

# The impact of COVID-19 on perceptions of home and house design in Saudi Arabia

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## ABSTRACT

This research explored the changes that may have occurred in attitudes of people in Saudi Arabia toward their dwellings due to the mandatory quarantine from COVID-19. Two online surveys, one from before the lockdown and one after the lockdown, assessed residents' space requirements. A follow up in-person survey asked about specific aspects of their homes and how their impression of home had changed during the lockdown. It was found that based on their lockdown experiences, residents were moving away from traditional cultural activities such as hospitality and trending toward spaces that would function for family activities such as studying, work from home and entertainment. Further research should examine if these trends remain after former outside pursuits resume.

*Keywords:* Interior Design, Saudi Arabia, house design, home, COVID 19.

## INTRODUCTION

In a relatively short time, the international impacts of the novel COVID-19 virus pandemic have changed how homes are used. While usually considered forms of refuge and privacy, they have developed quickly into other more public uses such as offices, schools, gyms, hospitals, day care, bakery, coffee shop and restaurant. While these home activities may have existed pre-virus, there are new uses as well. Dwellings are where entire countries of families and individuals lived out lockdowns and quarantines, and they became first line of defense against viral incursions into safe living spaces. With this increase in activity, this study intended to discover whether residents' perceptions of home have changed and what spaces within the home have changed function and possibly become more important. Since the effects of the virus may linger for years, and there is the potential for other pandemics, this study could inform future home design as well as adaptations to current home layout.

The Kingdom of Saudi Arabia (KSA) has cultural customs that influence home design. While these may have been changing over time, the concept of certain areas of the home being strictly private where others are mainly used for social functions has not altered significantly. But some aspects are shifting, and their direction may be influenced by COVID-19 concerns. For example, an important cultural custom known as 'acts of hospitality' was originally always hosted in public areas of the home. Acts of hospitality which involve being generous and welcoming to guests, are important in the Arab world and are essential to social standing (AlKhateeb et al., 2014). Due to the economic reality of smaller home size, these acts have been gradually moving externally to restaurants. The necessity of protecting a home/dwelling from an unseen virus may hasten this trend. Or, conversely, the danger of the public sphere may encourage a retrenchment of this important cultural function back

into the home. The goal of this research is to ascertain what changes in KSA home/house attitudes and culture have been fueled by the mandatory COVID-19 quarantines.

## 1. LITERATURE REVIEW

The literature review for this paper will analyze the three aspects that influence this paper. We posit that the design of dwellings and homes, particularly in Saudi Arabia, may be changed by COVID-19 experiences. First, the definition of a dwelling as home discussed in the literature will be reviewed, then the design of dwelling/home as it specifically applies to KSA and finally, the opinions of design professionals on how COVID-19 has and will change dwelling/home uses.

### 1.1. Definition of a Dwelling as Home

The definitions of home as it specifically applies to one's dwelling are extensively researched by many authors. The concept of home is multi-dimensional and complex. Shelley Mallet (2004) reviews all the potential definitions of home from one's homeland to a person's individual memories of where they grew up. Her conclusion is the definition is malleable depending on place, time and culture as well as the methodology used to create the definition. Since this paper is focusing on the architectural layout of the home, the concepts of home as haven and expression of oneself or one's culture are the primary definitions.

The home as refuge or haven implies that there is separation between the public sphere and the private one. Work is external and home life is internal. Family is private, non-family is public. This concept arose from the Industrial Revolution where home-based industries moved to factories and the boundary between home and work was erected. This delineation of spheres influenced housing and home layouts for almost two centuries, especially for the upper and middle classes. However, in late twentieth century during the digital revolution, these boundaries have become blurred as home offices and digital technology allow increased work from home (Mallet, 2004; Cieraad, 2020).

The definition of home is not static in that significant life events can reshape a person's meaning of home. Birth, marriage, death, migration or even a pandemic, can cause a temporary or permanent reshaping of the home environment. This can be through reevaluating existing spaces or total removal to another living situation. The meanings of privacy and life/work separation could also be altered due to these events and cause one's original connotation of home to fall apart (Mallet, 2004; Cieraad, 2020).

