

The Tower, Turret and Cupola Design of English Victorian Buildings in George Town, Penang

Chai Siaw Nee¹, Chai Yung In², Chua Xiu Qi³ & Mohd Jaki Mamat⁴
^{1,2,3&4} School of Housing, Building and Planning, Universiti Sains Malaysia
Corresponding Author: Mohd Jaki Mamat

ABSTRACT: During the late 18th Century, the establishment of George Town, Penang, as a port city by Captain Francis Light, transformed the landscape of this island from a small traditional fishing village to a colonial settlement. English Victorian was one of the architectural styles that was introduced during the British colonial era. Towers, turrets and cupolas are some of the key elements which are prominent in the aesthetics of Victorian buildings. Penang has retained these unique looks of the island's Victorian buildings due to preservation efforts on such heritage assets. The research here, hence, aims to study the tower, turret and cupola of Victorian buildings in the island city. From information gathered through careful observation, analysis and research, the tower and turret are the most salient features of the era's buildings of George Town.

KEYWORDS: English Victorian Building, George Town, Tower, Turret & Cupola.

Date of Submission: 02-04-2022

Date of Acceptance: 16-04-2022

I. INTRODUCTION

Victorian architecture is an ornate architectural style that appeared during Queen Victoria's reign from mid to late 19th Century (1837–1901) (Aurora Historical Society, 1973). It was influenced by three main factors, namely, (i) changing demands which introduced new types of buildings for novel emerging activities, (ii) rapidly developing technology in materials and techniques, and (iii) historicism (Simon, 2012). Industrialisation brought new building materials such as cast iron, steel, glass, terracotta, etc. and elevated Victorian architecture to a whole new level (Hohenadel, 2020). In the late 19th Century, the iron building with swiftly manufactured prefabricated architectural elements like facades, columns, decorations which were easily transported to various places for assembling, resulted in the emergence of large-scale ornamented buildings (Brooks, 1987). It reflected the prosperity of the upper-class with luxurious and ostentatious details during the period (Master class, 2021).

Victorian architecture embraced eclecticism which included features from the Greek, Gothic, Italian, Queen Anne, Second Empire, Neoclassical, etc. styles (George, 2021). The three main characteristics were (1) ornamentation, (2) colourful exterior, and (3) a complicated structure (Master Class, 2021). The polygonal or circular turret and tower associated with verticality to draw human attention upwards are probably the most prominent architectural traits of Victorian buildings. The capability to produce magnificent towers and turrets is greatly owed to the technology and new materials introduced during the Industrial Revolution and its historicism (Crinson, 2013).

George Town, Penang, founded by Sir Francis Light in 1786, was named after King George III, the reigning monarch of England then. Due to its strategic location the island served as a British trading centre in Southeast Asia (Ahmad, 2012). Samita Gupta (1988) states that the architecture produced by the English in its colonies quite faithfully reflected the various stylistic revivals that followed each other in Victorian England. The Neoclassical, Neo-Greek and Neo-Gothic styles were all represented in the different public buildings put up by the government, and this phenomenon occurred in George Town as well. These buildings displayed design characteristics similar or probably identical to that of contemporary design in homeland England which is the Victorian style during that era to convey the spirit of British imperialism (Smith, 1867). The elements such as towers, turrets and cupolas are the dominant features of the Victorian period (O'Neal, 2009). The presence of lofty towers and turrets also mirrored the Victorian preference for the ornate and elaborate, emblematic of their desire for display of new wealth and social status of a significant epoch (Heinly, 2015).

This paper will study the features of the tower, turret and cupola of the English Victorian buildings in George Town, and its research is conducted through qualitative approach. Existing data from the internet and publications are used as theoretical evidence to substantiate statements and provide a fundamental understanding of Victorian architectural elements and styles. Observations during site visits provide evidence and a closer look at the prominent features of sample buildings. Based on purposive sampling, eight Victorian buildings in George Town were selected for data collection, namely, the Royal Malaysian Customs, City Hall, Beach Street Fire

