

HERACLES NEWSLETTER

N°5 - October 2017

HERACLES

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Funding 6.564.313.75 Euro
Starting date 1st May 2016



CASE STUDIES

CRETE, GREECE:

1. Minoan Knossos Palace
2. Venetian coastal fortress of Koules

GUBBIO, ITALY:

3. Town Walls
4. **Consoli Palace**

THE MONUMENT, ITS HISTORY AND SPECIFIC RISKS/HAZARDS

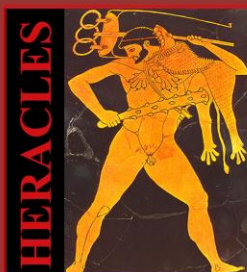


Picture 2 - A view of the Consoli Palace complex, in the higher part of the town

"I've been told that Gubbio was a beautiful city, [...] with fabulous palaces and towers, a miracle of architectural expertise. [...] Facing the most impressive building in the city, the medieval "Palazzo dei Consoli" [...] the wonder was complete. The grandiose, almost daring audacity of this architecture produces an absolutely astonishing effect and has something unbelievable and controversial. You can believe to dream or to face a theatrical scenario. You have continually to tell yourself that instead everything is there, firm and fixed in the stone" Hermann Hesse, 1907



Picture 1 - 180° overall view of Consoli Palace, "Piazza Grande" and Town Hall



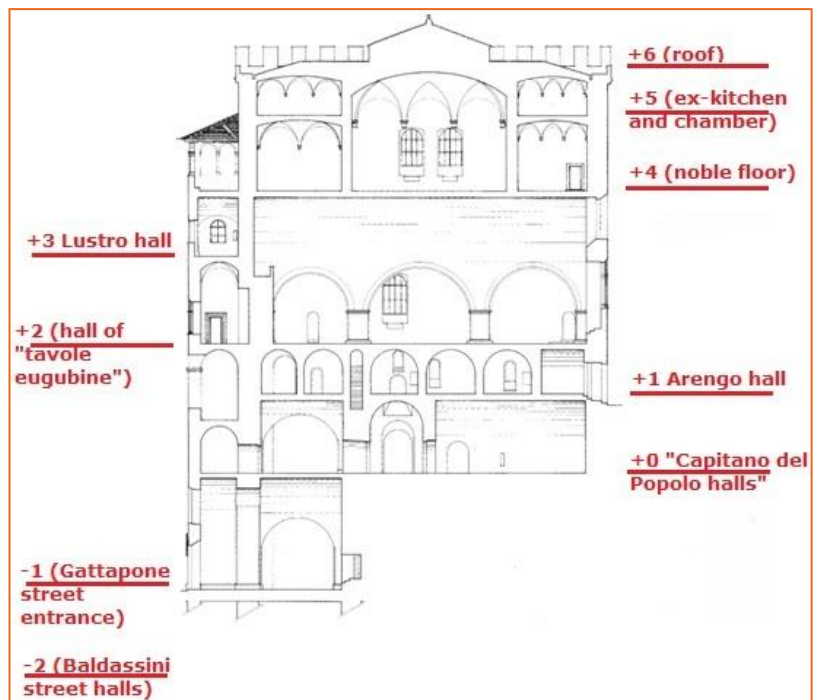
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HERitage Resilience Against CLimate Events on Site

1. CONSTRUCTION DETAILS:

The Consoli Palace was built between 1332 and 1349. The Palace has a rectangular shape, and a very articulated distribution of volumes divided into 9 levels:

- Level +6 (roof and tower bell)
- Level +5 (ex-kitchen, now “Campanari’s hall in SW façade and Consoli’s chamber in NW façade)
- Level +4 (“noble” or main floor, the modern pinacothèque and upper open Lodge)
- Level +3 (upper closed Lodge – now Hall of “lustrò” ceramics)
- Level +2 (Lower closed Lodge and chapel – now hall of Tavole Eugubine)
- Level +1 (the “Arengo”, a barrel vault hall which in Communal age was used for meetings and assembly of citizens for the government of the city)
- Level 0 (“Capitano del Popolo” halls – now Risorgimento section)
- Level -1 (Lower entrance from Gattapone street – now museum)
- Level -2 (Halls in Baldassini street)

