G.N.Navya Sree, et. al. International Journal of Engineering Research and Applications
www.ijera.com
ISSN: 2248-9622, Vol. 10, Issue 6, (Series-VIII) June 2020, pp. 06-22

RESEARCH ARTICLE OPEN ACCESS

Smart Urban Growth
Understanding urban infill and it's impact

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ABSTRACT
Urban infill is one of the main progressions of urban development in major metropolitan cities. It is generally considered as the process of filling up the urban voids in harmony with the existing environment. It mainly deals with empty, abandoned, inactive, neglected, uninhabited places it is a theoretical research of the various parameters involved in the process of an urban infill. The paper elaborates on the case studies on various urban infill projects and a list of parameters were prepared and the inspirations have been derived from various case studies. Two sets of questionnaires were prepared and circulated among the public and architects, which helped us to analyse different perspectives of infill project. The survey helped us to understand the current scenario and propose an acceptable infill design. This research paper defines the design strategies and parameters to examine in any given context and formulate guidelines for future designs.

Keywords: Infill, Infill development, Urban voids,Streetscape, Urban fabric.

Date of Submission: 07-06-2020 Date of Acceptance: 23-06-2020

I. INTRODUCTION

Urban infill is defined as new development that is sited on vacant or undeveloped land within an existing community, and that is enclosed by other types of development. The term "urban infill" itself implies that existing land is mostly built-out and what is being built is in effect "filling in" the gaps.**Infill** has been promoted as an economical use of existing infrastructure and a remedy for **urban** sprawl. Its detractors view it as overloading **urban** services, including increased traffic congestion and pollution, and decreasing **urban** greenspace.

Smart growth creates a supportive environment for redirecting a share of regional growth to central cities and inner suburbs. At the same time, growth pressures are reduced in rural and undeveloped portions of the metropolitan area. Public and private strategies shift the demand for growth from outer-suburban and peripheral areas to existing central cities and inner suburbs so that growth is more evenly spread and takes advantage of existing infrastructure.

Infill occurs within an area that is largely already developed. It refers to development in a "built-up area," an "established area," "otherwise developed areas," "existing developed areas," or a site "surrounded by older growth."

Infill development is a key component of smart growth. It generally occurs in central cities and inner suburbs on scattered sites, including vacant lots. If sprawl onto green fields is to be curbed, then development must be accommodated elsewhere. Infill development provides one "smart" way to do so.

AIM

To understand the process of Urban infill and propose guidelines to achieve a positive infill design.

OBJECTIVES

1. To study integration with the existing urban fabric.
2. To study and analyze various design parameters of an infill development.
3. Take wise action within the urbanization process.
4. To propose guidelines to achieve a successful infill design.

NEED FOR STUDY

The studycomprehends the various design impediments faced in constructing an infill

building.The research paper aspires to find the best possible approach towards an infill design and to guide the public in formulating a design that is beneficial to the users and the surroundings.

