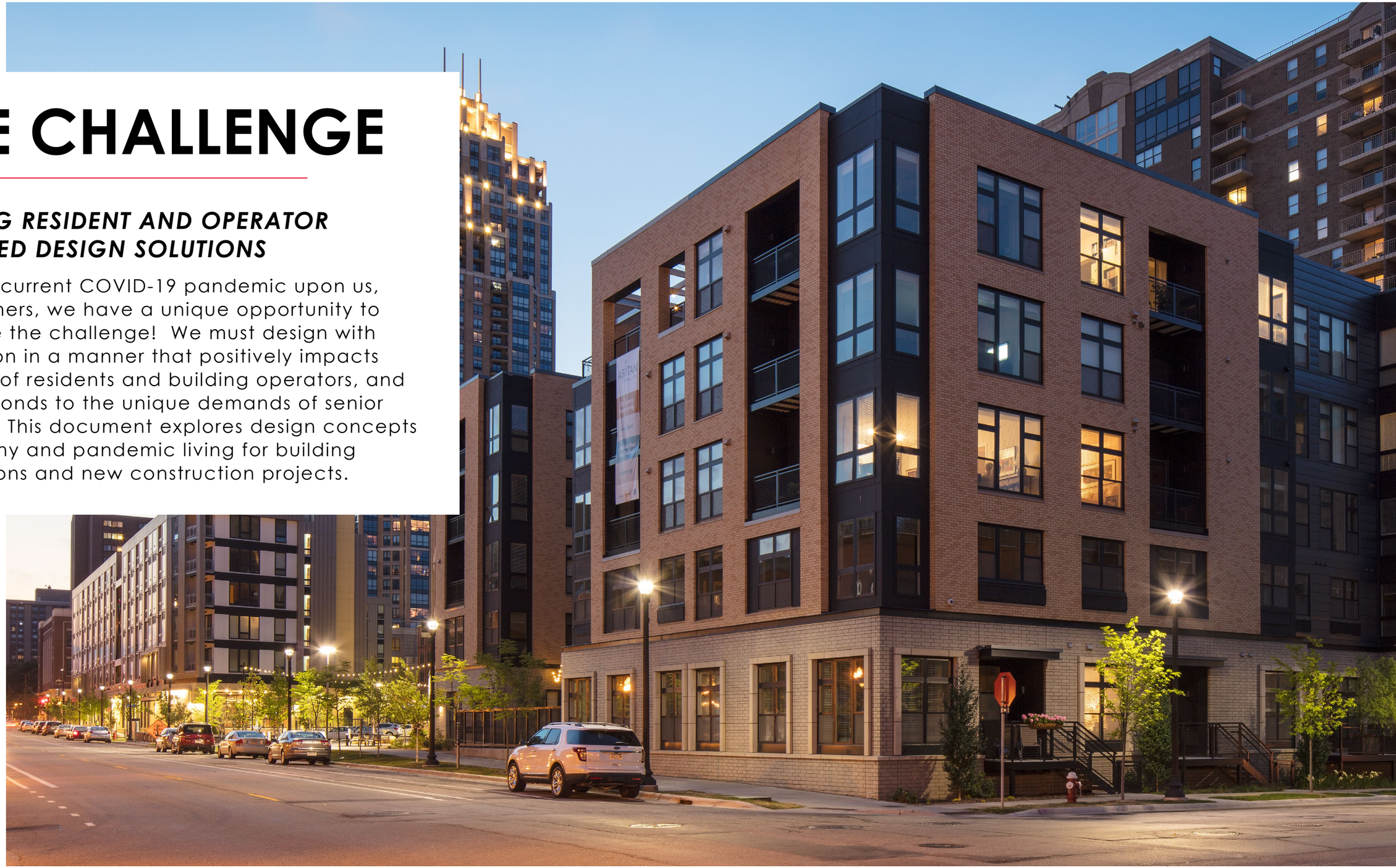
BKV GROUP

MAKING SENIOR LIVING SAFER AND MORE HABITABLE

THE CHALLENGE

FINDING RESIDENT AND OPERATOR ORIENTED DESIGN SOLUTIONS

With the current COVID-19 pandemic upon us, as designers, we have a unique opportunity to embrace the challenge! We must design with innovation in a manner that positively impacts the lives of residents and building operators, and that responds to the unique demands of senior housing. This document explores design concepts for healthy and pandemic living for building renovations and new construction projects.



CONCERNS

SENIOR RESIDENT CURRENT CONCERNS

1. Virus outbreak - having an outbreak in the facility!
2. Safety – high risk concern, avoidance of COVID-19.
3. Testing – ability to identify COVID-19 positive residents or staff & quickly isolate them.
4. Ability to see family & other guests – opportunities to safely see family, possible with a glass partition.
5. Self-isolating for too long - lack of social, intellectual, and physical stimulation.
6. Reduction of scheduled activities – limited social interaction, loneliness, boredom. Lack of use common spaces – limited social interaction, inability to leave their unit.
7. Unit maintenance – only allow emergency maintenance and manage access.
8. Ventilation - Proper dilution and filtration to mitigate airborne risk in public spaces.

CONCERNS

SENIOR HOUSING MULTIFAMILY OPERATORS CURRENT CONCERNS

1. Establishment of new pandemic protocols.
2. Testing – clear and reliable testing protocols and results for staff and residents.
3. Screening of visitors and guests – how much outside access to allow?
4. Access restrictions - lack of outside caregivers such as pt and medical.
5. Impact on staff – additional staff to cover sick and quarantined residents and staff.
6. Staff safety & ppe (personal protective equipment) – provide staff with necessary equipment.
7. Staff training – cross train staff to cover multiple roles.
8. Reimagining circulation patterns – separate resident and back-of-house service areas, one way travel where possible.
9. Foodservice procedures – minimize cross contamination of receivables, clean and dirty dishware.
10. Relocation of residents – dedicate building wings to infected residents.
11. Reduce touch points – minimize potential for surface contamination.
12. Families prematurely moving residents out of communities.
13. Move-in/move-out protocols – provide safe and dedicated access.
14. Packages – access and distribution to minimize risk.
15. Future leasing – how to attract future residents primarily through digital means.
16. Incoming residents – varied approaches for new potential residents.
17. Future regulation reforms.
18. Airborne risk mitigation - adaptability of HVAC systems to accommodate higher ventilation rates and enhanced filtration.