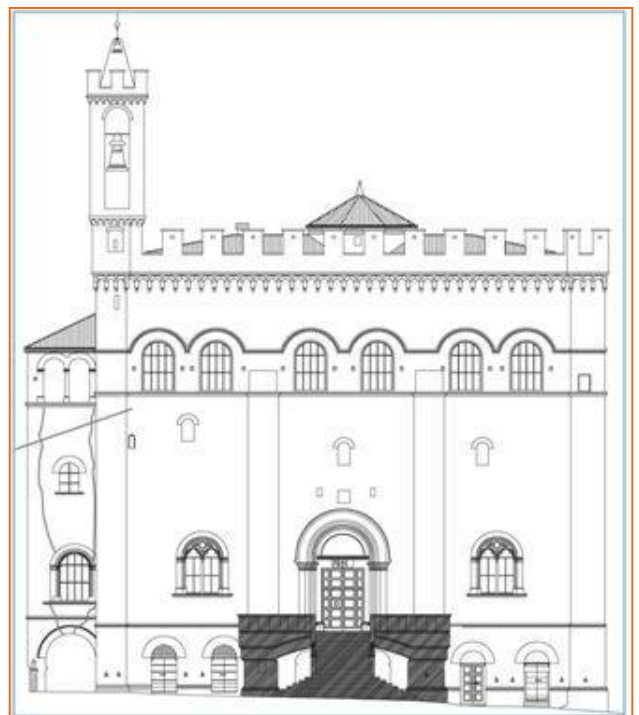


Picture 3 - Vertical architectural section of Consoli Palace with floors

The main façade overlooking the square is made of ashlar stone and it stands for over 44 meters up to the top of bell tower. The entryway is through a fan-shaped staircase leading to the “Arengo” (level +1). This hall has two mullioned windows positioned on the two sides of the Gothic style portal, decorated with a XVI-century fresco in the lunette. In the main floor (level +4), there are six windows with round centre in pairs, divided by pillars, are present, while the battlements is supported by small pointed arches.

Since 1901, the building hosts the town museum (see for more details: <http://www.palazzodeiconsoli.it/>) , presenting art gallery, ceramics section, archaeological and oriental collection, and collection section on Italian *Risorgimento* (*Risorgimento* is the period leading to the unification of Italy) In the tower is placed the famous big bell (“*campanone*”) that since 1380 marks with its sound (*sonate*) very few and special events during the years.

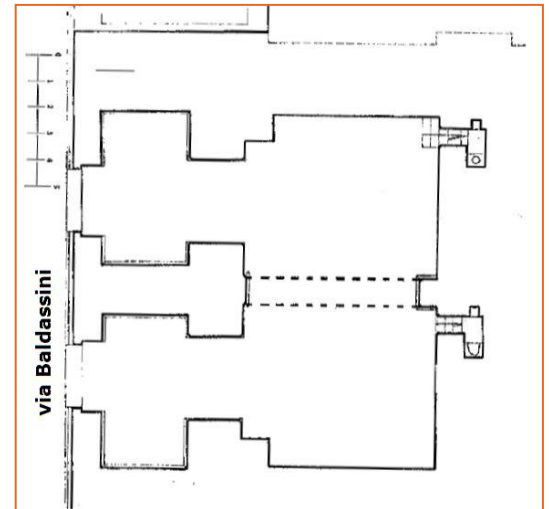
Several restorations were made after the 1982 and 1984 earthquakes and completed in the first half of the ‘90s. During these restorations, the façades were completely cleaned by accumulations of dirt. After few years, instead, smog, concretions and localized phenomena of black patina are again clearly visible.



