

## Designing A Terrace Garden For A Residential Area



**Sarjoo Patel**

Assistant Professor,  
Deptt. of Family and Community  
Resource Management,  
Faculty of Family and Community  
Sciences,  
The Maharaja Sayajirao  
University of Baroda,  
Vadodara



**Fatema Dahodwala**

Msc. Student  
Interior Design Specialization,  
Department of Family and  
Community Resource  
Management,  
Faculty of Family and Community  
Sciences,  
The Maharaja Sayajirao  
University of Baroda,  
Vadodara

### Abstract

As the cities are growing more urbanized and the population is constantly increasing, the land is now used for building infrastructure and houses for the population. There is no place or land left for nature to grow, therefore the concept of green roof, terrace gardening, vertical gardening etc are emerging. Having a garden in ones residential area also has certain mental health benefits such as decreased level of anxiety, less stress, positive thinking etc. Now a days due to shrinking land spaces people can have a terrace garden to enjoy the benefits of residential garden. The present research is carried out with the expectation to bring the innovative terrace garden design for a residential area as it provides extensive environmental air quality benefit through the ability to absorb not only greenhouse gases, but also pollutants and dust.

**Keywords:** Terrace garden, Residence, Design.

### Introduction

In today's age of shrinking land spaces and multiplying infrastructure the space available for one's private garden is limited. Due to Increasing population in urban areas, we hardly see any greenery around. A new innovation and environment friendly solution to these shrinking spaces, terrace gardening is an option of having greenery on the terrace.

As the cities are growing more urbanized and the population is constantly increasing, the land is now used for building infrastructure and houses for the population. There is no place or land left for nature to grow, therefore the concept of green roof, terrace gardening, vertical gardening etc are emerging.

Gardening is always an excellent idea. Growing one's own food and having a garden is a good practice and it helps in one's life as well. It is the time to channelize one's hobby towards a more meaningful motive. Even if one is new to this concept one can start thinking about small gardens, pots etc. No matter how small the effort is, it still has a great impact. All are trying to go green nowadays to protect our environment. There are many other small things which we can do to contribute. Creating a green roof also has certain benefits for the environment as well as the infrastructure such as it reduces the amount of noise produced, reduces heat, storm water, cools the environment, regulates the temperature etc. There are certain components of green roofs which are to be considered for the stability and structure of the roofs. The roof should be designed keeping the engineering factors in mind. The roof should have a structural deck, waterproofing membrane, protection course, root barrier, drainage layer, thermal insulation, moisture retention layer, filter fabric and engineering soil with plantings. Green roofing practice can be done on every type of roofs i.e. flat roof, sloped roof, high rises, wood frames, structures etc. The plants in a green roof must have sufficient levels of water to ensure that they remain healthy during prolonged dry periods. An automated system is generally the best option in the long term and the frequency at which it is applied will depend upon the plant species. These are designed and supplied by the specialist irrigation companies who will offer a specific system to meet one's demands. A roof generally requires a minimum of two inspections a year to ensure that the outlets are maintained. An extensive green roof will require only minimal maintenance to ensure that unwanted species do not become established. (green-roof-design-considerationsbauder.pdf)

Green roof improves the quality of life and the surrounding. The concept of green roof is a challenging job for the landscape designers as well as architects. There are benefits of having one's own garden mental as well as physical. Every day one can accomplish something in garden be it cleaning the garden area, watering the plants by having a sense of

E: ISSN No. 2349-9443

accomplishment which improves ones positive self-esteem. Having a garden in ones residential area also has certain mental health benefits like decreased level of anxiety, less stress, and positive thinking.

**Review of Literature**

Researches in the area of landscaping and gardening have been conducted by Gupta (2001) on pattern of space utilisation, values, opinions and problems of homemakers regarding residential landscape gardening, Shah (2005) on Japanese garden: A design project for a terrace of a selected residence and a common plot of a residential colony, Shah (2011) study of Community Gardens: Utilization and satisfaction of the residents of selected residential colonies of Vadodara city and Doshi (2011) on developing an ideal outdoor garden design for the residences of Vadodara city and Pavasiya (2014) on Designing a Vertical Garden For a Residential Area. Many researches are conducted on gardening aspect but dearth of researches are found on the terrace gardening concept which motivated the researchers to chose this topic with the expectation to bring the innovative terrace garden design for a residential area as it provides extensive environmental air quality benefit through the ability to absorb not only

# Asian Resonance

greenhouse gases, but also pollutants and dust.