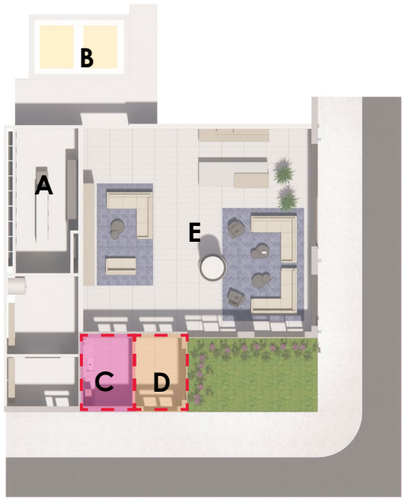
*Photo courtesy of CA Ventures

DESIGN SOLUTIONS

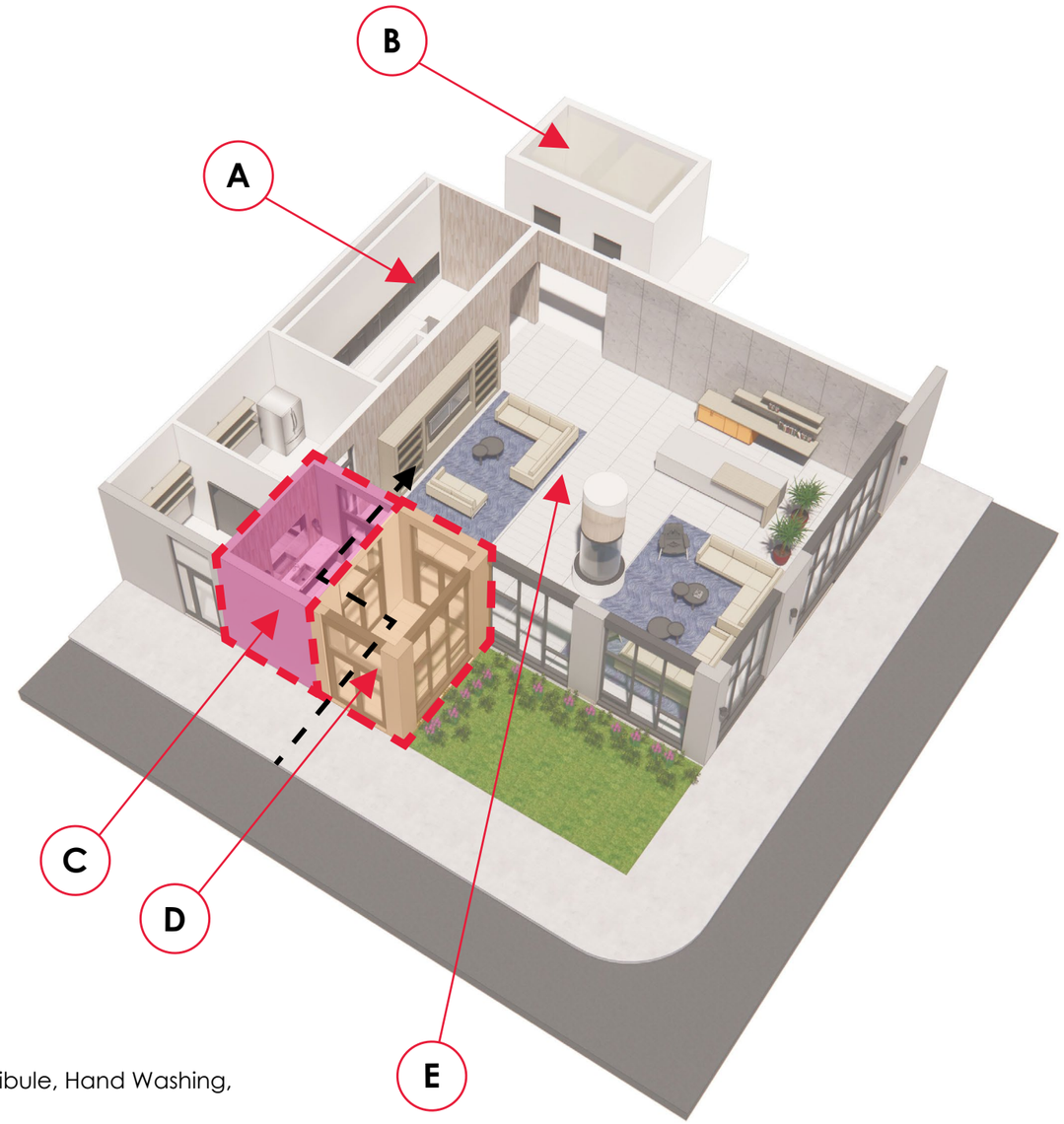
CONSIDER THE FOLLOWING SOLUTIONS FOR RENOVATIONS AND NEW BUILDINGS:

BUILDING ENTRY

1. Reduce building entry points, controlled health screening of staff and visitors.
2. Create a “clean vestibule” with sink for hand washing, ppe gloves and masks, and equipment for temperature checks. (During pandemic periods, force entry through this vestibule)
3. Utilize automatic sliding doors at high traffic areas.
4. Consider social distancing for reception desk design. In tight spaces, add pocketed sliding or temporary glass partitions.
5. Temporary partitions or barriers, testing areas in existing buildings.
6. Voice operated call out boxes.
7. Temporary sanitization stations.



LOBBY FLOOR PLAN



LOBBY AXONOMETRIC VIEW

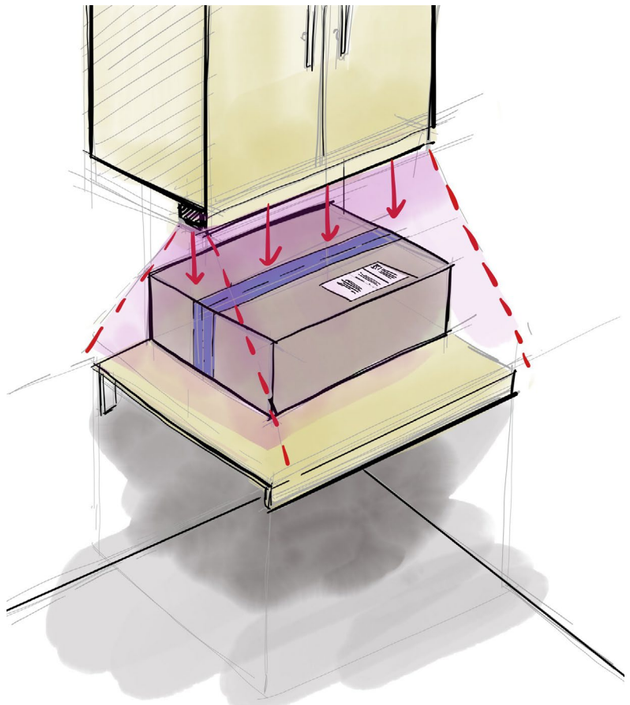
KEYNOTES:

