement of proper food grade products from an approved chemicals' supplier.
- The approvals of the products in the country as evidence of being efficient for the purpose of use. Approvals should be readily provided by the chemical supplier.
- Where such an approval is not applicable, it is advisable to refer to "the Environmental Protection Agency" list (www.epa.gov) to ensure the safety and efficiency of the products used.
- Documenting the Material Safety Data Sheets (MSDS) of all substances.
- Ensuring that a minimum stock of cleaning and disinfection products is always available.
- Provision of a locked room or non-corrosive locked cabinet for storing all chemical products.
- Establishing a detailed cleaning and disinfection schedule by the persons in charge, based on manufactures' instructions. The schedule will serve as reference for the task holders. This schedule shall include:
    - Areas such as storage room, food preparation room, hot kitchen, etc.;
    - List of all equipment, utensils, devices and fit out;
    - Chemicals to be used;
    - Dilution rate, contact time and storage condition;
    - Tools and equipment to be used;
    - Persons assigned for the tasks;
    - Safety instructions;
    - Provision of the suitable cleaning tools and equipment including, but not limited to, disposable towel papers, color coded sponges and cloths, color coded mops and brooms, scrubbers, color coded buckets;
    - Replacing the cleaning tools and equipment when their conditions do not support the efficient cleaning and disinfection procedures;
    - Cleaning tools and equipment should be deep cleaned at the end of the day using detergent and warm water. Mops and brooms must be placed on hangers, away from food areas, to dry above drains or buckets for water collection;
    - Cleaning sponges and cloths shall be cleaned, disinfected and stored dry after usage OR dipped in food grade sanitizing solution (cloths and sponges) or bactericidal/disinfectant washing detergent (for sponges) during operations. The solution is to be labeled with four (4) hrs. expiry and checked randomly (once every three days at least) for its efficiency/concentration using PPM test strips adequate for the chemical substance;
    - Ensuring the chemical containers are always kept in good condition, labeled and stored under the safe range of temperature;
    - Using cleaning checklists and logs to record the daily tasks. These documents should be monitored on a frequent basis by the person in charge.

C. CHEMICAL CONTROL STRATEGY

The purpose of a chemical control strategy is to prevent and control any risk of chemical contamination, poisoning, and misuse. The following documents and requirements are fundamental in this context:

- Cleaning schedules
- MSDS of cleaning and disinfection products
- Cleaning checklists
- Secured and safe storage area
- Implementing the standard cleaning frequency considering:
  - The product's manufacturer's recommendation;
  - Risk assessment of contamination and/or infection spread;
  - The operation's nature, volume and pace.
- Using approved and food grade products
- Following the set contact time of disinfectants
- Using products within the permissible concentration
- Not mixing different types of chemicals
- Training assigned staff on the correct usage of chemicals
- Following manufacturer's instructions
- Properly covering and/or storing food while cleaning
- Thorough rinsing of the area after cleaning
- Using the accurate product for the correct purpose:
  - Antibacterial: active against bacteria;
  - Anti-viral: active against viruses;
  - Anti-microbial or anti-germs: active against both bacteria and viruses.

The above specifications do not confirm that the product is active against a specific bacterium or virus. When there is a specific microbe of concern, there should be evidence from the chemical's provider that the products are efficient against the said germ, such as the COVID-19.

D. INCREASED NUMBER OF SINKS INSIDE THE RESTAURANT

Hand wash stations must be equipped with the following facilities:
- Non-hand operated faucet to prevent the risk of re-contamination through hands
- Warm water for a better efficiency of the soap and to encourage handwashing
- Neutral (no fragrance) liquid hand soap, labeled dispenser
- Neutral (no fragrance) alcohol-based hand rub, contactless labeled dispenser
- Hand drying facility, preferably through disposable paper towels
- Foot operated trash bin
- Handwashing instructions poster
- Hand wash station sign poster

Handwashing with soap removes germs from your hands. This helps prevent infections because:

- People frequently touch their eyes, nose, and mouth without even realizing it. Germs can get into the body through the eyes, nose and mouth and make us sick.
- Germs from unwashed hands can get into foods and drinks while people prepare or consume them. Germs can multiply in some types of foods or drinks, under certain conditions, and make people sick.
- Germs from unwashed hands can be transferred to other objects, like handrails, tabletops, or utensils, and then transferred to another person's hands.

