Cultural Heritage and Sustainability, Galle as case study

the Galle Fort Inn (fill) Hotel

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Introduction

The historic centre of Galle, situated on the southwest coast of Sri Lanka is a fortified city, best known as the Galle Fort. (image 1) The Galle Fort is inscribed on the UNESCO’s World Heritage List for being “the best example of a fortified city built by Europeans in the south and southeast of Asia”.

The fortifications on the land side of the peninsula were initially built by the Portuguese, but when the Dutch (V.O.C.) took over the power, the fortifications were built around the whole peninsula. The current urban structure dates mainly from that time.

For my graduation project in the studio ‘Cultural Heritage and Sustainability’, my fellow student René Fuhrren and I stayed in the Galle Fort for three months. This graduation studio contains two parts, first of all a research part, which is part of a bigger research program called: ‘Outstanding Universal Value, World Heritage cities and Sustainability’, lead by Ana Pereira Roders (Eindhoven University of Technology) and Ron van Oers (UNESCO World Heritage Centre). The results of the research are publicized in ‘Cultural Heritage and Sustainability, the old town of Galle and its fortifications as case study (Boxem and Fuhren, 2011)

The results from this research have been the fundament for the second and individual part of the graduation project, in which I made a design for a hotel in the Galle Fort. The design and the process of this second part will be shown in this little booklet.
image 1. the Galle Fort
motives

research
‘Dutch Typology’
climate

The design part of this graduation studio started with writing your own design assignment. The ultimate goal of the design was to contribute to the sustainable development of the historic centre of the Galle.

In the research part conclusions and recommendations were made regarding sustainable development of the Galle Fort. These conclusions and recommendations have been the most important base for my design assignment.

Furthermore the analysis on the ‘Dutch typology’ have been very important motives for my design, as well as the hot and humid climate of the Srilankan southwest coast.
As mentioned before, Galle Fort was a case study in the graduation studio ‘Cultural Heritage and Sustainability’. In the research part, we focussed on two things, being the cultural heritage of the Galle Fort on the one side and the sustainable development of the Fort on the other side. The main research question shows this two-sided focus:

“How can the historic centre of Galle develop sustainably, without damaging its Outstanding Universal Value?”

A definition of sustainable development of (World) Heritage cities is therefore indispensable:

World Heritage properties are developing sustainably whenever developments prove to meet the social, economic and ecological needs of the present generations, “without compromising the ability of future generations to meet their own needs” (Brundtland, 1987) nor “adversely impact the Outstanding Universal Value, integrity and/or authenticity of the property” (UNESCO, 2008).

A short explanation of above mentioned terms is given now, for a better understanding of this ‘UNESCO terminology’, which are essential for both the research and design part.
outstanding universal value (OUV)

“Cultural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity”.

attributes

The OUV of a World Heritage property is expressed through a variety of attributes. These attributes “are a direct tangible expression of the outstanding universal value of a property” and these attributes “may include the relationships between physical elements, essence, meaning and at times related processes, that need to be protected and managed in order to sustain the OUV”. The presence of these attributes expressing OUV is in itself not enough for a property to be listed as World Heritage. Additionally, one has to assure that the test of authenticity and integrity, as well as the implementation of an adequate protection and management system to ensure its safeguarding has been met.

authenticity and integrity

The demand of attributes being ‘authentic’ can be understood as the requirement to be genuine, i.e. the WH property should be truly what is claimed to be. “‘Integrity’ is a measure of the wholeness, completeness and intactness of the cultural heritage and its attributes”.
**protection and management**

“Protection and management of World Heritage properties should ensure that the OUV, the conditions of integrity and/or authenticity at the time of inscription are maintained or enhanced in the future”. “All properties inscribed on the World Heritage List must have adequate long-term legislative, regulatory, institutional and/or traditional protection and management to ensure their safeguarding”.

**sustainable development**

So to be sustainable, my design should not damage the attributes that express the OUV and should not have a negative impact on the authenticity and integrity of the Galle Fort. At the same time my design should meet the needs of the inhabitants of the fort.