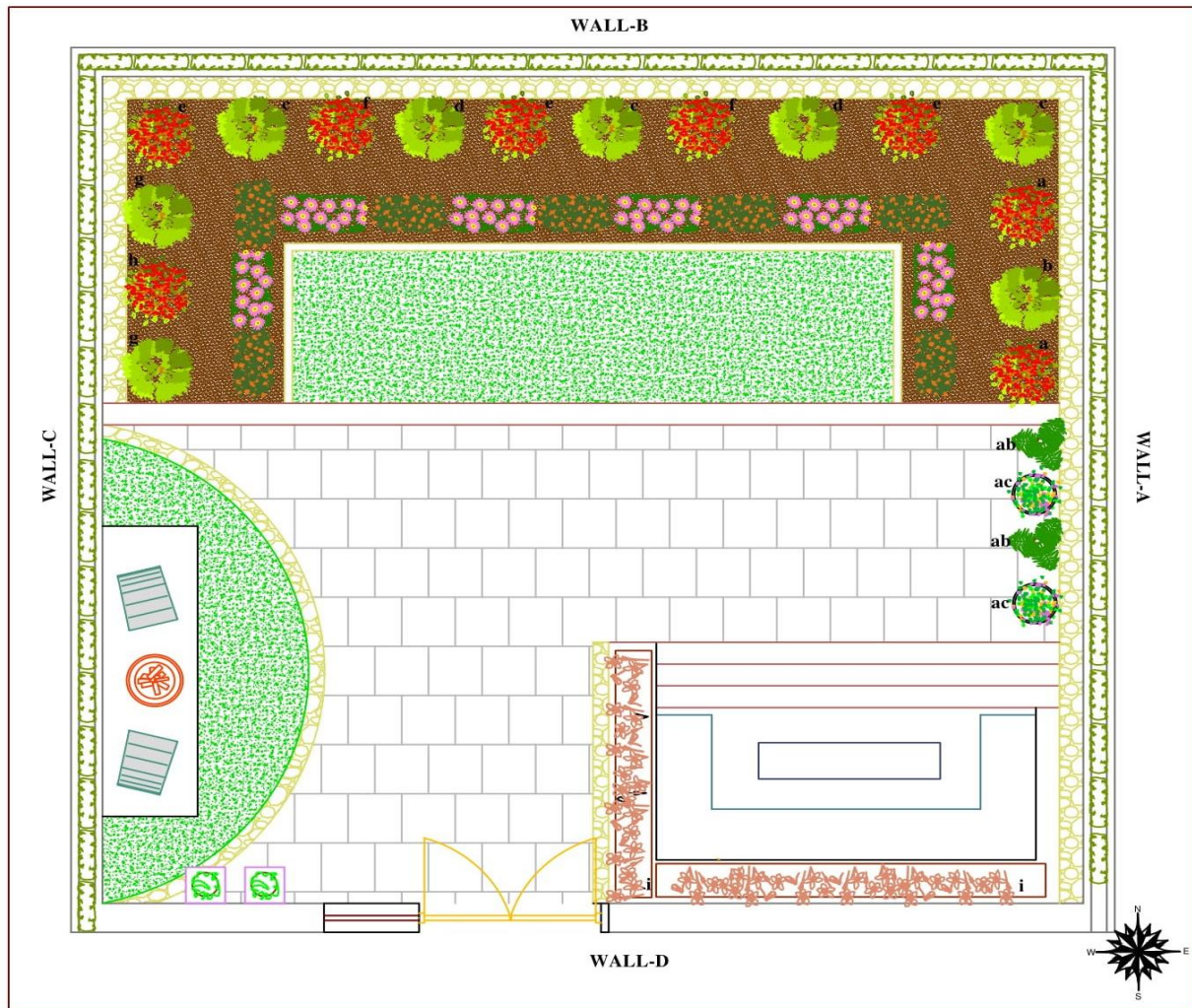
**Design for Terrace Garden**

The design of the garden is developed considering the elements of design and the direction of the sun. The length of the garden area is 28'x 6" and width is 31'x 0".