### 1.2. Design of Dwellings/Homes in KSA

Home/dwelling as an expression of one's culture is relevant in Saudi Arabia. Residential design in KSA is customarily based on Qur'anic guidelines which encourage privacy, modesty and hospitality. The house and home are considered small-scale representations of Islamic culture and essential to family and societal functioning. Therefore, these houses not only reflect the overall concepts of home, but also Islamic traditions (Othman et al, 2015; Omer 2010; Omer 2011; Omer 2014; Bidawi, 2008).

Privacy is the primary design consideration which includes privacy from neighbors as well as privacy between males and females; non-family guests and residents; and among family members within the home. This involves visual, acoustic, and olfactory privacy. Traditional

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homes used interior courtyards to separate spaces for all forms of privacy as well as add protected outdoor space. Modern homes, especially apartments, cannot offer this type of separation and rely on strategic floorplan layout and deliberate placement of interior walls and partitions. Olfactory privacy is attained through separation of cooking areas from living areas and the use of oud and perfumes to remove unpleasant odors. (AlKhateeb et al., 2014; Othman et al, 2015; Omer, 2010; Omer, 2011; Omer, 2014; Shabani et al., 2011; Sobh et al., 2013; Sobh and Belk, 2011; Bidawi, 2008).

Modesty is reflected in the simplicity of design, connection with the environment, and use of local materials. The function of the house is of primary importance as the home is the center of the family. The home is also the family's spiritual center and should be designed with internal space for daily prayers. Prayer spaces need to be available to family and guests and have nearby toilet facilities for the required ablution before prayer. Interior décor is expected to be modest as well using floral or geometric motifs and stylized calligraphy. Interior courtyards bring the link with nature into the dwelling (Othman et al, 2015; Omer, 2011).

The Arab commitment to hospitality dates back centuries where guests, both friends and strangers, were welcomed and cared for after long desert treks. It is considered a major facet of the Islamic faith and continues to the present, with some modifications. Hospitality is also related to status and honor in Arab society. Since hospitality is typically gender separated, a space close to the front door, but separate from the private areas of the house is used for this purpose for males, and a separate space for female entertaining. The process, for both men and women, is ritualistic with specific rules and etiquette. If home size does not permit an infrequently used separate space for hospitality, any other space can be used- a living room for example. Or a space can be used for any other required use while not in use for hospitality. Moreover, recent trends show that younger families where husband and wife may both work and reside in smaller homes or apartments, some of the hospitality acts may be moved outside the home and into restaurants. This is less disruptive to schedules as well as causing fewer privacy issues in a small space that may limit comfortable gender separation (AlKhateeb et al., 2014; Othman et al, 2015; Omer, 2014; Shabani et al., 2011; Sobh et al., 2013; Sobh and Belk, 2011; Bidawi, 2008).

The use of homes in KSA seem to have conflicting requirements of ultimate privacy, lavish hospitality and modest ornamentation. These are accomplished through careful space planning and design consideration based on local and cultural knowledge (Omer, 2014; Sobh et al., 2013). With the advent of COVID-19, safety of the family and shelter-in-place rules may have changed some of these requirements. Recent publications discuss how residential design may have to respond to what may be a long term change in home/dwelling use.

### 1.3. COVID-19 Influence on Dwellings as Home

Historically, pandemics have had a lasting influence on dwelling design and home use. As pandemics affected people's lives, changes generated by risk of illness are reflected in their living environments. For example, infectious disease outbreaks in the 1800s moved toilet facilities from outdoor communal settings to cleaner, individual indoor locations. Half baths were added to protect homeowners from exposure to disease thought to be brought by delivery people who went inside home to home. The contagion was kept in the public space of the home, rather than spread into the private interior where full baths existed. Vestibules

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served the same function through stopping deliveries at an entrance rather allowing full entry to the home. Materials in bathrooms and kitchens evolved from soft decorative fabrics and carpeting to hard, cleanable surfaces. These changes reflected awareness of hygiene and its importance while at home and enduring a pandemic. These measures also created boundaries between the protection of home and the risks outside the home (Kloncz, 2020; LeRoux, 2020; Yuko, 2020).

