




Addressing Pathogen and Preparing for Pandemics in Senior Living

Current events relating to COVID-19 have highlighted weaknesses in the capacities of medical establishments and senior care facilities to effectively respond to pathogen. Infrastructure has been strained beyond its capabilities due to a lack of preparedness. As such, facilities that care for vulnerable populations require an increased understanding of the role design plays in ensuring occupant health, safety, and wellbeing. **NEO CO-HOUSING MPLS** serves as a prototype for the ways in which design can **improve the health, safety, and wellbeing** of its vulnerable populations while remaining financially viable, sustainable, and aesthetic.



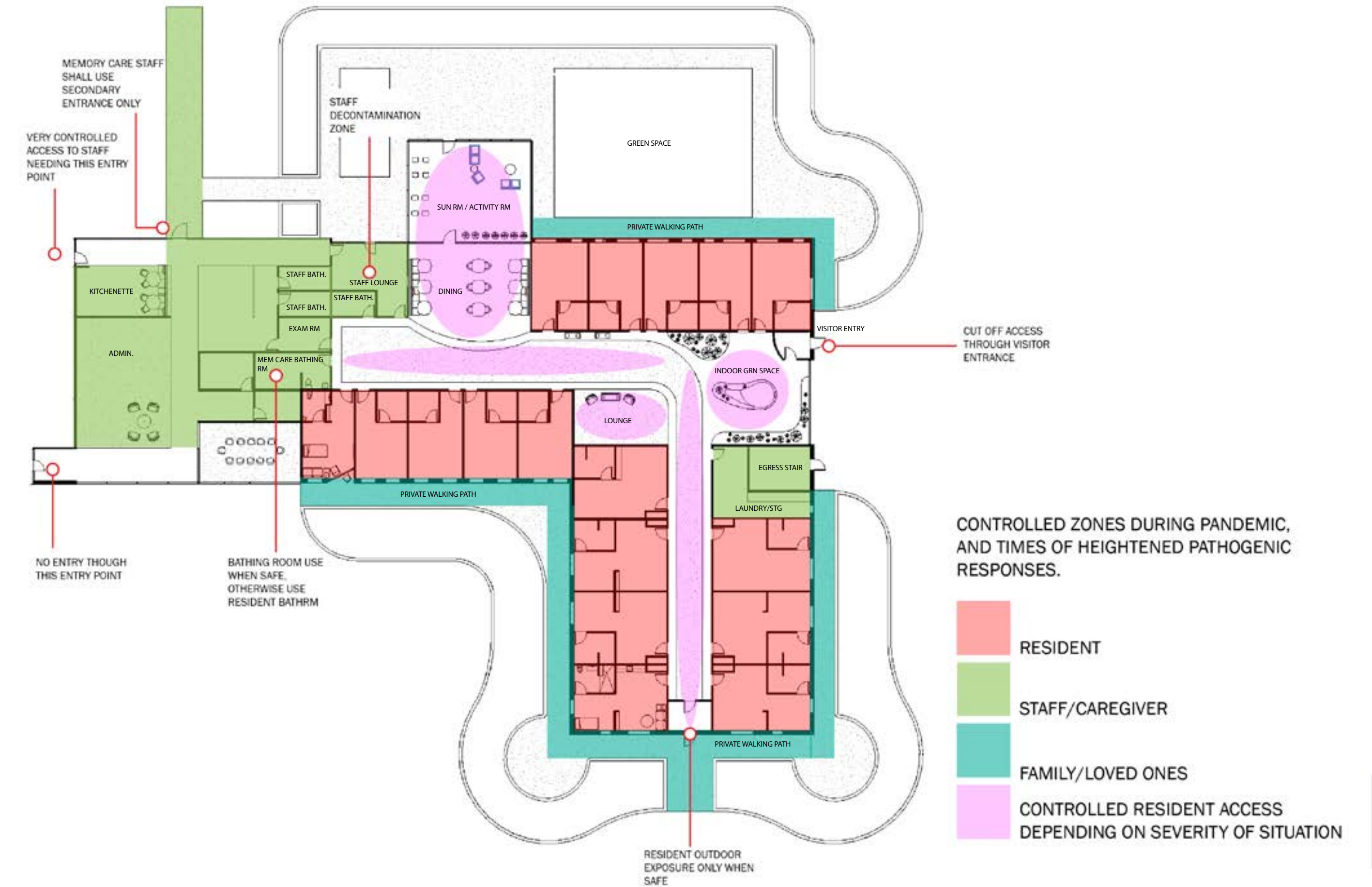
Space Planning for Pandemics



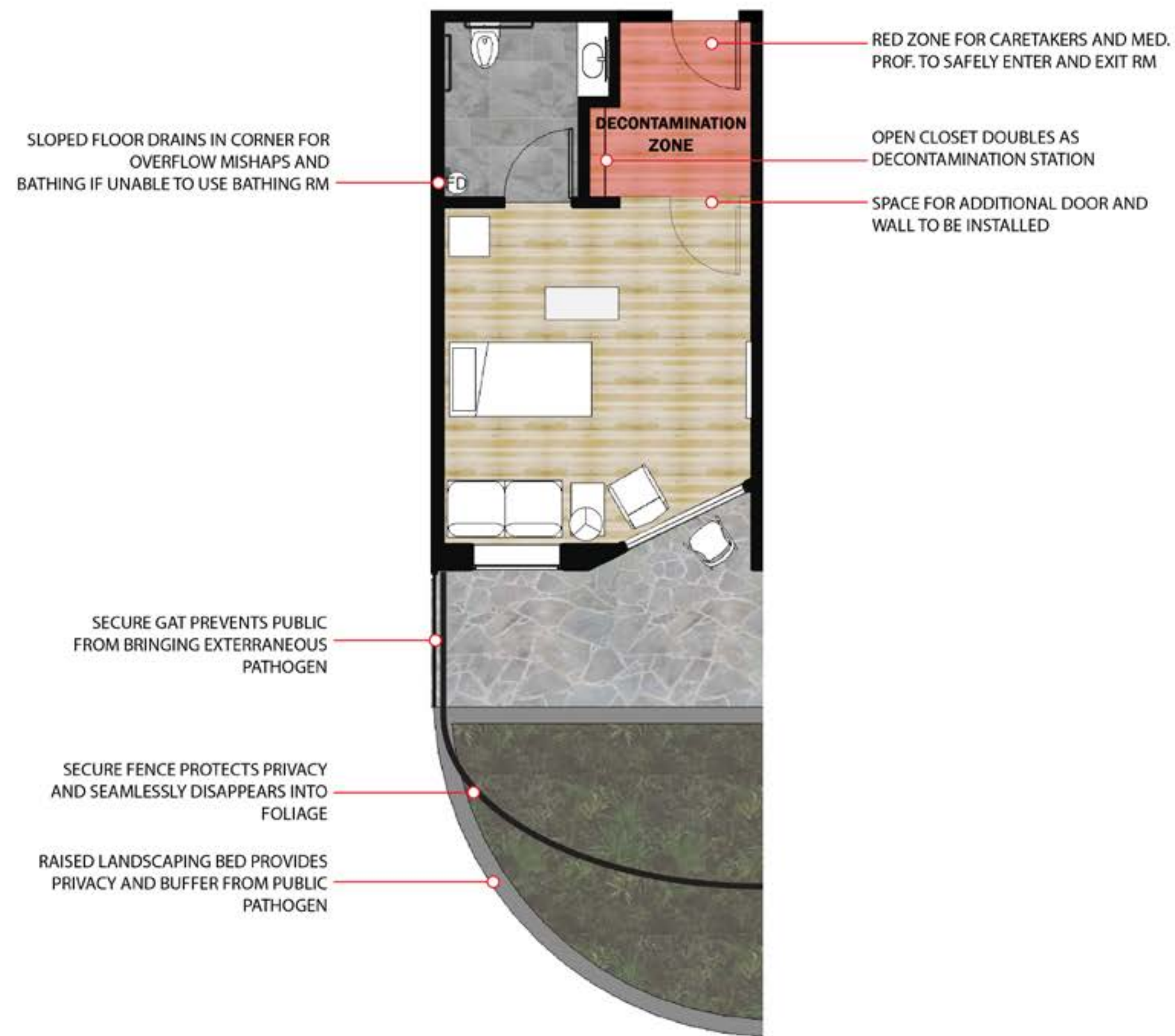
PROBLEM: Space planning can inadvertently encourage the spread of microbes. Solving these issues in the midst of a crisis costs money, time, and potential lives.