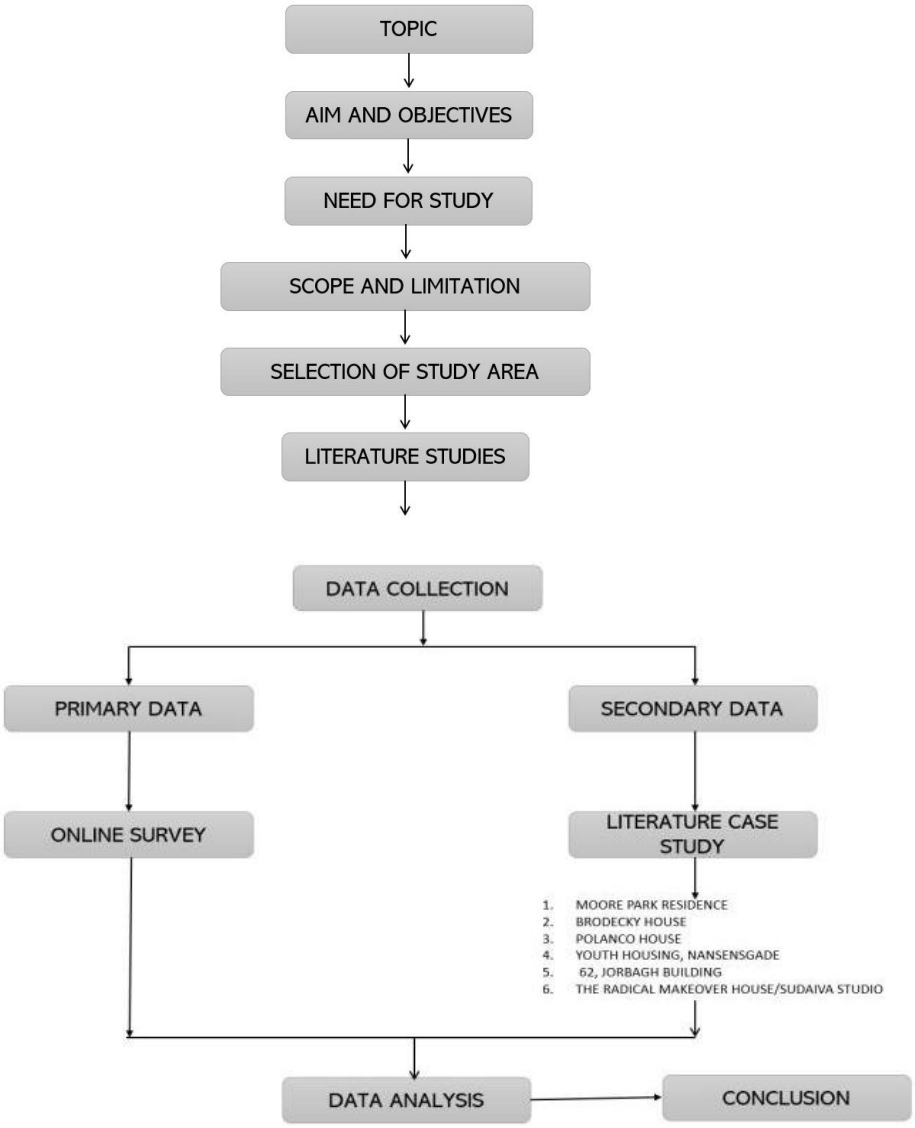
SCOPE

This study focuses on the design of an urban infill mainly through materials and design strategies. The paper does not talk about any particular context but suggests way in which you could design a successful infill building in any given context according to user requirements.

LIMITATIONS

Due to time constraint and lack of infill examples within convenient travelling distance the research study had to carried out through information available online in the form of literature studies.

II. METHODOLOGY



LITERATURE CASE STUDY: 1 - MOORE PARK RESIDENCE(archdaily, 2020)

Architects: Drew Mandel Architects

Location: Toronto, Canada

Building typology: Residential

Figure 1: The figure shows how the new design of Moore park residence different but in harmony with the adjacent houses.

This infill house is situated in the mid-town Torontoresidential neighborhood of Moore Park. It represents the first tear-down replacement on an established street that is characterized by a common model: 1920s-era single-family homes with mutual drives. The concept of the project is to integrate a re-imagined single-family residence into a typical Toronto streetscape.The design embraces the iconic, house-like forms of the existing streetscape and reinforces the setbacks, materials, and relationship with grade. However, it puts forward a contemporary example of home.

Design Features:

- The house forms a complex figure-ground relationship.
- It is animated by light and shadow, and it is structured by a board-formed concrete wall, transparent partitions, interconnecting void spaces, and a large light well that slices through three stories. The concrete wall satisfies building code restrictions on unprotected openings to the south while allowing light to reach deeply into the basement.

Figure 2,3: Interior view showing large light wells that bring in ample sunlight during the day.

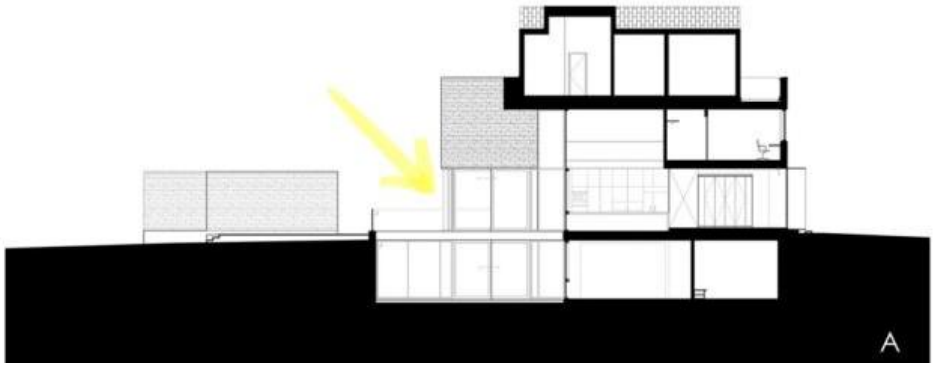


Figure 4: Section showing large openings for light and ventilation

- The third floor is set back at the front and rear and match existing massing on the street, while providing opportunities for green roof terraces and privacy at the east and west side.
- The lowest story slides underneath the rear ground plane where one can access a narrow exterior space that is open to light from above.
- The floors and spaces are visually interconnected yet defined for the varied activities of modern family living. It is the half-open house, a nuanced glass envelope enclosure.
- The spaces have a range of uses: The ground floor millwork detailing allows an extended table for large family gatherings; four desk areas found throughout the house allow for a variety of home-office options; the basement is treated as a prime, and not a secondary space in order to maximize the use of available space.
- The landscaping extends the experience of the house into the site. It includes a gas fire pit, curved foot path for a mailman, and three separate areas of living green roofs. The third-floor terraces offer delightful views of the

mature tree canopy surrounding the neighborhood. The shaped ceiling of the third-floor master suite is uninterrupted to maintain both the views and access to natural light.

LITERATURE CASE STUDY: 2 – BRODECKY HOUSE(archdaily, 2020)
Architects: Atlas Architects
Location: Bentleigh, Australia
Building typology: Residential

The Brodecky House is a suburban infill project built in the backyard of an existing double story residence for the owner to retire in. Positioned between a double story and a single-story brick house, the facade comprises a dark silhouette above a textural reclaimed brick base, that mediates differences in the scale of adjacent houses, while maintaining individuality and openness. The form is a contemporary interpretation of the familiar silhouette of Australian suburban houses.