Another historic adaptation included spaces where residents could safely experience sunshine and fresh air. Greek, Roman, Asian, and Middle Eastern homes used central courtyards for safe access to daylight and outside environments. In the lack of known medicines, the fresh air cure was believed to help tuberculosis patients. Sun porches evolved to allow them secure exposure and this time keep the contagion in so it would not spread. However, dwelling designs widely adapted this idea of having an enclosed outdoor space that allowed residents to experience the outdoors without the risk of actually being outside where contagion could exist (Kloncz, 2020; LeRoux, 2020; Yuko, 2020).

Many designers have recently speculated on what changes COVID-19 will bring to residential design. Their answers harken to historic remedies and introduce new ones. Of the fifteen international 2020 COVID-19 related articles and one KSA webinar analyzed for this paper, four interior modifications were the most recommended. Twelve researchers suggested that vestibules which were eliminated from modern designs to save space, would be back in demand (Anas; Bahadursingh; Ebert; Kloncz; LeRoux; McKeough; Rizatto; Samah & Simbabawa; Steidel & Howell; Wigglesworth; Yuko). It is no revelation that people will ask for truly workable work from home spaces and eleven pieces listed these areas as high on residential lists (Anas; Bahadursingh; Ebert; Kloncz; Larson; Makhno; Rizatto; Samah & Simbabawa; Steidel & Howell; Tyagi; Wigglesworth). Nine expert opinions proposed that clean materials, including those with built in virucides would be popular (Anas; Ebert; Kloncz; LeRoux; Rizatto; Samah & Simbabawa; Steidel & Howell; Tyagi; Yuko). Also recommended by nine commentaries was personal outdoor space which refers back to historic interior courtyards, but could also include balconies and private patios (Bahadursingh; Chayka; Ebert; Larson; McKeough; Rasia; Rizatto; Samah & Simbabawa; Wigglesworth).

Other frequently suggested changes were multi-functional spaces and greater use of smart technologies (Bahadursingh; Chayka; Larson; McKeough; Rizatto; Samah & Simbabawa; Tyagi; Wigglesworth), and additional storage (Bahadursingh; McKeough; Rizatto; Wigglesworth). Research pointed out the downside of open plan house layout where during the quarantine period, people seek their own solitude and privacy, especially acoustic separation (Anas, Chayka, Larson, Rizatto) and the need to return to multi-generational housing design due to care and safety requirements of older family members (Anas, Samah & Simbabawa, Wigglesworth).

With all these suggestions on how people would possibly adapt their dwellings to live with a pandemic, this research explored residential design expectations of KSA residents and whether their needs echoed those listed above.

## 2. METHODOLOGY

Residents of KSA were subject to a rapidly placed countrywide, mid-March to mid-May 2020 COVID-19 quarantine which was mandatory for all except essential workers with special

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official permits. Business, schools and universities were closed. Only hospitals and grocery stores remained open and residents could not go outside their neighborhood to shop. Special permits were required to drive to the hospital. (Nehme & Rashad, 2020). This was a dramatic change for KSA residents who typically spent 8-10 hours each day outside the home (Samah & Simbabawa; 2020). To measure the change in satisfaction with, and adequacy of dwellings based on their usage during the lockdown, two online surveys were administered. Both surveys were distributed to participants who resided in different locations around Saudi Arabia, and participants had varied demographic information (gender, marital status, age, education, and location). The first survey was distributed during 2018- 2019 with 1250 respondents and the second survey, asking the same questions, was administered in late March and April, 2020 and had 484 respondents. It is not known if respondents overlapped in these two surveys since they were anonymous. Respondents of the second online survey were given the choice to volunteer for an in person telephone interview. Follow-up, in person, interviews were conducted in late May 2020 with fourteen individuals to ask specific questions about their experiences.