Picture 4 - Architectural view of main facade

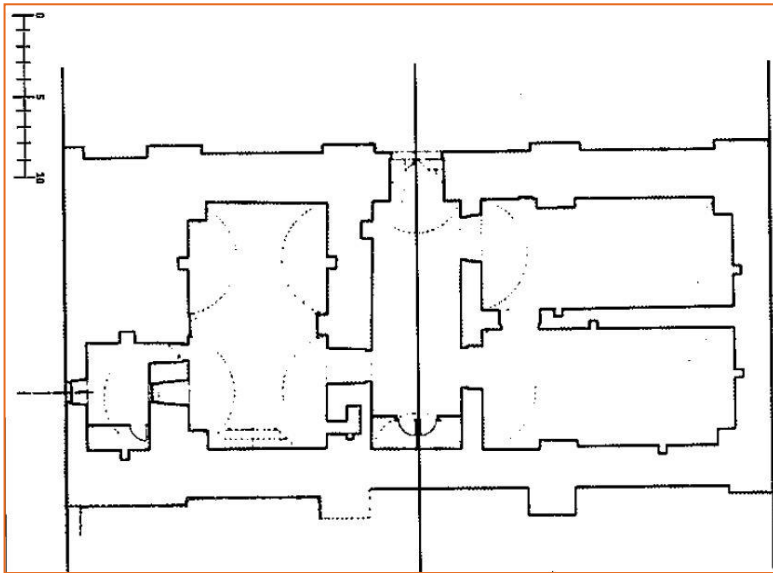
2. PLANIMETRY

The first level (-2), in Baldassini Street (see picture 5), is made by three rooms that were formerly used as warehouses or shops (since the presence of small windows and latrines).



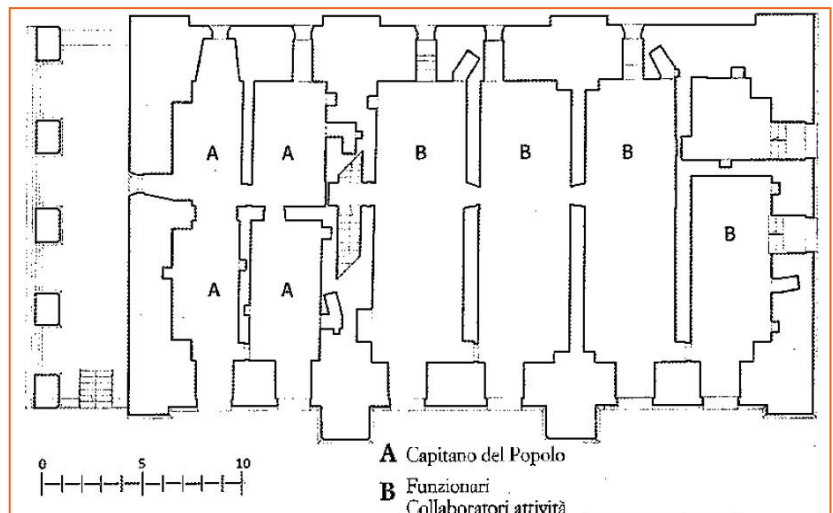
Picture 5 - level -2 (today halls for events)

The shape of the rooms in level -1 (picture 6), which opens towards NW on Gattapone Street, suggests an usage as dormitories and guarding stands and stables for horses (in the right of picture Picture 6) , while the other were probably a kitchen connected to a room of the Conestabile's availability. This level was strongly connected with the one upstairs at the square level so that the armed present had to be functionally dependent on the Captain of the People who was there..



Picture 6 - level -1 (today museum)

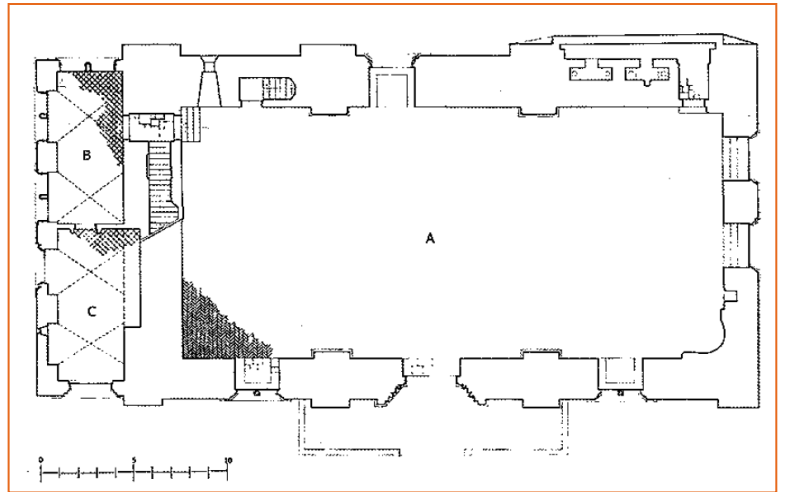
The zero level (picture 7) opens on Piazza Grande and on Consoli Street and its scheme consists of a series of rooms along the SE-NW alignment, all parallel to each other. All the rooms are surmounted by round arches and had latrines, one main entrance on the place made by doors of equal size and shape and one window opening on Gattapone street. The rooms are limited by the supporting walls of the Arengo Hall and one of them (the 4th from the left in the picture) is the retaining wall of the soil upstream placed in the "maximum advantage" position in order to separate the two levels of foundations (due to the original shape of soil). The walls on the West-side (in the left) have been deepened until level -2 while the others reach level -1 only.