First of all this means that my building fits in its historical context, being the Galle Fort. To do no harm, to, but even enhance the OUV of this property, I took the (aesthetical) attributes, identified in the research part of this graduation project as a starting point. (Boxem & Fuhren, 2001, appendix VI)

Many of these aesthetical attributes can be found on the houses of the ‘Dutch typology’. These houses are predominant in the streetscapes of the fort and unique in their presence. This typology has been my architectural reference and the analysis of some typical ‘Dutch houses’ will follow further on.
Secondly, my building will not harm any existing building, in order to not diminish the authenticity and integrity of the fort. Therefore my building will be on one of the 23 empty plots of land within the fort.
In the above mentioned research these empty plots were identified as an important threat to the OUV. Even more empty plots are expected to occur because of the low conservation standards, sometimes resulting in the collapse of the deteriorated building.

This problem will only grow bigger because no new infill developments are allowed currently in the fort. This was firmly stated by the Chairman of the Galle Heritage Foundation (one of the responsible institutions concerning the management and planning in the fort).

Since an empty plot will not express OUV in the Galle fort, I will take one of the 23 empty plots to fill this in with my building. By doing so, I want to show the responsible institutions in the Galle Fort, that new infill developments can enhance a historical environment, provided that the spirit of the place is taken into account well.

Last but not least, the building should fit within the sustainable development of the Galle Fort. The people are an important part of the fort and its heritage, so it has to meet the social, economical and ecological needs of the people living and working inside the fort.

For this reason by building will be a (middle class) hotel. In the Development Plan for the Galle Urban Development Area - 2008-2025 -document from the Urban Development Authority the Galle Fort is attributed a huge tourism potential. Tourism is an important part of the economy of the Srilankan southwest coast. This
has even grown bigger after the end of the civil war in 2009. In the Galle fort, there are several hotels, guest houses and guest villas. But there is a big gap in prices of these tourist accommodations. Most hotels and guest villas are quite expensive, while most guesthouses are very cheap. In between there is little choice.

By building a middle class hotel, the need for affordable and quality accommodation for the growing amount of tourists in Galle, will be answered.

When more tourist come to Galle, and stay overnights within the fort, it means that they will spent more money in the fort; they’ll eat inside the fort and will go to (tourist)shops within the fort. All this will result in more jobs and subsequently more money for the people living in the fort.

If the 23 empty plots in the fort will be filled in with functions related to tourism, Galle will take double advantage. Firstly, as said before, more jobs and money will be available for the locals. (also resulting an higher conservation standards of the private houses)

Secondly old buildings in the fort will be spared from alterations, resulting in no negative impact on authenticity and integrity of those buildings.

Sustainable development further means making a building in a ecological good way.

The climate in Galle is very hot and humid. Airconditioning is being
used in Sri Lanka on a large scale nowadays. This obviously is not sustainable at all, so my buildings will use smart solutions to make a comfortable environment, without using electrical airconditioning. These solutions will be explained further on.

‘Dutch typology’

One of the identified threats in the research part of this graduation project are the ‘new’ buildings unsympathetic towards the historic identity of the fort. “The scale, the proportions, the settings and the colors, solid to void relationships are not compatible with the heritage values in the area”.

I think, especially in a delicate historical setting like the Galle Fort, it is extremely important for new buildings to fit in its environment. Galle was inscribed on the World Heritage List for “providing an outstanding example of an urban ensemble which illustrates the interaction of European architecture and South Asian traditions from the 16th to the 19th centuries”.

To preserve this historical urban ensemble, new buildings should fit in, secure and even strengthen the spirit of the place.

Many of the ‘old’ buildings in the fort are of the so-called ‘Dutch houses’. This does not mean that these houses are very much like buildings from the Netherlands at that time, but they were given this name since they were built during the Dutch occupation.
This ‘Dutch typology’ is a special and unique style, with multiple important features. Many of these features are being mentioned in the policy and management documents, analyzed in the research part of this project. Other features came to light after elaborate analysis of this typology. The most important features will be shown in the following.