### 3. RESULTS

#### 3.1. Demographics

The demographics for the two online surveys are shown in Table 1 and Table 2 below. Overall, except for gender, the respondents have similar demographic qualities. Survey 2 shows a larger representation from male respondents than Survey 1, and contains a more balanced percent of responses between genders.

**Table 1: Demographics of Online Surveys in Percent- Gender, Marital Status and Age Groups**

Category	Gender		Marital Status		Age Group				
	Male	Female	Married	Single	18-24	25-34	35-44	45-54	55+
<b>Survey 1</b>	25	75	72	28	11.72	29.15	26.82	22.12	10.19
<b>Survey 2</b>	45.3	54.7	67.7	32.3	14.5	35	21.5	14.5	14.5

For the first survey, the respondents were 25% male and 75% female, 72% were married and 28% were single. Their ages were 11.72% in the 18-24 group, 29.15% in the 25-34 group, 26.82% in the 35-44 group, 22.12% in the 45-44 group and 10.19% in the 55 and older group. Their educational status was 3% had high school diplomas, 76% carried Bachelor's degrees and 21% had attended postgraduate studies. Respondents were from all locations in Saudi Arabia with 42% from the Eastern Region, 37% from the Western Region, 17% from the Central Region, 1% from the Southern Region and 3% from the Northern Region.

**Table 2: Demographics of Online Surveys in Percent- Education and Saudi Arabia Location**

Category	Education			Location in Saudi Arabia				
	High School	Bachelor Degree	Post-grad Studies	Eastern Region	Western Region	Central Region	Southern Region	Northern Region
<b>Survey 1</b>	3	76	21	42	37	17	1	3
<b>Survey 2</b>	10	66.7	23.3	55	21	17	5	2

For the second and later survey, the respondents were 45.3% male and 54.7% female, 67.7%

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were married and 32.2% were single. Their ages were 14.5% in the 18-24 group, 35% in the 25-34 group, 21.5% in the 35-44 group, 14.5% in the 45-44 group and 14.5% in the 55 and older group. Their educational status was 10% had high school diplomas, 66.7% earned Bachelor's degrees and 23.3% had attended postgraduate studies. Respondents were from all locations in Saudi Arabia with 55% from the Eastern Region, 21% from the Western Region, 17% from the Central Region, 5% from the Southern Region and 2% from the Northern Region.

The in-person interviews involved fourteen people. Six were male and eight were female. They ranged in age from 30-40 with one person at 45 years. Their place of residence was split fairly evenly among single family houses and apartments.

### 3.2. Survey Results

In addition to demographics, questions from both online surveys requested participants to rate the importance of space types in their homes. Figure 1 illustrates the spaces the respondents felt were the most important in 2018/2019 and Figure 2 illustrates the spaces considered most important in March/April 2020. See Appendix A for both online surveys.

According to the respondents in 2018/19, the spaces in their home that were 80% or more essential to them were a house help room, laundry room, and storage. Features that were between 50% to 80% essential were two (gender separate) guest living rooms and more than two bedrooms. Elements that were rated less than 50% essential were more than one dining room, outdoor kitchen, kitchenette, guest bedroom, home office and gym. The spaces with the least importance were more than one dining room (15%), and home gym (20%).

In the complementary category, respondents indicate spaces that they would like to have, if possible. While a kitchenette, guest bedroom, home office and gym, were not considered essential, they rate the highest (41-56%) as complementary or desirable spaces. More than one- typically gender separated- dining spaces was rated the least needed space in the home (46% superfluous).