Removing germs through handwashing therefore helps prevent diarrhea and respiratory infections, and may even help prevent skin and eye infections. Teaching and monitoring food handlers and other employees about handwashing helps them and the customers stay healthy. It is proven that handwashing education:

- Reduces the number of people who get sick with diarrhea by 23-40%
- Reduces diarrheal illness in people with weakened immune systems by 58%
- Reduces respiratory illnesses, like colds, in the general population by 16-21%
- Reduces absenteeism due to gastrointestinal illness in school-children by 29-57%

It is the responsibility of the management to provide the necessary number of hand wash stations in the facility, considering one station for every eight employees as best practice. In addition to the back of the house, installing one handwash station for every 50 guests in the front of the house is advisable to allow customers to wash their hands before, during and after meals. This will reduce the risk of infection spread by giving customers the chance to decontaminate their hands and minimize the visits to washrooms when not necessary.
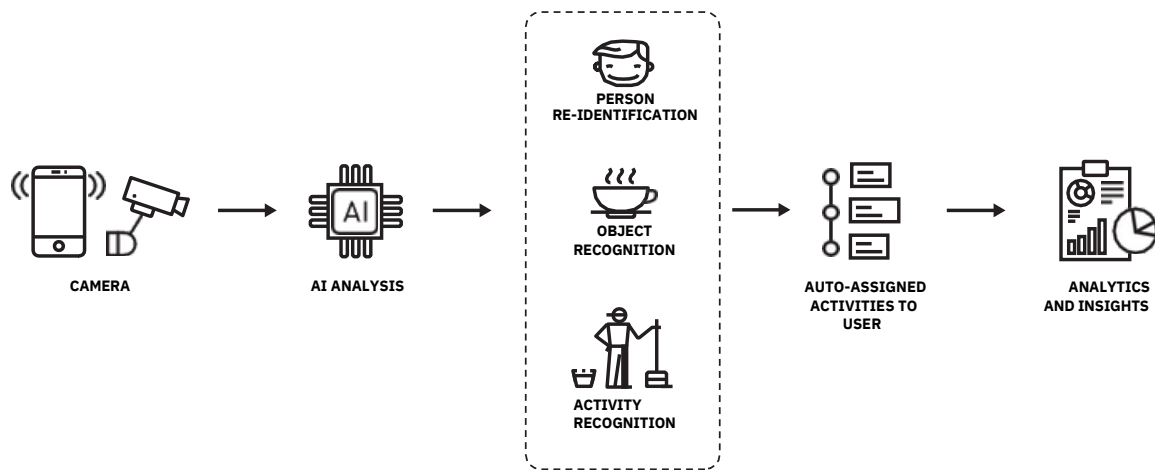

E. HYGIENE SOFTWARE APPLICATIONS

Incorporating technology to control hygiene inside the kitchens can be a big step forward towards a safer F&B environment. It is not only about the provision of the required resources and training the manpower, but about monitoring the implementation of the guidelines and the application of the policies. Monitoring is one of the most challenging tasks in an operational set-up such as F&B catering and manufacturing; it demands trained and dedicated personnel available at every moment in all areas of the facility, which is practically and financially difficult to ensure. Companies like Jolt, I-Auditor and MeazureUp offer a wide range of digital solutions.

It can be made easier by using technology that identifies malpractices around the work place. Artificial Intelligence is now being introduced in software to identify individuals that are not following hygiene guidelines, to measure physical distancing and to calculate how often staff members wash their hands in a given day. All this data can then be used to rectify the problem and retrain personnel that needs more attention when it comes to food safety.

Software that can be used could be CCTV task surveillance system, germs free hand sensors, a handheld surface and hand swabbing device or a germ scanning gate. There is a solution for all of these.