In the publication ‘Ancient Ceylon no. 15: The conservation of the Galle Fort and its environs’ (1992) besides a conservation plan, an elaborate description of the ‘Dutch typology’ is given. With this document as basis, I analyzed the typology. I will start by describing the sequence of rooms and spaces and giving examples of our spatial analysis of houses which match in terms of width with my new buildings.

The Dutch houses, lying directly at the street, have an overhanging roof, sloping towards the ridge, which is parallel to the street. The wide overhang creates an open verandah, (green) supported by wooden or masonry columns, or by arches. The verandah is one of the most important features in the streetscapes of the fort.

The houses are all single storied at the street side, and often have an additional floor in the back. The roof is made of red clay tiles.

Behind the verandah and through the (central) access door, one can find the ‘kleine zaal’ or little hall. (orange) This room is flanked by one or two rooms.

Subsequently there is the great hall, or ‘groote zaal’, (yellow) which often
runs through the whole width of the house. Only in the larger buildings, (width is more then 13 metres) a servants passage (red) occur at one side of the building, running from the verandah at street side to the back verandah.

The back verandah (light blue) follows after the great hall. Similar as the front verandah, the back verandah is created by the overhanging roof, supported by columns. The back verandah is one of the main living rooms and forms an intermediate space between inside and outside, being the great hall and the courtyard.

The courtyard, or patio (dark blue) is an open space, bringing light and air in the (generally deep) houses. In the bigger patios often one can find vegetation, so this space really feels like being outside, even though one is completely surrounded by building volumes, generally close to each other.
If the patio lies in the middle of the house (concerning the width) it is flanked by wings on both sides. When the patio is not in the middle, but on one of the sides, then it is flanked by only one wing.

The wing(s) (purple) can be found behind the great hall or the back verandah, and run up to the back house, garden or adjacent plot at the backside. The wing usually consists of several rooms, varying in size. The back verandah usually continues in front of the wing, providing a roofed walkway and protection for the walls of the wing from the sun and rain.

In the back, sometimes there is a back house. (pink) Either the back house runs through the complete width of the house, or only in between the wing(s).
Behind the back house, if there is any, a garden (dark blue) may occur. If not, then the adjacent plot starts here.

If an additional floor (purple line) is in the house, it will be above one of the wings or above the back house.

Other features of the Dutch typology are the relatively big doors and windows and the presence of fanlights above these doors and windows. Both to allow the wind to blow through the house, in order to cool the rooms.

Lastly, a very important feature is the axis (red line) running through the whole building. The axis arises through consecutive openings in line.

Often this is a central axis, starting on the verandah and going through the entrance all the way to the patio and even the back house. This axis allows the wind to blow through the big door and window openings, mentioned before.

The ‘Dutch typology’ and its features will be an important reference for my design. This because, as said before, buildings in the Galle Fort should fit in its historical environment.

In the next pages, some pictures are given, to show a few examples of the ‘Dutch typology’ and the atmosphere of these house.
climate

The climate in Galle is very hot and humid. Galle is not far away from the equator and therefore has a tropical climate. The average temperature is around 29-30 degrees Celsius and will almost never drop below 24 degrees Celsius. The relative humidity is constantly between 85 and 90%.

Since Galle is located on the southwest coast of Sri Lanka, there is always a natural sea breeze, blowing 95% of the time from the west.

In this hot and humid climate, “buildings and humans need protection from rain and sun, but, because of the heavy humidity, air movement becomes a friend, since the moving air helps to dry the sweating skin and thus relieves acute discomfort”.

cross-ventilation

In this hot and humid climate the most important way of cooling down of the body is by moving air. This can be achieved by cross-ventilation on body height. Consecutive big openings in the wall, preferably in the main wind direction will provide the cooling breeze, which is essential for comfort in hot days.
_overhanging roofs_

Overhanging roofs are necessary for keeping the walls shaded in order to prevent the walls from heating up from direct sunlight.

Large overhangs will also protect the wall against the rain, admitting openings in the wall to be bigger. This will enhance the cross-ventilation mentioned above.