Figure 5: The above figure shows us the Brodecky house standing out amongst other buildings.

Design Features:

- Material textures such as bricks, ship lapped timber, and vertical grooved linings were introduced to visually relate the new building to its surrounding context, whilst painted vertical Scyon Axon smooth cladding mediates the familiar brick pattern and ship lapped timber cladding.
- Other elements of the building such as screens, a cantilevered pergola and horizontal cladding were used to break up the silhouette massing in the outdoor living space. The pergola defines the outdoor room without impeding on the circulation and function of the space.

Figure 6: Outdoor patio of the Brodecky housewith brick Figure 7: Brick façade with pergola wall, a feature taken from the older structure

- The facade has large open windows to capture the city view and the street. It creates a sense of openness from the internal spaces as well as from the street.
- The deep steel window box detail on the ground floor and deep window reveal on the first floor add depth and shadow to the façade.
- The contrast between natural timber cladding and black Scyon Axon highlights the porch/entry area creating a focal point.
- The form, materials and colors are simple and minimal, which reflects the internal effortless spatial flow, calmness, and familiarity.

LITERATURE CASE STUDY: 3 – POLANCO HOUSE(archdaily, 2020)
Architects: Studio Rick Joy
Location: Mexico City, Mexico
Building typology: Residential

This five-story apartment building is located along a quiet street in a thriving neighborhood in the heart of Mexico City. Tucked into the sophisticated Polanco neighborhood, near the Parroquia de San Agustin, the apartment uses a restrained material palette informed by local building traditions to produce a sense of deep warmth and experiential softness. Surrounded by buildings on three sides, the residence is an infill project that opens to the city only via its west facade.

Figure 8: Front façade of the Polanco house

Design Features:

- Three light wells—each vegetated using a variety of planters, boxes, and hanging vines to add greenery and softness to the exposed concrete structure—ensure that daylight reaches the lower levels of the block.
- Each of the two apartments spans two floors. The lower apartment can be accessed on the second floor through a double height, lushly planted outdoor porch, which connects the inner access of the building with the street.
- A limited palette of materials, informed by local building traditions, gives the building the appearance of a carved urban sculpture. Board-formed concrete, cast in place and rough sawn,

serves as both earthquake-resistant structure and surface finish, giving texture to the walls when they are grazed by light.


Figure 9: Huge balconies connecting the outdoor and the indoor spaces
Figure 10: Large windows in the bedroom for ample sunlight

- The coffered ceiling structure is of mostly smooth, form-finished concrete. The floors are covered in hardwood boards, while a number of the rooms feature suspended wood ceilings. Local travertine slabs are used for the vanities and bathroom walls. Slim-profiled, custom-steel casement windows, inspired by a traditional square-frame grid, create generous openings to the outdoors and the city beyond.
- Light wells draw sunshine down through a central courtyard and into the lower levels of the building, softening the exposed textural concrete, and are detailed with a variety of planters, boxes, bars and hanging greenery that add lushness to each residence.
- A private roof terrace offers views of the city's canopies. On the interiors, luxurious finishes like bronze hardware and leather pulls create an intimate tactility and feeling, as well as a relationship between this building and local craft and materiality. The luxury of the interior materials and the crafted raw concrete facades produces a dynamic creative tension between refined interiority and a sculptural exterior.

LITERATURE CASE STUDY: 4 – YOUTH HOUSING, NANSENSGADE (archdaily, 2020)
Architects: Christensen & Co. Architects
Location: Copenhagen, Denmark
Building typology: Residential

The compact infill holds nine small apartments for socially vulnerable citizens. The building site is only 10 meters wide, this physical limitation of the architecture is turned into a design quality, as only two apartments to each floor gives the young inhabitants a sense of privacy, while also giving them the security of being part of a community. Each apartment has its own kitchen and a bathroom along with a niche for relaxing while enjoying the view of one of Copenhagen's most vibrant streets.

Figure 11: Youth housing, Nansensgade

Design Features:

- Outside, the facade is clad in coppery warm toned aluminum and has a relief motive; apart from creating variation and vibrancy in the urban environment, the protruding bay windows offer views down the street from each apartment niche.
- The bay windows are a central design feature, which is both aesthetically and functionally innovative, as they contribute to the overall architectural expression of the building and creates an entirely different experience of light and air in each apartment.