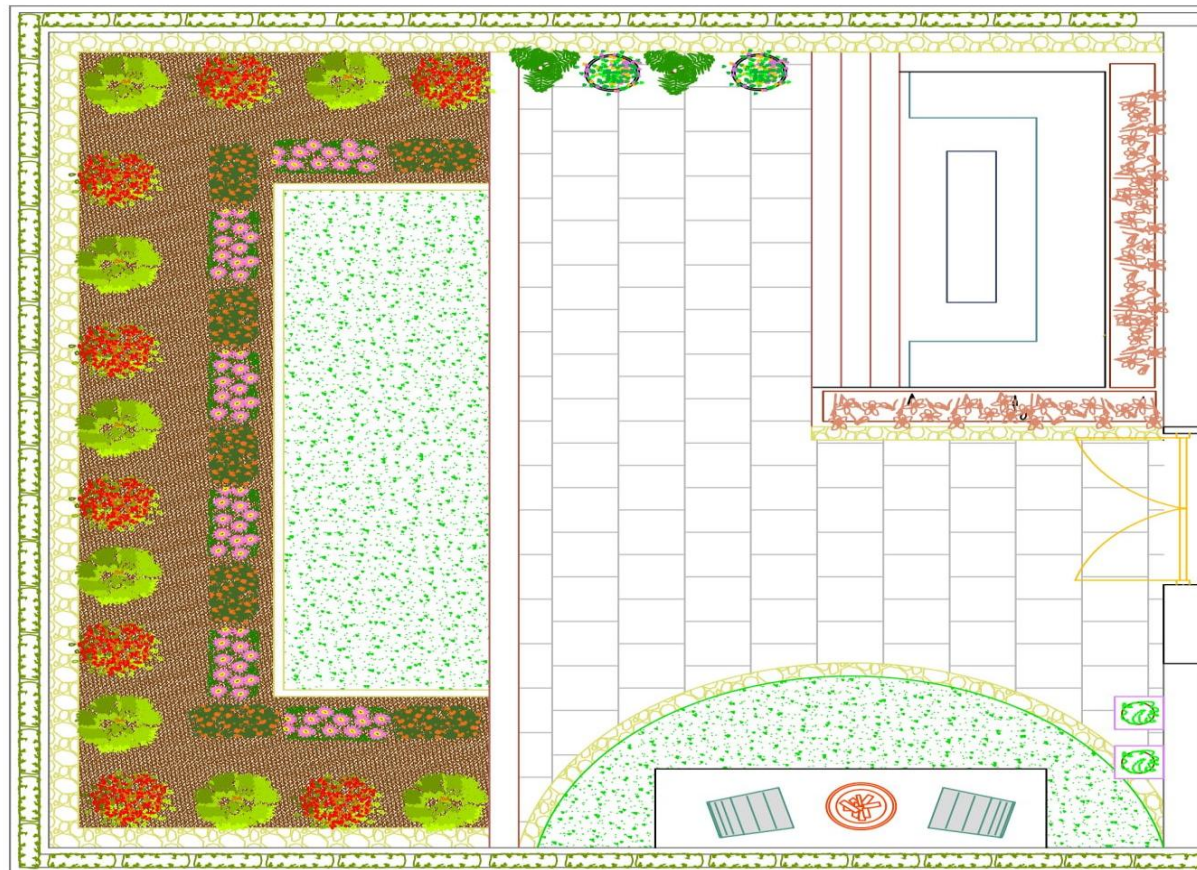
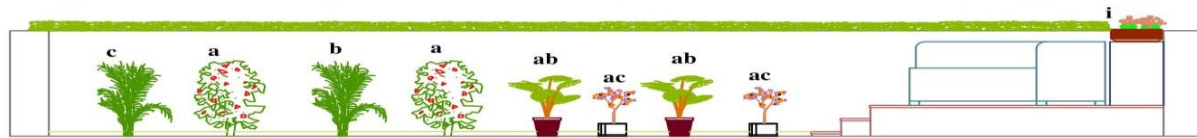
The flooring of the garden is made up of Kota stones which covers almost half of the garden area. Kota stones are mainly used for exteriors, pathways, outdoor, driveways etc. because they are non-water absorbent, non-slip, non-porous and are also available in affordable prices and are easy to lay. The stone is of 2'x1' of size.

