

Approach to the Architectural Study of Myanmar Buddhist Stupa (Case Study of “Mahar Zedi” in Bago, Myanmar)

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Abstract: The massive hemispherical built forms of Buddhist stupas are evolved by the identity of the religious belief of people in many parts of Myanmar. In Myanmar, Buddhist stupas are provided as some of religious stone architecture and the most fundamental of Buddhist architectural monument. They are built as a marker for a sacred space and symbolic representation of the Buddhist burial mound. This paper has highlighted the architecture of Mahar Zedi Stupa as the case study to study of Myanmar Buddhist stupa. It is the second- highest and significant in the shape of a stupa in Bago city of Myanmar. The development of the stupa, types of stupa and symbolism of stupas have generated particular trends in the ways, and still, influences of the current views of Buddhism were studied firstly. The study of “Mahar Zedi” has been closely connected with the stupa’s compound, orientation and entrances, form composition, proportion and decorative elements of the stupa. The study results show that the stupa formed like a pyramid shape with the composition of octagonal-shaped high terraces and conically-shaped bell. Form and space organization is centralized organization, approach from four cardinal points. Medhi portion is higher than Anda portion due to nine tiers of pyramidal form terraces. Among the three portions, Sakawali is the highest. The main stupa is decorated with ‘Sein Daun’ on the corner of terraces and decorated porch over the stairways of the terraces. These elements provide harmonious recurrences of forms, and they give the visual rhythms of diagonal direction. The above creations represent one type of Myanmar Stupas’ architecture.

Key Words: Stupa, Buddhist architecture, Form composition, Proportion, Orientation.

1. INTRODUCTION:

Buddhism developed Northern India in the middle of between 6th to 4th centuries B.C, which was spreading from India to central Southeast Asia. Myanmar is the largest and oldest region supporting Buddhist cultural traditions in Southeast Asia. Myanmar architecture has the dominant architectural identity of smoothly curve form. In Myanmar, Bago city is well known for its many precious religious buildings which include Mahar Zedi stupa. It was constructed by King Bayint Naung who established the second Myanmar Empire. He enshrined the Buddha’s tooth relic, a gift from Sri Lanka, in this Stupa. It is unlike other large stupas in Lower Myanmar as it has steep stairways ascending nearly one-third of the way up to its exterior parts and it also shows monumental in space and form. That is why Mahar Zedi Stupa is chosen as a case study to analyze the Myanmar Buddhist Stupa.

2. OBJECTIVES OF THE STUDY:

The objectives of the study are;

- 1) To find out the aesthetic and cultural style of Myanmar stupa.
- 2) To clarify and broaden the existing knowledge on the architecture of stupa.
- 3) To provide a precise and clear document and report on significant stupa of Bago city for further studies and application.

3. MATERIALS AND METHOD OF THE STUDY:

To obtain the research objectives, a quantitative approach was used to collect their relevant data, associated the architectural observation about Mahar Zedi. The way of research method was comprised of four steps.

As the first step, the relevant literature about stupas such as the origin of a stupa, the feature of Myanmar stupa, development of stupas and background history of the selected stupa.

As the second step, data collection was made by field survey, took photos and asked questionnaires about the stupas. Field survey included measure works and observation. The data were recorded using digital images, sketches and brief interviews about selected stupa. Data collection for the site plan implies with identifying and asking the location of elements in the compound. It is principally focused rather than the detailed measurement of the site and elements. Besides the main accesses to the compound are also taken.

As the third step, study the compound of the stupa, its access way, and main stupa. The main stupa is divided into three fundamental portions; 1) Medhi portion- consists of plinth and terraces, 2) Anda portion - consists of bell rest and bell shape dome, 3) Sakwali - consists of the spires, lotus petals, the banana bud, and the umbrella. Above three portions were studied on their form composition base on their plan shape, and proportion base on their overall width and height. Moreover, the study was made visual connectivity and decorative elements of the stupa.

Finally, summarise the studied results and conclude on the architecture of selected stupa.

4. LITERATURE REVIEW: PRELIMINARY STUDY ABOUT STUPA

This part is comprised of Architecture features of Stupa, Architectural development of Stupa, Types of Stupa, and symbolism of Stupa.