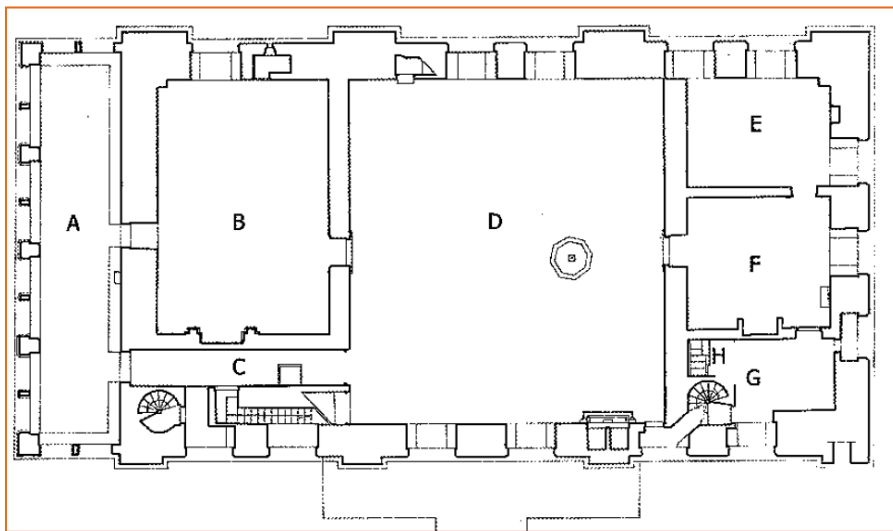
Picture 7 - level 0 (Piazza Grande level - today museum)

The Arengo Hall (picture 8) was the meeting place of the General Council of the People. Anyone who comes in is astonished by the majesty of the all-round vault overlooking covering over 730 square meters.

The room is connected with the upper "noble" floor and the loggias on the W side. Curiously is to be noted the presence of an external toilet placed in the N side of the hall (in upper right side of the picture above) in order not to let the stink to disturb the hundreds of people attending the Council meetings.



Picture 8 - levels +1 (A=Arengo Hall) - +2 (B=chapel C= hall of "Tavole Eugubine")

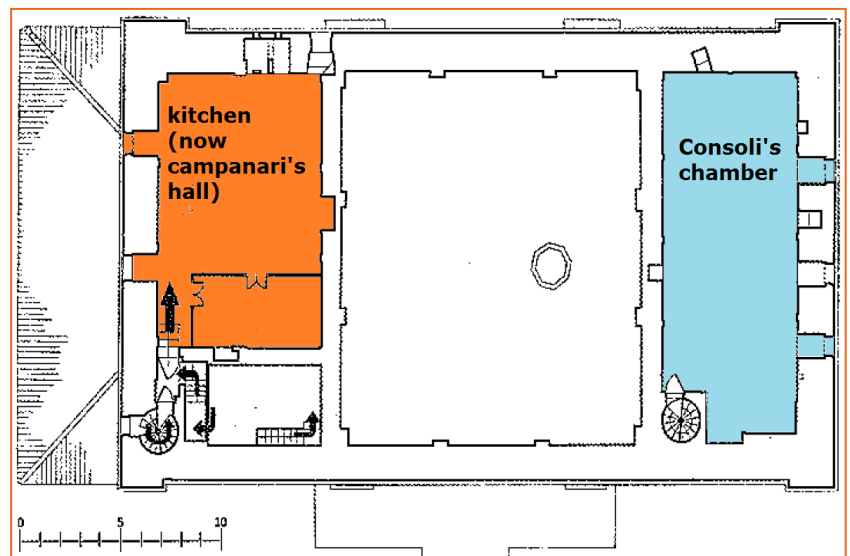


Picture 9 - level +4 (Noble or Main floor) - A: open Lodge - B: Meetings hall - C: "camminata" - D: Fountain hall - E: Notary hall - F: Chancellor - G: "Gonfaloniere"