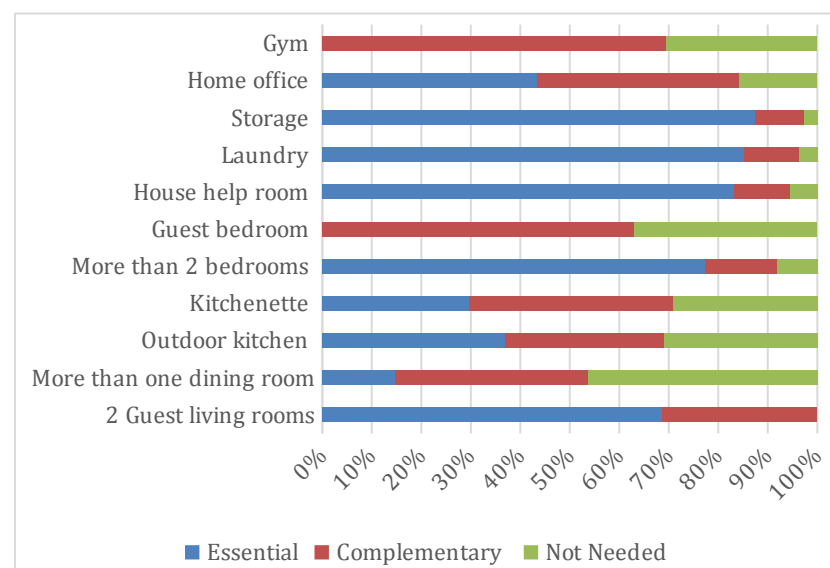


Figure 1. Space Preferences in 2018-2019 (pre-COVID)

According to respondents in the March/April 2020 survey, the spaces in their home that were nearly 80% or more essential to them were more than two bedrooms, house help room, laundry room, and storage. Features that were between 50% to 80% essential were

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home office and two (gender separate) guest living rooms. Elements that were rated less than 50% essential were more than one dining room, outdoor kitchen, kitchenette, guest bedroom, and gym. The space with the least importance was more than one dining room (20.8% essential).

For the complementary category, respondents indicated spaces that they would like to have, if possible. While kitchenette, guest bedroom, and gym, were not considered highly essential, they rated favorably (41-54%) as complementary or desirable spaces. More than one- typically gender separated- dining space was rated the least needed space in the home (48.5% superfluous).

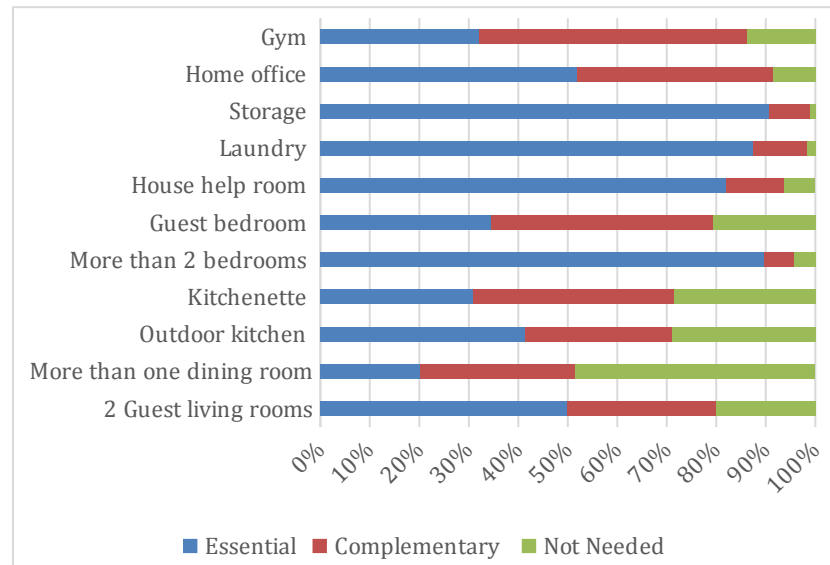


Figure 2. Space Preferences March/April 2020

In the personal interviews held in May 2020, respondents were asked if required quarantining in their home had impacted their needs in the dwelling? See Appendix 2 for this survey. Most commented that there were spaces they formerly felt were important, such as guest bedrooms, that now were repurposed for other uses as in children’s play rooms, home offices, workout areas and entertainment/gaming spaces. In addition, nearly everyone mentioned using the space they had more efficiently for example: coffee corners in kitchens since coffee houses were closed, and workout areas as gyms were also closed.