The garden is also provided with family seating and separate seating. The material used in seating are waterproof and heat resistant.

Apart from flowering beds and shrubs, lawn is also planned in the area. Lawn is an area of soil-covered land planted with grasses and other durable plants such as clover which are maintained at a short height with lawn mower and used for aesthetic and recreational purpose. Common characteristics of a lawn are that it is composed only of grass species. (<http://en.m.wikipedia.org/wiki/Lawn>)







## Wall A

On this side of the garden shrubs are planted considering the direction of the sunlight. The shrubs which require less amount of sunlight are planted on eastern wall which has a height of 2 to 3 feet. The shrubs used in this area are *Acalypha wilkesiana* (a) and *Polyscias paniculate (variagata)* (b).

*Acalypha wilkesiana* also known as copperleaf is a closely arranged crown, with an erect stem and may branches. Both the branches and the leaves are covered with fine hairs. The leaves are coppery green with red splashes. Separate male and female flowers appear on the same plant. The male flowers are in long spikes which hang downwards while the female flowers are in short spikes.

([http://en.m.wikipedia.org/wiki/Acalypha\\_wilkesiana](http://en.m.wikipedia.org/wiki/Acalypha_wilkesiana))

*Polyscias paniculate (variagata)* are best in bright shade, the broad shiny foliage has a gold creamy irregular variegation. They are easy to prune and maintain.

Flower beds are also placed near the shrubs which gives an attractive view and also brings focus towards the area. Flower bed is an area where different varieties of flowers are planted in a bunch or

a group. The flowers are alternately placed (mixed), all these flowers bloom at different time according to the season and climate due to which there is no monotony of colour in the garden.

Flowers such as *Dianthus*, dianthus flowers are also called "pinks". They belong to a family of plants which includes carnations and are characterized by the spicy fragrance the bloom emits. These flowers are most often used in borders or potted displays.

(<http://www.gardeningknowhow.com/ornamental/flowers/dianthus/growing-dianthus-plants.htm>)

French marigold, no annual is more cheerful or easier to grow than marigolds. These flowers are the spendthrifts among annuals, bringing a wealth of gold, copper, and brass into our summer and autumn gardens. The flower's popularity probably derives in part from its ability to bloom brightly all summer long.

(<https://www.almanac.com/plant/marigolds>)  
*Petunia*, petunia species are mostly annual herbs. The leaves are sessile and are usually oval-shaped fine sticky hairs. The flowers are funnel-shaped, consisting of five fused or partially fused petals and five green sepals.