4.1 Architecture features of Stupa

The stupa is considered to be the structural emblem and the most essential type of monument of Buddhism. In upper Myanmar, The Shwezigon stupa in Bagan is virtually the prototype of later Myanmar style. In lower Myanmar, the Shwedagon of Yangon are the best specimens of Myanmar Stupa Architecture. [2]

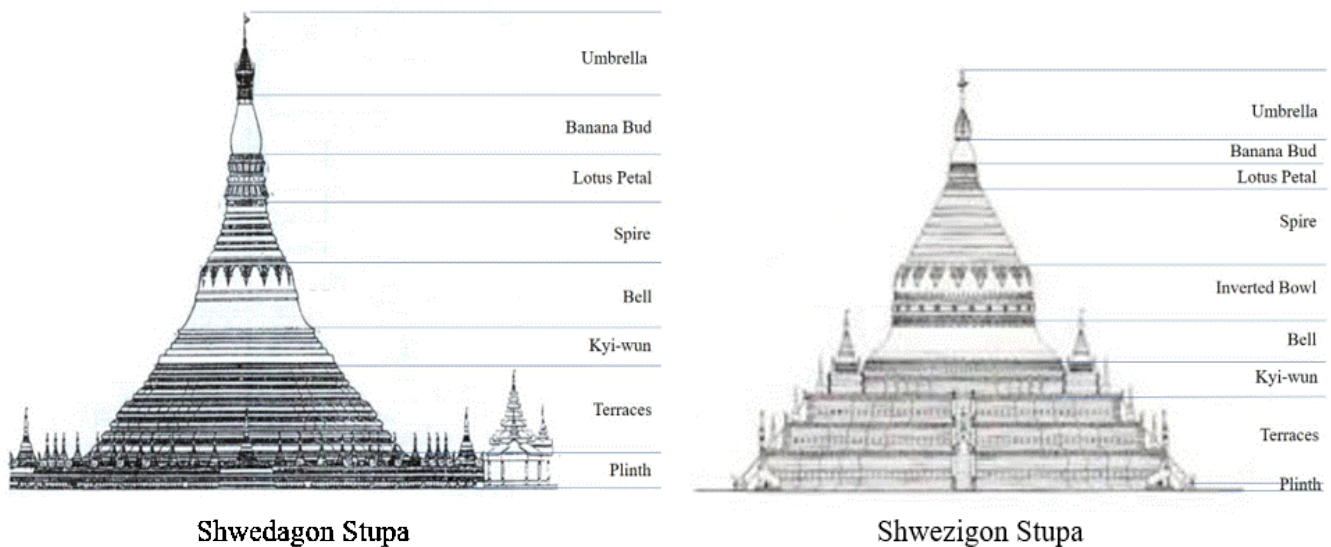


Figure 1. Features of Shwedagon and Shwezigon Stupas

According to the study of the two stupas, the architectural features of Myanmar stupa basically consist of the following parts;

- 1) The base platform (the plinth)
- 2) Receding terraces
- 3) The bell
- 4) The spire with moulding tapering upwards
- 5) Lotus petals
- 6) The banana bud
- 7) The umbrella form. [2]

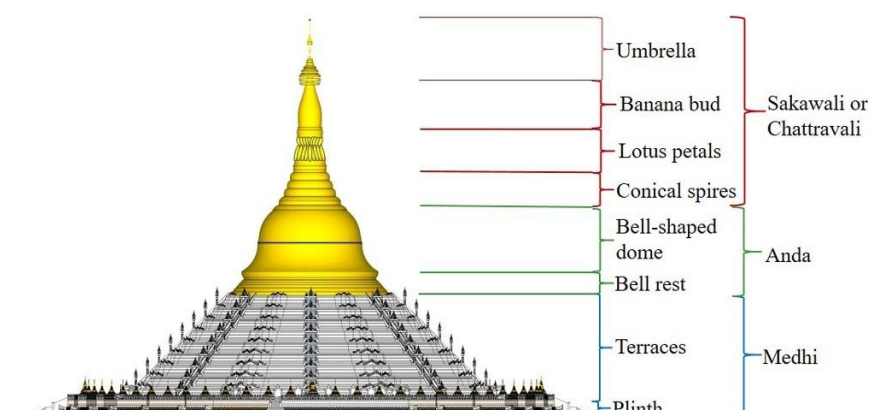


Figure 2. Features of Myanmar Stupa

4.2 Architectural Development of the Stupa

By studying oldest architecture remain of the stupa in India, the Sanchi Stupa, the early form of Stupa comprised an egg-shaped mound or dome known as Anda, which was constructed over a square base known as Medhi and Anda mound was topped with an umbrella form known as Sakawali. A space for circumambulation was formed as a path around the dome by a stone balustrade. Since then, this basic form has been transformed into a variety of shapes of the stupa which reflecting the artistic expressions of different cultures.[7]