_thermal draft_

Thermal draft will allow fresh air to move in, by allowing the hot air to move out.

As one knows, hot air rises up. With openings in the top of the roof, hot air in the building can escape at the highest point of the room, resulting in thermal draft and thus the supply of fresh air.
**moving air above water**

If hot air moves above water, the air cools down quicker than when moving above paving. The same goes for moving air above vegetation.

Water and vegetation will not record heat as fast and much as paving. If hot air can be guided over water and/or vegetation, the air can cool down, resulting in a more comfortable breeze.

These four climatic principles will be important in my design. They will provide a comfortable environment in ecological sustainable way.

Also in the choice for materials, climatic aspects play an important role.

The construction material should be relatively light. Because of the small difference in day and night temperatures, there is no need for heavy and thick walls. Therefore, my walls will be made out of aerated concrete blocks.

The roof construction will be made from Merbau wood. This tropical hardwood, growing in southeast Asia, is pretty resilient to fungals.

The climatic solutions and materials in the design will be shown later on.
In this chapter I will show the design of the hotel, starting with its direct surroundings.

Next I shall state the starting points for the design, resulting in the building itself.

Lastly my design will be explained following the sequence of rooms of the ‘Dutch typology’ and its climate solutions.
surroundings

The empty plot I will use is located at the west side of the fort. (red area) The plot has two faces. One at the Lighthousestreet, at the east side of the plot. The second on the west side, at Rampartstreet.

The plot is around 18 meters wide at Lighthousestreet and 26.5 meters in Rampartstreet. The length of the plot is around 70 meters. This is one of the biggest plots within the fort and therefore it possible to divide it in two zones.

The plot lies approximately in east west direction, which is perfect concerning the cool sea breeze, coming from the west.

The east side of the plot, is situated in Lighthousestreet. This is an historically important street, since it is one of the four streets in the regular grid pattern. (image 11)

This grid dates from the Dutch era, and most ‘old’ houses are on these streets.

![Image 11. regular grid pattern](image11.png)
In Lighthousestreet, many houses of the ‘Dutch typology’ can be found, like the first two houses on the left side. The second of those houses is not an old building, but in its presence it is a ‘Dutch typology’ house.

The houses directly besides the gap, which is my plot, are obviously not from the Dutch era. The big house left of the plot is from the late 19th century, while the one on the right is build in the last 20 years. This is one of the ‘new’ buildings unsympathetic to its historical environment, mentioned before as a threat to the cultural heritage.

The houses on the right are both originally from ‘Dutch typology’. But here the verandahs at street side have been built shut, resulting in a diminishing of the OUV and deterioration of the streetscape.
**Rampartstreet**

The west side of the plot is at Rampartstreet. Unlike the Lighthousestreet this has always been one of the less important streets in the fort. There are almost no old buildings and it used to be mainly a backside. Its less importance can be seen easily in the number of empty plots on this street, 7 in total.

One of the recommendations in our research report was to fill the empty plots with tourist related functions. Rampartstreet seems to be perfect for this, since it has a unique positioning within the fort.

There is no place where the fortifications (3.5 meters high from street level) are present so dominantly. And since Rampartstreet is located on the west of the Galle Fort, one can see the sun setting in
the Indian Ocean. This unique selling point will attract much tourists and therefore there should be taken advantage of.

In the current situation, Rampartstreet, as can be seen on the previous pictures, is a bit like a mess. The vacant plots are in between buildings with no historical importance and little similarities to each other. This is definitely a part of the fort, which has always been a back side.

To make this a good zone for tourism related functions, strong rules for the new buildings are needed. Those rules should assure that there will be more unity is shown in the streetscape (just like everywhere else in the fort). Besides that, the buildings here can be different from the ‘Dutch typology’ houses seen in the historical streets in the fort.