E: ISSN No. 2349-9443

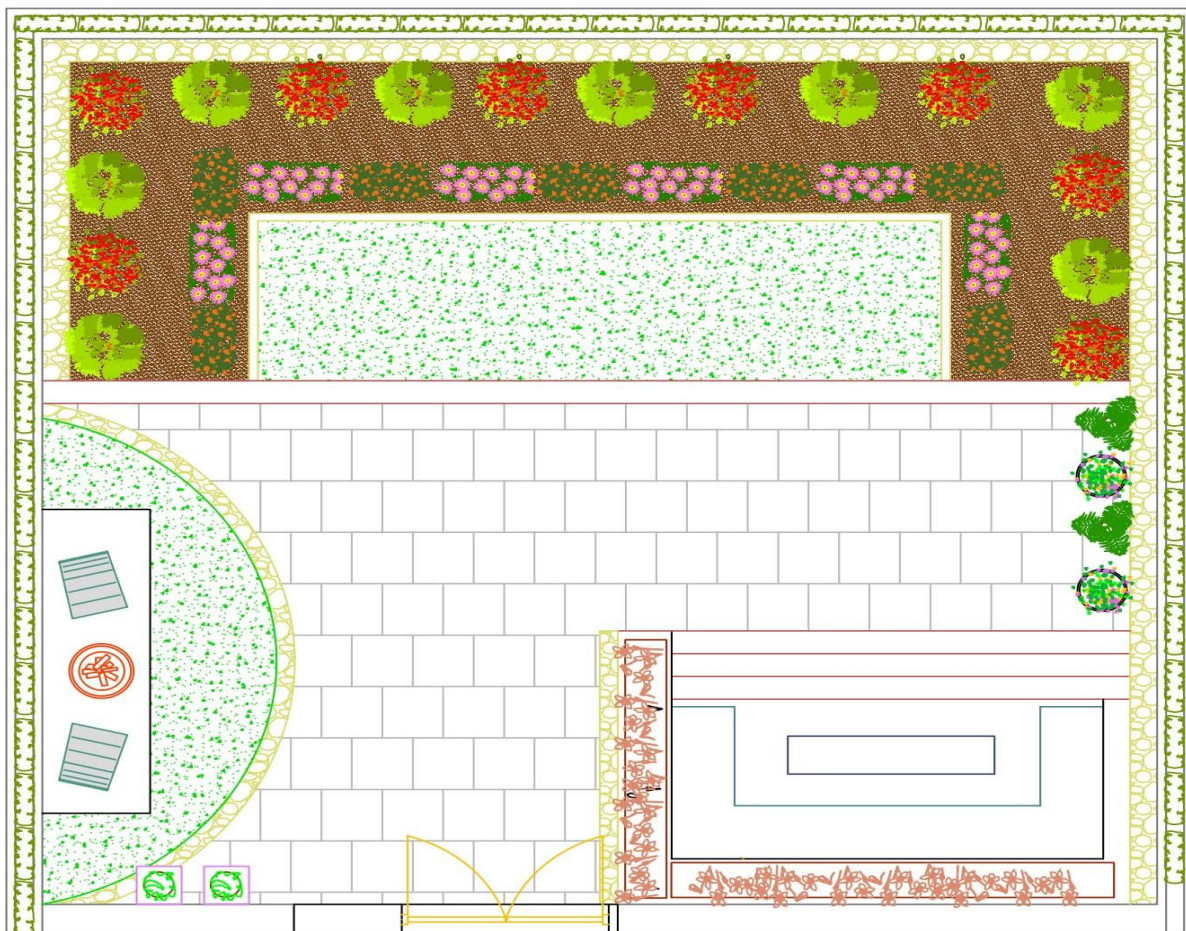
(<https://www.britannica.com/plant/petunia>)

Begonias, these plants have flowers like rose and are available in variety of colours, the leaves of this plants are big as compared to the flowers.

Pots are also planned on this wall near the seating. Plants like Cycas Revoluta Varenpalm Sagopalm which is a variety of palm mostly planned in

# Asian Resonance

landscapes and are considered good for inexperienced gardening, and also button roses also known as miniature roses are also planned in the pots, button roses are flowering plants or ornamental plants which are small sized roses varying in many colours.



## Wall B

This side of the wall falls in north direction which receives more amount of sunlight during the day. The shrubs and flower beds are selected and planned accordingly in this area. The shrubs used in this area are namely Aglaonema Ernesto (hybrid)(c), Artemisia (mug wort) (d), Lilac (e), Abelia (f).

Aglaonema Ernesto(hybrid) or Chinese evergreen is an extremely popular house plant, which are very easy to grow and maintain. These are evergreen perennial herbs. These plants have large glossy oval-shaped leaves and small flowers. The colours of the flowers change from white to greenish white or even red.

Artemisia is a diverse variety of plants with around 200 to 400 species. The common names for most of the species are mug wort, worm wood etc. These plants are widely known for the powerful chemical properties in their essential oils.

Lilac bush, Lilacs do come in seven colours, but most are familiar with the common lilac, *Syringa vulgaris*. Lilac bush/shrub are easy to grow and maintain as well as the fragrant flowers are good for trimming and are also attractive to butterflies. These plants grow in fertile and well-drained soil and also need around 6 hours of sunlight.