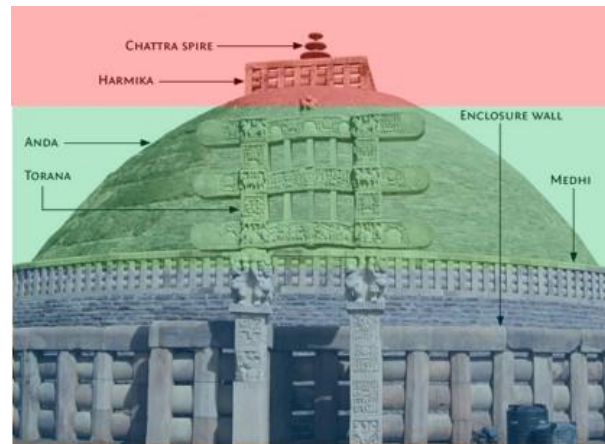


Figure 3. Sanchi Stupa

(Source: <https://www.approachguides.com/blog/buddhist-stupa-architecture-symbolism>)

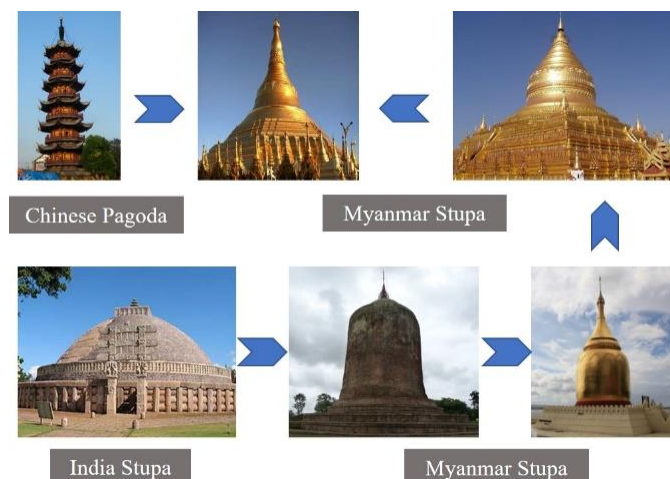


Figure 4. Development of Myanmar Stupas

Myanmar stupas was a typical example of the Myanmar version of an India original. The Myanmar stupa achieved a perfect balance between convexity of an Indian stupa and concavity of a Chinese Pagoda.[2] The profile of the dome of the Stupa evolved from the convex and vertical shape to an increasingly bell-shaped concave profile.[6]

In Myanmar, Stupa was attempted to create a sense of verticality, and the umbrella was elongated with an increased number of rings, which diminishing in size going up, in the formation of a conical shape. The simple square base was gradually transformed into a multi-tiered step pyramid, with terraces at each level. The plan shape of the terraces changed from a square to a more complex geometry shape of over the four-sided polygon. The base of the stupa was also modified in decorated base platform with different level of terraces, which performed from being a low structure to the shape of a pyramid and eventually became the most visible feature of the stupa, dominating the dome.[7]

4.3 Types of Stupa

Stupas have been grouped into three different categories.

(i) First Category: they are grouped according to the enshrining types of the relic in the stupa.

1. **Datu Cedi**, which is enshrining the bodily relics of the Buddha.

2. **Dhamma Cedi**, which is enshrining the sermon preached by the Lord Buddha by inscribing in gold leaf, silver leaf, brass leaf, and stone slabs.

3. **Oatdata Cedi**, which is enshrining the object sacred to Buddhism such as commemorative objects like the images of Lord Buddha or object that served as reminders of the revered person.
4. **Paribawga Cedi**, which is enshrining the Bo tree and utilitarian objects used or touched by Buddha.[7]



Figure 5. Enshrining types of Stupa

(ii) Second category: They are formed by depending on the Form of Stupas.

1. **The Dome-Stupas**, which have the dominant visual element of the stupa is Dome. They are prototype form of the stupa, and predominates among the early stupas of India, Sri Lanka, Myanmar, and Thailand.
2. **The Terrace-Stupa**, in this type of stupa, the Dome is decreased in size. It is set upon the podium formed by a stepped pyramid. It is found common in Tibet and Nepal, in Myanmar, in central and South-East Asia.
3. **The Tower-Stupa**, that is a multi-layered, tower-like structure. They are brick or masonry pagodas, which indicate the layer by conic or window. Timber pagodas express their stories by a series of the articulated roof. This type can be found commonly in China and Japan.[1]



Figure 6. Types of Stupas by Form Composition

(iii) Third category: They are formed by depending on their space utilization.

1. **Solid Stupas**, the form of a stupa which has not interior spaces. It can be mostly found in Lower Myanmar.
2. **Hollow Space Stupas**, the form of a stupa which has interior spaces as a temple. This type of stupa was mostly constructed in the late 19th century.