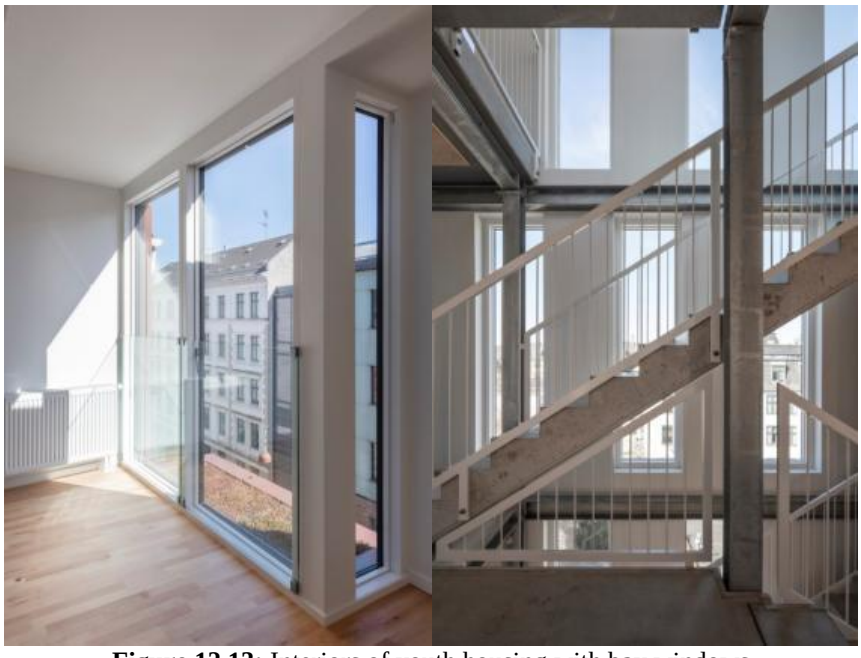


Figure 12,13: Interiors of youth housing with bay windows

- In the facade, the proportions of protruding elements connect to the rhythm and flow of the urban environment. To achieve this the building is divided into smaller units that correspond to the existing urban space.

Figure 14,15: Integration of building into the street fabric using projections in the front façade

- The units occur as a result of the juxtaposition between elements, which is in turn created to ensure shading from direct sunlight. To further incorporate the relief motive into the surrounding built environment, the protruding elements align with the horizontal markings and cornices of the neighboring buildings.
- At the 6th floor, the roof terrace incorporates difference in height between the surrounding buildings and provides the inhabitants with a private outdoor space. At the ground floor, a public bike repair shop opens up the building towards the street and the social connection is further enhanced by areas for stay near the entrance.

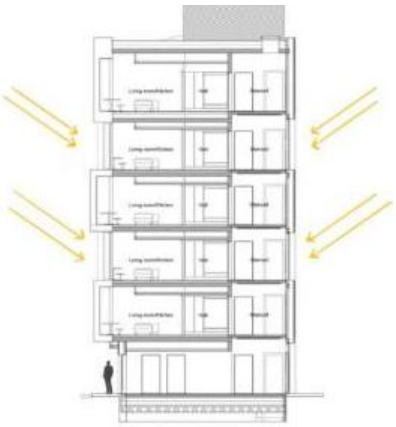


Figure 16:Roof top deck Figure 17: Section showing alternating windows andscreens

LITERATURE CASE STUDY: 5 – 62, JORBAGH BUILDING (archdaily, 2020)
Architects: Common Ground Practice
Location: Delhi, India
Building typology: Residential

Breaking the ceaseless row housing of Delhi, 62 Jorbagh occupies a unique site in the heart of India's National Capital Region seamlessly amidst an urban context. With a plot size of 314 sq. m. and a total built up area of 1,114.8 sq. m., the program segregates the built volume vertically into a basement, a stilt floor, four 3-bedroom apartments, each with a helper's quarter and terrace. Sited in a heritage-rich context with the Safdarjung tomb & Lodhi gardens in proximity, the architecture of this modern Indian home is a perfect union of contextual nuances and an appropriate response to sustainability issues in the modern world.

Figure 18: Jorbagh building

Design Features:

- The initial brief from the client was to retain the sentimental value of the time-honored local Champa tree with its characteristic, ample foliage to craft an abode that is induced with ample amount of light, greenery, and cross-ventilation. While tackling the challenge of a deep linear site, openings have been planned on the shorter sides North and South, namely the front and the back, in order to maximize the light, aerate the built and establish a visual connect with the community park outside the site.
- Through paper model experimentation and several solar studies, the volume has been strategically planned to open up the visual angles facing the park and setting up a series of 'fluttering' walls, with an orientation that is aligned to the movement of the sun. Breaking the typical regime of orthogonal projections, the resultant curved massing presents mutual shading in the building to cut off the harsh summer sun, whilst allowing the winter sun to break into the building.

Figure 19: Light well inside the jorbagh building **Figure 20:** Floor to ceiling openings with balconies

- The core massing in relation to the exterior windows and balconies is designed such that the green scape is visually accessible from all the interior parts of the house. The inter-spaced voids and balconies in relation to the exterior openings provide natural light, ventilation and views of the greenspace throughout the building.

- The façade has been rendered with an interplay of masses and full-length glazing, fostering on the presence of gardens on either side. The inter-spaced voids and deep 'sun-shaped' balconies serve as nuanced vertical shading elements that block the harsh summer sun, while still permitting the winter sun in, by this means increasing the usability of the balconies throughout the year.

- Another design intervention as a result of a gash between the side building on the east endows the façade with a motion effect. The buffer oscillating mass between the built decreased the compactness and escalated the outcome, thereby bringing the insides out and outsides in.
- Diverging from the conventional rentable apartments, this habitation invests on its origins of a typical Delhi dwelling with crème walls and elegance. Basic white crème walls and a light-shaded color palette light up the

ambiance, to create a canvas for new cultures and identities to blend in.