Rampartstreet does not have historical important buildings to refer to with the new infill buildings. So a new typology, answering to the needs of nowadays tourism, can be settled here. However, it is important, to use the scale, the materials and some basic principles of the ‘Dutch typology’ in order to fit within the fort and to do no harm to the OUV by building ‘alien’ buildings.
image 17. Rampartstreet, current situation
Thus strong rules and starting points should be stated to clean up the mess of Rampartstreet by filling in the vacant plots with new buildings:

The buildings should be positioned directly at the street, over the full width of plot. All buildings will have 2 floors, and however not on the ground floor, there is a verandah upstairs at the street side, which has an exceptional view over the ramparts to the Indian Ocean. Lastly the buildings will have the same materials as the ‘Dutch typology’, like the light colored plaster walls and the red roof tiles.

Following these rules, a strong streetscape will appear, while the buildings fit within the fort, as can be seen in the following sketches.
image 18. Rampartstreet, new situation
image 19. Rampartstreet, new situation
starting points

Besides the ‘Dutch typology’ and the climatic principles mentioned in the chapter ‘motives’ I will use some other things as starting points for my design.

First of all, the angle of 12 degrees which is in the plot, will be prominent in the design.

Secondly, my design will have, despite of, and, in addition to the ‘Dutch typology’ an modern character.

I think it is my duty as architect to keep on renewing, even in a historical environment.

Besides that, I want the people to see that my building is new and contemporary, but that it fits in the fort at the same time, since being inspired by the ‘Dutch typology’.

It would not be fair, to literally copy a ‘Dutch house’, pretending to be old. This also, in my opinion, goes against the earlier mentioned definition of authenticity.

“The demand of attributes being ‘authentic’ can be understood as the requirement to be genuine, i.e. the WH property should be truly what is claimed to be”

Making a new building, by copying and pretending to be old is misleading. Then the building is not truly what it claims to be.

So the buildings will be based on the old ‘Dutch typology’ but will be modern as well. The modernity will
be in the consistency of simplicity and special spaces. Minimalist materials and no ornaments. Stylistic purification leaves only what really matters.
design

facade

The facade in Lighthousestreet is 18 meters wide and is roughly symmetrical. The door on the left is the entrance to the servant areas. In the Dutch typology, bigger houses had a symmetrical facade, excluding this servant entrance.

The openings are all 1,4 meters wide, a size similar to doors and windows in the ‘Dutch houses’. Only the main entrance is bigger, 2,8 meters, to emphasize the central axis, which is very important in my building.

Above the openings, there are fanlights, allowing a breeze going through, even if the doors and shutters are closed.

The four wooden columns are made of Merbau wood and rest on a concrete pedestal. The doors, windows, shutters and construction are all made of Merbau wood as well.

The wall is 0,4 meters thick, similar to the structural walls in the ‘Dutch typology’. The walls are made of aerated concrete blocks, finished by a layer of white plaster.

The roof consists of two parts. The upper part is raised so thermal draft can take place. Both roofs are covered with red clay tiles, which can be seen everywhere in the fort.
image 23. floor plan first floor
floor plans and section

The plot is, as mentioned before, 18 meters wide at east side and 26,5 at the west side. The length of the plot is around 70 meters. On the half of this length, at the south side, there is an angle in the plot of 12 degrees.

Three building volumes run across the full width of the plot, with open spaces in between, the patio at the east side of the middle, and the garden with pool at the west side.

The two volumes at the east side are linked to each other through building volumes on the north and south side of the patio.

The middle and north volume have an additional floor, both housing hotel
rooms. The west volumes has two floors as well, on the first floor there is a restaurant with view over the ramparts towards the Indian Ocean.

All the rooms and spaces of the hotel will be discussed further on, using the sequence of spaces of the 'Dutch typology'.
‘Dutch typology’

Here I will show my design further by following the sequence of spaces of the ‘Dutch typology’.

As can be seen in the next page, the sequence of my building show much similarities with the examples. Of course there are differences as well.

Especially the use of the 12 degrees angle is clear to see in the plan. Besides that, the servants passage is quite long, for housing the servants room, the storage, the cleaning room and the washroom.

The axis is very prominent and the north wing and backhouse both have an additional floor.