PERSON RE-IDENTIFICATION

OBJECT RECOGNITION

ACTIVITY RECOGNITION

CAMERA → AI ANALYSIS → AUTO-ASSIGNED ACTIVITIES TO USER → ANALYTICS AND INSIGHTS

F. PERSONAL HYGIENE AND PERSONNEL WELLBEING

The highest standards of personal hygiene should be maintained in all F&B establishments to ensure that employees and especially food handlers are not likely to contaminate food and beverages.

Golden rules to one's health condition:
- All food handlers should be in good health, able to read and communicate, especially if they are responsible for using food safety device meters, supervising operations, handling food labeling and date coding, etc.
- Food handlers should undergo medical fitness tests conducted by the concerned government authority yearly or at a frequency set by the country/area/province.
- Food handlers must be free from any symptoms of illnesses or communicable diseases such as vomiting, fever, cough, diarrhea, sore throat, abdominal pain, and jaundice.
- Food handlers should not be suffering from discharging sores or infected wounds on any exposed part of the bodies; or from discharge from their eyes, nose or ears.
- No employees can be carriers of food-borne diseases such as typhoid/paratyphoid, hepatitis type A, cholera, etc.
- No employees shall be carriers of any virus upon entering the premises. A health check-up by a recognized facility is a must before being allowed back on the property. In case of doubt, the employee should quarantine and await advice from a medical practitioner.
- There should be a clear policy of illness reporting by the staff to the person in-charge. The person in-charge must strictly ensure the implementation of the policy, investigate the health condition of the employee where required, dismiss the employee from work for the recommended period.
- When returning to work after medical leave or illness, food handlers should have written clearance from the treating physician, particularly in the case of diagnosed, reportable communicable diseases.

Grooming in the workplace:
- Any person entering a food preparation or storage area, should have their hair covered with a clean hat or hairnet. Where required, beards should be completely covered with beard nets.
- While in a food handling area, food handlers should not wear any type of jewelry, as this may lead to physical contamination from detachable parts and microbiological contamination if polluted with germs.
- Only clean, light-colored outer clothing or protective overalls should be worn by food handlers. The uniform should have long sleeves to prevent physical contamination from hands' hair, or staff can wear arm sleeves instead.
- Buttons in uniform may lead to physical contamination and should be replaced by Velcro or studs.
- Food handlers should have at least four sets of uniforms to ensure that they can change to clean uniforms when necessary.

Adopting good hand hygiene habits:

- Hand hygiene is an important step to prevent the spread of food-borne illnesses. The following criteria cannot be compromised:
    - Clean hands
    - Clean and short nails
    - Covered wounds with waterproof blue dressing

Blue, powder free, nitrile or vinyl gloves must be worn where required and handwashing should take place:

- before commencing work
- before handling food
- after visiting the toilet
- after putting on or changing a wound dressing
- after dealing with an ill colleague or customer
- after shaking hands with anyone you meet
- after coming into contact with pests or their feces
- after handling contaminated raw foods of animal or plant origin
- after handling soiled equipment or utensils
- after coughing, sneezing, smoking, eating, drinking or blowing nose
- after handling animals or waste
- after engaging in any activities that may contaminate hands (e.g. handling money, carrying out cleaning duties, etc.)
- after returning from a break

G. PERSONAL BELONGINGS INSIDE THE FACILITY

Personal belongings and uniforms of employees should be stored separately from food storage and food preparation areas. These items might lead to infection spread and to multiple types of contamination: physical, microbiological, and allergenic when stored together or in food areas.

It is the responsibility of the management to ensure the employees have individual lockable and water-resistant lockers to keep their belongings before they enter the food storage and preparation areas. Where vertical lockers or cabinets are not possible because of space restrictions, it is advisable to install horizontal style cabinets on a level that does not cause any safety risk and that is accessible to employees.