- Typically, in deep plots, the central parts are devoid of ample light and ventilation on the lower floors. To alleviate this, the existing systems of shafts and openings have been capitalized on to ensure that adequate natural light and ventilation penetrates throughout the built mass, making even the lower floors climatically comfortable. As a result of the layout, the central structural grid manifests itself as a division between the private areas and the common areas of the house. The three bedrooms on the right while the living area, kitchen and servant quarters are aligned to the left with punchers of light shafts.

Figure 21: Balconies with jaali work railing

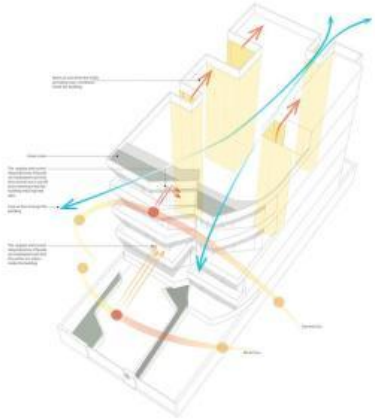


Figure 22: Orientation, wind flow and sun path diagram

- The deep balconies have been ornamented with a perforated Jaali- style railing. The customized embroidery in MS railing acts a screen allowing selective light and visual contact, which facilitates the creation of small intimate spaces even in the semi-public setting, while augmenting the volume with an old Delhi, Lutyen-esque essence. The pattern of the railing transforms from being opaque to being more open, in order to deliver a view of the surrounding vegetation.

Even though the square footage that could be given to the helper's quarter is of bare minimum standards, by providing adequate natural light, ventilation and views to the park, the small space has been made habitable. With a vision of adaptive, technology-driven & sustainable design, this residence plays an epitome of a perfect blend of contemporary with traditional craft derived from a heliotropic context.

LITERATURE CASE STUDY: 6 – THE RADICAL MAKEOVER HOUSE/SUDAIVA STUDIO(archdaily, 2020)

Architects: Common Ground Practice
Location: Delhi, India
Building typology: Residential

A single-story residence in a nondescript, small town north of Bengaluru, India had to be expanded to include 2 additional floors of residences for the purpose of renting out. During construction, the astonishing views of the rain tree canopies from the top floor inspired the construction of an additional floor for a studio space to be used as a pied-à-terre for the family, who now live in Bengaluru. Building on a load bearing structure posed considerable challenges, requiring the plan to follow the basic outline of the existing ground floor structure. Structural interventions included the use of steel beams to strengthen the existing slab at the first-floor level.

Figure 23: The radical makeover house/sudaiva studio

Design Features:

- The top floor studio had to be structurally light, permitting only 500 square feet of built-up area.
- The setback from the mass of the other floors, provides visual relief to the façade and allows for a generous terrace from which to view the lush landscape the house looks onto. A row of potted heliconia plants on the terrace fosters a visual connection with the sub-tropical surrounding of the building. Inside the studio, an open plan accommodates a living room, eat-in kitchen and a bedroom.
- Within the compact plan, the living and dining spaces are delineated with the use of colour. Primary colours in the living room furnishings and wallpaper echo the colour palette used in the building exterior.
- A perforated screen above the sofa, provides ventilation while also casting visually arresting shadows from the western sun. Furniture elements are kept to a minimum and perform double duty where required. For instance, a table branches off one end of the kitchen counter-top, serving as both a study and dining table. The ample depth of the sofa is utilized as an extra sleeping zone when there are guests.

Figure 24: Perforatedscreen

- Considering the limited skillset of locally available labor, architectural elements and joinery were designed to allow for easy assembly at site.
- For the façade, 100mm X 50mm custom-built aluminum C-channels holds perforated clay blocks together within a grid running from edge to edge and floor to ceiling. Adjacent blocks are held together with tile adhesives mixed with black oxide which subtly defines an outline around each block.
- In keeping with the context of the small town dotted with mostly modest, low-cost housing, the house employs familiar, inexpensive materials and techniques to blend in. However, inventive application of these materials gives the building a contemporary edge, bringing the 1999-built home convincingly into the 21st century.

Figure 25: Section of radical makeover house/sudaiva studio

Sl.no		MOORE PARK RESIDENCE	BRODECKY HOUSE	POLANCO HOUSE	YOUTH HOUSING, NANSEN SGADE	62, JORBAGH BUILDING	THE RADICAL MAKEOVER HOUSE/SUDAIVA STUDIO
1	**Type**	Residential	Residential	Residential	Residential	Residential	Residential
2	**Location**	Toronto, Canada	Bentleigh, Australia	Mexico City, Mexico	Copenhagen, Denmark	Delhi, India	Delhi, India
3	**Style**	Contemporary architecture	Contemporary architecture	Modern architecture	Modern architecture	Modern architecture with traditional Indian architectural elements	Modern architecture with traditional Indian architectural elements
4	**Surrounding**	Residential area	Residential area	Residential	Mixed use	Residential area	Residential area
5	**Design features**	Interconnecting void spaces, green roof terraces and large light wells.	Cantilevered pergolas, large opening windows, and Deep steel windows.	Light Wells, planters, boxes, hanging vines, exposed concrete structures, earthquake	Bay windows, private outdoor space.	Greenery and cross ventilation, fluttering walls, and orthogonal projections	Colorpalette used in exterior, green terrace.