The volume at the west side, housing the restaurant, is quite exceptional for the ‘Dutch typology’ This is only designed partly, since the focus was mainly on the other volumes and the open spaces.
image 26. sequence hotel
The verandah is one of the most important spaces of the ‘Dutch houses’. It is a very visible feature in the streetscape in the fort and should therefore come back in my design as well.

The verandah is an intermediate space between private and public. In the hotel this is a place where visitors can have a drink and enjoy the view of tourist, walking through the historical Lighthousestreet.

By the large overhang the walls keep shaded the whole day, in order to keep them cool. The large openings allow the wind to go through, providing cross-ventilation on body height.

Also, to provide cross-ventilation, there is no glass in the windows. They are open, and at nighttime or during heavy storms the shutters can be closed.

The walls are plastered white and reflect in the concrete floor, which gives an interesting spatial feeling.
**little hall**

If one enters the hotel through the main access, one comes in the little hall. Here is the reception where guest can check in and out.

The little hall is flanked by another room on both sides. At the left side, there is the hotel office. At the right, one can find the library with books and some computers.
great hall

The great hall is the bar and lounge of the hotel, only available for guests. Similar to the little hall, the roof construction is visible. The wall in between these spaces, does not go to the ridge of the roof, creating a spatial feeling.

The openings towards the back verandah and patio are wider than other openings in the hotel. Hereby it is less dark and the lounge becomes more an open space.

When sitting in the lounge, it feels not completely like inside a building, since the patio is nearby. But at the same time, you are protected against the sun and rain. The wind is blowing through the big openings, making this comfortable space.
In the back verandah, one is more outside than inside. Both this and the latter space are intermediate spaces between inside and outside.

One can sit at the back verandah, next to the green of the patio, to have a drink or to read a book.

A stairs is going to the first floor where the hotel rooms are.

The verandah keeps, just like the verandah at the street side, the walls shaded and dry. Therefore, no doors and windows are placed in the openings here. The space is feeling open and the wind can go straight through.
image 30. back verandah
The patio, or courtyard, is the most special space of the hotel. Surrounded by building volumes, it feels like a very private space. Despite of the surrounding volumes, being in the patio feels like being outside.

The grass on the main axis and the plants and trees at the left side bring life and nature to the simplistic hotel. The water in the basin brings freshness and reflect its surroundings, creating a more spatial feeling.

The patio is positioned centrally in the hotel area, bringing light and air to the relatively deep building. The patio also connects the spaces to each other.

*patio*
image 31. patio
In the side wing at north side, 8 hotel rooms are located. The rooms are angled by 12 degrees, creating an interesting space since the roof is straight. The angle allows the sea breeze to come in the rooms.

The rooms have an shaft, coming out in the roof. This shaft will provide thermal draft. The shafts are planted by a green living wall, as can be seen on page 76. This ‘green shaft’ will make the room special with a touch of nature.

This rooms have sight on the patio, but the windows are made with shutters, so that in the night privacy is guaranteed.
servants passage

The servants passage starts in the verandah and runs all the way up to in the patio.

All the spaces for the staff are located here and interconnected. From verandah to patio, one can find first the staffroom, followed by the storage. Next is the cleanroom and lastly the washroom.

Behind the washroom, there are toilets for the lounge guests and staff.

The roof of this wing is angled 12 degrees as well, making this a special element and creating more open space, light and air in the patio.
backhouse

In the backhouse, two family rooms are located. These rooms are bigger than the other rooms, and have two bedrooms and a separate living space.

The upstairs rooms can be reached by taking the stairs at the left end of the patio.

The family rooms have adaptable louvers, allowing wind to go through when opened and guaranteeing privacy when closed.

The main axis runs straight through the backhouse, but because of the overhanging floor and roof and the 12 degrees angle it is still one volume.
garden

The garden is the buffer zone in between the hotel and the restaurant. The family rooms are located at the garden, which houses a water basin on the main axis and a pool for the guests.

Opposite to the pool, there is a lawn, where one can lie in the sun, underneath palm trees. The walls to the adjacent plots are covered with the living green wall, just like the ones in hotel rooms in the wing. This in order to make the garden a real garden, in stead of a space squeezed between white walls and buildings.