At level +3 ("noble" or main floor – picture 9) there are the halls dedicated to the functions of the Gonfalonier and the Consuls. More than half of the total space is devoted to the large central hall. This was the space of the Authority with the emblematic elements of two fountains in the hall. The biggest one has an octagonal basin placed to be Visible by any host or citizen climbing the last steps of the staircase, in order to surprise them. In an age during which the water supply was guaranteed by few public springs, it should have been

simply astonishing finding a fountain inside a room 20 meters above the ground

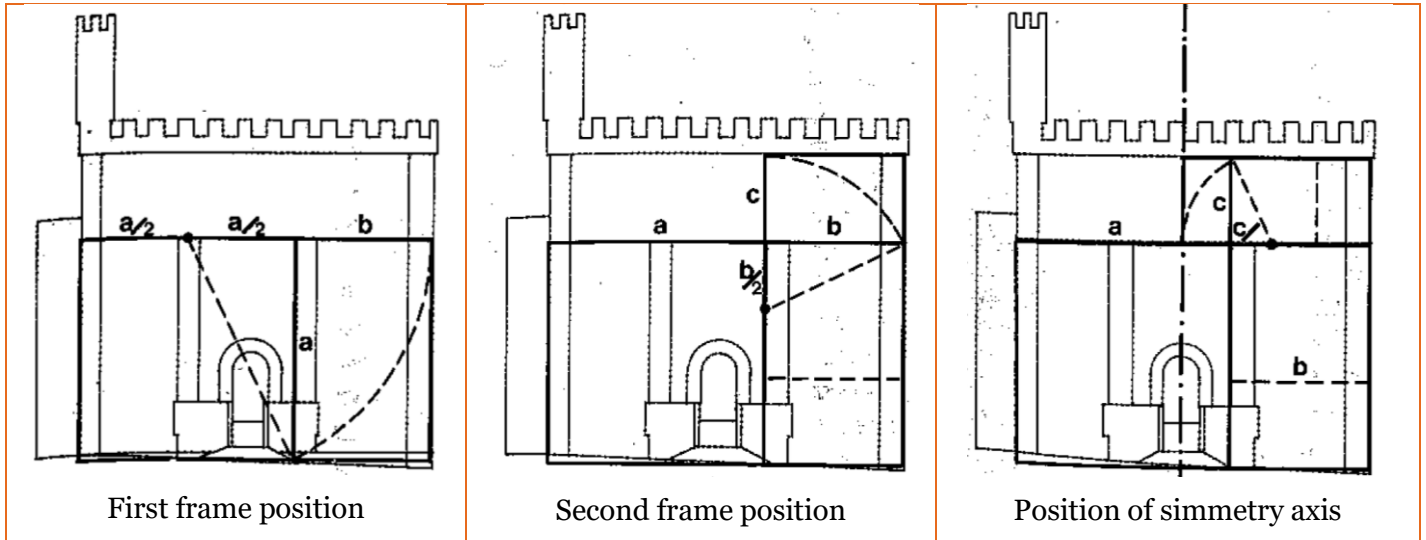
All the places of this plan and the upper one, with the former kitchen and the Chamber of Consuls, is made for the strictly requirement to let the Consoli live in absolute isolation during the two months of their mandate without no relationships with citizens or strangers.



Picture 10 - level +4 (ex kitchen and Consoli's chamber)