A. Mail Room
B. Elevators
C. “Clean, Vestibule, Hand Washing, Mask, etc”
D. Main Entrance Vestibule, No Touch
E. Lobby

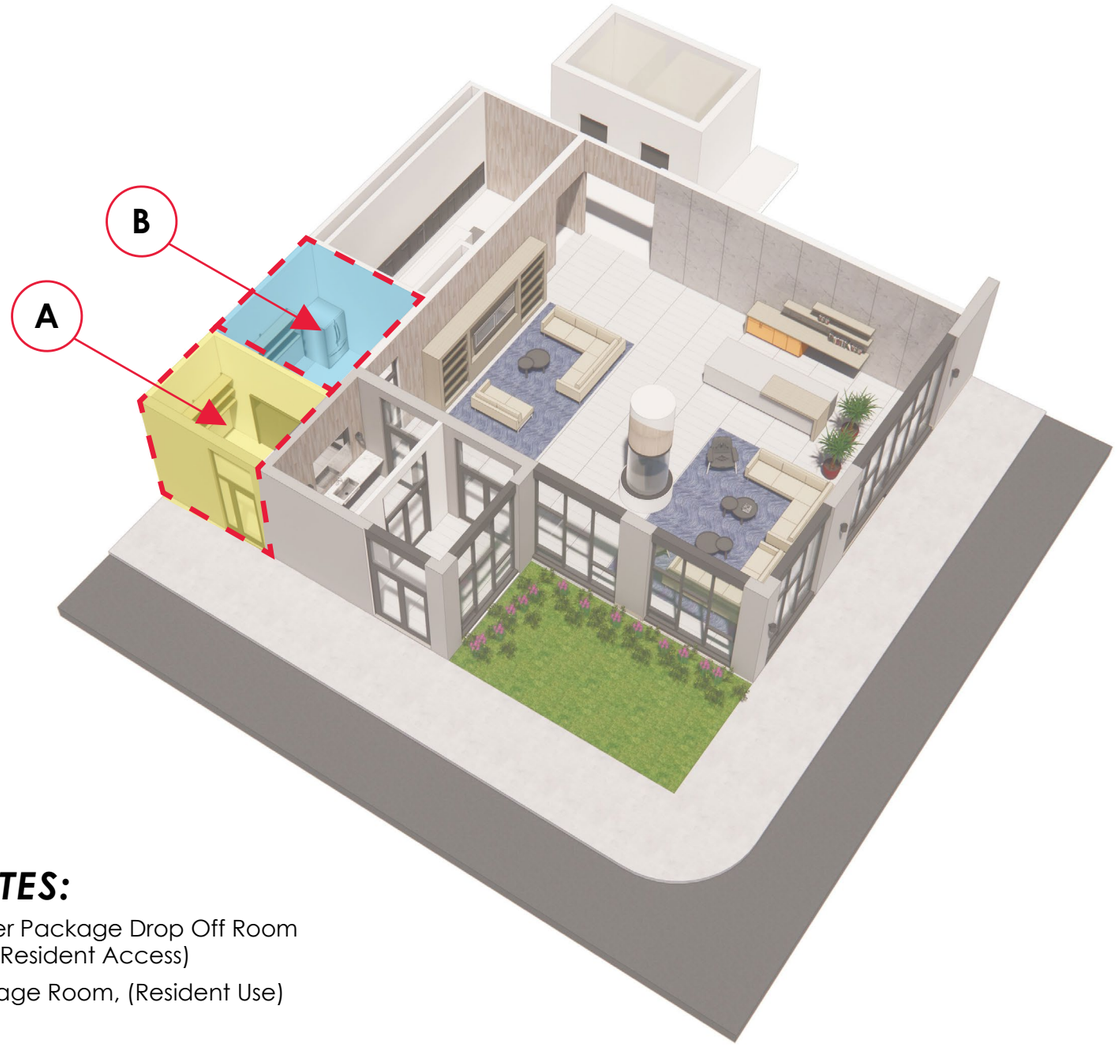
DESIGN SOLUTIONS

PACKAGES/RECEIVABLES

1. Design a package vestibule to manage potential for outside contamination.
2. Provide cleaning system upon arrival of new packages, (UV light).
3. Design spacious package pick-up area to allow for social distancing.
4. In future look at potential for drone package delivery to the separate units – balcony or drone door.



PACKAGE SANITATION



KEYNOTES:

A. Carrier Package Drop Off Room (Non Resident Access)

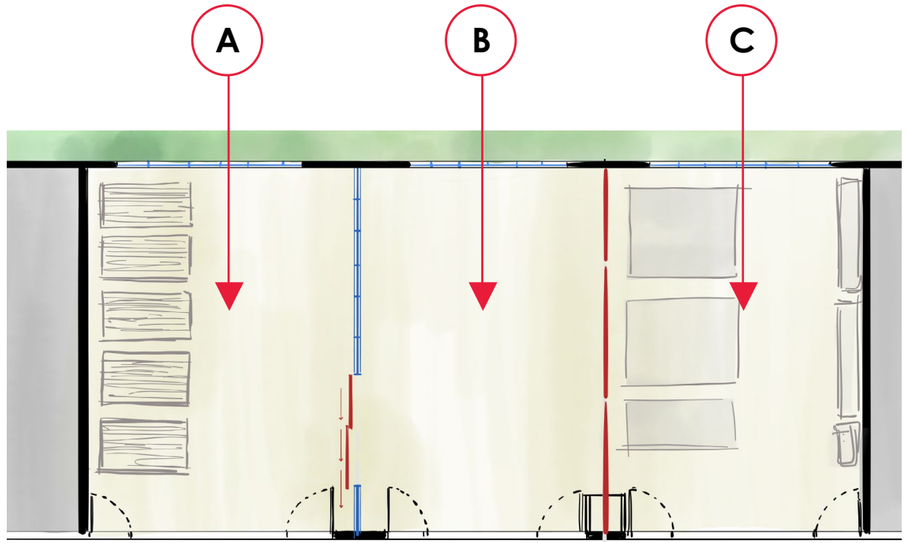
B. Package Room, (Resident Use)