When asked if they were taking any special precautions in their homes to protect against COVID-19, most said they were. Shoes, gloves and masks did not enter the house, sanitizing outer wear, such as abayas, using entrances that did not open directly into the living spaces, sanitizing everything prior to entering living areas were common responses.

Home layout changes due to quarantining mostly included rearranging furniture to open play spaces for children and other uses, conversion of guest rooms into family living spaces, and one family added external bedrooms and a bathroom to allow for external use.

Working and schooling from home presented challenges as some families were attempting to do both at the same time. Typical adaptations included converting unused guest spaces into offices, converting dining rooms into schooling spaces, and even taking unpaid vacation to alleviate overlapping requirements.

Every respondent felt outdoor space was important. They spoke of using rooftops, balconies and converting garages to increase their access to the outdoors. It was particularly important for families with children so they could have protected areas for outdoor activities

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since public play spaces were closed. Several mentioned gardens and greenery, even if on a small balcony.

The respondents at the beginning of the oral survey were asked to define the term house/home. After answering all the questions regarding their dwelling use during the COVID-19 lockdown, they were asked if their definition house/home changed because of the home quarantine. Initially, the answers regarding their opinion of home and house were general concepts such as rest (6 respondents), comfort (5), family (5), privacy (3), stability (3), quiet (2). These answers correspond with the definition of home found in the literature and supported by the Islamic general definitions of home. When asked if their understanding of house and home changed after the lockdown, three respondents said no. Of those who rephrased their answer, most referred to specifics rather than the general idea of home they expressed when first asked. The concepts of privacy and quiet both had no answers, while comfort, family and stability each had one and rest had two. What showed up more was the use of the dwelling to compensate for now unavailable former outside activities. The word entertainment was used 4 times. One respondent mentioned 'accessories to compensate' for what they were missing outside. Another stated that their house should be 'designed for owners, not visitors.'

The major difference revealed in the oral surveys between apartment dwellers and people with single-family homes was adaptation of guest spaces in the apartments. Most respondents with homes (86%) indicated that they made no changes to the layout of their spaces. About 50% of the apartment dwellers said they had converted spaces from one use to another. Typically, the changes involved adapting guest living rooms that formerly sat empty into family use spaces. They stated that the guest living spaces were more comfortable as family entertainment spaces, which then freed up room for online learning and home offices in other areas. Outdoor spaces, which could be difficult for apartment dwellers, did not seem to be much of an issue. Most indicated that they were satisfied with the access provided. One did mention that they had converted their garage into an exterior play area.

#### 4. DISCUSSION

Based on the surveys, some respondents did reveal that their interior spaces as well as their general understanding of home had been altered by the required COVID-19 quarantine. Their responses are not wholly surprising and tend to echo what design experts had predicted (Anas, 2020; Bahadursingh, 2020; Chayka, 2020; Ebert, 2020; Kloncz, 2020; Larson, 2020; LeRoux, 2020; Makhno, 2020; McKeough, 2020; Rassia, 2020; Rizatto, 2020; Samah & Simbabawa; Steidel & Howell, 2020; Tyagi, 2020; Wigglesworth, 2020; Yuko, 2020). The online surveys indicated that the need for two separated living rooms had decreased and the desire for a home gym and additional bedrooms had increased. Storage and a home office also showed slight increases. These changes are plausible. The necessity for hospitality decreased with reduction in visits due to the lockdown. Additional storage is required for extra food for families since shopping was limited. A home gym is needed to work out since even walking outside one's home was forbidden for a time. Additional bedrooms are important so children do not have to share when continually cooped up inside as well as for separate spaces to attend online classes. A home office is desirable for work from home requirements.