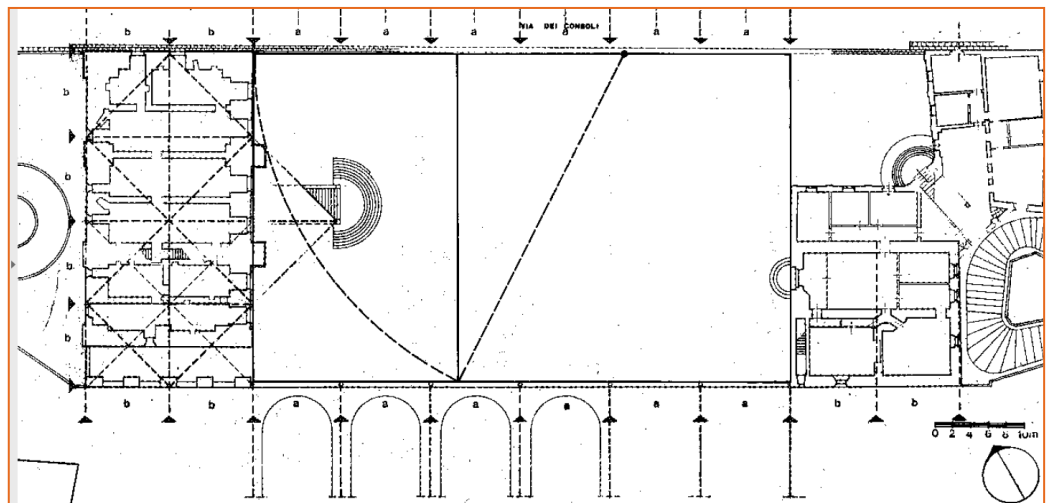
3. THE ARCHITECTURAL PROPORTIONS

The volumes of the two buildings were conceived as an unique complex and complementary to the interposed vacuum consisting by the place. Infact, the facades and the plans can be both inscribed in a single rectangular perimeter and form a prism with 4 equal faces organized according to a precise modular logic.



Picture 11 - Architectural proportions

The facade of the Consoli Palace is divided by a series of sketches and frames that clearly define horizontal and vertical scans. It can be verified that the determination of the facade dimensions and proportions is based on the “golden rectangle”, a geometric figure whose

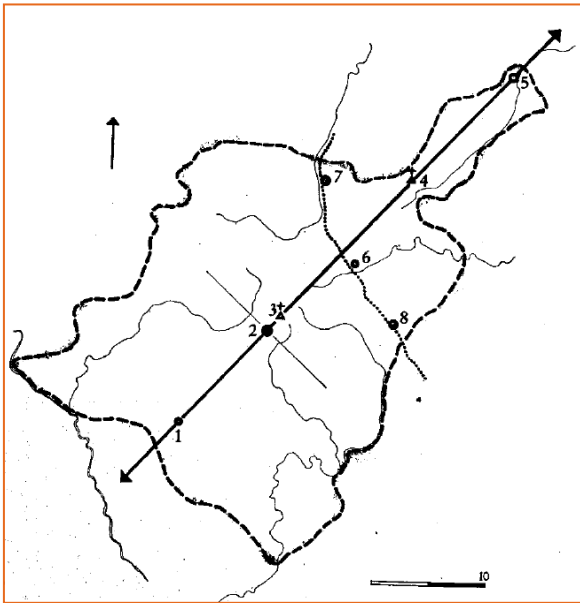


Picture 12 - Consoli Palace, Town Hall (former Podestà palace) and "Platea Communis": Reconstructive plan and proportional schemes

proportional laws were always appreciated in classical antiquity and rediscovered in the late Middle Ages to later spread to the Renaissance

The proportionality criterion for the square, the Consoli Palace and the actual City Hall is also based on a “golden rectangle” proportions whose lower side coincides with the façade of the Consoli Palace. Also the proportion of the entire complex is based on many “golden rectangles” whose concatenation establishes strict relations between the big and the small scale.

The historian Enrico Guidoni in 1974 theorized that this "crux ecclesialis" was part (at the town level) of a very ancient Umbrian alignment that linked the ends of the possessions of the Commune of Gubbio (the town of Pergola) and the Castle of Castiglione Aldobrande, see picture 15 and 16).



Picture 15 - the "Holy alignment" of Gubbio's territory (E.Guidoni, 1974) - 1- Castello di Castiglione Aldobrande



Picture 16 - "Holy alignment" at Gubbio level

- 1 - corte (fino XII secolo) + 3 - Antico Palazzo Comunale (ora Palazzo Ducale)
 - 2 - Duomo
 - 4- palazzo del capitolo
- These 4 buildings were the political centre of the city until XII cent.
- 5 - Consoli Palace
 - 6 - Town Hall (built since XIV cent.)
 - 7 - San Giovanni
 - 8 - Logge dei Tiratoei
 - 9 - San Francesco

Upstream St. John's Church (San Giovanni - the first Cathedral) there was the division between hilly and valley districts, a zone characterized by a steep slope (the "trench"). During the first half of the XIV century, in the half way of this alignment, the free Commune of Gubbio designed and realized the wonderful new complex made up of public buildings and the Great "Piazza Grande".