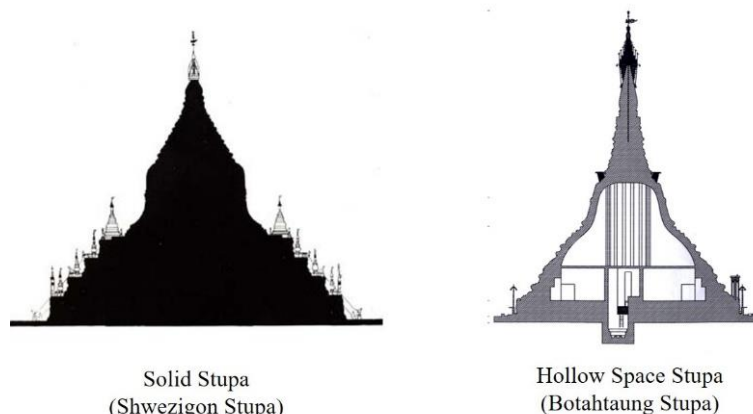


Figure 7. Types of Stupas by Special utilization
 Source; *Measure drawings*, 2002, YTU

4.4 Symbolism of Stupa



Figure 8. The Concept of The Stupa and The Buddha
 Source; Adrian Snodgrass, *The Symbolism of the Stupa*, pg.361.

General symbolism of the stupa is a symbol of Buddha and more accurately of his enlightened mind and presence. The mound has represented the form of the seated Buddha, crowned and sitting in meditation posture on a throne striving towards enlightenment. His crown is the top of the spire (umbrella), his head is placed at the square of the spire's base, his body is the vase shape, his legs are the step of the terrace, and the base is this throne.[1] Most of Indian stupas and Sri Lanka stupa, Nepalese stupa and Tibetan stupa follow this concept.

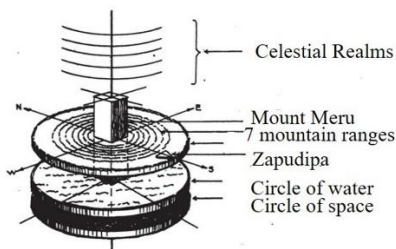


Figure 9. Concept of Mt. Meru
 Source; Adrian Snodgrass, *The Symbolism of the Stupa*, pg. 159.



Figure 10. Mya Thein Tan Stupa, Mingon
 Source; *Measure drawings*, 2000, YTU

In the design of most of Buddhist monuments of Myanmar, the symbolism of Mount Meru played a significant role. This is carried out by the design of many Stupas in the Bagan period, and later period that can be distinctly seen in Mya Thein Tan Stupa in Mingon. The architectural design of stupa represents multiple layers of meaning associated with this Buddhist cosmology. The stupa was rising through the formation of the multi-layered terraces, which represents the mythical Mount Meru, the scare mountain and which is located the centre of the physical, metaphysical and spiritual universe in Buddhist and Hindu cosmology.[7]

5. BACKGROUND STUDY OF MAHAR ZEDI STUPA:

5.1 Location of Mahar Zedi Stupa

Mahar Zedi Stupa is located at Mahar Zedi Road, Mazin ward, at the west part of Bago City, Lower Myanmar. Bago City was formerly known as Hanthawaddy. It is the capital of the Bago division in Myanmar. It is located about 56 .5 miles (91 kilometres) far from North-East of Yangon. [8]

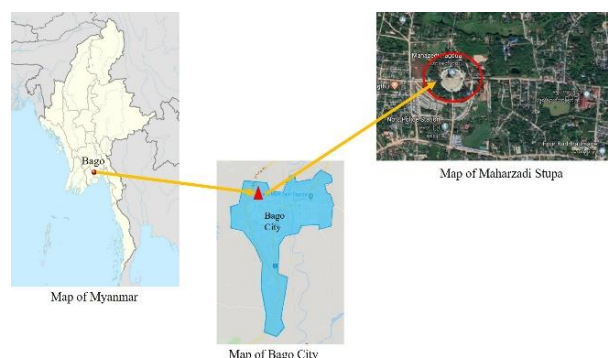


Figure 11. Location of Mahar Zedi Stupa
 Source: <https://www.googlemap.com>

5.2 Background History of Mahar Zedi Stupa



Figure 12. Maharzedi Stupa, Bago City.

Mahar Zedi Stupa was built in 1560 by King Bayint Naung of the Taungoo dynasty. The king ordered to his four Mon ministers and four Myanmar Ministers to lead the construction of the pagoda. It is enshrined with a tooth relic of Buddha Gautama, which is received from Sri Lanka. Other treasures such as more relics, Buddha images, Lord Buddha's sermon, inscribing in gold leaf and silver leaf, and the figures of the king and family members cast in gold and silver were also enshrined. [5]

Through its history, it was damaged by several earthquakes in the Sagaing fault on 13 September 1564, 1583 and 1888. The upper part of the bell was destroyed by 1930 Bago earthquake. Mahar Zedi stupa was rebuilt in 1950 and renovated in several times. The final restoration took place in 1978. It is now 333 feet in height.[5] The pagoda has a big pyramidal-shaped base and a golden stupa on top.