Station, High Court Building, St Xavier's Institution, HSBC Bank, Bank of China, and Woodville Mansion. The study revealed that many of the colonial buildings rich in Victorian style are no longer in existence or had been renovated to a simpler design. This was due to complexities in maintenance and the devastation suffered during World War II. Thus, more efforts are critically required to identify and analyse the vital remaining Victorian features of buildings in George Town

II. LITERATURE REVIEW

Tower, Turret and Cupola

The dominant characteristics of Victorian architecture are towers and turrets known for their ornamentations (O'Neal, 2009). They are the "architectural show-stealers" capturing people's attention in the vicinity before other things of interest are noticed (Dillon, N.D). Based on A Dictionary of Architecture and Landscape Architecture, tower means 'any type of high-rise structure on a floor plan, in proportion to its lateral dimensions, usually rising in stages, freestanding or part of the building, used for fortifications, as a reference point in the landscape' (Stevens Curl, 1999). Towers are essential for churches and cathedrals built during the Romanesque and Gothic periods. Gothic church towers are designed with spires or flat roofs (Britannica, N.D). In the Towers in History – Icons of England, both tower and turret are iconic symbols of devotion, national pride, victory in war, and have also served as watchtowers, lighthouses, strongholds, and temples during that time.

In the Victorian days, towers were typical in cathedrals, often associated with height and verticality (Brooks,1987). This was due to devout religious sentiments and the tendency to gaze upwards for spiritual guidance and were often symbolised by a real physical movement in the building lines (Freeman,1846). The lofty nave and choir (with the still loftier towers), crowned by clusters of pinnacles and spires, all directed celestially, became beautiful emblems of the Christian's brightest hope (Pugin, 1841). Hence, towers were believed to be the religious feature which nurtured devotion and divine sublimation.

According to A Dictionary of Architecture and Landscape Architecture, a turret refers to 'a small tower from part of a larger structure, especially a rounded addition to the angle of a building, sometimes starting from a corbel at a certain height from the ground, often containing a spiral staircase' (Stevens, 1999). A turret always came in round or other polygonal shapes and could be topped with a spire. It will rise above the roof level or cantilever out from an upper storey (Regan, 2012). Technology at that juncture limited the turret's size then because it increased the stress on the roof. Hence, the turret is often supported by masonry corbels near its widened top (Craven, 2019). Owing to most of them having curved walls, the turrets incorporated curved pieces of wood in their construction (Turrets in Architecture: Definition, Design & Construction, 2017). The roof can be conical, dome-like, or even have a mansard style (Zimmerbaum, 2022).

In the old days, the turret and tower both served as defensive positions for the castle, observing enemies coming from afar and providing a strategic location to launch fire at enemies and attackers (Regan, 2012). The curved walls and small, slit-like windows of the turret allowed people inside to an almost all-round view of the outside and discharge arrows at the enemy on the ground. Stone is the primary material for the earliest turrets on castles and military forts. However, the need for defensive turrets declined when guns and cannons were later introduced (Turrets in Architecture, 2017).

Many church towers were used as bell towers and housed clocks in municipal buildings (Kuiper, 2007). Meanwhile, turret clocks were commonly found in churches, monasteries, palaces, and workplaces. When factories emerged in the early 19th Century during the Industrial Revolution, turret clocks reappeared on buildings to mark the commencement and cessation of working hours for the people. The church clock regulated the affairs of people for their necessary tasks. There was a low door at the bottom of the tower inside of which wound a stone spiral staircase upwards leading to the bell-ringing room and clock room (McKay, 1998).

Although originating from England, the Queen Anne style from the Victorian era was popular among the Americans. Victorian buildings furnished with highly ornate features were identities of wealth and status (Tippett, 2015), and the more affluent flaunted theirs by building houses that were large, ostentatious and resembling small castles. A tower or turret is essential to the design as it gives the image of a mediaeval castle (Zimmerbaum, 2022), thereby rendering a royal ambience to its residents and their visitors (Turrets in Architecture: Definition, Design & Construction, 2017).