Abelia (glossy Abelia) are round, semi-evergreen and medium sized plant. The blooms of this plant are slightly fragrant, and are produced over



E: ISSN No. 2349-9443

a long period of time from late spring to fall. This variety of plant needs full sun and are easily grown in medium moisture soil. The plant requires very low maintenance and are pest free.

Flower beds are also placed near the shrubs which gives an attractive view and also brings focus towards the area. Flower bed is an area where different varieties of flowers are planted in a bunch or a group. The flowers are alternately placed (mixed), all these flowers bloom at different time according to the season and climate due to which there is no monotony of colour in the garden.

Flowers such as Dianthus, dianthus flowers are also called "pinks". They belong to a family of plants which includes carnations and are characterized by the spicy fragrance the bloom emits. These flowers are most often used in borders or potted displays.

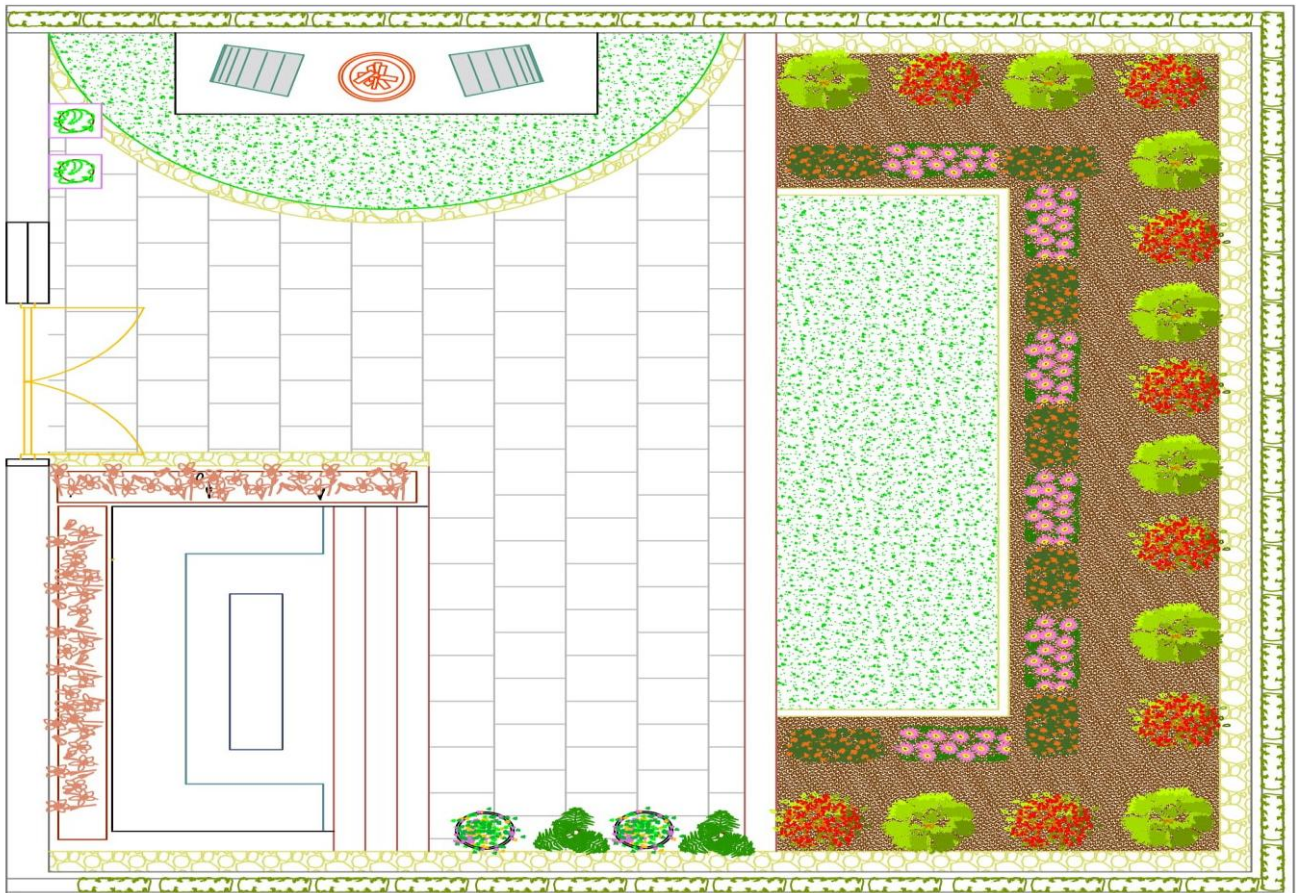
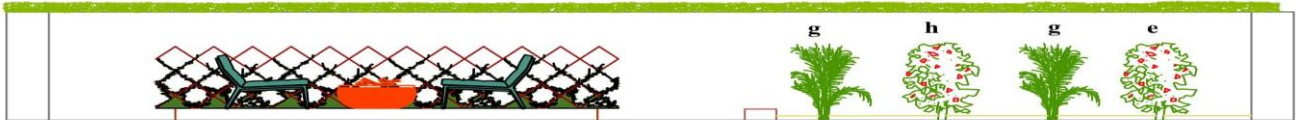
# Asian Resonance