LOBBY AXONOMETRIC VIEW

DESIGN SOLUTIONS

INTERIOR AMENITY SPACES

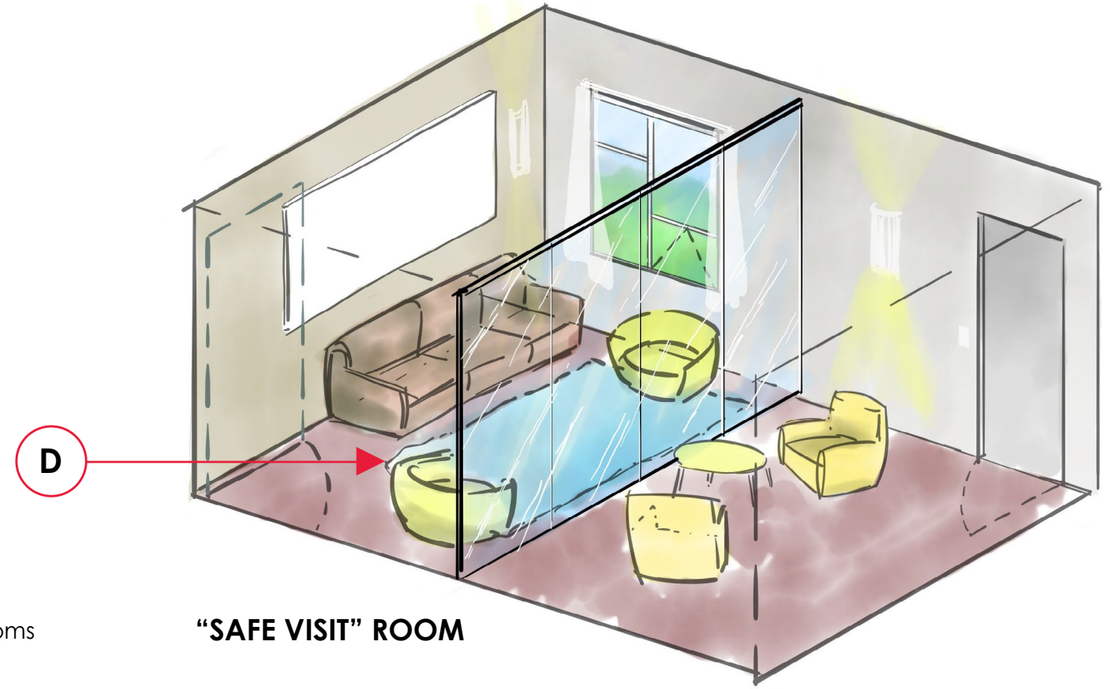
1. Design flexibility into amenity spaces with movable/ operable walls or demountable partitions.
2. Design spaces that are flexible and redundant, so they allow for down time for decontamination and maintenance.
3. Provide multiple and wider doorways that allow residents and staff to maintain social distancing.
4. Evenly distributed seating layouts, so residents can social distance.
5. Provide socialization digital programs to limit isolation of residents and make sure they stay connected.
6. Re-examine exterior amenity spaces, outdoor connectivity for sanitation, health and wellness. Flexible furniture placement to allow for social distancing.
7. Integrate “safe visit” rooms - divide with glass and separate mechanic systems.
8. Serve individual program areas from separate HVAC air systems & utilize MERV 13 filtration.



FITNESS SPACE - WITH OPERABLE WALLS

KEYNOTES:

A. Amenity, Studio
B. Amenity, Cardio
C. Amenity, Weights
D. Phone Rooms/ Study Rooms

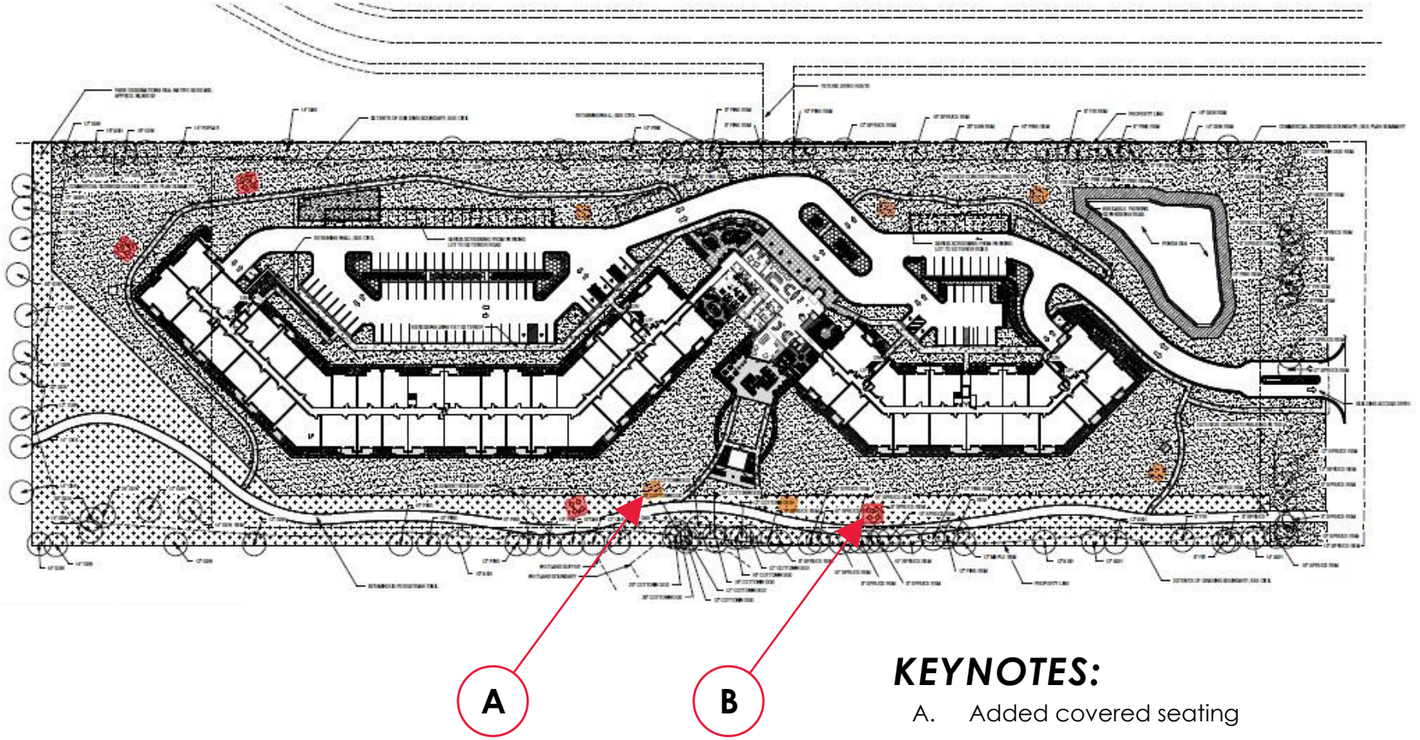


“SAFE VISIT” ROOM

DESIGN SOLUTIONS

EXTERIOR AMENITY SPACES

1. Significantly more covered outdoor seating areas.
2. Add integrated heating to outdoor spaces to extend seasonal usage.
3. Creating reservation lists for outdoor amenities.
4. Larger courtyards with more outdoor amenities.
5. Increasing/ Updating existing outdoor amenities.
6. Adding gardening boxes.
7. Outdoor theater space.



KEYNOTES:

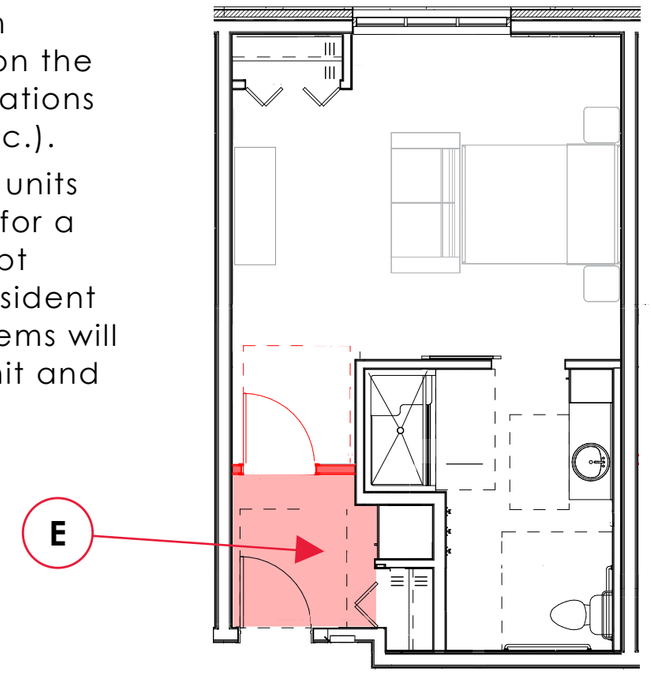
A. Added covered seating

B. Added moveable seating area

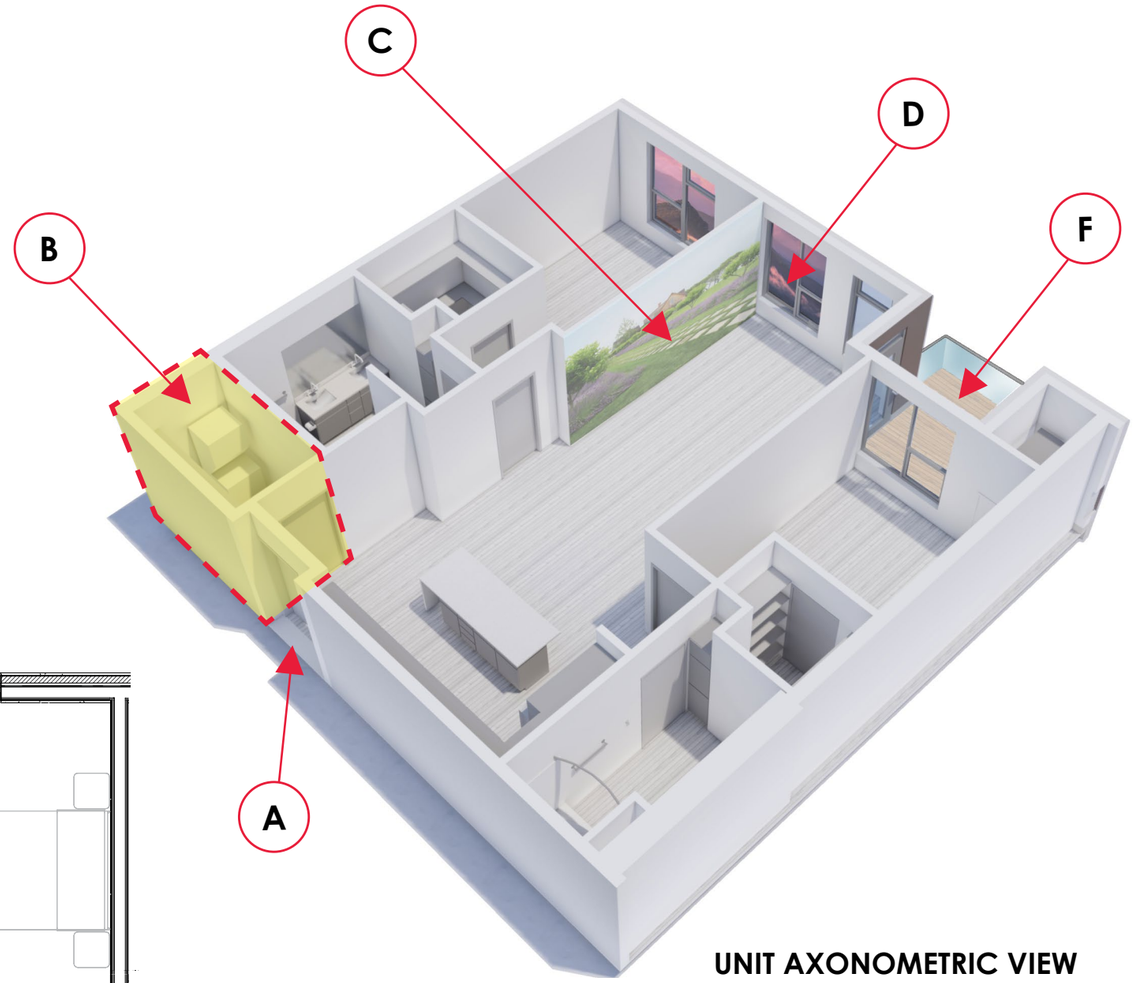
DESIGN SOLUTIONS

UNITS - LENGTH OF IN-ROOM QUARANTINE IMPACTS RESIDENT HEALTH

1. Integrate automatic door opener with no touch fobs or latch system.
2. Provide a “quarantine closet” to temporarily house outside items for cleaning/isolation.
3. Provide balconies at all units for outdoor access and interaction.
4. Adjust unit lighting to Ceridian rhythms, to promote better health.
5. Integrate more systems to allow for all units to easily have virtual reality (VR) systems.
6. Ability to modify exterior view with programmable video screen film on the window that depicts virtual destinations (Such as Champs Elysees, Paris, etc.).
7. “Unit Entry Vestibule” - design the units to add a wall and gasketed door for a future isolation event. The concept is designed to reduce staff and resident interactions. Unit mechanical systems will need enhancements to control unit and vestibule air flow and pressure.
8. Provide continuous balanced ventilation system.