Ventilation is crucial in public buildings and is vitally incorporated to provide both sanitation and aesthetic values. As such, the ventilating turret on the roof facilitated air-circulation besides enhancing the roof appearance (Richardson, 1895). Schools designed by Chamberlain from the 1870s to 1880s had the ventilating turret placed over the staircase which effectively dissipated stale air from the building. The roof of the stairs was heightened to form an air chamber within. Externally the tower that developed from this design was picturesque and a heartening sight amidst the bland and often unsightly 19th Century Street that housed other dwellings (Brooks, 1987).

According to A Dictionary of Architecture and Landscape Architecture, a cupola means ‘a bowl-shaped vault on a circular, elliptical or polygonal plan’. Cupola (Picture 3) also means a small turret-like structure projecting above a building’s roof (Craven, 2018). A cupola (not developed in or truncated by a flat ceiling) is the whole of a chamber with a domed ceiling (Osborne, 2004). Cupolas can be built on the dome or larger roof structures and they define the centreline of buildings. They are separate from the roof structure and can be removed or exchanged without replacing the whole structure (Craven, 2018). This structure has origins in Roman and Greek architecture (A. Leverkus, 2022).

The purposes of having a cupola during the period were to provide natural lighting, good ventilation, and an uninterrupted view, although at that time they were more for aesthetic reasons. There are a few forms of cupolas: round, square, or polygonal (Craven, 2018). The cupola with wooden louvres is one which promotes passive-cooling ventilation. A square cupola is usually placed centrally above the roof structure in Italianate architecture (Douglas, 2018).

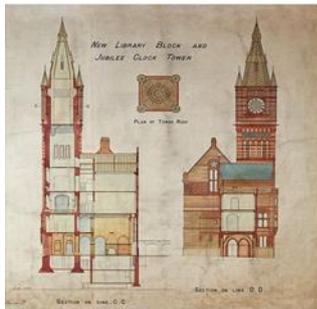


Figure 1: Jubilee Clock Tower

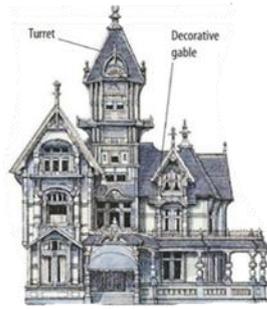


Figure 2: Queen Anne style turret

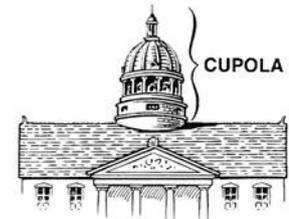


Figure 3: Example of a cupola

III. DISCUSSION

Table 1 shows the dominant features (tower, turret and cupola) of Victorian buildings in George Town, Penang. The characteristics of the tower, turret and cupola reflect the Victorian architecture influence of the colonial period.

Building and Location	Visual	Characteristics
<p>St Xavier's Institution* (1852), Farquhar Street</p>	 <p><i>Visual 1: Facade of St Xavier's Institution before WWII</i></p>  <p><i>Visual 2: Building's turrets with Christian influence</i></p>	<p>Turret The palatial facade had three turrets. The central turret is fronted by a clock tower with a cross on top. The other two turrets have an arched opening with two louvred shafts by their sides. Second Empire style turret with mansard roof.</p>

<p>HSBC Bank* (1884) 1 Downing Street (junction of Downing Street and Beach Street)</p>	 <p><i>Visual 3: The original appearance of HSBC building (left), destroyed in World War II and replaced with a new structure (right) in 1948 in Art Deco style</i></p>	<p>Turret A prominent domed turret on a three-storey building (highest building in the city).</p> <p>Cupola Circular and resting on the turret. Have openings in each direction.</p>
<p>City Hall (1897) Esplanade Road</p>	 <p><i>Visual 4: View of cupola and exterior of City Hall</i></p>	<p>Cupola Octagonal-sided with louvre windows on each side. Cupola is located at the centre of the rooftop building. Topped with a small dome.</p>
<p>High Court Building (1905) Junction of Light Street and Pitt Street (now Jalan Masjid Kapitan Keling)</p>	 <p><i>Visual 5: Exterior View of High Court Building (old and existing)</i></p>	<p>Turret Four turrets connect with the core three-storey building on the roof level. Square turrets with small windows at each side with the balustraded sills.</p> <p>Cupola Octagonal cupolas are built on top of each turret. Small openings at all sides. Another octagonal cupola is built at the back of the building.</p>
<p>Bank of China (1905) 9 Beach Street</p>	 <p><i>Visual 6: The building shown in the old picture has a domed turret</i></p>  <p><i>Visual 7: Current Bank of China building with a square turret</i></p>	<p>Turret Square turret is topped on the second floor of the building. Bracketed cornices, located at the meeting point between walls and roof, are mostly found on the exteriors of Victorian houses. Topped with a flat top mansard roof, a symbol of Second Empire architecture.</p>