From the restaurant, on the first floor of the most west building volume, there is little sight on the garden, but since the tables in the restaurant are located at the seaside, privacy is pretty much guaranteed.
axis

The main axis is an important and prominent element in the hotel. It runs from the verandah at Lighthousestreet, all the way up to the restaurant entrance at rampartstreet.

The axis is 2,8 meters wide and its presence is strengthened by several elements, which are on the axis or go with the axis sideways.

In the next pages, a route over the axis is showed, starting at the entrance and going to the restaurant. Then two images of the axis on the first floor are showed, and at the third page the axis in reverse.

If one wants to walk from the main entrance to the restaurant one cannot stay walking on the axis the whole way. If arrived at the patio, there is a choice to go left or right along the axis. At the backhouse one will come back on the axis. Then, in the garden, a basin is on the axis, so the walker is forced to choose again the left or right sidewalk.

By this on and of movement, one experiences the axis much stronger, giving it a even more prominent and important presence.
climate

Here I will show the climatic solutions applied in the design, starting with the cross-ventilation
As mentioned before, cross-ventilation at body height is absolutely essential in the climate of Galle. Big openings in line, going from east to west, allow the sea wind from the west, to cool the hotel. The main axis is important for this cool breeze.

Where possible, openings are left completely open. But in the rooms, adjustable louvers are applied. The louvers, shown on the next page, can be opened and closed, depending on whatever is needed. When the louvers are opened, one can look straight through the family room, as can be seen on image 49.
image 48. louvres, open, half open and closed
image 49. open louvers, family rooms
In Galle, the sun can shine very strong. Walls should be protected against the sun, in order to keep them cool. Overhanging roofs (and floors) will apply this shade as can be seen on the next page.

The space underneath the roofs and floor, the verandah is a very pleasant space to stay.
image 50. shaded walls
Thermal draft will supply fresh air to come in, by carrying off the hot air through the roof. Hot air goes up, resulting in thermal draft.

By topping up the roof with another roof, hot air can escape through the louvers. This system is applied at the roof of the little and great hall. An extra advantage is the beautiful light, coming from above into these spaces, as can be seen on the next page.

In the hotel rooms, a shaft provides the thermal draft. The shaft is covered by a green wall, resulting in a spectacular and cool room. On image 53, this green wall can be seen in the room adjacent to the garden.

In the other rooms, there is no possibility to use the louvers, so there a screen is used. This screen (image 52) allows air to go through, but blocks the sight towards the room.
image 51. roof construction and topping
image 53. hotel room with green wall in shaft
Hot air cools above water much faster than above paving. By placing water basins in the main axis, the breeze can cool down, before entering the internal spaces.

For the rooms adjacent to the garden, private basins are placed. These will supply the air cooling and are a natural barrier between the ‘public’ garden and the private room.

Besides the cooling effect on the wind, the presence of water has a positive mental function. People think it is cooler and it is relaxing to hear the sound of moving water.
image 54. water providing coolness
conclusions

Here, I will draw my conclusion on the sustainability of my hotel.
Conclusions

I think when built, my hotel will contribute to the sustainable development of the Galle Fort.

By building a middle class hotel, the need for affordable quality accommodations will be answered.

By attracting more tourist to the fort, more money and jobs come in for the people in Galle, being a contribute to the local economy.

Since the huge potential was recognized by managing stakeholders, a vision on tourism is needed. My proposal to use the 23 empty plots within the fort for tourism related functions will have multiple advantages.

First of all, the old buildings can be spared from alterations, doing harm to the features of the attributes, resulting in a decrease authenticity and integrity of the OUV.

Secondly, the 23 empty plots are given a good implementation. An empty plot does not bear OUV, so by filling these plots in with tourism related functions it will contribute to the development of the Galle Fort.