6. ARCHITECTURAL STUDY OF MAHAR ZEDI STUPA

6.1 Site Study

King Bayint Naung allotted 60 acres of land to Maharzadi Stupa stated as 'Wittaka land' around the Stupa. Now a day, the inner enclosure area of the stupa is 630 ft x 650ft, and that is used as the compound of the stupa.

The stupa compound is containing a variety of religious structures and related elements. The site study is carried out by describing elements in the compound, composition of the compound and its orientation and entrances.

1) Elements in the compound

There are several religious elements found in the Maharzadi stupa. They are-

- i. Main stupa
- ii. Auxiliary stupas
- iii. Pillars (Dakhontaing)
- iv. Prayer hall (Aryonkan Tazaung)
- v. Preaching hall (Dhammar Yone)
- vi. Covered walkways (Zaung Dan)
- vii. The Bell
- viii. Bodhi tree
- ix. Well/ lake
- x. Monastery buildings
- xi. Ordination hall (Thein)

Among them, the stupa, pillars, bell, Bodi tree, monastery, ordination hall, and well or lake are essential religious structure in the compound of Myanmar stupa, and they all are located in the east and south side of Mahar Zedi stupa's compound and its enclosure of 60 acres.

2) Composition of compound

The composition of the Mahar Zedi stupa compound is the main stupa centre composition. The Main stupa is placed at the center of the compound and surrounded by secondary form. The 60 number of small auxiliary stupas and four gateway's stupas are surrounded to the main stupa. They all are served as secondary forms to support the main stupa to form a unity with dominant form. The four prayer halls are outwardly attached to the centre stupa in four cardinal directions, which indicate a cross-form arrangement of the axes. The monastery, the ordination hall, the pillars, bell, Bodi tree, and well or lake are located in east, south and south-east parts of the compound. The victory land of king Bayint Naung is located at the north-east part of the compound. Therefore, the critical structure or important religious elements are placed at east, south and south-east parts of the compound.

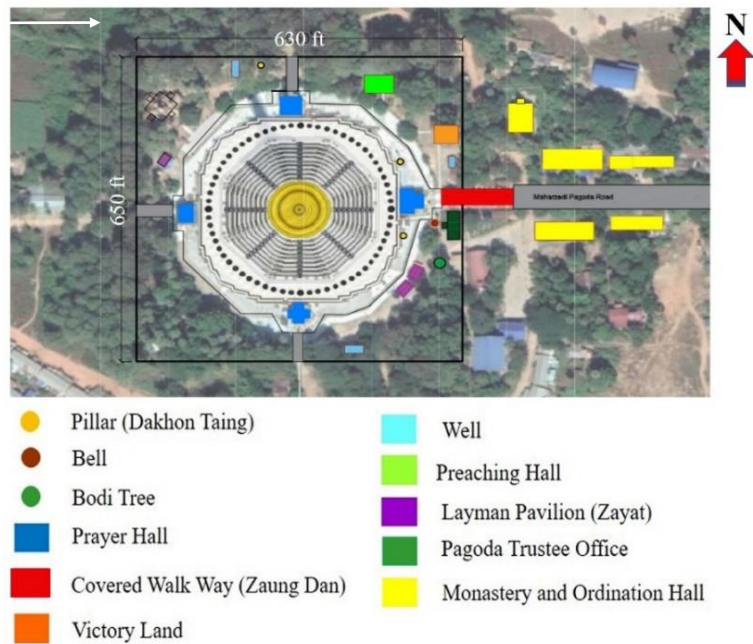


Figure 13. Composition of Compound

3) Orientation and entrances



Figure 14. View to East Gate of Stupa

For religious building, where astrology and superstitions play a big role, and there was some religious faith in the orientation. The main entrance has to face east (or) south direction, and this is one of the factors, consider the designing of religious buildings.[6] The orientation of Mahar Zedi stupa follows this above orientation. The east entrance is stated as the main entrance, and this entrance only has Zaung dan among their four entrances, east, south, north, and west.