<p>Royal Malaysian Customs (1907) China Street Ghaut</p>	 <p><i>Visual 8: Victorian Italianate style clock tower of Royal Malaysian Customs building</i></p>	<p>Tower A dome roof caps the clock tower with a square base divided into three tiers. Top tier: circular clock with dial faces on all four sides. Double pilasters on pedestals at each corner. Middle tier: has two arches on all sides. Double pilasters on pedestals at each corner. Lower tier: possessing greatest height, has banded corners on each side with four loopholes.</p>
<p>Central Fire Station (1908) Crossroad of Beach Street and Chulia Street</p>	 <p><i>Visual 9: Two-storey Central Fire Station in 1908.</i></p>  <p><i>Visual 10: Current three-storey Central Fire Station with tower At the back corner</i></p>  <p><i>Visual 11: Front view of square turret topped with cupola</i></p>	<p>Tower Three-storey and topped with a square turret located at the back corner of the building.</p> <p>Turret Square shape with two arched double-leaf glass windows on all sides. Each window sits on balustraded sills.</p> <p>Cupola Two-tiered Moorish dome, a typical design during the Renaissance period in Europe.</p>
<p>Woodville Mansion (1925) Northam Road</p>	 <p><i>Visual 12: Perspective view of Woodville Mansion with octagonal corner tower</i></p>	<p>Tower Three-storey grand tower topped with cupola. An octagonal corner tower with large windows connected to the building is typical of a Queen Anne house style. Circular roof windows are installed on the roof to allow natural lighting.</p> <p>Cupola Circular cupola capped with a small dome roof on the tower.</p>

Table 1: Victorian buildings in George Town, Penang

*Destroyed or dismantled

St Xavier's Institution, Farquhar Street: As St Xavier's Institution was an educational centre the central turret clock was all-important to regulate the affairs of students and teachers and kept time for the whole school. However, due to the modern-day easy access to accurate time-telling, the turret clock is now preserved for aesthetic purposes. The institution was originally a small mission school attached to the Catholic church; its Christian influence reflected by a cross on the turret. Verticality embraced by the church design for spirituality, lifted people's gaze towards the heavens. The other two turrets at the sides with arched openings and louvred

windows introduced natural light and improved ventilation. Contributions from wealthy principal donors enabled the edifice to be highly ornamented and incorporated an impressive turret.

HSBC Bank, Downing Street: Both the domed turret and small cupola on top had openings to introduce natural lighting into the space and improve the ventilation of the building. Air within could be dissipated out while fresh air wafted in. As the bank was once the tallest building in George Town, the splendid domed turret was an extravagant display of the owner's wealth and impressed the local community. The grand roof crested by a domed turret boosted a regal image and purportedly made its occupants within felt likewise.

City Hall, Esplanade Road: City Hall is designed with Victorian-style architecture in a symmetrical layout plan. There is a cupola, located at the back of the central pediment, defining the centreline of the rooftop building and is octagonal with a small dome-shaped roof. This building is influenced by Renaissance architecture which focuses on bringing in air and light. It is believed that the louvred wood windows on the cupola functioned to regulate airflow and facilitated light penetration to the interior of the building. The cupola, a distinguishable trait, enhanced the Victorian style and was a primary feature in many British colonial architectures.

High Court Building, Light Street: The prominent features of the High Court building are the square turrets topped with cupolas, slightly regressed to sides of the portico. A set of pointed turrets is located in the front of the building, alluding to Renaissance style as well as the revival of Greek and Roman architecture. In 1905 this was the Supreme Court. The cupolas are aesthetic in nature and much admired by onlookers. Another cupola at the back of the building infused the interior with natural light and aided ventilation. The aforementioned features afforded the charm of Victorian-era style in the local landscape.