(<http://www.gardeningknowhow.com/ornamental/flowers/dianthus/growing-dianthus-plants.htm>)

French marigold, no annual is more cheerful or easier to grow than marigolds. These flowers are the spendthrifts among annuals, bringing a wealth of gold, copper, and brass into our summer and autumn gardens. The flower's popularity probably derives in part from its ability to bloom brightly all summer long. (<https://www.almanac.com/plant/marigolds>)

Petunia, petunia species are mostly annual herbs. The leaves are sessile and are usually oval-shaped fine sticky hairs. The flowers are funnel-shaped, consisting of five fused or partially fused petals and five green sepals. (<https://www.britannica.com/plant/petunia>)

Begonias, these plants have flowers like rose and are available in variety of colours, the leaves of this plants are big as compared to the flowers.



## Wall C

On this wall the sunlight intensity is low as compared to the opposite wall. The plants planned on this side are namely Buxus Microphylla (g) and Emerald & gold euonymus (h).

Buxus Microphylla is an evergreen shrub or small tree. The leaves are bright green, 10-25 millimetres long, oval with a rounded or notched top. ([https://en.wikipedia.org/wiki/Buxus\\_microphylla](https://en.wikipedia.org/wiki/Buxus_microphylla)).

Emerald & gold euonymus is a low-growing, broadleaf, evergreen shrub with a spreading habit. It forms a dense, bushy mat of glossy, ovate to elliptic, dark green leaves edged with gold and tinged pink in fall and winter. It produced a few tiny, inconspicuous, greenish flowers in early summer.

Flower beds are also placed near the shrubs which gives an attractive view and also brings focus towards the area. Flower bed is an area where different varieties of flowers are planted in a bunch or a group. The flowers are alternately placed (mixed), all these flowers bloom at different time according to the season and climate due to which there is no monotony of colour in the garden.

Flowers such as Dianthus, dianthus flowers are also called "pinks". They belong to a family of plants which includes carnations and are characterized by the spicy fragrance the bloom emits. These flowers are most often used in borders or potted displays.

(<http://www.gardeningknowhow.com/ornamental/flowers/dianthus/growing-dianthus-plants.htm>)

French marigold, no annual is more cheerful or easier to grow than marigolds. These flowers are the spendthrifts among annuals, bringing a wealth of gold, copper, and brass into our summer and autumn gardens. The flower's popularity probably derives in part from its ability to bloom brightly all summer long. (<https://www.almanac.com/plant/marigolds>)

Petunia, petunia species are mostly annual herbs. The leaves are sessile and are usually oval-shaped fine sticky hairs. The flowers are funnel-shaped, consisting of five fused or partially fused petals and five green sepals. (<https://www.britannica.com/plant/petunia>)

Begonias, these plants have flowers like rose and are available in variety of colours, the leaves of this plants are big as compared to the flowers.

Apart from shrubs and flower beds a coffee seating is also provided with a fire pit in between. The material used for the seating is heat resistant and also water resistant which is beneficial in outdoor seating. Behind the seating area a climber is planned which enhances the seating area and also creates a pleasant atmosphere. The climbers climb their way on a mesh provided on wall with a following pattern which does not create a mess from the climber.