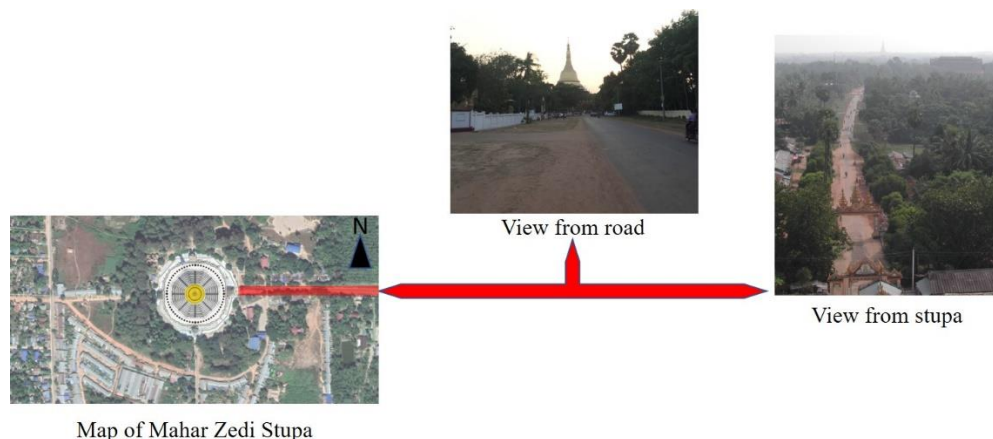


Figure 15. Frontal Approach to Stupa

The main road, Mahar Zedi road, leads to east gate (or) entrance of stupa. The secondary road approach to the south entrance. This approach is formed frontal approach. The frontal approach leads directly to the stupa's entrance by 190 feet along a straight axial path. It can get a visual goal, and symbolical effect to the stupa that terminates this approach is clear to see the stupa.

6.2 Form Composition and Proportion

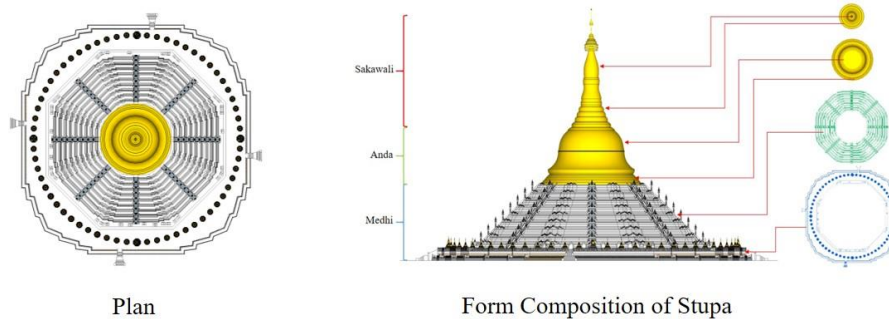


Figure 16. Form Composition of Stupa

The form composition of the main stupa was studied by dividing into three portions; the Medhi portion, the Anda portion, and the Sakawali portion. In Medhi portion, there is three feet height redented square shape plinth with five projections. There are two types of accessible terraces; the first is 13 feet height polygonal terrace, and its shape is the same to the plinth. The second terrace is 81 feet height octagonal shape with three projections. It is composed of nine steep tiers which are nine feet receding at each tier. In Anda portion, there are five circular bell rests, and circular bell-shaped dome with a decorative belt is resting on it. Skawali portion is composed with five numbers of circular shape conical spires, circular shape lotus petals, circular shape elongated banana bud and circular shape long finial umbrella.

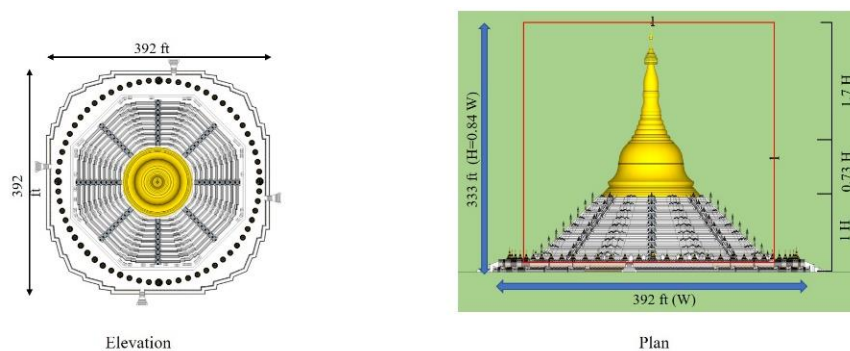


Figure 17. Form Composition of Stupa

In the proportion of Mahar Zedi stupa, the total proportion of width and height is 1: 0.84. The proportion of Medhi: Anda: Sakawali is 1: 0.73: 1.7. Pyramidal shape is formed from the second terraces, and the proportion of its width and height is 1: 1.