SOLUTION:

1. Use spaceplanning as a tool for intuitive microbial control.
2. Devise responses for various scenarios from common virus and bacterial illnesses to pandemics just as fire life safety plans are implemented.



Memory Care Typical Room



Shared Independent Living / Multigenerational Rm





PROBLEM: Microbes can remain viable for a wide range of time on various surfaces. Materials are capable of increasing or decreasing a microbe's viable time on a surface.

SOLUTION: Use materials that discourage growth, mutation, and/or lifespan of microbes and their colonies

COPPER

High Touch Hardware Solution

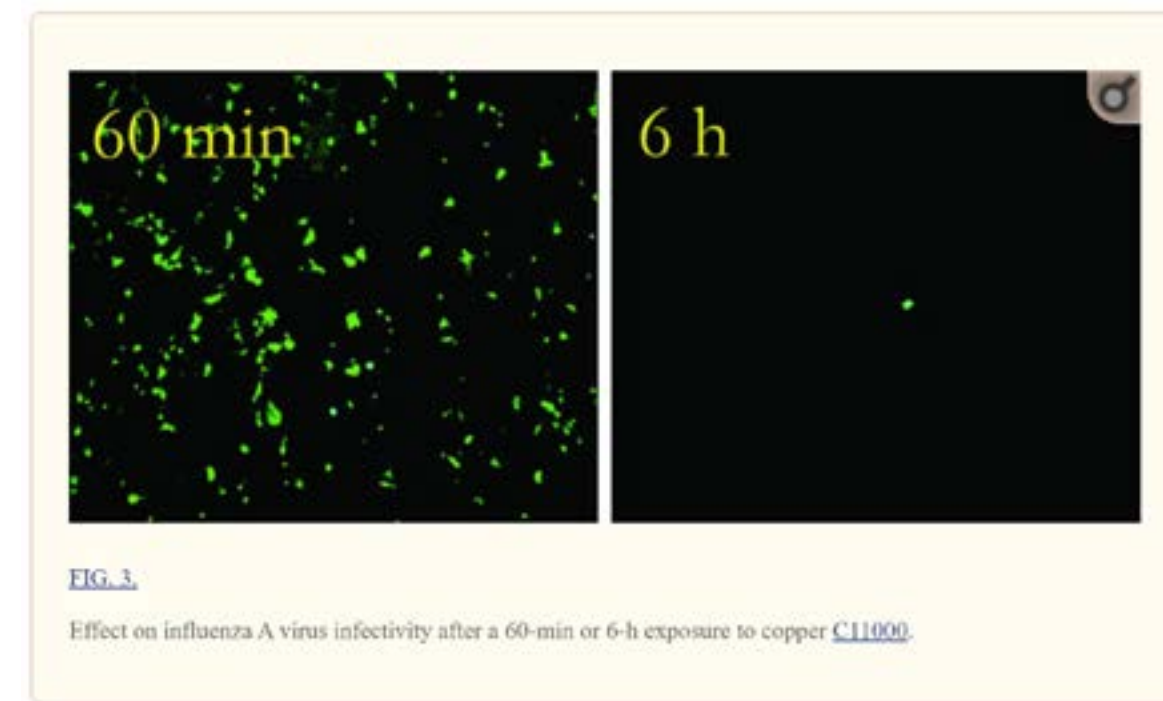
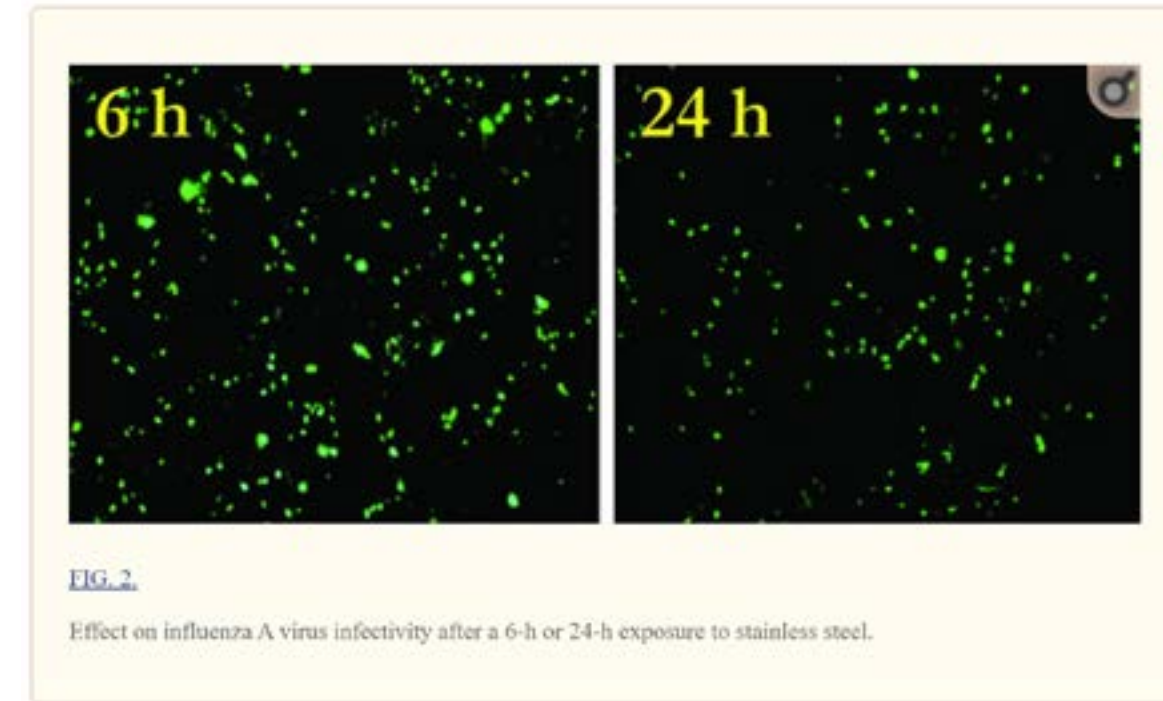
- Self cleaning over the course of several hours
- Self cleaning = No chemicals
- Decreases amount, and necessity, of manual labor in cleaning
- Lower cost over time



Door Handles



Hand Rails



Inherently antibacterial and antiviral "After incubation for one hour on copper, active influenza A virus particles were reduced by 75%.[43][44] After six hours, the particles were reduced on copper by 99.999%."

CITATION

Noyce, J. O., Michels, H., & Keevil, C. W. (2007). Inactivation of Influenza A Virus on Copper versus Stainless Steel Surfaces. *Applied and Environmental Microbiology*, 73(8), 2748–2750. doi: 10.1128/aem.01139-06



CORK

High Touch Walls Solution

Walls are used for support and frequently touched in high traffic areas of senior living corridors - especially memory care where touch remains a powerful sense.

Properties:

- Highly porous -bacteria are locked into pores where they are degraded
- Moisture wicking, bacteria are dried out
- Sound absorptive



“Cork displayed high antibacterial activity against Staphylococcus aureus, with a bacterial reduction of almost 100% (96.93%) after 90 minutes of incubation”

Gonçalves, F., Correia, P., Silva, S. P., & Almeida-Aguiar, C. (2015). Evaluation of antimicrobial properties of cork. FEMS Microbiology Letters, 363(3). doi: 10.1093/femsle/fnv231



FLOTEX from FORBO

Soft Surface Flooring Solution

Considered to be the most hygienic textile floor covering in the world.