Bank of China, Beach Street: In neoclassic style, the Bank of China building was fully completed in 1905. During World War II the domed turret was destroyed, eventually to be replaced with a squarish-shaped one in 1948. In the past, this building housed the Netherlands Trading Society (NTS) which was involved with the promotion and development of trade, shipping, and agriculture. The domed turret purportedly was a tacit presence indicative of an international company. The present square turret of the building boasts of aesthetics clearly visible along Beach Street today.

Royal Malaysian Customs, China Street: Ghaut: Built in 1907 for the Malayan Railways, this three-storey building with neoclassical influences is now the current headquarters of the Royal Malaysian Customs in Penang. The clock tower being the main feature of this building is also typical of Victorian architecture. In the past, for seafarers and wayfarers alike, the clock tower became a prominent site to mark time for vessels at port and people on land. Today, it has become a much-admired feature and focus of George Town.

Central Fire Station, crossroad of Beach Street and Chulia Street: The tower was designed in Italianate style with a balanced, symmetrical rectangular shape, flat roof, and a lofty appearance with three storeys. Italianate tower structures can be built from various materials and are more economical for construction. Thus, its style may have been adopted due to its practicality and adaptability to the local-site context. As the tower was high and narrow, the turret with windows on all sides on top could allow sunlight to enter the tower and promote ventilation inside. The turret also serves as a small observation deck for the fire station to view the whole city unobstructively.

Woodville Mansion, Northam Road: Woodville Mansion is an elegant edifice located on Northam Road in George Town. Although abandoned today, the mansion has lost none of its grandiose, and the magnificent tower never fails to capture the passers-by attention. The corner tower, a prominent feature, is commonly found in the Queen Anne style of Victorian architecture. The cupola, which magnificently enhances the building in character and style, was also raised for extra height and believed to be a contributory factor to the mansion's increased values, both property and aesthetic. As a later inclusion into the design, the octagonal tower with a cupola was added. It was believed this overall bespoke succinctly of wealth and status within the community.

IV. FINDINGS

Based on the analysis, the tower, turret and cupola of buildings in George Town are found to have a significant relationship with Victorian architecture. It blended well with the local landscape in the city. From Table 1, some Victorian buildings with towers, turrets and cupolas have disappeared or have been demolished. Some of the buildings are maintained well until today. Penang, being a former British Straits Settlement and its first capital, give proof that Victorian-style architecture had a very substantial influence on George Town. It introduced an essential cultural aesthetic value to the local architecture. Adaptation of the Victorian style in

George Town are mainly found in commercial buildings, administration offices, and upmarket or posh real estate. The construction of towers, turrets, and cupolas were based on the buildings' function and demand, the clock tower of St Xavier's Institution and the opulent one of Woodville Mansion being classic examples.

V. CONCLUSION

The study found that the historical background greatly influenced the formation of colonial buildings celebrating eclecticism in George Town, Penang. Victorian buildings erected during the pertinent colonisation period represented their cultural roots and brought forth an innate and genteel link between the British and the place. Structure features like the tower and turret have been found to be the most prominent style of Victorian buildings in George Town. Over time, these became synonymous with status and edged above practical purposes. Hopefully, the findings here observed of Victorian architecture in George Town buildings will complement and bolster conservation work in the future because such places stand as dignified and majestic testaments of an illustrious bygone age. Further research can be conducted to advance architectural heritage and building conservation by integrating variables important to the current study contexts such as climate, materials, construction skills and technology, and building functions.