H. CHECKLISTS YOU CAN DOWNLOAD

There are a great number of websites that offer free checklists for restaurants to use.
Here are a few useful links:

- https://meazureup.com/free-checklists/
- https://www.foodalert.com/covid-19-resources
- IAuditor.com has a range of checklists:
    - https://public-library.safetyculture.io/products/hospitality-bar-re-opening-checklist
    - https://safetyculture.com/checklists/cafe-and-restaurant-reopening/
    - https://safetyculture.com/checklists/food-safety/
    - https://safetyculture.com/checklists/kitchen-operations/
    - https://safetyculture.com/checklists/15-best-risk-assessment-checklists/
    - https://safetyculture.com/checklists/ppe-safety/

6.FINANCIALS

A. THE FINANCIAL RECOVERY OF ADDITIONAL SAFETY MEASURES AND H&S RELATED INVESTMENTS

The million-dollar question (or in the case of the COVID-19 crisis, the multibillion-dollar question) will be how all this extra investment can be recuperated and who should pay for all this extra care. It goes without saying that a pandemic is not the customer's nor the business' fault. Therefore, we feel that the burden should be shared.

F&B businesses already have, and will continue to spend extra money on cleaning materials, disinfectants, masks and gloves for personnel and regular disinfection drives of their assets among many other things. This will obviously impact the bottom line of the F&B business. It is inevitable that, down the line, restaurants will start to increase their menu prices (if they haven't already done so) in order to recuperate the additional costs it has incurred for the safety of both staff and customers.

Firstly, while we believe that raising your menu prices across the board is not a good strategy - especially without offering any explanation to your clientele. Businesses should be transparent with their customers and communicate any increase in price, and it's reasoning. Instead of hiding the extra hygiene investments into the menu price, it is our opinion that a transparent per diem "hygiene charge" per customer would be a much better approach to build trust and recuperate some of the extra expenses.

There is no doubt that customers today and in the future, will demand a higher standard of hygiene and safety while socializing in F&B establishments, and we are certain that open communications to get the buy-in from the customer is the best way forward.

B. AUDIT YOUR BUSINESS MODEL

Human beings don't like change by default, but we have no choice now. What was relevant and normal a few years ago, may not be so today. We therefore urge businesses to audit their business model holistically and ask themselves several critical and sometimes painful questions:
- Is my business still relevant?
- Is my value proposition still realistic?
- Am I being driven by my passion, or purely by money?
- What is the competition doing and why?
- Am I up to date with the current trends?
- How does my business tie in with current customer behavior?
- Am I spending my money in the right places?
- Is expansion of my business necessary now, or can it wait?
- Is the product I offer the best we can do?

Once you have answered these questions honestly, the decisions that will shape your future will become much easier to make.

What used to be LOCATION LOCATION LOCATION, has now turned into INNOVATION INNOVATION INNOVATION.

CONCLUSION

The measures described in this paper are destined as design evolution in response to a need for risk mitigation, not as an obstacle to progress or development. At this point in time we have been called to take stock and find a new way to preserve the F&B industry. This means retaining positive customer experiences including socialization, enjoyment of food, customer service and spatial satisfaction, without compromising the essence and process of F&B design. It is essential that designers balance the safety of the end users with design vision.

We need to be prepared to evolve rapidly with the changing regulations and protocols.

As an industry, we need to be one (or even two) steps ahead and evaluate all of our designs, the materials used, the contractors we work with and select them not just on price but on sustainability.

We have found ourselves playing catch-up out of necessity. However, technology is on our side and is rapidly evolving.

As the demand for innovation grows, companies will invest in R&D and new solutions will emerge. The development of effective solutions will demand hard work, careful thought, substantial investment, sufficient time and rewriting of the rule book in many cases. It will require the collaboration of owners, consultants, contractors,

suppliers and even customers, to chart a path that meets the needs of all.

It can and will be done, there is no alternative. Ultimately, everyone will adapt to change and dining out will be better as a result.

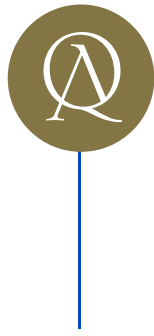The secret to getting ahead is getting started.

Let's begin.

Ready to start Designing a Safer Future?

We would be happy to assist you in implementing these industry best practices.

[Get Personalized Advice](#)

About the Authors

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