## Plant key for the design of a terrace garden

S.No.	Plant name	Sign
1	Acalypha wilkesiana	a
2	Poluscias paniculate (variagata)	b
3	Aglaonema ernesto (hybrid)	c
4	Artemisia (mug wort)	d
5	Lilac	e
6	Abelia	f
7	Buxus microphylla	g
8	Emerald & gold euonymus	h
9	Impatiens	i
10	Dianthus	j
11	French marigold	k
12	Begonias	l
13	Petunia	m
14	Cycas Revoluta Varenpalm Sago palm	ab
15	Miniature roses	ac

## Conclusion

As there is shortage of space due to overcrowding of population it has become difficult to incorporate nature in the land space. The families are forced to live in flats and buildings which delimit their interest of having a garden in which they can enjoy their recreational time and also have their own piece of mind. Therefore, one such option for incorporating nature in the residential area is terrace gardening or green roof. Having a terrace garden in one's residential area has certain benefits such as it reduces the indoor temperature to a certain degree, it also creates a pleasing atmosphere and also improves the aesthetic of the area. Due to increase in global warming the roofs of the houses get heated up easily, but by having a terrace garden above it reduces the overall heat and also absorbs the sunlight. It is also beneficial for purposes like it generates happiness and bonding among family members as they can have their family time in an open area, it improves the quality of the air, it is occupied for the best use of waste space. The researcher has chosen this topic because there are various problems related to the heating of the earth, less garden space etc but not much of the solution has been found yet. Therefore, by having a terrace garden it is beneficiary for both living and as well as the environment.

## References

1. Pavasiya, H. (2014, April). *Designing a Vertical Garden For a Residential Area. Unpublished Masters' Thesis, Maharaja Sayajirao University of Baroda, Vadodara.*
2. Doshi, K. (2011, April). *Developing An Ideal Outdoor Garden Design For The Residence Of Vadodara City. Unpublished Masters' Thesis, The Maharaja Sayajirao University of Baroda, Vadodara.*
3. Shah, H. (2011, April). *Community Gardens: Utilization and satisfaction of the residents of selected residential colonies of Vadodara City, Unpublished Masters' Thesis, The Maharaja Sayajirao University of Baroda, Vadodara.*

E: ISSN No. 2349-9443

# Asian Resonance

4. Shah, V. (2005, April). *Japanese garden: A design project for a terrace of a selected residence and a common plot of a residential colony*, Unpublished Masters' Thesis, The Maharaja Sayajirao University of Baroda, Vadodara.
5. Gupta, S. (2001, April) : *Pattern of space utilisation, values, opinions and problems of homemakers regarding residential landscape gardening*, Unpublished Masters' Thesis, The Maharaja Sayajirao University Of Baroda, Vadodara.
6. Residential Green Roof, Myrooff.Com. Retrieved on July 29, 2018 from:  
[https://myrooff.com/residential-green-roof/#Understanding\\_the\\_Green\\_Roof](https://myrooff.com/residential-green-roof/#Understanding_the_Green_Roof)
7. Green Roof Design Considerations, Bauder. Retrieved on July 29, 2018 from: [green-roof-design-considerationsbauder.pdf](#)
8. Retrieved from:  
<http://en.m.wikipedia.org/wiki/Lawn>
9. Retrieved from:  
[http://en.m.wikipedia.org/wiki/Acalypha\\_wilkesiana](http://en.m.wikipedia.org/wiki/Acalypha_wilkesiana)
10. Dianthus Plants: How to grow Dianthus, Gardening Know How. Retrieved on August 1, 2018 from:  
<http://www.gardeningknowhow.com/ornamental/flowers/dianthus/growing-dianthus-plants.htm>
11. Growing Marigold, The Old Farmer's Almanac Founded in 1792. Retrieved on August 1, 2018 from: <https://www.almanac.com/plant/marigolds>
12. Petunia Plant, Encyclopaedia Britannica. Retrieved on August 1, 2018 from:  
<https://www.britannica.com/plant/petunia>
13. Website browsed:  
[https://en.wikipedia.org/wiki/Buxus\\_microphylla](https://en.wikipedia.org/wiki/Buxus_microphylla)