6.3 Connectivity

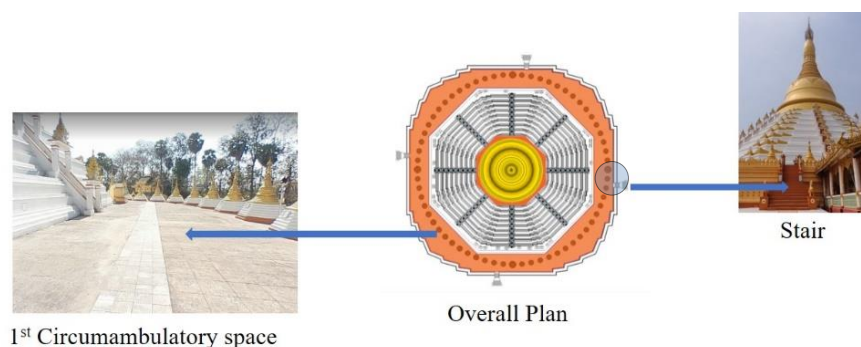


Figure 18. Special Connection of First Circumambulatory path

In the composition of Mahar Zedi stupa, one of the very distinct elements is stairs. There are four numbers of stairs at four sides, which join from the stupa platform to 16 feet height first terrace level. At this level, 35 feet wide first circumambulatory space is created around the stupa. This space is used not only as prayer space but also to go and see around the stupa that visual and spatial continuity is maintained.

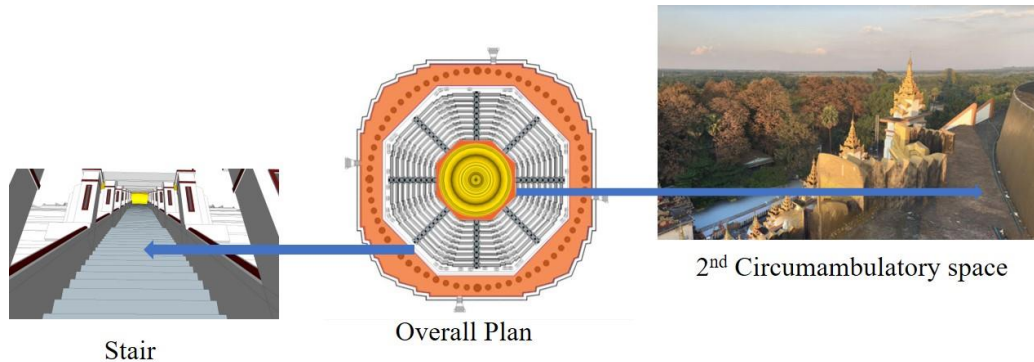


Figure 19. Special Connection of second Circumambulatory path

The second accessible terrace is elevated 97 feet high from the ground that rising tiers creating the second circumambulation path under the base of the bell-edge. The first terrace level and this second terrace level are different in 81 feet and joining by eight numbers of 99 stepped long stairs that penetrate and link the various levels and heighten the pilgrims' perception to the stupa in space. This second circumambulatory space is used as a prayer place to the stupa and give the outward view to the whole Bago city. The user can get visual connectivity and pay obeisance to the famous Shwe Maw Daw pagoda.

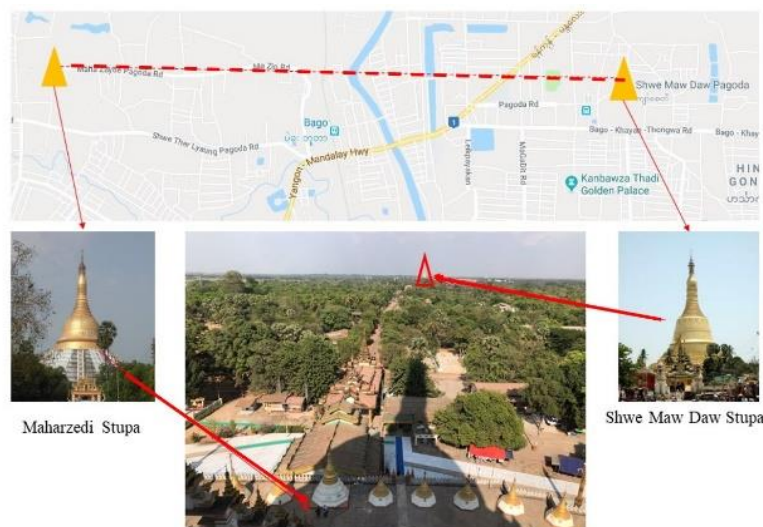
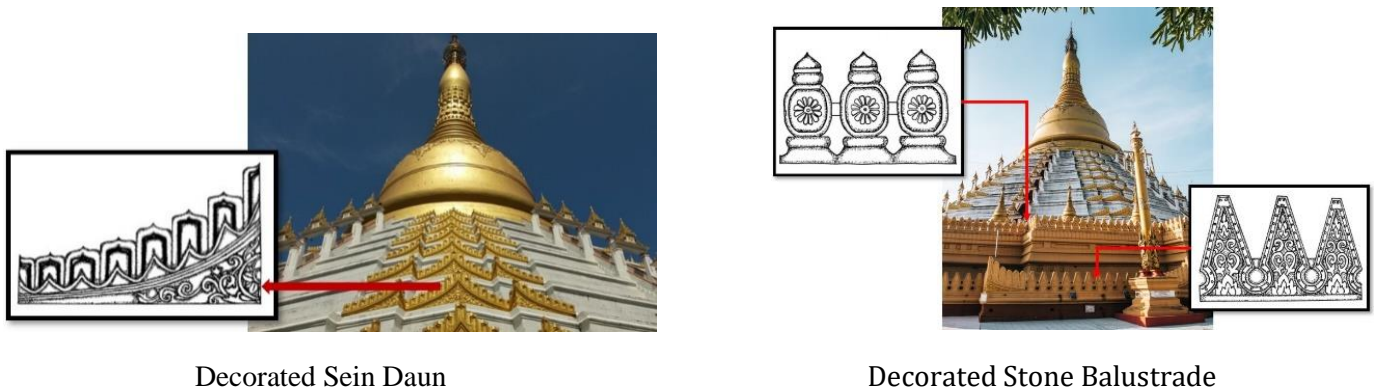
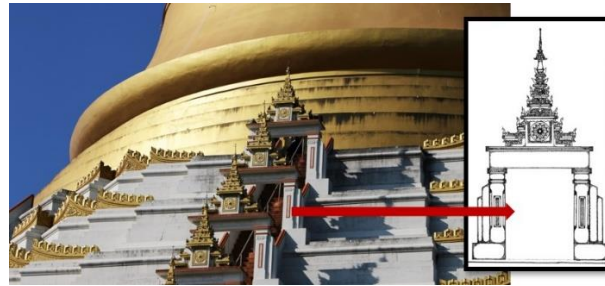