Only flooring textile to be the recipient of Allergy UK Seal of Approval™



Specified for all carpet throughout facility



“The nylon fibers not only perform in sound absorption and comfort, they also capture allergens and fine dust from the air, all of which they effortlessly release in any cleaning action in both dry and wet conditions. Through its construction Flotex is protected against mold and odor’s whilst keeping up its appearance, as the floor restores to mint condition after every cleaning action.” -forbo.com/flooring/en-us/products/flotex



MARMOLEUM

Hard Surface Flooring Solution

Bacteriostatic: inhibits the growth or reproduction of bacteria. No grooves allows for ease of cleaning and less surface area for pathogen to be caught.



Apartment Main flooring - Linoleum wood-grain.
Maintains naturalistic look

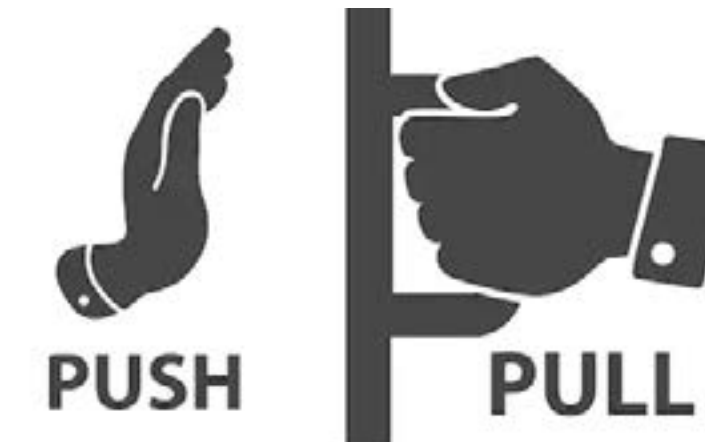


Recommended in Healthcare

Marmoleum products are proven to inhibit the growth and spread of infections such as MRSA, Norovirus and C Difficile, helping to contribute to a healthier and more hygienic environment.



- CO2 Neutral
 - made of 72% rapidly renewable resources,
 - 43% recycled content, 97% Natural materials
- Low VOC
- Sound absorptive (up to 18db reduction)



PROBLEM:

Even with inherently antimicrobial surfaces, virus and bacteria are still able to be passed on for a period of time. Hand to face contact is a primary way of pathogen spreading, as well as via air particulate.

SOLUTION: combat pathogen through mechanics.



Foot Cabinet Openers
For utilization in staff kitchenette



Foot Door Pulls
For utilization in public bathrooms and staff areas



Smart Locks
For utilization in independent and cohousing units. Fob clicks door open for hands free opening.



Advanced air purification system
For utilization in at risk resident dwellings



PROBLEM:

Senior citizens are at a disadvantage when it comes to accessing nature in downtown Minneapolis. Memory care residents are especially disadvantaged as they rely on caretakers to give them access to these **necessary human experiences**. Mind and body wellness are improved by nature in all stages of life. A pandemic makes this almost impossible for an individual in memory care.

SOLUTION:

1. Provide **high quality views** of nature from every room.
2. Use natural forms, colors, and textures within each room.
3. Use artificial intelligence to support circadian rhythm and natural lighting conditions.
4. Integrate audio technology to simulate outdoor sounds.

Advanced Memory Care Rm





PROBLEM:

Social Isolation. To protect vulnerable populations, such as those with weakened immune systems and/or individuals experiencing decreased cognition, quarantine is an effective solution to preventing infection. While this protects their physical health, humans require socialization for mental wellbeing, which is entwined with physical wellbeing.

SOLUTION:

1. Use preplanned responses based on the severity of situation. Can residents interact with each other? Can residents be out of doors with caretaker? Must residents remain in their individual dwelling at all costs? etc.
2. Provide ways of socialization even in the most extreme cases through easy to use technology for the residents and their loved ones.