MEMORY CARE UNIT VESTIBULE



UNIT AXONOMETRIC VIEW

KEYNOTES:

A. Automatic Doors
B. “Quarantine Closet, Storage, Pandemic Control Room
C. Media Wall
D. Video Screen Window
E. Unit Entry Vestibule
F. Enlarged Balcony For Pets

DESIGN SOLUTIONS

ADDITIONAL DESIGN ITEMS

1. Wider corridors with mirrors at intersections and corridors.
2. Review spaces and corridors for one way path of travel.
3. Elevators with no touch fob activation or voice activation options.
4. Automatic doors openers with motion sensor or no touch fob activation.
5. Utilization of foot operated sensors.
6. Occupancy controlled lighting.
7. Sensor and voice activated elevators.
8. Closed-circuit TV to monitor staff and guests.
9. Thoughtful material selection, antimicrobial/bleach cleanable fabrics, high traffic materials for FF&E and doorways.
10. Separate freight elevator for move-in/ move-out.
11. Employ real time resident location system repeater devices for tracking and monitoring.
12. Further isolate service functions from residential areas of building to limit potential for cross contamination.
13. Provide continuous balanced ventilation, 100% exhaust in corridors.

PETS

1. Design multiple pet runs and longer/wider balconies
2. Provide in-house grooming for convenience, limit exposure of owner.
3. Robots take pets to the pet area, then to pet wash.