ACKNOWLEDGEMENT

This study expresses its deepest gratitude to the guidance of lecturers under the course of RDG334 Theory and History of Design conducted in the Year 3 Interior Architecture programme in Universiti Sains Malaysia, as well as to other parties that have significantly contributed to its research

REFERENCES

- [1]. Brooks, M.W. (1987). *John Ruskin and Victorian Architecture*. Rutgers, The State University.
- [2]. Cardiff University. (N.D). *Ventilating Turrets*. Retrieved from: <https://carnegielibrariesofbritain.com/typical-features-2/exterior-features/ventilating-turrets/>
- [3]. Cheah, J. S. (2012). *Penang 500 Early Postcards*. Editions Didier Millet.
- [4]. Hassan, A. S., & Yahaya, S. R. C. (2012). *Architecture and Heritage Buildings in George Town, Penang*. Penerbit Usm.
- [5]. Heinley, R.E. (2015). *Victorian Cape May*. The History Press.
- [6]. Hohenadel, K. (2020). *What Is Italianate Architecture?* Retrieved Sep 23, 2020, from <https://www.thespruce.com/italianate-architecture-4846180>
- [7]. Jackie Craven. (2018). *All About Cupolas*. Thought Co. Retrieved from <https://www.thoughtco.com/cupola-gallery-of-ideas-for-home-177657>
- [8]. Langdon, M. (2015). *A Guide to George Town's Historic Commercial and Civic Precincts*. George Town's Historic Commercial and Civic Precincts. Retrieved from: <https://gtwhi.com.my/>
- [9]. Leo, S. (2012). *The ABC of Harmony: for World Peace, Harmonious Civilization and Tetranet Thinking*. Global Harmony Association and IASE University.
- [10]. Long, Z., Hanafi, Z., & Wong, H.W. (2018). *The Townscape Evolution of Historic Port Settlement of George Town, Penang, Malaysia*. Retrieved from: https://frsb.upm.edu.my/upload/dokumen/20181224115748artikel_09.pdf
- [11]. Mark Crinson (2013), *Empire Building - Orientalism and Victorian Architecture*, Routledge, London, ISBN 9781315004839.
- [12]. Massey, J.C. & Maxwell, S. (2008). *The Mansard Roof and Second Empire Style* <https://www.oldhouseonline.com/house-tours/the-mania-for-mansard-roofs/>
- [13]. McKay, C. (2007). *The Turret Clock Keeper's Handbook*. East Sussex: Antiquarian Horological Society
- [14]. O'Neal, B. (2009). *Images of America: Carthage*. Arcadia Publishing.
- [15]. Osborne, R.A.L. (2004). *The Troubles with Cupolas*. Speleogenesis. Retrieved from
- [16]. Oxford University Press. Retrieved from: <https://www.oxfordreference.com>
- [17]. Pennsylvania Architectural Field Guide. (2015). *Gothic Revival Style 1830 - 1860*. Retrieved August 26, 2015, from <http://www.phmc.state.pa.us/portal/communities/architecture/styles/gothic-revival.html>
- [18]. Stephanie, P. (2017). *Queen Anne Architecture: Characteristics & Style*. Retrieved from <https://study.com/academy/lesson/queen-anne-architecture-characteristics-style.html>.
- [19]. Stevens Curl, J. (1999). *A Dictionary of Architecture and Landscape Architecture* (2 ed.).
- [20]. Thurley, S. (2012). *On Top of The World*. Retrieved from: <https://www.gresham.ac.uk/lectures-and-events/on-top-of-the-world-1830-to-1914>
- [21]. TMS Architects. (2014). *Topping It off With Turrets*. Retrieved from: <https://www.tmsarchitects.com/>
- [22]. Trattner, D. (N.D.). *Italianate Architecture*. Retrieved from: <https://www.hgtv.com/design/decorating/design-101/italianate-architecture>
- [23]. *Turrets in Architecture: Definition, Design & Construction*. (2017). Retrieved from <https://study.com/academy/lesson/turrets-in-architecture-definition-design-construction.html>.
- [24]. Wentworth. *Second Empire/Mansard Style (1855-1885)*. Retrieved from: <https://www.wentworthstudio.com/historic-styles/second-empire/>
- [25]. Zimmerbaum, H. (2022). *Turrets in Architecture*. Retrieved from: <https://study.com/learn/lesson/turrets-in-architecture.html>

Chai Siaw Nee, et. al. "The Tower, Turret and Cupola Design of English Victorian Buildings in George Town, Penang." *International Journal of Humanities and Social Science Invention (IJHSSI)*, vol. 11(04), 2022, pp 51-57. Journal DOI- 10.35629/7722