Figure 20. Connectivity to Shwe Maw Daw Pagoda

6.4 Decorative Elements





Porch with Spire Roof

Figure 21. Decorative Elements of Mahar Zedi Stupa.

(Source: Measure Drawings, TU (Hmawbi))

The stupa is decorated with Sein Daun, placed at projecting corners of the nine tiers of the second terrace. Each Sein Daun is decorated with floral arabesque, and two-layered lotus petals are decorated in the upper portion. On the stairway of the second terrace, there are nine numbers of porches with spire roof which decorated with Myanmar Motif, Sulat Mon Chon, which is fixed with the shape of Damase' Kja, the symbol of the Buddha's teaching. The circumference of first terrace and plinth are decorated with stone balustrades.

7. DISCUSSION AND CONCLUSION:

Mahar Zedi stupa was one of the significant stupas in Bago city. This stupa represented Datu Cedi, Dama Cedi, and Paribawga Cedi because of its enshrining types of the relic. The stupa had a stable concentrated composition of centralized organization, formed by 64 numbers of the auxiliary stupa and four prayer hall grouped around a large dominant central stupa. The approach to the stupa was the frontal approach and it led directly to the stupa's east entrance along a straight axial main road. It got the clear distant view.

The form composition of the stupa based on its plan are composed with a redented square shape in the plinth and first terrace, octagonal shape with three projections in nine tiers of the second terrace and circular shape Anda and Sakawali parts. Receding octagonal shape terraces are transitional shape between redented square shape base and circular bell shape. The tiers of the terrace, bell rest and conical spire are used an odd number between three to nine. The overall proportion of width and height of stupa is (1: 0.84) because of the wide base plinth. The proportion of stupa's width and height at the base of the second terrace is 1:1 and this proportion is the same as Shwe Dagon Stupa's proportion. This proportion gives horizontal and vertical operating together introduce the principle of balanced opposition of tension. The vertical expresses a force which is the primary significance of gravitational pull and the horizontal contributes a first sensation of a supporting flatness. This two together give a deeply satisfying resolved feeling because they symbolize the human experience of the absolute balance of standing erect on plinth level.

The rhythmic formation of the Sein Daun decoration and 45-degree slope inclination of the stairway with decorated porch introduces powerful directional impulses and give a dynamism on the body of the stupa.

The Mahar Zedi stupa is terrace stupa, the bell-shaped dome is diminished, and the bell and the terrace ratio is (1:0.73) the style of the stupa is developed based on Bagan stupa of a simple square base to multi-tiered step pyramid with octagonal based plan shape. The accessible receding terraces are rising towards a central bell shape stupa by eight numbers of long decorative stairs which represent a late variation of the theme of Mount Meru and they give the visual rhythms of diagonal direction. All of the above findings are one of the style and the architecture of Myanmar stupa, especially in Mahar Zedi stupa.

8. RECOMMENDATIONS:

In this research paper, the study includes form composition, proportion and spacial connecting spaces of the selected stupa. The architecture of this study is perceived not only as cultural symbol but also as the beauty of the composition. Therefore, it is recommended that the balancing proportion of 1:1 and the dynamical and harmonious composition should be considered to use in the designing of Myanmar stupa. Besides this, it is also recommended that the explicit document and report on Mahar Zedi Stupa of Bago city can be used as record and reference for further studies and application.

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