*Schindler CleanMobility Solutions

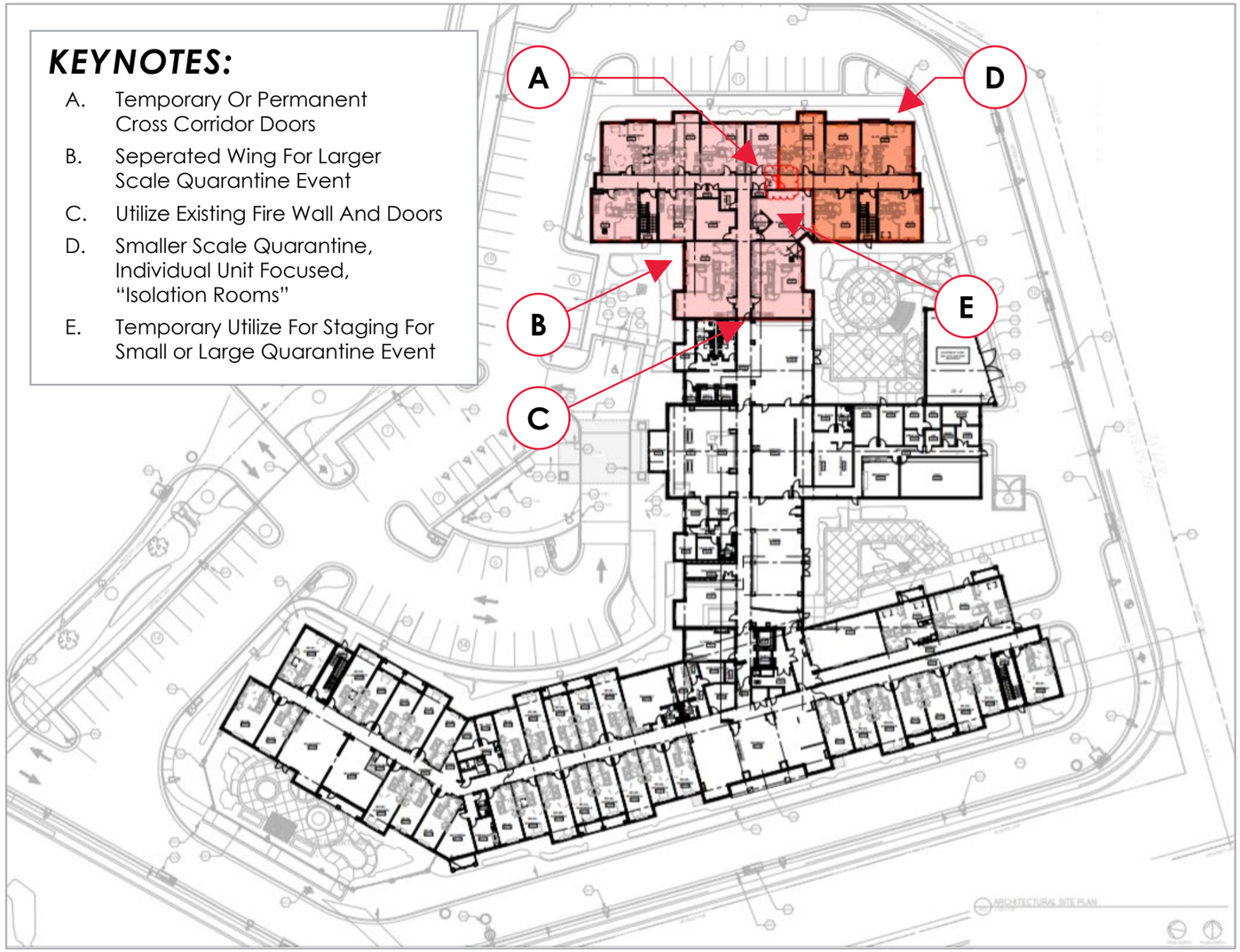

*Hyundai Elevator Touch Button

TOUCH-LESS CALL AND SERVICE BUTTONS

DESIGN SOLUTIONS

COVID-19 / FUTURE PANDEMIC STRATEGIES

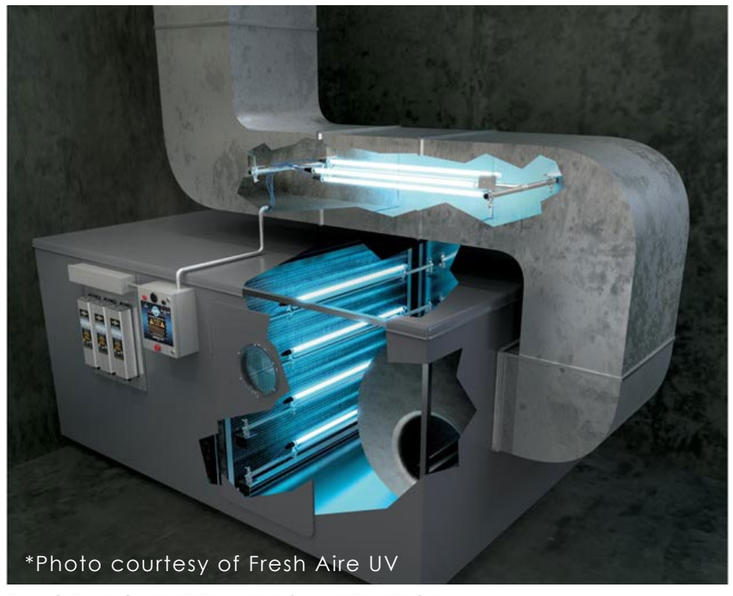
1. "Isolation Rooms" – Incorporate rooms that can that isolate specific residents for smaller outbreaks.
2. Design future buildings with wings that can isolated, physically and for mechanical ventilation for larger outbreaks.
3. Design wings to have neighborhood-based amenities, and temporary decentralized dining.
4. Ability to provide temporary food solutions. Use of convection ovens that don't require grease exhaust and fire suppression.
5. Ability to provide room service as an alternative for those who are isolating and also those that might be in recovery area/wing.
6. Opportunities for additional temporary housing on site to further isolate residents.
7. Provide an isolated room with sleeping cubicles for staff to stay overnight.



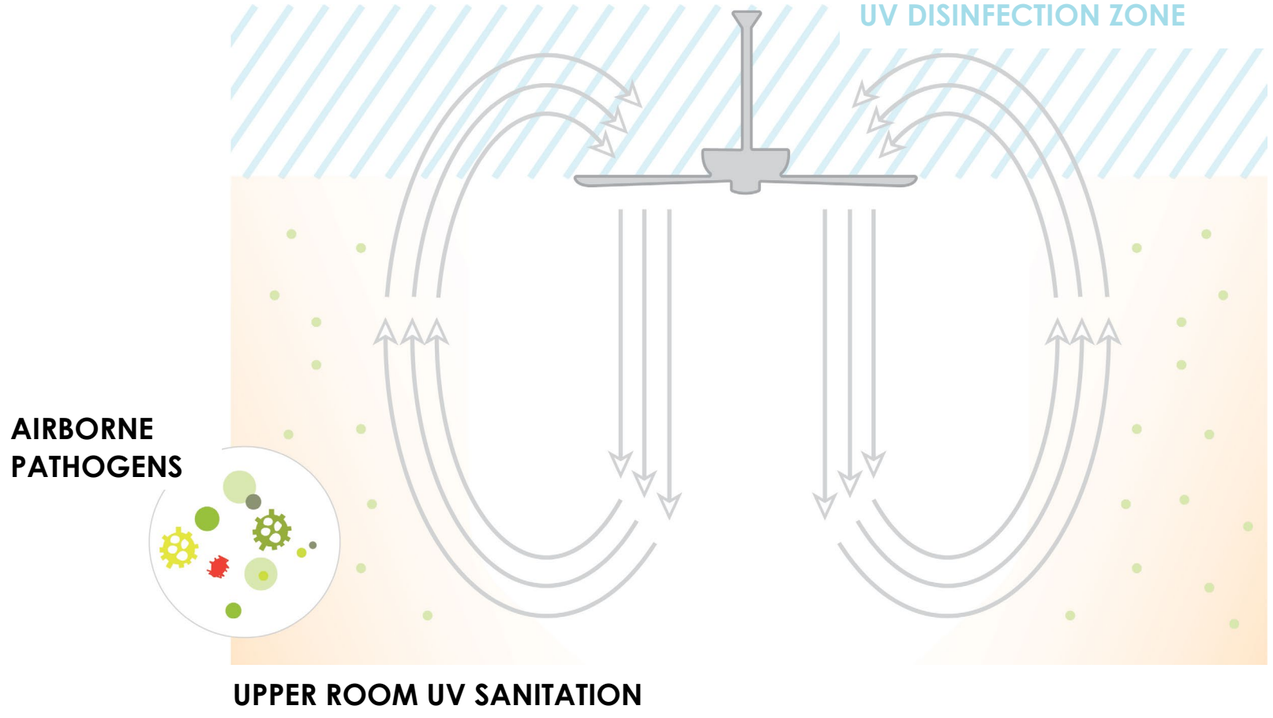
DESIGN SOLUTIONS

BUILDING MECHANICAL SYSTEM

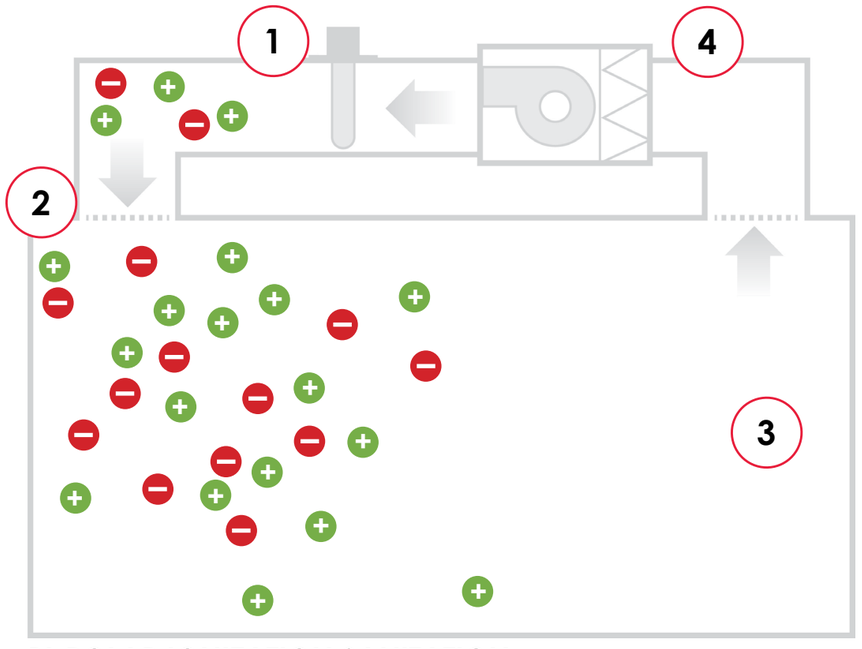
1. Adhere to CCD/ASHRAE guidelines.
2. Emplement latest ventilation rates (ASHRAE 62.1 & 62.2)
3. Utilize MERV 13 Filtration minimum.
4. Integrated sanitation options:
   - Bi-polar ionization
   - UV (duct mounted & upper room)
   - Photocatalytic oxidization
5. Space specific design strategies:
   - Apartments: continuous balanced ventilation
   - Public spaces: separate air handling systems, MERV 13, purge cycles