				resistance, central courtyard.			
6	**Planning aspects**	It is animated by light and shadow, and it is structured by a board-formed concrete wall, transparent partitions, interconnecting void spaces, and a large light well that slices through three stories. The lowest story slides underneath the rear ground plane where one can access a narrow exterior space that is open to light from above.	The cantilevered pergola defines the outdoor room without impeding on the circulation and function of the space	The coffered ceiling structure is of mostly smooth, form-finished concrete Light wells draw sunshine down through a central courtyard and into the lower levels of the building, softening the exposed textural concrete, and are detailed with a variety of planters, boxes, bars and hanging greenery that add lushness to each residence. A private roof terrace offers views of the city's canopies.	The units occur as a result of the juxtaposition betweenelements, which is in turn created to ensure shading from direct sunlight. To further incorporate the relief motive into the surrounding built environment, the protruding elements align with the horizontal markings and cornices of the neighboring buildings.	The core massing in relation to the exterior windows and balconies is designed such that the green scape is visually accessible from all the interior parts of the house. The inter-spaced voids and balconies in relation to the exterior openings provide natural light, ventilation, and views of the greenspacethroughout the building.	A row of potted heliconia plants on the terrace fosters a visual connection with the sub-tropical surrounding of the building. Within the compact plan, the living and dining spaces are delineated with the use of color.
7	**Materials**	Concrete wall, glass, Timber, transparent glass partitions.	Brick, ship lapped Timber, cladding, glass, steel	Concrete, glass, steel.	Cladding with coppery warm toned aluminum, steel, brick, glass.	Concrete, steel, glass.	Concrete, brick, glass, Timber.
8	**Context**	In context	Out of context	In context	Out of context	Out of context	Out of context
9	**Analysis**	This house in a contemporary interpretation of the 1920s era family houses that surround it. Integrated into the street fabric with the help of form and elevations. This is an infill residential project surrounding by house so while designing the house they must consider the light, ventilation, and privacy. They have given large opening to get natural light and ventilation. The concrete wall satisfies building code restrictions on up	A contemporary interpretation of the silhouette of Australian suburban houses. The house mediates in scale with respect to the surroundings. But also maintains individuality. It is an infill project built in the backyard of an existing brick residence and they have given large opening to windows to capture the city and street view. The use of steel for	To give deep warmth and softness a restrained material palette was used as informed by local building traditions. The building gives an appearance of a carved urban sculpture. Board-formed concrete, cast in place and rough sawn, serves as both earthquake-resistant structure and surface finish, giving texture to the walls when they are grazed by light. They have given Slim-profiled, custom-steel casement	The building may seem out of context, but the architect has tried to The architecture is turned into a design quality, as only two apartments to each floor gives the young inhabitants a sense of privacy, while also giving them the security of being part of a community. apart from creating variation and vibrancy in the urban environment, the protruding bay windows	It is an apartment project which occupies a unique site in the heart of India's National Capital Region seamlessly amidst an urban context. The Champa tree with its characteristic, ample foliage to craft an abode that is induced with ample amount of light, greenery, and cross-ventilation. While tackling the challenge of a deep linear site, openings have been planned on the shorter sides North and South, namely the front and the back, in order to maximize the	It is a residential building. The Structural interventions included the use of steel beams to strengthen the existing slab at the first-floor level. A row of potted heliconia plants on the terrace fosters a visual connection with the sub-tropical surrounding of the building. Primary colors in the living room furnishings and wallpaper echo the color palette used in the building exterior. A

		protected opening to the South while allowing light to reach deeply into the basement. It is animated by light and shadows and it is structured by a board frame concrete wall, Transparent partitions, interconnecting void spaces and a large light well that slices through three storeys.it gives a pleasant impact inside the house.	windows to give depth and shadow. They have given timber cladding and black scyon axon to highlight the facade although it is out of context it creates a visual interest in the streetscape.	windows, inspired by a traditional square-frame grid, create generous openings to the outdoors and the city beyond. The luxury of the interior materials and the crafted raw concrete facades produces a dynamic creative tension between refined interiority and a sculptural exterior. And, they have created a central courtyard to enter sunlight and ventilation.	offer views down the street from each apartment niche. The bay windows are aesthetically and functionally innovative, as they contribute to the overall architectural expression of the building and creates an entirely different experience of light and air in each apartment. In the facade the proportions of protruding elements connect to the rhythm and flow of the urban environment. To achieve this the building is divided into smaller units that correspond to the existing urban space. the roof terrace incorporates difference in height between the surrounding buildings and provide the inhabitants with a private outdoor space.	light, aerate the built and establish a visual connect with the community park outside the site. The volume has been strategically planned to openup the visual angles facing the park and setting up a series of 'fluttering' walls, with an orientation that is aligned to the movement of the sun. Breaking the typical regime of orthogonal projections, the resultant curved massing presents mutual shading in the building to cut off the harsh summer sun, whilst allowing the winter sun to break into the building. The deep balconies have been ornamented with a perforated Jaali- style railing. This residence plays an epitome of a perfect blend of contemporary with traditional craft derived from a heliotropic context.	perforated screen above the sofa, provides ventilation while also casting visually arresting shadows from the western sun. They have used locally available material and the also blends with surrounding.