The aim was to create a new administrative political center that took into account the changed urban shape of the city in order to be tangent to all the 4 districts. The new municipal buildings were therefore positioned in order to overcome the "trench" and to have a tower-shape from the underlying streets, emphasized by the use of the natural slope.

In 1321 was stated the building of the "Palazzo del Popolo" (now the Consoli Palace), the "Podestà Palace" (now the Town Hall" and the "Platea Communis" (now Piazza Grande). It was a large-scale enterprise with the aim to show the will of the Commune to impose the new city center as a major reference for all the territory. That's why it is clearly visible from every place of the town and the surrounding valley: a warning and sanction of the supremacy of the municipal government on every other authority. The building started in 1332, at the end of the fund raising .

After only 5 years the architrave of the major portal was put in place and in 1349 the covering was completed even if with a different shape from the current one.

The fountain in the noble plan had a particular meaning, both technical and symbolic.

On one side the fountain showed the technological advanced position of the city, on the other side the fountain symbolized the "fons arenghi", the ancient fountain who was in the old city center, in front of the Cathedral, in order to state, the definitive moving of the political core of the city to the new Consoli Palace.



Picture 17 - 3D architectural reconstruction of the ramp connecting via Baldassini with Piazza Grande – special thanks to eng. W. Cernicchi

It is supposed that the original project provided a major place for the commerce and meetings, the Consoli (or "People" palace) in the N-W side of the place and the Podestà Palace set in SE side. All the citizens from the four quartier should access the place through an own way. There were two streets connecting the place from est and west (from the actual Consoli street and XX



Picture 18 - 3D view of the theorized original project complex Consoli Palace - "Piazza Grande" - Podestà Palace (now the Town Hall) – special thanks to eng. W. Cernicchi

september street) to San Martino and Saint Andrea districts.

Furthermore, according to the

historian O. Gurrieri and Arch P. Belardi, the original project should have two steep ramps, one for the San Giuliano district through the gallery under the Consoli Palace and the other placed symmetrically respect to the first, connecting Piazza Grande with the district of San Pietro. These last two access ways were never built and in the following centuries that access was ensured through other bandy streets. The building operations were interrupted leaving the place built only partially. This was due to the end of the Free Commune experience provided by the 1350 "golpe" made by Giovanni Gabrielli and the Bubonic Plague.

In 1491 the steep ramp connecting Baldassini street through the inclined gallery of the Consoli Palace was started in order to be the organic conclusion of the complex but the opera failed. This was this the end of a too ambitious project that had lost the conditions for its start.



Picture 19 - 3D view of Consoli Palace with the XV century lodge demolished in XIX century – special thanks to eng. W. Cernicchi

At the beginning of the 15th century, the Consoli Palace was completed with the tower bell and the place was finally completed with the “loggia”

connecting the Consoli Palace with the Town Hall (see picture 19) which was demolished at end of XIX century.

The current Town Hall had several intervention and the last one, the building of the North wing, was made at the end of XIX century.

From XV until XIX centuries there were many attempts to complete the complex of buildings, but none of them was able to define completely and stably the place-palaces unity which is still today unfinished.

Bibliography :

- P. Micalizzi “Storia dell’architettura e dell’urbanistica di Gubbio”, 1988
S. Cappannelli e G. Rossi “La Platea Communis e i palazzi storici di Gubbio”, 2013
A. Luongo “Gubbio nel trecento”, 2014

PRESENTATION OF THE PROJECT

1. HERACLES FALL SCHOOL

The banner features a stylized orange and yellow graphic on the left. On the right, there is a photograph of the FCT|NOVA building entrance with palm trees. The text on the banner includes the event title, dates, location, and chair information.

HERACLES
FALL SCHOOL 2017

'Characterization Techniques in Cultural Heritage'

11-12 October, 2017 @ FCT|NOVA
Lisbon . Portugal

Chair - Prof. João Pedro Veiga - jpv@fct.unl.pt

The 2017 HERACLES Fall School has been held in FCT|NOVA on 11th and 12th October 2017.