To do no harm to the OUV, the new infill developments should fit in its environment, which is quite old and delicate. It is extremely important for new buildings that they do not disturb the streetscapes, which are so exceptional. The new buildings should be built within the spirit of the place.
To fit within its environment properly, new buildings should be built with the ‘Dutch typology’ as a reference. The basic principles of this, in the fort dominant, typology should be brought back in the new infill developments. By doing so, no ‘alien’ architecture will not be found in the fort anymore.

My building is based on this typology. With its sequence of spaces, the presence of the main axis and the use of similar materials, the hotel in essence, conforms to the historic typology.

Despite being based on the ‘Dutch typology’ my building will have a modern character. The minimalist architecture will only leave what really matters. The typology becomes more clear by omitting what is not essential.

The building itself consist mainly of two parts. The hotel with its patio and the restaurant at the other side of the garden.

Although the restaurant is not developed further in this project, strong guidelines are given for the development of the Rampartstreet. By stating strong rules, new buildings in Rampartstreet will fit in the fort, but can be different as well. The mandatory first floor at the street side is not like the Dutch typology, but is allowed in order to create a magnificent view over the ramparts towards the Indian Ocean, as can be seen on the next page.

This view will attract even more tourists, which is of economic interest of Galle.
image 55. restaurant, view over the ramparts towards the Indian Ocean
The hotel itself fits within the ‘Dutch typology’, but as mentioned before it has a modern character as well.

The use of the 12 degrees angle which is in the plot results in special and interesting spaces. The distortion further is used for optimize the climatic solutions.

The climatic solutions used to make the buildings comfortable without using electrical airconditioning are based on old principles, which can be found in the ‘Dutch typology’ as well.

Cross-ventilation is provided by consecutive big openings in the walls, in the direction of the dominant wind from the west.

The large overhangs keep the walls shaded and protect them against the rain. Verandahs, supported by columns are formed by these overhanging roofs, creating climatic comfortable and spatial interesting places on the interface of inside and outside.

Thermal draft in the ‘Dutch typology’ was provided by the loosely joined roof tiles, through which hot air could escape. In my hotel, this principle has improved. By topping op the roof of the little and great hall with another roof, hot air can led off through the highest point of these rooms. The louvres keep the sun and rain out and will give the rooms a very special light from above.

Thermal draft is applied in the hotel rooms as well, by making a shaft.
This shaft is covered by a living green wall, giving the rooms a modern natural touch and making them very special.

The use of water to cool down the hot air, comes back at the rooms at the garden and on the main axis.

The axis, an important feature of the ‘Dutch typology’ is dominant in each space of the hotel. By making it twice the width of the ‘common’ openings, it is more emphasized. By making the route towards the back, variable on and of this axis, the experience of it will only be stronger.

By using these spatial and climatic solutions I tried to make the hotel special and contemporary, and I think I succeeded in this.

I hope this design will be an example for the responsible managing institutions in Galle. New buildings should be allowed again on the empty plots in order to develop the Galle Fort.

This hotel, in my opinion, is the proof that a new building, based on the common typology, does not harm the OUV of the Galle Fort, even if its character is modern.

Concluding, I can say that this hotel will contribute to a sustainable development of the fort, by answering some needs of the inhabitants, by not harming the existing attributes and OUV and by fitting well in its historical environment.
image 56. Lighthousestreet, hotel in its environment
literature

1 ICOMOS Sri Lanka. (1986) 
Advisory Body Evaluation.
2 Boxem, R., Fuhren, R. (2011) 
Cultural Heritage and 
Sustainability, the old town of 
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case study, p. 12
3 Ibid.
4 UNESCO World Heritage Center. 
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for the implementation of the 
World Heritage Convention, p. 14
5 Ibid. p. 26
6 ICCROM, ICOMOS, IUCN and 
preparation of retrospective 
statements of outstanding 
universal value for World 
Heritage Properties
7 see footnote 5.
8 see footnote 6.
9 see footnote 4. p. 22
Conservation and development 
plan for Galle Fort. p. 25
11 see footnote 1.
Tropical Architecture in the dry 
and humid zones. p. 13

other inspiration

buildings by Geoffrey Bawa, 
Srilankan architect