Inferences from literature case studies:

Case study 1:

- The Moore park building is integrated into the urban fabric by interpreting a 1920s typical Toronto family home in a contemporary manner.
- The architect has tried to adapt the house into its surroundings but using the same color palette, the same form as the buildings around.
- The design of the buildings has passive strategies such as green terraces that minimize the heat gain from the roof, large openings for natural light and ventilation.

Case study 2:

- The Brodecky house is again a contemporary interpretation of Australian suburban houses but using the same materials such as brick and the similar silhouette.
- It mediates in the scale or adjacent buildings, but its dark façade makes it stand out from the other buildings around.
- Use of large windows for light and ventilation, also creating a sense of openness from the internal spaces.

Case study 3:

- Set in the sophisticated Polanco neighborhood of Mexico, the Polanco house has a sense of warmth and softness bought about by the restrained use of materials and color palette, which makes it similar to its neighboring buildings.
- The design of the building includes light wells to draw maximum sunlight, and a variety of box planters and handing greenery which help create a microclimate inside the spaces.

Case study 4:

- The compact infill is a modern designed building set amongst old houses with cornices on the faced, arched windows etc.
- The design features bay windows which project outward making the façade of the buildings be in line with the adjacent buildings, incorporating it into the surrounding built environment.

Case study 5:

- Sited in a heritage rich context the building is modern in its design but has Indian architectural elements such as jaalis in response to the context.
- Deep linear openings to maximize the use of light and ventilation

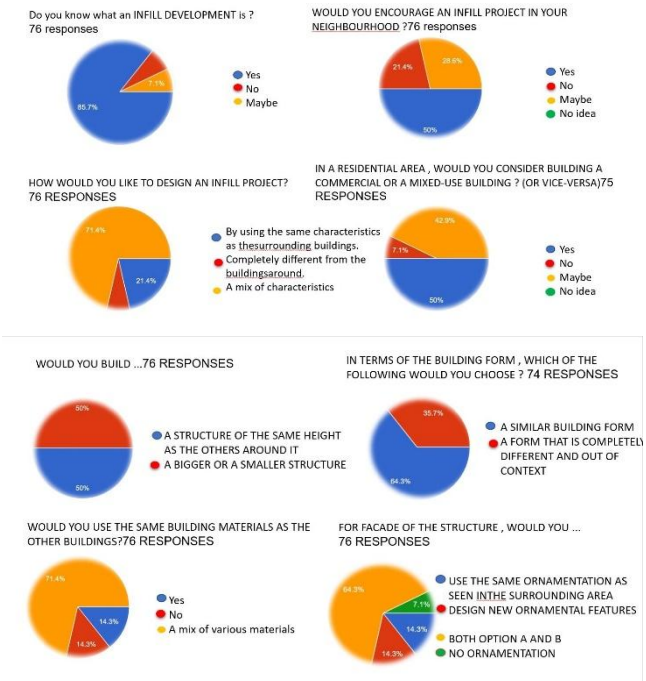
Case study 6:

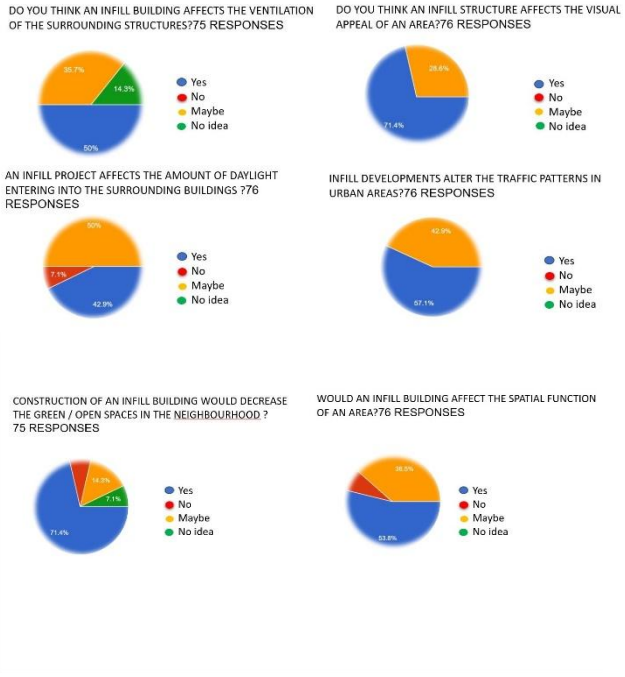
- The visual relief of the façade allows for natural light and ventilation to enter the building
- It stands out from its surroundings in terms of scale,color palette as well as its contemporary design