Portuguese experts on characterization techniques applied to Cultural Heritage showed examples on XRF, TG-DTA, PIXE, SEM-EDS, OM, ICP-MS Raman, Synchrotron Radiation and much more.

The program is available on the HERACLES website: <http://www.heracles-project.eu/news/heracles-fall-school-2017-will-be-held-fctnova-october-11-12-2017>

2. FEATURING IN PLATINIUM MAGAZINE

The project and its objectives are the subject of an article in the July 2017 edition of the magazine.

Platinum is a monthly magazine focused on the economical world in Italy and worldwide, as well as on its main actors. It offers an explanation on selected items about the financial and institutional domains.

HERACLES is presented on page 78.

Link: http://www.heracles-project.eu/sites/default/files/news/documents/platinum_sole24ore.pdf

3. HERACLES VIRTUAL COURSES (1, 2 AND 3)

Three different virtual courses have been conducted during the last period :

- On 28th July, Ilaria Catapano from CNR (IT) gave the first virtual course entitled "Cultural Heritage management: guidelines and procedures." You can find the slides and an audio recording following this link: <http://www.heracles-project.eu/virtual-course-guidelines-and-procedures-ch>

- The second virtual course has been held on 23rd October by George Alexandrakis from ICAM-FORTH. It was entitled "Methodologies for Climate Change impact evaluation and risk and vulnerability

analysis.” The video is available on: <http://www.heracles-project.eu/virtual-course-methodologies-climate-change-impact-evaluation-and-risk-and-vulnerability-analysis>

- The third course has been conducted by Mario COSTANTINI, PhD; Veronica Lucia CASTALDO, PhD and Prof. Filippo UBERTINI, PhD from e-Geos and UniPG on 19th October. It was entitled “Geomorphological and structural modeling applied to CH management.” The course is available on: <http://www.heracles-project.eu/virtual-course-geomorphological-and-structural-modeling-applied-ch-management>

4. MISCELLANEOUS

- At the 104th OGC Technical Committee (11-15/09/17), Ilke Van der Schaaf (Fraunhofer, DE) made an oral presentation entitled “*OGC SensorThings API in HERACLES & beAWARE - Tools, tips and tricks*”
- In the frame of the proceedings of the XVII Italian Conference on Earthquake Engineering (ANIDIS 2017) held in Pistoia, IT on 17-21/09/2017, F. Umbertini, N. Cavalagli and A. Kita (UniPG, IT) published two papers entitled “*Far-field earthquake-induced damage detection in a monumental bell-tower after Central Italy seismic sequence (2016) through vibration-based SHM*” and “*The role of dynamic monitoring for seismic assessment of monumental heritage buildings: an application to Palazzo dei Consoli in Gubbio*”
- In the frame of the Conference “Natural stone for cultural heritage: local resources with a global impact” held in Prague, CZ on 19-22/09/2017, I. Grammatikakis, K. Demadis, E. Armakola and K. Papathanasiou (UoC, EL) presented a paper entitled “*The application of drilling resistance measuring system (DRMS) for the evaluation of consolidation efficacy on sulfate stones: the case of mineral gypsum from the Minoan Palace of Knossos*”
- In the frame of the 2nd SmartBlueCity Euro-Mediterranean Conference held in Heraklion, EL on 28-29/09/2017, G. Alexandrakis, N. Rempis and N. Kampanis (Forth, EL) presented a paper entitled “*The role of Maintenance of Cultural Heritages Sites in Urban Regeneration*”
- HERACLES has been presented during the European Researchers Night 2017 in two different places : Heraklion, EL (by Forth) and Lisbon, PT (by Uninova)
- In the frame of the “Restoration and conservation of coastal and submerged heritage using solutions based on nanotechnologies” workshop held in Brussels, BE on 24/10/2017, coordinator G. Padeletti (CNR, IT) presented the project.

FUTURE EVENTS

1. HERACLES VIRTUAL COURSES

The fourth Virtual Course will be held around december. It'll be entitled “Socioeconomic factors in risk analysis” and will be given by UNINOVA.

Information about the date and the procedure to follow the course will be provided on the HERACLES website. As a reminder, no registration is required.