The oral survey comments reflect a possible trend away from, and some returning to, traditional Arab/Islamic traditional dwelling use based on COVID-19 experiences. Due to quarantine restrictions, respondents indicated they were spending more family time and less time on hospitality. Their homes gradually transitioned away from accommodating guests and were rearranged to function more efficiently for the dwelling residents and their new needs. Guest living rooms that sat vacant and were formerly used only for guests were converted into offices, study spaces and family gathering areas to watch movies or socialize. Comments on how privacy was easier, that 'neglected' or 'unused space' was more fully utilized, and how their homes should be set up for residents and not infrequent guests, suggest that the 'new normal' has appeal and may influence use of spaces even after the quarantine eases. The online surveys also support this development where the assessment of two separated living rooms as being required fell by ten percentage points between the pre and post-pandemic ratings. However, all respondents wanted private outdoor space, which references back to historic KSA courtyard homes indicating that not all traditional dwelling aspects would change.

Based on the surveys and comments, future design recommendations for KSA homes should include flexibility in space use. Separate guest living spaces that are infrequently used, but may still be an important cultural requirement, could be designed where they are shared with family living. The challenge would be to create spaces that functionally alternate between family privacy and hospitality to the public. Designing guest bedrooms with the ability to hide workspaces would allow them to meet the dual requirements of hospitality and home office or children study spaces.

Residence design whether for single-family or multifamily, should include some form of outdoor space. Many multifamily complexes do not provide any type of private exterior access. Pre-lockdown, families spent outdoor time in parks and the desert so individual spaces were not as important. Post-lockdown, these public area uses were no longer allowed which forced families indoors. The full impact of this may not have been as severe as it could have been since the lockdown occurred while the climate was very hot and humid. Most likely the ratings for outdoor space would have been different if the lockdown was during good outdoor weather.

Another interesting point coming from the oral surveys was the expectation of how long sanitation measures will be required. Several respondents denied the need for a permanent sanitizing area. While many design professionals predict growing calls for permanent cleaning spaces similar to the mudroom found in older farmhouses (Anas, 2020; Bahadursingh, 2020; Ebert, 2020; Klonecz, 2020; LeRoux, 2020; McKeough, 2020; Rizatto, 2020; Samah & Simbabawa; Steidel & Howell, 2020; Wigglesworth, 2020; Yuko, 2020), the KSA respondents seemed to believe the pandemic and its requirement for sanitizing would be temporary and did not require dedicated spaces in their homes.

This study focused on opinions of KSA residents on the effect of COVID-19 in their dwelling use. It seemed that when asked about their idea of home in relation to the changes a quarantine compelled, the elusive, hard to define components of home as a concept, became crystalized and more tightly demarcated as specific needs and uses that had not been identified or noticed as important before the lockdown. Home as a place to retreat from the outside world became a space of multiple uses; a space where almost instantly external activities and internal uses were forced to overlap. A dwelling that through cultural

practices had formerly been open to guests, now was seen as a shelter for family. The tension between privacy and hospitality has been superseded by tension between in home and what were formerly out of home uses- work, schooling, e.g.- that are now taking place in the home. Expanded follow up study is needed to see if these trends persist once pandemic restrictions ease.

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## APPENDIX

### Appendix 1. Online Survey Questions:

Participants were asked to rate the need of the following spaces as essential, complimentary, or not needed:

- a) Two guest living spaces
- b) More than one dining room
- c) External kitchen
- d) Kitchenette
- e) More than two bedrooms
- f) Guest bedroom
- g) House help room
- h) Laundry room
- i) Storage
- j) Home office
- k) Home gym
- l) Outdoor garden

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## Appendix 2. In-person Survey Questions:

1. What does the term 'home/house' mean to you?
2. Did home quarantine affect your needs inside the house and the way you think?
3. What are the precautions that you have taken in your house post COVID-19 crisis?
4. Is there a change in your house layout, taken as a precaution?
5. How did you cope with working from home and online? How did you cope with the additional home activities such as work, schooling and so on?
6. What do you think of the following functional spaces and their existence in your house: sanitizing zone by the house entrance; gym; office; multifunctional room/space, outdoor space?
7. As for the outdoor space, is it important? With your current situation do you have one? If no how did you cope with it? If you live in a flat, what would you like to have that would help you cope with that need?
8. Going back to the first question, did the term 'home/house' meaning changed because of the home quarantine and COVID-19?