DUCT MOUNTED UV SANITATION



UPPER ROOM UV SANITATION
Fan moves air across UV disinfection zone



BI-POLAR IONIZATION SANITATION

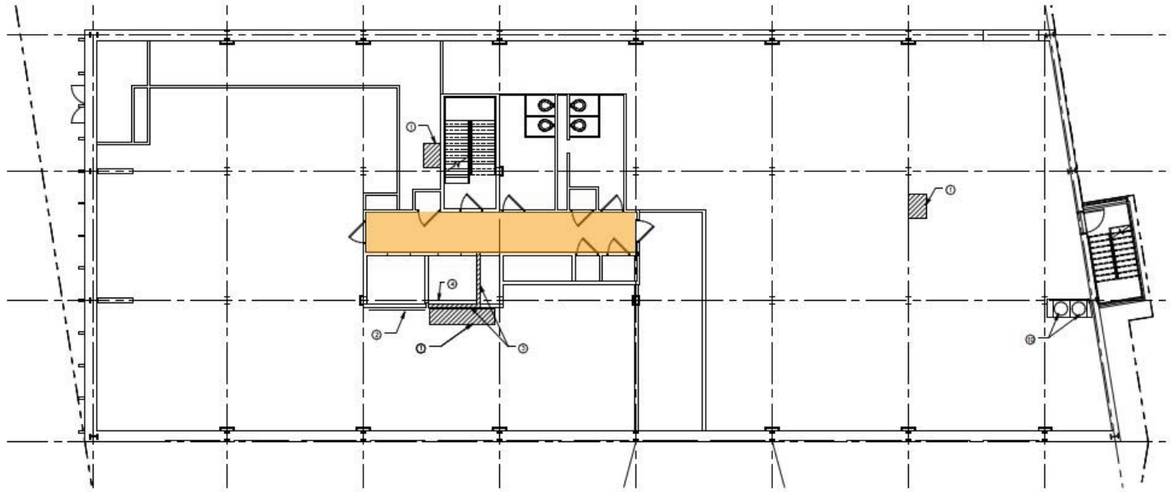
KEYNOTES:

1. Ionizer produces millions of positive and negatively charged oxygen icons.
2. Ions travel through duct system and into the room where they interact with airborne particles, germs, gaseous contaminants.
3. Charged ions trigger cell oxidation, reducing airborne mold, bacteria and virus cells.
4. Particles are charged oppositely, causing them to cluster into large particles, which can now be caught by the filter and removed from the airflow.

DESIGN SOLUTIONS

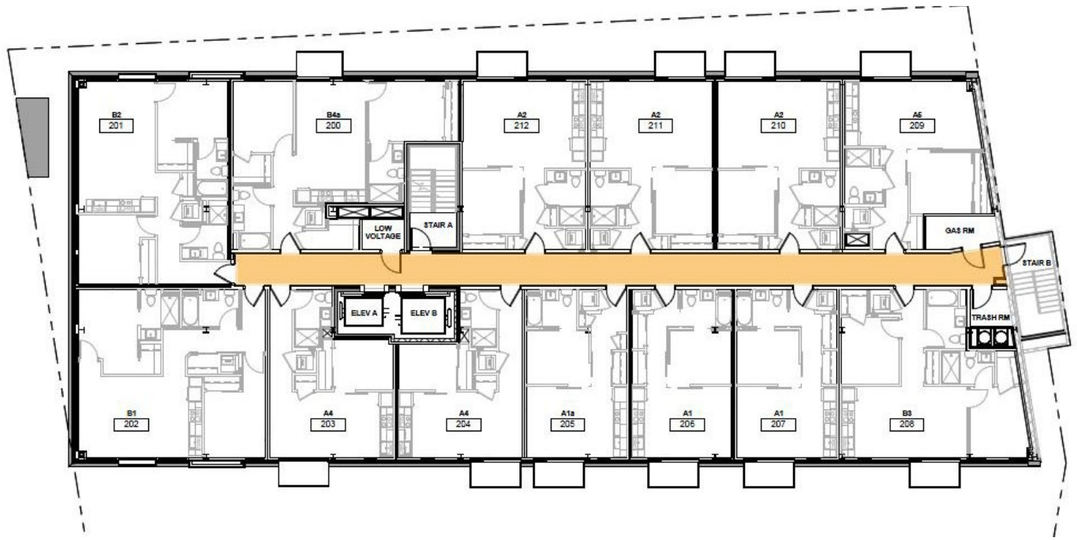
EXISTING OFFICE BUILDING CONVERSION

1. Shifting work from office to home/remote locations will increase the vacancies of existing office buildings.
2. Many office buildings are in high density locations, which are ideal for housing demand.
3. Analysis of office building dimensions to accommodate dwelling units efficiently (60'-75' width) with a double-loaded corridor and bedrooms with exterior wall exposure or inboard bedrooms as the configuration requires.
4. Larger office building floor plates can be be used with strategic demolition of the plates to create courts or longer and narrower unit floor plans that feature inside inboard bedrooms.
5. Most older buildings have good "bones" - frame and floor structure can remain and skin/fenestration can be improved.
6. Vertical circulation elements are typically in place and can be modified.
7. Amenity spaces can be added to rooftop or within the building.



TYPICAL OFFICE FLOOR PLATE CONFIGURATION

OCTAVE 1320 IN SILVER SPRING, MD - BEFORE AND AFTER



OFFICE TO RESIDENTIAL UNIT FLOOR PLATE CONVERSION

ENRICHING LIVES AND STRENGTHENING COMMUNITIES

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209 South LaSalle Street
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Dallas, TX 75202
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Ocean Park Building,
Suite 15, Room 1508
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