PRIMARY STUDY

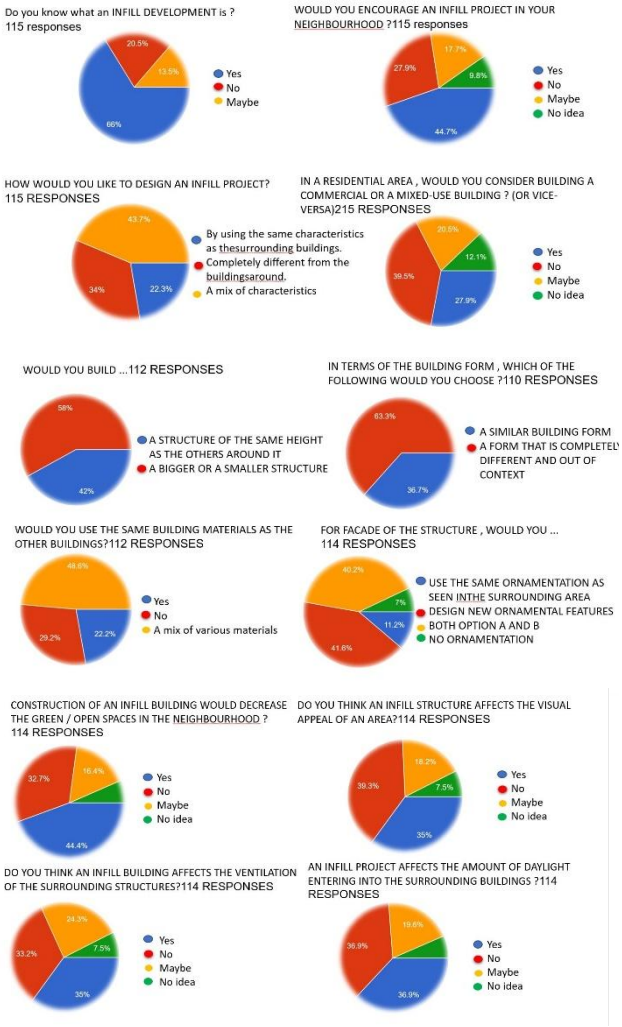
Primary case study has been done through a simple questionnaire. Through the survey conducted online, we can gather opinions of public and architects on an infill project.
https://docs.google.com/forms/d/e/1FAIpQLSdWx2-_k97rODSY5Xzt2rUWVrIfOPWqvhcTX4NixG27r5iP1g/viewform?usp=sf_link
https://docs.google.com/forms/d/e/1FAIpQLScAF_bHBKOKFtkQWlkg5GmwgA-fKewBcCIjJfIZG2AZMcKPXQ/viewform?usp=sf_link

Opinions of architects on an infill project





Opinions of public on an infill project



INFERENCES FROM SURVEY -1

- While majority of the architects are aware of infill designs, only 50% of then encourage it.
- Most architects prefer using a variety of characteristics rather than opting for the same ones or something completely different.
- Through the survey we can see that majority would like to maintain a balance in terms of scale, materials, colors.
- Also, architects have a better understanding of how and infill has an impact of its surroundings and adjacent buildings in comparison to a common person.

INFERENCES OF SURVEY -2

- From the study, we can see that 66% of people are aware of what and infill project is.
- And coming to the characteristics of the infill project, majority of people opt for a new building style or new ornamental features, materials etc.
- The users are making these decisions without taking the context of the site into consideration.
- The users also inconsiderate of the impact an infill building can have on its surroundings.

GUIDELINES

- Each building in the infill development should be designed to form a part of the larger composition of the area within the locality.
- New buildings on an infill site should have an appropriate harmonious relationship to existing nearby structures in terms of height and scale.
- The height and scale of new buildings should be similar to that of the surrounding area or articulated or subdivided into massing that is more or less proportional to other structures in the area and maintains the existing architectural rhythm.
- All new infill buildings should be related harmoniously to the terrain (natural features) and to existing buildings and other substantial structures in the vicinity that have a visual relationship to the proposed infill building(s).
- The selection of infill building design elements, such as materials, fenestration, colour, texture, etc., should ensure that such treatment is harmonious with that prevalent in the area, where such prevalence exists and where such harmony is desirable.
- The preservation and maintenance of the historic character of the surrounding area shall be taken into account in carrying out infill.
- Locally sourced materials should be preferred so as to reduce carbon footprint and also makes the construction more economical.
- Infill developments must provide a number of parking spaces adequate to satisfy the parking demands of users, residents, and visitors.
- Encourage mixed-use development to complete neighbourhoods and provide housing close to employment and services.
- Building orientation shall, as appropriate, consider the advantages of passive solar use, wind protection, building shade, and related microclimate design factors.
- Site landscape shall be preserved in its natural state, insofar as is practicable, by minimizing vegetation and soil removal.

II. CONCLUSION

Infill reduces growth pressure on rural areas, provides for efficient use of land, infrastructure, and services, and can improve quality of life in older communities. Infill can enhance the character, viability, and function of existing communities . . . and cities. A successful infill strategy at the local level maintains or restores spatial continuity to streetscapes, strengthens neighbourhoods, respects historic preservation, and introduces compatible uses that complement existing community attributes and needs thus Infill development provides one '**smart** 'way to do so

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